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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 108

NO 1 THRU 8

JAN-FEB-1904

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME CVIII.

JANUARY 5 TO FEBRUARY 23, INCLUSIVE,

1904.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1904.

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INDEX OF PATENTS AND PATENTEES FOR THE BIMONTHLY YEAR, JANUARY AND FEBRUARY, 1904.

ERRATA.

748,938, page 170, in heading, after residence of patentee, insert *Stella D. Fairchild administratrix of said Nelson D. Fairchild, deceased.*

749,447, page 437, in heading, assignment, name of first-mentioned assignee, for "Louise J. Larne" read *Louise J. Larue.*

749,974, page 676, in heading, date of application filed, for "December 13, 1900," read *December 21, 1900.*

750,704, page 987, first claim, line 6; second claim, lines 3 and 16; third claim, line 1, and page 988, eighth claim, line 1, for the word "switchboard" read *switch-cord.*

750,752, page 1019, third claim, line 5, strike out the clause "means in said conduit for" and insert before the word "controlling," line 6, same claim.

750,791, page 1061, sixty-fourth claim, line 3, for the word "devices" read *drawers.*

751,236, page 1240, in heading, date of application filed, for "July 18, 1902." read *July 8, 1902.*

751,707, page 1438, in heading, after residence of patentee, insert *assignor to the Pressed Metal Manufacturing Company, a Corporation of New Jersey.*

752,238, page 1686, seventh claim, line 1, strike out the compound word "non-rotatable" before the word "spinning-frame" and insert before the word "spinning-ring," same line.

752,357, pages 1736-7, in line 3 of each claim, for "direct-current paths" read *direct current-paths.*

753,039, page 2057, second claim, line 8, for the word "switches" read *stitches.*

36,783, (design,) page 1576, strike out all after number—heading, drawing, and claim—and insert WITHDRAWN.

36,799, (design,) page 1859, strike out all after number—heading, drawing, and claim—and insert WITHDRAWN.

36,810, (design,) page 1861, strike out all after number—heading, drawing, and claim—and insert WITHDRAWN.

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY—FEBRUARY, 1904.

Patents Nos. 748,567 to 749,141.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 108—No. 1. TUESDAY, JANUARY 5, 1904. PRICE—$5 per year.

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Reissues	1	No. 12,189.
Total issue	654	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	....	Nevada	....	....
Alaska Territory	....	....	New Hampshire	2	....
Arizona Territory	....	....	New Jersey	18	4
Arkansas	1	1	New Mexico Ter'ty	....	....
California	25	1	New York	91	21
Colorado	9	....	North Carolina	1	....
Connecticut	13	1	North Dakota	1	....
Delaware	1	1	Ohio	33	3
District of Columbia	4	....	Oklahoma Territ'y	3	....
Florida	....	....	Oregon	3	....
Georgia	....	....	Pennsylvania	56	6
Hawaii Territory	....	....	Porto Rico	1	....
Idaho	....	....	Rhode Island	13	....
Illinois	52	3	South Carolina	2	....
Indian Territory	1	....	South Dakota	5	....
Indiana	14	....	Tennessee	4	1
Iowa	13	1	Texas	7	1
Kansas	11	....	Utah	....	....
Kentucky	4	....	Vermont	2	....
Louisiana	4	3	Virginia	7	....
Maine	4	1	Washington	6	....
Maryland	6	2	West Virginia	4	....
Massachusetts	32	6	Wisconsin	8	1
Michigan	18	2	Wyoming	....	....
Minnesota	13	6	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	9	2			
Montana	1	....	Total to citizens of the United States	508	67
Nebraska	2	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Australia	3	....	Netherlands	....	....
Austria-Hungary	1	....	Newfoundland	....	....
Belgium	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
British West Indies	....	....	Norway	....	....
Canada	11	....	Portugal	....	....
Cape Colony	....	....	Queensland	....	....
Chile	....	....	Roumania	....	....
China	....	....	Russia	1	....
Costa Rica	....	....	Scotland	4	....
Cuba	....	....	South Africa	....	....
Denmark	1	....	South Australia	....	....
Egypt	....	....	Spain	1	....
England	16	1	Sweden	....	....
France	14	1	Switzerland	1	....
Germany	20	2	Transvaal, South Africa	....	....
Honduras	....	....	Victoria	....	....
India	1	....	Western Australia	....	....
Ireland	....	....			
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Mexico	....	....			

Notice of Interference.

CARUNCHO *v.* CARUNCHO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 21, 1903.

Heirs, executor, or administrator of Eugen Caruncho, deceased, take notice:

Notice is hereby given that times have been set as follows for taking testimony in this interference and for its final hearing, to wit:

A. Caruncho's testimony-in-chief to close March 9, 1904. E. Caruncho's testimony to close April 9, 1904. A. Caruncho's rebuttal testimony to close May 9, 1904. Final hearing June 9, 1904.

Notice is further given that A. Caruncho has applied for a commission to take testimony abroad, as provided by Rule 158.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

December 22, 1903.

F. I. ALLEN,
Commissioner.

Access to Pending Applications.

Hereafter no person except the applicant, the assignee whose assignment is of record, or the attorney of record will be permitted to have access to the file of any application, except as provided for under the interference rules, unless written authority from the applicant, assignee, or attorney, identifying the application to be inspected, is filed in the case to become a part of the record thereof, or upon the written order of the Commissioner, which will also become a part of the record of the case.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 29, 1903.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 9	Dec. 8	198
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 9	Dec. 2	143
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Dec. 2	Dec. 14	108
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Dec. 1	Dec. 12	208
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 1	Dec. 9	171
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Nov. 30	Dec. 15	175
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Nov. 30	Dec. 15	292
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Nov. 30	Dec. 15	173
244	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Nov. 30	Dec. 14	241
182	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Nov. 30	Dec. 9	242
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Nov. 30	Dec. 8	220
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Nov. 30	Dec. 8	145
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Nov. 30	Dec. 5	264
332	X. Carriages and Wagons	Nov. 30	Dec. 2	209
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Nov. 30	Nov. 30	329
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 30	Nov. 30	209
503	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Nov. 30	Nov. 27	263
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Nov. 30	Nov. 20	312
282	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Nov. 30	Nov. 16	362
138	XXII. Fire-Arms, Ordnance, Navigation.	Nov. 30	Nov. 10	198
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Nov. 30	Oct. 21	410
109	XVI. Telegraphy and Telephony	Nov. 30	Oct. 16	251
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Nov. 29	Dec. 3	308
	Between one and two months.			
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Nov. 28	Dec. 3	311
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Nov. 27	Dec. 9	287
327	XVIII. Steam-Engineering, etc	Nov. 27	Dec. 3	186
	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Nov. 27	Nov. 27	263

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Nov. 27	Nov. 5	492
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Nov. 24	Dec. 11	296
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 24	Dec. 5	333
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Nov. 23	Nov. 21	271
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Nov. 23	Oct. 20	413
128	II. Farm Products, etc., Lubricators, Presses, etc.	Nov. 21	Nov. 9	360
321	I. Tillage, etc., and Fences	Nov. 20	Dec. 5	192
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Nov. 17	Dec. 3	411
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Nov. 16	Nov. 30	361
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Nov. 16	Nov. 5	283
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 11	Oct. 22	458

Total number of applications awaiting action.....10,423

Under one month.			
*Designs	Dec. 21	Dec. 29	22
†Trade-Marks	Dec. 14	Dec. 29	57
‡Labels and Prints	Dec. 26	Dec. 29	5

Classification Bulletin.

CLASSIFICATION BULLETIN No. 13, containing the revisions made during the months of October, November, and December, 1903, has been issued. Price, ten cents.

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

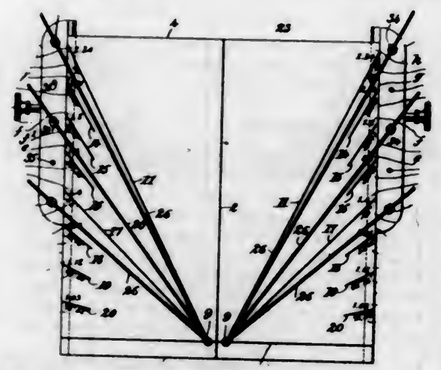
The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; from July 1, 1883, to December 31, 1902, in quarterly volumes; since January 1, 1903, in bimonthly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage. *Payment in advance required. No club rates. No discount to newsdealers. No sample copies.* All subscriptions must commence with the beginning of a volume. None taken for less than an entire volume. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

PATENTS

GRANTED JANUARY 5, 1904.

748,567. DISTANCE OR RANGE FINDING INSTRUMENT. THOMAS ADAMSON, New York, N. Y. Filed Apr. 8, 1903. Serial No. 151,571. (No model.)



Claim.—1. A distance-finding instrument for marine vessels, comprising practically a parallelogrammic chart having thereon a diagonal line and an abreast line, said lines and an edge of the chart forming a right-angled triangle, the chart also having thereon other diagonal lines extending inwardly from said edge intermediate said first-mentioned diagonal line and the abreast line, each of the diagonal lines referred to having alongside thereof a numerical designation of the bearing of the vessel, on that line, and also having a similar designation of the angular relation of said line to a distant object and the abreast line, the surface of said chart, at the inner side of the first-mentioned diagonal line, being plain or devoid of lines.

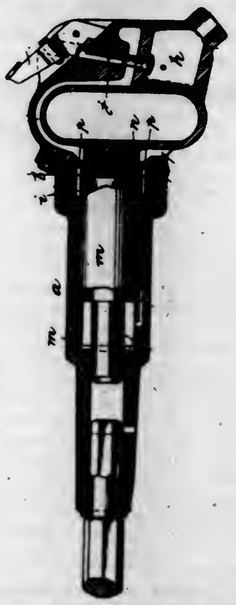
2. A distance-finding instrument for marine vessels, comprising practically a parallelogrammic chart having thereon a diagonal line and an abreast line, said lines and an edge of the chart forming a right-angled triangle, the chart also having thereon other diagonal lines extending inwardly from said edge intermediate said first-mentioned diagonal line and the abreast line, each of the diagonal lines referred to having alongside thereof a numerical designation of the bearing of the vessel, on that line, and also having a similar designation of the angular relation of said line to a distant object and the abreast line, and said chart being further provided with a series of pivoted rods radiating substantially from the point of intersection of the abreast line with the said first-mentioned diagonal line, the surface of said chart, at the inner side of the first-mentioned diagonal line, being plain or devoid of lines.

3. A distance-finding instrument for marine vessels, comprising practically a parallelogrammic chart having thereon a diagonal line and an abreast line, said lines and an edge of the chart forming a right-angled triangle, the chart also having thereon other diagonal lines extending inwardly from said edge intermediate said first-mentioned diagonal line and the abreast line, each of the lines referred to having alongside thereof a numerical designation of the bearing of the vessel, on that line, and also having a similar designation of the angular relation of said line to a distant object and the abreast line, and said chart being further provided with a series of pivoted rods radiating substantially from the point of intersection of the abreast line with the said first-mentioned diagonal line, combined with means for simultaneously moving said rods, and means for securing them in different positions.

4. A distance-finding instrument for marine vessels, comprising practically a parallelogrammic chart having two of the most distant angles thereof intersected by a diagonal line, and provided with an abreast line, and also having other diagonal lines intermediate the first and said abreast line, each of said diagonal lines having alongside thereof a numerical designation of the bearing of the vessel, on that line, and also having a similar designation of the angular relation of said line to a distant object and the abreast line, and said chart being further provided with a series of pivoted rods radiating substantially from the same center as said diagonal lines, and adapted to be moved to different positions on the surface of the chart, and a slidable adjustable block with which the rods have movable connection.

5. A distance-finding instrument for marine vessels, comprising practically a parallelogrammic chart having two of the most distant angles thereof intersected by a diagonal line, and provided with an abreast line, and also having other diagonal lines intermediate the first and said abreast line, each of said diagonal lines having alongside thereof a numerical designation of the bearing of the vessel, on that line, and also having a similar designation of the angular relation of said line to a distant object and the abreast line, and said chart being further provided with a series of pivoted rods radiating substantially from the same center as said diagonal lines, and adapted to be moved to different positions on the surface of the chart, and a slidable adjustable block with which the free ends of the rods have movable connections, said block having on the upper surface thereof projections which are intermediate the rods.

748,568. PNEUMATIC TOOL. ROBERT I. AMBROSE, Tarrytown, N. Y., assignor to Rand Drill Company, New York, N. Y., a Corporation of New York. Filed Mar. 22, 1901. Serial No. 52,280. (No model.)



Claim.—1. In a pneumatic hand-tool, the combination with a barrel and a handle, separably connected by screw-threads, of a taper key mounted in a transverse way in a portion rigid with one of

said members, and in frictional contact with a portion rigid with the other of said members, and provided with means for locking it in position.

2. In a pneumatic hand-tool, the combination with a barrel and a handle, separably connected by screw-threads, of a taper key mounted in a transverse way in a portion rigid with one of said members, and in frictional contact with a portion rigid with the other of said members, and provided with means for locking it in position, the taper of said key being in such direction of rotation of that member with which it is in frictional contact as is required to unscrew that member from the other.

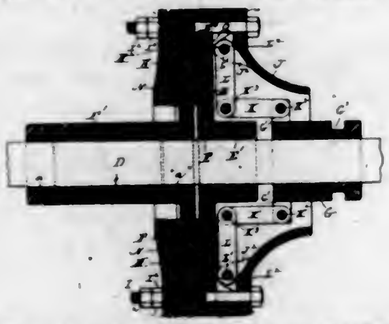
3. In a pneumatic tool, the combination with a barrel and a handle, separably connected by screw-threads, of a locking means in frictional engagement therewith, said frictional engagement tending to increase upon a movement of the members to unscrew, and to decrease upon a movement of the members to screw up.

4. In a pneumatic hand-tool, the combination with a barrel and a handle, separably connected by screw-threads, of a disk secured to the barrel but interposed between the barrel and the handle, and a taper key mounted in a transverse way in the handle, in frictional contact with said disk, and provided with means whereby it may be locked in position.

5. In a pneumatic hand-tool, the combination with a barrel and a handle, separably connected by screw-threads, of a disk secured to the barrel but interposed between the barrel and the handle, and having slots adapted to register with the ports of the handle and barrel, and a taper key mounted in a transverse way in the handle, and in frictional contact with said disk, and provided with means whereby it may be locked in position.

6. The combination with a pneumatic hand-tool having a barrel or cylinder adapted to receive free tools, and having also a piston adapted to drive such tools, of a plurality of tools therefor having shanks of different lengths, whereby by substituting a tool having one length of shank for a tool having a different length of shank, the hand-tool may be adapted for working upon different materials.

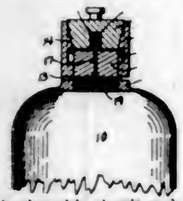
748,569. FRICTION-CLUTCH. AXEL R. ANDERSON, Worcester Mass. Filed July 7, 1902. Serial No. 114,539. (No model.)



Claim.—In a friction-clutch, the combination of shaft D, fixed wheel E and loose wheel F, both mounted thereon, springs O, interposed between said fixed wheel E and ring H, said ring H, fitted against the outside of the loose wheel over the hub thereof, ring or hood J arranged at the opposite side of the clutch outside of the fixed wheel E, over its hub and part of the shipper-hub, longitudinal holding-bolts I passed transversely through the outer edges of said wheel E, ring H, and ring or hood J, the holding-nuts thereof, longitudinal links K pivoted at their outer ends to shipper-hub G, and at their inner ends to the inner ends of transverse links L, said links L, pivoted at their outer ends to suitable lugs on the inner surface of ring or hood J near the outer edge thereof, said links L being each provided with a cam projection L^3 at its outer end on the side next to fixed wheel E and adapted to bear against the side thereof, so that when the shipper is moved in the direction from the clutch, the tight and loose wheels will be clamped in tight contact through the connecting-rods L, substantially as and for the purpose set forth.

748,570. BOTTLE. JOHN AULD, Hamden, N. Y. Filed May 11 1903. Serial No. 156,586. (No model.)

Claim.—1. The combination with a bottle and the neck thereof, of a stopper comprising separate members for successive engagement in the neck of the bottle, means for locking the lower member in the bottle-neck, and means for locking the upper member to the lower member.



2. The combination with a bottle-neck, of a stopper comprising upper and lower sections, means for locking the lower section in the bottle-neck, and an axial pin projecting from the upper end of the lower member and having an enlarged upper portion, the upper member having an axial recess to receive said pin.

748,571. ELECTRIC SOLDERING-IRON. JAMES I. AYER, Cambridgeport, Mass., assignor to Simplex Electric Heating Company, Boston, Mass., a Corporation of Massachusetts. Filed Nov. 13, 1902. Serial No. 131,106. (No model.)



Claim.—1. An electric soldering device, comprising a holder provided with heating mechanism, said holder having at its outer end a socket with closed bottom, a tip having a sliding fit in said socket and adapted to contact with the entire length of the socket, said socket contacting with the entire periphery of said tip throughout the length of the socket, and clamping means operating over the length of said socket for holding the walls of the socket under pressure against the tip throughout the aforesaid entire contacting area.

2. An electric soldering device, comprising a holder including a core, a tip, external engaging means constituting a socket bearing on the sides of said tip, and a compression-clamp for retaining said engaging means and tip in contact, said core and said external means being integral with each other, and said tip contacting with said engaging means throughout the entire length of said socket.

3. An electric soldering device, comprising a holder provided with heating mechanism, said holder being provided with a socket at its outer end having a closed bottom, a tip having a sliding fit in said socket and adapted to contact with the entire length of the socket, and fastening means for pressing the walls of said socket against the tip on all sides of the latter.

4. An electric soldering device, comprising a holder including a core, a tip, external engaging means for bearing on the sides of said tip, and a clamp for retaining said engaging means and tip in contact, said core and said external engaging means being integral with each other and formed of highly-conductive material for transmitting a maximum amount of heat directly to said tip.

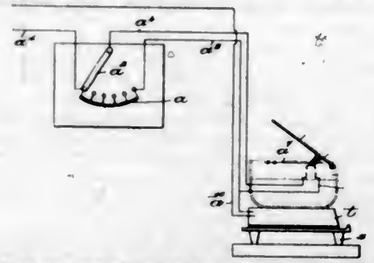
5. An electric soldering device, comprising a holder including a core, a tip, engaging means for contacting with said tip over a considerable area thereof, said core and engaging means being integral and composed of material capable of free transmission of heat, and a clamping device for holding said tip and engaging means in contact, said clamping device being composed of material incapable of free-heat transmission.

748,572. APPARATUS FOR CONTROLLING CURRENT-SUPPLY TO ELECTRICALLY-HEATED TOOLS. JAMES I. AYER, Cambridge, Mass., assignor to Simplex Electric Heating Company, Boston, Mass., a Corporation of Massachusetts. Filed June 1, 1903. Serial No. 159,411. (No model.)

Claim.—1. In an apparatus of the kind described, a portable translating device, and a stationary resistance on the wall or elsewhere always remote from said translating device, electric circuits for supplying full current directly to said translating device, or reduced current thereto through said resistance, and means operating in connection with said translating device for introducing said resistance into circuit with said translating device when the latter is not in use and cutting said resistance out of circuit therewith when said translating device is in use.

2. In an apparatus of the kind described, a portable translating device, and a stationary resistance on the wall or elsewhere always remote from said translating device, electric circuits for supplying

full current directly to said translating device, or reduced current thereto through said resistance, and automatic means operating in connection with said translating device for introducing said resistance into circuit with said translating device when the latter is not in use and cutting said resistance out of circuit therewith when said translating device is in use.



3. In an apparatus of the kind described, a portable translating device, a resistance, circuits therefor, means for introducing said resistance into circuit with said translating device when the latter is in a predetermined normal position out of use, means for cutting said resistance out of circuit therewith when said translating device is in use, and means for automatically cutting out the current from said translating device when the latter is left out of use and out of said normal position.

4. In an apparatus of the kind described, a portable translating device, a resistance, circuits therefor, means for introducing said resistance into circuit with said translating device when the latter is in a predetermined normal position out of use, means for cutting said resistance out of circuit therewith when said translating device is in use, means for automatically cutting out the current from said translating device when the latter is left out of use and out of said normal position, and means for automatically restoring said translating device into circuit with said resistance upon being placed in said normal position.

5. In an apparatus of the kind described, a portable translating device, a resistance, circuits therefor, means for introducing said resistance into circuit with said translating device when the latter is in a predetermined normal position out of use, means for cutting said resistance out of circuit therewith when said translating device is in use, means for automatically cutting out the current from said translating device when the latter is left out of use and out of said normal position, and means for restoring at will said translating device into circuit with said resistance.

6. In an apparatus of the kind described, a source of current-supply, a translating device, a resistance, circuits therefor, a main switch for controlling the supply of current to said circuits, means operated by current in the latter for actuating said switch, and means operating in connection with said translating device for governing the current in said circuits.

7. In an apparatus of the kind described, a source of current-supply, a translating device, a resistance, circuits therefor, a main switch for controlling the supply of current to said circuits, means operated by current in the latter for actuating said switch, and a translating-device switch for operating said actuating means.

8. In an apparatus of the kind described, a source of current-supply, a translating device, a resistance, circuits therefor, a main switch for controlling the supply of current to said circuits, means operated by current in the latter for actuating said switch, a translating-device switch for operating said actuating means, and a switch operated by said translating device for cutting said resistance into or out of circuit therewith according to the position of the translating device.

9. In an apparatus of the kind described, a source of current-supply, a translating device, a resistance, circuits therefor, and an automatic switch for cutting said resistance into circuit with said translating device when out of use, and out of circuit with said translating device when the latter is out of use, and means for operating said switch arranged to be automatically operated by the placing in or out of use of said translating device.

10. In an apparatus of the kind described, a source of current-supply, a portable translating device, a sectional resistance on the wall or elsewhere always remote from said translating device, circuits therefor, means operating in connection with said translating device for introducing said translating device into series with the resistance-circuit when said translating device is out of use and for cutting out said resistance-circuit when the translating device is in use, and manually-controlled means for placing a portion of said resistance when desired in series with said translating device when in use.

11. In an apparatus of the kind described, a portable translating device, a supply-circuit for heating the same, a resistance on the wall or elsewhere always remote from said translating device, and automatic means for cutting said resistance into and out of series with said circuit, said automatic means being carried by said translating device and operating to cut said resistance out of said circuit when said translating device is in use, and to place said resistance in said circuit when said translating device is out of use.

12. In an apparatus of the kind described, a portable translating device, a supply-circuit for heating the same, a stand for said translating device, a resistance remote from said stand and translating device, an automatic switch connected with said stand and operated by the placing thereon or removal therefrom of said translating device, said stand-switch operating to cut said resistance into series with said heating-circuit when the translating device is out of use and out of circuit therewith when in use.

13. In an apparatus of the kind described, a portable translating device, a supply-circuit for heating the same, an automatic switch carried by said translating device, a stand for the latter, a resistance, an automatic switch connected with said stand and operated by the placing thereon or removal therefrom of said translating device, said stand-switch operating to cut said resistance into series with said heating-circuit when the translating device is out of use and out of circuit therewith when in use, and said translating-device switch controlling the current-supply in said heating-circuit.

14. In an apparatus of the kind described, a portable translating device, a supply-circuit for heating the same, an automatic switch carried by said translating device, a stand for the latter, a resistance, an automatic switch connected with said stand and operated by the placing thereon or removal therefrom of said translating device, said stand-switch operating to cut said resistance into series with said heating-circuit when the translating device is out of use and out of circuit therewith when in use, said translating-device switch tending normally to cut out the heating-current, and said stand being provided with means for preventing the same.

15. In an apparatus of the kind described, a portable translating device, a supply-circuit for heating the same, a main switch in said circuit, a circuit-breaker for operating said switch, a resistance, connections from said resistance to said heating-circuit, a switch carried by said translating device for operating said circuit-breaker, a stand for said translating device and means connected with said stand and operated by the placing thereon or removal therefrom of said translating-device for cutting said resistance into or out of series with said translating device.

16. In an apparatus of the kind described, a portable translating device, a heating-circuit therefor, a main switch in said heating-circuit, an electromagnet operated by current from said circuit, a resistance, a stand for said translating device, an automatic switch connected with said stand and operated by the placing on said stand of said translating device, connections from said automatic switch for placing said resistance in series with said heating-circuit when said translating device is on the stand, and for cutting out said resistance when the translating device is removed from said stand, and means operating in connection with said translating device for controlling the current to said magnet for operating said main switch.

17. In an apparatus of the kind described, a portable translating device, a heating-circuit therefor, a main switch in said circuit, an electromagnet for operating said main switch, a shunt-circuit across said switch for energizing said magnet and an automatic switch operating in connection with said translating device for controlling the current-supply in said shunt-circuit.

18. In an apparatus of the kind described, a portable translating device, a heating-circuit therefor, a main switch in said circuit, an electromagnet for operating said main switch, a shunt-circuit across said switch for energizing said magnet, an automatic switch operating in connection with said translating device for controlling the current-supply in said shunt-circuit, a resistance adapted to be placed in or out of series with said heating-circuit as desired, an automatic means operating in connection with said translating device for rendering said resistance operative when the translating device is out of use, and inoperative when the translating device is in use.

19. In an apparatus of the kind described, a portable translating device, a main-line circuit for supplying current thereto, a stationary current-control device in said circuit, and means for automatically operating said current-control device, the operation of said means depending upon the position of said translating device.

20. In an apparatus of the kind described, a portable translating

device, a main-line circuit for supplying current thereto, a stationary circuit-breaker in said circuit, and automatic means carried by said translating device for automatically operating said circuit-breaker irrespective of the location of the translating device.

748,573. **ELECTRICALLY-HEATED TOOL.** JAMES I. AYER, Cambridge, Mass., assignor to Simplex Electric Heating Company, Boston, Mass., a Corporation of Massachusetts. Filed June 15, 1903. Serial No. 161,436. (No model.)



Claim.—1. An electrically-heated tool, provided with a variable resistance, comprising two parts, a switch, and connections from said resistance to the source of current-supply and to said switch, and means automatically actuated by the placing of the tool in use, for operating said switch, said two parts being thrown thereby in multiple, and being at other times in series.

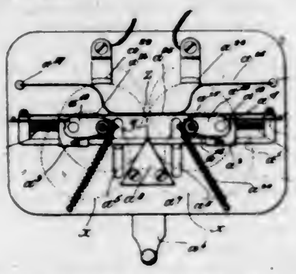
2. An electrically-heated tool, containing a variable resistance comprising two parts, an automatic handle-switch, and circuit connections controlled thereby for enabling said two parts to be placed in multiple and in series for maximum and minimum heating efficiency respectively.

3. An electrically-heated tool, containing a variable resistance comprising two parts, means including a switch and circuit connections enabling said two parts to be placed in multiple and in series for maximum and minimum heating efficiency respectively, and means for operating said switch automatically, upon the placing of the tool out of use, for placing said two parts in series.

4. In an electrically-operated tool, a variable resistance comprising two parts, a switch comprising two swinging contacts, and connections from said resistance to said contacts permitting the placing of said two parts in series or in multiple according to the position of said swinging contacts, and means operated automatically by the placing of said tool in use for swinging said contacts to place said two parts in multiple.

5. In an electrically-operated tool, a variable resistance comprising two parts, a switch comprising two swinging contacts, and connections from said resistance to said contacts, permitting the placing of said two parts in series or in multiple, according to the position of said swinging contacts, and means operated automatically by the placing of said tool out of use for swinging said contacts to place said two parts in series.

748,574. **APPARATUS FOR PRODUCING ELECTRIC ARCS FOR HEATING AND LIGHTING PURPOSES.** JAMES I. AYER, Cambridge, Mass., assignor to Simplex Electric Heating Company, Boston, Mass., a Corporation of Massachusetts. Filed June 22, 1903. Serial No. 162,619. (No model.)



Claim.—1. In an apparatus of the kind described, a rotary electrode, a surface against which it may bear, a support for said electrode, means for rolling said electrode along said surface, and means permitting the electrode to roll along said surface in moving in one direction and for preventing said turning in moving in an opposite direction.

2. In an apparatus of the kind described, opposite electrodes for producing an arc, carrying means manually operated for moving said electrodes bodily up and down, and means cooperating with one of said movements for automatically separating said electrodes and permanently breaking the circuit.

3. In an apparatus of the kind described, opposite electrodes for producing an arc, means holding said electrodes normally separated, carrying means for moving said electrodes bodily up and down, means cooperating therewith for permitting said electrodes to come together, and means for thereafter moving said electrodes apart to form an arc.

4. In an apparatus of the kind described, opposite electrodes normally separated and out of circuit, carrying means for moving said electrodes bodily up and down, and means cooperating therewith for automatically separating said electrodes to form an arc.

5. In an apparatus of the kind described, opposite electrodes for producing an arc, carrying means for moving said electrodes bodily up and down, means cooperating therewith for automatically separating said electrodes to form an arc, and automatic means normally tending to move said electrodes into position for permanently breaking said arc and cutting out the current therefrom.

6. In an apparatus of the kind described, opposite electrodes, one of said electrodes having yielding means, normally pressing the same toward the other electrode, and mechanical means for automatically moving said electrode away from said position.

7. In an apparatus of the kind described, opposite electrodes, one of said electrodes having yielding means, normally pressing the same toward the other electrode, separating means for thereafter moving said electrode to arc-forming position, and means for holding said electrode against the action of the pressing means while being acted upon by said separating means.

8. In an apparatus of the kind described, an electrode, a manual lifting device therefor, a swinging arm on said lifting device, said electrode being carried at the free end of said arm, means for stopping the lifting movement of said device, and means for thereafter swinging said arm and electrode.

9. In an apparatus of the kind described, opposite electrodes, a manually-movable support for bodily lifting them, means cooperating therewith for normally moving them toward each other, and means for moving them into arc-forming position after they have come into circuit-closing position.

10. In an apparatus of the kind described, a pair of electrodes, manual means for moving them bodily upward, means cooperating therewith for permitting them to come into circuit-closing position, and means for thereafter separating them to form an arc.

11. In an apparatus of the kind described, a rotary electrode, a surface against which it rolls, a spring normally holding said electrode against said surface, means for bodily moving said electrode on said surface, and a cooperating electrode.

12. In an apparatus of the kind described, opposite electrodes, means for moving them up and down, means normally holding them yieldingly toward each other, and a wedge-shaped insulating-block in the path of said electrodes for automatically separating them.

13. In an apparatus of the kind described, a frame, opposite electrodes longitudinally movable on said frame, means for raising and lowering said frame, and means including a wedge-shaped device for mechanically separating said electrodes.

14. In an apparatus of the kind described, a pair of electrodes, manual means including a wedge-shaped device for bodily moving said electrodes to inoperative position, means cooperating with the aforesaid mechanism for moving said electrodes into circuit-closing position upon movement from said wedge-shaped device, and means for thereafter moving said electrodes into arc-forming position.

15. In an apparatus of the kind described, a frame, journal-blocks movable thereon, cranks journaled therein, electrodes swinging on the free ends of said cranks, means normally moving said blocks toward each other, means automatically holding said blocks when moved to a predetermined position, and means for thereafter swinging said cranks and electrodes.

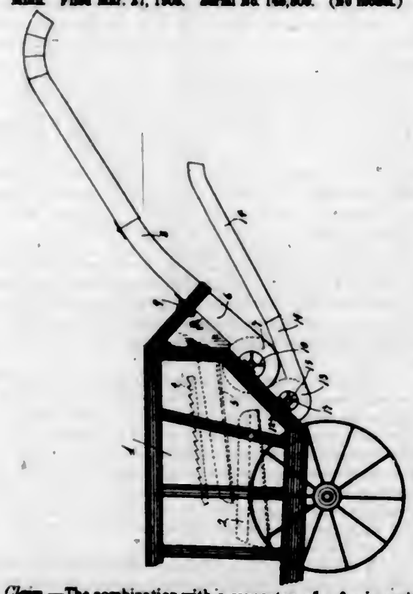
16. In an apparatus of the kind described, a frame, a journal-block, a crank journaled therein, an electrode swinging with said crank, means for moving said block on said frame, holding means for restraining said block against movement, and means for automatically swinging said crank.

17. In an apparatus of the kind described, a frame, a journal-block, a crank journaled therein, an electrode swinging with said crank, means for moving said block on said frame, holding means for restraining said block against movement, and means for automatically swinging said crank into one position, means for swinging said crank and electrode back again, and automatic mechanism for turning said electrode as it swings back.

18. In an apparatus of the kind described, opposite electrodes manually controlled, means for moving them toward each other, and

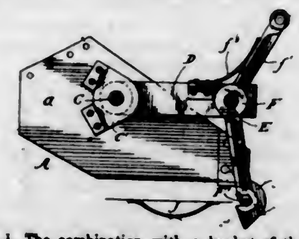
mechanical means for swinging them apart, a frame carrying the aforesaid apparatus, and a supporting plate or standard over which said frame is movable.

748,575. **PNEUMATIC STACKER.** ELLING O. BERG, Madison, Minn. Filed Mar. 27, 1903. Serial No. 149,209. (No model.)



Claim.—The combination with a separator, of a fan in position to receive the straw, and provided with a discharging-stack, the trough extending transversely of the machine, in position to receive the chaff, a fan-case receiving from one end of said trough, a feed-worm working in said trough, and a fan-head secured on the shaft of said feed-worm and working in said fan-case, the said fan-case having a delivery-stack, which is independent of the before-noted stack, substantially as described.

748,576. **PIVOTED-BUCKET CONVEYER.** ROBERT BIVERT, Chicago, Ill., assignor to Fairbanks, Morse and Company, Chicago, Ill., a Corporation of Illinois. Filed July 30, 1902. Serial No. 117,471. (No model.)



Claim.—1. The combination with a bucket of the class described, of a bail in the ends of which the bucket is pivoted, track-wheels on each side of the bail on all of which said bucket is carried in horizontal position when loading and on two of which the bucket is carried in vertical position approaching the dumping position and a latch adapted when released to permit the bucket to swing to a dumping position.

2. A bucket of the class described comprising a bottom and side walls, one of which is elongated, oppositely-extending trunnions having their axis located near the center of gravity, a bail in the ends of which said trunnions engage, a latch carried on said bail and adapted to engage a part on said extended wall of the bucket and to hold the bucket rigidly with respect to the bail, track-wheels on said trunnions and on said bail acting to support said buckets in a horizontal position in loading and from two of which the bucket depends when unloading.

3. A bucket of the class described comprising a bottom and extended side walls, a bail pivoted on the bucket on each side thereof near its normal center of gravity, front and rear track-wheels on each side of said bail on all of which said bucket is carried when in loading position and on the front pair of which the bucket depends in unloading position, means for locking said bucket from movement on the bail whereby when said lock mechanism is released said bucket swings on the bail.

4. A conveyer-bucket pivoted upon a bail, track-wheels journaled on each side of the bucket adjacent to said pivot for the bail, other track-wheels carried on the bail, a latch also pivoted on the bail and acting to rigidly engage the bucket to the bail, a horizontal track to support the bucket on all of the track-wheels when in loading position and a corresponding track adapted to support the bucket on the track-wheels on the bail when moving to unloading position and means for releasing the latch to permit the bucket to dump.

5. A pivoted-bucket conveyer comprising a plurality of scoop-shaped buckets, a bail pivotally secured at its ends upon each bucket with the pivot axis above the center of gravity of said bucket when empty, a track-wheel on each side of the bucket engaged on the pivot for the bail, corresponding track-wheels carried on the bail in advance of the first-named track-wheels, chains connecting said buckets along the top of the bail and acting to move said buckets simultaneously, a latch acting to rigidly engage each to its bail, a track adapted to support the buckets on all of their track-wheels when loading, and a track located above the same and on which the buckets hang on the track-wheels carried on the bail when unloading and a tripping device acting to release the latch.

6. A pivoted-bucket conveyer comprising a plurality of scoop-shaped buckets, a truck for each comprising a bail and laterally-disposed forward and rear track-wheels one pair of which is carried on the bail, conveyer-chains engaging the bails, a trough below the buckets, a lip on the front end of the bucket adapted to scrape along the bottom of the trough, and upwardly-extended flanges on each side of the bucket adapted to direct material falling thereon rearwardly into the next succeeding bucket.

7. The combination with a track having one upwardly-curved end, of a trough located below the same and correspondingly curved, a series of chain-connected scoop-shaped buckets, a downwardly-projecting lip at the front end of each adapted to scrape along the bottom of the trough and to direct material therefrom into the bucket, a truck acting to support each bucket comprising a bail pivoted on the bucket and a plurality of track-wheels journaled along each side of the bail all of which support the bucket in filling position and one pair of which support the bucket in dumping position.

8. The combination with a lower conveyer-track having an upcurved end, of a similarly-curved trough located beneath the same, a plurality of chain-connected trucks movable along said track and each comprising a bail, having a plurality of track-wheels along each side thereof, a scoop-shaped bucket pivoted on the rear end of each bail and movable along said trough, a latch engaging said bucket rigidly on the bail, an upper track from which said buckets depend vertically and a tripping device in position to release the latch and to permit the bucket to be dumped.

9. In a conveyer the combination with an upper track, of a lower track having the front end curved upwardly, guide-rails curved concentrically therewith and located within the curved ends of the track-rail, a trough below the lower track and also curving upwardly, a feeding device located above the trough, scoop-shaped, chain-connected buckets provided on their front ends with a downturned flange acting to scrape along the bottom of the trough and bail-trucks on the rear ends of which the buckets are pivoted, sprocket-wheels over which the chains are trained and acting to elevate the buckets and to move the same along the upper track to dumping position and means for dumping the bucket.

10. A bail-truck for the purposes specified comprising a U-shaped metal frame and apertured at its ends to receive trunnions extending through said apertures, track-wheels journaled on said trunnions, stud-shafts projecting laterally from the top of the bail, a latch journaled on each stud-shaft and adapted to engage on the front of the bucket carried below said truck, and track-wheels also on said stud-shaft, said bail-truck acting to support the bucket in horizontal position in filling and to swing the same in vertical position from the foremost track-wheels in dumping, and means for releasing the latch.

11. In a device of the class described the combination with a scoop-shaped bucket, of a bail in the ends of which the bucket is pivotally supported in position to stand vertically upright when empty, a downturned lip on the front end of the bucket, lateral projections thereon, a latch journaled at the top of the bail and adapted to engage said lateral projections, an arm extending oppositely from the

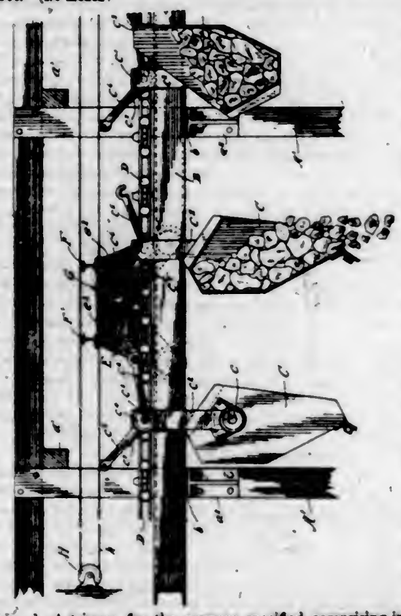
latch, a spring engaged on the bail and pressing said arm and holding the latch in engaging position, forward and rear track-wheels on each of the bail sides, chains engaged to the bail adjacent to the forward track-wheels and tracks located one above the other on the lower of which the bucket is supported in horizontal position on all of the track-wheels and on the upper of which the bucket swings on the forward of said track-wheels, and a tripping device adapted to engage said arm and lift the latch to permit the bucket to dump.

12. The combination with a scoop-shaped bucket, of a bail pivotally engaged thereon at a point which causes the bucket to tend to assume a vertically-upright position when empty, a latch on the bail acting to engage the nose of the bucket thereto, forward and rear track-wheels on each side of the bail on all of which the bucket is carried in filling position, and on the front pair of which the bucket is carried to dumping position, means for releasing the latch with the effect of causing the bucket to dump its load, then swing to a vertical position and again engage the latch.

13. The combination with a conveyer-trough having one end curved upwardly to approximately a vertical position, of chain-connected conveyer-buckets fitting closely in and movable toward said upturned end of the trough, means for delivering material from above into the buckets, upwardly-directed lateral flanges on each bucket acting to direct surplus material into the next adjacent bucket and a lip on the nose of each bucket acting to scrape material from the trough into the bucket.

14. The combination with a feeding device, of a trough located below the same and having one upturned end, a track above the trough, chain-connected scoop-shaped buckets each fitting closely in the trough and journaled on a truck movable on said track toward said upturned trough end, upwardly-projecting lateral flanges on each bucket acting to direct surplus material into the next adjacent bucket, a lip on the nose of each bucket fitting closely in the bottom of the trough and an upper track along which the buckets move to dumping position supported in a vertical position on the front wheels of the truck and means for dumping the buckets.

748,577. TRIPPER FOR BUCKET CONVEYERS, &c. EUGENE RIVERS, Chicago, Ill., assignor to Fairbanks, Morse and Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 22, 1902. Serial No. 124,306. (No model.)



Claim.—1. A tripper for the purpose specified comprising in combination a track, a truck movable on the track, a downwardly-inclined cam-surface thereon and a part carried on a bucket adapted to engage beneath the cam and dump the bucket.

2. In a device of the class described the combination with an upper and a lower track, of a conveyer movable along one track comprising a plurality of pivoted buckets, a latch on each, a truck movable on the outer track, a downwardly-curved surface on the under side of the truck in position to be engaged by and to release the latch from each bucket as the buckets pass beneath the same.

3. In a tripper, the combination with a track formed of outwardly-directed channel-bars, of a tripper comprising a truck, inwardly-directed track-wheels on each side of the truck adapted to engage in said channels and to run on the lower flange thereof, a downwardly-curved cam-track on the truck and means for moving said tripper along the track and securing the same at a predetermined point.

4. The combination with an upper and a lower track, of a conveyer movable along one of said tracks and comprising a plurality of pivoted buckets each provided with a latch adapted to support the same in carrying position, a tripper movable on the other track and comprising side members and transverse members rigidly connecting the side members, a down-curved cam-track secured below the transverse members, inwardly-directed track-wheels on the side members adapted to engage on one of said tracks and means for preventing displacement of the tripper from the track.

5. A tripper comprising integral side members, inwardly-directed track-wheels journaled on each side member and adapted to engage in outwardly-directed channel-bars and track on the lower flange thereof, transverse I-beams connecting the side members, a downwardly-curved cam-surface between said I-beams in position to be engaged by and to release a trip mechanism passing beneath the same.

6. The combination with a track comprising outwardly-directed parallel channel-bars, of a bucket conveyer adapted to move on the upper flanges of the channel-bars, a latch on each bucket holding the same in carrying position, a tripper for releasing the latch comprising a car provided with inwardly-directed track-wheels movable in the channels on the lower flanges thereof, transverse I-beams connecting the two sides of the car and a downwardly-curved bar carried below the I-beams and in position to be engaged by a part on the latch of each bucket and acting to release the latch and permit the bucket to dump.

7. A tripper for the purpose specified comprising side members an integral inwardly-directed bracket on each, transverse I-beams permanently secured on the brackets, hubs at the bottom of said side members, inwardly-directed track-wheels journaled therein and positioned to engage in outwardly-turned channel-bars forming a track, a bar connected below the I-beams and extending longitudinally of the track and affording a cam-surface adapted to be engaged by a trip mechanism movable beneath the same, a sheave at each end of the track and a line or cable passing through said sheaves and connected at its ends on opposite sides of the tripper and affording means for adjusting said tripper on the track and for securing the same in adjustment.

748,578. MECHANISM FOR PREPARING PRINTING-SURFACES. BYRON A. BROOKS, Brooklyn, N. Y. Filed Jan. 24, 1900. Serial No. 2,574. (No model.)

Claim.—1. The combination with a type-setting mechanism, of a type-casting mechanism containing a series of molds, and a common operating device for both of the mechanisms.

2. The combination of independent type-setting and type-casting mechanisms, a key-board, and means for operating the type-casting and the type-setting mechanisms from said keyboard.

3. The combination with a type-setting mechanism having type-reservoirs, and means for ejecting type therefrom, of a type-casting mechanism discharging its type into said reservoir, and a common operating means for the type casting and setting mechanisms.

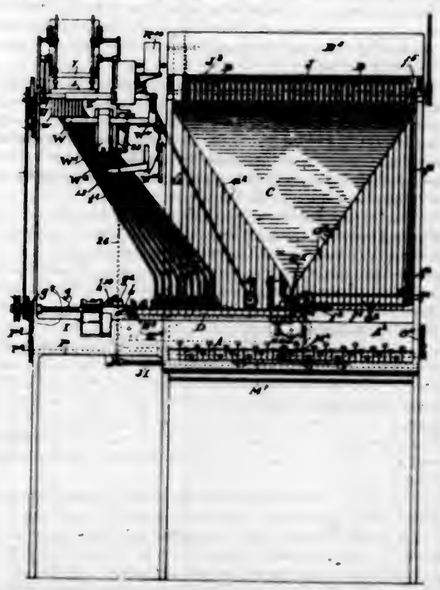
4. The combination with type-setting and type-casting mechanisms having common type-reservoirs, of means for replenishing said reservoirs by the operation of the type-setting mechanism.

5. The combination with type-setting mechanisms and type-casting mechanisms, and type-reservoirs common to both of said mechanisms, of a keyboard, and means for withdrawing type for setting from said reservoirs and means for depositing types as cast in said reservoirs by the operation of the keys of said keyboard.

6. In a type-setting machine in combination, a series of type-molds, a series of type-reservoirs corresponding thereto, individual type-setting mechanisms, and means operated by the type-setting mechanisms for actuating the corresponding type-mold and for depositing the type when cast in its reservoir.

7. The combination with type selecting and delivering mechanisms, of a type receiver or carrier having fixed partitions for the separation of the words, and means for inserting spaces therein after the words forming a line have been set.

8. The combination with type selecting and delivering mechanisms, of a type receiver or carrier having fixed partitions forming word-receiving compartments, and space casting and delivering mechanisms adapted to cast and deliver the spaces within said compartments after the line has been set.



9. The combination with type selecting and delivering mechanisms, of a type receiver or carrier provided with compartments for keeping the words separated, a series of space casting and delivering mechanisms, and means for moving the type receiver or carrier beneath the space-delivering mechanisms to receive the spaces after the line has been set.

10. The combination with type selecting and delivering mechanisms, of a type receiver or carrier provided with means for keeping the words separated, a series of space casting and delivering mechanisms, means for moving the type receiver or carrier beneath the space-delivering mechanisms to receive the spaces after the line has been set, and connections from said feeding mechanism to the space casting and delivering mechanisms to set them in action.

11. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a word-compartment type receiver or carrier, means for giving said carrier a word-length feed between words, and a line-length feed between lines, and space casting and delivering mechanisms adapted to supply the spaces for a line at one operation after its type have been placed in the carrier.

12. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a word-compartment type receiver or carrier, means for giving said carrier a word-length feed between words, and a line-length feed between lines, and means for simultaneously inserting a series of spaces in the word-compartments after they have received their type.

13. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a word-compartment type receiver or carrier, means for giving said carrier a word-length feed between words, and a line-length feed between lines, space-delivering mechanisms adapted to supply the spaces for a line at one operation after its type have been placed in the carrier, and a switch adapted to engage and remove the type from the carrier by its further advance after receiving the spaces.

14. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a word-compartment type receiver or carrier, means for giving said carrier a word-length feed between words, and a line-length feed between lines, space-delivering mechanisms adapted to supply the spaces for a line at one operation after its type have been placed in the carrier, and a guide having a switch at one end adapted to engage and remove the type from the carrier by a further advance after receiving the spaces.

15. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a word-compartment type receiver or carrier, means for giving said carrier a word-length feed between words, and a line-length feed between lines, space-delivering mechanisms adapted to supply the spaces for a line at one operation after its type have been placed in the carrier, a guide having a switch at one end adapted to engage and remove the type from the carrier by a further advance after receiving the spaces, and means for automatically transferring the lines of type from said guide to a galley.

16. In a type-setting machine, the combination, with type selecting and delivering mechanisms, of a type receiver or carrier provided with means for keeping the words separated, means for giving said carrier a word-length feed between words, and a line-length feed between lines, and a series of space casting and delivering mechanisms brought into registry with the word-spaces of the carrier by said line-feed.

17. In a type-setting machine, the combination, with type selecting and delivering mechanisms, of a type receiver or carrier provided with means for keeping the words separated, means for giving said carrier a word-length feed between words, and a line-length feed between lines, a series of space casting and delivering mechanisms brought into registry with the word-spaces of the carrier by said line-feed, and actuating connections from the line-feeding mechanism to the space-delivering mechanisms.

18. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a type receiver or carrier, provided with compartments for keeping the words separated, means for giving said carrier a word-length feed between words and a line-length feed between lines, a series of space casting and delivering mechanisms brought into registry with the word-spaces of the carrier by said line-feed, and actuating connections from the line-feeding mechanism to the space-delivering mechanisms.

19. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a holder having separate word-compartments, and means for giving said holders a word-length feed between words and a line-length feed between lines.

20. In a type-setting machine, the combination of a holder having separate word-compartments, with means for delivering the type of each word to a separate compartment, as set, and means for giving said holder a word-length feed between words and a line-length feed between lines.

21. In a type-setting machine, the combination with type selecting and delivering mechanisms, of a holder having separate word-compartments, and means for intermittently moving said holder relative to the delivering mechanism whereby the type for each word may be inserted in a separate compartment of the holder, with a space-casting mechanism and means for delivering the spaces to the said compartments.

22. In a type-setting machine, the combination of a type receiver or holder, having a separate compartment for each word of the line, and means for delivering the type to said compartments, with a space-casting mechanism, and means for delivering the spaces to said compartments after the type for a line are in place.

23. In a type-setting machine, the combination of a type receiver or holder, having a separate compartment for each word of the line, and means for delivering the type to said compartments, with means for delivering the spaces to said compartments after the type are in place.

24. In a type-setting machine, the combination of a type receiver or holder, having a separate compartment for each word of the line, and means for delivering the type to said compartments, with means for delivering the spaces for a line to the compartments after the types have been placed.

25. In a type-setting machine, the combination of a type receiver or holder, having single-word compartments, and means for delivering type to said compartments, with means for delivering the spaces to said compartments at the corresponding side of the types in the different compartments.

26. In a type-setting machine, the combination of a type receiver or holder, having single-word compartments, and means for delivering type to said compartments, with means for delivering the spaces to said compartments after the line has been set up, and at the same side of the types in the different compartments.

27. In a type-setting machine, the combination of a type receiver or holder having single-word compartments, and means for delivering type to said compartments, with means for simultaneously delivering all the spaces for a line to said compartments after the line has been set up, and at the same side of the types in the different compartments.

28. A type receiver or holder for type-setting machines, consisting of a series of sections connected to form an endless belt or

chain, each section having a type-receiving recess adapted to receive the type for one word.

29. A type receiver or holder for type-setting machines, consisting of a series of sections connected to form an endless belt or chain, each section having a type-receiving recess opening to one side face and adapted to receive the type for one word.

30. A type receiver or holder for type-setting machines, consisting of a series of sections connected to form an endless belt or chain, each section having a type-receiving recess adapted to receive the type for one word, in combination with means for giving the chain an intermittent feeding movement beneath the type-delivering mechanism.

31. A type receiver or holder for type-setting machines, consisting of a series of sections connected to form an endless belt or chain, each section having a type-receiving recess adapted to receive the type for one word, and a spring-held type-holding finger for each section.

32. A type receiver or holder for type-setting machines, consisting of a series of sections connected to form an endless belt or chain, each section having a type-receiving recess opening to one side face and adapted to receive the type for one word, and spring-fingers bearing upon one end of the row of type in each recess.

33. A type receiver or holder, comprising a series of blocks having pivot-eyes thereon and adapted to be joined thereby into a chain or belt, said blocks having each a type-holding recess adapted to accommodate the type for a word.

34. A type receiver or holder, comprising a chain, the links of which have each a type-receiving recess in one side face, and longitudinal grooves extending beneath the type-receiving recess, and adapted to receive type-removing fingers.

35. A type receiver or holder, comprising a chain, the links of which have each a type-receiving recess in one side face, and longitudinal grooves extending beneath the type-receiving recess and adapted to receive type-removing fingers, and means for holding the type in place in said recesses.

36. A type receiver or holder, comprising a chain, the links of which have each a type-receiving recess in one side face, and longitudinal grooves extending beneath the type-receiving recess, and adapted to receive type-removing fingers, and a spring type-retaining finger holding the type in place in said recesses.

37. A type receiver or holder, comprising a chain, the links of which have each a type-receiving recess open at three sides, longitudinal grooves extending beneath said recess and adapted to receive type-removing fingers, and a slot extending through the side wall of the recess, and a spring-held type-retaining finger extending through said slot and adapted to engage the type to hold them in place.

38. In a type-setting machine having an operating-keyboard, the combination of a plurality of adjustable space-molds, with a line-measuring device controlling the adjustment of said mold, and actuated through the type-setting keys.

39. In a type-setting machine having an operating-keyboard, the combination of an adjustable space-mold, with means for automatically proportioning said molds to the unfilled space in the line, connected with and controlled by the type-setting keys.

40. In a type-setting machine having an operating-keyboard, the combination of adjustable space-molds, and means for separating them, with an adjustable limit-stop actuated from the keyboard.

41. In a type-setting machine, the combination of adjustable space-molds, and means for separating them, with an automatic line-measuring device controlling the adjustment of said molds and actuated by the type-setting mechanism to simultaneously insert all the spaces in a line after the line has been set.

42. In a type-setting machine, the combination with an operating-keyboard, adjustable space-molds, and means for separating them, of a limit-stop for said separating means, and an adjusting mechanism for said stop electrically connected with the keyboard.

43. In a type-setting machine, the combination of an adjustable space-mold, and means for separating its parts, with an adjustable limit-stop, a type-measuring device, a keyboard and means for controlling the action of the type-measuring device from the keyboard.

44. In a space-mold for type-setting machines, the combination of a series of separable blocks adapted when separated to provide space-casting recesses or holes, with means for equally separating the different blocks, and an adjustable limit-stop therefor, and operating connections for said stop from the type-setting mechanism.

45. In a space-mold for type-setting machines, the combination of a series of separable blocks adapted when separated to provide space-casting recesses or holes, with means for equally separating the different blocks, and an adjustable limit-stop therefor having an operating connection with the type-setting mechanism during the operation of assembling the type.

46. In a space-mold for type-setting machines, the combination of a series of separable blocks adapted when separated to provide space-casting recesses or holes with means for equally separating the different blocks, an adjustable limit-stop therefor, and a line-measuring device controlling said limit-stop and having an operative connection with the type-setting mechanism during the operation of assembling the type.

47. In a space-mold for type-setting machines, the combination of a series of separable blocks adapted when separated to provide space-casting recesses or holes, with means for equally separating the different blocks, an adjustable limit-stop therefor, an operative connection between said stop and the type-setting mechanism for automatically advancing said stop an amount corresponding with the thickness of the type as the type are assembled.

48. A space-mold for type-setting machines, comprising a series of separable members adapted when separated to form recesses adapted to serve as space-molds, means for automatically separating said members an amount which in the total equals the difference between the line length and the space occupied by the type, and means connected with the type-setting mechanism for controlling the amount of said separation.

49. A space-mold for type-setting machines, comprising a series of separable members adapted when separated to form recesses adapted to serve as space-molds, and means connected with and adjusted by the type-setting mechanisms for automatically separating said members an amount which in the total equals the difference between the line length and the length occupied by the type, a fluid-metal receptacle, and means for connecting said recesses with said fluid-metal receptacle.

50. In an apparatus for forming a printing-surface, the combination with a keyboard and a device operated by the action of the keys in assembling the type for measuring the unfilled space in each line, of a space-key, and devices operated by the space-key and controlled by said measuring device for automatically dividing the unfilled space in the line to determine the size of the spaces required to justify the line.

51. In an apparatus for forming printing-surfaces the combination with an adjustable space-mold, of automatic means connected with and operated by the type-assembling mechanism for adjusting said mold to properly justify the line.

52. In an apparatus for forming printing-surfaces the combination of an adjustable mold, with automatic means for determining the width of said mold connected with and operated by the keys during the process of assembling the type.

53. In a type-setting machine the combination of a series of space-molds with means connected with and actuated by the operation of the type-assembling mechanisms for automatically selecting the number of molds required in each line.

54. In a type-setting machine the combination of a series of adjustable space-molds with means for automatically selecting the number of molds required actuated by the type-assembling mechanism during the setting of the types.

55. In a type-setting machine the combination of a series of space-molds with means for automatically selecting the number of molds used and means actuated by the keys during the assembling of the type for automatically controlling their dimension so as to justify the line.

56. In a type-setting machine the combination of a type receiver or carrier composed of a chain, the links of which have each a recess adapted to hold the type of one word, with type selecting and delivering mechanisms, and means for giving the chain an intermittent forward motion to present a new link to the type-delivering mechanism.

57. In a type-setting machine the combination of a type receiver or carrier composed of a chain, the links of which have each a recess adapted to hold the type of one word, with type selecting and delivering mechanisms, means for giving the chain an intermittent forward motion to present a new link to the type-delivering mechanism, and a type-packing mechanism actuated by the type-setting mechanism and acting upon the type as delivered to the carrier to pack them at one end of the recess.

58. In a type-setting machine the combination of a type receiver or carrier composed of a chain, the links of which have each a recess adapted to hold the type of one word, with type selecting and delivering mechanisms, means for giving the chain an intermittent forward motion to present a new link to the type-delivering mechanism, a type-packing mechanism actuated by the type-setting mechanism and acting upon the type as delivered to the carrier to pack them at one end of the recess, and a spring retaining-finger for holding the type in place.

59. In a type-setting machine the combination of type selecting and delivering mechanisms and an independent space-delivering mechanism, with a word-compartment type carrier or holder and means for presenting the compartments to the type-delivering mechanism and then to the space-delivering mechanism.

60. In a type-setting machine the combination of type selecting and delivering mechanisms, an endless type receiver or carrier having type-receiving recesses, and means for advancing said carrier for each word set, with a type-packing finger entering said recesses, and means for reciprocating said finger to pack the type at one end of the recess.

61. In a type-setting machine the combination of type selecting and delivering mechanisms, an endless type receiver or carrier having type-receiving recesses, and means for advancing said carrier for each word set, with a type-packing finger entering said recesses, and means for reciprocating said finger after the delivering of each type to the carrier to pack the type at one end of the recess.

62. In a type-setting machine the combination of type selecting and delivering mechanisms, an endless type receiver or carrier having type-receiving recesses, and means for advancing said carrier for each word set, with a type-packing finger entering said recesses, and means for reciprocating said finger to pack the type at one end of the recess, a spring type-retaining finger, and means for holding it out of action while the type are being placed in the carrier.

63. In a type-setting machine the combination of type selecting and delivering mechanisms, an endless type receiver or carrier having type-receiving recesses, and means for advancing said carrier for each word set, with a type-packing finger entering said recesses, and means for reciprocating said finger to pack the type at one end of the recess, a spring type-retaining finger and a detent engaging and holding back said finger while the type are being introduced to the carrier, and releasing means for said detent actuated by the chain.

64. In a type-setting machine the combination of type selecting and delivering mechanisms, with an endless type receiver or carrier having blocks therein each provided with a type-receiving recess open at one side face, means for advancing said carrier, a plate in front of said open side faces of the blocks, and a switch or removing finger adapted to engage the type to remove them from the carrier.

65. In a type-setting machine the combination of type selecting and delivering mechanisms, with an endless type receiver or carrier having blocks thereon each provided with a type-receiving recess open at one side face, and longitudinal grooves extending beneath said recess, means for advancing said carrier, a plate in front of said open side faces of the blocks, and a switch having fingers entering grooves to remove the types from the recesses in the blocks.

66. In a type-setting machine the combination of type selecting and delivering mechanisms, with an endless type receiver or carrier having blocks thereon, each provided with a type-receiving recess open at one side face, and grooves extending through the end walls of said recess, means for advancing said carrier, a plate in front of said open side faces of the blocks, and a switch having fingers entering the grooves to remove the types from the recesses in the blocks.

67. In a type-setting machine the combination of a type receiver or carrier having separate compartments for each word, said compartments opening at one side face of the carrier and having longitudinal grooves extending to the bottom of the type-receiving compartments, and means for advancing the carrier as the type is set, with a switch having fingers entering said grooves to remove the types from the compartments.

68. In a type-setting machine the combination of a type receiver or carrier having separate compartments for each word opening at one side face of the carrier, and longitudinal grooves extending to the bottom of the type-receiving compartments, a separate plate closing the side openings of said compartments, and means for advancing the carrier as the type is set, with a switch having fingers entering said grooves to remove the types from the compartments.

69. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, and means for inserting said spaces between the words as cast to justify the line.

70. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, a reservoir for melted type-metal, and means for connecting said reservoir with said casting-molds, and means for inserting said spaces as cast between the words to justify the line.

71. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, and means for controlling the extent of separation of the mold-forming blocks by the operation of the keys in assembling the type.

72. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, means for controlling the number of said blocks which are to be separated by the operation of the keys in assembling the type.

73. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, independent separating means between each pair of blocks, and means for controlling the number thereof which are to be used by the operation of the keys in assembling the types.

74. In a space-casting device for type-setting machines and the like, the combination of a frame in two parts movable relative to each other, mold-forming blocks slidably carried by one part of the frame and separable from each other, said blocks being provided at one end with registering notches and projections adapted in connection with the other frame member to form space-casting molds, independent separating means between each pair of blocks, actuating means therefor having an adjustable bar adapted to engage the mold-separating devices, and adjusting means for said bar controlled by the operation of the keys in assembling the types.

75. In a space-casting device for type-setting machines and the like, the combination of separable mold-forming blocks recessed to form space-molds between them, independent separating means for each pair of blocks, and selecting means controlled by the type-assembling mechanism to determine the number of molds used.

76. In a space-casting device for type-setting machines and the like, the combination of separable mold-forming blocks recessed to form space-molds between them, independent separating means for each pair of blocks, and means limiting the separation of the blocks controlled by mechanisms set in action by the keys in assembling the types.

77. In a space-casting device for type-setting machines and the like, the combination of separable mold-forming blocks recessed to form space-molds between them, independent separating means for each pair of blocks, and selecting means controlled by the number of words in the line to determine the number of molds used, and means limiting the separation of the blocks controlled by the operation of the keys in assembling the types.

78. In a space-casting device for type-setting machines and the like, the combination of separable mold-forming blocks having registering recesses and projections in one end adapted to form casting-recesses when separated and a common abutting member movable relatively thereto, with plungers forming one side of the mold and movable to force out the spaces after casting and insert them between the words.

79. In a space-casting device for type-setting machines and the like, the combination of separable mold-blocks having registering notches and projections adapted to form the mold, wedges between said blocks adapted to separate them, an actuating mechanism for said wedges, and means controlled by the space occupied by the type of a line limiting the amount of insertion of said wedges.

80. In a space-casting device for type-setting machines and the like, the combination of separable mold-blocks having registering notches and projections adapted to form the mold, wedges between said blocks adapted to separate them, an actuating mechanism for said wedges, and means controlled by the number of words in a line for determining the number of wedges engaged thereby.

81. In a space-casting device for type-setting machines and the like, the combination of separable mold-blocks having registering notches and projections adapted to form the mold, wedges between said blocks adapted to separate them, an actuating mechanism for said wedges, means controlled by the number of words in a line for determining the number of wedges engaged thereby, and means controlled by the space occupied by the type of a line limiting the amount of insertion of said wedges.

82. A line-measuring mechanism for type-setting machines, comprising a space-mold, means for adjusting the same, a movable stop for said mold, an adjusting device therefor and means for actuating said adjusting device through the keys used in assembling the types.

83. A line-measuring mechanism for type-setting machines and the like, comprising a mold-controlling member, and means for moving the same an amount corresponding to the thickness of the type by the act of setting the type.

84. A line-measuring mechanism for type-setting machines and the like, comprising a movable member, operating means therefor, limiting-stops therefor proportioned to the widths of the types, and stop-selecting means directly controlled by the keys in assembling the types.

85. A line-measuring mechanism for type-setting machines and the like comprising a movable member, operating means therefor, limiting-stops therefor proportioned to the widths of the types, and electrically-operated means for said stops having normally open circuits, and means for closing the circuits by the operation of the type-setting keys in assembling the types.

86. A line-measuring device for type-setting machines comprising a threaded bolt and nut having relative rotation, means for turning the rotatable member actuated by the type-setting, variable limiting-stops therefor and selecting means for said limiting-stops actuated by said keys.

87. A line-measuring device for type-setting machines, comprising a threaded bolt and nut having relative rotation, means for turning the rotatable member actuated by the type-setting keys, limiting-stops therefor set to permit variable movement thereof, and magnets for moving said stops into operative positions, the circuit of each magnet having a gromp of type-setting keys connected therein to act as closing-switches.

88. In a type-setting machine the combination of a movable type-receiver having one side open and a longitudinal groove extending from said open side to the bottom of the space occupied by the type with a plate adjacent the open side of the receiver serving to hold the type therein, said plate curving outward at one point, a cooperating plate adapted to form therewith a channel for the type and having a finger entering said groove in the type-receiver, to remove the type therefrom.

89. In a type-setting machine the combination of a movable type-receiver having one side open and a longitudinal groove extending from said open side to the bottom of the space occupied by the type with a plate adjacent the open side of the receiver serving to hold the type therein, said plate curving outward at one point, a cooperating plate adapted to form therewith a channel for the type and having a finger entering said groove in the type-receiver, to remove the type therefrom, one of said plates having a longitudinal slot, transferring-fingers adapted to enter said slot to engage the type, and means for operating said fingers.

90. In a type-setting machine the combination of a series of individual type casting and setting mechanisms, means for operating the type-setting mechanisms, and connections between each individual type-casting mechanism and its corresponding type-setting mechanism for actuating the type-casting mechanisms.

91. In an apparatus for forming printing-surfaces the combination with a keyboard, means connected with and operated by the keyboard for measuring the unset space in the line as the line is set, and means operated by the keyboard for determining the number of spaces required, of adjustable space-molds, a space-key, and means operated by said space-key for dividing said measured space between the determined number of space-molds.

92. In an apparatus for forming printing-surfaces the combination of an adjustable space-mold, with means controlled by the operation of the type-setting mechanism as the types are set for determining the size of said mold independently of the types.

93. The combination of independent series of type-casting and type-setting mechanisms, and means connecting corresponding elements of the type-casting and type-setting mechanisms whereby the action of the type-setting mechanism in removing a type actuates the corresponding type-casting mechanism to produce a similar type.

94. In a type-setting machine the combination with a space-mold, and means for adjusting said mold to cast spaces to justify the line, of a keyboard divided into groups, each group having independent connections with said adjusting mechanism whereby at the depression of any key in a group the mold is adjusted a distance corresponding with the width of the type assembled by the keys of said group.

95. The combination with a keyboard divided into groups, means for assembling type of the same width actuated by the keys in any group and of different widths by the keys of different groups, of a space-casting mechanism and means controlled by the keys whereby the space-casting mechanism is adjusted to cast spaces of proper width to justify the line.

96. In a type-setting mechanism, the combination with a keyboard, and means for assembling type by operating said keyboard, of an adjustable space-mold, and means controlled by the keys used in the assembling of the type whereby said space-mold is adjusted the distance required to justify the line.

97. In a type-setting machine, the combination with an adjustable space-mold, and means for separating its parts of a type-measuring device controlling the adjustment of said parts, a keyboard and means for controlling the action of the type-measuring device from the keyboard.

98. In a type-setting machine the combination with an adjustable space-mold, and a keyboard divided into groups of keys, the keys of any group representing letters of uniform width and the keys of different groups representing letters of different widths, of means set in action by the use of any key for adjusting the space-mold, and adjustment-controlling devices each controlled by the keys of its particular group to determine the amount of said adjustment.

99. A type-setting machine having a keyboard divided into groups, the keys of any group representing letters of the same width and the keys of different groups representing letters of different widths and means connected with each group for adjusting the space between words to justify the line.

100. In a type setting and casting machine, a keyboard, keys arranged in groups corresponding to the width of the characters represented by said keys and means connected with each group of keys whereby the space occupied by the types is measured and mechanism substantially as described whereby the line is justified.

748,579. **JOINT FOR LEAD PIPE.** George Bevan, St. John, Canada, assignor of one-half to Mathew A. Harding, St. John, New Brunswick, Canada. Filed June 1, 1903. Serial No. 159,445. (No model.)



Claim.—1. A pipe-joint for lead and other soft-metal pipes comprising a nipple threaded at the end, and a screw-sleeve engaging the threads of said nipple and having a conical outwardly-diverging recess therein.

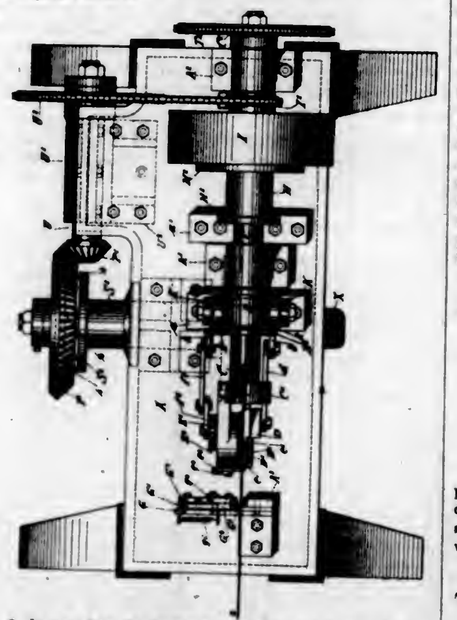
2. A pipe-coupling comprising a threaded nipple tapered at both ends, and a pair of screw-sleeves engaging the threads of said nipple and each having a conical outwardly-diverging smooth-faced recess in its outer side adapted to project over and engage the end of the pipe.

748,580. **MACHINE FOR FORMING HOOKS ON WIRE BALE-TIES.** Bruno von Dalsenbürn, New York, N. Y., assignor of one-half to Theodor Sauer, New York, N. Y. Filed Apr. 21, 1903. Serial No. 153,673. (No model.)

Claim.—1. In a machine for forming hooks on wire bale-ties the combination of means for automatically operating the hook-bending mechanism comprising a clutch-coupling, a suitable lever for operating said coupling, a shaft driven by said coupling, a disk secured on said shaft having a cam-surface, a rocking lever actuated by this cam, means actuated by said lever and operating the wire-bending mechanism, and means for returning said lever to its normal position and for stopping the rotation of the cam-carrying disk after a single revolution, substantially as set forth.

2. In a machine for forming hooks on wire bale-ties, the combination of a flattened head portion on the main shaft, an angular wire-bending lever journaled in said head portion and conforming in shape to the back part of the finished hook, a pinion keyed on the pivot of this bending-lever, a second pinion meshing therewith, a crank-and-link connection for operating said second pinion; a pin

concentrically projecting from the end of the pivot around which the wire is bent; a hook-bending lever, fulcrumed on said head, having a heel to raise and support the wire body and a cam-surface; a third lever operated by said cam-surface and serving to deflect the front of the hook, and means for operating said hook-bending lever, substantially as described.



3. In a machine for forming hooks on wire bale-ties, the combination of a flattened head portion on the main shaft, an angular wire-bending lever journaled in said head portion and conforming in shape to the back part of the finished hook, a pinion keyed on the pivot of this bending-lever, a second pinion meshing therewith, a crank-and-link connection for operating said second pinion, a pin concentrically projecting from the end of the pivot around which the wire is bent; a hook-bending lever, fulcrumed on said head, having a heel to raise and support the wire body and a cam-surface; a third lever operated by said cam-surface and serving to deflect the front of the hook and means for operating said hook-bending lever, a spring-supported lock on the end of the head serving as an abutment for the body of the wire in the hook-forming operation and pressed back by a lateral projection on the wire-bending lever, substantially as described.

4. In a machine for forming hooks on wire bale-ties, in combination with the main operating-lever K and its operating cam-disk N; the horizontally-guided rod M having a friction-roll *m* in bearing against said lever and an upwardly and laterally projecting arm *m'*, and a projection *n*, *n*² on saidcam-disk acting on the arm *m'* to shift the sliding rod M and by means of the friction-roll *m* to restore the lever K to normal position, substantially as described.

5. In a machine for forming hooks on wire bale-ties, the combination with the wire-bending mechanism, of the sliding lock D, operating to hold the hook in position during the twisting operation, substantially as described.

6. In a machine for forming hooks on wire bale-ties, the combination with a cam-disk N and wire-bending mechanism operated thereby, of a gripping device comprising the fixed bracket A² carrying the die *g*, the gripping-lever G⁴ carrying a corresponding die *g'*, and the oscillating lever G' having a friction-roll *g*⁴ bearing against the lever G⁴ to impart this gripping movement thereto, and means operated by a cam-surface on the disk N to operate said oscillating lever, substantially as described.

7. In a machine for forming hooks on wire bale-ties, the combination with a cam-disk N and wire-bending mechanism operated thereby and a suitable gripping device for the wire; of the main shaft C carrying the hook-forming head E, a clutch-coupling to impart rotation to said shaft; means actuated by the disk N to throw said clutch into operative position, and mechanism communicating rotary movement between the main shaft C and the disk-driving mechanism in a determined ratio, whereby a desired number of revolutions are imparted to the shaft C for twisting the shank of the hook, after each operation of the wire-bending mechanism, substantially as described.

8. In a machine for forming hooks on wire bale-ties, the combination of the main shaft C, a clutch-coupling H for imparting intermittent rotation to said shaft, a cam-disk N operating the wire-bending mechanism through suitable connections, means actuated by the revolution of said cam-disk moving the clutch-coupling to operative position and holding it in operative position during a certain part of the revolution of said cam-disk, substantially as described.

9. In a machine for forming hooks on wire bale-ties, an automatically-operated clutch-coupling operating the cam-disk N and the main shaft C comprising a shaft, a cylindrical casing mounted on said shaft by means of a spline connection, a cut-out portion in the boring of said casing, a spring surrounding the shaft and lying in said cut-out portion, a suitable abutment on the shaft so as to keep said spring in place, a side flange on said casing having lateral projections, means loosely rotating on said shaft having corresponding projections, substantially as described.

748,581. **EAR.** Charles R. Carli, Indianapolis, Ind. Filed Nov. 17, 1902. Serial No. 131,763. (No model.)



Claim.—In a means for attaching bails to metal pails, an ear composed of a cylindrical neck having one end formed in a base, a shoulder integral with the ear, and a removable head-carrying sleeve adapted to slip over and firmly engage with the ear, the head preventing the displacement of the bail or other supporting medium.

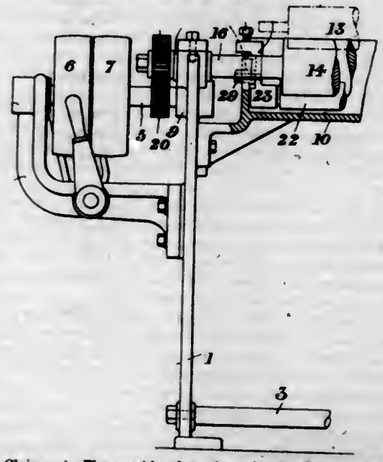
748,582. **FILLER FOR COB PIPES.** John H. Chapman, Cedar Rapids, Iowa. Filed Apr. 14, 1903. Serial No. 152,534. (No specimens.)

Claim.—1. A cob-pipe filler composed of a thin saccharine solution and a body of whiting, or other chalky material, mixed to a doughy mass.

2. A cob-pipe filler composed of glucose, water and whiting mixed substantially as described.

3. A cob-pipe filler composed of a saccharine solution, whiting, or the like chalky substance, and coloring-matter, substantially as described.

748,583. **MACHINE FOR CLEANING THE ROLLERS OF PRINTING-MACHINES.** Edward T. Cleathero, Altrincham, England. Filed Apr. 6, 1903. Serial No. 151,863. (No model.)



Claim.—1. The combination of a pair of rollers rotated in the same direction but at different speeds; a single-roller device; and means for rotating the said pair of rollers and the single-roller device.

2. The combination of a multiplicity of pairs of rollers, the rollers of each pair rotating in the same direction but at different speeds; a single-roller device; and means for rotating the said pairs of rollers and the single-roller device.

3. The combination of a multiplicity of pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds, a multiplicity of single-roller devices: and means for rotating the said pairs of rollers and single-roller devices.

4. The combination of one or more pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds; a trough for each pair of rollers to work in; a single-roller device; a trough for it to work in; and means for rotating the said rollers and single-roller device.

5. The combination of one or more pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds; a trough for each pair of rollers to work in; one or more single-roller devices; a trough for each single-roller device to work in; and means for rotating the said rollers and single-roller devices.

6. The combination of one or more pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds; a trough for each pair of rollers to work in; a draw-off pipe for each trough; one or more single-roller devices; a trough for each single-roller device to work in; a draw-off pipe for each trough; and means for rotating the said rollers and single-roller devices.

7. The combination of one or more pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds; a single-roller device, means for rotating the said pairs of rollers and single-roller device; and an intermittent rotating feeder having its axis parallel with those of the said pairs of rollers and single-roller device, adapted to receive the printing-machine rollers to be cleaned and to present them one by one to the respective pair of rollers and the single-roller device in succession.

8. The combination of one or more pairs of rollers, the rollers of each pair rotated in the same direction but at different speeds; one or more single-roller devices; and an intermittent rotating feeder having its axis parallel with those of the said pairs of rollers and single-roller devices, adapted to receive the printing-machine rollers to be cleaned and to present them one by one to the respective pair of rollers and single-roller device in succession.

9. The combination of two rollers parallel with each other and having their axes in the same horizontal plane; means for rotating them in the same direction but at different speeds; a trough for the said rollers to work in; a vertically-adjustable roller adapted by having its periphery in contact with the lower faces of both the rollers of the said pair, to serve as a squeezer; and a draw-off pipe from the trough.

10. The combination of two rollers parallel with each other and having their axes in the same horizontal plane; means for rotating them in the same direction but at different speeds; a trough for the said rollers to work in; a roller adapted by having its periphery in contact with the lower faces of both the rollers of the said pair, to serve as a squeezer; and a draw-off pipe from the trough.

11. The combination of two rollers parallel with each other and having their axes in the same horizontal plane; means for rotating them in the same direction but at different speeds and a loose running roller adapted by having its periphery in contact with both the said rollers to serve as a squeezer.

12. The combination of two rollers parallel with each other and having their axes in the same plane; means for rotating them at different speeds but in the same direction; and means for imparting a reciprocating movement to one of the said rollers in the direction of its axis.

13. In a machine for washing or rinsing or drying the rollers of a printing-machine, the combination with the means for washing or rinsing or drying or with any one or two of them, of an intermittent rotating feeder having its axis parallel with that of the machine roller or rollers and adapted to receive the dirty rollers one by one and to traverse them through the machine.

14. In a machine for washing or rinsing or drying the rollers of a printing-machine, the combination with the means for washing or rinsing or drying or with any one or two of them, of an intermittent feeder comprising a declined table to receive the inked rollers; a grooved detent-roller to receive one inked roller at a time and to stop the motion of the others down the table; a pawl-and-ratchet device to control the rotation of the detent-roller; a rotating rod cooperating with each washing, rinsing or drying means to move the printing-machine rollers successively through the machine; means for working the same; and a table to receive the printing-machine rollers.

15. In a machine for washing or rinsing or drying the rollers of a printing-machine, the combination with the means for washing or rinsing or drying or with any one or two of them, of an intermittent feeder comprising a declined table to receive the inked rollers; a grooved detent-roller to receive one inked roller at a time, to be turned about its axis by the weight of that inked roller, and to stop the motion of the others down the table; a pawl-and-ratchet device to control the rotation of the detent-roller; a rotating rod cooperating with each washing, rinsing or drying means to move the printing-machine rollers successively through the machine; means for working the same and a table to receive the printing-machine rollers.

748,584. **BOTTLE-WASHING MACHINE.** JAMES J. CLIFFORD, Green Island, N. Y., assignor to James J. Clifford & Co., Green Island, N. Y., a Firm. Filed Feb. 24, 1903. Serial No. 144,904. (No model.)



Claim.—1. In a machine of the class described, and in combination, a vat; an endless conveyer provided with openings severally adapted to freely receive a horizontally-disposed bottle; means for guiding and supporting said conveyer adjacent to the surface of the liquid in the vat; and guideways supported in submerged position beneath the conveyer whereby the conveyed bottles are supported partly by flotation.

2. In a machine of the class described and in combination, a vat; an endless conveyer provided with openings severally adapted to receive a horizontally-disposed bottle; guiding and supporting mechanisms for the conveyer within and at opposite ends of the vat over which said conveyer passes; bottle-supporting ways extending within the vat beneath the conveyer, and part way around said conveyer guiding and supporting mechanisms at the ends of the vat whereby the bottles are supported in the spaces in the conveyer during their passage through and while entering and leaving the vat; and bottle-supporting ways over which the conveyer passes to and from the vat.

3. In a machine of the class described and in combination, a vat; a rotatory brush supported above the liquid in the vat and means for conveying bottles past the brush, and into engagement therewith partly by flotation.

4. In a machine of the class described and in combination, a vat; a bottle-conveyer movable therethrough; mechanism for automatically delivering bottles from the conveyer; an inclined way leading from the exit end of the vat to the bottle-delivering mechanism over which the bottles are adapted to be moved by said conveyer; an inclined way leading downwardly to the inlet end of the vat over which bottles are adapted to be moved by the conveyer; and means for automatically delivering bottles to the conveyer upon said downwardly-inclined way.

5. In a machine of the class described and in combination, a vat; a bottle-conveyer provided with an opening adapted to receive a bottle; means for supporting a bottle in the opening in the conveyer; a feed-chute having its lower end overhanging said conveyer and provided with a bottom opening and a flexible apron depending adjacent to the end of the chute into the path of a bottle contained in the conveyer-opening and adapted to be deflected by said bottle beneath a bottle located in the bottom opening in the chute.

6. In a machine of the class described and in combination, a vat; a bed provided with a delivery-well; a conveyer movable through said vat and over said bed, provided with openings severally adapted to receive a bottle, and adapted to permit the bottle to drop in said well when brought into vertical line therewith; and means for supporting the conveyer-contained bottles in their passage through the vat, and from the vat to said bed.

7. In a machine of the class described and in combination, a conveyer provided with a plurality of openings severally adapted to receive a bottle; a bottle-supporting bed over which said conveyer passes provided with a well adapted to receive a bottle from an opening in the conveyer when brought into line therewith; and means for closing the well at certain times.

8. In a machine of the class described and in combination, a bottle-conveyer provided with a plurality of openings severally adapted to receive a bottle; a bottle-supporting bed over which said conveyer passes provided with a well adapted to receive a bottle from an opening in the conveyer when brought into line therewith; means for closing the well at certain times; means for washing a well-contained bottle; means for holding a bottle in the well during the washing operation; and means for releasing the bottle from the well.

9. In a machine of the class described and in combination, a bottle-conveyer; a bed over which the conveyer passes; provided with a well adapted to receive a bottle from the conveyer; a movable cover for the well; and means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof.

10. In a machine of the class described and in combination, a bottle-conveyer; a bed over which the conveyer passes provided with a well adapted to receive a bottle from the conveyer; a movable cover for the well; a movable bottom for the well; means whereby the introduction of a bottle into the well induces a closing movement of the cover thereof; means for opening the bottom of the well and delivering the bottle therefrom; and means whereby the passage of the bottle from the well induces an opening movement of the cover thereof, and a closing movement of the bottom thereof.

11. In a machine of the class described and in combination, a bottle-conveyer; a bed over which the conveyer passes, provided with a well adapted to receive a bottle from the conveyer; a movable cover for the well; a movable bottom for the well; means whereby the introduction of a bottle into the well induces a closing movement of the cover thereof; means for opening the bottom of the well and delivering the bottle therefrom; means whereby the passage of the bottle from the well induces an opening movement of the cover thereof, and a closing movement of the bottom thereof; means for washing the well-contained bottle and means for holding the bottle against the wall of the well during the washing operation.

12. In a machine of the class described and in combination, a bell adapted to receive and center the neck of a bottle; a spring for causing the bell to engage the neck of the bottle; means for supporting the bottle in opposition to the thrust of the bell; internal bottle-cleaning mechanism reciprocatory through the bell and mouth of the bell-supported bottle; and a link connection between the bell and said reciprocatory mechanism whereby the bell is automatically withdrawn against the force of the spring at the conclusion of a reciprocating movement of said mechanism.

13. In a machine of the class described and in combination, a bed provided with a well adapted to receive a bottle; internal bottle-cleaning mechanism adapted to be intermittently operated; means whereby the introduction of a bottle into the well automatically induces operation of said cleaning mechanism; and means whereby the operation of said mechanism is automatically discontinued after a determinate interval.

14. In a machine of the class described and in combination, a bed provided with a well adapted to receive a bottle; a spindle capable of rotary and reciprocating slide movements; an internal bottle-scrubber mounted upon said spindle; means for supporting a bottle within the well with its mouth in line with said spindle; means whereby the introduction of a bottle into the well automatically induces operation of said spindle; and means whereby the operation of the spindle is automatically discontinued at the conclusion of a reciprocating movement thereof.

15. In a machine of the class described and in combination, a bed provided with a well adapted to receive a bottle; a spindle capable of reciprocating slide movement; an expansible and contractible bottle-scrubber mounted on the spindle; means for supporting a well-contained bottle with its mouth in line with the spindle; means whereby the expansion and contraction respectively of the scrubber are induced by the reciprocating movement thereof; means whereby the introduction of a bottle into the well automatically induces the operation of said spindle; and means whereby the operation of the spindle is automatically discontinued at the conclusion of a reciprocating movement thereof.

16. In a machine of the class described and in combination, a conveyer provided with a plurality of openings severally adapted to receive a bottle; a bed over which the conveyer passes provided with a plurality of wells severally adapted to receive a bottle from either of the conveyer-openings; movable covers for the respective wells; and means whereby the introduction of a bottle into a well automatically induces a closing movement of the cover thereof.

17. In a machine of the class described and in combination, an endless conveyer provided with a plurality of openings severally adapted to receive a bottle; a bed over which the conveyer passes provided with a well adapted to receive a bottle from either of the conveyer-openings; a cover for the well; and means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof.

18. In a machine of the class described and in combination, a vat; a bed provided with a well; an endless conveyer movable through the vat and over said bed, and provided with openings severally adapted to receive a bottle and deliver the same into the well-opening; a movable cover for the well; means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof whereby subsequent bottles are conveyed past the closed well and returned through the vat; and means for supporting the bottles conveyed to and from said bed.

19. In a machine of the class described and in combination, a vat; a bed provided with a plurality of wells; an endless conveyer movable through the vat and over said bed and provided with openings severally adapted to receive a bottle and deliver the same into either of said well-openings; movable covers for the respective wells; separate bottle-cleaning mechanism for each well; means for operating the several bottle-cleaning mechanisms; means whereby the introduction of a bottle into either of said wells automatically induces a closing movement of the cover thereof and operation of the cleaning mechanism in connection therewith; and means for supporting the bottles conveyed to and from said bed.

20. In a machine of the class described and in combination, a vat; a bed provided with a plurality of wells; an endless conveyer movable through the vat and over said bed and provided with openings severally adapted to receive a bottle and deliver the same into either of said well-openings; movable covers for the respective wells; separate bottle-cleaning mechanism for each well; means for operating the several bottle-cleaning mechanisms; means whereby the introduction of a bottle into either of said wells automatically induces a closing movement of the cover thereof and operation of the cleaning mechanism in connection therewith; automatic means whereby after a determinate interval the operation of the cleaning mechanism is discontinued, the bottle delivered from the well and the well opened for the reception of another bottle from the carrier; and means for supporting the bottles conveyed to and from said bed.

21. In a machine of the class described and in combination, a vat; a bed provided with a plurality of wells; an endless conveyer movable through the vat and over said bed, and provided with openings severally adapted to receive a bottle and deliver the same into either of said well-openings; movable covers for the respective wells; a reciprocatory internal bottle-scrubber for each well; means for reciprocating the several scrubbers; means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof and operation of the scrubber-reciprocating mechanism in connection therewith; automatic means whereby the operation of the scrubber mechanism is discontinued at the conclusion of a reciprocating movement thereof, the bottle delivered from the well and the well opened for the reception of another bottle; and means for supporting the bottles conveyed to and from said bed.

22. In a machine of the class described and in combination, a downwardly-inclined delivery-bed; means for depositing bottles thereupon at a definite point; a bottle-diverting switch normally occupying an open position in the path of a bottle deposited on said bed, said switch being adapted to be automatically closed by the passage of a bottle thereover.

23. In a machine of the class described and in combination, a downwardly-inclined delivery-bed; a bottle-receptacle provided with

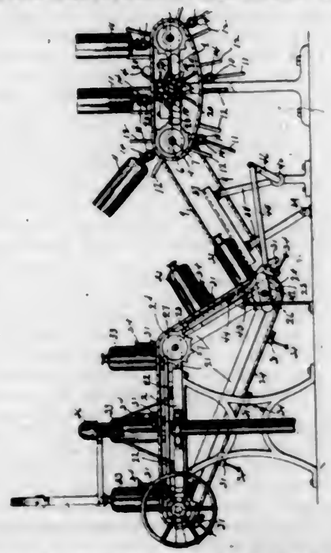
separate bottle-receiving channels at the bottom of said bed; means for depositing bottles at a definite point upon said bed; and a switch normally occupying an open position in the path of bottles deposited upon the bed and adapted to guide a bottle passing thereover into one of said channels and be automatically operated by said bottle to occupy a closed position out of the path of a deposited bottle delivered over said bed into another of said channels.

24. In a machine of the class described and in combination, a bed provided with a well; means for automatically depositing bottles into the well-opening; a movable cover for the well; a downwardly-inclined delivery-bed; means for delivering bottles from the well upon said bed; a switch normally occupying an open position in the path of bottles deposited upon the delivery-bed and adapted to be automatically closed by the switch-diverted bottle out of the path of a subsequent bottle; means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof; means for opening the well; and a trip for inducing operation of the well-opening mechanism located in the path of the switch-diverted bottles only.

25. In a machine of the class described and in combination, a bed provided with a well; a movable cover for the well; a movable bottom for the well; means for automatically delivering the bottles to the well; a bell adapted to receive and center the neck of a well-contained bottle; means for causing the bell to engage the neck of the bottle; means for supporting the bottle in opposition to the thrust of the bell; internal bottle-cleaning mechanism reciprocatory through the bell; means for operating the cover of the well; means for operating the bottom of the well; means for reciprocating the internal cleaning mechanism; means whereby the introduction of a bottle into the well automatically induces a closing movement of the cover thereof; a reciprocating movement of the cleaning mechanism and an opening movement of the bottom of the well; and means whereby the passage of the bottle from the well automatically induces an opening movement of the cover and a closing movement of the bottom thereof.

26. In a machine of the class described and in combination, a vat; internal bottle-scrubbing mechanism; a conveyer movable through the vat and from the vat to the internal scrubbing mechanism, said conveyer being provided with openings severally adapted to receive a bottle in horizontal position; and means for submerging the conveyed bottles in the vat whereby they are supplied with washing liquid for the subsequent internal scrubbing operation and means for supporting the bottles conveyed from the vat to the scrubbing mechanism.

748,585. **BOTTLE-FILLING APPARATUS.** JAMES J. CLIFFORD, Green Island, N. Y., assignor to James J. Clifford & Co., Green Island, N. Y., a Firm. Filed Feb. 13, 1903. Serial No. 143,243. (No model.)



Claim.—1. In a machine of the class described and in combination, bottle-rinsing apparatus having an endless bottle-carrier adapted to deliver rinsed bottles; bottle-filling apparatus; interposed mechanism adapted to receive bottles from the endless carrier of the rinsing apparatus and deliver the same to the filling apparatus; and common means for conjointly actuating the several parts.

2. In a machine of the class described, and in combination, bottle-rinsing apparatus having a carrier adapted to deposit rinsed bottles upon a transfer-table; bottle-filling apparatus; a transfer-table interposed therebetween adapted to receive bottles from the carrier of the rinsing apparatus; and means for automatically moving the transfer-table at certain times from the rinsing to the filling apparatus in correspondence with the movements of the other parts of the machine.

3. In a machine of the class described and in combination, bottle-rinsing apparatus; bottle-filling apparatus; a transfer-table reciprocatory therebetween and means for automatically reciprocating said transfer-table in accordance with the movements of other parts of the machine.

4. In a machine of the class described and in combination, bottle-rinsing apparatus; a delivery-table movable toward and from the same; means for moving the delivery-table at certain times to an approximately horizontal position adjacent to said rinsing mechanism adapted for the reception of bottles therefrom and at certain other times to a downwardly-inclined position for the delivery of bottles from said table, and bottle-filling apparatus adapted to receive the bottles delivered from said table.

5. In a machine of the class described and in combination, bottle-rinsing apparatus; bottle-filling apparatus; a transfer-table provided with separate channels for the bottles; and means for automatically moving said channeled table at certain times from the rinsing to the filling apparatus in accordance with the movements of other parts of the machine.

6. In a machine of the class described and in combination, bottle-rinsing apparatus having a carrier adapted to simultaneously deliver a plurality of rinsed bottles; bottle-filling apparatus; transfer mechanism interposed therebetween having separate bottle-receiving channels adapted to receive the individual bottles as delivered from the carrier of the rinsing apparatus; and means for operating the several parts conjointly.

7. In a machine of the class described and in combination, bottle-rinsing apparatus having nipples adapted to receive inverted bottles, said nipples being mounted upon a carrier adapted to deliver the rinsed bottles; bottle-filling apparatus having supply-nozzles; means for transferring the bottles delivered from the rinsing apparatus to the filling apparatus in line with the respective nozzles; and means for operating the several parts conjointly.

8. In a machine of the class described and in combination, a bed having a horizontal portion and an inclined portion; a supply-pipe provided with nozzles above the horizontal portion of the bed; a carrier; a rack mounted on said carrier engageable with bottles supported on the bed to slide said bottles along the bed toward the supply-pipe; bottle-rinsing mechanism; means for receiving the bottles from the rinsing mechanism and depositing them upon the inclined portion of said bed in the path of said rack, and means for operating the several parts conjointly, substantially as described.

9. In a machine of the class described and in combination, a bed having a horizontal portion and an inclined portion; supply-nozzles supported above the horizontal portion of the bed; a carrier; a transverse rack mounted on said carrier engageable with bottles supported on said bed to slide said bottles along the bed toward the supply-nozzles; bottle-rinsing mechanism; a transfer-table having separate bottle-receiving channels movable to and fro between said inclined bed and rinsing mechanism whereby the same is adapted to receive bottles from the rinsing apparatus and deposit them upon said inclined bed in line with said nozzles; and means for operating the several parts conjointly.

748,586. **PACKING-RING FOR FRUIT-JARS OR THE LIKE.** GEORGE D. C. COCKERTON, Hemo, Ohio. Filed Aug. 21, 1902. Serial No. 120,522. (No model.)



Claim.—A packing-ring for fruit-jars and the like consisting of a single inelastic ring of hard material having sufficient body to retain its ring-like shape without a backing, and provided at its opposite faces with exterior coatings of adhesive material which is fusible at a low temperature, and the coating being of sufficient thickness to form pliable or yieldable surfaces for engaging and sealing a jar and its cover, substantially as described.

748,587. **GRAIN-BINDER.** CHARLES COLAHAN, Chicago, Ill. Filed July 13, 1903. Serial No. 165,287. (No model.)



Claim.—1. In a grain-binder the combination with a knotter that normally rests with its jaws trending outwardly in the direction of discharge of the bundle, of a stop at the inner side of the knotter for obstructing the escape of the cord-strands leading round the bundle, mechanism for giving the knotter a complete revolution for laying the knot, and mechanism for imparting to said knotter a quick forward and return movement at the conclusion of said revolution, to lift the cord-strands off of the stop and deflect them therepast.

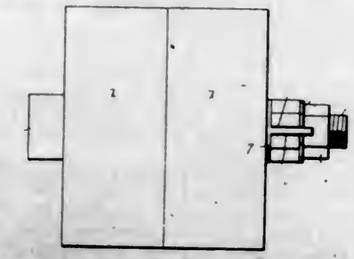
2. In a grain-binder that has its knotter in its normal position pointing obliquely outward, the combination of a breastplate having an open slot terminating in an oblique reach, having a concave depression at its reëntrant angle below the knotter to temporarily detain the cord-strands during the formation of the knot, with a knotter making one full revolution to lay the knot, and mechanism imparting an onward and return movement to the knotter substantially as shown and described.

3. The combination of the breastplate having an angular slot and the projecting cord-supporting finger over the slot for receiving the cord as the bill rests in its normal position, pointing outwardly parallel with the oblique face of the angular slot, said breastplate having a depression therein at the reëntrant angle wherein the cord rests in the formation of the knot, and means for imparting to the knotter its knot-laying revolution and a quick forward and backward movement after the completion of its knot-laying revolution, to force the cord from the depression and permit it to pass outwardly therefrom in the discharge of the bundle substantially as shown and described.

4. The combination with the angularly-slotted breastplate having a cord-stop as set forth, of the knotter normally standing with its jaws trending outwardly in the direction of the oblique reach of the slot, the stop-pinion and delay-shoe for said knotter, and the knotter-cam having a delay-track, a rack connecting the terminals of said track and adapted to impart a single revolution to the knotter, an additional tooth to said rack and a depression in the track cooperating with said tooth to permit the delay-shoe to dip as the tooth acts, and immediately raising it to engagement with the track whereby the knotter is given a quick onward and return movement at the termination of its complete revolution to release the knot therefrom.

5. The combination with the angularly-slotted breastplate, of a knotter or tying-bill normally standing with its jaws trending outwardly in the direction of the oblique reach of the slot, mechanism imparting to the knotter a single complete revolution from said position of rest, and mechanism imparting thereto at the completion of said revolution, an additional onward and quick return movement from and to said position of rest.

748,588. **NUT-LOCK.** SAMUEL C. CROW, South Sharon, Pa. Filed May 2, 1903. Serial No. 155,387. (No model.)



Claim.—1. In a device of the character described, the combination with a member, of a bolt, a nut provided with a longitudinal groove, a washer interposed between said member and nut and provided with a right-angularly-extending resilient key having a beveled end, said key being adapted to fit in the groove and extend above the nut, and a nut superimposed upon said bolt and provided with a horizontally-disposed ratchet-flange adapted to be engaged by the beveled end of the key.

2. In a device of the character described, the combination with a member, of a bolt provided with right and left hand threads, a nut provided with a longitudinal groove and adapted to fit on the right-hand threaded portion of said bolt, a washer interposed between said member and nut and provided with a right-angularly-extending resilient key having a beveled end, said key being adapted to fit in the groove and extend above the nut, and a nut fitted upon the left-hand threaded portion of said bolt to hold the first-mentioned nut in applied position, said nut being provided with a horizontally-disposed ratchet-flange adapted to be engaged by the beveled end of the key to hold said nut in applied position.

748,589. **PENHOLDER.** CHARLES J. DAHLGREN, New York, N. Y., assignor of one-half to Ernest Hopkinson, East Orange, N. J. Filed Oct. 15, 1900. Serial No. 33,059. (No model.)



Claim.—1. A penholder consisting of a shell provided with a tongue-and-spring pen retaining and ejecting pieces, substantially as specified.

2. A penholder provided with a semicylindrical portion having a tongue, and pen retaining and ejecting pieces, substantially as specified.

3. A penholder having a semicylindrical portion whose outer end is provided with inwardly-turned spring-lips projecting over the side of the pen-nib, and a tongue on the inside of the holder constituting a seating portion or abutment for the base of the pen, substantially as specified.

748,590. **WATCHCASE.** WILLIAM W. DUDLEY, Trenton, N. J., assignor to the Trenton Watch Company, a Corporation of New Jersey. Filed Sept. 22, 1902. Serial No. 124,315. (No model.)



Claim.—1. As an improvement in watches, the combination of a watchcase-center, a bezel, a pillar-plate, a ring encircling the pillar-plate and attached thereto, and having on its exterior a peripheral flange to engage a seat on the center, and on its interior a seat for the dial, and a dial.

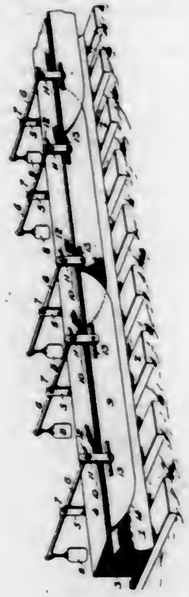
2. As an improvement in watches, the combination of a watch-case-center, a bezel, a watch-movement, a ring encircling said movement and attached thereto and having a peripheral flange to engage a seat on the center, a dial fitting said ring, and a dust-band encircling the movement contiguous to the ring.

3. An improvement in watches, comprising a pillar-plate, a ring encircling the pillar-plate and attached thereto, that projects above the pillar-plate and has a peripheral flange to engage a case-seat, and a dial of larger diameter than the pillar-plate fitted to and carried by said ring and lying against the pillar-plate.

748,591. **THIRD-RAIL COVER.** EMERY F. DUFFY, Seattle, Wash. Filed June 20, 1903. Serial No. 162,407. (No model.)

Claim.—1. The combination with a rail-cover, of a series of plates, a series of counterweighted levers and means connecting the levers and plates pivotally with one another.

2. A third-rail cover comprising an angular cover extending at one side over the top of the rail; sectional plates suspended at the opposite side of the rail and levers carrying weights, the levers connected with the plates and adapted to return the plates to their normal position after the shoe has passed, substantially as described.



3. A third-rail protector comprising a stationary cover, a slotted plate, a bracket secured to the cover, a counterweighted lever pivoted to the bracket and a link connecting the lever and plate, one end of the lever received and retained in the slot in the plate.

4. A third-rail protector comprising a cover, a plate, a suitably-supported counterweighted lever, one end of which is provided with an offset end, an apertured link, the offset end of the lever projecting through the aperture in the link, the plate and link connected to one another.

5. A third-rail protector comprising a cover, a series of movable plates, suitably-supported counterweighted levers connected with the plates, the plates adapted to be displaced by a pivotally-supported lever, a contact-shoe pivotally mounted on the lever and engaging the rail and means for adjusting the lever.

748,592. THIRD-RAIL PROTECTOR. HENRY F. DUFFY, Seattle, Wash. Filed June 20, 1903. Serial No. 163,406. (No model.)

Claim.—1. The combination with a third rail, of a suitably-supported sliding cover, a rod secured thereto, the rod adapted to have a bearing in the rail and means secured to the rod for returning the cover to its normal position.

2. The combination with a third rail, of a housing, a series of laterally-movable covers, a series of rods secured thereto, the rods each adapted to have a bearing in and pass through the housing and means connected with the rods for returning the covers to their normal positions after displacement.

3. A third-rail protector comprising a housing; sectional covers; curved rods secured to said covers and extended through the housing; and connected to a rope or chain; a pulley and a weight for returning the covers to their normal position, substantially as described.

4. The combination with a rail, of a housing, a plurality of movable covers, rods secured to the covers and passing through the housing, a flexible connection secured to each rod and means carried by the flexible connections for returning the covers to their normal positions.

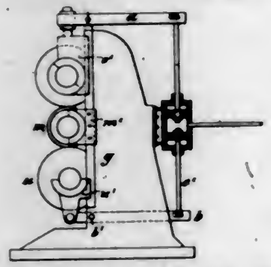
5. The combination with a rail, of a series of covers, rods secured thereto and a counterbalance pivotally secured to the rods.

6. The combination with a rail, of a sliding cover, a rod secured thereto, and sliding therewith and means connected with the rod for automatically returning the cover to its normal position.

748,592.



748,593. CALENDERING-MACHINE. LORENZ ECK, Duesseldorf, Germany. Filed July 9, 1903. Serial No. 164,350. (No model.)



Claim.—1. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; connections between said pistons and said movable rollers; and means for actuating said pistons, for the purpose as described.

2. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons of different diameters located in said cylinder; connections between said pistons and said movable rollers; and means for actuating said pistons, for the purpose as described.

3. In a calendering-machine, having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; a wall located between said pistons and dividing said cylinder into two chambers; connections between said pistons and said movable rollers; and means for actuating said pistons, for the purpose as described.

4. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; connections between said pistons and said movable rollers; and means for variably actuating said pistons, for the purpose as described.

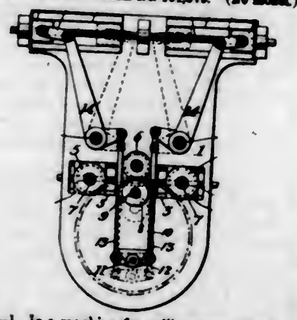
5. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; connections between said pistons and said movable rollers; and means for variably actuating either of said pistons, for the purpose as described.

6. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; connections between said pistons and said movable rollers; and means for leading a fluid under pressure into, and out of, said cylinder, for the purpose as described.

7. In a calendering-machine having a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; a wall located between said pistons and dividing said cylinder into two chambers; connections between said pistons and said movable rollers; pipes for leading a fluid under pressure into said chambers, and means for regulating the flow of said fluid, for the purpose as described.

8. In a calendering-machine a stationary roller, and above and below the same at least one vertically-movable roller, the combination with said movable rollers, of a cylinder, two pistons located in said cylinder; a wall located between said pistons and dividing said cylinder into two chambers; connections between said pistons and said movable rollers, a pipe for leading a fluid under pressure into said chamber, and a three-way cock located in said wall, and adapted to regulate the flow of said fluid from said pipe into the said chambers, for the purpose as described.

748,594. MACHINE FOR ROLLING TIRES. PETER ETERMANN, Philadelphia, Pa., assignor to Charles T. Schoen, New York, N. Y. Filed June 12, 1903. Serial No. 161,379. (No model.)



Claim.—1. In a machine for rolling tires, shaping-rolls, a pressure-roll, and a carrier for said pressure-roll, combined with a right and left hand screw, slide-blocks on said screw, and connections between said slide-blocks and said carrier.

2. In a machine for rolling tires, shaping-rolls, a pressure-roll, and a carrier for said pressure-roll, combined with a right and left hand screw, slide-blocks on said screw, elbow-levers connected to said slide-blocks, and links connecting the levers and carrier.

3. In a machine for rolling tires, shaping-rolls, a pressure-roll, and a carrier for said pressure-roll, combined with a right and left hand screw, slide-blocks on said screw, elbow-levers connected to said slide-blocks, a cross-head on the carrier, and links connecting the elbow-levers and cross-head.

748,595. METHOD OF WATERPROOFING AND FINISHING THE SURFACE OF STONE, BRICK, OR OTHER ANALOGOUS POROUS MATERIAL. NEAL FARNHAM, Chicago, Ill. Filed Feb. 18, 1903. Serial No. 144,060. (No specimens.)

Claim.—1. The within-described method of waterproofing and finishing the surface of stone, brick and other analogous porous material consisting of heating the porous material and while heated applying a waterproof compound to the heated surface and subsequently hardening the surplus of the compound and removing it from the surface by a blast of sand and air, substantially as and for the purposes described.

2. The method of removing the surplus of a waterproof compound from the surface of stone, brick or other analogous porous material consisting in impelling a blast of sand against the waterproof compound to cut the same into fine particles and utilizing a blast of air to harden the finely-divided particles of the waterproof compound and thus prevent them from adhering to the surface under treatment, substantially as described.

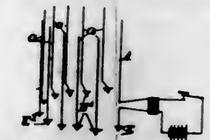
748,596. STEREOTYPE-BLOCK. CHARLES H. FIELD, Waterbury, Conn. Filed Mar. 16, 1903. Serial No. 148,068. (No model.)



Claim.—1. The process of mounting plates on solid, corrugated, or mortised metal backs for stereotyping purposes, so that plate and back are readily attachable and detachable, by cutting perpendicularly two or more non-parallel slots in the back of the plate, then applying a thin paste composed of one part of oxid of zinc and two parts whiting, mixed with water, to the back of the plate, and allowing the paste to dry, after which the plate is placed in a casting-box and the metal back is cast directly upon it, then allowed to cool and trimmed for use.

2. The stereotype-block with plate detachable from the base consisting of (*a*) a stereotype-plate with two or more non-parallel slots, sunk perpendicularly in the back thereof, (*b*) a metal base (made by casting it upon the back of the stereotype-plate) with ridges or beads projecting from its interior surface corresponding to the slots in the back or interior surface of the stereotype-plate.

748,597. WIRELESS SIGNALING DEVICE. LEE DE FOREST, New York, N. Y. Filed Dec. 24, 1902. Serial No. 136,436. (No model.)



Claim.—1. In wireless signaling, the combination with an antenna and means for communicating electric oscillations thereto, of a reflector for said oscillations and a ground connection therefor containing a horizontal conductor extending in the direction in which the waves are reflected.

2. In wireless signaling, the combination with an antenna and means for communicating electric oscillations thereto, of a reflector for said oscillations and a ground connection therefor containing a horizontal conductor extending a half-wave length beyond the antenna in the direction in which the waves are reflected.

3. In wireless signaling, the combination with an antenna and means for communicating electric oscillations thereto, of a reflector comprising vertical conductors which are connected with the base of the antenna and a conductor connected with the base of each of said reflector-conductors and extending in the direction in which the waves are reflected and a ground connection therefor located a half-wave length beyond the antenna.

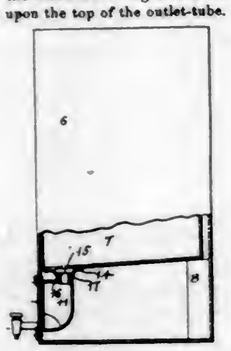
4. In wireless signaling, the combination with an antenna and means for communicating electric oscillations thereto, of a series of vertical conductors forming secondary antennæ disposed about one side of the primary antenna to form a reflector, a conductor connecting each conductor of the reflector with the primary antenna, a horizontal conductor extending from the base of each secondary antenna in the direction in which the waves are reflected, a ground connection for said horizontal conductors located at a multiple of a quarter-wave length from the primary antenna, the length of the connection between the base of the primary antenna and points in the horizontal conductors abreast of the primary antenna being equivalent to a half-wave length.

5. In wireless signaling, the combination with a radiating-conductor and means for communicating electric oscillations thereto of a reflector for said waves connected with the said wave-radiating conductor, said connections containing lag-producing devices adapted to cause the reflected waves to coincide in phase with the waves directly radiated from the radiating-conductor and traveling in the same direction.

748,598. CREAMING-CAN. FRANK G. FORTNEY, Monroeville, Ind. Filed Apr. 16, 1903. Serial No. 153,260. (No model.)

Claim.—1. In a creaming-can, the combination with inner and outer cans, of an outlet-tube extending through the outer can and having a faucet at its outer end, and a removable tubular coupling-plug extending through the inner can and into the inner end of the outlet-tube and binding the bottom of the inner can upon the top of the outlet-tube.

2. In a creaming-can, the combination with an outer can having an outlet-tube fixed therein and a faucet at the lower end of the tube, of an inner can, and a removable hollow screw coupling-plug extending through the bottom of the inner can and engaging the upper end of the tube and having a head within the inner can binding the same upon the top of the outlet-tube.



748,599. INCANDESCENT-ELECTRIC-LAMP SOCKET. HENRY A. FRANBURG, Chicago, Ill. Filed Apr. 9, 1903. Serial No. 151,714. (No model.)



Claim.—1. In a device of the class described the combination in a lamp-socket, of an insulator-sleeve therein, an insulator-plug formed to provide terminal chambers on opposite sides thereof intermediate it and the sleeve and having a transverse slot across the top thereof connecting said chambers and adapted to admit the terminal leads, a lamp-contact and means rigidly engaging the lamp-contact to said plug adapted to form part of the current source.

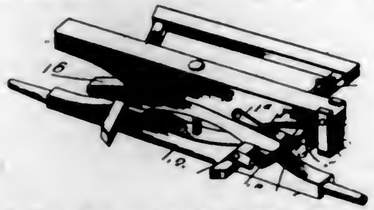
2. In a device of the class described the combination with a lamp-socket, of an insulator-sleeve therein, an insulator-plug fitting closely within said sleeve and having a transverse slot across the upper end thereof, oppositely-disposed terminal chambers therein communicating with said slot, a contact-plate in said slot and bent downwardly into one of said chambers, a contact-plate in the opposite chamber and extending laterally beneath said plug, a screw-threaded lamp-contact and a contact-screw insulated therefrom and passing therethrough and through the insulator-plug into engagement with the contact-plate in said slot.

3. In a device of the class described the combination in a lamp-socket, of a casing having oppositely-disposed longitudinal slots therein, a cap having forwardly-extending apertured arms adapted to engage in said slots, an insulator-sleeve fitting closely in said casing, an insulator-plug having oppositely-disposed chambers therein, a contact-plate in each chamber, a threaded sleeve forming one lamp-contact, a screw forming the other contact and extending axially of the insulator-plug and securing the lamp-contact sleeve and the contact-plates thereto and a washer in the lamp-contact sleeve insulating the screw from one of the contact-plates and from the lamp-contact sleeve.

4. The combination in a lamp-socket, of a tapered casing having forwardly-extending slots therein, a cap fitted over the rear end of said casing, forwardly-directed arms thereon offset to pass within said casing and engage in said slots, an insulating-lining in said casing and cap, an oppositely-chambered insulating-plug therein, a threaded metallic shell forming one lamp-contact, a contact-screw extending longitudinally through the plug and into the lamp-contact, a contact-plate extending rearwardly and transversely of the plug into engagement with said screw, a contact-plate extending forwardly and transversely of the plug through and into engagement with the lamp-contact, binding-screws in said contact-plates and a washer insulating the head of the contact-screw from the contact-plate and lamp-contact shell.

5. In an incandescent electric lamp, a lamp-socket having upwardly-opening slots therein, a sleeved cap, integral arms adapted to secure said cap in position, a threaded insulator-sleeve, an insulating-plug having a transverse groove in the top thereof, a lamp-contact threaded to receive the lamp-bulb and insulator-sleeve, an insulator-washer therein, a contact-screw extending longitudinally through said plug, and a plurality of contact-plates adapted to engage the screw and lamp-contact and form the lamp-terminals.

748,600. BOLSTER ATTACHMENT. GEORGE J. FRIEND, Kingsley, Oreg. Filed Oct. 22, 1903. Serial No. 178,126. (No model.)



Claim.—1. In an attachment for vehicles, the combination with an engaging arm secured to a bolster of the vehicle, an engaging bar secured to the axle, interlocking means between the engaging bar and the engaging arm, and spring means cooperating with the engaging arm.

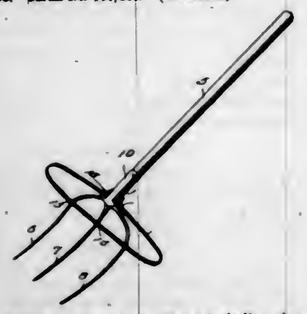
2. In an attachment for vehicles, the combination with an engaging arm secured to a bolster of the vehicle, an arcuate engaging bar carried by the axle of the vehicle, and a friction-roller carried by the engaging arm aforesaid and engaging beneath the engaging bar and forming a stop to limit the movement of the vehicle-body.

3. In a vehicle, the combination with an engaging arm carried by a bolster thereof, a hanger secured to the bolster and receiving the engaging arm, an engaging bar carried by an axle adjacent the arm extending from the bolster, spring means supported by the hanger for cooperation with the engaging arm of the bolster, and stop means extending from the said arm for cooperation with the engaging bar.

4. In an attachment for vehicles, the combination with an engaging arm secured to a bolster of the vehicle, an arcuate engaging bar secured to the axle of the vehicle, a hanger pendent from the bolster and receiving the outer end of the engaging arm, and a roller carried by the engaging arm and engaging beneath the engaging bar.

5. In an attachment for vehicles, the combination with an engaging arm secured to a bolster of the vehicle, an engaging bar carried by an axle of the vehicle, stop means projected from the engaging arm for cooperation with the engaging bar, and attachable tension means cooperating with the engaging arm.

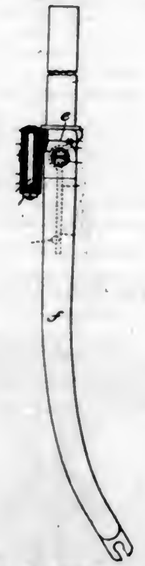
748,601. FODDER-FORK. WILLIAM GILES, Amarillo, Tex. Filed June 6, 1903. Serial No. 160,443. (No model.)



Claim.—1. A pitchfork comprising a head including tines and a stem, and a guard consisting of a loop having its ends secured to the stem and having perforations through one side through which the tines are engaged, said loop projecting laterally beyond the outside tines.

2. A pitchfork comprising a head including tines and a stem, the latter having an opening therethrough, and a guard consisting of a loop having perforations in one side through which the tines are removably engaged, the ends of the loop being disposed against the stem and having perforations alining with opening through the stem, and securing means engaged through said perforations and opening.

748,602. FRAME FOR BICYCLES. PAUL HAAS, Chicago, Ill., assignor to Pope Manufacturing Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 1, 1903. Serial No. 167,831. (No model.)



Claim.—1. A spring-fork for bicycles, &c., comprising a fork-crown having rearwardly and downwardly extended lugs, fork sides pivoted upon said downwardly-extended lugs respectively and having rearwardly-extended lugs to cooperate with the rearwardly-extended lugs of the fork-crown and positively limit the rearward movement of the fork sides, and compression-springs cooperating with said rearwardly-extended lugs of the crown and fork sides to hold the fork sides in normal position with the rearwardly-extending lugs of the fork-crown and the fork sides in contact, substantially as described.

2. A spring-fork for bicycles, &c., comprising a fork-crown having rearwardly and downwardly extended lugs, fork sides pivoted upon said downwardly-extended lugs respectively and having rearwardly-extended lugs to cooperate with the rearwardly-extended lugs of the fork-crown and positively limit the rearward movement of the fork sides, compression-springs cooperating with said rearwardly-extended lugs respectively, spring-cases supporting said springs, and bolts extended through said rearwardly-extended lugs and engaging said spring-cases whereby the fork sides are held in normal position with the rearwardly-extending lugs of the fork-crown and the fork sides in contact, substantially as described.

3. A spring-fork for bicycles, &c., comprising a fork-crown having rearwardly and downwardly extended lugs, fork sides pivoted upon said downwardly-extended lugs respectively and having rearwardly-extended lugs to cooperate with the rearwardly-extended lugs of the fork-crown and positively limit the rearward movement of the fork sides, compression-springs cooperating with said rearwardly-extended lugs to hold the fork sides in normal position with the rearwardly-extending lugs of the fork-crown and the fork sides in contact, and auxiliary springs mounted upon the pivots of the fork sides respectively and engaging the crown and fork sides at their opposite ends, substantially as described.

4. A spring-fork for bicycles, &c., comprising a fork-crown having rearwardly and downwardly extended lugs, fork sides pivoted upon said downwardly-extended lugs respectively and having rearwardly-extended lugs to cooperate with the rearwardly-extended lugs of the fork-crown, pivot-screws for said fork sides engaged with said downwardly-extended lugs, check-nuts or bushings engaging the inner ends of said pivot-screws, compression-springs cooperating with said rearwardly-extended lugs, and auxiliary springs mounted upon said bushings or check-nuts and engaged at their opposite ends with the crown and fork sides, substantially as described.

748,603. BUILDING-BLOCK. FRANK R. HENRY, Philadelphia, Pa. Filed Jan. 10, 1903. Serial No. 138,488. (No model.)



Claim.—In a building-block, a dovetail on the upper side tapered from the center to the ends, and a groove in the lower side tapered from the ends to the center, substantially as shown and described.

748,604. PROCESS OF TRANSFERRING AND PRINTING. JULES R. HEBBE and MATHIAS PARAF-JAVAL, Paris, France, assignors to M. Jean Diederichs, Lyons, France. Filed Sept. 16, 1898. Serial No. 730,764. (No specimens.)

Claim.—1. The process of producing designs or patterns on fabrics, consisting in first forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

2. The process of producing designs or patterns on fabrics, consisting in forming a print upon a suitable material with a lake consisting of a suitable substance colored with a suitable coloring-matter and mixed with lithographic varnish, and then transferring the design or pattern to the fabric.

3. The process of producing designs or patterns on fabrics consisting in gumming the fabric, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

4. The process of producing designs or patterns on fabrics consisting in gumming the fabric with a solution of gum to which has been added a substance capable of facilitating the solution of color to be printed, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

5. The process of prodneing designs or patterns on fabrics, consisting in treating the fabric with a suitable mordant and gumming the fabric with a solution of gum to which has been added a substance capable of facilitating the solution of color to be printed, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

6. The process of producing designs or patterns on fabrics, consisting in treating the fabric with a suitable mordant, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

7. The process of producing designs or patterns on fabrics, consisting in treating the fabric with a suitable mordant, forming a print upon a suitable material with a lake of a tannic-acid color and then transferring the design or pattern to the fabric.

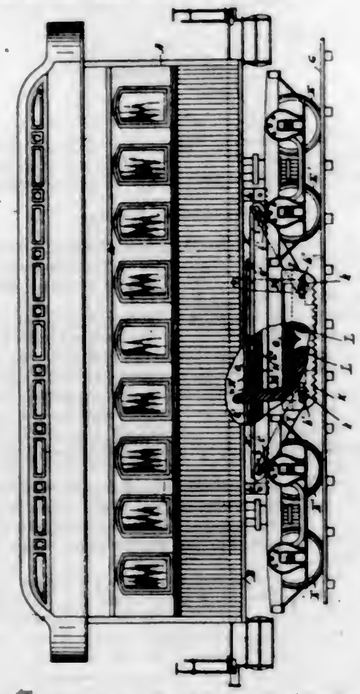
8. The process of producing designs or patterns on fabrics, consisting in treating the fabric with tannate of a suitable metal, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

9. The process of producing designs or patterns on fabrics of vegetable origin, consisting in treating the fabric with a substance capable of causing the lake subsequently used to combine therewith, forming a print upon a suitable material with a lake of the desired coloring-matter capable of yielding up its coloring-matter, and then transferring the design or pattern to the fabric.

10. The process of producing designs or patterns on fabrics, consisting in gumming the fabric by passing the same through a gum solution and then squeezing it, impregnating the gummed fabric with a suitable transfer liquid, forming a print upon a suitable material with a lake of the desired coloring-matter capable of readily yielding up its coloring-matter, and then transferring the design to the fabric.

11. The process of producing designs or patterns on fabrics, consisting in gumming the fabric, impregnating the gummed fabric with a suitable transfer liquid, forming a print upon a suitable material with a lake of the desired coloring-matter capable of readily yielding up its coloring-matter, bringing the surface of the print into contact with the fabric and transferring the design to the fabric by the application of heat and pressure.

748,605. CAR-BRAKE. ADDISON S. HODGES, Everett, Mass. Filed Apr. 25, 1903. Serial No. 154,366. (No model.)



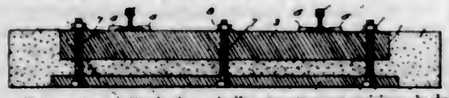
Claim.—1. A car-brake device, consisting of a beam suspended from the car-body, and having yokes adapted to receive a pair of car-wheel axles, combined with brake-shoes, links intermediate the latter and the beam, vertically-adjustable supporting-levers, pivotally connected to said brake-shoes, a pressure-head resting on the brake-shoe, a pressure-screw for forcing the brake-shoes against the track, and means for locking the brake device in its raised inoperative position substantially as and for the purpose set forth.

2. A car-brake device, consisting of a support attached to the car-body, and vertically-adjustable brake-shoes, suspended from said support, in combination with adjustable links interposed between said brake-shoe and support, means for locking and releasing said brake relative to its support and a pressure-screw for forcing the brake-shoe against the track, substantially as and for the purpose set forth.

3. A car-brake device, consisting of vertically-adjustable brake-shoes K, K, in combination with intermediate brake-shoes L, L, a pressure-head Q, resting on the said brake-shoes L, L, means for forcing the brake against the track and means for holding the brake device raised when not in use, substantially as and for the purpose set forth.

4. A car-brake device, consisting of a beam or support H, secured to the car-body, links I, I, pivotally connected to said support, and brake-shoes K, L, pivotally connected to said links, in combination with hangers M, M, vertically adjustable relative to said support and pivotally connected to the brake-shoes, horizontally-adjustable locking-plates N, N, a stationary retainer-plate O, and a pressure device for forcing the brake-shoes against the track, substantially as and for the purpose set forth.

748,606. RAILWAY-TIE. JACOB HOBB, Mechanicsburg, Ohio. Filed July 27, 1903. Serial No. 167,077. (No model.)



Claim.—1. A railway-tie or similar structure comprising a body composed of cementitious composition, wooden portions embedded therein on opposite sides of the longitudinal axis thereof, and bolts connecting said wooden portions and passing through the composition body at right angles to the longitudinal axis thereof, substantially as described

2. A railway-tie comprising a body composed of a cementitious composition, an upper portion of wood embedded therein and having a width equal to the width of the composition, and a length less than the length of said body, but greater than the distance between the rails, to constitute a bearing and connecting member for said rails, a second wooden portion embedded in the under side of said composition body longitudinally thereof, and bolts connecting said two wooden portions and passing through the composition body at right angles to the longitudinal axis thereof, substantially as described

3. A railway-tie comprising a concrete body, a wooden bearing portion embedded in the upper portion thereof, a wooden anchoring portion embedded in the lower portion thereof, and bolts having their heads bearing in said anchoring portion and their bodies extending through the remaining portions of the tie and provided with nuts on their upper ends, substantially as described.

748,607. GAS-BURNER. ALFRED R. HOWARD, Detroit, Mich., assignor to Amy Elaine Howard, Detroit, Mich. Filed May 23, 1903. Serial No. 158,510. (No model.)



Claim.—1. A burner of the kind described comprising a vessel divided into upper and lower chambers by a horizontal partition, a perforated cover over the upper chamber, means for admitting a combustible vapor into the lower chamber and around the edges of the partition into the upper chamber, non-combustible material loosely piled on the cover, and means for retaining said material in place, as and for the purpose described.

2. A device of the kind described comprising a shallow vessel having a perforated cover, means for admitting gas and air into the vessel, a wire scrollwork carried by and extending around the cover, and asbestos piled loosely upon said cover.

3. A burner of the kind described comprising a gas-pipe opening upwardly into an inverted-bowl-shaped mixing-chamber, said chamber having air-openings in its lower portion, an upper bowl-shaped mixing-chamber resting on the lower one, a shallow vessel resting on the upper mixing-chamber, said vessel having a perforated cover, and a flat, horizontal partition dividing the vessel into upper and lower compartments, said partition having blunt teeth formed on its edges, the said teeth being bent alternately upward, and downward.

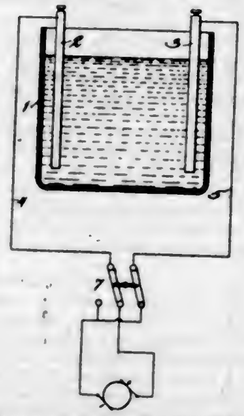
4. A device of the kind described comprising a rectangular, shallow vessel the bottom of said vessel having upwardly-sloping marginal portions, a slightly-convexed, perforated cover over said vessel, a horizontal partition arranged in the vessel and having notched edges, a metal scrollwork around the upper edge of the cover, asbestos laid loosely on the cover within the scrollwork and means for admitting gas and air into the vessel beneath the horizontal partition.

748,608. NOZZLE. JOHN HUBBS, Chicago, Ill. Filed May 8, 1903. Serial No. 156,134. (No model.)



Claim.—The combination with a nozzle having a straight bore to its extremity, of a plug of oval cross-section fitting closely at its largest diameter therein, and having a wedge point at the inner end thereof and sides extending parallel to the bore to the outer end thereof, and a screw extending through the wall of the nozzle and bearing in binding contact against the plug.

748,609. PRODUCTION OF HYDROXIDS AND OXIDS OF METALS BY ELECTROLYSIS. FREDERICK F. HUFF, New Brighton, N. Y., assignor of two-thirds to Maas & Waldstein, New York, N. Y., a Firm. Filed Jan. 22, 1903. Serial No. 140,118. (No specimens.)



Claim.—1. In the production by electrolysis of the hydroxids and oxids of the metals as separate bodies for use in the arts, the process which consists in passing a current of electricity through a suitable electrolyte having both the electrodes formed of the metal whose hydroxid or oxid is desired, and making each electrode the anode and the cathode, alternately, at suitable intervals, and thereafter collecting and amassing said hydroxids and oxids as separate bodies apart from the electrodes.

2. In the production by electrolysis of the hydroxids and oxids of the metals as separate bodies for use in the arts, the process which consists in passing a current of electricity through a suitable electrolyte having both the electrodes formed of the metal whose hydroxid or oxid is desired, and making each electrode the anode and the cathode, alternately, at suitable intervals, said electrolyte consisting of a neutral-salt solution, and thereafter collecting and amassing said hydroxids and oxids as separate bodies apart from the electrodes.

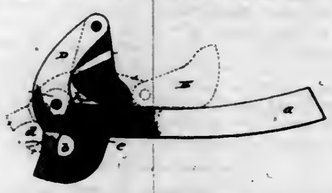
3. In the production by electrolysis of the hydroxids and oxids of the metals as separate bodies for use in the arts, the process which consists in passing a current of electricity through a suitable electrolyte having both the electrodes formed of the metal whose hydroxid or oxid is desired, and making each electrode the anode and the cathode, alternately, at suitable intervals, said electrolyte consisting of a neutral-salt solution of an alkali or alkaline earth whose acid radical will combine with the metal of the anode to form a salt of that metal which is soluble in the solution.

4. In the production by electrolysis of the hydroxids and oxids of the metals as separate bodies for use in the arts, the process which consists in passing a current of electricity through a suitable electrolyte having both the electrodes formed of the metal whose hydroxid or oxid is desired, and making each electrode the anode and the cathode, alternately, at suitable intervals, said electrolyte consisting of a neutral-salt solution of an alkali or alkaline earth whose acid radical will combine with the metal of the anode to form a salt of that metal which is soluble in the solution, and thereby also forming a hydroxid of the base of the salt of the electrolyte, which hydroxid thus produced and which metal salt thus produced react to form the hydroxid or oxid of the metal of the anode desired and also to form the same alkaline salt used in the electrolyte.

5. In the production by electrolysis of the hydroxids and oxids of tin, the process which consists in passing an electric current through a suitable electrolyte having both the electrodes formed of tin and making each electrode the anode and the cathode, alternately, at suitable intervals, said electrolyte consisting of a neutral-salt solution whose acid radical will combine with the tin to form a tin salt soluble in the solution.

6. In the production by electrolysis of the hydroxids and oxids of tin, the process which consists in passing an electric current through an electrolyte having both the electrodes formed of tin and making each electrode the anode and the cathode, alternately, at suitable intervals, said electrolyte consisting of a solution of common salt.

748,610. THILL-COUPLING. HENRY C. INGRAHAM, Meadus, Conn. Filed Oct. 12, 1903. Serial No. 176,695. (No model.)



Claim.—1. In a thill-coupling, the combination of a shaft-iron having its rear end provided with a downward projection recessed at its intermediate portion to receive the coupling-bolt, a lever pivotally mounted on the shaft-iron and having a short arm provided with a cross-bar to swing into and out of said recess, and a cam-shaped lever pivotally secured to the long arm of the lever and adapted to lock in engagement with the shaft-iron.

2. In a thill-coupling, the combination of a shaft-iron enlarged at its rear end and the intermediate portion of the enlargement recessed to receive the coupling-bolt, a lever pivoted above said recess and having a short arm to enter the same said short arm of the lever provided with a recess and a transverse bar which swings into and out of the recess as the lever is raised or lowered about its pivotal connection, and a lever pivoted to the free end of the first-named lever and having a cam-face to lock into engagement with the shaft-iron.

3. In a thill-coupling the combination of a shaft-iron having a downwardly-projecting enlargement at its rear end said enlargement recessed in its intermediate portion and having the portion above said recess forked or bifurcated; a lever pivoted within said forked portion and having a short arm to enter said recess said short arm recessed to initially receive the coupling-bolt and having a projecting spur at one side of the recess and a transverse bar at the opposite side thereof said bar adapted to be moved into and out of the recess of the shaft-iron when the lever is rocked about its pivotal connection, and a lever pivotally secured to the free end of the first-named lever and having a cam-face adapted to be forced into locked engagement with the shaft-iron.

4. A thill-coupling comprising a shaft-iron enlarged at the rear and having the intermediate portion of the enlargement recessed to receive the coupling-bolt; a lever pivoted to the shaft-iron at a point above said recess and having a short arm recessed to initially receive said bolt and to form a spur and cross-bar said spur engaged by the entering coupling-bolt to rock the lever and cause the cross-bar to close into the recess of the shaft-iron behind the bolt; and a lever pivotally secured to the free end of the first-named lever and having a cam-shaped end to engage directly with the shaft-iron, said shaft-iron and cam-surface of the lever serrated and adapted to interlock one with the other.

748,611. ART OF MAKING CEMENTITIOUS PRODUCTS OR ARTIFICIAL STONE. WILLIAM R. JAGUES, Grand Rapids, Mich., assignor to Alfred O. Crozier, Grand Rapids, Mich. Filed Mar. 23, 1903. Serial No. 149,181. (No specimens.)



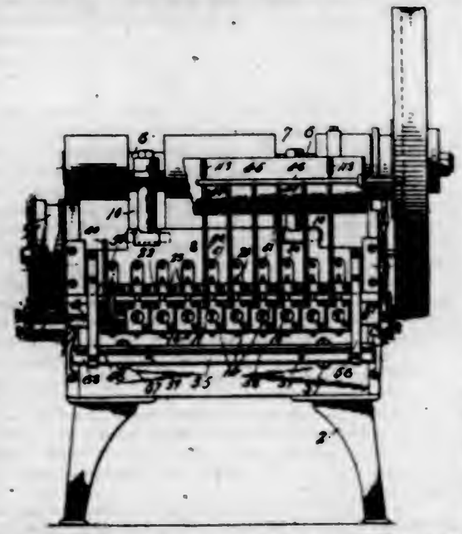
Claim.—1. An improvement in the art of making cementitious products or artificial stone, consisting in partially compacting a mass composed of a somewhat moist porous cementitious material upon a semifluid and practically non-porous cementitious layer which forms the lower exterior surface of the entire mass; then applying and confining a practically non-porous and semifluid cementitious composition or matter next to and exteriorly of other exterior surfaces of the partially-compacted mass; then exerting pressure upon the originally-compacted mass and added semifluid cementitious matter, and then permitting the product to set and harden.

2. An improvement in the art of making cementitious products

or artificial stone, consisting in placing a mass composed of a somewhat moist porous cementitious material upon a semifluid cementitious layer which forms the lower exterior surface of the entire mass; then enlarging the said mass by applying and confining semifluid material next exteriorly and laterally of the original mass; then exerting pressure upon the enlarged mass, and then permitting the product to set and harden.

3. An improvement in the art of making cementitious products or artificial stone, consisting in placing a mass composed of a somewhat moist porous cementitious material upon a semifluid and practically non-porous cementitious layer and confining the entire mass; then exerting pressure upon the confined mass and thereby displacing moisture and cement or cementitious matter from the aforesaid later into pores of the superimposed porous cementitious material, and then permitting the product to set and harden.

748,612. BALL-SWAGING MACHINE. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Mar. 24, 1903. Serial No. 149,712. (No model.)



Claim.—1. In a machine for swaging and truing balls, dies for acting on the balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, and automatically-operating ball feeding and discharging means for delivering each ball between the dies and for removing it therefrom after a plurality of strokes of the dies.

2. In a machine of the kind described, the combination with dies for acting on the balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, and means for intermittently changing the axial position of the ball with relation to the dies during the making of said plurality of strokes.

3. In a machine of the kind described, the combination with dies for acting on the balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, and automatically-operating means for intermittently changing the axial position of the ball with relation to the dies during the making of said plurality of strokes.

4. In a machine of the kind described, the combination with dies for acting on a ball by a plurality of strokes, automatically-operating feeding and discharging means for delivering the ball between the dies and for removing it therefrom after it has been acted upon, and automatically-operating means for intermittently changing the axial position of the ball with relation to the dies.

5. In a machine of the kind described, the combination with dies for acting on the balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, automatically-operating feeding and discharging means for delivering the ball between the dies and for removing it therefrom after it has been acted upon, and automatically-operating means for intermittently changing the axial position of the ball with relation to the dies.

6. In a machine of the kind described, the combination with dies for acting on the balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, and means operating in conjunction with each die and after each stroke of the dies to disengage the ball therefrom and to change the axial position of the ball in the dies before the next succeeding stroke.

7. In a machine of the kind described, a lower and an upper die, a ball-retaining wall or inclosure around said dies preventing escape of the ball when the dies are separated, a plunger associated with the lower die, and means automatically operating said plunger to disengage the ball from the lower die and throw it upwardly in the space within the ball-retaining wall or inclosure while the dies are separated after each stroke thereof.

8. In a ball swaging and truing machine, the combination of two dies, actuating means reciprocating one of the dies and subjecting each ball to a plurality of strokes, automatically-operating means for intermittently arresting the operation of said actuating means after a plurality of strokes of the dies, and ball discharge and feed means operating automatically while the die-actuating means are at rest to discharge the ball acted upon from the dies and to deliver another ball thereto.

9. The combination with dies for acting on a ball, a hopper for balls to be acted upon by the dies, and ball-feeding means for delivering the balls one after another to the dies and for discharging each ball from the dies before the next succeeding ball is delivered thereto from the hopper.

10. The combination with dies for acting on balls, means actuating one of the dies and subjecting each ball to a plurality of strokes, a hopper for balls to be acted upon by the dies, and ball-feeding means for delivering the balls one after another from the hopper to the dies and for discharging each ball from the dies before the next succeeding ball is delivered thereto from the hopper.

11. The combination with a plurality of sets of dies for acting upon balls, and means common to all of the sets acting by one movement to introduce balls between the dies and by another movement to remove the balls after the operation of the dies.

12. The combination with a plurality of sets of dies for acting upon balls, a ball feed and ejector bar common to all of the sets of dies, and means automatically and intermittently operating said bar to both feed balls to and eject them from the dies.

13. The combination with a plurality of sets of dies for acting upon balls, a ball-hopper, a ball passage or tube leading from said hopper to each set of dies, and ball-feeding means consisting of a movable bar having openings therein and common to all of the sets of dies, said bar working in proximity to the sets of dies and to the ball-passages, and means automatically operating said bar to simultaneously deliver a ball from each of the ball-passages to the sets of dies respectively.

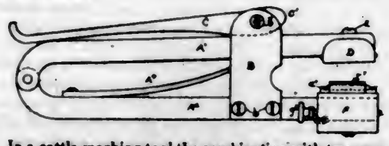
14. The combination with a plurality of sets of dies for acting upon balls, a ball-hopper, a ball passage or tube leading from said hopper to each set of dies, and ball ejecting and feeding means consisting of a movable bar having openings therein and common to all of the sets of dies, said bar working in proximity to the sets of dies and to the ball-passages, and means automatically operating said bar to simultaneously deliver a ball from each of the ball-passages to the sets of dies respectively.

15. In a machine of the kind described, the combination with dies for acting on a ball, ball feeding and discharging means consisting of a reciprocatory bar having an opening therein acting upon the feed movement of the bar to receive a ball from a ball-supply passage and to deliver it between the dies which in acting upon the ball operate in the opening whereby said opening acts upon the discharge movement of the bar to withdraw the ball from between the dies and deliver it to a discharge-opening, and means for automatically imparting said feed and discharge movements to the bar.

16. The combination with a plurality of sets of dies, for acting upon balls, a ball-supply passage or tube leading to each set of dies, ball feeding and discharging means consisting of a reciprocatory bar common to all of the sets of dies and having openings therein, one corresponding to each set, acting upon the feed movement of the bar to receive balls from the corresponding ball-feed tubes and to deliver them between the dies which in acting upon the ball operate in the openings whereby said openings act upon the discharge movement of the bar to withdraw the balls from between the dies and deliver them to discharge-openings, and means for automatically imparting said feed and discharge movements to the bar.

748,613. CATTLE-MARKING TOOL. HERBERT A. JOHNS, Riverside, N. Y. Filed Apr. 14, 1903. Serial No. 152,590. (No model.)

Claim.—1. In a cattle-marking tool the combination with two arms pivotally connected together, of a platen; means for yieldingly attaching said platen to one of said arms; a die upon the other arm said platen and die being adapted to engage with each other when the ends of said arms are close together; means for vertically adjusting said platen and said die upon said arm, respectively; means for closing the ends of said arms; and a spring tending normally to separate said arms.



2. In a cattle-marking tool the combination with two arms pivotally connected together, of a platen; means for yieldingly attaching said platen to one of said arms; a die; means for yieldingly supporting said die upon the other of said arms; means whereby said arms are caused to approach within a fixed distance of each other; and means for adjusting either the platen or die upon its support with reference to the other said part.

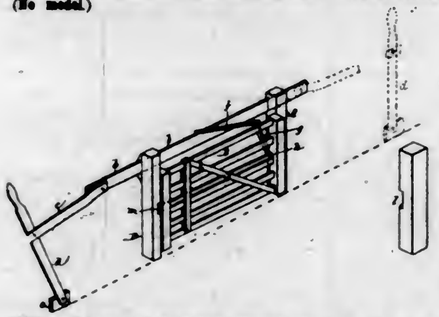
3. In a cattle-marking tool the combination with two arms pivotally connected together at one end, of the platen D upon the free end of one of said arms; the adjustable bolt *d*; a compressible block between said arm and said platen; and a die upon the opposite arm, substantially as shown and described.

4. In a cattle-marking tool the combination with two arms pivotally connected together at one end, of the die-block E upon one of said arms; the adjustable bolt *e*; a compressible block between said arm and said die; and a platen upon the other said arm; substantially as shown and described.

5. In a cattle-marking tool the combination with two arms pivotally connected together at one end, of the platen D upon the end of one of said arms; the adjustable bolt *d*; a compressible block between said arm and said platen; the die-block E upon the opposite arm; the adjustable bolt *e*; and a compressible block between said arm and said die-block, substantially as shown and described.

6. In a cattle-marking tool the combination with two arms pivotally connected together, of means for closing the free ends of said arms; a platen upon the end of one of said arms; a die-supporting block upon the end of the other of said arms; the casing F; the axes *g g'* supported within said casing; the inking-rolls G G' upon said axes; and means for transferring the ribbon from one roll to the other across the die, substantially as shown and described.

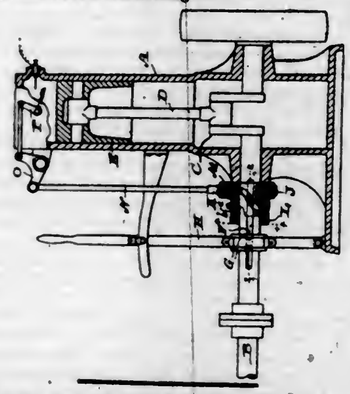
748,614. AUTOMATIC ATTACHMENT FOR GATES. JOSEPH H. JOHNS, Scotland, Canada, assignor of one-half to James Edward Elliott, Scotland, Ontario, Canada. Filed Aug. 10, 1903. Serial No. 169,038. (No model.)



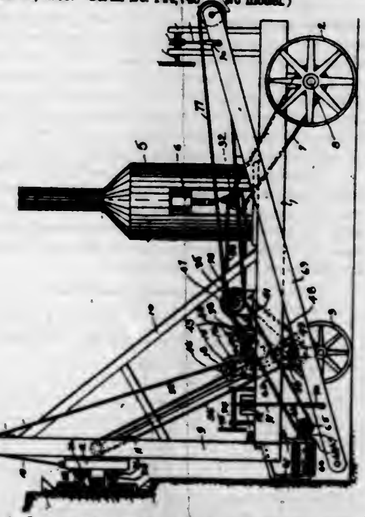
Claim.—An opening and closing attachment to a gate, consisting of a horizontal bar made to slide in notches in the hinged post and slam-post, an operating-lever pivoted to a block or post in the ground and a short connecting-bar pivoted to the lever and to the sliding bar, a short lever pivoted to the gate, a connecting-rod pivoted to the top of it and to the sliding bar, a latch-bar pivoted to the gate and having its inner end inclined, the short lever being forked at the end and made to straddle the latch-bar to release it from its catch on the post when the operating-lever is moved to open the gate, all constructed substantially as and for the purpose specified.

748,615. GAS-ENGINE. WILLIAM R. KAHLENBERG, Two Rivers, Wis. Filed Feb. 6, 1901. Serial No. 46,473. (No model.)

Claim.—A gas-engine having a longitudinally-grooved crank-shaft, a collar loose on the shaft, a slide fast to the collar and arranged in the shaft-groove, lever mechanism in connection with said collar, a spirally-slotted bushing loose on said shaft, a projection on the slide engaging the bushing-slot, and a spark-control eccentric adjustably connected to the bushing.



748,616. GRADING-MACHINE. BURTON A. KARR, Council Bluffs, Iowa, assignor of one-half to Charles F. Mauer, Council Bluffs, Iowa. Filed Feb. 24, 1903. Serial No. 144,746. (No model.)



Claim.—1. In a grading-machine, plows continuously movable in a substantially horizontal direction, means for actuating said plows, means for supporting same, means for moving same in a vertical direction, and means for removing material displaced by movement of the plows.

2. In a grading-machine, horizontally-movable plows, endless actuating means therefor, a frame supporting the same, means for moving the frame in a vertical direction, and means for removing material displaced by the plows.

3. In a grading-machine, horizontally-movable plows, endless actuating means therefor, a frame supporting the same, tracks on said frame for guiding the plows, means for moving the frame in a vertical direction, and means for removing material displaced by the plows.

4. In a grading-machine, horizontally-movable plows, endless actuating means therefor, a frame supporting the same, vertical guideways engaged by said frame, and means for moving the frame on said vertical guideways.

5. In a grading-machine, a vertically-movable frame, guideways engaged thereby, tracks upon the frame, plow-beams engaging said tracks, shanks on said plow-beams, plows carried by said shanks, and endless actuating means connected to said shanks, whereby the plow-beams may be continuously moved along said tracks.

6. In a grading-machine, a platform, vertical guideways secured thereto, a frame engaging said guideways, means for raising and lowering said frame on said guideways, horizontally-movable plows carried by said frame, tracks on said frame for guiding said plows, an endless chain connected with said plows, and means for actuating said chain whereby the plows may be moved along said tracks.

7. In a grading-machine, a platform, vertical guideways secured thereto, a frame engaging said guideways and slidable thereon, horizontally-movable plows carried by said frame, an endless chain for actuating said plows, a main driving-shaft on said platform, and flexible connecting means from said driving-shaft to said chain whereby the latter may be actuated.

8. In a grading-machine, horizontally-movable plows, guiding means therefor, actuating means therefor, means for raising and lowering said plows, a horizontal conveyer arranged below said plows and adapted to catch material displaced thereby, and an elevating conveyer adapted to receive material from the horizontal conveyer and elevate the same.

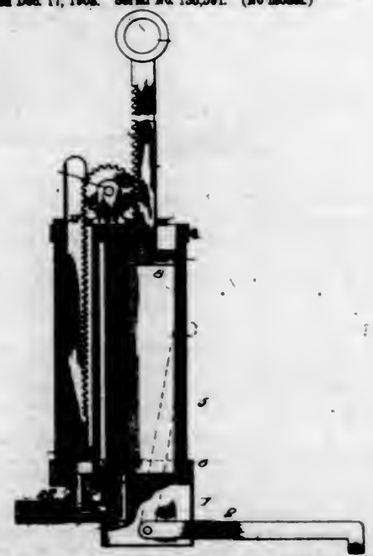
9. In a grading-machine, a platform, vertical guideways carried by said platform, a frame engaging said vertical guideways and slidable thereon, horizontally-movable plows carried by said frame, sheaves on said guideways, cables passing over said sheaves and connected to said frame, other sheaves connected with said cables and around which the cables may be wound, a shaft carrying the latter sheaves, a worm-gear on said shaft, a worm engaging said gear, and means for revolving said worm in either direction, whereby the worm-gear and shaft may be revolved and the frame raised or lowered upon the vertical guideways.

10. In a grading-machine, continuously-movable plows, endless actuating means therefor, means for raising and lowering the plows, and a conveyer disposed substantially parallel with the horizontal movement of the plows and adapted to receive material therefrom.

11. In a grading-machine, plows movable in a substantially horizontal direction, endless actuating means therefor, a conveyer disposed substantially parallel with the movement of the plows and adapted to receive material displaced thereby, and a second conveyer adapted to receive and remove material from the former conveyer.

12. In a grading-machine, plows movable in a substantially horizontal direction, actuating means therefor, a conveyer disposed substantially parallel with the movement of said plows and adapted to receive material therefrom, a second conveyer adapted to receive material discharged by the first conveyer, and means for adjusting the position of the latter conveyer.

748,617. AIR-PUMP. GEORGE W. KELLOGG, Winsted, Conn. Filed Dec. 17, 1902. Serial No. 136,591. (No model.)



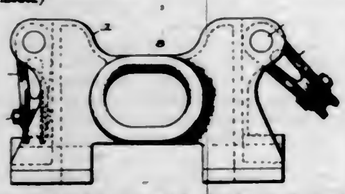
Claim.—1. In a pump, the combination of two cylinders of differing capacities, rack-pistons for said cylinders, an actuating-handle on one of said pistons, a pinion intermediate the piston-racks and meshing therewith, a delivery-conduit, an open conduit by which the smaller cylinder communicates freely with the delivery-conduit, a conduit by which the larger cylinder may communicate with each of the other conduits, and a check-valve to prevent return to the larger cylinder.

2. In a pump, the combination of two cylinders of differing capacities, pistons for said cylinders, means for actuating the pistons in opposite directions, a delivery-conduit common to the cylinders and conduits whereby each cylinder communicates with the delivery-conduit, that of the larger cylinder being provided with a check-valve to prevent entrance thereto and that of the smaller being always open.

3. In a pump, the combination of two cylinders of differing capacities, pistons for said cylinders, means for actuating the pistons in opposite directions, a delivery-conduit common to the cylinders and conduits whereby each cylinder communicates with the delivery-conduit, that of the larger cylinder being provided with a check-valve to prevent entrance thereto and that of the smaller being always open, the common delivery-conduit having a capacity less than that of the conduit by which it communicates with the smaller cylinder.

4. In a pump, a cylleder-supporting base, having an extension a plurality of cylinders one carried by said extension and each having a piston and an exit-conduit communicating with a delivery-conduit, said delivery-conduit being situated immediately under said extension, whereby the cylinders may cooperate and whereby the connections are protected.

748,618. DEVICE FOR MOORING AND WARPING VESSELS. JOSEPH KIDD, Duluth, Minn. Filed Oct. 31, 1901. Serial No. 80,702. (No model.)



Claim.—1. In a mooring and warping device, the combination of a body portion, a sheave-supporting shell pivoted thereon, a sheave therein, the said shell having a mortise larger than the sheave with an enlarged opening 16 above the mortise, separated therefrom by a slot 17 adjacent to the sheave-score, the said slot being narrower than the width of the sheave.

2. In a mooring and warping device, the combination of a body, lugs thereon, a shell-supporting bolt thereon, a sheave within the shell, the said shell having a mortise larger than the sheave, with an enlarged opening 16 above the mortise separated therefrom by a slot 17 adjacent to the sheave-score, the said slot being narrower than the width of the sheave, substantially as set forth.

748,619. ELECTRIC RAILWAY. CHARLES J. KINTNER, New York, N. Y. Filed Sept. 22, 1900. Renewed May 19, 1903. Serial No. 158,052. (No model.)

Claim.—1. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables and switching devices for operatively connecting said sectional conductors to the insulated current feeder or main, in combination with flexible or yielding means for normally maintaining the sectional conductors in a taut or strained condition and out of electrical connection with the current feeder or main.

2. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables each mechanically connected to a pivoted switching-arm provided with a switching contact located in a water-tight switch-box and adapted to be connected with a stationary contact-plate located therein and connected to the current feeder or main, in combination with flexible or yielding means operatively so connected to the switching-arms as to maintain the sectional trolley-conductors connected thereto in a taut or strained condition and to hold said switching-arms normally so that the movable switching contacts are out of electrical contact with the stationary contact-plates.

3. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables each mechanically and electrically connected with pivoted switching-arms and yielding contacts located in water-tight switch-boxes, in combination with an insulated fixed or stationary contact-plate in each switch-box electrically connected with the current feeder or main; together with flexible or yielding means operatively connected with the switching-arms and adapted to hold them in such positions that the sectional trolley-conductors are always maintained in a taut or strained condition and normally disconnected from the current feeder or main.



4. In an electric-railway system an insulated current feeder or main and a series of water-tight electrical switch-boxes each inclosing a fixed or stationary contact-plate electrically connected with the current feeder or main; in combination with a series of flexible sectional conductors or cables, one between each pair of switch-boxes, said sectional conductors or cables being supported by pivoted arms and each provided with flexible or yielding means for normally maintaining the sectional conductors or cables out of electrical connection with the insulated current feeder or main; together with adjustable means for tightening or varying the flexibility of the sectional conductors or cables.

5. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables normally electrically disconnected therefrom, and provided with flexible or yielding means for normally maintaining them in a taut or strained condition, in combination with switches located in water-tight switch-boxes and adapted to connect said sectional conductors to the current feeder or main as a car passes over the road; together with a visual indicator at each switch-box for giving visual indication of the fact that the sectional trolley-conductors are normally disconnected from the current feeder or main.

6. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables normally electrically disconnected therefrom, and provided with flexible or yielding means for normally maintaining them in a taut or strained condition, in combination with switching mechanism adapted to connect said sectional trolley-conductors to the current feeder or main as a car passes over the road; together with a visual indicator at each switch for indicating the fact that the sectional trolley-conductors are normally electrically disconnected from the current feeder or main.

7. In an electric-railway system an insulated current feeder or main, a series of sectional trolley-conductors, a series of switching devices for electrically connecting said sectional trolley-conductors to and disconnecting them from the current feeder or main, said switching devices being located in water-tight switch-boxes, in combination with a hand-switch between the current feeder or main and the stationary contact-plate of each switch for temporarily interrupting the circuit at the switches during repairs or inspection, the circuit-interrupting portion of said switch being inclosed within the switch-box and the operating-handle therefor located outside of the box and at an accessible point for operating it without opening the box.

8. In an electric-railway system an insulated current feeder or main; a series of sectional trolley-conductors and a series of water-tight switch-boxes provided with switching means inclosed therein for connecting the sectional trolley-conductors to and disconnecting them from the current feeder or main; in combination with means for giving a visual indication of any liquid which may be contained within the boxes; together with additional visual indicators for indicating the condition of the switches.

9. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables operatively connected to means for maintaining them in a taut or strained condition and provided with switching devices for operatively connecting them to and disconnecting them from the current feeder or main; said switching devices being inclosed in water-tight switch-boxes, in combination with one or more automatic cut-out devices for each sectional trolley-conductor, the arrangement being such that the cut-out devices may be inspected or restored without opening the switch-boxes.

10. In an electric-railway system an insulated current feeder or main electrically connected with switching devices located in water-tight switch-boxes, in combination with a series of flexible sectional trolley conductors or cables mechanically supported by pivoted arms attached to hollow rock-shafts journaled in said switch-boxes; together with means located on one side of said switch-boxes for regulating the tension and flexibility of the sectional conductors or cables.

11. In an electric-railway system an insulated current feeder or main electrically connected with switching devices located in water-tight switch-boxes, in combination with a series of flexible sectional trolley conductors or cables mechanically supported by pivoted arms attached to hollow rock-shafts journaled in said switch-boxes, together with means located at one side of said switch-boxes for regulating the tension and flexibility of the sectional trolley conductors or cables and additional yielding means for normally holding the switching devices out of circuit with the current feeder or main.

12. In an electric-railway system an insulated current feeder or main and a series of flexible sectional trolley conductors or cables yieldingly supported and provided with switching devices for electrically connecting them with the current feeder or main; in combination with a yieldingly-supported trolley adapted to actuate the switching devices and successively connect the sectional trolley conductors or cables to the current feeder or main as a car or vehicle passes over the road.

13. In an electric-railway system an insulated current feeder or main electrically connected by insulated branch feeders to a series of stationary contact-plates located at intervals along the road and inclosed in water-tight switch-boxes filled with a liquid insulating medium, as oil, in combination with a series of flexible sectional trolley conductors or cables connected to movable switching devices located in said switch-boxes, said sectional trolley conductors or cables being yieldingly supported; together with a yieldingly-supported trolley adapted to successively connect the sectional trolley conductors or cables to the current feeder or main as the car or vehicle passes over the road.

14. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables and switching devices for connecting said trolley conductors or cables to the current feeder or main, the opposite ends of said sectional conductors being secured by means located at points outside of the tram-rails.

15. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables provided with switching devices for connecting them to the current feeder or main; together with means for yieldingly maintaining said sectional trolley conductors or cables in a taut or strained condition and additional means for securing them at their opposite ends, said additional means being located at points outside of the tram-rails.

16. In an electric-railway system an insulated current feeder or main, a series of flexible sectional trolley conductors or cables and switching devices for connecting the same to the current feeder or main; together with yielding means for maintaining said flexible sectional conductors in a taut or strained condition, and retarding devices, as dash-pots, for preventing the switches from being turned to normal condition with damaging effects.

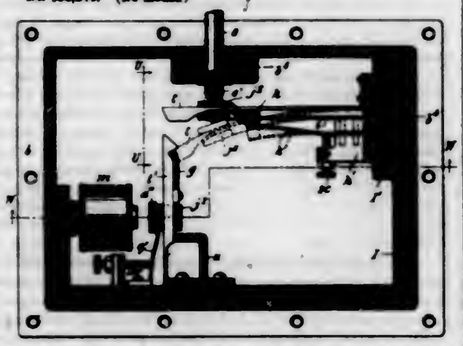
17. In an electric-railway system a current feeder or main; a series of sectional trolley-conductors normally electrically discon-

nected therefrom; in combination with switches located in water-tight switch-boxes and adapted to connect said sectional conductors to the current feeder or main as a car passes over the road; together with a visual indicator operatively connected with each switch at a point wholly within the box and provided with means located outside of the box for giving a visual indication of the fact that the sectional trolley-conductors are all normally disconnected from the current feeder or main and this without opening the boxes.

18. A system of electric railways embracing a current feeder or main and a series of sectional trolley or working conductors normally disconnected therefrom; in combination with water-tight switch-boxes inclosing switching devices for automatically connecting said sectional conductors to and disconnecting them from the current feeder or main; together with a manual or hand switch connected in circuit with each switching device and adapted to connect the same with or disconnect it from the current feeder or main without opening the inclosing switch-box.

19. A system of electric railways embracing a current feeder or main and a series of sectional trolley or working conductors normally disconnected therefrom; in combination with water-tight switch-boxes inclosing switching devices for automatically connecting said sectional conductors to and disconnecting them from the current feeder or main as a car passes over the route; together with a manual or hand circuit-interrupting switch for each box, the operating contacts of which are located within the same, while the operating-handle or controlling part thereof is located on the outside thereof, whereby the circuit may be interrupted between the current feeder or main and the switch-operating mechanism without opening the box, substantially as described.

748,620. **ELECTRIC RAILWAY.** CHARLES J. KINTNER, New York, N. Y. Filed Mar. 10, 1902. Renewed May 22, 1903. Serial No. 158,379. (No model.)



Claim.—1. A safety system of electric railways embracing two or more parallel lines of tram-rails, one or more current feeders or mains, and one or more switching sectional working conductors for conveying current to the motors on the cars when being transferred from one track to another; in combination with rail-switches for moving the switch-rails as required and electrical connections whereby when a rail-switch is set so that the switch-rails will transfer a car from one line of tram-rails to another the sectional working conductors are made alive; said working conductors being always without current potential when the switch-rails are in alinement with their direct lines of tram-rails, substantially as described.

2. A safety system of electric railways embracing two or more parallel lines of tram-rails; one or more current feeders or mains and one or more switching sectional working conductors for conveying current to the motors on the cars when being transferred from one track to another; in combination with rail-switches for moving the switch-rails as required and electrical connections whereby when a rail-switch is set so that the switch-rails will transfer a car from one line of tram-rails to another, the sectional working conductors are made alive; together with interlocking means for locking the rail-switches so that they cannot be disturbed after a car on any track has reached a certain point adjacent to the rail-switches, substantially as described.

3. A safety system of electric railways embracing two or more parallel lines of tram-rails, one or more current feeders or mains and a sectional third rail or conductor for each line of tram-rails normally disconnected from the current feeder or feeders; in combination with circuits and circuit connections for connecting said sectional conductors to the current feeder or main and disconnecting them therefrom, and rail-switches for each line of tram-rails; together with electromagnetic interlocking devices connected in circuit with said sectional third rails or conductors and in such manner that when any one of said sectional conductors is made alive the rail-switches for all of the tracks are automatically locked and held locked until said sectional conductor is disconnected from the current feeder or main, substantially as described.

4. A safety system of electric railways embracing two or more parallel lines of tram-rails, one or more current feeders or mains and a sectional third rail or conductor for each line of tram-rails normally disconnected from the current feeder or feeders; rail-switches for each line of tram-rails; switching sectional working conductors for supplying current to the motors on board the cars when being transferred from one line of rails to another, all of said sectional conductors being normally without current potential; in combination with circuits and circuit connections for connecting said sectional and switching working conductors to the current feeder or main and disconnecting them therefrom; together with electromagnetic interlocking devices connected in circuit with the first-named sectional conductors and in such manner that when any one of the said sectional conductors is made alive the rail-switches for all of the tracks are automatically locked and held locked until said sectional conductor is disconnected from the current feeder or main, substantially as described.

5. A safety system of electric railways embracing one or more current feeders or mains and two or more lines of tram-rails; switching working conductors for each line of tram-rails for conveying current to the motors on board the cars when being switched from one line of rails to another; rail-switches for each line of tram-rails, circuit connections between the rail-switches and the switching working conductors and the current feeder or main for giving to the working conductors current potential when a switch has been set to transfer a car from one line of tram-rails to another; in combination with a current collector or shoe carried by a car and branch circuits or conductors at the outgoing ends of the switching working conductors whereby after a car or train has been transferred from one track to another the circuits will all be restored to their normal conditions, substantially as described.

6. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with safety-circuits permanently connected in circuit with the sectional working conductors, each sectional or safety circuit including a danger-signal at a point somewhat remote from the point where it is connected to the sectional working conductor and a cautionary signal located at a point still more remote therefrom, the arrangement being such that when any sectional conductor is connected to the current feeder or main by its corresponding switch a danger-signal is displayed at one point and a cautionary signal at another point still more remote, substantially as described.

7. A safety system of electric railways embracing a current feeder or main and a series of sectional third rails or conductors normally disconnected therefrom; switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main; releasing-circuits connected permanently in circuit with the sectional third rails or conductors and including the releasing-electromagnets of the switches; in combination with danger and cautionary signals included in said releasing-circuits, together with permanent signals located at the ends of adjoining sectional third rails or conductors, substantially as described.

8. A safety system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors normally disconnected therefrom and switching mechanism for connecting said sectional conductors to the current feeder or main and disconnecting them therefrom; in combination with duplex signals located at the adjoining ends of said sectional third rails or conductors; together with manual switches for placing either or both of said signals in circuit with the current feeder or main, substantially as described.

9. A safety system of electric railways embracing two or more parallel lines of tram-rails; one or more current feeders or mains, a series of sectional third rails or conductors for each line of tram-rails; rail-switches for effecting the transfer of a car or train from any line of tram-rails to another; in combination with danger and cautionary signals for each sectional third rail or conductor and additional danger or cautionary signals relatively so located to the first-named danger and cautionary signals that the special nature of the signal is indicated to motormen as they approach the switches, substantially as described.

10. A safety system of electric railways embracing two or more parallel lines of tram-rails, rail-switches for effecting the transfer of a car or train from any line of tram-rails to another and electrical circuits and circuit connections between the rail-switches and the current feeder or main and a semaphore or signal for each track adapted to give to a motorman an indication of the fact that his car is to be transferred from the track over which it is traveling to another track and to indicate to him on which of the tracks it is to be transferred, substantially as described.

11. A system of electric railways embracing a current feeder or main and a series of sectional third rails or conductors; in combination with switching mechanism for connecting said sectional rails or conductors to and disconnecting them from the current feeder or main; together with switching means for connecting two or more of said sectional conductors in series and simultaneously disconnecting them from the switching mechanism, substantially as described.

12. A system of electric railways embracing a current feeder or main, a series of sectional third rails or conductors and switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main; said switching mechanism embracing safety and releasing circuits and electromagnets; in combination with switches for connecting two or more of said sectional third rails or conductors in series relation and additional switches and shunts, one for each sectional third-rail switch, the arrangement being such that when all of the switches are placed in their shunt relation to the sectional third-rail switches, said third-rail switches are rendered inoperative and the adjoining sectional third rails or conductors are made operative as a single section, substantially as described.

13. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors provided with non-arcing resistances connected in series relation between adjoining short sectional conductors near the outgoing end of each sectional third rail or conductor, the last sectional third rail or conductor near the end being of sufficient length to permit a car or train of indefinite length to be located thereon; said car or train being provided with two or more current collectors or shoes, one at each end thereof; together with means as a switch for shunting the resistances out of circuit, substantially as described.

14. A safety system of electric railways embracing a current feeder or main and a series of sectional third rails or conductors normally disconnected therefrom; in combination with switching mechanism for automatically connecting said sectional third rails or conductors to and disconnecting them from the current feeder or main as a car or train passes by or over the route; together with manual switching mechanism located beside the track and operatively connected to the switching mechanism of any sectional third rail or conductor in such manner that any authorized person may render said switching mechanism temporarily inoperative so as to cause a car or train to stop when it reaches that particular sectional third rail or conductor, substantially as described.

15. A safety system of electric railways embracing a current feeder or main and a sectional third rail or conductor adapted to be electrically connected thereto; switching mechanism for connecting said sectional third rail or conductor to and disconnecting it from the current feeder or main and a manual switch connected in circuit with said switching mechanism and located at some point beside the track, the arrangement being such that an authorized person may temporarily prevent the sectional third rail or conductor from being connected to the current feeder or main and thereby cause a car or train to stop when its current-collector enters upon said sectional third rail or conductor, substantially as described.

16. A safety system of electric railways embracing a current feeder or main and a sectional third rail or conductor adapted to be electrically connected thereto; switching mechanism for connecting said sectional third rail or conductor to and disconnecting it from the current feeder or main and a manual switch connected in circuit with said switching mechanism and located at some point beside the track; in combination with a car or train provided with a propelling electric motor, a current collector or shoe for conveying current from the service or working conductor to and through the motor; together with electromagnetically-controlled brake mechanism included in the same circuit, the arrangement being such that an authorized person may prevent the sectional third rail or conductor from being connected to the current feeder or main, deprive the motor of current and automatically apply the brakes, substantially as described.

17. A safety system of electric railways embracing a current feeder or main; a sectional third rail or conductor and switching mechanism for connecting said sectional third rail or conductor to and disconnecting it from the current feeder or main; a manual switch located beside the track and operatively connected in circuit with said switching mechanism; signaling mechanism included in circuit with the switching mechanism, the arrangement being such that an authorized person may prevent the sectional third rail or conductor from being connected to the current feeder or main and display or give a warning signal, substantially as described.

18. A safety system of electric railways embracing two or more parallel lines of tram-rails; one or more current feeders or mains and a series of sectional third rails or conductors for each track normally disconnected therefrom; switching mechanism for connecting said sectional third rails or conductors to and disconnecting them from the current feeders or mains; in combination with rail-switches for each line of rails and stop-switches therefor operatively connected with the switching mechanism of the sectional third rails or conductors in such manner as to enable a switchman to stop any car on any track; together with signaling mechanism for indicating to a switchman in a switch-house the electrical condition of the sectional third rails or conductors adjacent to said switch-house, the rail-switch levers, stop-switches and signaling mechanism being all so located in the switch-house as to be readily observed by him, substantially as described.

19. In a system of electric railways a current feeder or main and a series of sectional third rails or conductors normally disconnected therefrom; switching mechanism for connecting said sectional conductors to and disconnecting them from the current feeder or main, said switching mechanism consisting of yielding interlocking terminals and levers for actuating the same, in combination with a mechanically-controlled trolley carried by a car, said trolley being provided with an elastic or yielding tire, substantially as described.

20. A safety system of electric railways embracing a current feeder or main; a series of sectional third rails or conductors normally disconnected therefrom and a switch for each sectional third rail or conductor embracing yielding metallic terminals having interlocking parts, the free ends of said terminals being slitted as shown and the locking part of one of the terminals so constructed with relation to the other that the tendency of the terminals when locked is to separate; in combination with adjustable yielding releasing means adapted to hold the terminals together, substantially as described.

21. In a safety system of electric railways of the sectional-third-rail type, a switch for connecting the circuit between any sectional third rail or conductor and the current feeder or main of the system, consisting of two yielding terminals, the ends of which are provided with locking means and yielding springs *g*, *g*, relatively so disposed that when held together the normal tendency is for them to separate; in combination with yielding means for maintaining the terminals in contact, said yielding means being attached to an armature located in the field of a releasing-electromagnet and a collar which surrounds the releasing-terminal, the arrangement being such that when the armature is drawn forward it gives to the releasing-terminal a sudden blow and permits the forces acting upon the interlocked faces of the two terminals to further aid in the separation thereof, substantially as described.

22. A safety system of electric railways embracing two or more parallel lines of tram-rails, one or more current feeders or mains and a sectional third rail or conductor for each line of tram-rails; in combination with a series of switching sectional working conductors for each line of tram-rails bonded together by bonds or cables where they intersect the tram-rails; together with a car or train having one or more electric motors and two or more current collectors or shoes so located with relation to each other that the circuit is never wholly interrupted through the motor when a car is passing from one track to another, substantially as described.

23. In an electric-railway system a switch consisting of two yielding terminals, the free ends of which are adapted to be locked together by an interlocking ledge or shoulder upon one of them; in combination with adjustable yielding means for maintaining the two terminals in locked relation, the angular relation of the two contacting ends of the terminals being such that they will not remain in locked position without the aid of the before-mentioned adjustable yielding means, substantially as described.

24. In an electric-railway system a switch consisting of two yielding terminals, the free ends of which are adapted to be locked together by an interlocking ledge or shoulder upon one of them; in combination with means for forcing the ends of the terminals into locked relation; together with adjustable yielding means for maintaining the two terminals in locked relation, the angular relation of

the two contacting ends of the terminals being such that they will not remain in locked position without the aid of the before-mentioned adjustable yielding means, substantially as described.

25. In an electric-railway system a switch adapted to convey currents of large quantity, consisting of two yielding terminals the free ends of which are adapted to be locked together by an interlocking ledge or shoulder upon one of them, said locking-shoulder having an angular relation to the end of the other terminal such that when the two terminals are interlocked there is normally a tendency for them to separate; in combination with a releasing-electromagnet and an armature therefor operatively connected with means for releasing the interlocked terminals, together with adjustable yielding means for maintaining said terminals in locked position; substantially as described.

26. In an electric-railway system a switch adapted to convey currents of large quantity, consisting of two yielding terminals the free ends of which are adapted to be locked together by an interlocking ledge or shoulder upon one of them, said locking-shoulder having an angular relation to the end of the other terminal such that when the two terminals are interlocked there is normally a tendency for them to separate; in combination with means for forcing said terminals into their interlocked position; together with releasing means which normally maintains the interlocked terminals in their locked position and an electromagnet having an armature connected to the releasing means, the arrangement being such that the releasing means, when acted upon by the electromagnet, gives to the locking-terminal a preliminary blow whereby the terminals are caused to separate under their own yielding action and the joint action of the electromagnet, substantially as described.

27. In an electric-railway system a switch adapted to convey currents of large quantity, consisting of two yielding metallic terminals, one of which is composed of fingers separated from each other and the other is provided with an interlocking ledge or shoulder at its free end having an angular relation to the free ends of the fingers, such that when the two terminals are interlocked there is normally a tendency for them to separate, substantially as described.

28. In an electric-railway system a switch adapted to convey currents of large quantity, consisting of two yielding metallic terminals, one of which is composed of fingers separated from each other and the other is provided with an interlocking ledge or shoulder at its free end having an angular relation to the free ends of the fingers, such that when the two terminals are interlocked there is normally a tendency for them to separate; in combination with means for simultaneously forcing all of the free ends of the fingers into interlocked position with the shoulder of the other terminal, substantially as described.

29. In an electric-railway system a switch adapted to convey currents of large quantity, consisting of two yielding metallic terminals, one of which is composed of fingers separated from each other and the other is provided with an interlocking ledge or shoulder at its free end having an angular relation to the free ends of the fingers, such that when the two terminals are interlocked there is normally a tendency for them to separate; in combination with means for simultaneously forcing all of the free ends of the fingers into interlocked position with the shoulder of the other terminal; together with adjustable yielding means for holding the terminals in their interlocked position, substantially as described.

30. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors and switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main as a car or train passes over the route; in combination with means located at the adjoining ends of the sectional conductors for connecting said conductors together in series relation and temporarily disconnecting any one or all of the switching devices from their respective sectional conductors, substantially as described.

31. An electric-railway system embracing a current feeder or main; a series of sectional third rails or conductors, and switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main as a car or train passes over the route; in combination with means for cutting out of circuit any one of the switching devices and connecting the adjoining ends of the sectional conductors adjacent thereto in series relation with each other, the arrangement being such that any two sections, when so connected, will operate as one and be operatively connected to and disconnected from the current-feeder by the next adjacent switching device in the rear, substantially as described.

748,621. SAFETY SYSTEM OF ELECTRIC RAILWAYS. CHARLES J. KINTNER, New York, N. Y. Filed Nov. 15, 1902. Serial No. 131,506. (No model.)



Claim.—1. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails normally disconnected therefrom, and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with a car provided with current-collecting means for conveying the current from the sectional conductors to a motor or motors carried thereby; supplemental sectional conductors or third rails of greater length than the longest train it is desired to run and electrically connected to the current feeder or main; together with circuits and circuit connections whereby the current potential is always maintained substantially constant to the motor or motors on the car and each sectional conductor is automatically disconnected from the current feeder or main only after electrical connection has been severed between it and the current-collecting means carried by the car, substantially as described.

2. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails normally disconnected therefrom, and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with a car provided with current-collecting means for conveying the current from the sectional conductors to a motor or motors carried thereby; supplemental sectional conductors or third rails of greater length than the longest train it is desired to run and electrically connected to the current feeder or main; together with circuits and circuit connections between the feeder and the sectional conductors whereby two adjacent sectional conductors are always maintained alive while a car is passing over them and the current potential is always maintained between the generator and the motors on the car, the circuit being interrupted between the last sectional conductor passed over by the car only after the current-collecting means has severed its connection therewith, substantially as described.

3. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional third rails or conductors; switches for connecting said sectional conductors to and disconnecting them from the feeder or main; supplemental sectional conductors or third rails of greater length than the longest train it is desired to run and electrically connected to the current feeder or main; a car provided with current-collecting means for conveying the current from the sectional conductors to the motor or motors on board the car; circuits and circuit connections between the adjacent sectional third rails or conductors so arranged as to always maintain at least two of such sectional conductors in electrical connection with the feeder at one time, the arrangement being such that the circuit is broken to the last sectional conductor passed over by the car only after the current-collecting means has severed its connection therewith, the current potential being maintained without interruption to the motor or motors on board the cars, substantially as described.

4. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with additional sectional conductors or third rails located between the adjacent ends of the first-named sectional conductors or third rails; together with branch feeders for connecting said additional conductors to the current feeder or main, and circuits and circuit connections whereby the continuity of the current-flow to the motor or motors on board of a car is never interrupted or substantially varied and the first-named sectional conductors are disconnected from the current feeder or main without damaging arcing.

5. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with additional sectional conductors or third rails located between the adjacent ends of the first-named sectional conductors or third rails; together with additional switching mechanism for connecting said additional sectional conductors or third rails to and disconnecting them from the current feeder or main and circuits and circuit connections between the current-feeder and both sets of the before-mentioned switching mechanisms, whereby the continuity of the current-flow to the motor or motors on board of a car is never interrupted or substantially varied and all of the sectional conductors are disconnected from the current feeder or main without damaging the arcing.

6. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with circuits and circuit connections located at the adjacent ends of the sectional conductors or third rails and adapted to supply current to the motor or motors on board of a car during the time that the same is passing from the outgoing end of one section to the ingoing end of the next section in advance; together with releasing-circuits and electromagnetically-controlled releasing-magnets for releasing the conducting-terminals of the switching devices, the arrangement being such that the current-flow is never interrupted or substantially varied to the motor or motors in passing from section to section and damaging arcing is avoided at the conducting-terminals of the switching devices.

7. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with supplemental sectional conductors or third rails located between the ends of the first-named sectional conductors or third rails and of greater length than the longest train it is desired to run; together with additional supplemental conductors or third rails operatively connected to the operating-magnets of the switching devices, and circuits and circuit connections whereby the continuity of the current-flow is never interrupted or substantially varied to the motor or motors on board the cars and the sectional conductors are disconnected from the current feeder or main only after the flow of the working current to the motors is discontinued.

8. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with supplemental sectional conductors or third rails located between the ends of the first-named sectional conductors or third rails and of greater length than the longest train it is desired to run; together with additional switching devices for connecting said additional sectional conductors or third rails to and disconnecting them from the current feeder or main; and additional supplemental conductors or third rails and circuit connections between the switches and the several parts of the system whereby the continuity of the current-flow to the motor or motors on board of a car is never interrupted or substantially varied and damaging arcing or flashing of the working current is avoided at all parts of the system.

9. A system of electric railways of the sectional-conductor or third-rail type embracing a current feeder or main; a series of sectional conductors or third rails and a series of switching devices for connecting said sectional conductors to and disconnecting them from the current feeder or main; in combination with supplemental sectional conductors or third rails and of greater length than the longest train it is desired to run; together with additional supplemental conductors or rails, circuits and circuit connections between the switching devices and the several parts of the system, and two or more contact-shoes or current-collectors carried at various parts of a train and electrically connected together and to the motors on board of the train, the arrangement being such that as the train leaves a sectional conductor or third rail current flows therefrom through the rear contact-shoes to the front contact-shoe and causes the supplemental third rail in advance to be connected to the current feeder or main and in like manner causes the next sectional conductor or third rail in advance of this supplemental conductor to be connected to the current feeder or main after the last shoe has passed off of the sectional conductor or third rail last passed, and to automatically release or disconnect said sectional conductor or third rail from the current feeder or main without damaging arcing or flashing at any part of the system.

10. In an electric-railway system of the sectional-conductor or third-rail type a switch embracing yielding interlocking terminals each surrounded by a yoke operatively connected to a yieldingly-sustained armature; in combination with a locking and a releasing electromagnet.

11. In an electric-railway system of the sectional-conductor or third-rail type a switch embracing yielding interlocking terminals each surrounded by a yoke operatively connected to a yieldingly-sustained armature; in combination with a locking and a releasing electromagnet; together with means for manually interlocking the terminals of the switch.

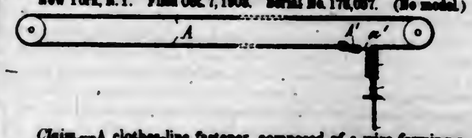
12. In a system of electric railways of the sectional-conductor or third-rail type, a double or duplex switch-box, the inner box inclosing switching-terminals and switch-operating electromagnets and provided with a transparent lid or cover; in combination with a manual switching device exterior to the inner box; together with means for locking the outer box over the inner.

13. In a system of electric railways of the sectional-conductor or third-rail type a double or duplex switch-box the inner box being cast of one integral piece provided with an extended base, and inclosing switching-terminals and electromagnetic means for operating the same; together with means for manually operating the switch having an exposed operating-handle exterior to the inner box, the outer box being hinged to the extended base on one side and provided with means for locking it over the inner box, the arrangement being such that all of the parts are securely protected from moisture.

14. In a system of electric railways of the sectional-conductor or third-rail type, a double or duplex switch-box embracing an inner box having a transparent lid or cover and electromagnetically-controlled switching-terminals securely sealed within said inner box; together with manual switch-operating devices exterior to the inner box and an outer box which wholly surrounds and protects all of the parts from moisture or from being tampered with by unauthorized persons.

15. In a system of electric railways of the sectional-conductor or third-rail type a switch-box embracing an inner box for the switching mechanism provided with a transparent lid or cover and a manual switch-operating device having an operating-handle exterior to the box; in combination with an outer box surrounding the inner box and provided with means for securing it in such manner that the entire inner structure is protected from moisture and being tampered with by unauthorized persons.

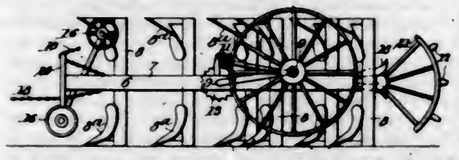
748,622. CLOTHES-LINE FASTENER. HERMANN KLEINFELDT, New York, N. Y. Filed Oct. 7, 1903. Serial No. 176,097. (No model.)



Claim.—A clothes-line fastener, composed of a wire forming a main coil, a secondary coil of less diameter and greater pitch than

the main coil, a hook at the end of the main coil, and a second hook at the end of the secondary coil, substantially as specified.

748,623. **REVERSIBLE PLOW.** HUGO R. KREUTER, Nickelpinte, Ind. Filed July 20, 1903. Serial No. 166,313. (No model.)

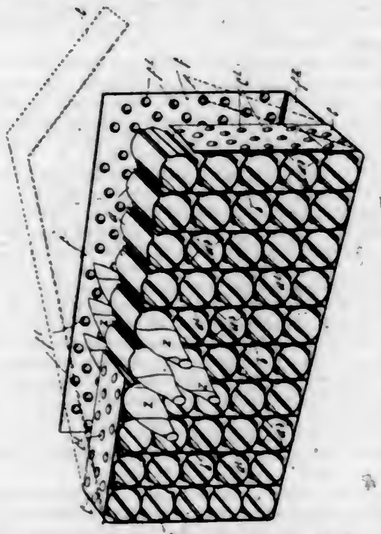


Claim.—1. The combination, in a reversible plow, of a wheeled frame, plows extending oppositely on both sides thereof, segments at the rear end of the frame adapted to rest on the ground and support the plow when reversed, and means to turn the frame over, substantially as described.

2. The combination in a reversible plow, of a frame, plows on opposite sides thereof, a cranked axle and wheels supporting the frame, means to turn the axle to raise or lower the frame, and segments at the rear end of the frame, adapted to engage the ground and support the plow while it is being turned over.

3. The combination with a plow-frame having plows on opposite sides thereof, and a support at the rear end on which the frame may be turned over lengthwise, of forwardly and rearwardly extending draft connections attached to the front of the frame, substantially as described.

748,624. **CIGAR-BOX FILLER.** HENRY J. LEWIS, Minneapolis, Minn. Filed Apr. 6, 1903. Serial No. 151,222. (No model.)



Claim.—1. A cigar-carrier made up of a plurality of cells constructed and braced to be self-sustaining in two directions, and a flexible embossed binder independent of said cells, surrounding said group of cells and binding the same together and affording an endless cushion, substantially as described.

2. A self-sustaining cigar-carrier made up of a plurality of independently-expansible cells involving means for holding and spacing the cells in two directions in such manner that the one cell may expand or contract without expanding or contracting the adjacent cells, substantially as described.

3. The combination with a cigar-box, of a filler therefor made up of a plurality of connected cells, and a cushion-plate connected to the lower portion of said filler, at one edge, free at its other edge, and having its cushioning portion bent at a right angle to its lower connected portion, whereby it is positioned between the tips of the cigars and the adjacent side of the box.

4. A filler for cigar-boxes comprising a plurality of connected cells, a wrapper surrounding said group of cells and binding the same together, and a cushion-plate attached at its lower edge to the lower portion of said wrapper, free at its other edge, and having its cushioning portion bent at a right angle to its lower attached portion, whereby it is positioned between the tips of the cigars and the adjacent side of the box.

5. A cigar-carrier comprising the cell-strips *a* bent to form semi-cylindrical sections creased at a^2 and having intervening angular edges *a'* slitted at a^3, the lock-strips *b* with slits *b'*, said strips being placed in said slits a^3 with their slits *b'* embracing and locking together the uncut portions of said edges *a'*, and the wrapper surrounding the group of cells, substantially as described.

6. The combination with the cell-strips *a* having creases a^2 and intervening angular edges *a'* with slits a^3, the coöperating strips *a* being placed with their edges *a'* in contact, of the lock-strips *b* slitted at *b'* and inserted in said slits a^3, with their slits *b'* embracing and locking together the uncut portions of the abutting edges *a'*, and an embossed wrapper surrounding and binding together the group of cells and holding the same within certain limits, and affording an endless cushion, substantially as described.

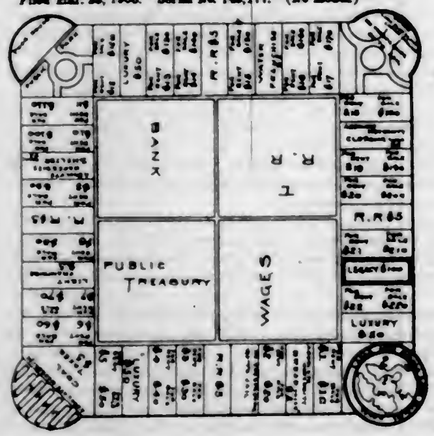
748,625. **SHAFT-BEARING.** THOMAS J. LEWDAY, Indianapolis, Ind., assignor of one-half to Willard Harmon, Indianapolis, Ind. Filed June 26, 1901. Serial No. 66,146. (No model.)



Claim.—1. In a shaft bearing, or box, the combination of a compressible lining, in which the shaft is adapted to rotate, formed tapered in each direction toward each end on the outside, correspondingly-tapered sleeves surrounding the ends of said lining, a sleeve-nut connecting the adjacent ends of said sleeves and engaging therewith by right and left hand screw-threads, means for lubricating the bearing, and a suitable body in which said parts are mounted and carried, substantially as set forth.

2. The combination, in a shaft-bearing, of a body containing a bore for the lining and its compressing devices and a cavity for the oil, two tapered sleeve-like lining-tighteners in said bore and provided respectively with right and left hand screw-threads upon their adjacent ends, a sleeve-nut correspondingly screw-threaded engaging with said lining-tighteners, a compressible lining within said lining-tighteners, studs mounted in the body and engaging with said lining-tighteners to prevent them from turning, and a stud in a lining-tightener engaging with the lining and preventing it from turning, rotary movement of the lining and its tightener being thus prevented while longitudinal movement is permitted, substantially as set forth.

748,626. **GAME-BOARD.** LEMUEL J. MAGUE, Brentwood, Md. Filed Mar. 23, 1903. Serial No. 149,177. (No model.)



Claim.—1. A game-board, having corner-spaces, one constituting the starting-point, and a series of intervening spaces indicating different denominations, some of the spaces of the different series corresponding, and distinguished by coloring or other marking, so that the corresponding divisions on the four spaces may be readily recognized.

2. A game-board, provided with corner-spaces, intervening spaces of different denominations, some of the spaces of the different series corresponding, and distinguished by coloring or other marking, so that the corresponding spaces in the different divisions may be recognized, and a series of movable pieces having reference to the different divisions upon the board.

3. A game-board, having a series of divisions of different denominations upon its outer border, one constituting the starting-point, four divisions within said series for the reception of boxes, a series of movable pieces having reference to the spaces upon the board, and a chance device to control the movement of the pieces.

4. A game-board, provided with corner-spaces, intervening spaces of different denominations, and distinguished by distinctive marking, so that the corresponding divisions on the different spaces may be recognized, movable pieces having reference to the spaces, a chance device to control the movement of the pieces, checkers, and tickets representing money, deeds, notes, mortgages, bank mortgages, charters, legacies, and luxuries, adapted to be used in connection with the same.

748,627. **REVOLVING SAD-IRON.** ALBERT D. MASSEY, Troy, N. Y. Filed Feb. 26, 1903. Serial No. 145,035. (No model.)



Claim.—1. An ironing device consisting of an ironing-tool, a cylindrical stem centrally secured to said tool and means to rotate said stem and tool, with a handle surrounding said stem and a burner secured to said handle, substantially as described.

2. In an ironing device, the combination of an ironing-tool, a stem centrally secured to said tool and means to rotate said stem and tool, with a handle surrounding said stem, a burner secured to said handle and a flexible pipe leading gas to said burner, substantially as described.

3. In an ironing device, the combination of an ironing-tool, a stem centrally secured to said tool and means to rotate said stem and tool, with a handle surrounding said stem and having its inner end conical, a burner secured to said handle, cones secured to the radial outer plate of the tool, and balls between said cones and the conical end of the handle, substantially as described.

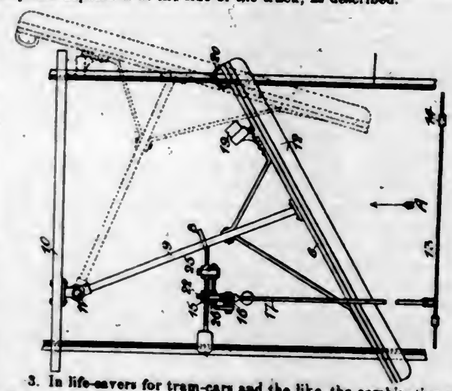
4. In an ironing device, the combination of an ironing-tool having a perforated end plate, a stem centrally secured to said tool and means to rotate said stem and tool, concave buckets secured to the perforated end plate adjacent to the perforations thereof, with a handle surrounding the stem of the tool, and a burner secured to said handle, substantially as described.

5. In an ironing device, the combination of a rotary ironing-tool having a series of small perforations in its periphery, a stem centrally secured to said tool, and means to rotate said stem and tool, with a handle surrounding said stem, a burner secured to said handle, and a pipe leading gas to said burner, substantially as described.

748,628. **AUTOMATIC GUARD OR LIFE-SAVER FOR TRAM-CARS OR THE LIKE.** DAVID MAXWELL, Dundee, Scotland. Filed Aug. 15, 1902. Serial No. 119,816. (No model.)

Claim.—1. In life-savers for tram-cars and the like, the combination of a more or less inclined life-saver 6, extending in its normal position across the track, with a pivot 11, and a rod 9, the purpose of the life-saver 6, being, in its angular movement backward and toward the side and about the pivot, to remove an obstruction from the roadway, or in front of a vehicle and deposit it at the side of the track, as described.

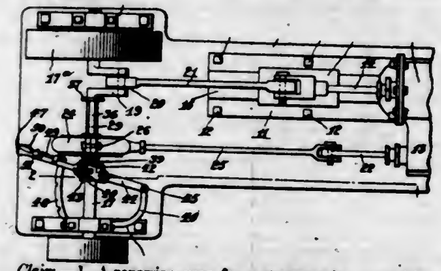
2. In life-savers for tram-cars and the like, the combination of a more or less inclined life-saver 6, extending in its normal position across the track, with a pivot 11, about which such life-saver may swing, a rod 9, for carrying the life-saver, and a feeler 13, by which the mechanism for supporting and releasing such life-saver is set in operation, whereby an obstruction automatically operates the mechanism and in its operation removes the obstruction from the roadway and deposits it at the side of the track, as described.



3. In life-savers for tram-cars and the like, the combination of a feeler 13, actuated by an obstruction in front of the car with a weighted lever-catch 8, for supporting the life-saver rod 9, a bolt 15, actuated by the feeler 13, a weighted lever 16, which communicates the motion of the feeler to the bolt 15, by means of the rod 17, as described.

4. In life-savers for tram-cars and the like, the combination of a life-saver 6, with a feeler 13, the mechanism for supporting and releasing such life-saver and the buffer 19, as described and for the purposes set forth.

748,629. **REVERSE MOTION FOR STEAM-ENGINES.** FRANK MEANLEY, Mount Elgin, Canada. Filed Mar. 6, 1902. Serial No. 97,014. (No model.)



Claim.—1. A reversing-gear for a steam-engine comprising a main shaft having transversely-disposed flattened portions, forming a key-slot for securing the sheave against improper movement, an eccentric-sheave having a diametrical slot therein mounted on said flattened portions of the main shaft and adapted to be turned thereby and to reciprocate transversely of the latter, and also prevented by said flattened portions from lateral movement, a rhomboidal collar mounted on the shaft and in said slot, and means for moving the said collar longitudinally of said shaft.

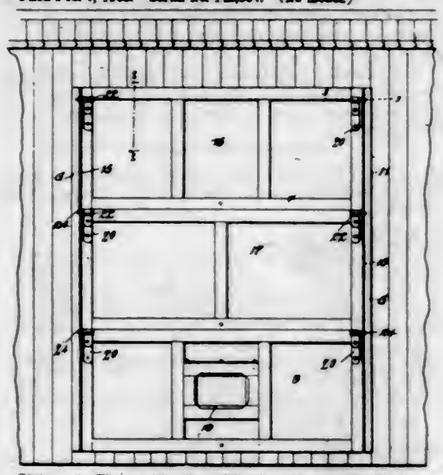
2. A reversing-gear for a steam-engine comprising a main shaft having transversely-disposed flattened portions, forming a key-seat for securing the sheave against improper movement, an eccentric-sheave formed in two semicircular halves each having a slot therein and mounted on said flattened portions of the shaft and adapted to be turned thereby and also prevented from lateral movement thereby, a rhomboidal collar mounted loosely on the shaft in said slotted portion and means for reciprocating said collar longitudinally of said shaft for altering the eccentricity of said sheave, in combination with an eccentric-strap on the sheave and suitable valve mechanism operated thereby.

3. A reversing-gear for a steam-engine comprising a main shaft having transversely-disposed flattened portions, forming a key-seat for securing the sheave against improper movement, an eccentric-sheave formed of two semicircular halves each having a diametrical recess or gain therein, flanges surrounding the sides of the gain and extending laterally from the sheave, means for bolting the two faces of said sheave together, a rhomboidal collar loosely mounted directly on the shaft without intervening parts and in the central slot of the sheave and means for reciprocating the collar longitudinally.

4. A reversing-gear for a steam-engine comprising a main shaft having transversely-disposed flattened portions, an eccentric-sheave mounted thereon and formed of two semicircular halves each having a diametrical recess or gain therein, flanges surrounding the sides of the gain and extending laterally from the sheave, means passing through the flanges for bolting the two faces of said sheave together, a rhomboidal collar loosely mounted directly on the shaft without intervening parts and in the central slot of the sheave, and a lever pivoted on the stationary portion of the machine and operatively connected to said collar, whereby by operating the lever the engine may be throttled or reversed.

5. An improved reversing-gear for a steam-engine comprising a main shaft having transversely-disposed flattened portions, a rhomboidal collar mounted loosely on the shaft of the same thickness as the diameter of the flattened portion of the shaft and having a grooved sleeve attached to one end thereof, a collar loosely mounted in said sleeve, a reversing-lever pivoted to said collar and also upon a stationary part of the engine, a slotted eccentric-sheave mounted to embrace said collar and the flattened portion of the shaft, and a strap mounted on said sheave and connected with the valve of the engine, whereby by operating said reversing-lever the admission of steam to the engine and its direction may be regulated.

748,630. GRAIN-CAR DOOR. MICHAEL MEEHAN, Tonica, Ill. Filed Feb. 7, 1903. Serial No. 142,307. (No model.)



Claim.—1. The combination with a door-frame, of guides located in proximity to the frame and each provided with an outwardly-projecting flange having notches, of a door, and a hooked hanger carried by the door and overlapping the flange, and seatable in the notches thereof.

2. The combination with a door-frame of guides located in proximity to the frame and each provided with an outwardly-projecting flange having edge notches, of a door, a hook engaging the notches in the flange, and a connection between the door and the hook in which said hook is loosely mounted for the purpose set forth.

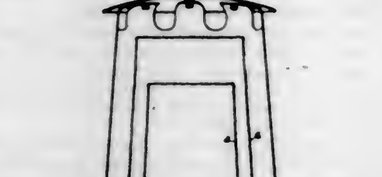
3. The combination with a door-frame of a guide carried by the frame, a stop-flange on the guide, a notched flange at a right angle to the stop-flange, a door, and a hanger connected to the door and engaging the notched flange.

4. The combination with a car, having an opening of vertical guides carried by the car, of separate door-sections, independent hangers hinged to each door-section and slidable on the guides, and means for engaging the guides to hold the hangers against movement so as to swing the door-sections in adjacent horizontal planes.

5. The combination with a car having an opening of vertical guides carried by the car, separate door-sections, separate hangers slidably mounted on the guides and hinged to the door-section, means for engaging the hangers with the guides to hold the hangers against movement to swing the door-section, and separate hangers suspended from the top of the car to engage the unattached edges of the several sections.

748,631. COMBINATION CREDIT-FILE. WILLIAM D. MITCHELL, Toronto, Canada. Filed Nov. 22, 1902. Serial No. 132,436. (No model.)

Claim.—1. A combination credit-file holder comprising a folded sheet having means on its inner side to hold a statement-sheet in extended form to cover substantially both halves of the inner side and having a pocket extending over one half of the outer side and means on the other half of the outer side for holding a ledger-sheet, substantially as described.



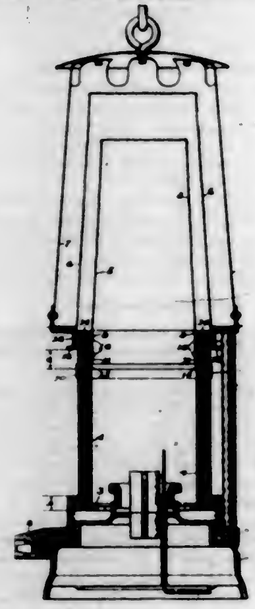
2. A combination credit-file comprising a folder having one half of the outside provided with a transparent-faced pocket to contain the duplicates of check-books and the other half provided with a ledger-sheet and the interior or opposite side of the folder arranged to receive a statement-sheet suitably held thereon, substantially as described.

3. A combination credit-file holder comprising a folded sheet having a pocket at one end of the inside of the folder to receive one end of the statement-sheet and corner-slots at the opposite end of the sheet to receive the opposite end of the statement-sheet, a pocket extending across one half of the outside of the folder to contain the duplicates and the other half of the outside of the folder being provided with corner-slots to receive the corners of the ledger-sheets as and for the purpose specified.

4. A combination credit-file holder comprising a folded sheet having a pocket at one end of the inside of the folder to receive one end of the statement-sheet and corner-slots at the opposite end of the sheet to receive the opposite end of the statement-sheet and a pocket extending across one half of the outside of the folder to contain the duplicates as and for the purpose specified.

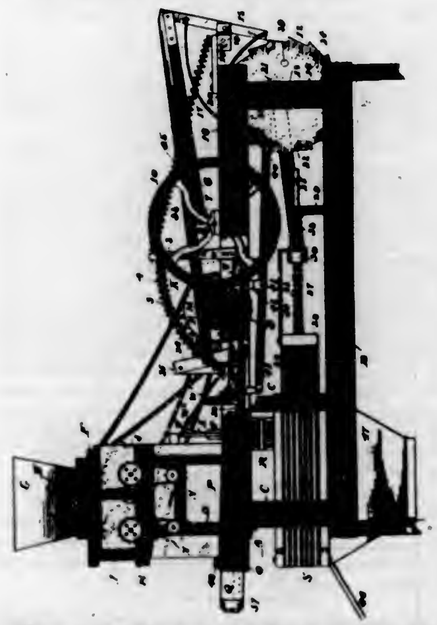
5. A combination credit-file holder comprising a folded sheet of paper having a pocket at one end of the inside of the folder to receive one end of the statement-sheet, and corner-slots at the opposite end of the sheet to receive the opposite end of the statement-sheet, a pocket extending across one half of the outside of the folder to contain the duplicates and the other half of the outside of the folder being provided with corner-slots to receive the corners of the ledger-sheet as specified.

748,632. MINER'S SAFETY-LAMP. MARSHALL G. MOORE, Johnstown, and RALPH V. SAGE, borough of Westmont, Pa. Filed Nov. 17, 1902. Serial No. 131,610. (No model.)



Claim.—In a miner's safety-lamp, a hollow cylindrical lamp-glass, a supporting-ring for same adjustably screwed in the base of said lamp, a flanged annular abutment secured to the frame of the lamp above the top of the lamp-glass, an outer gauze hood provided with a retaining-ring of L-section, the projecting flange of which is adapted to rest against the lower flange of said abutment, a washer secured to the retaining-ring aforesaid; an inner gauze hood provided with a retaining-ring of Z-section and a washer secured thereto adapted to fit against the washer of the outer hood, the flange of said Z-section being adapted to fit against the exterior cylindrical surface of the lamp-glass; the thickness of said washers being greater than the amount of the adjustment of said screwed supporting-ring, whereby the lamp-glass cannot be put or held in position in the absence of the gauze hoods.

748,633. CIDER-PRESS. GOTTLIEB L. MUHL, Peoria Heights, Ill. Filed May 4, 1903. Serial No. 155,524. (No model.)



Claim.—1. In a cider-press, means for reducing the fruit before pressure, a pressure-chamber for receiving the reduced fruit, a plunger for said pressure-chamber, means for operating the plunger consisting of a pitman connected thereto, a crank for carrying the free end of the said pitman, a ratchet-wheel on the shaft of said crank, means for forcing the plunger slowly into the chamber by intermittent movements of the said ratchet-wheel and springs for withdrawing the plunger after each stroke and returning the driving parts to their starting position for the purposes described.

2. In a cider-press, the hopper, means for reducing the fruit, a pressure-chamber for receiving the reduced fruit, a plunger for said chamber, means for entering such plunger into said chamber by short slow intermittent movements and means for withdrawing the same at one quick movement for the purposes explained.

3. In a cider-press, means for reducing the fruit, a chute for the fruit after such reduction, a plunger for moving the said fruit from said chute, a receiver and pressure chamber for receiving the fruit from the chute and a plunger for putting pressure upon the fruit in said chamber for extracting the juices therefrom.

4. A cider-press comprising means for reducing the fruit, a receiving and pressure chamber for the reduced fruit, a plunger for the said chamber, a pitman-rod connected therewith, a crank for imparting movement to said pitman, a ratchet-wheel on the crank-shaft, a rocking arm pivoted between its ends on the machine, a pawl at each end of the arm for engaging the ratchet-wheel means for operating the arm for moving the pawls to transmit movement to the ratchet-wheel in an intermittent manner for half of its revolution for entering the plunger into the chamber and springs for withdrawing the plunger when the crank and pitman pass over the center as described.

5. In a cider-press the combination of a roller for breaking the fruit, rollers for crushing it after being broken, a receiver for catching the crushed fruit and juices, a chute for receiving the fruit from the said receiver, a compression-chamber beneath the chute, a plunger within the chute the same having a continuous reciprocating motion for forcing the fruit into the compression-chamber, means for producing that movement, a plunger within the chamber having a gradual intermittent forward movement into the chamber to slowly compress the fruit, such plunger moving beneath the first chamber and forming the bottom of that chamber at times to permit pressure of fruit thereon, means for operating the plunger as described and means for withdrawing the same after its greatest pressure is attained, the plunger within the chute adapted to pass the compressed fruit upon the plunger of the compression-chamber into the chamber after such plunger is withdrawn as described.

6. A cider-press comprising a breaking-roller, crushing-rollers beneath the same, revolving brushes in contact with the crushing-rollers, means for imparting motion to the rollers and brushes, a receiver beneath the rollers, a plunger therein for forcing the fruit therefrom, a chute for receiving the fruit, a pressure-chamber for receiving the fruit from said chute and means for providing pressure for the chamber for the purposes described.

7. A cider-press comprising a hopper, a breaking-roller within it to which the fruit is fed, crushing-rollers beneath the breaking-roller, means for driving the rollers, brushes revolving in contact with the last-named rollers and driven thereby, a casing for inclosing the rollers and brushes, a receiver beneath the rollers and having the casing opening thereinto, a plunger within the receiver for clearing the latter of the fruit falling into it, a chute for the fruit being thus cleared, a plunger for the same, a pressure-chamber below the chute and into which the chute opens, a plunger for the chamber and means for operating the several plungers all being arranged substantially as described.

8. In a cider-press, the frame A and B, the rollers H, I, J, thereon as described, the receiver O beneath the rollers the pressure-chamber S, the chute R for conveying the contents of the receiver O to said chamber, a plunger Q for the receiver O, a plunger T for the chute R, a plunger 26 for the chamber S and means for operating the plungers first one and then the other of the two first mentioned the same being made to reciprocate several times to one reciprocation of the latter plunger for the purposes set forth.

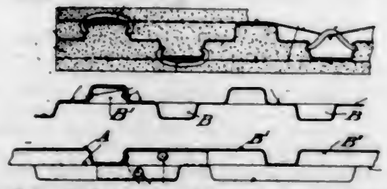
9. In a cider-press the frame A and B, the rollers H I, J revolubly mounted thereon as set forth, means for imparting movement thereto, a receiver O beneath the rollers, a plunger Q within the same for the purposes set forth, a pressure-chamber S, a chute R opening into the latter and providing a passage-way from the receiver to the chamber S, a plunger T for the chute, a plunger 26 for the chamber, a rod having connection with the plunger Q, said rod receiving movement from the driving mechanism of the machine to operate said plunger Q, the arm V pivoted at one end to the frame of the machine and carrying the said plunger T at the other and adapted to be depressed when the plunger Q is drawn away from it, a cranked shaft 13 journaled on the machine-frame, a pitman connected with the crank and the plunger 26 and arranged whereby the driving mechanism will revolve the shaft and thus impart a reciprocating movement to the said plunger 26 substantially as set forth.

10. In a cider-press, the combination of the frame A and B the rollers H, I, J, the receiver O, the pressure-chamber S, the chute R, the plungers Q, T, and 26 respectively for the three latter members, a shaft M journaled on the frame, a pinion thereon, a gear-wheel meshing therewith and driven thereby, a cranked shaft upon which the said driven wheel is mounted, a pitman connected with the crank, a rocking arm 15 at the rear of the frame with which the pitman is connected whereby said arm is given a rocking movement, said pitman arranged also to operate the plunger T, a rod 36 connected to and operating the plunger Q, a cranked shaft 13 journaled on the frame, a pitman connected therewith its other end arranged to move the plunger 26, a ratchet-wheel 12 loosely mounted on said shaft, pawls carried by the arm 15 for operating the said wheel 12, a ratchet-wheel 22 on the said shaft and affixed thereto, pawls 23 and 24 on said wheel 12 adapted to engage with and drive the wheel 22 as set forth.

11. In a cider-press the combination of the supporting-frame A, B, rollers H, I, J, hopper G, receiver O and plunger Q, chute R and plunger T, pressure-chamber S and plunger 26, the shaft M journaled on the frame, gear 11 thereon, the shaft S, gear 10 thereon to mesh with gear 11, crank 7, pitman 6 connected therewith, rock-

ing arm 15 operated by said pitman, ratchet-wheel 12, pawls on the arm 15 for operating said ratchet-wheel, arm 33 connected with the arm 15 for operating plunger Q, arm V pivoted on the frame A, B, arm 3 having loose connection with said arm V, the guiding-rod 4, springs 5 thereon, said arm 3 adapted to impart a yielding pressure on the arm V on which the plunger T is carried, said arm 3 being operated by the movements of the pitman 6, the spring 45 for raising the arm V after each movement of depression, cranked shaft 13 on which the ratchet-wheel 12 is loosely carried, ratchet-wheel 22 affixed to said shaft, pawls 23 and 24 on the wheel 12 for driving the wheel 22, pitman 25 connected to the crank of such shaft 13, its other and connected to operate the plunger 26, the rods 27 secured in said plunger, springs 31 and 32 thereon, the cross-head 30 sliding on said rods and to which the pitman is connected whereby by the springs a yielding pressure may be given the said plunger 26, an arm or lever 40 pivoted on the machine-frame and connected with the arm V and a pin 39 on the wheel 22 for operating said arm or lever 40 and arm V all arranged substantially as set forth

748,634. **METALLIC FORMED SHEET.** JOHN H. MURPHY and IRVIN M. CAMP, Chicago, Ill. Filed May 1, 1902. Serial No. 105,450. (No model.)



Claim.—1. A sheet of metal formed to provide on opposite sides thereof keys projecting beyond its plane, said keys being arranged in rows and the keys in adjacent rows being arranged staggering on the sheet and projecting on opposite sides thereof, means for engaging reticulated material on one or both sides of the sheet and a sheet of reticulated material engaged thereon.

2. A sheet of the class described having parallel rows of keys arranged diagonally and projecting on opposite sides thereof, a sheet of reticulated material engaged thereon and rigidly secured thereto and plaster, cement or the like spread on said reticulated material and filling said keys.

3. As an article of manufacture, a sheet having longitudinal depressions formed therein constituting keys projecting alternately on opposite sides of the sheet and forming abrupt angles at the sides and ends therewith, said keys being similarly arranged to adapt the sheet to nest.

4. A sheet for the purposes specified comprising symmetrically-arranged keys formed to interlock with the keys of an adjacent sheet projecting alternately on opposite sides of the sheet and flanges on each side of each key.

5. An article of manufacture, a sheet of metal having formed therein a plurality of symmetrically-arranged keys extending alternately on opposite sides of the sheet and longitudinally thereof, a flange formed as a part of each key and projecting inwardly, and a flange on each side of each key.

6. In a construction of the class described, a plurality of sheets of metal each provided with elongated keys stamped or rolled therein symmetrically arranged, those of one sheet adapted to interfit with those of another adjacent to the ends, and the joint closed with material impervious to water and acting to render the same waterproof and means for rigidly securing overlapped ends of the sheet together when in position.

7. In a device of the class described, a plurality of sheets of metal on which are provided keys extending on opposite sides thereof, means for securing the ends of the sheets together, reticulated material on one or both of the sides of said sheets, clips rigidly engaging said reticulated material to the keys and a compression member of plaster or the like spread on the structure thus formed and filling the keys.

8. In a device of the class described, the combination with a metallic sheet, of integral keys arranged in longitudinal alinement, the keys of each row being arranged staggering with those on the opposite side of the sheet from the adjacent rows, reticulated material secured on the keys on each side of the sheet, metallic clips fastened over said reticulated material and engaging said keys and acting to firmly bind the reticulated material thereto.

9. A sheet of metal having on each side thereof outwardly-extending keys integral therewith, reticulated material engaged against said keys on each side of the sheet, metallic clips engaging said reticulated material on the keys.

748,635. **AUTOMATIC BRAKE FOR CONTROLLING SWITCHES OF ELECTRIC MOTORS.** FREDERICK A. MUSCHENHEIM and WILLIAM F. HENDRY, New York, N. Y., assignors to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed June 2, 1902. Serial No. 109,996. (No model.)



Claim.—1. The combination with an electric motor and a controlling-switch therefor, of an electromagnetic brake for arresting the movement of the switch-lever, and a circuit including the magnet of the brake with the armature of the motor.

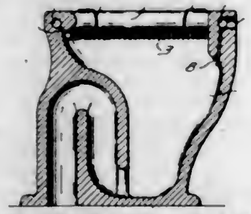
2. The combination with an electric motor, of a reversing-switch therefor, an electromagnetic brake for arresting the movement of the switch-arm, and a local circuit including the motor-armature and the brake-magnet, established in contacts closed by the switch-arm in changing from one running position to the other.

3. The combination with an electric motor, of a reversing-switch therefor, a magnet associated with the operating-lever of said reversing-switch, an armature moved across the pole-faces of the magnet by said operating-lever, said magnet being adapted when excited to prevent the movement of the operating-lever, a local circuit for said magnet, and switch-contacts, closed by the operating-lever in changing from one running position to the other, controlling said local circuit.

4. The combination with a cup-shaped magnet-core and a magnetizing-winding therefor, of a disk-shaped armature fitting over the core and centrally pivoted, a switch-arm extending from said armature and controlling the circuit-changing switch-contacts, the movement of the switch-arm being arrested by the attraction of the disk armature by the magnet-core when the magnet is excited, a motor, circuits thereof controlled by the aforesaid switch-contacts, and a circuit including the winding of the magnet in series with the armature of the motor, said magnet being adapted to prevent the movement of the switch.

5. The combination with a motor device and a reversing-controller therefor, of a brake for resisting the movement of the controller-lever from one running position to the other, and an operative connection between the motor device and said brake, whereby the premature movement of the controller-lever to reverse the motor device is prevented.

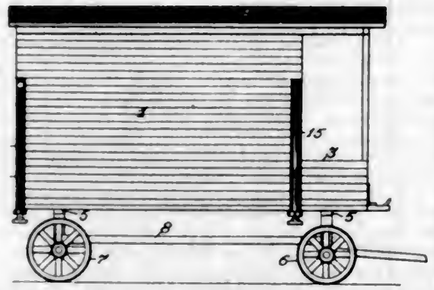
748,636. **RECEPTACLE FOR DISINFECTANTS.** WILLIAM L. MCDONALD, Chicago, Ill. Filed Aug. 7, 1903. Serial No. 168,626. (No model.)



Claim.—1. The combination of a water-closet bowl having flushing-inlets for water near the upper rim of same, and a receptacle for disinfectants around said rim in the path of water flowing out of said inlets, said receptacle being formed of resilient wire bent to an open helical coil and sprung into position within the bowl and adapted to be retained in such position by the expansion of said coil, substantially as described.

2. The combination of a water-closet bowl, having flushing-inlets for water near the upper rim of same, and a receptacle for disinfectants disposed around said rim in the path of water flowing out of said inlets, said receptacle comprising a continuous helical coil formed of a single wire extending substantially around the inner periphery of the bowl and adapted to be retained in such position by the expansion of said coil, substantially as described.

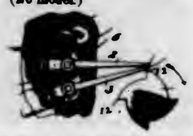
748,637. **PORTABLE TOOL OR CEMENT HOUSE.** WILLIAM H. MCDONALD, Titusville, Pa. Filed Sept. 5, 1903. Serial No. 172,057. (No model.)



Claim.—1. In a portable tool or cement house the combination of a waterproof-house portion, a curved waterproof roof thereon said roof projecting over each end of said house portion a seat located beneath the forward end of said roof, blocks secured on the under side of said house portion a running-gear on the bolsters of which the said blocks are adapted to rest, means for securing said blocks to said bolster and jacks secured to the house portion for the purpose of raising and lowering said house portion, substantially as shown and described.

2. In a device of the character described the combination of a waterproof-house portion, a curved waterproof roof formed thereon said roof extending over the sides of said house portion, a seat formed beneath said roof at the front, doors formed in the rear wall of the house portion, blocks secured to the under side of said house portion, a running-gear on the bolsters of which the said blocks rest, a yoke pivotally mounted on the ends of the bolsters, said yokes adapted to pass around and hold projections on the blocks which rest on the bolsters and jacks secured to the house portion adjacent to the corners thereof for the purpose of raising or lowering the house portion, substantially as shown and described.

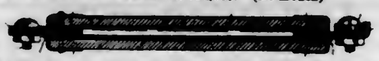
748,638. **ELECTRIC-CIRCUIT CLOSER AND BREAKER.** THOS. H. MCQUOWN, Biggsville, Ill. Original application filed Sept. 26, 1902, Serial No. 124,910. Divided and this application filed Jan. 5, 1903. Serial No. 137,790. (No model.)



Claim.—1. In an electric-circuit closer and breaker, a frame, electric contact-points, a clock-controlled movable part, two other movable parts successively moved by the motion of the first movable part and adapted to connect the electric contact-points only in the interval between the movement of said last two movable parts, and a lever for regulating said interval fulcrumed on the frame, to which lever is attached one of said last two movable parts.

2. In an electric-circuit closer and breaker, a frame, electric contact-points, a clock-controlled rotatable wheel with a projection thereon, two lever-arms adapted to fall one in advance of the other from said projection in the revolution of the wheel and adapted to connect the electric contact-points only in the interval between the falling of the first lever-arm and the falling of the second lever-arm, and a lever for regulating said interval fulcrumed on the frame, to which lever is pivoted one of said lever-arms.

748,639. **FUSE FOR ELECTRIC CIRCUITS.** THEODORE NAGEL, Chicago, Ill., assignor of one-half to Lathrop H. Collins, Chicago, Ill. Filed Apr. 24, 1903. Serial No. 154,089. (No model.)



Claim.—1. An electric fuse comprising a fibrous body, having a bore of uniform diameter extending throughout its length; suitable caps secured over the ends thereof; binding-plates secured to the ends of said body; and continuous fuse-wire extending through said bore and connected to and joining said binding-plates and caps.

2. An electric fuse comprising a fibrous body, having a bore of uniform diameter extending throughout its length; suitable caps secured over the ends thereof; binding-plates secured to the ends of said body; and continuous fuse-wire extending through said bore and connected to and joining said binding-plates and caps at points beyond the ends of said body.

3. An electric fuse comprising a fibrous body, having a bore of uniform diameter extending throughout its length; suitable caps secured over the ends thereof; binding-plates secured to the ends of said body; and continuous fuse-wire extending through said bore and soldered to and joining said binding-plates and caps at points beyond the ends of said body.

4. An electric fuse comprising a fibrous body; binding-plates having smooth tangs extending longitudinally into the ends of said body; and fuse-wire extending through said body and past said tangs and solder to said binding-plates.

5. An electric fuse comprising a fibrous body; caps secured over the ends of the same having a fuse-wire opening therein; binding-plates secured to the ends of said body; and fuse-wire extending through said body and out of said openings in said caps and soldered to said binding-plates.

6. An electric fuse comprising a fibrous body; caps fitted over the ends of the same, each having a transverse slot in the head thereof, and an offset opening mediate the ends of said slot; binding-plates having a flat tang inserted through said slots longitudinally into the ends of said body; and a fuse-wire extending through said body, past said tangs, and out of said offset openings and soldered to said binding-plates.

7. An electric fuse comprising a fibrous body having a bore extending longitudinally therethrough and having diametrical longitudinal slits in its ends; caps fitted over the ends of the same each having a diametrical slot in the head thereof which is provided with a lateral offset at its center of length; flat binding-plates having alining flat tangs which are inserted longitudinally through the slots in the heads of said caps into the slits in the ends of the body; transverse pins striking through said caps, body and tangs in a plane to one side of the center of the body; and a fuse-wire extending through the bore of said body, past the tangs and out through said offsets and has its ends soldered to said binding-plates.

8. An electric fuse comprising a fibrous body having a bore extending longitudinally therethrough and having diametrical longitudinal slits in its ends; caps fitted over the ends of the same each having a diametrical slot in the head thereof which is provided with a lateral offset at its center of length; flat binding-plates of greater width than the length of said slots having narrower alining flat tangs which are inserted longitudinally through the slots in the heads of said caps into the slits in the ends of the body; transverse pins striking through said caps, body and tangs in a plane to one side of the center of the body; and a fuse-wire extending through the bore of said body, past the tangs and out through said offsets and has its ends soldered to said binding-plates.

9. An electric fuse comprising a fibrous body; caps secured over the ends of the same having a fuse-wire opening therein; binding-plates secured to the ends of said body; and fuse-wire extending through said body and out of said openings in said caps and soldered to said binding-plates and said caps.

10. An electric fuse comprising a fibrous body; caps fitted over the ends of the same, each having a transverse slot in the head thereof; binding-plates having a flat tang inserted through said slots longitudinally into the ends of said body; and fuse-wire extending through said body, past said tangs, and soldered to said binding-plates and said caps.

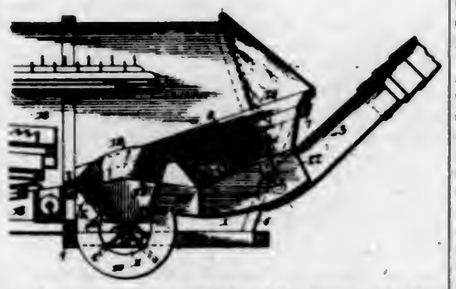
748,640. **PNEUMATIC STRAW-STACKER.** NELS L. NELSON, Crookston, Minn. Filed Mar. 4, 1903. Serial No. 146,151. (No model.)

Claim.—1. In a straw-stacker, the combination of a blower having a lateral opening, and a hopper arranged to direct material toward the lateral opening of the blower and provided at its bottom with an opening to permit heavy objects to drop through the straw-stacker, substantially as described.

2. In a straw-stacker, the combination of a blower provided with lateral openings, rear hoppers located at opposite sides of the blower to direct material to the lateral openings and provided with open bottoms to permit heavy objects to fall through the straw-stacker, and a front hopper located in advance of the blower, substantially as described.

3. In a straw-stacker, the combination of a blower having a plurality of fan-casings and provided at opposite sides of the same with hoppers having open bottoms to permit heavy objects to drop through

the stacker, and fans operating in the casings, substantially as described.



4. In a straw-stacker, the combination of a blower, a rear hopper provided with an open bottom and arranged to direct chaff toward the blower, and a front hopper arranged in advance of the blower to receive the straw, substantially as described.

5. In a straw-stacker, the combination of a blower having a plurality of fan-casings, rear hoppers arranged at opposite sides of the fan-casings to direct material to the same and provided with bottom-openings, and a tapered deflector located between the fan-casings, substantially as described.

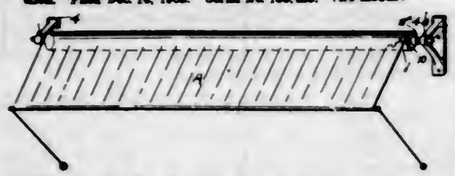
6. In a straw-stacker, the combination of a blower having lateral openings, rear hoppers arranged to direct chaff to the blower and provided with open bottoms, a front hopper arranged to receive the straw and communicating at its back with the blower, and a chute connected with the front of the front hopper, substantially as described.

7. In a straw-stacker, the combination of a casing forming the body of the stacker and provided with front and rear hoppers, fan-casings mounted in the rear portions of the said casing and located between the rear hoppers and provided with caps having oppositely-inclined sides, and fans operating in the fan-casings, substantially as described.

8. In a straw-stacker, the combination of a casing forming the bottom portion of the stacker and provided with front and rear hoppers, fan-casings located between the rear hoppers and communicating with the front hopper and provided with oppositely-tapered front portions, an upwardly-tapered deflector arranged between the fan-casings, and a chute, substantially as described.

9. A straw-stacker provided with a fan and having an intermediate outlet located at a point between the discharge end of the straw-stacker and the fan to permit heavy articles to drop through the straw-stacker, substantially as described.

748,641. AWNING-ROLLER. CHARLES H. NEWELL, Saginaw, Mich. Filed Dec. 14, 1903. Serial No. 135,435. (No model.)



Claim.—1. A roller for awnings comprising in combination a sheet-metal roller of a corrugated cylindrical section; a supporting-shaft on which the roller turns; a block movable lengthwise the roller, turning with it, and supporting the end of the shaft within the roller; a block fixed to the shaft within the roller; a helical spring surrounding the shaft secured by one end to the block carried by the roller, and by the other end to the fixed block; a pair of telescoping tubes within the spring, one carried by the movable block and one carried by the fixed block; a supporting-bracket in which the shaft turns; means for fixing the shaft to the roller; for the purposes set forth.

2. A roller for awnings comprising in combination a sheet-metal roller of a corrugated cylindrical section; a supporting-shaft on which the roller turns; a block movable lengthwise the roller, turning with it, and supporting the end of the shaft within the roller; a block fixed to the shaft within the roller; a helical spring surrounding the shaft secured by one end to the block carried by the roller, and by the other end to the fixed block; a pair of telescoping tubes within the spring, one carried by the movable block and one carried by the fixed block; a supporting-bracket in which the shaft turns; means for fixing the shaft in the bracket; and means for fixing the shaft to the roller; all substantially as described and for the purposes set forth.

3. In combination with a roller for awnings turning on a shaft and having a helical spring secured by one end to the shaft and by the other end to the roller, a bracket having a bearing in which the shaft may turn; a set-screw on said bracket for fixing the shaft against rotation; a collar rigidly secured to the shaft and fixed against rotation and endwise movement, between the bracket and the end of the roller; and means for temporarily locking the collar to the roller so as to rotate the shaft when the roller turns.

4. In combination with a roller for awnings turning on a shaft and having a helical spring secured by one end to the shaft and by the other end to the roller, a bracket having a bearing in which the shaft may turn; a set-screw on said bracket for fixing the shaft against rotation; a collar having a slot, said collar being rigidly secured to the shaft and fixed against rotation and endwise movement between the bracket and the end of the roller and a pin adapted to be removably inserted in the slot of the collar and to engage the end of the roller to lock the collar to the roller so as to rotate the shaft when the roller turns.

5. In combination with a roller for awnings turning on a shaft and having a helical spring secured by one end to the shaft and by the other end to the roller; a pair of blocks on the shaft, one secured to each end of said spring, one block secured to the shaft and the other carried by the roller; a pair of telescoping tubes within said spring, one of the tubes secured to the block fixed to the shaft and the other of the tubes fixed to the block carried by the roller for the purposes set forth.

6. In combination with a corrugated cylindrical sheet-metal roller for awnings, turning on a shaft and having a helical spring secured by one end to the shaft and by the other end to the roller; a block supporting the end of the shaft within the roller and rotated by the roller and free to move lengthwise therein, said block having projections adapted to engage corrugations of the roller and means for securing the spring to the block for the purposes set forth.

748,642. JAR-CLOSURE. CHARLES H. NICHOLSON, New York, N. Y. Filed Apr. 6, 1903. Serial No. 151,305. (No model.)



Claim.—1. A jar having a cover provided with locking means for engaging the jar, to hold the cover in a locked position when partly closed and when fully closed, as set forth.

2. A jar-closure comprising a jar having a plurality of retainers, and a cover for the jar, having locking means for engaging the retainers to hold the cover in position when partly closed, as set forth.

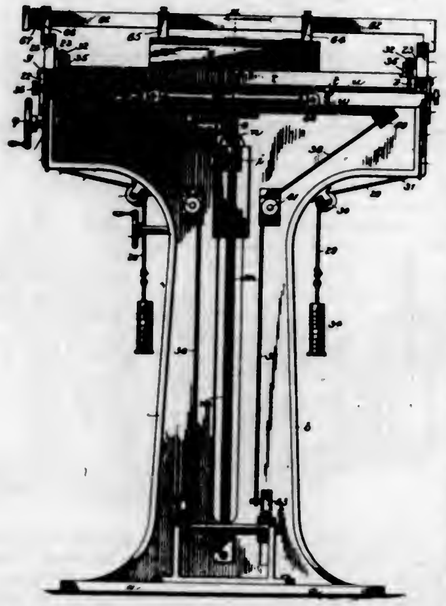
3. A jar-closure comprising a jar having a plurality of retainers, and a cover for the jar, having locking means for engaging the retainers, to hold the cover in position when partly closed and when finally closed, as set forth.

4. A jar-closure comprising a jar having a plurality of annular retainers, one above the other, and a cover for the jar, having a spring locking-clamp for engaging the retainers, to hold the cover in position when partly closed and when finally closed, as set forth.

5. In a jar-closure, the combination of a jar having a plurality of annular retainers and an annular shoulder formed with an annular groove spaced from the sides of the said shoulder, with a flexible annular packing-ring on the said shoulder, a cover having a flange provided with a V-shaped bottom for engaging the packing-ring over the said groove, to press the middle portion of the packing-ring into the groove, and a spring-clamp engaging the said cover and adapted to engage the annular retainers on the jar, the retainers being located one above the other, as set forth.

748,643. MACHINE FOR PRINTING THE BACKS OF BOOKS. WILLIAM P. NORTHCOTT and ELLSWORTH H. FLORA, Chicago, Ill.; said Flora assignor to said Northcott. Filed Mar. 14, 1903. Serial No. 148,196. (No model.)

Claim.—1. In a machine for printing the backs of books, the combination of a book-holding platform, means for clamping the book thereon, a swinging form-table to carry type of the desired character, and a flexible track for guiding such form-table around and over the back of the book to bring the face of the type in contact therewith, substantially as described.



2. In a machine for printing the backs of books, the combination of an adjustable book-holding platform, means for clamping the book thereon, a swinging form-table for bearing type of the desired character, and curved track-blocks of substantially the same contour as the back of the book to assist in guiding the form-table across and over the back of the book, substantially as described.

3. In a machine for printing the backs of books, the combination of a book-holding platform, means for holding a book thereon, a swinging form-table for bearing type of the desired characters, track-blocks of the same contour as the back of the book to assist in guiding the form-table across and over the back of the book, and flexible track mechanism connected with the form-table and with the main part of the machine and adapted to be wound around the guiding-surface of the track-blocks while the form-table is in operation, substantially as described.

4. In a machine for printing the backs of books, the combination of a book-holding platform, means for clamping the book thereon, a swinging form-table for bearing type of the desired character, track-blocks of the same contour arranged at each end of the book to assist in guiding the form-table in operation, flexible tracks connected with the form-table and the main part of the machine and adapted to be wound around the guiding-surface of the track-blocks when the form-table is in operation, and means for keeping the form-table under pressure on the track-blocks, substantially as described.

5. In a machine for printing the backs of books, the combination of a book-holding platform, means for holding a book thereon, a swinging form-table for bearing type of the desired character, track-blocks of the same contour as the back of the book arranged adjacent to each end thereof to assist in guiding the form-table, flexible band-tracks connected with the outer lateral edges of the form-table passed over the upper surfaces thereof and connected with the main part of the machine and arranged to be wound and unwound on the guiding-surfaces of the track-blocks during the operation of the table, and a weighted cord or similar mechanism connected to the inner edge of the form-table for holding such table under pressure on the track-blocks during the printing operation, substantially as described.

6. In a machine for printing the backs of books, the combination of a book-holding platform, means for adjusting it vertically, means for tilting it, means for holding a book thereon, a swinging form-table for bearing type of the desired character, track-blocks of the same contour as the back of the books to assist in guiding the form-table, flexible tracks connected with the form-table and arranged to be wound and unwound on the guiding-surface of the track-blocks during the printing operation, and mechanism connected with the inner edge of the form-table for holding such form-table under pressure while it is being passed over the track-blocks, substantially as described.

7. In a machine for printing the backs of books, the combination of a book-holding platform, means for moving such platform upwardly and downwardly, means for tilting such platform, clamping mechanism for holding the book in contact with such supporting-platform, treadle mechanism connected with the clamping mechanism for operating the same, a form-table for swinging type characters into and out of contact with the back of the book, and means for guiding such form-table across and over the back of the book, substantially as described.

8. In a machine for printing the backs of books, the combination of an adjustable book-holding platform, means for clamping the book thereon, a swinging form-table for bearing type of the desired character into and out of contact with the back of the book, removable track-blocks of the same contour as the back of the book arranged adjacent to each end thereof to assist in guiding the form-table, flexible band-tracks connected with the outer edges of the form-table and with the main part of the machine and arranged to be wound and unwound on the guiding-surfaces of the track-blocks during the printing operation, means for keeping such form-table under pressure during its contact with the track-blocks, and supplementary guiding mechanism comprising pin and curved bracket to assist in guiding the form-table at the beginning of its swinging movement, substantially as described.

9. In a machine for printing the backs of books, the combination of an adjustable book-holding platform, means for clamping a book thereon, a swinging table provided with a form for bearing type of the desired character into and out of contact with the back of the book, track-blocks of the same contour as the back of the book between which such book may be arranged to assist in guiding the form-table, flexible band-tracks connected with the outer edges of the form-table and with the main part of the machine and arranged to be wound and unwound on the guiding-surfaces of the track-blocks during the swinging movements of the form-table, a pin on such form-table, and a curved guiding-arm on the main part of the machine forming supplementary guiding mechanism for keeping the form-table on a pivot coincident with the connection of its band-tracks with the main part of the machine until such form-table is brought into contact with the track-blocks, substantially as described.

10. In a machine for printing the backs of books, the combination of an adjustable book-holding platform, means for clamping a book thereon, a swinging table provided with a form for bearing type of the desired character into and out of contact with the back of the book removable track-blocks arranged adjacent to each end of the book, flexible band-tracks connected with the outer edges of the form-table and with the main part of the machine arranged to be wound and unwound on the guiding-surface of the track-blocks during the swinging movement of the form-table, weighted mechanism for keeping such form-table under pressure during its contact with the track-blocks, and a heater arranged on the back of the form-table, substantially as described.

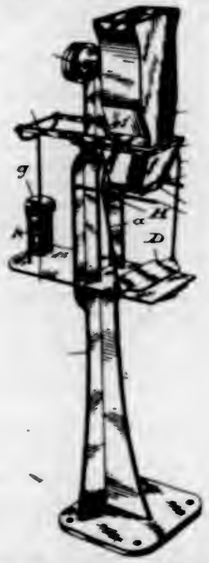
11. In a machine for printing the backs of books, the combination of a pivoted book-holding platform, screw mechanism for raising and lowering such platform, screw mechanism for tilting such platform, a movable clamp on such platform for holding the book in engagement therewith, treadle mechanism connected with such book-clamp for operating the same, a swinging form-table for bearing type of the desired character into and out of contact with the back of the book, track-blocks arranged adjacent to each end of the book, flexible band-tracks connected with the outer edges of the form-table and with the main part of the machine arranged to be wound and unwound on the guiding-surfaces of the track-blocks during the printing operation, and weighted cord mechanism connected with the inner edge of the form-table to assist in keeping it under pressure during its printing operation, substantially as described.

12. In a machine for printing the backs of books, the combination of a pivoted book-holding platform, screw mechanism for tilting such platform, screw mechanism for raising and lowering such platform, a clamp arranged adjacent to such platform for holding the book in position, treadle mechanism provided with cords connected with such book-clamp for operating the same, a swinging form-table for bearing type characters into and out of contact with the back of the book, removable track-blocks arranged adjacent to

each end of the book, flexible band-tracks connected with the outer lateral edges of the form-table and passed over the upper surface of the same and connected with the main part of the machine arranged to be wound and unwound on the guiding-surfaces of the track-block during the printing operation, weighted cord mechanism for keeping the swinging form-table under pressure to assist in the printing operation, supplementary guiding mechanism composed of pins connected with the form-table and curved arms connected with the main part of the machine concentric with the point at which the band-tracks are connected with the machine for guiding the form-table during the beginning of the swinging operations, and a heater arranged on the back of such form-table, substantially as described.

13. In a machine for printing the backs of books, means for holding the book in position, a swinging form-plate for bearing type characters, and track-blocks provided with yielding or cushioned surfaces of substantially the same contour as the back of the book to assist in guiding the form-blocks into and out of contact with the back of the book during the printing operation, substantially as described.

748,644. **AUTOMATIC WEIGHING APPARATUS.** WALTER HOSTRUP, Toronto, Canada, assignor to Howson & Howson, trustees, Philadelphia, Pa. Filed Nov. 4, 1902. Serial No. 130,063. (No model.)



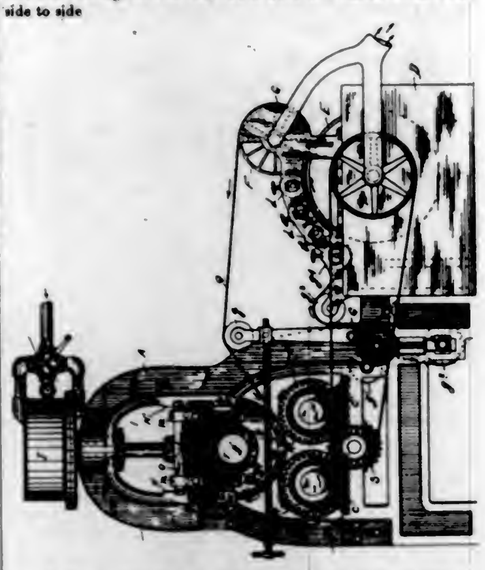
Claim.—1. In automatic weighing apparatus provided with weigh-scales having a scale-beam and a delivery-spout having a substantially wedge-shaped discharge-opening, the combination of a rocking cut-off valve adapted to close the said opening, the leading edge of the cut-off valve being substantially parallel to the leading edge of the opening; a weighted arm adapted to close the said valve; and a contact-point on said arm adapted to engage the scale-beam of the said weigh-scales, substantially as described.

2. In automatic weighing apparatus provided with weigh-scales having a scale-beam and a delivery-spout having a substantially wedge-shaped discharge-opening, the combination of a rocking cut-off valve adapted to close the said opening, the leading edge of the cut-off valve being substantially parallel to the leading edge of the opening; an adjustably-weighted arm adapted to close the said valve; and an adjustable contact-point on said arm adapted to engage the scale-beam of the said weigh-scales, substantially as described.

748,645. **PAPER-MAKING MACHINERY.** HOWARD PARKER, Bellows Falls, Vt., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H., a Corporation of Maine. Filed June 7, 1901. Serial No. 63,508. (No model.)

Claim.—1. In a machine of the class specified, in combination the endless felt, a plurality of coacting rolls mounted in suitable bearings in the frame of the machine, one of said rolls being free to move to a limited extent from side to side with respect to the other rolls, substantially as described.

2. In a machine of the class specified, the combination with the frame and an endless felt, of two or more rolls mounted side by side in suitable bearings in the frame, a roll coacting with the first two rolls and bearings for said roll, free to move to a limited extent from side to side



3. The combination in a machine of the class specified with the frame and the two rolls mounted side by side in said frame, of a single roll coacting with the first two rolls, bearings for the single roll arranged to slide vertically on guides and free to move to a limited extent from side to side.

4. The combination in a machine of the class specified with the frame, the two rolls mounted side by side in the lower part of the frame, of a single roll coacting with the first-mentioned rolls, bearings for said rolls, a plate connected with the bearings for said roll, rolls located between said plate and said bearings, and means to move said plate vertically, substantially as described.

5. In a machine of the class specified the combination with the frame and the rolls supported in suitable bearings in said frame, of a pulp-tank arranged adjacent to said rolls, a suction-roll mounted in said tank and adapted to form the pulp into a sheet on its periphery, and an endless pulp-carrying felt traveling over the roll mounted in the tank and adapted to pick off the sheet of pulp therefrom, and a second suction-roll arranged adjacent to the first suction-roll and adapted to subject the opposite side of the sheet of pulp to the suction action.

6. In a paper-making machine, the tank, a suction-roll revolubly mounted in said tank, a second suction-roll mounted adjacent to the first suction-roll, a forming screen or felt passing from one of said rolls to the other, said rolls being arranged to subject each side of the felt and pulp carried thereby to the suction action, substantially as described.

7. In a machine of the class specified, the tank containing the solution, the suction-roll revolubly mounted therein, a second suction-roll mounted adjacent to the first-named roll, an endless felt passing over part of the periphery of the first roll and in the opposite direction about the other roll, and a series of adjustable pressure-rolls arranged adjacent to and coacting with the first suction-roll, as and for the purposes specified.

8. In a machine of the class specified, the combination with the frame, of two or more rolls mounted side by side in suitable bearings in the frame, a roll coacting with the first two rolls, a felt passing over the two rolls and under the single roll, bearings for said last-named roll, a hydraulic cylinder arranged over each of the bearings of said roll, and the pistons in said cylinder connected with said bearings whereby a direct hydraulic pressure may be brought to bear on said roll, substantially as described.

9. The combination in a machine of the class specified with the frame and the rolls suitably mounted therein, of a hydraulic cylinder mounted over the bearings of one of the rolls, the piston in said cylinder, and connections between said piston and the bearings of one of said rolls, and a removable strap embracing the ends of the axles of each of the rolls, as and for the purposes specified.

10. In a wet-machine, a set of squeezing-rolls comprising a top roll and two under rolls, the latter being disposed in parallelism in the same horizontal plane, and the former located in a plane above the latter with its axis approximately midway between them, supports for said top roll movable back and forth whereby said top roll may move bodily relative to the under rolls, and means for vertically adjusting said supports.

11. In a wet-machine a set of rolls comprising a top roll and two under rolls, the latter being disposed in parallelism in the same horizontal plane, and the former located in a plane above the latter with its axis approximately midway between them, and supports for said top roll free to move back and forth, whereby said top roll may move bodily relative to the under rolls, substantially as described.

12. In a wet-machine, a set of squeezing-rolls comprising a top roll and two under rolls, the top roll being normally located above said under rolls, and supports for said top roll free to move to a limited extent from side to side, means for adjusting said supports vertically, a hydraulic cylinder and means for connecting said movable supports for the top roll therewith, substantially as described.

13. The combination in a machine of the class specified, with the frame, and two rolls mounted side by side in said frame, of a single roll coacting with the first two rolls, bearings for the single roll arranged to slide vertically on guides and free to move to a limited extent from side to side, a hydraulic cylinder, and means for connecting therewith said movable bearings for the single roll, substantially as described.

748,646. **AUTOMOBILE-BRAKE.** WILLIAM M. PAUL, New York, N. Y. Filed Apr. 20, 1903. Serial No. 153,383. (No model.)



Claim.—1. A brake, comprising a frame of U-shaped cross-section, provided on the inner surfaces of its side members with substantially circular recesses, brake-rollers having heads located in said recesses and movable bodily toward and from the cross member of the frame, and means for normally keeping said rollers toward the free edges of the said side members.

2. A brake comprising a frame of U-shaped cross-section provided with recesses on the inner surfaces of its side members and with slots leading outwardly from said recesses, rollers provided with heads arranged in said recesses and with spindles extending through said slots and adapted to move therein toward and from the free edges of the said side members, and means for keeping the rollers normally toward the free edges of the said side members.

3. A brake comprising a frame U-shaped in cross-section and provided with recesses on the inner surfaces of its side members, rollers movable bodily toward and from the cross member of the frame and having heads arranged in said recesses, a concave-faced friction-covering located on said rollers between their heads, and means for normally keeping the rollers toward the free edges of the said side members of the frame.

4. A brake comprising a frame having side members with substantially semicircular recesses on their inner surfaces, retainers detachably secured upon the inner surfaces of said side members and provided with substantially semicircular recesses adapted to register with those of said side members, and brake-rollers having heads within said recesses.

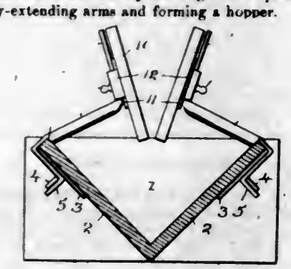
748,647. **ATTACHMENT FOR FEED-TROUGHS.** THOMAS L. PEACOCK, Union Star, Mo. Filed May 9, 1903. Serial No. 156,403. (No model.)

Claim.—1. The combination with a trough; of longitudinally-extending guard-strips detachably connected to the sides of the trough and forming a hopper.

2. The combination with a trough of longitudinally-extending guard-strips detachably and adjustably connected to the sides of the trough and forming a hopper thereover.

3. The combination with a trough; of arms detachably secured thereto and extending inwardly therefrom, and longitudinally-extending guard-strips adjustably secured to the arms and forming a hopper.

4. The combination with a trough having arms extending laterally therefrom; of inwardly-extending arms detachably engaging the first-mentioned arms and adjustable guard-strips mounted upon the inwardly-extending arms and forming a hopper.

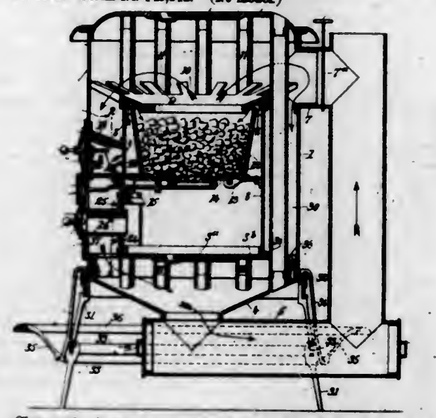


5. The combination with a trough having T-shaped arms extending laterally therefrom; of forked arms engaging the T-shaped arms and extending over the trough, and guard-strips adjustably secured to the forked arms and forming a hopper.

6. The combination with a trough having T-shaped arms extending therefrom; of inwardly-extending arms bearing upon and adapted to receive the edges of the trough, forked L-shaped extensions to the arms adapted to engage the T-shaped arms, and guard-strips adjustably secured to the inwardly-extending arms.

7. The combination with a trough having laterally-extending T-shaped arms; of inwardly-extending arms bearing upon and adapted to receive the edges of the trough, forked L-shaped extensions to said arms adapted to engage the T-shaped arms, upwardly-extending portions to the inwardly-extending arms, and guard-strips adjustably mounted upon said extensions and forming a hopper.

748,648. **STOVE.** FRANK J. PIOCH, Creston, Iowa. Filed Feb 27, 1903. Serial No. 145,312. (No model.)



Claim.—1. A stove, comprising an outer shell provided at its bottom with a funnel-shaped outlet, a hollow member mounted within said shell, a fire-pot mounted within said hollow member, a receptacle connected with said funnel-shaped member for the purpose of arresting soot and ashes, and a smoke-pipe connected with said receptacle for the purpose of facilitating draft through the same.

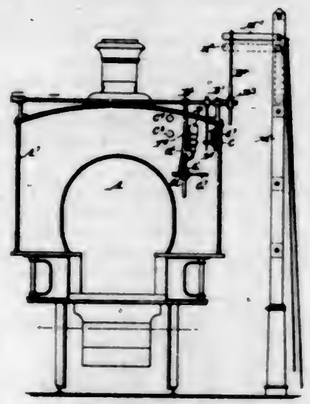
2. A stove, comprising an outer shell provided with an aperture, a hollow member mounted within said outer shell and provided with an aperture for effecting the removal of ashes and the like, a fire-pot mounted within said hollow member, a sliding gate for opening and closing said aperture, said sliding gate being provided with an air-hole, a door mounted upon said outer shell and free to open and close said aperture in said outer shell, and a tubular draft-tube connected with said swinging door and free to register with said air-hole when said swinging door is closed.

3. A stove, comprising an outer shell, means for heating the same, legs for supporting said shell, rings mounted upon said shell and upon said legs respectively, hangers provided with hooks for engaging said rings, and a foot-rest mounted upon said hangers.

4. A stove, comprising an outer shell, means for heating the same, legs for supporting said shell, rings mounted upon said shell and upon said legs respectively, hangers provided with hooks for engaging said rings, and a foot-rest made in sections and supported by said hangers.

5. A stove, comprising an outer shell, a hollow member mounted thereon, a fire-pot mounted within said hollow member, a tubular passage connecting together said outer shell and said hollow member for the purpose of supplying air to the top of the fire, a tubular passage normally connected with said outer shell and with said hollow member for supplying air to the bottom of said fire, means, controllable at will, for regulating the supply of air through said tubular passages respectively, and means for drawing the gases of combustion from said fire-pot downward around said hollow member.

748,649. **SAFETY DEVICE FOR RAILWAY-SERVICE.** EDWARD B. POWERS, Brooklyn, N. Y., assignor, by direct and mesne assignments, to Railway Cab Signal & Equipment Company, Portland, Me., a Corporation of Maine. Filed Apr. 8, 1903. Serial No. 101,830. (No model.)



Claim.—1. The combination with a locomotive-cab of a shaft extending transversely thereof, an upwardly-extending arm secured to the shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a finger carried by said shaft, a brake-controlling mechanism located in said cab, means tending automatically to move said controlling mechanism to apply the brake, and a locking device for such means, and connections from said finger to said locking device whereby a partial revolution of said shaft will release the locking device and move said controlling mechanism in the direction to apply the brake.

2. The combination with a locomotive-cab of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a finger carried by said shaft, a brake-controlling mechanism, automatic means for moving said controlling mechanism to apply the brake and connections thereto from said shaft, whereby a partial revolution of said shaft will automatically apply the brake.

3. In an apparatus of the character set forth, a shaft mounted in the cab, an arm secured to said shaft and adapted to partially rotate the latter, a finger carried by said shaft, a brake-controlling mechanism and connections thereto from said shaft, means for automatically moving said controlling mechanism to apply the brake whereby a partial revolution of said shaft will automatically apply the brake, and a vane supported adjacent to the track in the path of said arm adapted to be struck thereby and cause a partial revolution of said shaft.

4. In an apparatus of the character set forth, a vane mounted adjacent to the track and extending transversely of the line of said track, in combination with an arm carried on the cab of a locomotive on said track, arranged to strike said vane and be deflected thereby, a finger carried by said shaft and a brake-operating mechanism on said locomotive, and connections from said arm to said brake-operating mechanism, whereby the contact of said arm and vane will automatically apply the brake.

5. In an apparatus of the character set forth, a support located near the track, a vane mounted thereon and extending transversely of the line of said track, in combination with an arm carried on the cab of a locomotive on said track, arranged to strike said vane and be deflected thereby, and a brake-operating mechanism on said locomotive, a brake-controlling mechanism, means for automatically moving said controlling mechanism to apply the brake and connections from said arm to said brake-operating mechanism, whereby the contact of said arm and vane will automatically apply the brake.

6. In an apparatus of the character set forth, a support located near the track, a vane pivotally mounted therein adapted to hang normally vertically therefrom or to be held extended transversely to the line of said track, and means for moving said vane to either of said positions, in combination with an arm carried on the cab of a locomotive on said track, arranged to strike said vane and be deflected thereby, and a brake-operating mechanism on said locomotive, a finger carried by a shaft rotatably mounted on the cab, brake-controlling mechanism, means tending automatically to move said controlling mechanism to apply the brake and connections from said arm to said brake-operating mechanism, whereby the contact of said arm and vane will automatically apply the brake.

7. An air-brake-operating valve located in the cab of a locomotive, having a valve-stem G^2 and operating-lever G^7, a spring exerting its force in the direction to move said valve-stem to apply the brakes, a catch controlling said spring, connections from said catch to an arm on the exterior of said cab, arranged to be deflected by contact with an obstruction in its path and thereby lift said catch and release said spring.

8. In an apparatus of the character set forth, an air-brake valve having the valve-stem G^2 and operating-lever G^7, a helical spring encircling said stem and abutting against the valve-casing, a tubular collar G^3 inclosing said stem and receiving the pressure of said spring, a spring-catch G' arranged to engage said collar and restrain said spring while permitting the said stem to move freely within said spring and collar, and connections from said spring-catch whereby it may be withdrawn to release said collar and permit said spring to exert its pressure to move said stem in the direction to apply the brake.

748,650. **PESSARY.** FRANK L. PRIBBY, Dallas, Tex. Filed Apr. 7, 1903. Serial No. 151,480. (No model.)

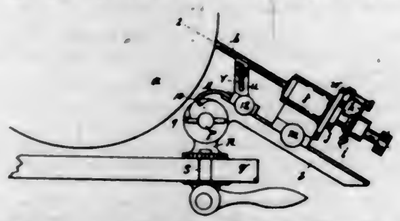


Claim.—1. A pessary comprising a skeleton frame formed of a plurality of spaced arms extended from the inner side of a flat abutment-ring, said arms converging to a central eyelet-ring and curving outward near said eyelet-ring to provide a skeleton bulb for the frame.

2. A pessary comprising an abutment-ring, a plurality of slim, spaced arms extended at the same side of the ring, the extended end portions of the arms being curved toward a central eyelet-ring, into which they merge and provide a bulb, the arms between the rings having incurved portions that produce a neck of less diameter than the bulb and abutment-ring.

3. A pessary, comprising an elongated skeleton frame, consisting of an abutment-ring forming one end of the frame with a plurality of spaced arms extending from the ring, and all curved inwardly and upwardly toward a common center to form a contracted neck portion for the pessary, said arms then continuing in the same longitudinal direction and curving slightly outwardly from each other to form a bulb portion, the arms then curving into arches and all meeting at a common center to form the other end of the pessary, said ring being of greater diameter than the diameter of said bulb portion, whereby said ring forms a stop for the device.

748,651. **TWIST-DRILL GRINDER.** ADOLPH H. REINAHL, Detroit, Mich. Filed Dec. 15, 1902. Serial No. 136,178. (No model.)



Claim.—1. In a twist-drill grinder the combination of a tool-holder provided with a rearwardly-projecting stem, a reversing-block or sleeve about the tool-holder and having a threaded engagement with said holder whereby the tool-holder may be rotated within the reversing-block, a housing about said block or sleeve, a plate or bed to support said housing, a standard upon which said plate or bed has a jointed engagement toward the forward end of the plate or bed, a support for said standard, the stem of the tool-holder provided with a stop to limit the rotation of the holder, and means to limit the movement of said stop.

2. In a twist-drill grinder the combination of a tool-holder provided with a rearwardly-projecting stem, a reversing-block or sleeve within which said holder has a threaded engagement whereby the tool-holder may be rotated within the reversing-block, a housing about said block or sleeve, a plate or bed to support said housing, a standard upon which said plate or bed has a jointed engagement toward the forward end of the plate or bed, a support for said standard, said housing being adjustable upon said support toward and from the work, the stem of the tool-holder provided with spacing fingers or stops, and means connected with the reversing-block or sleeve to limit the movement of said stops.

3. In a twist-drill grinder the combination of a tool-holder provided with a rearwardly-extended stem and with means for rotating the holder, a reversing-block or sleeve within which the holder has a threaded engagement whereby the tool-holder may be rotated within the reversing-block, a housing within which said block or sleeve is located, a plate or bed to support said housing, a standard upon which said plate or bed has a jointed engagement toward the forward end of the plate or bed, a support for said standard, and spacing mechanism to limit the movement of the tool-holder.

4. In a twist-drill grinder the combination of a rotatable tool-holder, a reversing-block or sleeve within which said holder has a threaded engagement, a housing within which said block or sleeve is located, a support for said housing, spacing fingers or stops upon said holder, a rearwardly-projecting lever-arm upon said block or sleeve, a rearwardly-projecting spring-pin engaged with said block or sleeve and arranged to engage the housing, said spacing fingers or stops arranged to strike against the rearwardly-projecting spring-pin.

5. In a twist-drill grinder the combination of a rotatable tool-holder provided with a rearwardly-projecting stem, a reversing-block or sleeve within which the tool-holder may be advanced and retracted whereby the tool-holder may be rotated within the reversing-block, a housing in which said block or sleeve is rotatable, a plate or bed to support said housing, a standard upon which said plate or bed has a jointed engagement toward the forward end of the plate or bed, a support for said standard, means to limit the rotation of the block or sleeve, and means to limit the advancement of the tool-holder.

6. In a twist-drill grinder the combination of a rotatable tool-holder, a reversing-block or sleeve within which the holder may be advanced and retracted, a housing within which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, said support being vertically oscillatory, and said housing having an adjustable engagement upon said support toward and from the work.

7. In a twist-drill grinder the combination of a tool-holder, a reversing-block or sleeve in which the holder may be advanced and retracted, a housing in which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, and means to limit the advancement of the tool-holder, said support being laterally oscillatory.

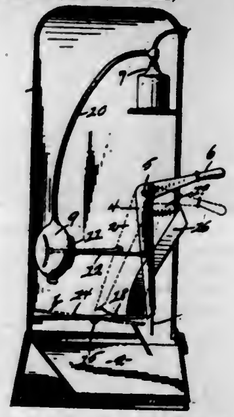
8. In a twist-drill grinder the combination of a tool-holder, a reversing-block or sleeve within which the holder may be advanced and retracted, a housing within which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, and means to limit the advancement of the tool-holder, a standard upon which said support has a jointed engagement, said support being vertically and laterally oscillatory, said standard being laterally adjustable upon said bed or table,

9. In a twist-drill grinder the combination of a rotatable tool-holder, a reversing-block or sleeve within which the holder may be advanced and retracted, a housing within which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, and means to limit the advancement of the tool-holder, and a guide for a drill engaged upon said support, said guide adjustable vertically and longitudinally of the holder.

10. In a twist-drill grinder the combination of a tool-holder, a reversing-block or sleeve within which the holder may be advanced and retracted, a housing within which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, means to limit the advancement of the tool-holder, and a guide for the drill having an adjustable engagement upon said support longitudinally of the holder.

11. In a twist-drill grinder the combination of a tool-holder, a reversing-block or sleeve in which the holder may be advanced and retracted, a housing in which said block or sleeve is rotatable, a support for said housing, means to limit the rotation of the block or sleeve, and means to limit the advancement of the tool-holder, a standard with which said support has a jointed engagement, and a spring-arm carried by said support to engage said standard.

748,652. **COIN-CONTROLLED PERFUME-VENDING MACHINE.** ARTHUR J. RICHIE and ALBERT W. JAMISON, Toledo, Ohio. Filed Oct. 5, 1903. Serial No. 175,815. (No model.)



Claim.—1. In a coin-controlled mechanism, an operating-lever, a tilting table adapted to lock the lever against movement, means for depositing a coin upon the table, and a member loosely hinged to the lower end of the operating-lever adapted to ride over the coin when the lever is moved forward and to engage and remove the coin from the table when said lever is moved backward, substantially as described.

2. In a coin-controlled mechanism, an operating-lever, a tilting table adapted when in raised position to lock said lever against movement and when in lowered position to release the same, means for depositing a coin upon the table, a pivoted member carried by the lever to effect the removal of the coin, and supplemental means carried by the tilting table adapted to engage the operating-lever and prevent its repeated operation, substantially as described.

3. In a perfume-vending device, a pivoted angular-shaped operating-lever, spring-actuated means for maintaining the same in normal operative position, a spraying device actuated thereby, a tilting table adapted when in raised position to engage and lock the operating-lever against movement and when lowered to release the same, a chute adapted to discharge a coin in a lateral direction upon the tilting table, a pivoted member carried at the lower end of the operating-lever adapted to engage and remove the coin upon the table, and a shoulder upon the table adapted to engage the operating-lever immediately upon the removal of the coin from the table, substantially as described.

748,653. **GEAR-WHEEL.** FRIEDRICH A. RICHTER, Rudolstadt, Germany. Filed Sept. 26, 1903. Serial No. 174,536. (No model.)



Claim.—1. A gear-wheel for spring-motors, the same consisting of a body portion of suitable material, having a circumferential wall, and provided with teeth extending approximately parallel with the axis of said body portion and spaced at a suitable distance from said wall, for substantially the purposes set forth.

2. A gear-wheel for spring-motors, the same consisting of a body portion, provided with a circumferential wall, and having gear-teeth extending in a line around and concentric with the said wall and separated at a distance from the wall, for substantially the purposes set forth.

3. A gear-wheel for spring-motors, the same being composed of stamped-up or drawn sheet metal, and comprising a body portion, provided with a circumferential wall, and a concentric series of teeth around the wall, for substantially the purposes set forth.

4. The combination with a barrel for spring-motors, of a gear-wheel, said parts being provided with struck-up interlocking studs or lugs and openings, for substantially the purposes set forth.

748,654. FISH-TRAP. DAVID B. ROBERTS, St. Joseph, Mo. Filed Nov. 25, 1902. Serial No. 132,746. (No model.)



Claim.—1. In a fish-trap, a submerged, fish-retaining central compartment or trap, provided with one or more spirally-arranged chutes, having their inner ends opening into said trap and their outer ends terminating as openings or intakes for fish—the whole provided with means for rotating as specified.

2. In a fish-trap, a submerged, fish-retaining central compartment or trap provided with one or more spirally-arranged chutes, having their inner ends opening into said trap and their outer ends terminating as openings or intakes for fish—the whole formed of netting secured to framework, carried upon spokes having edges suitably beveled or sloped to act as a turbine, as specified.

3. In a fish-trap, a submerged, fish-retaining central compartment or trap, provided with one or more spirally-arranged chutes, having their inner ends opening into said trap and their outer ends terminating as openings or intakes for fish—the whole formed of framework and netting carried upon beveled edged spokes, radially secured to a shaft, having one of its ends rotatably secured to a fixed object by a swivel-attached cable, as specified.

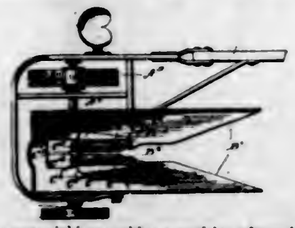
4. In a fish-trap, a submerged, fish-retaining central compartment or trap, provided with spirally-arranged chutes, having their inner ends opening into said trap and their outer ends terminating as openings or intakes for fish; the whole formed of framework and netting carried upon a rotatably-supported shaft, and means for applying power to said shaft, as specified.

748,655. UMBRELLA. JACOB R. ROHRER, Washington, D. C. Filed Mar. 3, 1903. Serial No. 146,004. (No model.)



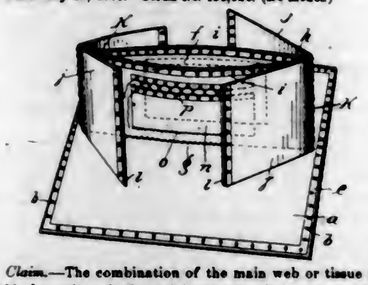
Claim.—An extension for broken umbrella-sticks comprising a tubular member adapted to fit snugly over the broken end of the stick, a removable plug at its outer end adapted to contact with the broken end of the umbrella-stick and to prevent said stick from being forced farther into the extension and means to hold said plug in position.

748,656. MACHINE FOR PICKING EARS OF CORN. WILLARD C. SABIN, Laurel, Nebr. Filed Sept. 26, 1903. Serial No. 174,796. (No model.)



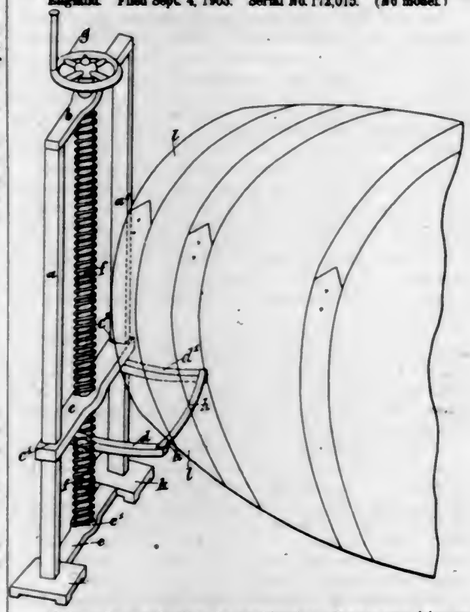
Claim.—A corn-picking machine comprising a frame having suitable driving-shafts, a table mounted upon said frame which is recessed in from one end forming a rectangular outlined opening at the inner end of said recessed portion, with the marginal edges of the recess leading to said opening tapered, a yoke mounted upon said table and about the marginal edges of said opening, parallel rollers journaled in said yoke, a gear-wheel carried by the shaft of each roller, and gear connections between the driving-shafts and said gear-wheels, as set forth.

748,657. SATCHEL. JOSEPHUS SANDERS, New York, N. Y. Filed May 27, 1903. Serial No. 158,926. (No model.)



Claim.—The combination of the main web or tissue *a* adapted to fold along the middle and having the lacing-perforations along the meeting margins, the interior pocket stitched together and to the part *a* along the fold of said part *a*, and having the lacing-perforations along the top, and the end parts *j* folded transversely and thereat stitched to the ends of the interior pocket and provided with lacing-perforations at their ends respectively.

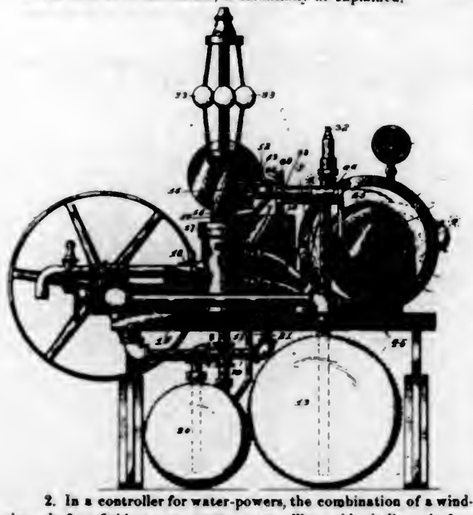
748,658. CASK-TILTER. GEORGE SANDERS, Burton-upon-Trent, England. Filed Sept. 4, 1903. Serial No. 172,015. (No model.)



Claim.—In a cask-tilter, in combination a frame comprising uprights, a threaded bar carried thereby, means for turning the threaded bar, a movable cross-piece sliding on uprights of the frame, the said threaded bar passing through and adapted to raise and lower the movable cross-piece, bars extending horizontally from the cross-piece and a support for the cask carried by the said bars, said support being shaped to conform to the side of the cask, substantially as described.

748,659. GOVERNOR FOR WATER-WHEELS. MARCUS P. SCHENCK, Springfield, Mass., assignor to the Schenck Governor Company, Meriden, Conn., a Corporation of Connecticut. Filed Feb. 10, 1897. Serial No. 622,894. (No model.)

Claim.—1. In water-governor, the combination of a winding-shaft, a reversible motor controlling said shaft, a suitable source of power from which said motor is operated, a valve controlling communication of said power, the governor to control the position of said valve to cause movement of the winding-shaft in opposite directions, a lever also controlling said valve, and a rock-shaft receiving opposite movements from the winding-shaft and engaging the valve-lever for actuating the valve when the winding-shaft reaches either limit of its movement, substantially as explained.

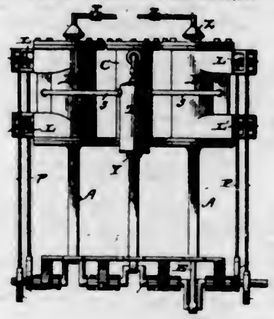


2. In a controller for water-powers, the combination of a winding-shaft, a fluid-pressure motor controlling said winding-shaft, a valve controlling the communication of fluid to said motor, a governor controlling said valve, a lever also controlling said valve, a rock-shaft having arms projecting on opposite sides of said lever, a toothed segment carried by said rock-shaft, and a worm-wheel on the winding-shaft engaging said segment, substantially as herein described.

3. In a controller for water-powers, the combination of a winding-shaft, a fluid-pressure motor controlling said winding-shaft, a valve controlling the communication of pressure to said motor, a pressure-tank with which said valve communicates, a storage-tank, and a pump having communication with said storage and pressure tanks for taking fluid from the former and delivering it under pressure in the latter, substantially as herein explained.

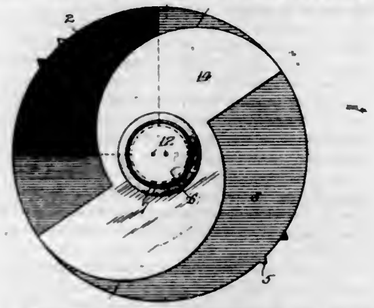
4. In a controller for water-powers, the combination of a winding-shaft, the fluid-pressure motor controlling said winding-shaft, a valve having communication in opposite directions with the motor, a governor controlling the position of said valve, a pressure-tank supplying fluid under pressure to said valve, a storage-tank into which said valve exhausts, a pump having communications with the respective tanks for taking fluid from one and delivering it under pressure to the other, and suitable means for operating said pump, substantially as herein explained.

748,660. COMPRESSED-AIR MOTOR. EDWARD W. SCHLOEMER, Milwaukee, Wis. Filed Mar. 30, 1901. Serial No. 53,662. (No model.)



Claim.—A motor comprising two motor-cylinders, pistons therein, each motor-cylinder having two parallel, longitudinal passage-ways opening into the cylinder on each side of the piston, rotary valves in said passage-ways adjacent each end thereof, a compressor-cylinder of less diameter than the motor-cylinders and arranged between them, a reservoir-tank, a piston in the compressor-cylinder, pipes leading from each end of the compressor-cylinder to the tank, and thence discharging into one of the longitudinal passages of each motor-cylinder, an exhaust-pipe leading from the other passage, a cranked shaft, piston-rods connected at one end to the pistons, and at their opposite ends to the shaft, two eccentrics arranged on the shaft adjacent each motor-cylinder, eccentric-rods extending parallel with each motor-cylinder, oppositely-arranged valve-stems, connected at one end to the valves in one of the passages and at their opposite ends to one of said valve-rods, means for initially compressing the air in the tank and means for heating the motor-cylinders.

748,661. COLOR-BLENDING WHEEL. CHARLES SCOTT, Minneapolis, Minn. Filed Nov. 3, 1902. Serial No. 129,955. (No model.)



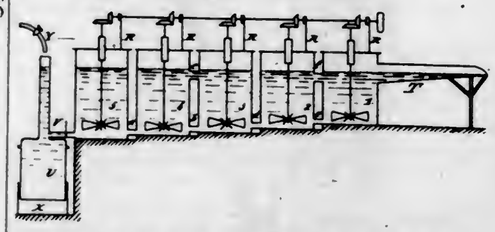
Claim.—1. The color-blending wheel comprising the colored disks or cards provided with central opening in combination with the short shaft having threaded ends and the opposite screw-caps provided thereon, substantially as described.

2. The color-blending wheel comprising the colored cards having central openings in combination with the short threaded tubular shaft, and the screw-caps having clamping-flanges and string attachments, substantially as described.

3. The color-blending wheel comprising the colored disks or cards provided with peripheral lugs and having center openings in combination with the double eccentric card having the curved edges 15 and a central opening, the short shaft or hub having right and left threads upon its end, the metal threaded caps having clamping-flanges and the twisting strings attached to said caps, substantially as described.

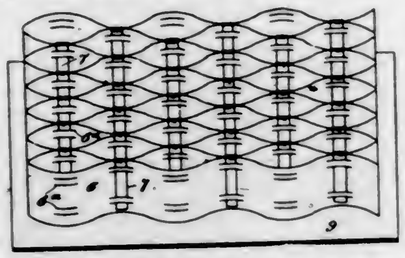
4. A whirling toy or buzz, comprising a short shaft or hub, in combination with color-cards having central openings to fit said shaft and self-holding caps removably provided on the ends of said shaft and together holding said cards against rotation thereon.

748,662. PROCESS OF TREATING COPPER ORES. AMÉDÉE M. G. STEILLOT, Paris, France. Filed Nov. 1, 1901. Serial No. 80,741. (No specimens.)



Claim.—The process for extracting pure metals from mineral ores, consisting in treating the ores with sulfuric acid at the evaporating-point of the latter, without roasting, to form sulfates, condensing the surplus acids fumes, and lixiviating the sulfates in successively deeper baths under constant agitation, in a current flowing in direction opposite to the progress of the ores.

748,668. CELL-CASE. HIRAM SELSOR, Hunnewell, Mo. Filed Jan. 31, 1903. Serial No. 141,573. (No model.)



Claim.—1. A cell-case comprising a series of bent strips joined in contact to each other on opposite sides alternately, forming opposite walls of the same cells, and unions at the joints movable lengthwise along the strips.

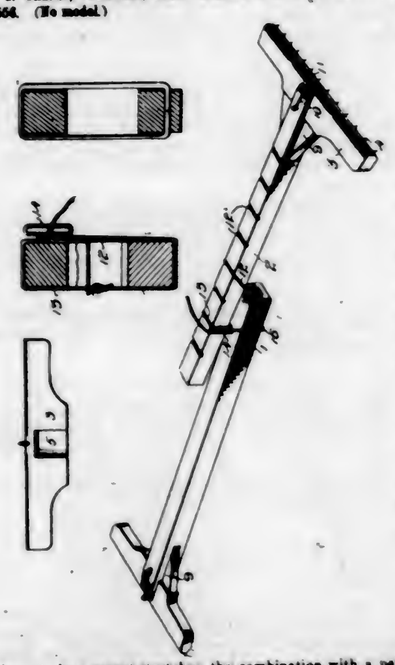
2. A cell-case comprising a series of flexible strips standing on edge side by side and joined to each other on opposite sides alternately, forming opposite walls of the same cells, and connections at the joints movable lengthwise along the strips.

3. A cell-case comprising a series of flexible strips standing edgewise side by side, joined to each other on opposite sides alternately, and having registering lengthwise slits at the joints, and locking-strips extending through the slits.

4. A cell-case comprising a series of joined flexible strips having registering lengthwise slits at suitable spaces apart, and locking-strips of less width than the length of the slits, extending crosswise therethrough, whereby longitudinal movement of the locking-strips is permitted.

5. A cell-case comprising a series of flexible strips bent to contact with and joined to each other on opposite sides alternately forming opposite walls of the same cells, and connecting loops at the joints, movable lengthwise along the strips.

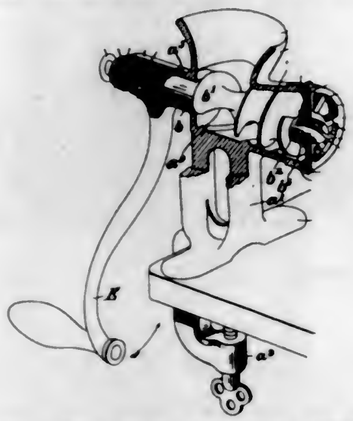
748,664. CARPET-STRETCHER. THOMAS J. SHEETS and ZACHARY T. SHEETS, Columbus, Ohio. Filed Oct. 1, 1902. Serial No. 126,566. (No model.)



Claim.—1. In a carpet-stretcher, the combination with a pair of members adjustably overlapped at their inner ends and provided at their outer ends with carpet-engaging devices, of means for adjustably connecting the members, and means for securing the members in their adjusted positions, said securing means comprising a loop adjustably mounted upon one of the members and provided with a head, and a flexible connection carried by the loop and adapted to embrace the other member and be engaged with the head.

2. In a carpet-stretcher, the combination with a stretcher member provided at its end with a reduced tapered recess, of a head provided with opposite notches forming a reduced tapered portion to engage the tapered recess, devices for detachably connecting the head and member, and carpet-engaging means associated with the head.

748,665. FOOD-CUTTER. CHARLES J. SHERRETT, Brockville, Canada. Filed July 16, 1901. Serial No. 68,509. (No model.)



Claim.—1. The combination with the hopper, having an exit-passage and the shaft having a spiral portion intermediate of its ends, of detachable stationary and rotary knives, mounted on said shaft, means for turning said rotary knife, means for preventing said stationary knife from turning, and means for securing said knives on said shaft when the shaft is rotating in one direction and releasing them therefrom when the direction of rotation of the shaft is reversed as and for the purpose specified.

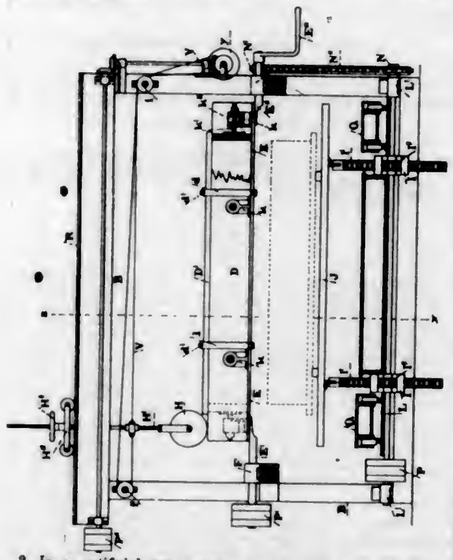
2. In a food-cutter of the class described, the combination with the hopper having an exit-passage, and the shaft having a spiral portion intermediate its ends, a shoulder adjacent to said spiral portion, an annular groove formed around said shaft, longitudinal ridges crossing said groove, and longitudinal slots extending from said groove to the end of said shaft, of detachable stationary, and rotary knives, said stationary knife having a central annular hole, and said rotary knife having a central hole with inwardly-extending projections, means for rotating said shaft and rotary knife and means for preventing said stationary knife from rotating with said shaft, as and for the purpose specified.

3. The combination with the hopper the bearing and the stops, the exit-passage, and the shaft having a spiral portion intermediate its ends, a cylindrical portion adjacent to said spiral portion and a square portion adjacent to said cylindrical portion, and a threaded hole formed in the end thereof, a shoulder adjacent to the opposite end of said spiral portion, an annular groove formed in said shaft, and adjacent to said shoulder, longitudinal ridges crossing said annular groove, and longitudinal slots extending from said annular groove to the end of said shaft, of a stationary knife, held on said shoulder said stationary knife having projections on its outer circumference to be engaged by said stops, a rotary knife having a central hole with inwardly-extending projections, a crank having a sleeve to engage the square portion of said shaft, and a thumb-screw having a flange formed thereon adjacent to the threaded portion as and for the purpose specified.

748,666. ARTIFICIAL-STONE-MOLDING MACHINE. JAMES SINCLAIR, Chicago, Ill. Filed Sept. 4, 1903. Serial No. 172,012. (No model.)

Claim.—1. In an artificial-stone-molding machine, the combination of the frame B, provided with a tumbling-plate E, supported and carried from gudgeons E', E'', taking into boxes F, secured to the frame B, of a matrix or mold-box D, having its sides and ends

attached to adjustable stud-screws k', taking into nuts k'', carried from brackets k, attached to the tumbling-plate E, substantially as shown and described.



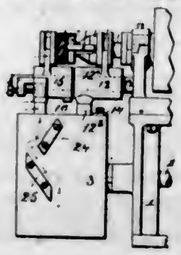
2. In an artificial-stone-molding machine, the combination of the tumbling-plate E, provided with gudgeons E', E'', taking into boxes F, supported from a frame B, of the mold-box D, supported from the said tumbling-plate E, and provided with a cover D', suspended from draw-rods d', taking into eye-straps d, secured to the tumbling-plate E, that said cover is held to the mold-box D, upon reversed positions of the tumbling-plate E, and its mold-box D with one another, substantially as shown and described.

3. In an artificial-stone-molding machine, the combination of a tumbling-plate E, provided with a mold-box D, of a roller H, taking over said mold-box, and suspended from a rod H', taking into a hand-wheel H'', carried from a carriage H''', alternately drawn back and forth by a cable or rope V, taking over the pulleys y, i, i', manipulated by a crank or handle j, situated on the spindle j' of the pulley y, substantially as shown and described.

4. In an artificial-stone-molding machine, a frame B, provided with a tumbling-plate E, carrying a mold-box D, in combination with a table J, provided with spud-posts l', pinions l'' meshing with the said spud-posts, and secured from a shaft L, operated through link and chain gear as a means for lowering and raising said table, substantially as shown and described.

5. In an artificial-stone-molding machine the combination of a tumbling-plate E, with a matrix or mold-box B, having its sides and ends attached to screw-studs k', taking into nuts k'' pivoted from brackets k attached to the tumbling-plate E, whereby the sides and the ends of the said box D can be withdrawn a short distance from the cast within the said mold-box D, that the cast is free from the sides of the mold-box at the time of withdrawing the cast, that frictional resistance of the cast with the mold-box D, is avoided, substantially as shown and described.

748,667. SCREW-MACHINE. GUSTAV SITTMANN and WALTER H. PITT, Brooklyn, N. Y. Filed Sept. 10, 1901. Serial No. 74,876. (No model.)



Claim.—1. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected with said tube and provided with stops, a movable member connected with said sleeve for reciprocating the same and movable between said stops, one of said stops being adjustable with respect to said member, and means for operating said member, substantially as described.

2. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected therewith and provided with stops, a cam-wheel, a movable member connected with said sleeve and movable between said stops to be operated by the cams for feeding, and means whereby the extent of movement of such movable member relative to the sleeve may be adjusted, substantially as described.

3. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected therewith, an oscillatory member connected with said sleeve, a stop for said member connected with said sleeve, an adjustable stop also connected with said sleeve between which stops said member is adapted to oscillate, and means for oscillating the said member, substantially as described.

4. A device of the character described comprising a tube to receive stock, a sleeve connected therewith, a lever connected with said sleeve, a pair of stops for said lever carried by said sleeve, one of which stops is adjustable relatively to said lever, and a cam-wheel adapted to operate said lever to feed said sleeve more or less, substantially as described.

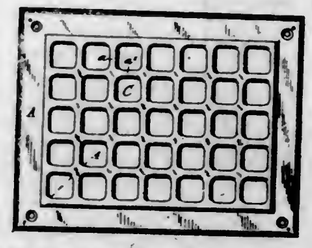
5. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected therewith, a lever carried by said sleeve, a stop carried by said sleeve at one side of the lever to be engaged thereby, an adjustable stop carried by said sleeve on the opposite side of the lever to regulate the movement of said lever independent of said sleeve toward said stop, and a cam-wheel to oscillate said lever, substantially as described.

6. A device of the character described comprising a tube adapted to receive stock and provided with a head, a reciprocative sleeve having means to engage said head, a lever carried by said sleeve, a stop connected with said sleeve to be engaged by said lever, a screw carried by said sleeve to regulate the independent movement of said lever, a wheel, and cams on said wheel for oscillating said lever, substantially as described.

7. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected therewith, a lever carried by said sleeve, a pair of stops carried by said sleeve on opposite sides of said lever, one of said stops being adjustable, a cam-wheel, and a pair of cams thereon set at reverse angles to operate the lever, whereby said lever will be oscillated by the rotation of said cams, substantially as described.

8. A device of the character described comprising a tube to receive stock, a reciprocative sleeve connected with said tube and provided with stops, a movable member connected with said sleeve and movable between said stops, means for operating said member, and means whereby the extent of movement of such movable member relative to the sleeve may be adjusted, substantially as described.

748,668. FACE-PLATE FOR REGISTERS. HARRY J. VALENTIVE, Cleveland, Ohio, assignor to the Columbian Hardware Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 30, 1902. Serial No. 137,201. (No model.)



Claim.—1. A face-plate for registers, composed of a plurality of thicknesses or plate members of sheet metal, one having hollow cross-pieces or ribs and the other having opposing cross-pieces or ribs spaced from said first-named cross-pieces or ribs so as to form tube-like portions, substantially as described.

2. A face-plate for registers, composed of two thicknesses of sheet metal placed at their outer portions flat against each other, the said plate having tube-like portions surrounded by such flat outer

portions, the joints of which tube-like portions extend longitudinally thereof, substantially as described.

3. A face-plate for registers, comprising a plurality of mutually-supporting thicknesses or plate members, with corresponding openings and spaced opposing cross-pieces or ribs, said opposing cross-pieces or ribs forming tube-like portions between the openings, substantially as described.

4. A face-plate for registers, comprising a plurality of mutually-supporting thicknesses or plate members, with corresponding openings, and with cross-pieces engaged at the edges between the openings but otherwise spaced or separated from each other, whereby the mutual support and stiffening of the parts is effectuated, substantially as described.

5. A face-plate for registers, comprising a plurality of sheet-metal thicknesses or plate members, each provided with openings, the edges of which on at least one of the plate members are disposed at an angle to the general plane thereof to stiffen it, while parts of the other of said plate members are spaced away from the opposing parts of the first said plate member, and the said plate members being secured together to mutually stiffen and support each other, and to produce a tubular and open-work structure, substantially as described.

6. A face-plate for registers, composed of at least two thicknesses of sheet metal each provided with approximately semitubular or semicylindrical cross-pieces, the hollows of which are presented together and which cross-pieces are secured to form tube-like portions, substantially as described.

7. A face-plate for registers, composed of at least two thicknesses of sheet metal each provided with approximately semitubular or semicylindrical cross-pieces, the edges of which cross-pieces are disposed in a plane transverse to the general plane of the face-plate, said edges being secured together to form tubes of the cross-pieces, substantially as described.

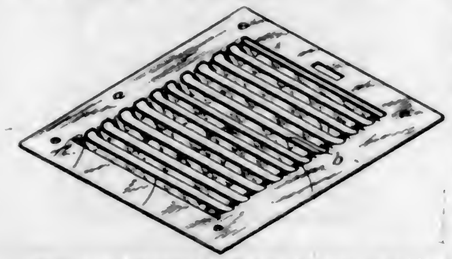
8. A face-plate for registers, composed of at least two thicknesses of sheet metal each provided with cross-pieces, the edges of which cross-pieces are disposed in a plane transverse to the general plane of the face-plate, said edges being swaged together to form tubes, substantially as described.

9. A face-plate for registers, composed of at least two thicknesses of sheet metal having openings and each provided with approximately semitubular cross-pieces, the edges of which cross-pieces are disposed in a plane transverse to the general plane of the face-plate to form tubes between the openings, substantially as described.

10. A face-plate for registers, composed of at least two thicknesses of sheet metal each provided with approximately semitubular cross-pieces, the hollow sides of which are presented together and which are secured together at their edges, and reinforcing-bars secured within the cross-pieces, substantially as described.

11. A face-plate for registers, composed of two thicknesses of sheet metal, each provided with approximately semitubular cross-pieces curved in opposite directions, and secured or swaged one within the other to form complete tubes, substantially as described.

748,669. FACE-PLATE FOR REGISTERS. HARRY J. VALENTINE, Cleveland, Ohio, assignor to the Columbian Hardware Company, Cleveland, Ohio, a Corporation of Ohio. Original application filed May 20, 1902, Serial No. 108,148. Divided and this application filed May 26, 1903. Serial No. 158,335. (No model.)

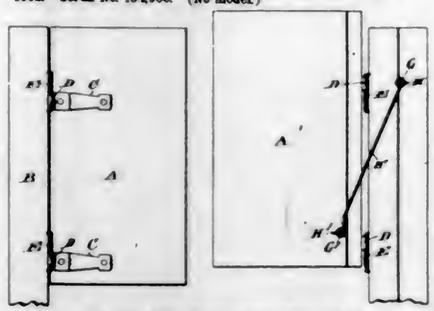


Claim.—1. A face-plate for registers, the same comprising a sheet-metal frame, and bars connecting the sides of the frame, turned bodily edgewise relatively to the frame, the planes of the end portions of the bars being located to one side of the axes of the bars, and the outer edges of the bars being flush with the outer surface of the frame, substantially as described.

2. A face-plate for registers, the same comprising a flat sheet-metal frame, and transverse bars turned bodily edgewise relatively thereto, the planes of the end portions of the bars being located to one side of the axes of the bars, and the outer edges of the bars being flush with the outer surface of the frame, substantially as described.

3. A face-plate for registers, the same comprising a flat sheet-metal frame, and integral transverse bars turned bodily edgewise relatively thereto, the outer edges of the bars being substantially flush with the outer surface of the frame, substantially as described.

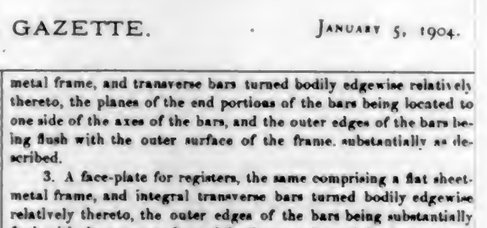
748,670. GAGE-HINGE. JOHN H. VANDEVER, Olalla, Oreg., assignor of one-half to William R. Wells, Olalla, Oreg. Filed Dec. 12, 1902. Serial No. 134,980. (No model.)



Claim.—1. A gate-hinge having hinge-straps on the gate, elongated staples on the gate-post engaged by said straps, a resilient rod connected loosely at each end to said post and gate, said post connection being at a higher level than the lower gate-strap, said rod extending across the opening between the gate and post, substantially as described.

2. A gate-hinge having hinge-straps, in the front of the gate, elongated staples on the gate-post engaged by the said straps, a resilient rod connected to the post at a higher level than the lower gate-strap and the opposite side of the gate-pivots, said rod extending diagonally across the gate-opening and secured at its opposite end to the rear side of the gate, substantially as described.

748,671. WRENCH. ALFRED L. VINYARD, Slidell, La. Filed Apr. 18, 1903. Serial No. 153,246. (No model.)



Claim.—A wrench comprising a recessed handle having a fixed jaw at one end and a socket at the opposite end, a jaw having a shank extending into and slidable in the socket, ratchet-teeth on one edge of the recess and on the shank, and a set-screw for interlocking said ratchet-teeth, substantially as described.

748,672. RAIL-JOINT. ALFRED L. VINYARD, Slidell, La. Filed May 8, 1903. Serial No. 156,170. (No model.)

Claim.—1. A rail-joint comprising fish-plates having overlapping base-plates provided with inclined interlocking tongues and grooves and extending under the base of the rail, and registering spike-holes through the base-plates, substantially as described.

2. A rail-joint comprising fish-plates having overlapping base-plates extending under the base of the rail, one of said base-plates having inclined grooves, and the other having inclined tongues fitting the grooves for interlocking the base-plates, and extensions on each side of the base-plates having registering spike-holes on one side, substantially as described.

748,673. BUTTON. AMBROSE P. WARD, Central City, Iowa. Filed June 15, 1903. Serial No. 161,587. (No model.)



Claim.—1. In a button, the combination with non-rotatable slidably-associated shank-sections, of a shoe carried by one section, a head carried by the other section, said head and shoe being movable toward and from each other upon the relative movements of the shank-sections, means for securing the sections against relative movement and in different relative positions, and a stop coacting with the sections and permitting their free relative movement but preventing the disassociation of said sections.

2. In a button, the combination with slidably-associated shank-sections, of a shoe carried by one section, a head pivotally mounted on the other section, a securing device carried by one section and engaging the other to hold the sections against relative movements, and a stop separate from the securing device for limiting the relative movements of the sections and preventing their disassociation.

3. In a button, the combination with head and shoe members, of a tubular shank-section carried by one member, another shank-section non-rotatable and slidably mounted therein and carried by the other member, a securing device carried by the inner section and having an adjustable interlocking engagement with the outer section to hold said sections against relative movement and in different relative positions, and a stop carried by one section and having a slidable engagement with the other to permit the relative sliding movement of said sections and positively hold the same against disassociation.

4. In a button, the combination with head and shoe members, of a tubular shank-section carried by one member and being angular in cross-section, another angular shank-section slidably mounted therein and carried by the other member, said sections being thereby held against relative rotation, a securing device mounted on one side of the inner section and having an adjustable interlocking engagement with the adjacent inner face of the outer section, and a stop carried by another side of the inner section and having a slidable engagement with the outer section to limit the relative movement of said sections and prevent their disassociation.

5. In a button, the combination with a shoe, of a tubular shank-section mounted on the shoe and being angular in cross-section and thereby held against relative rotation, certain of the opposite walls of said shank-section having inwardly-extending teeth on their inner faces, a longitudinally-disposed slot being formed in one of the other walls, a head, another shank-section carried by the head and slidably fitting in the tubular section, locking devices carried by the inner section and having teeth that coact with the teeth of said tubular section, and a stop-pin carried by the inner section and having a slidable engagement in the slot of the tubular section.

6. In a button, the combination with head and shoe members, of a tubular shank carried by one member and having a longitudinally-disposed series of teeth on its inner side, another shank-section carried by the other member and having a longitudinally-disposed seat in its exterior face that is alined with the teeth, said latter section being slidably fitted within the tubular section, and a locking device movably mounted in the seat of the inner section and having outstanding teeth that detachably interlock with the teeth of the tubular section.

7. In a button, the combination with movably-associated shank-sections, of a head, a pivotal connection between the head and one section, and means for holding the sections against relative movement, said means being movable to permit said relative movement of the sections and including an actuating element for thus moving the holding means, said actuating element passing through the pivotal connection.

8. In a button, the combination with movably-associated shank-sections, of a head, an ear mounted on the head and having a pivotal connection with one of the shank-sections, and means for holding the sections against relative movement, said means being movable to permit the relative movement of the sections and including an actuating-stem for thus moving the holding means, said stem passing through the ear.

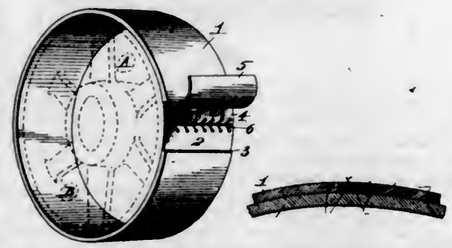
9. In a button, the combination with a shoe carrying a tubular shank-section, of another shank-section slidably mounted within the tubular section and having outstanding hollow journals, a head having ears that surround the outstanding journals, and securing devices for holding the shank-sections against relative movement, said devices being movable to permit the relative movement of the sections and having outstanding actuating-stems that project through the hollow journals.

10. In a button, the combination with slidably-associated sections, of means for securing the sections against relative movement said means being movable to permit said relative movement of the sections, a head pivotally mounted on one of the sections, and associated springs carried by the head, one of the springs engaging one of the shank-sections to hold the head against its pivotal movement, and the other shank-section engaging the securing means for maintaining said securing means in coacting relation with the sections to hold the latter against relative movement.

11. In a button, the combination with slidably-associated shank-sections, of a shoe mounted on one section, a head mounted on the other section, a securing device for holding the sections against relative movement and in different relative positions, said device including an outstanding actuating element arranged upon the under side of the head, and a bowed spring located within the head and having an end engaging the outstanding actuating element, said spring being disposed in angular relation to the securing device and extending contiguous to one edge of the head.

12. In a button, the combination with a shoe having a tubular shank-section provided with internal teeth, of another shank-section slidably mounted in the tubular section and having outstanding journals, securing devices mounted on the inner shank-section and having outstanding actuating-stems passing through the journals, a head pivoted upon the journals, a bowed spring mounted within the head and having its ends associated with the securing devices, and a spring attached at one end to the bowed spring and having an intermediate portion bearing against the outer end of the inner shank-section.

748,674. PULLEY-COVERING. JEAN F. WEBB, Denver, Colo. Filed Mar. 23, 1903. Serial No. 149,144. (No model.)



Claim.—1. A pulley-covering band having tongues of suitable lengths at its ends so disposed that when placed in position around a pulley the tongues will overlap to be secured to each other, substantially as set forth.

2. A pulley-covering band having tongues of suitable lengths at its ends so disposed that when placed in position around a pulley two of said tongues are opposed to each other for connection, and a third tongue to overlap the joint between the two aforesaid tongues and form a smooth outside surface, substantially as set forth.

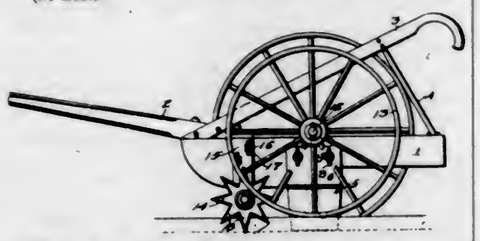
3. A pulley-covering band having one of its ends divided to form a short tongue and a long tongue and having at its opposite end a short tongue to oppose and be connected to the first-mentioned short tongue; said long tongue being arranged to overlap and be secured to said short tongues, substantially as and for the purpose set forth.

4. A pulley-covering band having one of its ends split to present a short tongue and a long tongue and having at its other end a short tongue to mate with said first-named short tongue beneath said long tongue, substantially as set forth.

5. The combination with a pulley-covering band to extend across the face of a pulley-rim and projecting beyond the edges of said rim, of retaining-strips secured to the under side of the band at its

edges which are extended beyond the pulley-rim face, substantially as set forth.

748,675. SOD-CUTTING PLOW. JOSEPH F. WEBER, Hastings, Mich. Filed Apr. 14, 1902. Renewed July 24, 1903. Serial No. 166,910. (No model.)



Claim.—1. In a sod-cutting plow, the combination of a frame, supports therefor to bear on the ground, and cutters having vertical standard portions secured to the frame and lateral horizontally-disposed blades, said cutters being disposed directly opposite each other and having their horizontal blades provided with oblique front cutting edges extending rearwardly to their inner ends, the inner ends of the said blades being spaced apart, to permit roots, twigs and the like to pass between them, substantially as described.

2. A sod-cutting plow having a frame, a cutter carried thereby to cut the under side of the sod, an axle disposed directly above the cutter, and side cutters, to cut the sides of the sod and disposed in advance of the first-mentioned cutter, substantially as described.

3. In a sod-cutting plow, the combination of a frame, an axle attached thereto, supporting-wheels on said axle on opposite sides of said frame, one of said supporting-wheels being of greater diameter than the other, and cutters having vertical standard portions secured to and vertically adjustable on the frame and provided with lateral horizontally-disposed undercutting-blades, substantially as described.

748,676. LENS-SETTING FOR STEREOSCOPES. HAWLEY C. WHITE, North Bennington, Vt., assignor to H. C. White Co., a Corporation of Vermont. Filed Apr. 30, 1903. Serial No. 154,927. (No model.)



Claim.—1. A lock for confining a lens in its socket consisting of two binding-caps, each comprising a facial rim which covers the edge of one side of the lens, two opposite leaves which embrace two opposite edges of the lens and overfolded flanges at the ends of the leaves, the leaves of the two members being arranged at right angles to each other, substantially as specified.

2. A socket-lining for a lens-cavity in a lens-frame of a stereoscope, consisting of two similar members each of which consists of a flange-rim which surrounds the cavity and bears against the surface of the frame and two opposing leaves bent to fit the two opposite sides of the socket, the two members being combined so that the leaves of one member will be disposed transversely to the leaves of the other member, substantially as specified.

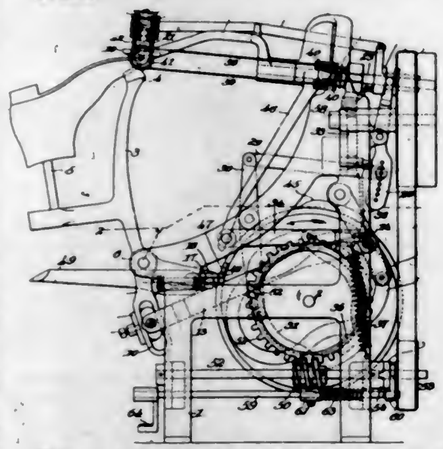
3. The combination with a lens-frame of the two described transversely-disposed lens-caps having leaves, rims and flanges arranged and adapted to hold a lens in position substantially as specified.

4. The combination with a lens-frame of the two similar socket-linings having leaves and flanges arranged and adapted to form an internal lining for a lens-socket, and means for holding said linings in position substantially as specified.

5. The combination in a stereoscopic lens-frame of the socket-linings and transversely-disposed lens-caps, said linings and caps being provided with retaining-flanges substantially as specified.

6. The combination with a lens-frame having one or more rectangular lens-cavities, of a socket-lining consisting of two similar members each of which consists of a face-flange rim which surrounds the socket and rests upon the surface of the frame and two opposing leaves bent to fit the two opposite sides of the socket, the two members being combined so that the leaves of one member will be disposed transversely to the leaves of the other member, and means connected with such members for confining them in place, substantially as described.

748,677. BUFFING-MACHINE. ERASTUS B. WINKLEY and BENJAMIN PHILLIPS, Lynn, Mass. Filed Feb. 3, 1902. Serial No. 92,367. (No model.)



Claim.—1. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, and mechanism for actuating the jack to transfer the point of contact of the buffing device back and forth over the sole of a shoe supported upon the jack, substantially as described.

2. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, and connected mechanism acting automatically to actuate the jack to transfer the point of contact of the buffing device back and forth over the sole of a shoe supported upon the jack and to relatively actuate the buffing device and jack to change their relative lateral inclination, substantially as described.

3. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, and connected mechanism acting automatically to relatively actuate the buffing device and jack to transfer the point of contact of the buffing device over the sole of a shoe supported upon the jack, and to change the relative longitudinal inclination of the buffing device and jack, substantially as described.

4. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, and connected mechanism acting automatically to relatively actuate the buffing device and jack to transfer the point of contact of the buffing device over the sole of a shoe supported upon the jack and to change the relative lateral and longitudinal inclination of the buffing device and jack, substantially as described.

5. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and mechanism for relatively actuating the pad and jack to transfer the point of contact of the pad over the sole of a shoe supported upon the jack, substantially as described.

6. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and connected mechanism acting automatically to relatively actuate the pad and jack to transfer the point of contact of the pad over the sole of a shoe supported upon the jack, and to change the relative lateral inclination of the pad and jack, substantially as described.

7. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and connected mechanism acting automatically to relatively actuate the pad and jack to transfer the point of contact of the pad over the sole of a shoe supported upon the jack and to change the relative longitudinal inclination of the pad and jack, substantially as described.

8. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and connected mechanism acting automatically to relatively actuate the pad and jack to transfer the point of contact of the pad over the sole of a shoe supported upon the jack and to change the relative lateral and longitudinal inclination of the pad and jack, substantially as described.

9. A buffing-machine, having, in combination, a shoe-supporting jack, a rotary buffing-pad provided with a substantially flat working surface, mechanism for moving the jack back and forth beneath the pad, and means for adjusting such mechanism to cause the breast of the heel of the shoe supported upon the jack to be brought into close proximity to the buffing-pad at the limit of the movement of the jack in one direction, substantially as described.

10. A buffing-machine, having, in combination, a shoe-supporting jack, a rotary buffing-pad provided with a substantially flat working surface, mechanism for relatively actuating the pad and jack to transfer the point of contact of the pad over the sole of a shoe supported upon the jack, and means for thereafter raising the pad above the level of the sole, substantially as described.

11. A machine for operating upon the soles of shoes, having, in combination, a shoe-supporting jack, a device for operating upon the sole of a shoe supported upon the jack, jack-actuating mechanism for moving the jack back and forth beneath said device, said jack being movable from a position of presentation to a position in which the sole of a shoe supported thereon is beneath said device, and means for connecting the jack to its actuating mechanism when in the latter position, substantially as described.

12. A machine for operating upon the soles of shoes, having, in combination, a shoe-supporting jack, a device for operating upon the sole of a shoe supported upon the jack, jack-actuating mechanism for moving the jack back and forth beneath said device, said jack being movable from a position of presentation to a position in which the sole of a shoe supported thereon is beneath said device, means for holding said device above the level of the sole during such movement, and means for connecting the jack to its actuating mechanism when in the latter position, substantially as described.

13. A machine for operating upon the soles of shoes, having, in combination, a shoe-supporting jack, a device for operating upon the sole of a shoe supported upon the jack, jack-actuating mechanism for moving the jack back and forth beneath said device, said jack being movable from a position of presentation to a position in which the sole of a shoe supported thereon is beneath said device, means for connecting the jack to its actuating mechanism when in the latter position, and means acting automatically to disconnect the jack from its actuating mechanism when in a position in which the toe portion of the sole is in proximity to said device, substantially as described.

14. A machine for operating upon the soles of shoes, having, in combination, a shoe-supporting jack, a device for operating upon the sole of a shoe supported upon the jack, jack-actuating mechanism for moving the jack back and forth beneath said device, said jack being movable from a position of presentation to a position in which the sole of a shoe supported thereon is beneath said device, means for connecting the jack to its actuating mechanism when in the latter position, and means for adjusting the jack when so connected to change its longitudinal position with relation to said device, substantially as described.

15. A machine for operating upon the soles of shoes, having, in combination, a shoe-supporting jack, a device for operating upon the sole of a shoe supported upon the jack, jack-actuating mechanism for moving the jack back and forth beneath said device, said jack being movable from a position of presentation to a position in which the sole of a shoe supported thereon is beneath said device, means for connecting the jack to its actuating mechanism when in the latter position, and means for adjusting the jack-actuating mechanism to simultaneously change the longitudinal position of the jack with relation to said device and the extent of the movements imparted to the jack, substantially as described.

16. A buffing-machine, having, in combination, a shoe-supporting jack, a rotary buffing-pad provided with a substantially flat working surface, and connected mechanism acting automatically to move the jack back and forth beneath the pad and to tip the pad laterally and longitudinally, substantially as described.

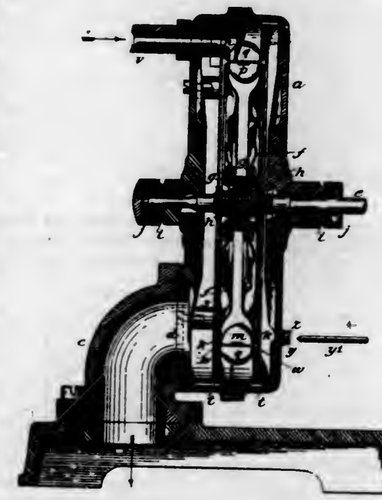
17. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, and connected mechanism acting automatically to relatively actuate the buffing device and jack to transfer the point of contact of the buffing device over the sole of a shoe supported upon the jack and to tip the buffing device laterally, substantially as described.

18. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and connected mechanism acting automatically to relatively actuate the jack and pad to transfer the point of contact of the pad over the sole of a shoe supported upon the jack and to tip the pad laterally, substantially as described.

19. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing-pad provided with a substantially flat working surface, means for rotating the pad, and connected mechanism acting automatically to relatively actuate the jack and pad to transfer the point of contact of the pad over the sole of a shoe supported upon the jack and to tip the pad longitudinally, substantially as described.

20. A buffing-machine, having, in combination, a shoe-supporting jack, a buffing device, means for actuating the buffing device, mechanism for relatively actuating the buffing device and jack to transfer the point of contact of the buffing device back and forth over the sole of a shoe supported upon the jack, and means for changing the relative lateral inclination of the buffing device and jack while the point of contact of the buffing device is being transferred back and forth over the sole of the shoe, substantially as described.

748,678. TURBINE. HERMAN WOLFF, San Francisco, Cal. Filed Apr. 19, 1901. Serial No. 56,625. (No model.)



Claim.—1. A power-turbine comprising a casing having a series of inwardly-open and outwardly-overlapping stationary tangential buckets, and means for admitting fluid under pressure, a rotary wheel journaled in the casing having a series of peripheral outwardly-open and inwardly-overlapping tangential buckets, the two series of buckets with their open ends facing each other and forming a confined helical path, so that the fluid passes between both series of buckets in advancing helical whirls.

2. A power-turbine comprising a casing having a series of inwardly-open and outwardly-overlapping stationary tangential buckets, and a rotary wheel journaled in the casing having outwardly-open and inwardly-overlapping tangential buckets, the wheel and stationary buckets forming a confined helical path; the form of the inner space of each bucket being determined on two opposing sides by flat-faced walls approximately semicircular in outline, the semicircular edges of said walls joining at right angles with the face of an appropriately semicircular curved wall; thus forming a nearly-semicircular and flat pocket, whose bottom segment shows the three joined faces in cross-section at a U-shaped and rectangular position to each other.

3. A power-turbine comprising a casing having a series of inwardly-open and outwardly-overlapping stationary tangential buckets, and means for admitting fluid under pressure, a rotary wheel journaled in the casing having outwardly-open and inwardly-overlapping tangential buckets, the wheel and stationary buckets forming between them a confined helical path, along which the fluid passes in advancing helical rings; the inner peripheral faces of the semicircular bucket-walls taking at the bottom sections of all the buckets, a perpendicular position to the radial lines of the centrifugal action of the whirling fluid.

4. A power-wheel bucket, rhomboidal in plan view, irregularly curved in cross-section, and having slightly-tapered ends merging into a bottom longitudinal curve.

5. In a power-turbine, a rotary wheel comprising two thin metallic disks, a shaft or axis, a wheel-hub to which said disks are secured, reinforcing-rings secured externally at the edges of said disks, and a series of peripheral buckets secured between the disks.

6. In a power-turbine, a rotary wheel, comprising two disks secured to a shaft or axis, reinforcing-rings located externally at the edges of said disks, a series of peripheral buckets arranged between said disks, and rivets for securing said rings to the disks, and said buckets between the disks.

7. In a power-turbine, a rotary wheel, comprising two disks secured to a shaft or axis, a series of peripheral buckets arranged and secured between said disks, reinforcing-plates on adjacent faces of said buckets, and rivets passing through said plates and said adjacent bucket-faces.

8. In a power-turbine, a rotary wheel having a series of peripheral buckets, in combination with a peripheral band inclosing and binding together the series of buckets.

9. In a power-turbine, a casing having a series of interior peripheral projections, rings secured in the casing in parallel planes and bearing on said projections so as to leave clearances between said projections, one or more inlet-nozzles, a discharge or exhaust pipe, a rotary wheel journaled in the casing, and buckets carried respectively by said rings and said rotary wheel.

10. In a power-turbine, a casing having stationary rings arranged in parallel planes and carrying buckets, a rotary wheel journaled in the casing and having a cooperating series of buckets, reinforcing-rings on the wheel in proximity to the casing-rings, and beveled edges to all of said rings forming a diverging circular outlet between the stationary and revolving buckets.

748,679. **CLOCK-CASE.** GEORGE B. WOODRUFF and THOMAS W. B. MCCABE, Winsted, Conn., assignors to William L. Gilbert Clock Company, Winsted, Conn., a Corporation of Connecticut. Filed July 17, 1896. Serial No. 599,473. (No model.)



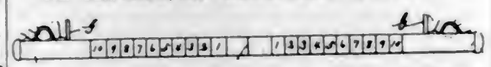
Claim.—1. In combination, a tubular case having a socket formed by depressing a portion of the material of the case, a removable cover or back of cup shape arranged to fit within the tubular case and having a projection pressed out from the material of the cover and adapted to engage the recess formed by pressing out the material of the case, an opening through the peripheral edge of the cup-shaped cover, and a pivoted latch pivoted to the cover and arranged to be swung through the opening in the cover and the opening in the tubular case.

2. In combination with a tubular case having a latch-socket through the wall thereof and a depression formed in the wall of said tubular case by pressing out the material of the case, said depression being at a point substantially diametrically opposite the latch-socket, a removable cover having a pressed-out lug adapted to fit within the recess in the socket and an opening arranged to register with the latch-socket of the case with the parts in place, and a pivoted latch adapted to be swung through the openings of the cover and the case.

3. In combination with a tubular case, a cover of cup shape arranged to fit closely within the tubular case and provided with a peripheral lip adapted to abut against the edge of the case, a depression formed in the case on one side by forcing out the material thereof, a projection on the cover formed by forcing outward the material of the cover said projection adapted to engage the depression in the case, a slot through the wall of the case substantially opposite the depression therein and a slot in the cover substantially opposite the projection therefrom, and a latch pivoted upon the cover and arranged to be swung through the openings in the cover and case when they are brought into registering positions.

4. In combination with a tubular case, a removable cover or back having a rib forced up from the material of the cover and substantially concentric with the rim thereof, ribs forced up from the material of the cover and arranged radially to the concentric rib, a projection forced out of the material of the cover on one edge and adapted to register and lie within the depression formed by pressing out the material of the case, registering openings through the cover and case substantially opposite said depression and projection, and a pivoted latch arranged upon the cover and adapted to be swung into the registering opening through the cover and case.

748,680. **GAME APPARATUS.** JAMES J. WYLY, Fort Worth, Tex. Filed June 23, 1902. Serial No. 112,871. (No model.)

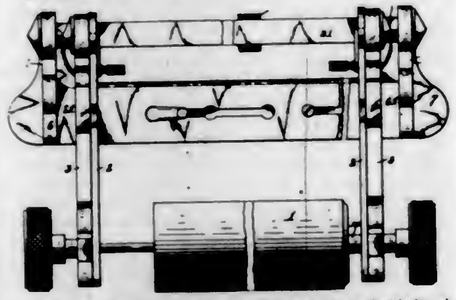


Claim.—1. In a game apparatus, a bar having a longitudinal groove in one face thereof, said bar having marked thereon a medial line, separate spaces or divisions symmetrically arranged on each side of said medial line, said spaces being progressively numbered, and a combined guard and retaining-bracket for a rolling body secured to each end of the bar in line with the groove, each guard and bracket being formed from a single strand of wire.

2. In a game apparatus, a bar having a longitudinal groove in one face thereof constituting an unobstructed way for a rolling body, a guard secured to each end of the bar in line with the groove, said guards being formed of wire and having rearwardly-extending separated legs arched above the groove and constituting, with the latter, retaining-brackets for rolling bodies.

3. In a game apparatus, the combination with a longitudinally-grooved bar, of a retaining-bracket for a rolling body located at each end of the bar in line with the groove, each bracket being formed from a single strand of wire having laterally-yieldable legs arched above the groove, one end portion of the wire strand extending upward from the groove to form a guard and the other end portion being bent down against the end of the bar, and means for securing the brackets to the bar.

748,681. **TYPE-WRITER CARRIAGE CONSTRUCTION.** JESSE ALEXANDER, New York, N. Y., assignor of one-half to Frederick H. Ward, Brooklyn, N. Y. Filed Nov. 3, 1902. Serial No. 130,543. (No model.)



Claim.—1. In a type-writer, a main supporting-bed, side brackets adapted to engage a guide-rod, slides extending from and supporting said brackets, one of said slides being slotted and having an enlargement in said slot, a pin pivoted in said supporting-bed and extending through said slide, said pin having a flattened portion and a handle on said pin for operating the same and adapted to hold said slide in position.

2. In a type-writer, a main supporting-bed, side brackets having recesses in the inner surfaces adapted to engage a guide-rod, slides extending from and supporting said brackets, one of said slides being slotted and having an enlargement in said slot, a pin pivoted in said supporting-bed and extending through said slide, said pin having a flattened portion and a handle on said pin for operating the same and adapted to hold said slide in position.

3. In a type-writer, a carriage construction comprising a supporting-bed, a side bracket adapted to engage a guide-rod, an extension-slide carried by said bracket and resting and adapted to slide upon said supporting-bed, said slide having a plurality of slotted openings therein, one of said openings being provided with an enlargement, a pin pivotally mounted in said supporting-plate and adapted to lock said slide and brackets in position or to allow the same to slide horizontally.

4. In a type-writer, a carriage construction comprising a supporting-bed, a side bracket having a recess on the inner surface adapted to engage a guide-rod, an extension-slide carried by said bracket and resting and adapted to slide upon said supporting-bed, said slide having a plurality of slotted openings therein, one of said openings being provided with an enlargement, a pin pivotally mounted in said supporting-plate and adapted to lock said slide and brackets in position or to allow the same to slide horizontally.

5. In a type-writer machine, a supporting-bed for a carriage structure, a pair of brackets adapted to support a guide-rod, extension-slides for said brackets adapted to rest upon and be moved along said supporting-bed, each of said plates being slotted and with enlargements, pins mounted on said supporting-bed and having flattened sides adapted to lock the said slides and brackets either in an extended or retracted position.

6. A type-writer carriage construction comprising a supporting-bed, brackets adapted to engage a guide-rod, extension-slides from said brackets adapted to rest and slide upon said supporting-bed, said slides having openings therein, one end of two of said openings being enlarged and enlargements also at other portions of said openings and pins having flattened portions and mounted in said supporting-bed and adapted to lock said brackets and slides in positions corresponding to the enlarged portions of said openings.

7. In a type-writer carriage construction, a main supporting-bed, side brackets, extension-slides therefrom supported by said bed, means for adjusting the position thereof, said brackets having recesses in their inner surface adapted to receive and support the ends of a guide-rod.

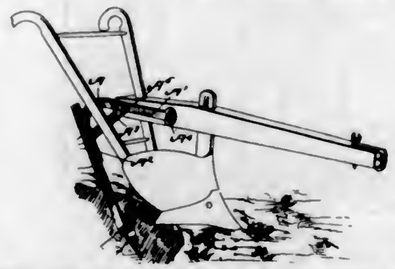
8. In a type-writer, a carriage construction comprising a platen; platen-carrying plates, side frames, pins mounted in said frames for connecting the side plates with the side frames, the said plates being slotted to provide with said pins a means for locking said plates in position or freeing the same independently of the position of the platen.

9. In a type-writer, a carriage construction comprising side frames, means for supporting the same, side plates carrying a platen, pins pivoted in said side frames and having flattened portions adapted to engage with a slotted portion of said plates, the slotted portions of said plates having enlargements adapted to coact with said pins, substantially as described.

10. In a type-writer, a carriage construction comprising side frames, side plates carrying a platen, pins pivotally carried by said side frames and having flattened portions, handle-arms extending from said pins, the said plates being slotted and adapted to coact with the flattened portion of said pins, for the purpose specified.

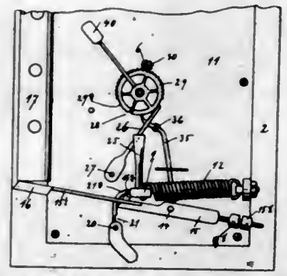
11. In a type-writer, a carriage construction comprising a supporting-bed, a pair of brackets, extension-slides carried by said brackets, said slides being slotted, pins carried by said supporting-bed adapted to engage said slotted portions to lock said brackets in position when desired, a main guide-rod supported by said brackets, side frames, a bar connecting the same, means for mounting said frames upon said guide-rod, side plates for supporting a platen, pins carried by said frames, the said plates being slotted whereby said plates may be locked in position or freed.

748,682. **ATTACHMENT FOR PLOWS.** EUGENE H. ALLMAN, Mobile, Ala. Filed Feb. 25, 1903. Serial No. 145,064. (No model.)



Claim.—The combination with a plow-beam, of a bracket having a horizontal, forwardly-extending portion, said portion having an enlargement at its forward end, said enlargement being vertically slotted, and having a longitudinal, horizontal slot adjacent the rear end of the horizontal portion, a perforated, rear, downwardly and forwardly inclined portion, a central, curved, connecting portion, a straight, flat bar having a plurality of perforations formed adjacent its upper end and adapted to be adjustably secured to the perforated downwardly-extending portion of the bracket, and a plow-point adapted to be pivotally connected to the lower end of the straight bar.

748,683. **COIN-CONTROLLED TESTING-MACHINE.** CHARLES E. AMOND, Ilion, N. Y. Filed Aug. 17, 1903. Serial No. 169,832. (No model.)



Claim.—1. In a testing-machine of the character described, the combination of a casing having a projecting stationary handle and a movable handle, the two arranged to be adapted to be grasped by the hand, the latter of which handles is a lever extending through the casing and pivoted thereto, a spring attached to the inner end of said movable lever-handle and to a stationary part of the casing and arranged to oppose the movement of the movable handle toward the stationary handle, an indicating and registering device consisting of a dial and pointer on the outside of the case, the pointer mounted on a shaft extending to the interior of the case, a pinion provided on the inner end of said shaft, a gear-wheel meshing therewith and provided with a weight for returning it to its starting position, a system of levers between the handle-lever and the said gear-wheel for operating the pointer, and a catch for securing the pointer, substantially as set forth.

2. The combination in a testing-machine of the character described, of stationary and movable gripping-handles, the latter being a pivoted lever, a spring for restraining the movement of the said handle-lever, a catch for locking the same against movement, coin-controlled mechanism for operating said catch, a dial, a pointer for the dial, a connection between said gripping-lever handle and the pointer for operating the same in one direction, a catch for locking the pointer, said catch arranged to cooperate with the before-mentioned handle-lever catch, whereby the movement of one catch throws the other out, and means for returning the pointer to starting position, substantially as set forth.

3. In a grip-testing machine of the character described, the combination of a gripping-handle, which is a pivoted lever, a spring for resisting the movement of the said lever, a catch for locking the said lever against movement, coin-controlled mechanism for operating said catch, a second catch for securing the before-mentioned catch in unlocked position and arranged to be unlocked by the movement of the gripping-lever combined, substantially as set forth.

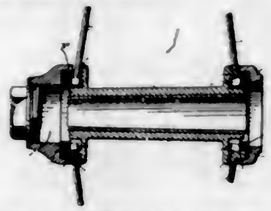
4. The combination in a gripping-machine of a movable gripping-handle, which is a pivoted lever, a spring for resisting the movement of the lever, an indicating and registering mechanism, consisting of a dial, a rotating pointer, a pinion for rotating the pointer, a gear-wheel meshing with the pinion, a catch for locking the pointer mechanism, means for returning the pointer to starting position, and a connection between the gripping-lever and the indicating mechanism for operating it in one direction only, substantially as set forth.

5. The combination in a grip-testing machine of the character described, of the gripping-lever 9 pivoted intermediate of its length and having a spring for resisting the movement of the lever, the dial 4, the rotating pointer 5 thereof mounted on a shaft, having the pinion 30, the gear-wheel 29 meshing with said pinion, and also having ratchet-teeth, a catch for engaging and holding said wheel 29, means for returning the pointer to starting position, the arm 25 from the gripping-lever and the lever 26 pivoted to a fixed support and adapted to engage with a projection on the wheel 29, substantially as set forth.

748,684. **VEHICLE-WHEEL.** CHARLES ANDERSEN and WILLIAM C. WELLS, Grand Rapids, Mich., assignors of one-third to John G. Carroll, Grand Rapids, Mich. Filed Sept. 21, 1903. Serial No. 173,964. (No model.)

Claim.—1. In a wheel, the combination of a hub having a cup-

shaped end provided with inclined inner surfaces to engage the heads of the spokes and radial recesses to receive the spokes, a rim, spokes attached to the rim at their outer ends and having T-heads on their inner ends, and means for forcing said heads inward within the cup and retaining the same in place therein.



2. In a wheel, the combination of a rim, a hub, a cup-shaped end to the hub, and having a truncated conical inner surface and radial recesses, spokes attached to the rim and inserted in the recesses, T-heads on the spokes engaging the said truncated conical surface, screw-threads on the cup, and an internally-screw-threaded cap attached to the cup.

3. In a wheel, the combination of a hub, a rim, a cup on the end of the hub having a truncated conical inner surface, and recesses to receive the spokes, spokes attached to the rim and having heads engaging the inner surface of the cup, a ring to engage the heads, and means for forcing the ring against the heads.

4. In a wheel, the combination of a hub, a rim, a cup on the end of the hub and having a truncated conical inner surface and recesses, and an external thread, spokes attached to the rim and inserted in the recesses, heads on the spokes engaging the inner surface of the cup, a ring engaging the heads, and a screw-threaded cap attached to the cup and engaging the ring.

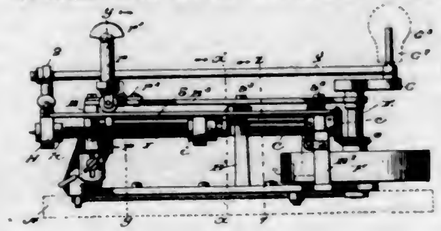
5. In a wheel, a straight spoke having a truncated conical head at the outer end and a T-head at the inner end, a rim having openings to fit the truncated conical head and permit the T-head to pass therethrough, a hub, a cup on the end of the hub having a truncated conical inner surface and radial recesses to receive the spokes, and means for forcing the T-heads of the spokes into the cup and holding the same in place therein.

6. In a wheel, the combination of straight spokes having an enlarged and truncated conical outer end and a T-head on the inner end, a rim having openings to fit the outer end of the spokes, and to permit the T-head to pass therethrough, a hub, a cup on the hub having radial recesses and a truncated conical inner surface, a ring to engage the heads of the spokes, and means for forcing the ring into the cup and holding the same in place therein.

7. In a wheel, straight spokes having enlarged ends, a rim having openings to fit the outer enlargement of the spoke and permit the inner enlargement to pass therethrough, a hub, a cup on the end of the hub and having radial recesses and an inclined inner surface to engage the spokes, and means for forcing the enlarged inner ends of the spokes inward within the cup and retaining the same in place therein.

8. In a wheel, the combination of straight spokes, enlarged and truncated conical ends on the outer ends of said spokes, T-heads on the inner ends of the same, a rim having openings to engage and hold the outer ends of the spokes and to permit the inner ends to pass therethrough, a hub, cups on the ends of the hub having radial recesses and inclined inner surfaces, rings to engage the heads on the inner ends of the spokes, and screw-threaded caps attached to the cups and engaging the rings.

748,685. SAW-SHARPENING MACHINE. ANDERS ANDERSON, St. Cloud, Minn. Filed Feb. 5, 1903. Serial No. 142,067. (No model.)



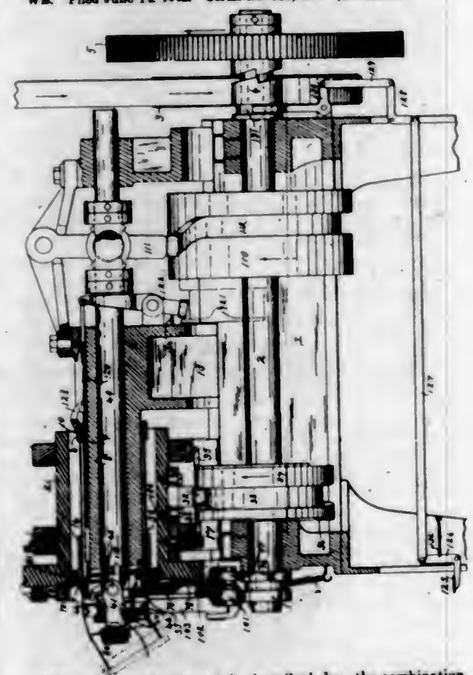
Claim.—1. The combination of the frame of the machine, the file-carrying carriage hinged thereto, said carriage having a slidable cylindrical rod and flat bar S lengthwise thereof and transverse arms uniting them, a shaft C parallel with the hinge-rod of said carriage, a cam upon said shaft, a pivoted angular lever having one end in engagement with said cam and in its other end a spring-pressed roller resting upon the bar S, and means for intermittingly raising said bar S, substantially as described.

2. The combination of the frame of the machine, the file-carrying carriage hinged thereto, said carriage having a slidable cylindrical rod and flat bar S lengthwise thereof and transverse arms uniting them, a shaft C parallel with the hinge-rod of said carriage, a spring-pressed lever movable transversely of said frame, a pawl-carrying lever operatively connected with said first-mentioned lever, a cam upon said shaft for advancing said first-named lever, and means for exerting pressure upon the bar S, and means for intermittingly raising said bar S, substantially as described.

3. The combination of the frame of the machine, the file-carrying carriage hinged thereto having a slidable cylindrical hinge-rod and a flat bar S lengthwise thereof, a shaft C parallel with the hinge-rod, a cam upon said shaft, a pivoted lever resting upon said cam and adapted to bear against the under side of the bar S, and intermittingly raise one side of the carriage, and means for depressing said bar S, substantially as described.

4. The combination of the frame of the machine, the file-carrying carriage hinged thereto, a slidable cylindrical rod lengthwise of said carriage constituting the hinge-rod of said carriage, a vertical power-shaft, a wrist-pin, a connecting-rod, and a crank upon the vertical shaft to reciprocate the carriage, the horizontal main shaft, means for rotating said shaft, a saw-advancing pawl, means to carry said pawl, a lever for operating the pawl-carrying means, a cam upon the horizontal shaft to advance said lever in one direction and a spring to retract it, substantially as described.

748,686. PIPE-ELBOW MACHINE. JOHN BAUMGLE, Milwaukee, Wis. Filed June 14, 1902. Serial No. 111,615. (No model.)



Claim.—1. In a machine of the described class, the combination of an expansible circular pinching-die and an expansible circular press, both operative in the same plane but at different stages in the process of forming a pipe-elbow, said pinching-die being movable in its expanded position to draw the sides of a pipe-crease together, and said press being movable in its contracted position and expansible to flatten the creased portion upon the interior surface of the pipe.

2. In a machine of the described class, the combination of an expansible circular pinching-die and an expansible circular press, both operative in the same plane but at different stages in the process of forming a pipe-elbow, said pinching-die being movable in its expanded position to draw the sides of a pipe-crease together, and said press being movable in its contracted position and expansible to flatten the creased portion upon the interior surface of the pipe, together with means for adjusting said members into operative position from opposite directions.

3. In a machine of the described class, the combination of an expansible circular pinching-die and an expansible circular press, both operative in the same plane but at different stages in the process of forming a pipe-elbow, said pinching-die being movable in its expanded position to draw the sides of a pipe-crease together, and said press being movable in its contracted position and expansible to flatten the creased portion upon the interior surface of the pipe, together with automatic means for advancing the pipe after the operation of the press and means for contracting the pinching-die during the advancement of the pipe to afford clearance for the creased portion of the pipe.

4. In a machine of the described class, the combination of a cylindrical, pipe-supporting head and an expansible press normally located within the head and movable to a position in advance thereof.

5. In a machine of the described class, the combination of a cylindrical, pipe-supporting head and an expansible press normally located within the head and movable to a position in advance thereof, together with loose connections between the press and the head.

6. In a machine of the described class, an expansible press, formed in sections linked together and provided with smooth segmental outer surfaces adapted, when expanded, to form a cylindrical body having all portions of said outer surfaces at approximately the same radial distance from the central axis; and means for expanding said press within a pipe.

7. In a machine of the described class, the combination of an expansible circular die member and an expansible circular press; an operating-rod, linked to the die member, and having a wedge-shaped surface, adapted to engage and operate the press when moved in one direction.

8. In a machine of the described class, the combination with a pipe-support, of an expansible circular press normally located within the same, an expansible die member located in advance of the pipe-support, an operating-rod extending through the pipe-support and provided with a link supporting the die member; and means, connected with said rod, for moving the press out of the head and expanding the press.

9. In a machine of the described class, the combination with a pipe-support, of an expansible circular press normally located within the same, an expansible die member located in advance of the pipe-support, an operating-rod extending through the pipe-support and provided with a link supporting the die member; and means, connected with said rod, for moving the press out of the head and expanding the press; and pipe-creasing mechanism, operative between the pipe-support and die member.

10. In a machine of the described class, the combination with a pipe-supporting head, having an interior web-flange; of an expansible circular press, normally located within the head, and having projections extending through suitable apertures in said flange and interlocking therein; said projections being adapted to permit the movement of the press to a position in advance of the head, and its expansion when in such position.

11. In a machine of the described class, an expansible die member, formed with a concave inner face, and adapted for drawing the sides of an inwardly-projecting pipe-crease together, at the periphery of the pipe.

12. In a machine of the described class, an expansible pinching-die, formed with a concave inner face, and adapted for drawing the sides of an inwardly-projecting pipe-crease together, at the periphery of the pipe, and a stop adapted to engage the upper portions of the pinching-die during the drawing operation whereby pressure upon the upper portion of the pipe-crease is relieved.

13. In a machine of the described class, the combination of an expansible die member and an expansible press; an operating-rod for adjusting the die and having a projection adapted to engage and actuate the press in one direction, and springs projecting from the inner face of the die member and adapted to engage and actuate the press in the other direction.

14. In a machine of the described class, the combination of a pipe-supporting head having a longitudinally-extending projection, creasing mechanism operating in a plane cutting said projections to crease a pipe inwardly at all points except that occupied by the projection; a pipe-clamp movable into and out of the plane of the crease; and means for folding the creased pipe portion, when the clamp is moved to clamping position over such portion of the pipe.

15. In a machine of the described class, the combination of a supporting face-plate; a pipe-support projecting through an aperture thereof; a set of creasing-jaws operatively movable thereon; and means for adjusting the face-plate and jaws longitudinally of the pipe-support.

16. In a machine of the described class, the combination of a supporting face-plate; a pipe-support projecting through an aperture in the face-plate; a set of creasing-jaws operatively movable to crease a pipe carried by the support; means, operative within the pipe, for drawing the sides of the crease together; and means for adjusting the face-plate and jaws out of the plane of the crease during the drawing operation, thereby affording clearance for short elbows.

17. In a machine of the described class, the combination of a pipe-support; a bar projecting through the same; a conical expander connected with the bar; and a pinching-die connected with the expander, said die being formed in sections linked together at all points but one, and said expander being formed to enter between the sections.

18. In a machine of the described class, the combination of a series of members linked together to form a generally circular device, open at one side; an open ring of resilient material, encircling said members and normally holding them in a contracted position; and means for spreading the members.

19. In a machine of the described class, the combination of a series of members linked together to form a generally circular device, open at one side; an open ring of resilient material, encircling said members and normally holding them in a contracted position; and means for spreading the members and adjusting them into forcible contact with a portion of the interior surface of a pipe.

20. In a device of the described class, the combination of a pipe-supporting head; a bar extending therethrough; an expander supported from the bar; an expansible device comprising a series of sections linked together and encircling the expander; and means for actuating the bar to force the expander between said linked sections, said expander being adapted to force the sections outwardly to form an open ring of substantially the same peripheral contour as the head; and said bar being adapted to adjust the sections to cooperate with the head in forming either a vise or die.

21. In a machine of the described class, the combination of a pipe-supporting head; an operating-bar extending through the head; a section, linked end to end with the operating-bar, and projecting in front of the head; an expansible pinching-die connected with the linked section in cooperative relation to the head; means for expanding and contracting said pinching-die; means for adjusting the same into pinching relation to the head; together with a set of creasing-jaws, adjusted to operate between the head and said pinching-die when the latter is in one position of adjustment; exterior clamping devices adapted to forcibly engage and bind the pipe to the head during the operation of the creasing-jaws, and adapted to be adjusted over the crease during the pinching operation of the pinching-die.

22. In a machine of the described class, a pipe-holding clamp comprising a split ring, and a conical wedge adjustable upon the ring.

23. In a machine of the described class, a pipe-holding clamp comprising a split ring, and a conical wedge adapted to engage the ring in one or more positions of ring adjustment.

24. In a machine of the described class, an adjustable pipe-holding clamp, comprising a split ring; a clamp-actuating device covering the ring; an annular recess formed with beveled sides; and means for adjusting said ring to bring it into wedging contact with one of said beveled surfaces.

25. In a machine of the described class, an adjustable pipe-holding clamp, comprising a split ring; a clamp-actuating device covering the ring, and having an annular recess formed with beveled sides; means for adjusting the ring in different clamping positions; and means for adjusting the clamp-actuating device in two directions, the beveled sides of said recess forming oppositely-disposed tubular wedges for the ring, whereby the adjustment of the ring or actuating device in either direction, adjusts the ring to clamping position.

26. In a machine of the described class, a press for flattening the creased portions of the pipe, comprising a series of connected sections adapted to be expanded into an arc corresponding substantially with the curvature of the pipe; a support for said press-sections; and a wedge-bar adapted to expand the sections.

27. In a machine of the described class, the combination with

a pipe-support; a sectional press supported therefrom in a position for operation within a pipe; and an expander for the press; said support being provided with interlocking guides adapted to direct the movement of the press-sections when actuated by the expander, and also adapted to permit the press, when contracted, to be adjusted longitudinally of the pipe.

28. In a machine of the described class, the combination with a pipe-support; a sectional press, operative with a pipe, adjusted to the support; a set of creasing-jaws operative upon the exterior pipe-surfaces; means for adjusting the press into and out of the plane of movement of the creasing-jaws; and an expander adapted to push the press-sections into forcible contact with the creased portions of the pipe.

29. In a machine of the described class, the combination with an annular pipe-support; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, in a position to cooperate with the pipe-support in forming a die; a set of creasing jaws operative exteriorly of the pipe, to crease the same between the pinching-die and the pipe-support; and means for adjusting said pinching-die toward and away from the pipe-support, after the creasing operation.

30. In a machine of the described class, the combination with an annular pipe-support; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, in a position to cooperate with the pipe-support in forming a die; a set of creasing-jaws operative exteriorly of the pipe, to crease the same between the pinching-die and the pipe-support; means for adjusting said pinching-die toward and away from the pipe-support, after the creasing operation; and means for expanding and contracting the pinching-die.

31. In a machine of the described class, the combination with an annular pipe-support; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, in a position to cooperate with the pipe-support in forming a female die; a set of creasing-jaws operative exteriorly of the pipe, to crease the same between the pinching-die and the pipe-support; means for adjusting said pinching-die toward and away from the pipe-support, after the creasing operation; means for expanding and contracting the pinching-die; and a movable press-ring adapted to be adjusted and operated in the plane of the creasing-jaws, during the intervals between the creasing operation.

32. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device, carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operation, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions.

33. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device, carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operations, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions, and to adjust the pinching-die toward and away from the head.

34. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operations, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions, and to adjust the pinching-die toward and away from the head, after the operation of the creasing-jaws, and preparatory to the operation of the press.

35. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device, carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operations, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions, and said pinching-die being adapted to contract diametrically when in operative position.

36. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device, carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operation, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions; together with means for readjusting the pipe-section after the operation of the press.

37. In a device of the described class, the combination with a pipe-supporting head; a longitudinally-movable bar extending therethrough; a pinching-die connected with the bar, and adapted to cooperate with the head in forming a female die; a set of creasing-jaws adapted to operate between the pinching-die and the head; a press, a device, carried by said bar, for adjusting the press into the plane of the creasing-jaws during the interval between the creasing operations, said bar being also operative to actuate the press upon the inwardly-projecting pipe portions—and said pinching-die being adapted to contract diametrically when in operative position; together with means for clamping the pipe to the head during the operation of the creasing and pressing mechanism, and adjusting the same longitudinally in the intervals between such operations.

38. In a machine of the described class, the combination with a pipe-supporting head; of a pinching-die adjustable thereto and operative within a pipe supported on the head; a set of creasing-jaws, operative exteriorly to crease the pipe between the pinching-die and head; an interiorly-operating press adjustable longitudinally of the pipe and operative in the plane of the creasing-jaws; a driving-shaft; cams mounted on the shaft; and connections adapted to communicate motion therefrom to the jaws, pinching-die and press.

39. In a machine of the described class, the combination of an apertured face-plate; a pipe-supporting head located in said aperture; creasing-jaws supported from the face-plate; an expansible pipe-support cooperative with the head to form a die for the creasing-jaws; means for adjusting said expansible pipe-support toward and away from the head after the operation of the jaws; and automatic devices for contracting said support when adjusted away from the head.

40. In a machine of the described class, the combination of an apertured face-plate; a pipe-supporting head located in said aperture; creasing-jaws supported from the face-plate; an expansible pipe-support cooperative with the head to form a die for the creasing-jaws; means for adjusting said expansible pipe-support toward and away from the head after the operation of the jaws; and automatic devices for contracting said support when adjusted away from the head; together with an expander connected with the adjusting mechanism for expanding said support when adjusted toward the head.

41. In a machine of the described class, the combination of an apertured face-plate; a pipe-supporting head located in said aperture; creasing-jaws supported from the face-plate; an expansible pipe-support cooperative with the head to form a die for the creasing-jaws; means for adjusting said expansible pipe-support toward and away from the head after the operation of the jaws; automatic devices for contracting said support when adjusted away from the head; together with an expander connected with the adjusting mechanism for expanding said support when adjusted toward the head; an expansible press connected with the head; and means for adjusting the same into and out of the plane of the jaws, and expanding the same when adjusted to the creased portion of the pipe.

42. In a machine of the described class, the combination of an apertured face-plate; a pipe-supporting head located in said aperture; creasing-jaws supported from the face-plate; an expansible pipe-support cooperative with the head to form a die for the creasing-jaws; means for adjusting said expansible pipe-support toward and away from the head after the operation of the jaws; automatic devices for contracting said support when adjusted toward the head; together with an expander connected with the head; means for adjusting the same into and out of the plane of the jaws, and expanding the same when adjusted to the creased portion of the pipe; an adjustable pipe-holding clamp; and means for binding the same upon the pipe in two or more positions of adjustment.

43. In a machine of the described class, the combination of an apertured face-plate; a pipe-supporting head located in said aperture; creasing-jaws supported from the face-plate; a device for drawing the sides of the crease together; and means for retracting the face-plate and jaws longitudinally of the pipe, preparatory to said drawing operation; together with adjustable clamping mechanism for exteriorly compressing and holding the pipe over the head in one position of adjustment, and over the crease in another position.

44. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws grouped in proximity to the support, and adapted to partially encircle a pipe adjusted to said support; means for actuating the jaws inwardly to crease the pipe; and means for adjusting them longitudinally of the pipe when retracted.

45. In a machine of the described class, the combination of a pipe-supporting head; a set of creasing-jaws grouped in proximity to the head; a pinching-die movably mounted in front of the head; mechanism for actuating the pinching-die toward and away from, the head; and mechanism for adjusting the jaws in a position for operation between the pinching-die and head, and in a different plane, with the jaws partially overlapping the head during the final movement of the pinching-die toward the head.

46. In a machine of the described class, the combination of a pipe-supporting head and head-cylinder; a clamping-ring encircling the head; creasing-jaws operatively located with reference to a pipe supported by the head; a pinching-die for drawing together the sides of a crease; and a press for flattening the inwardly-projecting portions; together with an actuating-shaft provided with a series of cams; and connections for transmitting motion from said cams to the clamping-ring, creasing-jaws, pinching-die and press.

47. In a machine of the described class, the combination of a supporting-frame; a pipe-supporting head and head-cylinder; an adjustable hood movably mounted in the frame, and provided with collars encircling the head-cylinder; a sleeve adjusted over the head-cylinder and mounted in said collars; a face-plate supported from the sleeve, and provided with an aperture in registry with the head; creasing-jaws mounted on the face-plate; an operating-bar projecting through the head-cylinder; and crease-flattening devices connected with the operating-bar.

48. In a machine of the described class, the combination of a pipe-supporting head, and head-cylinder; a set of creasing-jaws located in operative relation thereto; a pipe-holding collar on said cylinder, having an abutment for the end of the pipe; a second collar adapted to cooperate with the first-mentioned collar in holding the pipe against said abutment; and means for advancing said collars intermittently along the cylinder.

49. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws located in operative relation thereto; link connections between said creasing-jaws; a reciprocating, actuating-bar directly connected with the central jaw; jaw-carriers connected with other of said jaws; curved guides for said jaw-carriers; actuating-bars having jointed connection with the carriers; together with a suitable driving-shaft; a cam mounted thereon in operative relation to the actuating-bar of the central jaw; and a second cam mounted thereon in operative relation to the actuating-bar of the other jaws; said cams being so located that the initial movement produced by the cam acting upon the central jaw, will take place in advance of the initial jaw-actuating movements of the other cam.

50. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws linked together in operative relation thereto; a jaw-actuating bar directly connected with the central jaw of said set; jaw-carriers connected with the side bars of said set; curved guides for the jaw-carriers; a movable cross-head; links connecting said cross-head with the jaw-carriers; an actuating-cam operative upon the cross-head; and another actuating-cam, operative upon the bar connected with the central jaw.

51. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws linked together in operative relation thereto; a jaw-actuating bar directly connected with the central jaw of said set; jaw-carriers connected with the side bars of said set; curved guides for the jaw-carriers; upper jaws resiliently supported from the side jaws; a guide-block for directing said upper jaws; a movable cross-head; links connecting said cross-head with the jaw-carriers; an actuating-cam operative upon the cross-head; and another actuating-cam operative upon the bar connected with the central jaw.

52. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws linked together in operative relation thereto; a jaw-actuating bar directly connected with the central jaw of said set; jaw-carriers connected with the side bars of said set; curved guides for the jaw-carriers; upper jaws resiliently supported from the side jaws; a guide-block for directing said upper jaws; intermediate jaws linked to the side jaws and the central jaw; a movable cross-head; links connecting said cross-head with the jaw-carriers; an actuating-cam operative upon the cross-head; and another actuating-cam operative upon the bar connected with the central jaw.

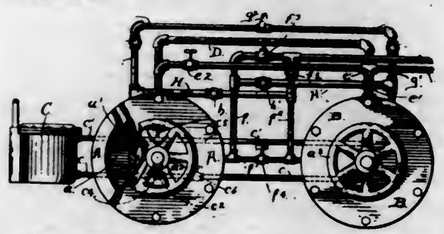
53. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws linked together in operative relation thereto; a jaw-actuating bar directly connected with the central jaw of said set; jaw-carriers connected with the side bars of said set; curved guides for the jaw-carriers; upper jaws resiliently supported from the side jaws; an adjustable guide-block for directing said upper jaws; a movable cross-head; links connecting said cross-head with the jaw-carriers; an actuating-cam operative upon the cross-head; and another actuating-cam operative upon the bar connected with the central jaw.

54. In a machine of the described class, the combination of a pipe-support; a set of creasing-jaws linked together in operative relation thereto; a jaw-actuating bar directly connected with the central jaw of said set; jaw-carriers connected with the side bars of said set; curved guides for the jaw-carriers; a movable cross-head; links connecting said cross-head with the jaw-carriers; an actuating-clamp operative upon the cross-head; another actuating-cam operative upon the bar connected with the central jaw; and retracting-springs connecting the cross-head with a suitable fixed support.

55. In a machine of the described class, the combination of an apertured face-plate; a set of creasing-jaws mounted on the face-plate and grouped around said aperture; a pipe-support in registry with said aperture; a pipe-clamping split ring encircling the pipe-support, and provided with a peripheral flange adapted to engage beveled contact-surfaces on the face-plate, whereby the ring is forced to clamping position.

56. In a machine of the described class, the combination of a fixed pipe-supporting head; a pinching-die, crimping-jaws for forming a groove in the pipe between the pipe-supporting head and the pinching-die; means for actuating the pinching-die to close the groove to form a seam and means for retracting the pinching-die and folding the seam flat against the body of the pipe, substantially as described.

748,687. **PROCESS OF GENERATING GAS.** FRANK H. RAYNS, San Francisco, Cal. Filed Sept. 14, 1903. Serial No. 173,043. (No specimens.)

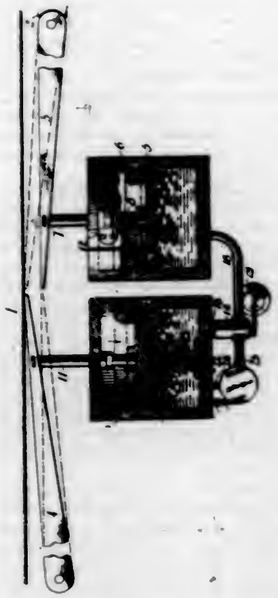


Claim.—The process of vapor-generation, which consists in heating a body of oil the volume of which is kept constant by fresh additions, until, by the mixture of the ever-increasing residue with the fresh oil, the mass becomes too impoverished to yield vapor of the required richness, and thereupon cutting off the fresh additions of oil to said body; then heating a second body of oil, whose volume is kept constant in like manner as the first body, continuing, meanwhile, the heating of the first body, and mingling with the impoverished vapor of the first body the richer vapor of the second body, until the first body has ceased, substantially, to yield any useful vapor, and the second body has become too poor to yield vapor of the required richness; then renewing the first body, keeping its volume constant as in the first instance, and continuing its heat, while the second body has its fresh additions of oil cut off and its heat continued, and mingling the rich vapors of the first body with the impoverished vapors of the second body, until the latter yields, substantially, no useful vapor, and the first body has ceased to furnish vapor of the required richness; then reversing the process as before, and so on.

748,688. **STREET-RAILWAY SWITCH.** WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moss, Los Angeles, Cal. Filed May 7, 1903. Serial No. 155,970. (No model.)

Claim.—1. In a switching mechanism, a switch-tongue, a piston connected therewith, an element arranged to be moved by a car, a piston connected with the element, fluid bodies at the pistons, a by-pass tank, pipe connections between the fluid bodies and the tank

including a three-way valve, and electrically-controlled means for moving said valve.



2. In a switching mechanism, a switch-tongue, a piston connected therewith, an element arranged to be moved by the car, a piston connected with the element, fluid-power-transmission means between the pistons including a three-way valve, and electrically-controlled means for moving said valve.

3. In a switching mechanism, a switch-tongue, a spring-retracted piston connected therewith, a switch-throwing rail, a spring-retracted piston connected with said rail, fluid bodies at the pistons, a by-pass tank, pipe connections between the fluid bodies and between one of said bodies and said tank, a valve adapted to be moved to establish communication between said bodies or to establish communication with one of said bodies and said tank, and means for moving said valve.

4. In a switching mechanism, a switch-tongue, a piston connected therewith, an element arranged to be moved by a car, a piston connected with said element, fluid bodies at the pistons, a receiver, and means for establishing communication between said fluid bodies or between one of said bodies and said receiver.

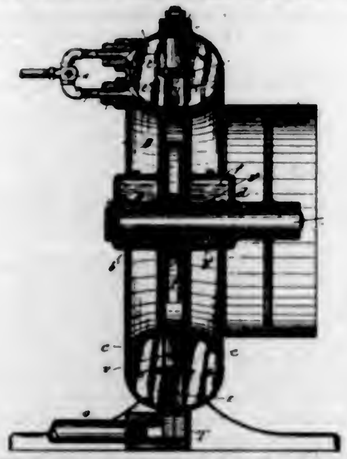
5. In a switching mechanism, a switch-tongue, a spring-retracted piston connected therewith, an element arranged to be moved by a car, a spring-retracted piston connected with said element, fluid bodies at the pistons, a by-pass tank, and electromechanical means for establishing communication between said fluid bodies or between one of said bodies and said tank.

6. In a switching mechanism, a switch-tongue, a cylinder, a piston in the cylinder connected with the tongue, a switch-throwing rail, a cylinder, a piston in the last-named cylinder connected with said rail, a by-pass tank, a valve-casing connected with said cylinders and with said tank, a three-way valve in the cylinder, and electrically-controlled means for moving said valve.

7. In a switching mechanism, a switch-tongue, a cylinder, a spring-retracted piston in the cylinder connected with said tongue, a switch-throwing rail, a cylinder, a spring-retracted piston in the last-named cylinder connected with said rail, a by-pass tank, a valve-casing connected with said cylinders and with the tank, a rotatable spring-retracted three-way valve in said casing, an armature on the valve, and an electromagnet arranged to attract the armature and rotate the valve.

8. In a switching mechanism, an element arranged to be moved by a car, a piston connected with the element, a switch-tongue, a fluid body at said piston, transmission means between the fluid body and tongue, a receiver, and ingress and egress pipes connecting the fluid body and receiver, and check-valves in said pipes.

748,689. ROTARY MOTOR. JOHN M. BENJAMIN, Boston, Mass., assignor of one-half to Margret R. Knight, South Framingham, Mass. Filed June 5, 1902. Serial No. 110,386. (No model.)



Claim.—1. A rotary motor, consisting of a wheel provided with two or more series of vanes arranged around the shaft concentrically with its axis, with the vanes of alternate series placed at opposite angles to the plane of rotation of the wheel, an inlet for motive fluid, radially-arranged segmental chambers at each side of the series of vanes to receive the motive fluid deflected from each vane and reflect it upon other vanes in a continuous substantially helical path around the axis of the wheel, and in a direction opposite to that of its rotation.

2. A rotary motor, consisting of a wheel provided with two or more series of vanes arranged radially in circles concentric with its shaft, with the vanes of each series placed at an angle to the plane of rotation of the wheel, opposite to the angle at which the adjoining series is placed thereto; an inlet for motive fluid, and a series of fixed chambers at the sides of the series of vanes to receive the motive fluid which is projected between the successive vanes of one series and reflect it against vanes of the next series, and from the final series to the initial series, in a continuous substantially helical path around the axis of the wheel.

3. A rotary motor, consisting of a wheel provided with two or more series of radial vanes arranged in circles concentric to its shaft, and with the vanes of alternate series placed at opposite angles to the plane of rotation of the wheel; an inlet adapted to deliver fluid at high velocity against the surface of vanes set at one angle and an inlet to deliver such fluid against the surface of vanes set at another angle, and fixed chambers upon each side of the circles of vanes, to receive the fluid which is deflected by each series and reflect it against the vanes of the next series, and an annular series of passages to conduct the moving fluid from the series of vanes of final impact to the series of initial impact.

4. A rotary motor consisting of a wheel provided with vanes arranged concentrically around its shaft, an inlet to admit fluid under pressure against the vanes, a series of fixed chambers to receive the motive fluid deflected from each vane and reflect it upon other vanes, in a helical path around the wheel, and an exhaust-chamber connected with such helical path throughout its circumference, for the purpose set forth.

748,690. TELEPHONE-TRANSMITTER. CHARLES F. BURNETT, Waterloo, Iowa. Filed Nov. 20, 1901. Serial No. 84,083. (No model.)



Claim.—1. In a telephone-transmitter, a chamber for finely-divided material having its sides formed by the front and back electrodes of the instrument, the lower edge of the chamber being horizontal and the faces of said electrodes and the said lower edge of the chamber being provided with serrations in the form of inclined planes, whereby the conducting material is agitated in the use of the instrument, substantially as described.

2. In a telephone-transmitter, the combination with two electrodes adapted to receive finely-divided conducting material between them, a portion of the front of one of said electrodes provided with serrations in the form of inclined planes in one or more directions whereby the conducting material is caused to circulate in the use of the instrument, substantially as described.

3. In a telephone-transmitter, the combination with a front electrode and a back electrode, said electrode being provided with radial serrations, of a block of carbon or suitable material adapted to form the floor or lower edge of the space containing the finely-divided conducting material, said block having its upper edge horizontal and provided with serrations, substantially as described.

4. In a telephone-transmitter, the combination with a front electrode and a back electrode, said electrodes being provided with radial serrations in the form of inclined planes, of a member of suitable material forming the floor of said chamber and being substantially horizontal, the said member having its upper edge provided with serrations, substantially as described.

5. In a telephone-transmitter, the combination with a front electrode and a back electrode, said electrodes being provided with serrations in the form of inclined planes radiating in one or more directions, of a member forming the floor of the chamber and being substantially horizontal, and granular carbon contained within said chamber between the electrodes and resting upon the floor, substantially as described.

6. In a telephone-transmitter, a receptacle for finally-divided conducting material, said receptacle having a substantially horizontal or straight floor provided with a series of inclined planes to agitate and cause the circulation of the conducting material, substantially as described.

7. In a telephone-transmitter, the combination with a front electrode and a back electrode, of a substantially horizontal floor for the chamber formed between said electrodes and in which the carbon granules are adapted to be placed, the inner faces of said electrodes being provided with serrations in the form of inclined planes, said inclined planes serving when the transmitter is used for talking to agitate the granulations and cause a circulation thereof, whereby the same does not pack and is maintained in a sensitive condition, substantially as described.

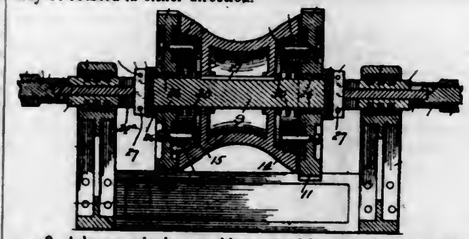
8. In a telephone-transmitter, the combination with two electrodes adapted to receive finely-divided conducting material between them to serve as the resistance-varying medium of the transmitter, the inner faces of said electrodes being provided with serrations in the form of inclined planes, said serrations serving to agitate the resistance-varying medium and to cause it to circulate to thereby prevent it packing and to always maintain it in sensitive and active condition, substantially as described.

9. In a telephone-transmitter, the combination with a pair of opposed electrodes adapted to partake of relative movement in the use of the instrument, a member having a substantially horizontal upper edge or face forming the floor of the receptacle between said electrodes, granular carbon within said receptacle and resting upon said floor, said floor being provided with inclined serrations extending transversely thereof, and serving in the use of the instrument to cause a circulation of the carbon to thereby prevent its packing, substantially as described.

10. In a telephone-transmitter, the combination with opposed front and back electrodes substantially semicircular in outline, a circular ring surrounding said electrodes, a semicircular block carried by the said ring, the upper edge of said block being substantially horizontal and located adjacent the lower edges of the said electrodes, said horizontal edge forming the floor of the receptacle between said electrodes for the finely-divided conducting material, substantially as described.

748,691. BOOM-SWINGING MACHINE. JOHN REID, Rockland, Me., assignor to Camden Anchor-Rockland Machine Company, Rockland, Me. Filed May 14, 1900. Serial No. 157,048. (No model.)

Claim.—1. A boom-swinging machine comprising, a main shaft, driving-shaft, a pair of driving-gears mounted thereon, a drum-shaft, a pair of drum-gears loosely mounted thereon and carrying friction-blocks on their inner faces, a drum rigidly mounted on said drum-shaft between the gears said drum being adapted to be engaged by the friction-blocks on the drum-gears, means whereby the driving-gears will rotate the drum-gears in opposite directions, and means for independently forcing inward the drum-gears to cause the friction-blocks to independently engage the drum, whereby said drum may be rotated in either direction.



2. A boom-swinging machine comprising, a main shaft, a pair of driving-gears mounted thereon, a drum-shaft, a pair of drum-gears loosely mounted thereon, a friction-block secured to the inner face of each drum-gear, a drum rigidly mounted on the drum-shaft between the gears and adapted to be engaged by the friction-blocks of said gears, means whereby the driving-gears will rotate the drum-gears in opposite directions, a thrust-screw mounted in each end of the drum-shaft, means for rotating each of said thrust-screws, and devices moved by said thrust-screws to force inward the drum-gears, substantially as described.

3. A boom-swinging machine comprising, a main shaft, a pair of driving-gears mounted thereon, a drum-shaft, a pair of drum-gears loosely mounted thereon, a friction-block secured to the inner face of each drum, a drum rigidly mounted on the drum-shaft between the gears and adapted to be engaged by the friction-blocks of said gears, means whereby the driving-gears will rotate the drum-gears in opposite directions, a thrust-screw mounted in each end of the drum-shaft, means for rotating each of said thrust-screws, devices moved by said thrust-screws to force inward the drum-gears, a thrust-rod for each of said thrust-screws, and means whereby each of said thrust-rods may be caused to force inward the adjacent drum-gear.

4. A boom-swinging machine comprising, a main shaft, a pair of driving-gears thereon, a drum-shaft, a pair of drum-gears loosely mounted thereon, friction-blocks connected to said drum-gears and extending inward from the inner faces thereof, a drum rigidly mounted on the drum-shaft between the gears, and means whereby the friction-blocks may be caused to independently engage the drum.

5. A boom-swinging machine comprising, a main shaft, a pair of driving-gears thereon, a drum-shaft, a pair of drum-gears loosely mounted thereon, friction-blocks connected to said drum-gears and extending inward from the inner faces thereof, a drum rigidly mounted on the drum-shaft between the gears, means whereby the friction-blocks may be caused to independently engage the drum, a transverse bar extending through the drum-shaft near each drum-gear, and engaging the outer face of said gear, a thrust-rod for each of said bars the inner ends of said rods bearing against said bars, a thrust-screw engaging each thrust-rod, whereby said bar may be forced inward by the thrust-screw.

6. A boom-swinging machine comprising, a main shaft, a pair of driving-gears thereon one of said gears being larger than the other, a drum-shaft, a pair of drum-gears mounted thereon one of said gears being larger than the other and the larger one meshing with the larger driving-gear, a small pinion interposed between the smaller driving-gear and the smaller drum-gear, whereby the drum-gears will be rotated in opposite directions and at the same speed, friction-blocks secured to the inner surfaces of the drum-gears, a drum rigidly secured to the drum-shaft between the drum-gears, thrust-bearings for the drum-shaft, and an independently-adjustable thrust mechanism mounted at each end of the drum-shaft and adapted to force inward the adjacent drum-gear, whereby said drum may be rotated in either direction.

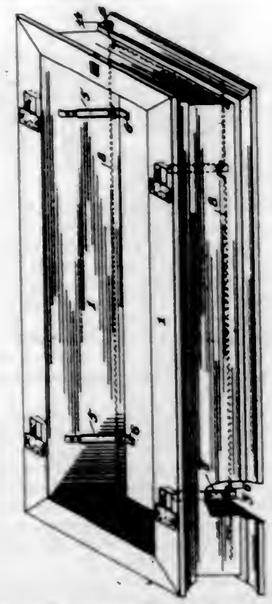
748,692. BURIAL-CASKET. WILLIAM C. BOOTH, Elmhurst, Cal. Filed Feb. 14, 1903. Serial No. 143,408. (No model.)

Claim.—1. A coffin or casket, and a removable bottom therefor, in combination with means for supporting said bottom within the casket, such means comprising spring-supports for said bottom and means carried by the casket or coffin for releasing said spring-supports.

2. A coffin provided with spring-supports on both sides thereof, a series of rods connecting said supports together, and means for operating said rods and supports in unison, in order to release said bottom.

3. A coffin or casket having spring-supports arranged within it,

in combination with a removable bottom, and with means for releasing all of said supports simultaneously.



4. A coffin, having a rod extending through each side rail thereof, spring-supports secured thereto, and having means for supporting a bottom, a bottom, and means for applying power to one of said rods for releasing all of said spring-supports simultaneously from said bottom.

5. In combination with a casket or coffin, a bottom therefor, independent of said casket, means for locking said bottom to the casket, means for releasing it from said casket, and a shroud connected to said bottom and forming a part of the same, all constructed and arranged so that said bottom and shroud can be separated from said casket.

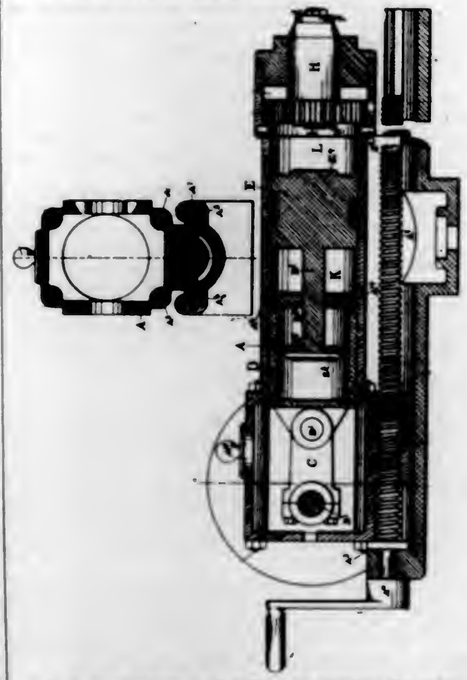
6. In combination with a casket, an independent bottom therefor, provided with a shroud and with means for tying said shroud over a body resting upon said bottom, supports for said bottom carried by the casket, and means for releasing said supports so as to separate the bottom from the casket.

748,693. POWER-DRIVEN ROCK-DRILL. WILLIAM A. BOX, Denver, Colo., assignor of one-half to Eugene Y. Sayer, Denver, Colo. Filed Mar. 22, 1901. Serial No. 52,310. (No model.)

Claim.—1. In a power-driven rock-drill, the combination of a casing, a rotatable tool supported thereby, a piston movable in the casing independently of the tool and constituting a hammer for striking the tool, an independently-movable plunger located in the casing axially in line with the piston and behind the same, and means for reciprocating the plunger in the casing behind said piston to alternately compress the air behind the piston and cause a vacuum behind the same, whereby the piston is actuated to strike the tool and return at each stroke of the plunger, substantially as described.

2. In a power-driven rock-drill, the combination of a casing, a tool supported thereby, a piston provided with a stem and collar, and movable in the casing independently of the tool constituting a hammer for striking the tool, an independently-movable hollow plunger, and means for reciprocating it in the casing behind the piston, the stem of the piston and collar thereon extending into said hollow plunger, said casing being provided with valve-apertures controlled by the movements of the plunger to alternately cause compression of the air behind the piston and to cause a vacuum behind the same for actuating the piston to strike the tool and return at each stroke of the plunger, substantially as described.

3. In a power-driven rock-drill, the combination of a casing, a tool supported thereby, a piston provided with a stem and collar, and movable in the casing independently of the tool constituting a hammer for striking the tool, an independently-movable hollow plunger, one end of which is closed by a cap or head provided with an aperture, means for reciprocating said plunger in the casing behind the piston, the stem of the piston extending through the aperture in the cap or head on the plunger, whereby the plunger cooperates with said collar on the stem to assist in returning the piston after it has been actuated to strike the tool, said casing being provided with valve-apertures controlled by the movements of the plunger to alternately cause compression of the air in the space between the cap or head on the plunger and the piston, and to cause a vacuum in said space for actuating the piston to strike the tool and return at each stroke of the plunger, substantially as described.



4. In a power-driven rock-drill, the combination of a casing, a tool supported by the casing, a plunger provided with an apertured cap or head, and means for reciprocating said plunger in the casing, a piston provided with a stem extending through the aperture in said cap or head and having a collar connected thereto within the plunger, whereby the plunger and collar cooperate to assist in withdrawing the piston after it has been moved to strike the tool, said tool and piston and plunger being each movable independently of the other, and means whereby the air behind the piston is alternately compressed and a vacuum formed at each stroke of the plunger, substantially as set forth.

5. In a power-driven rock-drill, the combination of a casing having valve-apertures, a rotatable tool, a piston or hammer movable independently of the tool within the casing, and means for actuating said piston to strike the tool and return, said actuating means consisting of an independently-movable plunger reciprocating in the casing axially in line behind the piston and controlling the said valve-apertures in the casing, whereby the piston is forced forward by compression of the air upon forward movement of the plunger, and said piston is moved backward by the formation of a vacuum behind it upon backward movement of the plunger, substantially as described.

6. In a power-driven rock-drill, the combination of a casing, a plunger movable therein and provided with a screw head or cap, means for reciprocating said plunger, a piston constituting a hammer and provided with a stem adapted to pass through the screw-head of the plunger and having a circular collar attached thereto within the plunger, a chuck revoluble in a bearing at the front of the casing, a gear rotatable with said chuck, a pinion meshing with said gear, and means for revolving said pinion, and a tool, the shank of which extends through the chuck into the casing to a position to receive the stroke of the piston, said tool, and plunger and piston being each movable independently of the other, substantially as set forth.

7. In a power-driven rock-drill, the combination of the casing mounted upon a suitable advancing guide and supporting frame, a shaft provided with a crank journaled in suitable journal-bearings, a connecting-rod, a cylindrical plunger connected with said crank by means of the connecting-rod, which connection is adapted to cause a reciprocating motion of said plunger, a piston or hammer adapted to be actuated with alternate strokes of the plunger and operated by means of the alternate compression of the air and the vacuum caused by the reciprocating movement of the plunger, a chuck adapted to rotate in a bearing at the front-end-closing screw of the said casing, a spur-wheel attached to said chuck and operating within said casing, an extension-flange extending inwardly and forming a part of said chuck adapted to receive the stroke of the hammer and protect the wheel and the mechanism should the drill-shank not be in position to receive it, an elastic washer provided between the inner surface of the end-closing screw and said spur-wheel adapted to protect the machinery, a collar provided on the drill adapted to prevent the drill-shank from extending into the casing farther than to the position required to receive the stroke, a pinion meshing with the said spur-wheel, a shaft to which said pinion is attached operating in suitable journal-bearings and beveled gear-wheels one of which is attached to the driving-shaft meshing with the one which is attached to the shaft to which the pinion is secured and adapted to furnish a rotary movement to the said chuck and drill-bit, substantially as described.

8. In a drilling-machine, the combination of a casing, a head and hammer sliding in axial alinement substantially air-tight therein, means for reciprocating the head to alternately compress the air behind the hammer and cause a vacuum behind the same, whereby the hammer is actuated to strike the tool and return at each stroke of the plunger, provision being afforded thereby for different movements of the hammer from those of both the tool and the head, and means for rotating and holding the tool in position to be struck by the hammer, for substantially the purposes set forth.

9. In combination in the hammer-actuating mechanism of a machine for drilling and other uses, a reciprocating head, a guideway therefor, a rotary means for driving the head, and connections for converting rotary motion into reciprocating motion of the said head, a reciprocating hammer arranged in axial alinement with the said head, and a casing affording provision for the confinement of a body of air between the head and the hammer, for substantially the purposes set forth.

748,694. LIQUID-MEASURE. HENRY J. BRANTLEY, Valdosta, Ga., and JOHN C. BRANTLEY, Martinville, Miss. Filed Oct. 25, 1902. Serial No. 128,837. (No model.)



Claim.—1. An apparatus substantially as described consisting of the measuring vessel composed of the end section provided at one end with the connecting-section tapered toward its free end, the opposite end section threaded on the reduced end of the connecting-section, the casing fitting on the connecting-section, the adjusting and locking ring threaded on the reduced end of the connecting-section up against the casing, said casing being provided with a spirit-level, and a pipe for connecting the casing with the barrel or cask said pipe being made in sections having a universal joint, and a vent-tube for connecting the measuring device with the barrel or cask substantially as set forth.

2. The combination in a liquid-measure of the measuring vessel having opposite end sections and an intermediate or connecting section, the casing fitting over the connecting-section of the measuring vessel and provided with means for connection with the barrel or cask whereby to supply liquid to the measure, and a venting-tube connected with said casing and adapted to connect same with the barrel or cask whereby the barrel or cask may be vented through the measuring device substantially as set forth.

3. A liquid-measure provided with a tube for connection with a barrel or cask said tube being made in sections connected by universal joint, whereby the vessel may be leveled after its application to the barrel or cask substantially as set forth.

4. A liquid-measure having a pipe connection with the barrel or cask, said connection being made in sections united by universal joint and provided with a venting-tube for connecting the measuring device with the cask said venting-tube having a flexible section to permit the leveling of the measure after its application to a cask substantially as set forth.

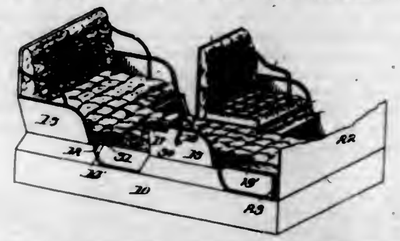
5. The combination in a liquid-measure of the measuring vessel having the opposite end sections and the intermediate or connecting section provided with ports through which liquid may be supplied and discharged and a venting-port, and the casing fitting over the ported intermediate or connecting section of the liquid-measure and having ports through which liquid may be supplied and discharged and also having a venting-port with which the venting-port of the measuring vessels registers, and a venting-pipe leading from such port for connection with the cask or barrel substantially as set forth.

6. In an apparatus substantially as described a measuring vessel composed of an end section, a tapered connecting-section secured at its larger end to said end section, and an opposite end section secured on the smaller end of the tapered section, and a casing fitting on the connecting-section between the opposite end sections substantially as set forth.

7. In an apparatus substantially as described a measuring-section composed of an end section, a connecting-section united at one end with said end section, an end section fitting on the other or free end of the connecting-section, a casing encircling the connecting-section and having supply and delivery ports and connections between the end sections whereby to unite the same independently of the central connecting-section substantially as set forth.

8. The combination with the end section having the projecting connecting-section and the handle-arm of the opposite end section fitting on the free end of the connecting-section and provided with a handle-arm and connections between the handle-arms and the supply and delivery mechanism substantially as set forth.

748,695. VEHICLE-SEAT. GEORGE R. BROWN, Rosebud Agency, S. D. Filed Oct. 10, 1903. Serial No. 176,523. (No model.)



Claim.—1. In a vehicle, a seat, a back hinged to the seat, means for detachably securing the back in upright position, means for supporting the back in a horizontal position extending rearward from the seat, a folding cushion for the seat adapted to be extended to rest on the seat and project forward therefrom, and means for supporting said cushion in front of the seat.

2. In a vehicle, a front seat, a rear seat provided with a cushion and extending forwardly beyond its cushion, an upholstered back hinged to the front seat adapted to be dropped down to rest upon the projecting edge of the rear seat, means for detachably securing the back in upright position, a folding cushion for the front seat adapted to be extended to rest upon the front seat and adjacent to the upholstered back and extending forwardly of the front seat, and a support for the forward end of said extended cushion.

3. In a vehicle, a seat, a back hinged to the seat, means for securing said back in upright position, a support for the back when dropped to a horizontal position in rear of the seat, a rod supported adjacent to the dashboard of the vehicle, and a folding cushion adapted to be extended to rest upon the seat and said rod.

4. In a vehicle, a seat, a back divided vertically into two sections and both sections hinged to the seat, means for detachably securing said back in upright position, a support in rear of the seat

for said back when dropped to horizontal position, a folding cushion for said seat divided into two sections corresponding to the sections of the back and adapted to be extended to rest upon said seat and project forwardly therefrom, and means for supporting the forward end of said extended cushion.

748,696. SOLAR HEATER. JAMES M. BROWNING, Jr., Corona, Cal. Filed May 14, 1902. Serial No. 107,335. (No model.)



Claim.—1. In a solar heater, a casing provided with a transparent cover and having its interior formed into a plurality of chambers, each chamber being open at its top and having reflecting-walls, water-receptacles in the casing, one in each chamber, and a connector from one end of one of said receptacles to the other end of the adjacent receptacle.

2. In a solar heater, a casing provided with a transparent cover and having its interior formed into a plurality of chambers, each chamber being open at its top and having inclined reflecting sides, water-receptacles in the casing, one in each chamber, and a connector from one end of one of said receptacles to the other end of the adjacent receptacle.

3. In a solar heater, a casing provided with a transparent cover and having its interior formed into a plurality of chambers, each chamber being open at its top and having inclined reflecting sides, water-receptacles in the casing, one in each chamber, and a connector from one end of one receptacle to the opposite end of the adjacent receptacle, said connector being located substantially midway between the receptacles and at a point not lower than the respective centers thereof.

4. In a solar heater, a casing provided with a transparent cover, a plurality of water-receptacles arranged therein at a distance from and substantially parallel with each other, inclined reflectors arranged in pairs, between the adjacent receptacles, the apex of each pair of reflectors being substantially midway between its respective receptacles, and a connector from one end of one of the receptacles to the opposite end of the other receptacle, said connector extending along the apex of said reflectors.

5. In a solar heater, a casing, the top of which is transparent, a metallic reflecting-lining for the casing, a plurality of water-receptacles in the casing, said receptacles being substantially parallel with and at a distance from each other and at a distance from the bottom of the casing, inclined reflectors arranged in pairs between the adjacent receptacles, the apex of each pair being substantially midway between its respective receptacles and parallel and on a line with their axis, an inclined reflector at each end of the casing, an inclined reflector at each end of said receptacles, and a pipe leading from one end of one receptacle to the opposite end of the adjacent receptacle, said pipe being arranged at the apex of the reflectors between said receptacles.

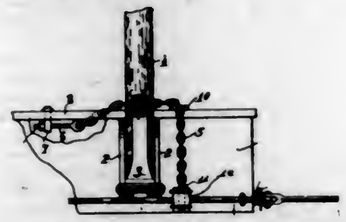
748,697. WIRE-STRETCHER. CHARLES DUNN, Schoolhouse, W. Va., assignor of one-half to William R. Carnahan, Schoolhouse, W. Va. Filed Apr. 29, 1903. Serial No. 154,770. (No model.)



Claim.—1. In a wire-stretcher, a lever provided with a gooseneck for embracing a post, a heel extension at the extremity of the gooseneck, a gripping-head having a knuckle-jointed connection with said heel extension, a wire-gripping device carried by said gripping-head, and an auxiliary wire-grip detachably connected with the gripping-head.

2. In a wire-stretcher, a lever provided with a gooseneck, adapted to embrace a fence-post, a heel extension connected with the extremity of said gooseneck, a wire-gripping head having a knuckle-jointed connection with said extension, and adapted to swing in the same plane with said extension, a wire-gripping claw carried by said head, and an auxiliary detachable wire-grip consisting of a lever provided with a gripping-head, pintles at opposite sides of the head, and lugs on the main gripping-head provided with inclined slots to receive the pintles of the auxiliary gripping device, substantially as described.

748,698. POSITION-GOVERNING MEANS FOR LOAD-RETAINING STAKES. WILLIAM M. CAIN, Carlton, Minn. Filed Jan. 19, 1903. Serial No. 139,495. (No model.)



Claim.—1. In position-governing means for load-retaining stakes, the combination with a load-bearing structure provided with a stake-supporting bracket, of flexible means secured at one end to a permanent anchorage upon said structure, at one side of said stake, and adapted to extend outwardly partly around said stake, a locking-pin carried by the free end of said flexible means, means for temporarily engaging said locking-pin to secure said flexible means in operative position, means for operating and controlling said temporary engaging means, and means for directing the course of said flexible means, substantially as described.

2. In position-governing means for load-retaining stakes, the combination with a load-bearing structure provided with a stake-supporting bracket and a stake erected thereon, of a relatively permanent anchorage attached to said structure at one side of said stake, guiding means secured to said structure at the opposite side of said stake, flexible means attached at one end to said relatively permanent anchorage and adapted to extend outwardly partly around said stake and through said guiding means and thence at an angle to its previous course, a locking-pin secured to the free end of said flexible means, means for temporarily engaging said locking-pin and adapted to be operated to release the same, means for operating and controlling said pin-engaging means, and means for retracting said relatively permanent anchorage to take up excessive slack in said flexible means, substantially as described.

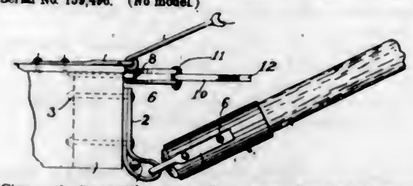
3. In position-governing means for load-retaining stakes, the combination with a load-bearing structure of a stake-supporting bracket secured thereto, and provided with a tongue hinged at its lower end between the side walls of said bracket and adapted to extend upwardly in front of said stake, a relatively permanent anchorage secured to said load-bearing structure at one side of said stake, guiding means secured to said structure at the opposite side of said stake, flexible means secured at one end to said anchorage and provided at the other end with a locking-pin, and adapted to extend outwardly partly around said stake and to loosely engage said guiding means, and to extend from thence at an angle to its former course, means, adapted to engage said locking-pin, to secure said flexible means extending to the end of the structure in operative position, and adapted to be operated to release the same, means for operating and controlling said pin-engaging means, substantially as described.

4. In position-governing means for load-retaining stakes, the combination with a load-bearing structure of a stake-supporting bracket secured thereto, a tongue hinged to said bracket and adapted to extend upwardly in front of said stake, a relatively permanent adjustable anchorage secured to said structure at one side of said stake, flexible means attached at one end to said anchorage and adapted to pass partly around said stake and in front of said tongue means for directing the course of said flexible means, means for securing the free end of said flexible means in operative position and adapted to be operated to release the same, and means for operating and controlling said securing means, substantially as described.

5. In position-governing means for load-retaining stakes, the combination with a load-bearing structure, of a stake-supporting bracket secured thereto, a relatively permanent adjustable anchorage secured to said structure at one side of said stake, or bracket, flexible means secured at one end to said permanent anchorage and adapted to pass outwardly partly around said stake, or bracket, a locking-pin carried by said flexible means, means secured to said structure at the opposite side of said stake, or bracket, and adapted to loosely engage said flexible means and to deflect the same from its previous course and to form a purchase for the same, a housing secured to said structure and adapted to receive one end of said pin, means for securing said pin within said housing, and means for operating said securing means, substantially as described.

6. In position-governing means for load-retaining stakes, the combination with a load-supporting structure of a stake-supporting bracket secured thereto, a relatively permanent anchorage secured to said structure at one side of said stake, or bracket, flexible means secured at one end to said permanent anchorage and adapted to pass outwardly partly around said stake, or bracket, means secured to said structure at the opposite side of said stake, or bracket, and adapted to form a purchase for said flexible means, intermediate of its ends, a locking-pin secured to the free end of said flexible means, means for supporting said locking-pin in operative position, and means adapted to be operated from the end of said structure to lock said pin in said position, substantially as described.

748,699. POSITION-GOVERNING MEANS FOR LOAD-RETAINING STAKES. WILLIAM M. CAIN, Carlton, Minn. Filed Jan. 19, 1903. Serial No. 139,496. (No model.)



Claim.—1. In position-governing means for load-retaining stakes, the combination with a load-bearing structure, provided with a pivotally-connected side stake, of a bracket secured to said structure at one side of said stake, a strap, loosely secured to said bracket and comprising a plural number of members pivotally connected together and adapted to pass outwardly partly around said stake, and provided at its free end with an angular extension, or hook portion, means adapted, in operative position, to engage said hook portion and, in retracted position, to release the same, and means for controlling said engaging means, substantially as described.

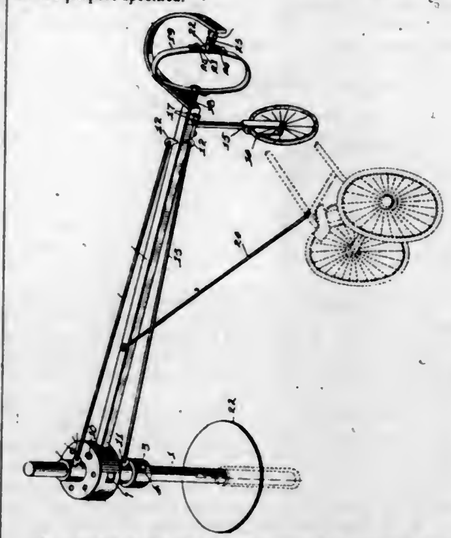
2. In position-governing means for load-retaining stakes, the combination with a vehicle, provided with a load-retaining stake loosely secured at its lower end thereto, of a bracket secured to said structure and extending therefrom at one side of said stake, a strap loosely connected to said bracket and adapted, in operative position, to pass outwardly partly around said stake, to retain the same in vertical position, and, in retracted position, to depend from said bracket a second bracket secured to said structure at the opposite side of said stake, a lever loosely secured to the second said bracket and adapted, in operative position, to engage the free end of said strap, and means for securing the said lever in operative position, and adapted to be operated to release said lever therefrom, substantially as described.

3. In position-governing means for load-retaining stakes, the combination with a load-bearing structure provided with a side stake loosely attached thereto, of a jointed strap loosely secured to said structure at one side of said stake and adapted to extend outwardly partly around said stake, a lever loosely attached to said structure on the opposite side of said stake and adapted, in operative position, to engage the free end of said strap, and having an angular extension or hook formed upon its free end, a rod journaled in suitable supports on said structure and having a slot formed therein whereby said rod is adapted, in one rotated position, to permit the lower end of said lever to pass across it, through said slot, and, in another rotated position, is adapted to engage the lower end of said lever, means for operating and controlling said rod, substantially as described.

4. In position-governing means for load-retaining stakes, the combination with a load-bearing structure provided with a bracket secured to the side thereof and having a forwardly-projecting eye or loop formed therein, of a stake loosely mounted upon said bracket, a U-shaped strap secured to the lower end of said stake, and loosely engaging the eye or loop of said bracket, curved straps or plates interposed between the perpendiculars of said strap and said stake and secured to said stake and adapted to partly encircle said stake to prevent splitting of the same, means for securing said stake in a vertical position and adapted to be operated to release said stake from said vertical position, and means for operating and controlling said securing means, substantially as described.

748,700. MECHANISM FOR EXHIBITING ANIMALS. WILLIAM D. CARSON, Centralia, Ill. Filed Dec. 1, 1902. Serial No. 133,439. (No model.)

Claim.—1. A device of the class named consisting of a center pole; a center plate adapted to receive the lower end of the center pole; an adjustable collar mounted on the center pole; a sleeve revolubly mounted on the center pole above the collar and provided with slots; a horizontal bar the inner end of which is adapted to fit into and be held by one of the slots; and provided at its outer extremity with a wheel, a breast-yoke and a girth; substantially as and for the purpose specified.



2. A device of the class named consisting of a center plate; a center pole mounted in the center plate and provided with an adjustable collar; a revoluble sleeve mounted on the center pole above the collar and provided with a slot adapted to receive the inner end of a horizontal bar; a horizontal bar supported at its outer end by a wheel provided with a breast-yoke and girth, and a strap whereby a vehicle may be attached to the horizontal bar; substantially as and for the purpose as specified.

748,701. STACK-COVERING. WILLIAM D. CARSON, Centralia, Ill. Filed Apr. 9, 1903. Serial No. 151,934. (No model.)



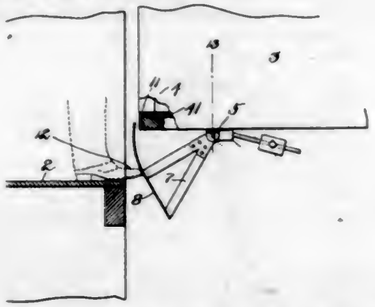
Claim.—A device of the class named consisting of planks provided with slots, a chain provided with plates and with lugs, the lugs adapted to engage with the slots in the planks, posts embedded in the ground at either side of the stack and provided with notches, links at each end of the chain adapted to engage with the notches on the post, substantially as and for the purposes specified.

748,702. FENDER FOR ELEVATORS. HOYT L. CONARY, Waltham, Mass. Filed Dec. 12, 1902. Serial No. 134,958. (No model.)

Claim.—1. The combination with an elevator-car, of a fender carried by said car and movable to a position in line with the wall of the car, and means for supporting said fender on said car in such manner as to permit the fender to move automatically when struck by an object in the path of the car and shove the object out of range of the moving car.

2. The combination with an elevator-car, of a fender carried

by said car and movable to a position in line with the wall of the car, and means for pivotally supporting said fender on said car in such manner as to permit the fender to rock automatically on its pivotal support when struck by an object in the path of the car and shove the object out of range of the moving car.



3. The combination with an elevator-car, of a fender carried by said car and movable to a position in line with the wall of the car, and means for supporting said fender below the floor of the car in such manner as to permit the fender to move automatically when struck by an object in the path of the car and shove the object out of range of the moving car.

4. The combination with an elevator-car, of a fender carried by said car and movable to a position in line with the wall of the car, and means for pivotally supporting the said fender below the floor of the car in such manner as to permit the fender to rock automatically on its pivotal support when struck by an object in the path of the car and shove the object out of range of the moving car.

5. The combination with an elevator-car, of a movable fender below the floor of the car adapted to be swung into line with the front wall of the car when the surface of the fender engages an object projecting into the path of the car.

6. The combination with an elevator-car, of a pivoted, counterbalanced fender below the floor of the car adapted to be swung by contact with an object in the path of the car into line with the front wall of the car.

7. The combination with an elevator-car, of a fender supported on said car in such manner as to be automatically movable to a position in line with the wall of the car when struck by an object in the path of the car, said fender having an inclined face to shove the object out of range of the moving car.

748,703. **LACING.** PELEG J. COGGDON, Cranston, R. I. Filed Feb. 4, 1902. Serial No. 92,597. (No model.)



Claim.—1. A tubular lacing having a stiffener inserted in the end of the tubular fabric composing the lacing and held in place therein by having the side edges of the fabric clamped by the stiffener, substantially as described.

2. A tubular lacing having a stiffener inserted in the end of the tubular fabric composing the lacing and held in place therein by having a folded-over end portion of the fabric and the side edges thereof clamped by the stiffener, substantially as described.

3. A tubular lacing having a stiffener inserted in the end of the tubular fabric composing the lacing, said stiffener being in the form of a split tube with one layer of the fabric tucked in the opening of the tube and with the side edges of the fabric clamped by the tube, substantially as described.

4. A tubular lacing having a stiffener inserted in the end of the tubular fabric composing the lacing with the end of the fabric cut at an angle and with said cut end folded over into and clamped by the stiffener, substantially as described.

5. A lacing-tip comprising a tubular lacing and a plate incased within the tubular fabric end thereof, the two layers of the fabric and the plate forming a unitary longitudinally-bent structure, substantially as described.

6. A lacing-tip comprising a tubular lacing and a metallic plate incased within the tubular fabric end thereof having both of its sides covered by the fabric, the two layers of the fabric and the plate forming a unitary longitudinally-bent structure having the fabric covering the longitudinal edges of the plate, substantially as described.

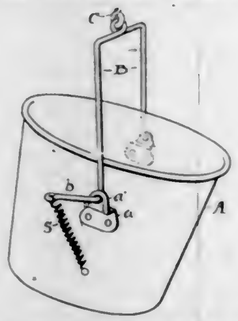
7. A lacing-tip comprising a tubular lacing and a metallic plate incased within the fabric end thereof, said plate and two layers of fabric being compressed transversely to form the lacing-tip, substantially as described.

8. A tubular lacing, short metallic plates in the tubular ends thereof, a single section or portion of the tubular lacing covering both sides of each of said plates, said plates and ends being bent longitudinally of the lacing to present in cross-section an outer covering of fabric, a bent metallic plate and two thicknesses of fabric in the space between the bent portions of the metallic plate, substantially as described.

9. A lacing-tip comprising a tubular lacing and a metallic plate incased within a tubular end thereof, said plate and the layers of said end being pressed together closely, transversely to form the lacing-tip and having the fabric covering the longitudinal edges of the plate, substantially as described.

10. Lacing-tips, comprising the tubular ends of a seamless tubular lacing, a short oblong metallic plate snugly fitted in each of said ends when in the flat, said plates and said ends forming when folded longitudinally in the finished product substantially circles in cross-section, substantially as described.

748,704. **WELL-BUCKET.** CLARENCE A. CRANE, Warren, Ohio. Filed Nov. 9, 1903. Serial No. 180,381. (No model.)

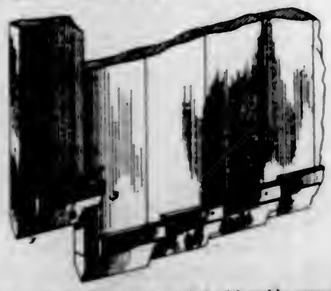


Claim.—1. As a new article of manufacture and sale, a bucket and a bail thereon, and spring mechanism interposed between the bail and the bucket to cause the bucket to hang in a tilted position on the bail, substantially as described.

2. In well-buckets, a bucket and a bail thereon and a spring connecting said parts, said spring arranged to promote the tilting and dipping of the bucket when it strikes the water, substantially as described.

3. In a well-bucket, a bucket and a bail thereon, in combination with a spring mechanism connecting said parts and constructed and arranged to carry the bucket in an inclined position on the bail when empty and to permit the bucket to assume an upright position when filled, substantially as described.

748,705. **PILE-POINT.** RICHARD S. DAVIS, Columbia, Miss. Filed July 9, 1903. Serial No. 164,844. (No model.)



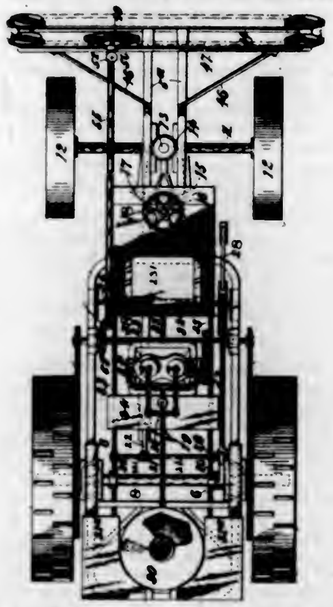
Claim.—1. A pile-point provided with guide extensions at one end for embracing opposite sides of the pile previously placed in position so as to insure alining of the pile being driven, substantially as set forth.

2. A pile-point having spaced flanges for securance of the same to the lower end of a pile and having said flanges projected at one end to form guide extensions, substantially as described.

3. A pile-point comprising a penetrating end and spaced flanges set in from one extremity of the penetrating end and projecting from the opposite extremity to said penetrating end to form guide extensions, substantially as specified.

4. The herein-described pile-point of oblong formation and having its penetrating end inclined throughout its length and its sides oppositely beveled and spaced flanges projected from the upper edge of the penetrating end and set in from one extremity of the penetrating end and projected a corresponding distance from the opposite extremity of the penetrating end to form guide extensions, substantially as set forth.

748,706. **AGRICULTURAL IMPLEMENT.** JACOB DOWNING, Denver, Colo. Filed Oct. 4, 1902. Serial No. 125,903. (No model.)



Claim.—1. The combination of the main frame, the pivoted front axle, wheels journaled thereon, and means for oscillating said axle; the rocking rear axle rotatable in journals on the main frame, the wheels rotatably mounted on the rear axle, an implement connected with the frame in advance of the rear axle and having a link-and-crank connection with said axle, whereby the implement may be raised or lowered in operative position by rocking said axle, substantially as described.

2. The combination of the main frame, the front steering-axle, wheels journaled thereon, and means for oscillating said axle, the rear axle rotatable in journals on the main frame, and the driving-wheels rotatably mounted on the rear axle; with a beam connected with the frame in advance of the rear axle, a link-and-crank connection between said beam and axle, whereby the beam may be raised or lowered by rocking said axle, means for rocking said axle, and means for propelling the driving-wheels, substantially as described.

3. The combination of the main frame, an axle rotatably journaled in bearings on the main frame, the lever and connections for rocking said axle in its bearings, and the main wheels journaled on said axle; with a bar parallel with the main axle and fixed to cranks thereon, a beam connected to a transverse shaft in advance of the axle, and a link connecting the rear end of said beam to said bar, substantially as described.

4. The combination of the main frame, the front steering-axle and wheels, a rear main axle rotatably journaled in its bearings on the frame, and driving-wheels rotatable upon said axle; with a laterally-adjustable beam pivotally connected with the frame in advance of said rear axle, a laterally-adjustable link connecting the beam to a crank on said axle, and means for rocking said rear axle so as to raise or lower the beam.

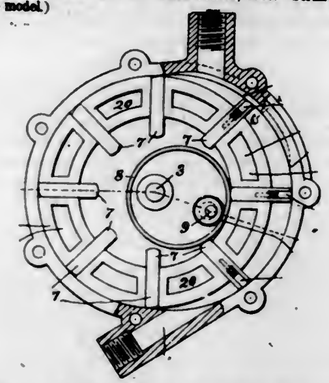
5. In combination, a main frame, a front steering-axle and wheels, a rear axle rotatably journaled in bearings on the frame, the main wheels rotatable upon said axle, and means for driving said rear wheels to propel the frame; with a laterally-adjustable beam pivotally connected with a shaft on the frame in advance of said rear axle, and in rear of the front axle, a laterally-adjustable link connecting the beam to a bar connected to crank-arms on the rear axle, and a lever and connections for rocking said rear axle so as to raise or lower the rear end of the beam.

6. The combination of the main frame, the front steering-axle, wheels journaled on said axle, the rear axle, the driving-wheels thereon, and means for rocking said rear axle in its bearings independently of the driving-wheels; with means for propelling the driving-wheels, a laterally-adjustable beam having a pivotal slidable connection with a shaft on the frame in advance of the rocking axle, and a laterally-adjustable link connection between the rear end of said beam and a bar or shaft attached to crank-arms on said rear axle, substantially as described.

7. The combination of the main frame, the front steering-axle pivoted to the frame, the wheels thereon; and means for turning the said axle on its pivot; a rear axle rotatably journaled in bearings on the main frame; a lever and connections for rocking said axle in its bearings; an implement hung from said axle, the main driving-wheels journaled on said axle, the main driving-shaft; means mounted upon the main frame for operating said shaft, and sprocket-chains for driving the main wheels from said shaft, substantially as described.

8. The combination of the main frame, the steering-axle, the main axle journaled on the rear end of said frame and rotatable in its bearings; the driving-wheels independently journaled and rotatable upon the ends of the main axle; a driving-shaft journaled in the main frame in advance of the main axle, gearing for driving the main wheels from said main shaft; means mounted upon the main frame for rotating said driving-shaft; a beam pivoted to a fixed point on the frame in advance of the main axle; an implement attached to said frame, a link and crank connecting between the rear end of said beam and the main axle, and the lever and connections for rocking the main axle in its bearings.

748,707. **LIQUID-METER.** ALONZO S. DRINKO and REINOLD BERENBERG, Boston, Mass. Filed Oct. 30, 1903. Serial No. 179,302. (No model.)



Claim.—1. In a liquid-meter, the combination of a casing the two opposite halves of which are bored out to arcs of circles eccentric to each other, and provided with inlet and discharge passages; a shaft mounted in bearings in said casing coinciding with the axis of the bore of one-half of said casing; a piston-wheel mounted on said shaft and having a peripheral rim inclosing an annular chamber, and provided with a series of radial slots cut through said rim; the periphery of said wheel fitting closely to the inner surface of the peripheral wall of said casing for approximately one-half of its circumference; a piston-wing fitted to each of said radial slots and movable endwise therein; a metal ring arranged loosely within the annular chamber of said piston-wheel, but eccentric thereto, with one side of its periphery in contact with a pair of the piston-wings and pressing them into contact with the inner surface of the eccen-

tric portion of the casing-wall; a roller mounted on an adjustable eccentric, and bearing upon the inner perimeter of said ring, to hold said ring in contact with said wings; and means for securing said eccentric in a fixed or non-revoluble position.

2. In a liquid-meter, the combination of a casing the two opposite halves of the chamber of which are bored out to arcs of circles eccentric to each other, and provided with inlet and discharge passages, and a by-pass contiguous to said discharge-passage; a shaft mounted in bearings coinciding with the axis of the bore of one-half of said casing; a piston-wheel mounted on said shaft the rim of which incloses an annular chamber and has cut therethrough a series of radial slots; and a series of piston-wings fitted to and movable radially therein; an adjustable eccentric mounted in a head of said casing; means for clamping said eccentric in the desired adjusted position; a revoluble roller mounted on said eccentric; a ring located in said annular chamber in position to include the central hub of said piston-wheel and said eccentric-mounted roller, and to act by its outer peripheral surface upon said piston-wings to force them into contact with the eccentric portion of the wall of the casing.

748,708. **INSOLUBLE GELATINOUS PRODUCT AND PROCESS OF PRODUCING SAME.** HENRY V. DUNHAM, New York, N. Y., assignor to Casein Company of America, a Corporation of New Jersey. Filed Apr. 21, 1902. Serial No. 103,360. (No specimens.)

Claim.—1. The herein-described insoluble gelatinous product, suitable for use as a substitute for albumen, the same consisting of a mixture of about eighty-five parts of a gelatinous substance with about fifteen parts of hexamethylene-tetramine.

2. The herein-described process for producing an insoluble gelatinous product, the same consisting in dissolving a dry gelatinous substance in water, then adding hexamethylene-tetramine to the solution, then drying the solution, and subsequently subjecting the dried-out product to heat and moisture.

3. The herein-described process for producing an insoluble gelatinous product, the same consisting in dissolving about eighty-five parts of an ordinary dry commercial gelatinous substance in about two hundred parts of water, then adding to the solution about fifteen parts of hexamethylene-tetramine, then drying the solution, and subsequently subjecting the dried-out product to the simultaneous action of heat and moisture.

4. The herein-described process for producing an insoluble gelatinous product, the same consisting in dissolving about eighty-five parts of an ordinary dry commercial gelatinous substance in about two hundred parts of water, then adding to the solution about fifteen parts of hexamethylene-tetramine, then drying the solution, and substantially subjecting the dried-out product to the action of steam at a temperature of about 180° Fahrenheit, or above, for about half an hour.

748,709. **CASEIN-CELLULOSE COMPOSITION AND PROCESS OF PRODUCING SAME.** HENRY V. DUNHAM, New York, N. Y., assignor to Casein Company of America, a Corporation of New Jersey. Filed May 20, 1903. Serial No. 158,046. (No specimens.)

Claim.—1. The herein-described celluloid-like product, of a homogeneous character, comprising nitrocellulose, casein, and a common solvent for these two ingredients.

2. The herein-described celluloid-like product, of a homogeneous character, comprising nitrocellulose and a solution of casein with glaciacetic acid.

3. The herein-described celluloid-like product, of a homogeneous character, comprising nitrocellulose, casein and glaciacetic acid.

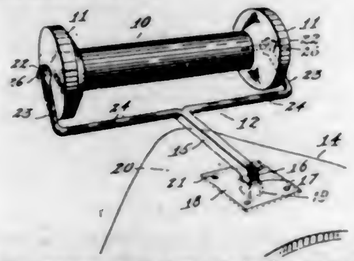
4. The herein-described steps in the process for producing a celluloid-like product, consisting in dissolving both nitrocellulose and casein with a common solvent and thoroughly mixing the said ingredients together until the mixture is of a homogeneous character.

5. The herein-described process for producing a celluloid-like product, consisting in dissolving casein with glaciacetic acid and then thoroughly mixing the said casein solution with nitrocellulose and other ingredients usually employed in the manufacture of celluloid.

6. The herein-described process for producing a celluloid-like product, consisting in dissolving both casein and nitrocellulose with glaciacetic acid, and then thoroughly mixing the said dissolved ingredients and other usual ingredients of celluloid together to form a homogeneous composition.

748,710. **MEANS FOR FACILITATING CASTING AND DRAWING FISH-NETS.** LUTHER RICHARDS, Seattle, Wash. Filed May 23, 1903. Serial No. 158,705. (No model.)

Claim.—1. The combination with a boat; of a bracket-stand including a shank and upwardly-extending arms inclined outwardly from the perpendicular, means to removably seat said stand on the boat with said arms lying either inboard or outboard, and a bearing-bar supported on said arms.



2. The combination with a boat; of a bracket-stand comprising a shank, upwardly-extending arms inclined outwardly from the perpendicular and a downwardly-extending stem, a socket-plate arranged on the boat to removably receive the stem of said bracket with said arms lying either inboard or outboard, and a bearing-bar rotatably supported on said arms.

3. The combination with a boat; of a bracket-stand comprising a horizontally-disposed shank, upwardly-extending arms at one end of said shank inclined outwardly from the perpendicular and a downwardly-projecting square stem at the opposite end, a socket-plate on said boat adjacent the gunwale and having a square socket, and a bearing-bar supported on said arms.

4. The combination with a boat; of a rotatable, net-supporting bearing-bar having a guard-flange at each end, and a bracket-stand comprising a horizontally-disposed shank, oppositely-disposed, upwardly-projecting, bar-supporting arms at one end of the shank inclined outwardly from the perpendicular and a downwardly-projecting stem at the opposite end, and means carried by said boat to removably seat said shank with the bar lying clear of the gunwale either inboard or outboard.

5. The combination with a boat; of a rotatable net-supporting bearing-bar having a guard-flange at each end formed with the inner side face conical, a bracket-stand comprising a horizontally-disposed shank having oppositely-disposed upwardly-projecting arms at one end inclined outwardly from the perpendicular and each having a journal for the axis of said bar, a downwardly-projecting square stem at the opposite end, and a socket-plate on said boat having a square socket adapted to removably receive said stem with the shank extending to either beam or fore or aft.

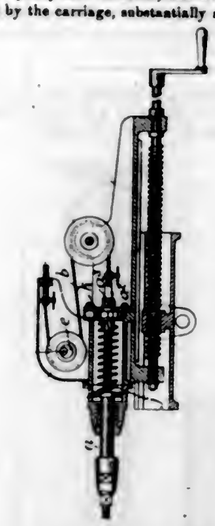
6. The combination with a boat; of a net-supporter comprising a wooden roller 10 having a flange 11 at each end formed with the inner side surface conical, bracket-stand 12 consisting of a shank 15 having a stem 16 and arms 24 each formed with upwardly-extending stems 23 having journal-apertures at the upper ends, lug-screws 26 fitting in said journals and screwed into the ends of said roller, a socket-plate 18 seated on the stern of said boat and having a downwardly-projecting flange 19 and a square socket 17 in said plate and flange adapted to removably seat said stem 16 with the shank of said bracket extending to either beam or fore or aft.

748,711. **PROCESS OF PREPARING ALIMENTARY YEAST EXTRACTS.** MAX ELB, Dresden, Germany. Filed Oct. 11, 1901. Serial No. 78,574. (No specimens.)

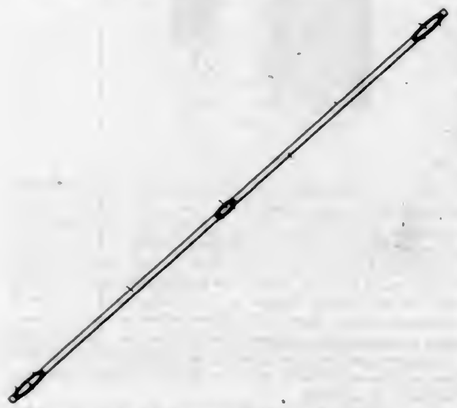
Claim.—The process of preparing an alimentary yeast extract, consisting in bringing the washed yeast in small quantities into a large quantity of water, which has a temperature of between 60° and 70° centigrade but not sufficient for coagulating the albumens, filtering the liquid so obtained and condensing the same to the consistency of a paste, substantially as set forth.

748,712. **ROCK-DRILLING MACHINE.** ALBERT FAUCK, Vienna, Austria-Hungary. Filed Mar. 24, 1903. Serial No. 149,306. (No model.)

Claim.—A rock-drilling machine having a support, a carriage movable longitudinally thereon, means to move the carriage, a reciprocatory drill-bar, a driving-shaft and a pulley carried by the carriage, a spring to move the drill-bar in one direction, an eccentric on the driving-shaft, a cord having its ends connected respectively to the carriage and drill-bar and having oppositely-extended bights engaging the pulley and eccentric, and a motor to drive the shaft and carried by the carriage, substantially as described.



748,713. **HEDDLE.** WILLIAM FISH, Philadelphia, Pa. Filed Sept. 18, 1902. Serial No. 173,665. (No model.)



Claim.—1. A heddle, consisting of a thin, flat narrow strip of metal provided at either extremity with a mortise or slot having a bearing-surface reinforced by a thin fin of swaged metal.

2. A heddle, consisting of a thin, flat narrow strip of metal having intermediate of its ends an eye surrounded by a thin fin of swaged metal.

748,714. **MARLINESPIKE.** HERMAN FRIEDFELD, Hoquiam, Wash. Filed Apr. 2, 1903. Serial No. 150,805. (No model.)

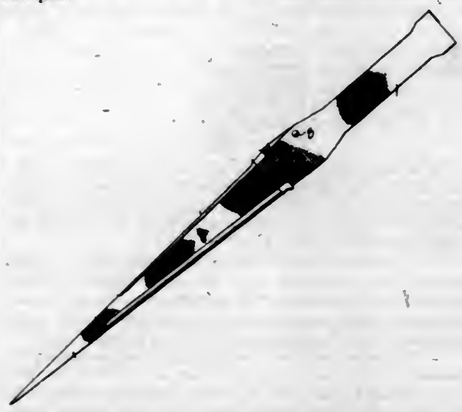
Claim.—1. In an implement of the class described, the combination of a spike and removable thimble open at both ends.

2. The combination in an implement of the class described of a spike having a tapered portion and a thimble open at both ends seated on said tapered portion and removable therefrom when desired.

3. The combination in an implement of the class described of a spike having a removable thimble on the outside thereof and a spring-catch provided on said spike to hold said thimble in association therewith.

4. The combination in an implement of the class described of a spike, a thimble open at both ends removably mounted on said spike, and means for preventing the rotation of said thimble in one direction while permitting rotation in the opposite direction.

5. The combination in an implement of the class described of a spike having its surface cut away to form a suitable seat and a thimble open at both ends adapted to fit the seat provided therefor on said spike.

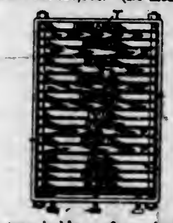


6. The combination in an implement of the class described of a spike having a tapered portion terminating in a point, a seat formed on said tapered portion, and a thimble fitted into said seat and removable therefrom and having the outer surface thereof in alinement with the outer surface of the point of the spike which protrudes beyond the end of said thimble.

7. The combination in an implement of the class described of a spike flat on one side and having a seat for a thimble, a thimble adapted to fit into said seat and having a flange adapted to contact with the flat side of said spike to prevent the rotation of said thimble on said spike in one direction.

8. The combination in an implement of the class described of a spike having a tapered portion with a part of its surface cut away to form a seat for a thimble, said seat terminating at one end in a shoulder at right angles to the axis of the spike and at the other end terminating in a shoulder disposed obliquely to the axis of said spike.

748,715. **TYPE-HOLDER.** HARRY S. FOLGER, Chicago, Ill. Filed Nov. 3, 1902. Serial No. 129,576. (No model.)



Claim.—1. In a type-holder, a frame in the form of an oblong box having holes in its opposite ends and sides near its corners whereby bolts may pass through said frame in either of two directions, bolts extending through said frame in one of these directions, and line-dividing plates supported by and adjustable on said bolts.

2. A reversible type-holder consisting of a box-shaped frame, line-dividing plates therefor, bolts upon which said line-dividing plates are held and guided, screws for clamping type and said plates together in a direction parallel to the axes of said bolts, and means whereby said bolts may be made to pass through said frame in either of two directions whereby lines of type are held either longitudinally or transversely in said holder.

3. In a type-holder, an oblong box formed of sheet metal and provided with registering holes in its ends and sides, parallel rods supported in one set of registering holes and shiftable to the other set, and line-dividing plates supported by and guided on said rods.

748,716. **WIRE-CONNECTOR.** JAMES S. FORD, Chicago, Ill., assignor to American Telephone and Telegraph Company, a Corporation of New York. Filed Oct. 9, 1903. Serial No. 176,383. (No model.)

Claim.—1. A wire-connecting device or clamp comprising a tubular member having an opening in one side and a jaw on each side

of the opening, a movable plate within the tubular member extending over the jaws, and means for applying pressure upon the plate to move it toward the jaws.



2. A wire-connecting device or clamp comprising a tubular member having an opening in one side and an elongated jaw at each side of the opening, a movable plate within the tubular member extending over the jaws, and means for applying pressure upon the plate to move it toward the jaws.

3. A wire-connecting device or clamp comprising a tubular member having an opening on one side and an integrally-formed elongated jaw on each side of the opening, a movable plate within the tubular member extending over the jaws, and means for applying pressure upon the plate to move it toward the jaws.

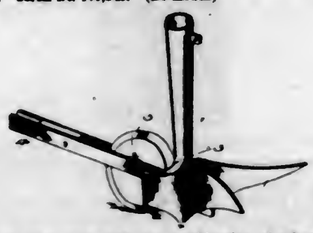
4. The herein-described connecting device composed of a tubular member having an opening on one side, and a jaw on each side of the opening, a plate within the tube having edges extending over the jaws, and a screw threaded into the tubular member whose point is adapted to bear upon the plate and press the same toward the jaws.

5. A connecting device comprising a tubular member having a horizontal opening on one side and a wire-holding jaw on each side of the opening, a stop at each open end of the tube, a plate within the tube having opposite edges extending over the jaws, and a screw threaded into the tube opposite said opening, whose point is adapted to bear upon the plate, substantially as described.

6. In a wire clamp or connector, the combination of a tubular member square in cross-section having a horizontal opening on one side and a wire-holding jaw on each side of the opening and a stop at each end of the tube, a plate within the tube having opposite edges covering the jaws, and a screw threaded into the tube opposite said opening whose point is adapted to bear upon the plate.

7. In a wire clamp or connector, the combination of a tubular member rectangular in cross-section having a horizontal opening on one side and a wire-holding jaw on each side of the opening and a pendant-stop at each end of the tube, a square plate within the tube having opposite parallel edges covering the jaws and a screw threaded into the tube central therewith and over said opening whose point is adapted to bear upon the plates.

748,717. GRAIN-DRILL. HENRY PENN, Penn, Ill. Filed Oct. 31, 1903. Serial No. 179,349. (No model.)



Claim.—1. In a grain-drill, the combination of a boot having its lower end bifurcated, a drag-bar having portions attached to the bifurcations of the boot, and a rotary colter journaled in the space formed between the separated portions of the drag-bar and operating in the space formed in the bifurcations of said boot, substantially as set forth.

2. In a grain-drill, the combination of a boot having its lower end bifurcated, a drag-bar having portions attached to the bifurcations of the boot, a rotary colter journaled in the space formed between the separated portions of the drag-bar and operating in the space formed in the bifurcations of said boot, and wings connected to the bifurcations of the boot and curved laterally, rearwardly and upwardly toward their rear ends, substantially as set forth.

3. A grain-drill comprising a boot having its lower end forwardly curved and bifurcated, a drag-bar comprising companion members having their rear ends attached to the bifurcations of the boot, a rotary colter journaled to the drag bar and operating in the space formed between the bifurcations of the boot, and wings attached to the bifurcations of the boot and having their front ends conforming to opposite sides of the colter and their lower edges straight and in a plane above the lowest cutting-point of the colter, substantially as specified.

748,718. EXTENSION LAMP-HANGER. FERDINAND H. GEBLER, Dayton, Ohio, assignor of one-half to H. R. Snyder, Dayton, Ohio. Filed Oct. 5, 1903. Serial No. 175,750. (No model.)



Claim.—1. A suspension lamp-holder, comprising inner and outer sectional globes, a tube suspended from the upper section of the inner globe, a tubular hanger connected with said suspended tube, said hanger being adapted to be shifted to various positions out of a perpendicular position, and to be held in such positions by the friction between the two globes or balls, suitable insulation on the interior of said tubular hanger, a brush-holder on the interior of said hanger, brushes upon said holder with which the circuit-conductors are connected, a coil-spring inclosed between the upper end of the hanger and said brush-holder, and ratchet devices adapted to lock said brush-holder in various positions in lowering the lamp, substantially as set forth.

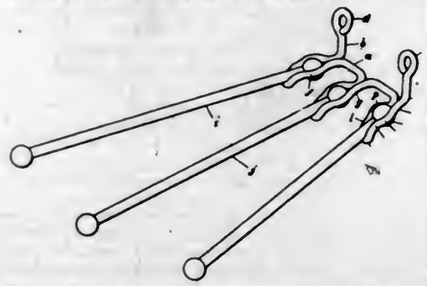
2. In a suspension lamp-holder, a ball-and-socket joint consisting of inner and outer sectional globes, a perpendicular tube suspended from the upper section of the inner globe, a tubular hanger connected thereto, electrical conductors passing through said hanger, a sliding brush-holder, a coil-spring normally controlling the position of said brush-holder, and ratchet devices adapted to maintain said brush-holder in various positions against the influence of said coil-spring, substantially as set forth.

3. In a suspension lamp-holder, a ball-and-socket joint, consisting of inner and outer globular sections, the upper section of the inner ball having suspended therefrom a sectional tube, a lamp-hanger supported upon said sectional tube, a brush-holder within said hanger, a lamp suspended from said brush-holder, a coil-spring normally controlling the position of said brush-holder, and ratchet devices adapted to lock said brush-holder in various positions in lowering the position of the lamp, substantially as set forth.

4. In a suspension lamp-holder, a ball-and-socket joint, the same consisting of inner and outer sectional globes, the upper section of the inner globe having suspended from it a tube, the said tube passing through and secured to the lower section of said inner globe, a lamp-hanger supported upon said tube, a sliding brush-holder within said lamp-hanger, a lamp suspended from said brush-holder, a spring exerting its influence to elevate said brush-holder and therewith the lamp, a ratchet-pawl supported upon said brush-holder, said ratchet-pawl being adapted to engage with the adjacent edge of the lamp-hanger to maintain the brush-holder and therewith the lamp in suitable positions, substantially as set forth.

5. In a suspension lamp-holder, a ball-and-socket joint consisting of inner and outer sectional globes, a frictional surface interposed between said inner and outer globes, a tube suspended from the upper section of the inner globe, a lamp-hanger supported upon said tube, a brush-holder within said suspension-tube, a lamp suspended from said brush-holder, wire connections by which said lamp is suspended from said brush-holder, ratchet devices controlling the position of the brush-holder, a spring controlling the position of the brush-holder when relieved from the control of the ratchet devices, and means for maintaining a disconnection of the ratchet devices in permitting the said spring to elevate the brush-holder and the lamp to their uppermost positions, substantially as set forth.

748,719. TOWEL-RACK. PETER H. GERMAIN, Worcester, Mass., assignor to Spencer Wire Company, Worcester, Mass., a Corporation. Filed Aug. 12, 1903. Serial No. 169,179. (No model.)



Claim.—1. In a towel-rack, the combination of a bracket formed of a single piece of wire and having means for securing the same to a support, said single piece of wire being bent to provide substantially parallel adjacent portions forming a supporting-loop, and an extensible arm movable between the parallel portions of the supporting-loop, said arm having an enlarged end adapted to engage below the said portion to support the arm in a horizontal position.

2. In a towel-rack, the combination of a bracket formed of a single piece of wire bent to provide means at its ends for attachment to a wall or support, said wire between its end portions being bent into a plurality of supporting-loops having downturned ends and each comprising substantially parallel adjacent portions, extensible arms movable between the parallel adjacent portions and having enlarged ends for engagement beneath the said portions for holding the arms in horizontal position.

748,720. MANTLE-GUARD FOR COCKS AND FAUCETS. PETER F. GLASIER, Indianapolis, Ind. Filed Apr. 27, 1903. Serial No. 154,493. (No model.)

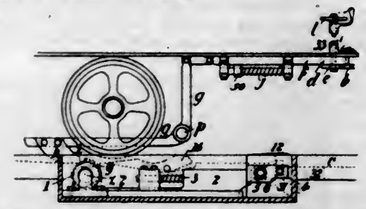


Claim.—1. A housing for the purposes specified in two longitudinally-divided parts, one part having a cap with an under side socket, and a part closure at its opposite end, said part closure having perforated ears, the other part of said housing having a cap to fit against the inner side of the first-mentioned cap, said second cap having a lug to enter the socket of the first cap, the opposite end of said second section having a part closure with a perforated ear, and means when the parts of the housing are assembled, for locking the ears together.

2. In a housing for the purposes specified in two longitudinally-divided parts, a part having a cap with an under side socket and a part closure at its opposite end having perforated ears, a second part of said housing having a cap to fit against the inner side of the first cap, said second cap having a lug to enter the socket of the first cap, said lug having a screw-threaded perforation longitudinally of the housing, the opposite end of said second part or section of the housing from its capped end having a part closure and a perforated ear, a set-screw in the threaded perforation of the lug of the second cap and a padlock for locking the perforated ears together when the parts of the housing are assembled.

3. A housing for the purposes specified in two longitudinally-separable parts having overlapping and interlocking caps at one end and perforated mating ears at the other ends, said housing having perforations in opposite walls in the lines of the joints between the two parts of the housing, a set-screw in the inner cap adjustable longitudinally of the housing, and means for locking the ears of the housing parts together.

748,721. RAIL AND CONDUCTOR POINT OPERATING MECHANISM. CHARLES G. GOORD, Brighton, England. Filed May 8, 1903. Serial No. 156,283. (No model.)



Claim.—1. Point-operating mechanism for railways, comprising means for automatically shifting the slip-rail, means for locking said shifting means, an engaging element upon the car, means connected with said locking means operated by the engaging element for withdrawing said locking means, and means upon the car for automatically operating the engaging element, substantially as set forth.

2. Point-operating mechanism for railways, comprising means for automatically shifting the slip-rail, a stop for locking said shifting means, a shoe upon the car, means connected with said stop and operated by said shoe for withdrawing said stop, means for holding the shoe inoperative, and means upon the car for automatically lowering the shoe, substantially as set forth.

3. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, a toothed bar carrying said stop, a toothed wheel gearing with said bar, a cam fixed to said wheel, and a shoe carried upon the car for operating said cam to withdraw said stop substantially as set forth.

4. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, a toothed bar carrying said stop, a toothed wheel gearing with said bar, a cam fixed to said wheel, a shoe carried upon the car for operating said cam to withdraw said stop, a spring for returning said stop, a bell-crank supporting said shoe, a bar connected with said bell-crank, and means for operating and locking said bar substantially as set forth.

5. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, a toothed bar carrying said stop, a toothed wheel gearing with said bar, a cam fixed to said wheel, a shoe carried upon the car for operating said cam to withdraw said stop; a spring for returning said stop, a bell-crank supporting said shoe, a toothed bar connected with said bell-crank, a toothed wheel gearing with said bar, means for operating said wheel to raise said shoe, a spring operating said bar to lower said shoe, a cam upon said wheel, a catch for engaging said cam to maintain said shoe in its raised position, and means for releasing said catch substantially as set forth.

6. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, gearing connected with said stop operated by the car for withdrawing said stop, means operated by the car for returning the points to the original position, and means for operating the stop to relock said automatic means substantially as set forth.

7. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means a shoe upon the car, gearing connected with

said stop operated by said shoe for withdrawing said stop, a contact-block, gearing operated by said automatic means for raising said contact-block, means carried upon the car for depressing said block to operate said gearing to return the points to the original position, and means for operating said stop to relock said automatic means substantially as set forth.

8. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, a shoe upon the car, gearing connected with said stop operated by said shoe for withdrawing said stop, a contact-block, gearing operated by said automatic means for raising said contact-block, a roller carried upon a bell-crank lever upon the car, means operating said lever for maintaining the roller in its lowest position for the purpose of depressing said block, a screw-gear for operating said bell-crank to lift said roller, and means for operating said stop to relock said automatic means substantially as set forth.

9. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail one way, a stop for locking said automatic means, a shoe upon the car, gearing connected with said stop operated by said shoe for withdrawing said stop, a contact-block, a toothed rack operated by said mechanism, a toothed wheel gearing with said rack, a second rack gearing with said wheel and adapted to convey movement to said block, means carried upon the car for depressing said block to operate the toothed gear to return the points to the original position, and means for operating said stop to relock said automatic means substantially as set forth.

10. Point-operating mechanism for railways comprising a spring for shifting the slip-rail one way, a second spring for shifting said slip-rail back again, a sliding plate serving as a common abutment for the said springs, a stop for engaging said plate to retain said points open one way, a shoe upon the car, gearing connected with the said stop operated by said shoe for withdrawing said stop, a contact-block, a toothed rack moved in one direction by the first-named spring, a toothed wheel gearing with said rack, a second rack gearing with said wheel and adapted to raise said contact-block when the first-named rack is actuated by said spring, means carried upon the car for depressing said block to return said toothed racks, said toothed wheel and said plate to their original positions, thereby compressing the second-named spring which effects the return of the points to the original position and means for operating said stop to reengage said plate substantially as set forth.

11. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail, a stop for locking said automatic means, a shoe upon the car, gearing connected with said stop operated by said shoe for withdrawing said stop, means upon the car for lowering said shoe, means in the track for raising said shoe, and automatic locking means upon the car for retaining the shoe in its raised position substantially as set forth.

12. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail, a stop for locking said automatic means, a shoe upon the car, gearing connected with said stop operated by said shoe for withdrawing said stop, means upon the car for lowering said shoe, a two-armed tumbler pivoted in the track, one arm being adapted to be depressed by the vehicle-wheel while the other arm raises the shoe, and automatic locking means upon the car for retaining the shoe in its raised position substantially as set forth.

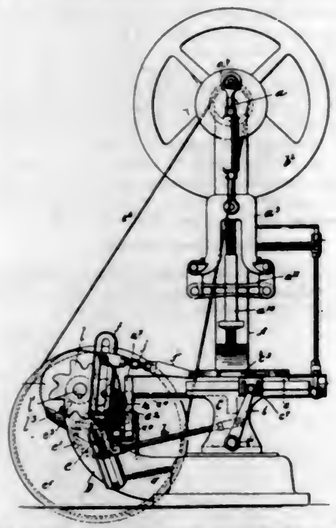
13. In point-operating mechanism for railways, a slip-rail-inclosing chamber having a lateral extension to freely receive obstructive matter and channels for clearing said extension, substantially as set forth.

14. Point-operating mechanism for railways, comprising means for automatically shifting the slip-rail, and electrical means operated by and simultaneously with said automatic means for correspondingly shifting the overhead-conductor connections, substantially as set forth.

15. Point-operating mechanism for railways comprising automatic means for shifting the slip-rail, a stop for locking said automatic means, means upon the car for operating said stop, and means operated by and simultaneously with said automatic means for correspondingly shifting the overhead-conductor connections substantially as set forth.

748,722. METAL-BEATING MACHINE. FRANCIS W. GREENLEE, Hoboken, N. J. Filed Apr. 11, 1903. Serial No. 152,109. (No model.)

Claim.—1. In a metal-beating machine, the combination of a carriage, means for reciprocating the same, a pack-holder carried thereby, means for rotating the same and means for varying the speed of rotation of the pack-holder independent of the movements of the carriage.



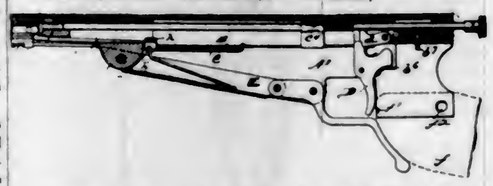
2. In a metal-beating machine, the combination of a rotary pack-holder, reversed pawls acting upon the opposite sides of said holder, a reciprocating rod simultaneously actuating said pawls and an oscillating arm with which said rod is adjustably connected, for the purpose set forth.

3. In a metal-beating machine, the combination of a rotary cam, a reciprocating carriage, a rotary pack-holder mounted on the carriage and mechanism whereby the cam actuates both the carriage and pack-holder.

4. In a metal-beating machine, the combination of a reciprocating carriage, a pack-holder carried thereby and having a rotary movement independent of the movement of the carriage, an oscillating double arm and connections between the members of said arm and the carriage and pack-holder respectively whereby the carriage is reciprocated and the pack-holder simultaneously rotated.

5. In a metal-beating machine, the combination of a reciprocating carriage, a pack-holder having a rotary movement thereon, a double-armed oscillating lever, connections between the members of said arm and the carriage and pack-holder respectively for imparting said movements to said parts and a rotating cam adapted to oscillate said double-armed lever.

748,723. FIREARM. CLARENCE J. HAMILTON, Plymouth, Mich., assignor, by mesne assignments, to Coello Hamilton, Plymouth, Mich. Filed May 13, 1901. Serial No. 59,997. (No model.)



Claim.—1. In firearm construction, the combination of the receiver, the rifle-barrel set in the forward end of the receiver, reciprocating breech-block mechanism traveling within the receiver and the firing-pin and trigger mechanism carried by the breech-block mechanism, substantially as described.

2. The combination of the rifle-barrel, the receiver, the reciprocating breech-block mechanism traveling within the receiver, the trigger-case mounted on the firing-pin and traveling with the breech-block mechanism, substantially as described.

3. The combination of the receiver, the reciprocating breech-block mechanism traveling within the receiver slotted on the under side and trigger mechanism entering the said slot in the under side thereof, substantially as described.

4. The combination of the reciprocating breech-block mechanism provided with a slot, the firing-pin adapted to reciprocate in the breech-block mechanism, an arm fixed to the firing-pin and adapted to traverse the slot in the breech-block mechanism to hold the rod against rotation and the trigger-case suspended from the firing-pin and through the slot in the breech-block mechanism whereby the pin and trigger-case are held in alinement, substantially as described.

5. The combination of the breech-block mechanism, the firing-pin provided with a fixed collar, the trigger-case having a loose connection with the pin and a fixed connection with the breech-block mechanism, substantially as described.

6. The combination of the breech-block mechanism provided with a plug at one end, and the trigger-case engaged with said plug, substantially as described.

7. In firearm construction, the receiver, the rifle-barrel set in the forward end of the receiver, the traveling breech-block mechanism, trigger mechanism reciprocating with the breech-block mechanism, the firing-pin and means for preventing the rotation of the firing-pin, substantially as described.

8. The combination of the reciprocating breech-block mechanism, a U-shaped link connecting the breech-block mechanism with the operating-lever, the lever, and the spring, one end of said spring engaging the breech-block mechanism, the other housed within the channel formed by the U-shaped link and bearing upon the same, locking the link when the breech-block is against the breech of the barrel, substantially as described.

9. The receiver provided with depending brackets formed integral therewith in combination with stock-plate provided with lugs to engage the recesses in the brackets, together with means for securing the brackets to the stock-plates, substantially as described.

10. In firearm construction, the combination of the receiver, the barrel set in the forward end of the receiver, reciprocating breech-block mechanism traveling within the receiver, the plug b' supporting the trigger-case b^4, fitted in the rear end of the reciprocating breech-block mechanism, and the key b^5 for locking the plug with the reciprocating breech-block mechanism, substantially as described.

748,724. CLASP. MYRON R. HAMMOND, Bridgeport, Conn. Filed Sept. 3, 1903. Serial No. 171,755. (No model.)

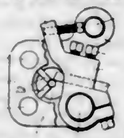


Claim.—1. A garment-clasp comprising a base-plate provided near its rear portion with upright ears, a cover-plate pivoted at its rear end between said ears and having a lip depending from said end, and the loop pivoted to the back of said base-plate and extending rearward therefrom and having fingers which extend forward intermediate of said plates and terminate at their outer ends in depending spurs, substantially as set forth.

2. A garment-clasp comprising a base-plate provided near its rear portion with upright ears, a cover-plate pivoted at its rear end between said ears and having a lip depending from said end, the diverging fingers having spurs depending from their forward extremity and pivoted at their rear ends intermediate of said plates to said base-plate, whereby when the cover-plate is brought into closed position said lip will force said fingers tightly against the garment to be clasped, substantially as set forth.

3. A garment-clasp comprising the base-plate having upright ears near its rear portion, the cover-plate pivoted at its rear between said ears and having a lip extending downwardly from its rear end, and the loop pivoted to the rear edge of said base-plate and having integral clamping-fingers which diverge intermediate of said plates and extend forward and are provided at their extreme forward ends with depending spurs, substantially as set forth.

748,725. TOOL-HOLDER. BENGT M. W. HANSON, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn., a Corporation of New Jersey. Filed Sept. 25, 1902. Serial No. 124,778. (No model.)



Claim.—1. The combination in a tool of the class specified, movable longitudinally for feeding movement, of a base, a series of individual tool and back-rest posts projecting therefrom, with free space between and around them for chips and oil, and a tool-support mounted upon and clasping the outside of one of the posts for adjustment longitudinally of the post.

2. The combination in a tool of the class specified, movable longitudinally for its feeding movement, of a supporting-base, a series of individual tool and back-rest posts projecting therefrom, with free space between and around them for chips and oil; and a removable yoke-plate for connecting and sustaining the outer ends of the posts.

3. The combination in a tool of the class specified, movable longitudinally for its feeding movement, of a supporting-base, a post secured thereto and projecting therefrom, with free space around it for chips and oil, and a plurality of independent tool-supports mounted upon and clasping the outside of the post, for adjustment around and longitudinally of the post.

4. The combination in a tool of the class specified, of a supporting-base, a plurality of posts rigidly secured thereto and projecting therefrom in a substantially parallel relation to the work, a tool-support mounted upon one of the posts for adjustment around and longitudinally of the axis thereof and means for clamping a tool upon the support in a tangential relation to the work, and means appurtenant to the support for engaging with one of the posts for effecting the said adjustment around the axis.

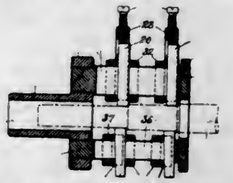
5. The combination in a tool of the class specified, of a supporting-base, a series of posts rigidly secured thereto and projecting therefrom in a substantially parallel relation with the work, a tool-support mounted upon one of the said posts for longitudinal and swinging adjustment and provided with means for engaging with one of the posts for effecting the said swinging adjustment, and back-rest devices adjustably mounted upon the other posts.

6. The combination in a tool of the class specified, of a supporting-base, a series of posts rigidly secured thereto and projecting therefrom in a substantially parallel relation with the work, a yoke-plate for connecting and sustaining the outer ends of the said posts, and a series of tool and back-rest supports mounted upon the said posts, and adjustable longitudinally thereof, and adjustable radially toward and from the axis of the work.

7. The combination in a tool of the class specified, of a supporting base-plate provided with means for attaching it to a tool-turret, a series of posts rigidly secured to and projecting from the base-plate in substantially parallel relation with the work, a yoke-plate for connecting and sustaining the outer ends of the said posts, and a series of tool and back-rest supports mounted upon the posts between the said plates for independent adjustment longitudinally of and radially to and from the work

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748,726. TOOL AND BACK-REST HOLDER. BENGT M. W. HANSON, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn., a Corporation of New Jersey. Filed Sept. 25, 1902. Serial No. 124,780. (No model.)



Claim.—1. In a tool of the class specified, the combination of a supporting-base, a tool-post rigidly secured thereto, and arranged in a substantially parallel and eccentric relation to the work, and provided with a slot extending diametrically through the post, a tool supported in said slot with its ends projecting from both sides of the post, and means for adjusting the tool longitudinally and transversely of the post, and clamping it in its adjusted positions.

2. The combination in a tool of the class specified, of a supporting-base, a tool-post rigidly connected therewith and extending therefrom in substantially parallel relation to and at one side of the work, provided with a diametrically-disposed slot, and provided with a circumferential screw-thread, a tool mounted in the slot, a clamping-nut fitting the circumferential thread and bearing against the tool on both sides of the post to adjust and clamp it in its desired positions.

3. The combination in a tool of the class specified, of a supporting-base, a tool-post rigidly secured thereto and projecting therefrom at one side of the work, provided with a diametrically-disposed tool-slot, and provided with a circumferential thread, a tool mounted

in the slot, and a plurality of nuts fitting the circumferential thread, for adjusting and clamping the projecting portions of the tool on both sides of the post.

4. The combination in a tool of the class specified, of a supporting-base, a series of posts rigidly secured thereto, and projecting therefrom in a substantially parallel relation with the work, and provided with diametrically-disposed tool-slots, a yoke-plate for connecting and sustaining the outer ends of the posts, a series of tools and back-rest jaws mounted in the said slots in a substantially radial relation to the work, and means for adjusting the tools and jaws longitudinally of the posts and clamping them in their adjusted positions.

5. The combination in a tool of the class specified, of a supporting-base, a series of tool-posts rigidly secured thereto and projecting therefrom in substantially parallel relation to the work, provided with diametrically-disposed tool-slots, and provided with circumferential screw-threads, a series of tool and back-rest jaws mounted in the said slots, and means for adjusting the said tools and jaws longitudinally of the posts and clamping them in their adjusted positions.

6. The combination in a tool of the class specified, of a supporting-base, a series of tool-holding posts rigidly secured thereto and projecting therefrom in a substantially parallel relation with the work, and provided with diametrically-disposed tool-holding slots arranged in substantially radial relation to the work, and provided with circumferential screw-threads, a set of tools and back-rest jaws mounted in the said slots of the posts, and clamping devices engaging with the screw-threads for adjusting the tools and jaws longitudinally of the work, and clamping it in its adjusted positions.

7. The combination in a tool of the class specified, of a tool-post provided with a diametrically-disposed tool-slot, a tool-clamp encircling the tool-base and provided with a recess for receiving the tool and provided also with a set-screw for abutting against the end of the tool to adjust it lengthwise.

8. The combination in a tool of the class specified, of a tool-post provided with a diametrically-disposed tool-slot, a tool-clamp encircling the tool-post, and provided with recesses for receiving the side of the tool on opposite sides of the tool-post, and devices for clamping the tool and its clamp together.

9. The combination in a tool of the class specified, of a tool-post provided with a diametrically-disposed tool-slot, and provided with a circumferential screw-thread, a tool in said slot, a tool-clamp encircling the tool-post, and provided with recesses for receiving the projecting portions of the tool on opposite sides of the post, and a screw-collar for clamping the tool and tool-clamp together.

10. The combination of a back-rest jaw, having a side inclined in the direction of its length, and clamping devices therefor coacting with the inclined side of the jaw.

11. The combination of a tapering back-rest jaw and means engaging with the tapering side of the jaw for supporting and clamping the jaw with its larger end toward the work.

12. The combination with a tapering back-rest jaw, of a slotted support for receiving the jaw, and clamping devices engaging with the support and with the tapering edges of the jaw.

13. The combination of a tapering back-rest jaw, a slotted post for supporting the jaw, and clamping devices encircling the support and clamping the tapering edges of the jaw.

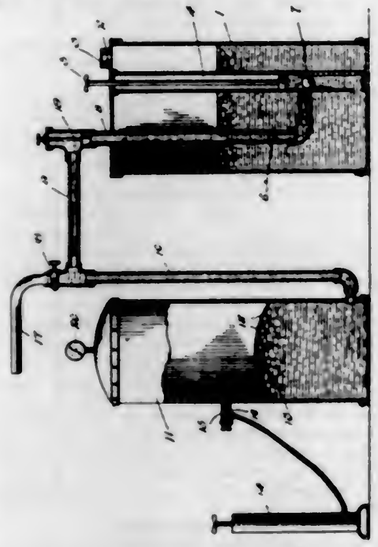
14. The combination of a tapering back-rest jaw, a slotted post for supporting the jaw, having a circumferential screw-thread, a clamping-collar having an inclined seat for receiving an inclined edge of the jaw, and screw-collars fitting the circumferential thread of the post for cooperating with the clamping-collar to clamp the jaw.

15. The combination of a back-rest jaw having an inclined edge, a slotted post for supporting the jaw, provided with a circumferential screw-thread, a clamping-collar encircling the post and provided with a recess for receiving the inclined edge of the jaw, and screw-nuts fitting the circumferential thread of the post for clamping the jaw and its clamping-collar together.

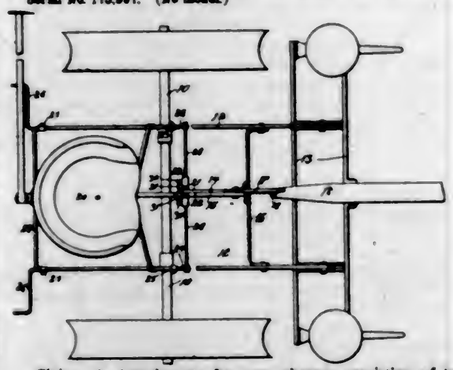
16. The combination of a back-rest jaw having an inclined edge, a longitudinally-slotted post for receiving the jaw, provided with a circumferential screw-thread, a clamping-collar encircling the post and provided with a seat for receiving the inclined edge of the jaw to support its opposite edge at substantially right angles with the post, and screw-collars fitting the circumferential thread of the post for adjusting the jaw and its clamping-collar longitudinally of the post, and clamping it in its adjusted positions.

748,727. OIL-SUPPLY SYSTEM. MARK C. HANSON, Albert Lea, Minn. Filed Sept. 2, 1903. Serial No. 171,803. (No model.)

Claim.—In apparatus of the class described, the combination of a storage-tank, a tank 11 having a partition 12 therein, provided with a minute opening 13, said partition forming an air-chamber in the upper portion of said tank 11, and an oil-measuring chamber in the lower portion of said tank, a pump to force oil from the storage-tank into the oil-measuring chamber of the tank 11, a service-pipe leading from the said oil-measuring tank, and means to supply air, under pressure, to the air-chamber of the tank 11 to force the oil from the oil-measuring chamber thereof through the service-pipe.



748,728. MARKER-LIFTER FOR CORN-PLANTERS. ELI R. HARTER and BENNET O. DOAK, Sac City, Iowa. Filed Oct. 1, 1903. Serial No. 175,397. (No model.)

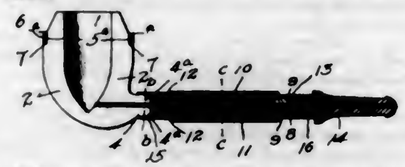


Claim.—1. Attachments for corn-planters consisting of two rock-shafts having elbow-shaped arms at their rear ends projecting outward and adapted to engage a marker-bar and arms at their front ends extended inward, mounted in parallel position on the opposite sides of a driver's seat and a treadle in a plane above the inner ends of said arms for actuating the rock-shafts in the manner set forth for the purposes stated.

2. In a corn-planter, two rock-shafts having arms at their rear ends adapted to engage a marker-bar and arms at their front ends extended inward and provided with elbows at their inner ends in combination with a marker-bar pivotally connected with the rear and center of the carriage-frame, a lever fulcrumed to the carriage-frame having an arm extending forward and connected with the runner-frame and an arm extending rearward and having a cross-head treadle at its end adapted to engage the ends of the arms at the front ends of the rock-shafts, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a corn-planter, two rock-shafts having arms at their rear ends adapted to engage a marker-bar and arms at their front ends extended inward in combination with a marker-bar pivotally connected with the rear and center of the carriage-frame, a lever fulcrumed to the carriage-frame having an arm extending forward and connected with the runner-frame and an arm extending rearward and having a cross-head treadle at its end adapted to engage the ends of the arms at the front ends of the rock-shafts, and a driver's seat located between the parallel rock-shafts in a plane above the carriage-frame and rock-shafts, arranged and combined to operate in the manner set forth for the purposes stated.

748,729. TOBACCO-PIPE. ISAIAH L. HAMMER, Chicago, Ill. Filed Feb. 10, 1903. Renewed Nov. 12, 1903. Serial No. 180,866. (No model.)

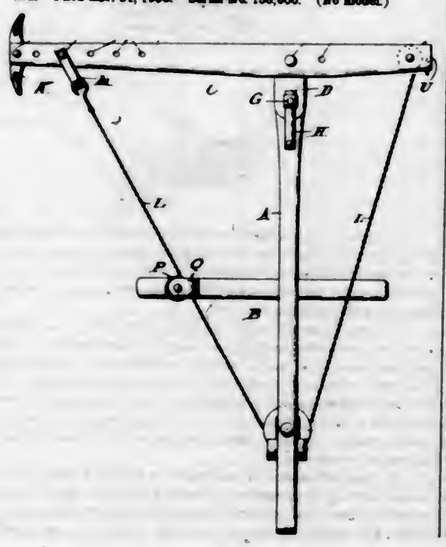


Claim.—1. A pipe comprising a bowl formed in separable sections and having a longitudinally-separable stem portion formed therewith, means to detachably secure the sections of the bowl together, an intermediate stem portion formed of longitudinally-separable sections having a chambered enlargement, the interior of which connects with the bore of the stem, a mouthpiece, a sleeve 16 separably connecting the mouthpiece to one end of the intermediate portion of the stem, and a sleeve 15 separably connecting the opposite end of the intermediate stem portion to the stem portion of the bowl, substantially as described.

2. A pipe comprising a bowl formed in separable sections and having a longitudinally-separable stem portion formed therewith, means to detachably secure the sections of the bowl together, an intermediate stem portion formed of longitudinally-separable sections having an elongated cylindrical chambered enlargement, the interior of which connects with the bore of the stem, a mouthpiece, a sleeve 16 separably connecting the mouthpiece to one end of the intermediate portion of the stem, and a sleeve 15 separably connecting the opposite end of the intermediate stem portion to the stem portion of the bowl, substantially as described.

3. A pipe having a bowl formed of separable sections provided with projections, and a ring having offsets to clear the projections, and adapted to be held by the lugs in position to connect the sections together, substantially as described.

748,730. DRAFT-EQUALIZER. JEFFERSON R. HAYDEN, Abilene, Tex. Filed Apr. 21, 1903. Serial No. 153,800. (No model.)



Claim.—1. In a draft-equalizer, a beam, a sheave journaled on said beam, an equalizing-lever made of sheet metal bent to a U shape in cross-section pivoted on said beam, a draft-hook pivoted at one end of said lever, a pulley journaled at the other end, and a draft-chain transposably secured to the hook end of the lever and passing loosely around the sheave on the beam and then around the pulley in the end of the lever, substantially as shown and described.

2. In a draft-equalizer, a beam, a sheave journaled on said beam, an equalizing-lever made of sheet metal and bent to a U shape in cross-section, a plate transposably secured to said lever and pivoted on said beam, a hook pivoted at one end of said lever, a pulley journaled in the other end, and a draft-chain transposably secured to the hook end of the lever and passing loosely around the sheave on the beam and then around the pulley in the end of the lever, substantially as shown and described.

3. In a draft-equalizer, a beam, a sheave journaled on said beam, an equalizing-lever made of sheet metal and bent to a U shape in cross-section, a plate transposably secured to said lever and pivoted on said beam, one end of said lever split and a double-ended hook pivoted therebetween, the other end of the lever also split, a pulley journaled between the two split ends, the extended portion of one of said split ends bent to form a guide around said pulley, and a draft-chain transposably secured to the hook end of the lever and passing loosely around the sheave on the beam and then around the pulley in the end of the lever, substantially as shown and described.

748,731. LUBRICATOR FOR AIR-BRAKE PUMPS. THOMAS M. HENDERSON, Portsmouth, Va., assignor of two-thirds to Charles Paddock Storrs, Wilmington, Del., and Robert Randolph Hicks, Norfolk, Va. Filed June 27, 1903. Serial No. 163,584. (No model.)



Claim.—1. The combination with the air-cylinder of an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder into the body of the air-cylinder, substantially as and for the purpose described.

2. The combination with the air-cylinder of an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder into the body of the air-cylinder, and means for regulating the passage of exhaust-steam through said pipe.

3. The combination with the air-cylinder of an air-brake pump, of an exhaust-steam-jet pipe leading from the steam-cylinder of the pump into the body of the air-cylinder, a valve-casing associated with said pipe, a regulating-valve mounted in said casing, and a visual valve-adjusting device, substantially as described.

4. The combination with an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder to the air-cylinder, a regulating-valve for controlling said pipe, and a test-cock in communication with said exhaust-steam pipe, substantially as described.

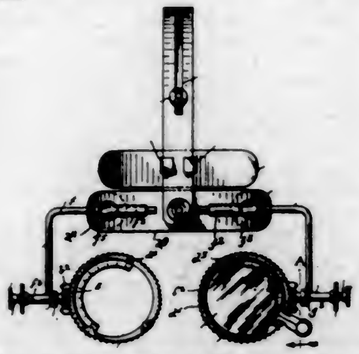
5. The combination with an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder to the air-cylinder, a controlling-valve for said exhaust-steam pipe, and a drain-cock connected with the casing of said controlling-valve, substantially as described.

6. The combination with an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder to the air-cylinder, a regulating-valve controlling said pipe, and an automatic check-valve arranged within said pipe, substantially as described.

7. The combination with an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder to the air-cylinder, a regulating-valve controlling said pipe, and a self-adjusting check-valve arranged in said pipe and provided with notches in the edge portion thereof, substantially as and for the purpose specified.

8. The combination with an air-brake pump, of an exhaust-steam pipe leading from the steam-cylinder to the air-cylinder, a regulating-valve controlling said pipe, an automatic check-valve arranged in the pipe and provided with notches of unequal size forming steam-ports, and an adjusting-nut for regulating the throw of said check-valve, substantially as described.

748,732. OPTOMETRIST'S TRIAL-FRAME. CHARLES L. HOUGH, San Francisco, Cal. Filed June 17, 1903. Serial No. 161,903. (No model.)



Claim.—1. An optometrist's trial-frame comprising a suitable support, and lens-holders suspended therefrom, each by an independently movable and adjustable crank connection, said lens-holders being also adjustable in and relatively to their respective connections.

2. An optical trial-frame comprising a head-rest having the central extensible arched portion, the rear portion, the front portion conforming to the shape of the head secured upon the end of the arch portion, lens-holders supported on said front portion, removable lens-frames in said holders, and means for adjusting said lens-holders relatively thereto.

3. An optical frame comprising a head-rest, a front end piece arranged to rest upon the forehead, bars independently slidable horizontally of the forehead-piece, a lens-holder supported by each bar, and means for clamping either bar in any desired position, substantially as described.

4. An optical frame comprising a head-rest, a lens-holder, a hanger supporting said lens-holder, a bearing on said head-rest in which said hanger slides transversely and in which it is vibratable, and means for clamping said hanger in any desirid position, substantially as described.

5. An optical trial-frame comprising a head-rest, a hanger supported therefrom, a lens-holder having an arm pivotally mounted in the hanger, means for clamping said arm in any desired position, a lens, and a frame therefor rotatably mounted in said lens-holder, said frame having gear-teeth, and a shaft passing through the center of the arm of the lens-holder and having a pinion engaging said gear-teeth, substantially as described.

6. An optical trial-frame comprising a head-rest, a hanger supported therefrom, a lens-holder having a hollow arm pivotally mounted in the hanger, a lens, a frame therefor rotatably mounted in said lens-holder, said frame having gear-teeth, and a shaft in said hollow arm having a pinion engaging said gear-teeth, substantially as described.

7. An optical trial-frame comprising a support, and a pair of lens-holders secured to said support adjustable independently one of the other to and from the eye.

8. An optical trial-frame comprising a support, independently-adjustable hangers supported therefrom, and lens-holders adjustably secured to said hangers.

9. A trial-frame comprising a suitable support, lens-holders suspended therefrom each by an independently-adjustable hanger, said lens-holders being also adjustable in or relatively to their hangers.

10. A trial-frame comprising a suitable support, independently-adjustable hangers suspended therefrom, and lens-holders rotatably secured in the ends of said hangers.

11. A trial-frame comprising a suitable support, a pair of independently horizontally adjustable hangers suspended therefrom and rotatably secured thereto, and lens-holders adjustably secured to said hangers.

12. A trial-frame comprising a suitable support, a pair of apertured posts secured thereto, independent cranked hangers engaging said apertured posts, lens-holders adjustably secured to said cranked hangers and means for adjustably securing said crank-hangers in said apertured posts.

13. A trial-frame comprising a suitable support, independently-adjustable hangers supported therefrom, lens-holders having hollow arms pivotally mounted in the hanger, a lens, a frame therefor, rotatably mounted in said lens-holder, said frame having gear-teeth, and a shaft in said hollow arm having a pinion engaging said gear-teeth.

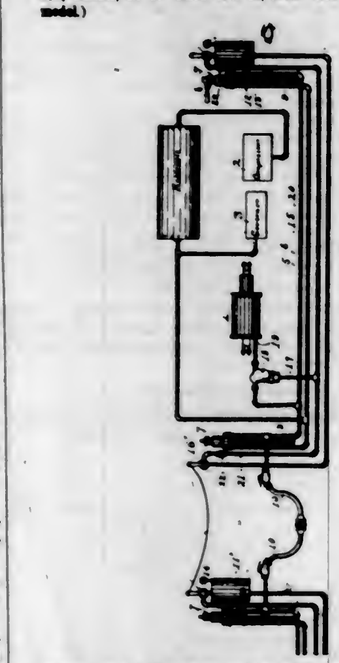
14. A trial-frame comprising a support, a hanger supported therefrom, a lens-holder the arm of which is pivotally mounted in said hanger, a lens, a frame therefor rotatably mounted in said lens-holder, said frame having gear-teeth, a shaft passing through the center of the arm of the lens-holder and having a pinion engaging said gear-teeth, and means for locking said shaft against rotary movement.

15. A trial-frame comprising a support, a hanger supported therefrom, a lens-holder the arm of which is pivotally mounted in said hanger, a lens, a frame therefor rotatably mounted in said lens-holder, said frame having gear-teeth, a shaft passing through the center of the arm of the lens-holder and having a pinion engaging said gear-teeth, and a clutch interposed between the shaft and the arm of the lens-holder.

16. A trial-frame comprising a support, a lens-holder supported therefrom, a lens, a frame therefor rotatably mounted in said holder, and an indicator secured within holder in the rear of the lens.

17. A trial-frame comprising a support, a lens-holder supported therefrom, said lens-holder comprising a stationary ring and a ring rotatable on said stationary ring, a lens secured to each of said rings, and an indicator secured to one of said rings within the holder and intermediate said lenses.

748,733. EMERGENCY AIR-BRAKE. WILLIAM H. HOMBERGER, Buffalo, N. Y. Filed Oct. 17, 1903. Serial No. 177,401. (No model.)



Claim.—1. In combination with a straight-air system, an emergency system, comprising an emergency-reservoir, an emergency-valve capable of connection therewith, and connection with a brake-cylinder, and a valve for establishing said connection, substantially as and for the purposes set forth.

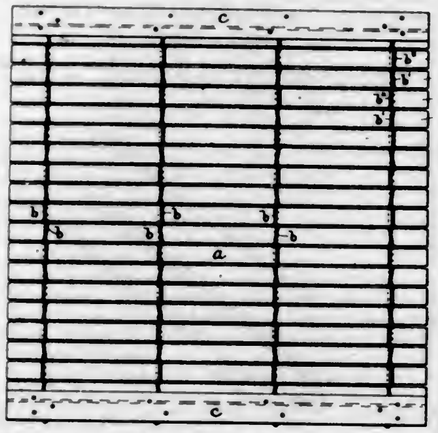
2. In combination with a straight-air system, an emergency-reservoir, means for charging the same from the regular system, an emergency-valve, piping connecting said emergency-valve with said emergency-reservoir, a valve for opening and closing said connection, said emergency-valve operating to close the train-pipe connection with a brake-cylinder and to establish connection between said brake-cylinder and said emergency-reservoir, substantially as and for the purposes set forth.

3. In combination with a straight-air system, an emergency system comprising an emergency-cylinder, and an emergency-valve pipe capable of connecting said emergency-cylinder with said emergency-valve, and said emergency-valve being capable of cutting off the connection of the train-pipe with the brake-cylinder, and valves situated upon opposite ends of the car to which the system is applied, whereby the operation of either valve will close the emergency-reservoir with the emergency-valve, and cause the brake-cylinder to act, substantially as and for the purposes set forth.

4. In combination with a train system employing the straight-air system, emergency-reservoirs, emergency-valves, and piping connecting the same provided upon each unit of the system, means for charging said emergency-reservoirs from the train-pipes of said system, valves upon each unit of the system for applying the pressure of the emergency-reservoirs to cut off the connection between the train-pipe and the brake-cylinder, and to apply the pressure of the emergency-reservoir to the brake-cylinder, substantially as and for the purposes set forth.

5. In combination with a straight-air system applied to a train system, emergency-reservoirs, emergency-valves, and piping connecting the same, means for charging said emergency-reservoirs from the main reservoirs, valves in the pipe of said emergency system and a chain or cable connecting the levers of the valves upon the two adjacent ends of the units of the train, whereby in the event of a breaking in the train, said chain or cable will operate both of said valves and apply the emergency air to both of the units, substantially as and for the purposes set forth.

748,734. WEAVE FOR SHADES, &c. AXEL C. HOUGH, Janesville, Wis., assignor to Hough Shade Corporation, Janesville, Wis., a Corporation of Connecticut. Filed Dec. 16, 1902. Serial No. 135,386. (No model.)



Claim.—1. The method of weaving shades and the like, consisting in turning the warp-strands about two weft units with a stop between each half of the revolution, and then in turning said warp-strands about two other weft units in the opposite direction, with a stop between each half of the revolution, and the insertion of one weft unit between the warp-strands at each stop.

2. The method of weaving, consisting in giving the warp-strands a half-turn about a weft unit, in giving said strands a second half-turn in the same direction about another adjacent weft unit, in giving the warp-strands a half-turn in the opposite direction about another adjacent weft unit, and in giving the warp-strands a second half-turn in the last direction about another adjacent weft unit.

3. The method of weaving, consisting in turning the warp-strands about two weft units with a stop between each half of the revolution and the insertion of a weft unit at each stop, in turning said warp-strands about two other weft units in the opposite direction with a stop between each half of the revolution and the insertion of a weft unit at each stop, and simultaneously turning other warp-strands about the same weft units in like manner but in opposite directions.

4. The improvement in the method of weaving awning-shades and the like, consisting in inserting a weft unit between two contiguous warp units, then giving the warp units a half-twist together causing them to cross to opposite sides of the weft unit, then inserting another weft unit, then giving to the warp units another half-twist together in the same direction as the first half-twist causing the warp units to again cross to opposite sides of the weft, then inserting another weft unit and giving the warp units another half-twist together but in a direction opposite to the direction of the first two half-twists, then inserting another weft unit and giving the warp units another half-twist together in the same direction as the last or third half-twist, and so continuing, two half-twists of the warp units together in one direction and then two half-twists in reverse direction, with a weft unit inserted between the warp units at each half-twist of the warp units.

5. The improvement in the method of weaving shades and the like, consisting of inserting a weft unit between pairs of warp-strands, twisting each pair of warp-strands together, then inserting another weft unit between the warp-strands and again twisting each pair of warp-strands together, the twist being in the same direction as the first twist, then inserting another weft unit and again twisting each pair of strands together but in reverse direction to the two first twists, then inserting another weft unit and again twisting each pair of strands together in the same direction as the last twist, and so continuing so that the adjacent weft units will be held between warp-strands twisted in one direction and the next two adjacent weft units will be held between warp-strands twisted in a direction opposite to the twist of the strands holding the first two weft units.

6. A weave for shades and the like, comprising a plurality of weft units, and warp-strands, the latter passing at right angles over the front and back of alternate weft units and obliquely over the front and back of the intermediate weft units.

7. A weave comprising weft units and cross-laps of warp alternating with parallel laps of warp upon both sides of the woven structure.

8. A weave comprising weft units and cross-laps of warp alternating with parallel laps of warp, the oblique directions of said cross-laps on the same side of the same weft unit in adjacent lines of warp, being different—*i. e.*, one inclined to the right and the other to the left when seen from a given point with the weft held horizontally.

9. A weave for shades and the like, comprising a plurality of weft units held between pairs of warp units, the latter arranged to cross one weft unit in a line substantially at right angles to the said weft unit, then to cross the next adjacent weft unit obliquely, then to cross the next adjacent weft unit substantially at right angles, then to cross the next adjacent weft unit obliquely, said oblique direction alternately reversing—*i. e.*, first inclining toward the right then inclining toward the left.

10. A weave comprising a plurality of weft units and warp-strands passing in and out over the front and back of said weft units, alternate front and back laps of the strands being in substantially the same straight line, and the other laps extending obliquely in opposite directions over the front and back of each alternate weft unit.

11. A weave comprising weft units, a warp-strand extending at right angles over the front of one of said weft units, crossing obliquely the back of a second weft unit, extending at right angles over the front of a third weft unit, and crossing obliquely the back of a fourth weft unit in a different direction to the first oblique course, and a second warp-strand extending at right angles over the back of said first weft unit, crossing obliquely the front of said second weft unit in an opposite direction to that of the lap at the back, extending at right angles over the back of said third weft unit, and crossing obliquely the front of said fourth weft unit in an opposite direction to that of the lap at the back.

748,735. CAR-BRAKE. WILLIAM HOUSE, Syracuse, N. Y. Filed Apr. 4, 1903. Serial No. 151,018. (No model.)

Claim.—1. The combination, with the truck-frame, hangers connected to the said frame yieldingly to and from the car wheels and track, and the brake-rollers carried on said hangers, of lubricant-receptacles communicating with the axial bearings of said rollers.

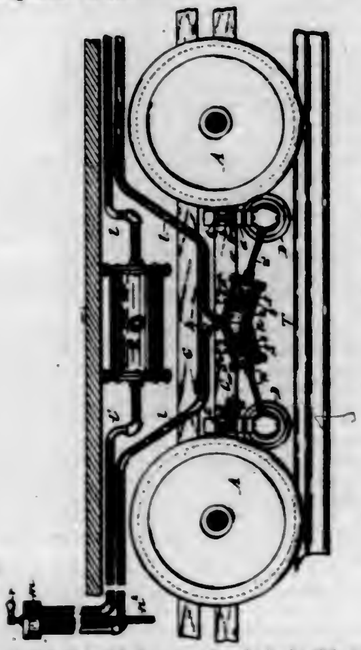
2. The combination, with the truck-frame, of a laterally-projecting shaft secured to said frame, the brake-roller hanger provided with a vertical slot receiving through it the said shaft, a collar fixed to said shaft, and an expansive cushion interposed between said collar and top of the hanger.

3. The combination, with the hanger and brake-roller, of an axial support passing through said roller and secured to the hanger, and a bushing embracing the axial support as set forth.

4. The combination, with the hanger and brake-roller, of an axial support passing through said roller, a bushing embracing said axial support, and lubricant-receptacles communicating with the bearings of the bushing as set forth.

5. The combination, with the hanger and brake-roller, of an axial support passing through said roller, bushings embracing the axial support and journaled in the hanger, and lubricant-receptacles attached to the hanger and communicating with the journal-bearings of the bushings as set forth.

6. The combination with the car-truck and the hanger bifurcated at its lower end and supported on the car-truck movably toward and from the track-rail and wheel, of an axle supported stationary in the bifurcation of the hanger and formed angular in cross-section and with a longitudinal channel in its top and lateral ducts leading from said channel, a bushing fastened to said axle and provided with radial ducts, the brake-roller mounted on said bushing, and lubricant-receptacles on the hanger communicating with the aforesaid longitudinal channel as set forth



7. The combination with the car truck and wheels, of the yieldingly-supported hanger bifurcated at its lower end, an axle supported in the bifurcation of the hanger and carrying the brake-roller, and lubricant-receptacles connected to the hanger and communicating with the journals of the brake-roller.

8. The combination with the car truck and wheels, of the yieldingly-supported hanger bifurcated at its lower end, an axle supported at its ends in the bifurcation of the hanger and formed with a longitudinal channel and with lateral ducts leading from the central portion of the said channel, the brake-roller journaled on said axle, and lubricant-receptacles connected to the hanger and communicating with the longitudinal channel of the axle.

9. The combination with the car truck and wheels, of the yieldingly-supported hanger bifurcated at its lower end, an axle supported stationary at its ends in the bifurcation of the hanger and formed with a longitudinal channel and lateral ducts leading from the central portion of said channel, a bushing fixed to said axle and provided with radial ducts coinciding with the aforesaid ducts, the brake-roller mounted on said bushing, and lubricant-receptacles connected to the hanger and communicating with the aforesaid channel as set forth.

10. The combination with the car truck and wheels, of the yieldingly-supported hanger bifurcated at its lower end, an axle sustained stationary in the bifurcation of the hanger and formed with a longitudinal channel and lateral ducts leading from said channel, a bushing fixed to said axle and provided with radial ducts, a sleeve embracing said bushing, and the brake-roller secured to said sleeve as set forth.

11. The combination with the car truck and wheels, of the vertically-movable hanger provided with a vertical cylinder above its support and closed at its upper end, a piston in said cylinder and secured to said support, the brake-roller carried on the lower end of the hanger, and means for forcing the hanger toward the track and wheel.

12. The combination with the car truck and wheels, of a laterally-projecting shaft secured to the truck-frame, the hanger provided with vertical slots receiving through them the said shaft, a vertical cylinder extending from the upper end of the hanger and closed at its upper end, a piston sustained in the cylinder above the slots of the hanger by the laterally-projecting shaft, the brake-roller carried on the lower end of the hanger, and means for forcing the hanger toward the track and wheel.

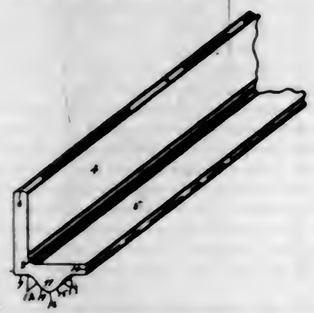
13. The combination with the truck-frame and the hangers movably supported on said frame and carrying the brake-rollers on their lower ends, of cylinders having pistons with their rods connected to the aforesaid hangers, and means for operating said pistons by air admitted and emitted into and from the cylinders.

14. The combination with the truck-frame and the hangers movably supported on said frame and carrying the brake-rollers on their lower ends, of cylinders having pistons with their rods connected to the hangers, a compressed-air reservoir, pipes leading from said reservoir to the cylinders, and a valve controlling the passages of air through said pipes.

15. The combination with the truck-frame, hangers pivotally supported on said frame, springs lifting the hangers, and brake-rollers carried on said hangers, of cylinders disposed in an inclined position toward the lower ends of the hangers, pistons in said cylinders having their rods connected to said ends of the hangers, a compressed-air reservoir, pipes leading from said reservoir to the cylinders, and a valve controlling the passages of air through said pipes as set forth.

16. The combination with the car-truck, the yieldingly-supported hanger, and the grooved brake-roller, of the axle of said roller provided with a circumferentially-enlarged bearing for the roller reducing correspondingly the distance of said bearing from the periphery of the roller as and for the purpose set forth.

748,736. **ANGLE-STEEL.** HENRY G. M. HOWARD, Kalamazoo, Mich. Filed Apr. 25, 1903. Serial No. 154,226. (No model.)



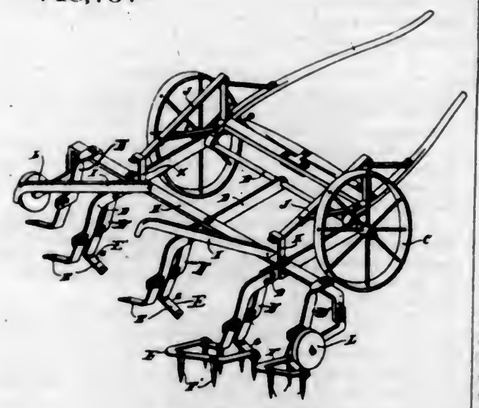
Claim.—1. As a new article of manufacture, metal bars consisting of the integral members at right angles in cross-section, one member being wider and thicker than the other, the narrowest and thinnest being provided on the under side with a rib integral therewith and of bulk corresponding with the difference between the two members, substantially as set forth.

2. As a new article of manufacture, metal bars consisting of the integral members at right angles in cross-section, one member being wider and thicker than the other, the thinnest and narrowest being provided with an integral rib on its under side of bulk corresponding to the difference between that of the members, the surface 12 and 13 being slightly concaved where it blends with its member, and having the side convex faces 14 and 15 joining the concaves and joining each other at the central ridge, substantially as set forth.

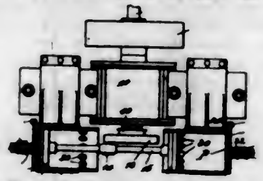
748,737. **COMBINED CULTIVATOR, WEEDER, AND FURROW-MAKER.** THOMAS J. RUSSELL, Los Angeles, Cal., assignor of three-elevenths to H. C. Harris and C. R. Horton, Los Angeles, Cal. Filed July 14, 1902. Serial No. 115,869. (No model.)

Claim.—In a cultivator, the combination with a plurality of standards and a steadying-bar secured to each standard, of auxiliary attachment-holding bars secured to the standards and to the steadying-bar, gage-wheels adjustably secured to the steadying-bar, weed-cutters detachably secured to the ends of the standards and attachment-holding bars, the gage-wheels on a line with the weed-cutters, handles secured to the steadying-bar and means for retaining the device out of operation.

748,737



748,738. **ENGINE-GOVERNOR.** EDWARD HUNTER, Templeton, Mass. Filed Sept. 6, 1902. Serial No. 122,450. (No model.)



Claim.—1. The combination, with a motor; of a vacuum-brake for supplying load to the motor inversely to its torque.

2. The combination, with a motor; of a vacuum-brake; and means for variably controlling the vacuum.

3. The combination, with a motor; a vacuum-cylinder; and a piston operative therein and operated by said motor; of means for variably controlling the vacuum.

4. The combination, with a motor; and a cylinder having a series of perforations leading from the inside to the outside thereof; of a member, having similar perforations; and means for shifting said member to regulate the registration of the perforations in the cylinder and said member.

5. The combination, with a motor; and a cylinder having a foraminous end wall; of a foraminous cover therefor; and means for shifting said member to regulate the registration of the perforations in the cylinder and said member.

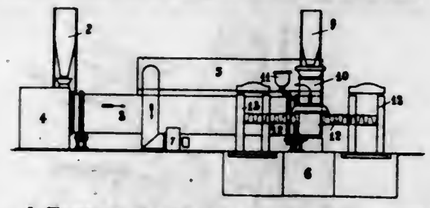
6. The combination, with a motor; and a cylinder having a foraminous end wall; of a rotatable disk, having perforations adapted to register with the perforations in said cylinder, and means for shifting said member to regulate the registration of the perforations in the cylinder and said member.

7. The combination, with a motor; and a cylinder having a foraminous end wall; of a rotatable disk, having perforations adapted to register with the perforations in said cylinder; and means for shifting said member to regulate the registration of the perforations in the cylinder and said member; and means for normally retaining said disk against the cylinder.

8. The combination, with a motor; and a cylinder having a foraminous end wall; of a rotatable disk, having perforations adapted to register with the perforations in said cylinder; means for shifting said disk to regulate the registration of the perforations in the cylinder and said disk; and a spring for normally retaining said disk against the cylinder.

748,739. **PROCESS OF MAKING BRIQUETS.** WILHELM HUPFELDAHL, Duisburg, Germany. Filed June 16, 1902. Serial No. 161,637. (No specimens.)

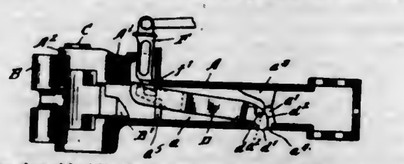
Claim.—1. The process of making briquets of fine ores, granulated ores or sand ores for use in the blast-furnace, consisting in mixing said ores with coke or charcoal reduced to the same size of corn as the ores; completely drying these materials in a drying apparatus where they are more intimately mixed and freed from humidity; raising the dried and mixed materials in hot state into a mixing-mill where liquefied tar is added thereto by blowing the tar by means of a steam-jet and twyers into the mixing-mill thereby finely surrounding each ore and coke particle with tar; after which the complete mixture of ore, carbon and tar is passed through a press in which it is molded into briquets of suitable size under heavy pressure; substantially as described and for the purpose set forth.



2. The process of making briquets of fine ores, granulated ores or sand ores for use in the blast-furnace, consisting in mixing sand ores with coke or charcoal reduced to the same size of corn as the ores; completely drying these materials in a drying apparatus where they are more intimately mixed and freed from humidity; raising the dried and mixed materials in hot state into a mixing-mill where liquefied tar is added thereto by blowing the tar by means of a steam-jet and twyers into the mixing-mill, thereby finely surrounding each ore and coke particle with tar; after which the complete mixture of ore, carbon and tar is passed through a press in which it is molded into briquets of suitable size under heavy pressure, then heating the molded briquets to a bright red heat and cooling them, substantially as described and for the purpose set forth.

748,740. **CAR-COUPLING.** WILLIAM L. JACOBY, Maywood, Ill., assignor to Latrobe Steel & Coupler Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Aug. 8, 1903. Serial No. 168,998. (No model.)

Claim.—1. In a car-coupler, the combination with a pivoted knuckle and forked draw-head, of a draw-bar having a chamber to receive a longitudinal pivotal locking-bar, and provided with a pivot-saddle and a curved guide-rib above the pivot-saddle, of a longitudinal pivotal locking-bar, having integral pivot-lugs fitting in the notches of the saddle and provided with a curved rear end and nose cooperating with the saddle and curved guide of the draw-bar to



keep the pivotal locking-bar in position and prevent its removal, except by two movements, one upward and the other outward, when the free end of the locking-bar is lifted and disconnected from its coupling-pin, and a coupling-pin removably attached to the free or outer end of the locking-bar, substantially as specified.

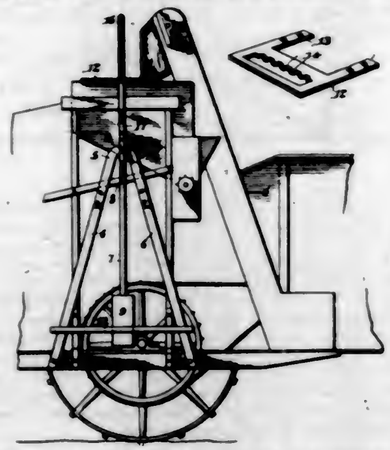
2. In a car-coupler, the combination with a pivoted knuckle and a forked draw-head, of a draw-bar, a pivotal locking-bar lying lengthwise in the chamber of the draw-bar and a coupling-pin detachably connected with the free end of the locking-bar, said draw-bar having an integral pivot-saddle for the rear end of the locking-bar and an integral guide above the pivot-saddle, and said locking-bar having integral pivot-lugs and a curved rear end cooperating with said guide, on the draw-bar to prevent removal except by two movements, substantially as specified.

3. The combination with a pivoted knuckle, and a forked draw-head and draw-bar, of a locking-bar pivoted in the chamber of the draw-bar at its rear end, a coupling-pin detachably connected with the free or outer end of the locking-bar, said draw-bar having an integral pivot-saddle furnished with pivot-notches, and provided with an integral guide-rib above the pivot-saddle, and said locking-bar having a pivot-lug at its rear end and a curved guide and nose, substantially as specified.

4. The combination with a pivoted knuckle, a forked draw-head and draw-bar, of a pivotal locking-bar extending lengthwise in the chamber of the draw-bar and provided with a chamber d^4 having an opening d^5, a slot d^6 and a coupling-pin F having a head or shoulder f and web f' to detachably connect the same with said locking-bar, said locking-bar having also pivot-lugs d d and a curved rear end or guide d^3, and said draw-bar having an integral pivot-saddle

a' and a curved guide-rib a^2 above said pivot-saddle, substantially as specified.

748,741. SELF-ADJUSTING GRAIN-SHOE. JOHN T. JARDINE, Paso Robles, Cal. Filed Dec. 6, 1902. Serial No. 134,124. (No model.)



Claim.—1. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor, said shoe and device having a common pivotal point, and means for adjustably connecting them, whereby the device may maintain the shoe at any predetermined inclination.

2. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor, said device and shoe having a common pivotal point, and means for adjustably interlocking the former to different points of the latter for automatically maintaining the shoe in any predetermined inclined position.

3. In a combined harvester and grain-separator, the combination with a tiltable shoe, pivoted at the bottom, of an automatically-operating device therefor embodying a pendulum depending below the shoe and fulcrumed independently of the same and in longitudinal alinement with the axis thereof and also adjustably connected with the shoe.

4. In a combined harvester and grain-separator, the combination with a tiltable shoe, of a pendulum fulcrumed independently of the shoe and in longitudinal alinement with the axis of the same and connected with the shoe above the pivotal point thereof.

5. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor embodying a pendulum having an adjustable connection with the shoe and fulcrumed independently thereof and in longitudinal alinement with the axis of the tiltable movement of the shoe.

6. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor embodying a pendulum fulcrumed independently of the cleaner, a rack carried transversely by the shoe, and means carried by the pendulum for adjustable engagement with the rack, whereby the shoe may be maintained in any predetermined relatively inclined position.

7. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor embodying a pendulum fulcrumed intermediately and independently of the shoe, a substantially horizontal rack carried by the shoe and disposed transversely thereof, and a projection carried by the upper end portion of the fulcrum for adjustable engagement with the rack.

8. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor embodying an intermediately-fulcrumed pendulum, a slotted bracket carried by the shoe and receiving the upper end of the pendulum, one side of the slot in the bracket being smooth and the other side being notched to form a rack, an upstanding spring-arm carried by the pendulum, one of these two members frictionally engaging the smooth edge of the slot, and a projection carried by the other member and disposed for adjustable engagement with the rack.

9. In a combined harvester and grain-separator, the combination with a tiltable shoe, and a rock-bar forming the pivotal support therefor, of a pendulum loosely fulcrumed upon the bar and having an adjustable connection with the shoe.

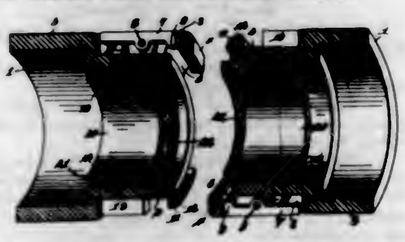
10. In a combined harvester and grain-separator the combination with a tiltable shoe and a rock-bar forming the tiltable support therefor, of a pendulum loosely fulcrumed intermediate of its ends upon the rock-bar, and an adjustable connection between the upper end portion of the pendulum and the shoe.

11. In a combined harvester and grain-separator, the combination with a tiltable shoe, of an automatically-operating device therefor embodying a pendulum loosely fulcrumed upon the shoe and also having an adjustable connection therewith.

12. In a combined harvester and grain-separator, the combination with a shoe, of an automatically-operating device therefor embodying a pendulum loosely fulcrumed upon the shoe, a rack carried by the shoe, and means carried by the pendulum for adjustable engagement with the rack.

13. In a combined harvester and grain-separator, the combination with the frame thereof, of a tiltable shoe, a rock-bar carried by the frame and forming the tiltable support for the shoe, one end of the rock-bar being projected beyond the frame, a support rising from the platform of the frame and receiving the projected end portion of the rock-bar, a pendulum loosely and intermediately fulcrumed upon the projected end portion of the rock-bar, a slotted guide carried by the support and receiving the lower end portion of the pendulum, a slotted bracket receiving the upper end portion of the pendulum, one edge of the slot in the bracket being notched to form a rack, a projection carried by the upper end portion of the pendulum for adjustable engagement with the rack, and an upstanding spring-arm carried by the pendulum and frictionally bearing against the opposite edge of the slot in the bracket.

748,742. HOSE-COUPLING. JEFFERSON JEFFREY, Newcastle, Pa. Filed Nov. 7, 1902. Serial No. 130,461. (No model.)



Claim.—1. In a hose-coupling, the combination with tubular bodies to be employed with their ends abutted, of a sleeve slidably mounted in one member and carrying a packing element in its outer end that is arranged to be projected across the joint between the members.

2. In a hose-coupling, the combination with tubular members to be coupled with their ends abutted, of sleeves fitted within the members, each sleeve being longitudinally and freely slidable within the members and either being movable into its member or capable of being projected across the joint between them and into the opposite member.

3. In a hose-coupling, the combination with tubular members to be coupled, of a sleeve slidably fitted in one member and arranged to bridge the joint between said members when coupled, said sleeve being freely movable and having an abutment portion against which the water strikes to move said sleeve.

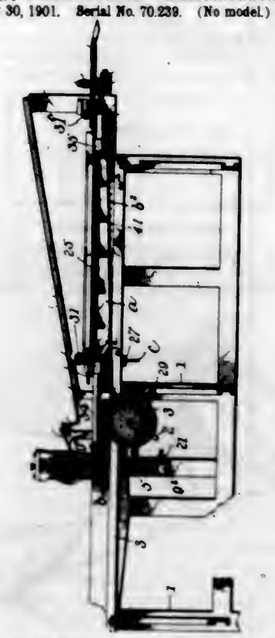
4. In a hose-coupling, a coupling member having an inturned rib, a collar extending over the rib, and a packing-sleeve carried by the collar and movable toward and from the rib, said sleeve constituting a stop to limit the movement of the collar.

5. In a hose-coupling, a coupling member having an inturned rib, a collar extending over the rib and having a flange located on one side of the same, and a packing-sleeve carried by the collar and located on the other side of the rib.

6. In a hose-coupling, a coupling member having an annular internal rib, a collar slidably fitted within the member and having an outturned flange at its inner end, said flange being located on one side of the rib, and a packing-sleeve secured to the outer end of the collar and located on the other side of the rib, said packing-sleeve and flange being spaced apart sufficiently to permit the sliding movement of the sleeve and collar.

7. In a hose-coupling, a coupling member having a longitudinally-disposed lug provided with a seat in its outer face and a recess in one edge, and a latch pivoted in the seat, said recess being constructed to receive the fulcrum of an operating-lever for the latch.

748,743. PRINTING-PRESS. CHARLES H. JOHNSON, Colony, Kans. Filed July 30, 1901. Serial No. 70,239. (No model.)



Claim.—1. In a printing-press, a frame, a type-bed having a depending rib, a rock-arm, a spring attached to the arm and to the frame, a roller on the rock-arm engaged by the rib whereby the arm is oscillated, an impression-roll means whereby the movement of the arm is communicated to the impression-roll and means for moving the type-bed on the frame.

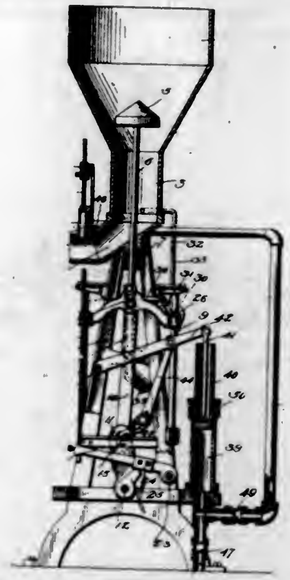
2. In a printing-press, a frame, a type-bed having a depending rib, a rock-arm, a spring attached to the arm and to the frame, a roller on the rock-arm engaged by the rib whereby the arm is oscillated, an impression-roll means whereby the movement of the arm is communicated to the impression-roll, arms on the type-bed, a drum, and flexible connections attached to the arms and wound on the drum.

748,744. CORN AND SYRUP FEEDER FOR CANNING FACTORIES. JOHN M. C. JOYNS, Gibson City, Ill. Filed Oct. 1, 1903. Serial No. 176,382. (No model.)

Claim.—1. In a corn and syrup feeder for canning factories, the combination with a suitable frame, of a hopper, feed cylinder and chute, supported upon said frame, a valve arranged to close the discharge end of said chute, means for intermittently opening and closing said valve, a piston, arranged to operate in said cylinder to force the contents thereof out through said chute, means for reciprocating said piston, and means for feeding syrup to the contents of said hopper as they are discharged from said chute, substantially as described.

2. In a machine of the character described, the combination with a suitable frame, of a hopper, feed cylinder and chute supported upon said frame, a valve arranged to close the discharge end of said chute, means for intermittently opening and closing said valve, a piston arranged to operate in said cylinder to force the contents thereof out through said chute, means for reciprocating said piston, and a pump adapted to discharge syrup in predetermined quantities onto the contents of said hopper as they are being discharged from said chute, substantially as described.

3. In a machine of the character described, the combination with a suitable frame, of a hopper, feed cylinder and chute supported upon said frame, a valve arranged to close the discharge end of said chute, means for intermittently opening and closing said valve, a piston arranged to operate in said cylinder to force the contents thereof out through said chute, means for reciprocating said piston, means for periodically admitting steam to said piston as the same begins its upstroke whereby the movement of said piston will be auxiliated, a pump adapted to discharge syrup in predetermined quantities onto the contents of said hopper as they are being discharged from said chute and means for regulating the quantity of syrup so discharged, substantially as described.



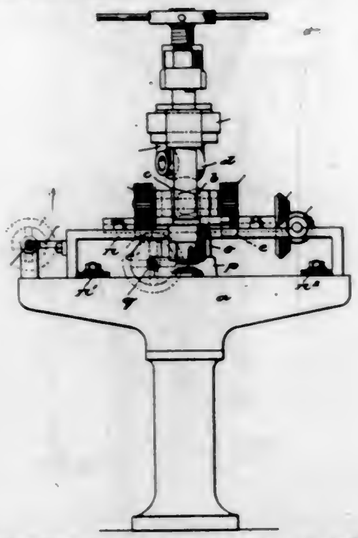
4. In a machine of the character described, the combination with a suitable frame, of a hopper, feed-cylinder and chute, supported upon said frame, a valve arranged to close the discharge end of said chute, means for intermittently opening and closing said valve, a piston, arranged to operate in said cylinder to force the contents thereof out through said chute, a piston-rod fixed at its upper end to said piston, a cross-head connected to the lower end of said piston-rod, a driven shaft journaled in said frame, a crank-arm fixed to said shaft, a pitman-rod having one end connected to said cross-head and its opposite end having a slotted engagement with said crank-arm, a drive-shaft geared to said driven shaft to operate the same, a pump adapted to discharge syrup onto the contents of said hopper, as they pass through said chute, means for operating the piston of said pump and means for regulating the stroke of the same whereby more or less syrup may be discharged by the pump, substantially as described.

5. In a machine of the character described, the combination with a suitable frame, of a hopper, feed cylinder and chute supported by said frame, a sliding valve arranged to open and close the discharge end of said chute, a valve-stem fixed to said valve, an operating-rod connected at its upper end to said stem, an arm pivotally connected at one end to said frame and having its opposite end connected to said operating-rod, a block adjustably mounted on said arm, a driven shaft suitably journaled in said frame, a cam fixed to said shaft and adapted to engage said block and thereby open said valve, a piston arranged to operate in said feed-cylinder, means for operating said piston, and means for periodically supplying syrup in predetermined quantities to the contents of said feed-cylinder and hopper as the same are being discharged through the feed-chute, substantially as described.

748,745. MACHINE FOR DRESSING SOLID OR HOLLOW BARS, RODS, &c. FRANÇOIS JOSSERAND and CHARLES A. M. JACQUET, Paris, France. Filed Dec. 23, 1902. Serial No. 136,381. (No model.)

Claim.—1. In a machine for dressing cylindrical bodies, the combination of two conical rollers in proximity to one another and tapering in opposite directions, the axes of said rollers being arranged in planes parallel to each other and to the work, of a concave roller bearing against the work and pressing it against said conical rollers, and means for adjusting said concave roller toward the work and transversely thereto.

2. In a machine of the kind described, two conical rollers arranged in proximity to one another and tapering in opposite directions, the axes of said rollers being arranged parallel to each other and to the work, and gear connections between said axes and a source of power, a concave roller bearing against the work to press it against said conical rollers and arranged in a helicoidal line to said work, an adjustable support for the compression-roller, a supporting-frame carrying the above mechanism, means for adjusting the position of said frame horizontally and means for clamping the frame in its adjusted position.



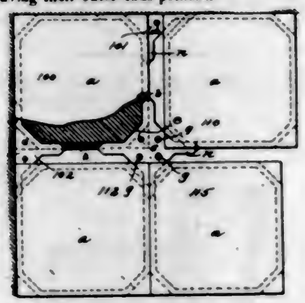
3. In a machine of the kind described, two conical rollers arranged in proximity to one another and symmetrically tapering in opposite directions, toothed wheels mounted on the shafts carrying said rollers, driving-pinions meshing with said toothed wheels and mounted on a shaft connected with a suitable source of power, a concave compression-roller arranged above the conical rollers so that the line formed by the contact of this roller with the work is helicoidal in form, an adjustable support for the compression-roller, a supporting-frame carrying the above mechanism above mentioned, means for varying the horizontal position of said frame and a clamping device for securing the support in position when adjusted.

4. In a machine of the kind described, two conical rollers arranged in proximity to one another and symmetrically tapering in opposite directions, toothed wheels mounted on the shafts carrying said rollers, driving-pinions meshing with said toothed wheels and mounted on a suitably-arranged shaft, a bevel-wheel mounted on said shaft and meshing with a pinion mounted on a third shaft and connected with a suitable source of power, a concave compression-roller arranged above the conical rollers so that the line formed by the contact of this roller with the work is helicoidal in form, an adjustable support for the compression-roller, a supporting-frame carrying the mechanism above mentioned, a toothed sector secured to said adjustable support, an endless screw meshing with said sector to vary the horizontal position of said frame, and a clamping device for securing the support in position when adjusted.

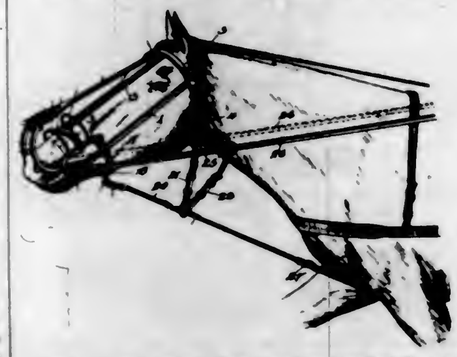
748,746. **FASTENING MEANS FOR PARQUET FLOORS, PANELING, OR THE LIKE.** WILLIS S. KELSEY, Meriden, Conn., assignor of one-half to Henry L. Morehouse. Filed Apr. 10, 1903. Serial No. 151,997. (No model.)

Claim.—1. The combination with the blocks, said blocks having grooves in their edges thereby forming upper and lower ledges, the lower ledges at the corners being cut away, and the grooves at these points lying parallel therewith, of a fastening-plate having inclined sides received in the grooves and engaging the inclined portions thereof adjacent the corners of the blocks and being provided with projections extending into the grooves formed in the sides of the blocks.

2. A fastening means for blocks in a device of the type set forth comprising an approximately rectangular plate formed with apertures and an outward projection at each corner of said plate, said projections having their outer ends pointed.



748,747. **HEAD-CONTROLLER FOR HORSES.** BENJAMIN W. KINDIG, Jr., York, Pa., assignor of one-half to Thomas I. Welsh, York Pa. Filed Sept. 30, 1902. Serial No. 126,602. (No model.)



Claim.—1. In a device of the character described, the combination with a frame, and means for securing the same to a horse's head, of an overdraw and a martingale secured to the opposite ends of said frame to resist the movement of the horse's head in opposite directions.

2. In a device of the character described, the combination with a frame, and means for securing the same to the head of a horse, of an overdraw attached to one end of the frame, and a combined jaw and line martingale attached to the opposite end of said frame.

3. In a device of the character described, the combination with a frame, of a nose-strap, a chin-strap, a jaw-strap and an overdraw all attached to said frame, and a martingale attached to the jaw-strap.

4. In a device of the character described, the combination with a frame, of a nose-strap, a chin-strap, a jaw-strap and an overdraw all attached to said frame, and a combined jaw and line martingale attached to the jaw-strap.

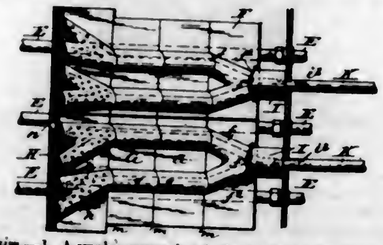
5. In a device of the character described, the combination with a rigid frame comprising side bars having upwardly-extended front ends, and transverse arches connecting the bars, of a chin-strap, a jaw-strap and a nose-strap all connected to the frame, a face-strap connected to the nose-strap, an overdraw attached to the upwardly-extended ends of the side bars, and a martingale secured to the jaw-strap.

6. In racing-harness, the combination with a rigid frame comprising side bars extending longitudinally of the animal's head at opposite sides thereof and having upwardly and rearwardly extending front ends, of a jaw-strap and a chin-strap extended under the animal's head and secured to the side bars of the frame, a nose-strap connecting the side bars at a point between the jaw and chin straps and passing over the animal's nose, an overdraw connected to the upwardly and rearwardly extended ends of the side bars, and a martingale connected to the jaw-strap.

7. In racing-harness, the combination with a rigid frame comprising side bars extending longitudinally of the animal's head at opposite sides thereof and having upwardly and rearwardly extending front ends, of arches between the side bars of the frame to retain the latter in properly-spaced relation, a jaw-strap and a chin-strap extended under the animal's head and secured to the side bars of the frame, a nose-strap connecting the side bars at a point between the jaw and chin straps and passing over the animal's nose, an overdraw connected to the upwardly and rearwardly extended ends of the side bars, and a martingale connected to the jaw-strap.

8. In racing-harness, the combination with a rigid frame comprising side bars extending longitudinally of the animal's head at opposite sides thereof, of a jaw-strap and a chin-strap extended under the animal's head and secured to the side bars of the frame, a nose-strap connecting the side bars at a point between the jaw and chin straps, and passing over the animal's nose, an overdraw connected to the front ends of the side bars, and a martingale connected to the jaw-strap.

748,748. **LOCOMOTIVE OR OTHER BOILER FURNACE.** ALBERT F. KINSLEY, Washington, D. C. Filed Apr. 26, 1901. Serial No. 57,608. (No model.)



Claim.—1. A smoke-consuming device for boiler-furnaces comprising a fire-clay arch interposed between the flue-sheet and the grate-surface of the fire-box, said arch being solid and continuous on its under face throughout the width of the fire-box and provided with internal air-conduits which discharge through openings formed in the top face of the arch near the rear end of the latter, and being separated from the flue-sheet by an open space bridged by tubular spacing-blocks which open at one end into the conduits in the fire-clay arch, and at the other end into certain of the flues into and through which air is supplied by injectors, as hereinbefore shown and described.

2. In combination with the fire-box, the flues and the water-bars, the sectional fire-clay arch composed of the slabs F, G, H, constructed, arranged and fitted together and formed with air-conduits and top discharge-openings as described, the supporting-bricks J for the slabs F, the tubular spacing-blocks I, and the described means for supplying air under pressure thereto, as and for the purposes hereinbefore set forth.

748,749. **ELECTRICAL SYSTEM OF HEATING.** EDWARD H. KITFIELD, Swampscott, Mass. Filed Oct. 26, 1903. Serial No. 178,493. (No model.)

Claim.—1. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, a thermostatic circuit-controller, a solenoid in circuit with said heater, and a circuit-controller operated by said solenoid, substantially as described.

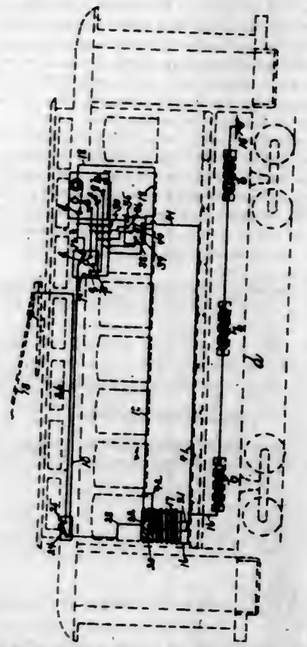
2. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, a thermostat controlling said circuit, and an electromagnet in said circuit and controlling a shunt-circuit around said thermostat, substantially as described.

3. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, a thermostat controlling said circuit, and an electromagnet in said circuit and controlling a shunt-circuit around said thermostat, and a shunt-circuit for said electromagnet controlled by said thermostat, substantially as described.

4. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, a thermostat controlling said circuit, an electromagnet in said circuit and controlling a shunt-circuit around said thermostat, and temperature-selective switches governing the circuit of said heater, substantially as described.

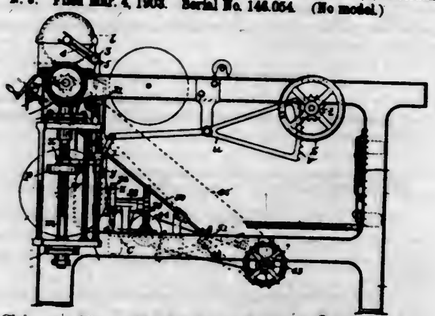
5. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, a thermostat controlling said circuit, and means for maintaining the circuit of said heaters when said circuit is open at the said thermostat, substantially as described.

6. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, and a thermostat controlling said circuit to cut out said heater when the temperature reaches a predetermined point and to include said heater in circuit when the temperature falls to a predetermined point, substantially as described.



7. In an electrical system of heating, in combination, a heater, a circuit in which said heater is included, and a thermostat controlling said circuit to cut out said heater when the temperature reaches a predetermined point and to include said heater in circuit when the temperature falls to a predetermined point, and a translating device to maintain the circuit of the heater when the said circuit is opened by the thermostat, substantially as described.

748,750. **WINDING-MACHINE.** CHARLES H. KNAPP, Paterson, N. J. Filed Mar. 4, 1903. Serial No. 146,054. (No model.)



Claim.—1. The combination of a frame, the device or devices on which the material is wound, a face-plate, a rotary shaft, power-transmitting mechanism operatively connecting the shaft and said device or devices, a friction-disk splined on the shaft and adapted to be engaged by the face-plate, a rotary toothed part, a lever having a segmental toothed portion engaging said toothed part, and operative connecting mechanism between the lever and the friction-disk, substantially as described.

2. The combination of a frame, the device or devices on which the material is wound, a face-plate, a rotary shaft, power-transmitting mechanism operatively connecting the shaft and said device or devices, a friction-disk splined on the shaft and adapted to be engaged by the face-plate, a rotary toothed part, a lever having a segmental toothed portion engaging said toothed part, a fork engaging the friction-disk, a guiding part penetrating a portion of the fork,

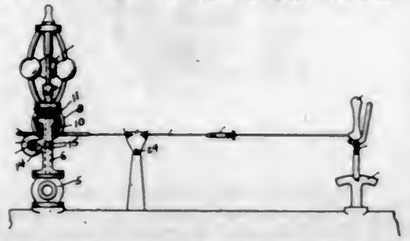
and operative connecting means between said lever and the fork, substantially as described.

3. The combination of a frame, for the device or devices on which the material is wound, an axial support therefor, a longitudinally-movable shaft guided in said frame, a longitudinally-movable mandrel also guided in the frame, means connecting the shaft and the mandrel for transmitting from the one to the other longitudinal movement, and a spring-actuated arm arranged on said shaft and coactive with said mandrel for sustaining the axial support of said device or devices, substantially as described.

4. The combination of a frame, for the device or devices on which the material is wound, an axial support therefor, a longitudinally-movable shaft guided in said frame, a longitudinally-movable mandrel also guided in the frame, means connecting the shaft and the mandrel for transmitting from the one to the other longitudinal movement, and means, carried by said shaft and coacting with the mandrel, for sustaining the axial support of said device or devices, substantially as described.

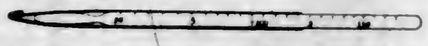
5. The combination of a frame, the device or devices on which the material is wound, a traversable support for said device or devices guided in the frame, a lever engaging said support, means for actuating the lever, a slotted stand carried by the frame, a block arranged to move in the slot, said lever having a fulcrum in the block, and a rotary threaded shaft engaging the block, substantially as described.

748,751. GOVERNOR-REGULATOR. CHARLES J. KOCH, Bigstone, S. D. Filed May 8, 1903. Serial No. 156,233. (No model.)



Claim.—In combination with a governor mechanism, including a shaft and means connected therewith for varying the resistance of the mechanism to the centrifugal force, of a pinion carried by the shaft, a rack-bar engaged with the pinion, a hand-lever, a notched segment, a latch carried by the lever for engagement with the segment and a connection between the rack-bar and the hand-lever, consisting of a rocker, a rod connecting the rack-bar with the rocker, a second rod connected to the rocker, a third rod connected to the hand-lever, and an adjusting-turnbuckle engaged with the free ends of the second and third rod.

748,752. SHIELD FOR CLINICAL THERMOMETERS. EUGENE O. KORNEMAN, Eldora, Iowa. Filed Feb. 16, 1903. Serial No. 143,623. (No model.)



Claim.—1. The combination of a clinical thermometer and a paper shield carried temporarily thereon and containing such thermometer when in use, which paper shield possesses antiseptic characteristics.

2. The combination of a clinical thermometer and an antiseptic shield temporarily mounted thereon while in use.

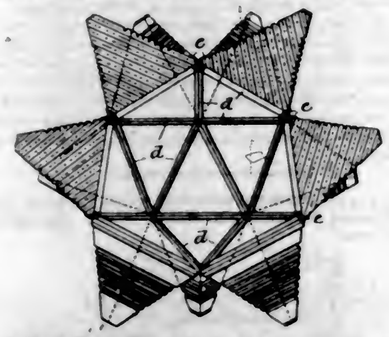
3. The combination of a clinical thermometer and a shield formed with an open end and a closed end and a notch in the open end, which shield is temporarily mounted on said thermometer while the latter is in use.

748,753. ILLUMINATING-BODY. MAX KORFF, Hanau, Germany. Filed July 3, 1903. Serial No. 164,752. (No model.)

Claim.—1. In an illuminating-body, the combination with a faceted metal frame, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having certain of their surfaces provided with splits or grooves, substantially as described.

2. In an illuminating-body, the combination with a faceted metal frame, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having their surfaces provided with cut splits or grooves, substantially as described.

3. In an illuminating-body, the combination with a faceted metal frame, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves and reflecting-faces or mirrors on certain of their surfaces, substantially as described.



4. In an illuminating-body the combination with a faceted metal frame of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves and reflecting-faces or mirrors on certain of their surfaces, and being provided with apertures of suitable cross-section substantially as described.

5. In an illuminating-body, the combination with a faceted metal frame, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves on certain of their surfaces and being provided with apertures of suitable cross-section substantially as described.

6. In an illuminating-body, the combination with a faceted metal frame having cross-bars, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves on certain of their surfaces and being provided with flanges adapted to be engaged and held by said cross-bars substantially as described.

7. In an illuminating-body, the combination with a faceted metal frame having cross-bars, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves and reflecting-faces or mirrors on certain of their surfaces, and flanges adjacent their bases adapted to be engaged and held by said cross-bars substantially as described.

8. In an illuminating-body the combination with a faceted metal frame having cross-bars carrying reflecting-faces or mirrors on their inner surfaces, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves on certain of their surfaces, and flanges adjacent their bases adapted to be engaged and held by said cross-bars substantially as described.

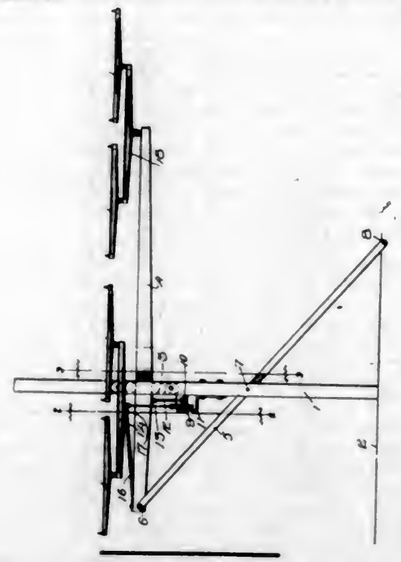
9. In an illuminating-body the combination with a faceted metal frame having cross-bars carrying reflecting-faces or mirrors on their inner surfaces, of glass prisms or pyramids inserted into said frame, said prisms or pyramids having splits or grooves on certain of their surfaces and being provided with apertures of suitable cross-section and with flanges adjacent their bases adapted to be engaged and held by the cross-bars aforesaid, substantially as described.

748,754. EVENER FOR REAPERS. LOUIS KAAUM, near Gypsum, Kans. Filed June 20, 1903. Serial No. 163,569. (No model.)

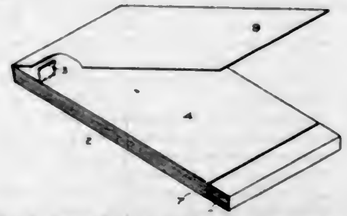
Claim.—1. The combination of an evener-bar, a tree attached to the outer end thereof, a tree disposed near the opposite end thereof and connected thereto, a flexible connecting element, between the last-mentioned tree and the evener-bar, and a direction element for said flexible connecting element in rear of the evener-bar, substantially as described.

2. The combination of a tongue, a brace disposed obliquely with reference thereto, an evener-bar having its shorter end pivotally connected to the said brace, a draft element at the outer longer end of the evener-bar, a draft element near the inner end thereof, a link connecting the last-mentioned draft element to the evener-bar, a flexible element connecting the last-mentioned draft element to the evener-bar, and a direction element in rear of the evener-bar for said flexible connecting element.

3. The combination of a tongue, a brace-bar disposed obliquely with reference thereto and extending beyond the inner side thereof, an evener-bar having its inner end pivotally connected to said brace-bar, revoluble drum elements of unequal diameter, bearings and supports therefor, in rear of the evener-bar, and draft element, a link connecting the latter to the inner end of the evener-bar, and flexible elements connecting the latter and the draft element to the revoluble drum elements and reversely wound on the latter, substantially as described.



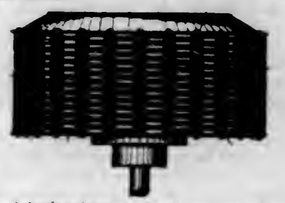
748,755. MANIFOLDING SALES-BOOK. WILLIAM M. KUDOR, Minneapolis, Minn. Filed Nov. 6, 1903. Serial No. 180,019. (No model.)



Claim.—1. A sales-book comprising a backing-sheet, a series of sales-slips bound together and to one end of said backing-sheet, a block secured at the opposite end of said backing-sheet, a carbon-sheet supported at one end in connection with said block, and a flexible cover secured at one end underneath said block and passing over said block and underneath said backing-sheet, the opposite end of said flexible cover being secured to said backing-sheet at the binding edge of said sales-slips, and extending over said sales-slips to form a loose flap.

2. A sales-book comprising a cover supporting at one end a block and carbon-sheet, and at its opposite end a series of sales-slips, said cover being secured underneath said block, and passing around said block and underneath the sales-slips, and being secured underneath the binding edge of the sales-slips and extending over the same to form a loose flap.

748,756. BASKET FOR CENTRIFUGAL MACHINES. EDMUND C. KOCHENHERTER, Zittau, Germany. Filed Mar. 5, 1903. Serial No. 146,583. (No model.)

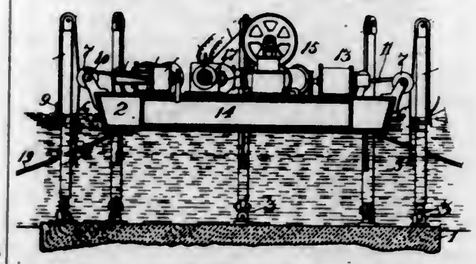


Claim.—1. A basket for centrifugal separators, having in combination a series of horizontal rings of wire, the wire of each ring being bent upon itself to form a plurality of outwardly-projecting loops or eyes, and being bent in opposite directions in forming adjacent loops, and metal rods extending through the alined loops in the series of rings.

2. A basket for centrifugal separators, having in combination a series of vertical rods, and a series of rings of wire arranged one above the other and each extending about all of said vertical rods, the wire of each ring being bent upon itself adjacent each rod to form a plurality of loops about said rod.

3. A basket for centrifugal separators, having in combination a series of vertical rods, and a series of rings of wire arranged one above the other and each extending about all of said vertical rods, the wire of each ring being bent upon itself to form a plurality of loops, each surrounding one of said rods, and so arranged that the sections of wire connecting adjacent loops extend at right angles to the length of the said rods.

748,757. WAVE-MOTOR. JOHN A. LANGSTROTH, Oakland, Cal. Filed Mar. 5, 1903. Serial No. 146,261. (No model.)



Claim.—1. A wave-motor comprising a float, drums mounted thereon, cables around said drums for rotating the same, rods secured against vertical movement but free to move in all directions horizontally and extending upward by the sides of the drums, said cables being secured to said rods, whereby the movement of the drums relative to said rods rotates said drums, and means for transmitting the power imparted to said drums, substantially as described.

2. A wave-motor comprising a float, rods adjacent to said float secured against vertical movement but free to move in all directions horizontally, means carried by said float for generating power, and an operative connection between said rods and said means whereby the movement of the float relative to the rods operates said means, substantially as described.

3. A wave-motor comprising a float, a series of vertical rods surrounding said float, secured against vertical movement but free to move in all directions horizontally, a corresponding series of air-compressors carried by said float, a connection between said air-compressors and rods whereby the vertical movement of the float operates said air-compressors, and a reservoir for the compressed air, substantially as described.

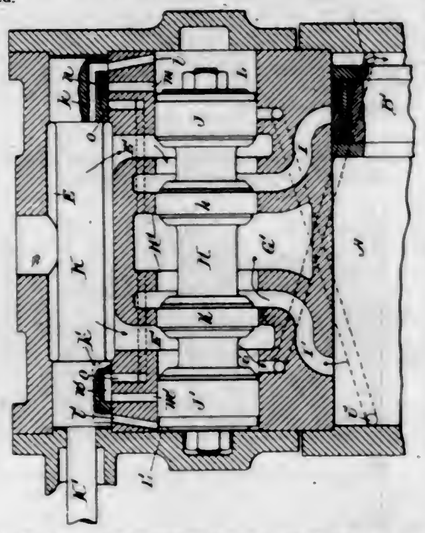
4. A wave-motor comprising a float, a series of vertical rods secured adjacent to said float against vertical movement, but free to move in all directions horizontally, cables secured to said rods, a series of rotary devices carried by said float and engaged by said cables to transmit movement thereto, and means for collecting the power generated in said rotary devices, substantially as described.

748,758. PUMPING-ENGINE. GEORGE DE LAVAL, Cambridge, and GEORGE P. ADGER, Boston, Mass., assignors to International Steam Pump Company, New York, N. Y., a Corporation of New Jersey. Filed July 12, 1902. Serial No. 115,301. (No model.)

Claim.—1. In a direct-acting pumping-engine, the combination with a cylinder and a motor-piston therein, of a cylindrical valve-casing, exhaust and supply passages opening into said valve-casing, a piston-valve having piston-rings fitting said casing and forming annular spaces between the rings communicating with the supply and exhaust passages respectively, main ports arranged to be alternately brought into communication with the supply and exhaust passages by the piston-rings as the valve reciprocates, and starting-ports arranged to be alternately brought into and cut off from communication with the supply-passages by the piston-rings as the valve reciprocates, substantially as described.

2. In a direct-acting pumping-engine, the combination with a cylinder and a motor-piston therein, of a cylindrical valve-casing, exhaust and supply passages opening into said valve-casing, a piston-

valve having piston-rings fitting said casing and forming annular spaces between the rings communicating with the supply and exhaust passages respectively, main ports arranged to be alternately brought into communication with the supply and exhaust passages by the piston-rings as the valve reciprocates, starting-ports arranged to be alternately brought into and cut off from communication with the supply-passages by the piston-rings as the valve reciprocates, and an auxiliary valve operated from the motor-piston for distributing the motor fluid to reciprocate the piston-valve, substantially as described.



3. In a direct-acting pumping-engine, the combination with a cylinder and a motor-piston therein, of a cylindrical valve-casing, exhaust and supply passages opening into said valve-casing, a piston-valve having piston-rings fitting said casing and forming annular spaces between the rings communicating with the supply and exhaust passages respectively, main ports arranged to be alternately brought into communication with the supply and exhaust passages by the piston-rings as the valve reciprocates, starting-ports arranged to be alternately brought into and cut off from communication with the supply-passages by the piston-rings as the valve reciprocates, and an auxiliary valve parallel to the piston-valve for distributing the motor fluid to reciprocate said piston-valve, substantially as described.

4. In a direct-acting pumping-engine, the combination with a cylinder and a motor-piston therein, of a cylindrical valve-casing, exhaust and supply passages opening into said valve-casing, a piston-valve having piston-rings fitting said casing and forming annular spaces between the rings communicating with the supply and exhaust passages respectively, main ports arranged to be alternately brought into communication with the supply and exhaust passages by the piston-rings as the valve reciprocates, starting-ports arranged to be alternately brought into and cut off from communication with the supply-passages by the piston-rings as the valve reciprocates, an oscillating auxiliary valve for distributing the motor fluid to reciprocate said piston-valve, and connections between said oscillating valve and the motor-piston, substantially as described.

5. In a direct-acting pumping-engine, the combination with a cylinder and a motor-piston therein, of a cylindrical valve-casing exhaust and supply passages opening into said valve-casing, a piston-valve having piston-rings fitting said casing and forming annular spaces between the rings communicating with the supply and exhaust passages respectively, main ports arranged to be alternately brought into communication with the supply and exhaust passages by the piston-rings as the valve reciprocates, starting-ports arranged to be alternately brought into and cut off from communication with the supply-passages by the piston-rings as the valve reciprocates, and means for controlling the shifting of the piston-valve as the motor-piston reaches the end of its stroke, substantially as described.

6. In a direct-acting pumping-engine, the combination with a cylinder, and a motor-piston therein, of a piston-valve, a valve-casing therefor, main ports leading from said valve-casing to the cylinder, supply and exhaust passages for the motor fluid leading from said valve-casing on opposite sides of said main ports, starting-ports leading from said valve-casing to the cylinder and rings on said piston-valve for opening and closing communication between said main ports and supply and exhaust passages and for opening and closing said starting-ports to the supply-passages, substantially as described.

7. In a direct-acting pumping-engine, the combination with a cylinder, and a motor-piston therein, of a piston-valve, a valve-casing therefor, main ports leading from said casing to the cylinder, an exhaust-passage leading from said casing between said ports, supply-passages leading to said casing outside of said ports, starting-ports leading to the cylinder from said casing outside of said supply-passages, and rings on said piston-valve for opening and closing communication between said main ports and the supply and exhaust passages, and for opening and closing said starting-ports to the supply-passages, substantially as described.

8. In a direct-acting pumping-engine the combination with a cylinder, and a motor-piston therein, of a chest provided with a supply-chamber E having branches E', and an exhaust-chamber G having a branch G', ports I, I' between said branches, a piston-valve having rings *h*, *h'* and J, J', starting-ports *i*, *i'*, chambers L, L' outside the rings J, J', ports *l*, *l'* *m*, *m'* and *o*, *o'*, an auxiliary valve K having ports *k*, *k'* and *n*, *n'*, and means for rocking the valve K as the motor-piston reaches the end of its stroke, substantially as described.

9. In a direct-acting pumping-engine the combination with a cylinder, and a motor-piston therein, of main supply and exhaust ports, starting-ports, a piston-valve having rings for controlling the distribution of the motor fluid through the main ports and the admission of the motor fluid to the starting-ports, chambers at the ends of the piston-valve, auxiliary-valve chambers parallel with said chambers, ports leading directly from the auxiliary-valve chambers to the piston-valve chambers, and an auxiliary valve in said auxiliary-valve chambers for controlling the distribution of the motor fluid to the piston-valve chambers, substantially as described.

10. In a direct-acting pumping-engine, the combination with a cylinder, and a motor-piston therein, of main ports leading to the cylinder, supply and exhaust passages on opposite sides of said ports, a piston-valve having rings for opening and closing communication between said main ports and supply and exhaust passages, starting-ports leading to said cylinder, and rings on said piston-valve for opening and closing said starting-ports to said supply-passages, substantially as described.

11. In a direct-acting pumping-engine, the combination with a cylinder, and a motor-piston therein, of main ports leading to the cylinder, supply and exhaust passages on opposite sides of said ports, a piston-valve having rings for opening and closing communication between said ports and the supply and exhaust passages, starting-ports leading to said cylinder, piston-rings on said piston-valve for opening and closing said starting-ports to the supply-passages, chambers in which said piston-rings work, and a valve for controlling the supply and exhaust of motor fluid to said chambers to operate said piston-valve, substantially as described.

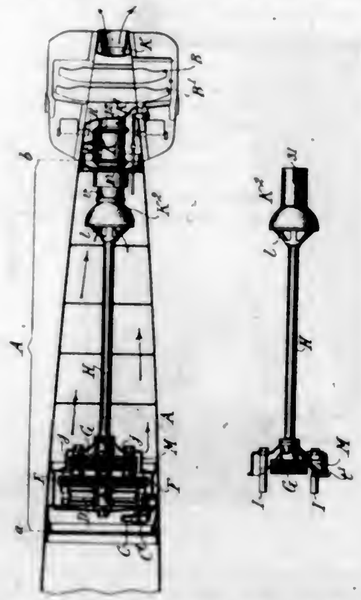
12. In a direct-acting pumping-engine, the combination with a cylinder, and a motor-piston therein, of main ports I I' leading to the cylinder, supply and exhaust passages on opposite sides of said ports, a piston-valve H having rings *h*, *h'* so arranged that the ring *h* opens the communication between the supply-passage and port I and closes communication between the exhaust-passage and port I when the ring *h'* opens communication between the exhaust-passage and port I' and closes communication between the supply-passage and port I', starting-ports *i*, *i'* arranged outside port I' and I respectively and leading to the opposite ends of the cylinder, and rings J on the piston-valve arranged to open and close communication between said starting-ports and the supply-passages, substantially as described.

748,759. **AUTOMOBILE TORPEDO.** FRANK M. LEAVITT, Brooklyn, N. Y., assignor to H. W. Bliss Company, Brooklyn, N. Y., a Corporation of West Virginia. Filed Oct. 6, 1902. Serial No. 126,067. (No model.)

Claim.—1. A torpedo comprising a compressed-air reservoir, a reducing-valve, a turbine-motor, and a screw, with an outflow-conduit from said reservoir through said valve to the inlet-nozzle of said turbine, and means for communicating rotation from said turbine to said screw.

2. A torpedo comprising a compressed-air reservoir, a reducing-valve, a turbine-motor, and axial twin screws arranged tandem, with an outflow-conduit from said reservoir through said valve to the inlet-nozzle of said turbine, and reducing-gearing interposed between said turbine and screws for driving the screws in opposite directions.

3. A fluid-pressure-propelled torpedo having a turbine-motor for driving its screw, and interposed gearing symmetrically arranged to equalize the thrust or torque imparted by the turbine.



4. A fluid-pressure-propelled torpedo having a turbine-motor turning on an axis longitudinally of the torpedo, and reducing-gears turning on axes parallel therewith and arranged symmetrically for communicating its rotation to the screw-shaft.

5. A fluid-pressure-propelled torpedo having a turbine-motor turning on an axis longitudinally of the torpedo, a pinion fixed to said turbine, reducing-gears meshing therewith and turning on axes parallel to said axis and having pinions fixed to them, an axial screw-shaft, and a gear-wheel thereon meshing with said pinions, said reducing-gears being disposed symmetrically around the central axis.

6. A fluid-pressure-propelled torpedo having a turbine-motor for driving its screw, and bearing-frames for the turbine and screw-shaft adapted to be entered within the torpedo-shell and to be fastened to strengthening-rings therein.

7. A fluid-pressure-propelled torpedo having a turbine-motor turning on an axis longitudinally of the torpedo and connected to drive its screw, a central screw-shaft, a bearing for the after end thereof, a bearing frame or bracket for the forward end thereof, studs carried by said frame, and reducing-gears turning on said studs for communicating the rotation of the turbine to said shaft, whereby said gears, shaft and frame may be simultaneously entered into the torpedo-shell.

8. In a torpedo having a turbine-motor and a central screw-shaft, a frame carrying parallel studs, reducing-gears and pinions turning on said studs, a central stud connected at one end to said frame on which turns the turbine, and a disk supporting the other end of said stud and fastened within the torpedo-shell.

9. In a torpedo having a turbine-motor and a central screw-shaft, a frame M having a central bearing for said screw-shaft, studs I I supported by said frame, a second frame supporting the opposite ends of said studs, and reducing-gears turning on said studs.

10. In a torpedo having a turbine-motor and a central screw-shaft, a frame M having a central bearing for said screw-shaft, studs I I supported by said frame, a second frame P, a central stud E carried by said frame, reducing-gears turning on the studs I I, and a turbine turning on the stud E.

11. In a torpedo having a turbine-motor and a central screw-shaft, studs I I, reducing-gears turning thereon, and a frame P having yokes engaging said studs and having ties uniting said yokes.

12. In a torpedo having a turbine-motor and a central screw-shaft, studs I I, reducing-gears turning thereon, a central stud E on which the turbine turns, and a frame P having a central hub for supporting said stud E and yokes for supporting said studs I I.

13. In a torpedo having a turbine-motor, studs I I, reducing-gears turning thereon, and a frame connecting said studs having yokes engaging the studs and means for clamping said yokes to the studs.

14. In a torpedo having a turbine-motor and a central screw-shaft, the combination of the torpedo-shell A, rings *r q* therein, frame M fitting into said ring *r* and forming a bearing for the screw-shaft, and disk Q fitting into said ring *q* and supporting a stud on which the turbine turns.

15. In a torpedo having a turbine-motor, the combination of the shell A, a ring *q* therein, a disk Q fastened to said ring *q*, means for supporting the turbine aft of said disk, and means for admitting fluid-pressure through said disk to drive the turbine.

16. In a torpedo having a turbine-motor, the combination of the torpedo-shell A, a partition dividing it, the turbine located aft of said partition, and means for supporting the turbine whereby the torpedo-shell aft of said partition serves as a chamber for the turbine, the turbine being arranged to exhaust into said chamber.

17. A torpedo having a turbine-motor exhausting into the hollow hull of the torpedo, and a discharge-passage for conveying the exhaust therefrom to the tail of the torpedo.

18. A torpedo having a turbine-motor, and a self-closing valve through which the exhaust from the turbine escapes from the torpedo adapted to prevent entrance of water into the torpedo.

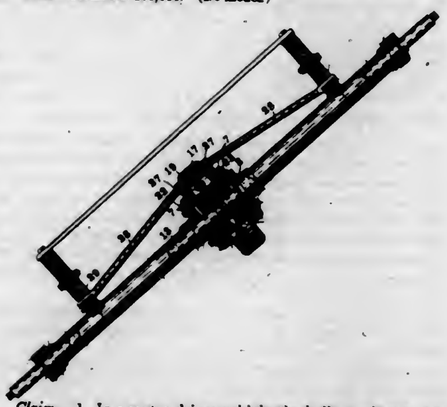
19. A torpedo having a turbine-motor exhausting into the hollow hull of the torpedo, a discharge-passage for conveying the exhaust therefrom through the tail of the torpedo, and a self-closing valve in said passage.

20. A torpedo having a turbine-motor and a central tubular screw-shaft, the latter arranged to serve as a discharge-passage for the exhaust from the turbine, and a self-closing valve mounted within said shaft.

21. A torpedo having a turbine-motor and a central screw-shaft, the aft portion of said shaft being tubular and having a trumpet-mouth, openings for admitting exhaust fluid from within the torpedo-hull into said trumpet-mouth to flow through said hollow shaft and escape at the torpedo-tail, and a self-closing valve in said trumpet-mouth for preventing ingress of water.

22. A torpedo having a turbine-motor and a central screw-shaft, the latter formed with a tubular section K mounted in the tail-section of the torpedo, a tubular section K^2 mounted in the after body, and a main shaft H engaging said section K^2 and having a bearing in the after-body, and driven at its forward end by the turbine.

748,760. **DRIVING-AXLE STRUCTURE FOR MOTOR-VEHICLES.** THOMAS J. LINDSAY, Indianapolis, Ind., assignor, by direct and mesne assignments, to himself and Willard Harmon. Filed Aug. 18, 1902. Serial No. 120,066. (No model.)



Claim.—1. In a motor-driven vehicle, the hollow axle structure adapted to support the vehicle-body, said hollow axle structure having an enlarged portion within which a compensating gear may lie and said enlarged portion consisting in part of a transversely-movable cap, a compensating gear mounted in said enlarged portion, a pair of shaft-sections rotatably mounted within the hollow structure, an axially-separable driving connection between each shaft-section and the compensating gear, and independent means for normally retaining each shaft-section against axial displacement, within the structure, said means being movable to permit the outward withdrawal of the shaft-sections from the structure.

2. In a motor-driven vehicle, the combination, with a pair of tubular axle structures, of a pair of casing-sections connecting the adjacent ends of said tubular axle structures, and one of said casing-sections being detachably connected, a pair of shaft-sections revolubly mounted in the tubular axle structure and projecting into the casing-sections, an axially-separable driving connection between the shaft-sections from which the shaft-sections may be outwardly axially withdrawn, and independent means for normally retaining the shaft-sections against axial displacement, said means being removable to permit the outward withdrawal of each shaft-section from the structure.

3. In a motor-driven vehicle, the combination, of a pair of tubular axles each provided at its inner end with a head, a pair of casing-sections forming a connecting structure which on each face is provided with an annular groove to receive the head of the adjacent tubular section, means for detachably connecting said casings together and to the axle-sections, a connecting-gear structure mounted in the hollow casing-sections, a pair of shaft-sections revolubly mounted in the hollow axle-sections and axially removably connected to the connecting-gear, and means for holding said shaft-sections in axial position within the hollow axle-sections.

4. In a motor-driven vehicle, a hollow axle structure, a pair of shaft-sections rotatably mounted therein and outwardly withdrawable therefrom, a driving connection between the adjacent ends of the shaft-sections from which the shaft-sections may be axially withdrawn, and a cap, independent of said driving connection, detachably secured to each end of the hollow axle structure and adapted to engage the adjacent shaft-section and hold the same against axial displacement.

5. In a motor-driven vehicle, a hollow axle structure, a pair of shaft-sections rotatably mounted therein and outwardly withdrawable therefrom, a driving connection between the adjacent ends of the shaft-sections from which the shaft-sections may be axially outwardly withdrawn, a collar carried by each section, and a cap detachably secured to each end of the axle structure to engage the adjacent shaft-collar to prevent axial displacement of the shaft-sections.

6. In a motor-driven vehicle, a hollow axle structure, a pair of shaft-sections rotatably mounted therein and outwardly withdrawable therefrom, a compensating gear mounted within the axle structure between the shaft-sections, a driving connection between each shaft-section and the compensating gear from which the shaft-sections may be axially withdrawn, and a cap detachably secured to each end of the hollow axle structure and adapted to engage the adjacent shaft-section and hold the same against axial displacement.

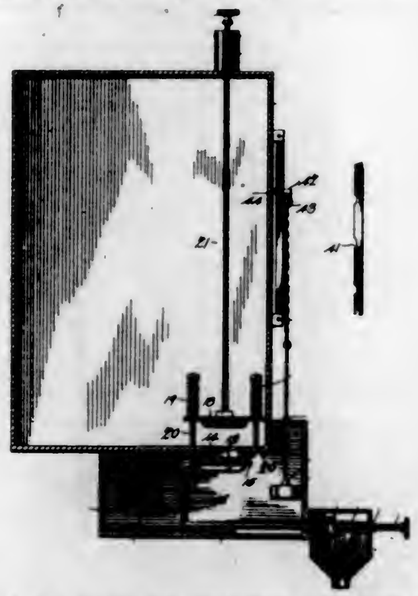
7. In a motor-driven vehicle, a hollow axle structure, consisting of two sections between which is arranged a driving connection for the shaft, the said driving connection, a pair of shaft-sections rotatably mounted within the axle structure, a separable driving connection between each shaft-section and the driving connection, each shaft-section being thus outwardly axially separable from its driving connection, and the means for normally preventing axial displacement of the shaft-sections, said means being movable to permit the outward withdrawal of its shaft-section from the structure.

8. In a motor-driven vehicle, a hollow axle structure, a pair of shaft-sections rotatably mounted therein and outwardly withdrawable therefrom, a compensating gear mounted within said axle structure between the shaft-sections, a driving connection between each shaft-section and the compensating gear from which the shaft-sections may be axially withdrawn, a collar carried by each shaft-section, and a cap detachably secured to each end of the axle structure to engage the adjacent shaft-collar to prevent axial displacement of the said shaft-sections.

9. A hollow axle structure, for motor-driven vehicles, consisting of a pair of hollow axle-casings, an intermediate larger casing connecting the adjacent ends thereof and consisting of a main portion and a removable cap, and truss-rods connected to the main portion of the intermediate casing and to the hollow axle-casings, for the purpose set forth.

748,761. LIQUID-MEASURING TANK. ERNEST O. LIPTON, Marion, Wis., assignor of three-fourths to Frank Loake, William Shambeau, and John H. Spengler, Marion, Wis. Filed June 15, 1903. Serial No. 161,589. (No model.)

Claim.—1. In a device of the character described, a receiving-tank having a discharge-valve, a float in said tank, a vertically-adjustable guide-pulley mounted on said tank, a holding means operative to maintain said valve open, and a chain or cable between said float and holding means and leading over said pulley, whereby said holding means will be released by the falling of the float, to a predetermined position, substantially as described.



2. In an apparatus of the class described, a receiving-tank having a discharge-valve, a float in said tank, spaced guides having a cable or chain pulley movable longitudinally thereon, a holding means operating to maintain said valve open, a chain or cable between said float and holding means and leading over said pulley, whereby the period of release of said valve may be regulated, substantially as described.

3. In an apparatus of the class described, a reservoir, a receiving-tank, connecting means between said tank and reservoir having valve-seats facing into both the reservoir and tank, a feed-valve engaging one of said seats and adapted to control the flow to said receiving-tank, and a shut-off valve adapted to be engaged with the other of said seats and operative independently of said feed-valve, substantially as described.

4. In an apparatus of the class described, a reservoir, a receiving-tank, connecting means between said tank and reservoir having valve-seats facing into both the reservoir and tank, a feed-valve engaging one of said seats and adapted to control the flow to said receiving-tank, a spring-controlled shut-off valve adapted to yieldably engage the other of said seats, holding means for maintaining said shut-off valve in inoperative position, and means for releasing said holding means to permit said shut-off valve to be closed independently of said feed-valve, substantially as described.

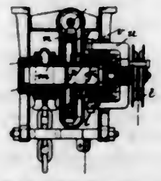
5. In an apparatus of the class described, a reservoir, a receiving-tank, connecting means between said tank and reservoir having valve-seats facing into both the reservoir and tank, a feed-valve engaging one of said seats and adapted to control the flow to said receiving-tank, a spring-controlled shut-off valve adapted to yieldably engage the other of said seats, and having a stem extending above said reservoir and provided with laterally-extended studs, stops having inclined bearing-surfaces adapted to be engaged by said studs to hold said shut-off valve in operative position when said stem is rotated in one direction and to release said valve when the motion is reversed, substantially as described.

6. In a device of the class described, a receiving-tank having a discharge-valve, a float in said tank, spaced guides having graduated notches, a cable or chain pulley carried by a supporting-frame movable longitudinally of said guides and adapted to be detachably connected with said notches, holding means operating to maintain said valve open, a chain or cable between said float and holding means and leading over said pulley, whereby the period of release of said valve may be regulated, substantially as described.

7. In a device of the class described, a receiving-tank having a discharge-valve, a float in said tank, having a stem leading from said tank, a valve-seat upon said tank surrounding said stem, a valve upon said float adapted to engage said seat when elevated, and means connecting said float-stem and discharge-valve, substantially as described.

8. In an apparatus of the class described, a reservoir, a receiving-tank connected to said reservoir, a feed-valve operating between said tank and reservoir, a discharge-valve leading from said receiving-tank, connecting means between said feed and discharge valves whereby when one is opened the other is closed, a float within said receiving-tank, having a stem leading through said tank, a valve-seat upon said casing surrounding said stem, a valve upon said float adapted to engage said seat when the tank fills with liquid from the reservoir to prevent leakage, and means connecting said float-stem and discharge and feed valves, substantially as described.

748,762. RAISING OR HOISTING APPARATUS. ERNEST LORIN, Doulaincourt, France. Filed Aug. 26, 1902. Serial No. 121,115. (No model.)



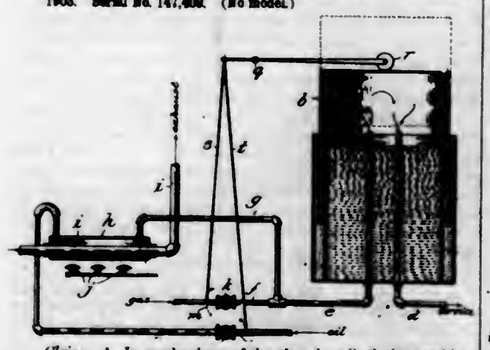
Claim.—1. In a raising and hoisting apparatus a motor, a motor-shaft, a worm-shaft, intermediate gearing between the motor-shaft and the worm-shaft, a toothed wheel engaging the worm-shaft, a pulley frictionally driven by the toothed wheel and conical meeting surfaces on the pulley and toothed wheel substantially as described.

2. In a raising and hoisting apparatus a motor, a motor-shaft, a worm-shaft, intermediate gearing between the motor-shaft and the worm-shaft, a toothed wheel engaging the worm-shaft, a pulley frictionally driven by the toothed wheel conical meeting surfaces on the pulley and toothed wheel, and double springs adapted to press the pulley and toothed wheel into engagement, substantially as described.

3. In a raising and hoisting apparatus, a motor, a motor-shaft, a worm-shaft, intermediate gearing between the motor-shaft and the worm-shaft, a toothed wheel engaging the worm-shaft, a pulley frictionally driven by the toothed wheel conidal meeting surfaces on the pulley and toothed wheel, double springs adapted to press the pulley and toothed wheel into engagement, and means for separating the said parts substantially as described.

4. In a raising and hoisting apparatus, a motor, a motor-shaft, a worm-shaft, intermediate gearing between the motor-shaft and the worm-shaft, a toothed wheel engaging the worm-shaft, a pulley frictionally driven by the toothed wheel conical meeting surfaces on the pulley and toothed wheel, double springs adapted to press the pulley and toothed wheel into engagement, and means for separating the said parts comprising a fork engaging the spring-casing on the toothed wheel, a screw-spindle for same, and an operating-pulley mounted on said spindle, substantially as described.

748,763. GAS GENERATING AND FEEDING MECHANISM FOR GAS-ENGINES. CARL K. MACFADDEN, Geneva, Ind. Filed Mar. 12, 1903. Serial No. 147,408. (No model.)



Claim.—1. In mechanisms of the class described, the combination of a collapsible and extensible reservoir, a supply-pipe connected with a source of gas-supply, a heating-chamber connected with a source of liquid hydrocarbon and with the reservoir, means for heating such chamber, and valve mechanism in the gas-supply and liquid-hydrocarbon supply operable by and during the movements of the collapsible and extensible reservoir, substantially as described.

2. In mechanisms of the class described, the combination of a collapsible and extensible gas-storage reservoir, a supply-pipe therefor connected with a source of gas-supply and a source of liquid-hydrocarbon supply, a heating-chamber inserted in the pipe connected with the source of liquid-hydrocarbon supply, valve mechanisms in the gas and liquid-hydrocarbon supply pipes, a lever connected with the extensible and collapsible reservoir and with the valve mechanisms, whereby such valve mechanisms are operated by and during the movements of the collapsible and extensible reservoir, substantially as described.

3. In mechanisms of the class described, the combination of a gas-storage reservoir formed of two parts—an immovable and a movable part telescopically fitting the same and provided with a liquid seal, a supply-pipe connected therewith and with a source of gas-supply and liquid-hydrocarbon supply, a heating-chamber inserted in the liquid-hydrocarbon-supply pipe, means for heating the same so as to gasify the liquid hydrocarbons, valve mechanism inserted in the gas and liquid-hydrocarbon supply pipes, a lever connected with the movable part of the gas-reservoir and with the valve mechanism, whereby the same are opened as the reservoir is collapsed and closed as it is extended, substantially as described.

4. In mechanisms of the class described, the combination of a telescopic extensible and collapsible gas-storage reservoir, an exhaust-pipe leading therefrom to a gas or similar engine, a single supply-pipe therefrom having two branches, one leading to and connected with a source of gas-supply and the other leading to and connected with a source of liquid-hydrocarbon supply, a heating-tank inserted in the liquid-hydrocarbon-supply branch pipe, an exhaust-pipe from the gas or steam engine leading through the heating-tank valve mechanisms in the gas-supply and liquid-hydrocarbon-supply pipes, and means connecting such valve mechanisms with the movable part of the gas-reservoir, whereby they are opened as such reservoir is collapsed and closed as such reservoir is extended, substantially as described.

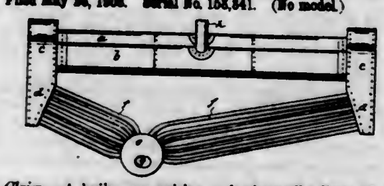
748,764. RAILROAD-RAIL AND JOINT THEREFOR. JULIUS MALLAT, St. Louis, Mo. Filed Sept. 10, 1903. Serial No. 172,657. (No model.)



Claim.—1. In combination with two contiguous rails having the ends of their treads depressed below the surface of the tread of the rails, a bridge-plate disposed along the outer faces of the rails and supporting the tread thereof and spanning the joint between the rails, the tread of the bridge-plate being continuous with the surface of the treads of the rails, substantially as set forth.

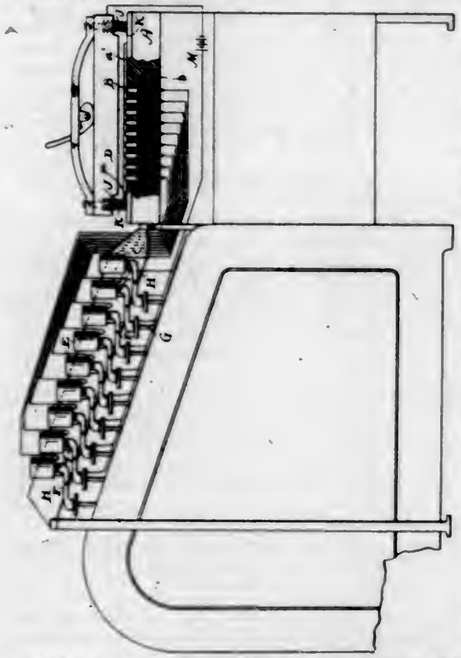
2. In combination with two contiguous rails having the ends of their treads depressed below the normal tread-surface, a bridge-plate disposed along the outer faces of the rails and supporting the tread thereof and spanning the joint between the rails, the tread of the bridge-plate being continuous with the surface of the treads of the rails, and having the terminals of its tread depressed below the tread of the rails, and an angle-plate on the inner surfaces of the rails, and suitable bolts for securing the parts together, substantially as set forth.

748,765. STEAM-BOILER. SAMUEL I. MARPLE, Clairton, Pa. Filed May 26, 1903. Serial No. 158,841. (No model.)



Claim.—A boiler comprising a horizontally-disposed drum, a similar drum of lesser area on each side thereof, a header on each end of the drums communicating therewith, a mud-drum between the headers, and tubes extending upwardly from the mud-drum to each header, substantially as described.

748,766. AUTOMATIC ATTACHMENT FOR ADDING-MACHINES. HOLMES MARSHALL, New York, N. Y. Filed Nov. 9, 1901. Serial No. 81,695. (No model.)



Claim.—1. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for setting said keys, and a check provided with means whereby said independent devices may set the keys of the adding-machine to add a number corresponding to that on the face of the check.

2. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent levers for setting said keys, and a slip provided with means whereby certain of said independent levers may set such keys of the adding-machine as will add a number corresponding to that on the face of the slip.

3. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for setting said keys, electrically-operated devices for operating said independent devices, contact devices for said electrical devices, and a slip provided with means whereby certain of said contact devices may set the keys of the adding-machine and record a number corresponding to that on the face of the slip.

4. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for operating said keys, and a check having a series of cut-out portions, said cut-out portions being adapted to permit certain of said key-operating devices to set such of the keys of said adding-machine as will indicate the face value of the check.

5. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for operating said keys, a platen having suitable guides, a check provided with cut-out portions, a series of devices carried by said platen for operating said key-operating devices, said cut-out portions of said check being adapted to permit such of said devices carried by the platen to set certain keys of the adding-machine corresponding to the face value of said check, and means for clamping said check upon the platen.

6. The combination with an adding-machine having a plurality of keys for operating the same, of a series of electrical devices for operating said keys, a platen having suitable guides, a series of contact devices carried by said platen corresponding in number to said electrical devices, a check operating in connection with said guides upon the plate, said check being provided with suitable cut-out portions, and said cut-out portions being adapted to permit certain of said contact devices to actuate such of the keys of the adding-machine as will correspond to the numbers upon the face of the check, and means for clamping said check upon said platen.

7. The combination with an adding-machine having a plurality of rows of keys ranging from 1 to 9 for operating the same, of a series of electromagnets, a series of levers actuated by said magnets for setting said keys, a platen having suitable guides thereon, and a series of contact devices for operating said electromagnets, a check cooperating with said guides upon the platen, and having cut-out portions, and a clamping-plate for said check, said cut-out portions permitting such of the contact devices to make contact with the clamping-plate as will set certain keys of the adding-machine corresponding to the number upon the face of the check.

8. The combination with an adding-machine having a plurality of rows of keys for operating the same, of a frame arranged above said keys, electromagnets carried by said frame, levers between said magnets and the keys, a platen also carried by the frame and having contact devices, each of said contact devices being connected with one pole of its corresponding electromagnet, guides upon said platen, and a check having cut-out portions which will permit such of said contact devices to make contact with the clamping-plate as will set certain of the keys corresponding to the number upon the face of the check.

9. In combination with an adding-machine provided with means for printing separate items, of a device for setting said adding-machine and a check for controlling the actuation of said device.

10. In combination with an adding-machine adapted to print individual items, of a device for actuating said adding-machine, and a perforated check for governing said device.

748,767. FOUNTAIN BLACKING-BRUSH. SAMUEL W. MARSHALL, Dallas, Tex. Filed June 17, 1903. Serial No. 161,910. (No model.)



Claim.—1. In a fountain blacking-brush, the combination with the brush, of the blacking-receptacle mounted in the back thereof consisting of a main reservoir and a supplemental reservoir, elevated above the base of the main reservoir, with a passage-way between said reservoirs, the main reservoir having an inclined front wall leading to the passage-way, whereby the blacking may be directed into said passage-way; substantially as described.

2. In a fountain blacking-brush, the combination with the brush, of the blacking-receptacle mounted in the back thereof and consisting of a main reservoir and a supplemental reservoir, the latter located outside of the main reservoir and above the base thereof, with a passage-way between the reservoirs and channels leading from the supplemental reservoir to the brush-bristles; substantially as described.

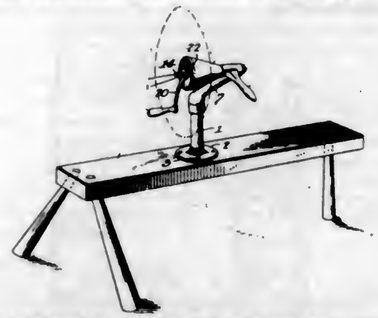
3. In a fountain blacking-brush the combination with the blacking-receptacle mounted in the back thereof and consisting of a main reservoir and a supplemental reservoir, the latter located outside the main reservoir with a passage-way between the reservoirs, means for controlling said passage-way, and channels leading from the supplemental reservoir to the brush-bristles; substantially as described.

4. In a fountain blacking-brush, the blacking-receptacle mounted in the brush-back and consisting of a main and a supplemental reservoir with a passage connecting said reservoirs, a cap for the supplemental reservoir, and an adjustable stopper for controlling said passage-way carried by the cap and means for adjusting said stopper without opening the reservoirs; substantially as described.

5. In a fountain blacking-brush, the combination with the brush of the blacking-receptacle mounted in the back thereof and consisting of the main and supplemental reservoirs, with a passage-way between the reservoirs, the flexible cap for the supplemental reservoir, and the stopper for controlling the passage-way carried by the cap, whereby the stopper may be adjusted to open the passage-way to a greater or less extent without opening the reservoir; substantially as described.

748,768. DISK-SHARPENER. FRED MELVIN and EDWARD BERNHAM, Jefferson, S. D., assignors of one-half to Philip Bernard and Will R. Melvin, Jefferson, S. D. Filed Sept. 21, 1903. Serial No. 174,070. (No model.)

Claim.—1. In a device of the class described, a socketed base, a laterally-extending bracket member having a pintle engaging said base and provided with a boxing having an outwardly-extending handle and a disk-holding member revoluble in said boxing.



2. In a device of the class described, a socketed base member, a laterally-extending bracket member having a pintle engaging the socketed base and provided with a boxing and with an arm extending outwardly from the latter, a disk-holding member having a spindle seated in said socket, and means for connecting said socket and disk-holding member with a disk to be operated upon.

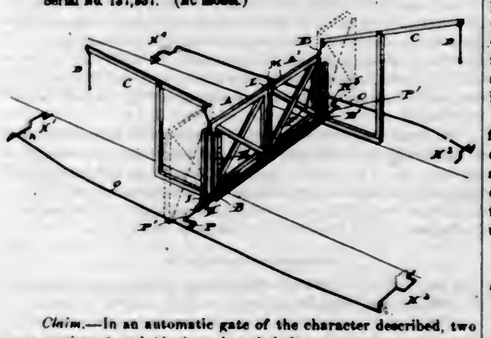
3. In a device of the class described, a socketed base, a laterally-extending bracket member, a boxing and a handle member supported by said bracket member, a disk-holding member having a longitudinally-perforated spindle journaled in said boxing and a shaft extending through said spindle and having a flange bearing against the disk-holding member, and a nut bearing against the spindle and supporting the latter revolubly in the boxing.

4. In a device of the class described, a bracket member supporting a boxing and a handle, said bracket member being provided with a pintle, whereby it is supported revolubly, a disk-holding member journaled in the boxing of the bracket member, a stem connected with said disk-holding member, and a crank mounted upon said stem and adapted to bear against the face of the disk and to press against the same to support it upon the disk-holding member.

5. In a device of the class described, a disk-holding member having a longitudinally-perforated spindle revolubly supported, a shaft extending through the spindle and disk-holding member and having a flange bearing against the inner side of the latter and screw-threaded ends, a nut mounted upon the rear end of the shaft and bearing against the rear end of the spindle, forcing the collar upon the shaft into contact with the disk-carrying member, and means for clamping the disk to be sharpened upon the screw-threaded front end of the shaft against the disk-holding member.

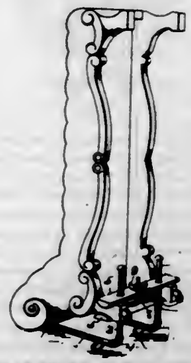
6. In a device of the class described, a bracket member having a downward-extending pintle and carrying at its outer end a boxing and a handle, means for rotatably supporting the said bracket member and a disk-holding member, having a longitudinally-perforated spindle journaled in said boxing, a shaft having a flange interiorly engaging the spindle of the disk-holding member and provided at its rear end with a nut engaging the rear end of said spindle, a stem extending forwardly from said shaft beyond the face of the disk-holding member, and a disk-clamping device engaging said stem and having an operating crank and handle.

748,769. GATE. JOHN MEYER, Yuton, Ill. Filed Jan. 5, 1903. Serial No. 137,937. (No model.)



Claim.—In an automatic gate of the character described, two gate-sections A and A', pivoted at their lower remote corners to tip up on end one at each side of the road, a pair of supports B and B' between which the said gate-sections A, A' are respectively pivoted at their said corners, an arm G rigidly secured to the section A' and extending diagonally downward below the pivot of said section, a horizontal bar H beneath the gate one end having pivotal connection with the free end of said arm G below the said pivot, an arm I pivoted to the opposite end of the bar H, said arm I connected pivotally at its other end to the gate-section A above the pivotal support thereof, a pull-rod E attached to each gate-section at the position shown, an arm C pivoted above each gate-section and having the upper end of the rod E attached thereto as shown, each arm and its rod adapted to operate both gate-sections through rod H and arm I as described, in combination with means for opening and closing the gate by the passage of a vehicle which consists of a pair of substantially rigid rods O at each side of the road and parallel therewith, each extending in opposite directions from the gate, a bell-crank P having the adjacent ends of the rods O connected to one limb thereof, a rod connection P' between the opposite limb and the end of the bar H at the gate-section A, said crank being pivoted horizontally to a support in the ground as described, horizontal cranks N' and N³ at the opposite ends of the rods O, the same adapted to be operated by the wheels of vehicles, a crank connection between said cranks N', N³ and the rods O, a crank N² pivoted to a support in the ground as described adjacent to the pivot of the gate-section A', a rod connection P' between one limb of the crank and the free end of the arm G of the gate-section A', the adjacent ends of the rods O at that side of the gate being pivotally connected to the opposite limb of said crank, the cranks N² and N⁴ at the remote ends of said rods O, a crank connection between the said cranks N² and N⁴ and the rods O all being arranged as shown.

748,770. COUCH-DISPLAY TRUCK. HENRY J. MONTGOMERY, Silvercreek, N. Y. Filed Oct. 26, 1903. Serial No. 178,556. (No model.)



Claim.—1. A couch-display truck comprising a frame mounted on rollers and provided at one end with uprights, two clamping-bars mounted to move freely on said uprights, means for adjusting the position on one of said clamping-bars on said uprights and means for moving the other clamping-bar toward the first-mentioned clamping-bar to clamp the legs of a couch between said bars.

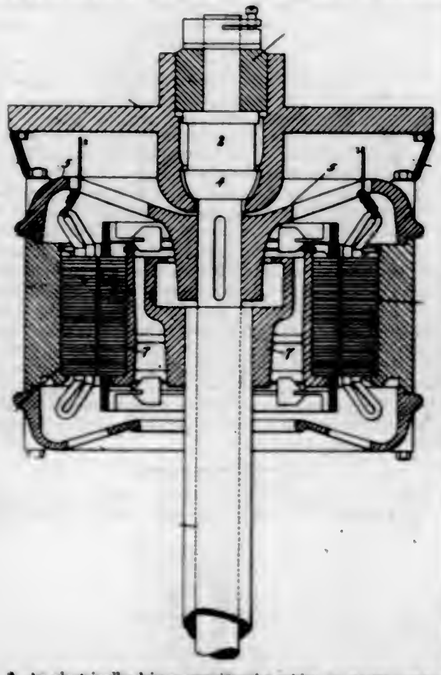
2. A couch-display truck comprising a frame consisting of two parallel members and a member connecting the parallel members at one end, uprights secured to the free ends of the parallel members of the frame, two parallel clamping-bars mounted on said uprights, means for adjusting the position of the lower clamping-bar and a screw for moving the upper clamping-bar toward the lower clamping-bar.

3. In a couch-display truck, the combination with a tubular frame supported on rollers, of tubular uprights on said frame at one end, a bar mounted on said uprights, set-screws adjustably securing said bar at any position and adapted to position the same to engage one side of the couch-legs, another bar on the uprights to engage the opposite sides of the couch-legs, and a clamping-bolt and set-nut to clamp the couch-legs between said bars.

748,771. ELECTRICALLY-DRIVEN CENTRIFUGAL MACHINE. HENRY G. MORRIS, Philadelphia, Pa. Filed May 8, 1903. Serial No. 156,336. (No model.)

Claim.—1. An electrically-driven centrifugal machine compris-

ing a suspension-hanger, a non-rotatable internal spindle, a rotatable external spindle, the fixed element of an alternating-current motor suspended from the internal spindle, flexible connections between said element and the hanger, and the movable element of an alternating-current motor applied to the external spindle and operatively arranged in respect to the fixed element, substantially as described



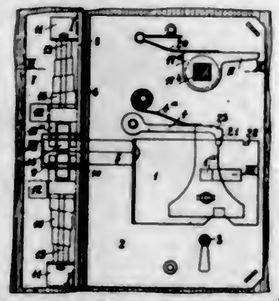
2. An electrically-driven centrifugal machine comprising a suspension-hanger, a non-rotatable internal spindle, a rotatable external spindle, the fixed element of an alternating-current motor suspended from the internal spindle, flexible connections for preventing rotation of said element, and the movable element of an alternating-current motor applied to the external spindle and operatively arranged in respect to the fixed element, substantially as described.

3. The combination in an electrically-driven centrifugal machine of a suspension-hanger, an internal spindle having flexible connection with said hanger and provided with a support, an external rotatable spindle sleeved onto the internal spindle below said support and provided with the movable element of an alternating-current motor, the fixed element of the alternating-current motor suspended from said support in operative relation to the movable element, and flexible connections interposed between the said hanger and the fixed element, substantially as described.

4. The combination in an electrically-driven centrifugal machine of a suspension-hanger, an internal spindle having flexible connection with said hanger and provided with a support, an external rotatable spindle sleeved onto the internal spindle below said support and provided with the movable element of an alternating-current motor, the fixed element of the alternating-current motor suspended from said support in operative relation to the movable element, and flexible connections for preventing rotation of the fixed element, substantially as described.

748,772. **LOCK.** ERNST MÜHLENHAUS, Mettmann, Germany, assignor to The Firm of Bernhard & Uellenberg, Varresbeck, near Elberfeld, Prussia, Germany. Filed July 28, 1903. Serial No. 167,261. (No model.)

Claim.—1. In a door-lock a bolt 1 a guide-pin 1ª on the bottom plate 2 of the lock-case, said bolt having a head 5 connected to it, a tumbler 4 having a tooth 21 pressed into respective notches 22 by a spring 4ª in combination with a strike-plate 7, 8 having recesses 9, 10 respectively cut in its sides and allowing the bolt-head 5 to enter therein, pins 13 connected to said strike-plate and guided therein by brackets 11 and 12 respectively, rolls 15 fixed to the forked inner ends 13ª of said pins 13, springs 16 pressing the rolls 15 toward each other, the whole as described and illustrated and for the purpose set forth.



2. In a door-lock a bolt 1 a guide-pin 1ª on the bottom plate 2 of the lock-case, said bolt having a head 5, connected to it, a tumbler 4 holding the bolt in either of its entrance positions, a strike-plate 7, 8, provided with recesses 9, 10 in the sides of said strike-plate, brackets 11, 12 guiding-pins 13 therein, forked inner ends on said pins, rollers 15 held in said forked ends, springs 16 pressing said bolt-heads together for arresting the bolt-head 5 in combination with a latch 17 on the spindle 17ª of a handle 18, said latch engaging with a recess 23 of the tumbler for locking the same, the whole as described and illustrated and for the purpose set forth.

748,773. **PAD-HOOK.** OLIVER H. MUNTZ, Greenville, Pa. Filed May 13, 1903. Serial No. 156,967. (No model.)



Claim.—1. A pad-hook having a hook member with a shank having an elongated hole, and a separate bar member having a bolt secured thereto and provided with a rein-retaining head arranged to slip through the hole in the hook-shank, and interlock the members when turned; substantially as described.

2. A pad-hook comprising a hook having a shank with an elongated hole and an end loop and a lower bar arranged to be sewed in the material, said bar having an upwardly-projecting bolt with a rein-retaining head arranged to slip through the hole and bind the parts together when turned, said bar having an end loop arranged to register with the hook-loop; substantially as described.

3. A pad-hook comprising a hook member having an end loop, and an elongated hole in its shank, and a bar member having end flanges one provided with an end loop, said bar member having a bolt with a rein-retaining head arranged to slip through the hole in the hook-shank and bind the parts together when turned; substantially as described.

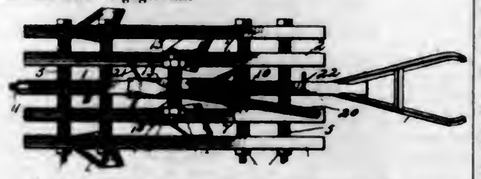
4. A pad-hook comprising a hook member with an elongated hole in its shank, and a bar member having a bolt with a rein-retaining head arranged to slip through the hole and interlock the parts when turned, the hook member having an incline arranged to bind the parts together; substantially as described.

5. A pad-hook comprising a hook member with an end loop, an elongated hole in its shank, and shoulders on the lower face of the shank, and a bar member having end flanges arranged to coact with the shoulders, said bar member having an end loop and a bolt with a flattened head arranged to slip through the hole in the shank and interlock the parts when turned into parallelism; substantially as described.

6. A pad-hook comprising a hook member with a shank having an elongated hole and arc-shaped shoulders substantially concentric therewith, and a bar member having a headed stud and arc-shaped flanges concentric therewith, said headed stud adapted to pass through the hook-orifice and interlock said members with their respective arc-shaped portions in contact; substantially as described.

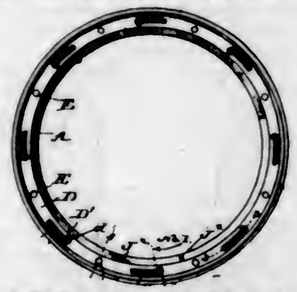
748,774. **PLOW OR CULTIVATOR.** WILLIAM B. MCKINLEY, Prichard, Ala. Filed Feb. 19, 1903. Serial No. 144,139. (No model.)

Claim.—1. In an agricultural implement, the combination of a supporting-frame composed of spaced bars, the central bar being formed of spaced sections, a wheel-carrying frame disposed in the space between said sections of the central bar and having a sliding engagement with the next adjacent frame-bars, said frame comprising standards, a lower transverse shaft, an upper transverse connecting-brace and an intermediate fulcrum-bar, a ground-wheel mounted on said shaft, a lever extending through the wheel-carrying frame between the brace and fulcrum-bar and fulcrumed at its forward end to the supporting-frame in advance of the wheel-carrying frame and projecting rearwardly of the latter-named frame, said lever adapted when disposed to rock upon said fulcrum-bar to elevate the supporting-frame, coacting catches on the supporting-frame and wheel-carrying frame for holding said supporting-frame in elevated position, and a catch upon the supporting-frame to engage the rear end of the lever to hold said lever depressed when the said coacting catches are in engagement.



2. In an agricultural implement, the combination of a supporting-frame composed of spaced bars, the central bar being formed of spaced sections, a wheel-carrying frame disposed in the space between said sections of the central bar and having a sliding engagement with the next adjacent frame-bars, said frame being provided with a shaft and a fulcrum-bar, a ground-wheel mounted on said shaft, a lever fulcrumed to the supporting-frame and front of the wheel-carrying frame and projecting rearwardly through the latter-named frame, said lever adapted when depressed to rock upon said fulcrum-bar to elevate the supporting-frame, coacting catches on the supporting and wheel-carrying frames for holding said supporting-frame in an elevated position, and a catch upon the supporting-frame to engage the rear end of the lever to hold said lever depressed when the said coacting catches are in engagement, substantially as described.

748,775. **WHEEL.** JOSEPH B. MCMULLEN, Howard county, Md. Filed Apr. 2, 1903. Serial No. 150,522. (No model.)



Claim.—1. The improvement in wheels herein described, comprising the body or rim, the plate secured to one side thereof and projecting beyond the periphery of the rim, the plate seated in the opposite side of the rim and provided with keyhole-slots and having the under sides of said plates alongside the extension-wings of such slots tapered as described, the movable side plate provided with inwardly-projecting studs having heads to operate in the keyhole-slots, of the slotted plates, said removable plates being provided with a notch to be entered by the lug on the worm-rack, the worm-rack having a lug entering said slot, and the bearing-plate, the worm journaled therein and engaging with the worm-rack, and devices for securing the bearing-plate to the rim of the wheel, substantially as set forth.

2. The combination of the wheel-rim, the side plate secured to one side thereof and projecting beyond the periphery of the rim, the plate secured to the other face of the rim, and provided with keyhole-slots, and having its inner surface alongside the extension-wings of said slots tapered, and the removable side plate provided with inwardly-projecting studs having heads and arranged to operate in the keyhole-slot of the rim-plate, substantially as set forth.

3. The combination of the rim, the plate secured to one side thereof, the plate secured to the opposite side of the frame and having keyhole-slots, and the plate provided with inwardly-projecting studs provided with heads and arranged to operate in the keyhole-slots of the rim-plate, substantially as described.

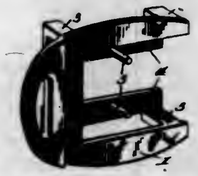
4. The combination with the rim, and the plate secured thereto and having keyhole-slots, of the plate for application to the rim and provided with headed studs to operate in the keyhole-slots of the rim-plate, substantially as described.

5. The combination of the rim provided at one side with the plate for retaining the tire, the plate for application to the opposite side of the rim, means for securing the latter plate detachable to the rim and the clamping-screw for binding the detachable plate in connection with the rim, substantially as set forth.

6. The combination with the rim having the side plate projecting to retain the tire, of the opposite side plate provided with means for detachably securing it to the rim, the worm-rack having means for engagement with the detachable side plate, the frame guiding said rack and secured to the rim of the wheel, and the worm journaled in said frame and meshing with the rack-bar, substantially as set forth.

7. The rim and the tire-securing flange or plate at one side thereof, combined with the detachable plate or flange at the other side of the rim and interlocking devices for securing the detachable plate, the latter being movable in a circular direction into and out of engagement with the interlocking devices substantially as set forth.

748,776. **HARNESS-BUCKLE.** ALBERT W. HABUN and THADDEUS H. HABUN, Davis Mills, Va. Filed Oct. 27, 1902. Serial No. 128,080. (No model.)



Claim.—1. The combination with a trace having a central reinforcing-piece, and a back-pad strap, of a buckle provided with transverse and longitudinal ways, the former receiving the back-pad strap, and the latter being spaced apart to receive the reinforcing-piece of the trace, said trace being extended beyond the sides of the reinforcing-piece and engaging the longitudinal ways, and means for engaging the trace and the back-pad strap, substantially as described.

2. A buckle provided with a longitudinal slot to receive the reinforcing-piece of a trace, and having longitudinal ways at opposite sides of the slot for the projecting side portions of the trace, said buckle being also provided with a transverse way for a back-pad strap, and studs located in the longitudinal ways for engaging the back-pad strap and the side portions of the trace, substantially as described.

3. The combination with a trace having a reinforcing-strip, and a back-pad strap, of a buckle provided with longitudinal and transverse ways, the longitudinal ways being spaced apart to receive and guide the reinforcing-piece of the trace, and the latter being extended beyond the sides of the reinforcing-strip to engage the longitudinal ways, the back-pad strap being arranged in the transverse ways, and studs located in the longitudinal ways of the buckle and engaging the strap and the side portions of the trace, substantially as described.

4. The combination with a trace provided with the reinforcing-piece, and a back-pad strap, of a buckle having a depressed center and provided therein with a slot receiving and guiding the reinforcing-piece of the trace and forming opposite longitudinal ways, the trace being extended laterally beyond the reinforcing-piece and engaging the longitudinal ways, said buckle being provided at opposite sides of the slot with openings to receive the strap, and means for engaging the trace and the strap, substantially as described.

5. A buckle comprising an open front frame, a rear frame carried by and spaced from the front frame, the space between the two frames forming a longitudinal strap-receiving way, the opposite sides of the rear frame being provided with strap-receiving openings or loops disposed transversely of the way, and studs projecting forwardly from the back of the buckle into the opening of the front frame and disposed within and adjacent to the opposite longitudinal sides of the strap-receiving way.

6. A buckle comprising an open front frame, posts projecting rearwardly from the frame, bars carried by the posts and separated

by a longitudinal interspace to receive and guide the reinforcing-piece of a trace, said bars having their inner longitudinal edges projected inwardly beyond the inner edges of the corresponding sides of the front frame and arranged to be engaged to the projecting side portions of a trace, and studs projected forwardly from the bars and disposed at the inner edges of the opposite sides of the front frame.

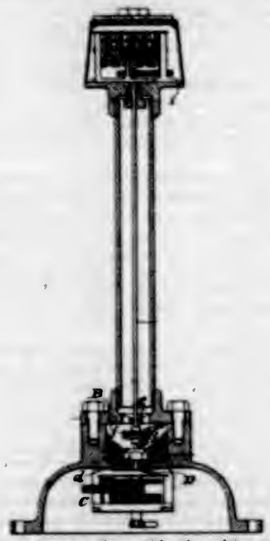
7. A buckle comprising a substantially rectangular front frame having its front end omitted, posts projected rearwardly from the corners of the frame, upper and lower frame-bars carried by the posts with their inner edges projected inwardly beyond the inner edges of the corresponding sides of the front frame and spaced apart to receive the reinforcing-piece of a trace and adapted to be engaged by the projecting side portions thereof, and studs carried by and disposed substantially midway of the bars and spaced inwardly from the inner edges of said corresponding sides of the front frame.

8. A buckle comprising an open approximately U-shaped frame, a depressed bottom composed of longitudinal guides spaced apart to receive the reinforcing-piece of a trace and adapted to be engaged by the projecting side portions thereof and provided with openings forming a transverse way, and a stud mounted on the depressed bottom, substantially as described.

9. A buckle comprising an open front frame provided at one end with a loop to receive a holdback-strap, longitudinal and transverse ways located below the front frame and arranged to receive a trace and a back-pad strap, the longitudinal way being provided throughout its entire length with an opening to receive the reinforcing-piece of a trace and the latter being projected beyond the reinforcing-piece to engage the longitudinal way, substantially as described.

10. The combination with a trace having a reinforcing-piece, and a back-pad strap, of a buckle comprising an open frame, and a depressed center provided with opposite openings for the strap and having a longitudinal slot to receive and guide the reinforcing-piece of the trace, the latter being extended beyond the reinforcing-piece for engaging the longitudinal ways, and means for engaging the strap and the trace, substantially as described.

748,777. WATER-METER. LEWIS H. NASH, South Norwalk, Conn., assignor to National Meter Company, New York, N. Y., a Corporation of New York. Filed July 5, 1900. Serial No. 22,608. (No model.)

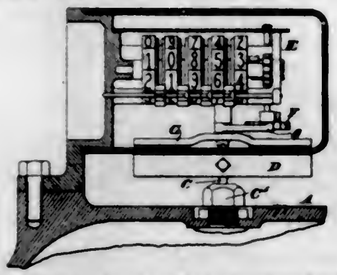


Claim.—1. In a meter, the combination with a measuring-chamber and a dial-chamber, of a chamber intermediate the meter and dial-chambers containing a substance soluble in water to form a solution having a freezing-point below 32° Fahrenheit.

2. A meter having an auxiliary chamber through which the dial-operating shaft passes, means for preventing the entrance of water into said chamber, and a soluble chemical in said chamber the solution of which has a freezing-point below 32° Fahrenheit.

3. In a meter the combination with distantly-separated measuring and registering apparatus and a shaft operatively connecting the same, of a closed tube surrounding said connecting-shaft, and containing a substance soluble in water to form a solution having a lower freezing-point than water.

748,778. METER REGISTERING MECHANISM. LEWIS H. NASH, South Norwalk, Conn., assignor to National Meter Company, New York, N. Y., a Corporation of New York. Filed July 5, 1900. Serial No. 22,609. (No model.)



Claim.—1. The combination with a meter, of a registering mechanism, a hermetically-sealed case for the registering mechanism, and means controlled by the meter for magnetically actuating the registering mechanism.

2. The combination with a meter having a hermetically-sealed case and a registering mechanism within said case, of a magnet connected with and moved by the meter-piston and outside of said sealed case, and a member within said case and inductively moved by said magnet to operate the registering mechanism.

3. The combination with a meter having a hermetically-sealed case and a registering mechanism within said case, of a magnet connected with the meter-piston to be revolved thereby outside said case, and an oscillating magnetic member within said case and connected with the registering mechanism to operate it and inductively moved by said magnet.

4. The combination with a meter and a registering mechanism, of a magnet connected with the meter-piston to be revolved thereby, and an oscillating magnetic member mounted upon an axis substantially corresponding with that of the magnet and connected with the registering mechanism to operate it, whereby it is given a complete to-and-fro oscillation at each passage of the magnet.

5. The combination with a meter and a registering mechanism, comprising as a member thereof an escapement-wheel, of a magnet rotatively connected with the meter-piston, a bar pivoted within the magnetic field of the magnet and oscillated by said magnet, and pallets or arms operated by said bar and adapted to alternately engage the escapement-wheel to turn it.

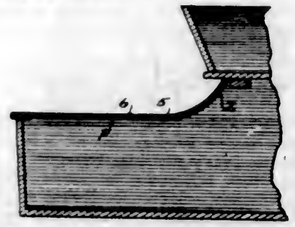
6. The combination with a meter, a registering mechanism comprising as a member thereof an escapement-wheel, and a case inclosing the registering mechanism, of a magnet rotatively connected with the meter-piston and adjacent the registering mechanism, a bar pivoted within the case inclosing the registering mechanism and within the magnetic field of the magnet, said bar being oscillated by the magnet, and pallets or arms operated by said bar and adapted to alternately engage the escapement-wheel to turn it.

7. The combination with a meter, a registering mechanism comprising as a member thereof an escapement-wheel, and a hermetically-sealed case inclosing said registering mechanism, of a magnet rotatively connected with the meter-piston and exteriorly adjacent the said case, a magnetic bar pivoted within the case and oscillated by said magnet, and pallets operated by said bar and engaging the wheel to turn it.

8. The combination with a meter having attached thereto a sealed case containing the registering mechanism, of two cooperating magnetic members, one without said case and connected to be rotated by the meter, and the other within the said case and connected with the registering mechanism to actuate it, said member within the case being pivoted and means for limiting it to an oscillating motion.

748,779. BUGGY-BOOT. CHRISTIAN WILSON, Morrison, Ill. Filed Sept. 14, 1903. Serial No. 173,163. (No model.)

Claim.—1. A frame for a buggy-boot, comprising a body portion, a pair of upwardly-projected supports adjacent thereto, each end of said body portion being provided, on the upper face thereof, with a transverse channel, such channels extending upwardly upon said supports; and a pair of braces adapted to be secured in said channels so as to extend across the ends of said body portion, and upwardly upon said supports.



2. In a buggy-boot the combination of the body 1, having channels 4 on its upper face; supports 2, having extensions of the channels 4 thereon; the strip 3, secured between the supports 2, completing the outline of the frame; the braces 5, secured in the channels 4, reinforcing all parts of the body, and securing the supports 2 thereto; the cover 6, and means for securing such boot in place.

748,780. COTTON-GIN. JOHN H. G. VON OVEN and JOHN C. BONNER, Charleston, S. C. Filed Sept. 22, 1902. Serial No. 124,332. (No model.)



Claim.—1. In a cotton-gin the combination with a ginning-cylinder, of a transverse endwise-reciprocating bar extending parallel to said cylinder a sufficient distance therefrom to admit of the passage between them of the separated cotton, said bar being situated near the top of the cylinder on its down-going side and formed with an upright abrupt front face of a thickness sufficient to retard the advance of the seed and hold them until entirely separated from the cotton, and to admit of the separated seed passing over the edge of the bar.

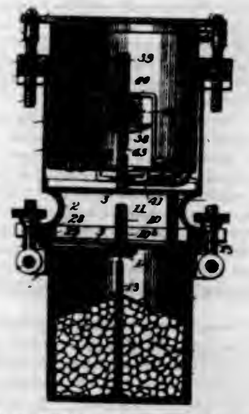
2. In a cotton-gin, the combination with a ginning-cylinder, of a transverse bar extending parallel to said cylinder a distance therefrom sufficient to admit of the passage between them of the ginned cotton only, said bar being situated near the top of the cylinder on its down-going side and formed with an upright abrupt front face of a thickness sufficient to detain the seed-laden cotton until the seed are separated by the reciprocating movement only of the bar, but not thick enough to prevent the separated seed from being crowded over the edge of the bar, means for reciprocating the bar endwise, and means for receiving and accumulating the seed passing over the edge of the same.

3. In a cotton-gin the combination with a ginning-cylinder, of a transverse endwise-reciprocating bar extending parallel to the ginning-surface a distance therefrom sufficient to admit of the passage between them of the ginned cotton only, said bar being situated near the top of the cylinder on its down-going side and formed with a front upright abrupt face having vertical corrugations or ribs.

4. In a cotton-gin, the combination with a ginning-cylinder of an endwise-reciprocating bar having an abrupt face of a thickness sufficient to hold the seed long enough for the reciprocation of the bar to separate them from the cotton, but not thick enough to interfere with the passage of the separated seed over the edge of the bar, a receiving-trough in rear of said bar in position to receive the seed passing over the edge of the same, and means for conveying the seed from said trough.

5. In a cotton-gin, the combination with a ginning-cylinder, of an endwise-reciprocating bar against which the seed-laden cotton is advanced, said bar being constructed to separate the seed and permit them to be crowded over its edge, a receiving-trough at the rear edge of the bar in position to receive the seed therefrom, and a conveyer-screw situated in said trough.

748,781. ACETYLENE-GAS GENERATOR. WILLIAM D. PACKARD, Warren, Ohio. Filed Dec. 26, 1902. Serial No. 136,683. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a generating-chamber, a water-tank in communication with said chamber, an inverted reservoir within said tank, and means for adjusting the height of said reservoir to vary the head of the water-supply to the generating-chamber.

2. In an acetylene-gas generator, the combination of a generating-chamber, a water-tank in communication with said chamber, a reservoir arranged in said tank and open only at its lower end, and adjusting-screws for varying the height of said reservoir relatively to the tank, for the purpose set forth.

3. In an acetylene-gas generator, the combination of a generating-chamber, a water-tank above said chamber, an intermediate regulating-chamber, suitable passages connecting said tank and chambers, an inverted reservoir within said tank, and means for adjusting said reservoir vertically.

4. In an acetylene-gas generator, the combination of a generating-chamber, a regulating-chamber above said generating-chamber, a water-tank above said regulating-chamber, suitable passages connecting said tank and chambers, an inverted reservoir arranged within said tank, and means for adjusting said reservoir vertically.

5. In an acetylene-gas generator, a generating-chamber, a tank, an inverted reservoir within the tank, means for adjusting said reservoir vertically relatively to the tank, a feed-regulating chamber below the tank, a conduit leading from the tank into said regulating-chamber and an overflow passage-way leading from said regulating-chamber, above the lower end of the conduit into said generating-chamber.

6. In an acetylene-gas generator, a generating-chamber, a feed-regulating chamber, an overflow passage-way leading from said latter chamber to the generating-chamber, a tank, a conduit leading from said tank into the regulating-chamber below the top of the overflow passage-way, and means for regulating the water-pressure comprising an inverted reservoir arranged within the tank, adjusting-screws connected with the tank for supporting and adjusting the reservoir, and means for removably securing said tank to the adjusting-screws.

7. In an acetylene-gas generator, the combination with a generating-chamber, a feed-regulating chamber, a tank above the regulating-chamber and passage-ways connecting the regulating-chamber with said tank and generating-chamber, of a reservoir in said tank, closed at its upper end and having a port in its lower end, a valve-stem extending through said port and adapted to engage the bottom of the tank, a valve upon said stem within the reservoir, a spring tending normally to close the valve, and means for supporting and vertically adjusting said reservoir within the tank.

8. In an acetylene-gas generator, a water-feeding apparatus comprising a reservoir closed at one end and having a port at the opposite end, a spring-pressed valve within the reservoir adapted to close said port, a stem connected with said valve and extending

through the port, and means for locking said valve in its open position.

9. In an acetylene-gas generator, a water-feeding apparatus comprising a reservoir closed at one end and having a port at the opposite end, a spring-pressed valve within the reservoir adapted to close said port, a valve-stem upon which said valve is mounted and suitable guides therefor, said stem having a notch in its side adapted, when the stem is moved laterally, to engage one of the guides and hold the valve in its open position.

10. In an acetylene-gas generator, the combination with a carbid-receptacle having an opening in its upper portion for the admission of water, of a rod within said receptacle vertically arranged beneath said opening and a perforated plate through which said rod extends, said plate being adjustable upon the rod and adapted to rest upon the carbid.

11. In an acetylene-gas generator, a casing comprising a tank, a feed-regulating chamber beneath said tank and a generating-chamber detachably secured to said regulating-chamber, in combination with a vertically-adjustable inverted reservoir within the tank, a carbid-receptacle within the generating-chamber, a conduit leading from the tank to the regulating-chamber, a valve in said conduit, an overflow passage-way extending from the regulating-chamber to the generating-chamber, a gas-conduit extending from the generating-chamber to the upper portion of the regulating-chamber and an outlet-pipe extending upwardly from said regulating-chamber through the tank.

12. In an acetylene-gas generating apparatus, a tank, an inverted reservoir adapted to extend into said tank and means for adjustably supporting and securing said reservoir within the tank comprising adjusting-screws connected with the tank and having heads for supporting the reservoir and spring-clips upon said screws for securing the reservoir to the adjusting-screws.

13. In an acetylene-gas generator, the combination with a carbid-receptacle having an opening in its upper portion for the admission of water, of a rod within said receptacle vertically arranged beneath said opening, and a conical plate through which said rod extends, said plate being adjustable upon the rod and having an annular depression or gutter and openings in the gutter for the passage of water onto the carbid.

748,782. HARVESTER. JAMES C. PARKER, Woodston, Kans. Filed Nov. 20, 1902. Serial No. 132,153. (No model.)



Claim.—1. A sheaf forming and binding device, comprising relatively movable forming members provided with independently-movable operating-handles and tie-retaining clamps operated by the handles to engage or release the tie.

2. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members provided with tie-retaining clamps and with operating-handles movable independently of the members to operate the clamps for the purpose of engaging or releasing the tie.

3. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members provided with seats and with operating-handles movable independently of the members, said handles having cam ends opposed to the seats to clamp the ends of a tie.

4. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members having tie-retaining means, and means for depressing the upper portion of a sheaf confined between the forming members to prevent interference with the binding operation.

5. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members provided with tie-retaining clamps at their upper ends and with depressing-fingers.

6. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members provided with tie-retaining means, operating-handles and depressing-fingers.

7. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members each of which is provided with an operating-handle, a tie-retaining clamp operated by the handle and a depressing-finger extending inwardly from the handle.

8. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members each having a pivoted operating-handle at its upper end, a tie-clamping cam associated with the handle, and a spring for retaining the handle in one position.

9. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members having lateral flanges for the support of a tie.

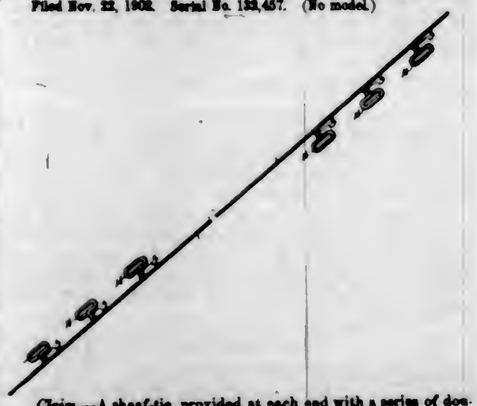
10. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members having tie-supporting flanges, seats for the extremities of the tie, and operating-handles formed with cam ends arranged to clamp the extremities of the tie against the seats.

11. A sheaf forming and binding device, comprising a pair of swinging arcuate forming members each provided with terminal tie-retaining means, and movable to present their upper retained ends past each other for the purpose of bringing the ends of a tie together.

12. A sheaf forming and binding device, comprising a base, a pair of arcuate forming members hinged thereto and provided with oppositely-disposed tie-supporting flanges, seats for the extremities of the tie, operating-handles formed with cam ends arranged to clamp the extremities of the tie against the seats and springs for retaining the handles.

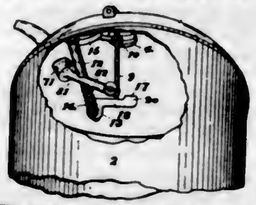
13. A sheaf forming and binding device, comprising a pair of arcuate forming members, provided at their upper ends with means for the retention of the extremities of a tie, said members being movable in parallel planes to present their upper ends in crossing relation for the purpose of bringing together the end portions of a tie.

748,783. SHEAF-TIE. JAMES C. PARKER, Woodston, Kans. Filed Nov. 22, 1902. Serial No. 132,457. (No model.)



Claim.—A sheaf-tie, provided at each end with a series of double-ended catches disposed lengthwise of the strand, and connected to said strand by transversely-disposed shanks, the catches of one series being located at the side of the strand opposite the other series of catches, the intervals between the catches of each series corresponding to the intervals between the catches of the other series, whereby when the two ends of the tie are moved simultaneously around a sheaf and crossed by the corresponding movement of both ends, corresponding catches of opposite series will be engaged by the expansion of the sheaf to interlock the ends of the tie at the point of intersection.

748,784. SAFETY-CAN. WILLIAM H. PEARSON, New Brunswick N. J. Filed Jan. 16, 1903. Serial No. 139,269. (No model.)



Claim.—1. The combination with the can, of a lever comprising a shaft adapted to extend from side to side of the raised top of the can, arms 81, and 82, one having a stopper and the other a plunger and a stop-arm 15 rigid upon and projecting from the said shaft and adapted to engage the top interior wall of the can and limit the movement of the lever, said shaft and arms 81 and 82, and stop-arm being all of one integral piece, a guide for the plunger and a spring, substantially as set forth.

2. The combination with the can having a neck and nozzle, of a lever comprising a shaft to extend from side to side of the raised top of said can, a spring arranged on said shaft, arms 81 and 82, one having a soft stopper applied to its end and the other a pivoted plunger, a stop-arm rigidly formed on said shaft to limit the movement of the lever, a guide for the plunger, and a cap for closing the neck and engaging the plunger to effect a closing of the nozzle, substantially as set forth.

3. The combination with the can having a centrally-raised top, a neck and a nozzle, and having opposite slots or openings, with ears extending therethrough, said ears providing bearings for a handle or bail on the outside and fulcrumal bearings for a lever on the inside of said can, of a lever having at one end a stopper for the nozzle and at the other end a plunger for the cap, and said cap, substantially as set forth.

4. The combination with the can having a centrally-raised top a neck and a nozzle, and having opposite slots or openings with ears extending therethrough said ears providing bearings for a handle or bail on the outside and fulcrumal bearings for a lever on the inside of said can, of a lever having at one end a stopper of soft material sealed in a bowl and at the other end a plunger for the cap and said cap, substantially as set forth.

5. The combination with the can having a centrally-raised top, a neck and a nozzle, and having opposite slots or openings, with ears extending therethrough, said ears providing bearings for a handle or bail on the outside and fulcrumal bearings for a lever on the inside of said can, of a lever having at one end a stopper of cork screwed into a threaded bowl attached to the lever, and having at the other end a plunger for the cap, and said cap adapted to close the neck and press the plunger to turn the lever and close the nozzle, substantially as set forth.

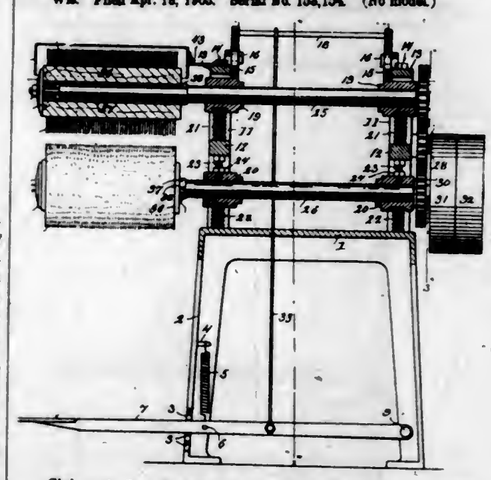
748,785. DISK-SHARPENER. EDWARD PIERSON, Milan, Kans. Filed Sept. 1, 1903. Serial No. 171,523. (No model.)



Claim.—1. The combination with a standard attachable to an anvil, and adjustable angularly and vertically, of a handle rotatably supported at the top of the standard, and means to attach a disk to the handle.

2. The combination with an angularly-adjustable standard attachable to an anvil, and a forked piece extensible upon the upper end of the standard, of a handle rotatable in the fork, and devices to attach a disk to the handle.

748,786. SCOURING-MACHINE. ADOLPH PIETSCH, Milwaukee, Wis. Filed Apr. 18, 1903. Serial No. 153,154. (No model.)



Claim.—1. In a scouring-machine, the combination with a suitable support, of box-frames mounted thereon; journal-boxes carried by said frames; a pair of shafts journaled in said boxes; brushes secured to said shafts at one end thereof; gearing connected to the other ends of said shafts for revolving both in the same direction, so that the adjacent surfaces of the two brushes shall always move in opposite directions, springs for moving one of said shafts away from the other, and means for moving the first-named shaft nearer the other.

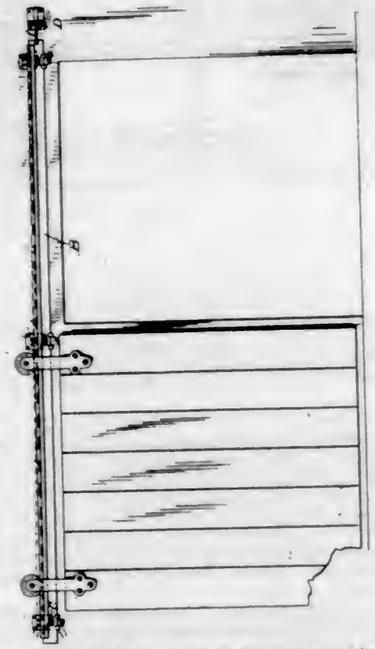
2. In a scouring-machine, the combination with a suitable support, of box-frames mounted thereon; journal-boxes carried by said frames; a pair of shafts journaled in said boxes; brushes secured to said shafts at one end thereof; gearing connected to the other ends of said shafts for revolving both in the same direction, so that the adjacent surfaces of the two brushes shall always move in opposite directions; and springs for moving the journal-boxes of one of said shafts and the said shaft and brush carried thereby nearer to the other shaft and its brush, and cams for forcing the journal-boxes of the first-named shaft nearer to the said other shaft.

3. In a scouring-machine, the combination with a suitable support, of box-frames mounted thereon; movable journal-boxes carried by said frames; springs for moving said boxes in one direction and means for moving them in the opposite direction; a pair of shafts journaled in said boxes, and carrying brushes at one end and gear-wheels at the other end; a pinion in mesh with said gear-wheels for revolving both in the same direction, so that the adjacent surfaces of the two brushes shall always move in opposite directions; and power-pulleys on one of said shafts.

4. In a scouring-machine, the combination with a suitable support, of longitudinally-slotted box-frames mounted thereon; centrally-disposed cross-pieces, dividing the slotted portions of the box-frames so as to constitute separate slots on each side of the said cross-pieces, movable journal-boxes in said slots; springs for moving said boxes in one direction and cams and adjusting-screws for moving them in the opposite direction; a pair of shafts journaled in said boxes, and carrying brushes at one end, and gear-wheels at the other end; a pinion in mesh with said gear-wheels for revolving both in the same direction, so that the adjacent surfaces of the two brushes shall always move in opposite directions; power-pulleys on one of said shafts; a rod connecting said cams; and a treadle-lever pivoted to said support, and linked to the rod connecting the cams.

5. In a scouring-machine, the combination with a suitable support, of vertically-slotted box-frames mounted thereon; upper and lower movable journal-boxes in said slots; springs for moving said boxes upward; adjusting-screws for moving the lower boxes downward; cams pivotally supported on said box-frames, in contact with the upper journal-boxes, and having lever-arms connected by a horizontal rod; upper and lower revoluble shafts journaled in said boxes and carrying circular brushes at one end and gear-wheels at the other end; a stud on one of the box-frames, intermediate of the said shafts; a pinion on said stud in mesh with said gear-wheels; a spring-controlled treadle-lever pivoted to said support, and a connecting rod between said lever, and the said horizontal cam-rod.

748,787. ADJUSTABLE SLIDING-DOOR SUPPORT. THEODORE C. PROUTY, Albion, Mich. Filed June 22, 1903. Serial No. 163,461. (No model.)



Claim.—1. In a sliding-door support, the combination of a track, movable means for supporting same, fixed means for supporting said movable track-supporting means, a longitudinally-movable bar adjustably secured to said movable track-supporting means, and arranged to vary the angular position thereof relatively to a horizontal plane.

2. In a sliding-door support, the combination of a track, means for supporting same, including a plurality of members movable transversely of the longitudinal axis of the track, fixed means for supporting said members, and means adjustably secured to said members for simultaneously actuating said members to move varying distances.

3. In a sliding-door support, the combination of a track, means for supporting same, including a plurality of members movable transversely of the longitudinal axis of the track, fixed means for supporting said members, and a movable bar engaging said members and arranged to simultaneously move same.

4. In a sliding-door support, the combination of a track, means for supporting same, including a plurality of members movable transversely of the longitudinal axis of the track, fixed means for supporting said members, and a movable bar constructed to engage and simultaneously actuate said members varying distances.

5. In a sliding-door support, the combination of a track, means for supporting same, including a plurality of members movable transversely of the longitudinal axis of the track, means for supporting said members, comprising a plurality of fixed plates, and slidable means so constructed as to engage and simultaneously actuate said members as to impart transverse movement thereto.

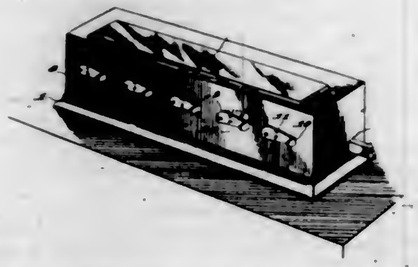
6. In a sliding-door support, the combination of a track, means for supporting same, including a plurality of members movable transversely of the longitudinal axis of the track, means for supporting said members, comprising a plurality of fixed plates, and slidable means so constructed as to engage, and simultaneously actuate said members as to impart transverse movement thereto, the construction being such that the distance through which each member is so moved varies directly as its distance from a given point.

7. In a sliding-door support, the combination of a longitudinally-movable bar, a plurality of plates forming a slideway for said bar, and a member slidably mounted in each such plate, and a track mounted upon such slidable members, said bar engaging the latter and arranged to impart a sliding movement thereto.

8. In a sliding-door support, the combination of a plurality of slidable members, slideway-supports for same, a movable bar engaging such members and arranged to actuate them to slide, the direction of movement of such bar being transverse relatively to the direction of sliding of said members, and means for moving said bar.

9. In a sliding-door support, the combination of a plurality of slidable members, slideway-supports for same, a movable bar engaging such members, by means of a plurality of headed studs on said members and a plurality of inclined slots in said bar, and arranged to move said members distances increasing progressively from one end of the support toward the other, and means for moving said bar.

748,788. GAME APPARATUS. HENRY RAMM, Flushing, N. Y. Filed Apr. 28, 1903. Serial No. 154,666. (No model.)



Claim.—A game apparatus comprising a box, means for inspecting the interior thereof, a plurality of loosely-mounted spindles, rotating means carried by the spindles and provided with indicia, means for driving the spindles, a plurality of levers pivoted exteriorly of the box, one end of each spindle journaled in the lever, said ends passing through slots formed in the box, a pin carried by the outer end of each lever and adapted to be received in any one of a plurality of holes to retain the spindle in or out of engagement with the driving means.

748,789. ACCOUNT-BOOK. JAMES H. RAND, North Tonawanda, N. Y. Filed July 31, 1902. Serial No. 117,860. (No model.)



Claim.—1. A record or account book having a hinged guide frame capable of swinging to either side of the open book, and an index carried by said frame and capable of sliding thereon, substantially as set forth.

2. A record or account book having a hinged frame capable of swinging to either side of the open book, slides mounted on said frame, and an index reversibly mounted on said slides, substantially as set forth.

3. A record or account book having a hinged guide-frame capable of swinging to either side of the open book, slides mounted on said frame, and an index carried by said slides and capable of swiveling thereon, substantially as set forth.

4. A record or account book having a swinging guide-frame hinged to the upper and lower edges of the book by a flexible joint, and an index carried by said frame and capable of sliding thereon, substantially as set forth.

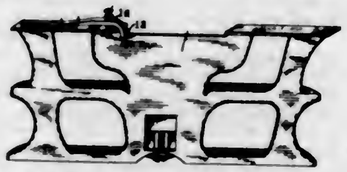
5. A record or account book having a swinging guide-frame hinged to the same by a double joint which consists of links pivoted at their inner ends to the back of the book and at their outer ends to the upper and lower members of the frame, and an index carried by said frame, substantially as set forth.

6. A record or account book having a pocket or loop bound in its back, a hinged guide-frame having pintles arranged in said loop, and an index carried by said frame, substantially as set forth.

7. A record or account book having a swinging U-shaped guide-frame hinged at its inner ends to the back or binding edge of the book and extending around the upper, lower and outer edges of its leaves, and an index carried by said frame and capable of sliding laterally on the upper and lower members thereof, substantially as set forth.

8. A record or account book having long leaves each provided on its outer margin with an index-column divided into name-spaces, a short leaf or leaves terminating at said index-column and having entry-spaces which register with said name-spaces, and a substitute name tab or tabs applied to the outer edges of said short leaf or leaves, each of said tabs being arranged in line with one of said entry-spaces and the corresponding name-space of the index-column and extending beyond the short leaves sufficiently to overlie said name-space, substantially as set forth.

748,790. SWAGE-GAGE FOR SAWS. AUGUSTUS U. REPPETO, Blachly, Oreg., assignor to H. C. Atkins & Company, Indianapolis, Ind., a Corporation of Indiana. Filed Nov. 10, 1902. Serial No. 130,725. (No model.)



Claim.—1. A swage-gage consisting of a main body, a pair of considerably-separated flanges carried thereby and adapted to rest upon the periphery of the saw, a spring gage-finger projecting into the space between said flanges, and means for adjusting said finger transversely with relation to the saw-face of said flanges.

2. A swage-gage consisting of a main body, a pair of separate flanges carried by said main body, a spring-finger carried by one of said flanges and projecting into the space between said flanges at some distance from the adjacent end of the other flange, and means for adjusting said finger, for the purpose set forth.

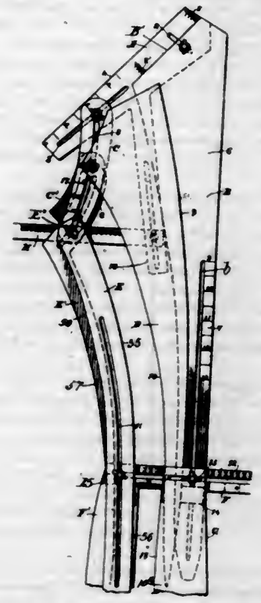
3. A swage-gage consisting of a main body, a pair of separate flanges carried by said body, a gage-finger projected into the space between said flanges, and means for adjusting said finger transversely through said space, for the purpose set forth.

748,791. PROCESS OF MAKING OXALATES. FRIEDRICH RISCHE and OTTO SAAME, Oestrich, Germany, assignors to The Firm of Rudolph Koepp & Co., Oestrich, Rheingau, Germany. Filed May 9, 1903. Serial No. 156,439. (No specimens.)

Claim.—The herein-described process of manufacturing oxalates by means of formiates by heating the latter in the presence of a small quantity of a free alkali not exceeding five per cent. as and for the purpose set forth.

748,792. APPLIANCE FOR DRAFTING GARMENTS. JANE ROBERT, San Francisco, Cal. Filed Dec. 31, 1900. Serial No. 41,605. (No model.)

Claim.—1. In an appliance for drafting garments, a front piece having a broadened upper extension, curved bust-pieces on the front and a rectangular extension on the bottom, a front shoulder-piece, a front-arm piece, a plate adjustably secured to the front piece, an under-arm piece with extension, a hip-piece, dart-strips adjustably secured to the front portion, and a waist-piece with needle adjustably secured to the dart-strips.



2. In an appliance for drafting the front of garments a front piece, having a broadened extension and an oblique guide-line on said extension in combination with a front shoulder-piece secured adjustably to said extension provided with an elongated downward extension a longitudinal slot therein and an oblique slot through its bottom portion having neck-measurement graduations thereon, whereby by said graduations and guide-line on said front-piece extension the point of the neck and slope of the shoulder are determined.

3. In an appliance for drafting the front of garments, the front piece with top extension having a guide-line thereon and a front shoulder-piece having a concave edge terminating in a point for indicating the point of the neck, said shoulder-piece revoluble on said front piece and adjustable along the guide-line thereof, whereby the point of the neck and the slope of the shoulder are simultaneously established by the adjustment of said shoulder-piece.

4. In an appliance for drafting the front of garments, a front piece, a guide-line on its top portion, in combination with a front shoulder-piece secured adjustably to the top portion of said front piece and provided with an elongated downward extension with a longitudinal slot therein, a slot through its bottom portion, neck-measurement graduations thereon, and a front neck-piece secured adjustably to the front piece and also secured to the front shoulder-piece and neck-measurement graduations thereon.

5. In an appliance for drafting the front of garments a front piece forming a broad extension, a guide-line on said extension in combination with a front shoulder-piece having an oblique slot in its lower portion and graduations thereon and secured adjustably to the top portion of said front piece and provided with an elongated downward extension with longitudinal slot therein, and a single arcuate pendulous front armhole-piece secured adjustably through its top end to the extension of the front shoulder-piece.

6. In an appliance for drafting garments, a front shoulder-piece having a slot provided with neck graduations, in combination with a front piece having a guide-line and a screw for engaging said slot.

7. In an appliance for drafting the front of garments in combination a front piece having an extension on the top, with graduations thereon a plate longitudinally adjustable on said extension, and guided by the graduations on said front-piece extension a front under-arm piece adjustable transversely of aforesaid plate and longitudinally with same, a rectangular connecting member transversely adjustable at the

bottom of said under-arm piece and longitudinally adjustable on the bottom portion of the front piece.

8. In an appliance for drafting the front of garments in combination a front piece with extension, a plate longitudinally adjustable on said extension, an under-arm piece adjustable transversely of aforesaid plate and longitudinally with same, a rectangular connecting member transversely adjustable at the bottom of the under-arm piece and longitudinally on the bottom of the front piece and a flaring hip-piece longitudinally adjustable of aforesaid under-arm piece.

9. The combination with a front piece, of a plate adjustable longitudinally thereon, an under-arm piece adjustably secured to the said plate and having a curved edge 35, said under-arm piece being provided with bust graduations, a front shoulder-piece adjustable on the front piece, and a curved front armhole-piece adjustably secured at its upper end to the shoulder-piece, the lower end being free, the curve of said arm-piece being adapted to run into the curved edge of the under-arm piece to form the armhole, substantially as described.

10. In an appliance for drafting the front of a garment, the combination with the front piece, a plate longitudinally adjustable thereon, the front shoulder-piece, adjustable on the front piece as described, and having a downward extension, a horizontal slot therein the front armhole-piece adjustable along said slot of a front under-arm piece adjustable transversely of the aforesaid plate and with the latter longitudinally on the aforesaid front piece, said under-arm piece having a curved upper edge cooperating with the front-arm pieces, to continue the under-arm curve, substantially as and for the purpose set forth.

11. In an appliance for drafting the front of garments, the combination with the front piece of a plate adjustable vertically thereon, an under-arm piece having a curved outer edge with under-arm graduations thereon, and adjustably connected with said plate and a second under-arm piece provided with a transverse slot in its upper portion and adjustable laterally from the aforesaid under-arm piece, the slot in the latter provided with bust-measure indices, a hip-piece with lateral extension and slot therein having bust graduations thereon corresponding to the bust graduations on the second under-arm piece.

12. In an appliance for drafting the front of garments, a front piece, graduations thereon, a plate vertically adjustable thereon along said graduations, an under-arm piece connected to said plate, a secondary under-arm piece transversely adjustable from the under-arm piece, and slidable underneath the latter so as to be completely concealed thereby, a strip Q' pivotally adjustable to said second under-arm piece, a curved strip Q, adjustably pivoted at the top end of the piece Q', both pieces Q' and Q adapted to be shifted completely underneath the said under-arm pieces so as to be concealed completely thereby for the purpose set forth.

13. In an appliance for drafting the front of garments a dart device composed of curved dart-strips, each provided with a longitudinal slot, a horizontally-slotted waist-piece, lower extensions to the dart-strips slotted longitudinally and each secured adjustably through its top to the waist-piece and also in the slots of the dart-strips, and a needle adjustably secured in the slot of the waist-piece.

14. In an appliance for drafting the front of a garment, a front piece, curved dart-strips adjustably secured to said front piece, a waist-piece having a longitudinal slot therein, said waist-piece lying crosswise of said dart-strips and an extension-strip being adjustably pivoted to each of said dart-strips, and to the waist-piece, said waist-piece being adjustable longitudinally with relation to said dart-strips, independent of said front piece, and means for determining the proper position of the upper ends of said dart-strips, and the lower ends of said extensions.

15. In an appliance for drafting garments, an under-arm piece, a second under-arm piece, adjustably connected thereto, a strip Q' adjustably connected to one of the under-arm pieces, a curved strip adjustably connected to said strip Q' and means for adjusting the said curved strip and strip Q' longitudinally and laterally with respect to said under-arm pieces.

16. In an appliance for drafting the front of garments a dart device composed of curved dart-strips, slots, therein, a horizontally-slotted waist-piece, lower extension-strips each provided with a slot and adjustably secured through their tops to the waist-piece and also in the slots of the dart-strips, and a needle adjustably secured in the slot of the waist-piece in combination with a plate to which the top of the dart device is adjustably secured and a horizontally-slotted connecting member in which the lower dart extensions are adjustably secured.

17. The combination in an appliance for drafting the front of a garment, of curved dart-strips, longitudinal slots therein, a plate to which said dart-strips are pivotally secured, a waist-piece adjustably secured to said dart-strips, lower slotted extension-strips pivoted to the waist-piece and also through the slots in the dart-strips, and a needle adjustably secured to said waist-piece for the purpose set forth.

18. The combination in an appliance for drafting the front of a garment, of curved dart-strips, a plate to which said dart-strips are pivotally secured, a waist-piece adjustably secured to said dart-strips and a needle secured to said waist-piece, said waist-piece being horizontally slotted and having corresponding figures or graduations on both sides of said slot, whereby said needle may be squared to said waist-pieces, substantially as described.

19. In an appliance for drafting the front of garments, the combination with a front piece of a shoulder-piece adjustable thereon to vary the slope of the shoulder and determine the point of the neck, a graduated slotted extension on the shoulder-piece, a front-arm piece pivoted adjustably at its upper end in the slotted extension and free at the other end, a plate having a front under-arm curve adjustable on said front piece said curved front-arm piece arranged to be swung on its pivot to cooperate with the curve of said plate to draft the under arm, substantially as described.

20. In an appliance for drafting the front and under arm of a garment, the combination with a front piece, an under-arm piece having a lateral extension and two series of bust graduations marked thereon, said under-arm piece being adjustably secured to said front piece, and means for adjusting the under-arm piece longitudinally and laterally with respect to said front piece.

21. The combination with an under-arm piece of a second under-arm piece, secured beneath the latter adjustable transversely thereto and having a lateral top extension with bust graduations thereon, a flaring hip-piece having a lateral extension with transverse slot therein and having bust graduations thereon corresponding to the above bust graduations and connected to both under-arm pieces whereby the under arm at both bust and waist line can be drafted from the same measurement, substantially as described.

22. The combination with a front piece, a plate thereon, an under-arm piece adjustably secured to said front piece of a second under-arm piece, a second under-arm piece secured beneath the former and adjustable transversely thereof, a flared hip-piece adjustable both vertically and transversely of said under-arm pieces and a complementary flaring hip-piece adjustable vertically with the aforesaid hip-piece whereby the length of the under arm of the front, the length of the under-arm piece and the flare of the hip for under-arm and front pieces are simultaneously obtained.

23. In an appliance for drafting the front of garments, a front piece, with top extension and graduations on the latter, a plate thereon adjustable to said graduations, an under-arm piece adjustable transversely of aforesaid plate and provided with a longitudinal slot, a flared hip-piece adjustable longitudinally of said under-arm piece and provided with an extension projecting substantially at right angles thereto and having a slot therein in which said hip-piece is adjustable transversely, and a complementary flared hip-piece adjustable with said hip-piece on said under-arm piece.

24. In a device for drafting garments, the combination with the front piece, of a shoulder-piece connected thereto and means for adjusting the slant thereof, a neck-piece adjustably connected to both front and shoulder pieces, the arm-piece L pivoted at one end to the shoulder-piece, a plate on and adjustable longitudinally of the front piece, a front under-arm piece O adjustable on and laterally of said plate, and having a curved edge arranged to form a continuation of the like edge of the aforesaid front-arm piece L and the segmental strip Q adjustable on piece O so that its curvilinear edge will form a continuation of the curved edge of said arm-piece O, substantially as and for the purpose set forth.

25. In an appliance for drafting garments, two under-arm pieces each having longitudinal slots, in combination with a flared hip-piece having a lateral extension and a slot therein, said extension crossing said under-arm pieces, and said hip-piece being adjustably secured to one of said under-arm pieces, and a flared piece having a screw for engaging the slot in said extension and the slot in the other under-arm piece, and means for determining the longitudinal and lateral position of said hip-pieces with respect to said under-arm pieces, whereby the length and width of the under-arm piece, and the flare to the skirt of said pieces may be obtained in one adjusting operation.

26. In an appliance for drafting garments an under-arm piece, and a second under-arm piece, in combination with a flared hip-piece having a lateral extension, and a slot therein, said extension being adjustably secured to said under-arm pieces, and a downward-flaring piece adjustably connected to said extension and one of said under-arm pieces, and means for adjusting said flared pieces together longitudinally with respect to said under-arm pieces, and said hip-pieces are also capable of swinging movement.

27. An appliance for drafting the back of a garment composed essentially of a back shoulder-piece, a downward strip rigidly connected thereto, a bust-strip adjustably secured on said downward strip, a single back-piece adjustably secured to the shoulder-piece, a back armhole-piece adjustably secured to said shoulder-piece, a side-body piece D adjustably secured to the armhole-piece, a side-body piece E and an auxiliary side-body piece E' adjustably secured to the armhole-piece, a waist-piece secured adjustably to side-body and back pieces, a flaring hip-piece integral with the waist-piece, and a waist-line piece secured adjustably to the back-piece and waist-piece.

28. In an appliance for drafting garments, a back shoulder-piece having a downward extension, a bust-strip having bust graduations marked thereon, said bust-strip being adjustably secured to said extensions, an armhole-piece adjustably secured to said shoulder-piece, and cooperating with said graduations and means for holding said parts in operative position.

29. In an appliance for drafting garments, the combination of a shoulder-piece, an armhole-piece and two longitudinal pieces adjustably connected together to give the outline of the back and side-body portions of the garment, and a curved piece adapted to slide upon said armhole-piece and adjustably secured thereto in various positions without altering the combined width of said back and side-body portions.

30. In an appliance for drafting garments, a set of pieces adjustably mounted together and adapted to give the outline of the back and side-body portions of a garment, combined, said set of pieces including an armhole-piece and a waist-piece, and a curved piece for outlining the seam between said back and side-body portions, said curved piece capable of adjustment at the armhole-piece and at the waist-piece without altering the adjustment of said set of pieces.

31. In an appliance for drafting garments, a back-piece, a side-body piece, and a waist-piece adjustably connected together and adjustable longitudinally and laterally each in reference to the other, the said back-piece being provided with a series of graduations for indicating the position for said longitudinal adjustment whereby the length of the back and side-body pieces is obtained by one adjustment of the waist-piece.

32. The combination with an armhole-piece of a side-body piece adjustably secured to said piece and having an inner concaved edge, a waist-line piece G' with sheath thereon through which the long free end the side-body piece is freely movable.

33. The combination with a back-piece of a shoulder-piece, an armhole-piece, a waist-piece, a waist-line piece G, a sheath thereon and a side-body piece D adjustably secured to the armhole-piece and free at its lower end, said lower end passing through said sheath as specified.

34. In an appliance for drafting garments, a back-piece, a side-body piece and a second side-body piece and a waist-piece, adjustably connected to said back and side-body pieces, said waist-piece being adjustable laterally with respect to said back and side-body pieces and said waist-piece being adjustable longitudinally on said back and side-body pieces, and said back-piece and said waist-piece being provided with sets of graduations indicating the positions for said adjustments, whereby the parts may be set at one adjusting operation to give the length of the back and side-body seams, and the width of said pieces in proportion to waist-measure.

35. The combination with a single waist-piece having an integral flaring hip-piece of a single side-body piece E adjustably secured in the waist-piece, a single back-piece adjustably secured to said waist-piece, and a waist-line piece with sheath thereon and transverse slot in its top portion, a side-body piece D sliding in said sheath; the inner edge of said waist-line piece to be set to the lower edge of the side-body piece D for the purpose described.

36. In an appliance for drafting the back and side-body pieces, of a garment, a back-piece, two side-body pieces, and a waist-piece having a flared extension, and slidable longitudinally in respect to said back and side-body pieces, and slidable laterally in respect to the back and one of said side-body pieces, and a flared piece connected to and carried longitudinally by said waist-pieces, said back and waist pieces being provided with sets of graduations indicating the position of said adjustments.

37. In an appliance for drafting the back of a garment a curvilinear back armhole-piece, a slightly-concaved outer edge thereon a segmental slot therein with child's graduations thereon in combination with a supplementary child's armhole-piece adjustably secured in the said segmental slot, having an upper concaved edge and a straight side edge for the purpose described.

38. In an appliance for drafting garments, a back-piece provided with a longitudinal slot, a side-body piece, and a second side-body piece provided with a longitudinal slot, in combination with a waist-piece having a downward-flared extension and provided with a longitudinal slot, said waist-piece crossing said back and side-body pieces, and an adjusting-screw for engaging the slot in the waist-piece and the slot in the side-body piece, and a flared piece having an adjusting-screw for engaging the slot in the waist-piece, and the slot in the back-piece and serving to hold all three parts together.

39. The combination with a back armhole-piece of a curvilinear side-body piece E a longitudinal curved slot therein and an auxiliary side-body piece E' adjustably pivoted with side-body piece to the armhole-piece, a waist-piece, a flaring hip-piece integral therewith with sheath thereon in which the piece auxiliary side-body piece slides longitudinally, the side-body piece being adjustably secured to the waist-piece for longitudinal and lateral adjustment.

40. In an appliance for drafting the back of a garment, the combination with a back-piece and a side-body piece, of a graduated waist-piece slidably secured to both the back-piece and the side-body piece, said waist-piece being longitudinally and laterally adjustable with respect to the back and side-body pieces, substantially as set forth.

41. The combination with a back-piece, a shoulder-piece, an armhole-piece adjustably attached to said shoulder-piece, and a side-body piece adjustably secured to said armhole-piece: of an extra child's armhole-piece pivoted at its upper end to the armhole-piece and having its lower end free, substantially as described.

42. In an appliance for drafting garments, the combination of a back-piece provided with a longitudinal slot, and a side-body piece, a waist-piece having a lateral slot, and a flared piece having a sheath thereon for adjustably securing the side-body piece to the latter piece, and said flared piece having an adjusting-screw for engaging the slot in said waist-piece and back-piece, this connection serves to hold all four parts together.

43. In a device for drafting the back of a garment, the combination with the back-piece, the side-body piece, the shoulder-piece connected to said back-piece as described, the back-arm piece and adjustable connections between the same and the shoulder and side-body pieces; of the inner side-body piece adjustable on the back-arm piece, a single waist-piece adjustable longitudinally of the back and side-body pieces, both said pieces adjustable laterally on said waist-piece, substantially as for the purpose set forth.

44. In an appliance for drafting the back of a garment, the combination with the back-piece, the side-body piece, the back-arm piece, the shoulder-piece and adjustable connections between said back-arm piece and the side-body and shoulder pieces, the said shoulder-piece having the graduated edge 5 and the corresponding graduations 2', and an adjustable connection between said shoulder and back pieces, substantially as and for the purpose set forth.

45. In apparatus for drafting the back of a garment, the combination with a shoulder-piece having a slotted downwardly-extending strip 16, of a bust-piece graduated to bust-measure, one end thereof adjustably pivoted in the slot of said strip 16 and a single back-arm piece adjustably connected to the shoulder-piece and positioned by said bust-piece, substantially as described.

46. The combination with the shoulder-piece provided with the slotted strip 16, the bust-strip adjustable in said slotted strip 16, the back-piece adjustable in an angular direction on and relatively to said shoulder-piece, the back-arm piece adjustable lengthwise of the shoulder-piece, the side-body piece adjustable along an arc of a circle on said arm-piece and the waist-piece adjustable lengthwise of the back and side-body pieces for vertical and lateral adjustment; of the inner side-body piece constructed as described, adjustable along the aforesaid arc of a circle on the arm-piece, substantially as and for the purpose set forth.

47. The combination with the shoulder-piece provided with the slotted strip 16, the bust-strip adjustable in said slotted strip 16, the back-piece adjustable in an angular direction on and relatively to said shoulder-piece, the back-arm piece adjustable lengthwise of the shoulder-piece, the side-body piece adjustable along an arc of a circle on said arm-piece, the waist-piece adjustable lengthwise of the back and side-body pieces for vertical and lateral adjustment and the inner side-body piece constructed as described, adjustable along the aforesaid arc of a circle on the arm-piece; of an auxiliary side-body piece on the arm-piece and slidably connected with the waist-piece, substantially as and for the purpose set forth.

48. The combination with the shoulder-piece provided with the slotted strip 16, the bust-strip adjustable in said slotted strip 16, the

back-piece adjustable in an angular direction on and relatively to said shoulder-piece, the back-arm piece adjustable lengthwise of the shoulder-piece, the side-body piece E adjustable along an arc of a circle on said arm-piece, the waist-piece adjustable lengthwise of the back and side-body pieces for vertical and lateral adjustment and the inner side-body piece, constructed as described, adjustable along the aforesaid arc of a circle on the arm-piece; of an auxiliary side-body piece on the arm-piece and slidably connected with the waist, the flared extension F', integral therewith and the waist-line piece adjustable vertically of the back-piece and inner side-body piece and laterally of the waist-piece, back-piece and piece D substantially as and for the purpose set forth.

49. The combination with the shoulder-piece A, the back-piece B connected with and adjustable relatively to said shoulder-piece as described, the arm-piece C connected with and adjustable relatively to said shoulder-piece, the side-body piece E adjustable along an arc of a circle on said arm-piece, and the waist-piece F connected for adjustment with the back and side-body pieces as set forth; of the auxiliary side-body piece E' adjustable with the side-body piece E on arm-piece C and slidably connected with the said waist-piece F, substantially as and for the purpose set forth.

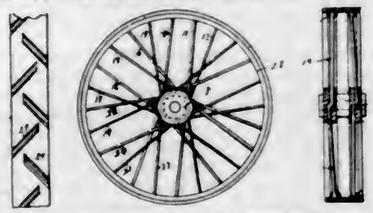
50. In an apparatus for drafting garments, the combination with a back-piece, of a shoulder-piece adjustably connected thereto and a back-arm piece adjustably connected to the shoulder-piece, a side-body piece adjustably connected to the arm-piece, and an extra child's arm-piece adjustably connected with the back-arm piece, said arm-pieces being of different curvature and adapted to cooperate to draft the back of the armhole, substantially as described.

51. In a device for drafting the back of a garment, the combination with a shoulder-piece and back-arm piece adjustably connected therewith: of a waist-piece having a waist-line piece G adjustably and pivotally connected thereto, a side-body piece D adjustable along an arc of a circle of the aforesaid back-arm piece, said piece D tapering to a point and laterally movable in a sheath on a waist-line piece whereby the waist-line piece G is adapted to be rotated to aline the pattern-line traced to the waist along the aforesaid side-body piece and point of said body-piece to give the proper flare to the skirt, as described.

52. In a device for drafting the back of a garment, the combination with the shoulder-piece A provided with parallel graduations, the back-piece B constructed and adjustable on and relatively to said shoulder-piece as set forth, the back-arm piece connected with and adjustable lengthwise of the shoulder-piece, the side-body piece E connected with and adjustable along an arc of a circle on the back-arm piece, the waist-piece F having the integral piece F' at one end, said waist-piece connected for adjustment longitudinally and laterally relatively to the back and side-body pieces; of the waist-line piece pivoted to and adjustable lengthwise of the waist-piece F, and the inner side-body piece constructed as described, and adjustable along the aforesaid arc of a circle on back-arm piece C and slidable longitudinally and laterally in a sheath on said waist-line piece G, substantially as and for the purpose set forth.

53. In a device for drafting the back of a garment, the combination with the shoulder-piece, the back-arm piece connected with and adjustable lengthwise of said shoulder-piece, a single back-piece and a single side-body piece, said back-piece connected with and adjustable on and relatively to the shoulder-piece, and said side-body piece connected with and adjustable along an arc of a circle on the back-arm piece; of a waist-piece connected for adjustment with the aforesaid back and side-body pieces as described, for the purpose set forth.

748,793. **METAL TRACTION-WHEEL.** ALONZO C. ROGERS, Toledo, Ohio. Filed May 18, 1903. Serial No. 157,541. (No model.)



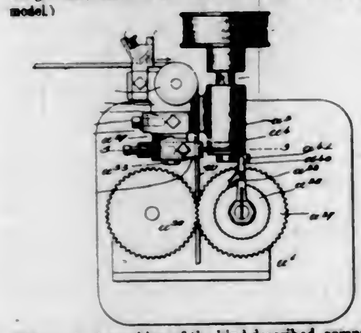
Claim.—1. As a new article of manufacture, two spokes formed of a single metal rod and having their inner contiguous ends displaced laterally by a double bend in the middle portion of the rod and terminating in substantially opposite directions in enlarged extremities.

2. In a metal traction-wheel the combination with a hub formed with end flanges, and a rim, of a spoke and its complement formed of a single rod with a double bend in its middle portion whereon the hub-flange is securely cast, and with enlarged extremities whereon the rim is securely cast, said spoke and complement together being so arranged as to form a chord to the rim and a tangent to the hub, and whereby an integral wheel is formed.

3. In a metal traction-wheel, the combination with a rim, of a series of metal rods each forming a main and a complementary spoke and having a double bend in its middle portion to displace the contiguous base portions of said spokes in different planes, said rods being extended across each other in straight lines from said double bends to form tangents to the hub and chords to the rim and terminating at their extremities in enlargements having the rim securely cast thereon, and a hub cast upon the middle portion of said rods and over said bends therein.

4. In a traction-wheel, the combination with a cast-metal hub formed with thick flanges encircling its respective end portions, and a cast-metal rim formed with parallel flanges on its inner surface which correspond with the respective hub-flanges and are concentric thereto, of metal rods each formed into two opposite spokes by means of a double bend in its middle portion, whereby the base portions of said spokes are displaced in different planes parallel to the hub-flanges, said hub-flanges being cast securely over the said double bend and middle portion of the rods and in such manner that the opposite spokes together form a tangent to the hub and a chord to the rim, said spokes being extended from the face of the hub-flanges across adjacent spokes and terminating within the corresponding rim-flanges which are securely cast thereon, whereby a substantially integral wheel is formed.

748,794. **WELT-MAKING MACHINE.** GEORGE H. ROLLINS, East Bridgewater, Mass. Filed May 7, 1903. Serial No. 155,967. (No model.)



Claim.—1. A machine of the kind described, comprising means for feeding a welt-strip, means for holding said welt-strip, means cooperating therewith for cutting a groove in one face of said strip, and means for limiting the length of the groove in the strip to less than the width of the strip.

2. A machine of the kind described, comprising means for feeding a welt-strip, a holder for the strip, and cutting mechanism for removing the leather therefrom to form a series of grooves within and extending transversely of one face of said strip, and means for rocking said holder for controlling the length of the groove with relation to the width of the strip.

3. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting said strip, said holder having a passage conforming in shape and size to the welt-strip and substantially embracing the strip, said passage being adjustable for different thicknesses of strips.

4. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for removing transverse grooves of material from one face of said strip less in length than the width of the strip, and means for varying the depth of the grooves formed.

5. In a machine of the kind described, a holder for a welt-strip, a cutter having a blade acting intermittently on and notching said strip on one side at intervals of its length, and means for varying the angular position of said holder with relation to said cutter to change the length of the notches.

6. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting said strip, said holder substantially embracing the strip, and means for varying the angular position of said holder with relation to said cutter.

7. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting said strip, said holder containing means for bending said welt-strip transversely to its length.

8. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting said strip, said holder being adjustable for different thicknesses of strips, and also adjustable toward and from said cutter.

9. A machine of the kind described, comprising a cutter, for cutting a welt-strip and means for bending said strip opposite said cutter in a direction transverse to its length.

10. In a machine of the kind described, a holder for a welt-strip comprising opposite parts for substantially embracing said strip, one of said parts having a deflecting device for engaging the welt on one side and bending the adjacent edge thereof out of line with the rest of the welt.

11. In a machine of the kind described, a holder for a welt-strip comprising two parts and means for adjusting the same toward and from each other for different thicknesses of strips, one part having a slotted portion for engaging the outer side of the welt, and a cutter for operating in said slot on said welt.

12. In a machine of the kind described, means for holding a welt-strip comprising a carrier, means for adjusting the same out and in, and a holder vertically adjustable on said carrier, said holder having an opening for the passage of the welt-strip.

13. A machine of the kind described, comprising a holder for a welt-strip, a cutter cooperating therewith for cutting transverse notches therein, and feeding mechanism for feeding the welt-strip, including a feed device having projections spaced apart to correspond with the notches cut in the strip, said projections entering said notches and feeding the strip thereby.

14. A machine of the kind described, comprising feeding mechanism, a cutter for making a series of transverse cuts in a welt-strip, cutting mechanism for longitudinally cutting said strip, and directing means for presenting said strip in different directions to said respective cutting devices.

15. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting transverse grooves in one face of said strip, and means for varying the length of the grooves cut.

16. In a machine of the kind described, a holder for a welt-strip, a cutter cooperating therewith for cutting transverse grooves in one face of said strip, and means for varying the location of said grooves toward and from the edge of said strip.

17. A machine of the kind described, comprising means for cutting a longitudinal groove in a welt-strip, and means for cutting a series of transverse grooves intersecting said longitudinal groove.

748,795. **VENDING-MACHINE.** EUGENE S. SCHEELE, Cleburne, Tex., assignor, by mesne assignments, to S. R. Wilmore, New York, N. Y. Original application filed July 1, 1902, Serial No. 114,000. Divided and this application filed Nov. 21, 1902. Serial No. 132,226. (No model.)

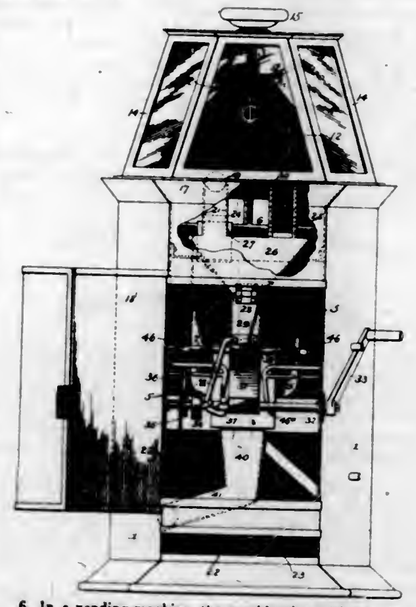
Claim.—1. In a vending-machine, the combination with a casing, of a movable frame therein having a series of compartments, means in each compartment for suspending receptacles containing goods, an ejector for removing said suspended receptacles from their supports, and means for controlling said ejector.

2. In a vending-machine, the combination with a casing having a transparent top, of a frame mounted to rotate in said casing and having a series of radially-disposed vertical compartments, a series of display-trays carried by the rotatable frame and located within the transparent top, suspending means in each compartment for receptacles containing goods and a single ejector for the receptacles in all of said compartments.

3. In a vending-machine, the combination with a casing having a transparent top, of a frame mounted to rotate in said casing and having a series of radially-disposed vertical compartments, a handhold above the transparent top to turn the frame, display-trays within the transparent top, means in each compartment to suspend a series of receptacles containing goods, and a single ejector to eject the receptacles containing goods from any of said compartments.

4. In a vending-machine, the combination with a receptacle, of an upright rod therein having a bent lower end, envelops containing goods having frangible connection with said rod and supported by the bent lower end thereof and an ejector for removing an envelop from said rod and immediately ejecting it.

5. In a vending-machine, the combination with a receptacle, of a depending rod, paper envelops perforated to receive the rod and be supported thereon, a paster on one side of all of said envelops, and a toothed ejector to engage the paster and tear the bottom envelop from the rod.



6. In a vending-machine, the combination with a casing, of a vertically-disposed rotary frame therein comprising a series of radial compartments, means in each compartment for suspending receptacles containing goods to be vended, means for turning said frame, a single ejector to eject the receptacles containing goods downwardly from any of said compartments, and means for centering any of said compartments in position to be operated upon by the ejector.

7. In a vending-machine, the combination with a rotatable frame having several compartments, means in each compartment for suspending receptacles containing goods to be vended, a single ejector for said receptacles and means for holding the lower portions of the receptacles out of the way of the ejector-operating devices.

748,796. **STOVE.** CHARLES SCHWEISER, Maplewood, Mass. Filed July 11, 1901. Serial No. 67,904. (No model.)



Claim.—1. In a stove, a passage for the escape of the products of combustion extending beneath, behind, and above the oven and a second shorter passage extending between the combustion-chamber and the oven, means whereby either passage may be used independently of the other, and means whereby an up or down draft may be employed, substantially as described.

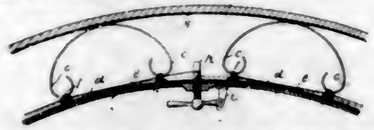
2. In a stove, a passage extending beneath, behind and above the oven, and a second shorter passage extending between the combustion-chamber and the oven, a damper so arranged as to permit the products of combustion from the combustion-chamber to be carried through either passage to the exclusion of the other, and draft-openings so arranged that the products of combustion from the combustion-chamber will pass either upward or downward as an up or down draft may be desired, substantially as shown and described.

3. In a stove, a passage extending beneath, behind, and above the oven, a second passage extending forward of and above the oven, both passages leading from the combustion-chamber, through which passages the heated products of combustion are drawn when a down-draft is used, a draft-opening below the grate and a draft-opening above the grate communicating with the passage leading to the flue-opening, whereby an updraft may be created, substantially as and for the purpose set forth.

4. In a stove having spaced grate-bars, an air-compartment at

the front wall of the combustion-chamber and provided with an inlet to the under side of the grate-bars and communicating with the spaces between said bars, an exit above the grate and communicating with a chimney, a passage extending beneath, behind and above the oven, draft-openings arranged to permit a downdraft, and means arranged to control said inlet, exit, passage, and draft-openings, whereby the products of combustion can be caused to pass either downwardly beneath the oven or upwardly through the exit, substantially as described.

748,797. SPRING-TIRE FOR VEHICLES. ADOLF SCHWIEGER, Hanover, Germany, assignor to Joseph Grawi, Hanover, Germany. Filed Apr. 8, 1903. Serial No. 150,756. (No model.)



Claim.—1. In a spring-tire for cycles and similar vehicles the combination, with the rim, of a turn-bolt, a pair of tensioning-wires, alternately attached to the inwardly-curled ends of the springs, running around the rim and having their free extremities attached to the aforesaid turn-bolt so as to wind on the latter in opposite directions, substantially as described and shown and for the purpose set forth.

2. In a tire the combination of the rim; a plurality of springs having inwardly-curled ends, a pair of tensioning-wires alternately attached to the aforesaid springs, a turn-bolt in the rim holding the free extremities of the tensioning-wires adapted to wind these wires in opposite directions; and an outer tire, substantially as described and shown, and for the purpose set forth.

3. In a tire the combination of the rim; a plurality of springs having inwardly-curled ends; a pair of tensioning-wires alternately attached to the aforesaid springs, studs fastened to the curled ends of the springs serving to attach the latter to the tensioning-wires, a turn-bolt in the rim holding the free extremities of the tensioning-wires adapted to wind these wires in opposite directions; and an outer tire, substantially as described and shown, and for the purpose set forth.

4. In combination with a spring-tire composed of a rim; a plurality of springs having inwardly-curled ends; tensioning means for the springs and an outer tire; a stud serving to alternately attach the tensioning-wires to the springs, said stud sliding with its base on the inner surface of the rim; holes in its stem allowing the passage of the tensioning-wires, one of which is suitably secured to the stem; and a folding head of the stud penetrating and holding the curled ends of the springs substantially as described and shown, and for the purpose set forth.

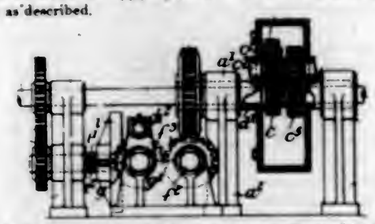
748,798. ART OF MANUFACTURING HOSE. HARRY H. SHEPARD and FRANK H. FISH, Bristol, R. I. Filed July 17, 1901. Serial No. 68,571. (No specimens.)



Claim.—The improvement in the art of hose manufacture which consists in bringing the ends of two separately-vulcanized hose-sections together upon a mandrel extending into the end of each, then applying a splicing-strip overlapping both said ends, and subsequently vulcanizing said splice and expelling said mandrel by fluid-pressure, substantially as described.

748,799. VARIABLE-SPEED AND REVERSING GEAR. HERBERT C. SHEPPARD, Porthcawl, England, assignor of one-half to Frederick Milburn, Cardiff, Glamorganshire, Wales, England. Filed Apr. 27, 1903. Serial No. 154,462. (No model.)

Claim.—1. In a variable-speed and reversing gear, the combination with a driving-shaft and a driven shaft in axial alinement and having abutting ends, of a rotary member loosely mounted with respect to both of said shafts, a train of gearing connecting said shafts for reversing the movements thereof when said rotary member is stationary, a portion of said train being carried by said rotary member, and controlling mechanism operatively connected with said rotary member for regulating the direction and speed of the driven shaft, and means for applying power to the driving-shaft, substantially as described.



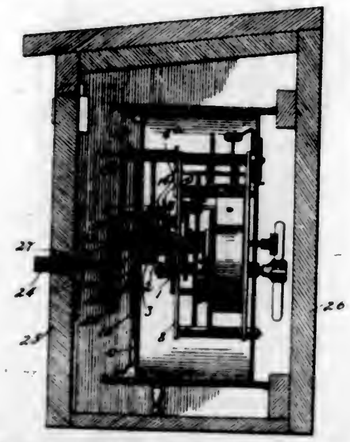
2. In a variable-speed and reversing gear, the combination with a driving-shaft and a driven shaft in axial alinement and having abutting ends, of a rotary member loosely mounted with respect to both of said shafts, a train of gearing connecting said shafts for reversing the movements thereof, a portion of said train being carried by said rotary member, and controlling mechanism for the driven shaft including a friction-disk operatively connected with the driving-shaft, a longitudinally-movable friction-wheel engaging the face of said disk and mechanism for moving said friction-wheel transversely across the axis of said disk whereby the said rotary member may be caused to remain stationary or be revolved at variable speeds in either direction, to control the direction and speed of rotation of the driven shaft, substantially as described.

3. In a variable-speed and reversing gear, the combination with a driving-shaft and a driven shaft in axial alinement and having abutting ends, of gear-wheels on the abutting ends of said shafts, a rotary member loosely mounted with respect to both of said shafts, a train of gearing carried by said rotary member for transmitting reverse motion to the driven shaft from the driving-shaft when said arm or box is stationary, driving mechanism for said rotary member including among its members, a friction-disk operatively connected with the driving-shaft, a longitudinally-movable friction-wheel engaging the face of said disk and operatively connected with said rotary member and mechanism for moving said friction-wheel transversely of said disk across its axis of rotation, whereby the said rotary member may be caused to remain stationary or be revolved at variable speeds in either direction to control the direction and speed of rotation of the driven shaft, substantially as described.

4. In a variable-speed and reversing gear, the combination with a driving-shaft and a driven shaft in axial alinement and having abutting ends, of a rotary member mounted loosely with respect to both of said shafts, a gear-wheel secured to the driving-shaft adjacent to its end, a gear-wheel secured to the driven shaft adjacent to its end and an intermediate gear-wheel mounted on said rotary member and meshing with the gear-wheel on the driving-shaft, a pair of connected gear-wheels mounted on said rotary member, one meshing with the intermediate gear-wheel and the other with the gear-wheel on the driven shaft, a worm-wheel secured to said rotary member, a worm-shaft, a worm on said shaft engaging said worm-wheel, a friction-disk operatively connected with the driving-shaft, a longitudinally-movable friction-wheel engaging the face of said disk and operatively connected with the worm-shaft and mechanism for moving said friction-wheel transversely of the friction-disk across its axis of rotation, whereby the said rotary member may be caused to remain stationary or be revolved at variable speeds in either direction to control the direction of rotation and speed of the driven shaft, substantially as described.

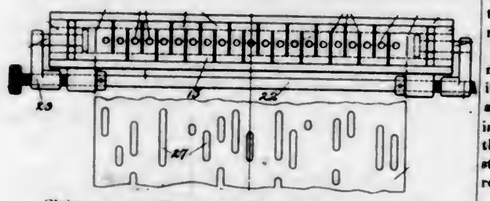
5. In a variable-speed and reversing gear, the combination with a driving-shaft and a driven shaft in axial alinement and having abutting ends, of supporting-bearings for said shafts on opposite sides of said abutting portions, a sleeve in each bearing concentric with and loosely mounted upon one of said shafts, a rotary member secured to said sleeves and inclosing the abutting ends of said shaft, a gear-wheel secured to the driven shaft within said rotary member, a gear-wheel secured to the driving-shaft within said rotary member, an intermediate gear-wheel mounted in said rotary member and meshing with the gear-wheel on the driving-shaft, a pair of connected gear-wheels mounted in said rotary member, one of said wheels meshing with the intermediate gear-wheel and the other with the gear-wheel on the driven shaft, a worm-wheel secured to one of said sleeves, a worm-shaft, a worm on said worm-shaft engaging said worm-wheel, a friction-disk operatively connected with the driving-shaft, a longitudinally-movable friction-wheel engaging the face of said disk and operatively connected with said worm-shaft and mechanism for moving said friction-wheel transversely of the friction-disk across its axis of rotation whereby the said rotary member may be caused to remain stationary or be revolved at variable speeds in either direction, to control the direction of rotation and speed of the driven shaft, substantially as described.

748,800. TIME-RECORDER. HENRY F. SHILLING and JOHN C. DIETER, Troy, Ohio. Filed Mar. 24, 1903. Serial No. 149,374. (No model.)



Claim.—In combination with a time mechanism having an arbor, a pinion on the latter revolubly therewith, a gear 3 and ratchet-wheel 2 connected together for rotation and revolubly mounted on the arbor independently thereof, a gear 6 engaged by the pinion and having tappets 9, the latter coacting with the ratchet-wheel to revolve the gear 3 by a step-by-step movement, a time-dial revolved by the arbor, and a pivoted marking element adapted to swing radially with respect to the time-dial and having an operating-gear engaging the gear 3, substantially as described.

748,801. TRACKER-BAR FOR MUSICAL INSTRUMENTS. JAMES T. SIBLEY, Jersey City, N. J., assignor to James O'Connor, New York, N. Y. Filed Apr. 2, 1902. Serial No. 101,301. (No model.)



Claim.—1. A resilient extensible tracker-bar.

2. A resilient contractible and extensible tracker-bar.

3. In an apparatus operable by a controlling-sheet, a resiliently extensible and contractible tracker-bar.

4. In an apparatus operable by a controlling-sheet of expansible and contractible material, a resiliently extensible and contractible tracker-bar, and means for adjusting the tracker-bar to the variations of the sheet.

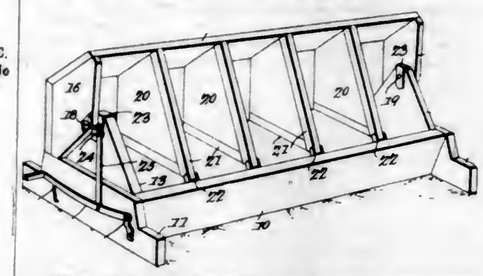
5. In combination with a controlling-sheet provided with a series of perforations, a tracker-bar provided with a corresponding series of apertures, resiliently-connected aperture-sections, and means for adjusting the bar longitudinally to bring the apertures into coincidence with their cooperating perforations of the controlling-sheet.

6. An adjustable tracker-bar composed of sections united by flexible connections.

7. An adjustable tracker-bar composed of sections united by flexible connections, and a frame for supporting and guiding the sections.

8. An adjustable tracker-bar composed of sections united by resilient connections, a frame for supporting and guiding the sections, and means for adjusting the opposite ends of the operative length of the bar toward and from each other.

748,802. FEED-TROUGH. JAMES J. SMITH, Enid, Okla. Filed Sept. 28, 1903. Serial No. 174,970. (No model.)



Claim.—1. In a device of the class described, a feed-trough, and a shield mounted to swing laterally above said trough and alternately engage its opposite sides, said shield provided with spaced transverse division-plates for engagement with one side of the trough when the shield is disposed in one of its two positions and disengaged therefrom when the position of the shield is reversed, substantially as described.

2. In a device of the class described, a feed-trough having upwardly-extended ends, and a shield pivotally connected to said extended ends and swinging laterally over said trough and alternately engaging its opposite sides, said shield provided with spaced transverse division-plates for engagement with one side of the trough when the shield is disposed in one of its two positions and disengaged therefrom when the position of the shield is reversed, substantially as described.

3. In a device of the class described, a feed-trough, a shield mounted to swing laterally above said trough and alternately engage its opposite sides, said shield provided with spaced transverse division-plates for engagement with one side of the trough when the shield is disposed in one of its two positions and disengaged therefrom when the position of the shield is reversed, and socket-plates carried by said trough for the reception of said division-plates and preventing lateral movement thereof, substantially as described.

4. A device of the class described, comprising a trough and a shield of approximately V shape in transverse section and having sides at angles to each other, said shield being pivotally mounted above the trough and arranged to swing laterally of the same and extending vertically of the side of the trough at which it is arranged and provided with spaced transvere division-plates for engagement with said trough when the shield is disposed in one of its two positions and disengaged therefrom when the position of the shield is reversed, substantially as described.

5. In a device of the class described, a feed-trough, a shield mounted to swing laterally above said trough and alternately engage its opposite sides, said shield provided with spaced transverse division-plates for engagement with one side of the trough when the shield is disposed in one of its two positions and disengaged therefrom when the position of the shield is reversed, and sockets formed of sheet-steel bent with parallel sides and attached to said trough for the reception of said division-plates, substantially as described.

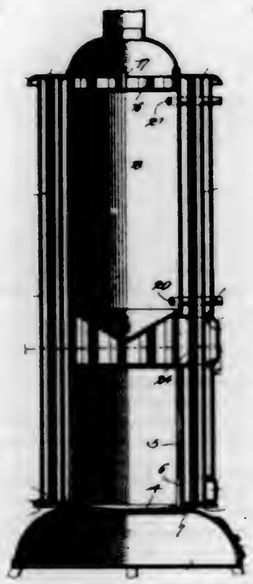
6. In a device of the class described, a trough, a pivotally-mounted shield swinging laterally above the trough and having an arm extending therefrom, a foot-lever connected by a rod to said arm, and a guard extending into the path of said foot-lever for sustaining it in its upward position, and locking the shield both in its open and closed positions, substantially as described.

748,803. HEATING-STOVE. JEROME T. SMITH, Scotland, S. D. Filed Jan. 29, 1902. Serial No. 91,794. (No model.)

Claim.—1. In a stove, a base forming an ash-pit and having a flanged offset, a grate and fire-pot supported interiorly upon the latter, an annular base-plate supported exteriorly upon said offset, a top plate having a dome provided with a smoke-exit, a cylindrical casing spacing the top plate and the base-plate, a plurality of air-circulating pipes connecting the top plate and the base-plate, and a tank suspended by straps from the dome of the top plate, said tank being surrounded by the air-circulating pipes and terminating in a funnel-shaped bottom above the fire-pot.

2. In a stove of the class described, the combination of a base, constituting an ash-pit and having an annular flange or offset, a grate and fire-pot supported interiorly upon said offset, a base-plate supported exteriorly upon said offset and extending over the curved

outer walls of the ash-pit, a top plate, a cylindrical casing spacing the latter and the base-plate, air-circulating pipes connecting the base and top plates, several of said pipes being separated at an intermediate point, and a stove-door hinged to the casing and having intermediate pipe-sections which, when the stove-door is closed, are in alinement with and serving to connect the ends of the separated pipes.



3. In a stove, an annular series of vertically-disposed circulating-pipes and a casing having a feed-door, the circulating-pipes alining with said feed-door having sections removed therefrom, of a length equal to the height of the feed-door, the opposing ends of the several pipes thus severed being suitably connected and braced, in combination with corresponding pipe-sections extending vertically through the feed-door and alining, when the latter is closed, with the adjacent ends of the severed air-circulating pipes.

748,804. **DREDGING-MACHINE.** WILLIAM H. SMITH and ALPHONSO B. BOWERS, San Francisco, Cal. Filed May 9, 1896. Serial No. 590,334. (No model.)

Claim.—1. A suction-pipe provided with a device having projections extending beyond its normal surface adapted to engage with and remove obstructions from the mouth of said pipe and mechanism to actuate said device independent of the water-flow.

2. A suction-pipe and a device attached thereto adapted to enter the mouth thereof and dislodge an obstruction therefrom.

3. A suction-pipe having an undivided inlet and an automatic device adapted to dislodge an obstruction therefrom.

4. A suction-pipe and a traveling chain adapted to dislodge obstructions therefrom.

5. A suction-pipe having a longitudinally-curved inlet and a device having projections extending beyond its normal surface adapted to engage with and remove an obstruction therefrom.

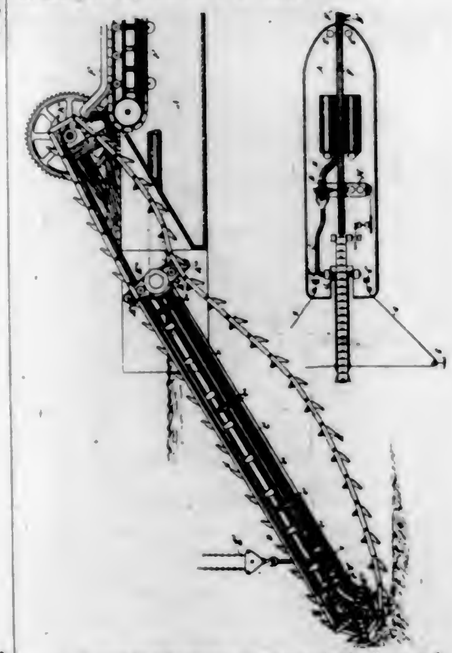
6. A suction-pipe having a narrow inlet or mouth and a throat of cross-sections varying proportionally with the proportion of the inlet to which it acts as conduit.

7. A suction-pipe having its mouth and throat of different form, said throat consisting of a succession of merging cross-sections, each being proportioned to the amount of mouth area to which it serves as conduit.

8. A suction-pipe nozzle or mouthpiece having a longitudinal inlet of greater length than width, and a discharge-outlet in which these dimensions are more nearly uniform, but of substantially like area to that of the inlet and a connecting-throat merging the two forms gradually into each other.

9. A nozzle or mouthpiece having a narrow longitudinal mouth or inlet and an outlet of substantially circular form and like area, and an intermediate throat merging gradually the two forms into each other.

10. A nozzle or mouthpiece having a narrow longitudinal mouth or inlet in its end, a substantially circular outlet of like area, and an intermediate throat of varying cross-sections merging the form of the inlet gradually into that of the outlet.



11. A suction-pipe having a narrow longitudinally-curved mouth or inlet, of substantially its own full-flowing capacity and a throat of varying cross-sections merging gradually the inlet form into that of the normal cross-section of the suction-pipe.

12. A suction-pipe of substantially circular cross-section, having a narrow inlet or mouth of like area to the cross-section of the pipe-inlet and pipe being joined by a throat of cross-sectional areas varying in proportion to the proportion of inlet area to which each cross-section serves as conduit.

13 A suction-pipe having a laterally-flattened substantially arc-shaped end provided with a peripheral inlet and a cutter adjacent thereto.

14. A suction-pipe having a downwardly-curved end, a peripheral inlet therein, and a rotary cutter adjacent thereto.

15. A suction-pipe having a substantially arc-shaped downward extension provided with a peripheral inlet and a rotary disintegrating device journaled substantially concentric therewith.

16. A suction-pipe having a substantially arc-shaped end with a longitudinal peripheral inlet and a two-part rotary excavator between the two parts of which the inlet is located.

17. A suction-pipe provided with longitudinal radial stiffening-ribs and a runway secured to said ribs.

18. An unduplicated suction-pipe made in sections, provided with end flanges and intermediate stiffening-ribs, and longitudinal angle-iron or other ties or braces attached thereto by brackets or other suitable devices.

19. A suction-pipe provided with exterior longitudinal tracks or courses for guiding the movement of a traveling device.

20. A suction-pipe and an exterior longitudinal trough or conduit attached thereon, having tracks or courses to guide a traveling device.

21. A suction-pipe and an exterior longitudinal trough or conduit attached thereon having a longitudinal traveling elevator.

22. A suction-pipe and an exterior longitudinal trough or conduit attached thereon having a longitudinal traveling-chain elevator thereon.

23. A suction-pipe provided with an exterior track or way adapted to brace said pipe and a traveling belt or chain provided with elevating or carrying devices.

24. A suction-pipe and a chain having devices adapted to enter the mouth thereof, whereby obstructions are dislodged.

25. A suction-pipe and an endless-chain elevator thereon.

26. A suction-pipe and an elevator thereon consisting of a multiplicity of hinged sections.

27. A suction-pipe and an excavator thereon consisting of a multiplicity of jointed sections adapted to travel across the inlet of said pipe.

28. A suction-pipe and an excavator thereon consisting of a number of loosely-connected links provided with digging blades or teeth.

29. A suction-pipe and a traveling chain thereon provided with digging blades or teeth.

30. A suction-pipe and a traveling chain thereon provided with digging blades or teeth and elevating devices.

31. A suction-pipe and a digging and elevating chain thereon.

32. An excavator comprising a suction-pipe and a traveling-chain thereon, provided with rake-teeth.

33. A suction-pipe having a tumbler located thereon near its outer end upon which is mounted a digging-chain.

34. A suction-pipe having a tumbler located on and adjacent to its outer end upon which is mounted a chain armed with digging implements and supplied with elevating devices.

35. A dredger comprising a suction-pipe having a flexibly-jointed outer portion and a traveling chain supported thereby, provided with digging blades or teeth.

36. A dredger comprising a flexibly-jointed suction-pipe and a chain-excavator thereon.

37. In a dredger for simultaneously removing intermixed coarse and finely-divided material, a flexibly-jointed suction-pipe and a spoil-conveying device thereon.

38. In a dredger for simultaneously removing intermixed coarse and finely-divided material, a flexibly-jointed suction-pipe and a chain spoil-conveying device thereon.

39. An excavating device consisting of two traveling chains armed with digging implements and a suction-pipe the inlet of which is intermediate of the chains.

40. An excavating device consisting of two endless traveling chains jointed by plates or bars armed with digging implements or teeth mounted on a flexibly-jointed suction-pipe whereby the excavated material is removed.

41. In a dredger for simultaneously removing intermixed coarse and finely-divided material, a traveling excavator-chain supplied with implements whereby a portion of the material is removed, mounted on a suction-pipe whereby the remainder of the excavated material is removed.

42. In a dredger for simultaneously removing intermixed coarse and finely-divided material, two traveling chains provided with implements secured thereto and intermediate thereof whereby a portion of the material is removed, mounted on a suction-pipe, whereby the remainder of the excavated material is removed.

43. A traveling endless chain provided with spoil-moving devices and a suction-pipe, the inlet of which is located intermediate of the folds of the traveling chain.

44. A traveling endless chain provided with digging attachments and a suction-pipe flexibly jointed to an exhausting apparatus the inlet of said pipe being located intermediate of the folds of the chain.

45. In a dredge for simultaneously removing intermixed coarse and finely-divided material having a flexibly-jointed suction-pipe adapted to remove the finely-divided material, the combination therewith of traveling chains provided with spoil-moving devices, said chains connected together to travel in unison.

46. A traveling endless chain provided with spoil-moving devices and a suction-pipe around the inlet of which said chains travel.

47. A dredger for simultaneously removing intermixed coarse and finely-divided material, provided with a suction-pipe adapted to remove the finely-divided material, with an endless traveling elevator thereon, adapted to remove the coarse material, said suction-pipe flexibly jointed to an exhausting apparatus, said devices cooperating to separate and remove the intermixed material.

48. A suction-pipe with an endless traveling excavator thereon, flexibly jointed to an exhausting apparatus.

49. A dredger for simultaneously removing intermixed coarse and finely-divided material, having a suction-pipe adapted to remove the finely-divided material, with a traveling-chain elevator and excavator thereon, flexibly jointed to an exhausting apparatus located upon a floating vessel and suitable means for discharging the exhausting apparatus and the elevator.

50. A dredger for simultaneously removing intermixed coarse and finely-divided material, having a suction-pipe adapted to remove the finely-divided material, with a chain-tumbler journaled thereon near the inlet of said pipe, a traveling-chain excavator and elevator traveling around said tumbler and a suitable discharging device for said suction-pipe and elevator.

51. A suction-pipe an endless-chain excavator thereon and means for tightening the chain.

52. A telescopic flexibly-jointed suction-pipe and an exterior trough carried thereby.

53. A telescopic flexibly-jointed suction-pipe having an exterior trough and a rotary excavator.

54. A suction-pipe, a transverse rotary excavator thereon and non-resilient means for forcing outward the excavator-carrier.

55. A telescopic suction-pipe and a flexible spoil-moving device thereon.

56. A telescopic suction-pipe and an endless-chain excavator thereon.

57. A telescopic pipe and an endless-chain elevator thereon.

58. A telescopic suction-pipe having a longitudinal track and a traveling spoil-moving device thereon, and means for effecting telescopic adjustment.

59. A telescopic suction-pipe and a screw to effect the telescopic adjustment.

60. A telescopic suction-pipe and a longitudinal screw to effect longitudinal adjustment.

61. A telescopic suction-pipe, an endless-chain excavator and longitudinal screw to effect telescopic adjustment and the tightening of the chain.

62. A detachable suction-pipe nozzle or mouthpiece having a longitudinally-convex curved inlet and a rotary excavator.

63. A detachable suction-pipe nozzle or mouthpiece and an endless traveling excavating device connected therewith.

64. A detachable suction-pipe nozzle or mouthpiece, having a curved slot longitudinal with said pipe and a rotary excavator adapted to work with a side movement of the suction-pipe.

65. A suction-pipe, a traveling chain between the upper and lower fold of which the pipe is located and an excavating device adapted to work with a side feed.

66. A traveling-chain excavator, a rotary cutter with side cutting devices located in the bight of the chain-excavator.

67. A traveling-chain excavator, a rotary cutter with side and end cutting devices located in the bight of the chain-excavator.

68. A dredger for simultaneously removing intermixed coarse and finely-divided material, having an endless-chain elevator for removing coarse material, a rotary excavator with side cutting devices located in the bight of the endless-chain elevator and connected to a flexibly-jointed suction-pipe adapted to remove the finely-divided material disturbed by the excavator and the removal of the coarse material.

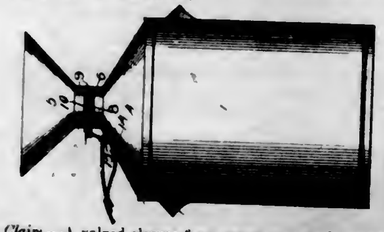
69. A traveling endless excavator comprising side links excavating teeth or cutters and elevating-fingers upon bars the ends of which are secured in side sockets in said links.

70. A traveling endless chain comprising side links having a multiplicity of sockets in each side link with excavating and elevating devices attached to a multiplicity of holding devices resting in said sockets.

71. A dredger-chain, the links of which are joined by hinge-pins having depressions or stops approximately one hundred and twenty degrees apart, and a locking-pin or other device adapted to engage with said stops whereby the hinge-pin presents successive wearing-surfaces to the pull of the chain.

72. A suction-pipe and an automatic device adapted to enter the mouth thereof and dislodge an obstruction therefrom.

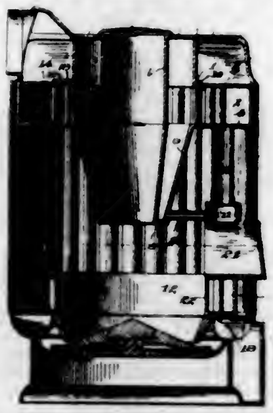
748,805. **MILK-CAN.** WILLIAM J. SNOW, Vilonia, Ark., assignor of one-half to John H. Davis, Vilonia, Ark. Filed Apr. 13, 1903. Serial No. 152,427. (No model.)



Claim.—A valved closure for a can or receptacle, comprising a funnel, a connecting-neck, an attaching portion, apertured plates ex-

tending across the neck, a slide-valve operating between said plates and projecting beyond one side of the neck, a lever to operate said valve, pivoted on the attaching portion of the closure and detachably connected with the slide-valve, and a spring bearing between the lever and the attaching portion of the closure, substantially as described.

748,806. **VERTICAL BOILER.** GEORGE F. SPENCER, Thompson, Pa. Filed Mar. 2, 1903. Serial No. 145,703. (No model.)



Claim.—1. A boiler embracing a steam-drum having a dome, fire-flues located about the dome and extending through the drum, a smoke-chamber formed between the drum and dome, and having a removable closure whereby access may be had to said flues.

2. A boiler having a steam-drum with a dome thereon, a collar seating on the upper outer edge of the drum and extending flush with the top of the dome, and a ring interposed between the outer face of the dome and the upper end of the collar and supported on the latter.

3. A boiler having a steam-drum with a dome, a collar of the same height as the dome, seating on the upper outer edge of the drum, and a removable closure supported on the upper end of the collar and engaging the periphery of the dome.

4. A boiler having a steam-drum with a dome thereon, fire-flues extending through the drum and surrounding the dome, a collar on the dome forming the outer wall of the smoke-chamber and a removable closure supported by the collar and engaging the dome forming the top of the smoke-chamber and when removed permitting access to said fire-flues.

5. A boiler embracing a steam-drum having a dome, fire-flues extending through the drum and draft-flues extending through the drum, a smoke-chamber formed between the drum and dome and having a removable closure whereby the draft-flues may be controlled and the fire-flues made accessible.

6. A boiler having a steam-drum and a dome, the dome constituting a part of the top of the boiler, a collar surrounding the dome and seating on the drum and extending flush with the top of the former, and a removable closure supported on the collar and constituting the remaining portion of the top of the boiler, the closure and collar formed in conjunction with the dome and drum of the smoke-chamber.

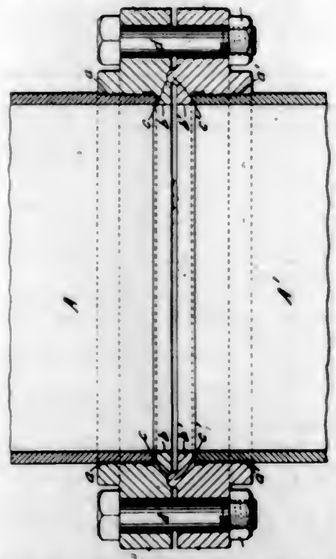
7. A boiler embracing a steam-drum having a dome with a magazine flush with the dome and supported thereby, a collar on the drum a removable closure supported by the collar and engaging the dome, and a cover for the magazine seating on the top of the dome.

748,807. **PIPE JOINT OR COUPLING.** ALBERT SPRATT, Providence, R. I., assignor to General Fire Extinguisher Company, New York, N. Y., a Corporation of New York. Filed Apr. 13, 1901. Serial No. 56,671. (No model.)

Claim.—1. In a pipe-coupling the combination, with the end of the pipe, of a flanged collar having an inward projection to which the end of the pipe is fitted to make a tight joint.

2. In a pipe-coupling the combination, with the end of the pipe, of a flanged collar having an inward projection provided with an annular groove and to which the end of the pipe is fitted to make a tight joint.

3. In a pipe-coupling the combination, with the end of the pipe, of a flanged collar having an inward projection to which the end of the pipe is fitted, and means for forcing the end of the pipe against said inward projection to form a tight joint between the end of the pipe and the inward projection.



4. In a pipe-coupling the combination, with the ends of the pipes of two flanged collars secured thereto, said collars having inward projections to which the ends of the pipes are fitted, means for forcing the ends of the pipes against said inward projection, and means for drawing and holding said collars together.

5. In a pipe-coupling the combination, with the ends of the pipes, of two flanged collars secured thereto, said collars having inward projections to which the ends of the pipes are fitted, means for forcing the ends of the pipes against said inward projections, outward projections or flanges on said collars provided on their adjacent meeting faces with an annular boss and corresponding groove respectively and means for fastening the flanged collars together.

6. In a pipe-coupling the combination, with the ends of the pipes, of flanged collars secured thereto, said collars having inward projections provided with annular grooves to which the ends of the pipes are fitted and outward flanges provided on their adjacent meeting faces with an annular boss and corresponding groove respectively, and means for drawing and holding said flanged collars together.

748,808. **PIPE JOINT OR COUPLING.** ALBERT SPRATT, Providence, R. I., assignor to General Fire Extinguisher Company, New York, N. Y., a Corporation of New York. Filed Apr. 13, 1901. Serial No. 56,672. (No model.)

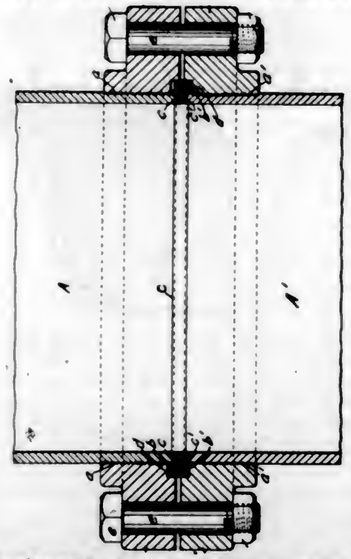
Claim.—1. In a pipe-coupling the combination, with hard-metal pipes of a hard-metal ring interposed between the ends of the pipes and means for holding the ends of the pipes in contact with said ring, the abutting surfaces of the pipes and ring being finished to make a tight joint.

2. In a pipe-coupling the combination, with hard-metal pipes, of a hard-metal ring having annular grooves in its opposite faces and means for holding the ends of the pipes in said grooves the abutting surfaces of the pipes and ring being finished to make a tight joint.

3. In a pipe-coupling the combination, with hard-metal pipes, of flanged collars secured thereto and provided with recesses, a hard-metal ring provided with an outward extension adapted to enter said recesses and means for holding the ends of said pipes seated against said ring.

4. In a pipe-coupling the combination, with hard-metal pipes of flanged collars secured thereto provided with recesses on the inside edges of their adjacent faces, a hard-metal ring provided with an outward extension adapted to enter the recesses in the collars and means for drawing and holding the ends of said pipes seated against said ring.

5. In a pipe-coupling the combination, with hard-metal pipes, of flanged collars secured thereto and provided with recesses on the inside edges of their adjacent faces, a hard-metal ring having annular grooves in its opposite faces and an outward extension adapted to enter the recesses in the collars, and means for drawing and holding the ends of the pipes seated in the annular grooves in said ring.



6. In a pipe-coupling the combination, with the exterior threaded pipes having the ends rounded, of a metal ring provided on its opposite faces with corresponding annular grooves adapted to receive the ends of the pipes and with an outward extension, interiorly-threaded flanged collars secured to said pipes and provided with recesses in their adjacent faces adapted to receive the outward extension of the metal ring and means for forcing the ends of the pipes against the interposed ring.

748,809. **TUNNELING APPARATUS.** ROY STONE, New York, N. Y. Filed Feb. 12, 1902. Renewed Sept. 15, 1902. Serial No. 123,549. (No model.)

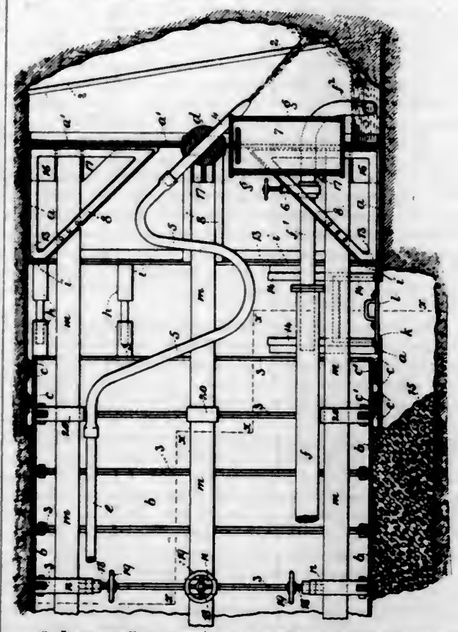
Claim.—1. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, annular inflatable packing devices and seats for holding and securing the same to said shield, said packing devices being interposed between the shield and the forward tunnel-sections and advancing with the shield for maintaining a tight joint, substantially as set forth.

2. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, and movable devices formed in the lower portion of the excavating-shield in advance of the tunnel-sections and through which movable devices the earth beneath the shield may be excavated, substantially as set forth.

3. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield, surrounding said casing and having an advancing cutting edge and dividing-bulkhead, manhole-covers of curved form located and movable transversely of the shield and fitting over manholes in the shield, and slideways for the said manhole-covers whereby access is obtained for excavating earth from beneath the tunnel-sections, substantially as set forth.

4. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, means for exposing the earth beneath the shield, and a foundation of concrete beneath the tunnel-sections and conforming to the curved exterior thereof and agreeing approximately with about one-third the circumference of the tunnel-sections, substantially as set forth.

5. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, and a movable or rotatable device vertically placed in the bulkhead of the shield and adapted for receiving and passing a workman or tools through the bulkhead without disturbing differences of pressure at the respective sides of the same, substantially as set forth.



6. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, a cage-door of metal vertically placed and rotatable and in cross-section being substantially three-fourths of the circle, and a segment-flange in the bulkhead coinciding with the curved section of the cage-door and permitting the backward and forward movements of the cage-door as and for the purposes set forth.

7. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, trailer-beams secured to the shield and placed longitudinally of the tunnel, guides removably connected to the tunnel-sections and through which the trailer-beams pass, and means removably connected to the tunnel-sections and through which the ends of the trailer-beams pass, which means are adapted to act upon the trailer-beams to change the position of the same with reference to the tunnel-sections so as to alter the line of forward movement of the shield, substantially as set forth.

8. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, trailer-beams secured to the shield and placed longitudinally of the tunnel, guides removably connected to the tunnel-sections and through which the trailer-beams pass, guide and clamp devices removably connected to the tunnel-sections and through which the ends of the trailer-beams pass and in which they are guided, and hand-operated pressure-screws moving in said clamp devices and bearing against the trailer-beams for shifting the position of the same and changing the forward direction of the excavating-shield, substantially as set forth.

9. In a tunneling apparatus, the combination with a tunnel-casing, of an excavating-shield surrounding said casing and having an advancing cutting edge and dividing-bulkhead, a suction-pipe passing through the tunnel-sections, and a pipe passing through the bulkhead of the shield and telescoping with the aforesaid suction-pipe and having a gate for closing the passage-way therein when desired, substantially as set forth.

10. In a tunneling apparatus, the combination with a tunnel-casing, of a shield surrounding said casing and having a forward cutting edge, a packing between said shield and casing, a bulkhead in said shield, means for ingress and egress through said bulkhead, means for gaining access to the under exterior part of the shield, means within the shield and casing for guiding the direction of the shield, means for disintegrating and removing the material in front

of the bulkhead, and means for advancing the said shield, substantially as specified.

11. In a tunneling apparatus, the combination with a casing of suitable material, of a shield surrounding said casing, a circular ring between said shield and casing and secured to the shield, a hose partially embedded in said circular ring and adapted to be inflated to fill the space between the shield and casing to make a tight joint or packing between said parts, a bulkhead in said shield, means for disintegrating and removing the material in front of the bulkhead, and means for advancing the shield, substantially as specified.

12. In a tunneling apparatus, the combination with a casing, of a shield surrounding the casing and having a forward cutting edge, packing between said shield and casing, a bulkhead in said shield, an air-tight cage-door in said bulkhead, a universal joint in said bulkhead, a nozzle passing through and secured in said universal joint, a water-supply pipe, connections between said pipe and nozzle, a telescoping suction-pipe provided with a valve and passing through the bulkhead and by which the disintegrated material in front of the bulkhead is removed, and means for advancing the bulkhead, substantially as specified.

13. In a tunneling apparatus, the combination with a casing, of a shield surrounding the casing and having a forward cutting edge, packing between said shield and casing, a bulkhead in said shield, an air-tight cage-door in said bulkhead, a universal joint in said bulkhead, a nozzle passing through and secured to said universal joint, a water-supply pipe, connections between said pipe and nozzle, a telescoping suction-pipe provided with a valve and passing through the bulkhead and by which the disintegrated material in front of the bulkhead is removed, manholes in the bottom of the shield, sliding covers for the same, whereby access may be had to the under part of the shield for removing the material there and laying a concrete foundation for the tunnel-casing, and means for advancing the shield, substantially as specified.

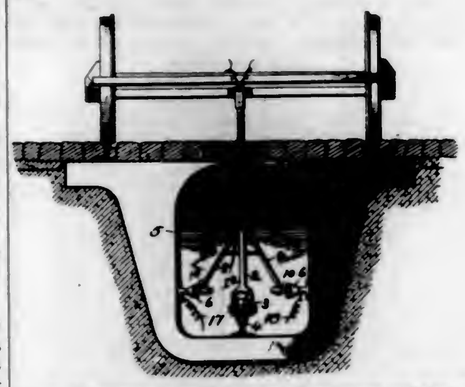
14. In a tunneling apparatus, the combination with a casing, of a shield surrounding the casing and having a forward cutting edge, packing between said shield and casing, a bulkhead in said shield, an air-tight cage-door in said bulkhead, a universal joint in said bulkhead, a nozzle passing through and secured in said universal joint, a water-supply pipe, connections between said pipe and nozzle, a telescoping suction-pipe provided with a valve and passing through the bulkhead and by which the disintegrated material in front of the bulkhead is removed, manholes in the bottom of the shield, sliding covers for the same whereby access may be had to the under part of the shield for removing the material there and laying a concrete foundation for the tunnel-casing, trailer-beams secured to the inner side of the bulkhead and extending longitudinally into the shield and casing, means used in conjunction with the said trailer-beams for guiding and directing the advancement of the shield, and means for advancing the shield, substantially as set forth.

15. In a tunneling apparatus, the combination with a casing, of a shield surrounding the casing and having a forward cutting edge, packing between said shield and casing, a bulkhead in said shield, an air-tight cage-door in said bulkhead, a universal joint in said bulkhead, a nozzle passing through and secured in said universal joint, a water-supply pipe, connection between said pipe and nozzle, a telescoping suction-pipe provided with a valve and passing through the bulkhead and by which the disintegrated material in front of the bulkhead is removed, manholes in the bottom of the shield, sliding covers for the same whereby access may be had to the under part of the shield for removing the material there and laying a concrete foundation for the tunnel-casing, trailer-beams secured to the inner side of the bulkhead and extending longitudinally into the shield and casing, guiding and clamp frames surrounding said trailer-beams and adapted to be temporarily secured to the inner side of the tunnel-casing, adjusting-screws in said clamp-frames and bearing upon the said trailer-beams whereby the direction of the shield may be varied, and means for advancing the shield, substantially as specified.

16. In a tunneling apparatus, the combination with a casing of suitable material, and a shield surrounding said casing, of means for obtaining access beneath the same for removing the earth, and a concrete or other foundation beneath the said casing and built progressively with the advance thereof, substantially as set forth.

748,810. ELECTRIC-CAR PLOW. WILLIAM P. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,142. (No model.)

Claim.—1. The combination with the plow, of an arm arranged on each side of the said plow, pockets on said plow and hollow auxiliary arms having inclined portions and their upper ends engaged in said pockets, and means for securing the said arms to the said plow.



2. The combination with the plow, of pockets on said plow and hollow auxiliary arms having inclined portions and their upper ends engaged in said pockets, and electrical connections extending through the said plow and arms.

3. The combination with the plow, of pockets carried by said plow, and hollow arms removably arranged in the said pockets and wires passed through said arms.

4. The combination with the plow, of outwardly-inclined hollow arms secured thereto, wires extended within said arms and rollers journaled on the outer ends of the said arms.

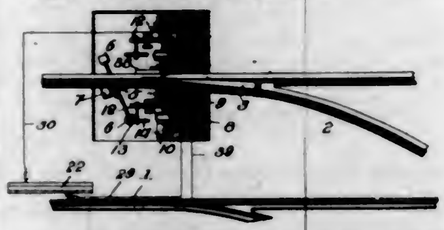
5. The combination with the hollow plow, of pockets secured to the said plow, electrodes arranged in the said plow and projecting into the said pockets, contact-arms secured in the said pocket electrodes carried by the said arms normally engaging the electrodes of the plow, and electrical connections engaging the said electrodes.

6. An attachment for plows comprising a contact-arm made hollow with its central portion inclined and having one of its ends screw-threaded to receive a securing-nut, and a roller journaled in its opposite end.

7. The combination with the plow, of pockets carried thereby, hollow contact-arms having their inner ends projecting through the said pockets, and means for securing the said arms in position.

8. The combination with the plow, of pockets secured to the said plow, hollow contact-arms provided with threaded inner ends projecting through the said pockets and nuts on the inner ends of the said arms, electrodes projecting from said arms and wires within said arms and connected with the electrodes.

748,811. SWITCH. WILLIAM P. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,143. (No model.)



Claim.—1. The combination with the switch-tongue and the contact-plates arranged in the road-bed, of means interposed between the said switch-tongue and plates for operating the said switch-tongue, alternately-actuated means for actuating said first-mentioned means and means carried by the car adapted to contact with the said plates whereby the first-named means is actuated.

2. The combination with the switch-tongue of a motor arranged adjacent to the switch-tongue, means alternately actuated by the said motor pivotally connected with the switch-tongue for moving the said switch-tongue and means for operating the said motor.

3. The combination with the switch-tongue of an electrical

means arranged adjacent the switch-tongue, contact-plates arranged in the road-bed, an approximately T-shaped lever operatively connected with the switch-tongue, means carried by the car adapted to contact with the said contact-plates and means whereby the said first-named means is energized, when the means carried by the car and the said contact-plates are in engagement with each other.

4. The combination with the switch-tongue, of a motor arranged at each side of the switch-tongue, a pivotally-mounted lever of approximately T shape operatively connected with the switch-tongue, means actuated by the said motors for alternately moving the said lever and moving the said switch-tongue and means for actuating the said motors.

5. The combination with the switch-tongue of an approximately T-shaped lever, pivotally mounted and having one of its arms pivoted to the said switch-tongue, an electrical means arranged on each side of the switch-tongue, means for actuating the said means alternately, and means whereby, as the said last-named means are energized, the said lever will be alternately actuated thereby.

6. The combination with the switch-tongue and means arranged adjacent thereto, of contact-plates arranged in the road-bed, and electrically connected to the said means, a pivoted arm carried by the car, contact-disks journaled in the said arm and insulated from each other, said disks being adapted to contact with said contact-plates, a circuit make and breaker carried by the car and electrical connections between the said circuit make and breaker and the said disks.

7. The combination with the switch-point and the switch-throwing mechanism, arranged in the road-bed, of a pivoted arm carried by the car for actuating the said mechanism, disks journaled in the lower end of the said arm, a circuit make and breaker, electrical connections between the said disks and circuit make and breaker as a source of supply.

8. The combination with the car and a circuit make and breaker carried by the car, of a pivoted arm, a pair of disks journaled in the lower end of the said arm and being insulated apart, electrical connections extending through the said arm and connecting the said disks, a circuit make and breaker, the switch-tongue and means arranged in the road-bed, coacting with the means carried by the car, for actuating the said switch-tongue.

9. The combination with the switch-tongue of a motor arranged in the road-bed at a point below the switch-tongue, a contact-plate arranged in the road-bed, electrical connections between the said plate and the motor, means carried by the car adapted to contact with the said plates to complete the circuit whereby the said motor is operated, and means actuated by the said motor for operating the switch-tongue.

10. The combination with the switch-tongue, of a motor arranged on each side of the switch-tongue, a pivoted lever connected with the switch-tongue, means actuated by the said motors to swing the said lever, whereby it is alternately actuated by the respective motor, actuated means and means for operating the said means alternately.

11. In combination with the switch-tongue of an approximately T-shaped lever, pivotally mounted in the road-bed and having one of its arms pivoted to the switch-tongue, means arranged on the opposite sides of the said switch-tongue for alternately engaging the lateral arm of the said lever for moving the switch-tongue, and means for operating the said means.

12. The combination with the switch-tongue, of a motor arranged on each side of the switch-tongue, pinions carried on the shafts of the said motors, shafts arranged adjacent the motor-shafts and provided with pinions actuated by the first-named pinions, star-wheels carried by the last-named shafts, a means interposed between the said star-wheels and being pivotally connected with the switch-tongue, means whereby when the said motors are operated, the said means will be alternately moved into engagement with the respective star-wheels, and means for actuating the said motors.

13. The combination with the switch-point of an electrically-actuated means arranged on each side of the switch-tongue, an approximately T-shaped lever, pivoted beneath the switch-point and having one of its arms pivotally connected thereto, rollers journaled on the outer ends of the lateral arm of the said lever, means actuated by the said first-named means for engaging the said rollers to swing the said lever and means for actuating the first-named means.

14. The combination with the switch-tongue of a pivotally-mounted lever, said lever being pivotally connected with the switch-tongue, an electrically-actuated means arranged on each side of the said switch-tongue, and adapted to alternately swing the said lever, contact-plates arranged in the road-bed, electrical connections between the said contact-plates and the last-named means, and means carried by the car adapted to contact with the said plates, substantially as and for the purpose specified.

15. The combination with the switch-tongue of a motor arranged on each side of the switch-tongue, means actuated by the said motors for swinging the said switch-tongues, plates arranged in the road-bed adjacent to the said switch-tongue, said plates being insulated apart, electrical connections between the said plates and motors, and means carried by the car for engagement with the said plates.

16. The combination with the switch-tongue, a switch-operating mechanism arranged in the road-bed, and the contact-plates electrically connected therewith, of a means carried by the car for engagement with the said contact-plates, said means comprising a pivoted arm, disks journaled in the lower end of the said arm, a wire leading from each disk through the said arm, contact-plates carried by the car to which the said wires are secured, a circuit make and breaker adapted to engage the last-named contact-plates, a source of energy and means raising and lowering the said pivoted arm.

748,812. SWITCH-THROWING MECHANISM. WILLIAM P. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,144. (No model.)



Claim.—1. The combination with the switch-tongue and the movable member secured thereto, of motors, gearing directly connecting said motors, and of which gears one engages directly with said member, and a casing inclosing said member and its actuating means.

2. The combination with the switch-tongue and the casing arranged adjacent thereto in the road-bed, said casing being formed with a slot, of a movable member arranged in said casing, a rod extending through the said slot and secured to the switch-tongue and movable member respectively, a slide secured to the said rod for closing the opening in said casing and motors with gears intermeshing with means for operating the said member.

3. The combination with the switch-tongue and the movable member connected thereto, of motors, gearing between the same and the movable member and a cut-out actuated by said movable member.

4. In combination with the switch-tongue and the movable member, said movable member having one of its ends formed with a segmental rack, and its opposite end operatively connected to the switch-tongue, of a pinion meshing with the toothed end of the said member, and means for operating the said pinion.

5. In combination with the switch-tongue and the casing arranged in the road-bed, of a member pivoted in the said casing and being operatively connected to the switch-tongue, of a pair of motors adapted to be alternately energized for operating the said member, and means actuated by the said member for stopping the said motors from rotating.

6. The combination with the switch-tongue, of a member pivoted at a point adjacent thereto and having one of its ends operatively engaging the same and its opposite end formed with teeth, a pinion meshing with the toothed end of the said member, electrical means for operating the said pinion, circuit make and breakers arranged in proximity to the said member and being in circuit to the said electrical means, substantially as and for the purpose specified.

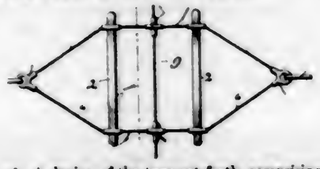
7. The combination with the switch-tongue and the casing arranged in the road-bed therebeneath, of a member pivoted in the said casing, and being operatively connected to the switch-tongue, a segmental rack carried by the said movable member, a pinion meshing with the said segmental rack, a pair of motors, pinions operated by the said motors and meshing with the first-named pinion, a pair of switches arranged on opposite sides of the said movable member and being in circuit with the said motors, said switches being adapted to be operated by the said movable member, and means for returning or closing the said switches after they have been actuated by the said movable member.

8. The combination with the switch-tongue and the casing arranged in the road-bed adjacent thereto, said casing being formed with an opening, of the switch-throwing mechanism arranged in the casing, one member of which projects through the said opening of

the said casing and being operatively connected to the switch-tongue, and a slide secured to the said projecting member, said slide being of greater length than the said opening, and keeping the said opening closed at all times.

9. The combination with the switch-tongue, of a pivoted member carrying a segmental rack, a pinion engaging the said rack, means for rotating the said pinion, and means actuated by the said movable member for throwing the switch-tongue, substantially as described.

748,813. CONTACT-SHOE. WILLIAM F. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,145. (No model.)



Claim.—1. A device of the type set forth, comprising a pair of metallic plates, T-shaped brackets secured to and insulated from the said plates, supporting-wires passing through the upper ends of the said brackets, means for securing the trolley-wires to the supporting-wires, electrical connections and means for securing the device in position.

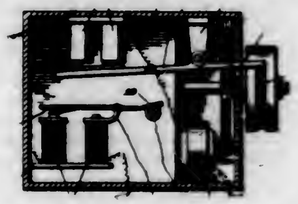
2. A device of the type set forth comprising a pair of shoes, uprights secured to said shoes, supporting-wires passing through the upper ends of said uprights, brackets disposed intermediate the shoes and supported from said wires, electrical connections, eyes secured to the opposite ends of said wires, and means for securing said device in position.

3. A device of the type set forth, comprising a pair of metallic plates insulating material arranged on top of the said plates, T-shaped uprights supporting the said plates, supporting-wires passing through the upper ends of the said uprights, brackets arranged between the said uprights, electrical connections, said brackets having the said wires projecting through their upper portion, and means for supporting the device in position, said means engaging the opposite ends of the said wires.

4. A device of the type set forth, comprising contact-shoes, trolley-wire-supporting brackets secured to and insulated from said supporting-plates and supporting-wires connecting the said shoes and brackets and passed through the upper ends of said brackets, said wires having their opposite ends secured together, in combination with the wayside posts, and stay-wires secured to said posts and to the ends of the first-named wires.

5. The combination of contact-shoes, T-shaped uprights having their vertical portions secured to said shoes, supporting-wires in the lateral portions of said uprights and passed through the upper portions thereof, means securing the opposite ends of said wires, a second set of T-shaped uprights independent of the first set disposed between the shoes and supported upon said wires with their lower ends secured to the trolley-wire, a trolley-pole, and wires connected to the said shoes, all substantially as and for the purpose specified.

748,814. SEMAPHORE MECHANISM. WILLIAM F. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,146. (No model.)



Claim.—1. The combination with the rotatably-mounted shaft, and the semaphore-arm carried thereby, of a motor, contact-studs in the motor-circuit insulated from each other, a pivoted lever carrying a contact-bridge to close the circuit, a latch pendent from the pivot of said lever, a pinion carried by the said shaft, a pinion secured to the motor-shaft and meshing with the first-named pinion, electrical connections for operating the said motor, whereby the semaphore-arm will be elevated, and means cooperating with said latch for holding the said arm in its elevated position.

2. The combination with a suitable support, of a casing mounted thereon, a shaft journaled in the said casing and having one of its ends projecting through one of the walls thereof, a semaphore-arm mounted on a projecting portion of the said shaft, means for rotating the said shaft, contact-studs in the motor-circuit and depending within the casing and insulated from each other, a pivoted lever carrying a contact-bridge to close the circuit and having one end arranged in the path of said semaphore-arm and the other end adapted to engage said studs, a latch suspended from the pivot of said lever, and means cooperating with said latch to prevent lowering of the semaphore-arm.

3. The combination with the casing and the supporting means therefor, of a shaft journaled in the said casing, a semaphore-arm rotatable with the said shaft, a motor, contact-studs in the motor-circuit depending from the casing and insulated from each other, a pivoted lever carrying a contact-bridge to close the circuit in connection with said studs, means for energizing the said motor, said shaft being operatively connected to the said motor, a latch pivotally suspended, means cooperating with said latch for holding the said arm in its elevated position and means for releasing the said arm.

4. The combination with the casing and the semaphore-arm rotatably mounted therein, of a motor for elevating the said arm, a pivoted lever having its outer end lying in the path of travel of the said arm, a pair of studs insulated from each other and in circuit with said motor, and adapted for cooperation with said lever, means for holding the said arm in adjusted position, and means for permitting the semaphore-arm to be lowered.

5. The combination with the casing and the shaft journaled therein, of the semaphore-arm secured to the said shaft, a pinion mounted on the said shaft, a motor, a pinion carried by the shaft of the said motor and meshing with the first-named pinion, means for energizing the said motor for elevating the said arm, a pair of studs insulated from each other and included in the motor-circuit, a pivoted lever for cooperation with said studs and carrying a contact-bridge to close the circuit, said lever having its outer end extending in the path of travel of the said semaphore-arm, means for holding the semaphore-arm in its elevated position, and means for releasing the said locking means.

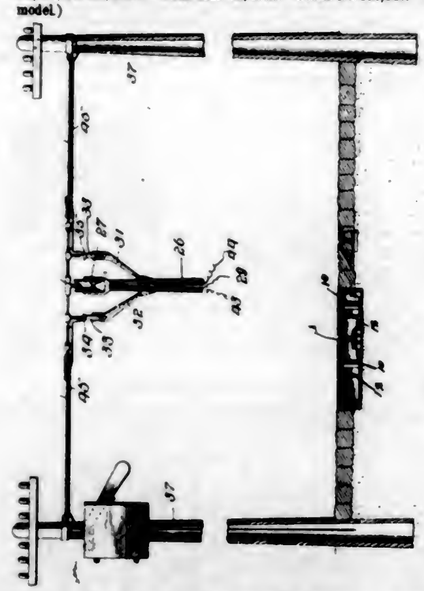
6. The combination with a post and casings thereon disposed at right angles to each other, of a pivotally-mounted semaphore-arm, a motor operatively connected therewith to actuate the same, a pair of studs insulated from each other and included in the motor-circuit, a pivoted lever carrying a contact-bridge to close the circuit and adapted for cooperation with said studs and having its outer end projecting into the path of said arm, a latch depending from the pivot of said lever and having a tailpiece, a set of magnets, an armature therefor and means interposed between said armature and the latch.

7. The combination with a post and casings thereon disposed at right angles to each other, of a pivotally-mounted semaphore-arm, a motor operatively connected therewith to actuate the same, a pair of studs insulated from each other and included in the motor-circuit, a pivoted lever carrying a contact-bridge to close the circuit and adapted for cooperation with said studs and having its outer end projecting into the path of said arm, a latch depending from the pivot of said lever and having a tailpiece, a set of magnets, an armature therefor, means interposed between said armature and the latch, and a spring-actuated bolt engaging said latch.

8. The combination with a post and casings thereon disposed at right angles to each other, of a pivotally-mounted semaphore-arm, a motor operatively connected therewith to actuate the same, a pair of studs insulated from each other and included in the motor-circuit, a pivoted lever carrying a contact-bridge to close the circuit and adapted for cooperation with said studs and having its outer end projecting into the path of said arm, a latch depending from the pivot of said lever and having a tailpiece, a set of magnets, an armature therefor, a shaft and stops thereon, one in the path of the armature and the other in the path of the tailpiece of said latch.

9. The combination with a post and casings thereon disposed at right angles to each other, of a pivotally-mounted semaphore-arm, a motor operatively connected therewith to actuate the same, a pair of studs insulated from each other and included in the motor-circuit and adapted for cooperation with said studs and having its outer end projecting into the path of said arm, a latch depending from the pivot of said lever and having a tailpiece, a set of magnets, an armature therefor, a shaft, stops thereon, one in the path of said armature and the other in the path of said tailpiece, a spring acting on the latch and a bolt adapted to engage the end of the said latch.

748,815. RAILWAY BLOCK-SIGNAL AND SWITCH. WILLIAM F. TAYLOR, Jr., Providence, R. I., assignor of one-half to Thomas D. Taylor, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,147. (No model.)



Claim.—1. In combined switch and signal operating mechanism, the combination with the signals and the switches, switch-motors, road-contacts connected with said switch-motors, adjustable switch-shoe contacts on the car, and signal-contacts connected with the signal-operating mechanism, of signal-shoe contacts on the car and means carried by the car for connecting the various car-shoes with a source of energy.

2. The combination with a series of signals and motor-switches, of road-contacts connected with the switch-motors, adjustable switch-shoe contacts on the car, signal-shoe contacts on the car, signal-contacts connected with the signal-operating mechanism, and means carried by the car adapted to complete the circuits to the switch-motors, and to complete a circuit to operate one signal to danger and simultaneously move the preceding one to clear.

3. The combination with the signals and the elevating and releasing means thereof, of car-contacts included in a circuit in which the elevating mechanism of one signal and the releasing mechanism of another signal is included, switch-motors, road-contacts connected with said switch-motors, means carried by the car for engagement with said road-contacts, and means on the car connecting the various car-contacts with a source of energy.

4. The combination with the signals and switches, of the independent circuits in which the switch-operating mechanism and signal-operating mechanism are included, contacts arranged adjacent the track, and included in the respective circuits, means carried by the car for engagement with the contacts for completing the respective circuits independently of each other, and a switch-controlling arm governing the connections to the switch-operating and signal-operating mechanisms.

5. The combination with the signals, the elevating and releasing means thereof, the switches, and the operating mechanism thereof, of circuits having contact-shoes included therein, the mechanism for the respective switches and signals being included in independent circuits, a controller carried by the car, and electrical connections, whereby as the controller is operated the respective circuits can be operated independently.

6. In combined signals and switches, a series of signals and switches, contacts in the circuit with the signal-operating mechanism, contacts in circuit with the switch-operating mechanism, in combination with the controller carried by the car, shoes carried by the car, certain of which are adapted to contact with the first-named contacts, and others to engage the switch-contacts, connections between the controller and the first-named shoes, and electrical connections between the last-named shoes and the controller.

7. In combination with the signals, the mechanism for raising and lowering the same, and the switches and their operating mechanism, and a controller connected to a source of energy and governing the connections to the signal-operating and switch-operating mechanisms.

8. The combination with a signal, a switch and the electrical means for actuating the same, of contacts arranged in the road-bed and in circuit with the switch-controlling means, contacts arranged above and to one side of the first-named contacts, said last-named contacts being in circuit with the signaling means, shoes carried by the car for engagement with the signal-contacts, shoes for energizing the switch-contacts, and a controller in circuit with the last-named shoes, and a connection from said controller and the signal-shoes.

9. The combination with the car and the pole thereof, of the controller, shoes mounted on the pole, wires leading from the shoes to contacts on the controller, a depending arm carried by the car, a shoe carried by the said arm, said shoe being composed of a pair of disks insulated apart, wires connecting with the said disks and being secured to the wires of the first-named shoes, a switch mechanism, and a signaling means adapted to be operated as the shoes carried by the car are moved to a predetermined position.

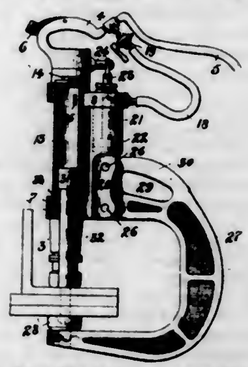
10. In combination with the signals and the switches, and the contacts in circuit therewith, the controller carried by the car, shoes, two sets of wires leading from the shoes to the controller, there being separate shoes and contacts for the signals and switches, and circuits governed by the controller for actuating either the signals or the switches as the respective shoes of the car contact with the first-named shoes.

11. In a block system, the combination of a switch-tongue, two independent motors, a controller governing the switch-operating and signal-operating mechanisms, contacts adapted to be successively engaged by said controller, a series of signals, signal-contacts, and electrical connections whereby as one signal is operated to danger the preceding one is simultaneously and automatically moved to clear.

12. In a block system, the combination with the signals and the switches, and the contacts in circuit therewith, of a controller, switch-shoes carried by the car, the trolley-pole, auxiliary arms on the trolley-pole and carrying rollers, contacts in position to be engaged by said rollers, contacts in position to be successively engaged by said controller, said controller and means governing the connections to the auxiliary trolley-rollers and to the switch-shoes.

13. In a block system, the combination with the signals and the switches, and the contacts in circuit therewith, of a controller, switch-shoes carried by the car, the trolley-pole, auxiliary arms on the trolley-pole and carrying rollers, contacts in position to be engaged by said rollers, contacts in position to be successively engaged by said controller, said controller and means governing the connections to the auxiliary rollers and to the switch-shoes, signal-arm-raising mechanism, a motor controlling the same, and automatic releasing mechanism.

748,816. RIVET-HOLDER. EDWARD P. TERRY, New York, N. Y. Filed May 19, 1902. Serial No. 107,971. (No model.)



Claim.—1. In combination, a gas-operated riveting-hammer, a set whereby the head of the rivet is held during the operation, a pair of clamping members arranged on the same side of the material with the hammer and, respectively, on opposite sides of the hammer and

means whereby said set and clamping members are operated inversely to each other.

2. In a rivet-clamping device, in combination, the cylinders 12, 13 and 21, the pistons therein, and clamping devices connected with said pistons and impinging, respectively, against the rivet and against the material being riveted.

3. In a rivet-clamping device, in combination with a frame containing a set 28, and formed with a hammer-holding space A and the cylinders 12, 13, and 21 grouped around said space, of a valve in said cylinder 21, pistons in said cylinders 12 and 13 and clamping devices connected with said pistons and adapted to impinge upon the material being riveted.

4. A yoke and a set on one end thereof, in combination with the following mechanism mounted on the opposite end of said yoke, viz: a hammer-holder, two independent clamping members and means yieldingly pressing said clamping members forward whereby their position is automatically adjusted.

5. A yoke and a set on one end thereof, in combination with the following mechanism on the opposite end of said yoke, viz: a hammer-holder, two pneumatic cylinders independent of the hammer-holder and a clamping member operated from each of said cylinders.

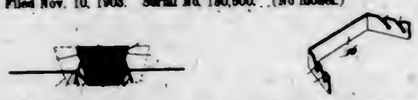
6. A rigid yoke and a set rigidly mounted on one end thereof, in combination with the following mechanism on the other end thereof, viz: a rigidly-mounted hammer-casing and an independent yieldingly-mounted clamping member; whereby the blows of the hammer are delivered from a casing rigid with the set but the distance between the clamping member and the set is automatically controlled by the surface of the material.

7. A yoke and a set rigidly mounted on one end thereof, in combination with the following mechanism on the other end thereof, viz: a pneumatic cylinder, a clamping member yieldingly operated therefrom and a hammer-case embracing socket at one side of said cylinder.

8. A rivet-holding clamp containing, in combination, a yoke, a set on one end thereof and on the other end thereof two clamping-pistons and separate cylinders whereby said pistons are actuated.

9. A yoke and a set on one end thereof, in combination with the following mechanism mounted on the opposite end of said yoke, viz: a pneumatic hammer, an independent pneumatic cylinder, a clamping member operated from said cylinder, a gas-supply pipe and pipes branching therefrom, respectively to said hammer and said cylinder.

748,817. **FENCE-POST.** GEORGE W. TODD, Platteville, Wis. Filed Nov. 10, 1903. Serial No. 180,600. (No model.)



Claim.—1. In a fence-post, the combination with a concrete body portion, of spaced metal plates embedded in the post and extending transversely therethrough and with their protruding ends provided with spaced wire-engaging recesses.

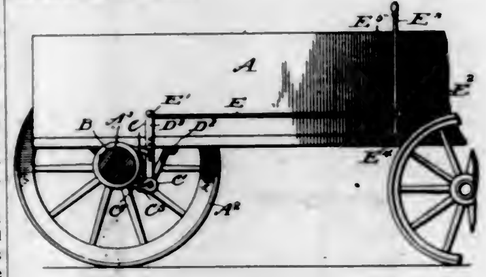
2. A fence-post of concrete material having spaced metal plates embedded therein and extending transversely therethrough with the protruding ends at opposite sides of the post and provided with a plurality of spaced recesses providing means for receiving and firmly supporting the strand-wires of the fence and increasing the tension thereof when required.

3. A fence-post of concrete material having reversely-inclined sides and forming a contracted face side to the post, and provided with transversely-disposed metal plates embedded therein with their ends protruding from said inclined sides and provided with a plurality of spaced recesses, whereby means are provided for receiving and supporting the strand-wires of the fence in crimped position over said contracted face of the post and regulating the tension thereof.

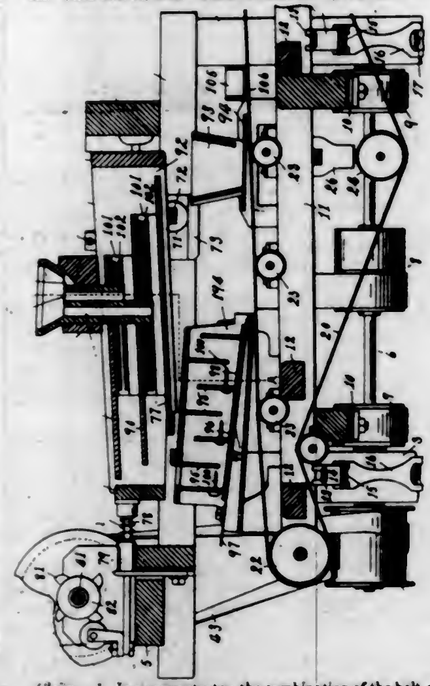
4. A fence-post of concrete material having reversely-inclined sides and forming a contracted face side to the post tapering inwardly longitudinally toward the upper end and provided with a lateral enlargement at the lower end, in combination with spaced metal plates embedded in the post with their ends protruding from the inclined sides and provided with spaced recesses for the reception and support of the strand-wires of the fence.

748,818. **VEHICLE-BRAKE.** THOMAS TRELOAR, Radersburg, Mont. Filed Sept. 21, 1903. Serial No. 174,062. (No model.)

Claim.—A brake mechanism for wagons comprising in combination with a wagon-box and rear axle thereon, wheels upon said axle, flanged drums secured to the hubs of said wheels, a rod D mounted in suitable bearings underneath the body of the wagon, a recessed clip C^9 fitted upon an extension of said rod, a strap fitted in said recessed clip and passing about the grooved circumference of said drum, an integral arm D^4 projecting at right angles from said rod and having apertures therein, a pin carried in one of said apertures and engaging an eye formed at the end of said strap, an operating-lever pivoted to the wagon-box, and a rod connecting said lever and arm, as set forth.



748,819. **CONCENTRATOR.** LOUIS R. TULLOCH, Angels Camp, Cal. Filed Feb. 24, 1903. Serial No. 144,708. (No model.)



Claim.—1. In a concentrator, the combination of the belt, means for oscillating the same, a percussion-box, means operated with the oscillating means for shaking the box longitudinally of the belt, said box comprising a hopper into which the material is fed, a vertical series of tables onto which the material is successively distributed, and individual longitudinally-slotted plates above said tables for distributing the material evenly over the tables, substantially as described.

2. In a concentrator, the combination of the belt, means for oscillating the same, a percussion-box, means operated with the oscillating means for shaking the box longitudinally of the belt, said box comprising a hopper into which the material is fed, a vertical series of tables onto which the material is successively distributed, and individual longitudinally-slotted arched plates above said tables for distributing the material evenly over the tables, substantially as described.

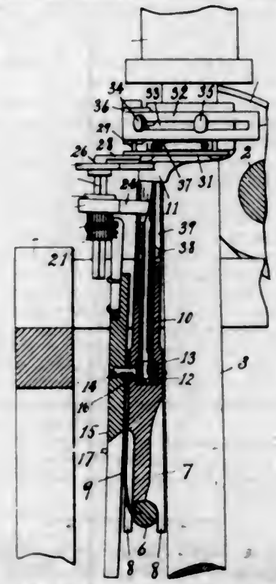
3. In a concentrator, the combination of the belt, and means for imparting oscillation thereto, of a percussion-box arranged to feed the material upon the belt, and operated with the oscillating means, said shaker-box comprising a feed-hopper for feeding the material, and a series of tables, said hopper having at its bottom independent chutes leading to the several tables, and slotted plates at the bottom of said chutes for distributing the material onto the tables, substantially as described.

4. In a concentrator, the combination of the belt, and means for imparting oscillation thereto, of a percussion-box arranged to feed the ore upon the belt, and operated with the oscillating means, said percussion-box comprising a feed-hopper for feeding the material, and a vertical series of tables, said hopper having at its bottom independent chutes, each leading to a corresponding table through the tables, above it, of the series, substantially as described.

5. In a concentrator, the combination with a belt, and means for oscillating the same, of a shaking settling-box divided by transverse partitions into compartments, said partitions extending entirely to the top and bottom alternately whereby the material is compelled to travel in a vertically-zigzag path through the compartments, said box having slots in its bottom discharging onto the concentrator-belt, and bars in the compartments extending longitudinally of the machine to prevent the material from packing, substantially as described.

6. In a concentrator, the combination of the traveling belt, means for advancing the same, means for oscillating the same, a shaking box into which the material is fed, means operated with the oscillating means for imparting a longitudinal movement to said shaking box, said shaking box comprising a series of tables onto which the material is fed from the hoppers, said tables discharging at one end upon the concentrator-belt, and a settling-box into which the tables discharge at their other end comprising a series of compartments divided by transverse partitions, extending entirely to the top and bottom alternately whereby the material travels through said compartments in a vertically-zigzag path, the bottom of said settling-box having slots for discharging onto the concentrator-belt, substantially as described.

748,820. **STAMP-MILL ATTACHMENT.** LOUIS R. TULLOCH, Angels Camp, Cal. Filed Feb. 24, 1903. Serial No. 144,709. (No model.)



Claim.—1. In a device of the character described, the combination, with the cam and tappet, of a prop for supporting the tappet and having a stem, said stem being suitably guided substantially vertically, a curved arm swinging around said prop and arranged to be interposed between the cam and tappet to raise the latter by means of the former, a shaft having a crank-arm connected by a link with said curved arm, a horizontal slide arranged in one position to support the stem and in another position to permit the stem to drop to a lower level, a lever pivoted to the slide, operatively connected at its upper end with the shaft so that the vibration of the lever rotates said shaft, and a fulcrum for the lever below said slide, whereby when said slide is held stationary by engagement with the end of the prop-stem the lever when operated rocks about its pivot on the slide and when the prop-stem has been lifted, the lever when operated rocks about said fulcrum to shift said slide, substantially as described.

3. In a device of the character described, the combination with the cam and tappet, of the prop and prop-stem, the swinging arm movable around said prop and having a part arranged to be interposed between the cam and tappet, the shaft operatively connected with said arm to rock the same, the vertical lever operatively connected at its upper end with said shaft to rotate the same, the slide for supporting the prop-stem to which said lever is pivoted and means for limiting the movement of the lower end of the lever to form a second fulcrum therefor, substaptially as described.

4. In a device of the character described, the combination with the cam and tappet, of the prop for the tappet, the movable element carried by said prop and arranged to be interposed between said cam and tappet to raise the latter by means of the former, the vertically-movable stem for the prop, the slide for supporting said stem, the lever connected to said slide, and operatively connected at one end with said movable element whereby the vibration of the lever interposes said element between the cam and tappet and a second fulcrum for the lever whereby the further vibration thereof shifts said slide when the latter is permitted to move by the rising of the stem, substantially as described.

5. In a device of the character described, the combination with the cam and tappet of a prop for the latter, a prop-stem, a movable element arranged to be interposed between the cam and tappet to lift the latter by means of the former, a pedestal in which said prop-stem slides, said pedestal being movably supported upon the frame of the mill, a spring for holding said pedestal in an upright position, a slide forming a support for the prop-stem and a lever for successively moving said movable element and shifting said slide in one continuous movement of the lever, substantially as described.

6. In a device of the character described, the combination with the cam and tappet, of a prop having a stem a slotted curved arm around said prop, guides extending from said prop in said slot, a rock-shaft operatively connected with said curved arm, a vertical lever for rocking said shaft, a slide forming a support for the prop-stem to which said lever is pivoted, and a fulcrum for said lever independent of its pivot, substantially as described.

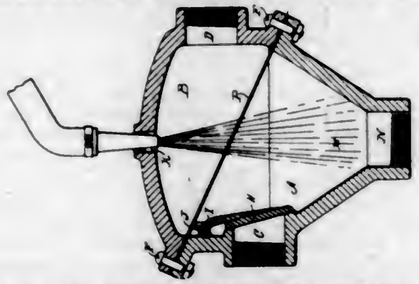
748,821. **STRAINER.** GEORGE L. WAGNEROW, Mellette, S. D., assignor of one-half to Fred G. Stickles, Valentine M. Miller, Charles H. Brunn, and George M. Randall, Mellette, S. D. Filed Aug. 31, 1903. Serial No. 171,396. (No model.)

Claim.—1. In a liquid-strainer, the combination of a screen-inclosing case comprising two separable parts secured together by a diagonally-formed joint; a screen supported at its marginal edge by and between the contiguous edges of said separable parts; an inlet-duct located in one of said separable parts upon one side of said screen; an outlet-duct located in the other separable part of said case upon the opposite side of said screen and means for securing said separable parts together.

2. In a liquid-strainer, the combination of a screen-inclosing case comprising two separable parts secured together by a diagonally-formed joint; a screen supported at its marginal edge by and between the contiguous edges of said separable parts; an inlet-duct located in one of said separable parts upon one side of said screen; an inwardly-opening check-valve located at the mouth of said inlet-duct; an outlet-duct located in the other separable part of said case upon the opposite side of said screen and means for securing said separable parts together.

3. In a liquid-strainer, the combination of a screen-inclosing

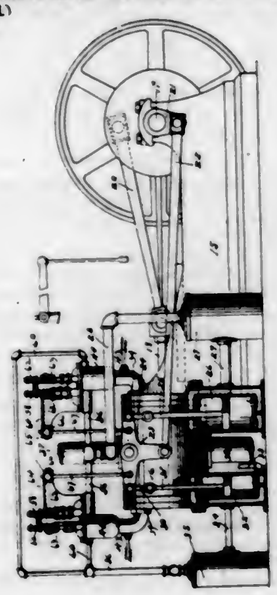
case comprising two separable parts secured together by a diagonally-formed joint; a screen supported at its marginal edge by and between the contiguous edges of said separable parts; an inlet-duct and an inlet-steam port provided with a stopper located in one of said separable parts upon one side of said screen; an outlet-duct located in the other separable part of said case upon the opposite side of said screen and means for securing said separable parts together.



4. In a liquid-strainer, the combination of a screen-inclosing case comprising two separable parts secured together by a diagonally-formed joint; a screen supported at its marginal edge by and between the contiguous edges of said separable parts; an inlet-duct located in one of said separable parts upon one side of said screen; an inwardly-opening check-valve located at the mouth of said inlet-duct; an outlet-duct located in the other separable part of said case upon the opposite side of said screen and means for securing said separable parts together.

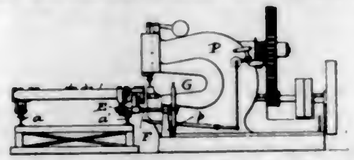
5. In a liquid-strainer, the combination of a screen-inclosing case comprising two separable parts secured together by a diagonally-formed joint; a screen supported at its marginal edge by and between the contiguous edges of said separable parts; an inlet-duct located in one of said separable parts upon one side of said screen; an inwardly-opening check-valve located at the mouth of said inlet-duct; an inlet-steam port provided with a stopper; an outlet-duct located in the other separable part of said case upon the opposite side of said screen; means for securing said separable parts together and a flexible attachment for connecting the discharge side of said screen-inclosing case yieldingly with the discharge-pipe, all substantially as and for the purpose specified.

748,822. **MEANS FOR SUPERHEATING STEAM.** HENNING F. WALLMANN, Chicago, Ill., assignor to the Wallmann Engine Company a Corporation of Illinois. Filed Jan. 19, 1899. Serial No. 702,706. (No model.)



Claim.—The combination with a steam-engine having a cylinder and power-piston therein and provided with the usual steam inlet and exhaust devices, of a combustion-chamber in open communication with the interior of the cylinder at one end thereof, a mixer at the entrance of the combustion-chamber, air and gas pumps respectively connected with suitable sources of supply and with the mixer, valves controlling the supply of air and gas to the mixer, and a rocker connected with and actuated from the engine-shaft, said rocker being also connected with and actuating the air and gas pumps and the controlling-valves of the mixer, substantially as described.

748,823. **SPACING-TABLE.** LAWRENCE D. WEAMES, Cleveland, Ohio. Filed Oct. 20, 1902. Serial No. 127,912. (No model.)



Claim.—1. The combination of the base and a table mounted to move thereon, a rack carried by one of such members, a strip carried by the same member adjacent to the rack, a series of dogs having teeth adapted to mesh with the rack in various positions and be clamped in place by said strip, and a pawl carried by the other member and adapted to cooperate with said dogs, substantially as described.

2. In a spacing-table, the combination of a longitudinal rack, a pair of strips mounted adjacent to said rack and having undercut edges, a series of dogs having teeth to interlock with said rack, said dogs being adapted to be clamped in place by said strips, and means for cooperating with said dogs, substantially as described.

3. The combination of a base and a table movable thereon, a longitudinal beam carried by one of such members, an undercut longitudinal strip removably bolted along said beam, a series of dogs adapted to be clamped in various positions by said removable strip, and means carried by the other member for engaging said dogs, substantially as described.

4. The combination of a base, a table mounted to travel thereon, means for moving the table in either direction, a pawl and a series of dogs cooperating therewith, one of said cooperating members being carried by the base and the other by the table, overhanging strips for clamping said dogs laterally, and a rack having teeth adapted to mesh with teeth on the rear side of the dogs to hold them in place longitudinally, one of said strips being removable to allow the change of position of the dogs, substantially as described.

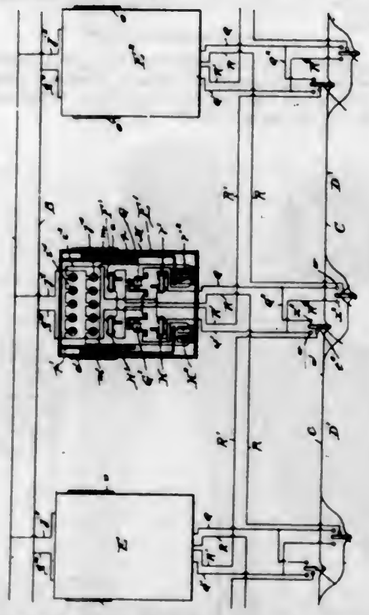
5. The combination of a base, a table mounted to travel thereon, means for moving the table in either direction, a pawl and a series of dogs cooperating therewith, one of said cooperating members being carried by the base and the other by the table, strips longitudinally placed with reference to said series of dogs, and a pawl adapted to cooperate with said dogs, said pawl having a wider face than the opening between said strips but having a reduced nose projecting into said opening, substantially as described.

6. The combination of a base and a table movable thereon, a longitudinal rack carried by one of such members, a series of dogs having teeth adapted to intermesh with said rack, means for holding said dogs in position, and means carried by the other member for cooperating with said dogs, the operating edges of said dogs overhanging the teeth longitudinally, substantially as described.

7. The combination of a base and a table movable thereon, a longitudinal rack carried by one of said members, dogs having teeth adapted to intermesh with said rack, means for holding said dogs in position, and other dogs having their operating edges placed differently with reference to their teeth from the dogs first mentioned, substantially as described.

748,824. **BLOCK-SIGNAL SYSTEM.** JOSEPH WEATHERBY, Jr., Wilmington, Del. Filed July 24, 1902. Serial No. 116,811. (No model.)

Claim.—1. In a signaling system of the character described, signal-stations, signals at each of said stations controlling the movement of cars in both directions along the line, electromechanical devices at the stations for setting and releasing each signal, said devices including a circuit-closer and a setting and releasing magnet, in and out bound switches, two conducting-wires having contacts engaged by one of said switches and leading, respectively, to the releasing-magnet of the front signal of the adjacent station and the setting-magnet of the front signal of the station next in advance along the line, two conductors having contacts engaged by the other switch and leading, respectively, to the releasing-magnet of the rear signal of the adjacent station and setting-magnet of the rear signal of the station next in advance in the opposite direction along the line, said contacts being engaged by the movement of the switches by cars running in opposite directions, and branch wires having contacts engaged by the switches on a reverse movement thereof, one of said wires adapted to connect the first-named switch with the conductor leading to the releasing-magnet of the rear signal of the adjacent station and the other to connect the other switch with the conductor leading to the releasing-magnet of the front signal of the adjacent station, substantially as described.



2. In a signaling system of the character described, signal-stations, a conductor, in and out bound signals at each signal-station, setting mechanism at each station for each signal including a circuit-closer and setting and releasing magnets, in and out bound switches, circuit connections whereby one movement of one of said switches will connect the conductor with the releasing and setting magnets of the outbound signals of the adjacent station and next station in advance for an outbound car along the line, connections whereby a reverse movement of said switch will connect the conductor with the releasing-magnet of the inbound signal at the adjacent station, connections whereby one movement of the other switch will respectively connect the conductor with the releasing and setting magnets of the inbound signals at the adjacent station and next station in advance for an outbound car along the line and connections whereby a reverse movement of the latter-named rear inbound switch will connect the conductor with the releasing-magnet of the outbound signal of the adjacent station.

3. In a signaling system of the character described, signal-stations, in and out bound signals at each signal-station, in and out bound switches at each station, circuit connections whereby one movement of the outbound switch will throw out of operation the outbound signal of the adjacent station and throw into operation the outbound signal at the next station in advance for an outbound car along the line, connections whereby a reverse movement of said switch will throw out of operation the inbound signal at the adjacent station, connections whereby one movement of the inbound switch will respectively throw out of operation the inbound signal at the adjacent station and operate the inbound signal at the next station in advance for an inbound car along the line and connections whereby a reverse movement of said inbound switch will throw out of operation the outbound signal at the adjacent station, substantially as described.

4. In an electric signaling system, signals at the opposite ends of a block, a set of signal setting and releasing mechanism at each end of the block, said mechanism being operable to permit a plurality of cars traveling in the same direction to enter the block, to maintain the advance signal at the danger-point as long as any one of the number of cars are on the block, and to release the signal to indicate a clear block only when the last car has passed off the block, electric-circuit connections between the two sets of setting and releasing mechanisms, and a circuit-closing switch for each set of setting and closing mechanisms adapted when moved in one direction to complete a circuit through said connections to simultaneously release the signal at one end of the block and set the signal at the opposite end of the block, and branch connections controlled by a reverse movement of the switch to reverse the signals when a car traveling in either direction is turned back along the line, thereby setting the signal previously released and releasing the signal previously set, substantially as described.

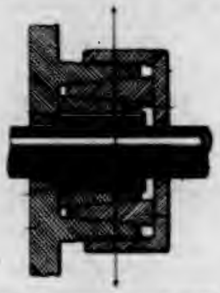
5. In an electric signaling system of the character described, a series of stations provided with signals, magnets for operating the signals, a main electric conductor provided with a controlling-switch for each station, a signal setting and releasing device at each station comprising a circuit-closer and setting and releasing electromagnets adapted to operate said circuit-closer to energize and de-energize the signal-operating magnets, said circuit-closer and setting and releasing magnets cooperating to permit a plurality of cars traveling in the same direction to enter a block, to maintain the advance signal at the danger-point as long as any one of a number of cars are on the block, and to release the signal to indicate a clear block only when the last car has passed off the block, connections between the main conductor and the several stations for supplying a current for setting a signal at one station and releasing a signal at another station, said connections being so related to the several parts that the controlling-switch at either station when moved in one direction is adapted to simultaneously release the signal at said station and set the signal at the advance station, and means whereby when a car traveling in either direction is reversed to run in the opposite direction, the switch will be operated to retract the advance signal previously set and to set the previously-retracted advance signal in the opposite direction, substantially as described.

6. In a signaling system of the character described, a conductor provided with turnouts, a signal-station at each turnout, signals at each of said stations controlling the movement of cars in both directions along the line, electromechanical devices at the stations for setting and releasing each signal, said devices including a circuit-closer and a setting and releasing magnet, said magnets operating said circuit-closer in opposite directions to make and break the circuit, switches in the main conductor and turnouts, two conducting-wires having contacts engaged by the switch in the main circuit and leading respectively to the releasing-magnet of the front signal of the adjacent station and the setting-magnet of the front signal of the station next in advance along the line, two conductors having contacts engaged by the switch in the turnout and leading respectively to the releasing-magnet of the rear signal of the adjacent station and setting-magnet of the rear signal of the station next in advance in the opposite direction along the line, said contacts being engaged by the movement of the switches by cars running in opposite directions, and current-controlling connections coacting with said conductors and switches for reversing the signal when a car is turned back on either the main line or a turnout, substantially as described.

7. In a signaling system of the character described, a conductor provided with turnouts, a signal-station at each turnout, signals at each of said stations controlling the movement of cars in both directions along the line, electromechanical devices at the stations for setting and releasing each signal, said devices including a circuit-closer and a setting and releasing magnet, switches in the main conductor and turnouts, two conducting-wires having contacts engaged by the switch in the main circuit and leading respectively to the releasing-magnet of the front signal of the adjacent station and the setting-magnet of the front signal of the station next in advance along the line, two conductors having contacts engaged by the switch in the turnout and leading respectively to the releasing-magnet of the rear signal of the adjacent station and setting-magnet of the rear signal of the station next in advance in the opposite direction along the line, said contacts being engaged by the movement of the switches by cars running in opposite directions, and branch wires having contacts engaged by the switches on a reverse movement thereof, one of said wires adapted to connect the main switch with the conductor leading to the releasing-magnet of the rear signal of the adjacent station and the other to connect the turnout-switch with the conductor leading to the releasing-magnet of the front signal of the adjacent station, substantially as described.

8. In a signaling system of the character described, a main conductor provided with turnouts, a signal-station at each turnout, controlling-switches in the conductor and turnout, in and out bound signals at each signal-station, setting mechanism at each station for each signal including a circuit-closer and setting and releasing magnets, circuit connections whereby one movement of the main switch will connect the conductor with the releasing and setting magnets of the outbound signals of the adjacent station, and next station in advance for an outbound car along the line, connections whereby a reverse movement of said switch will connect the conductor with the releasing-magnet of the inbound signal at the adjacent station, connections whereby one movement of the turnout-switch will respectively connect the conductor with the releasing and setting magnets of the inbound signals at the adjacent station and next station in advance for an inbound car along the line, and connections whereby a reverse movement of said turnout-switch will connect the conductor with the releasing-magnet of the outbound signal of the adjacent station, substantially as described.

748,825. ROLLER-BEARING. SAMUEL J. WEBB, Minden, La. Filed Apr. 11, 1901. Serial No. 55,410. (No model.)



Claim.—1. In a roller-bearing the combination of the axle or shaft, a bearing-box, series of rolls around the shaft, a contractible bearing-sleeve tapering throughout its length and surrounding the rollers, an annular collar also tapering throughout its length, for contracting the sleeve upon the rollers, and means for forcing the collar between the sleeve and a bearing in the box, substantially as set forth.

2. In a roller-bearing the combination of the axle or shaft, a bearing-box, series of rolls around the shaft and a contractible tapering bearing-sleeve surrounding the rollers and an annular tapering collar for contracting the sleeve upon the rollers, and a cap bearing on said collar and means for carrying the cap toward the box to force inward the collar, substantially as set forth.

3. The combination of a bearing-box, a shaft extending through the same, antifriction-rolls arranged about the shaft, a contractible bearing-sleeve tapering in one direction throughout its length inclosing the rollers, and a tapering contractible collar and means for forcing it inward between the sleeve and the box, substantially as set forth.

748,826. RAIL-JOINT FOR TRACKS AND ESPECIALLY FOR FIELD-RAILWAYS. WILHELM WEHR, Godesberg, Germany. Filed July 24, 1903. Serial No. 166,792. (No model.)



Claim.—1. In a rail-joint for tracks and especially for field-railways, the combination of sections consisting of rails and sleepers fastened together, the edges of the end sleepers of the sections being bent into hooks adapted to catch in each other, substantially as specified and shown in the drawings.

2. In a rail-joint for tracks and especially for field-railways, the combination of sections consisting of rails and sleepers fastened together, the edges of the end sleepers of the sections being bent into hooks adapted to catch in each other and having upwardly-extended parts arranged outside the bottom flanges of the rails, substantially as specified and shown in the drawings.

3. In a rail-joint for tracks and especially for field-railways, the combination of sections consisting of rails and sleepers fastened together, the edges of the end sleepers of the sections being bent into hooks catching in each other and having upwardly-extended parts arranged outside the bottom flanges of the rails and an additional upper downward-bent hook arranged on the hooked edge of one end sleeper of the sections, substantially as specified and shown in the drawings.

4. In a rail-joint for tracks and especially for field-railways, the combination of sections consisting of rails and sleepers fastened together, the edge of one end sleeper of the sections being bent into a hook adapted to catch in a slit, provided in the other end sleeper of the sections, substantially as specified and shown in the drawings.

5. In a rail-joint for tracks and especially for field-railways, the combination of sections consisting of rails and sleepers fastened together, the end sleepers of the sections having slits and the edges of the end sleepers of the sections being bent into hooks adapted to catch in the said slits, substantially as specified and shown in the drawings.

748,827. CAP FOR PROJECTILES. CHARLES VAN CISE WHEELER, Allegheny, and ALEXANDER G. MCKENNA, Braddock, Pa., assignors to Firth Sterling Steel Company, a Corporation of Pennsylvania. Filed May 1, 1903. Serial No. 156,092. (No model.)



Claim.—1. A projectile and a cap therefor, both having grooves, and means cooperating with said grooves for holding the cap in position on the head of the projectile, for substantially the purposes set forth.

2. A projectile and a cap therefor, both having grooves, and means cooperating with said grooves for holding the cap in position on the head of the projectile, the cap having provision for the insertion of said holding means from the outside, for substantially the purposes set forth.

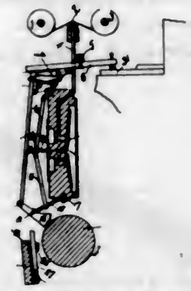
3. A projectile and a cap therefor, both having grooves, and means cooperating with said grooves and adapted to assume a curved shape conforming to the periphery of the projectile for holding the cap in position on the head of the projectile, the cap having provision for the insertion of said holding means from the outside, for substantially the purposes set forth.

4. A projectile, having a groove in its head portion, and an interiorly-grooved cap adapted to fit over the head, the groove in the cap substantially registering with the groove in the head, and fastening means lying within the groove on the head and cap, for substantially the purposes set forth.

5. A projectile, having a groove in its head portion, and a cap provided with an interior groove opening to the exterior of the cap and adapted to register with the groove on the head when the cap is in position on the point of the projectile, and a rod or key lying within both of said grooves, for substantially the purposes set forth.

6. The combination of a projectile and a cap therefor, both provided with grooves adapted to register when the cap is in position on the head of the projectile, a rod or rods, and means for inserting said rod or rods in the registering grooves from the outside, for substantially the purposes set forth.

748,828. ACTION FOR MECHANICAL PLAYING ATTACHMENTS FOR PIANOS. GEORGE R. WILLIAMS, Norfolk, Va., assignor of one-half to J. Saunders Taylor, Norfolk, Va. Filed Apr. 14, 1903. Serial No. 153,548. (No model.)



Claim.—1. In a mechanical playing attachment for musical instruments, the combination with a revolving drum or cylinder and suitable actuating devices, of a series of friction-shoes, movable arms for supporting said shoes, fixed flanges to which said arms are pivoted, toggle-levers each pivoted at one end to one of said arms and at its other end to a suitable support, rods to transmit the motion of said actuating devices to the toggles, and stickers pivoted to said friction-shoes to transmit the motion of the latter to the striking mechanism of the musical instrument.

2. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes arranged adjacent to said drum, means for bringing the shoes into and out of contact with the drum comprising toggle-levers and actuating devices therefor, vertically-disposed stickers each pivoted to one end of one of said shoes, pivoted arms to which the upper end of each sticker is connected, and pivoted key-actuating fingers disposed above said stickers in position to be actuated thereby.

3. In a mechanical playing attachment for the piano, the combination of a revolving drum or cylinder, a series of friction-shoes, a system of levers and mechanism for throwing said shoes on and off the cylinder, a system of levers and mechanism for transmitting the motion of the shoes to the keys of the piano, a series of pivoted arms to engage said shoes at the end of the stroke and remove them from the cylinder, adjustable flanges by means of which said arms can be raised or lowered, a fixed rail, and a series of small springs to hold said movable arms in position against said rail, all substantially as and for the purposes shown.

4. In a mechanical playing attachment for musical instruments, the combination with a revolving drum or cylinder, of a series of friction-shoes arranged adjacent to said drum, a series of pivoted arms to each of which one of said shoes is pivoted, a series of vertically-disposed toggles each having a connection at its lower end with one of said pivoted arms, means controlled by a music-sheet for actuating said toggles and means to transmit the motion of the shoes to the striking mechanism of the musical instrument.

5. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes arranged adjacent to said drum and adapted to be thrown into contact therewith, a series of movable arms pivoted at one end to a support and at the other end to one of the friction-shoes, means controlled by a music-sheet for rocking said arms to throw the shoes into contact with the drum, and vertically-disposed stickers pivotally connected to said shoes to transmit the motion of the shoes to the striking mechanism of the musical instrument.

6. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes arranged adjacent to said drum and adapted to be thrown into contact therewith, a series of vertically-disposed toggle-arms each having a link connection with one of the shoes, means for actuating said toggle-arms to bring the shoes into contact with the drum, and vertical stickers for actuating the striking mechanism of the musical instrument.

7. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes normally disposed at an angle to a line taken vertically through said drum and adapted to be thrown into contact therewith, a series of normally flexed toggle-arms each having a connection with one of said shoes, means controlled by a perforated music-sheet for straightening said toggle-arms to bring the shoes into contact with the drum, and vertical stickers for transmitting the motion of the shoes to the striking mechanism of the musical instrument.

8. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes arranged adjacent to said drum and adapted to be thrown into contact therewith, means for bringing the shoes into contact with the drum, a vertically-movable sticker pivoted to each shoe, a series of arms each pivoted at one end to the upper end of each sticker and at the other end to a support, and a series of key-actuating fingers arranged to be actuated by said stickers.

9. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes, means for bringing said shoes into contact with said drum, means operated by said shoes for actuating the keys of a musical instrument, and a series of pivoted arms for supporting said shoes at the end of the stroke to hold them removed from the drum.

10. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes, means for bringing said shoes into contact with said drum, means operated by said shoes for actuating the keys of a musical instrument, and a series of movable supports for engaging said shoes at the end of the stroke to hold them removed from the drum.

11. In a mechanical playing attachment for musical instruments, the combination with a revolving drum, of a series of friction-shoes, means for bringing the shoes into and out of contact with said drum, means operated by said shoes for actuating the keys of a musical instrument, a series of pivoted arms to be engaged by said shoes at the end of the stroke to hold them removed from the drum, and springs normally acting to force the said arms forward.

12. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-operating fingers, of means for actuating said fingers, yieldable connection between the fingers and actuating means therefor, and means for moving said yieldable connection to and from the ends of the fingers.

13. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-operating fingers, of means controlled by a perforated music-sheet for actuating said fingers, a yieldable connection between said fingers and the actuating means therefor, and means for moving said yieldable connection to and from the ends of the fingers.

14. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-operating fingers, of means controlled by a perforated music-sheet for actuating said fingers, and springs arranged between the rear ends of the fingers and the actuating means therefor, said springs being movable longitudinally of the fingers.

15. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-operating fingers, of means controlled by a perforated music-sheet for actuating said fingers, an arm movable longitudinally below each finger, and a spring carried by each movable arm, said springs being interposed between the fingers and the actuating means therefor.

16. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-actuating fingers, of a series of vertically-movable stickers for actuating said fingers, means controlled by a perforated music-sheet for actuating said stickers, a pivoted arm to which the upper end of each sticker is connected, and springs interposed between the rear ends of the fingers and said pivoted arms, said springs being movable longitudinally of the fingers.

17. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-actuating fingers, of a series of vertically-movable stickers for actuating said fingers, means controlled by a perforated music-sheet for operating said stickers, a pivoted arm to which the upper end of each sticker is connected, a movable rest-rail arranged below said arms and constituting a support therefor, and springs interposed between said fingers and pivoted arms, said springs being movable longitudinally of the fingers.

18. In a mechanical playing attachment for musical instruments, the combination with a series of pivoted key-actuating fingers, of a series of vertically-movable stickers for actuating said fingers, means controlled by a music-sheet for actuating the stickers, a pivoted arm to which the upper end of each sticker is connected, a pivoted rest-rail arranged below said arms and constituting a support therefor, and springs interposed between said fingers and pivoted arms.

19. In a mechanical playing attachment for musical instruments the combination with a series of key-actuating fingers, of a series of

vertically-movable stickers for actuating said fingers, a pivoted arm to which the upper end of each sticker is connected, a pivoted rest-rail arranged below said arms and constituting a support therefor, a series of longitudinally-movable springs arranged between said arms and fingers, and means whereby the said rest-rail is raised when the springs are moved forward.

30. In a mechanical playing attachment for musical instruments, the combination with a series of key-actuating fingers, of a series of vertically-movable stickers for actuating said fingers, a pivoted arm to which the upper end of each sticker is connected, a rest-rail arranged below said arms and constituting a support therefor, a pivoted support for said rest-rail having an extension, a series of longitudinally-movable springs arranged between said arms and fingers, and means for engaging the extension on the rest-rail support to cause the said rest-rail to be raised or lowered as the springs are moved longitudinally.

748,829. MACHINE FOR DIPPING SHEEP. RALPH J. WHEEK, Chicago, Ill., assignor of one-third to David Lyons, Chicago, Ill. Filed Dec. 13, 1902. Serial No. 135,079. (No model.)



Claim.—1. In a device for dipping sheep, the combination with a trough for a disinfecting solution, of oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

2. In a device for dipping sheep, the combination with a trough for a disinfecting solution, of means for forcing said solution through said trough, oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

3. In a device for dipping sheep, the combination with a trough for a disinfecting solution, of a propeller-wheel arranged in said trough for forcing said solution through the trough, oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

4. In a device for dipping sheep, the combination with a circuitous trough for a disinfecting solution, of oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

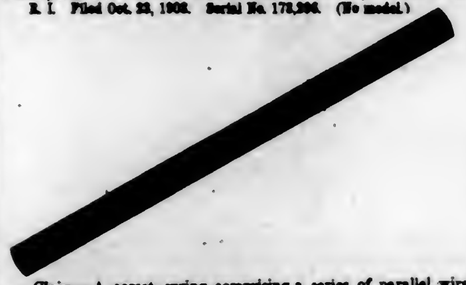
5. In a device for dipping sheep, the combination with a circuitous trough for a disinfecting solution, of means for forcing the solution through said trough, oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

6. In a device for dipping sheep, the combination with a circuitous trough for a disinfecting solution, of a propeller-wheel arranged in said trough for forcing the solution around said trough, oppositely-disposed conveyers separated from each other, and means for moving said conveyers in reverse directions.

7. In a device for dipping sheep, the combination with a circuitous trough for a disinfecting solution, of suitable platforms, a conveyer at one end of each platform, and means for moving said conveyers in reverse directions.

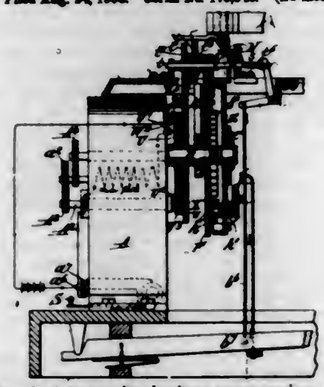
8. In a device for dipping sheep, the combination with a circuitous trough for a disinfecting solution, means for forcing the solution through said trough, carriers for conveying the sheep into and out of the trough and extending far enough into said trough to cause an upward eddy of the solution as it passes between said carriers, and means for moving said carriers in reverse directions.

748,830. CORSET-SPRING. CHARLES D. WOOD, Central Falls, R. I. Filed Oct. 23, 1902. Serial No. 178,206. (No model.)



Claim.—A corset-spring comprising a series of parallel wire members laid side by side, and a binding coating or film adhering to and uniting the wires.

748,831. TYPE-WRITER. NEAL L. ANDERSON, Montgomery, Ala. Filed Aug. 24, 1903. Serial No. 170,546. (No model.)



Claim.—1. A type-writer having a paper-carriage, a motor for propelling said carriage in its advance and return movements, reversing-gear adapted to connect the motor and the carriage for reversing the said carriage, a second motor for restoring the energy of the first-mentioned motor, and mechanism actuated by the reversing-gear to start said second motor when the carriage begins its reverse movement; substantially as described.

2. A type-writer having a paper-carriage, a motor having a unidirectional rotation for propelling said carriage in its advance and return movements, mechanism for advancing the carriage step by step, reversing-gear adapted to connect the motor and the carriage for reversing said carriage, means for simultaneously disconnecting the advancing mechanism and connecting the reversing-gear and the carriage, a second motor for restoring the energy of the first-mentioned motor, and mechanism actuated by the reversing-gear to start said second motor when the carriage begins its reverse movement; substantially as described.

3. A type-writer having a paper-carriage, a motor having a unidirectional rotation for propelling the carriage in its advance and return movements, mechanism for advancing the carriage step by step, reversing-gear adapted to connect the motor and the carriage for reversing said carriage, means for simultaneously disconnecting the advancing mechanism and connecting the reversing-gear and the carriage, a second motor for restoring the energy of the first-mentioned motor, and mechanism actuated by the reversing-gear to start said second motor; substantially as described.

4. A type-writer having a paper-carriage, a motor having a unidirectional rotation for propelling said carriage in its advance and return movements, mechanism for advancing the carriage step by step, reversing-gear adapted to connect the motor and the carriage for reversing said carriage, means for simultaneously disconnecting the advancing mechanism and connecting the reversing-gear and the carriage, an electric motor geared to said first-mentioned motor for restoring the energy thereof, and a circuit-controller for the electric motor to start the said electric motor and stop the same when the energy of the first motor has been restored; substantially as described.

5. A type-writer having a paper-carriage, a motor having a unidirectional rotation for propelling said carriage in its advance and return movements, mechanism for advancing the carriage step by step, reversing-gear adapted to connect the motor and the carriage for reversing said carriage, means for simultaneously disconnecting the advancing mechanism and connecting the reversing-gear and the carriage, an electric motor geared to said first-mentioned motor for restoring the energy thereof, and a circuit-controller for said electric motor operatively connected with the reversing-gear to start the electric motor and to stop the same when the energy of the first motor has been restored; substantially as described.

6. A type-writer having a paper-carriage, a toothed power-wheel having a unidirectional rotation for propelling said carriage in its advance and return movements, a band-wheel adjacent to said power-wheel and connected to the carriage for advancing the latter, cooperating clutch members on the power-wheel and the band-wheel, mechanism for disengaging said clutch members, reversing-gear driven by said toothed wheel for reversing said carriage, connections between said reversing-gear and the clutch-disengaging mechanism for throwing the reversing-gear into operation, an electric motor for restoring the energy of said power-wheel, and a circuit-controller for the electric motor to start the said electric motor and to stop the same when the energy of the power-wheel has been restored; substantially as described.

7. A type-writer having a paper-carriage, a toothed power-wheel having a unidirectional rotation for propelling said carriage in its advance and return movements, a band-wheel adjacent to said power-wheel and connected to the carriage for advancing the latter, cooperating clutch members on the power-wheel and band-wheel, mechanism for disengaging said clutch members, reversing-gear driven by said toothed wheel for reversing said carriage, connections between said reversing-gear and the clutch-disengaging mechanism for throwing the reversing-gear into operation, an electric motor geared to said power-wheel for restoring the energy of said power-wheel, and a circuit-controller for said electric motor operatively connected with the reversing-gear to start the electric motor and to stop the same when the energy of the power-wheel has been restored; substantially as described.

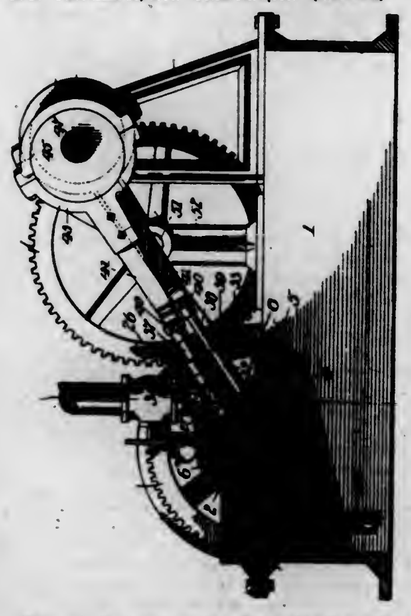
8. A type-writer having a paper-carriage, a power-wheel mediately coupled thereto for propelling the carriage in its forward movement, means for coupling the power-wheel and the carriage to reverse the latter, a motor connected with the power-wheel to restore the energy of the latter, trip mechanism for disengaging the forward driving-coupling and engaging the reverse driving-coupling, and means actuated by the reverse driving-coupling to start the energy-restoring motor when the carriage begins its reverse movement and to stop said motor when the energy of said power-wheel has been restored; substantially as described.

9. A type-writer having a paper-carriage, a power-wheel mediately coupled thereto for propelling the carriage in its forward movement, means for coupling the power-wheel and the carriage to reverse the latter, an electric motor connected with the power-wheel to restore the energy of the latter, trip mechanism for disengaging the forward driving-coupling and engaging the reverse driving-coupling, and means actuated by the reverse driving-coupling to close the circuit of the electric motor and to open the same when the energy of said power-wheel has been restored; substantially as described.

10. A type-writer having a paper-carriage, a power-wheel mediately coupled thereto for propelling the carriage in its forward movement, reversing-gear for coupling the power-wheel and the carriage to reverse the latter, an electric motor connected with the power-wheel to restore the energy of the latter, trip mechanism for disengaging the forward driving-coupling and engaging the reverse driving-coupling, and a rotary circuit-controller actuated by the reversing-gear to start the electric motor when the carriage begins its return movement and to stop said motor when the energy of said power-wheel has been restored; substantially as described.

11. A type-writer having a paper-carriage, a power-wheel mediately coupled thereto for propelling the carriage in its forward movement, reversing-gear for coupling the power-wheel and the carriage to reverse the latter, said reversing-gear comprising a longitudinally-sliding shaft, a clutch-gear revolubly mounted upon said shaft and driven from said power-wheel, a second clutch-gear on said shaft to be operatively engaged by said first gear, a rack on said carriage meshing with said latter clutch-gear, an electric motor connected with the power-wheel to restore the energy of the latter, trip mechanism for disengaging the forward driving-coupling and simultaneously coupling the clutch-gears to reverse the movement of the carriage, a rotary circuit-controller actuated by the reversing-gear to start the electric motor when the carriage begins its return movement and to stop said motor when the energy of said power-wheel has been restored; substantially as described.

748,832. ROTARY ENGINE. PETER A. ANDERSON, Grantin, N. D. Filed Mar. 14, 1900. Serial No. 8,669. (No model.)



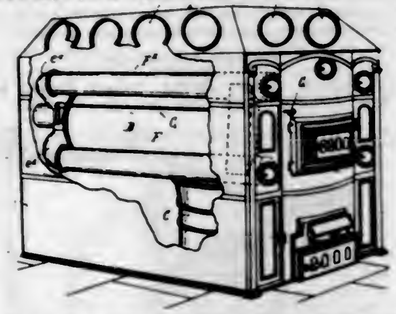
Claim.—1. In a rotary engine, the combination with a frame, of a casing supported therein, a shaft extending through said casing, a sleeve fixed to said shaft and provided with radial diametrically opposite piston-blades, passages projecting in an inclined position from said casing, and communicating therewith, a valve and an abutment within the passages, a shaft supported by standards above the level of the casing, eccentrics on said shaft and connections between said valves and eccentrics, and means for revolving the shaft carrying the eccentrics.

2. In a rotary engine, the combination with a frame comprising a box-like structure, of a cylinder or casing arranged within one end of the frame-box, a pair of bracket-standards rising from the opposite end of the frame-box; a shaft extending through the casing; a sleeve keyed to said shaft and provided with radially-projecting equidistant piston-blades; a gear-wheel upon one end of the shaft; independent passages projecting from the casing at an incline; a valve and an abutment within said passages; an eccentric-carrying shaft supported by the bracket-standards; eccentrics thereon connected to said valve and abutment; a gear-pinion on the eccentric-shaft and a gear-wheel suitably mounted upon a support and meshing with said pinion and with the gear-wheel of the main shaft.

3. In a rotary engine, the combination with the casing-valve mechanism, and a valve and an abutment, of a rotary piston comprising a sleeve fixed to the main shaft and having a series of equidistant radially-projecting blades, each consisting of independent plates or sections secured together, with an interposed section of packing material, the latter projecting beyond the edges of the plates, annular packing-rings about the sleeve beyond the outer ends of the blades, and a boxing having semicircular seats in which the ends of the said sleeve revolubly fit, all substantially as shown and described.

4. In a rotary engine, the combination with the casing and main shaft, of a rotary piston on said shaft, inclined passages projecting upwardly from the casing, one of said passages having diametrically opposite grooves and provided with a valve having opposite ribs: the other passage extending across the width of the casing and formed with inclined ways; a flat abutment moving in said ways and means for reciprocating said valves alternately.

748,833. **FURNACE.** CHARLES J. ANDERS, Cincinnati, Ohio. Filed May 14, 1903. Serial No. 157,094. (No model.)

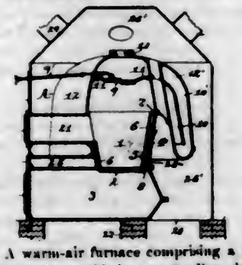


Claim.—1. In a furnace the combination of a combustion-chamber, a hollow casting one side of which forms the head-plate of the combustion-chamber, a damper dividing the casting into two chambers one of which communicates with the combustion-chamber, the other to lead to a flue, and drums leading from one chamber of the casting into the other substantially as shown and described.

2. In a furnace the combination of a horizontal dome, a hollow casting, one side of which forms the head-plate of the dome, a horizontal damper dividing the casting into an upper and a lower chamber, the upper one to communicate with the flue, and the lower communicating with the dome, drums upon each side of the dome, one set leading out of the lower chamber of the casting, the other leading into the upper chamber, and pipes connecting the other ends of the drums, substantially as shown and described.

3. In a furnace the combination of a horizontal dome, drums leading from the head-plate downward and forward to the front of the furnace parallel to the dome leaving a space between it and the drums; similar drums leading from the front of the furnace rearward to a flue, pipes connecting the forward ends of the lower and upper drums, a casing inclosing the parts having outlet-openings upon its front and sides, substantially as shown and described.

748,834. **WARM-AIR FURNACE.** OLIVER L. BADGER, Wheeling, W. Va. Filed May 11, 1903. Serial No. 156,533. (No model.)



Claim.—1. A warm-air furnace comprising a fire-box, a dome connected to said fire-box, said dome extending down around the fire-box, for the passage of the products of combustion from the fire-box and adapted to form a space between the fire-box and said dome, hot-air ports leading through said dome from said space, and a casing or shell within said fire-box adapted to form a chamber between said shell and the outer wall of said fire-box, said chamber having air-supply ports connected thereto and being provided with an open upper end for producing secondary combustion within said dome.

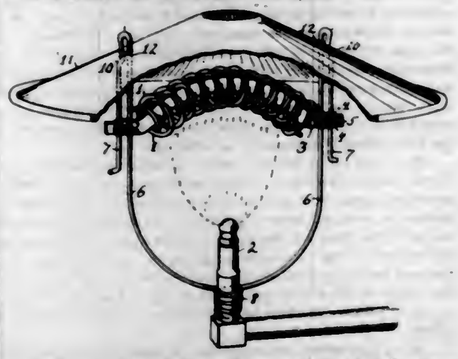
2. A warm-air furnace comprising a fire-box, a dome connected to said fire-box, said dome extending down around the fire-box for the passage of the products of combustion from the fire-box and adapted to form a space between the fire-box and said dome, hot-air ports leading through said dome from said space, a casing or shell within said fire-box adapted to form a chamber between said shell and the outer wall of said fire-box, said chamber having air-supply ports connected thereto and being provided with an open upper end for producing secondary combustion within said dome, and a diaphragm within said dome and above said open end for directing the products of combustion through and around said dome.

3. A warm-air furnace, comprising a fire-box, a dome connected to said fire-box, said dome extending down around the fire-box for the passage of the products of combustion from the fire-box and adapted to form a space between the fire-box and said dome, hot-air ports leading through said dome from said space, a casing or shell within said fire-box adapted to form a chamber between said shell and the outer wall of said fire-box, said chamber having air-supply ports connected thereto and being provided with an open upper end for producing secondary combustion within said dome, and a diaphragm within said dome and above said open end, said diaphragm extending down within said dome for forming two flues within said dome for the passage of the products of combustion through and around said dome.

4. A warm-air furnace, comprising a fire-box, a dome connected to said fire-box, said dome extending down around the fire-box for the passage of the products of combustion from the fire-box and adapted to form a space between the fire-box and said dome, hot-air ports leading through said dome from said space, a casing or shell within said fire-box adapted to form a chamber between said shell and the outer wall of said fire-box, said chamber having air-supply ports connected thereto and being provided with an open upper end for producing secondary combustion within said dome, and a diaphragm above said open upper end and having a curved portion therein, said diaphragm extending down within said dome for forming two flues within said dome for the passage of the products of combustion through and around said dome.

5. A warm-air furnace, comprising a fire-box, a dome connected to said fire-box, said dome extending down around the fire-box for the passage of the products of combustion from the fire-box and adapted to form a space between the fire-box and said dome, hot-air pipes leading through said dome from said space, a casing or shell within said fire-box adapted to form a chamber between said shell and the outer wall of said fire-box, said chamber having air-supply ports connected thereto and being provided with an open upper end for producing secondary combustion within said dome, a diaphragm above said open upper end and having a curved portion therein, said diaphragm extending down within said dome for forming two flues within said dome for the passage of the products of combustion through and around said dome, and a damper within said diaphragm and above said fire-box.

748,835. **HEATER.** CAESAR R. BANNIER, New York, N. Y. Filed Mar. 2, 1903. Serial No. 145,736. (No model.)



Claim.—1. A heat-radiating device consisting of a helix adapted to be heated by the flame from a burner, a transverse supporting-bar through the helix for supporting the coils and means for supporting the ends of the bar from the burner with the helix above the burner-flame.

2. A heat-radiating device consisting of a wire helix adapted to be heated by the flame from a burner, a transverse supporting-bar for the helix, vertical wire standards with downwardly-turned ends for adjustably supporting the ends of the bar, and a standard-supporting socket for engaging the burner.

3. A heat-radiating device consisting of a wire helix adapted to be heated by the flame from a burner, a transverse supporting-bar for the helix, a horizontally-disposed conical reflector, vertical wire standards with downwardly-turned ends for supporting the reflector and for adjustably supporting the ends of the bar, and a standard-supporting socket for engaging the burner.

4. A heat-radiating device consisting of two intermeshed wire helices adapted to be heated by the flame from a burner, a transverse supporting-bar for both helices, and means for supporting the ends of the bar from the burner with the helices above the burner-flame.

5. A heating-stove consisting of a casing open at one side, a burner within the casing, a heat-radiating device consisting of a wire helix adapted to be heated from the burner, a transverse supporting-bar for the helix, means for supporting the ends of the bar with the helix above the burner-flame and within the casing, and an inclined reflector within the casing and below the burner, the reflector having downwardly-diverging corrugations.

748,836. **COIN-SORTER.** CHARLES S. BAYDORF, Brooklyn, N. Y. Filed Sept. 22, 1903. Serial No. 174,154. (No model.)



Claim.—1. In a coin-sorter the combination of a rigid frame-work comprising top and bottom members and uprights or corner-posts, said posts having vertical guides in their inner sides and said top member having a tray-admission opening, and removable trays inserted through the top member of the framework and being guided to their positions by said uprights or corner-posts.

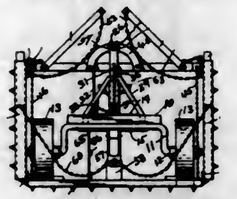
2. In a coin-sorter, the combination of a rigid open framework including top and bottom members and angle-iron uprights forming corner-posts, and trays fitting within said frame and introduced and removed vertically through the top member of the frame, the channels of the said uprights forming vertical guides for the trays, and said trays having perforated bottoms graded to assort coins of different denominations and arranged one above the other within the frame.

3. In a coin-sorter, the combination of a frame or casing including a base and a top section each provided with angular corner-brackets, angle-iron uprights fitting and extending between the corner-brackets and forming corner-posts for the frame or casing, trays of a diameter substantially equal to the distance between opposite uprights or corner-posts said trays inserted and removed vertically through the top section of the frame or casing and having their angles vertically guided in the angles of the uprights, and a top closure for the frame or casing said trays having perforated bottoms graded to assort coins of different denominations and arranged one above the other.

4. In a coin-sorter the combination of a casing composed of a bottom plate with upwardly-projecting angle-brackets at the corners, a top member having downwardly-extending angle-brackets at the corners, angle-iron corner-posts fitting and connecting the angle-brackets of the bottom plate and top member, trays insertible in the casing through the top member thereof and having their corners guided by the corner-posts, said trays having perforated bottoms graded to assort coins of different denominations, and a cover hinged at one side of the frame or casing and closable over the top member thereof and provided with means for securing the cover in a closed position, said cover having an opening to admit the coins to the uppermost tray and said frame or casing having handles by which it may be agitated.

5. In a coin-sorter, the combination with a framework or casing open at the top and provided with vertical guides at the corners, a series of trays having their angles fitting said guides said trays insertible and removable through said open top of the casing and resting one upon the other, and having perforated bottoms graded to assort coins of different denominations, said trays having flanges along the top of opposite sides to serve as handholds for removing and replacing the trays, and a closure for the uppermost tray.

748,837. **HARROW.** HUGO A. BRIXEN, Gurnee Ill. Filed July 20, 1903. Serial No. 166,286. (No model.)



Claim.—1. In a harrow, the combination with a wheeled frame, of a post including a lower vertical section slidably mounted in the frame and an upper section slidable in the lower section, a harrow-section connected to the lower section of the post, a transverse arm carried by the upper section of the post, and suspending devices connected to the end portions of the arm and the corresponding portions of the harrow-sections.

2. A harrow, comprising a wheeled frame, a vertically-shiftable harrow-section suspended from the frame, supplemental harrow-sections connected to the first-named sections, suspension means mounted upon the frame and connected with the supplemental sections, and a single means for shifting first the suspension means upon the frame to initially move the supplemental sections, and subsequently to move all of the sections.

3. A harrow comprising a wheeled frame, a post mounted in the frame and including upper and lower telescopically-connected sections, the lower section projecting above and below the frame, a harrow-section connected with the lower section of the post and held thereby against lateral displacement, suspension means connected with the upper section of the post and with the harrow-section and means for shifting said upper section vertically.

4. A harrow comprising a wheeled frame, a post mounted in the frame and including upper and lower sections slidably connected a harrow-section disposed beneath the wheeled frame and connected to the lower section of the post, supplemental harrow-sections hinged to the first-named section, suspension means connected with the upper section of the post and with the harrow-sections, and means for shifting said upper section vertically, said suspension means being constructed and arranged for initial movement of the supplemental sections therewith on their hinges and subsequent bodily movement of all sections.

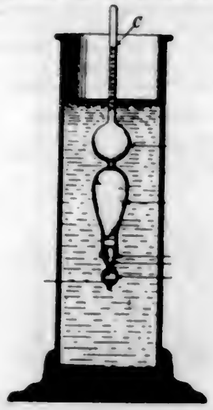
5. A harrow comprising a wheeled frame, a tubular post-section slidably mounted in the frame, a harrow-section beneath the frame connected to said tubular post-section, a second post-section slidably mounted in the tubular post-section, a transverse arm pivoted in the upper end of the second post-section, a latch for holding said arm against pivotal movement, flexible connections between said arm and the harrow-section, supplemental arms pivoted to the first-named arm and movable to aline therewith and to stand at an angle thereto, supplemental harrow-sections hinged to the first-named section for vertical movement, flexible connections between the supplemental arms and the outer ends of the supplemental harrow-sections, means connected with the second post-section for raising and lowering it and therewith the arms, and means for holding the supplemental harrow-sections raised at angles to the main harrow-section, the supplemental harrow-sections being movable upon their hinges with the initial movement of the arms and the several sections being movable bodily with the subsequent movement of the arms.

748,838. **HYDROMETER.** HERMAN R. BROMFLER, New York N. Y., assignor to Bimer & Amend, New York, N. Y. Filed Aug. 17, 1903. Serial No. 169,757. (No model.)

Claim.—1. A hydrometer having a depending, immersion-chamber to contain matter to be tested, an opening in said chamber, and a removable closure for said opening.

2. In a hydrometer, a buoyant member, an immersion-chamber

supported thereby and adapted to contain matter to be tested, an opening in said chamber, and a removable closure for said opening.



3. In a hydrometer, a buoyant member having an integral downwardly-opening chamber to contain matter to be tested.

4. In a hydrometer, a buoyant member having an integral, inverted chamber to contain matter to be tested, and a removable closure for said chamber.

5. In a hydrometer, a buoyant member having a depending, inverted chamber to contain matter to be tested, and a weighted stopper for said chamber.

6. In a hydrometer, a buoyant member having a depending chamber to contain matter to be tested, an opening at the lower end of said chamber, and a weighted stopper for said opening.

7. As a new article of glass manufacture, a hydrometer comprising a hollow bulb having an integral, diminished stem, and an oppositely-arranged, integral chamber to contain matter to be tested, said chamber having an opening at its lower end, and a weighted stopper to close said opening.

8. An improved hydrometer consisting of a buoyant member, an indicator therefor, a chamber to contain the fluid or solid to be tested, said chamber having an orifice at its lower end, and a stopper to close said orifice, the end of said stopper being hollow and containing a weight.

9. An improved hydrometer consisting of a buoyant member having an upper graduated extension, a lower, immersing-chamber to contain matter to be tested, an opening in said chamber, and a removable closure for said opening.

10. An improved hydrometer consisting of a buoyant member, an immersion-indicator therefor, and an inverted, stoppered chamber to contain the fluid or solid matter to be tested.

748,839. **SAFETY-TORCH.** CHARLES H. BROWN, Perry, Iowa. Filed May 1, 1903. Serial No. 155,165. (No model.)

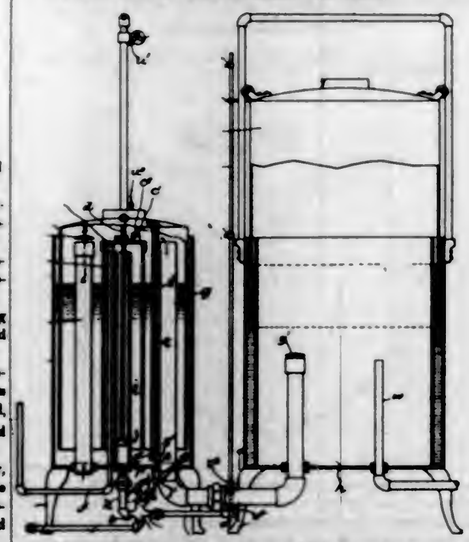


Claim.—1. In a torch of the character described, provided at its upper end with an annular air space or chamber surrounding a central opening, a vent, and an air tube or passage in communication at one end with said vent and at its opposite end with the said air-space at a point about diametrically opposite to the said vent, substantially as described.

2. A torch of the character described, having its upper end centrally depressed to provide an annular air space or chamber, a tube extending around approximately one-half of said space and in communication therewith at one end, and a vent in communication with the opposite end of said tube and extended through the end of the torch, substantially as described.

3. A torch of the character described, having its upper end centrally depressed, and provided in its center with an opening and a pendent boss surrounding said opening, a closure fitted to said boss and having its lower end depressed or made hollow to form a chamber to supplement the action of the air space or chamber surrounding said boss, a vent in communication with said annular space, and a curved tube or passage occupying a portion of said annular space and in communication with said vent at one end and terminating at its opposite end in said air-space at a point diametrically opposite to said vent, substantially as described.

748,840. **APPARATUS FOR MIXING AND DELIVERING AIR AND GAS.** WALTER H. BROWN and JOHN B. TEGGERDS, Boston, Mass. Filed Feb. 28, 1903. Serial No. 145,496. (No model.)



Claim.—1. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, means for alternately raising and releasing said receivers, the said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet through which the gas passes to the air-receiver, and a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending.

2. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, means for alternately raising and releasing said receivers, the said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet through which the gas passes to the air-receiver, a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending, and means for preventing the escape of said mixture excepting through the discharge-pipe.

3. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, means for alternately raising and releasing said receivers, the said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet through which the gas passes to the air-receiver, a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending, and downwardly-closing check-valves in the air and gas inlets and in the gas-outlet, whereby the escape of said mixture excepting through the discharge-pipe is prevented.

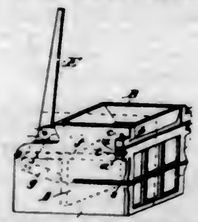
4. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, a fixed vertical cylinder extending through said seal, a piston movable in the cylinder and connected with the receivers, means operated by the descent of the receivers to admit an impelling fluid under pressure to the cylinder below the piston to raise the receivers and by the rise of the receivers to shut off the impelling fluid and permit the drainage of the cylinder and the descent of the receivers by gravitation, said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet to the air-receiver, and a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending.

5. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, a fixed vertical cylinder extending through said seal, a piston movable in the cylinder and connected with the receivers, a conduit entering the lower portion of the cylinder, a three-way-cock casing communicating with said conduit and having an inlet connected with a source of supply of fluid under pressure and a drainage-outlet, a cock-plug movable in said casing and having means for connecting the said conduit alternately with the inlet and with the drainage-outlet, an oscillatory weighted lever pivoted to a fixed support and having an arm containing a segmental slot receiving a stud in the stem of said plug, a vertical rod connected with another arm of said lever, said rod having two shoulders, and a member moving with the receivers and adapted to engage one of said shoulders when the receivers are rising, and the other shoulder when the receivers are descending.

6. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, a fixed vertical cylinder extending through said seal, a piston movable in the cylinder and connected with the receivers, means operated by the descent of the receivers to admit an impelling fluid under pressure to the cylinder below the piston to raise the receivers, and by the rise of the receivers to shut off the impelling fluid and permit the drainage of the cylinder and the descent of the receivers by gravitation, said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet to the air-receiver, a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending, a gasometer arranged to receive the mixture of gas and air from the air-receiver, and means controlled by the floating bell or chamber of the gasometer for alternately turning on and shutting off the impelling fluid.

7. An air and gas mixing and delivering apparatus comprising two connected inverted receivers, a liquid seal closing the lower ends of said receivers, means for alternately raising and releasing said receivers, the said receivers having inlets through which air and gas enter when the receivers are rising, the gas-receiver having also an outlet through which the gas passes to the air-receiver, a discharge-pipe to conduct the mixture of air and gas from the air-receiver when the receivers are descending, and an indicator or meter operated by the movements of the receivers.

748,841. **FAT-CUTTER.** CHARLES BURNETT, Shreve, Ohio. Filed Aug. 14, 1903. Serial No. 169,552. (No model.)



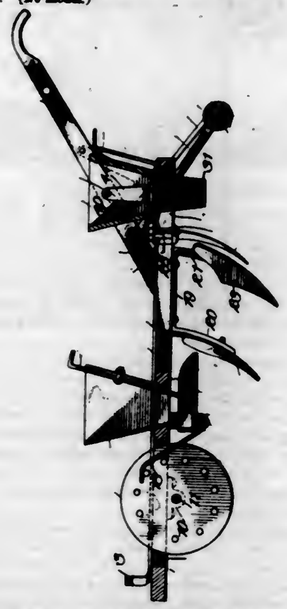
Claim.—1. In a fat-cutter, the combination with a box and a hopper leading thereto, a plunger mounted to slide in said box, means for actuating said plunger; of a horizontal cutter set at and along the upper and outer angle of said plunger; an end-gate removably secured across the end of said box in front of said plunger; a horizontal cutter set at and along the upper bar of said end-gate and fitted to coact with said plunger-cutter, means for adjusting relatively the gate-cutter and the plunger-cutter; and a series of end cutters arranged to cross each other, removably fitted in said gate, substantiallly as set forth.

2. In a fat-cutter, the combination with a box having a hopper leading thereto, and a plunger fitted to slide therein, means for actuating said plunger back and forth, a horizontal cutter arranged along and upon the upper front angle of said plunger; of an end-gate removably secured across the open end of said box opposite to said plunger; a horizontal cutter mounted upon and along the upper bar of said end-gate in a plane with said plunger-cutter; open slotted ears projecting from said end-gate at or near its top to coact with ears projecting from the upper part of said box; bolts detachably connected with said slotted ears and threaded into said coacting ears to graduate the vertical adjustment of said end-gate cutter in reference to said plunger-cutter—said end-gate further provided with a series of cutters removably secured therein and arranged to cross each other, substantially as set forth, and for the purpose specified.

748,842. **CASE-HARDENING COMPOUND.** JOSEPH CADOTTE, Suncook, N. H. Filed Apr. 16, 1903. Serial No. 153,236. (No specimens.)

Claim.—A case-hardening dry compound composed of forty per cent. of white calcined plaster, forty per cent. of prussiate of potash and twenty per cent. of lampblack.

748,843. **FERTILIZER-DISTRIBUTER AND COTTON-PLANTER.** IRA C. CLYBURN, Bishopville, S. C. Filed July 29, 1903. Serial No. 167,445. (No model.)



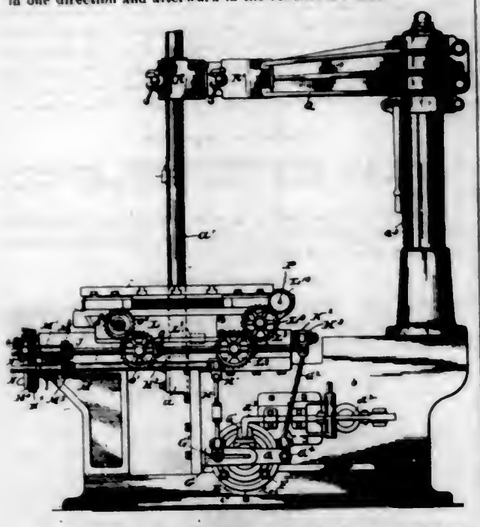
Claim.—1. In a machine of the class described, a frame, a ground-engaging wheel having laterally-extending tappets, a hopper supported upon said frame, a flexible strap secured to the sides of the frame and extended loosely below the same, a scoop having a downwardly-extending stud constituting a button engaging said flexible strap, and a loop engaging said button below said flexible strap and having forwardly-extending arms disposed in the path of the tappets upon the ground-engaging wheel.

2. In a machine of the class described, a frame, forwardly-converging straps upon the under side of said frame, said straps being provided at their front and rear ends with integral downward extensions forming standards, ridging-plows connected with the front standards, turning-plows connected with the rear standards and adapted to bed the soil upon the ridge formed by the plows, means for dropping fertilizing material in front of the ridging-plows, and a furrow-opener supported in rear of and between the turning-plows.

748,844. **SLOTTING-MACHINE.** LESLIE H. COLBURN, Franklin, Pa., assignor of one-half to Baker Brothers, Toledo, Ohio, a Firm. Filed Feb. 13, 1903. Serial No. 143,283. (No model.)

Claim.—1. The combination with a cutter-bar, driving mechanism and a table, of a screw for feeding the table, a disk or carrier, tappets on said disk or carrier, a rocking arm adjacent to said disk or carrier and adapted to be engaged by said tappets, means for transmitting motion alternately in opposite directions from said driving mechanism to said disk or carrier, and devices between said

rocking arm and screw for moving the feed-screw longitudinally first in one direction and afterward in the reverse direction.



2. The combination with a cutter-bar, driving mechanism connected therewith and a table, of a feed-screw for the table, a disk or carrier, devices connecting said disk or carrier with the driving mechanism, tappets on said disk or carrier, a rocking arm adjacent to the disk or carrier and adapted to be engaged by the tappets, devices between the rocking arm and feed-screw for moving the latter longitudinally, reversing means for the driving mechanism and disk or carrier and devices actuated by the rocking arm for controlling said reversing means.

3. The combination with a cutter-bar and driving mechanism, of a disk connected with the driving mechanism, tappets carried by said disk, a rocking arm adjacent to said disk, a lug on said rocking arm arranged to be operated by said tappets, reversing devices for the driving mechanism arranged to be operated by the rocking arm, a table, a feed device for the table and means connected with and operated by the rocking arm for moving said feed device longitudinally to move the table relatively to the cutter-bar at each end of the stroke thereof.

4. In a slotting-machine, the combination with driving mechanism, a cutter-bar, a cutter, a table, and means for feeding the table toward the cutter, of a rocking arm connected with the table-feeding means, tappets automatically actuated by the driving mechanism of the machine, a lug projecting from said rocking arm in position to be engaged alternately by said tappets for controlling the movements of the rocking arm to move the table with the work thereon away from the cutter prior to the return stroke of the latter, and to move the said table and work back to its position within reach of the cutting-tool prior to the cutting stroke.

5. The combination with a cutter-bar, driving mechanism therefor, and a table, of a rocking arm, feed mechanism for the table connected with said rocking arm, reversing mechanism for the driving-gearing, a movable disk or carrier and tappets on said disk or carrier for actuating the rocking arm to operate the table-feed mechanism and for operating the reversing mechanism.

6. The combination with a cutter-bar, driving mechanism, reversing means for the driving mechanism, a table, means for feeding the table and means for imparting a lateral motion to the table independent of the feed thereof, at each end of the stroke of the cutter, of a rocking arm connected with both of said means, tappets and a carrier for said tappets actuated by the driving mechanism for causing said tappets to actuate the rocking arm and reversing mechanism.

7. The combination with a cutter-bar, a table, a driving-shaft, oppositely-driven clutch-pulleys, and gearing connecting the driving-shaft and cutter-bar whereby the latter is actuated, of a disk operated by the driving-shaft, tappets adjustably secured to said disk, a rocking arm to be actuated by said tappets, shifting devices connected with the clutches and adapted to be actuated by the tappets whereby the clutches are shifted by the tappets, a weight on said shifting devices, adapted by its momentum to assist in imparting full stroke to the shifting devices, and means for moving the table, said means actuated by the rocking arm.

8. The combination with a cutter-bar and suitable driving-gear, of a disk carrying tappets and connected with said driving-gear, means actuated by said tappets for reversing the direction of motion of the driving-gear, a rocking arm actuated by the tappets on the disk, a feed-table and means actuated by said rocking arm for feeding the table.

9. The combination with a cutter-bar and a feed-table, of a rocking arm, means cooperating therewith for intermittently feeding the table and work thereon to the cutter-bar, automatic means also cooperating with said rocking arm for shifting the table and its work away from the cutter-bar as the latter makes its return stroke, driving means for the cutter-bar, reversing devices for said driving means, and means actuated by the driving means for automatically operating said rocking arm and reversing devices.

10. The combination with a cutter-bar, driving mechanism for the cutter-bar, and feed-table, of a stroke-regulating disk having tappets, a rocking arm actuated by said tappets, table-feeding devices connected at one end of said rocking arm, means actuated by the other end of said arm for moving the table and work thereon away from the cutter prior to the return stroke of the latter, and reversing devices for the driving mechanism actuated by the tappets on the stroke-regulating disk.

11. The combination with a cutter-bar, driving mechanism for the cutter-bar, and a feed-table, of a stroke-regulating disk, tappets adjustably secured thereto, a rocker-arm having a projection adapted to be engaged by said tappets, a feed-screw, mechanism actuated by said rocker-arm for rotating the feed-screw, and mechanism also actuated by said arm for moving the feed-screw and table connected thereto longitudinally, and reversing mechanism for the driving mechanism actuated by the adjustable tappets on the stroke-regulating disk.

12. The combination with a cutter-bar, a feed-table, a feed-screw connected to the table and means for rotating the feed-screw, of a nut carried by the table slide or support, a threaded sleeve within said nut and loosely embracing the screw-shaft, means for restraining said sleeve against endwise movement on the shaft and means for rotating the sleeve whereby the latter is moved longitudinally within the nut.

13. The combination with a cutter-bar, a feed-table, a feed-screw and means for rotating the latter, of a split nut carried by the table slide or support, collars embracing the ends of said split nut, a threaded sleeve within the nut and loosely embracing the screw, anti-frictional thrust-bearings for restraining endwise movement of the sleeve on the screw, a rocking arm, a connection between said rocking arm and sleeve, and means for rocking the rocking arm whereby the sleeve and the screw are moved longitudinally within the nut.

14. The combination with a cutter-bar, a feed-table, and a feed-screw, of driving-gearing, means for reversing the direction of motion of said gearing, means connecting said gearing and feed-screw whereby the latter is rotated, means for moving the feed-screw longitudinally independently of its rotary motion, a rocking arm controlling the operation of said feeding and moving means, tappets, a carrier therefor and connections between said carrier and driving mechanism for causing the tappets to operate the rocking arm and reversing means.

15. The combination with a cutter-bar, driving mechanism, feed-table and feed-screw, of a rocking arm connected at one end to mechanism which operates to rotate the feed-screw and at its other end to mechanism which operates to move said feed-screw longitudinally independently of its rotary motion, a disk connected with the driving mechanism and carrying tappets for operating said rocking arm and reversing mechanism also operated by said tappets.

16. The combination with a cutter-bar, a feed-table and a feed-screw, of driving-gearing connected with the cutter-bar, a stroke-regulating disk actuated by said gearing and provided with adjustable tappets, reversing mechanism for the gearing actuated by said tappets, a rocking arm also actuated by said tappets, means connected to one end of said arm for rotating the feed-screw and means actuated by the other end of said arm for shifting the feed-screw longitudinally.

17. The combination with a main table, a transverse table on the main table, and a rotary table on the transverse table, of a rocking arm, devices for operating the tables, devices controlled by said rocking arm for imparting the necessary motions to the table-operating devices, and also for shifting the main table away from the cutter-bar while the latter is making its return stroke, and means for actuating said rocking arm.

18. The combination with a frame or base, an adjustable column thereon and an arm pivotally mounted on said column, a plurality of bearings at the outer end of said arm for the cutter-bar and means for locking said arm to the column, of a cutter-bar supported at its upper end in any of said bearings at the outer end of the arm, means secured to the lower end of said bar for actuating the same, and a bearing supporting said bar adjacent to the table.

19. The combination with a frame or base, a column adjustably secured thereon and carrying a vertically-adjustable sleeve, an arm pivotally mounted on said sleeve, and provided near its free end with a plurality of half-bearings, means for locking said arm to the column and a swinging cap for each half-bearing, of an integral cutter-bar supported at its upper end in one of the bearings in said arm, a ram secured to the lower end of said bar, and a bearing or support for said cutter-bar intermediate the ram and the upper bearing.

20. The combination with a frame or base, a column adjustably secured thereon and provided with a rack-bar, a sleeve on said column carrying a pinion engaging the rack, and an arm pivotally mounted to turn on said sleeve, means for locking said arm in position and a plurality of bearings at the outer end of said arm, of a cutter-bar consisting of a single bar of metal mounted at its upper end in one of the bearings in said arm, a ram connected to the lower end of said bar, means for imparting morement to said ram, and a bearing supporting the cutter-bar at a point intermediate the ram and upper bearing.

21. The combination with a main feed-table, a transverse table and a rotary table and a feed-screw for each table, of a rocking shaft for transmitting motion to all of said screws, and reversing mechanism interposed between the rocking shaft and the feed-screws of the transverse and rotary tables whereby said tables may be automatically moved in either direction.

22. In a slotting-machine, the combination with a cutter-bar, a main table and a feed-screw therefor, of a rocking shaft and gearing for imparting a rotary movement from the latter to said screw, and means independent of said rocking shaft for imparting longitudinal movement to the screw and table connected thereto, and mechanism for driving said cutter-bar and the feeding mechanism.

23. In a slotting-machine, the combination with a cutter-bar, a main table, a feed-screw therefor and a rocking shaft, gearing for imparting rotary movement to said feed-screw and a rocking arm for actuating said rocking shaft, of devices independent of the rocking shaft connected to and actuated by the device which actuates the rocking shaft for shifting the feed-screw and table connected thereto longitudinally and mechanism for driving said cutter-bar and rocking arm.

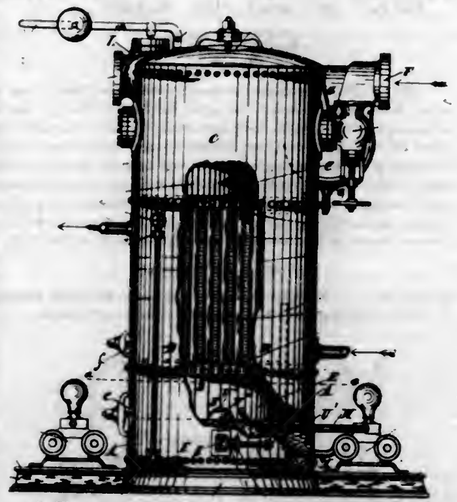
24. In a slotting-machine, the combination with a main table, feed-screw therefor, a rocking shaft and gearing for imparting a rotary motion to said feed-screw and a rocking arm connected with the rocking shaft for actuating it, a cutter and means for actuating same, of devices independent of the rocking shaft connected to and actuated by the device which actuates the rocking shaft for shifting the feed screw and table longitudinally with each stroke of the cutter, and mechanism cooperating with the actuating means of the cutter for operating the rocking arm.

748,845. APPARATUS FOR SUPPLYING HOT WATER AND STEAM. JOHN F. CONNELL, Los Angeles, Cal., assignor of one-half to Willard H. Stimson, Los Angeles, Cal. Filed July 15, 1903. Serial No. 165,666. (No model.)

Claim.—1. The apparatus or device consisting of an upper chamber, whereinto exhaust-steam from the engines is conducted, the said apparatus or device having a multitubular chamber below the exhaust-steam chamber, the tubes whereof through which the exhaust-steam descends constituting the sole open communication or passage for the descent of the exhaust-steam into the bottom chamber or hot-well, the multitubular chamber receiving cold water under pressure at the bottom thereof and discharged at its highest temperature at or from the top of said multitubular chamber, the third chamber constituting the hot-well at the bottom thereof, said apparatus being provided with opening and closing valves, and pipe connections between the hot-well and the pumps which draw the hot water and deliver it to steam-boilers, basins and baths, all operating together in the manner and for the purposes substantially as set forth.

2. The apparatus or device consisting of an upper chamber, whereinto exhaust-steam from the engines is conducted, the said apparatus or device having a multitubular chamber below the exhaust-steam chamber, the tubes whereof through which the exhaust-steam descends constituting the sole open communication or passage for

the descent of the exhaust-steam into the bottom chamber or hot-well, the multitubular chamber receiving cold water under pressure at the bottom thereof and discharged at its highest temperature at or from the top of said multitubular chamber, the third chamber constituting the hot-well at the bottom thereof, said apparatus being provided with opening and closing valves, and pipe connections between the hot-well and the pumps which draw the hot water and deliver it to steam-boilers, basins and baths, also the valve and supply-pipe connecting the top of the multitubular chamber with the hot-well, all operating together in the manner and for the purposes substantially set forth.



3. The apparatus or device consisting of an upper chamber, whereinto exhaust-steam from the engines is conducted, the said apparatus or device having a multitubular chamber below the exhaust-steam chamber, the tubes whereof through which the exhaust-steam descends constituting the sole open communication or passage for the descent of the exhaust-steam in the bottom chamber or hot-well, the multitubular chamber receiving cold water under pressure at the bottom thereof and discharged at its highest temperature at or from the top of said multitubular chamber, the third chamber constituting the hot-well at the bottom thereof, said apparatus being provided with opening and closing valves, and pipe connections between the hot-well and the pumps which draw the hot water and deliver it to steam-boilers, basins and baths, also the valve and supply-pipe connecting the top of the multitubular chamber with the hot-well, also the pipe connecting the heating apparatus into the apartments, hallways, corridors or passages of hotels, office-buildings or other edifices, all operating in the manner and for the purposes substantially as set forth.

4. The apparatus or device consisting of an upper chamber, whereinto exhaust-steam is conducted, the said apparatus or device having a multitubular chamber below the exhaust-steam chamber, into which multitubular chamber cold water under pressure is admitted at the bottom thereof and discharged as hot water at or from the top of said multitubular chamber, said apparatus having a third chamber constituting the hot-well at the bottom thereof, said apparatus being provided with opening and closing valves, and pipe connections between the hot-well and the pumps which draw the hot water and deliver it to steam-boilers, also the valve and supply-pipe connecting the top of the multitubular chamber with the hot-well, also the pipe connecting with the heating apparatus in the apartments, hallways, corridors or passages of hotels, office-buildings or other edifices; also the base whereon the said apparatus is carried, said base being constructed with a lip for preventing the overflow of water leaking from the apparatus or pumps, used in connection therewith, substantially as set forth.

5. The combination of the exhaust-steam chamber, the multitubular water-heating and exhaust-steam-condensing chamber, the connection at the lower part of the multitubular chamber to water-mains, the water-mains, the connection from the upper part of the multitubular chamber to wash-basins, baths, and like vessels, the water-basins bath and like vessels, the pipe connection for leading exhaust-steam into the heating apparatus in hotels, office-buildings

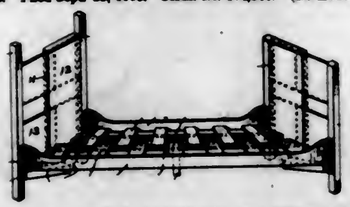
and analogous edifices, the heating apparatus the float-operated mechanism for automatically operating the valve for admitting or shutting off steam from the steam-cylinders of the automatic hot feed-water pumping-engines, the pumping-engines, the safety or blow-off valve, the oil-separator through which the exhaust-steam passes into the exhaust-steam chamber, the valve for regulating the passage of the exhaust-steam into the exhaust-steam chamber, all operating together in the manner and for the purposes substantially as set forth.

748,846. CHATELAINE. ROBERT R. DERACHER, New York, N. Y. Filed Feb. 7, 1903. Serial No. 93,059. (No model.)



Claim.—In a chatelaine, the combination with a blank bent to form a front plate, a back plate and a loop or eye for the attachment of a bag, of a spring-actuated clamping-plate interposed between the said plates and permanently secured at its lower end to the front plate, and having its upper end bent at an angle to the body of the clamping-plate to form a clamping-jaw, and a thumb-screw having a screw-threaded engagement with the front plate, bearing against the clamping-plate for forcing it toward the back plate as the screw is screwed inwardly, substantially as set forth.

748,847. EXTENSIBLE BED. WILLIAM H. DE VAULT, Colerain, Ohio. Filed Sept. 23, 1903. Serial No. 174,369. (No model.)



Claim.—An extensible bedstead comprising telescopic head and foot boards and connected side rails, supplemental longitudinal rails connected to corresponding head and foot board members at one side of the bedstead, a supporting-leg for one of said supplemental rails and slat-sections carried by the side rails and resting upon the supplemental rails, the head and foot boards comprising posts, folding stops connected to the posts of each board, said stops comprising hinged section, and means for preventing alinement of the sections.

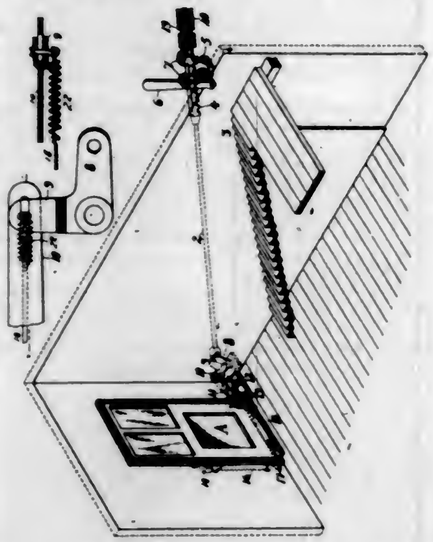
748,848. MECHANICAL DOOR OPENING OR CLOSING DEVICE. WILLIAM F. DRINKHAHN and JOHN DRINKHAHN, San Francisco, Cal. Filed Apr. 20, 1903. Serial No. 153,454. (No model.)

Claim.—1. A door opening and closing device consisting of intermeshed pinions, one of which is in line with the door-hinge, a bell-crank lever, connections by which it actuates the second pinion, a rod connecting said bell-crank lever with a distant point, and means including a rack fixed to the rod, a pinion engaging the rack and a lever for operating the pinion for reciprocating said rod.

2. A door opening and closing device consisting of intermeshed pinions, one of which is fixed upon the turning hinge-pin of the door, a slotted link connecting with a pin eccentrically fixed upon the other pinion, a bell-crank lever one arm of which has a pin entering the slot in the link, a latch-releasing device with connections between it and the bell-crank lever whereby the first movement of said lever acts to release the latch while the link-pin is moving from one end to the other of the slot, and the further movement of the bell-crank lever acts upon the pinions to swing the door.

3. In a door opening and closing device having the actuating-rod, a bell-crank lever and intermeshing pinions as shown, a slotted link eccentrically connected with one of the pinions and having the slot in the opposite end, a pin projecting from one arm of the bell-crank lever into said slot and capable of free movement therein, a rod pivotally connected to move in unison with the bell-crank lever, and extending across below the door, a bell-crank lever fulcrumed in the door-casing with which said rod connects, a second rod connecting with the other arm of said bell-crank lever, a swinging arm connected with the rod and having a projection in line with the door-latch, whereby the latter is released before power is applied to turn the pinions to open the door.

4. The combination in a door-opening mechanism of a latch-releasing device, intermeshing pinions one of which is fixed to a hinge-pin of the door, a bell-crank lever and a slotted link connecting with the second pinion, and connections between the latch-releaser and the bell-crank lever, a rod extending from the bell-crank lever to the point of operation, the upper end of said rod having rack-teeth formed upon it, a pinion engaging said rack, a handle connected with the pinion-shaft whereby the latter is turned to actuate the rack-bar and rod.



5. A device for opening and closing doors including a latch-releaser, intermeshed pinions and a bell-crank lever by which the latch-releaser is first actuated and the pinions are afterward turned to swing the door, a rod having one end connected with the bell-crank lever and the other extending to the point of operation, said rod having its upper end provided with rack-teeth and guiding-rollers against which the back of the rod travels, a pinion engaging the rack-teeth and having a lever by which it is turnable to retract the rod and open the door, and a spring pressing against the end of the rod adapted to return it to its normal position and close the door when released.

748,849. ORNAMENTED OR LETTERED GLASSWARE OR SIMILAR WARE. ROBERT K. DUNCAN, Washington, Pa., assignor to Duncan Chemical Company, a Corporation of Pennsylvania. Filed Jan. 6, 1903. Serial No. 138,080. (No specimens.)

Claim.—A glass article having fused to its face, a decoration consisting of the product resulting from the chemical reaction of lead oxid and boric acid, each in the proportions substantially as specified.

748,850. METHOD OF MANUFACTURING ORNAMENTED OR LETTERED ARTICLES. ROBERT K. DUNCAN, Washington, Pa., assignor to Duncan Chemical Company, a Corporation of Pennsylvania. Filed Jan. 6, 1903. Serial No. 138,084. (No specimens.)

Claim.—1. The herein-described process of decorating glass, consisting in fusing to heated glass before annealing, a compound resulting from the chemical reaction of boric acid and lead oxid, each in the proportions substantially as specified.

2. The herein-described process of decorating glass, consisting in fusing to the glass by the heat stored during the manufacture thereof and before the glass is annealed, a product resulting from the chemical reaction of lead oxid and boric acid, each in the proportions substantially as specified.

3. The herein-described process of decorating glass, consisting in bringing about chemical reaction between lead oxid and boric acid, each in the proportions substantially as specified, comminuting the resultant product, then applying the said product in comminuted state to glass and fusing it thereto before annealing.

748,851. MATERIAL FOR PRODUCING DESIGNS, ORNAMENTATIONS, OR LETTERS ON ARTICLES. ROBERT K. DUNCAN, Washington, Pa., assignor to Duncan Chemical Company, a Corporation of Pennsylvania. Filed Jan. 6, 1903. Serial No. 138,085. (No specimens.)

Claim.—1. A composition of matter, for producing ornamentations on glass, resulting from the chemical reaction of lead oxid and boric acid, each in the proportions substantially as specified.

2. A composition of matter, for producing ornamentations on glass, resulting from the chemical reaction of lead oxid and boric acid, each in the proportions substantially as specified, and coloring material.

748,852. SEED-HULLER. SAMUEL J. ELLIS, Memphis, Tenn., assignor to William C. Ellis & Sons, Memphis, Tenn. Filed Mar. 23, 1903. Serial No. 150,095. (No model.)



Claim.—1. In a seed-huller, a reticulated table having transverse troughs therein, transverse rotative beaters disposed in said troughs, means for longitudinally vibrating said table, and means for driving said beaters.

2. In a seed-huller, a reticulated table having transverse troughs therein, transverse rotating beaters disposed in said troughs, means for vibrating said table, means for driving the under side of said beaters toward the delivery end of the table, and yielding supports at opposite ends of said table for retaining same in an inclined position.

3. In a seed-huller, a reticulated table having troughs therein, rotating beaters disposed within said troughs, means for vibrating said table, means for driving said beaters, yielding supports at opposite ends of said table for retaining same in an inclined position, a driving-shaft having a cam thereon for operating the vibrating means with said table, a driving-pulley upon said shaft, a belt extending from said pulley to the shafts of the beaters upon the table, and a swinging idler located upon a fixed support to dispose said belt in a vertical plane adjacent to its connection with the table.

4. In a seed-huller, a table having a reticulated bottom with a transverse trough therein closed at opposite ends, a beater in said trough having blades thereon extending spirally in opposite directions from the center of the table toward the opposite ends of the beater, and means for rotating said beater whereby material fed longitudinally of the table is spread laterally thereon.

5. In a seed-huller, a table having a reticulated bottom with troughs therein closed at opposite ends, beaters in said troughs having blades thereon arranged spirally to feed in opposite directions from the center of the table toward the opposite ends of each beater, means for rotating said beaters, and a delivery-beater having blades thereon arranged in straight lines transversely of the table.

6. In a seed-huller, a table having a reticulated bottom with troughs therein rotatable seed-beaters located in said troughs and having driving-pulleys upon one end of the shaft thereof, fixed idlers between said driving-pulleys, a driving-belt passing over each of said pulleys and under each of said idlers, a driving-shaft upon a fixed support and over which said belt extends, and means to reciprocate said table longitudinally.

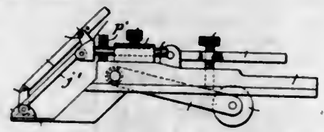
7. In a seed-huller, a table having a reticulated bottom with troughs therein rotatable seed-beaters located in said troughs and having driving-pulleys upon one end of the shaft thereof, fixed idlers disposed between said driving-pulleys, a driving-shaft passing over each of said pulleys and under each of said idlers, a driving-shaft having a pulley thereon, a swinging arm provided with idlers adapted to bear upon the driving-belt and to dispose same in a vertical plane adjacent to its connection with the table, and means for vibrating said table.

8. In a seed-huller, a reticulated table having troughs therein closed at opposite ends, beaters disposed in said troughs and having blades thereon spirally arranged to successively feed material longitudinally of the troughs in opposite directions by each successive beater in its passage over the table, and means for driving the under side of said beaters toward the delivery end of the table.

9. In a seed-huller, a reticulated table having troughs therein closed at opposite ends, beaters disposed in said troughs and having blades thereon spirally arranged to successively feed material longitudinally of the troughs in opposite directions by each successive beater in its passage over the table, means for driving the under side of said beaters toward the delivery end of the table, and a delivery-beater having blades thereon arranged in straight lines transversely of the table.

10. In a seed-huller, a reticulated table having troughs therein, beaters disposed in said troughs and having blades thereon spirally arranged to successively feed material longitudinally of the troughs in opposite directions by each successive beater in its passage over the table, means for driving the under side of said beaters toward the delivery end of the table, a delivery-beater having blades thereon arranged in straight lines transversely of the table, a yielding support for the opposite ends of said table, and means for vibrating said table longitudinally.

748,853. FABRIC-CUTTING MACHINE. HARRY FALTERMAYER, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J., a Corporation of New Jersey. Filed June 26, 1901. Serial No. 66,054. (No model.)



Claim.—1. In a fabric-cutting machine, the combination with a severing device, of a fabric-feeder having a fixed lower jaw, a coacting pivoted upper jaw, an arm pivotally connected with said latter jaw, and means for longitudinally adjusting said arm to vary the angularity of the upper jaw in relation to the lower jaw.

2. In a fabric-cutting machine, the combination with a severing device, of a fabric-feeder having a fixed lower jaw, a coacting upper pivoted jaw, means for tilting the latter jaw and maintaining it in adjusted position, and means for longitudinally adjusting said upper jaw.

3. In a fabric-cutting machine, the combination with a severing device, of a fabric-feeder having a fixed lower jaw, a coacting upper jaw, a plate to which the latter jaw is pivoted, a support to which the plate is pivoted, means for adjusting said support longitudinally of the feeder, a bar pivotally connected with the upper jaw, and an adjustable connection between said bar and support.

4. In a fabric-cutting machine, the combination with a fabric-feeder, a severing device, and means for reciprocating said device, of a clamp adjacent to said device, a laterally-movable frame in which said clamp is guided, means to maintain said clamp normally in clamping position, coacting means on the severing device and clamp whereby the clamp is moved out of action during a stroke of the severing device, and means on the fabric-feeder for moving said frame to trip and release the clamp.

5. In a fabric-cutting machine, the combination with a fabric-feeder, a reciprocating knife-carrier, its knife, a shaft, and connections between said shaft and carrier, of clamps on opposite sides of said carrier, means to maintain said clamps normally in clamping position, connections between one of said clamps and the said shaft whereby such clamp is periodically moved to unclamping position, trip connections between the other clamp and the carrier, and means on the fabric-feeder for effecting the release of said connections.

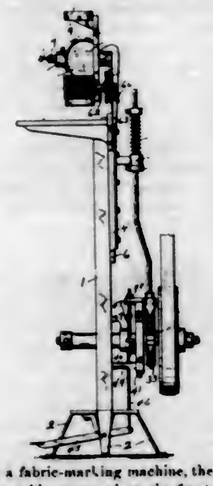
6. In a fabric-cutting machine, the combination with driving mechanism, stopping mechanism therefor, a severing device, and means for operating said device, of a fabric-feeder, means for reciprocating said feeder, a vertically-movable pressure device on said feeder coacting with the fabric to be fed, an oscillatory trip-arm pivoted on the feeder, and a connection between said arm and the pressure device.

7. In a fabric-cutting machine, the combination with a severing device and a fabric-feeder, of drive mechanism including differential speed devices, a lever to control said devices, means to maintain said lever normally in idle position, locking means to maintain said lever in a position to render either of the speed devices active as desired, and mechanism on the fabric-feeder for automatically tripping said locking means upon the absence of fabric to be fed.

8. In a fabric-cutting machine, the combination with a severing device, and a fabric-feeder, of a driving-shaft, connections between the same and the severing device, a crank-arm on said shaft, a lever connected with the fabric-feeder, and a connecting-rod adjustably connected with said lever and crank.

9. In a fabric-cutting machine, the combination with a fabric-feeder, means for reciprocating the same, a severing device, and means for actuating the same, a clamp, means for moving the same into and out of action, and an evener-bar centrally pivoted on said clamp.

748,854. **FABRIC-MARKING MACHINE.** MICHEL J. FISHER, Utica, N. Y. Filed May 3, 1901. Serial No. 58,560. (No model.)



Claim.—1. In a fabric-marking machine, the combination of a supporting-frame, a table arranged on the front of said frame for the fabric, a standard fitted to slide in vertical ways on the back of the frame, a rotatable former-plate journaled on the upper end of the standard, dies of graded sizes carried on the front of the former-plate and extending over the table, means to lock the former-plate in adjusted position, a carbon ribbon to be engaged by the die when depressed, a treadle to depress the standard and a connection between the treadle and the standard.

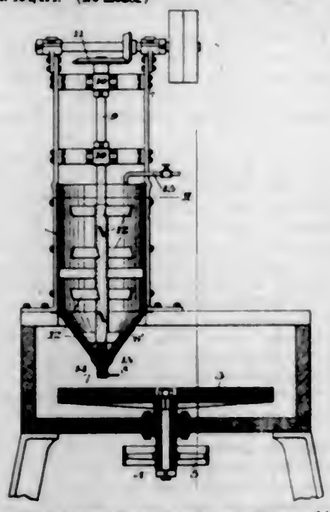
2. In a fabric-marking machine, the combination of a supporting-frame, a table arranged on the front thereof for the fabric, a standard fitted to slide in ways on the back of the frame, a rotatable former-plate journaled to the upper end of the standard, dies of various sizes arranged on the former-plate extending over the table said dies being formed of a base-plate and a thin metallic margin, and a latch to engage with notches on the former-plate locking it in adjusted position, and means to depress the standard to bring the die into engagement with the fabric.

3. In a fabric-marking machine, the combination of a supporting-frame provided with vertical ways on its rear face, a horizontal table for the fabric on the front face thereof, a standard fitted to slide in said ways, a shaft extending forward from the upper end of the standard, a rotating former-plate provided with an integral sleeve journaled to said shaft, dies of different sizes arranged on the former-plate, said sleeve being provided with notches on its face corresponding to said dies, a catch-sleeve keyed on the front end of said shaft, a catch supported in said catch-sleeve, a spring to force said catch rearwardly to engage with said notches, and means to depress the standard to bring the die into engagement with the fabric.

4. In a fabric-marking machine, the combination of a supporting-frame, a table thereon for the fabric, a standard fitted to slide in ways in the frame, a die on the standard to engage with the fabric, a pulley-shaft on the frame, a pulley journaled thereon, means to rotate the pulley, an inwardly-extending pin on the pulley, an eccentric journaled on said pulley-shaft, an integral grooved sleeve on the eccentric, a notched latch arranged in said eccentric, a spring to force said latch outwardly, intermittingly to engage with the pulley-pin, an eccentric-collar fitted to the eccentric, a connection between said collar and the standard, an arm on the frame, bearing-straps supported on said arm and fitted to the eccentric-sleeve, a tripping-lever pivotally supported on said bearing-straps having an inclined portion adapted to engage with the latch-notch to retract the latch, a spring to hold said tripping-lever into engagement with the eccentric-sleeve in said groove to engage with the notch, a treadle and a connection therefrom to depress the tripping-lever.

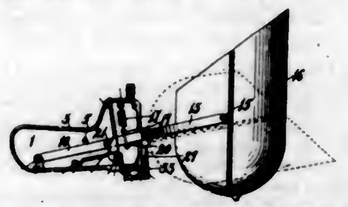
5. In a fabric-marking machine, the combination of a supporting-frame provided with vertical ways on its rear face, a horizontal table for the fabric on the front face thereof, a standard fitted to slide in said ways, a shaft extending forward from the upper end of the standard, a rotating former-plate provided with an integral sleeve journaled on said shaft, dies of different sizes arranged on the former-plate, said sleeve being provided with notches on its front face corresponding to said dies, a catch-sleeve keyed on the front end of said shaft, a catch supported in said catch-sleeve, a spring to force said catch rearwardly to engage with said notches, a pulley-shaft on the frame, a pulley journaled thereon, means to rotate the pulley, an inwardly-extending pin on the pulley, an eccentric journaled on said pulley-shaft, an integral sleeve on the eccentric, a notched latch arranged in said eccentric, a spring to force said latch outwardly, intermittingly to engage with the pulley-pin, an eccentric-collar fitted to the eccentric, connections between said collar and the standard, an arm on the frame, bearing-straps supported on said arm fitted to the eccentric-sleeve, a tripping-lever pivotally supported on said bearing-straps having an inclined portion adapted to engage with the latch-notch to retract the latch, a spring to hold said tripping-lever into engagement with the eccentric-sleeve in said groove to engage with the notch, a treadle and a connection therefrom to depress the tripping-lever.

748,855. **APPARATUS FOR FEEDING ABRASIVE MATERIAL TO GRINDING-MACHINES.** ISIDOR FLEXNER, Pittsburg, Pa., assignor to Pittsburgh Crushed Steel Company, Limited, Pittsburg, Pa., a Limited Copartnership Association of Pennsylvania. Filed Apr. 27, 1903. Serial No. 154,411. (No model.)



Claim.—The combination with a glass-grinding machine, of a hopper having a conical lower end, a water-supply, and a rotary shaft having agitating-arms within the hopper, and having a tapering agitating-blade at the conical part of the hopper; substantially as described.

748,856. **WEIGHING-SCOOP.** HENRY H. FOX, Newburgh, N. Y. Filed Sept. 11, 1903. Serial No. 172,734. (No model.)



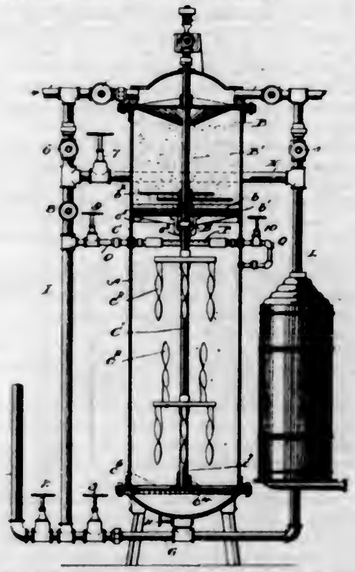
Claim.—1. In combination, a hollow handle, a scale consisting of a bar hinged within the handle, a scoop carried by the free end of the bar and means for temporarily locking the scoop to the handle comprising a spring-actuated rocking lever having one arm arranged to engage the scoop and another arm developed into thumb-pieces extended upwardly along the opposite side walls of the handle for use in operating the lever.

2. In combination, a hollow handle, a scale consisting of a bar hinged within the handle to swing upwardly and downwardly, a scoop carried by the free end of the swinging bar exterior to the handle, a counterbalance-spring connecting the bar within the handle for holding the bar at the limit of its upward movement, a pointer hinged within the handle and engaged by said bar and means for temporarily locking the scoop to the handle.

3. A combined hand scoop and scale comprising a hollow handle, a bar hinged within the handle, a scoop carried thereby, a counterbalance-spring for the bar, means for adjusting the tension of the spring and a pointer having a cam-and-stud engagement with the bar whereby the pointer is operated by the bar and a spring for holding the cam on the pointer in engagement with the stud on the bar.

4. A combined hand scoop and scale comprising a hollow handle, a bar hinged within the handle, a scoop carried thereby, a counterbalance-spring for the bar, a pointer controlled by the bar and an indicator carried by the handle for use in bringing the handle into a horizontal position.

748,857. **FILTER.** RICHARD J. GOADE, Allentown, Pa. Filed Aug. 24, 1903. Serial No. 170,586. (No model.)



Claim.—1. In a granular-bed filter, a filtering-chamber divided into a plurality of compartments, a foraminous partition between adjacent compartments, a distributing-nozzle in one compartment for supplying a reverse flow to an adjacent compartment through said partition, and an extension from said nozzle communicating with the compartment in which the nozzle is located.

2. In a granular-bed filter, a filtering-chamber divided into a plurality of compartments, a foraminous partition between adjacent compartments, a distributing-nozzle in one compartment, connected to a supply-pipe, for supplying a reverse flow to an adjacent compartment, and a valved return-passage from the portion of said nozzle opposite said supply-pipe to the same compartment.

3. In a granular-bed filter, a filtering-chamber divided into an upper and a lower compartment by a foraminous partition, a distributing-nozzle in said lower compartment for supplying a reverse flow to said upper compartment through said partition, and an extension from said nozzle to said lower compartment for returning granular material from said nozzle to said lower compartment.

4. In a granular-bed filter, a filtering-chamber divided into an upper and a lower compartment by a foraminous partition, and containing granular filtering material in each compartment, a nozzle in said lower compartment for supplying a reverse flow to the filtering material in said upper compartment through said partition, and an extension from said nozzle to said lower compartment for returning granular material from said nozzle to said lower compartment.

5. In a granular-bed filter, a filtering-chamber divided into an upper and a lower compartment by a foraminous partition, a valved supply-pipe connected to the upper end of said filtering-chamber, a heater, a valved hot-water pipe communicating between said supply-pipe through said heater with the lower end of said filtering-chamber, and a pipe connection from said hot-water pipe for supplying a reverse flow to said upper compartment through said foraminous partition.

6. In a granular-bed filter, a filtering-chamber divided into an upper and a lower compartment by a foraminous partition, a supply-pipe connected to the upper end of said filtering-chamber, a valved discharge-pipe at the lower end of said chamber, a valved down-pipe connecting said supply and discharge pipes, a heater, a valved hot-water pipe communicating between said down-pipe through said heater with the lower end of said filtering-chamber, and a valved communication between said down-pipe and the lower end of said upper compartment through said foraminous partition.

7. An improved agitating apparatus for granular-bed filters, comprising two axial shafts in alinement each provided with an agitator, means for rotating one of said shafts, and a ratchet connection between the shafts.

8. An improved agitating apparatus for granular-bed filters comprising a plurality of agitating members, and a connection between said members so constructed that when one member is rotated in a given direction the adjacent member will be rotated, and when rotated in the opposite direction said adjacent member will remain stationary.

9. An improved agitating apparatus for granular-bed filters, comprising two axial shafts in alinement, agitators mounted upon each shaft, means for rotating one of said shafts, and a connection between the shafts constructed to clutch the second shaft when the first shaft is turned in one direction and to slip when the direction of rotation of the first shaft is reversed.

10. An improved agitating apparatus for granular-bed filters, comprising two axial shafts in alinement, agitators mounted upon each shaft, means for rotating one of said shafts, and an inclined-surface connection between said shafts for imparting to the rotated shaft a combined rotary and reciprocatory motion independent of the other shaft.

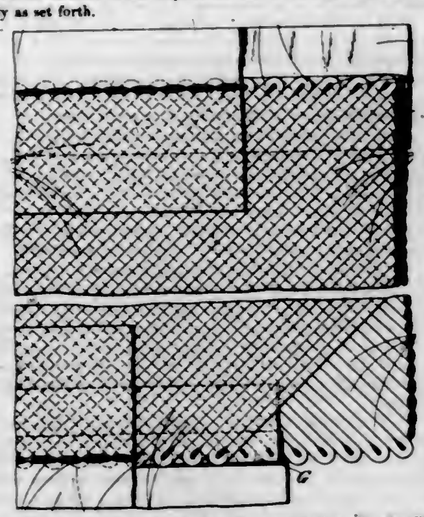
11. An improved agitating apparatus for granular-bed filters, comprising two axial shafts in alinement, agitators mounted upon each shaft, means for rotating one of said shafts, and an inclined-surface ratchet connection between said shafts whereby when the rotating means is actuated in one direction both shafts are rotated simultaneously, and when in the opposite direction a combined rotary and reciprocatory motion is imparted to the first shaft.

12. In a granular-bed filter, a filtering-chamber divided into an upper and a lower compartment, an axial shaft carrying agitators mounted in each compartment, means for rotating one of said shafts, and a ratchet connection between the shafts.

748,858. **COVER FOR ELASTIC TIRES.** CHRISTIAN H. GRAY, Silvertown, and THOMAS SLOPER, Devizes, England. Filed Oct. 5, 1903. Serial No. 175,822. (No model.)

Claim.—1. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops and fastening devices inserted in the loops to connect them together, substantially as set forth.

2. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, each cord of each layer crossing the cover from edge to edge and having at each edge of the cover a fastening-loop and a fastening device inserted in the loops to connect them together, substantially as set forth.



3. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cord laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, an edging to the tire and a series of pins inserted in the loops and edging to connect them together, substantially as set forth.

4. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops and a series of double pins or staples to connect the loops together, substantially as set forth.

5. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops and a double pin, each limb of which engages a loop in different layers to connect the loops of one layer to the other and hold different loops of the same layer together, all the loops of each layer being thus connected substantially as set forth.

6. In a cover for an elastic tire the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops the loops of one layer registering with those of another and a fastening device inserted in superimposed loops to connect them together, substantially as set forth.

7. In a cover for an elastic tire the combination of, a plurality of superimposed layers of cords laid side by side embedded in rubber the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, the loops of one layer registering with those of another and a pin inserted in superimposed loops to connect them together, substantially as set forth.

8. In a cover for an elastic tire the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, the loops of one layer registering with those of another and a double pin or staple one limb of which is inserted in one set of superimposed loops and the other limb in another set to connect the loops of one layer to the other and hold different loops of the same layer together, substantially as set forth.

9. In a cover for an elastic tire the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, the loops of one layer registering with those of another and a double pin or staple one limb of which is inserted in one set of superimposed loops and the other limb in another set to connect the loops of one layer to the other and hold different loops of the same layer together, all the loops of each layer being thus connected, substantially as set forth.

10. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, an edging to the tire and a pin inserted in each loop, the pins projecting through the loops approximately at right angles thereto and connecting them with the edging substantially as set forth.

11. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, an edging to the tire and a pin inserted in each loop one end of the pin projecting through the loop approximately at right angles thereto and the other end extending beyond the edge of the fabric formed by the cords and lying in a plane approximately parallel with that of the cords, substantially as set forth.

12. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a double pin or staple, each limb of which engages a loop while adjacent ends of the limbs project on the outer side of the fabric formed by the cords approximately at right angles thereto, and the other adjacent ends of both limbs extend beyond the edge of the fabric formed by the cords and lie in a plane approximately parallel to that of the cords, substantially as set forth.

13. In a cover for an elastic tire, the combination of, a plurality of superimposed layers of cords laid side by side embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead at each edge of the cover extending beyond the loops, a double pin or staple each limb of which engages the loop while adjacent ends of the limbs project on the outside of the fabric formed by the cords approximately at right angles thereto, and enter the bead, and the other adjacent ends of both limbs extend beyond the edge of the fabric formed by the cords and lie in a plane approximately parallel to that of the cords and also enter the bead, substantially as set forth.

14. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords of each layer crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops a fastening device inserted in the loops to connect them together, and a bead one on one side of each edge of the cover, substantially as set forth.

15. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead one on one side of each edge of the cover and a fastening device inserted in the bead and loops to connect them and the bead together, substantially as set forth.

16. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead one on one side of each edge of the cover, and a series of pins inserted in the bead and loops to connect them and the bead together, substantially as set forth.

17. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords of each layer crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead on the outer side of each edge of the cover and a series of pins inserted in the loops one end of each pin projecting approximately at right angles from the cover into the bead to connect the bead and loops together, substantially as set forth.

18. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords of each layer crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead, one on the outer side of each edge of the cover, and a series of pins inserted in the loops to connect them together, one end of each pin projecting approximately at right angles from the cover into the bead to connect the bead and loops together and the other end extending beyond the edge of the fabric formed by the cords and lying in a plane approximately parallel to that of the cords, substantially as set forth.

19. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a fastening device inserted in the loops to connect them together and a bead on each side of each edge of the cover, substantially as set forth.

20. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, the loops of one layer registering with those of the next, a bead on each side of each edge of the cover, and a fastening device inserted in the beads and loops to connect them and the beads of the same edge together, substantially as set forth.

21. In a cover for an elastic tire the combination of a plurality of superimposed layers of parallel cords embedded in rubber, the cores crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a bead on each side of each edge, and a pin inserted in the beads and loops to connect them and the beads of the same edge together, substantially as set forth.

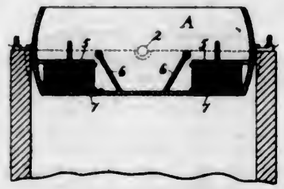
22. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and being bent back at the edge of the cover to form a fastening-loop, an edging to the cover, and a fastening device to connect the loops and edging together, substantially as set forth.

23. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and forming parts of a single cord doubled back upon itself to form fastening-loops at the edges of the cover, an edging to the cover and a fastening device to connect the loops and edging together, substantially as set forth.

24. In a cover for an elastic tire, the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening-loops, a strengthening-strip at each edge of the cover between one layer of loops and the next, and a fastening device inserted in the loops and through the strengthening-strip to connect the loops and strip together, substantially as set forth.

25. In a cover for an elastic tire the combination of a plurality of superimposed layers of cords laid side by side and embedded in rubber, the cords crossing the cover from one edge toward the other and having at the edges of the cover fastening devices a strengthening-strip at each edge of the cover between one layer of loops and the next, a strengthening-strip one on each side of each edge of the cover, and a fastening device inserted in the loops and passed through the strengthening-strips to connect them and the loops together, substantially as set forth.

748,859. **DISH-WASHING MACHINE.** JOHN H. GRINWOLD, Oakland, Cal. Filed Apr. 20, 1903. Serial No. 153,391. (No model.)

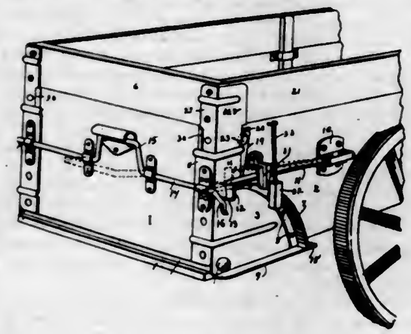


Claim.—1. A washing apparatus comprising a centrally-supported receptacle adapted to tilt in the direction of its length, said receptacle having a closed bottom and sides and ends, hinged gates extending transversely across the receptacle with their lower edges normally resting upon the bottom thereof, said gates separated to form an intermediate space, baskets between the gates and the inner walls of the receptacle and adapted for the reception of articles to be washed, and means whereby the receptacle is oscillated in the direction of its length.

2. The combination in a washing device of a receptacle having closed bottom, sides and ends, a support upon which its center rests and about which it is tiltable in the direction of its length, gates hinged transversely across the interior of the receptacle and inclined toward the center thereof and resting upon the bottom, removable foraminous baskets to contain articles to be washed, located exterior to the gates, and means whereby the receptacle may be oscillated upon its support.

3. The combination in a washing-machine of a receptacle having substantially straight closed bottom and sides and semicircular ends, removable foraminous baskets at each end to contain articles to be washed, inclined gates having their upper edges pivoted transversely of the receptacle and contiguous to the inner ends of the baskets, and their lower edges movably resting upon the bottom of the receptacle, central pivots upon which the receptacle is tiltable in the direction of its length, and latches adjustable between the support and the receptacle.

748,860. **END-GATE.** JOHN M. GROFF, North Lawrence, Ohio, assignor to the Vehicle Specialty Company, North Lawrence, Ohio. Filed June 1, 1903. Serial No. 159,496. (No model.)



Claim.—1. In an end-gate the combination of a gate provided with side plates, straps pivoted to said plates at their bottom or lower ends and pivoted to the wagon-box at their upper ends, and means for holding the end-gate in vertical or locked position, substantially as and for the purpose specified.

2. The combination of an end-gate provided with segmental plates secured to the ends of the gate, and said gate hinged at its bottom or lower end to straps and the straps pivoted to the sides of the wagon-box, a rod journaled to the end-gate, and said rod provided with lifting-bars at its end, springs secured in fixed position and their free ends provided with downward-extending portions and the downward-extending portions provided with rearward-curved portions, substantially as and for the purpose specified.

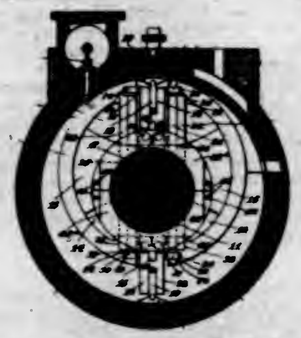
3. The combination of a wagon-box, an end-gate provided with segmental plates, and said segmental plates provided with outward-extending flanges, springs adapted to engage the rear ends of the outward-extending flanges of the segmental plates, means for lifting the springs, and stop-flanges located upon the forward ends of the segmental plates, substantially as and for the purpose specified.

4. The combination of an end-gate having secured thereto side plates, flanges extended above the side plates and one of each of the flanges provided with a groove, an end section provided with flanges and one of each of the flanges provided with a groove, and the flanges extended below the end section and adapted to be connected to the flanges located upon the end-gate, substantially as and for the purpose specified.

5. The combination of an end-gate provided with side flanges, socket-plates secured to the side-boards of the wagon-box, and sockets formed in the flanges of the end-gate and straps pivotally attached to the side-plates of the end-gate and to the socket-plates secured to the side-boards of the wagon, substantially as and for the purpose specified.

6. The combination of an end-gate independently hinged at its bottom or lower end and provided with segmental side plates located upon the outside of the side-boards of the wagon, springs secured to the side-boards of the box, plates secured to the side-boards of the box and adapted to overlap the springs, stop-flanges located at the forward end of the outward-extending flanges of the side plates, and means for elevating the springs and releasing the segmental flanges and end-gate, substantially as and for the purpose specified.

748,861. ROTARY ENGINE. ARTHUR GUIBDON, Montreal, Canada. Filed June 5, 1901. Renewed June 8, 1903. Serial No. 160,632. (No model.)



Claim.—1. In a rotary engine, the combination of a cylinder provided with stationary cams, a revoluble piston member having a transverse slot, a single-plate piston member slidably fitted in said revoluble member, a shiftable controller between each cam and said slidable piston member, and groups of normally separated bearing-rollers operatively arranged to said controllers and shiftable for a limited distance with said slidable piston member, substantially as described.

2. In a rotary engine, the combination of a cylinder provided with stationary cams, a revoluble piston member, a slidable piston member fitted to said revoluble piston member and having piston-shoes connected with the end portions thereof and arranged to ride against said cylinder, roller bearing-plates between the slidable and revoluble piston members, and bearing-rolls loosely confined in said bearing-plates and engaging with the slidable piston member, substantially as described.

3. In a rotary engine, a slidable piston member provided with edgewise extensions, and roller-bearings shiftably confined in said extensions of said piston member, combined with cylinder-cams, a shiftable controller arranged for the roller-bearings to travel thereon, and a revoluble piston member, substantially as described.

4. In a rotary engine, the combination of a cylinder provided with stationary cams, a revoluble eccentric piston member therein, another piston member slidably connected with the revoluble member and carrying the shiftable and separated bearing-rolls which are disposed in opposing relation, and shiftable controllers fitted to said stationary cams and interposed between said roller-bearings of the slidable piston member, substantially as described.

5. In a rotary engine, the combination with a revoluble piston member and a cylinder, of a slidable piston member having the wings, stationary cams within said cylinder, shiftable controllers fitted to said cams, and adjustable bearing-plates slidably connected with the wings of the slidable piston member and having means arranged to ride upon the shiftable controllers, substantially as described.

6. In a rotary engine, the combination with a revoluble piston member, and stationary cams within a cylinder, shiftable controllers revolubly fitted to said stationary cams and each consisting of members separably clamped together and provided with parallel tracks or ways, a slidable piston member, and roller-bearings fitted to said slidable piston member and arranged to ride upon the tracks or ways of the controllers, substantially as described.

7. In a rotary engine, the combination with a revoluble piston member, and stationary cams within a cylinder, of a slidable piston member provided with edgewise extensions, bearing-plates connected with said extensions, shiftable controllers fitted to said cams and provided with the track-faces, and roller-supported shoes in operative relation to the bearing-plates and arranged to ride upon the track-faces of the controllers, substantially as described.

8. In a rotary engine, a slidable piston member provided at its exposed edge with a bearing-recess of circular cross-section, a bearing-plate snugly fitted in said recess to turn therein and provided with a slot, and a piston-shoe having a shank slidably fitted in said slot of the bearing-plate, substantially as described.

9. In a rotary engine, the combination with a revoluble piston member, and a slidable piston member, of a group of cut-off plates seated in said revoluble member and provided with sole-strips which engage with the faces of the slidable member, substantially as described.

10. In a rotary engine, the combination with a revoluble piston member having a transverse slot, and a slidable piston member fitted therein, of a group of cut-off plates slidably seated in the revoluble piston member and having the curved recesses, means for impelling said cut-off plates, and sole-strips fitted in said recesses of the cut-off plates to turn therein and provided with flat faces arranged to bear against the slidable piston member, substantially as described.

11. In a rotary engine, the combination with a revoluble piston member, and a slidable piston member, of slotted bearing-plates secured in said revoluble member on opposite sides of the slidable member, and shiftable bearing-rolls confined in the bearing-plates and engaging with the slidable piston member, substantially as described.

12. In a rotary engine, the combination with a revoluble piston member having a slot, and a slidable piston member fitted in said slot, of slotted bearing-plates each provided with a backing-plate and fitted in the revoluble member on one side of the slidable member, and bearing-rolls loosely arranged in the slots of the bearing-plates and arranged to travel against the backing-plates and the slidable piston member, substantially as described.

748,862. HYDROCARBON-BURNER. CHARLES A. HANNEL, Los Angeles, Cal. Filed Dec. 17, 1902. Serial No. 135,596. (No model.)



Claim.—1. A hydrocarbon-burner comprising a steam-chamber below an equalizing-chamber and connected therewith; an oil-chamber above the equalizing-chamber; a mixing-chamber in front of said equalizing-chamber; three ducts leading from said equalizing-chamber into said mixing-chamber, the outer ducts being adapted to discharge steam in planes which meet in said mixing-chamber, and the central duct being wide and shallow at the front and deeper at the rear thereof; an oil-duct terminating between the side steam-ducts and above the central steam-duct and connecting said oil-chamber with said mixing-chamber.

2. An atomizer formed of members fitted together, and having a chamber and an outlet-cavity between them, and means for atomizing and directing liquid from the outlet, and detachable wearing-plates lining the walls of the outlet-cavity to guide the material to be discharged.

3. An atomizer having an outlet-cavity grooved in each corner, and removable wearing-plates in said grooves.

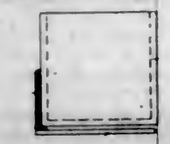
4. An atomizer having removable flat wearing-plates forming the walls of its outlet.

5. In a hydrocarbon-burner having a cavity leading to the discharge-orifice of the burner-tip, a removable wearing-plate in the top thereof.

6. In a hydrocarbon-burner having a cavity leading to the discharge-orifice of the burner-tip, a removable wearing-plate in the bottom thereof, extending from end to end of the cavity and fixedly held and receiving upon its longitudinal surface the direct impact of the vapors.

7. A hydrocarbon-burner having a cavity leading to the discharge-orifice of the burner-tip, and removable wearing-plates in the top and bottom thereof said plates forming the wearing-surfaces of the top and bottom of said cavity.

748,863. CIGAR-BOX. ROBERT W. HARDER, Albany, N. Y. Filed Sept. 15, 1903. Serial No. 173,257. (No model.)



Claim.—1. The combination with a box, of a cover, a flexible band secured to the cover and the lower portion of the back of the box, and means adapted to detachably bind said band to the upper portion of the back of the box, substantially as shown and described.

2. The combination with a box, of a cover, a flexible band secured to the cover and the lower portion of the back of the box, and transverse binding-strips secured to the ends of said band and box adapted to detachably secure said band to the upper portion of the back of the box, substantially as shown and described.

748,864. FINGER-NAIL CLIPPER. HUBERT C. HART, Unionville, Conn. Filed May 20, 1903. Serial No. 158,253. (No model.)



Claim.—1. A finger-nail-clipping device comprising a stationary cutting member, a movable cutting member, means pivotally connecting the two cutting members, a spring to normally open the cutters, an operating-lever whose end fits under the movable cutting member to normally open the said lever from the stationary cutting member, and mechanisms carried by said lever to engage the movable cutting member and lock the cutters together, substantially as described.

2. A finger-nail-clipping device, comprising a stationary and movable cutter, the latter having a notch, an operating-lever in engagement with the movable cutter, and a lock carried by said lever which engages the notch in the movable cutter to lock the cutters together, substantially as described.

3. A finger-nail cutter comprising a stationary and a movable cutter, the latter having a notch in its end, an operating-lever pivoted to the stationary cutter, and a lock pivoted to the operating-lever, the free end of which engages the notch in the movable cutter to lock the cutters together, substantially as described.

4. A finger-nail-clipping device, comprising a stationary cutting member having perforated ears, a movable cutting member having ears, a notch in the end of said member, a pin connecting the ears of the stationary and movable cutting members, a spring to normally hold the two members apart, an operating-lever having perforated ears, a pin engaging the ears of the said lever and the stationary cutting member, the end of the cutting-lever fitting under the end of the movable cutting member, and a lock pivoted to the operating-lever, the free end of said lock adapted to engage the notch in the movable member to lock the cutters together, substantially as described.

5. A finger-nail-clipping device, comprising a pair of cutters, one of which is movable, and a pivoted locking device engaging the movable cutter and adapted to close said cutters, said locking device being mounted whereby a slight compression of its pivoted end will relieve the friction of the locking-point from the movable cutter and permit the cutters to be opened, substantially as described.

748,865. METHOD OF CLARIFYING LIQUORS. EDWARD R. HEWITT, Garden City, N. Y. Filed Mar. 3, 1902. Serial No. 96,556. (No specimens.)

Claim.—1. The method of clarifying liquors which are acid in character, which consists in first adding a suitable base, to neutralize and thereby form a fine precipitate, next adding an aqueous solution of sulfurous acid and the lime salts of bones, and then again neutralizing to form a more readily separable precipitate.

2. The method of clarifying glue solutions containing sulfurous acid and some lime salts of bones, which consists in adding a suitable base to neutralize and thereby form a fine precipitate, next adding an aqueous solution of sulfurous acid and the lime salts of bones, and then again neutralizing to form a more readily separable precipitate.

3. The method of clarifying glue solutions containing some of the acid reagent employed in obtaining such solutions, which consists in first adding a suitable base, to neutralize and thereby form a fine precipitate, next adding an aqueous solution of sulfurous acid and the lime salts of bones, and then again neutralizing to form a more readily separable precipitate.

748,866. METHOD OF MAKING GLUE FROM HIDES. EDWARD R. HEWITT, Garden City, N. Y. Filed Mar. 3, 1902. Serial No. 96,559. (No specimens.)

Claim.—1. The improvement in the art of making glue from hides, which consists in preparing the hides in a cool aqueous solution of sulfurous acid which contains calcium phosphate and calcium sulfite; then dissolving the hides; and finally adding a neutralizing agent to precipitate the two salts and clarify the glue solution.

2. The improvement in the art of making glue from hides, which consists in treating the hides with an aqueous solution of sulfurous acid which contains calcium phosphate and calcium sulfite.

3. The improvement in the art of making glue from hides, which consists in treating the hides with a solution of two acid salts, dissolving the treated hides in hot water, and neutralizing the resulting solution; said salts being of such character that when the solution is neutralized a precipitate of the salts is formed, which possesses the peculiar property of causing to become attached to it all the other impurities in the solution, all in a form readily separable, mechanically, from the solution.

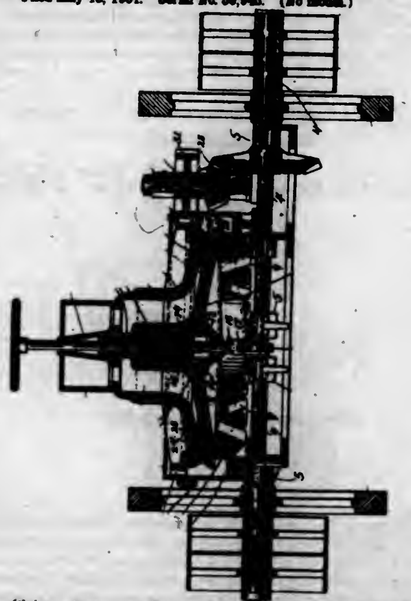
4. The improvement in the art of making glue from hides, which consists in preparing the hides in a cool aqueous solution of sulfurous acid which contains calcium phosphate and calcium sulfite, then dissolving the hides, neutralizing the glue solution, adding to the glue solution a little of the solution of sulfurous acid containing phosphate and sulfite of calcium, and finally again neutralizing.

5. The improvement in the art of making glue from hides, which consists in subjecting the hides to treatment with a solution of sulfurous acid and the calcium salts of bones, dissolving the hides, and neutralizing the resulting glue solution.

6. The improvement in the art of making glue from limed hides, which consists in first neutralizing the hides, hydrating the hides by means of an aqueous solution of sulfurous acid which contains calcium phosphate and calcium sulfite, dissolving the hides, and finally adding a neutralizing agent to the glue solution, to precipitate the two salts and impurities in readily separable form.

7. The improvement in the art of making glue from hides, which consists in hydrating the hides by means of an aqueous solution of sulfurous acid, which contains calcium phosphate and calcium sulfite, and then washing the hides to remove the excess of acid, dissolving the hides in hot water, and then neutralizing the solution.

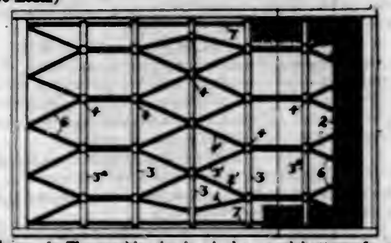
748,867. QUARTZ-MILL. CHARLES J. HODGE, Houghton, Mich. Filed May 13, 1901. Serial No. 59,945. (No model.)



Claim.—A quartz-mill comprising a lower fixed cone having an upwardly-extending elongated tubular neck, a driving-shaft, a stem passed through the tubular neck and supported on the driving-shaft, an upper revolving cone, having a gear-ring, a dome-shaped upper member fitting within the revolving cone and having a depending hollow spindle supported on the stem within the tubular neck, the inner and outer plates secured to the fixed and revolving cones respectively, and providing a bell-shaped space between them, the hardened plates set into the inner and outer plates and formed with an annular pocket between them, the lower and upper casings within which the cones are located, the lower casing consisting of a rec-

tangular bottom, outer walls and inner wall providing a trough between them, having side lips, inclined in opposite directions, the upper casing consisting of side walls detachably secured to the lower casing and a cover, and means for driving the revolving cone having a gear-wheel meshing with the gear-ring through an opening in the upper casing.

748,868. **BED OR COUCH BOTTOM.** JOHN HOEY, San Francisco, Cal. Original application filed June 18, 1903, Serial No. 162,006. Divided and this application filed Sept. 2, 1903. Serial No. 171,634. (No model.)



Claim.—1. The combination in a bed or couch bottom of a rigid frame, an elastic fabric stretched from end to end thereof having transverse elastic bars with curved loops at intervals between the ends, elastic cables having their ends fixed to the ends of the frame and their intermediate portions engaging the loops of the transverse bars.

2. The combination in a bed or couch bottom of a rigid frame, an elastic fabric stretched from end to end thereof, elastic transverse bars having curved loops, elastic cables extending from end to end of the frame, other transverse bars having loops slidable upon the cables, said cables drawn together or separated diagonally in pairs and laid in the loops to maintain their position, the slidable bars serving to regulate the tension of the cables by moving toward or from the ends of the frame.

3. The combination in a bed or couch bottom of a rigid frame, elastic cables attached to and extending across the frame, elastic continuous bars having loops formed at intervals between their ends, one or more of said bars movable in a direction substantially lengthwise of the cables, said cables drawn toward or diverged from each other, or crossed and laid into the loops in pairs whereby the movement of the bars with relation to the cables serves to regulate the tension thereof.

748,869. **COLLAPSIBLE CARRIAGE.** HENRIETTA M. HULL, Detroit, Mich. Filed Aug. 5, 1903. Serial No. 168,383. (No model.)



Claim.—1. In a collapsible carriage, the combination of the wheels, axles for said wheels, a frame, rotatable side bars, and brackets whereby the wheels are carried by the side bars.

2. In a collapsible carriage, the combination of the cross-bars, side bars, wheels supported by the side bars, and toggle-links to turn the side bars.

3. In a collapsible carriage, the combination of rotatable side bars, depending braces, wheels carried by said braces with their axles below the line of said side bars, and means to turn the side bars.

4. In a collapsible carriage, the combination of a frame comprising front and rear cross-bars, bearings carried by said cross-bars, side bars journaled at their ends in said bearings and wheels carried by said side bars.

5. In a collapsible carriage, the combination of the frame, bearings secured to the front and rear ends of the frame, side bars extending from the front to the rear bearings and rotatable in the same, wheels carried by the side bars, a carriage-handle secured to one end of the frame, a support secured to the other end of the frame, a hammock attached at one end to said support and at the other end to said handle, and springs forming the connection between the hammock and handle.

6. In a collapsible carriage, the combination of a frame comprising front and rear cross-bars, bearings carried by said cross-bars, side bars extending from the front to the rear bearings and rotatable in the same, wheels carried by the side bars, a carriage-handle pivoted to the rear end of the frame, a support pivoted to the front end of the frame, a hammock carried by the support and handle and locking means to secure the handle and support in their elevated position.

7. In a collapsible carriage, the combination of cross-bars having bearings at their ends, side bars revoluble in said bearings, wheels carried by said side bars, cranks on the ends of said side bars, a shaft supported by said cross-bars, and toggle-links carried by said shaft and attached to said cranks so that the turning of the shaft will swing said wheels to collapse said carriage.

8. In a collapsible carriage, the combination of the cross-bars having bearings at their ends, brackets on said bearings, rotatable side bars, wheels carried by said side bars, a hammock, supports for said hammock pivoted on said brackets, and means to lock said supports to said brackets to hold the same in elevated position and to unlock the supports so they may be folded down on the side bars.

9. In a collapsible carriage, the combination of the frame, comprising rotatable side bars, wheels carried by the side bars, hammock-supports pivoted to the frame, a cross-bar on one of the supports, arms pivoted on said cross-bar, means to lock said arms in the desired angular position, springs secured to said arms and a hammock carried by the springs and the other support.

10. In a collapsible carriage, the combination of the cross-bars, bearings at the center of the cross-bars, a shaft carried by said bearings permitted to turn over one-half revolution each way, double cranks on the ends of said shaft having pins at unequal distances from the center, bearings at the ends of said cross-bars, side bars revoluble in said bearings, wheels carried by said side bars, cranks at the ends of said side bars, links connecting the pins of the double cranks to the cranks on the side bars, one end of the links connected to the pins the greater distance from the center of the double cranks being slotted, and means to limit the movement of the side bar adjacent to the slotted links.

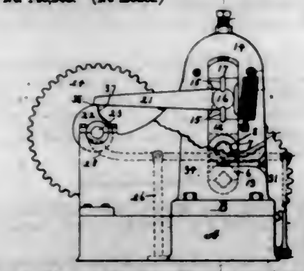
11. In a collapsible carriage, the combination of a frame, bearings at the ends of said frame, side bars each journaled in several of said bearings, wheels carried by said side bars, and means to turn the side bars to swing the wheels up under said frame.

12. In a collapsible carriage, the combination of a frame, bearings carried by said frame, side bars rotatable in said bearings and a plurality of wheels carried by each side bar.

13. In a collapsible carriage, the combination of front and rear cross-bars, bearings at the ends of said cross-bars, side bars extending from the front to the rear bearings, a plurality of wheels carried by each side bar, and means to turn the side bars.

14. In a collapsible carriage, the combination of a frame, comprising rotatable side bars and bearings for the same, braces secured to the side bars, axles carried by the braces, wheels mounted on the axles, and means to turn the side bars.

748,870. **MACHINE FOR ROLLING CARPENTERS' SQUARES.** HORACE K. JOHNS, Hartford, Conn., assignor to the Russell and Erwin Manufacturing Company, New Britain, Conn. Filed Jan. 23, 1903. Serial No. 140,263. (No model.)



Claim.—1. In a machine for rolling squares, the combination of the rolls with the frame comprising two uprights in which the said

rolls are mounted, one of the said uprights of the said frame having the blade-space, open at the front and extending back to the central point of the rolls.

2. The combination of the frame with the rolls mounted in the front part thereof, one of which rolls is movable to and from the other, a cam-shaft mounted at the rear part of the said frame, gearing connecting the said cam-shaft and rolls, a cam on the said cam-shaft, toggle-links arranged in the plane within which the axis of both of the said rolls lie, and an operating-lever extending from the said links to the said cam.

3. The combination of a frame with the rolls mounted therein, one of the said rolls being movable to and from the other, a cam mounted in the frame separately from the said rolls, the toggle-links and the lever having a head at one end lying between the said links and by which the said lever is fulcrumed, the other end of the said lever being acted upon by the said cam.

4. The combination of the frame having uprights, with the rolls and roll-boxes, one of the rolls and its boxes being mounted to rise and fall within the said upright, a toggle-link with one end mounted on the said boxes, a lever-head mounted on the other end of the said toggle-link, a cross-bar or abutment, a second toggle-link with one end mounted on the said abutment and its other end on the said lever-head, a lever extending laterally to the axis of the rolls from the said lever-head and rigid with the said head, and a cam for acting on that end of the said lever which is opposite the said head.

5. The combination of the rolls, one of which is movable to and from the other, with a cam rotating in connection with the said rolls, and mechanism between the said cam and rolls for reducing the motion of the said cam, substantially as described.

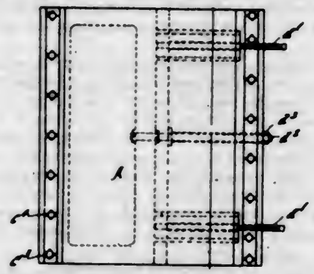
6. The combination of the rolls, one of which is movable to and from the other, with a cam having the drop 37 and rising face extending from bottom to top of the said drop, the said face making the major part of its lift at the first three-quarters of its revolution from the said drop and its most rapid lift within its first quarter of a revolution from the said drop, and mechanism between the said cam and rolls for reducing the motion of the said cam.

7. The combination of the rolls, with the toggle-links and lever acting as mechanism for reducing motion, and the cam having the drop and rising face for acting upon the said lever, the most rapid lift of the said cam-face being at the first quarter of its revolution from the said drop.

8. The combination of the rolls, one of which is movable to and from the other, with a cam and connecting mechanism for acting upon the said movable roll for forcing the rolls together, and mechanism for starting and driving the said cam and for stopping it at a predetermined point of its movement.

9. The combination of the rolls, one of which is movable to and from the other with a cam which may rotate in connection with the said rolls, mechanism between the said cam and rolls for reducing the motion of the said cam, and mechanism for starting the cam and then stopping it at the end of one or more complete revolutions.

748,871. **METAL-HOLDING APPARATUS FOR FLAT-BED LITHOGRAPHIC-PRINTING PRESSES.** WILLIAM J. LEYER, Erie, Pa. Filed Dec. 1, 1902. Serial No. 133,444. (No model.)



Claim.—1. In a metal-plate-holding apparatus for flat-bed lithographic presses the combination of a bed having a surface; clamps arranged below the plane of said surface; and means for moving one of said clamps to strain the plate and for moving one side of said clamp to a greater extent than the other.

2. In a metal-plate-holding apparatus for flat-bed photolithographic-printing presses the combination of a bed having a plane surface; clamps arranged below the plane of said surface, said clamps having their jaw-surfaces extending continuously along the edge of the plate; and means for moving one of said clamps to strain the plate and for moving one side of said clamp to a greater extent than the other.

3. In a metal-plate-holding apparatus for flat-bed lithographic presses, the combination of the bed B having a plane surface forming a backing for the plate; the clamps C and E arranged at the ends of the plate and to be opened and closed by a movement in a direction at right angles in the plane of the plate on the bed, said clamps comprising the trough-shaped jaws C' E' and the upper jaws C^2 E^2 fitting therein the plane of the faces of the jaws along the edge being in line with the plate where it enters the jaws and the clamping-bolts E^3 said clamps being arranged below the surface of the bed B.

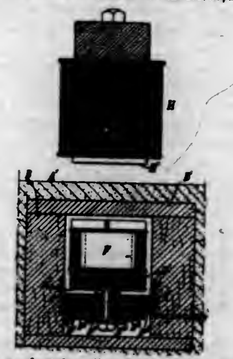
4. In a metal-plate-holding apparatus for flat-bed lithographic presses, the combination of the bed B having a plane surface thereon and the rounded corners b thereon; the movable frame D arranged to permit greater movement at one end than at the other: screws d' d' for moving said frame; the clamp C secured to said bed and the clamp E secured to said movable frame, said clamps being below the surface of the bed B.

5. In a metal-plate-holding apparatus for flat-bed lithographic presses, the combination of the bed B having a plane surface thereon; the movable frame D arranged to permit greater movement at one end than at the other; screws d' d' for moving said frame; the clamp C secured to said bed and the clamp E secured to said movable frame, said clamps being below the surface of the bed B.

6. In a metal-plate-holding apparatus for flat-bed lithographic presses, the combination of the bed B having a plane surface thereon; the rounded corners b thereon; the movable frame D arranged to permit greater movement at one end than at the other; screws d' d' for moving said frame; the clamp C secured to said bed and the clamp E secured to said movable frame, said clamp being below the surface of the bed B; and the bolt d^3 for the purpose described.

7. In a metal-plate-holding apparatus for flat-bed lithographic presses, the combination of the bed B having a plane surface thereon forming a backing for the plate; the shoulder b^3 on said bed; and grooves b' in said bed; movable frame D having the dovetail arranged to operate in the grooves b'; the adjusting-screws d' d' extending through the frame against the shoulder b^3; and a clamp carried by said movable frame and arranged below the surface of the bed B.

748,872. **ELECTRIC-RAILWAY SYSTEM.** WILLIAM G. LOWRIE, New York, N. Y. Filed June 21, 1901. Serial No. 65,426. (No model.)



Claim.—1. In an electric-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet, said trolley having an armature located above said conductors and upturned poles on the ends of the same to cooperate with the poles of said car-magnet magnetizing-coils on said armature, and contact-pieces on said trolley to engage said conductors and connected in series with said magnetizing-coils to energize the same.

2. A magnetically-actuated trolley forming an electrical connection between a continuous conductor and the sections of a discontinuous conductor, said trolley being provided with coils connected in series with said conductors and inclosing magnetic cores corresponding with the poles of a magnet actuating said trolley.

3. In a magnetically-actuated trolley, a bridge having portions of conducting material making an electrical contact connection between a continuous conductor and the sections of a discontinuous conductor, and having an insulating portion separating said contact portion, and an armature of magnetic material provided with cores that correspond to the poles of the actuating-magnet and are surrounded with coils connected in series with said conductors through the contact-pieces of said bridge.

4. In a magnetically-actuated trolley, an armature of magnetic material provided with cores that correspond to the poles of the actuating-magnet and are surrounded with coils, a plurality of plates having conducting contact-pieces at their ends separated by insulating-pieces, said contact-pieces engaging a continuous conductor and the sections of a sectional conductor, means for electrically connecting said contact-pieces in multiple and for connecting said coils in series with said conductors through said contact-pieces.

5. In a magnetically-actuated trolley, an armature of magnetic material provided with cores that correspond to the poles of the actuating-magnet and are surrounded with coils, a plurality of plates having conducting contact-pieces at their ends separated by insulating-pieces, said contact-pieces engaging a continuous conductor and the sections of a sectional conductor, means for electrically connecting said contact-pieces in multiple and for connecting said coils in series with said conductors through said contact-pieces, and means for preventing said plates from getting out of alinement when said trolley is in motion.

6. In a magnetically-actuated trolley, an armature of magnetic material provided with cores that correspond to the poles of the actuating-magnet and are surrounded with coils, a plurality of plates having conducting contact-pieces at their ends separated by insulating-pieces, said contact-pieces engaging a continuous conductor and the sections of a sectional conductor, means for electrically connecting said contact-pieces in multiple and for connecting said coils in series with said conductors through said contact-pieces, and a casing for said plates.

7. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature located above said conductors and a contact-plate located below and engaging the under surfaces of said conductors, said armature having cores corresponding with the poles of said car-magnet and coils about said cores; and said plate having contact-pieces of conducting material insulated from each other; and means for electrically connecting said coils in series with said conductors through the contact-pieces of said plate.

8. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature located above said conductors, and a contact-bridge located below the same.

9. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature located above said conductors, and a spring-pressed contact-plate located below the same.

10. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature, and a contact-plate located below and engaging the under surfaces of said conductors; said armature having cores corresponding with the poles of said car-magnet and coils about said cores, and said plate having contact-pieces of conducting material insulated from each other, and means for electrically connecting said coils in series with said conductors through the contact-pieces of said plate.

11. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature, and a contact-plate located below and engaging the under surfaces of said conductors; said armature having cores corresponding with the poles of said car-magnet and coils about said cores, and said plate having contact-pieces of conducting material insulated from each other, and means for electrically connecting said coils in series with said conductors through the contact-pieces of said plate.

12. In an electrical-railway system, a conduit having a continuous conductor located at one side thereof, an oppositely-located sectional conductor each section of which is electrically connected with a corresponding section of an external discontinuous feed-rail, a trolley located within said conduit and movable therein under the influence of a car-magnet and having an armature and contact-bridges bearing on the horizontal surfaces of said conductors.

13. In an electric-railway system, a conduit having a continuous and sectional conductor therein, a trolley to move within said conduit under the influence of a car-magnet, a series of spring-pressed contact-plates on said trolley, means to maintain said contact-plates in alinement and to prevent the rotation of the same, said contact-plates having contact-pieces of conducting material engaging said conductors.

14. In an electric-railway system, a conduit containing conductors, a trolley to move within said conduit under the influence of a car-magnet, spring-pressed contact-plates on said trolley, means to maintain said contact-plates in alinement and to prevent the rotation of the same, said contact-plates having contact-pieces of conducting material engaging said conductors under the combined influence of the spring-pressure upon them and said car-magnet.

15. In an electric-railway system, a closed conduit having a continuous and sectional conductor therein, a trolley to move within said conduit under the influence of a car-magnet, spring-pressed contact-plates on said trolley to engage said conductors, an armature having upwardly-projecting poles on its ends in alinement with the poles of said car-magnet to maintain the longitudinal alinement of said trolley and said car-magnet as said trolley moves along said conduit and magnetizing-coils on said armature to energize the same.

748,873. DOOR-GAGE. DAVID MILLSPAUGH, Anderson, Ind. Filed June 13, 1903. Serial No. 161,263. (No model.)



Claim.—1. A device of the kind described, comprising a bar having points arranged on opposite sides of the bar, a rectangular frame having an arm sliding on said bar, a clip sliding on the bar and arm, a sliding pointer-head carried by the frame, and means for clamping the clip to the arm and bar.

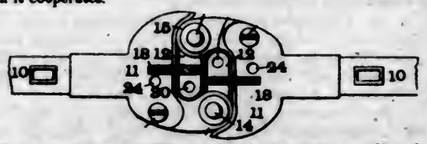
2. A device of the kind described comprising a bar, points projecting above and below the bar adjacent one end, a rectangular frame having a rearwardly-extending arm, said arm sliding on the bar and having guide-lugs engaging the sides of the bar, said frame having also a rearwardly-extending slotted side member, a pointer sliding in said slot, a clip sliding over the arm and bar and means for clamping the arm and clip against movement with reference to the bar.

3. A device of the kind described comprising a bar having upwardly and downwardly projecting points adjacent one end, a rectangular frame, the rear end member of said frame having a vertical flange, and the forward end member terminating in a laterally-extending point, and a side member extending rearwardly and being longitudinally slotted, an arm extending rearwardly from the flanged member of the frame, said arm sliding on the bar and having a vertical flange at its rear end, a clip sliding over said arm and bar and having a depending flange, means for locking the clip and arm in position, and a pointer sliding in the slot of the side member of the frame.

748,874. CAR-COUPLING. DAVID P. MORAN, Wichita, Kans. Filed Mar. 13, 1903. Serial No. 147,861. (No model.)

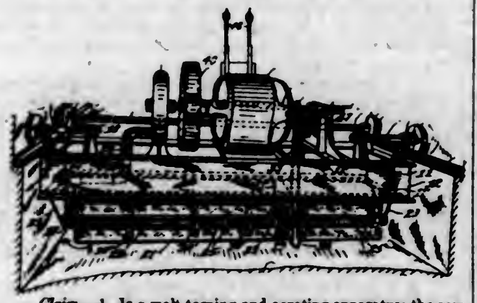
Claim.—1. In a coupling device, the combination with a draw-head and pivoted knuckle, of a forwardly-projecting stop rigidly carried by the upper face of said knuckle intermediate of its length, said stop being elevated above the upper face of the coupler, whereby vertical play is permitted between said coupler and a second coupler with which it cooperates.

2. In a coupling device, the combination with a draw-head and pivoted knuckle, of a forwardly-projecting stop formed integral with the upper face of said knuckle intermediate of its length, said stop being elevated above the upper face of the coupler, whereby vertical play is permitted between said coupler and a second coupler with which it cooperates.



3. The combination with a pair of cooperating coupling devices, each provided with an opening for the passage of a coupling-pin, of a pivoted knuckle for each of said coupling devices, each of said knuckles also being provided with an opening for the passage of a coupling-pin, a pair of coupling-bars of unequal length, each provided with a pair of openings, and coupling-pins for rigidly connecting said coupling devices by said coupling-bars when one or both of said knuckles are disabled.

748,875. MALT TURNER AND AERATOR. JOHN MUELLER, Seattle, Wash. Filed May 20, 1903. Serial No. 158,085. (No model.)



Claim.—1. In a malt turning and aerating apparatus; the combination of a carriage, a malt-lifter operatively mounted on said carriage and having a perforate tubular spindle, and a blower mounted on said carriage and connected with the bore of said spindle.

2. In a malt turning and aerating apparatus; the combination of a carriage, a malt-lifter operatively mounted on said carriage and comprising a perforate tubular spindle, and oppositely-disposed blades, a blower mounted on said carriage and connected with the bore of said spindle, and a motor mounted on said carriage and operatively connected with said lifter and blower.

3. In a malt-turner; the combination of a carriage, a motor mounted on said carriage, a shaft driven by said motor, a rotatable malt-turner operatively connected with said shaft, a driving-shaft for the carriage, a bevel-gear on first said shaft, a cross-shaft operatively connected with said driving-shaft, a sleeve on said cross-shaft having opposite bevel-gears related to said gear on the first said shaft, and a shipper for said sleeve.

4. In a malt-turner; the combination of a carriage, a rotatable malt-turner having a driving-wheel, and a telescoping casing inclosing said wheel and comprising an upper section secured to said carriage, and a lower section slidably fitting the upper section.

5. In a malt-turner; the combination of a carriage, a rotatable malt-turner having a driving-wheel, and a telescoping casing inclosing said wheel and comprising an upper section pointed at the ends and secured to said casing, and a lower section slidably fitting the upper section and having a strip of flexible material along the lower edge.

6. In a malt turner and aerator, the combination of a carriage, a perforated spindle carried thereby, malt-lifting means secured to said spindle, and an annular twyer encircling said spindle, and means on said carriage for supplying fluid through said twyer and spindle, substantially as described.

7. In a device of the character described, the combination of a carriage, a malt-lifter carried thereby and having a spindle provided with inlet and outlet ports, a twyer encircling said inlet-openings, and a blower carried by said carriage and connected with said twyer, substantially as described.

8. In a device of the character described, the combination of a carriage, a horizontally-disposed malt-lifter carried thereby, said lifter comprising a foraminous spindle, and adjustable radially-disposed blades mounted on said spindle and spaced therefrom, a twyer for supplying fluid to said spindle, and means for rotating said spindle in said twyer.

9. In a device of the character described, the combination of a carriage, a malt-lifter carried thereby, said lifter comprising a perforated spindle, oppositely-disposed blades secured to said spindle, said blades being formed of sheet metal and doubled upon themselves and having outturned edges, a flexible material secured between the doubled portions of the blades, said blades being spaced from said spindle to permit fluid to pass through the said perforations therein, substantially as described.

748,876. TYPE-MOLD. CHARLES R. MURRAY, Chicago, Ill., assignor to Barnhart Brothers & Spindler, Chicago, Ill., a Corporation of Illinois. Filed Oct. 1, 1902. Serial No. 125,475. (No model.)



Claim.—1. A mold comprising a movable matrix, a pair of jets located opposite the matrix and separated from one another sufficiently to afford a space for a metal-inlet between them, a pair of carriages located between the matrix and said jets, the carriages having their opposing edges provided with projections which extend toward one another, a top plate above the carriages and jets, and a mold-block below the same, substantially as described.

2. A mold comprising a movable matrix 5, a pair of jets 4, 4 located opposite the matrix and separated from one another sufficiently to provide a space for a metal-inlet, said jets 4, 4 being provided with projections 10, 10 adapted to form a projection for making a core in the bottom of the type, carriages 3, 3 located between the matrix 5 and the jets 4, 4 and separated from one another to afford space for the top, said carriages being provided with inwardly-extending projections 9, 9, adapted to form recesses in the front and back of the type, a top plate 7 above the carriages and jets, and a mold-block 8 below the same.

3. In a mold, the combination of a pair of carriages 3, 3; forming the front and back walls of the mold, and provided with projections; jets 4, 4; at the sides of the carriages, a matrix opposite said jets, a top plate, and a mold-block, substantially as described.

748,877. LEG-FASTENING. ALEXANDER OW, New Brighton, Pa. Filed Oct. 9, 1902. Serial No. 126,563. (No model.)



Claim.—1. In a fastening means, the combination with a metallic bath-tub or other body, of an integral projection on the bottom of the tub having openings to receive a nut and a screw-tip, integral lugs on the body, a leg having an upper margin upwardly curved on its face to engage directly with the tub-body around the lugs, hooks on the ends of the leg margin to engage with the lugs, a slotted shank on the leg, claws on the shank to engage with the front of the projection, and a single bolt and nut to secure the leg to the body.

2. In a fastening means, the combination with a metallic bath-tub or other body, an integral projection thereon having a slot to receive the fastening-nut and a hole entering said slot from below to receive the screw-tip, three integral lugs on the body arranged substantially at equal distances from the projection, two on each side and one forwardly thereof, integral ribs connecting the lugs to the projection, a leg having an upper margin upwardly and forwardly

curved to engage directly with the tub-body around the lugs, said margin being formed at its upper portion with a notch to engage with the forward lug, integral hooks at the ends of the margin to hook around the other two lugs, a slotted, inwardly-projecting shank on the leg, integral claws on the inner ends of the shank beveled to engage with the beveled inner surface of the projection, a downwardly, depending locking-lug on the projection substantially fitting the slot in the shank, a nut arranged in the slot in the projection and a screw engaging with said nut and with the slotted shank.

3. In a fastening means, the combination with a metallic bath-tub, of an integral projection on the bottom of the tub having a slot to receive a nut and a hole communicating with the slot to receive a screw-tip, integral lugs on the body, a leg having an upper margin upwardly curved on its face to engage directly with the tub-body around the lugs, hooks on the ends of the leg margin to engage with the lugs, a slotted shank on the leg, claws on the shank on each side of the slot to engage with the projection, an integral, downwardly-projecting locking-lug on the projection to engage with the leg-slot, and a single bolt and nut to secure the leg to the body.

4. In means for fastening legs to bath-tubs, the combination with the tub and the leg, of an integral projection on the bottom of the tub, provided with openings for a nut and screw, of three integral lugs on the tub-bottom arranged respectively in front and on each side of the projection, said leg having an upper margin making direct contact with the body and a notch in said margin to engage with the forward lug, lugs on the leg for engaging with the side lugs on the body, a slotted shank integral with the leg, and a screw and nut to engage with said projection and shank, the tub-bottom being smooth and of ordinary thickness between and outside of the front lug and the respective side lugs, substantially as set forth.

5. In means for fastening legs to bath-tubs, the combination with the body and the leg, of a projection integral with the tub-bottom provided with openings for a nut and screw, three integral lugs on the tub arranged respectively on each side and in front of the projection and substantially at equal distances therefrom, integral ribs on the tub connecting the projection to the three lugs, the leg having an upper margin making direct contact with the body, lugs on the ends of the leg margin to engage with the side lugs on the body, a slotted shank integral with the leg, and a screw and nut to engage with the slotted shank and the projection, the tub-bottom being smooth and of ordinary thickness between and outside of the front lug and the respective side lugs, substantially as set forth.

6. In means for fastening legs to bath-tubs, the combination with the tub and the leg, of an integral projection on the bottom of the tub provided with openings for a nut and a screw, of three integral lugs on the tub-bottom arranged directly in front of and on each side of the projection, said leg having an upper margin making direct contact with the body and a notch in said margin to engage with the front lug, lugs on the ends of the leg margin to engage with the side lugs on the body, a slotted shank integral with the leg, an integral, downwardly-projecting locking-lug on the projection fitted to the leg-slot, and a screw and nut to engage with said projection and shank, substantially as described and shown.

7. In means for fastening legs to bath-tubs, the combination with the tub and the leg, of an integral projection on the bottom of the tub provided with openings for a nut and a screw, of three integral lugs on the tub-bottom arranged directly in front of and on each side of the projection, said leg having an upper margin making direct contact with the body and a notch in said margin to engage with the front lug, lugs on the ends of the leg margin to engage with the side lugs on the body, a slotted shank integral with the leg, an integral, downwardly-projecting locking-lug on the projection fitted to the leg-slot, claws on the ends of the shank on each side of the slot to engage with the inner face of the projection, and a screw and nut to engage with said projection and shank, substantially as described and shown.

748,878. SCOOP. THOMAS D. OWENS, Jr., Pittsburg, Pa. Filed Jan. 19, 1903. Serial No. 139,562. (No model.)



Claim.—1. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, and a spiral spring passing around said shaft and connected to said handle, said spring being operatively connected to the end face of said shaft so as to be expanded by such end face in measuring and weighing the contents of the scoop.

2. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, a spiral spring within said handle and passing around said shaft, and connections between said spring and handle, said spring being operatively connected to the end face of said shaft so as to be expanded by such end face in measuring and weighing the contents of the scoop.

3. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, a spiral spring within said handle and connected to and passing around said shaft, and bars connected to said spring and handle whereby said spring will be expanded in measuring and weighing the contents of the scoop.

4. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, a spiral spring within said handle, a plate connecting said shaft and spring, and bars connecting said handle and a plate on said spring, whereby said spring will be expanded in measuring and weighing the contents of the scoop.

5. A combined scoop and scale, comprising a scoop, a scale-shaft on said scoop having graduated scale-marks thereon, a handle, a spring-operated lever pivoted to said handle, and a projection or dog on said lever adapted to engage with a seat in the scale-shaft for locking said shaft and to indicate by said marks the amount contained in said scoop to be weighed.

6. A combined scoop and scale, comprising a scoop, a scale-shaft on said scoop having graduated scale-marks thereon, a handle, a spring-operated lever pivoted to said handle, and a projection or dog on said lever adapted to engage with a seat in the scale-shaft immediately below the zero-point of said scale-marks for locking said shaft and to indicate by said marks the amount contained in said scoop to be weighed.

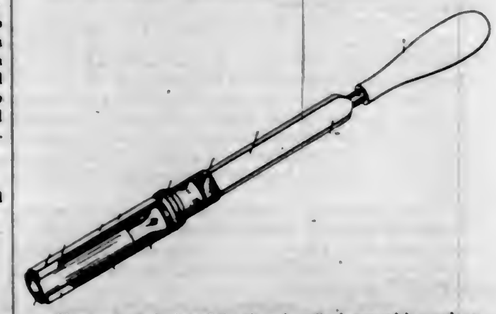
7. A combined scoop and scale, comprising a scoop having a scale-shaft, a handle, a spiral spring passing around said shaft and connected to said shaft and handle, and a plate on the said spring adapted to be engaged by said shaft whereby said spring will be expanded in measuring and weighing the contents of the scoop.

8. A combined scoop and scale, comprising a scoop having a scale-shaft, a handle, a spiral spring passing around said shaft and connected to said shaft and handle, and a plate connected to the end of said spring and through the same, said plate being adapted to be engaged by said shaft whereby said spring will be expanded in measuring and weighing the contents of the scoop.

9. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, a spiral spring within said handle and connected to and passing around said shaft, a plate connected to said spring, and bars connected to said handle and plate whereby said spring will be expanded in measuring and weighing the contents of the scoop.

10. A combined scoop and scale, comprising a scoop having a scale-shaft thereon, a handle, a spiral spring within said handle and connected to and passing around said shaft, a plate passing around said shaft and through said spring, and bars connected to handle and plate whereby said spring will be expanded in measuring and weighing the contents of the scoop.

748,879. SCREW-DRIVER. GEORGE R. R. PARKIN, Toronto, Canada, assignor to Alexander Douglas Fisher, Toronto, Ontario, Canada. Filed Mar. 27, 1903. Serial No. 149,221. (No model.)



Claim.—1. A device of the class described, comprising a chamber provided with a side opening through which the screws are introduced thereinto, and two opposed openings constructed near its outer end so that the end of said chamber will extend beyond the ends of the supporting members for the screw; supporting members, yieldingly secured on the outside of said chamber, and operating within same by means of said openings, so as to hold the screw; a driving-bar operating within said chamber so as to drive the screw; and means whereby the said driving-bar has only longitudinal movement in said chamber which must rotate therewith, and means to prevent the driving-bar from being withdrawn from said chamber.

2. A device of the class described, comprising a chamber provided with a side opening through which the screws are introduced thereinto, and two opposed openings constructed near its outer end so that the end of said chamber will extend beyond the ends of the supporting members for the screw; supporting members, yieldingly secured on the outside of said chamber, and operating within same by means of said openings, so as to hold the screw; a driving-bar operating within said chamber so as to drive the screw; means whereby the said driving-bar has only longitudinal movement in said chamber which must rotate therewith, and means to prevent the driving-bar from being withdrawn from said chamber.

3. A device of the class described, comprising a chamber provided with a side opening through which the screws are introduced thereinto, and two opposed openings constructed near its outer end so that the end of said chamber will extend beyond the ends of the supporting members for the screw; supporting members, yieldingly secured on the outside of said chamber, and operating within same by means of said openings, so as to hold the screw; the supporting ends of said supporting members being provided with slots which, at their inner end, open out in a curved construction G, the said slots together forming a common slot the longitudinal axis of which is on a line with the longitudinal axis of said chamber; a driving-bar operating within said chamber so as to drive the screw, and means whereby the said driving-bar has only longitudinal movement in said chamber which must rotate therewith.

4. A device of the class described, comprising a chamber provided with a side opening through which the screws are introduced thereinto, and two opposed openings constructed near its outer end so that the end of said chamber will extend beyond the ends of the supporting members for the screw; supporting members, yieldingly secured on the outside of said chamber, and operating within same by means of said openings, so as to hold the screw; a driving-bar operating within said chamber so as to drive the screw; the said chamber being constructed with a flattened portion and the said driving-bar being provided with a flat side so as to operate within said chamber and rotate same.

5. A device of the class described, comprising a chamber provided with a side opening through which the screws are introduced thereinto, and two opposed openings constructed near its outer end so that the end of said chamber will extend beyond the ends of the supporting members for the screw; supporting members, yieldingly secured on the outside of said chamber, and operating within same by means of said openings, so as to hold the screw; a driving-bar operating within said chamber so as to drive the screw, the said chamber being constructed with a flattened portion, which forms a stop, and the said driving-bar being provided with a shoulder abutting said stop, one side of said driving-bar being flattened so that it will only have longitudinal movement within said chamber and rotate same.

748,880. PERIPHERAL STRUCTURE FOR WHEELS. FRANZ PAWEL, Hanover, Germany. Filed Apr. 11, 1903. Serial No. 152,101. (No model.)

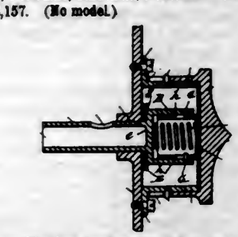


Claim.—1. A wheel provided with an endless band, a flanged tread inclosing the band, and a series of independent, bulged resilient strips engaging the tread-flange, substantially as specified.

2. A wheel provided with an endless band, a flanged tread surrounding the band, a flanged rim, and a series of independent, bulged, resilient strips adapted to press the tread-flange against the rim-flange, substantially as specified.

3. In a wheel, a tread provided with an inwardly-projecting flange having a shoulder, combined with a band inclosed by the tread, a rim having an outwardly-projecting flange that telescopes the tread-flange, a series of independent, bulged, resilient strips supported upon the tread-shoulder, and bolts engaging said strips, substantially as specified.

748,881. LUBRICATOR FOR VEHICLE-AXLES. ALPHEUS A. PEART, Deloraine, Tasmania, Australia. Filed Feb. 28, 1902. Serial No. 96,157. (No model.)



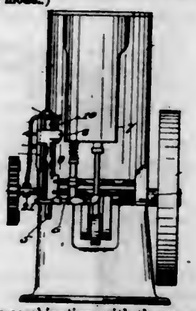
Claim.—The herein-described device for introducing lubricant into the caps of vehicle-wheel hubs said device consisting of a tubular section open at its inner end and closed at its outer end, sliding fitting in and projecting through a perforation in the front end of the cap of a vehicle-wheel hub, there being an opening in the peripheral surface of the tubular section, an open end socket formed on and projecting outwardly from the tubular section, a ferrule telescopically fitted within the socket and having an inwardly-turned flange at its outer end, pins projecting inwardly into the socket and into slots in the ferrule to prevent its removal from the socket, a helical spring retained within the socket and ferrule, a flexible washer interposed between the rear wall of the socket and the end wall of the vehicle-wheel hub-cap, an annular flange projecting from the end wheel of the vehicle-wheel cap, and a cap fitted over said flange and having "bayonet-joint" connection therewith, all substantially as described and illustrated in the drawings, and for the purposes hereinbefore set forth.

748,882. LOCK-NUT. WALTER C. PETERS and WILLIAM BELLAMY, Ely, England. Filed Jan. 27, 1903. Serial No. 140,789. (No model.)



Claim.—A nut-lock, comprising two nuts, one of which has an undercut recess, and the other of which has a cylindrical projection provided with a projecting lip at its extreme end which engages with the bottom part of the said recess, and a washer on the said cylindrical projection between the said two nuts.

748,883. FUEL-FEED DEVICE FOR GASOLENE OR VAPOR ENGINES. ENOCH PROUTY, Chicago, Ill. Filed May 11, 1901. Serial No. 59,744. (No model.)



Claim.—1. The combination, with the pump, and a driven shaft having a cam, of the lift-lever engaged by the cam, a finger depending from the pump-plunger and operated by the lift-lever to raise the plunger, and a spring-controlled arm attached to and depending from the plunger to retract it.

2. The combination, with the pump, the pump-plunger having a flanged head, and the shaft having a cam, of a lift-lever operated by the cam, a finger attached to the pump-plunger and having depending sections operated by said lever to lift the plunger, and a spring-controlled arm depending from the flanged head to retract the plunger.

3. In a gasolene or vapor engine, the combination of a feed-pump, the plunger, the cammed shaft, a lift operated by the cam, a

finger carried by the pump-plunger and having a shoulder engaged by the lift to raise the plunger, an arm depending from the plunger, and a spring on the arm to retract the plunger.

4. The combination, with a feed-pump, the pump-plunger having a flanged head a finger hung from the pump-plunger, and a spring-controlled arm to retract the plunger, of a shaft having a cam, a lift operated by the cam and engage in the finger to give the plunger its upward stroke, and a post on the pump and engaging said head to limit the downward stroke of the plunger.

5. The combination, with a pump, the plunger, a driving-shaft having a pinion, a governor-wheel meshing with the pinion and having a pin, a block on the wheel-hub operated by said pin, and a cam-shaft upon which said wheel is mounted, of a finger attached to and depending from the pump-plunger, and a lift-lever operated by the cam and by said block, for the purpose set forth.

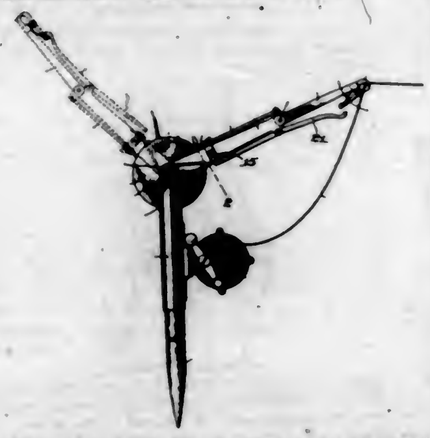
6. The combination, with a pump, a cam-shaft, a governor-wheel mounted on the shaft to drive it and having a hub-pin, of a finger attached to the pump-plunger, a lift-lever operated vertically by the cam to work the finger, a block on the hub-wheel and operated by the pin to slide the lift-lever in a lateral direction, and a spring to return the lift-lever so as to control the action of the pump.

7. In a gasolene-engine, the combination, with a gasolene feed-pump and its plunger, of means to operate the pump and to control its feed to the engine, consisting of a cam-shaft, a spring-controlled lift-lever engaged by the cam to impart a vertical movement to the plunger, a governor-wheel mounted on the shaft and having a pin, a block on the wheel-hub and operated by the pin to slide the lever, a finger on the pump-plunger engaged by the lever to raise the plunger, a spring-controlled arm on the plunger to retract it, and an adjustable post on the pump to vary such retraction.

8. The combination, with the pump, a finger pivoted to the plunger-head and depending therefrom, a spring-controlled arm depending from the plunger to retract the latter, and means to control the pivot movement of the finger, of a lift-lever oscillated at right angles to the finger to raise it and the plunger, and a shaft having a cam to oscillate the lift-lever.

9. The combination, with a pump having a finger depending from the pump-plunger, and a spring-controlled arm on the plunger to retract the latter, of a cam-shaft, a governor-wheel mounted thereon having a pin, a lift-lever oscillated by the cam to raise the finger and lift the plunger, a block slidable on the wheel-hub and having a notch engaged by the pin to slide the block and move the lift-lever out of action with the finger, and a spring to return the lift-lever.

748,884. **FISH-CATCHER.** HENRY C. REICHARDT, Pottsville, Pa. Filed June 16, 1903. Serial No. 161,607. (No model.)



Claim.—1. In a fish-catcher, a support provided with a notch, an arm pivoted on said support, a spring acting upon said arm, a pawl to engage said notch to hold said arm against the action of said spring, means on said arm to engage a line, and connections between said means and pawl, whereby when the line is pulled the pawl is disengaged from the notch.

2. In a fish-catcher, a support provided with a notch, an arm pivoted on said support, a spring acting upon said arm, a pivoted extension carried by said arm, a pawl connected to said extension and adapted to engage said notch, and means carried by said extension to engage a line, whereby when the line is pulled the pawl is disengaged from the notch.

3. In a fish-catcher, a support provided with a notch, an arm pivoted on said support, a spring acting upon said arm, a pawl to engage said notch to hold said arm against the action of said spring, a pair of clamping-jaws on said arm to engage a line, and connections between said jaws and pawl, whereby when the line is pulled the pawl is disengaged from the notch.

4. In a fish-catcher, a support, a pivoted arm thereon to engage a line, means for giving said arm a sudden movement when the line is pulled, and a sounding device including an operating-arm arranged to be engaged by the first-named arm when said sudden movement takes place.

5. In a fish-catcher, a support provided with a notch, an arm pivoted to said support, a spring acting upon said arm, a pawl to engage said notch to hold said arm against the action of said spring, means on said arm to engage a line, connections between said means and pawl, whereby when the line is pulled the pawl is disengaged from the notch to release said arm, and a sounding device mounted on the support and including an operating-arm arranged to be engaged by the first-named arm when said first-named arm is released.

6. In a fish-catcher, a support, means thereon to engage a line, means including a trip device for giving the first-named means a sudden movement when the line is pulled, and means for disengaging the line from the first-named means after said sudden movement takes place.

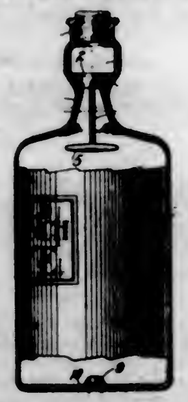
7. In a fish-catcher, a support, a reel thereon to carry a line, means on said support to engage said line, means including a trip device for giving the first-named means a sudden movement when the line is pulled, and means for disengaging the line from the first-named means after said sudden movement takes place.

8. In a fish-catcher, a support, a pair of clamping-jaws to engage a line, means including a trip device for giving said jaws a sudden movement when the line is pulled, and means for opening said jaws after said sudden movement takes place.

9. In a fish-catcher, a support, a pair of clamping-jaws to engage a line, means including a trip device for giving said jaws a sudden movement when the line is pulled, a lever to open said jaws, and means for operating said lever after said sudden movement takes place.

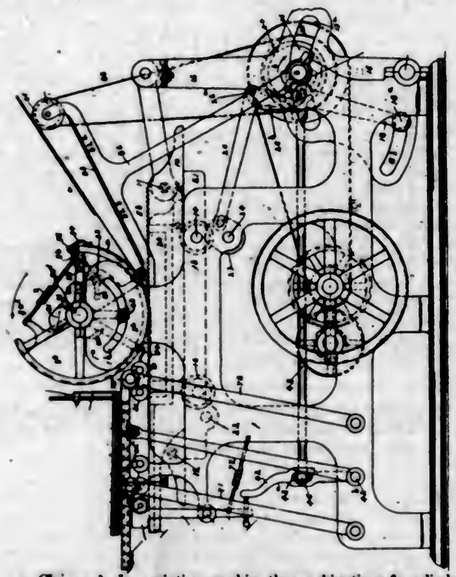
10. In a fish-catcher, a support, a pivoted arm thereon, a pair of clamping-jaws on said arm to engage a line, means including a trip device for giving said arm a sudden movement when the line is pulled, a lever to open said jaws, and means for operating said lever after said sudden movement takes place.

748,885. **NON-REFILLABLE BOTTLE.** MAYER REINFELD, St. Louis, Mo. Filed Oct. 17, 1903. Serial No. 177,461. (No model.)



Claim.—In a non-refillable bottle having a body portion and a neck, a valve permitting the discharge of its contents through the neck for an inverted position of the bottle, the mouth of the bottle being adapted to be closed for such inverted position for filling purposes, the bottom being provided with a suitable opening, a depression surrounding said opening, and a plug having a terminal disk adapted to be received by said depression and a resilient head adapted to be forced through the opening, the base of the head subsequently lapping over said opening and effecting a tight joint, substantially as set forth.

748,886. **PRINTING-MACHINE.** JAMES H. REINHARDT, East Orange, N. J., assignor to Reinhardt Press and Paper Company, a Corporation of New York. Filed Feb. 4, 1903. Serial No. 141,813. (No model.)



Claim.—1. In a printing-machine the combination of a cylinder, a reciprocative type-carrier, means to cause said carrier to move into the printing-line when traveling in one direction and out of such line while traveling in the reverse direction, and means for reciprocating said carrier, substantially as described.

2. In a printing-machine the combination of a cylinder, a reciprocative type-carrier, means to cause said carrier to move toward the cylinder when traveling in one direction and away from the cylinder when traveling in the reverse direction, and means for operating said carrier, substantially as described.

3. In a printing-machine the combination of a cylinder, a reciprocative frame, a type-carrier to be operated thereby, means to cause said carrier to move into and out of printing-line when traveling in opposite directions, and means to reciprocate said frame and carrier, substantially as described.

4. The combination of a cylinder, a reciprocative frame, means to operate the cylinder by said frame, a type-carrier connected with said frame to reciprocate therewith, means to cause said carrier to move into the printing-line when traveling in one direction and out of such line when traveling in the reverse direction, and means to reciprocate said frame and carrier, substantially as described.

5. The combination of a cylinder, a reciprocative frame, a type-carrier movably connected with said frame to have vertical movement relatively thereto, means to raise and lower said frame and carrier, and means to operate them, substantially as described.

6. In a printing-machine the combination of a cylinder, a reciprocative frame, a type-carrier movably connected with said frame, means for guiding said carrier during its reciprocations, means for moving said carrier into and out of the printing-line, and means to reciprocate said frame and carrier, substantially as described.

7. The combination of a cylinder, a gear connected therewith, a reciprocative frame provided with a rack to operate said gear, a type-carrier movably connected with said frame, means to move said carrier into and out of printing-line, and means to reciprocate said frame and carrier, substantially as described.

8. The combination of a cylinder, a type-carrier, means to reciprocate the same, movable guides for said carrier, and means to raise said guides to move the carrier into the printing-line when the carrier travels in one direction and to lower the guides when the carrier travels in the reverse direction, substantially as described.

9. The combination of a cylinder, a type-carrier, means to reciprocate the same, movable guides for said carrier, cams to raise and lower said guides, and means to operate said cams, substantially as described.

10. The combination of a cylinder, a reciprocative type-carrier pivotally supported, guides for the carrier, cams to raise and lower said guides, and means for operating said cams, substantially as described.

11. The combination of a cylinder, a reciprocative type-carrier, guides pivotally supported near one end and upon which said carrier is mounted to slide, cams to raise and lower said guides, and means for operating said cams, substantially as described.

12. The combination of a cylinder, a reciprocative type-carrier, a cam to raise and lower said carrier, a lever for operating said cam, and a cam to operate said lever to move the carrier into and out of the printing-line, substantially as described.

13. The combination of a cylinder, a reciprocative type-carrier, cams to raise and lower said carrier, a lever to operate said cams, a cam to operate said lever, and means for adjusting said cams and lever in and out of operative relation, substantially as described.

14. The combination of a cylinder, a reciprocative type-carrier, cams to raise and lower said carrier, a lever to operate said cams, an adjustable roller carried by said lever, and a cam to coact with said roller whereby said roller may be thrown into and out of operative relation with respect to said cam, substantially as described.

15. In a printing-machine the combination of a cylinder, a reciprocative type-carrier, a pivoted arm connected with said carrier, a crank-shaft, and a link connecting the crank with said arm on one side of the pivot of the latter, with means for moving the carrier into and out of printing-line, substantially as described.

16. In a printing-machine the combination of a cylinder, a reciprocative type-carrier, a pivoted arm connected with said carrier, a crank-shaft, a link connecting the crank with said arm on one side of the pivot of the latter, and means for adjustably connecting said link with said arm to regulate the throw of said arm, substantially as described.

748,887. **SHUTTLE AND QUILL FOR NARROW-WARE LOOMS.** EDMUND H. SAWYER, Lexington, Mass. Filed Nov. 9, 1903. Serial No. 180,307. (No model.)



Claim.—1. A shuttle provided with means to hold a self-supporting quill with its axis perpendicular to the line of travel of the shuttle.

2. A flat shuttle provided with means for holding flatwise therein a flat self-supporting quill of a diameter greatly in excess of its depth or thickness.

3. A narrow-ware shuttle provided with a quill-opening and quill-holding fingers projecting thereinto constructed to embrace between them and support a self-supporting quill and arranged with their quill-holding portions opposed to each other in a line perpendicular to the line of travel of the shuttle.

4. A flat narrow-ware shuttle provided with means for holding a flat self-supporting quill flatwise in said shuttle and quill-tension means adapted to press directly upon the thread mass.

5. A flat narrow-ware shuttle provided with means for holding a flat self-supporting quill flatwise in said shuttle and quill-tension means adapted to press directly upon the periphery of the thread mass.

6. A flat narrow-ware shuttle provided with means for holding a flat self-supporting quill flatwise in said shuttle and quill-tension means adapted to press directly upon the flat side of the thread mass.

7. The combination with a flat shuttle made tapering toward one edge thereof, and adapted to hold a flat self-supporting quill arranged flatwise with and in said shuttle and also made tapering toward its periphery.

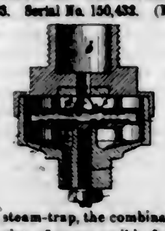
8. A shuttle provided with means for holding a flat self-supporting quill flatwise in said shuttle and quill-protecting means spanning the said quill or a portion thereof.

9. A narrow-ware shuttle having an opening therethrough, means to confine in both directions in said opening a self-supporting quill with its axis perpendicular to the line of travel of the shuttle, and shuttle guiding and driving means arranged at one side of said opening.

10. A narrow-ware shuttle having an opening therethrough,

means to confine in both directions in said opening a self-supporting quill with its axis perpendicular to the line of travel of the shuttle, shuttle guiding and driving means arranged at one side of said opening, and protection means spanning said opening adjacent the edge of the shuttle opposite the driving and guiding means.

748,888. STEAM-TRAP. WILLIAM M. STILL, London, England. Filed Mar. 31, 1903. Serial No. 150,432. (No model.)



Claim.—1. In a steam-trap, the combination with a casing having an inlet and an outlet, of an expansible-fluid-containing chamber within said casing, one of whose walls is fashioned as a hollow valve-cone and is adapted to control the passage through the trap, the interior of said valve being in communication with the fluid-containing chamber, as set forth.

2. In a steam-trap, the combination with a casing having an inlet and an outlet, of an expansible-fluid-containing chamber within said casing, and formed with a flexible diaphragm and hollow valve-piece formed in one therewith and adapted to control the passage through the trap, the interior of said valve being in communication with the fluid-containing chamber, as set forth.

3. In a steam-trap, the combination with a casing having an inlet and an outlet, of an expansible-fluid-containing chamber within said casing and formed with a flexible diaphragm and hollow valve-piece formed in one therewith and adapted to control the passage through the trap, the interior of said valve being in communication with the fluid-containing chamber, and means for adjusting the position of said chamber, as set forth.

4. A steam-trap comprising a casing formed in two parts, one part with an inlet-passage provided with a valve-seat and the other part with an outlet and having an adjusting-screw extending through said part, means for connecting said parts together and an expansible-fluid-containing chamber having one of its walls formed as a flexible diaphragm and a central hollow outwardly-projecting conical valve-piece formed in one therewith and adapted to control the passage through said valve-seat and whose interior is in free communication with the fluid-containing chamber, as set forth.

5. A steam-trap comprising a casing formed in two parts, one part with an inlet-passage provided with a valve-seat and the other part with an outlet and having an adjusting-screw extending through said part, means for connecting said parts together, and an expansible-fluid-containing chamber having one of its walls formed as a flexible diaphragm with a central hollow outwardly-projecting conical valve-piece, which is adapted to control the passage through said valve-seat and whose interior is in communication with the fluid-containing chamber, a plate secured to said adjusting-screw and adapted to support said chamber and guiding means for maintaining said chamber coaxial with the valve-seat, as set forth.

6. In a steam-trap, a shallow disk-like fluid-containing chamber loosely fitted into said trap so that there is a passage therethrough past the chamber, said chamber having its opposite walls formed as flexible diaphraghms and one of them having formed in one therewith a hollow projecting valve-piece open to said chamber, as set forth.

748,889. LAMP-BURNER ATTACHMENT. WATSON B. STOCKMAN and JOHN F. FRIEL, Chester, Pa. Filed May 15, 1903. Serial No. 157,296. (No model.)



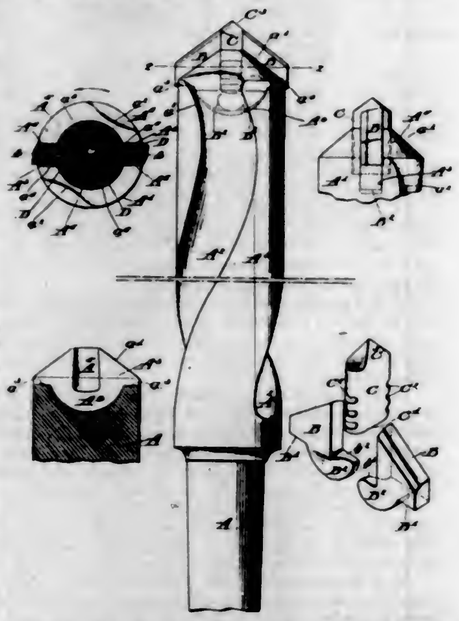
Claim.—1. In an attachment of the class described, the combination with a lamp-burner, of a wick-tube, a spring-retracted presser-bar disposed for reciprocal movement upon the burner, an inclined engaging portion disposed upon the presser-bar, extinguishing means disposed adjacent the wick-tube aforesaid, and means extended from the aforesaid extinguishing means adapted for cooperation with the inclined portion upon the presser-bar whereby the flame may be extinguished.

2. In an attachment of the class described, the combination with a burner, of a hollow wick-raising shaft disposed thereon, a spring-retracted presser-bar disposed for reciprocal movement within the wick-raising shaft, an inclined engaging part disposed upon the presser-bar, guide means cooperating with the presser-bar to direct the movement of the aforesaid inclined portion, and an extinguishing-sleeve disposed adjacent the wick-tube and cooperating with the inclined portion of the presser-bar.

3. In an attachment for burners and the like, the combination with a sleeve disposed adjacent the wick-tube, a hollow wick-raising shaft, a spring-retracted presser-bar disposed within the shaft for reciprocal movement, an extension projected from the extinguishing-sleeve aforesaid, and an inclined engaging part provided upon the presser-bar for engagement with the aforesaid extension and for actuation of the sleeve by such engagement.

4. In an attachment for burners and the like, the combination with a wick-tube, an extinguishing-sleeve disposed about the said tube having a lug projected therefrom, a hollow wick-raising shaft, a spring-retracted presser-bar disposed for reciprocal movement within the said shaft and having its inner end bent upward to form an inclined engaging portion for cooperation with the lug projected from the extinguishing-sleeve.

748,890. METAL-BORING TOOL. FREDERICK W. TAYLOR, Philadelphia, Pa., and SIDNEY NEWBOLD, Johnstown, N. J. Filed Nov. 25, 1902. Serial No. 132,753. (No model.)



Claim.—1. A device for boring metal, consisting of a tool-holder adapted to be secured to a boring-machine, and having a cavity at its outer end to receive the cutting portion of the tool, said cavity extending on both sides of the center of the holder and being formed with walls A^3, A^3, forming abutments for said cutting portion, in combination with a tool having its cutting portion loosely inserted in the holder-cavity and abutting against the walls A^3, A^3, and a packing of fusible metal filling the spaces between the inserted cutting portion of the tool and the walls of the cavity.

2. A device for boring metal, consisting of a tool-holder adapted to be secured to a boring-machine and having a cylindrical body formed with spiral chip-grooves merging into approximately straight longitudinal grooves at the outer end of the cylindrical body, said holder having a transversely-extending cavity, formed in its end and

lying between the ends of the longitudinal chip-grooves, to receive the end or shank of a metal-cutting tool, in combination with a cutting-tool having its end or shank inserted in the holder-cavity and having its face abutted against the wall or walls of the cavity which receive the main thrust in working, and a packing of fusible metal filling the space between the tool shank or shanks and the walls of the holder-cavity.

3. A device for boring metal, consisting of a holder adapted to be secured to a boring-machine and having its outer end formed with two transversely extending and intersecting cavities, in combination with lateral cutting-tools inserted in one such cavity but not extending to the center of the holder, a central cutting-tool inserted in the other said cavity, and a packing of fusible metal filling the spaces between the tools and the holder-cavities and between the tools in said cavities.

4. A device for boring metal, consisting of a holder having at its end a transversely-extending groove A^2, and a second transversely-extending groove A^3, intersecting the groove A^2, in combination with lateral cutters B, B, secured in the groove A^2, a central cutter C, secured in the groove A^2, said cutters having their inserted ends abutted against the walls A^3, of the groove-cavities, and a packing of fusible metal filling the spaces between the groove-cavities and the inserted portions of the tools.

5. A device for boring metal, consisting of a holder having at its end a transversely-extending groove A^2, and a second transversely-extending groove A^3, intersecting the groove A^2, in combination with lateral cutters B, B, of self-hardening steel, secured in the groove A^2, a central cutter C, of tempered steel, secured in the groove A^2, said cutters having their inserted ends abutted against the walls A^3, of the groove-cavities, and a packing of fusible metal filling the spaces between the groove-cavities and the inserted portions of the tools.

6. A device for boring metal, consisting of a holder adapted to be secured to a boring-machine and having a central drill of tempered steel secured to it, and cavities or recesses adapted to receive lateral cutting-tools formed in its end, in combination, with lateral cutting-tools formed of self-hardening tool-steel, having their ends inserted in said cavities and abutted against the walls thereof toward which they are pressed when in operation, and a packing or filling of fusible metal filling the spaces between the walls of the cavity and the inserted portions of the lateral cutting-tools.

7. A device for boring metal, consisting of a tool-holder having projecting from its end a central boring-tool narrower than the hole to be bored and made of tempered tool-steel, and lateral cutters of self-hardening tool-steel, extending beyond the ends of the central cutter but not to the center of the holder.

748,891. MATCH-SAFE. JESSE R. THOMAS, Walnutgrove, Mo. Filed Sept. 18, 1903. Serial No. 173,712. (No model.)

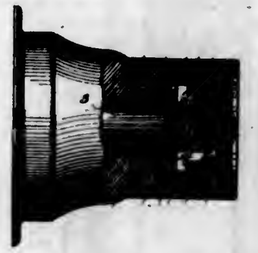


Claim.—In a match-safe, the combination with a base, an igniting-strip disposed upon the base, longitudinal flanges projected from the base adjacent the igniting-strip, a stop-flange also projected from the base at one end of the igniting-strip, and a holding-receptacle disposed at the opposite end of the igniting-strip and cooperating with the adjacent flange elements to confine the sparks generated by contact of matches with the igniting-strip.

748,892. HUB-ATTACHING DEVICE. STEPHEN S. THOMAS, Bloomfield, Mo. Filed Sept. 10, 1903. Serial No. 172,564. (No model.)

Claim.—1. In a device of the character described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches in said axle-nut, a disk seated in said hub, a cam rotatably connected to said disk and having engagement with said key-blocks, and means for yieldingly holding said cam from rotation, substantially as set forth.

2. In a device of the class described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches of said axle-nut, a disk seated in said hub, a cam rotatably connected to said disk and having engagement with said key-blocks, and a spring interposed between said disk and a part carried by said cam whereby said cam is yieldingly held to said disk, substantially as set forth.



3. In a device of the character described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches in said axle-nut, a disk seated in said hub, an apertured cam rotatably connected to said disk, and having engagement with said key-blocks, a spring-washer for holding said cam to said disk, and bosses on the inner face of said disk to enter the apertures in said cam for the purpose of holding the cam from rotation, substantially as set forth.

4. In a device of the character described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches of said axle-nut, each of said key-blocks having a fin, a disk screwed into said hub, a cam rotatably connected to said disk and having spiral grooves for engagement with said fins to impart reciprocation to the key-blocks, and means for yieldingly holding said cam from rotation, substantially as set forth.

5. In a device of the class described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches of said axle-nut, each of said key-blocks having a fin, a disk screwed into said hub, a cam rotatably connected to said disk and having spiral grooves for engagement with said fins to impart reciprocation to the key-blocks, and a spring interposed between said disk and a part carried by said cam whereby said cam is yieldingly held to said disk, substantially as set forth.

6. In a device of the character described, the combination with an axle-spindle, of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, reciprocating key-blocks in said hub for engagement in the notches in said axle-nut, each of said key-blocks having a fin, a disk screwed into said hub, an apertured cam rotatably connected to said disk and having spiral grooves for engagement with said fins to impart reciprocation of the key-blocks, a spring-washer for holding said cam to said disk, and bosses on the inner face of said disk to enter the apertures in said cam for the purpose of holding the cam from rotation, substantially as set forth.

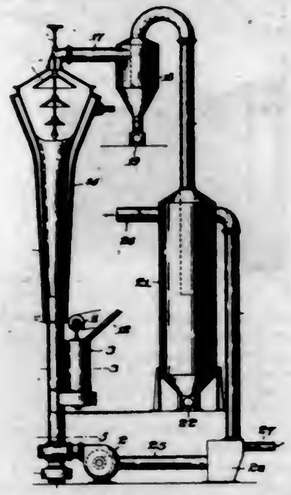
7. In a device of the character described, the combination with an axle-spindle of a notched axle-nut fitted to said spindle, a hub mounted on said spindle, a bushing in said hub provided with dovetailed guideways, dovetailed key-blocks reciprocatingly positioned in said guideways, each of said key-blocks having a fin, a disk screwed into said bushing and a cam rotatably connected to said disk and having spiral grooves for engagement with said fins for the purpose of reciprocating said key-blocks into and out of the notches in said axle-nut, substantially as set forth.

748,893. APPARATUS FOR DRYING MOIST MATERIAL. EDWARD N. TRUMP, Syracuse, N. Y. Filed Apr. 25, 1901. Serial No. 57,418. (No model.)

Claim.—1. In an apparatus for treating material, a series of chambers forming a closed circulatory system including a treating-chamber, means for continuously feeding into said chamber the material to be treated, means for causing an upward current of an agent for treating the material in said chamber and also for transporting the material upwardly through said chamber as it approaches the finished state.

2. In an apparatus for treating material, a series of communi-

cating chambers forming a closed circulatory system, one of which is a treating-chamber, means for feeding material into the treating-chamber, and means for causing an upward circulation through said chamber of an agent to treat said material and so as to separate the finished from the unfinished material.



3. In an apparatus for treating material, a series of communicating chambers forming a continuous closed circulatory system, means for continuously feeding into one of said chambers material to be treated, means for causing an upward circulation of a treating agent through said chamber so as to operate upon and transport the material, and means for separating the treated material from the said agent.

4. In an apparatus for treating material, a series of communicating chambers forming a continuous closed circulatory system, means for continuously feeding into one of said chambers material to be treated, means for causing a circulation through said series of an agent for operating upon and transporting the material and so as to cause the separation of the treated material from the operating agent.

5. In an apparatus for treating material, a series of communicating chambers forming a continuous closed circulatory system, means for continuously feeding into one of said chambers material to be treated, means for causing an upward circulation through said chamber of an agent for operating upon and transporting the material, means for imparting heat to the operating agent and means for causing the separation of the treated material from the operating agent.

6. In an apparatus for treating material, a series of communicating chambers forming a closed circulatory system, a treating-chamber, having its longitudinal extension vertically disposed, as one of said series, means for feeding material into the treating-chamber and means for causing a circulation through said chamber of an agent which passes upwardly through the treating-chamber to treat said material and to separate the finished from the unfinished material.

7. In an apparatus for treating material, a series of communicating chambers forming a closed circulatory system, a vertical stack as one of said series of chambers, means for continuously feeding into said stack material to be treated and means for causing an upward circulation through said stack of an agent to operate upon and transporting the material.

8. In an apparatus for treating materials, a series of communicating chambers forming a closed circulatory system, a vertical stack as one of said series of chambers and means for causing an upward spiral circulation through said stack of an agent for operating upon and transporting the material.

9. In an apparatus for treating materials, a series of communicating chambers forming a closed circulatory system, a vertical stack as one of said series of chambers, means for causing a spiral circulation through said stack of an agent for operating upon and transporting the material and means for imparting heat to the walls of the stack.

10. In an apparatus for treating materials, a series of communicating chambers forming a circulatory system, a treating-chamber as one of said series, means for circulating an agent for treating material in said chamber and also for transporting the material through said chamber as the material approaches the finished state, means for causing the circulation of said agent and means for replenishing the circulating agent

11. In an apparatus for treating material, the combination of a treating-chamber vertically disposed of increasing area of cross-section toward its upper extension and contracted at the top, a conductor leading from the contracted top, a separating-chamber connected with the treating-chamber by said conductor, conducting means leading from the separating-chamber back to the lower part of the treating-chamber, means for inducing an upward current of treating agent in the treating-chamber and means for continuously feeding material to be treated into said agent.

12. In an apparatus for treating material, the combination of a treating-chamber vertically disposed of increasing area of cross-section toward its upper extension and contracted at the top, means for inducing an upward current of treating agent through said chamber, means for feeding material to be treated into said agent and a series of separating-chambers connected between the contracted top and the lower portion of the treating-chamber so that the treating agent may circulate from the treating-chamber through the separating-chamber back to the treating-chamber.

13. In an apparatus for treating material, the combination of a stack, a blower and a feed, said elements being so proportioned and adjusted relatively as to afford means whereby an upward current of treating agent is induced in the stack, the material fed into said current and suspended therein during treatment and until it becomes finished and then transported by the agent.

14. In a drying apparatus, the combination of a stack, a blower and a feed, said elements being so proportioned and adjusted relatively as to afford means whereby an aeriform current of decreasing vertical velocity is induced through moist material to suspend the same until dried.

15. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension and then contracted at the top, means for inducing an upward current of treating agent therethrough, and means for feeding material to be treated into said stack, so that the same shall be continuously suspended by the treating agent until finished.

16. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension and then contracted at the top, means for inducing an upward current of treating agent therethrough, means for feeding material to be treated into said stack, a separating-chamber and a conductor leading thereto from the upper restricted portion of the stack.

17. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension and then contracted at the top, means for inducing an upward current of treating agent therethrough, means for feeding material to be treated into said stack, a separating-chamber, a conductor leading thereto from the upper restricted portion of the stack and means for conducting the treating agent from the separating-chamber back to the stack.

18. A drying apparatus comprising a vertical stack increasing in diameter with its height, means for causing an upward spiral circulation through said stack of a treating agent whereby the material to be treated is suspended in said agent, and is transported upwardly through said stack as it approaches the finished state.

19. A drying apparatus comprising a vertical stack increasing in diameter with its height, means for causing an upward spiral circulation through said stack of a treating agent whereby the material to be treated is suspended in said agent and the finished material separated from the unfinished material and transported from the stack.

20. In an apparatus for treating material, which changes in specific gravity through treatment, means for inducing an upward spiral aeriform current of decreasing vertical velocity to cause the finished material to be selected from the unfinished material and discharged and means for introducing the material into said current.

21. A drier comprising a treating-stack, a separator, a heater, and a blower forming together a circulatory system, means for feeding the material to be treated into said stack, and means for inducing a treating-current to suspend the material during treatment.

22. A treating-stack, means near the bottom thereof for introducing a spiral current of the operating agent, means for introducing the material to be treated into said agent and a baffle near the exit of said stack.

23. A treating-stack, means near the bottom thereof for introducing a spiral current of the operating agent, means for introducing the material to be treated into said agent, and an adjustable baffle near the exit of said stack.

24. A drier-stack gradually increasing in diameter with its height, a tapering enlargement near the exit of said stack, and a baffle secured adjacent said exit.

25. A drier comprising a vertical stack, means for causing the circulation through said stack of an operating agent, a port in said stack, a rotating table, and a blade supported in proximity to said table for deflecting the material to be treated through said port.

26. A drying apparatus comprising a vertical stack increasing in diameter with its height, means for causing an upward spiral circulation through said stack of a treating agent whereby the material to be treated is suspended in said agent and is transported upwardly through said stack as it approaches the finished state and means for imparting heat to the treating agent.

27. Means for inducing an aeriform current of decreasing vertical velocity through moist material for the purpose of drying the same, exit means for discharging the material when dried, a table-feed for delivering the moist material into the current through an intake-opening, and means for maintaining a superimposed mass of material as a seal for the material intake-opening.

28. The combination of an upwardly-exteeding stack having increasing area of cross-section in its upper extension, regulatable means for inducing an aeriform current into said stack, a table-feed consisting of a receptacle having a revolving table at its bottom, a fixed blade for cooperating therewith arranged to encounter the material brought to it by the revolving table to deflect the same into the stack as regulatable means for introducing the material to be treated.

29. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension, means for inducing an upward current of treating agent therethrough, means for feeding material to be treated in said stack; a separating-chamber connected with said stack for separating the finished material from the treating agent and conveying means connecting therewith for carrying off the finished material.

30. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension, means for inducing an upward current of treating agent therethrough, means for feeding material to be treated in said stack, a separating-chamber connected with said stack for separating the finished material from the treating agent, conveying means connected therewith for carrying off the finished material and conducting means connected with the separator for returning the treating agent back to the stack.

31. In an apparatus for treating material, the combination of a stack of increasing area of cross-section toward its upper extension, means for inducing an upward current of treating agent therethrough, means for feeding material to be treated in said stack, a separating-chamber connected with said stack for separating the finished material from the treating agent, conveying means connected therewith for carrying off the finished material and a conductor and heater connected between the separating-chamber and the stack for heating and returning said agent to the stack.

32. In an apparatus for treating material which changes in specific gravity during treatment, means for inducing an upward spiral aeriform current of decreasing vertical velocity to cause the finished material to be selected from the unfinished material and automatically discharged, means for introducing the material into said current, and exit means below the current for removing the material that may fall past the influence of the current.

33. In an apparatus for treating material which changes in specific gravity during treatment, means for inducing an upward spiral aeriform current of decreasing vertical velocity to cause the finished material to be selected from the raw material and automatically discharged, means for introducing the material into said current, a chamber below said current for receiving and containing the material that may fall past the influence of the current, and exit means connected therewith for removing the same.

34. In an apparatus for treating material which changes in specific gravity during treatment, the combination of means for inducing a spiral aeriform current through said material to cause the separation of the finished from the unfinished material, means for feeding material into the current through an intake-opening and means for maintaining a superimposed mass of material as a seal for the intake-opening.

35. In an apparatus for treating material which changes in specific gravity during treatment, a chamber whose cross-section increases with its height, means for heating the walls of said chamber, means for inducing into said chamber an upward spiral aeriform current to keep the material against the heated walls of the chamber.

36. In an apparatus for treating material, the combination of a treating-chamber, regulatable means for introducing into the chamber material to be treated, means for inducing an upward current of treating agent so as to continuously suspend the whole mass of material in the chamber during the period of treatment and to transport the same as it becomes treated, and a separating-chamber connected with the treating-chamber for receiving the transported material and separating the same from the treating agent.

37. In an apparatus for treating material, the combination of a treating-chamber, regulatable means for introducing into the chamber material to be treated, and means for inducing an upward spiral current of treating agent to suspend the whole mass of material in the chamber during the period of treatment and transport the same as it becomes treated.

38. In an apparatus for treating material, the combination of a treating-chamber, means for introducing into the chamber material to be treated, regulatable means for inducing an upward current of treating agent so as to continuously suspend the material in the chamber during the period of treatment and to transport the same as it becomes finished, and a separating-chamber connected with the treating-chamber for receiving the transported material and separating it from the treating agent.

39. In an apparatus for treating material, the combination of a treating-chamber, means for introducing into the chamber material to be treated, regulatable means for inducing an upward spiral current of treating agent to suspend the material in the chamber during the period of treatment and to transport the same as it becomes finished.

40. In an apparatus for treating material, the combination of a treating-chamber, regulatable means for introducing into the chamber material to be treated and regulatable means for inducing an upward current of treating agent so as to continuously suspend the material in the chamber during the period of treatment and to transport the same as it becomes finished, a separating-chamber connected with the treating-chamber for receiving the transported material and separating it from the treating agent and conducting means for returning the treating agent back to the treating-chamber.

41. In an apparatus for treating material, the combination of a treating chamber, regulatable means for introducing into the chamber material to be treated and regulatable means for inducing an upward spiral current of treating agent to suspend the material in the chamber during the period of treatment and to transport the same as it becomes finished.

42. An upwardly-extending chamber increasing in area of cross-section in its upward extension, means for introducing into said chamber a spiral aeriform current, means for introducing the material to be treated into the chamber above the current-intake, means for applying heat to the material while in the current, and means for withdrawing the finished product therefrom.

43. An upwardly-extending chamber increasing in area in cross-section in its upward extension, means for inducing an aeriform current tangential to the wall of the chamber to give it a spiral direction, and means for introducing the material to be treated into the chamber above the current-intake, and means for withdrawing the finished product therefrom.

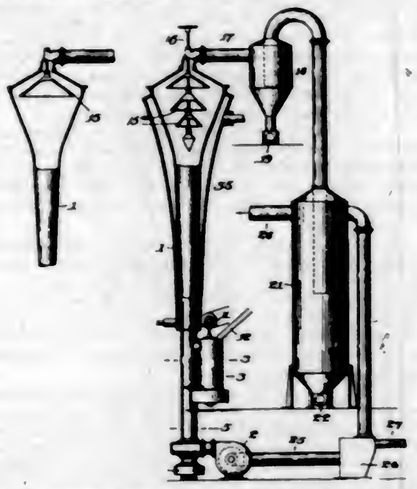
44. The combination of an upwardly-extending chamber having increasing area of cross-section in its upper extension, regulatable means for inducing an aeriform current into said chamber, regulatable means for introducing material to be treated into said current, an exit above the material intake-point for discharging the dry product, a cyclone separator connected with said exit, a heater connected with the separator and also with said chamber, and a valve-controlled exit in the system between the separator and the heater adapted to open to the outer atmosphere.

45. The combination of an upwardly-extending stack having increasing area of cross-section in its upward extension, regulatable means for inducing an aeriform current into said stack, regulatable means for introducing material to be treated into said current, an exit above the material intake-point for discharging the finished product, a cyclone separator connected with said exit, a heater connected with the separator, conducting means connecting the heater with the stack and valve-controlled inlet means connected with the heater.

748,894. PROCESS OF TREATING MATERIAL. EDWARD H. TRUMP, Syracuse, N. Y. Filed Jan. 10, 1903. Serial No. 89,165. (No specimens.)

Claim.—1. The process of treating material, which consists in

introducing it into an upward current of treating agent decreasing in velocity as it ascends, whereby the material is continuously suspended in said current during treatment.



2. The process of treating material, which consists in introducing it into an upward current of treating agent decreasing in velocity as it ascends, whereby the material is continuously suspended in said current during treatment, and advanced by the current as it approaches the finished state.

3. The process of treating material, which consists in introducing it into an upward spiral current of treating agent decreasing in velocity as it ascends, whereby the material is suspended in said current during treatment.

4. The process of treating material, which consists in introducing it into an upward spiral current of treating agent decreasing in velocity as it ascends, whereby the material is suspended in said current during treatment and advanced by the current as it approaches the finished state.

5. The process of treating material, which consists in suspending the material during treatment in an upward rotary current of an operating agent, imparting heat to said agent prior to the introduction of the material into it, and imparting heat to the material and agent during treatment.

6. The process of treating material, which consists in introducing it into an upward rotary current of operating agent having a decreasing upward velocity and imparting heat to the material and agent during treatment.

7. The process of treating material, which consists in passing an operating agent through a closed circulatory system, imparting to said operating agent an upward rotary motion, and suspending the material to be treated in the upward rotary current of the agent.

8. The process of treating material, which consists in producing an upward rotary current of a treating agent, feeding the material to be treated into said current, and adjusting the speed of current and rate of feed with relation to each other so as to cause a suspension of the material in the current during treatment.

9. The process of treating material, which consists in producing an upward current of decreasing vertical velocity, feeding the material into said current, and adjusting the speed of current and rate of feed with relation to each other so as to cause a continuous suspension of the material in the current during treatment.

10. The process of treating material, which consists in producing an upward spiral current of decreasing vertical velocity, feeding the material into said current, and adjusting the speed of current and rate of feed with relation to each other so as to cause a suspension of the material in the current during treatment.

11. The process of treating material, which consists in producing an upward current of treating agent diminishing in velocity as it ascends, mingling the material to be treated with said agent, whereby the material is continuously suspended in said agent during treatment, and advanced in the current as it approaches the finished state, thereby causing the separation of the finished from the unfinished material.

12. The process of drying material, which consists in introducing the material into an aeriform current of decreasing upward velocity so that the material shall be continuously suspended in said current by the action thereof until dried.

13. The process of drying material, which consists in introducing the material into an aeriform current of decreasing upward velocity, whereby the material is continuously suspended in said current until dried and then carried off.

14. The process of treating material, which changes in specific gravity during treatment, which consists in feeding the material to be treated into an aeriform current of decreasing vertical velocity, whereby the material is continuously suspended in said current against gravity during the period of its treatment, automatically transported upward as it diminishes in weight, and the finished material selected from the unfinished material.

15. The process of treating material, which consists in introducing it into an aeriform current of gradually-decreasing vertical velocity, so that the material shall be suspended against gravity by the action of said current in the higher velocity of said current, automatically transported as it approaches the finished state to regions of progressively-diminishing velocity of the current, and the finished material carried off from the region of low veloci'

16. The process of drying material, which consists in introducing it into an upward spiral current of air, so that the material shall be suspended against gravity by the action of said current until dried, and the dried material automatically separated from the undried material.

17. The process of drying material, which consists in introducing it into an upward spiral current of air of gradually-decreasing velocity, so as to suspend the material against gravity by the action of said current until dried, and automatically to separate the dried from the undried material.

18. The process of drying material, which consists in introducing it into an upward current of air of gradually-decreasing vertical velocity, so as to suspend the material against gravity by the action of said current until dried, and automatically to separate the dried from the undried material.

19. The process of drying material, which consists in producing an upward rotary current of air, suspending the moist material in and by the action of said current, imparting heat to the material during its suspension, and discharging the dry material.

20. The process of drying material, which consists in introducing it into an upward current of heated air diminishing in velocity as it ascends so as to suspend the material against gravity by the action of said current until dried, and automatically to separate the dried from the undried material.

21. The process of drying material, which consists in suspending it in an upward spiral current of air in and by the action of said current, and imparting heat to the material during its suspension.

22. The process of drying material, which consists in suspending it in an upward spiral current of air of decreasing velocity in and by the action of said current, and imparting heat to the material during its suspension.

23. The process of drying material, which consists in suspending it in an upward spiral current of heated air in and by the action of said current, and imparting heat to the material during its suspension.

24. The process of drying material, which consists in producing an upward current of air, continuously suspending the moist material in and by the action of said current, and imparting heat to the material during its suspension, whereby the dry material is transported in said current.

748,895. RAILWAY-CAR. CORNELIUS VANDERBILT, New York, N. Y. Filed Feb. 20, 1903. Serial No. 144,204. (No model.)

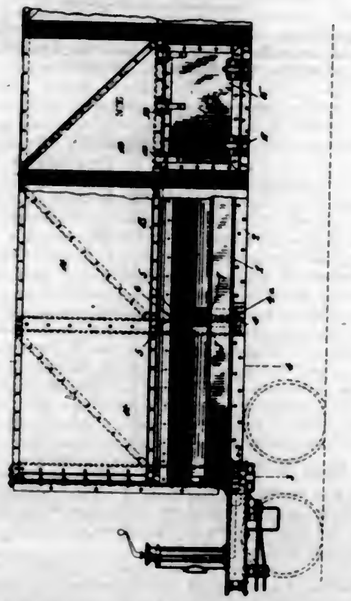
Claim.—1. In a car, a plate-girder side, and a door hinged to the tension member of said plate-girder, said tension member being situated intermediate the top and bottom of the car-body, substantially as described.

2. In a car, a plate-girder side, and a door hinged on a longitudinal axis and in its closed position depending from said plate-girder, substantially as described.

3. In a car, body-bolsters, posts secured to the ends thereof, and a side frame comprising longitudinal top, bottom and intermediate members secured to said posts, substantially as described.

4. In a car, body-bolsters, posts secured to the ends thereof, a side frame comprising longitudinal top, bottom and intermediate members secured to said posts, and a door hinged to said intermediate member on a longitudinal axis, and depending from said intermediate member, substantially as described.

5. In a car, body-bolsters, upright posts secured thereto, a rail secured to said posts intermediate their height, and a door hinged on a longitudinal axis and in its closed position depending therefrom, substantially as described.



6. In a car, transverse bolster-beams, upright posts secured to the ends thereof, an intermediate member secured to said posts, and a door hinged on, and in its closed position depending from, said intermediate member.

7. In a car, an arched floor-beam, a transverse beam secured to the ends thereof, and a center sill between and secured to said arched floor-beam and said transverse beam, substantially as described.

8. In a car, a center sill, a support secured thereto, and an arched floor-beam having its apex secured to said support, substantially as described.

9. In a metallic car-frame, a center sill, a support secured thereto, and an arched floor-beam having a depending flange and secured at its apex to said support, substantially as described.

10. In a car, a flanged center sill, a bolster-beam secured to the lower flange of said sill, said beam comprising a web, a continuous marginal flange and a center bearing depending from said flange, substantially as described.

11. In a car, a center sill, a bolster-beam secured thereto and comprising a web, a continuous marginal flange, a center bearing depending from said flange, and a vertical flange connecting the upper and lower portions of said marginal flange directly above said center bearing, substantially as described.

12. In a car, a center sill, a support secured thereto, and parallel arched floor-beams secured to opposite faces of said support, substantially as described.

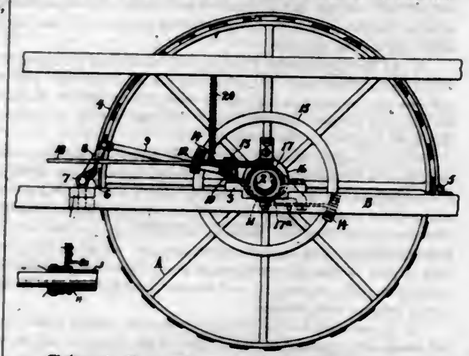
13. In a car, a transverse beam, a longitudinal side sill in the same horizontal plane as said beam, a floor-plate having its outer edge bent down parallel to said sill, an upright post, and means for securing said post, floor-plate and sill to the end of said transverse beam, substantially as described.

14. In a car, a body-bolster, a side sill, a floor-plate having its outer edge bent down parallel to said sill, an upright post, and means for securing said post, floor-plate and sill to the end of said body-bolster, substantially as described.

15. In a car, transverse trusses below the floor-level and longitudinal side trusses above the floor-level, the vertical members of the side trusses extending below said side trusses, and being secured to the ends of said transverse trusses, substantially as described.

16. In a car, a longitudinal, upright, plate-girder side comprising a compression and a laterally-flanged tension member situated entirely above the floor-level, and vertical posts which depend below the said tension member, substantially as described.

748,896. VEHICLE-BRAKE. WILLIAM U. WADSWORTH, Sutter City, Cal. Filed July 1, 1903. Serial No. 163,873. (No model.)



Claim.—1. The combination with a wheel of a band-brake therefor having one end hinged, a rocker-arm with which the other end is connected, a frictional rim secured flatwise against the wheel, a shoe loosely mounted on the axis of the wheel and adapted to contact with said rim and to travel with the wheel when the two are in engagement and mechanism intermediate of the shoe and the rocker-arm whereby when the shoe is pressed against the rim it is carried forward therewith so as to turn the rocker-arm and force the band against the wheel.

2. The wheel, a surrounding band-brake having one end pivoted, a rocker-arm with which the other end is connected, a power-lever also connected with the rocker-arm, a circular rim carried by the main wheel, a loose sleeve slidable with relation to the hub of the wheel, means for moving said sleeve to or from the wheel, a fulcrumed lever having one end connected with the sleeve and a shoe carried by the other end and capable of being forced into contact with the rim when the sleeve is moved outwardly, a second sleeve concentric with the first-named sleeve, and a link connecting the second sleeve with the lever of the rocker-arm whereby the revolution of the main wheel acts to apply the brake.

3. A main bearing-wheel, a band-brake substantially conforming to the upper portion of the wheel, having one end fulcrumed, a rocker-arm with which the other end is connected, a lever carried by the rocker-shaft, a circular frictional rim carried by the main wheel concentric with the axis thereof, a shoe and a lever to one end of which the shoe is fixed, a sliding sleeve connected with the shoe-lever and actuating the same to bring the shoe in contact with the frictional rim, and mechanism intermediate of said lever and the rocker-arm lever whereby the pressure of the shoe against the frictional rim transmits the revolving power of the main wheel to apply the brake thereto.

4. A wheel, a band-brake adapted to press thereon, a rocker-arm to which one end of the brake is connected and a lever turnable in unison with the rocker-arm, a sleeve fitting the wheel-hub having a projecting arm, a lever fulcrumed upon said arm having a shoe upon its outer end, a rim carried by the wheel in the line of movement of the shoe, a second sleeve having lugs slidable in grooves of the first sleeve and connections with the inner end of the shoe-carrying lever, a ring loosely fitting the channel in the second sleeve, and a lever connected with said ring whereby the shoe-carrying lever may be turned about its fulcrum, and the shoe pressed against the rim so that the first-named sleeve is caused to turn in unison with the wheel and a link connecting said sleeve with the lever of the rocker-shaft whereby the latter is turned and the brake applied.

748,897. HYDROCARBON-BURNER. JAMES A. WALKLEY, Los Angeles, Cal., assignor to Charles A. Hammel, Los Angeles, Cal. Filed July 30, 1902. Serial No. 117,715. (No model.)



Claim.—1. An atomizer having a cavity at its outlet end provided with two oppositely forwardly diverging walls and two oppo

site forwardly-converging walls; a tube for supplying liquid to said cavity; said atomizer having a pair of curved passages converging toward their outlets, and terminating rearwardly of the end of said tube for conducting jets or streams of fluid to break up the liquid which issues from the tube.

2. An atomizer having a cavity at its outlet end, an adjustable oil-tube projecting into the cavity, said atomizer having a pair of opposite curved passages converging toward the outlet of the tube for applying diversely-directed jets or streams of fluid to vaporize the liquid supplied to the cavity.

3. An atomizer having a cavity at its outlet end, provided with two opposite forwardly-converging walls, and two opposite forwardly-diverging walls; an internal chamber, means for supplying an expansive fluid to said chamber, forwardly-converging opposite curved passages leading from the chamber, and opening into said cavity; passages leading from said chamber into said cavity at the inner ends of said forwardly-converging walls and directed toward said converging walls respectively, and means for supplying liquid to the cavity between said passages.

4. An atomizer, having an internal chamber, and an outlet-cavity, means for supplying expansive fluid to the chamber, said atomizer having a pair of curved passages which converge and a pair of straight passages communicating between the chamber and the outlet-cavity to admit expansive fluid from one to the other, and means for supplying liquid to the outlet-cavity where the same will be acted upon by the fluid passing from the internal chamber.

5. An atomizer comprising two members, joined together and hollowed on their joining faces to form an internal chamber, an outlet-cavity and a passage communicating between said chamber and cavity, the walls of said passage being in the arcs of a circle, a post arranged in said passage and having curved faces concentric with said arcs and being transversely perforated; a tube in said perforation, passages being provided above and below the tube leading from said chamber into said cavity, means for supplying an expansive fluid to said chamber, and means for supplying oil to said tube.

6. Two members joined together and having between them a chamber and an outlet-cavity and a passage leading from the chamber to the outlet-cavity, and each provided with a screw-threaded channel, one of said members being provided with an inlet communicating with said chamber and the other with an inlet communicating with the screw-threaded channel; a post seated in said passage; and a member tubular at one end and mounted in, and opening through the post and screw-threaded at the other end, and there seated in the screw-threaded channel, and provided with a lateral opening leading from said channel into the tube.

7. An atomizer formed of two members fitted together and having a chamber and an outlet-cavity between them, means for supplying an expansive fluid to the chamber, an adjustable tube closed at one end and opening at the other end into the outlet-cavity, and means for supplying liquid to said adjustable tube.

8. An atomizer formed of two members fitted together and having an outlet-cavity, and a circular chamber between them, two opposite walls of which converge toward the outlet, and two diverge toward the outlet, a tube extending diametrically through said chamber for supplying liquid to the said cavity and adjustable toward and from the outlet thereof, and passages for directing an expansive fluid forwardly past the open end of said tube, means for supplying liquid to the tube, and means for supplying an expansive fluid to said passages.

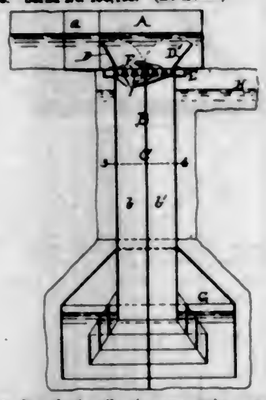
9. An atomizer having removable flat, bowed wearing-plates forming the walls of its outlet.

10. An atomizer comprising two members fastened together and having between them a chamber, passages and outlet for the material to be atomized, means for supplying liquid through one of said members, means for supplying a fluid though the other member, a tube screwed between the members to conduct liquid from one of the members to the space between them, a perforated perpendicular post between the two members and supporting the open end of said tube.

11. An atomizer comprising two members fastened together and having between them a chamber, passages and outlet for the material to be atomized, means for supplying liquid through one of such members, means for supplying a fluid through the other member, a tube screwed between the members to conduct liquid from one of the members to the space between them, and a support between the members for the open end of said tube.

12. An atomizer having an outlet-cavity two of the walls of which diverge from each other toward the outlet, and two converge toward the outlet; a tube for supplying liquid to the outlet-cavity and two pairs of opposite passages for directing jets or streams of expansive fluid past the end of the tube and onto the converging walls of the outlet-cavity, one pair of passages being curved to converge toward their outlets, the other pair of passages being parallel.

748,898. **HYDRAULIC AIR-COMPRESSOR.** WILLIAM O. WEBBER, Boston, Mass., assignor to Walter C. Carr, New York, N. Y. Filed Jan. 8, 1903. Serial No. 138,196. (No model.)

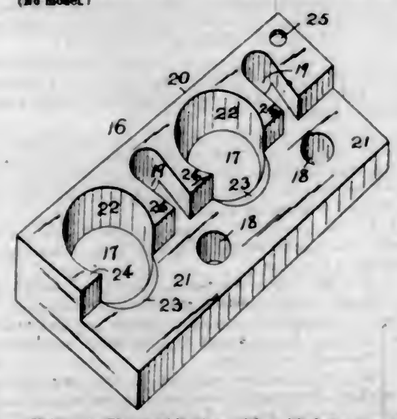


Claim.—1. In a hydraulic air-compressing apparatus, a downflow-pipe consisting of a plurality of vertical passages, operatively connected to a head-tank above, and to a separating-chamber below, provided with means for shutting off one or more of said passages substantially as specified.

2. In a hydraulic air-compressing apparatus, a downflow-pipe consisting of a plurality of vertical passages, disposed in parallel, and operatively connecting to a head-tank above, and to a separating-chamber below, provided with means for shutting off one or more of said passages, substantially as specified.

3. In a hydraulic air-compressing apparatus, a downflow-pipe consisting of a plurality of vertical passages operatively connected to a head-tank above, and to a separating-chamber below, and provided with means for regulating the amount of water admitted into each of said vertical passages, substantially as specified.

748,899. **HOT-WATER HEATER FOR KITCHEN-RANGES.** PAUL H. WEBBER, Newark, N. J. Filed May 26, 1903. Serial No. 159,570. (No model.)



Claim.—1. The combination, with a kitchen-range, of a hot-water heater arranged in said range, comprising, a hollow casting having two parts 20 and 21, one of which is higher than the other, said casting being provided with fire-holes, and said higher part 20 being provided with heat-retaining pockets, substantially as and for the purposes set forth.

2. The combination, with a kitchen-range, of a hot-water heater arranged in said range, comprising, a hollow casting having two parts 20 and 21, one of which is higher than the other, said casting

being provided with fire-holes, and said higher part 20 being provided with heat-retaining pockets, and a system of piping connected with said hollow casting for producing a circulation of hot water from said hollow casting through the piping and back to said hollow casting, substantially as and for the purposes set forth.

3. The combination, with a kitchen-range, comprising, a roasting and baking chamber and a flue portion surrounding said chamber, of a hot-water heater arranged in the fire-chamber of said range, comprising, a hollow casting, said casting having two parts 20 and 21, one of which is higher than the other, said casting being provided with fire-holes, and said higher part 20 being provided with heat-retaining pockets, and a means of communication between said fire-holes and the flue portion of the range, substantially as and for the purposes set forth.

4. The combination, with a kitchen-range, comprising, a roasting and-baking chamber and a flue portion surrounding said chamber, of a hot-water heater arranged in the fire-chamber of said range, comprising, a hollow casting, said casting having two parts 20 and 21, one of which is higher than the other, said casting being provided with fire-holes, and said higher part 20 being provided with heat-retaining pockets, a means of communication between said fire-holes and the flue portion of the range, and a system of piping connected with said hollow casting for producing a circulation of hot water from said hollow casting through the piping and back to said hollow casting, substantially as and for the purposes set forth.

5. The herein-described hot-water heater for a kitchen-range or other small stove, comprising, a hollow casting having a water inlet and an outlet, a raised portion 20 and a lower portion 21, and said casting being provided with fire-holes, and said higher part 20 being provided with heat-retaining pockets, substantially as and for the purposes set forth.

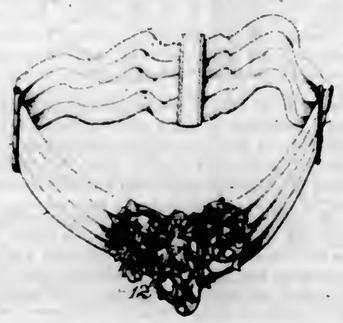
6. The herein-described hot-water heater for a kitchen-range or other small stove, comprising, a hollow casting having a water inlet and an outlet, a raised portion 20 and lower portion 21, and said casting being provided with fire-holes having tapered portions 22 and 23, and said higher part 20 being provided with heat-retaining pockets, substantially as and for the purposes set forth.

7. The herein-described hot-water heater for kitchen-ranges or other small stoves, comprising, a hollow casting having a water inlet and an outlet, a raised portion 20 and a lower portion 21, said casting being provided with fire-holes 17 and with draft-holes, and said higher part 20 being provided with heat-retaining pockets, substantially as and for the purposes set forth.

8. The herein-described hot-water heater for a kitchen-range or other small stove, comprising, a hollow casting having a water inlet and an outlet, a raised portion 20 and lower portion 21, said casting being provided with fire-holes 17 and with draft-holes 18 and 19, and raised parts 24 surrounding portions of said holes 19 and forming channels from said holes 19 to said lower portion 21, substantially as and for the purposes set forth.

9. The herein-described hot-water heater for a kitchen-range or other small stove, comprising, a hollow casting having a water inlet and an outlet, a raised portion 20 and a lower portion 21, said casting being provided with fire-holes 17 having tapered portions 22 and 23, and said casting being also provided with draft-holes 18 and 19, and raised parts 24 surrounding portions of said holes 19 and forming channels from said holes 19 to said lower portion 21, substantially as and for the purposes set forth.

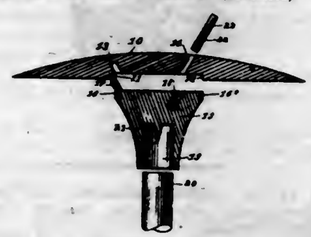
748,900. **BELT.** LUDWIG WERTHEIM, New York, N. Y., assignor to A. Steinhardt & Brother, New York, N. Y., a Corporation of New York. Filed Aug. 24, 1903. Serial No. 170,529. (No model.)



Claim.—1. The herein-described belt attachment comprising opposed curved plates made of springy material, each plate having at one end an offset-clip to receive a belt and permit the inside of the plate to lie flat against the wearer, a pair of engaging clasp members, and a connection between the clasp members and plates consisting of the elongated staple on the clasp-backs and the knuckles on the plates which permits the clasp members to be adjusted vertically in relation to the plates.

2. The herein-described belt attachment comprising curved plates of springy material, each having at one end and on the outer side an offset-clip to receive the belt, engaging clasp members, and a sliding connection between the clasp members and the spring-plate by which the clasp members may be adjusted vertically in relation to the plates.

748,901. **MINING-PICK.** GEORGE T. WHITE, Colfax, Iowa. Filed Apr. 14, 1903. Serial No. 153,262. (No model.)



Claim.—In a mining-pick the combination of a pick-head 10 containing, in its under surface, a depression having right-angular sides 11 and 12, an inclined slot 13, extending upwardly and outwardly from its under surface, an inclined channel 14 extending from the upper to the lower surfaces and inclined reversely to the plane of slot 13; a socket 15, having two flattened sides 16 and 16a, an outwardly-inclined shank 17 extending upwardly from its top surface, an internally-screw-threaded opening 18 extending downwardly from the top surface on a plane inclined reversely to the plane of the shank 17, an opening 19 extending upwardly from the under surface; a wedge 21 located centrally in the top surface of the opening 19 and extending downwardly therefrom; a set-screw, all arranged and combined for the purposes stated.

748,902. **BAG-CLOSURE.** GODFREY WINKLER, Sardis, Ohio. Filed July 24, 1903. Serial No. 166,857. (No model.)



Claim.—1. A bag-fastener comprising a plurality of members hinged one to the other, cooperating coupling-plates each fastened to one member and disposed to overlap a hinge-joint and an adjacent member in the collapsed condition of the members, and a clamp for rigidly coupling said plates.

2. A bag-closure consisting of a collapsible frame having hinged members, companion plates fastened to certain of the members, and a coupling-screw mounted in one of said plates and having threaded engagement with the other plate.

3. A bag-closure consisting of a series of members hinged one to the other and forming a collapsible frame, channeled clamping-plates fastened to certain members of the frame in positions to overlap other members of the frame, and a coupling-screw mounted in one of said plates and adapted to have threaded engagement with the other plate.

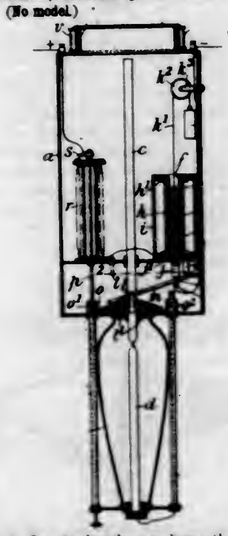
748,903. **CAR-SEAT.** HUBERT WITTE, St. Louis, Mo., assignor to St. Louis Car Company, St. Louis, Mo. Filed Sept. 14, 1903. Serial No. 173,077. (No model.)

Claim.—In a car-seat, the combination of a frame having a curved slot, a cushion, supports for said cushion, a rock-shaft journaled in said frame, a foot-rest rigidly secured to said rock-shaft, a lever having its lower end rigidly secured to said rock-shaft and

having a pin intermediate of its ends for engagement in said curved slot, a reversible back pivoted to the upper end of said lever, a link pivoted to the frame and having slot-and-pin connection with the lower end of the reversible back, and a link having slot-and-pin connection with said lever and said cushion-supports for shifting the cushion when the back is reversed.



748,904. ELECTRIC-ARC LAMP. LOUIS WIRTZ and THOMAS HAMILTON-ADAMS, London, England. Filed Feb. 4, 1903. Serial No. 141,887. (No model.)



Claim.—1. In an electric-arm lamp, the combination with a holding device for engaging the movable carbon thereof, of a solenoid having two separated half-bobbins mounted on a tube of non-magnetic material so as to leave an annular space between their adjacent ends, a coil surrounding said bobbins and insulated therefrom, an iron jacket surrounding said coil, a core within said solenoid having a portion thereof bored out to reduce the effect of the solenoid thereon and connections between said core and the carbon-holding device, substantially as described.

2. In an electric-arc lamp, the combination with a holding device for engaging the movable carbon thereof, of a solenoid having two separated half-bobbins mounted on a tube of non-magnetic material, a coil surrounding said bobbin and insulated therefrom, a jacket of magnetic material surrounding said coil, a core within said solenoid and connections between said core and the carbon-holding device, substantially as described.

3. In an electric-arc lamp, the combination with a holding device for the movable carbon, of a solenoid having two separated half-bobbins mounted on a tube of non-magnetic material so as to leave an annular space between them, a coil surrounding said bobbins and insulated therefrom, an iron jacket surrounding said coil, a core within said solenoid having a portion thereof bored out to reduce the effect of the solenoid thereon, a counterbalance connected with said core and connections between said core and the carbon-holder, substantially as described.

4. In an electric-arc lamp, the combination with a vertically-movable frame, of a pair of pivoted gravity-pawls mounted therein for holding the movable carbon, a solenoid located at one side of the movable carbon, a movable core located therein, a friction-roller secured to said core, a lever pivoted to the lamp-casing and to said movable frame, and engaging said friction-roller, and a counterbalance connected with said core, substantially as described.

5. In an electric-arc lamp, the combination with a vertically-movable frame, of a pair of pivoted gravity-pawls mounted therein for holding the movable carbon, a solenoid located at one side of the movable carbon, a movable core located therein, a lever pivoted to the lamp-casing and to said frame, said core having a part provided with a friction-roller engaging said lever, a counterbalance-weight, a flexible connection between said weight and said core and a stationary roller engaging said flexible connection, substantially as described.

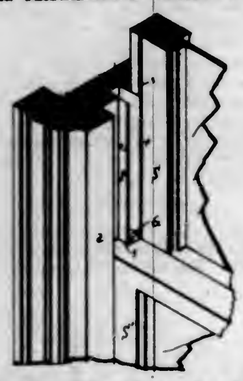
6. In an electric-arc lamp, the combination with a vertically-movable frame, of a pair of pivoted gravity-pawls mounted therein for holding the movable carbon, a solenoid located at one side of the movable carbon, a movable core located therein, a lever connected to said frame and having a connection with the said core, a vertically-adjustable stop-frame, adapted to engage said pawls, to raise them in respect to their supporting-frame, and a rod extending outside of the lamp-casing, having a threaded portion engaging said stop-frame for adjusting the same, substantially as described.

7. In an electric-arc lamp mechanism for raising the movable carbon, comprising a vertically-movable frame, a pair of gravity-catches for engaging the movable carbon, a stop for engaging said catches to cause them to release the carbon, a rheostat within the lamp-casing, an adjusting device for said stop, and a connection between said adjusting device and said rheostat for operating the same simultaneously with the adjustment of said stop, substantially as described.

8. In an electric-arc lamp, the combination with the casing, and closed globe communicating therewith, a sliding piston having a face in communication with the interior of said chamber and springs connected with said piston, substantially as described.

9. In an arc-lamp, the combination with the casing provided with an aperture and a cylindrical part surrounding said aperture, of a sliding cap fitting over said cylindrical part, springs connecting said cap with said casing and a globe communicating with said casing, substantially as described.

748,905. WINDOW PARTING-STRIP. CHARLES W. WRIGHT, Cleveland, Ohio. Filed Aug. 20 1903. Serial No. 170,201. (No model.)



Claim.—1. An integral resilient metallic parting-strip formed continuous throughout its length and adapted to snugly fit and be self-sustaining in a groove in the pulley-piece of a window-frame, said strip having free resiliency from its point of contact with the window-sash to the bottom of the groove substantially as and for the purpose set forth.

2. In combination with a window-frame, its pulley-piece and groove therein, of a parting-strip continuous or integral throughout adapted to fit the groove so as to be self-sustaining, and so as to give it free resiliency, said parting-strip formed approximately U-shaped in cross-section, and contacting with the opposed stiles of the sash at its outer ends, substantially as and for the purpose set forth.

748,906. TRANSMITTER. ERNEST R. YAXLEY, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation. Filed Apr. 13, 1901. Serial No. 55,760. (No model.)



Claim.—1. In a transmitter the combination of a plate, a diaphragm, a felt ring between the said plate and diaphragm, a cup-shaped back electrode secured to said plate, a perforated disk secured at its edge upon the perimeter of said electrode, and a suitable quantity of granular carbon inclosed between the diaphragm and electrode at each side of said disk.

2. A transmitter comprising a front electrode, a cup-shaped back electrode, a perforated metal disk secured at its edge to the annular edge of said back electrode, and granular carbon inclosed between the two electrodes at each side of said disk.

3. A transmitter comprising a front electrode, a cup-shaped back electrode having its face formed with concentric grooves, a thin perforated sheet-metal disk secured at its edge to the circular edge of said back electrode, and granular carbon inclosed between the two electrodes at each side of the said disk.

4. In a transmitter, the combination with a diaphragm, having carbon granules secured to the inner surface thereof and forming one electrode of the transmitter, of another electrode, and granular carbon between said electrodes.

5. In a transmitter, the combination with a diaphragm forming one electrode of the transmitter, or another electrode, and granular carbon between said electrodes, some of said carbon being secured to the surface of the diaphragm.

6. In a transmitter, the combination with a diaphragm forming an electrode of the instrument and having a layer of granular carbon secured to its inner surface, of another electrode, and granular carbon between said electrodes.

7. In a transmitter, the combination with a diaphragm forming one electrode of the transmitter, of a layer of granular carbon cemented to the inner surface of said diaphragm, another electrode of the transmitter, and granular carbon between said electrodes and in contact with the layer.

8. In a transmitter, the combination with a diaphragm having granules of carbon fixed to its inner surface, of another electrode having substantially rectangular grooves therein, and granular carbon therebetween.

9. In a transmitter, the combination with a diaphragm forming the movable electrode of the instrument and having a layer of carbon firmly secured to its inner surface, of a stationary electrode having concentric substantially rectangular grooves therein and granular carbon between said electrodes.

10. In a transmitter, the combination with a diaphragm forming the movable electrode of the instrument and having a layer of carbon firmly secured to its inner surface by cement of high conductivity, of a stationary electrode having substantially rectangular grooves therein and granular carbon between said electrodes.

11. In a transmitter, the combination with a diaphragm having a layer of carbon granules secured to its inner surface, of another electrode, a perforated plate between said electrodes, and granular carbon between said electrodes and on both sides of said plate.

12. In a transmitter, the combination with a diaphragm having a layer of carbon granules secured to its inner face by cement of high conductivity, a stationary electrode having concentric grooves therein substantially rectangular in cross-section, a perforated disk between said diaphragm and electrode, and granular carbon on both sides of said disk and between the layer on the diaphragm and the grooved surface of the stationary electrode.

13. In a transmitter, the combination with a diaphragm, of a stationary electrode having concentric grooves therein substantially rectangular in cross-section, a perforated disk secured at its edge to the perimeter of said electrode, but separated from the grooved surface, a flange at the sides of said electrode, a strip of felt or similar substance between said flange and diaphragm, and granular carbon confined by said felt between said diaphragm and electrode and on both sides of the perforated disk.

14. In a transmitter, the combination with the back casing of the transmitter, of a sleeve thereon, an insulating-bushing therein, an electrode, and an adjusting-screw therefor passing through the said insulating-bushing, the said sleeve, bushing and screw having an aperture therethrough, and an insulating-pin driven into said aperture.

15. In a transmitter, the combination with the back casing of the transmitter, of a sleeve thereon, an insulating-bushing therein, an electrode, and an adjusting-screw therefor passing through the said insulating-bushing, the said sleeve, bushing and screw having an aperture therethrough, and an insulating-pin driven into said aperture, the projecting end of said screw being tapered to prevent readily grasping the same.

16. In a transmitter, the combination with an electrode of the instrument having carbon granules secured to the inner surface thereof, of another electrode, and granular carbon between said electrodes.

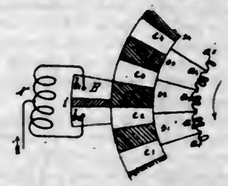
17. In a transmitter, the combination with an electrode of the instrument, of another electrode, and granular carbon between said electrodes, some of said carbon being secured to the surface of one of said electrodes.

18. In a transmitter, the combination with two electrodes, of the instrument, a layer of granular carbon secured to one electrode, and a mass of granular carbon therebetween.

19. In a transmitter, the combination of opposing electrodes, one of said electrodes having a layer of granular carbon secured thereto.

20. In a transmitter, the combination with opposing electrodes, of a layer of granular carbon connected to one of said electrodes and a mass of granular carbon therebetween.

748,907. ELECTRIC DYNAMO OR MOTOR WITH ALTERNATING FIELD. RUDOLF EICHBERG, Schöneberg, near Berlin, Germany. Filed Apr. 26, 1902. Serial No. 154,361. (No model.)



Claim.—1. In an alternating-field electric machine, the combination with the field-magnets, an armature comprising coils and a commutator having its segments connected to and common to successive coils, a double brush cooperating with said segments and having its two parts electrically connected and means interposed in said electric connection for producing an electromotive force equivalent to and differing in phase by one hundred and eighty degrees from the electromotive force generated in the short-circuited coil by transformer action so that the said electromotive forces balance each other in the said coil.

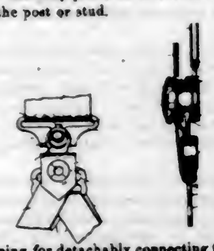
2. In an alternating-field electric machine, the combination with the field-magnets, an armature comprising coils and a commutator having its segments connected to and common to successive coils, of a commutator-brush comprising two insulated segments adapted to have contact severally with successive contact-segments of the commutator, a coil connecting said brush-segments and means for inducing in said coil an electromotive force equivalent to and differing in phase by one hundred and eighty degrees from the electromotive force generated in the short-circuited coil by transformer action so that the said electromotive forces balance each other in the said coil.

3. In an alternating-field electric machine, the combination with the field-magnets, an armature comprising coils and a commutator having its segments connected to and common to successive coils, of a commutator-brush comprising two insulated segments adapted to have contact severally with successive contact-segments of the commutator, a coil connecting said brush-segments, and connected intermediately of its ends to the load-current lead, and means for inducing in said coil an electromotive force equivalent to and differing in phase by one hundred and eighty degrees from the electromotive force generated in the short-circuited coil by transformer action so that the said electromotive forces balance each other in the said coil.

748,908. CAST-OFF. ALFRED M. ZIEGLER, Boston, Mass. Filed Feb. 8, 1903. Serial No. 93,160. (No model.)

Claim.—1. A slotted metallic loop-plate having a post or stud, a flexible cast-off having a socket, and a safety device coacting with

a rigid part of the loop-plate, to relieve the strain of the cast-off and socket on the post or stud.



2. A fastening for detachably connecting two parts, one of said parts being provided with a post or stud, and the other part with a socket to engage said post or stud, combined with a safety device secured to the part carrying the socket and adapted to engage the post or stud of the fastening between the socket and the part carrying the post or stud.

3. A loop-plate having a post or stud, a flexible strap having a socket for engagement with the post or stud, means with which said flexible strap is connected, and a safety device also connected to the means carrying the flexible strap and engaging the post or stud behind the part thereof engaged by the socket.

4. A plate provided with a post or stud, a part to be sustained by said plate, a cast-off secured to said part and having a socket to engage said post or stud, and a safety device also secured to said part and detachably connected to the said plate, the socket of the cast-off engaging the post or stud outside of the safety device to prevent disengagement of the safety device from said plate.

5. A plate having a post or stud, a sustaining-plate detachably hung on said post or stud and a piece of flexible material connected with said sustaining-plate below the point of attachment of the sustaining-plate with the stud or post, said piece of flexible material being provided with a socket to engage said post or stud and maintain said sustaining-plate thereon.

6. A slotted plate having a post, a sustaining-plate having a hole engaging said post, flexible material connected with said sustaining-plate below the hole therein engaging said post, and provided with a socket embracing the outer end of said post.

7. A plate having a post provided with a ball-shaped head, a socket, means carrying said socket, a sustaining-plate hung on said post, and a suspender-end piece carried by said sustaining-plate, said socket engaging the ball-shaped head outside the sustaining-plate and retaining the plate on said post.

8. A slotted plate having a post, a sustaining-plate embracing said post and provided with a projection entering said slot, and means carried by said sustaining-plate and engaging the outer end of said post after the sustaining-plate has been applied thereto to retain the sustaining-plate on the post.

9. A slotted plate having a post, a second plate having a flexible strap suitably connected at one end to said second plate, and also provided with means for detachably securing the second plate to the slotted plate, said flexible connection having a socket at its free end to engage the said post and retain the plates in engagement.

10. A plate adapted to be sustained by a strap, said plate having one member of a ball-and-socket fastening, and a slotted plate adapted to sustain two flexible end pieces, combined with a flexible strap provided at its free end with the other member of the ball-and-socket fastening, said slotted plate having an auxiliary holding device to engage the first-named plate.

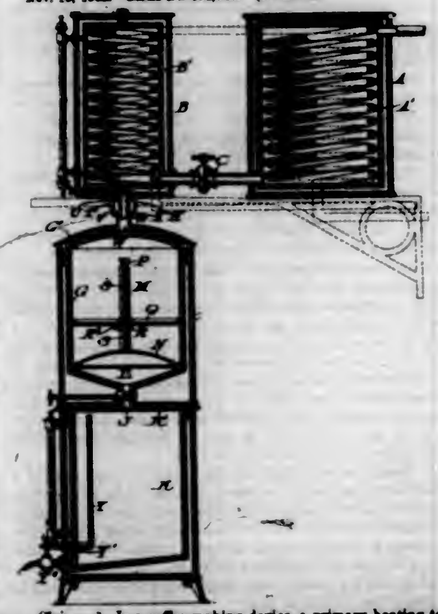
11. In a suspender, a plate having a post or stud, a metallic safety device comprising a projection to engage the said plate, a flexible piece secured to the metallic safety device and provided with a socket to engage said post or stud to maintain the projection of the safety device in engagement with the plate.

748,909. CAR-DOOR. ARMIS G. ARMIAD, Washington, D. C. Filed May 21, 1903. Serial No. 158,123. (No model.)

Claim.—In a door-lock, a partition J, having a recess J', a metallic casing seated in the lower part of the recess, a smaller recess formed in the meeting edge of the partition and forming a part of the larger recess J' the metallic casing having one of its ends terminating in an inclined tubular depository, the tubular depository in turn at its lower portion terminating in a lateral extension in which are contained the locking mechanism consisting of a push-rod l^3, projected through a perforation in the end of said extension, a pin m', secured to the inner end of the push-rod, a dog M having a slot m, in its enlarged portion in which the pin m' engages, a coiled spring encircling the push-rod, a partition dividing the dog from the coiled spring upon the push-rod, and through which the latter is also projected and against which the coiled spring bears for operating the dog, a coin-receptacle formed integral with the inclined tubular depository and lateral extension, a coin-lever pivotally secured to the metallic casing having one of its ends provided with a coin-opening, the housing K, secured to the wing of the door and partly projected within the small recess formed in the meeting edge of the partition J, a short bar k, pointed at each end and pivotally secured in the housing K, weight K' and counterpoise-weight K^2 suspended from the ends of the short bar, whereby when the coin-controlled lever is operated by the coin the weight K' is forced upwardly in the housing and unlocks the door, substantially as herein described.



748,910. COFFEE-URN. FINLEY ACKER, Philadelphia, Pa. Filed Nov. 18, 1902. Serial No. 131,942. (No model.)



Claim.—1. In a coffee-making device, a primary heating-tank, a water-measuring tank and a coffee-making vessel detachably connected with said measuring-tank.

2. In a coffee-making device, an urn, a coffee-making vessel mounted on said urn, a water-tank on said vessel, detachable liquid-conveying connections between said urn and said vessel and between said vessel and said tank and valves controlling the flow of liquid through both said connections.

3. In a coffee-urn, a receptacle for ground coffee, an urn proper for fluid, and a communicating valved pipe for said parts, said pipe freely entering the lid of said urn proper.

4. In a coffee-urn, a water-receiving vessel, a receptacle for ground coffee, an urn proper for fluid coffee, a communicating pipe for said vessel and receptacle, a communicating pipe for said receptacle and urn proper, said pipes being respectively formed of detachable parts and valves in said communicating pipes.

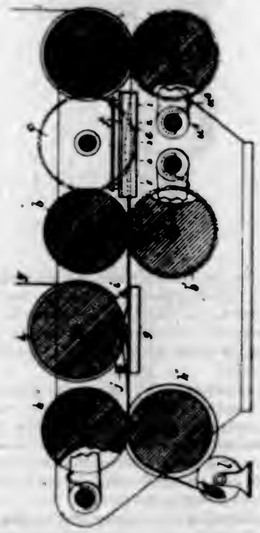
5. In a coffee-urn, a coffee-urn proper, an air-vent therefor and a discharge cock or valve for said urn proper, said cock or valve being adapted to close and open said vent.

6. In a coffee-urn, a coffee-urn proper, an air-vent therefor, and a discharge cock or valve, the inlet end of said vent being adjacent to the head of said cock or valve, said head having a segmental surface adapted to engage with said end to close said vent and to be removed therefrom to open the same.

7. In a coffee-urn, a removable coffee-making vessel having a lid thereon and a vertical opening in said lid, a stationary tank above the same, a collar depending from said tank and communicating therewith and a vertically-movable sleeve partly occupying said collar and having its lower end adapted to enter the opening in said lid and means on said collar and sleeve for holding said sleeve elevated outside of said opening and clear of said lid.

8. In a coffee-urn, a removable coffee-making vessel having a lid thereon and a vertical opening in said lid, a stationary tank above the same, a collar depending from said tank and communicating therewith, a vertically-movable sleeve partly occupying said collar and having its lower end adapted to enter the opening in said lid, means on said collar and sleeve for holding said sleeve elevated outside of said opening and clear of said lid and a valve intermediate of said tank and collar.

748,911. MACHINE FOR COVERING FLAT WIRE. JAMES C. ANDERSON, Jersey City, N. J., assignor to Varley Duplex Magnet Company, a Corporation of New Jersey. Filed Apr. 30, 1903. Serial No. 154,921. (No model.)



Claim.—1. In a machine for covering or insulating flat wire, the combination of means for folding the lateral edges of a strip into a closed envelop, means for opening the envelop longitudinally, means for inserting the wire in the open envelop and means for thereafter closing the envelop, substantially as described.

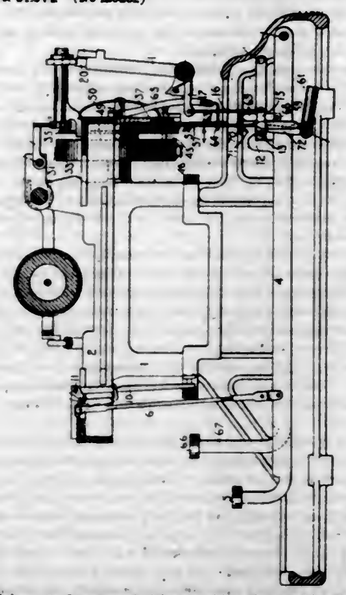
2. In a machine for covering or insulating wire, the combination of means for folding the lateral edges of a strip of covering material and means for thereafter inserting a wire beneath the folds of the strip, substantially as described.

3. In a machine for covering or insulating flat wire, the combination of a folding-die adapted to fold the lateral edges of a strip of covering material, a device for opening said folds and means for inserting the wire beneath the open folds and again closing the folds.

4. In a machine for covering or insulating flat wire, the combination of means for longitudinally scoring the strip of covering material, a die adapted to fold the strip along the scored lines, triangular blocks adapted to pass under and between the folds to open them, a guide adapted to direct the wire beneath the open folds and means for finally folding the strip upon the wire.

5. In a machine for covering or insulating flat wire, the combination of a pair of rolls, one of which is provided with ridges adapted to longitudinally score the covering-strip, a die adapted to fold the strip along the scored lines, another pair of rolls adapted to press the folded strip and means for opening the folds and inserting the wire in the strip, substantially as described.

748,912. TYPE-WRITING MACHINE. WALTER J. BARRON, Brooklyn, N. Y., assignor to Densmore Typewriter Company, Syracuse, N. Y., a Corporation of New York. Filed Nov. 12, 1901. Serial No. 81,974. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected thereto, and line-locking mechanism, including a trip-carrying wheel and a catch for releasably connecting said wheel to said drum.

2. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected thereto, and line-locking mechanism, including an adjustable trip-carrying wheel, a catch attached to the drum and engaging with said wheel, and a finger-piece for releasing said catch to permit the trip-carrying wheel to be adjusted in either direction.

3. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected thereto, and line-lock mechanism, including a ratchet-wheel, a line-lock trip mounted thereon, and a catch attached to the drum and releasably engaging with said ratchet-wheel.

4. In a type-writing machine, the combination of type-bars, key-levers therefor, a carriage, a spring-drum, a ratchet-wheel mounted to turn on the pivotal axis of the drum and independently of the drum, a catch releasably connecting said ratchet-wheel to said drum, a line-lock trip mounted on said ratchet-wheel, and means for preventing the operation of said key-levers and type-bars, including a rod having a projection adapted to be engaged by the trip on said ratchet-wheel.

5. In a type-writing machine, the combination of type-bars, key-levers therefor, a carriage, a spring-drum, a rotary line-lock trip, means for preventing the operation of said key-levers and type-bars, said means including a rod having a projection adapted to be engaged by said trip and adapted to move fore and aft of the machine,

a release-key lever, and means connected thereto and to said rod for moving the rod fore and aft of the machine and the projection on the rod into and out of the path of rotation of said trip.

6. In a type-writing machine, the combination of a carriage, a rotary trip operatively connected thereto, line-locking mechanism which is moved to the locking position by said rotary trip, a finger-key at the keyboard of the machine for releasing said line-locking mechanism from the locked position, an actuator controlled by said key, and a cam with which said actuator cooperates.

7. In a type-writing machine, the combination of a carriage, a rotary trip operatively connected thereto, line-locking mechanism which includes a hooked rod that is adapted to be engaged by said trip, a finger-key at the keyboard of the machine, a cam and actuator between said hooked rod and finger-key, to move the hook portion of the rod away from said trip and thus release the line-locking mechanism.

8. In a type-writing machine, the combination of a carriage, a rotary trip operatively connected thereto, line-locking mechanism which includes a spring-pressed hooked rod that is adapted to be engaged by said trip, a cam on said rod, a finger-key at the keyboard of the machine, and means connected to said key which cooperates with the cam on said rod to move the hook portion thereof away from said rotary trip to disconnect the rod from the trip and thus release the line-locking mechanism.

9. In a type-writing machine, the combination of a carriage, type-bars, key-levers therefor, a universal bar operated by said key-levers, a locking device which cooperates with said universal bar, an adjustable rotary trip, a spring-restored hook-carrying rod which cooperates therewith and which is operatively connected to said locking device, a key-lever, that extends to the front of the machine, and means attached to the key-lever and cooperating with means on the hooked rod for moving the rod against the tension of its spring for moving said hook-carrying rod away from the trip to release the locking device.

10. In a type-writing machine, the combination of a carriage, type-bars, key-levers therefor, a universal bar operated by said key-levers, a locking-arm which cooperates with said universal bar, an adjustable rotary trip, a spring-pressed hook-carrying rod which cooperates therewith and which is operatively connected to said locking-arm, a key-lever extending from the keyboard to the rear of the machine and carrying an actuator for moving said hook-carrying rod away from the trip to release the locking-arm from engagement with the universal bar, and a cam with which said actuator cooperates.

11. In a type-writing machine, the combination of a carriage, type-bars, key-levers therefor, a universal bar operatively connected to said key-levers, a rock-shaft, a locking-arm connected to said rock-shaft and adapted to cooperate with the universal bar, a weight for restoring the rock-shaft and the parts connected thereto to the normal position, an adjustable rotary trip, a spring-restored hook-carrying rod which cooperates therewith and which is operatively connected to said rock-shaft, and a key-lever, that extends to the keyboard of the machine and which is operatively connected to a swinging hook that engages the said rod and moves the hook portion thereof away from the trip to release the locking-arm from engagement with the universal bar.

12. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected to said carriage, and line-locking mechanism, said line-locking mechanism comprising a trip-carrying wheel and releasable means for effecting an interlocking engagement between and positively locking the wheel to rotate with said drum.

13. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected to said carriage and line-locking mechanism, said line-locking mechanism comprising a trip-carrying ratchet-wheel and a pawl for locking the wheel to rotate with said drum in one direction and for permitting the wheel to be rotated independently of the drum in the opposite direction.

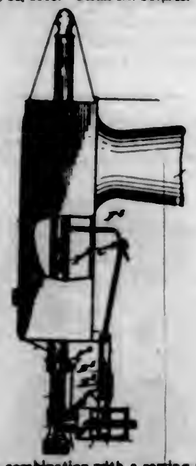
14. In a type-writing machine, the combination of a carriage, a rotatable drum operatively connected to said carriage and line-locking mechanism, said line-lock mechanism comprising a ratchet-wheel, a gravity-trip which is pivoted to said ratchet-wheel, and a pawl carried by said drum for locking the wheel to rotate with said drum in one direction and for permitting the wheel to be rotated independently of the drum in the opposite direction.

15. In a type-writing machine, the combination of a carriage a rotatable drum operatively connected to said carriage and line-locking mechanism, said line-lock mechanism comprising a ratchet-wheel, a gravity-trip which is pivoted to said ratchet-wheel, a spring-pressed pawl carried by said drum for locking the wheel to rotate with said drum in one direction and for permitting the wheel to be rotated independently of the drum in an opposite direction and a finger-piece connected to said pawl and by means of which the pawl can be disengaged from the ratchet-wheel to permit it to be rotated in either direction.

16. In a type-writing machine, the combination of a carriage, a rotatable spring-drum carried by the framing of the machine, a bell adjacent to the drum, a bell-hammer, a trip-carrying wheel adjacent to the drum, releasable means for positively locking said wheel to move with the drum, for permitting its adjustment to vary the position of the trip, which trip cooperates with the bell-hammer to sound the alarm, line-locking mechanism which is adapted to be engaged by the trip in the rotation of its wheel in one direction and which is undisturbed thereby when the wheel rotates in an opposite direction and means that extend to the front of the machine for releasing the line-locking mechanism.

17. In a type-writing machine, the combination of a carriage, a rotatable spring-drum carried by the framing of the machine, a bell adjacent to the drum, a bell-hammer, a trip-carrying ratchet-wheel adjacent to drum, a pawl carried by said drum and adapted to engage the teeth of the ratchet-wheel to lock said wheel to move with the drum in one direction and to permit a free movement of the wheel in an opposite direction to vary the position of the trip, which trip cooperates with the bell-hammer to sound the alarm, a line-locking hook which is adapted to be engaged by the trip in the rotation of its wheel in one direction and which is undisturbed thereby when the wheel rotates in an opposite direction, and line-locking mechanism controlled by said hook.

748,913. THREADING DEVICE. SUMNER B. BATTEY, New York, N. Y. Filed Mar. 11, 1903. Serial No. 147,948. (No model.)



Claim.—1. The combination with a sewing-machine having an eyed needle, of a threading device forming an attachment for the sewing-machine and controlled by a movable part thereof, the said device having means for pushing the thread through the eye of the needle at the time the needle-bar is moving in the last portion of its upstroke, as set forth.

2. A needle-threading device comprising a guideway, a spring-pressed plunger mounted to slide in the guideway, and having a removable point for engaging the thread and pushing it into the eye of the needle, the said guideway being provided with a mouth for receiving the thread, to bring the latter into the path of the said plunger-point, and spring-pressed clamping-arms on the said guideway, above the said mouth, as set forth.

3. A needle-threading device comprising a guideway, a spring-pressed plunger mounted to slide in the guideway, and having a removable point for engaging the thread and pushing it into the eye of the needle, the said guideway being provided with a mouth for receiving the thread, to bring the latter into the path of the said plunger-point, spring-pressed clamping-arms on the said guideway, above the said mouth, and a cross-arm extending across the mouth on the top thereof, adjacent to the said clamping-arms, as set forth.

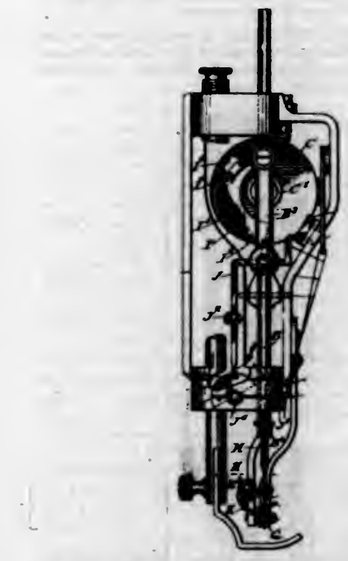
4. The combination with a sewing-machine, of a needle-threading device arranged for attachment to the sewing-machine and having a spring-pressed plunger for engaging the thread and pushing it through the needle-eye, and means controlled from a movable part of the sewing-machine, for moving the plunger in one direction at the time the needle-eye is in register with the plunger, as set forth.

5. The combination with a sewing-machine, of a needle-threading device arranged for attachment to the sewing-machine and having a spring-pressed plunger for engaging the thread and pushing it through the needle-eye, and means controlled from a movable part of the sewing-machine, for moving the plunger in one direction at the time the needle-eye is in register with the plunger, and then immediately releasing the said plunger, to allow its spring to immediately return the plunger, previous to the return or downward stroke of the sewing-needle, as set forth.

6. The combination with a sewing-machine, of a needle-threading device arranged for attachment to the sewing-machine, comprising a guideway having a flaring mouth, in vertical alinement with a guide on the needle-bar, a plunger slidable in the said guideway and having a plunger-point, adapted to engage the thread in the said mouth, a cross-head on the said plunger, a pin slidable in the said cross-head, a lever having a fork for engaging the said pin, and means on the needle-bar for actuating the said lever, as set forth.

7. The combination with a sewing-machine, of a needle-threading device arranged for attachment to the sewing-machine, comprising a guideway having a flaring mouth, in vertical alinement with a guide on the needle-bar, a plunger slidable in the said guideway and having a plunger-point, adapted to engage the thread in the said mouth, a cross-head on the said plunger, a pin slidable in the said cross-head, a lever having a fork for engaging the said pin, and means on the needle-bar for actuating the said lever, the said lever carrying an inclined wing, transversely adjustable on the lever, as set forth.

748,914. THREADING DEVICE FOR SEWING-MACHINES. SUMNER B. BATTEY, New York, N. Y. Filed June 1, 1903. Serial No. 159,481. (No model.)



Claim.—1. The combination with a sewing-machine, of a needle-threading device, and means for actuating the said needle-threading device on the breaking of the thread, as set forth.

2. The combination with a sewing-machine, of a needle-threading device, and means for operating the said needle-threading device, actuated by a movable part of the sewing-machine on the breaking of the sewing-thread, as set forth.

3. The combination with a sewing-machine, of a needle-threading device having a plunger, means for actuating the plunger from a movable part of the sewing-machine, and a controlling device actuated by the sewing-thread and controlling the said means, as set forth.

4. A needle-threading device comprising a plunger, for pushing the thread through the needle-eye, actuating means for actuating the said plunger, a movable part of the sewing-machine for operating the said actuating means, and manually-controlled means for throwing the said actuating means into gear, as set forth.

5. A needle-threading device comprising a plunger, for pushing the thread through the needle-eye, actuating means for actuating the said plunger, a movable part of the sewing-machine for operating the said actuating means, manually-controlled means for throwing the said actuating means into gear, and means for throwing the actuating means automatically out of gear after the needle is threaded, as set forth.

6. A sewing-machine provided with a needle-threading device having a plunger for pushing the thread through the needle-eye, and means for connection with a movable part of the sewing-machine, controlled by the sewing-thread, to actuate the plunger on the breaking of the sewing-thread at the time the needle moves into an uppermost position, as set forth.

7. The combination with a sewing-machine, of a needle-threading device, automatically actuated on the breaking of the thread, and a retaining device for engaging the thread after the latter is pushed through the needle-eye by the said threading device, as set forth.

8. The combination with a sewing-machine, of a needle-threading device, automatically actuated on the breaking of the thread, a retaining device for engaging the thread after the latter is pushed through the needle-eye by the said threading device, and means for actuating the said retaining device in unison with the said threading device, as set forth.

9. The combination with a sewing-machine, of a needle-threading device, automatically actuated on the breaking of the thread, and a retaining device for engaging the thread after the latter is pushed through the needle-eye by the said threading device, the said needle-threading device and the said retaining device being arranged on opposite sides of the needle, as set forth.

10. A needle-threading device forming a permanent fixture of a sewing-machine, comprising a plunger for pushing the thread through the needle-eye, a guideway for the thread, to bring the latter into the path of the plunger, the said guideway and plunger being arranged on one side of the needle, actuating means for actuating the said plunger from a movable part of the sewing-machine, a retaining device located on the other side of the needle, for engaging and temporarily holding the portion of the thread pushed through the needle-eye by the said plunger, and means for actuating the said retaining device in unison with the said plunger, as set forth.

11. A sewing-machine provided with a needle-threading device comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, and a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, as set forth.

12. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, and a thread-controlled device for moving the said cam into an active position on the breaking of the thread, as set forth.

13. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, and a thread-controlled device for moving the said cam into an active position on the breaking of the thread, the said thread-controlled device consisting of an arm carrying an eye, for the passage of the thread, a cam mounted to turn and carrying the said arm and a cam-lever engaged by the said cam and adapted to move the said crank-arm cam into an active position, as set forth.

14. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, and a thread-controlled device for moving the said cam into an active position on the breaking of the thread, the said thread-controlled device consisting of an arm carrying an eye, for the passage of the thread, a cam mounted to turn and carrying the said arm and a cam-lever engaged by the said cam and adapted to move the said crank-arm cam into an active position, the said arm, its cam and the cam-lever returning to

a normal position by the reëstablished tension of the thread, as set forth.

15. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, and a manually-controlled device for throwing the said cam into an active position, as set forth.

16. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, and a manually-controlled device for throwing the said cam into an active position, the said manually-controlled device being automatically returned by the crank, as set forth.

17. A needle-threading device for sewing-machines, provided with a reciprocating plunger for pushing the thread through the eye of the needle, a lever connected with the said plunger, a movable part of the sewing-machine for actuating the said plunger at the time the needle-bar moves into an uppermost position, and a horn mounted to swing, to engage the thread-loop pushed through the needle-eye, as set forth.

18. A needle-threading device for sewing-machines, provided with a reciprocating plunger for pushing the thread through the eye of the needle, a lever connected with the said plunger, a movable part of the sewing-machine for actuating the said plunger at the time the needle-bar moves into an uppermost position, a horn mounted to swing, to engage the thread-loop pushed through the needle-eye, means connected with the said lever, for moving the horn into an active position, and means on the needle-bar for returning the horn to an inactive position, as set forth.

19. A sewing-machine provided with a needle-threading device, comprising a reciprocating plunger, for pushing the thread through the eye of the needle, a lever for imparting movement to the said plunger, a cam on the crank of the actuating device for the needle-bar, adapted to engage the lever and rock the same at the time the needle-bar moves into an uppermost position, a thread-controlled device for moving the said cam into an active position on the breaking of the thread, and a manually-controlled device, for moving the said cam into an active position in case the said thread-controlled device fails, as set forth.

20. A needle-threading device for sewing-machines, provided with a guideway for the thread, a reciprocating plunger for pushing the thread from the guideway through the needle-eye, the said guideway and plunger being located on one side of the needle, a horn mounted to swing on the other side of the needle, for receiving the loop of thread formed by the plunger, movable parts of the sewing-machine, and means controlled from the movable parts of the sewing-machine, for actuating the said plunger and horn in unison, as set forth.

21. A needle-threading device for sewing-machines, provided with a bearing having a guideway for the thread, a plunger mounted to reciprocate in the said bearing and adapted to engage the thread in the guideway and push the thread through the needle-eye, a guide-arm on the bearing, for guiding the thread to the guide-way, and spring-clamps on the guideway, for engaging the thread, to hold the latter stretched in the guideway, as set forth.

22. A needle-threading device for sewing-machines, provided with a bearing having a guideway for the thread, a plunger mounted to reciprocate in the said bearing and adapted to engage the thread in the guideway and push the thread through the needle-eye, a guide-arm on the bearing, for guiding the thread to the guideway, and spring-clamps on the guideway, for engaging the thread, to hold the latter stretched in the guideway, the said arm being arranged transversely on the top of the bearing and the spring-clamps being located lengthwise on the bottom of the bearing, as set forth.

23. A needle-threading device for sewing-machines, a bearing provided at its forward end with a vertical guideway for the thread, a guide-arm on the bearing, extending transversely from the rear side of the bearing over the top of the guideway, a pair of spring-clamps on the bottom of the bearing, and a projection on the front forward portion of the bearing, and extending lengthwise beyond the end of the guideway, as set forth.

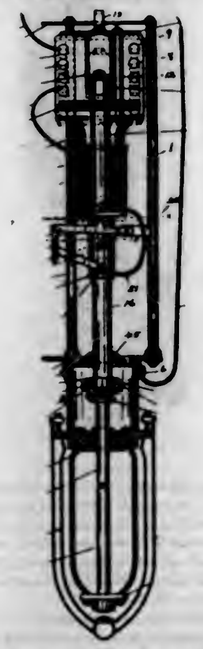
24. A needle-threading device for sewing-machines, comprising a reciprocating plunger, a lever for imparting movement to the plunger, a needle-bar crank, a lever-cam fulcrumed on the said crank, and adapted to engage the said lever, to rock the same at the time the needle-bar moves into an uppermost position, and a handled crank-pin under the control of the operator, adapted to engage the said lever-cam, to move the latter into an operative position relative to the said lever, as set forth.

25. A needle-threading device for sewing-machines, comprising a reciprocating plunger, a lever for imparting movement to the plunger, a needle-bar crank, a lever-cam fulcrumed on the said crank, and adapted to engage the said lever, to rock the same at the time the needle-bar moves into an uppermost position, a handled crank-pin under the control of the operator, adapted to engage the said lever-cam, to move the latter into an operative position relative to the said lever, and a fixed cam for engaging the said lever-cam, to return the latter to a normal position after the needle is threaded, as set forth.

26. A needle-threading device for sewing-machines, comprising a reciprocating plunger, a lever for imparting movement to the plunger, a needle-bar crank, a lever-cam fulcrumed on the said crank, and adapted to engage the said lever, to rock the same at the time the needle-bar moves into an uppermost position, a handled crank-pin under the control of the operator, adapted to engage the said lever-cam, to move the latter into an operative position relative to the said lever, and a cam-face on the crank, for engaging the said crank-pin, to return the latter to a normal inactive position, as set forth.

27. A needle-threading device for a sewing-machine, comprising a crank-disk for operating the needle-bar and provided with a V-shaped notch on its face, a lever-cam fulcrumed on the face of the crank-disk and having a V-shaped end, adapted to swing over the said groove, a cam-block on the said lever-cam, a manually-controlled shaft, having a handle and an eccentric-pin adapted to engage the said cam-block, to impart a swinging motion to the said lever-cam, and a threading device actuated by the said lever-cam, as set forth.

748,915. **ELECTRIC-ARC LAMP.** EDWARD H. BELDEN, Dayton, Ohio, assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 28, 1902. Renewed May 11, 1903. Serial No. 156,697. (No model.)



Claim.—1. In an arc-lamp, a lever mechanism adapted to so support the weight of the electromagnet, armature, and upper carbon that the electromagnet acts as a counterpoise to the said armature and upper carbon, and comprising a lever pivotally attached at one end to the lamp-frame, a second lever pivotally mounted in said frame and having one end attached to said armature and its other end connected to the corresponding end of the other lever, whereby a very small, frequent and uniform feed is insured.

2. A lever mechanism for arc-lamps adapted to make the weight of the electromagnet a counterpoise for the movable carbon and its actuating-armature, comprising a pair of companion levers pivotally connected together at their free ends, one of which is fulcrumed at its other end to the lamp-frame and supports the said magnet and the other of which is fulcrumed between its extremities to the lamp-frame and supports the armature and carbon, as described.

3. Means for so mounting the controlling mechanism of an arc-lamp that the energizing-magnet forms a counterpoise for the movable carbon and its associated armature, comprising two cooperating levers pivotally connected at their outer ends, one of which is fulcrumed at its inner end to the lamp-frame and supports the electromagnet and the other of which is fulcrumed between its ends to the said frame and is pivotally secured at its inner end to the armature.

4. In an arc-lamp, the combination with a movable, upright carbon-holder and a tubular armature fixed to said holder in concentric relation, of a pair of coacting levers fulcrumed on the lamp-frame and pivotally connected at their outer ends, one of said levers being pivotally connected at its inner end to the said armature, and a solenoid mounted upon one of said levers in cooperative relation to said armature.

5. In an arc-lamp, a carbon-feeding clutch comprising a sleeve fixed upon the lower end of the upper-carbon holder, a loosely-mounted collar having a pair of lugs upon its upper face and pivotally connected at one side to the said sleeve, and a bifurcated clutch-dog pivotally connected at its inner end to the said collar and at its outer end to the said sleeve, whereby the said dog moves downward or in the same direction as the carbon in feeding, thereby lessening the friction.

6. A carbon-feeding clutch comprising a fixed sleeve, a collar loosely mounted upon the carbon and loosely connected at one side to said sleeve and provided upon its upper face with upright lugs and a clutch-dog having its outer end pivotally connected to the said sleeve and having its inner bifurcated end pivotally connected to the said collar, whereby the said dog moves downward in unison with the said collar in feeding.

7. In carbon-controlling mechanism for arc-lamps, the combination with a lever pivotally supported at one end and an electromagnet supported by said lever at a point between its ends, of a movable carbon and a second lever connected to the first lever and to the movable carbon at its respective ends and pivotally supported at an intermediate point whereby the weight of the magnet supplements its magnetic pull upon the armature and movable carbon.

8. In an arc-lamp, a carbon-feeding clutch comprising two relatively movable collars loosely connected together at one side, a bifurcated dog pivotally connected to one of said collars and having an arm that is loosely connected to the other collar at the side opposite the connection between the two collars.

9. In an arc-lamp, the combination with a pair of carbons and a lamp-frame, of a pair of levers respectively supported by said frame and connected together at their outer ends, a magnet-coil supported upon one of said levers between its fulcrum and its outer end and an armature attached to one of the carbons and pivotally connected to the inner end of the second lever.

10. In an arc-lamp, the combination with a frame, a pair of levers independently pivoted thereto and a link connecting corresponding ends thereof, of a solenoid supported upon one of said levers, a core attached to the other lever and a movable carbon supported from said core.

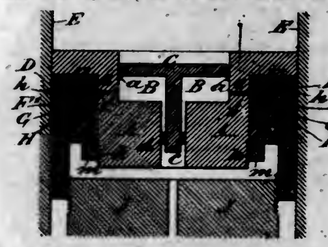
11. In an arc-lamp, the combination with a carbon-tube having a rigidly-attached sleeve, of a collar loosely surrounding the carbon and loosely connected to said sleeve and a clutch-dog pivoted at one end to said collar and loosely connected at its other end to said sleeve.

12. The combination with an arc-lamp frame and a pair of levers pivoted thereto and to each other, of a solenoid supported upon one of said levers, a core attached to the other lever, a pair of carbons, a tube for the movable carbon attached to the solenoid-core and a feeding-clutch supported upon the lower end of said tube.

13. In an arc-lamp, the combination with a carbon-tube and a carbon projecting from its lower end, of a collar fastened to said lower end, a collar loosely surrounding the carbon adjacent to said end and having a loose connection with the tube-collar at one side and a bifurcated clutch-dog pivoted to said loose collar and having a loose link connection with the tube-collar at the side opposite the direct connection between said collars.

14. In an arc-lamp, a carbon-tube and its carbon, in combination with a collar loosely surrounding the carbon and connected to the tube and a clutch-dog pivotally connected at its respective ends to the collar and the carbon-tube whereby it has a downward movement in feeding the carbon.

748,916. **PISTON-JOINT.** CASTON C. R. DE BOURMONT, Bourges, France. Filed Apr. 22, 1903. Serial No. 153,782. (No model.)



Claim.—1. The combination with a cylinder and a main compressing-piston therein, said piston having in it a chamber to contain a lubricant and lateral passages which extend from said chamber out to the periphery of the compressing-piston to carry the lubricant to said periphery, and a minor piston in said lubricant-chamber in the main compressing-piston and exposed to pressure from the fluid compressed by the last-named piston.

2. In a device for the purpose specified, the combination with a cylinder E, of the main piston playing therein and provided with a chamber B to contain a lubricant, and lateral passages therefrom to lead the lubricant toward the periphery, the minor piston C in said chamber and exposed to pressure from the fluid compressed by said piston, and the packing of the piston.

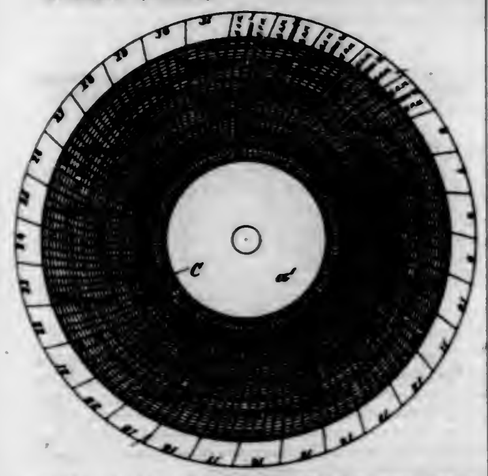
3. In a device for the purpose specified, the combination with the main piston A, having a reduced portion to receive the packing-rings, a chamber B for the lubricant, and lateral passages *e* from said chamber for the lubricant, the minor piston C in the chamber B, the packing-rings F, the metal ring D, between the packing-rings and having passages *g* for the lubricant, the follower I, and the nut *m*, which drives the follower up to the packing-rings, whereby the escape of the lubricant is prevented by a pressure applied to the packing-rings in excess of that on the lubricant and varying with the latter pressure.

748,917. **BRUSH.** WILLIAM BRAUN, Brooklyn, N. Y. Filed Mar. 31, 1902. Serial No. 100,703. (Model.)



Claim.—A brush member comprising two parallel sections each formed of wires twisted together and brush material held between the wires, the wires of the sections being integral and formed into a loop at one end of the brush, and brush material held in said loop, the wire sections at the other end of the brush forming a shank for a handle, substantially as shown and described.

748,918. **RECORD-SHEET FOR RECORDING INSTRUMENTS.** WILLIAM H. BRISTOL, Hoboken, N. J. Filed Sept. 21, 1903. Serial No. 174,104. (No model.)



Claim.—1. A record-sheet for recording instruments comprising a base, a scale of different color thereon, and a removable record-surface over said scale, through which the latter is visible, substantially as described.

2. A record-sheet for recording instruments comprising a base, a scale of different color thereon, and a removable record-surface over said scale through which the latter is visible, and part of the face of the base being left exposed, substantially as described.

3. A recording instrument record-sheet comprising a base, a scale of different color thereon, a removable record-surface over said scale, through which the latter is visible, and a fixative for the record-surface, substantially as described.

4. A record-sheet for recording instruments comprising a base, a scale of different color thereon, and a removable record-surface of soot or lampblack over said scale through which the latter is visible, substantially as described.

5. A recording instrument record-sheet comprising a base, a scale of different color thereon, a removable record-surface of soot or lampblack over said scale through which the latter is visible, and a fixative for the record-surface, substantially as described.

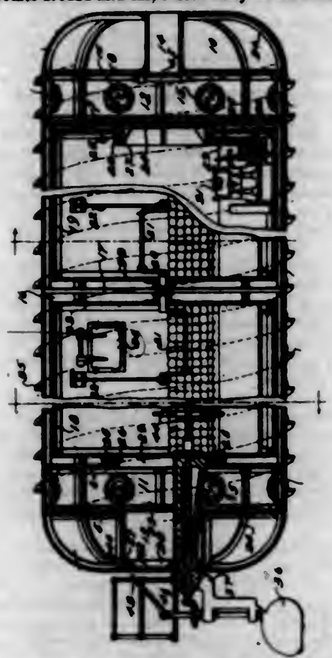
6. A record-sheet comprising a light-colored paper base, a scale of dark printer's ink thereon, and a removable, semitransparent record-surface of soot or lampblack over the scale, through which the latter is visible, substantially as described.

7. A recording instrument record-sheet comprising a base, a scale of different color thereon, a removable record-surface over said scale, and a fixative for the record-surface which renders the scale visible on application, substantially as described.

748,919. **LIFE-BOAT.** ROBERT A. BROWN, Chicago, Ill. Filed Dec. 24, 1902. Serial No. 136,493. (No model.)

Claim.—1. In a boat of the class described, the combination of a horizontally-disposed hull of substantially circular transverse cross-section, comprising a shell of sheet metal, a plurality of longitudinally-disposed stiffening-bars secured to the inner surface of said shell, and a transversely-disposed stiffening-bar extending spirally around the outer surface of said shell, said outer stiffening-bar having an outwardly-projecting flange; a car journaled concentrically within said hull; and means for rotating said hull about said car and propelling same, through the action of said outer flange, substantially as described.

2. In a boat of the class described, the combination of a hull of substantially circular transverse cross-section; an outer propelling-blade on said hull; a car journaled concentrically within said hull upon a horizontally-disposed axis; said hull being revolvable on said axis around said car; said car having a central aperture in one end of same; a transverse bulkhead extending across said hull near the open end of the car and having therein a central opening corresponding to the aperture in said car; an annular flange rigidly secured to said bulkhead around said opening and extending through said aperture into said car; an annular track on said bulkhead; suitable rollers riding upon said track and supporting said car; a motor mounted in said car; and suitable gearing connecting said motor with said flange inwardly of said rollers and adapted to cause said hull to rotate around said car, substantially as described.



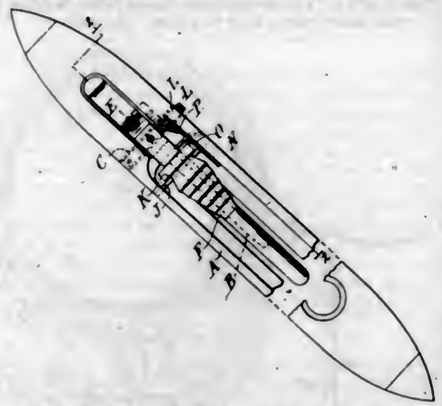
3. In a boat of the class described, the combination of a hull of substantially circular transverse cross-section; an outer propelling-blade extending spirally around said hull and rigidly secured thereto; a car journaled concentrically within said hull upon a horizontally-disposed axis; said hull being revolvable on said axis around said car and having an opening at each end in line with said axis; said car having rigidly secured thereto a platform extending through one of said openings in suitable manner to leave a free passage through said opening above the platform and provided with a suitable bearing-surface to permit the rotation of said hull around said platform; a rudder supported by said platform, having a tiller above the platform outside of said hull; and a suitable connection extending along the platform to the inside of the car for operating said rudder, substantially as described.

4. In a boat of the class described, the combination of a hull of substantially circular transverse cross-section; an outer propelling-blade extending spirally around said hull and rigidly secured thereto; a car journaled concentrically within said hull upon a horizontally-disposed axis; said hull being revolvable on said axis around said car and having an opening at each end in line with said axis; said car having rigidly secured thereto a platform extending through one of said openings in suitable manner to leave a free passage through said opening above the platform and provided with a suitable bearing-surface to permit the rotation of said hull around said platform; a rudder supported by said platform, having a tiller above the platform outside of said hull; and a shaft journaled under said platform, suitably geared to said rudder and extending into the car for operating the rudder, substantially as described.

5. In a boat of the class described, the combination of a hull of substantially circular transverse cross-section; an outer propelling-blade extending spirally around said hull and rigidly secured thereto; said hull having a transverse brace across its middle part; and a pair of cars one at each side of said brace and journaled thereto concentric with said hull in a substantially horizontal axis; and a crank rigidly secured to said brace and extending into one of said cars for revolving said hull, substantially as described.

748,920. **SHUTTLE.** CAMILLE BEHR and GUSTAVE BEHR, Lyons, France, assignors, by mesne assignments, to Emil C. Foerster, New York, N. Y. Filed Apr. 20, 1903. Serial No. 153,626. (No model.)

Claim.—1. In a shuttle in combination a spindle adapted to be turned up to conveniently place the quill thereon, a quill having a slot, a reciprocable mechanism-controlling member extending transversely of the shuttle, an arm on said member extending longitudinally within the shuttle and adapted to move bodily transversely thereof with said member, means for holding said arm inward when said spindle is in its turned-up position to permit a full quill to be placed on said spindle with said arm in register with its slot and surrounded by the thread, whereby when said spindle and quill are turned down said member is held in its inoperative position by the thread, and means for moving said member to its inoperative position when the thread is exhausted.



2. In a shuttle in combination a spindle adapted to be turned up to conveniently place the quill thereon, a quill having a slot, a mechanism-controlling member mounted separately from the spindle, an arm on said member within the shuttle, means for holding said arm inward when said spindle is in its turned-up position to permit a full quill to be placed on said spindle with said arm in register with the slot of the quill and surrounded by the thread, whereby when said spindle and quill are turned down said member is held in its inoperative position by the thread, and means for moving said member to its operative position when the thread is exhausted.

3. In a shuttle in combination a spindle adapted to be turned up to conveniently place the quill thereon, a quill having a slot, a mechanism-controlling member mounted separately from the spindle, an arm on said member extending longitudinally within the shuttle, means connected with said spindle engaging said arm to turn the same upward when the spindle is turned upward, a cam arranged to force said arm inward when it is turned upward so as to permit a full quill to be placed on said spindle with said arm in register with the slot of the quill and surrounded by the thread, and a spring normally pressing against said member whereby when said spindle is lowered said member is held in its inoperative position and when the thread is withdrawn from said quill said spring moves said member to its operative position.

4. In a shuttle in combination a pivoted spindle, a hollow shaft therefor, and a mechanism-controlling pin reciprocable therein, and means for holding said pin in its inoperative position until the thread is nearly exhausted and then moving it to its operative position.

5. In a shuttle in combination a pivoted spindle, a hollow shaft therefor, and a mechanism-controlling pin in said hollow shaft and reciprocable therein, a spring tending normally when the shuttle is in operation to project said pin to its operative position, and means for holding said pin in its inoperative position against the pressure of said spring until the thread is nearly exhausted.

6. In a shuttle in combination a spindle adapted to be turned up, a mechanism-controlling member mounted in the shuttle separately from said spindle and adapted to be moved to its operative position when the thread is exhausted, and means for moving said member to its inoperative position as said spindle is turned up.

7. In a shuttle in combination a pivoted spindle, a mechanism-controlling member mounted separately from said spindle and adjacent to the pivotal axis thereof, an arm on said member, and means for turning said arm up as said spindle is turned up.

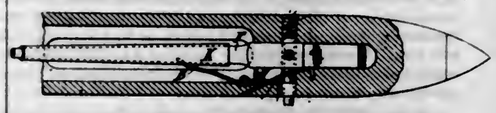
8. In a shuttle in combination a pivoted spindle, a mechanism-controlling member mounted adjacent to the pivotal axis thereof, an arm on said member, and a pin projecting laterally from said spindle and engaging said arm on its under side.

9. In a shuttle in combination a pivoted spindle, a mechanism-controlling member mounted adjacent to the pivotal axis thereof, an arm on said member, and a pair of pins O projecting laterally from said spindle and engaging said arm on opposite sides.

10. In a shuttle in combination a pivoted spindle, a mechanism-controlling member, an arm on said member, means for turning said arm up as said spindle is turned up, and a cam comprising a wire P with its ends fastened in the body of the shuttle and its intermediate portion projecting into the path of the arm for moving said arm inward as it is turned up.

11. In a shuttle in combination a reciprocable mechanism-controlling pin L having its end formed with a flat portion L', and means for holding said pin within the shuttle until the thread is nearly exhausted and then projecting the end out of the shuttle in position to engage mechanism of the loom.

748,921. **SHUTTLE.** CAMILLE BEHR and GUSTAVE BEHR, Lyons, France, assignors to Emil C. Foerster, New York, N. Y. Filed May 11, 1903. Serial No. 156,569. (No model.)



Claim.—1. In a loom-shuttle, in combination, a spindle, a member adapted to directly act upon and control mechanism carried by the loom, a device connected at one end to said member and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said member in inoperative position.

2. In a loom-shuttle, in combination, a pivoted spindle, a member adapted to directly act upon and control mechanism carried by the loom, a device connected at one end to said member and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said member in inoperative position, and means for automatically moving said member to its inoperative position as the spindle is turned up to permit the ready application of the thread on the spindle.

3. In a loom-shuttle, in combination, a pivoted spindle, a member adapted to control mechanism of the loom, a device connected at one end to said member and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said member in inoperative position, and means for automatically moving said device inward as the spindle is turned up to permit the ready application of the thread on the spindle.

4. In combination, a loom-shuttle having a spindle, a member carried by said shuttle for controlling mechanism of the loom, a thin-walled quill of paper or the like, and a device connected at one end to said member and held inward against said spindle at the other end and adapted to be surrounded at the latter end by said quill and the thread thereon to hold said member in inoperative position.

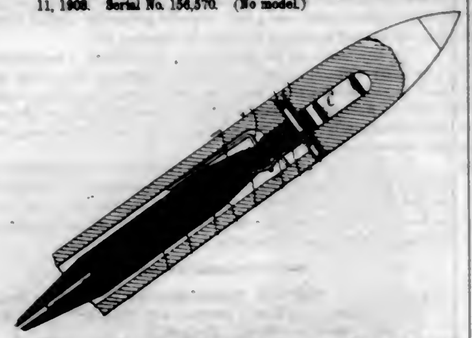
5. In a loom-shuttle, in combination, a spindle, a transversely-movable pin adapted to control mechanism of the loom, and a link connected at one end to said pin and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said member in inoperative position.

6. In a loom-shuttle, in combination, a pivoted spindle, a transversely-movable pin adapted to control mechanism of the loom, a link connected at one end to said pin and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said member in the inoperative position, and a cam for automatically moving said pin and link inward as the spindle is turned up to permit the ready application of the thread on the spindle.

7. In a loom-shuttle, in combination, a pivoted spindle, a transversely-movable pin adapted to control mechanism of the loom, an arm on said pin, a link connected at one end to said arm and held inward against said spindle at the other end and adapted to be surrounded by the thread to hold said pin inward, means for turning said arm upward as the spindle is turned up, and a cam in the path of said arm for moving the same and with it the pin and link inward as the spindle is turned up to permit the ready application of the thread on the spindle.

8. In a loom-shuttle, in combination, a spindle, a member adapted to control mechanism of the loom, and a device connected at one end to said member and having its opposite end permanently engaged in a slot in the spindle and adapted to be surrounded by the thread to hold said member in inoperative position.

748,922. SHUTTLE. CAMILLE BRUN and GUSTAVE BRUN, Lyons, France, assignors to Emil C. Foerster, New York, N. Y. Filed May 11, 1903. Serial No. 156,570. (No model.)



Claim.—1. In a shuttle in combination, a spindle, means mounted in the shuttle separately from said spindle and adapted to control mechanism of the loom and a part of which is adapted to be surrounded by the thread on said spindle, at least an end of said part being substantially within the surface of the spindle when said means are inoperative, to permit the ready application of the thread onto the spindle.

2. In a shuttle in combination, a spindle having a groove in its side, means mounted in the shuttle separately from said spindle and adapted to control mechanism of the loom and a part of which is adapted to be surrounded by the thread on said spindle when said means are inoperative, and to be moved into said groove to permit the ready application of the thread onto the spindle.

3. In a shuttle in combination, a spindle, a member extending transversely of the shuttle, transversely reciprocable therein and adapted to control mechanism of the loom, and an arm on said member adapted to be surrounded by the thread on said spindle, at least the end of said arm being substantially within the surface of the spindle when said member is in its inoperative position, to permit the ready application of the thread.

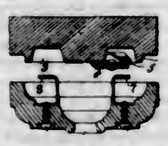
4. In a shuttle in combination, a spindle, a member extending transversely of the shuttle, transversely reciprocable therein and adapted to control mechanism of the loom, an arm on said member adapted to be surrounded by the thread on said spindle, at least the end of said arm being substantially within the surface of the spindle when said member is in its inoperative position, to permit the ready application of the thread, and a cam in the path of said arm and adapted to move the end of said arm inward as the spindle is turned up.

5. The combination with a shuttle having a pivoted spindle, of a thin-walled quill of paper or the like for said spindle, means mounted in the shuttle separately from the spindle and adapted to control mechanism of the loom and a part of which is adapted to be surrounded by said quill and the thread thereon to retain said means in inoperative position during normal running of the shuttle.

6. The combination with a shuttle having a pivoted spindle, of a thin-walled quill of paper or the like for said spindle, a hollow shaft for said spindle, a mechanism-controlling pin reciprocable in said hollow shaft, and an arm on said pin adapted to be surrounded by said quill and the thread thereon to retain said pin in its inoperative position during normal running of the shuttle.

7. In a loom-shuttle, in combination, a spindle, a member adapted to control mechanism of the loom, and a device connected at one end to said member and having its opposite end engaged in a slot in the spindle and adapted to be surrounded by the thread to hold said member in inoperative position.

748,923. DEVICE FOR REMOVING ROSETTE-COVERS. FRED L. BRYANT, Newport News, Va. Filed Nov. 14, 1902. Serial No. 131,345. (No model.)

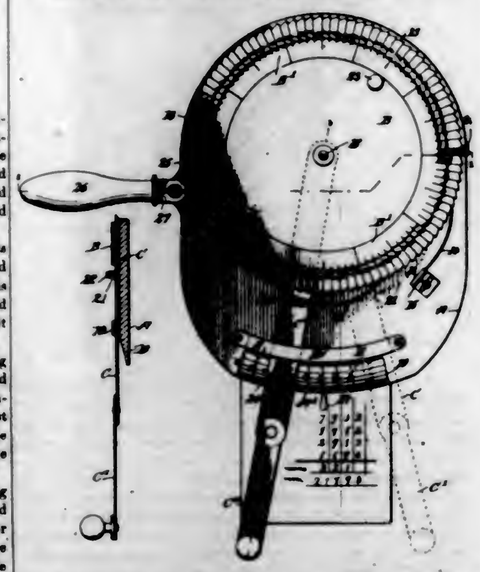


Claim.—1. A device for applying and removing rosette-covers, consisting of a staff or handle, a gripper consisting of rigid jaws to engage the cover, a cushion in said jaws and a guide for the wire adjacent to the jaws.

2. A device for applying and removing rosettes, consisting of a staff or handle, a ferrule fitting on the handle and carrying a spanner for engaging the cover, a wire-guide, cushion and pins carried by said spanner.

3. A device for applying and removing rosette-covers, consisting of a staff or handle, a ferrule fitting on the handle and formed with a pair of jaws formed with seats, and elastic cushions fitting in the said seats a central wire-guide and pins adjacent to said cushion.

748,924. ADDING-MACHINE. FRANCIS BURRIS, Magnolia, Iowa. Filed Mar. 16, 1903. Serial No. 147,993. (No model.)



Claim.—1. In an adding-machine, a support, an adding-wheel mounted to revolve upon the upper face of the support and provided with a scale in figures, the said support having a depression in its upper face, a scale upon the depressed surface of the support likewise in figures, and an operating-lever having movement relative to the scale upon the depressed portion of the support and an operating connection between the operating-lever and the adding-wheel, substantially as described.

2. In an adding-machine, a support comprising a base and an extension on the upper face of the base having a recess in its under face, an adding-wheel mounted to revolve upon the upper face of the said extension and provided with a scale in figures, a scale upon the base likewise in figures, an operating-lever extending in the said recess in the under face of the extension and having movement relative to the scale upon the base, and a driving connection between the operating-lever and the adding-wheel, operating only when the lever is moved in one direction to move the adding-wheel a corresponding number of points to the point or points indicated upon the base-scale at which the lever may be stopped, as described.

3. In an adding-machine, a body-section, an adding-wheel mounted to revolve upon the body-section, having a circularly-arranged scale in figures reading from 1 to 100, a scale upon the face of the body-section below the adding-wheel and reading from 1 to 9, an operating-lever pivoted at the central portion of the adding-wheel and provided with a pointer adapted to register with any division of the scale on the body, a guide-yoke on the face of the body-section above the said scale and beneath which the lever passes, a dog carried by the operating-lever in operative engagement with the adding-wheel, and a detent for the adding-wheel, as described.

4. In an adding-machine, a body-section, an adding-wheel mounted to revolve upon the body-section, having a circularly-arranged scale in figures reading from 1 to 100, a scale upon the body-section reading from 1 to 9, an operating-lever pivoted at the central portion of the adding-wheel and provided with a pointer adapted to register with any division of the scale on the body-section, a dog carried by the operating-lever in operative engagement with the adding-wheel, a detent for the adding-wheel, an indicating-finger extending from the scale-surface of the body-section, and a pointer carried by the body over the adding-wheel, adapted to cover a figure of the scale of said wheel, substantially as described.

5. In an adding-machine, a body-section, an adding-wheel mounted to revolve upon the body-section, provided with a circularly-arranged scale in figures and a peripheral tooth for each division of the scale, a scale in figures produced upon the body-section, an operating-lever fulcrumed at the pivot-point of the adding-wheel and extending over the body-scale, adapted to register with any division of the body-scale, a dog carried by the operating-lever, engaging with the teeth of the adding-wheel, a pointer for the adding-wheel, a detent operating on the teeth of the adding-wheel, an indicating-finger extending from the body-scale, and a handle for the body-section, substantially as described.

6. In an adding-machine, an adding-wheel having a scale in figures, a support for the wheel, a scale in figures upon the support, an operating-lever extending over the scale of the support, adapted to act in conjunction with said scale, and an indicating-finger extending beyond the support from the scale thereon, as described.

7. In an adding-machine, a support, an adding-wheel mounted to revolve upon the upper or outer face of the support and provided with a scale in figures, a pointer for the adding-wheel carried by the support, a scale upon the face of the support at one end thereof, likewise in figures, an indicating-finger extending from the edge of the support, an operating-lever having movement relative to the scale upon the face of the support, and an operative connection between the operating-lever and the adding-wheel, substantially as described.

748,925. MATCH SAFE AND LIGHTER. CHARLES F. A. CAMANN, New York, N. Y. Filed Apr. 29, 1903. Serial No. 154,220. (No model.)



Claim.—1. A match safe and lighter comprising a casing having a slotted front open from one end to the other for the passage of a match, a top formed of resilient material for closing the upper end of the casing, and a roughened surface within the casing, as set forth.

2. A match safe and lighter comprising a casing having a slotted front open from one end to the other for the passage of a match, a top formed of resilient material for closing the upper end of the casing, a roughened surface within the casing extending the entire length of the slot, and a shelf a distance below the open bottom of the casing, as set forth.

3. A match safe and lighter comprising a casing having a front side formed of two members spaced apart at their inner adjacent side edges from one end to the other, to form a slot or passage for a match, and a top formed of resilient material for closing the upper end of the casing, the free end of the top lying close against the inner faces of the front members, as set forth.

4. A match safe and lighter comprising a casing having a front side formed of two members spaced apart at their inner adjacent side edges, to form a slot or passage for a match, and a top formed of resilient material and tapered to a point at its free end for closing the upper end of the casing, the pointed free end of the top lying close against the inner faces of the front members, at the upper end of the said slot, as set forth.

5. A match safe and lighter comprising a casing having a front formed of two members spaced apart at their inner adjacent side edges, to form a slot or passage for a match, the front members being curved outwardly at their upper ends, to form a flaring mouth leading to the slot, and a spring-top for closing the upper end of the casing, the free end of the spring-top lying close against the inner faces of the front members, as set forth.

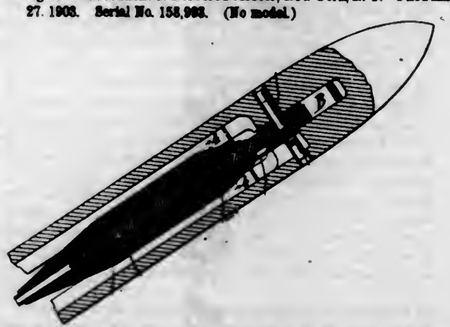
6. A match safe and lighter comprising a casing having a front formed of two members spaced apart, to form a slot or passage for the match, and a flexible closing device on the front members, for closing the slot thereof and through which flexible device the match is passed in the act of striking the same, whereby the slot is kept closed around the stem of the match, as set forth.

7. A match safe and lighter comprising a casing having a front formed of two members spaced apart, to form a slot or passage for a match, and a flexible closing device on the front members, for closing the slot thereof and allowing the passage of the match, the said flexible closing device consisting of strips of fabric material secured to the front members at the insides thereof, and projecting from opposite sides into the slot, to abut at their free edges, as set forth.

8. A match safe and lighter comprising a casing having a slotted front formed of two sections spaced apart from top to bottom to form a slot for the passage of the match, a roughened surface inside the casing, opposite the slot, a match-holding box at the rear of the casing, at the upper end thereof, a burned-match-receiving box at the rear of the casing and a horizontal shelf beneath the lower end of the casing spaced apart therefrom, at the lower end thereof, as set forth.

9. A match safe and lighter comprising a casing having a slotted front formed of two sections spaced apart from top to bottom to form a slot for the passage of a match, a roughened surface inside the casing, opposite the slot, a match-holding box at the rear of the casing, at the upper end thereof, and a burned-match-receiving box at the rear of the casing, at the lower end thereof, the said boxes having attaching means for securing the boxes to the back of the casing, as set forth.

748,926. SHUTTLE. DANIEL J. CAREY, New York, N. Y., assignor of three-fifths to Norbert Foerster, New York, N. Y. Filed May 27, 1903. Serial No. 158,963. (No model.)



Claim.—1. In a shuttle in combination a device adapted to control mechanism of the loom, and a spring member connected to said device so as to move it in both directions, the spring acting in a direction to move said device to its operative position, said spring member being directly acted upon and restrained by the thread in said shuttle and thereby holding said device in inoperative position in the normal running of the shuttle.

2. In a shuttle in combination a spindle, a device adapted to control mechanism of the loom, and a spring member connected to said device so as to move it in both directions, the spring acting in a direction to move said device to its operative position, said spring member being connected to said spindle and being surrounded and restrained by thread on said spindle in the normal running of the shuttle.

3. In a shuttle in combination a spindle, a device adapted to control mechanism of the loom, and a spring connected at one end to the spindle and at the other end to said device, so as to move it in both directions, the spring acting in a direction to move said device to its operative position and being surrounded and restrained by thread on the spindle in the normal running of the shuttle.

4. In a shuttle in combination a pivoted spindle, a transversely-movable pin adjacent to the pivot of said spindle, and a spring member connected thereto so as to move it in both directions, the spring acting in a direction to move the same outward, said spring member being surrounded and restrained by thread on the spindle in the normal running of the shuttle.

5. In a shuttle in combination a pivoted spindle, a tubular pivot therefor, a pin movable transversely in said tubular pivot and adapted to control mechanism of the loom, a spring operatively connected to said pin at one end and tending to move the same outward and operatively connected at its opposite end to the spindle so as to be surrounded and directly restrained by the thread on said spindle in the normal running of the shuttle.

6. In a shuttle in combination a pivoted spindle, a transversely-movable pin adjacent to the pivot of said spindle, a spring fixedly connected at one end to the spindle and operatively but loosely connected at its other end to said pin so as to move it in both directions, the spring acting in a direction to move the same outward, said spring being surrounded at and adjacent to its fixed end by the thread on said spindle in the normal running of the shuttle whereby said spring is restrained.

7. In a shuttle in combination a pivoted grooved spindle, a device adapted to control mechanism of the loom, a spring connected at one end to said spindle and having such end and its intermediate portion adjacent to said groove, said spring tending to move said device outward, said spring being surrounded and restrained by the thread on said spindle in the normal running of the shuttle.

748,927. **EMERGENCY CAR-COUPLING.** BRYANT B. CARLISLE and JOHN R. ELDER, Columbus, Ohio, assignors of one-third to L. D. Hagerty, Columbus, Ohio. Filed Oct. 30, 1902. Serial No. 179,173. (No model.)



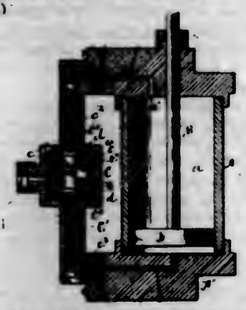
Claim.—1. In an emergency car-coupler, the combination with a king-bolt clamp comprising an integrally-formed yoke and a cross-bar detachably connecting the ends of said yoke, of a coupler-body comprising jointedly-connected sections one of which is pivotally connected with said clamp.

2. In an emergency car-coupler, the combination with a clamp comprising an integrally-formed yoke and a cross-bar detachably connecting the ends of said yoke, of a coupler-body comprising jointedly-connected sections and an intermediate turnbuckle adjustably connected with two of said sections, one section of said coupler-bar having a pivotal connection with the clamp and another section thereof being adapted to receive a coupling-pin.

3. In an emergency car-coupler, the combination with a clamp adapted to engage a king-bolt, of a turnbuckle and screw members adjustably connected with opposite ends thereof, a bar 6 having a pivotal connection with one of said screw members and a pivotal connection with said clamp and a bar 12 having a pivotal connection with the remaining screw member.

4. In an emergency car-coupler, the combination with a clamp comprising an integrally-formed yoke-body and a removable cross-piece connecting the arms of said yoke, said yoke-body having upper and lower projecting lugs, of a coupler-body comprising a turnbuckle, screw members adjustably connected with opposite ends of said turnbuckle, a jointed connection between one of said screw members and said clamp and a bar pivotally connected with the remaining screw member.

748,928. **VALVE FOR FLUID-PRESSURE MOTORS.** CHARLES A. CARLSON, Chicago, Ill. Filed Nov. 13, 1902. Serial No. 131,120. (No model.)



Claim.—1. In a fluid-pressure motor, the combination of a power-cylinder having at each end thereof a passage for inducting and educting pressure, a piston within the cylinder having a piston-rod connected therewith, a valve-chest receiving fluid-pressure thereinto and having on opposite sides a passage leading therefrom and in communication with the passage of the cylinder for inducting and educting pressure, a shiftable valve in the chest, a slidable rod on which the shiftable valve moves, a piston on each end of the slidable rod controlling the communication between the passage from the valve-chest and the pressure inducting and educting passage of the cylinder, and means for changing the position of the shiftable valve from the movements of the piston-rod to induct and educt pressure alternately at opposite ends of the power-cylinder, substantially as described.

2. In a fluid-pressure motor, the combination of a power-cylinder having at each end thereof a passage for inducting and educting pressure, a piston within the cylinder having a piston-rod connected therewith, a valve-chest receiving fluid-pressure thereinto and having on opposite sides a passage leading therefrom and in communication with the passage of the cylinder for inducting and educting pressure, a shiftable valve in the chest, a slidable rod on which the shiftable valve moves, a piston on each end of the slidable rod controlling the communication between the passage from the valve-chest and the pressure inducting and educting passage of the cylinder, a rock-shaft or rod in the valve-chest, an arm on the rock-shaft or rod engaging the shiftable valve, a lever connected with the rock-shaft or rod, and means for vibrating or oscillating the lever from the movements of the piston-rod to shift the position of the valve and induct and educt pressure alternately at opposite ends of the power-cylinder, substantially as described.

3. In a fluid-pressure motor, the combination of a power-cylinder having at each end thereof a passage for inducting and educting pressure, a piston within the cylinder having a piston-rod connected therewith, a valve-chest receiving fluid-pressure thereinto and having on opposite sides a passage leading therefrom and in communication with the passage of the cylinder for inducting and educting pressure, a shiftable valve in the chest, a slidable rod on which the shiftable valve moves, a piston on each end of the slidable rod controlling the communication between the passage from the valve-chest and the pressure inducting and educting passage of the cylinder, a rock-shaft or rod in the valve-chest, an arm on the rock-shaft or rod engaging the shiftable valve, a lever connected with the rock-shaft or rod, a rod connected with the piston-rod of the power-cylinder, and a tappet on the rod engaging with the lever for rocking the shaft or rod in the valve-chest and shifting the position of the valve for inducting and educting pressure alternately at opposite ends of the power-cylinder, substantially as described.

4. In a fluid-pressure motor in combination with a power-cylinder and pressure-induction ports leading thereto, a valve controlling the induction of fluid-pressure through the ports to the power-cylinder consisting of a slidable member mounted upon a movable rod, two fixed pistons one on each end of the rod, said pistons controlling the induction of pressure through the ports, and means for moving the slidable member upon the rod to admit pressure to act alternately upon the pistons to move the same and alternately open and close the ports to admit pressure to the power-cylinder, substantially as described.

5. In a fluid-pressure motor, in combination with a power-cylinder and induction-ports leading thereto, a chest for receiving pressure and having communication through the ports with the power-cylinder, a controlling-valve in the chest consisting of a slidable member mounted upon a slidable rod, fixed pistons on the ends of the rod controlling the induction of pressure to the cylinder, and means for moving the slidable member of the valve upon the rod to admit pressure to act alternately upon the fixed pistons to alternately open and close the ports leading to the power-cylinder, substantially as described.

6. In a fluid-pressure motor, the combination of a valve-chest receiving pressure thereinto, a slidable valve controlling the induction of pressure from the chest, a slidable rod on which the valve is movable, and two pistons on the rod adapted to be alternately moved by the pressure admitted by the valve to control the induction of pressure from the chest to a power-cylinder and the eduction of pressure from the power-cylinder to the atmosphere, substantially as described.

7. In a fluid-pressure motor, the combination of a chest receiving pressure thereinto and having inducting-passages for a power-cylinder leading therefrom, a shiftable rod operating in the chest and the induction-passages, and having pistons thereon actuated alternately by the admitted pressure controlling the induction and eduction of pressure from the power-cylinder, and a valve for each inducting-passage opening for the eduction of pressure on the return stroke of the rod in either direction, substantially as described.

8. In a fluid-pressure motor, the combination of a chest receiving pressure thereinto, a valve controlling the induction of pressure from the chest to a power-cylinder, a slidable rod having pistons actuated alternately by the pressure admitted to the valve for controlling the induction-passages from the chest, an oscillating lever for moving the controlling-valve, an eduction-valve from each induction-passage of the chest opened to vent pressure on the return stroke of the rod in either direction, a rocking lever for operating the eduction-valve and moved from the oscillating or vibrating movements of the lever of the controlling-valve, and means for actuating the oscillating or vibrating lever with the strokes of the piston in the power-cylinder, substantially as described.

9. In a fluid-pressure motor, the combination of a chest receiving pressure thereinto, a valve controlling the outflow of pressure from the chest on opposite sides thereof, a valve controlling the eduction of pressure when the valve controlling the outflow is closed on one side, an oscillating or vibrating lever for moving the controlling-valve for the outflow and the valves for the eduction, and means for oscillating or vibrating the lever with the strokes of the power-piston, substantially as described.

10. In a fluid-pressure motor, the combination of a chest receiving pressure thereinto, a valve controlling the outflow of pressure from the chest on opposite sides thereof, a slidable rod having a piston at each end thereof, an eduction-passage between the piston on the rod and the seat of the controlling-valve, and a valve controlling the eduction-passage, substantially as described.

748,929. **DOOR CLOSER AND CHECK.** EDWARD CLIFF, New York, N. Y. Filed May 21, 1903. Serial No. 158,091. (No model.)



Claim.—1. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, and the roller intermediate said piston and casing, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

2. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, the roller intermediate said piston and casing, a passage from one side to the other of said piston for the checking liquid, and means for restricting said passage during the closing of the door, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

3. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the rotary ring encompassing said spindle, the closing-spring held between said ring and piston and the roller confined between said piston and casing, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

4. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston having a sliding-key connection with the said spindle and adapted, while rotating, to be moved longitudinally, the cap for said casing having a sleeve encompassing a part of said spindle, the rotary ring below said cap, ball-bearings intermediate said cap and ring, and the roller confined between said piston and casing, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

5. In a door-closer, the casing adapted to contain a checking liquid, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, the roller intermediate said piston and casing, a passage from one side to the other of said piston for the checking liquid, and means for restricting said passage during the closing of the door, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

6. In a door-closer, the casing adapted to contain a checking liquid, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, the roller intermediate said piston and casing, a passage for the liquid through said piston, and the adjusting regulating-screw extending through said casing and having the tapered end normally entering said passage, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

7. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, and the roller intermediate said piston and casing, said piston and casing having the facing grooves confining and forming a path for said roller and affording the oppositely-inclined facing surfaces for coöperation with said roller, one of said surfaces being carried by said piston and the other stationary with said casing, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

8. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the closing-spring bearing against said piston, and the roller intermediate said piston and casing, said piston and casing having the facing grooves confining and forming a path for said roller and affording the oppositely-inclined facing surfaces for coöperation with said roller, each of said surfaces inclining outwardly in opposite directions on diverging lines from a given point, and one of said surfaces being carried by said piston and the other stationary with said casing, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

9. In a door-closer, the casing, and the spindle to be rotated by the door, combined with the piston connected with said spindle and adapted, while rotating, to be moved longitudinally, the rotary ring encompassing said spindle, the closing-spring held between said ring and piston, and the roller confined between said piston and casing, one of which parts has the inclined surface against which said roller

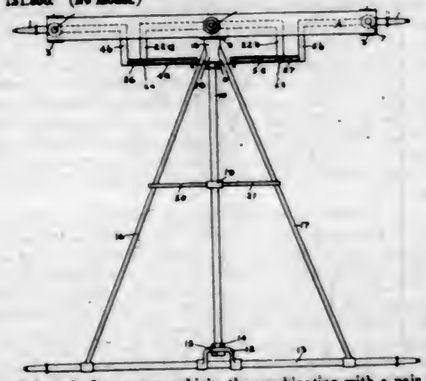
is by said piston and spring compelled to ride during the rotation of said piston; substantially as set forth.

10. In a door-closer, the casing, the piston, and means for rotating said piston from the door, said piston being adapted, while rotating, to be moved longitudinally, combined with the closing-spring bearing against said piston, and the roller intermediate said piston and casing, said piston and casing having the oppositely-inclined facing surfaces confining and forming a path for said roller, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

11. In a door-closer, the casing, the piston, and means for rotating said piston from the door, said piston being adapted, while rotating, to be moved longitudinally, combined with the closing-spring bearing against said piston, and the roller intermediate said piston and casing, said casing and piston having the oppositely-inclined facing surfaces forming a path for said roller during the rotation of said piston, each of said surfaces inclining outwardly in opposite directions on diverging lines from a given point, and said roller being in engagement with and compelled to rotate against both of said surfaces during the rotation of said piston; substantially as set forth.

12. In a door-closer, a spindle to be rotated from the door, a rotary part connected therewith to be rotated therefrom, another part in line with and facing said rotary part for cooperation therewith, and the roller confined between the facing surfaces of said parts, said facing surfaces being provided with the oppositely-inclined facing grooves forming a path for said roller and said roller being in engagement with and compelled to rotate against the surfaces of both of said grooves during the rotation of said rotary part, and one of said parts being movable toward and from the other part in accordance with the direction of travel of said roller, combined with the door-closing spring confined against that one of said parts which is capable of movement toward and from the other part; substantially as set forth.

748,930. **AUTOMOBILE.** PATRICK J. COLLINS, Scranton, Pa., assignor, by mesne assignments, to Richard J. Bourke, trustee, Scranton, Pa. Filed July 31, 1900. Renewed Sept. 2, 1903. Serial No. 171,850. (No model.)



Claim.—1. In a motor-vehicle, the combination with a pair of pivoted axles, of a centrally-pivoted steering-lever having its opposite ends in sliding engagement with said axles, the parts of the axles which engage the lever lying normally in the rear of the pivotal point of the steering-lever.

2. In a motor-vehicle, the combination with a pair of pivoted axles having their inner end portions lying normally at the rear of a line passing through the pivotal points of the axles and extending transversely of the vehicle, of a steering device having parts in sliding engagement with said inner end portions.

3. In a motor-vehicle, the combination with a pair of pivoted axles of a centrally-pivoted steering-lever having its opposite ends in sliding engagement with said axles, the parts of said axles which engage the lever lying normally in the rear of the line passing through the pivotal points of the axles.

4. In a motor-vehicle, the combination with a pair of pivoted axles having their inner ends normally extending at one side of the line passing through their pivotal points, of a steering-lever pivotally mounted forward of said ends and having rearwardly-turned arms in sliding engagement with said ends.

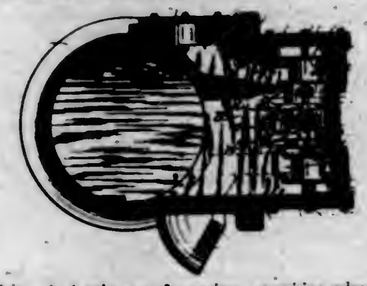
5. In a motor-vehicle, the combination with a pair of pivoted axles having their inner ends offset from and substantially parallel with the outer ends of the axles, said offset ends having longitudinal slots therein, of a steering-lever centrally pivoted between the axle-bearings and having rearwardly-extending arms and pins on said arms adapted to engage the slots in the axles.

6. In a motor-vehicle, the combination with a rear axle and an axle casing or support for the forward axles, of a rod secured to the center of said support, a reach fixed to the rear axle and having a sleeve at its forward end surrounding said rod, and a bearing in fixed relation to the rear axle for the rear end of said rod.

7. In a motor-vehicle the combination with a rear axle and an axle casing or support for the forward axles, of a rearwardly-extending bearing fixed to the center of said support, a rod secured to said bearing and journaled to the rear axle, and a reach fixed to the rear axle and having a sleeve at its forward end journaled upon said bearing.

8. In a motor-vehicle the combination with a rear axle and an axle casing or support for the forward axles, of a rearwardly-extending bearing secured to the center of said support, a reach fixed to the rear axle and journaled at its forward end upon said bearing, a rod journaled at its rear end to the center of the rear axle and having its forward end secured within said rearwardly-extending bearing, and means for adjusting said rod longitudinally.

748,931. **VALVE-GEAR FOR ENGINES.** GEORGE F. COMSTOCK, Port Huron, Mich. Filed May 4, 1903. Serial No. 155,562. (No model.)



Claim.—1. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, and valve-operating means adjustable to afford variable cut-off, said operating means being contained within the valve-casings.

2. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, balanced under the combined pressure of the exhaust and live steam, and valve-operating means adjustable to afford variable cut-off, said operating means being contained within the valve-casings.

3. A valve-gear for engines, comprising valve-casings each adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves in each casing adapted to control and direct the passage of steam therethrough, and mechanism adapted to operate said valves in synchronism, adjustable to reverse the order and vary the periods of oscillations of said valves, said mechanism being contained within the valve-casings.

4. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, valve-operating means and means whereby said operating means within the casings may be adjusted at will to cut off at any point of the engine-stroke.

5. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, positive lifting mechanism engaging said valves, and mechanism operating said lifting mechanism, shiftable across the face of said lifting mechanism to afford a variable period of motion to the latter, said lifting mechanism and operating mechanism being contained within said casings.

6. A valve-gear for engines, comprising valve casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, puppet-lifting mechanism, and operating means for said mechanism movable relatively thereto to afford a variable cut-off, said puppet-lifting and said operating means being contained within said casings.

7. A valve-gear for engines, comprising dual, oppositely-disposed valve-casings, each bridging the corresponding supply, exhaust and supply ports of an engine-cylinder, puppet-valves in each of said casings adapted to control and direct the passage of steam therethrough, puppet-lifting mechanism in said casings, and operating mechanism within said casings adapted to engage and drive said lifting mechanisms in proper order, having adjustable connection therewith to reverse the order of operation and vary the periods of oscillation of said valves.

8. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, valve-lifting mechanism within the casings, and operating mechanism adapted to be moved relatively to said lifting mechanism to afford variation in the point of the valve-stroke relatively to the engine-stroke.

9. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, valve-lifting levers in said casings, and operating mechanism adapted to intermittently reciprocate said levers, movable relatively thereto to vary the period of oscillations of said levers.

10. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, valve-lifting levers and cams in said casings, and operating-cams coacting with said lifting-cams to intermittently oscillate said levers, adjustably contacting with said lifting-cams to vary the period of oscillations of said levers, and rotatably connected to the engine-shaft.

11. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings and combined valve operating and reversing mechanism contained within the casings adjustable to vary the cut-off point.

12. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves adapted to control and direct the passage of steam through said casings, balanced under the combined action of the live and exhaust steam, and combined operating and reversing mechanism contained within the casings adjustable to vary the cut-off point.

13. A valve-gear for engines, comprising dual valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves in said casings controlling and directing the passage of steam therethrough, balanced under the combined action of the live and exhaust steam, positive lifting means in said casings, and mechanism adapted to operate said lifting means in synchronism, adjustable relatively thereto to reverse the order of operation and to vary the cut-off point.

14. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, oscillatory lifting-levers within the casings engaging said valves, rotatable cams adapted to operatively engage said levers, adjustable in relation thereto to vary the period of oscillation, and means for rotating said cams.

15. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, oscillatory lifting-levers within the casings engaging said valves, cams on said levers, rotatable cams adapted to coact with said lever-cams to intermittently reciprocate the levers, adjustable transversely to their planes of rotation to vary the periods of oscillation of said levers.

16. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, oscillatory lifting-levers within the casings engaging said valves, and rotatable cams arranged in sets, one set being adapted to operate said valves in order reverse to that of the other set, and cam-rotating means adapted to throw either of said sets into operative position.

17. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, oscillatory lifting-levers within the casings engaging said valves, rotatable cams arranged in sets, one set being adapted to operate said levers in order reverse to that of the other set, and cam-rotating means adapted to move said cams transversely to their plane of rotation to bring either of said sets into engagement with said levers.

18. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through the casings, lifting-levers within the casings engaging said valves, rotatable cams adapted to operate said levers, shiftable across the faces of the levers to afford variable stroke thereto, and cam-operating means.

19. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through said casings, lifting mechanism within the casings engaging said valves, a shaft having sliding and rotative engagement with said casings operatively connected to the engine-shaft, cams secured in sets on said shaft adapted to operate said lifting mechanism, and means to move said shaft longitudinally independently of its rotation to shift said cams relatively to said mechanism.

20. A valve-gear for engines, comprising valve-casings adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, puppet-valves therein adapted to control and direct the passage of steam through said casings, lifting-levers engaging said valves, a shaft having sliding and rotative engagement on the engine-frame passing through said casings, a pinion having non-rotative sliding engagement with said shaft, a gear secured on the engine-shaft meshing with said pinion, a shifting-lever adapted to reciprocate said shaft, and cams secured on said shaft adapted to be thrown into engagement with said lifting-lever by the shifting of said shaft.

21. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, each provided with dual, apertured valve-seats in both the steam and exhaust passages, longitudinally-reciprocable, cylindrical valves adapted to simultaneously close on both seats, lifting mechanism to reciprocate said valves, and operating mechanism engaging said lifting mechanism, adjustably movable relatively thereto to vary the period of reciprocation of said valves.

22. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, each provided with dual, apertured valve-seats in both the steam and exhaust passages, axially-reciprocable, cylindrical valves adapted to close on said seats simultaneously, longitudinally apertured to afford passage for steam when raised from the seats, said casing-passages being disposed to conduct the steam entirely around the sealed valves, and means to operate said valves.

23. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, each provided with dual, apertured valve-seats in both the steam and exhaust passages, axially-reciprocable, cylindrical valves adapted to close on said seats simultaneously, longitudinally apertured to afford passage for steam when raised from the seats, said casing-passages being disposed to conduct the steam entirely around the sealed valves, lifting mechanism adapted to engage the valves and operating mechanism adapted to engage the lifting mechanism adjustably movable relatively thereto to reverse the engine and to afford variable cut-off.

24. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, a pair of apertured, alined valve-seats opening transversely from the supply-passage, a reciprocable valve adapted to close on said seats simultaneously, a pair of apertured, alined valve-seats opening into the exhaust-passage transversely thereto, a reciprocable valve adapted to close on said seats simultaneously, and means for operating said valves.

25. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, a pair of apertured, alined valve-seats opening transversely from the supply-passage, a reciprocable valve adapted to close on said seats simultaneously, a pair of apertured, alined valve-seats opening into the exhaust-passage transversely thereto, a reciprocable valve adapted to close on said seats simultaneously, means independently lifting said valves, and means adapted to alternately engage said lifting

means, adjustably movable relatively thereto to reverse the order of engagement and to vary the period of reciprocation.

26. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, dual apertured valve-seats alined transversely to the supply-passages opening therefrom, a reciprocable valve adapted to close on said seats simultaneously, dual apertured valve-seats, alined transversely to the exhaust-passage opening therefrom, a reciprocable valve adapted to close on said exhaust-seats simultaneously, said valves being apertured to admit exhaust-steam on the outer ends of the valves when seated, to balance the back pressure on the inner ends, and means to operate said valves.

27. A valve-gear for engines, comprising valve-casings adapted to bridge the supply, exhaust and steam ports of an engine-cylinder, dual, apertured, alined valve-seats in both the steam and exhaust passages, a hollow cylindrical valve for each passage, flanged to close on said seats simultaneously, the passages being so disposed that the steam surrounds the shell and presses inwardly on the inner flange of the steam-valve when the latter is seated, and passes by and through the valves when the latter are raised, and means for operating said valves.

28. A valve-gear for engines, comprising oppositely-disposed valve-casings, each adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, oppositely-disposed steam and exhaust puppets in each of said casings, oppositely-disposed levers in each casing, each operating one of said puppets, a pair of cams, one in each of said casings, adapted to coördinately engage said levers, a second pair of cams, one in each of said casings, adapted to coördinately engage said levers in reverse order to said first pair, and means to throw either pair into engagement.

29. A valve-gear for engines, comprising oppositely-disposed valve-casings, each adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, oppositely-disposed steam and exhaust puppets in each of said casings, oppositely-disposed levers in each casing, each operating one of said puppets, a pair of cams, one in each of said casings, adapted to coördinately engage said levers, a second pair of cams, one in each of said casings, adapted to coördinately engage said levers in reverse order to said first pair, means to rotate said cams, and means to shift said cams across said levers.

30. A valve-gear for engines, comprising oppositely-disposed valve-casings, each adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, dual, alined apertured valve-seats in both the steam and exhaust passages, valves for said seats, each centered by an axial stem reciprocable in the guide-apertures of the casings, levers pivoted in the casings, each engaging the valve-stems, and cams adapted to alternately engage said levers, operatively connected to the engine-shaft.

31. A valve-gear for engines, comprising oppositely-disposed valve-casings, each adapted to bridge the corresponding supply, exhaust and steam ports of an engine-cylinder, apertured valve-seats in both the steam and exhaust passages, valves for said seats, each centered by an axial stem reciprocable in the casings, levers pivoted in the casings, each engaging a valve-stem, a cam-collar in each casing, oppositely-disposed cams on each collar, the corresponding cams being adapted to coördinately engage the respective steam and exhaust valve levers in each casing, a shaft secured in the casings carrying said collars, means to shift said shaft to throw either set of cams into operative position, and means to rotate said shaft.

32. A valve-gear for engines, comprising valve-casings, puppet-valves adapted to control and direct the passage of steam through the casings, and valve-operating means within the casings adapted to afford variable cut-off.

33. A valve-gear for engines, comprising valve-casings, puppet-valves adapted to control and direct the passage of steam through the casings, and valve-operating means within the casings between the cylinder and valves adapted to afford variable cut-off.

34. A valve-gear for engines, comprising valve-casings, puppet-valves adapted to control and direct the passage of steam through the casings, lifting means within the casings engaging the valves, and operating means within the casings having variable engagement with the lifting means, and driving means connecting the operating means and engine-shaft.

35. A valve-gear for engines, comprising casings, steam-passages therein, inlet and outlet valves in a passage common to both, and operating means adapted to afford a variable point of cut-off, in said passage for valves.

36. A valve-gear for engines, comprising casings, steam-passages therein, inlet and outlet lifting-valves in a passage common to both, valve-lifting means in said passage, and operating means in the passage adapted to have an adjustably-variable period of engagement with said lifting means.

37. A valve-gear for engines, comprising casings, steam-passages therein, inlet and outlet lifting-valves in a passage common to both, vibratable lifting means in the passage and rotatable operating means in the passage engaging the lifting means.

38. A valve-gear for engines, comprising casings, steam-passages therein, inlet and outlet lifting-valves in a passage common to both, vibratable lifting means in the passage and rotatable operating means in the passage engaging the lifting means, reciprocatable transversely to the plane of rotation to vary the period of operative connection with the lifting means.

39. A valve-gear for engines, comprising valve-casings, provided with passages adapted to connect the supply and cylinder ports of an engine-cylinder, plural, multiseat-valves in the casing-passages, and operating and reversing mechanism in the casing-passages common to both the valves.

40. A valve-gear for engines, comprising valve-casings, provided with passages adapted to connect the supply and cylinder ports of an engine-cylinder, plural, multiseat-valves in the casing-passages, and operating and reversing mechanism in the casing-passages common to the valves, said mechanism being adjustable to vary the point of cut-off.

41. A valve-gear for engines, comprising valve-casings, steam-passages therein, a multiseat-inlet lifting-valve in the passage, a multiseat-outlet lifting-valve in the passage, vibratable lifting means in the casings and rotatable operating means in the casings engaging the lifting means, said rotatable means being axially reciprocable to vary the period of its engagement with the lifting means.

42. A valve-gear for engines, comprising steam-distributing casings, multiseat balanced inlet and outlet apertured lifting-valves in the casings, vibratable valve-lifting means in the casings, and rotatable operating means common to said lifting means, shiftable longitudinally to vary the period of engagement with the lifting means.

43. A valve-gear for engines, comprising steam-distributing casings, multiseat balanced inlet and outlet lifting-valves in a common steam-passage, vibratable valve-lifting means in the passage between the valves and the cylinder, and rotatable operating means in the casings engaging said lifting means, shiftable transversely to planes of oscillation of the lifting means to vary the period and order of operation of said lifting means.

44. A valve-gear for engines, comprising steam-distributing casings, multiseat balanced inlet and outlet lifting-valves in a common steam-passage, vibratable valve-lifting means in the passage between the valves and the cylinder, rotatable operating means in the casings engaging said lifting means, shiftable transversely to planes of oscillation of the lifting means to vary the periods and order of operation of said lifting means, and mechanism connecting said operating means and engine-shaft.

748,932. CORN-SHOCKER. THOMAS L. CREATH, Mount Sterling, Ohio. Filed June 11, 1903. Serial No. 161,009. (No model.)

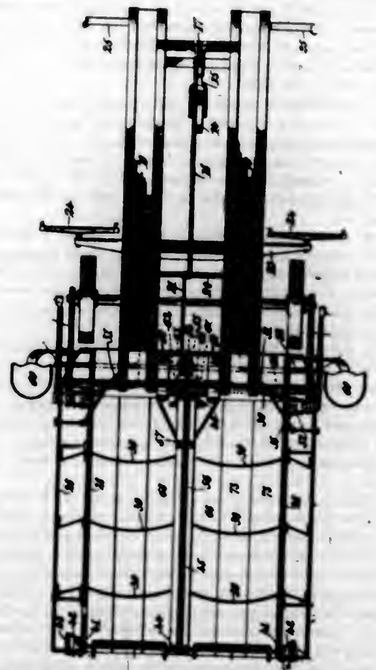
Claim.—1. In a shocker, the combination of a frame, a centrally-situated wall movable vertically toward and from the ground, said wall extending longitudinally of the machine, a slat at each side of the wall, said slats extending longitudinally and being movable in a horizontal plane toward and from the middle wall, the slats constituting a dumping-platform, and means for operating the platform and wall in unison.

2. In a shocker, the combination of a frame, a plurality of slats slidable in parallel planes into extended or folded position one over the other, said slats constituting a dumping-platform, and means for operating said slats.

3. A dumping-platform for shockers, comprising a plurality of slats arranged to slide in parallel planes into extended or nested position, each slat having a flange at one edge, and connections between the flanges to limit the sliding movement of the slats.

4. In a shocker, the combination of a frame, a sliding slat mounted thereon for the purpose specified, a shaft mounted to rotate on the slat, a rack stationary with respect to the slat, a pinion attached to the shaft and meshed with the rack, and means for operating the shaft, said means for operating the shaft comprising a driven chain and a sprocket-wheel attached to the shaft and meshed with the chain.

5. In a shocker, the combination of a frame, a sliding slat mounted thereon for the purpose specified, a shaft mounted to rotate on the slat, a rack stationary with respect to the slat, a pinion attached to the shaft and meshed with the rack, means for operating the shaft, said means for operating the shaft comprising a driven chain and a sprocket-wheel attached to the shaft and meshed with the chain, a spider loosely mounted on the shaft, and a guide-roller carried by the spider and engaged by the chain, to hold it in mesh with the spider.



6. In a shocker, the combination of a frame, a sliding slat mounted thereon for the purpose specified, a shaft mounted to rotate on the slat, a rack stationary with respect to the slat, a pinion attached to the shaft and meshed with the rack, and means for operating the shaft, said means comprising a sprocket-wheel attached to the shaft, an endless sprocket-chain, the runs of which are in mesh with opposite sides of the sprocket-wheel, and devices for mounting and driving the sprocket-chain.

7. In a shocker, the combination of a frame, a sliding slat mounted thereon for the purpose specified, a shaft mounted to rotate on the slat, a rack stationary with respect to the slat, a pinion attached to the shaft and meshed with the rack, means for operating the shaft, said means comprising a sprocket-wheel attached to the shaft, an endless sprocket-chain the runs of which are in mesh with opposite sides of the sprocket-wheel, devices for mounting and driving the sprocket-chain, a spider loosely mounted on the shaft, and rollers attached to the spider and bearing on one run of the chain at opposite sides of the sprocket-wheel to hold the chain engaged with the wheel.

8. In a shocker, the combination of a frame, a dumping-platform comprising two sections mounted to move toward and from each other into open or closed position, operating devices for each section, said devices comprising a beveled pinion for each section, said pinions lying adjacent to each other, a double-faced beval-gear lying between the pinions and having its faces respectively meshed with the pinions, a shaft on which the double-faced gear is carried, and means for operating the shaft.

9. The combination of a frame, a rack, means for mounting the rack to swing, a dumping-platform comprising a shiftable member, means for operating the dumping-platform, a driven pinion mounted on said shiftable member and adapted to mesh with the rack, and a guide-stud attached to the shiftable member to hold the rack in place during the engagement of the pinion therewith.

10. A shocker, comprising a frame, a member mounted to swing thereon, a rack carried by said member, a dumping-platform, a driven pinion mounted on the platform and adapted to mesh with the rack when the rack is in active position, and means for holding the rack in such position during the engagement of the pinion therewith.

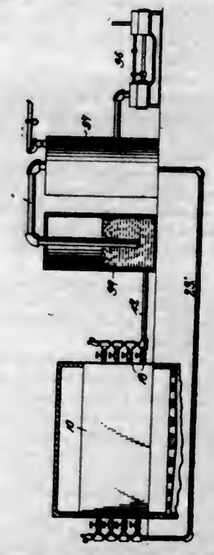
11. In a shocker, the combination with the frame, of a member mounted to swing thereon, a rack carried by said member, a plurality of sliding slats constituting a dumping-platform, means for operating said slats, a driven pinion mounted on one slat and adapted to mesh with the rack, and a pin attached to said pinion-carrying slat and engaged with the swinging member to hold it in operative position during the engagement of the pinion with the rack.

12. In a shocker, the combination with the frame, of a member mounted to swing thereon, a rack carried by said member, a plurality of sliding slats constituting a dumping-platform, means for operating said slats, a driven pinion mounted on one slat and adapted to mesh with the rack, a pin attached to said pinion-carrying slat and engaged with the swinging member to hold it in operative position during the engagement of the pinion with the rack, and a guard attached to the swinging member and extending upward over the slats.

13. In a shocker, the combination of a frame, a plurality of slats forming a dumping-platform and being mounted to move into extended position or to fold or nest one alongside of the other, and means for operating said slats to move from one position to another.

14. The combination of a harvester-frame, a shocker mechanism attached to the rear end thereof, a draft apparatus at each side of the harvester-frame rearward of the front end thereof, said draft apparatus permitting a horse to walk at each side of the harvester-frame, a centrally-located front wheel supporting the front portion of the harvester-frame, and means for adjusting the relative position of the wheel and frame, for the purpose specified.

748,933. APPARATUS FOR THE MANUFACTURE OF GAS. ROBERT DEMPSTER, Marietta, Ohio. Filed Apr. 2, 1903. Serial No. 150,829. (No model.)

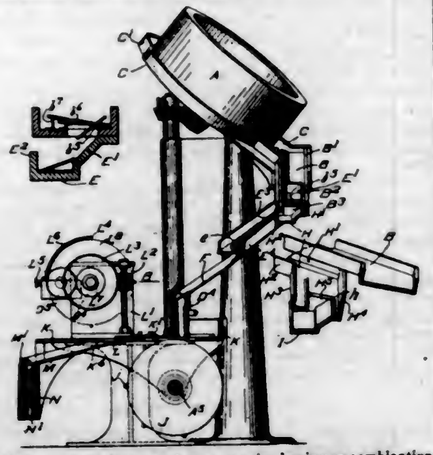


Claim.—1. In an apparatus for the manufacture of gas, the combination with a retort, of a compressed-air reservoir, a supply-pipe leading therefrom to one end of the retort, an oil-tank, an air-supply pipe connecting the upper portions of the reservoir and the oil-tank, and a supply-pipe leading from the oil-tank to the opposite end of the retort for admitting a mingled jet of air and oil to said retort.

2. In an apparatus for the manufacture of oil-gas, a retort having inlet-pipes arranged at its opposite ends, a compressed-air reservoir, an air-pipe leading from the reservoir to the inlet-pipe at one end of the retort and serving to supply air under pressure thereto, an oil-reservoir, a connecting-pipe between the two reservoirs, a pipe leading from the lower portion of the oil-reservoir to the opposite end of the retort to convey thereto a mixture of air and oil, and an air-compressing means connected to the compressed-air reservoir.

748,934. MACHINE FOR OPERATING UPON COINS. JOHN R. DOLDT, Portland, Me. Filed Mar. 12, 1903. Serial No. 147,426. (No model.)

Claim.—1. A machine for operating upon coins having in combination means for assorting coins of different sizes, means for separating coins of the same size and assembling the same, and means for arresting the separation when a predetermined number of coins have been assembled, substantially as described.



2. A machine for operating upon coins having in combination, means for assorting coins of different sizes, and means for delivering the coins of each size and means for arresting the delivery of the coins of a size after a predetermined number have been delivered, substantially as described.

3. A machine for operating upon coins having in combination, means for separating coins from a mass and delivering them in succession, means for assorting said coins, and means for separating a predetermined number of coins of the same size and assembling the same, substantially as described.

4. A machine for operating upon coins having in combination, means for separating coins from a mass and delivering them in succession, means for assorting said coins, means for delivering the coins of each size and means for arresting the delivery of the coins of a size after a predetermined number have been delivered, substantially as described.

5. A machine for operating upon coins having in combination, an inclined hopper, carriers for carrying the coins up the inclined bottom of the hopper, and a central opening through which the coins fall, substantially as described.

6. A machine for operating upon coins having in combination, a rotary inclined hopper, carriers for carrying the coins up the inclined bottom of the hopper, a central opening through which the coins fall and a distributing-plate below said opening for delivering said coins in succession, substantially as described.

7. A machine for operating upon coins having in combination, a rotary inclined hopper, carriers for carrying the coins up the inclined bottom of the hopper, a central opening through which the coins fall, and a plate covering said opening and arranged above the bottom of the hopper, substantially as described.

8. A machine for operating upon coins having in combination, a rotary inclined hopper, carriers for carrying the coins up the inclined bottom of the hopper, a central opening in the bottom of the hopper through which the coins fall, a distributing-plate below said opening having radial distributing-passages, substantially as described.

9. A machine for operating upon coins having in combination a rotary inclined distributing-plate provided with a central recess and radial distributing-passages for the coins, and a stationary cam for acting on a coin projecting from said radial passages, substantially as described.

10. A machine for operating upon coins having in combination, devices for separating coins from a mass and delivering them in succession, an inclined plate over which the coins are delivered, an inclined chute at the side of the plate and means for causing the coins to assume different angles as they are delivered laterally into the chute, substantially as described.

11. A machine for operating on coins having in combination an inclined chute B provided with openings B^3, B^5, chute E below opening B^5 provided with an opening E^5, a chute H below opening B^3 provided with an opening H^3, chutes F and I below the openings E^5, H^5, respectively and a series of receiving-tubes at the ends of said chutes, substantially as described.

12. A machine for operating upon coins having in combination, a series of receivers for coins of different sizes, means for assorting coins and distributing them to said receivers, means for separating coins from said receivers and assembling the coins from each receiver, and means for arresting the separation of coins from a receiver after a predetermined number of coins have been assembled, substantially as described.

13. A machine for operating upon coins having in combination, a series of receivers for coins of different sizes, means for assorting coins and distributing them to said receivers, a series of coin-receptacles, means for transferring coins from each receiver to the corresponding receptacle, and means for arresting the transfer when a predetermined number of coins have been transferred, substantially as described.

14. A machine for operating upon coins having in combination, a series of magazines for coins of different sizes, a corresponding series of coin-receptacles, means for transferring coins from each receiver to a corresponding receptacle, and means for arresting the transfer when a predetermined number of coins have been transferred, substantially as described.

15. A machine for operating upon coins having an inclined chute provided with a guiding side against which the coins rest as they pass down the chute, successive openings in the bottom of the chute extending longitudinally thereof each opening arranged to allow coins of two sizes to drop through, chutes below said opening provided with openings in their bottoms to allow one size of coins to drop through, and chutes under said openings, substantially as described.

16. A machine for operating upon coins having in combination, an inclined chute provided with a guiding side against which the coins rest as they pass down the chute, an opening in the bottom of the chute extending longitudinally thereof and of a width to allow two sizes of coins to drop through, an inclined plate below said opening, and a chute at the side of said plate the width of which is less than the diameter of one size of coins, substantially as described.

17. A machine for operating upon coins having an inclined chute provided with a guiding side against which the coins rest as they pass down the chute, an opening in the bottom of the chute extending longitudinally thereof, and a supporting-rib along the side of the opening adjacent to the guiding side of the chute, whereby the coins are lifted at the side adjacent to the guiding side of the chute as they pass over the opening, substantially as described.

18. A machine for operating upon coins having in combination a series of magazines for coins of different sizes, means for separating and distributing coins to said magazines, means for feeding coins successively from said magazines, and means for arresting the feed from a magazine after a predetermined number of coins have been fed therefrom, substantially as described.

19. A machine for operating upon coins having in combination a series of magazines for coins of different sizes, a feeding mechanism for each magazine for feeding coins successively from the magazine, means for operating said feeding mechanisms independently of each other and means for arresting the operation of any feeding mechanism after a predetermined number of coins have been fed from said magazine, substantially as described.

20. A machine for operating upon coins having in combination, a magazine for coins, a delivery-opening at the bottom of the magazine, a guideway for the coins, feeding-fingers for pushing the coins forward and a counting mechanism operated by the coins in the guideway for arresting the feed of the coins, substantially as described.

21. A machine for operating upon coins having in combination, a guideway for the coins, means for feeding the coins through the guideway, a counting mechanism provided with a star-wheel projecting across the guideway, an offset in the side of the guideway opposite the star-wheel which allows the coin to move laterally as it passes the center of the wheel and then moves said coin laterally toward the wheel, substantially as described

22. A machine for operating upon coins having in combination a guideway along which the coins are fed, a chute at the end of the guideway, a tube-holder at the end of the chute and a counting mechanism for arresting the feed of the coins after a predetermined number have been fed, substantially as described.

23. A machine for operating upon coins having in combination a guideway, means for pushing a series of coins along the guideway, two retaining-plates arranged to rest independently upon successive coins, substantially as described.

24. A machine for operating upon coins having in combination a magazine for coins, a delivery-opening at the bottom of the magazine, a guideway for the coins, and a series of feeding-fingers for acting on the bottom coin in the magazine and pushing it forward, and a counting mechanism for arresting the feed after a predetermined number of coins have been fed, substantially as described.

25. A machine for operating upon coins having in combination a series of magazines for coins of different sizes, a series of frictionally-driven disks having feeding-fingers for pushing forward the bottom coins in the magazines, and a series of counting mechanisms operated by the coins pushed forward by the feeding-fingers for arresting the feed of the coins from each of the magazines, whereby the feed from one magazine is arrested without arresting the feed from the others, substantially as described.

26. A machine for operating upon coins having in combination, a magazine-tube for holding a pile of superposed coins, devices for separating coins in succession from the pile, and means for assembling the coins of proper size and rejecting coins of smaller size, substantially as described.

27. A machine for operating upon coins having in combination, a magazine-tube for holding a pile of superposed coins, a guideway, devices for separating individual coins from the coins in the magazine and forwarding them along the guideway, and an opening in the guideway for rejecting coins of small size, substantially as described.

28. A machine for operating upon coins having in combination, a magazine-tube for holding a pile of superposed coins, a guideway, devices for separating individual coins from the coins in the magazine and forwarding them along the guideway, and counting mechanism operated by the coins as they pass through the guideway, and an opening in the guideway in advance of the counting mechanism for rejecting coins of small size, substantially as described.

29. A machine for operating upon coins having in combination, devices for assorting coins of different sizes, devices for assembling predetermined numbers of coins of like size distributed by the assorting devices, and rejecting coins improperly distributed by the assorting devices, substantially as described.

30. A machine for operating upon coins having in combination, means for separating coins from a mass and delivering them in succession, devices for assorting said coins, devices for assembling predetermined numbers of coins of like size distributed by the assorting devices, and rejecting coins improperly distributed, substantially as described.

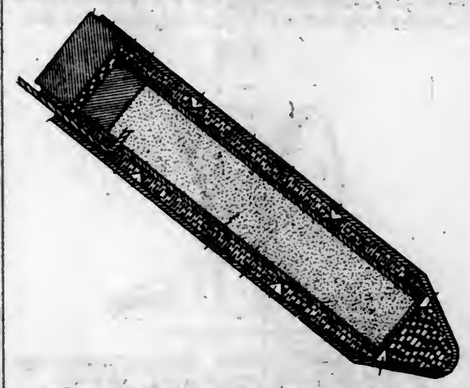
31. A machine for operating on coins having in combination a magazine for coins, devices for assembling a predetermined number of coins of like size from the magazine and rejecting coins of a smaller size, substantially as described.

32. A machine for operating upon coins having in combination, a series of magazines for coins of different sizes, devices for assorting coins and distributing them to said magazines, devices for assembling predetermined numbers of coins from each magazine and rejecting the coins improperly distributed by the assorting devices, substantially as described.

748,935. BLASTING-CARTRIDGE. THOMAS F. DURHAM, Philadelphia, Pa. Filed Mar. 4, 1903. Serial No. 146,194. (No model.)

Claim.—1. In a safety blasting-cartridge, an outer tube closed at one end, said closed end being formed tapering or conical, an inner tube also closed at one end, the open end of each tube being interiorly threaded, screw-threaded plugs adapted to close said open end, the interiorly-threaded mouth of the outer tube being formed eccentric with the body of the tube, the shoulder thus formed upon one side being provided with an opening extending to the interior of the tube, the inner tube being provided with an opening through its side, a fuse adapted to extend from the exterior of the cartridge through said opening to the interior of the inner tube, and the holes adapted to be closed around the fuse by a plastic waterproof solution, projections extending inward from the outer tube to hold the inner tube at a distance from the outer tube, and projections extending inward from the conical end of the outer tube upon which the inner tube is adapted to rest, as and for the purpose specified.

2. In a safety blasting-cartridge, an outer tube closed at one end, said closed end being formed tapering or conical, an inner tube also closed at one end, means for holding the inner tube at a distance from the outer tube, the open end of each tube being interiorly threaded, screw-threaded plugs adapted to close said open ends, the interiorly-threaded mouth of the outer tube being formed eccentric with the body of the tube, the shoulder thus formed upon one side being provided with an opening extending to the interior of the tube, the inner tube provided with an opening through its side, a fuse adapted to extend from the exterior of the cartridge through said openings to the interior of the inner tube, and the holes adapted to be closed around the fuse by a plastic waterproof solution, said inner and outer tubes adapted to be molded from a fireproof substance, as and for the purpose specified.



3. In a safety blasting-cartridge, an inner and outer tube projections extending inward from the outer tube, said projections adapted to hold the inner tube at a distance from the outer tube, said inner and outer tube and projections being molded from a material composed of a mixture of cement and silica, or like substance, as and for the purpose specified.

748,936. COMBINED FLOOR-DRAIN AND BACKWATER-TRAP. FREDERICK C. EDELEN, Kansas City, Mo., assignor to Crampton Parlee Brass Co., a Corporation of Missouri. Filed Nov. 22, 1902. Serial No. 132,447. (No model.)



Claim.—1. In a device of the character described, a basin having an inwardly-projecting flange and a channel portion communicating therewith below said flange, a J-shaped trap supported within the basin and having its hook portion disposed to discharge water up through said channel portion, and its stem communicating with the basin above said partition.

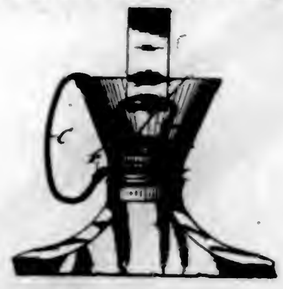
2. In a device of the character described, a basin having an inwardly-projecting flange and a channel portion communicating therewith below said flange, a J-shaped trap supported within the basin and having its hook portion disposed to discharge water up through said channel portion, and its stem communicating with the basin above said partition, and a gate normally closing the hook end of the trap.

3. In a device of the character described, a basin having an inwardly-projecting flange and a channel portion communicating therewith below said flange, a J-shaped trap supported within the basin and having its hook portion disposed to discharge water up through said channel portion and its stem communicating with the basin above said partition, and provided with a surrounding cup forming a tight joint with said flange.

4. In a device of the character described, a basin having an inwardly-projecting flange and a channel portion communicating therewith below said flange, a J-shaped trap supported within the basin and having its hook portion disposed to discharge water up through said channel portion and its stem communicating with the basin above said partition, and provided with a surrounding cup forming a tight joint with said flange, and a bell inclosing the upper end of said stem and depending within said cup.

748,937. HOLDER FOR THE STOPPERS OF WATER-BOTTLES. ARTUS C. HOUSE, New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., a Corporation of Connecticut. Filed May 16, 1903. Serial No. 157,623. (No model.)

Claim.—The combination, with a holder for the stoppers of water-bottles, consisting of an elastic cord provided with an elastic loop at one end for attachment to the neck of the water-bottle and a smaller elastic loop at the other end, of a split metallic gromet for reinforcing the smaller loop, said smaller loop and split gromet being attached to the neck of the stopper, substantially as set forth.



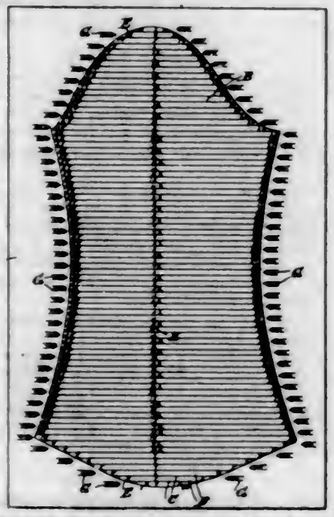
748,988. MONKEY-WRENCH. FRANK D. FAIRCHILD, Olean, N. Y. Filed May 19, 1903. Serial No. 157,809. (No model.)



Claim.—1. As an article of manufacture, a wrench comprising a shank, a fixed and a hollow sliding jaw supported on the shank, the sliding jaw provided with an apron, a dog located and wholly contained within the sliding jaw, an independent resilient thumb-piece secured to the dog, the thumb-piece extending beneath and protected by the apron and means engaging the thumb-piece to normally retain the dog in engagement with the shank.

2. A wrench comprising a shank, a fixed and a sliding jaw each supported on the shank, the sliding jaw being hollow and provided with an apron, a dog located and having a bearing within the sliding jaw, a resilient thumb-piece projecting from the dog and beneath the apron, and a spring carried by the apron and engaging the thumb-piece to retain the dog normally in engagement with the shank.

748,989. CHART OR PATTERN FOR CROCHET-WORK. EMILY G. FAREY, Kansas, Minn. Filed June 10, 1903. Serial No. 160,573. (No model.)



Claim.—1. A chart having a representation of a garment or part thereof, and parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, as set forth.

2. A chart having a representation of a garment or part thereof, and parallel lines dividing the representation into forward and return spaces, corresponding to the courses of stitches of the garment, as set forth.

3. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, and sets of consecutive numerals for the spaces, as set forth.

4. A chart having a representation of a garment or part thereof, and parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, the said parallel lines extending longitudinally from one side of the representation to the other, as set forth.

5. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, the said parallel lines extending longitudinally from one side of the representation to the other, and a set of consecutive numerals at each side, for successively indicating the said spaces, as set forth.

6. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, the said parallel lines extending longitudinally from one side of the representation to the other, and a set of consecutive numerals at each side, for successively indicating the said spaces, the numerals beginning at the bottom of the representation, as set forth.

7. A chart having a representation of a garment, the representation being divided into sections, and parallel lines dividing the sections into spaces, corresponding to the rows or courses of stitches to be made, as set forth.

8. A chart having a representation of a garment, the representation being divided into sections, and parallel lines dividing the sections into spaces, corresponding to the rows or courses of stitches to be made, the lines of adjacent sections meeting at the division-line of the sections, as set forth.

9. A chart having a representation of a garment, the representation being divided into sections, and parallel lines dividing the sections into spaces, corresponding to the rows or courses of stitches to be made, the lines running parallel with the bottom edges of the sections, as set forth.

10. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into forward and return spaces, corresponding to the courses of stitches of the garment, and direction-indicators at the beginning ends of the said forward and return spaces, as set forth.

11. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into forward and return spaces, corresponding to the courses of stitches of the garment, and flaps having arrows at the beginning ends of the said forward and return spaces, as set forth.

12. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into spaces corresponding to the rows or courses of stitches of the garment, and indicators in the said spaces, for indicating the length thereof by the number of stitches or shells, as set forth.

13. A chart having a representation of a garment or part thereof, parallel lines dividing the representation into forward and return spaces, corresponding to the courses of stitches of the garment, and indicators in the said spaces, for indicating the length thereof by the number of stitches or shells, as set forth.

748,940. METHOD OF PRODUCING ELECTRODES FOR STORAGE BATTERIES. FREDERICK A. PULSIFER, Newark, N. J., assignor to Electra Manufacturing Company, a Corporation of New Jersey. Filed Apr. 17, 1903. Serial No. 153,110. (No specimens.)

Claim.—1. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in incorporating in a porous material a reducing agent and then subjecting said porous material to the action of a solution of a salt or salts of lead.

2. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in subjecting a porous material to the action of a solution of a salt or salts of lead and then chemically reducing the same.

3. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in applying a porous material to a conducting-plate, and subjecting said porous material and plate to the action of a solution of a salt or salts of lead.

4. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in applying a porous material to a conducting-plate, then subjecting the porous material to the action of a solution of a salt or salts of lead and chemically reducing the same, substantially as set forth.

5. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in sewing fast to a conducting-plate a porous material, incorporating in said porous material a reducing agent, and then subjecting said porous material and plate to the action of a solution of a salt or salts of lead.

6. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in sewing fast to a conducting-plate a porous material, then subjecting the porous material and plate to the action of a solution of a salt or salts of lead, and chemically reducing the same.

7. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in subjecting a porous and carbonized material to the action of a solution of a salt or salts of lead and then chemically reducing the same.

8. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in applying a porous and carbonized material to a conducting-plate, then subjecting the said material and plate to the action of a solution of a salt or salts of lead and chemically reducing the same.

9. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in sewing fast to a conducting-plate a porous and carbonized material, then subjecting said porous material and plate to the action of a solution of a salt or salts of lead and chemically reducing the same.

10. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in incorporating a porous material with particles of zinc, and subjecting the same to the action of a solution of a salt or salts of lead.

11. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in applying a porous material to a conducting-plate, incorporating such porous material with particles of zinc, and subjecting the same to the action of a solution of a salt or salts of lead.

12. A process or method of producing an element or electrode for storage batteries, which consists in sewing fast to a conducting-plate, a porous material, incorporating said porous material with particles of zinc, and subjecting the same to the action of a solution of a salt or salts of lead.

13. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in incorporating a porous and carbonized material with particles of zinc, and subjecting the same to the action of a solution of a salt or salts of lead.

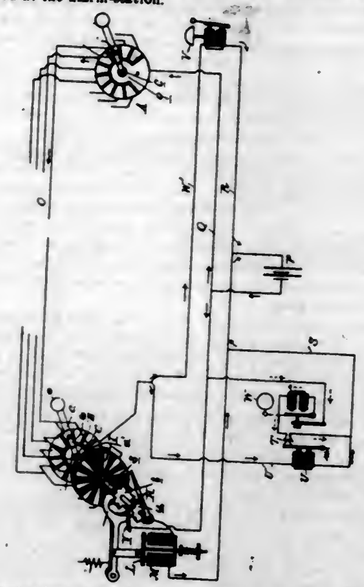
14. A process or method of producing an element or electrode for storage batteries by chemical reaction, which consists in applying a porous and carbonized material to a conducting-plate, incorporating said porous and carbonized material with particles of zinc, and subjecting said material and plate to the action of a solution of a salt or salts of lead.

15. A process or method of producing an element or electrode for storage batteries, which consists in sewing fast to a conducting-plate, a porous and carbonized material, incorporating said porous and carbonized material with particles of zinc, and subjecting said material and plate to the action of a solution of a salt or salts of lead.

748,9[illegible]. ELECTRIC SIGNAL SYSTEM. RICHARD A. SIMMONDS, Detroit, [illegible], assignor to Detroit Electrical Signal Company, Detroit, Mich., a [illegible]ship. Filed Dec. 16, 1902. Serial No. 88,171. (No model.)

Claim.—1. An electric signal system comprising transmitters at different stations for a plurality of corresponding signals, an alarm at one station adapted to operate continuously, an electromagnet controlling said alarm and a circuit therefor, extending to the transmitters at different stations and means for respectively closing and opening said circuit whenever said transmitters are in or out of registration with each other.

2. An electric signal system comprising an alarm at one station, means for starting said alarm in continuous operation by the transmission of any one of a plurality of signals from a distant station, means at said alarm-station for stopping said alarm by an operation corresponding to the signal sent, a signal at the distant station, and means automatically operating upon the operation of stopping said continuous alarm for causing a momentary operation of the signal at the distant station signifying that the correct signal has been received at the alarm-station.



3. An electric signal system comprising an alarm at one station adapted to operate continuously, a controlling electric circuit therefor adapted when closed to stop said alarm from operating and having a plurality of branches extending between the said station and a distant station, said branches corresponding respectively to a plurality of different signals, and signal instruments at the different stations controlling the coupling of said branches with the common portion of said electric circuit, said instruments being adapted when out of correspondence to open said circuit and thereby permit said alarm to continuous operation, and when in correspondence to stop said alarm.

4. In a signal instrument, the combination with an electromagnet, of a vibratory pawl actuated in one direction by said magnet, a ratchet-wheel with which said pawl engages, a star-contact wheel rotated by said ratchet-wheel and having a corresponding number of teeth, a cooperating contact and an electric circuit including said magnet, contact-wheel and cooperating contact; the arrangement being such that the electromagnetic actuation of said pawl will rotate said contact-wheel to break with its cooperating contact, and the opposite movement of said pawl will further rotate said contact-wheel to bring the succeeding tooth thereof against said cooperating contact.

748,942. NUT-LOCK. ADDISON C. FLETCHER, New York, N. Y. Filed Sept. 21, 1903. Serial No. 174,074. (No model.)



Claim.—1. A nut-lock including a plate perforated to receive a bolt, having an offstanding nut-engaging flange and a neck connecting the flange with the body of the plate between the ends of said flange, said ends being disposed at an angle to the main portion of the flange, whereby the latter will engage several faces of the nut, and the body of the plate having bendable lips at opposite sides of said neck to engage the opposite ends of said flange.

2. The combination of a pair of rails, a fish-plate fitted against the same, a bolt passing through registering perforations in a rail and the fish-plate, respectively, having a nut at its outer end, a plate perforated to receive the bolt located between the nut and the fish-plate and having an offstanding flange to engage said nut, said

plate also having a lip to engage the offstanding flange, and a band embracing the nut, offstanding flange and lip, respectively.

3. A nut-lock including a plate perforated to receive a bolt, having an offstanding nut-engaging flange and a neck connecting the flange with the body of the plate between the ends of said flange, said ends being disposed at an angle to the main portion of the flange, whereby the latter will engage several faces of the nut, and the body of the plate having bendable lips at opposite sides of said neck to engage the opposite ends of said flange, and a second flange extending across the same to bear against a suitable support.

4. A nut-lock including a plate doubled upon itself and having a base-flange to rest upon the base of a fish-plate, and the inner section thereof having along its top an inwardly-extending flange to fit over the top of said fish-plate, the sections of said plate having registering perforations to receive a bolt, and the front section of said plate having an offstanding flange of polygonal form to engage a nut, the ends of said offstanding flange being free of the body of the plate, and said body having bendable lips to engage the free ends of the offstanding flange.

5. The combination of a pair of rails, a fish-plate fitting against the same, a bolt passing through the fish-plate and a rail having a nut at its outer end, and a plate doubled upon itself having a base-flange to rest upon the base of the fish-plate, and the inner section thereof having along its top an inwardly-extending flange to fit over the top of said fish-plate, the sections of said locking-plate having registering perforations to receive the bolt between the nut and the fish-plate and the front section of the locking-plate having an offstanding flange of polygonal form to engage the nut, and lips to engage said offstanding flange.

6. A nut-locking plate having a bolt-receiving perforation, an offstanding flange and a neck connecting the flange with the body of the plate, said neck being approximately in vertical alinement with the perforation, and the ends of the flange being bent at an angle to the remainder thereof.

748,948. PROCESS OF MANUFACTURING HYDRAULIC CEMENT. JULIUS GRELLY, Lieberg, Switzerland. Filed Feb. 26, 1903. Serial No. 146,991. (No specimens.)

Claim.—1. Process for producing hydraulic cements by burning artificially and intimately mingled mixtures of aluminium silicates with lime, especially in form of carbonate, and with a slight addition of a sulfate (MSO_4), wherein a molecules of SiO_2, b molecules of Al_2O_3, c molecules of MSO_4 and d molecules of CaO are mixed in such a relation, that the number d of the lime unities is greater than the sum $a+b$ of the acid unities, the burning being effected below the sintering temperature, as described.

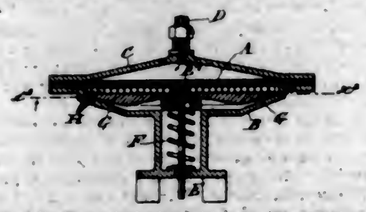
2. Process for producing hydraulic cements by burning artificially and intimately mingled mixtures of aluminium silicates with lime, especially in form of carbonate, and with a slight addition of sulfate of calcium, wherein a molecules of SiO_2, b molecules of Al_2O_3, c molecules of $CaSO_4$ and d molecules of CaO are mixed in such a relation, that the number d of the lime unities is greater than the sum $a+b$ of the acid unities, the burning being effected below the sintering temperature, as described.

3. Process for producing hydraulic cements by burning artificially and intimately mingled mixtures of aluminium silicates with lime, especially in form of carbonate, and with a slight addition of a sulfate (MSO_4), wherein a molecules of SiO_2, b molecules of Al_2O_3, c molecules of MSO_4 and d molecules of CaO are mixed in such a relation, that the number d of the lime unities is $2(a+b)$ i. e., equal to double the number of the acid unities, the burning being effected below the sintering temperature, as described.

4. Process for producing hydraulic cements by burning artificially and intimately mingled mixtures of aluminium silicates with lime, especially in form of carbonate, with a slight addition of sulfate of calcium, wherein a molecules of SiO_2, b molecules of Al_2O_3, c molecules of $CaSO_4$ and d molecules of CaO are mixed in such a relation, that the number d of the lime unities is $2(a+b)$ i. e., equal to double the number of the acid unities, the burning being effected below the sintering temperature, as described.

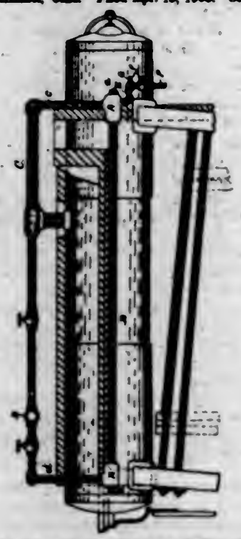
748,944. DIAPHRAGM INDICATING, CONTROLLING, AND MEASURING APPLIANCE. JULES GROUVELLE and HENRI ARQUEMBOURG, Paris, France. Filed Dec. 4, 1901. Serial No. 84,604. (No model.)

Claim.—1. In a diaphragm device, a diaphragm comprising a membrane of flexible material, a reinforce therefor having a plurality of radially-disposed and independently-movable sectors of rigid material, and balls disposed between the said membrane and reinforce.



2. A diaphragm device comprising a casing consisting of a body B, and a cover C, the latter having an inlet for a fluid under pressure, a rubber membrane A, clamped between the margins of the said body and cover, the reinforce consisting of the segments G, under said membrane, the balls H between said membrane and segments, the rod E, having a head which bears on the under side of the said membrane, and the spring F under said head, substantially as set forth.

748,945. SUPERHEATER FOR STEAM-BOILERS. EDWARD T. HANEAN, Cincinnati, Ohio. Filed Apr. 15, 1903. Serial No. 152,642. (No model.)



Claim.—1. In a superheater for steam-boilers, the combination of steam-boxes mounted in the front and rear walls of the boiler-setting and accessible from the outside; a system of steam-pipes extending longitudinally through the combustion-chamber below the water-level in the boiler and opening into the steam-boxes at either end; a connection between one of the steam-boxes and the steam-space in the boiler; a connection between the pipe system and the water-space in the boiler; means for draining the pipe system; and hand-holes in the steam-boxes for access to the steam-pipes, substantially as specified.

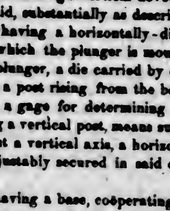
2. In a superheater for steam-boilers, the combination of steam-boxes mounted in the front and rear walls of the boiler-setting and accessible from the outside; a system of steam-pipes extending longitudinally through the combustion-chamber from the rear to the front below the water-level in the boiler and opening into the steam-boxes at either end; a connection between the rear steam-box and the steam-space in the boiler; a connection between the pipe system and the water-space in the boiler, means for draining the pipe system; and hand-holes in the steam-boxes for access to the steam-pipes, substantially as specified.

3. The combination, with a boiler, of steam-pipes extending longitudinally through the combustion-chamber and adapted to support the top of the combustion-chamber; and a connection between the steam-pipes and the steam-space in the boiler substantially as specified.

4. The combination, with a boiler, of steam-pipes extending longitudinally through the combustion-chamber and adapted to support the top of the combustion-chamber; a connection between the pipes and the water-space in the boiler; and a connection between the steam-pipes and the steam-space in the boiler, substantially as specified.

5. The combination, with a boiler, of boxes A; tubes B; pipes E and F provided with valves e and f; connections C and c; and connections D and d, substantially as specified.

748,946. FENCE-POST. HENRY HAMMERSON, Millersport, Ohio. Filed May 13, 1902. Serial No. 107,112. (No model.)



Claim.—In a fence-post, the combination with a base 1 comprising a solid body of cement flaring toward its lower end and formed with a base-flange, of a post extending centrally through said base-body, a transverse pin 4 intersecting said post and having its ends inclosed within the base-body and a separately-formed horizontally-disposed block having a central opening therein adapted to receive the upper end of the base-body and having its upper side flush therewith, substantially as specified.

748,947. HAND-PRESS. JULIUS F. HELBOLD, Chicago, Ill. Filed Jan. 12, 1903. Serial No. 138,669. (No model.)



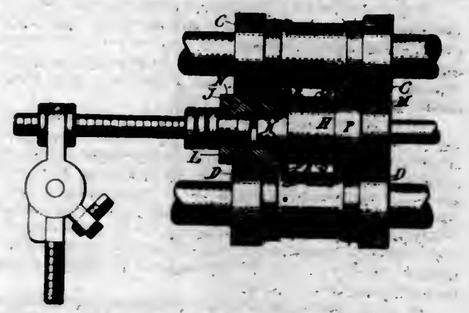
Claim.—1. A hand-press having in combination a horizontally-disposed reciprocable plunger, a base-plate upon which said plunger is mounted to slide, integral flanges rising from the base-plate and having parallel faces engaging the sides of the plunger for guiding it, cross-plates secured to said flanges and engaging the top side of the plunger, a hand-lever, lugs integral with the base-plate for supporting the fulcrum of the lever, a toggle-link jointed at one end of the short arm of the lever and at the other end to the plunger, the other end of said plunger being provided with a vertical dovetail groove, a die having a vertical dovetail rib removably seated in said groove, a cooperating die having a vertical dovetail rib, and a post rising from the base and having a vertical dovetail groove occupied by the rib last aforesaid, substantially as described.

2. A hand-press having a horizontally-disposed reciprocable plunger, a base upon which the plunger is mounted to slide, means for reciprocating the plunger, a die carried by one end of the plunger, a cooperating die a post rising from the base and holding the die last aforesaid and a gage for determining the position of the work said gage having a vertical post, means supporting it and permitting it to turn about a vertical axis, a horizontal eye carried by the post and a rod adjustably secured in said eye, substantially as described.

3. A hand-press having a base, cooperating dies, means for operating said dies, and a gage, said gage having a horizontal eye, means supporting said eye and permitting it to be adjusted about a vertical axis, a rod adjustable in said eye, a second rod disposed at right angles to the rod first aforesaid and an eye carried by the second rod and fitting adjustably on the first rod, substantially as described.

4. A hand-press having a base, cooperating dies, means for operating the dies, and a gage, said gage having a pair of rods, a slide adjustably mounted upon one of the rods, an eye in which the other of said rods is adjustable endwise, means for permitting the adjustment of said eye about a vertical axis, and means adjustably securing said rods together, substantially as described.

748,948. MACHINE FOR ROLLING PIPE-COUPLINGS, &c. HENRY W. HOCK and JOHN A. HOCK, Youngstown, Ohio. Filed Nov. 3, 1902. Serial No. 129,841. (No model.)



Claim.—1. In a device for rolling pipe-couplings, &c., rolls and a sectional mandrel, said rolls and sectional mandrel each being provided with coacting flanges, said flanges being located in relation to each other to cause the locking together or holding in place of the sectional mandrel during the rolling action.

2. In a device for rolling pipe-couplings, &c., rolls and a sectional mandrel, each having a plurality of sets of coacting flanges, the bearing-faces of the flanges of the rolls abutting against and coacting with the bearing-faces of the flanges upon the mandrel-sections, whereby said sections during the operation of forming a coupling may be held in proper place by the flanges of the rolls, the second set of bearing-faces on the mandrel being wider than the corresponding set of bearing-faces on the rolls.

3. In a device for rolling pipe-couplings, &c., rolls and a sectional mandrel, each having a plurality of sets of coacting flanges, the bearing-faces of the flanges of the rolls abutting against and coacting with the bearing-faces of the flanges upon the mandrel-sections, whereby said sections during the operation of forming a coupling may be held in proper place by the flanges of the rolls, the second set of bearing-faces on the mandrel being wider than the corresponding set of bearing-faces on the rolls, said mandrel having oppositely-disposed inclines, and its sections having interengaging members.

4. In a machine for rolling pipe-couplings, &c., rolls and a sectional mandrel, the said rolls and mandrel each having coacting flanges forming bearing-faces oppositely disposed and serving to hold the sections of the mandrel in place during the operation of forming a coupling and separation of the rolls permitting the separation of the sections of the mandrel for discharging the coupling, the said mandrel-sections having interengaging portions.

5. In a machine for rolling pipe-couplings, &c., rolls and a sectional mandrel disposed between said rolls, said rolls and mandrel each provided with shoulders and coacting flanges constituting bearing-faces oppositely disposed and serving to hold the sections of the mandrel in place during the operation of forming a coupling and separation of the rolls permitting the separation of the sections of the mandrel for discharging the coupling, the rolls having their central portions of smaller diameter than their bearing-faces and the mandrel having its bearing-faces wider than the coacting faces of the rolls to form countersinks in the inside ends of the couplings.

6. In a machine for forming pipe-couplings, &c., rolls and a sectional mandrel disposed between said rolls, the mandrel-sections having interengaging portions, said rolls and mandrel each provided with shoulders and coacting flanges constituting bearing-faces oppositely disposed and serving to hold the sections of the mandrel in place during the operation of forming a coupling and separation of the rolls permitting the separation of the sections of the mandrel for discharging the coupling, the rolls having their central portions of smaller diameter than their bearing-faces and the mandrel having its bearing-faces wider than the coacting faces of the rolls, and the said faces and reduced portion being connected by inclined portions.

7. In a machine for rolling pipe-couplings, &c., a sectional mandrel, rolls upon opposite sides of said mandrel, said rolls and mandrel-sections each having coacting flanges disposed in relation to each other to cause the locking together or holding in place of the sectional mandrel during the rolling action, and means on said rolls and mandrel for forming a recess in the coupling.

8. In a machine for rolling pipe-couplings, &c., a roll and a cooperating sectional mandrel provided with means for forming screw-threads in the couplings, the rolls and mandrel-sections being pro-

vided with coacting flanges disposed in relation to each other to cause the locking together or holding in place of the mandrel-sections during the operation of forming a coupling by said flanges.

9. In a machine for rolling pipe-couplings, &c., a roll and a co-operating sectional mandrel provided with means for tapering the couplings from opposite ends and for forming screw-threads thereon, said roll and mandrel-sections being provided with coacting flanges disposed to cause the locking together or holding in place of the mandrel-sections during the rolling action.

10. In an apparatus for welding and shaping pipe-couplings or similar articles, the combination of a central mandrel and a cluster of rolls surrounding the same, said rolls having flanges at each end adapted to contact with the mandrel and confine the blank, said mandrel of separable interengaging sections corresponding in diameter to the interior of the article to be formed and having a portion of enlarged diameter at one end projecting into the pass of the rolls, and coöperating annular shoulders on the mandrel one on each section and rolls to prevent endwise movement of the mandrel during the welding and shaping operation.

11. In an apparatus for welding and shaping pipe-couplings or similar articles, the combination of a central mandrel and a cluster of rolls surrounding the same, said rolls having flanges at each end adapted to contact with the mandrel and confine the blank, said mandrel of separable interengaging sections corresponding in diameter to the interior of the article to be formed and having a portion of enlarged diameter at one end projecting into the pass of the rolls, square inwardly-facing shoulders on the rolls, and a square outwardly-facing shoulder on each section of the mandrel contacting with the shoulders on the rolls and adapted to prevent endwise movement of the mandrel during the welding and shaping operation.

748,949. SPORTSMAN'S CONVERTIBLE HAT. ERNEST R. HODGSON, Wheeling, W. Va. Filed Mar. 31, 1903. Serial No. 150,576. (No model.)



Claim.—1. In a hat, the combination of a hat-band, a foldable shade supported thereby, a stretcher-frame consisting of a series of stretcher-rods connected at their outer ends only to the outer edge of the shade, the inner edge of said stretcher-frame and the inner edge of the shade being supported by the hat-band, means for moving the inner edge of one with respect to the inner edge of the other around the hat-band.

2. In a hat the combination, of a hat-band, a foldable shade, a slidable stretcher-band loosely mounted on and movable around the hat-band, a stretcher-frame consisting of a series of stretcher-rods connected to the shade at their outer ends only, the inner edge of said shade and the inner edge of the stretcher-frame being supported by the hat-band, one of said inner edges being permanently attached to the stretcher-band so that by the movement of said band around the hat in one direction the stretcher-rods will be swung outward and the shade extended and by a movement in the reverse direction the shade will be collapsed.

3. In a hat the combination, of a hat-band, a stretcher-band loosely mounted thereon and slidable around said band, a shade permanently attached at its inner edge to said stretcher-band, stretcher-rods pivoted at their inner ends to the hat-band and permanently attached at their outer ends only to the shade whereby the movement of the stretcher-band and the attached edge of the shade in one direction will swing the stretcher-rods on their pivots and extend the shade and a movement of it in the reversed direction will collapse said shade.

4. In a hat the combination, of a hat-band, a foldable shade, a slidable stretcher-band movable around the hat-band, the inner edge of the shade being permanently attached to the stretcher-band, stretcher-rods connected to the shade at their outer ends, the inner ends of the stretcher-rods being attached to the hat-band, and means for locking the stretcher-band to the hat-band, whereby the stretcher-rods may be swung outward by moving the stretcher-band and the attached shade in one direction around the hat and be swung inward by a reverse movement of the stretcher-band and the attached edge of the shade.

5. In a hat the combination, of a hat-band, a stretcher-band loosely mounted thereon and slidable around said band, a foldable shade loosely supported by the hat and attached at its inner edge to said stretcher-band, a stretcher-frame consisting of a series of stretcher-rods pivoted at their inner ends to the hat-band and attached at their outer ends only to the shade, and means carried by the hat to lock the stretcher-band to the hat against movement whereby the stretcher-band and the attached shade may be moved in one direction to swing the stretcher-rods outward to extend the shade and the stretcher-band may be locked in position to hold the shade in its extended position.

6. In a hat the combination, of a hat-band, a stretcher-band loosely mounted thereon and slidable around said band, a foldable shade supported by the hat-band and attached at its inner edge to the stretcher-band, a stretcher-frame consisting of a series of stretcher-rods pivoted at their inner ends to the hat-band and secured at their outer ends only to said shade, means for locking the stretcher-band in one of its positions, a pull device secured to the outer side of the stretcher-band and by which the said band may be moved around the hat-band to draw the shade in one direction and thereby swing outward the stretcher-rods.

7. The combination, of a hat, a shade supported at its inner edge by said band, a series of thin flexible stretcher-rods connected at their outer ends to said shade and at their inner ends to the hat, whereby said shade may be folded around the hat-band, and a retaining-band adapted to cover and conceal the folded shade, and means for securing said band in position.

8. The combination of a hat-band, a shade supported at its inner edge by said band, a series of thin flexible stretcher-rods connected at their outer ends to the said shade and at their inner ends to the hat-band whereby said shade may be folded around the hat-band, and a retaining-band adapted to cover and conceal the folded shade, and devices for attaching one end of said retaining-band to the hat-band and means for connecting the two ends of the retaining-band together.

9. In a hat the combination, of a hat-band, a foldable shade, a series of stretcher-rods connected at their outer ends to the outer edge of the shade, the inner ends of said rods and the inner edge of the shade being supported by the hat-band, the inner edge of the shade and the inner ends of the stretcher-rods being movable with respect to each other around the hat-band, and a retaining-band to hold said shade in its folded position around the hat-band.

10. The combination of a hat, a foldable shade, a stretcher-frame consisting of a series of stretcher-rods connected at their outer ends only to the outer edge of the shade, the inner edge of the stretcher-frame and the inner edge of the shade being supported by the hat, the inner edge of one of said parts being permanently attached to the hat and the inner edge of the other part being loosely supported by and slidable around the hat, whereby the slidable part may be moved to extend the shade.

11. The combination of a hat, a foldable shade, a series of stretcher-rods connected at their outer ends to the outer edge of the shade, the inner ends of said rods and the edge of the shade being supported by the hat, the inner edge of said shade and the inner ends of said stretcher-rods being movable with respect to each other around the hat, and a retaining-band adapted to cover and conceal the folded shade and means for securing said band in position.

12. In a hat the combination, of a hat-band, a stretcher-band mounted thereon and slidable around said band, a shade connected at its inner edge to said stretcher-band, stretcher-rods pivoted at their inner ends to the hat-band and at their outer ends to the shade whereby the movement of the stretcher-band in one direction will extend the shade and a movement in the reverse direction will collapse said shade, a retaining-band adapted to cover and conceal the folded shade, and means for securing said retaining band in position.

13. The combination of a hat, a foldable shade loosely supported at its inner edge around the hat, a stretcher-frame consisting of a series of stretcher-rods connected at their outer ends only to the shade, the inner edge of said stretcher-frame being permanently attached to the hat, whereby the stretcher-rods may be swung outward and the shade extended by sliding the inner edge of the shade around the hat.

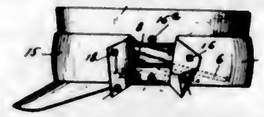
14. In combination with a hat carrying a band, a foldable and unfoldable shade mounted thereon, and a removable retaining-band embracing and holding the shade when the same is folded.

15. In combination with a hat, a foldable and unfoldable shade attached to the crown portion of the hat, and a band removably embracing the shade when the same is folded against the hat.

16. In combination with a hat, a shade surrounding the hat and having its inner edge supported thereon, a series of stretcher-rods supported on the hat and attached to the shade at their outer

ends only, whereby the movement of either the inner ends of the stretcher-rods or the inner edge of the shade will cause the unfolding of the rods and the distention of the shade.

748,950. SPORTSMAN'S CONVERTIBLE HAT. ERNEST R. HODGSON, Wheeling, W. Va. Filed June 1, 1903. Serial No. 159,451. (No model.)



Claim.—1. In a hat the combination, of a hat-frame, a foldable shade, a stretcher-frame consisting of a series of stretcher-rods connected at their ends only to the outer edge of the shade, the said stretcher-frame and the shade being supported by the hat-frame, one of said parts being permanently connected to the hat-frame and the other part being slidable around said frame, and a permanent shade-receiving pocket connected to the hat-frame on the outer side thereof, said pocket being open at its upper edge to receive the free ends of the stretcher-rods and the connected shade.

2. The combination of a hat, a foldable shade loosely supported at its inner edge around the hat, a stretcher-frame consisting of a series of stretcher-rods connected at their outer ends only to the shade, the said stretcher-frame being permanently attached to the hat whereby the stretcher-rods may be swung outward and the shade extended by sliding the inner edge of the shade around the hat, and a retaining-pocket secured to the outer side of the hat below the shade and adapted to receive the free ends of the stretcher-rods and the folded shade.

3. In combination with a hat, a foldable and unfoldable shade mounted thereon, a flexible fabric pocket secured to the hat to receive said shade and retain it in its folded position, said pocket being closed at its outer side and bottom and open at its top, whereby the folded shade may be forced down into the pocket.

4. In combination with a hat, a foldable and unfoldable shade mounted thereon, flexible and resilient stretcher-rods connected to said shade and to the hat, and a flexible pocket open at its upper edge and closed at its bottom and outer side and connected to the hat and adapted to receive the folded shade and stretcher-rods to retain them in their folded positions around the hat.

5. In combination with a hat, a foldable and unfoldable shade mounted thereon, a flexible pocket to receive said shade to retain it in its folded position, and a detachable hat-ribbon adapted to be secured about the hat to conceal the folded shade and the pocket.

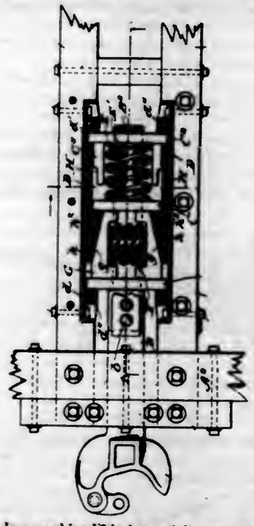
6. In combination with a hat, a foldable and unfoldable shade mounted thereon, flexible and resilient stretcher-rods connected to said shade and to the hat, a flexible fabric pocket open at its upper edge and closed at its outer side and bottom and secured to the hat, said pocket being adapted to receive the shade and the stretcher-rods to retain them in their folded positions around the hat, and a removable hat-ribbon adapted to be secured over the pocket to conceal the folded shade and the pocket.

7. The combination of a hat, a shade-ring loosely mounted thereon on the outer side thereof, a shade connected at its inner edge to said ring, a series of stretcher-rods pivoted at their inner ends to the hat their outer ends being attached to the shade and a crown portion connected to the shade-ring.

8. A hat comprising, a frame formed of the horizontal wire 2, the depending vertical stay-wires connected to said main wire at suitable intervals, suitable stiffening material connected to said wire frame, flexible and resilient stretcher-rods pivoted at their inner ends to the stay-wires, a shade-ring extending loosely around the hat-frame above the stretcher-rods, a foldable shade connected at its inner edge to the shade-ring and at its outer edge to the outer ends of the stretcher-rods, means for locking the shade-ring to prevent it sliding around the hat-frame, and a crown portion connected to the shade-ring.

9. In a hat the combination, of a hat-frame, a foldable shade, a stretcher-frame consisting of a series of stretcher-rods connected at their outer ends only to the outer edge of the shade, the said stretcher-frame and the shade being supported by the hat-frame, one of said parts being permanently connected to the hat-frame and the other part being slidable around said frame, and a shade-receiving pocket connected to the hat-frame to receive the outer ends of the stretcher-rods and the connected shade.

748,951. COMBINED FRICTION AND DIRECT-ACTING SPRING DRAFT-RIGGING FOR RAILWAY-CARS. THOMAS B. HURT, Chicago, Ill. Filed June 24, 1903. Serial No. 162,899. (No model.)



Claim.—1. In a combined friction and direct-acting spring draft rigging, the combination with a draw-bar, draw-bar extension, side plates or stop-castings and followers, of a longitudinally-acting spring, a transversely-acting spring, a pair of transversely-movable friction plates or blocks, and a longitudinally-movable friction shell or barrel, substantially as specified.

2. In a combined friction and direct-acting spring draft-rigging, the combination with a draw-bar, draw-bar extension, side plates or stop-castings and followers, of a longitudinally-acting spring, a transversely-acting spring, a pair of transversely-movable friction plates or blocks having inclined friction-faces, and a longitudinally-movable friction shell or barrel having inclined friction-faces engaging the inclined friction-faces of said transversely-movable friction plates or blocks, substantially as specified.

3. In a combined friction and direct-acting spring draft-rigging, the combination with a draw-bar, draw-bar extension, side plates or stop-castings and followers, of a longitudinally-acting spring, a transversely-acting spring, a pair of transversely-movable friction plates or blocks having inclined friction-faces, and a longitudinally-movable friction shell or barrel having inclined friction-faces engaging the inclined friction-faces of said transversely-movable friction plates or blocks, said longitudinally-movable friction shell or barrel having shoulders for the middle follower to bear against, substantially as specified.

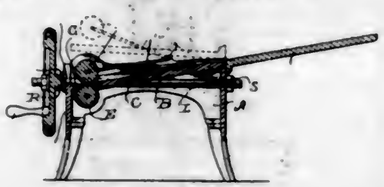
4. In a combined friction and direct-acting spring draft-rigging, the combination with a draw-bar, draw-bar extension, side plates or stop-castings and followers, of a longitudinally-acting spring, a transversely-acting spring, a pair of transversely-movable friction plates or blocks having inclined friction-faces, and a longitudinally-movable friction shell or barrel having inclined friction-faces engaging the inclined friction-faces of said transversely-movable friction plates or blocks, the rear follower having an integral flange or case to limit the compression of said longitudinally-acting spring, substantially as specified.

5. The combination with a draw-bar, draw-bar extension, side plates or stop-castings and followers, of a transversely-acting spring, a pair of transversely-movable friction-blocks against which said spring bears and having inclined friction-faces, and a longitudinally-movable friction shell or barrel surrounding and taking the lateral thrust of said transversely-movable friction-blocks and having inclined friction-faces engaging the inclined friction-faces of said longitudinally-movable friction-blocks, substantially as specified.

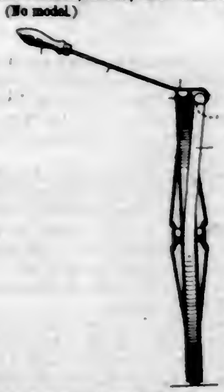
748,952. MACHINE FOR CUTTING NOODLES, &c. CELESTE HURT, Chicago, Ill., assignor of one-half to Herman R. Vavra, Chicago, Ill. Filed Dec. 24, 1902. Serial No. 136,427. (No model.)

Claim.—A cutting-machine comprising a frame, an inclined feed-table supported thereon, provided at one end with a hinged exten-

sion, and cut away at its other end on its lower face, a feed-roll journaled in bearings at one end of said frame and projecting into said cut-away portion of said feed-table, a beveled projection on the end wall of said frame extending over said feed-roll and adapted to receive the material to be cut, a shaft journaled in bearings in the end walls of said frame, a crank-wheel at one end of said shaft, knives carried by said crank-wheel, a flange on the end wall of said frame adapted to coact with said knives to shear the material to be cut, an adjustable collar at the other end of said shaft engaging the other end wall of said frame and adapted to determine the position of said knives relatively to said flange, a worm on said shaft, a worm-wheel on said feed-roll meshing therewith, and a vertically-movable idler parallel with said feed-roll and resting thereon or on the material passing over said feed-roll, substantially as described.



748,953. TOOL FOR SEATING RUBBER TIRES IN RIM-CHANNELS. WILLIAM S. JACOBS, Malden, Mass. Filed Dec. 29, 1902. Serial No. 136,930. (No model.)



Claim.—A tool for seating rubber tires, comprising a fulcrum portion or breast, a hooked-shaped head located at one side of said fulcrum portion and bent or recurved to such an extent that its end faces back in the direction of the fulcrum portion and is separated from the latter only by a space or throat substantially sufficient to admit a tire which can be accommodated in the recess of the hook, and a shank or handle portion located at the opposite side of the fulcrum portion and extended therefrom, the said shank and the back or closed side of the head being substantially at one side of a line extending through the fulcrum portion and the central portion of the recess of the head, while the throat of the head is located at the opposite side of said line, whereby when the shank is swung inwardly toward the side of a wheel the said throat is brought into coincidence with the tire-receiving groove of the wheel.

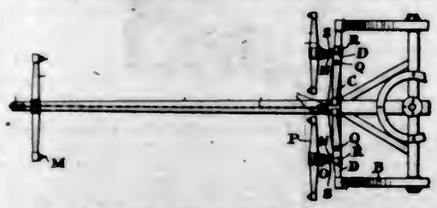
748,954. SHUTTLE-THREADER. OSCAR R. JACQUIN, Manchester, N. H. Filed Sept. 26, 1902. Serial No. 124,772. (No model.)



Claim.—1. A portable hand implement for threading shuttles comprising a cylinder having a suction-inlet, a piston having an extended rod, a spring acting to impel the piston in one direction, a handle for operating the piston, and an automatic catch for locking the piston in a compressed state of the spring, said catch having a normally exposed operating part.

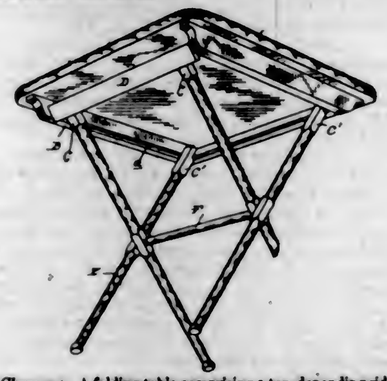
2. A portable hand implement for threading shuttles, comprising a cylinder having a suction-inlet, a tubular guide, a piston having a rod, a handle for operating the piston, a spring housed in said tubular guide and tending to normally move the piston in one direction, and a pivoted catch having means for locking the piston in a compressed condition of the spring, said catch having an exposed finger-piece.

748,955. VEHICLE-BRAKE. MARTIN JEWELL, Morrisons Corner, Me. Filed Apr. 16, 1903. Serial No. 152,871. (No model.)



Claim.—In a vehicle-brake, the combination of the pole, the cross-tree secured thereto, the hooks connected to the cross-tree, the hooks connected to the brake-levers, the brake-levers fulcrumed to said cross-tree and carrying the brake-shoes at their outer ends, the short chains connected to the inner ends of the brake-levers, the chain connected to the said short chains at the inner end of the brake-levers, the pulley at the outer end of the pole over which the chain passes, the yoke connected to the outer end of the chain and the pair of swingletrees connected to the hooks of the brake-levers and cross-tree and the stop to limit the movement of the yoke.

748,956. FOLDING TABLE. HENRY JOHNSON, Detroit, Mich., assignor of one-half to the Detroit Table Manufacturing Company, Detroit, Mich., a Corporation of Michigan. Filed May 20, 1903. Serial No. 158,264. (No model.)



Claim.—1. A folding table comprising a top, depending side rails rigidly secured thereto, a pair of leg-frames centrally pivotally connected to each other, and each being provided with a connecting cross-bar between the upper end of its legs, said cross-bars being arranged upon opposite sides of said frame to permit of folding the frame into substantially the same plane, the opposite ends of one cross-bar being pivoted in said side rails, and guides on said rails with which the ends of the other bar have a slide engagement, said guides having a longitudinal portion to permit of first folding the frames together and a segmental portion to permit of them turning into parallelism with the top.

2. A folding table, comprising a top, depending side rails rigidly secured thereto each having a longitudinally-extending slot in its inner face terminating in a segmental portion, a pair of leg-frames fitting between said side rails and centrally pivotally connected to fold into the same plane, pintles projecting from one of said frames and engaging said slots in said side rails, and a pivotal connection between the other frame and said rails at the center of the segmental portions of said slot.

3. A folding table comprising a top, depending side rails rigidly secured thereto and each provided with a longitudinally-extending slot terminating in a segmental portion and a round socket at the center of said segment a pair of leg-frames each comprising a pair of legs and bars connecting the upper ends thereof, said bars being arranged upon opposite sides of the frames and having projecting pintles formed centrally at opposite ends, the pintles of one bar being adapted to slidingly engage in said slot and those of the other bar to pivotally engage with said round sockets, for the purpose described.

748,957. PIN-TICKET. MORTEN S. JOHNSON, Chicago, Ill. Filed Oct. 13, 1902. Serial No. 126,964. (No model.)



Claim.—1. A pin-ticket consisting of a ticket and pins for insertion through the fabric rigidly secured to and projecting from said ticket at a distance from the edge thereof toward which said pins are designed to be bent, said pins being bent at their ends to form hooks for engagement with the fabric at a distance from the point where said pins pass through the same, substantially as described.

2. A pin-ticket consisting of a ticket and pins for insertion through the fabric rigidly secured to said ticket at a distance from the edge thereof toward which said pins are designed to be bent greater than the length of said pins, said pins being bent at their ends to form hooks for engagement with the fabric at a distance from the point where said pins pass through the same, substantially as described.

748,958. COMBINED GOVERNOR AND SPEED-GEAR MECHANISM. NILS V. JOHNSON, Colby, Kans. Filed May 28, 1903. Serial No. 159,466. (No model.)



Claim.—1. A combined governor and speed-gear, comprising a shaft, a sleeve and a crown-gear journaled thereon, a clutch mechanism normally locking said gear and shaft together, a driven shaft journaled at one end in said sleeve and arranged substantially parallel with the face of said gear, a gear-wheel on said shaft and engaging the first-named gear, and means for throwing said clutch mechanism out of engagement.

2. A combined governor and speed-gear, comprising a shaft, a sleeve and a crown-gear journaled thereon, a clutch mechanism normally locking said gear and shaft together, a driven shaft journaled at one end in said sleeve and arranged substantially parallel with the face of said gear, a gear-wheel on said shaft and engaging the first-named gear, means for throwing said clutch mechanism out of engagement, and a governor to reverse the operation of such means to effect the reengagement of the clutch mechanism.

3. A combined governor and speed-gear, comprising a shaft, a sleeve mounted slidingly thereon, a crown-gear journaled on said shaft, a clutch mechanism normally locking said gear and shaft together, a driven shaft journaled at one end in said sleeve, a plurality of variable-sized gears mounted to rotate with and slide upon said last-named shaft, and means for throwing said clutch mechanism out of engagement.

4. A combined governor and speed-gear, comprising a shaft, a sleeve mounted slidingly thereon, means to secure the sleeve at the desired point of adjustment, a crown-gear journaled on said shaft, a clutch mechanism normally locking said gear and shaft together, a driven shaft journaled at one end in said sleeve, a plurality of variable-sized gears mounted to rotate with and slide upon said last-named shaft, and means for throwing said clutch mechanism out of engagement.

5. A combined governor and speed-gear, comprising a shaft, a sleeve mounted slidingly thereon, means to secure the sleeve at the desired point of adjustment, a crown-gear journaled on said shaft, a clutch mechanism normally locking said gear and shaft together, a driven shaft journaled at one end in said sleeve, a plurality of variable-sized gears mounted to rotate with and slide upon said last-named shaft, a rack-bar connected to move said gears longitudinally and fitting slidingly in said sleeve, a shaft geared to said rack-bar, and means for throwing said clutch mechanism out of engagement.

6. In a machine of the character described, a shaft, a gear journaled thereon, a sleeve slidingly mounted on said shaft, a driven shaft journaled at one end in said sleeve, and a plurality of gears of varying size mounted to rotate with and slide upon said last-named shaft.

7. In a machine of the character described, a shaft, a gear-wheel journaled thereon, a sleeve fitting slidingly on the shaft, means for adjusting said sleeve longitudinally on the shaft, means for securing it at the desired point of adjustment, a driven shaft journaled at one end in said sleeve, a plurality of variable-sized gears mounted to slide upon and rotate with the driven shaft, and means for securing one or the other of said gears in engagement with the first-named gear-wheel.

8. In a machine of the character described, a shaft, an arm rotatable therewith, a lever pivoted to said arm and provided with a dog, a spring holding said lever with the dog pressed yieldingly away from the shaft, a gear-wheel journaled on the shaft, and provided with an annular wall concentric of the shaft and surrounding said dog, and antifriction-rollers carried by said gear and projecting inward of said wall in the path of said dog.

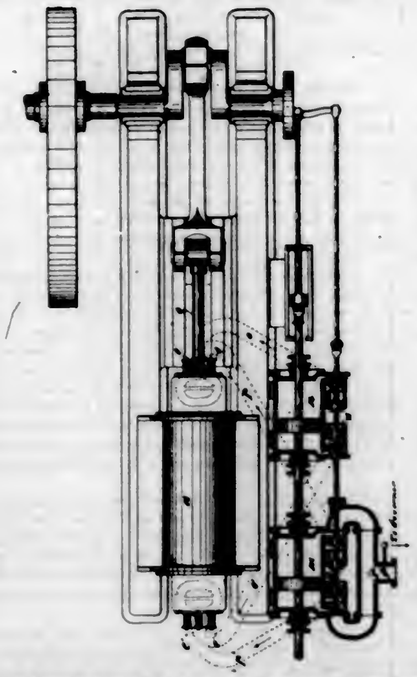
9. In a machine of the character described, a shaft, an arm rotatable therewith, a lever pivoted to said arm and provided with a dog, a spring holding said lever with the dog pressed yieldingly away from the shaft, a gear-wheel journaled on the shaft, and provided with an annular wall concentric of the shaft and surrounding said dog, antifriction-rollers carried by said gear and projecting inward of said wall in the path of said dog, and means for tripping said dog out of the path of said rollers.

10. In a machine of the character described, a shaft, an arm rotatable therewith, a lever pivoted to said arm and provided with a dog, a spring holding said lever with the dog pressed yieldingly away from the shaft, a gear-wheel journaled on the shaft, and provided with an annular wall concentric of the shaft and surrounding said dog, antifriction-rollers carried by said gear and projecting inward of said wall in the path of said dog, means for tripping said dog out of the path of said rollers, and governor-actuated means for permitting the dog to be restored to its original position in the path of said rollers.

748,959. INTERNAL-COMBUSTION ENGINE. ERNST KÖRTING, Körtingsdorf, near Hanover, Germany. Filed Feb. 23, 1903. Serial No. 95,096. (No model.)

Claim.—1. In an internal-combustion engine the combination of a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings in the head of the combustion-chamber, and puppet-valves for controlling the passage of the charge through said inlet-openings and acting to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, substantially as described.

2. In an internal-combustion engine the combination of a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a mixing-chamber, a pump for supplying air to the mixing-chamber, a pump for supplying gas to the mixing-chamber, a plurality of inlet-openings in the head of the combustion-chamber leading from the mixing-chamber to the combustion-chamber, and puppet-valves controlling the passage of the charge through said openings and acting to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder, without diffusion with other gas, substantially as described.



3. In an internal-combustion engine, the combination with a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, of a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings in the head of the combustion-chamber, and means for deflecting the charge as it enters through said openings, to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, substantially as described.

4. In an internal-combustion engine the combination with a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, of a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings through the head of the combustion-chamber, means for introducing a charge of inert gas (as air) before the introduction of the charge of explosive gas for the purpose of separating the explosive gas from the residues of the previous explosion, and means for deflecting the charges of inert gas and explosive gas as they enter the combustion-chamber through said openings to impart a whirling and rolling motion to said charges, whereby they are caused to advance bodily through the combustion-chamber and the cylinder without diffusion, substantially as described.

5. In an internal-combustion engine the combination of a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a mixing-chamber, a pump for supplying air to the mixing-chamber, a pump for supplying gas to the mixing-chamber, a plurality of inlet-openings in the head of the combustion-chamber leading from the mixing-chamber to the combustion-chamber, puppet-valves controlling the passage of the charge through said openings and acting to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, and means for automatically controlling the quantity of gas pumped by the gas-pump to maintain an even speed of the engine, substantially as described.

6. In an internal-combustion engine, the combination with a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, of a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings in the head of the combustion-chamber, means for deflecting the charge as it enters through said openings, to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, a mixing-chamber communicating with said inlet-openings, a pump for air, a pump for gas, and means for establishing communication between the suction-pipe and the pressure side of the cylinder of the gas-pump during a part of each compression-stroke of the pump-piston and closing during such time communication between the pump-cylinder and its discharge-pipe, substantially as described.

7. In an internal-combustion engine, the combination with a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, of a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings in the head of the combustion-chamber, means for deflecting the charge as it enters through said openings, to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, a mixing-chamber communicating with said inlet-openings, a pump for air, a pump for gas, distribution-valves for the gas-pump actuated by the combined action of two crank movements, and means, controlled by the governor, for regulating the movement imparted to said valves for controlling the quantity of gas supplied to the combustion-chamber, substantially as described.

8. In an internal-combustion engine, the combination with a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, of a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings in the head of the combustion-chamber, means for deflecting the charge as it enters through said openings, to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, distribution-valves, and two or more igniters in the combustion-chamber for securing a regular ignition, substantially as described.

9. In an internal-combustion engine the combination of a cylinder having an exhaust-port located at or near the point of the end of the power-stroke of the piston, a combustion-chamber located at the end of the cylinder from which the piston makes its power-stroke, a plurality of inlet-openings arranged in a circle in the head of the combustion-chamber, and puppet-valves for controlling the passage of the charge through said inlet-openings and acting to impart a whirling and rolling motion to the charge as it enters the combustion-chamber, whereby the charge is caused to advance in a body through the combustion-chamber and the cylinder without diffusion with other gas, substantially as described.

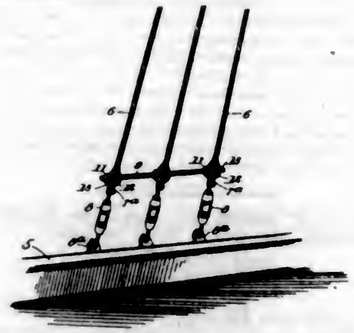
748,960. SHEER-POLE SUPPORT. ERNEST G. LAKE, Camden, Me. Filed Oct. 3, 1903. Serial No. 175,477. (No model.)

Claim.—1. A sheer-pole support, comprising an eyebolt adapted to be secured in a thimble at the lower end of a shroud and to receive the sheer-pole in the eye, and a nut for securing the eyebolt in position.

2. A sheer-pole support, comprising an eyebolt adapted to be secured in a thimble at the lower end of a shroud and to receive the sheer-pole in the eye, a washer to bear against the thimble, and a nut for securing the eyebolt in position.

3. The combination with the shrouds of a vessel having thimbles at their lower ends, of sheer-pole supports mounted in said thimbles and having sockets adjacent to the thimbles, and a sheer-pole mounted in said sockets.

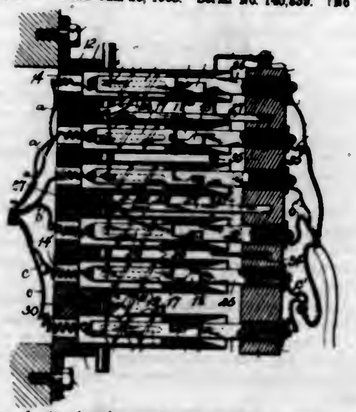
4. The combination with the shrouds of a vessel having thimbles at their lower ends, of eyebolts secured in said thimbles, and a sheer-pole supported in the eyes of the bolts.



5. The combination with the shrouds of a vessel having thimbles at their lower ends, of eyebolts having their shanks extending through said thimbles with their eyes on the outer side of the thimbles, nuts securing the said shanks in position, and a sheer-pole passed through and supported by said eyes.

6. The combination with the shrouds of a vessel having thimbles at their lower ends, of eyebolts having their shanks extending through said thimbles with their eyes on the outer side of the thimbles, nuts securing the said shanks in position, washers clamped against the sides of the thimbles, and a sheer-pole passed through and supported by said eyes.

748,961. ELECTRIC COUPLING. GEORGE A. LE FEVRE, New York, N. Y. Filed Jan. 28, 1903. Serial No. 140,839. (No model.)



Claim.—1. An electric coupling, comprising a socket member having a plurality of paralled sockets, each socket having a longitudinally-movable engaging member therein, and a plug member having a plurality of plugs to enter the sockets and engage the socket members, the engaging parts being held against displacement while in the sockets and free to disengage when pulled out of the sockets.

2. An electric coupling, comprising a socket member having a plurality of rigid parallel sockets with sliding electric terminals therein, and a plug member having projecting plugs to engage the aforesaid sliding terminals, the plugs and terminals being free to disengage when the sliding terminals are pulled forward in the sockets, and held against displacement when the plugs and terminals are in normal position within the sockets.

3. An electric coupling comprising a socket member having a plurality of parallel sockets, each socket having a longitudinally-movable engaging member therein, which said engaging members are operatively connected together to move in unison, and a plug member having a plurality of plugs which enter the sockets and engage the said engaging members and are held in engagement with the said engaging members while the said engaging members are within the sockets.

4. The combination with a plurality of electric circuits, of a set of coupling members connected to the circuits and normally short-circuited, a second set of coupling members adapted to engage the first set, and arranged by such engagement to open the circuits through the coupling, and hand-operated means connected with the said first set of coupling members for disengaging the said two sets of coupling members.

5. An electric coupling, comprising a series of parallel sockets, spring-pressed hooks forming the terminals of circuits arranged to slide longitudinally in the sockets, such hooks having engaging heads, and a series of plugs also forming circuit-terminals, said plugs having engaging heads to fit those of the aforesaid hooks and to enter the sockets.

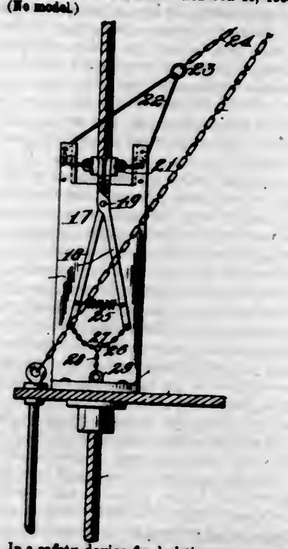
6. In a coupling of the kind described, the combination with the coupling-plugs forming circuit-terminals, of a bail arranged to swing normally against the plugs and short-circuit adjoining plugs.

7. A coupling of the kind described, comprising a plurality of sockets, sliding members in the sockets forming circuit-terminals, and having means for engaging opposed plug members, and a handle device connected to the said several sliding members, means for limiting the outward movement of the sliding members operating them in unison.

8. A coupling of the kind described, comprising a plurality of sockets, members sliding longitudinally in the sockets forming circuit-terminals, means for retracting the said sliding members into the said sockets, and opposed plug members having means for engaging the said sliding members and adapted to lie in the same plane as the sliding members when engaged.

9. A coupling of the kind described having one member comprising a plurality of sockets, sliding members within the sockets forming circuit-terminals, means for retracting the said sliding members into the said sockets, opposed plug members forming the other member of the coupling and having means for engaging the said sliding members, and hand-operated means, connected to the said sliding members for withdrawing the said sliding members from the said sockets.

748,962. SAFETY APPLIANCE FOR MINING-HOISTS. JOSEPH LEWIS, Sault Ste. Marie, Canada. Filed Oct. 19, 1903. Serial No. 177,674. (No model.)



Claim.—1. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, tongs arranged to grip the guides and hold the cage stationary, flexible connections between the tongs and the hoisting-cable arranged to hold the tongs inoperative while the hoisting-cable is taut, and means connected to the cage and constructed to automatically cause the tongs to clamp the guides and prevent the descent of the cage when the cable becomes slack, substantially as described.

2. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, grip-tongs for gripping the guides to hold the cage stationary, flexible connections between the gripping-jaws of the tongs and hoisting-cable to hold said jaws out

of engagement with the guides when the cable is taut, and means carried by the cage arranged to cause the said gripping-jaws to clamp the guides and prevent the descent of the cage when the cable becomes slack, substantially as described.

3. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, grip-tongs for gripping the guides to hold the cage stationary, flexible connections between the gripping-jaws of the tongs and hoisting-cable to hold said jaws out of engagement with the guides when the cable is taut, and connections between the other ends of the tongs and the cage arranged to close the jaws on the guides and prevent the descent of the cage when the cable becomes slack, substantially as described.

4. In a safety device for hoisting apparatus, the combination with a cage of vertical guides between which the cage travels, a cable for raising and lowering the cage, grip-tongs for gripping the guides to hold the cage stationary, flexible connections between the gripping-jaws of the tongs and the cable to hold said jaws out of engagement with the guides when the cable is taut, connections between the other ends of the tongs and the cage arranged to close the jaws on the guides and prevent the descent of the cage when the cable becomes slack, and springs arranged to impart an initial grasping action of the jaws before the latter are clamped on the guides by the weight of the cage, substantially as described.

5. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, gripping-tongs connected at one end to the cage and provided at the other end with jaws arranged to grip the guides and prevent the descent of the cage when the cable becomes slack, contractile springs arranged between and connected to the lever ends of the tongs for imparting an initial clamping action of the jaws upon the guides, and flexible connections attached at one end to the jaws and at the other end to the cable and arranged to hold the jaws separated when the cable is taut, substantially as described.

6. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, gripping-tongs provided at one end with jaws arranged to embrace said guides, flexible connections between said cable and the jaws for holding said jaws out of frictional engagement with the guides when the cable is taut, contractile springs attached to the other end of the tongs for drawing said jaws together on the guides, and flexible connections attached to the lever ends of the tongs and to the cage and arranged to forcibly clamp the jaws on the guides when the cable becomes slack, substantially as described.

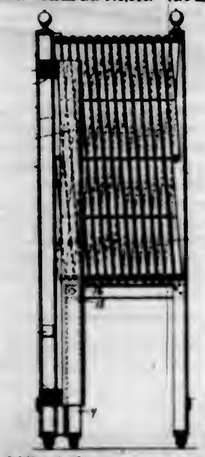
7. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, perforated brackets fixed to the cage and loosely embracing the guides, gripping-tongs provided at one end with jaws arranged to embrace said guides, flexible connections between said cable and the jaws arranged to hold the jaws separated when the cable is taut, contractile springs arranged between and attached to the other ends of the tongs and arranged to cause the jaws to grip the guides with a yielding force immediately upon the release of the jaws, and flexible connections attached to the last-named ends of the tongs and to the cage and arranged to forcibly clamp the jaws on the guides when the cable becomes slack, substantially as described.

8. In a safety device for hoisting apparatus, the combination with a cage, of vertical guides between which the cage travels, a cable for raising and lowering the cage, vertical standards fixed to the top of the cage and provided at their upper ends with outwardly-projecting perforated flanges, gripping-tongs provided at one end with jaws arranged to embrace the guides between said flanges, flexible connections passing through the perforated flanges and attached to the jaws, means connecting said flexible connections to the cable whereby the jaws are held separated when the cable is taut, and flexible connections attached to the other ends of the tongs and to the cage whereby the jaws are caused to grip the guides when the cable becomes slack, substantially as described.

9. In a safety device for hoisting apparatus, of vertical guides between which the cage travels, a cable for raising and lowering the cage, vertical standards fixed to the top of the cage and each provided at its upper end with two outwardly-projecting perforated flanges which straddle the adjacent guide, gripping-tongs provided at one end with jaws disposed between said flanges and embracing said guides, flexible connections passing through the perforated flanges and attached to the jaws, means connecting the flexible connections to the cable whereby the jaws are held separated when the cable is taut and flexible connections attached to the other ends of the tongs and to the cage whereby the jaws are caused to grip the guides when the cable becomes slack, substantially as described.

10. In a safety device for hoisting apparatus, the combination with a cage, of vertical guide-cables between which the cage travels, brackets on the cage through which said cable-guides loosely pass, a cable for raising and lowering the cage, tongs for gripping the cable-guides, flexible connections between the tongs and the hoisting-cable constructed to hold the grips inoperative when the hoisting-cable is taut, and springs arranged to close the tongs and cause the latter to grip the guide-cables and prevent the descent of the cage when the cable becomes slack, substantially as described.

748,963. **FOLDING BED.** JOSEPH LUPPINO, New York, N. Y. Filed Sept. 21, 1903. Serial No. 173,919. (No model.)



Claim.—1. A folding bed comprising inner and outer posts, the posts at the head and foot connected by lazy-tongs, legs secured to the inner posts, a spring-frame the end rails of which are pivoted directly to said legs, and connections between the said spring-frame and the outer posts, substantially as described.

2. A folding bed comprising posts connected at the head and foot by lazy-tongs, the outer posts formed with a vertical flange, legs secured to the inner posts, a spring-frame the end rails of which are pivoted directly to said legs, and rollers carried by the outer side rail of the springs and engaging with the outer posts, substantially as described.

3. A folding bed comprising posts connected at head and foot by lazy-tongs, the outer posts having two vertical flanges, legs secured to the inner posts, a spring-frame the end rails of which are pivoted to said legs, and a roller secured to the outer side rail at each end and adapted to ride between said flanges, substantially as described.

748,964. **POCKET DEVELOPING AND FIXING DEVICE.** LUCAS R. LUCA, San Germain, Porto Rico. Filed June 23, 1903. Serial No. 162,747. (No model.)



Claim.—1. A device of the class described, comprising a flask open at one end and made of non-actinic material, an opaque jacket or cover for said flask, and hollow stopper for closing the open end of the flask and coöperating with the jacket or cover in inclosing said flask.

2. A daylight photographic developing and fixing device, having a flask, and a stopper fitted removably to one end of said flask, said stopper being provided with a tortuous passage which admits of the ready introduction or removal of a liquid and precludes the passage of light-rays.

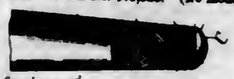
3. In a daylight photographic developing and fixing device, a hollow stopper having a tortuous passage adapted to permit the free flow of liquid therethrough and to prevent the passage of light-rays.

4. In a daylight photographic developing and fixing device, the combination with a flask, of a hollow stopper fitted snugly thereto and provided with internal staggered partitions forming a tortuous light-excluding passage.

5. In a device of the class described, the combination of a flask, a band attached to said flask at the mouth portion thereof, and a hollow stopper fitted to said band and provided with a tortuous passage.

6. A device of the class described, comprising a flask open at one end, a band secured to said flask, a hollow stopper provided with a tortuous passage and fitted removably to the band and an opaque jacket or shell inclosing the flask and disposed in lapping relation to said band.

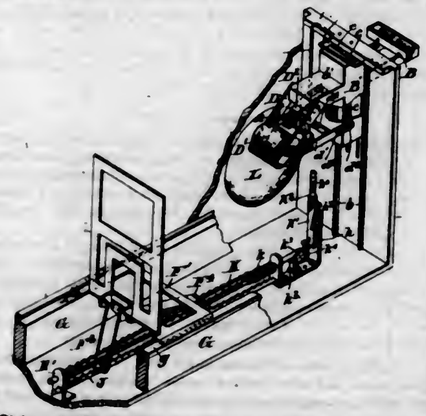
748,965. **FURNITURE-TIP.** LUCIUS C. MATLACK, Chicago, Ill. Filed Sept. 17, 1903. Serial No. 173,525. (No model.)



Claim.—1. A furniture-tip comprising a shank adapted to be driven into the furniture, a head composed of rigidly-connected top and bottom portions, the said bottom portion being cup-shaped and having its perimeter pressed over to secure the flat disk-like top portion in place, the said top portion having a sliding connection with the said shank, thereby adapting the head to relatively slide up and down on the shank, and a rubber cushion encircling the said shank and adapted to bear against said head, said cushion yieldingly opposing relative upward movement of the head upon the shank, the said disk-like portion providing a flat or practically flat seat for the bottom of the cushion, and the said shank being provided at its lower end with an enlarged portion adapted to move up and down or play in the inclosed chamber provided between the lower surface of the said disk-like upper portion and the concave upper surface of the said cup-shaped lower portion.

2. A furniture-tip comprising a shank adapted to be inserted in the furniture, a metal head having a sliding connection with said head, thereby adapting the head to relatively slide up and down on the shank, said head being composed of an upper flat disk-like portion and a lower cup-shaped portion, the two portions being suitably secured together or united at their edges, and a rubber cushion encircling the said shank and adapted to bear against said head, said cushion yieldingly opposing relative upward movement of the head upon the shank, the said disk-like portion providing a flat or practically flat seat for the bottom of the cushion, and the said shank being provided at its lower end with an enlarged portion adapted to move up and down or play in the inclosed chamber provided between the lower surface of the said disk-like upper portion and the concave upper surface of the said cup-shaped lower portion.

748,966. **ENVELOP OR CARD DELIVERING CABINET.** THOMAS A. MATTHEWS, Nashville, Tenn. Filed June 1, 1903. Serial No. 159,595. (No model.)



Claim.—1. The combination with a cabinet for envelops and the like having a discharge-slot in its top, of a vertically-reciprocating carrier or slide mounted in one vertical wall of the cabinet, a roller carried by the slide and free to roll in its downward movement along the front of the vertically-disposed pack, means for locking the roller when the carrier moves upwardly to thereby push the front envelop or article through the slot and a spring pressing the roller rearwardly toward the pack, and means for automatically pressing the pack toward the roller.

2. The combination with a cabinet for envelops or the like, having a discharge-opening in its top, of a vertically-reciprocating carrier, a swinging arm pivoted at its upper end to the carrier, a roller mounted on the lower end of said arm and free to rotate as the carrier moves down, a pawl and ratchet to lock the roller when it moves upwardly to slide an envelop or the like through the slot, a spring pressing the roller-carrying arm rearwardly toward the pack, and means actuated from the carrier to feed the vertically-disposed pack intermittently toward the roller.

3. The combination with the cabinet having an opening for the discharge of the envelops or the like, of a vertical-reciprocating slide, a roller mounted on the slide and free to roll down the pack and having means to lock it in its opposite or feeding movement, a slide at the rear of the pack to feed it toward the roller, a rack-and-pawl mechanism for moving the slide forwardly, and means for actuating the rack from the carrier.

4. The combination with the reciprocating carrier having a feed device to feed the envelops or the like, of a slide for moving the pack toward the feed device, means for operating the slide including an operating-rod actuated from the carrier in its downward movement.

5. The combination with the reciprocating carrier and the feed device thereon, of a slide movable at right angles to the carrier to move the pack toward the feed device, a reciprocating spring-pressed rack, a pawl on the slide engaging the rack, a reciprocating operating-arm connected to the said rack and actuated from the carrier.

6. The combination with the pack-feeding slide having a stop-pawl and rack therefor, a reciprocating feed-rack for the slide, a pawl on the slide engaging the feed-rack, and a vertically-reciprocating operating-rod connected to the feed-rack, of a feed mechanism to feed out the front article of the pack and constructed to actuate the said operating-rod.

7. The combination with the pack-feeding slide having a stop-pawl and rack therefor, a reciprocating feed-rack for the slide, a pawl on the slide engaging said feed-rack, and a vertically-reciprocating operating-rod connected to the feed-rack and having an adjustable or extensible member, of a feeding mechanism to feed out the front article of the pack and constructed to actuate the said operating-rod.

8. The combination with the reciprocating carrier a spring-pressed arm carried thereby a roller journaled on the lower end of said arm horizontal sliding arms connecting the roller-carrying arm with its slide and provided with a cross-bar, and means for locking said roller in its upward or feeding movement, of a pack-feeding slide, a pawl-and-rack mechanism for moving the slide toward the feed-roller, a vertically-sliding operating-rod for the feed-rack located below the said cross-bar to be actuated thereby when the carrier is pressed down.

9. The combination with the spring-retracted carrier having an operating-arm, a yieldingly-supported roller carried by the slide and free to rotate in one direction and held from rotation in the feeding movement, a bell-hammer having a cranked arm in the path of the slide and a bell or gong, of a pack-feeding mechanism having an actuating-arm operated from the carrier.

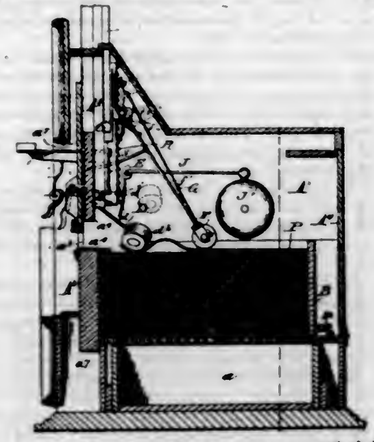
10. The combination in a cabinet with the vertically-reciprocating carrier and the feed device carried thereby, supporting-springs secured to the cabinet and to the slide to return it to its normal position, of a bell, and a bell-hammer having an arm provided with a crank lying in the upward path of the carrier.

748,967. **STATIONERY-CABINET.** THOMAS A. MATTHEWS, Nashville, Tenn. Filed June 1, 1903. Serial No. 159,596. (No model.)

Claim.—1. A paper-feeding mechanism comprising a vertically-sliding front panel having a horizontal opening for the discharge of the paper, a paper-lifting device mounted on the said panel and provided with a friction device to move the front edge of the top sheet of paper rearwardly, as the panel moves downwardly, a vertically-movable carrier or slide having an operating-arm extending out through a vertical slot in the said sliding panel, means for raising the paper-lifting device when the panel-opening is on the level with the said top sheet and a paper-feeding device mounted on the said carrier or slide to engage and feed the sheet of paper out through said panel-opening when the carrier is moved upwardly.

2. A paper-feeding mechanism comprising a vertically-sliding panel having a horizontal opening for the discharge of the paper, a

ledge or lip extending inwardly from the bottom of said opening, a paper-lifting device mounted on said panel and provided with a friction device to move the front edge of the top sheet rearwardly as the panel moves downwardly, a vertically-movable carrier or slide having an operating-arm extending out through a vertical slot in the said sliding panel, means for raising the paper-lifting device when the lip on the sliding panel reaches the pile of paper to allow the retracted front edge of the sheet to spring forward upon said lip, and a means for feeding the sheet of paper forwardly through the panel-opening as the carried slide moves upwardly.



3. A paper-feeding mechanism comprising, a vertical-sliding panel having a horizontal opening for the discharge of the paper, a ledge or lip extending inwardly from the bottom of said panel-opening, a paper-lifting device mounted on said panel and provided with a friction device to move the front edge of the top sheet rearwardly as the panel moves downwardly, a vertically-movable carrier or slide having an operating-arm extending out through a vertical slot in said sliding panel, means for raising the paper-lifting device when the lip on the panel reaches the pile of paper to allow the retracted front edge of said top sheet to spring forward upon said lip, a catch for holding the lifting device raised, means mounted on said carrier or slide for feeding said top sheet forwardly through the panel-opening as the carrier moves upwardly and means for retracting the catch of the paper-lifting device to allow it to resume its normal position.

4. A paper-feeding mechanism comprising, a vertically-sliding front panel having a horizontal opening for the discharge of the paper, a paper-lifting device mounted on the panel and provided with a friction device to move the front edge of the top sheet of paper rearwardly, as the panel moves downwardly, a vertically-movable carrier or slide having an operating-arm extending out through a vertical slot in the said sliding panel, means for raising the paper-lifting device when the panel-opening is on the level with said top sheet, a paper-feeding device mounted on said carrier or slide to feed the sheet of paper out through said panel-opening when the carrier or slide is moved upwardly, and means for automatically limiting the upward throw of the carrier as the pile of paper decreases.

5. A paper-feeding mechanism comprising, a vertical-sliding front panel having a horizontal discharge-opening for the paper, an angle-lever provided at its inner end with a friction device to move the front edge of the top sheet rearwardly as the panel descends and pivoted at its angle to the panel, a vertically-reciprocating carrier or slide provided with an operating-arm extending through a vertical slot in the panel and provided with a depending arm to engage the outer member of said angle-lever and raise the friction device from the paper, a catch to hold the lever in said raised position, a spring-pressed rod pivoted at its upper forward end to the carrier or slide and having a friction-roller at its lower rear end to travel freely along the paper to the rear when the slide is moved down means for locking the roller against rotation as its carrying-arm moves forwardly during the upward movement of the carrier to feed the sheet through the panel-opening, and a releasing-arm on the roller-carring rod to engage and release said catch.

6. A paper-feeding mechanism comprising, a vertically-sliding panel provided with a horizontal opening for the discharge of the paper, means for moving the front edge of the top sheet rearwardly and releasing it when the said opening is on a level therewith, a vertically-reciprocating carrier having an operating-arm extending out through a vertical slot in the said panel, a rod pivoted to the said carrier and having a friction-roller journaled at its lower end, a spring pressing the rod downwardly, a ratchet connected to said friction-roller, a normally disengaged pawl for the ratchet to allow the roller to run free in its rearward movement over the paper, a sliding rod having a crank or loop at its lower end to move the pawl into locking engagement with said ratchet, a lever or pivoted arm to which the upper end of the pawl-operating rod is pivoted beyond the axis of the roller-carrying arm for the purpose stated.

7. A paper-feeding mechanism comprising, a vertically-sliding front panel having a paper-discharge opening, a vertically-reciprocating carrier or slide, a rod pivoted to the slide and provided at its lower end with a roller to feed the paper out through the said panel-opening, a spring pressing the arm down toward the paper, a bell-operating arm projecting from the roller-carrying arm, a bell-hammer in the path of said bell-operating arm, and a gong, substantially as described.

8. In a paper-feeding mechanism, the combination with a vertically-reciprocating carrier, of an arm pivoted thereto and having a roller journaled on its opposite end, a ratchet on the roller, a normally disengaged pawl therefor to allow the roller to rotate freely toward the rear of the sheet, a pawl-operating rod in sliding engagement with the roller-carrying rod and provided at its lower end with means for throwing the pawl into locking engagement with the ratchet to lock the roller as it moves toward the front edge of the sheet to feed it, a lever pivoted between its ends on the axis of the roller-carrying rod and pivotally connected thereabove to the upper end of the pawl-operating rod.

9. In a paper-feeding mechanism the combination with two independent vertically-sliding members one having a vertical slot and the other having an operating-arm extending through and working in the slot, a paper-lifter carried by one of said members to move the front edge of the sheet rearwardly for the purpose described and the other having a device for feeding the sheet forwardly

10. In a paper-cabinet the combination with the mechanism for feeding the sheets outwardly one at a time, of adjustable side and rear gages to receive the pile of sheets between them and each having depending flanges, a dovetail rib and a set-screw, the bottom of the paper-space being grooved for said flanges and ribs.

11. The cabinet or receptacle having a vertically-sliding front panel provided with a horizontal slot for a discharge of the paper and having a flexible lower end, a paper-lifter carried by said panel, of a vertical movable carrier having an operating-arm extending through a vertical slot in the front panel, and a paper-feeding device on the said carrier to feed a sheet outwardly through the panel-slot.

12. In a paper-feeding mechanism the combination with two independent vertically-sliding members one having a vertical slot and the other having an operating-arm extending through and working in the slot, a paper-lifter carried by one of said members to move the front edge of the sheet rearwardly for the purpose described and the other having a device for feeding the sheet forwardly, a vertical, stationary rack, and a pawl on the paper-feeding device to engage the rack as the feeding device moves forwardly and limit the upward throw of the said vertically-sliding members.

748,968. PROCESS OF MAKING PAPER FROM OLD NEWSPAPERS, BOOKS, MAGAZINES, &c. WILLIAM B. MERRELL and THOMAS HOLT, Sayre, Pa., assignors, by direct and mesne assignments, of part of their right to Samuel Thorp, Elmira, N. Y., and Harry L. Towner and Fred K. Stephens, Sayre, Pa. Filed Aug. 26, 1903. Serial No. 171,160. (No specimens.)

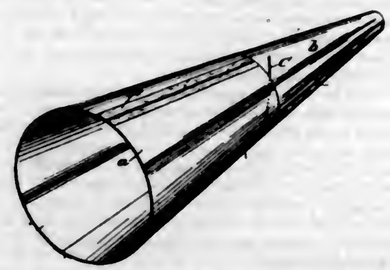
Claim.—1. The process of making paper from old newspapers, magazines, books, and other printed matter which consists in reducing the same to a pulp and then subjecting the pulp to a compound consisting of soda, margaric acid, oleic acid, water, and earthy matter, for the purpose of removing the ink and coloring-matter, and finally making the pulp into paper in the usual manner.

2. The process of making paper from old newspapers, magazines, books, and other printed matter which consists in reducing the same to a pulp, heating the pulp and subjecting the heated pulp to a compound consisting of soda, margaric acid, oleic acid, water and earthy matter for removing the ink and coloring-matter from the pulp and then forming the pulp into paper in the usual manner.

3. The process of making paper from old newspapers, magazines, books, and other printed matter, which consists in reducing the same to a pulp, heating the pulp, and subjecting the pulp while heated to a compound consisting of soda, margaric acid, oleic acid, water and earthy matter to remove the ink and coloring-matter, then washing from the pulp the carbon of the ink or coloring-matter and finally making the pulp into paper in the usual manner.

4. A compound for the purpose described, consisting of soda, margaric acid, oleic acid, earthy matter and water.

748,969. MEGAPHONE. COLIN MELVILLE, New York, N. Y. Filed July 24, 1903. Serial No. 166,823. (No model.)



Claim.—1. A megaphone consisting of collapsible sections foldable one within the other and fitted telescopically together.

2. In a megaphone, a tapering member formed of sections of resilient material hinged together longitudinally at diametrically opposite sides, and means for holding said tapering member in circular form, said sections being adapted to normally fold into flat engagement with each other when released from said holding means.

3. A megaphone consisting of a plurality of tapering members each formed of sections longitudinally hinged together, each member being collapsible, and one member being turnable with respect to the other, whereby the tendency of the members to collapse is counteracted by the engagement of one member with the other.

4. A megaphone consisting of tapering telescopic sections each being provided with diametrically opposite longitudinal joints and collapsible, one section being turnable with respect to the other.

5. A megaphone consisting of tapering sections hinged together longitudinally to fold one upon the other, the sections being fitted telescopically one to the other, and means for limiting the relative movement of said sections.

6. A megaphone, consisting of tapering telescopic sections, each formed of two pieces of resilient material provided with longitudinal hinges diametrically opposite each other, the hinges of two adjoining sections being in planes at right angles to each other.

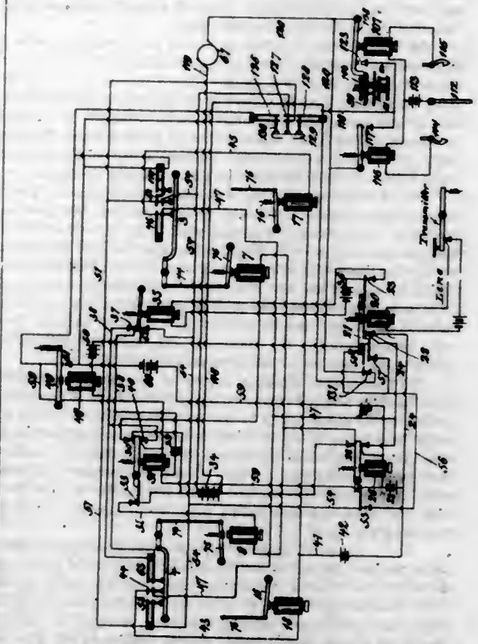
748,970. AUTOMATIC SIGNALING APPARATUS. IRA A. MILLAM, Chicago, Ill., assignor of one-half to John H. Reynolds, Troy, N. Y. Filed June 27, 1903. Serial No. 163,444. (No model.)

Claim.—1. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

2. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

3. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration.

4. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.



5. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

6. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means for recording the signal thus selected.

7. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

8. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

9. In electrical signaling apparatus, the combination with a sig

nal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

10. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

11. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

12. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit for recording the signal.

13. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

14. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

15. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

16. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

17. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

18. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, irrespective of their duration.

19. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

20. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

21. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, irrespective of their duration, and means for recording the signal thus selected.

22. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

23. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

24. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, irrespective of their duration, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

25. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

26. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

27. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit for recording the signal.

28. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

29. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

30. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

31. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

32. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

33. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means for recording the signal thus selected.

34. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

35. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

36. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means for recording the signal thus selected.

37. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

38. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

39. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

40. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

41. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the

other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

42. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit for recording the signal.

43. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

44. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

45. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the signal member shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the signal member shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main line circuit, while either open or closed, for recording the signal.

46. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit.

47. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit.

48. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration.

49. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

50. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means for recording the signal thus selected.

51. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means for recording the signal thus selected.

52. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

53. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

54. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated by a pulse of a third character in the main-line circuit for recording the signal.

55. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

56. In electrical signaling apparatus, the combination with a

signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

57. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit for recording the signal.

58. In electrical signaling aparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

59. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

60. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the signal member in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the signal member in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the predetermined direction only, upon pulsations in the line-circuit, irrespective of their duration, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal.

61. In electrical signaling apparatus, the combination with a primary relay, two local relays controlled thereby to move in accordance with different movements of the primary relay-armature, said local relays in circuit with points of said primary relay, and separate circuits controlled by the said local relays, of signal-producing means, and means controlled by the relays for operating the signal-producing means, differently in accordance with different conditions of the said local relay-circuits so controlled.

62. In electrical signaling apparatus, the combination with a primary relay, two local relays controlled thereby to operate, the one upon the commencement of movement of the primary relay-armature in one direction, and the other later in the movement thereof, said local relays in circuit with points of said primary relay, and separate circuits controlled by the said local relays, of signal-producing means, and means controlled by the relays for operating the signal-producing means, differently in accordance with different conditions of the said local relay-circuits so controlled.

63. In electrical signaling apparatus, the combination with a primary relay, two local relays controlled thereby to operate, the one upon the commencement of movement of the primary relay-armature in one direction, and the other later in the movement thereof in the same direction, said local relays in circuit with points of said primary relay, and separate circuits controlled by the said local relays, of signal-producing means, and means controlled by the relays for operating the signal-producing means, differently in accordance with different conditions of the said local relay-circuits so controlled.

64. In electrical signaling apparatus, the combination with a primary relay, of two local relays, the coils of one in circuit with points closed by the primary relay-armature when at substantially the limit of a full movement thereof in one direction, and the coils of the other in circuit with points closed by the said armature when at substantially the limit of a full movement thereof in the other direction, separate circuits controlled by the said local relays, signal-producing means, and means controlled by the relays for operating the signal-producing means, differently in accordance with different conditions of the said local relay-circuits so controlled.

65. In electrical signaling apparatus, the combination with a primary relay, of a local relay whose coils are in series circuit with points closed by its own armature when attracted, points closed by the primary relay-armature when at substantially the limit of a full movement thereof in one direction, and a generator; another local relay whose coils are in series circuit with points closed by the main-line relay-armature when at substantially the limit of a full movement thereof in the opposite direction, and with the generator; signal-producing means, and means controlled by the relays for operating the signal-producing means.

66. In electrical signaling apparatus, the combination with a single primary relay adapted to respond differently to current pulses of different strength or duration, two local relays in circuit with points thereof, and separate circuits controlled by said relays, of operating devices controlled by the said circuits differently in accordance with different current pulses through the primary relay, and means controlled thereby to determine the signal.

67. In electrical signaling apparatus, the combination with a single primary relay adapted to respond differently to current pulses of different strength or duration, of two local relays controlled thereby and separate circuits controlled by said relays, of operating devices including separate operating and escapement magnets controlled by the said circuits differently in accordance with different current pulses through the primary relay, and means controlled thereby to determine the signal.

68. In electrical signaling apparatus, the combination with two operating devices, of a single neutral primary relay operated by a relatively short current pulse in its circuit to cause one of said operating devices to act, and operated by a relatively longer pulse to cause the other of said operating devices to act.

69. In electrical signaling apparatus, the combination with two operating devices, of a single neutral primary relay operated by a quick break and make of its circuit to cause one of said operating devices to act, and operated by a break only in its circuit to cause the other of said operating devices to act.

70. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

71. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

72. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

73. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of a current pulse in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal

74. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means con-

trolled by the duration of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

75. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

76. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

77. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

78. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

79. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

80. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

81. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

82. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit.

83. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of the initial current pulse of a signal in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

84. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, and step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit.

85. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the character of the initial current pulse of a signal in the line-circuit for initially moving the signal member in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal.

86. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of operating mechanism for moving the signal member in one direction or the other, selecting means normally set to select one direction only as the direction the signal member shall be moved by the operating mechanism, means operated by signal current pulses of a certain character for reversing such selecting means so as to change the direction that the signal member shall be moved by the operating mechanism, and resetting means for restoring the selecting means to normal position upon the completion of signals.

87. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of operating mechanism for moving the signal member in one direction or the other, selecting means normally set to select one direction only as the direction the signal member shall be moved by the operating mechanism, primary controlling means arranged to maintain such selecting means in its initial condition or to reverse the same according to the character of the signal current pulses so as to change the direction that the signal member shall be moved by the operating mechanism, and resetting means for restoring the selecting means to normal position upon the completion of signals.

88. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of two operating devices for said signal member, arranged to so move the same, and a primary controlling device adapted to be operated by an electric current and arranged to determine which of said operating devices shall operate said signal member, according to the character of the initial current pulse of each signal, said operating devices each arranged when operated to continue the motion of said signal member in one direction until the transmission of the signal is completed.

89. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of two electrically-operated operating mechanisms for said signal member, arranged to move the same in opposite directions, local circuits therefor, and a primary relay controlling said local circuits, and itself controlled by a primary circuit, said primary relay arranged to cause the operation of one or the other of said operating mechanisms, according to the character of the initial current pulse of each signal transmitted through said primary circuit.

90. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the type-carrier shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in such predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

91. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the type-carrier shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in such predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

92. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the type-carrier shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for printing the character upon the type-carrier thus selected.

93. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the type-carrier shall move, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for printing the character upon the type-carrier thus selected.

94. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the type-carrier in one direction or the other, step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

95. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially moving the type-carrier in one direction or the other, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the direction in which it has been moved only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

96. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the type-carrier shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the type-carrier shall move in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

97. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially determining that the type-carrier shall move in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially determining that the type-carrier shall move in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

98. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the type-carrier in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the type-carrier in the other direction, step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

99. In electrical signaling apparatus, the combination with a type-carrier adapted to move in opposite directions, of means controlled by a change from the normal condition of the line-circuit for initially moving the type-carrier in one direction, and by a rapid change from, and back to, the normal condition in the line-circuit for initially moving the type-carrier in the other direction, said means comprising two operating devices, one affected by relatively short pulses and the other by relatively longer pulses; step-by-step mechanism controlled thereby, arranged to continue movement of said type-carrier in the predetermined direction only, upon each pulsation in the line-circuit, and means for printing the character upon the type-carrier thus selected.

100. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit for recording the signal and for returning the signal member to its normal position.

101. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, of means controlled by the duration of a current pulse in the line-circuit for initially determining in which direction the signal member shall move, step-by-step mechanism controlled thereby, arranged to continue movement of said signal member in such predetermined direction only, upon each pulsation in the line-circuit, and means operated upon a pause in the main-line circuit, while either open or closed, for recording the signal and for returning the signal member to its normal position.

102. In electrical signaling apparatus, the combination with a primary relay, and a signal member adapted to be operated in opposite directions, of two operating devices therefor, either one adapted to be operated, upon the operation of a local relay, a local relay, operated in one direction only by the action of the primary relay, a switch-relay, for connecting either one or other of said operating devices into a local circuit controlled by said local relay, a shift-relay, adapted to be operated in either direction by action of the main relay, and to control the operation in one direction only of the switch-relay, and a restoring-relay, for restoring the said local and switch relays to their normal conditions.

103. In electrical signaling apparatus, the combination with a primary relay, and a signal member adapted to be operated in opposite directions, of two operating devices therefor, either one adapted to be operated, upon the operation of a local relay, a local relay, operated in one direction only by the action of the primary relay, a switch-relay, for connecting either one or other of said operating devices into local circuit controlled by said local relay, a shift-relay, adapted to be operated in either direction by action of the main relay, and to control the operation in one direction only of the switch-relay, printing mechanism, and a restoring-relay for operating the printing mechanism and restoring the said local and switch relays to their normal conditions.

104. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby, and two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices.

105. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, and other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated.

106. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay.

107. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently,

according as the primary relay is operated, and a printing-relay provided with restoring means.

108. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay, and two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices.

109. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, and other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated.

110. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay.

111. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and two operating devices therefor, adapted to so operate the same, of a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, each circuit operating one of said operating devices, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay provided with restoring means.

112. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in one opposite position thereof.

113. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, and other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated.

114. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay provided with restoring means.

115. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay provided with restoring means.

116. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof.

117. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, and other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated.

118. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay.

119. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay to determine in which direction the signal member shall be moved by the operating mechanism, two circuits therefor, closed, the one in one position of the armature of the switch-relay, and the other in the opposite position thereof, other relays intermediate the primary and switch relays and arranged to operate the switch-relay differently, according as the primary relay is operated, and a printing-relay provided with restoring means.

120. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, and contacts operated by the initial movement of said moving element to bring said step-by-step mechanism into operative relation with the said operating means.

121. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring said step-by-step mechanism into operative relation with the said operating means, and printing mechanism.

122. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring said step-by-step mechanism into operative relation with the said operating means, printing mechanism and restoring means.

123. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring said step-by-step mechanism into operative relation with the said operative means, and printing mechanism provided with restoring means.

124. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, printing mechanism, and line-spacing mechanism.

125. In electrical signaling apparatus, the combination with a signal member, operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movements of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring said step-by-step mechanism into operative relation with the said operating means, printing mechanism comprising means for forward-spacing and back-spacing mechanism.

126. In electrical signaling apparatus, the combination with a signal member, electrically-controlled operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movement of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring the step-by-step mechanism into operative relation with the said operating means, printing mechanism, and contacts operated by further movement of the said moving element to bring the printing mechanism into operative relation.

127. In electrical signaling apparatus, the combination with a signal member, electrically-controlled operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movement of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring the step mechanism into operative relation with the said operating means,

printing mechanism, operated by further movement of the said moving element to bring the printing mechanism into operative relation, and restoring means.

128. In electrical signaling apparatus, the combination with a signal member, electrically-controlled operating means therefor, including a moving element adapted to mechanically move said signal member, and a primary relay controlling said operating means, of electrically-controlled step-by-step mechanism for controlling the movement of said moving element after its initial movement, said moving element adapted to receive an initial movement prior to the control thereof by said step-by-step mechanism, contacts operated by the initial movement of said moving element to bring the step-by-step mechanism into operative relation with the said operating means, printing mechanism, and contacts operated by further movement of the said moving element to bring the printing mechanism into operative relation, printing and restoring mechanism, and contacts, operated by further movement of the said moving element, to bring the printing and restoring mechanism into operative relation.

129. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of the said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, printing mechanism, contacts operated upon further movement of the operating mechanism to bring the printing mechanism into operative relation, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay and the other in the opposite position thereof.

130. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of the said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, printing and restoring mechanism, contacts operated upon further movement of the operating mechanism to bring the printing and restoring mechanism into operative relation, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay and the other in the opposite position thereof.

131. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of the said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, printing mechanism, contacts operated upon further movement of the operating mechanism to bring the printing mechanism into operative relation, a primary relay, a switch-relay controlled thereby in accordance with the character of the initial movement of the primary relay, to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay and the other in the opposite position thereof.

132. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate same, of electrically-controlled step-by-step mechanism mechanically controlling the motion of the said signal member, contacts operated by the initial movement of the said operating mechanism to bring the step-by-step mechanism into operative relation therewith, printing and restoring mechanism, contacts operated upon further movement of the operating mechanism to bring the printing and restoring mechanism into operative relation, a primary relay, a switch-relay controlled thereby to determine in which direction the signal member shall be moved by the operating mechanism, and two circuits therefor, closed, the one in one position of the armature of the switch-relay and the other in the opposite position thereof.

133. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of line-spacing mechanism operated upon a movement of the signal member in one direction, and back-spacing mechanism operated upon a movement of the signal member in the other direction.

134. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of line-spacing mechanism operated upon a movement of the signal member in one direction to the limit of its travel, and back-spacing mechanism operated upon a movement of the signal member in the corresponding other direction.

135. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing mechanism therefor, of back-spacing mechanism operated upon a predetermined movement of the signal member, and means for preventing the operation of the printing mechanism when the back-spacing mechanism is operated.

136. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing mechanism therefor, of back-spacing mechanism controlled to be operated when the signal member reaches the limit of its movement away from normal position, and means for preventing the operation of the printing mechanism when the back-spacing mechanism is operated.

137. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing and letter-spacing mechanism, of back-spacing mechanism operated upon a predetermined movement of the signaling member, means for preventing the operation of the letter-spacing mechanism when the back-spacing mechanism is operated, and restoring means operated upon the operation of the back-spacing mechanism.

138. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing and letter-spacing mechanism, and a restoring-circuit normally operated by the printing and letter-spacing mechanism in its operation, of back-spacing mechanism, means for preventing the operation of the letter-spacing mechanism when the back-spacing mechanism is operated, and means operated upon the operation of the back-spacing mechanism for operating the said restoring-circuit.

139. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing and letter-spacing mechanism, and a restoring-circuit normally closed by the printing and letter-spacing mechanism in its operation, of back-spacing mechanism, means for preventing the operation of the letter-spacing mechanism when the back-spacing mechanism is operated, and contacts, closed upon operation of the back-spacing mechanism, to close the restoring-circuit.

140. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of line-spacing mechanism operated upon a movement of the signal member in one direction, back-spacing mechanism operated upon a movement of the signal member in the other direction, printing and letter-spacing mechanism, and means for preventing the operation of the letter-spacing mechanism when the back-spacing mechanism is operated.

141. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of line-spacing mechanism operated upon a movement of the signal member in one direction, back-spacing mechanism operated upon a movement of the signal member in the other direction, printing and letter-spacing mechanism, means for preventing the operation of the letter-spacing mechanism when the back-spacing mechanism is operated, and restoring means operated upon the operation of the back-spacing mechanism.

142. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing mechanism therefor, of a motor, thrown into operation upon a predetermined movement of the signal member, and a paper-carriage connected to the motor to move in one direction against spring-actuation in the other, when the said motor is operated.

143. In electrical signaling apparatus, the combination with a signal member, means for operating same to bring various signal characters thereon opposite a printing-point, and printing and letter-spacing mechanism, of a motor, operatively connected upon a predetermined movement of the signal member, a paper-carriage connected to the motor to move in one direction, against spring-actuation in the other, when the said motor is operated, and restoring means operated concurrently with the printing and letter-spacing mechanism.

144. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of a motor, line-spacing mechanism adapted to be operated by said motor upon a movement of the signal member in one direction, and back-spacing mechanism adapted to be operated by said motor upon a movement of the signal member in the other direction.

145. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of a motor, line-spacing mechanism adapted to be operated by said motor upon a movement of the signal member in one direction to the limit of its travel, and back-spacing mechanism adapted to be operated by said motor upon a movement of the signal member in the corresponding other direction.

146. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of a motor, line-spacing mechanism normally connected to said motor, and adapted to be operated upon operation of said motor, back-spacing mechanism, a clutch arranged upon operation to disconnect the motor from said line-spacing mechanism and connect same with said back-spacing mechanism, and means arranged upon operation of the signal member in one direction to operate the clutch and the motor, and upon operation of the signal member in the other direction to operate the motor while leaving the clutch at normal.

147. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of a motor, local circuits operated upon a movement of the signal member to the limit of its travel in either direction for operatively connecting the motor, line-spacing mechanism, back-spacing mechanism, a clutch for connecting said line-spacing mechanism or said back-spacing mechanism with said motor, and means controlled by the operation of the signal member in one direction or the other to determine which of said mechanisms shall be connected to the motor by said clutch.

148. In electrical signaling apparatus, the combination with a signal member adapted to move in opposite directions, and operating mechanism therefor, adapted to so operate the same, of a motor, line-spacing mechanism, back-spacing mechanism, a local circuit, operated upon movement of the signal member in one direction for operatively connecting the motor with the line-spacing mechanism, and another local circuit operated upon movement of the signal member in the other direction for operatively connecting the motor with the back-spacing mechanism.

149. In electrical signaling apparatus, the combination with a primary relay, a signal member, operating mechanism therefor, normally controlled by operation of the primary relay, a paper-carriage, a line-spacing device for the paper therein, and printing and letter-spacing mechanism, of means controlled by a movement of the signal member to line-space and to return the carriage to an initial position to commence a new line of printing, means operated upon such movement of the carriage, to restore the signal member to a normal position and to disconnect the operating mechanism from control of the primary relay, and means then operated under control of the primary relay for operating the line-spacing device.

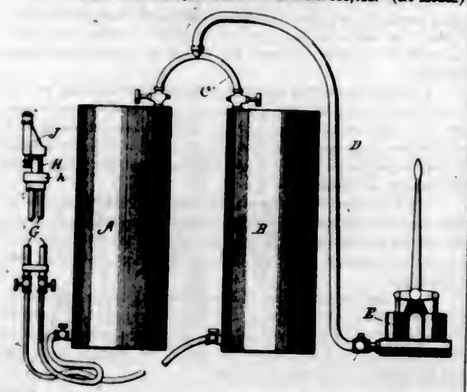
150. In electrical signaling apparatus, the combination with a primary relay, a signal member, operating mechanism therefor, normally controlled by operation of the primary relay, a paper-carriage, a line-spacing device for the paper therein, and printing and letter-spacing mechanism, of means controlled by a movement of the signal member to line-space and to return the carriage to an initial position to commence a new line of printing, means operated upon such movement of the carriage, to restore the signal member to a normal position and to disconnect the operating mechanism from control of the primary relay, and means then operated under control of the primary relay for consecutively operating the line-spacing device.

151. In electrical signaling apparatus, the combination with a primary relay, a signal member, operating mechanism therefor, normally controlled by operation of the primary relay, a paper-carriage, a line-spacing device for the paper therein, and printing and letter-spacing mechanism, of means controlled by a movement of the signal member to line-space and to return the carriage to an initial position to commence a new line of printing, means operated upon such movement of the carriage, to restore the signal member to a normal position and to disconnect the operating mechanism from control of the primary relay, means then operated under control of the primary relay for consecutively operating the line-spacing device, and means for operating the letter-spacing mechanism upon completion of the operation of the line-spacing device.

152. In electrical signaling apparatus, the combination with a primary relay, and a local relay whose coils are in local circuit with contacts controlled by its own armature in series with contacts controlled by the armature of the primary relay and with a generator, of signal-operating mechanism controlled by said local relay, and restoring means independent of the said local circuit for restoring the local-relay armature to normal position after each signal.

748,971. LIQUID MIXING AND SPRAYING APPARATUS.

WILLIAM H. MILLSPAUGH, Sandusky, Ohio, assignor to the Sandusky Foundry and Machine Company, Sandusky, Ohio, a Corporation of West Virginia. Filed Apr. 22, 1903. Serial No. 153,753. (No model.)



Claim.—1. In an apparatus for mixing liquids, a plurality of liquid-tanks, an air-pump having a common connection therewith, outlet-pipes therefrom having a common discharge, and a removable plate in the path of each liquid having an aperture of predetermined size to permit the desired relative rate of flow, substantially as described.

2. In an apparatus for mixing liquids, a plurality of liquid-tanks, an air-pump having a common connection therewith, outlet-pipes from said tanks, the ends of which are coupled to a connecting-piece having a discharge branch, and a removable plate clamped between said connecting-piece and each outlet-pipe having an aperture of proper size to permit the desired proportionate flow, substantially as described.

3. In an apparatus for mixing liquids, a plurality of liquid-tanks, an air-pump having a common connection therewith, controlling-valves for cutting off each of said tanks from said air-pump, outlet-pipes from said tanks having a common discharge, controlling-valves for preventing discharge from each of said pipes, and a removable plate in the path of each liquid having an aperture of proper size to permit the desired proportionate flow, substantially as described.

4. In a liquid mixing and spraying apparatus, a plurality of liquid-tanks, an air-pump having a common connection therewith, outlet-hose leading from said tanks, a discharge pipe or nozzle having a union or junction with said hose, and means in said junction for regulating the flow of each liquid therethrough in predetermined proportions, substantially as described.

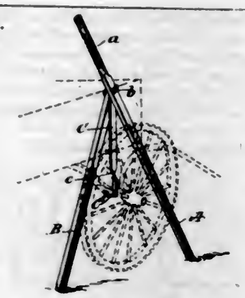
5. In a liquid mixing and spraying apparatus, a plurality of liquid-tanks, an air-pump having a common connection therewith, liquid-outlet hose or pipes leading from said tanks, a circular exteriorly-threaded plug into which said pipes are inserted, a discharge-pipe having an interiorly-threaded enlargement screwing on said plug, and a plate or disk clamped between said plug and inner face of said enlargement having apertures of predetermined sizes registering with the bores in said plug to regulate discharge of the different liquids in desired proportions, substantially as described.

748,972. LIFTING-JACK.

MELVILLE M. MOORE, Sr., Santa Barbara, Cal. Filed Aug. 7, 1903. Serial No. 168,566. (No model.)

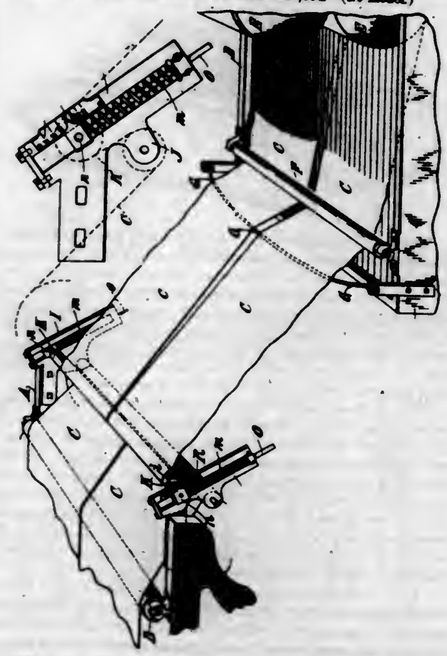
Claim.—A lifting-jack consisting of members pivoted by a through-bolt one of said members having a handle, and a freely-swinging hanger loosely suspended from the bolt and provided with an axle-engaging foot-piece.

748,972.



748,973. PAPER-MACHINE.

HORACE A. MOSES, Springfield, Mass. Filed July 26, 1902. Serial No. 117,064. (No model.)



Claim.—1. A paper-delivering mechanism provided with a tension-indicating device which consists of a pair of rollers one of which is yieldingly mounted in a frame and adapted to operate an indicator, whereby the tension of the paper delivered is automatically indicated.

2. The above-described tension-indicating device for paper-machines, which consist of a pair of rollers inserted in the proper machine back of the delivering-roll, one roller of said pair being yieldingly mounted in a frame, in such manner as to yield to any increase of tension, to which the paper is subjected, and thereby to operate an indicating device, whereby the amount of said tension is shown, substantially as and for the purpose set forth.

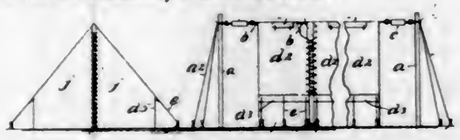
3. In a paper-machine, the combination with a roll over which the paper passes in leaving said machine, of a support for each end of said roll comprising the following instrumentalities: a bracket having a slot therein, a roll-supporting box having thereon an indicating-point and having a sliding movement in said slot, a rod fixed on said box and passing through said slot, a spring between said box and the lower end of the bracket and graduating symbols on said bracket in proximity to said box-carried point, substantially as described.

748,974. TENT.

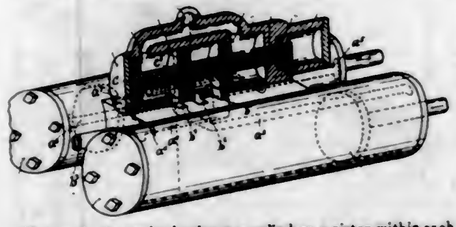
ANDREW F. MCGRATH, New York, N. Y. Filed May 20, 1903. Serial No. 157,962. (No model.)

Claim.—A tent composed of separate sections of flexible mate-

rial passed over a supporting-cable which is longer than the tent and provided at each end with helical spring attaching devices, the separate sections being also provided with supplemental transverse strips which form side eaves, the end sections being also provided with flies which form the ends of the tent, stays connected with said eaves and end supports with which the helical spring attaching devices are connected and the distance between which is greater than the length of the tent, substantially as shown and described.



748,975. DUPLICATE ENGINE. JOHN W. NEIL, Cincinnati, Ohio. Filed Apr. 5, 1902. Serial No. 101,466. (No model.)

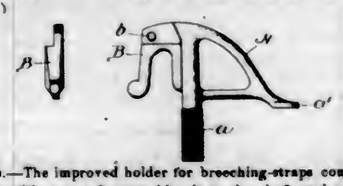


Claim.—1. An engine having two cylinders, a piston within each cylinder, a valve-casing, a reciprocating valve within the casing, channels leading from the valve-casing into both ends of the cylinders, secondary channels leading from one of the cylinders into the valve-casing to convey steam thereto to reciprocate the valve to put the ends of the cylinders alternately, one in communication with the live steam and the other with the exhaust, and means for regulating the secondary channels by the piston of the cylinder from which they lead, substantially as shown and described.

2. A duplicate engine having two piston-cylinders, and having a valve-casing situated between its cylinders with an exhaust-port and a port upon one side and upon the opposite side of the exhaust-port, channels connecting each of the latter ports one with the forward end of one cylinder and the rear end of the other cylinder and connecting the other port with the rear end of the first cylinder and with the forward end of the latter cylinder, a valve in the casing for placing said ports alternately in communication with the exhaust and with the live steam, and means for reciprocating the valve, substantially as shown and described.

3. In a duplicate engine having two cylinders with a piston within each cylinder the combination of a valve-casing situated between the cylinders of the engine, and having an exhaust-port with two ports one on each side thereof, pistons upon a common piston-rod within the valve-casing for putting the two ports alternately in communication with the exhaust, channels connecting one of the two ports with the forward end of one of the cylinders and with the rear end of the other cylinder and connecting the other of said ports with the rear end of the former and with the forward end of the latter cylinders, and channels leading from the same ends of the two cylinders at points thereof distant from the ends greater than the thickness of the engine-pistons and one leading to the forward and the other to the rear end of the valve-casing to shift the balance of pressure and reciprocate the valve, substantially as shown and described.

748,976. HOLDBACK FOR BREECHING-STRAPS. THOMAS NICHOLS, Templeton, Mass., assignor of one-half to Irving G. Waite, Baldwinville, Mass. Filed Sept. 12, 1903. Serial No. 172,997. (No model.)



Claim.—The improved holder for breeching-straps comprising bracket A, with means for attaching it to the shaft, and a side lip projecting from its front post; hook B, with a corresponding side lip on its cross-piece; and pintle *b* holding the flat side of the two lips together, substantially as described.

748,977. RUBBER-DAM CLAMP. FREDERICK H. NIES, New York, N. Y. Filed Apr. 3, 1903. Serial No. 151,619. (No model.)



Claim.—1. An instrument for the purpose specified, comprising two levers pivotally connected at the fulcrum, jaws on the said levers, a recessed jaw-plate pivotally mounted on the face of each jaw, at about the middle of the length of the plate, whereby it may adjust itself to the tooth clamped, and means for opening and closing said jaws.

2. An instrument for the purpose specified, comprising two levers pivotally connected at their fulcrum, jaws on said levers, a jaw-plate pivotally mounted at about the middle of its length on each of said jaws, said jaw-plates having a plurality of concave recesses in their edges for embracing two or more adjacent teeth, and means for opening and closing said jaws.

3. An instrument for the purpose specified, comprising two levers connected pivotally at their fulcrum, jaws on said levers, means for opening and closing said jaws, and jaw-plates S, rotatably mounted on the respective jaws, said plates each having recesses in both of its edges.

4. An instrument for the purpose specified, comprising the levers connected at their fulcrum, one of said levers having a screw-threaded extension 5, and the other an arm 7, the conical nut 6 on the extension 5, and bearing on the arm 7, the jaws on the levers, and the spring for opening said jaws.

748,978. ECCENTRIC-SCREW BREECH-CLOSING DEVICE. PER DE NORDENFELT and HENRY TERRISSE, Paris, France. Filed Sept. 12, 1903. Serial No. 172,897. (No model.)



Claim.—1. In an eccentric screw for closing the breech of guns, the combination, with the screw and breech, of an elastic system connected to the breech and to the screw to counterbalance the weight of the said screw.

2. In an eccentric screw for closing breeches, the combination, with the screw and breech, of a spring connected to the breech and which lifts the screw vertically upward.

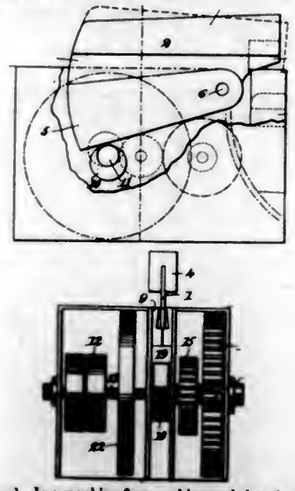
3. In an eccentric screw for closing the breech of guns, the combination, with the screw and breech, of a spring connected to the breech, of a trunnion on the screw, and of means for transmitting the power of the spring to the trunnion in a vertical direction.

4. In an eccentric screw for closing breeches, the combination, with the screw and breech, of a spring connected to the breech, of a transversal mortise in the screw, of a trunnion formed in the said mortise concentrically to the center of gravity of the eccentric screw, and of means for transmitting the power of the spring to the trunnion in a vertical direction.

5. In an eccentric screw for closing the breech of guns, the combination, with the screw and breech, of a spring connected to the breech, of a trunnion formed in the screw concentrically to the center of gravity of the latter, of means for transmitting the power of the spring to the said trunnion in a vertical direction, and of pivots of support for the screw arranged in line with the axis of rotation of the screw.

6. In an eccentric screw for closing the breech of guns, the combination, with the screw and breech, of a spring connected to the breech, of a lever fulcrumed on the breech, of a roller on the said lever, of a transversal mortise in the screw, of a trunnion formed in the said mortise concentrically to the center of gravity of the screw, the said roller acting on the under side of the said trunnion, and the said spring being located, relatively to the fulcrum of the lever, in such a manner that it acts on the said lever with a leverage which becomes all the weaker as the spring is more compressed, as hereinbefore specified.

748,979. PUNCHING AND SHEARING MACHINE, &c. ROBERT NORRIE, Rangoon, British Burma, India. Filed Apr. 4, 1903. Serial No. 151,075. (No model.)



Claim.—1. In a machine for punching and shearing metal or the like, the combination of a main frame, a frame or lever pivoted in said main frame, said pivoted frame having cheek-pieces and being formed with a longitudinal groove or slot therein, a cutting-blade secured in the slotted portions of the frame, a cam mechanism for actuating the cutter, cutting edges mounted on the main frame adjacent to the path of travel of the first-mentioned cutting-blade, and a guide for the material severed by the blades.

2. In a machine for punching and shearing metal or the like, the combination of a main frame, a frame or lever pivoted in said main frame, strengthening cheek-pieces for said pivoted frame, said pivoted frame being formed with a longitudinal grooved or slotted portion, a cutting-blade secured within the slotted portion of such pivoted frame, the cutting edge of the blade being concaved, and stationary cutting-blades mounted on the frame adjacent to the path of the first-mentioned cutting-blade.

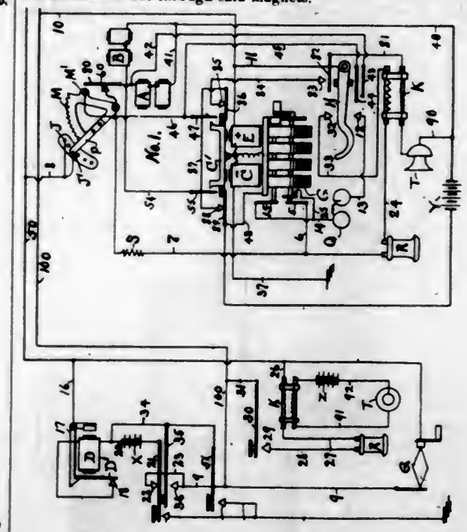
3. The combination of a main frame, a cutter-carrying frame or lever pivoted thereto, a cutting-blade riveted in the frame, such frame comprising a plate corresponding in thickness to the blade and extending rearward in a straight line with said blade, and strengthening cheek-pieces riveted to the upper and lower ends of said plate; the cutting-blade being secured to the uppermost cheek-piece substantially as set forth.

4. The combination of a main frame, a cutter-carrying frame or lever pivoted thereto, a cutting-blade riveted in the frame, such frame comprising a plate corresponding in thickness to the blade and extending rearward in a straight line with said blade, strengthening cheek-pieces riveted to the upper and lower ends of said plate, stationary cutting edges mounted below the cutting-blade of the pivoted frame, and means for actuating said pivoted frame to cause the cutting-blade to pass between the lower stationary cutting edges.

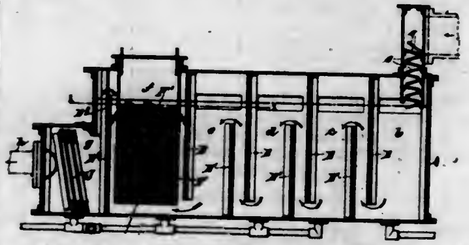
748,980. TELEPHONE-EXCHANGE. NILS E. NORSTROM, Chicago Ill., assignor of two-thirds to John Anderson, Salina, Kans., and M. E. Richardson, Sterling, Kans. Filed Mar. 16, 1901. Serial No. 51,462. (No model.)

Claim.—1. The combination with a central office, a wire extending therefrom, and a series of telephone-stations connected to said wire, of a switching mechanism located at each station, magnets for operating and releasing said mechanism, a magneto-generator, two relay-magnets connected to said generator and operatively polarized by the magnets of said generator, and means for sending an electrical current in either direction over said wire and through the two relay-magnets.

2. The combination with a switching mechanism, relay-magnets for controlling its operations, and a wire connecting said magnets in series, of a central station also connected to said wire, means for sending electrical impulses from said central station through said relay-magnets, a magneto-generator arranged to oppositely polarize said magnets, and a branch connection from said generator to said wire whereby said generator may send an electrical current to said central station but not through said magnets.



748,981. APPARATUS FOR SEPARATING OIL OR GREASE FROM WATER. CHARLES OLIVER, Pennant Hills, near Sydney, New South Wales, Australia. Filed Apr. 27, 1903. Serial No. 154,593. (No model.)



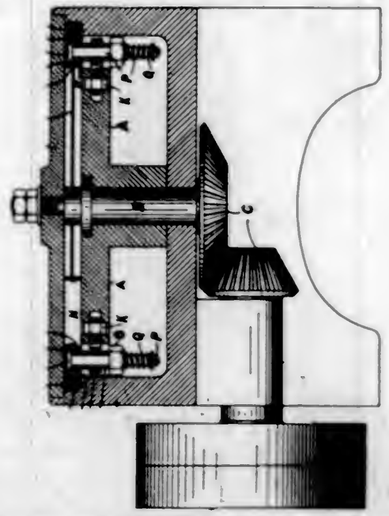
Claim.—In a device for separating lighter liquids from heavier liquids, the combination of a vessel having an inlet and an outlet, depending and upstanding partitions between said inlet and said outlet forming an up and down tortuous passage-way, auxiliary outlets in the upper bends of said tortuous passage-way and an upstanding vertically extendible and retractable partition between said tortuous passage-way and said outlet to regulate the level of the liquid in said tortuous passage-way.

748,982. MACHINE FOR READING SHEET-METAL WARES. JAMES W. PATON, Southport, and HENRY G. TAYLOR, Egremont, England. Filed Apr. 18, 1903. Serial No. 153,153. (No model.)

Claim.—1. A machine for the purpose specified, having a shell or frame, a rotating disk in said shell, said disk being provided with a plurality of upright rotating mandrels to receive and carry the articles to be operated on, a top plate on the said shell and covering the rotating disk, said plate fitting down quite closely to the articles on the mandrels so as to keep them in place, and said plate having in it at one point an aperture for feeding in the articles to the mandrels and at another point an aperture for the delivery of the articles after they shall have been operated on, means for feeding in one article at a time at the feeding-aperture, means for forcing the articles down upon the respective mandrels, and means, coacting with the mandrels, for operating on the articles carried by the latter.

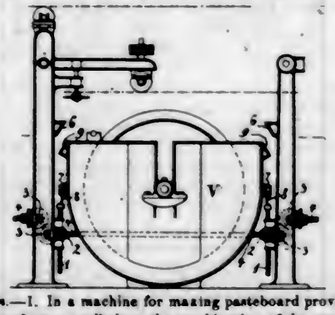
2. A machine for the purpose specified, having a rotating disk, a plurality of upright, hollow bolts secured in the said disk, man-

drels to receive the articles to be operated on, mounted rotatively one on each of the said bolts, a beaded pin slidable in each of said bolts, the head of said pin occupying, normally, a recess in the upper end of said bolt, springs which draw down the respective bolts, and a stationary cam in the path of the lower ends of said pins, whereby as the disk rotates the said pins are pushed upward successively by said cam for lifting the articles off from their mandrels.



3. A machine for the purpose specified, having a rotating disk, rotatable mandrels carried on the upper side of said disk, said mandrels to receive the articles to be operated on, a stationary plate over said mandrels to keep the articles in place on the mandrels, said plate having in it a feeding-aperture and a delivery-aperture, means for lifting the article off from the mandrel at the delivery-aperture, a delivery-chute, and means for displacing the lifted article laterally into the delivery-chute.

748,983. **MACHINE FOR MAKING PASTEBOARD.** PAUL PRIES, Heidenheim-on-the-Brenz, Germany, assignor to The Firm of J. M. Voith Maschinen-Fabrik, Heidenheim-on-the-Brenz, Württemberg, Germany. Filed Sept. 5, 1903. Serial No. 172,316. (No model.)



Claim.—1. In a machine for making pasteboard provided with a plurality of screen-cylinders, the combination of the screen-cylinders, with mechanism for lowering or raising the same so that any one of the cylinders can be lowered below the pulp-carrying felt and raised up to the same, substantially as set forth.

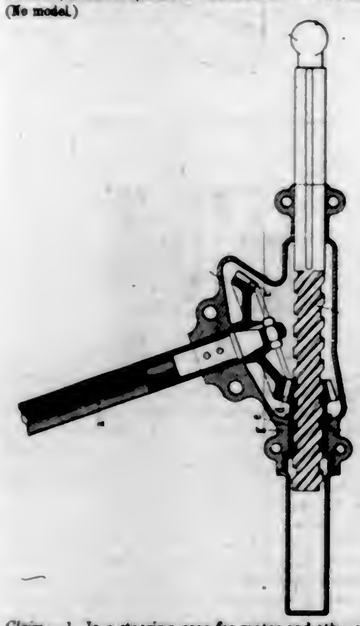
2. In a machine for making pasteboard provided with a plurality of screen-cylinders, the combination, with the screen-cylinders and vats, of mechanism for lowering or raising the cylinders and vats, substantially as set forth.

3. In a machine for making pasteboard provided with a plurality of screen-cylinders, the combination, with the screen-cylinders and vats, of means for lowering or raising the same, and means for moving them in lateral direction out of the machine, substantially as set forth.

4. In a machine for making pasteboard provided with a plurality of screen-cylinders, the combination, with the screen-cylinders and their vats, of means for lowering or raising the same, brackets on the supporting-standards of the machine, and stops on the vats for arresting the screen-cylinders and vats when in raised position, substantially as set forth.

5. In a machine for making pasteboard provided with a plurality of screen-cylinders, the combination, with the screen-cylinders and vats, of means for lowering and raising the same, rollers on the vats, and lateral guide-rails on the supporting-standards for moving the cylinders and vats laterally out of the machine, substantially as set forth.

748,984. **STEERING-GEAR FOR MOTOR-VEHICLES.** LOUIS RENAULT, Billancourt, France. Filed Jan. 23, 1903. Serial No. 140,269. (No model.)



Claim.—1. In a steering-gear for motor and other vehicles, the combination with a divided axle having its members connected for conjoint movement, of a bent lever extending from one axle member, a rod connected loosely to said lever, a gear-casing having a bearing, a revoluble nut confined in said bearing, a threaded rod slidable in the casing, screwed in the nut and jointed to the first-named rod, and a steering-rod geared to the nut.

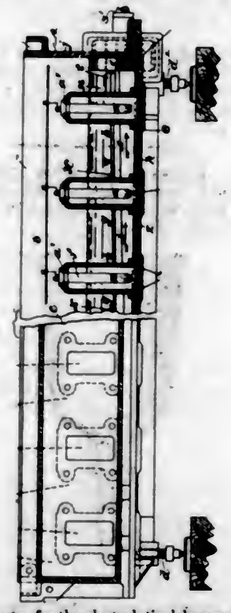
2. In a steering-gear, the combination of a gear-casing having a spindle-bearing, a nut-bearing, and a guide-opening, a female threaded elongated nut or sleeve held against endwise travel in said nut-bearing and housed within the gear-casing, a threaded rod slidable in the guide-opening of said casing and screwed in the nut or sleeve, a steering-spindle mounted in the spindle-bearing, and bevel-gears connecting the spindle and the nut or sleeve, said gears being housed within the casing.

3. In a steering-gear for motor and other vehicles, the combination with a bearing and a gear-casing, of a female threaded sleeve mounted in said bearing to rotate therein and to be held from endwise movement thereby, a steering-rod having means for turning the same and mounted in a part of the gear-casing, gearing connecting said steering-rod with said threaded sleeve, a threaded rod slidably mounted in the gear-casing and having threaded engagement with said sleeve, an axle-controlling lever, and a third rod pivotally connected with the threaded rod and said lever.

748,985. **APPARATUS FOR ELECTROLYTIC DECOMPOSITION OF ALKALI CHLORIDS.** JOHAN J. RIIS, Elsinore, Denmark. Filed Apr. 4, 1902. Serial No. 101,343. (No model.)

Claim.—1. In an apparatus for the electrolytical decomposition of alkaline chlorids, the combination, with a horizontally-moving mercury cathode, of a series of combining-cells without anodes, and a series of decomposition-cells provided with anodes, said combining-cells being of such dimensions that they expose about twice the area of surface to the solvent in the combining-cell as the cathode-surface exposed in said decomposition-cells, said decomposition-cells having a width of about three to five centimeters, substantially as set forth.

2. In an apparatus for the electrolytical decomposition of alkaline chlorids, the combination, with a horizontally-moving mercury cathode, of a series of combining-cells without anodes, and a series of decomposition-cells provided with anodes, said combining-cells being of such dimensions that they expose about twice the area of surface to the solvent in the combining-cell as the cathode-surface exposed in said decomposition-cells, said decomposition-cells having a width of about three to five centimeters, substantially as set forth.



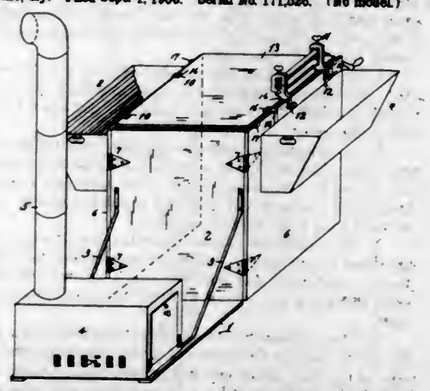
3. In an apparatus for the electrolytical decomposition of alkaline chlorids, the combination with a horizontally-moving cathode, of a series of combining-cells without anodes, and a series of decomposition-cells provided with anodes, both of said series of cells being narrow in the direction of the movement of the mercury and arranged transversely to the same, said combining-cells having a width of about ten to twenty centimeters and the decomposition-cells a width of about three to five centimeters, substantially as set forth.

4. In an apparatus for the electrolytical decomposition of alkaline chlorids, the combination with a horizontally-moving cathode, of a series of combining-cells without anodes, a compartment in which one of the ends of the combining-cells terminates, a series of decomposition-cells provided with anodes, and a compartment in which one of the ends of the decomposition-cells terminates, the cells of one series being arranged so as to extend between the cells of the other series, substantially as set forth.

5. In an apparatus for the electrolytical decomposition of alkaline chlorids, the combination, with a horizontally-moving cathode, of a series of combining-cells without anodes, a series of decomposition-cells provided with anodes, said combining-cells being of such dimensions that they expose about twice the area of surface to the solvent in the combining-cell as the cathode-surface exposed in said decomposition-cells, a common bottom for said cells, and transverse raised portions on said bottom of a height slightly below the mercury cathode, substantially as set forth.

6. In an apparatus for the electrolytical decomposition of alkaline chlorids, comprising a receptacle having a bottom with raised portions and provided with compartments at either side, a horizontally-moving mercury cathode passing along said bottom and over the raised portions, a series of combining-cells without anodes terminating in one of said compartments, and a series of decomposition-cells terminating in the other compartment, said combining-cells being of such dimensions that they expose about twice the area of surface to the solvent in the combining-cell as the cathode-surface exposed in said decomposition-cells, the cells of one series being arranged so as to extend between the cells of the other series of cells, substantially as set forth.

748,986. **PORTABLE LAUNDRY.** WILLIAM A. ROBERSON, Louisville, Ky. Filed Sept. 1, 1903. Serial No. 171,526. (No model.)



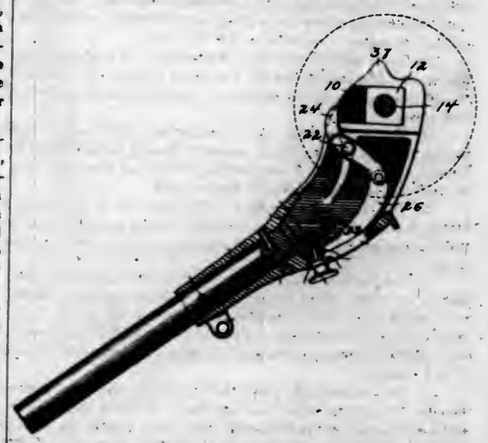
Claim.—1. In a portable laundry the combination, with the laundry appliances, of the casing supporting and inclosing said appliances, said casing having the bottom and back rigidly connected, a removable top, a removable front, and sides 6, 6 hinged at their rear edges to said back and adapted to be folded rearward to points behind the back, substantially as set forth.

2. In a portable laundry the combination of the base 1, the back rigidly braced teereto, the sides 6 hinged to said back, and attachable to the edges of the bottom, and the tubs having means for suspending them on the sides 6, substantially as set forth.

3. In a portable laundry the combination of the base 1, the back rigidly braced thereto, sides 6 and 6, hinged to and foldable on said back, and the front, 13, provided with hooks adapted to be laid across the top of the sides, 6 and 6, when they are opened out and folded back, and thus to hold them firmly in position when opened and in use as supports for the tubs and wringer, while at the same time the front, 13, is itself adapted to be used in that position as an ironing-board, or as a support for the clothes-receptacle or other needed articles.

4. In a portable laundry apparatus the combination of the tub the bottom, back and hinged sides of the inclosing casing, and the front which engages the front edges of the sides when the casing is closed and which engages the top edges of the sides to form a table when the casing is opened, substantially as set forth.

748,987. **TROLLEY-HARP.** EDWARD D. ROCKWELL, Bristol, Conn. Filed Nov. 7, 1903. Serial No. 180,217. (No model.)



Claim.—1. The combination, with a trolley-harp having ways, of bearing-blocks mounted in said ways, a trolley-wheel mounted in

said bearing-blocks in ways of said harp, and levers capable of being thrown into or from the path of said blocks.

2. The combination, with a trolley-harp having ways, of a trolley-wheel, bearing-blocks for said trolley-wheel mounted in said ways formed in the harp, means for forcing said bearing-blocks away from each other, levers, one end of each lever normally lying in the path of said bearing-blocks, and means for locking said levers against accidental displacement.

3. The combination, with a trolley-harp, of a trolley-wheel, a shaft upon which said wheel revolves, bearing-blocks for the reception of said shaft, and a spring in a bore of said shaft for forcing said blocks apart.

4. The combination, with a trolley-harp, of a trolley-wheel, a shaft upon which said wheel revolves, bearing-blocks for the reception of said shaft mounted in ways of the harp, and a spring for forcing said bearing-blocks apart and movable retaining members normally lying in the path of said blocks.

5. The combination, with a trolley-harp having ways, of a trolley-wheel, a shaft upon which said wheel revolves, bearing-blocks for the reception of said shaft mounted in said ways of the harp, and a spring in a bore of said shaft for forcing said bearing-blocks apart.

6. The combination, with a trolley-harp having ways, of a trolley-wheel, bearing-blocks for said trolley-wheel mounted in said ways of the harp, levers, one end of each lever normally lying in the path of said blocks, and a yoke connecting said levers.

7. The combination, with a trolley-harp having ways formed therein, of bearing-blocks, a trolley-wheel mounted in said bearing-blocks traveling in said ways, levers, one end of each lever lying in the path of said blocks, and means for locking said levers against accidental displacement.

8. The combination, with a trolley-harp having ways, of a trolley-wheel, bearing-blocks for said trolley-wheel mounted in said ways formed in said harp, levers for preventing the accidental displacement of said bearing-blocks, a yoke connecting said levers, and means for locking said yoke against accidental displacement.

9. The combination, with a trolley-harp having ways, of a trolley-wheel, bearing-blocks for said trolley-wheel mounted in said ways, levers, normally lying in the path of said bearing-blocks, and means for controlling the movement of said levers.

10. The combination, with a trolley-harp having ways, of a trolley-wheel, bearing-blocks for said trolley-wheel mounted in said ways, stop-levers, a yoke connecting said levers, and a locking-knob upon said yoke.

11. The combination with a trolley-harp having ways formed therein, of trolley-wheel bearing-blocks slidably mounted in said ways, stop-levers, a yoke connecting said levers, and a spring-actuated knob carried by said yoke.

12. The combination, with a trolley-harp having ways formed therein, of bearing-blocks slidably mounted in said ways, stop-levers pivoted to the harp, a yoke connecting said levers, and a spring-actuated knob carried by said yoke.

13. The combination, with a trolley-harp having ways formed therein, of bearing-blocks slidably mounted in said ways, stop-levers, a yoke connecting said levers, a spring-actuated knob upon said yoke adapted to engage a recess formed in the harp.

14. The combination, with a trolley-harp, of a trolley-wheel having movable bearing-blocks, stop-levers limiting the movement of said bearing-blocks, and means for controlling the movement of said levers.

15. The combination, with a trolley-harp, of a trolley-wheel having movable bearing-blocks, mounted therein, movable stops for limiting the movement of said bearing-blocks, and means for locking said stops against accidental displacement.

16. The combination, with a trolley-harp, of a trolley-wheel having movable bearing-blocks, mounted therein, movable stops for said bearing-blocks, and means for controlling the movement of said stops.

17. The combination, with a trolley-harp having ways formed therein, of trolley-wheel bearing-blocks slidably mounted in said ways, stop-levers, a yoke connecting said levers, a slot formed in said harp, a spring-actuated locking-knob carried by said yoke, traveling in said slot of the harp and adapted to engage a locking-recess formed in said harp.

18. The combination, with a trolley-harp having ways formed therein, of a trolley-wheel, bearing-blocks in which said trolley-wheel is mounted, means for forcing said blocks against the walls of the ways, levers for preventing the accidental displacement of the bearing-blocks, a yoke connecting said levers, and a lock for said yoke.

19. The combination, with a trolley-harp having ways formed therein, of a trolley-wheel, bearing-blocks slidably disposed in said ways, in which said trolley-wheel is mounted, a spring in a bore of the trolley-wheel shaft tending to force the bearing-blocks apart, stop-levers, and means for controlling the movement of said stop-levers.

20. The combination, with a trolley-harp having ways formed therein, of a trolley-wheel, bearing-blocks slidably disposed in said ways, a shaft mounted in said bearing-blocks, a spring in a bore of said shaft, stop-levers, a yoke pivoted to said levers, and a locking device for said yoke.

748,988. **AUTOMATIC VALVE FOR COMBINED MEASURES AND FUNNELS.** ERWIN D. SCHAFER, Walnutport, Pa., assignor of one-half to Wesley McFarland, Walnutport, Pa. Filed July 11, 1903. Serial No. 115,115. (No model.)



Claim.—A measure having a spout leading from its lower end, said spout having slots, a sleeve having a flange at its upper end, said flange being radially corrugated from the sleeve to the periphery of the flange, a cross-pin secured to the sleeve and slidable in the slots of the spout, collar interposed between the spout and measure, said collar being flared to form a valve-seat, a valve on the seat and a valve-stem leading from the valve to the cross-pin.

748,989. **INTERLOCKING BUILDING-TILES.** JOSEPH SCHALL, Evergreen Park, Ill. Filed Nov. 3, 1902. Serial No. 129,902. (No model.)



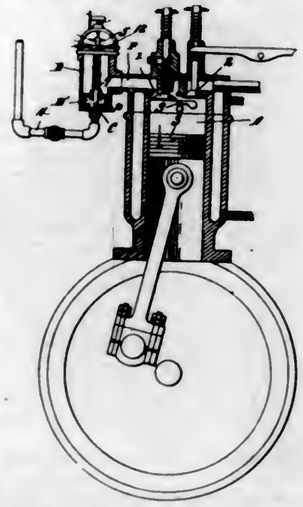
Claim.—1. A hollow wall having its opposite faces composed of two relatively interlocking sections, one of said sections being composed of tiles provided with parallel recesses contracted at their mouth portions, said tiles being adapted to be laid in courses to break joint with each other and said recesses being so arranged as to be regularly spaced throughout said wall and to register throughout all courses, and the other of said sections being composed of tiles provided at similar intervals with extended ribs enlarged at their outer ends and adapted to enter and interlock with said recesses, said tiles of the last-named section being adapted to be laid in courses breaking joint with the courses of the first-named section, whereby each tile of each section will interlock with a plurality of tiles of the other section, and the spaces between the ribs and said sections will be continuous throughout said wall, forming independent vertical air-shafts therein, substantially as described.

2. In a wall the combination with two sets of tiles forming opposite faces thereof, of a plurality of parallel ribs on one face of the tiles of one set so arranged that when said tiles are laid in a course said ribs will be regularly spaced throughout said course, and flanges at the ends of said ribs, of a plurality of parallel recesses on one face of the other set of tiles so arranged that when said last-named set of tiles is laid in a course said recesses will be regularly spaced to correspond with said ribs of the first set of tiles, said recesses being undercut to receive the flanges of said ribs, whereby said tiles will relatively interlock, said tiles being relatively so arranged that each tile of one set will interlock with a plurality of tiles of the other set and that all joints between tiles of the one set will alternate with the joints of the other set, substantially as described.

3. A wall composed of building-blocks of two forms, one having a body part provided with projections intermediate its extremities, that latter being devoid of projections; the other having end projections and a single intermediate projection; the two sets of blocks arranged on opposite sides of the wall, so that their projections interlock.

4. A wall composed of building-blocks each having right-angled projections as described, the two sets of blocks being arranged on opposite sides of the wall so that their projections interlock and break joints.

748,990. **FEED-REGULATOR FOR GASOLENE-ENGINES.** HARRY H. SHOWER and CHARLES R. SHOWER, Hagerstown, Md. Filed Sept. 13, 1901. Serial No. 75,243. (No model.)

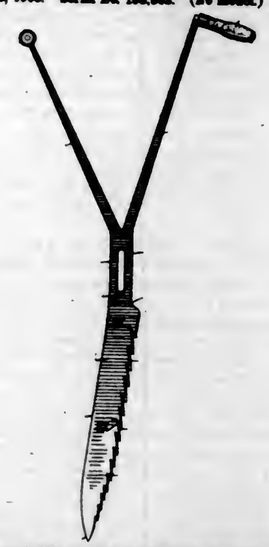


Claim.—1. In an explosive-engine, the combination, of the cylinder, the feed attachment, connected thereto by a passage, comprising a chamber having an oil-inlet and an air-inlet at one end, a valve for said oil-inlet provided with a stem extending through said chamber, a hollow piston adjustably mounted on said stem with its lower end formed to cover the air-inlet openings and provided with a central opening within the line of said air-inlet openings, and openings in its upper side, whereby the quantity of air and oil admitted may be regulated to the proper relative proportions, substantially as set forth.

2. In a feeding attachment for oil-engines, the combination, of the body having an oil and an air inlet, a reciprocating valve for the oil-inlet, a perforated piston mounted thereon by a screw-threaded connection, means for preventing it from turning, the stem of said valve extending to the outside where it is connected with means for preventing it from turning, and means for normally holding the valve closed, substantially as set forth.

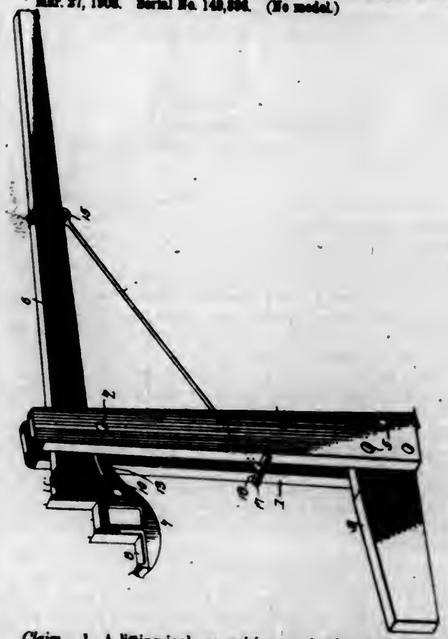
3. In combination with an oil-engine, a feeding attachment comprising a body provided with an oil and an air inlet, a valve for closing the oil-inlet, a piston formed with openings and adjustably mounted on the stem of said valve and adapted to extend over the air-inlet, means for preventing it from turning, the stem of said valve being extended to the outside and connected with a sliding device to which it may be locked to prevent it from turning, and an adjustable stop for limiting the opening movement of the valve, substantially as set forth.

748,991. **HAY-KNIFE.** WINFIELD S. SHIPPY, Bayfield, Colo. Filed May 6, 1903. Serial No. 155,862. (No model.)



Claim.—A hay-knife consisting of a blade-body having a point at one end and provided at one longitudinal edge with a continuous chain of lance-teeth inclined downwardly in direction of the point, the heel of one tooth extending back of the point of the tooth above it, the said teeth being beveled on both sides of their cutting edges their full length, a shank connected with the blade-body, a foot-rest extending from the shank, handles carried in diverging directions from the upper portions of the shank, and grip-bars located at the upper ends of the said handles, one grip-bar being at right angles to the other and above the other, the lower grip-bar extending in the same direction as the foot-rest, as specified.

748,992. **LIFTING-JACK.** WILLIAM C. SMITH, Chicago, Ill. Filed Mar. 27, 1903. Serial No. 149,896. (No model.)



Claim.—1. A lifting-jack comprising a pair of spaced uprights, a pivot-pin carried thereby, a lever supported between the uprights

and resting on the pin, and a stepped head secured to the lever and provided with a groove or socket adapted to receive the pivot-pin.

2. A lifting-jack comprising a base, a pair of spaced uprights secured to the base, a pivot-pin carried by the uprights, a lever supported between said uprights and resting on the pivot-pin, said lever being provided with a detachable stepped head, a socket formed in the head having a groove or recess adapted to receive the pin adapted to receive the end of the lever, and means for locking the lever in adjusted position.

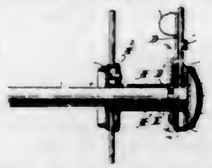
3. In a lifting-jack the combination of the spaced uprights, a pivot-pin carried thereby, a lever resting on the pivot-pin, and a stepped head carried by the lever and having a rearwardly-extended grooved arm embracing the pivot-pin and secured to the under side of said lever.

4. A lifting-jack comprising a base, a pair of spaced uprights secured to the base, a pivot-pin carried by the uprights, a lever supported between said uprights and resting on the pivot-pin, a head secured to the lever and provided with horizontally-disposed shoulders having upwardly-extending ribs formed thereon, said head being provided with a groove or socket adapted to receive the pivot-pin and a rod one end of which is pivoted to the long arm of the lever the opposite end of said rod passing between the uprights and engaging the front faces thereof.

5. A lifting-jack comprising a base, a pair of spaced uprights secured to the base, a lever pivotally supported between the uprights, a stepped head secured to the lever and provided with a supporting-arm having a groove or channel in the end thereof, a bolt passing through said groove and openings in the uprights, and a locking-bar pivoted to the long arm of the lever and adapted to engage the uprights.

6. A lifting-jack comprising a base, a pair of spaced uprights secured to the base, a lever pivotally supported between the uprights, a stepped head provided with a socket adapted to receive the short arm of the lever, a bolt passing through said socket and lever, said head being provided with a rearwardly-extending supporting-arm having a groove or channel formed therein and provided with an upwardly-extending terminal lug fitting in a corresponding socket in the lever, a bolt passing through the groove and coincident openings in the uprights, and a locking-bar one end of which is pivoted to the long arm of the lever the opposite end thereof extending between the uprights and engaging the front edges thereof.

748,993. VEHICLE-WHEEL. FRANK R. SOUTHARD, Toledo, Ohio. Filed Sept. 21, 1903. Serial No. 173,982. (No model.)



Claim.—1. In a wheel, the combination of a hub having an opening in one side thereof, a lever pivotally attached at one end to the hub, and a lip on said lever to project through the opening in the hub to engage a groove in the axle.

2. In a wheel, the combination of a hub having a slot extending through one side, a lever pivoted at one end to the hub and extending radially therefrom with its opposite end adjacent to the spokes of the wheel, a lip on said lever to project through the slot in the hub and engage a groove in the axle, and means on the lever for engaging one of the spokes to hold the lever from turning.

3. In a wheel, the combination with a hub consisting of a sleeve to receive the axle provided with a slot in one side and disks secured to the ends of said sleeve to which disks the spokes are secured, of a lever pivotally secured at one end to the disk at the outer end of the hub and extended radially outward therefrom adjacent to the spokes, a lip on said lever to project through the slot in the hub and engage a groove in the axle near its end, and a spring-finger on the lever to engage one of the spokes and hold the lever from turning.

4. In a wheel, the combination with a hub consisting of a sleeve to receive the axle provided with a slot in one side, and disks secured to the ends of said sleeve to which disks the spokes are secured at one end, of a lever pivotally attached at one end to the inner side of the inner disk at the outer end of the hub and curved to extend part way around the sleeve and extending radially outward therefrom adjacent to the spokes, a lip on said lever to project through the slot in the sleeve, a spring-finger on the lever to embrace one of the spokes, and a buffer secured within the outer end of the hub and closing the same.

748,994. GO-CART. FRANK R. SOUTHARD, Toledo, Ohio. Filed Sept. 21, 1903. Serial No. 173,983. (No model.)



Claim.—1. In a folding body for go-carts, the combination with the pusher-bars and back, of a seat pivoted at its rear edge to fold up adjacent to the front side of the back, and a substantially U-shaped foot-rest pivoted to the front side of the seat, whereby the foot-rest forms a hook-shaped member to engage the upper end of the back and lock the parts in their folded position.

2. In a folding body for go-carts, the combination with the pusher-bars, of a back secured between said bars, a seat pivoted at its rear edge to fold up adjacent to the forward side of the back, and a substantially U-shaped foot-rest of lesser width than the distance between the pusher-bars pivoted at one edge to the forward edge of the seat to be turned over the upper end of the back between said bars and engage said end within its curved side.

3. In a folding body for go-carts, the combination with the pusher-bars and back, of a seat pivoted to turn up adjacent to the back, and sides pivoted to the pusher-bars and slidingly attached to the seat to turn therewith to a vertical position adjacent to said bars.

4. In a folding body for go-carts, the combination with the pusher-bars and back, of a seat pivoted to turn up adjacent to the back, sides pivoted to the pusher-bars, guide-rods on said sides, and pins on said seat slidably engaging the rods.

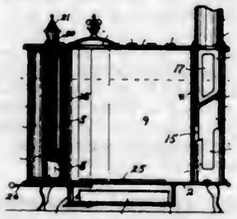
5. In a folding body for go-carts, the combination with the pusher-bars and back, of a seat pivoted to turn up adjacent to the back, sides pivoted to the pusher-bars at a distance above the seat-pivot, guide-rods secured to the lower edges of the sides and formed with an abrupt bend, and pins projecting from the sides of the seat to slidably engage said rods.

6. In a folding body for go-carts, the combination with the pusher-bars and back, of a seat pivoted to turn up adjacent to the back, sides pivoted to the bars and slidingly connected to the seat, and a foot-rest pivotally attached to the front edge of the seat and adapted to be hooked over the back when the cart is folded to hold the seat and sides in their folded positions.

7. In a folding body for go-carts, the combination with the pusher-bars and a back between said bars, of a seat pivoted at its rear side to turn up adjacent to the back, sides pivoted to the outer sides of the pusher-bars at a distance above the seat-pivot, guide-rods secured to and extending parallel with the lower edges of the sides and formed with abrupt bends, pins projecting from the sides of said seat and having heads provided with openings to receive said rods, a U-shaped foot-rest, eyes secured to the forward side of the seat to engage and pivotally secure the foot-rest thereto, and projections on said foot-rest to engage the lower side of the seat.

748,995. HEATING-STOVE. NATHAN R. SPAULDING, Monroeville, Ind. Filed Mar. 12, 1903. Serial No. 147,381. (No model.)

Claim.—In a heating-stove, a top; a base; an end casting extending from the base to the top and having a lateral partition to form therein upper and lower chambers; a fire-chamber having communication with said lower chamber; a flue-chamber having at one of its ends communication with said lower chamber and at its other end with said upper chamber; a heating-chamber interposed between said fire-chamber and flue-chamber; an air-inlet pipe leading into the fire-chamber; and openings at the top and bottom of the heating-chamber.



748,996. MOLD. JESSE F. SPENCER, Philadelphia, Pa. Filed Sept. 5, 1902. Serial No. 122,214. (No model.)



Claim.—1. As a new article of manufacture, an elastic mold, the walls of which are of varying thickness, and whose exterior surface follows the general contour of the pattern, substantially as described.

2. As a new article of manufacture, an elastic mold whose inner surface is undercut and whose exterior surface follows the general contour of said inner surface, substantially as described.

3. As a new article of manufacture, an elastic mold, the walls of which are of varying thickness, whose inner surface is undercut and whose exterior surface follows the general contour of the said inner surface, substantially as described.

4. As a new article of manufacture, an elastic mold whose inner surface is undercut and whose exterior surface follows the general contour of the inner surface, said mold being so cut on the parting-line that it can be flexed to permit withdrawal of the pattern and the object reproduced in said mold, substantially as described.

5. As a new article of manufacture, an elastic mold, the walls of which are of varying thickness, whose inner surface is undercut and whose exterior surface follows the general contour of the said inner surface, said mold being so cut on the parting-line that it can be flexed to permit withdrawal of the pattern and the object reproduced in said mold, substantially as described.

6. As a new article of manufacture, a single-piece elastic mold of rubber or other vulcanizable material, whose inner surface is undercut and whose exterior surface follows the general contour of the inner surface, substantially as described.

7. As a new article of manufacture, a single-piece elastic mold of rubber or other vulcanizable material, whose walls are of varying thickness and whose inner surface is undercut and whose outer surface follows the general contour of the inner surface, substantially as described.

8. As a new article of manufacture, an elastic mold formed from a pattern in the round, the exterior surface of which mold follows the general contour of the pattern, substantially as described.

9. As a new article of manufacture, an elastic mold of rubber or other vulcanizable material having abutting surfaces within the cavity, substantially as described.

10. As a new article of manufacture, an elastic mold of rubber or other vulcanizable material whose inner surface is undercut and whose exterior surface follows the general contour of said inner surface, said mold having abutting surfaces within the cavity, substantially as described.

11 As a new article of manufacture, an elastic mold with parts that are partially separated from the main body of the mold by open spaces, said parts being connected through the open spaces by comparatively thin walls constituting supports for the said parts, substantially as described.

12. As a new article of manufacture, an elastic mold with parts that are partially separated from the main body of the mold by open spaces and connected through said open spaces by comparatively thin walls constituting supports for said parts, said parts being open through the connecting-walls to allow for the removal of the pattern, substantially as described.

13. As a new article of manufacture, an elastic mold of vulcanizable material, having a rib on its outer surface through which the mold is parted, substantially as described.

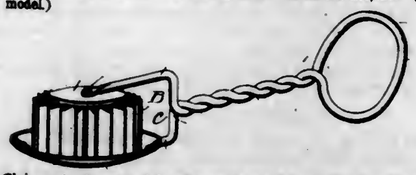
14. As a new article of manufacture, an elastic mold of vulcanizable material having a rib located at the line for division of said mold and divided through said rib to allow removal of the pattern, substantially as described.

15. As a new article of manufacture, an elastic mold having a pouring-head formed integral therewith, substantially as described.

16. As a new article of manufacture, a mold of rubber or other vulcanizable material, having a pouring-head and internal abutting surfaces and partially severed to allow removal of the original and reproductions, substantially as described.

17. As a new article of manufacture, a mold of rubber or other vulcanizable material, the walls of which are of varying thickness, and whose outer surface follows the general contour of the pattern, and provided with a pouring-head, said mold having abutting surfaces and partly severed to allow removal of the original pattern and the reproductions, substantially as described.

748,997. MARKING AND CUTTING DEVICE. CLEORA C. STANDIFER, Yates Center, Kans. Filed Oct. 9, 1902. Serial No. 126,590. (No model.)



Claim.—1. As an article of manufacture, a cutting and crimping device comprising a rotary wheel having its periphery provided with an annulus fluted and having an end positioned within the flutes, a trimmer, and a handle connecting with the wheel, substantially as described.

2. As an article of manufacture, a cutting and crimping device, comprising a rotary wheel having its periphery provided with an annulus having its surface corrugated and then formed up into projections having flat walls, one approximately parallel with the other, a trimmer disposed therewith, and a handle supporting the wheel and trimmer, substantially as described.

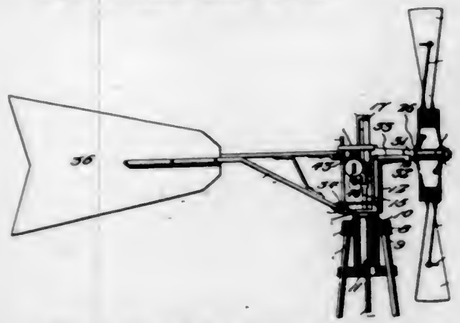
3. As an article of manufacture, a cutting and crimping device, comprising a rotary wheel having its periphery provided with an annulus having its surface corrugated and then formed up into projections having flat walls, one approximately parallel with the other and having an end positioned between walls of the corrugations, a trimmer disposed therewith, and a handle supporting the wheel and trimmer, substantially as described.

4. As a new article of manufacture, a marking device comprising a rotary wheel having disposed on its periphery an annulus corrugated, the walls formed by the corrugations being flat and one approximately parallel with the other, and a handle connecting therewith, substantially as described.

5. As a new article of manufacture, a marking device compris-

ing a rotary wheel having disposed on its periphery an annulus formed of a strip of material corrugated to form interiorly-abutting walls approximately parallel one with the other and having an end of the strip positioned between the abutting walls, substantially as described

748,998. WINDMILL. JAMES STANLEY, Newcastle, Ind. Filed May 6, 1903. Serial No. 155,912. (No model.)

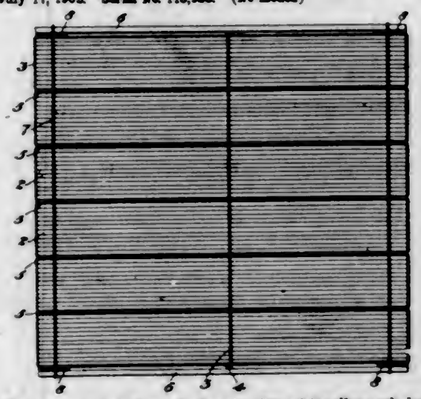


Claim.—1. In a windmill, the combination with a tower having a revoluble head thereon; of a shaft journaled within the head, means for transmitting reciprocating motion from the shaft to a pump-rod, a wheel secured to the shaft, a vane pivoted to the head, a lever pivoted to the head, a spring connecting the lever and vane and adapted to hold said vane normally in alinement with the shaft, a weighted lever and a rigid connection between said lever and the lever of the spring whereby the tension of said spring may be regulated.

2. In a windmill, the combination with a tower having a revoluble head thereon; of a shaft journaled within the head, means for transmitting reciprocating motion from the shaft to a pump-rod, a vane pivoted to the head, a lever pivoted to the head, a spring connection between said lever and the vane, a weighted lever, an operating-rope connected thereto, and a rod connecting said lever to the lever of the spring whereby the tension of said spring may be regulated.

3. In a windmill, the combination with a tower having a revoluble head thereon; of a shaft journaled within the head, means for transmitting reciprocating motion from said shaft to a pump-rod, a wind-wheel secured to the shaft, a vane pivoted to the head, a brake-shoe adapted to contact with the shaft, a bell-crank lever connected thereto, a rod connecting the lever to the vane, a lever pivoted in the head, a spring connecting said lever and vane, a weighted lever, a rod connecting said weighted lever and the lever of the spring, and an operating-rope connected to the weighted lever.

748,999. BALE. HENRY STOCKMAN, New York, N. Y. Filed July 17, 1902. Serial No. 115,263. (No model.)

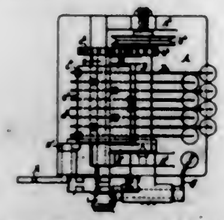


Claim.—1. A bale formed of a plurality of bundles each held together by encircling tie-pieces, sheets of material of less density than the material composing the individual bundles interposed between adjacent bundles, and means for holding the parts of the bale together under pressure, whereby the tie-pieces of the individual bales are caused to become embedded in the sheets interposed between the bundles, substantially as set forth.

2. A bale, comprising two or more bundles of articles, each bundle being tied or fastened together by a cord or wire, a sheet or layer between the bundles of a material of less density than the articles contained in the same and having the bundle tie cord or wire embedded therein, and means holding the said assembled parts together under pressure, for the purpose set forth.

3. A bale comprising a plurality of bundles each fastened together by an encircling tie-piece 3, sheets of material, 5, of less density than the articles contained in the individual bundles interposed between the adjacent bundles, strips 6 of relatively dense material arranged at the top and bottom respectively of the bale, and encircling wires passing over the said strips and around the bale and serving to hold the parts thereof together under pressure, substantially as set forth.

749,000. MECHANICAL MOVEMENT FOR PRINTING DEVICES. OLBY TYRRELL, Brooklyn, N. Y. Filed May 8, 1897. Serial No. 636,681. (No model.)



Claim.—1. A wheel continuously revolving on a normally stationary but movable axis and means for momentarily causing any point on the surface of said wheel to assume a position of rest at a predetermined point.

2. A wheel continuously revolving on its axis combined with means for at will moving the wheel bodily at right angles to its axis, the resultant of such two motions of the wheel maintaining momentarily at rest in a predetermined position any point on the surface of the wheel.

3. The combination of a rotating wheel, a continuously-revolving driver-wheel, an interlocking connection between the two wheels by which the first-named wheel is positively rotated by the latter and means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby momentarily maintain at rest a point on the surface of the latter wheel.

4. A type-wheel continuously revolving on its axis and having type fixed upon its face in permanent radial relation, respectively, to its axis, means for momentarily causing any type on the surface of said wheel to assume a position at rest, relative to a particular stationary printing-plane.

5. A type-wheel continuously revolving on its axis and having type fixed upon its face in permanent radial relation, respectively, to its axis, means for momentarily causing any type on the surface of said wheel to assume a position at rest with relation to a stationary printing-plane, means for taking an impression from a type on the surface of said wheel while such point is momentarily at rest in the printing-plane, and means whereby the operator may, at will, select the type from which impressions are to be taken.

6. A type-wheel continuously revolving on a normally stationary but movable axis, means for momentarily causing any printing-point on the surface of the said wheel to assume a position at rest relative to a particular stationary printing-plane, means for taking an impression from a printing-point on the surface of said wheel while such point is momentarily at rest in the printing-plane, and means whereby the operator may, at will, select the points upon the surface of the wheel from which impressions are to be taken.

7. A type-wheel, continuously revolving on its axis, means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest with relation to a stationary printing-plane by moving the wheel bodily at right angles to its axis at the instant a point of the wheel is to be at rest, and means for taking an impression from a printing-point on the surface of said wheel while such point is momentarily at rest in the printing-plane.

8. A type-wheel, continuously revolving on its axis, means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest with relation to a stationary printing-plane by moving the wheel bodily at right angles to its axis at the instant a point of the wheel is to be at rest, means for taking an impression from a printing-point on the surface of said wheel while such point is momentarily at rest in the printing-plane, and means whereby the operator may, at will, select the points upon the surface of the wheel from which impressions are to be taken.

9. A type-wheel continuously revolving on a normally stationary but movable axis, means for intermittently moving the wheel bodily at right angles to its axis, the resultant of such two movements maintaining momentarily at rest any printing-point on the surface of said wheel relative to a stationary printing-plane, and means for taking an impression from any desired printing-point on the surface of said wheel at said printing-point while it is momentarily at rest in said stationary printing-plane.

10. A type-wheel continuously revolving on its axis, means for moving it bodily at right angles to its axis, means whereby the power of revolving the wheel may be applied to the mechanism for bodily moving the wheel, and whereby any printing-point on the surface of said wheel may be momentarily maintained at rest relative to a stationary printing-plane.

11. A type-wheel continuously revolving on a normally stationary but movable axis, means for moving it endwise in line with its axis and means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest relative to a particular stationary printing-plane.

12. A type-wheel continuously revolving on a normally stationary but movable axis, means for moving it endwise in line with its axis, means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest relative to a particular stationary printing-plane, and means for taking an impression from the surface of said wheel at said printing-point while it is momentarily at rest in said printing-plane.

13. A type-wheel continuously revolving on its axis, means for moving it endwise in line with its axis, means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest with relation to a stationary printing-plane by moving the wheel bodily at right angles to its axis at the instant a point on the wheel is to be at rest.

14. A type-wheel continuously revolving on its axis, means for momentarily causing any printing-point on the surface of said wheel to assume a position at rest relative to a particular stationary printing-plane, a hammer, and means for causing said hammer to take an impression from said wheel at said stationary printing-plane while said printing-point is momentarily at rest in said printing-plane.

15. A type-wheel, continuously revolving on its axis, means for causing any printing-point on the surface of said wheel to assume a position at rest relative to a stationary printing-plane by moving the wheel bodily at right angles to its axis at the instant a point of the wheel is to be maintained at rest, a hammer, and means for causing said hammer to take an impression from said point of the wheel while at rest in the printing-plane.

16. A type-wheel continuously revolving on its axis and having type fixed upon its face in permanent radial relation, respectively, to its axis, a series of finger-keys, means for momentarily causing any type on the surface of said wheel to assume a position at rest, relative to a particular printing-plane by the depression of the corresponding finger-key.

17. A type-wheel continuously revolving on its axis, a series of finger-keys, means for momentarily causing any type on the surface of said wheel to assume a position at rest relative to a particular printing-plane by the depression of a corresponding key, a hammer, and means for causing said hammer to take an impression from said type while at rest in the printing-plane.

18. The combination of a rotating type-wheel, a continuously-revolving driver-wheel, an interlocking connection between the two wheels by which the type-wheel is positively rotated and means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given type on the type-wheel during the moment of printing.

19. The combination of a rotating type-wheel having type fixed on its face in permanent radial relation, respectively, to its axis, a continuously-revolving driver-wheel, an interlocking connection between the two wheels by which the type-wheel is positively rotated and means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given type on the type-wheel during the moment of printing.

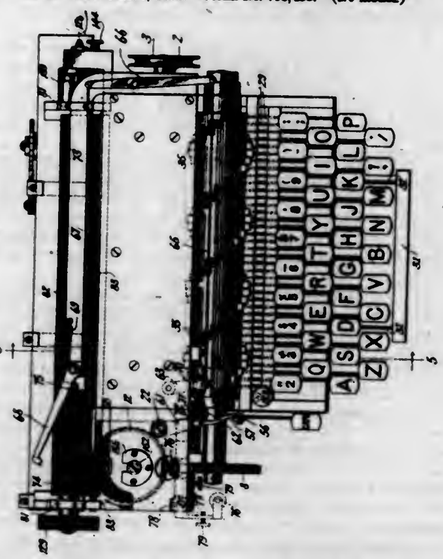
20. The combination of a rotating wheel, a continuously-revolving driver-wheel, an interlocking connection between the two wheels by which the type-wheel is positively rotated, means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given type on the type-wheel during the moment of printing and means whereby the operator may at will select any one of the type from which an impression is to be taken.

21. The combination of a rotating type-wheel having type fixed on its face in permanent radial relation respectively to its axis, a continuously-revolving driver-wheel, an interlocking connection between the two wheels by which the type-wheel is positively rotated, means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given type on the type-wheel during the moment of printing and means whereby the operator may at will select any one of the type from which an impression is to be taken.

22. The combination of a rotating type-wheel having two or more rows of type upon its periphery, a continuously-revolving driver-wheel, an interlocking connection by which the type-wheel is positively rotated by the driver-wheel, means for moving the type-wheel axially to bring either series of type upon its circumference into the printing-plane and means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given character on the type-wheel during the moment of printing.

23. The combination of a rotating type-wheel having two or more rows of type upon its periphery, a continuously-revolving driver-wheel, an interlocking connection by which the type-wheel is positively rotated by the driver-wheel, means for moving the type-wheel axially to bring either series of type upon its circumference into the printing-plane and means whereby one of said wheels may at will be moved bodily at right angles to its axis to thereby maintain at rest a given character on the type-wheel during the moment of printing and means whereby the operator may at will select any one of the type in either series from which an impression is to be taken.

749,001. TYPE-WRITING MACHINE. OLBY TYRRELL, Brooklyn, N. Y. Filed Mar. 9, 1899. Serial No. 708,423. (No model.)



Claim.—1. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, and a series of devices normally inactive but each at will operated by the driver to actuate said mechanism.

2. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices normally inactive but each at will operated by the driver to actuate said mechanism and a cooperating hammer mechanism for taking impressions from the type-wheel.

3. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any

character thereon may be momentarily maintained at the printing-point, a driver, a series of devices normally inactive but each at will operated by the driver to actuate said mechanism, a carriage and mechanism for feeding it forward.

4. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices normally inactive but each at will operated by the driver to actuate said mechanism, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage and mechanism for feeding it forward.

5. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a continuously-rotating driver, and a series of devices normally inactive but each at will operated by the continuously-rotating driver to actuate said mechanism.

6. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a continuously-rotating driver, a series of devices normally inactive but each at will operated by the continuously-rotating driver to actuate said mechanism, and a coöperating hammer mechanism for taking impressions from the type-wheel.

7. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a continuously-rotating driver, a series of devices normally inactive but each at will operated by the continuously-rotating driver to actuate said mechanism, a carriage and mechanism for feeding it forward.

8. The combination of a continuously-revolving type-wheel having characters in fixed relation thereto, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a continuously-rotating driver, a series of devices normally inactive but each at will operated by the continuously-rotating driver to actuate said mechanism, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

9. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver and a series of devices each adapted at will to be operated by the driver to actuate said mechanism.

10. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices each adapted at will to be operated by the driver to actuate said mechanism, and a coöperating hammer mechanism for taking impressions from the type-wheel.

11. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices each adapted at will to be operated by the driver to actuate said mechanism, a carriage, and mechanism for feeding it forward.

12. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices each adapted at will to be operated by the driver to actuate said mechanism, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

13. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a continuously-rotating driver, and a series of devices each adapted at will to be operated by the continuously-rotating driver to actuate said mechanism.

14. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point.

15. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point, and a coöperating hammer mechanism for taking impressions from the type-wheel.

16. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point, a carriage, and mechanism for feeding it forward.

17. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

18. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily, mechanism whereby the type-wheel may be so moved to thereby maintain any character thereon momentarily at the printing-point, a continuously-rotating driver, a series of devices interposed between the continuously-rotating driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the continuously-rotating driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point.

19. The combination of a continuously-revolving type-wheel, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point.

20. The combination of a continuously-revolving type-wheel, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point, and a coöperating hammer mechanism for taking impressions from the type-wheel.

21. The combination of a continuously-revolving type-wheel, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel, momentarily at the printing-point, a carriage and mechanism for feeding it forward.

22. The combination of a continuously-revolving type-wheel, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

23. The combination of a continuously-revolving type-wheel, mechanism whereby any character thereon may be momentarily maintained at the printing-point, a continuously-rotating driver, a series of devices interposed between the continuously-rotating driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed the corresponding one of said devices is actuated by the continuously-rotating driver to operate said mechanism to maintain the corresponding character upon the type-wheel momentarily at the printing-point.

24. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, and a device for at will engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to momentarily maintain any character thereon at the printing-point.

25. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for at will engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to momentarily maintain any character thereon at the printing-point, and a coöperating hammer mechanism for taking impressions from the type-wheel.

26. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for at will engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to momentarily maintain any character thereon at the printing-point, a carriage, and mechanism for feeding it forward.

27. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for at will engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to momentarily maintain any character thereon at the printing-point, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

28. The combination of a continuously-revolving type-wheel mounted as to be movable bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to maintain a character thereon momentarily at the printing-point, mechanism for operating said device, finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed said mechanism is operated to maintain the corresponding character on the type-wheel momentarily at the printing-point.

29. The combination of a continuously-revolving type-wheel so mounted as to be movable bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to maintain a character thereon momentarily at the printing-point, mechanism for operating said device, finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed said mechanism is operated to maintain the corresponding character on the type-wheel momentarily at the printing-point, and a coöperating hammer mechanism for taking impressions from the type-wheel.

30. The combination of a continuously-revolving type-wheel so mounted as to be movable bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to maintain a character thereon momentarily at the printing-point, mechanism for operating said device, finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed said mechanism is operated to maintain the corresponding character on the type-wheel momentarily at the printing-point, a carriage and mechanism for feeding it forward.

31. The combination of a continuously-revolving type-wheel so mounted as to be movable bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable therewith, a device for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel to maintain a character thereon momentarily at the printing-point, mechanism for operating said device, finger-keys corresponding with characters on the type-wheel, means whereby when a finger-key is depressed said mechanism is operated to maintain the corresponding character on the type-wheel momentarily at the printing-point, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

32. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable with the type-wheel, a lever or movable stop for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel, mechanism for actuating said lever, a driver, and a series of devices interposed between the driver and said mechanism normally inactive but operated at will by the driver to actuate said mechanism.

33. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable with the type-wheel, a lever or movable stop for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel, mechanism for actuating said lever, a driver, a series of devices interposed between the driver and said mechanism normally inactive but operated at will by the driver to actuate said mechanism, a coöperating hammer mechanism for taking impressions from the type-wheel.

34. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable with the type-wheel, a lever or movable stop for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel, mechanism for actuating said lever, a driver, a series of devices interposed between the driver and said mechanism normally inactive but operated at will by the driver to actuate said mechanism, a carriage, and mechanism for feeding it forward.

35. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable with the type-wheel, a lever or movable stop for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel, mechanism for actuating said lever, a driver, a series of devices interposed between the driver and said mechanism normally inactive but operated at will by the driver to actuate said mechanism, a coöperating hammer mechanism for taking impressions from the type-wheel, a carriage, and mechanism for feeding it forward.

36. The combination of a continuously-revolving type-wheel so mounted as to be moved bodily in a direction opposed to the direction of rotation of its impression side, a toothed wheel revolving and movable with the type-wheel, a lever or movable stop for engaging the toothed wheel and thereby causing the bodily movement of the type-wheel, mechanism for actuating said lever, a driver, a series of devices interposed between the driver and said mechanism, a series of finger-keys corresponding with characters on the type-wheel, and means whereby when a finger-key is depressed the corresponding one of said devices is operated by the driver to maintain the corresponding type-wheel character momentarily at the printing-point.

37. The combination of a continuously-revolving type-wheel having multiple series of characters thereon and so mounted as to be capable of axial movement and movement bodily at right angles to its axis, means for at will moving it axially to bring the desired series of characters into the printing-plane, and means for moving it bodily to momentarily maintain the desired character thereon at the printing-point.

38. The combination of a continuously-rotated cammed or toothed driver, a continuously-rotated type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of devices, one for each finger-key interposed between the finger-keys and driver and normally out of operative engagement with the driver but respectively actuated thereby when the corresponding finger-keys are depressed, and normally inactive mechanism for maintaining any character upon the type-wheel at rest for a moment at the printing-point, operated by one of said interposed devices to momentarily maintain a character on the type-wheel at the printing-point when the corresponding finger-key is depressed.

39. The combination of a continuously-rotated cammed or toothed driver, a continuously-rotated type-wheel, a series of finger-

keys corresponding with characters on the type-wheel, a series of devices, one for each finger-key interposed between the finger-keys and driver and normally out of operative engagement with the driver but respectively actuated thereby when the corresponding finger-keys are depressed, normally inactive mechanism for momentarily maintaining any character upon the type-wheel at the printing-point, operated by one of said interposed devices when the corresponding finger-key is depressed, and cooperating hammer mechanism for then taking an impression from the type-wheel.

40. The combination of a continuously-rotated cammed or toothed driver, a continuously-rotated type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of devices, one for each finger-keys interposed between the finger-keys and driver and normally out of operative engagement with the driver but respectively actuated thereby when the corresponding finger-keys are depressed, and normally inactive mechanism operated by one of said interposed devices when the corresponding key is depressed for imparting to the wheel a movement bodily in a direction opposed to the rotary motion of the impression side of the type-wheel whereby any character thereon may be momentarily maintained at the printing-point when the corresponding finger-key is depressed.

41. The combination of a continuously-rotated cammed or toothed driver, a continuously-rotated type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of toothed wheels one for each finger-key capable of independent rotation and normally out of operative engagement with the driver but respectively operated thereby on the depression of the corresponding finger-keys, and mechanism for momentarily maintaining any character upon the type-wheel at the printing-point operated by the respective toothed wheels when the corresponding finger-keys are depressed.

42. The combination of a continuously-rotated cammed or toothed driver, a continuously-rotated type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of toothed wheels one for each finger-key capable of independent rotation and normally out of operative engagement with the driver but respectively operated thereby on the depression of the corresponding finger-keys, and mechanism for imparting to the wheel a movement bodily in a direction opposed to the rotary motion of the impression side of the type-wheel whereby any character thereon may be maintained at rest at the printing-point, operated by the respective toothed wheels to maintain given characters on the wheel at the printing-point when the corresponding finger-keys are depressed.

43. The combination of a cylindrical driver having cams or projections disposed about its circumference in different circumferential and diametrical lines, a type-wheel having characters thereon disposed in diametrical lines correspondingly with the disposition of the cams or projections on the driver, means for continuously rotating the driver and type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of devices, one for each finger-key, each adapted on the depression of its key to be actuated by the driver, and mechanism operated by said devices when so actuated by the driver for moving the type-wheel bodily in a direction opposed to the rotary motion of its impression side.

44. The combination of a carriage adapted to be fed step by step, a cylindrical driver having cams or projections disposed about its circumference in different circumferential and diametrical lines, a type-wheel having characters thereon disposed in diametrical lines correspondingly with the disposition of the cams or projections on the driver, means for continuously rotating the driver and type-wheel, a series of finger-keys corresponding with characters on the type-wheel, a series of devices one for each finger-key, each adapted on the depression of its key to be actuated by the driver, mechanism operated by said devices for moving the type-wheel bodily in a direction opposed to the rotary motion of its impression side, and means for then first taking an impression from the type-wheel and afterward feeding forward the carriage.

45. The combination of a rotating cammed or toothed driver, a toothed wheel normally out of engagement with the driver, and means for at will bringing the toothed wheel into engagement with the driver to be partially rotated thereby.

46. The combination of a rotating cammed or toothed driver, a toothed wheel normally out of engagement with the driver, a lever or device for giving an initial impulse of partial rotation to the wheel, means for then automatically completing such partial revolution of the wheel to bring a tooth thereon into engagement with the driver to be partially rotated thereby.

47. The combination of a revolving cammed or toothed driver, a series of toothed wheels capable of independent rotation, mounted adjacent to the driver and normally out of engagement therewith, and means for at will partially rotating each wheel to bring a tooth thereon into operative engagement with the driver which then turns the wheel through a partial revolution.

48. The combination of a revolving cammed or toothed driver, a series of toothed wheels capable of independent rotation, mounted adjacent to the driver and normally out of operative engagement with the driver, a latch for each wheel holding the wheel in its normal position and having an inclined face adapted to act upon said tooth of the wheel, means for at will partially rotating each wheel to move the tooth engaged by the latch to such position that the inclined face of the latch acts thereon to complete the movement of the wheel to a position in which a tooth thereon will be engaged by the driver which positively rotates it through a partial revolution to its normal or initial position.

49. The combination of a revolving cammed or toothed driver, a series of finger-keys, a series of toothed wheels capable of independent rotation, one for each finger-key, mounted adjacent to the driver and normally out of operative engagement therewith, means for at will partially rotating each wheel to bring a tooth thereon into position to be engaged by a projection on the driver, which means consist of a device operated on the depression of the corresponding finger-key to impart to the wheel an initial motion about its axis and a device for automatically completing the partial rotation of the wheel to bring a tooth thereof into the path of the driver.

50. The combination of a rotating cammed or toothed driver, a series of toothed wheels mounted adjacent to the driver and normally out of engagement therewith, a latch or pawl for each wheel having a shoulder or projection normally engaging a tooth of the wheel to hold it in its normal position and an inclined face that acts upon said tooth, when it has been moved past the shoulder of the latch by a partial revolution of the wheel, to further move the wheel into such position that a tooth thereon will be engaged by the driver, a series of finger-keys, one for each wheel, and a device operated by each key to commence the partial rotation of its wheel which is completed by the inclined face of the latch.

51. The combination of a revolving cammed or toothed driver, the finger keys or levers, a series of toothed wheels adapted upon the depression of their corresponding levers to be partially rotated by the driver, a series of pivoted levers operated by the tooth of the wheels when so partially rotated, a continuously-revolving type-wheel mounted so as to be movable bodily in the direction and for the purpose set forth, and mechanism for effecting such movement operated by said levers.

52. The combination of a revolving cammed or toothed driver, a series of toothed wheels mounted adjacent to the driver, capable of independent rotation and normally out of operative engagement therewith, means whereby the driver may be caused at will to partially revolve either of such wheels, a continuously-revolving type-wheel, a shaft mounted in movable supports, mechanism for moving said supports to impart a movement bodily to the type-wheel in the direction and for the purpose set forth, and operative connections between such mechanism and the respective toothed wheels.

53. The combination of a rotated cammed or toothed driver, a series of toothed wheels capable of independent rotation, arranged adjacent to the driver and normally out of operative engagement therewith, means for at will partially rotating each wheel to bring a tooth thereon into the path of the driver whereby the wheel is partially rotated through a partial revolution to its initial or normal position, a continuously-revolving type-wheel, mechanism for moving the wheel bodily for the purpose described, and operative connections interposed between such mechanism and the respective toothed wheels and operated by the wheels when partially rotated by the driver.

54. The combination of a revolving driver having projections thereon, a series of toothed wheels capable of independent rotation, mounted adjacent to the driver and normally out of operative engagement therewith, a series of finger-keys, devices by which on the depression of a finger-key an initial rotary movement is imparted to the corresponding wheel, means for then completing a given partial rotation of the wheel to bring a tooth thereon into the path of the driver by which the wheel is positively rotated into its normal or initial position, a continuously-revolving type-wheel, mechanism for moving it bodily for the purpose described, and operative connections between such mechanism and the respective toothed wheels.

55. The combination of a continuously-revolving cammed or toothed driver, a series of toothed wheels mounted adjacent thereto and normally out of operative engagement therewith, a series of finger keys or levers, means whereby upon the depression of a lever the corresponding toothed wheel is partially rotated to bring a tooth thereon into the path of the driver whereby it is driven through a partial revolution to its normal or initial position, a continuously-revolving type-wheel revolving about a normally stationary axis, the type-wheel shaft mounted in movable supports, mechanism for moving such supports to effect the bodily movement of the type-wheel in an opposite direction to that in which the surface of the wheel at the printing side thereof is moving, and operative connections interposed between the respective toothed wheels and such mechanism.

56. The combination of a rotating cammed or toothed driver, a toothed wheel normally out of engagement with the driver, a push-rod adapted to impart a partial rotation to the wheel to bring a tooth thereon into position to engage the driver, and means for operating the push-rod, a type-wheel and operative connections between it and the driver.

57. The combination of a rotating cammed or toothed driver, a toothed wheel normally out of engagement with the driver, a push-rod mounted to move endwise and yield laterally and adapted to impart a partial rotation to the wheel to bring a tooth thereon into position to engage the driver, and means for operating the push-rod, a type-wheel and operative connections between it and the driver.

58. The combination of a rotating cammed or toothed driver, a toothed wheel normally out of engagement with the driver, a finger-key, a push-rod operated thereby to impart a partial rotation to the wheel to bring a tooth thereon into position to engage the driver, a type-wheel and operative connections between it and the driver.

59. The combination of the finger-keys, the push-rods in contact therewith, the toothed wheels and the driver, substantially as set forth, a type-wheel and operative connections between it and the driver.

60. The combination of the finger-keys, the push-rods in contact therewith, the toothed wheels, the pawls or latches engaging the wheels, and the driver, substantially as set forth, a type-wheel and operative connections between it and the driver.

61. The combination of the finger-keys, the push-rods in contact therewith, the toothed wheels, the pawls or latches engaging the wheels, the levers operated by the wheels and the driver, substantially as set forth, a type-wheel and operative connections between it and the driver.

62. The combination of the continuously-revolving type-wheel, its shaft, the swinging coincidently-pivoted parts in which the shaft is mounted, means for obstructing the rotation of the type-wheel and thereby causing said parts to swing about their pivots, the parallel shaft 29 and the arms thereon operatively connected with said swinging parts.

63. The combination of the continuously-revolving type-wheel, its shaft, the swinging coincidently-pivoted parts in which the shaft is mounted, means for obstructing the rotation of the type-wheel and thereby causing said parts to swing about their pivots, the parallel shaft 29, the arms thereon operatively connected with said swinging parts, a hammer for taking an impression from the type-wheel and hammer-operating mechanism interposed between the hammer and said parallel shaft and actuated thereby.

64. The combination of the continuously-revolving type-wheel, its shaft, the swinging coincidently-pivoted parts in which the shaft is mounted, means for obstructing the rotation of the type-wheel and thereby causing said parts to swing about their pivots, the parallel shaft 29, the arms thereon operatively connected with said swinging parts, a hammer-actuating arm projecting from said parallel shaft, a hammer and operative connections between said arm and hammer.

65. The combination of a continuously-revolving type-wheel, its shaft, the swinging coincidently-pivoted parts in which the shaft is mounted, means for presenting an obstacle to the rotation of the type-wheel and thereby causing said parts to swing about their axes, the parallel shaft 29 operatively connected with said swinging parts to be rocked thereby, an arm operated by said shaft, a lever operated by the arm and carriage-feed devices operated by the lever.

66. The combination of a continuously-revolving type-wheel, its shaft, the swinging coincidently-pivoted parts in which the shaft is mounted, means for presenting an obstacle to the rotation of the type-wheel and thereby causing said parts to swing about their axes, the parallel shaft 29 operatively connected with said swinging parts to be rocked thereby, an arm operated by the shaft, a lever operated by the arm, carriage-feed devices operated by the lever, a hammer-actuating arm also operated by said shaft, a hammer and operating connections between the arm and hammer.

67. The combination of a continuously-revolving type-wheel, its shaft, the eccentrically-pivoted parts in which the shaft has its bearings, means whereby at will an obstruction may be opposed to the rotation of the type-wheel to cause said parts to swing upon their pivots and thereby maintain the desired character momentarily at the printing-point, a carriage and carriage-feed devices operated by the swing of said parts.

68. The combination of a continuously-revolving type-wheel, its shaft, the eccentrically-pivoted parts in which the shaft has its bearings, means whereby at will an obstruction may be opposed to the rotation of the type-wheel to cause said parts to swing upon their pivots and thereby maintain the desired character momentarily at the printing-point, a carriage, a hammer, and carriage-feed devices and hammer-operating devices actuated by the swinging of said parts.

69. The combination of a type-wheel so mounted and driven as to rotate continuously about its center and be capable of being moved bodily at right angles to its axis of rotation, a wheel having teeth or projections revolving and movable with the type-wheel, a part adapted to be thrown into engagement with said wheel thereby opposing the revolution of said wheel and the type-wheel about their common center and producing a movement or displacement of the wheel in a plane at right angles to its center of rotation, a series of finger keys or levers, a continuously-revolving driver, a series of devices, one for each lever capable of being actuated by the driver when the corresponding finger-keys are operated and operative connections between each said device and the part adapted to engage the toothed wheel continuously rotating with the type-wheel.

70. The combination of a type-wheel so mounted and driven as to rotate continuously about its center and be capable of being moved bodily at right angles to its axis of rotation, a wheel having teeth or projections revolving and movable with the type-wheel, a part adapted to be thrown into engagement with said wheel thereby opposing the revolution of said wheel and the type-wheel about their common center and producing a movement or displacement of the wheel in a plane at right angles to its center of rotation, a series of finger keys or levers, a continuously-revolving driver, a series of devices, one for each lever capable of being actuated by the driver when the corresponding finger-keys are operated, operative connections between each said device and the part adapted to engage the toothed wheel continuously rotating with the type-wheel and a hammer and operating devices.

71. The combination of a series of finger keys or levers, a continuously-revolving driver, a series of wheels, one for each lever normally at rest but capable of being partially rotated by the driver whenever the corresponding finger-key is depressed, a lever operated by each wheel when so actuated by the driver, a pivoted arm 26, a device for actuating the same operated upon by each wheel-actuated lever, a type-wheel mounted and driven to rotate continuously about its center and capable of movement bodily in a plane at right angles to its axis of rotation, a toothed wheel rotating with the type-wheel and in fixed relation thereto and engaged by said part 26 whenever the same is actuated.

72. The combination of a type-wheel so mounted and driven about a vertical axis as to rotate continuously about its center and be capable of being moved bodily at right angles to its axis of rotation, a wheel having teeth or projections revolving and movable with the type-wheel, a part adapted to be thrown into engagement with said wheel thereby opposing the revolution of said wheel and the type-wheel about their common center and producing a movement or displacement of the wheel in a plane at right angles to its axis of rotation and in the direction described.

73. The combination of a type-wheel so mounted and driven about a vertical axis as to rotate continuously about its center and be capable of being moved bodily in a direction opposed to the rotary motion of its impression side to maintain any character thereon at rest at the printing-point, a ratchet or toothed wheel of the same diameter as the type-wheel arranged below it and rotating and movable therewith, and an arm or lever adapted at will to engage and obstruct the rotation of said toothed wheel and thereby move the type-wheel bodily as described.

74. The combination of a type-wheel so mounted and driven about a vertical axis as to rotate continuously about its center and be capable of being moved bodily in a direction opposed to the rotary motion of its impression side to maintain any character thereon at the printing-point, a ratchet or toothed wheel arranged below the type-wheel and rotating and movable therewith, and an arm or lever adapted at will to engage and obstruct the rotation of said toothed wheel and thereby move the type-wheel bodily as described.

75. The combination of a type-wheel so mounted and driven about a vertical axis as to rotate continuously about its center and be capable of being moved bodily in a direction opposed to the rotary motion of its impression side to maintain any character thereon at the printing-point, a ratchet or toothed wheel of the same dia-me-

ter as the type-wheel arranged below it and rotating and movable therewith, an arm or lever adapted at will to engage and obstruct the rotation of said toothed wheel and thereby move the type-wheel bodily as described, and a hammer for then taking an impression from the type-wheel.

76. The combination of the frame, the type-wheel mounted at one side thereof with its axis vertical, the carriage, an arm located above the carriage and in rear of the type-wheel and extending from one end of the machine toward the type-wheel end, a hammer pivoted upon said arm, a hammer-actuating arm, a latch carried thereby, a lever normally engaged by the latch, operative connections between the hammer and lever, and the inclined or cam projection upon the latch and a fixed surface against which it works whereby when the actuating-arm is moved through a certain distance and the hammer actuated, the latch is disengaged from the hammer-actuating lever.

77. The combination of a type-wheel mounted and driven to rotate continuously about its center, a type-wheel shaft, the swinging parts in which it is mounted, means for opposing an obstruction to the rotation of the type-wheel and thereby causing said parts to swing from their normal position thereby maintaining the desired character on the type-wheel at the printing-point, hammer-operating devices actuated by such swinging parts to then take an impression from the type-wheel, means for then disengaging the hammer from its actuating devices whereby its stroke is determined and fixed irrespective of the continued movement of said swinging parts.

78. The combination of a continuously-revolving type-wheel, its shaft, the pivoted swinging parts in which the shaft is mounted, means for opposing an obstruction to the rotation of the wheel and thereby causing said parts to swing upon their center, thus maintaining a given character on the wheel at the printing-point, a hammer actuated by said swinging parts during the first portion of their movement to take an impression from the character on the type-wheel and then be disengaged therefrom, a carriage and carriage-feed devices operated by said swinging parts to feed the carriage forward one step during the remaining portion of the movement of said parts.

79. The combination of the driver, the parallel shaft, the short shaft driven thereby, a worm-pinion thereon, a worm-wheel on the driver driven by said pinion, a gear on the short shaft, the type-wheel shaft, a pinion thereon driven by said gear, a type-wheel rotating with the shaft, the pivoted swinging plates in which the type-wheel shaft is mounted, a toothed wheel rotating with the type-wheel, means for engaging the toothed wheel and opposing an obstruction to the rotation of the type-wheel shaft and type-wheel thereby causing the pivoted plates in which the type-wheel shaft is mounted to swing about their pivots, a hammer, means whereby the hammer is actuated to take an impression from the type-wheel during the first portion of the movement of said swinging plates, carriage-actuating devices and means whereby the carriage-actuating devices are operated during the final portion of the movement of said swinging plate to feed the carriage forward one step.

80. The combination of the shaft, a type-wheel mounted to revolve therewith and slide thereon, a key and mechanism interposed between the key and type-wheel whereby when the key is depressed the type-wheel is moved longitudinally upon the shaft, and a roller-stop which limits the movement of the type-wheel and against which the type-wheel revolves when so shifted on its shaft.

81. The combination of the frame, a type-wheel, an inking-roll, a bracket in which the roll is mounted having a squared or angular butt, and a spring bearing upon the butt whereby the roll is normally presented to the type-wheel but may be swung away from it and so be retained by the spring.

82. In a type-writing machine, a carriage, mechanism for automatically returning the carriage to its initial position, the finger-keys, and mechanism for locking the keys during the traverse of the carriage back to its initial position, in combination with a continuously-rotating type-wheel and driver for operating the type-wheel.

83. In a type-writing machine, the combination of a carriage, mechanism for feeding it forward step by step, a detent-pawl normally engaging its rack, means for returning the carriage to its initial position when the detent-pawl is disengaged therefrom, means for disengaging the detent-pawl from the carriage to permit its automatic return to its initial position, and a locking device for then engaging the levers of the machine to prevent their operation during the return traverse of the carriage to its initial position.

84. In a type-writing machine, the combination of a continuously-revolving driver, a continuously-revolving type-wheel, so mounted as to be moved bodily in a direction opposed to that in which the surface from which an impression is to be taken is traveling, a hammer for taking impressions from the type-wheel, a carriage, mechanism for each finger-key actuated by the driver when its finger-key is depressed to move the type-wheel bodily as stated, means for operating the hammer during the early portion of said movement of the type-wheel and means for feeding the carriage during the latter portion of such movement of the type-wheel and after the hammer has been actuated to take an impression therefrom.

85. The combination of a continuously-revolving driver, a series of finger-keys, a continuously-revolving type-wheel having its shaft mounted in parts adapted to swing upon their center of motion to move the type-wheel bodily in a direction opposed to that of its surface from which an impression is to be taken, means operated by the continuously-revolving driver to, upon the depression of the finger-key, oppose an obstruction to the rotation of the type-wheel about its axis and thereby cause the parts upon which it is mounted to swing as stated, a hammer operated by the continuously-revolving driver to take an impression from the wheel when so moved bodily a lever 87 also operated by the power from the continuously-revolving driver, a carriage adapted to be fed forward step by step, and mechanism actuated by said lever to feed the carriage forward after the hammer has been operated to take an impression.

86. In a type-writing machine, the combination of a carriage, mechanism for feeding it forward step by step, a spring-drum tending constantly to return it to its normal position, a detent-pawl normally engaging the rack of the carriage, a pivoted lever normally engaging the detent-pawl to hold it in engagement with the rack, but adapted when moved to operate the pawl to throw it out of engagement with the rack, a latch having two arms, one engaging said lever and the other occupying a position to be struck by the pin or projection on the carriage, whereby when the carriage approaches its extreme forward position, the latch is operated to disengage the detent-pawl from the rack.

87. In a type-writing machine the combination of the carriage adapted to be fed forward step by step, mechanism for so feeding it operated by the depression of the finger-keys, a detent-pawl normally engaging the rack of the carriage, a lever having a projection normally holding the detent-pawl in engagement with the rack but capable upon the movement of the lever of disengaging the pawl from the rack, the three-armed latch, one arm of which holds the lever in normal relation to the detent-pawl, another arm of which occupies a position to be struck by a pin on the carriage when the carriage approaches its extreme forward position and thereby disengage the latch from the lever and cause the disengagement of the detent-pawl from the rack, a finger-key and operative connections interposed between the key and the third arm of the three-armed latch to, upon the depression of said key, operate the latch to release the rack from the detent-pawl.

88. The combination of a carriage adapted to be fed forward step by step, the carriage-feed-operating lever 87, the pivoted lever 89, the carriage-actuating pawl carried thereby and having a cam projection thereon, a projection on the carriage that normally holds the pawl out of engagement with the rack of the carriage, the detent-pawl normally engaging the rack, the lever 104, the projection thereon serving to hold the detent-pawl normally in engagement with the rack, a projection on said pawl against which the projection on the lever 104 works to disengage the detent-pawl from the rack, a latch for holding the projection on the lever 104 normally in engagement with the detent-pawl, and means for tripping the latch to disengage the detent-pawl from the rack and permit the return of the carriage to its initial position.

89. The combination of the carriage, the paper-feed roll mounted to turn therein, a shaft capable of turning independently within the feed-roll, a cam mounted upon the frame, a projection on the shaft adapted to engage the cam as the carriage returns to its initial position, and connections between the shaft and roll that cause the rotation of the roll a given distance in one direction when the projection on the shaft rides along the surface of the cam.

90. The combination of the carriage, a feed-roll turning in bearings thereon, a shaft extending through the roll, a latch-and-pawl connection between the roll and the shaft at one end, a spring connection between the shaft and the roll at the opposite end, a projection fast on the shaft and a cam on the frame against which such projection works as the carriage returns to its initial position, whereby the roll is partially rotated to space the lines on the paper carried by it.

91. The combination of the carriage, a feed-roll turning in bearings thereon, a shaft extending through the roll, a latch-and-pawl connection between the roll and the shaft at one end, a spring connection between the shaft and the roll at the opposite end, a projection fast on the shaft, a cam on the frame against which such projection works as the carriage returns to its initial position, whereby the roll is partially rotated to space the lines on the paper carried by it, and means for setting the cam in different positions to vary the spacing.

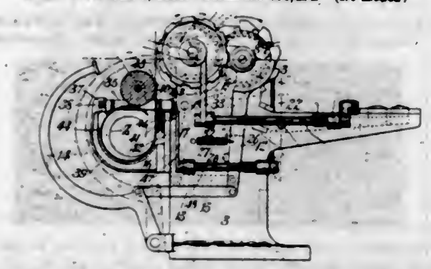
92. The combination of a carriage, a paper-feed roll mounted to turn thereon, a shaft turning within the roll, a yielding connection between the shaft and the roll at one end, a projection upon the shaft, a cam on the frame against which it works as the carriage returns to its initial position, a toothed wheel on the opposite end of the roll, and a pawl on the shaft engaging the wheel.

93. The combination of a carriage, a paper-feed roll mounted to turn thereon, a shaft turning within the roll, a yielding connection between the shaft and the roll at one end, a projection upon the shaft, a cam on the frame against which it works as the carriage returns to its initial position, a toothed wheel on the opposite end of the roll, a pawl on the shaft engaging the wheel, and means for setting the pawl either in or out of engagement with the wheel.

94. The combination of a continuously-revolving type-wheel, movable bearings in which it is mounted, mechanism for moving said bearings normally disconnected therefrom, a driver and a series of devices each actuated at will by the driver to operate said mechanism and thereby move said bearings to maintain a given character on the type-wheel at rest at the printing-point.

95. The combination of a continuously-revolving type-wheel, movable bearings in which it is mounted, mechanism for moving said bearings normally disconnected therefrom, a driver, a series of devices each actuated at will by the driver to operate said mechanism and thereby move said bearings to maintain a given character on the type-wheel at rest at the printing-point, and means for then taking an impression from such character.

749,002. TYPE-WRITING MACHINE. OLOF TYBERG, Brooklyn, N. Y. Filed Mar. 9, 1899. Serial No. 708,424. (No model.)



Claim.—1. The combination of a continuously-revolving type-wheel, a rocking part in which it is mounted, a device for rocking said part and normally connected therewith, a driver and a series of devices each actuated at will by the driver to operate said devices and thereby rock said parts to momentarily maintain a character on the wheel at the printing-point.

2. The combination of a continuously-rotating type-wheel, a movable part in which it is mounted, a device for operating such movable part normally connected therewith, a driver, and a series of devices each actuated at will by the driver to operate said devices to move the part in which the type-wheel is mounted and thereby maintain a given character thereon momentarily at the printing-point.

3. The combination of a continuously-rotating type-wheel, a movable part in which it is mounted, a device for operating such movable part normally connected therewith, a driver, a series of device each actuated at will by the driver to operate said device to move the part in which the type-wheel is mounted and thereby maintain a given character thereon momentarily at the printing-point, and means for then taking an impression from such character.

4. The combination of a type-wheel continuously rotating about a normally stationary axis, a movable part in which the type-wheel is mounted, a device for moving said part normally connected therewith, a continuously-rotating cammed, ribbed or toothed driver, a series of devices each operated at will by the driver to actuate said device and move the part in which the type-wheel is mounted to thereby maintain a given character thereon momentarily at the printing-point.

5. The combination of a continuously-rotating type-wheel, a rocking frame in which it is mounted, a cammed, ribbed or toothed wheel continuously rotating upon an axis parallel with that of the type-wheel, means for rocking the frame normally connected with it, a series of devices each operated at will by the driver to actuate the means for rocking the frame and thereby maintain any given character on the type-wheel momentarily at the printing-point.

6. The combination of a continuously-rotating type-wheel, a rocking frame in which it is mounted, a cammed, ribbed or toothed wheel continuously rotating upon an axis parallel with that of the type-wheel, means for rocking the frame normally connected with it, a series of devices each operated at will by the driver to actuate the means for rocking the frame and thereby maintain any given character on the type-wheel momentarily at the printing-point, and a hammer operatively connected with the rocking frame to then take an impression from such character.

7. The combination of a continuously-rotating type-wheel, a rocking frame in which it is mounted, a rock-shaft with which the rocking frame is operatively connected, means for rocking the shaft to thereby rock the frame, a driver and a series of devices actuated at will by the driver to operate the means for rocking the shaft and thereby maintain a given character on the type-wheel momentarily at the printing-point.

8. The combination of a driver, a lever or finger-key, a toothed wheel mounted upon said lever and normally out of engagement with the driver but brought into engagement therewith to be operated thereby on the manipulation of the lever and mechanism operated by the wheel.

9. The combination of a continuously-revolving driver, a lever mounted adjacent thereto, a toothed wheel mounted to turn upon the lever and normally out of engagement with the driver but advanced toward the driver by the manipulation of the lever and means for automatically completing the movement of the wheel toward the driver to bring it into engagement therewith to be driven thereby and mechanism operated by the wheel.

10. The combination with the continuously-revolving driver having projections thereon, a lever, a star-toothed wheel mounted on the lever, a stop 26 and a part 19, operating substantially as set forth.

11. The combination with the continuously-revolving toothed driver, a lever, a star-toothed wheel mounted on the lever whereby when the lever is initially depressed the wheel is moved toward the driver, means for automatically completing the movement of the wheel toward the driver to bring it into engagement therewith to be driven thereby, a stop 26 and a part operated by the wheel when actuated by the driver.

12. The combination of a lever having a wedge-shaped end, a spring having a similarly-shaped part coöperating with the inclined faces of the end of the lever to maintain it in either of two positions, a star-toothed wheel carried by the lever, mechanism operated by the wheel and a continuously-rotating driver that actuates the wheel, all coöperating substantially as set forth.

13. The combination of a driver, a rotatable toothed wheel capable of movement toward and from the driver and normally out of engagement therewith and a device for moving the wheel into engagement with the driver to be operated thereby and mechanism operated by the wheel.

14. The combination of a driver, a rotatable toothed wheel capable of movement toward and from the driver and normally out of engagement therewith, a device for initially or partially moving the wheel toward the driver and means for then automatically completing the movement of the wheel into engagement with the driver to be operated thereby and mechanism operated by the wheel.

15. The combination of a driver, a rotatable toothed wheel arranged adjacent thereto and normally out of contact therewith but adapted to be moved bodily into engagement with the driver to be operated thereby, and a lever or finger-key for moving the wheel into engagement with the driver and mechanism operated by the wheel.

16. The combination of a driver, a series of toothed wheels mounted adjacent thereto and normally out of engagement with the driver but adapted to be moved bodily to be brought into engagement therewith, a series of devices for moving said wheels respectively into engagement with the driver to be operated thereby, a continuously-revolving type-wheel and mechanism operated by either toothed wheel when actuated by the driver to move the type-wheel bodily and thereby maintain a given character thereon momentarily at the printing-point.

17. The combination of a continuously-rotating driver, a series of finger-keys or levers, a series of devices mounted one upon each lever and normally out of contact with the driver but carried into engagement therewith by the depression of its lever, a continuously-revolving type-wheel, and mechanism for moving it bodily by either of said devices when actuated by the driver.

18. The combination of a continuously-rotating driver, a series of key-levers, a star-toothed wheel mounted upon each lever and normally out of engagement with the driver but brought into engagement with the driver on the depression of its lever, a continuously-revolving type-wheel and mechanism for moving it bodily in a direction opposed to the rotation of its impression side operated by either of said star-wheels when actuated by the driver.

19. The combination of a driver, a series of toothed wheels mounted adjacent thereto and out of engagement therewith but adapted to be moved bodily to be brought into engagement therewith, a series of devices for partially moving said wheels respectively into engagement with the driver to be operated thereby, means for then automatically completing the movement of the wheel to bring it into engagement with the driver, a continuously-revolving type-wheel and mechanism for moving it bodily operated by either toothed wheel and actuated by the driver.

20. The combination of a continuously-rotating carriage-feed toothed wheel, a pivoted part or plate, a carriage-feed pawl operatively connected with said pivoted part, a latch pivoted upon said plate or part and normally out of engagement with the toothed wheel but adapted to be thrown into engagement therewith, means whereby the latch is thrown into engagement with the wheel when the carriage is to be fed and means for disengaging the latch from the wheel when the feed of the carriage is completed.

21. The combination of a continuously-rotating carriage-feed toothed wheel, a rocking plate or part arranged adjacent thereto, a carriage, its rack, the carriage-feed pawl, operative connections between the pawl and said rocking plate or part, a pivoted latch pivoted upon said part and normally out of engagement with the toothed wheel but adapted to be thrown into engagement therewith, means for throwing the latch into engagement with the wheel, a catch for holding it in such engagement and a tripping device for tripping the catch and releasing the latch when the required movement of the carriage has been effected.

22. The combination of a continuously-rotating type-wheel, the movable part or frame in which it is mounted, a continuously-rotating driver, a series of key-levers, means whereby when a given key-lever is depressed the part in which the type-wheel is mounted is moved to thereby maintain the corresponding character momentarily at the printing-point, the carriage, its rack, the feed-pawl, a pivoted rocking plate or part 52, a continuously-rotating toothed wheel, a latch pivoted on said part and adapted to be moved into engagement with the continuously-revolving toothed wheel, means for moving the latch into the path of the toothed wheel during the movement of the part in which the type-wheel is mounted, a catch for holding the latch in this position and a tripping device for releasing the catch from the latch when the feed movement of the carriage is completed.

23. The combination of the type-writer carriage and its rack, of a continuously-rotating toothed wheel, the carriage-feeding pawl or device, operative connections normally inactive or at rest between said device and the continuously-rotated toothed wheel, and means for at will, actuating such operative connections to feed the carriage.

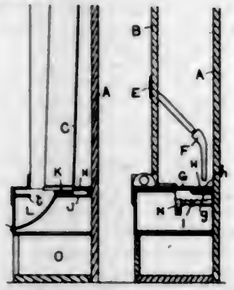
24. A wheel having characters thereon, means for rotating it continuously, a rocking frame in which it is mounted, a driver, finger-keys, devices operated thereby to engage driver and rock said frame, in combination with means for taking an impression from the wheel, at a fixed or stationary printing-point by means of an impression device that does not follow the rotary movement of the wheel without arresting its rotation.

749,003. AUTOMATIC APPARATUS FOR DELIVERING ARTICLES IN EXCHANGE FOR COIN. ROBERT W. VERITY, London, England. Filed Sept. 8, 1902. Serial No. 122,563. (No model.)

Claim.—1. A coin-controlled vending apparatus comprising a goods-receptacle, a slide for removing articles therefrom and a tongue secured to and traveling with the slide for closing the goods-outlet until the slide is returned to its original position again.

2. A coin-controlled vending apparatus comprising a goods-receptacle, a slide for delivering articles from said receptacle, a coin-engaging mechanism for pulling the slide outwardly, means engaging the coin for preventing the retraction of the slide until it is pulled outwardly to its full extent and a tongue secured to and traveling with the slide for closing the goods-outlet until the coin is released and the slide retracted.

3. A coin-controlled vending-machine, comprising a goods-chute, a rest at the bottom of the chute for supporting the goods, a slide arranged to travel over said rest and push an article therefrom, said slide having a coin-receiving aperture, a pull-slide for operating the mechanism when connected therewith by a coin, said pull-slide having a coin-aperture cooperating with the aperture of the article-slide, a rack for preventing the retracting of the slides until the coin is discharged, and means carried by the slide for preventing the delivery of an article until the coin has been discharged and the slide retracted.



4. A coin-controlled vending-machine, comprising a plurality of goods-chutes, supports beneath the same upon which the goods rest, slides arranged to move over said supports, a pull-slide arranged between adjacent delivery-slides and formed with slots coinciding with slots in the said adjacent delivery-slides, racks for engaging the coins inserted in said slides and thereby preventing the retraction of the slides until the coin is discharged, and means carried by each of the slides for closing the outlet from the machine and preventing the delivery of the goods until the coin has been discharged and the slide retracted.

749,004. METHOD OF TREATING WOOD. KIKUJIRO WADAMORI, Orange, N. J. Filed May 9, 1903. Serial No. 156,426. (No specimens.)



Claim.—1. The method of treating wood consisting in applying to the surface thereof a regular coating of dilute sulfuric acid, subjecting the coated surface to fire to burn the same, and removing the charred portions of the wood from the surface treated.

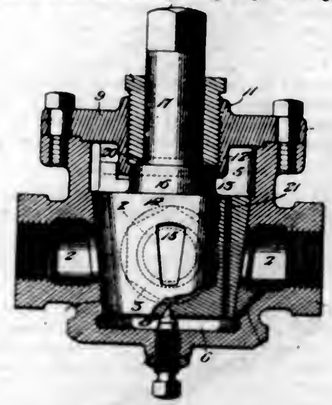
2. The method of treating wood consisting in coating the surface thereof with dilute sulfuric acid, subjecting the coated surface to fire until the same shall have become fully blackened, and removing the charred portion of the wood from the surface treated by brushes.

3. The method of treating wood consisting in coating the surface thereof with dilute sulfuric acid, subjecting the coated surface to fire until it shall have become fully blackened, removing the charred part of the wood from the surface treated by brushes, and finally washing the wood.

4. The method of treating wood consisting in coating the surface thereof with dilute sulfuric acid, drying the wood thus coated, subjecting the coated surface to fire until it shall have become fully blackened and without spotted parts, removing the charred wood from the surface treated by means of brushes, and finally washing the wood.

749,005. HYDRAULIC VALVE. WILLIAM G. WARD, Braddock, Pa. Filed Feb. 18, 1903. Serial No. 143,940. (No model.)

Claim.—In a valve, the combination of a casing having oppositely-disposed ports adapted to be placed into communication and leading to a central valve-chamber, upper and lower pressure-equalizing chambers normally communicating with the said valve-chamber, the lower equalizing-chamber having a port extending therefrom to one of the ports of the casing, a cap on the upper end of the casing having a central gland-seat, the latter having a depending flange with an inturned terminal, a plug-valve rotatably mounted in the valve-chamber and having a transverse port through the center thereof and a vertical port therethrough at one side of the center to establish communication between the upper and lower pressure-equalizing chambers, the said valve having a collar rising from the center of the upper end thereof and closely held against the inturned lower terminal of the flange of the gland-seat, a stem also rising from the said collar, and a gland fitted in the said gland-seat and having its lower end bearing against the upper edge of the valve-collar above the inturned terminal of the depending flange of the gland-seat.



749,006. GAS-GENERATOR. HARTWELL W. WEBB, New York, N. Y. Filed Jan. 7, 1903. Serial No. 138,156. (No model.)



Claim.—1. In a gas-generator, the combination of two walls capillarly spaced one within the other, with means for feeding water to the bottom of the capillary space or chamber, and means for holding carbid and presenting it to the water at the top of the capillary space.

2. In a gas-generator, the combination with a water-chamber and a carbid-receptacle, of means for forming a capillary chamber within and about the circumference of the carbid-receptacle.

3. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, and a plate or supplemental receptacle forming with the wall of the receptacle a capillary feed.

4. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, and a supplemental receptacle of less height than the carbid-receptacle, and disposed within the receptacle at such a distance from the walls thereof as to induce a capillary film of water.

5. In a gas-generator, the combination with a water-chamber and a carbid-receptacle, of a plate or supplemental receptacle forming with the walls of the receptacle a continuous capillary chamber.

6. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a plate or supplemental receptacle within the receptacle forming with the walls of the receptacle a feed-chamber open at the top, and a communication between the water-chamber and the feed-chamber.

7. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, and means for inducing a capillary film of gradually-increasing height.

8. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental receptacle in the bottom of the carbid-receptacle, a water-space encircling the lower part and a capillary space encircling the upper part of the supplemental receptacle and feeding from the water-space.

9. In a gas-generator, the combination with a water-chamber and a communicating carbid-receptacle, a supplemental receptacle, reduced at the bottom, forming with the carbid-receptacle a capillary space and a water-supply space.

10. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental open receptacle practically fitting the carbid-receptacle, but having projections or indentations to separate it slightly therefrom.

11. In a gas-generator, the combination with a water-chamber, a communicating carbid-receptacle, a supplemental receptacle inclosed by the carbid-receptacle, and forming therewith a water-supply space and a capillary space.

12. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental receptacle separated from the walls of the carbid-receptacle to form spaces at different levels of different widths.

13. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental open receptacle having indentations along its top edge to separate it from the wall of the carbid-receptacle to form a capillary space, and separated at the base to form a wider water-supply space.

14. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental receptacle fitting in the bottom of the carbid-receptacle to form therewith a capillary space, and means for securing and releasing the supplemental receptacle.

15. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a supplemental open receptacle having an inclined top, a reduced portion at the bottom, the supplemental receptacle being slightly separated from the carbid-receptacle to form a capillary space, the capillary space being comparatively short at the lowest point and gradually increasing in height around the supplemental receptacle.

16. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, and an open vessel substantially conforming to the bottom part of the receptacle and slightly separated therefrom, the top edge of its wall forming the boundary of an inclined plane.

749,007. ACETYLENE-GAS GENERATOR. HARTWELL W. WEBB, New York, N. Y. Filed Mar. 18, 1903. Serial No. 148,418. (No model.)



Claim.—1. In a gas-generator, in combination a water-chamber, a carbid-receptacle, perforations in the carbid-receptacle communicating with the water-chamber, and a plate lying over the perforations and forming with the body of the carbid-receptacle a capillary space.

2. In a gas-generator, in combination a water-chamber, a carbid-receptacle, a plate in the carbid-receptacle and slightly separated from it, a water-basin attached to the bottom of the carbid-receptacle and ports leading from the water-chamber to the water-basin, and ports leading from the basin to the space between the carbid-receptacle and the plate.

3. In a gas-generator, the combination of a carbid-receptacle, a water-chamber surrounding the carbid-receptacle, a plate in the bottom of the carbid-receptacle forming therewith a water-space, a valve and valve-seat passing through the plate and the carbid-receptacle, ports in the bottom of the carbid-receptacle, a water-basin embracing the valve-seat and the ported part of the carbid-receptacle, and a passage from the water-chamber into the valve-seat.

4. In a gas-generator, the combination of a water-chamber, a carbid-receptacle, a water-basin, and communications, with a needle-valve and tube forming a capillary space and leading to a discharge-port.

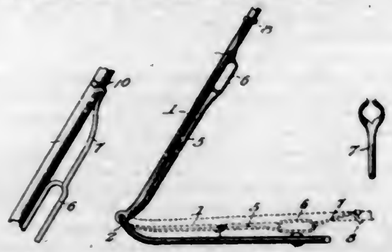
5. In a gas-generator in combination, a water-chamber, a carbid-receptacle, a water-basin attached to the bottom of the carbid-receptacle, communications between the water-chamber and the water-basin and between the basin and the carbid-receptacle, and a plate forming with the bottom of the carbid-receptacle a capillary space.

6. In a gas-generator, in combination a water-chamber, a car-

bid-receptacle, communications between the two, a capillary space leading into the carbid-receptacle, and a capillary space leading from the communications to an outer exit.

7. In a gas-generator, in combination a substantially rectangular water-chamber, a substantially cylindrical carbid-receptacle, valved communications between the two, and a screw-cap at each end of the carbid-receptacle fitting in a depression in the head of the water-chamber.

749,008. BUGGY-TOP. WILLIAM A. WILKINS, Marietta, Ind. Ter. Filed July 26, 1903. Serial No. 167,032. (No model.)



Claim.—1. The combination with the bow and prop of a vehicle, of a resilient support pivotally attached at one of its ends to the fulcrum for the bow, and slidably embracing said bow at its other end, the said support being provided with a loop bearing such relation to the prop as that the member thereof most distant from the bow is caused to be directly seated upon said prop on lowering the top.

2. A resilient support for a buggy-bow or the like having an elongated projecting loop at an intermediate point, and a clip secured over a part of said loop.

749,009. DEVICE FOR OPERATING STREET-RAILWAY SWITCHES. HARRY T. YOUNG, Homestead, Pa. Filed Apr. 18, 1903. Serial No. 153,213. (No model.)

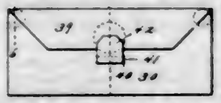


Claim.—1. A switch-operating mechanism comprising in combination with a switch-rail, a rotary disk with projections thereon, pivotal link-and-lever connections between said rail and disk, and a spring-pressed rack-bar adapted to be carried by a car and to be depressed to engage said projections, whereby the disk may be rotated and the switch thrown, as set forth.

2. A switch operating-mechanism comprising a pivoted rail, a disk, a shaft on which the same is journaled, a series of pins projecting from one face of the disk, pivotal link-and-lever connection between said link and rail, a spring-pressed rack-bar adapted to be carried by a car and designed to be depressed to engage said pins to cause the disk to rotate, as set forth.

3. In a device for the purpose described, the combination consisting of the switch-bar, the bell-crank and connecting-link, the disk journaled to the rail, a connecting-rod from the bell-crank to said disk, the projecting pins or teeth, arranged in peripheral form about the face of the disk, and a rack carried by the vehicle, a means of elevating and lowering the same, whereby the said rack may be brought in contact with the pins or teeth of the disk, to give the same a partial rotation, thereby moving the switch-bar, substantially as and for the purpose described.

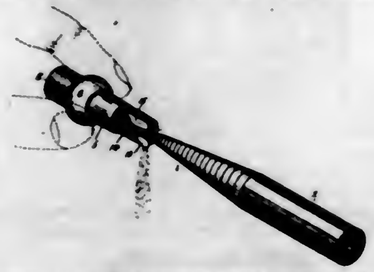
749,010. SAFETY-ENVELOP. JOSEPH F. YOUNG, Pittsburg, Pa. Filed Jan. 31, 1903. Serial No. 141,267. (No model.)



Claim.—1. A safety-envelop comprising a front or base, end flaps folded inwardly thereon, a back connected to the lower edge of the front or base and adapted to be folded inwardly upon the previously-folded end flaps, a back flap connected to the free side edge of the back and foldable inwardly against the inner surface of the latter, the inner surface of the back adjacent to the ends and the edges of the back flap extending over the inner surface of the back having adhesive material applied thereto, the back having parallel slits extending longitudinally thereof to form an integral strap, and a sealing-flap having a projecting tongue with adhesive material thereon, the said tongue being insertible under the strap and foldable over the same onto the lower central portion of the sealing-flap.

2. A safety-envelop comprising a front or base, end flaps, a back adapted to fold inward and cover the end flaps, a back flap connected to the back and interposed between the back and end flaps, and corner-tabs formed integrally with the back and provided with adhesive material, said tabs being inserted between the front or base and the end flaps and caused to adhere to the front or base.

749,011. PENCIL-SHARPENER. HARRY L. ADAMS, Philadelphia, Pa. Filed Feb. 14, 1903. Serial No. 143,360. (No model.)



Claim.—1. The combination of a pencil having a recessed end, and a plug arranged to be inserted in said end and carrying a pair of coacting sharpening members.

2. The combination of a pencil having a recessed end and a plug arranged to be inserted in said end and carrying a pair of coacting sharpening-blades.

3. The combination of a pencil having a recessed end, a plug arranged to be inserted in said recessed end, and a pair of coacting sharpening members carried at one end of said plug, the other end of said plug being recessed and adapted to contain an eraser.

4. As a new article of manufacture, a pencil-sharpener, comprising a member insertible in the end of the lead-pencil, and carrying a pair of knives having V-shaped notches.

5. As a new article of manufacture a pencil-sharpener comprising a member insertible in the end of a lead-pencil and carrying a pair of knives arranged in parallel planes and having V-shaped notches in the same.

6. As a new article of manufacture, a pencil-sharpener comprising a plug insertible in the end of a pencil, and knives carried by said plug and projecting beyond the end of the same.

7. As a new article of manufacture, a pencil-sharpener, comprising a recessed plug insertible in the end of a pencil, knives carried by the said plug, and having sharpening portions within said recess.

8. As a new article of manufacture, a pencil-sharpener member comprising a plug having a reduced portion internally recessed at one end and knives adapted to slots in said recessed end, said knives having projecting portions and the other end of said plug being recessed and adapted to contain an eraser.

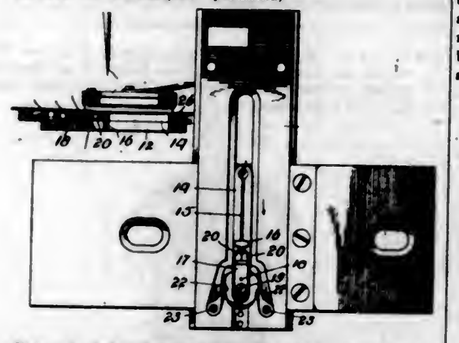
9. As a new article of manufacture, a pencil-sharpener member comprising a plug having a reduced portion internally recessed at one end, and knives having V-shaped notches adapted to slots in said recessed end, said knives having projecting portions, and the other end of said plug being recessed and adapted to contain an eraser.

10. A pencil-sharpener comprising a plug having a reduced portion, a pair of knives fixed in slots in said reduced portion and lying in parallel planes equidistantly from each other from end to end, with means for securing said blades in place.

11. A pencil-sharpener comprising a plug having a reduced portion, a pair of knives with V-shaped notches fixed in slots in said reduced portion and lying in parallel planes equidistantly from each other from end to end, with means for securing said blades in place.

12. A pencil-sharpener comprising a wooden plug having an internal recess, said plug having parallel slots, a pair of knives arranged to be fitted in said slots, said plug being externally grooved at or near the end of the same, and securing means tending to bind the knives to the casing arranged within said groove.

749,012. THREAD-CUTTING DEVICE FOR SEWING-MACHINES. EDWARD R. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Filed Mar 17, 1903. Serial No. 148,208. (No model.)



Claim.—1. A thread cutting and holding device for sewing-machines, adapted to sever and hold the lower thread beneath the work, comprising the combination with a throat-plate, of a stationary thread-cutting blade having its cutting edge arranged adjacent to the needle-hole of the said throat-plate and approximately flush with the top of the latter, said throat-plate having a slot or opening extending from said needle-hole to the cutting edge of said blade, to form a thread-passage into which the thread may be drawn for the thread-severing operation, and a thread-nipping device independent of and arranged beneath said blade and consisting of yieldingly-mounted parts cut away to form a recess registering with the said thread-passage in the throat-plate.

2. A thread cutting and holding device for sewing-machines, adapted to sever the lower thread beneath the work, comprising the combination with a throat-plate, of a stationary thread-cutting blade having its cutting edge arranged adjacent to the needle-hole of said throat-plate, the latter having a thread-passage extending from said needle-hole to the cutting edge of said blade, a thread-nipping device independent of and arranged beneath said blade, and consisting of two parts recessed to form a portion of said thread-passage, and means for yieldingly pressing the said parts toward each other for the thread nipping or holding operation.

3. A thread cutting and holding device for sewing-machines, consisting of the combination with a throat-plate having a needle-hole provided with a slot or opening at one side, of a fixed cutting-blade having its cutting edge arranged adjacent to said needle-hole and crossing said slot, pivotally-mounted thread-nipping arms arranged beneath said cutting-blade and cut away to form a recess registering with the slot extending from the needle-hole, and means for yieldingly pressing said arms toward each other for the thread-nipping or thread-holding operation.

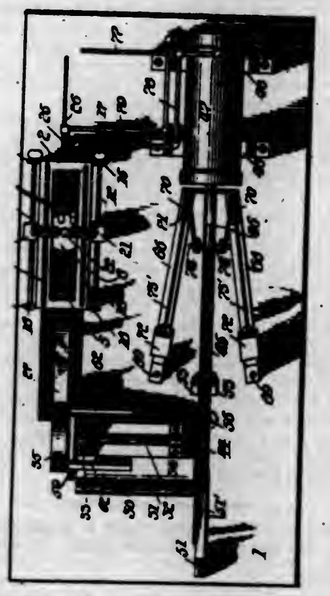
4. A thread cutting and holding device for sewing-machines consisting of the combination with a throat-plate provided with a needle-hole having a slot or opening at one side, of a fixed cutting-blade having its cutting edge arranged adjacent to said needle-hole and crossing said slot, pivotally-mounted thread-nipping arms arranged beneath said cutting-blade and cut away to form a recess registering with the slot extending from the needle-hole, spring-fingers for yieldingly pressing the said arms toward each other for the thread-nipping or thread-holding operation, and a movable part by which the said spring-fingers are carried so that said fingers may be disengaged from the said thread-nipping arms, to release the thread.

749,013. MACHINE FOR FORMING SLEEVES, COUPLINGS, OR THE LIKE. ANDREW A. ANDERSON, Smithaven, Pa. Filed June 24, 1903. Serial No. 163,827. (No model.)

Claim.—1. A machine of the type set forth comprising a shearing apparatus, operating means therefor, a platform adjacent said shearing apparatus, means for adjusting the latter upon the platform, a forming apparatus, operating means therefor, and an ejector mechanism adapted to be actuated by the forming apparatus, substantially as described.

2. In a machine of the character described, an adjustable shearing apparatus, a platform therefor, a forming apparatus, means for operating the same, and an ejector mechanism adapted to be operated by the last-named means, said mechanism being adjustable to different sizes of forming means, substantially as described.

3. A machine of the character described, comprising a shearing apparatus, a platform mounted adjacent to said apparatus, means for operating said shearing apparatus, means whereby said apparatus may be adjusted upon the platform, a forming apparatus located adjacent to said platform, ejector mechanism carried by said apparatus, means for operating said forming apparatus, means carried by said forming apparatus to operate the ejector mechanism, substantially as described.



4. A machine of the character described comprising a shearing apparatus, a platform mounted adjacent to said apparatus, means whereby said apparatus may be adjusted upon said platform, means for operating the shearing mechanism carried by the apparatus, a forming apparatus comprising a forming-head, means carried by said head to grip the metallic strip to be formed, means carried by said apparatus for ejecting the formed article, means for operating said forming apparatus and ejector, substantially as described.

5. A machine of the character described, comprising a shearing apparatus, said apparatus being mounted within a suitable casing, a platform mounted adjacent to said casing, means carried by said casing for adjusting the apparatus, means for operating said shearing apparatus, a forming apparatus located adjacent to the shearing apparatus, said apparatus comprising a casing, a shaft mounted upon said casing, a forming-head secured to one end of said casing, means carried by said forming-head to grip the metallic strip to be formed, means for rotating said forming-head in either one or the other direction, an ejector mounted adjacent to said forming-head, means for operating said ejector substantially as described.

6. A machine of the character described, comprising a shearing apparatus, a casing surrounding said apparatus, means carried by said casing for adjusting the apparatus therein, a platform mounted within and adjacent to said casing, means for operating said shearing apparatus, a forming apparatus comprising a casing, a shaft mounted upon said casing, a forming-wheel secured upon one end of said shaft, a pinion secured upon the other end of said shaft, means carried by the forming-wheel to grip the metallic strip to be formed, ejector mechanism located adjacent to said forming-wheel means for adjusting said ejecting mechanism to different-sized forming-wheels, a rack adapted to engage said pinion, means for reciprocating said rack, means carried by said rack for operating the ejector mechanism, substantially as described.

7. A machine of the character described comprising a shearing apparatus, a casing surrounding said apparatus, means carried by said casing for adjusting the apparatus therein, a platform mounted within and adjacent to said casing, means for operating the shearing apparatus, a forming apparatus comprising a casing, a shaft mounted upon said casing, a forming-wheel secured upon one end of said shaft, a pinion secured upon the other end of said shaft, means carried by the forming-wheel to grip the metallic strip to be formed,

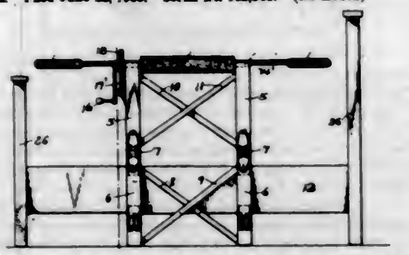
means carried by said wheel to release the gripping mechanism when the article has been formed, ejector mechanism located adjacent to said forming-wheel, means for adjusting said ejecting mechanism to different-sized forming-wheels, a rack adapted to engage said pinion, means for reciprocating said rack, means carried by said rack for operating the ejector mechanism, substantially as set forth.

8. A machine of the character described comprising a shearing apparatus, a casing surmounting the same, means for adjusting the said apparatus therein, a platform mounted within and adjacent said casing, a forming apparatus comprising a casing, a shaft mounted thereon, a forming-wheel carried by the shaft, gripping means for the metallic strip mounted on said wheel, means for releasing said gripping means, and ejector mechanism adapted to be actuated by the forming apparatus, substantially as described.

9. In a machine of the type set forth, a shearing apparatus, operating means therefor, a forming apparatus, comprising a shaft, a forming-wheel thereon, means for rotating the wheel in either direction, gripping means carried by said forming-wheel, releasing means carried by the said wheel for the gripping means adapted to be actuated upon formation of the article, operating means for the forming apparatus, an ejector mechanism, adjustable to different sizes of forming-wheels, and means whereby said ejector is adapted to be actuated by the forming apparatus, substantially as described.

10. In a machine of the character described, a shearing apparatus, means for actuating the same, a forming apparatus consisting of a casing, a shaft mounted thereon, a forming-head, gripping means carried by the head, releasing means therefor, and an ejector mechanism adapted to be operated by the forming means upon release of the formed article thereby, said mechanism comprising a flexible adjustable ring adapted to engage the head, adjustable arms secured thereto, a crank-lever pivotally secured to the arms mounted on the said casing, a hook member carried by said lever, and means for operating said forming apparatus adapted to actuate said ejector, substantially as described.

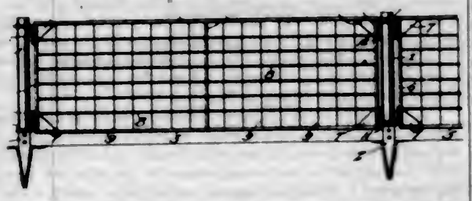
749,014. **INVALID-SLING.** PERRY W. ATKINSON, Troy Center, Wis. Filed June 23, 1903. Serial No. 162,565. (No model.)



Claim.—1. A device of the class described comprising uprights connected in pairs and each including upper and lower sections adapted to fold one upon the other or to stand in alinement, rollers removably journaled at the upper ends of the uprights and having means for rotating them, means for holding the rollers against rotation in one direction, and a sling attached at its ends to the rollers and adapted to be wound thereon.

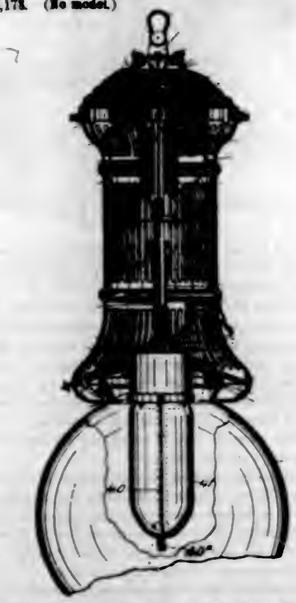
2. A device of the class described, comprising a sling, rods disposed removably upon the sling, means for holding the rods against displacement longitudinally of the sling, head and foot supports at the ends of the rods, and a supporting-frame for the sling.

749,015. **FENCE STRUCTURE.** SAMUEL I. BAILEY, Brooklyn, N. Y. Filed Apr. 18, 1903. Serial No. 153,334. (No model.)



Claim.—A fence consisting of a series of posts and panels, the panels having upper and lower margin-strips and end connecting-strips with intermediate devices attached thereto, triangular brace-blocks located in the corners of the panels, and looped hangers having shanks fixedly secured against the end connecting-strips adjacent to the said brace-blocks to establish a firm securing-support, said hangers being removably disposed on the posts.

749,016. **ELECTRIC-ARC LAMP.** EDWARD H. BELDEN, Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 17, 1901. Serial No. 54,173. (No model.)



Claim.—1. A removable cap for an alternating-current arc-lamp case, comprising a spider-casting and a wire screen covering the openings therein for the purpose of breaking up and neutralizing the vibrations due to the inclosed adjacent induction-coil of the lamp.

2. In an arc-lamp, an inner globe having a top opening only and provided with an external recess in its lower end, in combination with a supporting-bracket having a coil seated in said recess.

3. In an alternating-current arc-lamp, a clutch-chamber through which the gases from the arc pass having a gas-cap at each end and supported independently of the lamp-case, whereby the audible vibrations due to the pulsations of the current are effectively muffled.

4. In an alternating-current lamp, a clutch-chamber inclosing the clutch mechanism and having gas-caps at its respective ends through which the gases of the arc pass in their escape, and adapted to muffle the audible vibrations, as described.

5. In an arc-lamp, the combination with a suspension device, a supporting-frame and a spring connecting said parts, of a carbon-feeding solenoid and a suspension spring between the same and said frame.

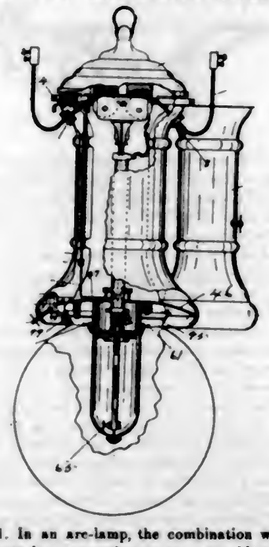
6. In an arc-lamp, the combination with a suspension device, a spring depending therefrom and a mechanism-supporting frame suspended from said spring, of a solenoid, a supporting-spring therefor, a spring-supported core for said solenoid and carbon-feeding means supported by said frame.

7. In an arc-lamp, the combination with a suspension device having a depending coil-spring and a frame suspended from said spring and having a spring projecting therefrom, of a solenoid suspended from said projecting spring, a carbon-tube, a solenoid-core, a spring connecting said tube and core, and lever and dash-pot mechanism supported by said frame and connected to said tube.

8. In an arc-lamp, the combination with a supporting device and a coil-spring depending therefrom, of a frame suspended from said spring and having a spring projecting therefrom, a solenoid supported by said projecting spring, a counterweighted lever pivoted to said frame, a carbon-tube pivotally attached to the end of said lever opposite the counterweight, a solenoid-core and a spring interposed between said core and the carbon-tube.

9. In an arc-lamp, the combination with a supporting device, a frame spring-suspended therefrom and a solenoid spring-suspended from said frame, of a counterweighted lever pivoted to said frame, a carbon-tube suspended from one end of said lever, a dash-pot interposed between the other end of the lever and the frame, a solenoid-core and a spring interposed between said core and the carbon-tube.

749,017. **ELECTRIC-ARC LAMP.** EDWARD H. BELDEN, Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Aug. 6, 1900. Renewed May 11, 1903. Serial No. 156,695. (No model.)



Claim.—1. In an arc-lamp, the combination with series and shunt coils mounted upon a stationary support and having pole-pieces which project toward each other, of an interposed rocking armature pivotally mounted upon said support between said coils and provided with lateral openings to admit the adjacent and respective ends of the said pole-pieces, whereby the sensitiveness of the controlling mechanism is augmented by the tendency of the shunt-field to neutralize the influence of the series field by reversing the polarity of that portion of the armature which moves in the series field.

2. In an arc-lamp, the combination with series and shunt coils mounted upon a fixed support and having pole-pieces which project toward, and into proximity to, each other, of an interposed rocking armature pivotally mounted upon said support and having lateral openings to receive the adjacent and respective pole-pieces, whereby gravity aids the weaker field in actuating the said armature, and whereby the influence of the series field is partially neutralized as the armature approaches the shunt-field.

3. In an arc-lamp, the combination with series and shunt coils arranged on a fixed support at an angle to each other and having pole-pieces which project toward, and into proximity to, each other, of an interposed rocking armature pivotally mounted upon said support and having lateral openings to receive the adjacent and respective pole-pieces, whereby gravity aids the weaker portion of the fields in actuating the armature and whereby the influence of the series field is neutralized in proportion to the strength of the shunt-field by the tendency to reverse the polarity of the armature which is due to the series field.

4. In an arc-lamp, a trough-like and substantially horizontal frame, in combination with series and shunt coils rigidly supported by said frame and a rocking armature pivoted in said frame intermediate said magnets and under the influence thereof.

5. The combination with a skeleton frame adapted to support the controlling mechanism of an arc-lamp, of series and shunt magnets supported in said frame in inclined positions, and a rocking armature pivoted in said frame in cooperative relation to said magnets.

6. In an arc-lamp, a skeleton frame having inclined sides provided with apertures, and magnets supported by said frame and having pole-pieces projecting toward each other through said apertures.

7. In an arc-lamp, the combination with a frame having inclined sides, and magnet-coils clamped to said sides and having pole-pieces that project into proximity to each other, of an armature pivotally mounted in said frame and carbon-supporting means connected to said armature.

8. In an arc-lamp, the combination with a frame having inclined sides provided with circular openings and magnet-coils provided with cores that project through said openings and have enlarged ends to aid in clamping said coils to the frame, of a carbon-controlling armature pivotally supported in said frame and having openings to receive the projecting ends of the magnet-cores.

9. In an arc-lamp, the combination with a frame having inclined sides and shunt and series magnets clamped to the respective sides and having pole-pieces that project toward, and into proximity to, each other, of a carbon-controlling armature pivotally supported in said frame intermediate said magnets.

10. In an arc-lamp, the combination with a skeleton frame and magnets supported thereby in such positions that their pole-pieces project angularly toward each other, of a carbon-controlling armature pivotally supported in said frame midway between said magnets and a walking-beam cut-out member also pivotally supported by said frame.

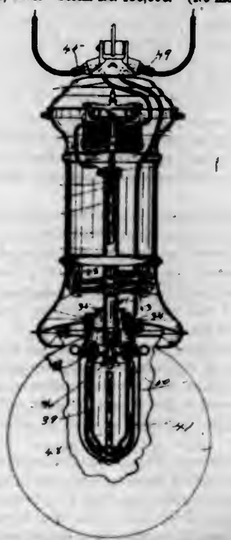
11. In an arc-lamp, the combination with a carbon-tube having a vertical slot in its lower end and a ring adjacent thereto, of a sleeve loosely surrounding the movable carbon and having ears projecting through said slot, a clutch-dog pivoted between said ears and a link which loosely connects said dog and said ring.

12. In an arc-lamp, the combination with a tube for the movable carbon having a slot in its lower end and having a lateral projection, of a sleeve loosely surrounding the carbon within the lower end of the tube, a dog pivoted to said sleeve and projecting through the tube-slot, a link connecting said dog to the lateral projection on the tube and electromagnetic means for raising and lowering said tube.

13. In an arc-lamp, a ring-clutch mechanism for feeding the upper carbon comprising a pendent carbon-guiding tube having a slot in its lower end, a sleeve located within the lower end of said tube and having lateral ears that project through said slot, a dog eccentrically pivoted to said ears, and means for loosely connecting said dog to the carbon-guiding tube.

14. In an arc-lamp, the combination with a carbon-tube having a vertical slot in its lower end, of a sleeve located within said carbon-guiding tube and having a part projecting through said slot, a dog pivotally mounted on said projecting part and adapted to automatically engage the carbon, a detachable ring on said tube and a link loosely connecting the dog thereto.

749,018. **ELECTRIC-ARC LAMP.** EDWARD H. BELDEN, Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Aug. 13, 1900. Renewed May 11, 1903. Serial No. 156,696. (No model.)



Claim.—1. In an arc-lamp, the combination with carbon-feeding coils and two brackets between which said coils are clamped, of

a supporting-frame to which said brackets are detachably fastened, and a carbon-operating lever pivotally supported by one of said brackets and provided with an armature for said coils.

2. In an arc-lamp, the combination with carbon-feeding coils, two brackets and cores for said coils serving in conjunction to support the coils, of a supporting-frame to which said brackets are detachably fastened and a carbon-operating lever pivotally supported by one of said brackets and provided with an armature for said coils.

3. In an arc-lamp, the combination with carbon-feeding coils, two brackets between the inner ends of which the coils are clamped, of a circular supporting-frame to which the outer ends of the brackets are detachably fastened and a carbon-operating lever pivoted to one of said brackets and having an armature for said coils.

4. In an arc-lamp, the combination with carbon-feeding coils, two brackets and magnet-cores serving to clamp said coils between the inner ends of said brackets, of a supporting-frame to which the outer ends of said brackets are detachably fastened, a carbon-operating lever pivotally supported upon one of the brackets and provided with an armature for said coils.

5. In an arc-lamp, the combination with a carbon-feeding coil having a core that projects beyond one of its ends and two brackets between the inner ends of which the coil is clamped, of a supporting-frame to which the outer ends of said brackets are detachably fastened and a carbon-operating lever pivoted to one of said brackets and having an armature provided with a hole to receive the projecting core end.

6. In an arc-lamp, a carbon-feeding magnet and two brackets having inclined inner ends between which the magnet is clamped, of a supporting-frame to which the outer ends of the brackets are detachably fastened and a carbon-operating lever pivoted to one of said brackets and having an armature for said magnet.

7. In an arc-lamp, the combination with a pair of magnet-coils, cores therefor each having one end of greater diameter than that of the opening in the coil, and two brackets between the inner ends of which the coils are clamped by said cores, of a supporting-frame to which the outer ends of said brackets are detachably fastened and a carbon-operating lever pivoted to one of said brackets and having an armature provided with holes to receive the projecting ends of the magnet-cores.

8. In an arc-lamp, the combination with a pair of magnet-coils and a pair of brackets of unequal length having inclined inner ends between which said coils are clamped, of a supporting-ring to which the outer ends of said brackets are detachably fastened and a carbon-operating lever pivoted to the shorter bracket, a dash-pot member supported by one end of said lever, an armature mounted upon the other end thereof and a carbon-holder rod connected to the lever between its fulcrum and the dash-pot.

9. In an arc-lamp, the combination with a casing having supporting-rings adjacent to its ends each provided with depending lugs, of brackets detachably fastened to the lugs of the upper ring, carbon-feeding mechanism supported by said brackets, perforated insulating-blocks fastened to the lugs of the lower ring and annular resistance-coils supported in the perforations of said insulating-blocks.

10. In an arc-lamp, the combination with a casing and carbon-feeding mechanism supported therein, of a resistance-supporting ring having depending lugs, perforated insulating-blocks fastened to said lugs and annular resistance-coils supported in the perforations of said blocks.

11. In an arc-lamp, the combination with a casing having an internal ring at its upper end provided with lugs, of brackets detachably fastened to said lugs, magnet-coils clamped between the inner ends of said brackets and having projecting cores, a lever pivoted to one of said brackets and having an armature at one end, a dash-pot at the other end, and a carbon-holding tube connected to the lever between its fulcrum and the dash-pot.

12. In an arc-lamp, the combination with a supporting-ring having pendent lugs, of brackets detachably fastened to said lugs, a magnet clamped between said brackets and a carbon-operating lever pivotally fulcrumed in one of said brackets and carrying upon one end an actuating-armature and upon its other end the movable carbon.

13. Arc-lamp-controlling mechanism comprising a pair of supporting-brackets, a ring for detachably supporting said brackets, an energizing-magnet rigidly supported by said brackets, and an operating-lever pivotally fulcrumed in one of said brackets and carrying upon one end a rocking armature in cooperative relation to said magnet and carrying upon its other end a movable carbon and one member of a dash-pot.

14. Controlling mechanism for arc-lamps comprising a pair of magnet-coils having fixed protruding pole-pieces, supporting-brackets in which said coils are detachably mounted in an inclined position, and an operating-lever fulcrumed on one of said brackets and carrying a rocking armature in cooperative relation to said pole-pieces upon one end thereof and carrying upon its other end a feeding-carbon and one member of a dash-pot.

749,019. CUSPIDOR. CHARLES R. BREVDA, Wilkesbarre, Pa. Filed Aug. 21, 1903. Serial No. 170,545. (No model.)



Claim.—1. As an article of manufacture, a cuspidor comprising in combination, a floor-plate in the form of a downwardly-inclined hopper having an opening, a semispherical ball-cup journaled on and carried by the under side of the hopper and arranged below the opening, a lever fulcrumed between its ends upon the under side of the hopper and carried thereby and having an engagement at one end with the cup, and an actuating device engaged with the free end of the lever and passing through and carried by the hopper contiguous to its edge.

2. As an article of manufacture, a cuspidor, comprising in combination, a base-plate having an opening therethrough, depending journal-bearings located on opposite sides of the opening, a cup revolubly journaled in the bearings beneath the opening, a lug depending from the plate, a lever pivoted to the lug and having a connection with the cup to revolve the same, and an actuating-stem having an engagement with the lever and projecting above the plate.

3. As an article of manufacture, a cuspidor, comprising in combination, a base-plate having an opening therethrough, a cup revolubly mounted beneath the opening and having a pinion, a lug depending from the plate, a lever pivoted intermediate its ends to the lug and having a rack at one end that engages the pinion, and an actuating-stem slidably passed through the plate and engaging the other end of the lever.

4. As an article of manufacture, a cuspidor, comprising in combination, a base-plate having an opening therethrough, a cup revolubly mounted beneath the opening and having a pinion, a lug depending from the plate, a lever pivoted intermediate its ends to the lug and having a rack at one end that engages the pinion, an actuating-stem slidably passed through the plate and engaging the other end of the lever, and a spring attached at one end to the under side of the plate and having its free end bearing against the lever.

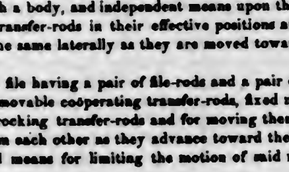
5. As an article of manufacture, a cuspidor, comprising in combination, an inverted-cone-shaped hopper provided with a central opening and a peripheral flange, a cup journaled beneath the opening and having a pinion, said cup being also provided with a stop arranged to engage the hopper-wall, a lug depending from the under side of the hopper, a lever pivoted intermediate its ends to the lug and having a rack at one end that engages the pinion, an upright actuating-stem slidably passed through the flange of the hopper and bearing upon the other end of the lever, and a flat spring attached at one end to the under side of the hopper and having its free end bearing against the lever.

6. As an article of manufacture, a cuspidor, comprising in combination, a floor-plate in the form of a downwardly-inclined hopper having a peripheral flange and a central opening, said flange being provided with a depending socket, a ball-cup journaled upon and carried by the under side of the hopper and located below the opening, said cup having a pinion, a lever pivoted between its ends to the under side of the hopper and located in angular relation to the axis of the cup, a rack located on one end of the lever and meshing with the pinion of the cup, and an actuating-pin mounted in the socket of the flange and coacting with the end of the lever opposite the rack.

749,020. BUILDING-BLOCK. ORVILLE H. BOLES, Denver, Colo. Filed May 22, 1903. Serial No. 158,269. (No model.)

Claim.—1. A building-block comprising a body portion having one edge formed with outwardly-flaring cyma surfaces.

2. A building-block comprising a body portion having one edge formed with outwardly-flaring cyma surfaces, the curves of each surface being of such degree relative to each other as to leave a space between the same and the corresponding registering curves of a contiguous similar block.



3. A building-block comprising a body portion having one edge cut away and formed centrally with a flat, straight portion and curved in each direction away from the flat portion toward the ends of the body portion each curve extending to a point at a distance equal to substantially one-half the length of the central flat portion.

4. A building-block comprising a body portion having one of its edges formed with cyma surfaces flaring from points near the center toward the ends of the body portion, one of the curves of each surface being greater than the other.

5. A building-block comprising a body portion having one of its edges formed with cyma surfaces flaring outwardly from points near the center thereof.

749,021. PAPER-FILE. CHRISTOPHER C. BOYKIN, Norfolk, Va., assignor of one-half to George W. Face, Jr., Norfolk, Va. Filed Dec. 6, 1902. Serial No. 134,152. (No model.)



Claim.—1. A file including a pair of file-rods and a pair of independently laterally movable coöperating transfer-rods, and means for locking the transfer-rods in their effective positions and for positively moving the same outwardly and away from each other as they are moved toward their effective positions.

2. A file including a pair of file-rods and a pair of independently laterally movable coöperating transfer-rods, and independent fixed cams for moving the transfer-rods outwardly as they move into their effective positions, said cams being adapted to lock said transfer-rods in their effective positions.

3. A file including a pair of file-rods and a pair of independently laterally movable coöperating transfer-rods, and independent fixed cams having beveled locking-faces for operating the transfer-rods in an outward direction and away from each other as they are moved toward their effective positions, said cams being also adapted to lock said transfer-rods in said effective positions and having beveled working faces.

4. A file including a pair of file-rods and a pair of independently laterally movable coöperating transfer-rods, each file-rod being provided with a body, and independent means upon the body for locking the transfer-rods in their effective positions and for positively moving the same laterally as they are moved toward said effective positions.

5. A file having a pair of file-rods and a pair of independently laterally movable coöperating transfer-rods, fixed means for engaging the rocking transfer-rods and for moving them outwardly and away from each other as they advance toward their effective positions, and means for limiting the motion of said rocking transfer-rods.

6. A file including a file-rod provided with a body, a transfer-rod having a body provided with a projecting toe, a pivot extending through said bodies whereby the transfer-rod is mounted for rocking movement, and a cam upon the body of the file-rod for engaging said toe as the rocking transfer-rod is operated to move the latter sidewise.

7. A file having a pair of file-rods, each provided with a body and a pair of coöperating rocking transfer-rods mounted upon the respective bodies, a cam upon each body for locking the proper transfer-rod in its effective position and for also moving the same positively outward, and stops upon the bodies at opposite sides of the respective cams for limiting the rocking motion of said transfer-rods.

8. A file having file-rods and coöperating transfer-rods, each file-rod having an integral body, a block to which said bodies are secured and the transfer-rods being mounted for rocking movement upon the respective bodies.

9. A file having a file-rod provided at its inner end with an integral substantially flat body, in approximately the same plane with the rod, and a coöperating transfer-rod pivotally supported by said body for swinging movement in the plane of the latter.

10. A file having a file-rod provided with a body, and a pivotally-mounted transfer-rod upon said body, the pivot consisting of a screw, a spring-washer surrounding the screw and bearing against the head thereof and also against the body of the transfer-rod, and means for moving the transfer-wire laterally and also locking it in its effective position.

749,022. AUTOMATIC WEIGHING-MACHINE. WILLIAM BROOKS, Baltimore, Md., assignor of one-half to Arthur L. Horner, Baltimore, Md. Filed Aug. 4, 1903. Serial No. 168,264. (No model.)



Claim.—1. An automatic weighing-machine substantially as herein described comprising a suitable framing, a pair of pivoted scale-pans provided at their discharge ends with gravity-gates, a rocking hopper having its discharge end movable to discharge alternately into the different pans, connections between the pans and the rocking hopper whereby the pans may positively adjust the hopper to its different positions, a shed below the hopper and overlapping the adjacent edges of the pans whereby to prevent waste of material as the hopper is shifted from one position to the other, and air-cushioning devices having a sliding connection with the rocking hopper whereby the hopper may move independently of the air-cushion during its initial movement and the air-cushion will be brought into play subsequently.

2. The combination with the dumping scale-pans arranged side by side and pivoted at one end and discharging at their other ends, and a hopper which discharges alternately into said pans, of a shed below the hopper and overlapping the adjacent edges of the pans whereby to prevent loss of material between the pans in the shifting of the devices.

3. An automatic weighing-scale comprising the scale-pans pivoted at one end and dropping at their other ends, the rocking hopper arranged to discharge alternately into said pans, and connections between the pans and the hopper whereby the pans may positively operate the hopper substantially as set forth.

4. The combination with the pivoted hoppers arranged side by side and pivoted at one end and having a main beam extending on opposite sides of the pivot, of the scale-pans, and connections between the scale-pans and the main beam whereby the movements of the pans may positively operate the rocking hopper substantially as set forth.

5. The combination of the rocking hopper, the scale-pans arranged side by side, pivoted at one end, and discharging at their

opposite ends, connections between the scale-pans and the hopper whereby the movements of the pans may positively operate the hopper, and the shed arranged below the hopper and between the same and the pans and having portions overlapping the adjacent edges of the pans whereby to avoid loss of material as the hopper shifts from one position to the other substantially as set forth.

6. The combination in an automatic weighing-machine of the pivoted scale-pans arranged to dump at one end, the rocking hopper discharging alternately to said pans, connections between the pans and the hopper, an air-cylinder and the piston-rod thereof connected with the hopper and made in sections having a limited sliding movement upon each other substantially as set forth.

7. The combination with the hopper of an air-cushioning device connected therewith and having a piston-rod made in sections having a limited sliding movement along each other substantially as set forth.

8. The combination with the hopper and a yielding cushion therefor, of a connection between the hopper and cushion and composed of rod-sections in alinement with each other and having a limited sliding movement whereby to cushion the movement of the hopper toward the end of its movement without retarding the initial movement of the hopper substantially as set forth.

9. The combination with the hopper and the main beam connected therewith and having the opposite outwardly-extending arms and the depending arm, of the scale-pans connected with the outwardly-extending arms whereby to positively operate the hopper, and the cushioning devices connected with the depending arm substantially as set forth.

10. The combination of a pair of dumping scale-pans arranged side by side, pivoted at one end and discharging at their opposite ends and gravity-operating gates at the opposite or discharge ends of the said pans substantially as set forth.

11. The combination in a weighing-machine, of the dumping scale-pans arranged side by side, and pivoted at one end and arranged to swing vertically at their opposite or discharge ends, the rocking hopper discharging to said scale-pans, and connections between the rocking hopper and the pivoted scale-pans, whereby the latter may positively operate the rocking hopper, substantially as set forth.

12. A machine substantially as described comprising a pair of dumping scale-pans arranged side by side, pivoted at one end, and provided at their opposite or discharge ends with gravity-operating gates, and an adjustable hopper movable whereby it may discharge alternately to said pans and connections between the pans and the hopper whereby the movements of the pans may automatically move the hopper substantially as set forth.

13. The combination with the frame having the stops C^2 of the hopper pivoted to the frame between said stops and provided with a main beam arranged to engage said stops, the dumping scale-pans and connections between said pans and the main beam substantially as set forth.

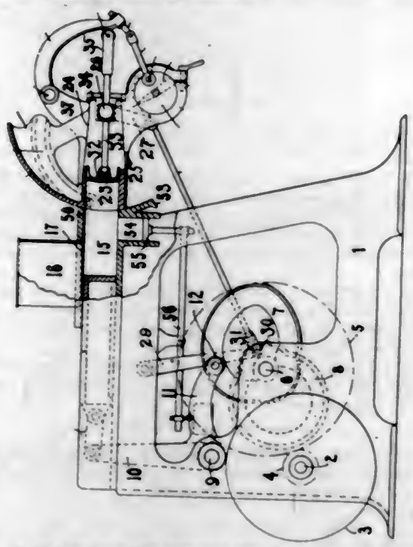
14. The combination in a weighing-machine, of the two scale-pans arranged side by side and pivoted at one end whereby their opposite ends may rise and fall vertically, the movable ends of the pans being adjacent to each other, the hopper discharging alternately to the said pans, and connections between the pans and the hopper, substantially as set forth.

15. The combination with the pans and the hopper of the cylinders arranged on opposite sides of the hopper and the rods between the cylinders and the hopper and including sections having a limited sliding movement whereby to cushion the jar of the hopper without retarding the initial movement thereof.

749,023. APPARATUS FOR DIVIDING AND COMPRESSING OR MOLDING DOUGH OR LIKE PLASTIC MATERIALS. JOHN CALLOW, Liverpool, England. Filed June 19, 1903. Serial No. 162,231. (No model.)

Claim.—1. In a device of the character described the combination of a frame, a hopper carried thereby, a chamber mounted under said hopper, a hollow piston operating within said chamber and oscillating mechanism provided with receiving-chambers journaled upon said frame and acting in conjunction with the piston carried within said chamber and means formed upon the chamber for relieving the pressure within the said chamber when the machine is in operation.

2. A machine of the character described comprising a receiving-chamber, compressing means therefor, a relieving mechanism for said chamber, an oscillating mechanism carrying a series of receiving-chambers and reciprocating means mounted within said chambers, means for controlling the actuation of said reciprocating means and means for actuating said oscillating member simultaneously with the actuation of the means for operating the compressing means mounted within the receiving-chamber.



3. In a device of the character described the combination of a receiving-chamber and piston therefor, of a relieving mechanism carried by said receiving-chamber, and receiving mechanism provided with a series of compartments operating in connection with the receiving-chamber, means for oscillating said receiving means and means simultaneously actuated for imparting action to the receiving chambers, substantially as described.

4. An apparatus for dividing, compressing and molding plastic material comprising a frame and receiving-chamber mounted thereon, a piston reciprocating within said chamber, of a relieving mechanism for said chamber comprising a piston suitably mounted within the casing said piston governed by weighted means, an oscillating frame mounted upon the first-mentioned frame, said frame provided with a series of receivers, a pivoted mechanism acting in conjunction with said pistons for controlling the movement thereof and means for imparting motion to said oscillating casing and the piston retained within the receiving-chamber.

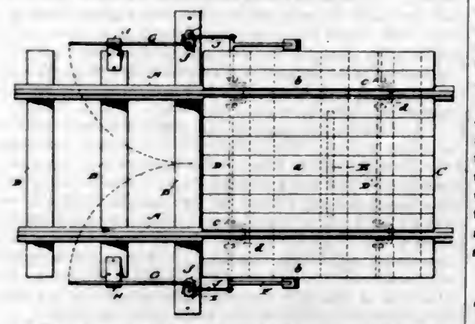
5. An apparatus for dividing, compressing and molding dough comprising receiving-chambers and compressing means therefor, a relieving mechanism for said receiving-chambers comprising a chamber provided with a piston and a weighted lever connecting said piston for controlling the action thereof, auxiliary receiving-chambers assembled with the primary receiving-chambers and means for simultaneously actuating the said receiving-chambers and the mechanism carried thereby.

6. An apparatus for dividing, compressing and molding dough or the like comprising a frame, receiving-chambers mounted thereon, a series of hollow pistons mounted within said receiving-chambers, a relieving mechanism assembled with each receiving-chamber, a series of receiving-chambers mounted in a horizontal plane upon said casing and provided with means for oscillating the same, said means simultaneously actuating and coacting with the means for operating the pistons carried by the stationary receiving-chambers.

7. In a machine for dividing plastic material, the combination with the chambers and receivers, of recesses therein each fitted with a piston and means acting upon said pistons so as to normally take up a position flush with the inside wall of the chamber but when the requisite compression has been reached any excess of pressure of the plastic material forces down the piston which thus acts as a safety device for preventing undue pressure, substantially as described.

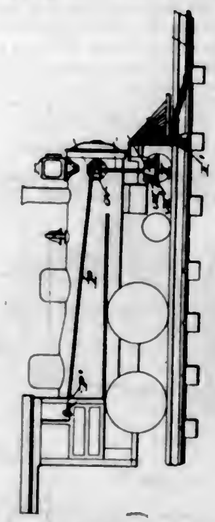
749,024. CATTLE-GUARD. JOHN L. CAMPBELL, Winnipegosis Canada. Filed Oct. 20, 1903. Serial No. 178,112. (No model.)

Claim.—1. In a cattle-guard, the combination of a gate, a vertically and endwise movable platform, transverse shafts journaled in suitable bearings on the platform and having cranks journaled at their lower ends in bearings on fixed supports, and normally pitched toward the gate, a connection between the platform and the gate for moving the latter by the former, and a spring for returning the platform to and normally holding said platform in a raised position subsequent to a depression thereof and for thereby returning the shafts to and normally holding the same in such position that their cranks are normally pitched toward the gate.



2. In a cattle-guard, the combination of a railway, horizontally-swinging gates arranged to obstruct the railway when closed, stops for limiting the outward movement of the gates, a vertically and endwise movable platform extending between the rails of the railway, a spring for returning said platform to its normal position subsequent to an operation thereof, transverse shafts journaled in suitable bearings on the platform, and having cranks journaled at their lower ends in bearings on ties of the railway, and normally inclined toward the gates, gears fixed with respect to the gates, gears mounted on the ties and intermeshed with the first-mentioned gears, and rods connected at one end to the gears and at their opposite ends to the second-mentioned gears off the center thereof.

749,025. SWITCH-OPERATING DEVICE. JOHN T. CARMODY, Jr., Lincoln, Ill. Filed Apr. 11, 1903. Serial No. 152,215. (No model.)



Claim.—1. In a device of the kind described the combination with the operating-rod, of a shaft, a crank-arm secured to the upper end of the shaft, a tripping-arm secured to the lower end of the said shaft, the bearings through which said shaft passes, an upright lever mounted in a guide adjacent the track, the elbow-lever having one arm slotted, the rod connecting the elbow-lever and upright lever, and switch-points carrying a rod having a pin mounted thereon, said pin working in the slot of the elbow-lever, as specified.

2. In a device of the kind described comprising two spaced bearings adapted to be arranged upon a locomotive, one above the other, the lower bearing having its under face rabbeted, a vertical shaft mounted in said bearing and provided at its upper end with a crank-arm, and at its lower end with tripping-arms adapted to lie within the rabbet of the lower bearing when in an inoperative position, and an operating-rod connected with the crank-arm of the said shaft.

3. The combination with the operating-rod, of the shaft journaled upon the locomotive, the crank-arm connected to the upper end of the shaft, and the tripper-arm arranged upon the lower end of said shaft, an upright lever pivoted adjacent the track, the link and rod connected to said lever, the elbow-lever, switch-points and bar connecting the switch-points and elbow-lever, substantially as specified.

4. In a device of the kind described, the combination with the operating-rod, of the shaft having the crank-arm at the upper end, and the tripping-arm at the lower end, the bearing N, through which the upper end of the shaft passes, and the bearing M, through which the lower end of the shaft passes, said bearing M, having a grooved upper face, a rabbeted lower face, and the reinforced central portion, and the upright lever adapted to be engaged by the tripping-arm, together with connections between the upright lever, and the switch-points, substantially as described.

749,026. GARMENT-FASTENER. JOSEPH C. CHRISTENSEN, Santa Rosa, Cal. Filed May 13, 1903. Serial No. 156,943. (No model.)



Claim.—1. In a device of the character described, the combination with a revoluble rod having a waist-engaging hook thereon; of a combined rod-lock and skirt-engaging hook.

2. In a device of the character described, the combination with a base-plate; of a rod journaled thereon, a waist-engaging hook extending from the rod, and a skirt-engaging hook mounted upon the base-plate and adapted to lock the rod against rotation.

3. In a device of the character described, the combination with a base-plate; of a rod journaled thereon, a waist-engaging hook extending from the rod, a skirt-engaging hook pivoted to the base-plate and adapted to lock the rod against rotation, and means for limiting the movement of the rod.

4. In a device of the character described, the combination with a plate having a rod journaled thereon, and waist-engaging hooks extending from the rod; of a skirt-engaging hook pivoted to the plate, and a lug upon the rod adapted to be engaged by said hook to prevent rotation of the rod.

5. In a device of the character described, the combination with a plate having a revoluble rod journaled thereon, waist-engaging hooks extending from the rod, and a lug upon said rod; of a skirt-engaging hook pivoted to the plate and adapted to move into the path of the lug and lock the rod against rotation.

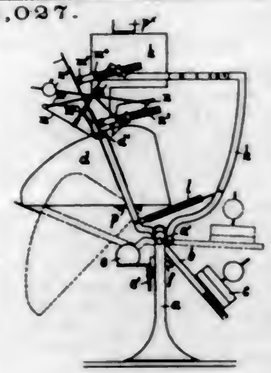
6. In a device of the character described, the combination with a plate having eyes thereon, a lug upon one of the eyes; of a rod journaled within the eyes, waist-engaging hooks extending from the rod, a lug on said rod, and a skirt-engaging hook pivoted to the plate and adapted to be moved into the path of the lug on the rod.

749,027. AUTOMATIC WEIGHING-MACHINE. JOSEPH F CLARKE, Woolwich, New South Wales, Australia. Filed Apr. 4, 1903 Serial No. 151,138. (No model.)

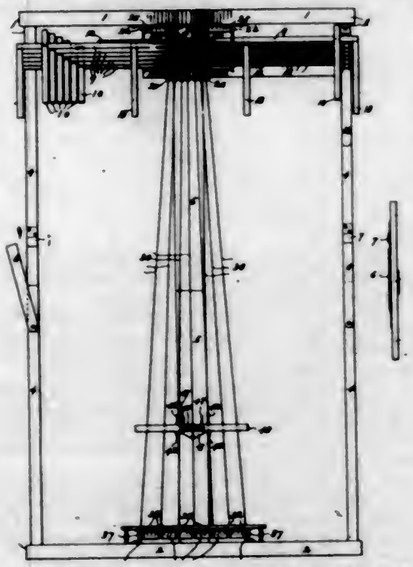
Claim.—1. In an automatic weighing-machine the combination with a pair of swinging cut-off receptacles, arms connected to said receptacles and rollers on the ends of said arms of a scale-beam and extension on said scale-beam adapted to engage the rollers on said arms and operate said cut-off receptacles, substantially as described

2. In an automatic weighing-machine a scale-pan having an inwardly-extending angular projection from its rear wall, and a rearwardly-extending angular partition in the forward end of said scale-pan, the lower portion of said partition being hinged to form a door, substantially as described.

749,027.



749,028. TURNER FOR SHEET-MUSIC. JOHN W. COLLIER, Riverside, Cal. Filed Mar. 20, 1903. Serial No. 148,792. (No model.)



Claim.—1. A sheet-music holder and turner comprising a frame having a central and side pieces, a top and base portions, a casing secured to the top of the frame provided with a slot in each end thereof in the same horizontal line with each other, a rack-bar adapted to reciprocate in said slots, a lever pivoted to the frame, a spring fastened at one end to the rack-bar and the opposite end secured to the lever, a swinging arm carrying a pinion, a spring-clamp and stays secured thereon.

2. A sheet-music holder and turner comprising a frame provided with a central and side pieces, a top and base portions, the central and side pieces each divided into two parts and each of said two parts hinged together, a latch pivoted to one part of each of the said side pieces and a keeper for the free end of the latch secured to the corresponding part of each of said side pieces, a pivot-pin secured to and depending from the top portion of the frame, a casing fastened to the top of the frame having a slot in each end thereof in the same horizontal line with each other, a rack-bar provided with teeth upon the front edge thereon adapted to reciprocate in said slot, a lever pivoted to the frame, a tension device connecting one end of the rack-bar to the lever, a swinging arm on said pin carrying a spring-clamp and stays and provided with a pinion made integrally therewith and having teeth adapted to mesh with the teeth upon the rack-bar.

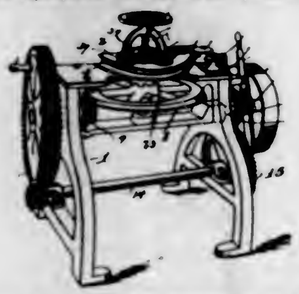
3. A sheet-music supporter and turner comprising a frame provided with a pivot-pin secured to the top portion of the frame and depending therefrom, a casing fastened to the upper portion of the frame having a slot in each end thereof in the same horizontal line with each other, a rack-bar adapted to reciprocate in said slots, an arm pivoted on said pin carrying a spring-clamp and stays thereon for supporting the upper part of a sheet of music while being turned, a vertically-adjustable keeper for the lower part of the sheet of music, the said arm provided with a pinion adapted to mesh with a rack-bar, a spring-operated trigger pivoted to the casing, a key pivoted to the lower portion of the frame and a wire connecting the trigger and key whereby a sheet of music is held and supported while being turned from one side of the frame to the opposite side thereof.

4. A sheet-music supporter and turner, a frame, a pivot-pin secured to the top portion of the frame and depending therefrom, a casing having a slot in each end thereof, a rack-bar adapted to reciprocate in said slots, a swinging arm on said pin having a pinion thereon and carrying a clamp and stays adapted to hold and support the upper part of a sheet of music while being turned, in combination with a vertically-adjustable sliding keeper having perforations therein, said keeper comprising curved wings, a plate provided with perforations therein connecting the ends of the wings, a bow adapted to be removably inserted in said perforations and means for temporarily retaining the bow in the keeper and plate.

5. A sheet-music holder and turner comprising a frame having a central piece and side pieces, top and base portions, the central and side pieces divided each midway its length and hinged, a latch pivoted to one part of each side piece and a keeper for the free end of the latch secured to the corresponding part of each of said side pieces, a pivot-pin secured to the top portion and projecting downward therefrom, a casing fastened to the top of the frame having a slot in each end thereof, a rack-bar provided with teeth upon the front edge thereof adapted to reciprocate in said slots, a lever pivoted to the frame, a spring secured at one end to one end of the rack-bar and the opposite end thereof to the lever, a swinging arm on said pin carrying a spring-clamp and stays thereon and provided with a pinion made integrally therewith, adapted to mesh with the rack-bar.

6. An improved article of manufacture for clamping, supporting and turning a sheet of music consisting of an arm having a perforation in one end adapted to swing horizontally upon a pivot, said arm comprising two parallel strips of spring-steel fastened together at the ends, stays each consisting of a strip of spring-steel riveted at an angle to the parallel strips of steel forming the arm, a clamp having two parallel parts riveted to the outside of each of the spring strips of the arm, each of the parallel strips of the clamp provided with an angular lip located above the strips of the arm and the parts below the strips of the arm having serrations in the ends thereof.

749,029. PIPE-BENDING MACHINE. HENRY F. COBURN, Duluth, Ill. Filed Sept. 6, 1901. Serial No. 74,512. (No model.)



Claim.—1. In a pipe-bending machine, the combination of a bending-die having an open peripheral groove and divided or made separable in the plane of said groove, means for holding the said die members against rotation relatively to each other and compound leverage mechanism for positively approaching and positively retracting said die members relatively to each other.

2. In a pipe-bending machine, the combination of a bending-die having a peripheral groove and divided or made separable in the plane of said groove, means for holding said members against rotation relatively to each other, and one or more clamping-screws having threaded engagement with one member and swiveling engagement with the other and means for rotating said clamping screw or screws in both directions whereby said die members are advanced or retracted positively.

3. In a pipe-bending machine, the combination of a bending-die having a peripheral groove and divided or made separable in the plane of said groove, means for holding said members against rotation comprising projections upon one member and corresponding recesses within the other within which said projections telescope, and means for positively approaching and retracting said die members relatively to each other comprising a plurality of clamping-screws each having threaded engagement with one die member and swiveling engagement with the other, a gear rigidly mounted upon each of said clamping-screws and a main operating-gear adapted to be rotated manually with which said clamping-screw gears are operatively connected, substantially as described.

749,030. SOUND-REPRODUCING RECORD AND METHOD OF MAKING SAME. THOMAS A. CONNOLLY and JOSEPH R. CONNOLLY, Washington, D. C. Filed Sept. 12, 1902. Serial No. 172,972. (No model.)



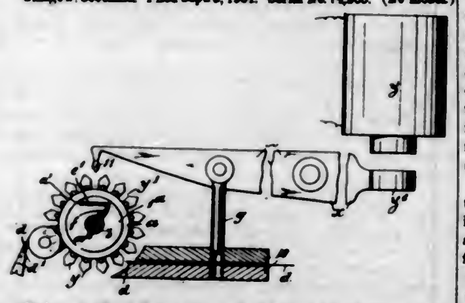
Claim.—1. A sound-record consisting of a disk having a volute record-groove milled in its surface.

2. A duplicate or copy of a sound-record, consisting of a disk of metal having a volute sound-record groove impressed in its surface at normal temperature.

3. A flat metallic record-tablet for sound-reproducing machines having a continuous volute rolled or milled sound-reproducing groove.

4. A record-tablet for sound-reproducing machines consisting of a plate of metal formed with a volute milled or rolled sound-reproducing groove and hardened or tempered.

749,031. TELEGRAPH APPARATUS. FREDERICK G. CREED, Lenzie, Scotland, assignor to himself and William Arthur Coulson, Glasgow, Scotland. Filed Sept. 3, 1901. Serial No. 74,205. (No model.)



Claim.—1. In a telegraphic receiver for use in automatic telegraphy, the combination with a tape-perforating punch, means for operating the same when a signal is received, a feed-wheel for causing the receiving-tape to pass through the instrument, and means for rotating said feed-wheel, of means adapted on the reception of a signal to adjust said feed-wheel in a rotary direction relatively to the means used for rotating it and cause the tape to successively assume positions in which the relative positions of the perforations made therein by said punch will practically correspond with the relative positions of the perforations in the transmitting-tape.

2. In a telegraphic receiver for use in automatic telegraphy, the combination of a tape-perforating punch, means for operating the same when a signal is received, a feed-wheel for drawing the receiving-tape through said receiver, a driving-shaft for rotating said feed-wheel, and means adapted on the reception of a signal to adjust the position of said feed-wheel in a rotary direction relatively to said driving-shaft before said punch engages the tape and correct any want of synchronism in the movements of the transmitting and receiving tapes.

3. In a telegraphic receiver for use in automatic telegraphy, the combination of a tape-perforating punch, means for operating the same when a signal is received, a rotary driving-shaft and means for rotating it in a continuous manner, a feed-wheel adapted to draw the receiving-tape through said receiver, said feed-wheel being mounted upon and driven by said shaft but capable of adjustment thereon in a rotary direction and of being held and released in an intermittent manner while said shaft rotates, and means adapted on the reception of a signal to engage said feed-wheel and, if necessary, correct the position thereof relatively to the driving means

4. In a telegraphic receiver for use in automatic telegraphy, the combination of a tape-perforating punch, means for operating the same when a signal is received, a rotary driving-shaft and means for rotating it in a continuous manner, a feed-wheel mounted upon said shaft and adapted to draw the receiving-tape through said receiver, frictional driving means between said shaft and feed-wheel, and means adapted on the reception of a signal to adjust the position of said feed-wheel in a circular direction relatively to the frictional driving means previous to the punch perforating said tape, substantially as described for the purpose specified.

5. In a telegraphic receiver for use in automatic telegraphy, the combination of a tape-perforating punch, means for operating the same when a signal is received, a feed-wheel for drawing the receiving-tape through said receiver, a toothed wheel connected to said feed-wheel, a shaft for rotating said feed-wheel and toothed wheel, driving means between said feed-wheel and shaft, driving mechanism for continuously rotating said shaft, and means adapted on the reception of a signal to coact with said toothed wheel to hold said feed-wheel stationary during the operation of said punch and to control the position of the tape in the receiver and correct any want of synchronism in the movements of the transmitting and receiving tapes.

6. In a telegraphic receiver for use in automatic telegraphy, the combination of a tape-perforating punch, means for operating the same when a signal is received, a feed-wheel for drawing the receiving-tape through said receiver, a toothed wheel connected to said feed-wheel, a shaft for rotating said feed-wheel and toothed wheel, a yielding connection between said feed-wheel and shaft, driving mechanism for continuously rotating said shaft, and means connected to said punch-operating means and adapted on the operation of said punch to engage said toothed wheel and hold the same and said feed-wheel stationary during the punching operation.

7. In a telegraphic receiver for use in automatic telegraphy, the combination of a punch, a lever for operating the same, a feed-wheel for moving said tape past said punch, a toothed wheel connected to said feed-wheel, a driving-shaft whereon said feed-wheel and toothed wheel are mounted to turn, means for continuously rotating said shaft, driving means between said shaft and feed-wheel, and a synchronizing or correcting device carried by said punch-operating lever and adapted, when the same is operated in one direction, to engage said toothed wheel and hold the same and said feed-wheel stationary during the punching operation and also to correct the position of said feed-wheel if it be not moving in synchronism with the feed-wheel of the transmitter.

8. In a telegraphic receiver for use in automatic telegraphy, the combination of a punch, a lever for operating the same, a driving-shaft, means for continuously rotating said shaft, a feed-wheel adapted to engage and move said tape and provided with teeth, said feed-wheel being mounted to turn on said shaft, a driving-wheel connected to said shaft and in frictional driving connection with said feed-wheel, and a tooth or projection carried by said punch-operating lever and adapted, on the operation of said lever, to enter between two of the teeth on said feed-wheel and insure the centering of said feed-wheel previous to said punch perforating said tape, substantially as described for the purpose specified.

9. In a telegraphic receiver, the combination of a punch for perforating the receiving-tape, a lever carrying said punch and adapted to make its operative stroke on the reception of a signal, a driving-shaft, means for continuously rotating said shaft, a driving-wheel mounted to turn on said shaft, a coiled spring connecting said driving-wheel to said shaft, a feed-wheel in frictional driving contact with said driving-wheel, a toothed wheel connected to said feed-wheel, and a tooth or projection carried by said punch-carrying lever and adapted on the operative stroke of said lever to first center said feed-wheel and to then hold this wheel and said driving-wheel stationary while the punch is engaged with said tape and to then release said feed and driving wheels, and allow them to be moved forward on said shaft by said spring, substantially as described for the purpose set forth.

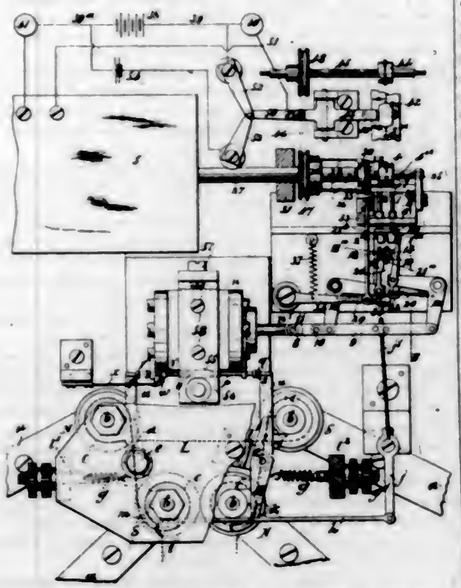
10. In a telegraphic receiver, the combination of the tape-guide 10, the punch-operating lever *x* with punch *y*, the rotary driving-shaft *b*, the driving-wheel 1° mounted on said shaft and connected thereto, the feed-wheel *a* with toothed wheel *y*, an adjustable spring for forcing said feed-wheel into frictional driving contact with said driving-wheel, and the tooth or projection 11 carried by said punch-operating lever and adapted to engage said toothed wheel before said

punch engages the tape, substantially as described for the purpose specified.

11. In a telegraphic receiver, the combination of the tape-guide 10, the punch-operating lever *x* with punch *g*, the rotary driving-shaft *b*, the driving-wheel 1^a mounted on said shaft and connected thereto through a retractile spring *c'*, a pin a^3 fixed to said driving-wheel and adapted to abut against a stop *f* on said shaft, the feed-wheel *a* with toothed wheel *y*, an adjustable spring for forcing said feed-wheel into frictional driving contact with said driving-wheel, and the tooth or projection 11 carried by said punch-operating lever and adapted to engage said toothed wheel before said punch engages the tape, substantially as described for the purpose specified

749,032. PERFORATING TELEGRAPHY.

FREDERICK G. CREED, Lenzie, Scotland, assignor to himself and William Arthur Coulson, Glasgow, Scotland. Filed Aug. 4, 1902. Serial No. 118,370. (No model.)



Claim.—1. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and an electromagnetic device for controlling said punch-operating motor in accordance with the electrical impulses received.

2. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, synchronizing mechanism for said tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and an electromagnetic device for controlling said punch-operating motor in accordance with the electrical impulses received.

3. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising means for feeding a tape through said apparatus, a motor for driving said feeding means, tape-punching mechanism, a fluid-pressure motor for operating said punching mechanism, an electromagnetic device for controlling said second motor in accordance with the electrical impulses received, and means, under the control of the tape, for regulating the speed of the first-mentioned motor and tape to suit the rate at which messages are received.

4. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination of tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and means for controlling said motor, said controlling means comprising a magnet having a winding to be traversed by the electrical impulses, an armature that is held by the magnet when the impulses are in one direction and automatically moves into an open position and causes the motor to act when the impulses are in the opposite direction, and means for returning said armature to its closed position.

5. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination of tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and means for controlling said motor, said controlling means comprising a pair of magnetized cores provided with coils through which the electrical impulses pass, an armature mounted to move toward and from said cores and normally held against the same by magnetic attraction, means for moving said armature away from said cores when the magnetism thereof is lessened by the action of said electrical impulses in one direction, and means for afterward returning said armature to its normal position.

6. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination of tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and means for controlling said motor, said controlling means comprising a pair of magnets having windings arranged to be traversed by the electrical impulses, and armatures that are normally held by said magnets but are adapted to move alternately into the open position automatically when the strength of the corresponding magnet is reduced by electrical impulses in one direction or the other, and cause said motor to operate the punching mechanism, and means for returning each armature in turn to its normal position.

7. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination of tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and means for controlling said motor, said controlling means comprising two pairs of iron cores, means for magnetizing said cores, a set of connected coils surrounding said cores and through which said electrical impulses are caused to pass in such manner that the magnetism of one pair of cores will be strengthened and that of the other pair decreased by electrical impulses in one direction and vice versa by electrical impulses in the opposite direction, two armatures each normally held by a pair of said magnetic cores, retractile springs each acting to move one of said armatures away from its pair of cores when the magnetism thereof is reduced by electrical impulses in one direction or the other and to cause said motor to act, and means for returning each armature in turn to its pair of magnetized cores after being moved away therefrom.

8. Telegraphic apparatus for perforating a tape in accordance with electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and an electromagnetic device for controlling said motor in accordance with the electrical impulses received.

9. In telegraphic apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-feeding mechanism, of tape-punching mechanism, a fluid-pressure reciprocatory motor for operating said punching mechanism, and an electromagnetic device adapted under the action of electrical impulses passing alternately in opposite directions to operate the valve of said motor and cause the same to move alternately in opposite directions.

10. In telegraphic apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-feeding mechanism, of tape-punching mechanism, a fluid-pressure reciprocatory motor for operating said punching mechanism, and an electromagnetic device having two magnets with two armatures normally held against the cores of said magnets, and coils surrounding said cores and adapted to increase the magnetism thereof when traversed by electrical impulses in one direction and to reduce said magnetism when traversed by electrical impulses in the opposite direction, springs for moving each of said armatures into the open position when the magnetism of the corresponding cores is reduced means for utilizing movements of said armatures to control the motive-fluid-distributing valve of said motor, and means for returning each armature in turn to its normal closed position while leaving the other free to move into its open position.

11. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a reciprocating fluid-pressure motor having its piston connected to said tape-punching mechanism, and an electromagnetic controlling device having two pairs of magnetized cores surrounded by coils that are connected together and arranged so that when traversed by electrical impulses in one direction, one pair of cores will be further magnetized and the second pair of cores will be partly demagnetized, the magnetism of the latter pair of cores being increased and that of the first pair decreased by electrical impulses in the opposite direction, two spring-controlled armatures each of which is normally held against one of said pairs of cores but will automatically move away therefrom when the same is partly demagnetized, said armatures being arranged to move the valve of said motor alternately in opposite directions, and a bar arranged to be moved by said motor and adapted to return each armature in turn to its pair of cores while leaving the other one free.

12. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a reciprocatory fluid-pressure motor having its piston connected to said tape-punching mechanism, and an electromagnetic controlling device having two pairs of magnetized cores arranged as described and surrounded by coils connected up as described, two armatures each connected to a spring and mounted to turn toward and from said cores and to actuate the valve of said motor in one direction when moving into its open position, a bar provided with tappets adapted to alternately engage said armatures and to return one of them to its closed position and leave the other free to move into the open position, and a spring-lever connected to said bar and arranged to be operated from said motor, substantially as described for the purposes specified.

13. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and an electromagnetic device adapted under the action of said electrical impulses to control the movement of said motor, said tape-punching mechanism comprising a punch, die-plates through which said punch works and between which the tape passes, a striker arranged to be operated from said motor and adapted to move said punch into its forward and operative position and then become disengaged therefrom, and means for moving the released punch into a rearward position.

14. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a fluid-pressure motor for operating said tape-punching mechanism, and an electromagnetic device adapted under the action of said electrical impulses to control the movement of said motor, said tape-punching mechanism comprising two punches, die-plates through which said punches work and between which the tape passes, two strikers arranged to be operated from said motor and each adapted in turn to move its punch into the forward and operative position and then become disengaged therefrom, and means for returning each punch to its rearward position after being moved forward and released.

15. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a motor for operating said tape-punching mechanism, and an electromagnetic device adapted under the return of said electrical impulses to control the action of said motor, said tape-punching mechanism comprising two punches, die-plates through which said punches work and between which the tape passes, two strikers arranged to be operated from said motor in such manner that one will move forward and cause its corresponding punch to move forward and perforate the tape while the other moves back, means for causing the advancing striker to become disengaged from its punch before completing its stroke, and means for causing the receding striker to return the released punch to its rearward position.

16. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a motor for operating said tape-punching mechanism, and an electromagnetic device adapted under the action of said electrical impulses to control the movement of said motor, said tape-punching mechanism comprising two punches arranged side by side, die-plates through which said punches work and between which the tape passes, two levers arranged to be operated by said motor in such manner that one will be caused to make its forward movement while the other makes its backward movement, a striker connected to each ever and adapted, on the forward movement thereof, to abut against the corresponding punch and cause it to move forward and perforate the tape, means for disengaging each striker in turn from its punch during its forward movement, and means arranged to be operated from each lever in turn, during its return movement, to return the punch that was moved forward by the forward movement of the other lever.

17. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a motor for operating said tape-punching mechanism, and an electromagnetic device adapted under the action of said electrical impulses to control the movement of said motor, said tape-punching mechanism comprising two punches arranged side by side, die-plates through which said punches work and between which the plate passes, a rod or link, arranged to be operated from said motor, two bell-crank levers each having an arm jointed to said rod or link, a striker carried by the other arm of each lever and normally held by spring action in line with one of said punches, a punch-returning device having its forward part arranged to abut against the forward side of the punch-heads, and its rearward part arranged to be acted upon by abutting parts on those arms of the said levers that are connected to said strikers, and to be moved backward by each of said parts during the return movement thereof, and means carried by said punch-returning device for forcing each striker, before the completion of its forward motion, out of contact with the head of the corresponding punch.

18. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, tape-punching mechanism, a reciprocatory fluid-pressure motor for operating said punching mechanism, and an electromagnetic device adapted under the action of said electrical impulses to control the valve of said motor, said tape-punching mechanism comprising two punches, die-plates through which said punches work and between which the tape passes, a link flexibly connected to the piston-rod of said motor, two bell-crank levers each jointed at one end to said link, two strikers jointed to the other ends of said levers and each having inclined parts on their inner sides, a plate having a flanged forward part to bear against the heads of said punches and a flanged rearward part arranged in the path of those arms of the levers on which said strikers are mounted, a roller mounted on said plate and adapted to push each of said strikers in turn outward during forward movement thereof, and a spring connecting each striker to its carrying lever and acting to press such striker against said roller, substantially as described.

19. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-feeding mechanism comprising a feed-wheel and a motor yieldingly connected to said feed-wheel, tape-punching mechanism, a motor for operating said punching mechanism, and means adapted under the action of said electrical impulses to control said motor, of synchronizing mechanism comprising a toothed wheel connected to said feed-wheel and means adapted at each operation of said second motor to become engaged with said toothed wheel, and if necessary, partly rotate the same and said feed-wheel relatively to the first-mentioned motor before punching of the tape takes place, and to be afterward disengaged from said toothed wheel, substantially as described for the purpose specified.

20. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-punching mechanism, a motor for operating said mechanism, and means adapted under the action of said electrical impulses to control said motor, of tape-feeding and synchronizing mechanism comprising a feed-wheel, a rotary driving-shaft yieldingly connected to said feed-wheel, a toothed wheel fixed to said feed-wheel, and means controlled by said punching mechanism and adapted each time said mechanism is operated, to first engage said toothed wheel and, if necessary partly rotate said toothed wheel and feed-wheel relatively to said driving-shaft, before punching of the tape takes place, and afterward to become disengaged from said toothed wheel.

21. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-punching mechanism, a motor for operating said mechanism, and means adapted under the action of said electrical impulses to control said motor, of tape-feeding and synchronizing mechanism comprising a feed-wheel, a rotary driving-shaft yieldingly connected to said feed-wheel, a toothed wheel fixed to said feed-wheel, and means adapted at each operation of said punching mechanism, to first automatically engage said toothed wheel and, if necessary, partly rotate the same and said feed-wheel, before punching of the tape takes place, and afterward to be withdrawn from said toothed wheel by said punching mechanism.

22. In telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, the combination with tape-punching mechanism, a motor for operating said mechanism, and means adapted under the action of said electrical impulses to control said motor, of tape-feeding and synchronizing mechanism comprising a feed-wheel, a rotary driving-shaft yieldingly connected to said feed-wheel, a toothed wheel fixed to said feed-wheel, a rod

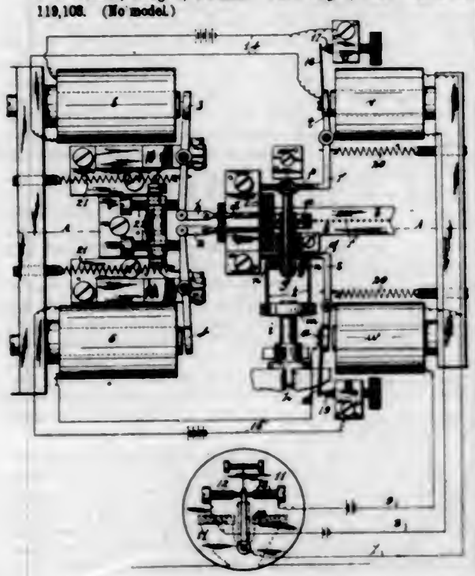
having one end adapted to enter the space between two adjacent teeth on said toothed wheel, a carrier connected to said rod, and having a part thereof arranged to be alternately released and moved backward by said punching mechanism each time the same is operated, and a spring adapted to cause said rod to engage said toothed wheel, and, if necessary, partly rotate the same and said feed-wheel, each time said carrier is released, and before punching of the tape takes place, substantially as described.

23. In telegraphic receiving apparatus, the combination with tape-feeding mechanism comprising a feed-wheel, a rotary driving-shaft, and a yielding connection between said feed-wheel and driving-shaft, and means for punching said tape in accordance with the electrical impulses received, of synchronizing means comprising a toothed wheel fixed to said feed-wheel, a rod adapted when released to automatically move forward and engage said toothed wheel and, if necessary, partly rotate the same and said feed-wheel before each punching operation, and an intermittently-operating motor controlled by the electrical impulses received and adapted at each operation thereof to first release said rod and allow it to act and then to withdraw said rod from said toothed wheel, substantially as described.

24. In telegraphic receiving apparatus, the combination of a tape-feed wheel, a rotary motor, a friction-clutch between said feed-wheel and motor, tape-punching mechanism, a fluid-pressure motor for operating said punching mechanism, an electromagnetic device for controlling said fluid-pressure motor, a synchronizing toothed wheel connected to said feed-wheel, a synchronizing-rod having one end arranged to enter the space between adjacent teeth on said toothed wheel, a lever connected to the other end of said rod and having a part thereof arranged to be alternately released and moved backward at the commencement and termination of each movement of the punch-operating mechanism, and a spring adapted to move said rod forward each time said lever is released, substantially as described.

25. Telegraphic receiving apparatus for perforating a tape in accordance with the electrical impulses received, comprising tape-feeding mechanism, means for regulating the speed of said tape-feeding mechanism, said regulating means being itself controlled by the tape, tape-punching mechanism, a motor for operating said tape-punching mechanism, and an electromagnetic device for controlling said punch-operating motor in accordance with the electrical impulses received, a second toothed wheel driven from said motor and over which the tape passes from the first feed-wheel so as to leave a loop of tape between the two wheels, regulating means acted upon by said loop of tape and adapted according to the speed of said tape, to either increase or reduce the speed of said motor.

749,033. **TELEGRAPHIC RECEIVING APPARATUS.** FREDERICK G. CREED, Lenzie, Scotland, assignor to himself, and William Arthur Coulson, Glasgow, Scotland. Filed Aug. 9, 1902. Serial No. 119,108. (No model.)



Claim.—1. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor whereby said feed-wheel and tape can remain stationary while said motor rotates, a punch for perforating said tape, means for correcting the position of said tape before being punched, electromagnetic means adapted, under the action of line-currents, to operate said correcting means, and electromagnetic means adapted to operate said punch to perforate said tape after said correcting means have acted.

2. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor whereby said feed-wheel and tape can remain at rest during each punching operation and afterward be rotated by said motor, a punch for perforating said tape, means for correcting the position of said tape before being punched, electromagnetic means adapted, under the action of line-currents, to operate said correcting means, and electromagnetic means adapted to operate said punch to perforate said tape after said correcting means have acted.

3. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor whereby said feed-wheel and tape can remain at rest during each punching operation and afterward be rotated by said motor, electromagnetically-operated means for punching said tape, electromagnetically-operated means for correcting the position of said feed-wheel and tape before the punching operation, and a relay adapted to receive line-currents and control the action of said electromagnetic means.

4. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor whereby said feed-wheel and tape can remain at rest during each punching operation and afterward be rotated by said motor, a punch for perforating said tape, an electromagnet for operating said punch, means for correcting the position of said feed-wheel and tape, an electromagnet adapted to operate said correcting means before said punch is operated, and means adapted to be operated by line-currents and to control the action of said magnets.

5. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor whereby said feed-wheel and tape can remain at rest during each punching operation and afterward be rotated by said motor, a punch for perforating said tape, a punching-magnet, means for correcting the position of said feed-wheel and tape before each punching operation, and a correcting-magnet subject to the control of line-currents and adapted to control the action of said correcting means and also that of said punching-magnet.

6. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, a punching-magnet, a correcting-wheel fixed to said feed-wheel, a correcting device adapted, when operated, in one direction, to engage and, if necessary, correct the position of said correcting-wheel, a correcting-magnet for operating said correcting device, and means adapted, under the action of line-currents, to cause said correcting and punching magnets to operate one after the other.

7. Telegraphic receiving apparatus comprising a tape-feeding wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, a punching-magnet, a correcting-wheel fixed to said feed-wheel, a correcting device adapted, when operated in one direction, to engage and, if necessary, correct the position of said correcting-wheel, a correcting-magnet adapted to operate said correcting device and to close the circuit of said punching-magnet, and means adapted under the action of line-currents, to close the circuit of said correcting-magnet.

8. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, electromagnetic means adapted to operate said punches, means for correcting the position of said feed-wheel and tape at each operation of the apparatus, and before each punching operation, electromagnetic means for operating said correcting means, and means operated by line-currents for bringing said electromagnetic means into operation.

9. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate electromagnetic devices for operating said punches, means for correcting the position of said feed-wheel and tape before each punching operation, two electromagnetic devices each adapted when energized to operate said correcting means, and a means adapted by a line-current in one or other direction to bring one or other of the electromagnetic devices for operating said correcting means, and one or other of the electromagnetic devices for subsequently operating one of said punches into operation.

10. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate punch-operating magnets, two separate sets of correcting means each adapted to correct any error in the position of said feed-wheel and tape previous to a punching operation, two separate correcting-magnets each adapted to operate one of said sets of correcting means, and a relay adapted to be operated by a line-current in either direction and to cause one or other of said correcting-magnets and subsequently the corresponding punching-magnet to be operated.

11. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate punch-operating magnets, two separate sets of correcting means each adapted to correct any error in the position of said feed-wheel and tape previous to a punching operation, two separate correcting-magnets each adapted to operate one of said sets of correcting means and to close the circuit of one of said punching-magnets, and a relay adapted to be operated by a line-current in either direction and to close the circuit of one or other of said correcting-magnets.

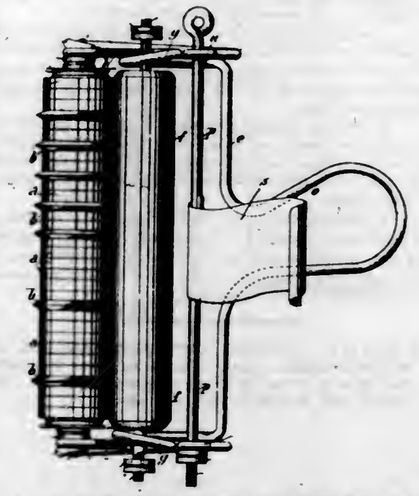
12. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate punch-operating magnets, two separate sets of correcting means each adapted to correct any error in the position of said feed-wheel and tape previous to a punching operation and comprising a toothed wheel connected to said feed-wheel and a tooth or projection adapted to enter the space between two teeth of the said correcting-wheel, two separate correcting-magnets each adapted to operate one of said correcting devices, and a relay adapted to be operated by a line-current in either direction and to cause one or other of said correcting-magnets and subsequently the corresponding punching-magnet to be operated.

13. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate punching-magnets arranged in separate electric circuits and having their armatures each connected to one of said punches, a circuit-closer for each of said electric circuits, means for correcting the position of said feed-wheel and tape previous to each punching operation, two separate correcting-magnets arranged in separate electric circuits and each having its armature arranged to operate the correcting means and subsequently to close the circuit of the corresponding punching-magnet, a retractile spring connected to each of said armatures, and a relay adapted by alternating line-currents to alternately close the circuits of said correcting-magnets.

14. Telegraphic receiving apparatus comprising a tape-feed wheel, a motor for rotating said feed-wheel, a yielding connection between said feed-wheel and motor, two punches for perforating said tape at opposite sides of the center thereof, two separate punching-magnets arranged in separate electric circuits and having their armatures each connected to one of said punches, a circuit-closer for each of said electric circuits, two toothed correcting-wheels connected to said feed-wheel, two correcting-bars each having a pointed end adapted to enter the space between two teeth on the corresponding correcting-wheel and partly turn the same if it be not in correct position, two separate correcting-magnets arranged in separate electric circuits and each having its armature connected to the movable part of the circuit-closer of the corresponding punching-magnet and to the corresponding correcting-bar, each of said correcting-magnets with armature having small magnetic and mechanical inertia for the purpose set forth, a retractile spring connected to each of said armatures, and a relay adapted to be operated by line-currents in opposite directions and to close the circuits of said correcting-magnets alternately, substantially as described.

749,034. **RULING DEVICE.** KARL DAUT, Mannheim, Germany. Filed May 29, 1903. Serial No. 158,206. (No model.)

Claim.—1. A band ruling device consisting of a ruling-roller in sections on a common axis, ruling devices on said axis between the roller-sections, an inking-roller parallel with the ruling-roller, means for keeping the inking-roller against the ruling-roller, a frame in loops of which the ruling and inking rollers are journaled for rotary movement, and springs connecting the axis of the inking-roller with the frame, as set forth.



2. A hand ruling device consisting of a ruling-roller, an inking-roller held parallel therewith, a frame in loops of which the said rollers are rotatably mounted, springs connecting the axis of the inking-roller with the frame for holding the inking-roller against the ruling-roller, and a stem held in loops of the said frame to prevent displacement of the inking-roller, as set forth.

3. A hand ruling device consisting of a ruling-roller, an inking-roller, a frame in loops of which the said rollers are rotatably mounted, a stem connecting opposite portions of said frame, a pressure-plate mounted on said stem and engaging the handle of the frame, and springs connecting said frame with the shaft of the inking-roller, as set forth.

4. A hand ruling device consisting of a ruling-roller, an inking-roller, a spring-wire frame in loops of which said rollers are rotatably mounted, a stem connecting opposite portions of said frame, springs connecting the axis of the inking-roller with the said frame, a pressure-plate mounted on said stem and bearing on the handle of the frame, said frame being formed with the guides w, all substantially as and for the purpose specified.

749,035. **STOCK-MARKER.** LINFORD J. DAVIS, Battlecreek Mich. Filed Apr. 16, 1903. Serial No. 152,946. (No model.)



Claim.—1. A cattle-tag formed of a metal strip bent to form two arms one of which is provided with an opening and the other with a securing-tongue, one of said arms being bent to overlap the end of the other.

2. A cattle-tag comprising a U-shaped member provided with interlocking end portions, one of said end portions being bent to overlap the end of the other.

3. A cattle-tag comprising a pair of spaced parallel arms having inbent end portions, one of said arms being provided with a securing means and bent to overlap the end of the other.

4. A cattle-tag comprising a metal strip bent to form two arms each having inbent end portions, one of which is provided with an opening and the other with a securing-tongue, one of said arms being bent to overlap the end of the other.

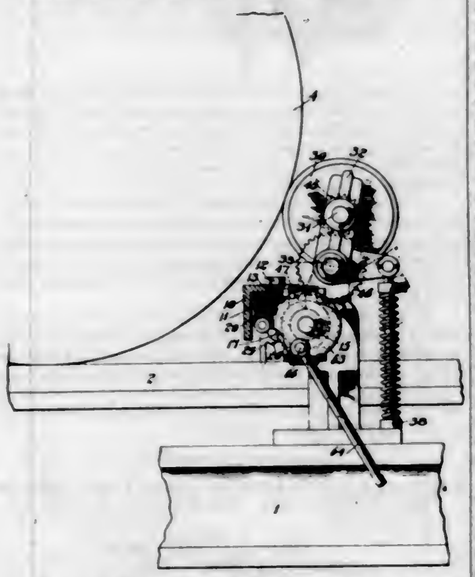
5. A cattle-tag comprising a strip of metal bent to form two arms of unequal length and provided with interlocking end portions the longer arm being bent to overlap the end of the shorter arm and adapted to lock the ends of said arm together.

6. A cattle-tag comprising a U-shaped body portion, one end of which is provided with an integral securing-tongue and the other with a tongue-receiving opening, and an overhanging hook formed integral with one end of the body portion and adapted to overlap the end of the other.

7. A cattle-tag comprising a strip of metal bent to form two arms of unequal length, one of which is provided with an opening and the other with an upstruck securing-tongue, the longer arm being bent to overlap the end of the shorter arm and adapted to clamp said arms together.

8. A cattle-tag comprising a strip of metal bent to form two arms each having inbent end portions, one of said arms being provided with an opening and the other with a securing-tongue, one of said arms being bent to overlap the end of the other and extended over the tongue-receiving opening.

749,086. AUTOMATIC CONTROLLING MECHANISM FOR PRINTING-PRESSES. TALBOT C. DEXTER and HENRY HALLSTREAM, Pearl River, N. Y.; said Hallstream assignor to said Dexter. Filed July 28, 1902. Serial No. 117,231. (No model.)



Claim.—1. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a ratchet-wheel, means, operated by the stopping of said shaft, for operating the throw-out mechanism, and a tripping-finger supported in the path of the sheets which move it into engagement with said ratchet-wheel, thereby stopping the rotation of said rotary shaft.

2. In a printing-press, the combination of suitable throw-out mechanism, with a rotary shaft carrying a ratchet-wheel, means, operated by the stopping of said shaft, for actuating the throw-out mechanism, and a tripping-finger supported adjacent to, and projecting below the surface of, the printing-form, and adapted to be engaged by a piece of paper adhering to the form and be moved thereby into engagement with the ratchet-wheel to arrest the rotation of said shaft, substantially as set forth.

3. In a printing-press, the combination of suitable throw-out mechanism, with a rotary shaft carrying a plurality of ratchet-wheels, means, operated by the stopping of said shaft, for actuating the throw-out mechanism, and a plurality of tripping-fingers supported adjacent to and projecting below the surface of the printing form, each of said tripping-fingers being adapted to be engaged by a piece of paper adhering to the form and be moved thereby into engagement with one of the ratchet-wheels to arrest the rotation of said shaft, substantially as set forth.

4. In a printing-press, the combination of a reciprocating printing-form having channels or valleys extending through its surface and suitable press-throw-out mechanism, with a rotary shaft extending transversely of the direction of travel of the form, a plurality of ratchet-wheels mounted upon said shaft, a plurality of tripping-fingers supported adjacent to the ratchet-wheels in the planes of the channels or valleys of the form and projecting beneath the surface of the form, ratchet-engaging pawls or dogs carried by said tripping-fingers, and means, operated by the stopping of said shaft, for actuating the throw-out mechanism, whereby a piece of paper adhering to the form will engage one of the tripping-fingers and move a pawl or dog into engagement with a ratchet-wheel to arrest the rotation of the shaft and stop the press, substantially as set forth.

5. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft extending transversely of the machine, means, operated by the stopping of said shaft for actuating the throw-out mechanism, a ratchet-wheel mounted upon said shaft and adjustable thereon transversely of the machine, and a sheet-actuated tripping-finger sustained in position to be directly engaged by a sheet or part of a sheet and adjustable transversely of the machine and adapted to engage the ratchet-wheel to arrest the rotation of said shaft, substantially as set forth.

6. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft extending transversely of the machine, a plurality of ratchet-wheels mounted upon the shaft and adjustable longitudinally of the shaft a plurality of sheet-actuated tripping-fingers sustained in position to be directly engaged by a sheet or part of a sheet and adjustable transversely of the machine, each tripping-finger being adapted to engage one of the ratchet-wheels, and means operated by the stopping of said shaft for actuating the throw-out mechanism, substantially as set forth.

7. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft extending transversely of the machine, a plurality of ratchet-wheels mounted upon the shaft and adjustable thereon, a plurality of adjustably-mounted brackets embracing said ratchet-wheels, a plurality of sheet-actuated tripping-fingers mounted upon said brackets and adapted to engage said ratchet-wheels, and means operated by the stopping of said shaft for actuating the throw-out mechanism, substantially as set forth.

8. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, driving mechanism for said shaft including a clutch, means, thrown into action by the relative movement between said clutch members, for actuating the throw-out mechanism, and a sheet-actuating tripping device supported in position to be engaged by a sheet or part of a sheet and thereby arrest the rotation of said shaft, substantially as set forth.

9. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a ratchet-wheel, driving mechanism for said shaft including a slip-clutch, means operated by the slipping of said clutch for actuating the throw-out mechanism, and a sheet-actuated tripping-finger supported in position to be engaged by a sheet or part of a sheet and adapted to engage the ratchet-wheel and arrest the rotation of its supporting-shaft, substantially as set forth.

10. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rotary shaft, a clutch including a member fixed to said shaft and a member movable relatively to the fixed member, suitable driving mechanism operating through said clutch, means of engagement between the throw-out mechanism and said movable member of the clutch, a ratchet-wheel mounted upon said shaft, and a sheet-actuated tripper supported in position to be directly engaged by a sheet or part of a sheet and adapted to engage said ratchet-wheel and arrest the movement of the shaft, substantially as set forth.

11. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rotary shaft, a clutch including a member fixed to said shaft and a member movable relatively to the shaft, suitable driving mechanism operating through the said clutch, means, operated by the relative movement between the clutch members, for connecting the throw-out mechanism with said movable member of the clutch, a ratchet-wheel mounted upon said shaft, and a sheet-actuated tripper supported in position to be directly engaged by a sheet or part of a sheet and adapted to engage said ratchet-wheel and arrest the rotation of said shaft, substantially as set forth.

12. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, suitable sheet-actuated means for arresting the rotation of said shaft, a fixed clutch member carried by said shaft, a movable clutch member engaging the fixed clutch member, a spring device connecting the movable clutch member with the fixed clutch member, suitable driving mechanism operating through the movable clutch member, and means thrown into operation by the relative movement between the fixed and movable clutch members for actuating the throw-out mechanism, substantially as set forth.

13. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, suitable sheet-actuated means for arresting the rotation of said shaft, a fixed clutch member upon said shaft, a movable clutch member engaging with said fixed clutch member, a normally disengaged auxiliary clutch between said movable clutch member and the throw-out mechanism, and means for driving said shaft through said movable clutch member, substantially as set forth.

14. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, sheet-actuated means for arresting the rotation of said shaft, suitable driving mechanism including an automatic clutch having a movable member comprising a rotatable longitudinally-movable sleeve, and a normally disengaged auxiliary clutch member connected with the throw-out mechanism, substantially as set forth.

15. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rotatable disk operatively connected with the throw-out mechanism, and an auxiliary clutch member connected with said disk, with a rotary shaft, sheet-actuated means for arresting the rotation of said shaft, a main clutch member fixed to said shaft, a main clutch member movably mounted upon said shaft in operative relation to the fixed member, a movable auxiliary clutch member fixed to the movable member of the main clutch, and means, operating through the movable member of the main clutch, for driving said shaft, substantially as set forth.

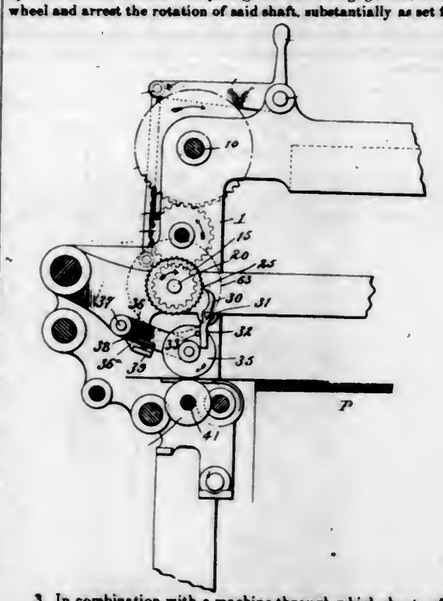
16. In a machine designed to operate upon sheets of paper, the combination of a throw-out operating device, with a rotary stop-shaft, sheet-actuated means for arresting the rotation of said shaft, a clutch having fixed and movable members for operating said shaft, means of engagement between the movable clutch member and the throw-out operating device, a gear upon said movable clutch member, a driving-shaft suitably driven from the press, and gearing between the driving-shaft and the clutch-gear, substantially as set forth.

17. In a machine designed to operate upon sheets of paper, the combination of a frictional driving-wheel adapted to operate in peripheral engagement with a rotating part of the machine, a driving-shaft upon which said frictional wheel is mounted, a pivotally-mounted bracket in which said shaft is journaled, a spring device engaging said pivotally-mounted bracket and holding the frictional wheel into operative engagement with the rotating part of the machine which drives it, a rotary trip-shaft, sheet-actuated means for arresting the rotation of said trip-shaft, a clutch upon said trip-shaft having fixed and movable members, gearing between the driving-shaft and movable member of the clutch—and means, thrown into action by the relative movement between said clutch members, for arresting the operation of the machine, substantially as set forth.

749,037. SHEET-CALIPERING DEVICE FOR PAPER-HANDLING MACHINERY. TALBOT C. DEXTER and HENRY HALLSTREAM, Pearl River, N. Y.; said Hallstream assignor to said Dexter. Filed Sept. 18, 1902. Serial No. 123,906. (No model.)

Claim.—1. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a sheet-calipering device adapted to be operated by an abnormal thickness of sheets, a rotary shaft, means actuated by said calipering device for arresting the movement of said shaft, and means operated by the stopping of said shaft for actuating the throw-out mechanism.

2. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary rotatable sheet-calipering device adapted to be operated by an abnormal thickness of sheets, a rotary shaft carrying a ratchet-wheel, means operated by the stopping of said shaft for actuating the throw-out mechanism, and a tripping finger or pawl adapted to be operated by said rotatable sheet-calipering device to engage the ratchet-wheel and arrest the rotation of said shaft, substantially as set forth.



3. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a sheet-calipering device, a rotary shaft, driving mechanism including clutch members, one of which is fixed to said shaft and one of which is movable relatively to the fixed member, and means thrown into operation by the relative movement of the clutch members for actuating the throw-out mechanism, and means operated by the calipering device for arresting the movement of said shaft, substantially as set forth.

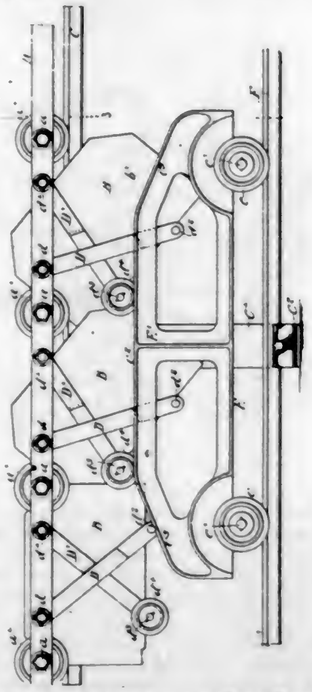
4. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a sheet-calipering device, a rotary shaft, driving mechanism including clutch members, one of which is fixed to said shaft and one of which is movable relatively to the fixed member, a spring device connecting the movable clutch member with the fixed clutch member, means thrown into operation by the movement of the movable member for actuating the throw-out mechanism, and means operated by the calipering device for arresting the movement of said shaft, substantially as set forth.

5. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a sheet-calipering device, a rotary shaft, a main fixed clutch member upon said shaft, a main movable clutch member yieldingly engaging said fixed clutch member, means operating through said main clutch members for rotating said shaft, an auxiliary clutch thrown into operation by the movement of the movable clutch member, means connecting said auxiliary clutch with the throw-out mechanism, and means operated by the calipering device for arresting the movement of said shaft, substantially as set forth.

6. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a sheet-calipering device, a rotary shaft, a main clutch member fixed to said shaft, a second main clutch member movably mounted upon said shaft in operative relation to the fixed member, a movable auxiliary clutch member fixed to the movable member of the main clutch, a rotatable disk operatively connected with the throw-out mechanism, an auxiliary clutch member connected with said disk and mounted in operative relation to the auxiliary clutch member upon the movable main clutch member, and means operated by the calipering device for arresting the movement of said shaft, substantially as set forth.

749,038. PAN CONVEYER. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link Belt Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Sept. 22, 1902. Serial No. 174,176. (No model.)

Claim.—1. The combination of two endless chains connected together, pan-sections mounted between the chains, one section overlapping another, and two links on each side of each pan-section by which the said sections are suspended from the chains, said links being so arranged that each section can be tilted to discharge its load, substantially as described.



2. The combination in a pan conveyer, of an endless chain, pan-sections, and cross-links by which the sections are suspended from the chain, substantially as described.

3. The combination in a pan conveyer, of two chains connected together, pan-sections between the chains, each section having a bottom and sides, and cross-links pivoted to the chain and to the sections of the pan, substantially as described.

4. The combination of a chain at each side of the conveyer, cross-shafts connecting the chains, wheels carried by the cross-shafts, rails on which the wheels travel, pan-sections, and cross-links pivoted to the chains and pivoted to the pan-sections, substantially as described.

5. The combination of the two chains connected together, pan-sections mounted between the chains, cross-links connecting the pan-sections to the chains, one pan-section overlapping the other so as to form a continuous pan, substantially as described.

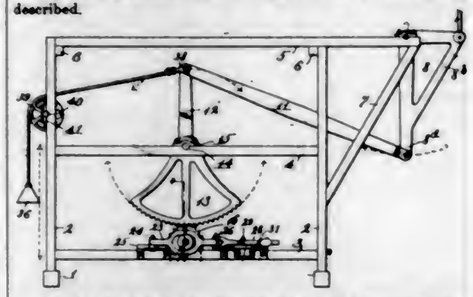
6. The combination of the chain, pan-sections, cross-links connecting the pan-sections to the chain, with a discharge device so arranged that each individual section will strike the discharge device and will tip and discharge its load, substantially as described.

7. The combination of the chains, pan-sections, cross-links connecting the pan-sections to the chains, a wheel on each pan-section, with a discharge device having a portion on which the wheel will ride so as to tip the section and discharge its load, substantially as described.

8. The combination of a chain, a series of pan-sections, cross-links by which the pan-sections are suspended from the chain, a discharge-carriage mounted on tracks and having two side members extending into the path of the pan of the conveyer, so that when the pans strike the discharge device they will tip and discharge the load, substantially as described.

749,039. **MOTION-TRANSMITTER.** VEAT J. DOLSCHEN, Claflin, Kans. Filed Apr. 13, 1903. Serial No. 152,323. (No model.)

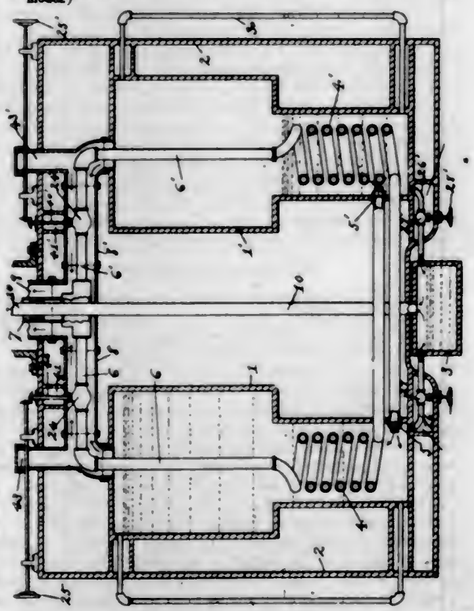
Claim.—1. In a machine of the character described, a suitable frame, a bell-crank lever fulcrumed thereon, a pitman-rod pivotally connected to the short arm of the bell-crank lever, a segmental cog journaled upon the frame, a connecting-bar pivotally secured at its opposite ends to the long arm of the bell-crank lever and the segmental cog respectively, a weight suitably secured to the connecting-bar and adapted to assist the pitman on its downward stroke, and a journaled pinion which meshes with and is adapted to receive an alternating rotary movement from the segmental gear, substantially as described.



2. In a machine of the character described, a suitable frame, an extension at one end thereof, a bell-crank lever fulcrumed on the extension, a pitman-rod pivotally connected to the short arm of the bell-crank lever, a segmental cog journaled on the frame, a vertical arm formed integral therewith, a connecting-bar pivotally secured at its opposite ends to the long arm of the bell-crank lever and the segmental cog respectively, a weight suitably secured to one end of the connecting-bar, and a journaled pinion which meshes with the segmental cog, substantially as described.

3. In a machine of the character described, a suitable frame, a bell-crank lever fulcrumed thereon, a pitman pivotally connected to one end of the bell-crank lever, a segmental cog journaled on the frame, a vertical arm formed integral therewith, a connecting-bar pivotally secured at its opposite ends to the vertical arm and one arm of the bell-crank lever respectively, a counterbalance-weight, a strap secured at its opposite ends to the connecting-bar and the weight, a pulley over which the strap is adapted to operate, a pinion meshing with the segmental cog, a shaft upon which it is mounted, a clutch slidably mounted upon said shaft and suitable means for operating the clutch.

749,040. **MECHANISM FOR SEPARATING LIQUID AIR INTO ITS CONSTITUENTS OXYGEN AND NITROGEN.** HORACE DUMARS, Glenridge, N. J. Filed Dec. 19, 1902. Serial No. 135,899. (No model.)



Claim.—1. In an apparatus of the class described, the combination of two liquid-air vessels; an oxygen receptacle or tank located below said vessels and connected therewith; and a counter-current interchanger having a high-pressure incoming pipe provided with two branches, each of which branches passes into and through one of said liquid-air vessels and delivers to the other one, substantially as shown and described.

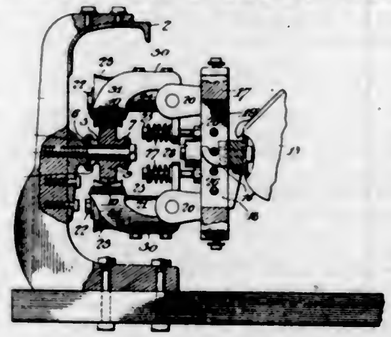
2. In an apparatus of the class described the combination of two liquid-air vessels; and a counter-current interchanger having a high-pressure incoming compressed-air pipe provided with two branches, each of which branches passes into and through one of the said liquid-air vessels and delivers to the other one, substantially as shown and described.

749,041. **WINDOW-LOCK.** WLADISLAW DEIBE, Duquesne, Pa. Filed Sept. 5, 1903. Serial No. 172,033. (No model.)



Claim.—A window lock and support, comprising a substantially L-shaped casing open on one side and provided in one face with a slot, a latch pivotally hung in the shorter leg of the casing, an operating-rod in the longer leg of said casing and pivotally connected to said latch, a spring on said rod for holding the latch normally in the projected position, and a handle pivoted to the rear end of the operating-rod and projecting through the slot in the casing, substantially as described.

749,042. **ELECTRIC-RAILWAY SYSTEM.** WILLIAM M. RADER, Middletown, Md. Filed July 27, 1903. Serial No. 167,201. (No model.)



Claim.—1. In an electric railway, a third rail having sections provided with tapering or inclined ends, a current-collector including a pair of spaced rollers for engaging the opposite edges of curved rail, and means for holding the rollers in spaced relation after leaving a rail-section.

2. In an electric railway, a third rail formed of sections having inclined or tapering ends, a pair of pivotally-mounted rollers, springs tending to force the rollers toward each other, and means for preventing contact between the rollers after leaving a rail-section.

3. In an electric railway, a third rail including sections having tapering or inclined ends, a pair of contact-rollers for engaging the opposite edges of the rail, pivoted bell-crank levers forming supports for the rollers, springs engaging the bell-crank levers, and means for engaging said levers and holding the rollers in spaced relation while traveling between adjacent rail-sections.

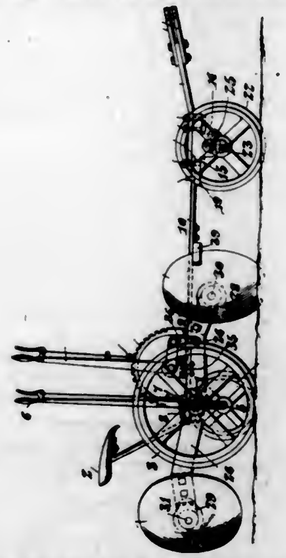
4. In an electric railway, a current-collector comprising a base, a pair of spaced pivot-lugs, bell-crank levers pivoted between said lugs, spindles carried by the horizontal arms of said levers, rollers mounted on the spindles, bolts extending through slots or openings in the vertical arms of the levers, springs carried by the bolts and bearing on said arms, and a stop for engaging said vertical arms and thereby limiting inward movement of the same.

5. In an electric railway, a current-collector, including a base having a pair of spaced slots, contact devices carried by the base, pins or bearings extending across the slots, and recessed lugs arranged on the car or vehicle for receiving said pins or bearings.

6. In an electric railway, a current-collector including a base, a pair of spaced pivot-lugs carried by the base, bell-crank levers pivoted between said lugs, rollers mounted at the outer ends of said levers, springs engaging the inner ends of the levers and tending to move the rollers toward each other, and guards extending in part over the rollers, and provided with arms arranged on each side of said rollers, substantially as specified.

7. In an electric railway, a third rail including a pair of alined contact-bars inclined toward each other and connected at the end of a rail-section, and means for supporting said bars.

749,043. **DISK PLOW.** OLIVER H. ELLISON, Chattanooga, Tenn., assignor of one-half to Ernest Prentice and Joel M. McCutcheon, Chattanooga, Tenn. Filed Aug. 30, 1902. Serial No. 121,642. (No model.)



Claim.—1. In a disk plow, the combination with an axle supported by wheels at the opposite ends thereof, of a frame having the form of a single bar extending forwardly from the axle adjacent to one of the wheels, and a rocking disk-carrying beam mounted on the axle between the frame-bar and the adjacent wheel.

2. In a disk plow, the combination with an axle, and a frame having the form of a single bar extending therefrom, of a land-wheel and furrow-wheels supporting the frame and axle, a disk beam mounted to swing from the axle, a disk carried by the beam, and means for swinging the beam to raise and lower the disk.

3. In a disk plow, the combination with the axle, of land and furrow wheels supporting the same, a frame having the form of a single bar extending from the axle adjacent to the furrow-wheel, a disk beam mounted to swing from the axle between the frame and the furrow-wheel, a disk carried by the beam, and means carried by the frame for swinging the beam and for retaining the same in its adjusted positions.

4. In a disk plow, the combination with the axle, of land and furrow wheels supporting the same, a single frame-bar extending from the axle adjacent to the furrow-wheel and formed with a laterally-deflected portion, a disk beam mounted to swing from the axle, a disk carried by the beam and extending into the deflected portion of the frame, a lever fulcrumed upon the frame and connected to the beam to swing the same, and a latch for retaining the lever in its adjusted position.

5. In a disk plow, the combination with the axle, and a single frame-bar extending forwardly therefrom, of a land-wheel and furrow-wheels supporting the frame and axle, a rocking beam mounted intermediate of its ends upon the axle between the frame and the furrow-wheel, reversely-disposed disks carried by the beam at opposite sides of the axle for alternate presentation to the ground through the rocking of the beam, and means carried by the frame for adjusting the beam.

6. In a disk plow, the combination with the axle, and a frame-bar extending forwardly from the axle adjacent to one end thereof and formed with a laterally-deflected portion, of a rocking beam mounted on the axle between the frame-bar and the adjacent end

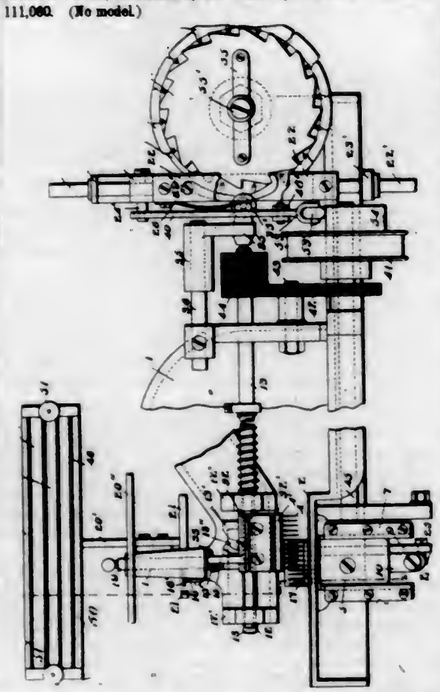
of said axle, reversely-disposed disks at the opposite ends of the rocking beam, one of said disks being extended into the deflected portion of the frame-bar, scrapers arranged to scrape the disks and carried by the beam and frame respectively, means for adjusting the rocking beam to present either of the disks to the ground, and land and furrow wheels supporting the frame and axle.

7. In a disk plow, the combination with the axle, frame, land-wheel, and furrow-wheels, of a pair of reversely-disposed disks, a carrier common to said disks and movable independently of the frame to present either disk to the ground, and means carried by the frame for adjusting and retaining the carrier.

8. In a disk plow, the combination with an axle, a back furrow-wheel mounted at one end thereof, a land-wheel adjustably mounted at the opposite end thereof, and a driver's seat supported by the axle between the wheels, of a frame secured at its rear end to the axle adjacent to the back furrow-wheel and having a laterally-deflected portion, a beam having a sleeve rotatable upon the axle, a disk supported at the end of the beam and extending into the deflected portion of the frame, a lever mounted on the frame for adjusting the position of the beam, and a front furrow-wheel adjustably supporting the front end of the frame.

9. In a disk plow, the combination with an axle, a back furrow-wheel mounted at one end of the axle, a short crank-axle adjustably secured to the opposite end of the main axle, a land-wheel carried thereby, a lever for adjusting the crank-axle, and a driver's seat supported by the main axle intermediate of the ends thereof, of a frame secured at its rear end to the axle adjacent to the back furrow-wheel, a rocking beam mounted intermediate of its ends upon the axle and disposed adjacent to the frame, reversely-disposed disks supported by the opposite ends of the beam, a lever supported by the frame adjacent to the main axle and connected to the beam to rock the same, a latch and rack for retaining the lever in its adjusted positions, a tongue pivoted to the front end of the frame, a journal-box rigid with said tongue, a crank-axle supported by the box, and a front furrow-wheel mounted on said last-named crank-axle.

749,044. **EMBROIDERING-MACHINE.** MIGUEL ESCUDER and ANTONIO FORESY, Barcelona, Spain. Filed June 10, 1902. Serial No. 111,060. (No model.)



Claim.—1. In an embroidering-machine, the combination of a main shaft, a plurality of needles reciprocated vertically by said shaft, a plurality of loopers pivotally mounted above said needles, tension mechanism for supplying thread to said loopers, cam mechanism connected to said loopers, whereby a horizontal oscillatory movement will be imparted to said loopers to form a loop upon each of said needles before its return movement, and mechanism for shifting said loopers laterally, relatively to said needles.

2. In an embroidering-machine, the combination of a main shaft, a plurality of needles reciprocated vertically by said shaft, a plurality of loopers pivotally mounted above said needles, tension mechanism for supplying thread to said loopers, cam mechanism connected to said loopers, whereby a horizontal oscillatory movement will be imparted to said loopers to form a loop upon each of said needles before its return movement, and mechanism interposed between and cooperating with said main shaft and cam mechanism for automatically shifting said loopers relatively to said needles.

3. In an embroidering-machine, the combination of a plurality of needles, a support therefor, means for operating said needles, an elastic sheet connecting said support to said operating means, loopers, cam mechanism for imparting an oscillatory movement to said loopers, pattern mechanism for shifting said loopers laterally, and a pawl-and-ratchet mechanism for operating said pattern mechanism.

4. In an embroidering-machine, the combination of a plurality of needles, means for reciprocating said needles, loopers, mechanism for imparting an oscillatory movement to said loopers, and means for bodily shifting said mechanism and said loopers laterally, substantially as described.

5. In an embroidering-machine, the combination of a plurality of reciprocating needles, loopers therefor, cam mechanism for oscillating said loopers, and means for bodily shifting said cam mechanism and said loopers in a lateral direction, substantially as described.

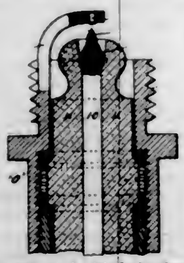
6. In an embroidering-machine, the combination of a plurality of needles, fabric-holding means, common means for reciprocating said needles and shifting said fabric, loopers for said needles, mechanism for operating said loopers, and means for bodily shifting said operating mechanism and said loopers laterally, substantially as described.

7. In an embroidering-machine, the combination of needles, means for reciprocing the same, a series of loopers for said needles loosely pivoted on a shaft, cam mechanism for operating said needles, a shaft to which said cam mechanism is secured, and means for laterally shifting said shaft thereby shifting said cam mechanism and said loopers.

8. In an embroidering-machine, the combination of cam mechanism, a shaft carrying said mechanism, and means for bodily shifting said shaft, consisting of a slide provided with a roller, pattern mechanism adapted to contact with said roller, means for driving said pattern mechanism, and a spring for returning said shaft to its original position.

9. In an embroidering-machine, the combination of cam mechanism, a shaft on which said mechanism is mounted, driving means for said shaft, means for shifting said shaft laterally, consisting of a slide provided with a roller, and pattern mechanism adapted to contact with said roller, pawl-and-ratchet mechanism for actuating said pattern mechanism, and connections between said pawl-and-ratchet mechanism and said driving means.

749,045. **MOTOR SPARKING PLUG.** JAMES S. FOLEY, West Bromwich, England. Filed May 29, 1903. Serial No. 159,280. (No model.)

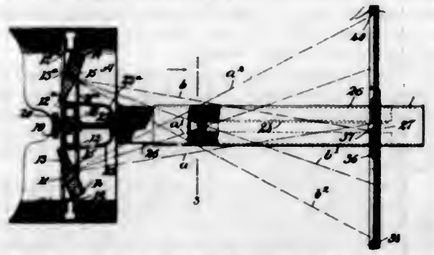


Claim.—1. A sparking or igniting plug having a terminal composed of a plurality of fine wires.

2. A sparking or igniting plug having a terminal composed of a plurality of fine wires arranged in tapered form.

749,046. **STEREOSCOPE.** WILLIAM F. FOLMER and ARTHUR M. LAWRENCE, New York, N. Y. Filed May 2, 1903. Serial No. 155,260. (No model.)

Claim.—1. In a stereoscope or similar instrument, a hood, lenses independently, axially and slidably mounted in openings in the hood, and independent adjusting devices for the lenses, both adjusting devices being connected with both lenses to simultaneously operate the same, one adjusting device acting to move the lenses upon their pivots and the other adjusting device to move the lenses to and from each other, for the purposes set forth.



2. In a stereoscope or similar instrument, a hood, and mounts pivoted in openings in the hood, lenses secured within the mounts, an adjusting device between the mounts, and connections between the adjusting device and the inner edges of the mounts of the lenses, whereby to simultaneously swing the lenses upon their pivots, as described.

3. In a stereoscope or similar instrument, a hood and a view-holder, view-lenses centrally pivoted in the hood, from which the line of sight crosses between the lenses and the holder, whereby to optically rectify a view taken by the stereoscope-lenses and printed direct from the negative, an adjusting device between the lenses and pivotally connected with the inner edge of each lens, whereby to correct the lenses with reference to their angularity of focal plane, mounts adapted to slide laterally in the hood, in which mounts the lenses are pivoted, and an adjusting device connected with both mounts, whereby the lenses are made to accord with the papilary requirements of the eye, as set forth.

4. In a stereoscope or similar instrument, axially-pivoted lenses and an adjusting device common to both lenses, located between them and connected with their inner opposing portions, whereby to simultaneously adjust the lenses at an angle to their common axial line, or in a plane substantially parallel to the said line, and for retaining the lenses in adjusted position, as described.

5. In a stereoscope or similar instrument, lenses independently, axially and slidably mounted, an adjusting device common to both of the lenses, for imparting simultaneous axial movement thereto, and a second adjusting device independent of the first named and arranged to impart simultaneous sliding movement to the lenses, as described.

6. In a stereoscope or similar instrument, a hood, having openings in its rear section, frames mounted to slide in the openings, lenses pivoted in the frames, an adjusting device between the openings in the hood, link connections between the adjusting device and the inner edge portion of each lens, the said adjusting device being adapted for simultaneously changing the angularity or focal plane of the lenses, and a second adjusting device having right and left screw connection with both sliding frames, whereby to simultaneously laterally adjust the lenses to and from each other to accord with the pupilary requirements of the eye, as described.

7. In a stereoscope, a hood, a support extending rearwardly from the hood, stereoscopic view-lenses pivoted in the hood, carriers for the lenses slidably mounted in the hood, adjusting devices for the lenses and for their carriers, and a view-holder mounted upon said support, as described.

8. In a stereoscope, a hood, a support extending rearwardly from the hood, stereoscopic lens-views pivoted in the hood, carriers for the lenses slidably mounted in the hood, adjusting devices for the lenses and for their carriers, which devices act simultaneously yet independently on both lenses, and a view-holder mounted upon the support, as described.

9. In a stereoscope or similar instrument, a hood, frames mounted to slide in the hood, lenses pivoted in said frames, an axial adjusting device for the lenses, and an adjusting device for the frames in which the lenses are pivoted, one adjusting device operating in a plane at an angle to the other, substantially as described.

10. In a stereoscope or similar instrument, a hood, frames mounted to slide in the hood, lenses pivoted in said frames, an axial adjusting device for the lenses, an adjusting device for the frames in which the lenses are pivoted, one adjusting device operating in a plane at an angle to the other, and both of the adjusting devices operating at the forward portion of the hood, a support extending rearwardly from the hood, and a view-holder adjustable upon the support.

11. In a stereoscope, a hood, apertured partitions in the hood, frames mounted to slide between the partitions at their apertures, view-lenses pivotally mounted in said frames, a right and left hand screw adjusting device connected with the opposing portions of the frame, an adjusting-screw mounted to turn in the partitions between the lenses, a nut operated by the latter screw, and link connections between opposing edges of the lenses and corresponding portions of the nut, as specified.

12. In a stereoscope, a hood, apertured partitions in the hood, frames mounted to slide between the partitions at their apertures, stereoscopic view-lenses pivotally mounted in said frames, a right and left hand screw adjusting device connected with opposing portions of the frame, an adjusting-screw mounted to turn in the partition between the lenses, a nut operated by the latter screw, binding-frames for the lenses, independent of their carrying-frames, links pivotally connecting the lenses' binding-frames and the said nut, and means for operating each adjusting-screw independently, which means are located within the hood, as specified.

13. In a stereoscope or like instrument, a view-holder comprising two main sections adjustable to and from each other, a locking device for said sections, and view-carrying sections vertically adjustable upon the outer portions of the main sections, as set forth.

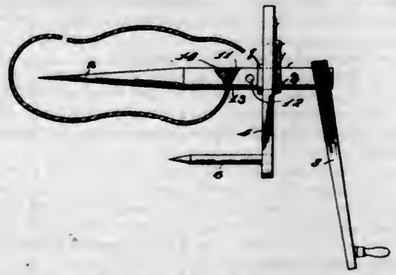
14. In a stereoscope or like instrument, a view-holder comprising two main sections having lateral adjustment to and from each other, a locking device for the said sections, auxiliary sections vertically adjustable upon the main sections, and means for frictionally controlling the position of the auxiliary sections relative to the main sections, said auxiliary sections having supports for a view, as described.

15. In a stereoscope or like instrument, a view-holder comprising laterally-adjustable main sections, a locking device for such sections, upright members at the outer terminals of the main sections, and vertically-adjustable sections between the upright members of the main sections, and view-receivers carried by the vertically-adjustable sections, which view-receivers are in frictional engagement with the terminal portions of the main sections, as described.

16. In stereoscopes and like instruments, a view-holder having upright opposing spaced terminal members, and slidable auxiliary sections mounted between the spaced upright terminal members, which auxiliary sections are provided with view-receiving pockets at their lower ends, having outwardly-flaring side walls adapted for frictional engagement with the upright terminal members of the main body of the view-holder, as set forth.

17. In stereoscopes, a view-holder constructed of laterally-adjustable sections, and independent view-carrying sections vertically adjustable upon the laterally-adjustable sections, as set forth.

749,047. **SHOCK-BINDER.** PATRICK H. FONTAINE, Bethel Hill, N. C. Filed Sept. 20, 1902. Serial No. 124,257. (No model.)



Claim.—1. In a device of the character described, the combination with a spindle provided with two apertures, a binding-rope, means for securing one end of the binding-rope in the smaller of the apertures, the other aperture arranged to have the other end of said rope loosely passed through the same, a base-plate through which the spindle passes, a pawl-and-ratchet mechanism carried by said plate, a knife carried by the base-plate and means for holding the device in a fixed position upon a shock.

2. A shock-binder, comprising in its construction a spindle, means for rotating the same, means carried by said spindle for securing one end of a binding-rope, and an aperture permitting the other end of the binding-rope to be passed therethrough, a base-plate

through which the spindle passes, means for preventing the spindle having an accidental backward movement, the base-plate being provided with a kerf for holding the binding-twine, substantially as described.

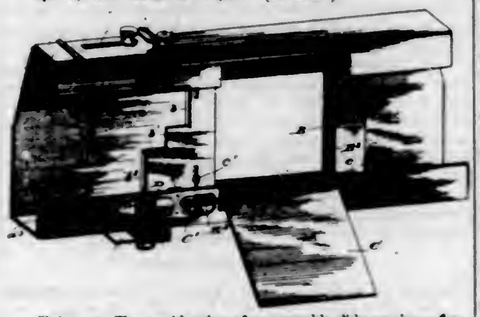
3. A shock-binder, comprising in its construction a spindle, means for rotating the same, means carried by the spindle for securing one end of a binding-rope and an aperture permitting the other end of the binding-rope to be passed through the spindle, a base-plate through which the spindle passes, said base-plate carrying an impaling-pin at right angles thereto, and said base-plate also provided with means for holding the end of the binding-twine, and carrying a knife for severing the same, substantially as described.

4. A shock-binder comprising in its construction a base-plate, a spindle passed rotatably through said plate, means for rotating the spindle, two apertures extending transversely through the spindle, a binding-rope, means for securing one end of the binding-rope in one of said apertures, the other end of the rope adapted to be passed loosely through the other aperture, an impaling-pin extending at right angles from the base-plate, and means for holding the spindle against backward rotation, substantially as described.

5. In a device of the character described, a spindle provided with two apertures extending transversely through the same, a binding-rope secured in one of said apertures and adapted to be passed loosely through the other aperture for quickly taking up the slack rope by pulling on the same with the hand, substantially as described.

6. In a device of the character described, the combination of a suitable spindle provided with means for holding one end of a binding-rope, and with means for permitting the other end of the rope to be passed freely therethrough, means for rotating the spindle, a base-plate through which the spindle passes, said base-plate being provided with means for holding the end of the binding-twine, and means for severing said twine, substantially as described.

749,048. SLIDE-CARRIER FOR STEREOPTICONS, MAGIC LANTERNS, OR THE LIKE. HORACE W. FORCE, Newburgh, N. Y. Filed Apr. 10, 1899. Serial No. 712,412. (No model.)



Claim.—1. The combination of a removable slide-carrier, a flap-shutter connected thereto and means whereby said shutter is caused to be operated by the introduction of a slide in said carrier, all constructed and arranged substantially as described.

2. In a slide-carrier, the combination with the frame, a partition located intermediate the ends of the said frame and attached thereto, said partition having one of its ends notched whereby slides of various sizes are caused to register in said carrier, substantially as described.

3. In a slide-carrier, the combination with the frame, a partition located intermediate the ends thereof and attached to said frame, a shaft located in bearings attached to said intermediate plate, of a flap-shutter fastened to said shaft, and means whereby said shutter is caused to close and open when a slide is inserted in said carrier, substantially as described.

4. The combination in a slide-carrier, of a casing, a partition located intermediate the ends thereof, provided with angle-strips near its outer end forming a pathway in said carrier, a shaft mounted in bearings attached to said partition, a vibrating flap-shutter connected to said shaft; and a spring for assisting the return of said shutter to normal position when the slide is in position in the carrier, substantially as described.

5. In a slide-carrier, comprising a casing, a notched partition located intermediate the ends of said casing for causing a slide to register in the carrier, a shaft attached to said plate, and a rectangular flap-shutter connected to said shaft; with means whereby said shutter is caused to open and close when a slide is inserted and pushed forward in the pathway of said carrier, all constructed and arranged substantially as described.

6. In a slide-carrier, the combination of a casing, a partition located intermediate the ends of said casing and provided with angle-strips forming a pathway therein, a flap-shutter, means operated by the introduction of a slide for closing the exposing-opening whereby motion of a picture, on the screen, passing through the casing is not seen, a spring having one end connected to the shutter and its other connected to said partition to assist in returning said shutter to normal position when a slide is in position in the carrier, substantially as and for the purpose described.

7. In a slide-carrier, the combination of a casing provided with a slot, a slotted plate hinged to the outer edge of said casing, a shoe attached to the under side of said plate and held thereto by means of a thumb-nut, said shoe depending in the pathway of said casing through the slot therein, all constructed and arranged to operate substantially as described.

8. In a slide-carrier, the combination of a casing provided with an exposing-opening, a pathway therein for the slides, of a slotted plate hinged to one side of said casing, an adjustable shoe attached to said slotted plate and depending in said pathway; a flap-shutter connected to the under side of the exposing-opening, and means connected to said plate and shutter for causing the said shutter to operate, all substantially as and for the purpose set forth.

9. In a slide-carrier, the combination of a casing a slotted plate hinged to one edge of said casing, an adjustable shoe connected to said plate and depending angularly in the pathway of said casing, of a partition located intermediate the ends of said casing; with a flap-shutter fastened on a shaft working in bearings secured to said partition, and a cord connected both to the shaft and said partition, all constructed and arranged to operate substantially as and for the purpose described.

10. In a slide-carrier, the combination with the frame, a partition located therein and provided with angle-strips near its outer ends, the whole forming a pathway in said carrier, of a series of notches on one end of said partition whereby slides of unequal length are made to register in said carrier, all substantially as described.

11. In a slide-carrier, the combination with the frame, a partition located intermediate the ends thereof, means for registering slides of various lengths in said carrier, a rotatable shaft journaled in bearings attached to said partition, of a vibrating flap-shutter attached to said shaft adapted to operate by the introduction of a slide, and means whereby said shutter is caused to close and open by the introduction of a slide in the carrier, all constructed and arranged to operate substantially as described.

12. In a slide-carrier, the combination of a carrier-frame, a casing attached to the under side of said frame, of a stop detachably attached to said casing adapted to adjust the carrier to lanterns of various sizes, substantially as described.

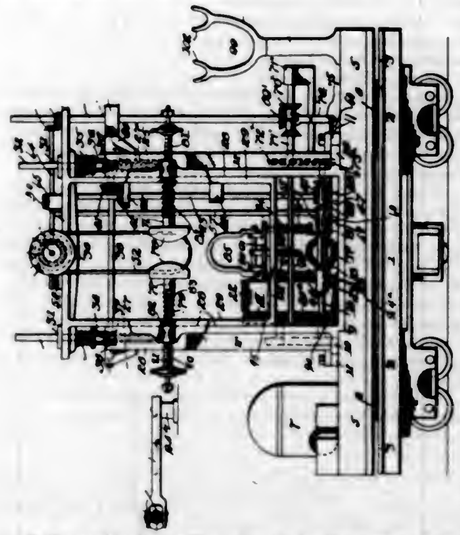
13. In a slide-carrier, the combination of the casing, provided with an exposing-opening, a flap-shutter attached to said casing for closing said exposing-opening, and connections between said shutter and casing for causing the shutter to open and close by the introduction of a slide in the carrier, and means whereby slides of various sizes are adapted to properly register with said exposing-opening, substantially as described.

14. In a slide-carrier, the combination of the casing provided with an exposing-opening, a partition located within said casing and also provided with an exposing-opening, said partition having a series of stepped notches on one edge thereof whereby slides of various sizes are adapted to properly register with said exposing-opening, a shutter attached to said partition adapted to close the exposing-opening, and connections between said shutter and casing for causing said shutter to open and close by the introduction of a slide in the carrier, substantially as and for the purpose set forth.

749,049. MACHINE FOR HANDLING INGOTS OR LIKE PIECES UNDER THE HAMMER. GEORGE P. FOY, Homestead, Pa.; LIZZIE FOY, administratrix of said George P. Foy, deceased, assignor of one-half to Arthur Neill, Pittsburg, Pa. Filed Sept. 15, 1902. Serial No. 123,537. (No model.)

Claim.—1. In a machine for handling an ingot or the like, the combination, with a car, of a bed rotatably mounted thereon, a base-plate adapted to be moved across the bed, standards carried by said base-plate, a vertically-movable frame mounted so as to slide in the standards, means carried by the frame for holding the ingot or like piece of material, and means for controlling the vertical movement of the frame, substantially as described.

2. In a machine for handling ingots or like piece under a hammer, the combination with a rotatable bed, of a base-plate adapted to be moved across the bed, standards mounted on the base-plate, a vertically-movable frame mounted so as to slide in the standards means for operating said frame, means carried by the frame for holding the piece of material in position under the hammer, and means for rotating the bed, substantially as described.



3. In a machine for handling an ingot or like piece under a hammer, the combination of a rotatable bed, means for operating said bed, a base-plate adapted to be moved across the bed, standards mounted on said base-plate, a vertically-movable frame mounted so as to slide in said standards, means carried by the frame for holding the ingot or piece to be handled, and means for operating the vertically-movable frame, substantially as described.

4. In a machine for handling ingots or like pieces under a hammer, the combination, with a rotatable bed and means for rotating the same; of a vertically-movable frame mounted on the bed, means for operating and controlling the movement of said frame, a spring-pressed bail carried by the frame so as to engage the piece, and a chain or cable suspended from the frame for engagement with the piece to be handled, substantially as described.

5. In a machine for handling ingots or like piece of material under a hammer, the combination, with a rotatable bed and means for operating said bed; of a base-plate adapted to be moved across the bed, a vertically-movable frame mounted on the base-plate, means for operating and controlling said frame, and means carried by the frame for holding the piece of material while the latter is being operated upon by the hammer, substantially as described.

6. In a machine for handling a piece under a hammer, the combination, with a bed; of a base-plate adapted to be moved across the bed, standards mounted on the base-plate, a vertically-movable frame mounted in said standards, means carried by said frame to hold the piece of material in position under the hammer, and means for operating said frame, substantially as described.

7. In a device of the character described, the combination of a rotatable bed carrying a rest or support, of a base-plate adapted to be moved across the bed, standards mounted on said base-plate, a vertically-movable frame operating in the standards, means for operating said frame, and means carried by the frame to hold the piece of material being operated on by the hammer, substantially as described.

8. In a machine for handling a piece under a hammer, the combination, with a rotatable bed; of a base-plate adapted to be moved across the bed, standards slidably mounted on said base-plate, means for operating said base-plate to move the standards across the bed, a vertically-movable frame carried by the standards and operating therein, means for operating said frame, and means carried by the frame for holding the piece of material in position to be operated upon, substantially as described.

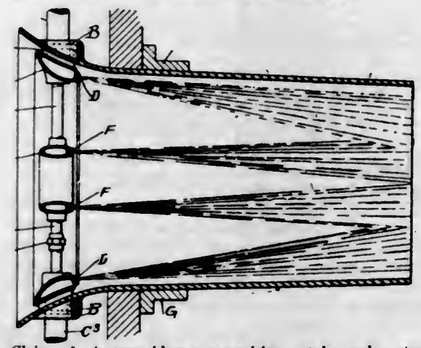
9. In a machine for handling a piece under a hammer, the combination, with a bed, of a base-plate adapted to be moved across the bed, standards mounted on said base-plate, means for operating said base-plate to move the same across the bed, a vertically-movable frame carried by the standards and operating therein, means for operating said frame, and means carried by the frame for holding the piece of material in position to be operated upon, substantially as described.

10. In a machine for handling a piece under a hammer, the combination with a bed, of standards slidably mounted on said bed, means for operating said standards to move the same across the bed, a vertically-movable frame carried by the standards, means for operating said frame, a chain or cable carried by the frame to engage and support the piece of material being operated upon, and guide-shoes for said cable or chain, substantially as described.

11. In a machine for handling a piece under a hammer, the combination with a rotatable bed, and means for operating said bed, of standards slidably mounted on the bed, means for operating said standards, a vertically-movable frame carried by the standards, means carried by said frame for supporting the piece of material to be operated upon, and means for controlling the last-named means for rotating the piece while being held, substantially as described.

12. In a machine for handling a piece of material under a hammer, the combination with a rotatable bed, and means for rotating the same, of standards mounted on said bed and slidable across the bed, a screw and gears for operating said standards, a vertically-moving frame having a cross-head, compression-springs arranged between the cross-head and the standards, means carried by the frame for holding the piece of material in position under a hammer, including a cable or chain for engagement with the piece, a wheel over which said cable or chain operates, and a brake for controlling the movement of said wheel, substantially as described.

749,050. STEAM-BLOWER. ISAAC A. FRASER, Providence, R. I. Filed Aug. 29, 1903. Serial No. 171,205. (No model.)



Claim.—1. A steam-blower comprising a tube, and a steam-ring supported in the mouth thereof, the exterior wall of said ring conforming to the contour of said mouth, said ring being provided with a plurality of outlet-orifices.

2. A steam-blower comprising a tube, a steam-ring supported in the mouth thereof, the exterior wall of said ring conforming to the contour of said mouth, an inner ring concentric to said former ring, said rings being each provided with a plurality of outlet-orifices.

3. A steam-blower comprising a tube having a bell-mouth, and a steam-ring supported within and conforming to the contour of said mouth, said ring being provided with a plurality of outlet-orifices.

4. A steam-blower comprising a tube having a bell-mouth, and a steam-ring supported in said mouth, said ring having an outer wall conforming to the contour of said bell-mouth, the inner wall of said ring being convex in cross-section, said ring being also provided with a plurality of outlet-orifices.

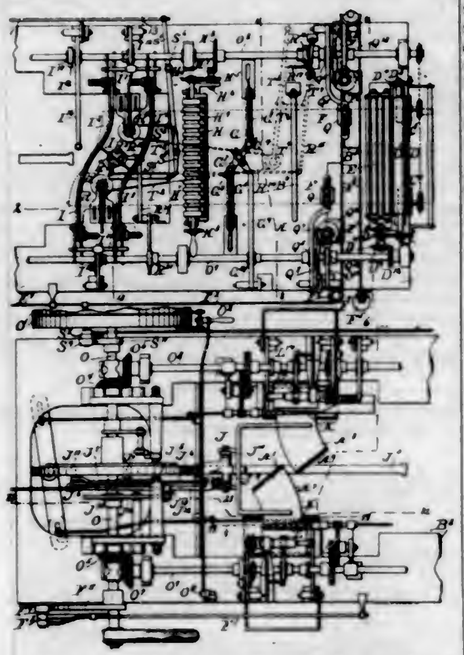
5. A steam-blower comprising a tube, and a steam-ring supported within and conforming to the contour of the mouth thereof said ring having a forward beveled face provided with a plurality of outlet-orifices.

6. A steam-blower comprising a tube having a bell-mouth, a steam-ring supported in said mouth, said ring having an outer wall conforming to the contour of said bell-mouth, the inner wall of said ring being convexed in cross-section, and an inner ring concentric to said former ring, said rings being each provided with a plurality of outlet-orifices.

7. In a steam-blower, a tube having a bell-mouth, recesses being formed in the walls of said mouth, a steam-ring mounted within said mouth and conforming to the contour thereof, and bosses formed

on said ring and fitting within said recesses, said ring having a plurality of outlet-orifices.

749,051. MACHINE FOR MAKING PAPER TUBES. CHARLES PERROT, Reims, France, assignor to John H. Haworth and Walter S. Watson, Lowell, Mass. Filed July 29, 1893. Serial No. 481,832. (No model.)



Claim.—1. A machine for making paper tubes, comprising a set of continuous-feed rollers, a set of intermittent-feed rollers, a compensating device, a perforating device, a paper-cutting device, and disks for turning the cut-off papers, in combination with a spindle for winding up the piece of paper to form the tube, substantially as shown and described.

2. A machine for making paper tubes, comprising a wetting device, a set of continuous-feed rollers, a set of intermittent-feed rollers, a compensating device, a perforating device, a paper-cutting device, and disks for turning the cut-off papers, in combination with spindles for winding up the pieces of paper to form the tubes, and revolving brushes for supplying adhesive substance to the surface of the paper to unite its folds into a tube, substantially as shown and described.

3. A machine for making paper tubes, comprising a wetting device, a set of continuous-feed rollers, a set of intermittent-feed rollers, a compensating device, a printing device, a perforating device, a paper-cutting device, and disks for turning the cut-off papers, in combination with spindles for winding up the pieces of paper to form the tubes, a rotating brush for supplying adhesive substance to the surface of the paper to form the walls of the tube, and a tube-removing device for pushing the tube off the spindle when finished, substantially as shown and described.

4. In a machine for making paper tubes, an edge-wetting apparatus adapted to wet both edges of a continuous strip or web of paper as it enters the machine, in combination with a perforating apparatus, with cutters adapted to sever a double blank from the paper strip and divide it into two complete blanks, and with revoluble disks for partially rotating each blank and presenting its cut edge in line with the axis of the winding-spindle, substantially as shown and described.

5. In a machine for making paper tubes, an edge-wetting apparatus adapted to moisten both edges of a continuous strip or web of paper before paste is applied, in combination with feed-rollers and cutting mechanism acting subsequently to the moistening apparatus, and with turning disks and grippers for presenting the blanks to the spindles so that when the tube is completed the wetted edge of the blank shall form its terminal layer, substantially as shown and described.

6. In a machine for making paper tubes, a reciprocating punch for perforating the paper web, in combination with a set of shears adapted to cut from the opposite edges of the web into the same perforation, for cutting off the piece of paper at the desired line, substantially as shown and described.

7. In a machine for making paper tubes, a perforating device for the continuous web and a clamping device adapted to seize the forward end of said web before it is cut off, in combination with a set of shears adapted to cut from the opposite edges of the web into the same perforation for cutting off the piece of paper on a proper line, a knife arranged transversely to sever the piece of paper cut off by the shears, and an adjustable anvil arranged under the paper to permit said knife to properly cut the paper, substantially as shown and described.

8. In a machine for making paper tubes, a perforating device for the continuous web and a clamping device adapted to seize the forward end of said web before it is cut off, in combination with a paper-cutting device comprising sets of curved shears for trimming the forward end of the paper in a curved line and for cutting off the piece of paper also on a curved line, the cutters of each set cutting from the opposite edges of the web into the same perforation, and a cutting device arranged obliquely to sever the piece of paper cut off by the shears so as to form two complete blanks, said cutters terminating in said perforations, substantially as shown and described.

9. In a machine for making paper tubes, an edge-wetting mechanism, adapted to moisten both edges of the advancing sheet, in combination with a cutting mechanism adapted to cut from said sheet a strip of paper having two wet edges and to afterward shape and sever such strip, and with a clamping and turning mechanism for turning said severed pieces partially around so as to bring their wetted edges inward, toward the center of the machine, substantially as shown and described.

10. In a machine for making paper tubes, an edge-wetting mechanism, a paper cutting and severing mechanism operating as described, and half-rotating disks adapted to hold and turn the paper pieces, in combination with jaws adapted to clamp said pieces, and means for moving the jaws forward and backward to carry the paper from the disk to the spindles, and with pasting apparatus, acting after the blank reaches the spindle, substantially as shown and described.

11. In a machine for making paper tubes, an adhesive-substance-supplying device, comprising a cylindrical brush, a frame mounted to swing and in which the said brush is journaled, and means, substantially as described, for imparting a swinging motion to said frame, whereby said brush first applies paste to the paper piece upon the spindle, then withdraws, and again advances to brush off the surplus paste from the exterior of the tube, in combination with means for rotating the said brush, substantially as shown and described.

12. In a machine for making paper tubes, an adhesive-substance-supplying device, comprising a revoluble brush, a frame mounted to swing and in which the said brush is journaled, means, substantially as described, for imparting a swinging motion to the said frame, and means for rotating the said brush, in combination with an arm mounted to swing to and from the liquid-receptacle and provided with a plate adapted to dip into the adhesive substance and carry the same to the bristles of the said brush, substantially as shown and described.

13. In a machine for making paper tubes, a rotating slotted winding-spindle, and a presser-foot arranged under the said spindle and adapted to press the paper thereon, in combination with a rotary cylindrical brush adapted to deliver adhesive material to the paper while on the spindle, means to cause it to recede therefrom for partial cleansing, and means to cause it to again bear upon the tube to remove the surplus paste, substantially as shown and described.

14. In a machine for making paper tubes, rotatable clamping-disks mounted on coincident axes within their periphery and means for partially rotating said disks and the clamped piece of paper without a swinging movement of the clamps, substantially as shown and described.

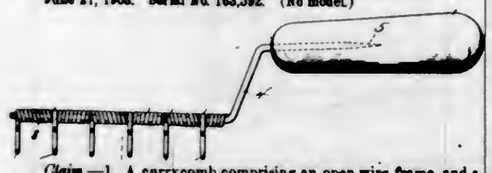
15. In a machine for making paper tubes, two clamps provided with means to move vertically, one toward the other to seize the paper blank, and means to cause said clamps to partially rotate together on axes within their periphery and with the blank between them, without sidewise movement of the axis of said clamps, substantially as shown and described.

16. In a machine for making paper tubes, a clamp having two flat-faced members between which the paper blank is held, each member having a perpendicular shaft on which it makes a partial rotation, the center of such movement being within the outlines of the blank held by the clamp, in combination with means for actuating said clamps vertically and axially, substantially as shown and described.

17. In a machine for making paper tubes from a continuous web, clamping and turning disks provided with means to seize the paper before it is cut off and turn each blank after it is severed, so as to place the outermost margin of the turned blank in line with the slot in the winding-spindle without sidewise movement of the clamps, in combination with winding-spindles located nearer the outer edges of the machine than are said clamps and with their longitudinal slots normally open toward the center of the machine, with reciprocating carrying-jaws provided with means to seize the paper blank after it has been turned as stated and deliver it, free from paste, to the spindle with its outermost edge in said slot, and with pasting apparatus located beside said spindle and provided with means to apply paste to the blank after it reaches the spindle only, substantially as shown and described.

18. In a machine for making paper tubes, carrying means adapted to move the shaped blank to the spindle and insert one of its edges into the slot of the spindle, in combination with pasting apparatus located beside the spindle and including a rotating brush and a reciprocating presser-foot and means to cause said brush to advance and deliver paste to the blank, then to recede therefrom while the presser-foot acts, and afterward to again advance, wipe off the surplus paste and finish the lap of the tube, substantially as shown and described.

749,052. CURRYCOMB. DAVID M. FRIEDT, Seville, Ohio. Filed June 27, 1903. Serial No. 163,392. (No model.)



Claim.—1. A currycomb comprising an open wire frame, and a series of bars of teeth each composed of a length of wire reversely crimped or bent to form a plurality of teeth, the end portions of the wire being coiled to form spacing-sleeves which encircle the opposite side portions of the frame and hold the bars of teeth at a suitable distance apart, substantially as described.

2. A currycomb comprising an open wire frame, and a series of bars of teeth each bar being formed of a length of wire reversely crimped or bent to form a plurality of teeth, the end portions of the wire being provided with coils which are inwardly and outwardly offset, said coils forming spacing-sleeves which encircle the side bars of the frame, substantially as described.

3. A currycomb comprising an open wire frame, and a series of bars of teeth, each bar being formed of a length of wire reversely bent or crimped to form a plurality of teeth and having its ends bent to form inwardly and outwardly offset coils which constitute spacing-sleeves encircling the side bars of the frame, the coils of one bar being offset in the opposite direction to those of the adjoining bar so as to produce a staggered relation of the teeth of the comb, substantially as described.

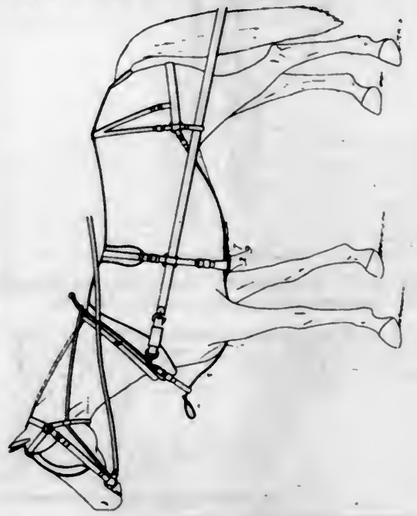
749,053. GOLF-BALL, &c. CHARLES J. GRIST, Apsley, Banstead, England. Filed Sept. 19, 1903. Serial No. 173,895. (No model.)



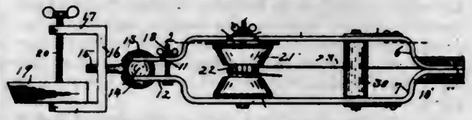
Claim.—A golf-ball comprising a spherical core formed of fibrous material, oxidized oil, a drying agent, sulfur and rubber treated and compounded in the manner and substantially in the proportions herein described, a wrapping of vulcanized rubber tape wound about said ball, and an outer shell or cover molded about the tape or wrapping.

749,054. HARNESS. JOHN L. HALLER and GEORGE L. BAKER, Bushton, Kans.; said Baker assignor to said Haller. Filed May 3, 1902. Serial No. 105,799. (No model.)

Claim.—The combination with a looped strap end, of a metallic strip within the loop and extending along the inner side of one member thereof, the forward extremity of the metal strip being bent upon itself and closely engaging the inner surface of the front portion of the loop and having its terminal carried to a point intermediate the length of the loop and bent at angle with its edge extending transversely of the loop and firmly engaging the opposite member of the metallic strip, to form a reinforce to prevent the looped strap end from collapsing and to divide the said loop into front and rear portions, separated from each other, and a D having its rear members arranged in the front portion of the loop.



749,055. TENSION DEVICE FOR HARVESTER-BINDERS. JOHN F. HARNISH, West Hari township, Lancaster county, Pa. Filed Apr. 24, 1901. Serial No. 57,231. (No model.)



Claim.—1. The combination, in a tension device, of oppositely-located plates, the ends of each plate being turned toward the ends of the other plate and then said ends of both plates turned away from and in the direction of the length of said plates, one pair of said ends having grooves in their inner faces forming an eye, the other pair of said ends engaging a support, and a tension-sheave journaled in said plates, for the purpose specified.

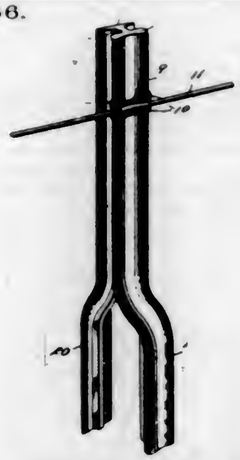
2. The combination, in a tension device for harvesters, of oppositely-located plates forming a frame, an eye formed at one end of said frame, a tension-sheave between the ends of the frame, and a universal joint connecting the other end of the frame with its support.

3. The combination, in a tension device for harvesters, of oppositely-located plates forming a frame, an eye formed at one end of said frame, a tension-sheave between the ends of the frame, sockets on the other ends of the sides of the frame, a ball embraced by said sockets and a screw regulating the pressure of the sockets on the ball, for the purpose specified.

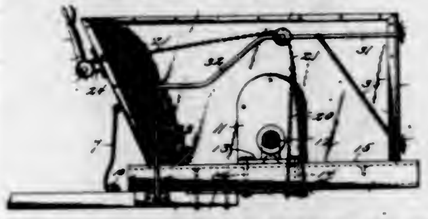
749,056. FENCE-POST. JOHN K. HARRIS, Cleng, Va. Filed May 16, 1903. Serial No. 157,414. (No model.)

Claim.—The combination with a fence-post including a vertical member having a concaved face, of a wire disposed against the concaved face, and a clip-plate including a body portion having a longitudinal channel in which the wire is received, said clip-plate being disposed over the wire and having spaced fingers at each end disposed astraddle of the wire and engaged around the side edges of the concaved member, the clip-plate above and below the wire being bent into the concavity of the post.

749,056.



749,057. DUMPING-CART. WILLIAM R. HARRIS, Philadelphia, Pa. Filed Sept. 9, 1903. Serial No. 172,509. (No model.)



Claim.—1. A dumping-cart body having a bottom fully open from the front wall to the rear end thereof and also provided with a rear open end, a single gate for the rear open end of the body, a pair of gates for closing the bottom of the body, said gates having independent operating means, and means connected to the opposite sides of the body for supporting the latter to fully clear the under side of said body and permit the bottom gates to have free operation in their opening and closing movements, the said bottom gates being fulcrumed adjacent to the opposite ends of the body and opening from the center.

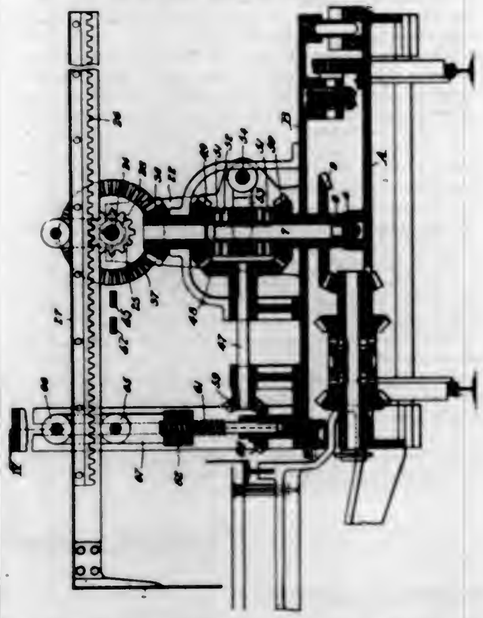
2. A dumping-cart, having a body movably attached to thills and provided with a fully-open rear end and bottom, an end-gate connected to the thills for automatic operation to release the load by the dumping operation of the body, gates cooperating with the open bottom of the body and movably attached adjacent to opposite extremities of the latter, said bottom gates opening downwardly from the center, and having initial actuating means applied to the front end of the body for operation simultaneously with the release of said body for dumping action whereby both the end and bottom gates may be simultaneously operated to release the load through both the bottom and rear end of the body.

3. In a dumping-cart, the combination of a body fully open at the rear end and bottom, supporting means attached to the lower part of the body and located to one side of the open bottom to give full clearance to the latter, gates cooperating with the rear end and bottom of the body, independent means for releasing and closing said gates, and thills to which the said supporting means are hinged.

4. In a dumping-cart, the combination of a body having dumping means at the bottom, sills for the bottom, formed of channel-iron and projected outwardly clear of the bottom of the latter, wood-fillers in the sills to lighten and stiffen the same, thills to which the said sills are movably attached, and end and bottom gates for the said body having independent operating means, the bottom gates [illegible]ng free to move downwardly and upwardly between the opposite side portions of the sills.

5. In a dumping-cart, the combination of draft devices, sills formed of channel-iron and movably attached to said draft devices, a body secured to the sills and having end and bottom gates, the said sills being projected outwardly beyond the opposite sides of the body and clear of the bottom of the latter, stub-axles secured to the outer portions of the sides of the body and resting on the sills, and means for opening and closing said gates.

749,058. COKE-DRAWING MACHINE. JOHN A. HESS, Uniontown, Pa., assignor to the Hobb Coke Drawer Company of Uniontown, Pa. Filed Aug. 21, 1902. Serial No. 120,559. (No model.)



Claim.—1. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of screw mechanism for raising and depressing the beam, substantially as set forth.

2. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of screw mechanism for raising and depressing the inner end of the beam, substantially as set forth.

3. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of means for providing bearings for the beam at varying heights, and screw mechanism for actuating said means, substantially as set forth.

4. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of vertically-adjustable bearings adapted to engage the beam from above and underneath, and screw mechanism for actuating said bearings, substantially as set forth.

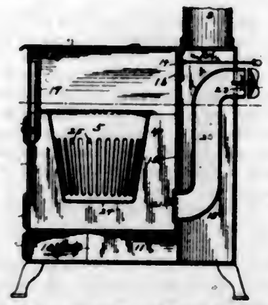
5. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of vertically-adjustable bearings adapted to engage the beam from above and underneath, with screw mechanism for holding said bearings at varying heights, substantially as set forth.

6. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of a vertically-adjustable framework provided with rollers adapted to engage the beam from above and underneath, and screw mechanism for actuating said framework, substantially as set forth.

7. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of a vertically-adjustable framework provided with rollers adapted to engage the beam from above and underneath, with screw mechanism for raising and lowering said framework and rollers, substantially as set forth.

8. In a coke-drawing machine, the combination with a longitudinally-movable beam provided with a scraper, of a vertically-adjustable framework provided with rollers adapted to engage the beam from above and underneath, with screw mechanism for raising and lowering said framework and rollers, and for holding them at varying heights, substantially as set forth.

749,059. STOVE. CHRISTIAN D. HELWIG, Kansas City, Kans., and WILFRED W. MONTAGUE, San Francisco, Cal.; said Montague assignor to said Helwig. Filed Mar. 5, 1902. Serial No. 96,814. (No model.)



Claim.—In a stove, a casing, a fire-box having its rear and side walls spaced from said casing, the side spaces communicating with the fire-box and forming diving-flues and the rear spaces forming the uptake, and an air-feeding pipe located in the rear space and having an inlet near the top of the stove and an outlet in the lower portion of the fire-box.

749,060. BOTTLE-STOPPER. THEODOR HENTGEN, New York, N. Y. Filed Sept. 23, 1903. Serial No. 174,964. (No model.)



Claim.—1. A bottle-stopping device, comprising a stopple for the mouth of the bottle, a lever, a compressible spring connection interposed between said stopple and lever, a standard supporting said lever detachably attached to the bottle-neck, a finger-lever pivoted to the outer end of the first lever, and links pivotally connected to said finger-lever and the standard for oscillating and holding said lever.

2. A bottle-stopping device comprising a semicircular clamp detachably attached to the neck of the bottle, a standard rising from said clamp, a lever pivoted on said standard, a stopple on the inner end of the lever, a finger-lever pivoted to the outer end of said lever and links pivotally connected to the finger-lever and the standard whereby the stopple may be forcibly seated on the mouth of the bottle, substantially as described.

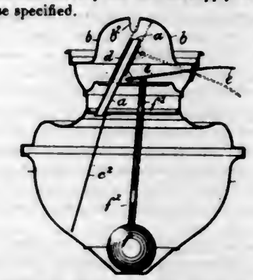
3. In a bottle-stopple, the combination of a clamp, a standard rising therefrom, a lever pivoted to the upper end of the standard, a stopple suspended from the inner end of said lever adapted to close the mouth of the bottle, a projecting finger-lever pivotally connected to the outer end of said first lever, and links pivotally connected to said finger-lever and the standard, substantially as described.

4. A detachable bottle-stopple, comprising a clamp a standard rising therefrom, a lever pivoted to the upper end of the standard, a stopple suspended from the inner end of said lever adapted to close the mouth of the bottle, a spring interposed between the lever and stopple, a finger-lever pivotally connected to the outer end of said first lever, and a link connection between said second lever and the standard forming a toggle for operating the first lever, substantially as described.

749,061. LAMP-EXTINGUISHER. HARRY D. HIXES, Birmingham, England. Filed July 6, 1903. Serial No. 164,462. (No model.)

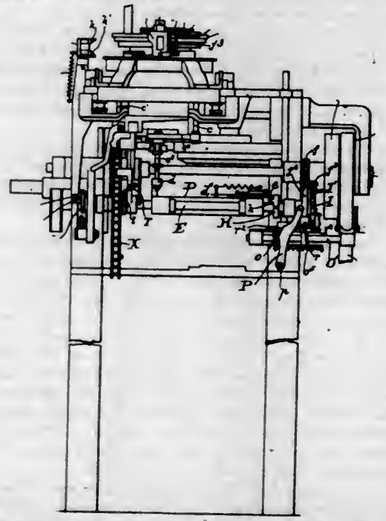
Claim.—1. In a lamp, the combination with a wick-tube the longitudinal axis of which is disposed at an angle relatively to a vertical plane passing through the slot in the burner-cone, and an extinguisher-tube slidably arranged on the wick-tube, said wick-tube being arranged at such an angle that when the extinguisher-tube is raised it will abut the imperforate portion of the burner-cone and thereby cut off the supply of air to the wick, for the purpose specified.

2. In a lamp, the combination with a wick-tube the longitudinal axis of which is arranged at an angle relatively to a vertical plane passing through the slot in the burner-cone, an extinguisher-tube slidably arranged on the wick-tube, and means for raising the extinguisher-tube, the arrangement being such that when the extinguisher-tube is raised its end will abut the imperforate portion of the burner-cone and thereby cut off the supply of air to the wick, for the purpose specified.



3. In a lamp, the combination with a wick-tube the longitudinal axis of which is arranged at an angle relatively to a vertical plane passing through the slot in the burner-cone, of an extinguisher-tube slidably arranged on the wick-tube, and means for automatically raising said extinguisher-tube when the lamp is tilted to one side, the arrangement being such that the end of the extinguisher-tube when raised will abut against the imperforate portion of the burner-core and cut off the supply of air to the wick, for the purpose specified.

749,062. CIRCULAR-KNITTING MACHINE. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to Standard Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Aug. 27, 1903. Serial No. 170,894. (No model.)



Claim.—1. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, means adapted to level all the needles, mechanism for controlling said means, normally out of action, and means for automatically throwing said mechanism into action during the rotation of the cam-cylinder.

2. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, means adapted to level all the needles, mechanism normally out of action for controlling the operation of said means, a pattern mechanism, and connection between said pattern mechanism and said needle-leveling-controlling mechanism for throwing the same into action at the desired point, during the rotation of the cam-cylinder.

3. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism adapted to level all the needles, and means to automatically operate said mechanism during the rotation of the cam-cylinder.

4. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism for throwing the thread-carrier out of operative position, mechanism for level-

ing all the needles, mechanism for stopping the machine, interconnected devices normally out of action for operating said mechanism, and means controlled by the machine to throw said devices into action.

5. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination of mechanism for leveling all the needles, mechanism to throw the thread-carrier out of action, and means to automatically control the operation of said mechanisms during the rotation of the cam-cylinder.

6. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination with mechanism to throw the thread-carrier out of operative position, and mechanism to level all the needles, of pattern mechanism, and connections between said pattern mechanism and said thread-carrier and needle-leveling mechanisms, for controlling the operation of said needle-leveling mechanism and thread-carrier mechanism during rotation of the cam-cylinder.

7. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination, with mechanism to throw the thread-carrier out of action and mechanism to level all the needles, of means controlled by the machine for controlling the operation of said mechanisms, and causing them to operate in a predetermined manner.

8. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination with mechanism to throw the thread-carrier out of action, mechanism to level all the needles and mechanism to stop the machine, of means to automatically control the operation of said mechanisms.

9. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination with mechanism to throw the thread-carrier out of operative position, mechanism to level all the needles and mechanism to stop the machine, of pattern mechanism and connections between said pattern mechanism and said thread-carrier, needle-leveling, and stop mechanisms, for controlling the operation of said mechanisms.

10. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, driving means for the same, mechanism for leveling all the needles and connection between said driving means and said needle-leveling mechanism for automatically operating and controlling the operation of the same during the rotation of the cam-cylinder.

11. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism for leveling all the needles, mechanism to stop the machine, and means controlled by the machine for controlling the operation of said mechanisms in a predetermined manner.

12. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism for leveling all the needles, mechanism for stopping the machine and interconnected devices for operating said mechanisms, said devices operating in a predetermined order with reference to each other.

13. In a circular-knitting machine, in combination with the cam-cylinder, needle-cylinder and needles therein, of mechanism for throwing a portion of the needles radially out of operative position, mechanism to stop the machine, and a device for controlling the operation of said mechanisms adapted to first operate the needle mechanism and then the stop mechanism so that the last-mentioned mechanism goes into action when the cam-cylinder cams are in line with the needles thrown out of operative position.

14. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination with the cam-cylinder, needle-cylinder and needles therein, of mechanism for throwing a portion of the needles radially out of operative position, mechanism to stop the machine, a device for controlling the operation of said mechanisms adapted in the movement of the machine to first operate the needle mechanism and then the stop mechanism so that the last-mentioned mechanism goes into action when the cam-cylinder cams are in line with the needles thrown out of operative position.

15. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism for leveling all the needles, mechanism for stopping the machine, pattern mechanism, and connections between the pattern mechanism and the leveling and stopping mechanisms whereby the latter are thrown into operation.

16. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination with the cam-cylinder, needle-cylinder and needles therein, of mechanism for throwing a portion of the needles radially out of operative position, mechanism to stop the machine, a device for controlling the operation of said mechanisms adapted to first operate the needle mechanism and then the stop mechanism, so that the last-mentioned mechanism goes into action when the cam-cylinder cams are in line with the needles thrown out of operative position, pattern mechanism, and means controlled by the pattern mechanism to control the operation of said device.

17. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism to throw the thread-carrier out of action, mechanism to level all the needles, mechanism to stop the mechanism to stop the machine, a ratchet and pawl, and connections between the ratchet and said mechanisms.

18. In a circular-knitting machine, for the purpose of preparing the machine for transferring, in combination, mechanism to throw the thread-carrier out of action, mechanism to level all the needles, mechanism to stop the machine, a ratchet and pawl, connections between the ratchet and said mechanisms adapted to operate said mechanisms in a predetermined manner, pattern mechanism, and means actuated by the pattern mechanism to throw said ratchet and pawl into operative relation.

19. In a circular-knitting machine, in combination, mechanism to throw the thread-carrier out of operation, mechanism to level all the needles, mechanism to stop the machine, a pawl and ratchet, a shaft upon which said ratchet is secured, cams upon said shaft, and operative connections between said cams and said mechanisms.

20. In a circular-knitting machine, in combination, mechanism to throw the thread-carrier out of operation, mechanism to level all the needles, mechanism to stop the machine, a pawl and ratchet, a shaft upon which said ratchet is secured, cams upon said shaft, operative connections between said cams and said mechanisms, the cams being so arranged that the mechanisms are operated in a predetermined manner, pattern mechanism, and means actuated by the pattern mechanism to throw said ratchet and pawl into operative relation.

21. In a circular-knitting machine, in combination, mechanism to throw the thread-carrier out of operation, and mechanism to level all the needles, mechanism to stop the machine, a shaft, cams upon said shaft, operative connections between said cams and said mechanisms, and means to rotate said shaft.

22. In a machine of the character described, in combination, a thread-carrier, a thread-carrier support, said thread-carrier being hinged to said support, a gear on said carrier, a gear pivotally connected to said support, said pivoted gear having an extension, a cam-plate, said plate being vertically movably supported, cams secured to said plate, one cam being in one position of the plate in line with said gear extension, and the other cam in the other position of the plate, said cams being oppositely inclined, and means automatically to move said plate vertically.

23. In a machine of the character described, in combination, a thread-carrier, a thread-carrier support, said thread-carrier being hinged to said support, a gear on said carrier, a gear pivotally connected to said support, said pivoted gear having an extension, a cam-plate, cams secured to said plate, one cam being in one position of the plate in line with said gear extension, and the other cam in the other position of the plate, said cams being oppositely inclined, a vertically-movable rod supporting said plate, a shaft, a cam upon said shaft having a high point, connection between said cam and rod, and automatic means to rotate said shaft.

24. In a circular-knitting machine, for the purpose of preparing the machine for transferring, the combination of mechanism for leveling all the needles, mechanism to stop the machine, and means to automatically control the operation of said mechanisms.

25. In a circular-knitting machine, for the purpose of leveling all the needles, in combination with the cam-cylinder, needle-cylinder, and needles therein, of means to throw a portion of the needles out of operative position, mechanism normally out of action adapted to throw said means into action, and means acting automatically, during the rotation of the cam-cylinder, to throw said mechanism into action.

26. In a circular-knitting machine, for the purpose of leveling all the needles, in combination with the cam-cylinder, needle-cylinder and needles therein, of means to throw a portion of the needles out of operative position, mechanism normally out of action adapted to throw said means into action, and pattern mechanism adapted, during the rotation of the cam-cylinder, to throw said mechanism into action.

749,063. BOTTLE-STOPPER. ELBRIDGE G. HOWE, Millbury, Mass. Filed Dec. 6, 1902. Serial No. 134,075. (No model.)

Claim.—1. The combination with a vessel having an annular ground surface surrounding its mouth, of a glass stopper, consisting of a circular disk having on its under side a projecting annular rib corresponding to the annular ground surface on said vessel and provided with a ground surface, substantially as described.

2. The combination of a vessel and a cover seated upon the mouth of the vessel and having a conical projection on its upper surface, and a retaining-cap having a central hole to receive said conical surface and means for attaching said cap to the vessel, substantially as described.

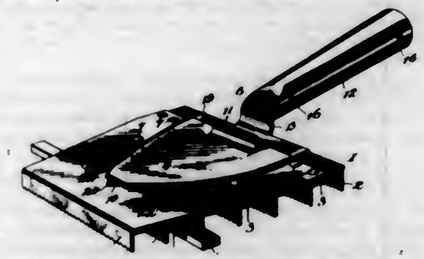


3. The combination with a vessel having an annular ground surface surrounding its mouth, of a glass stopper consisting of a disk provided with an annular projecting rib on its under side having a ground surface corresponding to the annular ground surface of said vessel and means for retaining said disk on the vessel, with their ground surfaces in contact, substantially as described.

4. The combination with a glass vessel having an annular ground surface around its mouth lying in a plane substantially at right angles with the axis of the vessel, a glass cap having a rib with a ground face corresponding with the ground surface on the vessel and having a conical upper surface, a metallic cap inclosing said stopper and means for engaging said cap and the vessel, substantially as described.

5. The combination with a glass vessel, of a glass stopper, said stopper and vessel having plane contacting ground surfaces lying substantially in a plane at right angles with the axis of the vessel, said stopper having a conical top, a metallic cap overlapping said stopper and having a central hole to receive the conical top of the stopper and means for drawing said cap against the stopper, substantially as described.

749,064. CURRYCOMB. THOMAS A. HOWES, Hoin, Ill. Filed July 14, 1903. Serial No. 165,475. (No model.)



Claim.—1. A currycomb provided with a socket or sheath, and a trowel having its blade arranged in the socket or sheath, the handle of the trowel being arranged to form the handle of the currycomb, substantially as described.

2. A currycomb having a socket or sheath, and a handle extending from the currycomb and provided with a blade arranged in the socket or sheath, substantially as described.

3. A currycomb provided with a handle having a blade detachably connected with the currycomb, whereby the handle is adapted to be removed from the currycomb, substantially as described.

4. A currycomb provided with a socket or sheath extending inward from one end of the currycomb, and a handle extending outward from such end of the currycomb and provided with a blade arranged in the socket or sheath, substantially as described.

5. A currycomb provided with a socket or sheath and having a projecting thumb-piece or grip located adjacent to the outer end of the socket or sheath, and a removable handle extending outward from the currycomb at the outer end of the socket or sheath and provided with a blade arranged within the same, substantially as described.

6. A currycomb having a removable handle provided with a cleaning-tool concealed within the currycomb when the handle is attached to the same, substantially as described.

7. A currycomb provided at its back with a socket or sheath having an aperture at its inner end, and a handle extending from the currycomb and provided with a blade fitted in the socket or sheath and exposed at the aperture, substantially as described.

8. A currycomb provided with a socket or sheath extending inward from one end of the currycomb and provided at its inner end with an aperture, and a trowel having its blade fitted in the socket or sheath and exposed at the aperture thereof and adapted to be tightened by compressing the socket or sheath, substantially as described.

9. A currycomb having a socket or sheath, and a trowel comprising a handle extending from the currycomb and forming a handle for the same, and a blade fitted in the socket or sheath and provided at one side with teeth, substantially as described.

10. A currycomb having a socket or sheath, and a trowel comprising a handle extending from the currycomb and forming a handle for the same, and a blade fitted in the socket or sheath and provided at its inner end with a recess or cut-away portion forming a projecting side portion or hook for cleaning the hoof of an animal, substantially as described.

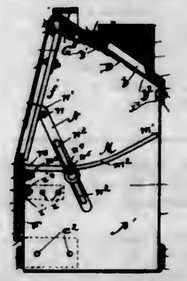
11. A currycomb having a socket or sheath, and a trowel comprising a handle extending from the currycomb and forming a handle for the same, and a blade fitted in the socket or sheath and provided at one side with teeth and having its other side cut away at the inner end to form a projecting side portion or hook, substantially as described.

12. A currycomb having a socket or sheath and provided at the inner end thereof with an aperture, a knocker-bar arranged on the inner or lower face of the back of the comb, and a handle extending from the currycomb and provided with a blade fitted in the socket or sheath and exposed at the aperture, substantially as described.

13. A currycomb having a socket or sheath, and a trowel constructed of a single piece of sheet metal and consisting of a blade arranged in the socket or sheath, a handle extending from the socket or sheath, and a shank arranged at the inner end of the handle and extending from the top of the same to the blade, substantially as described.

14. A currycomb comprising a back provided with comb-bars, a plate secured to the back of the currycomb and offset therefrom to form a socket and provided at the inner end of the socket with an aperture, a knocker-bar located at the inner or lower face of the back of the comb, and a trowel having a blade fitted in the socket or sheath, substantially as described.

749,065. WARM-AIR REGISTER. THOMAS E. HUNT, Blue Island, Ill., assignor to Quaker Manufacturing Company, Chicago Heights, Ill., a Corporation of Illinois. Filed Feb. 24, 1903. Serial No. 144,796. (No model.)



Claim.—1. In a warm-air register, the combination of a box or casing, provided with a rear wall, end walls and a top extending obliquely upward from the rear wall; a socket formed on the lower edges of the walls by giving the metal thereof an upward and a reverse turn; a collar attached to the obliquely-disposed top; a front frame provided with a circumferentially-extending groove or recess, into which the front edges of the end walls and top of the box or casing are adapted to fit, the frame being provided with an opening in its upper section; a grate within the box or casing, and a swinging door secured at its upper edge and adapted to swing within the box and above the grate for regulating the passage of air through the register; a slotted arm pivoted to the door and slidably attached to the grate for holding the door in adjusted position with respect to the grate, substantially as described.

2. In a warm-air register, the combination of a box or casing, having a rear wall, an open top and end walls formed of a single piece of metal (sheet), and having around its lower edge a socket formed by giving the metal composing the rear walls and ends, an upward and a reverse turn; a cross-bar extending across the lower front face of the box or casing, and having formed therein a socket coacting with the sockets in the rear and end walls; a front frame provided

with an opening in its upper section and provided with a circumferentially-extending groove or recess, into which the front edges of the box or casing are adapted to fit; a grate within the box or casing, and a swinging door adapted to open and close the opening in the front frame; flat springs connecting the door with the upper part of the frame, and a slotted arm pivoted to the door and slidably attached to the grate for holding the door in adjusted position with respect to the grate, substantially as described.

3. In a warm-air register, in combination with a grate and swinging door, out of contact with the grate; a slotted arm pivoted to the door; a screw-threaded bolt extending through one of the bars of the grate; a coiled spring encircling said bolt, and the adjusting-nut for regulating the pressure of the coil-spring, allowing the door to be swung and held in adjusted position with respect to the grate, substantially as described.

4. In a warm-air register, the combination of a frame having an opening therein, a swinging door adapted to close the opening of the frame, a grate out of contact with the door, a slotted arm pivoted to the door, a pin or bolt passing through one of the bars of the grate and through the slot in the arm allowing the door to be swung and the slotted arm to travel on the pin to hold the door in adjusted position with respect to the grate, substantially as described.

5. In a warm-air register, the combination of a frame having an opening therein, a swinging door adapted to close the opening of the frame, a grate out of contact with the door, a slotted arm pivoted to the door, a pin or bolt passing through one of the bars of the grate and through the slot in the arm, and means for exerting a pressure against the slotted arm to prevent its easy movement with respect to the pin or bolt allowing the door to be swung and the slotted arm to travel on the pin to hold the door in adjusted position with respect to the grate, substantially as described.

6. In a warm-air register, the combination of a front frame having an opening therein, a swinging door adapted to close the opening, a grate rigidly attached to the rear face of the front frame, a slotted arm connecting the door and grate and pivotally attached at one end to one of the two connected members, a rigidly-mounted pin or bolt on the other one of the connected members along which the slotted arm is adapted to travel, and means for exerting a pressure against the slotted arm to prevent its easy travel with respect to the pin or bolt allowing the door to be swung and the slotted arm to travel on the pin to hold the door in adjusted position with respect to the grate, substantially as described.

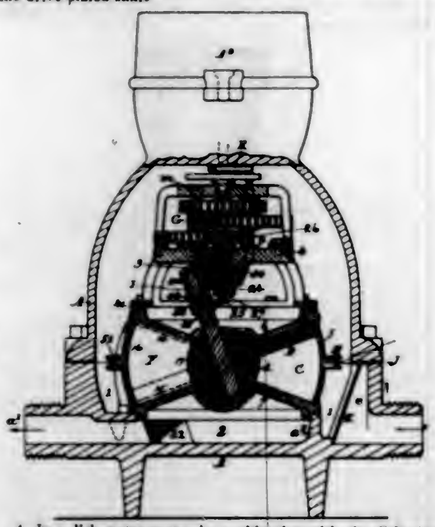
7. In a warm-air register, in combination with a grate, a swinging door out of contact with the grate, a slotted arm pivoted to one of the members, a screw-threaded bolt rigidly secured to the other member and adapted to permit travel of the slotted arm, a coiled spring encircling said bolt, and an adjusting-nut for regulating the pressure of the coiled spring against the slotted arm allowing the door to be swung and the arm to travel on the pin to hold the door in adjusted position with respect to the grate, substantially as described.

749,066. DISK WATER-METER. JOHN P. KELLY, Worcester, Mass., assignor to Union Water Meter Company, Worcester, Mass., a Corporation of Massachusetts. Filed Oct. 20, 1903. Serial No. 178,964. (No model.)

Claim.—1. In a water-meter of the character described, in combination with a flat mutating piston-disk, a disk-chamber casing comprising an undivided annular body-section the full height of the chamber and conformed as the equatorial zone of a sphere, and the upper and lower conoidal head-plates fitting and detachably secured to the edges thereof; said body-section provided on its exterior with a central outstanding ring flange having a V-shaped circular peripheral edge coincident with the mid-plane of the chamber.

2. In a disk water-meter, in combination with the mutating disk-piston; a disk-chamber casing comprising a complete annular body-section the full height of the chamber and externally provided with a central outstanding reinforce-flange, and the upper and lower conoidal head-plates respectively fitting and secured to the top and bottom edges of the body-section, an inlet-port through the wall, partly above and partly below the flange, and an exit-port within the side of the chamber transverse to the circle of said body-section, with its delivery-way at one edge thereof through the head-plate and into the space beneath the disk-chamber, substantially as set forth.

3. In a disk water-meter, the combination with the disk-piston stem having the shoulder, and the gear-stand having the tubular cylindrical depending bearing fixed thereon, and the drive-pinion shaft turning within said bearing, of the annular externally-coned ring revoluble on the exterior of said bearing, and the two-section roller mounted on the piston-stem, its upper section acting against said coned ring and its lower section acting against the offset end of the drive-pinion shaft



4. In a disk water-meter, in combination with the disk-piston and disk-piston stem having a shoulder, and the gear-stand having the depending cylindrical center bearing with the non-metallic tubular bushing fixed therein, the center pinion-shaft turning therein, the non-metallic conical center roll mounted to turn on said bearing, the two-sectioned cylindrical roller mounted to turn on the piston-stem, said roller comprising a lower non-metallic section, and an upper metal-faced section, and an intermediate collar-flange that extends under the edge of said conical center roll, for the purposes set forth.

5. In a disk water-meter, in combination with the disk-chamber provided with a flat upright diaphragm disposed in a position radial to the axis of the piston, a disk-piston having its slot disposed in oblique relation to such radial position, as shown and described.

6. In a disk water-meter, the main casing comprising the base-section, its bottom having the circular raised seat-flange, a removable bell-shaped section above the same, the disk-chamber casing provided on its top and bottom heads with annular centering flanges supported on said seat with a surrounding space within the main chamber, the gear-stand frame having a depending central bearing and provided with a circular-rim foot concentrically mounted upon the top of said disk-chamber, the intermediate gear-train, the center drive-pinion therefor, and the center shaft turning in said bearing; in combination with the disk-piston, piston-stem, and means for transmitting motion therefrom to said center shaft, substantially as set forth.

7. In a disk meter, in combination as described, the main casing comprising upper and lower sections, its lower section provided upon its bottom interior with an upwardly-projecting seating-flange dividing the central bottom chamber from the surrounding space, the oppositely-disposed inlet and outlet spuds, inlet and outlet passages formed in the casing, with the outlet-passages leading directly out from said central bottom chamber and the inlet-passage leading into the surrounding space, the disk-chamber comprising a body-section with detachable top and bottom conoidal head-plates, said bottom head-plate having an underrim-surface centering and matching upon said seat-flange, and supporting the disk-chamber with clear surrounding space within the main chamber, the gear-stand having a circular base centeringly supported upon the top head-rim, the mutating disk-piston, the intermediate register-driving train, and means for actuating the center shaft of said train.

749,067. MAGAZINE-STOVE. GEORGE H. KENDALL and WILLIAM L. COWDEN, Delphi, Ind. Filed July 20, 1903. Serial No. 167,508. (No model.)

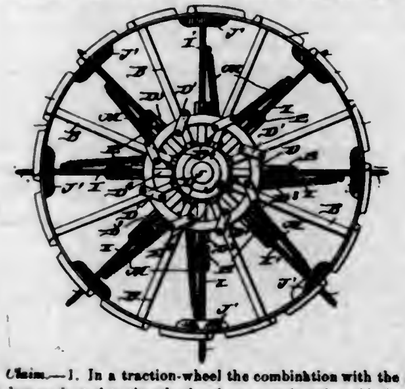
Claim.—1. In a device of the character described, the combination with a casing, of a magazine contained therein, a fire-pot secured beneath said magazine and mounted above an ash-casing, an annular member surrounding the magazine, said member provided with an extension engaging the outer edge of the fire-pot, an annular extension formed upon the upper edge of said member and encircling the wall of the magazine, an opening formed in the bottom of said member, and means secured to the member and providing an opening on the same horizontal plane with the member for supplying air thereto.



2. In a magazine-stove, the combination with an outer casing, a bracket retained to the inner wall of the stove, a fire-pot mounted upon said bracket secured to said casing, a funnel-shaped magazine mounted within the top of the stove and above the fire-pot, an annular member mounted upon said magazine, an extension formed upon said annular member at one side thereof and at the opposite side a cylindrical extension formed integral therewith and provided with means for communicating with the inner compartment of said annular member and the outer surface of the stove-casing, a flange partly inclosing the bottom of said annular casing and extending at an angle from the side thereof, and means for controlling the supply of air to the annular member.

3. In a magazine-stove, the combination with an outer casing, a magazine mounted within the outer casing, a fire-pot and an ash-casing assembled within the stove, a removable bracket secured to the inner face of the casing and engaging and supporting said ash-casing, a large compartment formed beneath the ash-casing communicating with an escape-pipe, an annular casing surrounding the magazine and provided with a cylindrical member connecting said annular casing with the outer casing, an extension and said cylindrical member formed integral with the annular casing for retaining the same in an assembled position with the other parts, an annular opening formed in the bottom of said annular casing and providing means for discharging heated air from said annular casing against the magazine-wall and into the line of combustion of the fuel contained within the fire-box.

749,068. TRACTION-ENGINE WHEEL. HERMANN F. KRUEGER, Brownton, Minn. Filed Apr. 4, 1903. Serial No. 151,142. (No model.)



Claim.—1. In a traction-wheel the combination with the plungers, levers pivoted to the wheel and connected to the said plungers, a cam for operating the said levers, movable sections formed upon the said cam and means for operating the said movable sections substantially as shown and described.

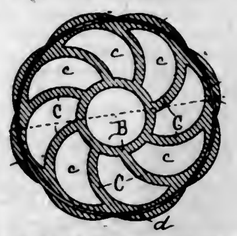
2. In a traction-wheel the combination with the plungers, of the levers carried by the said wheel and pivotally connected to the plungers, antifriction-rollers arranged upon the free ends of the levers, a cam arranged for engagement by the said antifriction-rollers, movable sections arranged in the cam, yielding pitman-rods connected to the said movable sections and a lever for operating the said pitmen, substantially as shown and described.

3. In a traction-wheel the combination of the plungers, levers pivoted within the wheel and connected to the plungers, a cam arranged for operating the said levers, movable sections formed in the said cam, springs for holding the said levers into engagement with the cam and means for operating the said movable sections substantially as shown and described.

4. A traction-wheel comprising the hub, spoke, and rim-sections, a band connected to the spokes, arms carried by the said band and having their outer ends formed into perforated ears the inner ends of the said arms terminating in plates whose ends are provided with ears that are arranged to straddle the spokes, the levers pivotally held between the ears of the said arms, plungers connected to the said levers, a cam for operating the said levers and springs for normally holding the levers into engagement with the cam all arranged substantially as and for the purpose specified.

5. A traction-wheel comprising the hub, spoke and rim, plungers operating therein, levers connected to the plungers, a cam for engagement by the levers, movable sections formed in the cam, a hand-lever for operating the movable sections, pitmen connecting the movable sections with the hand-lever to which the opposite ends of the pitmen are connected, said pitmen having their outer ends reduced and passed through pivoted journal-boxes carried by the lever and by which the said pitmen are connected to the lever and the springs arranged upon the pitmen upon opposite sides of the said journal-boxes all substantially as and for the purpose set forth.

749,069. COPE. WILLIAM LEARY, Chicago, Ill. Filed Aug. 12, 1903. Serial No. 169,197. (No model.)



Claim.—1. A cope of cast metal provided with a rim, a ring or band of wrought metal embedded in the rim, and a series of loops or staples surrounding the ring or band and provided with shanks extending downwardly from the ring or band and cut off to lie flush with the exterior face of the rim, substantially as described.

2. A cope of cast metal provided with a rim, a ring or band of wrought metal embedded in the rim, and a series of supporting-pins connected with the ring or band and provided with shanks extending downwardly from the ring or band and cut off to lie flush with the exterior face of the rim, substantially as described.

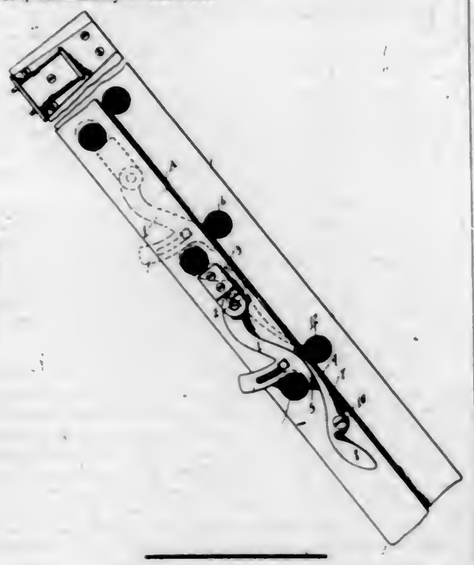
3. A cope of cast metal provided with a corrugated rim, a metal ring or band of proportionately tougher consistency embedded in the rim, and a series of pins connected with the ring or band and provided with shanks extending downwardly from the ring or band and cut off to lie flush with the exterior face of the rim, substantially as described.

749,070. EXTENSION-LADDER. MELVIN J. LEWIS, Ypsilanti, Mich. Filed Apr. 20, 1903. Serial No. 153,393. (No model.)

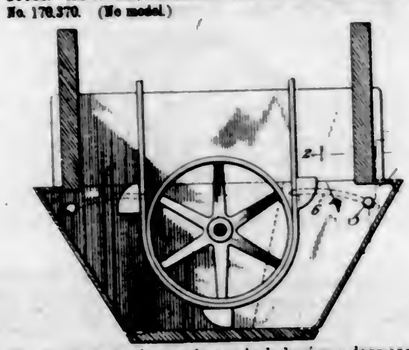
Claim.—1. In an extension-ladder, the combination of a hook pivoted to one part provided with an arm furnished with a slotted arch concentric to the pivot and with a horn projecting beyond the arm, a pin through said slot, a guard-piece pivoted to the ladder, provided with a guard-arm arranged to engage against the horn of the hook and with a weighted end counterbalancing the guard-arm arranged to hold the guard-arm normally in contact with the horn, substantially as described.

2. In an extension-ladder, the combination of a hook pivoted

to one part thereof provided with an arm extending to the side and a horn projecting beyond the arm, a guard-piece pivoted to the ladder provided with a guard-arm arranged to engage against the horn of the hook and with a weighted arm counterbalancing the guard-arm and arranged to hold the guard normally in contact with the horn, substantially as described.



749,071. DEVICE FOR RELIEVING CHOKE IN ELEVATOR-BOOTS. ISAAC LUTZ, Frankfort, Mich. Filed Aug. 21, 1903. Serial No. 170,370. (No model.)



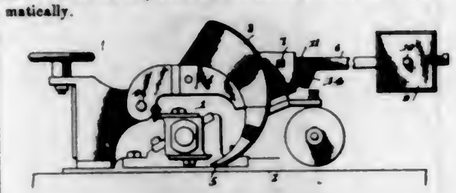
Claim.—1. In an elevator-boot a body having a door-opening, a guard comprising side and end pieces, having slots transversely disposed, means for hinging the guard in the door-opening, bolts in the slots of the sides and means for clamping the sides against the boot.

2. In an elevator-boot a body having a door-opening, side flanges for the door-opening, a guard pivoted in the door-opening and having a top flange fitting between the side flanges of the door-opening when the guard is closed, means for hinging the guard in the door-opening and means for clamping the guard to the boot.

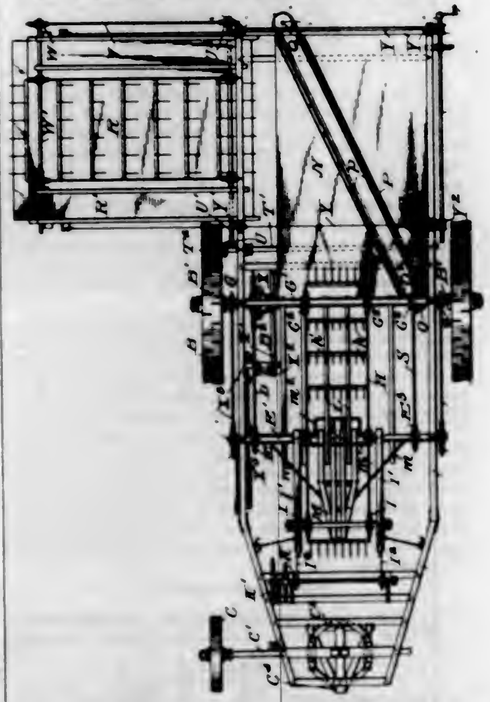
3. In an elevator-boot a body having a door-opening, a flange at each side of the door-opening, a guard comprising sides and an end piece, the said sides having slots therein, a flange on the upper end of the end piece fitting between the flanges of the door-opening, and hinge secured to the inner surface of the end piece at its lower end and secured to the lower edge of the boot-frame forming a door-opening, bolts projecting from the flanges of the boot into the slots of the guard and nuts for clamping the sides to the boot.

749,072. CHIP-BREAKER FOR WOODWORKING-MACHINES. CALVIN D. MARSH, Williamsport, Pa., assignor to Hermance Machine Company, Williamsport, Pa. Filed Aug. 20, 1903. Serial No. 171,282. (No model.)

Claim.—In a machine of the class described, the combination of a movably-mounted chip-breaker provided with upper and lower horizontal pockets open at one end, a weighted horizontal lever pivotally mounted at one end within the upper pocket and provided with a depending projection arranged at the open end of the lower pocket, and a coiled cushioning-spring housed within the lower pocket and interposed between the inner end thereof and the said projection and resting upon the bottom of the lower pocket, whereby the expansion and contraction of the spring incident to the vibration of the lever and the chip-breaker will operate to clean the pocket automatically.



749,073. CANE-LOADER. JOSEPH D. MARTINEZ, Whitecastle, La. Filed Sept. 17, 1903. Serial No. 173,582. (No model.)



Claim.—1. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

2. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe made of slats spaced apart, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

3. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a diagonally-slotted platform receiving the cane from said drag, an endless chain having pusher-pins projecting through said diagonal slot for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

4. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, means for raising and lowering said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, means for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

5. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, means for raising and lowering said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, means for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, with means for raising and lowering the free end of said carrier, substantially as described.

6. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, an endless drag driven by said traction-wheels, a diagonally-slotted platform receiving the cane from said drag, a chain carrying pins projecting through the diagonal slot in the platform for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

7. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, with means for raising and lowering the free end of said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, means for raising and lowering the free end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

8. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe made of slats spaced apart, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a pivoted delivery-carrier for delivering the cane from said platform, and means for raising and lowering the free end of said carrier, substantially as described.

9. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a tapered shoe, means for raising and lowering the point of said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a diagonally-slotted platform receiving the cane from said drag, an endless chain having pusher-pins projecting through said diagonal slot for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, and means for raising and lowering the free end of said carrier, substantially as described.

10. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a tapered shoe, means for raising and lowering said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, means for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, and means for raising and lowering the free end of said carrier, substantially as described.

11. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, means for raising and lowering said shoe, an incline above said shoe, an endless drag mounted above said shoe and incline and driven by said traction-wheels, a winch and ropes for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, with a winch and ropes for raising and lowering the free end of said carrier, substantially as described.

12. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a hoisting-carrier driven by said traction-wheels, a diagonally-slotted platform receiving the cane from said carrier, a chain carrying pins projecting through the diagonal slot in the platform for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, mechanism operated by said traction-wheels for driving said chain, and a delivery-carrier also driven by said traction-wheels for delivering the cane from said platform, substantially as described.

13. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and beams and provided with pusher-arms projecting between said beams, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

14. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and beams and provided with pusher-arms projecting between said beams, a diagonally-slotted platform receiving the cane from said drag, an endless chain having pusher-pins projecting through said diagonal slot for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

15. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams spaced apart mounted above said shoe, and an endless drag mounted above said shoe and beams and provided with pusher-arms projecting between said beams, means for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, substantially as described.

16. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and beams and provided with pusher-arms projecting between said beams, means for raising and lowering the lower end of said drag, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, and a delivery-carrier for delivering the cane from said platform, with means for raising and lowering the free end of said carrier, substantially as described.

17. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams spaced apart mounted above said shoe, an endless drag mounted above said shoe and beams and provided with pusher-arms projecting between said beams, a diagonally-slotted platform receiving the cane from said drag, a chain carrying pins projecting through the diagonal slot in the platform for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a pivoted delivery-carrier for delivering the cane from said platform, and means for raising and lowering the free end of said carrier, substantially as described.

18. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a hoisting-carrier, a platform receiving the cane from said carrier, a device for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, with mechanism operated by said traction-wheels for moving said carriers and said cane-turning device, with a clutch for throwing said mechanism into and out of action when desired, substantially as described.

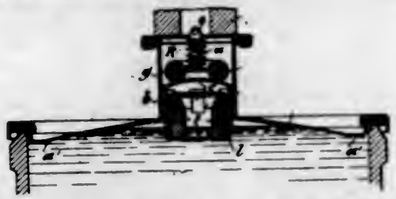
19. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, inclined beams above said shoe, a hoisting-carrier mounted above said shoe and

beams, a diagonally-slotted platform receiving the cane from said carrier, an endless chain having pusher-pins projecting through said diagonal slot for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, with mechanism operated by said traction-wheels for moving said carriers and said cane-turning device, with a clutch for throwing said mechanism into and out of action when desired, substantially as described.

20. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a pivoted shoe, means for raising and lowering said shoe, inclined beams above said shoe, a hoisting-carrier mounted above said shoe and beams, means for raising and lowering the lower end of said carrier, a platform receiving the cane from said drag, means for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, with means for raising and lowering the free end of said carrier, with mechanism operated by said traction-wheels for moving said carriers and said cane-turning device, with a clutch for throwing said mechanism into and out of action when desired, substantially as described.

21. A cane-hoisting apparatus, comprising a frame, traction-wheels journaled beneath said frame, a hoisting-carrier, a diagonally-slotted platform receiving the cane from said carrier, a chain carrying pins projecting through the diagonal slot in the platform for swinging the cane-stalks laterally through a right angle on said platform and for pushing the cane off of said platform, a delivery-carrier for delivering the cane from said platform, with mechanism operated by said traction-wheels for moving said carriers and said cane-turning device, with a clutch for throwing said mechanism into and out of action when desired, substantially as described.

749,074. STOPPERING DEVICE FOR PRESERVE-JARS OR THE LIKE. HERMANN MARTINI, Riga, Russia. Filed July 29, 1903. Serial No. 167,437. (No model.)



Claim.—1. A closing device for preserve-jars and the like vessels, comprising an elastic arched cover to be fixed on the vessel, the combination of a dome on the cover furnished with an opening at its upper portion, with a cap or casing adapted to be passed over the dome with openings in the cover-plate, a valve placed inside such casing, and an elastic float arranged inside the dome, substantially as and for the purpose stated.

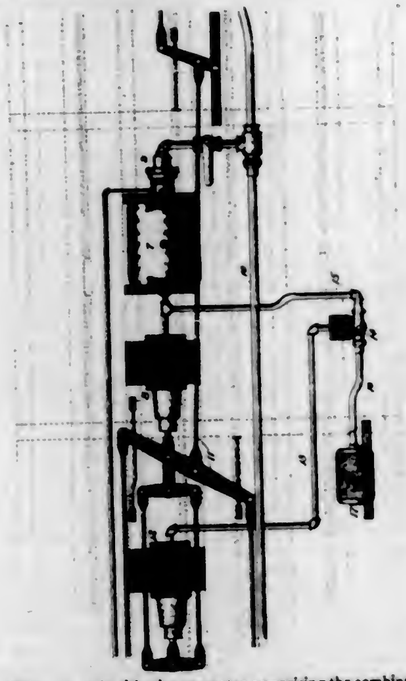
2. In a closing device for preserve-jars and the like vessels comprising an elastic arched cover to be fixed on the vessel, the combination of a dome on the cover furnished with an opening at its upper portion with a cap or casing adapted to be passed over the dome and consisting of a flanged tabular portion, a packing-ring placed on such flange, and top plate provided with an opening in the middle and lugs at the periphery, a valve inside the said casing or cap and an elastic float arranged underneath the dome, substantially as and for the purpose stated.

3. In a closing device for preserve-jars and the like vessels comprising an elastic arched cover to be fixed on the vessel, the combination of a dome on the cover furnished with an opening at its upper portion, with a cap or casing adapted to be passed over the dome, and provided with an opening or openings in the cover-plate, a valve placed inside the dome adapted to close the opening in the dome by atmospheric pressure acting on the valve, and an elastic float arranged underneath the dome, substantially as and for the purpose stated.

4. In a closing device for preserve-jars and the like vessels comprising an elastic arched cover to be fixed on the vessel, the combination of a dome on the cover furnished with an opening at its upper portion, with a casing adapted to be passed over the dome and provided with an opening or openings in the cover-plate, a valve placed inside the dome adapted to close the opening in the dome by atmospheric pressure, a rod attached to the upper side of the valve and an elastic float arranged underneath the dome, substantially as and for the purpose stated.

5. In a closing device for preserve-jars and the like vessels comprising an elastic cover to be fixed on the vessel, the combination of a dome on the cover furnished with an opening at its upper portion, a cap adapted to be passed over the dome and provided with an opening or openings in the cover-plate, a valve placed inside the cap, a capsule adapted to be removably fitted in the dome and an elastic float arranged inside the capsule, substantially as and for the purpose stated.

749,075. LOAD-BRAKE APPARATUS. HARRY R. MASON, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 19, 1902. Serial No. 108,014. (No model.)



Claim.—1. A load-brake apparatus comprising the combination with a fluid-pressure reservoir and cylinder, of a passive expansion-chamber, and means for throwing said expansion-chamber into and out of operation.

2. A load-brake apparatus comprising the combination with a reservoir and cylinder, of a triple valve, an expansion-chamber, and supplemental cylinder, and means for throwing said expansion-chamber into and out of operation, substantially as described.

3. A load-brake apparatus comprising the combination with a fluid-pressure reservoir and cylinder, of an expansion-chamber, means for throwing said expansion-chamber into and out of operation, said means being provided with means for bleeding said chamber when said valve is closed, substantially as described.

4. A load-brake apparatus comprising the combination with a fluid-pressure reservoir, cylinder, and triple valve, of a supplemental cylinder, an expansion-chamber, and a valve for throwing said expansion-chamber into and out of operation, alternately with said supplemental cylinder, substantially as described.

5. The combination with an auxiliary reservoir and brake-cylinder, of a supplementary brake-cylinder and an expansion-chamber, and means for alternately making communication between the reservoir and the supplementary cylinder or the expansion-chamber, for the purpose specified.

749,076. COTTON-BALE-TIE BUCKLE. JAMES F. MATTHEWS, Hyrum, Okla., assignor of one-half to James R. Cole, Jr., and Christopher C. Cole, Oklahoma, Okla. Filed Apr. 17, 1903. Serial No. 153,008. (No model.)

Claim.—1. A bale-tie buckle having an opening contracted at one end, and provided with a shoulder to which one wall of the contracted portion slopes, and provided also in its side corresponding to said shoulder with an approximately K-shaped slot with its substantially straight wall nearest said shoulder.



2. A bale-tie buckle having an opening contracted at one end, and provided with a shoulder to which one wall of the contracted portion slopes, and provided also in its side corresponding to said shoulder with an approximately K-shaped slot having its substantially straight wall nearest said shoulder, and the junction-point of its arms in about the same inclined plane as that in which occurs the axis of the rounded end of the opening and the junction-point of the substantially straight wall of the slot with the contiguous side of said opening.

749,077. BARBED FASTENING DEVICE. RINGGOLD W. MEILY, Lima, Ohio. Filed Aug. 27, 1903. Serial No. 170,963. (No model.)



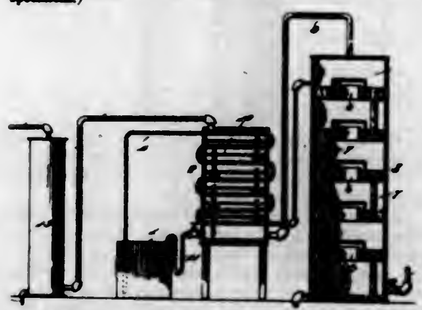
Claim.—1. A fastening device including a shank having oppositely-facing teeth on one edge, the side faces thereof being plain.

2. A fastening device including a shank having oppositely-facing teeth on both its edges, the side faces thereof being plain.

3. A fastening device including a headed shank having oppositely-facing teeth on one edge, the side faces of said shank being plain.

4. A fastening device including a shank provided with a head, the shank having oppositely-facing teeth on one edge, the side faces thereof being plain, and said head being out of the plane of the toothed portion of the shank.

749,078. PROCESS OF MANUFACTURING ETHER. OTTO MEYER, Richmond, Va. Filed Jan. 31, 1903. Serial No. 141,351. (No specimens.)

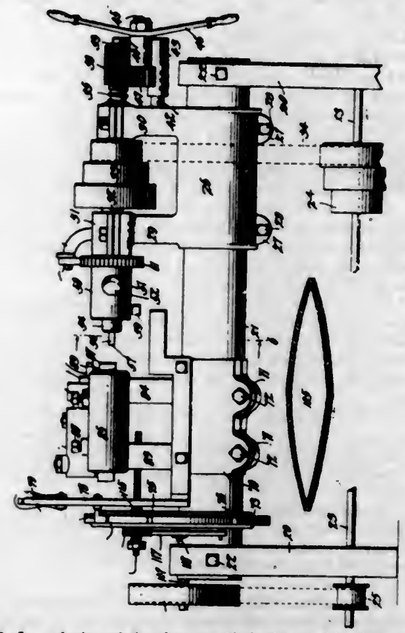


Claim.—The process of obtaining ethyl-sulfuric acid for the formation of ether, which consists in fermenting materials containing carbohydrates, separating and distilling the wash thus produced and bringing the vapors distilled directly into contact with sulfuric acid.

749,079. BUTTON-BLANK-CUTTING MACHINE. JOHN W. MILLER, Muscatine, Iowa. Filed June 6, 1903. Serial No. 110,532. (No model.)

Claim.—1. In a device of the class specified, a crown-saw, a cutter-block, a saw-sharpening device, and means for adjusting the mechanism to bring either the cutter-block or the sharpening device into cooperative relation with the saw.

2. In a device of the class specified, a saw, a cutter-block, a saw-sharpener, and adjusting means for permitting the cooperation of either the cutter-block or the sharpening device with the saw



3. In a device of the class specified, the combination with a saw, of a saw-setting device, a saw-sharpening device, and adjusting means for permitting the action of either of such devices on the saw.

4. In a device of the class specified, a saw, a cutter-block, a saw-set, and adjusting means for permitting the cooperation of the cutter-block or the saw-set with said saw.

5. In a device of the class specified, a saw, a cutter-block, a saw-set, a saw-sharpening device, and adjusting means for permitting the cooperation of the cutter-block, the saw-set or the sharpening device with said saw.

6. In a device of the class specified, a saw, a cutter-block, a saw-set, a saw-sharpening device, and means for adjusting all of such devices into operable relation with said saw.

7. The combination with a saw, of a cutter-block, a saw-sharpening device, means for adjusting either the cutter-block or sharpening device to operative position, and means for automatically starting and stopping the driving mechanism of said sharpening device.

8. In a device of the class specified, the combination with a crown-saw, of a cutter-block, a saw-setting device, a saw-sharpening device, and means for automatically starting and stopping the operation of both of said devices.

9. In a device of the class specified, the combination with a crown-saw, of a cutter-block, a saw-set, a saw-sharpening device, means for adjusting the saw-set and sharpening device to operative position, means for automatically starting the operative movement of both the saw-set and the sharpening device when adjusted to operative position, and means for automatically stopping the movement of said devices when returned to inoperative position.

10. In a device of the class specified, a crown-saw, a cutter-block, a saw-set, a saw-sharpening device, a support carrying the cutter-block, the saw-set and the sharpening device, and means for adjusting said support.

11. In a device of the class specified, the combination of the cutter-block, a crown-saw, a spindle for revolving the same, a threaded shaft connected to said spindle, a stationary nut for the reception of said shaft, a gear carried by said threaded shaft, and a revoluble pinion intermeshing with said gear, substantially as specified.

12. In a device of the class specified, the combination with a cutter-block, of a crown-saw, a revoluble spindle connected to the saw and having an end portion of reduced diameter, a threaded hollow shaft surrounding the reduced portion of the spindle, a roller thrust-bearing between the end of the hollow shaft and the adjacent

portion of the spindle, means for rotating the spindle, a stationary nut engaging the hollow shaft, a gear secured to said hollow shaft, and a hand-actuated pinion intermeshing with said gear.

13. In a device of the class specified, the combination with a cutter-block, of a crown-saw, a spindle connected thereto, means for rotating the spindle, a hollow shaft surrounding a portion of the spindle and having a threaded periphery, a stationary nut engaging the threaded shaft, a gear secured to the threaded shaft, a hand-operated pinion intermeshing with said gear, a stud carrying the pinion, and an adjustable bracket supporting said stud.

14. In a device of the class specified, the combination with a crown-saw, of a cutter-block support having a plurality of pin-receiving openings, an adjustable cutter-block therein, and a pin adapted to said openings to hold the block against the action of the saw.

15. The combination with a crown-saw, of a cutter-block support, a wooden cutter-block adjustably mounted in the support, a metallic clamping-plate engaging said block, and clamping-screws carried by the support and adapted for contact with said plate to hold the block in adjusted position.

16. In a device of the class specified, the combination with a cutter-block, of a crown-saw, a saw-mandrel having a tapering annular flange, a chuck having a mandrel-receiving opening into which the flange extends, and adjusting-screws carried by the chuck and engaging the rear portion of the mandrel to assist in centering the same.

17. The combination with a crown-saw, of a cutter-block, a saw-carrying chuck, means for rotating the same, a revoluble setting device, an adjustable means for interlocking the chuck and the setting device and for insuring the proper relation of the setting device and the saw.

18. The combination with a crown-saw, of a cutter-block, a saw-carrying chuck, means for rotating the same, a revoluble setting device adapted to engage with the saw, and interengaging dogs carried by the chuck and the setting device whereby the rotative movement of the chuck is imparted to said setting device.

19. The combination with a crown-saw, of a cutter-block, a saw-carrying chuck, means for rotating the same, a saw-setting device, a counterweight for insuring the return of the setting device to an initial position after each operation, and means for effecting the engagement of the chuck and setting device.

20. The combination with a crown-saw, of a cutter-block, a revoluble chuck, means for revolving the same, a revoluble setting device, adjustable dogs carried by the setting device and adapted to engage when one is moved in the direction of the other, and means for returning the setting device to an initial position after each operation.

21. The combination with a crown-saw, of a cutter-block, a revoluble file-carrier, means for operating the same, a file secured to the carrier, and means for adjusting the file-carrier and saw into operative position.

22. In a device of the class specified, the combination with a cutter-block, of a crown-saw, a revoluble file-carrier, means for operating the same, a file secured to the carrier, means for adjusting the file-carrier and saw into operative position, and means for automatically starting the operative movement of the file-carrier when the same is moved to operative position.

23. In a device of the class specified, the combination with a crown-saw, of a cutter-block, a file-carrier, a file secured thereto, means for revolving the file-carrier, and means for locking the saw to present successive teeth to the action of the file.

24. In a device of the class specified, the combination with a crown-saw, of a cutter-block, a file-carrier, a gear-wheel secured thereto, a pinion intermeshing with said gear-wheel, a shaft carrying said pinion, an adjustable supporting device for said shaft, said supporting device being movable to adjust the file-carrier to operative and inoperative position, a belt-wheel mounted on the shaft, and a driving-shaft having a belt-wheel and belt so located that when the file-carrier is in inoperative position the belt will be loose and when in operative position said belt will be taut.

25. The combination with a saw, of a cutter-block, a saw-filing device, a carriage therefor, and means for automatically moving one of such devices in the direction of the other after each filing operation.

26. The combination with a saw, of a cutter-block, a saw-filing device, and means for automatically moving one toward the other after each sharpening operation for a distance corresponding to the amount of material removed by the file.

27. The combination of the bed, a saw, a tail-stock mounted for locking movement on the bed and adjustable longitudinally thereof, a cutter-block, a saw-set and a saw-filing device all carried by the tail-stock and adjustable by the movement of the latter to operative position, an actuating-lever secured to the tail-stock, a notched segment carried by the bed and having a segmental slot, a threaded shaft having guiding-collars on each side of the segment and extending through a threaded opening in the tail-stock, a ratchet-wheel secured to said threaded shaft, and a pawl pivoted to the segment and adapted to engage said ratchet-wheel.

28. In a device of the class specified, the combination of the supporting-standards, a tabular bed carried thereby, a head-stock secured to the bed, a revoluble crown-saw carried by the head-stock, a tail-stock mounted for rocking movement on said bed, a cutter-block, a saw-set and a saw-sharpening device all carried by the tail-stock and adjustable therewith, an actuating-lever secured to the tail-stock, a slotted locking-segment rigidly secured to the bed and having peripheral notches, a latch-lever carried by the actuating-lever and adapted to engage in said notches for holding the tail-stock in adjusted position, a threaded shaft adapted to a threaded opening in the tail-stock and extending through the segment-slot, guiding-collars carried by the shaft on each side of the segment, a ratchet-wheel carried by the shaft, and a pivoted pawl mounted on the segment and adapted to engage said ratchet-wheel.

749,080. DETECTOR OF THE CONTENTS OF BOTTLES, JARS, OR SIMILAR RECEPTACLES. ARGUST J. MOTTLAU, New York, N. Y.

Filed Mar. 30, 1903. Serial No. 150,033. (No model.)



Claim.—1. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

2. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube, and said tube constructed to be inserted within the bottle or receptacle, and secured to the receptacle, and with the air-inlet and liquid-outlet within the receptacle.

3. A detector of the contents of bottles, jars and similar receptacles, consisting of a translucent tube having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

4. A detector of the contents of bottles, jars and similar receptacles, consisting of a transparent tube having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

5. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

6. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube, and said tube secured to the receptacle.

7. In combination with a bottle, jar or similar receptacle, a translucent tube inclosed within the receptacle and having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

8. In combination with a bottle, jar or similar receptacle, a transparent tube inclosed within the receptacle and having means for the admission of air and means for permitting the exit of liquid from the tube but of preventing its entrance into the tube.

9. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with a valve opening and closing outlet permitting the outflow of liquid from the tube by gravity, but preventing such outflow if pressure in addition to gravity be employed, whereby liquid may be caused to flow from the tube but admission of liquid into the tube will be prevented.

10. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, a valve for said outlet, and means for automatically opening said valve when the tube is in its normal substantially vertical position, and of permitting said valve to close when the tube is moved from such position.

11. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, and constructed to permit the outflow of liquid through said outlet from the tube, but preventing the admission of liquid into the tube.

12. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, and constructed to permit the outflow of liquid through said outlet from the tube, but preventing such outflow if pressure in addition to gravity be employed, whereby liquid may be caused to flow from the tube, but admission of liquid into the tube will be prevented.

13. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves constructed and arranged to prevent the admission of liquid into the tube, and the other valve constructed and arranged to prevent the flow of liquid from the tube, if greater pressure than gravity be employed.

14. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves opening outward, and the other valve opening inward, means for holding the inner valve open when the bottle or receptacle is standing, and for permitting said valve to close, when the bottle or receptacle is tipped.

15. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves opening outward, and the other valve opening inward, means for automatically holding the inner valve open when the bottle or receptacle is standing, and for permitting said valve to close, when the bottle or receptacle is tipped.

16. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves opening outward, and the other valve opening inward, means for depressing the inner valve at a point away from the outlet, and consequently withdrawing that part of the valve over the outlet from the same when the bottle or receptacle is standing, and for permitting said valve to close when the bottle or receptacle is tipped.

17. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves opening outward, and the other valve opening inward, a weight in said tube for depressing the inner valve at a point away from the outlet, and consequently withdrawing that part of the valve over the outlet from the same, when the bottle or receptacle is standing and for permitting said valve to close when the bottle or receptacle is tipped.

18. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with an outlet, and two valves covering said outlet, one of said valves opening outward, and the other valve opening inward, a spherical weight in said tube for depressing the inner valve at a point away from the outlet, and consequently withdrawing that part of the valve over the outlet from the same, when the bottle or receptacle is standing, and for permitting said valve to close when the bottle or receptacle is tipped.

19. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air, and also provided with a valve opening and closing outlet permitting the outflow of liquid from the tube by gravity, but preventing such outflow if pressure in addition to gravity be employed, whereby liquid may be caused to flow from the tube, but admission of liquid into the tube will be prevented.

20. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle having means for the admission of air and also provided with an outlet, a valve for said outlet, and means for automatically opening said valve when the tube is in its normal substantially vertical position, and of permitting said valve to close when the tube is moved from such position.

21. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air, and also provided with an outlet, and two valves covering said outlet, and constructed to permit the outflow of liquid through said outlet from the tube, but preventing the admission of liquid into the tube.

22. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air, and also provided with an outlet, and two valves covering said outlet, and constructed to permit the outflow of liquid through said outlet from the tube, but preventing such outflow if pressure in addition to gravity be employed, whereby liquid may be caused to flow from the tube, but admission of liquid into the tube will be prevented.

23. In combination with a bottle, jar or similar receptacle, a tube inclosed within the receptacle and having means for the admission of air, and also provided with an outlet, and two valves covering said outlet, one of said valves constructed and arranged to prevent the admission of liquid into the tube, and the other valve constructed and arranged to prevent the flow of liquid from the tube, if greater pressure than gravity be employed.

24. A detector of the contents of bottles, jars and similar receptacles, consisting of a tube having means for the admission of air and also provided with a valve opening and closing outlet permitting the outflow of liquid from the tube by gravity, but preventing such outflow if pressure in addition to gravity is employed, and also preventing the admission of liquid into the tube.

749,081. TOWEL-RACK. ELLA D. MULLINS, Whitesville, Ky.

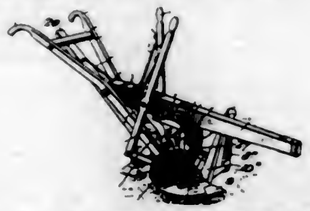
Filed Feb. 28, 1903. Serial No. 145,566. (No model.)



Claim.—1. A rack of the kind described comprising a plate carrying a spindle, a reversible sleeve having a flange at each end adapted to fit over the spindle, hanger-arms pivoted to one of said flanges and having bent portions, braces pivoted to the other flange and having loops at their outer ends adapted to slide on the hanger-arms and engage the bent portions.

2. A rack of the kind described comprising a wall-plate, arms projecting therefrom, a base secured to said arms, a vertical spindle carried by the base, a sleeve on the spindle, outwardly-extending flanges at each end of the sleeve notched throughout a portion of their circumference, a wire passing transversely through the notched portions of each flange, hanger-arms having eyes engaging the wire in one flange, said arms having bent portions, braces having eyes at one end engaging the wire in the opposite flange and having loops at their outer ends sliding on the hanger-arms and adapted to engage the bent portions of said arms.

749,082. DITCHING-PLOW. JASON S. MCCANTS, Talladega, Ala. Filed July 10, 1903. Serial No. 165,013. (No model.)



Claim.—1. A plow-beam, a standard extending downwardly from the same, brackets connected pivotally with opposite sides of said standard, and plow members carried by said brackets.

2. A plow-beam, a standard extending downwardly from the same and having oppositely-disposed segmental flanges, brackets connected pivotally with said flanges, and right and left hand plow members carried by said brackets.

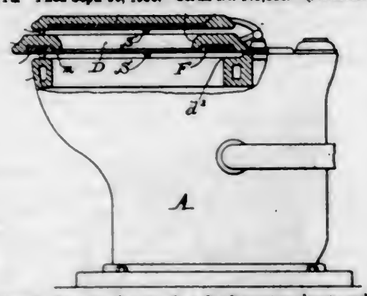
3. A plow-beam, a standard extending downwardly from the same, and a plow member having a bracket pivotally connected with said standard near the upper end of the latter.

4. A plow-beam, a standard extending downwardly from the latter, a plow member, a bracket supporting said plow member, and having pivotal connection with the standard, an operating-lever connected pivotally with the beam, and a link connecting said lever with the pivoted plow-supporting bracket.

5. A plow-beam, a standard extending downwardly from the same, right and left hand plow members, brackets supporting said plow members and having pivotal connection with the standard, levers connected pivotally with the beam, links connecting said levers with the plow-supporting brackets, and means for retaining said levers in adjusted position.

6. A plow-beam, segmental flanges upon opposite sides of said beam, a standard extending downwardly from said beam, brackets connected pivotally with said standard, right and left hand plow members supported upon said standards, means for effecting adjustment of the latter, segmental braces connected with the plow-supporting guide-lugs, engaging the segmental flanges upon the plow-beam and having segmental slots, and guide-lugs upon the sides of the plow-beam engaging the segmental slots in said braces.

749,083. WATER-CLOSET SEAT. CORA P. MCELROY, Philadelphia, Pa. Filed Sept. 30, 1903. Serial No. 175,111. (No model.)



Claim.—1. A seat and cover therefor for water-closets and commodes, composed essentially of wood in its body contact portions and in its parts whereby it is secured to the closet frame or bowl, the seat proper being recessed on its under face surrounding the usual central opening therein, and the cover therefor being similarly recessed centrally where it coincides with said opening, said recesses being provided with an inlaid facing composed of material impervious to water and acid vapors.

2. A seat and cover therefor for water-closet bowls and the like, composed wholly or mainly of wood, the central portion of the under face of each of which overlying the bowl is recessed and provided with an inlaid facing composed of material impervious to water and acid vapors, said facing being fixedly secured in said recess, and rubber-headed impact screws adapted and located on said seat and cover to resist the impact blow from a forcible bringing of the same to normal closed position over the bowl tending to fracture the inlaid facing on the seat and its cover.

3. A seat for water-closet bowls composed wholly or mainly of wood, the under face of which surrounding the usual central seat-opening therein, is provided with a shallow recess, a facing composed of material impervious to water and acid vapors inlaid in said recess, and rubber-headed buffer-screws passing through said inlaid facing and penetrating into the seat.

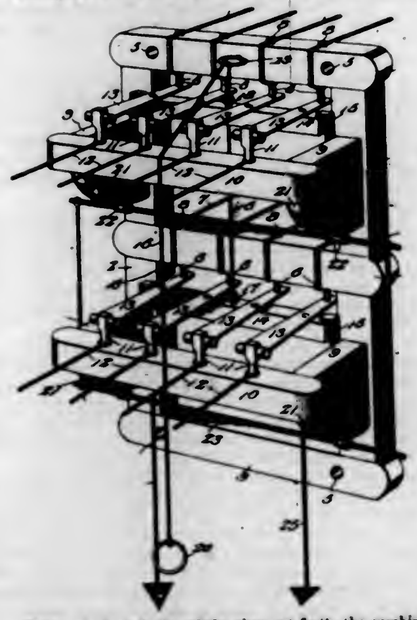
749,084. PIN-HOOK. GEORGE W. MCGILL, Riverdale-on-Hudson, N. Y. Filed Apr. 27, 1903. Serial No. 154,402. (No model.)



Claim.—1. As a new article of manufacture a pin-hook composed of a piece of wire round in its cross-section, and bent in its body part into hook formation, one end of the hook so formed being pointed and its other end compressed by suitable dies into a T formation of similar cross-section, the cross-head of such T formation providing the unpointed end of the hook with a relatively short and cylindrically-shaped straight terminal cross-bar, or stop, to stay upon the hook articles suspended from it; in combination with a relatively long and split tubular metal cap of cylindrical configuration closed lengthwise upon such cross-bar in manner to reinforce it and to increase its length.

2. As a new article of manufacture a pin-hook composed of a piece of round wire having one of its ends pin-pointed and its other end provided with a rectangular cross-head of cylindrical configuration, the headed end of the wire being folded over outward and downward, and inward toward its body part, in manner to provide thereat a loop and hold the cross-head of the pin in a spring-bearing against its body part.

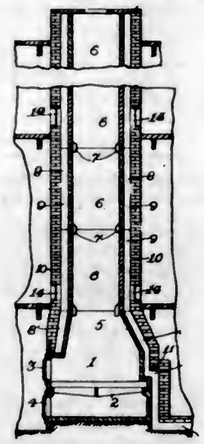
749,085. ELECTRICAL CUT-OUT. COLUMBUS R. MCPHERSON, Birmingham, Ill. Filed Nov. 14, 1902. Serial No. 131,337. (No model.)



Claim.—1. In a device of the class set forth, the combination of a supporting-frame, posts depending from upper and intermediate portions of said frame and having instrument-wires attached thereto, upper and lower supports having conducting-posts rising therefrom with main-line wires attached thereto, conductors pivotally connected to the said conducting-posts and secured for simultaneous operation in individual series to adapt them to be thrown into contact with or disengaged from the posts having the instrument-lines attached thereto, a pull device connected with both series of conductors for simultaneously operating the same, and grounding devices in proximity to which the free ends of the conductors are lowered, to cut out the instrument-wires from the main-line wires and permit the surcharge of electricity coming in over the main-line wires to be carried off through the grounding device.

2. In a device of the class set forth, the combination of a series of depending contact-posts having instrument-wires connected thereto, a series of vertically-arranged conducting-posts having main-line wires connected thereto, a conductor pivotally attached to each conducting-post and all the conductors connected for simultaneous operation to cause their free extremities to be thrown upwardly into engagement with the depending contact-posts or be disengaged from the latter, and ground connecting devices in proximity to which the free ends of the conductors may be lowered.

749,086. HEATING APPARATUS. JOHN C. NACK, Johnetta, Pa. Filed July 2, 1903. Serial No. 164,026. (No model.)



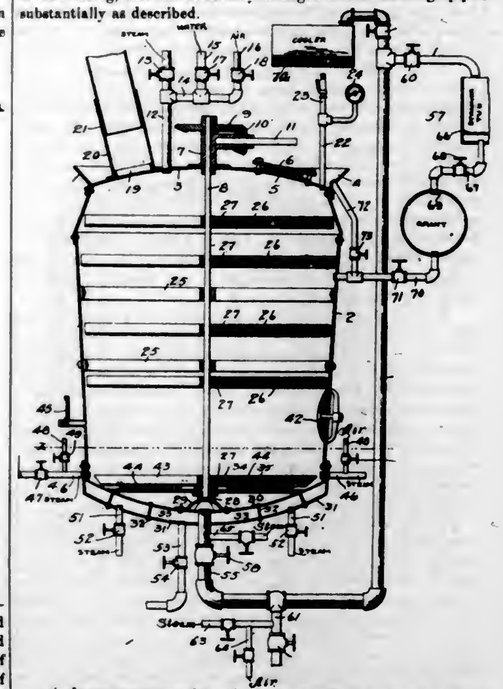
Claim.—In a heating-furnace the combination of a combustion-chamber having a contracted upper portion, a plurality of ribs formed on the outer side of said chamber, a plurality of flue-sections placed one above the other and connecting with the contracted portion of the combustion-chamber, a plurality of lugs formed on the end of the flue-sections whereby the different sections are connected a plurality of ribs formed on said flue-sections, a wall formed around the ribs of the flue-sections and combustion-chamber, a plate placed over the upper flue-section for closing the upper end of the chamber formed between the flue-sections and the wall built thereabout, an aperture formed in said plate, said aperture being of lesser area than the interior of the flue-sections thereby decreasing the outlet from said flue, apertures formed in said wall for withdrawing the air contained between said wall and flue-sections and connections with the lower end of this space whereby fresh air may be admitted to the same, substantially as described.

749,087. BREWER'S APPARATUS. ARMIN L. HEUBERT and SIGMUND T. WIEDENBECK, Minneapolis, Minn. Filed Aug. 7, 1903. Serial No. 168,675. (No model.)

Claim.—1. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air and steam at the top of said casing, means for admitting steam near the bottom of said casing, agitators arranged within said casing, a strainer-tub, a discharge-pipe leading from the bottom of said casing to the strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves suitably arranged in said discharge-pipes, substantially as described.

2. In an apparatus of the character described, a casing provided with a charging-opening, an overflow-flange surrounding said charging-opening, means for admitting air and steam at the top of said casing, means for admitting steam near the bottom of said casing, agitators arranged within said casing, a strainer-tub, a discharge-pipe leading from the bottom of said casing to the strainer-tub, a grant, a discharge-pipe from the grant to said casing, an overflow-pipe leading from within said overflow-flange to said last discharge-pipe, a valve in said overflow-pipe, and valves arranged in said discharge-pipes, substantially as described.

3. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air and steam at the top of said casing, means for admitting steam near the bottom of said casing, agitators arranged within said casing, a strainer-tub, a discharge-pipe leading from the bottom of said casing to the strainer-tub, a valved drain-pipe from said discharge-pipe, a steam-pipe communicating with said discharge-pipe, whereby said discharge-pipe may be washed out through the drain-pipe, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves suitably arranged in said discharge-pipes, substantially as described.



4. In an apparatus of the character described, a casing provided with a charging-opening, an overflow-flange surrounding said charging-opening, means for admitting air and steam at the top of said casing, means for admitting steam near the bottom of said casing, agitators arranged within said casing, a strainer-tub, a discharge-pipe leading from the bottom of said casing to the strainer-tub, a valved drain-pipe from said discharge-pipe, a steam-pipe communicating with said discharge-pipe, whereby said discharge-pipe may be washed out through the drain-pipe, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, an overflow-pipe leading from within said overflow-flange to said last discharge-pipe, a valve in said overflow-pipe, and valves arranged in said discharge-pipes, substantially as described.

5. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a perforated false bottom within said casing, agitators arranged within said casing, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves suitably arranged in said discharge-pipes, substantially as described.

6. In an apparatus of the character described, a casing provided with a charging-opening, an overflow-flange surrounding said charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a perforated false bottom within said casing, agitators arranged within said casing, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, an overflow-pipe leading from within said overflow-flange to said last discharge-pipe, a valve in said overflow-pipe, and valves arranged in said discharge-pipes, substantially as described.

7. In an apparatus of the character described, a casing provided

with a charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a perforated false bottom within said casing, agitators arranged within said casing, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a valved drain-pipe from said discharge-pipe, a steam-pipe communicating with said discharge-pipe, whereby said discharge-pipe may be washed out through the drain-pipe, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves suitably arranged in said discharge-pipes, substantially as described.

8. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a perforated false bottom within said casing, agitators arranged within said casing, means for actuating said agitators, a sweep carried by the agitator adjacent said perforated false bottom and arranged to traverse said false bottom and maintain the perforations thereof clear, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves suitably arranged in said discharge-pipes, substantially as described.

9. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a double bottom formed on said casing and constituting a steam-chamber, valved inlet and outlet pipes to said steam-chamber, a perforated false bottom within said casing, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves arranged in said discharge-pipes, substantially as described.

10. In an apparatus of the character described, a casing provided with a charging-opening, means for admitting air, steam and water to the top of said casing, means for admitting air and steam near the bottom of said casing, a double bottom formed on said casing and constituting a steam-chamber, valved inlet and outlet pipes to said steam-chamber, a perforated false bottom within said casing, agitators arranged within said casing, means for actuating said agitators, a sweep carried by the agitator adjacent said perforated false bottom and arranged to traverse said false bottom and maintain the perforations thereof clear, a cooler, a strainer-tub, a discharge-pipe communicating with said casing below its false bottom and leading to the cooler and strainer-tub, a grant, a discharge-pipe from the strainer-tub to said grant, a discharge-pipe from the grant to said casing, and valves arranged in said discharge-pipes, substantially as described.

11. In an apparatus of the character described, a casing provided with a charging-opening, a shaft journaled in the top of said casing, means constructed to actuate said shaft, a bearing within said casing for the lower end of said shaft, a false bottom in said casing, comprising a series of perforated sectors, a flange on the lower surface of each sector and projecting along one of the radial edges thereof in position to support the contiguous radial edge of the adjacent perforated sector, a seat on said shaft-bearing for the inner ends of said perforated sectors, means constructed to clamp said perforated sectors to said seat, a plurality of agitators carried on said shaft, and a discharge-pipe communicating with said casing below said false bottom, substantially as described.

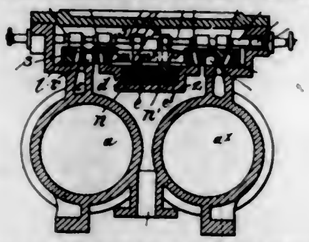
12. In an apparatus of the character described, a casing provided with a charging-opening, a shaft journaled in the top of said casing, means constructed to actuate said shaft, a bearing within said casing for the lower end of said shaft, a false bottom in said casing, comprising a series of perforated sectors, a flange on the lower surface of each sector and projecting along one of the radial edges thereof in position to support the contiguous radial edge of the adjacent perforated sector, a seat on said shaft-bearing arranged to support the inner ends of said perforated sectors, means constructed to clamp said perforated sectors to said seat, a plurality of agitators carried by said shaft, a sweep carried by the agitator adjacent said false bottom and arranged to traverse said false bottom to maintain the perforations thereof clear, and a discharge-pipe communicating with said casing below said false bottom, substantially as described.

749,088. SHADE-BRACKET. FRANK J. NEBOLA, Cleveland, Ohio. Filed Apr. 26, 1902. Serial No. 154,232. (No model.)

Claim.—A shade-roller bracket consisting of a transversely-extending bar having one end offset and arranged in a plane parallel with the remaining part of the bar, the said remaining part of the bar being projected outwardly to extend over irregular surfaces, a fastening extending through the offset end of the bar, a bracket slidably mounted on the portion of the bar projected outwardly by the offset at one end, and a support for the free extremity of the bar opposite the offset end, said support consisting of an upper guide through which the bar extends and a lower securing member.



749,089. DUPLEX PUMP. PHILIP F. ODDIE, Oschersleben, Germany. Filed Mar. 9, 1903. Serial No. 146,963. (No model.)



Claim.—1. A pump comprising a cylinder, a valve-chest over said cylinder, a main valve mounted in said valve-chest and adapted to slide upon its seat transversely across said cylinder, an adjustable expansion-valve mounted above said main valve, and means for imparting to said valves a movement transverse to said cylinder.

2. A pump comprising a cylinder, a valve-chest over said cylinder, a main valve mounted in said valve-chest, a valve-seat disposed transversely across said cylinder over which said main valve moves, a set of admission and exhaust ports in said valve-seat, the admission-ports being oppositely disposed in relation to the exhaust-ports and leading in a direct course to the cylinder below, an adjustable expansion-valve located above the main valve, and means for moving said valves across said valve-seat.

3. A duplex pump comprising parallel cylinders, a valve-chest located above said cylinders, main valves within said valve-chest adapted to move across the valve-seats transversely of said cylinders, admission-ports of equal length leading from said valve-seats to said cylinders, exhaust-ports located directly opposite to said admission-ports, inlet and outlet passages in said valves and adjustable expansion-valves located above said main valves, and means for actuating all of said valves.

4. A duplex pump comprising the cylinders, valve-chests upon said cylinders, valve-seats located centrally above said cylinders, valve-seats in said valve-chests, admission and exhaust ports arranged alternately and opposite one another, the admission-ports leading from said valve-seats directly to the cylinder, main valves adapted to move over said valve-seats transversely to the cylinder, admission-ports formed in said main valves adapted to register with the admission-ports in said valve-seats, an expansion-valve mounted upon said main valve and adapted to control said admission-ports, an exhaust-passage in each of said main valves, adapted to connect the admission and exhaust ports at intervals, and means for actuating said valves.

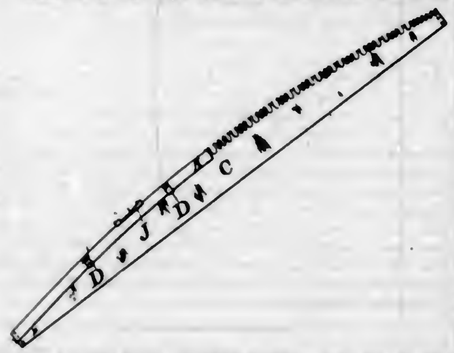
5. A duplex pump comprising the cylinders, valve-chests upon said cylinders, valve-seats located centrally above said cylinders, valve-seats in said valve-chests, admission and exhaust ports arranged alternately and opposite one another, the admission-ports leading from said valve-seats directly to the cylinder, main valves adapted to move over said valve-seats transversely to the cylinders, admission-ports formed in said main valves adapted to register with the admission-ports in said valve-seats, an expansion-valve mounted upon said main valve and adapted to control said admission-ports, an exhaust-passage in each of said main valves, adapted to connect the admission and exhaust ports at intervals, laterally-extending arms carried by said main valves, valve-stems carried by said expansion-valves, and means connected to said arms and said valve-stems for imparting motion to said valves.

6. A duplex pump comprising the cylinders, valve-chests upon said cylinders, valve-seats located centrally above said cylinders, valve-seats in said valve-chests, admission and exhaust ports arranged alternately and opposite one another, the admission-ports leading from said valve-seats directly to the cylinder, main valves adapted to move over said valve-seats transversely to the cylinders, admission-ports formed in said main valves adapted to register with the admission-ports in said valve-seats, an expansion-valve mounted upon said main valve and adapted to control said admission-ports, an exhaust-passage in each of said main valves, adapted to connect the admission and exhaust ports at intervals, laterally-extending arms carried by said main valves, valve-stems carried by said expansion-valves, and means connected to said arms and said valve-stems for imparting motion to said valves.

7. A duplex pump comprising the cylinders, valve-chests upon said cylinders, valve-seats located centrally above said cylinders, valve-seats in said valve-chests, admission and exhaust ports arranged alternately and opposite one another, the admission-ports leading from said valve-seats directly to the cylinder, main valves adapted to move over said valve-seats transversely to the cylinders, admission-ports formed in said main valves adapted to register with the admission-ports in said valve-seats, an expansion-valve mounted upon said main valve and adapted to control said admission-ports, an exhaust-passage in each of said main valves, adapted to connect the admission and exhaust ports at intervals, laterally-extending arms carried by said main valves, valve-stems carried by said expansion-valves, guide-blocks provided with inclined grooves in which rest projections upon said arms, and means for imparting a reciprocatory motion to said blocks.

8. A duplex pump comprising the cylinders, valve-chests upon said cylinders, valve-seats located centrally above said cylinders, valve-seats in said valve-chests, admission and exhaust ports arranged alternately and opposite one another, the admission-ports leading from said valve-seats directly to the cylinder, main valves adapted to move over said valve-seats transversely to the cylinders, admission-ports formed in said main valves adapted to register with the admission-ports in said valve-seats, an expansion-valve mounted upon said main valve and adapted to control said admission-ports, an exhaust-passage in each of said main valves, adapted to connect the admission and exhaust ports at intervals, laterally-extending arms carried by said main valves, valve-stems carried by said expansion-valves, guide-blocks provided with inclined grooves in which rest projections upon said arms, upwardly-extending projections carried by said arms, and adapted to engage the valve-stems of said expansion-valves, and means for imparting a reciprocatory motion to said blocks.

749,090. RAKER GAGE AND JOINTER. JOHN P. OLSON, near Tacoma, Wash. Filed Sept. 23, 1903. Serial No. 174,337. (No model.)

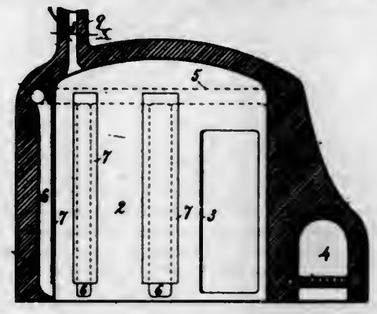


Claim.—1. In a saw-gage, the combination with a pair of gage-bars, of means for clamping said bars to a saw, and a sliding gage adapted to slide on said gage-bars and formed with a series of steps to guide and limit a file whereby the teeth may be jointed to one level and the rakers to a lower level.

2. In a saw-gage, the combination with a pair of gage-bars, of double U-shaped clamp-pieces secured to said gage-bars and adapted to pass to each side of the saw between the teeth thereof, and a clamping bolt and nut adapted to compress said clamp-pieces against the saw and to clamp said gage-bars to the saw.

3. In a saw-gage, the combination with a pair of gage-bars adapted to be clamped to the saw and provided with their upper edges shaped so as to conform with the line of the cutting edges of said saw, of a sliding gage adapted to slide on said gage-bars and provided with a series of steps on each side of the saw to guide and limit a file whereby the saw-teeth projecting above and between said steps may be jointed to one level and the rakers to a lower level.

749,091. WOOD-CARBONIZER. FREDERICK M. PERKINS, Boston, Mass. Filed Feb. 19, 1903. Serial No. 144,166. (No model.)

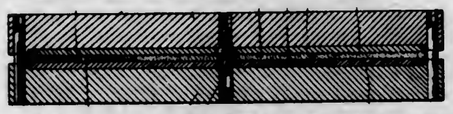


Claim.—1. In a wood-carbonizer, a carbonizing-chamber to receive the wood to be carbonized, a furnace within the walls of the carbonizing-chamber and within which heat is generated to carbonize the wood in said chamber, a flue from said furnace having branch flues communicating with the carbonizing-chamber, said flue and branch flues also located within the walls of said chamber, and an exhaust-flue from the carbonizing-chamber.

2. In a wood-carbonizer, a carbonizing-chamber to receive the wood to be carbonized, a furnace located outside the carbonizing-chamber in which heat is generated to carbonize the wood in said chamber, a flue from said furnace having branch flues formed on the inner walls of the carbonizing-chamber and extending to the lower part of said walls where they communicate with the carbonizing-chamber, thin metal plates forming the partition between the branch flues and the carbonizing-chamber to radiate the heat into said chamber from said flues, and an exhaust-flue from said chamber.

3. In a wood-carbonizer, a permanent structure of fireproof material containing a carbonizing-chamber for the wood to be carbonized, a furnace outside the carbonizing-chamber within which heat is generated to carbonize the wood, a flue from said furnace and extending partly around the upper part of said structure, branch flues from said flue extending downward at intervals around the inner surface of the carbonizing-chamber and communication with the lower portion of said chamber, and an exhaust-flue from the carbonizing-chamber.

749,092. DOUBLE-FACED SOUND-RECORD. ADELBERT H. PETTY, Newark, N. J., assignor of one-half to F. M. Prescott, New York, N. Y. Filed Jan. 7, 1901. Serial No. 42,337. (No model.)



Claim.—1. As a new article of manufacture, a sound-record consisting of a disk of hardened plastic material presenting oppositely-facing, phonetically-uniform sound-records impressed into the plastic material and fixed or set therein by the initial setting of the disk.

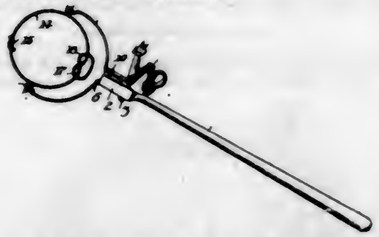
2. As a new article of manufacture, a disk of homogeneous, hardened, plastic and dense material having a sound-record on both of its opposite faces formed by compressing a body of such material in a plastic condition between opposite templets each of which is roughened by a sound-record.

3. As a new article of manufacture, a sound-record consisting of a disk presenting oppositely-facing sound-records impressed therein.

4. The process of making double-faced sound-record disks of

uniform phonetic quality on both sides and from center to periphery on each side which consists in compressing a plastic homogeneous mass between two templets each of which is roughened as by having a sound-record formed in relief thereon and thereby causing the radial flow of material in assuming its final shape to be alike at both faces.

749,093. DEVICE FOR DELIVERING TRAIN-ORDERS, MESSAGES, &c. WILLIAM H. PICKETT, Shannopin, Pa. Filed May 23, 1903. Serial No. 158,450. (No model.)



Claim.—1. A delivery device for train-orders or other messages comprising a rod or pole, a bail swiveled in the said rod or pole near the outer end thereof, means for holding said bail in alinement with the rod or pole, and a message-holding hoop detachably secured to the end of said bail, substantially as described.

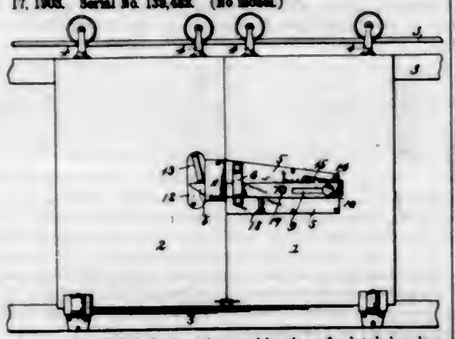
2. A delivery device for train-orders or other messages comprising a rod or pole, a bail mounted in the end of said pole and adapted to swing laterally to either side thereof, said bail embodying outwardly-projecting spring-arms, and a message or order holding hoop having oppositely-disposed eyes for engagement with the ends of said spring-arms, substantially as described.

3. A delivery device for train-orders or messages comprising a rod or pole, means for suspending a light from said rod or pole, spring-arms connected to said rod or pole and adapted to swing toward either side of the pole, means for temporarily holding said spring-arms in alinement with the pole, and a message or order holding hoop detachably secured to the ends of said spring-arms, substantially as described.

4. A delivery device for train-orders or the like comprising a rod or pole having one end provided with means for suspending a light, a pair of spring-arms connected to said rod or pole and adapted to swing laterally toward each side of the pole, and a message-holding hoop adapted to be detachably connected to the outer end of said arms, substantially as described.

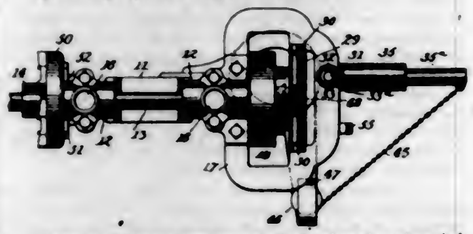
5. A delivery device for train-orders or the like, comprising a rod or pole having one end provided with means for suspending a light, a pair of spring-arms connected to said rod or pole and adapted to swing laterally toward each side of the pole, a message-holding loop adapted to be detachably connected to the outer end of said arms, a message clasp or clamp secured upon the message-holding hoop and adapted to firmly secure the message upon the hook, substantially as described.

749,094. DOOR-LATCH. BYRON J. QUICK and WILLIAM H. SMITH, Jr., Ithaca, Mich.; said Quick assignor to said Smith, Jr. Filed Jan. 17, 1903. Serial No. 139,462. (No model.)



Claim.—In a latch device, the combination of a latch-bar having a spear-head on one end and a straight slot in the other end, a stud engaging said slot, a keeper located to be engaged by said spear-head and to permit a lateral movement of said bar and a hook pivotally mounted above said latch in position to be dropped to engage the slotted end of said latch-bar to hold it against longitudinal movement and to be thrown up to release said bar, and means mounted on said bar for use in operating it as a bolt or pivoted latch, substantially as described.

749,095. WINDMILL. GEORGE P. RASCH, Des Moines, Iowa, assignor of one-third to Monrad John Olsen, Des Moines, Iowa. Filed Apr. 11, 1903. Serial No. 152,243. (No model.)



Claim.—1. The combination with the head-casting of a windmill, of a wind-wheel shaft journaled in the casting, a pinion on the shaft, a vertically-elongated internal gear meshing with the pinion, a pitman extending downwardly from the gear at one side of its median line, and a pump-rod connected directly to the pitman, whereby when the gear is operating to lift the pump-rod both will be in a vertical position, substantially as set forth.

2. The combination with the head-casting of a windmill, of a wind-wheel shaft journaled in the casting, a pinion on the shaft, a vertically-elongated internal gear meshing with the pinion, means on the head-casting for holding the gear and pinion in engagement, a pitman extending downwardly from the gear at its lifting side, and a pump-rod connected directly to the pitman, whereby when the gear is lifting the pump-rod the latter will be in vertical alinement with the wind-wheel shaft, substantially as set forth.

3. The combination with the head-casting of a windmill, of a wind-wheel shaft journaled in the casting, a pinion on the shaft, a vertically-elongated internal gear meshing with the pinion, a roller supported in bearings on the head-casting and engaging the back face of the internal gear for holding the latter in engagement with the pinion, a pitman extending downwardly from the gear at one side of its median line, and a pump-rod connected to the pitman, substantially as set forth.

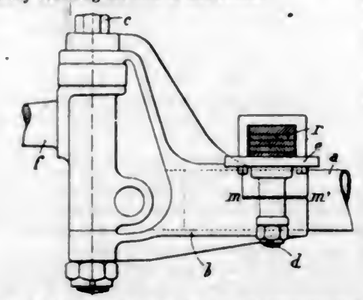
4. The combination with the head-casting of a windmill, of a wind-wheel shaft journaled in the casting, a pinion on the shaft, a vertically-elongated internal gear meshing with the pinion, a guiding-groove 26 in said gear in parallel relation to the teeth thereof, a roller on the shaft entering said groove, a pitman extending from the gear in line with the groove on the lifting side of the gear, and a pump-rod connected directly to said pitman, substantially as set forth.

5. In a windmill, the combination with the head-casting, of a vertically-extending rod supported by said casting, a sleeve fitting over said rod and having a vane-socket, one end of the sleeve having ratchet-teeth thereon, a collar on the rod adjacent to the sleeve and having a ratchet to engage the teeth, a spiral spring on the rod having one end engaged with a fixed part of the head-casting and the other with said collar, and means for turning said sleeve against the tension of the spring, substantially as set forth.

6. In a windmill, the combination of a head-casting, a wind-wheel hub supported by the casting and having a braking-surface, a vane-socket pivotally supported on said casting, a brake-shoe movably supported by said casting in position to engage the said braking-surface on the hub, a lever pivoted between its ends to the casting and one arm extending in the path of movement of the vane-socket to be operated thereby, a link connecting the outer end of the other arm of the lever to the brake-shoe, and means for adjusting the length of the link between the opposing faces of the lever and brake-shoe, substantially as set forth.

749,096. MOTOR-VEHICLE. LOUIS RENAULT, Billancourt, France. Filed Sept. 10, 1903. Serial No. 172,653. (No model.)

Claim.—1. In the fore-carriage of a vehicle, the combination of a bracket having one of its ends provided with an axle-socket and having a portion of its length cut away, a saddle mounted on said cut-away portion adapted to form a bearing for the springs of the vehicle, said saddle provided with means for retaining the springs in place thereon, and means for securing said saddle to the bracket and thereby retaining the axle in said socket.



2. In the fore-carriage of a vehicle, the combination of a spindle-supporting bracket having one of its ends provided with an axle-receiving socket and having a portion of its length cut away, said bracket further provided with vertically-extended openings, a saddle mounted on said cut-away portion and adapted to form a bearing for the springs of the vehicle, said saddle provided with vertically-extending openings registering with the openings in said brackets and with eyes for receiving the springs of the vehicle, and means extending through said vertically-extending openings for securing said saddle to the bracket thereby retaining the axle in said socket.

3. In the fore-carriage of a vehicle, the combination of a spindle-supporting bracket having one of its ends provided with an axle-receiving socket and having a portion of its length cut away, said bracket provided with vertically-extending openings, a saddle mounted upon the cut-away portion and adapted to form a bearing for the springs of the vehicle, said saddle provided with vertically-extending openings registering with the openings in said bracket and with means for retaining the springs in place, and means extending through the said vertically-extending openings for clamping the saddle to the bracket thereby retaining the axle in said socket.

4. In the fore-carriage of a vehicle, a fork-shaped spindle-supporting bracket having its horizontal member provided with an axle-receiving socket, said latter member having its free end formed in a semicylindrical manner, a semicylindrical-shaped saddle mounted on the semicylindrical portion of the bracket and adapted to form a bearing for the springs of the vehicle, said saddle provided with eyes for receiving the springs of the vehicle, and means for securing said saddle to the bracket for clamping the axle in said socket.

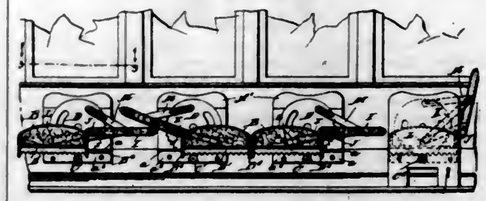
5. In the fore-carriage of a vehicle, a spindle-supporting bracket having its free end provided with an axle-receiving socket, said free end further formed in a semicylindrical manner and provided with vertically-extending openings, a semicylindrical-shaped saddle mounted on the semicylindrical portion of the bracket and adapted to form a bearing for the springs of the vehicle, said saddle provided with eyes for retaining said springs in position and further provided with vertically-extending openings registering with the openings in the semicylindrical portion of the bracket, and bolts extending through said vertical openings for securing the saddle to the bracket thereby clamping the axle in said socket.

6. In the fore-carriage of a vehicle, a spindle-supporting bracket having its free end provided with an axle-receiving socket, said latter end having a portion of its length formed in a semicylindrical manner, a semicylindrical-shaped saddle mounted on the semicylindrical portion of the bracket and adapted to form a bearing for the springs of the vehicle, said saddle further provided with means for securing the springs in place thereon, and means for securing said saddle to the bracket thereby clamping the axle in said socket.

7. In the fore-carriage of a vehicle, the combination of a spindle-supporting bracket having one of its ends provided with an axle-receiving socket and having a portion of its length cut away, a saddle mounted on said cut-away portion and adapted to form a bearing for the springs of the vehicle, said saddle further provided with eyes for retaining the springs of the vehicle in place, and means for securing the saddle to the bracket, thereby retaining the axle in said socket.

749,097. CAR-SEAT. BERNHARD REYNDORPH and WILLIAM H. BENTON, Houston, Tex. Filed Sept. 28, 1903. Serial No. 175,046. (No model.)

Claim.—1. The combination substantially as herein described, of the car-seats provided with racks, the frames having pinions engaging with said racks, the seat-backs, the rockers having links connected with the seat-backs, said rockers being provided with gear-teeth, pinions on the operating-shaft meshing with the gear-teeth of the rockers, links connecting the backs with the seats proper, and locking devices having bolts for engagement with the pinions of the operating-shaft, whereby to lock the said shaft and thereby the seats in any desired adjustment, substantially as set forth.



2. In a car-seat adapted for adjustment to form a portion of a couch for reclining purposes, the combination of the movable seat proper, the framing in which said seat proper is movable, the rockers jointed to the framing and provided with teeth, racks on the seat proper, the back, connections between the rocker and the back, connections between the seat proper and the back, and the operating-shaft geared with the rockers and with the racks of the seat proper, substantially as set forth.

3. The combination with the seat proper and the back, of the operating-shaft, means whereby the operating-shaft may adjust the seat proper, and a key-operated locking device for the operating-shaft, substantially as set forth.

4. The combination with the seat proper, and the back, of the operating-shaft geared with the seat proper, a rocker geared with the operating-shaft, and the back connected with the rocker, substantially as set forth.

5. The combination with the framing, and the seat proper, having racks extending transversely across its under side, of depending stop-plates at its opposite edges projecting below the said racks, and the operating-shaft having pinions meshing with the racks of the seat proper, substantially as set forth.

6. The combination of the series of adjacent seats having seats proper arranged for adjustment into contact with each other to form portions of a couch, the backs of said seats being adjustable to a position to form end extensions of the couch, and gear for operating said seats and back, substantially as set forth.

7. The combination of the operating-shaft, the movable seat proper geared with the operating-shaft, the back, the links J and K connecting the back and seat, the rocker geared with the operating-shaft, and the link connecting the rocker with the seat-back, substantially as set forth.

8. The combination of the framing, the seat proper having rack devices, the back, the rocker having rack-teeth, connections between the rocker and the back, the operating-shaft geared with the rack devices of the rocker and seat proper, and the lock having a bolt engaging with and locking the operating-shaft, substantially as set forth.

9. The combination of the framing, the seat proper, the back, links J and K connecting the back and seat proper, the lugs on the ends of the seat for supporting said links K when the back is adjusted to a reclining position, guides on the framing for supporting the seat proper, and means for operating the seat proper, substantially as set forth.

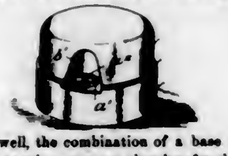
10. The combination of the end frames, the rockers pivoted thereto and having the rack-teeth, the guide-flanges on the said end rails, the operating-shaft journaled to said end frames and having pinions meshing with the rockers, the lock devices supported on one of the end frames, and engaging with the operating-shaft, the seat proper sliding on the guide-flanges of the end frames, and having racks meshed with the operating-shaft, the back, links connecting the back with the rockers and links connecting the back with the seat proper, substantially as and for the purposes set forth.

749,098. INK-WELL. SIDNEY G. REYNOLDS, Louisville, Ky. Filed June 10, 1903. Serial No. 160,927. (No model.)

Claim.—1. In an ink-well, the combination of a base, and a reservoir revolubly mounted on said base, with means for fastening said base and said reservoir together, substantially as described.

2. In an ink-well, the combination of a base provided with an opening in the center thereof, and an open chamber for the ink con-

nected to said opening, a reservoir revolubly mounted on said base and having a neck projecting down into said opening, and means for locking said reservoir to said base, substantially as described.



3. In an ink-well, the combination of a base provided with a central cylindrical opening, an open chamber for the ink connected to said opening, and an elevated rim, said rim being cut away adjacent to said chamber, a bottle having its top fitting snugly on said base and having its sides engaging said rim, the said bottle being provided with a cylindrical neck projecting down into said cylindrical opening, the said bottle being thus revolubly mounted on said base, substantially as described.

4. In an ink-well, the combination with a base provided with a central cylindrical opening, and an open chamber for the ink connected to said opening and also provided with an annular rim, of a bottle having its top fitting snugly on said base and having its sides engaging said rim, the said bottle being provided with a cylindrical neck projecting down into said cylindrical opening, and means for locking said bottle to said base, substantially as described.

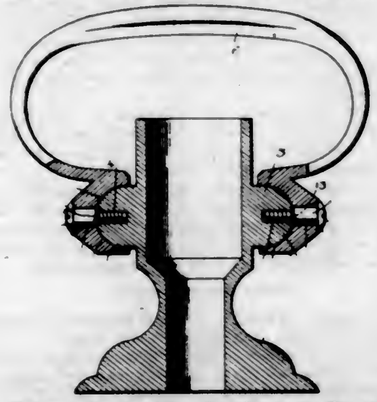
5. In an ink-well, the combination of a base, a reservoir revolubly mounted on said base, and means for fastening said base and said reservoir together, said means being provided with extensions forming a pen-rack, substantially as described.

6. In an ink-well, the combination of a base provided with a central cylindrical opening, and an open chamber for the ink connected to said opening, a reservoir revolubly mounted on said base and provided with a cut-away portion normally located over said chamber, and means for locking said base and said reservoir together, said means being extended to form a pen-rack, substantially as described.

7. In an ink-well, the combination of a base provided with a central opening, an open chamber for the ink connected with said opening, and an annular rim, of a reservoir fitting snugly within said rim and having a neck projecting down into said opening, said bottle being provided with a recessed portion normally located above said chamber, and means for holding said bottle and said base yieldingly in contact with each other, said means being provided with extensions forming a pen-rack, substantially as described.

8. In an ink-well, the combination of a base provided with a central cylindrical opening, and an open chamber for the ink connected to said opening, and also provided with an annular rim having the part adjacent to said chamber cut away, a bottle fitting snugly within said rim, and having a cylindrical neck adapted to enter said opening and provided with a cut-away portion normally located above said open chamber, and spring-clips for holding said base and said bottle in contact with each other, said clips being provided with extensions forming a pen-rack, substantially as described.

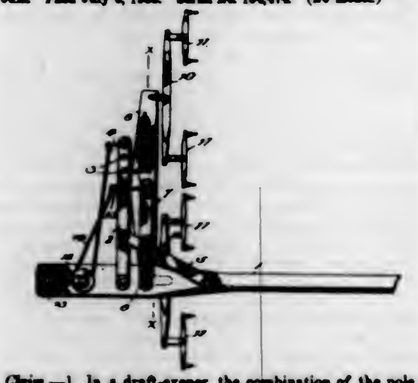
749,099. WATCH-BOW FASTENER. JAMES H. ROGERS, Gridley, Ill. Filed Mar. 12, 1903. Serial No. 147,501. (No model.)



Claim.—1. In a watch-bow-fastening means, the combination of a pendant having diametrically-disposed bosses with outer convex terminals, and a bow having heads depending from and projecting outwardly under its terminals and provided with concave sockets to receive the said bosses, the convex terminals of the bosses being located inwardly at a distance from the outer surfaces of the bow-heads in alinement therewith, the heads having bores extending centrally therethrough, and the heads and bosses connected by a pivotal means projecting through and enlarged within the bores, said pivotal means being provided with outer enlarged cap elements having their perimeters accurately coinciding with the adjacent portions of the bow-heads to avoid the formation of shoulders or projections.

2. In a watch-bow-fastening means, the combination of a pendant having diametrically-disposed bosses with outer convex terminals and central screw-sockets opening outwardly therefrom, a bow having heads depending from and projecting outwardly under the terminals thereof and provided with central concave sockets to receive the bosses and having central bores of greater diameter than the screw-sockets in the bosses, and pivot devices formed with screw-stems to engage the sockets of the bosses, and cylindrical enlargements to fit in the bores of the heads, the outer headed ends of the pivot devices having their perimeters flush with adjacent portions of the bow-heads.

749,100. DRAFT-EVENER. FERDINAND ROSSKOW, Renfrew, Ohio. Filed July 6, 1903. Serial No. 164,474. (No model.)



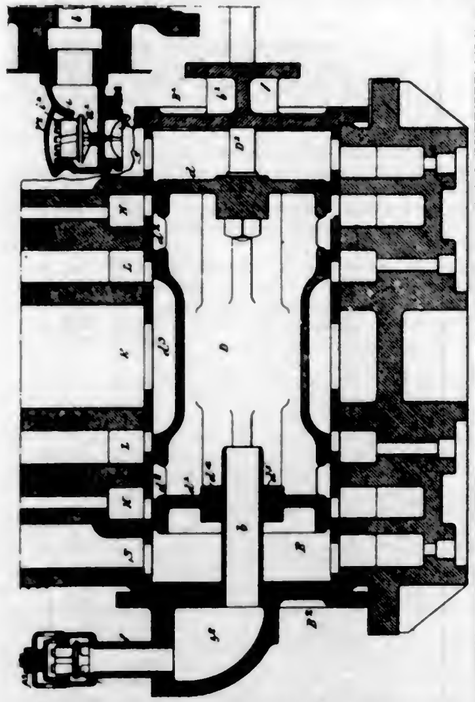
Claim.—1. In a draft-evener, the combination of the pole, an arm projected laterally therefrom, a support pivoted at its inner end to the pole and projected from the same side thereof as the arm, a swingletree pivoted to the outer end of said support and provided at its ends with draft-attaching devices, and a flexible connection secured at one end to the swingletree and having adjustable connection at its opposite end with the aforementioned arm and having loose connection intermediate of its ends with said pole, substantially as set forth.

2. In combination, a pole, an arm projected laterally from the pole and having a series of openings in its length, a brace between said arm and pole, a pivoted support comprising companion members having their outer ends brought together and their inner ends embracing opposite sides of the pole, one of said members resting upon said brace, a swingletree pivoted to the outer end of the support and provided at its ends with draft-attaching devices, a pulley applied to the pole in the rear of the arm, a flexible connection passed around said pulley, means for connecting one end of said flexible connection with the fastening pivotally connecting the swingletree and pivoted support, and a clevis adjustably connecting the opposite end of said flexible connection with the aforementioned arm, substantially as set forth.

749,101. RELIEF-VALVE FOR LOCOMOTIVES. KENNETH RENWICK, Philadelphia, Pa., assignor to Burnham, Williams & Company, Philadelphia, Pa., a Firm. Filed Nov. 22, 1902. Serial No. 132,204. (No model.)

Claim.—1. The combination in a compound locomotive, of a valve-chest, a hollow cylinder-valve therein controlling the flow of steam to and from the cylinders, a relief-valve fixed to the chest and communicating with the interior of the said cylinder-valve, substantially as described.

2. The combination in a valve-chest having ports leading to the high and low pressure cylinders, a valve in said chest having a hollow center, a relief-valve carried by one of the caps closing the valve-chest, a tube extending from the cap and through one end of the cylinder-valve, and communicating with the relief-valve, substantially as described.



3. The combination in a valve-chest having ports communicating with the high and low pressure cylinders, a valve in said chest, said valve closed at each end forming a chamber, a cap closing the end of the valve-chest, a relief-valve carried by the said cap, a tube extending inwardly from the cap and through one end of the hollow valve so as to form a communication between the interior of the said valve and the relief-valve, one end of the hollow valve having a stuffing-box through which the tube extends, substantially as described.

4. The combination in a valve-chest having ports leading to the high and low pressure cylinders, a hollow cylinder-valve having heads at each end, a cap closing the end of the valve-chest, a tube secured to said cap and extending through one end of the cylinder-valve, said cap having a chamber, a relief-valve casing communicating with said chamber, and a relief-valve in said casing, substantially as described.

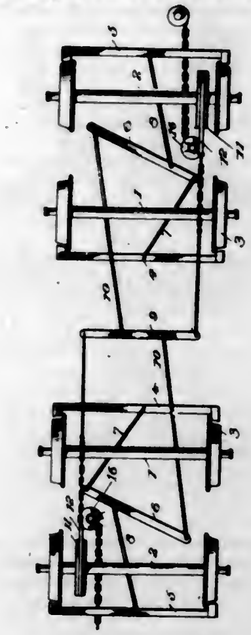
749,102. CAR-BRAKE. WILLIAM J. RUSSELL, Charleston, Nebr. Filed May 1, 1903. Serial No. 155,198. (No model.)

Claim.—1. In a system of car-brakes, actuating means therefor comprising a power-driven wheel having an approximately V-shaped groove and a flexible band provided with dogs of approximately V form to match the V-groove of the actuating-wheel, substantially as set forth.

2. In a system of car-brakes, actuating means therefor comprising a power-driven wheel having an approximately V-shaped groove and a flexible band, dogs applied to said strap at intervals in its length and comprising a laminated structure, the layers being secured together and to the strap by the same fastening means, substantially as specified.

3. In a system of car-brakes, an actuating-wheel applied to an axle to rotate therewith and provided in its periphery with an approximately V-shaped groove, and a flexible band for transmitting power to the brakes and provided at intervals in its length with a series of V-shaped dogs for cooperation with the V-shaped groove of the actuating-wheel, substantially as described.

4. In a system of car-brakes, and in combination with the car-axles, car-wheels, brake-beams provided with brake-shoes to bear against the car-wheels and an equalizing-lever connected to said brake-beams, an actuating-wheel secured to an axle for rotation therewith and provided in its periphery with an approximately V-shaped groove, a flexible band connected at one end to said equalizing-lever and provided with a series of spaced dogs adapted to cooperate with the V-shaped groove of the actuating-wheel, and means under control of the motorman for tightening said band to cause the dogs thereof to initially bind in the groove of the actuating-wheel preliminary to setting the brakes, substantially as described.



749,103. BRAKE-SHOE. FITZ WILLIAM SARGENT, Mahwah, N. J., assignor to American Brake Shoe & Foundry Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 6, 1903. Serial No. 164,287. (No model.)



Claim.—1. A brake-shoe provided with a back longitudinally parallel with the face of the shoe and laterally convexed in section, the edges being embedded in the shoe in casting the latter.

2. A cast brake-shoe having a steel back with downturned and embedded edges along its entire length.

3. A steel back for a brake-shoe being upwardly convexed along its entire length and lying flush with the back of the shoe with its edges embedded in the metal of the shoe.

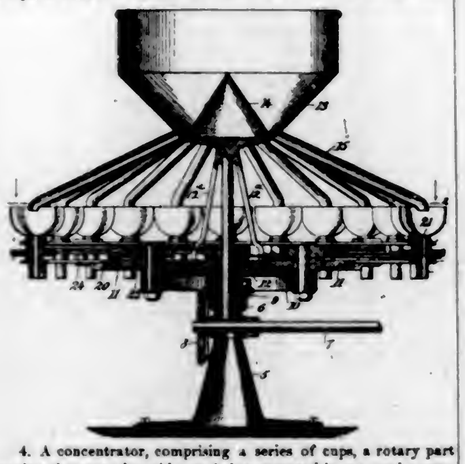
4. A brake-shoe having a back composed of a steel plate convex crosswise and having its edges embedded in the cast metal of the shoe, substantially as described.

749,104. CONCENTRATOR. LUDWIG F. SCHOENEFELDT, Denver, Colo., assignor of two-thirds to Rockwell M. MacCormac, Denver, Colo. Filed Feb. 18, 1903. Serial No. 143,967. (No model.)

Claim.—1. A concentrator, comprising a series of cups, a rotary part carrying the cups, outlet-tubes extending from the bottoms of the cups and having rotative bearings in said rotary part, means for imparting rotary motion to the cups, a hopper, and conveyers for material, leading from the hopper to the several cups.

2. A concentrator, comprising a series of cups, a ring in which said cups have rotary motion the said ring being wholly below the cups, means for rotating the ring, means for imparting a rotary motion to the cups, a rotary hopper arranged above the cups, and tubes leading from said hopper to the cups.

3. A concentrator, comprising a standard, a table mounted to rotate on said standard, a fixed gear or rack above the table, gear-wheels carried by the table and engaging with said fixed gear or rack, rings surrounding and supported by the table, cups having tubular extensions and having bearings in said rings, pulleys on said extensions, pulleys carried by the gear-wheels on the table, band connections between the said pulleys on the gear-wheels and the pulleys on the cups, a hopper, and tubes leading from said hopper to the cups.

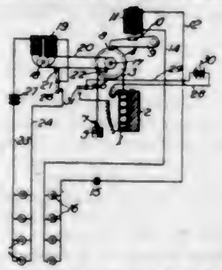


4. A concentrator, comprising a series of cups, a rotary part carrying the cups, the said cups being arranged in sets, and means, comprising a single pulley and gearing, for rotating independently the several cups of a set.

5. In a concentrator, a rotary cup of substantially hemispherical form, an imperforate tube leading from the bottom thereof, and a sieve material arranged across the inner end of said tube.

6. In a concentrator, a series of cups arranged in a circle and having a space between them, a rotary carrying device in which the cups are mounted to rotate, means for imparting a rotary motion to the carrying device, means operated thereby for rotating the cups, a hopper, tubes leading from said hopper to the cups, and a conical bottom for said hopper, the apex thereof being upward whereby material is distributed evenly to the tubes.

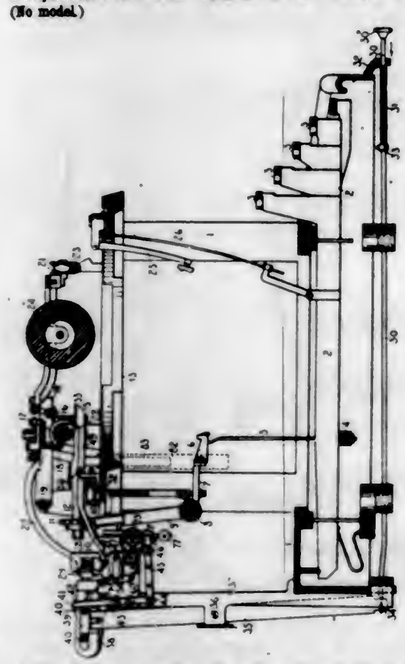
749,105. ELECTRIC SIGNAL. BAPTIST H. SCOTT, Allegheny, Pa. Filed Jan. 20, 1903. Serial No. 139,745. (No model.)



Claim.—1. A device of the type set forth comprising a sign adapted to be raised and lowered, rotatable means for supporting said sign, a cable secured to the sign passing over said means, a weight secured to the cable, lugs mounted on said cable for automatically opening and closing a circuit for lighting the sign, means for locking said sign in raised position, electrical means for releasing the same, electrical means for returning the sign to position, comprising a motor, an electrical circuit leading therefrom, a switch for closing the same, a belt actuated by said motor, and engaging the said rotatable supporting means for the sign for turning the same, and means carried by the same to actuate said switch, substantially as described.

2. The herein-described apparatus comprising a movable sign, a pulley, a cable supporting the sign passing over the same, a pivoted pawl adapted to lock said pulley, electrical means for lifting said pawl to permit of the descent of the sign, electrical means for raising said sign, said means being connected with the pulley, a circuit for lighting the sign, a switch, and means carried by the cable for closing said switch, substantially as described.

749,106. TYPE-WRITING MACHINE. CHARLES H. SHEPARD, Brooklyn, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Nov. 7, 1901. Serial No. 81,421. (No model.)



Claim.—1. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, means for projecting one of said stops into the path of the other, and means for limiting the speed of the return movement of the projected stop.

2. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, spring-restored means for projecting one of said stops into the path of the other and means for counteracting the spring-restored means to retard the speed of the projected stop.

3. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop which coöperates with the carriage-stop and is carried by the frame of the machine, said stops being normally out of the path of each other, key-actuated means for projecting one of said stops into the path of the other and means for retarding the speed of the return movement of the projected stop.

4. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, means for projecting one of said stops into the path of the other, and automatically-operated means for retarding the speed of the return movement of the projected stop.

5. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop therefor, a denominational stop coöperating with the tabulating-stop, said stops being normally out of the path of each other, means for projecting said denominational stop into the path of the tabulating-stop, and means for retarding the speed of the return movement of the denominational stop.

6. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop carried by said carriage, a denomination-stop carried by the frame of the machine, said stops being normally out of the path of each other, key-actuated means carried by the frame of the machine for projecting said denomination-stop into the path of the tabulating-stop, and automatically-operated means for retarding the return movement of the projected stop.

7. In a tabulating device for type-writing machines, the combination of a carriage, an adjustable tabulating-stop carried by said carriage, a denomination-stop carried by the frame of the machine, said stops being normally out of the path of each other, spring-restored key-actuated means carried by the frame of the machine for projecting said denomination-stop into the path of the tabulating-stop, and automatically-operated spring-restored means for retarding the return movement of the projected stop.

8. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of coöperating denominational stops, key-actuated means for projecting any of said denominational stops into the path of the tabulating-stop and means for retarding the speed of the return movement of any projected denominational stop.

9. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of coöperating denominational stops, key-actuated means for projecting any of said denominational stops into the path of the tabulating-stop and a single retarding device which coöperates with all of said denominational stops.

10. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of coöperating denominational stops, a separate spring-restored key for projecting each of said denominational stops into the path of the tabulating-stop, and a single automatically-operated retarding device which coöperates with all of said denominational stops.

11. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, means for projecting one of said stops into the path of the other, means for limiting the speed of the return movement of the projected stop, and means for disengaging the carriage from its feed mechanism during the movement of the projectable stop to projected position.

12. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, spring-restored means for projecting one of said stops into the path of the other, means for counteracting the spring-restored means to delay the projected stop when released and during its return movement, and means for disengaging the carriage from its feed mechanism during the movement of the projectable stop to projected position.

13. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop which coöperates with the carriage-stop and is carried by the frame of the machine, said stops being normally out of the path of each other, key-actuated means for projecting one of said stops into the path of the other, means for retarding the speed of the return movement of the projectable stop, and means for disengaging the carriage from its feed mechanism during the movement of the projectable stop to the projected position and for reëngaging the carriage with its feed mechanism during the retarded return of said stop to the normal position.

14. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop therefor, a denominational stop coöperating with the tabulating-stop, said stops being normally out of the path of each other, means for projecting the denominational stop into the path of the tabulating-stop, automatically-operated means for retarding the speed of the return movement of the denominational stop and means for disengaging the carriage from its feed mechanism during the movement of the denominational stop to its projected position.

15. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of coöperating denominational stops, key-actuated means for projecting said denominational stops into the path of the tabulating-stop, a single retarding device which coöperates with all of said denominational stops to retard their return movement from the projected position and means for automatically disengaging the carriage from its feed mechanism during the movement of any of the denominational stops to the projected position and for reëngaging the carriage with its feed mechanism during the return of a projected stop to the normal position.

16. In a tabulating device for type-writing machines, the combination of a carriage, a stop therefor, a coöperating spring-restored stop, said stops being normally out of the path of each other, means for projecting the spring-restored stop into the path of the other stop, and means for automatically affording a resistance to the return of the spring-restored stop, such resistance being sufficient to retard but not to block the return movement of said stop.

17. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop therefor, a plurality of coöperating denominational stops, said denominational stops being spring-restored and normally out of the path of the tabulating-stop, means for projecting any of the spring-restored denominational stops into the path of the tabulating-stop, and means for automatically affording a resistance to the return of the spring-restored stops, such resistance being sufficient to retard but not to block the return movement of said stops.

18. In a tabulating device for type-writing machines, the combination of a carriage, a stop therefor, a coöperating spring-restored stop, said stops being normally out of the path of each other, means for projecting the spring-restored stop into the path of the other stop, means for automatically retarding the return of the spring-restored stop, feed mechanism for the carriage, and means controlled by the spring-restored stop for effecting a disengagement and reëngagement of the feed mechanism.

19. In a type-writing machine and in a tabulating device, the combination with coöperating tabulating-stops, of a carriage, disengageable feed mechanism therefor, and means for automatically retarding the relative movement of the parts of the disengageable feed mechanism during the reëngaging movement thereof.

20. In a type-writing machine and in a tabulating device, the combination of a carriage, a carriage-feed element carried by the carriage, a coöperating carriage-feed element on the frame of the machine, a tabulating-stop carried by the frame of the machine, a coöperating tabulating-stop carried by the carriage, means for projecting one of said stops into the path of the other and for simultaneously disengaging the carriage-feed elements, and automatically-operated means for retarding the reëngagement of said feed elements.

21. In a type-writing machine and in a tabulating device the combination of a carriage, a carriage-feed element carried by the carriage, a coöperating carriage-feed element carried by the frame of the machine, a tabulating-stop carried by the frame of the machine, a coöperating tabulating-stop carried by the carriage, spring-restored means for projecting one of said stops in the path of the other and for simultaneously disengaging the carriage-feed elements, and automatically-operated means for counteracting said spring-restored means to retard the reëngagement of said feed elements.

22. In a type-writing machine and in a tabulating device, the combination of a carriage, a carriage-feed element carried by the carriage, a coöperating carriage-feed element carried by the frame of the machine, a tabulating-stop carried by the frame of the machine, a coöperating tabulating-stop carried by the carriage, spring-restored means for projecting one of said stops into the path of the other, and for simultaneously disengaging the carriage-feed elements, and automatically-operated means for counteracting said spring-restored means to retard the reëngagement of said feed elements and to retard the return movement of the projected stop.

23. In a type-writing machine and in a tabulating device, the combination of a carriage, a carriage-feed element carried by the carriage, a coöperating carriage-feed element carried by the frame of the machine, a plurality of denominational stops, a coöperating tabulating-stop, means for projecting one of said denominational stops into the path of the tabulating-stop and for simultaneously disengaging the carriage-feed elements, and automatically-operated means for retarding the reëngagement of said feed elements.

24. In a type-writing machine and in a tabulating device, the combination of a carriage, a carriage-feed element carried by the carriage, a coöperating carriage-feed element carried by the frame of the machine, a plurality of denominational stops, a coöperating tabulating-stop, spring-restored means for projecting one of said denominational stops into the path of the tabulating-stop and for simultaneously disengaging the carriage-feed elements, and automatically-operated means for counteracting said spring-restored means to retard the reëngagement of said feed elements and to retard the return movement of the projected stop.

25. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, and a retarding device which is normally out of engagement with the projectable stop but which is adapted to be automatically engaged thereby when the said stop is moved to the projected position and to retard the return movement thereof.

26. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabu-

lating-stop, spring-restored means for projecting one of said stops into the path of the other, and a spring-restored retarding device which is normally out of engagement with the projectable stop but which is adapted to be automatically engaged thereby when the said stop is moved to the projected position so as to counteract the tension of the spring-restored projecting means.

27. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a retarding device which is normally out of retarding engagement with the projectable stop, but is adapted to be automatically engaged thereby when the said stop is moved to the projected position, and a disengageable carriage-feed mechanism, the disengagement and reëngagement of which is controlled by the projectable stop, whereby the retardation of the return movement of the stop will effect a retardation in the reëngagement of the carriage-feed mechanism.

28. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, and a weight which is out of effective coöperation with the projectable stop while said stop is being projected but which is automatically rendered effective during the return movement of said stop to retard said return movement.

29. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a counteracting device to retard the return movement of the projected stop, and a pawl-and-ratchet mechanism interposed between the projected stop and the counteracting device, which pawl-and-ratchet mechanism permits a free movement of the projectable stop to its projected position but throws the counteracting device into coöperation therewith during the return movement of the projected stop.

30. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a weight to retard the return movement of the projected stop, and pawl-and-ratchet mechanism interposed between the projectable stop and the weight, which pawl-and-ratchet mechanism permits a free movement of the projectable stop to its projected position but throws the weight into coöperation therewith during the return movement of the projected stop.

31. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of denominational stops, means for projecting any of said denominational stops into the path of the tabulating-stop, a counteracting device which coöperates with all of said denominational stops to retard the return movement thereof, and pawl-and-ratchet mechanism interposed between the denominational stops and the counteracting device, which pawl-and-ratchet mechanism permits a free movement of any of the denominational stops to the projected position, but is effective to establish an operative connection between the projected stop and the retarding device during the return movement of said projected stop.

32. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of denominational stops, means for projecting any of said denominational stops into the path of the tabulating-stop, a weight which coöperates with all of said denominational stops to retard the return movement thereof, and pawl-and-ratchet mechanism interposed between the denominational stops and the weight, which pawl-and-ratchet mechanism permits a free movement of any of the denominational stops to the projected position without moving the weight but is effective to establish an operative connection between the projected stop and the weight during the return movement of said projected stop.

33. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a counteracting device, a wheel which operates it, and means controlled by the projectable stop for rotating the wheel during the return movement of the projected stop, to retard said stop in its return movement.

34. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a weight, a wheel which moves said weight and means controlled by the projectable stop for rotating the wheel during the return movement of the projected stop, to retard said stop in its return movement.

35. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a weight which is out of effective coöperation with the projectable stop while said stop is being projected but is automatically rendered effective during the return movement thereof to retard said return movement, and a disengageable carriage-feed mechanism, the disengagement and reëngagement of which is controlled by the movement of the projectable stop, whereby the retardation of the return movement of the projected stop will effect a retardation in the reëngagement of the carriage-feed mechanism.

36. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a weight to retard the return movement of the projected stop, and pawl-and-ratchet mechanism interposed between the projectable stops and the weight, which pawl-and-ratchet mechanism permits a free movement of the projectable stop to its projected position but throws the weight into coöperation therewith during the return movement of the projected stop, and a disengageable carriage-feed mechanism, the disengagement and reëngagement of which is controlled by the movement of the projectable stop, whereby the retardation of the return movement of the projected stop will effect a retardation in the reëngagement of the carriage-feed mechanism.

37. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a plurality of denominational stops, means for projecting any one of said denominational stops into the path of the tabulating-stop, a counteracting device which coöperates with all of said denominational stops to retard the return movement thereof, pawl-and-ratchet mechanism interposed between the denominational stops and the counteracting device, which pawl-and-ratchet mechanism permits a free movement of any of the denominational stops to the projected position, but is effective to establish an operative connection between the projected stop and the counteracting device during the return movement of any of said projected stops, and a disengageable carriage-feed mechanism the disengagement and reëngagement of which is controlled by the movement of the projectable stop, whereby the retardation of the return movement of the projected stop will effect a retardation in the reëngagement of the carriage-feed mechanism.

38. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting any one of said stops into the path of the other, a weight, a wheel which moves said weight, means controlled by the projectable stop for rotating the wheel during the return movement of the projected stop to retard said stop in its return movement, and a disengageable carriage-feed mechanism, the disengagement and reëngagement of which is controlled by the movement of the projectable stop, whereby the retardation of the return movement of the projected stop will effect a retardation in the reëngagement of the carriage-feed mechanism.

39. In a type-writing machine and in a tabulating device therefor, the combination with a carriage, of a tabulating-stop thereon, key-actuated denominational stops coöperating therewith, a feed-rack carried by the carriage, a coöperating feed element carried by the frame of the machine, means for disengaging the said feed-rack and its coöperating feed element one from the other when any denominational stop is actuated, and means for retarding the return movement of the denominational stops and the reëngagement of the rack and its coöperating feed element.

40. In a type-writing machine and in a tabulating device therefor, the combination with a carriage, of an adjustable tabulating-stop thereon, spring-restored key-actuated denominational stops coöperating therewith, a feed-rack carried by the carriage, a coöperating feed-pinion carried by the frame of the machine, means for disengaging the said feed-rack from its coöperating feed-pinion when any denominational stop is actuated, and an automatically-operated retarding device which counteracts the spring-pressure of the denomination-stops, for retarding the return movement of the denominational stops and the reëngagement of the rack and its coöperating feed-pinion.

41. In a tabulating device for type-writing machines, the combination of a carriage, a stop carried by said carriage, a second stop coöperating with the carriage-stop, said stops being normally out of the path of each other, means for projecting one of said stops into the path of the other, means for limiting the speed of the return movement of the projected stop, and means for regulating said limiting means to effect a change in the speed of the return movement of the projected stop.

42. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop, a second coöperating tabulating-stop, means for projecting one of said stops into the path of the other, a weight which is out of effective coöperation with the projectable stop while said stop is being projected but is automatically rendered effective during the return movement of said stop to retard its return movement, and means for regulating said weight so as to effect a change in the speed of the return movement of the projected stop.

43. In a tabulating device for type-writing machines, the combination of a carriage, a tabulating-stop carried thereby, a second tabulating-stop coöperating with said first-mentioned stop, means for projecting one of said stops into the path of the other, retarding means comprising a rod having a flexible portion, a weight secured to the rod, and means for automatically and operatively connecting the projected stop and the rod so that the weight will tend to retard the return movement of the projected stop.

44. In a type-writing machine, the combination of a carriage, feed mechanism therefor, means for disengaging the said carriage-feed mechanism and automatically-acting means for affording a retarded movement of the carriage-feed mechanism during the reëngaging movement thereof.

45. In a type-writing machine and in a tabulating mechanism therefor, the combination of a carriage, carriage-feed mechanism, means for releasing the said carriage-feed mechanism, means for arresting the carriage at a predetermined point in its travel, and means for retarding the movement of the carriage-feed mechanism during the reëngaging movement thereof.

46. In a type-writing machine and in a tabulating mechanism therefor, the combination of a carriage, carriage-feed mechanism, means for releasing the said carriage-feed mechanism, a movable device for arresting the carriage at a predetermined point in its travel, and means for retarding the movement of the carriage-feed mechanism and for retarding the movement of the arresting device during the movement of the latter to its normal position.

47. In a type-writing machine, the combination of a carriage, feed mechanism therefor, means for separating the members of the feed mechanism to permit the carriage to run unrestrainedly toward the left, and means acting only on the release of the means for separating the members of the carriage-feed mechanism, for retarding the reëngagement of said members of the carriage-feed mechanism.

48. In a type-writing machine, the combination of a carriage, feed mechanism therefor, a key which when operated will separate the members of the feed mechanism and will maintain such separations as long as the key is pressed upon, and means which come into action after the release of said key from pressure for retarding the reëngagement of said members of the carriage-feed mechanism.

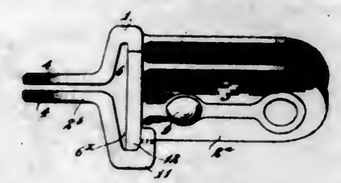
49. In a type-writing machine and in a tabulating mechanism, the combination of a carriage, feed mechanism therefor, coöperating stop devices, key mechanism for separating the members of the carriage-feed mechanism and for bringing the stop devices into coöperative relation and retarding means adapted to be automatically coupled with or connected to said key mechanism when the latter is actuated to release the carriage and bring the stops into coöperative relation, whereby when the said key mechanism is released by the finger of the operator the parts are caused to return to their normal positions with a retarded motion.

50. In a type-writing machine and in a tabulating mechanism, the combination of a carriage having a stop, carriage-feed mechanism, a coöperating stop adapted to be moved into the path of travel of the stop on the carriage, said coöperating stop having a cam and a notch, and a retarding mechanism including a spring-pressed catch adapted to be actuated by and engaged with said stop so as to connect or couple the latter with the said retarding mechanism when the stop has been moved into the path of travel of the stop on the carriage.

51. In a type-writing machine and in a tabulating mechanism, the combination of a carriage having a stop, a plurality of denominational stops each having a cam and a notch, and a retarding mechanism including a spring-pressed transverse bar common to all of said denominational stops.

52. In a type-writing machine and in a tabulating mechanism, the combination of a carriage having a stop, carriage-feeding mechanism, a series of denominational stops each having a cam and a notch, connections between said stops and said carriage-feeding devices, whereby when any one of the denominational stops is projected the carriage-feeding devices are separated, vibratory arms carrying a spring-pressed cross-bar adapted to be acted upon by said denomination-stops, a retarding device, and connections between said arms and said retarding device.

749,107. BRAKE-BEAM FULCRUM. LOUIS A. SHEPARD, New York, N. Y., assignor to Cornelius Vanderbilt, New York, N. Y. Filed Oct. 3, 1902. Serial No. 125,748. (No model.)



Claim.—1. A fulcrum for flanged beams, comprising a recessed member, carrying a fork-forming jaw, and a flat securing-flange, a flat member carrying a fork-forming jaw projecting therefrom at right angles, and a recessed member carrying a securing-flange, substantially as described.

2. A fulcrum for flanged beams, comprising a recessed member, carrying a fork-forming jaw, and a flat securing-flange, a flat member carrying a fork-forming jaw projecting therefrom at right angles, and a recessed member carrying a securing-flange; said first two members being provided with shoulders adapted to be clamped in engagement with each other, substantially as described.

3. A fulcrum for flanged beams, comprising a recessed member, carrying a fork-forming jaw, and a flat securing-flange, a flat member carrying a fork-forming jaw projecting therefrom at right angles, and a recessed member carrying a securing-flange; one or both of said fork-forming jaws being provided with a raised portion which is adapted to abut against the other jaw or raised portion, substantially as described.

4. In a fulcrum for flanged brake-beams, a block 1, having a flat end portion 4 for engagement with the web of the beam, an intermediate recessed portion to receive one flange of the beam, and a jaw 3, said jaw having a raised piece 8, in combination with a block 2^b, having a jaw 3, with a raised piece 8, adapted to abut against the first raised piece, and a flat end portion 12 at right angles to the jaw 3, and a locking-block 2^b, having a flat portion 4 to engage the web of the beam, and a grooved portion 11 to receive a flange of the beam and the edge of the portion 12 of the block 2^a, substantially as described.

5. A fulcrum for flanged brake-beams comprising a block 1, adapted to engage one face of the web of the beam and one of its flanges, a block 2^a, adapted to abut against the flat outer surface of the flanges of the beam and against the block 1, and a block 2^b, adapted to engage the other face of the web of the beam and its other flange, together with a portion of the block 2^a, substantially as described.

6. In a fulcrum for flanged brake-beams, a block 1, having a recessed portion to receive one flange of the beam, one wall of said portion being provided with a sloping shoulder, in combination with a block 2^a, having a portion 12, adapted to abut against the flange of the beam, and provided with a sloping shoulder adapted to abut against the first shoulder, substantially as described.

7. In a fulcrum for flanged brake-beams, a block 2^a, having a jaw 3, a portion 12 at right angles thereto, adapted to abut against the flange of the beam, and a locking-block 2^b, having a portion 4 adapted to engage the web of the beam, and a recessed portion to receive the flange at one edge of the portion 12, substantially as described.

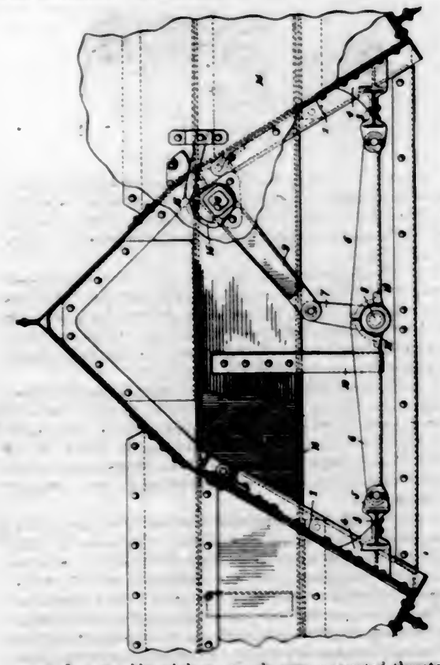
8. In a fulcrum for flanged brake-beams, a block 2^a, having a jaw 3, a portion 12 at right angles thereto, adapted to abut against the flange of the beam, and a locking-block 2^b, having a recessed portion to receive the flange and one edge of the portion 12, one wall 11 of said recessed portion being notched to receive the portion 12 of the block 2^a, substantially as described.

749,108. DOOR-OPERATING MECHANISM. LOUIS A. SHEPARD, New York, N. Y., assignor to Cornelius Vanderbilt, New York, N. Y. Filed Mar. 11, 1903. Serial No. 147,207. (No model.)

Claim.—1. In a car, a pair of hinged discharge-doors, a flanged beam rigidly united thereto at each end, a fulcrum comprising a plurality of separable parts, removably secured to the middle portion of said beam, and a door-operating arm or link connected to said fulcrum, substantially as described.

2. In a car, hinged doors, toggle-arms connected thereto, said toggle-arms being connected together by a knuckle-joint, lugs or projections on said toggle-arms removed from their axis, and vertical guides for said lugs, substantially as described.

3. In a car, hinged doors, toggle-arms connected thereto, lugs or projections on said toggle-arms removed from their axis, vertical guides for said lugs and means for raising the axis of said toggle-arms, substantially as described.



4. In a car, hinged doors, toggle-arms connected thereto, lugs or projections on said toggle-arms removed from their axis, vertical guides for said lugs, a link connected to the axis of said toggle-arms, a rock-shaft having an arm connected to said link, and means for holding said rock-shaft, substantially as described.

5. A fulcrum for flanged beams, comprising two members recessed to receive between them the flange of the beam, and having flattened securing portions on one side of said recesses, and angular projections which abut and interlock on the opposite side of said recesses, in combination with means for clamping said members together on both sides of said recesses, substantially as described.

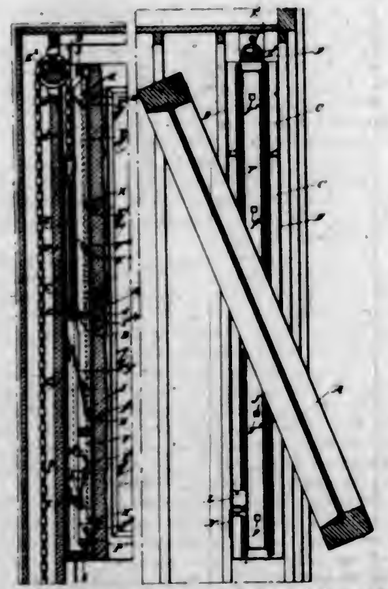
6. A fulcrum for flanged beams, comprising two members having flat end portions for engagement with the opposite faces of the web of the beam, immediate recessed portions to receive the flanges of the beam, and end portions or jaws to form a fork, one of which end portions is provided with an aperture and the other of which is provided with a rivet or post adapted to pass through said aperture said rivet having a shoulder to abut against the part surrounding said aperture, substantially as described.

749,109. **REVOLUBLE WINDOW.** ERASTUS C. SOMERS, Corning, N. Y.; Nelson L. Somers administrator of said Erastus C. Somers, deceased. Filed Sept. 3, 1901. Renewed Nov. 13, 1903. Serial No. 181,737. (No model.)

Claim.—1. A window having slides on which the sash is mounted to turn, and locking devices for locking the sash to said slides to move up and down with the latter, or to disengage the sash from the slide to allow the sash to turn on its pivots; each of the locking devices comprising a spring-pressed bar slidable up and down and sidewise on the said slide to move it out of and into a recess or groove in the said sash, and adapted to be automatically moved into the recess or groove of the sash when the sash is moved into a vertical position, as set forth.

2. A window having slides on which the sash is mounted to turn, a bar slidable up and down and sidewise so as to move in and out of a recess or groove in the sash, means for moving the bar upward to move it out of the recess or groove of the sash, and means for locking said bar raised, said means being automatically released when the sash is moved into a vertical position, as set forth.

3. A window having slides on which the sash is mounted to turn, locking devices for locking the sash to said slides to move up and down with the latter, or to disengage the sash from the slide to allow the sash to turn on its pivots, each of the locking devices comprising a spring-pressed bar slidable up and down and sidewise on the said slide to move it out of and into a recess or groove in the said sash; the said bar having angular slots, pins carried by the slide and extending through the said angular slots, means for moving the bar upward, and means for locking the bar raised, as set forth.



4. A window having slides on which the sash is mounted to turn, locking devices for locking the sash to said slides to move up and down with the latter, or to disengage the sash from the slide to allow the sash to turn on its pivots, each of the said locking devices comprising a bar slidable up and down and sidewise on the said slide to move it out of and into a recess or groove in the said sash; the said bar having apertures, and hooks on the side of the sash to engage the said apertures at the time the bar slides downward into engagement with the said recess, as set forth.

5. A window having slides on which the sash is mounted to turn, locking devices for locking the sash to said slides to move up and down with the latter, or to disengage the sash from the slide to allow the sash to turn on its pivots, each of the locking devices comprising a bar slidable up and down and sidewise on the said slide to move it out of and into a recess or groove in the said sash; and manually-controlled means for moving the bar up and down, the said means comprising a link pivotally connected with the said bar, the link having an arm at its free end, a lever under the control of the operator and having an angular portion for engaging the said link-arm, and a spring pressing the said bar, as set forth.

6. A window having slides on which the sash is mounted to turn, locking devices for locking the sash to said slides to move up and down with the latter, or to disengage the sash from the slide to allow the sash to turn on its pivots, each of the locking devices comprising a bar slidable up and down and sidewise on the said slide to move it out of and into a recess or groove in the said sash, manually-controlled means for moving the bar up and down, the said means comprising a link pivotally connected with the said bar, the link having an arm at its free end, a lever under the control of the operator and having an angular portion for engaging the said link-arm, a spring pressing the said bar, and a second spring having a lug for engaging an aperture in the said bar, as set forth.

7. A window having recesses in its sides and hooks extending in the said recesses, slides on which the sash is mounted to turn and bars carried by the slides and adapted to move into the said recesses, the bar having apertures for engaging the said hooks as set forth.

8. In a window, the combination with a grooved sash, and a slide to which the sash is pivoted, of a sliding and spring-pressed bar movable in and out of the groove of the sash, means for moving the bar upward, against the action of its spring and a locking device for locking the bar raised until the sash is turned out of line with the slide, as set forth.

9. In a window, the combination with a grooved sash, and a slide to which the sash is pivoted, of a sliding bar movable in and out of the groove of the sash, a spring connected with the bar for holding it in a lowermost position, means for raising the bar against the action of the spring, and a spring-catch for engaging the bar to to hold it until the sash is turned out of line with the slide, as set forth.

10. In a window, the combination with a grooved sash having hooks in said groove, and a slide to which the sash is pivoted, the slide being provided with a guideway, of a U-shaped bar having guided movement in the guideway of the slide and movable in and out of the groove of the sash, the bar being provided in its connecting member with openings to receive the hooks of the sash, a spring connected with the bar to hold it in a lowermost position, means for raising the bar against the action of its spring, and means for locking the bar raised until the sash is turned out of line, with the slide, as set forth.

749,110. **HOUSEHOLD TONGS.** JOHN H. SPANGLER, Crafton, Pa., assignor to A. M. Miller, Pittsburg, Pa. Filed Jan. 28, 1903. Serial No. 140,835. (No model.)



Claim.—1. In a device of the character described, a pair of spring-pressed handles, an arm or shank pivotally connected to each of the handles, and one of said arms or shanks working within the other, prongs carried by the arms or shanks, and means for slidably connecting the inner ends of the arms or shanks to the handles, substantially as described.

2. In combination with the handles a means for normally holding the same apart, a pair of arms crossing each other and having their inner ends in sliding engagement with the said handles, and their outer ends formed with prongs, means for pivotally mounting the said arms on the handles opposite to which their free ends are in engagement.

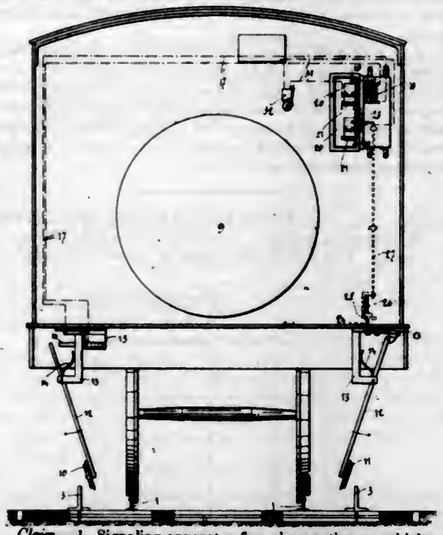
3. In combination with the handles and the arms having their outer ends formed with prongs, said arms each being pivoted to one of said handles and having its opposite end in engagement with the opposite handle, a means carried by said handle to receive the inner ends of said arms.

4. In a device of the character described a pair of handles having means for normally forcing the same apart, lugs carried on the end of each of said handles having outwardly-extending apertures, a pair of grappling members pivotally mounted in said lugs and adapted to work one within the other, said members having sliding connections at their inner ends with the said handles.

5. A pair of household tongs comprising spring-pressed handles, raised slotted keepers secured on the inner faces of said handles, and a pair of interfitting grappling members pivotally secured to said handles, the inner ends thereof extending into said keepers and having means thereon for retaining the same within the keepers, substantially as described.

6. In a device of the character described, a pair of handles having a spring secured to the inner faces thereof adapted to normally force the handles apart, raised longitudinally-slotted keepers secured to the inner faces of said handles, sleeves carrying angularly-disposed apertured lugs and grappling members pivotally secured to said lugs and adapted to work one within the other, and having means thereon for holding said handles within the said keepers, substantially as described.

749,111. **APPARATUS FOR SIGNALING ON LOCOMOTIVES.** HERMANN STADELMANN, Jr., Apolda, Germany, assignor of one-half to Louis Dreyfus, Frankfort-on-the-Main, Prussia, Germany. Filed Feb. 21, 1903. Serial No. 144,472. (No model.)



Claim.—1. Signaling apparatus for a locomotive or vehicle on a fixed track comprising guide-rails on both sides of said track, movable tongues for said rails, signal-controlling devices on the locomotive or vehicle, and means for enabling the controlling devices to pass the said tongues when in an operative position without being operated thereby in one direction of motion and for deflecting the same in the opposite direction of motion, substantially as set forth.

2. A signaling apparatus for locomotives, the combination with the tongues movable laterally or transversely of the track toward and from the same, of controlling devices carried by the moving vehicle, said tongues having an engaging face which, when in an operative position, operates the signal-controlling devices in one direction of movement of the vehicle and yields to not operate said devices in the other direction of movement of the vehicle.

3. In a signal apparatus for locomotives or vehicles which run on a fixed track, the combination of a signal-controlling device carried by the locomotive or vehicle, a guide-rail for the controlling device mounted to one side of the track, and having a movable tongue provided with a passage-way for the controlling device, a gate adapted to close said passage-way, and to be moved out of the path of the controlling device by contact therewith.

4. Signaling apparatus for a locomotive or vehicle on a fixed track comprising guide-rails parallel with each side of the track, movable tongues thereon having suitable openings or gates, closing pieces or plates for said openings or gates and signal-controlling devices carried by the locomotive or vehicle adapted to be deflected by said tongues in one direction of motion of the locomotive or vehicle and to operate the said movable gates or plates in the opposite direction of motion, substantially as set forth.

5. Signaling apparatus for a locomotive or vehicle on a fixed track comprising guide-rails parallel with the track, movable tongues thereon having suitable openings or gates and movable plates for closing said gates, spring-held to normal closed position, inclined ways upon said plates, and signal-operating devices on the locomotive or vehicle adapted to ride on said inclined ways and depress the said plates, substantially as set forth.

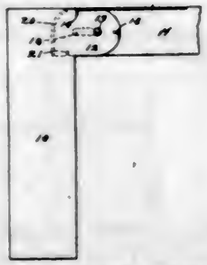
6. In a signaling device for locomotives, the combination with the signal carried by the locomotive and operated when the car passes a certain point, of a recording device, means for recording on the recording device when the signal is operated, and means for simultaneously restoring the signal and for moving the recording device to another position.

7. In a signaling device, the combination of a visible signal, an electric circuit including electromagnetic devices for operating the said visible signal, recording means controlled by the operation of said visible signal, and including a record-strip and means for restoring said visible signal to normal having operative connection with such record-strip.

8. In a signaling device, the combination of a visible signal, a recording device controlled by the operation of such visible signal and including a record-strip and marking devices therefor, feeding devices for said record-strip, and means for restoring said visible signal to normal having operative connection with such feeding devices.

9. In a signaling device, the combination of visible signal-flaps, a record-strip-carrying cylinder, marking-pins adapted to be operated by the dropping of said flaps, a record-strip on said cylinder composed of sections fastened together, step-by-step feeding mechanism for said strip, and a handle and shaft for restoring the signal flaps to normal position and connected to such step-by-step feed mechanism, substantially as set forth.

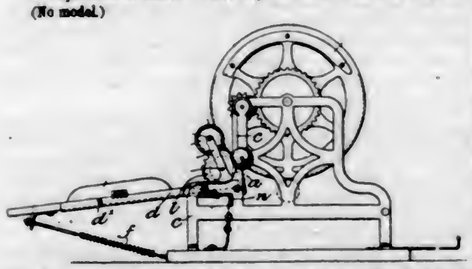
749,112. CARPENTER'S FOLDING SQUARE. WILLIAM STEERS, Sr., Chicago, Ill., assignor to Francis Collins and Gustav Weiss, Chicago, Ill. Filed July 16, 1903. Serial No. 165,741. (No model.)



Claim.—1. A folding square, comprising two members, one of said members being provided at one of its ends with a recess and two parallel and lateral extensions, said extensions having recesses in their free ends and upper edges, the other member being movably secured between said extensions, and a spring secured to the edge of said member and having a projection to engage the recesses in the extensions, so that the members may be fixed at right angles to one another as well as when they are folded together, substantially as described.

2. A folding square, comprising two members, one of said members being provided at one of its ends with a recess and two parallel and lateral extensions, said extensions having recesses in their free ends and upper edges, the other member having near one of its ends a slot and in its edge a recess and located between said extensions, a pin passing through said slot and secured in the extensions, a projection located in the recess of the first-named member, and a spring secured to the edge of the slotted member and having a projection to engage the recess in the extensions, substantially as described.

749,113. STENCIL-PRINTING MACHINE. WILLIAM D. STERNBERG, London, England, assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 25, 1902. Serial No. 124,868. (No model.)



Claim.—1. In a rotary duplicating-machine or like apparatus, the combination with a stencil-carrying drum, of means for supporting a paper pile below said drum, a paper-feeding roller coacting with the upper surface of said pile, and mechanism intermediate of said roller and said drum and actuated by said drum for intermittently rotating said roller to feed successive sheets of paper from the top of said pile substantially as set forth.

2. In a rotary duplicating-machine or like apparatus, the combination with a stencil-carrying drum, of means for supporting a paper pile below said drum, a paper-feeding roller, and mechanism coacting with said drum and roller for intermittently rotating said roller to feed in paper sheet by sheet from the upper surface of said pile, substantially as set forth.

3. In a rotary duplicating-machine or like apparatus, the combination with a stencil-carrying drum, of a paper-feeding roller mounted on a shaft in the framework of the machine and coacting with the upper surface of a paper pile, a friction-wheel, and a segment on said drum coacting with said wheel for intermittently driving the same, substantially as set forth.

4. In a rotary duplicating-machine or like apparatus, the combination with a printing-drum, of a paper-feeding roller mounted on a shaft in the framework of the machine and coacting with the upper surface of a paper pile, a friction-wheel intermittently driven by said drum, and gearing between said wheel and said paper-feeding roller substantially as set forth.

5. In a rotary duplicating-machine or like apparatus, a stencil-carrying drum, a paper-feeding roller intermittently rotated by means of said drum, a paper-feeding board pivoted below the roller and said stencil-carrying drum and carrying a paper pile with which said roller coacts, and a spring for holding the paper on said board against said roller, substantially as set forth.

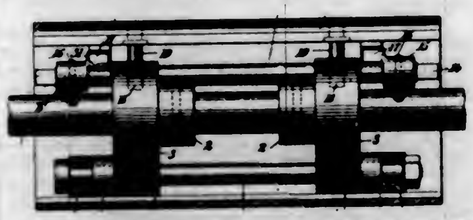
6. In a rotary duplicating-machine or like apparatus, a paper-feeding roller mounted on a shaft in the framework of the machine, means for intermittently rotating said roller from the machine, a paper-feeding board arranged below the roller and said stencil-carrying drum, an adjustable spring for said board, and a stop for retaining the forward end of a pile of paper in longitudinal register, substantially as set forth.

7. In a rotary duplicating-machine or like apparatus, a paper-feeding roller mounted on a shaft in the framework of the machine, means for intermittently rotating said roller from the machine, a paper-feeding board pivoted below the roller, an adjustable spring for pressing the paper on the board in contact with the roller, a plate for registering the paper and means for intermittently depressing the board so as to press the paper against the said plate, substantially as hereinbefore set forth.

8. In a rotary duplicating-machine or like apparatus, a paper-feeding roller, means for intermittently rotating said roller from the machine, a paper-feeding board pivoted below the roller, an adjustable spring for pressing the paper on the board against the roller, a movable plate for registering the paper, means for intermittently depressing the board and imparting a positive movement to the plate, substantially as hereinbefore set forth,

9. In a rotary duplicating-machine or like apparatus, a paper-feeding roller means for intermittently rotating said roller from the machine, a paper-feeding board pivoted below the roller, an adjustable spring for pressing the paper on the board against the roller, a stop for the forward edge of the paper, and adjustable side gripping-stops on the feeding-board, substantially as hereinbefore set forth.

749,114. TUBE OR ROLL FORMING MACHINE. CHARLES SEAMAN and ROBERT D. DOUGLAS, Fall River, Mass. Filed Jan. 16, 1903. Serial No. 139,307. (No model.)



Claim.—1. A tubing-machine comprising frame members spaced apart, a rod passing through and connecting said members, sections forming a mandrel pivoted to said rod, means adapted to pass between the sections for expanding the same, and means independent of the expanding means for contracting said mandrel, substantially as set forth.

2. A tubing-machine comprising a driven shaft, frame members formed with collars, and screws passing through said collars so that the frame members are mounted to turn with said shaft, a rod passing through and connecting the frame members, sections forming a mandrel pivoted to said rod, and means movable into alinement with the free edges of the sections, whereby to expand the mandrel and preserve a smooth continuous surface, substantially as set forth.

3. A tubing-machine comprising a revoluble shaft, frame members mounted to turn with said shaft, a rod supported by and connecting the frame members, sections forming a mandrel hinged to the frame-connecting means, means for expanding the mandrel, means for moving the expanding means into and out from a position between the free edges of the sections, and means for drawing the sections toward each other when the expanding means are moved from between the edges of the same, substantially as set forth.

4. A tubing-machine comprising hinged sections forming a mandrel, expanding means for the same, a recessed projection on the expanding means, a key for engaging the recessed projection to move the expanding means into and out of position between the edges of the sections, and a stop for limiting the movement of the key away from the expanding means, substantially as set forth.

5. A tubing-machine, comprising hinged sections forming a mandrel, means for expanding the mandrel, rotatably-mounted means for moving the expanding means radially into and out from a position between the free edges of the sections, and spring-tension means connected with the mandrel-sections for automatically drawing the sections toward each other when the expanding means are moved from between the edges of the sections, substantially as set forth.

6. The combination of a frame, sections forming a mandrel hinged to the frame, a bar, studs on said bar fitting into sockets formed in the frame, the construction being such that the bar may be moved into a position between the longitudinal free edges of the sections, and contraction-springs for drawing the mandrel-sections inward.

7. The combination of a frame, sections forming a mandrel hinged thereto, a bar radially movable relative to the frame, means including a key-head for moving said bar into and out of position between the free edges of the sections, and tension devices for drawing the sections toward each other when the bar is moved from between the edges of the same.

8. The combination of a frame, sections movably connected thereto, a radially-movable bar, a longitudinally-arranged rod revolubly mounted in the frame and a key-head on said rod adapted to engage with the bar for moving the latter into and from a position between the edges of the sections.

9. The combination with a driven shaft, and supports rigid thereon, said supports forming a frame, of a rod secured in said frame, hollow semicylindrical sections forming a mandrel pivoted at adjacent edges to said rod, whereby the sections may be moved outward relative to each other, a bar having a convex upper surface adapted to be moved into and out of position between the free edges of the sections and means including a rotatable key-shaft and a key-head secured thereto for moving said concaved bar, and springs for drawing the free edges of the sections into a position of contact when the bar is moved from between said edges.

10. The combination with a frame, sections forming a mandrel hinged thereto, means including a bar, and a rotatable shaft having a key-head adapted to engage with said bar, for moving the sections outward relative to each other, and springs for drawing the sections inward.

11. The combination of a revoluble shaft, supports forming a frame mounted on said shaft, a rod extending through said frame, approximately semicylindrical sections pivotally secured to said rod, a bar having a convexed upper surface supported in the frame and movable radially outward to a position between the free edges of the sections, whereby to enlarge the circumference of the mandrel and at the same time preserving a continuous surface and enabling a tube to be formed thereon, and means for drawing the free edges of the sections into contact when the bar is removed from between the same, whereby to enable the tube to be easily removed from the mandrel, substantially as set forth.

12. The combination with a revoluble shaft and supports forming a frame, rigid thereon, of hollow, approximately semicylindrical sections pivoted to said frame at one edge, the upper under surface of the free edges of the sections being slightly beveled, a bar having a convexed upper surface and beveled shoulders adapted to be moved into a position between the aforesaid free edges, the construction being such that a continuous surface is formed between the bar and the sections, and means engaging with the bar for moving it into and out of such position between the edges.

13. The combination with a revoluble shaft and supports forming a frame, rigid thereon, of hollow, approximately semicylindrical sections pivoted to said frame at one edge, the lower surface of the upper free ends of the sections being slightly beveled, a bar having a convexed upper surface and beveled shoulders adapted to be moved into a position between the aforesaid free edges, the construction being such that a continuous surface is formed between the bar and the sections, a recessed plate secured to said bar, and a key revolubly mounted in the frame and adapted to seat in the recessed portions of the plate for moving the bar into and out of position between the edges of the sections.

14. The combination of a revoluble shaft, a frame mounted on said shaft, such frame having a socket formed therein, sections forming a mandrel secured to said frame, and means supported in the socket portion of the frame, and movable between the mandrel-sections for moving such sections outward relative to each other, substantially as set forth.

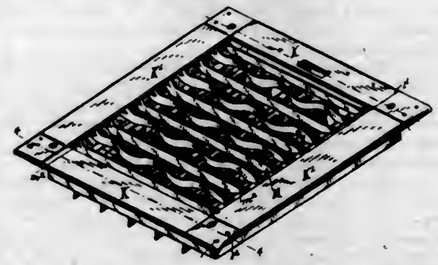
749,115. MANUFACTURE OF STEEL AND INGOT-IRON. BENJAMIN TALBOT, Leeds, England, and PAUL GREDT, Luxemburg, Germany, assignors to the Continuous Metal Refining Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Mar. 10, 1903. Serial No. 147,048. (No specimens.)

Claim.—1. The process of manufacturing steel and ingot-iron consisting in first purifying a charge of metal by blowing it in a Bessemer converter or similar vessel then running off a portion of the charge, then adding to the remainder a further charge of impure metal and blowing the combined charge substantially as set forth.

2. The process of manufacturing steel and ingot-iron consisting in first purifying a charge of impure metal by blowing it in a Bessemer converter or similar vessel then running off a portion of the charge, then enriching the slag remaining in the vessel, then adding a further charge of impure metal and blowing the combined charge, substantially as set forth.

3. The process of manufacturing steel and ingot-iron consisting in first purifying a charge of impure metal in a Bessemer converter or similar vessel then running off a portion of the charge, then eliminating the phosphorus by lime and blowing, then removing the slag so produced and adding oxids to the bath and then adding a further charge of impure metal and blowing the combined charge, substantially as set forth.

749,116. TOP PLATE FOR REGISTERS. HARRY J. VALENTINE, Hempstead, N. Y., assignor to the Columbian Hardware Company, Cleveland, Ohio, a Corporation of Ohio. Original application filed May 20, 1902, Serial No. 108,143. Divided and this application filed July 12, 1902. Serial No. 115,371. (No model.)



Claim.—1. The herein-described top plate for registers, the same comprising a frame composed of suitably-joined pieces of doubled sheet metal, the end of one piece at each joint being left open to receive the end of the other piece, the sides of which are pressed together, and bars extending across the frame, and the ends of which are retained in the same, substantially as described.

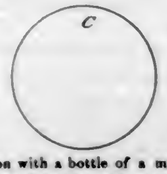
2. The herein-described top plate for registers, the same comprising a rectangular frame composed of sheet-metal strips doubled lengthwise on themselves and formed with overlapping riveted joints at the corners, the end of one piece at each joint being left open to receive the end of the other piece, the sides of which are pressed together, and grille or ornamental work secured within the said frame between opposite sides of the doubled sheet-metal strips, substantially as described.

3. The herein-described top plate for registers, the same comprising a rectangular frame composed of sheet-metal strips doubled lengthwise, bars extending across the frame, and inserted between the two side portions of the sheet-metal strips, and shoulders struck up from the sheet-metal strips and located between the ends of the bars to form stays against lateral displacement of the bars, substantially as described.

749,117. BOTTLE. JOHN WAGNER, New York, N. Y., assignor of one-half to George M. A. Kohler, New York, N. Y.: Filed Aug. 7, 1903. Serial No. 168,661. (No model.)

Claim.—1. The combination with a bottle, of a metallic cap

closed at the top and secured to said bottle and having a series of punched perforations extending above the upper rim of the bottle-neck, a valve-seat within the bottle-neck having a rim extending above the rim of the bottle-neck, the metal punched out to form the perforations engaging the rim of the valve-seat; substantially as described.



2. The combination with a bottle of a metallic cap closed at the top and secured to said bottle and having a series of perforations, a tubular valve-seat having its lower end fitting closely the inner wall of the bottle-neck and having a flaring upper end, the perforations in the cap being above the upper edge of the rim of the valve-seat; substantially as described.

3. The combination with a bottle of a metallic cap closed at the top and secured to said bottle and having a series of perforations, a tubular valve-seat having its lower end fitting closely the inner wall of the bottle-neck and having a flaring upper end, the perforations in the cap being above the upper edge of the rim of the valve-seat, and a cap having a waterproof lining fitting over said perforated cap.

749,118. **DOOR OR WINDOW TRIMMING.** FRANK C. WALBRIDGE, Hornellsville, N. Y., assignor to Frank J. Nelson, Hornellsville, N. Y. Filed Aug. 12, 1903. Serial No. 169,256. (No model.)



Claim.—1. The combination with a frame composed of end and side bars, of a facing or molding associated therewith and composed of end and side members forming a joint, said facing being provided with a recess, a frame or filling disposed in the recess, and a tongue or member carried by the filling and attached to the facing overlapping the joint.

2. The combination with a frame composed of end and side bars, of a facing or molding associated therewith and composed of end and side members forming a joint, said facing being provided with a rear recess and a socket, a frame or filling disposed in the recess, and a tongue or member carried by the filling and overlapping the joint, the end of the tongue being engaged with the socket.

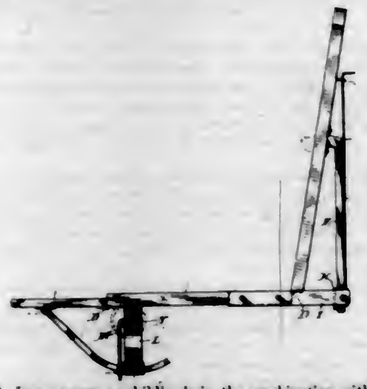
3. The combination with a frame, of a facing or molding associated therewith, said facing in cross-section being disposed at an inward inclination from the plane of the outer edge toward the plane of the inner edge of the frame, and the frame-bars being of a transverse width equal to the desired depth or thickness of the trimming.

4. The combination with a frame, of a facing or molding having its outer edge in tongue-and-groove connection with the inner side face of the frame, said facing in cross-section being disposed at an inward inclination from the plane of the outer edge toward the plane of the inner edge of the frame, and the frame-bars being of a transverse width equal to the desired depth or thickness of the trimming.

749,119. **GO-CART OR CHILD'S CHAIR.** JOHN WEBER, Jr., Toledo, Ohio, assignor to the Toledo Metal Wheel Company, Toledo, Ohio, a Corporation of Ohio. Filed Oct. 2, 1903. Serial No. 175,467. (No model.)

Claim.—1. In a go-cart or child's chair having the back or footboard shiftably connected to the seat, a self-locking fixture for holding said back or footboard adjustably in position and comprising a brace-bar pivotally secured to said back or footboard, a friction-lock composed of a casing supported by the seat in position to guide the brace-bar through openings in the walls of the casing and forming a wedge-shaped space between one side of said brace-bar and the opposite wall of the casing, a cylindrically-shaped dog inclosed in said space, means for manually operating the dog and a spring for actuating said dog normally into its locked position with the brace-bar, provision being made whereby the brace-rod is adapted to move freely through the openings in the casing in the adjustment of the back or footboard when said friction-dog is moved out of engagement therewith.

2. In a go-cart or child's chair having the back or footboard shiftably connected to the seat, a self-locking fixture for holding said back or footboard adjustably in position and comprising a rectangular brace-bar pivotally secured to said back or footboard in the central vertical plane of the seat a friction-lock composed of a casing supported by the seat in position to guide said brace-bar through openings in the walls of the casing and forming a wedge-shaped space between one side of said brace-bar and the opposite wall of the casing, a cylindrically-shaped dog inclosed in said space, a spring for normally holding said dog in its locked position with the brace-bar and a pull-rod connected to the dog and adapted to withdraw the same from its locked position, provision being made for the brace-rod to slide freely through the casing for adjusting the back or footboard to any desired position in relation to said seat when the dog is withdrawn from engagement therewith.



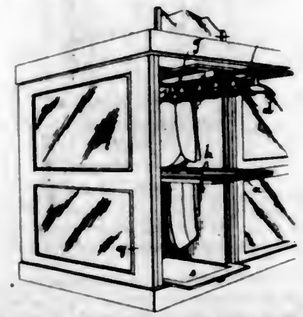
3. In a go-cart or child's chair, the combination with the seat of a back and footboard hinged thereto, brace-bars pivotally secured to said back and footboard in the vertical central plane of the seat, and a friction-lock for each brace-bar comprising a casing supported from the seat in position to guide the brace-bar through openings in the walls of the casing, provision being made to permit the brace-bar to slide freely through said casing in adjusting said back or footboard from a vertical position or nearly so to a horizontal position or nearly so, a cylindrically-shaped friction-dog inclosed in a wedge-shaped pocket in the casing formed by one side of the brace-bar and the opposite wall of the casing, which is inclined thereto, a spring bearing against the friction-dog to hold the same normally in its locking positions and means for manually operating the dog.

4. In a go-cart or child's chair, the combination with the seat and footboard hinged thereto, of a self-locking fixture for holding said footboard adjustably in position thereto and comprising a brace-bar pivotally secured to the footboard in the vertical central plane of the seat, a friction-lock composed of a casing formed with openings in the opposite walls thereof for the passage of the brace-bar through the casing, a bracket secured to the under side of the seat supporting said casing in position for the brace-bar to engage the openings of the casing, the brace-bar being curved to slide freely through said openings, a cylindrically-shaped friction-dog located in a wedge-shaped space in the casing formed between one side of the brace-bar and the opposite wall of the casing, which is inclined thereto, a spring for normally actuating the dog into its locked position with the brace-bar, a pull-rod adapted to withdraw said dog from said locked position and an actuating crank-shaft journaled transversely below the seat and extending to one side thereof, said crank-shaft carrying an operating hand-wheel at its outer end and having the pull-rod attached to the end of its crank.

749,120. **CLOTHES-WARDROBE.** RODERICK WEIR, Winnipeg, Canada, assignor of one-half to Eugene Richard, Winnipeg, Canada. Filed June 19, 1903. Serial No. 162,262. (No model.)

Claim.—1. In a clothes-wardrobe, the combination with the casing having an opening thereinto, and a suitable door closing the said opening, of a frame having a plurality of removable rails thereacross and sliding in suitable supports arranged in the interior of the casing, a pair of upper sides hinged to the longitudinal sides of the frame and folding inwardly, and means for holding said upper sides close to the rails, as and for the purpose specified.

2. In a clothes-wardrobe, the combination with the casing having an opening thereinto, and a suitable door closing the said opening, of a frame having a plurality of removable rails thereacross and sliding in suitable supports arranged in the interior of the casing, a pair of upper sides hinged to the longitudinal sides of the frame and folding inwardly, and having a slot therethrough, a pair of rods attached to the frame beneath the rails and the upper sides, an upward projection from said rods designed to engage in the slot in the upper sides, as and for the purpose specified.



3. In a clothes-wardrobe, the combination with the casing having an opening thereinto, and a suitable door closing the said opening, of a frame having a plurality of removable rails thereacross and sliding in suitable supports arranged in the interior of the casing, a pair of upper sides hinged to the longitudinal sides of the frame and folding inwardly, and having downwardly-projecting and corrugated inner edges, and means for pressing the said inner edges against the rails, as and for the purpose specified.

4. In a clothes-wardrobe, the combination with the casing having an opening thereinto, and a suitable door closing the said opening, of a frame having a plurality of removable rails thereacross and sliding in suitable supports arranged in the interior of the casing, a pair of upper sides hinged to the longitudinal sides of the frame and folding inwardly, and having downwardly-projecting and corrugated inner edges, a plurality of ticket-holders arranged in the upper sides in alinement with each of the removable rails, and ticket-holder at the end of the said frame, and means for pressing the inner edges of the upper sides against the rails, as and for the purpose specified.

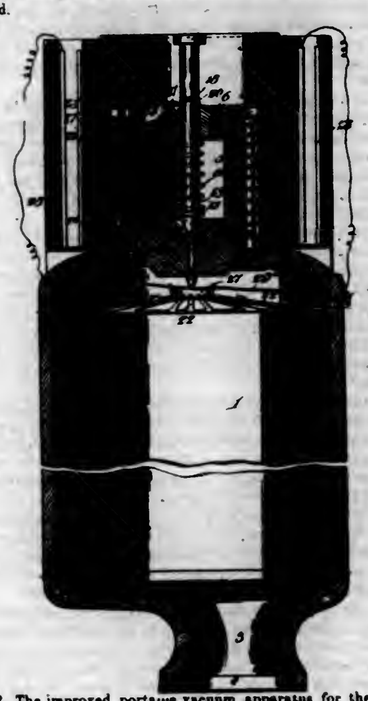
5. In a device of the class described, in combination, a casing having a suitable opening thereinto, a door designed to slidably recede into the interior of the casing, and to close the said opening, a frame sliding into the interior of the casing, and suitably supported therein from the interior walls, a plurality of removable rails laterally arranged in said frame, and a plurality of removable rails longitudinally arranged in said frame, as and for the purpose specified.

6. In a device of the class described, in combination, a casing having a suitable opening thereinto, a door designed to slidably recede into the interior of the casing and closing the lower portion of the opening, a door sliding upwardly and closing the upper portion of the opening, a plurality of frames sliding within the casing and suitably supported from the interior walls, and a plurality of removable rails arranged in each of the frames, as and for the purpose specified.

7. In a device of the class described, in combination, a casing having a false outward appearance and an opening thereinto, a door closing said opening and designed to slidably recede within the interior of the said casing, a frame sliding into the interior of the casing and suitably supported from the walls, a plurality of removable rails laterally arranged in one portion of the said frame, and a plurality of removable rails having garment-hangers thereto attached longitudinally arranged in the second portion of the said frame, as and for the purpose specified.

749,121. **AUTOMATIC SUCTION-PUMP OR VACUUM-CHAMBER.** CHARLES H. WETTLIN, Asbury Park, N. J., assignor of one-half to Asher S. Burton, Asbury Park, N. J. Filed Apr. 2, 1903. Serial No. 150,702. (No model.)

Claim.—1. The improved vacuum apparatus, for the purpose specified, comprising a chambered body having top and bottom openings, a holder for an explosive substance superposed and seated in such body and having a base portion provided with a vertical passage, a spring needle-valve controlling admission to said passage, vertical posts having springs applied for retaining the holder normally on its seat, means for closing an electric circuit and producing an igniting-spark within the aforesaid chamber, and the distributer arranged in the chamber, substantially as shown and described.



2. The improved portable vacuum apparatus for the purpose specified comprising a chambered body having top and bottom openings, a holder for an explosive substance which is seated on said body and movable vertically independently thereof, the said holder having a base portion provided with a vertical passage, a spring needle-valve controlling admission to said passage, vertical guides for the holder, and springs applied thereto for retaining the holder normally on its seat, and means for closing an electric circuit to produce an igniting-spark within the aforesaid chamber, substantially as described.

3. The improved vacuum apparatus, for the purpose specified comprising a chambered body having top and bottom openings, a holder for an explosive substance superposed and seated in such body and adapted to move vertically independently thereof and having a base portion provided with a vertical passage, a spring-valve controlling admission to such passage within the said holder, and means for retaining the holder with its base as a valve normally seated upon the body and in the top opening thereof and for guiding it vertically when the explosion occurs, substantially as shown and described.

4. The improved vacuum apparatus, for the purpose specified, comprising a chambered body having top and bottom openings, a holder for an explosive substance superposed and seated in such body and having a base portion provided with a vertical passage, and side lugs, vertical fixed posts on which the said lugs are adapted to slide, spiral springs applied to such posts and nuts adapted for adjustment on the posts to vary the tension of said springs, as shown and described.

5. A vacuum apparatus for the purpose specified, comprising a chambered body having a base opening and nozzle located aside from the center, a valved holder for an explosive substance applied to the top of said body, and serving as a yielding valve for the opening in the body, springs for retaining the holder normally seated, and means for forming an electric circuit and producing a spark for igniting the explosive, substantially as shown and described.

6. In an apparatus of the character specified, the combination with the chambered body having top and bottom openings, of a holder for the explosive substance whose thick lower head is rabbeted and seated and adapted to slide vertically in the top opening, and also provided with a vertical passage, a conical valve-seated in the cor-

responding mouth of said passage, a conical delivery-tube fixed in the lower end of the passage, springs for retaining the holder normally on its seat, and means for producing ignition of the explosive, substantially as shown and described.

7. In an apparatus of the character specified, the combination with the chambered body having top and bottom openings, of a holder for the explosive substance which constitutes a valve for the top opening, springs applied to such holder, substantially as shown and described.

8. In a vacuum apparatus of the character described, the combination with the chambered body having openings as described, of the valved holder for the explosive substance having alined passages in its ends, means for holding it normally and yieldingly seated, a retractable valve arranged movably in the upper passage and seated in the lower one, and a spring for holding such valve normally seated, substantially as shown and described.

9. In a vacuum apparatus of the character described, the combination with the chambered body having openings as described, of the valved holder for the explosive substance having alined passages in its ends, means for holding it normally and yieldingly seated, a retractable valve arranged movably in the upper passage and seated in the lower one, and having a lateral projection exterior to the holder, a cam on which the said projection is adapted to slide, and a spring serving to hold the valve normally seated, substantially as shown and described.

10. In a vacuum apparatus of the character described, the combination with chambered body provided with openings at top and bottom, and an explosive-holder serving bodily as a valve, means for retaining normally on its seat, a battery arranged adjacent to such holder, and a metal casing interposed between the latter and the battery, and serving as a guard in the manner described.

11. In a vacuum apparatus of the character described, the combination with the chambered body, and means for delivering an explosive thereinto, of a device for distributing the explosive, the same having a conical form and arranged in the chamber directly below the admission-orifice, substantially as shown and described.

12. The combination with the chambered body and means for delivering a charge of the explosive, of the distributer arranged horizontally in the chamber and consisting of a central cup, laterally-diverging conductors, and a peripheral trough arranged at the outer ends of said conductors and having outlets as shown and described.

749,122. DEVICE FOR HOLDING OR BINDING LOOSE OR REMOVABLE SHEETS OF PAPER. RALPH G. WHITLOCK, Los Angeles, Cal. Filed July 5, 1902. Serial No. 114,346. (No model.)

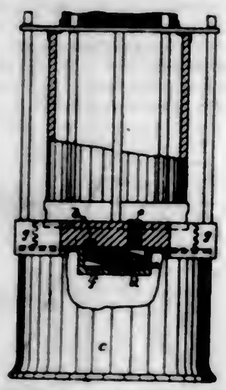


Claim.—1. The device for holding or containing loose or separate sheets of paper bookwise, consisting of the back of metal or equivalent material, the sliding bolt and catches thereon attached movably to and operating upon said back, the paper-retainers attached and held by a wire or hinge-bar, the wire or hinge-bar, the cover attached to said back inclosing all the operative parts of the device, together with the loose or separate sheets of paper held therein, the catches of the said sliding plate being arranged to engage the retainers, substantially as hereinbefore described.

2. The device for holding or containing loose or separate sheets of paper bookwise, consisting of the back of metal or equivalent material, the sliding bolt and catches thereon attached to and operating in or upon said back, and cooperating with the paper-retainers attached to and held hingewise in said back, the retainers, the cover attached to said back, holding over and inclosing all the operative parts of the device together with the loose or separate sheets of paper placed therein, the catches of the said sliding plate being arranged to engage the retainers, also the bolt and padlock for locking the device.

3. The paper-retainer consisting of a straight member and a curved member, each connected to the other and to the back of the device hingewise, the back the sliding bolts mounted on said back, the curved member being that on which the loose papers are carried, and the straight member being that on which the sliding bolt and one of its tongues operate, the sliding bolt and tongues, the terminals of the retainers constructed as a wedging-clasp, the said parts all operating in relation to each other in the manner and for the purposes substantially as set forth.

749,123. MAGNETIC LOCK FOR MINERS' SAFETY-LAMPS. AUGUST WIENHOLD, Bochum, Germany. Filed Jan. 30, 1903. Serial No. 141,166. (No model.)



Claim.—1. In magnetic locks for miners' safety-lamps, the combination with the casing of the lamp, of a bolt swinging on a point below the horizontal center and substantially at mid-length whereby the volume of the bolt is distributed in substantially equal parts on both sides of said swinging point, substantially as described.

2. In magnetic locks for miners' safety-lamps, the combination of a spring-pressed bolt, of a brass screw-ring provided with a perforation in which is seated an iron core above one end of the bolt, the other end of the bolt being adapted to engage in a notch in said ring.

3. In magnetic locks for miners' safety-lamps, the combination with the lamp vessel, of a brass screw-ring fitted therein, a bolt swinging about its center in a recess in said brass ring and provided with a tooth at one end, and an iron core fitted in said brass ring, the lamp-casing being provided with a series of notches to receive the bolt-tooth, substantially as described.

749,124. BOTTLE. WILLIAM H. WRIGHT, Baltimore, Md., assignor of one-half to Richard A. Akhoff, Baltimore, Md. Filed May 23, 1903. Serial No. 158,808. (No model.)



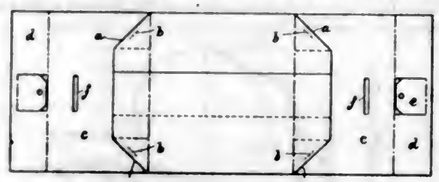
Claim.—1. The combination with a tubular bottle-stopper having a concaved end provided with recesses, of a disk seated within said end, lugs thereon adapted to be seated within the recesses, and means for securing the disk and lugs in position upon the end of the stopper.

2. The combination with the tubular bottle-stopper having a concaved end and recesses in said end; of a convex disk normally seated within said end, lugs thereon adapted to project within the recesses, a stem projecting through the stopper and detachably secured to the disk and a head to the stem bearing upon the stopper.

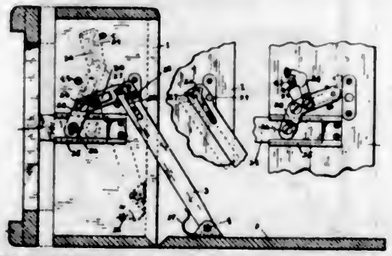
3. The combination with the neck of a bottle having recesses in the inner faces thereof; of a tubular stopper seated within the neck, spring-strips secured to the stopper and adapted to project into the recesses, a disk, lugs thereon adapted to engage the stopper and prevent rotation of the disk, a stem projecting longitudinally through the stopper and detachably secured to the disk, a head to the stem bearing on the stopper and a weighted disk connected to the first-mentioned disk and suspended therefrom.

749,125. FOLDING OR COLLAPSIBLE BOX OF CARDBOARD OR THE LIKE. ALBERT R. BOSTON, Manchester, England, assignor to Hugh Stevenson and Sons, Limited, Manchester, England. Filed Mar. 7, 1902. Serial No. 146,711. (No model.)

Claim.—In a folding box having diagonally-bent corner-pieces and extension-pieces hinged to the upper part of its ends, tongues formed out of the extension-pieces and with their free ends pointing toward the junction of the ends of the box and the extension-pieces, of slots formed in the ends and adapted to receive the tongues when the extension-pieces are turned inside the box, said tongues projecting upwardly through the slots substantially as herein set forth.



749,126. PHOTOGRAPHIC CAMERA. FREDERICK W. BREHM, Rochester, N. Y., assignor to Gundlach Optical Company, Rochester, N. Y., a Corporation. Original application filed Oct. 18, 1901, Serial No. 79,063. Divided and this application filed Oct. 6, 1902. Serial No. 126,085. (No model.)



Claim.—1. In a camera, a box or body, a bed or door closing the front of the box, a bellows-frame, and connections between the bed or door and the bellows-frame whereby the latter is automatically moved by the movement of the door.

2. In a camera, a box or body, a bed or door closing the front of the box, a bellows-frame normally closed against the rear of the box, and connections between the bed or door and the bellows-frame whereby the latter is automatically moved away from the box by the opening movement of the door.

3. In a camera, a swing-back which is normally held against swinging movement, a movable bed for the camera, and means connecting the swing-back and the bed whereby the former is automatically released as the bed is brought into operative position.

4. In a camera, a box or body, a bed or door closing the front of the box, slideways on the inner sides of said body, a swing-back, slides secured to said swing-back and projecting into the slideways, and means connected with the door for moving the slides inwardly when the camera is closed, and outwardly when the camera is opened.

5. In a camera, a box or body, a bed closing the front of the box but adapted to swing at substantially a right angle thereto, braces for supporting the bed when swung, slideways on the inner sides of the box, slides mounted in said ways, a swing-back pivoted to said slides, and bell-cranks pivoted to the box and having their ends joined to the slides and the braces, for the purpose specified.

6. In a camera, a box or body, a bed closing the front of the box but adapted to swing at substantially a right angle thereto, braces for supporting the bed when thus swung, said braces having slots in their upper ends, slideways on the inner sides of the box, slides mounted in said ways, a swing-back pivoted to said slides, bell-cranks pivoted to the box and having one of their ends pivoted to the slides, and lugs on the other ends of the bell-cranks, said lugs entering the slots in the braces, for the purpose specified.

7. In a camera, a box or body, slideways on the inner sides of said box, a swing-back normally closed against the back of the box, slides pivotally secured to said swing-back and projecting into the slideways, a link connected to one of said slides, a slot-and-pin connection between said link and the swing-back for the purpose described, and means for moving the slides in the slideways.

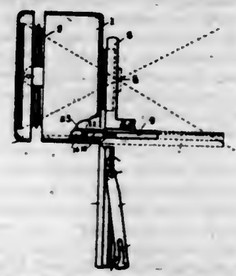
8. In a camera, a box or body, a bed for normally closing said box but which is adapted to swing at substantially a right angle thereto, braces for holding said bed when thus swung, slides mounted for movement upon the inner sides of said box, a swing-back pivotally secured to said slides, bell-cranks pivoted to the box and jointedly secured to the slides, connections between the bell-cranks and the braces for the bed, whereby the bell-cranks are rocked when the bed is swung, locking-levers pivoted to the bell-cranks for holding the latter and the braces in engagement, said levers being capable of swinging on their pivots to free the braces from the bell-cranks so that the bed may be dropped, and pins or screws projecting from the box with which the levers engage to lock the swing-back, for the purpose described.

9. In a camera, a bellows, a folding bed, and means whereby the opening movement of the bed in one direction results in extending the bellows in the opposite direction.

10. In a camera, a box or body, a bellows-frame that is normally closed against the box, a door or bed for the box, connections between said door and bellows-frame whereby the latter is moved back from the box as the door opens, means for disconnecting the said connections so that the door may be dropped from in front of the box, a supplemental bed for insertion in the camera, and means for locking the bellows-frame in its position back of the box.

11. In a camera, a box or body, a bed or door for closing said box, a spring carried by said bed, a stationary piece projecting from the box against which said spring presses to throw open the bed or door, a brace for holding the bed when open, said brace having a notch, and a pin on the box with which said notch engages, the spring and the brace being so placed on the bed that when the latter is opened the brace will be pressed against the pin to cause the notch to engage therewith.

749,127. PHOTOGRAPHIC CAMERA. FREDERICK W. BREHM, Rochester, N. Y., assignor to Gundlach Optical Company, Rochester, N. Y., a Corporation. Original application filed Oct. 18, 1901, Serial No. 79,063. Divided and this application filed Feb. 18, 1903. Serial No. 143,894. (No model.)



Claim.—1. In a camera, a box or body, slideways in said box or body, a bed which is adapted for insertion within said slideways, and a camera-front that is movable upon said bed.

2. In a camera, a box or body, slideways having notches secured to said box or body, a bed which is adapted for insertion within said slideways, spring-catches on said bed for engaging with the notches in the slideways to lock the bed in position, and a camera-front which is movable upon said bed.

3. In a camera, a box or body, a hinged bed normally closing the front of said box, a movable front for supporting the lens, means for supporting the bed in a proper position for photographic work, so that the front may be moved thereon, means whereby the supports for the bed may be disengaged and the bed dropped from in front of the camera-box, a supplemental bed, and means in the camera-box to which the supplemental bed may be attached, for the purpose specified.

4. In a camera, a box or body, a bed normally closing the front of said box, a camera-front, means for supporting the bed at right angles to its closed position so that the front may be moved thereon, means whereby the supports may be detached and the bed dropped from in front of the camera-box, slideways secured to said box, and a supplemental bed adapted for insertion within said slideways, for the purpose specified.

749,128. STERILIZER. ARTHUR CASTLE, Rochester, N. Y., assignor to Wilmot Castle Company, Rochester, N. Y., a Corporation of New York. Filed Mar. 18, 1903. Serial No. 148,381. (No model.)

Claim.—1. In a sterilizing apparatus, a sterilizing-chamber having double walls for a steam-space, a valve through said walls consisting of an outer tube fastened in said walls and having a perforation connecting with the steam-space, an inner tube open at both

responding mouth of said passage, a conical delivery-tube fixed in the lower end of the passage, springs for retaining the holder normally on its seat, and means for producing ignition of the explosive, substantially as shown and described.

7. In an apparatus of the character specified, the combination with the chambered body having top and bottom openings, of a holder for the explosive substance which constitutes a valve for the top opening, springs applied to such holder, substantially as shown and described.

8. In a vacuum apparatus of the character described, the combination with the chambered body having openings as described, of the valved holder for the explosive substance having alined passages in its ends, means for holding it normally and yieldingly seated, a retractable valve arranged movably in the upper passage and seated in the lower one, and a spring for holding such valve normally seated, substantially as shown and described.

9. In a vacuum apparatus of the character described, the combination with the chambered body having openings as described, of the valved holder for the explosive substance having alined passages in its ends, means for holding it normally and yieldingly seated, a retractable valve arranged movably in the upper passage and seated in the lower one, and having a lateral projection exterior to the holder, a cam on which the said projection is adapted to slide, and a spring serving to hold the valve normally seated, substantially as shown and described.

10. In a vacuum apparatus of the character described, the combination with chambered body provided with openings at top and bottom, and an explosive-holder serving bodily as a valve, means for retaining normally on its seat, a battery arranged adjacent to such holder, and a metal casing interposed between the latter and the battery, and serving as a guard in the manner described.

11. In a vacuum apparatus of the character described, the combination with the chambered body, and means for delivering an explosive thereinto, of a device for distributing the explosive, the same having a conical form and arranged in the chamber directly below the admission-orifice, substantially as shown and described.

12. The combination with the chambered body and means for delivering a charge of the explosive, of the distributer arranged horizontally in the chamber and consisting of a central cup, laterally-diverging conductors, and a peripheral trough arranged at the outer ends of said conductors and having outlets as shown and described.

749,122. DEVICE FOR HOLDING OR BINDING LOOSE OR REMOVABLE SHEETS OF PAPER. RALPH S. WHITLOCK, Los Angeles, Cal. Filed July 5, 1902. Serial No. 114,346. (No model.)

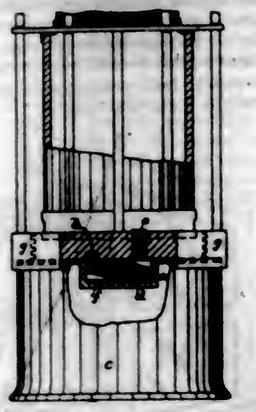


Claim.—1. The device for holding or containing loose or separate sheets of paper bookwise, consisting of the back of metal or equivalent material, the sliding bolt and catches thereon attached movably to and operating upon said back, the paper-retainers attached and held by a wire or hinge-bar, the wire or hinge-bar, the cover attached to said back inclosing all the operative parts of the device, together with the loose or separate sheets of paper held therein, the catches of the said sliding plate being arranged to engage the retainers, substantially as hereinbefore described.

2. The device for holding or containing loose or separate sheets of paper bookwise, consisting of the back of metal or equivalent material, the sliding bolt and catches thereon attached to and operating in or upon said back, and cooperating with the paper-retainers attached to and held hingewise in said back, the retainers, the cover attached to said back, holding over and inclosing all the operative parts of the device together with the loose or separate sheets of paper placed therein, the catches of the said sliding plate being arranged to engage the retainers, also the bolt and padlock for locking the device.

3. The paper-retainer consisting of a straight member and a curved member, each connected to the other and to the back of the device hingewise, the back the sliding bolts mounted on said back, the curved member being that on which the loose papers are carried, and the straight member being that on which the sliding bolt and one of its tongues operate, the sliding bolt and tongues, the terminals of the retainers constructed as a wedging-clasp, the said parts all operating in relation to each other in the manner and for the purposes substantially as set forth.

749,123. MAGNETIC LOCK FOR MINERS' SAFETY-LAMPS. AUGUST WIENHOLTZ, Bochum, Germany. Filed Jan. 20, 1902. Serial No. 141,108. (No model.)



Claim.—1. In magnetic locks for miners' safety-lamps, the combination with the casing of the lamp, of a bolt swinging on a point below the horizontal center and substantially at mid-length whereby the volume of the bolt is distributed in substantially equal parts on both sides of said swinging point, substantially as described.

2. In magnetic locks for miners' safety-lamps, the combination of a spring-pressed bolt, of a brass screw-ring provided with a perforation in which is seated an iron core above one end of the bolt, the other end of the bolt being adapted to engage in a notch in said ring.

3. In magnetic locks for miners' safety-lamps, the combination with the lamp vessel, of a brass screw-ring fitted therein, a bolt swinging about its center in a recess in said brass ring and provided with a tooth at one end, and an iron core fitted in said brass ring, the lamp-casing being provided with a series of notches to receive the bolt-tooth, substantially as described.

749,124. BOTTLE. WILLIAM H. WHITE, Baltimore, Md., assignor of one-half to Richard A. Akhoff, Baltimore, Md. Filed May 23, 1903. Serial No. 158,353. (No model.)



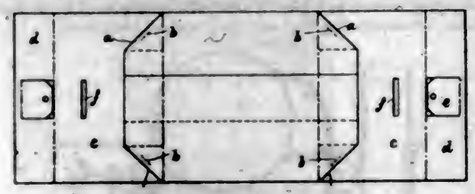
Claim.—1. The combination with a tubular bottle-stopper having a concaved end provided with recesses; of a disk seated within said end, lugs thereon adapted to be seated within the recesses, and means for securing the disk and lugs in position upon the end of the stopper.

2. The combination with the tubular bottle-stopper having a concaved end and recesses in said end; of a convex disk normally seated within said end, lugs thereon adapted to project within the recesses, a stem projecting through the stopper and detachably secured to the disk and a head to the stem bearing upon the stopper.

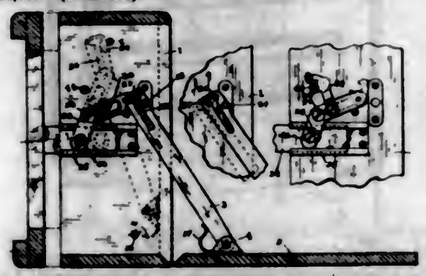
3. The combination with the neck of a bottle having recesses in the inner faces thereof; of a tubular stopper seated within the neck, spring-strips secured to the stopper and adapted to project into the recesses, a disk, lugs thereon adapted to engage the stopper and prevent rotation of the disk, a stem projecting longitudinally through the stopper and detachably secured to the disk, a head to the stem bearing on the stopper and a weighted disk connected to the first-mentioned disk and suspended therefrom.

749,125. FOLDING OR COLLAPSIBLE BOX OF CARDBOARD OR THE LIKE. ALBERT B. BOOTHE, Manchester, England, assignor to Hugh Stevenson and Sons, Limited, Manchester, England. Filed Mar. 7, 1903. Serial No. 146,711. (No model.)

Claim.—In a folding box having diagonally-bent corner-pieces and extension-pieces hinged to the upper part of its ends, tongues formed out of the extension-pieces and with their free ends pointing toward the junction of the ends of the box and the extension-pieces, of slots formed in the ends and adapted to receive the tongues when the extension-pieces are turned inside the box, said tongues projecting upwardly through the slots substantially as herein set forth.



749,126. PHOTOGRAPHIC CAMERA. FREDERICK W. BERNS, Rochester, N. Y., assignor to Gundlach Optical Company, Rochester, N. Y., a Corporation. Original application filed Oct. 18, 1901, Serial No. 79,068. Divided and this application filed Oct. 6, 1902. Serial No. 126,695. (No model.)



Claim.—1. In a camera, a box or body, a bed or door closing the front of the box, a bellows-frame, and connections between the bed or door and the bellows-frame whereby the latter is automatically moved by the movement of the door.

2. In a camera, a box or body, a bed or door closing the front of the box, a bellows-frame normally closed against the rear of the box, and connections between the bed or door and the bellows-frame whereby the latter is automatically moved away from the box by the opening movement of the door.

3. In a camera, a swing-back which is normally held against swinging movement, a movable bed for the camera, and means connecting the swing-back and the bed whereby the former is automatically released as the bed is brought into operative position.

4. In a camera, a box or body, a bed or door closing the front of the box, slideways on the inner sides of said body, a swing-back, slides secured to said swing-back and projecting into the slideways, and means connected with the door for moving the slides inwardly when the camera is closed, and outwardly when the camera is opened.

5. In a camera, a box or body, a bed closing the front of the box but adapted to swing at substantially a right angle thereto, braces for supporting the bed when swung, slideways on the inner sides of the box, slides mounted in said ways, a swing-back pivoted to said slides, and bell-cranks pivoted to the box and having their ends joined to the slides and the braces, for the purpose specified.

6. In a camera, a box or body, a bed closing the front of the box but adapted to swing at substantially a right angle thereto, braces for supporting the bed when thus swung, said braces having slots in their upper ends, slideways on the inner sides of the box, slides mounted in said ways, a swing-back pivoted to said slides, bell-cranks pivoted to the box and having one of their ends pivoted to the slides, and lugs on the other ends of the bell-cranks, said lugs entering the slots in the braces, for the purpose specified.

7. In a camera, a box or body, slideways on the inner sides of said box, a swing-back normally closed against the back of the box, slides pivotally secured to said swing-back and projecting into the slideways, a link connected to one of said slides, a slot-and-pin connection between said link and the swing-back for the purpose described, and means for moving the slides in the slideways.

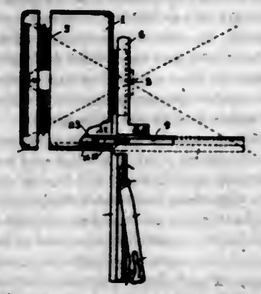
8. In a camera, a box or body, a bed for normally closing said box but which is adapted to swing at substantially a right angle thereto, braces for holding said bed when thus swung, slides mounted for movement upon the inner sides of said box, a swing-back pivotally secured to said slides, bell-cranks pivoted to the box and jointedly secured to the slides, connections between the bell-cranks and the braces for the bed, whereby the bell-cranks are rocked when the bed is swung, locking-levers pivoted to the bell-cranks for holding the latter and the braces in engagement, said levers being capable of swinging on their pivots to free the braces from the bell-cranks so that the bed may be dropped, and pins or screws projecting from the box with which the levers engage to lock the swing-back, for the purpose described.

9. In a camera, a bellows, a folding bed, and means whereby the opening movement of the bed in one direction results in extending the bellows in the opposite direction.

10. In a camera, a box or body, a bellows-frame that is normally closed against the box, a door or bed for the box, connections between said door and bellows-frame whereby the latter is moved back from the box as the door opens, means for disconnecting the said connections so that the door may be dropped from in front of the box, a supplemental bed for insertion in the camera, and means for locking the bellows-frame in its position back of the box.

11. In a camera, a box or body, a bed or door for closing said box, a spring carried by said bed, a stationary piece projecting from the box against which said spring presses to throw open the bed or door, a brace for holding the bed when open, said brace having a notch, and a pin on the box with which said notch engages, the spring and the brace being so placed on the bed that when the latter is opened the brace will be pressed against the pin to cause the notch to engage therewith.

749,127. PHOTOGRAPHIC CAMERA. FREDERICK W. BERNS, Rochester, N. Y., assignor to Gundlach Optical Company, Rochester, N. Y., a Corporation. Original application filed Oct. 18, 1901, Serial No. 79,068. Divided and this application filed Feb. 18, 1903. Serial No. 143,894. (No model.)



Claim.—1. In a camera, a box or body, slideways in said box or body, a bed which is adapted for insertion within said slideways, and a camera-front that is movable upon said bed.

2. In a camera, a box or body, slideways having notches secured to said box or body, a bed which is adapted for insertion within said slideways, spring-catches on said bed for engaging with the notches in the slideways to lock the bed in position, and a camera-front which is movable upon said bed.
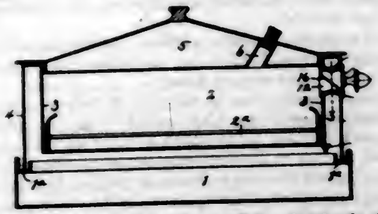
3. In a camera, a box or body, a hinged bed normally closing the front of said box, a movable front for supporting the lens, means for supporting the bed in a proper position for photographic work, so that the front may be moved thereon, means whereby the supports for the bed may be disengaged and the bed dropped from in front of the camera-box, a supplemental bed, and means in the camera-box to which the supplemental bed may be attached, for the purpose specified.

4. In a camera, a box or body, a bed normally closing the front of said box, a camera-front, means for supporting the bed at right angles to its closed position so that the front may be moved thereon, means whereby the supports may be detached and the bed dropped from in front of the camera-box, slideways secured to said box, and a supplemental bed adapted for insertion within said slideways, for the purpose specified.

749,128. STERILIZER. ARTHUR CASTLE, Rochester, N. Y., assignor to Wilmot Castle Company, Rochester, N. Y., a Corporation of New York. Filed Mar. 18, 1903. Serial No. 148,252. (No model.)

Claim.—1. In a sterilizing apparatus, a sterilizing-chamber having double walls for a steam-space, a valve through said walls consisting of an outer tube fastened in said walls and having a perforation connecting with the steam-space, an inner tube open at both

ends and having two perforations adapted to register with the perforation in the first-mentioned tube, a diaphragm in the inner tube separating said tube into two parts each connected with one only of the perforations therein, and means for retaining the inner tube in the outer tube, whereby when the inner tube is rotated the steam-space is connected either with the sterilizing-chamber or with the outer air.



2. In a sterilizing apparatus, a sterilizing-chamber having double walls for a steam-space, a valve through said walls consisting of an outer tube fastened in said walls and having a perforation connecting with the steam-space, an inner tube open at both ends and having an end flange and two perforations adapted to register with the perforation in the first-mentioned tube, a diaphragm in the inner tube separating said tube into two parts each connected with one only of the perforations therein, a handle fastened to the inner tube for retaining the inner tube in the outer tube, whereby when the inner tube is rotated the steam-space is connected either with the sterilizing-chamber or with the outer air.

3. In a sterilizing apparatus, a sterilizing-chamber having double walls for a steam-space, a valve through said walls consisting of an outer tube fastened to said walls and having a perforation connecting with the steam-space and an end flange, an inner tube open at both ends and having two perforations adapted to register with the perforation in the first-mentioned tube and an end flange, a diagonal diaphragm in the inner tube separating said tube into two parts each connected with one only of the perforations therein, and means for retaining the inner tube in the outer tube, whereby when the inner tube is rotated the steam-space is connected either with the sterilizing-chamber or with the outer air.

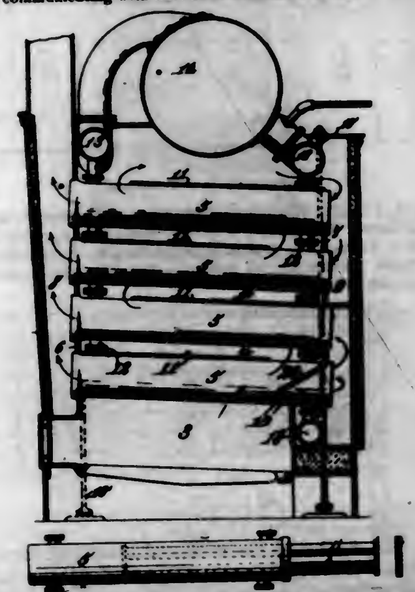
4. In a sterilizing apparatus, a sterilizing-chamber having double walls for a steam-space, a valve through said walls consisting of an outer tube fastened to said walls and having a perforation connecting with the steam-space and an end flange, an inner tube open at both ends and having two perforations adapted to register with the perforation in the first-mentioned tube, and an end flange, a diaphragm in the inner tube separating said tube into two parts each connected with one only of the perforations therein, and a handle fastened to the end of said inner tube for rotating it and for retaining it in the outer tube, whereby when the inner tube is rotated the steam-space is connected either with the sterilizing-chamber or with the outer air.

749,129. **WATER-TUBE BOILER.** ORESCE R. F. H. CUNZE, Hamburg, Germany, assignor of one-half to Charles H. Barnett and Charles J. Hargreaves, Norfolk, Va. Filed Mar. 13, 1903. Serial No. 147,686. (No model.)

Claim.—1. The combination in a water-tube boiler, of a setting, a fire-box and walls in said setting, the walls dividing the interior of the setting into intermediate and front and rear chambers, the front wall serving to shut off communication between the intermediate chamber and the front chamber, a plurality of communicating water-tubes supported by said walls, the rear wall extending short of the top of the setting and having an opening at its lower end affording communication between the fire-box and the rear chamber, and tubular flues inclosed by the water-tubes, communicating with said front and rear chambers.

2. The combination in a water-tube boiler, of a setting, a fire-box and walls in said setting, the walls dividing the interior of the setting into intermediate and front and rear chambers, the front wall serving to shut off communication between the intermediate chamber and the front chamber, a plurality of communicating water-tubes supported by said walls, the rear wall extending short of the top of the setting and having an opening at its lower end affording communication between the fire-box and the rear chamber, tubular flues inclosed by the water-tubes, communicating with said front and rear chambers, and staggered baffle-plates in the intermediate chamber.

3. The combination in a water-tube boiler, of a setting, a fire-box and walls in said setting, the walls rising from a plane above said fire-box, dividing the interior of the setting into intermediate and front and rear chambers, the front wall serving to shut off direct communication between the intermediate chamber and the front chamber, a plurality of communicating water-tubes supported by said walls, the rear wall extending short of the top of the setting and said rear wall having an opening affording communication between the fire-box and the rear chamber, and the upper side of said opening having a downwardly and inwardly inclined directing-plate extending toward the fire-box, and tubular flues inclosed by the water-tubes, communicating with said front and rear chambers.



4. A water-tube boiler having a fire-box and a combustion-chamber, a plurality of communicating water-tubes in the combustion-chamber, walls for supporting the fronts and rears of the water-tubes to provide a chamber between the same and at the front and rear of said tubes, the rear chamber being in communication with the intermediate chamber, and said walls consisting of superimposed removable sections, and tubular flues inclosed by the water-tubes, opening into said front and rear chambers.

5. The combination in a water-tube boiler, of a setting, a fire-box and walls in said setting, the walls rising from a plane above said fire-box and dividing the interior of the setting into intermediate and outer chambers, one wall serving to shut off direct communication between the interior chamber and the adjacent outer chamber, and said other outer chamber and the intermediate chamber being in direct communication with the fire-box, a plurality of communicating water-tubes supported by said walls, each of the latter consisting of detachably-mounted sections, and tubular flues inclosed by the water-tubes, communicating with said outer chambers.

6. A water-tube boiler having a fire-box and a combustion-chamber, a plurality of communicating water-tubes in the combustion-chamber, walls for supporting the fronts and rears of the water-tubes to provide a chamber between the same and at the front and rear of said tubes, the rear chamber being in communication with the intermediate chamber, and said walls consisting of detachably-mounted sections and a group of tubular flues removably inclosed by each water-tube, and opening into said front and rear chambers, respectively.

7. In a water-tube boiler, a water-tube, a plurality of tubular flues therein, disks to which the opposite ends of the flues are connected, the water-tube having a shoulder at one end against which one of the disks bears, a collar removably fitted in the opposite end of the water-tube and bearing against the other disk, the disks closing the opposite open ends of the water-tube, and the opposite ends of the flues being open.

8. In a water-tube boiler, a water-tube, a plurality of tubular flues therein, disks to which the opposite ends of the flues are connected, the water-tube having a shoulder at one end against which one of the disks bears, and a collar fitted in the opposite end of the water-tube and bearing against the other disk, said collar being screw-threaded into the tube, the disks closing the opposite open ends of the water-tubes, and the opposite ends of the flues being open.

749,180. **TOBOGGAN-SLIDE.** BYRON R. PIOTT, Philadelphia, Pa., assignor to Philadelphia Amusement Company, a Corporation of New Jersey. Filed May 10, 1902. Serial No. 106,668. (No model.)



Claim.—1. A toboggan-slide comprising two ascending tracks, a descending track, and a switch connecting the ascending tracks with the descending track, in combination with a plurality of carriages adapted to run on said tracks, means for moving said carriages up the ascending tracks in alternate succession, means for bringing said switch to register with the terminals of the ascending tracks in alternate succession, and gearing between the first and second named means whereby the carriages are alternately transferred from the two ascending tracks to the single descending track.

2. A toboggan-slide comprising two ascending tracks, a descending track, a switch connected to the descending track and adapted to register with the respective terminals of the ascending tracks, in combination with a plurality of carriages adapted to run on said tracks, means for moving said carriages up the ascending tracks in alternate succession, a cam connected to said switch and adapted to shift the latter to register with the terminals of the ascending tracks in alternate succession, and gearing between said means and cam whereby the carriages are alternately transferred from each of the two ascending tracks to the single descending track.

3. A toboggan-slide track comprising a framework and upper and lower rails supported thereby, in combination with a carriage provided with wheels adapted to run on said upper rails, said carriage being also provided with wheels adapted to take against the upper and lower surfaces of said lower rails.

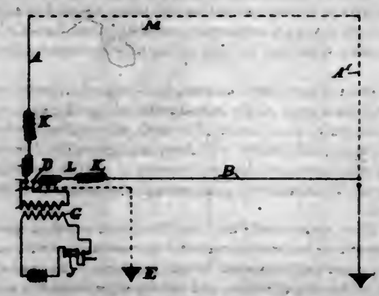
4. A carriage comprising a framework, and supporting wheels therefor, in combination with a saddle pivoted to said framework, the representation of an animal covered to said saddle, and springs arranged between said saddle and framework.

5. A carriage comprising a framework and supporting wheels therefor, in combination with a saddle pivoted to said framework, the representation of an animal covered to said saddle, springs arranged between said saddle and framework, an extension on said framework, and a rein attached to said animal and passing through said extension.

749,181. **WIRELESS-SIGNALING APPARATUS.** LEE DE FOREST, New York, N. Y., assignor to Wireless Telegraph Company of America, a Corporation of New Jersey. Original application filed Mar. 6, 1901, Serial No. 49,841. Divided and this application filed Nov. 5, 1903. Serial No. 179,512. (No model.)

Claim.—1. In wireless signaling the combination with a vertical and a horizontal linear conductor connected in series with the earth, of a wave-producing device connected to synchronously produce electrical waves in both of said conductors.

2. In a wireless signaling apparatus in combination, a radiating-antenna, a horizontal conductor of relatively small transverse dimensions connected in series with the antenna and the earth and co-operating with said antenna to give a concentrating or directional effect to the waves radiated, and means for producing synchronous oscillations in both of said conductors.



3. In wireless signaling, the combination with a vertical radiating-conductor and a horizontal linear conductor placed in series between the vertical conductor and the earth and extending from the vertical conductor in the direction the signal is to be sent, and means for producing electrical waves in the aerial circuit thereby formed.

4. In wireless signaling, the combination with a vertical radiating-conductor equivalent in length to one-quarter of a wave length, a horizontal conductor equivalent in length to a multiple of a quarter of a wave length, said conductors being connected in series with the earth and means for synchronously setting up electrical oscillations in both said radiating-conductors.

5. The means for giving a direction or concentrating effect to the radiations from a vertical conductor, comprising a horizontal conductor extending from said vertical conductor in the direction of the concentration desired, and adapted to participate with said vertical conductor in the electrical oscillations set up therein and a ground connection for the end of said horizontal conductor a multiple of a quarter-wave length from the vertical conductor.

6. In wireless signaling, the combination with a vertical and a horizontal linear conductor of a wave-producing device, including a spark-gap having one ball connected with proximate ends of each of said conductors.

7. In wireless signaling, the combination with a vertical and a horizontal linear conductor, a wave-producing device connected with both of said conductors, and a common earth connection for both of said conductors including therein a spark-gap.

8. In wireless signaling, the combination with a vertical radiating-conductor, and a horizontal conductor of means for producing oscillations in both conductors connected thereto at the base of the vertical conductor, and a common ground connection for both located a half-wave length from the vertical conductor.

9. In wireless signaling, the combination with a vertical radiating-conductor and a horizontal conductor of means for producing oscillations in said conductors connected thereto at the base of the vertical conductor, and a common ground connection for both conductors connected with the horizontal conductor a half-wave length from the vertical conductor and containing a spark-gap.

10. In wireless signaling the combination with a horizontal conductor, two spark-gaps having one member of each connected respectively with opposite ends of said conductor, a vertical radiating-conductor connected with the other member of one spark-gap, and an earth connection with the other member of the other spark-gap.

11. In wireless signaling apparatus, the combination with two conductors angularly disposed with relation to each other and having adjacent ends, of a wave-producing mechanism connected with said conductors at the apex of the angle thereof between, and a ground connection for one of the conductors a multiple of quarter-wave length from said angle.

12. In a wireless signaling apparatus, the combination with two transmitting-conductors angularly disposed relative to each other and having adjacent ends, one of said conductors being equivalent in length to a quarter-wave length and the other equivalent in length to a half-wave length of a wave-producing mechanism connected with both conductors at the apex of the angle therebetween, and a ground-connection to the longer conductor at its opposite end.

13. In a wireless signaling system, the combination with signal-wave producing and radiating device, of a receiving device comprising two wave-collecting conductors located a half-wave length apart in the direction of travel of the received waves, and each provided with a ground connection, a conductor connecting said collecting-

conductors and a wave-responsive device interposed midway in said connecting-conductor.

14. In a wireless signaling system the combination with a signal-wave producing and radiating mechanism, of a receiving device comprising two collecting-antennæ separated a half-wave length, each provided with a ground connection and being adapted to be swung about a vertical axis, a conductor connecting their base and a signal-indicating apparatus in said connecting-conductor midway its length.

15. In an apparatus of the class described, a horizontal conductor having spark-gaps at the ends thereof, the spark-gap at one end of said conductor being connected to earth, an aerial conductor connected to one of the terminals of the spark-gap at the other end of said horizontal conductor, and a generator of electric potential having its terminals respectively connected to the terminals of the said spark-gap.

16. In an apparatus of the class described, an aerial conductor and a cooperating horizontal conductor, in combination with a spark-producing apparatus connected to said conductors at a node or neutral point of the waves therein, and condensers arranged in said conductors adjacent to such node or neutral point.

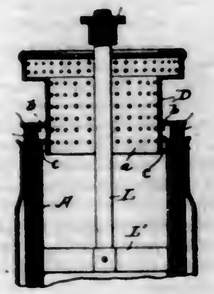
17. In an apparatus of the class described, an aerial conductor and a cooperating horizontal conductor, in combination with a spark-producing apparatus having the terminals thereof respectively connected to adjacent ends of said conductor, in combination with momentum-coils introduced into said conductors adjacent such terminal connections.

18. In an apparatus of the class described, an aerial conductor and a cooperating horizontal conductor and a spark-gap interposed between them, in combination with a generator of electric potential having the terminals thereof respectively connected to the said spark-balls, and momentum-coils and condensers arranged in said conductors adjacent to said spark-gap.

19. In an apparatus of the class described, a radiating-conductor in combination with a cooperating conductor arranged in rectangular relation with respect thereto, and means connected at the apex of the angle between said conductors adapted to produce electrical surging of opposite signs in said respective conductors.

20. In an apparatus of the class described, and in combination with means for determining the plane of propagation of energy waves, a receiving apparatus including two wave-collecting aerial conductors each provided with earth connections and spaced a half-wave length apart, a horizontal conductor connecting said aerial conductors and a receiving instrument so located in the horizontal conductor that a maximum of positive potential and a maximum of negative potential simultaneously occurs at the respective terminals thereof.

749,182. CENTRAL-DRAFT LAMP-BURNER. JOSEPH GREGORY, Jersey City, N. J. Original application filed June 24, 1899, Serial No. 721,721. Divided and this application filed June 10, 1901. Serial No. 63,961. (No model.)



Claim.—1. A central-draft lamp-burner having inner and outer wick-tubes adapted for the interposition of a wick and a flame-spreader and wick-guard disposed to form the inner wall of a gas-space, of which the outer wall is formed by the wick, said inner wall being provided with means for the escape of gas to the flame.

2. A central-draft lamp-burner comprising inner and outer wick-tubes, a flame-spreader and a wick-guard, and having a gas-space of which the outer wall is formed by the inner surface of the wick, and of which the inner wall is formed by the adjacent portions of the flame-spreader and guard, said inner wall being provided with means for escape of the gas to the flame.

3. A central-draft lamp-burner having inner and outer wick-tubes, a flame-spreader and a wick-guard, said spreader having a head below the guard and within the inner wick-tube to form a gas-space closed at its outer side by the wick, and means for permitting escape of the gas from the gas-space to the flame.

4. A central-draft lamp-burner having inner and outer wick-tubes, a wick-guard, and a flame-spreader coacting with the wick-guard and having a head extending below the plane thereof and smaller in diameter than the inner wick-tube to form a gas-space closed at its outer side by the wick, means being provided in the inner wall of the gas-space for the escape of gas to the flame.

5. A central-draft lamp-burner having inner and outer wick-tubes, a wick-guard, and a flame-spreader coacting with the wick-guard and having a head extending below the plane of the guard to form a gas-space closed at its outer side by the wick, said head being provided with perforations to allow gas to escape to the flame.

6. A central-draft lamp-burner having inner and outer wick-tubes, a wick-guard, a flame-spreader coacting with the wick-guard and having a head extending below the plane of the guard within the inner wick-tube to form a gas-space closed at its outer side by the wick, and having means to permit the escape of gas to the flame, and means for spacing the head from the inner wick-tube.

7. A central-draft lamp-burner having inner and outer wick-tubes, a wick-guard, a flame-spreader coacting with the wick-guard and having a head depending below the plane of the guard to form a gas-space closed at its outer side by the wick, said head being provided with means to permit the escape of gas to the flame, and an inwardly-extending spacing-flange on the inner wick-tube.

8. In a lamp-burner, the combination with inner and outer wick-tubes forming an intervening wick-space, a perforated cone or flame-spreader movable vertically and having an air-passage formed between it and the upper portion of the inner wick-tube, and a movable wick-guard supporting said cone or spreader.

9. In a lamp-burner, the combination of inner and outer wick-tubes forming an intervening wick-space, a perforated cone or spreader having an air-passage formed between it and the upper portion of the inner wick-tube, and a movable wick-protecting ring or guard.

10. In a central-draft lamp, the combination with inner and outer wick-tubes, of a flame-spreader, a guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, a head extending below the guard within the inner wick-tube, and means for the escape of gas from the upper inner edge of the wick to the flame.

11. In a central-draft lamp, the combination with inner and outer wick-tubes, of a vertically-movable flame-spreader, a wick-guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, and a perforated head extending below the guard within the inner wick-tube.

12. In a central-draft lamp, the combination with an inner and outer wick-tube, of a vertically-movable flame-spreader, a wick-guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, a perforated head extending below the guard within the inner wick-tube, and a centrally-disposed rod for limiting the vertical movement of the flame-spreader, guard and head.

13. In a central-draft lamp, the combination with inner and outer wick-tubes, of a vertically-movable spreader, a wick-guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, means for the escape of gas from that portion of the wick to the flame, and a head extending below the wick-guard within the inner wick-tube.

14. In a central-draft lamp, the combination with inner and outer wick-tubes, of a vertically-movable flame-spreader, a wick-guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, means for the escape of gas from that portion of the wick to the flame, a head extending below the guard within the inner wick-tube, and a centrally-disposed rod for limiting the vertical movement of the flame-spreader, wick-guard and head.

15. In a central-draft lamp, the combination with inner and outer wick-tubes, of a flame-spreader, a guard coacting with the flame-spreader to prevent the flame from reaching the upper inner edge of the wick, and a perforated head extending below the guard within the inner wick-tube.

16. In a central-draft lamp, an outer and an inner wick-tube, a wick adapted to move vertically between them, a wick-guard uniting with the flame-spreader to divide the flame from a gas-space formed between the upper inner edge of the wick and a perforated head extending down into the inner wick-tube.

17. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard uniting with a flame-spreader to divide the flame from a gas-space formed between the upper inside edge of the wick and a perforated head extending down into the inner wick-tube, a spacer to hold said head away from the wick.

18. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard uniting with a flame-spreader to prevent the flame from passing down between the wick and flame-spreader, the wick-guard coacting with the flame-spreader, and stop to limit the vertical movement of the wick.

19. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard coacting with a flame-spreader and centrally-disposed rod to limit the vertical movement of said wick, the wick-guard uniting with the flame-spreader to divide the flame from a gas-space formed between the upper end of the wick and a head extending down into the inner wick-tube.

20. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard coacting with a flame-spreader and stop to limit the vertical movement of the wick, the wick-guard uniting with the flame-spreader to divide the flame from a space formed between the upper inside edge of the wick and a perforated head extending down into the inner wick-tube.

21. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard coacting with a flame-spreader and stop to limit the vertical movement of the wick, the wick-guard uniting with the flame-spreader to prevent the flame from passing down between the wick and a head extending down into the inner wick-tube, and a spacer to hold the head away from the wick.

22. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard uniting with a flame-spreader to prevent the flame from passing down between the upper inside edge of the wick and a head extending down into the inner wick-tube, and a spacer to hold said head away from the wick.

23. In a central-draft lamp, an outer and inner wick-tube, a wick adapted to move vertically between said tubes, a wick-guard coacting with the flame-spreader and stop to limit the vertical movement of the wick, the wick-guard preventing the flame from passing down between the upper end of the wick and a head extending down into the inner wick-tube.

749,183. BODY-BOLSTER FOR RAILWAY-CARS. JOHN M. HARRIS, Pittsburg, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Original application filed Dec. 21, 1899, Serial No. 41,042. Divided and this application filed Aug. 28, 1901. Serial No. 73,613. (No model.)

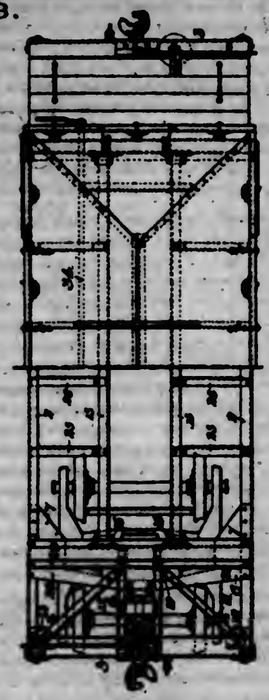
Claim.—1. The combination of side sills and bolsters, each bolster comprising a pair of parallel channeled beams extending continuously between and secured to the side sills, with a bolster cover-plate extending from side to side of the car and from the inner edge of the bolster outwardly toward the end of the car and of greatest width in the plane of the draft-rigging, and a correspondingly-shaped cover-plate applied to the lower side of the bolster and extending from side bearing to side bearing and also projecting outwardly toward the end of the car and of greatest width in the plane of the draft-rigging, substantially as described.

2. The combination of side sills, continuous transverse bolsters extending from side sill to side sill and secured to said side sills, cover-plates for said bolsters applied above and below them and of greatest width in the plane of the draft-rigging, end sills, and oblique braces interposed between the end sills and the said bolsters, substantially as described.

3. A bolster for underframes, composed of continuous parallel channeled beams of a length to extend between and be secured to the side sills of the car, a top cover-plate riveted to the upper flanges of the beams and of greatest width in the plane of the draft-rigging, substantially triangular gusset-plates riveted to the flanges of the inner beam, and a bottom cover-plate also of greatest width in the plane of the draft-rigging, substantially as described.

4. A body-bolster, of box-girder type, composed of parallel channeled beams of length sufficient to extend continuously from side sill to side sill, and top and bottom cover-plates, and having its lower portion dished at opposite ends to provide clearance for the truck-wheels, substantially as described.

749,188.



749,184. WRENCH. ISAAC C. RYMAN, New York, N. Y. Filed Nov. 12, 1902. Serial No. 130,988. (No model.)



Claim.—1. A wrench comprising a handle having at one end thereof a stationary jaw, a swinging jaw pivoted to opposite sides of the stationary jaw, and means secured to said stationary jaw and operating upon said swinging jaw to normally maintain the working faces of the two jaws substantially parallel with each other, said handle having means limiting the outward movement of the swinging jaw, and said stationary jaw being recessed on either side thereof to form stops for limiting the inward movement of the swinging jaw.

2. A wrench comprising a handle having at one end thereof a stationary jaw, a swinging jaw pivoted to opposite sides of the stationary jaw, and a yieldable pressure device secured to said stationary jaw and operating upon said swinging jaw to normally maintain the working faces of the two jaws substantially parallel with each other, said handle having means for limiting the outward movement of the swinging jaw, and said stationary jaw being recessed on either side thereof to form stops for limiting the inward movement of said swinging jaw.

3. A wrench comprising a handle having at one end a stationary jaw the opposite sides of which are cut away on arcs of concentric circles, thereby forming stops, a curved swinging jaw having duplicate members pivoted to said opposite sides of the stationary jaw, and having shoulders for engaging said stops, and a yieldable pressure device for normally maintaining the working faces of the jaws substantially parallel with each other.

4. A wrench comprising a handle having at one end a stationary jaw the opposite sides of which are cut away on arcs of concentric circles, thereby forming stops, a curved swinging jaw having duplicate members pivoted to said opposite sides of the stationary jaw and curved on their inner edges and having shoulders for engaging said stops, and a yieldable pressure device secured to the outer edge of the stationary jaw and bearing against the said inner curved edges of said duplicate members for normally maintaining the working faces of the jaws substantially parallel with each other.

5. As a new article of manufacture, an open-ended nut-wrench comprising a shank portion having at one end an offset portion bearing a jaw thicker than and integral with the shank and provided with a straight nut-engaging face on a plane parallel with the general line of the shank portion, a hook-shaped jaw whose body portion is concaved away from its jaw and lies across the end of the shank and is also divided and bestrides said shank and is pivoted thereto at the offset portion at a point close to the first-mentioned jaw; and a spring tending to close said jaws; said shank extending substantially in the general direction of the nut-opening.

6. A nut-wrench comprising a shank portion having formed thereon a jaw provided with a straight nut-engaging face, and a jaw also having a straight nut-engaging face and having the form of a hook and pivoted to said shank portion at a point near the inner end of the nut-engaging face upon said shank-jaw, said hook having a forked portion at its pivot end, within which portion said shank portion is confined, and a stop, as *e*, upon the shank portion, for limiting the opening movement of said pivoted jaw.

7. As a new article of manufacture, an open-end nut-wrench comprising a shank portion having a fixed jaw provided with a straight nut-engaging face, a jaw also having a straight nut-engaging face and having the form of a hook and pivoted to said shank portion at a point near the inner end of said nut-engaging face upon said fixed jaw, a spring to close said jaws, a stop for preventing the closing of said jaws by said spring beyond a point where said jaws are approximately in parallelism, a stop, as *e*, upon the shank portion, for limiting the opening movement of said pivoted jaw, and a cut-away, as *f*, between the fixed jaw and said stop *e*.

8. As a new article of manufacture, an open-end nut-wrench comprising a shank having a jaw which is provided with a straight nut-engaging face which extends longitudinally of said shank, and a hook-shaped jaw which is pivoted to the shank portion of the wrench; the shank of the hook being concaved to form a socket for the nut, and lying across the shank of the wrench, the shank being also cut away, as at *f*, to clear the nut, and one of said shanks being divided and confining the other thereof, the wrench-shank extending substantially in the direction of the nut-opening so that endwise pressure upon the wrench-shank will hold the wrench upon the nut.

9. A nut-wrench comprising a shank having at one end an offset jaw thicker than and integral with the shank and provided with a straight nut-engaging face, and a hook-shaped jaw whose shank is divided and confines the shank of the wrench and is pivoted thereto at a point close to the first-mentioned jaw; a spring tending to close said jaws; a stop for limiting the closing movement of said pivoted jaw at a point when the nut-engaging faces are in substantial parallelism, and an abutment, as *e*, upon said shank for limiting the opening movement of the pivoted jaw.

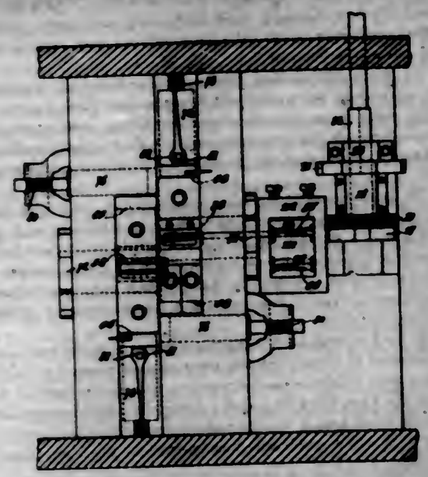
10. A wrench comprising a handle, a socket at the end thereof, and two jaws between which said socket is included, one of said jaws being fixed and the other being movable and so mounted as to coöperate with said fixed jaw when said wrench is swung in one direction, to turn the nut, and also to slip freely around the nut when the wrench is swung back, whereby by merely vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut, so that the wrench remains in position upon the nut as said jaws slip around the same upon each back stroke.

11. A wrench comprising a handle, a socket at the end thereof, and two jaws between which said socket is included, one of said jaws being fixed and the other being movable and so mounted as to coöperate with said fixed jaw when said wrench is swung in one direction, to turn the nut, and also to slip freely around the nut when the wrench is swung back, and a spring tending to close the movable jaw, whereby by merely vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut, so that the wrench remains in position upon the nut as said jaws slip around the same upon each back stroke.

12. A wrench comprising a handle, a fixed jaw, and a movable jaw, a socket being formed upon the movable jaw and being directly at the end of the handle, said socket being included between the working faces of the jaws, and the movable jaw being so mounted as to coöperate with said fixed jaw when said wrench is turned in one direction, and to slip freely around the nut when the wrench is turned in the other direction, whereby by vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut so that the wrench remains in position upon the nut as said jaws slip around the same upon each return stroke.

749,185. MACHINERY FOR THE MANUFACTURE OF HORSE-NAILS.

Joseph M. Landreau, Pottsdamville, France. Filed Nov. 21, 1901. Serial No. 83,163. (No model.)



Claim.—1. In a machine for making horseshoe and other nails from a rolled-wire rod, the combination with a first cutting-tool for making the diagonal cut between the bosses to cut off the first blank or nail, the said tool comprising an upper cutter having its cutting face shaped according to the intended line of cut, a bed-cutter acting in conjunction with the upper cutter and fixed to the table of the machine, and a clamping-foot for maintaining the rod in position during the cutting, of a second cutter located at one side of the first cutter and in front of the same for making the transverse cut at the middle of the boss to cut off the second blank or nail, matrix-holder drums mounted to revolve below the cutting-tools the said drums being arranged side by side and mounted on separate horizontal axes, the drums overlapping each other, and a feed device for feeding the rod to the cutting-tools, the said feed device being mounted to slide laterally on the bed of the machine to present the rod successively to the said cutting-tools, as set forth.

2. In a machine for making horseshoe and other nails, a feed device for feeding the rolled rod, cutting-tools to which the rod is successively fed for making respectively the diagonal cut, and the transverse cut, one of the said cutting-tools being located at one side of and in advance of the other, rectifying devices disposed beneath each of the cutting-tools and comprising a fixed die and a sliding die shaped to correspond to the side faces of a blank or nail after cutting or shearing, said blank or nail being inserted between the rectifying dies by the cutting-tools, and matrix-holders mounted to revolve below the cutting and rectifying dies, as set forth.

3. In a machine for making horseshoe and other nails, a feeding device for the rod, cutting-tools for cutting the blanks or nails, one of said cutting-tools being arranged to make the diagonal cut between the bosses and the other to make the transverse cut at the middle of the boss, and one of said cutting-tools being located at one side of and in front of the other, rectifying-dies for straightening the blanks or nails, matrix-holder drums mounted to revolve below the cutting and rectifying dies so as to always present a vacant matrix for receiving a rectified blank or nail, means for imparting an angular movement to the said holder-drums after each cut is made, and punches for acting on the shank and head of said blanks or nails, as specified.

4. In a machine for making horseshoe and other nails, a feed-carriage for the rolled rod, cutting-tools to which the rod is successively fed for making respectively the diagonal cut and the transverse cut, one of said cutting-tools being located at one side of and in front of the other, rectifying devices arranged beneath the cutting-tools, matrix-holder drums mounted to revolve below the cutting and rectifying devices, and arranged to receive the rectified blanks or nails, means for moving said holder-drums, a punch adapted to exert pressure on the shank of each nail or blank and hold it firmly in position, and a second punch for upsetting the head of the blank or nail, as set forth.

5. In a machine of the character described, the combination with the tool for cutting out the blanks or nails, of the rectifying device comprising a bed-die and a sliding die shaped to correspond to the two sides of a perfect blank or nail, said dies being beveled to facilitate the entry of the blank or nail, a spring for pressing the movable die up to its work, the said blank or nail being forced by the cutting-out tool into position between the bed-die and movable die, and means for positively actuating the movable die to apply the necessary rectifying pressure to the nail or blank, as set forth.

6. In a machine of the character described for the manufacture of nails from a shaped rod having flat portions alternating with bosses, and in which the flat portions are of such dimensions as to comprise the juxtaposed shanks of two blanks or nails extending lengthwise of the rod, the combination with the swaging-dies arranged alongside each other one of said dies for roughing out impressions upon the shaped rod corresponding to the exact form of the shanks, the said die having two swages corresponding to the two juxtaposed nails to be cut out at each operation, and the other swaging-die also having two swages for finishing said impressions, the said swages each having a projecting part for forming the bevel of the point, and means for holding the shaped rod in position beneath the swaging-dies, of two sets of cutting devices one of said cutting devices being in alinement with the finishing swaging-die, and adapted to make the diagonal cut between the bosses on the line of the impressions made by the swaging-dies; to cut the first blank or nail, and the other cutting device being in alinement with the roughing swaging-die and adapted to make the transverse cut at the middle of the boss to cut off the second blank or nail at the time the roughing swaging-die is acting on the part of the rod from which the two next nails are to be cut, and means for feeding the rod to the swaging-dies and cutting devices, the feeding means having lateral movement whereby the rod can be presented successively to the respective swaging-dies and cutting devices, as set forth.

7. In a machine of the character described, the combination with a feed device for feeding the shaped rod, of a cutting-tool for making the diagonal cut, and comprising an upper cutter, a holder on which said cutter is mounted, and guides on the cutter-holder and entering openings in the table, the said guides serving to insure the position of the rod relatively to the cutter, a bed cutter or die fixed on the table of the machine, and a clamping-foot for maintaining the shaped rod in position during the cutting.

8. In a machine for making horseshoe and other nails from a shaped rod or wire, two sets of cutting devices to which the shaped rod is successively fed to cut the nails from the rod, one of said sets of cutting devices being arranged at one side of and in front of the other set, and a feeding device for the rod comprising a carriage and feed-rollers carried by said carriage for feeding the rod or wire forward, the said carriage being mounted to slide laterally in a guideway in the bed of the machine to present the wire or rod successively to the said sets of cutting devices, means for driving the feed-rollers to feed the rod or wire forward, and carrier-disks mounted to rotate beneath the cutters and arranged to receive the blanks or nails, the said disks being arranged side by side and the axes of said disks being out of alinement with each other, as specified.

9. In an apparatus for making horseshoe and other nails from a shaped rod having flat portions alternating with bosses, sets of swaging devices arranged alongside each other for respectively roughing out and finishing impressions upon the shaped rod corresponding to the form of the shanks of the nails to be cut, sets of cutting devices for cutting the nails from the rod, one of said sets of cutting devices being at one side of and in front of the other set, the said cutting devices being located in alinement with the respective swaging-dies, and one of the sets of cutting devices making the diagonal cut through the rod and the other making the transverse cut, a feeding device for feeding the rod successively to the sets of swaging devices and the sets of cutting devices, rectifying-dies beneath the sets of cutting devices for straightening the cut nails, and holders adapted to receive the nails from the rectifying devices.

10. In a machine of the character described, the combination with the two swaging-dies arranged alongside each other for swaging the shaped rod lengthwise of the same prior to the action of the cutting devices, one of said dies roughing out impressions upon the shaped rod corresponding to the form of the nail-shanks, and the other finishing said impressions, and the two sets of cutting devices, one of said sets of cutting devices being located in alinement with the finishing swaging-die and adapted to make the diagonal cut between the bosses to cut off the first nail or blank and the other being located in alinement with the roughing swaging-die and adapted to make the transverse cut at the middle of the bosses, to cut off the second nail or blank, of the feed device for feeding the shaped rod in direction of its length, the said feed device being mounted to slide laterally on the bed of the machine to present the rod successively to the respective swaging-dies and the sets of cutting devices, and the rectifying-dies disposed beneath the cutting devices for straightening the nails cut.

11. In a machine for making horseshoe and other nails from a rolled wire rod, the combination with the two sets of swaging-dies arranged alongside each other for swaging the shaped rod lengthwise of the same prior to the action of the cutting devices, and the two sets of cutting devices arranged in rear of and in alinement with the respective swaging-dies, the first cutting device being constructed to cut diagonally through the rod and the second to cut transversely through the same, of a feed device for feeding the rod in direction of its length to the said swaging-dies and cutting devices the said feed device having lateral movement on the bed of the machine whereby the rod can be presented successively to the sets of swaging-dies and sets of cutting devices, a rectifying device located beneath each set of cutting devices for straightening the cut nails or blanks, a holder mounted to revolve below each rectifying device and adapted to receive the nails or blanks therefrom, and means for clamping the nail or blank in position in the holder.

12. In a machine for making horseshoe and other nails from a rolled wire or rod, the combination with the two sets of swaging devices arranged alongside each other, and the two sets of cutting devices arranged in rear of the swaging devices, the first cutting device being constructed to cut diagonally through the rod and the second cutting device making the transverse cut, of the feed device for feeding the rod forward in direction of its length, the said feed device having lateral movement whereby the rod can be presented successively to the respective sets of swaging devices, and successively to the sets of cutting devices.

13. In a machine for making horseshoe and other nails from a rolled wire or rod having flat portions alternating with bosses and in which the flat portions are of such width as to comprise the shanks of two nails to be formed, the combination with the two sets of swaging devices arranged alongside each other, one of said sets being arranged for roughing out impressions upon the flat portion of the shaped rod corresponding to the intended form of the two nail-shanks, and the other for finishing said impressions, of the two sets of cutting devices located in rear of the swaging-dies, one of said sets of cutting devices making the diagonal cut between the bosses on the line of the impressions made by the swaging-dies and the other for making the transverse cut at the middle of each boss, of a feed-carriage provided with means for feeding the rod forward, the said carriage being mounted to slide laterally on the bed of the machine in advance of the swaging-dies for the purpose set forth.

14. In a machine for making horseshoe and other nails, a feed device for the rolled rod, cutting-tools to which the rod is fed for cutting the blanks or nails, one of said cutting-tools being arranged alongside of and in advance of the other the cutting-tools being constructed to make respectively the diagonal and transverse cuts through the rod, rectifying devices arranged beneath the cutting-tools, holders mounted to revolve below the cutting and rectifying devices and arranged to receive the rectified blanks or nails, the said disks being arranged side by side, and overlapping each other at opposite points and means for revolving said holders in opposite directions, as set forth.

15. In a machine for making horseshoe and other nails, the combination with a feed device for feeding the rolled rod, swaging devices and cutting-tools to which the rod is successively fed, the swaging devices being arranged alongside each other and the cutting-tools being arranged in alinement with the respective swaging devices, one in advance of the other, one of said cutting-tools being constructed to cut diagonally through the rod and the other to make the transverse cut, and rectifying devices arranged beneath each of the cutting-tools for straightening the blanks or nails, of disks mounted to revolve below the rectifying devices and each carrying holders in its periphery to receive the nails or blanks from the respective rectifying devices, the said disks being arranged side by side, and mounted on separate axes out of alinement with each other, whereby the peripheral edges of the disk overlap each other at opposite points, means for revolving the disks in opposite directions, and means for clamping the nails or blanks in position in the holders for the purpose set forth.

16. In a machine for making horseshoe and other nails from a rolled wire or rod having flat portions alternating with bosses and in which the flat portions are of such width as to comprise the shanks of two nails to be formed, the combination with the two cutting devices for making respectively the diagonal cut between the bosses and the transverse cut at the middle of each boss, one of said cutting devices being located at one side of and in advance of the other,

5. As a new article of manufacture, an open-ended nut-wrench comprising a shank portion having at one end an offset portion bearing a jaw thicker than and integral with the shank and provided with a straight nut-engaging face on a plane parallel with the general line of the shank portion, a hook-shaped jaw whose body portion is concaved away from its jaw and lies across the end of the shank and is also divided and bestrides said shank and is pivoted thereto at the offset portion at a point close to the first-mentioned jaw; and a spring tending to close said jaws; said shank extending substantially in the general direction of the nut-opening.

6. A nut-wrench comprising a shank portion having formed thereon a jaw provided with a straight nut-engaging face, and a jaw also having a straight nut-engaging face and having the form of a hook and pivoted to said shank portion at a point near the inner end of the nut-engaging face upon said shank-jaw, said hook having a forked portion at its pivot end, within which portion said shank portion is confined, and a stop, as *e*, upon the shank portion, for limiting the opening movement of said pivoted jaw.

7. As a new article of manufacture, an open-end nut-wrench comprising a shank portion having a fixed jaw provided with a straight nut-engaging face, a jaw also having a straight nut-engaging face and having the form of a hook and pivoted to said shank portion at a point near the inner end of said nut-engaging face upon said fixed jaw, a spring to close said jaws, a stop for preventing the closing of said jaws by said spring beyond a point where said jaws are approximately in parallelism, a stop, as *e*, upon the shank portion, for limiting the opening movement of said pivoted jaw, and a cut-away, as *f*, between the fixed jaw and said stop *e*.

8. As a new article of manufacture, an open-end nut-wrench comprising a shank having a jaw which is provided with a straight nut-engaging face which extends longitudinally of said shank, and a hook-shaped jaw which is pivoted to the shank portion of the wrench; the shank of the hook being concaved to form a socket for the nut, and lying across the shank of the wrench, the shank being also cut away, as at *f*, to clear the nut, and one of said shanks being divided and confining the other thereof, the wrench-shank extending substantially in the direction of the nut-opening so that endwise pressure upon the wrench-shank will hold the wrench upon the nut.

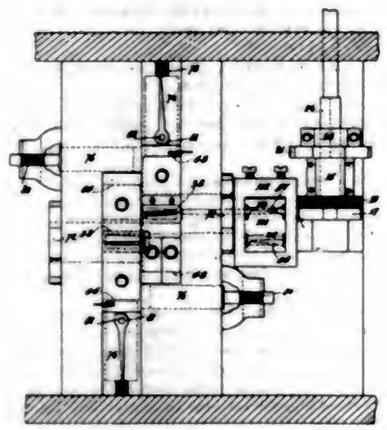
9. A nut-wrench comprising a shank having at one end an offset jaw thicker than and integral with the shank and provided with a straight nut-engaging face, and a hook-shaped jaw whose shank is divided and confines the shank of the wrench and is pivoted thereto at a point close to the first-mentioned jaw; a spring tending to close said jaws; a stop for limiting the closing movement of said pivoted jaw at a point when the nut-engaging faces are in substantial parallelism, and an abutment, as *e*, upon said shank for limiting the opening movement of the pivoted jaw.

10. A wrench comprising a handle, a socket at the end thereof, and two jaws between which said socket is included, one of said jaws being fixed and the other being movable and so mounted as to cooperate with said fixed jaw when said wrench is swung in one direction, to turn the nut, and also to slip freely around the nut when the wrench is swung back, whereby by merely vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut, so that the wrench remains in position upon the nut as said jaws slip around the same upon each back stroke.

11. A wrench comprising a handle, a socket at the end thereof, and two jaws between which said socket is included, one of said jaws being fixed and the other being movable and so mounted as to cooperate with said fixed jaw when said wrench is swung in one direction, to turn the nut, and also to slip freely around the nut when the wrench is swung back, and a spring tending to close the movable jaw, whereby by merely vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut, so that the wrench remains in position upon the nut as said jaws slip around the same upon each back stroke.

12. A wrench comprising a handle, a fixed jaw, and a movable jaw, a socket being formed upon the movable jaw and being directly at the end of the handle, said socket being included between the working faces of the jaws, and the movable jaw being so mounted as to cooperate with said fixed jaw when said wrench is turned in one direction, and to slip freely around the nut when the wrench is turned in the other direction, whereby by vibrating the handle the user may turn a nut home, and by pressing endwise upon the handle may keep the socket against the nut so that the wrench remains in position upon the nut as said jaws slip around the same upon each return stroke.

749,135. MACHINERY FOR THE MANUFACTURE OF HORSE-SHOE-NAILS. JOSEPH M. LAUGHLIN, Fourchambault, France. Filed Nov. 21, 1901. Serial No. 83,143. (No model.)



Claim.—1. In a machine for making horseshoe and other nails from a rolled-wire rod, the combination with a first cutting-tool for making the diagonal cut between the bosses to cut off the first blank or nail, the said tool comprising an upper cutter having its cutting face shaped according to the intended line of cut, a bed-cutter acting in conjunction with the upper cutter and fixed to the table of the machine, and a clamping-foot for maintaining the rod in position during the cutting, of a second cutter located at one side of the first cutter and in front of the same for making the transverse cut at the middle of the boss to cut off the second blank or nail, matrix-holder drums mounted to revolve below the cutting-tools the said drums being arranged side by side and mounted on separate horizontal axes, the drums overlapping each other, and a feed device for feeding the rod to the cutting-tools, the said feed device being mounted to slide laterally on the bed of the machine to present the rod successively to the said cutting-tools, as set forth.

2. In a machine for making horseshoe and other nails, a feed device for feeding the rolled rod, cutting-tools to which the rod is successively fed for making respectively the diagonal cut, and the transverse cut, one of the said cutting-tools being located at one side of and in advance of the other, rectifying devices disposed beneath each of the cutting-tools and comprising a fixed die and a sliding die shaped to correspond to the side form of a blank or nail after cutting or shearing, said blank or nail being inserted between the rectifying dies by the cutting-tools, and matrix-holders mounted to revolve below the cutting and rectifying dies, as set forth.

3. In a machine for making horseshoe and other nails, a feeding device for the rod, cutting-tools for cutting the blanks or nails, one of said cutting-tools being arranged to make the diagonal cut between the bosses and the other to make the transverse cut at the middle of the boss, and one of said cutting-tools being located at one side of and in front of the other, rectifying-dies for straightening the blanks or nails, matrix-holder drums mounted to revolve below the cutting and rectifying dies so as to always present a vacant matrix for receiving a rectified blank or nail, means for imparting an angular movement to the said holder-drums after each cut is made, and punches for acting on the shank and head of said blanks or nails, as specified.

4. In a machine for making horseshoe and other nails, a feed-carriage for the rolled rod, cutting-tools to which the rod is successively fed for making respectively the diagonal cut and the transverse cut, one of said cutting-tools being located at one side of and in front of the other, rectifying devices arranged beneath the cutting-tools, matrix-holder drums mounted to revolve below the cutting and rectifying devices, and arranged to receive the rectified blanks or nails, means for moving said holder-drums, a punch adapted to exert pressure on the shank of each nail or blank and hold it firmly in position, and a second punch for upsetting the head of the blank or nail, as set forth.

5. In a machine of the character described, the combination with the tool for cutting out ...so blanks or nails, of the rectifying device comprising a bed-die and a sliding die shaped to correspond to the two sides of a perfect blank or nail, said dies being beveled to facilitate the entry of the blank or nail, a spring for pressing the movable die up to its work, the said blank or nail being forced by the cutting-out tool into position between the bed-die and movable die, and means for positively actuating the movable die to apply the necessary rectifying pressure to the nail or blank, as set forth.

6. In a machine of the character described for the manufacture of nails from a shaped rod having flat portions alternating with bosses, and in which the flat portions are of such dimensions as to comprise the juxtaposed shanks of two blanks or nails extending lengthwise of the rod, the combination with the swaging-dies arranged alongside each other one of said dies for roughing out impressions upon the shaped rod corresponding to the exact form of the shanks, the said die having two swages corresponding to the two juxtaposed nails to be cut out at each operation, and the other swaging-die also having two swages for finishing said impressions, the said swages each having a projecting part for forming the bevel of the point, and means for holding the shaped rod in position beneath the swaging-dies, of two sets of cutting devices one of said cutting devices being in alinement with the finishing swaging-die, and adapted to make the diagonal cut between the bosses on the line of the impressions made by the swaging-dies, to cut the first blank or nail, and the other cutting device being in alinement with the roughing swaging-die and adapted to make the transverse cut at the middle of the boss to cut off the second blank or nail at the time the roughing swaging-die is acting on the part of the rod from which the two next nails are to be cut, and means for feeding the rod to the swaging-dies and cutting devices, the feeding means having lateral movement whereby the rod can be presented successively to the respective swaging-dies and cutting devices, as set forth.

7. In a machine of the character described, the combination with a feed device for feeding the shaped rod, of a cutting-tool for making the diagonal cut, and comprising an upper cutter, a holder on which said cutter is mounted, and guides on the cutter-holder and entering openings in the table, the said guides serving to insure the position of the rod relatively to the cutter, a bed cutter or die fixed on the table of the machine, and a clamping-foot for maintaining the shaped rod in position during the cutting.

8. In a machine for making horseshoe and other nails from a shaped rod or wire, two sets of cutting devices to which the shaped rod is successively fed to cut the nails from the rod, one of said sets of cutting devices being arranged at one side of and in front of the other set, and a feeding device for the rod comprising a carriage and feed-rollers carried by said carriage for feeding the rod or wire forward, the said carriage being mounted to slide laterally in a guide-way in the bed of the machine to present the wire or rod successively to the said sets of cutting devices, means for moving the carriage laterally, means for driving the feed-rollers to feed the rod or wire forward, and carrier-disks mounted to rotate beneath the cutters and arranged to receive the blanks or nails, the said disks being arranged side by side and the axes of said disks being out of alinement with each other, as specified.

9. In an apparatus for making horseshoe and other nails from a shaped rod having flat portions alternating with bosses, sets of swaging devices arranged alongside each other for respectively roughing out and finishing impressions upon the shaped rod corresponding to the form of the shanks of the nails to be cut, sets of cutting devices for cutting the nails from the rod, one of said sets of cutting devices being at one side of and in front of the other set, the said cutting devices being located in alinement with the respective swaging-dies, and one of the sets of cutting devices making the diagonal cut through the rod and the other making the transverse cut, a feeding device for feeding the rod successively to the sets of swaging devices and the sets of cutting devices, rectifying-dies beneath the sets of cutting devices for straightening the cut nails, and holders adapted to receive the nails from the rectifying devices.

10. In a machine of the character described, the combination with the two swaging-dies arranged alongside each other for swaging the shaped rod lengthwise of the same prior to the action of the cutting devices, one of said dies roughing out impressions upon the shaped rod corresponding to the form of the nail-shanks, and the other finishing said impressions, and the two sets of cutting devices, one of said sets of cutting devices being located in alinement with the finishing swaging-die and adapted to make the diagonal cut between the bosses to cut off the first nail or blank and the other being located in alinement with the roughing swaging-die and adapted to make the transverse cut at the middle of the bosses, to cut off the second nail or blank, of the feed device for feeding the shaped rod in direction of its length, the said feed device being mounted to slide laterally on the bed of the machine to present the rod successively to the respective swaging-dies and the sets of cutting devices, and the rectifying-dies disposed beneath the cutting devices for straightening the nails cut.

11. In a machine for making horseshoe and other nails from a rolled wire rod, the combination with the two sets of swaging-dies arranged alongside each other for swaging the shaped rod lengthwise of the same prior to the action of the cutting devices, and the two sets of cutting devices arranged in rear of and in alinement with the respective swaging-dies, the first cutting device being constructed to cut diagonally through the rod and the second to cut transversely through the same, of a feed device for feeding the rod in direction of its length to the said swaging-dies and cutting devices the said feed device having lateral movement on the bed of the machine whereby the rod can be presented successively to the sets of swaging-dies and sets of cutting devices, a rectifying device located beneath each set of cutting devices for straightening the cut nails or blanks, a holder mounted to revolve below each rectifying device and adapted to receive the nails or blanks therefrom, and means for clamping the nail or blank in position in the holder.

12. In a machine for making horseshoe and other nails from a rolled wire or rod, the combination with the two sets of swaging devices arranged alongside each other, and the two sets of cutting devices arranged in rear of the swaging devices, the first cutting device being constructed to cut diagonally through the rod and the second cutting device making the transverse cut, of the feed device for feeding the rod forward in direction of its length, the said feed device having lateral movement whereby the rod can be presented successively to the respective sets of swaging devices, and successively to the sets of cutting devices.

13. In a machine for making horseshoe and other nails from a rolled wire or rod having flat portions alternating with bosses and in which the flat portions are of such width as to comprise the shanks of two nails to be formed, the combination with the two sets of swaging devices arranged alongside each other, one of said sets being arranged for roughing out impressions upon the flat portion of the shaped rod corresponding to the intended form of the two nail-shanks, and the other for finishing said impressions, of the two sets of cutting devices located in rear of the swaging-dies, one of said sets of cutting devices making the diagonal cut between the bosses on the line of the impressions made by the swaging-dies and the other for making the transverse cut at the middle of each boss, of a feed-carriage provided with means for feeding the rod forward, the said carriage being mounted to slide laterally on the bed of the machine in advance of the swaging-dies for the purpose set forth.

14. In a machine for making horseshoe and other nails, a feed device for the rolled rod, cutting-tools to which the rod is fed for cutting the blanks or nails, one of said cutting-tools being arranged alongside of and in advance of the other the cutting-tools being constructed to make respectively the diagonal and transverse cuts through the rod, rectifying devices arranged beneath the cutting-tools, holders mounted to revolve below the cutting and rectifying devices and arranged to receive the rectified blanks or nails, the said disks being arranged side by side, and overlapping each other at opposite points and means for revolving said holders in opposite directions, as set forth.

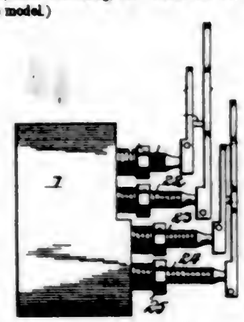
15. In a machine for making horseshoe and other nails, the combination with a feed device for feeding the rolled rod, swaging devices and cutting-tools to which the rod is successively fed, the swaging devices being arranged alongside each other and the cutting-tools being arranged in alinement with the respective swaging devices, one in advance of the other, one of said cutting-tools being constructed to cut diagonally through the rod and the other to make the transverse cut, and rectifying devices arranged beneath each of the cutting-tools for straightening the blanks or nails, of disks mounted to revolve below the rectifying devices and each carrying holders in its periphery to receive the nails or blanks from the respective rectifying devices, the said disks being arranged side by side, and mounted on separate axes out of alinement with each other, whereby the peripheral edges of the disk overlap each other at opposite points, means for revolving the disks in opposite directions, and means for clamping the nails or blanks in position in the holders for the purpose set forth.

16. In a machine for making horseshoe and other nails from a rolled wire or rod having flat portions alternating with bosses and in which the flat portions are of such width as to comprise the shanks of two nails to be formed, the combination with the two cutting devices for making respectively the diagonal cut between the bosses and the transverse cut a... the middle of each boss, one of said cutting devices being located at one side of and in advance of the other,

and the feeding device for feeding the rod successively to the cutting devices, of the two carrier-disks provided in their peripheries with matrices or holders for receiving the cut nails or blanks, the said disks being arranged one in advance of the other mounted to revolve one below each of said cutting devices to always present a vacant matrix for receiving a blank or nail, as set forth.

17. In a machine for making horseshoe and other nails from a rolled wire or rod having flat portions alternating with bosses and in which the flat portions are of such width as to comprise the shanks of two nails to be formed, the combination with the cutting-tools for making respectively the diagonal cut between the bosses and the transverse cut through the middle of each boss, one of said cutting-tools being located at one side of and in front of the other, and the feeding device for feeding the rod successively to the cutting-tools, of the matrix-holder drums or disks located one in advance of the other and mounted to revolve below the respective cutting-tools, to always present a vacant matrix for receiving a blank or nail, the axes of the said drums or disks being out of alinement with each other, whereby the peripheral edge of one disk projects beyond that of the other, means for imparting movement to the said drums after each cut is made, means for exerting pressure on the shank of each blank or nail to hold it firmly in position in the matrix, and means for upsetting the head of the blank or nail, as set forth.

749,136. HYDRAULIC VALVE. CHARLES R. LEWIS, Braddock, and JOHN DICK, East Pittsburg, Pa. Filed Oct. 13, 1902. Serial No. 127,125. (No model.)



Claim.—1. In a hydraulic valve, the combination with a valve-body having inlet and outlet ports and an exhaust-port, a series of valve-chambers, a tubular valve-seat mounted in each of said valve-chambers, of a pair of valves controlling the inlet-port and exhaust-ports, and means connected to said valves for operating the same simultaneously, the valve controlling the exhaust-port operating at a greater rate of speed than the valve controlling the inlet-port, substantially as described.

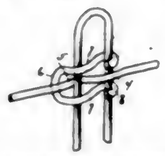
2. In a hydraulic valve, the combination with a valve-body having inlet and outlet ports and an exhaust-port, a series of valve-chambers, a tubular valve-seat mounted in each of said valve-chambers, of a pair of valves controlling the inlet and exhaust ports, the valve controlling the inlet-port being threaded, and the valve controlling the outlet-port being formed with threads of greater pitch than the threads of the valve controlling the inlet-port, and means connected to the valves for operating the valve controlling the inlet-port and the valve controlling the exhaust-port simultaneously, substantially as described.

3. In a hydraulic valve, the combination with a valve-body having inlet and outlet ports and an exhaust-port, a series of valve-chambers, a tubular valve-seat mounted in each of said valve-chambers, bushings threaded in said chambers, nuts mounted in said bushings, of a pair of valves controlling the inlet-port and exhaust-port, the said valves threaded in said nuts with their ends adapted to engage the said valve-seats, and means connected to said valves for operating the same simultaneously, the valve controlling the exhaust operating at a greater rate of speed than the valve controlling the inlet port, substantially as described.

4. In a hydraulic valve, the combination with a valve-body having inlet and outlet ports and an exhaust-port, a series of valve-chambers and a tubular valve-seat mounted in each of said valve-chambers, of a pair of valves controlling inlet-port and exhaust-port, levers connected to said valves for operating the same simultaneously, the valve controlling the inlet-port being threaded, and the valve controlling the exhaust-port threaded at a greater pitch to cause the former to move at a less rate of speed than the latter, and packing mounted on the stems of said valves, substantially as described.

5. In a hydraulic valve, a valve-body having valve-chambers, a tubular valve-seat mounted in each of said chambers to be engaged by valves operating in the said chambers, the said valves controlling inlet and exhaust ports, the valves controlling the former ports having threads upon their stems and the valves controlling the latter ports having threaded stems, the threads being at a greater pitch than the threads of the first-named stems, thereby causing the former to move to a less rate of speed than the latter, and means for operating each set of valves simultaneously, substantially as described.

749,137. WIRE FENCE. SHERMAN S. WITHINGTON, Adrian, Mich., assignor to Adrian Wire Fence Company, Adrian, Mich., a Corporation of Michigan. Filed June 9, 1902. Renewed May 22, 1903. Serial No. 158,378. (No model.)



Claim.—1. In a wire fence, the combination with the horizontal wire having bends therein, of the looped locking-wire engaging with its loop end the horizontal wire, the double stay-wire crossing the horizontal wire vertically with its legs standing on opposite sides of said wire and lying in the bends therein, the locking-wire being in the form of a staple and passing over one and between the two wires of the double stay-wire astride of the horizontal wire, the ends of the locking-wire having eyes which embrace one strand of the vertical stay-wire on the side thereof crossed by the horizontal wire.

2. In a wire fence, the combination of the horizontal wire, the double vertical stay-wire crossing the horizontal wire, said horizontal wire having a reverse bend, and the wires of the vertical stay standing on opposite sides of the horizontal wire and lying in said bends, the looped locking-wire engaging the horizontal wire at its loop end, and having parallel arms which pass over one of the wires of the vertical stay and extend between the strands thereof parallel to and on each side of the horizontal wire, the free ends of the locking-wire having eyes which embrace one of the strands of the stay-wire upon the side crossed by the horizontal wire, the arms of said locking-wire standing apart to allow a vertical movement of the horizontal wire between said arms.

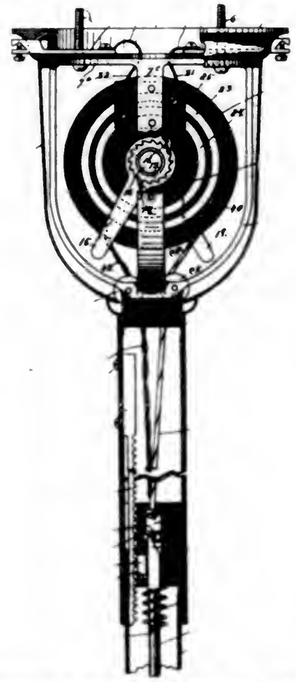
749,138. ADJUSTABLE ELECTROLIER. GEORGE ANDERSEN, Denver, Colo. Filed Mar. 27, 1902. Serial No. 100,169. (No model.)

Claim.—1. In an adjustable electrolier, the combination with a suitable support and the circuit-wires, of a spring-held device revolubly mounted thereon and around which the wires of the internal circuit are wound, contact-rings mounted on said device, and insulated from each other, an insulating-block, hollow binding-posts mounted on said block and to which the wires of the external circuit lead, electrodes slidably mounted in the hollow binding-posts and engaging the respective contact-rings, and coil-springs located in said binding-posts and engaging the electrodes to hold them against the contact-rings.

2. In an adjustable electrolier, the combination with the circuit-wires of a top plate secured to the ceiling or other stationary support, a yoke detachably connected with said plate and having arms extending downwardly and curved inwardly, terminating in a tubular part, a spring-held device revolubly mounted in said yoke and around which the wires of the internal circuit are wound, contact-rings mounted on said device and insulated from each other, with which rings the wires of the internal circuit are connected, an insulating-block, hollow binding-posts mounted on said block and to which the wires of the external circuit lead, electrodes slidably mounted in the hollow binding-posts and engaging the respective contact-rings, and coil-springs located in the binding-posts and engaging the electrodes to hold them against the rings.

3. In an adjustable electrolier, the combination with the circuit-wires, of a top plate secured to a suitable stationary support, a yoke detachably connected with said support and having arms extending downwardly and curved inwardly terminating in a tubular part, a spring-held device revolubly mounted in said yoke and around which

the wires of the internal circuit are wound, contact-rings mounted on said device and insulated from each other, with which rings the wires of the internal circuit are connected, an insulating-block, hollow binding-posts mounted on said block and to which the wires of the external circuit lead, electrodes slidably mounted in the hollow binding-posts and engaging the respective contact-rings, and coil-springs located in the binding-posts and engaging the electrodes to hold them against the rings.



4. In an adjustable electrolier, the combination with a suitable support, and the wires of an electrical circuit, of a spindle journaled in said support, a drum loose on the spindle, a spring coiled around the spindle, having one extremity attached thereto, the other extremity being attached to the drum, a ratchet mounted on the spindle, a drum mounted on the support and engaging said ratchet to prevent the drum from unwinding in response to the action of the spring, a hand-lever mounted adjacent the ratchet, a dog carried by the lever and engaging the ratchet to turn the spindle and regulate the tension of the spring, the wires of the internal circuit being wound around the drum, rings mounted on the drum and insulated from each other, hollow binding-posts mounted on the yoke, insulated therefrom and from each other, electrodes slidably mounted in the said posts and respectively engaging the contact-rings, and coil-springs located in the hollow binding-posts and acting on the electrodes to hold them in operative relation with the contact-rings.

5. In an adjustable electrolier, the combination with a suitable support and the wires of an electrical circuit, of a spindle journaled in said support, a drum loose on the spindle, a spring coiled around the spindle, having one extremity attached thereto, the other extremity being attached to the drum, a ratchet mounted upon the spindle, a dog mounted on the support and engaging said ratchet to prevent the drum from unwinding in response to the action of the spring, a hand-lever mounted adjacent the ratchet, a dog carried by the lever and engaging the ratchet to turn the spindle and regulate the tension of the spring, the wires of the internal circuit being wound around the drum, hollow binding-posts suitably mounted and insulated from each other, electrodes slidably mounted in said binding-posts and engaging the respective contact-rings of the drum, and springs located in the hollow binding-posts and acting on the electrodes to hold the latter in operative relation with the contact-rings of the drum.

6. The combination with a suitable support and the wires of an electrical circuit, of a spindle mounted in said support, a drum loose on said spindle, a spring coiled around the spindle, one extremity being attached to the drum and the other extremity to the spindle, means for regulating the tension of the spring, contact-rings mounted on the drum and insulated from each other, the wires of the internal circuit being wound on the drum and electrically connected with the rings, hollow binding-posts mounted on the support, and insulated from each other, electrodes slidably mounted in the said posts and engaging the respective contact-rings, and springs located in the hollow binding-posts and acting on the electrodes to hold the latter in operative relation with the said rings.

7. In an adjustable electrolier, the combination with a suitable support and the wires of an electrical circuit, of a spring-held drum revolubly mounted on said support, contact-rings mounted on the drum and insulated from each other, the wires of the internal circuit being wound on the drum, a suitable electrical connection between the said rings and the wires of the internal circuit, hollow binding-posts suitably mounted on the support and insulated from each other, electrodes movably mounted in said posts and engaging the respective contact-rings, and springs located in the hollow posts and acting on the electrodes to hold the latter in operative engagement with the said rings.

8. The combination with a suitable support and the wires of an electrical circuit, of a spring-held drum revolubly mounted on the support, the wires of the internal circuit being wound on the drum, a suitable electrical connection between said contacts and the wires of the internal circuit, hollow binding-posts suitably mounted on the support and insulated from each other, electrodes movably mounted in said binding-posts and engaging the respective contact-rings, and springs located in the said posts and acting on the electrodes to hold the latter in operative relation with the contact-rings.

9. In an adjustable electrolier, the combination with a suitable support, a depending tube attached to said support, and the wires of an electrical circuit, another tube arranged to telescope in the first-named tube, the electrolier proper being attached to the telescoping tube, an adjustable connection between the two tubes whereby the telescoping tube may be raised and lowered at will and locked in any desired position, a spring-held drum mounted on the support and on which the wires of the internal circuit are arranged to wind, a suitable electrical connection between the wires of the internal and external circuits, the wires of the internal circuit leading to the lamps of the electrolier, another spring-held drum mounted on the support, and a cable attached to said last-named drum and connected with the telescoping tube.

10. In an adjustable electrolier, the combination with a suitable support, a depending tube attached thereto, and the wires of an electrical circuit, of two spring-held drums mounted on the support, a tube telescoping in the depending tube, the electrolier proper being attached to the telescoping tube, and a cable connected with the drum at one extremity, and with the telescoping tube at the opposite extremity, the wires of the internal circuit being attached to the other drum and connected with the lamps of the electrolier, substantially as described.

11. In an adjustable electrolier, the combination with a suitable support, and the wires of an electrical circuit, of two drums mounted on the support independently of each other, a stationary depending tube, another tube telescoping in the stationary tube, the electrolier proper being mounted on the telescoping tube, a toothed rack attached to the stationary tube and extending into the telescoping tube, a spring-held dog mounted on the telescoping tube and engaging said rack to support the telescoping tube in the adjusted position, a cable connected at one extremity with one of the drums and with the telescoping tube at the opposite extremity, the wires of the external circuit being connected with the other drum and leading to the lamps of the electrolier, and means for disengaging the dog from the rack to permit the adjustment of the telescoping tube, substantially as described.

12. In an adjustable electrolier, the combination with the wires of an electrical circuit, and a suitable support provided with a depending tube, a tube telescoping in the stationary tube and supporting the electrolier proper, a spring-held drum mounted on the support, a cable attached to said drum and forming the support for the telescoping tube, a toothed rack attached to the stationary tube and extending into the telescoping tube, a spring-held dog mounted on the telescoping tube and engaging the toothed rack, a rod slidably mounted on the telescoping tube and arranged when actuated to disengage the dog from the toothed rack, and a circuit whose wires pass through the tubes to the lamps of the electrolier.

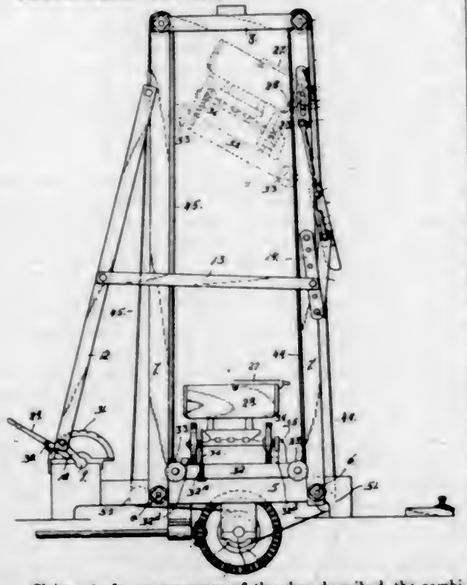
13. The combination with a suitable support provided with a depending tube, of another tube telescopically connected with the stationary tube and carrying the electrolier proper, a spindle journaled in the support, a drum loosely mounted on the spindle, a spring

connected with said drum at one extremity and with the spindle at the opposite extremity, a ratchet mounted on the spindle, a dog mounted on the support and engaging said ratchet, a lever mounted adjacent the ratchet and carrying a dog engaging the ratchet whereby the tension of the drum-spring may be regulated by manipulating the lever, a cable attached to the said drum and connected with the telescoping tube, and a circuit whose wires pass through the tubes and lead to the lamps of the electrolier, substantially as described.

14. In an adjustable electrolier, the combination with an adjustable stationary support provided with a depending tube, another tube telescopically connected with the stationary tube and supporting the electrolier proper, a spindle journaled in the support, a drum loose on the spindle, a spring coiled around the spindle and connected at one extremity therewith and at the other extremity with the drum, a sleeve through which the spindle passes, a drum mounted on said sleeve, a spring attached to the sleeve at one extremity and with the drum at the opposite extremity, a cable attached to the drum and connected with the telescoping tube, circuit-wires attached to the other drum and passing through the tubes to the lamps of the electrolier, substantially as described.

15. In an adjustable electrolier, the combination with a stationary support provided with a depending tube, another tube telescopically connected with the stationary tube and forming a support for the electrolier proper, a ping screwed into the top of the telescoping tube, a spring-actuated dog mounted in said plug, a toothed rack attached to the stationary tube and projecting into the telescoping tube, said rack being engaged by the dog, a spring-held rod entering a recess formed in said plug from below and arranged when actuated to disengage the dog from the rack, the said rod being exposed at the lower extremity of a telescoping tube, a spring-held drum mounted on the support, a cable attached to said drum at one extremity and anchored in the plug of the telescoping tube at the other extremity, another spring-held drum, and circuit-wires connected therewith and leading through the tubes of the lamps to the electrolier, the said support being provided with guide-pulleys for the cable and for the wires of the circuit, substantially as described.

749,139. DUMPING APPARATUS. CHARLES G. FOOTE, Denver, Colo., assignor to Timothy Carroll, Anaheim, Cal. Filed July 3, 1903. Serial No. 164,131. (No model.)



Claim.—1. In an apparatus of the class described, the combination of an upright frame provided with tracks on the opposite sides, which tracks approach each other as they extend upwardly, a platform provided with walls engaging the tracks of the frame, the said platform being vertically movable on the tracks, a lifting mechanism connected with the platform and arranged to raise one side of it faster than the other whereby the platform is tilted during the elevating operation.

2. The combination of a suitable base, upright bars mounted thereon and forming tracks on opposite sides which tracks are inclined to approach each other as they extend upwardly, a platform provided with wheels which engage said tracks, means for securing a wagon on the platform, a shaft journaled in the base, a drum mounted on the shaft and having two parts of different diameters, cables connected with the respective drum parts and with the platform, and pulleys mounted on the bars and over which the cables pass, the arrangement being such that the two sides of the platform are raised at different speeds whereby the platform is tilted to harmonize with the inclined tracks.

3. The combination with a base, of four upright bars pivotally mounted on the base, a platform provided with wheels engaging the bars which form tracks for the wheels whereby the platform is vertically movable, lifting-cables connected with the platform, and drums of different diameters with which the cables are connected, the larger drum-cables being connected with one side of the platform and the smaller drum-cables with the opposite side, and suitable means connected with the upright bars for tilting the same.

4. The combination of a base, with upright bars pivotally mounted on the base, a platform provided with wheels engaging the bars which form tracks for the wheels whereby the platform is vertically movable, lifting-cables connected with the platform, and suitable means connected with the upright bars for tilting the same.

5. The combination of an upright frame having tracks on opposite sides, which are inclined to approach each other as they extend upwardly, a vertically-movable platform engaging said tracks, and means connected with the platform for elevating and tilting the same simultaneously.

6. The combination of a tiltable upright frame, a platform vertically movable on said frame, and means for tilting the frame.

7. The combination of a tiltable upright frame, a platform vertically movable on said frame, and means for tilting the frame comprising a rock-shaft provided with cranks, and rods connecting the cranks of the rock-shaft with the tiltable frame.

8. The combination of an upright frame, composed of tracks on opposite sides, which tracks approach each other as they extend upwardly, a platform vertically movable on said tracks, means for elevating the platform on the frame and tilting the same simultaneously to harmonize with the inclination of the tracks, a chute hinged to the frame at a suitable point to receive the dumped contents of the wagon-body, and suitable means for throwing the hinged chute outwardly to receive and guide the contents of the wagon-body into a car or other suitable receptacle.

9. The combination with a suitable base, of an upright frame mounted thereon, and composed of tracks on opposite sides, the said tracks being inclined to approach each other as they extend upwardly, a platform vertically movable on the said tracks, a shaft journaled on the base, drums of different diameters fast on the shaft, means for rotating the shaft, lifting-cables connected with the drums and with the opposite sides of the platform, the cables connected with one side of the platform being connected with the larger drums, and the cables connected with the other side of the platform with the smaller drums, whereby as the drums are rotated the two sides of the platform are unequally elevated whereby the platform is tilted simultaneously with the operation of elevating the same, and suitable pulleys mounted on the base and on the upright frame for supporting and guiding the lifting-cables.

10. The combination with an upright frame, of a vertically-movable platform mounted thereon, said platform being adapted to support a wagon, means for securing the wagon in place on the platform, and means connected with the upright frame for opening the hinged gate of the wagon-body after the latter is sufficiently elevated for the purpose.

11. The combination of an upright frame, a platform vertically movable on the frame and adapted to hold a wagon provided with a body having a normally locked hinged gate, a device vertically movable on the frame, a cross-bar connected with the said device by links, whereby the cross-bar is allowed to swing outwardly as the platform is raised, and suitable means for actuating the device whereby the cross-bar is lifted to unlock the hinged gate of the wagon-body.

12. The combination of an upright frame a platform vertically movable thereon, a chute hinged to the frame and normally occupying a position close to the frame, a link also hinged to the frame, a second link connected with the first-named link at one extremity and with the hinged chute at the opposite extremity, a rock-shaft suitably mounted, a connecting-rod actuated by the rock-shaft, a second connecting-rod leading from the first-named rod and connected with one of the links, whereby as the rock-shaft is actuated the hinged chute is raised to a position properly inclined.

13. The combination with a suitable base, of an upright frame pivotally connected with the base, a platform vertically movable on the upright frame, a rock-shaft suitably journaled and provided with cranks, and connecting-rods leading from the cranks of the rock-shaft to the upper part of the upright frame, whereby as the rock-shaft is actuated the upright frame may be tilted or returned to its normal position as desired.

14. The combination with a suitable base, an upright frame pivotally mounted on the base, a chute hinged to the upright frame at a suitable point above the base, a rock-shaft suitably journaled, rods connecting cranks on the rock-shaft with the frame for tilting the latter, suitable means mounted on the upright frame and connected with the chute for actuating the latter, and a connecting-rod leading from one of the first-named connecting-rods, to the means for actuating the chute, whereby the upright frame and the hinged chute are simultaneously actuated.

15. The combination with a suitable platform, of means for supporting a wagon on said platform, comprising hook-shaped bars or arms pivotally mounted on the platform and adapted when thrown to the operative position, to engage the axles of the wagon in the front and rear, whereby the latter is prevented from moving either forwardly or backwardly on the platform, and suitable means for operating the arms.

16. The combination with a suitable platform adapted to hold a wagon, of devices pivotally mounted on the platform and separated whereby they are adapted when thrown to position to engage the axles of the wagon in the front and rear to prevent the wagon from moving in either direction when the locking devices are applied, the platform being slotted to receive the said devices, a rock-shaft interposed between the two devices, and a suitable connection between the said devices and the rock-shaft whereby as the latter is operated the said devices are simultaneously actuated.

17. The combination of two devices movably mounted on the platform and separated whereby they are adapted when thrown to the operative position to engage the wagon in the front and rear, to prevent it from moving either forwardly or backwardly, and a rock-shaft interposed between the said devices and connected with the latter to simultaneously actuate the same as the rock-shaft is operated.

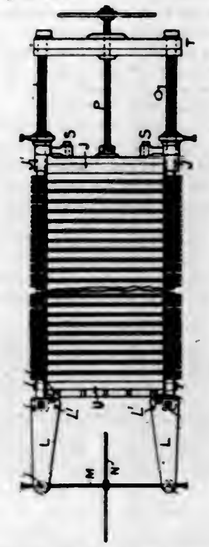
18. The combination with a platform adapted to hold a wagon, of two rock-shafts suitably mounted on the platform, hook-shaped arms secured to the rock-shafts and adapted to engage the wagon in the front and rear, when the said arms are thrown to the operative position, cranks fast on the rock-shafts, an intermediate rock-shaft also mounted on the platform and provided with cranks projecting in opposite directions, connecting-rods connecting the cranks of the intermediate rock-shaft with the cranks of the other rock-shafts, and a lever-arm connected with the intermediate rock-shaft for controlling the said devices.

19. The combination of four upright bars so arranged that the two bars on one side approach the two bars on the other side as they extend upwardly, in combination with the platform having wheels engaging the said bars which form tracks for the platform-wheels, and suitable means for elevating the platform whereby the latter is inclined simultaneously with its upward movement, the degree of its inclination being regulated to correspond with the diminishing distance between the track-bars.

20. The combination of upwardly-projecting separated tracks, the distance between the tracks diminishing as they extend upwardly, a platform movably engaging said tracks, and means connected with the platform for elevating and tilting the same simultaneously, the tilting action of the platform and the varying distance between the tracks being regulated to harmonize.

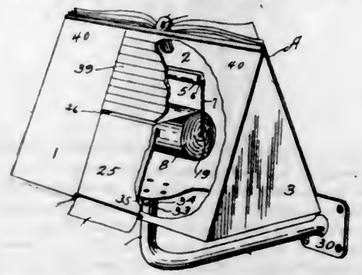
749,140. FILTER-PRESS. ERNEST B. HACK, Denver, Colo., assignor to the American Filter Press Extraction Company, Denver, Colo., a Corporation of Colorado. Filed Jan. 19, 1903. Serial No. 139,714. (No model.)

Claim.—1. A filter-press composed of pulp-holding and filtering members suitably arranged and connected and provided with registering openings forming longitudinal passages outside of the pulp and filter chambers, each pulp-frame having a lateral channel leading from said passage for the introduction of pulp to the various pulp-chambers, and a distinct lateral passage for the introduction of fluid, a portion of the pulp-frames having two lateral channels for the introduction of fluid, one for liquid and the other for air; the filtering members having efflux or discharge channels for the escape of the solutions after they have passed through the pulp of the pulp-holding frames.



2. The combination of a filter-press composed of distinct pulp-holding and filtering members suitably arranged and having a movable head or end, and tightening-levers arranged to act on one of the head members, substantially as described.

749,141. COMBINED TELEPHONE-BOOK SUPPORT AND NOTE-PAPER-SUPPLY DEVICE. ALEXIS D. IRVING, Los Angeles, Cal. Filed Apr. 29, 1903. Serial No. 154,855. (No model.)



Claim.—1. A combined telephone-book support and memoranda-paper-supplying device comprising a receptacle, means for revolving the receptacle in one direction, said receptacle comprising sides and end pieces, one side piece fixed and the other movable, the movable side piece being inclined, the said movable side of the receptacle having a slot therein through which memoranda-paper is adapted to be drawn, a paper-supplying device, a keeper secured upon the lower edge of said movable inclined side piece adapted to press the slip of memoranda-paper against said inclined side piece of the receptacle and affording means whereby the receiver of telephone messages can readily separate portions of the paper from the remaining unused portion thereof.

2. A combined telephone-book support and memoranda-paper-supplying device comprising a receptacle containing a paper-supplying device, one side of the receptacle provided with brackets, one projecting above the upper edge and the other projecting below the lower edge of the said side piece of the receptacle, the movable side piece having a slot in the central portion thereof through which the memoranda-paper is adapted to be drawn and means for pressing the slip of memoranda-paper against the movable side piece and affording the operator ready facilities for severing fragments of the paper containing messages from the remaining portions thereof.

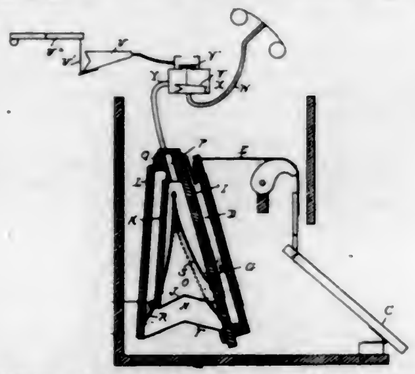
3. A combined telephone-book support and memoranda-paper-supplying device comprising a receptacle, a memoranda-paper-sup-

plying device, the fixed side piece of the receptacle provided with an inturned projecting bracket-lip, said lip having a groove formed therein for the suspending device of the paper-supply, brackets made integral with the fixed side piece, one projecting above the upper edge and the other projecting below the lower edge thereof, said brackets having extensions provided with perforations therein and means for clamping the telephone-book against the fixed side piece of the receptacle in combination with devices whereby the said receptacle revolves only in one direction.

4. A combined book-support and memoranda-paper-supplying device comprising a receptacle having a book-support upon one side thereof, the opposite side of the receptacle forming a tablet for memoranda-paper and a rest for the hand of a telephone operator, said receptacle provided with a ratchet secured to the under surface of the bottom thereof, a projecting pin or tenon, secured within the ratchet, a hollow bracket-arm having a ratchet secured thereon adapted to mesh with the ratchet secured to the bottom of the receptacle whereby the receptacle is prevented from revolving while the message or memoranda is being recorded.

REISSUES.

12,189. **SELF-PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS.** JOSEPH COSTVILLE, Detroit, Mich., assignor to the Ferrand & Votey Organ Company, Detroit, Mich., a Corporation of Michigan. Filed Nov. 30, 1901. Serial No. 83,047. Original No. 683,737, dated Oct. 1, 1901.



Claim.—1. In an autopneumatic playing attachment for musical instruments, the combination with the pneumatic-action, of a self-expanding collapsible wind-chamber or store-bellows divided into two compartments connected by a restricted passage, the latter being adapted to equalize the pressure in said compartments during normal operation, and a wind-pump connected with one of said compartments, the same being connected with the action, said wind-pump having an exhausting capacity in excess of the equalizing capacity of said restricted passage whereby an abnormally low pressure may be developed by an increased pumping action, to produce correspondingly increased power in the action.

2. In an autopneumatic playing attachment for musical instruments, an expression device comprising an outer bellows connected with the pneumatic-action, an inner bellows arranged within said outer bellows and having a restricted port communicating therewith, springs for expanding both outer and inner bellows, and a foot-operated wind-pump connected with said outer bellows having an exhausting capacity in excess of the equalizing capacity of said restricted port, for the purpose described.

3. In an autopneumatic piano-player, the combination of a valve action controlled by a traveling sheet, key-actuating pneumatics controlled by the valves thereof, and forming percussion-motors for operating the piano-keys, of a foot-operated wind-pump and a store-bellows connected therewith and to the action for normally equalizing the pulsations of said pump to give a non-pulsating pressure to operate said key-actuating pneumatics, and means by which said key-actuating pneumatics may be caused to respond temporarily to the pulsations of said pump to accentuate the operation of said key-actuating pneumatics.

4. In an autopneumatic player for percussion musical instruments, the combination with key-actuating-pneumatic motors, a foot-operated wind-pump and a regulating-bellows for normally equalizing the pulsations of said pump to produce and maintain a substantially uniform pressure upon said motor, of means for causing said motor to temporarily respond to the pulsations of said pump in accentuated action and for automatically restoring the regulating action thereof after such pulsation.

DESIGNS.

36,723. **CHARM OR SIMILAR ARTICLE.** ROBERT R. FISHER, Providence, R. I., assignor to Smith Brothers, Providence, R. I., Copartners. Filed Dec. 12, 1903. Serial No. 184,994. Term of patent 3½ years.



Claim.—The ornamental design for a charm or similar article, as herein shown.

36,724. **WATCH-CHARM.** NATHAN R. LEVY, Scranton, Pa. Filed Oct. 26, 1903. Serial No. 178,649. Term of patent 7 years.



Claim.—The ornamental design for a watch-charm as shown in the accompanying drawings.

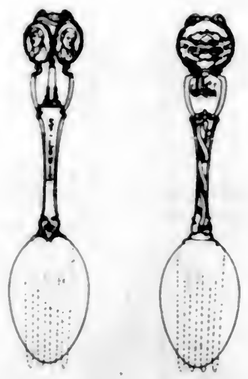
36,725. **BUCKLE-PLATE OR SIMILAR ARTICLE.** CHARLES C. PENFOLD, Buffalo, N. Y. Filed Nov. 27, 1903. Serial No. 183,913. Term of patent 7 years.



Claim.—The ornamental design for a buckle-plate or similar article, as herein shown.

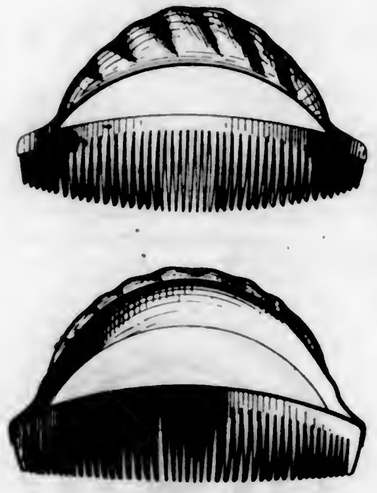
36,726. **HANDLE FOR SOUVENIR SPOONS, FORKS, OR SIMILAR ARTICLES.** JOSEPH S. STRAKER, Jr., Attleboro, Mass., assignor to Watson and Newell Company, a Corporation of Rhode Island. Filed Filed Dec. 14, 1903. Serial No. 185,176. Term of patent 3½ years.

36,726.



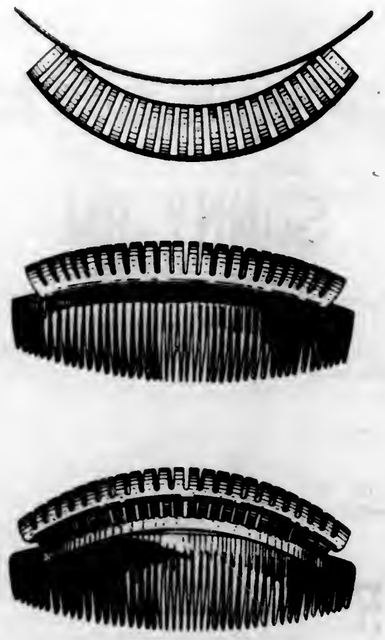
Claim.—The ornamental design for the handle of a souvenir spoon, fork or similar article as shown.

36,727. **POMPADOUR-PUFF COMB.** BERNARD W. DOYLE, Leominster, Mass., assignor to Sterling Comb Company, Leominster, Mass. Oct. 1, 1903. Serial No. 175,393. Term of patent 3½ years.



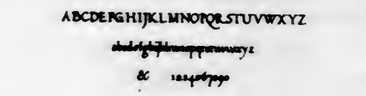
Claim.—The ornamental design, for a pompadour-puff comb, as shown.

36,728. **POMPADOUR-PUFF COMB.** FREDERICK H. ROWLEY, Leominster, Mass., assignor to Sterling Comb Company, Leominster, Mass. Filed Oct. 22, 1903. Serial No. 178,158. Term of patent 3½ years.



Claim.—The ornamental design for a pompadour-puff comb, as shown.

36,729. **FONT OF TYPE.** WILLIAM DANA ORCUTT, Brookline, Mass., assignor to American Type Founders Company, New York, N. Y., a Corporation of New Jersey. Filed Dec. 5, 1903. Serial No. 183,984. Term of patent 14 years.



Claim.—The ornamental design for a font of type as herein shown.

TRADE-MARKS

REGISTERED JANUARY 5, 1904.

41,798. COATS, TROUSERS, AND VESTS FOR BOYS AND YOUTHS. SAMUEL W. PECK & CO., New York, N. Y. Filed Dec. 1, 1903.

SONNY JIM

The words "SONNY JIM." Used since October 1, 1903.

41,799. CORSETS. GLOBE CORSET COMPANY, Worcester, Mass. Filed May 18, 1903.



The representation of a globe. Used since December 1, 1893.

41,800. CERTAIN NAMED KNIT GOODS. WILLIAM C. GALLAGHER, Philadelphia, Pa. Filed Oct. 19, 1903.

RELIANCE MILLS

The words "RELIANCE MILLS." Used since July 10, 1903.

41,801. BLACK RIBBONS. FRED'K LOESER & CO., New York, N. Y. Filed Dec. 22, 1903.

ANTHRACITE

The word "ANTHRACITE." Used since November 1, 1902.

41,802. SILK PIECE GOODS. GILBERT MANUFACTURING COMPANY, New York, N. Y. Filed Dec. 11, 1903.

RADIUM

The word "RADIUM." Used since October 8, 1903.

41,803. WOOLEN PIECE GOODS. FREDERICK ALBY, New York, N. Y. Filed May 27, 1903.



The representation of Uncle Sam in conventional garb standing and in slightly-bowed position, with a smile on his face, his right arm pendent and holding his hat in a characteristic position, his left arm partly raised and hand extended. Used since April 23, 1903.

41,804. DRILLING. WELLINGTON, SEARS & COMPANY, Boston Mass. Filed Dec. 9, 1903.



BULLSEYE

The words "BULLS EYE" and the representation of a target made up of concentric rings with a center. Used since September 4, 1903.

41,805. LEATHER BAGS. HUNT LEATHER GOODS CO., Westboro, Mass. Filed Nov. 24, 1903.



The representation of two branches or sprays of fern tied together at their lower ends and forming substantially the representation of a wreath, inclosing the letter "H." The word "QUALITY" is below said wreath. Used since October 15, 1903.

41,806. LEATHER BOOTS AND SHOES. ERNEST S. GILE, Boston Mass. Filed Sept. 21, 1903.

TURTLE



The representation of a turtle, associated with the word "TURTLE." Used since September 17, 1903.

41,807. LEATHER SHOES. J. P. HARTRAY SHOE CO., Chicago, Ill. Filed Dec. 10, 1903.

WALKRITE

The word "WALKRITE." Used since December 4, 1903.

41,808. LEATHER. J. M. & V. WEIL, Chicago, Ill. Filed Dec. 5, 1903.

KIDET

The word "KIDET." Used since November, 1901.

41,809. CERTAIN NAMED RUBBER GOODS. THE FLEXIBLE RUBBER GOODS COMPANY, Winsted, Conn. Filed Nov. 23, 1903.



The word "VITA." Used since October 2, 1901.

41,810. LAMP-SHADE HOLDERS FOR ELECTRIC LAMPS. JEM SHADE HOLDER CO., New York, N. Y. Filed June 8, 1903.

J E M

The word "JEM." Used since March 1, 1902.

41,811. ORNAMENTS MADE OF WOOD. A. VISCHER & CO., New York, N. Y. Filed Oct. 14, 1903.

PYROSCULPTURE

The word "PYROSCULPTURE." Used since January 1, 1903.

41,812. PROPRIETARY REMEDIES FOR INTERNAL USE. CHARLES CIVITA, New York, N. Y. Filed Oct. 24, 1903



The representation of a pestle and mortar, the latter bearing a circular band, outside of which appear a number of knotted ribbons, and within which appears the representation of a male and a female human figure and a serpent coiled around a column, the female figure bearing a bowl from which the serpent is feeding. Used since October 20, 1902.

41,813. CERTAIN NAMED CHEMICAL PRODUCTIONS FOR PHARMACEUTICAL USE. CHEMISCHE FABRIK VON HEYDEN AKTIENGESELLSCHAFT, Radebeul, Germany. Filed Nov. 25, 1903.

Salit

The word-symbol "SALIT." Used since July 23, 1902.

41,814. DISINFECTANTS AND DEODORIZERS. SCHÜLKE & MAYR, Hamburg, Germany, Filed July 16, 1903.

NIZO

The word "NIZO." Used since November 1, 1902.

41,815. ANTISEPTICS AND GERMICIDES. MARION W. SAVAGE, Minneapolis, Minn. Filed Dec. 9, 1903.

PHENO:CHLORO

The word "PHENO:CHLORO." Used since June 20, 1899.

41,816. WORM-POWDER. MARION W. SAVAGE, Minneapolis, Minn. Filed Dec. 9, 1903.



A rural landscape with the representation of a horse in the foregrounnd. Used since June 20, 1899.

41,817. HEALING-OIL. MARION W. SAVAGE, Minneapolis, Minn. Filed Dec. 9, 1903.



The representation of a pine forest. Used since June 20, 1899.

41,818. HEAVE CURE. MARION W. SAVAGE, Minneapolis, Minn. Filed Dec. 9, 1903.



The representation of a horse in the act of coughing, the breast being broken away to show the position of the lungs and other internal organs. Used since June 20, 1899.

41,819. TONICS AND BITTERS. FAIRCHILD BROS. & FOSTER, New York, N. Y. Filed Dec. 2, 1903.

PEPSAYA

The word "PEPSAYA." Used since October 24, 1903.

41,820. LICORICE EXTRACT. CARÉNOU & TUR, Nimes, France, and New York, N. Y. Filed Dec. 12, 1903.

C & T

The letters and character "C & T." Used since January 1 1897.

41,821. WHISKY. SAMUEL WERTHEIMER, St. Joseph, Mo. Filed July 20, 1903.

Silver King

The words "SILVER KING." Used since 1884.

41,822. CANDY. F. LAURENT & SONS, Philadelphia, Pa. Filed Dec. 15, 1903.



The words "SCOTCH PUP" and a plaid-figured ground. Used since October 1, 1903.

41,823. CONFECTIONERY. BORDEN'S CONDENSED MILK CO., New York, N. Y. Filed Dec. 3, 1903.

AMERICAN 400

The word and numerals "AMERICAN 400." Used since July 1, 1900.

41,824. CONFECTIONERY. BORDEN'S CONDENSED MILK CO., New York, N. Y. Filed Dec. 3, 1903.



The word "LAUREL," together with the representation of a laurel wreath. Used since March 1, 1896.

41,825. POWDER FOR USE IN MAKING ICE-CREAM. THE H. J. BLODGETT CO., INC., Boston, Mass. Filed Dec. 9, 1903.

GÉLIDE



The word "GÉLIDE," associated with the representation of a young lady seated at a table with table-fittings and a plate of ice-cream before her and a diminutive cupid attired in the costume of a cook standing upon the arm of her chair in a whispering posture. Used since October 3, 1903.

41,826. RICE. THE COLUMBIA RICE PACKING CO., LTD., Crowley, La. Filed Dec. 10, 1903.

PRAIRIE QUEEN

The words "PRAIRIE QUEEN." Used since July 3, 1903.

41,827. RICE. THE COLUMBIA RICE PACKING CO., LTD., Crowley, La. Filed Dec. 10, 1903.

AURORA

The word "AURORA." Used since July 3, 1903.

41,828. RICE. THE COLUMBIA RICE PACKING CO., LTD., Crowley, La. Filed Dec. 10, 1903.

GOLDEN SHEAF

The words "GOLDEN SHEAF." Used since July 3, 1903.

41,829. RICE. JOSEPH HEAP & SONS, LIMITED, Liverpool, England. Filed Dec. 5, 1903.



The words "PEACOCK BIRD," associated with the representation of a peacock. Used since February, 1897.

41,830. RAZORS. MOSEY & RAHAIM, New York, N. Y. Filed Nov. 11, 1903.

CZAR OF RUSSIA

The words "CZAR OF RUSSIA." Used since November 1 1902.

41,831. TOILET-PAPER. SCOTT PAPER CO., Philadelphia, Pa. Filed Dec. 14, 1903.

BYSUM

The word-symbol "BYSUM." Used since August 1, 1903.

41,832. TOILET-PAPER. SCOTT PAPER CO., Philadelphia, Pa. Filed Dec. 14, 1903.

BYAGEN

The word-symbol "BYAGEN." Used since September 1, 1903.

41,833. BRUSHES FOR TOILET PURPOSES. FLORENCE MANUFACTURING CO., Northampton, Mass., New York, N. Y., and Chicago, Ill. Filed Dec. 11, 1903.

PS

The letters "PS." Used since November 1, 1903.

41,834. PERFUMES, TOILET WATERS, AND SACHET-POWDERS. LADD & COFFIN, New York, N. Y. Filed Dec. 1, 1903.

CAKE WALK

The words "CAKE WALK." Used since September 1, 1903.

41,835. PERFUMES, TOILET WATERS, AND SACHET-POWDERS. LADD & COFFIN, New York, N. Y. Filed Dec. 1 1903.

EDEOL

The word "EDEOL." Used since September 1, 1903.

41,836. TOILET SOAP. FRANK M. COULTER, Los Angeles, Cal. Filed Nov. 10, 1903.



The representation of a lemon. Used since August 3, 1901.

41,837. SOAP. PUCK MANUFACTURING COMPANY, Des Moines, Iowa. Filed Dec. 1, 1903.

PUCK'S



The word "PUCK'S," associated with a representation of the character known as "Puck," the figure being represented as holding in one hand a hat and in the other hand a cake of soap having the word "Puck" thereon. Used since January 1, 1901.

41,838. LAUNDRY SOAP. F. P. GARRETTSON & Co., New York, N. Y. Filed Dec. 10, 1903.

AQUIDNECK

The word "AQUIDNECK." Used since December 1, 1900.

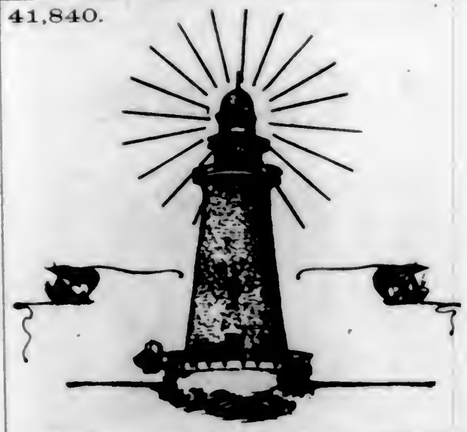
41,839. CALCIMINE OR WATER PAINTS. THE WATER PAINT COMPANY OF AMERICA, New York, N. Y., and Bellows Falls, Vt. Filed Nov. 30, 1903.

TINTO

The word "TINTO," arranged on a lozenge-shaped background having serrated edges and in letters contrasting with the color of such background. Used since October 1, 1903.

41,840. MARINE PAINT. CHILTON PAINT Co., Portland, Me., and New York, N. Y. Filed Oct. 21, 1903.

41,840.



The representation of a lighthouse, with ancient vessels on either side of same. Used since April 1, 1903.

41,841. POCKET LETTER-FILES. THE COOKE & COBB COMPANY, Brooklyn, N. Y. Filed Feb. 17, 1903.

303

The figures "303." Used since May 28, 1901.

41,842. MINIATURE GRAND PIANOS. THE WM. KNABE & CO. MFG. CO. OF BALTIMORE CITY, Baltimore, Md. Filed Dec. 4, 1903.

MIGNON.

The word-symbol "MIGNON." Used since October 15, 1902

41,843. HEATING AND COOKING STOVES OR RANGES, FURNACES, AND PARTS THEREOF. SILL STOVE WORKS, Rochester, N. Y. Filed Dec. 10, 1903.

RADIX

The word "RADIX." Used since April 5, 1901.

41,844. WIRE. JOHN A. ROEBLING'S SONS CO., Trenton, N. J. Filed Dec. 15, 1903.

JAR

A monogram formed of the letters "J A R." Used since October, 1902.

41,845. SHEET-METAL LATH AND METAL SHEETS. CARNEGIE IRON & STEEL CO., Pittsburg, Pa. Filed Dec. 8, 1903.

ACME

The word "ACME." Used since July 1, 1899.

41,846. STEEL CASTINGS. THE BALDT STEEL COMPANY, Newcastle, Del. Filed Sept. 19, 1903.

Baldt

The facsimile signature of "BALDT," the general manager of the corporation, the registrant herein. Used since July 1, 1903.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED JANUARY 5, 1904.

10,644.—*Title:* "THE TRAMP $2.50." (For Shoes.) THE MAY Co., Cleveland, Ohio. Filed December 1, 1903.

10,645.—*Title:* "LEAD SEAL." (For Wire.) JOHN A. ROEBLING'S SONS Co., Trenton, N. J. Filed December 11, 1903.

10,646.—*Title:* "KLENZENE." (For Washing-Powder.) JARRELL AND TURNER, Easton, Md. Filed December 15, 1903.

10,647.—*Title:* "GOLD MEDAL BRAND." (For Olives.) SEVILLE PACKING Co., New York, N. Y. Filed December 14, 1903.

10,648.—*Title:* "LOUISIANA BEAUTY NEW ORLEANS MOLASSES." (For Molasses.) C. E. COX, Memphis, Tenn. Filed December 12, 1903.

10,649.—*Title:* "AMERICAN KID." (For Cigars.) C. B. HENSCHEL MFG. Co., Milwaukee, Wis. Filed December 16, 1903.

10,650.—*Title:* "SAN TOY." (For Cigars.) JOE DITZ, Saginaw, Mich. Filed December 16, 1903.

10,651.—*Title:* "PARKER HOUSE COFFEE." (For Coffee.) RELIABLE TEA COMPANY, LIMITED, Grand Rapids, Mich. Filed December 16, 1903.

10,652.—*Title:* "HIMMALIA TONIC." (For Stomach and Blood Tonic.) CARL OSCAR F. BURKSTROM, Chicago, Ill. Filed December 14, 1903.

10,653.—*Title:* "AZTEC PILE CURE." (For Medicine.) AZTEC PILE CURE Co., San Antonio, Tex. Filed December 5, 1903.

10,654.—*Title:* "RHEUMOL THE MONARCH CURE." (For Medicine.) JOSEPH H. DE GIORGI, Utica, N. Y. Filed December 14, 1903.

10,655.—*Title:* "IDUNA." (For Medicine.) ALFRED LIND, Minneapolis, Minn. Filed December 15, 1903.

10,656.—*Title:* "VAUGHAN'S PINK CREAM." (For Medicine.) JAS. C. VAUGHAN, Fayetteville, Ark. Filed August 11, 1903.

10,657.—*Title:* "SUN FLOWER ROCK CANDY COUGH SYRUP." (For Cough-Syrup.) WENNEKER CHEMICAL Co., St. Louis, Mo. Filed December 16, 1903.

10,658.—*Title:* "KALO'S RUBY OIL." (For Medicine.) THE MENTHO-JELL Co., Albert Lea, Minn. Filed December 12, 1903.

10,659.—*Title:* "AMERICAN GLORY SEVEN OILS." (For Medicinal Oils.) JOHN D. DRENNAN, Cincinnati, Ohio. Filed August 21, 1903.

10,660.—*Title:* "KENNELWORTH FLEA KILLER." (For a Preparation for Cleaning Animals.) WILLIAM N. SEARY, Philadelphia, Pa. Filed October 13, 1903.

PRINTS

REGISTERED JANUARY 5, 1904.

873.—*Title:* "LEAD SEAL." (For Wire.) JOHN A. ROEBLING'S Sons Co., Trenton, N. J. Filed December 11, 1903.

874.—*Title:* "VICTOR." (For Talking-Machines and Accessories.) VICTOR TALKING MACHINE Co., Camden, N. J. Filed December 12, 1903.

875.—*Title:* "WIZARD CUFF HOLDER." (For Cuff-Holders.) FRANK & GUTMAN, New York, N. Y. Filed December 15, 1903.

876.—*Title:* "THE TRAMP, $2.50." (For Shoes.) THE MAY Co., Cleveland, Ohio. Filed December 1, 1903.

877.—*Title:* "DAINTINESS." (For Fruit Syrups and Extracts With and Without Ice-Cream Soda.) HERMAN CURIEL, New York, N. Y. Filed October 21, 1903.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BROOKS *v.* FOOTE *v.* WENK.

Decided December 2, 1903.

INTERFERENCE — ISSUE NOT PATENTABLE — AMENDING ISSUE — USING TESTIMONY TAKEN.

Where an interference is dissolved because the issue is not patentable and one party presents an amended claim which he asks be substituted for the issue, *Held* that the request was properly denied. If the new claim is patentable and the other parties make it, a new interference may be declared and the old testimony may be used under the conditions specified in Rule 157.

ON petition.

PRESSES FOR SEALS.

Application of Edward J. Brooks. Application of Lewis A. Foote. Application of Theodore Wenk.

Mr. James L. Ewin for Brooks.

Messrs. Dyrenforth, Dyrenforth & Lee for Foote.

Mr. Fred E. Rasker and *Mr. John A. Saul* for Wenk.

ALLEN, *Commissioner:*

This is a petition by Foote that the issue of the above-entitled interference be re-formed and that the testimony already taken be used as the evidence upon the new issue.

It appears that after testimony was taken the Examiner of Interferences called attention to the fact that in his opinion the issue was not patentable. The matter was referred to the Primary Examiner under Rule 126, and he dissolved the interference. No appeal was taken from that decision within the limit set. Before the decision was rendered by the Examiner, Foote presented a claim as a substitute for the issue and asked that it be suggested to the other parties and be made the issue. The Examiner denied this request.

The object of the present petition is to avoid the necessity of retaking all of the testimony upon another issue which relates to the same invention and which, it is said, will be so nearly like the old issue as to make the testimony taken pertinent. It is argued that there will be no necessity for further testimony and that it should not be permitted.

This petition is irregular and cannot be granted. If the substitute claim presented by Foote is found to be patentable and to cover the common invention which the parties are attempting to claim, the Examiner may suggest that claim to the other parties and, if they make it, redeclare the interference upon that issue. Unless and until the new interference is declared the question of using the present testimony does not arise. The question at present is therefore a moot one.

If the new interference is declared, Foote may make a motion under Rule 157 to use the present testimony. That rule fixes the conditions under which the motion may be granted.

The petition is denied.

MEYERS *v.* TYDEN.

Decided December 3, 1903.

1. INTERFERENCE — AMENDMENT UNDER RULE 109 — HEARING TO PARTIES.

Where a motion to amend under Rule 109 by inserting a claim made by another party to the interference is transmitted to the Primary Examiner, *Held* that he should grant a hearing to the parties and render a decision and should not merely write a letter in the case where the amendment is presented stating his views.

2. SAME — SAME — CLAIM MADE IN DIVISIONAL CASE.

Where on a motion to amend under Rule 109 it appears that the claim is made in a divisional application not involved in the interference, *Held* that it is nevertheless proper to add it as a count to the issue.

APPEAL on motion.

TABLES.

Application of Hubert A. Meyers. Application of Emil Tyden.

Mr. A. F. Durand for Meyers.

Messrs. Burton & Burton for Tyden.

ALLEN, *Commissioner:*

This is an appeal by Tyden from the decision of the Examiner of Interferences denying his motion for a suspension of proceedings in the above-entitled interference until the Examiner can consider claims presented in a divisional application. The appeal is accompanied by a petition asking for an order suspending proceedings, even if it is held that the Examiner of Interferences was without authority to grant the motion.

Tyden made a motion to amend his application under Rule 109 by inserting a claim made by Meyers, and the Examiner was of the opinion that Tyden's application furnished a basis for the claim, but that it covered a different species from other claims made by him and could be presented only in a separate application. This appears from a letter written by the Examiner in Tyden's case on September 18. It is said that Tyden filed the divisional

application embodying the claim on October 7, and he now wishes this interference suspended until the Examiner can consider that claim and add it as a count to the issue.

It does not appear that the Examiner has decided Tyden's motion to amend. It is true that he wrote a letter in Tyden's case refusing to enter the amendment, but that action was entirely irregular. It does not appear that Meyers has been notified of the conclusion reached by the Examiner. The motion was an *inter partes* matter entitled in the interference and should be disposed of by a decision in the interference and not by an *ex parte* letter to one of the parties. The decision should be rendered, furthermore, only after notifying the parties of a date of hearing at which they will be permitted to present arguments.

In view of the peculiar circumstances the Examiner should in passing upon Tyden's motion consider his divisional application, and if it properly includes the suggested claim and interferes with an allowable claim made by Meyers he should add it as a count to the issue.

The interference is remanded to the Primary Examiner for a decision in accordance with the views above stated.

The appeal is dismissed, and the petition is granted to the extent indicated.

EX PARTE GERON.

Decided December 7, 1903.

TRADE-MARKS—"HEALTH" FOR CANDY—DESCRIPTIVE.

The word "Health" as a trade-mark for chocolate candy refused registration on the ground that it is descriptive.

ON appeal.

TRADE-MARK FOR CONFECTIONERY, ETC.

Application filed August 6, 1903, No. 68,852.

Mr. S. C. Sweet for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Health" as a trade-mark for chocolate candy on the ground that it is descriptive.

The word undoubtedly means that the candy is wholesome and is not injurious to health. It is directly descriptive and cannot be exclusively appropriated by one person.

The reasoning of the court in *Fuller* v. *Huff*, (92 O. G., 1620,) referring to "Health Food," is applicable to the present case, although the final decision in that case turned upon the question of unfair competition and not the question of trade-marks. The present case is not to be distinguished from that by the failure to include the word *candy* after the word "Health." It is used upon candy and would be referred to and understood as "Health Candy."

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE MARSH BROTHERS COMPANY.

Decided December 7, 1903.

TRADE-MARKS—EDGE-TOOLS—GOODS OF SAME DESCRIPTIVE PROPERTIES—DIVISION OF APPLICATION.

Where a trade-mark application for cutlery and edge-tools describes many different kinds of edged tools which have no real resemblance to each other, *Held* that the application is not limited to goods of substantially the same descriptive properties, and division of the application is necessary.

ON appeal.

TRADE-MARK FOR CUTLERY AND EDGE-TOOLS.

Application for registration filed September 5, 1902, No. 66,533.

Mr. George P. Whittlesey for the applicant.

ALLEN, *Commissioner:*

This is an appeal from an action of the Examiner of Trade-Marks requiring that the application be so limited as to include only goods of substantially the same descriptive properties.

The application now describes the goods to which the mark has been applied, as follows:

Knives, forks, scissors, razors, shears, chisels, augers, drills, taps, dies, axes, adzes, sickles, scythes, saws, files, rasps.

The Examiner says:

Scissors and shears may be said to be so intimately related to each other that the use of a particular mark upon one will be an infringement of the use of the same mark upon the other. The same may be said to be true of taps and dies; of axes and adzes; of scythes and sickles, and of files and rasps. The remaining goods, however, are not so related to each other, or to any of the other goods above enumerated, that they may be included in the application therewith.

It is clear that the Examiner's action is in conformity with the rulings in *ex parte Faxon*, (103 O. G., 891,) *ex parte Tallmadge*, (104 O. G., 2443,) and *ex parte Peck Brothers Co.*, (106 O. G., 764,) and the argument presented by the appellant is an attempt to show that the decisions are wrong. It is argued that section 7 of the Trade-Mark Act does not limit a single registration to "merchandise of substantially the same descriptive properties," but merely provides that to infringe the mark must be applied to goods substantially like some of the goods mentioned in the registration. It is contended that they need not be like all of the goods mentioned in the registration.

It is very true that section 7 does not deal directly with the question what goods may be covered by a single registration; but it does define clearly the extent of a single trade-mark right. The right to pursue an infringer extends no farther than to "merchandise of substantially the same descriptive properties," and if the use of the mark upon other merchandise is to be protected at all it is as an independent trade-mark right. Section 7 is therefore authority for the ruling in the above-cited cases when taken in connection with the general principle that only one trade-mark right should be protected by a single registration.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE CAMEL COMPANY.

Decided December 7, 1903.

1. TRADE-MARK—DIVISION OF APPLICATION—GOODS OF THE SAME DESCRIPTIVE PROPERTIES.

Where a trade-mark application covers "railway supplies, the goods being described as "car-doors, their trimmings and journal-bearings," *Held* that the application is not limited to goods of substantially the same descriptive properties and that the Examiner properly required amendment.

2. SAME—PARTICULAR DESCRIPTION OF GOODS.

Where the particular goods of a trade-mark application are described as trimmings for car-doors, and journal-bearings, *Held* too indefinite and not a compliance with the law requiring a particular description of the goods.

ON appeal.

TRADE-MARK FOR RAILWAY SUPPLIES.

Application filed July 2, 1903, No. 68,641.

Mr. Louis K. Gillson for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks requiring that the application be limited to merchandise of substantially the same descriptive properties and requiring a more definite description of the particular goods to which the mark has been applied.

The class of goods is said in the application to be "railway supplies," the description of them being "car-doors, their trimmings and journal-bearings." The terms "trimmings" and "journal-bearings" are indefinite, as explained by the Examiner, and are, furthermore, sufficiently broad to include goods which are not of substantially the same descriptive properties.

The statute requires that the application contain a statement specifying—

the particular description of goods comprised in such class to which the particular trade-mark has been appropriated,

and under this requirement the description contained in the present case should be made more specific.

The appellant admits that the goods mentioned in this application are not all of substantially the same descriptive properties and that the requirement for a limitation of the application is in accordance with the rulings in the following cases: *ex parte Faxon*, (103 O. G., 891,) *ex parte Tallmadge*, (104 O. G., 244,) and *ex parte Peck Bros. & Co.*, (106 O. G., 764.)

It is contended, however, that the above cases apply too strict a rule and that it should be modified. It is argued that a single registration should be permitted to cover all goods which upon being sold under the same mark the purchasing public would assume had the same origin. This suggestion, however, would make trade-marks the same thing as trade-names. As pointed out in the above decisions, the trade-mark right extends no farther than to the use of the mark upon "merchandise of substantially the same descriptive properties." (Sec. 7, act of March 3, 1881.) No reason is seen for modifying the rulings made in the above-noted cases.

The decision of the Examiner of Trade-Marks is affirmed.

EX PARTE THE HOOKER, CORSER AND MITCHELL COMPANY.

Decided December 7, 1903.

TRADE-MARKS—"CANTRIPUM" FOR CLOTHING—MISSPELLED DESCRIPTIVE PHRASE.

"Cantripum" refused registration as a trade-mark for clothing upon the ground that it is a mere misspelling of the descriptive phrase "can't rip them."

ON appeal.

TRADE-MARK FOR CLOTHING.

Application filed February 2, 1903, No. 67,540.

Mr. Wm. S. Bellows and *Mr. Wm. H. Reid* for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Cantripum" as a trade-mark for clothing on the ground that it is descriptive.

The word is clearly a mere misspelling of the descriptive phrase "can't rip them," and would be so understood by the ordinary purchaser. It is not a coined word, but it is merely a misspelled phrase. Any clothing dealer has the right to say in regard to his clothing that you "can't rip them," and a mere misspelling of the words does not make them capable of exclusive appropriation as an indication of origin or ownership. They state quality, not origin.

The refusal of registration in this case follows the practice announced in the following cases: *ex parte Henderson*, (85 O. G., 453;) *ex parte Miller*, (95 O. G., 1452;) *ex parte Woolworth*, (100 O. G., 1976;) *ex parte West*, (100 O. G., 682.)

In *ex parte Miller* it was said:

I am clearly of the opinion that the word is descriptive and that it is not rendered the less so by the fact that it is made up of three words. It cannot in any true sense be said to constitute a coined or arbitrary word when it conveys the same idea when read or pronounced as would the three words written separately. A mere change in the manner of writing the mark cannot be held to change its character so long as the impression made by it is the same.

The decision of the Examiner of Trade-Marks is affirmed.

AUERBACH AND GUBING *v.* WISWELL.

Decided December 7, 1903.

1. INTERFERENCE—IRREGULARITY—SUPPLEMENTAL OATH—EX PARTE MATTER.

Where it is contended that there was irregularity in the declaration of interference because one party was not required to furnish a supplemental oath, *Held* that this is an *ex parte* matter not open to argument in the interference.

2. SAME—MOTION TO DISSOLVE—SUFFICIENCY OF DISCLOSURE—MERITS—APPEAL.

The contention on a motion to dissolve that the disclosure in a party's application is too incomplete to show a conception of the invention relates to the merits, and there is no appeal from a favorable decision in regard to it.

3. SAME—INTERFERENCE IN FACT—BROAD ISSUE.

Where the issue is broad, covering only common features of construction, *Held* that there is an interference in fact, notwithstanding differences in details of construction not claimed.

APPEAL on motion.

ELECTRIC-ARC LAMP.

Patent granted Julius Auerbach and Frank Gubing April 22, 1902, No. 698,388. Application of Ozro N. Wiswell.

Mr. Justin S. Galland for Auerbach and Gubing.

Mr. Albert G. Davis for Wiswell.

ALLEN, *Commissioner:*

This is an appeal by Auerbach and Gubing from the decision of the Primary Examiner denying their motion to dissolve the above-entitled interference.

The grounds of appeal are that the Examiner erred in not finding—

First. That no interference in fact existed between the application of Wiswell and the patent to us, in that it appeared

(a) That the Wiswell device is different from that of Auerbach & Gubing.

(b) That Wiswell's conception was too incomplete to constitute invention.

Second. That there has been such irregularity in declaring the interference as would preclude the proper determination of the question of priority, in that

(a) No supplemental oath was filed by Wiswell upon his amendment showing a direct communication with the inclosure.

The allegation of irregularity in the declaration is not sustained, since the question whether or not a supplemental oath should have been furnished is an *ex parte* matter not open to argument in the interference. The absence of such an oath, even where it should have been furnished, is not such irregularity as will preclude a proper determination of the question of priority. (*Rennyson* v. *Merritt*, 58 O. G., 1415; *Kane* v. *Brill and Adams*, 84 O. G., 1143.)

The allegation that Wiswell's conception was too incomplete to constitute invention relates to the merits and not to a matter which can be considered on this appeal. If sustained, it means that Wiswell has no right to make the claims of the issue. The Examiner has decided that the disclosure in Wiswell's original appplication was sufficient, and it is the well-settled practice that decisions of this kind will not be disturbed except where there is manifest error. No such error appears in this case.

Upon the question whether the claims mean the same thing in the two cases the appellants lay stress upon such differences in structure as exist and upon differences in the original description of the operation.

The differences in structure referred to, however, are not included in the claims and are therefore immaterial. The counts of the issue cover only common features of construction. For instance, attention is called to the fact that in the appellants' device the discharge end of the outlet-tube is below the inlet end, whereas in Wiswell's device the relative positions are reversed. This feature, however, is not included even in the most limited count of the issue. This difference may have some effect upon the operation; but since the issue is broad enough to cover both forms it is not of consequence in this proceeding.

Both parties disclose a small tube "leading upward from the point of its connection with the inclosure and thence downward," and that is the thing here in controversy. The structure being the same the operation will be the same, and it is, in fact, substantially so described.

The fact that Wiswell has other features and described their function and effect is not of consequence, since they are not involved in this interference. It must be held that the issue means the same thing in the two cases and that there is an interference in fact.

The decision of the Primary Examiner refusing to dissolve the interference is affirmed.

EX PARTE ZEHRBACH.

Decided December 10, 1903.

RETURN OF MONEY—APPEAL WITHDRAWN.

Where after filing an appeal to the Examiners-in-Chief the applicant concludes to withdraw the appeal and ask for permission to amend the rejected claims, *Held* that the appeal fee will not be returned.

ON petition.

CREAM-SEPARATOR.

Messrs. W. T. Fitz Gerald & Company for the applicant.

ALLEN, *Commissioner:*

This is a petition for the return of a fee paid upon the filing of an appeal to the Examiners-in-Chief from the rejection of the claims by the Primary Examiner.

It appears that after the fee was paid the applicant changed his purpose and concluded to amend the claims instead of prosecuting the appeal. There does not appear to have been an actual mistake in the payment of the fee, nor does it appear that it was paid on account of neglect or misinformation on the part of the Office. The law required the payment, and the applicant, with a knowledge of that fact, intended to pay it. Rule 208 says in reference to the return of money:

* * * a mere change of purpose after the payment of money, as when a party desires * * * to withdraw an appeal, will not entitle a party to demand such a return.

The petition is denied.

STIFF v. GALBRAITH.

Decided December 12, 1903.

INTERFERENCE—TESTIMONY TAKEN ABROAD—ORIGINALITY OF INVENTION.

Where a motion is made to take testimony abroad to show that the opposing party to the interference is not an original inventor and it appears from the showing that the testimony will tend to show that fact, *Held* that the motion will be granted.

APPEAL on motion.

ELECTRIC CONDUIT RAILWAYS AND TRAMWAYS.

Appeal of Henry C. Stiff. Application of David Galbraith.

Mr. George H. Parmelee for Stiff.

Messrs. Crosby & Gregory for Galbraith.

ALLEN, *Commissioner:*

This is an appeal by Stiff from the decision of the Examiner of Interferences granting Galbraith's motion for a commission to take testimony abroad—

such as would tend to prove a disclosure of the invention to the party Stiff by Galbraith in England.

It is very clear that if the proposed testimony bears upon the question of originality of invention Galbraith is entitled to take it, even where the witnesses are abroad. (*Shiels* v. *Lawrence & Kennedy*, 81 O. G., 2085.) The contention on behalf of Stiff is that the proposed testimony does not relate to originality.

An examination of the motion and supporting affidavit makes it appear that Galbraith wishes to show that Stiff received his knowledge of the invention from parties who received a knowledge of it from Galbraith. The facts alleged tend to support this contention, and Galbraith should not be prevented from proving those facts merely upon the suggestion that Galbraith's real motive is not to question Stiff's originality, but to obtain information as to the business relations of the parties. In the absence of some proof to the contrary his

purpose and motive must be regarded as those which appear from his statements. If he attempts to ask questions relating to other matters, that fact will appear when his interrogations are filed preparatory to the issuance of the commission.

The decision of the Examiner of Interferences is affirmed.

EX PARTE SUTTON.

Decided December 16, 1903.

1. TRADE-MARKS—THE WORD "PEPKO" ANTICIPATED BY THE WORD "PEP-KOLA."

A trade-mark consisting of the word "Pepko" refused registration upon the registered word "Pep-Kola."

2. SAME—IDENTITY OF MARKS—APPEARANCE AS WELL AS SOUND SHALL BE CONSIDERED.

"In considering the identity of two trade-marks the appearance of the marks is as important as the sound of the words used therein when these words are spoken. Both senses are to be used in determining the question whether or not one mark so nearly resembles the other as to have the tendency to mislead and to cause confusion in the minds of the purchasing public." (*Ex parte Vogel and Son*, 99 O. G., 2321; C. D., 1902, 191.)

ON appeal.

TRADE-MARK FOR BEVERAGES.

Application filed July 14, 1903, No. 68,717.

Mr. Rexford M. Smith for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the refusal of the Examiner of Trade-Marks to register the word "Pepko" as a trade-mark to be applied to tonics or beverages to be used as stimulants.

The refusal is based upon the registered trade-mark to A. W. Stewart and Company, No. 28,444, June 23, 1896, which consists of the compound word "Pep-Kola" as applied to the same class of goods. The words "Pepko" and "Pep-Kola" have the same appearance, and the sound of the words is substantially the same when spoken. As stated in *ex parte Vogel and Son*, (99 O. G., 2321:)

In considering the identity of two trade-marks the appearance of the marks is as important as the sound of the words used therein when these words are spoken. Both senses are to be used in determining the question whether or not one mark so nearly resembles the other as to have the tendency to mislead and to cause confusion in the minds of the purchasing public.

It is held that the words so closely resemble each other as—

to be likely to cause confusion or mistake in the mind of the public or to deceive purchasers. (Sec. 3 of the Trade-Mark Act.)

The decision of the Examiner of Trade-Marks is affirmed.

FRANK AND GUTMANN v. MACWILLIAM.

Decided December 16, 1903.

TRADE-MARKS—INTERFERENCE—EX PARTE AFFIDAVITS.

Where the interference relates to "President" for suspenders and it is alleged in affidavits filed that F. and G. have never used the mark upon suspenders, but only upon hose-supporters, *Held* that the Office cannot found judgment upon *ex parte* affidavits even if it were conceded that suspenders and hose-supporters were not goods of substantially the same descriptive properties.

ON appeal.

TRADE-MARK FOR SUSPENDERS.

Application of Frank and Gutmann filed December 20, 1902, No. 67,259. Trade-mark of Hugh G. Macwilliam registered May 16, 1899, No. 32,865.

Messrs. Brown & Seward for Frank and Gutmann.

Messrs. Lothrop & Johnson for Macwilliam.

ALLEN, *Commissioner:*

This is an appeal by Frank and Gutmann from the decision of the Examiner of Trade-Marks dissolving the above-entitled interference on the ground that there is no interference in fact and on the ground that Frank and Gutmann have no right to claim the trade-mark in controversy.

The issue consists of the word "President" used as a trade-mark for suspenders.

Macwilliam's mark has been registered for use on suspenders, and the only question in controversy is whether Frank and Gutmann have the right to claim its use upon merchandise of substantially the same descriptive properties. The Examiner says that they have used the mark only upon hose-supporters and that such articles are not of substantially the same descriptive properties as suspenders.

Frank and Gutmann's original application said that the mark had been used upon "garment-supporters." By amendment this was changed to "hose-supporters," and later to "suspenders." Their present application, therefore, alleges a use of the mark upon suspenders, just as does Macwilliam's registration. Certain affidavits on file and the arguments which have been presented indicate that the particular form of garment-supporters upon which Frank and Gutmann have used the mark is not the same as that upon which Macwilliam has used it. These affidavits and arguments, however, being *ex parte*, do not constitute proper evidence upon which to found a judgment contrary to the allegation of the application. The allegation in Frank and Gutmann's application that the mark has been used upon suspenders must be accepted until disproved by competent evidence.

It has been pointed out by Frank and Gutmann that there is no clear line of demarcation between what are called "hose-supporters" and what are called "suspenders." The question whether there is a real conflict of rights may depend upon the particular character of the articles upon which the mark has been used, and this will appear from the testimony.

Upon the present record it cannot be held that Frank and Gutmann have no right to claim the use of the mark upon suspenders, nor can it be held that the parties have not used the mark upon merchandise of substantially the same descriptive properties.

The decision of the Examiner of Trade-Marks dissolving the interference is reversed.

EX PARTE CONLEY.

Decided December 18, 1903.

CLAIMS—INACCURATE DESCRIPTION.

Where the claim refers to a stencil as "means for marking" and the Examiner raises the objection of inaccuracy, *Held* that the objection should not be insisted upon, since the description is sufficiently accurate to avoid any mistake as to the meaning.

ON petition.

IDENTIFICATION DEVICES.

Messrs. Fowler & Bryson for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner objecting to claims 1 to 7 as inaccurate because of the use of the terms "marking-sheet," "means for marking," "sheet embodying a character for marking upon an article," and "adapted to mark," referring to a stencil-sheet.

The Examiner says that a stencil is not a means for marking, but a means for preventing marking except in the spaces where the stencil is cut away. He says that it is necessary to use a brush in addition to the stencil in order to mark.

A stencil is undoubtedly used in marking, and it is a means to that end. It is popularly and properly described as a means for marking, and it is believed that the objection to such description is carrying the requirement for technical accuracy too far. As pointed out by the petitioner, the claim is to be construed with reference to the specification, and when so construed there is no possible room for misunderstanding in this case.

The petition is granted.

ROBIN *v.* MULLER AND BONNET.

Decided December 21, 1903.

1. INTERFERENCE—PROVING FOREIGN PATENT—COPY IN SCIENTIFIC LIBRARY.

Where on a motion to dissolve an interference a certified copy of a French patent is produced, but the certificate is on a separate sheet from the specification and is not attached, *Held* that the certificate may be taken to show the grant and its date and the copy of the patent in the Scientific Library of this Office may be accepted as proving the contents of the patent.

2. SAME—SAME—JUDICIAL NOTICE OF OFFICE RECORDS.

Under the provisions of section 893, Revised Statutes, this Office must take judicial notice of foreign patents where copies have been furnished it by the foreign governments and they are among the records in this Office.

ON petition.

MACHINE FOR MANUFACTURING INCANDESCENT MANTLES.

Application of Joseph T. Robin. Application of Jean L. Muller and Joseph Bonnet.

Messrs. Dickerson, Brown & Raegener for Robin.

Messrs. Mauro, Cameron, Lewis & Massie for Muller and Bonnet.

ALLEN, *Commissioner:*

This is a petition by Muller and Bonnet asking, in effect, that the Primary Examiner be instructed that a French patent cited by them on a motion to dissolve has been sufficiently proved.

A previous petition relating to this subject was dismissed because it was not served upon the opposing party. The present petition has been properly served and a hearing has been had.

The purpose of introducing the French patent was to show that the issue is not patentable to Robin. The copy which was produced, however, consisted of loose sheets not attached together, and the certificate of the government officers as to its genuineness appeared only on one sheet. That sheet was the one referring to the grant and contained a statement of the date of the grant, the title of the invention, and the number of the patent. The Examiner ruled that the contents of the French patent were not proved and for that reason denied the motion.

It seems that a copy of the French patent, No. 300,627, May 23, 1900, referred to in the above-noted certificate appears among the records of this Office in the Scientific Library, it having been furnished to this Office in the regular way by the French government. Under section 893, Revised Statutes, certified copies of the record would be evidence of the fact of granting the French patent and its date and contents. The record itself constitutes equally good evidence, and the Office is bound to take judicial notice of its own records. The certificate upon the copy furnished by Muller and Bonnet proves the date of the grant of a French patent to them, and the Office records prove the contents of that patent. Nothing, therefore, prevents the Office from basing a judgment upon the French patent. It must be held that the Examiner was in error in saying that the patent was not proved.

The point that the question here under consideration relates to the Examiner's decision upon the merits has not been overlooked; but this must be regarded as a case calling for the exercise of my supervisory authority to correct a clear error. The Office should not conduct an interference and possibly issue a patent to Robin if there is a clear bar to the grant to him.

The Examiner will grant a rehearing upon the motion to dissolve and consider the French patent in accordance with the views here expressed. To this extent the petition is granted.

Patents Nos. 749,142 to 749,710.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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ISSUE OF JANUARY 12, 1904.

Patents	569	No. 749,142 to No. 749,710, inclusive.
Designs	7	No. 36,730 to No. 36,736, inclusive.
Trade-Marks	35	No. 41,847 to No. 41,881, inclusive.
Labels	17	No. 10,661 to No. 10,677, inclusive.
Prints	5	No. 878 to No. 882, inclusive.
Reissues	4	No. 12,190 to No. 12,193, inclusive.
Total issue	637	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada		
Alaska Territory			New Hampshire	3	
Arizona Territory	1		New Jersey	34	5
Arkansas	1		New Mexico Ter't'y	1	
California	21	3	New York	95	13
Colorado	3	1	North Carolina	3	
Connecticut	11	1	North Dakota	1	
Delaware			Ohio	28	8
District of Columbia	5		Oklahoma Territ'y	1	
Florida	1		Oregon	3	
Georgia	4	2	Pennsylvania	48	3
Hawaii Territory			Porto Rico		
Idaho			Rhode Island	4	1
Illinois	59	3	South Carolina		
Indian Territory	1		South Dakota	1	
Indiana	12	1	Tennessee	3	
Iowa	13	2	Texas	8	
Kansas	6		Utah	1	
Kentucky	6		Vermont	1	
Louisiana	1		Virginia	5	
Maine	1		Washington	5	
Maryland	11		West Virginia	8	
Massachusetts	30	4	Wisconsin	13	3
Michigan	22		Wyoming	1	
Minnesota	11	1	U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	21				
Montana			Total to citizens of the United States	513	51
Nebraska	7				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Australia			Netherlands		
Austria-Hungary	3	1	Newfoundland		
Belgium	2		New South Wales	1	
Brazil			New Zealand	2	
British West Indies			Norway	1	
Canada	10		Portugal		
Cape Colony			Queensland		
Chile			Roumania		
China			Russia		
Costa Rica			Scotland	1	
Cuba			South Africa		
Denmark			South Australia		
Ecuador	1		Spain		
England	12	1	Sweden	1	
France	8		Switzerland	2	
Germany	19	4	Transvaal, South Africa		
Honduras			Victoria		
India			Western Australia		
Ireland					
Italy			Total to citizens of foreign countries	63	6
Japan					
Mexico					

Notice of Interference.

CARUNCHO *v.* CARUNCHO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 21, 1903.

Heirs, executor, or administrator of Eugen Caruncho, deceased, take notice:

Notice is hereby given that times have been set as follows for taking testimony in this interference and for its final hearing, to wit:

A. Caruncho's testimony-in-chief to close March 9, 1904. E. Caruncho's testimony to close April 9, 1904. A. Caruncho's rebuttal testimony to close May 9, 1904. Final hearing June 9, 1904.

Notice is further given that A. Caruncho has applied for a commission to take testimony abroad, as provided by Rule 158.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

December 22, 1903.

F. I. ALLEN,
Commissioner.

Disbarment Rescinded.

(ORDER NO. 1,566.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 5, 1904.

Order No. 1,383, issued November 20, 1900, disbarring Arthur W. Crossley, of Boston, Mass., from practice before this Office, is hereby revoked, with the approval of the Secretary of the Interior. Mr. Crossley is restored to practice, and his name will be placed on the list of registered attorneys.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 5, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Dec. 15	Dec. 16	113
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 15	Dec. 9	180
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 12	Dec. 9	146
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Dec. 9	Dec. 17	263
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 7	Dec. 23	195
332	X. Carriages and Wagons	Dec. 7	Dec. 10	225
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 7	Dec. 9	160
327	XVIII. Steam-Engineering, etc	Dec. 7	Dec. 8	184
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 7	Dec. 7	271
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 7	Dec. 7	395
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 7	Dec. 7	246
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 7	Nov. 27	200
232	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 7	Nov. 16	359
133	XXII. Fire-Arms, Ordnance, Navigation.	Dec. 7	Nov. 10	211
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 7	Oct. 21	440
344	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Dec. 5	Dec. 22	229
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Dec. 5	Dec. 22	200
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 5	Dec. 21	278
158	XXI. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Dec. 5	Dec. 15	236
308	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 5	Dec. 9	299
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Dec. 5	Dec. 7	263
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Dec. 5	Dec. 4	322
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 5	Oct. 20	427
	Between one and two months.			
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 4	Dec. 16	141
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 2	Dec. 16	218
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Dec. 1	Dec. 3	408

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 1	Nov. 20	317
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 1	Nov. 4	502
109	XVI. Telegraphy and Telephony	Dec. 1	Oct. 24	217
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Nov. 30	Dec. 9	316
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Nov. 30	Nov. 23	298
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Nov. 27	Dec. 10	315
321	I. Tillage, etc., and Fences	Nov. 25	Dec. 14	194
128	II. Farm Products, etc., Lubricators, Presses, etc.	Nov. 23	Nov. 12	388
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 18	Dec. 8	330
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 18	Oct. 27	514
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Nov. 16	Nov. 30	402
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Nov. 16	Nov. 5	309

Total number of applications awaiting action.....10,810

Under one month.			
*Designs	Dec. 21	Dec. 29	29
†Trade-Marks	Dec. 23	Jan. 4	76
‡Labels and Prints	Jan. 4	Jan. 5	4

Classification Bulletin.

Classification Bulletin No. 13, containing the revisions made during the months of October, November, and December, 1903, has been issued. Price, ten cents.

Communications to the Patent Office—Separate Letters.

Rule 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Papers sent in violation of this rule will be returned.

Rule 96 of the Rules of Practice.

Interference—Suggested Claims.

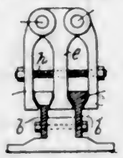
Rule 96 of the Rules of Practice of the United States Patent Office, revised edition of January 2, 1903, reprinted April 15, 1903, is amended to read as follows:

96. Whenever the claims of two or more applications differ in phraseology, but cover substantially the same patentable subject-matter, the Examiner, when one of the applications is ready for allowance, will suggest to the parties such claims as are necessary to cover the common invention in substantially the same language. The parties to whom the claims are suggested will be required to make such claims and put the applications in condition for allowance within a specified time in order that an interference may be declared. Upon the failure of any applicant to make the claim suggested within the time specified, such failure or refusal shall be taken without further action as a disclaimer of the invention covered by the claim, and the issue of the patent to the applicant whose application is in condition for allowance will not be delayed unless the time for making the claim and putting the application in condition for allowance be extended upon a proper showing. If a party make the claim without putting his application in condition for allowance, the declaration of the interference will not be delayed, but after judgment of priority the application of such party will be held for revision and restriction, subject to interference with other applications.

PATENTS

GRANTED JANUARY 12, 1904.

749,142. RACK-RAILWAY. Roman Abt, Lucerne, Switzerland, assignor of one-half to Wilhelm Hildenbrand, New York, N. Y. Filed May 2, 1902. Serial No. 105,584. (No model.)



Claim.—1. In a rack-railway, parallel rack-rails provided with overhangs, combined with a catch-bar between said rails, and with independent catch-bars outside said rails.

2. In a rack-railway, parallel rack-rails provided with overhangs at each side thereof, combined with an independent catch on the motor for each rail and underrunning the outside overhanging parts of the same, and catch devices inside or between said rails coacting with the outside catches, substantially as described.

749,143. EGG-TRAY FOR INCUBATORS. Charles E. Adair, Columbus, Ohio, assignor to Evan J. Jones and William E. Jones. Filed June 19, 1903. Serial No. 162,275. (No model.)



Claim.—1. In an egg-tray for incubators, the combination with a tray-frame, of carrier-bars, links connecting said carrier-bars pivoted on said tray-frame, and egg-troughs pivoted to said carrier-bars.

2. In an egg-tray for incubators, the combination with a tray-frame, of carrier-bars, end links connecting said carrier-bars pivoted to the inner side of the tray-frame side members, and egg-troughs pivoted at their tops and bottoms respectively to said carrier-bars.

3. In an egg-tray for incubators, the combination with a tray-frame, of carrier-bars, end links connecting said bars and pivoted to the inner sides of the side members of said tray-frame, and egg-troughs pivoted at top and bottom respectively to said carrier-bars, one of said carrier-bars having transverse slots through which the egg-trough pivot-pins pass.

749,144. BROODER. Charles E. Adair, Columbus, Ohio, assignor to Evan J. Jones and William E. Jones, Columbus, Ohio. Filed July 17, 1903. Serial No. 165,943. (No model.)

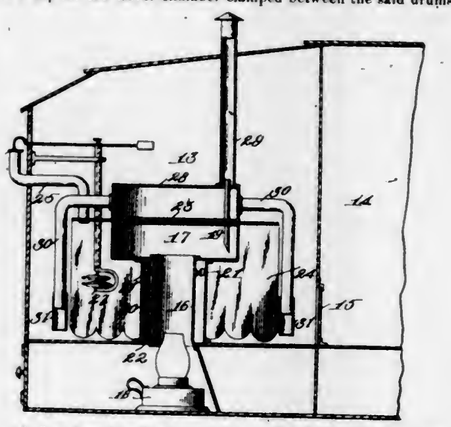
Claim.—1. In a brooder, the combination with a hover-chamber, of a heating-drum for said chamber having a suitable heating-flue and an outlet-pipe, a ventilating-drum, and draft-pipes leading from said ventilating-drum to said hover-chamber.

2. In a brooder, the combination with a hover-chamber, of a heating-drum for said chamber having a suitable heating-flue and an outlet-pipe, a ventilating-drum in proximity to said heating-drum and warmed thereby, and draft-pipes leading from said ventilating-drum to said hover-chamber.

3. In a brooder, the combination with a hover-chamber, of a heating-drum having a heating-flue and an outlet-pipe, a ventilating-drum traversed by said outlet-pipe, and draft-pipes connecting said ventilating-drum with said hover-chamber.

4. In a brooder, the combination with a hover-chamber, of a heating-drum having a heating-flue and an outlet-pipe, a superposed ventilating-drum through which said outlet-pipe passes, and draft-pipes connecting said ventilating-drum with said hover-chamber.

5. In a brooder, the combination with a hover-chamber, of a heating-drum, having a heating-flue and an outlet-pipe, a superposed ventilating-drum having draft-pipes leading to said hover-chamber, and a top for the hover-chamber clamped between the said drums.



6. In a brooder, the combination with a fresh-air pipe, a hot-air pipe traversing said fresh-air pipe, a heating-drum to which said hot-air pipe delivers surmounting said pipes, a hover-chamber top supported by said drum, a ventilating-drum superimposed on said heating-drum and between which and said heating-drum the hover-chamber top is held, and draft-pipes leading from said ventilating-drum to the floor of the hover-chamber.

7. In a brooder, the combination with a hover-chamber, of a heating-drum, a superposed ventilating-drum, a heating-flue delivering to said heating-drum, an outlet-pipe for said heating-drum which passes through said ventilating-drum, a vent-stack for said ventilating-drum to which said outlet-pipe delivers, and adjustable draft-pipes leading from said ventilating-drum to the floor of the hover-chamber.

749,145. CLASP FOR GARMENT-SUPPORTERS. Christian Andresen, St. Louis, Mo. Filed Sept. 10, 1903. Serial No. 172,668. (No model.)



Claim.—1. A clasp comprising a suitable loop, a tongue secured at one end contiguous to the base of the loop, and a tapering rib carried by the tongue and adapted to engage the loop, substantially as set forth.

2. A clasp comprising a suitable loop, a tongue secured at one end contiguous to the base of the loop, and an inclined or wedge-shaped elongated rib on the tongue adapted to engage the loop, substantially as set forth.

3. A clasp comprising a suitable loop, a tongue secured at one end contiguous to the base of the loop, and an inclined or wedge-shaped elongated rib disposed longitudinally of the tongue, with the

back of the wedge adjacent to the free end of the tongue, said rib being adapted to engage the loop, substantially as set forth.

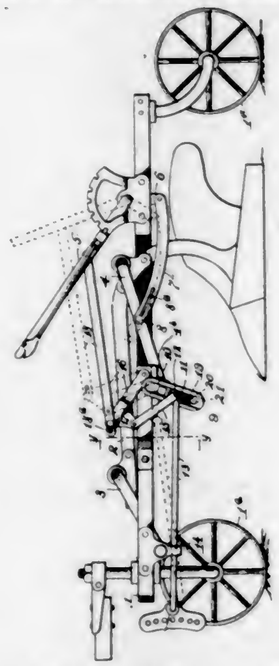
4. A clasp comprising a suitable loop, a resilient tongue secured at one end contiguous to the base of the loop, an inclined or wedge-shaped elongated rib disposed longitudinally on the inner face of the tongue with the back of the wedge adjacent to the free end of the tongue, said rib having a nose formed at the meeting edge of the back and the outer inclined face of the wedge, a socket or depression being formed at the base of said nose, the parts operating substantially as, and for the purpose set forth.

5. A clasp comprising a suitable loop, a resilient tongue hinged in relation thereto, and an elongated wedge-shaped rib disposed on the inner face of the tongue and adapted to engage the loop, substantially as set forth.

6. A clasp comprising a suitable loop, a resilient tongue hinged in relation thereto, and an elongated inclined rib disposed on the inner face of the tongue and adapted to engage the loop, the tapering end of the rib gradually merging with the face of the tongue, substantially as set forth.

7. A clasp comprising a suitable loop, a resilient tongue hinged in relation thereto, an elongated inclined rib disposed on the inner face of the tongue and gradually merging with the face thereof, a groove or depression being formed at the free outer end of the rib, for engagement with the adjacent end of the loop, substantially as set forth.

749,146. SULKY-PLOW. FRANK L. AVERILL, Kansas City, Kans. Filed Mar. 22, 1901. Serial No. 52,372. (No model.)



Claim.—1. In a sulky-plow having a suitable beam and frame, and a bail connecting the beam with the frame, cranks rigidly connected with said bail, forming therewith a lever having its fulcrum on the frame, a draft-bail having a sliding connection with said cranks, and means for sliding said draft-bail on said crank to shift the draft above or below the fulcrum, substantially as set forth.

2. In a sulky-plow having its beam connected with the frame by bails, cranks rigidly mounted on one of said bails, draft-blocks arranged to slide on said cranks, a draft-bail connected with said blocks, and means for shifting said draft-blocks, substantially as set forth.

3. In a sulky-plow the combination with the beam and frame, bails connecting the beam with the frame and a rocking lever connected with one of said bails, of cranks rigidly mounted on said bail, draft-blocks arranged to slide on said cranks, a draft-bail connected with said draft-blocks, and means connected with the handle-bar of said rocking lever for shifting said draft-blocks, substantially as set forth.

4. In a sulky-plow having its beam connected with the frame by bails, and provided with a rocking lever connected with one of said bails for controlling the plow, the combination with a crank rigidly mounted on said bail, a draft-block arranged to slide on said crank, and a draft-bail connected with said block, of a bar pivotally mounted on said block, a bar pivotally mounted on the frame, having an arm pivotally connected with said block-bar, and a bar pivotally connected with said frame-bar and with the handle-bar of said rocking lever, substantially as set forth.

5. In a sulky-plow having a suitable beam and frame, a bail mounted on the beam, cranks rigidly connected with said bail forming therewith a lever having its fulcrum on the frame, draft-blocks arranged to slide on said cranks, and blocks adjustably mounted on said cranks to determine the position of said draft-blocks, substantially as set forth.

6. The combination with the frame, the beam connected with the frame by bails and the lifting mechanism of a sulky-plow, of cranks rigidly connected with one of the bails and forming therewith a lever having its fulcrum on the frame, draft-blocks arranged to slide on said cranks, a draft-bail connected with said blocks, and means connected with the lifting mechanism for moving said blocks above or below the fulcrum, substantially as set forth.

749,147. EXERCISING-BALL. JACOB S. AYDELOTT, Marion, Ind. Filed July 29, 1903. Serial No. 167,486. (No model.)

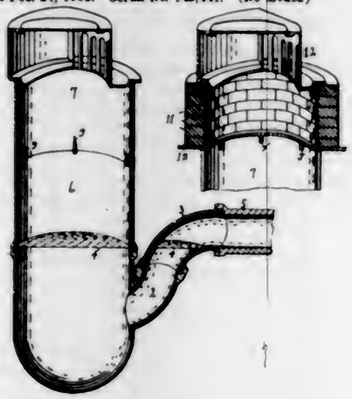


Claim.—1. In an exercise-ball, the combination of two similar spherical segments, a spring-hinge carrying one of said segments on each of its leaves, a flexible strap connecting the edges of said segments opposite said hinge, substantially as described and for the purposes specified.

2. The combination in an exercise-ball of two spherical segments, a removable spring-hinge carrying on each of its leaves one of said segments, a flexible strap or straps connecting the edges of said segments and adapted to limit the opening of said segments upon said hinge for the purposes specified.

3. The combination, in an exercise-ball, of two spherical segments with their planes opposed, a spring-hinge carrying one of said segments on each of its leaves, a flexible strap or straps connecting said segments and limiting the opening swing of the segments upon the hinge, an elastic band or bands taut between corresponding fastenings on the convex surface of the respective segments, substantially as described and for the purposes specified.

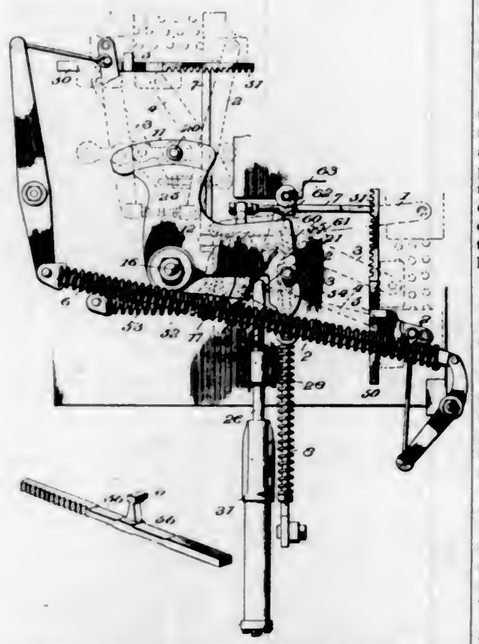
749,148. CATCH-BASIN. WILLIAM AYLWARD, Jr., Neenah, Wis. Filed Feb. 27, 1903. Serial No. 145,441. (No model.)



Claim.—1. A catch-basin consisting of several cylindrical sections of cast metal, its lower section having an annular flange around its upper end, a semiglobular or bowl-shaped bottom, a branch outlet from one side of said section, and a cast-metal elbow, said outlet and elbow forming a trap, the lowest point in an outlet of said elbow being substantially upon a level when placed in position, with the upper end of said section, one or more sections above said lower section, the lowest of which is adapted to be held in position by the annular flange of said lower section, means for holding succeeding sections in position and a suitable flange having a vertical grating mounted upon the upper end of the catch-basin, substantially as described.

2. In a catch-basin, the lower portion of which is formed of cylindrical sections of cast metal, the combination therewith of an annular flange mounted upon the upper end of the upper one of said sections, means for holding it in position thereon, one or more courses of brick laid upon said flange and forming a wall of substantially the same diameter as said cylindrical sections, and a suitable flange having vertical gratings thereon, mounted upon said wall, substantially as set forth.

749,149. CENTERING MECHANISM. JOHN S. BANCROFT, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed May 20, 1903. Serial No. 157,978. (No model.)



Claim.—1. In a centering mechanism such as described wherein a plurality of positioning mechanisms each provided with oppositely-moving levers are driven from a single prime mover, the combination with said levers and prime mover of separate actuators connected to and driven by said prime mover and each connected to a different set of levers, substantially as described.

2. In a centering mechanism such as described the combination with the two sets of positioning-levers and the prime mover therefor, of two actuators each connected to and driving one set of levers, and a spring-box located in the line of communication between each actuator and the prime mover, substantially as described.

3. In a centering mechanism such as described and in combination with the two sets of oppositely-movable levers pertaining to the primary and secondary positioning mechanism an actuator for said levers, a prime mover, and an elastic coupling or spring-box in the line of communication between said prime mover and actuator, said elastic coupling arranged and operating to afford yielding resistance in both directions, substantially as described.

4. In a centering mechanism such as described the combination with the levers of the primary and secondary positioning mechanisms, the actuator therefor and the prime mover, an elastic connection or spring-box interposed in the line of communication between the prime mover and actuator and provided with a tensioning-spring operating directly upon the connecting devices in producing motion in one direction and indirectly through friction members in producing motion in the opposite direction.

5. A spring-box or yielding connection for driving a centering mechanism such as described comprising a casing, heads secured to opposite ends of said casing, a rod or reciprocating member provided with a collar and a wedge-block, wedge members interposed between said wedge-block and the casing and a spring interposed between said wedging members and the collar on the rod, said spring operating through the collar to resist motion of the rod in one direction and through the wedge members and wedge to resist motion in the opposite direction, substantially as described.

6. In a centering mechanism such as described the combination with the levers of the positioning mechanisms of actuating mechanism therefor comprising two actuators pivotally supported upon a pivot and provided with interlocking members or bearings for preventing lateral displacement while permitting independent circular motion about their common axis.

7. An actuating device for a centering mechanism such as described comprising two actuators in the form of bell-crank levers provided with interlocking bearings adapted to prevent lateral displacement while permitting independent circular motion about an axis common to both, one of said levers being provided with means for attaching a driving member to one arm and a driven member to the other, while the other lever is provided with attachments for both driving and driven members upon the same arm; substantially as described.

8. In a centering mechanism such as described the combination to form an actuating mechanism for the levers of the positioning mechanisms, of a driver consisting of two actuators mounted upon a common pivot, one of said actuators consisting of a bell-crank provided with a driving connection on one arm and a driven connection on the other and the other actuator with the driving and driven connections on the same arm and in proximity to the driving connection of the first-named actuator, the corresponding arms of the two actuators being connected by arc-shaped bearings and interlocking projections; substantially as described.

9. In a centering mechanism such as described the combination with the two sets of levers for operating the positioning mechanisms of two actuators, each connected to one set of levers and pivotally supported to oscillate independently about a common axis, a driver or prime mover common to both actuators, a connecting-rod for each actuator, and a compound frictional and elastic connection or spring-box interposed between the driver and each connecting-rod, substantially as described.

10. In a centering mechanism such as described the combination with the levers of the positioning mechanism and the secondary controllers, of one actuating mechanism for said levers provided with independently-movable actuators driven from a common prime mover or lever, as and for the purpose specified.

11. In a centering mechanism provided with a shiftable controller and a final positioning device therefor, the combination with said positioning device and its actuating mechanism of a lock operating to retain said positioning device positively in engagement with the controller; substantially as described.

12. In a centering mechanism such as described the combination with a shiftable controller, a final positioning device or bolt, and actuating devices for reciprocating said positioning device, to alternately engage and release said controller, of automatic locking devices for alternately engaging and releasing the positioning device; substantially as described.

13. In a centering mechanism such as described wherein primary and secondary positioning mechanisms are employed in connection with a shifting controller the latter provided with a final positioning device and actuating mechanism therefor, the combination with said final positioning device of a lock and actuating devices therefor controlled by or from the actuating mechanism of the final positioning device to lock the latter after engagement with the controller and release it in advance of its withdrawal from the controller; substantially as described.

14. In a centering mechanism such as described the combination with the shiftable controller final positioning-bolt, and actuating devices therefor including a lever, spring and reciprocating head, of a locking member pivotally supported upon the lever in position to engage a fixed abutment and projecting into the line of movement of the reciprocating head; substantially as described.

15. In a centering mechanism such as described the combination with the actuating-lever of the final positioning-bolt and the reciprocating head operating upon said lever, of a locking device adapted to be interposed between an abutment and said lever in the line of the latter's movement, said locking device being furnished with an inclined or tapering engaging surface; substantially as described.

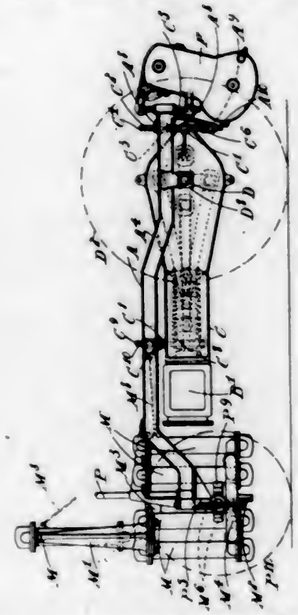
16. In a centering mechanism such as described the combination with the final positioning-bolt and its actuating-lever, spring and reciprocating head, of a lock for said lever comprising a member pivoted upon the lever and provided with an engaging surface for contacting with a fixed abutment, and a spring, said member projecting into the path of the reciprocating head in advance of the portion of the lever with which said head engages; substantially as described.

17. In a centering mechanism such as described comprising a plurality of positioning and controller mechanisms, each of the former provided with a separate actuator, and each of the latter provided with a final positioning-bolt, and an actuating-lever, and a reciprocating head common to the two actuating-levers, the combination with said actuating-levers and reciprocating head of two locks, one for each actuating-lever, both operated upon by said head to alternately hold and release the positioning-bolt as said head engages and is withdrawn from said actuating-levers; substantially as described.

18. A controller for centering mechanisms such as described, consisting of a guide-bar provided with a flexible elastic section and an arm, constituting a stop, attached to and projecting laterally of said guide-bar in the vicinity of said flexible elastic section.

19. A controller for centering mechanisms such as described comprising a guide-bar reduced in cross-section at two points in its length, to form flexible elastic sections, and a stop projecting laterally of said guide-bar at a point intermediate said flexible elastic sections.

749,150. MOTOR-VEHICLE. THOMAS W. BARBER, London, England. Filed June 9, 1902. Serial No. 110,849. (No model.)



Claim.—1. In a motor-vehicle, the combination of a rigid frame, a horizontal driving-engine carried at both ends by yielding connections upon the rigid frame, a crank-shaft for the engine and fixed bearings in the rigid frame for the crank-shaft, substantially as set forth.

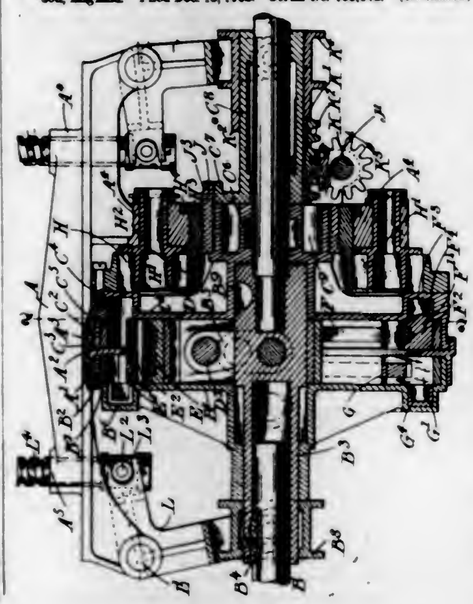
2. In a motor-vehicle, the combination of a rigid frame, a horizontal driving-engine carried at both ends by yielding connections upon the rigid frame, a crank-shaft for the engine, fixed bearings in the rigid frame for the crank-shaft and means for maintaining the distance between the working cylinder of the engine and the crank-shaft constant, substantially as set forth.

3. In a motor-vehicle, the combination of a rigid frame, a driving-engine, a crank-shaft for the engine, fixed bearings in the rigid frame for the crank-shaft, side frames rigidly secured to one end of the cylinder-casting and extending therefrom parallel with the cylinder-bore, a yielding connection between the cylinder-casting and the rigid frame, and a yielding connection between the forward end of the side frames and the rigid frame, substantially as set forth.

4. In a motor-vehicle, the combination of a rigid frame, a driving-engine, a crank-shaft, fixed bearings in the rigid frame for the crank-shaft, side frames rigidly secured to one end of the cylinder-casting and extending therefrom parallel with the cylinder-bore, a yielding connection between the cylinder-casting and the rigid frame, a transverse carrying-shaft, a yielding connection between this carrying-shaft and the rigid frame, means for pivoting the free end of the side frames to this member and a distance-arm pivotally connecting the crank-shaft and the carrying-shaft, substantially as set forth.

5. In a motor-vehicle, longitudinal frame members A, transverse frame members A^7, A^8, rigidly connecting the forward and rearward ends respectively of the longitudinal members A, an intermediate transverse member A^9 connecting the members A approximately midway of their length, an intermediate longitudinal member A^4 connecting the transverse members A^8, A^9 at points approximately midway of their length, an engine mounted on one side of the member A^9, an engine mounted on the other side of the member A^9, side frames rigidly secured to the cylinder-casting of one engine and extending rearwardly in vertical planes parallel to the bore of the cylinder, side frames rigidly secured in the same manner to the other engine, means for suspending the cylinder-casting of one engine by a yielding connection from the frame member A^4, means for similarly suspending the cylinder-casting of the other engine, a separate crank-shaft for each engine carried in bearings rigidly secured to the frame members A, driving-wheels carried in bearings rigidly secured to the frame members A, means for operatively connecting one driving-wheel with one crank-shaft, means for operatively connecting another driving-wheel with the other crank-shaft, a transverse carrying-shaft C, yielding connections for supporting this carrying-shaft from the main frame, means for pivoting the free ends of the side frames of one engine-casting to the shaft C, distance-arms between the crank-shaft of this engine and the transverse member and a second carrying-shaft C connected in a similar manner with the main frame and second engine as set forth.

749,151. VARIABLE-SPEED GEAR. THOMAS W. BARBER, London, England. Filed Dec. 13, 1902. Serial No. 135,072. (No model.)



Claim.—1. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, an eccentric carried by the driving-shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage the disk when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, means to control the movement of the engaging device in a path concentric with the disk, and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

2. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, a second disk opposed to the first, an eccentric mounted between the two disks and carried by the driving-shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage one of the disks when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, an engaging device operatively connected with the strap and adapted to engage the second disk when moved in one direction by the strap, means for releasing this engaging device from the disk when moved in the reverse direction, means to control the movement of the engaging device in a path concentric with the disk, and means for holding one of the disks against rotation, as set forth.

3. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, a second disk opposed to the first and also operatively connected with the mechanism to be driven, means for releasing either disk from its connection with the mechanism to be driven and holding the released disk against rotation, an eccentric mounted between the two disks and carried by the driving-shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage one of the disks when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, a second engaging device operatively connected with the strap and adapted to engage the second disk when moved in one direction by the strap, means for releasing this second engaging device from the disk when moved in the reverse direction and means to control the movement of each engaging device in a path concentric with its disk, as set forth.

4. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, an engaging device pivoted to the free end of the link, means for operatively connecting the engaging device with the disk when the former is moved in one direction, means for releasing the engaging device from the disk when the former is moved in the opposite direction, means to control the movement of the engaging device in a path concentric with the disk and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

5. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, a single-acting pawl pivoted at the free end of the link, means for operatively connecting the pawl with the disk when the former is moved in one direction, means to control the movement of the engaging device in a path concentric with the disk, and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

6. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, a single-acting friction-pawl pivoted to the free end of the link and adapted to engage the disk, a pin on the pawl between the free end of the pawl and that part by which it is pivoted to its link, a guide to engage the pin and maintain the pawl in a path concentric with the disk and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

7. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and having a groove on its face concentric with its periphery, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, a single-acting friction-pawl pivoted to the free end of the link and adapted to engage the disk, a pin on the pawl between the free end of the pawl and that part by which it is pivoted to its link the pin being adapted to engage the groove in the face of the disks and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

8. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and having a groove on its face concentric with its periphery, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, a single-acting friction-pawl, pivoted to the free end of the link and adapted to engage the disk, a pin on a pawl between the free end of the pawl and that part by which it is pivoted to its link, a shoe adapted to slide in the groove in the face of the disk and to receive the pin on the pawl and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

9. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith, a peripheral flange on the face of the disk, an eccentric-sheave carried by the driving-shaft, a strap on the sheave, a link pivoted at one end to the strap, an engaging device pivoted to the free end of the link and adapted to engage the interior wall of the peripheral flange when moved in one direction by the strap, means by which the engaging device releases the flange when moved in the opposite direction and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

10. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, a second disk opposed to the first, an eccentric-sheave mounted between the disks and carried by the driving-shaft, a strap on the sheave, a series of links pivoted at one end to the strap, an engaging device pivoted to the free end of each link, means for operatively connecting the engaging devices with one of the disks when moved in one direction by the strap, means for releasing the engaging devices when moved in the opposite direction, a second set of links pivoted to the strap, an engaging device pivoted to the free end of each of these links, means for operatively connecting this second set of engaging devices with the second disk when the former are moved in the opposite direction to that employed to engage the first set, means for releasing this second set of engaging devices when moved in the opposite direction, means to control the movements of the engaging devices in paths concentric with the disks, and means for securing one of the disks against rotation, as set forth.

11. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith, a second disk opposed to the first, an eccentric mounted between the two disks and carried by the driving-shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage one of the disks when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, a second engaging device operatively connected with the strap and adapted to engage the second disk when moved in the opposite direction to that employed to engage the first device, means for releasing the second engaging device from the disk when moved in the reverse direction, peripheral teeth on both disks, a toothed wheel engaging the teeth on one disk, a toothed wheel engaging the teeth on the other disk, means for engaging either of these toothed wheels with the driving mechanism and simultaneously disengaging the other toothed wheel from the driving mechanism and means for holding the disk connected with the disengaged toothed wheel against rotation, as set forth.

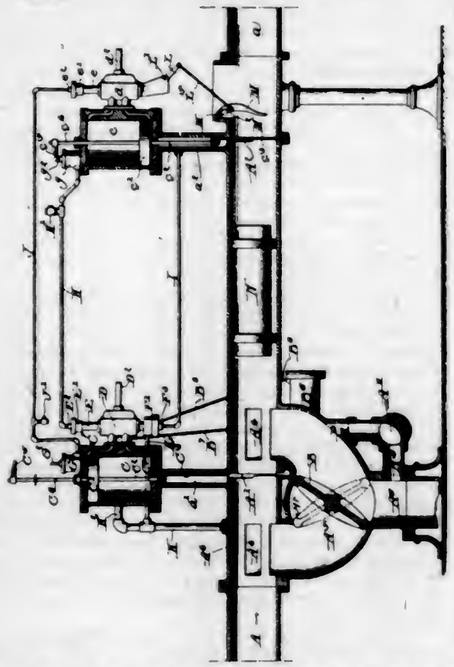
12. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, a variable-throw eccentric carried by the driving-shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage the disk when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, means to control the movement of the engaging device in a path concentric with the disk, and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

13. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, an eccentric-sheave carried by the driving-shaft and slotted to permit its movement to a position of greater or less eccentricity, means to prevent the eccentric-sheave from movement in the longitudinal direction of the shaft, means for moving the driving-shaft in a longitudinal direction toward or away from the sheave, a link connecting the sheave with the driving-shaft, an

eccentric-strap, an engaging device operatively connected with the strap and adapted to engage the disk when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, means to control the movement of the engaging device in a path concentric with the disk, and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

14. In a speed-gear the combination of a driving-shaft, a disk mounted coaxially therewith and adapted to be connected with the mechanism to be driven, a sleeve on the driving-shaft, an eccentric-sheave carried by the sleeve and slotted to permit its movement to a position of greater or less eccentricity with the sleeve, means to prevent the eccentric from displacement in the longitudinal direction of the shaft, a link connecting the sleeve and eccentric, means for moving the sleeve in the longitudinal direction of the shaft, an eccentric-strap, an engaging device operatively connected with the strap and adapted to engage the disk when moved in one direction by the strap, means for releasing the engaging device from the disk when moved in the reverse direction, means to control the movement of the engaging device in a path concentric with the disk, and means to prevent the eccentric-strap from rotating in the direction opposite to that in which driving is being effected, as set forth.

749,152. PNEUMATIC-DESPATCH SYSTEM. BIRNEY C. BATCHELLER, Philadelphia, Pa. Filed Apr. 17, 1901. Serial No. 56,177. (No model.)

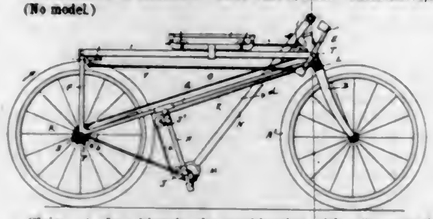


Claim.—1. In a pneumatic-despatch system, the combination with a pneumatic tube of gates for closing the same arranged a sufficient distance apart to give ample space between them for a carrier, mechanism for opening and closing said gates actuated by a power other than the compression of air by an advancing carrier, controlling devices whereby the gate-actuating mechanisms are made to operate in different directions, means for actuating said controlling devices to successively close the first and open the second gate set in operation by the approach of a carrier to the second gate, means for actuating the controlling devices to successively close the second and open the first gate set in operation by the passage of a carrier beyond the second gate, an air-outlet passage having connections A^3 A^4 with the tube on both sides of the first gate, a gate whereby said connections are alternately opened and closed, gate-actuating mechanism for moving said gate and controlling devices for shifting said mechanism connected with the actuating mechanism of the first tube-gate and arranged to connect the opening A^4 in the rear of the tube-gate with the air-outlet passage when the said gate is open and to connect the opening A^3 in advance of said gate when it is closed.

2. In a pneumatic-despatch system, the combination with a pneumatic tube of gates for closing the same arranged a sufficient distance apart to give ample space between them for a carrier mechanism for opening and closing said gates actuated by a power other than the compression of air by an advancing carrier, controlling devices whereby the gate-actuating mechanisms are made to operate in different directions, means for actuating said controlling devices to successively close the second and open the first gate set in operation by the passage of a carrier beyond the second gate, an air-outlet passage having connections A^3 A^4 with the tube on both sides of the first gate, a gate whereby said connections are alternately opened and closed, gate-actuating mechanism for moving said gate, controlling devices for shifting said mechanism connected with the actuating mechanism of the first tube-gate and arranged to connect the opening A^4 in the rear of the tube-gate with the air-outlet passage when the said gate is open and to connect the opening A^3 in advance of said gate when it is closed and a by-pass connecting the outlet-passage with opening A^4 around the gate in said air-passage.

3. In a pneumatic-despatch system, the combination with a pneumatic tube of gates for closing the same arranged a sufficient distance apart to give ample space between them for a carrier, cylinders C and c for opening and closing said gates, valves for alternately connecting the ends of said cylinders with a source of fluid under pressure and with an exhaust, means for shifting the controlling-valve of the first gate-cylinder to position to close said gate connected to be set in operation by an advancing carrier, means for shifting the controlling-valve of the second gate-cylinder to position to open said gate connected to be set in operation by the closing of the first gate, means for shifting the last-mentioned valve to position to close the second gate arranged to be set in operation by the passage of the carrier beyond the second gate, means for shifting the valve of the first gate-cylinder to position to open said gate arranged to be actuated by the closing of the second gate, an air-exit passage having openings A^3 A^4 into the tube on each side of the first gate, a gate to alternately open and close said openings and means for moving said gate to connect the opening A^3 when the tube-gate is closed and the opening A^4 when the said gate is open, said means being controlled by the movements of the controlling-valve of the gate-cylinder.

749,153. BICYCLE WITH ROWING ATTACHMENT. SANFORD L. BATCHELOR, Grafton, Mass. Filed June 3, 1901. Serial No. 62,878. (No model.)

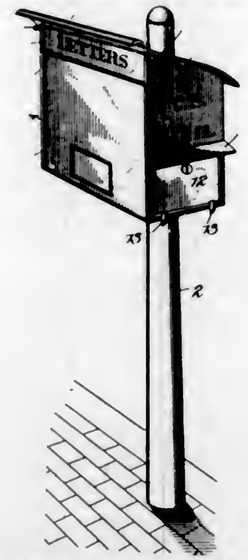


Claim.—1. In a bicycle, the combination with a framework of a rear wheel held in the framework, a front fork journaled in the framework, a wheel held in the front fork, a vibrating lever operatively connected with the back or driving wheel, a rotating pulley operatively connected with the front fork, and a universal-joint connection between said pulley and the vibrating lever, substantially as described.

2. In a bicycle, the combination with a framework of a rear wheel held in the framework, a front fork journaled in the framework, a wheel held in the front fork, a pulley held by said framework and operatively connected with the front fork, a lever pivoted at its lower end by a universal joint to said pulley, and a cord operatively connecting the upper end of said lever with the back wheel, substantially as described.

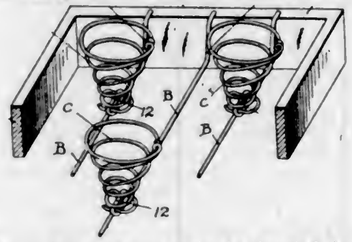
3. In a bicycle, the combination with a framework of a back or driving wheel held in the framework, a fork journaled in the framework, a front or steering wheel held in said fork, a pulley held in the framework, an endless cord operatively connecting said pulley and the front fork, a vibrating lever pivotally connected by a universal joint with said pulley, and means for operatively connecting said lever and the driving-wheel, substantially as described.

749,154. LETTER-BOX. GEORGE R. BENTON, East Hampton, N. Y. Filed July 22, 1903. Serial No. 166,603. (No model.)



Claim.—A device of the class described comprising, a receptacle provided with a mailing-orifice, an arched cover for said receptacle having its front portion bent upwardly over the mailing-orifice defining a concave portion, and its rear end bent downwardly and projecting beyond said receptacle defining a convex portion, a gravity lid or drop provided with guide-plates pivoted within the orifice, the weighted end of said lid or drop being adapted to engage the convex portion of the cover and the guide-plates the concave portion thereof when said drop is open.

749,155. UPHOLSTERY-SPRING AND MEANS FOR SUPPORTING SAME. GEORGE R. BIGELOW, Worcester, Mass., assignor to Morgan Spring Company, Worcester, Mass., a Corporation of Massachusetts. Filed Apr. 4, 1902. Serial No. 101,371. (No model.)



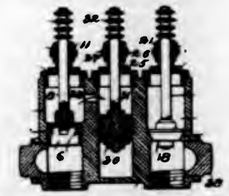
Claim.—1. In a construction of the class described, the combination of an upholstery-spring having a bottom coil which is located in a substantially horizontal plane when the spring occupies its normal position, and which has reëntrant sides, and a supporting-piece having a socket for receiving said attaching-coil.

2. In a construction of the class described, the combination of upholstery-springs, each having an attaching-coil which lies in a substantially horizontal plane when the spring occupies its normal position and which has reëntrant sides, a frame, and supporting-strips extending across the frame and having sockets for receiving the attaching-coils.

3. In a construction of the class described, the combination of upholstery-springs of tapered or conical form, the bottom coil of each of said upholstery-springs lying in a substantially horizontal plane when the spring occupies its normal position, and which has reëntrant sides, a frame, and supporting-strips extending across the frame, and having sockets for receiving the attaching-coils of said springs.

4. The combination of a frame, supporting-wires extending across the frame, each wire having an offset or bend, with a piece of slotted metal fitted thereon to form a socket, and upholstery-springs, the bottom coil of each spring having bent-in sides which engage one of the aforesaid sockets.

749,156. VALVE MECHANISM. WILLIAM A. BOLLINGER, Allegheny, Pa. Filed Dec. 10, 1902. Serial No. 134,716. (No model.)



Claim.—1. In a valve mechanism for controlling the gas and water supply in automatic heaters, triple chambers, comprehending a gas-chamber having inlet and outlet openings for connection with the gas-service line, a valve arranged in said chamber between said openings, a main water-chamber having inlet and outlet openings for connection with the water-service line, a valve arranged in said water-chamber between said openings, an auxiliary water-chamber communicating by a port with said main water-chamber, a piston arranged in said auxiliary water-chamber, an independent stem on each of said valves and piston and a member connecting the three independent parallel stems of said valves and piston, said valves and piston arranged and adapted to all move equally and simultaneously in one and the same direction by the pressure of the water acting upon the one end of the main valve only and in an opposite direction by the water-pressure acting on the opposite end of said main valve and the auxiliary piston, substantially as set forth.

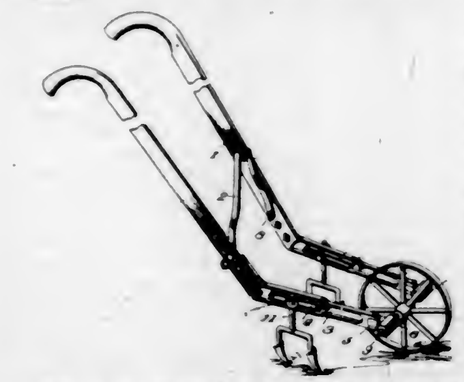
2. In a valve mechanism for controlling the gas and water supply in automatic heaters, triple chambers, comprehending a gas-chamber having inlet and outlet openings for connection with the gas-service line, a valve arranged in said chamber between said openings, a main water-chamber having inlet and outlet openings for connection with the water-service line, a ported piston-valve arranged in said water-chamber between said openings, an auxiliary water-chamber communicating by a port with said main water-chamber, a piston arranged in said auxiliary water-chamber, an independent stem on each of said valves and piston and a member extending across and connecting the three independent parallel stems of said valves and piston, said valves and piston arranged and adapted to all move equally and simultaneously in one and the same direction by the pressure of the water acting upon the one end of the main valve only and in an opposite direction by the water-pressure acting on the opposite end of said main valve and the auxiliary piston, substantially as set forth.

3. A water and gas controlling mechanism for water-heaters, comprising a gas-chamber having inlet and outlet openings, a valve arranged therein between said openings to control the flow of gas therebetween the stem of which is provided with teeth, a water-chamber having inlet and outlet openings, a valve arranged therein between said openings to control the flow of water therebetween the stem of which is provided with teeth, an auxiliary water-chamber communicating with said main water-chamber, a piston arranged in said chamber the stem of which is provided with teeth, and a shaft carrying gear-racks engaging the teeth of said piston and valves whereby said piston and valves operate simultaneously by the water-pressure as set forth.

4. In a valve mechanism for controlling the gas and water supply in automatic heaters, triple chambers, comprehending a gas-chamber having inlet and outlet openings for connection with the gas-service line, a valve arranged in said chamber between the openings, a main water-chamber having inlet and outlet openings for connection with the water-service line, a peripherally-ported piston-valve arranged in said water-chamber between the openings, an auxiliary water-chamber located between said gas and main water-chamber and communicating with the latter chamber by a port, a piston arranged in said auxiliary chamber, an independent stem on each of said valves and piston and a member connecting the three independent parallel stems of said valves and piston, said valves and piston arranged and adapted to all move equally and simultaneously in one and the same direction by the pressure of the water acting upon the one end of the main valve only and in an opposite direction by the water-pressure acting on the opposite end of said main valve and the auxiliary piston, substantially as set forth.

5. In the valve mechanism for controlling the gas and water supply in automatic heaters, triple chambers, comprehending a gas-chamber having inlet and outlet openings for connection with the gas-service line and a tapered valve-seat formed therein between said openings, a valve arranged in said chamber to engage said seat, a main water-chamber having inlet and outlet openings for connection with the water-service line the diameter of which chamber is of increased dimension around said outlet-opening, a peripherally-ported piston-valve arranged in the lesser portion of said water-chamber between said openings, an auxiliary water-chamber located between said gas and water chamber and communicating with the latter chamber by a port, a piston arranged in said auxiliary chamber, an independent stem on each of said valves and piston, and a member connecting the three independent parallel stems of said valves and piston, said valves and piston arranged and adapted to all move equally and simultaneously in one and the same direction by the pressure of the water acting upon the one end of the main valve only and in an opposite direction by the water-pressure acting on the opposite end of said main valve and the auxiliary piston, substantially as set forth.

749,157. GARDEN IMPLEMENT. JAMES B. BOMBERGER, Mount Gilead, Ohio, assignor of two-thirds to Theodore Brown and Adolf Cohn, Mount Gilead, Ohio. Filed Mar. 2, 1903. Serial No. 145,802. (No model.)



Claim.—1. In a machine of the character described, the combination with side bars, a spring-arch connecting the side bars to admit of relative longitudinal, lateral and vertical play thereof, substantially as set forth.

2. In a machine of the character described, and in combination with side bars, a spring-arch loosely connected at its ends to said side bars, to be turned to any relative angular position and admit of relative vertical, lateral and longitudinal play of the side bars, substantially as specified.

3. In a machine of the character specified, the combination of side bars, an axle fitted to the said side bars and provided with a ground-wheel and a spring-arch connecting said side bars, substantially as set forth.

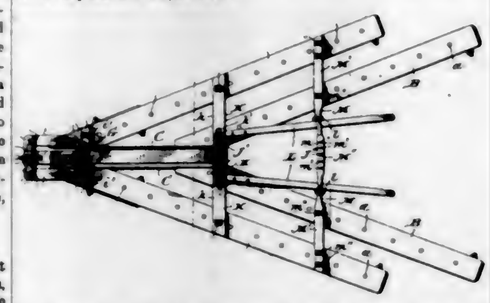
4. In a machine of the character described, the combination of side bars, bearings pivotally connected to said side bars, an axle supported by said bearings and provided with a ground-wheel, and a spring-arch connecting the side bars to admit of relative longitudinal, lateral and vertical play thereof, substantially as set forth.

5. In a machine of the character set forth, side bars having longitudinal slots, an axle applied to the side bars and provided with a ground-wheel, a spring-arch connecting the side bars, attachments and means adjustably connecting the attachments to the side bars through the instrumentality of said longitudinal slots, substantially as set forth.

6. In combination, side bars, an axle fitted to said side bars and provided with a ground-wheel, and a spring-arch composed of similar sections of approximately S form oppositely disposed and loosely connected to each other and to said side bars, substantially as specified.

749,158. HARROW. BENJAMIN F. BRAKEBILL, Pinhook Landing, Tenn. Filed Aug. 19, 1903. Serial No. 170,003. (No model.)

Claim.—1. In a harrow, the combination of outer beams, having upwardly-curved arms at their forward ends, a bridge pivotally connecting the arms, a longitudinal bar extending rearwardly from the bridge, a transverse bar secured thereto and having a series of apertures therethrough, intermediate beams secured to the outer beams, brackets secured to the intermediate and outer beams, and having flanges at their upper end apertured complementary to the apertures in the transverse bar, and a pin arranged to pass through said complementary apertures.



2. In a harrow, the combination of outer beams having upwardly-curved arms at their forward ends, a bridge pivotally connecting the arms, intermediate beams secured to the outer beams, a rearwardly-extending longitudinal bar secured to said bridge, supporting-brackets for the bar, secured to the outer beams, and an adjustable connection between the same and the bar, supplemental brackets secured to and extending between the intermediate and outer beams, and an adjustable connection between said supplemental brackets and the longitudinal bar.

3. In a harrow, the combination of the beams having a pivotal connection at their forward ends, handles on the beams, ears on the handles, brackets on the beams, said brackets passing through the ears on the handles, and an adjustable connection between the inner ends of the brackets.

4. In a harrow, the combination of outer beams, intermediate beams secured thereto, handles upon the intermediate beams, ears upon the handles, brackets secured to the intermediate and outer beams and passing through the ears of the handles, and an adjustable connection between the inner ends of the brackets.

5. In a harrow, the combination of outer beams, a bridge pivotally connecting the forward ends thereof, intermediate beams secured to the outer beams, a rearwardly-extending longitudinal bar secured to said bridge, supporting-brackets for the bar secured to the outer beams, and an adjustable connection between the same and the bar, supplemental brackets secured to and extending between the intermediate and outer beams, and an adjustable connection between said supplemental brackets and the longitudinal bar.

6. In a harrow, the combination of beams, having upwardly-curved arms at their forward ends, a bridge pivotally connecting the arms, a longitudinal bar extending rearwardly from said bridge, a curved transverse bar secured thereto and having a series of apertures therethrough, brackets secured to said beams and having flanges at their upper ends apertured complementary to the apertures in the transverse bar, and a pin arranged to pass through said complementary apertures.

7. In a harrow, the combination of beams having upwardly-curved arms at their forward ends, a bridge pivotally connecting the arms, a rearwardly-extending longitudinal bar secured to said bridge, supporting-brackets for the longitudinal bar secured to the beams at their lower ends and adjustably secured to the bar at their upper ends, handles on the beams, ears on the handles, supplemental brackets on the beams passing through the ears on the handles, and an adjustable connection between the inner ends of said supplemental brackets.

749,159. STEREOSCOPIC COLOR IMAGE AND PROCESS OF MAKING SAME. CHARLES L. A. BRASSEUR, New York, N. Y. Filed May 14, 1902. Serial No. 107,244. (No specimens.)



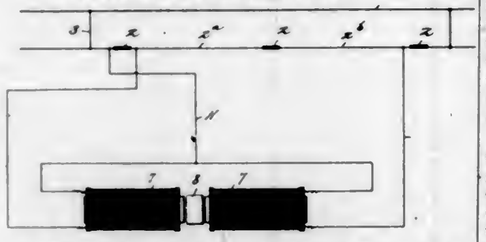
Claim.—1. That improvement in the art of color photography, substantially as hereinbefore described, which consists in taking subdivided stereoscopic negatives of the object through patterned party-colored screens whose patterns are differently arranged.

2. That improvement in the art of color photography, substantially as hereinbefore described, which consists in taking subdivided stereoscopic negatives of the object through party-colored line-screens, the lines of one screen being at an angle to the lines of the other screen.

3. A pair of subdivided stereoscopic images, the patterned areas of one such image being arranged differently from the patterned areas of the other image, substantially as described.

4. A pair of linearly-subdivided stereoscopic images, the linear areas of one image being at an angle to the linear areas of the other image, substantially as described.

749,160. ELECTRICALLY-OPERATED RAILWAY-SWITCH. CLAUDE W. BREEDLOVE and RUDOLPH R. GRANT, Berkley, Va. Filed Mar. 25, 1903. Serial No. 149,568. (No model.)



Claim.—1. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion and a feed-wire electrically connected to the trolley-wire at opposite sides of the insulated portion; of a magnet electrically connected to the feed-wire and the insulated portion of the trolley-wire, a contact electrically connected with the feed-wire, an armature to the magnet adapted to bear upon said contact when the magnet is energized, a rotary armature, magnets therefor, a switch-tongue, and means connecting said tongue and the rotary armature for transmitting motion to the tongue.

2. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion and a feed-wire connected to the trolley-wire at opposite sides of the insulated portion; of a rotary armature, magnets therefor electrically connected with the feed-wire, a circuit-closer within said connection and connected with the feed-wire and the insulated portion of the trolley-wire, an eccentric connected to and revoluble with the armature, a pitman upon the eccentric, a switch-tongue, and means connecting the tongue and pitman whereby a reciprocating motion may be imparted to the tongue by the armature.

3. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion; of a feed-wire connected to said trolley-wire at opposite sides of said portion, an armature, magnets at opposite sides thereof, electrical connections between the magnets and the ground and feed wire, respectively, said armature being adapted to make a one-half revolution when the magnets are energized, an electrically-operated circuit-closer intermediate the feed-wire and magnets and electrically connected to said feed-wire and the insulated portion of the trolley-wire, an eccentric connected to and revoluble with the armature, a pitman mounted thereon, and a switch-tongue connected to and adapted to be operated by the pitman.

4. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion and a feed-wire connected to the trolley-wire at opposite sides of said insulated portion; of a circuit-closer connected to the feed-wire and the insulated portion, a commutator, means for simultaneously rotating said commutator and closing the circuit, alternately-arranged overlapping conducting-plates upon the commutator, a brush for all of said plates adapted to be electrically connected to the feed-wire by the circuit-closer, a rotary armature adapted to be partially rotated in either direction, a switch-tongue connected to and operated thereby, and means for conducting a current through the commutator to either side of the armature.

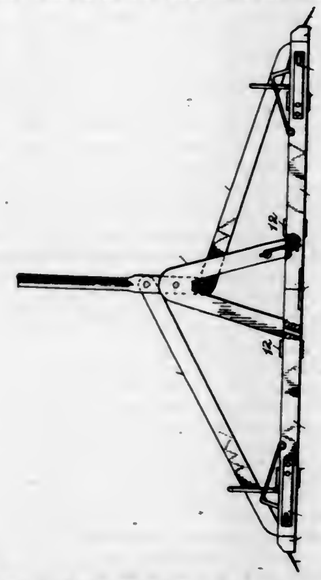
5. In an electrically-operated switch, the combination with a switch-tongue; of a rotary armature having coils at right angles to each other and adapted to partially rotate, means connecting the armature and tongue whereby the tongue may be shifted by said armature, magnets to the armature, a commutator, a trolley-wire having an insulated portion, a feed-wire connected to the trolley-wire at opposite sides of the insulated portion, an electrical connection between the feed-wire and commutator, a circuit-closer within said connection connected with the feed-wire and the insulated portion, and means operated by the circuit-closer for rotating the commutator whereby a current may be directed into either coil of the armature.

6. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion and a feed-wire connected to the trolley-wire at opposite sides of said portion; of a magnet electrically connected with the feed-wire and the insulated portion, an armature to the magnet, a contact electrically connected to the feed-wire, a plug connected to the armature adapted to bear upon the contact, a rotary shaft, a commutator thereon, a ratchet-wheel revoluble with the commutator, and a pawl connected to the armature and engaging the ratchet-wheel.

7. In an electrically-operated switch, the combination with a trolley-wire having an insulated portion and a feed-wire connected to the trolley-wire at opposite sides of said insulated portion; of a magnet electrically connected to the feed-wire and the insulated portion, an armature, a shaft, a commutator secured to and revoluble with the shaft and having oppositely-extending overlapping conductor-plates in the periphery thereof, a ratchet-wheel revoluble with the commutator, and a pawl connected to the armature and engaging the ratchet-wheel.

8. In an electrically-operated switch, the combination with magnets and a rotary armature therebetween having coils at right angles to each other; of commutators revoluble with said armature, electrical connections between one of the commutators and both coils, electrical connections between said coils and the other commutator respectively, a feed-wire, and electrically-operated means for directing a current from the feed-wire to either coil of the armature.

749,161. CARPET-STRETCHER. JAMES M. BROWN, Elkfalls, Kans. Filed Jan. 28, 1903. Serial No. 140,862. (No model.)

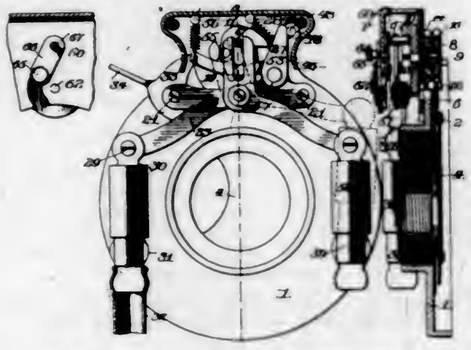


Claim.—1. In a carpet-stretcher, the combination with spaced longitudinal members, of two oppositely-movable toothed heads having stems slidably engaged between the members, each stem being provided with two series of rack-teeth, a pivoted lever having pawls for engagement with one series of teeth of each stem to shift the stems when the lever is rocked, and spring-pressed retaining-pawls mounted upon the spaced members in operative relation with the other series of rack-teeth of the stems to hold the latter against return movement, and means for holding the retaining-pawls in inoperative position.

2. In a carpet-stretcher, the combination with a frame, com-

prising longitudinal spaced members, having connecting cross-pieces, of oppositely-movable toothed heads having stems slidably disposed between the sides of the frame, each of said stems having two series of rack-teeth, uprights upon the longitudinal members, a lever having a fulcrum mounted in the said uprights, dogs pivoted to the lever at opposite sides of the fulcrum each in operative relation to the series of rack-teeth of a stem, perforations in the spaced members, pawls disposed within the perforations for engagement with the other series of rack-teeth, springs mounted upon the faces of the spaced members and adapted to bear upon the outer ends of the pawls to hold them in engagement with the rack-teeth, and wedges pivoted to the spaced members and adapted to be inserted between the springs and the spaced members to remove the tension of the springs from the pawls.

749,162. PHOTOGRAPHIC SHUTTER. THEODOR BRUECK, Rochester, N. Y., assignor to Bausch & Lomb Optical Company, Rochester, N. Y., a Corporation of New York. Filed Feb. 14, 1901. Serial No. 47,266. (No model.)



Claim.—1. The combination with a photographic shutter, a spring-motor for operating it, a latch connection between the motor and shutter yielding in one direction to permit setting the motor without operating the shutter and a catch for retaining the motor, of a pivoted operating member for placing the spring under tension when operated in one direction on the pivot and coöperating with the catch for releasing the motor member when operated on the pivot in the opposite direction.

2. The combination with a photographic shutter, a motor for opening and closing it, a latch connection between the motor and shutter yielding in one direction to permit setting the motor without operating the shutter, a catch for retaining the motor when set to operate the shutter, and detaining devices for holding the shutter open, of a single member operable in one direction to place the motor under tension and in another direction to operate the catch and control the detaining devices said detaining devices being separate from and adjustable independently of the movable member.

3. The combination with a photographic shutter, a spring-motor for closing it, a latch connection between the motor and shutter yielding in one direction to permit setting the motor without operating the shutter, a catch for detaining the motor when set to operate the shutter, and relatively adjustable detaining devices for holding the shutter open, of a member movable in two directions and coöperating with the motor to set it when moved in one direction and operating the catch and controlling the detaining devices when operated in the other direction.

4. The combination with a photographic shutter, a movable master member adapted during its movement to cause the shutter to open and close, a motor device for operating the member, and a catch for holding the member against the force of the motor, of a movable member movable in one direction to operate the master member against its spring and in another direction to cause the release of the catch.

5. The combination with a photographic shutter, a movable master member adapted during its movement to cause the shutter to open and close, a motor device for operating the member, and relatively adjustable catches for arresting the master member during its movement, of a member movable in one direction to operate the master member against its motor and movable in another direction to coöperate with and control the catches.

6. The combination with a photographic shutter, a movable master member adapted during its movement to cause the shutter to open and close, a motor for operating the member, a catch for holding the member against the force of the motor, and relatively adjustable catches coöperating with the member after the disengagement of the first-mentioned catch, of a movable member operable in one direction to set the master member against the force of the motor and controlling the other catches when operated in the other direction.

7. The combination with a photographic shutter, a movable master member adapted during its movement to cause the shutter to open and close, a motor for operating the member, and a spring-operated catch for holding the master member when the shutter is closed, and two catches coöperating with the master member and operated and controlled by the movements of the first-mentioned catch, of a movable member operating the master member against the motor when operated in one direction and coöperating with the catch when moved in another direction.

8. The combination with a photographic shutter, a movable master member, a spring for operating it, a catch for holding the master member, two separate catches for controlling the movement of the master member and controlled by the first-mentioned catches, and means for varying the relations between the two catches, of a movable member coöperating with the master member when moved in one direction to set it and coöperating with the catch to actuate and control it when moved in another direction.

9. The combination with a photographic shutter, a spring-operated master member coöperating therewith to open and close the shutter by a continued movement in one direction, a catch for holding the master member when set, two stops adapted to separately engage the master member during its movement and controlled by the first-mentioned catch, and means for varying the relations of the two stops toward each other, and the holding-catch, of a movable member coöperating with the master member to set it when moved in one direction and operating and controlling the holding-catch when moved in another direction.

10. The combination with a photographic shutter, motor devices for operating it, and a latch connection between the shutter and motor devices permitting the latter to be set without operating the shutter, of a holding-catch for preventing the opening of the shutter, two detaining-stops for holding the shutter open adjustable relatively to each other and to the holding-catch, and a movable member coöperating with the motor devices to set them when moved in one direction and adapted to operate and control the holding-catch and stops when moved in another direction.

11. In a photographic shutter, the combination with a movable master member, the holding-catch therefor, two stops each adapted to engage the master member, one of said stops being operated by the holding-catch to release it, and the lever or abutment 50 operated upon by the holding-catch and coöperating with the other stop to release it.

12. In a photographic shutter, the combination with a slotted master member, of a retarding device of constant force, a slotted lever connected thereto and an adjustable projection operating in both slots to vary the relative movements of the parts.

13. In a photographic shutter, the combination with a pivoted slotted master member, of a retarding device, a slotted lever connected thereto and an adjustable projection operating in both slots for varying the relative movements of the parts.

14. In a photographic shutter, the combination with a pivoted master member having the radial slot therein, of a retarding device, a slotted lever connected thereto, a projection adjustable in the slots in the two parts for varying their relative movements.

15. In a photographic shutter, the combination with a movable master member and a retarding device, of an adjustable abutment supported independently of either and operated upon by one and adapted to engage the other to vary their relative operation.

16. In a photographic shutter, the combination with the movable master member, of a retarding device of constant force, a lever connected thereto, the pivoted arm, and the link connected eccentrically thereto having a projection at its free end coöperating with and adjustable upon the master member and the lever of the retarding device whereby the relative movements of the latter may be controlled.

17. In a photographic shutter, the combination with the pivoted master member having the slot, of the retarding device, the pivoted slotted lever connected thereto, the pivoted arm, the link connected eccentrically thereto and the pin on the link coöperating with and adjustable in the slots in the member and lever respectively.

18. In a photographic shutter, the combination with the pivoted oscillatory master member having the radial slot, of the pneumatic retarding device, the pivoted lever connected thereto having the slotted end extending over the master member and the movable link having the pin adjustable in the slots in the member and lever respectively.

19. In a photographic shutter, the combination with the master member having the slot and the time-stops coöperating with the member, of the retarding device, the slotted lever connected therewith, the movable pin adjustable in the slots in the member and lever, and connections between the time-stops and the pin whereby the former will be moved out of coöperative relation with the master member when adjusted in one direction.

20. In a photographic shutter, the combination with the master member having the slot, and the automatically-engaging time-stops coöperating therewith, of the retarding device, the slotted lever connected therewith, the adjustable projection operating in the slots in the member and lever, and connections between it and the time-stops for holding the latter out of engagement when adjusted in one direction.

21. In a photographic shutter, the combination with the master member having the slot, the automatically-engaging time-stops coöperating therewith, the spring-operated member for moving the time-stops out of engagement, of a retarding device, a slotted lever connected therewith, and an adjustable projection movable in the slots of the lever and master member and coöperating with the spring-operated member when operated in one direction to permit the engagement of the time-stops with the master member.

22. In a photographic shutter, the combination with the master member having the slot, and the automatically-engaging time-stops coöperating therewith, one of said stops controlling the movement of the other, and a spring-actuated member operating upon the controlling time-stop, of a retarding device, a slotted lever connected thereto, and a movable projection adjustable in the slots of the member and lever and controlling their relation and adapted when moved in one direction to move the spring-actuated member.

23. In a photographic shutter, the combination with the master member having the slot, the spring-actuated time-stops engaging the member in succession, and the movement of one controlling that of the other in one direction, the pivoted spring-operated lever engaging the controlling time-stop, of a retarding device, a slotted lever connected therewith, the adjustable pivoted link having the projection extending into the slots in the master member and lever and adapted to engage the spring-operated lever when disengaged from the master member.

24. In a photographic shutter, the combination with a master member and time-stops for controlling it, of a retarding device and an adjustable part between the retarding device and master member for varying their operative relation and also operating upon the time-stops to prevent the coöperation of one or both with the master member.

25. In a photographic shutter, the combination with a master member, time-stops for controlling it, and a holding-catch coöperating with the time-stops when actuated to release the master member, of a retarding device, an adjustable part between the retarding device and master member for varying their operative relation said part also controlling the relation of the time-stops and the holding-catch.

26. In a photographic shutter adapted to make time, bulb instantaneous and automatically-timed exposures, and embodying a movable member and motor therefor, the combination with said member and motor, of an adjusting device for determining the kind of exposure to be made, and a single movable part operable in one direction to set the motor for operation and in another direction to release the movable member.

27. In a photographic shutter adapted to make time, bulb, instantaneous and automatically-timed exposures, the combination with a movable member, a motor for operating it, a holding-catch, time-stops, and a retarding device for controlling the movement of the member, of an adjustable part for controlling the time-stops and retarding device with relation to the movable member, and an operating member movable in one direction to set the motor and in another direction to operate and control the operation of the holding-catch and time-stops.

28. In a photographic shutter, the combination with the master member having the projections 18 and 19, the pivoted stop 46 having the pin 49, the pivoted holding-catch 23 having the pin 26 and the lever 50 pivoted on a center separate from the pivot of the catch and located between the catch 23 and the pin 49.

29. In a photographic shutter, the combination with the master member having the projections 18 and 19, the catch 23, the stops 40 and 46, the former having the pin 43 and coöperating with the catch 46, and the spring for operating the stops toward the master member, of the pivoted lever 53 coöperating with the pin 43, and the spring for operating it.

30. The combination with the shutter proper, of an oscillatory master member, a spring for operating it, a latch connection between the member and the shutter proper, a catch for holding the member, and a movable member operable in one direction for moving the master member against its spring and in another direction for releasing the catch.

31. The combination with the shutter proper, of an oscillatory master member, a spring for operating it, a latch connection between the member and the shutter, a catch for holding the member, and a pivoted member coöperating with the master member to move it against its spring when operating in one direction on its pivot and coöperating with the catch to release the master member when moved in the opposite direction.

32. The combination with the shutter proper, of an oscillatory master member, a spring for operating it, a latch connection between the member and the shutter, a catch for holding the master member, an operating member movable in one direction for moving the master member against its spring to set it and in another direction to coöperate with and release the catch, and detaining devices for holding the master member after the release of the catch and controlled by the operating member.

33. The combination with the shutter proper, the movable master member, a spring for operating the latter in one direction, a latch connection between the member and shutter, and a catch for holding the member against the tension of its spring, of detaining devices for controlling the operation of the master member, the movement of said devices being in turn controlled by the catch, and an operating member movable in one direction to set the master member and in another direction to actuate the catch and through it the controlling devices.

34. The combination with the shutter proper, a movable master member, a spring for operating the latter in one direction, a latch connection between the member and shutter, and a catch for holding the master member against the tension of its spring, of detaining-stops for separately holding the master member intermediate the extremes of its movement, means for adjusting said stops relatively to the master member, and an operating member coöperating with the master member to set it when operated in one direction and operating and controlling the operation of the catch and stops coöperating with the master member, when operated in another direction.

35. The combination with the shutter, a movable master member for causing its operation when moved in one direction, and a spring for operating said master member, of a catch for detaining said master member with the spring under tension, two stops for holding the member in positions intermediate its extremes of movement, both adjustable relatively to the member, and an operating member coöperating with the master member to actuate it against its spring when moved in one direction and coöperating with the stop and catch when moved in another direction.

36. The combination with the shutter proper, a movable master member for causing its operation when moved in one direction, and a spring for operating said master member, of a catch for detaining the member against the tension of its spring, two detaining-stops engaging the master member intermediate its extremes of movement, springs for moving said stops into engaging position, and adjusting devices for holding either or both out of engaging position, connections between both said stops and the first-mentioned catch, and an operating member operable in one direction to move the master member against its spring until it is engaged by the first-mentioned catch and operating when moved in another direction to coöperate with and release said catch and control the movement of the master member.

37. The combination with a photographic shutter, a spring-operated motor device for operating it, a latch connection between the motor device and shutter, yielding in one direction to permit setting the motor without actuating the shutter, and a catch for retaining the motor, of a pivoted operating member, and a spring for operating it in one direction, said operating member coöperating with the motor device to place its spring under tension when operated in one direction on the pivot and against its spring, and coöperating with the catch for releasing the motor member when operated in the opposite direction.

38. The combination with the shutter proper, the movable master member, a spring for operating the latter in one direction, a latch connection between the member and shutter and a catch for holding the member against the tension of its spring, of detaining

devices for controlling the operation of the master member, the movement of said devices being in turn controlled by the catch and an operating member movable in one direction to set the master member and in another direction to actuate the catch and through it the controlling devices.

39. In a photographic shutter, the combination with the case and exposing mechanism, of a motor device, a detaining device therefor, means for moving the motor device against its motive action, and adapted to cooperate with the detaining device, a retarding device, a member connecting said device with the motor device and a shiftable member for cooperating with said first member whereby to vary the leverage for action on the retarding device.

40. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device for governing the movement of the master member and detachably connected thereto.

41. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device for governing the movement of the master member, adjustably and detachably connected thereto, whereby the speed of movement of the master member may be governed.

42. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device of constant force, and adjustable connections between said device and the master member for varying the leverage between the parts to change the speed of operation.

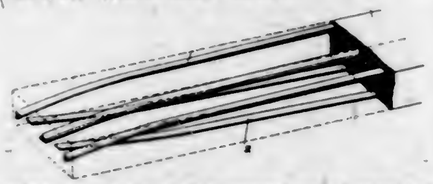
43. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating member for moving the master member to operate the shutter, and means for returning the member to first or normal position, of a retarding device for regulating the speed of the master member.

44. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating device for setting the master member to operate the shutter, and means for automatically returning it to normal position, of an adjustable retarding device for retarding the movement of the master member in a direction to cause the closing of the shutter.

45. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating device for setting the master member to operate the shutter, and means for automatically returning it to normal position, of a retarding device of constant force, and an adjustable connection between it and the master member for varying the leverage between the retarding device and master member.

46. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, movable and adjustable detaining devices for the master member for making bulb and time exposures and controlled by the operating member, of a retarding device for governing the movement of the master member, and setting devices cooperating with the detaining devices and with the retarding device for varying their relation to the master member.

749,163. **RAILROAD-TIE.** HORACE BRUMSON, Chicago, Ill. Filed Mar. 2, 1903. Serial No. 145,769. (No model.)



Claim.—1. An article of the character described, comprising a mass of suitable material formed into an elongated block having a flat top and a flat bottom which are substantially parallel to each other, and a reinforcing-strip embedded therein which is arranged substantially lengthwise of the block and curved from the top toward the bottom thereof, substantially as described.

2. An article of the character described, comprising a mass of suitable material formed into an elongated block having a flat top and a flat bottom which are substantially parallel to each other, and a plurality of reinforcing-strips embedded therein which are arranged substantially lengthwise of the block and curved from the bottom toward the top thereof, substantially as described.

3. A device of the character described, comprising a mass of cement or other similar material formed into a suitable block, and a series of arched strips embedded therein, said strips being oppositely curved and arranged parallel to each other, substantially as described.

4. An article of the character described, comprising a mass of suitable material formed into an elongated block and having a plurality of oppositely-curved reinforcing-strips embedded within the same, which are arranged substantially lengthwise of the block and curved from the bottom toward the top thereof, substantially as described.

5. An article of the character described, comprising a mass of suitable material formed into an elongated block, and a series of reinforcing-strips embedded therein, said strips being curved so that the central portion of some of said strips is arranged near the bottom of the block, and a central portion of others is arranged near the top of the block, the ends of said strips being arranged in substantially the same plane, substantially as described.

6. An article of the character described, comprising a mass of suitable material formed into an elongated block having a flat top and a flat bottom which are substantially parallel to each other, a plurality of reinforcing-strips embedded therein which are arranged substantially lengthwise of the block and curved from the bottom toward the top thereof, and means for securing the rails of the track to said block, substantially as described.

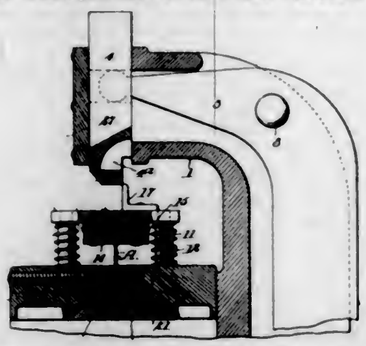
7. An article of the character described, comprising a block of cement or other suitable material, tubes arranged within said block, suitable material placed within said tubes in which a spike or other means of fastening the rails of a track in position may be secured, means for holding said tubes in place, and reinforcing-strips embedded in said block and oppositely curved to one another, substantially as described.

8. An article of the character described, comprising a block of cement or other suitable material, tubes arranged within said block having flanges to prevent their withdrawal therefrom, suitable material placed within said tubes in which a spike or other means for fastening the rails of a track in place may be secured, and reinforcing-strips embedded within said block and oppositely curved to one another, substantially as described.

9. An article of the character described, comprising a block of cement or other suitable material suitable as a railroad-tie, a tube arranged within said block and having a flange to prevent its withdrawal therefrom and suitable material placed within said tube into which a spike or other means for fastening the rails of the track in position on the track may be driven, substantially as described.

10. An article of the character described, comprising a block of cement or other suitable material, a tube arranged within said block and having a flange to prevent its withdrawal therefrom, suitable material into which a spike or other fastening may be driven to secure the rails of the track in position, reinforcing-strips for said block embedded therein, one or more of said reinforcing-strips engaging the flange upon said tube, substantially as described.

749,164. **PUNCHING-MACHINE.** ERWIN A. BURKE, Cleveland, Ohio. Filed Sept. 1, 1903. Serial No. 171,542. (No model.)



Claim.—1. In a punching-machine, the combination with a movable die and a cooperating gang of punches, and a punch-holder in which the punches are movable, of a selector-plate under the feet of the punches, supporting the selected punches and having openings into which the rest of the punches recede, and means to lift the punches when the die is retracted.

2. The combination with a die and a gang of punches, movable to and from each other, of a punch-holder in which the punches are movable, and a rotatable selecting-support for the punches, having various openings which may be registered with non-selected punches to permit the same to recede.

3. The combination with a die and a gang of punches, movable to and from each other, of a holder and a selecting-support for the punches permitting non-selected punches to recede, a stripper working between the die and punch-holder, and means carried by the stripper to advance the non-selected punches when the die and punches part.

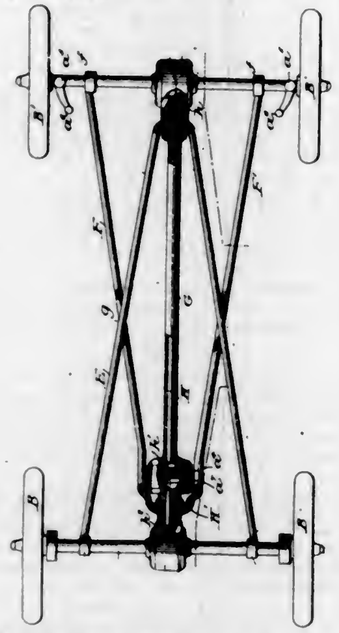
4. The combination with a die and a gang of punches movable to and from each other, of a holder and a selecting-support for the punches permitting non-selected punches to recede, a stripper working between the die and punch-holder, and friction-blocks carried by the stripper and engaging the non-selected punches to advance the same when the die and punches part.

5. In a punching-machine, the combination with a die and a gang of punches relatively movable, of a punch-holder in which the punches are severally movable, and a rotatable selecting-disk supporting the selected punches and having various radially-arranged recesses which may be registered with non-selected punches to permit the same to recede.

6. In a punching-machine, in combination, a bed, a gang of punches working therethrough, a selecting-support for the punches under the bed, a spring-supported stripper on the bed and having openings through which the punches work, a friction device carried by the stripper and engaging the punches to lift the same, a stop limiting the lift of the punches, and a reciprocating die cooperating with the punches.

7. In a punching-machine, the combination with a movable spring-supported stripper, of punches normally carried thereby and movable therewith, a die cooperating with the punches and acting against the stripper to depress the same, and a selective support for the punches, under the stripper, stopping the motion of selected punches when the stripper is depressed.

749,165. **MOTOR-VEHICLE.** WILSON W. BURSON, Rockford, and WILLIAM W. BURSON, Chicago, Ill. Filed Mar. 2, 1903. Serial No. 146,735. (No model.)



Claim.—1. In a motor-vehicle, the combination of two brace-pieces attached to the rear axle near the ground-wheels and extending forward are united and swiveled to a part of a differential-gear case extending backward from the front axle, two brace-pieces attached to the front axles near the jointed union and extending backward are united and swiveled to a part of a differential-gear case extending forward from the rear axle, said braces being bent at their crossing so as to permit a free vertical movement of the ground-wheels, whereby the axles are held in true alinement, and the ground-wheels allowed free vertical movement, substantially as specified.

2. In a motor-vehicle, the combination of two brace-pieces attached to the rear axle and united and swiveled near the middle of the front axle, two brace-pieces attached to the front axle and united and swiveled near the middle of the rear axle, and a tubular connecting-piece extending from the front to the rear axle, whereby the axles shall be held in alinement and the ground-wheels given free vertical movement, substantially as described.

3. In a motor-vehicle, the combination of an inclosed, divided driving-shaft adapted to drive each rear wheel by means of a differential gear, an inclosed, divided driving-shaft adapted to drive each forward wheel by means of a differential gear, an inclosed driving-shaft extending from the rear differential gear to the front differential gear, and means for operating said central driving-shaft, whereby the four ground-wheels may be driven and the driving parts protected from dust, substantially as set forth.

4. In a motor-vehicle, the combination of two tubular axles supporting the ground-wheels, each axle bisected and joined to a differential-gear case, a differential gear in each case, a tubular connection extending from one differential case to its coacting differential case, a driving-shaft within said tubular connection which engages the differential gears, and means for driving said shaft whereby the operating parts may be protected from dust, substantially as specified.

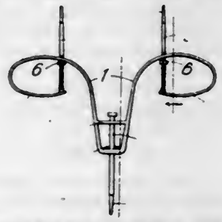
5. In a motor-vehicle, the combination of two inclosed, divided axles each provided with a differential gear adapted to drive the ground-wheels, an inclosed driving-shaft bisected, the two outer ends engaging, by means of proper gears the two differential gears of the axles and the inner ends engaging an interposed differential gear, and means for operating said interposed differential gear, whereby equal power is applied to the ground-wheels of each axle, and all the gears protected from dust, substantially as set forth.

6. In a motor-vehicle, the combination of two axles, each provided with a differential case, with differential gears therein, a tubular connection swiveled to one of said cases and connected to the other case, a differential case formed in said tubular part, a driving-shaft with suitable gearing engaging the axle-differentials through the interposed differential gears placed in the tubular connection, a driving-shaft engaging the interposed differential, whereby the ground-wheels may be driven with equal power, and be protected from dust substantially as set forth.

7. In a motor-vehicle, the combination of a hollow, vertically-jointed axle, an inclosed driving-shaft provided with a universal coupling in line with the axle-joint, a spherical cover in two parts extending from the wheel-hub to the axle, overlapping in line with the jointed axle and a packing-piece between the overlapping parts of the cover, adapted to permit the full movement of the jointed axle and to protect the parts from dust, substantially as described.

8. In a motor-vehicle, the combination of a jointed axle, a jointed driving-shaft within said axle, a spherical cover for said jointed axle extending from the hub to the main axle, said cover formed of two overlapping parts pivoted in line with the jointed axle, a packing-strip between the cover and the hub, and another between the overlapping joints of the cover, whereby the dust shall be excluded from the jointed parts and the wheel-axle, substantially as set forth.

749,166. **NECK-YOKE STRAP.** WARD G. CALLENDER, Plainfield Iowa. Filed Sept. 14, 1903. Serial No. 173,098. (No model.)

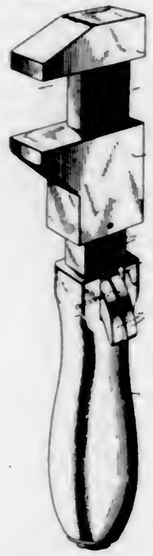


Claim.—1. A neck-yoke strap comprising a pair of resilient diverging arms, terminal open coils for the same, coupling-rods passing through the arms and having their inner ends secured to the free

ends of the coils, and a stem at the base of the arms, substantially as set forth.

2. A neck-yoke strap comprising a pair of resilient diverging arms, terminal open coils for the same, coupling-rods having their inner ends secured to the free ends of the coils, the arms being provided with elongated slots for the free passage therethrough of the said coupling-rods, means for adjusting the tension of the coils, a stem projecting from the base of the arms, means for adjusting the length of said stem beyond the base of the arms, and means carried by the coupling rods and stem for respectively securing the same to the breast of the animal and to the neck-yoke bar, substantially as set forth.

749,167. **WRENCH.** WILLIAM E. CARTER, Baker City, Oreg. Filed Sept. 24, 1903. Serial No. 174,517. (No model.)



Claim.—1. A wrench including a fixed and a movable jaw, means for automatically feeding the movable jaw, and alternately operable checking devices for limiting the operation of the feeding means.

2. A wrench including a fixed and a movable jaw, means for automatically feeding the movable jaw, a rack-bar provided with staggered notches or teeth carried by said jaw, and a pair of checking devices adapted to alternately engage the teeth on the rack-bar for limiting the operation of the feeding means.

3. A wrench including a fixed and a movable jaw, means for automatically feeding the movable jaw, a rack-bar carried by the movable jaw and sliding within a groove or channel in the fixed jaw, and a pair of pawls adapted to alternately engage the rack-bar for limiting the operation of the feeding means.

4. A wrench including a fixed and a movable jaw, a spring carried by the fixed jaw and arranged within the handle of the wrench for automatically feeding the movable jaw, a rack-bar provided with staggered notches or teeth secured to the movable jaw, and a pair of spring-pawls adapted to alternately engage the teeth on the rack-bar for limiting the movement of said movable jaw.

5. A wrench including a handle provided with a longitudinal groove or recess, a fixed jaw having a reduced extension fitting within said recess, a movable jaw slidably mounted on the fixed jaw, a rack-bar secured to said jaw and having its free end slidably mounted on the reduced extension of the fixed jaw, a spring mounted on the reduced extension for automatically feeding the movable jaw, and a pair of spring-pawls adapted to alternately engage the rack-bar for limiting the movement of the movable jaw.

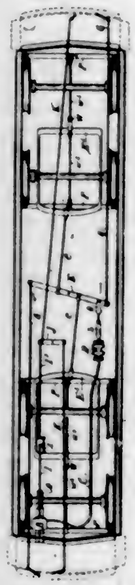
749,168. **COLLAR-CLASP.** JOHN CLEMENT, Baraboo, Wis., assignor to Frank A. Philbrick, Baraboo, Wis. Filed Sept. 21, 1903. Serial No. 174,105. (No model.)

Claim.—1. A necktie-holding and collar-holding device comprising a clasp portion adapted to receive and clasp the lower edge of the collar and provided with an outward-projecting lip or lips adapted to engage the necktie-band and an outward-projecting arm adapted to engage the vest and hold down the collar of the wearer, said arm being connected to the clasp at the lower end thereof.



2. A collar-retainer, comprising a vertical clasp member adapted to engage the lower edge of the shirt-collar, and a laterally-projecting arm or retaining member extending at an angle from the lower end of the clasp member and adapted to lie beneath the vest.

749,169. **CAR-BRAKE.** DAVID W. COPELAND and JOHN R. MONTAGUE, Syracuse, N. Y. Filed Apr. 7, 1903. Serial No. 151,562. (No model.)



Claim.—1. The combination with the brake mechanism, of a brake-cylinder, means for introducing fluid-pressure therein, a piston reciprocating in the cylinder, a piston-rod bearing rigidly against the piston, and yielding connections interposed between the piston-rod and brake mechanism.

2. The combination with the brake mechanism, of a brake-cylinder, means for admitting fluid-pressure thereto, a piston reciprocating in the cylinder, a piston-rod, yielding connections between the piston-rod and the brake mechanism, and a cap for limiting the outward movement of the piston.

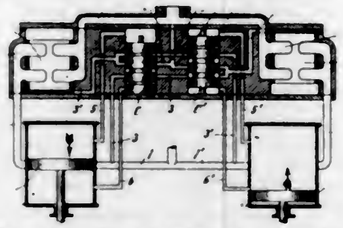
3. The combination with the brake mechanism, of a brake-cylinder, a piston reciprocating therein, connections between the piston and the brake mechanism, and a cap for limiting the outward movement of the piston.

4. The combination with a brake-lever or sway-bar, brake-shoes, connections between the sway-bar or brake-lever and the brake-shoes, a brake-cylinder, means for supplying fluid-pressure thereto, a pistoo operating in the cylinder, a link pivotally connected with the brake-lever and also connected with the piston-rod, a collar on the piston-rod, and a spring interposed between the link and the collar.

5. The combination of a brake-lever, brake-shoes, connections between the brake-lever and the brake-shoes, a brake-cylinder, means for supplying fluid-pressure thereto, a piston reciprocating in the cylinder, a piston-rod, a cross-bar connected therewith, a bifurcated frame yieldingly connected with the cross-bar, and connections between the bifurcated frame and the brake-lever.

749,170. **SYNCHRONIZER FOR DUPLEX ENGINES.** EDWIN M. CORYELL, New York, N. Y., assignor to Julia E. Cameron, New York, N. Y. Filed June 17, 1903. Serial No. 161,935. (No model.)

Claim.—1. The combination with a duplex engine comprising the usual main steam-cylinders and pistons, the latter a quarter-cycle apart, two auxiliary valves and valve-chambers, and four ducts leading each from one end of one of the chambers aforesaid to one-fourth of the way from one end of one of said cylinders, whereby said auxiliary valves are reciprocated a quarter-cycle apart, of a choke-valve in the exhaust-passage from one cylinder and a steam-passage for actuating said choke-valve, the said passages being closed by the first of said auxiliary valves when the same is at the top or bottom of its stroke, and closed by the second said auxiliary valve when the latter is at the middle of its stroke, and a similar choke-valve for the exhaust from the other cylinder having likewise a steam-passage for actuating it, said last-named passage being closed when said first auxiliary valve is at the middle of its stroke and when said second auxiliary valve is at the top or the bottom of its stroke.



2. The combination with a duplex engine, of a retarding device for the exhaust of each engine member, and a pair of auxiliary valves each actuated automatically by one engine member of said duplex engine and the two coacting to shift either one of said retarding devices to choke the exhaust from its engine member when the piston thereof travels too fast.

3. The combination with a duplex engine, of two auxiliary valves each reciprocated by the relative steam-pressure through passage-ways leading from near each end of one of the two steam-cylinders, the two main pistons being one-quarter cycle apart, and the two auxiliary valves having similar relations to each other, of a choke-valve in the exhaust-passage from each member, and a steam-passage leading from behind each choke-valve and controlled by both auxiliary valves.

4. The combination with a duplex engine of a retarding device for the exhaust of each member thereof, and two auxiliary valves each reciprocated by one engine member and the two coacting to shift either one of said retarding devices.

5. The combination with the two members of a duplex engine, each containing the usual main piston and inlet and outlet ports and main valve, and one of said main pistons being one-quarter cycle in advance of the other, of a device located in the exhaust-passage of each member and movable to check said passage for retarding its main piston, and two auxiliary valves each reciprocated through suitable passages by the relative steam-pressure in one of said members, and the two auxiliary valves aforesaid coacting to shift its choking device and retard the main piston.

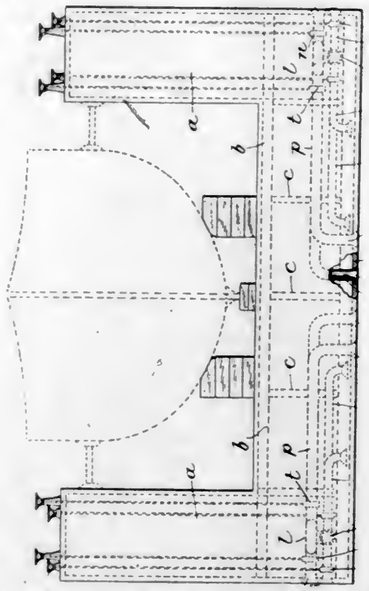
6. The combination with a duplex engine, of a choke-valve for the exhaust from each engine member thereof, and means for actuating the same.

7. The combination with a duplex engine, of a synchronizing device that comprises automatic means for retarding the exhaust from each of the two engine members, and auxiliary automatic means for actuating said retarding means.

749,171. **FLOATING DOCK.** ANDREW C. CUNNINGHAM, Washington, D. C. Filed Apr. 3, 1903. Serial No. 150,996. (No model.)

Claim.—1. In a floating dock having the usual arrangement of pipes for filling and emptying the dock, the combination with the main pipe having branches leading to the several compartments, of a pump connected to said pipe to take water therefrom, and a pipe connected to the pump to receive water from the pump, said pipe opening through the bottom of the dock to discharge the water forcibly under it.

2. In a floating dock having the usual arrangement of pipes for filling and emptying the dock, the combination with the main pipe having a valved inlet for taking in water from the outside, and branches leading to the several compartments, of a pump connected to the main pipe to take water therefrom, and a discharge-pipe connected to the pump so as to receive water from the pump, said discharge-pipe opening through the bottom of the dock so as to discharge the water under it, and having a valve between the pump and its discharge end.



3. In a floating dock having the usual arrangement of pipes for filling and emptying the dock, the combination with the main pipe having a valve-inlet for taking in water from the outside, and branches leading to the several compartments, of a pump connected to the main pipe to take water therefrom, a valved outlet for discharging the water from the pump outside the dock, and a supplemental discharge-pipe leading from the pump and opening through the bottom of the dock, said supplemental pipe having a valve between the pump and its discharge end.

749,172. **REVERSIBLE ROTARY SNOW-PLOW.** OTIS CUTTING, Seattle, Wash., assignor of one-half to Maximilian J. O'Donnell, Seattle, Wash. Filed Aug. 4, 1903. Serial No. 168,155. (No model.)

Claim.—1. In a rotary snow-plow, the combination with a car-truck, of a car-body rotatably mounted upon and having an end extending beyond one end of the said truck, a screw device mounted upon a shaft transversely of and beneath the projecting portion of said body, means to raise said screw device clear of obstruction, and means to drive said screw.

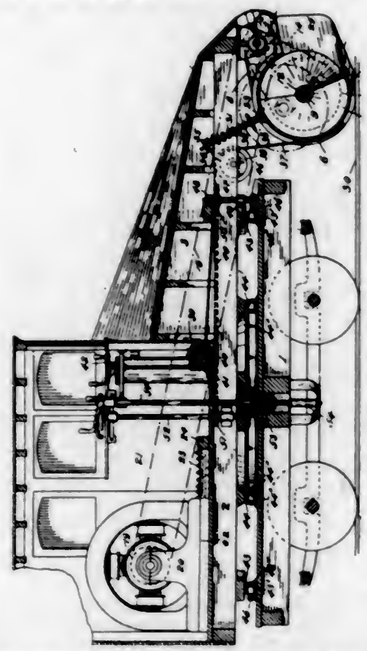
2. In a rotary snow-plow, the combination with a truck and a car-body rotatably mounted thereon, of a cylindrical casing provided with an open end and an aperture in the peripheral wall thereof, flaring flanges projecting forwardly of said casing about the margin of said aperture, swinging connection between the car-body and the said casing whereby the latter is capable of being raised clear of obstructions, means to raise said cylinder from within a cab which is upon the car-body, means comprising a spring for pressing the casing down in operative position, a screw mounted upon and rotatable with a shaft extending axially through said casing, and means to rotate said shaft.

3. In a rotary snow-plow, in combination, a truck, a car-body pivotally mounted upon the said truck, a transversely-arranged screw device rotatably secured to the car-body adjacent of one of its ends, means to drive said screw device, and means for controlling the position of the car-body relatively to the truck whereby the said screw device may be moved from side to side.

4. In a rotary snow-plow the combination with the car-body, and a truck, of a hollow king-pin connecting said body and truck, a brake-staff passing through said hollow king-pin, a snow transmission-screw so suspended in swinging bearings from said body, that when the casing is struck by an obstruction upon the track it will be raised clear of the same, a motive device in said body, and mechanical connections from the said screw to the said motive device.

5. In a rotary snow-plow, the combination with a truck, and a car-body, of a screw device suspended in swinging bearings from the

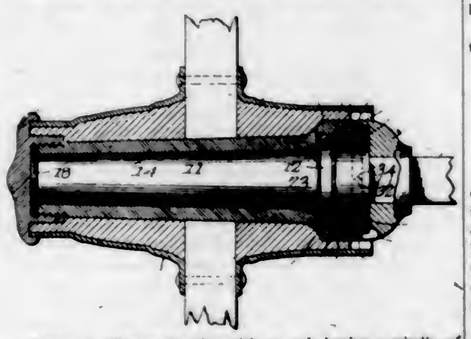
said body, a motive device on said body, and connections between said motive device and the said screw.



6. In a rotary snow-plow, the combination with a truck and a car-body, of a motive device on said car-body, a screw device secured to said car-body, means to raise and lower said screw device relatively of the car-body, mechanical connection between the said motive device and the said screw device, and the tension means for taking up the slack of said connection.

7. In a rotary snow-plow, the combination with a truck, and a car-body, provided with an end projection beyond the front end of the truck, of a transversely-arranged non-rotative shaft supported from the car-body, a cylindrical casing hung from said shaft and provided with an open end and an aperture in the forward side of the peripheral wall thereof, a shaft central of the said cylindrical casing, a screw device and a sprocket-wheel fixedly mounted upon said last-named shaft, a sprocket-wheel and a pulley integral of a sleeve loosely mounted upon the first-named shaft, chain connection between the said sprocket-wheels, and a rope connection between the said pulley and another pulley upon the shaft of a motive device upon the said car-body.

749,173. VEHICLE-AXLE BOXING. GEORGE W. DAVIS, Princeton, Kans. Filed Oct. 28, 1903. Serial No. 178,987. (No model.)



Claim.—1. The combination with an axle having a spindle, of a hub having a skein rotative upon said spindle, and a divided sleeve for holding said skein against longitudinal movement on said spindle, the adjacent surfaces of said divided sleeve being reversely fluted and grooved to provide guiding means between them.

2. The combination with an axle having a lateral collar fixed to the inner end of its spindle, a hub having a skein rotative upon said spindle and provided with an internally-threaded cavity opposite said collar, a divided sleeve having a shell extending between said collar and skein and externally threaded to engage said threaded cavity, the adjacent surfaces of said divided sleeve being reversely fluted and grooved to provide guiding means between them, substantially as described.

3. The combination with an axle having an integral lateral collar at the inner end of its spindle, a hub having a skein rotative upon said spindle and provided with an internally-threaded cavity opposite said collar, a divided sleeve having a shell extending between said collar and skein and externally threaded to engage said threaded cavity, and each section provided with an external annular flange and rearwardly-extending stop-lug, and a sand-guard carried by said axle and extending into engagement with said flange and provided with a radial cavity corresponding to said lugs, substantially as described.

4. The combination with an axle having a spindle, of a hub having a skein rotative upon said spindle and externally threaded at its outer end, means for holding said hub against longitudinal movement on said spindle, and a cap-nut engaging the outer threaded end of said skein and provided with a rearwardly-extending flange spaced from the skein-engaging member and fitting over the outer end of the hub.

749,174. PUTTER. WILLIAM W. DAVIS, East Orange, N. J. Filed July 3, 1903. Serial No. 164,129. (No model.)



Claim.—1. The combination of the head and handle adjustably in relation to each other, and means for fixing the position of the head, a ball held in a chamber of the head and the shank having a screw connection with the ball and projecting through the same.

2. The combination of the head, the ball held in a chamber of the head, and the shank extending into the head and through the ball, the shank and ball having a screw connection.

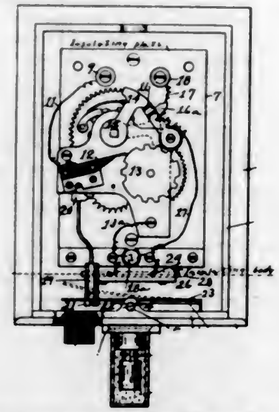
3. The combination of the chambered head, the cup fitting into the chamber of the head, the ball held in the said cup and chamber, and the shank extending outward from the chamber, the said shank having a threaded end which fits in and extends through the ball.

4. A putter having a head with four flat faces at right angles to each other, each forming a striking-surface.

749,175. AUTOMATIC AND MANUAL FIRE-ALARM. WILLIAM L. DENIO, Rochester, N. Y., assignor of one-half to Hobart F. Atkinson, Rochester, N. Y. Filed May 14, 1903. Serial No. 157,124. (No model.)

Claim.—1. The combination of a number-sending wheel, a circuit making and breaking spring therefor, the wheel and spring being connected to opposite terminals of the box, driving means, an escapement therefor, a manual releasing device at the box including an operating-rod, a plurality of springs operated thereby, movement of all such springs being necessary for releasing the escapement, and a plurality of thermostatic devices also at the box and acting on the same springs for releasing the escapement.

2. The combination of a number-sending wheel, a circuit making and breaking spring therefor, the wheel and spring being connected to opposite terminals of the box, driving means, an escapement, an escapement-pendulum normally held by a plurality of springs, a manual releasing device at the box including an operating-rod, a plurality of springs operated thereby, movement of all such springs being necessary for releasing the escapement, and a plurality of thermostatic devices also at the box and acting on the same springs for releasing the escapement.



3. The combination of a number-sending wheel, a contact circuit breaking and making spring therefor, driving means, an escapement therefor, a weight suspended from the escapement, parts connected to the weight adapted to engage ribs, springs carrying such ribs and normally holding them in engagement, and means for raising the springs to lift their ribs out of engagement for releasing the weight and escapement.

4. The combination in a fire-alarm box of a number-sending wheel, a contact-spring for said wheel, driving means for said wheel, an escapement therefor with an escapement-weight 19 having side wings 21, springs 23, ribs 22 engaging the wings, and means for raising the springs and ribs.

5. In a fire-alarm box the combination of a sending-wheel, a contact-spring for said wheel, driving means for said wheel, a vibratory weighted escapement, two integral springs, the weight vibrating between the springs, and having wings extending near the springs, and parts carried by springs engaging the wings.

6. In a fire-alarm box the signal-wheel and spring, driving means for said signal-wheel, a signal-lamp at the box and connected between the terminals and normally inoperative, and an adjustable resistance in a shunt around said lamp.

7. In a fire-alarm box the signal-wheel and spring, driving means for said signal-wheel, a signal-lamp connected in the signal-circuit, a normal short circuit for the lamp, a rotatable arm connected to one box-terminal, and a coöperating spring connected to the other terminal, said arm at the end of a revolution closing said short circuit.

8. The combination in an alarm-box, of a signal-wheel and spring, a motor for the wheel, means normally preventing operation of the motor, an operating device for starting a motor, a glass cover for the same, said cover having a flange at its open end, a slide engaging said flange, the box-cover, and means carried thereby for holding the slide in engagement.

749,176. COAT-HANGER. ROBERT BYRD, Aurora, Nebr. Filed July 22, 1903. Serial No. 166,573. (No model.)

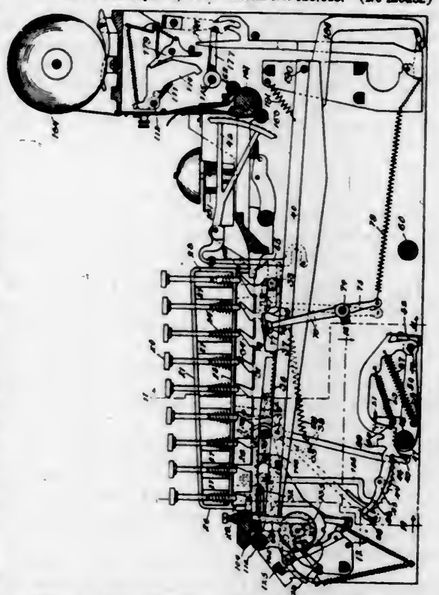
Claim.—1. A coat-hanger comprising a bar, clips disposed upon the ends of the bar, rods pivotally connected with the clips and detachable therefrom, said rods being pivotally connected at their outer ends to form a hanger, and hooks connected to the clips and depending therefrom and adapted for engagement with the sleeve-openings of a garment.

2. A coat-hanger comprising a bar, clips disposed upon the ends of the bar, a rod having a hook upon the end thereof disposed with its hook in engagement with one of the clips, the other end of the rod carrying a loop and having a convolution adjacent thereto, a second rod having a ring at one of its ends and a hook at its remaining end disposed with its hook in engagement with the remaining clip and with its ring in engagement with the convolution of the first-named rod and hooks connected to the clips and depending therefrom and adapted for engagement with the sleeve-openings of a garment.

3. A coat-hanger comprising a bar, clips comprising a central loop and supplemental side loops engaged with their central loops upon the ends of the bar, rods engaged with one of the supplemental loops of each clip and connected at their free ends to form a hanger and hooks connected to the remaining side loops of the clips and adapted for engagement with the sleeve-openings of a garment.



749,177. CALCULATING-MACHINE. DORR E. FELT, Chicago, Ill., assignor to Comptograph Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 12, 1902. Serial No. 123,085. (No model.)



Claim.—1. The combination with a main actuator and a series of column-actuators, of separate variable connections one for each column communicating more or less movement from the main actuator to the column-actuators.

2. The combination of a series of column-actuators, a main actuator, and a separate pivoted link between each column-actuator and the main actuator, such links being adapted to be shifted to give more or less movement to their respective column-actuators.

3. The combination of a series of column-actuators, a main actuator and a link for each column pivoted to one and movable upon the other of the actuators, and serving to give more or less movement to the respective column-actuators.

4. The combination of a column-actuator and a main actuator each pivoted to move in an arc, and a variable connecting device between the two, connected to one at a fixed distance from its pivot, and adjustably connected to the other at varying distances from its pivot, substantially as specified.

5. The combination with a main actuator and a column-actuator, of a variable elastic connection between the two whereby more or less of the movement of the main actuator may be communicated to the column-actuator, substantially as specified.

6. The combination of a column-actuator, a main actuator and a pivoted link between the two and elastically connected to one of them and adapted to be shifted to give more or less movement to the column-actuator, substantially as specified.

7. The combination of a column-actuator, a main actuator and a link pivoted to one and movable upon the other and serving to give more or less movement to the column-actuator, the link being elastically connected to one of said parts, substantially as specified.

8. The combination of a column-actuator and a main actuator, each pivoted to move in an arc, with variable elastic means connecting the two, such means being joined to one at a fixed distance from its pivot, and adjustably connected to the other at varying distances from its pivot, substantially as specified.

9. The combination of a numeral-wheel, provided with equispaced stopping-points, a pawl or stop engaging said points, a column-actuator for rotating said numeral-wheel, and a main actuator elastically connected to the column-actuator, substantially as specified.

10. The combination of a series of numeral-wheels each provided with equispaced stopping-points, a pawl or stop for each wheel engaging said points, a column-actuator for each column, a main actuator common to all the columns and elastic connections between the column-actuators and said main actuator, substantially as specified.

11. The combination with the actuating-shaft and the column-actuators, of a spring-held yielding means communicating the motion of the actuating-shaft to the column-actuator, substantially as specified.

12. In an adding and printing machine the combination of the column-actuator, the numeral-wheel provided with equispaced stopping-points and rotated by the said actuator, a stopping pawl or lever, a link or connection from said stopping-lever to an arm on the main actuator, said main actuator, said arm thereon, and a spring connection between the main actuator and the arm, and a variable-link connection from the said arm to the column-actuator, substantially as specified.

13. The combination with the adding and printing mechanisms and the power mechanism whereby the same are actuated, of the keys and a variably-acting link positioned by the keys and connecting the printing and adding mechanisms with the power mechanism and determining the action of the latter, substantially as specified.

14. The combination with the adding and printing mechanisms and the power mechanism whereby the same are actuated, of the keys, a variably-acting link positioned by the keys, and an arm upon the actuating mechanism adapted to engage the link in any position of the latter, substantially as specified.

15. The combination with the adding and printing mechanisms and the power mechanism whereby the same are actuated, of the keys, a variably-acting link positioned by the keys, and a notched arm upon the actuating mechanism adapted to engage the link in different positions of the latter, substantially as specified.

16. The combination with the adding and printing mechanism and the power mechanism whereby the same are actuated, of the keys, and a link variably positioned by the keys and adapted to be connected in various positions to the power mechanism, the position of the link determining the extent of actuation given the adding and printing mechanism, substantially as specified.

17. The combination with the adding and printing mechanisms and the power mechanism whereby the same are actuated, of several denominational series of keys, a variably-acting link for each denomination controlled by the keys of the corresponding denomination, and a yielding arm upon the power mechanism adapted to engage the link in any position of the latter.

18. The combination with the printing and adding mechanisms of the keys and means whereby the latter control said mechanisms consisting of a movable bar having digital inclines, a link variably positioned by said bar, and a swinging notched arm engaging the link, substantially as specified.

19. The combination with the printing and adding mechanisms of the keys, and means whereby the latter control said mechanisms, consisting of a link variably positioned by the act of depressing the keys and joined to said mechanisms, a power mechanism whereby said mechanisms are actuated, and means for coupling said link in its various positions to the latter, substantially as specified.

20. The combination with the adding and printing mechanisms, and the power mechanism whereby the same are actuated, of several denominational series of keys, a variable-acting link for each denomination controlled by the keys of the corresponding denomination, a main actuator forming part of the power mechanism, and a separate arm for each link mounted on said actuator and adapted to engage its corresponding link in any position of the latter.

21. The combination with the adding and printing mechanisms and the power mechanism whereby the same are actuated, of the keys, a variably-acting link controlled by the keys, a main actuator forming part of the power mechanism, and an arm mounted on the actuator and held thereon by spring-power, and adapted to engage the link in any position of the latter, substantially as specified.

22. The combination with the column-actuator, of the power mechanism, the keys, a link controlled by the keys as to position and to which it is moved by them and pivoted to the actuator, and means for coupling the link in any of its positions to the power mechanism, whereby the latter operates the actuator in accordance with the position given the link by the keys, substantially as specified.

23. The combination with the denominational column-actuators, the denominational series of keys, and the power mechanism for operating said actuators, of a series of links or devices each pivoted to one of the actuators and communicating motion to it from the power mechanism according to the position of the link, substantially as specified.

24. The combination with the denominational column-actuators, the denominational series of keys, and the power mechanism for operating said actuators and having a uniform stroke, of a series of links or devices for connecting the column-actuators to the power mechanism, such links being variably positioned by the keys and their position determining the extent of motion communicated by them, substantially as specified.

25. The combination with the keys of a denomination, a column-actuator for the same denomination, and the main actuator, of a single power-transmitting device carrying power from the main actuator to the column-actuator, and adjustable so it may vary the extent of movement transmitted, said device being moved into operative position by the keys, substantially as specified.

26. The combination with a plurality of denominations of keys, of a column-actuator for each denomination, and a main actuator for all the denominations having a uniform stroke, of a single power-transmitting device in each denomination carrying power from the main actuator to the column-actuator of the same denomination, such devices being moved into operative position by the keys of the denomination to which they belong and acting to vary the power transmitted according to the value of the keys by which they are positioned, substantially as specified.

27. In a machine for adding and printing numbers, the combination of a column-actuator for presenting the various types to be printed, a link connecting said lever to the main actuating device, said main actuating device, means as a cogged segment carried on said column-actuator for rotating the numeral-wheels, a detent-lever for locking the wheels, a link extending from said detent-lever to a notched arm, said notched arm mounted on said main actuating device and held thereto by spring-power, a lever or link having its end adjustable to engage the notches in the notched arm, and communicating the motion of the notched arm to the column-actuator in variable amounts according to the notch engaged, whereby a self-adjusting mechanism is produced, substantially as specified.

28. The combination with the column-actuator for actuating the numeral-wheel and the type-segment, of the numeral-wheel-locking lever connected to a notched arm, a link connecting said column-actuator with said notched arm and capable of being positioned in the various notches thereof, said notched arm mounted on an actuating-shaft and held thereon yieldingly by spring-power, whereby if the actuating-shaft be moved too far the spring-power between it and the notched arm may yield to compensate for the over motion, and whereby special adjustment may be rendered unnecessary, substantially as specified.

29. The combination with the column-actuator and the main actuator, of the variable link pivoted to the column-actuator and having a projecting pin, an arm borne on said main actuator and having notches to engage said pin, means for positioning said link according to the power of the key struck, and a set of digital keys corresponding to the notches in the arm, substantially as specified.

30. The combination with the column-actuator and the main actuator, of the variable link pivoted to the column-actuator and having a projecting pin, an arm borne on said main actuator and having notches to engage said pin, a set of digital keys, and means whereby the keys may position the link and thus determine which of the notches shall engage the link, substantially as specified

31. The combination with the column-actuator and the main actuator, of the variable link pivoted to the column-actuator and having a projecting pin, an arm borne on said main actuator and having notches to engage said pin, a set of digital keys corresponding to the notches in the arm, and a cam-bar acted upon by the keys and serving to position the link in accordance with the value of the key, substantially as specified.

32. The combination with the column-actuator and the main actuator, of the link 39, the cam-bar for adjusting the link, the notched arm 45 and means whereby the arm is supported upon and made to move with the main actuator, substantially as specified.

33. The combination with the denominational series of depressible keys, of a series of cams upon a bar under the keys adapted to be moved by the keys through varying distances according to the keys struck, a column-actuator, a main actuator, and a variably-acting link for connecting said actuators and positioned at different points relative to one of them by said cam-bar, and a graduated arm on the main actuator engaged by the link, substantially as specified.

34. The combination with the column-actuator and the main actuator of means for regulating the strokes imparted by the latter to the former, consisting of the keys, the cam-bar, the link pivoted to the column-actuator and positioned by the cam-bar, and the notched arm borne on the main actuator, substantially as specified.

35. The combination with the series of column-actuators and the main actuator, of the keys, means for locking the keys in the depressed position, the cam-bars actuated by the keys through varying distances in accordance with the power of the keys which are struck, the variable links positioned by the bars, and the notched arms mounted on the main actuator, substantially as specified.

36. The combination with the variably-positioned link and the means for positioning it, of the main actuator and the notched arm mounted thereon and engaging the link, the arm having nine operating-notches and a deep non-operating notch, substantially as specified.

37. The combination with the variably-positioned link and means for positioning it for printing totals, of the answer-arm mounted on the main actuator and held thereto by a spring, and said actuator, substantially as specified.

38. The combination with the variably-positioned link, and a hand-lever whereby it may be positioned for printing totals, of the main actuator and an answer-arm mounted on the actuator and held thereto by a spring, substantially as specified.

39. The combination with the column-actuator and the main actuator, of the variably-positioned link, means for positioning said link for printing totals, a spring-held answer-arm on the main actuator, and means for determining the amount of movement of the column-actuator, substantially as specified.

40. The combination with the column-actuator and the main actuator, of the variably-positioned link, means for positioning said link for printing totals, a spring-held answer-arm on the main actuator, the numeral-wheels, means for locking the wheels during the answer-printing, and means for determining the amount of movement of the column-actuator, substantially as specified.

41. The combination with the column-actuator and the main actuator, of the variably-positioned link, means for positioning said link for printing totals, a spring-held answer-arm on the main actuator, the numeral-wheels, means for locking the wheels during the answer-printing, means for determining the amount of movement of the column-actuator, and printing mechanism, substantially as specified.

42. The combination with the variably-positioned link for transmitting power from the main actuator to the column-actuator, and said actuators, of a graduated notched numeral-arm employed in printing the numerals, and an answer-arm employed in printing totals, said arms being both mounted on the main actuator and both being adapted to engage the link, substantially as specified.

43. The combination with the variably-positioned link for transmitting power from the main to the column actuator, and said actuators, of a graduated notched arm employed in printing the numerals, an answer-arm employed in printing totals, both said arms being mounted on the main actuator and held down thereon by springs, and both being adapted to engage the links, substantially as specified.

44. The combination with the variably-positioned link, of the notched numeral-arm at one side of the link and the answer-arm at the other side thereof, each adapted to engage the link in some of its positions, substantially as specified

45. The combination with the column-actuator and main actuator, of a variably-positioned link connected to the former, spring-depressed arms on the main actuator adapted to engage said link, means for setting said link so it will engage one arm when printing the numerals, and means for setting the link so it will engage the other arm when printing the totals, substantially as specified.

46. The combination with the column-actuator and main actuator, of a variably-positioned link connected to the former, spring-depressed arms on the main actuator adapted to engage said link, means for setting said link so it will engage one arm when printing the numerals, means for setting the link so it will engage the other arm when printing totals, and printing mechanism, substantially as specified.

47. The combination with the spring-pressed arms 45 and 96 of the variably-positioned link engaged by one arm in each of nine different positions and the other arm in still another position, means for actuating said arms, and a column-actuator to which varying movements are transmitted by the link in accordance with the position of the latter, substantially as specified

48. The combination with the series of key-locking plates 28 having curved portions 78, of the lever 70, the rock-shaft 74 operated by the lever, the cross-bars carried by the shaft and having teeth engaging the plates, substantially as specified.

49. The combination with the key-locking plates 28 having curved portions 78, of the rock-shaft 74, the toothed cross-bar mounted thereon, and means whereby said shaft will be rocked so as to release said plates at the end of each printing operation, substantially as specified.

50. The lever 70 in combination with key-releasing mechanism, repeating mechanism and answer-printing mechanism, all controlled by said lever, substantially as specified.

51. The combination with the series of bars 31 having a series of graduated cams, of the lever 70 and connections whereby said bars are moved longitudinally so as to carry the cams away from their operative positions when the lever is set for answer-printing, substantially as specified.

52. The combination with the lever 70 controlling the answer-printing, of the keys, the plates locking the keys and means whereby the plates will be swung laterally of the keys to release them on the setting of the lever 70 for answer-printing, substantially as specified.

53. The combination with the lever controlling the answer-printing, of variable links 39 one for each denomination positioned for answer-printing by the setting of the lever, substantially as specified.

54. The combination with the variable links and vibrating answer-arms 96, of the lever 70 controlling the answer-printing and setting said links to operate with said arms, substantially as specified.

55. The combination with the cam-bars and the variable links positioned thereby, of the lever 70, and connections whereby said lever may move said bars and position the links for answer-printing, substantially as specified.

56. The combination with the cam-bars, the variable links, the vibrating answer-arms 96, and means whereby the bars may move said links and position the links for answer-printing, substantially as specified.

57. The combination of the keys, the key-locking plates, and the cam-bars, with lever 70 and means whereby the lever may move both the plates and bars out of operating position during answer-printing, substantially as specified.

58. The combination with the canceling mechanism and the main power device, of means for preventing any operation of the canceling mechanism pending an operation of the power device, substantially as specified.

59. The combination with the canceling mechanism and the main power device of means for locking the former pending any operation of the power device, such locking means acting on the lever 124 of the canceling mechanism, substantially as specified.

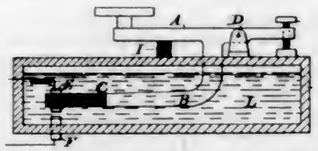
60. The combination with the canceling mechanism and the lever controlling the answer-printing, of means whereby the setting of said lever for answer-printing causes the locking of the canceling mechanism pending the answer-printing operation, substantially as specified.

61. The combination of a denominational series of keys having bent ends, and a spring-pressed swinging plate acting to lock the keys in their depressed positions, said plate being swung by the keys as they are depressed and thus adapted to release any key previously depressed, and the longitudinally-movable cam-bar, also actuated by the keys and held in its adjusted positions by the locked keys, substantially as specified.

62. The combination of a denominational series of keys having bent ends, and a spring-pressed swinging plate acting to lock the

keys in their depressed positions, said plate being swung by the keys as they are depressed and thus adapted to release any key previously depressed, an adjustable cam-bar positioned and held by the depressed keys, the column-actuator whose movements are regulated by the cam-bar, and means for operating the actuator, substantially as specified.

749,178. WIRELESS SIGNALING APPARATUS. LEE DE FOREST, New York, N. Y. Filed Mar. 5, 1903. Serial No. 146,367. (No model.)



Claim.—1. A signal-key of the Morse type having a bend whereby the contacting arm may be immersed in an insulating fluid while the operating-arm is free therefrom, the contacting arm having an insulating terminal-section, a contact member carried by said terminal-section, and a coöperative contact member, said contact members being immersed in a dielectric of relatively high insulating capacity.

2. In a signal-key of the Morse type, the combination with a reservoir containing an insulating fluid, a pivoted key-lever adapted to have one arm without said reservoir and the other within said reservoir and dipping beneath the fluid therein, and two contact members one carried by the immersed section of the lever and both immersed in the insulating fluid.

3. A signal-key of the Morse type comprising a pivoted lever one arm of which is adapted to be engaged by the operator the other arm carrying one of the make-and-break members, and coöperative make-and-break member, said make-and-break members being immersed in a dielectric of relatively great insulating capacity.

4. A signal-key of the Morse type comprising a pivoted lever the two arms thereof being bent so that one may be immersed in a fluid while the other is clear thereof, two make-and-break members one carried by the immersed arm, and a dielectric of relatively high insulating capacity surrounding said make-and-break members.

5. In a signal-key of the Morse type, the combination with a receptacle containing a dielectric of relatively great insulating capacity, of a key-lever carrying upon one arm an insulated contact member which is immersed in said dielectric, and a complemental contact member also immersed in said dielectric.

6. In a signal-key of the Morse type, the combination with a key-lever having two arms one of which is adapted to be engaged by the operator and the other arm carrying a contact member adapted to be connected with one side of the circuit and a stationary contact member cooperating therewith and adapted to be connected with the other side of the circuit, of a dielectric of relatively high insulating capacity surrounding said contact members.

7. A signal-key of the Morse type for use in wireless telegraphy and with alternating currents, having depending contact-arm operating in and breaking the current beneath the surface of an insulating fluid.

8. A signal-key of the Morse type for use in wireless telegraphy having the contacting or make-and-break members operating within an insulating fluid to make and break an alternating current of more than one hundred volts.

9. A signal-key of the Morse type for use in wireless telegraphy having the contacting or make-and-break members operating within an insulating fluid to make and break an alternating current of more than twenty-cycle frequency.

10. A signal-key of the Morse type for use in wireless telegraphy having the contacting or make-and-break members operating within an insulating fluid to make and break a current of approximately five hundred volts.

11. A signal-key of the Morse type for use in wireless telegraphy comprising a pivoted lever having arms of unequal lengths, the shorter arm being adapted to be engaged by the operator, the longer arm carrying one of the make-and-break members, and a cooperative stationary make-and-break member.

12. A signal-key for use in wireless telegraphy comprising a pivoted lever having a substantially horizontal arm provided with a finger-piece, the opposite arm carrying a contact member at a level materially lower than the pivot.

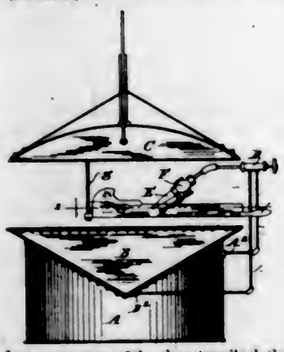
13. A signal-key for use in wireless telegraphy comprising a pivoted lever having a substantially horizontal arm carrying a finger-piece, and a depending arm carrying a contact-point.

14. A signal-key for use in wireless telegraphy, comprising a pivoted lever, a spring acting to throw said lever in one direction, a finger-piece carried by the lever, a stationary contact member, a cooperative contact member carried by the lever, and means for maintaining an insulating fluid between said contact members.

15. A signal-key for use in wireless telegraphy, comprising a lever pivoted intermediate its ends and having upon one end a finger-piece, the other end having a make-and-break or contact member, and means for maintaining an insulating fluid about the contact members.

16. A signal-key for use in wireless telegraphy, comprising a lever pivoted intermediate its ends, a finger-piece upon one end of said lever, a spring acting upon said lever to raise the end carrying the finger-piece, a stationary contact member, a cooperative contact member carried by said lever, and means for maintaining an insulating fluid between said contact members.

749,179. APPARATUS FOR GRINDING OR POLISHING METALS. LOREN C. FORWOOD, Decatur, Ill. Filed Dec. 1, 1902. Serial No. 133,512. (No model.)

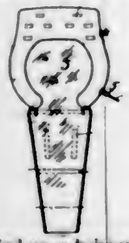


Claim.—1. In an apparatus of the class described, the combination of an air-reservoir, a sand-box, a mixing-valve communicating with said air-reservoir and sand-box, a nozzle-valve communicating with said mixing-valve and provided with a valve-operating device, and a cradle mounted to engage with the valve-operating device of the nozzle-valve, as set forth.

2. In an apparatus of the class described the combination of a cradle, a nozzle-valve operative by means of said cradle, and means for supplying air under pressure, and sand, to said nozzle-valve, as set forth.

3. In an apparatus of the class described, the combination of a cradle, a nozzle-valve operative by said cradle, magnets mounted in said cradle in position to attract metallic particles deflected from the article operated upon and means for supplying to said nozzle-valve sand driven by compressed air, as set forth.

749,180. SURGICAL PAN. WILLIAM A. GALLOWAY, Xenia, Ohio. Filed Sept. 17, 1902. Serial No. 123,796. (No model.)



Claim.—1. In a surgical pan, a drainage-conduit of flexible material having transverse spaced strips of a material of lesser flexibility and adapted to hold the conduit in transversely-curved shape, said conduit between the strips being adapted to be bent longitudinally.

2. A surgical pan having a drainage-conduit extending from it and said conduit being constructed of soft rubber or suitable material in which are arranged flexible ribs to hold said conduit in any form into which the ribs may be bent by the operator.

3. A surgical pan comprising a bottom portion, an inflatable rim and an abrupt wall connecting the bottom with the rim, said wall holding the rim in spaced relation to the bottom.

4. A surgical pan constructed of soft rubber or other suitable material having a drainage-conduit, in which flexible ribs are placed to hold said conduit in any form into which the ribs may be bent by the operator.

5. A surgical pan comprising a bottom, an inflated rim and a drainage-conduit extending from said bottom, said conduit being of flexible material and having transverse strips spaced longitudinally thereof, said strips being of a material of lesser flexibility than the conduit and adapted to hold the latter in transversely-curved shape.

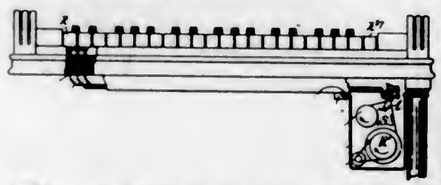
6. A surgical pan having an inflatable rim, a bottom attached to said rim in such manner as to cause said bottom to stand out from said rim at their line of joining, a conduit for drainage extending from said bottom and being constructed of soft rubber or suitable material in which are arranged flexible ribs to hold said conduit in any form into which the ribs may be bent by the operator.

7. A surgical pan consisting of the following instrumentalities, an inflatable rim having valves for inflation, a suitable bottom attached thereto, a drainage-conduit extending from said bottom and being constructed of soft rubber or suitable material in which are arranged flexible ribs to hold said conduit in any form into which the ribs may be bent by the operator.

8. A surgical pan comprising a bottom portion, an inflatable rim and a separate water-strip secured between the rim and the bottom and forming an abrupt wall between the rim and bottom.

9. A surgical pan having an inflatable rim and valves for inflation, said rim being enlarged at its back part and held when inflated, by stays or other suitable means, into a flattened back-rest pad, a suitable bottom attached to said rims, a conduit for drainage extending from said bottom and constructed of soft rubber or other suitable material in which are arranged flexible ribs to hold said conduit in any form into which the ribs may be bent by the operator.

749,181. MUSIC RECORDING AND SELF-PLAYING MECHANISM. ROBERT A. GALLY, Brooklyn, N. Y. Filed Dec. 20, 1902. Serial No. 137,137. (No model.)



Claim.—1. One or more depressible manual-keys, means adapted to propel a record-surface, and recording means connected to and operated by the manual-key action moving the corresponding recording means in direction transverse to the line of propulsion for, and substantially parallel with the face of, such record.

2. A depressible manual-key, recording means for producing graphic indications upon a record-surface, and means for moving said surface and recording means relatively to each other, the recording means connected to and operated by the key and the intervening connections in a direction transverse to the aforesaid movement, and substantially parallel with the face of such record, and recording an indication angular to or deflected from the direction of the movement first aforesaid, and corresponding to the musical "attack" of the key.

3. A manual-key operatively connected to a musical-note-sounding device, recording means for producing graphic indications upon a record-surface, and means for moving said surface and recording means relatively to each other, the recording means connected to and operated by the key and the intervening connections in a direction transverse to the aforesaid movement, and substantially parallel with the face of such record, and recording an indication angular to or deflected from the direction of the movement first aforesaid and corresponding to the musical "attack" of the key.

4. A series of depressible manual-keys, several recording means for producing graphic indications upon a record-surface, and means for moving said surface and recording means relatively to each other, the several recording means each connected to and operated by a corresponding one of the keys and the intervening connections in a direction transverse to the aforesaid movement and substantially parallel with the face of such record, to produce record indications angular to or deflected from the direction of the movement first aforesaid, and corresponding to the musical "attack" of the several keys.

5. A series of manual-keys, each operatively connected to a musical-note-sounding device, means adapted to propel a record-surface, and recording means connected to and operated by the manual-key action moving the corresponding recording means in direction transverse to the line of propulsion for, and substantially parallel with the face of, such record.

6. A series of manual-keys, each operatively connected to a musical-note-sounding device, several recording means for producing graphic indications upon a record-surface, and means for moving said surface and recording means relatively to each other, the several recording means each connected to and operated by a corresponding one of the keys and the intervening connections in a direction transverse to the aforesaid movement and substantially parallel with the face of such record, to produce record indications angular to or deflected from the direction of the movement first aforesaid and corresponding to the musical "attack" of the several keys.

7. A series of depressible manual-keys, several graphic recording means each operated by a corresponding one of the keys and the intervening connections and all arranged to continuously delineate a series of generally parallel lines on a record-surface, the recording means each connected to and operated by its corresponding key and the intervening connections in a direction transverse to the general direction of the record-lines and substantially parallel with the face of such record and thereby making indications on the record angular to and deflected from the general direction of the lines and corresponding to the musical "attack" of the keys.

8. A series of manual-keys, each operatively connected to a musical-note-sounding device, several graphic recording means each operated by a corresponding one of the keys and the intervening connections and all arranged to continuously delineate a series of generally parallel lines on a record-surface, the recording means each connected to and operated by its corresponding key and its intervening connections in a direction transverse to the general direction of the record-lines and substantially parallel with the face of such record and thereby making indications on the record angular to and deflected from the general direction of the lines and corresponding to the musical "attack" of the keys.

9. A series of manual-keys, a plurality of recording means for producing continuous generally parallel lines on a record-surface, and connections from each key to its corresponding recording means arranged to move said recording means in direction transverse to the general direction of said lines and substantially parallel with the face of such record, and thereby deflect said lines by the movements of the corresponding keys and recording means and their intervening connections to indicate the "musical" attack of the keys, the series of keys and lines corresponding to the notes of a musical scale or a particular combination of notes.

10. A series of manual-keys consisting of "sharps" and "naturals" in chromatic-scale order, and a plurality of connections and recording means for producing continuous generally parallel lines on a record-surface for all the "sharps" of the scale and deflecting said lines by the movements of the corresponding "sharp" keys and their connections, and recording means and their interrupters, and connections to said recording means controlled by the "natural" keys for producing intermittent indications of the "natural" notes on said record-surface in the blank spaces between the continuous lines of the "sharps," the recording means and lines of the sharps being spaced in groups of two and three with wider spaces between the groups than between the individual continuous lines of each group.

11. A series of graphic means for producing musical-note indications on a record-surface, means for propelling a record-surface in a certain direction, individual controllers connected to each corresponding graphic means to deflect said graphic means transversely of the direction of propulsion for, and substantially parallel to the face of, such record, when recording a musical note, and a guide-way or groove disposed in the general direction of the line of the series of graphic means and holding the graphic means against movement in line with the direction of propulsion for such record-surface but allowing their deflecting movement transversely to the said line of propulsion and substantially parallel with the face of such record.

12. One or more manual-keys, means for propelling a record-surface, recording means connected to and operated by the keys for producing record indications transverse to the line of propulsion for, and substantially parallel with the face of, such record, and interrupters independent of the key connections and arranged to inter-

rupt the marking contact of the graphic means to prevent the making of the record indication during the intervals between the movements of its key.

13. A keyboard, means adapted to propel a record-surface, recording means operatively movable transversely of the line of propulsion for, and substantially parallel with the face of, such record, and a number of crank rods or rockers connecting the several keys to their respective recording means.

14. A keyboard, a series of recording means, and a number of crank rods or rockers having their several axes divergent, the said crank rods or rockers connecting the several keys to their respective recording means.

15. A keyboard, a series of recording means, and a number of crank rods or rockers having their several axes divergent to each other and all approximately parallel to the plane of the keyboard and connecting the several keys to their respective recording means.

16. A keyboard, a series of recording means arranged in a line transverse to the general line of the keyboard, and a number of crank rods or rockers having their axes divergent to each other but approximately parallel to the plane of the keyboard and connecting the several keys to their respective recording means.

17. A tracker or scale-reader adapted to be operated by an automatic music-sheet, and a plurality of recording means combined therewith and in positions to produce record indications on said sheet at the sides of their respective note apertures or readers of the tracker or scale-reader.

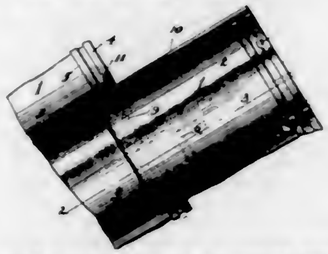
18. A tracker or scale-reader adapted to be operated by an automatic music-sheet, in combination with musical-note-recording means arranged in position to record upon such music-sheet when the sheet is in position to operatively control the tracker or scale-reader.

19. In combination, a tracker or scale-reader, an automatic music-sheet, and musical-note-recording means arranged in position to record on the sheet while it is in position to operatively control the tracker or scale-reader.

20. A horizontal keyboard having combined therewith a music-recording and self-playing sheet apparatus having its recording means, tracker or scale-reader, and propelling-roll for such sheet all horizontally arranged underneath, at the front, to one end of, and transverse to the general line of the keyboard.

21. A horizontal keyboard, having combined therewith music sheet or record propelling rolls or spindles underneath and at one end of the keyboard, and with their axes approximately horizontal and also transverse to the general line of the keyboard, and means for guiding, inserting and withdrawing such rolls or spindles by a movement in the line of their axes and independent of and not moving the other operative parts and connections of the apparatus.

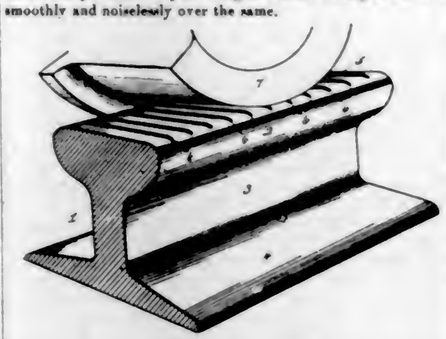
749,182. ROOFING-TILE. WALTER P. GRATH, St. Louis, Mo. Filed Oct. 6, 1902. Serial No. 126,099. (No model.)



Claim.—An S-shaped roofing-tile having rabbeted longitudinal edges, a downwardly-extending flange on its lower edge, upwardly-extending parallel ribs at the upper edge of its upper surface, one of said ribs having an enlarged portion and a nail-hole through said portion, a rib at the upper edge of its lower surface adapted to interlock with a purlin and a perforated locking-rib on its under surface near the middle of the convex portion, substantially as described.

749,183. RAILWAY-RAIL. RICHARD B. GUYNAN, Philadelphia, Pa. Filed July 20, 1903. Serial No. 166,290. (No model.)

Claim.—In a railway-rail to be used for rolling-stock a rail having its face or tread provided with a series of transversely-arranged grooves, corrugations or serrations, so located and of such a size that the face or tread of the rail between the said transversely-arranged grooves, corrugations or serrations is smooth and flat as in an ordinary rail thereby allowing the usual rolling-stock to pass smoothly and noiselessly over the same.



749,184. HEAD-REST FOR SHAVING-CHAIRS. CARL R. HAHGE, Munich, Germany. Filed Jan. 21, 1901. Renewed June 25, 1903. Serial No. 163,084. (No model.)



Claim.—In a device of the character described, the combination with a suitably-shaped box, of two rolls journaled within the same a band of suitable material adapted to be unrolled from one roll and wound upon another roll; said band extending over the outer surface of the box, and means for rotating the rolls from the outside, substantially as and for the purpose set forth.

749,185. ELECTRODE. RUDOLF HAGER, Halensee, near Berlin, Germany. Filed Jan. 31, 1901. Serial No. 45,514. (No model.)



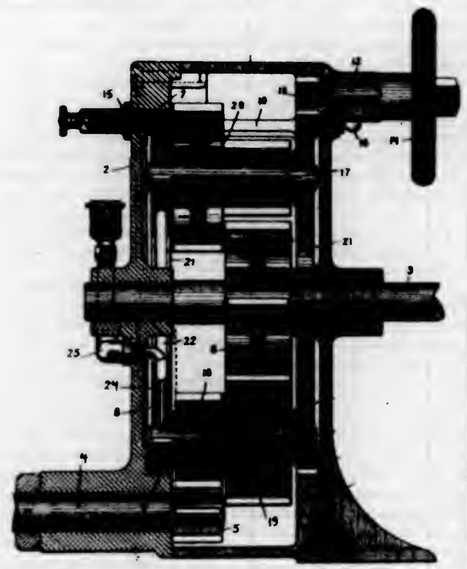
Claim.—1. An electrode of the Planté form comprising separate plates coaxially arranged, each plate being composed of a series of channel-shaped plates arranged one above the other, each channel-shaped plate being provided with a slit extending transversely of the channel therein.

2. An electrode of the Planté form comprising separate plates coaxially arranged, each plate being composed of a series of channel-shaped plates arranged one above the other, each channel-shaped plate being provided with a slit extending transversely of the channel therein, and lead strips connecting each series of channel-shaped plates.

3. An electrode-plate consisting of a series of channel-shaped plates arranged one above the other, each channel-shaped plate being provided with a slit extending transversely of the channel therein.

749,186. MULTIPLE-SPEED GEARING. WILLIAM J. HAGMAN, Philadelphia, Pa., assignor to Niles-Bement-Pond Company of Jersey City, N. J. Filed Nov. 2, 1903. Serial No. 179,444. (No model.)

Claim.—1. In multiple-speed gearing, the combination, substantially as set forth, of a circular casing having counterbores in the inner faces of its parallel walls, disks with their peripheries journaled in these counterbores, one of said disks having peripheral teeth, struts rigidly connecting the disks and with them forming a gear-cage, a shaft journaled in the casing and within and eccentric to said counterbores, a shaft journaled in the casing exterior to the counterbores, a gear disposed within the casing on one of said shafts in a fixed plane, a gear within the casing on the other of said shafts and in a different plane, studs carried by the cage, compound gears on said studs and arranged to be selectively engaged simultaneously with the gears on the two shafts, a spindle mounted in the casing, a pinion fast therewith and meshing with said teeth, a handle for turning said spindle, and a detent for holding the cage in adjusted angular position.

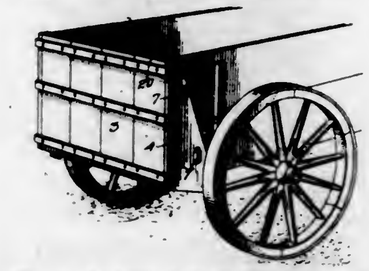


2. In multiple-speed gearing, the combination, substantially as set forth, of a circular casing having counterbores in the inner faces of its parallel walls, disks with their peripheries journaled in these counterbores, one of said disks having peripheral teeth, struts rigidly connecting the disks and with them forming a gear-cage, a shaft journaled in the casing and within and eccentric to said counterbores, a shaft journaled in the casing exterior to the counterbores, a gear disposed within the casing on one of said shafts in a fixed plane, a gear within the casing on the other of said shafts and in a different plane, studs carried by the cage, compound gears on said studs and arranged to be selectively engaged simultaneously with the gears on the two shafts, a spindle mounted in the casing, a pinion fast therewith and meshing with said teeth, a handle for turning said spindle, a detent-pin in one wall of the casing coöperating with one of the disks, and a detent-pin in the opposite wall of the casing and coöperating with the remaining disk.

3. In multiple-speed gearing, the combination, substantially as set forth, of a circular casing having counterbores in the inner faces of its parallel walls, disks with their peripheries journaled in these counterbores, one of said disks having peripheral teeth, struts rigidly connecting the disks and with them forming a gear-cage, a shaft journaled in the casing and within and eccentric to said counterbores, a shaft journaled in the casing exterior to the counterbores, a gear disposed within the casing on one of said shafts in a fixed plane, a gear within the casing on the other of said shafts and in a different plane, studs carried by the cage, compound gears on said studs and arranged to be selectively engaged simultaneously with the gears on the two shafts, a spindle mounted in the casing, a pinion fast therewith and meshing with said teeth, a handle for turning said spindle, a detent-pin in one wall of the casing and coöperating with one of the disks, and a spring detent-pin in the opposite wall of the casing and coöperating with the remaining disk.

4. In multiple-speed gearing, the combination, substantially as set forth, of a circular casing, a shaft journaled in the casing near the center thereof, a shaft journaled in the casing near the periphery thereof, gears fast on these two shafts, a disk journaled at one wall of the casing and provided with an inwardly-grooved central opening and with radial oil-passages leading from the groove, an oiler arranged to deliver to said grooves, a disk journaled in the opposite wall of the casing, struts uniting the disks and with them forming a cage, studs secured in the disks and having longitudinal grooves communicating with said radial oil-passages, compound gears on the studs arranged for coöperation with the first-mentioned gears, means for angularly adjusting the cage, and a detent for holding the cage in adjusted position.

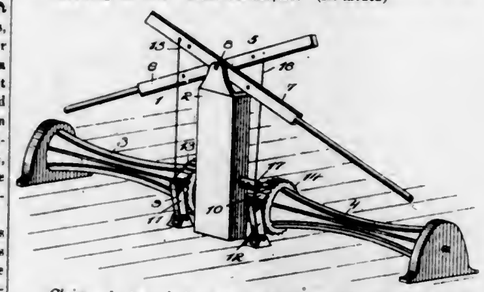
749,187. COMBINED END-GATE, SHOVEL-BOARD, AND LIVE-STOCK CHUTE. WARRANCE B. HAYLOR, Sterling, Kans. Filed May 11, 1903. Serial No. 156,634. (No model.)



Claim.—1. In a device of the character described, the combination with a wagon-body or the like of an end-gate hinged to the rear end of said wagon-body and adapted to be swung downwardly to form a shovel-board, side pieces fixed to said shovel-board, and guards or fenders adapted to be removably connected to said side pieces, substantially as described.

2. In a device of the character described, the combination with a wagon-body or the like of an end-gate hinged to the rear end of said wagon-body and adapted to be swung downwardly, side pieces fixed to said end-gate, foldable guards or fenders adapted to be removably connected to said side pieces, a guarded, foldable extension adapted to be removably hinged to the end of said end-gate, means for supporting the contiguous ends of the floors of said gate and said extension and means for connecting and holding and bracing, the upper portions of the side guards of the same, substantially as described.

749,188. SHIP'S WINDLASS. JOHN HANSEN, Northoove, Wash. Filed Aug. 18, 1903. Serial No. 169,926. (No model.)



Claim.—1. In a windlass, the combination with the central standard, of the winding-drums and operating-pawls, an operating-lever composed of two independent members pivoted on the same pin and adapted to be operated independently, means for connecting said members together to form a single lever, and connecting means between said members and the said operating-pawls.

2. In a windlass, the combination of the drums and operating-pawls of two levers pivoted on a common pin and connected to said operating-pawls and adapted to be operated independently, and means for connecting said levers together to form a single lever, substantially as described.

749,189. SPINNING-RING. DAVID HARRINGTON, Worcester, Mass. Filed Apr. 7, 1902. Serial No. 101,643. (No model.)

Claim.—The combination with the rail of a spinning-frame, of a holder, a compressible collar cut apart upon one side and held in said holder and provided with an interior flange forming a step for a stationary ring, a stationary ring held in said compressible collar and provided at its upper edge with an exterior flange forming an exterior groove or track between said flange and the upper edge of said compressible collar, a rotating ring provided at its lower edge with an interior flange entering said annular groove or track and having at its upper edge a flanged track for a traveler, and a traveler adapted to run on said flanged track, substantially as described.

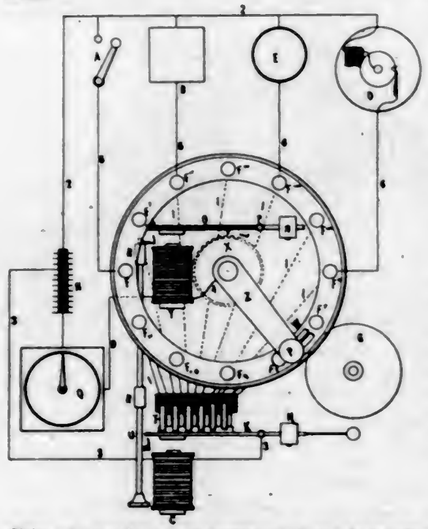


749,190. TOBACCO-PIPE. JAMES W. HAYM, Baltimore, Md. Filed Mar. 30, 1903. Serial No. 150,129. (No model.)



Claim.—In a tobacco-pipe, a bowl provided with an opening formed through its side near the base, a stem composed of an inner and outer member, the inner member being divided longitudinally and inserted in the outer member from the inner end thereof, the outer member being provided with a tapering inner end adapted to fit within the hole in the bowl of the pipe, the inner member extending beyond the inner end of the outer member, a cup-shaped cavity formed in the upper side of the inner end of the inner stem, an opening extending longitudinally through the inner stem from said cup-shaped cavity to the outer end of said stem, said cup-shaped cavity and opening being formed half in each portion of the inner stem, and a mouthpiece formed upon the outer end of the outer stem provided with a longitudinal opening communicating with the opening through the inner stem, as and for the purpose specified.

749,191. ELECTRIC SIGNALING APPARATUS. FELIX B. HERSOM, New York, N. Y. Filed May 17, 1886. Serial No. 202,489. (No model.)



Claim.—1. At or in connection with each of several substations, apparatus comprising both a magnet and a circuit-closer which is thereby caused to reëstablish the normal circuit conditions, and which controls other apparatus; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and arranged in a group; and coöperating therewith an arm which is movable with respect to the separate contacts, but which is guided by a support, so that its motion with respect to the contacts is limited and predetermined; a contact in turn connected thereby with all the line-contacts of the group, and means, including a suitable source of current, acting to complete the operation of the apparatus controlled by the substation-circuit closer, and simultaneously to cause the magnet to terminate this operation by restoring the original circuit conditions, substantially as described.

2. At or in connection with each of several substations, apparatus comprising both a magnet and a manually-operated circuit-closer which is thereby caused to reëstablish the normal circuit conditions, and which controls a responsive device at another point; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; devices controlled by the arm and in succession common to the various lines, and including a contact coöperating with the various line-contacts, and a signal brought into operation when the arm reaches an operated line and serving to locate said line; together with means including a suitable source of current and acting to cause the substation-magnet to reopen the closed circuit simultaneously with the termination of the signal, substantially as described.

3. At or in connection with each of several substations, apparatus comprising both a controlled device—such as a magnet and a circuit-controlling device, such as a circuit-closer which controls apparatus at another station; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—which is movable with respect to the separate contacts but which is guided by a support, so that its motion with respect to the contacts is limited and predetermined; devices controlled by the arm, and acting after it is carried into position where it coöperates with the contact of an operated station, to establish circuit conditions by means of which receiving apparatus is controlled, and, moreover, the magnet at the corresponding station may be brought into control from the common station as an answer to the signal sent, substantially as described.

4. At or in connection with each of several substations, apparatus comprising both a magnet and a circuit-controller which is thereby caused to reëstablish the normal circuit conditions and which controls apparatus at another point; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and coöperating therewith, a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support, so that its motion with respect to the contacts is limited and predetermined; devices controlled by the arm, and acting after it is carried into position, where it coöperates with the contact of an operated station to establish circuit conditions, by means of which the magnet corresponding to that substation may be brought into control from the common station, together with a notification device acting to indicate at the common station when the arm has been moved into the proper position in which the substation-magnet may be controlled, substantially as described.

5. At or in connection with each of several substations, apparatus comprising both a magnet and a circuit-controller which is thereby caused to reëstablish the normal circuit conditions, and which controls apparatus at another point; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and coöperating therewith; a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; a notification device controlled by the arm and acting to locate the operated station when the arm reaches the corresponding contact; and means, including a switching device and a suitable source of current, and acting to control the restoration of the corresponding substation-controller through its magnet, substantially as described.

6. At or in connection with each of several substations, apparatus comprising both a magnet and a circuit-controller which is thereby caused to reëstablish the normal circuit conditions, and which controls apparatus at another point; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and coöperating therewith; a member which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; a magnet adapted to be common to any of the substation circuit-controllers when the system is in its normal condition; and means, including a suitable source of current, whereby as the movable circuit-controller successively reaches the contacts corresponding to the substations it in turn coöperates with them to put the corresponding magnets under control to cause them to reëstablish the normal circuit conditions at these substations, substantially as described.

7. At or in connection with each of several substations, apparatus comprising both a magnet and a circuit-controller which is thereby controlled and which controls apparatus at another point; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and coöperating therewith; a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; and means, including a suitable source of current and a circuit connection, arranged to control the substation-magnet of an operated station, at the time when the arm reaches the contact corresponding to that station, substantially as described.

8. At or in connection with each of several substations, apparatus comprising both a magnet and a manually-operated signaling device including a circuit-controller arranged when operated to continue the abnormal circuit conditions until it is, by the magnet, caused to reëstablish these normal circuit conditions, and which controls a suitable signal-receiving apparatus; coöperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith; a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; and a circuit connection which the arm brings into coöperation successively with the separate contacts corresponding to the several operated substations; together with the means, including a suitable source of current, which acts to start a substation-magnet to control the restoration of the circuit-controller at its station, while the arm remains on the corresponding contact, substantially as described.

9. At or in connection with each of several substations, apparatus comprising both a magnet and a manually-operated signaling device including a circuit-closer which is thereby caused to reëstablish the normal circuit conditions, and which controls apparatus at another point; coöperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and, coöperating therewith, a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; and a circuit connection which the arm brings into coöperation successively with contacts corresponding to the several operated substations, and which whenever so brought controls a signal which locates or marks the corresponding substations; together with means brought into operation while the arm continues to touch any contact, and acting to cause the corresponding substation-magnets to restore the normal circuit conditions, in succession, substantially as described.

10. At or in connection with each of several substations, a signal-transmitter; coöperating connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; a receiver arranged to coöperate with the substation-transmitters; and a common contact, normally connecting with all the line-contacts; a magnet controlled from any station and acting to effect a common connection, together with means arranged and adapted to break each of these contacts at one operation, substantially as described.

11. At or in connection with each of several substations, a signal-transmitter and a magnet arranged to control it; coöperating connection including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; a receiver arranged to coöperate with the substation-transmitters; a common contact normally connecting with a number of the line-contacts; a magnet, and devices acting to break the common return; and means whereby, when one of the transmitters is brought into coöperation with the receiver, no other line can affect this, substantially as described.

12. At or in connection with each of several substations, a signal-transmitter and a magnet arranged to control it; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined; a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm, whereby if several transmitters are operated within the same time limits, the relative order of coöperation of the receiver and each of these transmitters will be predetermined by the relative positions of the corresponding contacts, substantially as described.

13. At or in connection with each of several substations, a variable signal-transmitter, arranged to produce successive impulses or interruptions of the circuit; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and, coöperating therewith a member—such as an arm—which is movable with respect to the separate contacts, but which is guided by a support so that its motion with respect to the contacts is limited and predetermined; a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm, substantially as described.

14. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support, so that its motion with respect to the contacts is limited and predetermined; a variable receiver arranged to coöperate with the substation-transmitters and coöperating devices, controlled by the arm together with means for holding the arm at rest while a signal is received, substantially as described.

15. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; coöperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and, coöperating therewith a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined; a variable receiver arranged to coöperate with the substation-transmitters; and coöperating devices controlled by the arm together with magnetic means for stopping the arm, substantially as described.

16. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined; a separate branch from each contact, a common contact coöperating with several of these branches, and means for breaking the common connection; a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm, substantially as described.

17. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; coöperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion is limited and predetermined; a separate branch from each contact, a common connection coöperating with several of these branches; a magnet controllable from any corresponding substation and operating to control this common contact, a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm, substantially as described.

18. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined, and a separate branch from each contact, a

common connection coöperating with several of these branches; and means for breaking the connection simultaneously at the branches and thus disconnecting the lines at each branch; a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm, substantially as described.

19. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; cooperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts but guided by a support so that its motion with respect to the contacts is limited and predetermined; a separate branch from each contact and a common connection coöperating with several of these; a magnet controlling the common connection, and means whereby the action of the magnet will break the branches simultaneously; a receiver arranged to coöperate with the substation-transmitters; and coöperating devices controlled by the arm, substantially as described.

20. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; cooperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined; a receiver arranged to coöperate with the substation-transmitter; a return connection controlled by the arm, the contacts being also arranged to coöperate with a return connection other than that controlled by the arm, substantially as described.

21. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; cooperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith, a member—such as an arm—movable with respect to the contacts, but guided by a support, so that its motion with respect to the contacts is limited and predetermined; a receiver arranged to coöperate with the substation-transmitters; and coöperation devices controlled by the arm, and including a return connection, the contacts being also arranged to coöperate with a return connection other than that controlled by the arm; and devices acting to disable this return as to several contacts at once, substantially as described.

22. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; this apparatus being arranged so that it is normally on open circuit, and that the circuit is closed when the transmitter is in condition to operate; coöperating connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines, and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the contacts is limited and predetermined; a receiver arranged to coöperate with the substation-transmitters, and coöperating devices controlled by the arm; and means whereby the magnets of the transmitters are caused to reopen the circuit thereat after the termination of a signal and means for holding the arm at rest until such termination, substantially as described.

23. At or in connection with each of several substations, a variable transmitter; coöperating circuit connections including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; and coöperating therewith, a member—such as an arm—movable with respect to the separate contacts, but guided by a support so that its motion with respect to the separate contacts is limited and predetermined; coöperating devices controlled by the arm; a magnet common to the transmitters, and a locking device controlled thereby and acting to lock the arm into operative connection with any substation-contact, substantially as described.

24. At or in connection with each of several substations, a variable signal-transmitter and a magnet arranged to control it; cooperating circuit connections, including separate lines arranged in multiple; connecting points or contacts corresponding to the substation-lines; coöperating therewith, a common connection for the same, arranged to be broken, and a variable signal-receiver arranged to coöperate with the substation-transmitters, whereby, after the common connection is broken, the operation of all other transmitters is suspended while the receiver is connected to one transmitter, substantially as described.

25. At or in connection with each of several substations, a signal-transmitter and a magnet cooperating therewith; coöperating circuit connections, including separate lines for each station arranged in multiple; and at a common station, means including a signal-receiving device coöperating therewith and with the connections to these substations, and devices acting to affect the apparatus at the substations at a single operation; and means whereby where one substation coöperates with the receiver, the control of the other substations is suspended, substantially as described.

26. A system comprising a central station connected to substations by independent lines in multiple; at each substation a mechanism adapted and arranged to vary its control over the central apparatus according to the manner in which the said substation apparatus has been set; a central apparatus comprising a member representing each substation; a movable member adapted to coöperate in turn with two or more of these; a device responsive in turn to the substation mechanism in accordance with the manner in which these have been set and brought into operation successively by the movable member; means for causing any two of these mechanisms at the substations to coöperate with the responsive device non-simultaneously and in a fixed order; together with means for postponing the coöperation of all the mechanisms which may have been set and the common device until the latter is enabled to coöperate with each in turn.

27. In combination with a series of circuit-closers at substations, independent lines radiating therefrom to a common station; a central apparatus comprising a series of circularly-disposed contact-terminals for each substation, a common contact arranged to coöperate with the contacts, one at a time; a branch line for each such contact leading to a second terminal the latter being arranged in a group together with a common circuit-closer arranged and adapted to contact with all of these latter terminals simultaneously and means for simultaneously separating the contacts of said group from the common circuit-closer.

28. In combination with a series of circuit-closers at substations, independent lines radiating therefrom to a common station; a central apparatus comprising a series of circularly-disposed contact-terminals for each substation, a common contact arranged to coöperate with the contacts, one at a time; a branch line for each such contact leading to a second terminal the latter being arranged in a group, together with a common circuit-closer arranged and adapted to contact with all of these latter terminals simultaneously and magnetically-controlled means for simultaneously separating the contacts of said group from the common circuit-closer.

29. At or in connection with each of several substations, a device for sending a signal to a distant station, and a device responsive to actuation from a distant station—means for bringing such responsive device into action only if the signal at its substation is operated, whereby it acts as a return-signal to the sending operator; independent lines from the substations to a group of independent devices, each corresponding to a substation; a movable member, guided and supported so that it will coöperate in turn with the independent devices corresponding to operated substations; at a common point a receiver arranged to be in turn responsive to the signals from the substation when placed in correspondence therewith through the action of the movable member, and acting to locate the operated stations separately; means for holding the movable member at rest at the point of its travel corresponding to an operated substation; together with means whereby the movable member will coöperate in turn with the return-signals at the substations which have signaled.

30. A signaling system comprising a series of lines from substations to a common point—an electrically-operated indicating device adapted to coöperate with the several substations, a circuit-closer at each substation; a device including a group of independent elements, one for each line, and a movable member—as an arm—guided and supported so as to have a definite motion with respect to the group of elements; a series of independent magnets, each corresponding to one of said elements and its corresponding circuit-closer and coöperating therewith upon the operation of the indicating device; the whole so arranged, adjusted and related that the motion of the arm with respect to the independent elements will determine the order in which the signal-receiving device will respond to the control from the substations and the order in which the respective magnets will operate to terminate the control of the signal given by their corresponding substations respectively.

31. At several sending-stations a signaling device comprising a circuit-closer normally open; a manually-operating device for closing same; a magnet coöperating in the restoration of the normal conditions; separate lines leading to contact-terminals; a movable member coöperating with the said terminals, and with a source of current and a return-wire; all coöperating so that when the movable device reaches the terminal corresponding to an operated circuit-closer, it causes the magnet to control the restoration of the signal: a guide and support for the movable device, whereby its motion is predetermined with reference to the group of contacts; and a responsive device brought into connection with each line in turn.

32. At or in connection with each of several substations, a device for sending a signal to a distant station, and a device responsive to actuation from a distant station—means for bringing such responsive device into action only if the signal at its substation is operated, whereby it acts as a return-signal to the sending operator; independent lines from the substations to a group of contacts, a movable device carrying a sweeper, and guided and supported so that it will coöperate in turn with all the contacts by testing them successively; at a common point a device responsive to the signals from the substation, and arranged to be connected in turn at the contacts by coöperation of the movable devices therewith, and acting to locate such stations separately means for holding the movable device at rest at the point of its travel corresponding to an operated substation; together with means whereby the movable device will cooperate in turn with the return-signals at the substations which have signaled.

33. An annunciating system comprising a central apparatus including a group of terminals normally in one electrical condition; means including a circuit-closer at each of several substations, and a separate line from each substation to the central apparatus, arranged and adapted to coöperate with other elements in producing an abnormal circuit condition for the terminal corresponding to an operated substation; a magnet corresponding to each terminal and substation arranged and adapted to coöperate in the subsequent restoration of the normal condition of such terminal; a movable device—as an arm—with a support and guide, arranged to coöperate in turn and in a fixed order with the abnormally affected terminals; means brought into operation by such coöperation between the movable device and each terminal when the latter is in abnormal condition and arranged and acting to locate the operated substation; together with means for causing the corresponding magnet and the movable device to coöperate in the restoration of the normal condition of the terminals in turn.

34. An annunciating system comprising a central apparatus including a group of terminals normally in one electrical condition; means including a circuit-closer at each of several substations and a separate line from each substation to the central apparatus, arranged and adapted to coöperate with other elements in producing an abnormal circuit condition for the terminal corresponding to an operated substation; a magnet corresponding to each terminal and substation, arranged and adapted to coöperate in the subsequent restoration of the normal condition of such terminal; a movable device—as an arm—with a support and guide, arranged to coöperate in turn and in a fixed order with the abnormally affected terminals; an electrically-responsive indicating device brought into operation by such coöperation between the movable device and each terminal when the latter is in abnormal condition, and arranged and acting to locate the operated substation; together with means for causing the corresponding magnet and the movable device to coöperate in the restoration of the normal condition to the terminals in turn.

35. A signaling system comprising a number of contacts normally on open circuit, means including for each contact a circuit-closer at each of several substations, and in circuit with each such closer a magnet, coöperating to control the duration of the energization of the contact corresponding to an operated substation, an arm, supported, guided and propelled by means independent of the actuation of the substation circuit-closers and constructed and operating to pass the contacts in turn, a responsive device connectible to the responsive contacts by the arm and adapted to respond and thus locate a substation immediately when the arm reaches an energized contact; and means for restoring the normal condition of the contact independently of subsequent action by the sending operator.

36. An annunciator for locating substations which have signaled, comprising a receiving device responsive to a current-flow; a movable member—as an arm—movable independently of the actuation of a substation, and being electrically connected to said receiver and arranged and adapted to connect it in turn to a series of contacts or devices representing the respective substations; a manual circuit-closer at each substation, constructed so that a person when signaling closes the circuit thereat; means for causing this act to control the energization of the contact representing that station, together with means for continuing this energization for a period independent of the action of the operator at the substation and means for restoring the normal conditions of the system independently of his action, all arranged so that during the motion of the movable member the energized contacts will be caused to coöperate with the receiver and to locate the corresponding operated substations in turn.

37. At each of several substations a variable signal-transmitter and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order.

38. At each of several substations a variable signal-transmitter and a magnet arranged and adapted to release it by means of circuit connections controlled at a distant central station; suitable circuit connections to a central station at which is apparatus controlled by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to the substations, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order.

39. At each of several substations a variable signal-transmitter and a magnet arranged and adapted to release it by means of circuit connections controlled at a distant central station; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations, and including separate contacts corresponding to the substations, and a movable device arranged and adapted to coöperate with the separate contacts of operated substations non-simultaneously and in a fixed order, together with a magnet at the central station and means controlled thereby for stopping the movable device when it reaches the contact corresponding to an operated substation.

40. At each of several substations a variable signal-transmitter and a magnet arranged and adapted to release it by means of circuit connections controlled at a distant central station; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations, and including separate contacts corresponding to the substations, and a movable device arranged and adapted to coöperate with the separate coatacts of operated substations non-simultaneously and in a fixed order, and continuously as long as it is in motion in one direction, together with a magnet at the central station and means controlled thereby for stopping the movable device when it reaches the contact corresponding to an operated substation.

41. At each of several substations a variable signal-transmitter constructed to operate on make and break of a circuit, and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order.

42. At each of several substations a variable signal-transmitter, and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, said coöperations being secured through a line including one of such separate devices and the substation-magnet, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order.

43. At each of several substations a variable signal-transmitter, and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order and constructed and arranged to be held at rest in connection

with one of the said separate devices from the beginning until the end of its coöperation with one of the transmitters.

44. At each of several substations a variable signal-transmitter, and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, and a magnetic device common to the stations, but located at the central station and called into coöperation upon the actuation of the substation-transmitter, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order.

45. At each of several substations a variable signal-transmitter constructed to operate on make and break of a circuit, and a magnet arranged and adapted to coöperate with it in its actuation; suitable circuit connections to a central station at which is apparatus controllable by the transmitters in turn; together with means for securing successive coöperations of the controllable apparatus and the transmitters at the respective substations and including separate devices corresponding to substations, said coöperations being secured through a line including one of such separate devices and the substation-magnet, and a common device arranged and adapted to coöperate with the separate devices of operated substations non-simultaneously and in a fixed order and constructed and arranged to be held at rest in connection with one of the said separate devices from the beginning until the end of its coöperation with one of the transmitters.

46. At or in connection with each of several substations, a circuit-controller normally on open circuit through two contacts, means for closing these manually and for keeping them closed, and a magnet in series with the contacts when closed and in circuit with an independent line to a central station and operating through this line to reopen the contacts; at the central station a contact-terminal for each such line, a controllable device constructed to be controlled by such substation device only while its magnet is in circuit with its terminal; a movable member acting electrically to connect the said device to the independent line by way of the corresponding contact-point; together with means for securing such coöperation in a fixed order and successively and for separately locating the operated substation when it is so connected and prior to such connection of a subsequently-connected similar substation.

47. At each substation a variable signal-transmitter, means for manually setting it, and a magnet arranged to control its operation and restoration, independent lines to a central station having a receiver adapted to coöperate with any transmitter, and a device having a guide and support arranged to coöperate with the receiver and with the lines in a fixed order; together with means for securing the coöperation of the transmitter and operated receiver in turn whereby any transmitter may be set at any time, but will only be restored or actuated in an order determined by the operation of other transmitters.

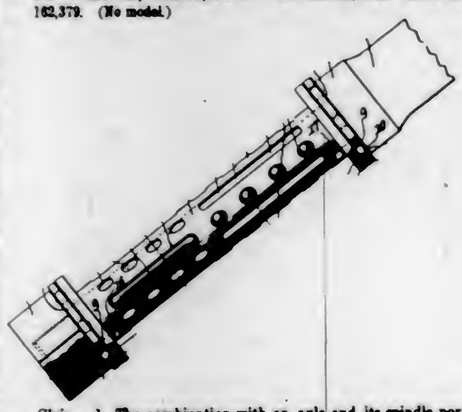
48. At or in connection with each of several substations a variable signaling apparatus normally on open circuit and comprising a circuit-controller and a motor and a magnet controlling the same, means for setting the same to remain on closed circuit and for restoring the normal condition of the magnet; independent lines to a central apparatus comprising a series of contact-plates each corresponding to a circuit and all in the path of a contact-sweeper carried by a rotatable arm and arranged to test each of such plates in turn; a signal-receiver connected in succession to each plate and line through the arm; a device controlled by the setting of any transmitter; together with a current source and connections whereby as the arm successively reaches each plate it will test the same and each transmitter which has been set will be released by its magnet when the arm reaches the corresponding plate.

49. At or in connection with each of several substations a circuit-controller normally on open circuit, means for closing the same and for keeping it closed, and a magnet controlled through an independent line to a central station for reopening it; at a central station a contact-point for each line, a controllable device connected to a movable member and adapted and arranged to coöperate with each operated line in a fixed order; a support and guide for the movable member, together with means for separately controlling each substation apparatus and for separately noting and locating the operated substation at the central station and at the time when the central station controllable device is connected to the substation.

50. At or in connection with each of several substations, a circuit-controller normally on open circuit, means for closing the same and for keeping it closed, and a magnet controlled through an independent line to a central station for reopening it; at a central station a contact-point for each line, a controllable device connected to a movable member and adapted and arranged to coöperate with each operated line in a fixed order; a support and guide for the movable member, together with means for separately controlling each substation apparatus and for separately noting and locating the operated substation at the central station and at the time when the central station controllable device is connected to the substation; combined with a magnet coöperating with a movable member.

51. At or in connection with each of several substations, a circuit-controller normally on open circuit, means for closing the same and for keeping it closed, and a magnet controlled through an independent line to a central station for reopening it; at a central station a contact-point for each line, a controllable device connected to a movable member and adapted and arranged to coöperate with each operated line in a fixed order; a support and guide for the movable member, together with means for separately controlling each substation apparatus and for separately noting and locating the operated substation at the central station and at the time when the central station controllable device is connected to the substation; combined with a magnet coöperating with a movable member, and a member moving with the said movable member and having as many points of engagement controlled by said magnet as there are contact-points at the central station.

749,192. COMBINATION BALL AND ROLLER BEARING. HEADLEY V. HELLOCAT, Amherst, Canada. Filed June 20, 1903. Serial No. 162,379. (No model.)



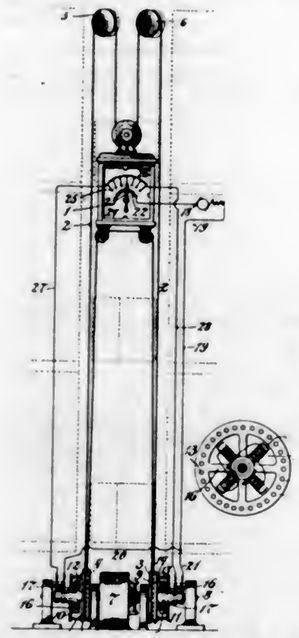
Claim.—1. The combination with an axle and its spindle portion, of sleeves concentric with the spindle and with each other one of the sleeves being provided with openings and elongated slots alternately arranged, balls and rollers in said openings and slots respectively, said rollers and balls contacting with the spindle and outer sleeve, and means on the spindle holding the sleeves against endwise motion.

2. The combination with the axle and its spindle portion, of sleeves concentric with the spindle and with each other, one of the sleeves being provided with openings and elongated slots alternately arranged, balls and rollers in said openings and slots respectively, said balls and rollers contacting through the openings and slots with the spindle and outer sleeve, said sleeves having annular heads at the ends said heads receiving the spindle, and means on the spindle engaging said heads.

3. The combination with an axle and its spindle portion, of a floating sleeve comprising an inner and an outer sleeve concentric with each other and each provided with openings which are coincident in the two sleeves, balls and rollers disposed between the two sleeves and projecting through the openings of each, an outer sleeve inclosing the floating sleeve, and means for engaging the ends of the sleeves, said means being sleeved on the spindle.

749,193. ELEVATOR. NELSON HALL, New York, N. Y. Filed Nov. 11, 1903. Serial No. 180,681. (No model.)

Claim.—1. In an elevator, a car, an endless driving-cable therefor arranged with two bights, a driving-sheave in each bight, a prime mover, an electromagnetic transmission means for each sheave one member of which means is driven by said prime mover and the other member of which is arranged to drive its appropriate sheave, and means for varying the relative efficiencies of said electromagnetic transmission means.



2. In an elevator, a car, an endless driving-cable therefor arranged with two bights, a driving-sheave in each bight, a prime mover for each sheave, an electromagnetic transmission means between each sheave and its own prime mover one member of which means is driven by its prime mover and the other member of which is arranged to drive its appropriate sheave, and means for varying the relative efficiencies of said two electromagnetic transmission means.

3. In an elevator, a car, an endless driving-cable therefor arranged with two bights, a driving-sheave in each bight, a prime mover, an electromagnetic transmission means for each sheave comprising an inducing member driven directly by said prime mover and an ipduced member arranged to drive one of said sheaves, and means for imparting various degrees of magnetic excitation to each of said inducing members at will.

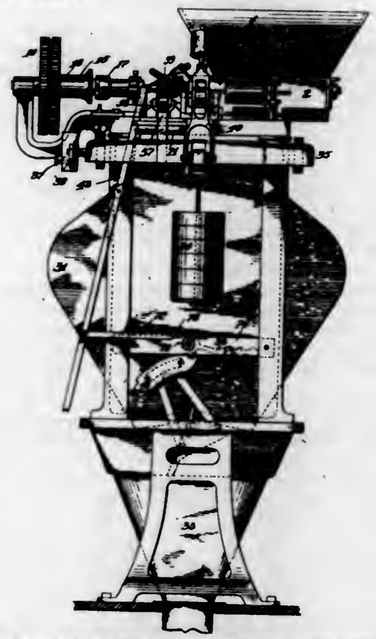
4. In an elevator, a car, an endless driving-cable therefor arranged with two bights, a driving-sheave in each bight, a constantly-rotating prime mover, an electromagnetic transmission means for each sheave one member of which means is driven by said prime mover and the other member of which is arranged to drive its appropriate sheave and means for varying the relative efficiencies of said electromagnetic transmission means.

5. In an elevator, a car, an endless driving-cable therefor arranged with two bights, a driving-sheave in each bight, a prime mover, an electromagnetic transmission means for each sheave one member of which means is driven by said prime mover and the other member of which is arranged to drive its appropriate sheave, an exciting-circuit on each of said transmission means, an electric generator one pole of which is connected to one end of each of said exciting-circuits, a resistance-coil having its opposite ends connected to the two other ends of said exciting-circuits and means for connecting the second pole of said generator to various parts of said resistance-coil between its ends at will for controlling said exciting-circuits.

749,194. WEIGHING APPARATUS. GEORGE HOPPER, San Francisco, Cal., assignor to Union Scale and Manufacturing Company, San Francisco, Cal., a Corporation of California. Filed Nov. 1, 1902. Serial No. 129,713. (No model.)

Claim.—1. In a weighing apparatus, a source of supply, a weighing mechanism, a compartment-receptacle between the source of supply and the weighing mechanism and in communication with both and a series of coiled-wire conveyers in said compartments.

2. In a weighing-machine, a force-feed conveyer for material comprising a rotary shaft, and a wire secured to said shaft and coiled spirally around it.



3. In a weighing-machine, a multiple force-feed comprising a series of rotary shafts geared together, and rods coiled spirally and oppositely around such shafts, whereby material fed in bulk to the series is forced in the same direction by all of said conveyers.

4. In a weighing apparatus, a vertically-movable weighing-bucket, a source of supply, a force-feed between the two, means including a shifting clutch for driving the force-feed, a clutch-lever, a pair of knee-jointed rods pivoted to the frame of the machine, and to the clutch-lever, a spring connected to the clutch-lever and tending to release the clutch, connections whereby a partial descent of the bucket breaks one knee-joint and permits the clutch to partly shift, and connections operated by the complete descent of said bucket for breaking the other knee-joint and permitting the complete release of the clutch.

5. In a weighing apparatus, a source of supply, a weighing-bucket, a force-feed between the two, means including a clutch and its lever for driving the force-feed at different speeds, means for holding the clutch in engagement with the driving means, a spring tending to release the clutch, and a pneumatic resistance to said spring operable when the clutch-lever has been released and the spring permitted to act.

6. In a weighing-machine, a multiple force-feed comprising a series of parallel shafts geared together so as to rotate alternately in opposite directions, and conveyers arranged in alternately opposing spirals on said rods, whereby material fed to said conveyers is forced in the same direction by all of said conveyers and change-speed gearing for driving the said conveyers.

7. In a weighing-machine, a multiple force-feed, comprising a series of parallel shafts geared together so as to rotate alternately in opposite directions, and coiled-wire conveyers arranged in alternately opposing spirals on said rods, whereby material fed to said conveyers is forced in the same direction by all of said conveyers.

8. In a weighing apparatus, a weighing-bucket, a source of supply, a differential force-feed connected thereto, means operated by the weighing-bucket for controlling the speed of the feed from high speed through an intermediate speed, to cessation, and a lever operated by the discharge of material from the weighing-bucket for setting the differential force-feed at high speed.

9. In a weighing apparatus, a source of supply, a differential force-feed, a compartment weighing-bucket supplied by said force-feed, a scale from which said bucket is hung, a power-shaft, a clutch controlled by the weighing-bucket for changing the speed of the feed, and a pivoted ball-race and rolling ball acting as a temporary

stop to the upward movement of the scale-beam after the discharge of a load from either compartment of the bucket.

749,195. **DARK-BLUE WOOL-DYE AND PROCESS OF MAKING SAME.** MEINHARD HOFFMANN, Frankfort-on-the-Main, Germany, assignor to Cassella Color Company, New York, N. Y. Filed Sept. 3, 1903. Serial No. 171,310. (No specimens.)

Claim.—1. The process of producing dark-blue mordant-dyeing wool-dyes by combining the diazotized acetdiamidophenolsulfonic acid of the constitution

$$C_6H_3OH(1)NH_2(2)NH.CO.CH_3(4)SO_3H(6)$$

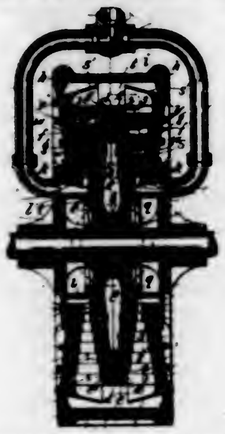
with a hydroxylated derivative of naphthalene, substantially as described.

2. The herein-described new azo dyestuff derived from acetdiamidophenolsulfonic acid of the constitution

$$C_6H_3OH(1)NH_2(2)NH.CO.CH_3(4)SO_3H(6)$$

which is easily soluble in water with a violet color, turning into scarlet by addition of acetic acid, dissolving in strong sulfuric acid with a violet or bluish shade; dyeing wool in an acid-bath a dull claret shade, which on being after-treated with chromate is turned into a deep blue of excellent fastness, substantially as described.

749,196. **TURBINE-ENGINE.** PER F. HOLMGREN, New York, N. Y. Filed Feb. 9, 1903. Serial No. 142,617. (No model.)



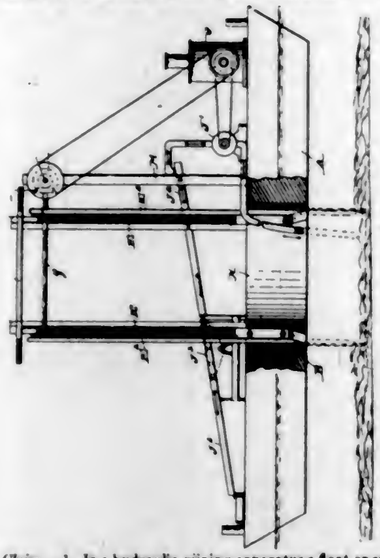
Claim.—1. In a duplex steam-turbine, the combination of a rotatory shaft, a hub thereon carrying two rotatory disks side by side, a plurality of bucket-carrying rings connected to each disk in concentric series, a stationary disk having coacting and reversely-operating bucket-rings to each rotating disk, said stationary disks forming sides of the inclosing case respectively, a central annular chute-ring delivering the steam outwardly to each of the bucket systems, and means for directing the steam through either system at will.

2. In a duplex steam-turbine, the combination of a rotatory shaft, a hub thereon carrying two rotating disks side by side, a plurality of bucket-carrying rings connected to each disk in concentric series, a stationary disk having coacting reversely-operating bucket-rings to each rotating disk, said rotatory and stationary disks diverging from each other outwardly, and the bucket-rings correspondingly divergent, and said stationary disks forming sides of the case respectively, a central annular chute-ring delivering the steam outwardly to each of the bucket systems, and means for directing the steam through either system at will.

3. In a steam-turbine, the combination of a steam-distributing chute-ring, a plurality of concentric impelling bucket-rings arranged in series and successively taking steam reversely, carrying-disks for said bucket-rings, a rotatory shaft carrying one of said disks, and a series of concentric laterally-directing chutes for the steam escaping from the terminal series of bucket-rings.

4. In a steam-turbine, the combination of concentric bucket-rings, a rotatory shaft, means for application of the steam to the buckets, for applying rotatory motion to said shaft, said bucket-rings comprising two ring members of equal diameter and separately-constructed buckets secured to said ring members intermediately and connecting them in parallel relation to each other, said connections consisting of studs of the buckets secured in perforations of the ring members, and means to prevent displacement of the buckets by centrifugal action, consisting of the bucket studs and sockets of the ring members and the eccentrically-fitted tap-screws.

749,197. **HYDRAULIC GOLD-MINING.** FREDERICK J. HOYT, Chicago, Ill. Filed June 18, 1902. Serial No. 112,223. (No model.)



Claim.—1. In a hydraulic mining apparatus a float or scow provided with an opening through its deck and bottom to the water, a sectional caisson adapted to fit within and extend through said opening in such manner that in its working position its top is always on a level with the deck, a common mechanism for lowering said caisson to the river-bed and for forcing it therein to any desired depth in one continuous operation and for raising said caisson from the river-bed, and power means for driving said mechanism, substantially as described.

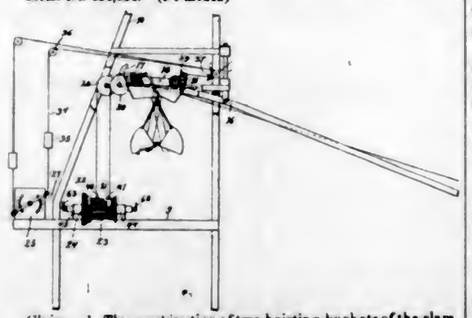
2. In a hydraulic mining apparatus, a float or scow provided with an opening through its deck and bottom to the water, a caisson adapted to fit within said opening, a rack-and-gear mechanism for raising and lowering said caisson from and to the river-bed and for forcing said caisson into the river-bed to any desired depth, and power means for driving said mechanism, substantially as described.

3. In a hydraulic mining apparatus, a float or scow provided with an opening through its deck and bottom to the water, a caisson adapted to fit within said opening, mechanism for raising and lowering said caisson from and to the river-bed and for forcing said caisson into the river-bed to any desired depth consisting of a plurality of vertical racks, a plurality of gear-wheels with which said racks mesh, working shafts on which said gear-wheels are mounted, a driving-shaft, means for connecting said working shafts with said driving-shaft and power means for driving said mechanism connected to said driving-shaft, substantially as described.

4. In a hydraulic mining apparatus, a float or scow provided with an opening through its deck and bottom to the water, a sectional caisson adapted to fit within said opening, mechanism for raising and lowering said caisson from and to the river-bed and for forcing said caisson into the river-bed to any desired depth consisting of, a plurality of vertical racks attached to said caisson, a plurality of gear-wheels with which said racks mesh, a pair of shafts on which said gear-wheels are mounted, a miter-gear on one end of each of said shafts, a second pair of miter-gears meshing with said first pair, a driving-shaft on which said second pair of miter-gears is mounted, and power means for driving said mechanism connected with said driving-shaft, substantially as described.

5. In a hydraulic mining apparatus, a float or scow provided with a circular opening through its deck and bottom to the water, a sectional, cylindrical caisson adapted to fit closely within said opening, mechanism for raising and lowering said caisson from and to the river-bed and for forcing said caisson into the river-bed to any desired depth, consisting of a frame surrounding said caisson, four vertical racks attached to the inside of said caisson at its four quarters, slots in said frame to guide said racks in their vertical movement, four gear-wheels with which said racks mesh, two horizontal, parallel shafts on which said gears are mounted in pairs, said shafts carried by bearings in the top of said frame, a miter-gear on one end of each of said shafts, a second pair of miter-gears meshing with said first pair, a horizontal driving-shaft on which said second pair of miter-gears is mounted, a second frame in the top of which said driving-shaft is mounted, and power means for driving said mechanism connected with said driving-shaft, substantially as described.

749,198. **HOISTING AND CONVEYING APPARATUS.** OLE JOHNSON and JOHN JOHNSON, Milwaukee, Wis. Filed Sept. 3, 1902. Serial No. 121,928. (No model.)



Claim.—1. The combination of two hoisting-buckets of the clam-shell variety each provided with means for automatically locking it in open position, of a closing and hoisting line for each bucket, a winding apparatus common to said lines, means for rotating said winding apparatus and mechanism for automatically changing the direction of rotation of said winding apparatus at the desired times in relation to the position of said buckets.

2. The combination with two clam-shell hoisting-buckets, of means on each bucket after it has opened for automatically locking it in open position until released by material to be hoisted, a movable carriage for each bucket, a line on each bucket for closing and hoisting it and moving its carriage, a winding apparatus for said lines, means for rotating said winding apparatus in either direction, and mechanism for automatically changing the direction of rotation of said winding apparatus at the proper times.

3. The combination with tracks having two inclines, of two hoisting-buckets of the clam-shell variety, a movable carriage for each bucket, means on each bucket, after it has moved to open position and until it contacts with material to be hoisted, for holding said bucket in open position, a line for each bucket for closing it, hoisting it and moving its carriage, a winding apparatus common to said lines, means for imparting rotation to said winding apparatus, a governor for determining the direction of rotation of said means and a member in the path of travel of each carriage through the agency of which said governor is actuated.

4 The combination with tracks having two inclinations, of two movable carriages, a hoisting-bucket for each carriage, a line on each bucket for closing and hoisting it and moving its carriage from a point of loading to a point of dumping, a winding apparatus common to said lines, means for varying the operative length of said lines on said winding apparatus, a motor for said winding apparatus, and means actuated by said carriages in their travel for governing the operation of said motor.

5. The combination with tracks leading from the point of loading to the point of dumping, of two movable carriages, two buckets of the clam-shell variety, a lock on each bucket for holding each bucket in open position after it has opened at the point of dumping and until it contacts with material to be hoisted, a line for each bucket for closing and hoisting it and moving its carriage from the point of loading to the point of dumping, an agent for winding said lines and means for automatically reversing the direction of rotation of said agent when each bucket reaches the point of dumping.

6. The combination with tracks, of two movable carriages, a hoisting-bucket for each carriage, a line for closing and hoisting each bucket and moving its carriage, a winding apparatus common to said lines, an electric motor for operating said winding apparatus, a rheostat for governing the operations of said motor, and means for automatically actuating said rheostat to reverse the direction of rotation of said motor.

7. The combination of two hoisting-buckets, of a closing and hoisting line for each bucket, a winding apparatus common to said lines, means for rotating said winding apparatus, and mechanism for automatically changing the direction of rotation of said winding apparatus at the desired times in relation to the position of said buckets.

8. The combination with two hoisting-buckets, of a hoisting-line for each bucket, a winding apparatus common to said lines, means for rotating said winding apparatus and mechanism for automatically changing the direction of rotation of said apparatus at the desired times in relation to the position of said buckets.

9. The combination with two hoisting-buckets, of a movable carriage for each bucket, a line on each bucket for hoisting it and moving its carriage, a winding apparatus for said lines, means for rotating said winding apparatus in either direction, and mechanism for automatically changing the direction of rotation of said winding apparatus.

10. The combination with tracks, of two hoisting-buckets, a movable carriage for each bucket, a line for each bucket for hoisting it and moving its carriage, a winding apparatus common to said lines, means for imparting rotation to said winding apparatus, a governor for determining the direction of rotation of said means and a member in the path of travel of each carriage through the agency of which said governor is actuated.

11. The combination with tracks, of two movable carriages, a hoisting-bucket for each carriage, a line on each bucket for hoisting it and moving its carriage from a point of loading to a point of dumping, a winding apparatus common to said lines, means for varying the operative length of each of said lines on said winding apparatus, a motor for operating said winding apparatus and means actuated by said carriages in their travel for governing the operation of said motor.

12. The combination with tracks leading from the point of dumping to the point of loading, of two movable carriages, two buckets, a line for each bucket for hoisting it and moving its carriage from the point of loading to the point of dumping, an agent for winding said lines, and means for automatically reversing the direction of rotation of said agent when each of said buckets reaches the point of dumping.

13. The combination with tracks, of two movable carriages, a hoisting-bucket for each carriage, a line for hoisting each bucket and moving its carriage, a winding apparatus common to said lines, an electric motor for operating said winding apparatus, a rheostat for governing the operations of said motor, and means for automatically actuating said rheostat to reverse the direction of rotation of said motor.

14. The combination with two clam-shell hoisting-buckets, of means on each bucket after it is opened for automatically locking it in open position until released by material to be hoisted, a movable carriage for each bucket, a line on each bucket for closing and hoisting it and moving its carriage, a winding apparatus for said lines and means for rotating said winding apparatus in either direction.

15. The combination with tracks having two inclines, of two hoisting apparatuses of the clam-shell variety, a movable carriage for each bucket, means on each bucket, after it has been moved to open position and until it contacts with material to be hoisted, for holding said bucket in open position, a line for each bucket for closing it, hoisting it and moving its carriage, a winding apparatus common to said lines, and means for imparting rotation to said winding apparatus.

16. The combination with tracks having two inclinations, of two movable carriages, a hoisting-bucket for each carriage, a line on each bucket for closing it, hoisting it and moving its carriage from a loading-point to a dumping-point, a winding apparatus common to said lines, means for varying the operative length of said lines in relation to said winding apparatus, and a motor for operating said winding apparatus.

17. The combination with tracks leading from the point of loading to the point of dumping, of two movable carriages, two buckets of the clam-shell variety, a lock on each bucket for holding said bucket in open position after it has been opened at the point of dumping and until it contacts with material to be hoisted, a line for each bucket, for closing it, hoisting it and moving its carriage from the point of loading to the point of dumping, an agent for winding said line and means for operating said agent.

18. The combination of a track having two inclinations, a clam-shell hoisting-bucket provided with means for automatically locking it in open position after it has opened and until it contacts with material to be hoisted, a carriage for said hoisting-bucket

movable on said track, a line for closing said bucket, hoisting it and moving its carriage and mechanism for winding said line.

19. The combination with an inclined track of a hoisting-bucket of the clam-shell variety provided with means for automatically locking it after it is opened, and until it contacts with material to be hoisted, in open position, a carriage for said bucket movable on said track, a line for said bucket for closing it, hoisting it and moving its carriage, and means for automatically releasing said lock at the desired time.

20. The combination of two hoisting-buckets having movable sections, means for automatically locking said buckets in open position, of a closing and hoisting line for each bucket, a winding apparatus common to said lines and means for rotating said winding apparatus.

21. The combination with two hoisting-buckets each provided with means for automatically locking it in open position, of a closing and hoisting line for each bucket, a winding apparatus common to said lines, means for rotating said winding apparatus and mechanism for automatically changing the direction of rotation of said winding apparatus at the desired times in relation to the position of said buckets.

22. The combination with two hoisting-buckets, of means on each bucket after it has opened for automatically locking it in open position until released by material to be hoisted, a movable carriage for each bucket, a line on each bucket for closing it, hoisting it and moving its carriage, a winding apparatus for said lines, means for rotating said winding apparatus and mechanism for automatically changing the direction of rotation of said apparatus.

23. The combination with a hoisting-bucket of the clam-shell variety provided with means for automatically locking it in open position, of a closing and hoisting line for said bucket, a winding apparatus for said line, means for rotating said apparatus and means for counterbalancing said bucket.

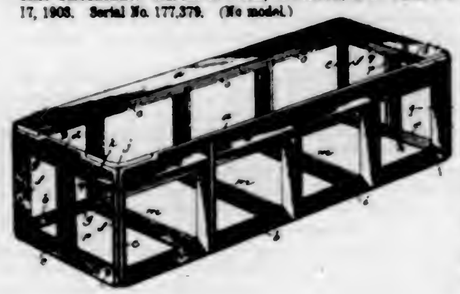
24. The combination with a clam-shell hoisting-bucket, of means after said bucket has opened for automatically locking it in open position until released by material to be hoisted, a movable carriage for said bucket, a line on said bucket for closing and hoisting it and moving its carriage, a winding apparatus for said lines, means for rotating said winding apparatus and means for counterbalancing said bucket.

25. The combination with a hoisting-bucket of the clam-shell variety provided with means for automatically locking it in open position, of a closing and hoisting line for said bucket, a winding apparatus for said line, means for rotating said winding apparatus, mechanism for changing the direction of rotation of said winding apparatus, and an agent for counterbalancing said bucket.

26. The combination with a clam-shell bucket, of means on said bucket after it has opened for automatically locking it in open position until released by material to be hoisted, a movable carriage for said bucket, a line on said bucket for closing and hoisting it and moving its carriage, a winding apparatus for said line, means for rotating said winding apparatus in either direction and an agent for counterbalancing said bucket.

27. The combination with a track having two inclines, of a hoisting-bucket of the clam-shell variety, a movable carriage for said bucket, means on said bucket after it has moved to open position and until it contacts with material to be hoisted, for holding said bucket in open position, a line for said bucket for closing it, hoisting it and moving its carriage, a winding apparatus for said line, means for imparting rotation to said winding apparatus and an agent for partially counterbalancing said bucket.

749,199. **SKELETON FRAME FOR TANKS OR CELLS OF ELECTRIC BATTERIES.** DANIEL F. JONES, Providence, R. I. Filed Oct. 17, 1903. Serial No. 177,379. (No model.)

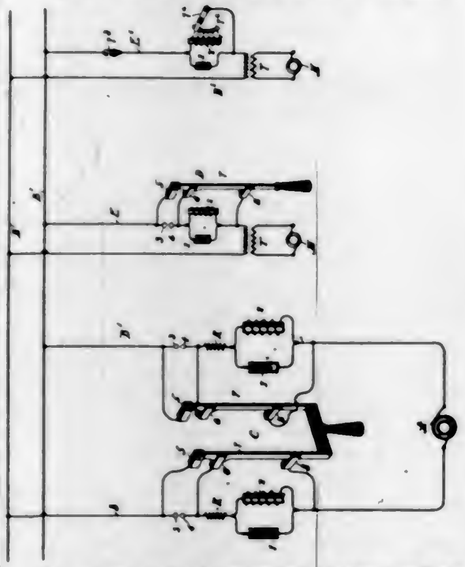


Claim.—1. A skeleton frame for the tanks or cells of electric batteries, said frame having offsets at its corners and brackets seated therein and secured thereto to strengthen the corners of the frame, the frame and brackets being wholly of lead, substantially as and for the purpose specified.

2. A skeleton frame for the tanks or cells of electric batteries, said frame constructed wholly of lead and the side and end bars thereof which form the bottom of the frame being disposed at an acute angle to a horizontal to increase the strength of the frame, and having rabbeted seats around its four sides to form a support for the tank or cell, substantially as and for the purpose set forth.

3. A skeleton frame for the tanks or cells of electric batteries, vertical and horizontal bars upon the sides of the frame and crossties on the bottom thereof, the top corners of the frame having offsets and brackets seated therein and secured thereto, the frame and its several parts constructed wholly of lead, substantially as and for the purpose specified.

749,200. **HIGH-POTENTIAL SWITCH.** JOHN F. KELLY, Pittsfield, Mass. Filed May 23, 1903. Serial No. 158,414. (No model.)



Claim.—1. In a high-potential switch, the combination of a circuit-breaker, a device affording an easy path for abnormal-frequency currents and a difficult path for normal-frequency currents in series with said circuit-breaker, and means for cutting said device in and out of circuit.

2. In a high-potential switch, the combination of a circuit-breaker, a device affording an easy path for abnormal-frequency currents and a difficult path for normal-frequency currents in series with said circuit-breaker, a shunt around said device, and means for breaking said shunt prior to opening said circuit-breaker.

3. In a high-potential switch, the combination of a circuit-breaker, a spark-gap whose discharge-terminals are connected respectively to the circuit-breaker terminals, a device in series with said circuit-breaker and affording an easy path for abnormal-frequency currents and a difficult path for normal-frequency currents, a shunt around said device, and means for breaking said shunt prior to the opening of said circuit-breaker.

4. In a high-potential switch, the combination of a device affording an easy path for abnormal-frequency currents and a difficult path for normal-frequency currents, and means for making and breaking a shunt around said device.

5. In a high-potential switch, the combination of a device affording an easy path for abnormal-frequency currents and a difficult path for normal-frequency currents, a resistance in series therewith, and means for making and breaking a shunt around said device and resistance.

6. In a high-potential switch, the combination of a circuit-breaker, a device in series therewith, consisting of means for producing capacity and means for producing inductance in parallel with each other and tuned to the normal frequency of the circuit, and means for cutting said device in and out of circuit.

7. In a switch, the combination of a capacity and inductance device tuned to the normal frequency of the circuit, and means for making and breaking a shunt around said device.

8. In a high-potential switch, the combination of a circuit-breaker, a device in series therewith consisting of means for producing capacity and means for producing inductance in parallel with each other and tuned to the normal frequency of the circuit, a shunt around said device, and means for breaking said shunt prior to the opening of said circuit-breaker.

749,201. **METAL WINDOW FRAME AND SASH.** JOHN A. KIMBLY, Chicago, Ill. Filed Oct. 4, 1902. Serial No. 126,970. (No model.)



Claim.—1. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending throughout the length of the member, a meeting-strip composed of a single sheet of metal bent to form a rectangular and closed portion adapted to fit within said channel, also bent for a portion of its length to form a tongue projecting in the plane of the face of the frame, and for the rest of its length bent to form an overhanging flange.

2. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending throughout the length of the member, a meeting-strip composed of a single sheet of metal bent to form a rectangular and closed portion adapted to fit within said channel, also bent for a portion of its length to form a tongue projecting in the plane of the face of the frame, and for the rest of its length, bent to form an overhanging flange, in combination with a sash-style having a channel to receive the tongue on said frame member and a tongue to fit under the overhanging flange of the frame member.

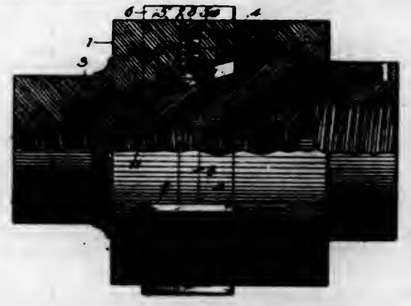
3. In a window-frame, a side member composed of a sheet of metal bent to form a rectangular channel extending the full length of and in the face of said member, and a meeting-strip composed of a single sheet of metal bent to form a rectangular portion fitting said channel and adapted to be held in place by frictional engagement with the walls of said channel.

4. A sheet-metal window-frame composed of a sheet of metal bent to form a channel extending longitudinally throughout, and a separate strip of metal having portions seated in said channel and engaging the walls of the latter, said strip bent upon itself to form the tongue b^3 and the flange b', all substantially as shown and described.

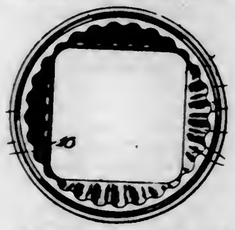
749,202. **EXPANSIBLE MANDREL.** ANDREW KLAY, Bluffton, Ohio. Filed Feb. 2, 1903. Serial No. 141,822. (No model.)

Claim.—1. The combination in an expansible mandrel, of a hollow cylindrical jaw-casing, slots radially disposed in said casing and having one end open, jaws slidably mounted in said slots, an actuating-cone having a cylindrical base, a sleeve having a cylindrical opening rigidly secured to one end of said jaw-casing and snugly surrounding the case of said cone, said sleeve forming retaining means for said jaw and forming a shield for excluding dirt from the interior of the mandrel.

2. The combination in an expansible mandrel, of a jaw-casing, jaws slidably mounted in slots in the wall of said casing, each of said jaws having a lug projecting laterally therefrom, recesses provided in said casing-wall for said lugs to move in, springs seated in said recesses and pressing against said lugs and retention-plates for said springs which are removably mounted in seats on the external surface of said casing.



749,203. **FIRE-POT.** GEORGE G. KNIFFIN, Bayonne, N. J., assignor to Boynton Furnace Company, New York, N. Y., a Corporation of New York. Filed Sept. 1, 1903. Serial No. 171,473. (No model.)

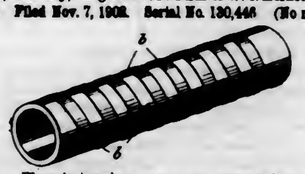


Claim.—1. As an improved article of manufacture, a fire-pot circular on the outside and converging to form a rectangular bottom opening, the said pot being entirely closed except at the top and bottom.

2. As an improved article of manufacture, a fire-pot closed for its entire height, said fire-pot being circular at the top and essentially rectangular at the bottom and tapering from top to bottom.

3. A fire-pot, comprising a body portion closed except at top and bottom, said fire-pot being corrugated and tapering and provided with openings at top and bottom, the former being essentially circular and the latter essentially rectangular.

749,204. **ELECTRIC HEATING APPARATUS.** RICHARD KÖHN, Hanau, Germany, assignor to The Firm of W. C. Heraeus, Hanau, Germany. Filed Nov. 7, 1902. Serial No. 130,446. (No model.)



Claim.—Electric heating apparatus comprising a body to be heated and a heating resistance of platinum-foil of .001 to .01 millimeter in thickness in intimate contact with the body and having the characteristics substantially as set forth.

749,205. **HEAT-SAFE.** BELL KUHN, Chicago, Ill. Filed June 6, 1902. Serial No. 110,540. (No model.)

Claim.—1. A portable food-repository having a chamber provided with double walls and having between the said walls a heat-insulating filling, the said chamber being provided with a tapered or bell-shaped month b', in combination with a stopper or closing device having tapered sides c^4 and a closed interior having an insulating-filling, and a device D which retains the stopper in position, the said device being provided with means by which it may be connected to the main body of the repository, as set forth.

2. In a portable food-repository, a chamber having double walls forming a space *a*, the said space being filled along its sides with vertical sheets of cellular and non-cellular heat-insulating materials arranged alternately and across one end with alternate horizontal sheets of the same materials, the said chamber being provided with an opening and a closing device, the said device being suitably heat-insulated, as set forth.



3. In an apparatus of the class described, a double-walled case A having between its walls a heat-insulating filling, consisting of alternate sheets of cotton and paper, the case being provided with a chamber for food vessels, and suitable means for closing the opening into said chamber, as set forth.

4. In an apparatus of the class described, a double-walled case having between its walls a filling consisting of alternate sheets of a carded fibrous vegetable material having interstices x^{30} and a non-cellular fibrous material, the said case having a chamber for food vessels, and provided with suitable means for closing the opening into same, as set forth.

5. In an apparatus of the class described, a double-walled case, the said walls consisting of an indurated fibrous material and having between the walls a filling of alternate layers of a cellular fibrous material and a non-cellular fibrous material, as set forth.

6. In combination, the case A having double walls *a a'*, a heat-insulating filling between said walls, a chamber B having a tapered opening *b'*, a closing device having tapered sides c^4 and a removable part D which slips over the case A and is provided with catches for connecting the parts together, as set forth.

7. In an apparatus of the class described, the case A, having walls *a a'*, a heat-insulating filling between said walls, a chamber B, a removable receptacle C, and dish-like part D provided with a chamber *d'*, and means for securing said part to the case A, as set forth.

749,206. FUEL-FEEDING DEVICE. GEORGE W. LIMBERT, Sanpamco, Tex. Filed Apr. 20, 1903. Serial No. 153,523. (No model.)

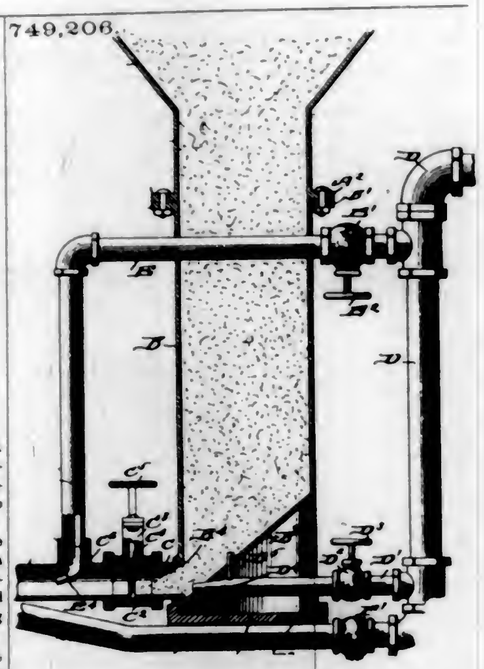
Claim.—1. The combination with a hopper, of a vertically-arranged pipe beneath and having communication with the hopper, a pipe leading horizontally from the lower portion of the vertical pipe, an inclined partition in the vertical pipe adapted to direct fuel toward the horizontal pipe and an air-pipe having a nozzle extending through the inclined partition into the vertical pipe in alinement with the horizontal pipe.

2. The combination with a vertical pipe, of a hopper arranged above and discharging into said vertical pipe, a horizontal pipe leading from and opening into the vertical pipe, an inclined partition arranged in the vertical pipe opposite the horizontal pipe, an air-pipe having a tapering nozzle passing through said partition and opening above same in alinement with the horizontal pipe, and a vertical, upwardly open, branch of said air-pipe extending upwardly through the partition.

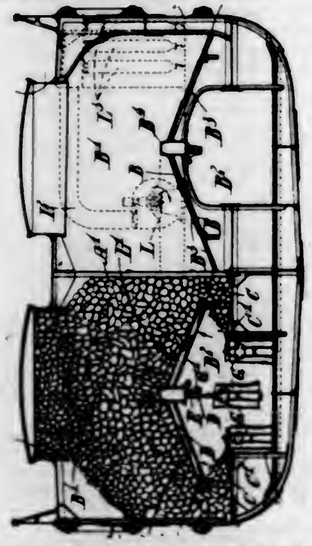
3. The combination with a vertical pipe, of a hopper arranged above and discharging into said vertical pipe, a horizontal pipe leading therefrom, an inclined partition arranged in the vertical pipe its lower edge resting below and adjacent the horizontal pipe, an air-pipe discharging into said vertical pipe by a nozzle in alinement with the horizontal pipe and by a branch at right angles to the horizontal pipe, and a sliding damper working in said horizontal pipe.

4. The combination with a hopper, of a vertical pipe opening upwardly into the lower portion of said hopper, an inclined partition arranged in the lower portion of the vertical pipe, a horizontal pipe leading from said vertical pipe at a point opposite the partition, a damper in said horizontal pipe, an air-pipe discharging into the vertical pipe in the plane of the horizontal pipe, and a supplemental pipe adapted to discharge air into the horizontal pipe on the opposite side of the damper from the vertical pipe.

749,206.



749,207. DEPOSITORY FOR COAL OR THE LIKE. GEORGE C MACKNOW and HERBERT G. CANNON, Blackwall, London, England. Filed June 4, 1902. Serial No. 160,069. (No model.)



Claim.—1. In a depository for coal or other broken or granulated material, the combination with a sloping partition dividing the depository into an upper chamber for the material and a lower chamber into which the material is received and handled, an outlet at the lower part of the partition through which the material may gravitate to the lower chamber, and a receiving-table in the lower chamber below the outlet upon which the material falls and comes to rest and from which it may be subsequently removed; substantially as described.

2. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a stationary sloping floor between these chambers, an outlet at the lower part of this floor through which the material may gravitate to the lower chamber, a receiving-table in the lower chamber situated beneath the outlet in the floor of the upper chamber, portable receptacles to receive the material removed from the table and means for removing the receptacles when charged, as set forth.

3. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a stationary sloping floor between these chambers, an outlet at the lower part of this floor through which the material may gravitate to the lower chamber, a receiving-table in the lower chamber situated beneath the outlet in the floor of the upper chamber, portable receptacles to receive the material from the table, a guide projecting from the table and extending over the receptacle to be charged, whereby the material may be guided to the receptacle as set forth.

4. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a sloping floor between these chambers, an outlet at the lower part of this floor through which the material may gravitate to the lower chamber, a receiving-table in the lower chamber situated beneath the outlet in the floor of the upper chamber, portable receptacles to receive the material removed from the table, and means for drawing off dust from the lower chamber as set forth.

5. In a depository for coal or other broken or granulated material the combination of an upper, chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, and means for transporting the material removed as set forth.

6. In a depository for coal or other broken or granulated material the combination of an upper chamber a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber, the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, portable receptacles to receive the material as it is removed from the table, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-table, hooks for suspending the receptacles from this rail, and means for moving the receptacles along the rail to the point at which it is desired they shall be delivered as set forth.

7. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, portable receptacles to receive the material as it is removed from the table, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-table, hooks for suspending the receptacles from this rail, a reciprocating bar parallel with the rail, pawls on this bar their free ends resting upon the rail and adapted to reciprocate upon it and cooperate with the hooks by which the receptacles are suspended for the purpose of moving the receptacles along the rail to the point at which it is desired that they shall be delivered as set forth.

8. In a depository for coal or other broken or granulated material, the combination with a receiving-table, a funnel projecting from said table, a plate secured to the funnel and extending therefrom onto the table, whereby the material may be guided to the funnel; substantially as described.

9. In a depository for coal or other broken or granulated material, the combination with the receiving-table, of a funnel projecting therefrom over the receptacle to be charged, a guide-plate adapted to engage the edge of the table, and a hinge connection between the funnel and guide-plate, substantially as and for the purpose set forth.

10. In a depository for coal or other broken or granulated material, the combination with the receiving-table, of a funnel projecting therefrom over the receptacle to be charged, a guide-plate engaging the edge of the table for conducting the material to the funnel, a hinge for connecting the funnel to the guide-plate and means for suspending the receptacle while charging; substantially as described.

11. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, an air-extractor, a main air-trunk parallel with the receiving-table and communicating with the air-extractor, transverse tributary trunks communicating at one end with the main trunk and each provided at the other end with a mouth situated above one of the points on the table from which the material is removed during delivery from the depository and a discharge-outlet for the extractor, as set forth.

12. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, an air-extractor, a main air-trunk parallel with the receiving-table and communicating with the air-extractor, transverse tributary trunks communicating at one end with the main trunk and each communicating at the other end with the lower chamber above one of the points on the table from which the material is removed during delivery from the depository, a discharge-outlet for the extractor, and filters of perforated material to receive the discharge, as set forth.

13. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed beneath the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, means for transporting the material removed and exterior walls to the depository by which the whole may be floated, as set forth.

14. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber an arched floor between these chambers, means for supporting this floor so that the lower sides are free of the opposed walls leaving an outlet on each side through which the material may gravitate down to the chamber below, receiving-tables in the lower chamber disposed on opposite sides of the chamber one beneath each of the outlets between the floor and opposed walls of the upper chamber each table extending beneath the whole of the length of its respective outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, and means for transporting the material removed, as set forth.

15. In a depository for coal or other broken or granulated material the combination of an upper chamber, a lower chamber, an arched floor between these chambers, means for supporting this floor so that the lower sides are free of the opposed walls leaving an outlet on each side through which the material may gravitate down to the chamber below, receiving-tables in the lower chamber disposed on opposite sides of the chamber one beneath each of the outlets between the floor and opposed walls of the upper chamber each table extending beneath the whole of the length of its respective outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, portable recepta-

cles to receive the material as it is removed from the tables, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-tables and approximately midway between them, hooks for suspending the receptacles from this rail, and means for moving the receptacles along the rail to the point at which it is desired that they shall be delivered, as set forth.

16. In a depository for coal or other broken or granulated material the combination of an upper chamber, an arched floor between these chambers, means for supporting this floor so that the lower sides are free of the opposed walls leaving an outlet on each side through which the material may gravitate down to the chamber below, receiving-tables in the lower chamber disposed on opposite sides of the chamber one beneath each of the outlets between the floor and opposed walls of the upper chamber each chamber extending beneath the whole of the length of its respective outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, portable receptacles to receive the material as it is removed from the tables, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-tables and approximately midway between them, hooks for suspending the receptacles from this rail, a receiving-bar parallel to the rail, pawls on this bar their free ends resting upon the rail and adapted to reciprocate upon it and cooperate with the hooks by which the receptacles are suspended so that the receptacles are made to travel along the rail to the point at which it is desired they shall be delivered as set forth.

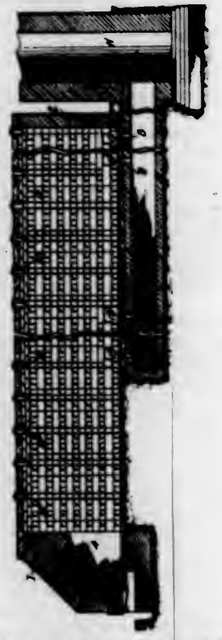
17. In a depository for coal or other broken or granulated material having outer walls by which the whole is floated the combination of a partition dividing the forward end of the depository into two longitudinal sections, a partition dividing the rearward end into two longitadinal sections, each section comprising an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed between the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, a dumping-space between the forward and rearward sections, and means for transporting the material removed from each section to this dumping-space, as set forth.

18. In a depository for coal or other broken or granulated material having outer walls by which the whole is floated the combination of a partition dividing the forward end of the depository into two longitudinal sections, a partition dividing the rearward end into two longitudinal sections, each section comprising an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of this floor free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed between the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, a dumping-space between the forward and rearward sections portable receptacles to receive the material as it is removed from the table, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-table and extending out from the chamber to the dumping-space between the forward and rearward sections, hooks for suspending the receptacles from this rail, and means for moving the receptacles along the rail to the dumping-space as set forth.

19. In a depository for coal or other broken or granulated material having outer walls by which the whole is floated the combination of a partition dividing the forward end of the depository into two longitudinal sections, a partition dividing the rearward end into two longitudinal sections, each section comprising an upper chamber, a lower chamber, a floor between these chambers sloped downwardly toward one wall, means for supporting the lower side of the floor of the chamber free of the opposed wall so that an outlet is left for the material to gravitate down the floor to the chamber below, a receiving-table in the lower chamber disposed between the outlet between the lower side of the floor and the opposed wall of the chamber the table extending beneath the whole of the length of the outlet so that the material may be removed from several points simultaneously and projecting inwardly beneath the floor, a dumping-space between the forward and rearward sections, portable receptacles to receive the material as it is removed from the table, a stationary transporting-rail suspended in the lower chamber parallel to the receiving-table and extending out from the chamber to the dumping-space between the forward and rearward sections, hooks for suspending the receptacles from this rail, a reciprocating bar parallel with the rail, pawls on this bar their free ends resting upon the rail and adapted to reciprocate upon it and cooperate with the hooks by which the receptacles are suspended so that the receptacles are moved along the rail to the dumping-space as set forth.

20. In a depository for coal or other broken or granulated material, the combination with a partition dividing the depository into an upper chamber for the material and a lower chamber into which the material is received and handled, an outlet in the partition through which the material may gravitate to the lower chamber, and a receiving table or platform in the lower chamber below the outlet upon which the material falls and comes to rest and from which it may be subsequently removed; substantially as described.

749,208. KILN. DAVID J. MARRS, Denver, Mo. Filed Mar. 11, 1903. Serial No. 147,340. (No model.)

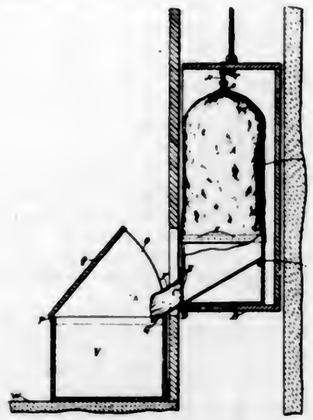


Claim.—1. In a brick-kiln, a permanent floor, side and end walls, a furnace at one end comprising a plurality of sections, a smoke-stack at the other end, flues beneath said floor extending from a point at a distance from said furnace to said stack, dampers in said floor communicating with said flues, a body of green brick inclosed by said walls, longitudinal passages in the body of said green brick communicating with the sections of said furnace, transverse passages in said body of green brick extending between corresponding dampers, fire-pots in the top of said body of green brick, passages leading from said fire-pots to the transverse passages extending across said body of green brick, and means for operating said dampers.

2. In a brick-kiln, a permanent floor, side and end walls, a furnace at one end, a smoke-stack at the other end, flues beneath said floor and at the sides thereof, said flues extending from a point at a distance from said furnace to said stack, dampers in said floor communicating with said flues at intervals throughout their length, a body of green brick inclosed by said walls, longitudinal passages in said body of green brick communicating with said furnace, transverse passages in said body of green brick extending between correspondingly-placed dampers, fire-pots in the top of said body of green brick, passages extending downward from said fire-pots to said transverse passages, and means for operating said dampers.

749,209. MANUAL COAL-CARRYING VESSEL OR BAG. NEWMAN R. MARSHMAN, New York, N. Y. Filed Mar. 18, 1903. Serial No. 148,455. (No model.)

Claim.—1. A manual coal-carrying vessel or bag, having an adjustable discharging passage-way independent of its filling end.



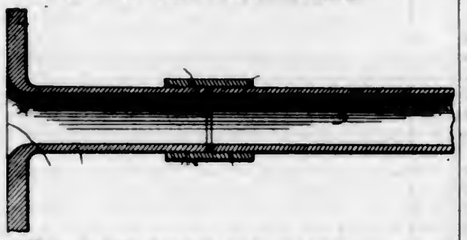
2. The combination in a manual coal-carrying vessel or bag, a portion of which is rigid and a portion flexible, of the adjustable discharging passage-way.

3. A manual coal-carrying vessel or bag having converging sides and slanting bottom.

4. In combination with a partly-flexible and partly-rigid manual coal-carrying vessel or bag, the suspension-rope as shown and described.

5. A manual coal-carrying vessel or bag having a slanting bottom, and a discharge-opening thereat.

749,210. FASTENING FOR TUBES OR STAY-BOLTS FOR STEAM-BOILERS. MADISON M. MAHNEY and GEORGE SPOONER, Clouderoft, N. Mex., assignors of one-third to J. J. Wiles, Clouderoft, N. Mex. Filed Feb. 12, 1903. Serial No. 143,067. (No model.)



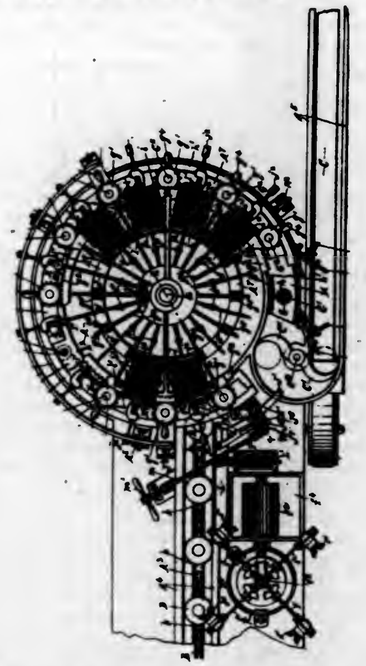
Claim.—A boiler-tube sheet having an opening, and a tubular nipple formed from the material surrounding the opening and extending inwardly from the water side of the sheet, a boiler-tube in line and corresponding in diameter with the tubular nipple, the latter and the tube being externally screw-threaded, a refractory coupling-sleeve screwed on the meeting ends of the tubular nipple and boiler-tube and drawing and securing them together, and a gasket-ring compressed between the meeting ends of the nipple and tube, and disposed within the coupling-sleeve, substantially as described.

749,211. SOLDERING-MACHINE. GAIUS L. MERRELL, Syracuse, N. Y., assignor to Merrell-Soule Company, Syracuse, N. Y., a Corporation of New York. Filed Mar. 14, 1896. Serial No. 541,706. (No model.)

Claim.—1. In a soldering-machine, the combination of a movable feed for the article to be soldered, a solder-feed supported by the former feed and movable simultaneously therewith, and an operating member for making contact with said article and controlling the operation of the solder-feed, substantially as and for the purpose specified.

2. In a soldering-machine, the combination of a revoluble feed for the article to be soldered, a solder-feed supported by the former feed and revoluble therewith, and a movable operating member for making contact with said article and controlling the operation of the solder-feed, substantially as and for the purpose set forth.

3. In a soldering-machine, the combination of a movable feed for the article to be soldered, a solder-feed movable simultaneously with the article to be soldered, means for actuating the solder-feed during the movement of said article, and an operating member for making contact with the article and controlling the operation of said actuating means, substantially as set forth.



4. In a soldering-machine, the combination of a revoluble feed for the articles to be soldered, soldering-tools for said articles, solder-feeds supported by the former feed and revoluble therewith, means for simultaneously actuating a series of the solder-feeds during the movement of said articles, and an operating member for making contact with said articles and controlling the operation of the actuating means, substantially as specified.

5. In a soldering-machine, the combination of a movable feed for the articles to be soldered, an axially-revoluble soldering-tool, a revoluble support for the soldering-tool, a solder-feed revoluble on the same axis as said support and movable simultaneously with the articles to be soldered, and means for actuating the solder-feed during the axial revolution of the soldering-tool, substantially as set forth.

6. In a soldering-machine, the combination of a revoluble feed for the articles to be soldered, axially-revoluble soldering-tools for said articles, solder-feeds supported by the former feed and revoluble therewith, means for simultaneously actuating a series of the solder-feeds during the axial revolutions of the corresponding soldering-tools, and an operating member for making contact with said articles and controlling the operation of the actuating means, substantially as described.

7. In a soldering-machine, the combination of a movable feed for the article to be soldered, a heating-chamber, a soldering-tool arranged normally in the heating-chamber and movable endwise therein and having a portion thereof movable beyond said chamber for engaging the article to be soldered, and a solder-feed for feeding solder to said portion of the soldering-tool, substantially as and for the purpose set forth.

8. In a soldering-machine, the combination of a movable feed for the article to be soldered, a heating-chamber, a soldering-tool arranged normally in the heating-chamber and having a portion thereof movable beyond said chamber for engaging the article to be soldered, a solder-feed movable simultaneously with the article to be soldered for feeding solder to said portion of the soldering-tool, and means for actuating the solder-feed, substantially as and for the purpose described.

9. In a soldering-machine, the combination of a movable feed

for the article to be soldered, a solder-feed supported by the former feed and movable simultaneously therewith, an operating member for making contact with said article and controlling the operation of the solder-feed, and a stop for preventing the operation of said operating member, substantially as and for the purpose specified.

10. In a soldering-machine, the combination of a movable feed for the article to be soldered, a wire-solder feed provided with means for engaging the wire-solder and movable simultaneously with the former feed for feeding the wire-solder during the movement of said article by the former feed, and an operating member for making contact with the article to be soldered and controlling the operation of the solder-feed, substantially as and for the purpose described.

11. In a soldering-machine, the combination of a movable feed for the articles to be soldered, an operating member for making contact with the articles to be soldered and controlling the feed of the solder to said articles, and a plurality of solder-feeds controlled by the operating member and successively movable toward and away from said operating member, substantially as and for the purpose specified.

12. In a soldering-machine, the combination of a movable feed for the articles to be soldered, an operating member for making contact with the articles to be soldered and controlling the feed of the solder to said articles, movable means actuated by the operating member, and a plurality of solder-feeds provided with engaging members successively movable into and out of engagement with the movable means, substantially as and for the purpose set forth.

13. In a soldering-machine, the combination of a movable feed for the articles to be soldered, an axially-revoluble soldering-tool, a solder-feed supported by the former feed and movable simultaneously therewith, and means for actuating the solder-feed during the axial revolution of the soldering-tool, substantially as and for the purpose described.

14. In a soldering-machine, the combination of a movable feed for the article to be soldered, a soldering-tool for said article, a wire-solder feed provided with means for engaging the wire-solder and movable simultaneously with the former feed for feeding the wire-solder during the movement of said article by the former feed, a heating-chamber for the soldering-tool, and an operating member for making contact with said article and controlling the operation of the solder feed, substantially as and for the purpose specified.

15. In a soldering-machine, the combination of a heating-chamber, a heating device or burner discharging within the chamber, a soldering-tool movable in the heating-chamber toward and away from said heating device or burner, a solder-feed for feeding solder to the soldering-tool, and an operating member for making contact with said article and controlling the operation of the solder-feed, substantially as and for the purpose set forth.

16. In a soldering-machine, the combination with a revoluble feed for the article to be soldered; of a soldering-tool, and a wire-solder feed rotating simultaneously with the movable feed on substantially the same axis as the former feed; means for actuating the solder-feed, and an operating member for making contact with the articles to be soldered and controlling the operation of said means for actuating the solder-feed, substantially as and for the purpose described.

17. In a soldering-machine, the combination of a revoluble feed for the article to be soldered, a soldering-tool, a solder-feed supported by the former feed and revoluble therewith, a movable operating member for making contact with said article and controlling the operation of the soldering-feed, and supplemental feeds for conducting said articles toward and away from the revoluble feed, substantially as and for the purpose set forth.

18. In a soldering-machine, the combination of a revoluble feed for the articles to be soldered, soldering-tools for said articles, solder-reels supported by the feed and revoluble therewith, solder-feeds for feeding the solder from said reels, said feeds being supported by the former feed and revoluble therewith, means for actuating the solder-feeds, and an operating member for making contact with said articles and controlling the operation of said actuating means, substantially as described.

19. In a soldering-machine, the combination of a movable feed for the article to be soldered, a heating-chamber consisting of a fixed section and a revoluble section, a soldering-tool movable with the revoluble section of the heating-chamber and having a portion thereof arranged normally within the heating-chamber and movable beneath the same for engaging the article to be soldered, and a solder-feed for feeding solder to the soldering-tool, substantially as and for the purpose set forth.

20. In a soldering-machine, the combination of a movable feed for the article to be soldered, a wire-solder feed consisting of a lever supported by the first feed and movable therewith, an engaging member secured to the lever, and means for actuating the solder-feed during the movement of said article by the first feed, substantially as and for the purpose described.

21. In a soldering-machine, the combination of a movable solder-feeding lever, a movable engaging member connected to the lever, said member being movable independently of the lever into engagement with the solder and being movable simultaneously with the lever after the engagement of the solder for actuating said lever to feed the solder, and means for operating said member, substantially as and for the purpose specified.

22. In a soldering-machine, the combination of a movable solder-feeding lever, a movable engaging member pivoted to the lever and having one extremity movable independently of the lever into engagement with the solder and movable simultaneously with the lever after the engagement of the solder for actuating said lever to feed the solder, and means for engaging the opposite extremity of said member and operating said member, substantially as and for the purpose set forth.

23. In a soldering-machine, the combination of a movable feed for the article to be soldered, a wire-solder feed supported by the first feed and movable therewith, and means for actuating the wire-solder feed during the movement of said article by the first feed, substantially as and for the purpose described.

24. In a soldering-machine, the combination of a revoluble feed for the article to be soldered, and a wire-solder feed revoluble on substantially the same axis as the former feed, substantially as and for the purpose specified.

25. In a soldering-machine, the combination of a movable feed for the article to be soldered, a feeding-lever for the solder, actuating means for rocking said lever and effecting its operation, and a spring for tensioning the feeding-lever and preventing undue movement thereof, substantially as set forth.

26. In a soldering-machine, the combination of a movable feed for the article to be soldered, a feeding-lever provided with means for detachably engaging the solder, actuating means for rocking said lever and effecting its operation during the movement of said article, and an operating member for making contact with said article and controlling the operation of said feeding-lever, substantially as described.

27. In a soldering-machine, the combination of a movable feed for the article to be soldered, a feeding-lever for the solder, a pivoted engaging member for said lever having its engaging face arranged beneath its pivot, and nearer the solder than said pivot, and actuating means for rocking said lever and effecting its operation, substantially as specified.

28. In a soldering-machine, the combination of a movable feed for the article to be soldered, a feeding-lever for the solder, a pivoted engaging member for said lever having its engaging face arranged beneath its pivot and nearer the solder than said pivot, actuating means for rocking said lever and effecting its operation, and an operating member for making contact with said article and controlling the operation of said actuating means, substantially as described.

29. In a soldering-machine, the combination of a revoluble feed for the article to be soldered, a revoluble feeding-lever for the solder, a cam for rocking the feeding-lever into operative position, a second cam for reversely rocking said lever and actuating the same to feed the solder, an operating member for making contact with said article and preventing the operation of the former cam, and a stop for preventing the operation of the operating member, substantially as specified.

30. In a soldering-machine, the combination of a revoluble feed for the article to be soldered, a revoluble feeding-lever for the solder, a cam for rocking the feeding-lever into operative position, and a second cam for reversely rocking said lever and actuating the same to feed the solder, substantially as and for the purpose set forth.

31. In a soldering-machine, the combination of a feed for the articles to be soldered, and a flux-feeding device comprising a rotary carrier and a plurality of feeding members revoluble with the carrier and movable into and out of engagement with said articles, substantially as and for the purpose described.

32. In a soldering-machine, the combination of a feed for the articles to be soldered, and a revoluble flux-feeding device having a plurality of feeding members movable into and out of alinement with said articles, substantially as and for the purpose specified.

33. In a soldering-machine, the combination of a feed for the articles to be soldered, and a flux-feeding device having a plurality of feeding members, said members being revoluble into and out of alinement with said articles and being also movable in a substantially vertical plane toward and away from said articles, substantially as and for the purpose described.

34. In a soldering-machine, the combination of a feed having devices arranged one in advance of the other for engaging and feeding the articles to be soldered, and a revoluble flux-feeding device having a plurality of feeding members movable above the feed into and out of alinement with the articles engaged by said devices of the feed, and driving mechanism connecting said feed and flux-feeding device, substantially as and for the purpose described.

35. In a soldering-machine, the combination of a feed for the articles to be soldered, and a flux-feeding device comprising a receptacle for the flux, a feeding member for the flux, a second feeding member movable into and out of engagement with the former feeding member and into and out of alinement with the articles to be soldered, and means for actuating said second feeding member, substantially as and for the purpose specified.

36. In a soldering-machine, the combination of a feed for the articles to be soldered; with a flux-feeding device comprising a receptacle for the flux, a feeding member consisting of a roller movable in the flux, and a plurality of revoluble feeding members for engaging the former feeding member and the articles to be soldered, substantially as and for the purpose set forth.

37. In a soldering-machine, the combination of a feed for the articles to be soldered; with a flux-feeding device provided with a revoluble feeding member having its outer end movable vertically and provided with a brush for engaging the articles to be soldered, substantially as and for the purpose described.

38. In a soldering-machine, the combination of a feed for the articles to be soldered, and a flux-feeding device provided with a track having a depressed portion and a feeding member movable along the track and having its engaging face movable vertically toward and away from the articles to be soldered, substantially as and for the purpose specified.

39. The combination of a feed for the articles to be soldered and a rotary flux-feeding device provided with an annular row of brushes, the several brushes being movable successively into engagement with said articles, substantially as and for the purpose set forth.

40. The combination with the can-conveyer and a rotary carrier arranged above the same, of brushes mounted in said carrier and capable of vertical movement independent of each other while rotating with said carrier, and a guide-ring provided with a depression above said conveyer, whereby the brushes are successively lowered and raised as they pass over the conveyer and the cans carried thereby, substantially as set forth.

41. In a soldering-machine, the combination of a movable feed for the articles to be soldered, a revoluble feed for supplying material to said articles, and an operating member for making contact with the articles to be soldered and controlling the operation of said revoluble feed, substantially as and for the purpose specified.

42. In a soldering-machine, the combination of a movable feed for the article to be soldered, a wire-solder feed provided with means for engaging the wire-solder and movable simultaneously with the first feed for feeding the wire-solder during the movement of said article by the first feed, an operating member for making contact with the article to be soldered and controlling the operation of the solder-feed, and a stop for preventing the operation of said operating member, substantially as and for the purpose specified.

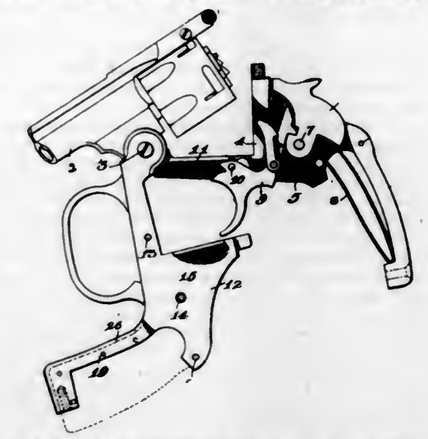
749,212. REVOLVING FIREARM. ALEXANDER L. MOLLETT, Stonecoal, W. Va., assignor to Mary Elizabeth Johnson, executrix of Ivor Johnson, Fitchburg, Mass. Filed Dec. 31, 1902. Serial No. 137,266. (No model.)

Claim.—1. In a firearm, comprising a frame and a barrel hinged thereto by a hinge-pin, the vertically-divided handle constructed in two parts pivoted concentrically with said hinge-pin, substantially as described.

2. In a firearm, comprising a frame and a barrel hinged thereto by a hinge-pin, the combination with said barrel, of a handle in two parts, one of said parts being hinged to said barrel by the hinge-pin and adapted to receive the lock mechanism and the other of said parts hinged to said barrel by the hinge-pin and arranged to form a cover for the lock mechanism, substantially as described.

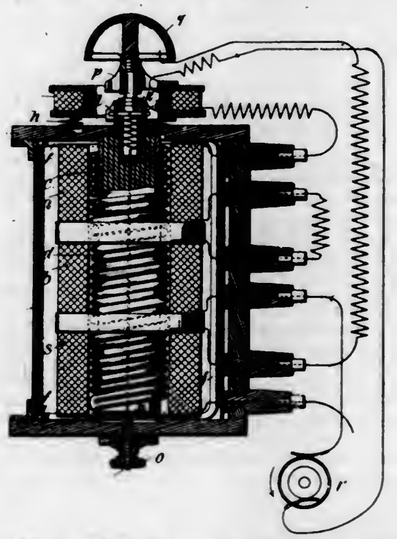
3. In a firearm, the combination of a frame and a barrel hinged thereto by a hinge-pin, said frame being divided and pivotally connected coincident with said hinge-pin, and means for holding the parts of the frame in fixed relations to each other, substantially as described.

4. In a firearm, the combination with a barrel, of a frame divided into two parts throughout its length, a hinge-pin pivotally connecting each part with the barrel and with each other, pivotal pins for a lock mechanism jointly held in both parts of said frame, and means for holding said parts together, substantially as described.



5. In a firearm, the combination with a barrel, of a frame formed in two parts by a longitudinal division, a hinge-pin at one end of said frame by which the two parts are pivotally connected with the barrel and with each other, means at the opposite end of said frame for uniting said parts together, a space between said parts for a lock mechanism and a lock mechanism held therein, substantially as described.

749,213. ELECTROMAGNETIC DEVICE FOR VIBRATORY MASSAGE. EUGEN K. MÜLLER, Zurich, Switzerland. Filed Sept. 20, 1902. Serial No. 124,178. (No model.)



Claim.—1. In a device of the character described, the combination, with a source of pulsatory electricity, of a vibratory massage-body connected to one terminal of said source, and means for connecting the other terminal to the patient.

2. In a device of the character described, the combination, with a source of pulsatory electricity, of a vibratory massage-body connected to one terminal of said source, and means for connecting the other terminal to the patient.

3. In a device of the character described, a vibratory massage-body connected with a source of alternating electric current whose circuit is completed through the patient and the pulsations of which current correspond to the period of vibration of the massage-body.

4. In a device of the character described, the combination, with

a massage-body operated by a pulsatory electric current, of a coil inductively energized thereby, one terminal of the coil connected with the massage-body, and the other terminal adapted to be connected with the patient.

5. In a device of the character described, the combination, with a massage-body operated by an alternating electric current, of a coil inductively energized thereby, one terminal of the coil connected with the massage-body, and the other terminal adapted to be connected with the patient.

6. In a device of the character described, the combination, with a massage-body operated by a pulsatory electric current, of a coil inductively energized thereby, one terminal of the coil connected with the massage-body, and the other terminal adapted to be connected with the patient, the pulsations of the induced current corresponding to the period of vibration of the massage-body.

7. In a device of the character described, the combination, with a coil, a core, a massage-body movably mounted relative to the said coil, and a source of pulsatory electric current connected with the coil in such manner as to energize the same and thereby actuate the massage-body, of a generator-coil formed about the core, one terminal of the generator-coil connected with the massage-body, and the other terminal adapted to be connected with the patient.

8. In a device of the character described, the combination, with a coil, a laminated core, a second coil movably mounted relative to the first coil, a massage-body carried by the second coil, yielding means for actuating the second coil in one direction, and a source of pulsatory electric current connected with the two coils in such manner as to intermittently actuate the second coil in the opposite direction, of a third coil formed about the core in such manner as to be inductively energized thereby, a connection between one terminal of the third coil and the massage-body, and means for grounding the other terminal.

9. In a device of the character described, the combination, with a coil, a core, a second coil movably mounted relative to the first coil, a massage-body mounted on the second coil, the two coils adapted to be connected with a source of alternating electric current and so wound that their magnetic fluxes will be opposed, and yielding means connecting the two coils, of a third coil formed about the core in such manner as to be inductively energized thereby, one terminal of the third coil connected to the massage-body, and the other terminal adapted to be connected to the patient.

10. The combination, with a primary coil, and a secondary coil in inductive relation thereto, of a refrigerating-pipe arranged to cool said coils and doubled upon itself whereby eddy currents are neutralized.

11. The combination, with a primary coil, a secondary coil, and a core common to both coils, of a refrigerating-pipe arranged to cool the core and coils and doubled upon itself whereby eddy currents are neutralized.

12. In an electromagnetic device, the combination, with a coil adapted to be connected to a source of electric current, and a core within the coil, of a generator-coil formed about the core and adapted to be inductively energized thereby, and a refrigerating-pipe disposed between the core and coils.

13. In an electromagnetic device, the combination, with a coil adapted to be connected to a source of electric current, and a core within the coil, of a generator-coil formed about the core and adapted to be inductively energized thereby, and a refrigerating-pipe disposed between the core and coils and consisting of a continuous tube doubled upon itself.

14. In a device of the character described, the combination, with a coil composed of two windings arranged in series, a core composed of insulated sections, a hollow refrigerating-spiral disposed between the core and windings and consisting of a continuous pipe doubled upon itself, a second coil arranged upon and axially displaceable relative to the first coil, springs connecting the two coils, and a massage-body carried by the second coil, the two coils adapted to be connected to a source of alternating electric current and so wound that the magnetic fluxes of their respective windings will be opposed, of a generator-coil formed about the core and spiral in such manner as to be inductively energized by the core, one terminal of the generator-coil connected to the massage-body, and the other terminal adapted to be connected with the patient.

15. In a device of the character described, the combination, with a core composed of a plurality of windings arranged in series, a laminated core, a hollow refrigerating-spiral disposed about the core between the same and the windings and consisting of a continuous pipe doubled upon itself, a similar spiral surrounding the windings of the coil, a second coil mounted upon and axially displaceable relative to the first coil, a massage-body carried by the second coil, the two coils adapted to be connected to a source of alternating electric current and so wound that the lines of force of their magnetic fields are opposed whereby the movable coil will be intermittently repelled, and adjustable yielding means for returning said second coil, of a generator-coil formed about the core and spiral in such manner as to be inductively energized by the core, one terminal of the generator-coil connected to the massage-body and the other terminal adapted to be connected to the patient.

749,214. BREECH-LOADING AND DISCHARGE-ACTUATED FIREARM. SAMUEL H. MCCLEAN, Washington, Iowa. Filed Mar. 23, 1899. Serial No. 710,014. (No model.)



Claim.—1. In a gun, the combination with a barrel and a receiver integral therewith, of a breech-bolt, a driving-rod directly actuated by the gases of explosion, and a cam-guide for the driving-rod, said guide controlling the operative relations between the bolt and driving-rod.

2. In a gun, the combination with a barrel and a receiver, of a breech-bolt having abutments thereon, and revoluble on its longitudinal axis to engage corresponding abutments in the receiver, a cartridge-belt passing transversely through the receiver, actuating devices therefor, and a driving-rod in operative relation with said breech-bolt and with said actuating devices.

3. In a gun, the combination with a barrel and a receiver, of a breech-bolt having interrupted screw-threads engaging correspondingly-interrupted screw-threads in the receiver, a cartridge-belt passing transversely through the receiver, a cam-cylinder in operative engagement with said belt and actuating devices for said bolt and cylinder.

4. In a gun, the combination with a barrel and a receiver integral therewith, of a cylindrical breech-bolt having interrupted screw-threads engaging correspondingly-interrupted screw-threads in the receiver, a cartridge-belt passing transversely through the receiver, actuating devices therefor, and a driving-rod in operative relation with the breech-bolt, and with said actuating devices.

5. In a gun, the combination of the receiver having the cam-guideway, the breech-bolt having interrupted screw-threads engaging correspondingly-interrupted threads in the receiver and having a hollow cylindrical portion containing the firing-pin, said cylinder having a cam-slot with a straight portion, with a driving-rod, having a lug engaging said guideway and an arm, or lug, engaging said cam-slot.

6. In a gas-operated gun, the combination of a gas-chamber at or near the muzzle of the barrel, and having an opening therein, with a gas tube or cylinder having screw-threaded connection with said opening.

7. In a gas-operated gun, the combination of a forwardly-expanding gas-chamber, with a gas tube or cylinder connected to said chamber, a piston in said tube or cylinder, and a removable plug in said tube or cylinder in advance of the forward position of said piston.

8. The combination of the air-compressor, with discharge-actuated means operatively connected to said compressor, and a graduating device controlling the application of power to said means upon the discharge of the gun.

9. The combination of the air-reservoir and compressor, with discharge-actuated means operatively connected to said compressor, a graduating device controlling the application of power to said means upon the discharge of the gun.

10. The combination of the breech mechanism and the air-compressor, with means moved by the gases of explosion to operate said breech mechanism and compressor.

11. The combination of the breech mechanism and the air-compressor, with discharge-actuated means operatively connected to said breech mechanism and compressor, and a graduating device controlling the application of power to said means upon the discharge of the gun.

12. The combination of the breech mechanism and air-compressor, with gas-actuated means connected to said breech mechanism and compressor, and a graduating device controlling the application of power to said means upon the discharge of the gun.

13. The combination of the breech mechanism and air-compressor, with a gas-tube open to the gases of explosion, a piston playing in said gas-tube, and connections between said piston and compressor, and between said piston and breech mechanism for simultaneously operating the compressor and the breech mechanism by the gases of explosion.

14. The combination of the breech mechanism and air-compressor, with the gas-tube open to the gases of explosion, devices graduating the tension of said gases therein, the driving-rod having a piston playing in said tube, and operative connections between said rod and the breech mechanism and the compressor.

15. The combination of the breech mechanism, air-compressor, and reservoir, with the gas-chamber, the gas tube or cylinder communicating therewith, the driving-rod having a piston playing in said tube or cylinder, and operative connections between said rod and the breech mechanism and the compressor.

16. The combination of the air-reservoir, compressor, and breech mechanism, with discharge-actuated means operatively connected to said compressor and breech mechanism, power-actuated elevating, depressing and training devices, and valve-controlled connections between said devices and the reservoir.

17. The combination of the air-reservoir, compressor, and breech mechanism, with discharge-actuated means operatively connected to said compressor and breech mechanism, a motor for operating the gun, and valve-controlled connections between the reservoir and motor.

18. As a means of elevating and depressing a gun, a cylinder with its piston and rod formed in the arc of a circle, one element being attached to the gun and the other to the carriage, in combination with an air-reservoir and compressor, discharge-actuated means operatively connected to said compressor and a valve-controlled passage between the reservoir and said cylinder.

19. In a gun, the combination of a receiver, the breech mechanism, and ammunition-belt passing transversely through the receiver, a feed-cylinder operatively engaging said belt, reversely-inclined cams on said cylinder, and terminating at their forward ends in a straight cam-groove, and a driving-rod engaging and operating the breech mechanism and said cylinder.

20. The combination of the ammunition-belt with a feed-cylinder having positive feeding engagement with the belt, a series of longitudinal parallel grooves on the cylinder, each groove being connected to its adjoining groove in either side by cam-grooves and converging to a point between said longitudinal grooves, spring-switches at the points where said cam-grooves meet each other and where they unite with the longitudinal grooves, and a driving-rod having a part engaging in said grooves.

21. The combination of a driving-rod and an ammunition-belt, with a feed-cylinder having reversely-inclined cam-faces thereon, with means on the driving-rod alternately operating on the cam-faces to shift the cylinder and engaging and holding the cylinder in its shifted position.

22. The combination of a driving-rod, a feed-cylinder normally held against revolution by said rod, an ammunition-belt operatively engaged by said cylinder, reversely-inclined cam-faces on said cylinder, cam-switches between said faces and a part on the driving-rod engaging said cam faces and switches upon the reciprocation of the rod.

23. The combination of a breech-bolt having an extractor-seat formed in longitudinal section on the arc of a circle, an extractor having correspondingly-formed flanges engaging said seat so as to turn thereon, a spring-latch located in the receiver and engaging said breech-bolt with a yielding tension, a driving-rod and reacting spring therefor and connections between the rod and bolt.

24. The combination of the gun, the breech-block, a gun-carriage, and the air-reservoir mounted thereon, with an air-compressor connected to such reservoir and discharge-actuated means operatively connected to the breech mechanism and to the compressor.

25. The combination of the gun, the gun-carriage, the air-reservoir carried thereby, the elevating and depressing cylinders formed in an arc of a circle, the pistons of like form moving in said cylinders, one of said parts being attached to the carriage and the other to the gun, and connections between the reservoir and cylinders.

26. The combination of the gun, the compressor, the gun-carriage, the air-reservoir supported thereon, connections between the compressor and the reservoir, the arc-shaped elevating and depressing cylinders with their pistons, one of which is attached to the gun and the other to the carriage, and connections between said cylinders and the air-reservoir.

27. The combination of a transversely-slotted receiver, a cartridge-belt, and means intermittently moving said belt through the receiver and locking said belt against movement in the intervening intervals.

28. The combination of the gun, the gas-chamber, the gas-cylinder connected thereto, the driving-rod having a piston playing in said cylinder against the tension of a spring, an air-cylinder, a piston on said driving-rod playing in said air-cylinder, the breech-bolt directly connected to said driving-rod, and the cartridge-belt-actuating cylinder directly operated by said rod.

29. The combination of a gun, the double-acting piston in the cylinder under the gun-barrel actuated in one direction by the gases of explosion and in the reversed direction by a spring, a second piston connected to the first piston by a suitable rod and playing in an air-compressor cylinder, the air-reservoir connected to the last-mentioned cylinder and the breech mechanism of the gun operatively connected to the gas-actuated piston.

30. The combination of a gun-barrel, its breech mechanism, a gas-cylinder connected to the gun, connections between said cylinder and the gun-barrel, means permitting a gradually-increased pressure of the gases of explosion to pass from the gun-barrel to the cylinder upon the discharge of the weapon, a piston in said cylinder and direct connections between said piston and the breech mechanism.

31. In a gun, the combination of the gun-barrel, having a gas-chamber formed near the muzzle end thereof, a receiver, a cylindrical breech-block playing in said receiver, a gas-tube connected to said chamber, a piston in said tube, a driving rod connected to said piston and operatively engaging the breech-block, a cartridge-belt having intermittent movement through the receiver in the path of the block, a feed-cylinder for said belt and means on the driving-rod alternately shifting said feed-cylinder and locking it against movement.

32. In a gun, the combination of breech mechanism, means actuated by the gases of explosion for operating said breech mechanism with means graduating the force with which the gases of explosion are applied to said means.

33. The combination of a breech-block, and the intermittently-moving cartridge-belt with means actuated directly by the gases of explosion for intermittently operating said belt and bolt and locking the belt against movement during the intervening intervals.

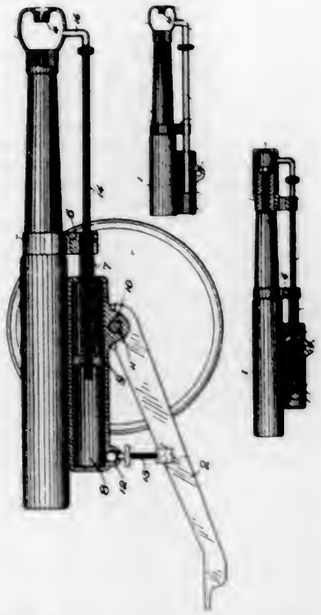
34. The combination with a gun and its mount, with means operated upon the discharge of the gun to store power, means whereby a portion of said power may be applied to train the gun, and means whereby a portion thereof may be applied to elevate and depress the gun.

35. The combination of the breech-block, the gas-operated driving-rod, a cartridge-belt operatively connected to said rod, and the pivoted guide for said belt.

36. The combination of a breech-block and the extractor, rocking on the front end thereof, the seat therefor being a portion of a sphere.

749,215. MEANS FOR CONTROLLING THE RECOIL OF GUNS. SAMUEL H. MCCLEAN, Cleveland, Ohio. Filed Feb. 21, 1901. Serial No. 48,262. (No model.)

Claim.—1. The combination with the carriage, barrel movable on the carriage, the recoil-cylinder and piston of a gun, the cylinder or piston attached to the carriage, of a channel connecting the bore of the gun and said cylinder to permit the flow of gases from the gun into said cylinder to reduce recoil and return the gun to battery on the carriage.



2. The combination of a gun-mount, a gun movable thereon, a device secured to the mount, a device secured to the gun, means inclosing the space between the two devices and means for introducing a portion of the gases of discharge into said space between the two devices.

3. The combination of a gun-mount, a gun movable thereon, a gas-chamber movable on the gun, a recoil-cylinder secured to the mount, a piston secured to the gun and movable within the cylinder, a second piston secured to the gas-chamber and movable within the cylinder, and means for introducing a portion of the gases of discharge into the cylinder between the two pistons.

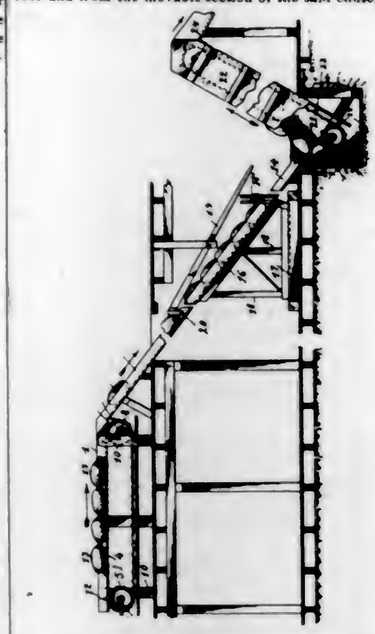
4. The combination of a gun-mount, a gun movable thereon, a recoil-cylinder secured to the mount, a piston secured to the gun and movable within the cylinder, a second piston movable within the cylinder, means of less mass than the gun actuated by the gases of discharge for effecting a movement of said second piston in advance of the rearward movement of the gun, and means for introducing a portion of the gases of discharge into the cylinder between the two pistons.

749,216. **GRAIN TRANSPORTING AND WEIGHING APPARATUS.** GEORGE W. MCNEAR, Jr., Oakland, Cal. Filed June 29, 1903. Serial No. 163,479. (No model.)

Claim.—1. A transporting device for sacked grain, the same consisting of a receiving trough or runway, means working therein for conveying sacks of grain therethrough, a chute connected thereto for receiving the sacks of grain and delivering the same to a suitable place of deposit, a weighing-section incorporated within said chute, and means for retaining a given number of sacks within said section.

2. The combination with a delivery-chute into which sacks of grain are fed, of a movable weighing-section interposed within the length of said chute, means for controlling the movement of the sacks onto and from said weighing-section, and elevating means for receiving the weighed sacks and conveying the same to a suitable place of deposit.

3. In an apparatus for transporting and weighing sacked grain, the combination with a delivery-chute into which sacks of grain are fed, of a movable section interposed within the said chute, weighing means connected with the movable section of the chute, devices interposed within the chute for controlling the movement of the sacks onto and from the movable section of the said chute.



749,217. **HIGH-SPEED REGULATOR.** LOUIS PAGAN, Montrouge, France, assignor to Compagnie Duplex, Paris, France. Filed Sept. 22, 1902. Serial No. 124,467. (No model.)



Claim.—1. In a centrifugal governor, the combination with a lever of a weight having a single positive connection, pivotally connected to said lever and retracting means acting upon said weight at a point removed from its pivotal connection.

2. In a centrifugal governor the combination with the levers, of weights pivotally connected to said levers, each weight having a single positive connection, and retracting means acting on said weights at points removed from their pivotal connections.

3. In a centrifugal governor the combination with the levers, of weights pivotally connected to said levers, each weight having a single positive connection and springs connecting said weights.

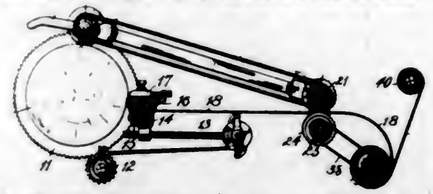
4. In a centrifugal governor the combination with the levers of weights pivotally connected to said levers and arranged in an unstable equilibrium, each weight having a single positive connection, and retracting means acting on said weights at points removed from their pivotal connections.

5. In a centrifugal governor the combination with the levers, of weights pivotally connected to the levers and arranged in unstable equilibrium, each weight having a single positive connection and a spring connecting said weights.

6. In a centrifugal governor the combination with a governor-shaft, of a casing mounted on the shaft, a pair of levers pivotally connected to the casing, weights pivotally connected to said levers, each weight having a single positive connection and a spring connecting the weights.

749,218. **APPARATUS FOR PREPARING MATCH-STOCK.** WILLIAM H. PARKER, Passaic, N. J., assignor to Parker Match Company, a Corporation of New Jersey. Filed Dec. 29, 1902. Serial No. 136,937. (No model.)

Claim.—1. The combination with a rotary veneer-machine, of a rotary cutter acting on the veneer-stock as it leaves the machine and operating to cut equidistant rectangular notches in the edges of the stock, and means for driving the cutter from the face of the log to maintain the ratio of travel between the stock and the cutter.

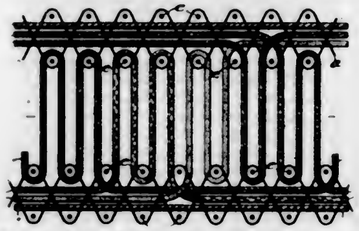


2. The combination with a rotary veneer-machine, of a rotary cutter acting on the veneer-stock as it leaves the machine and operating to cut rectangular notches in the edges of the stock, the notches on one edge coming opposite the projection formed by the notches on the opposed edge, and means for operating the cutter from the surface of the log in the machine.

3. The combination with a rotary veneer-machine, of a rotary cutter acting on the veneer-stock as it leaves the machine and operating to cut notches in the edges of the stock, the notches on one edge coming opposite the projection formed by the notches on the opposed edge, a set of gears operating the cutter, said gears being of the same size, a swinging frame supporting the gears and serving to hold a friction-wheel to engage the surface of the log in the machine, and means for operating the gears from the friction-wheel.

4. The combination with a rotary veneer-machine, of a rotary cutter arranged to cut transversely and longitudinally of the stock so as to form rectangular notches in the edges of the same, a vertically-swinging frame connected to the cutting mechanism and having its free end extending over the log, a friction-wheel carried by the frame and riding on the log, a set of gears journaled in the frame and operating the cutting mechanism, and means for operating the gears from the friction-wheel to maintain the speed of the cutters in relation to the travel of the stock.

749,219. **DOUBLE-PILE FABRIC.** FRED PEARSON, Philadelphia, Pa. Filed Apr. 13, 1903. Serial No. 152,842. (No specimens.)



Claim.—1. A cut pile fabric in which each pile-tuft is looped around a weft-thread so that the projecting ends of the tufts constituting the top surface of the fabric tend to move away from the said weft-thread, the pile-tufts between any two adjacent weft-threads moving in opposite directions so that they come into contact with each other, whereby each assists in holding the other in an upright position, and in which the number of pile color threads which lie buried in the body of the fabric in a dent-space at any selected point is half or less than half the number of color threads employed.

2. A cut pile fabric in which each pile-tuft is looped around a weft-thread and in which the pile-tufts which constitute the end and beginning of two different colors are located on opposite sides of an intermediate weft-thread, and in which the number of pile color threads which lie buried in the body of the fabric in a dent-space at any selected point is half or less than half the number of color threads employed.

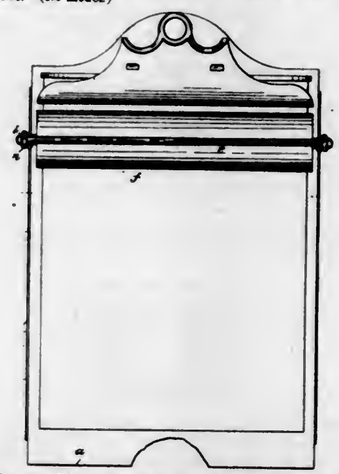
3. A cut pile fabric comprising weft-threads and pile color threads which are looped around said weft-threads to produce pile-tufts and all of the pile-threads of a dent-space being buried in the body of the said fabric but not at the same point in the fabric.

4. A double-pile fabric consisting of body structures comprising weft-threads about which pile-warp color threads interlaced from one body structure to the other are looped and in which an interlaced pile-warp thread is discontinued in a selected one of the body structures, a new pile-warp thread being taken from the same body structure, and also in which the end loop and the initial loop of two different-colored adjacent pile-warp threads face in opposite directions, the said loops being located on opposite sides of and adjacent to a selected weft-thread in either of the body structures.

749,220. **MEDICATED TAMPON.** EDMUND M. POND, Rutland, Vt. Filed Dec. 26, 1902. Serial No. 136,713. (No model.)

Claim.—A medicated tampon, consisting of a soluble cylindrical casing having a rounded closed end and an inturned annular flange at its base surrounding the entrance to the casing, a semi-spherical soluble medicated capsule positioned in the closed end, an expansible absorbent material folded down upon itself and compressed within the gelatinous casing with its ends against the base of the capsule and a cord to withdraw the tampon.

749,221. **COMBINATION LETTER-CLIP AND BLOTTER.** LE GAGE PRATT, East Orange, N. J. Filed Mar. 13, 1903. Serial No. 147,576. (No model.)



Claim.—1. The combination, with a suitable support, guides arranged in said support, a yoke engaging with said guides, and a rotatable blotter secured in said yoke, as and for the purposes set forth.

2. The combination, with a suitable support, guide-plates on said support, guides in said guide-plates, a yoke engaging said guides, and a rotatable blotter secured in said yoke, as and for the purposes set forth.

3. The combination, with a suitable support, guide-plates on said support to guide the yoke supporting the rotatable blotter, recesses in said guide-plates to retain the rotatable blotter in position a yoke engaging with and guided by said guides, and a rotatable blotter secured in said yoke, as and for the purposes set forth.

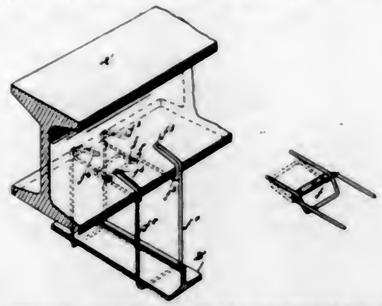
4. A rotatable blotter, comprising a split roller, blotting-paper placed over and between said split roller to form a cylindrical blotting-surface, means for clamping said split roller and blotting-paper, and a yoke supporting the rotatable blotter, as and for the purposes set forth.

749,222. **ATTACHMENT FOR UNITING METAL BARS AND BEAMS.** CORYDON T. PURDY, Upper Montclair, and JULIUS S. LANE, Jersey City, N. J. Filed Aug. 12, 1901. Serial No. 71,680. (No model.)

Claim.—1. A wire device for suspending bars of any shape underneath supported beams consisting of a preformed wire clip, one part of which is bent to correspond with the sides of the flange of the beam, and another part to carry and hold fast the supported member, and an extension underneath the supporting-beam adapted to engage and unite with a corresponding wire clip upon the opposite side of said supporting-beam, substantially as described.

2. A wire device for fastening two structural members together, consisting of two parts, each preformed to fit around the flange of the supporting member and to hook around and carry the supported

member, with wire extensions adapted to engage the supporting-hooks directly underneath the supporting member and unite the two in place, whereby the supports are prevented from being disengaged from the supporting-beam, substantially as described.



3. For uniting supporting members in metal structures, a clip made of wire having hooks adapted to embrace the flange of the sustaining-beam and a stirrup depending therefrom adapted to sustain and support a sustained beam, the wire being extended underneath the sustaining-beam and adapted to be interlocked with a companion clip, substantially as described.

4. The combination of a supporting-beam and a supported beam, two wire clips, each having hooks to engage the supporting-beam, and a stirrup to engage the supported beam, said hooks being united when in place by wire extensions immediately under the supporting-beam, whereby the clips are prevented from being detached from said beam, substantially as described.

749,223. COOKING APPARATUS. JOHANNES F. RABE, Kiel, Germany. Filed May 9, 1903. Serial No. 156,412. (No model.)



Claim.—1. A heat-retaining apparatus comprising a container having a permanent lining formed of a bad conductor of heat, a cover or lid having a similar permanent lining and a crescent-shaped non-conducting pad arranged to fit around the vessel within the container; substantially as described.

2. A heat-retaining apparatus comprising a container having a permanent lining formed of non-conducting material, and removable side and bottom pads arranged to fit within the container in contact with the vessel therein; substantially as described.

3. In a heat-retaining apparatus, a container lined on its side and bottom with a poor conductor of heat and having a cylindrical recess to fit a vessel, a removable circular pad for the bottom of the recess and another removable pad arranged to surround the vessel within the recess, both of said pads being poor conductors of heat; substantially as described.

749,224. COMPOUND APPLICABLE FOR INSULATING MATERIAL OR OTHER PURPOSES. LEONARD M. RANDOLPH, Newark, N. J. Filed Apr. 25, 1903. Serial No. 154,711. (No specimens.)

Claim.—1. The herein-described compound which comprises varnish residue altered as set forth by the action of heat, substantially as described.

2. The herein-described compound which comprises varnish residue deprived of its liquid constituents.

3. The herein-described compound which comprises varnish residue altered by being deprived of its liquid constituents, and hardened and toughened by the action of heat, substantially as described.

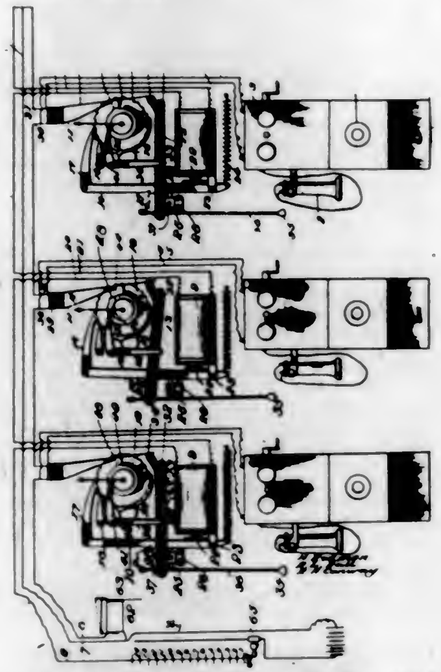
4. The herein-described compound which comprises a mixture of varnish residue and an absorbent, substantially as described.

5. The herein-described compound which comprises a mixture of varnish residue and peat, substantially as described.

6. The herein-described compound which comprises a mixture of varnish residue and a binder, substantially as described.

7. The herein-described compound which comprises a mixture of varnish residue and a fibrous material, substantially as described.

749,225. TELEPHONE SYSTEM. HOPE REDMON, RUFUS L. HALL, and ROBERT H. CONWAY, Cynthiana, Ky. Filed Nov. 10, 1902. Serial No. 130,776. (No model.)



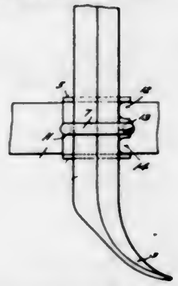
Claim.—1. In a telephone system; a short-circuiting switch for normally cutting the instruments of a party-line out of circuit, a switch-operating lever moved by hand, an electric actuating-lever, coöperating means between the said levers for locking the switch-lever when moved to open the switch, means for locking the switch-operating levers of the remaining instruments and under control of the operator at central or exchange, an actuator for throwing the selected instrument into circuit, and a resetting mechanism for restoring all the instruments to normal condition, substantially as specified.

2. In a telephone system, short-circuiting switches for normally cutting the instruments out of circuit, a switch-operating lever for enabling any subscriber to cut the telephone into circuit with exchange or central, a toothed wheel, a pawl coöperating therewith, an actuating-lever carrying said pawl, an actuator movable with the toothed wheel, a lock for the switch-operating lever, a notched collar for said lock concentric with the actuator and toothed wheel and movable therewith, locking means between the said switch and actuating-levers, and means for releasing the instruments when the parties are through with the line to enable any subscriber cutting the telephone into circuit, substantially as described.

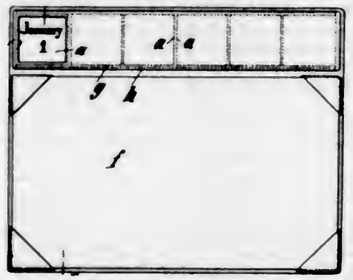
3. In combination, a telephone, a short-circuiting switch for normally cutting the telephone out of circuit, a lever adapted to be operated by hand for throwing the switch to cut the telephone out of circuit, a lock for said lever, a toothed wheel, an actuating-lever therefor, a pawl connected with the actuating-lever, a switch-actuator connected with the said toothed wheel, a collar connected with said toothed wheel and actuator and adapted to operate the aforementioned lock, a resetting mechanism, and a trip for effecting a release of the toothed wheel to admit of automatic restoration of the parts, substantially as set forth.

749,226. HARROW-TOOTH FASTENER. CLEMENS M. RITTERSHOFER, Bellevue, Ohio, assignor to the Ohio Cultivator Company, Bellevue, Ohio, a Corporation of Ohio. Filed Oct. 31, 1902. Serial No. 128,668. (No model.)

Claim.—The combination, with a harrow-frame bar-tooth-supporting member, and a harrow-tooth non-circular in cross-section, of a clamping-plate located between the tooth and bar and constructed of a flat plate of wrought metal having its top and bottom edges bent at right angles to form flanges, said flanges being provided with recesses forming seats to fit the tooth, the body of said clamping-plate being provided in one of its vertical edges with a central open notch, the other vertical edge being provided with a plurality of similar open notches, and a U-shaped clamping-bolt passing around the tooth and through the bar, one of the parallel members of said bolt engaging the central notch of one edge of the clamping-plate, and the other parallel member of the bolt engaging any desired one of the notches of the other vertical edge of the clamping-plate, the parallel members of the clamping-bolt being always in engagement with the notches on both sides of the plate when the parts are assembled, substantially as described.



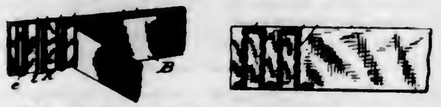
749,227. CALENDAR. BELA ROSENFELD, Vienna, Austria-Hungary. Filed Dec. 17, 1902. Serial No. 135,498. (No model.)



Claim.—1. A calendar comprising several blocks each having a plurality of leaves and a strong base-leaf, means for holding the base-leaves so that the blocks may be slid laterally, and a common movable lid for covering the blocks, the said lid having an opening at one end, through which the top leaf of one of the blocks covered by the lid becomes visible.

2. In a calendar the combination of several blocks, each having a plurality of leaves and a strong base-leaf with a metal ledge placed across and attached to a writing-pad under which ledge the base-leaves of the said blocks may be slid so that the blocks are held by the said ledge but may be moved laterally, and a movable lid fastened to the writing-pad to cover the said blocks, having an opening at one end through which the top leaf of one of the blocks covered by the lid becomes visible.

749,228. WEARING-APPAREL. ELMER G. RUNYAN, Washington, D. C. Filed May 14, 1901. Serial No. 60,308. (No model.)

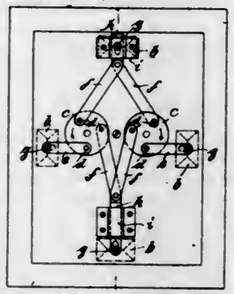


Claim.—1. A strip of flexible material having secured thereto, transversely of its length, hollow pieces of quill forming ventilating-passages, and possessing the characteristics of flexibility, lengthwise of the strip, between the quills, and elastic, non-corroding and moisture-resisting ventilating-passages, substantially as described.

2. A strip of flexible material having secured thereto, transversely of its length, hollow pieces of quill, forming ventilating-passages, said quill-pieces being connected together at their ends, the whole characterized by flexibility, lengthwise of the strip, between the pieces of quill, and elastic, non-corroding and moisture-resisting ventilating-passages, substantially as described.

3. A strip of flexible material carrying hollow pieces of quill to form ventilating-passages, and a second flexible strip overlying the hollow quills and secured to the first-mentioned strip at points adjacent to the sides of the hollow quills to hold the latter to the strip, substantially as described.

749,229. PICTURE-FRAME. EUGEN SERVUSS, Berlin, Germany, assignor to Albert Jung, Berlin, Germany. Filed Apr. 10, 1903. Serial No. 152,046. (No model.)

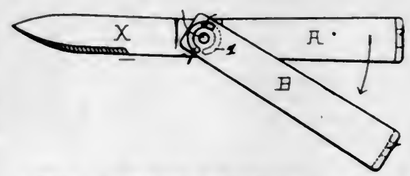


Claim.—1. In picture-frames, the combination of a frame proper, with movable slides situated at the front side of the same and capable of being shifted so as to project over the inner edge of the frame, with means for simultaneously moving the slides, said means being situated on the back side of the frame, substantially as described and for the purpose set forth.

2. In picture-frames, the combination of the frame proper, with movable slides situated at the front side of the frame, with a turnable disk situated on the back side of the frame, and means for connecting the slides with said disk, substantially as described and for the purpose set forth.

3. In picture-frames, the combination of a frame proper, with movable slides situated at the front side of the same and capable of being shifted so as to project over the inner edge of the frame, turnable disks situated at the back side of the frame and provided with pins, and means for connecting these pins to the slide mentioned above, substantially as described and for the purpose set forth.

749,230. POCKET-KNIFE. EDWARD A. SEVERANCE, Antrim, N. H. Filed Apr. 20, 1903. Serial No. 153,468. (No model.)



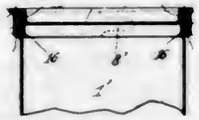
Claim.—1. As an article of manufacture, a knife comprising a blade and a plurality of scales pivotally secured to one another, a separate means connecting the blade and scales to permit the blade to be opened or closed, the rear end of the scales each provided with integral inturned opposing flanges, one flange comprising a tooth, and the other flange provided with a slot for the reception of the tooth.

2. As an article of manufacture, a knife comprising a blade and a plurality of scales pivotally secured to one another, a separate means connecting the blade and scales to permit the blade to be opened or closed, and means integral with the scales for locking them together, at their free ends.

749,231. CAN. JOHN J. SHANNON, Montreal, Canada. Filed Nov. 3, 1902. Serial No. 129,856. (No model.)

Claim.—1. As a new article of manufacture, a can having an

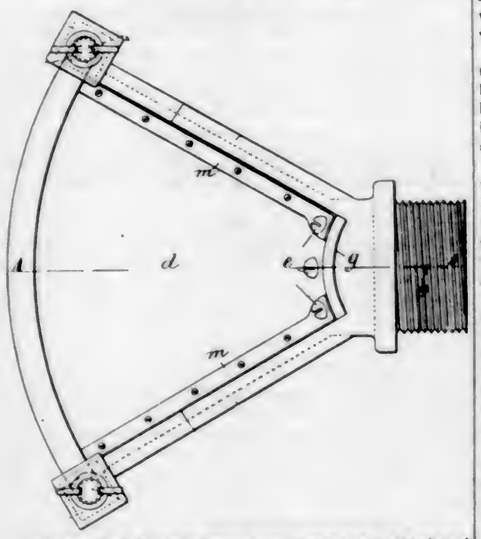
edge crimped to form an inner ply, a central ply, and an outer ply, a cover having a cylindrical flange, a depressed central portion and a cylindrical wall at the edges of said depressed portion, whereby a deep recess is formed between said cylindrical wall and said cylindrical flange, there being a space formed between said outer ply and said central ply adapted to receive said flange, said deep recess being adapted to receive said central ply and said inner ply snugly therein, said cover having a laterally-projecting peripheral bead lying adjacent to the edge of said outer ply, whereby said can may be dipped to seal said edge.



2. As a new article of manufacture, a can having a body, a strip mounted in the mouth of said body, said strip comprising an inner ply, a central ply, and an outer ply, the outer edge of said body being received between said inner ply and said outer ply, a cover comprising a cylindrical flange, a depressed central portion, and a cylindrical wall at the margin of said central portion whereby a deep recess is formed between said cylindrical wall and said cylindrical flange, said recess being adapted to receive the inner ply and the central ply of said strip, said flange being received between the central ply and the outer ply of said strip, said cover having a bead projecting laterally therefrom beyond the edge of said outer ply whereby said can may be dipped to seal said edge.

3. As a new article of manufacture, a can comprising a body, an annular strip comprising a central ply an inner ply and an outer ply, said strip receiving the mouth of said can between said inner ply and said central ply, a cover having a depressed central portion which lies against the inner face of said inner ply, and a flange received between said central ply and said outer ply, said cover having a peripheral bead projecting laterally beyond said outer ply.

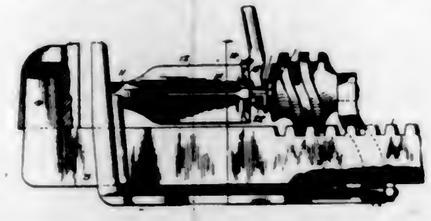
749,232. NOZZLE FOR DISCHARGING LIQUIDS. EDWARD SHAW, London, England, assignor, by mesne assignments, to American Street Flushing Machine Company, St. Louis, Mo., a Corporation. Filed Dec. 18, 1902. Serial No. 136,315. (No model.)



Claim.—1. A liquid-discharge nozzle comprising a fan-shaped chamber with an inlet and an outlet and having its bottom fan-shaped wall flat and its top fan-shaped wall curved outwardly from the bottom toward the inlet and movable toward and from the bottom, and means for making a water-tight joint between said movable top wall and the side walls of the chamber, substantially as described.

2. A liquid-discharging nozzle comprising a fan-shaped chamber with an inlet and an outlet and having its bottom fan-shaped wall flat and its top fan-shaped wall curved outwardly from the bottom toward the inlet and movable toward and from the bottom, means for making a water-tight joint between said movable top wall and the side walls of the chamber, rotatable screwed studs fixed longitudinally to the chamber and extensions on the movable top engaging therewith, substantially as and for the purpose specified.

749,233. VISE. ELI SHUPE, Racine, Wis., assignor of two-thirds to Rupert A. Nourse and Gilbert N. Prentiss, Racine, Wis. Filed Sept. 6, 1902. Serial No. 122,309. (No model.)



Claim.—1. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar and movable therewith, a worm engaging said rack-bar for reciprocating the same, a hand operating device for said worm, a lever for also operating said worm, and means for disengageably connecting said worm and lever, substantially as set forth.

2. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar, a worm engaging said rack-bar for reciprocating the same, means for rotating said worm rapidly by hand, and a lever having disengageable tooth connection with said worm for also rotating it, substantially as set forth.

3. In a vise the combination of a fixed jaw, a rack-bar, a jaw secured thereto, a worm engaging said rack-bar, a lever pivotally supported in line with the axis of said worm and movable independently thereof, and means for imparting the oscillation of said lever to said worm, substantially as set forth.

4. In a vise the combination of two jaws, a rack-bar secured to one of said jaws for moving the same, a worm engaging said rack-bar for reciprocating it, a winged shaft secured to said worm for rotating it, and an operating-lever pivotally supported between the wings of said shaft and said worm and having means for engagement with the wings of said shaft, substantially as set forth.

5. In a vise the combination of two jaws, a rack-bar secured to one of said jaws for moving the same, a worm engaging said rack-bar, a winged shaft secured to said worm, an operating-lever oscillatory both longitudinally and transversely with said shaft and having means for engagement with the wings thereof, substantially as set forth.

6. In a vise the combination of two jaws, a rack-bar secured to one of said jaws, a worm engaging said rack-bar for reciprocating the same, a winged shaft, a neck of smaller diameter than said worm connecting said worm and shaft together, a lever having a collar embracing said neck and being oscillatory both transversely and longitudinally with said shaft, and means on said lever for engagement with the wings of said shaft, substantially as set forth.

7. In a vise the combination of two jaws, a rack-bar secured to one of said jaws, a worm engaging said rack-bar for reciprocating the same, a base to which one of said jaws is secured, a bracket secured to and rising from said base and through which bracket said rack-bar passes, a worm journaled at one end in said bracket and engaging said rack-bar, and a winged shaft secured at one end to said worm and journaled at its other end in a fixed support, substantially as set forth.

8. In a vise, the combination of a fixed jaw, a rack-bar, a jaw secured to said rack-bar, a stationary worm engaging said rack-bar for rotating the same, and a longitudinally-elongated shaft for rotating said worm having a plurality of wide longitudinally-elongated wings radiating therefrom and extending from end to end thereof and adapting the shaft to be rotated by the palm of the hand.

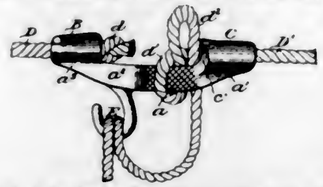
749,234. CLOTHES-PIN. ANDREW SMITH, Frankfort, Mich., assignor of two-thirds to Alfred V. Friedrich, Traverse City, Mich. Filed May 11, 1903. Serial No. 156,707. (No model.)

Claim.—As an improved article of manufacture, a clothes-pin square in cross-section and provided with a diagonal flaring recess, said clothes-pin having the characteristics hereinbefore set forth.

749,234.



749,235. CLOTHES-LINE FASTENER. CHARLES F. SMITH, Paterson, N. J. Filed Mar. 9, 1903. Serial No. 146,834. (No model.)



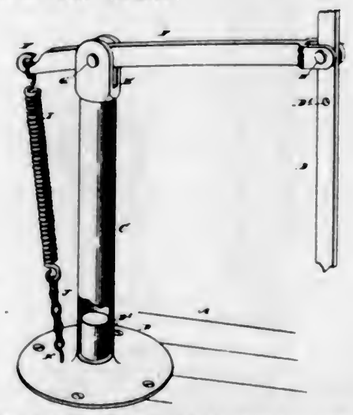
Claim.—1. A clothes-line fastener presenting integrally, a longitudinally-extended body portion comprising knurled and smooth parts, and bosses B, C, in offset relation with respect to said body portion and both at the same side thereof, said bosses being located at the ends respectively of said body portion and provided with mutually-alined, longitudinally-disposed perforations.

2. A clothes-line fastener presenting integrally, a longitudinally-extended body portion comprising knurled and smooth parts, and bosses B, C, in offset relation with respect to said body portion and both at the same side thereof, said bosses being located at the ends respectively of said body portion and provided with mutually-alined longitudinally-disposed perforations, one of the bosses having at its inner end, an outwardly-beveled face.

3. A clothes-line fastener presenting integrally a longitudinally-extended body portion having in offset relation the bosses B, C, both at one side and provided with mutually-alined longitudinally-disposed openings, one part of the body portion being knurled contiguous to the inner end of the adjacent boss, while the other part of the body portion being of reduced thickness and having a tapering junction with the knurled part, and having a smooth surface extending to the other boss.

4. A clothes-line fastener presenting integrally a longitudinally-extended body portion having in offset relation the bosses B, C, both at one side and provided with mutually-alined longitudinally-disposed openings, one of the bosses having at its inner end outwardly-diverging faces, one part of the body portion being knurled contiguous to said faces, and the other part of the body portion being of reduced thickness and having a smooth surface extending to the other boss, and a hook depending from the reduced body portion within the planes of the sides thereof.

749,236. PUMP-ROD COUNTERBALANCE. ROBERT R. SMITH, Traer, and GILBERT MCTURK, Crystal, Iowa. Filed Oct. 26, 1903. Serial No. 178,666. (No model.)



Claim.—1. The combination with a pump-rod, of a lever pivoted thereto, a standard to which said lever is also pivoted, and having a base adapted for attachment to a well-platform, and a spring having a connection at one end with said base and at the other end with the free end of the lever, substantially as and for the purpose set forth.

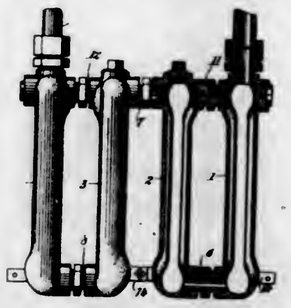
2. The described counterbalance for a well pump-rod, comprising a standard adapted for attachment to the well-platform by its base, a lever pivoted at the upper end of the standard, and connecting pivotally at one end with said pump-rod, a spring connecting with the other end of the lever, a chain attached to the other end of the spring, and a hook on the base to engage any link of said chain, substantially as and for the purpose set forth.

749,237. WRENCH. JOHN SPEYER, Cascade, Mich. Filed Dec. 27, 1902. Serial No. 136,793. (No model.)



Claim.—A wrench having a stem formed of two parts, one part having a recess provided with threads, a washer disposed against the inner end of the recess, and a pin secured to and extending from the inner end of the recess and passing through the washer, the second part being hollow, threaded at one end and engaged with the threads of the recess removably, and a spout at the threaded end of the handle adapted to lie within the recess of the stem and to receive the pin of the first-mentioned part.

749,238. COOLER FOR LIQUIDS. JOHN L. STEITZ, Chicago, Ill. Filed Nov. 14, 1902. Serial No. 131,306. (No model.)



Claim.—The combination with an ice-box, a pipe leading from a source of liquid-supply and a valved outlet-pipe, of a cooler arranged in the ice-box and comprising a series of casings communicating alternately at the top and bottom, air-tubes connecting adjacent casings at the top, connections between the inlet-pipe and the first casing of the series, a connection between the outlet-pipe and the last casing of the series and a perforated lug at the lower end, at one side of each casing whereby adjacent casings may be secured together.

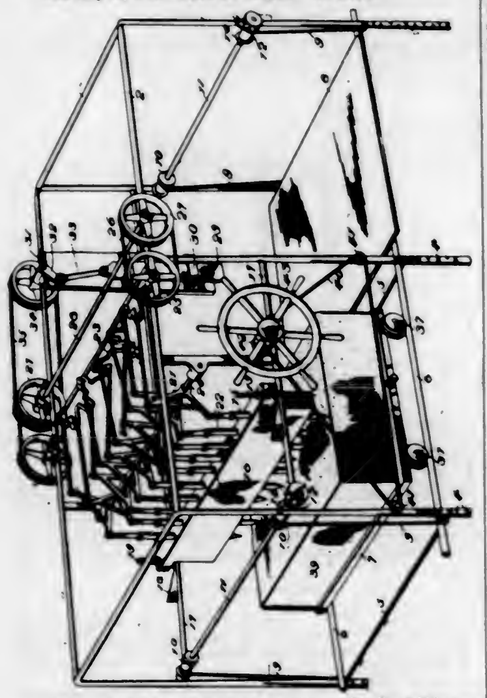
749,239. PUMP. HIRAM C. STOUFFER, Mineralridge, Ohio, assignor of nine-sixteenths to Jacob Justice Dean, Isaac Pearson Dean, and Charles Edward Mehard, Newcastle, Pa. Filed July 9, 1903. Serial No. 164,894. (No model.)

Claim.—The combination in a pump of an outer cylinder, perforated disks fitted in the ends of said outer cylinder, a pipe secured in the lower disk and extending therethrough, a valve consisting of two washers of flexible material encircling said pipe and resting on the upper surface of said lower disk, a sleeve fitted over said pipe and engaging the upper washer, an inner cylinder supported on said pipe and secured at a fixed distance above said lower disk by the sleeve encircling said pipe, an upwardly-opening valve above said upper disk, an upwardly-opening valve in the bottom of said lower cylinder, a hollow piston arranged for reciprocation in said inner cylinder, a valve for the upward passage of water in the head of said hollow piston, and means for imparting reciprocatory movement to said hollow piston.

749,239.



749,240. STONE-DRESSING MACHINE. WILLIAM B. STOCKTON, Rockton, Pa., assignor of one-half to C. M. Kreage, Dubois, Pa. Filed May 14, 1903. Serial No. 157,169. (No model.)

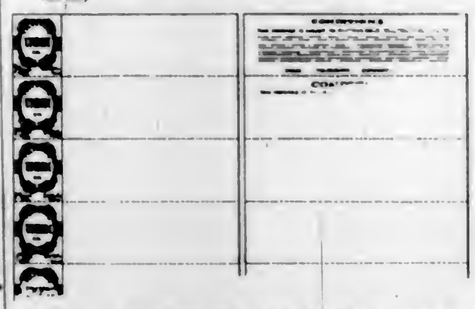


Claim.—1. In a stone-dressing machine, a plurality of bits, actuating means therefor, a guide supporting and directing said bits in their reciprocating movements, wedges forming an adjustable support for said guide, and means for securing the guide in an adjusted position, substantially as set forth.

2. In a stone-dressing machine, a plurality of bits, a compound crank-shaft, a series of bell-crank levers mounted in axial alinement, links connecting one arm of the bell-crank levers with the bits, a pitman connecting the other arm of said bell-crank levers with the crank portions of said crank-shaft, substantially as set forth.

3. In a stone-dressing machine, the combination of two sets of cutting mechanism, a track extending beneath the cutting mechanisms, a platform arranged below one of the sets of cutting mechanisms, and a car provided with a set of wheels to run upon said track and with a set of caster-wheels extended below the car-wheels to run upon the platform and enable the work to be variously presented to the cutting mechanism above said platform, substantially as specified.

749,241. TELEGRAPH OR OTHER BLANK. STEPHEN TOWNSEND, Scotchplains, N. J. Filed Mar. 17, 1903. Serial No. 148,164. (No model.)



Claim.—1. As an improved article of manufacture, a telegraph or other blank having a plain uninterrupted or blank body portion to receive the written message, and with the matter usually constituting the identifying heading duplicated along the edge.

2. A telegraph or other blank, having a plain or blank body portion to receive the written matter, and the matter usually constituting the heading duplicated along the edge, but with breaks between the duplications to indicate where the blank may be torn off.

749,242. MITER-BOX. JUSTUS A. TRAUT, New Britain, Conn., assignor to The Stanley Rule & Level Company, New Britain, Conn., a Corporation of Connecticut. Filed Apr. 24, 1903. Serial No. 154,054. (No model.)

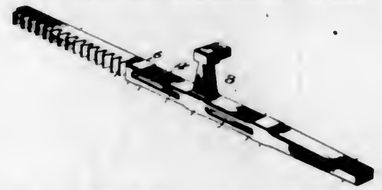


Claim.—1. A saw guide and carrier for a miter-box comprising guide-posts, a carrier-frame mounted to slide up and down thereon, and means carried by said carrier-frame for frictionally holding said carrier at any elevation on said supporting-posts, and a notch in one of said supporting-posts adapted to receive said adjusting means and positively lock the same in its elevated position.

2. A saw guide and carrier for a miter-box comprising a pair of guide-posts spaced apart and in parallel arrangement, a reciprocating saw-carrier frame mounted on said guide-posts, a slide arranged transversely thereof the greatest width of said slide being in excess of the space between said guide-posts, notches in said slide arranged to register with said guide-posts when in one position to admit of the carrier being raised and lowered, a spring exerting constant pressure against said slide to cause a frictional engagement between said slide and said posts whereby the carrier is frictionally held at any desired elevation on said posts.

3. A saw guide and carrier for a miter-box comprising a pair of guide-posts spaced apart and in parallel arrangement, a reciprocating saw-carrier frame mounted on said guide-posts, a slide arranged transversely thereof the greatest width of said slide being in excess of the space between said guide-posts, notches in said slide arranged to register with said guide-posts when in one position to admit of the carrier being raised and lowered, a spring exerting constant pressure against said slide to cause a frictional engagement between said slide and said posts whereby the carrier is frictionally held at any desired elevation on said posts, and a notch in one of said guide-posts near the upper end thereof of a sufficient size to receive a portion of the slide and positively lock said carrier in its elevated position.

749,243. CONTROLLER OR STOP-BAR FOR CENTERING MECHANISMS. LARS H. VOLD, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed May 20, 1903. Serial No. 158,005. (No model.)



Claim.—1. A controller for centering mechanisms such as described comprising a stop element supported upon a base or guiding section, the latter furnished with separated upper bearings located intermediate its opposite ends and the point of attachment of the stop.

2. A controller for centering mechanisms such as described comprising a stop element and a supporting-base or guiding-section, the latter provided on its lower surface with separated bearings located intermediate the opposite ends and the point of attachment of the stop.

3. A controller for centering mechanisms such as described, comprising a stop element supported upon a base or guiding section, the latter provided with separated bearings on opposite faces located intermediate the ends and the point of attachment of the stop.

4. A controller for centering mechanisms such as described comprising a base or guiding section provided with a reduced or flexible section intermediate its ends, a laterally-projecting arm or stop connected to said flexible section, said base-section being also provided with top and bottom bearings located in proximity to the flexible section and remote from the ends of the base-section.

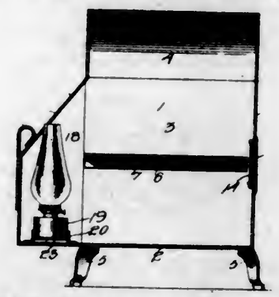
5. A controller for centering mechanisms such as described provided with a base or guiding portion comprising a central flexible section and vertically-reduced end section, with upper and lower bearing-surfaces at or near the junction of the end and central sections, and a stop or lateral projection attached to said flexible central section.

6. A controller for centering mechanisms such as described consisting of a base or guiding portion having opposite faces cut away to form a central elastic section and guiding-bearings intermediate said elastic section and the ends of the base-section, and a stop-piece projecting laterally from said elastic section.

7. A controller for centering mechanisms such as described comprising a rigid stop element and a flexible base or guiding section provided with bearing-surfaces located at points remote from the ends of said base.

749,244. HEATING APPARATUS. EDDIE M. WARREN, Nashville, Tenn., assignor of one-half to Artemus R. Bradley, Nashville, Tenn. Filed Mar. 9, 1903. Serial No. 146,990. (No model.)

Claim.—1. A heating apparatus of the character described, comprising a box or chamber having an alcoved door forming a compartment in open communication with said box or chamber, for the reception of a heating device, substantially as described.

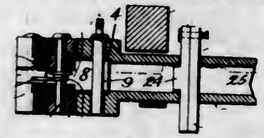


2. A heating apparatus of the character described, comprising a casing provided with a chamber for material to be treated and with front and rear hinged doors, one of said doors being alcoved to form a supplemental chamber for a heater, said supplemental chamber being in open communication with the heating-chamber, substantially as described.

3. A heating apparatus of the character described, comprising a casing provided with a heating-chamber and an alcoved door, said door being provided in its top and bottom portions with ventilation-openings, and forming a supplemental chamber, in communication with the heating-chamber for the reception of a heater.

4. A heating apparatus of the character described, comprising a casing forming a heating-chamber and having a removable door, said door comprising divergent sides, a bottom, an outer end wall and an inclined top, the same forming a supplemental compartment for the reception of a heater, said compartment being in open communication with the heating-chamber, and the top and bottom walls of the door being provided with draft-openings, substantially as described.

749,245. DRAW-HEAD SUPPORT. HAMILTON E. WELSH, Lewistown, Pa., assignor of two-thirds to Frank E. Mann and H. S. Elder, Lewistown, Pa. Filed Apr. 16, 1903. Serial No. 152,977. (No model.)



Claim.—1. In a device of the class described, the combination with a pair of coupling heads or members, of coupling-knuckles pivotally associated with the heads and adapted for interengagement, means for holding the knuckles into engagement longitudinally, and means for yieldably maintaining them in engagement vertically.

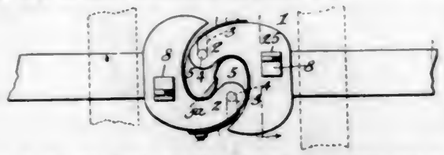
2. In a device of the class described, the combination in a pair of coupling heads or members, of coupling-knuckles pivotally associated with the heads and adapted for interengagement, means for holding the knuckles in engagement longitudinally, and a spring-finger associated with one of the knuckles and engaging a recess formed in the other for maintaining the knuckles in engagement vertically.

3. In a device of the class described, the combination with a pair of coupling heads or members, of interengaging coupling-knuckles pivotally associated with the heads and provided with recessed coupling portions, means for holding the knuckles into engagement longitudinally, and a spring member pivoted in the recess of one of the knuckles and provided with a finger for engaging in the recess of the other knuckle.

4. In a device of the class described, the combination with a car dead-wood, of a draw-bar extending therethrough and provided at its outer end with a coupling-head and with a central bore, a key extending through the draw-bar in rear of the dead-wood and comprising a main piece having a lug projecting into the central bore of the draw-bar, a wedge-piece and means for connecting said pieces.

749,246. CAR-COUPLING. HAMILTON E. WELSH, Lewistown, Pa., assignor of two-thirds to Frank E. Mann and H. S. Elder, Lewistown, Pa. Filed Apr. 22, 1903. Serial No. 153,839. (No model.)

Claim.—1. In a car-coupler, the combination with a recessed head, of a coupling-knuckle having a movable pivotal connection with and yieldable at its pivotal point laterally of the head, a finger carried by the knuckle and normally lying within the recess, a pin engaging the finger, and a spring connected with the head and bearing upon the knuckle adjacent to its pivotal point.

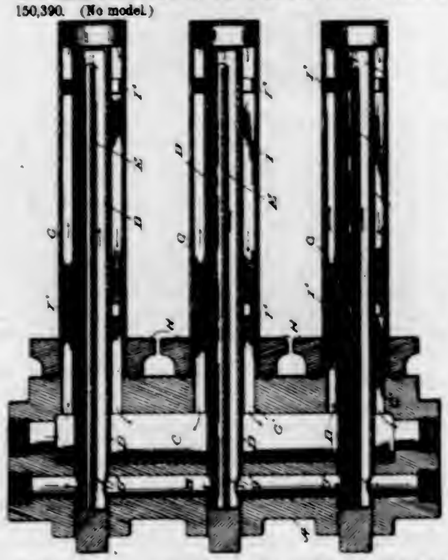


2. In a car-coupler, the combination with a recessed head having a pair of spaced arms projecting therefrom and provided upon their inner faces with grooves, of a coupling-knuckle provided with lugs engaging the grooves for movably associating the knuckle with the head, a finger carried by the knuckle and lying within the recess in the head, a pin engaging the finger, and a spring associated with the head and bearing upon the outer face of the knuckle.

3. In a car-coupler, the combination with a recessed head having a pair of spaced arms projecting therefrom and provided upon their inner faces with grooves, of a coupling-knuckle provided with lugs engaging the grooves and with a finger projecting into the recessed head, a pin for engaging the finger, a spring associated with the head and bearing upon the outer face of the knuckle, and a lug-and-groove connection between the finger and head.

4. In a car-coupler, the combination with a recessed head provided with a perforation, of a knuckle pivotally associated with the head and having a finger to lie within the recess, and a coupling-pin extending through the perforation in the head in the path of said finger, said pin having a head provided with an inclined face operable for engagement with the head to move the pin bodily laterally, and shoulders formed upon the pin for engagement below the upper wall of the head and above and below the lower wall of the head upon said movement of the pin.

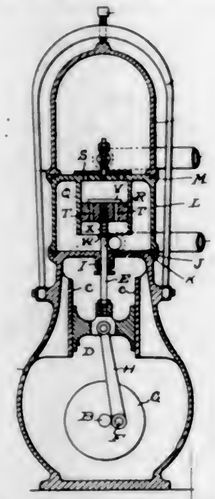
749,247. CONDENSING-COIL. RICHARD WHITAKER, New Brunswick, N. J., assignor of two-thirds to Robert W. Johnson and James W. Johnson, New Brunswick, N. J. Filed Mar. 31, 1903. Serial No. 150,390. (No model.)



Claim.—1. In a condensing-coil, the combination of a header having a main water-passage and a main gas-passage extending lengthwise thereof and other passages extending transversely thereof, plugs closing said transverse passages at one side of the header, water-pipes penetrating said transverse passages on the opposite side, said pipes having openings alined with the water-passage, and baffle-plates for effecting a circulation of water from end to end and back again in each of the pipes, and gas-pipes closed at one end and inclosing the water-pipes and having baffle-plates therein and communication with the gas-passage, said gas-pipes being unsupported at their closed end, substantially as described.

2. In a condensing-coil, the combination of a header having a main water-passage and a main gas-passage extending lengthwise thereof and other passages extending transversely thereof, water-pipes penetrating said transverse passages and closed at both ends and having openings alined with the water-passage, plates or diaphragms interposed between said openings and extending to near the opposite end of the pipes for effecting a complete circulation of water, gas-pipes closed at one end inclosing said water-pipes and having communication with the gas-passage, and baffles extending from the gas-passage to near the closed ends of the gas-pipes, substantially as described.

749,248. PUMP. JOSEPH WILLMANN, Chicago, Ill. Filed July 16 1903. Serial No. 165,836. (No model.)



Claim.—1. In a pump, the combination with a base, and a reciprocating piston movably mounted therein and projecting from same, of a suction-chamber mounted on said base, a pressure-chamber mounted on said suction-chamber, devices on said base engaging said pressure-chamber for securing the latter and said suction-chamber thereto, a cylinder in said suction-chamber adapted to receive said piston, valve-controlled inlet-ports in said piston, and valve-controlled exhaust-ports establishing communication between said cylinder and said pressure-chamber.

2. In a pump, the combination with a base and a reciprocating piston movably mounted on said base and projecting beyond the same, of a suction-chamber mounted on said base, a cylinder carried by said suction-chamber adapted to receive said piston, valve-controlled inlet-ports in said piston, a pressure-chamber mounted on said suction-chamber, and valve-controlled exhaust-ports establishing communication between said cylinder and said pressure-chamber.

3. In a pump, the combination with a hollow base closed at its upper end, a reciprocating piston-rod passing through the upper wall thereof and receiving its motion from a crank-shaft in said base, and a piston mounted on the outer end of said piston-rod, on an annular groove in the upper wall of said base, a suction-chamber open at its lower end adapted to enter said groove at its lower end, a cylinder within said suction-chamber adapted to receive said piston and forming the pump-cylinder, an annular groove in the upper wall of said suction-chamber, a pressure-chamber open at its lower end and adapted to enter said last-named groove at said lower end, a U-shaped arm secured at its free ends to said base and overhanging said dome, and compression devices carried by said arm and acting on said dome for holding same and said suction-chamber in place on said base.

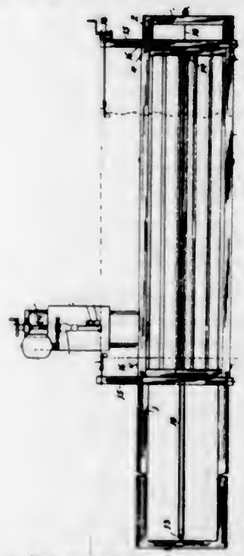
4. In a pump, the combination with a base and a tension member carried thereby, of a suction-chamber mounted on said base, a pressure-chamber mounted on said suction-chamber and engaged by said tension member to hold same on said suction-chamber and to hold the latter on said base, a pump-cylinder carried by said suction-chamber, a piston movably mounted in said base and entering said pump-cylinder, and means carried by said base for imparting motion to said piston.

5. In a pump, the combination with a base, two superimposed vessels mounted on said base, and valve-controlled openings establishing communication between said vessels, of an annular depending flange on the upper wall of the lowermost vessel a piston movable therein, means carried by said base and connected with said piston for imparting motion thereto, valve-controlled openings in said piston, an inlet-pipe entering said lowermost vessel, and an outlet-pipe entering said uppermost vessel.

6. In a device of the kind specified, the combination with a plurality of separable members, of a pump-cylinder carried by one of said members, a reciprocating piston carried by another of said members and entering said cylinder, inlet-ports in said piston, a valve controlling same, exhaust-ports establishing communication between said cylinder and the third member, a valve controlling said exhaust-ports, and a tension device engaging the two outermost members for securing same to the intermediate member.

7. In a device of the kind specified, the combination with a base, a reciprocating piston carried thereby, and a fluid-pressure chamber, of a suction-chamber interposed between said base and pressure-chamber, a cylinder in said suction-chamber receiving said piston, inlet-ports in said piston, exhaust-ports establishing communication between said cylinder and said fluid-pressure chamber, valves controlling said ports, and a member mounted on said base and spanning said fluid-chamber for holding same and said suction-chamber firmly on said base.

749,249. FEEDING MECHANISM FOR CARPET-SEWING MACHINES. JOHN WITTEMANN, Milwaukee, Wis. Filed Feb. 2, 1903. Serial No. 141,428. (No model.)



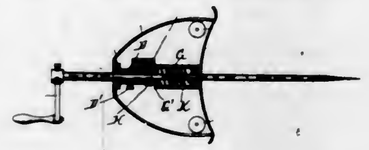
Claim.—1. In a carpet holding and feeding apparatus, a horizontally-disposed track, a carriage reciprocable on the track, said carriage having a flat top adapted to hold spread-out breadths of carpet thereon, bars on the carriage projecting horizontally outwardly from the carriage near the respective ends thereof, means on the bars near their projecting ends adapted to seize and hold the edges of the spread-out breadths of carpet, and means adapted to move the carriage on the track in one direction.

2. In a carpet holding and feeding apparatus, a horizontally-disposed track, a carriage reciprocable on the track said carriage having a flat top adapted to hold spread-out breadths of carpet thereon, bars on the carriage projecting horizontally outwardly from the carriage and near the respective ends thereof, means on the bars near their projecting ends adapted to seize and hold the edges of the spread-out breadths of the carpet, means adapted to move the carriage on the track in one direction, and means in connection with said carpet-seizing means adapted to stretch the spread-out breadths of carpet along the line of their overlapping and alining edges.

3. In a carpet holding and feeding apparatus, a horizontally-disposed track, a carriage above the track and provided with wheels traveling on the track, bars mounted on and projecting horizontally at on one side from the carriage forming an overhanging support for spread-out carpet on and at one side of the carriage, and bearing-wheels mounted on the carriage and running on the under side of the track adapted to hold the carriage to the track against overthrow.

4. In apparatus for holding and feeding carpet to a sewing-machine, a horizontally-disposed track, a carriage having a flat carpet-holding top traveling on the track and held thereto against overthrow by bearing-wheels, stretcher-bars on the carriage projecting laterally therefrom at one side beyond the track in the plane of the carpet-holding top, means mounted on the projecting ends of the bars for seizing and holding the edges of the breadths of carpet taut, and means for advancing the carriage on the track to feed the carpet in a horizontal plane to a sewing-machine.

749,250. CORN-SHOCK TIER. DAVID H. ZUCK, Mount Carroll, Ill. Filed May 9, 1903. Serial No. 156,359. (No model.)

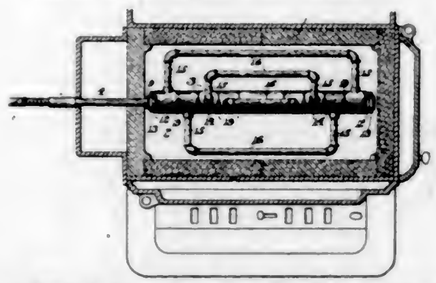


Claim.—1. In a device of the character described, a pointed spindle, a crank secured to the spindle, a housing mounted upon the spindle loosely, a sleeve secured to the spindle within the housing, a ratchet carried by the sleeve, a pawl pivoted to the housing and in spring contact with the ratchet, a drum mounted loosely upon the spindle, a hub formed upon the drum, a spring-band surrounding the hub and carried by the sleeve, means for tightening or loosening the spring-band, the hub of the drum, ropes or other flexible connections secured at one end to opposite sides of the drum and passing out of the housing over suitable guide-wheels, means for securing the other ends of the ropes together, and a spring located within the drum, one end of which is attached to the housing, and the other end to the drum, as and for the purpose specified.

2. In a device of the character described, a pointed spindle, a crank secured to said spindle, a shoulder formed upon the spindle, a housing loosely mounted upon the spindle against the shoulder, a sleeve secured to the spindle within the housing, a ratchet-wheel carried by the sleeve, a spring-pawl pivoted to the housing and in engagement with said ratchet-wheel, a drum mounted loosely upon the spindle, a hub formed with the drum, a band secured at one end to the sleeve and passing around the hub of the drum, adjustable means carried by the sleeve to which the other end of the band is connected for the purpose of tightening or loosening the band upon the hub of the drum, a spring arranged within the drum, one end of said spring being connected to the housing and the other end to the drum, flexible connections connected at one end to opposite sides of the drum and passing out of the housing over suitable guide-wheels, and means for connecting the other ends of the flexible connections together, as and for the purpose specified.

3. In a device of the character described, a pointed spindle provided with a shoulder near the opposite end to the pointed end, a crank secured to the spindle on the end opposite the point, a housing loosely mounted upon the spindle against the shoulder, the end of the housing nearest the pointed end of the spindle being formed concaved, a sleeve secured to the spindle upon the interior of the housing, a ratchet-wheel carried by said sleeve, a spring-pawl pivoted to the housing and in engagement with said ratchet-wheel, a drum mounted loosely upon the spindle, a hub formed with the drum, a band secured at one end to the sleeve and passing around the hub of the drum, a bell-crank lever pivoted to the sleeve, to one member of which the other end of the band is secured, a thumb-screw threaded through the bearing formed with the sleeve, said thumb-screw bearing against the other member of the bell-crank lever, a coil-spring coiled about the spindle and arranged within the drum, one end of said spring being attached to the housing, and the other end to the drum, flexible connections connected at one end to the opposite sides of the drum and passing out of the housing over suitable guide-pulleys, the other end of one of the flexible connections provided with a snap-hook and the other end of the other flexible connection provided with a ring, as and for the purpose specified.

749,251. GAS-BURNER. FRED H. ALLEN, Somerville, Mass. Filed Nov. 28, 1902. Serial No. 133,107. (No model.)



Claim.—1. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of tubes radiating from said reservoir and each communicating with one of said openings, means whereby each of said radiating tubes may be moved into various positions about the axis of said reservoir, and a plurality of perforated tubes parallel with the axis of said reservoir and each communicating with one of said radiating tubes.

2. In a gas-burner, the combination with a cylindrical reservoir having a plurality of narrow circumferential openings, of a plurality of short cylinders provided with burner-pipes and adapted to be moved into various positions about said reservoir, and means for insuring communication between said reservoir and said pipes when in various positions.

3. In a gas-burner, the combination of a reservoir, a plurality of radiating burner-pipes adjustably mounted thereon and communicating therewith, a supply-pipe and an open-work or perforated partition between said supply-pipe and said reservoir to retard the flow and mix the gas and air as they enter the reservoir.

4. In a gas-burner, the combination of a reservoir, a plurality of radiating burner-pipes adjustably mounted thereon and communicating therewith, a supply-pipe, a perforated section in said supply-pipe, and an adjustable sleeve thereon for regulating the inlet of air through said perforations.

5. In a gas-burner, the combination of a reservoir, a plurality of radiating burner-pipes adjustably mounted thereon and communicating therewith, a supply-pipe, a perforated section in said supply-pipe, an adjustable sleeve thereon for regulating the inlet of air through said perforations, and a partition provided with cross members between said supply-pipe and said reservoir to retard the flow of and mix the gas and air as they enter the reservoir.

6. In a gas-burner, the combination of a reservoir, a plurality of radiating burner-pipes adjustably mounted thereon and communicating therewith, a supply-pipe, a nipple for the inflow of gas to said supply-pipe, and an open-work or perforated partition between said supply-pipe and said reservoir to retard the flow of and mix the gas and air as they enter the reservoir.

7. In a gas-burner, the combination of a reservoir, a plurality of radiating burner-pipes adjustably mounted thereon and communicating therewith, a supply-pipe, a nipple for the inflow of gas to said supply-pipe, a perforated section in said supply-pipe, and an adjustable sleeve thereon for regulating the inlet of air through said perforations.

8. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of radiating burner-pipes adjustably mounted thereon and each communicating with one of said openings, a supply-pipe, and an open-work or perforated partition between said supply-pipe and said reservoir to retard the flow of and mix the gas and air as they enter the reservoir.

9. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of radiating burner-pipes adjustably mounted thereon and each communicating with one of said openings, a supply-pipe, a perforated section in said supply-pipe, and an adjustable sleeve thereon for regulating the inlet of air through said perforations.

10. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of radiating burner-pipes adjustably mounted thereon and each communicating with one of said openings, a supply-pipe, a perforated section in said supply-pipe, an adjustable sleeve thereon for regulating the inlet of air through said perforations, and a partition of cross-wires between said supply-pipe and said reservoir to retard the flow of and mix the gas and air as they enter the reservoir.

11. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of radiating burner-pipes adjustably mounted thereon and each communicating with one of said openings, a supply-pipe, a nipple for the inflow of gas to said supply-pipe, and a partition of cross-wires between said supply-pipe and said reservoir to retard the flow of and mix the gas and air as they enter the reservoir.

12. In a gas-burner, the combination of a reservoir provided with a plurality of circumferential openings, a plurality of radiating burner-pipes adjustably mounted thereon and each communicating with one of said openings, a supply-pipe, a nipple for the inflow of gas to said supply-pipe, a perforated section in said supply-pipe, and an adjustable sleeve thereon for regulating the inlet of air through said perforations.

13. In a gas-burner, the combination of a reservoir, a plurality of tubes radiating therefrom and communicating therewith, and a plurality of perforated tubes parallel with said reservoir communicating with said radiating tubes at different distances from the center of said reservoir.

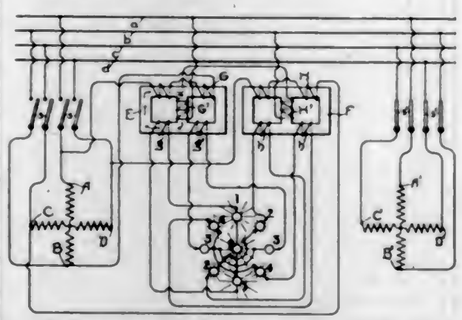
14. In a gas-burner, the combination of a cylindrical reservoir having narrow circumferential openings, a plurality of short cylinders mounted on said reservoir, each provided with a radial opening adapted to communicate with an opening in said reservoir, and a burner-pipe mounted in each of said radial openings of said short cylinders.

15. In a gas-burner, the combination of a cylindrical reservoir having narrow circumferential openings, a plurality of short cylinders mounted on said reservoir, each provided with a radial opening adapted to communicate with an opening in said reservoir, a burner-pipe mounted in each of the radial openings of said short cylinders, a supply-pipe united to said reservoir, and an open-work or perforated partition at the union between said supply-pipe and reservoir to retard the flow of and mix the gas and air as they enter said reservoir.

16. In a gas-burner, the combination of a cylindrical reservoir having narrow circumferential openings, a plurality of short cylinders mounted on said reservoir, each provided with a radial opening adapted to communicate with an opening in said reservoir, and a plurality of perforated pipes parallel with said reservoir, each communicating with a radiating burner-pipe.

17. In a gas-burner, the combination of a cylindrical reservoir having narrow circumferential openings, a plurality of short cylinders mounted on said reservoir, each provided with a radial opening adapted to communicate with an opening in said reservoir, and a plurality of perforated burner-pipes parallel with and at various distances from said reservoir and each communicating with radiating burner-pipes.

749,252. SYNCHRONIZER. LEONARD ANDREWS, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 25, 1903. Serial No. 163,012. (No model.)



Claim.—1. In combination, a polyphase generator, bus-bars, transformers each having a primary winding connected to one of the different phases of said generator, and a second primary winding connected to a common pair of bus-bars, two secondary windings on said transformers so disposed relatively to said primary windings that one of said secondaries is excited when the currents of said primaries are in phase and the other when the currents are in opposition, and electroresponsive devices connected to said secondaries.

2. In combination, a polyphase generator, bus-bars, transformers each having a primary winding connected to one of the different phases of said generator and a second primary winding connected to a common pair of bus-bars, two magnetic circuits in each transformer adapted to be magnetized, one similarly and the other oppositely, for any given phase relation of current in the primaries, a secondary winding on each of said magnetic circuits, and an indicating device connected to each of said secondary windings.

3. In combination, a polyphase generator, bus-bars, a synchronizing transformer for each phase of said generator, each of said transformers having two magnetic circuits, means for producing in one circuit of each of said transformers, an alternating flux varying in strength with the difference in phase between the voltages of one phase of the generator and of a common pair of bus-bars and in the other circuit a flux varying inversely with said difference, a secondary winding on each of said magnetic circuits, and an electroresponsive device connected to each of said secondary windings.

4. In combination, a polyphase generator, bus-bars, a synchronizing transformer having two magnetic circuits, means for producing in one of said circuits an alternating flux varying in strength with the difference in phase between the voltage of one phase of the generator and of one pair of bus-bars and in the other circuit a flux varying inversely with said difference, windings adapted to be excited by said fluxes, and indicating devices connected to said windings.

5. In combination, a polyphase generator, station bus-bars, a plurality of magnetic circuits, means for producing in one of said circuits an alternating flux varying in strength with the difference in phase between the voltages of one phase of said generator and of one pair of bus-bars and in a second circuit a flux varying inversely with said difference and in the other circuits fluxes similarly depending on the phase difference of the other generator phases and of the same pair of bus-bars, windings on said magnetic circuits, and electroresponsive devices connected to said windings.

6. In combination, a polyphase generator, station bus-bars, a plurality of magnetic circuits, means for producing in said circuits two fluxes for each phase of the generator bearing different relations to the phase difference of said generator phase and a common pair of bus-bars, windings on said magnetic circuits, and indicating devices connected to said windings.

7. In combination, a polyphase generator, station bus-bars, primary transformer-windings severally connected to the different phases of said generator, primary transformer-windings all connected to a common pair of bus-bars, secondary windings so disposed as to be excited by said primary windings conjointly and oppositely, and electroresponsive devices connected to said secondary windings.

8. In combination, a polyphase generator, station bus-bars, primary transformer-windings each connected to a different phase of said generator, primary transformer-windings all connected to a common pair of bus-bars, secondary windings disposed in pairs so that one of each of said pairs is excited conjointly by one of said generator-connected primaries and by one of said bus-connected primaries, and the other of said pair is excited oppositely by said primaries, and indicating devices connected to said secondary windings.

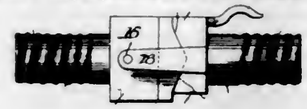
9. In combination, a polyphase generator, station bus-bars, a synchronizing transformer for each phase of the generator, two primaries thereon, one of said primaries being connected to its generator phase and the other to a common pair of bus-bars, two secondaries so disposed that one is excited conjointly and the other oppositely by said primaries when the currents in said primaries are in phase, and electroresponsive devices connected to said secondaries.

10. In combination, an alternating-current generator, station bus-bars, a synchronizing transformer having two magnetic circuits, means for producing in one of said circuits an alternating flux varying in strength with the difference in phase of the voltages of said generator and said bus-bars and in the other of said circuits a flux varying inversely with said difference, a secondary winding on each of said circuits, and indicating devices connected to said secondaries.

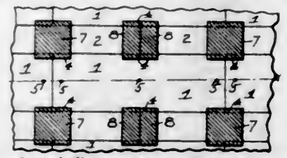
11. In combination, an alternating-current generator, station bus-bars, a synchronizing transformer, two secondaries thereon, means for producing in one of said secondaries an electromotive force varying in intensity with the difference in phase with the voltages of said generator and said bus-bars and in the other of said secondaries an electromotive force varying inversely with said difference, and indicating devices connected to said secondaries.

749,253. HOSE-COUPLING. JOHN BALLENBERGER and CHARLES SCHEIDEMANTEL, Pittsburg, Pa. Filed May 18, 1903. Serial No. 157,599. (No model.)

Claim.—A hose-coupling comprising a male and female member, the first-named member carrying an extension normally received in the last-named member, the body portion of the first-named member being cut away on its top and bottom to form shoulders, the sides being cut away to form inclined portions meeting centrally of said sides in the shape of a V, a locking member comprising a pair of side arms pivoted to the female member and a yoke straddling the male member, the sides of said yoke being inclined to conform to the inclined portions of the male member, and being notched adjacent the upper end of the yoke-arms, said inclined faces of the arms engaging said inclined portions, of the male member and receiving the apex of the V in said notches, and an operating-lever secured to the cross-bar of the yoke and extending in a direction opposite to the sides thereof, whereby said yoke may be actuated downwardly to bring the notches of the sides thereof into engagement with said apex of the V-shaped portions of the male member.



749,254. HOLLOW WALL CONSTRUCTION. DAVID R. BERGHLY, Dayton, Ohio. Filed May 18, 1903. Serial No. 157,731. (No model.)



Claim.—1. A hollow concrete wall construction, consisting of sectional blocks of concrete, each of said blocks comprising two vertical slabs and horizontal sections, said horizontal sections consisting of inner and outer walls integrally joined by abutments and provided with intervening spaces, the said abutments projecting beyond and at right angles to the longitudinal edges of the said inner and outer walls and providing shoulders against which the longitudinal edges of the vertical slabs abut, and means for binding said vertical slabs rigidly against said shoulders, substantially as set forth.

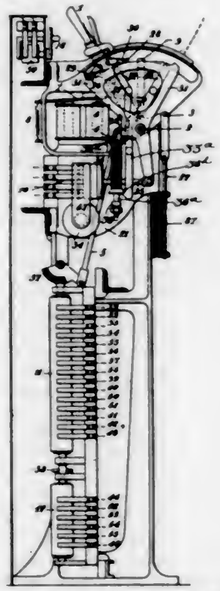
2. In a hollow concrete wall construction, a sectional block comprising vertical concrete slabs, the longitudinal edges of which taper inwardly from their outer sides and throughout the lengths of said edges, in combination with a horizontal section consisting of inner and outer vertical walls, the longitudinal edges of which are provided throughout their lengths with tapering seats adapted to receive the tapering edge surfaces of the vertical slabs, said vertical walls of the horizontal section being joined by abutments which provide intervening spaces between said walls, said abutments projecting above and below the walls of said horizontal section and providing shoulders against which the longitudinal edges of the vertical slabs abut, said shoulders being at the lowest point of the tapering seats in the vertical walls of the horizontal section, substantially as set forth.

3. A hollow building-block constructed of concrete and consisting of a horizontal section with two vertical walls having intervening abutments, said abutments projecting above and below the vertical walls, and the longitudinal edges of said vertical walls being tapered downwardly to said abutments, in combination with vertical slabs having their longitudinal edges suitably tapered to fit the tapered edges of the side walls of the horizontal section, the said vertical walls abutting with the shoulders formed by the abutments intervening between the vertical walls of the horizontal section, substantially as set forth.

749,255. ELECTRIC INTERLOCKING SWITCH AND SIGNAL SYSTEM. GUSTAVE BLEYNIE and THEOPHILE DUCOUSSO, Paris, France. Filed Mar. 6, 1902. Serial No. 96,890. (No model.)

Claim.—1. An interlocking switch and signal system adapted to be operated from a central station by means of a single member in the said station, all of said switches governing a determined itinerary and to clear the signal over the said itinerary, the manipulation of the said single member permitting therewithal the control of proper position and looking of all the said switches governing the said itinerary and the raising of the signal to block this same itinerary; the said system embodying: means at the said single member in the station, to establish proper distribution of energy to the

motors of said switches which must be carried to inverse position, the said distribution being established during the first part of the throwing of the single member manipulated in the station; means to control the proper position of all of the said switches governing the itinerary, the said means permitting the said member to reach the limit of its throwing only when all the said switches are in proper position; means to permit the said single member in the station to establish proper distribution of the energy to the motor of the signal governing the entrance of the itinerary and to clear the said signal; means to raise the said signal again, as soon as the train is completely engaged over the itinerary; means to control the said raising, the said means permitting the said single member in the central station, to return to its normal position only when the said signal is raised again; means to permit the single member in the central station, to establish proper distribution of energy to the motors of switches beforehand reversed, the said distribution being established during the first part of the raising of the single member in the central station and carrying to normal position the said switches; means to control the normal position of the said switches, the said means permitting the single member in the central station to terminate its raising only when the said switches are in normal position, the return of the single member to its initial position having thus broken up the whole of the effects successively produced during its throwing, substantially as described.



2. An interlocking switch and signal system adapted to be operated from a central station and by means of manipulation of a single member in the said station, all the said switches governing a determinate itinerary and to clear the signal over the said itinerary, the manipulation of the said single member permitting therewithal the control of proper position and locking of all the said switches governing the said itinerary and the raising of the signal blocking this same itinerary; the said system embodying for a determinate itinerary: a lever (itinerary-lever) 1 directly manipulated in the central station; a combinator 12 properly operated during the first part of the throwing of the lever 1; contact-points disposed on the combinator 12 to coact with brushes terminating the circuits which operate the distribution of energy to the motors of the switches which must be carried to inverse position; a pole-changer 10 operated by the lever 1 to command the time of the said distribution; connections established by contact-points of the combinator 12 and by the pole-changer 10 between the motors of the switches being to be operated and the source of energy, to carry the said switches to reverse position; circuit-closers 73, 74, 75 operated respectively by the switches, the locking devices of the switches and the distributers of energy to the motors of the said switches; a combinator 11 properly operated during the throwing of the lever 1; contact-points disposed on the combinator 11 to coact with brushes terminating the circuits which control the position and the locking of all of the said switches governing the itinerary; connections established by the circuit-closers 73, 74, 75 and by the contact-points of the combinator 11 to connect in series the control-circuits of all the said switches governing the itinerary and a magnet 6; a control-pawl 9 lowered by magnet 6 when this latter is energized; a dog 26 disposed on the lever 1 to strike against the pawl 9 when the control-circuit of proper position of all the said switches is not closed, a connection established by a contact-point of the combinator 11 at the end of the throwing of the lever 1, between the motor of the signal governing the entrance of the itinerary and the source of energy, to clear the said signal and to enable the raising of the same by the counterweight 80 as soon as the lever 1 is manipulated upon its return movement, the said lever operating suitably the combinator 11 to break the said connection; a pawl 30 disposed on the lever 1 to coact with the lever 31 operating the pole-changer 10 at the end of the throwing of the lever 1; a circuit-closer 79 operated by the signal governing the entrance of the itinerary, and establishing, with contact-points of the combinator 11, a control-circuit passing through the magnet 6 when the signal is raised again and thus enabling the pawl 26 to pass over the pawl 9; connections established by contact-points of combinator 12, operated by the lever 1 during the second part of its return movement, and by pole-changer 10, between the motors of the switches beforehand carried in reverse position and the source of energy, to carry them to normal position; connections established by circuit-closers 73, 74, 75 and by the pole-changer 10 to connect in series the control-circuits of the position of the said switches with magnet 6; a pawl 28 disposed on the lever 1 strikes against the pawl 9 when the said switches are not in normal position; a pawl 29 disposed on the lever 1 to coact with the lever 31 operating the pole-changer 10 at the end of the return movement of the lever 1, substantially as described.

3. In an interlocking switch and signal system adapted to be operated from a central station and by means of the manipulation of a single member in the said station, all of the said switches governing a determinate itinerary and to clear the signal over the said itinerary, the manipulation of the said single member permitting therewithal the control of proper position and locking of all the said switches and of the raising of the said signal to block this same itinerary; the establishment in the central station of as many single members manipulated in the said station as there are distinct itineraries controlled from this station; means to impede the simultaneous manipulation of two of these members while the itineraries which correspond to them cannot be traveled together without danger; means to impede the manipulation of the member corresponding to a determinate itinerary, while the traveling of this is impossible because of service conditions which are independent of the central station controlling the said itinerary, substantially as described.

4. In an interlocking switch and signal system adapted to be operated from a central station and by means of a single member in the said station, all the said switches governing a determinate itinerary and to clear the signal over the said itinerary, the manipulation of the said single member permitting therewithal the control of proper position and locking of all the said switches and of the raising of the said signal to block the same itinerary; the establishment, in the central station, of as many itinerary-levers 1 as there are distinct itineraries controlled from the said station; an interlocking rod 22 operated by each of the levers 1 to coact with an interlocking device 87, and prevent thus more than one of the levers being moved from its normal position at once while switches or signals of the said levers are concerned in the itinerary corresponding to the manipulated lever, the said levers being released by the final movement of the lever manipulated, while it is returned to its normal position; a pawl 28 disposed on each of the levers 1 to coact with the pawl 9 and prevent the manipulation of the said lever while the circuit energizing the magnet 6 is opened; a connection established by a circuit-closer 51 operated outerly from the station, and by a contact-point of the combinator 11, the said connection closing a control-circuit energizing the magnet 9 while the traveling of the itinerary corresponding to the lever manipulated is compatible with the service condition depending upon the location of the circuit-closer 51, substantially as described.

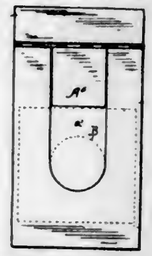
5. In an interlocking switch and signal system adapted to be operated from a central station and by means of a single member in the said station, all the said switches governing a determinate itinerary and to clear the signal over the said itinerary, the manipulation of the said single member permitting therewithal the control of proper position and locking of all the said switches and of the raising of the said signal to block the same itinerary; the establishment in the central station of as many single members manipulated in the said station as there are distinct itineraries controlled from the station; means to impede the simultaneous manipulation of two of these members, while the itineraries which correspond to them cannot be traveled together without danger; means to impede the manipulation of the member corresponding to a determinate itinerary, while the traveling of this is impossible because of service conditions which are independent of the central station controlling the said itinerary; means to permit one of said members manipulated in the station to serve for two itineraries traveled over the same route but only in reverse directions, the said means embodying two signals disposed respectively at each one of extremities of the said itinerary; an auxiliary member operated in the station to distribute energy to the motor of the one or the other of the said two signals; connections established by the said auxiliary member and by the member whose manipulation corresponds to the itinerary, to effect the opening of the signal after proper setting in position of all the switches of the itinerary and after control of the position and of the locking of the said switches, the said setting and control being effected by the manipulation of the member corresponding to the itinerary, quite in the same manner as in the case where the said member is affected in a single itinerary, and the rest of its movement producing also the same effects as in the said case, substantially as described.

6. In an interlocking switch and signal system adapted to be operated from a central station and by means of manipulation of a single member in the said station, all the said switches governing a determinate itinerary and to clear the signal over the said itinerary the manipulation of the said single member permitting therewithal the control of proper position and locking of all the said switches and of the raising of the said signal to block this same itinerary; the establishment in the said station of as many itinerary-levers 1 as there are distinct itineraries controlled from this station; an interlocking rod 22 operated by each of the levers 1 to coact with an interlocking device 87; a pawl 28 disposed on each of the levers 1 to coact with the pawl 9; a connection established by a circuit-closer 51, operated outerly from the station, and by a contact-point of the combinator 11, to close a control-circuit energizing the magnet 9; means to permit a single lever 1 to serve for two itineraries traveled over the same route but only in reverse directions, the said means embodying two signals disposed at each one of extremities of the said itinerary; an auxiliary handle 18, operated directly to effect the distribution of energy to the motor of the one or the other of the said two signals; connections established by the handle 18 and by the combinator 11 to effect the opening of the signal after proper setting in position of all the said switches of the itinerary and after control of this position and of the locking of the said switches, the said setting and control being effected by the manipulation of the lever 1 corresponding to the itinerary, substantially in the same manner as in the case where the said lever is affected in a single itinerary, and the rest of its movement producing also the same effects as in the said case, substantially as described.

7. In an interlocking switch and signal system adapted to be operated from a central station and by means of the manipulation of a single member in the said station, all of said switches governing a determinate itinerary and to clear the signal over the same, the manipulation of the said single member permitting therewithal the control of the proper position and locking of all the said switches and of the raising of the said signal to block this same itinerary; the establishment in the central station of as many single members to be manipulated as there are itineraries frequently traveled and controlled from the said station; means to constitute from this station secondary itineraries accidentally traveled, the said means permitting the use of the same motors and the same connections to effect the distribution of energy to the said motors as those which are already used in the command by means of single members manipulated and established as before described, and the said means permitting this to effect the proper setting in position of the switches adapted to constitute a secondary itinerary, and also to clear the signal over this itinerary, and finally to raise again the said signal and to set in normal position the switches operated before to constitute the secondary itinerary, substantially as described.

8. In an interlocking switch and signal system adapted to be operated from a central station and by means of manipulation of a single member in the said station, all the said switches governing a determinate itinerary and to clear the signal over the same itinerary, the manipulation of the said lever permitting therewithal the control of proper position and locking of all the said switches and of the raising of the said signal to block this same itinerary; the establishment in the central station of as many itinerary-levers 1 as there are itineraries frequently traveled and controlled from this station; a terminal board 17 receiving the wires of each of the circuits operating the distribution of energy to the motors of all the said switches and signals depending upon the central station; a double plug 19 with two posts connected to the poles of a source of electricity and adapted to be inserted into the sockets of the board 17 to close determinate circuits whose switches are to be operated, and the circuit whose signal is to be cleared over the itinerary constituted by individual setting in position of switches depending upon the whole controlled by the central station, the said switches being successively carried into normal position, after traveling of the secondary itinerary thus constituted, by means of inserting plug 19 into the corresponding sockets of the board 17 but its posts being then in position reversed of that corresponding to setting switches in reverse position, substantially as described.

749,256. NUT-LOCK WASHER. EVERETT R. BROWN, Richmond Ind. Filed Sept. 26, 1903. Serial No. 174,730. (No model.)



Claim.—1. In combination with a bolt and nut, of a rectangular washer having a central lunette aperture therethrough, a U-shaped impression formed across the upper portion of the washer, and a tongue extending down from said impression its lower edge forming the upper end of said aperture and whose length is such as to permit it to be forced outward over the edge of the nut, all substantially as shown and described for the purposes set forth.

2. The combination with a bolt and nut, of a washer adapted to surround the bolt and contact with the rear face of the nut, an impression formed in the face of the washer across upper portion thereof and forming a ridge across the back of the washer, a tongue formed in the center of the washer whose lower edge is adapted to be extended out over the upper edge of the nut for securing the nut in its adjusted position, substantially as shown and described.

3. A rectangular nut-locking washer having a central elongated aperture for a bolt, an impression in the face of the washer forming a ridge across the back of the upper portion thereof, a tongue extending down from near said ridge and of a length to coincide with the upper edge of said aperture above the upper edge of the nut, substantially as shown and described.

4. A rectangular nut-locking washer having a central elongated aperture, an impression across the upper face of the washer forming a ridge on the back thereof, a tongue of same width as said central aperture extending down therein from said impression to a point slightly above the upper edge of the nut, all substantially as shown and described.

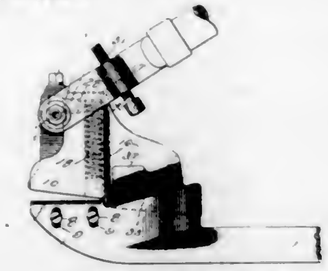
5. In combination with a bolt and nut and the elements to be secured thereby, of an oblong plate having a central opening with slits extending up from each side of said opening to near the upper end of the washer, a tongue formed by said slits and extending down to a point slightly above the upper edge of the nut, an impression formed across the upper portion of the washer, means for extending said tongue after the nut is screwed home, and means for securing the washer, all substantially as shown and described.

6. A nut-locking washer having a central elongated opening for the bolt, an impression formed across one end of the washer, a tongue formed between said impression and said opening and extending to near the edge of the nut, means for partially extending said tongue to lock the nut, and means for securing the washer between the nut and the element secured by the bolt, substantially as shown and described.

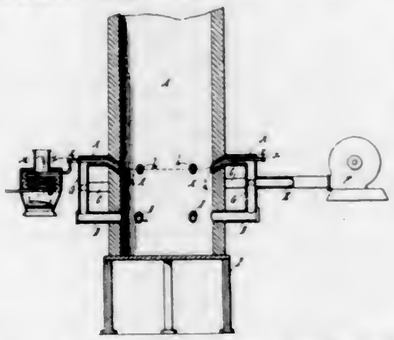
749,257. BENCH-SHEARS. GEORGE J. CAPEWELL, Hartford, Conn. Filed June 14, 1902. Serial No. 111,606. (No model.)

Claim.—A portable shears having a frame consisting of a supporting-bar, a section that extends horizontally from one side of the bar, a section that rises vertically from the edge of the horizontal section distant from the bar, a section that extends horizontally toward the bar from the upper edge of the vertical section, a vertical section extending forwardly from the lower horizontal section and a

vertical section extending forwardly from the upper horizontal section, with a blade fixed to the lower forwardly-extending vertical section, a blade movably held against the upper forwardly-extending vertical section, said blades being forward of and extending at right angles to the opening between the horizontal sections of the frame, and a handle pivoted to the frame and connected with the movable blade so as to have a movement parallel with the movable blade, substantially as specified.



749,258. IRON-POUNDING. HAGGERT S. COCHRAN, Kansas City, Mo., administrator of Adam Cochran, deceased. Filed Mar. 25, 1901. Serial No. 52,733. (No specimens.)



Claim.—1. The herein-described process of purifying and refining iron, consisting in first charging the cupola with fuel and metal and raising the heat of the contents thereof to a high temperature by an air-blast, second, injecting steam in an angular downward direction through the mass of molten iron and incandescent fuel, said steam entering the cupola at about ten inches below the melting-point of iron, substantially as described.

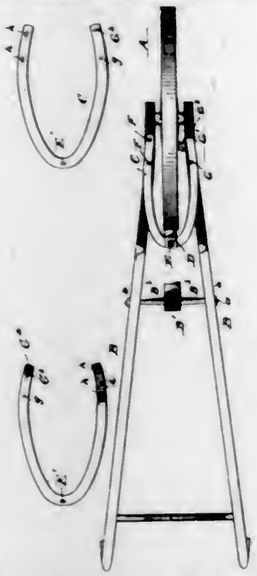
2. The process of producing a cast-iron possessing some of the qualities of malleable iron, consisting in first, charging the cupola with fuel and metal and raising the heat of the contents to the point of liquefying the metal by an air-blast, second, forcing a jet of steam angularly downward through the melted contents and incandescent fuel, said steam being delivered at a point about ten inches below the melting-point of iron and in combination with an air-blast also delivered angularly downward, substantially at the same point, substantially as described.

749,259. GARDEN-PLOW. GIDEON W. COLE, Canton, Ill. Filed Feb. 17, 1903. Serial No. 143,879. (No model.)

Claim.—1. In a garden-plow, the handles thereof constituting the plow-frame, a wheel journaled between the frame ends, a U-shaped yoke lying upon the frame in a plane substantially perpendicular to the plane of the wheel and inclosing said wheel at its rear, means for securing one end of the yoke in a stationary manner to its respective frame end, and means at the other end of the yoke for holding it after adjustment for the purposes described.

2. In a garden-plow the handles thereof constituting the plow-frame, a wheel journaled between the frame ends, a U-shaped yoke lying upon the frame in a plane substantially perpendicular to the plane of the wheel, said yoke pivoted at one end on its respective frame end, means for holding that end from movement on its pivot after adjustment and means at the opposite extremity of the yoke for securing that extremity to the frame in a stationary manner all for the purposes set forth.

3. In a garden-plow, the handles B forming the plow-frame, the wheel A carried between the handles, the U-shaped yoke C having one end attached to one of the handles in a stationary manner, the other end adjustable on the handle, all substantially as shown to permit a shifting movement of the handles forward or back for shifting the wheel-axle and centering the wheel between them as set forth



4. In a plow of the character described the handles B, the wheel A mounted between the said handles, the yoke C having each extremity attached to one of the handles B and means for securing the yoke in the position placed, said yoke being capable of adjustment to "rack" the handles in the direction of their length to carry the wheel into alinement as set forth and described.

5. In a plow of the character described the handles B forming the frame of the plow, the wheel A, mounted between the said handles, the U-shaped yoke attached to the handles in the manner illustrated, the bolt G' and screw G for securing one end of the yoke to one of the handles and the screws F F for securing the other end of said yoke to the opposite handle all being arranged substantially as set forth and described.

6. In a garden-plow the combination of the handles B forming the frame of the plow, the wheel A located between and attached to the handles for carrying the same, the U-shaped yoke C having one of its ends attached to each of the handles B, the holes *f*, *f*, *g* and G^3 in said yoke substantially as described, the screws F, F, G, and bolt G' for securing the yoke in place and the scraper D attached to the yoke for engaging the rim of the wheel all as set forth and described.

749,260. VENDING-MACHINE. WILLIAM S. CONNER, Minneapolis, Minn. Filed Jan. 27, 1903. Serial No. 140,796. (No model.)

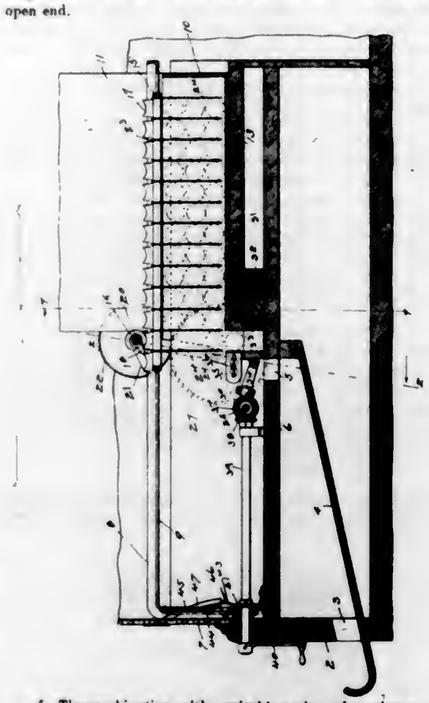
Claim.—1. The combination, with a stationary box or package wherein the articles to be sold are placed, said box having a delivery-opening, of a series of movable partitions or parting members dividing the contents of the box into vertical rows, and means for moving said members to discharge said rows through said delivery-opening.

2. The combination, with a show-case, of a stationary box or package having a delivery-opening arranged therein, a movable frame, a series of movable partitions or members carried by said frame and arranged to divide the contents of the box into vertical rows, and means for moving said frame to discharge said vertical rows through said delivery-opening.

3. The combination, with a casing wherein a stationary cigar-box having an open end is placed, of a series of movable partitions or members dividing the contents of said box into vertical rows, and means for moving said partitions lengthwise of said box toward said delivery-opening to discharge said vertical rows therethrough.

4. The combination, with a casing wherein a cigar-box having an open end is placed, of a rack-frame adapted to be supported above

the open top of said box, a series of vertical partitions carried by said frame and arranged to be inserted between the cigars in the box dividing them in vertical rows, and means for moving said frame lengthwise of said box to advance said vertical rows through said open end.



5. The combination, with a suitable casing adapted to receive a box having an open end and top, of a frame arranged above the open top of said box, means for adjusting said frame vertically to adapt it for boxes of different depth, a series of partitions carried by said frame and dividing the contents of the box into vertical rows, and means for moving said frame and partitions lengthwise of said box to discharge said rows therefrom.

6. The combination, with a casing adapted to receive a cigar-box having the cover raised and provided with an open end, of a rack-frame arranged above said box, a series of movable partitions carried by said frame and arranged to divide the cigars into vertical rows, a gear mechanism engaging said rack-frame, an operating-lever and shaft, a delivery-block having a slot adapted to receive a single cigar, a gear mechanism connecting said operating-shaft and said rack-operating gear and in the ratio of three to one thereto, substantially as described.

7. The combination, with a suitable casing adapted to receive a cigar-box with an open top and end, of a frame arranged above said box, a rack-frame slidably mounted on said frame, a series of movable partitions carried by said rack-frame and arranged to divide the cigars into vertical rows, a sliding delivery-block provided beneath the open end of said box and having a slot to receive a single cigar, guide-clips provided beneath the discharge end of said box, a plate having a discharge-opening beneath said delivery-block to receive the cigar therefrom when said block is reciprocated, and a mechanism arranged to operate said delivery-block three times to one movement of said rack-frame, substantially as described.

8. The combination, with a casing wherein a cigar-box having an open top and end is arranged, of a rack-frame supported above said box, a series of partitions carried by said rack-frame and dividing the cigars into vertical rows, a delivery-block near the discharge end of said box arranged to receive a single cigar, and a mechanism arranged to operate said rack-frame once to several operations of said delivery-block.

9. The combination, with a suitable casing provided with a plate 6 having a discharge-opening 5 and a plate 13 spaced from said plate 6, of a frame arranged within said casing above said plate 13, a series of partitions carried by said frame and arranged to project into a box resting upon said plate 13 and divide the contents thereof into vertical rows, a mechanism for moving said frame horizontally to advance said vertical rows through the open end of said box, a plunger or delivery-block operating over said plate 6 between it and said plate 13 and having a slot to receive an article from the discharge end of said box, and means for reciprocating said block.

10. The combination, with a show-case adapted to receive a cigar-box having an open top and end, of a rack slidably mounted in said case above said box, a series of partitions carried by said rack and adapted to project into said box and divide the contents thereof into vertical rows, means for operating said rack to move said partitions through the open end of said box and discharge the vertical rows, and a mechanism for receiving the cigars so discharged and delivering them one at a time.

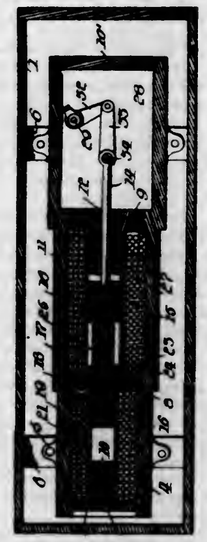
11. The combination, with a box or package wherein the articles to be vended are placed, said box having a delivery-opening, of a plurality of partitions or parting members dividing the contents of the box into rows, means for moving said members to discharge said rows through said delivery-opening, and said members being adjustable to adapt them for boxes of different depth.

12. The combination, with a cigar-box having an open end, of a plurality of partitions or parting members dividing the cigars into vertical rows, means for moving said members lengthwise of said box to discharge said rows, and said members being adjustable to adapt them for use with boxes of different depth.

13. The combination, with a suitable casing wherein a cigar-box having an open end is arranged, a series of partition members provided within said box and movable lengthwise thereof and dividing the cigars into vertical rows, a delivery device at the discharge end of said box arranged to receive a single cigar, and a mechanism arranged to operate said partitions once to several operations of said delivery device.

14. The combination, with a casing adapted to receive a cigar-box having an open discharge end, of a plurality of partition members provided within said box and movable lengthwise thereof and dividing the box into vertical rows, a gear mechanism for operating said partition members, a delivery device arranged to receive and discharge a single cigar, an operating-shaft, and a mechanism connecting said shaft and said partition-operating mechanism in the ratio of three to one thereto.

749,261. SWITCH. TROY COPE, New Waterford, Ohio. Filed Aug. 20, 1903. Serial No. 170,112. (No model.)

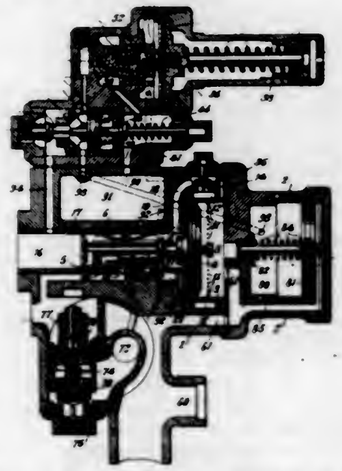


Claim.—1. In an electrically-operated switch-throwing device, a double casing located near the switch-tongue, a double solenoid mounted in said casing, the core of the solenoid being adapted to actuate the switch-tongue, contact-arms carried by the trolley-wire, means connecting each coil of the solenoid with one of said arms, means carried by the trolley-pole adapted to contact with the arms to actuate the solenoid, means carried by the car whereby either of the coils of the solenoid may be energized comprising a pair of

contact-plates mounted at the base of the trolley-pole, means for alternately connecting each of said plates with the car-circuit, and means whereby said plates are put in circuit with the contact-arms carried by the trolley-wire, substantially as described.

2. In a switch-throwing device, a double solenoid having its core connected with the switch-tongue, contacting arms carried by the trolley-wire, each arm being connected with one of the coils of the solenoid, and means for energizing either one of the coils to throw the switch in either direction comprising contact-blocks carried at the upper end of the trolley-pole, wires leading down from the said blocks within the pole, contact-plates carrying the lower terminals of said wires mounted at the base of the trolley-pole, and means connected with said plates adapted to alternately place the same in circuit with the car-running circuit, substantially as described.

749,262. **AUTOMATIC FLUID-PRESSURE BRAKE APPARATUS.** MURRAY CORRINGTON, New York, N. Y. Filed July 1, 1902. Serial No. 113,387. (No model.)



Claim.—1. In a fluid-pressure brake mechanism, the combination, with a triple valve having connections leading to a train-pipe, an auxiliary reservoir and a brake-cylinder, respectively, of a supplemental piston for forcing the triple valve into its normal or release position and a second valve device actuated by an increase of fluid-pressure, independently of the movement of the triple-valve piston, for varying the pressures on said supplemental piston, whereby the same may be actuated to force the triple valve into its normal or release position.

2. In a fluid-pressure brake mechanism, the combination, with a triple valve having connections leading to a train-pipe, an auxiliary reservoir and a brake-cylinder, respectively, of a supplemental piston normally exposed to fluid under pressure, for effecting the movement of the triple valve into the release position, a passage for releasing pressure from one side of said piston and a valve device actuated by an increase of pressure, independently of the movement of the triple-valve piston, for controlling said passage.

3. In a fluid-pressure brake mechanism, the combination, with a triple valve, of a recharging-passage for admitting pressure from train-pipe to reservoir while the triple valve is in brake-setting position, a supplemental piston for forcing the triple valve into its normal or release position and a secondary valve device actuated by an increase of fluid-pressure, independently of the movement of the triple-valve piston, for varying the pressures on said supplemental piston, whereby the same may be actuated to force the triple valve into its normal or release position.

4. In a fluid-pressure brake mechanism, the combination, with a triple valve, of a recharging-passage for admitting pressure from train-pipe to reservoir while the triple valve is in brake-setting position, a supplemental piston normally exposed to fluid under pressure, for effecting the movement of the triple valve into the release position, a passage for releasing pressure from one side of said piston and a valve device actuated by an increase of pressure, independently of the movement of the triple-valve piston, for controlling said passage.

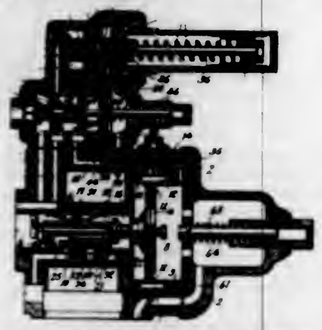
5. In a fluid-pressure brake mechanism, the combination, with a triple valve device, of a recharging-passage for admitting pressure from train-pipe to reservoir while the triple valve occupies the brake-setting position, a valve for controlling said recharging-passage and closing the same while brakes are off, and a supplemental valve device actuated by a variation of pressure, independently of the movement of the triple-valve piston, for causing the triple valve to move into release position.

6. In a fluid-pressure brake mechanism, the combination, with a triple valve, of a supplemental valve, a valve device actuated by a variation of fluid-pressure, independently of the movement of the triple-valve piston, for controlling by its operation the ultimate movement of the triple valve to release position, and a passage controlled both by said supplemental valve and by said valve device.

7. In a fluid-pressure brake mechanism, the combination, with a triple valve, of a recharging-passage for admitting pressure from train-pipe to reservoir while the triple valve is in the brake-setting position, and ports in the main valve and the graduating-valve of the triple valve forming parts of said recharging-passage, whereby said passage is controlled both by the main valve and the graduating-valve.

8. In a fluid-pressure brake mechanism, the combination, with a triple-valve device, of a service-passage for admitting pressure from reservoir to brake-cylinder, a recharging-passage for admitting pressure from train-pipe to reservoir while the triple valve is in the brake-setting position and a single valve operated by the triple-valve piston for controlling both of said passages, so that one shall be open while the other is closed, and vice versa.

749,263. **AUTOMATIC FLUID-PRESSURE BRAKE MECHANISM.** MURRAY CORRINGTON, New York, N. Y. Filed July 12, 1902. Serial No. 115,317. (No model.)



Claim.—1. In a fluid-pressure brake system, the combination, with a primary piston controlling by its movements the admission and exhaust of pressure to and from a brake-cylinder, of a passage for bleeding the auxiliary reservoir to the atmosphere, a secondary piston controlling by its movements said passage, a valve device actuated by a variation of pressure, independently of the movement of the primary piston, for controlling the secondary piston and a passage from one side of the secondary piston which is controlled by the operation of both the valve device and the primary piston.

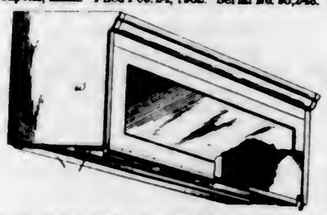
2. In a fluid-pressure brake system, the combination with a triple valve, of a passage for bleeding the auxiliary reservoir to the atmosphere, a secondary piston controlling by its movements said passage, a valve device actuated by a variation of pressure, independently of the movement of the triple-valve piston, for unbalancing said secondary piston and a passage from one side of the secondary piston which is controlled by the movement both of said valve device and of the triple-valve piston, whereby said bleed-passage from the reservoir may be opened and subsequently closed, while the triple valve is respectively in brake setting or release position.

3. In a fluid-pressure brake system, the combination, with a triple valve, of a passage or cavity which is opened to the atmosphere by the triple valve while in brake-setting position, a passage for bleeding the auxiliary reservoir to the atmosphere and a supplemental valve device actuated by a variation of pressure, independently of the movement of the triple-valve piston, for controlling the last-mentioned passage, the relationship of the parts being such that the opening of both passages depends upon the triple valve being in brake-setting position and their subsequent closing upon its being in brake-release position.

4. In a fluid-pressure brake system, the combination, with a triple valve, of a passage for bleeding the auxiliary reservoir to the atmosphere, a recharging-passage for admitting air from train-pipe to reservoir while the triple valve is in brake-setting position and means actuated by a variation of pressure, independently of the movement of the triple-valve piston, for controlling said passages, and for bleeding air from the reservoir more rapidly than it can pass from train-pipe to reservoir, whereby the triple valve may be moved to release.

5. In a fluid-pressure brake system, the combination, with a triple valve, of a recharging-passage for admitting pressure from train-pipe to auxiliary reservoir while brakes are set, a passage for bleeding the reservoir to the atmosphere and a valve device actuated by a variation of pressure, independently of the movement of the triple-valve piston, for controlling both passages, and alternately closing the former while the latter is open, and vice versa.

749,264. **BOOKCASE.** DUGAL CREE and HERMAN DICKSON, Minneapolis, Minn., assignors to the Cree Dickson Manufacturing Company, Minneapolis, Minn. Filed Feb. 24, 1902. Serial No. 96,248. (No model.)



Claim.—1. A case for books or other articles, comprising a plurality of independent and interchangeable sections adapted to be piled one upon another, and connected together, each of said sections consisting of end pieces, a bottom piece, a top, a back affixed to the rear edges of the said end pieces, and a downwardly-opening door pivotally affixed to the end pieces of each section at a point below the level of the respective section-bottoms, said doors being fashioned with cyma-recta edges adapted to rest upon and overlap the cyma-recta upper edges of the similar doors belonging to the adjacent underlying sections, said doors being adapted to open to a horizontal position and to serve as shelves, substantially as described.

2. In a bookcase-section, the combination with the back, top and bottom pieces thereof, of the end pieces, resilient pivot-plates affixed to the inner faces of the said end pieces, and a door pivotally mounted in the said pivot-plates at a point below the level of the said bottom, whereby when the said door is lowered to a horizontal position its lower edge will underlie the said bottom.

3. A case for books or other articles, comprising a plurality of independent and interchangeable sections adapted to be piled one upon another, each of said sections comprising a top, back, bottom and end pieces, a hinged door carried by each section, said doors being hinged at a point below the respective bottoms of the sections, the doors when in a closed position engaging the upper and lower edges of the adjacent doors of the other sections, and when in an open position having their lower edges in engagement with the respective bottoms of the sections, substantially as described.

4. The combination with a series of bookcase-sections, arranged one on top the other, of plates secured to the ends of the said sections, said plates projecting into the adjacent sections over recesses formed in the ends thereof, and doors pivoted in the said plates.

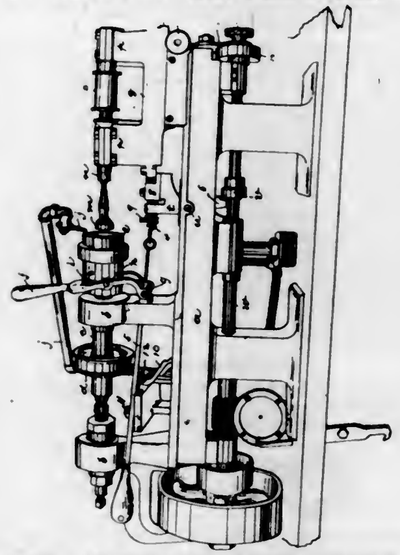
5. A bookcase comprising a series of sections, arranged one on top of the other, means for securing the said sections together, and pivoted doors, said doors being adapted to have their lower ends engage the bottoms of their respective sections for retaining them in a horizontal position, substantially as and for the purpose specified.

6. A bookcase comprising a series of sections arranged one on top the other, each section comprising a back, end, top and bottom pieces, the top and bottom pieces of the several sections interlocking with one another, said end pieces having their upper portions formed with mortises, flexible plates secured to the lower edges of the said end pieces and having their lower ends extending over the mortises of the adjacent sections, and doors pivoted in the lower ends of the said plates, said doors being adapted to have their lower edges engage the bottoms of their respective sections when in an open position.

7. A bookcase comprising a plurality of sections arranged one on top of the other, the ends of said sections having their upper and lower edges formed with rabbeted portions, and interlocking slats forming the tops and bottoms of said sections having their ends received in the said rabbeted portions.

8. The combination in a bookcase-section of end pieces, a back piece affixed to the rear edges of the said end pieces, the upper and lower edges of which are flush with the upper and lower ends thereof, a top piece affixed to the upper ends of the said end pieces and lying partly above and partly below the upper ends thereof, bottom pieces affixed to the lower ends of the said end pieces and lying partly below and partly above the lower ends thereof, and a door pivotally affixed to the said end pieces at a point below the level of the said bottom pieces, substantially as described.

749,265. **POLISHING-LATHE.** HENRY M. CROWELL, Maplewood, N. J. Filed May 1, 1903. Serial No. 155,124. (No model.)



Claim.—1. The improved polishing-machine, in which is combined with a suitable bed or frame and chuck, a polishing-wheel, spindle supported on slides, one slide being movable parallel with said spindle, and the other at right angles thereto, means for moving said slides and spindle intermittingly in a direction parallel with the axis of said spindle, whereby said movement will cease momentarily when the polishing-wheel is in engagement with the work lying in said chuck, and means for moving the wheel, spindle and its immediately-supporting slide at right angles to the line of said spindle-axis, at the end of the movement toward the chuck, when said movement parallel with the said axis has ceased.

2. In a polishing-lathe, the combination with a rotary chuck and means for rotating the same, of a rotary polishing-wheel movable on its axis, in the line of its axis and transversely or perpendicular to its axis and means for thus moving said wheel, the means being timed to move the rotating wheel transversely at the end of its movement in the line of its axis whereby the said wheel may be first presented to the plate lying in the chuck and afterward moved over the face of the said plate to or from its center of rotation, substantially as set forth.

3. In a polishing-lathe, the combination with the rotary chuck and means for rotating the same, of a rotary polishing-wheel and means for rotating the same, a spring adapted to draw the wheel toward the chuck, means opposed to said spring for periodically forcing said wheel away from said chuck, and means for moving said wheel transversely, substantially as set forth.

4. In a polishing-lathe, the combination with the rotary chuck, and means for rotating the same, of a rotary polishing-wheel having bearings on a slide movable toward and from said chuck, means for rotating the wheel, a lever adapted to engage said slide, a spring tending to draw the polishing-wheel toward the chuck, a rotary cam having a cam projection temporarily engaging the lever to oppose the action of the spring and effect a movement of the wheel away from the chuck, a driving-shaft and means for rotating the wheel, substantially as set forth.

5. In a polishing-lathe, the combination with the rotary chuck and means for rotating the same, of a rotary wheel, arranged at the

end of a shaft or spindle, said spindle having bearings on a slide, said slide being movable on a slideway of said lathe in a direction parallel with the spindle, a lever fulcrumed in said lathe and having an adjustable bearing adapted to engage the said slide, a driving-shaft having a cam adapted to engage the lever and means for transversely moving said slide and its spindle and wheel, substantially as set forth.

6. In a polishing-lathe, the combination with the bed-frame, of a driving-shaft having a cam and eccentric, a lever operated by the cam, another lever operated by the eccentric, a slide carrying a spindle and engaged by the first said lever to move the same in a direction parallel with the spindle, said slide being carried by a second slide movable in a direction perpendicular to the said spindle, the said second slide being in connection with the second lever and operated thereby, substantially as set forth.

7. In a polishing-lathe, the combination with the bed-frame carrying a driving-shaft, a slide carrying a spindle and means for moving said slide in a direction parallel with the spindle, a second slide carrying the first, an eccentric on the driving-shaft, a lever oscillated by said eccentric and connections of said lever and the second said slide whereby it is moved perpendicular to the direction of movement of the first said slide, the parts being timed to alternate the transverse or perpendicular movement with the movement parallel with the spindle, substantially as set forth.

8. In a polishing-lathe, the combination with the bed-frame carrying a driving-shaft having an eccentric at one end thereof, said eccentric having an adjustable pin, a nut and collar, a block arranged on said collar in a slot of a lever, said lever and connections thereof with a slide carrying a spindle whereby said spindle is moved in a direction perpendicular to the axis of said spindle, means for rotating said spindle, and a polishing-wheel arranged on said spindle, substantially as set forth.

749,266. TOBACCO-PIPE. WALTER C. CUNNINGHAM, Denver, Colo., assignor to Max Straus, Denver, Colo. Filed Mar. 11, 1903. Serial No. 147,316. (No model.)



Claim.—In a pipe, the combination of a pipe having a sectional bowl provided with an integral short stem portion and divided into two equal parts vertically through both the bowl and its short integral stem portion longitudinally of the combined length of said bowl and stem, each part representing a portion of the bowl and of the stem through the smoke-passage, a right-angled recess in the side edges of the stem and bowl of the face of one part of said pipe extending not quite to the edge of the top of the bowl or to the end of the stem, a projecting right-angled lip portion formed on the stem and bowl of the face of the other part of said pipe of the same length as the recess in the other part of said bowl and registering into said recess and arranged and positioned to bring the smoke-passage in said half-stem and the half-bowls to register evenly with each other; a suitable mouthpiece for said divided stem, a thimble secured at one end of said mouthpiece and arranged to be manually slipped tightly over said divided stem to bind said divided stem and bowls together, a reduced shouldered terminal end on the top end of said pipe, and a ring arranged to be manually slipped onto the top of the bowl and adapted to clamp or bind said divided parts together, substantially as described.

749,267. ART OF LASTING PORTIONS OF BOOT OR SHOE UPPERS. OSCAR C. DAVIS, Brockton, Mass., assignor of one-half to George R. Keith, Brockton, Mass. Filed Nov. 13, 1902. Serial No. 131,096. (No model.)

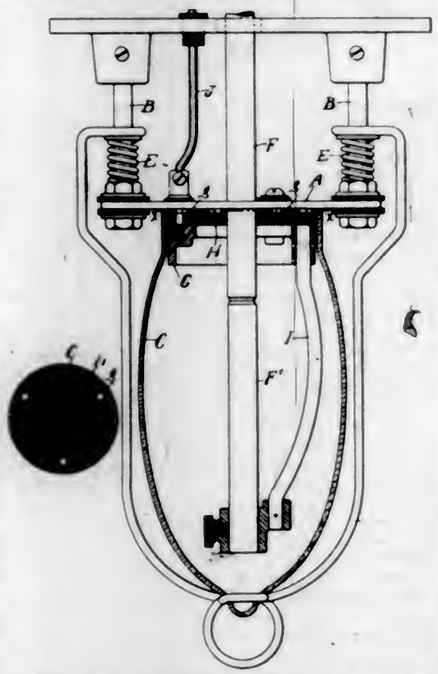


Claim.—1. That improvement in the art of lasting portions of boot and shoe uppers, which consists in incorporating in the unlasted upper a blank made of felt treated with a waterproofing, stiffening fluid, lasting the upper to form or mold the blank, and subsequently permitting the blank to dry whereby its stiffness is increased.

2. That improvement in the art of lasting portions of boot and shoe uppers which consists in simultaneously lasting the upper and a stiffener-blank made of felt saturated with a waterproof stiffening material in solution, so that the blank is soft and flexible, thus forming or molding the blank while the latter is soft, and subsequently allowing the stiffening material to harden and stiffen the lasted or formed upper.

3. That improvement in the art of lasting portions of boot and shoe uppers, which consists in saturating a stiffener-blank made of felt with a soluble waterproof stiffening material, incorporating the stiffened blank in an unlasted upper, dissolving the stiffening material of the blank by means of a solvent thereof to soften the blank, lasting the upper, and thus forming or molding the blank while the latter is soft, and subsequently allowing the stiffening material to harden and stiffen the lasted or formed upper.

749,268. ELECTRIC-ARC LAMP. GEORGE R. DAVISON, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed May 8, 1903. Serial No. 156,210. (No model.)



Claim.—1. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap closely surrounding said carbon and supported below said plate so as to form a thin space between said plate and said cap extending from said carbon nearly to the inner periphery of said globe.

2. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap closely fitting around said carbon and supported below said plate so as to leave a thin space around said carbon between said plate and said cap.

3. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a shield composed of thin insulating-sheets closely surrounding said carbon and supported below said plate so as to leave a thin space between said plate and said shield.

4. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap closely surrounding said carbon and extending nearly to the inner surface of said globe, said cap being supported below said plate so as to leave a thin space between said cap and said plate.

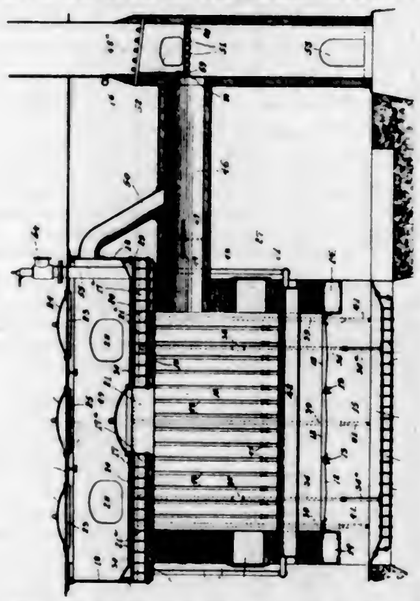
5. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a shield supported below said plate composed of thin insulating-sheets closely surrounding said carbon and extending nearly to the inner surface of said globe.

6. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap supported below said plate and closely surrounding said carbon, the part of said cap immediately around said carbon being composed of mica sheets.

7. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap, closely surrounding said carbon, having downwardly-projecting flanges and supported from below said plate so as to form a thin passage between said plate and said cap from said carbon nearly to the inner surface of said globe.

8. In an arc-lamp, a globe adapted to transmit light, a cover-plate therefor, a carbon passing through said plate and extending into said globe, and a cap closely surrounding said carbon and supported below said plate so as to form a passage between said plate and said cap from said carbon nearly to the inner surface of said globe, said cap having a downwardly-projecting flange at its periphery so as to form a thin space between said cap and said globe.

749,269. GARBAGE-CREMATORY. LOUIS P. DECARIE, Montreal, Canada. Filed June 15, 1901. Serial No. 64,627. (No model.)



Claim.—1. A garbage-crematory comprising, in combination, an incinerating-chamber, a receiving and drying chamber, a stack or uptake, a supplementary grate in said stack adapted to support a bed of incandescent fuel, a flue connecting the incinerating-chamber with said stack or uptake, a flue leading from the receiving and drying chamber and connecting with the flue from the incinerating-chamber, and suitable valve or damper mechanism for causing the gases passing from said flues into said stack to enter the stack either above or below said supplementary grate, substantially as described.

2. A garbage-crematory comprising an incinerating-chamber, a receiving and drying chamber, a stack or uptake, a grate located in the stack, a flue communicating with both the incinerating and the drying chamber and with the stack, and damper mechanism arranged to direct the gases from the flue into the stack either above or below the grate therein

3. The combination, in a garbage-crematory, of an incinerating-chamber, a receiving and drying chamber located above said incinerating-chamber and arranged to be heated therefrom, a stack or uptake, a supplementary grate in said stack adapted to support a bed of incandescent fuel, a flue having communication with said receiving and drying chamber and with said stack or uptake, a flue connecting the incinerating-chamber with said stack or uptake, and means for causing the gases from said receiving and drying chamber and from incinerating-chamber to enter the stack below said grate, substantially as described.

4. The combination, in a garbage-crematory, with an incinerating-chamber, of a receiving and drying chamber located above said incinerating-chamber, means within said receiving and drying chamber for separating liquid from solid garbage, a steam-generator forming the dividing-wall between said incinerating-chamber and said receiving and drying chamber, means for conducting the liquid from said receiving and drying chamber, and means for permitting the passage of the solid garbage from said receiving and drying chamber to said incinerating-chamber.

5. The combination, in a garbage-crematory, with an incinerating-chamber, of a receiving and drying chamber located above said incinerating-chamber, a steam pan or generator, forming the top wall of said incinerating-chamber and the bottom of said receiving and drying chamber, means for separating liquid from solid garbage in said receiving and drying chamber, an evaporator, means for conducting liquid from said receiving and drying chamber to said evaporator and means for conducting steam from said generator to said evaporator for the purpose of heating the same.

6. The combination, in a garbage-crematory, with an incinerating-chamber, of a receiving and drying chamber located above said incinerating-chamber, a steam pan or generator, forming the top wall of said incinerating-chamber and the bottom of said receiving and drying chamber, a basket within said incinerating-chamber, formed of a series of tubular bars connected with said generator, and said generator being provided with an opening extending through it above said basket through which material may be fed from said receiving and drying chamber into said basket.

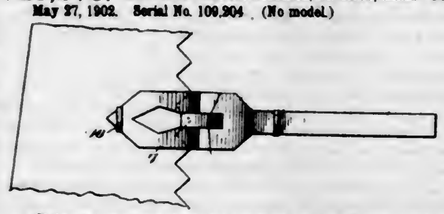
7. The combination, in a garbage-crematory, with an incinerating-chamber, of a steam-generator, located at or near the top of said incinerating-chamber, a receiving and drying chamber located above said incinerating-chamber, a basket arranged within said incinerating-chamber, formed of a series of tubular bars connected with said steam-generator, an evaporator arranged in the lower part of said incinerating-chamber, and means connecting said steam-generator with said evaporator.

8. The combination, in a garbage-crematory, with an incinerating-chamber, provided with a suitable grate, of a steam-generator, located at or near the top of said incinerating-chamber, a basket arranged within said incinerating-chamber and comprising a series of tubular bars connected with said steam-generator, an evaporator arranged below said grate, and means connecting said steam-generator with said evaporator.

9. The combination, in a garbage-crematory, with an incinerating-chamber, of a receiving and drying chamber located above said incinerating-chamber, a steam pan or generator forming the top wall of said incinerating-chamber and the bottom wall of said receiving and drying chamber, a basket within said incinerating-chamber formed of a series of tubular bars connecting with said generator, and means permitting the passage of garbage from said receiving and drying chamber into said basket.

10. The combination, in a garbage-crematory, with an incinerating-chamber, of a steam pan or generator, having a feed-opening extending through it, a header arranged within the incinerating-chamber and below said generator, and tubular bars connected to the steam-generator on opposite sides of the feed-opening and arranged within the incinerating-chamber to form grate-surfaces for the support of material to be incinerated.

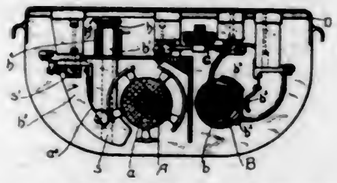
749,270. SAW-SET. JOSEPH DIETRICH, St. Cloud, Minn. Filed May 27, 1902. Serial No. 109,204. (No model.)



Claim.—A saw-set comprising a member including a head and a handle the head being transversely slotted to form an anvil and

an upper portion lying thereabove, the anvil terminating short of upper portion, said head having a slot therein extending through the anvil and the upper portion, a jaw pivoted on the lower side of the head and passing through the second-named slot at a point beyond the termination of the transverse slot, said jaw having a handle movable toward and away from the first-named handle, and a set-screw arranged in one of the handles and disposed for contact by the other handle.

749,271. **ELECTRIC-MOTOR CONTROL.** SAMUEL T. DODD, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 4, 1903. Serial No. 160,043. (No model.)



Claim.—1. In a motor-circuit having a plurality of motors and a circuit-controlling device, leads from the armatures and fields of said motors respectively to said device, and circuit connections controlled by said device for varying the proportions of each field in the operating-circuit and for varying the connections of the half-fields to each other.

2. In a motor-circuit having a plurality of motors and a circuit-controlling device, positive leads, negative leads, and intermediate leads, from the fields of said motors to said device, and circuit connections controlled by said device for including varying proportions of each field in balanced paralleled circuits, while maintaining the entire winding of both fields in circuit.

3. In a motor-circuit having a plurality of motors and a circuit-controlling device, leads from the armatures and fields of said motors respectively, a plurality from each field, and circuit connections controlled by said device for producing balanced parallel circuits of portions of the two fields or of producing balanced parallel circuits of the two armatures with portions only of their respective fields.

4. In a motor-circuit having a plurality of motors, connections intermediate said motors and a controlling device to shift the same from series to parallel, each armature being always connected to the corresponding field, and that armature and half of its field being always used as one element in all combinations, substantially as described.

5. In a motor-circuit having a circuit-controlling device and a plurality of electric motors divided into two groups, means, actuated by operation of said device, first, to connect a common terminal of the field of one group to a common terminal of the field of the other group, the mid-fields of either group being connected to common leads, while the armatures of one group are attached by a common terminal to the source of current and the armatures of the other group are attached by a common terminal to the ground; second, to connect in overlapped or parallel relation the groups of half-fields which lie between the mid-field connection and the common field-terminal; third, to cut out these groups of half-fields leaving the motors in series but each armature running in series with the half-field that lies between it and the mid-field connection; fourth, to put the aforesaid groups of half-fields again in series but lapping over or paralleling the groups of armatures and half-fields that lie between the common armature connection and the mid-field connection; and finally to connect the two groups of motors in parallel.

6. In a motor-circuit having a plurality of electric motors and a circuit-controlling device, means acting on operation of said device to connect said motors in various series and parallel relations for various speeds, each armature being throughout all the combinations connected to its own field, and each motor being connected to the controlling-switch by three leads, one of them being a terminal armature-lead, another being a terminal field-lead, and another being an intermediate lead, so connected as to leave on all combinations each armature connected in series with a section of its own field sufficient to force an approximately equal division of the current between the armatures when connected in parallel with each other.

7. In a motor-circuit having a plurality of motors and a circuit-controlling device to shift said motors from the series to the parallel relation, means acting on the last series position of said device to leave entirely disconnected from the circuit those terminals of said motors which on the first parallel position are to be connected to source of current and ground respectively.

8. The combination of two motors and a controller therefor having contacts and connections arranged to place the two motors in series with each other with one element of one motor at one side of the motor-circuit, the like element of the other motor at the other side of the motor-circuit, and the remaining elements of the motors connected together and each connected to one of the first-mentioned elements, and having contacts and connections arranged to shift the motors to parallel by intermediate positions in which one motor is connected to a point intermediate of the terminals of the other motor, without at any time during the shift separating the elements in an individual motor.

9. The combination of two series electric motors and a controller therefor having contacts and connections arranged to place the two motors in series, each with its field connected directly to its own armature but with the fields and armatures reversed relatively to each other as to their position in the circuit, and having contacts and connections arranged to shift the motors by successive steps in which one motor is connected to points intermediate of the terminals of the other motor until the two motors are in parallel with each other.

10. The combination of two series electric motors of a controller having contacts and connections arranged to place the two motors in series, the connection between the two motors being from an element of one motor to a like element of the other, and in parallel, and intermediate thereto to connect the terminal of one element of one motor with a point on the unlike element of the other motor intermediate the terminals of said element.

11. The combination with two series electric motors of a controlling-switch having contacts and connections arranged to place the two motors in series, the connection between the two motors being from an element of one motor to a like element of the other motor, and in parallel, and intermediate thereto to make successive changes of relation of the coils of the different motors relative to each other.

12. The combination with two series electric motors of a controlling-switch having contacts and connections arranged to place the two motors in series, the connection between the two motors being from an element of one motor to a like element of the other motor, and in parallel, and intermediate thereto to make successive changes of the coils of the different motors relative to each other, and a reversing-switch connecting the fields of each motor to the armature thereof.

13. The combination with two series electric motors of a controller having contacts and connections arranged to connect the two motors in series and in parallel with each other and intermediate thereto to obtain intermediate circuit conditions by varying the connections in the circuit of one-half the field-winding of the two motors relative to each other.

14. The combination with two series electric motors of a controller having contacts and connections arranged to connect the two motors in series and in parallel with each other and intermediate thereto to connect one-half of one field-winding in parallel with one-half of the other field-winding, the remaining coils of the two motors remaining in series with each other.

15. The combination with two series electric motors of a controller having contacts and connections arranged to connect the two motors in series and in parallel with each other and intermediate thereto to connect half of the field-winding of one motor in series with one-half the field-winding of the other motor, the remaining coils of the different motors being in parallel with each other.

16. The combination with two series electric motors of a controller having contacts and connections arranged to connect the two motors in series and in parallel with each other and intermediate thereto to obtain intermediate circuit conditions by making series parallel combinations of one-half of the field-winding of each motor and of the remaining coils of said motors.

17. The combination with two series electric motors of a controller having contacts and connections arranged to connect the two motors in series and in parallel with each other and intermediate thereto to obtain intermediate circuit conditions by making series parallel combinations of one-half of the field-winding of each motor and of the remaining coils of said motors and by short-circuiting or cutting out said half field-winding.

18. The combination with two series electric motors of a controller therefor having contacts as f^9 and f^{13} connected to a central point in the field-windings of said motors, other contacts as f^8 and f^{12} connected to the field-terminals of the two motors, and contacts as 20, 21, 23 and 25, adapted to connect such centrally-connected contacts to the terminal contact of the other field.

19. The combination with two series electric motors of a controller therefor having contacts as f^9 and f^{13} connected to a central point in the field-windings of said motors, other contacts as f^8 and f^{12} connected to the armature-terminals of the two motors, and movable contacts adapted to connect each centrally-connected contact to the armature-contact of the other motor.

20. The combination with two series electric motors of a controller therefor having fixed contacts connected to central points in the field-windings of the two motors, and other fixed contacts connected to terminals of the two motors, and movable contacts adapted to connect the centrally-connected contact of each motor with the terminal-contact of the other motor.

21. The combination with two series electric motors of a controller therefor having fixed contacts connected to central points in the field-windings of the two motors, others connected to the field-terminals of the two motors, and others connected to the armature-terminals of the two motors, of movable contacts for connecting each centrally-connected contact to either the field-terminal contacts or to the armature-terminal contact of the other motor.

22. The combination with two series electric motors of a controller therefor having fixed contacts connected to central points in the field-windings of the two motors, others connected to the field-terminals of the two motors, and others connected to the armature-terminals of the two motors, of movable contacts for connecting each centrally-connected contact to either the field-terminal contacts or the armature-terminal contact of the other motor or for connecting the centrally-connected contacts to each other.

23. The combination of two pairs of series electric motors, a connection extending from a point intermediate the field-terminals of one motor of each pair to a like point on the other motor of its pair, and a controller for said motors having contacts and connections arranged to place the two pairs of motors in series and parallel relation with each other and intermediate thereto to obtain additional speed regulation by shifting the connection in the circuit of said intermediate field connections.

24. The combination of two pairs of series electric motors, a speed-controlling switch, three connections between the motors of each of said pairs made independently of said speed-controlling switch, fixed contacts of the controlling-switch connected to the said six connections, and movable contacts on the said controlling-switch arranged to make various circuit combinations of said six connections.

25. The combination of two pairs of series electric motors, a controlling-switch, a reversing-switch, permanent connections between one terminal of the motors of each of said pairs, a permanent connection between the motors of each of said pairs at points intermediate the field-terminals of the motors, a connection between the other terminal of the motors of each of said pairs made through the reversing-switch, fixed contacts of the controlling-switch connected to each of the foregoing six connections, and movable contacts of said controlling-switch arranged to connect said fixed contacts together in different ways.

26. In an electric controller, a vertical magnetizable member, a series of horizontal magnetizable members secured thereto and projecting between the contact-fingers of the controller, and an energizing-coil surrounding the base of each of said horizontal members.

27. In an electric controller, a vertical magnetizable member, a series of horizontal magnetizable members secured thereto and projecting between the contact-fingers of the controller, and an energizing-coil surrounding the base of each of said horizontal members, successive energizing-coils being oppositely wound.

28. In an electric controller, a vertical magnetizable member, a series of horizontal magnetizable members secured thereto and projecting between the contact-fingers of the controller, and an energizing-coil surrounding the base of each of said horizontal members, and an insulating-shield carried by said horizontal members and inclosing the poles thereof.

29. In an electric controller, a vertical magnetizable member, a series of horizontal magnetizable members secured thereto and projecting between the contact-fingers of the controller, an energizing-coil surrounding the base of each of said horizontal members, and a series of insulating-shields having slots receiving the ends of said horizontal members.

30. In an electric controller, a vertical magnetizable member, a series of horizontal magnetizable members secured thereto and projecting between the contact-fingers of the controller, and an energizing-coil surrounding the base of each of said horizontal members, and a series of insulating-shields having slots receiving the ends of said horizontal members, said insulating-shields being separately removable from said members.

31. In an electric controller, a series of contact-fingers, a series of members projecting one between each pair of adjacent contacts and a series of insulating septa having slots loosely engaging said projecting members.

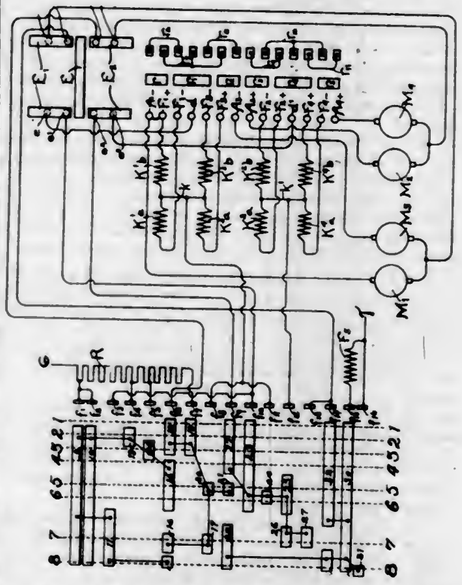
32. In an electric controller, a series of contact-fingers, a series of insulating septa, means for independently supporting the same, one between each adjacent pair of contact-fingers, and a spring-clip between each adjacent pair of contact-fingers engaging said insulating septa.

33. In an electric controller, the contact-fingers thereof, a magnet-pole extending between each adjacent pair of fingers, an insulating septum having a slot loosely engaging each magnet-pole and supported thereby, and a spring-clip engaging each insulating septum.

34. The combination with two electric motors, a series parallel controlling-switch therefor, fixed contacts of said switch, movable contacts of said switch directly connecting the said fixed contacts at a series position of the switch, other movable contacts on said switch directly connecting some of said fixed contacts with trolley and ground at a parallel position of said switch, and a step-by-step device for such switch arranged so that a step is provided at a point after the fixed contacts have become disengaged from the first-mentioned group of movable contacts.

35. The combination with two electric motors, a series parallel controlling-switch therefor, fixed contacts thereof, as f^9 and f^{13} connected together in a series position and to trolley and ground respectively in a parallel position, an intermediate position of said switch in which said fingers are neither connected together nor to trolley or ground, and a step-by-step device for said controller having one of its steps at said intermediate position.

749,272. **MOTOR CONTROL.** SAMUEL T. DODD, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 13, 1903. Serial No. 161,271. (No model.)



Claim.—1. The method of controlling a plurality of motors, which consists in varying the proportions of each field in the operating-circuit and in varying the connections of the half-fields to each other.

2. The method of controlling a plurality of motors, which consists in including varying proportions of each field in balanced parallel circuits, while maintaining the entire windings of both fields in circuit.

3. The method of controlling a plurality of motors, which consists in producing balanced parallel circuits of portions of the two

fields and of the two armatures with portions only of their respective fields.

4. The method of controlling a plurality of motors, which consists in shifting said motors from series to parallel while maintaining the connection of each armature to the corresponding field and using that armature and half of its field as an element in all combinations.

5. The method of controlling a plurality of motors, which consists in first connecting a common terminal of the fields of one group to a common terminal of the fields of the other group, the mid-fields of each group being connected to common leads and the armatures of one group being connected by a common terminal to the source of current and the armatures of the other group by a common terminal to ground, then connecting in overlapped or parallel relation the groups of half-fields which lie between the mid-fields and the common field-terminal, then cutting out these groups of half-fields leaving the motors in series but each armature running in series with the half-field that lies between it and the mid-field connection, then putting the aforesaid groups of half-fields again in series but paralleling the groups of armatures and half-fields that lie between the common armature connection and the mid-field connection, and finally connecting the two groups of motors in parallel.

6. The method of controlling a plurality of electric motors, which consists in connecting said motors in various series and parallel relations for various speeds, while maintaining throughout all combinations each armature connected to its own field and so connecting the leads from each motor as to leave on all combinations each armature connected in series with a section of its own field sufficient to force an approximately equal division of current between the armatures when connected in parallel with each other.

7. The method of controlling a plurality of electric motors, which consists in shifting said motors from series to parallel relation and, before changing from the last series position, disconnecting entirely from the circuit those terminals of said motors which on the first parallel position are to be connected to a source of current and ground respectively.

8. The method of controlling two electric motors, which consists in connecting the two motors in series with each other with one element of one motor at one side of the motor-circuit, the like element of the other motor at the other side of the motor-circuit, and the remaining elements of the motors connected together and each connected to one of the first-mentioned elements, and then shifting the motors to parallel by intermediate positions in which one motor is connected to a point intermediate of the other motor, without at any time during the shift separating the elements in an individual motor.

9. The method of controlling two series electric motors, which consists in placing the two motors in series, each with its field connected directly to its own armature but with the fields and armatures reversed relatively to each other as to their position in the circuit, and then shifting the motors by successive steps in which one motor is connected to points intermediate the terminals of the other motor until the two motors are in parallel with each other.

10. The method of controlling two series electric motors, which consists in placing the two motors in series, the connection between the two motors being from an element of one motor to a like element of the other, and in parallel, and intermediate thereto connecting the terminal of one element of one motor with the point on the unlike terminal of the other motor intermediate the terminals of said element.

11. The method of controlling two series electric motors, which consists in placing the two motors in series, the connection between the two motors being from an element of one motor to a like element of the other motor, and in parallel, and intermediate thereto making successive changes of relation of the coils of the different motors relative to each other.

12. The method of controlling two series electric motors, which consists in connecting the motors in series and in parallel with each other, and intermediate thereto producing intermediate circuit conditions by varying the connections in the circuit of one-half the field-winding of the two motors relative to each other.

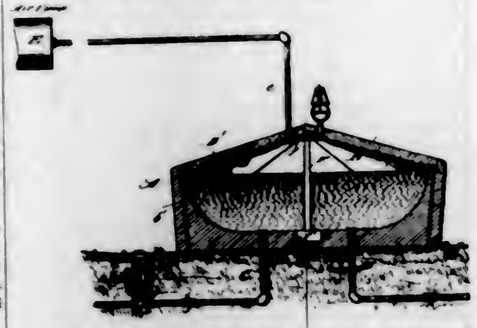
13. The method of controlling two series electric motors, which consists in connecting the motors in series and in parallel with each other and intermediate thereto connecting one-half of one field-winding in parallel with one-half of the other field-winding while maintaining the remaining coils of the motors in series with each other.

14. The method of controlling two series electric motors, which consists in connecting the motors in series and in parallel with each other and intermediate thereto connecting one-half of the field-winding of one motor in series with one-half the field-winding of the other motor, the remaining coils of the different motors being in parallel with each other.

15. The method of controlling two series electric motors, which consists in connecting the motors in series and in parallel with each other and intermediate thereto producing intermediate circuit conditions by making series-parallel combinations of one-half of the field-winding of each motor and of the remaining coils of said motors.

16. The method of controlling two series electric motors, which consists in connecting the motors in series and in parallel with each other and intermediate thereto producing intermediate circuit conditions by making series-parallel combinations of one-half of the field-winding of each motor and of the remaining coils of said motors and by short-circuiting or cutting out said half field-windings.

749,273. **WATER-TANK.** JAMES T. DONAHOO, Edgar, Nebr. Filed Feb. 25, 1903. Serial No. 144,932. (No model.)



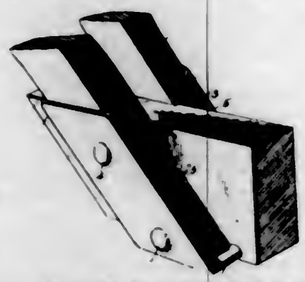
Claim.—1. The combination, with a water-tank having a rabbet at the top, of a cover whose edge rests in said rabbet, and bolts passing through said edge and through the body of the tank, substantially as shown and described.

2. The combination, with the tank proper and a central post having a base which is set in the tank proper and top flanges as described, of a cover resting at its center upon the said flanges and at its edge upon the top of the tank, means for securing the cover in place, and a cement layer applied to the said cover, substantially as shown and described.

3. The combination, with the tank proper having a rabbeted edge and a central post having top flanges, of a cover supported at the center upon the flanges of the post and at its edge upon the rabbet of the tank, substantially as shown and described.

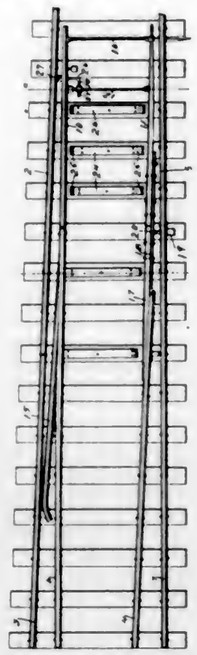
4. The improved water-tank, having a concave body and a cover formed of sector-shaped pieces having upturned edges which are riveted together, and a layer of waterproof cement applied upon said cover so as to conceal and protect the joints, substantially as shown and described.

749,274. **PLOW-HANDLE CLAMP.** SHADRACH C. DRAKE, Washington, Ga. Filed Apr. 1, 1903. Serial No. 150,652. (No model.)



Claim.—A plow-handle clamp comprising a plate having side flanges disposed at right angles thereto and extended the entire length of said plate, each flange having a stud disposed at one end thereof and the other end beveled, said studs being disposed at diagonally-opposite points and projecting beyond the flanges to engage a plow-beam.

749,275. **SAFETY DEVICE FOR POINT-SWITCHES.** LOUIS DUNN, St. Paul, Minn. Filed Feb. 10, 1903. Serial No. 142,798. (No model.)



Claim.—1. In a switch, the combination, with a rail, of a point lapping by the end of said rail and yieldingly held toward the same, and a filler secured to said point and having its end abutting the end of said rail.

2. In a switch, the combination, with the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, a rail arranged to lap by the end of one of said points, means for yieldingly holding the point in contact with said rail, a filler secured to said point and abutting the end of said rail, and means for limiting the lateral movement of said points.

3. The combination, with the stock-rails, and the rails of the main and side tracks, of the movable points, one of said movable points lapping by the end of one of the main-track rails, means for limiting the lateral movement of said points, and a filler secured to said main-rail point and having its end abutting the end of said rail, for the purpose set forth.

4. The combination, with the stock-rails, and the rails of the main and side tracks, of the movable points arranged to permit the wheels to pass outside of both points when the switch is partially open or in a neutral position, and means for conducting the wheels on one side from the stock-rail past the adjacent point to the main-line rail without crossing said main-line rail.

5. In a switch, the combination, with the movable points 10 and 11, of a point 17 forming a continuation of one of said first-named points, a rail arranged to lap by the end of said point 17, a filler secured to said points 11 and 17 and abutting the end of said rail, means for yieldingly holding said point 17 toward said rail, and means for limiting the lateral movement of said points.

6. In a switch, the combination, with the movable points, of a filling-piece secured to the outer side of one of said points, and the plates 24 provided between said points and having upwardly-turned ends, for the purpose specified.

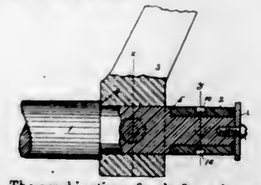
749,276. **PROCESS OF RENDERING DENTURE-PLATES, &c., ANTISEPTIC.** LUCIEN ELLERTSEN, Paris, France. Original application filed Feb. 25, 1901, Serial No. 48,681. Divided and this application filed Oct. 9, 1901. Serial No. 78,147. (No specimens.)

Claim.—1. The herein-described process of rendering a hard-rubber plate waterproof and antiseptic, which consists in applying to the surface of the plate before heating the latter a solution of pure, india-rubber containing no sulfur but containing an antiseptic substance.

2. The herein-described process of rendering denture-plates, &c., antiseptic which consists in first preparing a solution of non-vulcanized india-rubber, adding an antiseptic to the solution and applying a coating of the solution to the surface of the article to be treated.

3. The herein-described process of rendering denture-plates, &c., antiseptic, which consists in applying a thin sheet of pure india-rubber containing no sulfur to the surface of the plate, or other article, heating the latter to effect the union of the coating and the plate and then applying to said coating a coating of a solution of non-vulcanized india-rubber containing an antiseptic.

749,277. **CRANK AND CRANK-SHAFT MECHANISM.** CHARLES E. ELLICOTT and JOHN B. NORRIS, Baltimore, Md. Filed Aug. 28, 1903. Serial No. 171,045. (No model.)



Claim.—1. The combination of a shaft; a sleeve mounted upon, and revoluble independent of, the said shaft; and a crank for revolving the shaft and adapted to be moved from the shaft onto the said sleeve, as and for the purpose described.

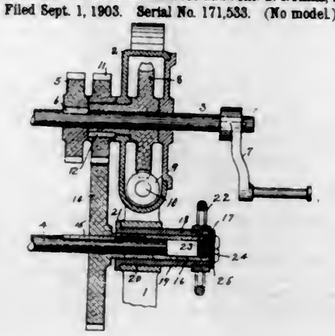
2. The combination of a shaft; a sleeve revolubly mounted upon the said shaft; a crank fitted upon the shaft and adapted to be moved from the shaft onto the sleeve, when it is desired to revolve the said shaft independent of the crank, as shown and described.

3. The combination of a shaft; a sleeve revolubly mounted on the said shaft and having a plurality of apertures in its outer surface; a crank adapted to be moved from the shaft to the sleeve; and a pin projecting through one side of the crank and adapted to be forced into the apertures in the said sleeve; as and for the purpose described.

4. The combination of a shaft having a square portion near its end; a sleeve revolubly mounted on the end of the said shaft and having its outer surface square to correspond to the square portion of the shaft and a plurality of apertures in its outer surface; a crank having a square aperture to fit over the square portion of the shaft and adapted to be moved onto the said sleeve; and a pin carried by the crank and adapted to be forced into the apertures in the outer surface of the said sleeve, as and for the purpose described.

5. The combination of a shaft having a square portion near its end; a sleeve revolubly mounted on the end of the said shaft and having its outer surface square to correspond to the square portion of the shaft and a plurality of apertures in its outer surface; a crank having a square aperture to fit over the square portion of the shaft and adapted to be moved onto the said sleeve; a pin carried by the crank and adapted to be forced into the apertures in the outer surface of the said sleeve; and a disk secured to the outer end of the said shaft to prevent sidewise movement of the said sleeve.

749,278. **INTERCHANGEABLE HAND AND MOTIVE POWER MECHANISM.** CHARLES E. ELLICOTT and JOHN B. NORRIS, Baltimore, Md. Filed Sept. 1, 1903. Serial No. 171,533. (No model.)



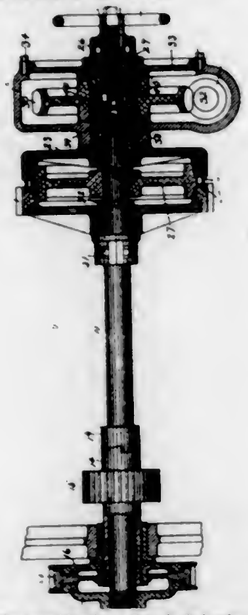
Claim.—1. The combination of the crank-shaft; a gear-wheel keyed to said crank-shaft; a worm-wheel loosely mounted on said crank-shaft and having a gear-wheel keyed to the hub thereof; means for driving said worm-wheel; the main shaft; a gear-wheel keyed to the main shaft and adapted to be moved a limited distance longitudinally thereon; and means for moving the gear-wheel on the main shaft in or out of mesh with either the gear-wheel on the crank-shaft or the gear-wheel on the hub of the worm-wheel.

2. The combination of the crank-shaft; a gear-wheel keyed to said crank-shaft; a worm-wheel loosely mounted on said crank-shaft and having a gear-wheel keyed to the hub thereof; means for driving said worm-wheel; the main shaft; a gear-wheel keyed to the main shaft and adapted to be moved a limited distance longitudinally thereon and having an integral sleeve; and means on said sleeve for moving the gear-wheel on the main shaft in or out of mesh with either the gear-wheel on the crank-shaft or the gear-wheel on the hub of the worm-wheel.

3. The combination of the crank-shaft; a gear-wheel keyed to said crank-shaft; a worm-wheel loosely mounted on said crank-shaft and having a gear-wheel keyed to the hub thereof; means for driving the worm-wheel; the main shaft, a frame in which said shaft is journaled; a gear-wheel keyed to the main shaft and adapted to be moved a limited distance longitudinally thereon, and having an integral sleeve projecting through the said frame; a bushing surrounding said sleeve and screw-threaded in the frame, said bushing having a flange on one end and a hand-wheel keyed to the opposite end, whereby when the said wheel is turned in one direction the bushing will force the gear-wheel on the main shaft to mesh with the gear-wheel on the crank-shaft, and when turned in the opposite direction will force the gear-wheel on the main shaft to mesh with the gear-wheel on the hub of the worm-wheel, substantially as and for the purpose described.

4. The combination of a shaft having a fixed and a loose gear thereon, means for driving said shaft, means for driving the loose gear, a second shaft having a gear thereon adapted to mesh with either of said gears of the first-mentioned shaft, and means for moving said gear into mesh with either said fixed or loose gear.

749,279. COMBINED HAND AND MOTIVE POWER WINCH. CHARLES R. ELLICOTT and JOHN B. NORRIS, Baltimore, Md. Filed Sept. 4, 1903. Serial No. 171,874. (No model.)



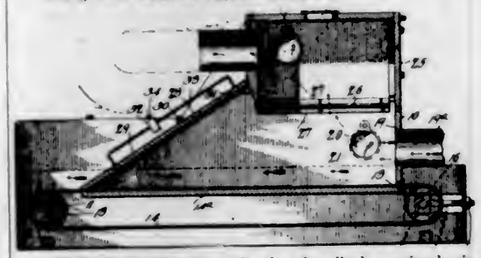
Claim.—1. The combination of a shaft having a gear-wheel loosely mounted thereon; a disk loosely mounted on said shaft and having a hub projecting at right angles thereto; a friction-clutch keyed to said shaft and projecting between the gear-wheel and disk; means to throw the said clutch in or out of engagement with either the said gear-wheel or disk; a gear-wheel keyed to the hub of the said disk; and a shaft having a worm thereon which meshes with the gear-wheel on the hub of the said disk.

2. The combination of a hand-power shaft having a gear-wheel keyed thereto; cranks for turning said shaft; a main shaft having a gear-wheel loosely mounted thereon which meshes with the gear-wheel on the hand-power shaft; a disk loosely mounted on the main shaft and having a gear-wheel keyed to the hub thereof; a friction-clutch keyed to the main shaft and projecting between the gear-wheel and disk, on said shaft; means for throwing the friction-clutch in or out of engagement with either the said wheel or disk; and a worm meshing with the gear-wheel on the hub of the said disk.

3. The combination of a shaft having a gear-wheel loosely mounted thereon; a disk loosely mounted on said shaft and having a hub projecting at right angles thereto; a friction-clutch keyed to said shaft and projecting between the gear-wheel and disk; means to throw the said clutch in or out of engagement with either the said gear-wheel or disk; a gear-wheel keyed to the hub of the said disk, a shaft having a worm thereon which meshes with the gear-wheel on the hub of the disk; a double-inclined-faced collar keyed to the main shaft; a sleeve loosely mounted on the main shaft having a double-inclined end impinging against the end of the said collar and carrying a gear-wheel; a disk keyed to the opposite end of the said sleeve, a disk carried on the outer end of the main shaft; a ratchet-wheel loosely mounted between the two disks on the outer end of the main shaft, and means to prevent the backward rotation of the ratchet-wheel.

4. The combination of a shaft having a gear-wheel loosely mounted thereon, a disk loosely mounted on said shaft and having an integral hub, a friction-clutch keyed to said shaft and projecting between the gear-wheel and disk; means to throw the said clutch in or out of engagement with either the said gear-wheel or disk; a gear-wheel keyed to the hub of said disk; a shaft having a worm thereon which meshes with the gear-wheel on the hub of the disk; a double-inclined-face collar keyed to the main shaft; a sleeve loosely mounted on the main shaft having a double-inclined end impinging against the end of the said collar and carrying a gear-wheel; a disk carried on the outer end of the main shaft, a disk keyed to the outer end of the sleeve, a ratchet-wheel loosely mounted between the two disks on the outer end of the main shaft; means to prevent the backward rotation of the ratchet-wheel; a driven shaft within the frame from which power is transmitted to any desirable point, and a gear-wheel keyed to said driven shaft and meshing with the gear-wheel on the sleeve on the main shaft.

749,280. SEPARATOR. OLIVER S. EMERSON, Luxora, Ark. Filed Feb. 9, 1903. Serial No. 142,628. (No model.)



Claim.—1. In a device of the class described, a casing having a level floor, an endless-belt conveyer having its upper lead supported upon said floor, and extended through openings at the ends of the casing, induction means at the head of the casing which is entered by the upper lead of the endless carrier-belt, and an inclined door pivotally mounted at the tail end of the machine and bearing against the upper surface of the upper lead of the endless-belt carrier to admit of the escape, under the edge of said door, of material passing through the casing.

2. In a machine of the class described, a casing having an inclined front end, and endless carrier-belt having its upper lead supported upon the floor of the casing, said upper lead extending through a slot at the feed end of the casing, and a pivotally-mounted door, fitting between the sides of the casing, with its lower edge normally resting upon the upper lead of the endless carrier-belt, and means for regulating the pressure of said door upon said belt.

3. In a device of the class described, the combination of a casing, an endless carrier-belt with its upper lead supported on the floor of said casing, a pivotally-mounted door with its lower edge normally bearing upon the upper lead of the endless carrier-belt, a longitudinal guide-rod connected with said pivoted door, a weight adjustable upon said guide-rod, and means for retaining said weight in adjusted position.

4. In a device of the class described, a casing having an inclined delivery end, endless carrying means for conveying material through said casing, an upward extension of said casing having a curved wall, a pivotally-mounted discharge-door having its upper edge engaging said curved wall and its lower edge normally resting upon the upper lead of the endless carrying device, means for regulating the pressure of said door against the carrier, and means for admitting material to the casing.

5. In a device of the class described, a casing having an upward extension provided with a sliding door, a horizontally-disposed screen mounted detachably in said casing beneath the upward extension thereof, induction and eduction means connected respectively with said casing and its upward extension, an endless carrier disposed to convey the inducted material through the casing, and a pivoted pressure-door mounted between the sides of the casing and exerting downward pressure, capable of being regulated, against the upper side of the endless carrier.

749,281. PICTURE-MOUNTING LEAF OR BOOK. ALBERT W. ENGEL, Chicago, Ill. Filed Sept. 26, 1902. Serial No. 124,887. (No model.)



Claim.—1. An album comprising a cover and leaf-folios having at their folds corresponding slots, in combination with a leaf-retaining device having hooked projections adapted to be hooked through the slots respectively and to overhang the fold at the end of the slots, and means for keeping the leaf-retaining device, with its hooks, in such overhanging position.

2. An album comprising a cover and leaf-folios having at their folds corresponding slots, in combination with a leaf-retainer consisting of two parts, each provided with a hook adapted to be entered through the slots and relatively displaced longitudinally to overhang the fold, each at one end of the slot through which it is entered, and means for securing the two parts together after such longitudinal movement.

3. An album comprising a cover and leaf-folios having at their folds corresponding slots, two in each folio, in combination with a leaf-retainer comprising two pieces, each provided with a hook adapted to be entered through the slots respectively, and overhanging the fold at one end thereof, said folios and cover having a third slot intermediate the other two, and the parts of the leaf-retainer having each a second projection adapted to enter through the third slot, and means for securing the said two projections together after they have been passed through said third slot.

4. An album comprising a cover and leaf-folios having corresponding slots; a leaf-retainer having hooked projections adapted to be inserted through the slots of the folio and cover, the distance between the extremities of the hooks of said projections being different from the distance between the corresponding extremities of the slots, the latter distance being such that when one hooked projection is entered through its slit and the fastener is moved to cause the hook to overhang the fold beyond the end of the slot, the other projection may be entered through its slot.

5. An album comprising a cover and leaf-folios, having at their folds two corresponding slots, in combination with a leaf-retainer having hooked projections whose hook terminals jut in opposite directions, the distance between the extremities of the hooks of said projections being different from the distance between the corresponding extremities of the slots by an amount less than the length of one slit, whereby said fastener is adapted to have one projection inserted through one set of coinciding slits, and have the other projection entered through its slits when the fastener is moved longitudinally to cause the hook of the first projection to overhang the fold beyond the end of the slit through which it was entered.

6. An album comprising a cover and inclosed leaf-folios having slits at their folds, said slits in the cover and folios coinciding respectively when the cover and folios are relatively displaced laterally from normal or secured position, the slits of the folios lapping onto a portion of the corresponding slits of the cover when the parts are in normal position relatively; in combination with a fastener having hooked projections which may be entered through the slits when the latter are coincident and overhang the fold of the cover at the end of the slits when the fastener is moved longitudinally by restoring the folios from displaced to normal position.

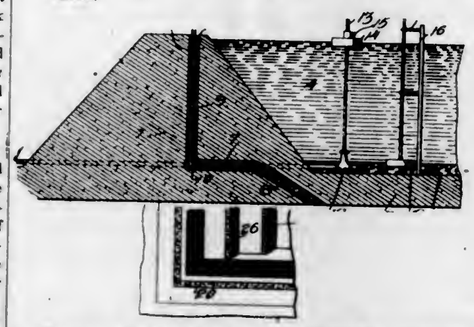
7. An album comprising a cover and inclosed folios having each two slits corresponding respectively; a leaf-retaining clip having hooked projections adapted to be inserted through the slits of the folios and cover, the distance between the extremities of the hooks being greater than the distance between the remote extremities of the two slits by an amount less than the length of one slit, whereby said clip having one hook entered through one set of slits, requires longitudinal movement, causing said hook to overhang the end of such slit, in order to permit the hook of the other projection to enter through its slits, and whereby, upon being moved back part way, said hooks will both overhang the ends of their respective slits; in combination with a second clip having a projection which enters through one set of slits, and means for securing said clip against longitudinal movement with respect to both the cover and folios, and for securing it to the other clip.

8. An album comprising a cover and inclosed folios, said cover and folios having each three slits, two leaf-retaining clips having each a hook adapted to be hooked respectively through the two outer slits, and to overhang the folds at one end of the slits respectively, and having each a second projection adapted to enter the middle slit, and means for securing the two clips together after said middle slit is entered by the projection.

9. An album comprising a cover and inclosed folios having each three corresponding slits; a fastener comprising two clips, each having a projection adapted to be hooked through the outer slits so as to overhang the fold at the ends of the slits, and having each a second projection adapted to enter the middle slit, the last-mentioned projections having eyelets which coincide when the two clips have their end hooks adjusted to the extremities of the slits and overhanging the folds beyond the same, and means for securing the eyeleted projections together at the eyelets.

10. In an album comprising a cover and inclosed folios having slits at the folds and leaf-retaining clips entered through the slits, said clips having each a projection entered through the same slit and eyeleted, and having each a second projection in the form of a hook, and provided with recesses at the angle of their hooks, and a retaining-cord looped through the coinciding eyelets and engaged in the recesses of the other projections.

749,282. RESERVOIR FOR STORING PETROLEUM. PHILIP ENGLUND, Chico, Cal. Filed July 28, 1902. Serial No. 117,360. (No model.)



Claim.—1. A structure of the character specified, comprising a reservoir having bottom and lateral liquid seals, and means for maintaining the liquid in the bottom seal at a predetermined level.

2. A structure of the character specified, having bottom and lateral liquid seals, and means operating automatically to lower the level of the bottom seal when the same rises above a predetermined level.

3. A structure of the character specified, having a bottom liquid seal maintained at different levels.

4. A structure of the character specified, having a bottom liquid seal maintained at different levels, and means for permitting the liquid to pass from one level to another.

5. A structure of the character specified, having a bottom liquid seal, a waste-pipe in communication therewith and provided with a valve, a float, and means for connecting the float and the valve.

6. A structure of the character specified, having a bottom liquid seal, a float of less specific gravity than the seal and resting thereon, and indicating means connected with the float and projecting above the superposed liquid on the seal.

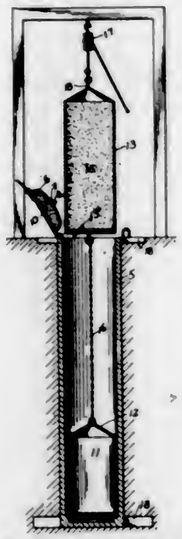
7. A structure of the character specified, having a bottom liquid seal, a float of less specific gravity than the seal and resting thereon, and a graded bar connecting with the float and projecting above the superposed liquid on the seal.

8. A structure of the character specified, having a bottom and lateral liquid seals, and means associated with the lateral seal to determine the depth of the liquid contained therein when it shall have dropped below the upper face of the seal-containing section.

9. A structure of the character specified, having its dam-walls provided with a section pervious, without packing, to the passage of water.

10 A structure of the character specified, having its dam-walls provided with a section pervious, without packing, to the passage of water, and means within the section for determining the depth of the water therein.

749,283. SAFE. WILLIAM S. S. FLEMING, Bemidji, Minn. Filed May 1, 1903. Serial No. 155,169. (No model.)



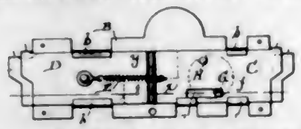
Claim.—1. A safe comprising a casing, a money-box disposed within the casing, and a frangible closure for the casing above the money-box, said closure having a loose filling adapted to wedge between the money-box and the casing when released from the closure.

2. A safe comprising a casing, a body removably and snugly fitted in the casing and having its upper end portion spaced from the wall of the casing, and having its top formed into cone shape and a closure for the casing above said body, said closure having a loose filling adapted to wedge between the spaced faces of the casing and body when released from the closure, the cone-shaped top of the body being adapted to deflect the loose filling between the spaced faces of the casing and body.

3. A safe comprising a casing, a money-box snugly and removably fitted in the casing and having a tapered upper end, a hollow plug snugly and removably fitted in the casing above the money-box and having a tapered upper end, a hollow closure for the casing above the plug, said plug and closure having each a filling adapted to wedge between the casing and the wall of the tapered face therebelow when released, a flexible connection between the plug and the money-box, and means for attachment of a hoist to the plug.

4. A safe comprising a casing, a money-box snugly and removably fitted in the casing and having a tapered upper end, a hollow plug snugly and removably fitted in the casing above the money-box and having a tapered upper end, a hollow closure for the casing above the plug, said plug and closure having each a filling adapted to wedge between the casing and the wall of the tapered face therebelow, when released, and means for attachment of a hoist to the plug and money-box.

749,284. RELEASING DEVICE FOR THE PLATE-HOLDERS OF MAGAZINE-CAMERAS. JOHN C. FYFE and VICTOR ODQUIST, Chicago, Ill. Filed Sept. 10, 1900. Serial No. 29,504. (No model.)



Claim.—1. Plate-releasing devices for magazine-cameras comprising two automatically-returnable reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane which are adapted to move in opposite directions and alternately carry said lugs inward toward each other and then outward.

2. Plate-releasing devices for magazine-cameras comprising two simultaneously-operated automatically-returnable reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane which are adapted to move in opposite directions and alternately carry said lugs inward toward each other and then outward.

3. Plate-releasing devices for magazine-cameras comprising two reciprocal plates each having a downwardly-projecting lug at each end; two of said longitudinally-alining lugs located at opposite ends of said plates being further advanced than the alining lugs at the other end of each of said plates, which latter are adapted to move in opposite directions and carry the more advanced lugs toward each other and the other farther apart, or vice versa.

4. Plate-releasing devices for magazine-cameras comprising two automatically-returnable reciprocal plates each having a downwardly-projecting lug at each end, two of said longitudinally-alining lugs located at opposite ends of said plates being farther advanced than the alining lugs at the other end of each of said plates which latter are adapted to move in opposite directions and carry the more advanced lugs toward each other and the other lugs farther apart, or vice versa.

5. Plate-releasing devices for magazine-cameras comprising two simultaneously-operated reciprocal plates each having a downwardly-projecting lug at each end; two of said longitudinally-alining lugs located at opposite ends of said plates being farther advanced than the alining lugs at the other end of each of said plates which latter are adapted and carry the more advanced lugs toward each other and the other lugs farther apart, or vice versa.

6. Plate-releasing devices for magazine-cameras comprising two simultaneously-operated automatically-returnable reciprocal plates each having a downwardly-projecting lug at each end; two of said longitudinally-alining lugs located at opposite ends of said plates being farther advanced than the alining lugs at the other end of each of said plates, which latter are adapted to move in opposite directions and carry the more advanced lugs toward each other and the other lugs farther apart, or vice versa.

7. Plate-releasing devices for magazine-cameras comprising two reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane, and having their central portions cut away on opposite sides, and offset in a vertical plane and brought together so the narrow central part of the one enters the cut-away central portion of the other and one half the length of one plate will overlap one half of the other plate, and its other half come under the same.

8. Plate-releasing devices for magazine-cameras comprising two automatically-returnable reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane, and having their central portions cut away on opposite sides, and offset in a vertical plane and brought together so the narrow central part of the one enters the cut-away central portion of the other, and one half the length of one plate will overlap one half of the other plate, and its other half come under the same.

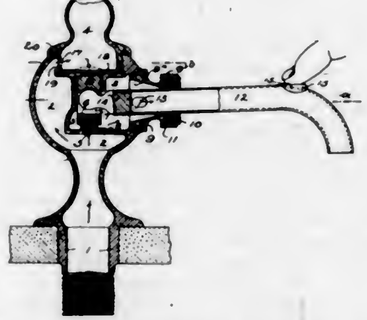
9. Plate-releasing devices for magazine-cameras comprising two simultaneously-operated reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane, and having their central portions cut away on opposite sides, and offset in a vertical plane and brought together so the narrow central part of the one enters the cut-away central portion of the other and one half the length of one plate will overlap one half of the other plate, and its other half come under the same.

10. Plate-releasing devices for magazine-cameras comprising two simultaneously-operated automatically-returnable reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane, and having their central portions cut away on opposite sides, and offset in a vertical plane and brought together so the narrow central part of the one enters the cut-away central portion of the other and one half the length of one plate will overlap one half of the other plate, and its other half come under the same.

11. The combination in plate-releasing devices for magazine-cameras comprising two reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane and having their central portions cut away on opposite sides and offset in a vertical plane and relatively arranged so that the narrow central part of the one enters the cut-away central portion of the other and one half the length of the one will overlap one half of the other plate and its other half come under said other plate, said plates being provided with studs projecting therefrom in substantially the same transverse plane, substantially as described, of a rotary reciprocal disk the axis of which is intermediate said studs and is provided with radial slots up through which said studs extend.

12. The combination in plate-releasing devices for magazine-cameras comprising two automatically-returnable reciprocal plates having downwardly-projecting lugs on their ends in the same longitudinal plane and having their central portions cut away on opposite sides and offset in a vertical plane and relatively arranged so that the narrow central part of the one enters the cut-away central portion of the other and one half the length of the one will overlap one half of the other plate and its other half come under said other plate, said plates being provided with studs projecting therefrom in substantially the same transverse plane, substantially as described, of a rotary reciprocal disk the axis of which is intermediate said studs and is provided with radial slots up through which said studs extend.

749,285. WATER-SUPPLY VALVE. HENRY GARDENIER, Paterson, N. J. Filed Feb. 26, 1903. Serial No. 145,169. (No model.)

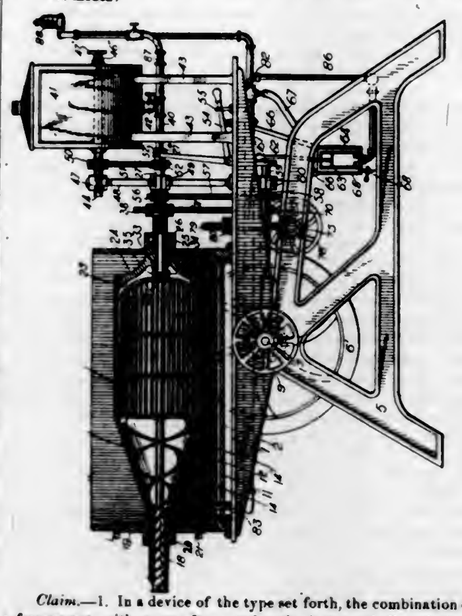


Claim.—1. The valve-casing having an air-chamber, a supply-chamber and an outlet-chamber, and means of communication between the said chambers, in combination with a vertically-movable valve member to admit and cut off the supply of water to the outlet-chamber, a flexible disk separating the air-chamber from the outlet-chamber and adapted normally to hold said valve member down to close the communication between the water supply and outlet chambers, and a tubular outlet-lever fulcrumed in the mouth of the outlet-chamber to operate said valve member and carry off the water, substantially as set forth.

2. The combination with a valve-casing forming three separate communicating chambers, an air-chamber, a supply-chamber and an outlet-chamber, of a port forming a valve-seat in the bottom of the outlet-chamber, a cylindrical guide in the upper portion of said chamber having an opening opposite said port, a valve member movable vertically in said guide, a flexible disk separating the air-chamber and the outlet-chamber and normally holding said valve member down to close said port, and means for raising said valve member to open said port, substantially as set forth.

3. The combination of the valve-casing, the movable valve member, the guide for the same, and the flexible disk, with the tubular outlet-lever, substantially as set forth.

749,286. CONTINUOUS ICE-CREAM FREEZER. HENRY J. GERNER, Vandergrift, Pa. Filed Jan. 24, 1903. Serial No. 140,419. (No model.)



Claim.—1. In a device of the type set forth, the combination of a freezer-can, with means for rotating the latter, a hollow dasher-shaft, a dasher arranged within the freezer-can and connected to said shaft, means for operating said dasher and shaft in the direction opposite to the rotation of the freezing-can, means for cooling and conducting the cream into said hollow dasher-shaft and discharging the same into the freezer-can, and means for adjusting the position of the freezer-can to regulate the discharge of the frozen cream therefrom, substantially as described.

2. In a device of the type set forth, the combination of a horizontally-mounted freezer-can receiving the liquid to be frozen through one end and discharging the frozen substance through the opposite end, a liquid-supply tank, a hollow dasher-shaft extending into the freezer-can and through which the liquid is fed from the tank to the can, means for rotating the dasher-shaft and freezer-can in opposite directions, a dasher detachably connected to the dasher-shaft, a spiral conical conveyer connected to the dasher and terminating in a discharge-screw, and means for regulating the discharge of the frozen substance.

3. In a device of the character described, the combination of a freezer-can, means for imparting a rotary movement to said can, a hollow dasher-shaft extending into the can and through which the cream is conveyed to said can, a dasher connected to said dasher-shaft, means for rotating the dasher and dasher-shaft in the direction opposite to the rotation of the can, means for cooling the cream prior to its discharge into the can, and means for adjusting the position of the can to regulate the discharge of the cream therefrom, substantially as described.

4. In an ice-cream freezer, a rotating freezer-can, means for rotating said can, means for continuously supplying cream to said can during its rotation, a dasher arranged within the can, means for rotating said dasher in the direction opposite to the direction of the can, means within the can for discharging the frozen cream therefrom, and means for forcing the cream into the can under the action of cooled air, substantially as described.

5. In an ice-cream freezer, a rotatable freezing-can, means for rotating said can, a rotating dasher arranged within the can, means for rotating said dasher in a direction opposite to the direction of the rotation of the can, a reservoir or cream-tank in communication with the freezing-can, an agitator in said reservoir or cream-tank, and means for operating said agitator simultaneously with the operation of the freezer-can and dasher, substantially as described.

6. In an ice-cream freezer, a tilting table, a freezing-agent tub mounted thereon, a freezer-can mounted for rotation in said tub, a reservoir or cream-tank, a hollow dasher-shaft establishing communication between the reservoir or cream-tank and the freezer-can, a

dasher connected to said hollow dasher-shaft, means for rotating the dasher and hollow dasher-shaft in a direction opposite to the rotation of the freezer-can, an agitator in the reservoir or cream-tank, means for operating said agitator simultaneously with the operation of the freezer-can and hollow dasher-shaft, and means for discontinuing the operation of the agitator in the reservoir or cream-tank, substantially as described.

7. In an ice-cream freezer, the combination of a rotatable freezer-can, a reservoir or cream-tank, rotatable connections between the freezer-can and the reservoir or cream-tank, a dasher in the freezer-can, means for rotating said dasher in a direction opposite to the direction of the freezer-can, an air-supply communicating with the connections between the freezer-can and the reservoir or cream-tank, and means for cooling the air-supply to said connection, substantially as described.

8. In an ice-cream freezer, a rotatable horizontally-arranged freezer-can, means for rotating said can, a hollow dasher-shaft, a dasher connected to said shaft, means for rotating said dasher-shaft and dasher in a direction opposite to the rotation of the can, a reservoir or cream-tank communicating with the freezer-can through said hollow dasher, an agitator in said reservoir for agitating the cream prior to its discharge into the hollow dasher, means for driving the agitator simultaneously with the dasher-shaft, and means whereby the actuation of the agitator may be discontinued without discontinuing the operation of the dasher-shaft, substantially as described.

9. In a freezer, the combination of a freezer-can, a hollow dasher-shaft extending into said can and through which the liquid to be frozen is fed into the can, a dasher connected to said shaft, means for rotating said hollow dasher-shaft and dasher, a reservoir communicating with the hollow dasher-shaft, an agitator in the reservoir, means connected to the hollow dasher-shaft for actuating said agitator simultaneously with the dasher-shaft, and a clutch for discontinuing the operation of the agitator independently of the dasher-shaft.

10. In an ice-cream freezer, a rotating freezer-can, means for rotating said can, a reservoir or cream-tank, connections establishing communication between the rotating freezer-can and the reservoir or cream-tank, and means for supplying cold air to said connections to cool the cream prior to its discharge into the freezer-can, substantially as described.

11. In an ice-cream freezer, the combination with a rotatable freezer-can and means for rotating said can, of a reservoir or cream-tank, a hollow dasher-shaft establishing communication between the reservoir and freezer-can, means for operating said hollow dasher-shaft, means within the can for discharging the frozen cream therefrom, and means for inclining the freezer-can to regulate the discharge of the frozen cream, substantially as described.

12. In an ice-cream freezer, a tilting table, means for tilting said table, a freezing-agent tub mounted on said table, a freezer-can journaled in said tub, means for operating said can, a hollow dasher-shaft for supplying cream to said can, a dasher connected to said shaft, a conveyer carried by the dasher for discharging the frozen cream from the can, and means for rotating said dasher-shaft, the dasher and the conveyer in an opposite direction to the rotation of the freezer-can, substantially as described.

13. In an ice-cream freezer, the combination with a freezing-agent tub and a reservoir or cream-tank, of a freezer-can mounted in said tub in communication with the reservoir or cream-tank, said can terminating in a funnel-shaped end, and means embodying a cone-shaped conveyer within the funnel-shaped end of said can for discharging the frozen cream therefrom, substantially as described.

14. In an ice-cream freezer, the combination with a rotatable freezer-can adapted to receive the cream through one end and discharge the frozen cream through the other end, and means for rotating said can, of a supply-reservoir or cream-tank, connections for normally maintaining communication between the cream-tank and the freezer-can, means for regulating the flow of cream from the tank to the can, a dasher within the can, means connected to the dasher for discharging the frozen cream through the discharge end of the can, and means for adjusting the can to regulate the discharge of the frozen cream.

15. In a continuous freezer, the combination with a freezing-agent tub, of a freezer-can horizontally mounted in the tub to receive the liquid through one end and discharge the frozen liquid through the opposite end, a liquid-tank for holding a quantity of liquid to be frozen, a normally open communication between the can and tank, means for regulating the quantity of the continuous flow from the tank to the can during the rotation of the can and to cut off the flow when the can ceases to rotate, means for rotating said can, a dasher within the can, means for rotating said dasher in the opposite direction to that of the can, means for continuously discharging the frozen substance during the rotation of the can and dasher, and means for regulating said discharge.

16. In a freezer of the type described, a bed or table, a freezing-agent tub mounted thereon, a freezer-can journaled in the tub to receive liquid in one end and discharge frozen liquid through the opposite end, means within the can to discharge the frozen liquid therefrom, and means for tilting the bed or table and inclining the freezing-agent tub and can to regulate the discharge of the frozen liquid from the can, substantially as set forth.

17. In a continuous ice-cream freezer, the combination with a supporting-frame, and a tilting table carried by said frame, of a reservoir or cream-tank supported on the table, a freezing-agent tub supported on the table, a freezer-can journaled in the tub and adapted to receive the cream in one end and discharge the frozen cream through the other end, means for continuously feeding the cream to the can during operation of the latter and regulating said feed, and means for discharging the cream as frozen and regulating said discharge.

18. In a continuous freezer, the combination of a rotatable freezer-can receiving and discharging at opposite ends, and means for rotating said can, a reservoir, connections between the can and reservoir for continuously supplying liquid during the rotation of the can, means for continuously discharging the liquid from the can as the liquid is frozen, and means for graduating said discharge.

19. In a continuous freezer, the combination with a supporting-table, and means for tilting said table, of a horizontal freezer-can mounted on the table and provided with a funnel-shaped discharge end, a liquid-supply tank or reservoir, connections establishing communication between the freezer-can and the supply tank or reservoir whereby liquid is continuously supplied to the freezer-can, and a conical conveyer in the funnel-shaped end of the can for continuously discharging the frozen liquid from the can.

20. In a continuous freezer, a rotatable horizontally-mounted freezer-can receiving through one port and discharging through another port, means for rotating said can, a support on which the can is mounted, means for tilting said support to incline the can at an angle to its horizontal axis, a liquid-supply, connections between the supply and the can for continuously supplying liquid to the can during the rotation of the latter, means for controlling said supply during the rotation of the can and for shutting off the supply when the rotation of the can is stopped, and means within the can for continuously discharging the frozen substance during the operation of said means.

21. In an ice-cream freezer, a horizontally-mounted freezer-can having a conical or funnel-shaped discharge end, a reservoir or cream-tank, a hollow dasher-shaft establishing communication between the freezer-can and reservoir or cream-tank, means for supplying air to the cream prior to its discharge into the freezer-can through the dasher-shaft, and means for rotating the freezer-can and the dasher-shaft in opposite directions, substantially as described.

22. In a freezer, a supporting bed or table, a freezer-can mounted on the bed or table to receive the unfrozen liquid in one end and discharge the frozen liquid through the other end, means for rotating said can, means for continuously supplying liquid to said can during its rotation, means for continuously discharging the frozen liquid during rotation of the can, and means for tilting the bed or table to incline the can and regulate the discharge of the frozen liquid.

23. In a freezer, a freezing-agent tub provided with a hinged end, and a freezer-can having one end sleeved in said hinged end and its other end detachably connected to the operating-shaft of the can whereby when said detachable end is disconnected and the hinged end of the tub lowered, the can may be removed from the tub, substantially as described.

24. In a freezer, a freezing-agent tub, mounted on a tilting support, in combination with a freezer-can journaled horizontally in said tub with its one end cone-shaped and terminating in a discharge-spout extending through the wall of the tub, means for rotating the can, a dasher within the can, a conveyer connected to the dasher and conforming to the conical end and discharge-spout of the can, means for rotating the dasher and conveyer, and means for tilting the support to incline the can and regulate the discharge of the frozen substance.

25. In an ice-cream freezer, the combination with a freezer-can, a reservoir or cream-tank in communication with said can and a freezing-agent tub in which the can is mounted, of an air-cooling pipe arranged underneath the tub and in communication therewith, an air-pipe extending through said air-cooling pipe and communicating with the freezer-can through the cream-supply thereto, and means for supplying air to the air-pipe, substantially as described.

26. In an ice-cream freezer, a rotatable freezer-can in communication with the cream-supply, means for rotating said can, and means for supplying a blast of cooled air to the cream prior to its discharge into the freezer-can, substantially as described.

27. In a freezer, a freezer-agent tub having a hinged portion in one end, in combination with a freezer-can having one end removably journaled in the hinged portion and its other end detachably connected to the driving-shaft of the can, as and for the purpose described.

28. In a freezer, a bed or table, a freezing-agent tub supported thereon, a freezer-can mounted for rotation in the tub, means for rotating the can, carried on said table, and tilting means for the bed or table whereby the can may be inclined at either end as it is being rotated, as and for the purpose described.

29. In an ice-cream freezer, the combination of a horizontally-mounted freezer-can receiving the liquid to be frozen through one end, and discharging the frozen substance through the other end, and means for tilting said can to regulate the discharge of the frozen substance therefrom.

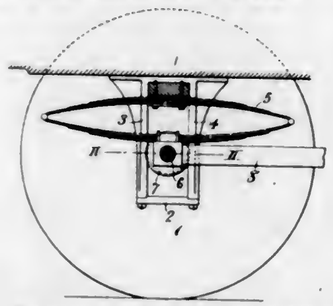
30. In an ice-cream freezer, the combination with a horizontally-mounted freezer-can receiving the liquid to be frozen through one end and discharging the frozen substance through the opposite end, a cream-tank in communication normally with the freezer-can to continuously discharge cream into the can during the operation of the latter, means in the can for continuously discharging the frozen substance during the operation of said means, and means for varying the position of the can to regulate the discharge of the frozen substance.

31. In an ice-cream freezer, the combination with a rotatable freezer-can, a liquid-supply in communication with the can whereby liquid is continuously supplied to the can during the rotation of the latter, a rotatable dasher within the can carrying a discharge-screw for continuously discharging the frozen substance from the can, and means for tilting the can to regulate the discharge of the frozen substance.

32. In a liquid-freezer, the combination with a rotatable freezer-can, and means for rotating said can, a liquid-supply discharging continuously into one end of the freezer-can during the rotation of said can, a dasher in the can, means for rotating said dasher, a conical spiral conveyer connected to the dasher and terminating at its outer end in a discharge-screw, and means for varying the position of the can to regulate the discharge of the frozen substance.

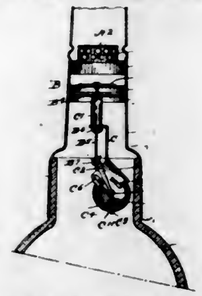
33. In an ice-cream freezer, a freezer-can having a conical end terminating in a discharge-spout, a flared head forming the other end of the can and detachably connected thereto, a hollow dasher-shaft extending through said flared head and through which the cream is fed into the can, a head on said dasher-shaft and provided with transverse openings through which the cream is discharged into the can, a dasher connected to the head, and a conveyer connected to the dasher and conforming to the conical end and discharge-spout, of the can, substantially as described.

749,287. **RUNNING-GEAR.** LUCIUS T. GIBBS, New York, N. Y., assignor to Vehicle Equipment Company, a Corporation of New York. Filed Apr. 16, 1903. Serial No. 152,937. (No model.)



Claim.—The combination with a vehicle body or floor, of a pedestal thereon having parallel guides or rails, a spring, an axle carried by the spring and extending between the guides or rails, and a roller revolubly mounted on the axle between the guides or rails and adapted to roll on the same when the axle is moved vertically, as set forth.

749,288. **NON-REFILLABLE BOTTLE.** HERMAN HAHN, San Francisco, Cal. Filed Aug. 5, 1903. Serial No. 168,377. (No model.)



Claim.—1. In a bottle, a valve adapted to close the entrance thereof, consisting of a valve-seat, a rigid guide adjacent thereto, a valve-stem working in said guide and carrying a valve-gate coincident with said seat; a bracket having an axial travel around the said valve-stem, a gravitating weight carried by said bracket and adapted to roll into and out of contact with said valve-stem; and a perforated cap fixed over said valve; substantially as described.

2. In a bottle, a valve adapted to close the entrance thereof and provided with a stem; a slotted bracket having an axial travel around the stem of said valve; a gravitating weight having trunnions mounted in the slot of said bracket and adapted to roll into and out of contact with said valve-stem, and a stirrup attached to the axle of said gravitating weight, and also to the valve-stem; substantially as described.

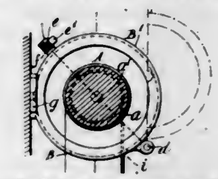
3. In a bottle, a valve adapted to close the entrance thereof and provided with a stem; a bracket having an axial travel around the valve-stem, consisting of an integral piece of sheet metal having a base set at an angle to said valve-stem; cheek-pieces bent at right angles to said base; slots being formed in said cheek-pieces parallel with said base; a gravitating weight having its axle extended through the slots in said cheek-pieces; and a stirrup attached to said weight and also to the valve-stem; substantially as described.

4. In a bottle, a valve adapted to close the entrance thereof and provided with a stem; a bracket having an axial travel around the valve-stem, consisting of an integral piece of sheet metal having a base set at an angle to said valve-stem; cheek-pieces bent at right angles to said base and provided with notched segments, slots being formed in said cheek-pieces parallel with said base; a gravitating weight having its axle extended through the slots in said cheek-pieces; and a stirrup attached to said weight and also to said valve-stem; and a locking-loop swung on the axle of said gravitating weight, adapted to engage said notched segments; substantially as described.

5. In a bottle, a valve adapted to close the entrance thereof and provided with a stem, a bracket having an axial travel around said stem, a gravitating weight carried thereby and adapted to roll into and out of contact with said valve-stem, and means for locking said weight against surreptitious movement, substantially as described.

6. In a bottle, a neck adapted to be attached to the bottle-body, containing a valve adapted to close the entrance thereof and provided with a stem, a bracket having an axial travel around said stem, a gravitating weight carried thereby and adapted to roll into and out of contact with said valve-stem, and means for locking said weight against surreptitious movement.

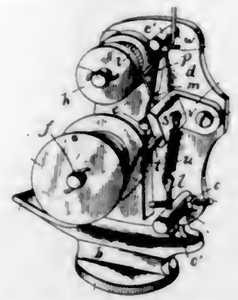
749,289. **WINDOW-BLIND FITTING.** ERNEST C. HARRIS, Beckenham, England. Filed Aug. 24, 1903. Serial No. 170,610. (No model.)



Claim.—In a roller-fitting, a combination with a grooved pulley, of a casing comprising two sections having their outer edges

hinged together, the meeting edges of the sections having coinciding recesses forming a journal-bearing, the lower section having apertures through which the cord passes and means for securing the two sections together.

749,290. RACER FOR BRAIDING-MACHINES. CHARLES W HASSLER, Westfield, Mass. Filed Aug. 15, 1902. Serial No. 119,766 (No model.)



Claim.—1. In a racer for braiding-machines, a tension device comprising a supporting part, a rotating tension-wheel supported thereby, and a resilient brake arranged in frictional contact with the periphery of said tension-wheel.

2. In a racer for braiding-machines, a tension device comprising a supporting part, a latch mounted thereon, a stop fixed in the path of said latch, means to force said latch toward said stop, a revolving tension-wheel, and a resilient brake arranged to bear against the periphery of said tension-wheel.

3. In a racer for braiding-machines, a tension device comprising a supporting-plate, a revolving tension-wheel mounted thereon, a resilient brake arranged to bear directly on the periphery of said tension-wheel to retard its motion, and adjusting means for changing the extent of pressure of the brake against the periphery of the tension-wheel.

4. In a racer for braiding-machines, the combination of a suitable supporting-plate, a reel mounted thereon, a rotating tension-wheel, a resilient brake bearing at one end in frictional contact with the periphery of said tension-wheel, a post e mounted on the plate at a point between the ends of said spring and with the spring bearing against the post and means to hold the free end of the spring in position, substantially as shown.

5. In a racer for braiding-machines, a tension device comprising a rotating tension-wheel having its intermediate portion serrated or roughened and the portions at each side thereof of larger diameter than the central portion, and a resilient brake, bearing against the periphery of one of said larger portions of said tension-wheel, and means to regulate the pressure of said brake against said periphery.

6. In a racer for braiding-machines, the combination of a suitable supporting-plate, a rotating tension-wheel mounted thereon, a resilient brake arranged in frictional contact with the periphery of said tension-wheel, means to regulate the pressure of said brake against said tension-wheel, and means to hold the strand taut with sufficient force to prevent its slipping on the periphery of the tension-wheel.

7. The combination in a racer for braiding-machines, of a suitable supporting-plate, a rotating tension-wheel, a resilient brake bearing with direct frictional contact against the periphery of said tension-wheel, a stop-post e, a latch bearing toward the same, a spring adapted to force the latch in the direction of the post, said latch being arranged to be turned completely away from the post and held therefrom by said spring, substantially as shown.

749,291. DIFFERENTIAL WINE-SHELF. JOHN T. HICKS, Medford, Mass. Filed May 9, 1903. Serial No. 156,496. (No model.)

Claim.—1. A shelf for bottles, the same having a differential step-like seat for the bottles.

2. A shelf for bottles having concentric seats arranged in a series of steps around an opening for bottles of different sizes.

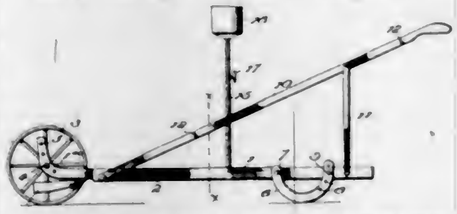
3. A shelf having an opening provided with a plurality of concentric shoulders forming seats.

4. A shelf having a plurality of openings each surrounded with concentric seats of different diameters and arranged in a step-like manner.

749,291.



749,292. GRASS-DESTROYER. BENJAMIN J. HUCK, Independence, La. Filed June 27, 1903. Serial No. 163,336. (No model.)



Claim.—1. In a machine for exterminating grass and other objectionable growth, the combination of a hollow body, a ground-wheel adjustably connected to the front portion of said body, runners having adjustable connection with the rear portion of said body, handle-bars applied to said body to admit of manipulation thereof, and a burner arranged within said body, substantially as set forth.

2. In a machine substantially as set forth for destroying grass and like objectionable growth, the combination of a hollow body, reinforcing-bars applied to the sides of said body and having their front ends extended forward of the body and inwardly and upwardly curved and having a series of transversely-alined openings in the forwardly and upwardly curved end portions, a ground-wheel arranged between the upwardly-extended end portions of the reinforcing-bars, a pin for supporting the ground-wheel and adapted to be fitted into any one of the series of openings of the extended ends of said reinforcing-bars, rear supports having adjustable connection with the body, a burner located within the body, and handle-bars applied to the body for manipulation of the machine, substantially as set forth.

749,293. BOLSTER. FRANK S. INGOLDSBY and JOSEPH R. BOWLING, St. Louis, Mo., assignors to the Ingoldsby Automatic Car Company, St. Louis, Mo., a Corporation of West Virginia. Original application filed Feb. 2, 1903, Serial No. 141,415. Divided and this application filed May 9, 1903. Serial No. 156,358. (No model.)

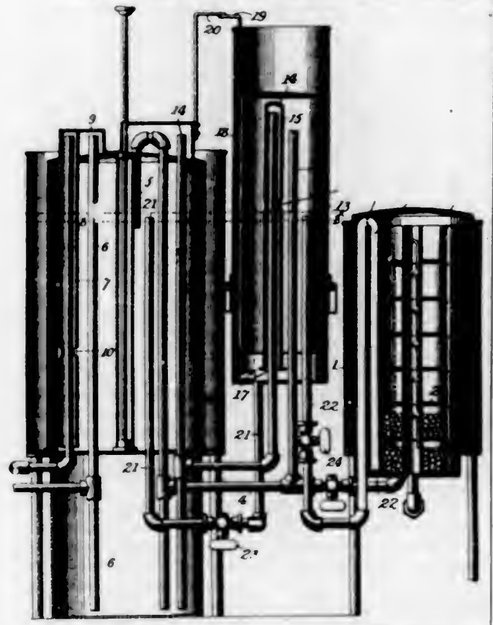


Claim.—1. In a bolster, a center frame, tension and compression members secured thereto and connected together at their ends, a strut intermediate of said members and an additional tension member extending between the center frame and compression member and between the strut and tension member and connected at its end with the common end of the tension and compression members.

2. In a bolster, the combination of tension and compression members, and intermediate strut members, of an additional tension-strap passing beneath one strut and over another and serving as a local truss to take the upward stress at the side bearing, said extra tension-strap being of the full width and length of the bolster and continuing near its ends alongside of the main tension-strap.

3. In a bolster, the combination of a center frame, a compression member and a tension member, said members extending across the center frame and having their ends connected together, intermediate struts between said members, and an extra tension-strap extending from end to end of the bolster and passing between the center frame and the compression member and then between the tension members and the intermediate struts, and then following along the inner side of the tension member to the ends of bolster.

749,294. ACETYLENE-GAS GENERATOR. FREMONT L. IRISH, Auburn, Me. Filed Mar. 21, 1903. Serial No. 148,935. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with a generator and a gasometer connected to the generator to receive gas therefrom, of a regulator interposed between the generator and gasometer and including a tank, which is connected with the tank of the gasometer, and a vertically-movable bell, a gas-pipe extending from the generator to the regulator-bell, a second gas-pipe extending from said bell to the gasometer, a hood inclosing the end of the last said pipe within the regulator-bell, a pipe for supplying water to the generator having its inlet end within said bell of the regulator, and means whereby motion of the gasometer-bell is transmitted to the said hood within the bell of the regulator and the supply of water to the generator automatically controlled.

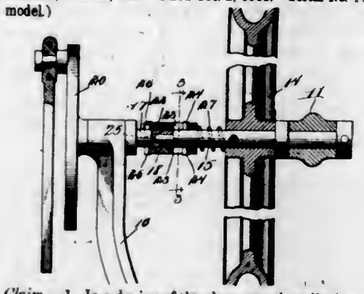
2. In an acetylene-gas apparatus, the combination with a generator, and a gasometer connected to the generator to receive gas therefrom, of a regulator interposed between the generator and gasometer and including a tank connected with the tank of the gasometer, and a vertically-movable bell, pipes extending respectively, from the generator to the interior of the regulator-bell and from the interior of said bell to the gasometer for conducting gas from the generator to said regulator-bell and from said bell to the gasometer, a hood adapted to close the end of the last said pipe within the regulator-bell, a pipe for supplying water to the generator having its inlet end within said bell of the regulator, means for positively lifting said hood and an arm attached to the bell of the gasometer and adapted to actuate said means for lifting the hood of the regulator.

3. In an acetylene-gas apparatus, the combination with a generator, and a gasometer connected to the generator to receive gas therefrom, of a regulator interposed between the generator and gasometer and including a tank connected with the tank of the gasometer, and a vertically-movable bell, a pipe for conducting gas from the generator to said regulator-bell, a second pipe for conducting gas from said bell to the gasometer, a hood surrounding and adapted to close the end of the last said pipe within the regulator-bell, a pipe for supplying water to the generator having its inlet end within said bell of the regulator, a lever fulcrumed on a support attached to the tank of the regulator, and having one arm attached to said hood, and a rod attached to the other arm of said lever and adapted to be moved by the gasometer-bell, when the supply of gas in the gasometer is reduced to a predetermined amount, for the purpose specified.

4. In an acetylene-gas apparatus, the combination with a generator, and a gasometer connected to the generator to receive gas therefrom, of a regulator interposed between the generator and gasometer and including a tank connected with the tank of the gasometer, and a vertically-movable bell, a pipe for conducting gas from the generator to said regulator-bell, a second pipe for conducting gas from said bell to the gasometer, a hood inclosing the end of the last said pipe within the regulator-bell, and having a series of apertures formed in its side wall, a pipe for supplying water to the generator having its inlet end within said bell of the regulator, a lever fulcrumed within the regulator-tank below the bell therein, and having one arm attached to said hood, a rod attached to the other arm of said lever and extending above the regulator-tank, and an arm attached to the bell of the gasometer and adapted to depress said rod as the gasometer-bell falls, for the purpose described.

5. In an acetylene-gas apparatus, the combination of a generator, a gasometer connected to the generator to receive gas therefrom, a tank 13 connected with the bell of the gasometer to receive water therefrom, a bell 12 within said tank, a gas-pipe connected with the generator and having branches extending into the bell 12 and the bell of the gasometer, the end of said gas-pipe within the gasometer-bell being below the upper end of the pipe for supplying water to the tank 13 and being constantly below the level of water in said gasometer-bell, a water-supply pipe for the generator having its inlet end within the bell 12, a gas-pipe having its ends extending above the water in both bell 12 and the bell of the gasometer, a hood fitted over the end of the last said gas-pipe within the bell 12, and means adapted to be actuated by the gasometer-bell for moving said hood vertically to adjust openings therein above or below the level of water in the bell 12.

749,295. COUPLING FOR SEWING-MACHINES. JAMES M. JACKSON, Cannon, Tex. Filed Oct. 2, 1903. Serial No. 175,517. (No model.)



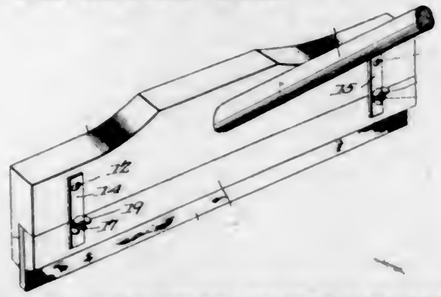
Claim.—1. In a device of the character described, a shaft in two sections mounted in longitudinal alinement for independent rotation, a sleeve slidable upon said shaft and rotative with one of said sections and provided with one or more cavities in one end inclined upon one side, projections carried by one of said shaft-sections for engagement with said cavities, a spring bearing against said sleeve and maintaining it yieldably in engagement with said projections, means for applying motion to one of said shaft-sections, and means for transmitting motion from the other of said shaft-sections, whereby motion will be imparted to said driven section only when the driving-section is rotated in one direction, substantially as described.

2. In a device of the character described, a supporting-frame, a shaft in two sections and mounted in longitudinal alinement for independent rotation in said frame, a sleeve carried by said shaft-sections and having one or more longitudinal apertures and with one or more recesses in one end inclined on one side, pins carried by one of said shaft-sections and extending through said apertures, projections carried by the other of said shaft-sections for engagement with said recesses, a driving-pulley carried by one of said shaft-sections and having a spring thereon between said driving-pulley and sleeve, means for applying motion to one of said shaft-sections, and

means for transmitting motion from the other of said shaft-sections, substantially as described.

3. In a device of the character described, a supporting-frame, a shaft in two sections and mounted in longitudinal alinement in said frame for independent rotation, a sleeve carried by said shaft-sections and slidable thereon and forming a support for their adjacent ends and provided with one or more longitudinal apertures and with one or more recesses in one end with one inclined side, pins extending from one of said shaft-sections through said aperture, projections carried by the other of said shaft-sections for engagement with said recesses, and a spring bearing against said sleeve and maintaining it yieldably in engagement with said projections, substantially as described

749,296. SCRUBBER. JOHN JESTER, St. Joseph, Mo. Filed Oct. 10, 1903. Serial No. 176,552. (No model.)



Claim.—A scrubber comprising a head member having one edge thereof cut away to form a rabbet, spaced clamp-plates secured at one end to said head member with their other ends projecting over said rabbet, a clamp-bar fitting in said rabbet and having spaced recesses in one edge thereof, clamp-bolts extending through said clamp-plates into the recesses in said clamp-bar, and a wiping-strip disposed in said rabbet between said head member and clamp-bar, and projecting at one edge beyond said members.

749,297. PROCESS OF PREPARING HORN-LIKE MATERIAL FROM RAW SKINS. EUGEN JETTER, Erfurt, Germany. Filed Mar. 14, 1903. Serial No. 147,353. (Specimens.)

Claim.—The process of preparing a horn-like material from raw skins, consisting in bringing the skins into a liquid solution of gluey substances and into a solution of collodion in glacial acetic acid, drying the skins and bringing the same into a solution by means of which the skins as well as the substances taken up by the same are made insoluble, substantially as described and for the purpose set forth.

749,298. CORN-HARVESTER. EDWARD A. JOHNSTON, Chicago, Ill., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Filed Apr. 16, 1902. Serial No. 103,086. (No model.)

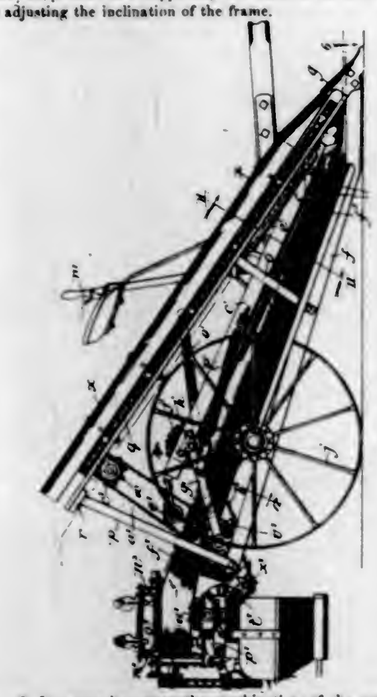
Claim.—1. In a corn-harvester, the combination of stalk-forwarding chains on opposite sides of the stalk passage-way, and ear-snapping rolls located under the chains, the inclination of the rolls with respect to the chains being adjustable.

2. In a corn-harvester, the combination of stalk-forwarding chains on opposite sides of the stalk passage-way, a pair of snapping-rolls located under the chains toward one side of the passage-way, and an ear-receiving trough below the snapping-rolls on the other side of the passage-way.

3. In a corn-harvester, the combination of stalk-forwarding chains on opposite sides of the stalk passage-way, a pair of snapping-rolls located under the chains toward one side of the passage-way, that one of said rolls nearest the center of the passage-way being lower than the other.

4. In a corn-harvester, the combination of stalk-forwarding chains on opposite sides of the stalk passage-way, ear-snapping rolls located under the chains, said rolls being bodily adjustable lengthwise the chains and also adjustable as to inclination with respect to the chains.

5. In a corn-harvester, the combination of the upwardly and rearwardly inclined prongs on opposite sides of the passage-way, stalk-forwarding chains on said prongs, a pair of snapping-rolls carried by an upwardly and rearwardly inclined frame under the prongs, a sliding connection between the frame and the prongs at the forward end, pivoted links supporting the frame at the rear, and means for adjusting the inclination of the frame.



6. In a corn-harvester, the combination of the upwardly and rearwardly inclined prongs on opposite sides of the passage-way, supporting-rods e', e', at the forward ends of the prongs, an adjustable frame underlying said prongs and carrying snapping-rolls, sliding hangers f', f', on the front end of the frame engaging the supporting-rods, pivoted links g', g' supporting the rear end of the frame, and a hand-lever o' for adjusting the frame.

7. In a corn-harvester, the combination of the upwardly and rearwardly inclined prongs on opposite sides of the passage-way, an adjustable roll-carrying frame underlying the prongs and having a sliding connection therewith at the front end, pivoted links g', g' supporting the frame at the rear, a hand-lever o' for effecting the adjustment, and a spring p' for assisting the action of the lever.

8. In a corn-harvester, the combination of a pair of snapping-rolls between which the standing stalks pass, an ear-receiving trough alongside said rolls, and an endless ear-conveyer both plies of which work in said trough, the trough having a longitudinal flange or partition to cover and protect the return ply of the conveyer.

9. In a corn-harvester, the combination of rearwardly and upwardly inclined stalk lifting and guiding prongs, ear-snapping rolls extending lengthwise under the prongs, and means for separately adjusting the inclination of the prongs and the rolls.

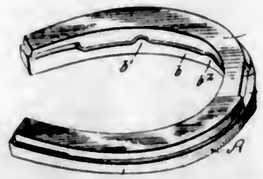
10. In a corn-harvester, the combination of upwardly and rearwardly inclined, rearwardly-traveling stalk-forwarding devices, means for adjusting the same vertically, ear-snapping rolls located under the forwarding devices, and means for adjusting the rolls vertically independently of the forwarding devices.

11. In a corn-harvester, the combination with rearwardly-moving stalk-forwarding devices, of ear-snapping rolls underlying said forwarding devices and adjustable lengthwise.

12. In a corn-harvester, the combination with rearwardly-moving stalk-forwarding devices, of a pair of ear-snapping rolls located under said forwarding devices, one of said rolls being located higher than the other, and means for adjusting the rolls vertically independently of the forwarding devices.

749,299. ELASTIC-TREAD HORSESHOE. ALFRED W. JOHNS, Pacific Grove, Cal., assignor to James S. Tait, Washington, D. C. Filed Dec. 26, 1902. Serial No. 136,634. (No model.)

Claim.—1. A metallic horseshoe-body channeled on its lower surface to form inner and outer flanges, the former having keys projecting therefrom, a tread-cushion between said flange-walls, engaged by the keys, the latter being bent laterally to engage the cushion, and toe and heel calks which project below the flanges, thereby serving both to retain and protect the cushion, substantially as described

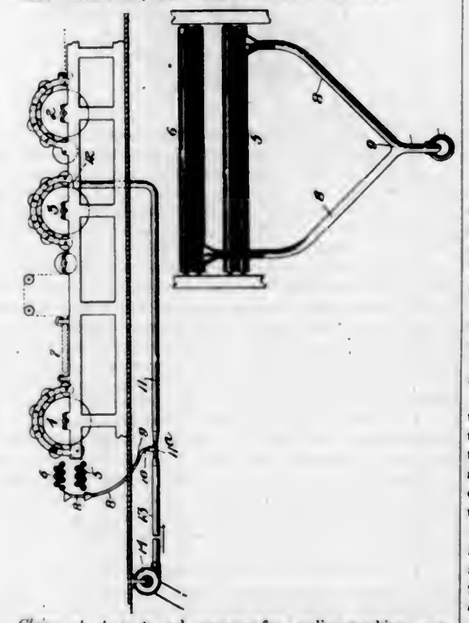


2. A soft-tread horseshoe having a base channeled on its lower surface to receive an elastic cushion, keys on the inner flange adapted to be bent into engagement with said cushion, inwardly-projecting flanges at the toe and heel which engage corresponding recesses in the cushion, and projecting calks at the toe and heel which serve both to retain and protect said cushion, substantially as described.

3. A soft-tread horseshoe having a flanged metallic base-plate, inwardly-extending portions of the flanges, and toe and heel calks which project beyond the level of the flanges, thereby serving to retain and protect the cushion, substantially as described.

4. A soft-tread horseshoe having a flanged metallic base-plate, projecting keys on the inner flange, inwardly-projecting portions at the toe and heel of the flanges, and projecting toe and heel calks, the same being adapted to engage and protect an elastic cushion, substantially as described.

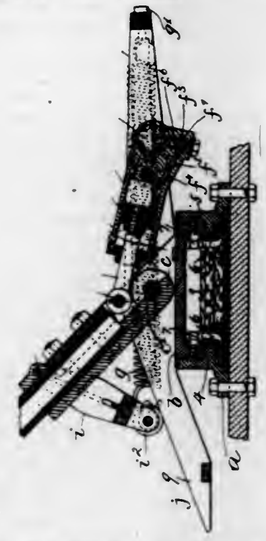
749,300. WASTE-END CONVEYER. HARRY KEMP, Newton, Mass. Filed Oct. 4, 1902. Serial No. 125,887. (No model.)



Claim.—1. A waste-end conveyer for carding-machines, comprising a plurality of conduits to receive the separate waste-end strands; a single unobstructed main conduit to which said receiving-conduits deliver and in which the separate waste-end strands are united to form a relatively stout strand; and means outside of said conduits, but communicating therewith, for producing draft through said conduits toward the discharge end of the conveyer; whereby an uninterrupted passage from the delivery end of the carding-machine to the receiving end is provided, a continuous single strand formed of several waste-end strands is delivered in unbroken condition at the discharge end of the conveyer, and massing or balling of the broken strands in the conduits is avoided.

2. A waste-end conveyer, comprising two receiving-conduits 8, 8, which unite in a common delivery-conduit 10 having a beveled lower end; an unobstructed main conduit 11 into which said delivery-conduit 10 projects; a blower 14; and a conduit 13 connecting said blower 14 with said conduit 11 in rear of the projecting delivery-conduit 10; whereby an uninterrupted passage from the delivery end of the carding-machine to the receiving end is provided, a single continuous strand formed of the several waste-end strands is delivered in unbroken condition at the discharge end of the conveyer, and massing or balling of broken strands in the conduits is avoided.

749,301. TROLLEY-STAND. WASHINGTON H. KILBOURN, Greenfield, Mass., assignor to the Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Aug. 14, 1902. Serial No. 119,636. (No model.)



Claim.—1. The combination in a trolley-base of a suitable support, a trolley arm hinged to said support, a rigid member secured at one end to the trolley-arm, a guide for the other end of said member adapted to receive the thrust therefrom, and a spring acting upon said member and tending to move its free end along the guide.

2. The combination in a trolley-base of a suitable support, a trolley-arm hinged to said support, a rigid member pivotally secured at one end of the trolley-arm, a guide for the other end of said member adapted to receive the thrust therefrom, and a tension device acting on said member intending to move its free end along the guide.

3. The combination in a trolley-base of a suitable support, a trolley-arm hinged to said support, a rigid member connected to the trolley-arm and engaging said support, and normally transmitting to said support the thrust due to the weight of the trolley-arm, and a spring acting upon said member tending to move the free end of said member toward the trolley-arm and thereby imparting an upward pressure to the trolley-arm.

4. The combination in a trolley-base, of the hinged trolley-arm, an inclined guide, a rigid member projecting from said trolley-arm and at its other end in contact with said guide, and a tension device for imparting upward pressure to the trolley-arm and moving the end of said member along said guide in constant engagement therewith.

5. The combination in a trolley-base of the hinged trolley-arm, an inclined guide, a rigid member projecting from said trolley-arm and at its other end in contact with said guide and making a substantial angle therewith, and a tension device for imparting upward pressure to the trolley-arm and moving the end of said member along said guide in constant engagement therewith

6. The combination in a trolley-base, of a trolley-arm hinged at its lower end to a suitable support, a rigid member secured to the arm above its hinge and projecting downward therefrom, a guide contacting with the lower end of said member, and springs connecting the lower end of said member with the said support.

7. The combination in a trolley-base, of a trolley-arm hinged at its lower end to a suitable support, a rigid member secured to the arm above its hinge and projecting downward therefrom, an inclined

guide contacting with the lower end of said member, and springs connecting the lower end of said member with the said support.

8. The combination in a trolley-base of a trolley-arm hinged to a suitable support, a guide carried by said support, a rigid member hinged to the trolley-arm and at its end movable along said guide and normally transmitting to said guide the thrust due to the weight of the trolley-arm, and springs connected to said member and to the said support.

9. The combination in a trolley-base, of a trolley-arm hinged at its end to a suitable support, a member connected to said trolley-arm near the lower end thereof, a fixed support for the lower end of said member at a substantial angle thereto, and means for applying pressure to the said member so that it will push upward against the trolley-arm.

10. A trolley-base comprising a fixed member, a movable member rotatably engaged with the fixed member, a trolley-arm pivoted to the movable member, contractile springs connected with the movable member at one side of the axis of oscillation of the trolley-arm and extending across said axis in a plane substantially coincident with the plane of the axis, a guide in fixed relation to the said movable member, a strut extending from said trolley-arm to said guide, and connections between said spring and said strut.

11. A trolley-base comprising a fixed member, a movable member rotatably engaged with the fixed member, a trolley-arm pivoted to the movable member, substantially horizontal contractile springs connected with the movable member at one side of the axis of oscillation of the trolley-arm, and extending across said axis in a plane substantially coincident with the plane of the axis, a strut pivoted to the trolley-arm above its axis of oscillation and inclined downwardly from its pivotal connection, its lower end being connected with said springs, and a guide for said lever rigidly affixed to the movable member.

12. A trolley-base comprising a fixed member, a movable member rotatably engaged with the fixed member, a trolley-arm pivoted to the movable member, substantially horizontal contractile springs connected with the movable member at one side of the axis of oscillation of the trolley-arm, and extending across said axis in a plane substantially coincident with the plane of the axis, a lever pivoted to the trolley-arm above its axis of oscillation and inclined downwardly from its pivotal connection, its lower end being connected with said springs, and a guide for said lever rigidly affixed to the movable member, said guide being inclined.

13. The combination of a trolley-base, a trolley-arm pivoted thereto, means for imparting a yielding upward movement to the arm, and a fluid-controlled check or stop connecting the arm with the base and having self-contained automatic means operated by a relatively rapid movement of the arm to check or stop the arm.

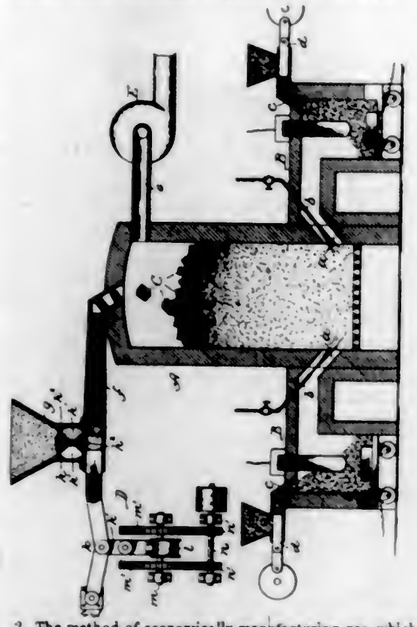
14. The combination of a trolley-base, a trolley-arm pivoted thereto, means for imparting a yielding upward movement to the arm, a fluid-reservoir having two chambers, a movable abutment in one of said chambers connected with the trolley-arm, means for permitting movement of a fluid from one chamber to the other to permit a relatively slow movement of the arm and abutment, and an automatic device operated by a relatively rapid movement of the arm to prevent said movement of the fluid and check or stop the arm.

15. A trolley-base comprising a fixed member, a movable member rotatably engaged with the fixed member, a trolley-arm pivoted to the movable member, means for exerting upward pressure on said arm, a fluid-reservoir pivotally connected with the movable member and having a piston-chamber and a storage-chamber connected with the piston-chamber by a duct, a normally open valve in said duct adapted to be closed by an increase of fluid-pressure in the piston-chamber and prevent the passage of fluid from the piston-chamber to the storage-chamber, a piston in said chamber and a connection between the piston and the trolley-arm.

16. The combination of a pivoted trolley-arm, means for imparting a yielding upward movement thereto, a fluid-reservoir connected with the base or support of the arm and containing a body of fluid, a piston movable in said reservoir and connected with the trolley-arm, means for permitting a movement of the fluid from one part of the reservoir to another to permit a relatively slow movement of the piston and arm, and an automatic device operated by a relatively rapid movement of the arm to prevent said movement of the fluid and stop or check the arm.

749,302. MANUFACTURE OF GAS. WILLIAM A. KOWEMAN, Chicago, Ill. Filed May 18, 1903. Serial No. 157,610. (No model.)

Claim.—1. The method of economically manufacturing gas, which consists in introducing steam into a producer containing a bed of carbonaceous material, and conducting into said producer, from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from said carbonaceous material and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.



2. The method of economically manufacturing gas, which consists in introducing steam into a bed of briqueted carbonaceous fuel in a gas-producer, and conducting into said producer, from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from such fuel and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.

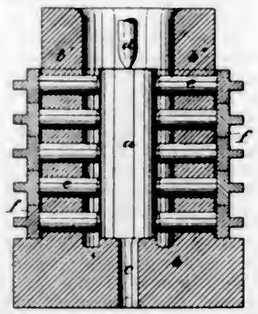
3. The method of economically manufacturing gas, which consists in introducing steam into a bed of fuel-briquets composed of an agglutinated mixture of anthracite and bituminous coals in suitable proportions and contained in a producer, and conducting into said producer, from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from said fuel and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.

4. The method of economically manufacturing gas, which consists in feeding carbonaceous fuel to a gas-producer and meantime excluding therefrom air, introducing steam into said producer and conducting into the same from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from said fuel and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.

5. The method of economically manufacturing gas, which consists in feeding to a producer, and meantime excluding air therefrom, fuel-briquets composed of an agglutinated mixture of anthracite and bituminous coals in suitable proportions, introducing therein steam, and conducting into said producer, from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from said fuel and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.

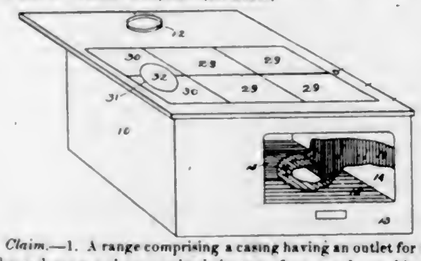
6. The method of economically manufacturing gas, which consists in forming and simultaneously feeding to a gas-producer coal-briquets in a green condition and excluding the admission of air while feeding, introducing steam into said producer, and conducting into the producer, from an operating electric furnace surplus heat, practically free from nitrogen, from the arc therein to generate gas from said briquets and supply to the producer an amount of heat greater than the amount thereof abstracted by dissociation of the water-vapor.

749,303. PERFORATING OR PUNCHING APPARATUS. RUDOLF KRONENBERG, Ohligs, Germany. Filed Feb. 24, 1903. Serial No. 144,798. (No model.)



Claim.—The combination in a punching apparatus, of a stock-holding block, radial pins arranged in series longitudinally of said block and adapted to engage the stock and rings provided with cams adapted to engage the pins in a series or around a circumference whereby the pins may be forced in to engage the stock and then released with the forward movement of the punch to allow for the material displaced thereby.

749,304. RANGE. KARL G. KRONVALL, Chicago, Ill. Filed May 18, 1903. Serial No. 157,579. (No model.)



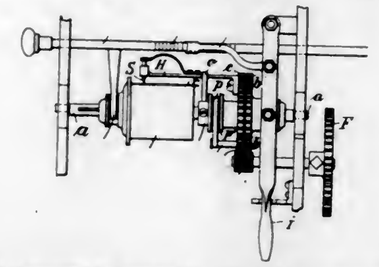
Claim.—1. A range comprising a casing having an outlet for the smoke and gases and an opening in its top, of an oven located in the casing at a distance from its wall as well as its top and bottom, a conduit extending from the fire-box between the tops of the oven and casing and having openings near its ends, a series of plates located in the opening of the casing and suitably supported thereon at their outer edges, their inner edges resting on and being supported by the conduit, a deflector extending obliquely and forwardly from the rear wall of the casing between the bottoms of the oven and casing, and another deflector located in an inclined position between the casing and the rear wall of the oven, substantially as described.

2. The combination with the casing having in one of its ends a fire-box and provided with an outlet for the smoke and gases, of an oven located in the casing at a distance from its walls as well as its top and bottom, a conduit extending from the fire-box between the tops of the oven and casing and having openings near its ends, a deflector extending obliquely and forwardly from the rear wall of the casing between the bottoms of the oven and casing, and another deflector located in an inclined position between the casing and the rear wall of the oven, substantially as described.

3. The combination with the casing having an outlet for the smoke and gases, of an oven located therein so that it will be at a distance from all of the walls except one, as well as from the top and bottom of the casing, a deflector extending obliquely and forwardly from the rear wall of the casing between its bottom and the bottom of the oven, and another deflector located in an inclined position between the casing and the rear wall of the oven and extending from near the bottom of the oven to near its top, substantially as described.

749,305. APPARATUS FOR CHECKING THE OUTPUT OF MACHINERY. LOUIS LEBOT, Lütselhausen, Germany. Filed May 22, 1902. Serial No. 108,600. (No model.)

Claim.—1. Apparatus for checking the output of machines, comprising a shaft, a toothed gear mounted with capability of sliding on said shaft, a second gear having a different number of teeth from the first-mentioned gear, loosely mounted on said shaft, a card-drum mounted on the shaft, a marking device coöperating with the card of said drum, means for operating the marking device, a pinion for connecting and disconnecting said gears, and means whereby the drum and marking device are moved relatively to each other when the gears are brought into connection, substantially as described.



2. Apparatus for checking the output of machines, comprising a shaft, a toothed gear mounted with capability of sliding on said shaft, a second gear having a different number of teeth from the first-mentioned gear, loosely mounted on said shaft, a card-drum mounted on the shaft, a marking device coöperating with the card of said drum, means for operating said marking device, means for insuring that the marking device starts at the initial position relatively to the drum after the completion of a curve on the card, a pinion for connecting and disconnecting said gears, and means whereby the drum and marking device are moved relatively to each other when the gears are brought into connection, substantially as described.

3. Apparatus for checking the output of machines, comprising a shaft, a toothed gear mounted with capability of sliding longitudinally on said shaft, a card-drum similarly mounted with capability of sliding on the shaft, a spring-controlled gear having a different number of teeth from the first said gear, loosely mounted on the shaft, a marking device carried by the said second gear, a pinion for connecting and disconnecting said gears, and means for sliding the drum on its shaft when the gears are brought into connection with each other, substantially as described.

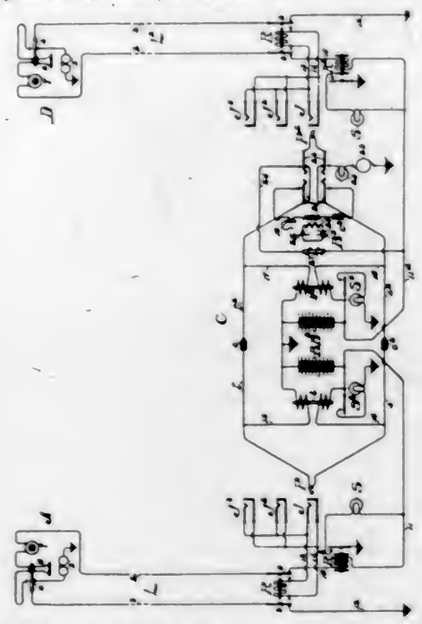
4. Apparatus for checking the output of machines, comprising a shaft, a toothed gear mounted with capability of sliding longitudinally on said shaft, a card-drum similarly mounted with capability of sliding on the shaft, a spring-controlled gear, having a different number of teeth from the first said gear, loosely mounted on the shaft, a marking device carried by the said second gear, a pinion for connecting and disconnecting said gears, a lever for causing said first gear to mesh with the pinion, a pawl carried by said lever, and a rack actuated by said pawl and sliding the cylinder on its shaft, substantially as described.

749,306. TELEPHONE SYSTEM. ALBION D. T. LIBBY, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 3, 1902. Serial No. 133,677. (No model.)

Claim.—1. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off relay for the line adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connections with the line, a steady current source associated with said cord-circuit and adapted during a connection to furnish current over a portion of the talking-circuit for the operation of said cut-off relay, a ringing-generator adapted to be connected with the line to call the subscriber located thereon, means to open the cord-circuit during calling to prevent the ringing-current from flowing back over the same, an auxiliary path for current completed from said source through said cut-off relay during calling, and means in said auxiliary path to permit the passage of steady current and to prevent the passage of the ringing-current, substantially as described.

2. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off relay for the line adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connections with the line, a steady current source associated with said cord-circuit and adapted during a connection to furnish current over a portion of the talking-circuit for the operation of said cut-off relay, a ringing-generator adapted to be connected with the line to call the subscriber located thereon, means to open the cord-circuit during calling to prevent the ringing-current from flowing back over the same, an auxiliary path

for current completed from said source through said cut-off relay during calling, and a retardation-coil in said auxiliary path to prevent the passage of ringing-current and to permit the passage of steady current, substantially as described.



3. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off relay for the line adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connections with the line, a steady current source connected therewith and adapted to furnish current over a portion of the talking-circuit during a connection for the operation of said cut-off relay, a ringing-generator adapted to be connected with the line to call the subscriber located thereon, means to open the normal connection with said source during calling, an auxiliary path for current completed from said source through said cut-off relay during calling, and a retardation-coil in said auxiliary path, substantially as described.

4. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a cut-off relay bridged between the line conductors and adapted when actuated to render the line-signal inoperative, a cord-circuit to establish connections with the line, a source of steady current bridged across the cord-circuit and adapted during a connection to furnish current over the talking-circuit for the operation of said cut-off relay, a ringing-generator adapted to be connected with the cord-circuit to call the wanted subscriber, the cord-circuit being opened between said source and the cut-off relay at the time of calling the subscriber, an auxiliary path for current from said source through said cut-off relay completed during calling to maintain the same operated, and a retardation-coil in said auxiliary path to prevent the passage thereover of the ringing-current, substantially as described.

5. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a cut-off relay bridged between the line conductors and adapted when actuated to render the line-signal inoperative, a cord-circuit to establish connections with the line, a source of steady current bridged across the cord-circuit and adapted during a connection to furnish current over the talking-circuit for the operation of said cut-off relay, a ringing-generator, a key located in the cord-circuit between the bridge containing said source and the calling-plug, said key being arranged to sever the cord-circuit when the ringing-generator is connected with the calling-plug, an auxiliary path for current from said source completed by said key during calling through said cut-off relay to maintain the same operated, and a retardation-coil in said auxiliary path to prevent the passage thereover of the ringing-current, substantially as described.

6. In a telephone system, the combination with a telephone-line, of a connection-terminal normally disconnected therefrom, a relay for connecting said connection-terminal with the line, a central source of current adapted to be connected in the metallic circuit for talking purposes, means for operating said relay from said source when connection is made with the line by current flowing over a path including a portion of the talking-circuit, means for sending a calling-current over the line of the called subscriber only and at the same time maintaining said relay in operated condition from said source, and means for preventing the short-circuiting of the ringing-current through said source, substantially as described.

7. The combination with a telephone-line, of a connection-terminal normally disconnected therefrom, a relay for connecting said connection-terminal with the line, a charging source of electricity, a calling source of electricity, said charging source being adapted to energize said relay when connection is made with the line, a ringing-key for connecting said calling source with the line of a called subscriber and for disconnecting the normal path for current from said charging source, an auxiliary path for current from said charging source completed by the ringing-key during calling, and a retardation-coil in said auxiliary path, substantially as described.

8. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a cut-off relay bridged between the line conductors and adapted when actuated to render the line-signal inoperative, a cord-circuit to establish connections with the line, a source of steady current connected with the cord-circuit and adapted during a connection to furnish current over the talking-circuit for the operation of said cut-off relay and for conversational purposes, a ringing-generator adapted to be connected with one side of the cord-circuit to call the wanted subscriber, an auxiliary path for current from said source adapted to be connected with the other side of the cord-circuit during calling, the cord-circuit itself being at this time severed, a retardation-coil in said auxiliary path to prevent the passage thereover of the ringing-current and to confine it to the called line entirely, substantially as described.

9. In a telephone system, the combination with a telephone-line, of a line-signal operated by current from the central office when the subscriber is calling, a magnet to render said signal inoperative when a connection is established with the line for conversation, a central source of current adapted to be connected in the line for talking, said magnet being operated from said source during a connection by current over a portion of the talking-circuit, a calling-generator for sending ringing-current over the line of the called subscriber only, means for simultaneously sending continuous current through said magnet to maintain the same actuated during calling, and a retardation-coil in the path of the latter current to prevent the passage thereover of the ringing-current, substantially as described.

10. The combination with a telephone-line, of a charging source of continuous current to furnish current for talking, a line-signal, a magnet adapted to be energized from said source to render the said signal inoperative, the magnet-circuit including a portion of the talking-circuit, a calling-generator, means to connect said generator with the line and to open the circuit of said source through said magnet, means for temporarily sending continuous current through said magnet during ringing to maintain the same actuated, and a retardation-coil included in the path of said temporary current to prevent the passage thereover of the ringing-current, substantially as described.

11. The combination with a telephone-line, of a charging source of continuous current to furnish current over the line for talking, a line-signal, a magnet adapted to be energized from said source during a connection to render said signal inoperative, a cord-circuit to establish connections with the line for talking, a calling-generator, means to connect said generator with the line and to open the cord-circuit, means for temporarily sending continuous current through said magnet during ringing to maintain the same operated, and a retardatioo-coil included in the path of said temporary current to prevent the passage thereover of the ringing-current, substantially as described.

12. The combination with a telephone-line, of a charging source of continuous current, a magnet adapted to be energized by said charging source when connection is made with the line, a calling-generator, a ringing-key adapted to connect said calling-generator with the line and to open circuit through said magnet, means controlled by the ringing-key for temporarily sending a continuous current through said magnet during the time the calling-generator is connected with the line, and a retardation-coil in the path of said temporary current to prevent the passage thereover of the ringing-current, substantially as described.

13. The combination with a telephone-line, of a relay associated therewith, a cord connector for uniting said line with another telephone-line, a charging source of continuous current adapted to be connected with said line to send current through said relay, a calling-generator adapted to produce a non-continuous current, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said relay, means for temporarily sending a continuous current through said relay to energize the same during the time the calling-generator is in circuit, and a retardation-coil included in the path of said latter current to prevent the passage thereover of the ringing-current, substantially as described.

14. The combination with a telephone-line, of a connection-terminal normally disconnected therefrom, a relay for connecting said connection-terminal with the line, a charging source of continuous current adapted to energize said relay, a calling-generator, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said relay and means for temporarily sending a continuous current through said relay during the time the calling-generator is connected in circuit, and a retardation-coil included in the path of said temporary continuous current, substantially as described.

15. The combination with a telephone-line, of a relay in a bridge between the two limbs of said line, a charging source of electricity adapted when connection is made with the line to energize said relay, a calling-generator, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said relay, means to temporarily send continuous current through said bridged relay during ringing by the actuation of said ringing-key, and a retardation-coil included in the path of said latter temporary current to prevent the passage of ringing-current, substantially as described.

16. The combination with a telephone-line, of a relay associated therewith, a cord connector for uniting said line with another telephone-line, a charging source of continuous current adapted to be connected with said cord connector through said relay and furnishing current for talking purposes, a calling-generator adapted to produce a non-continuous current, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said relay, means for temporarily sending a continuous current through said relay to energize the same during the time the calling-generator is in circuit, and a retardation-coil included in the path of said latter temporary current to prevent the passage of the ringing-current, substantially as described.

17. The combination with a telephone-line, of a line-signal therefor, a magnet to render said line-signal inoperative during a connection, a source of current connected with the line during a connection to energize said magnet over a path including a portion of the talking-circuit and to furnish current for talking purposes, a calling-generator, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said magnet, means actuated by said ringing-key for temporarily sending a continuous current through said magnet during the time the calling-generator is connected with the line, and a retardation-coil included in the path of said latter temporary current, substantially as described.

18. The combination with a telephone-line, of a line-signal therefor, a cut-off relay for the line to render the line-signal inoperative, a cord connector for uniting said line with another telephone-line, a charging source of continuous current adapted to be connected with said cord connector to send current over a portion of the talking-circuit through said relay and to furnish current to the line for conversation, a calling-generator adapted to produce a non-continuous current, a ringing-key adapted to connect said calling-generator with the line and to open the circuit of said charging source through said relay, means for temporarily sending a continuous current through said relay to energize the same during the time the calling-generator is in circuit, and a retardation-coil in the path of said temporary current to prevent the passage of the ringing-current, substantially as described.

19. The combination with a telephone-line, of a connection-terminal normally disconnected therefrom, a line-signal, a relay for connecting said connection-terminal with the line and for simultaneously rendering said signal inoperative, a charging source of continuous current adapted to energize said relay and to furnish current for talking during a connection, a calling-generator adapted to produce a non-continuous current, a ringing-key to connect said calling-generator with the line and to open the circuit of said charging source through said relay, means for temporarily sending a continuous current through said relay during the time the calling-generator is connected in circuit, a retardation-coil included in the path of the latter temporary current for the purpose of preventing the passage over said path of the ringing-current, substantially as described.

20. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off relay for the line adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connection with the line, a steady current source associated with said cord-circuit and adapted during a connection to furnish current over a portion of the talking-circuit for the operation of said relay and over the line for talking, a ringing-generator adapted to be connected with the line to call a subscriber located thereon, means to open the cord-circuit during calling to prevent the ringing-current from flowing back over the same, means for temporarily sending a continuous current through said cut-off relay during calling, and means connected in the path of said temporary current to permit the passage of the continuous current and to prevent the passage of the ringing-current, substantially as described.

21. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off relay for the line adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connections with the line, a steady current source associated with said cord-circuit and adapted during a connection to furnish current over a portion of the talking-circuit for the operation of said cut-off relay and over the line for talking, a ringing-generator adapted to be connected with the line to call the subscriber located thereon, means to open the cord-circuit during calling to prevent the ringing-current from flowing back over the same, means for temporarily sending a continuous current through said relay during calling, and a retardation-coil in the path of said latter current to prevent the passage of ringing-current and to permit the passage of steady current, substantially as described.

22. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a cut-off relay bridged between the line conductors and adapted when actuated to render the line-signal inoperative, a cord-circuit to establish connections with the line, a source of steady current bridged across the cord-circuit and adapted during the connection to furnish current for the operation of the cut-off relay, a ringing-generator adapted to be connected with the cord-circuit to call the wanted subscriber, the cord-circuit being opened between said source and the cut-off relay at the time of calling the subscriber, means for temporarily sending a continuous current through said cut-off relay during calling to maintain the same operated, and a retardation-coil in the path of said temporary current to prevent the passage thereover of the ringing-current, substantially as described.

23. In a telephone system, the combination with a telephone-line, of a connection-terminal normally disconnected threfrom, a relay for connecting said terminal with the line, a central source of current adapted to be connected in the metallic circuit for talking purposes, means for operating said relay from said source when connection is made with the line by current flowing over a path including a portion of the talking-circuit, a calling-generator for sending ringing-current over the line of the called subscriber only, means for simultaneously sending continuous current through said relay to maintain the same actuated during calling, and a retardation-coil in the path of the latter current to prevent the passage thereover of the ringing-current, substantially as described.

24. In a telephone system, the combination with a telephone-line, of a magnet connected with the talking-circuit thereof, a cord-circuit, a calling-generator, a ringing-key to connect said generator with the cord-circuit to call the subscriber upon the line, said key serving to open the cord-circuit during ringing, and a source of steady current and a retardation-coil in series therewith temporarily connected with the cord-circuit by said key in calling to maintain said magnet operated, the said retardation-coil serving to oppose the passage of the ringing-current, substantially as described.

25. In a telephone system, the combination with a telephone-line, of a line-signal, a relay to render said signal inoperative when a connection exists, a cord-circuit, a source of current associated therewith and connected with the line during a connection to furnish current for talking and for the operation of said relay, the relay-circuit including one talking-strand of the cord-circuit and a portion of one side of the line with suitable return, a ringing-generator, a key to open the said relay-circuit when operated and to connect the said generator in the circuit of the line, means also actuated by said key for temporarily sending a continuous current through said relay during ringing, and a retardation-coil in the said temporary path so formed by the ringing-key, substantially as described.

26. In a telephone system, the combination with a telephone-line, of a line-signaling device therefor, a cut-off magnet for the line

adapted when actuated to render said line-signaling device inoperative, a cord-circuit to establish connections with the line, a steady-current source associated with said cord-circuit and adapted during a connection to furnish current over a portion of the talking-circuit for the operation of said cut-off magnet, a ringing-generator, a ringing-key switch adapted to connect said generator with the cord-circuit and line to call the wanted subscriber, said switch serving to open the cord-circuit during calling to prevent the ringing-current from flowing back over the same and disturbing the calling subscriber, an auxiliary path for current completed by said key-switch from said source through said cut-off magnet during calling, and a retardation-coil in said auxiliary path to prevent the passage of the ringing-current, substantially as described.

27. In a telephone system, the combination with a multiple-switchboard common-battery telephone-line having its switchboard-section normally disconnected from the external line-circuit, of a line-signaling device normally connected with said external line-circuit, a cut-off relay bridged between the conductors of the switchboard-section and adapted to be actuated during a connection to disconnect said signaling device from the external line-circuit and connect the switchboard-section with said external line-circuit, a cord-circuit to establish connections with the line, a battery having one pole grounded bridged between the strands of the cord-circuit and adapted to send current through said relay to actuate the same during a connection and to furnish current over the telephone-line for talking, supervisory apparatus associated with the cord-circuit and adapted also to be actuated from said source, a grounded ringing-generator, a ringing-key in the cord-circuit between the connection of the said battery therewith and the connecting-plug, said key serving when actuated to open the cord-circuit strands and thus disconnect said battery, said key serving at the same time to connect said generator between ground and one side of the telephone-line, to actuate the subscriber's bell, an auxiliary path for current completed from the live pole of said battery to the other side of the line by said key during ringing whereby current from said battery flows over said auxiliary path through said bridged cut-off relay and the grounded ringing-generator to maintain the same actuated during ringing, and a retardation-coil included in said auxiliary path to prevent the passage of the ringing-current thereover and confine it to the subscriber's line, substantially as described.

28. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a magnet to render said signal inoperative during a connection, a ringing-generator and a source of steady current connected with the line when calling the wanted subscriber, the current from said steady-current source serving to maintain said magnet operated during ringing and having its path completed through said ringing-generator, substantially as described.

29. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a magnet to render said signal inoperative during a connection, a ringing-generator, and a source of steady current connected with the line when calling the wanted subscriber, the current from said steady-current source serving to maintain said magnet operated during ringing and having its path completed through said ringing-generator, and means to prevent the ringing-generator current from being confined to the path of the steady-current source, substantially as described.

30. In a telephone system, the combination with a telephone-line, of a line-signal therefor, a magnet to render said signal inoperative during a connection, a ringing-generator, and a source of steady current connected with the line when calling the wanted subscriber, the current from said steady-current source serving to maintain said magnet operated during ringing and having its path completed through said ringing-generator, and a retardation-coil in said steady-current path ont of the desired path of the ringing-current to prevent the latter from flowing thereover, substantially as described.

31. The combination with a telephone-line, of a signal therefor, a magnet to render said signal inoperative during a connection, a battery and a ringing-generator connected with said line when calling the subscriber, the battery and ringing-generator having derived circuits, the said generator being in the common portion thereof and the said battery serving to maintain said magnet operated during ringing, substantially as described.

32. In a telephone signaling system, a main-line circuit, a non-continuous-current generator for ringing the substation, a continuous-current generator, means for connecting both to the main-line circuit simultaneously and by the same operation to call the wanted subscriber, a line-signal, an electromagnet connected with said circuit to render said signal inoperative during a connection, said magnet being energized by said continuous-current generator during ringing and over a path of low actual resistance but relatively high apparent resistance, substantially as described.

33. In an electric signaling system, a main circuit, a non-continuous-current generator for calling the substation, a continuous-current generator, means for connecting both to the said circuit simultaneously and by the same operation when it is desired to call the subscriber, a line-signal, an electromagnet in a branch of said circuit and adapted to be energized from said source during a connection to prevent the operation of said signal, the circuit of said electromagnet being of high impedance to prevent the passage of current from the non-continuous-current generator, substantially as described.

34. A telephone signaling system comprising a main circuit, a line-signal connected therewith, an electromagnet connected with the line to render said signal inoperative, an alternating-current generator for sending outgoing signals, a continuous or uniform-direction current generator and a retardation-coil, and a signal-sending key or circuit-controller interposed between the main circuit and both generators and adapted when operated to close the circuit of both over the said circuit simultaneously.

35. In a telephone signaling system, a main circuit, a ringing-current generator and a continuous-current generator associated together at the central station of the said circuit, a circuit-closer for connecting both to the said main circuit simultaneously and by the same operation, means for disconnecting both at the end of the call without taking down the connection, a polarized electromagnetic bell at the substation responsive to alternating current only and adapted to give a signal upon the operation of said circuit-closer, a line-signal, an electromagnet to render said signal inoperative during a connection and actuated by current from said continuous-current generator, and means to prevent the passage of ringing-current over said continuous-current path, substantially as described.

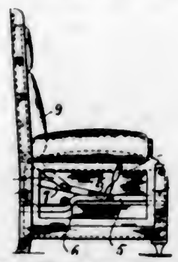
36. The combination with a main circuit, of a line-signal therefor, and an electromagnet to render said signal inoperative during connection and connected with the main circuit, a source of alternating current for sending outgoing ringing-currents over the circuit, a source of continuous current for actuating said electromagnet to render the said signal inoperative during ringing and having impedance in its path to prevent the passage of the ringing-current, and means for connecting both sources with the circuit simultaneously in the normal act of calling the wanted subscriber, substantially as described.

37. The combination with a main circuit, of a polarized electromagnetic call device included therein responsive to alternating currents, an alternating-current generator, a continuous-current generator and retardation-coil associated therewith, a signal at the same station as the said generators, an electromagnet connected with the said circuit to render said signal inoperative during a connection, and a compound circuit-closing device controlling the terminals of both generators and their connections with the main circuit so that when operated in calling a subscriber to make such connections the said magnet will be operated by the continuous current to prevent the operation of said signal by the alternating current and the latter current will be confined to the desired path, substantially as described.

38. In an electric signaling system, the combination with a main circuit, a line-signal, a cut-off relay connected with talking-circuit and adapted to render said signal inoperative during a connection, an alternating-current generator, a relatively low resistance continuous-current generator to operate said relay during ringing, a circuit-closer controlling branch terminals of the said main circuit and also the terminals of both generators and adapted when operated to connect both with said main circuit, an electromagnetic resistance or retardation coil of low actual but high inductive resistance included in the circuit of the continuous generator to prevent the currents of the alternating generator from being short-circuited or shunted through the said continuous-current generator while offering little opposition to the continuous currents developed thereby.

749,307. BED-CHAIR OR BED-SOFA. HERMAN A. LINDEROTH, Osterby, Stjernsund, Sweden. Filed Sept. 16, 1902. Serial No. 123,594. (No model.)

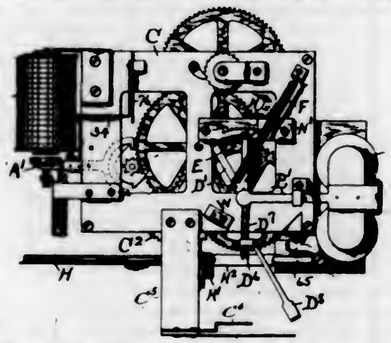
Claim.—1. The combination with a bed-chair having the bed member composed of a number of parts foldably connected to each other, of links between the turnable member of the chair and the chair-frame, fixed guides in said frame, rollers on said turnable member adapted to run on said guides, projections on said links adapted to bear against said guides, a swinging back hinged to the chair-frame, and turnable arm-pieces hinged to said frame, for the purpose set forth.



2. The combination with a bed-chair having the bed member composed of a number of parts foldably connected to each other, links between the turnable member of the chair and the chair-frame, fixed guides in said frame, rollers on said turnable member adapted to run on said guides, projections on said links adapted to bear against said guides, a swinging back hinged to the chair-frame, links between the above-mentioned links and the said back, turning arm-pieces hinged to the chair-frame, and connections between the said arm-pieces and the turnable member of the chair, substantially as and for the purpose set forth.

3. In bed-chairs having the bed member composed of a number of parts foldably connected to each other the combination of links between the turnable member of the chair and the chair-frame, fixed guides in said frame, rollers on said turnable member adapted to run on said guides, a swingable back hinged to the chair-frame, links between the latter and the said back, arm-pieces hinged to the chair-frame, connections between the latter and the said arm-pieces, a frame hinged to the intermediate part of the bed member, and links between the said frame and the forward part of the bed member, substantially as and for the purpose set forth.

749,308. TELEPHONE-EXCHANGE. FRANK A. LUNDQUIST and JOHN K. HORSTROM, Chicago, Ill., assignors to M. R. Richardson, trustee, Sterling, Kans. Filed Nov. 19, 1900. Serial No. 36,930. (No model.)



Claim.—1. In a switching mechanism operated by a clock mechanism and released by a magnet, a contact-maker and a support therefor, a lever pivoted to said support and adapted to engage teeth on one of the gears of the clock mechanism, and a guide for said lever carried by said support at a point adjacent to the teeth of the gear engaged by said lever.

2. A clock mechanism, a magnet for releasing the escapement of said mechanism so as to cause it to move, a supporting-frame loosely mounted on the axis of one of the gears of said mechanism, a lever pivoted to said support and movable radially to and from said gear so as to engage and disengage the teeth thereof, a spring for causing such engagement, and a second magnet for causing such disengagement.

3. A propelling mechanism provided with a gear, a spring contact-maker supported at the axis of said gear and movable thereabout, a device for connecting said contact-maker to and releasing it from said gear, a connection by which the spring of said contact-maker causes said device to engage said gear, and a magnet for releasing such engagement.

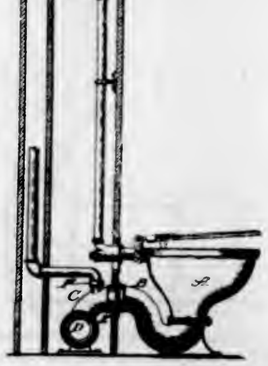
4. The combination with a series of switches and mechanisms for moving them simultaneously, of a receiver-hook located adjacent to each switch and movable to upper and lower positions, and means operated by each receiver-hook for locking the adjacent switch in a fixed position when the hook is in one position and releasing it from such locking when the hook is in the other position whereby one or more of said switches may be held stationary while the remaining switches are simultaneously moved.

5. The combination with an escapement, a contact-maker detachably connected thereto, and a magnet for operating said escapement, of a receiver-hook movable to two positions, and means controlled by the movement of the receiver-hook for locking said escapement against operation by said magnet.

6. The combination with a clock mechanism, a magnet for causing its operation, and a contact-maker detachably connected to said clock mechanism, of a movable receiver-hook, a piece as H^4 supported on said hook, and means for causing said piece to come into contact with one of the gears of said mechanism by the movement of said hook so as to hold said mechanism from movement.

7. The combination with a central office, lines 50 and 100 leading therefrom, and means by which electrical impulses may be sent over said lines, of a series of telephone-stations connected to said lines, a switch located at each telephone-station, a magnet for operating each switch and connected to one of said lines so that when an electrical impulse is sent over that line it will cause a movement of the connected switch, and a locking device connected to each switch and arranged to be operated by a movement of the receiver-hook for that telephone, substantially as described.

749,309. PIPE-FITTING. PATRICK J. MADDEN, Chicago, Ill. Filed Oct. 9, 1902. Serial No. 126,514. (No model.)



Claim.—1. As a new article of manufacture, a pipe-fitting having a main branch open at both ends, a lateral branch joining the top of the main branch at a point intermediate of its ends, said lateral branch being disposed with its axis in a vertical plane which is transverse to the axis of the main branch and a stub proceeding laterally from the top of the lateral branch, substantially as described.

2. As a new article of manufacture, a pipe-fitting having a main branch open at both ends, a bent lateral branch joining the main branch at a point intermediate of its ends and having a portion lying in a plane parallel with a tangent of the main branch, and a stub proceeding laterally from the lateral branch, substantially as described.

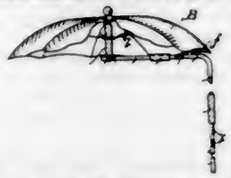
3. As a new article of manufacture, a pipe-fitting having a main branch open at both ends, a bent lateral branch joining the main branch at a point intermediate of its ends, said lateral branch having a portion lying parallel with a tangent of the main branch, and a stub proceeding from the lateral branch laterally with respect to said tangent, substantially as described.

4. A pipe-fitting having a main horizontal branch open at both ends, a lateral horizontal branch joining the top of the main branch

and lying in a vertical plane which is transverse to the axis of the main branch and a vertical stub proceeding from the top of the lateral branch, substantially as described.

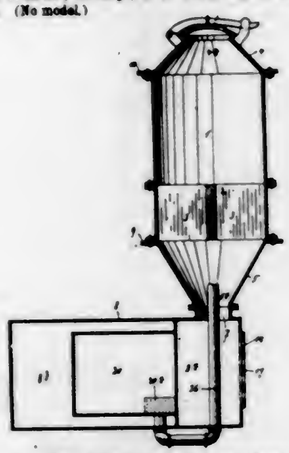
5. In a water-closet, the combination of a bowl having a trap, a horizontal soil-pipe, a connection between the trap and soil-pipe, said connection consisting of a branch which joins the top side of the soil-pipe at a point intermediate of its ends and is disposed with its axis in a vertical plane which is transverse to the axis of the soil-pipe and also with the axis of its terminus in a horizontal plane parallel with a tangent of the soil-pipe, and a stub proceeding upward from the top side of said connection, substantially as described.

749,310. COLLAPSIBLE UMBRELLA. CLARA L. MARKS, Stamford, Conn. Filed June 12, 1903. Serial No. 161,203. (No model.)



Claim.—In an umbrella, the combination of an umbrella-rod, of a joint uniting two sections of said rod, of a sleeve adapted to hold said joint in position and of a pin adapted to hold said sleeve in position and also adapted to hold the cover of said umbrella firmly in position when open.

749,311. APPARATUS FOR BURNING SULFUR. JOHN A. MARSDEN, Lyon Falls, N. Y., assignor to A. R. Paul, Lyon Falls, N. Y., and Andrew Trombley, Carthage, N. Y. Filed May 31, 1902. Serial No. 109,588. (No model.)



Claim.—1. In a sulfur burning or oxidizing apparatus, a rotary cylindrical retort having reduced axial openings in the ends and divided as to a portion of the interior by longitudinal partitions which do not extend to either of said openings, substantially as set forth.

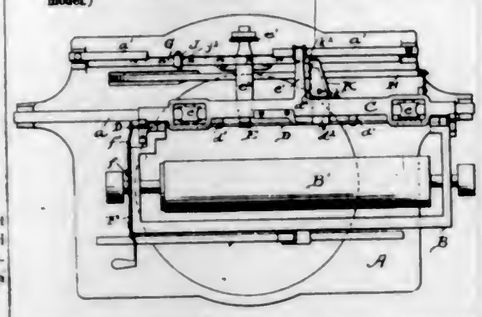
2. In a sulfur burning or oxidizing apparatus, a rotary cylindrical retort having axial openings of smaller diameter than the diameter of the interior of the body of the retort, and forming as to the lower portion a chamber adapted to hold a fluid or molten mass, interior walls extending diametrically toward the axial line from the wall of the retort and extending longitudinally of the retort a portion of its length only and terminating short of the axial openings, substantially as set forth.

3. In a sulfur burning or oxidizing apparatus, the combination of a cylindrical retort having reduced axial openings for intake and outlet, an oxidizing-chamber at the discharge end of the retort, means for supplying air to said oxidizing-chamber adjacent to the discharge end of the retort, a melting-tank arranged in the oxidizing-chamber and utilizing the heat thereof and a pipe connecting the melting-chamber with and discharging into the retort through the axial outlet-opening, substantially as set forth.

4. In a sulfur-burning apparatus, the combination of a rotary retort having axial intake and outlet openings in its ends, a melting-tank and a pipe discharging from the melting-tank into the rotary retort and means for producing a combustion and circulation of gases within and through the retort, substantially as set forth.

5. The combination in a sulfur burning or oxidizing apparatus of a rotary retort having reduced axial openings in its ends, a receiving-chamber at the discharge end of the retort connected therewith, a melting-tank having a pipe discharging into the retort, and means for producing a circulation through the retort and the connecting-chamber, substantially as set forth.

749,312. ATTACHMENT FOR TYPE-WRITERS. MOLNIE MARSHALL, New York, N. Y. Filed Aug. 13, 1902. Serial No. 119,451. (No model.)



Claim.—1. In a type-writer, the combination of a frame, a bar carried thereby, a stop mounted on said bar, a carriage mounted to travel along the frame, a pivoted escapement-bar mounted on the carriage, an escapement carried by the frame for engaging said escapement-bar, an arm extending rearward from said escapement-bar in a position to pass over the stop when the escapement-bar is in engagement but to engage the stop when the escapement-bar is out of engagement, substantially as described.

2. In a type-writer, the combination of a frame, a stop-bar carried thereby, a carriage mounted to travel along the frame, a pivoted escapement-bar mounted on the carriage, an escapement carried by the frame and adapted to engage said escapement-bar, an arm extending rearward from said escapement-bar to a position directly over said stop-bar and some distance above the bar, and a stop carried by said stop-bar and having a lip extending upward from the upper surface of the bar, the upper end of the lip being out of the path of the arm when the escapement-bar is in engagement but being in such path when the escapement-bar is out of engagement, substantially as described.

3. In a type-writer, the combination of a frame, a bar carried thereby, a stop mounted on said bar, a carriage mounted to travel along the frame, a pivoted escapement-bar on the carriage, an escapement carried by the frame for engaging said escapement-bar, an arm extending rearward from said escapement-bar, an extension-arm removably carried by the aforesaid arm in a position to engage the stop when the escapement-bar is out of engagement, and means for securing said extension-arm in place, substantially as described.

4. A stop for a type-writer consisting of a U-shaped plate having an upwardly-extending lug, an inwardly-extending tooth, and a latch-bar pivoted to one leg of the U and adapted to engage the other leg, substantially as described.

5. The combination with a notched bar of a type-writer of a stop made by a U-shaped plate, having an inwardly-extending tooth and having one of its legs turned outward, and a latch-bar pivoted to said outward extension and adapted to occupy a notch in the other leg.

6. A stop for a type-writer consisting of a U-shaped plate having the edge of its intermediate portion turned upward to make a lip j^3 and having the edge of one of its legs turned inward to make an internal tooth j^5, and having the lower portion of said leg turned outward as at j', and a latch-bar j^4 pivoted to this outward extension and adapted to occupy a notch in the other leg j which depends below the latch-bar, substantially as described.

7. The combination with a type-writer having an extending arm with a projecting lip, of an extension made tubular and adapted to slide over said arm, and means for rigidly securing said extension thereto, substantially as described.

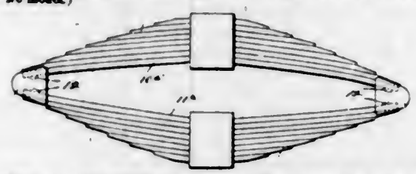
8. The combination with a type-writer having an extending arm with a downwardly-turned lip, and an extension made tubular and provided with an opening on its under side near one edge to allow the passage of said lip whereby the extension may be slid over said arm, substantially as described.

9. The combination with a type-writer having an operating-arm, of an extension thereof consisting of a body-plate, a downwardly-projecting wing at an angle thereto, said body-plate being bent backward upon itself so as to form a flattened tubular portion, said bent-back portion being on the under side of the body-plate, and means for holding said extension to said arm, substantially as described.

10. An extension-arm for a type-writer consisting of a plate K bent onto itself to form a tubular portion k, with an opening k^2, said extension-arm having a projecting wing k^3, and a screw carried by said tubular portion k for clamping it rigidly in position, substantially as described.

11. An extension-arm for a type-writer, consisting of a plate K bent onto itself to form a flat tubular portion k with a longitudinal opening k^2 upon its under side near one edge, said extension-arm having a wing k^3 formed by turning downward the free edge along the side of said opening, substantially as described.

749,313. END SEAT FOR ELLIPTICAL SPRINGS. CHARLES A. MILLER, Marshalltown, Iowa. Filed Sept. 18, 1903. Serial No. 173,671. (No model.)



Claim.—1. The combination of the spring members formed with bosses on the ends thereof, seat-blocks formed with converging seats in opposite faces to receive the ends of the spring members, and also formed with further seats opening to the converging seats and arranged to receive said bosses.

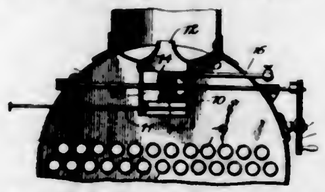
2. A seat-block formed with converging seats or depressions in opposite faces and also formed with further seats or depressions opening to the first, and spring members shaped to engage in said seats or depressions.

3. The combination of spring members, end blocks therefor and means for connecting said end blocks in multiples.

4. A multiple spring, comprising end blocks, means for connecting said end blocks and semi-elliptical spring members above and below and engaging said end blocks.

5. A multiple spring, comprising end blocks, means for connecting said end blocks, each of said end blocks formed with converging seats in opposite faces and also formed with further seats opening to the converging seats, semi-elliptical spring members above and below and engaging in the converging seats of the end blocks, and bosses on the end portions of said spring members and engaging in the innermost seats of the end blocks.

749,314. STEAM-BOILER ATTACHMENT. THOMAS MILLS, Oklahoma, Okla., assignor of one-half to Robert D. Stetson, Oklahoma, Okla. Filed June 17, 1903. Serial No. 161,947. (No model.)

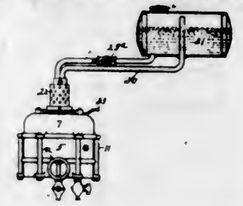


Claim.—1. The combination with a boiler having a fire-chamber, a smoke-chamber and connecting-tubes, of a smoke-stack disposed over the smoke-chamber, a rotary fan situated in the smoke-chamber and operable for inducing a forced draft through the tubes, manually-operable means for rotating the fan, and a steam-pipe communicating with the boiler steam-space and disposed for directing a jet of steam upon the fan-blades to actuate the fan.

2. The combination with a boiler having a fire-chamber, a smoke-chamber and connecting-tubes, of a smoke-stack disposed over the smoke-chamber, a rotary fan situated in the smoke-chamber and operable for inducing a forced draft through the tubes, said fan having a plurality of primary blades and a plurality of short secondary blades arranged between the primary blades, manually-operable means for rotating the fan, and a steam-pipe communicating with the boiler steam-space and disposed for directing a jet of steam upon the fan in the path of its secondary blades to actuate the fan.

3. The combination with a boiler having a fire-chamber, a smoke-chamber and connecting-tubes, of a smoke-stack disposed over the smoke-chamber, a casing situated within the smoke-chamber and having an intake-opening disposed toward the tubes and a discharge-opening disposed toward the stack, a door operable for closing the intake-opening, a rotary fan situated in the casing and operable for inducing a forced draft through the tubes, said fan having a plurality of primary blades and a plurality of secondary blades arranged between the primary blades, manually-operable means for rotating the fan, and a steam-pipe communicating with the boiler steam-space and disposed for directing a jet of steam upon the fan in the path of its secondary blades to actuate the same.

749,315. CARBURETING DEVICE FOR EXPLOSIVE-ENGINES. LOUIS P. MOORES, Cleveland, Ohio, assignor, by mesne assignments, to Peerless Motor Car Company, Cleveland, Ohio, a Corporation of West Virginia. Filed Feb. 20, 1902. Serial No. 94,881. (No model.)



Claim.—1. In a carbureter, the combination of the casing having an air-inlet and a vapor-outlet, a vaporizing-chamber within said casing having walls inclined upwardly and outwardly and then curved inwardly and downwardly, and means for supplying gasolene to said chamber.

2. In a carbureter, the combination with the casing having an air-inlet and a vapor-outlet, a vaporizing-chamber whose walls incline upwardly and outwardly and are then curved inwardly and downwardly, a well for gasolene in the lower portion of said chamber and means for supplying gasolene thereto.

3. In a carbureter, in combination with the casing a vaporizing-chamber whose walls incline upwardly and outwardly and are then curved inwardly and downwardly, an air-inlet tube extending into said vaporizing-chamber, means for feeding gasolene to said vaporizing-chamber.

4. In a carbureter, the combination of a casing, a vaporizing-chamber, whose walls incline upwardly and outwardly and are then curved inwardly and downwardly, a well provided in said vaporizing-chamber and an annular heating-chamber provided around said vaporizing-chamber and adjacent to said well.

5. In a carbureter, the combination of a gas-tight reservoir, a carbureter-casing containing a vaporizing-chamber, whose walls incline upwardly and outwardly and are then curved inwardly and downwardly, an air-inlet tube extended through the walls of the casing and into said vaporizing-chamber and having its open lower end near the surface of the liquid therein, a gasolene-feed pipe connected with said reservoir and extended into said chamber, and an air-tube connected with the reservoir above the liquid therein and extended into said vaporizing-chamber and having its lower end at substantially the desired level of the fluid therein.

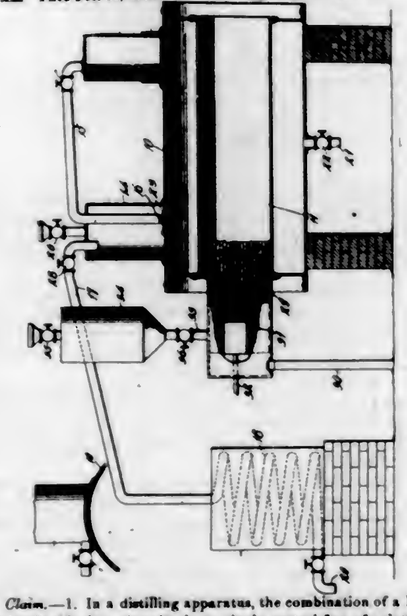
6. In a carbureter, the combination of a gas-tight reservoir, a carbureter-casing containing a vaporizing-chamber, whose walls incline upwardly and outwardly and are then curved inwardly and downwardly, an air-inlet tube extended through the walls of the casing and into said vaporizing-chamber and having its open lower end near the surface of the liquid therein, a gasolene-feed pipe connected with said reservoir and extended into said chamber, and an air-tube connected with the reservoir above the liquid therein and extended into said vaporizing-chamber and having its lower end at substantially the desired level of the fluid therein, the air-inlet tube having near its lower end and within said vaporizing-chamber a plurality of lateral holes.

7. In a carbureter, the combination of a casing consisting of a

bottom member, an upper member having a plurality of air-inlet ports, and a middle member containing a vaporizing-chamber, an annular recess surrounding said vaporizing-chamber, and provided with inlet and discharge openings through which a heating medium passes, said three members being connected together, and the middle member having substantially vertical openings through which communication is established between the upper and lower members, an air-inlet tube extending down through the upper member into the vaporizing-chamber, and means for maintaining a substantially uniform quantity of gasolene in said chamber.

8. In a carbureter, the combination of a casing consisting of a bottom member provided with a discharge-cock, an upper member having a plurality of air-inlet holes, and a middle member containing a vaporizing-chamber whose walls incline outwardly and upwardly and then inwardly and downwardly, and which has a recess in its bottom adapted to serve as a sediment-chamber, said middle member having also an annular recess 5ª which surrounds said vaporizing-chamber and is provided with inlet and discharge openings through which a heating medium passes, said three members being connected together, and there being through the middle member vertical openings through which communication is established between the upper and lower members, an air-inlet tube extending down through the upper member into the vaporizing-chamber, and means for maintaining a substantially uniform quantity of gasolene in said chamber.

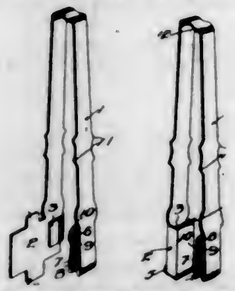
749,316. **DISTILLING APPARATUS.** JOHN M. MOORE, Wena, Ala. Filed Feb. 25, 1903. Serial No. 145,056. (No model.)



Claim.—1. In a distilling apparatus, the combination of a horizontal cylindrical receiver having a single central flue of relatively large diameter extending therethrough longitudinally of the receiver, a detachable dome mounted on the upper portion of the receiver adjacent to one end thereof and communicating with the interior of the receiver, a condenser mounted on the top of said receiver adjacent to the other end thereof, the shell of the receiver forming the bottom of the condenser, a condensing-pipe leading from the top of said dome to said condenser and terminating within said condenser near the bottom thereof, an inlet-valve and an outlet-valve associated with said condenser, a conductor-pipe leading laterally from the top of said condenser to a worm and a discharge-valve in the bottom of said receiver.

2. The combination in a distilling apparatus of a horizontal cylindrical receiver having a single central flue of relatively large diameter extending longitudinally through said receiver, a condenser mounted on top of said receiver near one end thereof, a flange mounted on top of said receiver near the other end thereof and surrounding an opening in said receiver, a removable dome fitted within said flange, a condenser-pipe rising from the top of said dome and leading laterally to said condenser within which said pipe terminates near the bottom, inlet and outlet valves associated with said condenser, a conductor-pipe leading laterally from the top of said condenser and a discharge-valve in the bottom of said receiver.

749,317. **CAR-SEAL.** ALFRED W. MORGAN, Urbana, Ill., assignor of one-half to Joseph Stuber and Henry G. Kuck, Peoria, Ill. Filed June 4, 1903. Serial No. 160,216. (No model.)



Claim.—1. A car-seal comprising a strip, a casing formed at one end of said strip and containing one locking member and having a lip bent outwardly to form a flaring mouth or entrance-passage for the admission of the other locking member formed at the opposite end of the strip, substantially as set forth.

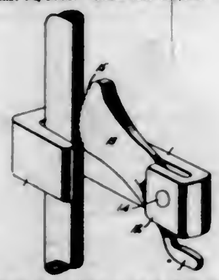
2. In a car-seal, a box or chamber containing one locking member, said box or chamber being formed from a blank having incisions at its upper edge, the lips thus formed being bent outwardly to form a flaring mouth or entrance-passage for the admission of the other locking member, substantially as set forth.

3. A car-seal comprising a foldable metallic strip or body and cooperating locking members at the ends of the arms of said strip, said arms being provided with marginal, coinciding and normally registering indices and the central portion of the strip between the arms being likewise provided with marginal indices whereby, when the seal is tampered with by cutting the strip and inserting the cut end in the casing forming one of the locking members, the marginal indices upon the arms and upon the strip between the arms will be carried out of alinement.

4. In a car-seal, the combination of a strip, a casing formed at one end thereof, a lock-lip within said casing, a locking-hook formed at the opposite end of the strip and adapted to enter the casing and engage the lip, said hook and lip being provided with incisions in their meeting edges, substantially as set forth.

5. In a car-seal, the combination with a strip, of locking members formed at the ends thereof and comprising respectively a lock-lip arranged freely between the sides of the box or casing, and a locking-hook disposed between two adjacent hook members, the opposing or meeting edges of said lip and hook being provided with notches and having the portions adjacent to said notches bent or twisted in opposite directions, substantially as set forth.

749,318. **DRILL-ROD CLAMP.** THOMAS R. MORRIS, Calvary Ohio. Filed Mar. 14, 1903. Serial No. 147,831. (No model.)



Claim.—A clamp comprising a stock formed of a flat bar bent at one end to form a U-shaped socket and having its other end bent on the same side as the U-shaped socket to form bearings and spaced therefrom, a movable jaw mounted in said bearings and having a cam-face at one end extending into said U-shaped socket and an arm at the other end projecting beyond one edge of the stock in position to serve as a stop to limit the movement in one direction of the cam-faced end and as a lever for releasing said cam end from engagement with an object clamped between it and the U-shaped socket.

749,319. **SHEET-METAL VESSEL.** JAMES R. MCLAUGHLIN, Canandaigua, N. Y. Filed Sept. 16, 1903. Serial No. 173,369. (No model.)



Claim.—1. An article of manufacture, comprising a vessel having a bottom provided with a peripheral lip secured to the wall of the vessel on the inside and a depending flange included by the circumference of said lip, the lower portion of said flange being outwardly turned and double-seamed with the corresponding portion of said vessel-wall, and a reinforcing ring or hoop inserted between said wall and bottom and entirely concealed on the ontside and inside of the vessel.

2. An article of manufacture, comprising a body portion, a bottom having an inwardly and downwardly turned part forming a peripheral lip or rib, the lower edge of said downwardly-turned part being outwardly turned and secured to the corresponding edge of said body portion, and a hoop or ring locked between said lip and said outwardly-turned edge and entirely concealed, substantially as described.

3. An article of manufacture, comprising a vessel-body, a bottom having an inwardly and downwardly turned part forming a peripheral lip or rib, the lower edge of said downwardly-turned part being outwardly turned and secured to the corresponding edge of said vessel-body, and a reinforcing hoop or ring locked between said lip and said outwardly-turned edge, but otherwise unsecured.

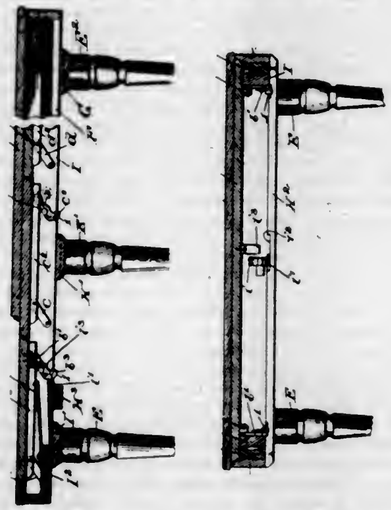
4. An article of manufacture, comprising a body portion, a bottom provided with a peripheral lip and a depending flange included by the circumference of said lip, said lip being secured to said body portion on the inside, and the lower edge of said downwardly-turned part being outwardly turned and double-seamed to the corresponding edge of said body portion, and a hoop or ring interposed between said body portion and said downwardly-turned part and having its upper edge bearing upon said lip and its lower edge substantially flush with the corresponding edge of said body portion.

749,320. **EXTENSION-TABLE.** HERMANN HOSHAST and WILHELM THIAR, Chicago, Ill. Filed Jan. 16, 1902. Serial No. 89,953. (No model.)

Claim.—1. In an extensible table, the combination of a main table-top section, a plurality of leaves or movable table-top sections, a plurality of movable members, a locking device for locking said members against relative movement when the leaves are all beneath the table-top, and also adapted to lock the first of said leaves in its elevated position, upwardly and forwardly swinging connections intermediate of said leaves or movable table-top sections and one of said relatively movable members, and a tripping member and a plurality of dogs constructed and arranged to coöperate in causing said leaves or movable table-top sections to follow each other and successively swing forward into the plane of said main table-top section.

2. In an extension-table, the combination of a main table-top section, an extension-leaf provided with a projection, a sliding frame, a locking-lever mounted on said frame and adapted to engage said projection, a tripping member, and a plurality of dogs and links for lifting said leaf.

3. In an extension-table, the combination of a main table-top section, a plurality of leaves or movable table-top sections adapted to be concealed beneath said main table-top section, relatively movable or sliding members, links connecting said leaves or movable sections with the inner of said relatively movable or sliding members, pivoted dogs associated with certain of said links and capable of movement relatively to the latter, a lug projecting downwardly from the under side of one of said leaves or movable table-top sections, a pivoted locking-lever carried by one of said relatively movable or sliding members, said locking-lever being adapted to engage said lug, a tripping member adapted also to be engaged by said locking-lever, so as to prevent relative movement between said relatively movable or sliding members, said tripping member being adapted and arranged to engage said dogs for the purpose of causing said leaves or movable table-top sections to follow each other and successively rise into the plane of said main table-top section.



4. In an extension-table, the combination of a main frame supporting a main table-top section, a plurality of frames telescoped within said main frame, a plurality of leaves or movable table-top sections having shifting connections with the inner of said telescoping frames, a locking device for preventing relative movement between said telescoping frames, said locking device being also adapted to prevent relative movement between one of said leaves or movable table-top sections and the inner of said telescoping frames, a plurality of dogs associated with the swinging connections between said leaves or movable table-top sections and the inner telescoping frame, and a tripping member adapted and arranged to engage and actuate said dogs for the purpose of causing said leaves or movable table-top sections to follow each other and successively rise into the plane of the said main table-top section.

5. In an extension-table, the combination of a main table-top section, a plurality of movable leaves adapted to be normally concealed beneath the said table-top, means for causing said leaves to follow each other and be successively raised into the plane of the table-top, when the leaves are pulled out from beneath the latter, and a locking device adapted to lock the leaves in their position beneath the table-top, and adapted also to lock the first leaf in its elevated position when the same is pulled out from beneath the table-top.

6. In an extension-table, the combination of a main table-top section, a plurality of movable leaves, a pair of telescoping frames adapted to be drawn out from under the main table-top section, links connecting the leaves with the inner of said telescoping frames, a tripping-bar rigid with the outer of said frames, pivoted dogs associated with certain of said links and adapted to operatively engage said bar when the leaves are pulled from beneath the table, said dogs being adapted to inoperatively engage said bar when the leaves are pushed back beneath the main table-top section, and a pivoted lever adapted to lock the leaves in their normal position beneath the main table-top section, and adapted also to lock the first leaf in its elevated position.

7. An extension-table comprising a main table-top section, a pair of telescoping frames capable of relative sliding movement, a plurality of leaves or movable table-top sections connected by links to the inner of said sliding frames, and a plurality of dogs and a tripping member adapted and arranged to coöperate in successively raising or lifting said leaves into the plane of said main table-top section, said frames when pulled apart causing the said movable ta-

ble-top sections to follow each other and successively rise into the plane of the said main table-top section, and said dogs being adapted to be operatively engaged by said tripping member when the leaves are pulled apart, and to inoperatively engage said member when the leaves are pushed under the table-top.

8. In an extension-table, the combination of a table-top, a plurality of leaves normally concealed beneath said table-top, lifting devices for causing said leaves to follow each other and to rise successively into the plane of the table-top when the same are pulled out from beneath the latter, said lifting device remaining inert or inoperative when the leaves are pushed back beneath the table-top, and a locking device adapted to lock the leaves in their position beneath the table-top, and adapted also to lock the first of said leaves in its elevated position when pulled from beneath the table-top.

9. In an extension-table, the combination of a main table-top section, a sliding member, a plurality of movable table-top sections, a plurality of links connecting the under side of each movable table-top section with the said sliding member, the said movable sections being adapted to be normally concealed beneath the main table-top section, a plurality of short levers associated with said movable table-top sections, a tripping member adapted to be successively engaged by said levers, said levers when engaged by the tripping member causing the said movable table-top sections to follow each other and rise successively into the plane of said main table-top section, the said levers being adapted to slide readily and inoperatively over the said tripping member when the sliding member and the movable table-top sections are moved back below the main table-top section.

10. An extension-table comprising a main table-top section, a plurality of leaves or movable table-top sections normally concealed beneath said main table-top section, a pair of telescoping or sliding frames, table-legs rigidly connected with the inner sliding frame, an intermediate table-leg rigidly connected with the outer of said sliding frames, a plurality of links for connecting each movable table-top section with the inner of said frames, a plurality of short lever-like members each associated with one of said links, and a tripping member whereby an outward movement on the part of said frames causes said leaves or movable table-top sections to be successively lifted in the plane of said main table-top section, said lever-like members being successively engaged and operated by said tripping member as the leaves are pulled out, but each lever-like member being adapted to remain inert while the leaves are being folded or pushed under the table-top, the said frames serving as medium of connection between the said legs and table-top sections.

11. In an extensible table, the combination of a main table-top section, a plurality of leaves or movable table-top sections, a sliding frame, links connecting said leaves with said sliding frame, pivoted dogs associated with certain of said links and capable of movement relatively to the latter, and a tripping member for successively engaging said dogs, so as to successively lift said leaves or movable table-top sections, said dogs being adapted to inoperatively engage and pass the said tripping member when the leaves are pushed back beneath the table-top.

12. In an extension-table, the combination of a main table-top section, a plurality of leaves or movable table-top sections normally concealed beneath said table-top section, relatively adjustable legs, and a plurality of relatively adjustable members arranged intermediate of said legs and table-top sections, said leaves or movable table-top sections following each other and successively moving into position to extend the area of the table-top when said relatively adjustable members are pulled apart, and a locking device for locking and holding the first of said leaves in its elevated position.

13. In an extensible table, the combination of a main table-top section, a plurality of leaves or movable table-top sections normally concealed beneath said main table-top section, and a tripping member and a plurality of articulated levers for causing said leaves or movable table-top sections to follow each other and successively rise into the plane of said main table-top section, and a tripping member arranged to successively engage said levers when the leaves are unfolded or pulled out from beneath the table-top, said levers being adapted to inoperatively engage said tripping member when the leaves are pushed back beneath the table-top

14. In an extensible table, the combination of an extension-leaf, a sliding frame, a link connecting the leaf with said sliding frame, a pivoted dog associated with said link and capable of movement relative to the latter, and a tripping member for engaging and actuating said dog when the leaf is pulled out from beneath the table-top, said dog being adapted to remain inert and slide readily over said tripping member when the leaf is pushed back beneath the table-top.

15. In an extension-table, the combination of a main table-top section, a pair of telescoping frames or relatively sliding members, a plurality of leaves or movable table-top sections adapted and arranged to follow each other and successively rise into the plane of said main table-top section, said frames being arranged beneath the said table-top sections, a plurality of dogs, and a tripping member adapted to engage said dogs and thereby cause the said successive movements of the leaves or movable table-top sections into position when the said frames are pulled apart, said movable table-top sections being connected by a number of links with the inner of said telescoping frames, each dog being associated with one of said links, the said dogs being pivoted and adapted to hang inert and slide readily over said tripping member when the leaves are pushed under the table-top.

749,321. GARMENT-FASTENER. NATHAN W. PERKINS, Jr., St. Louis, Mo. Filed July 12, 1902. Serial No. 115,351. (No model.)

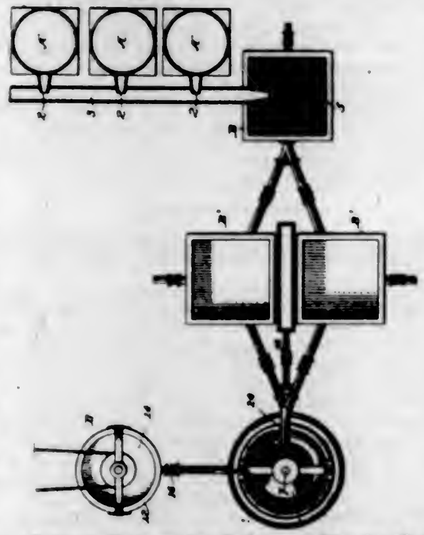


Claim.—1. A member for a garment-fastener comprising a wire whose middle portion is bent to form an open spring-hook at the ends of whose legs the wire is bent outwardly and at an angle to the plane of the hook portion and backwardly to form legs, said hook being inclined toward the plane of said last-mentioned legs, substantially as described.

2. A garment-fastener comprising two interlocking members, each member consisting of a wire whose middle portion is bent to form an open spring-hook at the ends of whose legs the wire is bent outwardly and at an angle to the plane of the hook portion and backwardly to form legs, said hook being inclined toward the plane of said last-mentioned legs, substantially as described.

3. A garment-fastener comprising two interlocking members, each member consisting of a wire whose middle portion is bent to form an open spring-hook at the ends of whose legs the wire is bent outwardly and at an angle to the plane of the hook portion and back to form legs, and eyes therefor, said hook being inclined toward the plane of said last-mentioned legs, substantially as described.

749,322. PROCESS OF TREATING OILS. FREDERICK B. POPE, Augusta, Ga., assignor of one-half to Magnus Swenson, Chicago, Ill., and Lamar L. Fleming, New York, N. Y. Filed Feb. 3, 1902. Serial No. 92,448. (No specimens.)



Claim.—1. The herein-described process of treating oil, which consists in heating the oil to a high temperature immediately after it leaves the press, and then separating the oil from the free acid and other impurities while in such heated condition, substantially as set forth.

2. The herein-described process of treating oil, which consists in maintaining a substantially continuous flow of oil from a press through a refining apparatus, and heating the oil and maintaining the heat during the flow of oil through the apparatus, substantially as set forth.

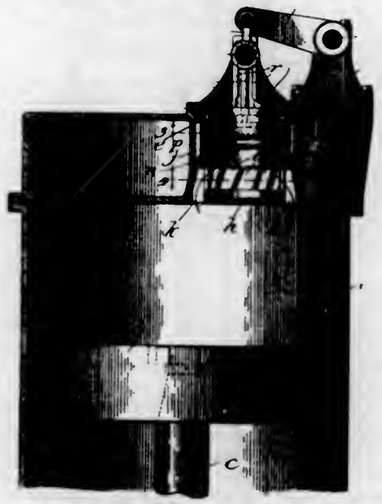
3. The herein-described process of refining oil, which consists in heating the oil immediately after it leaves the press to a high temperature, and thereafter separating the heavier impurities from the oil, substantially as set forth.

4. The herein-described process of treating oil, which consists in heating the oil immediately after it leaves the press, separating the heavier impurities from the oil, and then mechanically forcing the separated oil through a porous filtering-body, substantially as set forth.

5. The improvement in refining oil consisting in effecting in a continuous manner the agitation of the oil with the chemical reagent for neutralizing free acid and the separation of the oil from the reaction products, including precipitated coloring-matter, substantially as described.

6. The process of treating oil, consisting in heating the oil to a high temperature immediately after it leaves the press, and while it is at an elevated temperature separating it in a continuous manner from impurities therein, substantially as described.

749,323. INLET-VALVE FOR COMPRESSING-ENGINES. IRVING H. REYNOLDS, Milwaukee, Wis. Filed Dec. 15, 1902. Serial No. 135,307. (No model.)



Claim.—1. In mechanisms of the class described, the combination of an engine, a cylinder-head secured thereto having fixed and removable walls forming an annular valve-chamber therebetwern, one of which walls is provided with inlet-perforations, a sleeve-shaped valve in such annular chamber for alternately covering and uncovering the inlet-perforations, and means for actuating said valve during the operations of the engine, substantially as described.

2. In mechanisms of the class described, the combination of an engine provided with a head having a cylindrical opening therein, a cup-shaped piece or wall axially and removably secured therein forming the inlet-passage proper and having a plurality of inlet-perforations in the side walls thereof forming an annular valve-chamber between it and the outer immovable walls of the engine, and a cylindrical sleeve-shaped valve in such annular chamber for alternately covering and uncovering the inlet-perforation in said side walls during the operations of the parts, substantially as described.

3. In mechanisms of the class described, the combination of an engine, a cylinder-head secured thereto and having a cylindrical fixed wall forming an opening therethrough, a flanged cup-shaped piece or wall axially and removably secured therein with its flanged open end portion secured to the outer end of the cylinder-head and provided with a plurality of inlet-perforations in its side walls forming an annular valve-chamber between it and the fixed wall of the cylinder-head, a sleeve-shaped valve in such annular chamber for alternately covering and uncovering the inlet-perforations, a cross-head connected with said valve, and rock-shaft mechanism connected with the cross-head, substantially as described.

4. In mechanisms of the class described, the combination of an engine, a cylinder-head secured thereto having a cylindrical opening therein, a flanged cup-shaped wall or piece removably and axially secured therein with its flanged open end at the outside and provided with a plurality of diagonally-arranged inlet-perforations in its side wall and forming an annular valve-chamber between it and the adjacent fixed wall, a reciprocating valve in such annular chamber for alternately covering and uncovering such inlet-perforations, guideways secured to a relatively immovable part of the engine, a cross-head in such guideways secured to the valve, and a rock-shaft for operating such cross-head, substantially as described.

5. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the chamber of such cylinder, an annular wall mounted within such opening and provided with inlet-openings therethrough communicating with the inner chamber of the cylinder, and an annular valve movably mounted intermediate such annular walls, substantially as described.

6. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the chamber of such cylinder, an annular wall mounted within such opening and provided with inlet-openings therethrough communicating with the inner chamber of the cylinder, an annular valve movably mounted intermediate such annular walls, and crank and shaft mechanism connected with such valve for operating it, substantially as described.

7. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the chamber of such cylinder, an annular wall mounted within such opening and provided with inlet-openings therethrough communicating with the inner chamber of the cylinder, an annular valve slidably mounted intermediate such annular walls in sliding engagement with one of such walls and provided with a flange at one end in sliding engagement with the adjacent wall, and a packing-ring arranged in sliding engagement with such valve, substantially as described.

8. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the pressure-chamber of such cylinder, an annular wall mounted within such opening provided with an open outer end and openings near the inner end thereof, and an annular valve slidably mounted intermediate such annular walls, substantially as described.

9. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the chamber of such cylinder, an annular wall removably mounted within such opening and provided with openings at the outer and inner ends thereof, and an annular valve mounted intermediate such annular walls in sliding engagement therewith, substantially as described.

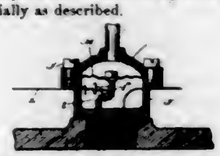
10. In mechanisms of the class described, the combination of a main cylinder provided with a pressure-chamber, a cylinder-head secured thereto provided with an annular wall forming an opening communicating with the chamber of such cylinder, an annular wall mounted within such opening having an open outer end and openings near the inner end thereof and provided with an imperforate wall at its inner end, a sleeve-valve slidably mounted intermediate such annular walls, and means for operating such sleeve-valve, substantially as described.

11. In mechanisms of the class described, the combination of an engine, a cylinder-head secured thereto, a removable inlet-cylinder in such head provided with inlet-openings in the walls thereof, a sleeve-shaped valve reciprocatingly mounted upon and encircling such removable cylinder to cover and uncover the inlet-perforations, and means for actuating such valve by and during the operations of the engine, substantially as described.

749,324. ELECTRIC SPARKING IGNITION APPARATUS FOR GAS ROCK-DRILLS. JOHN V. RICE, Jr., Edgewater Park, N. J., assignor to the John V. Rice, Junior, Company, Edgewater Park, N. J., a Corporation of New Jersey. Filed June 8, 1896. Renewed July 16, 1898. Serial No. 686,134. (No model.)

Claim.—1. In an igniting device for gas-driven rock-drills and the like, the combination of a cylinder, a piston, igniting devices ar-

ranged in connection with the cylinder, said devices consisting essentially of fixed, separate electrodes in the cylinder and a circuit-closing diaphragm in a casing external to the cylinder and a pipe leading to a closed compartment of said casing from the interior of the cylinder, substantially as described.



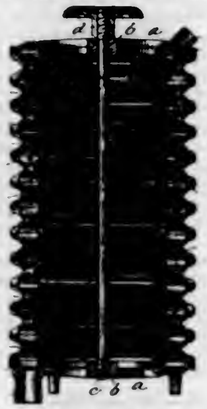
2. In an igniting device for gas-driven rock-drills and the like, the combination of the cylinders, the pistons therein, igniting devices arranged in connection with the cylinders, said devices consisting essentially of fixed, separate electrodes and a circuit-closing diaphragm, and pipes leading to said diaphragm from the interior of the cylinders, substantially as described.

3. In an igniting device for gas-driven rock-drills and the like, in combination with the cylinders, a piston movable therein, outlet and inlet valves, an igniting mechanism consisting essentially of a casing on the wall of the cylinder, a flexible diaphragm in the casing dividing it into two compartments, electric wires having separate, fixed electrode-points within the cylinder, said wires having their electric circuit opened and closed by the movement of said diaphragm, and a pipe leading from the interior of the cylinder to convey pressure to the compartment on one side of said diaphragm, substantially as described.

4. In an igniting device for gas-driven rock-drills and the like, in combination with the cylinders, a piston movable therein, outlet and inlet valves, an igniting mechanism consisting essentially of a casing, a flexible diaphragm in the casing dividing it into two compartments, electric wires having fixed, separate electrode-points within the cylinder and running through one of the aforesaid compartments, wherein one of the wires is divided into parts having inclined ends adapted to contact with each other and one of the said ends being carried by the diaphragm, the electric circuit being opened and closed by the movement of said diaphragm, and a pipe leading from the interior of the cylinder to convey pressure into the other compartment and against one side of said diaphragm, substantially as described.

5. In an engine of the character described, the combination with the cylinder, of an igniting device consisting essentially of fixed, separate electrodes in the cylinder and a circuit-closing diaphragm and a pipe leading to said diaphragm from the interior of the cylinder, substantially as described.

749,325. LIQUID-COOLER. OTTO RODERWALD, Chicago, Ill. Filed Jan. 8, 1903. Serial No. 138,258. (No model.)

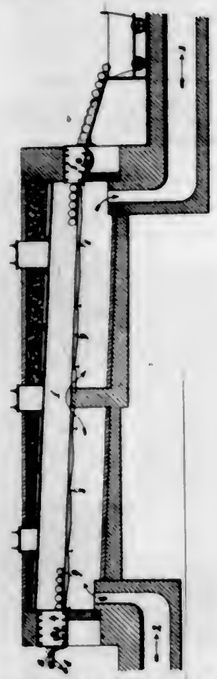


Claim.—1. In a liquid-cooler, the combination of a pair of annular heads, a series of superimposed annular elements between the heads, each consisting of a ring having channels in its upper and lower faces and having its sides following the cross-sectional contour of said channels to form reëntrant angles, and means for locking said elements and the heads together.

2. In a liquid-cooler, the combination of a pair of annular heads, a series of superimposed elements each consisting of a ring having channels in its upper and lower faces and having its sides following the cross-sectional contour of said channels to form reëntrant angles and having a pair of lugs on its upper edge and a single lug on its lower edge adapted to engage between the lugs on the upper edge of the element on which it is imposed, and means for locking said elements and heads together.

3. In a liquid-cooler, the combination of a pair of annular heads, a series of superimposed rings having channels in their upper and lower faces and their sides following the cross-sectional contour of said channels to form reëntrant angles, and provided with openings in their walls forming communications between the adjoining rings, dams within the rings between the openings, and means for locking all the rings and the heads together.

749,326. DRYING AND ANNEALING STOVE. ÁRPÁD RÓNAY, Budapest, Austria-Hungary. Filed Feb. 9, 1903. Serial No. 142,506. (No model.)



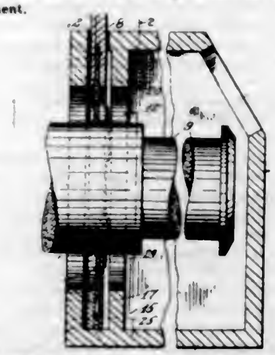
Claim.—1. In an apparatus of the nature set forth, the combination of a chamber, passage-ways in said chamber, cylindrical inlet and discharge apertures for said chamber, shafts rotatably mounted in said apertures, radial plates secured to said shafts and adapted to close said apertures at all times, and packing-strips on said plates adapted to engage the walls of said apertures.

2. In an apparatus of the kind set forth, the combination of a chamber, inlet and outlet orifices in said chamber for gases or the like, an inclined plane in said chamber, grooves formed in said plane, cylindrical inlet and outlet apertures at the ends of said plane, feeding and discharge devices in said apertures comprising radial plates and shafts to which said plates are secured, said shafts being rotatably mounted in said apertures, compartments formed in said plates, corresponding with the grooves in said inclined plane, and a hinged feed-table adjacent to said feed device and adapted to discharge into the same, substantially as described.

749,327. DUST-GUARD FOR CAR-AXLE BOXES. ELI H. SAGER, JOHN SAGEHIEFER, and WALLACE H. DOW, Seattle, Wash., assignors to Dust Guard Manufacturing Company, Seattle, Wash., a Corporation of Washington. Filed Nov. 30, 1901. Serial No. 84,284. (No model.)

Claim.—1. In a device of this character, the combination with a journal-box and axle, of two substantially U-shaped sections slidably fitting one within the other and surrounding the axle, resilient means arranged in each section for yieldingly supporting a packing, a packing directly carried thereby and held in contact with the axle

by one of said means, and springs carried by one of said sections to engage the journal-box and holding the sections therein from lateral displacement.



2. In combination with a car-axle and box, a guard comprising two interlocking carrier-sections each having a pocket for packing, a packing-plate removably mounted in each pocket, a spring arranged in each pocket to engage the packing-plates to force them toward each other, and means carried by one section to prevent the lateral displacement of the two sections.

3. In combination with a car-axle and box, of two slidably-engaged carrier-sections adapted to loosely surround the axle and be mounted in the box, said carrier-sections being provided with pockets in opposite ends and having parallel rabbets upon their inner faces, packing-plates slidably mounted in the pockets and adapted to be guided in their sliding movement by the rabbets, and means mounted in the pockets to keep the packing-plates in contact with the axle.

4. In a device of the nature described, two slidably-engaged substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base, a lip secured to each bracket and extending over the side surface of the section, a spring between each lip and base and a substantially U-shaped packing-plate resting on each spring.

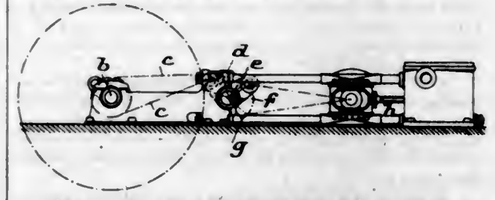
5. In a device of the nature indicated, two slidably-engaged substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base, a lip secured to each bracket and extending over the side of the section to the inner edges of the stems thereof, there being a rabbet along the inner corner of each stem of the section, a spring seated between each lip and base, and a packing-plate yieldingly supported by each spring.

6. In a device of the nature indicated, two substantially U-shaped carrier-sections each having a bracket fixed on one side thereof at the base with a cavity in the top edge, a lip on each bracket extending over the side of the section to the inner edges of the stems thereof, a bowed spring in the space between each lip and base having a portion fitting each cavity, a pin fixed transversely of each space, a U-shaped packing-plate of greater width than the space between the stems of each section yieldingly supported on each spring, and packing-strips arranged on the opposite side surface of each section from the lip.

7. The combination with a car-axle box having a guard-chamber, of a removable carrier comprising oppositely-disposed substantially U-shaped plate-sections each having a pocket for packing arranged at one side of the base, substantially U-shaped packing-plates in said pockets with their stems adapted to overlap, a spring carried in each section and arranged to yieldingly support one of the packing-plates for independent movement, packing-strips arranged on the side of each section, and springs carried by one section adapted to engage one wall of the car-axle box to force the sections in contact with the opposite wall of the box.

8. A dust-guard for car-axle boxes, comprising a carrier adapted to be slidably inserted in the guard-chamber of a journal-box, and comprising oppositely-disposed substantially U-shaped plate-sections each having a vertically-disposed pocket arranged on one side at the base with the inner side surface in the same plane with a like surface of the pocket on the opposing section, packing-strips arranged on the side surface opposite the pocket, there being a rabbet along the inner corner of each stem, a spring seated in each pocket, oppositely-disposed substantially U-shaped packing-plates supported on said springs and extending into said rabbets, and springs disposed on the side surface of one of said sections and adapted to hold said sections in slidable contact.

749,328. PRESS. MAX SALSMANN, Magdeburg-Buckau, Germany. Filed Dec. 29, 1902. Serial No. 137,021. (No model.)



Claim.—1. In a device of the class described, the combination of a press, a plunger therefor and guides for the plunger, a transverse shaft and operative connections from said shaft to said plunger for imparting to the latter a double reciprocation for each single vibration of the shaft, and power devices acting on said transverse shaft with a maximum efficiency at the center of movement of the latter, as and for the purpose set forth.

2. In a device of the class described, the combination of a press, a plunger therefor and guides for the plunger, a transverse shaft and operative connections from said shaft to said plunger for imparting to the latter a double reciprocation for each single vibration of the shaft, and a plurality of power devices acting on said transverse shaft with a maximum efficiency at the center of movement of the latter, as and for the purpose set forth.

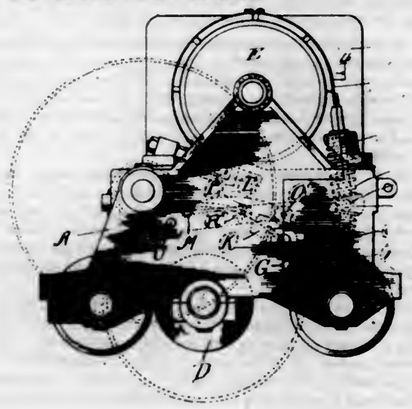
3. In a device of the class described, the combination of a die member, a plunger, a pair of transverse shafts one of which is arranged to continuously rotate, and having a connecting-rod arranged to vibrate the second transverse shaft through a limited arc of movement, and operative connections from said second transverse shaft with said plunger for imparting to the latter a double reciprocation for each single rotation of the first-named shaft, as and for the purpose set forth.

4. In a device of the class described, the combination of die members, a plunger, guides for the plunger, a motive-fluid cylinder, a fly-wheel, and operative connections for rotating the latter, an auxiliary transverse shaft, a connecting-rod for vibrating the latter, and operative connections from said shaft for imparting to said plunger a double reciprocation for each rotation of the fly-wheel, as and for the purpose set forth.

5. In a device of the class described, a plunger-press and a fly-wheel shaft, an intermediate transverse shaft having cranks, a steam-cylinder, and connecting-rods leading respectively from said cranks to the press, the cylinder, and the fly-wheel shaft, the cranks being disposed to impart a double reciprocation to the plunger for each single reciprocation of the other connecting-rods, as and for the purpose set forth.

6. In a device of the class described, a plunger-press and a toggle-lever connection for operating the same, motive-power connections for actuating said toggle-joint levers, and fly-wheel connections acting at a maximum efficiency at the center of movement of the toggle-joint levers, as and for the purpose set forth.

749,329. COMBINED CONTROLLER AND BRAKE-OPERATING MECHANISM. HARRY SAWYER, Muskegon, Mich. Filed Sept. 1, 1903. Serial No. 171,568. (No model.)



Claim.—1. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake apparatus coöperating with the hoisting device, a spring for exerting a tension on such brake apparatus, and means operated by said controller-shaft for varying the amount of such tension, as and for the purpose set forth.

2. In a controlling mechanism for a hoisting device, the combination with a controller for the motive power, of a brake apparatus coöperating with the hoisting device, a spring for exerting a tension on such brake apparatus, and mechanical connections operated by said controller for varying the amount of such tension, as and for the purpose set forth.

3. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake apparatus coöperating with the hoisting device, means for exerting a tension on such brake apparatus, and mechanism connected with the controller-shaft for gradually varying such tension to correspond with the gradual movement of said shaft, as and for the purpose set forth.

4. In a controlling mechanism for a hoisting device, the combination with a controller for the motive power, of a brake coöperating with the hoisting device, means for applying pressure to said brake comprising a spring and mechanical connections from said controller formed and arranged to apply a gradually-varying tension thereto as the controller is operated, as and for the purpose set forth.

5. In a controlling mechanism for a hoisting device, the combination with a controller for the motive power, and operating mechanism therefor, of a brake coöperating with the hoisting device, expansive means for applying said brake, and other counterbalancing expansive means therefor, mechanically operated by the controller-operating mechanism, as and for the purpose set forth.

6. In a controlling mechanism for a hoisting device, the combination with a manually-operated controller for the motive power of a brake coöperating with the hoisting device, means for supplying a pressure to said brake, and means mechanically operated from the controller for gradually counterbalancing the pressure on said brake, as and for the purpose set forth.

7. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake coöperating with the hoisting device, and means for applying a pressure thereto, a cam moving with the controller-shaft, and means controlled thereby for gradually varying the brake-applying pressure, as and for the purpose set forth.

8. In a controlling mechanism for a hoisting device, the combination with a manually-operated controller-shaft for the motive power, of a brake coöperating with the hoisting device, and means for applying a pressure thereto, a pivoted arm, a cam moving with the controller-shaft and coöperating with said pivoted arm, a spring attached to said pivoted arm and coöperating with the brake-pressure means to vary the tension of the brake, as and for the purpose set forth.

9. In a controlling mechanism for a hoisting device, the combination with a controller for the motive power, of a brake coöperating with the hoisting device, and means for applying a pressure thereto, a pivoted arm, a cam coöperating with said pivoted arm for gradually varying the pressure of said brake, and an additional pivoted arm with which said first-mentioned arm coöperates in applying the brake, as and for the purpose set forth.

10. In a controlling mechanism for a hoisting device, the combination with the controller-shaft for the motive power, of a brake coöperating with the hoisting device, and a spring for applying a pressure thereto, a pivoted arm, a cam actuated by the controller-shaft and coöperating with said pivoted arm, and pressure means applied by said arm for counterbalancing said spring, as and for the purpose set forth.

11. In a controlling mechanism for a hoisting device, the combination with a manually-operated controller for the motive power, of a brake coöperating with the hoisting device, and a spring supported against a fixed abutment for applying a pressure thereto, a cam, a movable arm coöperating with said cam, and a second spring interposed between said arm and the brake, as and for the purpose set forth.

12. In a controlling mechanism for a hoisting device, the combination with a manually-operated controller-shaft for the motive power, of a brake coöperating with the hoisting device, and a spring supported against a fixed abutment for applying a pressure thereto, a cam actuated by the controller-shaft, a movable arm coöperating with said cam, a second movable arm connected with the brake, and a second spring interposed between said arms, as and for the purpose set forth.

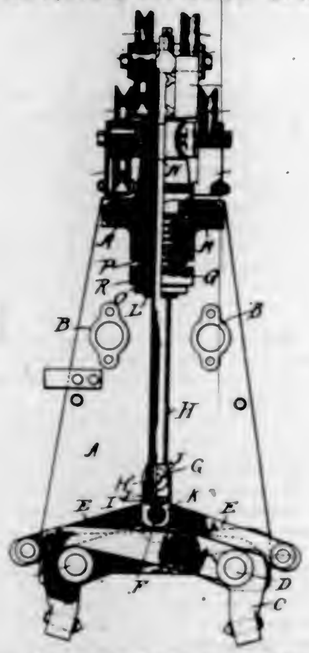
13. In a controlling mechanism for a hoisting device, the combination with a manually-operated controller-shaft for the motive power, of a brake coöperating with the hoisting device, and a spring supported against a fixed abutment for applying a pressure thereto, a cam actuated by the controller-shaft, a movable arm coöperating with said cam, a second movable arm connected with the brake and a second spring interposed between said arms, as and for the purpose set forth.

14. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake coöperating with the hoisting device, an operating-rod for said brake extending through a fixed member on the frame, a plurality of movable members operated by said controller-shaft and connected with said rod, and springs interposed between each of said members, as and for the purpose set forth.

15. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake coöperating with the hoisting device, an operating-rod for said brake extending through a fixed member on the frame, a plurality of movable members operated by said controller-shaft, each comprising pivoted arms mutually crossing the respective lines of movement of each other, and springs interposed between said members, as and for the purpose set forth.

16. In a controlling mechanism for a hoisting device, the combination with a controller-shaft for the motive power, of a brake coöperating with the hoisting device, an operating-rod for said brake extending through a fixed abutment on the frame, a plurality of movable pivoted arms operated by said controller-shaft, each comprising a pair of connected side plates, and springs interposed between said arms, and between the upper arm and the fixed abutment, as and for the purpose set forth.

749,330. TONGS OR GRAPPLE. HARRY SAWYER, Muskegon, Mich. Filed Sept. 1, 1903. Serial No. 171,569. (No model.)



Claim.—1. In a device of the class described, sheaves mounted for movement toward and from each other, and means actuated by the relative movement of said sheaves toward and from each other to actuate the jaws, as and for the purpose set forth.

2. In a device of the class described, a main frame having gripping-jaws, a plurality of parts capable of longitudinal movement but fixed against rotative movement with respect to one another, means operated by the relative movement of said supports for opening and closing the gripping-jaws, and means whereby such relative movement is made effective to open and close the gripping-jaws, as and for the purpose set forth.

3. In a device of the class described, a main frame having gripping-jaws, a plurality of supports for sheaves or pulleys capable of longitudinal movement but fixed against rotative movement with respect to one another, means operated by the relative movement of said supports for opening and closing the gripping-jaws, and other means for imparting an additional closing movement, as and for the purpose set forth.

4. In a device of the class described, a main frame having gripping-jaws, a plurality of relatively movable supports, sheaves or pulleys thereon, means actuated by the relative movement of said supports for closing the jaws, and additional yielding means for imparting a gripping-pressure to said jaws, as and for the purpose set forth.

5. In a device of the class described, a main frame having gripping-jaws, a plurality of parts capable of longitudinal movement with respect to one another, means whereby such relative movement is made effective to open and close the gripping-jaws, and means for exerting an additional closing-pressure thereon independent of the relative movement of the sheave or pulley supports, as and for the purpose set forth.

6. In a device of the class described, a main frame having gripping-jaws, a plurality of parts capable of longitudinal movement with respect to one another, means operated by the relative movement of said parts for opening and closing the gripping-jaws, and other means for imparting an additional closing movement, as and for the purpose set forth.

7. In a device of the class described, a main frame having gripping-jaws, a plurality of parts capable of longitudinal movement with respect to one another, means operated by such relative movement for closing the gripping-jaws, the said supports being further capable of movement in unison with respect to the main frame, and connections actuated by said last-named movement for imposing an additional closing-pressure upon the gripping-jaws, as and for the purpose set forth.

8. In a device of the class described, a main frame having gripping-jaws, a plurality of supports for sheaves or pulleys capable of longitudinal movement but fixed against rotative movement with respect to one another, means operated by such relative movement for closing the gripping-jaws, a sliding connection between said pulley or sheave supports and the main frame, and a spring normally supporting said main frame against downward sliding movement thereon, as and for the purpose set forth.

9. In a device of the class described, a main frame having gripping-jaws, a sheave-support slidably mounted therein and spring-pressed downward, and a second sheave-support slidably mounted in the first-named support and operatively connected at its lower end to the gripping-jaws, as and for the purpose set forth.

10. In a device of the class described, a main frame having gripping-jaws, a sheave-support slidably mounted therein and spring-pressed downward, a pair of sheaves or pulleys mounted thereon and symmetrically disposed with respect to the center line of the tongs, a second sheave-support slidably mounted in the first-named support, and a pair of sheaves or pulleys symmetrically mounted on said second support with respect to the above-named center line, as and for the purpose set forth.

11. In a device of the class described, a main frame having gripping-jaws, actuating-links therefor, a sheave-support rotarily and slidably mounted in said frame and spring-pressed downward, a second sheave-support slidably mounted in the first-named support and rotarily connected to the actuating-links of the gripping-jaws, as and for the purpose set forth.

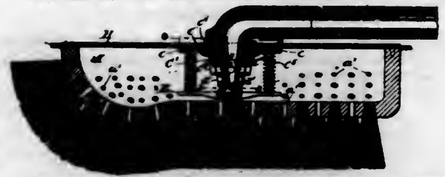
12. In a device of the class described, a main frame having gripping-jaws provided with actuating-links, a sheave-support rotarily mounted therein, a second sheave-support slidably but non-rotarily mounted in the first-named support, a yoke swivelly mounted at the lower end of such support, and link connections therefrom with the actuating-links of the gripping-jaws, as and for the purpose set forth.

13. In a device of the class described, a main frame having gripping-jaws provided with actuating-links, a sheave-support rotarily and slidably mounted therein and spring-pressed downward, a second sheave-support slidably but non-rotarily mounted in the first-named support, a yoke swivelly mounted at the lower end of such support, and link connections therefrom with the actuating-links of the gripping-jaws, as and for the purpose set forth.

14. In a device of the class described, a main frame having gripping-jaws, a sheave-support rotarily mounted therein and supporting the frame on antifriction-bearings, a second sheave-support slidably but non-rotarily mounted in the first-named support, a yoke swivelly mounted at the lower end of such support and having an antifriction thrust-bearing, and links operatively connecting the same to the gripping-jaws, as and for the purpose set forth.

15. In a device of the class described, a main frame having gripping-jaws, a sheave-support rotarily and slidably mounted therein, spring-pressed downward and supporting the frame on antifriction-bearings, a second sheave-support slidably but non-rotarily mounted in the first-named support, a yoke swivelly mounted at the lower end of such support and having an antifriction thrust-bearing, and links operatively connecting the same to the gripping-jaws, as and for the purpose set forth.

749,331. BRUSH. ALFRED SCHICKERLING, Jersey City, N. J. Filed Mar. 25, 1903. Serial No. 149,464. (No model.)



Claim.—1. In a brush, the combination of a hollow, perforated body portion, a hollow handle pivotally connected to said body portion by means located within the hollow portion of said body, and means for holding the handle in adjusted position relatively to the body.

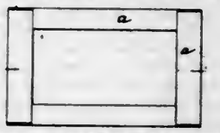
2. In a brush, the combination of a hollow perforated body portion, a hollow handle pivotally connected thereto, a sleeve secured within the body portion to receive the inner end of the handle, and springs for holding the handle in adjusted position.

3. A brush comprising a hollow, perforated body portion, and a hollow handle adjustably connected thereto by means of a notched cam-ring and springs within the hollow body portion.

4. In a brush, the combination with a hollow perforated body, of a sleeve secured within the same and having perforations, a handle having an elbow portion extending within said sleeve and having perforations, a plate rotatably mounted on the lower end of said elbow, and springs interposed between said plate and arms on said sleeve.

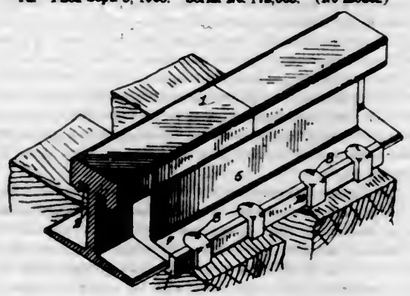
5. In a brush, the combination with a hollow perforated body, of a sleeve secured within the same and having perforations, a handle having an elbow portion extending within said sleeve and having perforations, a plate rotatably mounted on the lower end of said elbow, springs interposed between said plate and arms on said sleeve, a cam-ring secured to said sleeve and surrounding the elbow and provided with notches, and a lug on said elbow outside the body portion adapted to ride upon said ring and to engage said notches.

749,332. PICTURE-FRAME. EBERHARD SCHIEVENBUSCH, Cologne, Germany. Filed Feb. 5, 1902. Serial No. 92,648. (No model.)



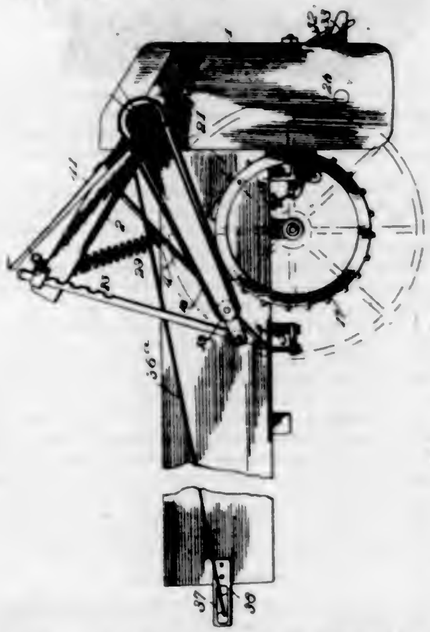
Claim.—A frame consisting of contiguous pieces of molding having squared scarfed joints with each other at the corners, dowels glued into slots in the contiguous pieces at the joints, and metal caps secured to the outside edge of the frame across the joints.

749,333. RAIL-JOINT. ERNEST J. SCHINDENÜTTE, McKees Rocks, Pa. Filed Sept. 5, 1903. Serial No. 172,063. (No model.)



Claim.—In a device of the type set forth, the combination with the rails having a groove in the underneath face of the tread at each side of the web, of fish-plates having their outer faces flush with the outer face of the rail-tread, tongues extending the length of the fish-plates on their upper edges and engaging in said grooves, bases formed integral with said fish-plates and extending flush with the longitudinal edges of the rail-base, and the chair upon which said rails seat, said chair being provided with upwardly-extending side flanges lying substantially flush with the upper face of the fish-plate bases, and spikes in contact with said side flanges of the chair, and having their heads overlying and engaging the outer faces of the fish-plate bases.

749,334. **FERTILIZER-DISTRIBUTER.** OTTO W. SIEBENHAAR and LOUIS E. SIEBENHAAR, Rosendale, Wis. Filed Aug. 20, 1903. Serial No. 170,218. (No model.)



Claim.—1. In a fertilizer-distributer, the combination, with a positively-driven shaft, a feed-cylinder mounted upon the shaft for actuation thereby, a carrier-apron for feeding the fertilizer, an actuating-lever for cooperation with the shaft to cause feeding movement of the carrier-apron, and means regulable by the carrier-apron for adjusting the relative position of the actuating-lever with reference to the shaft for evenly feeding the fertilizer.

2. In a fertilizer-distributer, the combination with a driven shaft, a feed-cylinder, a carrier-apron for feeding the fertilizer, means for cooperation with the driven shaft to cause feeding movement of the carrier-apron, and means regulable by the carrier-apron for actuation of the means aforesaid to regulate the movement of the said apron to thereby cause even feed of the fertilizer.

3. In a fertilizer-distributer, the combination, with a positively-driven shaft, a feeding-cylinder mounted upon the shaft and provided with feeder devices, an eccentric roller carried by one end of the shaft, a carrier-apron for feeding the fertilizer, a drum adapted to have the carrier-apron wind thereon to cause feeding movement thereof, an actuating-lever disposed so as to be actuated by the eccentric roller aforesaid and adapted to cause rotation of the winding-drum aforesaid, and means regulable by the carrier-apron for actuation of the actuating-lever aforesaid to adjust its position with reference to the eccentric roller so as to cause even feed of the fertilizer by the carrier.

4. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a cylinder mounted thereon provided with feeder devices, an eccentric roller disposed upon one end of the shaft, a drum disposed adjacent the cylinder aforesaid, a carrier-apron adapted to be wound upon the drum aforesaid in feeding the fertilizer, an actuating-lever cooperating with the eccentric roller to cause actuation of the drum and feeding of the carrier-apron, and a regulator-bar actuated by the carrier-apron and adapted to adjust the position of the actuating-lever with reference to the eccentric roller so as to cause even feed of the fertilizer by the carrier-apron.

5. In a fertilizer-distributer, and in combination, with a positively-driven shaft, an eccentric roller mounted upon one end of the shaft, a cylinder disposed upon the shaft provided with feeder devices, a drum disposed adjacent the aforesaid cylinder, a carrier-apron adapted to be wound upon the drum in feeding the fertilizer, an actuating-lever having one end in engaging relation with the eccentric roller, actuating means carried by the other end of the said lever for causing rotation of the winding-drum, and a regulator-bar actuated by the carrier and adapted to adjust the position of the end of the actuating-lever adjacent the eccentric roller so as to cause even feeding of the carrier-apron upon the winding-drum.

6. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a cylinder mounted thereon and provided with feeder devices, an eccentric roller mounted upon one end of the said shaft, a drum, a carrier-apron for feeding the fertilizer adapted to be wound upon the drum in its feeding movement, an actuating-lever for cooperation with the eccentric roller to cause actuation of the drum in the feeding operation, regulator means for cooperation with the said actuating-lever to cause even feeding of the fertilizer by the carrier, and spring means cooperating with the actuating-lever to normally hold the same in engaging relation with the eccentric roller.

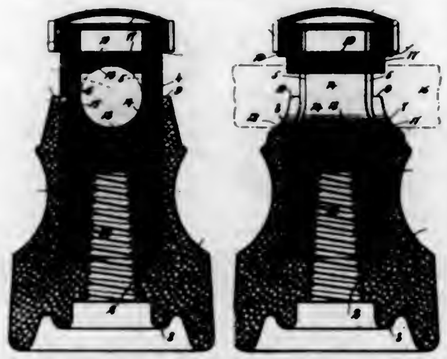
7. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a cylinder mounted thereon and provided with feeder devices, an eccentric roller carried by the shaft, a drum disposed adjacent the cylinder, a carrier-apron for feeding the fertilizer adapted to be wound upon the drum, an actuating-lever adapted for actuation by the eccentric roller to cause rotation of the drum and feeding movement of the carrier-apron, a drum-actuating device carried by the said lever, and spring means cooperating with the said drum-actuating device to normally hold the same in engaging position relative to the drum and normally hold the actuating-lever in cooperating relation relative to the eccentric roller.

8. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a feeding-cylinder mounted thereon, an eccentric roller carried by the said shaft, a drum mounted adjacent the shaft, a carrier-apron for feeding the fertilizer and adapted to be wound upon the drum, a ratchet-wheel for actuation of the drum, an actuating-lever cooperating with the eccentric roller, a dog carried by the said lever for engaging the ratchet-wheel of the drum to cause rotation of the latter and winding of the carrier thereon, a regulator-bar cooperating with the actuating-lever to adjust its position relative to the eccentric roller so as to cause normal and even feeding of the fertilizer by the carrier, and a contact-bar connected to the regulator-bar and directly actuated by the carrier.

9. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a cylinder mounted thereon and provided with feeder devices, an eccentric roller mounted upon the shaft, a drum disposed adjacent the cylinder and a ratchet-wheel for actuation of the drum, a carrier-apron for feeding the fertilizer and adapted to be wound upon the drum in its feeding movement, an actuating-lever operable by the eccentric roller aforesaid, a dog carried by the lever for engagement with the ratchet-wheel of the drum to cause actuation of the latter, a regulator-bar for regulating the position of the actuating-lever relative to the eccentric roller so as to cause even feeding of the fertilizer by the carrier, a contact-bar for engagement by the carrier to cause actuation of the regulator-bar, spring means for holding the actuating-lever normally in engagement with the eccentric roller aforesaid, and means connecting the carrier-apron with the positively-driven shaft for reversing the movement of the carrier-apron and to unwind the same from the drum.

10. In a fertilizer-distributer, and in combination, with a positively-driven shaft, a cylinder mounted thereon and provided with feeder devices, a drum disposed adjacent the cylinder having a ratchet-wheel adjacent thereto for actuation thereof, a carrier-apron adapted to wind upon the drum, an actuating-lever cooperating with the eccentric roller aforesaid, a dog carried by the said actuating-lever for engagement with the ratchet-wheel of the drum to cause rotation of the drum, spring means for holding the dog and actuating-lever in cooperating relation with adjacent parts, a regulator-bar cooperating with the actuating-lever to adjust the position of the latter relative to the eccentric roller so as to cause even feeding of the fertilizer by the carrier, a contact-bar for engagement by the carrier to actuate the regulator-bar, a spool upon the driven shaft, connecting means between the carrier and the spool upon the positively-driven shaft for reversing the movement of the carrier to cause unwinding of same from the drum, and clutch means for causing rotation of the spool to reverse the movement of the carrier.

749,335. **INSULATOR.** LOUIS STEINBERGER, Brooklyn, N. Y. Filed Sept. 18, 1902. Serial No. 123,869. (No model.)



Claim.—1. As an article of manufacture, an insulator, comprising a body of insulating material, a metallic sleeve mounted therein and provided with an indented edge, a quantity of insulating material filled into said sleeve and projecting above said indented edge, and means for securing a conductor upon said body and said insulating material.

2. As an article of manufacture, an insulator comprising a body made of insulating material and provided with indentations, a metallic sleeve disposed within said body and likewise provided with indentations, and a filling of insulating material disposed within said sleeve, having an indentation disposed adjacent to said indentations of said body and said sleeve, but out of alinement with the indentations of said body and said sleeve, for the purpose of sinking the edge of said sleeve relatively to the edges of said filling, and means for retaining a conductor in contact with said indentations of said filling.

3. As an article of manufacture, a feed-wire insulator, comprising a body made of insulating material and provided with indentations, virtually constituting a slot, a metallic sleeve disposed within said body and provided with indentations, also virtually constituting a slot, a filling disposed within said sleeve and provided with an indentation, and means for securing an electric conductor within said indentation in said filling.

4. As an article of manufacture, a body made of insulating material and provided with indentations of arbitrary conformity, a metallic sleeve disposed within said body and provided with indentations similar to those of said body, and a filling disposed within said sleeve and provided with an indentation adjacent to said indentations of said body portion, and means for securing an electric conductor in contact with said indentations of said filling.

5. As an article of manufacture, a feed-wire insulator, comprising a body of insulating material, a cylindrical sleeve disposed within said body, and a solid filling disposed within said sleeve, said body, sleeve and filling being provided individually with indentations, constituting together a continuous passage for a longitudinal conductor, and means for securing said conductor within said passage.

6. As an article of manufacture, a feed-wire insulator, comprising a hollow body of insulating material, a cylindrical sleeve disposed within said body and provided with a threaded end, a filling within said sleeve, a movable insulating-block for engaging both said sleeve and said filling material, and a threaded cap for engaging said block and said sleeve.

7. As an article of manufacture, a feed-wire insulator, comprising a hollow insulating-body having an indented carrying portion, a metallic sleeve mounted within said insulating-body and provided with indentations depressed below the indented carrying portion of said insulating-body, and a filling disposed within said metallic sleeve, said filling being normally free to support a feed-wire out of contact with said metallic sleeve.

8. As an article of manufacture, a feed-wire insulator comprising a body made of insulating material and provided with indentations, a metallic sleeve disposed within said body and provided with indentations disposed slightly out of alinement with said indentations of said body, and a filling of insulating material disposed within said sleeve and provided with an indentation smaller than the indentations of said body and of said sleeve, and disposed slightly out of alinement therewith, to enable a cable to engage said filling without contact with said body or said sleeve.

9. As an article of manufacture, a feed-wire insulator comprising an insulating body portion provided with indentations, a metallic sleeve connected with said insulating body portion and provided with indentations, and a filling of insulating material disposed within said sleeve and provided with a surface raised relatively to the said indentations of said insulating-body and of said sleeve for the purpose of supporting a cable out of contact therewith.

10. As an article of manufacture, a feed-wire insulator comprising a metallic sleeve of substantially cylindrical form, and provided with indentations, means for supporting and insulating said sleeve, and a substantially cylindrical filling mounted coaxially within said sleeve and provided with a bearing-surface raised relatively to said indentations of said sleeve, and free to support a cable out of contact with said indentations of said sleeve.

11. As an article of manufacture, a feed-wire insulator, comprising a substantially cylindrical metallic sleeve provided with indentations through which a cable may be threaded, an insulating member of substantially cylindrical form mounted within said sleeve and coaxial therewith, said insulating member being provided with an indented bearing-surface slightly out of alinement with said indentations of said sleeve and raised relatively thereto so as to support said cable out of contact with said sleeve, and a support for sustaining said sleeve.

12. As an article of manufacture, a feed-wire insulator, comprising a metallic sleeve provided with indentations through which a cable may be threaded, a support for sustaining said sleeve, and an insulating member provided with a slot for detachably engaging said cable, said slot being slightly out of alinement with said indentations of said sleeve, so as to normally hold said cable out of contact with said sleeve.

13. In an article of manufacture, the combination of a substantially cylindrical metallic sleeve provided at one of its ends with indentations disposed diametrically opposite each other, whereby a conductor may be threaded through said sleeve in a direction crossing the axis thereof, and also provided with a cylindrical opening, and an insulating-filling of substantially cylindrical form disposed within said opening and provided with a bearing-surface for supporting a conductor out of contact with said sleeve.

14. In an article of manufacture, the combination of a substantially cylindrical metallic sleeve provided at one of its ends with oppositely-disposed indentations in alinement with each other, whereby a conductor may be threaded through said sleeve in a direction crossing the axis thereof, and also provided with a cylindrical opening, and an insulating-filling being disposed within said opening, said filling being provided with a bearing-surface disposed out of alinement with said indentations for the purpose of engaging the under side of a conductor.

15. In an article of manufacture, the combination of a substantially cylindrical metallic sleeve provided with laterally-disposed indentations in alinement with each other and through which a conductor may be threaded diametrically, and also provided with a cylindrical opening, and an insulating member of substantially cylindrical form disposed within said opening and provided with an indentation concentric to that of said indentations of said metallic sleeve.

16. In an article of manufacture, the combination of a substantially metallic sleeve provided with laterally-disposed indentations in alinement with each other, and through which a conductor may be threaded in a direction crossing the axis of said sleeve and also provided with a cylindrical opening, and an insulating member disposed within said opening and provided with an indentation concentric to that of said indentations of said metallic sleeve and disposed out of alinement therewith for the purpose of supporting a conductor.

17. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with laterally-disposed indentations through which a cable may be threaded, and a metallic sleeve embedded within said body portion for strengthening the same and having indentations slightly out of alinement with those of said body portion of insulating material.

18. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with indentations for admitting a feed-wire, and a substantially cylindrical metallic member embedded within said body portion for strengthening the same, said metallic member being provided with indentations larger than those of said body portion so as to avoid engaging said wire.

19. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with indentations, a metallic member connected with said body portion for strengthening the same, said metallic member being provided with indentations larger than those of said body portion for avoiding contact between said metallic member and said wire, and means for securing a feed-wire within said indentations of said body portion.

20. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with indentations for admitting a feed-wire, a substantially cylindrical metallic member connected rigidly with said body portion for strengthening the same, and provided with indentations for admitting said feed-wire, said indentations being large enough to prevent engagement between said feed-wire and said metallic member, and means for securing a feed-wire within said indentations of said body portion.

21. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with oppositely-disposed indentations, a substantially cylindrical metallic member for strengthening said body portion, said substantially cylindrical metallic member being provided with indentations and also with a thread, and screw mechanism for engaging said substantially cylindrical metallic member, said screw mechanism being provided with a thread engaging said thread of said metallic member and being movable relatively to said indentations of said metallic member.

22. As an article of manufacture, an insulator comprising a longitudinal metallic sleeve of substantially cylindrical form provided with oppositely-disposed indentations, whereby a conductor may be threaded diametrically through said sleeve, and also provided with a cylindrical opening, an insulating-support partially encircling said sleeve, and an insulating-filling of substantially cylindrical form disposed within said opening and provided with a slot for engaging a conductor.

23. As an article of manufacture, an insulator comprising a substantially cylindrical metallic sleeve provided with laterally-disposed indentations through which a cable may be threaded in a direction crossing the axis of said sleeve, and also provided with a substantially cylindrical opening, an insulating member disposed within said opening and provided with an indentation smaller than said indentations of said metallic sleeve and concentric thereto but disposed slightly out of alinement therewith for the purpose of supporting a cable out of contact with said sleeve, and a member of insulating material connected with said metallic sleeve for the purpose of supporting the same.

24. In an article of manufacture, the combination of a metallic sleeve provided with laterally-disposed indentations through which a conductor may be threaded so as to cross the axis of said sleeve, said sleeve being also provided with means for securing a locking member thereupon and further provided with an opening, and an insulating member disposed within said opening and provided with an indentation for engaging said conductor, said indentation being out of alinement with said laterally-disposed indentations of said sleeve.

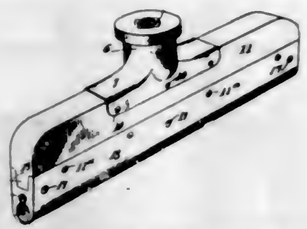
25. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with oppositely-disposed indentations, a filling mounted within said body portion, a metallic member engaging said body portion and also engaging said filling, said metallic member being provided with indentations and with a threaded end, a block of insulating material mounted within said metallic member for the purpose of engaging a wire, and a threaded cap for forcing said block into engagement with said wire.

26. As an article of manufacture, a feed-wire insulator comprising a body portion made of insulating material and provided with oppositely-disposed indentations, a substantially cylindrical metallic member for strengthening said body portion, said metallic member being provided with a thread, a block provided with a facing of insulating material and also provided with mutilations engaging said metallic member, and screw mechanism connected with said metallic member for forcing said block upon the feed-wire.

749,336. INSULATED SUPPORT FOR WIRES. LOUIS STEINBERGER, New York, N. Y. Filed Nov. 12, 1902. Serial No. 131,064. (No model.)

Claim.—1. An insulated support for wires comprising a body member of insulating material, means for attaching the same to a hanger device, and a metallic ear mounted upon the lower side of said member and secured thereto by aid of a tongue-and-groove connection.

2. An insulated support for wires comprising a body member of insulating material, and a metallic ear connected with said member, said metallic ear being provided with jaws for supporting a wire and with a groove for holding a fastening of lead in contact with said wire, and further provided with side channels for conducting molten lead into said groove.



3. An insulated support for wires comprising a metallic sleeve provided with means for detachably securing the same upon a hanger device, a bushing of insulating material mounted upon said sleeve, and a clip connected with said bushing for supporting a wire.

4. An insulated support for wires comprising a metallic saddle provided with depending webs, a member of insulating material sandwiched between said webs, means for connecting said webs and said insulating member together, and mechanism mounted upon said insulating member for supporting a wire.

5. An insulated support for wires comprising an ear provided with a channel for engaging a wire and with side apertures for introducing lead into contact with said wire, and an insulating-support forming part of said clip.

6. An insulated support for wires comprising an ear provided with a channel for engaging a wire and with a groove disposed adjacent to said channel, said ear having its side perforated for introducing lead into said groove, and an insulating-support forming part of said clip.

7. An insulated support for wires comprising an ear provided with a channel for engaging a wire, and with a longitudinal groove disposed adjacent to said channel and merged thereinto, said ear having its side perforated for introducing lead into said second-mentioned channel, and means for mounting said ear to an insulating body member forming part of said clip.

8. An insulated support for wires, comprising an ear provided with a channel for engaging a wire and with means for introducing lead through perforations in the side of said ear into contact with said wire, an insulating body member forming part of said clip, and means for supporting said insulating member.

9. An insulated support for wires comprising an ear provided with a channel for anchoring a wire and with means for introducing lead into contact with said wire, said ear being further provided with webs, and an insulating body member provided with mutilations engaging said webs and means for securing said web and said insulating body member together.

10. An insulated support for wires comprising a metallic threaded sleeve, an insulating-bushing engaging the same, a metallic saddle connected with said sleeve and supported thereby, a body member of insulating material connected with said saddle, and a metallic ear provided with members for clamping a wire and with perforations in its side for introducing lead into contact with said wire.

11. An insulated support for wires comprising an ear provided with a channel for engaging a wire and with a groove for holding lead, and further provided with side passages for introducing lead into said groove, and an insulating body member as a support for said ear.

12. An insulated support for wires, comprising a support, a bar of insulating material connected therewith and provided with a depending edge, and a longitudinal metallic ear secured upon said depending edge.

13. An insulated support for wires, comprising a support, a bar of insulating material connected therewith and provided with a depending edge terminating in a tongue, and a metallic ear engaging said bar of insulating material and provided with a groove engaging said tongue.

14. An insulated support for wires, comprising a support, a plate of insulating material connected therewith and provided with a depending edge terminating in a tongue, a metallic ear engaging said plate and provided with a groove engaging said tongue, and bolts engaging both said plate and said clip.

15. An insulated support for wires, comprising a support, a flat plate of insulating material connected therewith and provided with a depending edge, a metallic ear provided with a longitudinal portion engaging said depending edge, and bolts passing laterally through both said depending edge and said metallic ear, thereby securing the same together.

16. An insulated support for wires, comprising a metallic saddle, means for supporting the same, a flat longitudinal member of insulating material suspended edgewise from said saddle, and mechanism mounted upon said member for supporting said wire.

17. An insulated support for wires, comprising a metallic saddle provided with webs, and with means for supporting said metallic saddle on a hanger device, a flattened member of insulating material depending edgewise from said saddle, said member of insulating material being provided with mutilations, and a metallic member connected with said insulating member and provided with ears for supporting a wire and with webs for engaging said mutilations.

18. An insulated support for wires, comprising a body member of insulating material, means for attaching the same to a hanger device, and a metallic member connected with said body member for holding a wire, said metallic member being provided with a groove for holding a fastening of lead in contact with said wire.

19. An insulated support for wires, comprising a metallic saddle provided with webs, and with means for supporting said saddle upon a hanger device, a member of insulating material secured to said saddle, said member of insulating material being provided with mutilations, and a metallic member connected with said insulating member, said metallic member being provided with webs for engaging said mutilations and with means for supporting a wire.

20. An insulated support for wires, comprising a metallic threaded sleeve, an insulating-bushing engaging the same, a metallic saddle connected with said bushing and supported thereby, an insulating body member connected with said saddle, and a metallic clip mounted upon said insulating member.

21. An insulated support for wires, comprising a metallic sleeve, means for supporting the same, an insulating-bushing connected with said sleeve, a metallic member mounted upon said bushing, a plate of insulating material engaging said metallic member and depending edgewise therefrom, and a metallic ear mounted upon said plate.

22. An insulated support for wires, comprising a longitudinal body member of insulating material, means for attaching said body member rigidly to the hanger device, said longitudinal body member of insulating material being provided with a depending edge, and a longitudinal metallic member connected with said lower edge of said body member for supporting a wire.

23. An insulated support for wires, comprising a longitudinal body portion of insulating material having a lower edge, and a metallic clip attached directly to said lower edge for supporting a wire, said body portion being provided with means whereby the same may be attached directly and rigidly to a hanger device.

24. An insulated support for wires, comprising a longitudinal member of insulating material provided with means whereby the same may be suspended, and also provided with a depending edge, and a metallic clip mounted upon said longitudinal member and engaging the same throughout the entire length of said depending edge.

25. An insulated support for wires, comprising a longitudinal member of insulating material provided with means whereby the same may be suspended, and also provided with a depending edge, and a longitudinal metallic clip portion secured upon said depending edge.

26. In an insulated support for wires, the combination of a metallic sleeve provided with a thread for securing the same upon a hanger device, and also provided with beads, a member of insulating material engaging the exterior of said sleeve and also engaging said beads, said member of insulating material being provided exteriorly with a thread, and mechanism provided with a thread for engaging said thread of said member of insulating material and also provided with means for supporting a clip.

27. An insulated support for wires, comprising a metallic sleeve, a member of insulating material encircling the same, a metallic member detachably connected with said member of insulating material, an insulating-plate mounted upon said metallic member, and a clip connected with said insulating-plate for the purpose of supporting a wire.

28. In an insulated support for wires, the combination of a metallic sleeve, a substantially cup-shaped member of insulating material encircling said sleeve and provided exteriorly with a thread, and mechanism provided with a socket having a thread for detachably engaging said thread of said cup-shaped member and with a clip portion for engaging a wire.

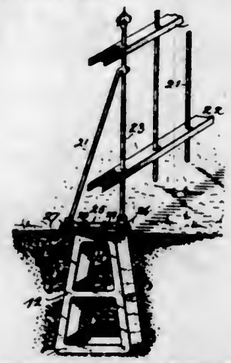
29. An insulated support for wires, comprising an insulating-bushing, a metallic member mounted within said insulating-bushing and provided with a screw-thread whereby said metallic member may be supported, said insulating-bushing being provided exteriorly with a threaded cylindrical surface, a conductor provided with a portion for engaging a wire, and mechanism engaging said clip and provided with a threaded socket for engaging said threaded cylindrical surface of said insulating-bushing.

30. An insulated support for wires, comprising an insulating-bushing provided exteriorly with a thread, a sleeve connected with said bushing and provided with a thread whereby said sleeve is supported, and a clip provided with mechanism having a socket for directly engaging said insulating-bushing, said clip being provided with means for supporting a wire.

31. An insulated support for wires, comprising a bushing of insulating material provided with a flange, means for connecting said bushing with a hanger device, a clip provided with a portion for engaging a wire, and mechanism for connecting together said clip and said bushing of insulating material, said mechanism engaging said bushing and said flange and being partially protected by said flange.

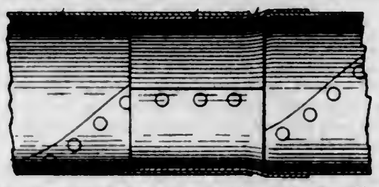
32. An insulated support for wires, comprising an insulating-bushing provided exteriorly with a threaded cylindrical surface, a metallic socket mounted therein and provided with a thread for attaching said metallic socket to a hanger device, and a clip provided with a portion for engaging a wire and with a threaded socket for engaging said threaded cylindrical surface of said insulating-bushing.

749,337. BASE FOR FENCE-POSTS. RICHARD C. STEWART, Jr., and WALLACE A. STEWART, Covington, Ky. Filed July 11, 1903. Serial No. 165,078. (No model.)



Claim.—As a new article of manufacture, a fence-base complete in itself and ready to receive the upright sustaining members of a fence and adapted to be moved and handled independently, the same consisting of upright members converging upwardly, top, bottom and intermediate members which connect these upright members transversely, all molded in concrete and forming a connected open frame, a skeleton frame of metal and of corresponding shape around which these concrete members are molded and which members completely inclose this skeleton frame and means molded in the top member of this open concrete frame and serving to connect the upright sustaining members of the fence.

749,338. PIPE. JAMES H. TAYLOR, Chicago, Ill., assignor to American Spiral Pipe Works, Chicago, Ill., a Corporation of Illinois. Filed June 9, 1902. Serial No. 110,847. (No model.)



Claim.—1. A composite pipe, comprising a plurality of lengths of spiral pipe 1, 2, 3, couplings 4 and 5 uniting said lengths, each

coupling having a reduced end portion 6 of substantially uniform diameter throughout, adapted to be encompassed by the end of a pipe, and an enlarged end portion 7 of substantially uniform diameter throughout, adapted to encompass the end of a pipe, the portions 6 and 7 of the coupling being united by an abruptly-slanting portion 8, substantially as described.

2. A composite pipe, comprising a plurality of lengths of spiral pipe 1, 2, 3, couplings 4 and 5 uniting said lengths, each coupling having a reduced end portion 6 of substantially uniform diameter throughout, adapted to be encompassed by the end of a pipe, and an enlarged end portion 7 of substantially uniform diameter throughout, adapted to encompass the end of a pipe, the portions 6 and 7 of the coupling being united by an abruptly-slanting portion 8, the edge of the end encompassed by the coupling being slightly curled inwardly, while the edge of the end encompassing the joint is slightly curled outwardly, whereby thorough clamping engagement is secured between the units of pipe and the coupling, substantially as described.

749,339. **DOOR-OPENER.** GEORGE L. TURNER, Westby, Wis. Filed Sept. 14, 1903. Serial No. 173,151. (No model.)



Claim.—1. In combination with a plurality of doors, an operating-bar disposed adjacent thereto, approximately U-shaped arms projected from the said operating-bar and having corresponding end portions secured to the door.

2. In a device of the class described, the combination with a plurality of doors, an operating-bar disposed adjacent the said doors, and U-shaped arms adjustably mounted upon the said operating-bar and pivotally connected to the said doors.

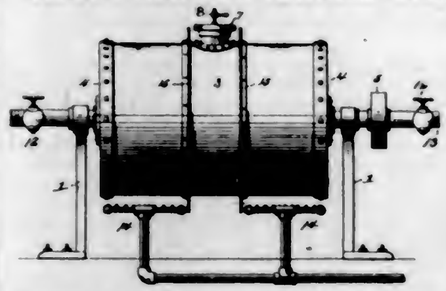
3. In a device of the class described, the combination with a plurality of hinged doors, an operating-bar disposed adjacent the said doors, arms provided with spaced members to embrace the operating-bar connected to the doors, means for clamping the spaced members of the arms about the operating-bar.

4. In a device of the class described, the combination with a plurality of hinged doors, an operating-bar disposed adjacent the said doors, arms removably secured to the operating-bar and pivotally connected to the doors, and means for cooperation with the operating-bar to fix the position of the same at different adjustments.

5. In a device of the class described, the combination with a plurality of doors, brackets projected from the doors, an operating-bar disposed adjacent the doors, arms secured to the operating-bar aforesaid, said arms comprising a U-shaped body and laterally-spaced members, the latter adapted to embrace the operating-bar upon opposite sides, clamp means disposed upon the lateral members of the arms aforesaid to cause clamp action of the said members upon the operating-bar.

6. In a device of the class described, the combination with a plurality of doors, brackets projected therefrom, an operating-bar disposed adjacent the doors, U-shaped arms adjustably mounted upon the operating-bar and pivotally secured to the bracket upon the doors, the operating-bar being provided with a plurality of openings therein, a fixed projection disposed adjacent the operating-bar, and a pin adapted to be passed through the said projection and any selected opening in the operating-bar to thereby adjustably fix the position thereof.

749,340. **COFFEE-TREATING MACHINE.** THEODORE R. TIMBY, Brooklyn, N. Y. Filed Nov. 23, 1901. Serial No. 83,433. (No model.)



Claim.—1. A tumbling-drum for treating coffee, consisting of a hollow cylindrical casing mounted on a horizontal shaft, said casing having central manhole and having inclined plates extending from the ends of the casing toward the central manhole, near which hole the plates are attached to the casing, said casing having longitudinal ribs and obliquely-arranged ribs on its inner side remote from the manhole.

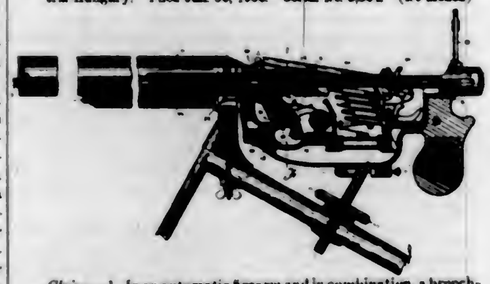
2. A coffee-treating machine consisting essentially of a hollow cylindrical drum mounted on a horizontal shaft and provided with means for rotating the same, said cylinder having a manhole about midway of its length, a projecting annular flange at each side of the manhole, and means for heating the cylinder between said flanges and the ends of the cylinder.

3. The combination with a hollow metallic cylinder supported on a horizontal shaft, a central manhole and cover, annular flanges projecting from the cylinder at each side of the manhole, heating devices between said flanges and the ends of the cylinder, and plates within the cylinder, at one side thereof, which plates incline toward the manhole when the manhole is in lowest position.

4. In a horizontal rotating coffee-treating drum, the combination with means for heating different parts of the drum to different temperatures, of ribs and inclines attached to the casing within the drum, whereby the coffee-beans within the drum are caused to move in both directions longitudinally and laterally over surfaces heated to different temperatures as the drum revolves.

5. In a coffee-roasting machine, the combination with a horizontal cylinder supported on a shaft, and means for rotating said cylinder, of external annular flanges projecting from said cylinder, and a sheet-metal cover resting on the floor and projecting upward at the sides of the cylinder in close proximity to the annular flanges thereon.

749,341. **GUN OR FIREARM.** FRANZ TOSSICH, Budapest, Austria-Hungary. Filed Jan. 30, 1900. Serial No. 3,364. (No model.)

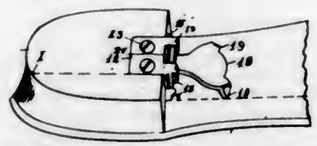


Claim.—1. In an automatic firearm and in combination, a breech-lock device, a rod connecting said breech-lock with one end of a two-armed lever, a stop for engaging the tail end of said lever, means for producing relative motion between said stop and said lever in order to oscillate the latter and reciprocate the breech-lock, and a spring-stop adapted to cushion said tail end, substantially as set forth.

2. In an automatic firearm and in combination, a breech-lock device, a reciprocating curved yoke engaging a lug on the breech-bolt for imparting to the latter a combined rectilinear and turning movement and means for reciprocating the yoke comprising an oscillating two-armed lever and a rod connecting said lever with the yoke, substantially as and for the purpose set forth.

3. In an automatic firearm and in combination, a breech-bolt, a lug or crank-lever on the breech-bolt, a curved yoke 21 for actuating the lug or crank-lever 20, a rod 19 for transmitting motion to the curved yoke, an oscillating two-armed lever 16 connected to the rod, a stop 17 in contact with said lever and means for producing relative motion between said stop and the lever whereby the latter is oscillated, and a spring-stop 18 for cushioning the tail of the lever 16, substantially as set forth.

749,342. **ICE-CREEPER.** JAMES R. TOSCAN and CARSON J. CADY, Jamestown, N. Y. Filed Feb. 21, 1903. Serial No. 144,439. (No model.)



Claim.—In an ice-creeper, a heel-plate 12 inset into the bottom of the heel and means for attaching the same, the journal-lugs 13 extending out from the edge of plate 12, the slotted lugs 14 on plate 12 beside lugs 13, the spur-plate 18 having journal-head 21 and journals 20 pivotally mounted in lugs 13, a spring 15 bearing against head 21, and a locking projection 17 on spring 15 to hold the spring in lugs 13.

749,343. **PROCESS OF TESTING BUTTER.** MAX VOOTHERR, Berlin, Germany. Filed Oct. 27, 1902. Serial No. 128,049. (No specimens.)



Claim.—Process of testing butter, consisting in mixing a measured quantity of molten butter with a measured quantity of sulfuric acid, containing four per cent. of amylic alcohol, shaking this mixture, allowing the same to settle, measuring the quantity of clear fat forming the upper layer, and measuring the quantity of sulfuric acid situated underneath the fat layer, deducting from the latter quantity the quantity of sulfuric acid used, thereby finding out the quantity of water contained in the butter, substantially as described and for the purpose set forth.

749,344. **CAR-COUPLING.** EDWIN C. WASHBURN, Minneapolis, Minn. Filed Sept. 8, 1902. Serial No. 122,561. (No model.)

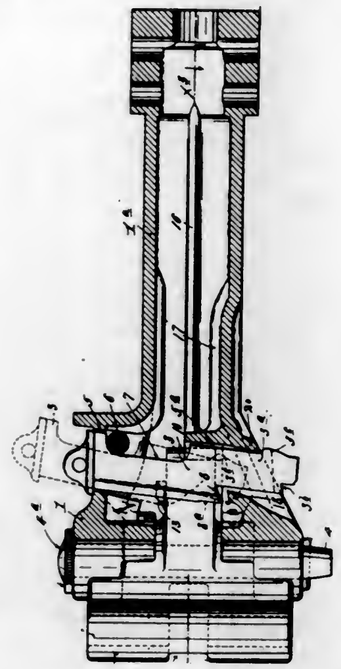
Claim.—1. In a coupler of the Master Car-Builders' type, a knuckle having a tail arranged to lift the lock under the opening movement, to support the same while open, and to force said lock back into alinement with its seat, under the closing movement thereof.

2. In a car-coupler of the Master Car-Builders' type, a shelf or ledge for supporting the lock in a slightly-elevated position, and a knuckle having a tail operating to lift the said lock from said ledge or shelf and to support the same under the opening movement thereof.

3. In a coupler of the Master Car-Builders' type, the combination with a lock-dog mounted for vertical and a limited lateral movement, of cooperating surfaces on said dog and the head of the coupler engageable, when said dog is raised and moved laterally, and a cam-flange in the tail of the knuckle engageable with a shoulder on said dog to raise said dog when the knuckle is swung open, and to force the same back into alinement with its seat when the knuckle is closed.

4. In a coupler of the Master Car-Builders' type, a sliding lock having a limited lateral movement and having a projecting guide-surface that stands out of the path of the tail of the knuckle, in all positions of the parts.

5. In a coupler of the Master Car-Builders' type, a lock arranged to be set for automatic uncoupling and provided with a projecting guide-surface that stands out of the path of the tail of the knuckle in all positions of the parts.



6. In a car-coupler, a head having a supporting ledge or shelf for the lock, and a knuckle having an inclined tail portion serving to lift the lock from said shelf or ledge and support the same under the opening movement, and to force the same back into alinement with its seat under the closing movement thereof.

7. In a car-coupler, a knuckle having a surface on its tail portion, which surface operates to raise the lock under the opening movement of the knuckle, the tail of said knuckle further having a shoulder that serves to force the lock back into alinement with its seat, under the closing movement of the knuckle.

8. In a coupler, a coupler-head having a pin-seat, and a lock having a shoulder which, under the initial unlocking movement of said lock, engages a surface on the said head to prevent the lock from being jarred upward.

9. In a coupler, a vertically-movable lock having a limited lateral movement in its seat, said lock having a cam-shoulder at one side which must be forced into said seat before said lock can be raised.

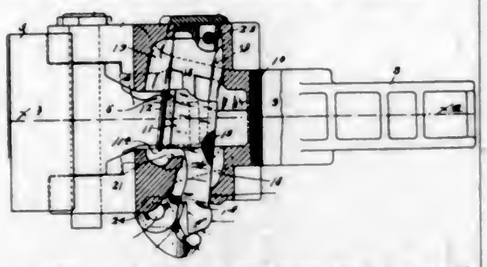
10. A coupler of the Master Car-Builders' type having a pivoted knuckle formed in its elbow or angle with a vertical pin-seat and having a link-receiving seat or notch intersecting said pin-seat from the outer surface of the knuckle, but leaving the projecting rounded inner wearing-surface of the knuckle intact or unbroken, substantially as described.

11. In a coupler of the Master Car-Builders' type, the combination with a pintle or pivot bolt having a polygonal head, of a seat in the coupler-head closely fitting the polygonal head of said pintle for preventing the rotation thereof, substantially as described.

12. In a coupler of the Master Car-Builders' type, the combination with a pintle or pivot bolt having an equilateral polygonal head, of a seat in a coupler-head closely fitting the head of said pintle for preventing rotation thereof but permitting the pintle to be set in various positions, substantially as described.

13. In a car-coupler of the Master Car-Builders' type, the combination with a coupler-head having a seat and a supporting ledge or shelf, of a lock-dog mounted in said seat and having a depending guide-leg engageable with said ledge or shelf to support said dog in an elevated position, and a knuckle having a tail portion constructed and arranged to lift said dog from said ledge or shelf, and to support the same, under the opening movement of said knuckle.

749,845. CAR-COUPLING. EDWIN C. WASHBURN, Minneapolis, Minn. Filed May 26, 1903. Serial No. 158,795. (No model.)



Claim.—1. In a coupler of the character described, the combination with the supporting-ledge 21 and guide-flange 20 on the interior of the coupler-head, of the lock-dog 11 having the shoulder 15 for cooperation with said ledge 21, and having the groove 13 cam-shaped at its lower extremity and coöperating with said flange 20 to guide said dog and insure the engagement of said shoulder 15 with said ledge 21, substantially as described.

2. In a coupler of the character described, the combination with a lock-dog having a depending leg, of a lifting device comprising the oscillating bolt 23 swiveled in lugs on the bottom of the coupler-head, and the lifting-finger 25 having the laterally-bent hub fitting the angular portion of the stem of said bolt 23 and projecting for engagement with the depending leg of said lock-dog, substantially as described.

3. A car-coupler of the Master Car-Builders' type having a handpiece secured to one side thereof.

4. A car-coupler pivoted for lateral oscillation and provided on each side of its head with handpieces, for the purposes set forth.

5. A car-coupler pivoted for lateral oscillation and provided with handpieces on the coupler-head located at each side thereof, forward of the pivot, substantially as described.

6. A car-coupler having handpieces cast integral with the opposite sides of its head, for the purposes set forth.

7. In a coupler of the character described, a lock-dog, the upper extremity of which is always below the top of the coupler, said dog having a depending leg formed with the lateral bulge 17, which engages with an adjacent portion of the coupler-head to swing or lock the lower portion of said lock-dog, when the same is moved vertically, substantially as described.

8. In a coupler of the character described, a lock-dog having a depending leg formed with a beveled lower end, and a shoulder 15, in combination, with the supporting-ledge 21 within the coupler-head, and an oscillating lifting-finger mounted on the bottom of the coupler-head and engageable with the said beveled surface 16 to lift said dog and engage said shouler 15 with said ledge 21, substantially as described.

9. A car-coupler, having at one of its pivotal joints a bushing formed with a polygonal exterior and adapted to be moved into different adjustments, substantially as described.

10. A car-coupler, having in one of its pivotal joints a bushing formed with a hexagonal exterior fitting a hexagonal seat in one of the pivoted members, and adapted to be set at different adjustments, substantially as described.

11. A car-coupler having a rearwardly-projecting shank cast integral with the coupler-head, the said shank being provided with a bushing 10 having a polygonal exterior fitting the correspondingly-formed seat in said shank and adapted to be set in different adjustments, substantially as described.

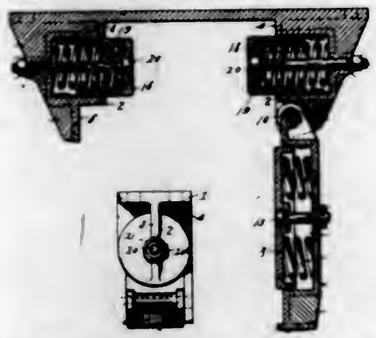
12. The combination, with a coupler-head having a rearwardly-projecting shank, of the hexagonal bushing 10 seated therein and adapted to be set in different adjustments, substantially as and for the purposes set forth.

749,846. COUPLING-SUPPORT. EDWIN C. WASHBURN, Minneapolis, Minn. Filed Sept. 25, 1903. Serial No. 174,538. (No model.)

Claim.—1. A coupler-support having a supporting-bar movable to and from working position and provided with a spring-pressed follower-plate for engagement with the coupler-bar.

2. A coupler-support having a pivoted supporting-bar provided with a spring-pressed follower-plate for engagement with the coupler-bar.

3. A coupler-support having a supporting-bar pivoted at one end and detachably securable at its other end, a spring-pressed follower-plate fitting a recess in said supporting-bar, and a stop-bolt limiting the movement of said follower-plate.



4. A coupler-support having a supporting-bar movable to and from working position, a spring-pressed follower-plate carried by said supporting-bar, and means for limiting the movement of said follower-plate, under the action of its spring, substantially as described.

5. A coupler-support comprising a recessed supporting-bar, movable to and from working position, a spring-pressed follower-plate mounted in the recess of said supporting-bar, and a stop-bolt having its head countersunk in the said follower-plate, with its end projecting through said supporting-bar and provided with the stop substantially as described.

6. In a coupler-support, the combination with a bracket having the depending end portions, of a supporting-bar pivoted to one of said depending end portions, and nutted bolts detachably securing the free end of said supporting-bar to the other depending end portion of said bracket, substantially as described.

7. The combination with a body-bracket having depending end portions, of a supporting-bar independent thereof, and means for securing said supporting-bar to the depending portions of said bracket, involving nutted bolts arranged to draw said parts together by a strain in a longitudinal direction of said bar, substantially as described.

8. In a coupler-support, a body-bracket having pockets in its side portions, of cup-like followers working within said pockets, springs compressed within said followers and pockets, and stop-bolts having their heads countersunk in said followers and with their threaded ends working through hubs of said pockets and provided outward thereof with nuts, substantially as described.

9. In a coupler-support, the combination with a body-bracket having depending end portions formed with pockets, of spring-pressed followers working in said pockets, and a supporting-bar applied to the depending end portions of said body-bracket and movable to and from operating position, substantially as described.

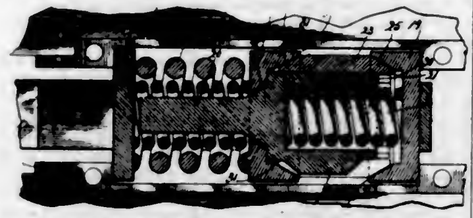
10. In a coupler-support, the combination with a body-bracket having depending end portions formed with pockets, of spring-pressed followers mounted in said pockets, and a supporting-bar pivotally connected at one end to one of the depending end portions of said bracket, and detachably securable at its free end to the other depending end portion of said bracket, substantially as described.

11. In a coupler-support, the combination with a body-bracket having depending end portions, of a supporting-bar pivoted at one end to one of the end portions of said bracket, and having at its free end, a segmental web, for close engagement with a depending web of the other end portion of said bracket, and nutted bolts passed through the abutting webs of said bracket and supporting-bar, substantially as described.

12. In a coupler-support, the combination with a body-bracket 1 having the pockets 2, ears 5 and transverse web 6, of the spring-pressed followers working in said pockets 2, the supporting-bar 9 pivotally attached to said lugs 5 and having at its free end the web 16, and the nutted bolts 17 passed through said webs 6 and 16, for detachably connecting the free end of said bar 9 to the said bracket 1, substantially as described.

749,847. DRAFT-RIGGING. HENRY C. WILLIAMSON and HERMAN PRIEM, Michigan City, Ind. Filed Oct. 30, 1903. Serial No. 179,200. (No model.)

Claim.—1. In a draft-rigging, in combination, end followers, springs opposed to the adjacent faces of the followers; a plunger having its barrel tapered toward its outer end, located between the followers and receiving pressure from one of them; friction-plates bearing on the peripheral face of the plunger-barrel and receiving pressure from the opposite follower; and means for forcing the plates inwardly as they move longitudinally relatively as to the plunger.



2. In a draft-rigging, in combination, a central tapering member, friction-plates in sliding engagement with the side faces thereof, followers connected with the central member and plates so as to move them longitudinally in relatively opposite directions and having a compressive wedging engagement with the plates.

3. In a draft-rigging, in combination, front and rear followers, a tapering member between the followers, springs interposed between the followers, friction-plates engaging the peripheral surface of such intermediate member, means for moving the plates and the intermediate member relatively in opposite directions, and means for moving the plates toward the intermediate member.

4. In a draft-rigging, in combination, a central tapering member having radial guide-ribs between its sides, friction-plates in sliding engagement with such sides, followers connected with the central member and plates so as to move them longitudinally in relatively opposite directions and having a compressive wedging engagement with the plates.

5. In a draft-rigging, in combination, end followers; a tapering plunger having its stem adjacent to one follower; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower and the intermediate follower.

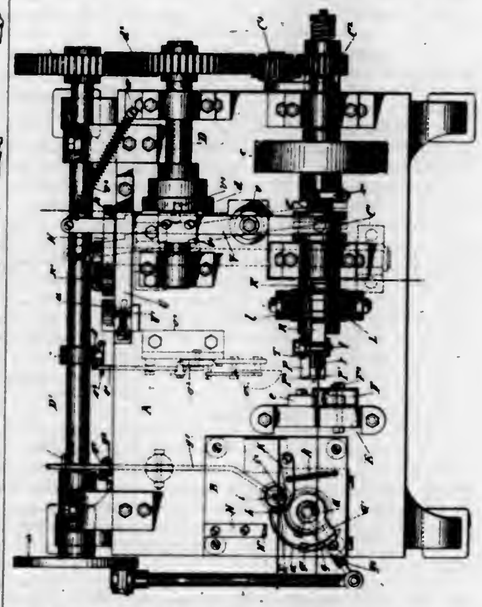
6. In a draft-rigging, in combination, end followers; a tapering octagonal plunger having its stem adjacent to one follower; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower and the intermediate follower.

7. In a draft-rigging, in combination, end followers; a tapering octagonal plunger having its stem adjacent to one follower and having radial guide-ribs between its faces; an intermediate follower apertured to receive the stem of the plunger and having a peripheral inwardly-beveled flange projecting over the plunger; an inwardly-beveled member projecting toward such flange from the adjacent end follower; friction-plates bearing on the sides of the plunger and having their outer faces beveled and engaging the beveled faces of the last-mentioned member and of the flange of the intermediate follower; and cushioning-springs interposed respectively between the forward end of the plunger and the adjacent end follower, and between the opposite end follower, and the intermediate follower.

8. In a draft-rigging, in combination, spring-separated end followers, a tapering plunger between the followers and in the path of one of them, and yieldingly-supported friction-plates engaging the side faces of the plunger and having their engaging faces oblique to the axis thereof.

749,848. MACHINE FOR BENDING THE CROSS-HEADS OF HAY-BALE WIRES. HENRY P. WILSON, New York, N. Y. Filed Dec 17, 1901. Serial No. 86,286. (No model.)

Claim.—1. In a machine for bending the cross-heads of hay-bale wires, the combination of an upright shaft, a center pin in said shaft, a bending-roller on said shaft located sidewise of the center pin, an oscillating finger adjacent to the bending-roller, an oscillating hook-bending finger, and stationary bending devices adjacent to said fingers and coöperating therewith for bending the end of the wire-blank into the shape of a cross-head, substantially as set forth.



2. In a machine for bending the cross-heads of hay-bale wires, the combination of an upright guide-shaft, a center pin in said shaft, a bending-roller on said shaft sidewise of the pin, a pivoted finger sidewise of said roller, an oscillating hook-bending finger the hub of which is provided with a cam for actuating the pivoted bending-finger, a stationary lug in line with the center pin, and an abutment alongside the stationary lug, said lug and abutment permitting the entrance of the oscillating hook-bending finger, substantially as set forth.

3. In a machine for bending the cross-heads of hay-bale wires, the combination of a center pin, an upright shaft having a central bore for the same, a bending-roller on said shaft located sidewise of the center pin, a pivoted finger extending in front of the bending-roller, a hook-bending finger, means on the hub of the hook-bending finger for actuating the pivoted finger as soon as the bending-roller is rotated around the center pin, a fixed lug in front of the center pin, an abutment near the same, said lug and abutment permitting the entrance of the book-bending finger for forming the hook, means for imparting rotary reciprocating motion to the hook-bending finger and bending-roller, and means for withdrawing the center pin as soon as the cross-head is formed so as to permit the removal of the bale-wire from the bending devices, substantially as set forth.

4. In a machine for bending the cross-heads of hay-bale wires, the combination of an upright shaft, a vertically-guided center pin in said shaft, a bending-roller on said shaft sidewise of said center pin, a pivoted finger sidewise of said bending-roller, an oscillating hook-bending finger the hub of which is provided with a cam for actuating the pivoted bending-finger, stationary bending devices coöperating with said fingers for bending the end of the wire-blank into the shape of a cross-head, means for imparting motion to the hook-bending finger and the bending-roller, and means for withdrawing the center pin below the top of the upright shaft for permitting the removal of the cross-head, substantially as set forth.

5. In a machine for bending the cross-heads of hay-bale wires, the combination of a vise for the shank of the cross-head, a shaft, a stationary clamping-jaw on said shaft, a movable clamping-jaw on said shaft coöperating with said stationary jaw to engage the cross-head, a sleeve on said shaft adapted to close said jaws, a power-pulley, a clutch between the same and the shaft, an operating-treadle, means connecting said sleeve with said treadle, and means connecting said clutch with said treadle, substantially as set forth.

6. In a machine for bending the cross-heads of hay-bale wires,

the combination, with the bending devices, of shank-twisting devices, a power-pulley, motion-transmitting mechanism between said power-pulley and the bending devices, motion-transmitting mechanism between said power-pulley and the twisting devices, a treadle, means connecting the same with the twisting devices, a clutch between said motion-transmitting mechanisms and the power-pulley, and means connecting said treadle with said clutch, substantially as set forth.

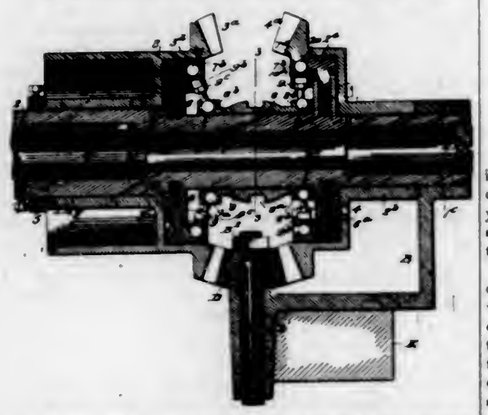
7. In a machine for bending the cross-heads of hay-bale wires, the combination of a pair of cross-head-holding jaws formed of a fixed jaw and an oscillating jaw, a pair of cross-head-clamping jaws, one being fixed and the other movable, a reciprocating sleeve provided with a forwardly-extending arm having a roller for closing the clamping-jaws on the cross-head, a driving-shaft provided with an enlarged and recessed extension for the clamping-jaws and sleeve, and means for rotating the driving-shaft with the clamping-jaws for twisting the shanks of the cross-head, substantially as set forth.

8. In a machine for bending the cross-heads of hay-bale wires, the combination, with the bending devices, of a driving-shaft, motion-transmitting mechanism between the driving-shaft and said bending devices for actuating the latter, devices for twisting the shanks of the cross-heads, mechanism between the driving-shaft and said shank-twisting devices for transmitting motion thereto, a treadle, mechanism operated by the treadle for clutching the power-pulley to the driving-shaft, and a stop-motion mechanism interposed between the clutch on the driving-shaft and the treadle-actuated mechanism for interrupting the motion of the driving-shaft independently of the release of the treadle, substantially as set forth.

9. In a machine for bending the cross-heads of hay-bale wires, the combination, with movable bending devices, of upright shafts for actuating said movable bending devices, a driving-shaft, motion-transmitting mechanism between said driving-shaft and the shafts of the movable bending devices, and stationary bending devices adjacent to said movable bending devices and coöperating therewith for bending the end of the wire-blank into the shape of a cross-head, substantially as set forth.

10. In a machine for bending the cross-heads of hay-bale wires, the combination, with the bending devices, of a driving-shaft, a power-pulley, motion-transmitting mechanism between said driving-shaft and bending devices, a vise for the shank of the cross-head, jaws carried by said driving-shaft and adapted to engage a cross-head, a sleeve on said shaft adapted to close said jaws, a clutch between said power-pulley and shaft, and means for simultaneously operating said sleeve and clutch, substantially as set forth.

749,349. REVERSING-CLUTCH MECHANISM. WILLIAM J. WRIGHT, Pittsburg, Pa., assignor, by direct and mesne assignments, to the Wright Reverse Company, Pittsburg, Pa., a Corporation of West Virginia. Filed Mar. 24, 1903. Serial No. 149,319. (No model.)



Claim.—1. In a reversing-clutch mechanism of the character described; the combination with a stationarily-held bearing and a suitably-supported idler-gear; of a shaft-section supported at one end on the stationary bearing, its other end being arranged to couple with the end of an engine-shaft, a pair of opposing gear-pulleys loosely mounted on the aforesaid shaft-section and having opposing gear-rims to mesh with the idler-gear, the said gear-pulleys each having an inwardly-extended annular clutch-flange, the said shaft-section having radially-projected integral pockets at points in transverse alinement with the clutch-flanges on the loose pulleys, clutch-shoes having gripping-faces concentric with the clutch-flanges on the pulley-gears, said clutch-shoes having stems radially adjustable within the aforesaid pockets, and means mounted on the shaft-section intermediate the pockets thereon for alternately shifting the clutch-shoes to a gripping or a released position, as set forth.

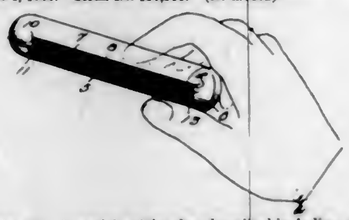
2. In a clutch mechanism of the character described; the combination with the tubular member 1, adapted to be fixedly coupled to the end of an engine-shaft and form an extension thereof, the L-shaped bracket B having a bearing for the outer end of the shaft extension 1, a hub *b* and an upwardly-extending member *b*² disposed midway the shaft-extension 1, an idler-gear, a stud-shaft therefor mounted in the pendent bracket-hub *b*, the pulleys 2 and 3 loosely mounted on the shaft extension, each pulley having a gear-rim for engaging with the idler-gear and an annular clutch-flange, clutch-shoes secured to the shaft extension having radial adjustment thereon, said shoes each having a portion concentric with the clutch-flanges on the gear-pulleys, a clutch-actuating sleeve loosely mounted and endwise slidable on the shaft extension, said sleeve having a central annular groove, a shifting-lever joined on the central upwardly-extended bracket member and engaging the annular groove in the clutch-sleeve, and toggle-link connections joining the said sleeve and the sliding clutch-sleeve, all being arranged substantially as shown and for the purposes described.

749,350. METHOD OF PREPARING PRINTING-PLATES. EUGEN WÜNSCHE, Schöneberg, near Berlin, Germany. Filed Feb. 7, 1903. Serial No. 142,409. (No specimens.)

Claim.—1. The method of preparing metal plates for printing, which consists in freeing the plates from grease, rubbing them down to obtain a smooth flat surface, roughing or graining the surface, treating the surface with steatite, making a transfer on the plate, etching it, washing out the etching acid and then rolling up the plate with an ink, substantially as described.

2. The method of preparing metal plates for printing, which consists in treating the plate with dilute nitric acid to free it from grease, rubbing down the plate, graining the plate with pumice-stone, then treating it with steatite, effecting a transfer thereon etching the plate, neutralizing any acid on the plate by alkali, washing and drying the plate and then rolling up the plate with a suitable ink, substantially as described.

749,351. PUZZLE. GEORGE T. ARNOLD, Oshkosh, Wis. Filed June 1, 1903. Serial No. 159,535. (No model.)

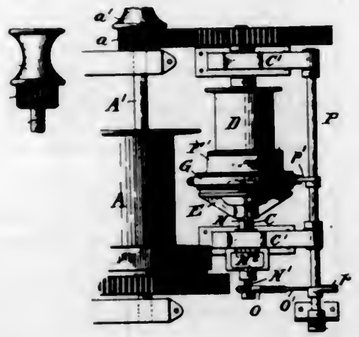


Claim.—1. An article of the class described including a bar having a longitudinal channel extending throughout its length, the ends of the bar being notched to form fingers, one finger extending beyond the extremities of the others and one of the other fingers curved slightly inwardly, a seat formed thereby, and a ball disposed to enter and pass through the channel and into the seat.

2. An article of the class described comprising a cylindrical casing closed at one end, a plug for the open end, a bar disposed within the casing and longitudinally thereof and having one of its ends secured in the plug, said bar having a longitudinal channel extending throughout its length and having its free end notched to form fingers, one finger extending beyond the extremities of the others and one of the other fingers curved slightly inwardly to form a seat, and a ball in the casing adapted to enter and traverse the channel to the seat.

749,352. DERRICK-SWINGING MECHANISM. CHARLES A. BANCROFT, Westfield, N. J., assignor to Lidgerwood Manufacturing Company, a Corporation of New York. Filed Jan. 31, 1901. Serial No. 45,402. (No model.)

Claim.—1. In combination, a shaft, a member provided with a cogged surface, a member provided with a friction-surface one of said members being revolubly fixed and the other revolubly loose upon said shaft, means whereby one of said members may be moved toward the other, a pinion-carrier provided with two pinion-bearings revolubly loose upon said shaft between said members, a gear-wheel revolubly fixed to said shaft between said members, a pinion journaled in said pinion-carrier and intermeshing with said cogs and said gear-wheel, and a brake; said pinion-carrier being provided with friction-surfaces engaging, respectively, with said friction member and said brake.



2. The combination with a shaft, a friction-disk mounted to turn with and slide upon the shaft, a drum mounted to turn upon the shaft and held against endwise movement thereon, and a bevel-gear carried by the end of the drum toward said friction-disk, of a cup or hood-shaped friction-disk loosely mounted on the shaft between the first friction-disk and the drum, a bevel-gear secured to the shaft within the hood of said friction-disk, a spider secured within said hood, bevel-pinions journaled in said spider and meshing with the bevel-gears which are respectively fixed to the shaft and carried by the drum, means for engaging the two friction-disks, and a friction-brake adapted to act on the loose friction-disk to hold it against rotation.

3. The combination with a shaft, a cup or hood shaped member and a drum both loosely mounted on the shaft, the drum having a bevel-gear carried by the end next the said hood, of a bevel-gear secured to the shaft between the drum and said hooded member, a spider secured to the hood and between the two bevel-gears, bevel-pinions carried by said spider and meshing with the bevel-gears, and means for frictionally connecting the hooded member with the shaft or to hold it stationary as desired.

4. The combination with a shaft, a cup or hood shaped member and a drum both loosely mounted on the shaft, the drum having a bevel-gear carried by the end next the said hood, of a bevel-gear secured to the shaft between the drum and said hooded member, a spider having a rotative bearing upon the shaft between the two bevel-gears and secured to the inner surface of the hood, bevel-pinions carried by said spider and meshing with the bevel-gears, and means for frictionally connecting the hooded member with the shaft or to hold it stationary as desired.

5. The combination with a shaft, a friction member mounted to turn with the shaft, a coöperating friction member mounted loosely upon the shaft and having a hood or projecting flange on one side, and a drum loose upon the shaft and closing the open end of said hood, of a bevel-gear fixed to the shaft and within the hood, a corresponding bevel-gear carried by the adjacent end of the drum, a spider having a bearing upon the shaft between the two bevel-gears and secured to the hood, bevel-pinions journaled in said spider and meshing with both bevel-gears, the journals of said pinions having longitudinal oil-passages and the hood having openings registering therewith, plugs closing the said openings in the hood and the outer ends of the oil-passages in the pinion-journals, and means for holding the hooded friction member against turning or to turn with the shaft at will.

6. In combination, a shaft, a member provided with a cog-surface, a member provided with a friction-surface one of said members being revolubly fixed and the other revolubly loose upon said shaft, means whereby one of said members may be moved toward the other, a gear-wheel and a pinion-carrier between said members and respectively revolubly fixed and revolubly loose on said shaft, a pinion journaled in said pinion-carrier and intermeshing with said cogs and said gear-wheel, and a brake; said pinion-carrier being provided with friction-surfaces engaging respectively with said friction member and said brake and the journal of said pinion being provided with a lubricating-passage extending inward to said shaft.

7. The combination with a non-reversible shaft of a hoisting-engine, a combined winch-head and gear secured thereon, an auxiliary shaft having a gear secured thereto and meshing with a first gear, a drum loose upon said auxiliary shaft, a driving member fixed to the shaft, a loose or floating member surrounding the shaft and carrying driving connections between the driving member and the drum, and two friction members, one stationary and the other rotating with the shaft, adapted to engage said floating member.

8. The combination with a non-reversible shaft of a hoisting-engine, a combined winch-head and gear secured thereon, of an auxiliary shaft having a gear secured thereto and meshing with the first gear, a drum loose upon said auxiliary shaft, a driving member fixed to the shaft, a loose or floating member surrounding the shaft and carrying driving connections between the driving member and the drum, and two friction members, one stationary and the other rotating with the shaft, adapted to engage said floating member, a single lever connected with both of said friction members and operating them respectively by swinging to opposite sides of its central position.

9. In a derrick-operating mechanism, in combination, a hoisting-drum, a shaft from which the same is operated, an auxiliary shaft, an operative connection between said shafts, a drum loosely mounted on said auxiliary shaft, a clutch revolubly fixed to said shaft whereby said drum is driven in the same direction with said shaft, a brake and drum-reversing mechanism controlled by said brake whereby said drum may be driven against said shaft.

10. A derrick-swinging attachment for hoisting-engines comprising an auxiliary shaft, means for connecting it with the engine for rotation in one direction, a drum mounted loosely on said shaft, two friction devices, of which two of the friction members are connected to turn together, the other part of one friction device being connected to turn with the shaft, and the other member of the other friction device having a non-rotative support, and a rotative driving member connecting drum and shaft and supported to be carried about the shaft by the member having the two friction parts thereon

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749,353. LOOM-SHUTTLE. ALFRED BALDWIN, Goffs Falls, N. H. Filed Dec. 30, 1901. Serial No. 87,693. (No model.)



Claim.—1. Tension means for loom-shuttles, comprising a friction-plate having a socketed lower end, a vertically-located tension-plate the lower end of which loosely engages said socketed lower end of the friction-plate, and means to press the tension-plate toward the friction-plate and permit the tension-plate to be moved bodily under the strain of the thread.

2. Tension means for loom-shuttles, comprising a friction-plate having a socketed base or lower portion, a tension-plate having an extended lower portion to engage and coact loosely with said socketed base, and a spring to press said tension-plate bodily against the friction-plate.

3. Tension means for loom-shuttles, comprising a friction-plate having its lower end formed into a socket, a tension-plate having an extended lower portion to engage and coact loosely with said socket, an adjusting screw or pin passing through both of said plates, and a spring for forcing one of said plates toward the other.

4. Tension means for loom-shuttles, comprising a friction-plate having rounded side edges and a socketed lower end, a tension-plate also provided with rounded side edges and having its lower end extended to loosely engage the socketed lower end of the friction-plate, and a spring for normally tending to move one of said plates toward the other.

5. Tension means for loom-shuttles, comprising a friction-plate, a tension-plate, said plates having outwardly-extended ends, shields for the said ends formed in the shuttle-body, means for normally forcing said plates toward each other, and a plate independent of the friction and tension plates and provided with a detaining member extending across the space between said friction and tension plates.

6. Tension means for loom-shuttles, comprising a friction-plate and a tension-plate each provided with a perforation, and provided with rounded side edges and a plate independent of the friction-

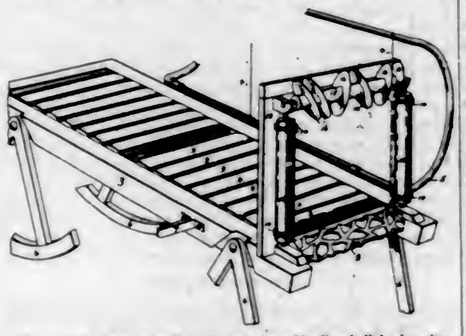
plate and tension-plate and having a detaining member extended through the perforations in said friction and tension plates.

7. Tension means for loom-shuttles, comprising a friction-plate, a tension-plate, means for normally forcing said plates toward each other, and a plate independent of the friction and tension plates and provided with a detaining member extending across the space between said friction and tension plates, and a spring acting on said independent plate normally tending to force the tension and friction plates toward each other.

8. Tension means for a loom-shuttle comprising a friction-plate having a connected socket, a tension-plate, the lower end of which engages said socket, a spring acting normally to press said tension-plate toward the friction-plate, said spring permitting the plates to be separated under the strain of the thread when excessive.

9. A tension means for loom-shuttles, comprising a friction-plate and a tension-plate, said friction-plate being secured in stationary position in the shuttle-body, a spring for forcing the tension-plate toward the friction-plate, a plate carrying a detaining member, said plate being interposed between the spring and tension plate, and having its end extended below the spring.

749,354. BRICK-CUT-OFF TABLE. WILLIAM H. BELTS, Canton, Ohio. Filed May 27, 1903. Serial No. 158,988. (No model.)



Claim.—1. In a cut-off table, a series of inclined disks longitudinally mounted thereon with their edges being adapted to cut into the clay column.

2. In a cut-off table, a frame hinged longitudinally thereon, transverse wires in the frame, supporting-bars transversely mounted in the table in line with the wires, and means operated by the movements of the frame for alternately elevating and depressing the bars.

749,355. SUSPENDER-END. WILLIAM BLOOMBERG, New York, N. Y. Filed Feb. 24, 1903. Serial No. 144,587. (No model.)



Claim.—1. A suspender-end comprising a trimming having two eyes, connected straps or tapes running through each of said eyes and each formed with a buttonhole, and an undergarment-supporter stitched directly to one of said tapes above its buttonhole and depending in rear thereof, said undergarment-supporter including a tab to whose lower end is affixed a metallic clasp.

2. A suspender-end comprising two overlapping straps or tapes, each being formed at its free end with a buttonhole and being attached at its overlapping end to the other tape near the buttonhole of the latter, and an undergarment-supporter stitched to one of said tapes on the reverse side thereof and consisting of a length of tape and a metallic clasp attached to its lower end; said clasp being suspended above the lower extremity of the buttonhole-tape so as to be covered by the latter.

3. A suspender-end comprising a trimming having two eyes, straps or tapes running through said eyes, each of said tapes having a buttonhole at its lower end and forming a tab and being attached at its other end to the other tape, and an undergarment-supporting metallic clasp connected directly to one of said tapes upon the reverse side thereof and suspended above the lower extremity of said tape so as to be covered thereby.

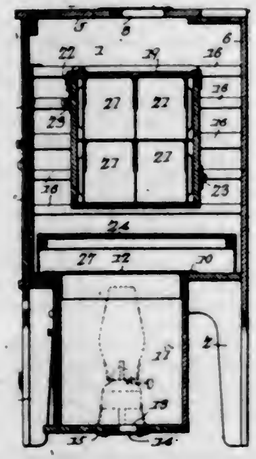
4. A suspender-end comprising a trimming having two eyes, a loop of tape or belting passing through said eyes, one leg of the loop through each eye, buttoning means at the depending end of each loop, and an undergarment-supporting clasp carried by one of said loop ends, but suspended above the lower extremity thereof so as to be covered thereby.

5. In a suspender-end, a tab comprising two plies of strap or tape, the outer of said plies having at its end a buttonhole, and the inner of said plies having affixed directly thereto immediately behind said outer ply a clasp for supporting an undergarment, said plies being secured together.

6. In a suspender-end, the combination with a trimming of a tab formed of strap or tape and running flatwise over said trimming, and an undergarment-supporter including a clasp and a tab stitched upon the reverse side of the latter and movable therewith; said clasp being formed for attachment to an undergarment and being suspended above the lower extremity of the strap or tape so as to be wholly covered thereby.

7. In a suspender-end the combination of a trimming of a tab formed of strap or tape and running flatwise over said trimming, and an undergarment-supporting clasp immediately behind said tab and attached directly thereto, but suspended above the lower extremity of said tape so that the latter may cover the clasp.

749,356. INCUBATOR. JAMES H. BOYD, Washington, D. C. Filed Oct. 9, 1903. Serial No. 176,434. (No model.)



Claim.—1. In an incubator, the combination with a case, of guide-rails associated with a pair of its opposite walls, an egg-container, trunnions detachably secured thereto for rotatably sustaining the container within the case, and means for locking the container against rotation.

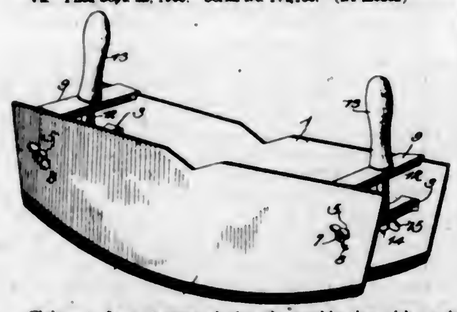
2. In an incubator, the combination with a case, of guide-rails associated with a pair of its opposite walls, a pair of said rails having bearings, an egg-crate provided with cells, trunnions detachably secured thereto and engaging the bearings for rotatably sustaining the crate within the case, and means for locking the crate against rotation.

3. In an incubator, the combination with a case having inner bearings, of an egg-crate provided with cells, trunnions detachably secured thereto and engaging the bearings for rotatably sustaining the crate within the case, and locking members carried by the crate for locking the same against rotation.

4. In an incubator, the combination with a case, of guide-rails associated with a pair of its opposite walls, a pair of said rails having bearings and one being provided with a socket, an egg-crate, trunnions detachably secured thereto and engaging the bearings for rotatively sustaining the crate within the case, and locking-bolts carried by the crate for engaging the socket to lock the crate against rotation.

5. In an incubator, the combination with a case, of a plurality of guide-rails associated with each of a pair of its opposite walls, and a tray having flanges engaging two of the rails and provided with air-passages, said tray having reticulated walls.

749,357. CHOPPING DEVICE. HARRY BRETSTEIN, Richmond, Va. Filed Sept. 22, 1903. Serial No. 174,183. (No model.)



Claim.—1. In a chopping device, the combination with a pair of cutting-blades disposed side by side, of connecting members extending transversely between and maintaining the blades in spaced relation, brace-plates sustained above the members and bearing upon the inner faces of the blades, and operating-handles having shanks extended through the plates and members.

2. In a chopping device, the combination with a pair of cutting-blades disposed side by side, of connecting members extending transversely between and maintaining the blades in spaced relation, means for detachably connecting the blades with the members, brace-plates sustained above the latter and bearing upon the inner faces of the blades, and operating-handles having shanks extended through the plates and members.

3. In a chopping device, the combination with a pair of cutting-blades disposed side by side, of connecting members extending between and maintaining the blades in spaced relation, brace-plates arranged remotely above the members, said plates having their lower faces notched to receive the upper edges of the blades whereby they bear upon said edges and the inner faces of the blades, and operating-handles having shanks extended through the plates and members.

749,358. ANTIFRICTION SEAT-COVER FOR RIDING-SADDLES. THOMAS V. BROOKS, Sutherlin, Va. Filed Nov. 16, 1901. Serial No. 82,563. (No model.)

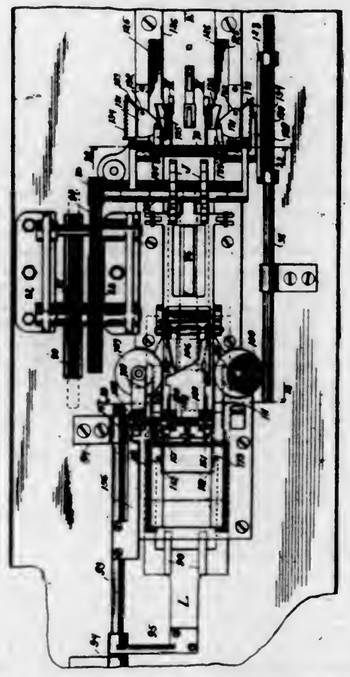


Claim.—1. A riding-saddle provided with an antifriction-cover lying across the seat of the saddle, said cover being provided on its under side with loops through which the stirrup-straps loosely pass, said loops being of such size relatively to the stirrup-straps as to permit a limited sliding movement of the cover, substantially as described.

2. A riding-saddle provided with an antifriction-cover lying across the seat of the saddle, said cover comprising a plurality of layers adapted to slide one upon the other, means for slidably securing the layers together, and means for slidably connecting the cover to the stirrup-straps, substantially as described.

3. A riding-saddle provided with a slidable antifriction-cover lying across the seat of the saddle, and means loosely securing the cover to the saddle so as to permit the cover to have a limited sliding movement thereon for the purpose of eliminating friction between the rider and the saddle, substantially as described.

749,359. BOX-MAKING MACHINE. WILLIAM H. BUTLER, New York, N. Y. Filed Nov. 7, 1899. Serial No. 736,106. (No model.)



Claim.—1. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of mean for raising the side flaps of the blanks, means for raising the forwar part of the blank out of contact with the means for raising the sid flaps and turning it backward and down upon the rear end of th blank to form the top of the box, whereby the side flaps of the to of the box will lie outside of and over the side flaps of the botton of the box.

2. In a machine for making boxes out of blanks having the part of the blanks which are to constitute the bottom and top of the bo provided with side flaps, the combination of a trough having sides gradually becoming more inclined to raise the side flaps of the blanks as they pass through the trough and provided with a widened portion, folders for raising the forward part of the blank and turning it backward and down upon the rear end of the blank to form the top of the box, upright plates in the said widened part forming a continuation of the walls of the narrow part of the trough to keep the side flaps of the rear part of the blank from spreading in the widened part of the trough, whereby the side flaps of the top of the box will lie outside of and over the side flaps of the bottom of the box.

3. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of means for raising the side flaps of the blanks, means for raising the forward part of the blank out of contact with the means for raising the side flaps and turning it backward and down upon the rear end of the blank to form the top of the box, whereby the side flaps of the top of the box will lie outside of and over the side flaps of the bottom of the

box, and means for automatically forcing the blanks through the trough.

4. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of a trough having sides gradually becoming more inclined to raise the side flaps of the blanks as they pass through the trough and provided with a widened portion, folders for raising the forward part of the blank and turning it backward and down upon the rear end of the blank to form the top of the box, upright plates in the said widened part forming a continuation of the walls of the narrow part of the trough to keep the side flaps of the rear part of the blank from spreading in the widened part of the trough, whereby the side flaps of the top of the box will lie outside of and over the side flaps of the bottom of the box, and means for forcing the blank through the trough.

5. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for operating the folders, means for turning the rear flap of the bottom of the box up and forward and down upon the box, projections adapted to extend out over the path of the box to prevent the top of the box from rising after the folders have been moved out of contact with it, and a pin connected with each projection also extending into the path of the box and adapted to be struck by the box to move the projections out from over the box to permit the rear flap to pass them.

6. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for operating the folders, means for turning the rear flap of the bottom of the box up and forward and down upon the box, projections adapted to extend out over the path of the box to prevent the top of the box from rising after the folders have been moved out of contact with it, and a pin connected with each projection also extending into the path of the box and adapted to be struck by the box to move the projections out from over the box to permit the rear flap to pass them, and means for automatically moving the blank.

7. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for operating the folders, means for turning the rear flap of the bottom of the box up and forward and down upon the box, projections adapted to extend out over the path of the box to prevent the top of the box from rising after the folders have been moved out of contact with it, means actuated by the folders when they are moved out of contact with the top of the box to cause the projections to move over the path of the box, a pin connected with each projection also extending into the path of the box and adapted to be struck by the box to move the projections out from over the box to permit the rear flap to pass them, and means actuated by the folders as they return to their normal position to move the projections away from over the path of the box.

8. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for operating the folders, means for turning the rear flap of the bottom of the box up and forward and down upon the box, projections adapted to extend out over the path of the box to prevent the top of the box from rising after the folders have been moved out of contact with it, means actuated by the folders when they are moved out of contact with the top of the box, to cause the projections to move over the path of the box, and a pin connected with each projection also extending into the path of the box and adapted to be struck by the box to move the projections out from over the box to permit the rear flap to pass them, means for automatically moving the blank, and means actuated by the folders as they return to their normal positions, to move the projections away from over the path of the box.

9. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for turning the rear flap of the bottom of the box up and forward and down upon the box, means automatically actuated for first raising the folders to their full height to raise the forward part of the blank and then partially lowering the folders to bend it back to form the top of the box and then raising them again to clear the rear flap and then lowering them again to their original position.

10. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, the combination of folders for turning the forward part of the blank up, back and down upon the rear part of the blank to form the top of the box, means for turning the rear flap of the bottom of the box up and forward and down upon the box, a cam for automatically actuating the folders for first raising the folders to their full height to raise the forward part of the blank and then partially lowering the folders to bend it back to form the top of the box and then raising them again to clear the rear flap and then lowering them again to their original position, and means for operating the cam.

11. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, and a folder for turning it forward and down upon the top of the box adapted to have a horizontal swinging movement and a vertical movement and means for imparting such movements to the folders, whereby the rear flap may be turned up and forward and down upon the top of the box.

12. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, and a folder for turning it forward and down upon the top of the box adapted to have a bodily horizontal swinging movement and a vertical swinging movement upon its support, and means for imparting such movements to the folder, whereby the rear flap may be turned up and forward and down upon the top of the box.

13. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, a swinging arm, a folder pivoted thereto for turning the rear flap forward and down upon the top of the box, means for automatically swinging said arm, whereby a bodily-swinging horizontal motion may be imparted to said folder, and means for swinging the folder on its pivot, whereby a vertical swinging movement upon its support is imparted to the folder and whereby the rear flap may be turned up and forward and down upon the top of the box.

14. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, a swinging arm, a folder pivoted thereto for turning the rear flap forward and down upon the top of the box, means for automatically swinging said arm, whereby a bodily-swinging horizontal motion may be imparted to said folder, pivoted connections with the free end of the folder, and a rigid part of the mechanism adapted to be struck by said connections and to act as a stop therefor as the folder engages with the rear flap whereby the folder will be swung on its pivot as it engages with the rear flap and the latter will be moved forward and down upon the top of the box.

15. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, a swinging arm, a folder pivoted thereto for turning the rear flap forward and down upon the top of the box, a cam, means for moving it backward and forward, connections between the cam and the swinging arm for swinging the latter, the cam being so shaped and moved as to impart the desired reciprocating movement to the swinging arm, and means for swinging the folder on its pivot, whereby a vertical swinging movement upon its support is imparted to the folder and whereby the rear flap may be turned up and forward and down upon the top of the box.

16. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, a swinging arm, a folder pivoted thereto for turning the rear flap forward and down upon the top of the box, a cam, means for moving it backward and forward, connections between the cam and the swinging arm for swinging the latter, the cam being so shaped and moved as to impart the desired reciprocating movement to the swinging arm, pivoted connections with the free end of the folder, a rigid part of the mechanism adapted to be struck by said connections and to act as a stop therefor as the folder engages with the rear flap, whereby the folder will be swung on its pivot as it engages with the rear flap and the latter will be moved forward and down upon the top of the box.

17. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the box provided with side flaps, a folder for turning the rear flap up and forward, a swinging arm, a folder pivoted thereto for turning the rear flap forward and down upon the top of the box, a cam, means for moving it backward and forward, connections between the cam and the swinging arm for swinging the latter, the cam being so shaped and moved as to impart the desired reciprocating movement to the swinging arm, a lever pivoted to the swinging arm and connected with the free end of the folder, and spring-pressed so as to hold the folder normally alongside of the swinging arm, a rigid part of the mechanism adapted to be struck by said lever, and to act as a stop therefor and to move the lever on the swinging arm as the folder engages with the rear flap, whereby the folder will be swung on its pivot as it engages with the rear flap and the latter will be moved forward and down upon the top of the box.

18. In a machine for inserting boxes into shells, a pivoted stop adapted normally to hang out of operative position, means automatically actuated by the machine for forcing the stop into operative position, the stop having a portion adapted to rest upon the shell as the box is being inserted therein, and means automatically actuated by the machine for removing the stop from operative position and means for causing it and its connections in such removal to bear upon the completed box to aid in the discharge of the completed box from the machine.

19. In a machine for making boxes out of blanks having the parts of the blanks which are to constitute the bottom and top of the boxes formed with side flaps, the combination of means for raising the side flaps of the blanks, means for raising the forward part of the blanks above the means for raising the side flaps and turning it backward and down upon the rear end of the blank to form the top of the box, and means for retaining the side flaps of the rear part of the blanks in their raised positions as the forward part or top is turned upward, backward and downward, whereby the side flaps of the top of the box will lie outside and over the side flaps of the bottom of the box.

749,360. SOUND-BOX FOR SOUND RECORDING AND REPRODUCING MACHINES. GEORGE K. CHENEY, New York, N. Y., assignor to Universal Talking Machine Manufacturing Company, a Corporation of New York. Filed Apr. 16, 1902. Serial No. 103,154. (No model.)



Claim.—1. The combination of a sound-box, a diaphragm, a floating support in which the diaphragm is adhesively secured, said support being freely movable in and confined by the walls of the sound-box and an operatively-connected stylus.

2. The combination of the sound-box, a floating ring therein, provided with an annular seat, a diaphragm, an interposed elastic material adhesively securing the diaphragm upon the annular seat and a coöperating stylus.

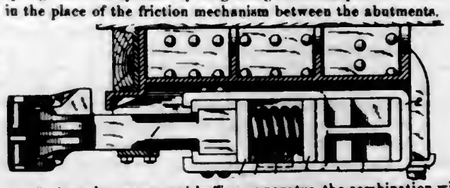
3. The combination of the sound-box, a floating ring therein, provided with an annular seat, a diaphragm, an interposed elastic material adhesively securing the diaphragm upon the annular seat, the stylus elastically connected with the diaphragm, bearings in which the stylus is mounted to vibrate freely, and a retractile spring for the stylus.

4. The combination of the sound-box, a floating ring therein, provided with an annular seat, a diaphragm, an interposed elastic material adhesively securing the diaphragm upon the annular seat, a coöperating stylus trunnioned in bracketed bearings to vibrate freely, and a spring engaging a flattened portion of one of the trunnions.

749,361. INTERCHANGEABLE DRAW-GEAR FOR RAILWAY-CARS. FRANCIS I. CLARK, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 10, 1901. Serial No. 59,607. (No model.)

Claim.—1. In a draw-gear and buffing apparatus, the combination with a frame provided with abutments, and a draw-bar having a long draft-strap, of a short draft-spring and a comparatively long filling-block surrounded by the strap, and located between the abutments.

2. The combination with a frame having abutments to coöperate with a friction draw-gear and buffing apparatus, of a short draft-spring and a comparatively long filling-block adapted to be inserted in the place of the friction mechanism between the abutments.

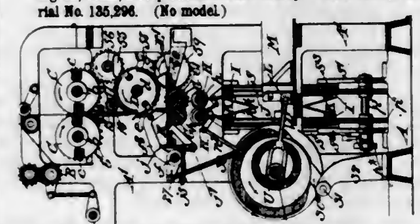


3. In a draw-gear and buffing apparatus, the combination with a frame having abutments, of a recessed filling-block together with a spring and follower-plates located between said abutments, and a draw-bar provided with a draft-strap.

4. In a draw-gear and buffing apparatus, the combination with a frame having abutments, a draw-bar and a draft-strap secured thereto, of a buffer-plate, a draft-spring and a filling-block located between said abutments, and a supporting-block for holding the spring in line with the draw-bar.

5. In a draw-gear and buffing apparatus, the combination of a frame having abutments, a draw-bar, a strap secured thereto, follower-plates, a draft-spring and a comparatively long filling-block located between one of the follower-plates and one of the abutments.

749,382. MACHINERY FOR CUTTING AND FOLDING PAPER OR OTHER FABRICS. EDGAR H. COTTRELL, Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y., and Stonington, Conn., a Corporation of New Jersey. Filed Dec. 15, 1902. Serial No. 135,296. (No model.)



Claim.—1. The combination of a folding-table, a rotary collecting-cylinder for collecting a plurality of sheets one at a time and one upon another and depositing the collection directly upon the table, and a reciprocating folding-blade coöperating with said table for folding the so deposited collection of sheets.

2. The combination of a folding-table, a rotary collecting-cylinder for making on its periphery collections each consisting of a plurality of sheets and depositing a plurality of such collections one upon another in a pile on said table, and a reciprocating folding-blade coöperating with said table for folding together the pile of so deposited sheets.

3. The combination of folding devices for folding together a plurality of sheets by one fold and a carrier which runs in the direction of the lines of the folds and into which the so folded sheets are deposited by said folding devices.

4. The combination with a folding-table and folding-rollers and a rotary carrier for depositing sheets one upon another on said table, a folding-blade coöperating with said folding-rollers for the folding of the so deposited sheets, and a cam-controlled spring for producing the operation of said blade during a small fractional portion of a revolution of said carrier.

5. The combination of a folding-table, a cutter for cutting sheets from a web, a rotary cylinder interposed between said table and cutter for taking the cut sheets directly from the cutter and depositing them upon said table, and a folding-blade coöperating with said table for folding the so deposited sheets.

6. The combination of a folding-table, a cutter for cutting sheets from a web, a rotary collecting-cylinder for collecting so cut sheets one at a time and one upon another and depositing the collection directly upon the table, and a reciprocating folding-blade coöperating with said table for folding the so cut and deposited sheets.

7. The combination of a folding-table, a cutter for cutting sheets from a web, a rotary cylinder interposed between said table and cutter for making on its periphery collections each consisting of a plurality of so cut sheets and depositing a plurality of such collections one upon another in a pile on said table, and a reciprocating folding-blade coöperating with said table for folding together the pile of so cut, collected and deposited sheets.

8. The combination of a cutter for cutting sheets from a web, a slotted folding-table, a rotary cylinder interposed between said

cutter and table for taking so cut sheets from the cutter and depositing them one upon another upon said table, folding-rollers under said table, a reciprocating folding-blade coöperating with said table and rollers for folding so cut and deposited sheets on lines parallel with the lines on which they are cut from the web, and a slitter for slitting the so cut and folded sheets crosswise of the lines on which they were cut from the web and of the line of their fold.

9. The combination of a cutter for cutting sheets from a web, a slotted folding-table, a rotary cylinder interposed between said cutter and table for collecting a plurality of sheets one upon another and depositing the collection upon said table, folding-rollers under said table, a reciprocating folding-blade coöperating with said table and rollers for folding the so deposited collection of sheets on lines parallel with the lines on which they are cut from the web and a slitter for slitting the so cut and folded sheets crosswise of the lines of the first cut and the fold.

10. The combination of a cutter for cutting sheets from a web, a slotted folding-table, a rotary cylinder interposed between said cutter and table for making on its periphery collections each consisting of a plurality of sheets and depositing a plurality of such collections one upon another in a pile on said table, folding-rollers under said table, a reciprocating folding-blade coöperating with said table and rollers for folding the so deposited plurality of collections one within another on a line parallel with the lines on which the sheets were cut from the web, and a slitter for slitting the so folded pluralities of collections crosswise of the first cut and of the fold.

11. The combination in and with an endless sheet-carrier, of two endless moving racks, members attached to said racks and forming pockets, springs applied to said members for closing the bottoms of the pockets and cam-actuated mechanism outside of the carrier and operating on said members for opening the bottoms of the pockets.

12. The combination with an endless carrier comprising two endless racks and members hinged thereto and forming pockets, of two rock-shafts one for each rack arranged parallel with the racks, stationary bearings for said rock-shafts, tappets on said rock-shafts for operating on said members to produce the opening of the bottoms of said pockets, and connections between the two rock-shafts whereby the tappets of the two operate together.

13. The combination with a folder and a horizontally-running endless pocketed carrier for the reception of folded sheets from the folder, of a receptacle arranged between the upper and lower runs of said carrier for the reception of the folded sheets from the pockets in the upper run of said carrier.

14. The combination with a folder and a horizontally-running endless pocketed carrier for the reception of folded sheets from the folder, of a packing-trough arranged between the upper and lower runs of said carrier for the reception of sheets therefrom, and a packer moving in said trough in a direction transverse to that of the movement of said carrier.

15. The combination with a folder for folding together a collection of sheets and a slitter for slitting the so folded collection crosswise of the fold into shorter collections of sheets, of an endless carrier running in a direction parallel with the line of the fold of the sheets and having separate pockets for the reception of said shorter collections of sheets.

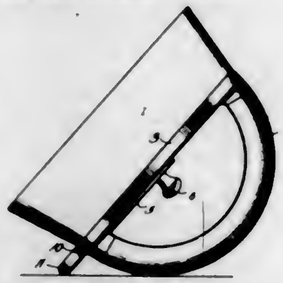
16. The combination with a folder for folding together a collection of sheets and a slitter for slitting the so folded collection crosswise of the fold into shorter collections of sheets, of an endless carrier running in a direction parallel with the line of the fold and having separate pockets for the reception of said shorter collections from the folder and slitter, and means for giving to said carrier step-by-step movements equal to the length of said separate pockets whereby a plurality of said shorter collections are inset one within another in the pockets.

17. The combination with a folder for folding together a collection of sheets and a slitter for slitting the so folded collection crosswise of the fold into shorter collections of sheets, of an endless carrier running in a direction parallel with the line of the fold and having separate pockets for the reception of said shorter collections from the folder and slitter, means for giving said carrier step-by-step movements equal to the length of said separate pockets whereby a plurality of said shorter collections are inset one within another in the pockets to form signatures, and means for opening the bottoms of the pockets for the discharge therefrom of the so formed signatures.

18. The combination of a folding table, a rotary cylinder for making on its periphery a plurality of collections each consisting of a plurality of sheets and depositing a plurality of such collections one upon another in a pile on said table, folding-rollers, a reciprocating folding-blade coöperating with said rollers for folding the so deposited plurality of collections one within another, a slitter for slitting the so folded pluralities of collections crosswise of the fold into shorter collections of sheets, an endless carrier having separate pockets for the reception of said shorter collections, means for giving said carrier step-by-step movements whereby a plurality of said shorter collections are inset one within another to form a signature.

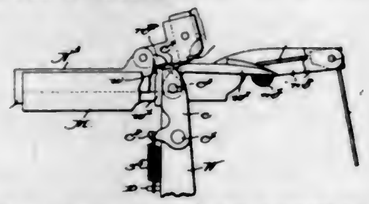
19. The combination with folding-rollers for first folding together a plurality of sheets into a signature by one fold and for afterward by a repetition of said operation folding together in the same manner a second plurality of sheets into a second signature and insetting said second signature in the first one, of a carrier running in the direction of the fold for the reception of the folded and inset signatures.

749,363. SAD-IRON HOLDER. JOHN H. COX, Erie, Kans. Filed Feb. 27, 1902. Serial No. 145,444. (No model.)



Claim.—In combination with a sad-iron, a support comprising a detachable handle and supporting-base, handle-receiving socket-formed in the base, a spring-catch carried by the base for engagement with the iron, said supporting-base being provided with an integral forked extension defining a pair of outwardly-projecting diverging legs extending in the same plane with the base and adapted in conjunction with the handle to form a support for the iron when tilted.

749,364. FILLING-DETECTING MECHANISM FOR LOOMS. EDWARD CUNLIFF, New Bedford, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed July 11, 1902. Serial No. 165,090. (No model.)



Claim.—1. In a loom, means, including an actuator and a slide, to effect the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, a fixed stand in which the slide moves, a filling-detector mounted independent of the actuator and the slide, and means controlled by the detector to prevent coöperation of the slide and actuator when presence of filling is detected.

2. In a loom, means, including an actuator and a slide, to effect the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, a dog pivotally mounted on the slide, to be engaged at times by the actuator, a filling-detector, a stationary support therefor and means controlled by said detector to prevent operative engagement of said dog and actuator when presence of filling is detected.

3. In a loom, means, including a vibrating actuator and a slide, to effect the operation of a loom-stopping instrumentality or a filling-replenishing mechanism, and a member movably mounted on and supported wholly by the slide to be operatively engaged by the actuator and move the slide, a filling-fork mounted independent of the slide and actuator, and means controlled by the detector to move the said member into inoperative position when presence of filling is detected.

4. In a loom, a slidable member adapted by its movement to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, a dog mounted thereon, an actuator, and means automatically operative when the filling is present to prevent, and when the filling is absent to permit, coöperation of the actuator and dog, such coöperation causing movement of the slide, said means including a tilting filling-detector mounted independent of the actuator and the slide.

5. In a loom, a slidable member adapted by its movement to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, a dog pivotally mounted thereon, a fixed stand for the slidable member, an actuator, and means mounted independently of the slide and operative when the filling is present to prevent, and when the filling is absent to permit, coöperation of the actuator and dog, said means including a filling-detector mounted on a stationary support.

6. In a loom, a slidable member adapted by its movement to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, a dog mounted thereon, an actuator, and means mounted wholly independent of the slide and including a part mounted on the actuator, and operative when the filling is present to prevent, and when the filling is absent to permit, coöperation of the actuator and dog.

7. In a loom, a vibrating actuator, a member moved by coöperation therewith to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, and means mounted wholly independent of said member and operative when the filling is present to prevent such coöperation of said member and the actuator, said means including a filling-fork pivotally mounted on a stationary support.

8. In a loom, a vibrating actuator, a member moved by coöperation therewith to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, and means mounted wholly independent of said movable member and including a part mounted on the actuator, to effect coöperation of the latter with the actuator when the filling is absent and to prevent such coöperation when the filling is present.

9. In a loom, a vibrating actuator, a member moved by coöperation therewith to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, and means, including a part mounted on the actuator and a filling-detector mounted independently of the actuator and said movable member, to effect coöperation of the latter with the actuator when absence of filling is detected by the filling-detector.

10. In a loom, a vibrating actuator, a member moved by coöperation therewith to cause the operation of a filling-replenishing mechanism or a loom-stopping instrumentality, and means, including a part mounted on and movable relatively to the actuator, and a filling-detector controlling such part and mounted independently of the actuator and said movable member, to effect coöperation of the latter when absence of filling is detected and to prevent such coöperation when the filling is present.

11. In a loom, a movable member to cause by its movement the operation of a loom-stopping instrumentality or a filling-replenishing mechanism, a dog on said member, a vibrating actuator to at times coöperate with the dog and effect movement of said member, a controller on and movable relatively to said actuator, to normally render the dog inoperative, and a filling-detector independent of said member and governing the relative movement of the controller, said detector upon detection of the absence of filling rendering the controller inoperative and permitting coöperation of the dog and actuator.

12. In a loom, a slide, a dog mounted thereon, an actuator having a bunter to coöperate with the dog and move the slide, a dog-controller on and also movable relatively to the actuator, and a filling-detector to cause relative movement of the controller into inoperative position when absence of filling is detected, to thereby effect coöperation of the dog and actuator.

13. In a loom, a slide, a dog mounted thereon, an actuator having a bunter to coöperate with the dog and move the slide, a controller pivotally mounted on the actuator and having a hook, said controller normally engaging the dog and moving it out of the path of the bunter, and a filling-fork pivotally mounted independently of the slide and having a tail to engage the hook when the filling is absent, such engagement rocking the controller and permitting the dog to be engaged by the bunter.

14. In a loom, a slide, a dog mounted thereon, a weft-hammer having a bunter to coöperate with the dog and move the slide, a controller pivoted on the weft-hammer and having a hook, a spring to retain the controller in position to move the dog out of the path of the bunter, and a filling-fork mounted independently of the slide and having a tail to engage the hook when the filling is absent, such engagement rocking the controller against its spring relatively to the weft-hammer and permitting the dog to be engaged by the bunter.

15. In a loom, a slide having a dog, a stationary guide for the slide, a filling-fork mounted on said guide, a weft-hammer having a bunter to coöperate with the dog and move the slide, a controller on and movable relatively to said weft-hammer, to normally move the dog out of the path of the bunter, and a hook on the controller to be engaged by the fork upon detection of filling failure, such engagement moving the controller into inoperative position and permitting the bunter to coöperate with the dog.

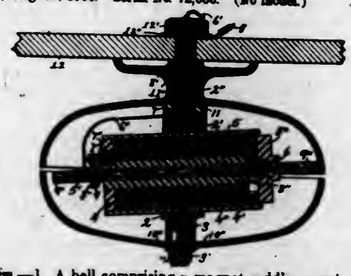
16. In a loom, a slidable member adapted by its movement to cause the operation of a loom-stopping instrumentality or a filling-replenishing mechanism, a fixed stand in which said member is slidably mounted, an actuator to move said member, and means operative automatically upon absence of filling, and including a filling-detector mounted on a fixed support and independent of said member and actuator, to effect their coöperation and consequent movement of said member.

17. In a loom, a slide, a vibrating actuator to effect its movement by coöperation therewith, and means, including a filling-fork mounted independent of the slide and actuator, to effect their coöperation upon detection of absence of filling.

18. In a loom, a slide, a guide therefor, a vibrating actuator to move the slide when in engagement therewith, a filling-fork mounted on the guide, and means governed by the fork to effect engagement of the slide and actuator upon detection of the absence of filling.

19. In a loom, a slide, a vibrating actuator to move the slide when in coöperative engagement therewith, means to prevent such engagement when the filling is properly laid, and a device mounted independently of the slide and actuator, to render said means inoperative when the continuity of the filling is interrupted.

749,365. ELECTRIC BELL. HARRY R. DEY, New York, N. Y. Filed Aug. 15, 1901. Serial No. 72,066. (No model.)



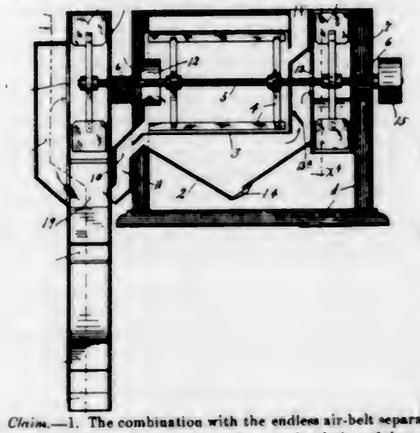
Claim.—1. A bell comprising a magnet-saddle; a pair of cup-shaped resonant members duly supported and forming a substantial housing for said magnet-saddle; an electromagnet supported by said saddle; a striker arranged to reciprocate longitudinally along the axis of said magnet, and in a line intersecting both of said resonant members, the said striker being electrically controlled by the magnet; an electric generator; circuit connections between said generator and magnet, and means for controlling said circuit, substantially as herein specified.

2. A bell comprising an electrically-controlled striker; a pair of cup-shaped resonant members duly supported and forming a substantial housing for said striker; means for supporting said members; an electric generator; circuit connections between said generator and striker, and means for controlling said circuit, the said striker being arranged for longitudinal reciprocating movement along a line intersecting both of said resonant members, substantially as herein specified.

3. A bell comprising a magnet-saddle having a hollow extension alining with the axis of the bell proper; a pair of cup-shaped resonant members duly supported and forming a substantial housing for said magnet-saddle; an electromagnet at said saddle; a reciprocating striker at said magnet and controlled thereby, said striker being disposed so as to reciprocate in a line intersecting both of said resonant members; an electric generator; circuit connections between said generator and magnet, and means for controlling said circuit, the said circuit connections comprising a portion disposed interiorly of said hollow extension, substantially as herein specified.

4. A bell comprising a magnet-saddle having a hollow extension alining with the axis of the bell proper; a pair of cup-shaped members, one of which is resonant, and the said members being duly supported and forming a substantial housing for said magnet-saddle; an electromagnet at said saddle; a reciprocating striker at said magnet and controlled thereby, said striker being disposed so as to reciprocate in a line intersecting both of said cup-shaped members; an electric generator; circuit connections between said generator and magnet, and means for controlling said circuit, the said circuit connections comprising a portion disposed interiorly of said hollow extension, substantially as herein specified.

749,366. GRAIN CLEANER AND SEPARATOR. EMIL R. DRAVER, Richmond, Ind. Filed June 25, 1903. Serial No. 162,977. (No model.)



Claim.—1. The combination with the endless air-belt separator equipped with a fan maintaining a continuous circulation of the same body of air therethrough, and which separator is provided with a series of deflecting-surfaces and an expansion-chamber intermediate the stock-inlet and the eye of the fan, of a grain-scourer delivering the scoured grain to said separator and itself equipped with a suction-fan, for eliminating the scourings and the fine dust from the stock before said stock reaches said separator, substantially as described.

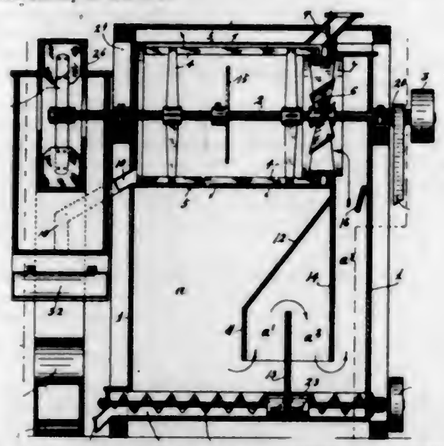
2. The combination with the endless air-belt separator equipped with a fan maintaining a continuous circulation of the same body of air therethrough and which separator is provided with a series of deflecting-surfaces and an expansion-chamber intermediate the grain-inlet and the eye of the fan, of a grain-scourer delivering the scoured grain to said separator and itself equipped with a suction-fan and an expansion-chamber for eliminating the scourings and fine dust from the grain before reaching said separator, the scourer being located and subject to the suction-fan, all for cooperation, substantially as described.

3. In a grain-cleaner, the combination with a suitable casing, of a perforated scouring-shell in said casing, a scouring-beater mounted to rotate within said shell, for cooperation therewith, an open-blast fan for drawing off the scourings and dust through said scouring-shell, an endless air-trunk and a fan inclosed therein, for producing a continuous belt of air, and means for passing the grain through the belt of air in said endless air-trunk after it has been subjected to the scouring action, substantially as described.

4. In a grain-cleaner, the combination of a casing, a perforated scouring-shell in said casing, a scouring-beater mounted to rotate in said shell, an open-blast fan, for drawing off the dust through the meshes of the scouring-case, a fan inclosed in an endless air-trunk, for producing a belt of air therethrough, a settling-chamber in the path of the air-belt, and means for passing the grain through the belt of air in said trunk for further separation after it has been scoured, substantially as described.

749,367. SELF-CONTAINED GRAIN-SCOURER AND DUST-COLLECTOR. EMIL R. DRAVER, Richmond, Ind. Filed July 15, 1903. Serial No. 165,816. (No model.)

Claim.—1. The combination with a primary endless air-trunk separator, in which the light particles are removed from the stock and a scourer interposed in said primary air-trunk, of a secondary endless-air-trunk separator receiving the partially-purified stock from said primary air-trunk separator, and in which secondary air-trunk separator the heavier particles are separated from the stock, substantially as described.



2. An endless air-trunk having a settling-chamber, a perforate scouring-drum interposed in said air-trunk, an agitator working within said scouring-drum, and a fan in said air-trunk, operating to force the dust-laden air through said scouring-drum and to said settling-chamber, over and over again, in combination with a secondary endless air-trunk having a settling-chamber and a fan, and in which the heavier particles are separated from the stock, substantially as described.

3. A combined grain-scourer and dust-collector comprising primary and secondary endless air-trunks, a perforate scouring-drum interposed in said primary endless air-trunk, a common shaft, carrying an agitator and two fans, said agitator working in said scouring-drum and the said fans working one in each of said endless air-trunks and producing independent endless belts of air, and means for delivering the partially-purified stock from said scouring-drum into said secondary endless air-trunk, substantially as described.

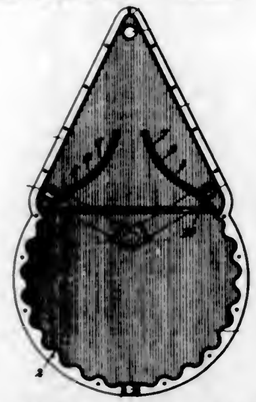
4. The combination with a primary endless-air-trunk separator, in which the light particles are removed from the stock and a scourer interposed in said primary air-trunk, of a secondary endless-air-trunk separator receiving the partially-purified stock from said primary separator and in which secondary air-trunk separator the heavier particles are separated from the stock, and means for independently regulating the blasts of air through the said two endless-air-trunk separators, substantially as described.

5. The combination with an endless air-trunk having therein a dust collecting or settling chamber, of a grain-scourer made up of a perforated scouring-shell, a rotary beater mounted within the shell and cooperating therewith, and a propeller-fan located at the receiving end of said scourer and receiving the belt of air from the clean-air side of said collecting and settling chamber, and forcing the whole thereof through the perforated shell of said scourer, along with the dust removed from the grain under the scouring action, into said dust collecting and settling chamber, said fan thus serving to maintain a continuous circulation of the belt of air through the said scourer and said collecting and settling chamber in an endless closed circuit, substantially as and for the purposes set forth.

6. The combination with a substantially air-tight casing, of a grain-scourer made up of a perforated shell located near the top of said casing, a rotary beater mounted therein for cooperation with said shell, and a propeller-fan located at the receiving end of said scourer, a dust collecting or settling chamber located beneath the scouring-drum and having deflecting or baffle plates for making the air pursue a tortuous path in passing through said chamber, and a clean-air leg or section of the air-trunk leading from the clean-air side of said settling-chamber to the open head end of the scouring-drum, said parts being so disposed as to afford an endless air-trunk through which said fan maintains a continuous circulation of a belt of air, forcing the clean air into the scouring-drum, and the dust-laden air into the settling-chamber, a partition-plate in said settling-chamber dividing the same into dust-laden and clean-air sides of compartments, and a conveyer-equipped trough in the bottom of said casing forcing out the collected dust, which conveyer works through the said partition and is provided with a dust-tight joint, all of which

parts above named cooperate substantially as and for the purposes set forth.

749,368. DISTILLING APPARATUS. ADOLPHE C. G. DUFOUR, New Orleans, La., and WILLIAM S. FELL, Waveland, Miss., assignors to Frederick P. Morrill and George R. Pitcher, New Orleans, La. Filed Feb. 18, 1903. Serial No. 143,961. (No model.)



Claim.—1. A distilling apparatus, comprising a liquid-containing receptacle, the wall of said receptacle having corrugations formed therein, a conical vapor-chamber mounted above said receptacle, a foraminous chemical-containing partition between the chamber and the receptacle, upwardly-extending converging plates mounted in said chamber, a filling of non-conducting material for said plates, an outlet for the lighter vapors at the apex of said chamber, and outlet-conduits for the heavier vapors, lying between the walls of the chamber and the aforesaid converging plates, said conduits converging and joining a common duct outside said chamber, substantially as set forth.

2. A distilling apparatus, comprising a liquid-containing receptacle having an inlet and an outlet for the liquid, the wall of said receptacle being corrugated, a foraminous chemical-containing partition separating the receptacle from the chamber, upwardly-extending converging curved plates mounted in the chamber above said screen, said plates being spaced apart at their upper ends, an outlet for the lighter vapors at the apex of said chamber, and outlets for the heavier vapors, formed at the bottom of said chamber between the upwardly-extending plates and the walls of said chamber, substantially as set forth.

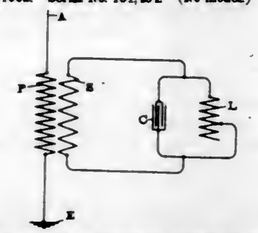
749,369. ROCK-CUTTING DRILL-BIT. LAFAYETTE DURKEE, Denver, Colo., assignor to the Mine & Smelter Supply Company, Denver, Colo., a Corporation of Colorado. Filed Jan. 23, 1903. Serial No. 140,280. (No model.)



Claim.—1. In a rock-cutting drill, the combination of a suitable drill-shank having a chuck-holding end, with a rock-cutting end, comprising four radial ribs extending substantially axially with said shanks, and forming an integral part thereof, two oppositely-disposed sets of ribs, one set of which sets extends beyond the opposite set a short distance and forms a chisel-shaped cutting edge at the end of the drill-bit, and having the opposite corners of the two longest ribs beveled in opposite directions, and an inverted-V-shaped cutting edge at the center of said chiseled end, and a suitable cutting edge on the terminal edges of the two opposite shorter ribs, substantially as described.

2. In a rock-cutting drill-bit, the combination of a shank provided with four oppositely-arranged fluted lips or ribs, all of which form an integral part of the shank of said drill-bit and all of which taper divergingly outward to their terminal ends and having one oppositely-arranged pair of ribs longer than the other pair of ribs, and having the opposite outer ends of said longer ribs provided with a bevel on one side only and having the bevel on one edge arranged on the opposite side of the rib-frame the bevel on the opposite rib so that a diagonal cutting edge is formed on this pair of ribs and a straight rock-cutting edge of equal angular pitch on each side of the cutting edge at the cutting-point of each of the short ribs, substantially as described.

749,370. WIRELESS SIGNALING SYSTEM. CORNELIUS D. EBERT, Ardmore, Pa., assignor, by mesne assignments, to International Wireless Telegraph Company, a Corporation of New Jersey. Filed Nov. 15, 1902. Serial No. 131,484. (No model.)



Claim.—1. The method of rendering intelligible electroradiant energy transmitted through the natural media, which consists in transforming the electroradiant energy into the energy of electric currents, and increasing the current component of said energy of electric currents by supplying said energy to a circuit including a closed resonant circuit comprising capacity and inductance arranged in branches which are in parallel with each other.

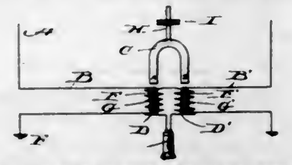
2. The method of rendering intelligible electroradiant energy transmitted through the natural media, which consists in transforming said electroradiant energy, into the energy of electric currents, increasing the current component of said energy of electric currents by supplying it to a circuit including a closed resonant circuit comprising capacity and inductance arranged in branches which are connected in parallel with each other, and causing said increased current component to actuate or control a signal-producing device.

3. The method of rendering intelligible electroradiant energy transmitted through the natural media, which consists in transforming said electroradiant energy into the energy of electric currents, increasing the current component of said energy of electric currents by a step-down transformer, and further increasing the current component by supplying said energy to a circuit including a closed resonant circuit comprising capacity and inductance arranged in branches which are connected in parallel with each other.

4. The method of rendering intelligible electroradiant energy transmitted through the natural media, which consists in transforming the electroradiant energy into the energy of electric currents, and increasing the current component of said energy of electric currents by supplying it to branches connected in parallel with each other and including respectively inductance and capacity so adjusted and proportioned as to render the closed circuit formed by said branches resonant with respect to the transmitted electroradiant energy.

5. The method of rendering intelligible electroradiant energy transmitted through the natural media, which consists in transforming the electroradiant energy into the energy of electric currents, increasing the current component of said energy of electric currents by supplying it to branches connected in parallel with each other and including respectively inductance and capacity so adjusted and proportioned as to render the closed circuit formed by said branches resonant with respect to the transmitted electroradiant energy, and utilizing a frequency-determining element as a signal-producing means.

749,371. WIRELESS-TELEGRAPH RECEIVER. LEE DE FOREST, New York, N. Y. Filed June 4, 1903. Serial No. 160,027. (No model.)



Claim.—1. A receiving apparatus for wireless telegraphy, comprising two differently-tuned receiving systems, two coiled conductors and magnetic cores therefor comprising solenoids, one member of each solenoid being in its respective receiving system, means for producing a varying magnetic field to include said solenoids, and a translating instrument oppositely affected by each of said solenoids.

2. A receiving apparatus for wireless telegraphy, comprising two differently-tuned receiving systems, a separate magnetic detector for each system and a translating instrument oppositely affected by said detectors.

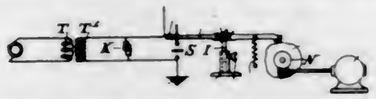
3. A receiving apparatus for wireless telegraphy, comprising two differently-tuned receiving systems, a solenoid for each of said systems having its coil in the aerial circuit thereof, a magnetic core for each solenoid, means for creating a variable magnetic field which includes said solenoids, and a translating instrument oppositely affected by said solenoids.

4. A receiving apparatus for wireless telegraphy, comprising two differently-tuned receiving systems, a solenoid for each of said systems having its coil in the aerial circuit thereof, a magnetic core for each solenoid, means for creating a variable magnetic field which includes said solenoids, a local circuit containing oppositely-connected coils inductively acted upon, each by its respective solenoid, and a translating instrument in said local circuit.

5. A receiving apparatus for wireless telegraphy, comprising two differently-tuned receiving systems, a solenoid and its core for each system having its coil in the aerial circuit thereof, means for automatically remagnetizing the core of said solenoid and a translating instrument oppositely affected by variations of the magnetic conditions of said solenoids.

6. A receiving apparatus for wireless telegraphy, comprising a plurality of differently-tuned receiving systems, a solenoid and its core for each system having its coil in the aerial circuit thereof, means for automatically remagnetizing the core of said solenoid, a local circuit containing a translating instrument and coils each embracing its respective solenoid and oppositely connected in said local circuit.

749,372. ART OF WIRELESS TELEGRAPHY. LEE DE FOREST, New York, N. Y. Filed June 4, 1903. Serial No. 160,023. (No model.)



Claim.—1. The method of wireless signaling which consists in radiating a continuous series of high-frequency, electrical waves having a spark frequency varied in a predetermined cycle and in therewith producing at the receiving-stations manifestations which vary in accordance with the variations in spark frequency.

2. The method of wireless signaling which consists in radiating a continuous series of high-frequency, electrical waves having a spark frequency varied in a predetermined cycle and in therewith producing sounds which vary in pitch or tone in accordance with the variations in spark frequency.

3. The method of wireless signaling which consists in radiating high-frequency, electrical waves varied in their mechanical frequency in a predetermined cycle and in therewith producing at the receiving-station manifestations which vary in a corresponding cycle.

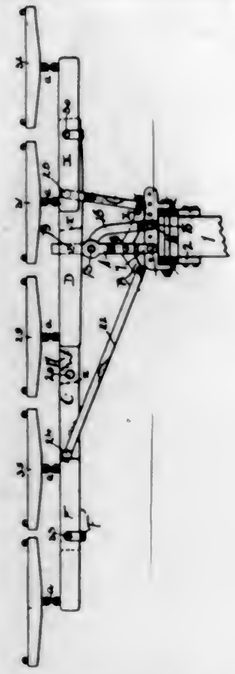
4. The method of wireless signaling which consists in radiating high-frequency electrical waves varied in their mechanical frequency in a predetermined and recurring cycle and in therewith producing manifestations at the receiving-station varying in the same cycle.

5. The method of communicating a warning-signal which consists in emitting a recurring series of high-frequency electrical waves varying both in their spark frequencies and in their continuity in accordance with a predetermined cycle, and in translating said waves into audible sounds.

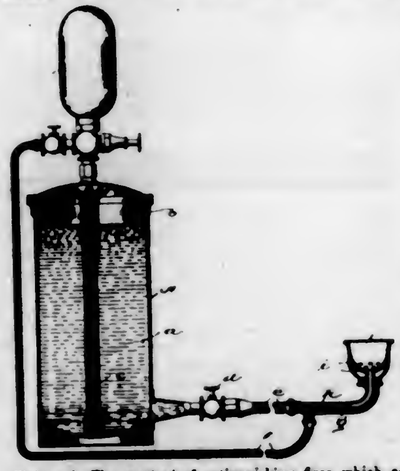
6. The method of communicating a warning-signal which consists in emitting a recurring series of high-frequency electrical waves varying both in their spark frequencies and in their continuity in accordance with a predetermined cycle, and in producing thereby manifestations which vary in accordance with the variations in said waves.

749,373. FIVE-HORSE GANG-PLOW EVENER. JOSEPH W. GAMBLE, Omaha, Nebr. Filed July 9, 1902. Serial No. 114,910. (No model.)

Claim.—In an evener of the character described, the combination with a clevis of a reversible fork, a main tongue secured to said fork, an evener pivotally secured to said main tongue, an auxiliary tongue secured to said main tongue and to said clevis, a hinge-bar pivoted near one end to said main tongue and extending toward the landside of the plow, a bolt secured to the land-side end of said hinge-bar, a long bar secured approximately centrally to said bolt to pivotally secure said long bar, a two-horse evener secured to the land end of said long bar, a three-horse evener secured to said long bar near the furrow end, a draft-bar extending from the furrow end of said long bar and being adjustably secured to one end of aforesaid evener, and a draft-bar extending from the land end of aforesaid evener and being secured near the land end of said long bar, as and for the purpose set forth.



749,374. METHOD OF EXTINGUISHING FIRES. ELMER GATES, Chevy Chase, Md. Filed Mar. 13, 1903. Serial No. 147,686. (No model.)



Claim.—1. The method of extinguishing fires, which consists in projecting against burning surfaces lather-like bubbles containing fire-extinguishing gases; substantially as described.

2. The method of extinguishing fires, which consists in projecting against burning surfaces lather-like bubbles containing fire-extinguishing gases, the film of said bubbles consisting of non-combustible material; substantially as described.

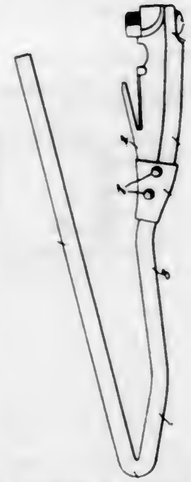
3. The method of extinguishing fires, which consists in projecting against burning surfaces lather-like bubbles containing fire-extinguishing gases, the film of said bubbles consisting of jelly-like emulsion in which is incorporated salts decomposable by heat; substantially as described.

4. The method of extinguishing fires, which consists in projecting against burning surfaces lather-like bubbles containing fire-extinguishing gases, the film of said bubbles consisting of jelly-like emulsion in which is incorporated salts decomposable by heat, and which on being decomposed give off non-combustible gases; substantially as described.

5. The method of extinguishing fires, which consists in projecting against burning surfaces lather-like bubbles containing fire-extinguishing gases, the film of said bubbles consisting of jelly-like emulsion in which is incorporated salts decomposable by heat, and which leave non-combustible oxids; substantially as described.

6. The method of extinguishing fires in inclosed rooms or like spaces, which consists in filling the room or other space with lather-like bubbles containing fire-extinguishing gases; substantially as described.

749,375. GRAIN-GUIDE FOR HARVESTERS. WILLIAM GLAZE, Buckingham, Ill. Filed Mar. 16, 1903. Serial No. 147,924. (No model.)

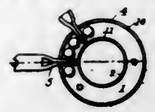


Claim.—1. The combination of a reaper guard-finger, a grain-guide formed of a metal bar having its rear end extended beneath the guard-finger and its forward end extended in front of the guard-finger to engage fallen grain, said forward end having an integral portion inclined upward and rearward above the guard-finger, a bolt passed through the rear end of the grain-guide and engaged with the guard-finger, a clip passed around the forward end of the guard-finger and also around and beneath that portion of the grain-guide which contacts with said guard-finger for holding the parts together and a fastening device passed through said clip and having engagement, within the clip, with the contacting portions of the grain-guide and guard-finger.

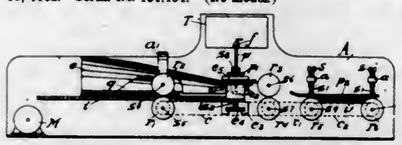
2. In combination with a reaper guard-finger, a grain-guide having its forward end extended in front of the guard-finger and adapted to engage fallen grain, the rear end of said guide being extended beneath and in contact with the guard-finger and the adjacent surfaces of the guard-finger and guide being correspondingly notched, a clip passed around the forward end of the guard-finger and beneath the guide and rivets passed through the clip and through the notches in the guard-finger and guide for holding the guide and guard-finger in relation, substantially as set forth.

749,376. UMBRELLA-RIB RETAINER. SYLVANUS R. GROFF, Reading, Pa., assignor of one-half to Allen C. Mellert, Reading, Pa. Filed June 26, 1903. Serial No. 163,064. (No model.)

Claim.—The combination of an umbrella-rib retainer consisting of a dish-shaped body portion provided with central aperture, two vertical circular walls, one within the other, slots in the upper edge of the outer wall, an upwardly-projecting lug on the upper edge of each of said walls, a sleeve having an opening adapted to engage the projection on the inner wall, and a circular plate or cover having central aperture, a series of peripheral slots adapted to register with the slots in the body portion and a smaller peripheral slot adapted to engage the lug on the outer wall of the body portion; of a rib provided with an enlarged head in the form of a dumb-bell, adapted to be removably secured to said retainer by inserting it in the slots of the outer wall, and screws passing through the said body portion and engaging said plate.



749,377. ENVELOP-SEALING MACHINE. HENRY HARTE and RICHARD J. STEVENS, Rochester, N. Y., assignors to Harte-Stevens Company, Rochester, N. Y., a Corporation of New York. Filed Nov. 13, 1902. Serial No. 131,151. (No model.)



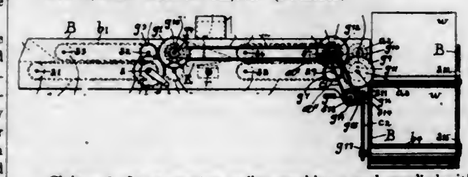
Claim.—1. In an envelop-sealing machine, a receptacle for moistening liquid, lugs on such receptacle and coöperating projections on the frame of the machine for supporting such receptacle from such lugs, such lugs also constituting means for retaining in place a cover to the opening for introducing liquid to such receptacle.

2. In an envelop-sealing machine, two positively-driven sealing-rolls placed a less distance apart than the length of the envelope to be sealed, a fixed bed-piece located between such rolls and with the surface thereof nearly or quite in the same plane with the operating-surfaces of the said rolls, and an adjustable pressure-plate extending between and beyond the operating-surfaces of both of such rolls and coöperating therewith and with such bed-piece to seal and smooth out the envelope as they are advanced by such rolls.

3. In an envelop-sealing machine, two positively-driven sealing-rolls placed a less distance apart than the length of the envelope to be sealed and an adjustable pressure-plate extending between and beyond the operating-surfaces of both of such rolls and coöperating therewith to seal and smooth out the envelope as they are advanced by such rolls.

4. In an envelop-sealing machine, a moistening mechanism consisting in a receptacle for liquid, and plates thereon for holding a sheet of suitable absorbent material, a bed-piece coöperating with such plates to hold such sheet of absorbent material in place and having perforations therein to allow the surplus moisture from such absorbent material to escape through into such receptacle, and means for feeding suitable liquid to such sheet of absorbent material.

749,378. MECHANISM FOR SEALING AND DELIVERING ENVELOPS. HENRY HARTE, Rochester, N. Y., assignor to Harte-Stevens Company, Rochester, N. Y., a Corporation of New York. Filed Feb. 11, 1903. Serial No. 142,970. (No model.)



Claim.—1. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such funnel-shaped folding mechanism extending to the rear of such pad and supporting-plate and arranged to fold the flap of the envelop down upon the body of the envelop after passing such pad.

2. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad and the body of the

envelop, such pad and supporting-plate located entirely within such funnel-shaped folding mechanism.

3. In an envelop-sealing machine, a pad supplied with suitable liquid, a funnel-shaped folding mechanism, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such funnel-shaped folding mechanism extending both to the rear and in front of such pad and supporting-plate and arranged to fold the flap of the envelop down upon the body of the envelop after passing such pad.

4. In an envelop-sealing machine, a folding and sealing mechanism consisting in a pad supplied with suitable liquid, a funnel-shaped folding mechanism arranged to fold the flap of the envelop over upon such pad, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such pad located within such funnel-shaped folding mechanism, and a pair of positively-operating sealing-rollers, in combination with positively-operating feed-rolls, arranged to feed the envelops to such folding and sealing mechanism.

5. In an envelop-sealing machine, a folding and sealing mechanism consisting in a pad supplied with suitable liquid, a funnel-shaped folding mechanism arranged to fold the flap of the envelop over upon such pad, a plate supporting such pad and preventing contact between such pad and the body of the envelop, such pad located within such funnel-shaped folding mechanism, and a pair of positively-operating sealing-rollers, in combination with positively-operating feed-rolls, arranged to force the envelops through such folding and sealing mechanism and positively deliver the same to such sealing-rollers.

6. In an envelop-sealing machine, in combination with a stationary moistening device, positively-operating feed-rolls preceding such moistening device and arranged to feed the envelops to such moistening device and partially therethrough, and a second pair of rolls arranged to engage such envelops after passing through such moistening device and before being disengaged from such positively-operating feed-rolls.

7. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, a stationary moistening device, and mechanism for folding the flap of the envelop over upon such moistening device and then upon the body of the envelop just prior to entering between such sealing-rolls, such moistening device and such folding mechanism both interposed between such first and second pair of rolls.

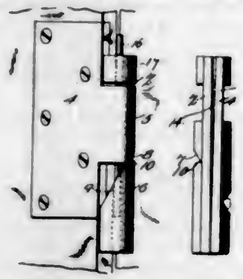
8. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, and interposed between such first and second pair of rolls mechanism for folding the flap of the envelop nearly or quite down upon the body of the envelop just prior to entering between such sealing-rolls, and a stationary moistening device lying in the path of the flap of the envelops through such machine and between such first and second pair of rolls, such sealing-rolls so located relatively to such feed-rolls that the envelop is engaged by such sealing-rolls before being disengaged from such feed-rolls.

9. In an envelop sealing and delivering machine, a folding mechanism and a sealing mechanism, means for feeding the envelops to and through such folding mechanism and such sealing mechanism, a positively-driven member and a delivering mechanism arranged to deliver the envelops in predetermined quantities, an element lying in the path of such envelops through such machine and arranged to control the operation of such additional delivering mechanism, and means whereby such positively-driven member actuates such element lying in the path of the envelops through such machine by means of one of such envelops.

10. In an envelop-sealing machine, a pair of positively-operating feed-rolls and a pair of positively-operating sealing-rolls, and a moistening and folding mechanism interposed between such first and second pair of rolls and arranged to engage the flap of the envelop and moisten and fold the same down upon the body of the envelop, such moistening and folding mechanism cooperating to moisten and fold the envelop when fed therethrough in a direction longitudinal of the fold between the flap and the body thereof.

11. In an envelop-sealing machine, positively-operating feeding mechanism and a pair of sealing-rolls, and interposed between such feeding mechanism and such sealing-rolls the following elements, viz., a stationary moistening device and a folding mechanism arranged to fold the flap of the envelop down upon the body thereof just prior to entering between the sealing-rolls, such sealing-rolls so located relatively to such feeding mechanism that the envelop is positively engaged by such sealing-rolls before being disengaged from the feeding mechanism.

749,379. DOOR-HINGE. JOHN R. HARTMAN, Davenport, Iowa. Filed Apr. 22, 1903. Serial No. 153,824. (No model.)



Claim.—1. In a hinge, the combination with a pair of leaves, of cooperating beveled knuckles carried thereby, said leaves having their outer faces transversely beveled from their inner edges outward to the point of juncture with the knuckles.

2. In a hinge, the combination with a pair of leaves, of cooperating beveled knuckles carried thereby, said leaves having their adjacent faces reversely beveled longitudinally and their outer faces transversely beveled from their inner edges outward to the point of juncture with the knuckles.

749,380. TRAP. GEORGE W. HASEL, Aurora, Ill. Filed Feb. 9, 1903. Serial No. 142,476. (No model.)



Claim.—1. In a trap, the combination with a rectangular supporting-frame provided at one of its ends with inwardly-extending members one of which terminates in an ear, the other member having an upwardly-extending detent formed thereon, of a platform tiltably connected to said supporting-frame and adapted to contact with the ear of the supporting-frame to limit movement of the platform on said frame, and a spring-actuated jaw carried by the platform and adapted to be engaged with said detent to be held by the latter when the platform is tilted upon the supporting-frame.

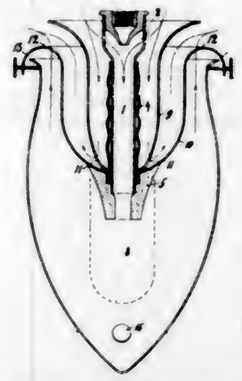
2. In a trap, the combination with a rectangular supporting-frame provided at one of its ends with inwardly-extending members one of which terminates in an ear, the other member having an upwardly-extending detent formed thereon, of a platform tiltably connected to said supporting-frame and adapted to contact with the ear of the supporting-frame to limit movement of the platform on said frame, and a spring-actuated jaw carried by the platform and adapted to be engaged with said detent to be held by the latter when the platform is tilted upon the supporting-frame, said platform having a transverse groove at its under side to receive the end of the supporting-frame opposite to the inwardly-extending members thereof when the jaw is released from engagement with the detent.

749,381. BUNSEN BURNER FOR INCANDESCENT GAS-LAMPS WITH MANTLE HANGING DOWNWARD. HEINRICH W. HELLMANN, Berlin, Germany. Filed Nov. 14, 1902. Serial No. 131,374. (No model.)

Claim.—1. In an incandescent gas-lamp in combination, an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said straight mixing-tube and isolating means of a larger diameter than the burner-tube on and descending from the lower end of the said burner-tube and surrounding said burner-tube, all combined to protect the entire cooling-surface of the mixing and burner tube from the upwardly-ascending hot gases of combustion and from the heat radiation of the burner.

2. An incandescent gas-lamp, comprising the combination with an inverted Bunsen burner of a mixing and burner tube of metal, gas-inlets and air-inlets in the upper part of the said straight mixing-tube, a protecting-sleeve surrounding the entire mixing-tube and closed at the lower part, a burner-tip of non-conducting, fireproof material, substantially as described.

3. An incandescent gas-lamp, comprising the combination with an inverted Bunsen burner of a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said straight mixing-tube, a protecting-sleeve surrounding the mixing-tube, a burner-tip at the base of said protecting-sleeve, a second sleeve surrounding the first one, air-inlets in the lower part of the lamp between the two sleeves.



4. In an incandescent gas-lamp the combination with an inverted Bunsen burner and a mixing and burner tube of metal, of gas-inlets and air-inlets in the upper part of the said straight mixing-tube, another tube surrounding the mixing and burner tube of a large radiating-surface, an incandescent mantle below the end of the burner and a burner-tip of fireproof material, substantially as described.

5. In an incandescent gas-lamp, a depending incandescent mantle or cap, an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets, in the upper part of the said straight mixing-tube, isolating means at and ascending from the lower end of the said burner-tube and having a larger diameter than the burner-tube, means to increase the heat-radiating surface of the burner-tube and an incandescent mantle or cap below the end of the burner-tube, substantially as described.

6. An incandescent gas-lamp comprising the combination with an inverted Bunsen burner and a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said straight mixing-tube, a protecting-sleeve surrounding the mixing-tube, a burner-tip of isolating and heat-resisting material at the base of said protecting-sleeve, another tube at a certain distance from the mixing and burner tube and surrounding the same, means to increase the heat-radiating surface of said outer tube and an incandescent cap or mantle below the burner-tip, substantially as described.

7. An incandescent gas-lamp, comprising in combination an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of said straight mixing-tube, means to increase the heat-radiating surface of said mixing and burner tube, a protecting-sleeve surrounding the mixing-tube at a certain distance from the same, and an incandescent mantle or cap below the mouth of the burner, substantially as described.

8. In an incandescent gas-lamp in combination with a downwardly-directed incandescent mantle, an inverted Bunsen burner, a mixing and burner tube of metal, gas-inlets and air-inlets in the upper part of said straight mixing-tube, a burner-tip of heat-resisting and non-conducting material on and ascending from the lower part of the said burner-tube, the said burner-tip having a larger diameter than the burner-tube.

9. In an incandescent gas-lamp in combination with a downwardly-directed incandescent mantle, an inverted Bunsen burner, a straight mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said mixing-tube, a metal tube providing a large radiating-surface, a burner-tip of heat-resisting and imperfectly-conducting material on and ascending from the lowest part of the said burner-tube, having a larger diameter than the said burner-tube, substantially as and for the purpose described.

10. An incandescent gas-lamp comprising the combination with an inverted Bunsen burner of a straight mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said straight mixing-tube, a protecting-sleeve surrounding the mixing-tube, a burner-tip of imperfectly heat-conducting material and ascending from the lowest part of the said burner-tube and the upper part of which is of a larger diameter than the burner-tube and an incandescent mantle supported on said burner-tip.

11. In an incandescent gas-lamp, an incandescent mantle extending downward, an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said mixing-tube, a double sleeve surrounding the mixing and burner tube, the walls of the said double sleeve being arranged at a distance from each other, air-inlets in the upper part of the said double sleeve, communicating passages between the two walls of the double sleeve and arranged in the lower part of the inner sleeve, a burner-tip of isolating and fireproof material, substantially as described.

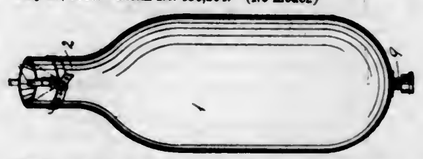
12. In an incandescent gas-lamp, an inverted Bunsen burner, a mixing and burner tube of metal, gas-inlets and air-inlets in the upper part of the said mixing-tube, a double sleeve surrounding the mixing and burner tube at a certain distance from the same and from each other and ascending from the mouth of the burner, a fireproof burner-tip at the end of the burner, inlets in the upper part of the said sleeves, communicating passages in the lower part of the inner sleeve, a metal tube providing a large radiating-surface, substantially as described.

13. In a gas-light incandescent lamp, in combination, an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said mixing-tube, a double protecting-sleeve surrounding the mixing and burner tube and ascending from the mouth of the burner, inlets in the upper part of the walls of said double sleeve, communicating passages between the said walls of the protecting-sleeve and arranged in the lower part of the interior sleeve, a burner-tip of imperfectly heat-conducting, heat-resisting material on and ascending from the lowest part of the said burner-tube and extending up the outer wall of the said double protecting-sleeve and an incandescent mantle or cap round and below the burner-tip, substantially as described.

14. In a gas-light incandescent lamp, an inverted Bunsen burner, a mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said mixing-tube, a double sleeve surrounding the mixing and burner tube at a distance from the same, a burner-tip at the base of the said double-sleeve inlets in the upper part of the said double sleeve, communicating passages between the inner spaces of the walls of the sleeve and provided in the lower part of the inner sleeve, a metal tube providing a large radiating-surface, the burner-tip of imperfectly heat-conducting, heat-resisting material being arranged at the lower part of the said burner-tube and extending up to the exterior wall of the double protecting-sleeve, an incandescent mantle below the burner-tip and partially surrounding the same, substantially as described.

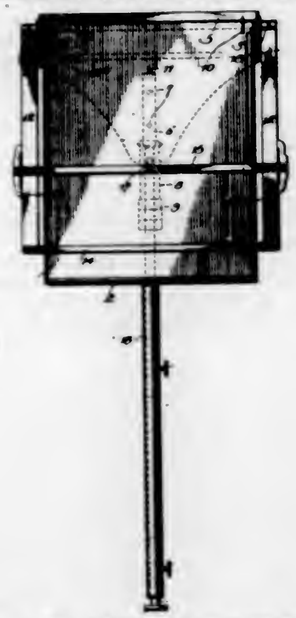
15. In a gas-light incandescent lamp, in combination an inverted mixing and burner tube of heat-conducting material, gas-inlets and air-inlets in the upper part of the said mixing-tube, a double protecting-sleeve surrounding the mixing and burner tube at a distance from the same, inlets in the upper part of the said protecting-sleeves, communicating passages between the inner spaces of the said protecting-sleeves and in the lower part of the inner protecting-sleeve, a burner-tip of heat isolating and resisting material at the base of the said double protecting-sleeve and extending from the lowest part of the said burner-tube to the outer wall of the double protecting-sleeve, a downwardly-curved rim at the upper end of the said exterior protecting-sleeve, screws in the said rim and a transparent protecting-bulb adapted to be supported by the said screws, an incandescent mantle or cap on the burner-tip and projecting downward, substantially as and for the purpose set forth.

749,382. URINAL. FLOYD W. HENDERSON, Pittsburg, Pa., assignor of one-twentieth to Frederick Theisen, Pittsburg, Pa. Filed May 22, 1903. Serial No. 158,291. (No model.)



Claim.—A urinal apparatus comprising a bag having a contracted neck, a conical-shaped member having a cylindrical flange designed to enter the neck of the bag and hold same distended, leaving a space intervening between said conical-shaped member and wall of the bag, and means for attaching the device to the body of a wearer, as set forth.

749,383. COPY-HOLDER. LEONA HENDERSON, Palestine, Tex. Filed June 19, 1903. Serial No. 162,266. (No model.)



Claim.—1. The combination in a copy-holder, of a supporting-standard, a base-plate carried thereby, means for securing copy on the base-plate, a pivoted frame carried by the supporting-standard and adapted to rest upon the base-plate, and an indicator-bar slidably mounted upon said frame.

2. The combination in a copy-holder, of a supporting-standard, a base-plate pivotally supported on said standard, means for securing copy on the base-plate, a guide-frame pivotally supported on the standard and adapted to rest upon said base-plate, and an indicator-bar slidably mounted upon said guide-frame

3. The combination in a copy-holder, of a supporting-standard, a base-plate adjustably supported on said standard, means comprising a hook at the top of the base-plate for securing copy thereon, a pivoted guide-frame supported on said standard and adapted to rest upon said base-plate, and an indicator-bar mounted to slide on said frame.

4. The combination in a copy-holder, of a supporting-standard, a base-plate carried by said standard, means for holding a plurality of sheets of copy upon said base-plate, said means comprising a foot at the lower end of said base-plate and hooks at the upper end of said base-plate, a guide-frame pivotally mounted on said supporting-standard and adapted to rest upon said base-plate, and an indicator-bar mounted to slide upon said guide-frame.

5. The combination in a copy-holder, of a supporting-standard, a base-plate carried by said standard, means for holding a plurality of sheets of copy on said base-plate, means comprising a spring attached to the back of said standard for securing the sheets as copied, a guide-frame pivotally supported by said standard and adapted to rest upon said base-plate, and an indicator-bar mounted to slide upon said guide-frame.

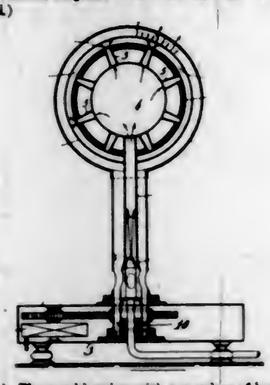
6. The combination in a copy-holder, of a supporting-standard, a supporting-plate rigidly secured to said standard at the upper end thereof, ears provided on said supporting-plate, a shaft rotatably mounted in said ears, a base-plate rotatably supported on said shaft, a guide-frame rigidly attached to said shaft and adapted to rest upon said base-plate, and an indicator-bar mounted to slide upon said guide-frame.

7. The combination in a copy-holder, of an extensible supporting-standard, a plate rigidly secured at the top of said standard, a shaft rotatably mounted on said plate, a base-plate rotatably mounted on said shaft, means for securing copy in position on said base-plate, a guide-frame rigidly attached to said shaft and adapted to rest upon said base-plate, and an indicator-bar mounted to slide upon said guide-frame.

8. The combination in a copy-holder, of a supporting-standard comprising a plurality of relatively rotatable sections, means for securing said sections in rigid association, a base-plate pivotally supported by the uppermost section of said standard, means for securing copy upon said base-plate, and means for adjusting the inclination of said base-plate to said standard.

9. The combination in a copy-holder, of a supporting-standard comprising a plurality of relatively rotatable sections, means for securing said sections in rigid association, a base-plate pivotally supported by the uppermost section of said standard, a pivoted prop mounted on said standard, a rack at the back of said base-plate and means for securing copy in position on said base-plate.

749,384. HEATING AND LIGHTING APPARATUS. GEORGES IMBERT, Brussels, Belgium. Filed Oct. 23, 1902. Serial No. 128,407. (No model.)



Claim.—1. The combination with a number of burners of a movable device capable of being rendered incandescent and of a suitable actuating mechanism adapted to move the said device, substantially as and for the purpose set forth.

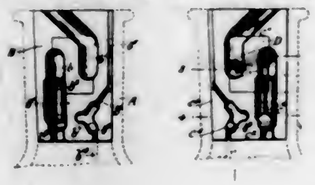
2. The combination with a number of burners of a movable refractory body capable of being rendered incandescent and of an actuating mechanism adapted to rotate the said body, substantially as and for the purpose described.

3. In combination a gas-supplying apparatus, a perforated casing to which the gas is supplied, a refractory body adapted to be rendered incandescent and a suitable actuating mechanism adapted to rotate the refractory body concentrically to the perforated casing outside of which the gas is ignited, substantially as and for the purpose set forth.

4. In combination, a burner, a tube supplied with a mixture of air and gas through said burner, a chamber supplied with air and gas through said tube, a perforated casing supplied with a mixture of air and gas from said chamber and outside of which the said mixture is ignited, a refractory perforated body surrounding the said perforated casing and a suitable actuating mechanism adapted to move the refractory body concentrically to the perforated casing, substantially as and for the purpose described.

5. In combination, a burner, a tube supplied with a mixture of air and gas through said burner, a chamber supplied with the said mixture through the said tube, a perforated casing supplied with the mixture of air and gas from the said chamber and outside of which the said mixture is ignited, a refractory perforated body surrounding the said perforated casing, a column supporting the said perforated body, the said column being adapted to rotate in suitable bearings and an actuating mechanism rotating the said column and the perforated refracting-body supported by said column substantially as and for the purpose described.

749,385. NON-REFILLABLE BOTTLE. HENRY KAHLMUS, Philadelphia, Pa. Filed Feb. 28, 1903. Serial No. 145,551. (No model.)



Claim.—1. A stopper for a non-refillable bottle consisting of two sections together forming a substantially cylindrical piece, a passage through said stopper having two portions separate from each other and each formed partly in one section and partly in the other, there being a portion wholly in one of the sections connecting said two parts of the passage, substantially as described.

2. A stopper for a non-refillable bottle consisting of two pieces together forming a substantially cylindrical body, one of said pieces having within it a recess with a third piece therein, said recessed piece having a passage partly formed in it and partly in the third piece and there being other passages extending partly in the first piece and partly in the second, from the ends of the first passage to the ends of the stopper, substantially as described.

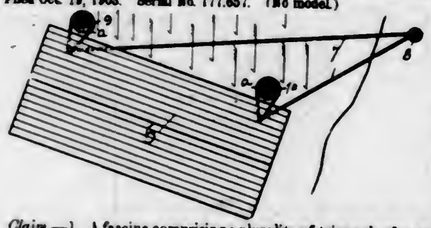
3. A stopper for a non-refillable bottle consisting of three pieces, two of said pieces forming together a cylindrical body and one of the same being recessed for the reception of the third piece, a three-part passage extending through the stopper, the beginning and end of said passage being formed partly in each of the main pieces of the stopper and the middle portion of said passage being formed partly in one of said main pieces and partly in the piece contained within the recess of said piece, substantially as described.

4. A stopper for a non-refillable bottle having within it three passages forming a continuous channel-opening on each end of the stopper, two of said passages being united by the third passage, said third passage and one of the other passages each having a valve-seat and a valve, substantially as described.

5. A stopper for a non-refillable bottle consisting of three pieces, two of said pieces forming together a cylindrical body and one of the same being recessed for the reception of the third piece, a three-part passage extending through the stopper, the beginning and end of said passage being formed partly in each of the main pieces of the stopper and the middle portion of said passage being formed partly in one of said main pieces and partly in the piece contained within the recess of said piece, with a valve at the inner portion of the passage and a second valve in the central portion of the passage, substantially as described.

6. A stopper for a non-refillable bottle, the same consisting of two parts forming together a cylindrical body, and a third part held within a recess in one of the other parts of the stopper, a passage having three portions of which the first and last are formed partly in each of the two parts of the stopper forming the cylindrical body and the third is formed partly in one of said pieces and partly in the third piece, with two valves in said passage, the walls of said passages being corrugated adjacent to said valves and of a configuration to limit the motion of the same, substantially as described.

749,386. FASCINE. HENRY F. KELLNER, North Platte, Nebr. Filed Oct. 19, 1903. Serial No. 177,657. (No model.)

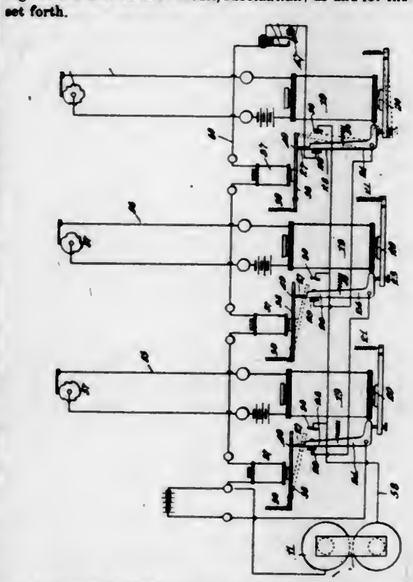


Claim.—1. A fascine comprising a plurality of triangular frames, said frames being united by means of a suitable covering, a strengthening member bracing the frame members upon the side turned toward the current, an eyebolt within a number of said frame members adapted to receive a suitable cable, vertical piles, and cables passing round said vertical piles and secured to said eyebolts.

2. A fascine comprising a plurality of triangular frames, one side of each frame being braced by means of a strengthening member, a plurality of said frames being united by means of a suitable covering to form a triangular housing adapted to be filled with sand earth or stones, eyebolts secured to a plurality of said frames, shore cables extending from said eyebolts and suitably secured, all arranged substantially as and for the purpose set forth.

749,387. AUTOMATIC NON-INTERFERING REPEATER FOR FIRE-ALARM CIRCUITS. WILLIAM H. KIRNAN, Bayonne, N. J., assignor to the Gamewell Fire Alarm Telegraph Company, New York, N. Y., a Corporation of New York. Filed Oct. 4, 1902. Serial No. 126,947. (No model.)

Claim.—1. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism and a plurality of street-magnets controlling the same, of a normally open circuit embracing non-interference magnets corresponding with the street-magnets, means controlled by the non-interference magnets for preventing the operation of the repeating mechanism by any one of the street-magnets while under the control of any other of the street-magnets, and means actuated by the operation of the repeating mechanism for closing the non-interference circuit, substantially as and for the purposes set forth.



2. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of switches controlling the same, a corresponding number of street-magnets for actuating said switches, a normally open circuit embracing non-interference magnets corresponding with the street-magnets, means controlled by the non-interference magnets for disabling the switches except that of the street-magnet first receiving a signal, and means actuated by the operation of the repeating mechanism for closing the non-interference circuit, substantially as and for the purposes set forth.

3. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of street-magnets, operating-switches for controlling said mechanism, a normally open circuit embracing non-interference magnets corresponding with the street-magnets, means controlled by each of the street-magnets for operating the non-interference magnets to disable the switches except that of the street-magnet first receiving a signal and prevent any other street-magnet from controlling the repeating mechanism, and means actuated by the operation of the repeating mechanism for closing the non-interference circuit, substantially as and for the purposes set forth.

4. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of street-magnets, a switch operated by each street-magnet controlling the repeating mechanism, a plurality of non-interference magnets, and armature-levers for the non-interference magnets coöperating with said switches, the said armature-levers having slots therein, substantially as and for the purposes set forth.

5. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of switches controlling the same, corresponding street-magnets actuated by said switches, a normally open circuit embracing non-interference magnets corresponding with the street-magnets, means controlled by the non-interference magnets for disabling the switches of all the street-magnets except the first street-magnet to operate, and means controlled by the repeating mechanism for closing the circuit including the non-interference magnets, substantially as and for the purposes set forth.

6. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of switches con-

trolling the same, a street-magnet for each switch, a non-interference magnet for each street-magnet, an armature-lever for each non-interference magnet having a cut-away portion therein coöperating with the respective switch therefor, and means controlled by the repeating mechanism for permitting the armature-levers of the non-interference magnets to move to a retracted position, substantially as and for the purposes set forth.

7. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of switches controlling the same, a street-magnet for each switch, a non-interference magnet for each street-magnet, an armature-lever for each non-interference magnet having a cut-away portion therein coöperating with the respective switch therefor, means controlled by the repeating mechanism for permitting the armature-levers of the non-interference magnets to move to a retracted position, and means operated by the repeating mechanism for closing the non-interference circuit, substantially as and for the purposes set forth.

8. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a plurality of street-magnets controlling the same, a normally open circuit embracing non-interference magnets corresponding with the street-magnets, means controlled by the repeating mechanism and coöperating with the non-interference magnets for disabling all the street-magnets except that immediately controlling the repeating mechanism, and means actuated by the operation of the repeating mechanism for closing the non-interference circuit, substantially as and for the purposes set forth.

9. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet, a switch controlling the repeating mechanism, connections between said switch and the armature of the street-magnet, a non-interference magnet, and an armature therefor having a slot therein adapted to engage with said switch, substantially as and for the purposes set forth.

10. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet, a switch controlling the repeating mechanism, connections between said switch and the armature of the street-magnet, a non-interference magnet, an armature therefor having a slot therein adapted to engage with said switch, and means controlled by the repeating mechanism for mechanically releasing said armature, substantially as and for the purposes set forth.

11. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet, a switch controlling the repeating mechanism, connections between said switch and the armature of the street-magnet, a non-interference magnet, an armature therefor having a slot therein adapted to engage with said switch, means controlled by the repeating mechanism for mechanically releasing said armature, and means operated by the switch for closing the circuit to the non-interference magnet concurrently with the operation of the repeating mechanism, substantially as and for the purposes set forth.

12. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet, a switch controlling the repeating mechanism, connections between said switch and the armature of the street-magnet, a non-interference magnet, an armature therefor having a slot therein adapted to engage with said switch, means controlled by the repeating mechanism for mechanically releasing said armature, means operated by the switch for closing the circuit to the non-interference magnet concurrently with the operation of the repeating mechanism, and a secondary circuit-closing device in the non-interference circuit controlled by the repeating mechanism, substantially as and for the purposes set forth.

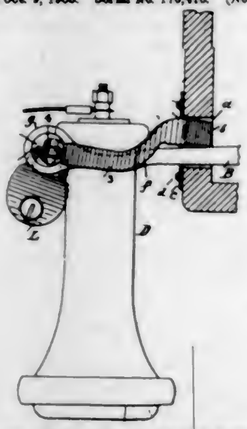
13. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism and a restoring-shaft operated thereby, of a street-magnet, a switch operated by the street-magnet for effecting the operation of the repeating mechanism, a non-interference magnet, an armature-lever therefor having a slot therein adapted to engage with said switch, and connections between the restoring-shaft and the armature-lever of the non-interference magnet for mechanically releasing said armature-lever concurrently with the operation of the repeating mechanism, substantially as and for the purposes set forth.

14. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism and a restoring-shaft operated thereby, of a street-magnet, a switch operated by the street-magnet for effecting the operation of the repeating mechanism, a non-interference magnet, an armature-lever therefor having a slot therein adapted to engage with said switch, connections between the restoring-shaft and the armature-lever of the non-interference magnet for mechanically releasing said armature-lever concurrently with the operation of the repeating mechanism, a switch in the non-interference circuit, and connections between said switch and restoring-shaft for closing the non-interference circuit, substantially as and for the purposes set forth.

15. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet, an armature therefor, a bell-crank actuated by said armature, a switch operated by the bell-crank for controlling the repeating mechanism, and a non-interference magnet and armature coöperating with the bell-crank, substantially as and for the purposes set forth.

16. In a non-interference repeater for fire-alarm circuits, the combination with repeating mechanism, of a street-magnet controlling the same, an armature for said street-magnet, a pin on said armature, a hook for receiving the pin when the armature is partially attracted, and means controlled by the repeating mechanism for mechanically engaging said pin with said hook, substantially as and for the purposes set forth.

749,388. **LOCKING DEVICE FOR TELEPHONE APPARATUS.** SHERWOOD J. LARNED and JAMES S. FORD, Chicago, Ill., assignors to American Telephone and Telegraph Company, a Corporation of New York. Filed Oct. 9, 1903. Serial No. 176,410. (No model.)



Claim.—1. The combination of substation telephone apparatus, with a flexible locking device one end portion of which is adapted to rest upon the upper edge and in the path of the switch-lever and prevent the same from moving while the opposite end portion extends across the way of removal of the telephone-receiver and locks the same in the yoke of the switch-lever.

2. The combination of substation telephone apparatus with a flexible locking device consisting of two jointed plates, one plate being adapted to rest upon the upper edge and in the path of the switch-lever and prevent its movement, while the second plate extends through the perforated ends of the yoke and locks the telephone-receiver therein.

3. The combination of substation telephone apparatus, with a flexible locking device constituting when in place a rigid connection between the said apparatus-casing and the yoke of the switch-lever, one end portion of the device adapted to extend into the casing and in the path of the switch-lever and prevent the same from moving, while the opposite end portion of the device passes through the perforated ends of the yoke and locks the telephone-receiver therein.

4. The combination of substation telephone apparatus with a flexible locking device consisting of two jointed plates, one plate serving as a block between the switch-lever and its upper limit-stop to prevent its switching movement, and the second plate extending through the perforated ends of the yoke in front of the telephone-receiver, and secured by a lock.

5. The combination of substation telephone apparatus; with a locking device adapted to prevent the switch-lever from closing the telephone-circuits, and consisting of a rigid connection between the said apparatus-casing and the yoke of the switch-lever; one end portion of the device being adapted to extend into the casing and in the path of the switch-lever to prevent the upward movement thereof, and means for locking the opposite end portion of the device to the yoke of the switch-lever, as described.

6. A portable device for locking in their positions of rest the switch-lever and receiver of a telephone apparatus, consisting of the bar conformed at one end to enter and fill the slot above said lever in the casing of said apparatus; and of length to extend outward therefrom parallel to said lever to the holes in the fork thereof; an extension-piece hinged to said outer end adapted to pass through the said holes or to overlap the said fork; and means for securing the said extension to said fork; substantially as set forth.

7. A flexible locking device for telephone apparatus consisting of two metal plates jointed to each other, the free end of one plate constituting a bolt, and the free end of the second plate being perforated and provided with a padlock, as set forth.

8. In combination with the casing, switch-lever and receiver of a telephone apparatus, the portable locking device for said switch and receiver comprising the bar formed at one end to enter the slot in the said casing through which said lever projects, and to fill the space in said slot above said lever; the extension hinged or jointed to the outer end of said bar, and adapted to overlap the fork of said switch-lever; and the lock to secure the fork of said lever to said hinged extension; whereby the said lever and receiver may be locked in their normal positions, substantially as described.

9. A locking device for substation-telephones consisting of a bolt adapted to be inserted in the opening in the casing in which the switch-lever moves, thereby preventing movement of said lever, and a bar connected with said bolt and extending across the forked end of the switch-lever, thereby preventing removal of the telephone-receiver.

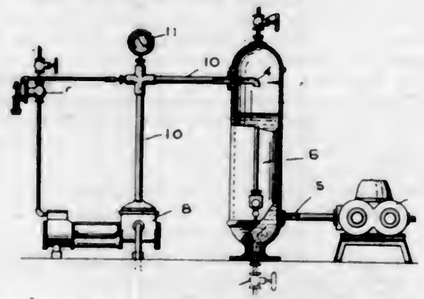
10. A locking device for substation-telephones, consisting of a bolt adapted to be inserted in the opening in the casing in which the switch-lever moves, thereby preventing movement of said lever, a bar connected with said bolt and extending across the forked end of the switch-lever, thereby preventing removal of the telephone-receiver, and means for securing said parts in their locking position.

749,389. **COMBINED HAT AND CLOTHES BRUSH.** COWPER LASELLE, Temuka, New Zealand. Filed July 14, 1903. Serial No. 165,427. (No model.)

Claim.—1. A combined hat and clothes brush, comprising a back having bristles covering only a part thereof, and a supplemental brush having bristles and pivoted to the main brush so as to fold in under that portion of the back which is not covered by the bristles of said main brush.

2. A combined hat and clothes brush, comprising a handle and a back *a* having bristles covering only a part thereof, and a supplemental brush *b* having bristles and pivoted at *c* to the handle of the main brush so as to open and close in the plane of the main bristles, the supplemental brush being shaped so that when folded in under that portion of the back *a* which has no bristles, it will form a complete brush having bristles covering the whole of the back.

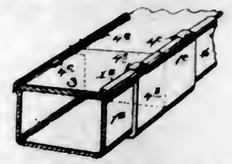
749,390. **APPARATUS FOR ACCURATELY MEASURING THE FLOW OF OIL IN PIPES.** LEON P. LOWE, San Francisco, Cal. Filed Mar. 10, 1903. Serial No. 97,595. (No model.)



Claim.—1. In combination with a pressure device for forcing oil through pipes, means for accurately measuring the oil comprising a meter, and a device interposed in the pipe between said pressure device and meter and immediately in front of the latter, for removing air and gas arising from the oil, substantially as described.

2. In combination with a pump for forcing oil along a pipe, means for measuring the flow of the oil so forced through the pipe, comprising a meter and a device interposed between said pump and meter and immediately in front of the latter for removing air and gas from the oil, said device including a chamber in which the air and gas so removed are held under pressure, and a connection from said chamber to the pump whereby the pressure in said chamber controls the action of the pump, substantially as described.

749,391. **BOND FOR CONDUITS FOR ELECTRIC WIRES.** GEORGE A. LUTZ, New York, N. Y., assignor, by mesne assignments, of one-half to Frank K. Boland, New York, N. Y. Filed May 7, 1901. Renewed June 5, 1903. Serial No. 160,260. (No model.)



Claim.—1. A bond of the character described, having a bottom and side portions forming a channel or space to receive conduits and having inwardly-extending projections having an inward spring tendency, said projections being located at the outer ends of the side portions adapted to clamp conduits within the bond, substantially as described.

2. A bond comprising a metallic member having a bottom and sides provided with inwardly-extending projections having an inward spring tendency forming a channel or space to receive conduits, said projections being adapted to overlie and bear upon conduits to clamp the same upon the bottom of the bond, substantially as described.

3. The combination of conduits provided with sides having longitudinally-extending grooves, with a bond having a channel to receive the ends of the conduits and having inwardly-extending projections having an inward spring tendency adapted to bear upon the upper edges of the conduits to firmly clamp the conduits between the bottom of the bond and its projections, substantially as described.

4. The combination of conduits provided with channels, a bond having inwardly-extending projections to bear upon the conduits, and means for preventing longitudinal movement of the conduits and bond relatively to each other, substantially as described.

5. The combination of conduits having channels, with a bond having a channel to receive said conduits and provided with inwardly-extending projections to grip the conduits, the conduits and bond having interlocking members adapted to prevent longitudinal movement of the parts relatively to each other, substantially as described.

6. The combination of conduits having channels, the upper edges of the conduits being provided with recesses, with a bond having inwardly-extending projections adapted to enter said recesses, the metal of the conduits at the sides of said recesses and said projections serving to prevent longitudinal movement of the conduits and bond relatively to each other, substantially as described.

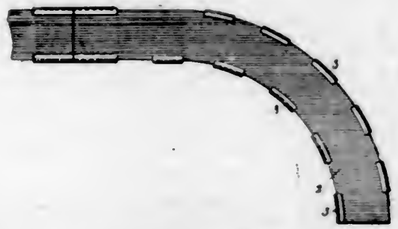
7. The combination of conduits having channels, a bond inclosing the abutting ends of the conduits, means for clamping the bond upon the conduits, and a locking-piece overlying the conduits having means for holding the bond and conduits pressed together, substantially as described.

8. The combination of conduits having channels, a bond inclosing the ends of the conduits, means for clamping the bond upon the conduits, and a strip or plate overlying the same and provided with inwardly-turned edges adapted to overlie and grip the upper edges of the bond and the conduit to clamp them firmly together, substantially as described.

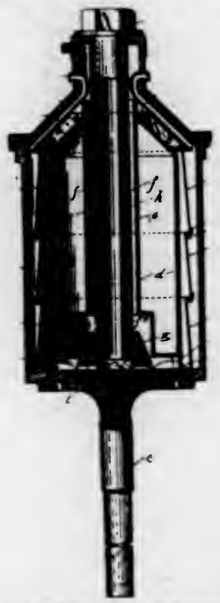
749,392. **ELBOW FOR CONDUITS FOR ELECTRIC WIRES.** GEORGE A. LUTZ, New York, N. Y., assignor, by mesne assignments, of one-half to Frank K. Boland, New York, N. Y. Filed May 7, 1901. Renewed June 5, 1903. Serial No. 160,261. (No model.).

Claim.—An elbow for conduits having a channel and provided with projections at distances apart along the upper edges of its sides, in the form of grooves, and a cover corresponding substantially to the contour of the elbow having its edges received in said grooves,

the metal of the elbow being bent over upon the cover, substantially as described.



749,393. CREAM-SEPARATOR. JOSEPH MERSMAN, Ottawa, Ohio. Filed June 28, 1901. Serial No. 66,330. (No model.)



Claim.—1. In a cream-separator, a separator-bowl, a core within said bowl having its outer wall adjacent to the inner wall of the bowl, thus forming a thin annular space between said two parts, and a feed-conduit connected with said annular space, whereby milk fed into said annular space assumes the form of a thin cylindrical shell.

2. In a cream-separator, a separator-bowl, a core therein of such transverse area as to leave a thin annular space between the core and the bowl, a conduit through said core having its inlet at top and connected at bottom with said annular space.

3. In a cream-separator, a separator-bowl, a core therein of such transverse area as to leave a thin annular space between the core and the bowl, an axial conduit through said core having its inlet at top and connected at bottom with said annular space, and a series of inwardly-inclined rings disposed one above the other in said annular space.

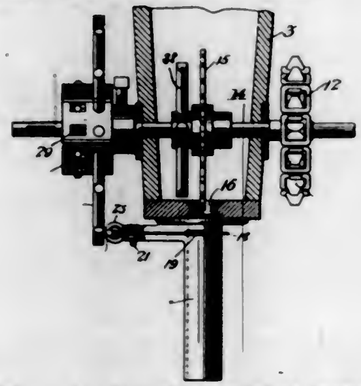
4. In a cream-separator, a separator-bowl, a core of such transverse area as to leave a thin annular space between the core and the bowl, an axial conduit through said core having its inlet at top and connected at bottom with said annular space, a series of beveled rings disposed one above the other in said annular space, and a conical cap interposed between the said core and the said bowl.

5. In a cream-separator, a separator-bowl, a cover therefor, a threaded socket in the bottom of said bowl, a threaded tube which engages said threaded socket and which secures the cover in place, radial passages leading from said threaded socket, a core in said bowl having an axial opening therethrough for the reception of said tube and of such transverse area as to leave a thin annular space between the core and the wall of the bowl.

6. In a cream-separator, a separator-bowl, a cover therefor, a threaded socket in the bottom of said bowl, a threaded inlet-tube which engages said threaded socket and which secures the cover in place, radial passages leading from said threaded socket, a core having an axial opening therethrough for the reception of said tube and of such transverse area as to leave a thin annular chamber between the core and the wall of the bowl, a series of beveled sleeves disposed in said annular chamber one above the other, outlets for the separated milk and outlets for the separated cream.

7. In a cream-separator, a separator-bowl, a core of such transverse area as to leave a thin annular space between said core and the bowl, and a conduit leading the incoming milk to the base of the bowl, substantially as set forth.

749,394. PLANTER. ALBERT G. MYERS, Charlotte, N. C. Filed Apr. 4, 1903. Serial No. 151,117. (No model.)



Claim.—1. In a planter, the combination of a hopper having a discharge-spout, a valve adapted to normally cut off the passage of seed through the spout, the free end of the stem of the valve having a pivoted end piece which is rigid with the stem in one direction and adapted to yield in the other direction, and a valve-actuating device operated from the main axle of the machine.

2. In a planter, the combination of a hopper, having a discharge-spout, a pivoted spring-actuated valve adapted to normally cut off the passage of seed through the spout, the free end of the stem of the valve having a pivoted end piece which is rigid with the stem in one direction and adapted to yield in the other direction, and a valve-actuating device comprising a hub and a series of radial arms secured to the hub.

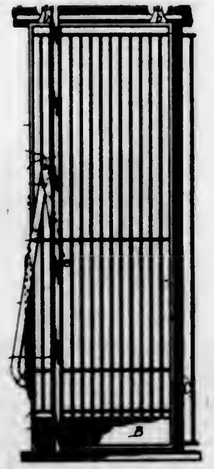
3. In a planter, the combination of a hopper, a shaft therein carrying a feed-wheel, a hub on the shaft outside the hopper and a series of radial arms adjustably secured to the hub, a discharge-spout leading from the hopper, a pivoted valve adapted to cut off the flow of seed through the spout, and a spring-pressed end piece pivoted to the free end of the valve-stem and adapted to be engaged by the arms on the hub, the said end piece adapted to move the stem when the arms revolve in one direction and to yield when the arms move in the reverse direction.

4. In a planter, the combination of a hopper, a shaft driven from the main axle of the machine, a hub on the shaft, said hub being provided with a series of peripheral recesses, arms fitting within said recesses, each arm being provided with circumferential grooves, bolts carried by the hub and adapted to engage either of the grooves in said arms, a discharge-opening, and a cut-off valve adapted to be actuated by the arms on the hub.

5. In a planter, the combination of a hopper, a shaft passing therethrough, a feed-wheel on the shaft within the hopper, a hub on the shaft outside the hopper, said hub being provided with a series of peripheral recesses, arms fitting within said recesses, each arm being provided with circumferential grooves, spring-bolts carried by the hub and adapted to engage either of the grooves in said arms, a discharge-spout, and a cut-off valve adapted to be actuated by the arms on the hub.

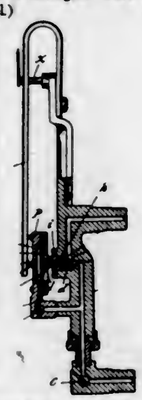
749,395. ELEVATOR-DOOR. EDWARD MCCLURE, Chicago, Ill., assignor of one-half to Franklin P. Smith, Chicago, Ill. Filed Dec. 19, 1902. Serial No. 135,864. (No model.)

Claim.—1. The combination with a wall having a doorway therein, of two doors slidable one behind the other and both behind the wall, of a lever pivoted on the slow door, a substantially vertical guideway upon one of the extreme parts engaging with the lever, and a link connecting the lever with a stationary pivot upon the other extreme part, substantially as described



2. In a device of the class described, the combination with a suitable wall having a doorway and a plurality of doors adapted to close the doorway and slidable one behind the other to open the same, of a lever fulcrumed between its ends, upon the slow door, and having one end in running engagement with the fast door, and a link connecting the opposite end of the lever with the wall.

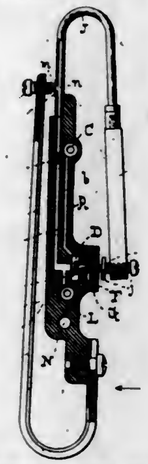
749,396. REGULATING-VALVE. NATHAN E. NASH, Toronto, Canada, assignor to the Nash Regulating Valve Company, Detroit, Mich., a Corporation of Michigan. Filed June 19, 1902. Serial No. 112,356. (No model.)



Claim.—In a regulating-valve for the purpose described, a casing having therein a valve-chamber with an inlet and an outlet channel leading therefrom and a passage which is opposite to or in alinement with the inner termination of the inlet-channel, which passage places the chamber in communication with the outer air, a valve in the chamber adapted to be moved therein to close either the passage or the inlet-channel, and a stem with a practically triangular cross-section, which extends from the valve and passes through the passage and is provided with a disk at its end, combined with a motor which comprises an accumulating-chamber in communication with the said inlet-channel, having one rigid wall with an outlet-port therein and a flexible diaphragm which forms the other wall, the said diaphragm being in contact with the disk of the valve-stem, and a thermostatically-operated valve adapted to control the said outlet-port, substantially as specified.

749,397. HEAT-REGULATING APPARATUS. NATHAN E. NASH, Detroit, Mich. Filed Nov. 8, 1902. Serial No. 130,527. (No model.)

Claim.—1. In a heat-regulating apparatus, a motor for operating a valve forming a part of the said apparatus, comprising a Bourdon spring with one end thereof arranged to engage with and move the said valve, the said spring being provided with an escape-aperture, combined with means to effect the introduction of air under pressure to the other end of the said spring, a thermostat adapted, in changes in the temperature of the surrounding air, to open or close the said aperture, and thereby reduce or reëstablish the original pressure within the said spring and so effect the operation of the said valve substantially as specified.



2. In a heat-regulating apparatus, a motor for operating a valve forming a part of the said apparatus, comprising a Bourdon spring with one end thereof arranged to engage with and move the said valve, the said spring being provided with an escape-aperture, combined with means to effect the introduction of air under pressure to the other end of the said spring, a thermostat carrying a valve adapted, in changes in the temperature of the surrounding air, to open or close the said aperture, and thereby reduce or reëstablish the original pressure in the said spring and so effect the operation of the said valve, substantially as specified.

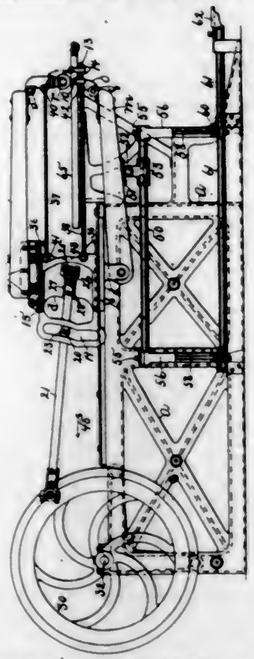
3. A heat-regulating apparatus which consists of a shell having therein a chamber in communication with the outer air by means of an inlet and an outlet channel, a passage leading from the said chamber to the upper end of the shell having a controlling-valve therein, and a port leading from the said chamber to the outer air, combined with a valve situated within the said chamber adapted to close the inlet-channel, and provided with a stem extending through the wall of the shell, a Bourdon spring having an escape-aperture in its wall, secured to the upper end of the shell and in communication with the valve-controlled passage, and with its lower or free end arranged to engage with the said valve-stem, a thermostatic blade carrying a valve to control the said escape-opening in the wall of the Bourdon spring, the whole being so arranged that when compressed air is admitted to the Bourdon spring and its escape-aperture closed by the valve carried by the thermostatic blade, the said spring will be distended and its free end moved away from the said valve-stem, substantially as, and for the purpose specified.

749,398. STAKING-MACHINE. FRANKLIN J. PERKINS, Woburn, Mass., assignor to Vaughn-Rood Machine Company, Portland, Me. Filed Sept. 17, 1903. Serial No. 173,513. (No model.)

Claim.—1. In a machine of the class described, in combination, a reciprocating tool-carrier, means to move it, tool-holders pivotally connected with said carrier, an actuating device for said tool-holders reciprocating on said carrier and bodily movable independent of said carrier, means to effect reciprocation of said carrier, and means to effect bodily movement of said actuating device, substantially as described.

2. In a machine of the class described, in combination, a reciprocating frame, means to move it, an upper tool-carrying arm connected with said frame, a lower tool-carrying arm pivoted to said reciprocating frame to permit its tool-carrying end to move toward and away from said upper tool-carrying arm, mechanism movable in a substantially vertical plane and having a fixed position with re-

lation to said reciprocating frame, and means attached to the lower tool-carrying arm intermediate the pivot and the tool-carrying end of said arm and in sliding engagement with said vertically-movable mechanism, substantially as and for the purpose specified.



3. In a machine of the class described, in combination, a sliding frame, means to move it, tool-carrying arms secured to said sliding frame to move therewith, tool-holders movably attached to said arms, an actuating device for said movable tool-holders in sliding engagement with said sliding frame, and means to effect the sliding movement of said actuating device independent of the movement of said sliding frame, substantially as described.

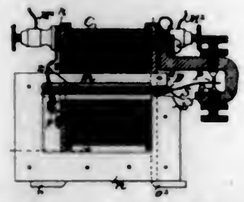
4. In a machine of the class described, in combination, a sliding frame, an upper tool-carrying arm fastened to said frame, a lower tool-carrying arm pivoted to said sliding frame, tool-holders movably connected with said arms, a bodily-movable cam-plate in sliding engagement with said sliding frame, means for connecting said cam-plate with said tool-holders, and means for reciprocating said frame and said cam-plate, substantially as described.

5. In a machine of the class described, in combination, a sliding frame, means to move it, an upper tool-carrying arm movable with said frame, a lower tool-carrying arm pivoted to said frame, an elevating mechanism for said lower tool-carrying arm, comprising a bar or rod extended in the direction of the path of movement of the sliding frame, supports for said bar bodily movable in a vertical direction, an arm pivotally connected with said lower tool-carrying arm between its pivot and its tool-carrying end and loosely mounted on said bar or rod to slide thereon, and means to elevate said supports, substantially as described.

6. In a machine of the class described, in combination, a sliding frame comprising side pieces provided with guideways on their inner sides, tool-carrying arms attached to said frame to move therewith tool-holders movably connected with said tool-carrying arms, an actuating device for said tool-holders comprising a plate or bar having a cam-slot and provided with ribs or guides which fit into the guideways in the sides of the sliding frame, a crank-shaft, and a rod or bar connecting said crank-shaft with said sliding frame and engaging said cam-slot, substantially as described.

749,399. ALTERNATING-CURRENT RELAY. GREENLEAF W PICKARD, Amesbury, Mass., assignor to American Telephone and Telegraph Company, a Corporation of New York. Filed Aug. 21, 1903. Serial No. 170,368. (No model.)

Claim.—1. The hereinbefore-described electromagnetic movement, consisting in an iron-core system having two fixed and confronting pole-pieces; a pivoted iron armature with its free end extending between the said fixed pole-pieces, and itself constituting a movable pole-piece; and a magnetizing-helix surrounding the said movable pole-piece and one of the said fixed pole-pieces, and adapted when energized by the passage of an electric current therethrough to develop temporary magnetism of like polarity and consequent mutual repulsion between the said coil-surrounded fixed and movable poles, and opposite temporary polarity in the other fixed pole-piece, and consequent attraction between the same and the said movable pole-piece as long as the said passage of current continues, and without regard to its direction.



2. A relay adapted to respond by the steady attraction of its armature to its operative position to a high-frequency alternating-current, comprising a magnetizing or exciting helix; a soft-iron-core system having fixed and movable pole-pieces surrounded by said coil, and a second fixed pole-piece extraneous to said coil; and means for establishing temporary magnetic polarity in said second fixed pole-piece opposite in sign to that established by said coil in the said fixed and movable pole-pieces surrounded thereby; the said movable pole-piece being mounted between the two fixed pole-pieces, and the bore of said coil being sufficiently large to permit of the lateral movement therein of said movable pole-piece; whereby when the said coil is excited by an alternating current, like temporary polarity is developed in said coil-surrounded fixed and movable pole-pieces, and opposite temporary polarity in the said other fixed pole-piece; and whereby the polarity of all of the said pole-pieces is simultaneously reversed at each reversal of said current; substantially as described.

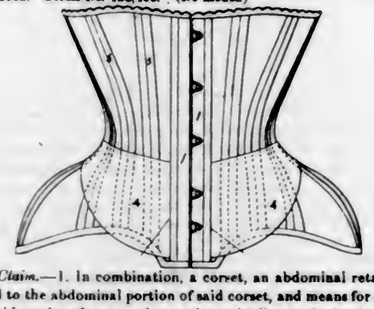
3. A relay, comprising a soft-iron-core system having two fixed and confronting pole-pieces; a soft-iron armature pivoted or poised at one end and having its free end extending into the space between said pole-pieces, and constituting a movable pole-piece organized to oscillate between said fixed poles; an exciting-helix surrounding the said movable pole-piece and one of the said fixed pole-pieces, in electromagnetic inductive relation to all of the said pole-pieces, and adapted when energized to develop like magnetic polarity in the fixed and movable pole-pieces thus associated therein, and opposite polarity in the other fixed pole-piece; a maintaining and retracting spring for the said armature; and electrical contacts controlled by said armature; substantially as and for the purposes set forth.

4. A relay comprising an exciting or magnetizing coil; an iron core extending through the bore and back over the exterior of said coil and forming a nearly-complete magnetic circuit, with closely-confronting poles at one end of said coil; a soft-iron armature extending through said coil, pivoted or poised at one end to oscillate laterally therein and having its free end between said poles; a counter-spring for the said armature; a contact-spring carried by the free end of said armature; and limiting-stops for said contact-spring, one of said stops being an electrical contact-point; substantially as set forth.

5. An alternating-current relay operating by magnetic repulsion and attraction and consisting of an iron-core system composed of two limbs united at one end and having their other ends approximated to constitute a nearly-closed magnetic circuit with closely-adjacent confronting polar ends; an iron armature pivoted or poised near the heel ends of said core-limbs, extending forward in close association with one of them, and having its free end in the field-space between the polar ends of both; an electromagnetic coil or helix surrounding the said armature and its associated core-limb and adapted when energized by the passage of an alternating current therethrough to develop the ends thereof into like and mutually-repellent movable and fixed poles respectively, and to form of the end of the other or non-associated core-limb an opposed fixed pole attractive of said movable pole, the bore of said coil being of sufficient width to admit of lateral oscillatory movement of the said armature therein; non-conducting and conducting limit-stops for the said armature corresponding to its normal and operated positions respectively; a conducting spring extension for said armature adapted to move therewith between said stops, and constituting a complementary contact for the latter; and a counter-spring for said armature tending to hold the same in its normal position with the said contacts separated, and adapted to restore it thereto on the cessation of the said energizing-current; substantially as set forth.

6. In an alternating-current relay the combination with the magnetizing or exciting coil C adapted for inclusion in a main circuit; and the parallelogrammic soft-iron core K forming a nearly-completed magnetic circuit, and constituted of limbs *m* and *n* passing respectively through and outside of said coil, united at one end and provided at the other with confronting polar ends *a* and *b*; of the soft-iron armature *d* pivoted at one end of said coil, passing through the bore thereof conjunctively with the said core-limb *m*, and having its free end between the polar ends *a* and *b* of said core; limit-stops P and Q mounted above the polar ends *a* and *b* respectively, the latter forming a contact-point for a controlled circuit; the spring extension S of said armature extending between said limit-stops, and constituting the complementary contact of said controlled circuit; the heel-pin F of said armature and the counter-spring G therefor pressing said armature constantly toward the said polar end *a* and the non-conducting limit-stop P; substantially as described.

749,400. CORSET. EMILIE POHL, Baltimore, Md. Filed Oct. 23 1902. Serial No. 128,460. (No model.)



Claim.—1. In combination, a corset, an abdominal retainer secured to the abdominal portion of said corset, and means for depressing said retainer from a point on the waist-line at the back, without pressure on the hip portions of said corsets.

2. In combination, a corset, an abdominal retainer secured to and covering the abdominal portion of said corset, said retainer consisting of two supporting-bands attached at their front end to each of the corset-clasps and tapering rearwardly to the proportions of a strap above the hips, and means for securing the two straps on the waist-line at the back independent of the said corset.

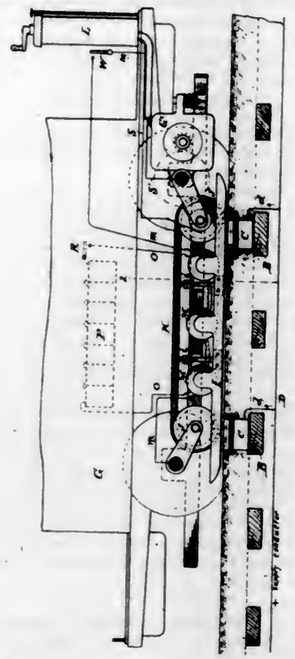
3. In combination, a corset, an abdominal retainer secured to and covering the abdominal portion of said corset, said retainer on each side tapering rearwardly to the proportions of a strap above the hips, and means for securing the two straps on the waist-line at the back independent of the said corset.

4. A corset having abdominal retainers secured to the corset-clasps near their lower extremity, said retainers extending wholly above the hips and being provided with means for adjusting the same around the back independent of the said corset.

749,401. ELECTRIC RAILWAY. LEON W. PULLEN, Philadelphia, Pa., assignor to Wireless Railway Company, Philadelphia, Pa., a Corporation of District of Columbia. Filed Apr. 18, 1903. Serial No. 153,155. (No model.)

Claim.—1. In an electric railway, the combination of a series of magnetic switches arranged along the railway and each having a loose gravity-actuated magnetic armature placed transversely to the length of the track and two contact-caps having contacts to constitute a two-pole switch, a supply-circuit having branch conductors controlled by the series of switches for supplying current to exposed portions on the surface of the railway, an electrically-propelled car having a collecting device for receiving current from the exposed portions of the branch circuits when the switches are closed, and a magnet having north and south poles arranged parallel to each other and extending in the direction of the length of the car and respectively above the two contact-caps of the magnetic switches, and means for vertically adjusting the magnet structure to and from the road-bed and contact-caps.

2. In an electric railway, the combination of a series of magnetic switches arranged along the railway, each having a loose gravity-actuated magnetic armature placed transversely to the length of the track and two contact-caps having contacts to constitute a two-pole switch, a supply-circuit having branch conductors controlled by the series of switches for supplying current to exposed portions on the surface of the railway, an electrically-propelled car having a collecting device for receiving current from the exposed portions of the branch circuits when the switches are closed, and a magnet having north and south poles arranged parallel to each other and extending in the direction of the length of the car and respectively above the two contact-caps of the magnetic switches.



3. In an electric railway, the combination of a series of magnetic switches arranged along the railway and each having a tubular armature of magnetic material placed transversely to the length of the track and two magnetic contact-caps having contacts to constitute a two-pole switch, a supply-circuit having branch conductors controlled by the series of switches for supplying current to exposed portions on the surface of the railway, an electrically-propelled car having a collecting device for receiving current from the exposed portions of the branch circuits when the switches are closed, a magnet having north and south poles arranged parallel to each other and extending in the direction of the length of the car and respectively above the two contact-caps of the magnetic switches, one or more magnetic coils upon the magnet between the poles, and an energizing-circuit including the coils.

4. In an electric railway, the combination of a series of magnetic switches arranged along the railway and each having a tubular armature of magnetic material placed transversely to the length of the track and two magnetic contact-caps having contacts to constitute a two-pole switch, a supply-circuit having branch conductors controlled by the series of switches for supplying current to exposed portions on the surface of the railway, an electrically-propelled car having a collecting device for receiving current from the exposed portions of the branch circuits when the switches are closed, a magnet having north and south poles arranged parallel to each other and extending in the direction of the length of the car and respectively above the two contact-caps of the magnetic switches, one or more magnetic coils upon the magnet between the poles, an energizing-circuit including the coils, and independent energizing means for the magnet carried by the car and under the control of the operator for energizing the magnet when the magnetic switches are open.

5. In an electric railway, a series of magnetic switches arranged along the road-bed for supplying current to the motor consisting of an inclosed case, combined with two magnetic contact-caps in the upper part of the case and having contacts insulated therefrom, a contact-block arranged above and insulated from the case and elec-

trically connected with one of the contacts of the contact-caps, an electric circuit supplying current to the contact of the other contact-cap, a transverse magnetic armature arranged below the two caps and adapted to be raised under magnetic attraction, and insulating-supports for the armature for holding it close to the contact-caps with freedom of upward movement.

6. In an electric railway, a series of magnetic switches arranged along the road-bed for supplying current to the motor consisting of an inclosed case, combined with two contact-caps having contacts arranged in the upper part of the case and insulated therefrom and in which said contact-caps are made of magnetic material, a contact-block arranged above and insulated from the case and electrically connected with the contact of one of the contact-caps, an electric circuit supplying current to the contact of the other contact-cap, a transverse armature arranged below the two caps and adapted to be raised under magnetic attraction, and insulating-supports for the armature for holding it close to the contact-caps with freedom of upward movement.

7. In an electric railway, a series of magnetic switches arranged along the road-bed for supplying current to the motor consisting of an inclosed case, combined with two contact-caps in the upper part of the case and insulated therefrom and each having a contact part presenting more than one point of contact for the armature, a contact-block arranged above and insulated from the case and electrically connected with one of the contact-caps, an electric circuit supplying current to the other contact-cap, a transverse tubular armature arranged below the two caps and adapted to be raised under magnetic attraction, and insulating-supports for the armature for holding it close to the contact-caps with freedom of upward movement.

8. In an electric railway, the combination of a series of contact-blocks arranged along the surface of the railway, two magnetic contact-caps having contacts of magnetic material faced with copper, a transverse tubular armature of magnetic material faced with copper, a supply-conductor extending along the railway, branch conductors leading from the supply-conductor to one set of contacts of the contact-caps of each switch structure, conductors connecting the other contacts of the contact-caps respectively with the series of contact-blocks, and insulating-supports for the armature, contact-blocks and contact-caps.

749,402. GUN-BARREL. WILLIE ROST, Gilmore City, Iowa. Filed Nov. 15, 1902. Serial No. 131,534. (No model.)

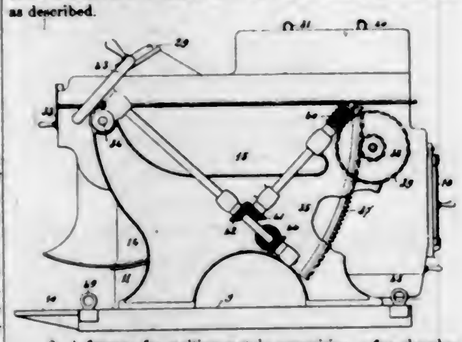


Claim.—1. A barrel for guns having a glass lining.

2. A barrel for guns having a glass lining, said lining being rifled.

749,403. MOVABLE SWINGING-BODY FURNACE FOR MELTING STEEL, &c. LOUIS ROUSSEAU, Paris, France. Filed Oct. 4, 1900. Serial No. 31,954. (No model.)

Claim.—1. A furnace for melting metals comprising a fire-chamber 19 provided below with a bent grate 17 mounted upon an axis 47 carried by the lower part of the refractory furnace-lining 22, a partition 21 in the fire-chamber supported upon the refractory lining 22 and provided with an opening, a plumbago crucible 24 provided with a neck 32 and supplied beneath with legs 50 supported upon the lower wall of the refractory lining 22, a flue 23 traversed by the legs 50 and arranged between the crucible 24 and the lower and side refractory lining 22 and in communication, through the opening pierced in the partition 21, with the interior of the fire-chamber, a plumbago cover 25 placed upon the crucible 24 and surmounted by a chimney 30 partially closed by a plug 31, the interior of said cover being in communication with the flue 23 comprised between the crucible and the refractory lining 22 by means of openings pierced in said cover on each side of the neck 32 of the crucible 24, substantially as described.



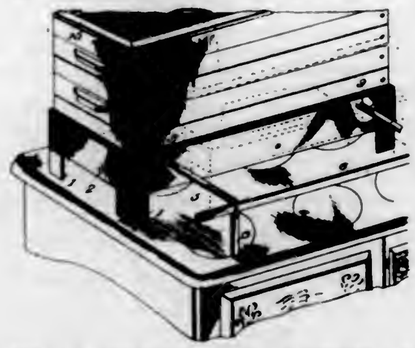
2. A furnace for melting metals comprising a fire-chamber 19 furnished in the lower part with a bent grate 17 mounted upon an axis 47 supported by the lower part of the refractory furnace-lining 22, a partition 21 in the fire-chamber supported upon the refractory furnace-lining 22 and pierced by an opening, a plumbago crucible 24 furnished with a neck 32 and supplied beneath with legs 50 supported upon the lower wall of the refractory furnace-lining 22, a flue 23 traversed below by the legs 50 and arranged between the crucible 24 and the lower and side refractory furnace-lining 22 and in communication, through the opening pierced in the partition 21, with the interior of the fire-chamber, a conduit 26 pierced in the wall common to the fire-chamber and the chimney 30 of the cover 25 and also in the crucible 24, the said conduit 26 discharging below in the conduit 23 and being in communication at its upper part with the chamber 19 of the furnace through openings 27 pierced in the partition of this chamber.

3. A furnace for melting metals comprising a fire-chamber 19 provided with a bent grate 17 mounted upon an axis 47 carried by the lower part of the refractory furnace-lining 22, a partition 21 in the fire-chamber supported upon the refractory lining 22 and pierced by an opening, a plumbago crucible 24 supplied with a neck 32 and provided at the lower part with legs 50 supported upon the lower wall of the refractory furnace-lining 22, a flue 23 traversed by the legs 50 and comprised between the crucible 24 and the lower and side refractory lining 22 and in communication, through the opening pierced in the partition 21, with the interior of the fire-chamber, a metallic jacket 15 in which are located the lower part of the fire-chamber 19, the grate 17, the refractory lining 22 of the furnace and the plumbago crucible 24, a curved conduit 14, 16, comprised between the metallic jacket 15 and the refractory furnace-lining 22 in communication, through the partition with the under side of the grate 17 of the fire-chamber 19, two fixed trunnions 34 having the same axes upon the metallic jacket 15 on each side of the neck 32 of the plumbago crucible 24, a metallic wall carried by the metallic jacket 15 and disposed concentrically with the trunnions 34 at the lower extremity of the part 14 of the conduit 14, 16, arranged between the metallic envelop 15 and the refractory furnace-lining 22, substantially as described.

4. A furnace for melting metals comprising a metallic jacket 15 in which are located the lower parts of the fire-chamber 19, the grate 17, the refractory furnace-lining 22, and the plumbago crucible 24, a curved conduit 14, 16, located between the metallic jacket 15 and the refractory furnace-lining 22, in communication, through the partition, with the under side of the grate 17 of the fire-chamber 19, two fixed trunnions 34 having the same axis upon the metallic jacket 15, on each side of the neck 32 of the plumbago crucible 24, a metallic wall carried by the jacket 15, and arranged concentrically with the trunnions 34 at the lower extremity of the part 14 of the conduit 14, 16, comprised between the metallic jacket 15 and the refractory furnace-lining 22, a toothed segment 37 fixed on each side of the metallic jacket 15 and concentric with the trunnions 34, two side beams 35 and 36 by which the trunnions 34 of the metallic jacket 15 are carried and which are fixed upon the base 9, two pinions 38 keyed each upon an axis carried by one of the side beams 35 and 36 and engaging each with one of the toothed segments 37, a wheel 39 mounted upon each of the axes of the pinions 38 and gearing with an endless screw 40 of which the axis is carried by the beam situated on the same side of the furnace, a bevel-gear 41 keyed upon the shaft of the screw 40 carried by the beam 35, gearing with a similar pinion 42, a shaft of the pinion 42 carried by the beam 35 and upon which are keyed a wheel 43 and a bevel-gear 44, a shaft 46 carried by the two side beams 35 and 36 and upon which are keyed two bevel-gears of which one is in gear with the pinion 44, keyed upon the shaft of the operating-wheel 43, and of which the other is geared with a similar pinion keyed upon the shaft of the endless screw 40, carried by the side beam 36, substantially as described.

5. A furnace for melting metals comprising a metallic jacket 15 in which are located the lower part of the fire-chamber 19, the grate 17, the refractory furnace-lining 22 and the plumbago crucible 24, a curved conduit 14, 16, located between the metallic jacket 15 and the refractory furnace-lining 22, in communication, through the partition, with the under side of the grate 17 of the fire-chamber 19, two fixed trunnions 34, having the same axis, upon the metallic jacket 15, on each side of the neck 32 of the plumbago crucible 24, a metallic wall carried by the metallic jacket 15 and arranged concentrically with the trunnions 34, at the lower extremity of the part 14 of the conduit 14, 16, comprised between the metallic jacket 15 and the refractory furnace-lining 22, two side beams 35 and 36 by which the trunnions 34 of the metallic jacket 15 are carried and which are fixed upon the base 9, a flue 11 formed with the base 9 and of which the lower extremity 12 is located in an annular cavity lined with sand and hollowed out at the upper extremity of the conduit 13 for conducting air, the upper extremity of the said flue 11 being enlarged, cut out concentrically with the trunnions 34 and adjusted to move easily against the metallic wall carried by the metallic jacket 15 at the lower extremity of the part 14 of the conduit 14, 16, with which it is in communication, substantially as described.

749,404. FRUIT-DRIER. HARRY E. SMITH, Mercersburg, Pa. Filed Sept. 3, 1903. Serial No. 171,812. (No model.)



Claim.—1. A fruit-drier for domestic use comprising a stand consisting of a rectangular frame and supporting-legs, the frame comprising vertical walls and a flange projected inward from the respective walls to form a support, the flange of opposite walls having its inner end portion upwardly deflected to form guide and interlocking extensions, and a rectangular drier-frame arranged upon the stand and held from longitudinal and lateral displacement by the said guide and interlocking extensions engaging with opposite portions thereof, substantially as set forth.

2. In a fruit-drier for domestic use, the combination of a stand comprising a rectangular frame consisting of vertical walls and a flange projected inward from said walls, the flanges of opposite walls having their inner end portions bent upwardly to form guide and interlocking extensions, a series of rectangular drier-frames supported upon the inner flange of the walls and held from longitudinal and lateral displacement by the aforesaid guide and interlocking extensions, said drier-frames having the lower edge of one resting upon the top edge of the other, and plates secured to opposite end portions of the frames and projected upward to engage with the frames next above to hold the frames in proper position, substantially as specified.

3. In a fruit-drier, the combination of a stand having spaced openings in a wall, bars mounted to slide in the said openings, a bar connecting the slide-bars at their inner ends and limiting their outward movement, a companion bar connecting the slide-bars at their outer ends, and means for supporting the slide-bars at their outer ends, substantially as set forth.

4. In combination, a stand having spaced openings in a wall, a transverse bar connecting opposite walls of the stand, bars mounted to slide in the said openings, a longitudinal bar connecting the inner ends of the slide-bars, connecting means between said longitudinal and transverse bars to insure proper position and movement of the slide-bars, and means connecting and supporting the slide-bars at their outer ends, substantially as described.

749,405. EYE-PROTECTOR FOR HORSES. LEONARD A. SOUTHERN, Stokesdale, N. C. Filed Aug. 18, 1903. Serial No. 169,905. (No model.)

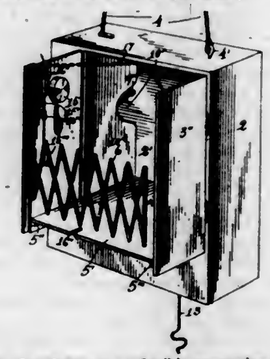


Claim.—1. An eye-protector for horses, the same comprising in combination with a bridle, a shade, a skeleton frame therefor made of wire and comprising an extended securing-loop, and a brow-piece connected therewith and securing portions bent at angles to the brow-piece to form slots for engagement with loops on the bridle-band, as set forth.

2. An eye-protector for horses, the same comprising in combination with a bridle-band with loops at its ends, a shade having a skeleton frame made of a single piece of wire which is bent to form the marginal outline of the shade, and a brow-piece at the rear thereof, and also bent at a right angle to form two slots which are designed to engage said loops in the bridle-band, whereby the shade may be held as a vizor against the brow-band of the bridle, as set forth.

3. An eye-protector for horses comprising in combination with a bridle-band with loops at its ends, a shade having a skeleton frame made of a single piece of flexible wire which is bent to form the marginal outline of the shade, and provided with two portions which are bent upon themselves forming slots adapted to engage said loops of the bridle-band, and connections between the forward end of the shade and the bridle for supporting the same, as set forth.

749,406. FIRE-ESCAPE. JULIUS SPERO, New York, N. Y. Filed July 20, 1903. Serial No. 166,215. (No model.)



Claim.—1. In a fire-escape a flexible connection and a movable carriage combined therewith, the said carriage having a back, a movable floor pivoted to the back, device for normally holding said floor raised near to said back, and means for releasing the floor from its raised position, so that it may drop, to a horizontal position, substantially as described.

2. In a fire-escape, a carriage having a back, two sides, and a door, the floor of said carriage being pivoted thereto, and being of a greater depth than the depth of the carriage sides, the said door

when closed being adapted to hold the floor folded up within the carriage, and to release said floor, when opened, substantially as described.

3. In a fire-escape, the combination with a movable carriage, a floor pivoted thereto, means for holding the floor normally raised within the carriage, of a flexible supporting connection for supporting the said carriage, mechanism for regulating the movement of the carriage on said supporting connection, adapted to be actuated by the floor when it is in its horizontal position, substantially as described.

4. In a fire-escape, the combination with a movable carriage, a floor pivoted thereto, doors on said carriage which when closed hold the floor in a vertical position and a flexible connection, for supporting the carriage and mechanism for regulating the movement of said carriage on said connection adapted to be actuated by the pressure of the floor, when the doors are opened, and the floor fallen to its horizontal position, substantially as described.

5. In a fire-escape, a carriage having a pivoted floor, normally held out of the way, of a flexible connection for normally supporting said carriage, a friction-grip for regulating the run of the flexible connection, and a mechanism for increasing the friction of said grip, when the floor is lowered, to a horizontal position, substantially as described.

6. An apparatus of the class herein described comprising a carriage having a load-sustaining member movably conjoined therewith and a bracket firmly conjoined therewith; a flexible connection for suspending said carriage, one end portion of said connection being secured to said carriage and the other end portion thereof extending loosely therealong and loosely through said bracket; a gravity-lever suitably conjoined with said bracket and tending at all times, by reason of its gravity, to apply to said connection a frictional or braking effect; and elements between said load-sustaining member and said gravity-lever whereby the latter may be automatically moved against its own gravity and its braking action on said connection accordingly destroyed, upon and during the application of a load to said member, substantially as herein specified.

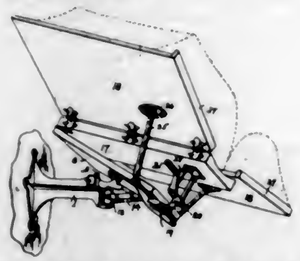
7. An apparatus of the class herein described comprising a carriage having a load-sustaining member movably conjoined therewith and a bracket firmly conjoined therewith; a flexible connection for suspending said carriage, one end portion of said connection being secured to said carriage and the other end portion thereof extending loosely therealong and loosely through said bracket; a gravity-lever suitably conjoined with said bracket and tending at all times, by reason of its gravity, to apply to said connection a frictional or braking effect; a connecting-rod conjoined with and projecting away from said gravity-lever; and an additional lever cooperating with said member and said connecting-rod, in such a manner that movement applied to said member will result in said gravity-lever being moved against its own gravity, and its braking action on said connection accordingly destroyed, substantially as herein specified.

8. An apparatus of the class herein described comprising a carriage having a bracket firmly coojoined therewith; a flexible connection for suspending said carriage, said connection extending loosely through said bracket; a lever suitably conjoined with said bracket and whereby, under direct movement imparted thereto, a frictional or braking effect may be applied to said connection; and mechanism for reversely moving said lever, the said mechanism embodying an elastic element permitting said lever to be directly moved, as by hand-pressure, during the tendency of said mechanism to reversely move the same, substantially as herein specified.

9. An apparatus of the class herein described comprising a carriage having a depressible, load-sustaining member conjoined therewith; a flexible connection for suspending said carriage, one end portion of said connection being secured to said carriage and the other end portion thereof extending therealong; means for yieldingly holding the last-named end portion of said connection against the weight of said carriage when suspended; a roller having a fixed center of motion; an additional roller adjustable toward and away from the first-named roller, the latter receiving motion from said connection in the practical operation of the apparatus as a whole; and a lever between said adjustably-disposed roller and said member, whereby, upon said member being depressed, said adjustably-disposed roller will be brought into frictional contact with the roller first above referred to, substantially as herein specified.

749,407. BOOK-HOLDER. BARNETTE T. STEINER and JOHN A. HALL, Canton, Ohio. Filed Oct. 7, 1903. Serial No. 176,035. (No model.)

Claim.—1. In a book-holder, a supporting-arm having pivotally attached thereto a bar, a board or base provided with a frame or bracket, and the bar pivoted to the frame or bracket at substantially right angles to the pivot connection with the supporting-arm, links located in a different vertical plane from that of the bar, said links pivoted to the supporting-arm and to the bracket respectively, and a book-support hinged to the frame or bracket, substantially as and for the purpose specified.



2. The combination of a supporting-arm, a board or base hinged to the book-supporting devices, a link located at the free end of the board or base and pivoted at its bottom or lower end, its free end provided with an operating-handle, a book-bar hinged to the board or base, link connection between the book-bar and board or base, leaves hinged to the book-bar, and bars pivotally connected to the leaves and mechanism for pivotally connecting the lower ends of the leaf-bars, and hinge condection between the outer end of the supporting-arm and the board or base, substantially as and for the purpose specified.

3. In a book-holder a supporting-arm, a bar pivoted to said supporting-arm, links having pivotal connection to the supporting-arm in a vertical plane forward of the pivotal connection of the bar, and a frame or bracket having pivoted thereto the bar at substantially right angles to the pivotal connection of the bar to the supporting-arm, and a board or base having hinged thereto a book-supporting bar, substantially as and for the purpose specified.

4. In a book-holder a supporting-arm and a board or base spaced from the end of the supporting-arm, two pivotal connections between the board or base and the supporting-arm, the pivotal connections to the supporting-arm located in different vertical planes and the pivotal connections to the board or base located substantially at right angles to the pivotal connections of the supporting-arm, substantially as and for the purpose specified.

5. In a book-holder, a supporting-arm having pivotally attached thereto a bar, said bar provided at its support or pivotal point with shoulders, a friction-plate secured to the support and adapted to bear against the bar having the shoulders at points adjacent said shoulders, said bar provided with stop-shoulders at its outer end, said stop-shoulders adapted to bear against the frame or bracket, and a board or base secured to the bracket and mechanism for holding a book in an open position and clamping the book in a closed position, substantially as and for the purpose specified.

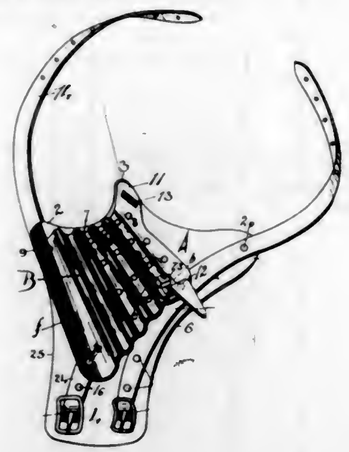
6. In a book-holder, a board or base having hinged thereto a book-bar, said book-bar having hinged thereto leaves, a supporting-arm and different pivotal connections between the supporting-arm and the board or base, and the outer and inner pivotal connections of the different pivotal connections located at substantially right angles to each other, substantially as and for the purpose specified.

7. In a book-holder the combination of a board or base, a book-bar hinged to said base, a handle-link located at the free end of the board or base, link connection between the handle-link and the book-bar, leaves pivoted to the book-bar, and means for actuating the leaves, substantially as and for the purpose specified.

8. The combination of a supporting-arm, vibrating or swinging members connected to said supporting-arm, and the vibrating or swinging members connected to a frame or bracket having secured thereto a board or base, a hinged book-bar connected to said board or base at one end thereof, and book-leaves hinged to the book-bar, and means for holding the book-leaves in a rigid open position, substantially as and for the purpose specified.

749,408. ADJUSTABLE-HOOK CORN-HUSKER. GEORGE W. SUHR, Omaha, Nebr., assignor to Frederick D. Kess, Beatrice, Nebr. Filed May 31, 1902. Serial No. 109,819. (No model.)

Claim.—A corn-husker comprising the combination with a pliable pad, of a buckle-provided wrist-strap secured to said pad along one edge, a thumb-strap secured to said pad near an opposite edge, a buckle to receive said last-mentioned strap, a metallic corrugated perforated shield, one edge recurved to provide a finger-hold and provided with a perforated ear, said thumb-strap being adapted to be carried through said ear, and a hook adjustably secured to said shield in the manner set forth.



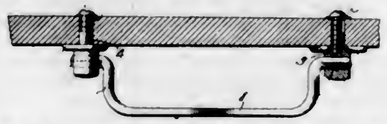
749,409. IGNITING DEVICE FOR ACETYLENE-GAS BURNERS. HENRY C. THOMSON, Boston, Mass., assignor to Electric Gas Lighting Company, Boston, Mass., a Corporation of Maine. Filed Nov. 6, 1902. Serial No. 130,342. (No model.)



Claim.—1. In an automatically-ignited electric acetylene-gas burner, in combination with the burner and armature thereof, a rod D arranged to be operated by the armature, a supporting-sleeve D therefor, a half-collar E loosely pivoted to the gas-burner, a rod F erected upon said half-collar, a short tube G carried at the extremity of said rod, the whole being so combined that, upon upward movement of the armature, said tube G will carry the escaping gas from the tip of said burner to the electrodes for the purpose of ignition by a spark there made; substantially as described and shown.

2. In an automatically-ignited acetylene-gas burner, in combination with the burner and armature thereof, a tube to carry the gas from the burner-tip to the electrodes, and means intermediate of said armature and burner-tip whereby the vibration of said armature carries the tube to and away from the burner-tip; substantially as described.

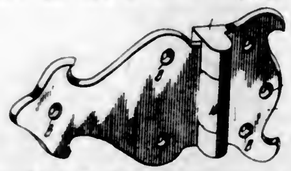
749,410. DRAWER-PULL. DANIEL W. TOWER, Grand Rapids, Mich. Filed June 9, 1902. Serial No. 110,890. (No model.)



Claim.—1. As a new article of manufacture, a drawer-pull comprising a pair of posts and a handle having its terminals seated in the posts and rigidly adjustable at different angles with relation thereto.

2. As a new article of manufacture, a drawer-pull comprising a pair of posts each having a transversely-disposed polygonal orifice, and a handle having polygonal terminals to engage the orifices.

749,411. HINGE. DANIEL W. TOWER, Grand Rapids, Mich. Filed Dec. 8, 1902. Serial No. 134,412. (No model.)



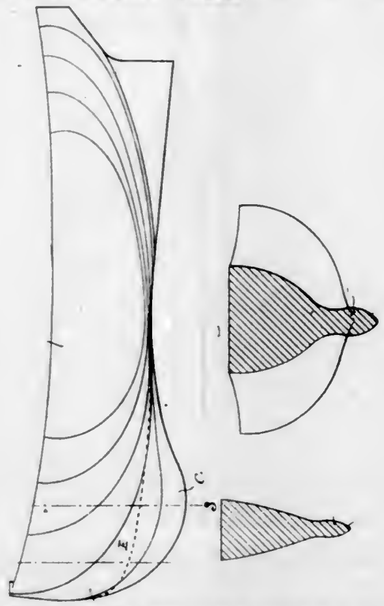
Claim.—1. In a hinge, the combination with one of the straps of a casing having a portion to house and totally conceal the knuckle and the ends of the hinge-pin.

2. In a hinge the combination with one of the straps, of an inclosing casing therefor provided with a housing for a knuckle and the hinge-pin, said housing having imperforate end walls.

3. In a hinge, the combination with one of the straps, of a casing having a portion to house and totally conceal the knuckle and the hinge-pin, and provided on its inner side with integral tongues, in combination with a back plate provided with openings to be engaged by the tongues.

4. In a hinge, the combination with one of the straps, of a casing to inclose the same and provided with a portion to house the knuckle and the hinge-pin, said housing having imperforate end walls and provided with integral flexible tongues, and a back plate having openings to be engaged by the tongues to hold it associated with the strap.

749,412. BOAT. ALBERT VIERT, Chicago, Ill. Filed Apr. 2, 1903. Serial No. 150,701. (No model.)



Claim.—1. A hull for vessels or ships provided at its prow portion with a downwardly and rearwardly extending fin, said fin being thicker at its middle portion than at its ends.

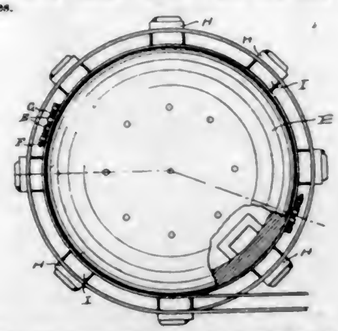
2. A hull for vessels or ships provided with a prow portion extending downwardly below the plane of the keel and extending rearwardly to a point adjacent the middle of the ship, said extended portion forming a fin which is of greater width at its middle portion than on the normal keel-line.

749,413. KILN. JOHN F. WARWICK, Chicago, Ill. Filed Oct. 28, 1903. Serial No. 178,878. (No model.)

Claim.—1. The combination with the peripheral wall of a kiln, of a steel jacket incasing same, said jacket being composed of a plurality of segmental sections yieldingly secured together at their ends.

2. The combination with the peripheral wall of a kiln, of a steel

jacket incasing same, said jacket being composed of a plurality of segmental sections yieldingly secured to each other along their vertical edges.



3. The combination with the peripheral wall of a kiln, of a steel jacket incasing same, radial steel furnaces secured to said jacket, hoppers secured thereto above said furnaces, troughs connecting said hoppers with said furnaces, valves in said troughs, and a tramway passing over said hoppers.

749,414. COOKING UTENSIL. MADISON T. R. WASHINGTON, Chicago, Ill. Filed Aug. 17, 1903. Serial No. 169,749. (No model.)



Claim.—1. The utensil described comprising a handle consisting of a U-shaped frame and a filling piece or body fitting between the members of said frame and provided with a pocket, and prongs having detachable engagement with the ends of the parallel members of the frame.

2. The utensil described comprising a handle consisting of a U-shaped frame and a filling piece or body fitting between the members of said frame and provided with a pocket, and prongs having detachable engagement with the ends of the parallel members of the frame, said prongs being provided with shoulders which engage the lower end of the filling piece or body.

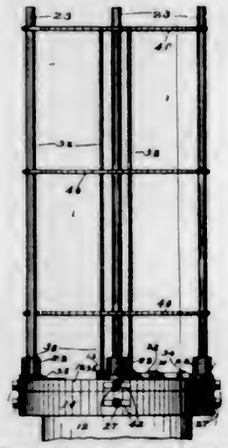
3. The utensil described comprising a handle consisting of a U-shaped frame the arms of which are provided with axial screw-threaded sockets and a filling piece or body fitting between the members of said frame and provided with a pocket closed by a cap and prongs having screw-threaded engagement with the ends of said frame members and having shoulders which engage the lower end of said filling piece or body of the handle.

4. The utensil described comprising a handle consisting of a U-shaped frame and a filling piece or body fitting between the members of said frame and provided with a pocket, and prongs having detachable engagement with the ends of the parallel members of the frame, one of said prongs being provided near its outer end with a barb.

5. The utensil described comprising a handle consisting of a U-shaped frame and a filling piece or body adapted to fit between the members of said frame, and provided with a pocket, prongs having screw-threaded connection with the ends of said frame members and a larding-head adapted for screw-threaded engagement with one of said prongs to constitute a larding-needle, said pocket being designed to receive said head when the latter is detached from said prong.

6. A combined fork and larding-needle, said fork having a detachable prong which is adapted for detachable connection with the larding-head, and the handle of the fork being provided with a pocket to receive the larding-head when it is detached from said prong.

749,415. MACHINE FOR SHEARING BLANKS FROM METAL RODS. JOHN P. WENNERSTEN, Dunning, Ill., assignor to August Larsen, McHenry, Ill. Filed July 2, 1903. Serial No. 163,998. (No model.)



Claim.—1. The combination with a fixed plate having a series of openings at right angles to its face, of a rotary reciprocal shaft loosely journaled therein, a movable plate mounted on said shaft and having openings to register with those of the fixed plate, means connecting the shaft and the movable plate to partially rotate the latter, and a stock-holding frame mounted on the movable plate.

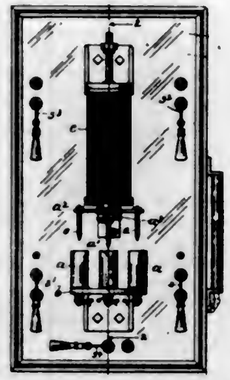
2. The combination with a fixed plate having a series of openings at right angles to its face, of a rotary reciprocal shaft loosely journaled therein, a slotted movable plate mounted on said shaft and having a series of openings to register with those of the fixed plate, a fulcrum-pin on the fixed plate extending through the slot of the movable plate, and a lever fulcrumed on said pin and having one of its ends in engagement with the movable plate and its other end in engagement with the shaft.

3. The combination with a fixed plate having a series of openings at right angles to its face, of a rotary reciprocal shaft loosely journaled therein, a movable plate mounted on said shaft and having a series of openings to register with those of the fixed plate, a lever fulcrumed near the outer surface of the movable plate and having one of its ends in engagement with the said plate and its other end in engagement with the shaft.

4. The combination with a fixed plate having a series of openings at right angles to its face, of a rotary reciprocal shaft loosely journaled therein, a movable plate mounted on said shaft and having openings to register with those of the fixed plate, bushings located in the openings of each of said plates, means connecting the shaft and the movable plate to partially rotate the latter, and a stock-holding frame consisting of a series of rods connected to the movable plate and a number of frames located on said rods and having openings to register with the openings in the bushings of the movable plate.

749,416. SAFETY-APPLIANCE SYSTEM FOR ELECTRICALLY-ACTUATED ELEVATORS. HARRY G. WRIGHT, Providence, R. I., assignor to William C. Woodward, Providence, R. I. Filed May 9, 1903. Serial No. 156,415. (No model.)

Claim.—1. The herein-described system for automatically controlling an electric safety device for elevators, the same consisting of a suitably-located and normally closed master-switch electrically connected with the circuits controlling the movements of the elevator-car, said switch having a magnet-coil of high resistance shunt-connected to the main power-circuit, and a normally closed door-lock circuit electrically connected with and having a lesser degree of resistance than said magnet-coil, arranged whereby upon opening a door in said circuit the latter is automatically broken thereby permitting said magnet-coil to be energized and thus open the circuits which control the car.



2. The herein-described system for automatically controlling an electric safety device for elevators, the same embodying a normally closed master-switch shunt-connected to the brake and controller circuits of the elevator-car, a magnet-coil of high resistance electrically connected with the power-circuit and forming a part of said switch, and a series of normally closed door-locks located in an electric circuit connected to said master-switch, whereby upon energizing said magnet-coil of the switch the latter operates to open the said brake-circuit in advance of the controller-circuit.

3. In an automatic electric safety device for elevators, the combination, in a master-switch of the class described, of a plurality of independent conductor members, as a^1, a^2, provided with contact-pins in normal engagement with mercury-cups electrically connected with circuits controlling the movements of the electric car, the pins of one of said conductor members being longer than those of the other, and a magnet-coil provided with a vertically-movable core having said switch-conductors secured thereto and capable of moving upwardly therewith to open the circuits whenever the coil is sufficiently energized, substantially as described.

4. In an automatic electric safety device for elevators, a normally closed electrically-connected door-lock circuit having a comparatively low resistance, normally closed electric circuits for controlling the movements of the elevator-car, and a master-switch provided with a magnet-coil of high resistance having a vertically-movable core member carrying contacts in normal electrical engagement with said controller-circuits, whereby the act of opening said door-lock circuit energizes the magnet-coil to elevate its core thus at the same time automatically opening the car-controller circuits, substantially as described.

5. In a system for automatically controlling the movements of an electric safety device for elevators, a master-switch provided with normally closed mercury-contacts electrically connected with circuits through which the movements of the elevator-car are controlled, a door-lock circuit of low resistance electrically connected with the power-circuit which supplies the current for operating said car, a magnet-coil of high resistance in continuous electrical connection with said door-lock and power-circuits, and a movable core for said magnet-coil capable of automatically breaking said mercury-contacts whenever the coil is energized by opening the door-lock circuit, substantially as hereinbefore described.

6. In a system for automatically controlling the movements of an electric safety device for elevators, a master-switch electrically connected with a door-lock circuit having a low resistance and with the power and car-controlling circuits, an electrically-connected magnet-coil of high resistance forming a part of said switch capable of being energized whenever the door-lock circuit is broken, thereby through the medium of said coil opening the said car-controlling circuits, substantially as described.

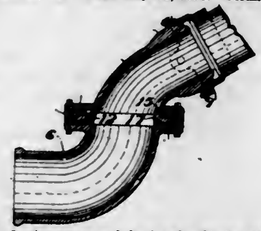
7. In a system for automatically controlling the movements of an electric safety device for elevators, a master-switch interposed between the door-lock circuit and car-controlling circuits and being electrically connected therewith, and having a plurality of manually-controlled cut-outs connected with said circuits, whereby the elevator's movements may be controlled independently of the door-lock circuit and master-switch, substantially as described.

8. The combination, in a master-switch, of mercury-contacts adapted to be interposed in circuits through which the current passes for controlling the movements of an electric elevator, a suitably-arranged magnet-coil of high resistance, a low-resistance shunt electrically connected with said magnet-coil, and a vertically-movable rod or core carrying conductors in normal engagement with the mercury but capable of being withdrawn therefrom automatically upon energizing the magnet-coil, substantially as described.

9. The combination of two pairs of electrically-connected insulated mercury-cups, a pair of insulated conductors provided with contact-pins in normal engagement with said cups, an electrically-connected stationary magnet-coil of high resistance, a movable core or rod passing through the center of said coil having said pin-carrying conductors secured to its lower end, and manually-controlled cut-outs or subsidiary switches arranged to be located in electric circuits which energize said coil, substantially as described.

10. In an electric safety device for elevators, a master-switch electrically connected with circuits through which the movements of the elevator are controlled and provided with a magnet-coil of high resistance adapted when energized to actuate the switch and open said circuits, thus rendering the car inoperative, a door-lock device located in an electric circuit connected with the magnet-coil, said device being provided with insulated yielding conductor members, and a movable contact member adapted when the door is closed to engage said yielding conductors and form a short circuit therewith, whereby the door-lock circuit is closed and the magnet-coil of the master-switch demagnetized, substantially as described.

749,417. HYDRAULIC NOZZLE AND JOINT. JOHN A. VEATMAN, San Francisco, Cal. Filed May 20, 1903. Serial No. 157,899. (No model.)



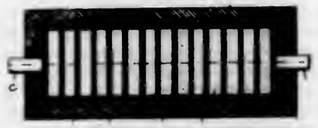
Claim.—1. An improved hydraulic discharge-pipe comprising fixed and movable pipe-sections, with flanges upon their contiguous ends; an annular thrust-collar bolted to one of the flanges and having a flange projecting inwardly over the uppermost of the pipe-flanges; an antifriction-bearing between the last-named flanges; a flexible disk secured between the pipe-flanges said disk having its inner edge projecting and turned over the joint between the flanges whereby said projecting portion will be forced against the inner wall of the pipe-sections and the joint to prevent leakage at the latter; a discharge-pipe jointed to the movable pipe-section; a cap fitting over the end of the discharge-pipe and having an inwardly-extending flange; and a removable annulus fitting the cap from the inside and clamped between the flange thereof and the end of the discharge-pipe.

2. A hydraulic discharge-pipe having fixed and movable pipe-sections, with flanges upon their contiguous ends, an annular thrust-collar bolted to one of the flanges having an inwardly-projecting flange projecting over the other pipe-flange, guided rollers or the like located between the collar-flange and pipe-flange, annular rigid and flexible disks secured to the stationary pipe-flange said flexible disk projecting and bent inwardly over the edge of the rigid disk and covering the movable joint between the sections.

3. A hydraulic discharge-pipe having fixed and movable pipe-sections, with flanges upon their contiguous ends, antifrictional thrust-bearings against which interior water-pressure acts, a flexible packing-ring and a metal ring overlying, and bolted through said flexible ring to the lower flange, to provide metallic movable surfaces of contact, said packing-ring being extended and its inner edge turned up to cover the moving joint.

749,418. METHOD OF MAKING CARBON ARTICLES. EDWARD G. ACHESON, Niagara Falls, N. Y. Filed Sept. 4, 1902. Serial No. 122,117. (No specimens.)

Claim.—1. The method substantially as hereinbefore described, of heating without substantially graphitizing carbon articles for the purposes set forth, which consists in embedding the carbon articles in suitable resistance material, converting electrical energy into heat energy within the mass of resistance material, and conducting sufficient of the heat energy thus produced into the bodies of the carbon articles to cause them to be polymerised.



2. The method substantially as hereinbefore described, of heating without substantially graphitizing carbon articles for the purposes set forth, which consists in embedding the carbon articles in suitable resistance material, the specific resistance of the entire volume of which is greater than that of an equal volume of the completed carbon articles, converting electrical energy into heat energy within the mass of resistance material, and conducting sufficient of the heat energy thus produced into the bodies of the carbon articles to cause them to be polymerized.

3. The method substantially as hereinbefore described, of heating without substantially graphitizing carbon articles for the purposes set forth, which consists in embedding the carbon articles in suitable resistance material, the specific resistance of the entire volume of which is greater than that of an equal volume of the completed carbon articles, converting electrical energy into heat energy within the mass of resistance material, and conducting sufficient of the heat energy thus produced into the bodies of the carbon articles, in a direction approximately at right angles to their longest dimensions to cause them to be polymerized.

4. The method substantially as hereinbefore described of polymerizing without substantially graphitizing carbon articles which consists in arranging the carbon articles with their longest dimensions in the same general direction in a mass of suitable resistance material, and passing a current of electricity through the mass in a direction approximately transverse to the direction of their longest dimensions.

5. The method substantially as hereinbefore described of polymerizing without substantially graphitizing carbon articles which consists in arranging the carbon articles with their longest dimensions in the same general direction in a mass of suitable resistance material, the specific resistance of the entire volume of which is greater than that of an equal volume of the polymerized carbon articles, and passing a current of electricity through the mass in a direction approximately transverse to the direction of their longest dimensions.

6. The method substantially as hereinbefore described of polymerizing without substantially graphitizing carbon articles which consists in arranging the carbon articles in separate piles with their longest dimensions in the same general direction in a mass of suitable resistance material, the specific resistance of the entire volume of which is greater than that of an equal volume of the polymerized carbon articles, and passing a current of electricity through the mass in a direction approximately transverse to the direction of their longest dimensions.

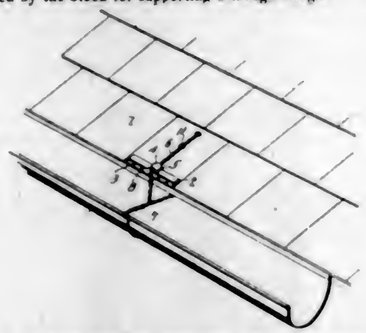
7. The method substantially as hereinbefore described of polymerizing carbon articles and purifying resisting materials which consists in arranging the carbon articles in piles separated by a mass of resisting material, and passing a current of electricity through the mass, sufficient to polymerize without substantially graphitizing the carbon articles and purifying the mass.

8. The method substantially as hereinbefore described of polymerizing carbon articles and purifying resisting materials which consists in arranging the carbon articles in piles separated by a mass of granular coke, and passing a current of electricity through the mass, sufficient to polymerize without substantially graphitizing the carbon articles and purifying the coke.

9. The method substantially as hereinbefore described of polymerizing carbon articles and purifying resisting materials which consists in embedding the carbon articles in a mass of resisting material, and passing a current of electricity through the mass, sufficient to polymerize without substantially graphitizing the carbon articles and purifying the mass.

749,419. **EAVES-PROTECTOR.** GEORGE M. DOHERTY, Petersburg, Ind. Filed Mar. 2, 1903. Serial No. 145,800. (No model.)

Claim.—1. An eaves-protector comprising a supporting-block provided with a series of drainage grooves or channels and means carried by the block for supporting a trough-hanger.



2. An eaves-protector comprising a supporting-block provided with a series of drainage grooves or channels and having an opening for the reception of a trough-hanger.

3. An eaves-protector comprising a supporting-block having a flat base provided with a series of transversely-disposed drainage grooves or channels and an opening for the reception of a trough-hanger.

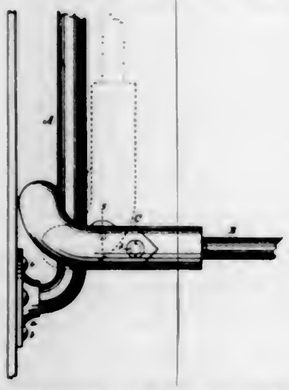
4. An eaves-protector comprising a supporting-block having a flat base portion provided with a series of transversely-disposed drainage grooves or channels, and an enlarged central portion provided with a transversely-disposed opening for the reception of a trough-hanger.

749,420. **METHOD OF MAKING CEREAL MALTED FOOD.** JESSE D. BOURDEAU, Battlecreek, Mich., assignor to Bourdeau Food Company, Limited, Battlecreek, Mich. Filed Mar. 11, 1902. Serial No. 97,758. (No specimens.)

Claim.—1. The process of preparing malted cereal foods which consists in: first, partially malting the grain until the average length of the acrospires is one-half the length of the grain; second, cooking the grain thus partially malted; third, cooling and curing the cooked grain; and fourth, flaking the grain.

2. The process of preparing malted cereal foods which consists in: first, partially malting the grain until the average length of the acrospires is one-half the length of the grains; second, cooking the grain thus partially malted; third, cooling and curing the cooked grain; fourth, flaking the grain; and fifth, baking it.

749,421. **COUPLING FOR AWNING-FRAMES.** AI D. CAMPBELL, Minneapolis, Minn. Filed Nov. 23, 1903. Serial No. 182,404. (No model.)



Claim.—The combination with the stationary and movable portions of an awning-frame, of a coupling, embodying a yoke adapted to embrace the said stationary portion; a union affixed to the said movable portion and adapted to attachment to or detachment from the said yoke, and a roller pivotally affixed in the said union all substantially as shown and for the purposes specified.

749,422. **CLOSURE.** EARLE R. CHAPMAN, Los Angeles, Cal., assignor to the Standard Bottle Closure Company, Los Angeles, Cal., a Corporation of California. Filed Aug. 5, 1902. Renewed Sept. 4, 1903. Serial No. 171,926. (No model.)



Claim.—1. The combination with a vessel having a neck constructed to be engaged of a device having an engaging portion constructed to engage said neck, and to be removed by a tort or rotation of said device whereby the engaging portion of the latter is broken off.

2. The combination with a vessel constructed to be engaged of means having an engaging portion for effecting such engagement and to be broken by the rotation thereof upon the vessel in the operation of opening the latter.

3. The combination with a vessel having recesses in the neck thereof of a device to close the same having breakable portions constructed to engage said recesses when forced into position and to be broken off therein when the device is rotated in the operation to open the vessel.

4. The combination with a vessel having a neck constructed to be engaged and to prevent the introduction of the stopper of a device constructed to engage said neck when forced thereupon and to be removed therefrom by rotation to break off the portion of the device engaging the vessel.

5. The combination with a vessel having a neck constructed to prevent the introduction of the stopper and having external guiding-lugs of a device constructed to be guided into engagement with said neck by said lugs and to be removed therefrom by rotation thereupon to break off that portion of said device in engagement with said neck.

6. The combination with a vessel having recesses in the neck thereof and having internal extensions to prevent the introduction of a stopper of a cap or cover carrying engaging and breakable portions constructed to engage said recesses when the device is in position and to be disconnected from the cap or cover by the rotation thereof upon the vessel.

7. The combination with a vessel having recesses in the neck thereof of a cap or cover therefor and an engaging portion to engage said neck and having breakable connections with said cap or cover.

749,423. **CLOSURE.** EARLE R. CHAPMAN, Los Angeles, Cal., assignor to the Standard Bottle Closure Company, Los Angeles, Cal., a Corporation of California. Filed Aug. 5, 1902. Renewed Sept. 4, 1903. Serial No. 171,928. (No model.)



Claim.—1. The combination with a vessel provided with a neck having engaging portions removably connected therewith of a closure having ribs or lugs to engage said portions when forced therebelow, said closure being constructed to be removed by rotation upon the neck of the vessel to sever a portion of the engaging parts.

2. The combination with a vessel having a recessed neck, an engaging ring or band in said recess and a closure constructed to be forced below said band to close the vessel and to be rotated thereover to open the vessel by severing a portion of the engaging parts.

3. The combination with a vessel having a recessed neck, an engaging ring or band in said recess having breakable engaging fingers and a cap or cover constructed to be forced below the latter to close the vessel and to be rotated to break off said fingers.

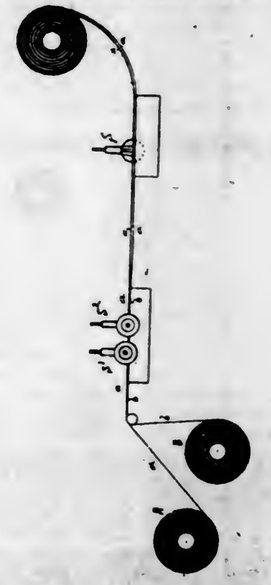
4. The combination with a vessel having a recessed neck, an engaging ring or band in said recess, a cap or cover constructed to be forced below said band to close the vessel and to be rotated thereupon to open the vessel by severing a portion of the engaging parts and ribs or extensions upon the vessel to prevent the introduction of the stopper.

5. The combination with a vessel having a recessed neck, an engaging ring or band in said recess, said neck having external guiding-lugs, a cap or cover having notches to receive said lugs and constructed to be forced below said band to close the vessel.

6. The combination with a vessel having a recessed neck, an engaging ring or band in said recess, said neck having external guiding-lugs, a cap or cover having notches to receive said lugs and constructed to be forced below said band to close the vessel and internal ribs or extensions to prevent the introduction of a stopper.

7. The combination with a vessel having a recessed neck, an engaging band in said recess having breakable projections, a cap or cover having a depending projection carrying a head having ribs to engage and break off said projections when the cap or cover is rotated on the neck of the vessel.

749,424. **MANUFACTURE OF BAGS.** JAMES R. COLLINS, Larchmont, N. Y. Filed Jan. 17, 1903. Serial No. 139,414. (No model.)



Claim.—1. A tube for the manufacture of two-fabric bags, comprising two superposed fabrics stitched together on lines near their edges and also along an intermediate line, the opposite edges of the two-ply fabric meeting and being united there into a tube by stitching, substantially as described.

2. A tube for the manufacture of two-fabric bags, comprising two superposed fabrics with the opposite edges of the two-ply fabric meeting and united there into a tube by stitching, the two fabrics being united to each other also along a line intermediate of the two edges, substantially as described.

3. A tube for the manufacture of two-fabric bags, comprising a web of burlap and a web of cotton both stitched together on lines near their edges and also along an intermediate line and having the opposite edges of the two-ply fabric united into a tube by a line of stitching, substantially as described.

4. The herein-described two-fabric bag, consisting of two fabrics stitched together on lines near their edges and also along an intermediate line, the opposite edges of the two-ply fabric meeting at the side of the bag and being united there into a tube by stitching, substantially as described.

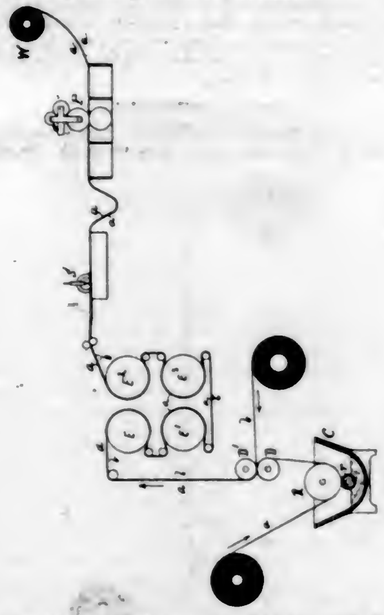
5. The herein-described two-fabric bag, consisting of two fabrics, stitched together on lines near their selvages and also along an intermediate line, the opposite selvages of the two-ply fabric meeting at the side of the bag and being united there into a tube by stitching, substantially as described.

6. The herein-described two-fabric bag, consisting of an outer web of burlap and an inner web of cotton stitched together on lines near their edges and also along an intermediate line, the opposite edges of the united burlap and cotton at the side of the bag being united into a tube by a line of stitching, substantially as described.

749,425. **MANUFACTURE OF BAGS.** JAMES R. COLLINS, Larchmont, N. Y. Filed Jan. 17, 1903. Serial No. 139,415. (No model.)

Claim.—1. A tube for the manufacture of bags, composed of two unstretched materials pasted together, each of said materials consisting solely of textile fabric, the united fabrics being folded lon-

gitudinally with their outer edges meeting at one side and secured together there by stitching, substantially as described.



2. A tube for the manufacture of two-fabric bags, each of said fabrics consisting solely of a web of burlap and a web of cotton, both unstretched and pasted together, the united fabrics being folded longitudinally with their outer edges meeting at one side and secured together there by stitching, substantially as described.

3. A bag made of two unstretched materials, pasted together, each of said materials consisting solely of a textile fabric, the united fabrics being folded over each other along one side of the bag with the edges of both fabrics along the other side of the bag united together by stitching and a closure to one end of the tube, substantially as described.

4. A bag made of two unstretched materials, pasted together, each of said materials consisting solely of a textile fabric, the united fabrics being folded over each other along one side with the selvages united by stitching at the other side of the bag and a closure to one end of the tube, substantially as described.

5. A bag made of an outer web solely of burlap and an inner web solely of cotton, both unstretched and pasted together, the united fabrics being folded over along one side of the bag with the edges of both fabrics stitched together along the other side of the bag and a closure to one end of the tube, substantially as described.

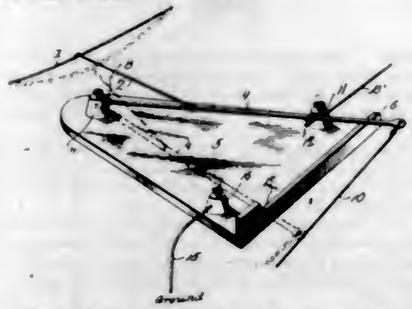
6. A bag made of an outer web solely of burlap and an inner web solely of cotton, both unstretched and pasted together, the united fabrics being folded over along one side of the bag with the selvages along the other side of the bag united together there by stitching and a closure to one end of the tube, substantially as described.

749,426. **LIGHTNING-ARRESTER.** WILLIAM H. COOK, Memphis, Mo. Filed May 23, 1903. Serial No. 159,192. (No model.)

Claim.—1. In a lightning-arrester, a base-plate, a pivoted switch-arm carried by the base-plate and normally held in circuit-closing position by the weight of the current-conducting wire to which it is attached, a binding-post for a local wire, said binding-post having switch-arm-engaging means, a second binding-post for a ground-wire, and means carried by the base-plate for preventing direct contact between said switch-arm and the second binding-post.

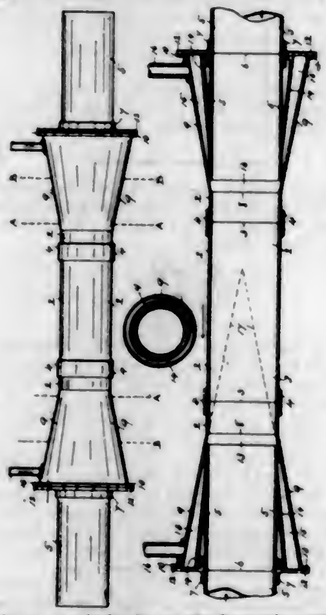
2. In a device of the class specified, a flanged base, a switch-arm carried by the base and having a main-line connection, a local telephone-line having a terminal near one end of the flange and adapted to be engaged by the switch-arm, a ground-line having a terminal adjacent to the opposite end of the flange, and a shoulder or stop arranged adjacent to the ground-line terminal to thereby prevent contact between the latter and the switch-arm.

3. In a device of the class specified, the combination with a flanged base, of a pivotally-mounted switch-arm carried by the base, a flexible switch-operating device connected to said switch-arm, a local telephone-line having a terminal disposed near one end of the flange and normally engaging the switch-arm, a ground-line terminal near the opposite end of the flange, and a stop or shoulder for limiting the movement of the switch-arm in the direction of the ground-line terminal.



4. In a device of the class specified, a flanged base, a post carried thereby, a switch-arm pivoted to the post, binding-posts for the local and ground wires, metal clips carried by one of the binding-posts for engaging the switch-arm, and a shoulder formed on the flange for limiting movement of the switch-arm in the direction of the ground-wire binding-post, and means for normally maintaining the switch-arm in engagement with the clips of the local-wire binding-post.

749,427. **HYDRAULIC PROPELLER FOR VESSELS.** JOB DUDLEY, Hamilton, Canada. Filed July 31, 1903. Serial No. 167,687. (No model.)



Claim.—1. In a hydraulic propeller for vessels, a stationary tube with open ends enlarged and tapering to the tube, a secondary tube with open ends, one said end open to the sea, and the opposite said end inserted in said tapering end of the stationary tube, an annular flange secured to the inner tube and to the enlarged end of the stationary tube, an annular diaphragm between the tubes, to form an outer tapering water-chamber, an annular opening formed at the tapered end of the chamber into the stationary tube, and means to admit pressure-water into said water-chamber, substantially as set forth.

2. In a hydraulic propeller for vessels, a stationary tube having open ends, an annular chamber around a forward part of the tube and tapering toward the stern of the vessel to the tube, an annular diaphragm in the chamber and tapering toward the stern of the vessel, an annular opening formed in the tapered end of the chamber and communicating with the tube, and means to admit pressure-water into said chamber, substantially as set forth.

3. In a hydraulic propeller for vessels, a stationary tube with open ends, enlarged and tapering to flush position with the tube, a secondary tube with open ends, one said end inserted in the tapering end of the stationary tube and the opposite said end submerged in the sea, an annular flange secured to the secondary tube and to the enlarged end of the stationary tube, an annular opening formed between the inserted end of the inserted tube and the stationary tube, an annular flange secured to the inserted tube and to the enlarged end of the stationary tube to form a water-chamber between said tubes, and means to admit pressure-water in the larger part of said chamber, substantially as set forth.

749,428. **MAIL OR LETTER BOX.** PHILIP S. DUNNEBURG and HENRY M. KELLY, San Francisco, Cal. Filed Apr. 29, 1903. Serial No. 154,963. (No model.)



Claim.—1. A letter or mail box embracing a pivoted hood or cover and a guard or valve arranged within said box and having a fixed relation to said hood or cover, said box having an offset projecting inwardly from the inner surface thereof, the lower edge or end of said valve or guard being adapted to engage said offset as said cover or hood is moved to expose the mail or letter receiving slot of said box.

2. A mail or letter box embracing a pivoted hood or cover having pendent lateral portions external of said box, and said pendent portions having fixed thereto a shaft carrying a guard or valve by the actuation of which hood or cover said guard or valve will engage the front wall of said box, and means for automatically returning said hood or cover to its initial position.

3. A mail or letter box having in its upper front portion, a letter or mail receiving slot or opening, a pivoted cover or hood adapted to close said slot or opening and having pendent lateral portions external of said box and fixed to a shaft-bearing in the sides of said box and passing therethrough, a valve or guard fixed to said shaft and having its upper extended edge arranged contiguously to the inner surface of said upper end portion and its lower portion adapted to guard the contents of said closure, and means adapted to hold said lower portion of said valve normally away from the closure front wall and to automatically effect the return of said cover or hood to its initial position, after the release of said cover.

4. A mail or letter box having in its upper front portion, a letter or mail receiving slot or opening, a pivoted cover or hood adapted to close said slot or opening, and having pendent lateral portions external of said box and fixed to a shaft-bearing in the sides of said box and passing therethrough, said box having an offset projecting inwardly from the inner surface thereof, a valve or guard fixed to said shaft and having its upper extended edge arranged contiguously to the inner surface of said upper end portion, and its lower portion adapted to contact with said offset, and means adapted to hold said lower portion of said valve normally away from the closure front wall and to automatically effect the return of said cover or hood to its initial position, after the release of said cover.

5. A mail or letter box embracing a closure having an upper curved end or portion, provided with the letter-receiving slot or opening, a hood or cover conforming to the curvature of said upper end portion and having pendent lateral portions, external of said box and fixed to a shaft-bearing in the sides of said box and passing therethrough, and a valve or guard fixed to said shaft and having its upper edge adapted to move in close proximity with the inner surface of said upper end portion, and its lower portion adapted to guard the contents of said closure, and a spring connected to said valve or guard and to said closure and adapted to hold said lower portion of said valve normally away from the front wall of said closure and to automatically cause said cover or hood to cover the letter-receiving slot after the release of said cover.

749,429. **PAPER-CLIP.** GEORGE R. DUNNEBARR, Edgewood Park, Pa. Filed Sept. 24, 1901. Serial No. 76,360. (No model.)



Claim.—1. A paper-clip formed of a single piece of wire and comprising a loop and gripping-arms that first diverge from the loop and then converge toward and across each other in such manner that the front arm is a continuation of the rear terminal of the loop.

2. A paper-clip comprising a loop and two angular gripping-arms that first diverge from the loop and then converge toward and across each other near their outer ends so that the front arm is an extension of the rear terminal of the loop and the arms exert a gripping action substantially at right angles to the plane of the clip.

3. A wire paper-clip comprising a loop and two arms that cross each other and are bent backward upon themselves to form supplemental arms that cross the main arms, thus providing three gripping-points, the front arm being a continuation of the rear terminal of the loop.
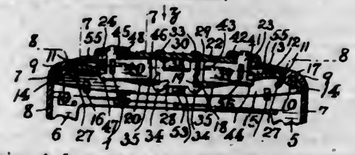
4. A wire paper-clip comprising a loop and two projecting arms that cross each other and are bent backward upon themselves to form supplemental arms which cross the main arms, thus providing three gripping-points.

5. A wire paper-clip comprising a loop and two projecting arms that cross each other and are bent backward upon themselves to form supplemental arms which cross the main arms, thus providing three gripping-points, the free ends of the supplemental arms being bent inward toward each other for locking the clip in position.

6. A wire paper-clip having two gripping-arms severally embodying single return-bends and crossing each other at both sides of said bends thereby providing three gripping-points.

7. A paper-clip formed of a single piece of wire and comprising a loop and gripping-arms that first diverge from the loop, then converge toward and across each other and are then bent backward across each other toward the loop, thus providing three gripping-points.

749,430. **BAG-FASTENER.** BENNO VON EICKEN, Newark, N. J., assignor to Aug. Goertz & Co., Newark, N. J., a Firm. Filed Aug. 13, 1903. Serial No. 169,327. (No model.)



Claim.—1. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, extending across the upper face of the said frame-section, a spring-plate arranged in said open space, said spring-plate being arranged to close the said open space and forming the upper face of said frame-section, and a locking means connected with said spring-plate, substantially as and for the purposes set forth.

2. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side

piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, extending across the upper face of the said frame-section, a spring-plate arranged in said open space, said spring-plate being arranged to close the said open space and forming the upper face of said frame-section, and a locking means comprising, a holding-catch secured to said spring-plate, and a post on the other frame-section provided with a nosing adapted to be brought in holding engagement with a portion of said catch, substantially as and for the purposes set forth.

3. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, extending across the upper face of the said frame-section, a spring-plate arranged in said open space, said spring-plate being arranged to close the said open space and forming the upper face of said frame-section, a holding-catch secured to the said spring-plate, means connected with said catch to limit the movement of said spring-plate, and a post on the other frame-section provided with a nosing adapted to be brought in holding engagement with a portion of said holding-catch, substantially as and for the purposes set forth.

4. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, extending across the upper face of the said frame-section, a locking-device-receiving member arranged beneath the said open space and having its ends secured to the said side pieces, a spring-plate arranged in said open space above the said receiving member, said spring-plate being arranged to close the said open space and forming the upper face of said frame-section, and a locking means connected with said spring-plate and the other frame-section, substantially as and for the purposes set forth.

5. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space and having its ends secured to the said side pieces, a spring-plate arranged in said open space above the said receiving member, and a locking means connected with said spring-plate and the other frame-section, comprising, a holding-catch secured to said spring-plate, and a post on the other frame-section provided with a nosing adapted to be brought in holding engagement with a portion of said catch, substantially as and for the purposes set forth.

6. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space having its ends secured to the said side pieces and provided with an opening 19, a spring-plate arranged in said open space above the said receiving member, a holding-catch secured to said spring-plate and having a portion movably arranged in said opening 19, and a post on the other frame-section provided with a nosing adapted to be brought in holding engagement with a portion of said holding-catch, substantially as and for the purposes set forth.

7. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space having its ends secured to the said side pieces and provided with an opening 19, a spring-plate arranged in said open space above the said receiving member a holding-catch secured to said spring-plate and having a portion movably arranged in said opening 19, a post on the other frame-section provided with a nosing adapted to be brought in holding engagement with a portion of said holding-catch, and means on said holding-catch arranged for engagement with portions of the said receiving member to limit the movement of said spring-plate, substantially as and for the purposes set forth.

8. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a spring-plate arranged in said open space, a locking means for retaining the frame-sections in their closed relation, and means connected with the said spring-plate for preventing the movement of said spring-plate, substantially as and for the purposes set forth.

9. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a spring-plate arranged in said open space, a locking means for retaining the frame-sections in their closed relation, and means connected with the said spring-plate for preventing the movement of said spring-plate, comprising, a pair of slide-bolts, one of said bolts also having a pivotal motion, substantially as and for the purposes set forth.

10. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a spring-plate arranged in said open space, a locking means for retaining the frame-sections in their closed relation, and means connected with the said spring-plate for preventing the movement of said spring-plate, comprising, a pair of slide-bolts, one of said bolts also having a pivotal motion, and a spring-bar 49 having holding portions in holding engagement with said slide-bolts, substantially as and for the purposes set forth.

11. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space having its ends secured to the said side pieces, and provided with openings 18 and 20, a spring-plate arranged in said open space above the said receiving member, a locking means for retaining the frame-sections in their closed relation, and slide-bolts slidably connected with said spring-plate and having portions extending into said openings 18 and 20, substantially as and for the purposes set forth.

12. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space having its ends secured to the said side pieces, and provided with openings 18 and 20, a spring-plate arranged in said open space above the said receiving member, a locking means for retaining the frame-sections in their closed relation, slide-bolts slidably connected with said spring-plate and having portions extending into said openings 18 and 20, and a spring-bar 49 having holding portions in holding engagement with said slide-bolts, substantially as and for the purposes set forth.

13. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a spring-plate arranged in said open space, a locking means for retaining the frame-sections in their closed relation, and means connected with the said spring-plate for preventing the movement of said spring-plate, comprising, a pair of slide-bolts, one of said bolts also having a pivotal motion, substantially as and for the purposes set forth.

14. In a purse or bag frame, the combination, with a pair of frame-sections, of side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the frame-section so as to leave an open space, a locking-device-receiving member arranged beneath the said open space having its ends secured to the said side pieces, and provided with openings 18 and 20, a spring-plate arranged in said open space above the said receiving member, a locking means for retaining the frame-sections in their closed relation, and slide-bolts slidably connected with said spring-plate and having portions extending into said openings 18 and 20, one of said openings, as 20, being made wider at one end than at the other end to allow for a pivotal motion of one of said slide-bolts, substantially as and for the purposes set forth.

15. In a purse or bag frame, the combination, of a frame-section, a receiving member, a spring-plate movably arranged above said receiving member, and a slide-bolt having a portion normally in locked engagement between a portion of said receiving member and said spring-plate to prevent movement of said spring-plate but being capable of withdrawal from such locked engagement, substantially as and for the purposes set forth.

16. In a purse or bag frame, the combination, of a frame-section, a receiving member, a spring-plate movably arranged above said receiving member, and a pivotally and slidably arranged bolt having a portion normally in locked engagement between a portion of said receiving member and said spring-plate to prevent movement of said plate but being capable of withdrawal from such locked engagement, substantially as and for the purposes set forth.

17. The herein-described purse or bag frame, comprising, a pair of frame-sections, side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the said frame-section so as to leave an open space, a locking-device-receiving member arranged beneath said open space having its ends secured to said side pieces and provided with openings 18 and 20, the said opening 20 being wider at one end than at its other end, a spring-plate arranged in said open space above the said receiving member, said spring-plate having openings 23 and 24, the said opening 24 having an enlarged open part 25 and a stop 26, a slide-bolt 39 between said receiving member and said spring-bolt, having its lower edge portion slidably arranged in said opening 18, and a post on said slide-bolt 39 extending through the opening 23 and provided with a finger-piece, a second slide-bolt between said receiving member and said spring-plate, having its lower edge portion slidably arranged in said opening 20, and a post on said slide-bolt 40 extending through the opening 24 and normally in engagement with said stop 26, and a finger-piece on said post, substantially as and for the purposes set forth.

18. The herein-described purse or bag frame, comprising, a pair of frame-sections, side pieces on one of said frame-sections, each side piece terminating near the end portions of the upper part of the said frame-section so as to leave an open space, a locking-device-receiving member arranged beneath said open space and having its ends secured to said side pieces and provided with openings 18 and 20, the said opening 20 being wider at one end than at its other end, a spring-plate arranged in said open space above the said receiving member, said spring-plate having openings 23 and 24, the said opening 24 having an enlarged open part 25 and a stop 26, a slide-bolt 39 between said receiving member and said spring-bolt, having its lower edge portion slidably arranged in said opening 18, and a post on said slide-bolt 39 extending through the opening 23 and provided with a finger-piece, a second slide-bolt between said receiving member and said spring-plate, having its lower edge portion slidably arranged in said opening 20, and a post on said slide-bolt 40 extending through the opening 24 and normally in engagement with said stop 26, and a finger-piece on said post, the said receiving member being also provided with an opening 19, a holding-catch on said spring-plate having a portion movably arranged in said opening 19, and a post on said other frame-section provided with a nosing adapted to be brought in holding engagement with said holding-catch, substantially as and for the purposes set forth.

19. In a purse or bag frame, the combination, with a frame-section, of side pieces connected with said frame-section, each side piece terminating near the end portions of the upper part of the frame-section to form an open space, a locking-device-receiving member arranged beneath said open space, said member being provided with openings 17, and holding-lugs on said side pieces extending through said openings 17 and bent over against the under surface of said receiving member, substantially as and for the purposes set forth.

20. In a purse or bag frame, the combination, with a frame-section, of side pieces connected with said frame-section, each side piece terminating near the end portions of the upper part of the frame-section to form an open space, a locking-device-receiving member arranged beneath said open space, said member being provided with openings 17, and holding-lugs on said side pieces extending through said openings 17 and bent over against the under surface of said receiving member, a spring-plate 22 arranged in the said open space above said receiving member, and holding-lugs 27 on said spring-plate arranged in the openings of said receiving member, substantially as and for the purpose set forth.

749,481. BAG-FASTENER. Benno von Ebers, Newark, N. J., assignor to Aug. Geerts & Co., Newark, N. J., a Firm. Filed Mar. 3, 1903. Serial No. 146,923. (No model.)

Claim.—1. A lock for bag and other frames, comprising a lower lock-casing provided with means for attaching said casing to a frame-section, and an upper member of approximately the same length as the length of the lower lock-casing, said upper member being connected along one of its longitudinal edges in the manner of a hinge to a part of said lock-casing, and a holding mechanism in said lower casing with which a clasp can be brought in holding engagement, substantially as and for the purposes set forth.

2. A lock for bag and other frames, comprising, a lower chambered member, an upper member pivotally arranged upon said lower member, a longitudinal rib 19 on said upper member, said rib being arranged at the side and near the upper edge of said upper member and serving as a lifting means, and a locking mechanism within said lower member adapted to be actuated by the pivotal movement of said upper member, substantially as and for the purposes set forth.



3. A lock for bag and other frames, comprising, a lower chambered member provided with an opening in the top, an upper member pivotally arranged in the manner of a hinge along the one edge of said lower member, a lock mechanism within said lower member, means connected with said upper member and extending through the opening in said lower member in lifting engagement with the lock mechanism for actuating the same during the pivotal movement of said upper member, and a longitudinal rib 19 on said upper member, said rib being arranged at the side and near the upper edge of said upper member and serving as a lifting means, substantially as and for the purposes set forth.

4. A lock for bag and other frames, comprising, a lower chambered member provided with an opening in the top, an upper member pivotally arranged in the manner of a hinge along the one edge of said lower member, a lock mechanism within said lower member, and a post connected with said upper member provided with oppositely-projecting lugs and extending through the opening in said lower member, said lugs being in lifting engagement with the lock mechanism for actuating the same during the pivotal movement of said upper member, substantially as and for the purposes set forth.

5. A lock for bag and other frames, comprising, an upper chambered member provided with an opening in the top, an upper member pivotally arranged in the manner of a hinge along the one edge of said lower member, a lock mechanism within said lower member, a post connected with said upper member provided with oppositely-projecting lugs and extending through the opening in said lower member, said lugs being in lifting engagement with the lock mechanism for actuating the same during the pivotal movement of said upper member, and a projection on said upper member, said projection serving as a lifting means, substantially as and for the purposes set forth.

6. A lock for bag and other frames, comprising a lower lock-casing provided with means for attaching said casing to a frame-section, and an upper member of approximately the same length as the length of the lower lock-casing, said upper member being connected along one of its longitudinal edges in the manner of a hinge to a part of the said lock-casing, and a spring-controlled catch-plate in said lower casing adapted to be actuated by the pivotal movement of said upper member, substantially as and for the purposes set forth.

7. A lock for bag and other frames, comprising a lower lock-casing provided with an opening in the top and with means for attaching said casing to a frame-section, and an upper member of approximately the same length as the length of the lower lock-casing said upper member being connected along one of its longitudinal edges in the manner of a hinge to a part of the said lock-casing, and a spring-controlled catch-plate in said lower casing adapted to be actuated by the pivotal movement of said upper member, said catch-plate being provided with an opening in alinement with the opening in said lock-casing, and means connected with said upper casing and said catch-plate, said means being in lifting engagement with said catch-plate for actuating said catch-plate by the pivotal movement of said upper member, substantially as and for the purposes set forth.

8. A lock for bag and other frames, comprising a lower lock-casing provided with an opening in the top and with means for attaching said casing to a frame-section, and an upper member of approximately the same length as the length of the lower lock-casing, said upper member being connected along one of its longitudinal edges in the manner of a hinge to a part of the said lock-casing, a spring-controlled catch-plate in said lower casing adapted to be actuated by the pivotal movement of said upper member, said catch-plate being provided with an opening in alinement with the opening in said lock-casing, means connected with said upper casing and said catch-plate, said means being in lifting engagement with said catch-plate for actuating said catch-plate by the pivotal movement of said upper member, and a projection on said upper member, said projection extending longitudinally from the side of said member and

serving as a lifting means, substantially as and for the purposes set forth.

9. A lock for bag and other frames, comprising, a lower chambered member provided with an opening in the top, an upper member pivotally arranged in the manner of a hinge along the one edge of said lower member, a spring-controlled catch-plate in said lower member, said catch-plate being provided with an opening in alinement with the opening in said upper member, and a post connected with said upper member provided with oppositely-projecting lugs and extending through the openings in said lower member and said catch-plate for actuating the same during the pivotal movement of said upper member, substantially as and for the purposes set forth.

10. A lock for bag and other frames, comprising, a chambered lock member, a catch-plate in said lock member, a torsional spring connected with said catch-plate, and a securing device 33 connected with the one end portion of said spring and in frictional holding engagement with the chambered lock member, substantially as and for the purposes set forth.

11. A lock for bag and other frames, comprising, a chambered lock member, a catch-plate in said lock member, a torsional spring connected with said catch-plate, and a securing device 33 connected with the one end portion of said spring and in frictional holding engagement with the chambered lock member, consisting, essentially, of a pair of wings, and a clamping-tongue on one of said wings for securing the end portion of said spring to said securing device, substantially as and for the purposes set forth.

12. A lock for bag and other frames, comprising, a lower chambered lock member provided with an opening in the top, an upper member pivotally arranged on said lower member, a catch-plate in said lower member, said catch-plate being provided with an opening in alinement with the opening in said lower member, a torsional spring connected with said catch-plate, a securing device 33 connected with the one end portion of said spring, and in frictional holding engagement with the chambered lock member, and means connected with said upper member and extending through the said openings in said lower member and in said catch-plate, said means being in lifting engagement with said catch-plate for actuating said catch-plate during the pivotal movement of said upper member, substantially as and for the purposes set forth.

13. A lock for bag and other frames, comprising, a lower chambered lock member provided with an opening in the top, an upper member pivotally arranged on said lower member, a catch-plate in said lower member, said catch-plate being provided with an opening in alinement with the opening in said lower member, a torsional spring connected with said catch-plate, a securing device 33 connected with the one end portion of said spring, and in frictional holding engagement with the chambered lock member, consisting, essentially, of a pair of wings, and a clamping-tongue on one of said wings for securing the end portion of said spring to said securing device, and means connected with said upper member and extending through the said openings in said lower member and in said catch-plate, said means being in lifting engagement with said catch-plate for actuating said catch-plate during the pivotal movement of said upper member, substantially as and for the purposes set forth.

14. A lock for bag and other frames, comprising, a lower chambered lock member provided with an opening in the top, an upper member pivotally arranged on said lower member, a catch-plate in said lower member, said catch-plate being provided with an opening in alinement with the opening in said lower member, a torsional spring connected with said catch-plate, a securing device 33 connected with the one end portion of said spring, and in frictional holding engagement with the chambered lock member, a post connected with said upper member provided with oppositely-projecting lugs and extending through the said openings in said lower member and said catch-plate, said lugs being in lifting engagement with the said catch-plate for actuating the same during the pivotal movement of said upper member, substantially as and for the purposes set forth.

15. A lock for bag and other frames, comprising, a lower chambered lock member provided with an opening in the top, an upper member pivotally arranged on said lower member, a catch-plate in said lower member, said catch-plate being provided with an opening in alinement with the opening in said lower member, a torsional spring connected with said catch-plate, a securing device 33 connected with the one end portion of said spring, and in frictional holding engagement with the chambered lock member, consisting, essentially, of a pair of wings, and a clamping-tongue on one of said wings for securing the end portion of said spring to said securing device, and a post connected with the said upper member provided with oppositely-projecting lugs and extending through the said openings in said lower member and said catch-plate, said lugs being in lifting engagement with the said catch-plate for actuating the same during the pivotal movement of said member, substantially as and for the purposes set forth.

16. In a lock for bag and other frames, a lower member, provided with openings 14, and an upper member having pivotal lugs arranged in said openings 14 and clenched over, substantially as and for the purposes set forth.

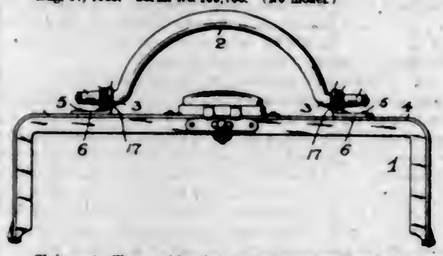
17. In a lock for bag and other frames, a lower member provided with openings 14, and an upper member having pivotal lugs provided with bifurcated end portions arranged in said openings 14 and clenched over, substantially as and for the purposes set forth.

18. In a lock for bag and other frames, the combination, with a lock member, a catch-plate 24 in said lock member, a torsional spring secured at one end to said plate, and the other and free end of said spring extending beyond the said plate, and means connected with the free end of said spring for twisting said spring and securing it in its twisted position in said lock member, substantially as and for the purposes set forth.

19. In a lock for bag and other frames, the combination, with a lock member, a catch-plate 24 in said lock member, a torsional spring secured at one end to said plate, and the other and free end of said spring extending beyond the said plate, and a securing device connected with the free end of said spring for securing said spring in its twisted position in said lock member, substantially as and for the purposes set forth.

20. In lock for bag and other frames, the combination, with a lock member, a catch-plate 24 in said lock member, a torsional spring secured at one end to said plate, and the other and free end of said spring extending beyond the said plate, and a securing device connected with the free end of said spring for securing said spring in its twisted position in said lock member, said securing device, consisting, essentially, of a pair of oppositely-arranged wings, and a clamping-tongue connected with one of said wings for securing the one end portion of said spring to said securing device, substantially as and for the purposes set forth.

749,432. BAG-FRAME HANDLE. BENNO VON RIESS, Newark, N. J., assignor to Aug. Goertz & Co., Newark, N. J., a Firm. Filed Aug. 17, 1903. Serial No. 169,700. (No model.)



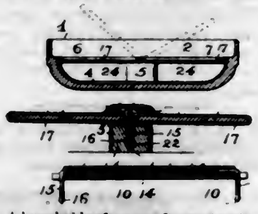
Claim.—1. The combination, with a bag-handle, of a plate and an upwardly-extending post, said post having an opening forming a bearing, and said opening being provided with an annular chamfered portion, means for securing said plate to a bag-frame section, a thimble having an enlarged annular part forming a shoulder, and a reduced cylindrical member rotatively arranged in said bearing, a marginal bead on the free end of said cylindrical member of the thimble, said bead being rotatively fitted within the annular chamfered portion of the bearing of said post, and the enlarged part of said thimble being arranged against the opposite side of said post to prevent the withdrawal of said thimble from said bearing, said thimble being provided with a receiving portion in which the end portion of the handle is arranged, substantially as and for the purposes set forth.

2. The combination, with a bag-handle, of a plate and an upwardly-extending post, said post having an opening forming a bearing, and said opening being provided with an annular chamfered portion, means for securing said plate to a bag-frame section, a thimble having an enlarged annular part forming a shoulder, the said annular part being provided with perforations, and a reduced cylindrical member rotatively arranged in said bearing, a marginal bead on the free end of said cylindrical member of the thimble, said bead being rotatively fitted within the annular chamfered portion of the bearing of said post, and the enlarged part of said thimble being arranged against the opposite side of said post to prevent the withdrawal of said thimble from said bearing, said thimble being provided with a receiving portion in which the end portion of the handle is arranged, and a pin secured in the perforations in said enlarged part of the thimble and in the end portion of the handle, substantially as and for the purposes set forth.

3. The combination, with a bag-frame section, of a plate and a post integrally connected with said plate at the one end thereof, and extending at right angles from said plate, said post being provided with a bearing, means for securing said plate upon said bag-frame section, a shouldered thimble arranged to oscillate in said bearing, and means for preventing the withdrawal of said thimble from said bearing, substantially as and for the purposes set forth.

4. The combination, with a bag-frame section, of a plate and a post integrally connected with said plate at the one end thereof, and extending at right angles from said plate, said post being provided with a bearing, means for securing said plate upon said bag-frame section, a thimble having an enlarged annular part forming a shoulder, and a reduced cylindrical member rotatively arranged in said bearing, a marginal bead at the free end of said cylindrical member of the thimble, the said annular shoulder and the marginal bead of said thimble being arranged against and oscillating upon the opposite sides of said post, to prevent the withdrawal of said thimble from said bearing, substantially as and for the purposes set forth.

749,433. BOW-HOLDER FOR CASES FOR MUSICAL INSTRUMENTS. FREDERICK A. FAULHABER, Newark, N. J. Filed Feb. 27, 1903. Serial No. 145,436. (No model.)



Claim.—1. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a wing, and a hinge connection between said block and wing, consisting, essentially, of a pair of hinge-plates having perforated ears, and a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, said end members being arranged and secured in said sockets, substantially as and for the purposes set forth.

2. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a wing, and a hinge connection between said block and wing, consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, said end members being arranged and secured in said sockets, and a spring surrounding a portion of said pintle, said spring having its free end portions resting upon the respective hinge-plates, substantially as and for the purposes set forth.

3. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a wing, and a hinge connection between said block and wing, consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, and a cementitious mass in the said sockets of said block in which said end members are arranged and held, substantially as and for the purposes set forth.

4. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a wing, and a hinge connection between said block and wing, consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, a cementitious mass in the sockets of said block in which said end members are arranged and held, and a spring surrounding a portion of said pintle, said spring having its free end portions resting upon the respective hinge-plates, substantially as and for the purposes set forth.

5. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a pair of oppositely-extending wings, and a hinge connection for pivotally securing said wings upon said block

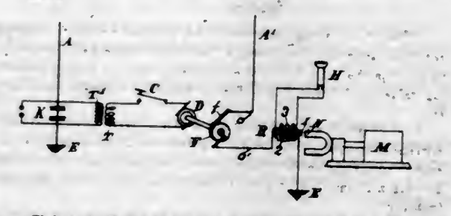
said hinge connection consisting, essentially, of a pair of hinge-plates having perforated ears, and a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, said end members being arranged and secured in said sockets of the block, substantially as and for the purposes set forth.

6. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a pair of oppositely-extending wings, and a hinge connection for pivotally securing said wings upon said block, said hinge connection consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, said end members being arranged and secured in said sockets of the block, and a spring surrounding a portion of said pintle, said spring having its free end portions resting upon the respective hinge-plates, substantially as and for the purposes set forth.

7. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a pair of oppositely-extending wings, and a hinge connection for pivotally securing said wings upon said block, said hinge connection consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, and a cementitious mass in the sockets of said block in which said end members are arranged, substantially as and for the purposes set forth.

8. A bow-holder for cases for musical instruments, comprising, a block adapted to be secured to a portion of such case, said block being provided with sockets, a pair of oppositely-extending wings, and a hinge connection for pivotally securing said wings upon said block, said hinge connection consisting, essentially, of a pair of hinge-plates having perforated ears, a pintle in said ears comprising a main body, and a pair of end members extending at angles from said body, a cementitious mass in the sockets of said block in which said end members are arranged and held, and a spring surrounding a portion of said pintle, said spring having its free end portions resting upon the respective hinge-plates, substantially as and for the purposes set forth.

749,434. WIRELESS SIGNALING APPARATUS. LEE DE FOREST, New York, N. Y. Filed June 4, 1903. Serial No. 160,026. (No model.)



Claim.—1. In a wireless signaling apparatus the combination with a transmitting and a receiving apparatus at the same station, of means controlled by the spark-determining member of the transmitting apparatus to cut the indicating member of the receiving apparatus out of the circuit during the time of each spark in the transmitting apparatus.

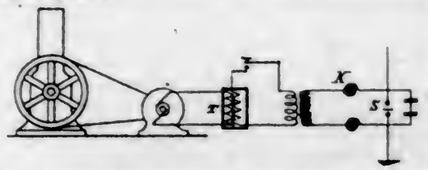
2. In a wireless signaling apparatus the combination with a transmitting and a receiving apparatus at the same station, of means automatically controlled by the spark-producing mechanism of the transmitting apparatus to cut off the local indicating instrument of the receiving apparatus during the time of each spark.

3. In a wireless signaling apparatus the combination with a transmitting and a receiving apparatus at the same station, of means for automatically cutting out the indicating device during the time of each spark of the transmitting apparatus.

4. In a wireless signaling apparatus the combination with a transmitting apparatus containing a spark-producing device and a receiving apparatus, of a switch adapted to cut off the receiving apparatus from the receiving-conductor, and means controlled by the spark-producing device for operating said switch at each instant of sparking and for reestablishing connection of the receiver with the receiving-conductor at other times.

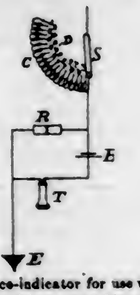
749,435. GENERATING SET FOR WIRELESS TELEGRAPHY. LEE DE FOREST, New York, N. Y. Filed June 19, 1903. Serial No. 161,889. (No model.)

Claim.—1. A transmitting set for wireless telegraphy comprising an explosive engine, a dynamo driven thereby, a unitary or choke transformer receiving the current from said dynamo, a step-up transformer receiving the current delivered by the choke-transformer, a sparking-circuit receiving the current delivered by the step-up transformer, and a radiating-conductor and earth connected with said sparking-circuit.



2. A transmitting set for wireless telegraphy comprising an explosive-engine, a dynamo driven thereby, a unitary or choke transformer receiving the current from said dynamo, a step-up transformer receiving the current delivered by the choke-transformer, an oscillatory circuit containing the secondary of the step-up transformer and a spark-gap, an antenna and a ground connected with said oscillatory circuit, and means for controlling the energy to produce signals.

749,436. **WIRELESS-TELEGRAPH RANGE-FINDER.** LEE DE FOREST, New York, N. Y. Filed June 17, 1903. Serial No. 161,890. (No model.)



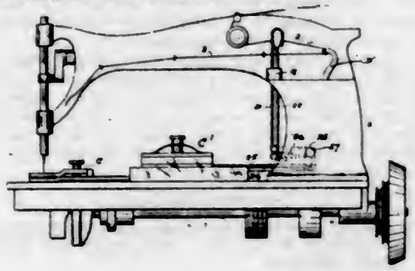
Claim.—1. A distance-indicator for use with wireless-telegraph receiving apparatus, comprising a variable resistance adapted to be inserted in the circuit with the indicating device in quantities having values proportioned to different distances of a transmitter therefrom.

2. A distance-indicator for use with a receiving apparatus in wireless telegraphy, comprising a variable resistance adapted to be employed to counteract the aerially-received impulses and in amounts bearing a definite ratio to the distance and power of a standard transmitter.

3. The combination with a receiving apparatus for wireless telegraphy, of a range-finder comprising means for inserting a resistance variable in amount in series with the wave-responsive device, and a scale indicating the amount of such resistance being used.

4. The combination with a receiving apparatus for wireless telegraphy, of a rheostat and means for cutting the same into the aerial circuit between the antenna and the wave-responsive device.

749,437. **BUTTONHOLE-SEWING MACHINE.** WILLIAM E. GOODYEAR, London, England, assignor to Wilcox and Gibbs Sewing Machine Company, New York, N. Y., a Corporation of New York. Filed Aug. 7, 1903. Serial No. 168,677. (No model.)



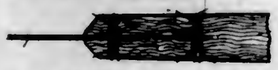
Claim.—1. A buttonhole-sewing machine, provided with stitch-forming mechanism having an upper and an under thread carrying element, means for changing the relative positions of the stitch-forming mechanism and the work at successive stitches, take-up mechanism for the upper thread and means for causing said take-up mechanism to produce at the successive stitches alternately long and short take-ups of the upper thread and thereby draw alternately long and short loops of the under thread to form the purl at the throat of the buttonhole.

2. A buttonhole-sewing machine, provided with stitch-forming mechanism having an upper and an under thread carrying element and provided with a regular take-up for the upper thread and an auxiliary take-up, in combination with means to cause the auxiliary take-up to act at every second stitch, as and for the purpose set forth.

3. A buttonhole-sewing machine, provided with stitch-forming mechanism having an upper and an under thread carrying element, means for changing the relative positions of the stitch-forming mechanism and the work at successive stitches, take-up mechanism for the upper thread and means for causing said take-up mechanism to produce at the successive stitches alternately long and short take-up of the upper thread and thereby draw alternately long and short loops of the under thread to form the purl at the throat of the buttonhole, in combination with means for changing the time of the take-up on reversing the direction of the feed of the work.

4. A buttonhole-sewing machine, provided with stitch-forming mechanism having an upper and an under thread carrying element and provided with a regular take-up for the upper thread and an auxiliary take-up, in combination with means to cause the auxiliary take-up to act at every second stitch, and means for changing the time of action of the auxiliary take-up on reversing the direction of feed of the work.

749,438. **RIVET.** CHARLES D. HARRINGTON, Southbridge, Mass., assignor to Harrington Cutlery Company, Southbridge, Mass. Filed May 18, 1903. Serial No. 157,511. (No model.)



Claim.—1. A rivet made in two parts, each part having a solid integral head or enlarged end, and one part having a solid post extending from the head, the other part having a hollow post of substantially uniform diameter throughout extending from its head, both the solid post and the hollow post being adapted to penetrate the material through which the rivet is to pass, and said solid post being of a larger diameter than the internal diameter of the tubular post to thereby enable the solid post to be forced into the tubular post to varying distances and to permanently expand the tubular post when it is forced therein, substantially as described.

2. A rivet made in two parts, each part having a solid head or enlarged end, one part having a solid post extending from the head and provided with a tapering end, said post having also an enlargement under the head, and the other part having a hollow post of substantially uniform diameter throughout, both the solid post and the hollow post being adapted to penetrate the material through which the rivet is to pass, said solid post being of a larger diameter than the internal diameter of the tubular post thereby enabling the solid post to be forced into the tubular post to varying distances according to the length of rivet required and to permanently expand the tubular post when it is forced therein.

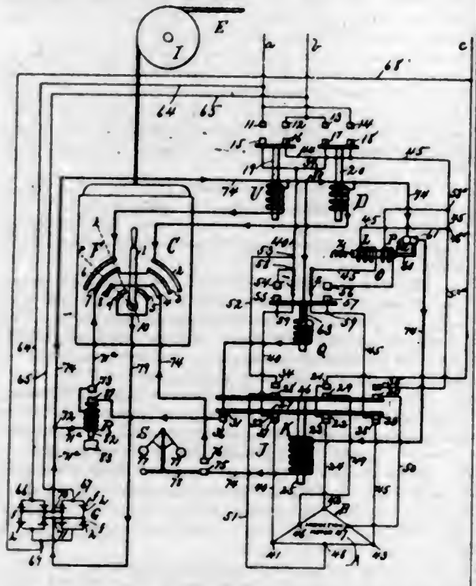
749,439. **ELECTRICAL CONTROLLING APPARATUS.** JOHN D. ISLDER, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Mar. 22, 1902. Serial No. 99,541. (No model.)

Claim.—1. The combination of an alternating-current motor and means for automatically changing the speed of the same from slow to fast and from fast to slow during its operation, substantially as described.

2. The combination of an alternating-current motor, automatic means for changing the speed of the same from slow to fast after starting and automatic means for changing the speed from fast to slow before stopping, substantially as described.

3. The combination of an alternating-current motor, means for starting and stopping the same, and means controlled by said starting and stopping means for reducing the speed of the motor before stopping, substantially as described.

4. The combination of an alternating-current motor, means for starting and stopping the same and means controlled by said starting and stopping means for automatically starting the motor at a slow rate of speed, then increasing its speed to full speed, and for automatically reducing the speed of the motor again before stopping, substantially as described.



5. The combination of an alternating-current motor, means for starting the same at a slow rate of speed, automatic means for increasing the speed to full speed after the motor has started at slow speed, and means for automatically reducing the speed of the motor to slow speed again before stopping, substantially as described.

6. The combination of an alternating-current motor, means for starting, stopping and reversing the motor, and automatic means for changing its speed from slow to fast on starting, substantially as described.

7. The combination of an alternating-current motor, means for starting, stopping and reversing the motor, automatic means for changing from slow to fast on starting and automatic means for changing back to slow speed before stopping, substantially as described.

8. The combination of an induction-motor, means for starting, stopping and reversing the motor, automatic means for changing its speed from slow to fast on starting, and automatic means for changing back to slow speed before stopping, substantially as described.

9. The combination with an induction-motor of automatic means for changing its speed from slow to fast on starting and automatic means for changing back to slow speed before stopping, substantially as described.

10. The combination of an alternating-current motor, a manual switch for controlling the starting and stopping of the motor, automatic switches controlling the reversing of the motor, and automatic means for changing the speed of the motor from slow to fast on starting and from fast to slow on stopping, substantially as described.

11. The combination of an induction-motor and means for admitting current to the stator on starting, first through resistance, whereby the main current is reduced, and other means for then admitting the full current to the stator, substantially as described.

12. The combination of an induction-motor, means for starting the same with a given number of poles in the stator, means for thereafter decreasing said number of poles, thereby increasing the speed of the motor, means for again increasing the number of poles of the stator before stopping, whereby the rate of speed of the motor is reduced and means for causing such reduction of speed rate to take place gradually, substantially as described.

13. The combination of an induction-motor, means for starting and stopping the same, and automatic means for decreasing the number of poles of the stator after starting and for again increasing the said number of poles before stopping, substantially as described.

14. The combination of an induction-motor, a brake therefor and means for admitting a small current to the stator of said motor before raising the brake, substantially as described.

15. The combination of an induction-motor, a brake therefor and means for raising the brake before admitting maximum current to the stator, substantially as described.

16. The combination of an alternating-current motor, circuits and connections therefor, whereby the rate of speed of the same may be changed from slow to fast and from fast to slow, said circuits and connections being controlled by an electromagnetic switch, and automatic means for actuating said switch at a predetermined time in the operation of the motor, substantially as described.

17. The combination of an alternating-current motor, means for changing the speed of the same controlled by an electromagnetic switch, and means for actuating said switch at a predetermined time in the operation of the motor, substantially as described.

18. The combination of an alternating-current motor and electromagnetically-controlled means for changing the speed of the same by changing the number of field-poles of the motor, substantially as described.

19. The combination of an alternating-current motor, a switch controlling the speed rate of the same by varying the number of field-poles of the motor, and automatic means for actuating said switch, substantially as described.

20. The combination of an alternating-current motor, a brake therefor, means for admitting small current to the motor before raising the brake, means for starting the motor and running the same at a slow rate of speed and means actuated after the motor has attained said slow rate of speed, whereby the speed of the motor is changed to fast speed, substantially as described.

21. The combination of an alternating-current motor, means for starting the same at a slow speed and means operative after the motor has attained said slow speed for increasing the speed of the motor, substantially as described.

22. The combination of an alternating-current motor, means for starting the motor and bringing the same up to a slow rate of speed, and means operative after the current in the motor has reduced to normal current for said slow speed, for increasing the speed of the motor, substantially as described.

23. The combination of an alternating-current motor, means for starting the same at a slow rate of speed, and means operative after the current in the motor has reached normal running current for said slow rate of speed, for changing said speed, substantially as described.

24. The combination of an alternating-current motor and automatic means for changing the speed of the same after starting when the current has reduced to normal running current, substantially as described.

25. The combination of an induction-motor and means for changing the speed of the same after starting when the current has reduced to normal running current, substantially as described.

26. The combination of an alternating-current motor and automatic means for changing the rate of speed of the same at a predetermined time after starting, substantially as described.

27. The combination of an induction-motor and automatic means for changing the speed of the same at a predetermined time after starting, substantially as described.

28. The combination of an alternating-current motor, means for starting the same and bringing it up to a uniform slow speed, and means operative when approximately full slow speed has been attained for changing the speed of the motor, substantially as described.

29. The combination of an induction-motor, means for starting the same at a slow rate of speed and means operative when approximately full slow speed has been reached for increasing the speed of the motor to full speed, substantially as described.

30. The combination of an alternating-current motor and automatic means for changing the speed of the motor from slow to fast when approximately full slow speed has been attained after starting, substantially as described.

31. The combination of an induction-motor, means for changing the speed of the same from slow to fast when approximately full slow speed has been reached, and means for automatically changing from fast to slow speed before stopping, substantially as described.

32. The combination of an alternating-current motor, a switch for changing its number of field-poles, an electromagnet controlling said switch, and means for controlling said magnet consisting of a doubly-wound electromagnet, one winding of which opens the circuit of said electromagnet controlling said switch, while the other winding maintains said circuit open for a given time after starting, substantially as described.

33. The combination of an alternating-current motor, a switch for changing its number of poles, an electromagnet for controlling

said switch, and means for controlling said magnet consisting of a doubly-wound electromagnet one winding of which opens the circuit of said electromagnet controlling said switch, while the other winding maintains said circuit open until the motor has reached approximately full slow speed after starting, substantially as described.

34. The combination of an alternating-current motor, an electromagnetic switch for changing the speed of the motor, a governor controlling contacts in the circuit of said switch for closing said circuit when the motor has reached approximately full slow speed, and means in the circuit of said switch for deenergizing the same, substantially as described.

35. The combination of an electric motor, an electromagnetic switch for changing the speed of the motor, a governor controlling the circuit of said switch for closing said circuit when the motor has reached approximately full slow speed, and means in the circuit of said switch for deenergizing the same, substantially as described.

36. The combination of an alternating-current motor, an electromagnetic switch for changing the speed of the motor from slow to fast, and from fast to slow, a governor controlling contacts in the circuit of said switch for closing said circuit when the motor has attained approximately full slow speed, whereby the speed is changed from slow to fast and means in the circuit of said switch for deenergizing the same and changing from fast to slow speed, substantially as described.

37. The combination of an alternating-current motor, means for starting and stopping the same, means for introducing resistance into the circuit of the motor, and means for removing it again before stopping, substantially as described.

38. The combination of an alternating-current motor, circuits and connections for changing from fast to slow speed, means for completing the slow-speed connections through resistance when changing from fast to slow speed, and means for thereafter removing said resistance from the slow-speed connections, substantially as described.

39. The combination of an alternating-current motor, means for starting and stopping the motor and circuits and connections for changing the speed, means for admitting a small current to the motor through resistance included in the slow-speed connections on starting and for then cutting said resistance out of circuit, means for changing from the slow to the fast speed connections and means for again completing the slow-speed connections first through said resistance when changing from fast to slow speed and means for thereafter cutting said resistance out of circuit, substantially as described.

40. In an elevator, the combination of a car, an alternating-current motor, means for starting and stopping the motor and automatic means for starting the car slowly for increasing to full speed and for reducing the speed of the car again before stopping, substantially as described.

41. In an elevator, the combination of a car, an alternating-current motor, means for starting and stopping the car, means controlled by said starting and stopping, means for automatically starting the motor slowly then increasing its speed to full speed and for automatically reducing the speed of the motor again before stopping, substantially as described.

42. In an elevator, the combination of a car, an alternating-current motor, manual switches on the car controlling the starting and stopping of the motor, automatic switches controlling the reversing of the motor, and automatic means for changing the speed of the motor from slow to fast on starting, and from fast to slow on stopping, substantially as described.

43. In an elevator, the combination of a car, a motor, a brake and means controlled from the car for admitting a small current to the motor for a given time, the length of such time being controlled by the operation of the brake, substantially as described.

44. The combination of an alternating-current motor, a brake and a magnet for said brake, means for admitting a weak current for an appreciable length of time for the motor on starting, and means controlled by said brake-magnet for admitting full current to the motor, substantially as described.

45. The combination of an alternating-current motor, a brake, means for admitting small current to the motor at first, and means controlled by the lifting of the brake for admitting full current to the motor, substantially as described.

46. In an elevator, the combination of a car, a motor, a brake and means controlled by the brake for admitting current to the motor, substantially as described.

47. The combination of an alternating-current motor, a brake, and means controlled by the brake for admitting current to the motor, substantially as described.

48. In an elevator, the combination with a car and an alternating-current motor, of motor-controlling means connected to change from fast to slow speed, and other means for causing said change to take place gradually, thereby preventing a sudden change of speed, substantially as described.

49. In an elevator, the combination with a car and an alternating-current motor, means for starting the motor at a slow rate of speed, and motor-controlling means connected to thereafter change such speed rate to fast, and connections for returning to said slow rate of speed gradually before stopping, substantially as described.

50. In an elevator, the combination of a car, an alternating-current motor, circuits and connections whereby the rate of speed of the motor may be changed from slow to fast and from fast to slow, said circuits and connections being controlled by an electromagnetic switch and automatic means for actuating said switch at predetermined points in the traverse of the car, substantially as described.

51. In an elevator, the combination of a car, an alternating-current motor, means for changing the speed of the motor controlled by an electromagnetic switch and means for actuating said switch at a predetermined point in the traverse of the car, substantially as described.

52. In an elevator, the combination of a car, an alternating-current motor, a brake, means for admitting small current to the motor before raising the brake, means for starting the motor and running the same at a slow rate of speed and means actuated after the motor has attained said slow rate of speed for changing the speed to full speed, substantially as described.

53. In an elevator, the combination of a car, an alternating-current motor and automatic means for changing the speed of the car after starting when the current in the motor has reduced to normal slow-speed-running current, substantially as described.

54. In an elevator, the combination of a car, an alternating-current motor, means for starting the motor and bringing it up to a uniform slow speed and means automatically operative when approximately full slow speed has been attained, for changing the speed of the car, substantially as described.

55. In an elevator, the combination of a car, an alternating-current motor and means automatically operative when a predetermined motor speed has been attained for changing the speed of the car, substantially as described.

56. In an elevator, the combination of a car and an alternating-current motor and automatic means for increasing the speed of the car when a given motor speed has been attained, substantially as described.

57. In an elevator, the combination of a car, an alternating-current motor and automatic means for changing the speed of the car from slow to fast when the motor has attained approximately full slow speed after starting, substantially as described.

58. In an elevator, the combination of a car, an alternating-current motor, means governed by the speed of the motor for increasing the speed of the car after starting and means for reducing the speed of the car before stopping, substantially as described.

59. In an elevator, the combination of a car, an alternating-current motor and means for increasing the rate of speed of the car after starting and for reducing its speed rate before stopping, substantially as described.

60. The combination of an alternating-current motor and means for changing the speed of the same controlled by rectified current, substantially as described.

61. The combination with a motor of circuits and apparatus for changing the speed of the same and means for supplying rectified current to actuate the said apparatus, substantially as described.

62. The combination with a motor of apparatus for varying the speed of the same, controlling-circuits for said apparatus and means for supplying rectified current to said circuits, substantially as described.

63. The combination of a motor, means for starting and stopping the same included in a circuit suitably energized by rectified currents, an electromagnetic switch for reversing the motor actuated by rectified currents and means for controlling the speed of the motor actuated by rectified current, substantially as described.

64. The combination of a motor, a brake actuated by rectified currents and means controlled by the brake for changing the speed of the motor, substantially as described.

65. The combination of a motor and circuits and connections for controlling said motor, including therein a brake-magnet, reversing-switch, starting-switch and speed-controlling magnets and means for supplying rectified current to said circuits, substantially as described.

66. In an elevator, the combination of a motor-car and stations, circuits and connections connected to the stations and motor for controlling the operation of the motor, means for supplying rectified current to said circuits and means included in said circuits and connections for controlling the speed of the motor, substantially as described.

67. The combination of a motor-car and stations, a floor-controller and circuits and connections including the motor and floor-controller for controlling the motor, and means for supplying rectified current to said circuits, substantially as described.

68. In an elevator, the combination of a motor-car and stations, a floor-controller, circuits and connections including the motor and floor-controller, and means for supplying rectified current to said circuits, substantially as described.

69. The combination of a motor-car and stations, means for controlling the car from the stations, circuits and connections for changing the speed of the motor and means for supplying rectified current to said circuits, substantially as described.

70. The combination of a motor-car and stations, means for controlling the car from the car, circuits and connections for changing the speed of the motor and means for supplying rectifying-current to said circuits, substantially as described.

71. The combination of a motor-car and stations, means for controlling the car from both the car and stations, circuits and connections for changing the speed of the motor and means for supplying rectified current to said circuits, substantially as described.

72. The combination of an alternating-current motor, a car and stations, means for setting the motor in operation whereby the car is moved to a particular station and there automatically stopped, and automatic means whereby the rate of speed of the car is increased from slow to fast on starting and again reduced to slow speed before stopping, substantially as described.

73. The combination of an alternating-current motor, a car and stations, means whereby the car may be called and automatically stopped at a desired station, and automatic means for changing the speed of the car from fast to slow before stopping, substantially as described.

74. The combination of a car, an alternating-current motor, floors or stations, and a floor-controller for determining both the travel of the car and changes in speed of the motor, substantially as described.

75. In an elevator, the combination of a car and alternating-current motor, a floor-controller and connections controlled by the floor-controller whereby the car is reduced in speed before being stopped, substantially as described.

76. In an elevator, the combination of a car, an alternating-current motor, a floor-controller and circuits and connections controlled by the floor-controller for changing the speed of the car and for stopping the same, substantially as described.

77. In an elevator, the combination of an alternating-current motor, a car and a floor-controller arranged to determine the direction of movement of the car, its extent of travel and the speed of the motor, substantially as described.

78. In an elevator, the combination of an alternating-current motor, a car, a floor-controller, circuits and connections including the floor-controller and the motor for changing the speed of the motor, and a governor controlling said connections, substantially as described.

79. In an elevator, the combination of an alternating-current motor, a car, a floor-controller, circuits and connections including the floor-controller and a motor for changing the speed of the motor and means dependent upon the speed of the motor for operation whereby said connections are controlled, substantially as described.

80. The combination of an alternating-current motor, means for admitting a small current to the motor at first through resistance, a pole-changing switch and contacts controlled by said switch for controlling the current admitted to the motor, substantially as described.

81. The combination of an alternating-current motor, slow and fast speed connections for the motor, and a switch controlling the same, means for first admitting small current through resistance to the slow-speed connections and for then admitting full current through said connections, and means controlled by said switch for including said resistance in the slow-speed connections after having changed to the high-speed connections, substantially as described.

82. The combination of an alternating-current motor, slow and fast speed connections therefor, a switch controlling the same, means for first admitting current through resistance to the slow-speed connections and for cutting out said resistance before changing to the high-speed connections, and means controlled by said switch for again including said resistance in the slow-speed connections after changing to high speed, substantially as described.

83. The combination of an alternating-current motor, and an automatic switch for changing from slow to high speed connections when full slow speed has been reached, substantially as described.

84. The combination of an alternating-current motor and an automatic switch for changing from slow to high speed connections and back again, substantially as described.

85. The combination of an alternating-current motor and a switch automatically actuated for changing from slow to high speed connections and back again, substantially as described.

86. In an elevator the combination of a car, an alternating-current motor and automatically-actuated means for changing from slow to high speed connections and back again during the travel of the car, substantially as described.

87. In an elevator, the combination with an alternating-current motor of a car and stations, alternating-current-controlling circuit for the car and stations, switches in said circuit for controlling the motor, and a rectified-current circuit including the car and stations, each of said circuits controlling the other, substantially as described.

88. The combination of a motor and alternating-current and rectified-current controlling circuits therefor, each of which circuits controls the other, substantially as described.

89. The combination of a motor, a floor-controller, a rectified-current circuit including the floor-controller, and an alternating-current circuit connected to the car and stations, substantially as described.

90. The combination of a motor-car and a station, motor-controlling devices connected to the car and station, a brake and means for raising the brake before admitting maximum current to the motor, substantially as described.

91. The combination of a motor-car and a station, motor-controlling devices connected to the car, a brake and means for raising the brake before admitting maximum current to the motor, substantially as described.

92. The combination of a motor-car and a station, motor-controlling devices connected to the station, a brake and means for raising the brake before admitting maximum current to the motor, substantially as described.

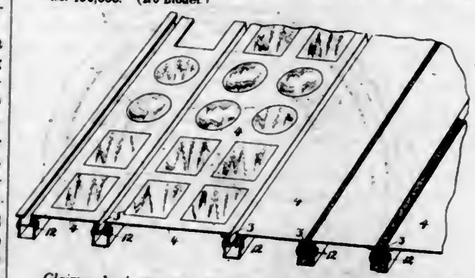
93. In an elevator, the combination of a motor, a car, floors and stations, means for supplying rectified current to the controlling-circuits of the motor and a floor-controller and speed-changing switch included in said rectified-current-controlling circuit, substantially as described.

94. The combination of an alternating-current motor, apparatus for reducing the speed of the motor before stopping, circuits controlling said apparatus, and means for supplying rectified current to said circuits, substantially as described.

95. The combination of an alternating-current motor, apparatus for changing the speed of the motor from slow to fast and from fast to slow, circuits controlling said apparatus, and means for supplying rectified current to said circuits, substantially as described.

749,440. FLOOR, SIDEWALK, ROOF, OR LIKE SUPPORT.

PETER H. JACKSON, San Francisco, Cal. Filed May 13, 1903. Serial No. 156,888. (No model.)



Claim.—1. A structure for floors, roofs, sidewalks and the like consisting of straight channeled, trough-shaped bearers closed at the bottom, open at the top and having a filling of cement mixture, said bearers having the upper edges bent or folded and approximately at right angles with the sides to resist the compressive strain and tendency to buckle, and filled with cement mixture.

2. A surface for floors, roofs, sidewalks and the like consisting of sheet metal bent into the form of a channel with closed bottom and upwardly-extended sides, said sides having the upper edges bent or folded with relation thereto to resist compressive force, a filling of cement within the troughs thus formed and transverse plates con-

necting said bearers and forming a support for illuminating-surfaces which are fixed thereon.

3. A surface for floors, roofs, sidewalks and the like consisting of sheet metal bent into the form of a channel with closed bottom and upwardly-extended sides, said sides having the upper edges bent or folded with relation thereto to resist compressive force, a filling of cement within the troughs thus formed, transverse plates connecting said bearers and forming a support for illuminating-surfaces which are fixed thereon, said plates having their edges turned downwardly and embedded in the cement within the troughs and forming a substantially level surface with the body of cement exposed between the contiguous edges of the plates.

4. A floor sidewalk or like surface consisting of channeled bearers closed at the bottom having the upper edges bent or folded at the top to resist compressive force, and a filling of cement, transversely-disposed plates extending between adjacent bearers having their edges bent and adapted to enter the cement filling of the bearers and to interlock therewith and form a substantially level continuous surface, and lighting-surfaces or lenses fixed in said plates between the bearers.

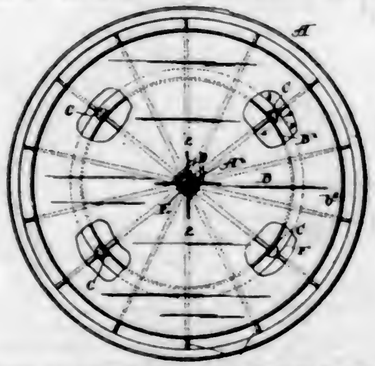
5. A sidewalk, floor or roof lighting structure consisting of channeled bearers open at the top and having a filling of cement, transverse bars or plates connecting said bearers and forming supports for lighting-surfaces or lenses, said bearers having bolt or strap connections between their sides whereby they are prevented from spreading and becoming disengaged from the cement filling.

6. A sidewalk, floor and roof construction consisting of channeled bearers formed of sheet metal with close bottoms and open tops and a filling of cement, said bearers having the upper edges folded or corrugated to resist compressing strains, and bolts or straps by which opposite sides are connected together, and transversely-disposed plates or beams having downturned folds and extending between adjacent bearers, said downwardly-extending folds entering and being fixed by the cement contained in the channel-bearers said plates having openings adapted to receive and support the illuminating tiles or lenses substantially as described.

7. A floor, roof and sidewalk structure consisting of channeled trough-shaped bearers closed at the bottom and open at the top, with a filling of cement mixture, connecting-plates forming a top therefor having their meeting edges in line above the channels, slotted angle-iron outer supports through which the bearers extend and act as water-conductors.

8. A floor roof or sidewalk structure consisting of straight channeled bearers formed of sheet metal with closed bottom and open tops, said bearers having bent or folded upper edges to resist compression, and strips or bars 10 fixed vertically between the sides of the bearers, a filling of concrete within which said bars are embedded and flat plates or bars extending transversely between the bearers, said plates having their edges turned downwardly at right angles and embedded in the cement or concrete filling of the bearers.

749,441. ADVERTISING-DISPLAY DEVICE. DORA JONES, Chicago, Ill. Filed Jan. 30, 1903. Serial No. 141,117. (No model.)



Claim.—1. An advertising-display device for vehicle-wheels comprising a sign-body provided with a central opening through which is designed to extend the wheel-hub, means for connecting the sign-body with the wheel-axle, and roller-bearings for said sign-body located between said central opening and the margin of the sign-body and having parts adapted to be supported on the wheel, said roller-bearings serving to prevent lateral vibration of the outer part of the sign-body.

2. An advertising-display device for vehicle-wheels comprising a sign-body provided with a central opening through which is designed to extend the wheel-hub, means for connecting the sign-body with the wheel-axle, a circular track on the inner face of said sign-body between said central opening and the outer margin thereof, and roller-bearings adapted to engage said track and to be supported on the wheel.

3. An advertising-display device for a vehicle-wheel comprising a sign-body, a frame for connecting the body with the vehicle-axle comprising bars extending at their inner ends through said sign-body, cotter-pins extending through apertures in the inner ends of said bars inside said sign-body, said bars extending laterally outwardly from said body and means for attaching the outer ends of said bars to the wheel-axle.

4. An advertising-display device for a vehicle-wheel comprising a sign-body, means for connecting the sign with the wheel-axle, a circular grooved track attached to the inner face of said sign-body, and roller-bearings adapted to engage said track and to be supported on the wheel.

5. An advertising-display device for vehicle-wheels comprising a sign-body provided with a central opening through which is designed to extend the wheel-hub, a circular track extending laterally inwardly from the inner face of said sign-body between said central opening and the margin thereof, roller-bearings engaging said track and adapted to be supported on the wheel, and means for preventing rotation of the sign-body.

6. An advertising-display device for vehicle-wheels comprising a sign-body provided with a central opening through which the wheel-hub is designed to extend, a circular grooved track extending laterally inwardly from the inner face of the sign-body between said central opening and the margin thereof, roller-bearings adapted to be supported on the wheel and engaging in said grooved track, and means for holding said sign-body from rotation.

7. An advertising-display device for a vehicle-wheel comprising a sign-body, a circular track on the inner face of said sign-body, a plurality of roller-bearings adapted to be supported on the wheel-spokes and to engage said track, and a circular ring connecting said roller-bearings.

8. An advertising-display device for vehicle-wheels comprising a sign-body, a circular grooved track on the inner face of said sign-body, the groove of which opens radially outwardly, and bearing-rollers adapted to be supported on the wheel-spokes and to engage said grooved track.

9. In combination with a rotatable wheel; a disk concentrically arranged at one of the faces of said wheel; an annular guide connecting the disk and the wheel about midway the center and periphery of the disk; and means for preventing rotation of the disk as the wheel revolves.

10. In combination with a rotatable wheel; a disk concentrically arranged at one of the faces of said wheel; an annular flange secured to the disk about midway its center and periphery; guide-pulleys secured to the wheel and engaging the annular flange; and means for positively holding the disk from rotating as the wheel revolves.

749,442. OUTLET-BOX. HUBERT KRAPP, Brooklyn, N. Y. Filed May 26, 1903. Serial No. 159,703. (No model.)

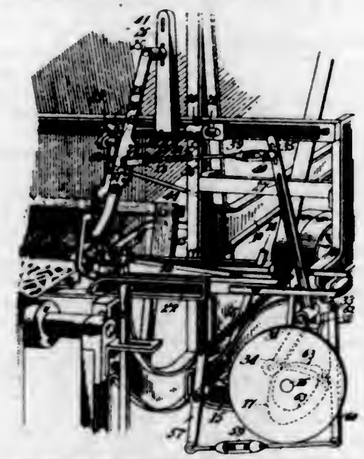


Claim.—1. The herein-described electrical outlet-box, having openings with removable disks punched out of the metal of the box, and fitting within said openings, and radially-projecting ears expanded out of one of said parts to prevent said disks from being forced inwardly into the box, substantially as described.

2. The herein-described electrical outlet-box, having openings with removable disks fitting within said openings, said disks having radially-projecting ears expanded out of the metal of their peripheries and adjacent to their outer faces only, to prevent the disks from being forced inwardly into the box, substantially as described.

749,443. PILE-WIRE MOTION FOR LOOMS. HENRY K. MARTIN, Chicopee, Mass. Filed Sept. 22, 1902. Serial No. 174,186. (No model.)

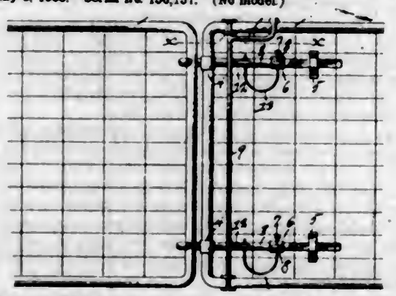
Claim.—1. In a pile-wire motion, the combination of a wire-carriage, a lever arranged to reciprocate the carriage, a bracket on which the lever is adjustably fulcrumed, to permit its adjustment to and from the wire-carriage, means for adjusting the bracket in a direction substantially parallel with the path of movement of the wire-carriage, a rock-arm, a link connecting the rock-arm and lever, and having an adjustable connection with the lever, a cam arranged to engage the rock-arm, and means for adjusting the fulcrum of the rock-arm with relation to the axis of the cam.



2. In a loom of the character described, the combination with the horse, the slideways therefor, and the hopper, cooperating with the horse as usual, of the lever 23 connected to the horse, the cam-actuated lever 27 and the link connecting said lever 27 and the lever 23, formed in two sections, one of which has the head 53 and shoulder 55, and the other having a tubular portion fitted about and movable endwise along the first section, and a spring interposed between the shoulder and said section 50, substantially as and for the purposes set forth.

3. In a loom of the character described, the combination with the actuating-lever 27, for operating the horse and hopper and the cam 17 cooperating therewith, of another cam 63 rotatable in unison with the cam 17, a lever 60 operated by the cam 63, a lever 57 intermediately pivoted having one end thereof linked to said lever 60, and a spiral spring in tension between the other end of said lever 57, and said actuating-lever 27, substantially as and for the purposes set forth.

749,444. GATE-FASTENER. PETER MAST, Toledo, Ohio. Filed May 8, 1903. Serial No. 156,137. (No model.)



Claim.—1. In a gate-fastener, longitudinally-guided fastening-rods mounted upon a gate-section in parallel relation and provided with hook-shaped ends projecting beyond the end of the gate-section, an operating-rod pivotally mounted upon the gate-section transverse to the fastening-rod, and connections between the operating-rods and the fastening-rod whereby the latter are caused to operate simultaneously when the operating-rod is rotated, substantially as described.

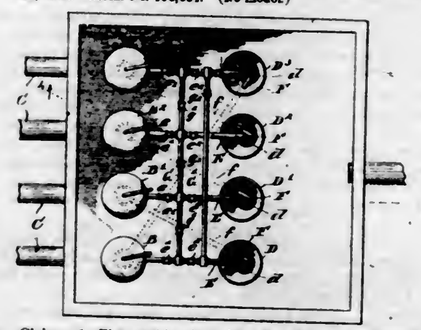
2. In a gate-fastener, longitudinally-guided fastening-rods mounted upon a gate-section and provided with hook-shaped ends projecting from the end of the section, a vertical pivoted operating-rod provided with laterally-extending arms and an operating-handle, and links connecting the arms upon the operating-rod with the fastening-rods, whereby the latter are operated simultaneously, substantially as described.

3. In a gate-fastener, longitudinally-guided fastening-rods mounted upon a gate-section and having hook-shaped ends projecting from the end of the section, a vertically-arranged, pivoted rod provided with laterally-extending arms and an operating-handle, and a resilient connection between the arms upon the vertical rod and the fastening-rods, substantially as described.

4. In a gate-fastener, longitudinally-guided fastening-rods mounted upon a gate-section and having hook-shaped projecting ends, an adjustable sleeve upon the fastening-rods adapted to be adjusted along the same, a vertically-arranged, pivoted rod provided with laterally-extending arms and an operating-handle, and a resilient link connecting the arms upon the vertical rod and the sleeves upon the fastening-rods, substantially as described.

5. In a gate-fastener, longitudinally-guided fastening-rods mounted upon a gate-section and provided with hook-shaped ends, an adjustable sleeve upon each of the fastening-rods, a vertically-extending rod pivoted at its ends to the gate-section and having laterally-extending arms and an operating-handle, the arms upon said rod lying in a plane inside of and at a slight angle to the plane of the operating-handle, and U-shaped resilient members connecting the ends of the arms upon the vertical rod with the sleeves upon the fastening-rods, substantially as described.

749,445. SIPHON. SIDNEY W. MILLER, Chicago, Ill. Filed Dec. 26, 1902. Serial No. 136,681. (No model.)



Claim.—1. The combination with a liquid tank or receptacle of a series of trapped siphons for emptying the same and means operating at the time of the flow of one of the siphons for refilling the trap or traps of certain of the idle siphon or siphons of the series by liquid which has not passed into the operating-siphon.

2. The combination with a liquid tank or receptacle, of a series of trapped siphons for emptying the same, and means operating at the time of the flow of one of the siphons for refilling from the liquid in said tank which has not passed into the operating-siphon, the trap or traps of the siphon or siphons of the series with the exception of the trap of the siphon next to be brought into operation.

3. The combination with a liquid tank or receptacle, of a series of siphons for emptying the same, a plurality of chambers which are severally associated with said siphons and filled from the same source supplying liquid to said tank, and means operating at the time of the flow of liquid through one of the siphons for reprimingcertain of the other siphons of the series by liquid directed thereto from certain of said chambers.

4. The combination with a liquid tank or receptacle, of a series of siphons for emptying the same, a plurality of chambers in said tank, of less depth than the tank and filled from the liquid in the tank, and means operating at the time of the flow of liquid through one of the siphons for refilling certain of the other siphons of the series by liquid directed thereto from certain of said chambers.

5. The combination with a liquid tank or receptacle, of a series of siphons having trapped discharge-limbs acting severally to empty the same, a series of chambers severally associated with said siphons and filled from the source supplying liquid to said tank, means whereby liquid from each chamber is discharged into and through its associated siphon when the latter is in operation, and means for discharging liquid from each chamber to an idle siphon of the series for the purpose of refilling the trap of the latter.

8. The combination with a liquid tank or receptacle, of a series of siphons having trapped discharge-limbs for emptying the same, a series of chambers severally associated with said siphons and filled from the source supplying liquid to said tank, a siphon for emptying each of said chambers and discharging into the associated tank-emptying siphon, and a second siphon communicating with each chamber and discharging into a tank-emptying siphon associated with another chamber of the series.

7. The combination with a liquid tank or receptacle, of a series of siphons having trapped discharge-limbs for emptying the same, a series of chambers severally associated with said siphons and filled from the source supplying liquid to said tank, a siphon for emptying each of said chambers and discharging into the associated tank-emptying siphon, a second siphon communicating with each chamber and discharging into a tank-emptying siphon associated with another chamber of the series and means for sealing the receiving ends of said chamber-emptying siphons.

8. The combination with a liquid tank or receptacle, of a series of trapped siphons for emptying the same, means for bringing said siphons alternately into operation in a given order, embracing means acting during the flow of one of the siphons for filling the trap or traps of certain of the idle siphon or siphons and means for cutting certain of the siphon or siphons out of the operative series.

9. The combination with a liquid tank or receptacle, of a series of siphons for emptying the same, a plurality of chambers which are severally associated with said siphons and filled from the same source supplying liquid to said tank, means operating at the time of the flow of liquid through one of the siphons for sealing certain of the other siphons of the series by liquid directed thereto from certain of said chambers, and means for cutting certain of the siphons out of the operative series.

10. The combination with a liquid tank or receptacle, of a series of siphons having trapped discharge-limbs for emptying the same, a series of chambers severally associated with said siphons and filled from the source supplying liquid to said tank, a siphon for emptying each of said chambers and discharging into the associated tank-emptying siphon, a pipe communicating with each of the siphons, valves in said pipes and the siphons, whereby either operating-siphon may be cut out of the operative series, and a second siphon communicating with each chamber and discharging into a tank-emptying siphon associated with another chamber of the series.

749,446. VOTE-COUNTING MACHINE. JOHN MCTAMMANY, Spencer, Mass., assignor, by mesne assignments, to McTammany Ballot Company, Portland, Me., a Corporation of Maine. Filed Nov. 13, 1897. Serial No. 658,594. (No model.)

Claim.—1. A vote-counting machine having pneumatic provisions for automatically preventing the counting of two or more votes cast by the same voter for different candidates for the same office.

2. A vote-counting machine provided with automatic pneumatic mechanism for preventing the counting of two or more votes cast by the same voter for different candidates for the same office.

3. A vote-counting machine having mechanism for tabulating the votes, and pneumatic mechanism for rendering the first said mechanism temporarily inoperative when two votes are presented, cast by the same voter for different candidates for the same office.

4. A pneumatic vote-counting machine having vote-tabulating pneumatic mechanism operated once for each vote, and mechanism for rendering the first said mechanism inoperative when two or more votes are simultaneously presented.

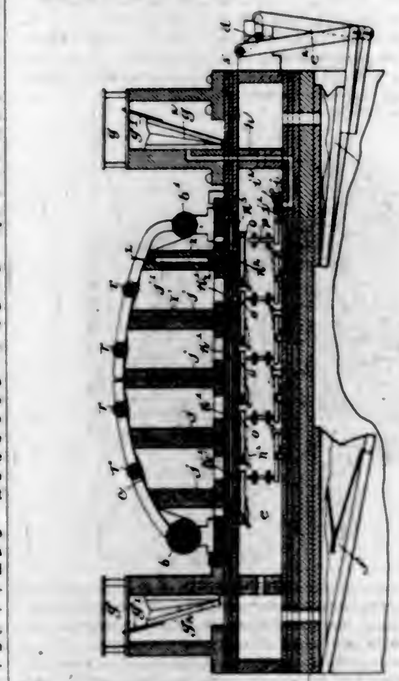
5. A vote-counting machine having counting mechanism, a pneumatic device for operating said mechanism once for each vote, and pneumatically-operated means for preventing the operation of said pneumatic device when two votes are simultaneously presented.

6. A counting-machine having counting mechanism, pneumatically-actuated devices for actuating said mechanism, and provisions for automatically preventing the simultaneous operation of more than one of said devices.

7. A counting-machine, having a plurality of counting mechanism, an actuator for each mechanism, and pneumatic devices for automatically preventing the simultaneous operation of more than one of said counting mechanisms.

8. A counting-machine having mechanism for successively and continuously counting a plurality of votes or other items, and means for automatically preventing the simultaneous counting of two or more votes or items without stopping the machine.

9. A counting-machine having means for feeding a sheet having the votes or items indicated thereon, a plurality of counters for successively counting said votes or items, and means for automatically rendering any two or more of said counters inoperative to prevent the simultaneous count of certain votes or items without interrupting the feeding of the sheet.



10. A counting-machine having means for feeding a perforated sheet, a plurality of pneumatically-actuated counters controlled by the perforations in the sheet, and mechanism for automatically preventing the simultaneous operation of two or more of said counters.

11. A counting-machine having means for feeding a perforated sheet, a plurality of pneumatically-actuated counters controlled by the perforations in the sheet, and mechanism for automatically preventing the simultaneous operation of two or more of said counters, said mechanism being independent of said sheet-feeding means.

12. A counting-machine having a series of counters, a series of air-ducts, normally closed by a perforated sheet except when a perforation therein is in alinement with one of the said ducts, a suction-chamber, a series of air-operated devices, each adapted to actuate one of the counters when its corresponding air duct is open, and means for destroying the vacuum in the suction-chamber when two of the said ducts are simultaneously open.

13. A counting-machine having a series of air-ducts, each normally closed by a perforated sheet, except when a perforation in the latter registers therewith, a series of air-operated counters, one for each air-duct, and means for preventing the operation of said counters when two or more of said ducts are open.

14. A counting-machine having a suction-chamber, a series of counters, pneumatically-operated devices each communicating by an air-duct with said suction-chamber for actuating one of said counters, a valve for closing each duct, a series of air-channels normally closed by the tally-sheet and air-operated devices between each channel and the suction-chamber and arranged to each operate one of the aforesaid valves, and means for preventing the said devices from operating the said valves when two or more of said air-channels are open.

15. A counting-machine comprising a mechanism for counting the votes, and automatic mechanism operating without stopping the machine to prevent the tabulating of two or more votes cast by the same voter for different candidates for the same office.

16. A counting-machine comprising a plurality of pneumatically-actuated counters, a duct leading to each of said counters, a channel-board having a channel corresponding to each duct, a wind-chamber between the ducts and the channels, a valve interposed between each duct and the wind-chamber, and means operable by the passage of air through one channel for opening the valve for the corresponding duct, and simultaneously connecting the other channels with the wind-chamber.

17. A counting-machine comprising a plurality of pneumatically-actuated counters, a duct leading to each of said counters, a channel-board having a channel corresponding to each duct, a wind-chamber between the ducts and the channels a valve interposed between each duct and the wind-chamber, a pneumatic actuator in each channel, a valve between each channel and the wind-chamber, and means whereby the passage of air through one channel opens the valve for the corresponding duct, and also opens the valves for the other channels.

18. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, said channel-boards being graduated in height with the tallest in the center, and means for drawing a perforated sheet over the edges of the said boards.

19. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, said channel-boards being graduated in height with the tallest in the center, means for drawing a perforated sheet over the edges of the said boards, and means for holding the sheet against the said boards.

20. A counting-machine, comprising counters pneumatic devices for actuating said counters, bellows, sheet-feeding means, power devices for actuating said bellows, and sheet-feeding means, and mechanism for automatically preventing the simultaneous actuation of two or more counters.

21. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, means for passing a sheet over said boards, and a frame for holding said sheet against said boards.

22. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, means for passing a sheet over said boards, and hinged frames carrying rolls for holding said sheet against said boards.

23. A counting-machine comprising a plurality of groups of counters, each group representing all the candidates for one office, or a set of items, a group of actuators for each group of counters, whereby counters in the several groups may be operated simultaneously, and mechanism for each group of counters for preventing the simultaneous actuation of more than one counter therein.

24. A counting-machine comprising a plurality of groups of counters, each group representing all the candidates for one office, or a set of items, a group of actuators for each group of counters, whereby counters in the several groups may be operated simultaneously, and mechanism for each group of counters for preventing the simultaneous actuation of more than one counter therein, in combination with means for feeding a sheet in operative relation to said actuators, said sheet having perforations for the several groups thereof.

25. A vote-counting machine having means for automatically preventing the counting of two or more votes cast by the same voter for different candidates for the same office, said means being entirely pneumatic in principle.

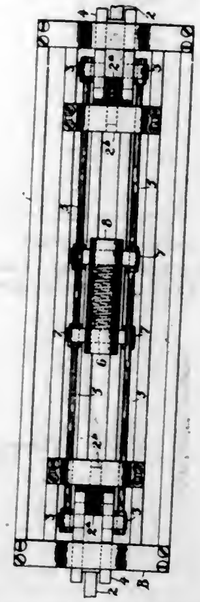
749,447. DRAFT CONNECTION FOR RAILWAY-CARS. CARL S. PAYNE, San Francisco, Cal., assignor of one-fourth to Louise J. Larne, San Francisco, Cal., and E. R. Rice, Sausalito, Cal. Filed May 13, 1903. Serial No. 156,876. (No model.)

Claim.—1. A draft connection for railway-cars including couplers and rods extending therefrom and having their inner ends overlapping and a yielding connection located between the overlapping portions of the rods.

2. A draft connection for railway-cars including couplers and rods extending therefrom and overlapping at their inner ends; a spring connection located between the overlapping portions of the rods, and pressure plates or bars at the ends of the spring connection and each connected with the rod extending from the opposite coupler.

3. A draft connection for railway-cars consisting of rods, a spring connection, springs located beneath the car with pressure rods or plates upon opposite ends with which the inner ends of the rods are connected, slidable couplers and springs by which they are normally pressed outwardly, bars extending through said couplers, with which bars the outer ends of the draft-rods are connected.

4. In a continuous coupling for railway-cars and the like, slidable couplers at opposite ends of the car, springs by which said couplers are normally pressed outward, bars projecting transversely from the couplers, and guides on which said bars are movable, rods connected with the bars and extending beneath the car, a spring having pressure plates or bars at opposite ends with which plates the rods connect whereby the springs are compressed during the pull and take up the slack when the pull is released.



5. A continuous coupling device for railway-cars and the like consisting of rods, slidable couplers, and springs by which they are normally pressed outward, stops against which the inner ends of the springs abut, connections between the outer ends of the rods and the couplers, a spring fixed intermediate between the couplers having pressure plates or bars at opposite ends, connections between each pair of rods from the coupler to the pressure-plate at the opposite end of said spring, whereby the spring is compressed by the pull and acts to take up the slack when the pull is relaxed.

6. A continuous draft connection for railway-cars and the like, consisting of guided longitudinally-slidable couplers, springs against which the inner ends of the couplers abut and abutments behind the inner ends of the springs, rods having the outer ends connected with the couplers and extending inwardly past each other, a spring located between said rods, pressure plates or bars abutting against opposite ends of the spring, and with which bars the inner ends of the crossed rods are connected, a guiding-case within which the spring is contained and slots in different planes at the opposite ends through which the rod-connecting bars project.

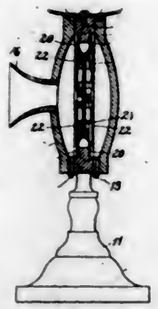
7. A draft connection for railway-cars having rods extending from the couplers and crossing beneath the car, a spring located between the rods, a fixed casing within which the spring is contained, pressure-bars abutting against opposite ends of the spring, and with the inner ends of which the rods are connected, slots made at opposite ends of the casing and in different planes through which slots the bars project so that the pull upon the rods is in parallel lines.

749,448. TELEPHONE-TRANSMITTER. PHILIP G. RANDALL, Roston, Mass. Filed Feb. 9, 1903. Serial No. 142,526. (No model.)

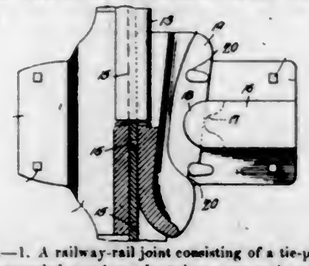
Claim.—1. In a telephone-transmitter, a comparatively stiff or unbending vibrator or diaphragm, a plurality of groups of springs yieldingly supporting the same at different points around its margin and each comprising springs pressing against opposite sides of said diaphragm, and a plurality of electrodes forming parts of different resistance-varying units cooperating with said diaphragm.

2. In a telephone-transmitter, a comparatively stiff or unyielding vibrator or diaphragm of electrically-conductive material constituting the primary sound-receiver and yieldingly mounted to vibrate in parallelism with itself, and a plurality of different resistance-varying units located on each side of said diaphragm, said units utilizing the material of the diaphragm as an electrical return.

749,448.



749,449. RAILWAY-RAIL JOINT. BENJAMIN G. RIGGS, Kinzua, Pa. Filed Mar. 26, 1903. Serial No. 149,726. (No model.)



Claim.—1. A railway-rail joint consisting of a tie-plate having a laterally-extended member adapted to engage the adjacent rail ends upon one side, and provided with a lug arranged opposite said laterally-extended member and spaced therefrom, and a wedge-shaped block adapted for insertion between the opposite sides of the rail ends and said spaced lug, said block having its reduced end curved laterally away from the rails and adapted to serve as a lever.

2. A railway-rail joint comprising a tie-plate having a laterally-extended lug adapted to engage the adjacent rail ends upon one side and with an opposing lug upon said tie-plate opposite said extended lug and spaced therefrom, and having an overhanging upper portion and relatively contracted portion between said overhanging portion and the tie-plate, and a wedge-block adapted for insertion between the rail ends and said contracted portion and beneath said overhanging portion, substantially as specified.

749,450. WALL-WASH. WILDER W. RUSSELL, Bayonne, N. J. Filed Jan. 21, 1901. Serial No. 44,642. (No specimens.)

Claim.—1. A composition of matter consisting of equal parts by measure of linseed-oil and varnish, a volume of soft water slightly greater than that of the oil and varnish combined, equal parts by weight of oxid of zinc and whiting, a small portion of powdered pumice and a yet smaller portion of glue.

2. A composition of matter consisting of the following ingredients in the proportions named, to wit; about two hundred pounds of oxid of zinc, the same weight of whiting or terra-alba, about one-seventh of that weight of powdered pumice-stone and a small proportion of glue, in combination with eight gallons of linseed-oil and the same quantity of varnish.

3. The process of making a wall-wash which consists first, in dissolving about eight pounds of glue in five gallons of water, second in slowly mixing therewith about one and one-half times as much linseed-oil as water and about twelve and one-half times as much oxid of zinc as glue; third, in adding thereto about as much varnish and oxid of zinc as of the previous lot of linseed-oil and zinc and about twice as much whiting and terra-alba as zinc in either lot; fourth, in adding thereto about four times as much powdered pumice as the original amount of glue, and fifth, in mixing the mass to a uniform consistency.

749,451. STEAM-GENERATOR. FREDERICK SAFFELL, Fresno, Cal., assignor of one-half to Richard J. Powers, San Leandro, Cal. Filed Apr. 27, 1903. Serial No. 154,460. (No model.)

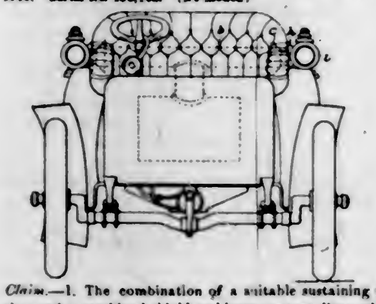
Claim.—1. A steam-generator consisting of a tubular chamber extending across a furnace; a pipe extending through said chamber from one end at which water is admitted, said pipe imperforate except for an opening in the end opposite that which the pipe enters; a steam-discharge pipe leading from the end of the chamber opposite to the open end of the pipe; and a series of riffles across the bottom of the chamber and over which the backflow of the water is successively retarded.



2. A steam-generator consisting of a substantially horizontal tubular chamber closed at the ends and having a raised portion or steam-dome at one end, with a discharge-passage therefrom, an inlet-pipe entering at the same end and extending to near the opposite end of the chamber, said pipe having an open discharge, riffles or dams extending transversely of the chamber from one end to the other, said riffles being made gradually higher from the end at which the water is received to the opposite end.

3. The combination with an oil-burner, of a steam-generator consisting of a substantially horizontal closed chamber located above the burner and having transverse dams or riffles upon the bottom, a water-pipe extending through the interior of the chamber, discharging at the opposite end from its entrance, a steam-discharge passage connected with the chamber, and a slidable adjustable guard surrounding the exterior of the generator and movable with relation to the burner.

749,452. COMBINED FLUE-SHIELD AND LAMP-SUPPORT FOR AUTOMOBILES. LOUIS C. SAVALE, Paterson, N. J. Filed May 21, 1903. Serial No. 158,162. (No model.)

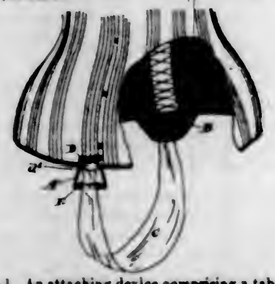


Claim.—1. The combination of a suitable sustaining means, a flue-pipe, and a combined shield and lamp-support disposed opposite the discharge end of said flue-pipe, substantially as described.

2. The combination of a suitable sustaining means, a flue-pipe, and a combined lamp-support and shield having arms for securing the same to said sustaining means, substantially as described.

3. The combination of a suitable sustaining means, a flue-pipe, and a combined lamp-support and shield comprising a shell and a filling of non-heat-conducting material, substantially as described.

749,453. ATTACHING DEVICE FOR SANITARY NAPKINS. CHARLES H. SCHOPBACH, Aurora, Ill. Filed Sept. 30, 1901. Serial No. 77,036. (No model.)

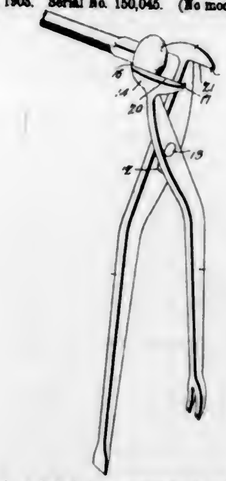


Claim.—1. An attaching device comprising a tab of flexible material, and means for detachably securing said tab to a garment consisting of a clasp-pin, and a stud-and-socket fastening device one member of which is secured to the pin and the other to the upper end of the tab

2. An attaching device comprising a tab of flexible material having an elastic upper margin, and means for detachably securing said tab to a garment at the ends of its elastic upper margin, consisting of two safety-pins, and two stud-and-socket fastening devices, one member of each of which is attached to one of the safety-pins and the other to the tab at one end of its said elastic upper margin.

3. An attaching device consisting of front and rear tabs of flexible material, the front tab having a single safety-pin detachably secured to its upper part by a stud-and-socket fastening device and the rear tab having a wide upper margin and having at each end of said upper margin a safety-pin detachably secured thereto by a stud-and-socket attaching device.

749,454. BOLT-HOLDING IMPLEMENT. JASPER S. SCOTT, San Jose, Cal., assignor of one-half to A. R. Shepard, San Jose, Cal. Filed Mar. 28, 1903. Serial No. 150,045. (No model.)



Claim.—1. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs adapted to extend beneath the head of a bolt and contact with the under side thereof.

2. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a knife-edged gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs adapted to extend beneath the head of a bolt and contact with the under side thereof.

3. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a knife-edged gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs, said jaws being at unequal distances from the pivotal point.

4. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a knife-edged gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs, said jaws being at unequal distances from the pivotal point and being oppositely disposed.

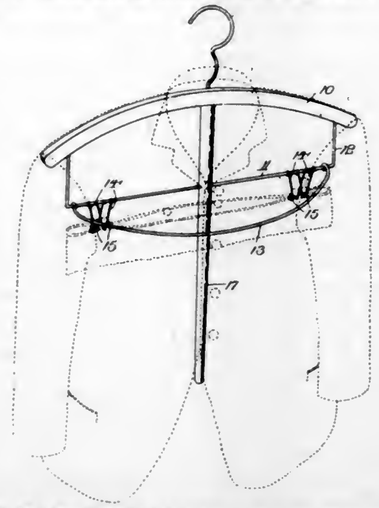
5. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs, one of said members bearing a pivot-pin and the other having an elongated opening for engagement therewith.

6. A bolt-holder consisting of two pivotally-connected members, each comprising a handle and a gripping-jaw disposed at right angles to the handle and terminating in inwardly-bent lugs, one of said members bearing a pivot-pin and the other having a pivot-opening constricted intermediate of its ends.

749,455. GARMENT-HANGER. ELDONOR SHOEMAKER, Chicago, Ill. Filed Mar. 9, 1903. Serial No. 146,910. (No model.)

Claim.—1. In a garment-hanger, in combination, a coat-supporting bar, a rod located under, and having upwardly-extending ends fixed to, the bar, an outwardly-bowing form-frame hinged at its ends to the rod.

2. In a garment-hanger, in combination, a coat-supporting bar, a rod located under, and having upwardly-extending ends fixed to, the bar, an outwardly-bowing wire frame connected to the rod, and trousers-buttons-engaging devices located at opposite ends of the rod.

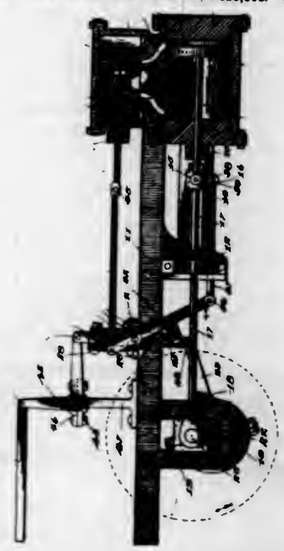


3. In a garment-hanger, in combination, a coat-supporting bar, a rod located under, and having upwardly-extending ends fixed to the bar, a pair of trousers-buttons-engaging loops slidably mounted on the rod near the ends thereof, and the free ends of which are bent upwardly in relatively opposite directions.

4. In a garment-hanger, in combination, a coat-supporting bar, a rod located under, and having upwardly-extending ends fixed to the bar, trousers-buttons-engaging devices carried by the rod, and a depending hand-rod secured to the supporting-bar and through which the first-mentioned rod passes.

5. In a garment-hanger, in combination, a support, a pair of trousers-buttons-engaging devices at each end thereof and each of which comprises a looped strand of wire having upwardly-diverging ends attached to the rod and alternating with the ends of the other loop, the lower and bent ends of said loops being turned upwardly and outwardly.

749,456. VALVE-MOTION. CHARLES F. SLEIGH, Parkersburg, W. Va. Filed Nov. 3, 1902. Serial No. 129,808. (No model.)



Claim.—1. In a valve-motion for engines, an oscillatory link, an eccentric, a rock-arm having one end connected with the eccentric, a die-block movable in the link and means connected with the cross-head and valve and pivotally connected with said die-block.

2. In a valve-motion for engines, an oscillatory link, an eccentric, a rock-arm having its lower end connected with said link mounted to prevent vertical reciprocation thereof, a valve, a die-block mounted in the link, a cross-head and connections pivotally mounted on the die-block, substantially as described.

3. In a valve-motion for engines, a rocker-arm, a link movable therewith, an eccentric connected with the rocker-arm, a die-block movable in the link independent of the rocker-arm and an arm pivoted on said die-block and connecting the same with the valve and cross-head.

4. In a valve-motion for engines, a rocker-arm, a link movable therewith and thereon as a center, a crank-arm on the main shaft, an eccentric connected with the rocker-arm, a valve, a cross-head, a connection between the die-block and the valve and cross-head, the same being pivotally mounted on the die-block, a die-block movable in the link, means for shifting the position of said die-block in the link.

5. In a valve-motion for engines, a rocker-arm, a link movable therewith and thereon as a center, a crank-arm on the main shaft, an eccentric connected with the rocker-arm, a valve, a cross-head, a connection between the cross-head and said crank-arm, a die-block movable in the link, a rocking connection between said die-block and the valve and the cross-head pivotally mounted on the die-block, and means for shifting said die-block to either side of its central position.

6. In a valve-motion for engines, a rocker-arm, a link movable therewith and thereon as a center, a crank-arm on the main shaft, an eccentric connected with the rocker-arm, a valve, a cross-head, a connection between the cross-head and said crank-arm, a die-block movable in the link, a connection between said die-block and the valve and the cross-head, the same being pivotally mounted on the die-block, and means for shifting said die-block to either side of its central position, said means being unaffected by the movement of the link.

7. In a valve-motion for engines, a single link, a single eccentric and connections for actuating the same, a die-block movable on the link, and an arm pivotally mounted on the die-block coöperating with the movement of the link and operatively connected with the valve and cross-head.

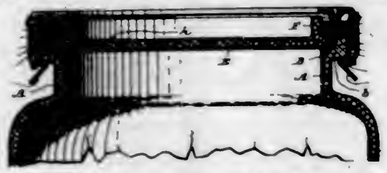
8. In a valve-motion for engines a single link, a single eccentric and connections for actuating the same, a die-block movable on the link, an arm pivotally mounted on the die-block coöperating with the link and operatively connected with the valve and cross-head, and mechanism for adjusting said arm and unaffected by the movement of the link.

9. In a valve-motion for engines a single link, a die-block movable on the link, a single eccentric, an arm pivotally mounted between its ends on the die-block, a valve and connections with said arm whereby the valve is moved independent of said eccentric.

10. In a valve-motion for engines a single link, a die-block movable on the link, a single eccentric, an arm pivotally mounted on the die-block, a valve and connections with said arm whereby the valve is moved independent of said eccentric, and a cross-head connected with said arms, and means for shifting said die-block in the link for giving motion to the valve.

11. In a valve-motion for engines a rocker-arm, a link mounted to move therewith and thereon as a fixed center, a die-block movably mounted on the link, means for actuating said rocker-arm and link, a cross-head and an arm pivoted on the die-block and connections with said arm for actuating the valve independent of said link.

749,457. JAR NECK AND CLOSURE. ANGELINE SHELKER, Greenville, Ohio, assignor of one-third to Mary M. Mehring, Indianapolis, Ind. Filed June 15, 1903. Serial No. 161,476. (No model.)



Claim.—1. A jar having a neck and mouth formed of walls contracted so as to form an annular flange about the top of the neck and a lid-seat on the top of the neck-wall, the mouth-wall extending upwardly from the annular flange and having a sealing-ring seat on the top thereof, a lid on the lid-seat and having an upturned rim and a sealing-ring seat beyond the rim in the same plane as the seat on the top of the mouth-wall, a sealing-ring on said sealing-ring seats, a sealing-ring presser having concentric annular ribs engaging the sealing-ring, and a retaining-ring engaging the presser and also the mouth-wall.

2. A jar having a neck provided with inclined faces about the outer side thereof, a lid, a sealing-ring, and a retaining-ring coöperating with the sealing-ring and having slots therein, and spring-latches secured to the retaining-ring and extending through the slots to the inclined faces.

3. A jar having a neck and mouth formed of walls of uniform thickness and having a sealing-ring seat on the top of the mouth-wall and also having a lid-seat in a plane below the sealing-ring seat, a lid seated on the lid-seat and extending up to the plane of the top of the wall and having a rim extending upwardly beyond the top of the mouth-wall, a sealing-ring seated on the seat on the mouth-wall and also on the top of the lid, a retaining-ring coöperating with the sealing-ring and having latches coöperating with the mouth-wall.

4. In a jar neck and closure, the combination of a neck having a mouth-wall at the exterior of the top thereof, a lid seated on the top of the neck and extending to the mouth-wall radially and also to the top thereof, a sealing-ring seated partly upon the lid and partly upon the top of the mouth-wall, a presser having concentric ribs one bearing on the sealing-ring above the mouth-wall and the other bearing on the sealing-ring above the lid, with means whereby the presser may be held forcibly upon the sealing-ring.

5. In a jar neck and closure, the combination of a neck having an external annular flange provided with inclined faces at the under side thereof, a lid seated in a plane at the top of the flange, a mouth-wall extending upwardly from the flange, a sealing-ring, a sealing-ring presser, a retaining-ring having slots therein, and spring-latches attached to the retaining-ring and extending through the slots to the inclined faces.

6. In a jar neck and closure, the combination of a neck and mouth formed of walls of uniform thickness, there being a horizontal annular flange connecting the neck-wall and the mouth-wall uniform in thickness therewith and forming a lid-seat, and the top of the mouth-wall forming a sealing-seat, with a lid seated on the lid-seat and extending up to the plane of the top of the mouth-wall, a sealing-ring, and a retaining-ring coöperating with the sealing-ring and the mouth-wall.

7. In a jar neck and closure, the combination of a neck and connected mouth-wall formed of walls of uniform thickness, a lid seated on the top of the neck-wall and extending to the plane of the top of the mouth-wall and having a rim extending upwardly beyond the plane of the mouth-wall, a sealing-ring seated on the top of the mouth-wall and also on the lid, and an annular sealing-ring presser on the sealing-ring, with an annular retaining-ring bearing upon the presser and engaging the mouth-wall.

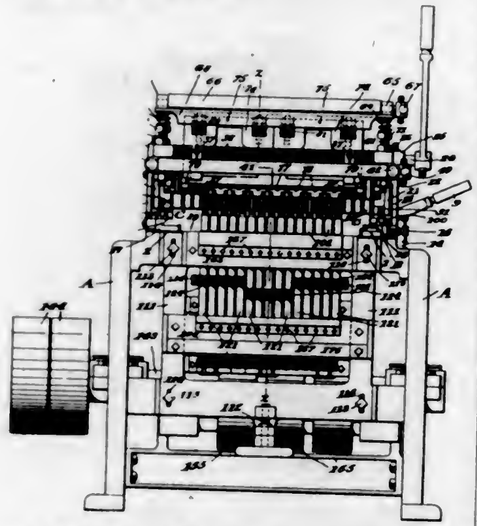
749,458. DOVETAILING-MACHINE. HARRY S. SPENCER, Bondhill, Ohio, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio, a Corporation of West Virginia. Filed Feb. 27, 1903. Serial No. 145,273. (No model.)

Claim.—1. In a dovetailing-machine, the combination of a spindle, a dovetail-cutter eccentrically mounted with relation thereto, said cutter having a cutting-wing whose periphery is eccentric to the longitudinal axis of said cutter, the cutting edge of said wing being at the point of least eccentricity in said wing.

2. In a gang dovetailing-machine, the combination of a gang of spindles, dovetail-cutters therefor eccentrically mounted with relation to the respective spindles, said cutters having respectively a cutting-wing whose periphery is eccentric to the longitudinal axis of said cutter, the cutting edge of said wing being at the point of least eccentricity in said wing.

3. In a dovetailing-machine, the combination of a spindle and a dovetail-cutter therefor eccentrically mounted with relation thereto, said dovetail-cutter comprising a cutting-wing and shank, said cutting-wing having its periphery eccentric to the longitudinal axis of said shank, the cutting edge of said wing being at the point of least eccentricity in said wing, and said shank having threaded connection with relation to the spindle and a lock-nut therefor whereby the degree of projection of the bit from the spindle is adjusted.

4. In a gang dovetailing-machine, the combination of a gang of spindles, dovetail-cutters therefor eccentrically mounted with relation to the respective spindles, said dovetail-cutters comprising respectively a cutting-wing and shank, said cutting-wing having its periphery eccentric to the longitudinal axis of said shank, the cutting edge of said wing being at the point of least eccentricity in said wing, and said shank having threaded connection with relation to the spindle and a lock-nut therefor whereby the degree of projection of the bit from the spindle is adjusted and whereby said cutters are brought to uniform depth and circle of cut.



5. In a gang dovetailing-machine, the combination of the main frame, a gang of dovetail spindles, dovetail-cutters therefor screw-threaded eccentrically with relation to the respective spindles, said cutters having respectively a cutting-wing whose periphery is eccentric to the longitudinal axis of said cutters, the cutting edge of said wing being at the point of least eccentricity in said wing, a supplemental frame in which said spindles are mounted, means for adjusting each spindle separately longitudinally on said supplemental frame, and means for adjusting said supplemental frame on the main frame for adjusting said spindles collectively.

6. In a gang dovetailing-machine, the combination of a gang of spindles, dovetail-cutters, therefor eccentrically mounted with relation to the respective spindles, said cutters having respectively a cutting-wing whose periphery is eccentric to the longitudinal axis of said cutter, the cutting edge of said wing being at the point of least eccentricity in said wing, spur-gearing directly connecting adjacent spindles and revolving the spindles alternately to right and left, the dovetail-cutters on said spindles being alternately right and left hand cutters to correspond with the rotation of said spindles, substantially as described.

7. In a dovetailing-machine, the combination with the spindle and a pair of work-supports, the first of said work-supports being adjacent to the spindle and the second farther removed therefrom, with free space to all sides radially of said second support and between said pair of supports for permitting said pair of supports to form the only supports for the stock, and means for positioning said second support in plane with the supporting-surface of said first support and to both sides of said plane, substantially as described.

8. In a dovetailing-machine, the combination with a spindle, of a ledge adjacent to the spindle, a bar, there being free space to all sides radially of said bar and between said bar and ledge, and means for permitting adjustment of said bar up and down whereby said ledge and bar are arranged to form the only supports for straight drawer-fronts as well as inwardly and outwardly extending swell drawer-fronts, and clamping means for the drawer-front, substantially as described.

9. In a gang dovetailing-machine, the combination of a gang of dovetail spindles, a ledge adjacent to said gang, a bar to rear of said ledge, there being free space to all sides radially of said bar and between said bar and ledge, means for permitting adjustment of said bar up and down above and below the horizontal plane of the supporting-surface of said ledge, and means for clamping the stock in place, whereby the ledge and bar are arranged to form the only supports for straight drawer-fronts as well as inwardly and outwardly extending swell drawer-fronts, substantially as described.

10. In a dovetailing-machine the combination with a dovetail spindle, of a support adjacent to the spindle, a bar, arms extending from said bar and having pivots between said bar and spindle, whereby said bar when swung on said pivots out of horizontal plane with said first-named support moves toward the longitudinal axis of said spindle with free space to all sides radially of said bar and between said bar and first-named support whereby the stock is supported only by said first-named support and said bar, substantially as described.

11. In a gang dovetailing-machine, the combination with the frame and table, of a gang of dovetail spindles mounted on the frame, means on the table for supporting a drawer side, means on the table for normally supporting a drawer-front at substantially right angles thereto, said latter means comprising in combination a ledge adjacent to said spindles, a bar to rear of said ledge, there being free space to all sides radially of said bar and between said bar and ledge, arms extending from said bar and pivoted to said table between said bar and spindles and means for permitting said bar to be adjusted to positions above and below the horizontal plane of the supporting-surface of said ledge whereby said bar when swung out of horizontal plane with the supporting-surface of said ledge moves toward the longitudinal plane of said spindles, and constructed and arranged for supporting the drawer-front only upon said ledge and bar, substantially as described.

12. In a dovetailing-machine, the combination of a work-support, means for pressing the stock against the support, rods therefor slidably arranged, a spring of greater tension and less extension acting as a cushion for the stock, and a spring of less tension and greater extension acting as a means for retracting the stock-pressing means.

13. In a dovetailing-machine, the combination of a work-support, an eccentrically-mounted roll, a plate between the roll and the work-support, rods extending from the roll to rear of the work-support, a spring between the plate and work-support, and a spring between the work-support and the outer end of the rod.

14. In a dovetailing-machine, the combination with the main frame and work-supporting table movable thereon, upwardly-extending guideways in the table, an upwardly-extending clamping-bar loosely hung in the ways for permitting tilting thereof, means for depressing the clamping-bar, and cushion between said latter means and the clamping-bar.

15. In a dovetailing-machine, the combination of a work-support, a yoke, a cushion between the yoke and work-support, a clamping-bar, means between the yoke and clamping-bar for supporting the clamping-bar, a cushion between the clamping-bar and yoke, and means for depressing the yoke and thereby depressing the clamping-bar.

16. In a dovetailing-machine, the combination with the main frame and a work-supporting table movable thereon, vertically-reciprocating yoke supported from the table and movable therewith, guideways extending up and down on the table, a plurality of clamping-bars extending up and down in the ways and hung from the yoke, a cushion between each of the clamping-bars and the yoke with play between the clamping-bars and between the clamping-bars and the ways, and means for depressing the yoke and thereby depressing the clamping-bars, with the play between the bars and ways permitting tilting of the clamping-bars for accommodating inequality of stock.

17. In a dovetailing-machine, the combination of a series of cutter-spindles with cutters therefor, a work-support, a clamping-bar, with a series of projections on the clamping-bar arranged to project between the longitudinal planes of the spindles for taking against the stock and forming clearance for the cutters between the projections.

18. In a gang dovetailing-machine employing inverted frusto-conical dovetail-cutters, the combination of a frame, a gang of spindles, an inverted frusto-conical dovetail-cutter for each, a bushing at the end of each of said spindles, each of said spindles having a shoulder resting on its bushing and an extension projecting through said bushing, adjusting means between said extension and bushing on said respective spindles for taking up longitudinal movement of said extension in said bushing, and means for adjusting said respective bushings independently with relation to the frame, whereby said spindles are respectively adjusted independently with relation to the frame and the movement of the respective spindles toward the respective inverted frusto-conical dovetail-cutters thereon is limited.

19. In a gang dovetailing-machine employing inverted frusto-conical dovetail-cutters, the combination of a main frame, a supplemental frame, means for adjusting the supplemental frame with relation to the main frame, a gang of spindles journaled in the sup

plemental frame, and inverted frusto-conical dovetail-cutter at one end and a bushing at the other end of each of said spindles; means for adjusting said respective bushings independently with relation to said supplemental frame, each of said spindles having a shoulder taking against its said bushing and an extension projecting through said bushing, nuts taking against said respective bushings and adjustable on said respective extensions, whereby longitudinal movement of the spindles is limited and the tendency of longitudinal movement of said inverted frusto-conical dovetail cutters and spindles toward the stock when cutting into the stock is counteracted.

20. In a dovetailing-machine, the combination of a spindle-frame, cross-girths therefor, with a gang of straight parallel bearings for the cross-girths, an additional cross-girth for the spindle-frame, a shoulder on each spindle, and a bolt for each spindle taking through the additional cross-girth against the shoulder for supporting the spindle, with an oil-channel in the additional cross-girth extending throughout the series of spindles, into which oil-channel the shoulders and ends of the bolts therefor project.

21. In a dovetailing-machine, the combination of a series of spindles with a series of dovetail-cutters therefor, eccentric screw-threaded securing means for each spindle, engaging screw-threaded means for the cutters for the latter and arranged to turn therein, a cutting edge for each cutter and a pattern-plate having an opening for each cutter and gaging-wall for each opening for determining the correct position of the cutting edges of the cutters.

22. In a dovetailing-machine, the combination of a series of spindles with a series of dovetail-cutters therefor, eccentric screw-threaded securing means for each spindle, engaging screw-threaded means for each cutter for the latter and arranged to turn therein, a cutting edge for each cutter, and a pattern-plate having an opening for each cutter and tapering wall for each opening for determining the correct position of the cutting edge of the cutter, an upper face for each opening, and means for raising each spindle separately for determining the circle of cut and height of each cutter.

23. In a dovetailing-machine, the combination of a series of spindles, with dovetail-cutters therefor, an eccentric cutting edge for each cutter, means for eccentrically adjusting each cutting edge with relation to its spindle, means for independently and collectively raising and lowering the cutter, and a pattern-plate having an opening for each cutter, a tapering wall for each opening for giving the correct position for the cutting edge of each cutter, an upper face for each opening for giving the correct depth for each cutter, constructed and arranged for adjusting all the cutters to uniform height and circle of cut.

24. In a dovetailing-machine, the combination with a spindle, of a ledge adjacent to the spindle, a bar in rear of said ledge, there being free space to all sides radially of said bar, and between said bar and ledge, and means for permitting adjustment of said bar up and down, whereby straight fronts as well as inwardly and outwardly extending swell fronts are supported only on said ledge and bar, and a clamping-bar having a removable foot for clamping the stock on the ledge, substantially as described.

25. In a dovetailing-machine, the combination with a plurality of spindles and a table for the stock, of a clamping-bar for securing the stock on the table and projections on the clamping-bar between the longitudinal planes of the spindles for taking against the stock.

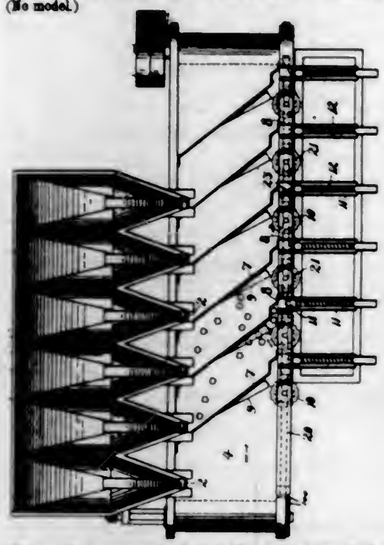
26. In a dovetailing-machine, the combination with the main frame, a gang of dovetail spindles and a work-supporting table, of a clamping-bar on the table, removable foot therefor, and extensions on the foot taking between the longitudinal planes of the spindles for clamping the stock securely to the table.

27. In a dovetailing-machine, the combination with the main frame and a reciprocating work-supporting table thereon, with posts extending upwardly from the work-support, means for adjusting the same with relation to the work-support, a yoke sliding up and down on the posts, an eccentric roll above the same, guideways extending up and down on the table, a series of clamping-plates mounted with play in the ways for the plates and play between themselves, cushion between the clamping-plates and the yoke, and means for suspending the plates from the yoke, constructed and arranged for permitting the clamping-plates to tilt sidewardly for accommodating variations in thickness of stock.

28. The combination in a dovetailing-machine, with the main frame and a sliding work-support table thereon, of the posts 61 vertically adjustable in the table, the yoke 68 on the posts, clamping-plates 74 suspended from the yoke, with a cushion between the plates and yoke, the spring 69 between the yoke and posts, and roll 66 mounted eccentrically in the upper ends of the posts, substantially as described.

29. In a dovetailing-machine, the combination with the main frame and a reciprocating work-supporting table thereon, of a vertically-movable yoke, springs between the yoke and table for urging the yoke upwardly, a clamping-plate suspended from the yoke, a cushion and sliding connection between the yoke and clamping-plate, and a roll eccentrically mounted for compressing the springs and cushion.

749,459. **WAD SORTER AND ASSEMBLER.** BRAINARD W. STEVENS, Pinole, Cal., assignor to California Powder Works, Hercules, Cal., a Corporation of California. Filed Apr. 3, 1903. Serial No. 150,922. (No model.)



Claim.—1. An apparatus for assorting mixed gun-wads of equal diameter and unequal thickness, consisting of an endless traveling substantially horizontal belt, means for delivering the wads upon said belt, guides extending diagonally above the surface of the belt and at successively decreasing distances therefrom whereby the wads are arrested in the order of their decreasing thickness and delivered by said guides to the side of the belt, screws revoluble at right angles with the belt into which the wads are received, and by which they are conveyed outwardly and receiving grooves or tubes into which they are delivered.

2. An apparatus for assembling wads in grooves or tubes consisting of a hopper or receiver, means for delivering the wads successively from said hopper or receiver a substantially horizontal traveling belt upon which the wads are delivered, a diagonally-disposed guide extending across the upper surface of the belt and in close proximity therewith whereby the wads are caused to travel to the edge of the belt, chutes through which the wads are caused to fall, a flanged screw between the threads of which the wads are received, means for revolving said screw whereby the wads are caused to travel outwardly between the threads and grooves or tubes into which the wads are delivered with their flat sides parallel and contiguous.

3. An apparatus for assembling wads of equal diameter into grooves or tubes consisting of a hopper having convergent sides, an endless traveling carrying-belt movable in the plane of one of said sides adapted to raise the wads from the hopper and deliver them from the upper end, a substantially horizontal traveling belt upon which the wads are delivered, a guide extending diagonally across the belt in close proximity thereto whereby the wads are caused to move to the side of the belt, openings through which the wads are delivered and a traveling screw between the threads of which the wads are received and the discharge through which they are delivered to a receiver.

4. An apparatus for sorting and assembling gun-wads consisting of a hopper having convergent sides, an endless traveling belt movable parallel with one of said sides, said belt serving as a carrier to lift the wads and continuously deliver them over its upper end, a substantially horizontal traveling belt upon which the wads are received, diagonally-disposed fixed guides extending across above the belt whereby the wads are caused to move to the discharge edge of said belt, and an attachment fixed to the guide at an elevation above the surface of the belt equal to the thickness of a single wad whereby any superposed wads will be forced off the lower one and prevented from choking the discharge.

5. An apparatus for assorting gun-wads of equal diameter consisting of a convergent wad-containing hopper, a carrier adapted to raise the wads successively from the hopper, a substantially horizontal traveling belt upon which the wads are delivered, diagonally-disposed fixed guides extending across at different distances above the belt and acting to move the wads to the discharge edge of the belt, a triangular attachment fixed to the guide sufficiently above the belt to allow a single wad to pass beneath it and against the guide and acting to displace any superposed wad, and a backwardly-revolving wheel whereby said displaced wad is retarded and prevented from clogging the discharge-opening.

6. A device for assorting mixed gun-wads of equal diameter but unequal thickness consisting of a wad-containing hopper having convergent sides and an elevator by which the wads are successively removed from said hopper, a substantially horizontal traveling belt upon which the wads are delivered from the elevator, a series of guides extending diagonally across the belt, each guide successively nearer to the belt and adapted to arrest wads of successively decreasing thickness, attachments to the guides whereby superposed wads are dislodged from those upon which they rest, backwardly-rotating wheels by which said dislodged wads are prevented from clogging those which are to be discharged, flanged screws having essentially vertical driving-faces to their threads against which the wads stand flatwise, said screws being revoluble and adapted to transfer the wads outwardly from the carrying-belt and deliver them into grooves or tubes in the order of their thickness.

7. An apparatus for the assorting and assembling of mixed gun-wads of equal diameter consisting of a wad-containing hopper, an elevator by which the wads are delivered successively therefrom, a substantially horizontal traveling belt upon which the wads are received, means for transmitting the wads to the outer edge of the belt, screws having threads, the front faces of which are in lines radial to the axes of the screws, between which the wads are delivered upon edge and by which they are transmitted outwardly to the discharge, and a curved spring-pressed concavo-convex spoon extending above the threads of the screw whereby the wads are prevented from being thrown outward before entering the discharge-groove.

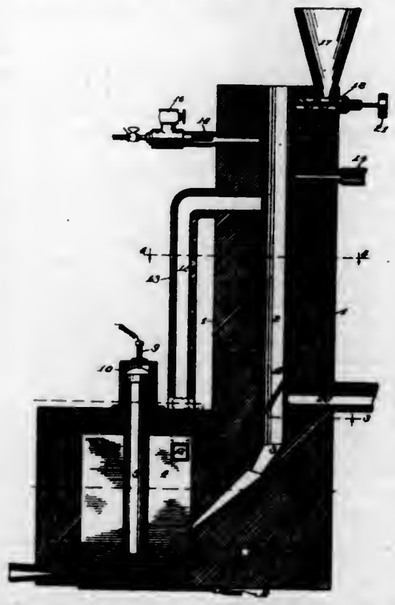
8. In an apparatus for assorting gun-wads of equal diameter, the combination with a supply-hopper, means for delivering the wads therefrom, a traveling belt upon which the wads are received, troughs communicating with the belt and each having a horizontally-revoluble screw extending axially therethrough whereby the wads are advanced to the discharge end of the trough, and a wire or stop projecting diagonally through the side of the trough above the threads of the screw adapted to contact with and turn wads which have been delivered so as to ride upon the top of the screw-thread.

9. In an apparatus for assembling gun-wads of equal diameter, a substantially horizontal endless traveling belt, means for delivering the wads thereon, diagonally-disposed guides located above the belt whereby the wads are transferred to the side of the belt, troughs or hoppers at substantially right angles with the belt and below the surface thereof, longitudinal screws revoluble in said troughs and each having their front faces radial to the axis of the screw between which threads the wads are designed to fall upon edge, and a wire or stop extending diagonally through the side of the trough above the screw-threads, and adapted to contact with and turn wads which may ride upon the tops of the screw-threads so as to cause them to fall in proper position between said threads.

10. In an apparatus for assembling gun-wads of equal diameter in grooves or tubes, an endless substantially horizontal traveling belt, means for delivering the wads successively upon said belt, means for delivering the wads successively from the discharge edge of the belt, troughs or hoppers extending outwardly from the belt having screws revoluble therein with threads between which the gun-wads are received, and by which they are moved outwardly, standing upon edge, a discharge at the end of the screw thread or hopper, said discharge having a groove formed therein whereby defective wads are prevented from clogging the screws.

11. In an apparatus for the assembling of gun-wads of equal diameter, a traveling screw having threads whose front faces are radial to the axis of the screw, means for delivering the wads upon edge between the threads upon the top of the screw, a trough or hopper inclosing the screw and meeting the threads with a working clearance between the two said trough or hopper being open at the bottom, whereby broken pieces of wads are discharged through said opening, a groove or tube continuous with the discharge end of the screw-hopper into which the wads are assembled, and a groove formed in the delivery end of the screw-hopper whereby partially-defective wads are prevented from clogging the screw.

749,460. **ELECTRIC FURNACE.** LE ROY W. STEVENS and BERNARD TINNERMAN, Chicago, Ill., assignors to Advance Furnace Company of America, a Corporation of New York. Filed Aug. 8, 1902. Renewed May 26, 1903. Serial No. 158,901. (No model.)



Claim.—1. In an apparatus for making carbid or the like, a treating-chamber through which the material passes, an auxiliary treating-chamber, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

2. In an apparatus for making carbid or the like, a treating-chamber, an auxiliary treating-chamber, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber, means for creating a downdraft within the first-mentioned chamber, and means whereby said gases are ignited in said first-mentioned chamber; substantially as described.

3. In an apparatus for making carbid or the like, a treating-chamber, an auxiliary treating-chamber, a flue connecting the two chambers through which gases from the auxiliary chamber are conducted to the upper portion of the first-mentioned chamber, and means communicating with the lower portion of the first-mentioned chamber for creating a downdraft therein; substantially as described.

4. An apparatus for making carbid or the like, comprising a main flue, a treating-chamber connecting with the main flue and arranged to receive the material therefrom and a gas-flue extending from the chamber to the main flue, in combination with means for causing a downdraft in the main flue and thus a draft from the chamber through the gas-flue, to and including the main flue.

5. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue and maintaining a flame zone therein, and means for drawing off resultant gases and causing a downdraft through the flue, in combination with a chamber connecting with the flue into which the preliminarily-heated material is delivered, means for secondarily treating the material within the chamber and withdrawing the product therefrom, and a flue extending from the chamber to and connecting with the main flue, whereby the gases from the chamber are conducted to and delivered into the main flue.

6. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue and maintaining a flame zone therein, and means for drawing off resultant gases and causing a downdraft through the

flue, in combination with a chamber connecting with the flue into which the preliminarily-heated material is delivered, means for secondarily treating the material within the chamber and withdrawing the product therefrom, and a flue extending from the chamber to and connecting with the main flue, substantially as described.

7. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue and maintaining a flame zone therein, and means for drawing off resultant gases and causing a downdraft through the flue, in combination with a chamber connecting with the main flue into which the preliminarily-heated material is delivered, heating means arranged within the chamber, means for withdrawing the resultant products from the chamber, and a flue extending from the chamber to and connecting with the main flue, substantially as described.

8. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue, and maintaining a flame zone therein, a baffle or deflecting plate below the flame zone arranged to direct the falling material to one side of the flue, a flue 20, below the baffle-plate, arranged to draw off the resultant gases and cause a downdraft through the main flue, in combination with a chamber connecting with the main flue into which the preliminarily-heated material is delivered, means for secondarily treating the material within the chamber and withdrawing the product therefrom, and a flue extending from the chamber to and connecting with the main flue, substantially as described.

9. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue, and maintaining a flame zone therein, a baffle or deflecting plate arranged below the flame zone to direct the falling material to one side of the flue, and a flue 20, arranged below the baffle-plate to withdraw resultant gases and cause a downdraft, in combination with a chamber connecting with the main flue into which the preliminarily-heated material is delivered, heating means arranged within the chamber to secondarily treat the material within the chamber, means for withdrawing the product from the chamber, and a flue extending from the chamber to and connecting with the main flue; substantially as described.

10. In an apparatus for making carbid or the like a vertical main flue, one or more flame-producing burners arranged to direct a flame within the flue, means for controlling the burners and the admission of atmospheric air, and means for drawing off the resultant gases and causing a downdraft through the flue, in combination with a chamber connecting with the main flue into which the preliminarily-heated material is delivered, heating means arranged within the chamber and adapted to treat the passing material, means for withdrawing the product thereof from the chamber, and a flue extending from the chamber to and connecting with the main flue; substantially as described.

11. A furnace for making carbid or the like comprising an inclosing structure provided with a vertical main flue, means for charging material to be treated into the flue, means for directing a flame into the flue and maintaining a flame zone therein, and means for drawing off resultant gases and causing a downdraft through the flue, in combination with a chamber connecting with the flue into which a preliminarily-heated material is delivered, the said chamber being provided with an electric furnace comprising a vertical electrode and a substantially horizontal electrode forming the floor of the chamber, means for withdrawing the product therefrom, and a flue extending from the chamber 2 and connecting with the main flue, substantially as described.

12. In an apparatus for making carbid or the like, a treating-chamber through which the material passes, a removable auxiliary treating-chamber, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

13. In an apparatus for making carbid or the like, a treating-chamber through which the material passes, a removable auxiliary treating-chamber having an open top, a closure for said open top, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

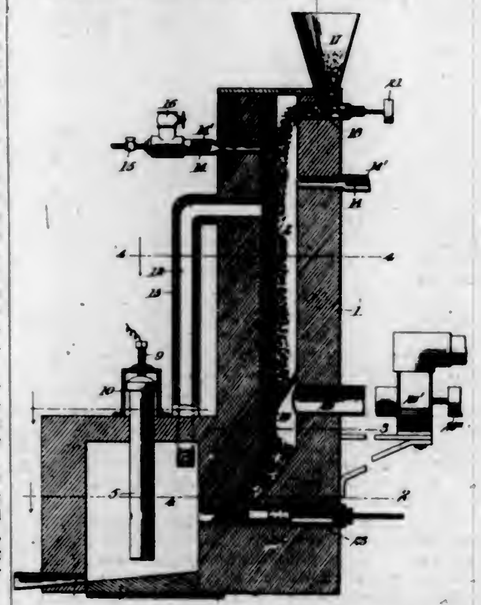
14. In an apparatus for making carbid or the like, a treating chamber through which the material passes, an auxiliary treating chamber having an open top, a closure for said open top, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

15. An apparatus for making carbid or the like, a treating-chamber through which the material passes, a removable auxiliary treating-chamber having an open top, a cover for said open top, electrodes in the auxiliary treating-chamber, one of said electrodes being carried by the cover thereof, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

16. An apparatus for making carbid or the like, a treating-chamber through which the material passes, an auxiliary treating-chamber having an open top, a cover for said open top, electrodes in the auxiliary chamber, one of said electrodes being carried by the cover thereof, means for conducting the gases from said auxiliary chamber to said first-mentioned chamber within the zone of the passing material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

17. In a furnace for making carbid or the like, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from the upper portion of said auxiliary treating-chamber into said first-mentioned treating-chamber, means for igniting said gas to heat the material fed into the first-mentioned chamber, and means for creating a downdraft in said first-mentioned chamber; substantially as described.

749,461. ELECTRIC FURNACE. LE ROY W. STEVENS and BERNARD TIMMERMAN, Chicago, Ill., assignors to Advance Furnace Company of America, a Corporation of New York. Filed Oct. 29, 1902. Renewed June 17, 1903. Serial No. 161,921. (No model.)



Claim.—1. In an apparatus for making carbid and the like, a treating-chamber through which material freely passes, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, and means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-passing material; substantially as described.

2. In an apparatus for making carbid and the like a treating-chamber through which material freely passes, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-passing material, and means for drawing off the gases from the first-mentioned chamber to create a draft therein and through the conductor; substantially as described.

3. In an apparatus for making carbid and the like, a treating-chamber through which material freely falls, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-falling material, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

4. In an apparatus for making carbid and the like, a treating-chamber through which material is passed, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, means for feeding the material from the first-mentioned chamber to the auxiliary chamber, and means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the falling material, substantially as described.

5. In an apparatus for making carbid and the like, a treating-chamber through which material is passed, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, and a pusher for feeding material from the first-mentioned chamber to the auxiliary chamber, said pusher being arranged to constitute a valve at the lower portion of said first-mentioned chamber; substantially as described.

6. In an apparatus for making carbid and the like, a treating-chamber through which material is passed, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, and a valve at the lower portion of said first-mentioned chamber; substantially as and for the purpose described.

7. In an apparatus for making carbid and the like, a treating-chamber through which material freely falls, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-falling material, a valve at the lower portion of said first-mentioned chamber, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

8. In an apparatus for making carbid and the like, a treating-chamber through which material freely passes, an auxiliary treating-chamber in which the carbid is formed, means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-passing material, means for creating a downdraft in the first-mentioned chamber, and feeding instrumentalities whereby a supply of material is initially fed to the lower portion of the first-mentioned chamber to form a baffle therein and subsequently fed through said chamber at a speed and in quantities equal to the discharge therefrom into the auxiliary chamber; substantially as and for the purpose described.

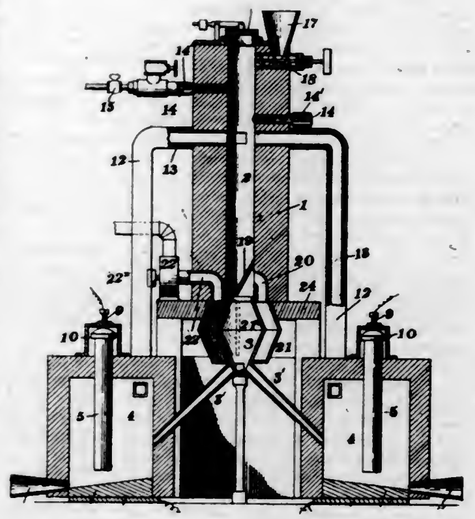
9. In an apparatus for making carbid and the like, a treating-chamber through which material freely passes, means for feeding a relatively small stream of said material into said chamber, an auxiliary treating-chamber in which the carbid is formed, means for conducting gases from said auxiliary chamber to said first-mentioned chamber within the zone of the freely-passing material, and means whereby said gases are ignited in said first-mentioned chamber, substantially as described.

749,462. FURNACE. LE ROY W. STEVENS and BERNARD TIMMERMAN, Chicago, Ill., assignors to Advance Furnace Company of America, a Corporation of New York. Filed Oct. 30, 1902. Serial No. 129,416. (No model.)

Claim.—1. In a furnace of the character described having a treating-chamber, means in said chamber for preheating the material to be treated, supplemental means exterior to said chamber arranged to receive exhaust-gases therefrom whereby said material is maintained in its preheated condition, and an auxiliary treating-chamber containing electrodes.

2. In a furnace of the character described, a treating-chamber, means for preheating the material introduced into said chamber, a conductor through which heated gases are drawn from said chamber, and a casing surrounding the lower portion of said chamber into which said gases are discharged to maintain the material at said lower portion of the said chamber in its preheated condition; substantially as described.

3. In a furnace of the character described, a treating-chamber, means for introducing a gas into the material fed into said chamber, means whereby said gas is ignited to preheat the material, a flue at the lower portion of said chamber through which the heated gases are drawn from said chamber, and a casing surrounding the lower portion of the treating-chamber below the said flue into which the gases are fed from the flue to maintain the material in said lower portion in its preheated condition: substantially as described.



4. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting the heated gases from said auxiliary chamber around the lower portion of said first-mentioned chamber, and means for creating a draft through said conducting means and a downdraft in the first-mentioned treating-chamber; substantially as and for the purpose described.

5. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for creating a downdraft in said first-mentioned chamber, and means whereby heated gases from the auxiliary chamber are passed around the outside of and in proximity to the lower portion of the first-mentioned chamber previous to their exhaustion; substantially as described.

6. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for conducting gases from one of said auxiliary treating-chambers to said first-mentioned chamber, and means for creating a draft in and drawing off the gases from the first-mentioned chamber; substantially as described.

7. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for feeding material into the first-mentioned chamber in a relatively small stream and in quantities equal to the combined discharge from said chamber to the auxiliary chambers, and means for conducting gases from one of said auxiliary chambers to the first-mentioned chamber within the zone of the passing material therein; substantially as described.

8. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for feeding material into the first-mentioned chamber in a relatively small stream and in quantities equal to the combined discharge from said chamber to the auxiliary chambers, means for conducting gases from one of said auxiliary chambers to the first-mentioned chamber within the zone of the passing material therein, and means for creating a draft in the first-mentioned chamber; substantially as described.

9. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for feeding material into the first-mentioned chamber in a relatively small stream and in quantities equal to the combined discharge from said chamber to the auxiliary chambers, means for conducting gases from one of said auxiliary chambers to the first-mentioned chamber within the zone of the passing material therein, and means for creating a downdraft in the first-mentioned chamber; substantially as described.

10. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for feeding material into the first-mentioned chamber in a relatively small stream and in quantities equal to the combined discharge from said cham-

ber to the auxiliary chambers, means for conducting gases from one of said auxiliary chambers to the first-mentioned chamber within the zone of the passing material therein, means whereby said gases are ignited in said first-mentioned chamber, and means for creating a draft therein; substantially as described.

11. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for feeding material into the first-mentioned chamber in a relatively small stream and in quantities equal to the combined discharge from said chamber to the auxiliary chambers, means for conducting gases from one of the auxiliary chambers to the first-mentioned chamber within the zone of the passing material therein, means whereby said gases are ignited in said first-mentioned chamber, and means for creating a downdraft therein; substantially as described.

12. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, means for creating a draft in said first-mentioned chamber, and a safety-valve associated with said first-mentioned chamber; substantially as and for the purpose described.

13. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, means for creating a downdraft in said first mentioned chamber, and a safety-valve associated with said first-mentioned chamber; substantially as and for the purpose described.

14. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for conducting gases from one of said auxiliary chambers to said first-mentioned chamber, means for creating a downdraft in said first-mentioned chamber, and a safety-valve associated with said first-mentioned chamber; substantially as and for the purpose described.

15. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for conducting gases from one of said auxiliary chambers to said first-mentioned chamber, means for creating a draft in said first-mentioned chamber, and a safety-valve associated with said first-mentioned chamber; substantially as and for the purpose described.

16. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for conducting gases from all of said auxiliary chambers to said first-mentioned chamber, means for creating a draft in said first-mentioned chamber, and a safety-valve associated with said first-mentioned chamber, substantially as described.

17. In an apparatus of the character described, a treating-chamber, a plurality of auxiliary treating-chambers, means for conducting gases from all of said auxiliary chambers to said first-mentioned chamber, means for creating a downdraft in said first-mentioned chamber, and a safety-valve associated with said first-mentioned chamber; substantially as described.

18. In a furnace of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber into said first-mentioned chamber, means for exhausting gases from said first-mentioned chamber, and means whereby said exhausted gases are conducted around a portion of the first-mentioned chamber; substantially as described.

19. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, a conductor through which gases are drawn from said first-mentioned chamber, and a casing surrounding the lower portion of said first-mentioned chamber into which said exhaust-gases are discharged; substantially as described.

20. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, a conductor through which gases are drawn from said first-mentioned chamber, a casing surrounding the lower portion of said first-mentioned chamber into which said exhaust-gases are discharged, and means for creating a downdraft in the first-mentioned chamber and through the said casing surrounding the lower portion thereof; substantially as described.

21. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, a conductor through which gases are drawn from said first-mentioned chamber, a casing surrounding the lower portion of said first-mentioned chamber into which said exhaust-gases are discharged, means whereby the gases are ignited in the first-mentioned chamber, and means for creating a downdraft in the first-mentioned chamber and through the said casing surrounding the lower portion thereof; substantially as described.

22. In an apparatus of the character described, a treating-chamber, an auxiliary treating-chamber, means for conducting gases from said auxiliary chamber to said first-mentioned chamber, a conductor through which gases are drawn from said first-mentioned chamber, means whereby the gases are ignited in the first-mentioned chamber, and a casing surrounding the lower portion of said first-mentioned chamber into which said exhaust-gases are discharged; substantially as described.

23. In a furnace of the character described, a chamber, means for preheating material introduced into said chamber, and means for conducting gases withdrawn from said chamber around the exterior thereof to maintain the material in its preheated condition; substantially as described.

24. In an apparatus of the character described, a treating-chamber, and means for preheating the material therein, in combination with a plurality of auxiliary treating-chambers, means for conducting the preheated material directly to each of said auxiliary treating-chambers, and electrodes in said auxiliary treating-chambers for secondarily treating the preheated material therein.

25. In an apparatus of the character described, a treating-chamber, and means for preheating the material in said chamber, in combination with a plurality of auxiliary treating-chambers arranged to receive the preheated material, electrodes in said auxiliary treating-chambers for further treating the preheated material, and a storing-chamber intermediate said auxiliary chambers and the first-mentioned treating-chamber.

26. In an apparatus of the character described, a treating-chamber, and means for preheating the material in said chamber, in combination with a plurality of auxiliary treating-chambers arranged to receive the preheated material, electrodes in said auxiliary treating-chambers for further treating the material, a storing-chamber intermediate said auxiliary chambers and the first-mentioned treating-chamber, and means whereby the preheated material in said storing-chamber is secondarily heated.

27. In an apparatus of the character described, a treating-chamber, means for feeding a relatively small stream of material into said chamber, means for creating a downdraft of heat through which the material freely passes, an auxiliary treating-chamber, means arranged to receive the preheated material from the first-mentioned treating-chamber and store the same, and means for feeding the material from said storing means to the auxiliary treating-chamber.

28. In an apparatus of the character described, a treating-chamber, and means for preheating the material in said chamber, in combination with an auxiliary treating-chamber arranged to receive the preheated material, means in said auxiliary treating-chamber for further treating the material, a storing-chamber intermediate said auxiliary chamber and the first-mentioned treating-chamber, and means whereby the preheated material in said storing-chamber is maintained in its preheated condition.

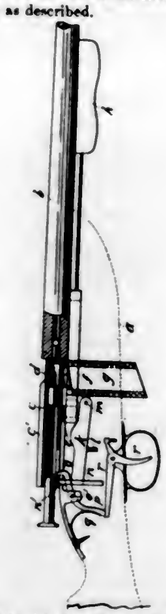
29. In an apparatus of the character described, a treating-chamber, means therein for initially treating the material, and an auxiliary treating-chamber in combination with a storing-chamber at the bottom of said first-mentioned treating-chamber arranged to receive said treated material from the first-mentioned chamber, and means for feeding the material from the storing-chamber to the auxiliary treating-chamber.

30. In an apparatus of the character described, a treating-chamber, and means therein for initially treating the material, in combination with a storing-chamber at the bottom of said treating-chamber arranged to receive said treated material, means whereby the material in said storing-chamber is supplementally treated, and a discharge from said storage-chamber.

749,463. **REPEATING RIFLE.** ROBERT C. STEVENSON, Kilmarnock, Scotland. Filed June 8, 1903. Serial No. 160,639. (No model.)

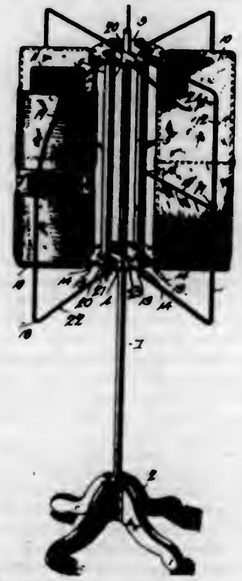
Claim.—1. In a repeating rifle the combination with the bolt sliding in a bolt-guide of a cocking-piece connected to a handle and beneath the rifle-barrel, and having its rear end arranged to engage a projection to move the bolt when the cocking-piece is reciprocated, a spring-supported lever pivotally mounted within the gun-stock and a bolt-check connected to said lever and operated by movement of the cocking-piece to release the bolt substantially as described.

2. In a repeating rifle the combination with the bolt sliding in a bolt-guide of a cocking-piece having a sliding handle beneath the rifle-barrel and a depending lug on the bolt passing through a slot in its rear end, a spring-supported lever pivoted within the gun-stock and having a projection engaging the end of the cocking-piece to depress the lever when the cocking-piece is drawn back, and a block having a slot for engagement with said lever, the said block being adapted to rise and fall in the slot in the stock to engage a notch in the bolt substantially as described.



3. The combination with the sliding bolt of a repeating rifle, of a bolt-check *n*, a bolt-check lever *k* connected to the bolt-check, a spring *l* elevating said lever, means disposed to engage and depress the lever and therewith the check and the trigger *r*, said trigger having a projection *r'* adapted to engage the lower part of the bolt-check when the latter is depressed.

749,464. **DISPLAY-RACK.** JOSEPH F. THEIS, Mendota, Ill. Filed May 27, 1903. Serial No. 159,036. (No model.)



Claim.—1. A display-rack comprising a support, frames carried by the support and envelops fitting over the frames.

2. In a display-rack, a rectangular frame and an envelop fitting over the frame.

3. In a display-rack, a frame, an envelop fitting over the frame and having pockets.

4. A display-rack comprising a support, a frame carried by the support and removable exhibit-envelops carried by the frame.

5. A display-rack comprising a support, a frame carried by the support and a hollow exhibit-holder having two independent sides and carried by the frame.

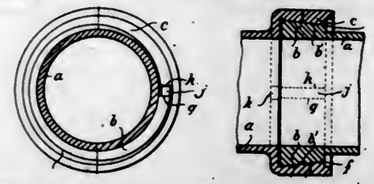
6. In a display-rack, a support, a removable frame on the support and provided with a yielding tongue projecting through the support and a catch for engagement with the tongue.

7. In a display-rack a support, a removable frame on the support and having a terminally-disposed yielding tongue and a terminally-disposed catch for the tongue.

8. In a display-rack, a support, a frame on the support and having an engaging yielding tongue and an intermediate brace engaging the frame and the tongue.

9. In a display-rack, the combination with a rotatable carrier, swinging frames carried by the carrier and having yielding tongues projecting therethrough and engaging the frame, and removable envelops carried by the frames.

749,465. **PIPE AND METHOD OF JOINTING SAME.** WILLIAM THORPE, Chelsea, London, England, assignor to Freeman Hines, Limited, London, England. Filed June 10, 1903. Serial No. 160,832. (No model.)



Claim.—1. A pipe-joint comprising male and female snail-cams adapted to be inserted the one into the other and turned with respect to each other, the coacting faces of said cams having a longitudinal slope, whereby when the male cam is turned in the female cam their longitudinally-sloped faces jam both peripherally and longitudinally, and the pipes are drawn together, substantially as described.

2. A pipe-joint comprising a socket having a female snail-cam therein and a spigot having a male snail-cam thereon, the coacting faces of said cams having a longitudinal slope, whereby when the spigot is inserted in the socket and the parts turned with respect to each other the longitudinally-sloped faces of the cams jam both peripherally and longitudinally and the pipes are drawn together, substantially as described.

3. A pipe-joint comprising a socket having a female snail-cam therein and a lining adapted to be placed between said socket and the spigot end of a pipe and having a male snail-cam formed thereon, the coacting faces of said cams having a longitudinal slope, substantially as and for the purpose specified.

4. A pipe-joint comprising a socket having a cam-shaped projection formed therein, said cam having a longitudinal and lateral slope, a spigot having a corresponding cam-shaped projection formed thereon, a wedge disposed between the steps of said cams, a hole in the flange of the socket through which the wedge can be inserted or driven substantially as and for the purpose described.

5. A pipe-joint comprising a socket having a cam-shaped projection formed therein, said cam having a longitudinal and lateral slope, a spigot having a corresponding cam-shaped projection formed thereon, a wedge disposed between the steps of said cams, a hole in the flange of the socket through which the wedge can be inserted or driven substantially as and for the purpose described.

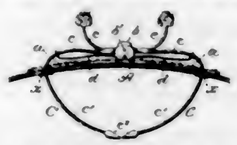
6. A pipe-joint comprising a socket having a female snail-cam therein, a spigot having a male snail-cam thereon, the coacting faces of said cams having a longitudinal slope, the steps of the cams being inclined obliquely to the center line of the pipe, substantially as and for the purpose specified.

7. A joint for stoppering pipes, comprising a socket having a female snail-cam therein, a spigot having a corresponding male snail-cam thereon, the coacting faces of said cams having a longitudinal slope, and a filling between the steps of the snail-cams, substantially as and for the purposes specified.

8. A pipe-joint comprising two members to be joined, said members having abutting ends, and male and female snail-cams secured the one to one of said members and the other to the other of said members, said cams having their faces longitudinally inclined, so

that when said members are relatively rotated their abutting ends are forced together by said cams, and said cams simultaneously jam together peripherally, substantially as described.

749,466. HAT-FASTENER. LOUIS VIHON, Austin, Chicago, Ill. Filed May 22, 1903. Serial No. 158,264. (No model.)



Claim.—1. A hat-fastener comprising, in combination, a base-plate adapted to be secured to a side of a hat-crown and provided with a bearing, pins composed of spring-pressed arms pivoted at corresponding ends on said bearing to extend therefrom in contrary directions lengthwise along said plate and terminating in pointed fingers penetrating said plate and curved to bring adjacent to each other their pointed extremities, said fingers being retractable to withdraw their points close to the plate by turning the pins on said bearing, and a handle on said arms for retracting them to spread apart the fingers, substantially as described.

2. A hat-fastener comprising, in combination, a base-plate adapted to be secured to a side of a hat-crown and provided with a bearing, pins composed of spring-pressed arms pivoted at corresponding ends on said bearing to extend therefrom in contrary directions lengthwise along said plate and terminating in fingers penetrating said plate with pointed heads and oppositely curved to bring the points adjacent to each other, said fingers being retractable to withdraw their pointed heads close to the plate by turning the pins on said bearing, and a handle composed of bent branches projecting outwardly from said arms, by which to retract them and spread apart the fingers, substantially as described.

3. A hat-fastener comprising, in combination, a base-plate having openings near its opposite ends and provided with means for fastening it to a side of a hat-crown, a bearing projecting outwardly from said plate, pins composed of spring-pressed arms pivoted at corresponding ends on said bearing to extend therefrom in contrary directions lengthwise along said plate and terminating in fingers curved to pass through said plate-openings and project toward each other and having headed and pointed ends, the fingers being retractable to withdraw said ends close to the plate by turning the pins on their bearing, and a handle composed of bent headed branches projecting outwardly from said arms, by which to retract them and spread apart the fingers, substantially as described.

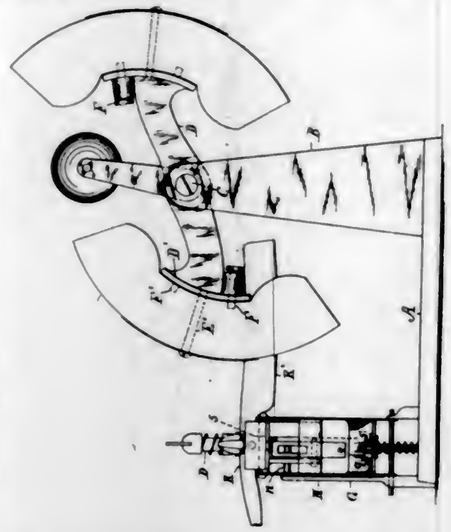
749,467. RAZOR STROPPING AND HONING MACHINE. HENRY WILCOX, Newark, N. J., assignor of one-half to William D. Donovan, Newark, N. J. Filed Mar. 17, 1903. Serial No. 148,168. (No model.)

Claim.—1. In a razor-sharpening machine, a razor-holding vise, a carrier pivoted to the base of the vise, springs supporting the vise upon the carrier, a pivot connecting the carrier with a bed-plate, and springs supporting the carrier upon the bed-plate, and sharpening-blocks mounted to wipe alternately past opposite sides of the razor-blade, and beveled upon the front corner, the whole arranged and operated to tip the razor-blade excessively until the block passes the pivot, the razor-blade then adjusting itself automatically to the plane of the block.

2. In a razor-sharpening machine, a razor-holding vise, a pivot connecting the carrier with the vise at the bottom of the razor-shank, a pivot connecting the carrier with a bed-plate, springs applied to the vise and carrier to hold them normally in a central position, supplemental spring-arms carried by the vise, and a fixed stud operating when such arms are moved with the vise to produce an additional resistance to such movement, and sharpening-blocks mounted to wipe alternately past opposite sides of the razor-blade and beveled upon the front corner, whereby the razor-blade is moved alternately at opposite sides of its central position and adapts itself to the plane of the sharpening-block, and has its edge pressed against such block by the supplemental spring-arms.

3. In a razor-sharpening machine, a vise having a base supported upon a carrier, jaws fitted movably upon the top of the base, and having opposed faces as set forth, a thumb-screw inserted in the base and having a cone fitted to such flaring seats to press the jaws simultaneously in opposite directions.

4. In a razor-sharpening machine, a vise having a base supported upon a carrier, jaws fitted movably upon the top of the base with faces adapted to clamp the razor-shank, the jaws having adjacent to such faces opposed seats flaring as set forth, a thumb-screw inserted in the base and having cone fitted to such flaring seats, and a spring-follower upon the thumb-screw to press upon the back of the razor-shank.



5. In a razor-sharpening machine, a vise having a base supported upon a carrier and provided with screw-slots, the jaw secured upon the base by screws in said slots and having at the middle a face to clamp the razor-shank, and near the opposite end a flaring seat as set forth, the jaw movable upon the jaw with face to clamp the razor-shank and having flaring surface opposed to that upon the jaw, the thumb-screw tapped into the base and having cone fitted to the flaring seats.

6. A razor-sharpening machine having the bed-plate, the carrier having the cheeks pivoted thereon and held elastically in a central position as set forth, a vise connected to the carrier by pivot at the bottom of the razor-shank, and having bracket projected downward between the cheeks and provided with the opposed springs, and also having the bracket projected downward between the cheeks, the supplemental jaws pivoted together and to said bracket, and having spring to press their lower ends apart, and the standard having the stud fitted between the upper parts of the spring-arms, whereby the vise may move bodily from each side of the center line and tip at any required angle during the stropping of the razor-blade upon opposite sides.

7. A razor-sharpening machine for supporting the razor-blade, a crank-shaft with two arms, blocks provided respectively upon their opposite sides with abrading and polishing surfaces and carried by the arms past the opposite faces of the razor-blade, the blocks being fitted rotatably upon the ends of the arms to present either side of the block at pleasure to the razor-blade, whereby the opposite sides of the block may be presented at pleasure to the razor-blade.

8. A razor-sharpening machine having means for supporting the razor-blade, a crank-shaft with two arms having outwardly-projecting pivots upon their ends, sharpening-blocks mounted at the middle to turn upon said pivots, and means for locking the blocks when adjusted, in the plane of rotation.

9. In a razor-stropping machine, the combination, with a bed-plate and suitable bearings, a crank-shaft and two arms having blocks mounted rotatably upon their ends to present either side of the block at pleasure to the razor-blade, and the ends of the block beveled as set forth, of a vise to hold the shank of the razor-blade, a vise-carrier with pivotal connection to the vise at the bottom of said shank, a pivot connecting the carrier with the bed-plate of the machine, means for holding the carrier elastically in its central position, and means for holding the vise elastically in a central position upon the carrier, whereby each may assume a different angle from the other, and the razor-blade adjust itself automatically to the sharpening-blocks.

749,468. METHOD OF REGULATING TURBINES. JAMES WILKINSON, Birmingham, Ala., assignor to the Wilkinson Steam Turbine Company, a Corporation of Alabama. Filed Sept. 5, 1903. Serial No. 172,038. (No model.)



Claim.—1. A method of regulating elastic-fluid turbines which consists in intermittently interrupting the flow of motor fluid through a nozzle-passage, and delivering said fluid to a rotating element in pulsations of uniform volume and velocity, whose mean potential is proportioned to the load.

2. A method of regulating elastic-fluid turbines which consists in introducing thereinto one or more constant streams of motive fluid constituting a constant supply, and a periodically-interrupted stream constituting a pulsatory supply.

3. A method of regulating a compound turbine consisting in varying the supply of motive fluid to the initial stage, and delivering the supply to a succeeding stage in streams, part of which are constant and part pulsatory.

4. A method of regulating a compound turbine consisting in varying the supply of motive fluid to the initial stage, and delivering the supply from each stage to a succeeding wheel-compartment in streams, part of which are constant and part pulsatory.

5. A method of regulating a compound turbine consisting in creating and maintaining stage-pressure sensitive to variations in the fluid-supply, and utilizing each of said pressures to effect and control a part pulsatory and part constant delivery of the fluid therefrom to the succeeding wheel-compartment.

6. A method of regulating elastic-fluid turbines which consists in pulsating a part of the supply to the turbine while the rest of the supply is delivered thereto in a constant stream or streams.

7. A method of regulating elastic-fluid turbines operating by stage expansion, which consists in pulsating a part of the motor fluid discharged from one stage to a succeeding wheel-compartment.

8. A method of regulating elastic-fluid turbines consisting in maintaining a constant speed of rotation of the turbine under a given load by delivering the motor fluid in part constant and part pulsatory streams whose combined potential is proportioned to the said load.

749,469. SASH-FASTENER. ANTENOR ASSORATI, New York, N. Y. Filed Apr. 29, 1903. Serial No. 154,784. (No model.)



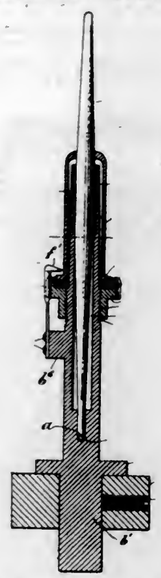
Claim.—1. A sash-fastener comprising a support having a perforated flange for securing it to the window-sash and a flange extending at right angles to said perforated flange, a plurality of catches pivoted to said last-named flange and means for exerting friction upon the catches to hold them in their adjustments.

2. The combination with the upper and lower window-sashes, of a series of catches secured in vertical alinement to the upper sash in position to swing over the top of the lower sash and means for holding the catches in different swinging adjustments.

3. The combination with the upper and lower window-sashes, of a series of catches secured in alinement with the upper sash in position to swing over the top of the lower sash, means for holding the catches in their swinging adjustments and a second series of catches secured to the window-frame in position to swing over the top of the lower sash whereby the two sashes may be locked with respect to each other and the lower sash locked independently of the upper sash.

4. The combination with a support formed of spring metal and having an arm struck therefrom, of a recessed catch pivoted to the support in position to cause the free end of the said spring-arm to travel along the recess in the catch and means for securing the said support in proximity to the window-sash.

749,470. SPINNING AND TWISTING MACHINE. CHARLES T. ATHERTON, Pawtucket, and ABEL T. ATHERTON, Warwick, R. I. Filed Mar. 26, 1903. Serial No. 149,675. (No model.)



Claim.—1. A spindle provided with a friction-surface and a sleeve by which this surface is supported from the spindle, substantially as described.

2. The combination, with a spindle provided with a friction-surface, and a holder or support, of a coöperating friction-surface, and means whereby this last-mentioned friction-surface may be moved toward and away from the first-mentioned friction-surface, substantially as described.

3. The combination, with a spindle provided with a friction-flange, and a sleeve by which this flange is supported from the spindle, of a holder or support in which the spindle is mounted, a friction-surface, and a controller by which the friction-surface carried by the holder or support may be adjusted toward and away from the friction-flange on the spindle, substantially as described.

4. The combination, with a spindle provided with a friction-flange supported from the spindle, and a holder or support in which the spindle is mounted, of a controller carrying a friction-surface for coöperating with the friction-flange on the spindle, threaded upon the holder or support, whereby the friction-surface may be adjusted toward and away from the friction-flange to vary the resistance offered by the spindle to rotation, substantially as described.

5. The combination, with a spindle provided with a friction-flange, a holder or support in which the spindle is rotatively mounted, a friction-surface, a controller by which this friction-surface is carried, threaded upon the exterior of the holder or support and provided with a fluted head, of a spring-detent having an overturned upper end, for engaging with the flutes in the head of the controller and with the friction-flange on the spindle, whereby to lock the controller in adjusted position and prevent the removal of the spindle when the yarn or thread is withdrawn therefrom, substantially as described.

749,471. COMB. WILLIAM S. BRICHFORD, Newark, N. J. Filed Apr. 17, 1903. Serial No. 153,117. (No model.)

Claim.—As a new article of manufacture, a comb of the character described comprising in its structure a series of teeth, a head for said teeth curving laterally from the top of the teeth and inwardly toward the rear of the comb to form a socket extending in the direction of the length of the comb and a reinforcing-strip placed

within and secured in said socket and having its inner face substantially flush with the inner surface of the teeth and head, substantially as described.



749,472. SINGLE-DELIVERY MATCH-SAFE. WALFRED P. CARLBERG, Sisseton, S. D. Filed July 10, 1903. Serial No. 164,990. (No model.)

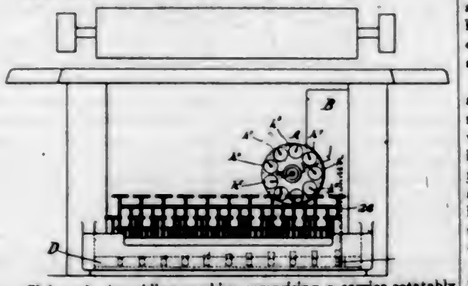


Claim.—1. In a match-safe, the combination of a hopper, a discharge-opening in said hopper and a match-ejector arranged to return to its normal position after the delivery of a match, said match-ejector lying partially within the discharge-opening and provided with a match-receiving recess or seat the front edge of which projects into the hopper to the extent of the diameter of a match and the rear edge coincides with the rear edge of the discharge-opening with the rear side or wall of the recess slanting downward, when the ejector is in its normal position, so that the said recess forms a pocket at this side of the discharge-opening.

2. In a match-safe, the combination of a hopper, an open match-tray, a discharge-opening in said hopper, a match-ejector comprising a roll provided with a longitudinal recess or seat for the reception of a match, said roll located between the hopper and the open tray and lying partially within the discharge-opening with the front edge of the match-receiving recess or seat projecting into the hopper to the extent of the diameter of a match and the rear edge coinciding with the rear edge of the discharge-opening and the rear side or wall of the recess slanting downward when the ejector-roll is in its normal position, so that the said recess forms a pocket at this side of the discharge-opening; and a spring connected to said ejector and arranged to return the ejector to its normal position after the delivery of a match to the tray.

3. In a match-safe, the combination of a hopper provided with a discharge-slot, an open match-tray, a rotatable match-ejector comprising a roll located under the discharge-opening and having a longitudinal match seat or recess therein, and provided with removable journals, screw-threaded into the ends of the roll and projecting through the sides of the safe, in which they are journaled, a coiled spring located outside of the safe and attached to one of said journals to return it to a normal position, and an ejector-operating arm secured to the other journal and outside of said safe.

749,473. ADDING-MACHINE. LAUTER CERF, New York, N. Y. Filed Oct. 17, 1903. Serial No. 177,446. (No model.)



Claim.—1. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, and means for imparting a step-by-step movement to said carrier for presenting the registering devices successively to the actuating mechanism, substantially as described.

2. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, and means for imparting a step-by-step movement to the carrier for presenting the registering devices successively to the actuating mechanism controlled by said actuating mechanism for the registering devices, substantially as described.

3. An adding-machine comprising a motor-impelled carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, and an escapement controlling the movements of the carrier operated by the actuating mechanism for the registering devices, substantially as described.

4. An adding-machine comprising a motor-impelled carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, a series of finger-keys, an actuating mechanism in connection with said keys and adapted to engage with and operate the individual registering devices, and an escapement for the carrier operated by the actuating mechanism for the registering devices for permitting a step-by-step advancement of the carrier under the influence of its motor, substantially as described.

5. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, means for imparting rotary movement to the carrier, a double series of staggered pins projecting from the carrier, a pallet-lever having a passage-way for the pins, an anchor adapted to engage with said pallet-lever, and actuating means adapted to engage with and operate the individual registering devices and adapted to engage with the pallet-lever and the anchor for releasing the carrier from the pallet-lever for its step-by-step advancement, substantially as described.

6. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, means controlled by the actuating mechanism for the registering devices for imparting a step-by-step movement to the carrier, a series of finger-keys, one for each registering device, and operative connections between said keys and the actuating mechanism for imparting different throw to the latter, substantially as described.

7. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, and each provided with a ratchet-wheel, a ratchet-bar mounted to reciprocate, means for imparting a step-by-step movement to the carrier for bringing the ratchet-wheels successively in line with the ratchet-bar, and operative means in connection with the ratchet-bar for imparting different throw to the latter, substantially as described.

8. In a combined type-writing and adding machine, the combination of a motor-impelled carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, means for imparting a step-by-step movement to said carrier for presenting the registering devices successively to the actuating mechanism, an operative connection between said mechanism and the numeral finger-keys giving different throw to the actuating mechanism, and an operative connection between said keys and the types, substantially as described.

9. An adding-machine comprising a carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, and each provided with a ratchet-wheel, a swinging ratchet-bar mounted to reciprocate, means for imparting a step-by-step movement to the carrier for bringing the ratchet-wheels successively in line with the ratchet-bar, a stop for arresting the motion of the carrier when the units ratchet-wheel is in line with the ratchet-bar, and operative means in connection with the ratchet-bar for imparting different throw to the latter, substantially as described.

10. In a combined type-writing and adding machine, the combination of a motor-impelled carrier rotatably mounted, a series of interconnecting registering devices on said carrier arranged concentrically with its axis, an actuating mechanism adapted to engage with and operate the individual registering devices, means for imparting a step-by-step movement to said carrier for presenting the registering devices successively to the actuating mechanism, an operative connection between said mechanism and the numeral finger-keys giving different throw to the actuating mechanism, an operative connection between said keys and the types, and means for throwing the actuating mechanism out of action, substantially as described.

749,474. PEN-WIPER. ALBERT C. L. CHAPMAN, Easthampton, Mass., assignor of one-half to Amos Shepard Cooley, Easthampton, Mass. Filed Sept. 24, 1903. Serial No. 174,464. (No model.)



Claim.—1. A pen-wiper device consisting of superimposed layers of felt or like material, and a fastening device therefor comprising a relatively large button-like head having prongs penetrating said layers, and a retaining-plate at the back of the layers through which the prongs protrude and against the outer face of which their extremities are angularly turned, substantially as described.

2. A pen-wiper device consisting of superimposed layers of felt or like material, and fastening means therefor comprising a relatively large button-like head having prongs penetrating said layers, and a retaining-plate at the back of the layers through which the prongs protrude and against the outer face of which their extremities are angularly turned, and a layer of sheet material stuck to the rear side of the bottom layer of felt covering the rear portion of the fastening and adapted to carry advertising matter thereon, as described.

3. A pen-wiper consisting of superimposed and concentric layers of felt of different sizes, a relatively large button-like head comprising cup-shaped part *f* having rearward-inturned flange *g* and back plate *h*, marginally engaged by said flange and provided with the aperture *k*, a pair of prongs *i i*, having the uniting portion *j* located within the button-like head and the prongs projecting through said aperture *k*, centrally through the superimposed layers, the back-retaining plate *m* through which the extremities of the prongs protrude and against the outer face of which such extremities are angularly turned and the rearwardly-disposed sheet *l* stuck to rear one of said layers and covering the retaining-plate and said prong extremities.

4. An article of manufacture, comprising a series of superposed layers of felt or like material, constituting a pen-wiper, and a fastening device therefor consisting of a relatively large button-like head, having penetrating prongs which pass through the said superposed layers and have their extremities turned outwardly to securely hold the layers in place.

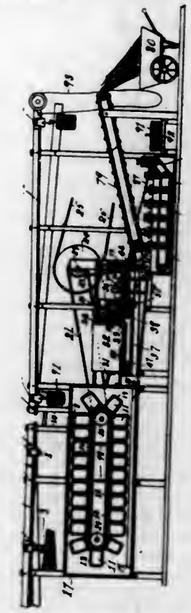
749,475. DECORTICATING-MACHINE. HERBERT A. CLIFFORD, San Francisco, Cal. Filed May 24, 1901. Serial No. 61,901. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a vat, means for heating water in said vat, a belt traveling in said vat in a circuit, holders for holding stalks from which the fiber is to be removed, said holders being positively attached to said belt whereby they travel below said belt in the lower part of the path of the latter, and above said belt in the upper part, and a door opening into the upper part of the vat whereby the stalks can be passed into said holders when the latter are above the water-level, substantially as described.

2. In an apparatus of the character described, the combination of a vat, means for heating water in said vat, a belt traveling in said vat, holders attached to said belt, said holders being formed to receive a bundle of stalks, and being entirely open and unobstructed at one end, and a door opening into the upper part of said vat in proximity to which the said open end may be brought by the movement of the belt, substantially as described.

3. In an apparatus of the character described, the combination of a closed vat, means for heating water in said vat, a belt traveling in said vat, holders carried by said belt, said holders being completely free and unobstructed at one end and conformed to receive and carry bundles of stalks, a door opening into the side of said vat above the water-line, and a platform arranged adjacent to said door, substantially as described.

4. In an apparatus of the character described, the combination of a vat, means for heating water therein, means for moving stalks in said vat, a feeder into which the stalks can be deposited when taken from said vat, means for feeding stalks out of said feeder, crushing-rollers between which stalks are so fed, rubbing-plates between which the stalks are fed from the roller, rollers between which the stalks pass from between said plates, a carrier for removing said stalks, a vat into which the fiber falls from the last-named rollers, squeezing-rollers in said last-named vat, means for transporting said fiber from said vat, and mechanism for operating the movable elements, substantially as described.



5. In an apparatus of the character described, the combination of the vat, means for heating water therein, endless mechanism for transporting stalks therein, said mechanism being provided with means spaced at suitable intervals for holding said stalks in a substantially fixed position relative to said transporting mechanism, means for loosening the fiber from the stalks thus softened in the vat, means for separating the fiber, and means for actuating the above mechanism, substantially as described.

6. In an apparatus for removing fiber from stalks, the combination, with a plurality of belts, of base-plates secured thereon, and bands secured to said base-plates and forming therewith annular carriers, substantially as described.

7. In an apparatus of the character described, the combination of a vat, pulleys in the ends of the vat, cables running on said pulleys, carriers attached to and supported in all positions by said cables, constructed to support the stalks when either above or below said carriers and rails or ribs in the bottom of the vat to prevent contact of said carriers with said bottom, substantially as described.

8. In an apparatus for scouring stalks having a fibrous covering, a vat having means for heating water therein, particles of gritty scouring material in said vat, and means for moving the stalks in said vat, substantially as described.

9. In an apparatus for removing fiber from stalks, the combination of a vat, means for heating water therein, means for moving stalks through the water in said vat, crushing and rubbing apparatus for separating fiber from the stalks, a second vat for receiving the separated fiber, and washing the gum therefrom, said second vat being lower on one side than on the other, and means for operating the movable elements, substantially as described.

10. In an apparatus of the character described, the combination of a vat, pulleys therein, a belt traveling around said pulleys, carriers positively attached to said belt arranged to carry material either above or below said belt, and means for moving said belt, substantially as described.

11. In an apparatus of the character described, the combination of a vat, pulleys therein, a belt traveling around said pulleys,

carriers positively attached to said belt arranged to carry material either above or below said belt, means for moving said belt, and screens carried by said carriers at right angles to said belt, and containing the material therebetween, substantially as described.

12. In an apparatus for removing fiber from stalks, a feeder, a conveyer traveling in the bottom of said feeder, and a plate in the bottom of said feeder above the conveyer at its rear end to raise the rear end of the stalks out of contact with said conveyer, said conveyer being free and unobstructed above the front end thereof to permit the material to rest freely and wholly at its front end upon said conveyer, substantially as described.

13. In an apparatus for removing fiber from stalks, a feeding device having an opening at the bottom of the front end, means for adjusting said opening, a conveyer traveling in the bottom of said device, a plate in the bottom of said feeding device at its rear end above the conveyer to raise the rear end of the stalks out of contact with said feeding device and means for adjusting said plate, substantially as described.

14. In an apparatus for removing fiber from stalks, the combination of a feeder having an adjustable opening in the bottom of its front end, a conveyer forming part of the bottom of said feeder, means for holding the material out of contact with the rear part of said conveyer in said bottom, while permitting it to come in contact with the front portion thereof, a roller in front of the front end of said feeder and a roller beneath said front roller around which said conveyer travels, substantially as described.

15. In an apparatus for removing fiber from stalks, the combination of a feeder, a chute leading thereto, said feeder having its front end closed except for the opening in the bottom thereof, means for adjusting said opening, a conveyer in the bottom of the feeder to support the stalks therein, an adjustable plate forming the rear part of the bottom of the feeder, a roller in front of the front end of the feeder, and a roller beneath said first-mentioned roller, around which said conveyer passes, substantially as described.

16. In an apparatus of the character described, the combination of a feeding device, arranged to maintain the stalks substantially parallel with each other, means for feeding said stalks in the direction of their length, rollers 38, 53, for advancing said stalks, rollers 56, 57, for flattening the stalks, means for applying friction to said stalks to loosen the fiber, and means for separating the fiber from the stalks, substantially as described.

17. In an apparatus of the character described, the combination of a feeder, means whereby the bottom layer of stalks is advanced in said feeder, rollers for directing the stalks, means for flattening the stalks, means for loosening the fiber by friction, and means for separating the fiber from the stalks, substantially as described.

18. In an apparatus for removing fiber from stalks, the combination of a vat, means for heating water therein, means for moving stalks through the water in said vat, crushing and rubbing apparatus for separating fiber from the stalks, and a second vat for receiving the separated fiber, and washing the gum therefrom, substantially as described.

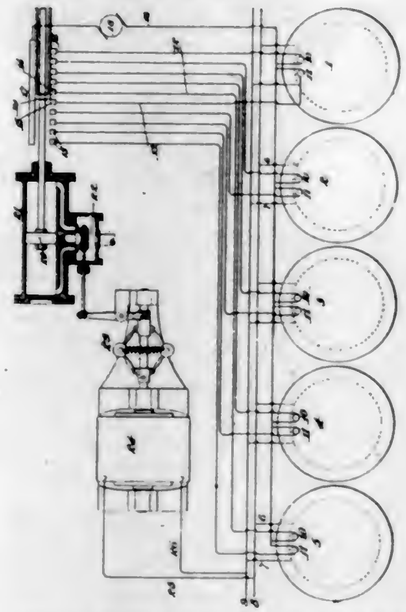
19. A feeder, means whereby a layer of stalks is advanced in said feeder, means for holding a portion of said stalks out of contact with said means for advancing the stalks, means for crushing the stalks, means for loosening the fiber from the stalks, means for separating the fiber from the woody part of the stalks, substantially as described.

20. In an apparatus for removing fiber from stalks, the combination, with means of removing fiber from the stalks, of a vat for receiving the fiber so loosened, said vat being adapted to contain water, a series of pairs of upper and lower rollers in said vat, the lower portion of the upper roller lying beneath the lowest point of the top of the vat, means for adjusting the pressure between each pair, an endless conveyer passing in one direction between said pairs of rollers, means for feeding fiber upon said conveyer between said rollers under water whereby the fiber is alternately saturated and squeezed to remove the gum therefrom, and positive means for driving each roller, substantially as described.

21. In an apparatus for removing fiber from stalks, the combination of a pair of rubbing-plates, a shaft, eccentrics thereon, straps on said eccentrics, links connecting said upper straps with said plates, and a support 72 for the lower plate formed of spring metal to permit the lateral movement of the support, substantially as described.

22. In an apparatus of the character described, the combination, with means for feeding the stalks, of two pairs of rubbing devices between which the stalks are fed, the upper and lower devices of each pair moving in opposite directions at the same time, and the upper devices of both pairs moving in opposite directions at the same time, whereby torsional friction is applied to two parts of the stalk in opposite directions at the same time and means for so moving said devices, substantially as described.

749,476. APPARATUS FOR GOVERNING ELASTIC-FLUID TURBINES. CHARLES G. CURTIS, New York, N. Y. Filed June 17, 1903. Serial No. 161,839. (No model.)



Claim.—1. The combination with a battery of elastic-fluid turbines, of an automatically-acting governor controlling the turbines in succession, substantially as set forth.

2. The combination with a battery of elastic-fluid turbines, of an automatic governor acting to apply the full load to the turbines in succession, substantially as set forth.

3. The combination with a battery of elastic-fluid turbines, of an automatic governor acting to apply the overload to the turbines in succession, substantially as set forth.

4. The combination with a battery of elastic-fluid turbines, of an automatic governor acting to apply the full load to the turbines in succession and to apply the overload to the turbines in succession after all the turbines have received the full load, substantially as set forth.

5. The combination with a battery of elastic-fluid turbines, of an automatic governor acting to apply the overload to the turbines in succession fractionally, substantially as set forth.

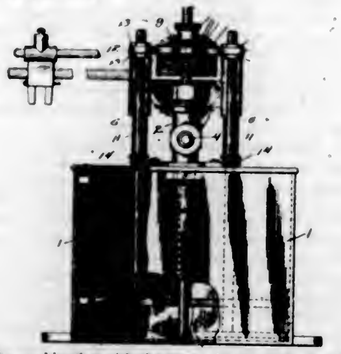
6. The combination with a battery of elastic-fluid turbines, of an automatic governor acting to apply the full load to the turbines in succession and to subsequently apply the overload to the turbines in succession fractionally, substantially as set forth.

7. The combination with a battery of turbines, of a centrifugal governor whose speed is synchronous with the speed of the turbines, a power device controlled by said governor, and connections from said power device to the valves of the turbines for controlling the turbines in succession, substantially as set forth.

8. The combination with a battery of elastic-fluid-turbine units including alternating-current dynamos, of a synchronous motor driven by the current from said dynamos, a speed-governor driven by said motor, a power device controlled by said speed-governor, and connections from said power device to the valves of the dynamos for controlling the turbines, substantially as set forth.

749,477. LUBRICATOR. THOMAS A. DELANEY, Chicago, Ill., assignor to Hills-McCanna Company, Chicago, Ill. Filed Apr. 24, 1902. Serial No. 104,474. (No model.)

Claim.—1. In combination with the reservoir, a suction-pipe extending into the reservoir, a pump for drawing through the pipe, and a reciprocating stirrer within the reservoir and connected with a moving member of the pump to be reciprocated therefrom, substantially as described.



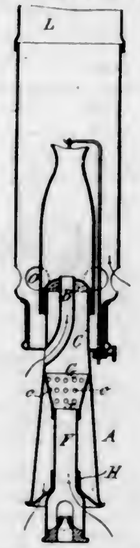
2. The combination with the reservoir, of a pump drawing from the reservoir and having a cross-head through which the pump is rendered active, and a stirrer located in the reservoir and connected with the cross-head to be actuated therefrom, substantially as described.

3. The combination with the reservoir, of a pump having its suction extending from the top toward the bottom of the reservoir and its discharge above the suction, of a stirrer in the reservoir and connected with a moving member of the pump to be actuated therefrom, substantially as described.

4. In combination with the reservoir, and the pump mounted thereon, and the cross-head by which the pump is operated, rods extending from the cross-head into the reservoir, and a plate connected to said rods and fitting loosely in the reservoir, whereby the contents of the reservoir are churned or stirred up when the pump is in operation, substantially as and for the purpose set forth.

5. In combination with the reservoir, the pump and the cross-head by which the pump is operated, rods adjustably connected to said cross-head, and extending into the reservoir and a plate connected to said rods and fitting loosely in the reservoir, the pump-suction inlet being below said plate, substantially as and for the purpose set forth.

749,478. AIR-GAS BURNER. LOUIS DENAYROUZE, Paris, France. Filed Apr. 2, 1903. Serial No. 150,747. (No model.)



Claim.—In an air-gas burner, the combination of a Bunsen-burner tube, a chamber surmounting the same, an air-tube passing through such chamber and terminating at the upper end thereof so as to conduct air from without the burner to the center of the base of an incandescence mantle surmounting the burner and thus to introduce a central column of free air within the gaseous mixture as it rises from said chamber, the base of the said chamber being perforated, and a tube surrounding the Bunsen-burner tube and conducting air to the perforations in the base of said chamber, substantially as described.

749,479. BOX. BERNO VON EIGEN, Newark, N. J., assignor to Aug. Goertz & Co., Newark, N. J., a Firm. Filed Oct. 12, 1903. Serial No. 176,642. (No model.)



Claim.—1. In a box, the combination, with the body of the box and its edge strips, of a face-plate, and means on said face-plate arranged for holding engagement with said edge strips and the body of the box, for securing the said face-plate and said edge strips in fixed positions upon the body of the box, substantially as and for the purposes set forth.

2. In a box, the combination, with the body of the box and its edge strips, of a face-plate, and integrally-formed holding-prongs on said face-plate arranged for holding engagement with said edge strips and the body of the box, for securing the said face-plate and said edge strips in fixed positions upon the body of the box, substantially as and for the purposes set forth.

3. In a box, the combination, with the body of the box and edge strips, the said body of the box and edge strips being provided with holes which register with each other, of a face-plate, and holding means on said face-plate extending through the holes in said edge strips and the body of the box and in holding engagement with the inner faces of the body of the box, substantially as and for the purposes set forth.

4. In a box, the combination, with the body of the box and edge strips, the said body of the box and edge strips being provided with holes which register with each other, of a face-plate, and prongs on said face-plate extending through the holes in the edge strips and the body of the box, said prongs being bent over against the inner faces of the said body, substantially as and for the purposes set forth.

5. In a box, the combination, with the body of the box, of a pair of edge strips, holding-leaves on each edge strip arranged to embrace the ends of the body of the box, the said body of the box and the leaves of the edge strips being provided with holes which register with each other, a face-plate and holding means on said face-plate extending through the holes in the leaves of the edge strips and the body of the box and in holding engagement with the inner faces of the said body, substantially as and for the purposes set forth.
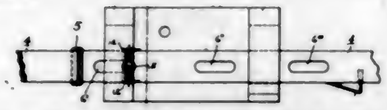
6. In a box, the combination, with the body of the box, of a pair of edge strips, holding-leaves on each edge strip arranged to embrace the ends of the body of the box, the said body of the box and the leaves of the edge strips being provided with holes which register with each other, a face-plate, and prongs on said face-plate extending through the holes in said leaves of the edge strips and the body of the box, said prongs being bent over against the inner faces of the said body, substantially as and for the purposes set forth.

7. In a box, the combination, with the body of the box, provided with holes, of a pair of edge strips, holding-leaves on each edge strip arranged to embrace the ends of the body of the box, the leaves of said edge strips being provided with holes which register with the holes in the body of the box, holding-lugs extending from the said leaves in engagement with portions of the body of the box, a face-plate, and holding means on said face-plate extending through the holes in the leaves of the edge strips and the body of the box and in holding engagement with the inner faces of the body of the box, substantially as and for the purposes set forth.

8. In a box, the combination, with the body of the box, provided with holes, of a pair of edge strips, holding-leaves on each edge strip arranged to embrace the ends of the body of the box, the leaves of said edge strips being provided with holes which register with the holes in the body of the box, holding-lugs extending from the said

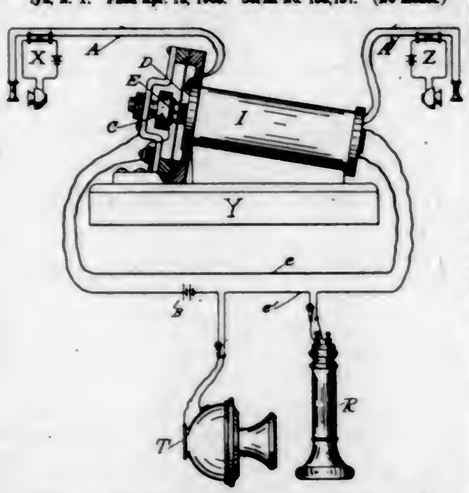
leaves in engagement with portions of the body of the box, a face-plate, and prongs on said face-plate extending through the holes in said leaves of the edge strips and the body of the box, said prongs being bent over against the inner faces of the said body, substantially as and for the purposes set forth.

749,480. CHECKING OR UNCHECKING DEVICE. ADAM R. FISHER, Hannibal, Mo. Filed Apr. 15, 1903. Serial No. 102,977. (No model.)



Claim.—In a checking and unchecking device in combination, a base-plate 1 attached in the center of the harness-saddle, the portion 2 extending upward from and integral with the front end of the plate 1, the portion 3 with an auxiliary slot 9 extending into the left-hand wall, said portion extending upward from and integral with the plate 1, the portions 2 and 3 having oppositely-disposed slots 7 and 8 formed therethrough, a strap 4 with slots therethrough said strap being adapted to operate through the slots 7 and 8, a band 5 secured around the strap 4, a wire spring 10 secured to the left-hand edge of the strap 4, said spring 10 having a forward-sloping surface and a rear shoulder at right angles to the strap 4, the pin 11 with a rounded upper end with its lower end secured to a rocking shaft, the rocking shaft mounted above the plate 1 just below the inner opening of the slot 7, a coil-spring 12 encircling said shaft and adapted to normally keep the pin 11 perpendicular, and a casing 14 for housing said parts, all substantially as shown and for the purposes set forth.

749,481. TELEPHONIC REPEATER. MERRITT GALLY, Brooklyn, N. Y. Filed Apr. 18, 1903. Serial No. 153,157. (No model.)



Claim.—1. In a telephonic repeater; a compound receiving and transmitting magnet, comprising a magnet-core with two receiving-wires wound together thereon, the two receiving-wires having connections for connecting separately to two main lines.

2. In a telephonic repeater; a compound receiving and transmitting magnet comprising two receiving-coils, with connections for two main lines; a magnet-core; and a diaphragm arranged in combination with the core of the magnet, to add magneto-electric energy to the induction of the coils for secondary transmission.

3. In a telephonic repeater; a compound receiving and transmitting coil, comprising two wires wound together, with connections for two telephone main lines; one of the wires for one of the main lines, and the other wire for the other main line.

4. In a telephonic repeater; connections for two telephone-lines; a receiving-magnet, having two coils thereon, one of the two coils to connect with one of the two telephone-lines, and the other coil to connect with the other of the two telephone-lines; one of the coils acting as primary, to the other as secondary repeating-coil; and vice versa.

5. A telephonic repeater comprising connections for two telephone-lines; one receiving-magnet having two receiving-coils wound thereon, the two acting together as repeating-coils; one of the coils to connect with one telephone-line, and the other coil to connect with the other telephone-line; and one primary coil to act as primary to both of the receiving-coils in operating as secondary induction-coils.

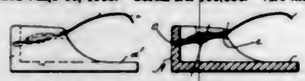
6. A telephonic repeater, comprising connections for two telephone-lines; one receiving-magnet having two receiving-coils wound thereon, the two coils acting together as repeating-coils; one of the coils to connect with one telephone-line, and the other coil to connect with the other telephone-line; one primary coil to act as primary to both of the receiving-coils in their operations as secondary induction-coils; and a single diaphragm.

7. A telephonic repeater, comprising connections for two telephone-lines; one receiving-magnet having two receiving-coils wound thereon, the two coils acting together as repeating-coils; one of the coils to connect with one telephone-line, and the other coil to connect with the other telephone-line; a diaphragm; one primary coil in local magneto-electric circuit, to act as primary to both of the receiving-coils in their operations as secondary induction-coils.

8. A telephonic repeater, comprising connections for two telephone-lines; one receiving-magnet, having two receiving-coils wound thereon; the two coils acting together as repeating-coils; one of the coils to connect with one telephone-line, and the other coil to connect with the other telephone-line; one primary coil, to act as primary to both of the receiving-coils in their operations as secondary induction-coils; a diaphragm; and a single transmitting device.

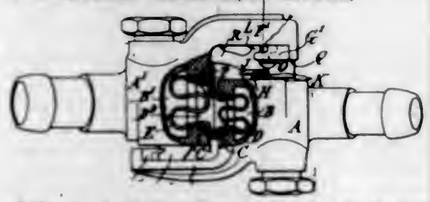
9. A telephonic repeater, comprising connections for two telephone-lines; one receiving-magnet, having two receiving-coils wound thereon; the two coils acting together as repeating-coils; one of the coils to connect with one telephone-line, and the other coil to connect with the other telephone-line; one primary coil, to act as primary to both of the receiving-coils in their operations as secondary induction-coils; and a single diaphragm with a transmitting device in local battery-circuit.

749,482. SOUNDING TOY. RUDOLPH H. A. GIESTERT, Camden N. J. Filed June 10, 1903. Serial No. 160,880. (No model.)



Claim.—In a sounding toy, the combination, with a socket having side grooves provided with concave notches at the middle parts of their upper sides and having the front portions of their bottom edges curved downwardly, of a tongue of spring sheet metal inserted in the said grooves and provided with a concavo-convex indentation between the said curved front end portions of the said grooves and a second concavo-convex indentation between the said notches.

749,483. HOSE-COUPLING. EDWARD R. GOLD, New York, N. Y. Filed Aug. 14, 1903. Serial No. 169,548. (No model.)



Claim.—1. In a hose-coupling, a compromise seat the opening through which is eccentric at the seating-face.

2. In a hose-coupling the combination with a coupling-head, of a seat therefor having the opening at its seating-face eccentric to the axis of the coupler.

3. In a hose-coupling the combination with a coupling-head having a socket, of a normal seat having a central opening, and a compromise seat having an eccentric opening, both said seats adapted to fit said socket.

4. In combination, two coupling-heads of different-sized passages adapted to be intercoupled with the passage of one eccentric to that of the other, the seat of the larger having its port contracted and laterally displaced to coincide with the seat of the smaller.

5. In combination, two coupling-heads of different-sized passages adapted to be united with the passage of one eccentric to that of the other, and means for connecting their coupling provisions to hold them coupled together.

6. In combination, a smaller and a larger coupling-head having each coupling provisions adapted to couple with those on a like head, those on the larger head being wider apart than those on the smaller head, said heads adapted to meet laterally out of line, so that their coupling provisions on one side are spaced apart, and means for connecting the coupling provisions so spaced apart.

7. In combination, two coupling-heads having each a pair of coupling provisions differently spaced and adapted to engage on one side so that those on the other side are spaced apart from each other, and means connecting those which are spaced apart.

8. In combination, a smaller and a larger coupling-head having each a hook and a lug adapted to couple with those of a like head, those on the larger head being wider apart than those on the smaller head, said heads adapted to meet laterally out of line, so that a hook of one is spaced apart from a lug of the other, and a connecting-piece provided on its opposite faces respectively with a hook and a lug adapted for engagement with a lug and hook so spaced apart.

9. In combination, two unlike coupling-heads each having coupling provisions adapted for coupling it to a like head but not adapted for coupling said unlike heads together, said heads adapted to meet with their seating-faces in immediate communication, and a connecting-piece having coupling provisions engaging those on said unlike heads to hold them coupled together.

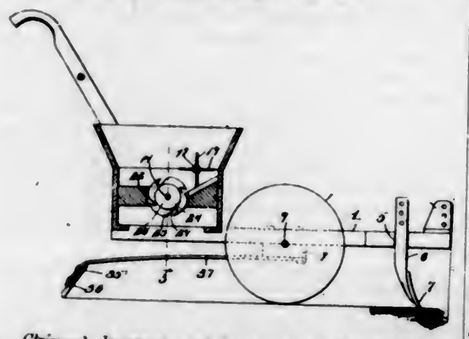
10. A device for connecting coupling-heads of different widths, comprising a plate provided on one face with a hook and on the other face with a corresponding lug adapted to engage respectively a lug on one of said heads and a hook on the other.

11. The combination with a straight-port coupling-head having an arm with an overhanging projection and having a removable seat normally projecting beyond the end face of the head, of a connecting-piece adapted to be held in position against said arm by means of said overhanging projection and the projecting portion of said seat.

12. The combination with a coupling-head having a lock or latch, of a connecting device for connecting said head with another head of different width and adapted to be engaged by said lock to hold it on the coupling-head.

13. In combination, a smaller and a larger coupling-head having each coupling provisions adapted to couple with those on a like head, those on the larger head being wider apart than those on the smaller head, said heads adapted to meet laterally out of line, so that their coupling provisions on one side are spaced apart, and means for connecting the coupling provisions so spaced apart, said heads being provided with openings which are approximately coincident in the meeting position of the heads.

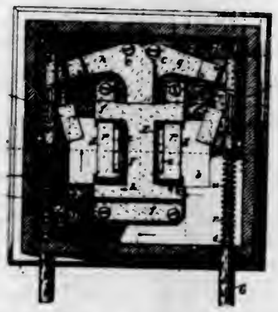
749,484. SEED-PLANTER. SAMUEL A. GRIER, Cuthbert, Ga. Filed Oct. 12, 1903. Serial No. 176,691. (No model.)



Claim.—1. In a machine of the class described, a seedbox having a bottom provided with a longitudinal slot and a recess extending from each side of said slot, and a seed-wheel journaled in the longitudinal slot of the bottom and having disks on opposite sides thereof engaging the recesses of said slot, said seed-wheel being provided with recesses forming seed-cups tangential to the disks upon the sides thereof.

2. In a machine of the class described, a suitably-supported frame, a seedbox, a bottom for the latter having a longitudinal slot and recesses extending laterally from said slot, a seed-wheel journaled in the seedbox and having oppositely-disposed disks forming lateral extensions, said wheel and disks fitting the slot and recesses in the bottom of the seedbox, means for operating the seed-wheel, a cap adapted to be mounted in the box above the seed-wheel and having a ridged portion engaging the central portion of the seed-wheel, and laterally-extending flanges resting upon the lateral extensions of the seed-wheel, said central ridged portion being provided with a notch at the front end thereof.

749,485. VENDING-MACHINE. HERMON V. HOAG, Jr., Smithville Flats, N. Y., assignor to Pun Vending Company, Rochester, N. Y. Filed Apr. 8, 1902. Serial No. 101,971. (No model.)



Claim.—1. A vending-machine, comprising a floor, chutes above the floor, bent delivery-levers having portions overlapped and mounted to turn in horizontal directions upon independent pivots to work one beneath each chute, and means for operating said levers, said levers being mounted to move in different vertical planes, and a raised portion on said floor beneath one of said chutes corresponding in thickness to the thickness of the lever.

2. A vending-machine comprising a floor, chutes above the floor, bent delivery-levers mounted to turn in horizontal directions upon independent pivots to work one beneath each chute, and means for operating said levers, said levers having notches in the outer ends of their longitudinal portions, said notched portions being overlapped and lock-blocks having latches to engage said notches, the floor being provided with an opening *a'* to receive the extreme point of said latch when the levers are in operative position and a raised portion on said floor in the plane of one lever and below the plane of the other lever corresponding in thickness to the thickness of one of said levers.

749,486. COMBINED COLLAPSIBLE TUBE AND SPREADER. CLINTON L. HUDDLE, North Baltimore, Ohio. Filed Apr. 11, 1903. Serial No. 152,183. (No model.)



Claim.—1. A spreader-blade having a yielding supporting means and means for regulating the yielding supporting means.

2. A spreader comprising a handle, and a reversible blade carried by the handle.

3. A spreader comprising a handle and a yielding reversibly-supported blade carried by the handle.

4. A spreader comprising a reservoir-handle, and a flexed blade carried by the handle and having a stop-finger.

5. A spreader comprising a handle, a blade, a yielding connection for the handle and blade and a tension device on the handle.

6. A spreader comprising a blade having shining openings, a handle extending through the openings and a fastening device engaging the handle.

7. A spreader-blade having a deflected end bent back upon itself with a finger to bear upon the blade.

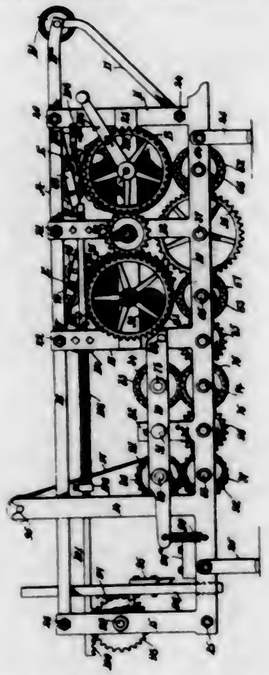
8. A spreader-blade having a deflected end bent back upon itself with a terminal finger to limit the movement of said blade.

9. A spreader-blade with an end bent back upon itself and having shining openings for the insertion of a handle and a terminal finger bearing upon the blade.

10. A spreader-blade having a yielding securing end bent back upon itself with shining openings.

749,487. PRINTING-PRESS. HIRAM T. KNOX, Appleton, Wis.

Filed Oct. 15, 1903. Serial No. 127,372. (No model.)



Claim.—1. In a printing-press, a frame, a printing-roller, side bars in which the shaft of said roller is journaled, the said side bars being pivoted at one end to the frame, means for locking the other ends of the side bars to the frame, an impression-roller for the printing-roller, cutters arranged to longitudinally slit a printed sheet passing from the printing-roller, and a cutter arranged to transversely sever the sheet, the said cutters being all operated from the printing-roller, as described.

2. In a printing-press, a frame, a printing-roller, side bars pivoted to the frame and in which the shaft of the printing-roller is journaled, an impression-roller for the printing-roller journaled in the frame below the printing-roller, a gravity inking mechanism above the printing-roller, cutters arranged to longitudinally slit the paper passing from the printing-roller, and a cutter arranged to transversely sever the paper, as set forth.

3. In a printing-press, a frame, side bars pivoted to the frame, a printing-roller having its shaft journaled in the pivoted side bars, an impression-roller journaled in the frame below the printing-roller, a gravity inking mechanism for the printing-roller pivoted to the frame above the printing-roller, cutters arranged to longitudinally slit the paper passing from the printing-roller, a knife for transversely cutting the printing-paper, means for operating the knife in one direction from the printing-roller including an operating-bar, and a spring on said bar for moving the knife in an opposite direction, substantially as set forth.

4. In a printing-press, a printing and an impression roller, a gravity inking mechanism for and located above the printing-roller, disk cutters arranged to longitudinally slit the paper passing from the printing-roller, a winding-roller adapted to receive continuous unprinted sections of the slitted paper, a knife for transversely cutting the paper, and means, for operating the knife in one direction at each revolution of the roller, and returning the knife independent of the action of the printing-roller, the said means comprising a bar having teeth near one end for engaging a series of teeth on the printing-roller, a gear-wheel engaged by teeth on the other end of said bar, vertical slides carrying said knife and provided with teeth engaged by said gear-wheel, and a spring on said bar, as specified.

5. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers, type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, a device connected with the shaft of one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, frames hinged above the printing-rollers, and inking-rollers mounted to turn in the said frames and to engage with the type-matter on the printing-rollers, as set forth.

6. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, an extension from one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, inking mechanism for the printing-rollers, disk cutters located at the rear of the printing-rollers one above the other, guide-disks located at the rear of the disk cutters, the shafts of the guide-disks being located one above the other, and the shaft of the upper disk cutters and that of the upper guide-disks being mounted in a movable and spring-controlled support, and a winding-roller operated from a shaft of the guide-disks and located above the same, for the purpose described.

7. In a printing-press, a pair of printing-rollers, impression-rollers for the printing-rollers and means for operating the said rollers, type-matter removably embedded in the surface of the printing-rollers, means for adjusting the said type-matter, whereby the type-matter on one of the printing-rollers will be opposite the spaces between the type-matter on the opposing printing-roller, a recording device, an extension from one of the printing-rollers, adapted to operate the recording device at each revolution of the rollers, frames hinged above the printing-rollers, inking-rollers mounted to turn in the said frames and to engage with the type-matter on the printing-rollers, disk cutters located at the rear of the printing-rollers, guide-disks located at the rear of the disk cutters, a winding-roller operated from a shaft of the guide-disks and located above the same, a knife having vertical movement at the rear of the guide-disks, a rack and pinion for operating the knife, a rack-bar engaging with the pinion of the said operating mechanism for the knife, the said bar being spring-controlled, and means substantially as described for operating the said bar from a printing-roller and placing the spring of the bar under tension, as and for the purpose set forth.

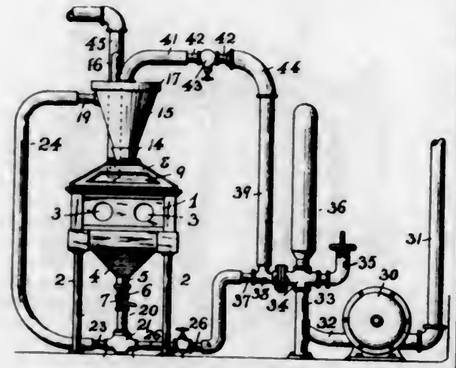
8. In a printing-press, the combination with a frame, a printing-roller journaled in the frame, type-matter adjustably and removably inserted in the periphery of the roller, an impression-roller for the printing-roller, and disk cutters at the rear of the printing-roller and its impression-roller, of guide-disks mounted in the frame at the rear of the cutting-disks, vertical supports having sliding movement in the said frame at the rear of the said guide-disks, said supports having rack-teeth formed thereon, a shaft journaled in the rear of the frame, gears on the said shaft, engaging with the teeth on the said supports, a knife carried by the said supports transversely of the frame, a table carried by the said frame, in conjunction with which the said knife acts, teeth formed upon the printing-roller, a spring-controlled bar having teeth for engagement with the teeth of the printing-roller, said teeth on said bar engaging with a gear at the rear of the frame, the said printing-roller operating the said bar at only one period in its revolution, and a gravity inking mechanism located above the printing-roller, for the purpose set forth.

9. In a printing-press, the combination with a frame, a printing-roller mounted to turn in said frame, type-matter adjustably and removably embedded in the periphery of the said printing-roller, an impression-roller for the printing-roller, spring-controlled arms pivoted to the said frame at the rear of the printing-roller, and shafts located one above the other at the rear of the printing-roller, one shaft being journaled in the frame and the other in the spring-controlled arms, of disk cutters on the said shafts, adjustable with relation to each other and adapted to engage the upper with the lower one, other shafts journaled one above the other in the said frame and in the said spring-controlled arms, disk-rollers secured upon the latter shafts, the upper disk rollers being in engagement with the lower ones, a winding-roller supported above the disk guides, means for driving the winding-roller from one of the guide-disk shafts, and means substantially as described for driving all of the said shafts and the impression-roller from the printing-roller, as set forth.

10. In a printing-press, a printing and impression roller, disk cutters arranged to longitudinally slit the paper passing from the printing-roller, a vertically-movable knife for cutting the paper transversely, vertical slides to which said knife is secured at its ends, rack-teeth on the said slides, pinions engaging the racks, an operating-bar having guided horizontal movement and provided with rack-teeth at one end engaging one of said pinions, the said bar being also provided with rack-teeth near its other end engaging teeth on the printing-roller, whereby the knife is operated in one direction at each revolution of the printing-roller, and a spring for moving said operating-bar to return the knife, when the said teeth of the printing-roller are released from the teeth of the operating-bar, as set forth.

11. In a printing-press, the combination with a frame, a printing-roller journaled in the frame, an impression-roller for the printing-roller, arms pivoted at one end to the frame at the rear of the printing-roller, springs connecting the other end of the said arms with the frame, pins on said arms engaging slots in the frame to limit the vertical movement of the arms, shafts located one above the other at the rear of the printing-roller and journaled respectively in the frame of the machine and the said arms, disk cutters carried by said shafts, shafts located one above the other and journaled in the frame and the said arm at the rear of the cutter-shafts, and disk rollers on said shafts, as set forth.

749,488. SAND-BLAST APPARATUS. WILLIS R. KING, New York, N. Y., assignor to the Hanson & Van Winkle Company, a Corporation of New Jersey. Filed May 21, 1903. Serial No. 158,096. (No model.)



Claim.—1. In a sand-blast apparatus, the combination, with a casing, of means connected with said casing for receiving an abrading material, and emitting the same in a jet, and means connected therewith for conducting a jet of air directly into the interior of the jet of abrading material for mixing the same with the air and admitting the same under pressure into said casing, substantially as and for the purposes set forth.

2. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of means connected with said outlet and inlet for permitting a continuous supply of abrading material and emitting the same in a jet through said casing, and means for conducting a jet of air directly into the interior of the jet of abrading material for producing an admixture of the abrading material and air under pressure at the point of inlet into said casing, substantially as and for the purposes set forth.

3. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, for emitting an abrading material in a jet of a mixing-nozzle connected with said inlet, and an air-discharging nozzle in said mixing-nozzle, for conducting a jet of air directly into the interior of the jet of abrading material, substantially as and for the purposes set forth.

4. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, for emitting an abrading material in a jet, of a mixing-nozzle connected with said inlet, and an air-discharging nozzle adjustably arranged in said mixing-nozzle, for conducting a jet of air directly into the interior of the jet of abrading material, substantially as and for the purposes set forth.

5. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper secured to said mixing-nozzle, and means for conveying an abrading material and air under pressure into said hopper, substantially as and for the purposes set forth.

6. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper secured to said mixing-nozzle, means for conveying an abrading material and air under pressure into said hopper, and an exhaust connected with said hopper, substantially as and for the purposes set forth.

7. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper secured to said mixing-nozzle, means connected with said hopper for conducting an abrading material into said hopper, a discharge-nozzle within said mixing-nozzle, and an air-duct connected with said discharge-nozzle, substantially as and for the purposes set forth.

8. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper secured to said mixing-nozzle, means connected with said hopper for conducting an abrading material into said hopper, a discharge-nozzle within said mixing-nozzle, an air-duct connected with said discharge-nozzle, and an exhaust connected with said hopper, substantially as and for the purposes set forth.

9. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper secured to said mixing-nozzle, means connected with said hopper for conducting an abrading material into said hopper, a discharge-nozzle adjustably arranged within said mixing-nozzle, and an air-duct connected with said adjustable discharge-nozzle, substantially as and for the purposes set forth.

10. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a hopper connected with said casing, a sand-conveying pipe connected at one end with said outlet and at the other end with said hopper, means connected with said pipe for conducting air under pressure into said sand-conveying pipe, and means for conducting air under pressure into said hopper, substantially as and for the purposes set forth.

11. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper attached to said mixing-nozzle, a sand-conveying pipe connected at one end with said outlet and at the other end with said hopper, an air-blast connected with the said sand-conveying pipe, and an air-blast connected with the said hopper for forcing the sand under pressure through the said mixing-nozzle, substantially as and for the purposes set forth.

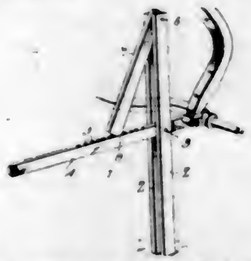
12. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper attached to said mixing-nozzle, a sand-conveying pipe connected at one end with said outlet and at the other end with said hopper, an air-blast connected with the said sand-conveying pipe, an air-conveying pipe extending through said hopper and terminating in close proximity to said mixing-nozzle, and a discharge-nozzle connected with said pipe and arranged directly within said mixing-nozzle, substantially as and for the purposes set forth.

13. In a sand-blast apparatus, the combination, with a casing having an inlet and an outlet, of a mixing-nozzle connected with said inlet, a hopper attached to said mixing-nozzle, a sand-conveying pipe connected at one end with said outlet and at the other end with said hopper, an air-blast connected with the said sand-conveying pipe, an air-conveying pipe extending through said hopper and terminating in close proximity to said mixing-nozzle, a discharge-nozzle connected with said pipe, and means for adjustably arranging the said discharge-nozzle within said mixing-nozzle, substantially as and for the purposes set forth.

14. In a sand-blast apparatus, the combination, with a casing, and a sand-conveying pipe connected with said casing, of a fitting 21 attached to said conveying-pipe, an air-conveying pipe connected with said fitting, and a baffle in said fitting, said baffle having a screw portion with which said air-conveying pipe is connected, substantially as and for the purposes set forth.

15. In a sand-blast apparatus, the combination, with a casing, and a sand-conveying pipe connected with said casing, of a fitting 21 attached to said conveying-pipe, an air-conveying pipe connected with said fitting, and a cone-shaped baffle in said fitting provided with an opening and said baffle having a screw portion with which said air-conveying pipe is connected, substantially as and for the purposes set forth.

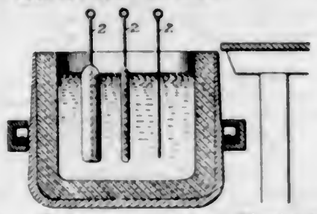
749,489. LIFTING-JACK AND THILL-SUPPORT. JESSE H. KINGSBURY, Lapeer, Mich. Filed May 27, 1903. Serial No. 159,015. (No model.)



Claim.—1. A device of the class described, comprising a pair of parallel spaced uprights of equal length, a lever pivoted at an intermediate point between the uprights, a downwardly-swinging arm pivoted between the ends of the uprights the free end of which is inclined or beveled and adapted to engage one arm of the lever.

2. A combined jack and thill-support, comprising a pair of parallel spaced uprights of equal length, a lever having a long and short arm centrally pivoted between the uprights the long arm of the lever being provided with a series of recesses or sockets, a downwardly-swinging arm pivoted between the ends of the uprights the free end of said arm being inclined or beveled and provided with a pin or lug adapted to engage the recesses in the long arm of the lever, the lever being foldable between the uprights when the arm is used as a thill-support.

749,490. INGOT AND PROCESS OF FORMING SAME. HORACE W. LASH, Minneapolis, Minn. Filed Oct. 13, 1898. Renewed Oct. 5, 1903. Serial No. 175,896. (No model.)



Claim.—1. The improvement in the art of forming metal ingots that consists in preparing a mass of molten steel, then inserting a piece of cold metal into said mass, thereby causing the molten steel to form or settle upon the exterior of said piece and thus form an ingot and then withdrawing such ingot from the molten mass prior to the general solidification of said mass, substantially as described.

2. The improvement in the art of forming metal ingots that consists in placing a piece of metal plate in molten steel or the like, allowing a large quantity thereof to solidify thereon and then withdrawing said bar or plate with the resultant ingot formation thereon before said mass as a whole solidifies, substantially as described.

3. The improvement in the art of forming steel ingots that consists in cooling molten steel to a temperature below that of conversion, then exciting or creating a local solidification or growth in the molten mass by the introduction of a bar or piece of metal, permitting said solidification or growth to continue until an ingot of several times the weight of the original bar or piece of metal is formed and then withdrawing said ingot from the mass of steel before the mass as a whole solidifies, substantially as described.

4. The improvement in the art of forming ingots that consists in inserting a single piece of cold steel into a mass of molten steel and thereby causing said molten steel to form or settle wholly upon the exterior of said piece and thereby forming an ingot, substantially as described.

5. The improvement in the art of forming ingots from molten metal that consists in inserting one end of a cold piece of metal into a mass of molten metal, thereby chilling the molten metal upon the cold metal and causing a large accretion and growth thereon and then withdrawing the original piece, with the ingot accretion, from the molten metal, substantially as described.

6. The improvement in the art of forming hollow steel ingots from molten steel that consists in inserting the end of a closed metal tube into the mass of molten metal and thereby causing the molten metal to chill or form upon the exterior of said tube and form an ingot, substantially as described.

7. The method of shaping metallic articles, consisting in lowering a former into a metallic bath and lifting the same gradually therefrom: substantially as described.

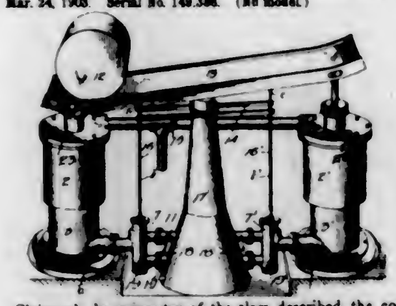
8. A new article of manufacture, comprising the herein-described ingot, composed of a metal core or mold piece and an inclosing mass of ingot metal, formed by inserting said core or mold piece in a mass of molten metal, allowing a quantity of the metal to solidify on said core and then withdrawing said core, with the resultant ingot formation thereon, before said mass, as a whole, solidifies, substantially as described.

9. The product of the herein-described process, comprising the central metal bar or mold-piece and the ingot-body formed thereon, by the insertion of said mold-piece in a mass of molten metal and permitting the molten metal to solidify on said core-piece until the resultant ingot reaches the desired dimensions, and then withdrawing the ingot from said mass while the latter is still molten.

10. The herein-described tapered ingot, comprising a core or mold piece, and the ingot-body formed thereon by inserting said core in a mass of molten metal and then gradually withdrawing the same from said mass, sufficient time being allowed for extensive solidification of the metal on said core, and the ingot being wholly withdrawn from said mass while the latter is still plastic, substantially as described.

11. A steel ingot having a core and a cast-molded body portion coalesced thereon, such body portion being uniformly dense, homogeneous, and centrally free from segregated impurities.

749,491. WATER-MOTOR. JOSEPH D. LEE, Salem, Oreg. Filed Mar. 24, 1903. Serial No. 149,336. (No model.)

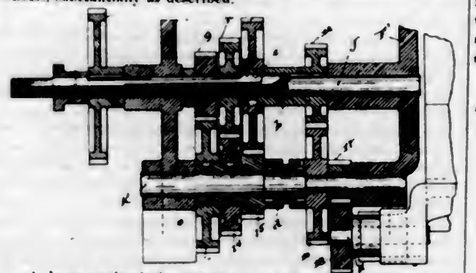


Claim.—1. In apparatus of the class described, the combination of reversely-acting fluid-pressure-operated compressing mechanisms, motive-fluid valve-chests therefor, each having a channel leading thereto and inlet and exhaust channels spaced from and on opposite sides of said channel, simultaneously-acting valves in the said chests for controlling the inlet and exhaust channels, auxiliary valves to successively admit fluid under pressure to operate the said respective controlling-valves, a movable connection between the fluid-pressure-operated compressing mechanisms, means operated by said movable connection to resist the movement of each compressing mechanism, and progressively diminish the resistance as the pressure caused by said compressing mechanism increases, and means intermittently actuated by said movable connection to reversely actuate the auxiliary valves, substantially as described.

2. In apparatus of the class described, the combination of reversely-acting fluid-pressure-operated compressing mechanisms, motive-fluid valve-chests therefor, each having a channel leading thereto and inlet and exhaust channels spaced from and on opposite sides of said channel, simultaneously-acting valves in the said chests for controlling the inlet and exhaust channels, auxiliary valves to successively admit fluid under pressure to operate the said respective controlling-valves, an oscillating connection between the fluid-pressure-operated compressing mechanisms, a rolling weight operated by said oscillating connection to resist the movement of each compressing mechanism and progressively diminish the resistance as the pressure caused by said compressing mechanism increases, and means intermittently actuated by said movable connection to reversely actuate the auxiliary valves, substantially as described.

749,492. VARIABLE-SPEED MECHANISM FOR LATHES. WILLIAM LODGE, Cincinnati, Ohio. Filed June 12, 1903. Serial No. 161,300. (No model.)

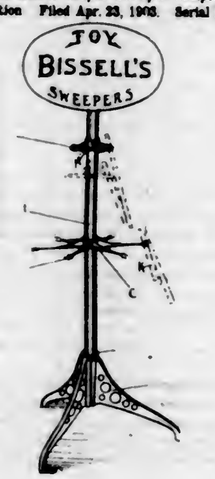
Claim.—1. In an engine-lathe a frame, a spindle-operating shaft, and a carriage-operating shaft, journaled in the frame, a pair of shafts journaled in the frame, transmitting devices between the first of said shafts and the spindle-operating shaft, and between the second shaft and the carriage-operating shaft, a plurality of different-diameter gear-wheels loose on one of said shafts, a sliding key adapted to fix any of said gear-wheels to said first shaft, two or more of the gear-wheels on the second shaft being separated from the other gear-wheels on said shaft and fixed to revolve on a common hub, and a shifting clutch on said second shaft between the said separated gear-wheels, substantially as described.



2. In an engine-lathe, a frame, a spindle-operating shaft, a carriage-operating shaft, and two parallel intermediate shafts journaled in the frame, gear-wheels connecting the parallel intermediate shafts to the carriage-operating and spindle-operating shafts, gear-wheels loose on one of said intermediate shafts, a sliding key for fixing any selected one to its shaft, intermeshing opposing gear-wheels on the other intermediate shaft, all of said last-named gears save one being fixed to rotate on a common hub, a shifting clutch on said second intermediate shaft between the common gear-wheel hub and the hub of the remaining gear-wheel which is loose on said second shaft, substantially as described.

3. In an engine-lathe, a frame, a spindle-operating shaft, a carriage-operating shaft, and two intermediate shafts journaled in the frame, gear-wheels between one of said shafts and the spindle-operating intermediate shaft, and gear-wheels between the other intermediate shaft and the carriage-operating shaft, a series of different-diameter gear-wheels on the first intermediate shaft, loose thereon, two of said gear-wheels having a common hub, a sliding key on the first shaft adapted to fix any of said gear-wheels to the said shaft, intermeshing different-diameter gear-wheels on the second shaft all of which save one are mounted on a common hub loose on said second shaft, the remaining gear-wheel being loose on said second shaft, and a shifting clutch on the second shaft between said gear-wheels having a common hub and said remaining gear-wheel, adapted to fix either said hub or said single gear-wheel to said second intermediate shaft, substantially as described.

749,493. DISPLAY-STAND. FRANCIS C. MASON, Grand Rapids, Mich., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich., a Corporation. Filed Apr. 23, 1903. Serial No. 153,969. (No model.)



Claim.—1. A display-stand including a standard provided with a base, an upper support adjustably connected with the standard and provided with a plurality of annularly-arranged loops, a lower support also adjustably connected with the standard and provided with slotted arms, spring-clasps fitted in the slots of said arms, and bolts carried by the arms for holding the respective spring-clasps in place.

2. A display-stand including a standard provided with a base having a series of feet to rest upon a floor or other foundation, an upper support connected with the standard and provided with a plurality annularly-arranged loops, a lower support also connected with the standard and provided with arms having slots in their upper sides, spring-clasps fitted in the slots of said arms, and bolts fitted in said slots for holding the respective spring-clasps in place.

749,494. DISPLAY-STAND. FRANCIS C. MASON, Grand Rapids, Mich., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich., a Corporation. Filed Apr. 24, 1903. Serial No. 154,177. (No model.)



Claim.—1. A display-stand including a standard provided with three feet, two of them being in substantially the same plane and the third extending forward at an angle to the said plane, a plurality of arms located one above the other upon the forward side of the standard for supporting articles to be displayed, sockets upon the opposite sides of the standard near the lower end thereof, and loops upon the opposite sides of the standard near the upper end thereof.

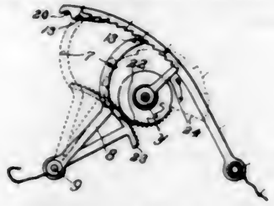
2. In a display-stand, the combination of a standard provided with three legs, two of which are substantially in the same plane, the third one projecting forward from the said plane at an angle thereto, a plurality of arms projecting forward from the standard and approximately in the vertical plane of said third leg, a socket upon each side of the standard below the lowermost arm, and loops upon the sides of the standards approximately in vertical line with the respective sockets.

3. In a display-stand, the combination of a vertically-disposed straight standard provided with three feet, two of which are substantially in the same plane, and the third one projecting forward from said plane at an angle thereto, a plurality of forwardly-extending arms located one above the other upon the forward side of the standard, for supporting articles to be displayed, sockets upon the opposite sides of the standard near the lower end thereof, and loops upon the opposite sides of the standard near the upper end thereof and vertically alined with the respective sockets.

749,495. ELECTRIC STRIKING-CLOCK. WILLIAM OLSON, Jersey City, N. J. Filed Dec. 31, 1902. Serial No. 137,232. (No model.)

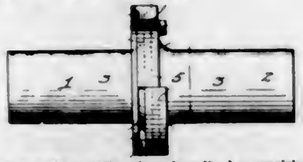
Claim.—1. The combination with the clock-train and the step-cam for controlling the striking apparatus of the electric gong-cir-

cuit, respective tooth-pointed, and series notched contact-lever terminals of said circuit, and means for automatically closing said circuit through said levers and interrupting the same hourly the number of times corresponding to the number of the hour to be struck.



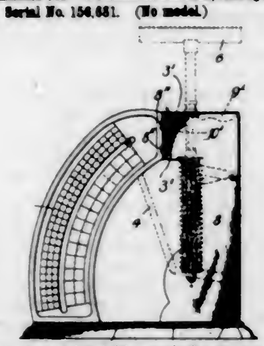
2. The combination with the clock-train and the step-cam for controlling the striking apparatus, of the electric gong-circuit, respective contact-lever terminals of said circuit, and means for automatically closing said circuit and interrupting the same hourly the number of times corresponding to the number of the hour to be struck, said means consisting of the series of contact-points of one of said terminal contact-levers confronting the contact-point of the other terminal lever, means for securing the said levers in their normal positions, means for controlling the set of one of said levers by the step-cam, the toothed segment and the lever-tripping tappet carried by the minute-arbor of the time-train, and the lever-actuating segment actuated by the seconds-hand-arbor segment.

749,496. HOSE-COUPLING. HENRY S. PATTERSON, Ravenna, Ohio, and HERBERT S. PATTERSON, Scenery Hill, Pa. Filed Sept. 28, 1903. Serial No. 174,940. (No model.)



Claim.—A coupling of the class described comprising a pair of tubular members, each having at one end an annular coupling-flange, and a semi-annular coupling-flange spaced from the face thereof to form a semi-annular socket between them, the free portion of the annular flange of each member being engaged with the socket of the other, and a locking-ring on one of the tubular members, to bear against the outer side of the semi-annular flange of one member and having a laterally-projecting wedge-lug to frictionally engage the periphery of the coupling-flange of the other member, and retain said coupling members and the locking-ring in place.

749,497. SINGLE-PIECE SHEET-METAL SCALE-CASE AND BLANK THEREFOR. WILLIAM H. PELOUZE, Chicago, Ill. Filed May 11, 1903. Serial No. 156,651. (No model.)



Claim.—1. A postal weighing-scale frame, comprising the base, in combination, with the pillar-like scale-case erected thereon and composed of a single piece of sheet metal stamped and folded to form the back, sides, top and front of the case, the forward edges of said sides being scalloped and the scale-plate erected upon said base and having its upper end secured upon said front portion of the case, substantially as described.

2. A postal weighing-scale frame, comprising a base, in combination with a pillar-like scale-case erected thereon and composed of a single piece of sheet metal, stamped and folded to form the back, sides, top and front of the case, and the scale-plate erected upon said base and having its upper end secured upon said front portion of said case, substantially as described.

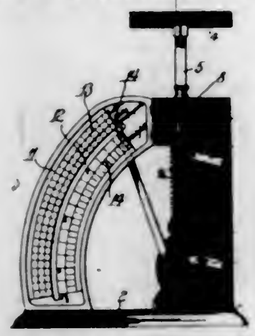
3. In a frame for weighing-scales, a base, a pillar-like scale-case attached to said base and formed of a single sheet of metal, adapted to contain the weighing mechanism, said case being open at the front, in combination with a vertical, curved scale-plate erected on said base and having its upper end vertically attached to said case, substantially as described.

4. A postal-scale frame, comprising a base, in combination with a pillar-like case erected thereon, said case having an open front and being constructed of a single sheet of metal, and the scale-plate erected on said base and unattached to said case save at its upper end, substantially as described.

5. A frame for postal scales, comprising, in combination, a base, a scale-plate erected thereon and occupying a vertical plane, and a pillar-like case formed of a single sheet of metal, provided with an open front, and means at the upper part of said open front for attaching said scale-plate, substantially as described.

6. A frame for postal weighing-scales, comprising, in combination, a base, a scale-plate, and a pillar-like case erected thereon, said case being formed of a single sheet of metal and provided with an open front, and means upon said open front for attaching one end of said scale-plate, substantially as described.

749,498. WEIGHING-SCALE. WILLIAM H. PELOUZE, Chicago, Ill. Filed May 11, 1903. Serial No. 156,652. (No model.)



Claim.—1. A weighing-scale, comprising a suitable frame, in combination, with a load-post, a balance-spring, two parallel pivot members connecting said load-post and frame, one of said pivot members being provided with an integral pointer-arm, a curved scale-plate and a double index or point on said arm, substantially as described.

2. A weighing-scale, comprising a suitable frame, in combination with a load-post, a balance-spring connected with said post, pivot members connecting said post and frame, a pointer-arm integral with one of said members, a vertical scale-plate having a curved slot which conforms to the sweep of said pointer and an index attached to said arm and movable in said slot, substantially as described.

3. A weighing-scale, comprising a suitable base, in combination, with a scale-case on one end of said base, a vertical scale-plate on the opposite end of said base and having its upper end attached to said case, said plate being provided with a curved slot and with two sets of graduations, a balance-spring in said case, a load-post comprising two parallel members supported by said spring and provided with a load-pan, parallel pivot members 9 and 10 connecting said post and case, the lower pivot member being provided with an integral, outwardly-bent pointer-arm and a double index or pointer connected with said arm through said slot, substantially as described.

4. The integral pivot member and pointer-arm for postal scales, comprising the link portions joined by the integral bar 10^6, and the bent arm 10^5 integral with one of said link portions, substantially as described.

5. In a weighing-scale, the load-post, comprising parallel sides, connected by an integral cross-piece, in combination with the two-sided link, 10, connected by the integral cross-piece, 10^2, and bent to form the index-arm, 10^4, substantially as described.

6. A weighing-scale, comprising the base, 2, the load-post, 5, the pivot-arms, 9, the pivot-link, 10, the index-arm, 10^3, the scale-plate, 11, having the curved slot, 12, attached to the base, the scale-frame, 3, and the double pointers, 14, movable in the slot, 12, in the scale-plate, 11, substantially as described.

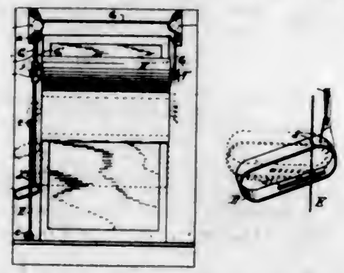
7. A load-post for postal scales, comprising flat, parallel sides, bent in U shape to form the integral cross-piece at the bottom, said cross-piece being twisted to form a portion in a plane at right angles with the planes of the upright sides, 5', and provided with a perforation, 5", substantially as described.

8. In a weighing-scale, a suitable base, in combination with the frame erected thereon and provided with an open front, a curved scale-plate having its lower end attached to said base and its upper end attached to the upper part and front of said scale-case, said scale-plate being provided with a curved slot and with two sets of graduations, the scale mechanism arranged in said case, and a pointer-arm extending therefrom through the open front of said case, and having an index that sweeps said slot, substantially as described.

9. In a weighing-scale, a base, in combination with a case erected thereon, a load-post arranged therein, a balance-spring in said case, suitable links for said load-post, a pointer-arm movable with the load-post, said case having an open front through which said arm is adapted to swing, a curved scale-plate having its lower end attached to the base and having its upper end attached to said case, said plate being provided with a curved slot and with graduations, and a double index on said pointer-arm and occupying said slot, to move therein, substantially as described.

10. In a weighing-scale, a suitable base, in combination with a scale-case erected thereon and provided with an open front, a U-shaped load-post arranged in said case, a balance-spring, the links connecting said load-post and case, a pointer-arm extending from one of said links, a curved scale-plate occupying a vertical plane midway of said case, said plate being provided with a curved slot and having its lower end attached to said base and its upper end attached to said case, and said pointer-arm being bent to occupy substantially the planes of said plate and being provided with an index extending through the slot of said plate, substantially as described.

749,499. CURTAIN-HANGING. WILLIAM P. POWELL, Grand Rapids, Mich. Filed Aug. 5, 1903. Serial No. 168,378. (No model.)

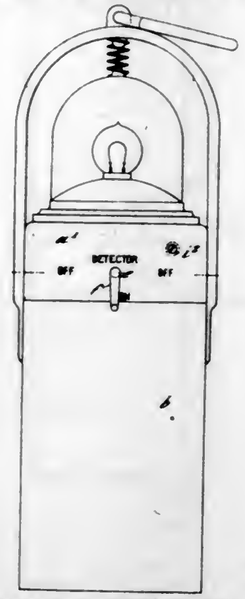


Claim.—1. In an adjustable curtain-hanging, supporting-pulleys a clamp having a body, a right-angle wall having a mortise, an eccentric thereon, and guides for the cord, a guide-wire, a clamping-link thereon having an aperture through one side, a slot through the other side and a link connected therewith, a curtain-roller and pintles; in combination with a cord threaded from the pintle f'' over the pulleys, through the guide on the pintle-clamp down and through the link on the clamp D, thence up through the guides on the pintle-clamp to and over the pulley and back to and attached to the pintle-clamp, substantially as and for the purpose set forth.

2. In combination with a curtain-roller having a fixed and a revoluble pintle, and supporting-pulleys, a pintle-clamp having guides, a main clamp consisting of a link having a small aperture through one side a slot through the other side, and a connecting-link, and a rod carrying the same, with a cord passing from the fixed pintle over the pulleys, thence down to and through the link, thence up over the pulley and down to the pintle-clamp, substantially as and for the purpose set forth.

3. In combination with a window-frame, a curtain-roller having a fixed and a revoluble pintle, adjustable supporting-pulleys on the frame and a pintle-clamp, a main clamp consisting of a flat link having small aperture through one side near the end, a slot through the other side, and a link, a rod passing through said slot and aperture and secured to the window-frame, and an adjustable post connected therewith and with the window-frame, with a cord attached to the fixed pintle, thence passing over the pulleys, down to and through the link d'', thence up over the pulley and back down to and secured to the pintle-clamp, substantially as and for the purpose set forth.

749,500. MINER'S ELECTRIC LAMP. HENRY G. PRENTED, Camden Town, England. Filed Feb. 7, 1903. Serial No. 142,406. (No model.)



Claim.—1. A miner's electric lamp comprising a diffusion device, a lamp and a circuit short-circuiting the lamp so as to render the latter useless when the said diffusion device is in action, substantially as described.

2. A miner's electric lamp comprising a diffusion device, a circuit short-circuiting the lamp when the said device is in action and a switch which in one position cuts out the said circuit while still supplying current to the lamp, substantially as described.

3. In a miner's electric lamp the combination of a chamber, a porous wall to such chamber, a movable diaphragm covering an opening in such chamber, an electrical contact carried by such diaphragm, an electric circuit completed by such contact when the said diaphragm is moved, and a switch for throwing said lamp and diaphragm out of circuit and the lamp into circuit when said switch is turned in one position, substantially as described.

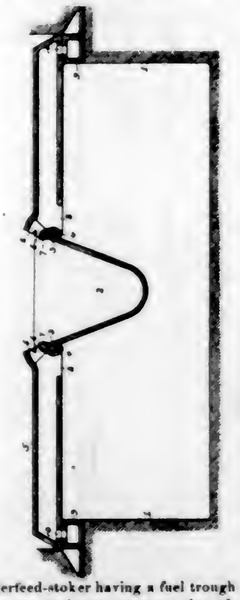
4. In a miner's electric lamp the combination of a chamber, a porous wall to such chamber, a movable diaphragm covering an opening in such chamber, an electrical contact carried by said diaphragm an electric circuit completed by such contact when said diaphragm is moved, and a double-acting switch arranged to throw the contact and diaphragm into circuit with the lamp, and when turned into another position to cut said contact and diaphragm out of circuit and throw said lamp into a direct circuit, substantially as described.

5. In a miner's electric lamp the combination of a chamber, a porous wall to such chamber, a movable diaphragm covering an opening in such chamber, an electrical contact carried by said diaphragm, a contact normally out of engagement with the diaphragm, a circuit including said contacts and lamp, a branch circuit passing through the lamp alone, a switch which in one position cuts out the said contacts and applies the current directly to the lamp through the branch circuit and when turned to another position breaks both said circuits, substantially as described.

749,501. UNDERFEED-STOKER. JOSEPH M. SEARLE, Pittsburg, Pa. Filed Oct. 30, 1903. Serial No. 179,294. (No model.)

Claim.—1. An underfeed-stoker having a fuel trough or retort and twyer-boxes mounted by means of a knuckle-joint upon an upper edge of said trough or retort and supported at their outer ends upon a side wall of the furnace through the medium of a longitudinal twyer-pipe, substantially as specified.

2. An underfeed-stoker comprising a fuel trough or retort, and hollow twyer-boxes resting at their inner ends upon an upper edge of said trough or retort and supported at their outer ends upon a twyer-pipe which communicates with said twyer-boxes, substantially as specified

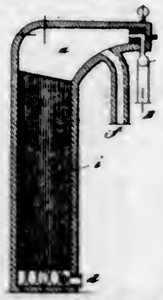


3. An underfeed-stoker having a fuel trough or retort and hollow twyer-boxes mounted upon an upper edge of said retort and extending therefrom to a side wall of the furnace so as to constitute combined twyer-boxes and dead-plates, substantially as specified.

4. The combination, in an underfeed-stoker, of a fuel trough or retort and hollow twyer-boxes mounted upon an upper edge of said retort and extending outwardly therefrom, each of said twyer-boxes having ports in its inner face, and a bottom opening, near the inner end, for the escape of matter entering the twyer-box through said ports, substantially as specified.

5. The combination, in an underfeed-stoker, of a fuel trough or retort, twyer-boxes mounted upon an upper edge of said retort and extending outwardly therefrom to a side wall of the furnace, each of said twyer-boxes having ports in its inner face, and, below said ports, an inwardly-projecting fuel-deflecting rib, substantially as specified.

749,502. APPARATUS FOR HEATING AIR FOR SUPPLYING BLAST-FURNACES. GEORGE THEISSRAEBER, Marchienne au Pont, Belgium. Filed Jan. 6, 1902. Serial No. 88,614. (No model.)



Claim.—In an apparatus for heating the air for supplying blast-furnaces, the combination of a plurality of regenerator-flues, a dome placed above said flues, a gas-passage, a plurality of gas-inlet passages leading from said gas-passage into said dome, an air-passage, a plurality of air-inlet passages leading from said air-passage into said dome, said gas and air inlet passages being located in the same plane, an inlet for cold air beneath said regenerator-flues, and an outlet for said air after it has been heated by said flues.

749,503. NON-SIPHONING LIQUID-TRAP. JOHN J. TOCKNER, Cedar Rapids, Iowa. Filed Aug. 21, 1903. Serial No. 170,366. (No model.)



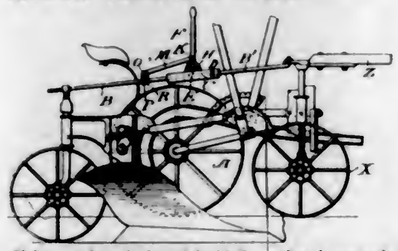
Claim.—1. In a device of the class described, a body consisting of a block or solid casting having an inlet and an outlet, openings disposed adjacent to each other communicating respectively with said inlet and outlet, and a bore constituting a vent connecting said inlet and outlet in combination with suitable pipe connections to constitute a trap.

2. In a device of the class described, a body consisting of a block or solid casting having an inlet and an outlet, openings communicating respectively with said inlet and outlet, a return-bend connecting said openings, and a vent connecting the inlet and outlet passages.

3. In a device of the class described, a body consisting of a block or solid casting having openings disposed adjacent to each other, a return-bend connecting said openings, an inlet communicating with one and an outlet communicating with the other of said openings, and a bore in said body constituting a vent connecting the inlet with the outlet.

4. The combination of a source of supply, as a storage-tank, a dispensing means, as a pump, a pipe-line connecting the source of supply with the dispensing means, and a trap upon said pipe consisting of a block or solid casting having an inlet, an outlet, openings communicating respectively with said inlet and outlet, a return-bend connecting said openings, and a vent connecting the inlet-passage with the outlet-passage.

749,504. PLOW. THEODORE O. TOLLACK, Curran, Wis. Filed Feb. 10, 1903. Serial No. 142,715. (No model.)



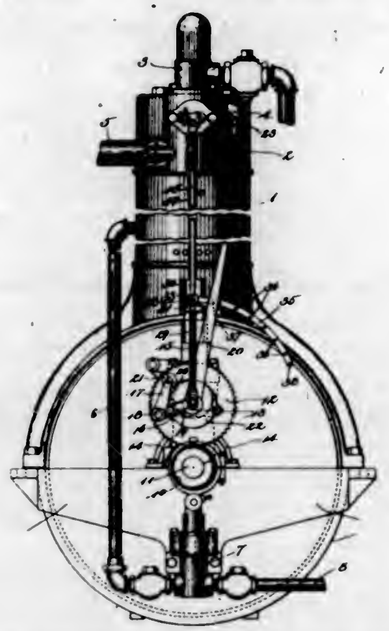
Claim.—1. In a device of the kind mentioned, two rods in line with each other, a member rigidly secured to one within which the other moves longitudinally, a member rigidly secured to the other, and a connection between the two members for moving one in relation to the other.

2. In a device connecting the front and rear wheels of a wheel-plow, the combination of two rods, a sleeve rigidly secured to one, a collar rigidly secured to the other, such other moving longitudinally in the sleeve, a lever pivoted to the sleeve, and a rod pivoted to such collar and lever.

3. In combination, the front and rear caster-wheels of a wheel-plow, vertical pivots for such wheels, the front wheel secured to, controlled by and traveling in line with the pole, arms secured to the vertical pivots substantially at right angles with the line of travel of said wheels, a connection between said arms consisting of two rods, a sleeve rigidly secured to one rod, within which sleeve the other rod moves longitudinally, a collar rigidly secured to said last-named rod, a lever pivoted upon the sleeve, a segmental rack secured to the sleeve, a spring-pressed pawl upon the lever engaging the rack and a rod connecting the lever with the collar.

749,505. VARIABLE SPARKING MECHANISM. GEORGE E TREWARTHA, Malden, Mass. Filed June 13, 1903. Serial No. 161,960 (No model.)

Claim.—1. In combination with a reciprocable rod, a rotating cam on a fixed center, a lever pivoted to said rod and actuated by said cam to reciprocate said rod, a lever fulcrumed on the same fixed center as said cam, mechanism for holding said second lever at different angles with relation to said reciprocating rod when turned on its fulcrum, said first lever being pivoted to said second lever and thereby having a fulcrum which is moved according to the varying positions of adjustment of said second lever, the fixed fulcrum of said adjusting-lever causing the line of movement of the fulcrum of said first lever to be in the arc of a circle whose center is the fixed fulcrum of said adjusting-lever, thereby causing the said reciprocating rod to always move in the same path but variable as to time of movement with relation to the rotation of the cam, substantially as described.



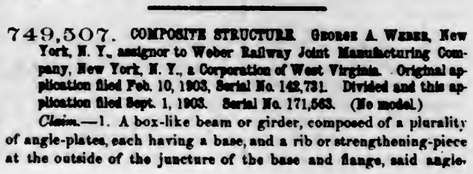
2. In a gas or gasolene engine, in combination, with an igniter-rod, a rocking bell-crank lever, one arm of which is pivoted to said igniter-rod, a cam-roll mounted in the other arm of said bell-crank, a rotating cam with which said cam-roll engages and thereby rocks the bell-crank and reciprocates the igniter-rod, a stud on which said cam is mounted, an adjusting-lever fulcrumed on the same center as said cam, a stud on one arm of said adjusting-lever on which said bell-crank is fulcrumed, and an arc-shaped arm having means for engaging the other arm of said adjusting-lever and holding it in varying positions, thereby varying the relation of the cam-roll to the cam and varying the period in the revolution of the cam at which the igniter-rod will descend, and an ignition device which is operated by said rod, substantially as described.

3. In a gas or gasolene engine, in combination with a reciprocable igniter-rod, driving mechanism therefor, variable mechanism which controls the actuation of the igniter-rod to regulate and vary the time of reciprocation of said rod with relation to the driving mechanism, and connecting mechanism which causes the said igniter-rod to always move in the same alinement, and an ignition device which is operated by said rod, substantially as described.

4. In a gas or gasolene engine, in combination with a reciprocable igniter-rod, an ignition device operated thereby, a rotating cam on a stationary axis, a lever pivoted to said rod and actuated by said cam to reciprocate said rod, a lever fulcrumed on the same fixed center as said cam, mechanism for holding said second lever at different angles with relation to the igniter-rod when turned on its fulcrum, said first lever being pivoted to said second lever and thereby having a fulcrum which is moved according to the varying positions of adjustment of said second lever, the fixed fulcrum of said adjusting second lever causing the line of movement of the fulcrum of said first lever to be in the arc of a circle whose center is the fixed fulcrum of said adjusting-lever whereby said igniter-rod will always have the same alinement.

5. In a gas or gasolene engine, in combination with a reciprocable igniter-rod, an ignition device operated thereby, a rotating cam on a stationary axis, an adjusting-lever fulcrumed on the same center as said cam, a series of stops arranged concentrically with the fulcrum of said adjusting-lever and which engage with one arm of said lever and hold it in its adjusted positions, a rocking bell-crank lever fulcrumed to a second arm of said adjusting-lever, one arm of said bell-crank being pivoted to said igniter-rod and the other arm engaging with said cam whereby said igniter-rod is reciprocated, the movement of said adjusting-lever on its fulcrum moving the fulcrum of said rocking bell-crank lever in an arc concentric with the fulcrum of said adjusting-lever and thereby changing the relation of the said cam to said igniter-rod and changing the time of reciprocation of said igniter-rod without changing its path of movement, substantially as described.

749,506. COMBINED SCRUBBER, MOP, AND WRINGER. LOUISE WAGENER, Jacksonville, Fla. Filed Aug. 8, 1902. Serial No. 118,944. (No model.)



Claim.—1. In apparatus of the class described, the combination with a support, of spaced brushes mounted upon the support, and a mop secured in the space between the brushes and alternately movable beneath them upon the movement of the support.

2. In apparatus of the class described, the combination with a support, of brushes mounted upon the support and having a space between them arranged to receive a mop, and holding means for the mop mounted upon the support over the space, said means also forming wringing mechanism for the mop.

3. In apparatus of the class described, the combination with a support, of brushes secured to the support and having a space between them arranged to receive a mop, and mop-holding means arranged upon the base over the opening.

4. In apparatus of the class described, the combination with a supporting-base having an opening therethrough, of brushes secured beneath the base on opposite sides of the opening and having a space between them which alines with the opening, and mop-holding means comprising spaced frames mounted upon the base transversely of the opening, and mop-engaging rolls journaled upon the frame.

5. In apparatus of the class described, the combination with a supporting-base having an opening therethrough, of a brush arranged on the under side of the base, spaced frames located upon the base transversely of the opening and having longitudinally-disposed guideways, journal-boxes slidably mounted in the guideways, springs interposed between the boxes, adjusting-screws journaled in the frames and bearing against the boxes, and rolls journaled in the boxes, said rolls being arranged to engage a mop which can be disposed in coacting relation with the brush.

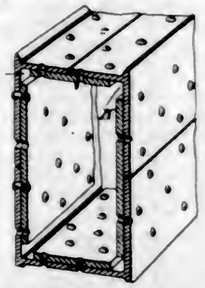
6. In apparatus of the class described, the combination with a supporting-base having an opening therethrough, of brushes secured to the under face of the base, spaced frames mounted upon the base transversely of the opening, rolls journaled upon the frames and arranged to engage a mop placed between and coacting with the brushes, and a handle pivoted to the frames.

7. In apparatus of the class described, the combination with a supporting-base having an opening therethrough, of spaced brushes secured to the base on opposite sides of the opening, and mop-engaging mechanism mounted on the base and including rolls separated by a space which alines with the opening in the base, and an operating-handle.

749,507. COMPOSITE STRUCTURE. GEORGE A. WEBER, New York, N. Y., assignor to Weber Railway Joint Manufacturing Company, New York, N. Y., a Corporation of West Virginia. Original application filed Feb. 10, 1903, Serial No. 142,731. Divided and this application filed Sept. 1, 1903. Serial No. 171,563. (No model.)

Claim.—1. A box-like beam or girder, composed of a plurality of angle-plates, each having a base, and a rib or strengthening-piece at the outside of the juncture of the base and flange, said angle-

plates being united substantially throughout their length by interior plates and rivets or like devices, there being but one plate in the width of the beam for each side portion of the box-beam, said plates being arranged over the meeting ends of the angle-plates, for substantially the purposes set forth



2. A box-beam, comprising a plurality of angle-plates, each having a base, a flange, and a strengthening rib or fillet extending along the outside of the juncture between the base and flange, the sides and ends of the box-like structure being formed by the bases and flanges of the angle-plates, with reinforcing-plates suitably securing the bases and flanges together within the structure, thereby forming walls of double thickness, spaces being left at the corners of the box-beam between adjacent reinforcing-plates, whereby lightness is obtained without sacrifice of strength, for substantially the purposes set forth.

3. A box-like beam or girder, composed of a plurality of angle-plates, each having a base, a flange, and a rib or strengthening-piece extending along the outside of the juncture between the base and flange, said angle-plates being united by plates and rivets or like devices to form the girder, there being but one plate in the width of the beam for each side portion of the box-beam, said plates being arranged over the meeting ends of the angle-plates, for substantially the purposes set forth.

4. A box-like beam or girder, composed of a plurality of angle-plates, each having a base, a flange, and a rib or strengthening-fillet at the juncture between the base and the flange, the said rib or fillet being provided with a portion oblique to both the base and flange, and forming a continuation of the outside face of the flange to the edge of the adjacent end of the base, said angle-plates being united by plates and rivets or like devices to form the girder, spaces being left at the corners of the box-beam between adjacent plates, whereby lightness is obtained without material sacrifice of strength, for substantially the purposes set forth.

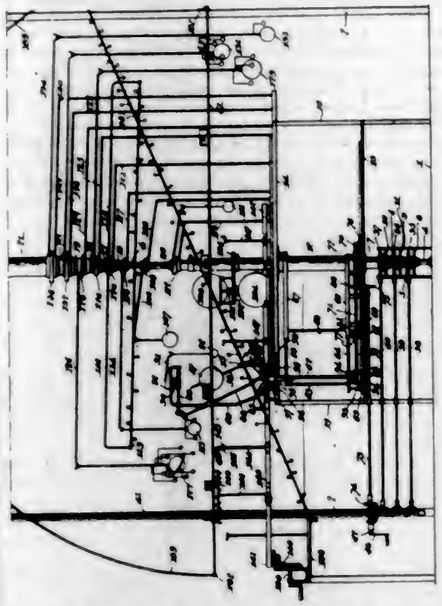
749,508. ORRERY. JOHN P. WILSON, Atalla, Ala. Filed July 31, 1903. Serial No. 167,784. (No model.)

Claim.—1. In an apparatus of the class described, the combination of a plurality of planet-globe-carrying arms mounted for independent rotation on a common axis, means for imparting movement to all of said arms and means for guiding said arms so that they will move in planes disposed at angles to each other.

2. In an apparatus of the class described, the combination of a central stationary standard, a plurality of concentric hollow shafts mounted for independent rotation on said standard, a plurality of planet-globe-carrying arms pivoted one to each of said hollow shafts, means for imparting rotative movement to all of said hollow shafts, and means for guiding the movement of said pivotal arms in non-parallel planes.

3. In an apparatus of the class described, the combination of a stationary central standard, a plurality of concentric hollow shafts mounted thereon for independent rotation, a planet-globe-carrying arm pivoted to each of said shafts, and means for determining the movement of each planet-globe-carrying arm in a plane inclined to the plane of movement of the other arms, said determining means comprising a fixed cam associated with each of said arms.

4. In an apparatus of the class described, the combination of a central standard, a plurality of concentric hollow shafts mounted thereon for independent rotation, a planet-globe-carrying arm pivotally mounted on each of said shafts for pivotal movement in a vertical plane, means for guiding all of said pivoted arms in non-parallel planes, said means comprising a plurality of cam-plates supported by brackets mounted at successively-increasing distances from the central standard, a cam-plate being associated with each of said arms, and means for imparting rotative movement to said concentric shafts.



5. In an apparatus of the class described, the combination of a central standard, a plurality of concentric hollow shafts mounted for independent rotation thereon, means for imparting independent rotative movement to said shafts at different speeds, a plurality of planet-globe-carrying arms pivotally mounted one on each of said concentric shafts, and means for guiding said arms so that they will travel in planes corresponding in inclination to the inclinations of the planes of the orbits of the planets represented by the globes carried by said arm.

6. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm mounted thereon for movement in a vertical plane, a stationary cam-plate over which said arm travels, a sleeve on said arm from which the planet-globe is suspended, and means for reciprocating said sleeve on said arm.

7. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm pivotally mounted on said shaft, a cam-plate over which said arm travels, a sleeve slidably mounted on said arm, an elliptical track formed on said cam-plate and a projection on said sleeve adapted to engage and be guided by the track on said cam-plate.

8. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm pivotally mounted on said shaft for movement in a vertical plane, a stationary cam over which said arm travels, a sleeve rotatably mounted on said arm, a planet-globe suspended from said sleeve, connections between said planet-globe and said sleeve whereby rotary movement is imparted to said globe, a stationary gear on said cam, and a pinion on said sleeve in mesh with said stationary gear.

9. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm pivotally mounted on said shaft for movement in a vertical plane, a stationary cam-plate over which said arm travels, a sleeve rotatably mounted on said arm, a stationary gear on said cam-plate and a pinion on said sleeve in mesh with said stationary gear, a planet-globe and a flexible tubular connection between said sleeve and said globe.

10. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm pivotally mounted on said shaft for movement in a vertical plane, a cam-plate over which said arm travels, a sleeve slidably and rotatably mounted on said arm, a planet-globe, a flexible tubular connection between said planet-globe and said sleeve, a track of elliptical form on said cam-plate, a stationary gear also on said cam-plate, a collar provided with a projection mounted on said sleeve and having the projection in engagement with said track, and a pinion rigidly attached to said sleeve and in mesh with said stationary gear.

11. In an apparatus of the class described the combination of a rotary shaft, a planet-globe-carrying arm pivotally mounted thereon for movement in a vertical plane, a stationary cam over which said arm travels, a plurality of concentric sleeves carried by said arm and adapted for independent rotation thereon and for sliding movement together, a planet-globe, a flexible tubular connection between said globe and the innermost concentric sleeve, a moon-globe hanger, a flexible tubular connection between said moon-globe hanger and the outermost concentric sleeve, an elliptical track on said cam-plate, a plurality of stationary gears on said cam-plate, a collar mounted on one of said sleeves and having a projection engaging said track and a pinion upon each of said sleeves in mesh with one of said stationary gears.

12. In an apparatus of the class described, an elliptical track, a frame supported for orbital movement in said track, an inclined shaft forming the axis of an earth-globe supported in said frame, means for imparting rotatable movement to said shaft and means for preventing rotation of said frame to keep the direction of said earth-globe axis constant.

13. In an apparatus of the class described the combination of an elliptical track, a standard supported for orbital movement in said track, a frame rotatably mounted on said standard, an earth-globe supported in said frame, two elliptical tracks having their minor axes equal to the minor axis of the first-named elliptical track and having their major axes of different lengths from that of the first-mentioned track arranged with reference to the first-named track so that at the extremities of their minor axes, the three tracks coincide and at the extremities of their major axes, the first-named track lies between the last-named tracks and fixed projections on said frame engaging the last-named tracks.

14. In an apparatus of the class described the combination with a table or plate having an elliptical slot formed therein, of a shaft extending through said slot and supported for orbital movement therein, an earth-globe-supporting frame rotatably mounted on said shaft, a pair of elliptical tracks arranged to coincide with said slot at the extremities of its minor axis and to lie equidistant and on opposite sides of said slot at the extremities of its major axis, and projections on said frame engaging said tracks.

15. In an apparatus of the class described the combination of a table or plate having an elliptical slot, a shaft extending through said slot and supported for orbital movement therein, an earth-globe-carrying frame rotatably mounted on said shaft, a pair of elliptical tracks arranged to coincide with said slot at the extremities of its minor axis and to lie equidistant from and on opposite sides of said slot at the extremities of its major axis, projections on said frame engaging said tracks and automatic switches arranged at the points of divergence of said tracks from said slot to cause such engagement of said projections with said tracks as will prevent the rotation of said frame.

16. In an apparatus of the class described the combination of a table, guide members arranged thereon in a suitable path, a sun-globe suitably positioned in relation to said guide members, a belt supported on said guide members and a body representing a comet carried by said belt.

17. In an apparatus of the class described the combination of a table or plate, a plurality of rolls supported on said plate in a parabolic path, a belt supported on said rolls, a sun-globe suitably supported in relation to said rolls and a member representing a comet carried by said belt.

18. In an apparatus of the class described the combination of a table or plate, guide members arranged thereon in a suitable path, a sun-globe suitably positioned in relation to said guide members, a belt mounted on said guide members, a standard carried by said belt, a body representing a comet rotatably mounted on said standard and means provided at intervals along the path formed by said guide members, for imparting partial rotation to said body representing a comet.

19. In an apparatus of the class described the combination of a table or plate, a plurality of guide members arranged upon said plate in a suitable path, a sun-globe suitably positioned in relation to said guide members, a belt mounted for travel on said guide members, a standard carried by said belt, a body having a plume attached thereto rotatably mounted on said standard to represent a comet, a pinion rigidly associated with said body, standards arranged at intervals along the path defined by said guide members, and arms carried by said standards and adapted to engage the pinion to impart partial rotation thereto.

20. In an apparatus of the class described the combination of a plate, a plurality of guide members positioned thereon in a suitable path, a sun-globe suitably supported in relation to said guide members, a belt mounted for travel on said guide members, a standard carried by said belt and a plurality of small globes representing meteors carried by said standard.

21. In an apparatus of the class described, a rotary shaft, a plurality of arms mounted thereon for pivotal movement in vertical plane, a stationary cam-plate over which said arms travel, a ring attached to said arms at their outer ends, and a plurality of small globes representing the minor planets, suitably supported on said ring.

22. In an apparatus of the class described, the combination of a stationary worm-wheel, an arm supporting an earth-globe mounted for orbital movement adjacent to said worm-wheel, a shaft rotatably supported in brackets on said arm, a worm on said shaft in mesh with said worm-wheel and means for imparting rotation to said shaft.

23. In an apparatus of the class described, the combination of a stationary worm-wheel, an earth-globe-supporting arm mounted for orbital movement adjacent to said worm-wheel, a shaft journaled in brackets on said arm, a worm on said shaft engaging said worm-wheel, a pinion on said shaft, a double-face gear rotatably mounted adjacent to said worm-wheel, driving connections between said double-face gear and said pinion, a driving-pinion in mesh with said double-face gear, and means for imparting movement to said driving-pinion.

24. In an apparatus of the class described the combination of a stationary worm-wheel having three hundred and sixty-five teeth and having an opening through its periphery which is normally closed by the elasticity of the material of which the worm-wheel is made, an earth-globe-carrying arm mounted for orbital movement above said worm-wheel, a worm carried by said arm in mesh with said wheel, means for imparting movement to said worm, a tooth movably supported within said wheel, and means operative upon every fourth orbital movement of said arm to insert said tooth into the opening in the periphery of said worm-wheel.

25. In an apparatus of the class described, the combination of a stationary worm-wheel having three hundred and sixty-five teeth and having an opening through its periphery which is normally closed by the elasticity of the material of which the wheel is made, an earth-globe-carrying arm mounted for orbital movement above said worm-wheel, a worm carried by said arm in mesh with said wheel, means for imparting movement to said worm, an arm pivoted to the worm-wheel adjacent to the opening in the periphery thereof, a tooth provided on said arm, and means operative upon every fourth orbital movement of the earth-globe-carrying arm to engage the arm of the worm-wheel and force the tool carried thereby through the opening in the periphery of the worm-wheel.

26. In an apparatus of the class described, the combination of a sun-globe, a moon-globe, an earth-globe, means for imparting orbital movement to said earth-globe and moon-globe, and means provided on said moon-globe for illustrating the formation of the umbra and penumbra causing eclipses.

27. In an apparatus of the class described, the combination of a sun-globe, a moon-globe, an earth-globe, means for imparting movement to said earth-globe and moon-globe in their orbits, and a shadow-illustrating attachment for said moon-globe comprising a plurality of separable sections.

28. In an apparatus of the class described, the combination of a sun-globe, a moon-globe, an earth-globe, means for imparting movement to said moon-globe and earth-globe in their orbits, and a shadow-illustrating attachment for said moon-globe consisting of a plurality of telescopically-connected sections.

29. In an apparatus of the class described, the combination of a sun-globe, a moon-globe, an earth-globe, means for supporting all of said globes, means for imparting movement to said earth-globe and moon-globe in their orbits, and a shadow-illustrating attachment comprising a conical shell and hooks slidably mounted thereon for engagement with the means for supporting one of said globes.

30. The combination in an apparatus of the class described, of an earth-globe, a moon-globe revoluble about the earth-globe, and an annular member having a flange broadened at diametrically opposite points to represent the tides, and means for causing revolution of said annular member about the earth-globe at the same rate of revolution as that of the moon-globe.

749,509. TROLLEY. WILLIS D. WILLIAMS, Kirtland, Ariz. Filed Aug. 19, 1903. Serial No. 170,022. (No model.)

Claim.—1. The combination with the fork of a trolley-pole having a wheel journaled therein; of a guard secured to the outer face of each side of the fork and said guard comprising a plate, a stud centrally arranged thereon, a star-wheel journaled upon the stud and

overlapping the plate, and means for clamping the wheel upon the plate.

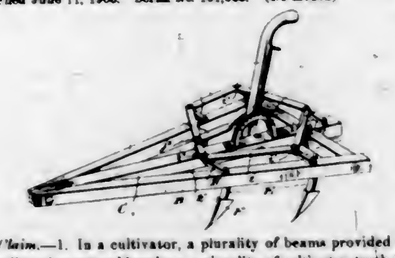


2. The combination with the fork of a trolley-pole and a wheel journaled therein; of plates secured to the outer faces of the fork, studs extending from the plates, star-wheels revolubly mounted upon the studs and having recesses for the reception of the plates, and springs secured to the studs and bearing on the wheels.

3. A guard attachment for trolley-poles comprising a plate, a lug extending therefrom, a star-wheel revolubly mounted upon the lug and having a recess for the reception of the plate, and a bow-spring secured to the stud and bearing upon the wheel.

4. A guard attachment for trolley-poles comprising a plate adapted to be secured to the fork of a trolley-pole, a lug extending from the plate, a star-wheel revolubly mounted upon the lug and having a recess for the reception of the plate, the arms of said wheel being spaced apart at their inner ends, and a bow-spring mounted upon the stud and bearing at its ends upon the wheel.

749,510. **CULTIVATOR.** FRIEDRICH J. ZIEGLER, Decatur, Ill. Filed June 11, 1903. Serial No. 161,083. (No model.)



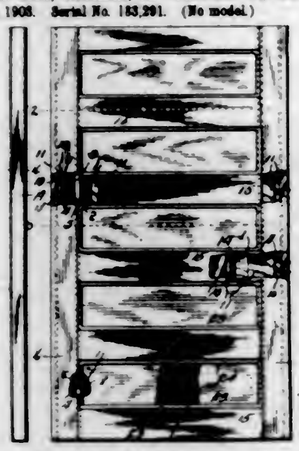
Claim.—1. In a cultivator, a plurality of beams provided with a plurality of apertured bearings, a plurality of cultivator-teeth journaled in and projecting above said beams, crank-arms adjustably secured to the projecting ends of said cultivator-teeth, a plate provided with a plurality of apertures arranged to loosely receive the free ends of said crank-arms, and means for shifting the plate.

2. In a cultivator, a plurality of beams provided with a plurality of apertured bearings, a plurality of cultivator-teeth journaled in and projecting above said beams, crank-arms adjustably secured to the projecting ends of said cultivator-teeth, a plate with a plurality of apertures arranged to loosely receive the free ends of said crank-arms, a lever pivoted to one of the beams of the cultivator, and a link connecting the lever and the plate.

3. In a cultivator, a plurality of beams provided with a plurality of apertured bearings, a plurality of cultivator-tooth standards provided at their upper ends with cylindrical portions arranged to fit in said bearings and equisided polygonal-shaped portions arranged to project above the beams when the standards are in position, crank-arms provided at one end with polygonal-shaped apertures adapted to adjustably receive the polygonal-shaped portions of the standards, and at the other end with upwardly-extending cranks, a plate overlying all of said crank-arms and provided with a plurality of apertures adapted to loosely receive said cranks, and means for shifting said plate.

4. In a cultivator, a plurality of beams provided with a plurality of apertured bearings, a plurality of cultivator-tooth standards provided at their upper ends with cylindrical portions arranged to fit in said bearings and equisided polygonal-shaped portions arranged to project above the beams when the standards are in position, crank-arms provided at one end with polygonal-shaped apertures adapted to adjustably receive the polygonal-shaped portions of the standards and at the other end with upwardly-extending cranks, a plate overlying all of said crank-arms and provided with a plurality of apertures adapted to loosely receive said cranks, a lever pivoted to one of the beams of the cultivator and a link connecting said lever and the plate.

749,511. **COMPOSITE BOARD FOR DOORS, PANELS, OR THE LIKE.** JOHN S. ANDERSON, Jamestown, N. Y., assignor of one-half to James H. Frew, Newcastle, Pa. Filed Nov. 30, 1901. Renewed Nov. 30, 1903. Serial No. 183,291. (No model.)



Claim.—1. A composite board comprising the inner rail-plates, having end mortises and side channels, the stile-bars having mortises at their inner edges, the locking-strips fitting in the mortises the outer rail-plates, the outer rail-pieces having inner side channels, registering with the side channels of the inner rail-plates and outer side channels, the facing rail-plates, the facing stile-pieces having side channels registering with the outer side channels of the outer rail-pieces, key-strips located in the registering channels, and the edge strips fitting between the facing stile-pieces.

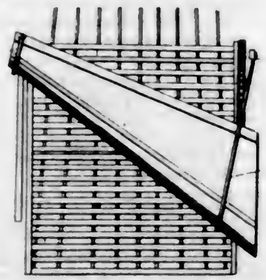
2. A composite board comprising the inner rail-plates having end mortises and side channels, the stile-bars having mortises at their inner edges, and grooves and tongues at their outer edges, the locking-strips fitting in the mortises, the outer rail-plates, the outer rail-pieces having inner side channels registering with the side channels of the inner rail-plates and outer side channels, the facing rail-plates, the facing stile-pieces having side channels registering with the outer side channels of the outer rail-pieces, key-strips located in the registering channels, and the edge strips fitting between the facing stile-pieces and having tongues and grooves interlocking with the grooves and tongues of the stile-bars.

3. A composite board, comprising the inner rail-plates, having end mortises and side channels, the stile-bars having mortises at their inner edges, the locking-strips fitting in the mortises, the outer rail-plates, the outer rail-pieces having inner side channels registering with the side channels of the inner rail-plates, and outer side channels, the facing rail-plates, the facing stile-pieces having side channels registering with the outer channels of the outer rail-pieces, key-strips located in the registering channels, the edge strips fitting between the facing stile-pieces, the panel consisting of panel-plates and facing-plates and fitting between the inner rail-plates and the exposed edges of the locking-strips, and the molding surrounding the panel.

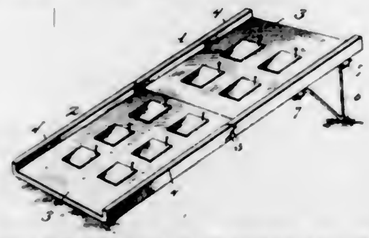
4. A composite board comprising the inner rail-plates having end mortises and side channels, the stile-bars having mortises at their inner edges, and grooves and tongues at their outer edges, the locking-strips fitting in the mortises, the outer rail-plates, the outer rail-pieces having inner side channels registering with the side channels of the inner rail-plates, and outer side channels, the facing rail-plates, the facing stile-pieces having side channels registering with the outer side channels of the outer rail-pieces, key-strips located in the registering channels, the edge strips fitting between the facing stile-pieces and having tongues and grooves interlocking with the grooves and tongues of the stile-bars, the panel consisting of panel-plates and facing-plates, and fitting between the inner rail-plates and the exposed edges of the locking-strips and the molding surrounding the panel.

749,512. **WINDROW ATTACHMENT.** JOHN W. ANDERSON, Worley, Wis. Filed Sept. 8, 1903. Serial No. 172,315. (No model.)

Claim.—In combination with a hay-loader, a windrower arranged to receive the material from the elevator and direct it to one side of the machine, said windrower being formed of sheet material and transversely inclined and tapered throughout its length, the delivery end being the larger, longitudinal stays secured to the outer side of the windrower, and rods encircling the end portions of the stays and windrower and attached thereto and connected at their ends to the hay-loader, substantially as described.

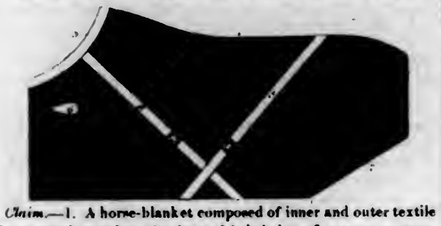


749,513. **FILM-BATH.** HARRY S. APPLEGATE, Lakewood, N. J. Filed Apr. 9, 1903. Serial No. 151,876. (No model.)



Claim.—A film-bath, comprising separable members with a water-tight break-joint formed at their inner assembled terminals, one of the sections having means for elevating the same to dispose the entire bath at an angle of inclination.

749,514. **HORSE-BLANKET.** LOUIS H. AYERS, Philadelphia, Pa., assignor to himself, William M. Ayers, William G. Ayers, and George R. Ayers, Philadelphia, Pa., trading under the firm-name of William Ayers and Sons. Filed July 24, 1903. Serial No. 166,330. (No model.)

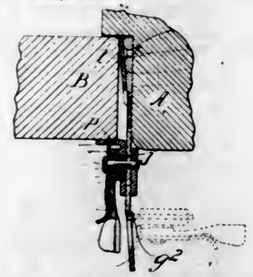


Claim.—1. A horse-blanket composed of inner and outer textile fabrics secured together, the inner fabric being of coarser or more open texture than the outer fabric, substantially as specified.

2. A horse-blanket composed of inner and outer textile fabrics secured together around the borders of the blanket and where straps and other fastenings are applied to the blanket, but otherwise free from connection with each other, the inner fabric being of coarser or more open texture than the outer fabric, substantially as specified.

749,515. **FASTENING DEVICE FOR DOORS AND SASHES.** VINCENT BAIL, Holyoke, Mass. Filed June 1, 1903. Serial No. 159,434. (No model.)

Claim.—1. In a locking device of the character described, the combination with the bar having a longitudinal slot, and means for its engagement with the edge of the casing, of an angular slide-block embracing the bar and slidable therealong and having a rigidly-united stud extending through and beyond the slot, and provided with a shoulder at its extremity, a cam encircling and rotatable about said stud, having a cam-face adjoining the face of the block, and exerting a crowding pressure against said stud-shoulder, and a member for turning the cam.



2. In a locking device of the character described, the combination with the bar constructed with a hinged extension, provided with a longitudinal slot, and having means for its engagement with the edge of the casing, of an angular slide-block embracing the bar and slidable along the bar proper and onto its hinged extension and having a rigidly-united stud extending through and beyond the slot, and provided with a shoulder at its extremity, a cam encircling and rotatable about said stud, having a cam-face adjoining the face of the block, and exerting a crowding pressure against said stud-shoulder, and a member for turning the cam.

3. In a locking device of the character described, the combination with the bar having a longitudinal slot, and provided with an inclined inner portion and having means for its engagement with the edge of the casing, of an angular slide-block embracing the bar and slidable therealong and having a rigidly-united stud extending from its base through and beyond the slot, and provided with a shoulder at its extremity and constructed with a cam-face at its outer side, a cam encircling and rotatable about said stud, having a cam-face adjoining the cam-face of the block, and exerting a crowding pressure against said stud-shoulder, and a member for turning the cam, substantially as and for the purposes set forth.

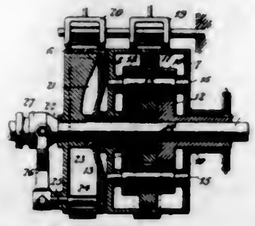
4. In a locking device of the character described, the combination with the bar having edge grooves, having the inclined end portion, and having a longitudinal slot, and means for its engagement with the edge of the casing, of an angular slide-block embracing the bar and slidable therealong and having a rigidly-united stud extending through and beyond the slot, and provided with a shoulder at its extremity, a cam encircling and rotatable about said stud, having a cam-face adjoining the face of the block, and exerting a crowding pressure against said stud-shoulder, and a plate having opposite ears embracing the grooved edges of the bar and having studs projected inwardly into sliding engagements in and along said edge grooves of the bar substantially as and for the purposes set forth.

5. In a locking device of the character described, the combination with the longitudinally-slotted bar having means for securing it to the casing, of a block having an angular member at one end and having its base or body apertured and adapted for an embrace about, and sliding fit along, the bar, and the under portion of said block having a rigidly-affixed stud extending through the slot in the bar and extending outwardly beyond the block, and having at its end a shoulder, said block having on its outer face concentric with the stud a cam-surface, a cam rotatable about the stud and coacting with said cam-surface of the block, and a member encircling the stud next to its shoulder against the inner face of which the cam bears, having a projection extending to engagement with the angular member of the block and having an endwise-projected handle.

6. In a locking device of the character described, the combination with the edgewise-grooved, and longitudinally-slotted bar having means for securing it to the casing, having the inclined inner end portion, and having the hinge-connected extension at its outer end, of a block having an angular member at one end and having its base or body apertured and adapted for an embrace about, and sliding fit along, the bar, and the under portion of said block having a rigidly-affixed stud extending through the slot in the bar and extending outwardly beyond the block, and having at its end a shoulder, said block having on its outer face concentric with the stud a cam-surface, a cam rotatable about the stud and coacting with said cam-surface of the block, a plate encircling the stud next to its shoulder, against the inner face of which the cam bears, having a projection extending to engagement with the angular member of the block, and having an endwise-projected handle, and the plate having the opposite

gears provided with studs inwardly projecting into sliding engagements in said edge grooves of the bar, substantially as described and shown.

749,516. REVERSING MECHANISM. FREDERIC J. BALL, Brooklyn, N. Y. Filed Jan. 30, 1902. Serial No. 91,343. (No model.)



Claim.—1. In a change-gear, the combination with the driving-gear and driven gear, of intermediate speed-reducing gears between said driving-gear and driven gear, and means to impart a circular motion to the axis of said intermediate speed-reducing gears about the axis of said driven gear, whereby the effective driving speed of said driven gear may be reduced or reversed according to the speed of the circular movement of the axis of said speed-reducing gears.

2. In a change-gear, the combination with the driving-gear and driven gear, of intermediate speed-reducing gears between said driving-gear and driven gear mounted on an axis adapted to be moved in an arc about the axis of said driven gear, means to impart a circular motion to the axis of said intermediate speed-reducing gears about the axis of said driven gear, and a device to control said means to impart said circular movement, whereby the effective driving speed of said driven gear may be reduced or reversed according to the speed of the circular movement of the axis of said reducing-gears.

3. In a change-gear, the combination with the driving-gear and driven gears, of intermediate speed-reducing gears between said driving and driven gears mounted on an axis adapted to move in an arc about the axis of said driven gear, a speed-controlling gear, power-transmitting connections between said speed-controlling gear and the intermediate gears, and a device to control said speed-controlling gear and thereby impart a circular motion to the axis of said intermediate gears about the axis of said driven gear.

4. In a change-gear, the combination with the driving and driven gears, of intermediate speed-reducing gears between said driving and driven gears mounted on an axis adapted to move in an arc about the axis of said driven gear, a speed-controlling gear, power-transmitting connections between said speed-controlling gear and the intermediate gears, a device to control said speed-controlling gear and thereby impart a circular motion to the axis of said intermediate gears about the axis of said driven gear, and a clutch device between for connecting said speed-controlling gear with the axis of the intermediate gears.

5. In a change-gear, the combination with the driving and driven gears, of intermediate speed-reducing gears between said driving and driven gears mounted on an axis adapted to move in an arc about the axis of the driven gear, a device to control the circular movement of the axis of said intermediate gears, a speed-controlling gear, power-transmitting connections between said speed-controlling gear and the intermediate gears, and a brake device to hold said speed-controlling gear against rotation on its axis and thereby impart a circular movement to the axis of said intermediate gears.

6. In a change-gear, the combination with the driving and driven gears, of intermediate speed-reducing gears between said driving and driven gears mounted on an axis adapted to move in an arc about the axis of the driven gear, a brake device to control the circular movement of the axis of said intermediate gears, a speed-controlling gear, power-transmitting connections between said speed-controlling gear and the intermediate gears, a clutch for connecting said speed-controlling gear with the axis of the intermediate gears, and a brake device to hold said speed-controlling gear against rotation on its axis and thereby impart a circular movement to the axis of said intermediate gears.

7. In a change-gear, the combination with the driving and driven gear, of a frame adapted to rotate about the axis of said driving and driven gears, a brake device to control the rotation of said frame, a speed-controlling gear provided with a brake, and a set of gears carried by said rotary frame and connected together and engaging respectively with said driving-gear, driven gear and speed-controlling gear.

8. In a change-gear, the combination with a power-shaft, a driving-gear carried thereby, a driven gear mounted on said shaft, a frame adapted to rotate about said shaft, a speed-controlling gear mounted on said shaft and provided with a brake device, and a set of power-transmitting reducing-gears carried by said frame and connected together and engaging respectively with said driving-gear, driven gear, and speed-controlling gear.

9. In a change-gear, the combination of a power-shaft, a driving-gear carried thereby, a driven gear mounted on said shaft, a frame adapted to rotate about said shaft, a set of power-transmitting speed-reducing gears between said driving and driven gears carried by said frame, means to rotate said frame about said shaft, and a brake to control the rotation of said frame.

10. In a change-gear, the combination of a driven gear, a speed-controlling gear, differing from the driven gear in the number of teeth, intermediate gears between the driven gear and controlling-gear having a driving connection with the power-shaft and mounted on an axis adapted to revolve about the axis of the controlling-gear, and means to hold said controlling-gear against rotation, whereby said speed of said driven gear may be changed or reversed according to the difference in the number of teeth in the driven gear and controlling-gear.

11. A speed-changing mechanism comprising driving and driven members, a shaft and a rotatable means in which it is mounted to move planetarily around the axis of said members and to turn on its own axis, a rotatable controlling member, gears on the planetary shaft and gears engaging therewith on the driving and driven members and on the controlling member, and means for holding the said controlling member from rotation.

12. A speed-changing mechanism comprising driving and driven members, a shaft and a rotatable means in which it is mounted to move planetarily around the axis of said members and to turn on its own axis, a rotatable controlling member, gears on the planetary shaft and gears engaging therewith on the driving and driven members and on the controlling member, clutching means for connecting the driving and driven members, and means for holding the said controlling member from rotation.

13. In combination, a rotary driving-shaft, a power-transmitting sleeve, two drums, externally-toothed spur-gears fixed to the shaft, one of the drums and the sleeve, externally-toothed spur-gears carried by the other drum fixed to rotate together and intermesh with the first-named gears and means for arresting one or the other of the drums to cause the shaft to drive the sleeve in the same or reverse direction.

14. In combination, a rotary driving-shaft, a power-transmitting sleeve, two drums, externally-toothed spur-gears fixed to the shaft, one of the drums and the sleeve, externally-toothed spur-gears carried by the other drum fixed to rotate together and intermesh with the first-named gears, means for arresting one or the other of the drums and a clutch for locking one of the drums to the shaft.

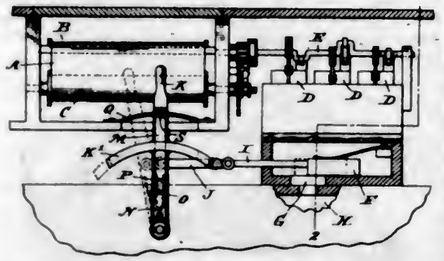
15. In combination, a rotary driving-shaft, a power-transmitting sleeve, two drums and a train of gears for connecting the shaft drums and sleeve comprising six gears, and means for arresting one or the other of the drums to cause the shaft to drive the sleeve in the same or the reverse direction.

16. In combination, a rotary driving-shaft, a power-transmitting sleeve, two drums and a train of gears located entirely in one of the drums comprising six gears for connecting the shaft, drums and sleeve and means for arresting one or the other of the drums to cause the shaft to drive the sleeve in the same or reverse direction.

17. In combination, a rotary driving-shaft, a power-transmitting sleeve, two drums, externally-toothed spur-gears fixed to the shaft, one of the drums and the sleeve, and two sets of intermediate externally-toothed spur-gears arranged diametrically opposite each other within the other drum for connecting the shaft, drums and sleeve and for balancing the drum, and means for arresting one or the other of the drums for causing the shaft to drive the sleeve in the same or the reverse direction.

18. In combination, a rotary driving-shaft, a power-transmitting sleeve, a closed drum, an open drum, a train of gearing located entirely within the closed drum for connecting the shaft, drums and sleeve, brakes arranged to engage the peripheral walls of the drums for arresting one or the other of the drums and a clutch arranged to engage the inner face of the peripheral wall of the open drum.

749,517. SPEED-REGULATOR FOR MECHANICAL MUSICAL INSTRUMENTS. HENRY P. BALL, New York, N. Y., assignor of one-half to Samuel Insull, Chicago, Ill. Filed Sept. 25, 1903. Serial No. 174,548. (No model.)



Claim.—1. In a mechanical musical instrument, the combination with a music-roll and mechanism for actuating said roll, means for initially determining, means for manually varying and means for automatically restoring the initial speed of movement of said roll.

2. In a mechanical musical instrument, the combination with a music-roll and mechanism for actuating said roll, a lever for initially determining, a lever for manually varying, and means for automatically restoring, the initial speed of movement of said roll.

3. In a mechanical musical instrument, the combination with a music-roll and mechanism for actuating said roll, valve mechanism for controlling said actuating mechanism, a lever for controlling the initial position of said valve, a second lever for varying the position of said valve, and means for automatically restoring said valve to its initial position upon the release by the operator of the second lever.

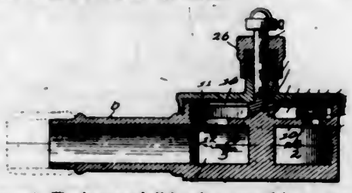
4. In a mechanical musical instrument, the combination with the music-roll and its actuating mechanism, a lever for initially determining the speed of movement of the actuating mechanism, means for fixing said lever in any defined position, a lever for manually varying the speed of movement of the actuating mechanism, and means for returning the second-named lever to the position of the first-named lever when released.

5. In combination with the music-roll, of a motor device, valve mechanism for controlling the motor device, a pair of levers having the same pivotal point, means interposed between said levers whereby, when uninfluenced, their axes will occupy parallel vertical planes, means for fixing one of said levers in any defined position, and mechanism interposed between the other of said levers and said controlling-valve mechanism.

6. In a mechanical musical instrument, the combination with a music-roll, of air-operating mechanism for actuating said roll, a valve for controlling said actuating mechanism, and a pair of levers for controlling the position of said valve, one of which is connected to said valve and the other capable of being given defined positions and connected to said first-named lever through a spring device, which normally tends to maintain the levers with their axes in parallel vertical planes.

7. In a mechanical musical instrument, the combination with the music-roll and valve-controlled mechanism for actuating said roll, of two levers having the same pivotal point, connecting means interposed between one of said levers and the valve mechanism of the motor device, means for fixing one of said levers in defined positions, and means for automatically moving the second lever and the valve mechanism connected thereto in coincidence with the first-named lever.

749,518. DISK VALVE. ROBERT BAUMANN, St. Louis, Mo., assignor of one-half to Theodore H. Wurmb, St. Louis, Mo. Filed Nov. 2, 1903. Serial No. 179,606. (No model.)

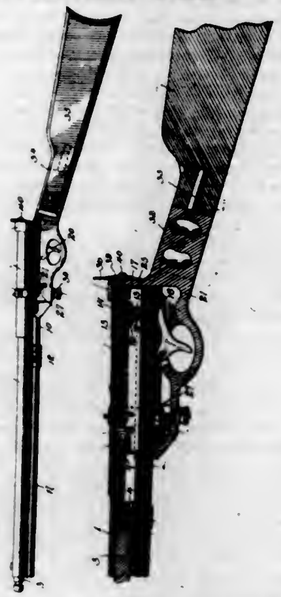


Claim.—1. The improved disk valve, comprising a casing having inlet and outlet chambers separated by partitions, inlet and outlet apertures formed in one of said partitions, a disk mounted adjacent one of said partitions and provided with means by which same may be rocked or rotated, and a series of small valves loosely connected to said disk and controlling the passage of fluid through said apertures, substantially as described.

2. The improved disk valve, comprising a casing having inlet and outlet chambers separated by partitions, inlet and outlet apertures formed in one of said partitions, a segmental disk having pins upon its inner face mounted adjacent one of said partitions and provided with means by which same may be rocked or rotated, and a series of small valves loosely connected to said disk and controlling the passage of fluid through said apertures, substantially as described.

3. The improved disk valve, comprising a casing having inlet and outlet chambers separated by partitions, inlet and outlet apertures formed in one of said partitions, a segmental disk having pins upon its inner face mounted adjacent one of said partitions and provided with means by which same may be rocked or rotated, a series of small valves loosely connected to said disk and controlling the passage of fluid through said apertures, a series of cups loosely mounted upon said pins, and valves or washers mounted in said cups, substantially as described.

749,519. AIR-GUN. WALTER R. BENJAMIN, St. Louis, Mo. Filed June 10, 1902. Serial No. 111,048. (No model.)



Claim.—1. In an air-gun, the combination with a breech-frame, of an air-cylinder and a projectile-barrel section connected together for detachment in unison from the frame, a pump-cylinder separably connected to the air-cylinder, and a second projectile-barrel section permanently attached to the pump-cylinder.

2. In an air-gun, the combination with a breech-frame, of an air-cylinder and a projectile-barrel section connected together, means common to the said cylinder and barrel-section for attaching them to the frame, a pump-barrel having interfitting relation with the air-cylinder, and a second projectile-barrel section attached to the pump-cylinder for removal therewith when the pump-cylinder is separated from the air-cylinder.

3. In an air-gun, the combination with a breech-frame, of an air-cylinder and a projectile-barrel section connected together for detachment in unison from the frame, a pump-cylinder separably connected to the air-cylinder, a second projectile-barrel section permanently attached to the pump-cylinder, an exteriorly-arranged valve at the inner end of the pump-cylinder, a valve controlling the escape of air to the barrel, and a trigger for operating said last-named valve.

4. In an air-gun, the combination with a breech-frame, and a barrel comprising a pump-cylinder and an air-cylinder, of a projectile-barrel seated in the frame, a breech-band encircling the barrels.

and an adjustable device for drawing the band into the frame to firmly seat the barrels.

5. In an air-gun, the combination with a breech-frame having a seat and a breech-collar at the end of said seat, of a main barrel comprising a pump-cylinder and an air-cylinder seated in the frame and having its end extended into the breech-collar, a projectile-barrel disposed below the main barrel, a breech-band encircling the barrels, and means for drawing the band into the frame.

6. In an air-gun, the combination with a breech-frame and a main barrel seated therein and comprising a pump-cylinder and an air-cylinder, of a projectile-barrel below the main barrel, a breech-band encircling the barrels, a draw-bolt connected to the band and passed through one wall of the frame, and a thumb-nut screwed upon the outer end of said bolt.

7. In an air-gun, the combination with a breech-frame comprising side walls constituting a seat, and a breech-collar at the end of said seat, of a barrel seated in the frame between the side walls and having its end extended into the breech-collar, and a breech-band connected to the breech-frame for holding the barrel in place.

8. In an air-gun, the combination with a breech-frame, of an air-cylinder and a projectile-barrel section connected together for detachment in unison from the frame, a pump-cylinder having its inner end telescoping within the air-cylinder, and a second projectile-barrel section having its inner end communicating with the outer end of the first-mentioned projectile-barrel section and connected to the pump-cylinder.

9. In an air-gun, the combination with a projectile-barrel, of an air-cylinder, a valve controlling the escape of air to the barrel, and a pump-cylinder having an exteriorly-arranged valve at one end, said end being removably fitted into the air-cylinder.

10. In an air-gun, the combination with a main barrel comprising an air-cylinder and an interfitting pump-cylinder, of a check-valve carried by the inner end of the pump-cylinder, a projectile-barrel comprising separate sections connected to the cylinders, means for closing the joint between the barrel-sections, and a valve controlling the passage of air to the projectile-barrel from the air-cylinder.

11. A breech-frame for air-guns, comprising side walls constituting a barrel-seat, a breech-collar at the rear end of the seat, and a vertical wall constituting an abutment for the barrel, in combination with the barrel fitted in the seat, and clamping means for holding the barrel in its seat.

12. In an air-gun, the combination with an air-reservoir and a projectile-barrel, of a valve-nipple and a spring, both located in the reservoir, a valve seated on the nipple by the spring and comprising a cup and a disk retained therein and directly opposed to the nipple, a valve-operating pin passed through the projectile-barrel and having one end disconnected from but disposed to operate the valve, and a trigger operatively related to the pin.

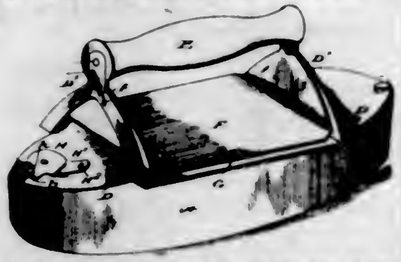
13. In an air-gun, the combination with an air-reservoir and a projectile-barrel; of a valve-nipple in the reservoir, a valve comprising a cup and an imperforate disk of yielding material seated therein and directly opposed to the nipple, a leaf-spring connected at one end to the wall of the reservoir and at its opposite end to the valve-cup to urge the same toward the nipple, a valve-operating pin extended into the nipple and opposed to the valve-disk, and means for moving the pin to open the valve.

14. In an air-gun, the combination with an air-reservoir and a projectile-barrel; of a valve-nipple extending into the reservoir, a valve comprising a cup and an imperforate disk of yielding material removably seated therein and directly opposed to the nipple, a leaf-spring connected at one end to the wall of the reservoir and at its opposite end to the valve-cup to urge the valve toward the nipple, a valve-operating pin passed through the projectile-barrel and into the nipple and having one end disconnected from but opposed to the disk of the valve, and a trigger operatively related to the pin.

749,520. **SAD-IRON.** JOEL BENNETT, London, Canada, assignor of one-half to James Ourrey Weldon, London, Canada. Filed Mar. 12, 1903. Serial No. 147,545. (No model.)

Claim.—1. In combination with the hollow sad-iron body A having recessed lugs B and its removable cover D notched at C to straddle the said lugs, a hook-shaped latch H, which is pivoted to said cover in proximity to one of the said lugs, a part of said latch being adapted to turn into the recess of this lug and beveled on top for contact with the overlapping part of the said lug to serve as a wedge for tightening the cover in place and the other end of said latch being extended far enough for contact with said lug when turned in releasing substantially as set forth.

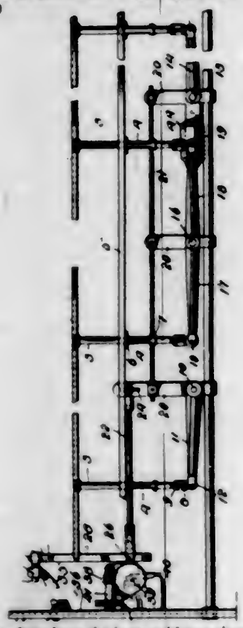
2. In combination with a hollow sad-iron body, having recessed lugs B, and its removable cover notched at C to straddle the said lugs, a hook-shaped latch H, which is pivoted to said cover in proximity to one of said lugs, a part of the said latch being adapted to turn into the recess of the said lug for contact with the overlapping part of the said lug and the other end of the said latch being extended far enough for contact with said lug when turned in releasing and bent up and perforated substantially as set forth.



3. In combination with a hollow sad-iron body having raised recessed lugs at its ends, a sheet-metal cover therefor notched at its ends to straddle said lugs, bifurcated handle-supports integral with the said cover and a handle attached to said supports, these supports inclining outward to the edges of the said cover and corresponding in inner outline to the outline of the tapering ends of the said body, in order that they may be cut from the same blank and struck up without waste or severance substantially as set forth.

4. A blank for a sad-iron cover having tapering ends and cut in lines parallel to the inclined sides of said ends to provide integral bifurcated handle-supports, the body of said cover being provided with terminal recesses C substantially as set forth.

749,521. **RING-RAIL MOTION FOR SPINNING-MACHINES.** MARTOS T. BENTLEY, York, Pa., assignor of one-half to York Silk Manufacturing Company, York, Pa. Filed Aug. 12, 1903. Serial No. 169,268. (No model.)



Claim.—1. In a ring-spinning machine, a ring-rail made in counterbalancing sections, in combination with means for moving the sections simultaneously in opposite directions.

2. In a ring-spinning machine, a ring-rail made in sections, one serving to counterbalance another, and means for moving the sections up and down.

3. In a ring-spinning-machine, a ring-rail comprising a plurality of counterbalancing sections, in combination with means operatively connected with the sections in such manner that one section moves upward as the other moves downward and vice versa.

4. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, lift-levers connected with the sections, a connection between the levers whereby they are caused to operate simultaneously, and means for vibrating one of said levers.

5. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, lift-rods connected therewith, a series of lift-levers operatively associated with the lift-rods, a rod connecting all of said levers, and means for vibrating one of said levers.

6. In a ring-spinning machine, a ring-rail comprising a plurality of sections, lift-rods connected with said sections, single and double arm lift-levers operatively associated with the lift-rods, connections between said levers for causing them to swing simultaneously, and means for vibratiog one of said levers.

7. In a ring-spinning machine, a ring-rail comprising a plurality of sections, lift-rods connected therewith, reversely-disposed lift-levers operatively associated with said lift-rods, and means for simultaneously and equally vibrating all of said levers, some of which move upward as the others move downward.

8. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, lift-rods connected therewith, a series of rock-shafts, reversely-disposed lift-levers fixed to said rock-shaft and operatively associated with the lift-rods, crank-arms on said rock-shafts, a coupling-rod connecting all of the crank-arms, and means for vibrating one of said levers.

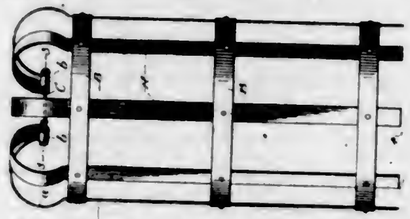
9. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, lift-rods connected therewith, reversely-disposed lift-levers operatively associated with the lift-rods, crank-arms connected with said levers, a coupling-rod connected with all of the crank-arms for causing them to swing simultaneously, driving mechanism, and a connecting-rod operatively associated with the driving mechanism and adjustably connected to one of the crank-arms.

10. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, reversely-disposed lift-rods connected therewith, lift-levers operatively associated with the lift-rods, means coupling said levers together for simultaneous operation, a driving-cam, a cam-operated lever actuated thereby, and a connecting-rod interposed between the cam-operated lever and one of the lift-levers and provided with an antifriction-roller which operates in contact with the cam.

11. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, a series of reversely-disposed levers operatively associated therewith and adapted to raise and lower the sections simultaneously in opposite directions, driving mechanism for imparting movement to said levers, and a weight connected with one of the ring-rail sections in such manner as to maintain an operative relation between the driving mechanism, and the ring-rail section which is operatively connected therewith.

12. In a ring-spinning machine, a ring-rail comprising a plurality of counterbalancing sections, lift-rods connected therewith, reversely-disposed lift-levers operatively associated with the lift-rods, rock-shafts to which said lift-levers are connected, crank-arms on said rock-shafts, a coupling-rod connecting all of said crank-arms, a weighted arm connected to one of said shafts, and driving mechanism operatively connected with one of the crank-arms.

749,522. **TRUNK-GUARD.** JOSEPH BILLY and FREDERICK A. BEAUDOIN, Manchester, N. H. Filed Nov. 3, 1903. Serial No. 179,694. (No model.)



Claim.—1. A trunk-guard comprising a plurality of upright strips having upwardly and inwardly curved, resilient portions at their upper ends, an elastic ring connecting the ends of said resilient portions of the strips, and one or more bands fastened to the strips.

2. A trunk-guard comprising a plurality of upright strips having upwardly and inwardly curved, resilient portions at their upper ends, terminating in barrels, a ring arranged in the barrels of and connecting said resilient portions and having a coiled spring, and bands fastened to the upright strips at intervals in the height thereof.

749,523. **SUPPLEMENTAL PIE-PLATE RIM.** GEORGE L. BLACKMAN and MARY P. BLACKMAN, Whitesville, N. Y. Filed Nov. 5, 1903. Serial No. 179,951. (No model.)

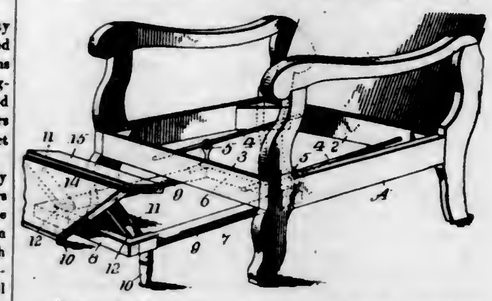


Claim.—1. A supplemental pie-plate rim comprising a ring of angular form, having a horizontal rim portion and a vertical flange, gage-pins extending down from said rim portion, and open-frame clamps pivoted to said flange and bent to engage beneath the rim of a pie-plate, the gage-pins being arranged to lie on lines between the sides of the open frames of the clamps, substantially as described.

2. A supplemental rim for pie-plates having clamps to connect it to the plate, and gage-pieces to space it a determined distance from the rim of the plate, substantially as described.

3. A supplemental pie-plate rim comprising a ring of angular form, having a horizontal rim portion and a vertical flange, gage-pins extending downward from said rim portion, and wire bail-clamps, each comprising an open frame having divergent arms pivoted at their free ends to the flange, bent obliquely to project downward and outward beyond the rim portion of the supplemental rim, thence inwardly to take beneath the rim of t' . plate and thence downwardly to form a finger-piece, substantially as described.

749,524. **FOOT-REST FOR CHAIRS.** GEORGE A. BOWEN, Medina, N. Y., assignor to S. A. Cook & Company, Medina, N. Y., a Copartnership. Filed May 24, 1902. Serial No. 108,230. (No model.)



Claim.—1. The combination with a chair having a seat-frame A arranged to inclose a space below the seat, of ways arranged within the seat-frame, traveling supports arranged to move along the said ways, a foot-rest connected at its rear end with the said supports and arranged to have its front end rest upon the floor, and a catch for holding the front portion of the foot-rest elevated and within the space inclosed by the seat-frame after the foot-rest has been moved thereunder, substantially as set forth.

2. The combination with the seat-frame of a chair, of a pair of rods, 4, 4, between the front and rear rails of the seat-frame inclining upward toward the rear, a foot-rest frame arranged to have its front end rest upon the floor, hangers or supports for the foot-rest frame engaging with the said rods, along which they are adapted to move, and a catch arranged to engage with the foot-rest frame in front of the hangers or supports when the said frame is moved within the seat-frame and to hold the free end thereof in an elevated position, substantially as set forth.

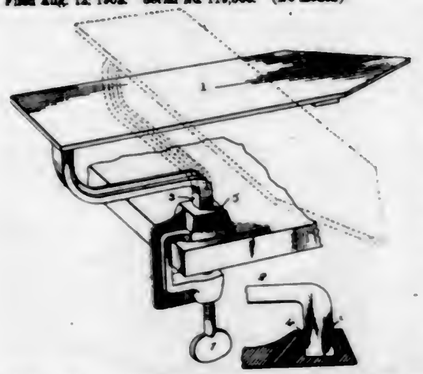
3. The combination with the seat-frame of a chair, of the ways inclining upward from the front to the rear, a foot-rest frame arranged to have its front end rest upon the floor, hangers engaging with the said ways and connected with the rear portion of the foot-rest frame, a swinging foot-rest arranged to be folded down upon the frame or to be raised into a position of use, the foot-rest and its frame being of a size which will permit it to be placed within the space inclosed by the seat-frame, and a catch arranged to hold the front portion of the foot-rest frame in an elevated position when the foot-rest and its frame are moved under the seat-frame, substantially as set forth.

4. The combination of an open, substantially rectangular foot-rest frame, risers 11 pivoted thereto and arranged to fold into the open space of the foot-rest frame or to occupy a raised position, and

a foot-rest proper comprising a part 14 hinged to the risers, and a part 15 hinged to the part 14, the parts 14 and 15 being arranged to fold down upon the frame substantially parallel therewith or to be supported upon the risers 11 in positions at an angle to each other, substantially as set forth.

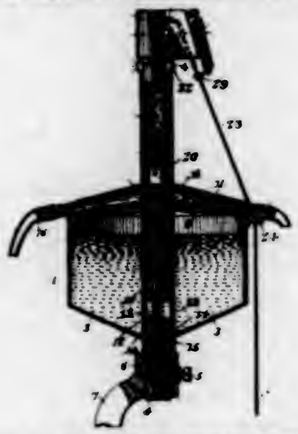
5. The combination with the seat-frame of a chair, of the rods 4, 4, arranged between the front and rear rails of the seat-frame and inclined upward toward the rear, the foot-rest frame 7 arranged to have its front portion rest upon the floor and of a size which will permit its occupying the space inclosed by the seat-frame, the hangers or supports 5 connected with the rear portion of the frame 7 and engaging with the rods 4 upon which they may slide, the risers 11 pivotally connected with the frame 7 and arranged to fold down upon the seat-frame or to occupy a raised position, the foot-rest proper hinged to the risers, and arranged to occupy a folded position resting upon the frame 7 or a position of use supported by the risers, and a catch arranged to support the forward portion of the frame 7 in an elevated position when the frame has been moved into the space inclosed by the seat-frame, substantially as set forth.

749,525. IRONING-BOARD. LOUIS I. BUHRL, Massillon, Ohio. Filed Aug. 12, 1902. Serial No. 119,369. (No model.)



Claim.—The combination of an ironing-board, a support consisting of two spaced portions, the upper one secured to the board, and the lower one provided with an integral downward-extended shank, said shank formed angular in cross-section, a clamp provided with a closed angular socket and the lower end of the shank detachably seated upon the bottom of the angular socket, substantially as and for the purpose specified.

749,526. WINDMILL-OILER. STEPHEN R. BURKE, Edon, Ohio, assignor to the Burke-Bell-Meyer Manufacturing Company, Wauseon, Ohio. Filed Jan. 20, 1903. Serial No. 139,783. (No model.)



Claim.—1. A device of the class described, comprising a reservoir or receptacle, a vertical tube extending into the reservoir or receptacle and having delivery and supply apertures, distributing-pipes located above the surface of the lubricant and communicating with and extending from the delivery-apertures, and a vertically-movable carrier operating in the tube for conveying the lubricant from the supply to the delivery apertures thereof, substantially as described.

2. A device of the class described comprising a receptacle or reservoir, an upright guide-tube arranged within the reservoir or receptacle, a series of distributing-pipes extending from the tube and located above the surface of the lubricant, and an oil-carrier operating in the tube for conveying the lubricant to the distributing-pipes, substantially as described.

3. A device of the class described comprising a reservoir or receptacle having a tapering top, a series of inclined distributing-pipes supported by the top of the reservoir or receptacle, and an oil-carrier for conveying the lubricant upward to the upper ends of the distributing-pipes, substantially as described.

4. A device of the class described comprising a reservoir or receptacle having a conical top, an oil-tube extending upward through the top of the reservoir or receptacle, a series of inclined distributing-pipes supported by the conical top of the reservoir or receptacle and extending from the said tube, and a carrier operating in the tube for conveying a lubricant to the upper ends of the distributing-pipes, substantially as described.

5. A device of the class described comprising a reservoir or receptacle, inclined distributing-pipes located above the surface of the lubricant, and a carrier operable in the receptacle or reservoir for conveying the lubricant upward to the upper ends of the distributing-pipes, substantially as described.

6. A device of the class described comprising a reservoir or receptacle, a tube extending through the same, a plug secured within the lower end of the tube and projecting therefrom, a bracket-arm receiving the plug and provided with means for engaging the same, distributing-pipes extending from the tube at a point above the surface of the lubricant, and a carrier operating in the tube for conveying the lubricant to the distributing-pipes, substantially as described.

7. A device of the class described comprising a reservoir or receptacle, a tube extended through the bottom of the same and provided at its lower portion with upper and lower supply-apertures located within the reservoir or receptacle, a plug provided with a tapered upper end and secured within the lower end of the tube, the tapered end projecting above the lower aperture, a plunger or carrier operating in the tube and provided at its lower portion with a recess adapted to register with the upper supply-aperture, and means for conveying a lubricant from the carrier when the same is elevated to the bearings to be lubricated, substantially as described.

8. A device of the class described comprising a reservoir or receptacle, a tube extended through the bottom of the same and provided at its lower portion with upper and lower supply-apertures located within the reservoir or receptacle, a plug provided with a tapered upper end and secured within the lower end of the tube, the tapered end projecting above the lower aperture, a lubricant-carrier operating in the tube and means for conveying a lubricant from the carrier when the same is elevated, substantially as described.

9. A device of the class described comprising a reservoir or receptacle, a tube connected therewith and provided with upper and lower supply-apertures communicating with the lower part of the same, a carrier operating in the tube and provided at its lower portion with a recess forming an oil-chamber, means located within the tube for supporting the carrier above the lower aperture and with the upper aperture in communication with the recess and means for conveying a lubricant from the carrier when the same is elevated.

10. A device of the class described, comprising a reservoir or receptacle, an upright tube communicating therewith, a lubricant-carrier operating in the tube, and an inclined distributing-pipe communicating with the tube and supported by the reservoir or receptacle and projecting beyond the same and forming a nipple to receive a flexible tube, substantially as described.

11. A device of the class described comprising a reservoir or receptacle, a tube located within the reservoir or receptacle and extending above the same, a distributing-pipe located above the surface of the lubricant, a carrier operating in the tube for conveying a lubricant to the distributing-pipe, and a stop mounted on the tube and located above the reservoir or receptacle and arranged in the path of the carrier for limiting the movement of the same, substantially as described.

12. A device of the class described comprising a reservoir or receptacle, a tube communicating therewith, a carrier operating in the tube, a distributing-pipe located above the surface of the lubricant and extending from the tube, and a stop projecting into the tube above the distributing-pipe, and removable from the exterior thereof, substantially as described.

13. A device of the class described, comprising a reservoir or receptacle, a tube communicating therewith and provided with opposite slots, a stop straddling the tube and extending through the slots into the same and provided with means for securing it in position, a carrier operating in the tube and arranged to have its upward movement limited by the stop and means for conveying a lubricant from the carrier when the same is elevated, substantially as described.

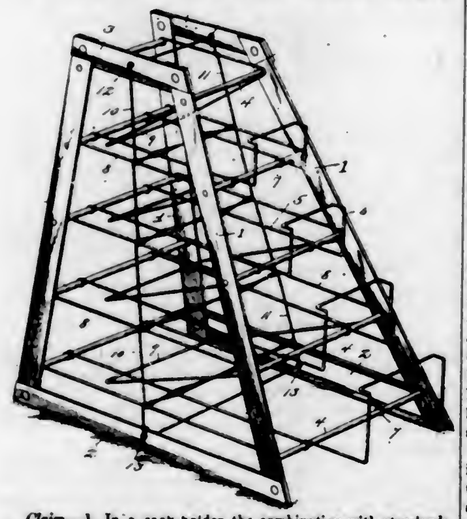
14. A device of the class described comprising a reservoir or receptacle, a tube communicating therewith and provided with opposite slots, a lubricant-carrier operating in the tube, a stop provided with opposite sides arranged in the slots and having their terminals bent to form lugs for engaging the tube, and a distributing-pipe extending from the tube and arranged to convey a lubricant from the carrier when the same is elevated, substantially as described.

15. A device of the class described comprising a reservoir or receptacle, a tube located within and extending above the same, a lubricant-carrier operating in the tube, distributing-pipes extending from the tube and located above the surface of the lubricant in the reservoir or receptacle, guiding means arranged above the distributing-pipes, and operating mechanism having a flexible connection supported by the guiding means and connected with the carrier, substantially as described.

16. A device of the class described comprising a reservoir or receptacle, a tube located within and extending above the same and provided with a hood, a lubricant-carrier operating in the tube, means for conveying a lubricant from the tube, a guide located within the hood, operating means having a flexible connection running over the guide and connected with the carrier, and a spring supported by the hood and connected with the operating means, substantially as described.

17. A device of the class described comprising a reservoir or receptacle, a tube located within and extending above the same and having its upper portion split longitudinally and cut laterally, the partially-severed portions being extended beyond the tube, a hood arranged on and connected with the upper split portion of the tube, a guide housed within the hood, a lubricant-carrier arranged within the tube, a flexible connection running over the guide and connected with the carrier, and means for conveying a lubricant from the tube above the level of the same in the reservoir, substantially as described.

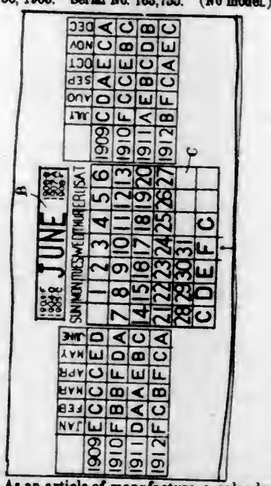
749,527. HOLDER FOR PAPER SACKS. WILLIAM R. BURKE, Ashland, Ky. Filed May 28, 1903. Serial No. 159,195. (No model.)



Claim.—1. In a sack-holder, the combination with standards, and rods connecting the standards; of wires coiled upon the rods and forming shelves, L-shaped extensions integral with the wires and projecting upward from the shelves, and spring-clips adapted to bear upon the shelves.

2. In a sack-holder, the combination with standards, and rods connecting the same; of wires coiled upon the rods and forming shelves, L-shaped extensions integral with the shelves and extending forward therefrom, spring-clips secured to the rods and bearing upon the shelves, and brace-wires extending transversely of the shelf and connecting the same.

749,528. CALENDAR. JOHN A. CHEAPE, Charlottesville, Va. Filed June 30, 1903. Serial No. 163,755. (No model.)



Claim.—1. As an article of manufacture, a calendar comprising a base, month and day-of-the-month slips adjustably carried thereby, the day-of-the-month slip bearing indicia, and the base having a pointer opposite which any one of the indicia may be brought, the month-slip bearing year-numerals and corresponding indicia opposite each numeral.

2. A calendar comprising three parts, one of which is slitted or slotted, and the other two parts adapted to slide through the slits or slots, the slitted part bearing the days of the week, one of the sliding parts bearing the days of the month and several key-letters and one of the other two parts having a plurality of dates and key-letters opposite each date corresponding to each of the key-letters on the part having the days of the month.

3. A calendar comprising three members, one slitted and bearing the days of the week and the other two sliding in directions at right angles to each other through said slits, one of these sliding parts having the days of a month and a key character for several of the vertical columns thereon, and a plurality of years with a corresponding key character opposite each on one of the other parts.

4. As an article of manufacture, a calendar comprising a base, month and day-of-the-month slips adjustably carried thereby, the months on the month-slip each provided with a series of year-numerals and a single one of a series of symbols opposite each year-numeral, the day-of-the-month slip provided with a series of corresponding symbols and a point opposite which any one of the symbols on the day-of-the-month slip is adapted to be brought.

5. As an article of manufacture, a calendar comprising a base, provided with a fixed indicator, month and day-of-the-month slips adjustably carried by the base, the day-of-the-month slip provided with a series of key characters, any one of which may be brought opposite the fixed indicator, the month-slip provided with the names of the month, a series of year-numerals adjacent thereto and a predetermined key character located adjacent each year-numeral, the key character adjacent any month and year numeral denoting that key character which should be brought opposite the fixed indicator in order that the day-of-the-month slip may correctly indicate the sequence of days.

6. A calendar comprising three strips of material, one of which is slotted or slitted, the other two being flexible and adapted to be threaded through the slots or slits and adjustably held therein, the slotted strip provided with a fixed indicator thereon, one of the flexible strips provided with a series of key characters and the days of the month, and the remaining strip provided with the years, months and key characters, the latter corresponding with those on the day-of-the-month strip whereby to indicate the adjustment of the last-named strip with reference to the fixed indicator.

749,529. NUT-LOCK. JOSIAH W. CHURCH, Wylie, Tex. Filed June 3, 1903. Serial No. 159,925. (No model.)



Claim.—A locking-washer of ring form, having a space between the terminals, and the latter bent in opposite directions, and an angular offset on one side and two angular offsets on the opposite side

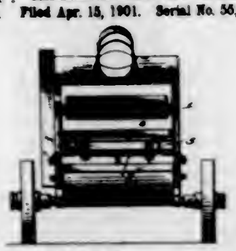
749,530. GATE. OTTO L. COMPTON, Union, Oreg. Filed Apr. 16 1903. Serial No. 152,809. (No model.)



Claim.—1. The combination with two gate-posts, of two swinging gate members having vertically-disposed supporting-bars hinged to said gate-posts, means carried by said supporting-bars whereby the said gate members may be connected together in such manner that the swinging of one simultaneously swings the other, a segmental bracket fixed to one of said gate-posts, and having radially-disposed notches, a spring-actuated rod carried by one of said gate members one end of which is adapted to engage said notches to hold said gate members in a closed or open position, and means for operating said spring-actuated rod substantially as and for the purpose described.

2. The combination with two gate-posts, of two swinging gate members having vertically-disposed supporting-bars hinged to said gate-posts, means carried by said supporting-bars whereby the said gate members may be connected together in such manner that the swinging of one simultaneously swings the other, a segmental bracket fixed to one of said gate-posts, and having radially-disposed notches, a spring-actuated rod carried by one of said gate members one end of which is adapted to engage said notches, a bell-crank lever pivoted to said gate members, one arm of which is pivotally connected to the opposite end of said rod, a vertically-disposed link having one end connected to the opposite arm of said bell-crank lever, a latch-bail having a pivotal connection with said gate member and with said link, and adapted to engage the upper portion of the opposite gate member substantially as and for the purpose described.

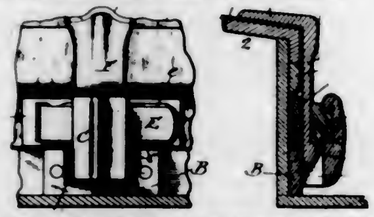
749,531. THRESHING-MACHINE. GEORGE P. COMBER, Port Huron, Mich. Filed Apr. 15, 1901. Serial No. 56,917. (No model.)



Claim.—A substantially horizontal reciprocating straw-rack, provided upon its upper or working face with longitudinal serrated or ratcheted straw-conducting bars, and with vibrating lifting-fingers; said straw-rack being formed with an upwardly-inclined portion in rear of said bars and fingers; said upward incline composed of transverse bars angular in cross-section and having their apices lying in a curved undulating line or surface in the direction of feed of the material.

749,532. HATCH-FASTENER. WILLIAM H. CRAWFORD, Port Huron, Mich. Filed May 7, 1903. Serial No. 156,067. (No model.)

Claim.—1. In a hatch-fastener, a base secured to a coaming, an arm supported by the base, having a dovetail groove in its inner surface, a wedge slidable in the groove of the arm, a clamp-arm, a batten engaged by the arm, the said wedge having a flare to move the arm longitudinally and to bind it against the batten.



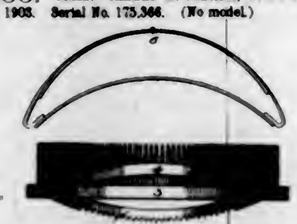
2. In a hatch-fastener, an arm suitably supported at the side of the coaming, said arm having a transverse groove, a wedge in the groove, a clamp-arm, means whereby the wedge actuates the clamp-arm, a batten and means whereby the wedge causes a binding of the batten.

3. In a hatch-fastener, an arm suitably supported at the side of the coaming, said arm having a groove, a wedge having a camming edge slidable in the groove, a clamp-arm actuated by the wedge, a batten and means whereby the wedge causes the arm to bind the batten.

4. In a hatch-fastener, an arm secured to a coaming, said arm having a groove, a wedge therein having a recess in its surface, a clamp-arm slidable in the recess of the wedge, means on the arm for engaging the wedge, when said wedge is moved, a batten and means whereby the clamp-arm is pressed against the batten when the wedge is moved.

5. In a hatch-fastener, an arm secured to a coaming, said arm having a groove in its under surface, a wedge with a camming lower edge slidable therein, said wedge having a recess, a clamp-arm slidable over the batten in the recess of the wedge and means on the clamp-arm for engaging the camming edge of the wedge and means whereby said wedge causes the clamp-arm to bind against the batten

749,533. COMB. ALBERT W. CUSHING, New York, N. Y. Filed Oct. 1, 1903. Serial No. 175,366. (No model.)



Claim.—1. A longitudinally-curved comb for the crown-hair, having an arched portion rigidly secured thereto and disposed above the comb and converging thereto at its ends to support a pompadour-roll, and provided with means on the side opposite the teeth of the comb for engaging the hair forming the roll.

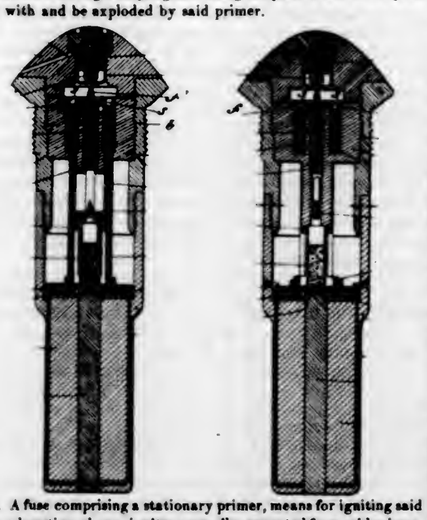
2. A longitudinally-curved comb for the crown-hair having an arched portion above it rigidly fixed thereto and converging thereto at its ends to support the pompadour-roll, the teeth of the comb extending in one direction and the said arched portion having teeth extending in the reverse direction from those of the comb, substantially as described.

749,534. FUSE FOR PROJECTILES. HERMANN DAHLER, Sömmerda, Germany. Filed May 9, 1903. Serial No. 156,449. (No model.)

Claim.—1. A fuse comprising a stationary primer, and a bursting-charge igniter normally separated therefrom, said bursting-charge igniter being adapted to move into proximity with and be exploded by said primer.

2. A fuse comprising a stationary primer, a bursting-charge igniter normally separated therefrom, said bursting-charge igniter being adapted to move into proximity with and be exploded by said primer, and means controlled by a premature ignition of said primer for preventing communication between said primer and said bursting-charge igniter.

3. A fuse comprising a stationary primer, means for igniting said primer, and a bursting-charge igniter normally separated from said primer, said bursting-charge igniter being adapted to move into proximity with and be exploded by said primer.



4. A fuse comprising a stationary primer, means for igniting said primer, a bursting-charge igniter normally separated from said primer, said bursting-charge igniter being adapted to move into proximity with and be exploded by said primer, and means controlled by a premature ignition of said primer for preventing communication between said primer and said bursting-charge igniter.

5. A fuse comprising a stationary primer, a movable bursting-charge igniter, and means for retaining said bursting-charge igniter temporarily in position, said bursting-charge igniter when displaced being adapted to move into proximity with and be exploded by said primer.

6. A fuse comprising a stationary primer, a movable bursting-charge igniter, means for retaining said bursting-charge igniter temporarily in position, said bursting-charge igniter when displaced being adapted to move into proximity with and be exploded by said primer, and means controlled by a premature ignition of said primer for preventing communication between said primer and said bursting-charge igniter.

7. A fuse comprising a stationary primer, means for igniting said primer, a movable bursting-charge igniter, and means for retaining said bursting-charge igniter temporarily in position, said bursting-charge igniter when displaced being adapted to move into proximity with and be exploded by said primer.

8. A fuse comprising a stationary primer, means for igniting said primer, a movable bursting-charge igniter, means for retaining said bursting-charge igniter temporarily in position, said bursting-charge igniter when displaced being adapted to move into proximity with and be exploded by said primer, and means controlled by a premature ignition of said primer for preventing communication between said primer and said bursting-charge igniter.

9. A fuse comprising a casing, a stationary primer in said casing, and a bursting-charge igniter in said casing, said bursting-charge igniter being adapted to slide in said casing and lie in proximity to said primer.

10. A fuse comprising a casing, a stationary primer in said casing, means for igniting said primer, and a bursting-charge igniter in said casing, said bursting-charge igniter being adapted to slide in said casing and lie in proximity to said primer.

11. A fuse comprising a casing, a stationary primer in said casing, a bursting-charge igniter in said casing, said bursting-charge igniter being adapted to slide in said casing and lie in proximity to said primer, and means controlled by a premature ignition of said primer for preventing sliding of said bursting-charge igniter in said casing.

12. A fuse comprising a casing, a stationary primer in said casing, means for igniting said primer, a bursting-charge igniter in said casing adapted to slide therein and lie in proximity to said primer, and means controlled by a premature ignition of said primer for preventing sliding of said bursting-charge igniter in said casing.

13. A fuse comprising a casing, a stationary primer in said casing, and a bursting-charge igniter in said casing normally located away from said primer and adapted to slide forward and surround said primer

14. A fuse comprising a main casing, a stationary primer in said casing, and a sliding casing in said main casing adapted to contain a bursting-charge igniter, said sliding casing being arranged to slide forward and surround said primer.

15. A fuse comprising a casing, a stationary primer in said casing, a bursting-charge igniter in said casing normally located away from said primer and adapted to slide forward and surround said primer, and means controlled by a premature ignition of said primer for preventing movement of said bursting-charge igniter and for isolating it from said primer.

16. A fuse comprising a main casing, a stationary primer in said casing, a sliding casing in said main casing adapted to contain a bursting-charge igniter, said sliding casing being arranged to slide forward and surround said primer, and means controlled by a premature ignition of said primer for preventing movement of said sliding casing.

17. A fuse comprising a casing, a stationary rod in said casing, a primer on the upper portion of said rod, and a bursting-charge igniter surrounding the lower portion of said rod, adapted to slide forward in said casing and surround said primer.

18. A fuse comprising a casing, a stationary rod in said casing, a primer on the upper portion of said rod, a bursting-charge igniter surrounding the lower portion of said rod, adapted to slide forward and surround said primer, and means controlled by a premature ignition of said primer for preventing movement of said bursting-charge igniter.

19. A fuse comprising a main casing, a stationary rod in said casing, a primer on the upper portion of said rod, and a sliding casing surrounding the lower portion of said rod, adapted to contain a bursting-charge igniter, said sliding casing being arranged to slide forward and surround said primer.

20. A fuse comprising a casing, a stationary primer in said casing, a bursting-charge igniter normally separated from said primer, said bursting-charge igniter being adapted to move into proximity with and be exploded by said primer, and a combustible ring for controlling the movement of said bursting charge with respect to said primer.

21. A fuse comprising a casing, a stationary rod in said casing, a primer on the upper portion of said rod, a bursting-charge igniter surrounding the lower portion of said rod and adapted to slide forward and surround said primer, and a combustible ring for controlling the movement of said bursting-charge igniter with respect to said primer.

22. A fuse comprising a main casing, a stationary rod in said main casing, a primer on the upper portion of said rod, a sliding casing surrounding the lower portion of said rod, adapted to contain a bursting-charge igniter, and a combustible ring in said main casing for controlling the movement of said sliding casing.

23. A fuse comprising a main casing, a stationary rod in said main casing, a primer on the upper portion of said rod, a sliding casing surrounding the lower portion of said rod, adapted to slide forward and surround said primer, a sleeve portion attached to said sliding casing, a combustible ring adjacent to the end of said sleeve portion, and means for igniting said combustible ring.

24. A fuse comprising a main casing, a rod in said main casing, a primer on the upper portion of said rod, a sliding casing in said main casing surrounding the lower portion of said rod, said sliding casing being arranged to slide forward and surround said primer, and a soft mass arranged adjacent to said primer and said sliding casing, said soft mass being adapted to be deformed by a premature ignition of said primer and to prevent the movement of said sliding casing.

25. A fuse comprising a main casing, a stationary rod in said main casing, a primer on the upper portion of said rod, a sliding casing surrounding the lower portion of said rod, adapted to contain a bursting-charge igniter, a sleeve portion attached to said sliding casing and surrounding said primer, a firing-needle carried by said sleeve portion, a detonator-cap for igniting said primer arranged in the path of said firing-needle, a combustible ring adjacent to the end of said sleeve portion, a detonator-cap for igniting said combustible ring, and means for exploding said last-mentioned detonator-cap.

26. A fuse comprising a main casing, a rod in said casing, a primer on the upper end of said rod, a sliding casing, adapted to contain a bursting-charge igniter, surrounding the lower portion of said rod, and means for moving said sliding casing forward until it surrounds said primer.

27. A fuse comprising a main casing, a rod in said main casing, a primer on the upper portion of said rod, a sliding casing surround-

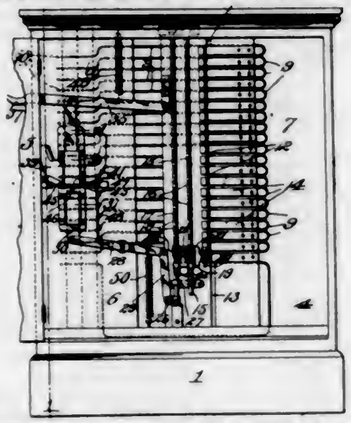
ing the lower portion of said rod, and a spiral spring for advancing said sliding casing until it surrounds said primer.

28. A fuse comprising a main casing, a rod in said main casing, a primer on the upper portion of said rod, a sliding casing surrounding the lower portion of said rod, a spiral spring for advancing said sliding casing until it surrounds said primer, and means for adjusting the tension of said spiral spring.

29. A fuse comprising a main casing, a rod in said main casing, a primer on the upper portion of said rod, a sliding casing, adapted to contain a bursting-charge igniter, surrounding the lower portion of said rod, a sleeve portion on said sliding casing, a combustible ring adjacent to the end of said sleeve portion, means for igniting said combustible ring, means for advancing said sliding casing as said combustible ring is consumed, a passage in said main casing containing a time-charge, means for igniting said time-charge, and means for communicating the flame of said time-charge to said primer when said sliding casing has advanced a sufficient distance in said main casing to surround said primer.

30. A fuse comprising a main casing having rings therein adapted to communicate with a time-charge, means for igniting the time-charge, a rod in said main casing, a primer on the upper portion of said rod, a sliding casing surrounding said rod, adapted to contain a bursting-charge igniter, a sleeve portion on said sliding casing, said sleeve portion having an aperture adapted to register with said time-charge when said sliding casing has been advanced, said aperture being adapted to communicate the flame of the time-charge to said primer, a combustible ring adjacent to the end of said sleeve portion, and adjustable means for advancing said sliding casing in said main casing.

749,535. VENDING APPARATUS. CHARLES A. DAWES, St. Louis, Mo., assignor of three-fourths to publishers: George Knapp and Co., St. Louis, Mo., a Corporation of Missouri, and Joseph F. Parish, St. Louis, Mo. Filed Apr. 2, 1903. Serial No. 150,323. (No model.)



Claim.—1. In an apparatus of the character indicated, a series of pivoted article-supports, a retaining-spring adapted to engage each of said supports to hold the same in article-supporting position, an operating mechanism, and means whereby upon successive operations of said mechanism said springs are successively thrown from retaining position; substantially as described.

2. In an apparatus of the character indicated, a series of pivoted article-supports, a supporting-finger upon each of said supports, a series of plate-springs whose free ends coöperate with said supporting-fingers to retain said article-supports in supporting position, an operating mechanism, and means whereby upon successive operations of said mechanism the free ends of said springs are successively moved from retaining position; substantially as described.

3. In an apparatus of the character indicated, a series of article-supports, a series of retaining spring-plates whose free ends coöperate with said supports, and a traveling releasing device coöperating with the free ends of said retaining spring-plates; substantially as described.

4. In an apparatus of the character indicated, a series of article-supports, a series of retaining-springs coöperating with said supports, and a traveling releasing device coöperating with said springs and having inclined surfaces upon its forward and rear sides; substantially as described.

5. In an apparatus of the character indicated, a traveling releasing device, a locking member along which said releasing device travels, means whereby said locking member locks said releasing device against backward movement, a reciprocatory actuating member having backward movement independent of said releasing device, and means for causing operative engagement between said releasing device and said actuating member during the forward movement of the latter; substantially as described.

6. In an apparatus of the character indicated, a traveling releasing device, a locking member provided with ratchet-teeth along which said releasing device travels, a pawl upon said releasing device and coöperating with said ratchet-teeth, a reciprocatory actuating member, and means whereby reciprocations of said actuating member serve to advance said releasing device along said locking member; substantially as described.

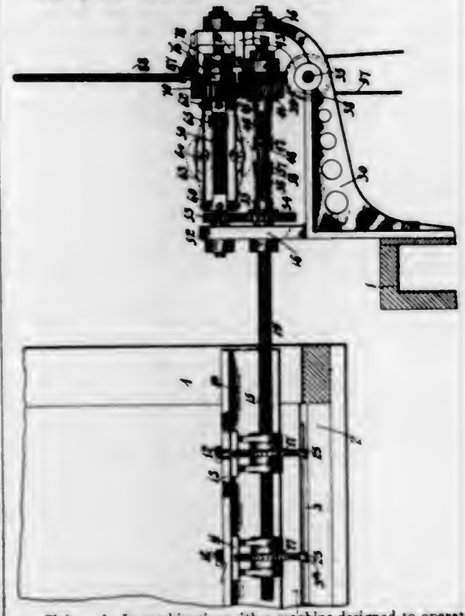
7. In an apparatus of the character indicated, a traveling releasing device, a reciprocatory actuating-rod provided with ratchet-teeth, a pawl upon said actuating device coöperating with said ratchet-teeth, and means whereby said actuating device is locked against backward movement; substantially as described.

8. In an apparatus of the character indicated, a locking member provided with ratchet-teeth, a reciprocatory actuating-rod also provided with ratchet-teeth, a traveling releasing device movable along said locking member, and pawl connection between said releasing device and both said locking member and said actuating-rod; substantially as described.

9. In an apparatus of the character indicated, a locking member provided with ratchet-teeth, a reciprocatory actuating-rod provided with ratchet-teeth, a traveling releasing device traveling along said locking member, a pawl upon said releasing device coöperating with the teeth of said locking member, and a pawl upon said releasing device coöperating with the teeth upon said actuating-rod; substantially as described.

10. In an apparatus of the character indicated, a series of article-supports, a series of retaining-springs coöperating with said supports, a locking member having ratchet-teeth, a reciprocatory actuating-rod also having ratchet-teeth, a releasing device coöperating with said retaining-springs and traveling along said locking member, and pawl connection between said releasing device and the teeth of both said locking member and said actuating-rod; substantially as described.

749,536. AUTOMATIC CONTROLLING MECHANISM FOR PRINTING-PRESSES. TALBOT C. DEXTER, Pearl River, N. Y. Filed Sept. 24, 1902. Serial No. 124,606. (No model.)



Claim.—1. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine,

a stop-shaft, means for automatically arresting said stop-shaft, a speed-governor suitably geared to and driven by said stop-shaft, a frictional clutch interposed between the stop-shaft and speed-governor, and means operated by said speed-governor for actuating the throw-out mechanism, substantially as set forth.

2. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting the rotation of said shaft, a speed-governor, a frictional clutch mounted upon the stop-shaft and comprising a member loose upon said shaft and a member splined upon said shaft, suitable gearing between the loose member of said clutch and the speed-governor, and means operated by said speed-governor for actuating the throw-out mechanism, substantially as set forth.

3. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, driving mechanism for said shaft, a frictional clutch interposed between the driving mechanism and said shaft, means for automatically arresting the rotation of said shaft, a speed-governor suitably geared to said rotary shaft, and means operated by said speed-governor for actuating the throw-out mechanism, substantially as set forth.

4. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, suitable driving mechanism for said shaft, a frictional clutch interposed between said driving mechanism and the shaft, said clutch comprising a member splined upon said shaft and a member loose upon said shaft, means for automatically arresting the rotation of said shaft, a speed-governor suitably geared to and driven by said shaft, and means operated by said speed-governor for actuating said throw-out mechanism, substantially as set forth.

5. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, suitable driving mechanism for said shaft, a frictional clutch interposed between said driving mechanism and the shaft, one member of said clutch being geared directly to the driving mechanism and loosely mounted upon said shaft and the other member of said clutch being splined to the shaft, a spring holding said clutch members in frictional contact, means for arresting the rotation of said shaft, a speed-governor suitably geared to said shaft, and means operated by the speed-governor for actuating the throw-out mechanism, substantially as set forth.

6. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, suitable driving mechanism for said shaft, a frictional clutch member loosely mounted upon said shaft and geared to the driving mechanism, a second clutch member splined to said shaft, an expansion-spring surrounding the shaft and engaging the splined clutch member, a collar secured to the shaft and confining said expansion-spring, means for arresting the rotation of said shaft, a speed-governor suitably geared to said shaft, and means operated by the speed-governor for actuating the throw-out mechanism, substantially as set forth.

7. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, suitable driving mechanism for said shaft, a frictional clutch interposed between the driving mechanism and said shaft, means for arresting the rotation of said shaft, a speed-governor suitably geared to the shaft, a frictional clutch interposed between said shaft and the speed-governor, and means operated by said speed-governor for actuating the throw-out mechanism, substantially as set forth.

8. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting said stop-shaft, a speed-governor geared to and driven by said shaft, a normally stationary rotatable cam, means operated by said cam for actuating the throw-out mechanism, and means operated by the speed-governor for operating said cam, substantially as set forth.

9. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting said stop-shaft, a speed-governor geared to and driven by said shaft, a normally stationary rotatable cam, a rock-arm supported in peripheral contact with said cam, operative connections between said rock-arm and the throw-out mechanism, and means actuated by said governor for operating said cam, substantially as set forth.

10. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting said stop-shaft, a speed-governor geared to and driven by said shaft, a normally stationary rotatable cam, means actuated by said cam for operating the throw-out mechanism, a rotating part carrying a normally inactive device adapted to engage said cam, said cam-engaging device being arranged to be actuated by the speed-governor, substantially as set forth.

11. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting the rotation of said stop-shaft, a speed-governor suitably geared to said stop-shaft, a rotating gear-wheel, a spring-retracted pawl mounted upon said gear-wheel and adapted to be engaged by the speed-governor, a normally stationary rotatable cam formed with a ratchet-face adapted to be engaged by said pawl, and means actuated by said cam for operating the throw-off mechanism, substantially as set forth.

12. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, means for automatically arresting said stop-shaft, a speed-governor suitably geared to said stop-shaft and having a movable collar, a gear-wheel mounted to rotate on the governor-shaft, a spring-retracted pawl mounted upon said gear-wheel and supported in position to be engaged by the movable collar of the governor, means for driving said gear-wheel, a normally stationary rotatable cam formed with a ratchet-face which is adapted to be engaged by said pawl, and means operated by said cam for actuating the throw-out mechanism, substantially as set forth.

13. In combination with a machine designed to operate upon sheets of paper, suitable throw-out mechanism for said machine, a rotary stop-shaft, a governor-shaft suitably geared to said stop-shaft, means for driving said stop-shaft, means for automatically arresting said stop-shaft, a gear loosely mounted upon the governor-shaft and driven by the stop-shaft-driving mechanism, a normally stationary rotatable cam formed with a ratchet-face, means operated by said cam for actuating the throw-out mechanism, a spring-retracted pawl mounted upon said gear-wheel in position to engage the ratchet-face of the cam, and a speed-governor mounted upon the governor-shaft and provided with a longitudinally-movable collar which is adapted to engage said pawl and force it into engagement with the ratchet-face of the cam, substantially as set forth.

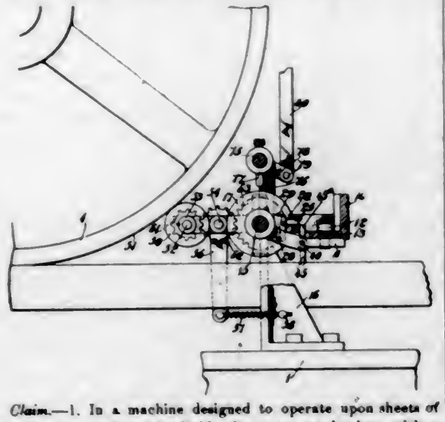
14. In combination with a machine designed to operate upon sheets of paper, a throw-out lever adapted to arrest the operation of said machine, a rock-arm engaging and adapted to operate said throw-out lever, a speed-governor, means operated by the speed-governor for actuating said rock-arm, a stop-shaft suitably geared to the speed-governor, and means for automatically arresting said stop-shaft, substantially as set forth.

15. In combination with a machine designed to operate upon sheets of paper, a pivotally-mounted spring-actuated trip-lever, means connected with said trip-lever, for throwing out of operation a part of the machine, a hook or latch normally engaging and locking said trip-lever, a rock arm or lever suitably connected with said latch, a stop-shaft, ratchet-wheels upon the same, means for engaging said ratchet-wheels to arrest said stop-shaft, a speed-governor suitably geared to said stop-shaft, and means operated by said speed-governor for actuating said rock arm or lever, substantially as set forth.

16. In combination with a machine designed to operate upon sheets of paper, a throw-out lever adapted to disconnect the power from and arrest the operation of said machine, a rock-arm engaging and adapted to operate said throw-out lever, a spring-actuated trip-lever, means, connected with said trip-lever, for throwing out of operation a part of the machine, a retaining hook or latch normally engaging and locking said trip-lever, a link connecting said hook or latch with the operating rock-arm of the throw-out lever, an operating-lever connected with said hook or latch, and automatic means for actuating said operating-lever, substantially as set forth.

17. In combination with a machine designed to operate upon sheets of paper, a throw-out lever adapted to disconnect the power from and arrest the operation of said machine, a rock-arm engaging and adapted to operate said throw-out lever, an automatically-controlled operating-rod suitably connected with said operating rock-arm of the throw-out lever, a spring-actuated trip-lever, means, connected with said trip-lever, for throwing out of operation a part of the machine, a retaining hook or latch normally engaging and locking said trip-lever, a link connecting said hook or latch with the operating rock-arm of the throw-out lever, an operating-lever, a link connected with said operating-lever and having pin-and-slot connection with said hook or latch, and automatic means for actuating said operating-lever, substantially as set forth.

749,537. **AUTOMATIC CONTROLLING MECHANISM FOR PRINTING-PRESSES OR OTHER MACHINES DESIGNED TO OPERATE UPON SHEETS OF PAPER.** TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 7, 1902. Serial No. 126,323. (No model.)



Claim.—1. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a tripping-finger adapted to be directly engaged and actuated by a sheet or part of a sheet, a rotary shaft carrying a disk, and a dog mounted upon said disk and adapted to directly engage the tripping-finger when the latter is tripped and be thereby shifted into position to directly engage and actuate the throw-out mechanism.

2. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a disk, a normally inactive dog mounted upon said disk, a sheet-actuated tripping-finger adapted to engage said dog and move it into active position upon the disk, and means operated by said dog for actuating the throw-out mechanism, substantially as set forth.

3. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, a normally inactive dog eccentrically mounted upon said shaft, a sheet-actuated tripping-finger adapted to engage said dog and move it into active position, and means operated by said dog for actuating the throw-out mechanism, substantially as set forth.

4. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, a normally inactive bell-crank tripping-dog eccentrically mounted upon said shaft, a sheet-actuated tripping-finger adapted to engage said dog and shift it into active position, and means adapted to be operated by said dog for actuating the throw-out mechanism, substantially as set forth.

5. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a disk, a bell-crank tripping-dog eccentrically mounted upon said disk, a sheet-actuated tripping-finger adapted to engage said dog and shift its position upon the disk, and means adapted to be operated by said dog for actuating the throw-out mechanism, substantially as set forth.

6. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, a disk mounted upon said shaft, a bell-crank tripping dog or finger pivoted upon said disk, pins limiting the movement of said tripping dog or finger, a sheet-actuated tripping-finger adapted to shift the dog upon the disk, and means operated by said dog for actuating the throw-out mechanism, substantially as set forth.

7. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft, a disk mounted upon said shaft, a bell-crank tripping-dog pivoted upon said disk, pins limiting the movement of said tripping-dog, one arm of said tripping-dog being longer than the other, a sheet-actuated tripping-finger adapted to engage the short arm of said tripping-dog for moving the same upon its pivot to cause the longer arm to project beyond the periphery of the disk, a rock-shaft suitably connected with the throw-out mechanism, and a tappet mounted upon said rock-shaft and adapted to be engaged by the long arm of said tripping-dog, substantially as set forth.

8. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rock-shaft suitably connected with the throw-out mechanism, a tappet upon said rock-shaft, a rotary tripping-shaft carrying a disk, a bell-crank tripping-dog pivoted upon said disk and having one arm longer than the other, lugs upon the disk adapted to be engaged by the arms of said tripping-dog for limiting its movement, said dog being normally presented with its short arm projecting beyond the periphery of the disk, and a sheet-actuated tripping-finger adapted to engage said short arm of the tripping-dog for shifting its position and causing its longer arm to project beyond the periphery of the disk in readiness to engage and operate said tappet, substantially as set forth.

9. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rotary shaft carrying a disk, a bell-crank tripping-dog pivoted upon said disk and adapted to actuate the throw-out mechanism, a spring holding said tripping-dog in either of its shifted positions, and sheet-actuated means for shifting the position of said tripping-dog, substantially as set forth.

10. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rock-shaft suitably connected with the throw-out mechanism, a tappet upon said rock-shaft, a rotary shaft carrying a disk, a bell-crank tripping-dog pivoted upon said disk and adapted to engage said tappet, a spring adapted to hold said tripping-dog in either of its shifted positions, and sheet-actuated means for shifting the position of said tripping-dog, substantially as set forth.

11. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rotary shaft carrying a disk, a rock-shaft journaled in said disk and formed with flattened faces, a bell-crank tripping-dog mounted upon said rock-shaft, a spring adapted to engage the flattened faces of said rock-shaft for holding said tripping-finger in either of its shifted positions, and sheet-actuated means for shifting the position of said tripping-dog, substantially as set forth.

12. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a plurality of disks, rock-shafts journaled in said disks and extending parallel with the rotary shaft, bell-crank tripping-dogs mounted upon said rock-shafts, sheet-actuated tripping-fingers adapted to engage said dogs and shift their positions, and means adapted to be operated by said dogs for actuating the throw-out mechanism, substantially as set forth.

13. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a tappet-shaft suitably connected with the throw-out mechanism, a plurality of tappets mounted upon said tappet-shaft, a rotary shaft carrying a plurality of disks, a plurality of tripping-dogs pivotally mounted upon said disks in operative relation to said tappets, and sheet-actuated means for shifting the position of said tripping-dogs, substantially as set forth.

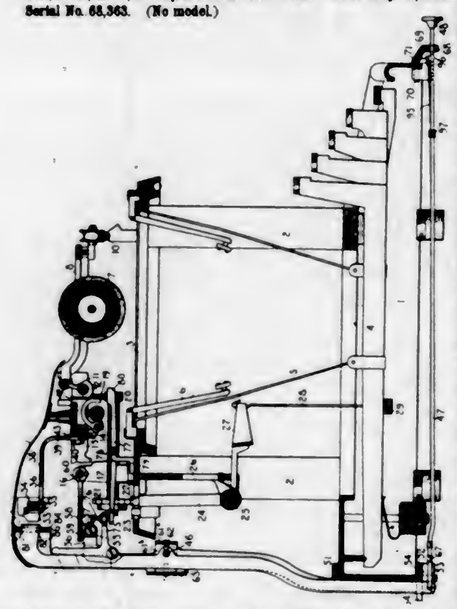
14. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, with a rotary shaft carrying a plurality of disks, rock-shafts journaled in said disks and extending parallel with the rotary shaft, flattened faces formed upon said rock-shafts, a leaf-spring adapted to engage said flattened faces to hold the rock-shafts in either of their shifted positions, bell-crank tripping-dogs mounted upon said rock-shafts, sheet-actuated tripping-fingers adapted to engage said dogs and shift their positions, and means adapted to be operated by said dogs for actuating the throw-out mechanism, substantially as set forth.

15. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rock-shaft suitably connected with the throw-out mechanism, a tappet upon said rock-shaft, a rotary shaft carrying a disk, a bell-crank tripping-dog upon said disk, a spring holding said tripping-dog in either of its shifted positions, lugs projecting from the face of said disk adapted to engage the arms of said tripping-dog for limiting its movement, and sheet-actuated means for shifting the position of said tripping-dog, substantially as set forth.

16. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a tappet-shaft suitably connected with the throw-out mechanism, a plurality of tappets upon said tappet-shaft, a rotary shaft carrying a plurality of disks, a bell-crank tripping-dog pivoted upon each disk, a spring holding said tripping-dogs in either of their shifted positions, lugs projecting from the face of each disk adapted to engage the arms of the tripping-dog for limiting its movement, and sheet-actuated means for shifting the position of said tripping-dogs, substantially as set forth.

17. In a machine designed to operate upon sheets of paper, the combination of suitable throw-out mechanism, a rock-shaft connected with said throw-out mechanism, a tappet upon said rock-shaft, a rotary shaft carrying a disk, a tripping-dog pivoted upon said disk and adapted when shifted to engage said tappet and actuate said rock-shaft, sheet-actuated means for shifting the position of said tripping-dog, a lug on said tripping-dog, and a lug on a stationary part of the machine adapted to engage said dog-lug for returning the shifted dog or finger to its normal position after it has been shifted, substantially as set forth.

749,538. **TYPE-WRITING MACHINE.** LOUIS P. DIBB and WILLIAM A. SCHMIDT, Ilion, N. Y., assignors to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed July 15, 1901. Serial No. 68,363. (No model.)



Claim.—1. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops mounted upon the framework, means for moving said stops laterally a distance less than a letter-space, stop-projecting means, and stop-detaining means releasable by the pressure of the carriage-stop against said denomination-stops, said stop-detaining means comprising a plurality of teeth on each denomination-stop and engaging means coöperating therewith.

2. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops mounted upon the framework, means for projecting said stops one at a time and causing the projected stop to have a limited lateral movement, and stop-detaining means set by such lateral movement, said stop-detaining means comprising a plurality of teeth on each denomination-stop and engaging means coöperating therewith.

3. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable denomination-stops mounted upon the framework, means for projecting said stops, means for causing each stop when projected to move laterally automatically, and a plurality of detents on each denomination-stop and set by a lateral movement and released by the pressure of the carriage-stop against the projected denomination-stop.

4. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable denomination-stops mounted upon the framework, means for projecting said stops, means for causing each stop when projected to move laterally automatically, and a plurality of detents upon each denomination-stop, said detents being set by a lateral movement and being released by the pressure of the carriage-stop against the projected denomination-stop, the initial impact of the carriage-stop effecting the release of one detent and the rebound effecting the release of another detent.

5. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of independently-movable denomination-stops coöperating with said stop, means for projecting said denomination-stops, means for causing each denomination-stop when projected to move laterally, a plurality of notches which form teeth upon each denomination-stop, and devices engaged by said teeth upon such lateral movement.

6. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable laterally-springing levers mounted upon the framework, stops carried upon said levers and projected thereby into the path of the carriage-stop and also sprung thereby in a lateral direction, and notchee which form teeth upon each denomination-stop for detaining said stops in their projected positions.

7. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of independently-movable levers, a guide-comb for said levers, a plurality of teeth upon each of said levers for engaging said comb-teeth by a lateral movement, and stops projected by said levers.

8. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a rack arranged longitudinally of the carriage, a column-stop adjustable along said rack, a set of independently-movable levers, keys connected to said levers, a set of comb-teeth for guiding the free ends of said levers, teeth formed upon each of said levers in proximity to said comb-teeth, and stops also formed upon said levers and projected thereby into the path of the carriage-stop and subsequently released automatically by the pressure of the carriage.

9. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a column-stop adjustable upon the carriage, a set of levers arranged vertically in rear of the machine and fulcrumed between their ends, key-bearing push-rods extending forwardly from the lower ends of said levers, forwardly-projecting stops formed upon the upper ends of said levers, a comb having teeth for guiding the upper ends of said levers, teeth formed upon each of said levers for engaging said comb-teeth, and means for limiting the stop-projecting movements of the levers, said lever-teeth engaging said comb-teeth so as to detain the levers in working position, and said levers being released by the carriage.

10. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a column-stop adjustable along the carriage, a set of vertical key-operated levers arranged in rear of the machine, spacing-plates interposed between the levers at their hub portions, a guide-comb for the upper ends of said levers, teeth formed upon the sides of said levers for engaging the teeth of said guide-comb, said levers having each a lateral spring for forcing their said teeth into engagement with said guide-comb teeth, forwardly-projecting stops formed upon the upper ends of said levers, jogs 94 formed upon the latter for arresting the stop-projecting movement thereof, and a set of returning-springs.

11. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of denomination-stop-carrying levers, each of said levers having a lateral tension, and teeth for each of said levers and which are set by the lateral movement of said levers for holding the latter in working position.

12. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of denomination-stop-carrying levers, each of said levers having a lateral tension, and teeth set by the lateral movement of each of said levers and holding the latter in working position, each of said levers being released from the control of said teeth by the pressure of the carriage.

13. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of independently-movable levers, each of said levers having a lateral tension, means for guiding the hub portions of said levers, a series of stops formed upon the free ends of said levers, means for guiding said free ends, and teeth formed upon said free end of each of said levers for detaining said levers in working position.

14. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a carriage-stop, a coöperating stop, a notch cut in one of said stops, means for projecting the notched stop, means for causing the notched stop to move laterally when projected, and means engaging with said notch for detaining said stop in its projected position.

15. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a carriage-stop, a coöperating stop, a notch cut in one of said stops, means for projecting the notched stop, means for causing the notched stop to move laterally when projected, and means engaging with said notch for

detaining said stop in its projected position, said detained stop being released by the pressure thereon of the other of said stops at the arrest of the carriage.

16. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a carriage-stop, a coöperating stop, a lever upon which one of said stops is carried, said lever having a lateral tension, a tooth, a device engaged by said tooth upon a lateral movement of said lever effected at the stop-projecting movement thereof, so as to detain said lever and stop in projected position, and a second tooth that coöperates with said device and which is automatically released by the rebound impact of the carriage.

17. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a series of denomination-stops coöperating with said stop, a guide-comb for said denomination-stops, notches in each of said denomination-stops, means for projecting said denomination-stops, and means for causing each of them to move laterally so as to cause the engagement of said notches with a tooth of said guide-comb.

18. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a series of denomination-stops coöperating with said stop, bowed levers carrying said stops, a guide-comb for the stop-carrying ends of said levers, means for guiding the fulcrum portions of said levers, and notches cut in said stops and adapted to spring into engagement with the teeth of said guide-comb when the stops are projected with the levers.

19. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a carriage-stop, a set of levers, a set of denomination-stops formed upon said levers, ribs 98 provided upon said stops, opposing sets of guiding-teeth for said stops, notches formed upon said stops and adapted to engage the teeth in one of said sets, and bevels or cut-aways 99 formed upon the edges of said stops and engaged by the teeth in the other of said sets.

20. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of laterally-springing levers carrying said denomination-stops, a guiding-comb for the free ends of said levers, a set of separators for the fulcrum portions of said levers, plates 61 and 61ª confining said separators, and keys connected to said levers.

21. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of laterally-springing levers carrying said stops, a guide-comb for the free ends of said levers, a fulcrum-rod for said levers, a set of separators arranged upon said fulcrum-rod and formed upon a transverse plate 61 having notches 61ª in which the edges of said separators fit, and keys connected to said levers.

22. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable laterally-springing levers mounted upon the framework, carriage-releasing devices operable by said levers, stops carried upon said levers and projected thereby into the path of the carriage-stop and also sprung thereby in a lateral direction, and a plurality of teeth for each lever for detaining said stops in their projected positions.

23. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of coöperating stops, one arranged upon the carriage and the other upon the framework, means for projecting one of said stops, means releasable by the impact of the carriage for detaining said stop in its projected position, and means for preventing a simultaneous rebound of the carriage and return of the projected stop to normal position.

24. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of coöperating stops, one arranged upon the carriage and the other upon the framework, means for projecting one of said stops, and means for detaining said stop in its projected position and subsequently checking the return movement thereof.

25. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of coöperating stops, one arranged upon the carriage and the other upon the framework, means for projecting one of said stops, and means for detaining said stop in its projected position and subsequently checking the return movement thereof, said detaining and checking means being released by the carriage when it is arrested by the coöperation of said stops.

26. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of coöperating stops, one arranged upon the carriage and the other upon the framework, means for projecting one of said stops, and a double latch for detaining the projected stop in working position and subsequently checking the return movement thereof.

27. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of coöperating stops, one arranged upon the carriage and the other upon the framework, means for projecting one of said stops, and a double latch for detaining the projected stop in working position and subsequently checking the return movement thereof, said double latch being moved to an inoperative position and held there by the carriage so as to permit the return of said stop to normal position.

28. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop, a set of independently-movable denomination-stops coöperating with said stop, and means for detaining in working position and subsequently checking the return to normal position of any of said denomination-stops, said detaining and checking means being releasable by the carriage.

29. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the framework, a carriage-stop, carriage-releasing devices, means for projecting one of said stops to a position where it may engage the other and simultaneously operating said carriage-releasing devices, automatically-operating means for detaining in working position both the projected stop and said carriage-releasing devices, said detaining means being releasable by the impact of the carriage, and means for preventing a simultaneous rebound of the carriage and return of the projected stop and carriage-releasing devices to normal position.

30. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop, a coöperating stop, carriage-releasing devices, means for projecting one of said stops, and means for detaining in operative position and subsequently checking the return to normal position of both said projected stop and said carriage-releasing devices, said detaining and checking means being releasable by the carriage.

31. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop, a set of denomination-stops coöperating with said stop, carriage-releasing devices, and means for detaining in operative position and checking the return to normal position of any of said denomination-stops and said carriage-releasing devices, said detaining and checking means being releasable by the carriage.

32. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the framework, a carriage-stop, means for projecting one of said stops to a position where it may engage the other, means for releasing the carriage from the control of its feeding devices, and means for mechanically detaining said carriage-releasing means in an operative position and checking the return thereof to normal position, said detaining and checking means being releasable by the carriage.

33. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a carriage-releasing device, a double latch, and means engageable therewith for detaining said carriage-releasing device in operative position and checking the return thereof to normal position, said double latch having a part which is movable into the path of a part upon the carriage so as to enable the latter to disengage said latch repeatedly.

34. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop, a set of independently-movable denomination-stops coöperating with said stop, means for projecting said denomination-stops, means tending to cause each denomination-stop to move laterally, a series of notches or teeth provided upon each denomination-stop, and devices engageable by said notches or teeth upon such lateral movement.

35. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable laterally-springing levers mounted upon the framework, stops carried upon the levers and projected thereby into the path of the carriage-stop and also sprung thereby in a lateral direction, and a series of teeth formed upon each lever or stop for detaining said stops in their projected position and checking the subsequent return movement thereof to normal position.

36. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop, a series of denomination-stops coöperating therewith, a guide-comb for said denomination-stops, a series of notches cut in each of said denomination-stops, means for projecting one of said stops, and means for causing them to move laterally so as to cause an engagement of said notches with the teeth of said guide-comb.

37. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable denomination-stops mounted upon the framework, means for projecting said denomination-stops, carriage-releasing devices operated by said stop-projecting means, means for causing each stop when projected to move laterally, a detent set by such lateral movement and released by the impact of the carriage-stop against the denomination-stop, and means for checking the return movement of said denomination-stop, said checking means being also released by the pressure of the carriage-stop against the projected denomination-stop.

38. In a type-writing and tabulating mechanism, the combination with a power-driven carriage and carriage-feeding devices, of a stop upon the carriage, a set of independently-movable laterally-springing levers mounted upon the framework, a carriage-releasing device operable by said levers, stops carried upon said levers and projected thereby into the path of the carriage-stop and also sprung thereby in lateral direction, and a series of notches or teeth upon each stop for detaining the latter in their projected positions and subsequently checking their return movements.

39. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a bar 38 extending longitudinally of the carriage and rigidly attached thereto by fixed ears 39, fixed arms 36 upon said bar, a rack mounted upon said arms, a stop adjustable along said rack, and a coöperating stop upon the framework.

40. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of rolls for said carriage, a bar 38 extending longitudinally of the carriage and attached by integral bent ears 39 to the axles of the carriage-rolls, arms 36 formed upon said bar 38, a rack adjustably mounted upon said arms, a stop adjustable along said rack, and a coöperating stop upon the framework.

41. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of denomination-stop levers arranged vertically in rear of the machine, a vertical frame upon which said levers are fulcrumed, said frame being attached at its lower end to the framework of the machine, a pivoted device adjustably supporting the upper end of said frame, and a lateral abutment against which said pivoted device bears, so as to support said lever-frame against the impact of the carriage.

42. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of denomination-stop levers arranged vertically in rear of the machine, a vertical frame upon which said levers are fulcrumed, said frame being attached at its lower end to the framework of the machine, and a yoke or bar 59 attached to the upper end of said frame and hinged upon a carriage-rail and bearing against a support upon which said carriage-rail is mounted.

43. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of denomination-stop levers arranged vertically in rear of the machine, a vertical frame upon which said levers are fulcrumed, said lever-frame being attached at its lower end to the framework of the machine, and a yoke or bar 59 attached to the upper end of said lever-frame and hinged upon a carriage-rail and fitting closely between fixed supports upon which said rail is mounted at its ends, and also being clamped by an ear 58 and screw 57 to an ear 55 provided upon said lever-frame.

44. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of denomination-stop levers arranged vertically in rear of the machine, a vertical frame upon which said levers are fulcrumed, said lever-frame being attached at its lower end to the framework of the machine, an abutment formed upon the upper portion of the framework, and an adjustable device attached to the upper portion of said frame and bearing against said abutment so as to support said lever-frame against the impact of the carriage.

45. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of levers carrying said stops, a guiding-comb for the free ends of said levers, a set of separators for the fulcrum portions of said lever, plates 61 and 61ª confining said separators, and keys connected to said levers.

46. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of denomination-stops, a set of levers carrying said stops, a guiding-comb for the free ends of said levers, a fulcrum-rod for said levers, a set of separators arranged at said fulcrum-rod and formed upon a transverse plate 61ª, a transverse plate 61 having notches 61ª in which the edges of said separators fit, and keys connected to said levers.

47. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of key-operated levers, a set of denomination-stops formed upon said levers, and a guide-comb for said stops comprising two opposing sets of teeth engaging opposite edges of said denomination-stops.

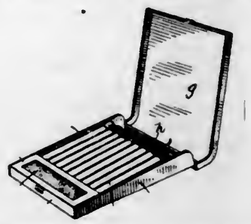
48. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop upon the carriage, a set of key-operated levers, a set of denomination-stops formed upon said levers, a frame upon which said levers are fulcrumed, plates 83 and 84 attached to said frame, and opposing sets of teeth 81 and 82 formed upon said plates and engaging respectively the upper and lower edges of said stops.

49. In a type-writing machine, the combination with a carriage and carriage-feeding devices, of a carriage rail or rod along which the carriage travels, a tabulating-stop on the carriage, coöperating tabulating-stops, levers therefor, a frame upon which said levers are fulcrumed, said frame being attached at its lower end to the frame of the machine, a connecting device attached to the upper end of said lever-frame and to said carriage rail or rod, and an abutment against which the connecting device bears.

50. In a type-writing and tabulating mechanism, the combination with a carriage and carriage-feeding devices, of a stop, a set of independently-movable denomination-stops coöperating with said stop, means for projecting said denomination-stops, means for causing each denomination-stop when projected to move laterally, each of said denomination-stops being notched to form teeth, and devices engaged by said teeth on the denomination-stops when a lateral movement takes place.

51. In a type-writing machine and tabulating mechanism, the combination of a carriage, a stop, a coöperating stop, an automatically-actuated double-locking device which locks one of the said stops in its projected position and releases it at the first impact between the stops and again at the rebound impact.

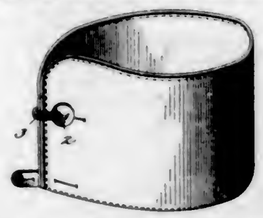
749,539. MATCH-BOX. HAROLD A. DODGE, Elizabeth, N. J. Filed June 19, 1903. Serial No. 162,236. (No model.)



Claim.—1. A match-box comprising a back having turned-up lips to afford side and end portions for the body of the box, and having, integral with the end portion, a turned-over holding-piece adapted to partly overlie a package of matches, said holding-piece having its central portion open to provide an aperture through which the matches may be ignited on the friction material of the package, and said box being provided with a suitable hinged lid.

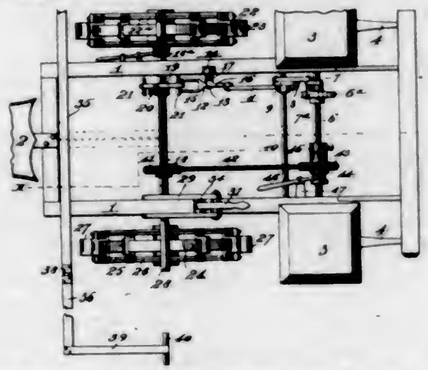
2. A match-box provided with a hinged lid at one end and being formed deeper at the end where the lid is hinged than at its opposite end, so as to be adapted to hold a package of paper matches, and the said box having, at its end opposite the hinge of the lid, a holding-piece, as *d*, adapted to partly overlie a package of matches contained by the box, said holding-piece having its central portion cut away to provide an opening through which the matches may be ignited on the friction material of the package.

749,540. CUFF-BUTTON. WILLIAM DOHERTY, Attleboro, Mass. Filed Oct. 31, 1902. Serial No. 129,586. (No model.)



Claim.—A cuff-button formed from a single blank and comprising a pair of disks with inner grooved faces spaced apart from each other in converged relation and having an integral V-shaped connecting-bar terminating at the edges of the disks, the inner surface of the bar coinciding with the inner surfaces of the disks to permit the latter to lie flat against the outer surface of the cuff, the disks having inwardly-projecting headed shanks near the free edges thereof, the angle of the bar, when applied, closely fitting over the edges of the cuff adjacent to the buttonholes.

749,541. COMBINED CORN PLANTER AND MARKER. ANTON DURACH, Highland, Ill. Filed Jan. 17, 1903. Serial No. 139,381. (No model.)



Claim.—1. In a corn-planter, the combination of an axle, a pair of ground-wheels in which said axle is loosely mounted, means for connecting one of said ground-wheels to said axle, a cage secured to said ground-wheel that connects with the axle for securing ground purchase, and a marking-wheel fixed to said axle adjacent to the second ground-wheel, substantially as set forth.

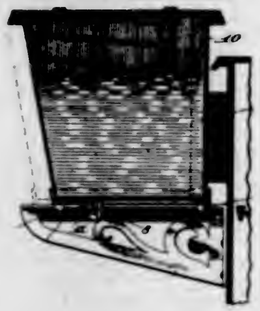
2. In a corn-planter, the combination of an axle, a pair of ground-wheels in which said axle is loosely mounted, a clutch for connecting one of said ground-wheels to said axle, a cage secured to said ground-wheel that connects with the axle for securing ground purchase, and a marking-wheel fixed to said axle adjacent to the second ground-wheel, substantially as set forth.

3. In a corn-planter, the combination of an axle, a pair of ground-wheels in which said axle is loosely mounted, a clutch for connecting one of said ground-wheels to said axle, a cage secured to said ground-wheel that connects with the axle for securing ground purchase, a marking-wheel fixed to said axle adjacent to the second ground-wheel, and grain-dropping mechanism having operating connection with said axle, substantially as set forth.

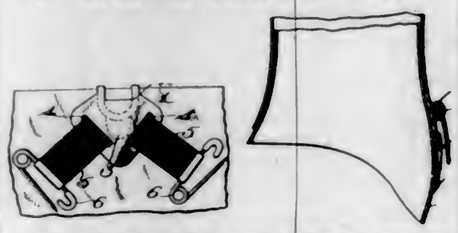
749,542. ADJUSTABLE WATER-TANK FOR STOVES OR RANGES. LUCAS EDEL, St. Louis, Mo., assignor to Majestic Manufacturing Company, St. Louis, Mo., a Corporation. Filed Sept. 24, 1903. Serial No. 174,390. (No model.)

Claim.—1. The combination with tank-supporting brackets, of a carriage reciprocally mounted on said brackets, legs depending from said carriage, a rocker journaled in said brackets, and arms carried by said rocker arranged to engage said legs and hold said carriage from movement when the arms are thrown into a position beyond the horizontal dead-center of said rocker, substantially as set forth.

2. The combination with tank-supporting brackets, of a carriage reciprocally mounted on said brackets, legs depending from said carriage, a rocker journaled in said brackets, arms carried by said rocker arranged to engage said legs and hold said carriage from movement when the arms are thrown into a position beyond the horizontal dead-center of said rocker, and a finger projecting from said rocker to engage one of said supporting-brackets and limit the throw of said rocker, substantially as set forth.



749,543. WAIST-LENGTHENER. NORA C. EDWARDS, Spooner, Wis. Filed June 5, 1903. Serial No. 160,232. (No model.)



Claim.—1. A device of the character described comprising a substantially diamond-shaped plate provided with a pair of depending overlapping hooks, said hooks extending parallel with the outer face of said plate and with each other, and said plate further provided with a pair of diagonally-extending elongated slots, a pair of short straps extending through the said slots, and a fastening device connected to the outer end of each of the said straps.

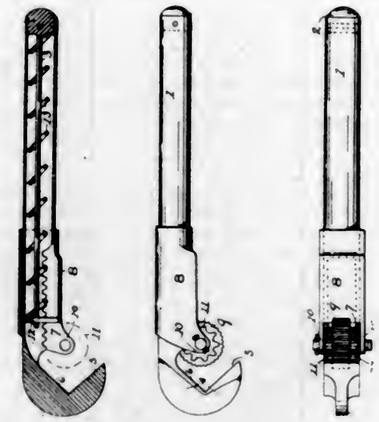
2. A device of the character described comprising a plate having integral with the top thereof, a pair of depending overlapping hooks which extend parallel with the outer face of said plate, one of said hooks projecting below the other of said hooks, the said plate further provided with a pair of elongated slots extending in opposite directions, a pair of short straps connected to said plate through the slots thereof, and a safety-pin connected to the outer end of each of said slots.

3. A device of the character described, comprising a plate provided with a pair of depending overlapping hooks integral with the top thereof, said hooks extending parallel with the outer face of said plate, said plate further provided with a pair of diagonally-extending elongated slots, a pair of short straps extending through the said slots and depending at an inclination in an opposite direction from the said plate, and a fastening device connected to the free end of said straps, substantially as herein shown and described and for the purpose set forth.

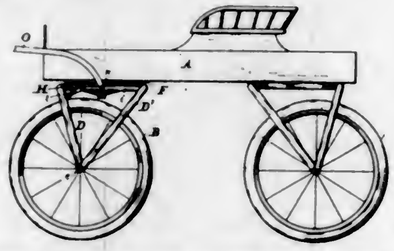
749,544. WRENCH. WILLIAM H. REMENTNOUT, Reading, Pa. Filed Sept. 23, 1903. Serial No. 174,280. (No model.)

Claim.—A wrench comprising a hollow handle, a removable plug closing the rear end thereof, a guide-rod formed on said plug and extending the entire length of the handle, a jaw formed on the front end of said handle, toothed racks formed on the under side of said handle immediately behind said jaw, a sliding grip loosely mounted on said handle and closing the handle-opening, a wheel having its larger diameter serrated peripherally and its smaller diameter formed with gear-teeth removably mounted on said grip, an inwardly-extending lug formed on said grip and engaging said guide-rod, and a coiled spring mounted on said guide-rod.

749,544.



749,545. SPEED-WAGON. JOHN P. FABER, Rochester, N. Y., assignor, by means assignments, to the Faber Silky Co., Rochester, N. Y., a Corporation of New York. Filed Sept. 9, 1902. Serial No. 122,746. (No model.)



Claim.—1. In a speed-wagon, the combination of the body, front and rear wheels, supports located between the body and the front and rear wheels respectively, and thills attached to the front supports in a plane located in the rear of the axles of the front wheels, whereby a strong pull upon the reins will not lift the rear wheels off the ground, substantially as described.

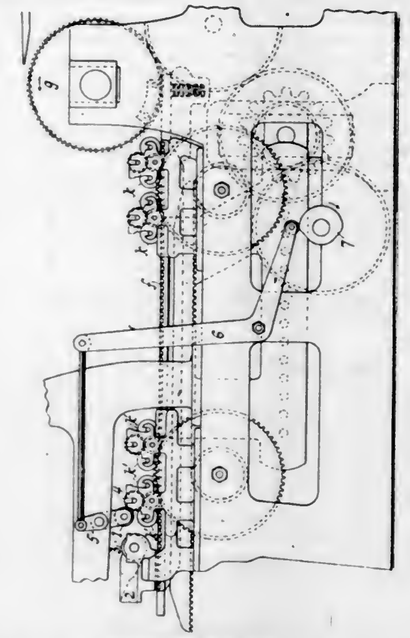
2. The combination with the body and rear wheels, of the front axle consisting of the inclined trusses, the fifth-wheel attached thereto, the braces between the trusses and the thills pivoted to the braces in rear of the center of the front wheels, as and for the purposes described.

749,546. INKING MECHANISM FOR PRINTING-PRESSES. GEORGE P. FENNER, New London, Conn. Filed July 16, 1903. Serial No. 165,850. (No model.)

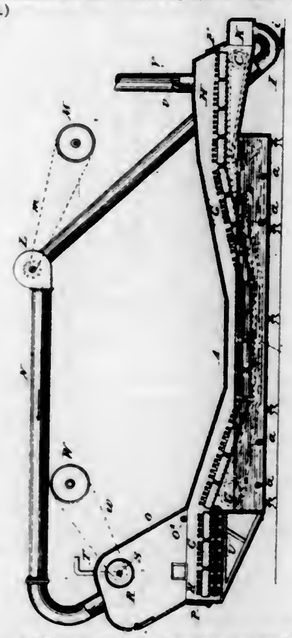
Claim.—1. A printing-press having a ductor-roller, a distributing-roller alternately rotated in opposite directions, a fountain-roller, and a cam made to move the ductor-roller to contact with the distributing-roller when the latter is substantially at rest and to hold the ductor-roller in such contact during about one-half a revolution of the cam and until the distributing-roller again comes to rest and then to remove or return the ductor-roller to contact with the fountain-roller.

2. A printing-press having a carrier, a ductor-roller freely rotatable in the carrier, a distributing-roller alternately rotated in opposite directions, a fountain-roller, and a cam made to move the ductor-roller to and hold the same in contact with the distributing-roller during about one-half a revolution of the cam, so that the ductor-roller makes and breaks contact with the distributing-roller at periods of rest.

3. A printing-press having a ductor-roller, a distributing-roller alternately driven in opposite directions, a fountain-roller, and a cam made to move the ductor-roller to contact with the distributing-roller when the latter is practically or nearly at rest and to hold the ductor-roller in such contact during about one-half a revolution of the cam and until the distributing-roller again comes to rest and then to remove or return the ductor-roller to contact with the fountain-roller.



749,547. METHOD OF PASTEURIZING. MICHAEL L. FENNIMEIER, Cumberland, Md. Filed Aug. 3, 1903. Serial No. 168,116. (No model.)



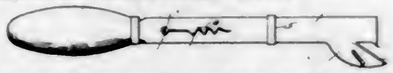
Claim.—1. The method of pasteurizing or sterilizing material in closed vessels, consisting in passing the vessels through a heating

medium, then subjecting them to contact with a cool vapor, then conveying the vapor to and bringing it in contact with cool vessels about to be heated, whereby the vessels are given a preliminary heating and the vapor is cooled, and then returning the cooled vapor to the starting-point.

2. The method of pasteurizing or sterilizing material consisting in passing vessels containing the material through a heating medium, then subjecting them to contact with a cool watery vapor, then conveying the heated vapor to and bringing it in direct contact with vessels about to be heated, then returning the cooled vapor to the starting-point, additional watery particles being added to the vapor and condensed water abstracted at suitable points to maintain the desired degree of saturation.

3. The method of pasteurizing or sterilizing material consisting in passing vessels containing the material through a heating medium, then subjecting them to contact with a cool vapor, then mingling live steam with such vapor then conveying the mingled vapor and team to and bringing them in contact with cool vessels about to be heated, whereby the vessels are given a preliminary heating and then returning the cooled vapor to the starting-point.

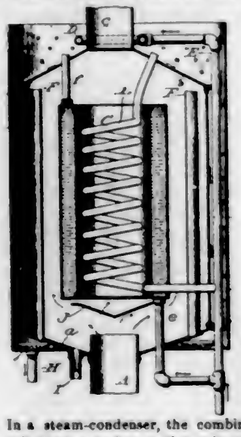
749,548. **CAN-OPENER.** CHARLES A. FORD, Madison, Ind. Filed Sept. 15, 1903. Serial No. 173,243. (No model.)



Claim.—1. A can-opener, comprising a bar, a fixed knife projecting laterally therefrom, a loop slidable on said bar and carrying a centering-point projecting laterally therefrom, a cutting-blade projecting from the end of said bar, and a fulcrum-pin projecting laterally from said blade and having a hooked guide portion parallel with said blade.

2. A can-opener, comprising a bar 1 having a pointed end 6', a blade 7 rigid with said bar and projecting therefrom adjacent to said point 6', and a fulcrum-pin 10 projecting laterally from said blade and having a hooked end 11.

749,549. **STEAM-CONDENSER.** WILLIAM F. FRICKE, Mount Sterling, Ill. Filed Oct. 19, 1903. Serial No. 177,529. (No model.)



Claim.—1. In a steam-condenser, the combination of a shell having an inlet at its bottom and an outlet at its top for steam, and also having its top inclined downwardly from its center, a spray-pipe surrounding the steam-outlet of the shell, and adapted to be connected with a source of cold-water supply, an upright tubular water-receptacle arranged in the shell, above the steam-inlet, and adapted to be connected to a source of cold-water supply; said receptacle having bottom and top and inner and outer side walls, and being open at its lower and upper ends, and a pipe leading from the upper portion of said receptacle, and arranged to discharge on the top of the shell.

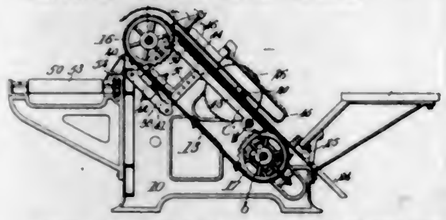
2. In a steam-condenser, the combination of a shell having an inlet at its bottom and an outlet at its top for steam, and also having its top inclined downwardly from its center, a water-receptacle arranged in the shell, and adapted to be connected with a source of water-supply, a pipe leading from the upper portion of said receptacle, and arranged to discharge on the top of the shell, and a pan connected to the bottom of the shell, and arranged to receive water from the outer side thereof.

3. In a steam-condenser, the combination of a shell having an inlet and an outlet for steam, means for discharging water on the top of the shell, a pan connected to the bottom of the shell, and arranged to receive water from the outer side thereof, and a foraminated guard surrounding and connected to the shell.

4. In a steam-condenser, the combination of a shell having an inlet at its bottom and an outlet at its top for steam, and also having its top inclined downwardly from its center, a spray-pipe surrounding the steam-outlet of the shell, and adapted to be connected with a source of cold-water supply, and an upright tubular water-receptacle arranged in the shell, above the steam-inlet, and adapted to be connected to a source of cold-water supply; said receptacle having bottom and top and inner and outer side walls, and being open at its lower and upper ends, a pipe leading from the upper portion of said receptacle, and arranged to discharge on the top of the shell, a pan connected to the bottom of the shell, and arranged to receive water from the outer side thereof, a foraminated guard surrounding and connected to the shell, and air-inlet pipes grouped about the steam-inlet of the shell, and extending upwardly in the same.

5. In a steam-condenser, the combination of a shell having a steam-inlet at its bottom, and also having a vent, an upright, tubular water-receptacle arranged in the shell, above the steam-inlet, and open at its lower and upper ends; said receptacle having inner and outer side walls and top and bottom walls, and being adapted to be connected with a source of water-supply, and a worm of pipe disposed within the receptacle, and also adapted to be connected with a source of water-supply.

749,550. **MACHINE FOR TRIMMING AND MATCHING THE ENDS OF FLOORING.** ELISHA J. FULGHUM, Traverse City, Mich., assignor of one-half to Traverse City Iron Works, Traverse City, Mich. Filed Aug. 18, 1902. Serial No. 120,080. (No model.)



Claim.—1. A machine of the character described comprising a frame, and a carrier having bars adapted to engage the flooring near one end thereof and provided with a curved or offset portion over which the disengaged end of the flooring is adapted to swing.

2. A machine of the character described, comprising a frame, and a carrier having bars each provided with a short member adapted to engage the flooring near one end thereof, and a longer depressed member over which the disengaged end of the flooring is free to swing.

3. A machine of the character set forth, comprising a frame, and a carrier having bars each provided with engaging lugs near one end, the opposite end thereof being depressed to permit the disengaged end of the flooring to swing thereover.

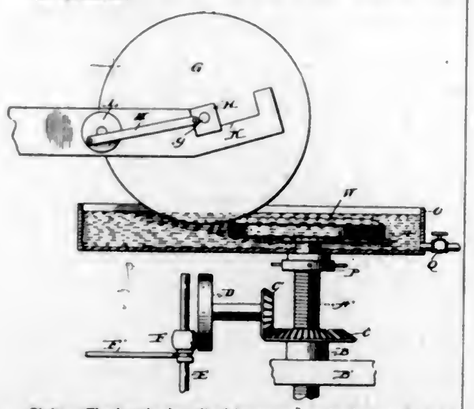
4. A machine of the character described, comprising a frame, a carrier having bars adapted to engage the flooring near one end and provided each with a curved or offset portion over which the disengaged end of the flooring is adapted to swing, cutting mechanism adjacent to the engaging portions of said bars, and means for simultaneously operating said carrier and cutting mechanism.

5. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring.

6. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring, and means for regulating the pressure of said plate.

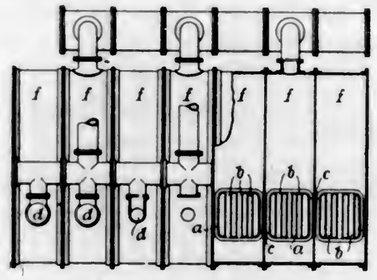
7. In a machine of the character described, the combination with a supporting-frame, and a feed-apron having engaging bars provided with depressed portions over which the disengaged end of the flooring is adapted to swing, of a presser-plate adapted to retard the movement of said flooring, and a threaded rod arranged to limit the movement of the free end of said spring-plate.

749,551. **ART OF BEVELING GLASS OR LIKE SUBSTANCES.** CHARLES L. GOEHRING and WILLIAM TROCHE, Akron, Ohio; said Troche assignor to said Goehring. Filed Sept. 9, 1901. Serial No. 74,751. (No specimens.)



Claim.—The herein-described improvement in the art of grinding glass plates, which consists in immersing the part of the plate to be ground and grinder at the grinding-point, in a body of liquid and maintaining the same immersed during the grinding operation.

749,552. **EVAPORATING APPARATUS.** WOLDEMAR GREINER, Brunswick, Germany. Filed Jan. 19, 1903. Serial No. 139,660. (No model.)



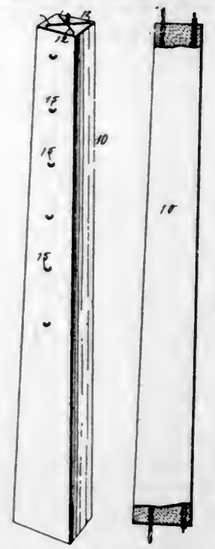
Claim.—In an evaporating apparatus, a chamber formed of a series of uniform removable sections, a series of independent heating-chambers located in said chamber and extending transversely and from side to side thereof, each of said heating-chambers being carried by one of said sections and having a series of separated upright open-ended tubes piercing its top and bottom, said chambers being separated and arranged in parallel relation to each other, substantially as described and for the purpose set forth.

749,553. **INCANDESCENT GAS-BURNER.** GEORGE GRICK and HARRY DEWEY, Birmingham, England. Filed Aug. 31, 1903. Serial No. 171,452. (No model.)



Claim.—The combination with the burner provided with a central upwardly-projecting cone and a mantle suitably supported upon and about said burner, of an independent and removable diffuser supported upon such burner, said diffuser comprising a conical-shaped piece of sheet metal centrally apertured for the passage therethrough of the burner-support and provided at its lower edge with an annular upturned portion, substantially as and for the purpose described.

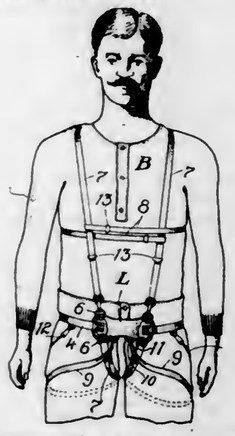
749,554. **FENCE-POST AND ELECTRICAL CONDUCTOR.** CHARLES E. GRIFFIN, Sac City, and HAROLD A. LOW, Lake City, Iowa. Filed Aug. 11, 1903. Serial No. 169,160. (No model.)



Claim.—1. As a new article of manufacture, a solid composition post having electric-wire conductors embedded therein to extend longitudinally from end to end and their ends projected beyond the ends of the post and connected to produce conductor-points, and means for electrically connecting fence-wires with said embedded electric-wire conductors for the purpose stated.

2. An electric conductor consisting of a solid post made of plastic composition and wires extended therethrough longitudinally and their ends connected to produce conductor-points extending beyond the ends of the post and short pieces of wire fastened at their ends to the longitudinal wires inside of the post and their centers projected outside of the posts in the form of loops for connecting fence-wires therewith.

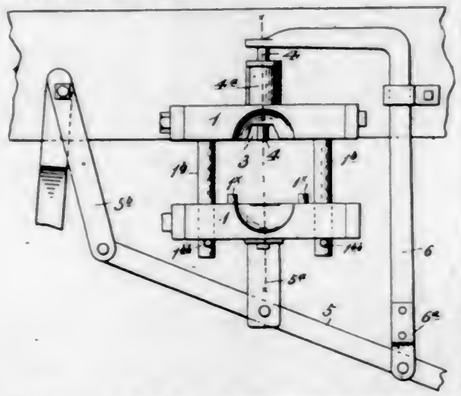
749,555. **TRUSS.** JACOB HARRIS, St. Louis, Mo. Filed Sept. 8, 1903. Serial No. 172,339. (No model.)



Claim.—A truss comprising a bridge-piece, pads carried thereby, shoulder-braces adapted to girdle the trunk, a waistband coupled

to the opposite ends of the bridge-piece, leg-straps for drawing down the bridge-piece, breast-straps encircling the chest and having their opposite ends secured to the corresponding members of the shoulder-braces in front and in the back, and cords coupling the front of the waistband to the rear lower ends of the shoulder-braces, and passing around the body below the waist-line, substantially as set forth.

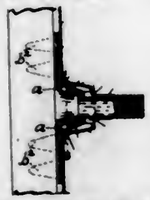
749,556. MOLD FOR MANUFACTURING WHEELBARROW-WHEELS. THOMAS D. HARRIS, Ashboro, N. C., assignor of one-half to Emmett Leonidas Moffitt, Ashboro, N. C. Filed Aug. 29, 1903. Serial No. 171,272. (No model.)



Claim.—1. A mold of the character described, comprising duplicate members, a spring-retracted plunger arranged to enter the "gate" or sprue, a lever suitably pivoted in position and connected to the movable member and carrying an arm adapted to actuate said plunger.

2. A mold of the character described, comprising duplicate members, one member having a spring-retracted plunger arranged to enter the "gate" or sprue, means for housing the means for automatically retracting said plunger, a hand-lever suitably pivoted in position and connected to the movable member, and an arm connected to said hand-lever and adapted to actuate said plunger.

749,557. TOP-PROP. HENRY HIGGIN, Newport, Ky., assignor to the Higgin Manufacturing Company, Newport, Ky. Filed Nov. 10, 1903. Serial No. 180,528. (No model.)

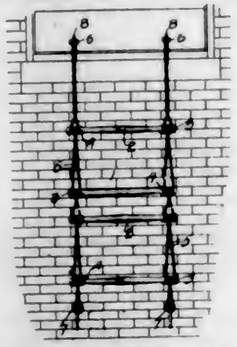


Claim.—1. A top-prop consisting of a stem having an enlarged head provided with one or more lugs; a ductile-metal base-plate formed with a socket open from the rear to receive the head of the stem, open at the front to permit the passage of the stem, and having notches to receive the lugs on the head of the stem; and permanent lugs on the shank of the stem in front of the socket adapted to prevent removal of the stem, substantially as specified.

2. A top-prop consisting of a stem having an enlarged head provided with one or more lugs; a ductile-metal base-plate formed with a socket open from the rear to receive the head of the stem, open at the front to permit the passage of the stem and having notches to receive the lugs on the head of the stem; permanent lugs on the shank of the stem in front of the socket adapted to prevent removal of the stem; and a bell adapted to take over the socket and stem and provided with notches to engage the lugs on the shank of the stem, substantially as specified.

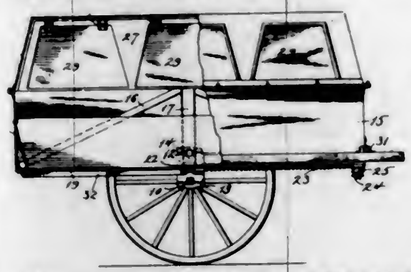
749,558. FIRE-ESCAPE. MAX HIRSCH, New York, N. Y. Filed Sept. 24, 1903. Serial No. 174,491. (No model.)

Claim.—1. A fire-escape comprising a ladder, formed of a series of rungs, each having enlargements at its ends forming rope-engaging spaces, ropes arranged in pairs at each end of said rungs, the ropes of said pairs being wrapped around the ends of said rungs in opposite directions, whereby said rungs are supported at suitable distances apart, means for preventing said ropes from slipping on said rungs, and means for securing the upper ends of said ropes to a building, substantially as described.



2. A fire-escape comprising a ladder, formed of a series of rungs, each having enlargements at its ends forming rope-engaging spaces, ropes arranged in pairs at each end of said rungs, each rope of said pairs being wrapped around the ends of said rungs in opposite directions, whereby said rungs are supported at suitable distances apart, means for preventing said ropes from slipping on said rungs, supporting-rings secured to the upper doubled ends of said ropes, screw snap-hooks adapted to be secured to the window-sill of a building to receive said supporting-rings, and devices secured to the lower ends of said ropes to which may be secured a second fire-escape, substantially as described.

749,559. DUMPING-CART. JOHN HOVAS, New York, N. Y. Filed Sept. 21, 1903. Serial No. 174,025. (No model.)



Claim.—1. A device of the character described, comprising a tilting body provided with a slidable bottom, and means for operating said bottom.

2. A device of the character described, comprising a body provided with guideways, a bottom slidable in said guideways, and inclined plates secured along the inner walls of the sides of the body and designed to direct the contents of the body onto said bottom.

3. A device of the character described, comprising a body provided with guideways, a bottom slidable in said guideways, and inclined plates projecting over said guideways, as and for the purpose set forth.

4. A device of the character described, comprising a tilting body provided along the bottom edges of its sides with guide-strips forming longitudinal guideways, a bottom slidable in said guideways, and longitudinally-extending plates secured to the opposite sides of the body and angular in cross-section, said plates being inclined and projecting over said guide-strips, as and for the purpose set forth.

5. A device of the character described, comprising an axle, vertical posts secured thereto, trunnions mounted in said posts, a body mounted to tilt in a vertical plane on said trunnions and provided with a slidable bottom, a rack-bar secured to said bottom, and a pinion mounted on the body and meshing with said rack-bar, as and for the purpose set forth.

749,560. LOCK FOR THE ADJUSTABLE BACKS OF LOOSE-LEAFED LEDGERS, ACCOUNT-BOOKS, &c. ANDREW D. HULQUIST, Chicago, Ill., assignor to J. S. McDonald, Chicago, Ill. Filed May 28, 1903. Serial No. 159,111. (No model.)



Claim.—1. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

2. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

3. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end which increases in depth as it extends from the extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

4. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

5. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt and increasing in depth as it extends from the adjacent extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

6. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is circumferentially grooved; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

7. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

8. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

9. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end which increases in depth as it extends from the adjacent extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

10. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove, and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

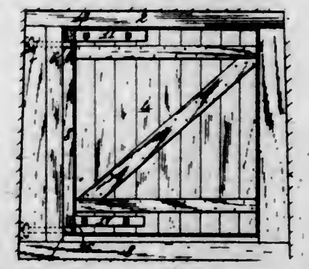
11. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt and increasing in depth as it extends from the adjacent extremity to said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the same together when in one position and unlocking them when in the reverse position.

12. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates, and having its unsecured end increased in diameter and forming a head having an elongated pocket therein; a tube secured to the other plate having a restricted opening in its unsecured end through which the body of said bolt passes into the tube; and a ball seated in said pocket, as and for the purposes set forth.

13. A lock comprising clamping-plates; a rotatable bolt secured to and projecting from one of said plates, and having its unsecured end increased in diameter and forming a head having an elongated pocket therein arranged oblique to the axis of the bolt and increasing in depth as it extends from the extremity of the bolt; a tube secured to the other plate having a restricted opening in its unsecured end through which the body of said bolt passes into the tube; and a ball seated in said pocket, as and for the purposes set forth.

14. A lock comprising clamping-plates one of which has a countersunk opening therein; a headed screw extending through said opening; a bolt into the end of which said screw is tapped and which has a head of increased diameter at its other end that has an elongated pocket therein; a tube secured to the other plate having a restricted opening in its unsecured end through which the body of said bolt passes into the tube; and a ball seated in said pocket, as and for the purposes set forth.

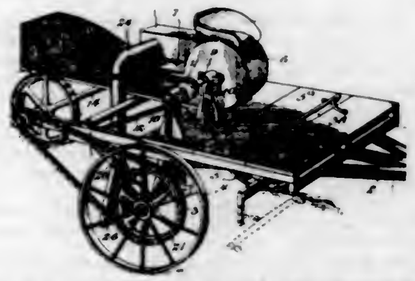
749,561. HINGE FOR MINE-DOORS. THOMPSON JEFFREY, Pittsburg, Ky. Filed June 27, 1903. Serial No. 163,381. (No model.)



Claim.—The combination with a door for mine-galleries, of a pair of hinges each comprising a yoke to straddle the door, and an eye member projecting beyond the yoke, the upper member being provided with a single eye and the lower member with a pair of eyes, a pair of pintle members secured to the door-frame and projecting beyond the same, the upper member being provided with a single pintle and the lower member with a pair of pintles, and a filler-block interposed between the two pintle members and bearing against the under side of the upper member and the upper side of the lower member, said filler-block performing the double function of a closure for the space between the inner edge of the door and its support, thereby to prevent escape of air, and to transmit the strain from the upper pintle member to the lower pintle member, thereby in a positive manner to prevent sagging of the door with attendant danger of the same binding in its frame, substantially as and for the purpose specified.

749,562. MACHINE FOR COLLECTING INSECTS FROM PLANTS. BENJAMIN F. JOHNSON, Beeville, Tex. Filed Jan. 17, 1903. Renewed Feb. 3, 1903. Serial No. 141,704. (No model.)

Claim.—1. In a machine of the character described, the combination with a vehicle, of a receiver, a pair of combined shaking and suction tubes arranged for disposal at opposite sides of a row of plants and provided with yielding downwardly-opening funnels at their lower ends, and a suction device disposed to draw insects and infected vegetation through the tubes and deposit the same in the receiver.



2. In a machine of the character described, the combination with a vehicle, of a receiver, a pair of yieldingly-mounted downwardly-opening funnels arranged for disposal at opposite sides of a row of plants to shake the same as the vehicle advances, and a suction device disposed to draw insects and infected vegetation through said funnels from the ground and deposit the same in the receiver.

3. In a machine of the character described, the combination with a vehicle, of a receiver, a pair of suction-tubes arranged for disposal at opposite sides of a row of plants, downwardly-opening funnels disposed at the lower ends of the tubes, flexible joints connecting the funnels with the tubes to permit lateral yielding of the funnels in order to prevent injury to the latter or to the plants, and a suction device disposed to draw insects and infected vegetation through said funnels from the ground and deposit the same in the receiver.

4. In a machine of the character described, the combination with a vehicle, of a fan-casing mounted thereon, a receiver and a vacuum-chamber both in communication with the fan-casing, a pair of suction-tubes communicating at their upper ends with the vacuum-chamber and extending into close proximity with the ground opposite to which, their open lower ends are disposed, a fan within the casing, and means for operating the fan to draw insects and infected vegetation through the tubes and deposit the same in the receiver.

5. In a machine of the character described, the combination with a vehicle, of a fan-casing mounted thereon, and having its spout rearwardly disposed, an open-work receiver disposed in rear of the spout, a vacuum-chamber communicating with one side of the fan-casing and extended rearwardly, a pair of combined shaking and suction tubes extending from the rear end of the vacuum-chamber and arranged for disposal at opposite sides of a row of plants, downwardly-opening funnels located at the lower ends of said tubes, a fan within the fan-casing, and means for operating the fan through the movement of the vehicle to draw insects and infected vegetation from the ground through the tubes and vacuum-chamber and deposit the same in the receiver.

6. In a machine of the character described, the combination with a vehicle, of a receiver, a suction-tube, a downwardly-opening flat-sided funnel located at the lower end of the suction-tube to constitute a shaker for the plants, and a suction device disposed to draw insects and infected vegetation through the funnel and tube and deposit the same in the receiver.

7. In a machine of the character described, the combination with a vehicle, of a receiver, a pair of suction-tubes arranged for disposal at opposite sides of a row of plants, downwardly-opening flat-sided funnels located at the lower ends of the tubes and having their greatest diameters disposed transversely of the machine, and a suction device disposed to draw insects and infected vegetation through the funnels and deposit the same in the receiver.

8. In a machine of the character described, the combination with a vehicle, of a receiver mounted thereon and having open-work walls, a pair of suction-tubes depending at opposite sides of the receiver for disposal at opposite sides of a row of plants, downwardly-opening flat-sided funnels located at the lower ends of the tubes with their greatest diameters disposed transversely of the machine and constituting shakers for the plants, flexible joints connecting the tubes and funnels to permit lateral yielding of the latter, and a suction device disposed to draw insects and infected vegetation through the tubes and deposit the same in the receiver.

9. In a machine of the character described, the combination with a wheeled vehicle, of a receiver mounted thereon and having open-work walls, a pair of pendent suction-tubes located at opposite sides of the receiver, downwardly-opening funnels having flexible connection with the lower ends of the tubes to yield laterally, a fan-casing in communication with the tubes and receiver, respectively, a fan within the fan-casing, and gearing between a vehicle-wheel and said fan, whereby the advance of the vehicle will cause the plants to be shaken by contact with the funnels and will operate the fan to draw insects and infected vegetation through the suction-tubes from the ground and deposit the same in the receiver.

10. In a machine of the character described, the combination with a vehicle comprising a frame and carrying-wheels, of a fan-casing mounted on the frame, a fan-shaft piercing the casing, a fan mounted on the shaft, a counter-shaft located at the rear end of the frame, gearing connecting the counter-shaft with the fan-shaft and with one of the vehicle-wheels, a receiver extending rearwardly from the spout of the fan-casing, suction-tubes disposed at opposite sides of the receiver, downwardly-opening flat-sided funnels having flexible connection with the lower ends of the tubes to yield laterally, and a vacuum-chamber having communication with said tubes and with the fan-casing, whereby insects and infected vegetation may be drawn up through the tubes from the ground adjacent to the plants and deposited in the receiver by the action of the fan as the vehicle advances.

11. In a machine of the character described, the combination with a vehicle comprising a frame and wheels, of a fan-casing mounted on the vehicle, a receiver extending from the spout of the casing, a pair of vertically-disposed, downwardly-opening suction-tubes communicating with the casing and arranged for disposal at opposite sides of a row of plants, a fan within the casing, a fan-shaft carrying the fan, a counter-shaft disposed at one end of the vehicle-frame and geared to the fan-shaft, sprocket-wheels connected to each of the vehicle-wheels, clutch-collars fixed to the counter-shaft, comparatively small sprocket-wheels splined upon the counter-shaft and having clutch-hubs disposed for engagement with the clutch-collars on said shaft, springs disposed to urge the clutch-hubs and collars into engagement, and sprocket-chains gearing the vehicle-wheel sprockets with the small sprockets on the counter-shaft, whereby the retardation of one of the vehicle-wheels in turning the vehicle at the end of a row will not effect the retardation of the fan.

12. In a machine of the character described, the combination with a vehicle comprising a frame, an axle, and carrying-wheels, of a fan-casing mounted on the vehicle directly above the axle, a driver's seat mounted on the fan-casing, a receiver, suction-tubes communicating with the fan-casing and having downwardly-opening funnels, a fan within the casing, and means for operating the fan to draw the insects from the ground.

13. In a machine of the character described, the combination with a vehicle, of a receiver, a suction-tube arranged for disposal adjacent to a row of plants and provided with a yieldingly-mounted downwardly-opening funnel at its lower end, and a suction device disposed to draw insects and infected vegetation through the tube from the ground and deposit the same in the receiver.

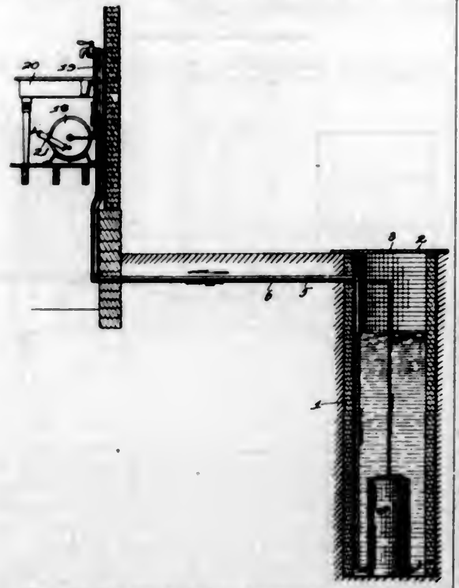
14. In a machine of the character described, the combination with a vehicle, of a fan-casing mounted thereon, a receiver and a vacuum-chamber both in communication with the fan-casing, a downwardly-opening suction-tube communicating at its upper end with the vacuum-chamber and extending into close proximity to the ground, a fan within the casing, and means for operating the fan to draw insects and infected vegetation through the tube from the ground and deposit the same in the receiver.

15. In a machine of the character described, the combination with a vehicle, of a fan-casing mounted thereon, and having a rearwardly-disposed spout, an open-work receiver disposed in rear of the spout, a vacuum-chamber communicating with one side of the fan-casing and extended rearwardly, a suction-tube extending from the rear end of the vacuum-chamber, and arranged for disposal adjacent to a row of plants, a downwardly-opening funnel located at the lower end of said tube, a fan within the casing, and means for operating the fan.

16. The combination of a frame supported by wheels, a receptacle mounted upon said frame, a conduit including a flexible section extending from the receptacle toward the ground, means for creating suction through the conduit, and a flattened and laterally-extended mouthpiece for said conduit.

17. The combination of a frame supported by wheels, a receptacle mounted upon said frame, two conduits including flexible sections extending from the receptacle toward the ground, means for creating suction through the conduits, and a flattened and laterally extended mouthpiece for each conduit.

749,563. HYDRANT SYSTEM FOR COUNTRY HOUSES. JOHN JOHNSON and EMIL HITZ, St. Louis, Mo. Filed Oct. 20, 1903. Serial No. 177,823. (No model.)



Claim.—1. The improved hydrant system for country houses, comprising a submerged tank having water inlet and exit connections at its lower end and an air-inlet at its upper portion, a combined air and water faucet located in a distant apartment and having a water-controlling handle, a water-pipe extending from said faucet to the water-exit of said tank, an air-controlling device operated by the same faucet-handle which controls the flow of water from said tank, a compressed-air reservoir, a pipe connecting said reservoir to said faucet, and a pipe connecting said faucet to the top of the submerged tank, substantially as described.

2. The improved hydrant system for country houses, comprising a submerged tank having water inlet and exit connections at its lower end and an air-inlet at its upper portion, a combined air and water faucet located in a distant apartment and having a water-controlling handle, a water-pipe extending from said faucet to the water-exit of said tank, an air-controlling device operated by the same faucet-handle which controls the flow of water from said tank, a compressed-air reservoir, a pipe connecting said reservoir to said faucet, a pipe connecting said faucet to the top of the submerged tank, and an exhaust-port in said faucet adapted to be thrown into communication with said air-pipe by the movement of said handle, substantially as specified.

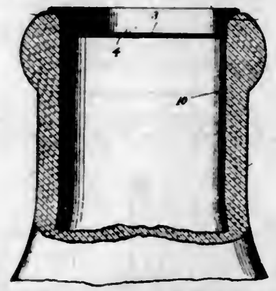
749,564. PROCESS OF PREPARING RICE FOOD PRODUCTS. JOHN W. JOHNSON and LEE LOCK, Upper Sandusky, Ohio. Filed Oct. 2, 1903. Serial No. 175,473. (No specimens.)

Claim.—1. The process of preparing rice which consists in cooking the same until it is in nearly edible condition, then drying until it is in an approximately dry condition, and then swelling and parching the same by spreading it upon heated sand, substantially as set forth.

2. The process of preparing rice which consists in cooking the same by boiling it, then drying it until the moisture is nearly removed, and then swelling and parching it by spreading it upon a surface covered with sand heated to the requisite temperature, substantially as set forth.

749,565. BOTTLE-STOPPER. JOHN A. JONES, New York, N. Y. Filed June 6, 1902. Serial No. 110,511. (No model.)

Claim.—1. The combination with a bottle, of a thin strengthening member and a thin flexible sealing member cooperative for sealing the mouth of the bottle and located substantially in a common sealing plane in which the sealing member is of greater diameter than the strengthening member and the strengthening member is out of contact with the walls of the bottle and is isolated from the contents of the bottle by the sealing member.



2. The combination with a bottle, of a sheet-metal stopper and a thin flexible sealing member cooperative for sealing the mouth of the bottle and located in a common sealing plane in which the sealing member is of greater diameter than the strengthening member and the strengthening member is out of contact with the walls of the bottle and is isolated from the contents of the bottle by the sealing member.

3. The combination with a bottle, of a thin slightly-elastic strengthening member and a thin flexible sealing member cooperative for sealing the mouth of the bottle and located substantially in a common sealing plane in which the sealing member is of greater diameter than the strengthening member and the strengthening member is out of contact with the walls of the bottle and is isolated from the contents of the bottle by the sealing member.

4. The combination with a bottle having a seat, of a thin strengthening member of greater diameter than the internal diameter of said seat and a thin flexible sealing member cooperative for sealing the mouth of the bottle and located substantially in a common sealing plane in which the sealing member is of greater diameter than the strengthening member and the strengthening member is out of contact with the walls of the bottle and is isolated from the contents of the bottle by the sealing member.

5. The combination with a bottle having a seat, of a thin strengthening member adapted to be supported by said seat and out of contact with the walls of the bottle in the sealing plane, and a flexible sealing member cooperative with said strengthening member and of greater diameter than the adjacent portion of the strengthening member and serving to isolate said strengthening member from the contents of the bottle.

6. The combination with a bottle, of a sheet-metal cup, and a thin flexible sealing member surrounding and of greater diameter than the sealing portion of said cup and cooperative therewith for sealing the mouth of the bottle and serving to isolate said strengthening member from the contents of the bottle.

7. The combination with a bottle, of a sheet-metal cup having a tapering sealing portion, and a thin flexible sealing member surrounding and of greater diameter than the sealing portion of said cup and cooperative therewith for sealing the mouth of the bottle and serving to isolate said strengthening member from the contents of the bottle.

8. The combination with a bottle, of a sheet-metal cup having a rim of sufficient diameter to seat itself on the end of the bottle-mouth and also having a sealing portion of smaller diameter, and a thin flexible sealing member of greater diameter in the sealing plane than the adjacent portion of said cup and cooperative with said cup for sealing the mouth of the bottle and serving to isolate said strengthening member from the contents of the bottle.

9. The combination with a bottle, of a sheet-metal cup having a rim of sufficient diameter to seat itself on the end of the bottle-mouth and also having a sealing portion of smaller diameter, and a thin flexible sealing member surrounding and of greater diameter than the sealing portion of said cup and cooperative therewith for sealing the mouth of the bottle and serving to isolate said strengthening member from the contents of the bottle.

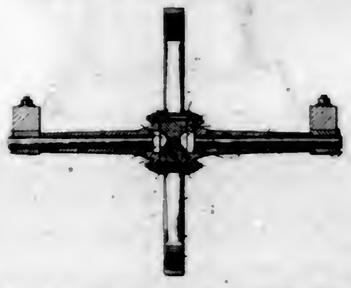
10. A bottle-stopper comprising a thin strengthening member, and a thin flexible sealing member permanently secured thereto and of greater diameter in the sealing plane of the stopper than said strengthening member.

11. A bottle-stopper comprising a sheet-metal strengthening member having a seam, and a thin flexible sealing member in locking engagement with said seam and of greater diameter in the sealing plane of the stopper than said strengthening member.

12. A bottle-stopper comprising a sheet-metal cup, and a thin flexible sealing member secured to said cup and of greater diameter in the sealing plane of the stopper than said cup.

13. A bottle-stopper comprising a sheet-metal cup having a peripheral seam, and a thin flexible sealing member surrounding said cup and in locking engagement with said seam.

749,566. **BARROW-WHEEL.** CHARLES E. KNOCH, Charleroi, Pa. Filed Mar. 7, 1903. Serial No. 146,656. (No model.)



Claim.—1. In a barrow-wheel, the combination, with a wheel-body having a central hub forming part thereof, two removable gudgeons, one of the said gudgeons extending through each of the spindles substantially as and for the purposes set forth.

2. In a barrow-wheel, the combination, with a wheel-body having a circular concave socket, on each side and in the center thereof, of a spindle attached to each side of the body and each having a removable gudgeon extending through the same, and each gudgeon having a spherical end to fit said socket substantially as set forth and described.

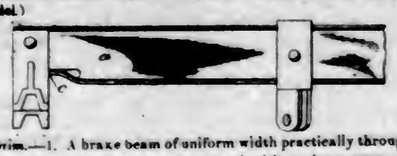
3. In a barrow-wheel, the combination, with a wheel-body having a central hub forming part thereof, the said hub having beveled peripheries, of metallic spindles attached by the flanges to each side of said hub, each of the said flanges is provided with a projection, adapted to fit on the periphery on the said hub, and removable gudgeons, substantially as set forth and described.

4. In a barrow-wheel, the combination, with a wheel-body having a central hub forming part thereof, of spindles attached to the sides of the said hub, each spindle having a central countersink in the inner end, and each spindle having a removable gudgeon, each of the said gudgeons is provided with an angular countersunk head on the inner end, substantially as set forth and described.

5. In a barrow-wheel, the combination, with a wheel-body having a circular concave socket on each side of the hub and in the center thereof, of spindles attached to the sides of the said hub, each spindle having a central countersink in the inner end thereof and a removable gudgeon, the said gudgeon being provided with an angular countersunk headed inner end and spherical head adapted to fit the said countersink and socket substantially as set forth and described.

6. In a barrow-wheel, the combination, with a wheel-body having a central hub forming part thereof, of metallic spindles attached to the side of the said hub, each of the said spindles are provided with a gudgeon, flange, and two bands, each encircling the edge of said flange and part of the periphery of the said hub, substantially as and for the purposes set forth.

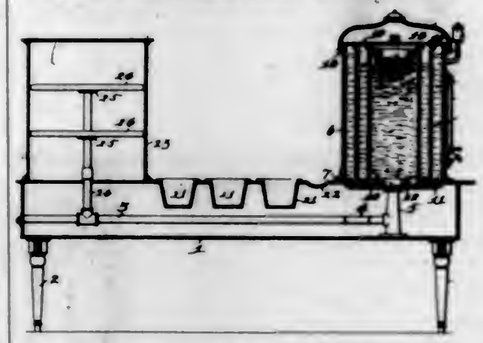
749,567. **BRAKE-BEAM.** ROBERT P. LAMONT, Chicago, Ill., assignor to Simplex Railway Appliance Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 14, 1903. Serial No. 177,068. (No model.)



Claim.—1. A brake beam of uniform width practically throughout its length but having an end reduced with a sharp curve, the web being cut out with a slot having a round inner end and the two parts being pressed together, substantially as described.

2. A brake beam composed of an I-beam of the same width practically throughout its length except the ends, and the end portion having an abrupt reduction formed by pressing the two flanges toward each other, the beam having a short slit in the end lying close against the flange of the beam and the end of the slit being made round, substantially as described.

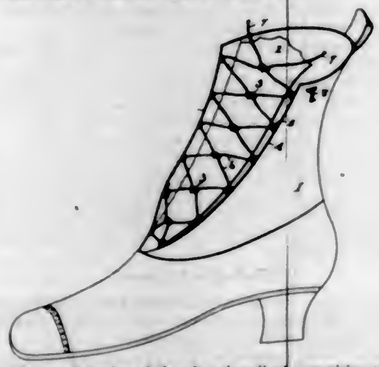
749,568. **STEAM-COOKER.** WILLIAM L. LOESER, St. Louis, Mo. Filed May 21, 1903. Serial No. 158,095. (No model.)



Claim.—1. In a steam-cooker, a tank, circulating steam-pipes extending into the said tank, a liquid-receptacle mounted upon the tank and having its interior formed into a series of compartments, a circulating-pipe within each of said compartments, and means for admitting the steam to said pipes from the first-mentioned pipe whereby the liquids will be heated, substantially as specified.

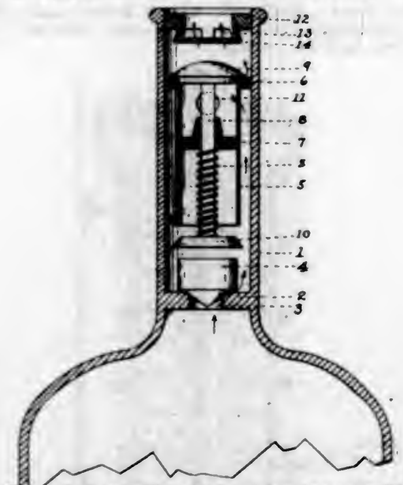
2. A steam-cooker, consisting of a tank, a liquid-receptacle mounted upon the said tank, a plurality of compartments formed within said receptacle, a circulating-pipe within each of said compartments, a connecting-pipe connecting all of said pipes, and means for admitting steam into the said pipes from any suitable source of steam-supply, substantially as specified.

749,569. **SHOE-LACING.** EMIL C. LUER, Reading, Pa. Filed Mar. 6, 1903. Serial No. 146,573. (No model.)



Claim.—A device of the class described comprising two members to be fastened, a tongue intermediate the members and located beneath the edges thereof, a plurality of eyelets arranged along the adjacent edges of the members above the tongue, and a plurality of alined, raised and closed eyelets secured to the upper face of the tongue along the central line thereof, the eyelets on the edges of the two members being arranged directly opposite and in line with each other, and the eyelets on the tongue being arranged in a staggered relation thereto and of a size as to stand between the edges of the members, whereby said eyelets are protected by the edges of the members, all of the eyelets standing out of contact with each other when the said edges are drawn toward each other, a lacing-cord passing once through each of the eyelets on the edges of the members and twice through the eyelets on the tongue and out of contact, and a spring-clamp carried by one of the members for engaging the free ends of the lacing.

749,570. **NON-REFILLABLE BOTTLE.** EMIL C. LUER, Reading, Pa. Filed Sept. 5, 1903. Serial No. 172,066. (No model.)



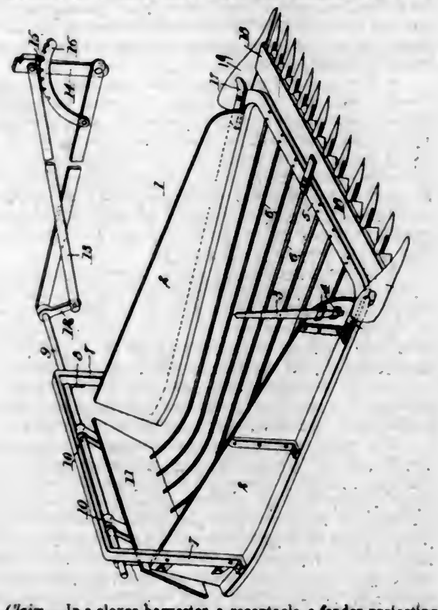
Claim.—In a non-refillable bottle a circular internal shelf 2 having a central opening 3 formed near the lower end of the bottle-neck, a weight 4 having a tapered bottom adapted to close the opening in said shelf, a tube 5 formed with a ring 6 at its top located above said weight, said tube having a series of openings 11 beneath said ring and a diaphragm formed about midway of its length, a rod 8 passing through said diaphragm and carrying a valve 9 on its upper end and a disk 10 on its lower end, a spring *s* encircling said rod between said diaphragm and disk and a sleeve 12 located in the mouth of the bottle comprising a ring having depending arms 13 carrying a circular disk 14, all substantially as and for the purpose described.

749,571. **FOLDING TABLE.** WILLIAM J. MARRETT, Leeds, Md. Filed July 1, 1903. Serial No. 163,927. (No model.)



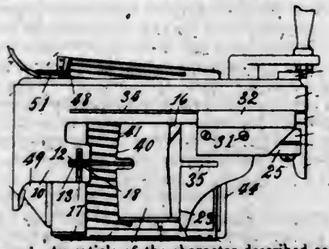
Claim.—A folding table comprising a table-top, cleats secured at opposite sides and to the under portion thereof, said cleats having sockets adapted to receive the end braces, legs hinged to said cleats and adapted to fold inward toward each other, said legs being constructed in an X shape, the lower portions of the members of each leg being connected by a cross-bar 5 provided with a central oblique tenon-hole and a vertical aperture, both extending therethrough a hinge-block arranged centrally of the table-top and secured to the lower surface thereof, hinge members secured at the opposite ends thereof, braces rearwardly pivoted at one end to the hinge members and having their opposite ends provided with a tenon, said tenons having apertures adapted to register with the vertical apertures of the cross-bars of the legs, said tenons being adapted to be removably inserted in the tenon-holes of the cross-bars, pins attached to the braces by flexible connections adapted to be inserted through the registering apertures, lugs on the hinge-block, a handle secured thereto, spacing-blocks at opposite sides of the hinge-block said blocks being positioned far enough from the hinge-block to receive the braces, and buttons pivoted to the spacing-blocks.

749,572. **CLOVER-HARVESTER.** ALBE D. MILLER, Portland, Ind. Filed Mar. 11, 1903. Serial No. 147,262. (No model.)



Claim.—In a clover-harvester, a receptacle, a fender projecting from the receptacle, standards at the rear of the receptacle, a shaft supported by the standards and a door hinged to the shaft, fingers having upturned ends projecting beyond the standards, the said door resting against the ends of the fingers, means for partially rotating shaft, hooks with outturned ends on the front end of the receptacle, a cutting-bar, and shoes on the cutting-bar for engaging the ends of the hooks.

749,573. **LEMON-SQUEEZER.** DOREB H. MOSTELLER, San Francisco, Cal., assignor of one-half to Clay Peters, San Francisco, Cal. Filed Aug. 17, 1903. Serial No. 169,727. (No model.)



Claim.—1. An article of the character described comprising a knife, a suitable support upon which the fruit is dropped, and provided with means for centering the fruit in front of the knife, a presser-plate for pushing the fruit against the knife to cut the same, a wall behind said knife between which and the presser-plate the fruit is squeezed, a suitable discharging device for receiving the fruit and juice and discharging them, and means for separating the fruit from the juice, substantially as described.

2. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, and means for receiving the fruit and juice from the space between said wall and presser-plate and separating the juice from the pulp, substantially as described.

3. In an article of the character described, the combination of knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate to-

gether to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, means for shifting the support to permit the fruit to be pressed against said wall, and means for receiving the fruit and juice from the space between said wall and presser-plate and separating the juice from the pulp, substantially as described.

4. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, said support being provided with means for centering the fruit opposite to the knife, a presser-plate, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, and means for receiving the fruit and juice from the space between said wall and presser-plate and separating the juice from the pulp, substantially as described.

5. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate having a slit for the knife to enter, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, and means for receiving the fruit and juice from the space between said wall and presser-plate and separating the juice from the pulp, substantially as described.

6. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate having a slit for the knife to enter, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, means for shifting the support to permit the fruit to be pressed against said wall, and means for receiving the fruit and juice from the space between said wall and presser plate and separating the juice from the pulp, substantially as described.

7. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, said support being provided with means for centering the fruit opposite to the knife, a presser-plate having a slit for the knife to enter, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, and means for receiving the fruit and separating the juice from the pulp, substantially as described.

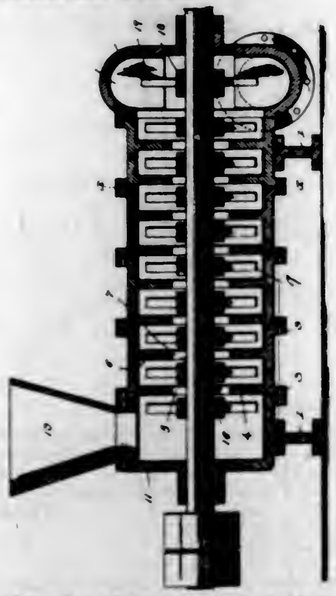
8. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate, a wall on the opposite side of the knife to the presser-plate, the face of said wall having thereon a piece of rubber substantially parallel with the knife, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, and means for receiving the fruit and juice from the space between said wall and presser-plate and separating the juice from the pulp, substantially as described.

9. In an article of the character described, the combination of a knife, a support in front of the knife upon which the fruit can be deposited, a presser-plate, a wall on the opposite side of the knife to the presser-plate, means for bringing said knife and presser-plate together to cut the fruit therebetween and also for bringing said wall and presser-plate together to squeeze the fruit therebetween, a chute for receiving the juice and a slotted inclined plate over said chute for receiving the pulp and seeds, substantially as described.

10. An article of the character described comprising a knife, a suitable support upon which the fruit is dropped, and provided with means for centering the fruit in front of the knife, a presser-plate for pushing the fruit against the knife to cut the same, a wall behind said knife between which and the presser-plate the fruit is squeezed, means for adjusting the position of said wall relative to said presser-plate for various sizes of fruits, a suitable discharging device for receiving the fruit and juice and discharging them, and means for separating the fruit from the juice, substantially as described.

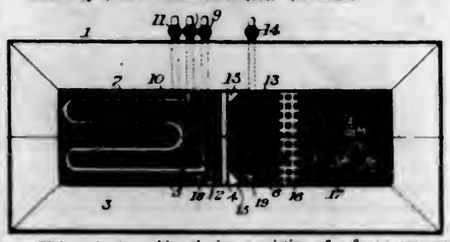
11. An article of the character described comprising a knife, a suitable support upon which the fruit is dropped, and provided with means foc centering the fruit in front of the knife, a presser-plate for pushing the fruit against the knife to cut the same, a wall behind said knife between which and the presser-plate the fruit is squeesed, a suitable discharging device for receiving the fruit and juice and discharging them, means for separating the fruit from the juice, and a suitable casing having a hole through the top through which to drop the fruit provided with means for displaying advertising matter, substantially as described.

749,574. PULVERIZER. MARY W. MCAULEY, Lansing, Mich., administratrix of John G. McAuley, deceased. Filed Oct. 7, 1900. Serial No. 32,334. (No model.)



Claim.—In a pulverizer, a sectional cylindrical casing made up of separable flanged sections comprising a receiving-end section, an exhaust-end section, and a series of intermediate sections with internally-corrugated rims divided by centrally-apertured partitions to form a plurality of beater-chambers in each intermediate section; beaters mounted on a central shaft and turning in said chambers and an exhaust-fan driven by the same shaft in the exhaust-end section.

749,575. WASHTUB. JOHN B. MCLAUGHLIN, Bloomington, Ill. Filed July 9, 1903. Serial No. 164,801. (No model.)

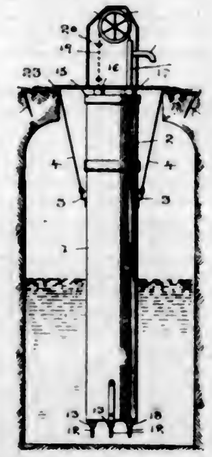


Claim.—1. A washing device consisting of a frame composed of an exterior rim having an opening within the sides of the same and a support therefor, a plurality of tanks in said opening depending from said rim, a heating-pipe in one of said tanks, a rack on the other tank and means on the latter for removably supporting said rack.

2. A washing device consisting of a frame, a tub within said frame having a partition forming a plurality of tanks, a heating-pipe in one of said tanks, a horizontally and transversely extending sustaining and guiding roller in the latter-named tank and a rack and means for removably sustaining the same in the other tank, said roller and rack being on opposite sides of said partition.

749,576. FILTER. WILSON HOLM, Montrose, Iowa. Filed Mar. 4, 1903. Serial No. 146,150. (No model.)

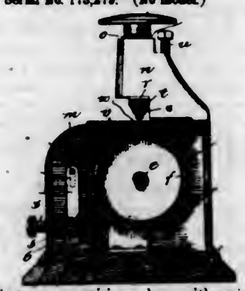
Claim.—1. In a device of the character described, the combination with a cylindrical casing having a filtering-wall at one end thereof, and means for removing the liquid from the casing, of a plurality of radially-disposed flexible connections secured to the casing, and pins or pickets on the ends of the connections to be driven into the ground whereby the casing will be supported within a cistern or well.



2. In a device of the character described, the combination with a cylindrical casing, a spider in one end of the casing, a second spider parallel with the first spider and adjustably disposed with relation thereto, a block interposed between the two spiders, the diameter of which is less than the diameter of the casing, and a filling of cement interposed between the wall of the block and the wall of the casing.

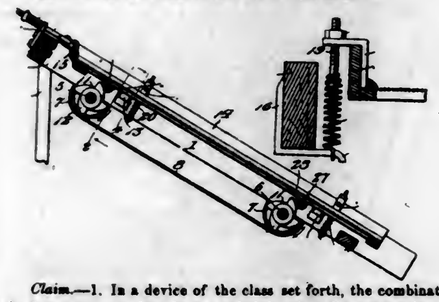
3. In a device of the character described, the combination with a casing, of depending threaded shanks carried by one end of the casing, a filtering-block in the end of the casing having the shanks, a stop for limiting the movement of said block in one direction, a spider bearing against the filtering-block, and threaded nuts on the shanks to adjustably clamp the spider in engagement with the block.

749,577. STAMP. EDMUND COMPADON, Rochester, N. Y., assignor to Dufanco Machine Company, Rochester, N. Y. Filed Sept. 15, 1903. Serial No. 173,279. (No model.)



Claim.—A stamp comprising a base with spring-clips thereon, a casing open at the bottom adapted to engage said clips and provided with an extension and with an opening in its top, a plate provided with a longitudinal slot covering said opening, a type-wheel revolubly mounted in said casing, an indicator-wheel connected to said type-wheel so as to move therewith, an inking-roller adapted to contact with said type-wheel, supports for said roller consisting of a horizontal strip provided with extensions, vertical arms, and a removable rod on which said arms are pivotally mounted, said strip being provided with a projecting pin in its center, a hollow screw passing through the front of said casing, a spiral spring engaging said pin and said hollow screw, a plunger provided with a strip of yielding material on its lower face, a rod supporting said plunger and mounted in a perforation in said extension, a spring encircling said rod, a hand-wheel adapted to be struck by the user, and a screw adjustably mounted in said extension beneath said hand-wheel to limit the downward movement thereof, substantially as described.

749,578. SCREEN. WILLIAM E. POTTER, Sandfort, W. Va. Filed Mar. 28, 1903. Serial No. 150,010. (No model.)



Claim.—1. In a device of the class set forth, the combination of a frame, a screen loosely suspended therein, rollers secured to the screen adjacent opposite extremities of the latter, cam-wheels for engaging the rollers for imparting longitudinal and rising movement thereto, and a spring-controlled adjusting device loosely secured to one end of the center of the screen and operative to throw the latter out of or into engagement with the cam-wheels.

2. In a device of the class set forth, the combination of a rigid frame, a screen, adjustable spring devices for suspending the screen within the frame, rollers secured to the screen adjacent opposite extremities of the latter, cam-wheels for engaging the rollers for imparting longitudinal and rising movement thereto, and a spring-controlled means loosely secured to one end of the center of the screen operative to throw the latter out of or into engagement with the cam-wheels.

3. In a device of the class set forth, the combination of a frame, a screen resiliently and adjustably suspended within the frame, buffers rigidly held on the inner opposing sides of the frame and against which the screen normally bears, cam-wheels for engaging opposite extremities of the under portion of the screen for imparting longitudinal and rising movement thereto, and adjustable means loosely attached to one end of the screen to control the degree of movement thereof or to move it entirely out of engagement with the actuating mechanism to render the screen dead, the said adjustable means having spring-controlling mechanism in connection therewith.

4. In a device of the class set forth, the combination with a frame, of a screen resiliently and adjustably suspended within the frame, cam devices engaging the under side of the screen adjacent to opposite extremities thereof to impart thereto longitudinal and vertical movement, the screen being normally disposed at a downward angle of inclination and unretarded in movement at its lower end, and adjustable means loosely attached to the upper end of the frame and the screen and having a resilient mechanism cooperating therewith which always tends to pull the screen back to normal position in a longitudinal direction.

749,579. CONVERTIBLE CAR. MICHAEL POWER, Toronto, Canada. Filed Aug. 17, 1903. Serial No. 169,771. (No model.)

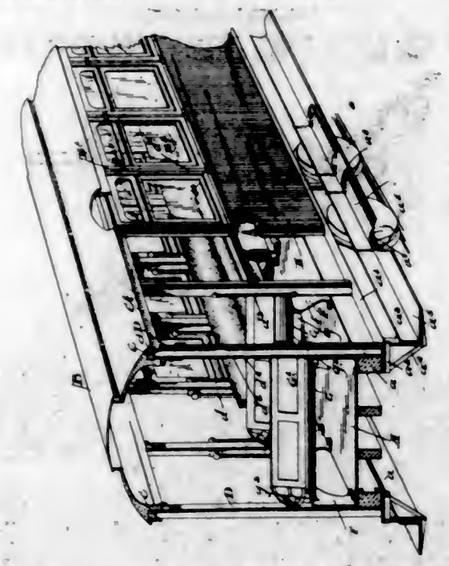
Claim.—1. In a convertible car the combination with the main frame provided with a series of supporting-posts, a series of supporting-standards arranged parallel to the sides of the car at the inside of the posts, suitable seats and detachable means for connecting the seats to the said standards either arranged crosswise of the car or longitudinally parallel to the sides thereof as and for the purpose specified.

2. In a convertible car the combination with the main frame, of a series of supporting-posts, a series of supporting-standards arranged parallel to the side of the car having inwardly-extending lugs, a series of seats and means for securing the said seats to the lugs as and for the purpose specified.

3. In a convertible car the combination with the main frame provided with the vertical supporting-posts, of a series of standards arranged parallel with the side of the car having inwardly-extending slotted lugs, a series of L-shaped hooks secured in proximity to the ends of the seats designed to extend downwardly through the said slots as and for the purpose specified.

4. In a convertible car the combination with the supporting-standards for the seats, of a seat composed of a series of longitudinal bars, a metallic end plate located to each end of the seat to

which the said bars are secured and truss-rods connecting the said end plates together as and for the purpose specified.



5. In a convertible car the combination with the main frame provided with the vertical supporting-posts, a series of standards arranged parallel with the side of the car having inwardly-extending slotted lugs, suitable seat-backing designed to rest upon the said lugs, a depending bolt secured at its upper end to the said seat-backing designed to extend downwardly through the slotted lug, a seat arranged parallelly with the side of the car through which the bolt is designed to extend and be secured and supporting means for supporting the front of the seat as and for the purpose specified.

6. In a convertible car the combination with the main frame provided with a series of supporting-posts, a series of supporting-standards arranged parallel with the side of the car, suitable seat-backing supported upon the said standard, a series of seats arranged parallel with the side of the car, suitable hangers secured to the said seat-backing connected at their lower ends to the rear portion of the seat, a series of detachable supporting-legs designed to extend beneath the abutting ends of the seats to the inside thereof as and for the purpose specified.

7. In a convertible car the combination with the main frame provided with a series of supporting-posts, a series of supporting-standards arranged parallel with the side of the car, suitable seat-backing supported upon the said standard, a series of seats arranged parallel with the side of the car, suitable hangers secured to the said seat-backing connected at their lower ends to the rear portion of the seat, a series of detachable supporting-legs designed to extend beneath the abutting ends of the seats to the inside thereof and locking means for securing said leg to the floor of the car as and for the purpose specified.

8. In a convertible car the combination with the main frame provided with a series of supporting-posts, a series of supporting-standards arranged parallel with the side of the car, suitable seat-backing supported upon the said standard, a series of seats arranged parallel with the side of the car, suitable hangers secured to the said seat-backing connected at their lower ends to the rear portion of the seat, a series of detachable supporting-legs designed to extend beneath the abutting ends of the seats to the inside thereof a socket secured to the floor of the car provided with a bayonet-slot and a pin extending outwardly from the said leg into the said slot as and for the purpose specified.

9. In a convertible car the combination with a main frame provided with a series of vertical supporting-posts having rabbets formed therein and a suitable sill for supporting the floor of the car to which the said posts are secured, a running-board secured beneath the sill and extending laterally therefrom beneath the ends of the post, and a series of wall-sections designed to fit into the rabbets formed in the posts and resting on the said running-board and means for securing the said sections in place, said running-board serving as a step approximately in line with the bottom of the sill as and for the purpose specified.

10. In a convertible car the combination with the main frame provided with a series of vertical supporting-posts having side rabbets formed therein and a suitable sill for supporting the floor of the car to which the said posts are secured, a running-board secured beneath the sill and extending outwardly therefrom beneath the ends of the posts, a series of wall-sections designed to fit into the rabbets formed in the posts and to rest on the running-board and a series of turn-buttons secured centrally to the vertical posts of the car designed to extend over the edge of the wall-section as and for the purpose specified.

11. In a convertible car the combination with the main frame of the car provided with a series of vertical supporting-posts having rabbets formed therein and a suitable sill for supporting the floor of the car, a step or running-board secured beneath the sill and designed to extend beneath the vertical posts a bounding strip or rail secured to the top of the frame of the car beneath the eave of the roof, a series of wall-sections designed to be inserted beneath the said rail and into the rabbets formed in the vertical supporting-posts and to be supported upon the running-board or step, a suitable packing designed to be inserted within the edge of the inner face of the section, and a suitable packing secured to the upper end of the section designed to abut against the lower face of the bounding-rail and a series of turn-buttons secured centrally to the vertical posts of the car and designed to extend over the sides of the wall-sections as and for the purpose specified.

12. In a convertible car the combination with the main frame provided with a series of vertical supporting-posts having a rabbet and a guiding-groove located in proximity to the inner edge thereof, a suitable sill for supporting the floor of the car, a running-board secured beneath the sill designed to extend beneath the said supporting-posts, a series of car-wall sections designed to be inserted within the said groove, means for securing the said sections within the groove and a series of hand-rails secured to the side of the posts of the car between the inner face of the wall-section and the guiding-groove as and for the purpose specified.

13. In a convertible car the combination with the side supporting the sill for the floor of the car, of a running-board secured beneath the said sill extending outwardly past the face of the side of the car, a series of depending hangers secured beneath the same and a second running-board secured to the said hangers, the running-boards forming a pair of steps one above the other and disposed laterally in respect to the sill as and for the purpose specified.

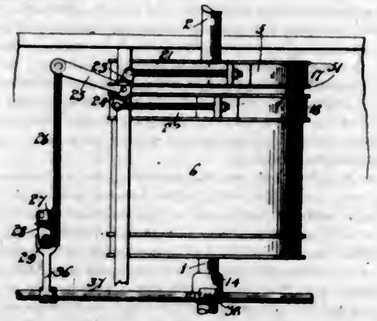
14. In a convertible car the combination with the side sill for supporting the floor, of a series of depending hangers secured to the said sill, of a running-board supported thereon having cut-out portions therein, a covering for the said cut-out portions held within suitable guides forming part of the step and a resilient resisting means whereby the said plate is held against the inner side of the step as and for the purpose specified.

15. In a convertible car the combination with the side sill for supporting the floor, of a series of depending hangers secured to the said sill, of a running-board supported thereon having cut-out portions therein, a covering for the said cut-out portions held within suitable guides forming part of the step and downwardly-extending projections formed upon the said plate, a leaf-spring secured beneath the running-board against which the said projections are designed to bear as and for the purpose specified.

749,580. **SPEED-CONTROLLING MECHANISM FOR AUTOMOBILES OR THE LIKE.** CARL C. RIOTTE, New York, N. Y., assignor, by mesne assignments, to Lewis Nixon, New York, N. Y. Filed Oct. 7, 1902. Serial No. 126,334. (No model.)

Claim.—1. In speed-controlling apparatus for automobiles and the like, the combination of two systems of gearing adapted to transmit different rates of speed, a shaft capable of limited rotation, means between the said rotatable shaft and the respective systems of transmitting-gear whereby a member of one system is locked against rotation and the other system left free and vice versa by the extreme rotation of the shaft in one or the other direction, means applying endwise movement to said rotatable shaft while it is in an intermediate position of rotation preventing its endwise movement while in either extreme position of rotation and preventing its rotation while at one extremity of its endwise movement, and speed-controlling means actuated by the endwise movement of the shaft, substantially as and for the purposes set forth.

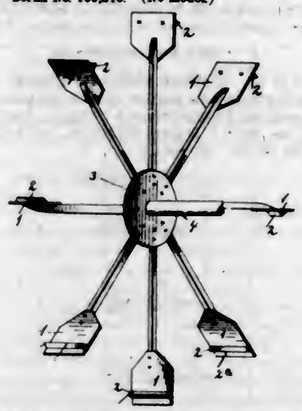
2. The combination of the drums 5, 6; locking-bands 17, 18; rods 21, 22 connected to said bands; band-tightening levers 23, 25; connecting-rod 26; rock-shaft 29; and crank 28 on said shaft connected to the rod 26 by an offset 27 whereby the parts are automatically locked in position at each extremity of the movement, substantially as described



3. The combination of the drums 5, 6; brake-bands 17, 18; rods 21, 22; rocking levers 23, 25, by which either of the bands is tightened to lock the respective drums; connecting-rod 26 pivoted to lever-arm 25; regulating rock-shaft 29 capable of limited rotary and endwise movement and having a crank-arm 28 pivoted to the rod 26; the speed-regulating bell-crank device 36, 37, 38 actuated by endwise movement of the shaft 29, and the operating-lever 33 capable of imparting to the shaft 29 limited rotation to tighten one or other of the bands 17, 18, or endwise movement to actuate the bell-crank device 36, 37, 38, substantially as and for the purposes set forth.

4. The combination of the drums 5, 6; rock-shaft 29; connections between said shaft and drums whereby one or other of the drums is locked by partial rotation of the rock-shaft in either direction; a lever 33 applying limited rotary movement to the shaft and applying endwise movement thereto when in its intermediate position of rotation; and a bearing-head 40 on which the lever rests to prevent endwise movement of the shaft while at either extremity of its rotation and having a notch 39 engaged by the lever in imparting endwise movement to the shaft and preventing rotation thereof when in one position of endwise adjustment, as explained.

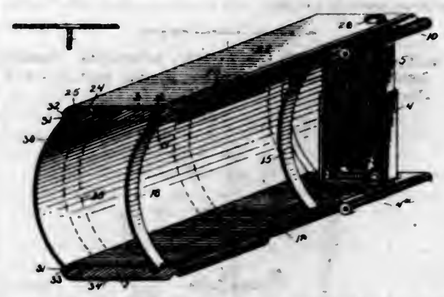
749,581. **GROUND-MARKING DEVICE FOR CORN-PLANTERS.** HENRY ROCKMAN, Allison township, Lyon county, Iowa. Filed Aug. 12, 1903. Serial No. 169,216. (No model.)



Claim.—In a corn-planter, a marking device embracing a radial revolving arm carrying at its outer end a blade provided upon its front surface with a transverse gage tapered to a horizontal ridge arranged inward a certain distance from the ground-engaging end of said blade.

749,582. **LOOSE-LEAF BINDER.** GUSTAV A. ROEDER, Vancouver, Canada. Filed Jan. 22, 1903. Serial No. 140,147. (No model.)

Claim.—1. In a loose-leaf binder, a pair of securing-bars, covers hinged to said bars, means for securing the leaves within the book, said means comprising a series of flexible strips fastened at each end to the securing-bars, a second series of flexible strips secured at one end to one of the securing-bars, said second series of strips being adapted to be removed from the book at predetermined times, each of said strips being adapted to pass through apertures in the leaves to be bound, for the purposes specified.



2. In a loose-leaf binder having bars to which the covers of the book are flexibly connected, and automatic clasping devices whereby they are adapted to a varying thickness of book; leaf engaging and securing devices comprising thin flat strips secured between the bars to which the covers are attached and having a spring tendency to straighten when freed from restraint.

3. In a binder of the class described having leaf-compressing bars to the edges of which the covers and back of the book may be flexibly connected, and which are adjustable to suit the thickness of the included leaves; a series of flexible and resilient leaf-engaging members secured at each end to both these bars, a further series of similar members secured to one bar and fitting in a notch in the other, and locked means for obtaining access to remove the latter series.

4. In a binder of the class described having leaf-compressing bars to which the covers of the book are flexibly connected, and means for clasping such together, a series of flexible resilient leaf-engaging strips secured to either one or both bars, and a rounded flexible back that will adapt itself to the varying thickness of the book.

5. In a binder having cover elements between which loose leaves may be secured, and clasping means to regulate the distance of the covers apart, an outwardly-rounded flexible resilient back suitably secured to the cover elements and having a spring tendency to straighten or flatten the curve of the round.

6. In a loose-leaf binder, the combination with leaf-compressing bars to which the covers of the book are flexibly connected, of clasping means at each end of such bars, flexible leaf engaging and securing members removably secured to the bars between the clasps, and a flexible and outwardly-rounded back secured to the back edges of the cover elements.

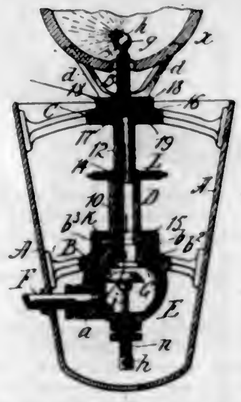
7. In a loose-leaf binder having upper and lower leaf-compressing members to the front edges of which the covers of the book are secured, and between which bars are flexible and resilient leaf engaging and securing members; means for securing such leaf engaging and securing members to the upper side of the upper bar; a cover-plate giving access to such securing means, and means for locking such cover-plate whereby access to remove the leaf-engaging members can be had only by those having means to unlock the plate.

8. In a loose-leaf binder having upper and lower leaf-compressing bars between which the leaves are secured, and to which the covers and back of the book are flexibly connected; an automatic clasping means mounted between and covered by the upper and lower bars at each end, between which the leaves are designed to fit, and by which the alinement of their edges is preserved, and means for effecting the release of the clasp-detent from the upper bar.

9. In a loose-leaf binder of the class described; the lower and upper bars 2 and 3, to the front edges of which the covers C are flexibly connected, the clasping members 4 and 5 having the racks 6, pinions 8 and detent-lever 10, the leaf engaging and securing strips 15 and 16 having eyes at their upper ends and pins 17 designed to be held in pockets 18 in the bar 3; similar eyes and pins at the other ends of 15 to be retained beneath a plate 19 secured to the lower bar 2; free ends to the strips 16 to enter notches in the lower bar 2; the cover-plate 22 having on one edge a continuous bevel 23 to engage a similar bevel in the bar 3, and toward the other edge an interrupted bevel 24 to engage a similar interrupted bevel 25 in the bar; the pivoted lock-bolt 26 designed to engage a V-shaped notch in the cover-plate and secure it against lateral

movement to disengage the interrupted bevels, and a key whereby the bolt may be disengaged from the notch in the plate and the latter moved laterally; the flexible back 30 with or without spring reinforcements 35, having wired edges 32 designed to be held in grooves in the bars 2 and 3 by the overturned edges 32 and 33 of the cover-plates 22 and 34.

749,583. **BEER-KEG-WASHING APPARATUS.** FRIEDRICH SCHMIDT, Springfield, Mass. Filed Sept. 22, 1903. Serial No. 174,191. (No model.)



Claim.—1. In a beer-keg-washing apparatus, the combination with a chambered valve-body having a waterway and valve-seat therein, and having a water-supply pipe connected therewith, of an upstanding pipe provided with a base-flange having bearing for rotation on the top of said valve-body, an annular nut-screw engaging the valve-body and coupling the said upstanding pipe thereto, a beer-keg support arranged adjacent and about said upstanding pipe, means for rotating said upstanding pipe, a valve for closing said valve-seat, and means for opening and closing said valve.

2. In a beer-keg-washing apparatus, the combination with a trough having therein upper and lower supporting-brackets, a valve-body sustained by the lower supporting-bracket, and having a waterway and valve-seat therein, and a water-supplying pipe connected with said valve-body, of an upstanding pipe having a delivery-opening at its upper end, having its lower end in connection with the waterway of said valve-body, and arranged for rotation relatively thereto, the beer-keg support sustained by the upper bracket, a valve coacting with the valve-seat in the valve-body, means for opening and closing said valve, and means for rotating said upstanding pipe.

3. In a beer-keg-washing apparatus, the combination with a valve-body having a waterway and valve-seat therein, and having a water-supply pipe therewith connected, of an upstanding pipe connected with the said valve-body and having a water-discharge opening at its upper end, a beer-keg support arranged about the upper portion of the upstanding pipe, a valve in said valve-body, movable to open and close against the valve-seat therein, and having a valve-stem, a spring operative to force the valve closed, and a device co-operative with the valve-stem, and having a portion located adjacent the beer-keg support, and adapted by the weight of a keg on said support, to impart a valve-opening movement to said device against the stress of the valve-closing spring.

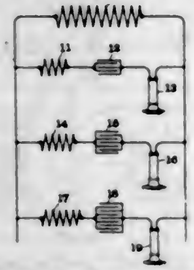
4. In a beer-keg-washing apparatus, in combination, a trough, a valve-body having a waterway and valve-seat therein, and having an upstanding externally-threaded boss, a water-supplying pipe, connected with said valve-body, a support located above the valve-body, and centrally apertured and screw-threaded, an upstanding pipe comprising the pipe-sections 10 and 12, the section 10 having a base-flange in bearing against the top of the valve-body and the section 12 having an upper end flange located within said apertured support, said pipe-sections being screw-united, an annular and internally-flanged coupling-nut screw-engaging the threaded boss of the valve-body, and engaging the base-flange of the pipe-section 10, a coupling-nut screw-engaging the said apertured support, and engaging with the upper end flange of pipe-section 12, a pipe continuation 13 screw-engaging into the upper end portion of pipe-section 12 and having a water-discharge tip at its upper end, means for rotating the screw-connected pipe-sections, the valve in said body, and means for opening and closing the same relatively to the valve-seat.

5. In a beer-keg-washing apparatus, the combination with the valve-body having a water-supplying pipe therewith connected, and having the upstanding pipe, of a valve in said valve-body vertically movable to open and close the valve-seat therein, and having a valve-stem extending downwardly through the bottom of the valve-body, an elongated U-shaped device connected with the valve-stem and projected upwardly adjacent the upper end of the said upstanding pipe, springs for exerting an elevating force against said U-shaped device, and a beer-keg support arranged about the upper extremity of said upstanding pipe, and all adapted for operation, substantially as described.

6. In a beer-keg-washing apparatus, the combination with a supply-pipe and an upstanding pipe in communication therewith and rotatable relatively thereto and means for rotating the upstanding pipe, a valve, operative to open and close the water-passage through the upstanding pipe, having a stem, the elongated U-shaped device, the lower uniting portion of which is connected with the valve-stem, a bracket upwardly through which the upper portion of the upstanding pipe extends and is fitted, having a screw-threaded portion, and an annular nut threading on said screw-threaded portion of the bracket and provided with oppositely-extended lugs which have vertical apertures through which the upper extremities of the U-shaped device are guided, a keg-support arranged adjacent the upper discharge end of the pipe and the said extremities of the U-shaped device and a spring operative to normally maintain the valve closed against the water-passage through the upstanding pipe.

7. In a beer-keg-washing apparatus, the combination with a trough, having therein a lower bracket and supported by said bracket the chambered valve-body having a valve-seat therein, and an upstanding externally-screw-threaded boss and having connected therewith a water-supply pipe, of an upper bracket supported within the trough, centrally apertured and constructed with an inwardly-located ledge and an upstanding threaded annular rib, the upstanding pipe having upper and lower end flanges, the latter having its location next above the valve-body boss and the upper end flange in engagement with said ledge, the coupling-nut of annular form engaging the lower end flange in the threaded valve-body boss and an annular nut screwing on the aforesaid annular rib and engaging with the upper end flange of said pipe and provided with keg-supporting arms and the oppositely-extending lugs which are vertically apertured, an extension of said pipe protruding upwardly above the upper bracket, a valve in said valve-body having an externally-extending stem, a horizontal part connected with said stem and having upward projections extending and guided through and above said oppositely-located vertically-apertured lugs, means for rotating the upstanding pipe and means for importing normally a closing force to said valve, substantially as and for the purposes set forth.

749,584. **WIRELESS SIGNALING SYSTEM.** HARRY SHOEMAKER, Philadelphia, Pa., assignor, by direct and mesne assignments, to International Wireless Telegraph Company, a Corporation of New Jersey, and Marie V. Gehring, Philadelphia, Pa. Filed Oct. 3, 1902. Serial No. 125,743. (No model.)



Claim.—1. In a wireless signaling system, a wave-responsive device, a local circuit controlled thereby and including a winding of a transformer, a plurality of circuits supplied by said transformer, and means in each circuit for reproducing a signal.

2. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby and including a winding of a transformer, a secondary circuit, and means included in said secondary circuit for producing a predetermined signal to the exclusion of others.

3. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for producing a signal independently of signals received simultaneously therewith.

4. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for producing a signal represented by wave-trains succeeding each other at predetermined rate.

5. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for selecting a predetermined message.

6. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and means for rendering said last-mentioned circuit selective of currents of predetermined frequency.

7. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a plurality of circuits in inductive relation with said circuit, and means in each of said last-mentioned circuits for producing a separate and independent signal.

8. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a plurality of circuits in inductive relation with said circuit, and means in each of said last-mentioned circuits for separating a signal from signals received simultaneously therewith.

9. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and capacity and inductance in said last-mentioned circuit for rendering the same selective of a current representing a predetermined signal.

10. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a plurality of circuits in inductive relation with said circuit, each of said last-mentioned circuits including frequency-determining elements for rendering it resonant with a current of a frequency dependent upon the rate of succession of wave-trains representing a predetermined signal.

11. In a wireless signaling system a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, frequency-determining elements for rendering said last-mentioned circuit resonant with a current of a frequency dependent upon the frequency of succession of the wave-trains representing a predetermined signal.

12. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, means for rendering said circuit resonant with a current of predetermined frequency, and signal-producing means subjected to the potential difference existing at the terminals of the frequency-determining element of said circuit.

13. In a wireless signaling system, a wave-responsive device, a plurality of circuits controlled thereby, frequency-determining elements in each of said circuits rendering each circuit resonant with a current of different frequency, and a translating device subjected to the potential difference existing at the terminals of a frequency-determining element in each of said circuits.

14. In a signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for rendering the same selective of a current locally produced.

15. In a receiver of a wireless signaling system, a self-restoring wave-responsive device, a circuit controlled thereby and including a source of energy, a secondary circuit in inductive relation with said circuit and selective of a current fluctuating at a rate dependent upon the rate of succession of the transmitted wave-trains.

16. In a wireless signaling system, a receiving-conductor, a wave-responsive device influenced by a plurality of series of wave-trains, each series consisting of trains succeeding each other at characteristic rate, a circuit controlled by said wave-responsive device, a secondary circuit in inductive relation with said circuit, and a plurality of circuits cooperating with said secondary circuit, each of said circuits being selective of a message or signal represented by a series of wave-trains succeeding each other at characteristic rate.

17. In a wireless signaling system, a receiving-circuit attuned to the frequency of the transmitted energy-waves, a wave-responsive device influenced by energy received in said circuit, a local circuit controlled by said wave-responsive device, and a circuit in inductive relation with said local circuit and selective of a message represented by wave-trains succeeding each other at predetermined rate.

18. In a wireless signaling system, a receiving-circuit attuned to the frequency of the transmitted energy-waves, a wave-responsive device influenced by energy received in said circuit, a local circuit controlled by said wave-responsive device, and a plurality of circuits in inductive relation with said local circuit, each selective of a message represented by wave-trains succeeding each other at predetermined rate.

19. At the receiver of a wireless signaling system, means for producing electric currents fluctuating at a rate equal to the rate of succession of the wave-trains representing a message, means for transforming said currents, and a circuit traversed by the transformed currents and selective of said currents.

20. In the receiver of a wireless signaling system, means for producing a plurality of fluctuating currents, each current fluctuating at a rate equal to the rate of succession of the wave-trains representing a separate message, means for transforming said currents and impressing them upon a plurality of circuits, and means for rendering each circuit selective of a current of definite frequency and representing a separate message.

21. In a wireless signaling system, a receiving-circuit, means controlled thereby for producing a plurality of currents fluctuating at rates characteristic of independent messages, means for transforming said currents and impressing them upon a plurality of circuits, and means for rendering each of said circuits resonant with a current of a frequency characteristic of a separate and independent message.

22. In a wireless signaling system, a receiving-circuit, means controlled thereby for producing a plurality of fluctuating currents, each current fluctuating at a rate equal to the rate of succession of the wave-trains representing a separate and independent message, means for impressing the energy of said currents upon a plurality of secondary circuits, each of said secondary circuits including frequency-determining elements rendering it resonant with a current representing a separate and distinct message, and a translating device subjected to the potential difference at the terminals of a frequency-determining element in each secondary circuit.

23. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and an inductance and capacity in said last-mentioned circuit for rendering it selective of a current fluctuating at predetermined rate.

24. In a wireless signaling system, a wave-responsive device, a circuit controlled thereby, a circuit in inductive relation with said circuit, and an inductance and capacity in series in said last-mentioned circuit for rendering it selective of a current fluctuating at a predetermined rate.

25. In a wireless signaling system, means for subjecting a wave-responsive device to electroradiant energy of predetermined frequency, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for selecting a predetermined message.

26. In a wireless signaling system, a wave-responsive device, means for subjecting said wave-responsive device to electroradiant energy of predetermined frequency, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit, and means for rendering said last-mentioned circuit selective of currents of predetermined frequency.

27. In a wireless signaling system, a wave-responsive device, means for subjecting said wave-responsive device to the effects of electroradiant energy of predetermined frequency, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit, and means for rendering said last-mentioned circuit selective of currents having a frequency dependent upon the rate of succession of the transmitted wave-trains.

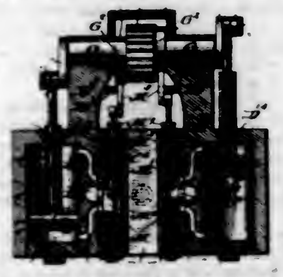
28. In a wireless signaling system, a receiving-circuit adjusted as to its electrical constants as to be selective of electroradiant energy of predetermined frequency, a wave-responsive device associated with said receiving-circuit, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit, and means in said last-mentioned circuit for selecting a predetermined message.

29. In a wireless signaling system, means for securing double selectivity comprising a receiving-circuit adjusted as to its electrical constants as to be selective of electroradiant energy of predetermined frequency, a wave-responsive device associated with said receiving-circuit, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit, and means for rendering said last-mentioned circuit selective of currents having a frequency dependent upon the rate of succession of the transmitted wave-trains.

30. In a wireless signaling system, a receiving-circuit selective of the effects of electroradiant energy of definite frequency, a wave-responsive device associated with said receiving-circuit, a circuit controlled by said wave-responsive device, a circuit in inductive relation with said circuit and means for rendering said last-mentioned

circuit selective of currents having a frequency dependent upon the rate of succession of the transmitted wave-trains, whereby a message or signal represented by electroradiant energy of predetermined frequency transmitted in wave-trains succeeding each other at predetermined rate is selected to the exclusion of others.

749,585. DRILL. WILLIAM N. SHOTWELL and JOHN DREISTADT, Oldforge, Pa. Filed May 9, 1903. Serial No. 156,482. (No model.)



Claim.—1. In a drill of the kind described, the combination with a casting having hollow forks and a plurality of air-passages arranged in one side of each fork, of a cylinder having a flat outer face, and having a plurality of air-passages formed therein, supported by each fork, the air-passages of the cylinders registering with those of the forks, a drill supported by said forks, drill-driving mechanism carried by the casting and valves arranged in the casting adapted to control the supply of air to the cylinders.

2. A drill of the kind described comprising a hollow forked casting, the end faces of said forks being rearwardly and upwardly inclined and horizontally grooved, a laterally-projecting arm extending from one of said forks, a standard, means for adjustably clamping said arm to said standard, a drill-carrying shaft journaled in the groove of the forks, drill-driving mechanism carried by the casting, means for admitting compressed air into said casting, and valves arranged in the forks and adapted to regulate the feeding of said air to the driving mechanism.

3. The combination with a forked casting, of a drill-shaft journaled on said casting, cylinders arranged on the outer sides of each fork of the casting and having ports communicating with the interior of the forks, pistons arranged in the cylinders, brackets arranged on the casting, a shaft journaled in said brackets, means for connecting the pistons with said shaft, valves arranged in the forks of the casting adapted to close the ports leading to the cylinders, means for connecting said valves to the shaft adapting them to move in unison with the piston in the adjacent cylinder, and means for transmitting rotation of the shaft carried by the brackets to the drive-shaft.

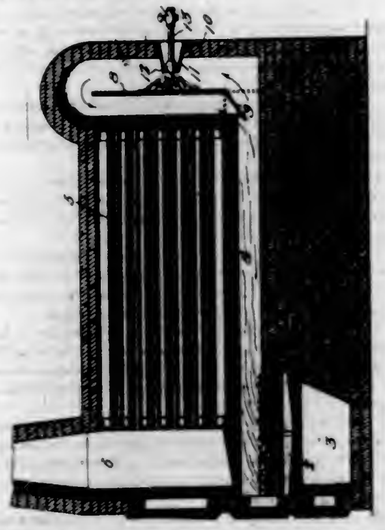
749,586. SMOKE-CONSUMING MEANS. RUDOLPH SIMM, Washington, D. C., assignor of one-half to Bernhard F. Schubert, Washington, D. C. Filed May 23, 1903. Serial No. 158,518. (No model.)

Claim.—1. A furnace having a grate, combustion-chamber, flue-tubes, and a stack, combined with an auxiliary combustion-chamber arranged adjacent one set of terminals of the flue-tubes, a baffle vertically disposed in the said auxiliary combustion-chamber, and a burner arranged to direct its flame against the baffle to consume the gases passing into the auxiliary combustion-chamber.

2. The combination with a furnace having flue-tubes and escape-stack, of an auxiliary combustion-chamber communicating with the main combustion-chamber, a baffle disposed in said auxiliary combustion-chamber adjacent to one set of terminals of the flue-tube and at a distance from the latter, and a flame, means cooperating with the said baffle in the auxiliary chamber to consume the gases passing into the latter.

3. The combination with a furnace having flue-tubes and an escape-passage, of an auxiliary chamber communicating with the main combustion-chamber, a baffle disposed in said auxiliary chamber and having a damper movably attached to one end thereof to create two passages in relation to the flue-tubes, and a flame-producing means projecting into the auxiliary chamber and cooperating with the baffle.

4. The combination with a furnace, of an auxiliary combustion-chamber having a baffle extending lengthwise thereof and forming two passages therein, a damper hinged to one end of the baffle to control the open or closed condition of either of said passages, and a flame-producing means projecting in a plane at an angle in relation to and cooperating with the said baffle.



5. The combination with the furnace having flue-tubes and an escape, of an auxiliary combustion-chamber with which one set of terminals of the flue-tubes communicates, a baffle extending partially through the said auxiliary chamber at a distance from the terminals of the flue-tubes and forming two passages, and a flame-producing means projecting into one of the passages and cooperating with the baffle.

6. The combination with a furnace having flue-tubes and an escape, of an auxiliary combustion-chamber with which one set of the terminals of the flue-tubes communicates, a baffle extending partially through the auxiliary chamber and forming two passages in the latter, means at one end of the baffle for controlling communication of either of the passages with the main combustion-chamber of the furnace, a conical shield extending through the wall of the furnace into one of the passages and having its reduced extremity projected toward the baffle, and a burner located in said shield and provided with fuel-supply means.

749,587. BRACELET OR OTHER ORNAMENT. WILLIAM F. SIMON, West Hoboken, N. J. Filed Sept. 12, 1902. Serial No. 123,112. (No model.)

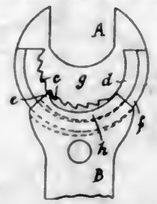


Claim.—1. The ornament in the form of a coiled reptile and comprising the body portion, the head on the end thereof, and the interior metal rod extending throughout the length of said body and at the side edges of its ends fastened to the inner surfaces of the end coils of said body, said body being formed from a thin narrow strip of metal spirally coiled in the varying diameter to represent the body of a reptile, and said head having a neck portion 14 inclosing the coils at one end of said body and fastened thereto; substantially as set forth.

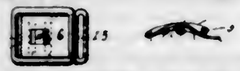
2. The ornament in the form of a coiled reptile and comprising the body portion, the head on the end thereof, and the interior metal rod extending throughout the length of said body and at the side edges of its ends fastened to the inner surfaces of the end coils of said body, said body being formed from a thin narrow strip of metal transversely crimped and spirally coiled in the varying diameter to represent the body of a reptile, and said head having a neck portion 14 inclosing the coils at one end of said body and fastened thereto; substantially as set forth.

749,588. SPANNER. ARTHUR W. SMITH, Barking, England. Filed Nov. 6, 1903. Serial No. 180,134. (No model.)

Claim.—An improved spanner or wrench comprising a head and a handle, one of said parts having a segmental circular groove in its side and the other a segmental circular rib projecting into said groove, said rib corresponding in thickness at one end to the width of the groove and narrowing toward the other permitting rocking of the rib in the groove and corresponding rocking of the handle, said head having a segmental circular rack, and said handle a tooth for engaging said rack when the handle is rocked, substantially as described.



749,589. BUCKLE. CLARENCE E. SMITH, New Britain, Conn., assignor to the North & Judd Manufacturing Company, New Britain Conn., a Corporation of Connecticut. Filed Oct. 10, 3. Serial No 176,479. (No model.)



Claim.—1. A buckle comprising a frame having a cross-bar, a sheet-metal clamp mounted on said cross-bar, said clamp having its edges notched and bent up, and a retaining-lip integral with said clamp and embracing said cross-bar when the cross-bar rests in the notches.

2. A buckle comprising a frame having a bearing-bar near one end, a cross-bar near the center, a clamping member pivotally mounted on said cross-bar, said clamping member having ears at each edge with open recesses and a lip projecting from said member between the ears, said cross-bar resting in notches in said ears and being embraced by the said lip.

3. A buckle comprising a frame, a cross-bar near the center, a clamping member pivotally mounted on said cross-bar, said clamping member being formed of sheet metal and having ears at each edge with open recesses and a lip projecting from said member between the ears, said cross-bar resting in notches in said ears and being embraced by the said lip.

749,590. RAISING AND DROPPING MECHANISM. SOLON C. SMITH, Jackson, Ohio. Filed Dec. 11, 1902. Serial No. 134,877. (No model.)



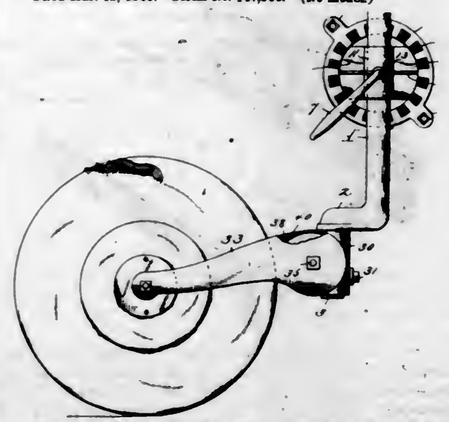
Claim.—1. In a machine of the character described, the combination with a revoluble head; of a crank loosely connected thereto at a point removed from the center of the head, and a hoisting-pin extending from the head and adapted to contact with and raise the crank during the rotation of the head.

2. In a machine of the character described, the combination with a revoluble head; of pins extending laterally from the head at points removed from the center thereof, and a crank loosely mounted on one of the pins and adapted to be contacted and raised by the other pin during the rotation of the head.

3. In a machine of the character described, the combination with a revoluble head; of a crank pivotally mounted upon the head at a point removed from the center thereof, and means whereby said crank is supported and raised during one-half a revolution of the head.

4. In a machine of the character described, the combination with a revoluble shaft having a head thereon; of pins extending laterally from the head at points removed from the center thereof, a crank loosely mounted upon one of the pins, and a link pivoted to the crank, the other pin upon the head being adapted to support and raise the crank during part of the revolution of the head and permit it to freely return to normal position during the balance of the revolution of the head.

749,591. COLTER. NORMAN W. TRAVIS, St. Thomas, N. D. Filed Mar. 12, 1903. Serial No. 147,506. (No model.)



Claim.—1. The combination with a rotatable standard, of pivoted arms carried by the lower extremity of the standard, and tension-springs engaging the portions of the said arms adjacent to the standard whereby spring-pressure will be exerted in a downward direction on the arms.

2. The combination with a standard; of a head mounted on the lower portion of the standard, a tubular bearing carried by the head, pivoted arms carried by the bearing and supporting a colter-disk, and tension-springs coiled on the respective ends of the bearing with oppositely-disposed ends bearing against the arms and the head, whereby spring-pressure will be exerted in a downward direction on the arms.

3. The combination with a ring to be secured to a support and being formed with an alternate series of teeth and intervening spaces; of a pair of clamping-jaws, one of which comprises a plate extending beyond the edge of the ring, and an intermediate loop formed on the plate, a colter-standard projecting through the loop, a second jaw disposed within the loop and engaging the standard, and teeth on the jaw for engaging the intervening spaces on the ring, and means for securing the jaws, ring and standard in interlocking engagement.

4. The combination with a ring formed with a concentric flange having a central opening; of a colter-standard and jaws for securing the standard to the ring, one of which comprises a plate overlapping the edge of the face-flange and having oppositely-disposed notches in the jaws thereof, a second jaw bearing against the opposite side of the face-flange, and means on the second jaw for engagement with the notches in the first jaw so that both jaws can be adjustably secured to the ring for the purpose set forth.

749,592. COOKING UTENSIL. STEPHEN L. TRAEN, Jersey City, N. J. Filed June 15, 1903. Serial No. 161,421. (No model.)

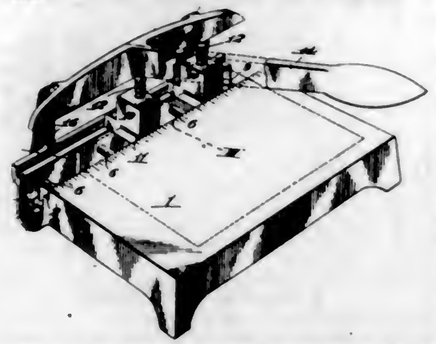


Claim.—1. A cooking utensil of the class described, comprised of top and bottom portions dish-shaped in form and hinged together

at one side and provided each with a handle member at the opposite side, one of said parts being provided with radial slots or openings and with a disk pivoted centrally thereof and similarly formed, substantially as shown and described.

2. A cooking utensil of the class described, comprised of top and bottom portions dish-shaped in form and hinged together at one side and provided each with a handle member at the opposite side, one of said parts being provided with radial slots or openings and with a disk pivoted centrally thereof and similarly formed, and the other part being provided with a tube which opens therethrough, substantially as shown and described.

749,593. **PERFORATING-MACHINE.** EMORY A. TRUSSELL, St. Louis, Mo., assignor to Sieber & Trussell Mfg. Company, St. Louis, Mo., a Corporation. Filed June 8, 1903. Serial No. 160,543. (No model.)



Claim.—1. In a perforating-machine, the combination of a bed, a clamp member resiliently and integrally connected to said bed, means for moving said clamp member toward said bed and punch-holders held between said bed and clamp member, substantially as set forth.

2. In a perforating-machine, the combination of a bed, a clamp member resiliently and integrally connected to said bed, means for moving said clamp member toward said bed, punch-holders held between said bed and clamp member, and stops for limiting the movement of said clamp member with respect to said bed, substantially as set forth.

3. In a perforating-machine, the combination of a bed, a clamp member resiliently and integrally connected to said bed, clamp-bolts connected to said bed and passing through said clamp member, nuts carried by said clamp-bolts, and punch-holders held between said bed and clamp members, substantially as set forth.

4. In a perforating-machine, the combination of a bed, a clamp member resiliently and integrally connected to said bed, clamp-bolts connected to said bed and passing through said clamp member, nuts carried by said clamp-bolts, punch-holders held between said bed and clamp member, and stop-studs, positioned between said bed and clamp member to limit the movement of said member, substantially as set forth.

5. In a perforating-machine, the combination of a bed provided with a shoulder at its rear side, a web extending from said bed and integral therewith, a clamp member carried by said web and having a shoulder, punch-holders seated on said bed and clamp-member shoulders, and clamp-screws connecting said bed and clamp member to force said clamp member into binding engagement against said punch-holders, substantially as set forth.

749,594. **MUZZLE FOR CALVES OR COLTS.** WILLIAM M. VANCUREN, Foyil, Ind. Ter. Filed July 27, 1903. Serial No. 167,234. (No model.)

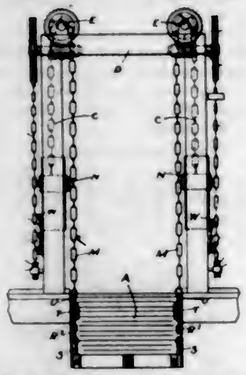
Claim.—1. In a device of the class described, the combination with a body of approximately scoop form, an extension projected upwardly from the front of the body, a head-strap secured to the sides of the body, ear-straps connecting the head-strap and the extension of the front of the body, the said extension having its upper portion bent to inclose the ear-straps, and other securing-straps projected from the body.

2. In a device of the class described, the combination with a body, an extension projected upwardly from the front of the body and having its upper portion bent upon itself, attaching members secured to the sides of the body, a head-strap secured to the said attaching members, ear-straps connecting the head-strap and the front extension aforesaid, a portion of the ear-straps being received between the bent portion of the upper extension and secured in said position.



3. In a device of the class described, the combination with a muzzle-body of approximately scoop form, an extension projected upwardly from the front of the said body and having its upper portion bent upon itself, U-shaped members having their lower ends secured in openings in the sides of the body, a head-strap having its ends attached to the securing members aforesaid, ear-straps connecting the head-strap and the front extension of the body and received by the bent portion of the said extension, a throat-strap secured to the head-strap, and jaw-strap secured to the sides of the body.

749,595. **WHARF-DROP.** HENRY D. VAN DOORN, Providence, R. I., assignor to the American Ship Windlass Co., Providence, R. I., a Corporation of Rhode Island. Filed July 1, 1903. Serial No. 163,939. (No model.)



Claim.—1. A wharf-drop, comprising a hinged or adjustable platform or bridge and mechanism for actuating the same, embracing an endless belt or cable, and guides adapted to receive and retain said belt or cable in operative position.

2. In apparatus of the character described, a hinged or adjustable platform, means for actuating the same, embracing an endless belt or cable, and a guide roll or sheave engaged by said belt for the retention of the latter in vertical alinement with the pulley suspending said belt.

3. In apparatus of the character described, a hinged or adjustable platform, means for actuating said platform comprising an endless belt or cable, a bracket secured in position and carrying a guide roll or sheave engaged by said belt for the retention of said belt in vertical alinement with the pulley suspending said belt.

4. In apparatus of the character described, a hinged or adjustable platform, means for actuating said platform embracing an endless cable or belt, guides adapted to retain said belt as against displacement from its suspending-pulley, and a guide-roll for the retention of said belt, in vertical alinement with said pulley.

5. In apparatus of the character described, a pivoted platform or bridge, means for actuating said platform, means for suspending said platform having adjustable means effecting connection with said platform and providing for the vertical retention of said suspending means.

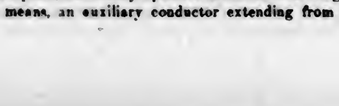
6. In apparatus of the character described, a pivoted or adjustable platform, means for actuating said platform, means for suspending said platform comprising a chain or cable and a bridle chain or line connected to said platform and passing over a pulley or roll connected up with the first referred to chain, or cable.

7. In apparatus of the character described, a pivoted platform or bridge, means for suspending said platform, means for actuating said suspending means, whereby the platform is raised or lowered, and means connected up with said suspending means, and a fixture forming a safeguard against the accidental descent of said platform.

8. In apparatus of the character described, a pivoted platform, means for actuating said platform, means for suspending said platform, connected up with said actuating means and embracing chains or cables having suspended therefrom counterbalancing-weights, and supplemental chains or lines connected to said weights and to cleats secured to supporting-framework.

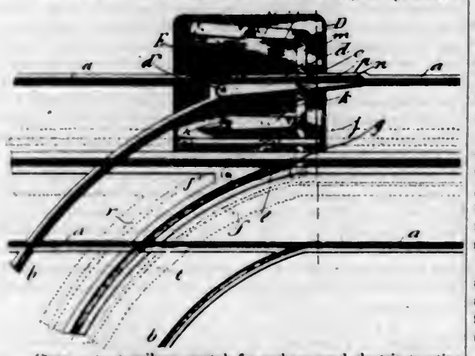
9. The combination substantially as set forth of a hinged wharf-drop or bridgeway, suitable chains, chain-wheels and counterbalance-weights as described, a worm-shaft and worm-wheels for raising and lowering the wharf-drop and holding it at any desired elevation, and a hand-chain and pulley, for rotating the worm-gearing, guides for said hand-chain, also a suitable safety-chain, cleat, and bridle-chain, sheave and clevis for supporting-chains, and hinges for the drop.

749,596. **CURRYCOMB.** EDWARD B. WEBB, Rock City, Ill. Filed Sept. 28, 1903. Serial No. 174,915. (No model.)



Claim.—The combination of a currycomb having a series of rows of teeth, a plate having slots through which the teeth of the comb extend, a guideway supported by the comb-back, a guide supported by the plate and movable in the guideway, a pin, and a spring coiled around the pin having its ends resting against a stationary part and its free center section passing through an opening in the guide thereby holding the plate in its normal position.

749,597. **ELECTRIC-RAILWAY SWITCH.** JOHANN G. WENIGER, New York, N. Y. Filed June 9, 1903. Serial No. 160,780. (No model.)

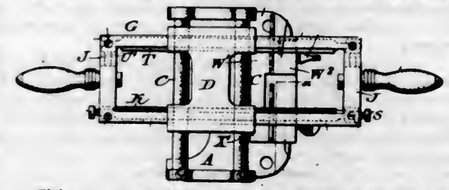


Claim.—1. A railway-switch for underground electric traction systems, comprising a switch-tongue at the junction of a main and side track, an underground pivoted guide-piece at the junction of the main and side conduits, an auxiliary conductor in the conduit connected with a source of electric power, and means adapted to contact with the auxiliary conductor for actuating said pivoted switch-tongue and guide-piece, substantially as set forth.

2. In a railway-switch, the combination, with the main and side tracks provided with conduits having underground conductors, of a pivoted switch-tongue at the junction of the main and side tracks, a pivoted guide-piece in the conduit below the junction of the slots of the main and side conduits, means connecting said switch-tongue and guide-piece, electrically-operated means for actuating said connecting means, an auxiliary conductor extending from the main conduit into the side conduit and connected with a source of electric power, and means for actuating said electrically-operated means when contacting with the auxiliary conductor, substantially as set forth.

3. In a railway-switch, the combination, with the main and side tracks provided with conduits having underground conductors, of a pivoted switch-tongue at the junction of the main and side tracks, a pivoted guide-piece in the conduit below the junction of the slots of the main and side conduits, a cross-bar connecting said switch-tongue and guide-piece, an electromagnet, an armature for the same connected with the cross-bar, a spring for returning the armature into normal position, a switch, an auxiliary conductor extending from the main conduit into the side conduit at a certain distance at either side of the switch-tongue and connected with the electromagnet, switch and a source of electric power, and means contacting with the auxiliary conductor for energizing the electromagnet and actuating the switch-tongue and guide-piece, substantially as set forth.

749,598. **DEVICE FOR FILING KEYS.** CHARLES F. WEST, Philadelphia, Pa. Filed July 11, 1903. Serial No. 165,051. (No model.)



Claim.—1. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, means for maintaining said guide and cutter in parallel relation and means for limiting the movement of said guide and said cutter above said holding means.

2. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, means having vertical and reciprocatory movement with respect to said holding means on which moving means said guide and cutter are mounted and a carriage for said moving means longitudinally adjustable with respect to said holder.

3. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, a carrier having vertical and reciprocatory movement with respect to said holder and on which said guide and cutter are mounted in parallel relation and a carriage moving at an angle with the line of movement of said carrier and on which said carrier is mounted.

4. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, a carrier having vertical and reciprocatory movement with respect to said holder and on which said guide and cutter are mounted and a carriage movable at an angle with the line of movement of said carrier and on which said carrier is mounted, one of the parts mounted on said carrier being adjustable thereon.

5. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, a carrier having vertical and reciprocatory movement with respect to said holder and on which said guide and cutter are mounted and a carriage movable at an angle with the line of movement of said carrier and on which said carrier is mounted, said cutter being detachably and adjustably secured in said carrier.

6. A filing device comprising means for holding a pattern and a blank, a pattern-guide, a cutter, means for maintaining said guide and said cutter in similar relation to said holding means and means for limiting the vertical, lateral and reciprocatory movements of said maintaining means.

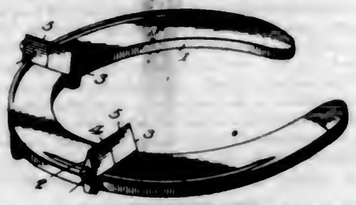
7. In a filing device of the character stated, a pattern-holder, a blank-holder, a groove-cutter, a pattern-guide, a carrier having vertical and reciprocating movement for said cutter and guide and a carriage to which said carrier is fitted, said carrier and carriage being movable in directions at an angle to each other.

8. In a filing device of the character stated, a cutter, a pattern-guide, a carrier capable of vertical and reciprocating movement for said cutter and guide, a movable carriage to which said carrier is freely fitted, said carrier being movable at an angle to said carriage, a pattern and means for clamping said pattern and a blank to be filed respectively below said cutter and guide.

9. A filing device having a pattern-guide, a cutter, a reciprocating carrier on which said guide and said cutter are mounted and a carriage movable at an angle with the line of movement of said

carrier and on which said carrier is mounted and a laterally-projecting ledge upon which said carrier may rest, controlling the descent of the latter.

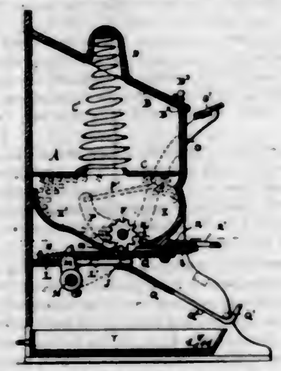
749,599. HORSESHOE-CALK. JAMES ARES, Philadelphia, Pa. Filed May 9, 1903. Serial No. 156,420. (No model.)



Claim.—1. A removable calk comprising sections, each of which is provided with a member to be embedded in the hoof, a recess to receive the shoe-body, and a bearing-surface, the said surfaces being constructed to aline with each other to form a continuous calk when in position on the shoe, and means to secure the said sections together.

2. A removable calk, comprising sections, each of which is provided with a bearing-surface, which surfaces are constructed to aline with each other to form a continuous calk when the sections are in position on the shoe, a bar on one of the sections, an opening in the other section to receive the bar, and means to clamp the latter-named section on the bar

749,600. MATCH-BOX. GEORGE ACOSIAN, New York, N. Y. Filed Apr. 8, 1903. Serial No. 151,630. (No model.)



Claim.—1. The combination with a hopper, having a bottom slot, of a sliding plate mounted beneath the hopper, and having a slot parallel with the slot in the hopper, a fluted roller mounted in the hopper, parallel with and above the slot, a lever for moving the sliding plate beneath the hopper, and means for rocking the fluted roller from the lever for moving the sliding plate, substantially as set forth.

2. The combination with a hopper, provided with a slot in its bottom, of a fluted roller mounted parallel with and above said slot, a sliding plate beneath the hopper, and provided with a slot parallel with the slot in the hopper, a spring acting on said plate to move the same toward the rear, a supporting-plate beneath said sliding plate, an inclined receiving-plate at the front end of said supporting-plate, and means for simultaneously moving the sliding plate and working the fluted roller, substantially as set forth.

3. The combination with a hopper having a slot in its bottom, of a fluted roller mounted in the hopper, parallel with and above the slot, an arm on one end of said roller, a plate mounted beneath the hopper and having a slot parallel with the slot in the hopper, a plate supporting said sliding plate, a spring drawing said sliding plate toward the rear, a rock-shaft having cams for moving the sliding plate toward the front, an arm on one end of said rocking shaft, and a rod connecting an arm on the fluted roller with the arm on said rock-shaft, substantially as set forth.

4. The combination with a hopper having a slot in its bottom, of a fluted roller in the hopper parallel with and above said slot, a sliding plate beneath the hopper and provided with a slot parallel with the slot in the hopper, a fixed plate on the front of the hopper, and a blade fixed to the sliding plate to coact with the plate on the hopper, and means for moving the sliding plate to the front and working the fluted roller, substantially as set forth.

749,601. TROLLEY-HARP DEVICE. FREDERICK H. ALLEN, Dunkirk, N. Y. Filed Nov. 2, 1903. Serial No. 179,436. (No model.)



Claim.—1. In a trolley-harp device, a bifurcated harp-arm, having one of its sides cut off crosswise at the center of the trolley-sheave spindle to allow the removal of spindle 3, substantially as described.

2. In a trolley-harp device, the combination of a bifurcated harp-arm, a square socket in each of the inner sides opposite each other, a spindle having square ends arranged to fit in said square sockets, a sheave to rotate on said spindle, a flat spring arranged to keep said sheave in center of bifurcated arm, a removable portion of one of the branches at a point cutting one of the square sockets in halves and having pins mounted thereon, a notch cut near the outer end of each pin, a spring arranged to lock in said notches, a device for forcing back said spring and all arranged and combined to lock the removable portion in place by the self-locking device.

3. In a trolley device, the combination of a bifurcated harp-arm, arranged to be secured to the trolley-pole by a shank in the usual manner, one branch of said arm being cut off near the upper end and fitted on with pins, mechanism for retaining said pins in position and mechanism for releasing said pins, substantially as described.

4. In a trolley-harp device, the combination of a bifurcated harp-arm, square sockets cut in the inner faces directly opposite each other, one of the branches cut off in the center of the square socket perpendicular to the length of the harp, pins fitted in the portion cut off and having a notch cut near the end thereof, a spring locking device arranged on the stationary portion of the cut-off branch, holes bored in the stationary portion of the cut-off branch to receive the pins or projections on the part cut off, a round pin or spindle having squared ends arranged to fit in the square socket, and all arranged so that when the projections on the part cut off are pressed down into the holes made to receive them they are locked fast by the locking device, substantially as described.

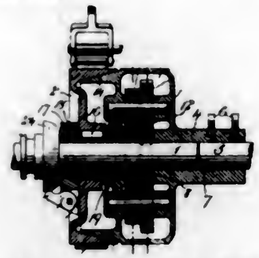
5. In a trolley-harp device, the combination of a bifurcated harp-arm having a square socket cut in each inner side directly opposite each other, one of the sides cut off in the center of one of the square sockets perpendicular to the length, and fitted with pins, having notches cut near the outer ends, holes bored in the body to receive said pins, a locking device to lock said pins in position, and a push-button to release said locking device and allow said pins to be drawn out, substantially as described.

6. In a trolley-harp device, a bifurcated harp-arm, having one of its sides cut off crosswise at the center of the trolley-sheave spindle, and having a part arranged and fitted to complete said cut-off side and to hold the spindle 3 in position, substantially as described.

7. In a trolley-harp device, a bifurcated harp-arm having square sockets cut in the inner opposite sides of the arm part way through the sides, and having one of the sides fitted with a removable cap, which parts one of the square sockets in the center, a round spindle having square ends arranged to fit in said square sockets, a spring-catch attached to one of the branches and so arranged as to lock said removable cap in position, mechanism for operating said spring-catch to allow the removal of said cap, substantially as described.

749,602. REVERSING MECHANISM. FREDERIC J. BALL, New York, N. Y. Filed Dec. 10, 1903. Serial No. 184,582. (No model.)

Claim.—1. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum, a clutch-drum, a brake therefor, gears connecting the drums and shafts, means for positively forcing the drums into engagement with each other and means tending to force the drums apart.



2. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum held against lateral movement, a clutch-drum arranged to move laterally, a brake therefor, gears connecting the drums and shafts, means for positively forcing the clutch-drum into engagement with the gear-drum and means tending to force the drums apart.

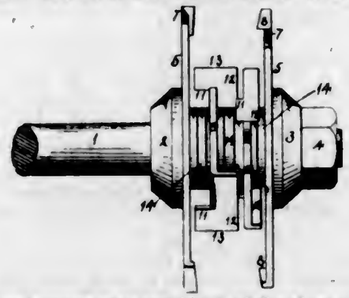
3. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum, a sleeve, a clutch-drum having a limited lateral movement thereon, gears connecting the drums and shafts, means for positively forcing the clutch-drum along the sleeve into engagement with the gear-drum and means interposed between the drums tending to force them apart.

4. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum, a sleeve, a clutch-drum having a limited lateral movement thereon, gears connecting the drums and shafts, means for positively forcing the clutch-drum along the sleeve into engagement with the gear-drum, means tending to force the drums apart and means for adjustably limiting the outward movement of the drum.

5. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum, a sleeve, a clutch-drum having a lateral movement thereon, gears connecting the drums and shafts, a collar adjustably secured to the sleeve for limiting the outward movement of the clutch-drum, a spring tending to hold the drum at the limit of its outward movement and means for positively moving the clutch-drum into engagement with the gear-drum.

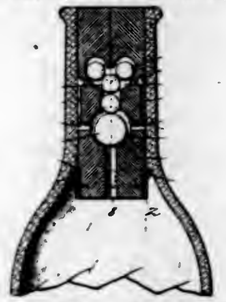
6. A reversing mechanism comprising a driving-shaft, a power-transmitting shaft, a gear-drum, a sleeve, a clutch-drum having a limited lateral movement thereon, gears connecting the drums and shafts, a collar carried by the sleeve, a plurality of dogs carried by the collar, a clutch-slide on the driving-shaft arranged to engage the dogs for causing them to force the clutch-drum into engagement with the gear-drum and means tending to force the clutch-drum away from the gear-drum.

749,603. GROOVE-CUTTER. JOHN BARNES, Rockford, Ill., assignor to W. F. & John Barnes Company, Rockford, Ill., a Corporation of Illinois. Filed Feb. 12, 1903. Serial No. 143,153. (No model.)



Claim.—A groove-cutter comprising a spindle and two end cutters mounted thereon, each end cutter comprising a flat bar having integral right-angular extensions at its opposite ends, said extensions extending in the same direction and the front edge of each being sharpened to provide surface-cutters at opposite ends of the bar and the opposite edges of each bar adjacent to said extensions being also sharpened to provide edge cutters at right angles to the said surface-cutters, the said edge and surface cutters at opposite ends of the bar facing in opposite directions, a center surface-cutter mounted upon the spindle between the two end cutters, said center surface-cutter comprising a flat bar having its opposite ends extending at right angles to the plane of the bar, and projecting beyond each side thereof, an edge at each end of the bar being sharpened and said sharpened edges facing in opposite directions, and means for clamping the said bars upon the spindle.

749,604. NON-REFILLABLE BOTTLE. GEORGE C. BESSONET, Channing, Tex. Filed May 16, 1903. Serial No. 157,454. (No model.)



Claim.—1. In a closure for bottles the combination with similar sections having recesses in their contacting faces forming a compartment, a longitudinally-extending passage communicating with the compartment and opening through the bottom of the closure, passages extending laterally from the compartment, and longitudinally-extending grooves communicating with the passages: of a float within the compartment and normally closing the longitudinally-extending passage, and spherical weights normally bearing upon the float.

2. In a closure for bottles, the combination with similar sections having recesses in their contacting faces forming a compartment, spring-arms extending from the sections, a longitudinally-extending passage within the closure, communicating with the compartment, passages extending laterally from the compartment, and longitudinally-extending grooves within the closure and communicating with said passages; of a float within the compartment and normally closing the longitudinally-extending passage, and a series of spherical weights adapted to bear upon the float and hold it in its seat.

3. A closure for bottles comprising similar semicylindrical sections having recesses in their contacting faces forming a compartment, an inlet-passage thereto and outlet-passages therefrom, grooves extending longitudinally of the sections and communicating with the outlet-passages, a float within the compartment and normally seated at the end of the inlet-passage, spherical weights normally bearing upon the float, a washer inclosing the sections, and spring-arms extending from the sections.

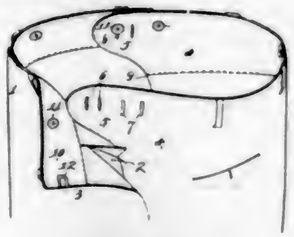
4. The combination with a bottle having a shoulder within the neck thereof; of a closure within said neck and comprising similar sections having recesses in their contacting faces forming a compartment, an inlet-passage and outlet-passages, longitudinally-extending grooves communicating with the outlet-passages, a float within the compartment for closing the inlet-passage, spherical weights normally bearing upon the float, spring-arms extending from the sections and adapted to engage the shoulders, and a washer.

5. A closure for bottles comprising sections having recesses in their contacting faces forming a compartment and an inlet-passage therebetween, said sections having outlet-passages, and longitudinally-extending grooves communicating therewith, a float within the compartment normally closing the inlet-passage, and means for overcoming the buoyancy of the float to retain it in position at the end of the inlet-passage.

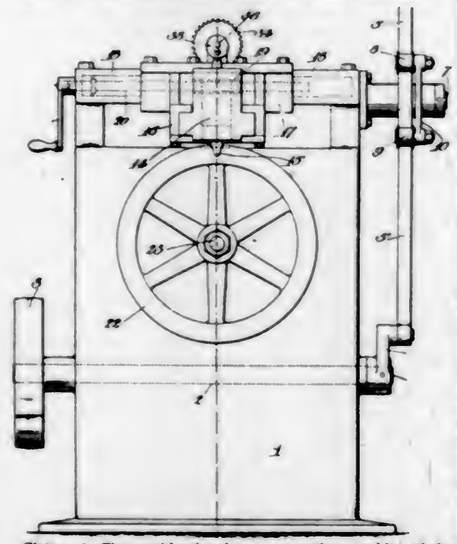
749,605. TROUSERS. SAMUEL A. BIRKENSTEIN, St. Louis, Mo., assignor to Schmitz & Shroder, St. Louis, Mo., a Copartnership composed of Rudolph Schmitz and Samuel H. Shroder. Filed July 13, 1903. Serial No. 165,241. (No model.)

Claim.—Adjustable trousers, comprising a rear cloth-section provided with forwardly-extending adjusting-flaps at its upper edge on each side of the garment, said adjusting-flaps being provided with buttonholes and eyes, two front cloth-sections 3, and pockets 2 having their outer sides superimposed upon and fastened to the cloth-sections 3, the inner edges of the rear ply of said pockets being secured to the cloth-sections 4 beneath the lower edges of the exten-

sion-flaps 5, the cloth-sections 3 being provided with buttons and hooks to engage with the buttonholes and eyes upon the adjusting-flaps, substantially as described.



749,606. GEAR-CUTTING MACHINE. HUGO BILGRAM, Philadelphia, Pa. Filed Dec. 19, 1902. Serial No. 135,894. (No model.)



Claim.—1. The combination in a gear-cutting machine of the type in which the tooth form of spur-wheels is generated by a tool having the form of a rack-tooth and moved in relation to the blank, as a rack-tooth would move when engaging a spur-wheel, of an apron adapted to hold the tool, a movable abutment adapted to support the apron during the cutting action of the tool, by means of which the drop of the tool can be varied, and means, arranged to be operated in unison with the transverse movement of the tool, for adjusting the said movable abutment.

2. In a gear-cutting machine of the type in which the tooth form of spur-wheels is generated by a tool having the form of a rack-tooth and moved, in relation to the blank, as a rack-tooth would move when engaging with a spur-wheel, the combination of an apron adapted to hold the tool, an eccentric adapted to be moved automatically in unison with the transverse movement of the tool, an eccentric-rod forming the abutment for the tool-apron, and an inclined face on the tool-apron located to contact with the abutment on the eccentric-rod to cause a variation in the drop of the tool.

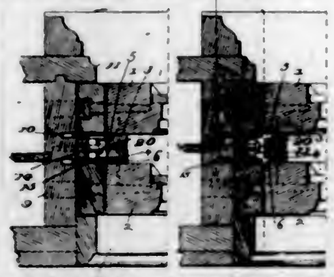
3. In gear-cutting machines of the type in which the tooth form of spur-wheels is generated by a tool having the form of a rack-tooth and moved, in relation to the blank, as a rack-tooth would move when engaging with a spur-wheel, the combination of a rack having a fixed position in relation to the blank-arbor bearings, a gear-wheel engaging with the said rack and supported by a journal having a fixed position in relation to the tool-ram bed, a splined rod passing through the center of the said gear-wheel, feathered thereto and journaled in a bearing having a fixed position in relation to the tool-ram, an eccentric secured to the said splined rod, an eccentric-rod forming a movable abutment for the tool-apron and the said apron having an inclined abutment-face, substantially as and for the purpose specified.

749,607. CONSTRUCTION OF SWITCHBACK-ROADWAYS. HÉLÈNE DUTRIEU, Paris, France. Filed Aug. 19, 1903. Serial No. 170,042. (No model.)



Claim.—An elevated cycle-track for the purpose specified, comprising a downwardly-inclined portion *a*, an upwardly-inclined portion a^2 at the margin of a gap in the track and joined to the portion *a* by a curved portion *a'*, said portion a^2 being tangent to the parabolic curve of the path traveled by the cycle in leaping the gap, and having a length as great as the distance between the centers of the cycle-wheels, and a terminal downwardly-inclined portion of the track beyond said gap and also tangent to the said parabolic path.

749,608. WINDOW. OSCAR FROTSCHER, Philadelphia, Pa. Filed Jan. 31, 1903. Serial No. 141,325. (No model.)



Claim.—1. In a window and in combination with the frame thereof having a fixed stile or stiles forming its inner sides; a parting-bead projecting from said fixed stile or stiles and longitudinally movable into inactive position; said bead having means normally forcing it into active position; and means for holding said bead in its inactive position when so placed, substantially as described.

2. In a window-frame having a fixed stile or stiles forming the inner sides thereof, and in combination with the sashes; a horizontally and longitudinally movable parting-bead projecting between said sashes from said fixed stile or stiles: window-slides movable on the sides of said parting-bead and having the sashes pivotally connected thereto; the said parting-bead normally projecting beyond said window-slides and preventing the sashes from moving on their pivots and capable of assuming an inactive position when moved backward and longitudinally; and means for holding said bead in its inactive position when so placed whereby said sashes may be turned on their slides; substantially as described.

3. In a window; a parting-bead having openings therein; a device coacting with said openings for holding the bead in inactive position; and projecting portions on said parting-bead acting as weather-strips; substantially as described.

4. In a window; a movable parting-bead formed of sheet metal and having side portions adapted to enter grooves in a window-frame, a portion disposed substantially at right angles to said side portions and connecting the same, and means coacting with said movable bead for holding the same in an inactive position; substantially as described.

5. In a window; a combined parting-bead and weather-strip formed of sheet metal and comprising side portions adapted to enter grooves in a window-frame, a portion disposed substantially at right angles to said side portions, and projecting portions adapted to enter grooves in the sash to act as weather-strips and forming connections between the said side portions and the said portions disposed at right angles thereto; the aforesaid bead being movable in an inactive position; and means for holding the bead in its inactive position; substantially as described.

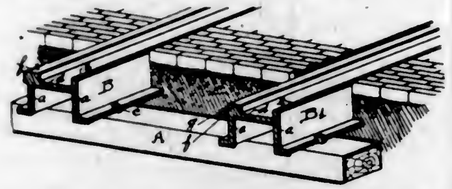
6. In a window, a parting-bead having countersunk portions and slots therein, a device coacting with said portion for holding the parting-bead in inactive position, and projecting portions on said parting-bead acting as weather-strips; substantially as described.

7. In a window and in combination with the sashes thereof; a parting-bead projecting between said sashes and movable into inactive position, a spring for holding said parting-bead in its normal position; and a countersunk device for holding said bead in inactive position; substantially as described.

8. In a window, a parting-bead formed of sheet metal and having side portions adapted to enter grooves in a window-frame, a portion disposed at right angles to said side portions and countersunk openings therein; substantially as described.

9. In a window, a combined parting-bead and weather-strip formed of sheet metal and comprising side portions adapted to enter grooves in a window-frame, a portion disposed at right angles to said side portions by which the parting-bead may be secured in position, and integral doubled portions adapted to enter grooves in the sashes; substantially as described.

749,609. RAILROAD. THOMAS M. GALBREATH, Memphis, Tenn. Filed Sept. 29, 1903. Serial No. 175,078. (No model.)



Claim.—1. In a railroad, the combination of ties laid below the surface of the street-pavement or roadway and the track arranged upon and connected to the ties, said track being formed by rails each of which is in one piece and comprises parallel webs or uprights having outwardly-directed base-flanges, a flat head connecting these webs, guard-flanges on the same edge of each of these rails, wheel-treads on the opposite edges of the rails and a lateral flange extending from beneath the wheel-tread of one of the rails, substantially as described.

2. A railroad-rail formed in one piece, comprising upright webs, outwardly-directed base-flanges, a head connecting said upright webs, a guard-flange above said head and flush with one of said webs, a wheel-tread at the opposite edge of said rail and a lateral flange extending from beneath the wheel-tread, substantially as described.

3. A railroad comprising two rails having car-wheel treads spaced to standard gage, flat wagon-wheel treads below said car-wheel treads and integral therewith spaced to the same gage, and additional guide-flanges on the sides of said rails opposite said car-wheel treads and projecting above said wagon-wheel treads substantially as described.

4. In a crossing for the herein-described railroad, the combination with the rails to be crossed, two rails each having car-wheel treads spaced to gage, flat wagon-treads below said car-wheel treads and spaced to the same gage, and guide-flanges on the sides of said rails opposite said car-wheel treads and projecting above said wagon-wheel treads, of wedge-shaped blocks forming approaches to the rails to be crossed, substantially as described.

5. In a railroad, the combination of ties laid below the surface of the street-pavement or roadway and the track arranged upon and connected to the ties, said track being formed by rails each of which is in one piece and comprises parallel webs or uprights having outwardly-directed base-flanges, a flat head connecting these webs, guard-flanges on the same edge of each of these rails, wheel-treads on the opposite edges of the rails, a lateral flange extending from beneath the wheel-tread of one of the rails, and holes through said wheel-treads at low points, substantially as described.

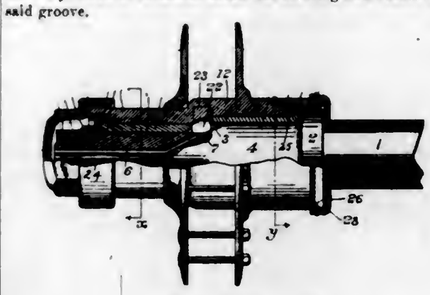
749,610. VEHICLE-HUB. PETER JENSEN, Philadelphia, Pa. Filed Oct. 23, 1903. Serial No. 178,328. (No model.)

Claim.—1. In an axle, a hub, an antifriction metallic bushing between said axle and said hub, means providing an annular space between said axle and said hub and intermediate the ends of the latter, a cap at the other end of said hub and a passage leading from said cap to such annular space.

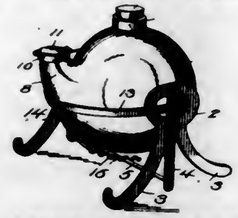
2. An antifriction device comprising an axle, a thrust-shoulder on said axle, a hub, antifriction metallic bushings interposed between said axle and said hub and a nut at the outer end of said axle, said bushing being provided with flanges between said hub and said shoulder and nut.

3. In combination a vehicle-axle, a hub on said axle and a flexible washer secured to the inner end of said hub fitting smoothly about said axle.

4. In combination a vehicle-axle, a hub on said axle and having an annular groove adjacent its inner end, a flexible washer surrounding the inner end of said hub and said axle and adapted to fit smoothly about the latter and means for securing said washer within said groove.



749,611. INKSTAND. HUGH A. JOHNSTON, Sydney, Canada. Filed May 23, 1903. Serial No. 158,512. (No model.)



Claim.—1. An inkstand, comprising an ink-reservoir having an outlet means, standards between which the said reservoir is pivotally mounted, a catch secured to the standards below the reservoir, and a holder attached to the reservoir at its upper end and having its lower extremity provided with means for engaging the said catch to hold the reservoir in angular adjustment.

2. An inkstand, comprising a pivoted reservoir, a lower catch, and a holder attached at its upper end to the reservoir and having its lower extremity provided with means for adjustably engaging the catch.

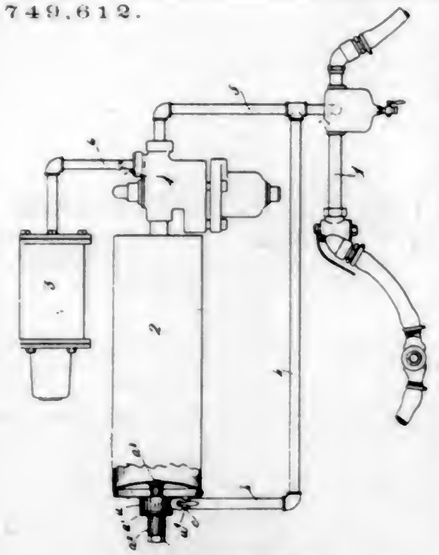
3. An inkstand, comprising an ink-reservoir with a forward dip-cup, means for pivotally supporting the said reservoir to permit the latter to be swung at an angle of inclination and depress the dip-cup, a catch device connected to said means and located below the reservoir, and a holder attached at one extremity to the front portion of the reservoir and having at its lower extremity means for adjustably engaging the said catch.

749,612. SUPPLEMENTAL AUXILIARY FEED FOR AIR-BRAKE SYSTEMS. JOHN J. JOUBS and JOHN R. SWAMPSCOT, St. Paul, Minn. Filed Jan. 17, 1903. Serial No. 139,396. (No model.)

Claim.—1. In an air-brake system, the combination with the train-pipe, auxiliary reservoir, brake-motor and triple valve, of a by-passage affording communication between the train-pipe and the said auxiliary reservoir, independent of said triple valve, and a supplemental valve mechanism comprising a movable member subject to train-pipe pressure and provided with a valve for opening and closing said by-passage, and a yielding pressure device acting on said movable member in opposition to train-pipe pressure, and tending to close said valve, whereby, when the train-pipe pressure is increased, to a predetermined point, said auxiliary reservoir will be charged, through said by-passage, as well as through the triple valve, substantially as described.

2. In an air-brake system, the combination with the train-pipe, auxiliary reservoir, brake-motor and triple valve, of a by-passage affording communication between the train-pipe and auxiliary reservoir, independent of the triple valve, and a supplemental valve mechanism comprising a diaphragm subject to train-pipe pressure and provided with a valve for opening and closing said by-passage, and a spring acting on said diaphragm in opposition to train-pipe pressure, and tending to close said valve, whereby, when the train-pipe pressure is increased above a predetermined point, said auxiliary reservoir will be charged, through said by-passage, as well as through the triple valve, substantially as described.

749,612.



749,613. CUTTER-BAR FOR MOWING-MACHINES. WILEY W. JONES, Downs, Kans. Filed Apr. 1, 1903. Serial No. 150,547. (No model.)



Claim.—1. In a cutting apparatus, a cutter-bar, guard-fingers constructed in upper and lower sections extending rearward of their main or knife-receiving sections, a casing secured between the members of the guard-fingers, and a sickle-bar held to travel protectedly in the said casing, said casing having an opening for the forward projection of the knives of the sickle-bar, substantially as described.

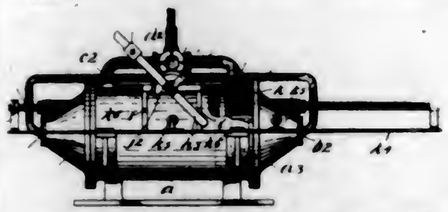
2. In a cutting apparatus, a cutter-bar for mowing-machines, guard-fingers attached to the cutter-bar, provided with knife-guide slots and with upper and lower rearwardly-extending members adapted for attachment to corresponding faces of the cutter-bar, a casing secured between the upper and lower members of the guard-fingers and having a longitudinal slot therein registering with the knife-guide slots in the guard-fingers, a sickle-bar having reciprocating movement throughout the length of the casing, and knives extending outward from the sickle-bar through the slots in the casing into the guide-slots in the guard-fingers, the cutting edges of which knives are given an upward bevel, as described.

3. In a cutting apparatus, a cutter-bar for mowing-machines, guard-fingers attached to the cutter-bar, provided with knife-guide slots and with upper and lower rearwardly-extending members adapted for attachment to corresponding faces of the cutter-bar, a casing secured between the upper and lower members of the guard-fingers and having a longitudinal slot therein, registering with the knife-guide slots in the guard-fingers, a sickle-bar having reciprocating movement throughout the length of the casing, and knives extending outward from the sickle-bar through the slots in the casing into the guide-slots in the guard-fingers, the cutting edges of which knives are given an upward bevel, the location of the knives of the sickle-bar in the guide-slots of the guard-fingers being such that said knives have cutting relation with reference to the upper walls of the guide-slots in the guard-fingers, and are spaced from the lower walls of such slots, as described.

4. In a cutting apparatus, a cutter-bar, a casing connected therewith, blades extending from the upper portion of the casing, a sickle-bar held to reciprocate in the casing, knives carried by the sickle-bar, adapted for contact with the under face of the knives on the casing, the cutting edges of the knives on the sickle-bar having an upward bevel and the corresponding edges of the knives extending from the casing being provided with a downward bevel, and guard-fingers arranged for attachment to the cutter-bar, which guard-fingers have slots to receive the fixed and the movable knives and recesses for the reception of the casing, as described.

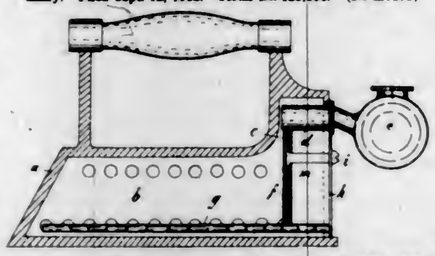
5. In mowing-machines, a cutter-bar, guard-fingers attached to the cutter-bar, provided with guide-slots near their forward ends, a casing sustained partially by the cutter-bar and partially by the guard-fingers, extending substantially the length of the forward edge of the cutter-bar, fixed blades extending from the upper portion of the casing into the guide-slots in the guard-fingers to an engagement with the upper walls of the said slots, a sickle-bar held to reciprocate in the said casing, being protected throughout its length by the casing, and knives carried by the sickle-bar, extending within the guide-slots of the guard-fingers to an engagement with the under faces of the fixed knives, the cutting edges of the sickle-knives being beveled from the under faces of the knives upwardly, as described.

749,614. PUMP AND WATER-POWER MOTOR. GEORGE KADLECHEK, Brooklyn, N. Y. Filed Oct. 16, 1903. Serial No. 177,264. (No model.)



Claim.—A device of the class described, comprising a cylinder, a water-supply pipe communicating therewith near both ends thereof, a water-discharge pipe communicating with both ends of said cylinder, said pipes being both provided with valve-casings having valves which are geared in connection, means for supplying water under pressure to the valve-casing of the first-named pipe, means for discharging water from the valve-casing of the second-named pipe, a piston mounted in said cylinder and provided with a rod or rods which extend through the opposite ends thereof, and means whereby the operation of said rod or rods will operate said valves, comprising a sliding bar connected with said rod or rods, and an arm geared in connection with one of said valves and adapted to be operated by said sliding bar, substantially as shown and described.

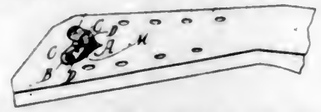
749,615. SAD-IRON. KARL KALTSCHMID, Oberriexingen, Germany. Filed Sept. 12, 1902. Serial No. 123,090. (No model.)



Claim.—1. The combination, with the body of a sad-iron, having a cavity or heating-chamber and provided with openings at its top and bottom, of a fluid-reservoir arranged outside of said body, a vapor-generator chamber arranged outside of the cavity or heating-chamber of the sad-iron, but in communication with this cavity or heating-chamber, a vapor-generator in said vapor-generator chamber, a wick-tube containing a wick connecting the fluid-reservoir with the vapor-generator, a perforated burner-tube near the bottom of the body of the sad-iron, a supply-tube connecting the vapor-generator with the burner-tube, and an upright heat-transmitting plate connected with the vapor-generator, supply-tube and burner-tube, substantially as set forth.

2. The combination, with the body of a sad-iron, having a cavity or heating-chamber and provided with openings at its top and bottom, and with a vapor-generator chamber arranged at the upper rear end outside of the cavity or heating-chamber of the sad-iron, but in communication with the same, of a fluid-reservoir located outside of the body of the sad-iron, a vapor-generator in said vapor-generator chamber, a wick-tube containing a wick connecting the fluid-reservoir with the vapor-generator, a perforated burner-tube near the bottom of the body of the sad-iron, a supply-tube connecting the vapor-generator with the burner-tube, and an upright plate heated by the rear jets of the burner-tube, connected with the vapor-generator, supply-tube and burner-tube, for transmitting heat from the burner-tube to the vapor-generator, for vaporizing the fluid in the same, substantially as set forth.

749,616. MANDOLIN-PICK HOLDER. BENJAMIN F. KNELL, Philadelphia, Pa. Filed Dec. 31, 1902. Serial No. 137,251. (No model.)



Claim.—1. A pick-holder for mandolins comprising a substantially flat plate having serrations and a plurality of spring-tongues to engage and hold picks and means whereby the plate can be secured to a mandolin.

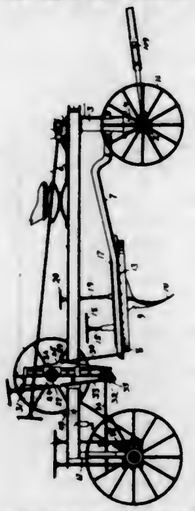
2. In a pick-holder for mandolins, a plate having a slot thereon, a tongue adjacent said slot, a bulged portion adjacent said tongue for forming a spring, and serrations beyond the bulged portion and means whereby the plate can be secured to the mandolin.

3. A pick-holder for mandolins comprising a plate having a slot therein, a spring-tongue adjacent said slot, and means whereby the plate can be secured to the mandolin, the upper face of said plate being provided with serrations.

4. In a pick-holder for mandolins, a plate having serrations, means for securing the same to a mandolin, a tongue independent of said securing means, the outer edge of which tongue is situated slightly above the upper face of the plate, and a bulged portion adjacent said tongue, for forming a spring.

5. A pick-holder for mandolins comprising a plate having a slot therein, a tongue adjacent said slot, said tongue having a bulge extending to the end of the tongue of the shape of the pick whereby room is provided for the pick between the top of the holder and the mandolin, and means for securing the holder to a mandolin.

749,617. ROAD-MAKING MACHINE. ELIAS L. LATHROP, Fort Wayne, Ind. Filed July 6, 1903. Serial No. 164,421. (No model.)



Claim.—1. In a road-working machine means for raising and lowering of the draw-bars consisting of a vertical screw-shaft rotatably mounted in a suitable support and carrying upon its upper end a bevel gear-wheel; an internally-screw-threaded block mounted on the said screw-shaft and pivotally connected to the front end of the draw-bars; a horizontal shaft having upon one end a bevel-gear in mesh with the bevel-gear on the screw-shaft, and carrying upon its other end a bevel-gear in mesh with a bevel-gear on the operating-shaft; and a rearwardly-extended operating-shaft arranged above and at one side of the main frame for the purpose described, and carrying upon its forward end an actuating bevel-gear.

2. Means for raising and lowering the front end of the draw-bars in a road-machine consisting of an upright rotatable screw-shaft carrying upon its upper end a fixed bevel-gear; a screw-threaded block operatively mounted on the said shaft; a rearwardly-extended operating-shaft arranged above and at one side of the main frame and carrying upon its forward end an actuating bevel-gear operatively connected with the said screw-shaft by means of an interposed shaft carrying upon its opposite end meshing gears as described.

3. In a road-machine a combined shifting and angularly-adjustable rear axle consisting of a box open only at its ends; a pair of axle-sections slidably mounted therein and pivotally conected at their outer ends to the spindles; means for actuating the axle-sections longitudinally; means for securing the spindles in alinement with their respective axle-sections consisting of a pair of pins as described; means for rigidly securing the axle-sections in position consisting of a pair of rods whose outer ends are pivotally connected to the respective spindles and whose inner ends are slidably mounted in a proper guide; and means for rigidly locking these rods in position, all substantially as described.

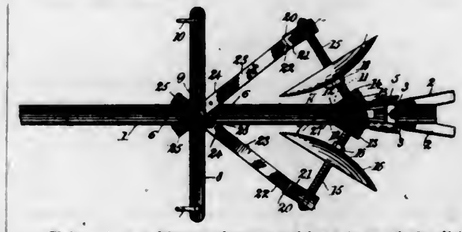
4. In a road-machine a shifting and canting axle consisting of two axle-sections slidably mounted in a closed boxing, and pivotally connected at their outer ends to the spindles; means for actuating the axle-sections consisting of upright hand-shafts whose lower ends are in mesh with the respective axle-sections; a pair of removable pins adapted to rigidly unite the axle-sections and the spindles; means for rigidly securing the axle-sections in any desired adjustment comprising a pair of rods pivotally connected at their outer ends to the spindles; and means for locking their inner ends at will, all substantially as described.

749,618. GLOVE-FASTENER. ALFREDO LEBLANC, Stamford, Conn. Filed Mar. 20, 1899. Serial No. 709,768. (No model.)



Claim.—In a glove-fastener, a female member comprising a shell made of a single integral piece of metal fastened to the inside of the glove material and having a concave locking portion lying wholly below the glove material, said locking portion being partially cut away to form a hook; a male member comprising a stud fastened to the opposite portion of the glove material and adapted to engage with the said concave locking portion and said hook, the stud being held firmly in engagement with said female member but prevented by the same from forcibly engaging with the glove material; and an operating thumb-piece fastened to the outside of the glove material above said female member for actuating the latter substantially as described.

749,619. DISK CULTIVATOR-PLOW. ELIJAH B. LEE and CHARLES H. BRADLEY, Leesburg, Ga. Filed July 17, 1903. Serial No. 165,841. (No model.)



Claim.—1. A cultivator-plow, comprising a beam, shafts, disks carried upon said shafts, means for adjusting the disks longitudinally on said shafts, swinging bearing-blocks on the beam for the inner ends of the shafts, braces for the outer ends of said shafts, said braces being adjustably connected at their forward ends to the beam, and a second set of swinging blocks forming the rear terminals of said braces, said blocks also forming bearings for the outer ends of said disk-carrying shafts and constituting connecting-links between the outer ends of said shafts and said braces.

2. A cultivator-plow, comprising a beam having a series of openings therein, a suitable distance from its forward end, and also having a similar series of openings formed rearwardly of the first series,

duplicate shafts having disks thereon, duplicate swinging bearing-blocks for the inner ends of said shafts, said blocks being pivoted in any one of said rear series of openings for adjusting said blocks rearwardly or forwardly upon the beam, braces connected at their forward ends to the beam of the plow, a second set of swinging bearing-blocks forming the rear terminals of said braces, said blocks also forming bearings for the outer ends of said disk-carrying shafts and constituting connecting-links between the outer ends of said shafts and said braces, and means for adjusting said braces longitudinally and also for securing the forward ends of the braces at any one of the first-named series of apertures, to adjust said ends forwardly and rearwardly on the beam.

3. A cultivator-plow comprising a beam, duplicate threaded shafts, disks supported thereby, nuts for adjusting the disks longitudinally on said shafts, swinging bearing-blocks carried by the beam for the inner ends of the shafts, adjustable braces connected at their forward ends to the beam of the plow, and a second set of swinging bearing-blocks forming the rear terminals of said braces, said blocks also forming bearings for the outer ends of said disk-carrying shafts and constituting connecting-links between the outer ends of said shafts and said braces.

749,620. SEAT FOR HARNESS-SADDLES. HUGO LEIDE, Baltimore, Md., assignor to Lerch Brothers, Baltimore, Md., a Firm. Filed Apr. 10, 1903. Serial No. 151,939. (No model.)



Claim.—1. A harness-saddle seat having a top surface which extends continuously from the front narrower end to the broader cantle end and having a bead which extends along the arch of the cantle and forms a shoulder, said seat also having a flange which is bulged convexed and downturned and closes the rear of said seat and a leather covering formed of two pieces extending over said top surface and having a seam to unite the two pieces, said seam taking against the said shoulder to prevent the cover from slipping and the edges of said covering being turned under and secured beneath said seat.

2. A harness-saddle seat broader at one end than at the other and having a continuous top surface which extends from one end to the other and which curves upwardly to said broader end and having a bead or shoulder which extends in a crosswise direction at said broader end, said seat also having a flange which depends from said bead or shoulder and closes the seat at the rear and forms a cavity on the bottom beneath said bead or shoulder; a foundation-strip in said cavity; a covering comprising two pieces, one of which is secured to the foundation-strip in said cavity and extends over said flange and terminates at said bead or shoulder and the other piece of said covering extending from said bead or shoulder over said continuous top surface, and a channel-strip extending crosswise of the seat at said bead and securing the ends of the two covering-pieces together.

749,621. NECKTIE-RETAINER. MATTHEW C. LEWELLYN, Buffalo, N. Y. Filed Sept. 22, 1903. Serial No. 174,140. (No model.)

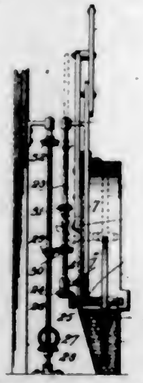


Claim.—1. A tie-retainer comprising a plate having a top and a bottom portion and an integral neck portion connecting said top and bottom portions, the lower portion terminating in forked projections for temporary engagement with the necktie, the upper end having a slot for engagement with a collar-button, said slot being enlarged at its inner end, said neck portion being located about central between the top and bottom of the retainer and provided with a transverse rearwardly-extending bend, the portion of the holder below said bend being inclined slightly forward.

2. A tie-retainer, comprising a plate having a top and a bottom portion, and an integral neck portion connecting said top and bottom portions, the lower portion terminating in forked projections for temporary engagement with the necktie, the upper end having a slot for engagement with a collar-button, said neck portion being provided with a transverse rearwardly-extending bend, the portion of the holder below said bend being inclined slightly forward.

749,622. WHEEL-PAINTING APPARATUS. WALTER B. LOWE, Cleveland, Ohio. Filed Apr. 22, 1903. Serial No. 153,798. (No model.)

Claim.—1. In a wheel-painting apparatus, the combination of a housing, paint-well at the bottom of said housing, a wheel-receiving spindle, means for supporting said spindle, means for lowering and raising said spindle-supporting means, and means for imparting rotation to said spindle when in its lowered and elevated positions, substantially as set forth.



2. In a wheel-painting apparatus, the combination of a housing, a paint-well at the bottom of said housing, a bar vertically movable in said housing, means for lowering and raising said bar, a wheel-receiving spindle journaled in said bar, a driven shaft geared to said spindle, and carried by said vertically-movable bar, a drive-shaft and gearing fixed to said drive-shaft and driven shaft to be engaged when said vertically-movable bar is in lowered and elevated positions, substantially as set forth.

3. In a wheel-painting apparatus, the combination of a support, a wheel-receiving spindle mounted in said support, and provided with an interior screw-thread, a gasket located on the rear portion of said spindle, a retaining-screw for insertion into said spindle, and a gasket carried by said retaining-screw, substantially as and for the purpose set forth.

4. In a wheel-painting apparatus, the combination of a support, a wheel-receiving spindle mounted in said support and provided with an interior screw-thread, a gasket on the rear portion of said spindle, a retaining-screw for insertion into said spindle, a rim carried by said screw, fins extending longitudinally of said screw, and a gasket positioned on said screw at the location of said fins and rim, substantially as set forth.

749,623. CENTRIFUGAL MACHINE. MARCEL DE MARCHÉVILLE, Paris, France. Filed May 13, 1903. Serial No. 156,947. (No model.)

Claim.—1. A centrifugal machine having a revoluble conical drum which is devoid of an internal flange, a distributer operable to deposit matter over the inner surface of the drum within a definite zone, and means for imparting a traversing movement to the distributer relative to that surface of the drum designed to receive the deposit of matter.

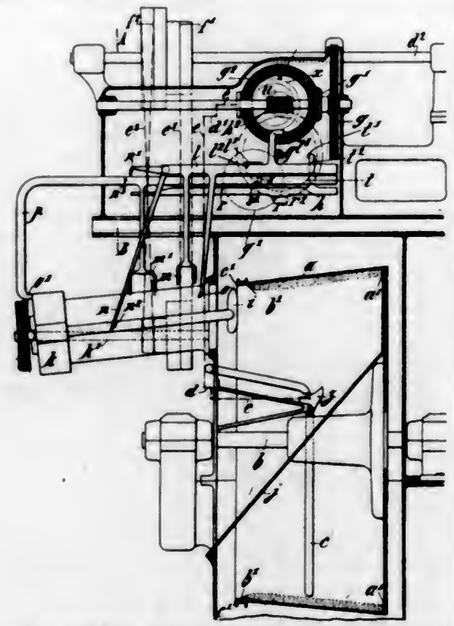
2. A centrifugal machine having a revoluble conical drum which is devoid of an internal flange, an oscillatory distributer hung to vibrate within the drum and effective in depositing matter on the inner surface of the drum within a definite zone, means for imparting a traversing movement to the distributer, and means for supplying matter to the distributer during the operation thereof.

3. A centrifugal machine having a revoluble drum, means for depositing matter on the inner surface of the drum within a definite zone, and a scraper having traversing movement relative to the drum for scraping accumulated matter from the inner surface of the drum.

4. A centrifugal machine having a revoluble drum, means for depositing matter on the inner surface of the drum within a definite area, a scraper movable in a path across the surface of the drum, and automatic devices for imparting a to-and-fro movement to the scraper.

5. A centrifugal machine having a revoluble drum, a distributer operable to deposit matter over the inner surface of the drum within a definite zone, a valved pipe for supplying matter to the distributer, another valved pipe for supplying a washing liquid to the distributer, and means for temporarily closing the valve in the first pipe and opening the valve in the second pipe.

6. A centrifugal machine having a revoluble drum, means for depositing matter on the surface of the drum within a definite zone, means for cutting off the supply of matter, and means for supplying a washing liquid to the coated surface of the drum when the supply of matter to be separated is cut off.



7. A centrifugal machine having a revoluble member, valve-controlled means for depositing matter on the drum within a definite zone, a reciprocatory scraper for traversing said zone, means for periodically cutting off the supply of matter, and means for actuating the scraper during the period of cessation of supply to the member.

749,624. DENTAL BUR. PERCY R. MCCULLOUGH, Philadelphia, Pa. Filed Dec. 15, 1902. Serial No. 135,268. (No model.)



Claim.—1. The within-described instrument for beveling tooth-roots for the reception of artificial crowns, said instrument consisting of a conoidal bur having a multiplicity of closely-disposed blades, and a non-cutting point constituting a conical continuation of the cutting portion of the bur and whose edge determines the depth of cut of the bur, substantially as specified.

2. A conoidal dental bur having a non-cutting portion at the base of the cone, which non-cutting portion extends outwardly beyond the cutting portion of the bur, substantially as specified.

3. A conoidal dental bur having a non-cutting disk which extends outwardly beyond the cutting portion of the bur at the base of the cone, substantially as specified.

4. A conoidal dental bur having a non-cutting point and a non-cutting portion at the base of the cone, which non-cutting portion extends outwardly beyond the cutting portion of the bur, substantially as specified.

5. A conoidal dental bur having a non-cutting point and a non-cutting disk extending outwardly beyond the cutting portion of the bur at the base of the cone, substantially as specified.

6. A conoidal dental bur having a non-cutting point forming the apex of the cone and presenting a sharper incline than the cutting-surface of the bur, substantially as specified.

7. A conoidal dental bur having a non-cutting point, and inclined shoulders where said point closes the grooves between the cutting-blades of the bur, substantially as specified.

8. A conoidal dental bur having a non-cutting point, separate from the bur, substantially as specified.

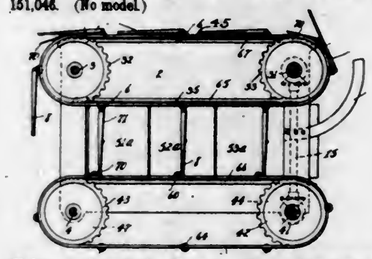
9. A conoidal dental bur having a non-cutting point separate from the bur and forming inclined shoulders where it closes the grooves between the cutting-blades of the bur, substantially as specified.

10. A conoidal dental bur having a countersunk recess in the forward end of its cutting portion, and a non-cutting double-cone point having one of its cones fitted to said recess, substantially as specified.

11. A conoidal dental bur having a non-cutting point separate from the bur, and fitted to a central projecting stem thereon, substantially as specified.

12. A conoidal dental bur having a countersunk recess and central projecting stem, and a non-cutting double-cone point fitted to said stem and recess, substantially as specified.

749,625. HYDRAULIC MOTOR. DAVID MCLEITER, Detroit, Mich., assignor to himself, John G. Hacking, George G. Epstean, and Louis C. McBride, Detroit, Mich. Filed Apr. 4, 1903. Serial No. 151,046. (No model.)

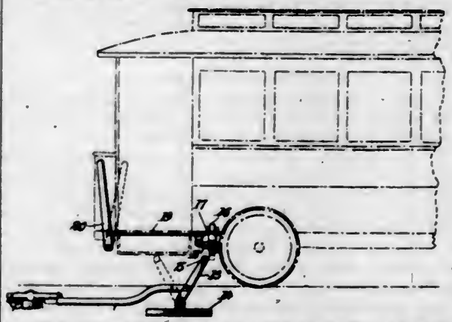


Claim.—1. In a hydraulic motor, the combination of a frame provided with carrying-wheels arranged to carry sprocket-chains, a series of buckets carried by said sprocket-chains, an opposed system of a series of sprocket-chains, and means on said opposed system for engaging the outer ends of the buckets and supporting the same, substantially as described.

2. In a hydraulic motor, a casing provided with belting in two series arranged to run in opposite directions, buckets on one of said series arranged to engage with locks on the opposite series, and means for producing equal peripheral speeds of the two series of belting, substantially as described.

3. In a hydraulic motor, in combination with two series of belts arranged to be driven in opposite directions, buckets arranged to cross the space between the belts, means for supporting the free ends of said buckets, and coffer-wings arranged to direct the water against said buckets, substantially as described.

749,626. SWITCH MECHANISM. JOHN W. OSBORNE, Exeter, Ill., assignor to William McCaleb, Bluffs, Ill. Filed Mar. 17, 1903. Serial No. 148,192. (No model.)

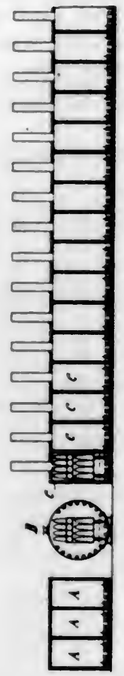


Claim.—1. In a switch mechanism, the combination with railway-rails of swinging switch-tongues, a rod connecting the tongues

and extended to one side of the track, a spring for moving the rod in one direction, an angle-lever having a slot in one of its members, a pin on the rod passing into said slot, a lever at one side of the track, and a rod having one end pivoted to said lever and the other end pivoted to said angle-lever.

2. In a switch mechanism, the combination with railway-rails, of swinging switch-tongues, a rod connecting the tongues and extended outward to one side of the track, a block in which the rod engages, a spring surrounding the rod and connected at one end to said block, a pin on the rod to which the other end of said spring is secured, an angle-lever having a slot in one of its members, a pin on the rod passing into said slot, a vertical lever at one side of the track, and a rod having one end pivoted to said vertical lever and the other end pivoted to said angle-lever.

749,827. PROCESS OF DRYING SUGAR-LOAVES. EMIL PASBURG, Berlin, Germany. Filed Feb. 26, 1903. Serial No. 145,276. (No specimens.)

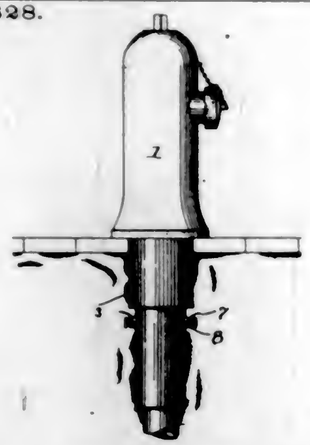


Claim.—The process herein described of drying sugar-loaves, which consists in subjecting sugar-loaves to the action of a partial vacuum for partially extracting the moisture from the same, transferring said loaves into a non-vacuum drying-chamber, and then subjecting the partially-dried loaves therein to a final heating action for extracting the remaining traces of moisture from the same, substantially as set forth.

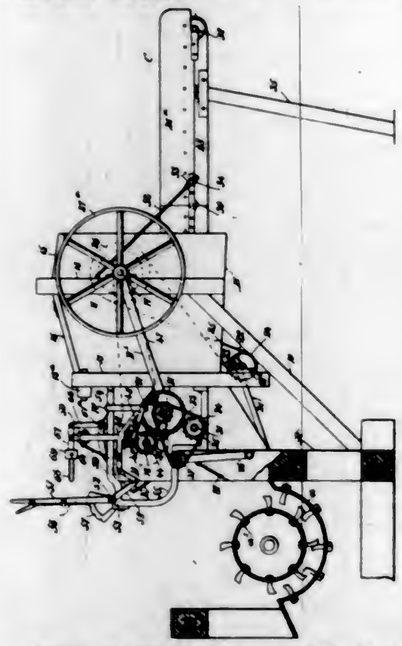
749,628. ELECTRIC HEATER. GEORGE J. PEACOCK, Pittsburg, Pa., assignor of one-fourth to Charles Bonini, Pittsburg, Pa. Filed Apr. 19, 1902. Serial No. 103,725. (No model.)

Claim.—In combination with the supply-pipe of a water-plug, an electrical heating device comprising an inner insulating cylindrical casing adapted to fit upon the supply-pipe, an exterior casing of insulating material surrounding the same, partitions formed integral therewith, said partitions being filled with a protective insulating material, resistance-coils placed in each of said partitions and embedded in the protecting material, said coils being connected one with another, binding-posts carried by the external casing, means electrically connecting the coils with said posts and means electrically connecting the binding-posts with a suitable source of electrical supply, substantially as described.

749,628.



749,629. GOVERNOR FOR FEEDERS OF THRESHING-MACHINES. WALFORD C. PETERSON, Geneva, Nebr., assignor of one-half to Franklin Skipton, Geneva, Nebr. Filed July 18, 1902. Serial No. 116,076. (No model.)



Claim.—1. In a feeder for threshing-machines, a feed-roller, a basket shield in which the roller revolves, the shield having movement to and from the roller, a support above the roller, a shaft mounted upon said support and provided with crank-arms at its ends, upper end sections for the shield with which the crank-arms have sliding engagement whereby to insure the shield being evenly raised, means for regulating the pressure required to raise the shield, a bundle-carrier having its delivery end beneath the shield, a driving mechanism for the bundle-carrier, and means for stopping and starting said driving mechanism and controlled by the movement of the shield to and from the feed-roller, substantially as set forth.

2. In a feeder for threshing-machines, a feed-roller provided with teeth, a basket shield in which the roller revolves, which shield is mounted for movement to and from the said roller, the said shield consisting of spaced transversely-arranged substantially U-shaped slats, connecting-bars for the upper ends of the slats, arched crossbars at each end of the shield extending from the front to the rear

of the same at the upper portion thereof, and provided with extensions pivoted to the frame of the machine, a support for the shield engaging the arched cross-bars, and arranged to insure the shield being evenly raised, a cross-bar at the top of the shield between the end cross-bars, a pivoted regulating-arm connected at one end by a link with the said cross-bar, the other end of the arm being provided with an adjustable weight for regulating the amount of pressure required to raise the shield, as set forth.

3. In a feeder for threshing-machines, a toothed feed-roller, a slatted basket shield in which the roller revolves, the shield having movement to and from the roller, a support above the roller, a shaft mounted upon said support and provided with crank-arms at its ends, upper end sections for the shield, having slots in which the crank-arms have sliding movement, whereby to insure the shield being evenly raised, and means for regulating the pressure required to raise the shield, substantially as set forth.

4. In a feeder for threshing-machines, a feed-roller, a shield for the feed-roller in which the said roller revolves, said shield being mounted for movement to and from the feed-roller, a bundle-carrier having its delivery end beneath the shield, a driving mechanism for the bundle-carrier, a driving mechanism for the feed-roller, a clutch connection between the two sets of driving mechanisms, whereby the bundle-carrier is driven from the feed-roller shaft, a pivoted and spring-controlled crescent arm forming part of said clutch mechanism, a trip-lever adapted to engage the free end of said crescent arm to move the same against the tension of its spring, and a trip-arm carried by the shield and having a foot on which the longer and heavier end of said trip-lever rests, the said trip-arm being operated by the movement of the shield to and from the feed-roller, whereby the driving mechanism of the bundle-carrier is automatically stopped when the shield is raised a predetermined distance and is started when the shield drops to its normal position.

5. In a feeder for threshing-machines, a feed-roller, a shield for the feed-roller in which the said roller revolves, said shield being mounted for movement to and from the feed-roller, a bundle-carrier having its delivery end beneath the shield, a driving mechanism for the feed-roller, a gear loosely mounted on the shaft of the feed-roller, a driving connection between the said gear and the bundle-carrier, a crescent-shaped arm pivoted on the said gear and having a segmental flange formed at its outer marginal portion and extending from a point near its pivot to the opposite end of the arm, the said flange being provided between its ends with an inwardly-extending angular projection forming pockets at each side of the projection, a spring normally holding the flange portion of the crescent arm within the line of teeth of the said gear, a clutch-disk secured to the shaft of the feed-roller and provided with diametrically opposite rollers adapted to enter either one of the pockets formed in the flange of the crescent arm and to be held in frictional contact with the flange by the tension of the spring controlling the crescent arm, whereby motion is communicated from the shaft of the feed-roller to the said gear-wheel and the bundle-carrier, a lever adapted to be moved into the path of the crescent arm to engage the same and move the said arm against the tension of its spring to carry the flange out of engagement with the rollers on the clutch-disk, and thereby stop the movement of the said gear-wheel and the bundle-carrier, the end of the said lever being normally out of the path of the said crescent arm, and a trip-arm carried by the shield and engaging the said lever to move the lever into operative position when the shield is raised a predetermined distance, as set forth.

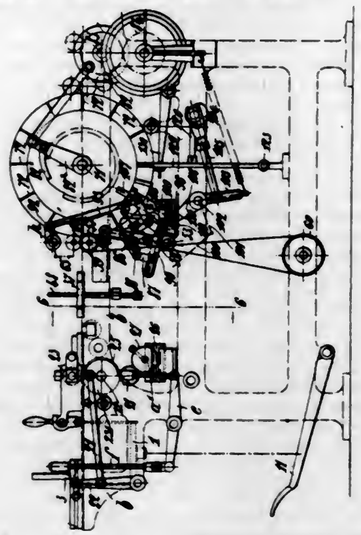
749,630. ORE-GRINDER. WILLIAM G. PHIPPS, Stockton, Cal. Filed Sept. 6, 1902. Serial No. 122,315. (No model.)



Claim.—1. In an ore-grinder, a plate in the form of a circle, or a part of a circle, radial cutting edges extending inward toward the center of the plate, said plate being hollowed out or dished between the cutting edges, said cavity commencing at a point a slight distance inward from the periphery and gradually deepening toward the center, each of the cutters being beveled from a point about midway of their length to their inner ends, an annular beveled surface formed upon the back outer edge of the plate, the periphery of the plate being formed with a sharp edge by reason of the annular beveled surface on the back of the plate, substantially as described.

2. In an ore-grinder, a plate in the form of a circle, or a part thereof, main cutters extending inward toward the center of the plate and terminating within a short distance thereof, auxiliary cutters arranged between the main cutters and also extending radially toward the center of the plate, a plane or flat surface formed on the face of the plate extending inward a distance from the periphery, the balance of the plate in between the cutters being dished toward the center, the plane surface extending inward on the cutters to a point midway of their length, the balance of the cutters being beveled downward to their inner ends, an annular beveled surface formed upon the back of the plate, said annular beveled surface extending from the periphery of the plate inward and downward toward the center and not diverging more than twenty degrees from being parallel with the beveled surfaces upon the face of the plate, the periphery of the plate being formed with a sharp edge by its annular beveled surface, as and for the purpose specified.

749,631. PAPER-BAG MACHINE. EMILE GUENARD, Paris, France, assignor to La Société Guenard Frères et Fils, Paris, France. Filed Oct. 7, 1902. Serial No. 126,354. (No model.)



Claim.—1. A machine for making paper bags, comprising a supply-table provided with a pile of sheets of paper, a horizontally-movable carriage, means for placing the uppermost sheet of paper of the pile on said carriage, a mandrel-plate of less width than the paper sheet for receiving said sheet, feed-rolls for conveying the sheet from the carriage to and beneath the mandrel-plate, means for applying adhesive to the horizontal side edge of the sheet while passing through the rolls, means for folding the wings, or extending edges, of the sheet over onto the plate, whereby the edge coated with adhesive is placed in contact with the other edge of the sheet, a rectangular plate movable vertically above the mandrel-plate for pressing the two edges of the sheet together, a platen-wheel provided with a plurality of radial platens adapted to rotate intermittently, means for placing the sheet forming the bag-body on one of said platens, means for successively, at the end of each intermittent rotation of the wheel, cutting a notch in the bag-bottom, applying adhesive to the same, folding the bottom and one corner of the same and means for drawing off the bag from the platen of the platen-wheel, and means for simultaneously turning the other corner of the bottom and pressing the same while conveying the bag from the platen of the wheel and discharging the same, substantially as set forth.

2. In a paper-bag machine, a supply-table provided with sheets of paper, a rack connected with said table, a slide-bar provided with teeth engaging the rack, means for intermittently disengaging the rack and toothed bar, and means for raising the table when the toothed bar and rack are disengaged, substantially as set forth.

3. In a paper-bag machine, a frame for the machine, guideways in said frame, a supply-table provided with sheets of paper movable in said guideways, a rack connected with said table, a slide-bar provided with teeth engaging the rack, a spring-actuated rod on said

slide-bar, a cam, a lever actuated by said cam and connected with said spring-actuated rod, and springs on said rack connected with the frame of the machine for raising the table when the slide-bar and rack are disengaged, substantially as set forth.

4. In a paper-bag machine, a plate of less width than the sheet of paper to be formed into a bag, pivoted folder-panels at each side of the plate and slightly below the same, a second plate separate from and below said first plate, rollers on said plate at each side of the same for supporting the folder-panels, means for raising said plate with the rollers whereby the folder-panels are caused to describe an arc of a circle around their pivots, and means for moving said folder-panels so as to cause the folding of the wings or extending edges of the sheet of paper over onto the plate, substantially as set forth.

5. In a paper-bag machine, a plate of less width than the sheet of paper to be formed into a bag, a sheet of paper below the same, a second plate below said first plate, rollers on said second plate on each side of the same, pivoted folder-panels on each side of the first plate and slightly below the same, means for raising said plate with the rollers whereby the folder-panels resting thereon are caused to describe an arc of a circle around their pivots, rollers at the ends of said folder-panels, and means for moving said folder-panels so as to cause the folding of the wings or extending sheets of paper over onto the plate and moving them horizontally to and fro on the plate, substantially as set forth.

6. In a paper-bag machine, the combination, of a plate of less width than the sheet of paper to be formed into a bag, a second plate below said first plate, rollers on said plate, pivoted folder-panels slightly below the first plate and supported on the rollers of the second plate, a rod on said second plate, a shaft, a cam on said shaft, a lever actuated by said cam and connected with said rod of the second plate for raising or lowering the same, a second cam on said shaft, a pivot-rod actuated by said second cam and connected with the folder-panels, and means for rotating said shaft for raising the second plate and actuating the folder-panels for folding over the wings or extending edges of the sheet of paper onto the first plate, substantially as set forth.

7. In a paper-bag machine, a mandrel-plate enveloped by a bag-body, a cut-away plate at the end of said mandrel-plate, means for moving the bag-body along the mandrel-plate onto the cut-away plate, a movable shutter at the free end of the cut-away plate, a platen-wheel provided with a plurality of platens, means for moving the bag-body along the mandrel-plate to the cut-away plate and onto one platen of the wheel, and means for actuating the movable shutter for insuring the bag-body to cover the platen of the wheel, substantially as set forth.

8. In a paper-bag machine, a mandrel-plate, a cut-away plate, a movable shutter hinged at one end of said cut-away plate, a platen-wheel provided with a plurality of platens, means for moving the bag-body along the mandrel and the cut-away plates and onto one platen of the platen-wheel, a shaft, a cam on said shaft, a lever, a rod actuated by said cam and connected with one end of said lever, and a rod connecting the other end of said lever with the movable shutter, substantially as set forth.

9. In a paper-bag machine, a wheel, a shaft for said wheel, two cheek-pieces keyed on said shaft at either side of the wheel, platens secured to the hub of the wheel, and a pivoted plate on each side of each platen of the wheel, substantially as set forth.

10. In a paper-bag machine, a platen-wheel, a plurality of radial platens on said wheel, each of said platens formed square-ended at its outer end, cheeks for said wheel at either side of the same, permitting the bag-body to pass between the cheeks and platen when placing the bag-body on the platen, and means for holding the bag-body on the platen when placed thereon, substantially as set forth.

11. In a paper-bag machine, a platen-wheel provided with a plurality of platens, a cheek at either side of the wheel, a pivoted plate at either side of each platen, a spring connecting the pivoted plates between the two adjacent platens, cams intermittently in contact with said pivoted plates, spindles for the cams passing through the cheeks at either side of the wheel, lugs on said spindles, and means for moving the lugs, substantially as set forth.

12. In a paper-bag machine, a platen-wheel, a cheek on either side of said wheel, radial platens on said wheel, a plate on each side of each platen pivoted near the hub of the wheel, a spring-blade on each plate, a spindle passing through each cheek, a cam on said spindle engaging said spring-blade, means for moving said spindle, and a spring connecting the plates between the adjacent platens for raising the plate from the platen when the cams do not depress the spring-blades, substantially as set forth.

13. In a paper-bag machine, a platen-wheel provided with a plurality of platens, a cheek on either side of said wheel, a pivoted plate at either side of each platen, a spring connecting the pivoted plates between each two adjacent platens, a spring-blade on each pivoted plate, cams adapted to engage with each of said spring-blades, a spindle for each of said cams, the spindle of the cam engaging with the spring-blade of one of said plates of the platens passing through one of said cheeks, while the spindle of the cam engaging with the spring-blade of the plate on the opposite side of the platen passes through the other of said cheeks, and means for moving said spindles, substantially as set forth.

14. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said platen-wheel provided with means for holding the bag-body, and means for cutting a notch in the bag-body at the first period of rest of the intermediate rotation of the platen-wheel, substantially as set forth.

15. In a paper-bag machine, a platen-wheel, means for intermittently rotating said platen-wheel, a platen on said platen-wheel, means on said platen for holding the bag-body, a knife arranged in radial direction with the platen when at the end of its first period of rest of the intermittent rotation of the platen-wheel, and means for actuating said knife for cutting a notch in the protruding end of the bag-body, substantially as set forth.

16. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said wheel, a movable knife, a counterpart for said knife, a plate provided with guideways for said counterpart, means for raising or lowering said knife for cutting a notch in the protruding bag-body, and means for reciprocating said counterpart to permit the passage of the platen-wheel when resuming its motion, substantially as set forth.

17. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said wheel, a spindle, a movable knife pivoted to said spindle, levers on said knife, a slotted bar for the free end of said levers, a counterpart for said movable knife, a plate, guideways in said plate for said counterpart, an elbow-lever connected with said slotted bar and engaging with said counterpart, and means for actuating said elbow-lever for raising and lowering the knife and reciprocating the counterpart in the guideways, substantially as set forth.

18. In a paper-bag machine, means for cutting a notch in the bag-body, comprising a spindle, a movable knife connected with said spindle, a lever for moving said spindle, a slotted bar for the free end of said lever, a plate provided with guideways, a counterpart for said knife movable in said guideways, an elbow-lever connected with said slotted bar and engaging said counterpart, a shaft, a cam on said shaft, a pivoted lever, a rod actuated by said cam and connected with said lever, and a rod connecting the other end of said pivoted lever with the elbow-lever, substantially as set forth.

19. In a paper-bag machine, means for applying adhesive to the end edges of the bag-body, comprising a reservoir, a stationary guide-piece at each side of the same, a sliding piece movable in each of said stationary pieces, stops on said stationary piece, means for moving said sliding piece in said stationary piece, a carrier movable in consonance with the sliding piece on said stationary piece between the stops, and means on said carrier for receiving and applying adhesive, substantially as set forth.

20. In a paper-bag machine, means for applying adhesive to the end edges of a paper-bag body, comprising a reservoir, a funnel on said reservoir passing outside the frame of the machine, a stationary guide-piece on each side of said reservoir, a sliding piece movable in each of said stationary pieces, stops on said stationary pieces, a carrier movable between the stops on said stationary piece, a spring at each side on said carrier connected with the sliding piece, guideways in said carrier, clamping-pieces movable in said guideways, fingers on said clamping-pieces, a spring connecting said clamping-pieces, a roller on said stationary piece, levers provided with projections pivoted to said sliding pieces and adapted to actuate the clamping-pieces in the carrier depending on the projections of the levers passing over the roller, and means for moving the sliding pieces, substantially as set forth.

21. In a paper-bag machine, the combination, of a platen-wheel, means for intermittently rotating the same, a platen on said platen-wheel enveloped by the bag-body, and means at the second period of rest of the intermittent rotation of the wheel for applying adhesive to the end edges of the bag-body on the platen-wheel, comprising a reservoir, a stationary guide-piece on each side of the reservoir, a sliding piece movable in each of said stationary pieces, means on said sliding pieces for receiving and applying adhesive, and means for moving said sliding pieces in said stationary pieces, substantially as set forth.

22. In a paper-bag machine, means for applying adhesive to the end edges of a paper-bag body, comprising a reservoir, a stationary guide-piece at each side of said reservoir, stops on said stationary guide-piece, a roller at the lower end of said stationary guide-piece, a sliding piece movable in said stationary piece, pivoted levers on said sliding piece, projections on said pivoted levers, a carrier movable on said stationary piece between the stops of the stationary piece and provided with an opening for the passage of the sliding piece, springs in recesses of said sliding piece and connected with either side of said carrier, guideways in said carrier, clamping-pieces movable in said guideways transversely to the direction of movement of the sliding piece, a spring connecting the clamping-pieces for pressing the same against the backs of the pivoted levers when moved with the sliding piece through the carrier, and means for moving the sliding piece with pivoted levers in said stationary guide-piece and carrier for raising or lowering the carrier connected by springs with the sliding piece, and for opening and closing the clamping-pieces at the lower and upper parts of the reciprocation of the carrier when the roller of the stationary piece engages the projections of the pivoted levers, substantially as set forth.

23. In a paper-bag machine, a platen-wheel, means for intermittently rotating said platen-wheel, a platen on said platen-wheel, means radially in line with said platen of the wheel enveloped by a bag-body at the second period of rest of its intermittent rotation for applying adhesive to the end edges of the bag-body, comprising a reservoir, a sponge-covered piece, means for inserting said sponge-covered piece in the reservoir, a stationary guide-piece at each side of said reservoir, stops in said stationary piece, a carrier movable on said stationary piece between the stops of the stationary piece and provided with an opening, guideways in said carrier transversely to the stationary guide-piece, clamping-pieces movable in the guideways of said carrier, means for simultaneously moving the clamping-pieces in the guideways to and fro from each other and reciprocating the carrier for lowering the clamping-pieces and at the same time move them from each other for moving the clamping-pieces toward each other at the lower end of the reciprocation of the carrier, for clamping the adhesive-covered sponge-piece, moving the clamping-pieces from each other on the return stroke and finally moving them toward each other and clamping them on the bag-body, substantially as set forth.

24. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said platen-wheel formed square-ended at its outer end, means on said platen for holding the bag-body, and stationary blocks and having an incision corresponding to the angle of the platen for a preliminary folding of the part of the bag-body protruding from the platen of the platen-wheel, substantially as set forth.

25. In a paper-bag machine, the combination, of a platen-wheel, a platen on said wheel, means for holding the bag-body to the platen, means for folding over the protruding parts of the bag-body so as to form the bottom of the bag, and means for folding one corner of the bottom of the bag, substantially as set forth.

26. In a paper-bag machine, a platen-wheel, a platen on said wheel formed square-ended at its outer end, means for intermittently rotating said platen-wheel, a lower platen the upper end of which is provided with an incision corresponding to the square outer end of the platen of the platen-wheel, means for oscillating said lower platen, a plate movable in said lower platen provided with an incision corresponding to the square outer end of the platen-wheel, and means for moving said plate when the lower platen is at one end of its oscillation for turning the protruding parts of the bag-body for forming the bottom of the bag, substantially as set forth.

27. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said wheel formed square-ended at its outer end and provided with means for holding the paper-bag body on the same, and means for forming the bottom of the bag, comprising a lower platen pivoted to the frame of the machine, means for oscillating said lower platen, a plate in said lower platen, a second plate movable in said first plate, and means for raising said plates for folding the bottom of the bag, substantially as set forth.

28. In a paper-bag machine, a platen-wheel, means for intermittently rotating said platen-wheel, a platen on said wheel formed square-ended at its outer end, and means for folding the bottom of the bag-body at a period of rest of the intermittent rotation of the wheel, comprising a pivoted lower platen, a plate movable in said lower platen formed at its outer end with an incision corresponding to the angle of the platen of the platen-wheel, means for oscillating the lower platen for turning the protruding edges of the bag-body for forming the bottom of the bag, a second plate movable in said first plate for pressing the formed bottom of the bag and fork-shaped so as to prevent the second plate from coming in contact with the adhesive applied to the end edges of the bag-body, and means for moving said plates in the lower platen, substantially as set forth.

29. In a paper-bag machine, means for forming the bottom of the bag, a platen-wheel, a platen on said wheel, a cheek at either side of said platen-wheel, slots in said cheeks, a plate movable on the platen, a roller on said plate, fingers on said plate adapted to move in the slots of the cheeks, and means for moving said plate and roller for turning the corner of the bottom of the bag when the platen is opposite the means for forming the bottom of the bag, substantially as set forth.

30. In a paper-bag machine, means for forming the bottom of the bag, a platen-wheel, a platen on said wheel, a shaft for the wheel, a cheek keyed to the shaft at either side of the wheel, slots in said cheeks, a plate movable on the platen, a rack on said platen, fingers on said plate adapted to move in the slots of the cheeks, uprights on each side of the wheel, slots in said uprights whereby the same are guided by the shaft of the wheel, stops on said uprights, means for moving said plate and roller for turning the corner of the bottom of the bag when the platen is opposite the means for forming the bottom of the bag, and means for moving said uprights whereby the stops engaging with the fingers of the movable plates of the diametrically opposite platens simultaneously lower one plate for turning the corner of the bag-bottom and raise the other preparatory for the next actuation, substantially as set forth.

31. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said wheel and means for stripping said bag-body from the platen at a period of rest of the intermittent rotation of the wheel, comprising a carriage movable in guideways in the frame of the machine, hooks on said carriage, means for moving the carriage toward the platen of the wheel so that the hooks can engage with the bag-body on the platen, and means for moving said carriage, hooks and bag-body held thereby, away from the platen, substantially as set forth.

32. In a paper-bag machine, a platen-wheel, means for intermittently rotating said wheel, a platen on said wheel, and means for stripping the bag-body from the platen at a period of rest of the intermittent rotation of the wheel, comprising a carriage movable in guideways in the frame of the machine, hooks on said carriage for seizing the paper bag for placing it on the platen, means for turning the other corner of the bag-bottom of which one corner is already turned, and means for limiting the forward movement of the bag-body to said last-named means, substantially as set forth.

33. In a paper-bag machine, the combination, of pressure-rolls, a carriage, means for turning the other corner of the bag-bottom of which one corner is already turned, and means for moving the carriage for feeding the paper-bag bottom foremost into the pressure-rolls, substantially as set forth.

34. In a paper-bag machine, means for folding the second corner of the formed bottom of the bag, comprising means for moving the bag horizontally between the frame of the machine, a wedge, a roller above and in proximity to the same, and means for actuating said wedge whereby the second corner of the bottom of the bag is turned and in its continuing movement forced over by contact with the roller, substantially as set forth.

35. In a paper-bag machine, the combination, of pressure-rolls and means for folding the second corner of the bottom of the paper bag, comprising a wedge, a roller in proximity to said wedge, a shaft, a cam on said shaft, a lever actuated by said cam and connected with said wedge for moving the same upwardly against the roller, and means for rotating the pressure-rollers for pressing the bottom of the bag, substantially as set forth.

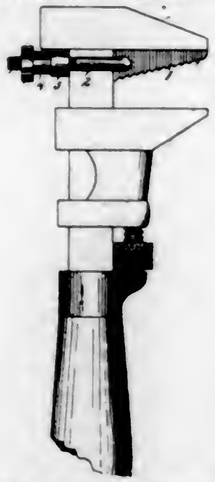
749,632. WRENCH. GEORGE W. ROUSE, Lowell, Mich. Filed May 2, 1903. Serial No. 155,352. (No model.)

Claim.—1. A supplemental or removable jaw having an attaching-yoke provided with a pivoted clamp-bar with one end adapted to be engaged with or disengaged from one arm of said yoke and means for the retention of said clamp-bar in locked position.

2. A removable or supplemental jaw having an attaching-yoke provided with a laterally-swinging clamp-bar with one end adapted to be engaged with and disengaged from one arm of said yoke, and thumb-nuts engaging the arms of said yoke and said clamp-bar.

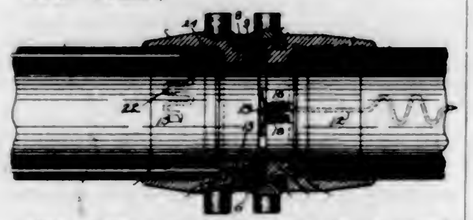
3. A removable or supplemental jaw having an attaching-yoke passing laterally through said jaw, near the lower end, and a pivoted clamp-bar, with one end adapted to be engaged with, or disengaged from, one arm of said yoke, and means adapted to hold said clamp-bar in locked position.

4. A removable or supplemental jaw having an attaching-yoke connected to said jaw, near its lower end, a clamp-bar pivoted upon one arm of said yoke and having one end adapted to be engaged with, or disengaged from, the other arm of said yoke, said yoke having screw-threads extending along the same a suitable distance from their lower ends, and thumb-nuts engaging said screw-threads and provided with lateral thumb extensions.



5. A removable or supplemental jaw having an attaching-yoke provided with thumb-nuts and a pivoted clamp-bar having near one end a laterally-opening slot adapted to serve as a hook or catch for engagement with one arm of said yoke, said clamp-bar being held by said nuts in locked position.

749,633. **ELECTRICAL HOSE SIGNALING APPARATUS.** WILLIAM G. SEELEY, Brookline, Mass. Filed May 25, 1903. Serial No. 158,621. (No model.)



Claim.—1. The combination of two half-couplings adapted to be screwed together, an insulating device separating the engaging screw-threaded portion of each half-coupling into two sections each adapted to engage the correspooding section on the other half-coupling, and circuit-wires electrically connected with said sections respectively.

2. The combination of two half-couplings adapted to be screwed together, the engaging screw-threaded portion of each half-coupling comprising two sections one of which is insulated from the body portion of the half-coupling, circuit-wires connected respectively with the insulated section of each half-coupling, and circuit-wires attached directly to the respective half-couplings.

3. The combination of a half-coupling provided with external screw-threads, an insulating-ring dividing said threads into two sections, circuit-wires connected with said sections respectively, a cooperating half-coupling having an internally-screw-threaded, swiveled collar, the screw-threads on said swiveled collar being also divided into two sections by an insulating-ring, a contact-piece carried by the body portion of the latter half-coupling and arranged in contact with one of said sections, and circuit-wires connected with said contact-piece and with the other of said sections respectively.

4. The combination of a half-coupling provided with an insulating-ring 6 and a metallic ring 7 carried by said insulating-ring 6, said half-coupling and ring 7 being provided with external screw-threads, circuit-wires leading to said half-coupling and ring 7 respectively, a cooperating half-coupling provided with a metallic ring 8, an insulating-ring 9 and a metallic ring 10 carried by said insulating-ring 9, said rings 8 and 10 being internally screw-threaded to cooperate with the screw-threads on the other half-coupling, and circuit-wires leading to said rings 8 and 10 respectively.

5. The combination of a half-coupling 2 provided with an insulating-ring 6 and a metallic ring 7 carried by said insulating-ring 6, said half-coupling and ring 7 being externally screw-threaded, circuit-wires connected respectively with the half-coupling 2 and to the ring 7, a cooperating half-coupling 3 provided with a swiveled collar 4, a metallic ring 8 carried by said collar, an insulating-ring 9 also carried by said collar, a metallic ring 10 carried by said insulating-ring, said rings 8 and 10 being internally screw-threaded, an insulated metallic contact-piece 19 carried by the half-coupling 3 and arranged in contact with the ring 10, and circuit-wires connected respectively with the half-coupling 3 and the contact-piece 19.

749,634. **ACETYL PARA CRESOTINIC ACID.** BRUNO R. SEIFERT, Radebeul, Germany, assignor to Chemische Fabrik von Heyden, Aktien-Gesellschaft, Radebeul, near Dresden, Germany. Filed Sept. 1, 1903. Serial No. 171,541. (Specimens.)

Claim.—As a new article of manufacture the acetyl para cresotinic acid having the formula

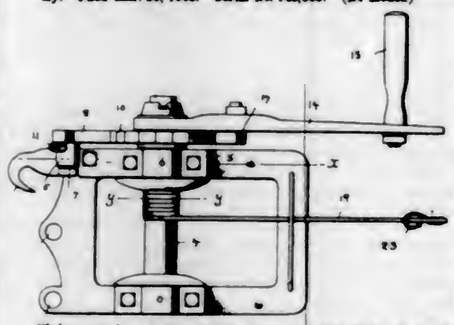
$$C_6H_3.CH_3.OCO.CH_3.COOH(1:4.5)$$

or

$$C_{10}H_{10}O_4.$$

being if crystallized from alcohol in the shape of white needles, soluble in wood alcohol, alcohol, acetone, chloroform, ether, benzene, melting at about 146° centigrade, yielding if absolutely free of para cresotinic acid no blue color on addition of ferric chlorid, being split into acetic acid and para cresotinic acid by boiling water, having a slightly-acid taste, substantially as hereinbefore described.

749,635. **WIRE-STRETCHER.** WILLIAM B. SHOTWELL, Idlewild, Ky. Filed Mar. 20, 1903. Serial No. 148,805. (No model.)

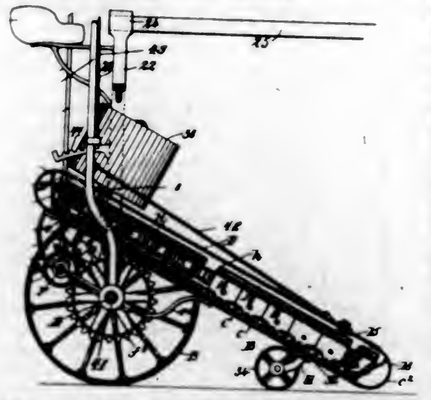


Claim.—1. In a device of the character described, the combination with a frame having a spool journaled therein, and a shaft extending from the spool; of a spring-pressed pawl pivoted upon the frame, a hook at one end of said pawl, a lever loosely mounted upon the shaft, a spring-pressed pawl pivoted thereon, a lug upon said pawl adapted to engage the hook on the other pawl, and a ratchet-wheel secured to the shaft and normally engaged by the pawls.

2. In a device of the character described, the combination with a frame having a spool journaled therein, and a shaft extending from the spool; of a bearing-plate for the shaft secured to the frame, an ear upon said plate, a pawl pivoted to the ear at one side thereof, a hook at one end of the pawl, a lever loosely mounted upon the shaft, a pawl pivoted thereto, a lug upon the pawl adapted to engage the hook on the other pawl, a ratchet-wheel secured to the shaft and springs for holding the pawls normally in engagement with the ratchet-wheel.

3. In a device of the character described, the combination with a frame having a hooked extension, a spool journaled upon the frame, and a shaft extending from the spool; of a ratchet-wheel secured to said shaft, a lever loosely mounted upon the shaft, an extension detachably secured to the lever, a pawl upon the lever, a lug thereon, a spring-pressed pawl pivoted upon the frame and normally engaging the ratchet-wheel, a hook upon the first-mentioned pawl adapted to engage the lug on the other pawl, whereby the pawls are held out of engagement with the ratchet-wheel, said pawls and wheel being arranged in the same plane, and a flexible strip connected to the spool and adapted to be wound thereon.

749,636. **COTTON-STALK PULLER.** CULLEN R. SMITH, Gonzales, Tex., assignor to himself and Joseph S. Lowery, Gonzales, Tex. Filed July 28, 1903. Serial No. 167,321. (No model.)



Claim.—1. A pulling-machine having a pair of endless carriers and a plurality of grippers on the carriers, said grippers on the adjacent leads of the carriers being disposed in pairs, and the grippers of each pair having upwardly-converging and cooperative relation.

2. A pulling-machine having two endless series of traveling grippers disposed in pairs, the grippers of each pair having upwardly-converging and cooperative relation, and means for laterally confining the individual grippers from displacement and retaining them in such cooperative relation during their travel as a pair of grippers.

3. A pulling-machine having a wheeled frame, a plurality of endless carriers mounted on the frame, means for driving the carriers, and grippers on the carriers, the grippers on the adjacent leads of the carriers being disposed in pairs, and the grippers of each pair having upwardly-converging active faces disposed in cooperative relation.

4. A pulling-machine having an inclined wheeled frame, a plurality of endless carriers mounted on said frame and partaking of the inclination thereof, means for driving the carriers at equal speed from a machine-axle, and a series of grippers movable with the carriers and riding on the frame, said grippers being disposed in pairs on the adjacent leads of the carriers and the grippers of each pair being disposed in converging cooperative relation.

5. A pulling-machine having a frame, a plurality of endless carriers mounted thereon, means for driving said carriers, grippers movable with the carriers and disposed in pairs on adjacent leads thereof, and revoluble doffing members adjacent to the delivery ends of the carriers and grippers.

6. A pulling-machine having a wheeled frame, carrier-driving shafts driven from a machine-axle, endless carriers mounted on the frame and driven by said shafts, grippers movable with the carriers and disposed in cooperating pairs on the adjacent leads thereof, and revoluble doffing members mounted on said carrier-driving shafts at the delivery ends of said carriers.

7. A stalk-pulling machine comprising an inclined frame having endless tracks, two series of wheeled yokes adapted to said tracks and provided with grippers which on the adjacent sides of the yokes of the pair are disposed in cooperative relation, and means for driving the two series of yokes at uniform speed.

8. A stalk-pulling machine comprising a main frame having endless tracks, sprocket-chains mounted on said frame, means for driving the sprocket-chains at equal speed, wheeled yokes movable with the sprocket-chains and adapted to travel on the tracks, and grippers carried by said yokes, adjacent grippers of the sprocket-chains being disposed in converging relation.

9. A stalk-pulling machine comprising an inclined frame, hoods fixed to said frame, endless carriers disposed on the frame within the hoods thereof, means for propelling the endless carriers at equal speed, and grippers movable with said endless carriers and disposed outside of the hoods thereof for cooperative relation.

10. A stalk-pulling machine consisting of an inclined frame, upright shafts supported by said frame, means for driving said shafts, endless carriers propelled at equal speed by said shafts, wheeled yokes movable with the carriers and traveling on the frame, and grippers movable with said yokes and disposed for cooperation one with the other.

11. A stalk-pulling machine comprising a suitable frame, track-surfaces on said frame, endless carriers supported on said frame above the track-surfaces thereof, yokes movable with the carriers and adapted to said track-surfaces, said yokes being provided with gripper members, and means for driving the carriers at equal speed.

12. A stalk-pulling machine comprising an inclined frame having track-surfaces, endless carriers on said frame, wheeled yokes movable with said carriers and adapted to travel on the track-surfaces, each yoke being provided with a head and with a gripper member, and stationary hoods having guides arranged to fit the heads of the yokes.

13. A stalk-pulling machine comprising a main axle, an inclined frame supported partly by said axle and equipped with suitable casters, track-surfaces on said frame, upright shafts driven by said main axle, endless carriers driven by said upright shafts, and wheeled yokes movable with said carriers and arranged to travel on the track-surfaces, each yoke being provided with a gripper member, and said yokes being inclined relatively to the part of the carrier to which it is attached.

14. A stalk-pulling machine comprising an inclined frame, upright shafts supported thereby, endless carriers supported by said frame and driven by said shafts, traveling grippers movable with the carriers and disposed for the grippers of one carrier to cooperate with the grippers of the other, and doffing-drums revoluble with said upright shafts and disposed in the path of cotton-stalks which are conveyed by the grippers of said carriers.

15. A stalk-pulling machine comprising a wheeled inclined frame, endless carriers supported thereon, upright shafts for driving said endless carriers at uniform speed, means for taking up slack in the endless carriers, and wheeled yokes movable with the carriers and arranged to travel on said frame, the yokes of said carriers being provided with cooperating grippers.

749,637. **VALVE.** FRANK L. SMITH, Chicago, Ill., assignor, by direct and mesne assignments, of two-thirds to Alva C. Ricksecker and Lewis A. Nichols, Chicago, Ill. Filed Feb. 24, 1903. Serial No. 144,629. (No model.)



Claim.—1. A valve comprising a chambered seating-face and a removable annular concavo-convex soft-metal disk lodged in the face-chamber with convex surface outward.

2. A valve comprising a head having a chambered seating-face and a plurality of annular concavo-convex soft-metal disks nested and lodged in the face-chamber with convex face outward to form the seating-surface of the valve.

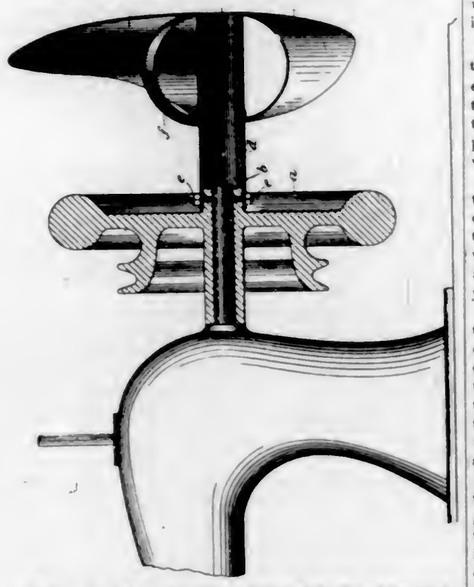
3. A valve comprising a head having its face provided with an annular chamber and an annular concavo-convex soft-metal ring lodged in said chamber with its convex face outward, each circumferential margin of said chamber being slightly undercut to form a bezel, and said annular disk being engaged at its inner and outer circumferences respectively with said undercut margins, whereby the expansion of the annular disk by the pressure of the valve on its seat increases the engagement of the disk with such bezel.

4. A valve comprising a head having a chambered face; a hard spring-metal disk lodged in such chamber comprising a concavo-convex annulus with convex face outward, and a pile of soft-metal annular concavo-convex disks lodged and secured in the chamber resting on said hard-metal disk.

5. A valve comprising a head having an annularly-chambered face; a pile of annular concavo-convex soft-metal disks nested and lodged in such annular chamber, the convex side outward, the circumferential walls of said annular chamber having at their outer edge minute inwardly-projecting flanges, the outermost of the disks being engaged behind the flanges.

6. A valve comprising a head having a chambered face; a hard spring-metal disk lodged in such chamber comprising a concavo-convex annulus with convex face outward, and a pile of soft-metal annular concavo-convex disks lodged and secured in the chamber resting on said hard-metal disk, the steel disk being slightly more convex than the soft-metal disks, to adapt it to support them at the middle.

749,638. **FAN ATTACHMENT FOR SEWING-MACHINES.** MORRIS STEINER, New York, N. Y. Filed Aug. 24, 1903. Serial No. 170,567. (No model.)



Claim.—1. A fan, comprising a hub, and blades of essentially triangular form, said blades each being curved or bent and having two of its corners engaged with the hub of the fan.

2. A fan, comprising a hub, and a plurality of blades formed of an integral sheet of metal, said blades being essentially triangular in form and having two of their corners attached to the hub.

3. A fan, comprising a hub formed of two tubes one within the other, and a blade having a portion projected through an orifice in the outer tube and secured between the inner and outer tubes.

4. A fan, comprising a hub, and angular blades, each blade being connected with the hub at two of its angles or corners, and said connections being effected at different points along the length of the hub, the part of the blade between said angles or corners being bowed or arc-shaped and spaced from the hub, substantially as described.

749,639. **BALL-AND-SOCKET FASTENER.** MARC STERNBERG, Philadelphia, Pa., assignor to Metallic Specialty Manufacturing Company, a Corporation of New Jersey. Filed Apr. 28, 1903. Serial No. 154,569. (No model.)



Claim.—1. A socket member for a ball-and-socket fastener, comprising a cap and a flanged eyelet, the eyelet having its sleeve slotted from its upper end downward, and the upper end of the slotted sleeve being expanded within the cap to engage its lower rim, the diameter of the expanded end of the sleeve being less than the interior diameter of the cap; substantially as described.

2. A socket member for a ball-and-socket fastener comprising a cap and a flanged eyelet; the eyelet having its sleeve slotted from its upper end downward, and the ends of the slotted sleeve being curled over within the cap with the extremities of the curled-over portions resting against the inner face of the lower rim of the cap, substantially as described.

3. A socket member for a ball-and-socket fastener, comprising a cap and a flanged eyelet, the eyelet having its sleeve slotted from its upper end downward, and the ends of the slotted sleeve being curled over within the cap with the extremities of the curled-over portions resting against the inner face of the lower rim of the cap, the diameter of the curled-over portions being less than the interior diameter of the cap; substantially as described.

4. A socket member for a ball-and-socket fastener, comprising a cap and a flanged eyelet; the eyelet having its sleeve slotted from its upper end downward, and the ends of the slotted sleeve being curled over within the cap, the curled-over portions being in contact with the inner surface of the top of the cap and in contact with the inner surface of its lower rim; substantially as described.

5. A socket member, for a ball-and-socket fastener, formed by the combination of a cap with a flanged eyelet; the sleeve of the eyelet being slotted from its upper end downwardly; and said slotted upper end of the eyelet-sleeve being expanded within the cap, the cap being so formed as to provide sufficient space about the expanded portion of the sleeve to permit the sleeve to yield outward within the cap, substantially as described.

6. A socket member, for a ball-and-socket fastener, formed by the combination of a cap with a flanged eyelet; the sleeve of the eyelet being slotted from its upper end downwardly; and said slotted upper end of the eyelet-sleeve being expanded and curled over within the cap, the cap being so formed as to provide sufficient space about the expanded portion of the sleeve to permit the sleeve to yield outward within the cap; substantially as described.

7. A socket member, for a ball-and-socket fastener, formed by the combination of a cap with a flanged eyelet; the sleeve of the eyelet being slotted from its upper end downwardly; but the flange of the eyelet being substantially integral, the slotted upper end of the sleeve being expanded within the cap, the interior diameter of the cap being greater than the diameter of the expanded portion of the sleeve, whereby the withdrawal of the sleeve from the cap is prevented but its expansion within the cap is permitted; substantially as described.

8. A socket member, for a ball-and-socket fastener, formed by the combination of a cap; and an eyelet, having a substantial integral flange, and a sleeve with slots extending from its upper end throughout its length and part way into the flange, but not impairing the substantial integrity of the flange; the relative sizes of the opening of the cap, and of the sleeve of the eyelet being such that when the slotted upper end of the sleeve is forced into the cap it expands and curls over until its ends lie close to the edge of the opening of the cap, whereby it is held from withdrawal from the cap, but at the same time is capable of yielding outwardly within it; substantially as described.

9. A socket member, for a ball-and-socket fastener, formed of but two pieces, namely, a cap and a flanged eyelet; the upper end of the eyelet being slotted, and expanded within the cap, but not fixedly held therein, the interior diameter of the cap being greater than the diameter of the expanded portion of the sleeve; substantially as described.

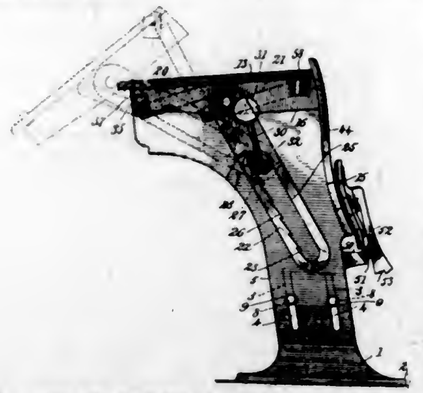
10. A ball-and-socket fastener, consisting of a non-resilient stud member; and a resilient socket member formed from a cap and eyelet; the eyelet being slotted at its upper end and expanded within the cap, with capacity to yield outwardly therein, the interior diameter of the cap being greater than the diameter of the expanded portion of the sleeve to permit of its outward yielding; substantially as described.

11. A socket member for a ball-and-socket fastener, comprising a cap and a flanged eyelet; the eyelet having its sleeve slotted at its upper end and expanded within the cap with capacity to yield outward therein, the interior diameter of the cap being greater than the diameter of the expanded portion of the sleeve, the flange of the eyelet being provided with points on its upper surface, which, when the socket member is formed, enter into and bind the fabric; substantially as described.

12. A ball-and-socket fastener, comprising a non-resilient ball member formed from a ball portion and an eyelet, the sleeve of the eyelet being crimped within the ball portion, the flange of the eyelet being provided on its upper surface with points for engaging the fabric, and a resilient socket member formed from a cap and eyelet, the sleeve of the eyelet being slotted at its upper end and expanded within the cap with capacity to yield outwardly therein, the interior diameter of the cap being greater than the diameter of the expanded portion of the sleeve; substantially as described.

749,640. **COMBINED SCHOOL SEAT AND DESK.** JESSE H. SUTHERLAND, Dawkins, Colo. Filed May 11, 1903. Serial No. 156,522. (No model.)

Claim.—1. A school-desk comprising vertical side portions, an auxiliary top having flanges on its under side, links movably connecting said flanges with said side portions, duplicate arms each having a slot therein, and secured at their upper ends to the flanges, each arm also having teeth on the forward edge of its slot, movable dogs working in these slots, and adapted to engage said teeth, and a weighted rocking bar connecting said cams, the upper extremity of each of the slots being at an angle to the rearward edge thereof, and each of said cams being flattened on its upper side, as shown, and for the purpose described.



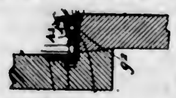
2. A school-desk comprising vertical side portions, an auxiliary top having an opening therein, and provided on its under side with flanges, links movably connecting said flanges with said side portions, duplicate arms each having a slot therein, and secured at their upper ends to the flanges, each arm also having teeth on the forward edge of its slot, movable dogs working in these slots, and adapted to engage said teeth, a weighted rocking bar connecting said cams, and a receptacle for an ink-well pivotally suspended at opposite sides of said opening, the upper extremity of each of said slots being at an angle to the rearward edge thereof, and each of said cams being flattened on its upper side, as shown, and for the purpose described.

3. A school-desk constructed with a body having therein a compartment open at the front, and provided with an auxiliary top, portions of the sides together with the upper part of said compartment, uniting with the top in the formation of another compartment above the first, said upper part being formed with an opening therein having a bottom, and said auxiliary top having a corresponding opening therein closed by a door.

4. A school-desk having a top adapted to be adjusted to different inclinations, said top having parallel slots formed therein transversely a suitable distance apart, and provided with a longitudinal groove or recess in its upper surface, the ends of said groove intersecting the forward ends of said slots; and a strip adapted to fit said groove flush with the said surface of the top, and having means at the ends passing through said slots and engaging the sides thereof.

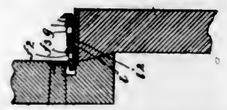
5. In a combined school seat and desk, a desk having a back provided with a hanger formed therethrough from side to side with a plurality of holes, one above the other, and having teeth on its outer face and grooves on its inner face, a yoke embracing said hanger, and having a member adapted to the grooves, a support pivoted to the yoke and having its inner end constructed to engage said teeth, and a rotatable seat held on said support.

749,641. **SASH-LOCK FOR WINDOWS.** THOMAS J. SUTTON, New York, N. Y. Filed Sept. 3, 1903. Serial No. 171,711. (No model.)



Claim.—A sash-lock comprising two members, one of which is secured to the top sash and the other to the top of the lower sash; that part which is secured to the top sash consisting of a plate having an opening; and that part which is secured to the lower sash consisting of a plate having a central opening, a transverse movable bar mounted on said plate and provided with a central opening having a transverse pin, a lever-plate mounted over the inner end portion of said bar and provided at its rear end with a hook member which passes downwardly through said opening and is adapted to engage said pin, said movable plate being also provided with a slot at the front end of which is a recess, and a screw or headed pin which passes downwardly through said slot in said lever-plate and through an opening in said bar and is secured in said first-named plate, and a spring placed beneath said lever-plate, said lever-plate being also provided at its front end with a thumb-piece, substantially as shown and described.

749,642. **SASH-LOCK FOR WINDOWS.** THOMAS J. SUTTON, New York, N. Y. Filed Sept. 3, 1903. Serial No. 171,712. (No model.)



Claim.—A window-sash lock, comprising a plate secured to the upper sash and provided in the bottom portion thereof with an opening, a plate secured to the bottom sash, a transversely-movable bar mounted thereon and provided with two longitudinal slots, the front or inner end of which is provided at its front or inner end with a recess, screws or headed pins passed through said slots and secured in the plate on which said bar is placed, and a spring placed beneath said bar and adapted to hold the front or inner end thereof in a raised position, substantially as shown and described.

749,643. **BAKING-POWDER.** GEORGE L. TELLER, Chicago, Ill. Filed Jan. 19, 1903. Serial No. 139,605. (No specimens.)

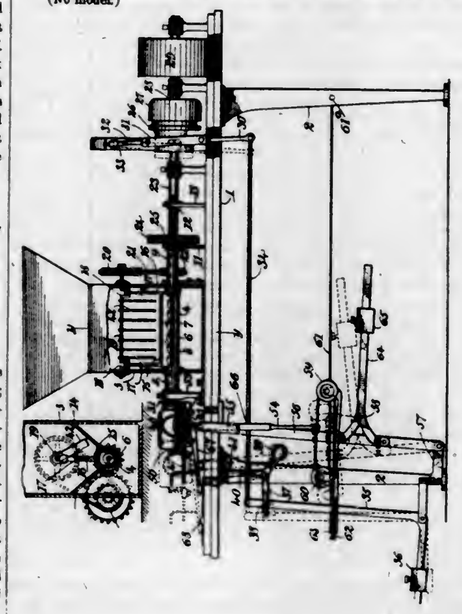
Claim.—1. As a new article of manufacture, a compound containing a mixture of milk-protein and hydrochloric acid in lax combination and in substantially dry and pulverulent form and containing an admixture of a carbonate, substantially as described.

2. As a new article of manufacture, a compound containing a mixture of milk-protein and hydrochloric acid, in lax combination and in substantially dry and pulverulent form and containing an admixture of bicarbonate of sodium.

3. As a new article of manufacture, a compound containing a mixture of milk-protein and hydrochloric acid in lax chemical combination and in substantially dry and pulverulent form with an intimate mechanical admixture of a carbonate, substantially as described.

4. As a new article of manufacture, a compound containing a mixture of casein and hydrochloric acid in lax chemical combination and in substantially dry and pulverulent form with an intimate mechanical mixture of bicarbonate of sodium, substantially as described.

749,644. **PACKING-MACHINE FOR PLASTIC MATERIALS.** JAS. C. THOM, Helmetta, N. J. Filed Sept. 29, 1903. Serial No. 175,024. (No model.)



Claim.—1. A packing-machine comprising a hopper, a trough extended through said hopper and having a tubular extension, and a conveyer mounted to rotate in said trough and extension, the said conveyer comprising a core and a plurality of spiral blades rotatable thereon.

2. In a packing-machine, a hopper, a trough extended through said hopper, a tubular extension for the trough, a spiral conveyer arranged to rotate in the trough and extension, a vertically-reciprocating packing-bar in the hopper above the trough, and stirrers in the hopper.

3. A packing-machine comprising a hopper, a trough extended through the lower portion of the hopper, a tubular extension outward from said trough, a spiral conveyer arranged to rotate in the trough and said extension, a crank-shaft in the hopper and having two cranks, a packing-bar, arms extended upward from said packing-bar and connected with the cranks, guide devices for said arms, and stirrers attached to the crank-shaft.

4. In a packing-machine, a hopper, a trough extended through the hopper, a tubular extension for said trough, a tubular shaft, a conveyer comprising a fixed core having a portion extended through said tubular shaft, and a pair of spiral blades mounted to rotate on said core, and a carrier for a receptacle to be filled.

5. A packing-machine comprising a receiving-trough, a tubular extension therefrom, a conveyer arranged to rotate in the trough and in said extension, a receptacle-carrier, clamping devices thereon, a swinging lever to which the carrier is pivoted, and means for holding the carrier on a horizontal plane during its movements.

6. A packing-machine comprising a receiving-trough for material, a tubular extension from said trough, a spiral conveyer mounted to rotate in said trough and extension, a receptacle-carrier, an arm extended downward from said carrier, lever members with which said arm has pivotal connection, pulleys carried by said lever members at opposite sides, and a cord or cable attached at its ends to fixed devices and extending around said pulleys, the upper stretch of the cable having connection with the arm depending from the carrier.

7. A packing-machine, comprising a feeding mechanism, a receptacle-carrier, a weighted swinging lever to which the carrier is pivotally connected, means for holding the carrier in parallelism with the bed or table of the machine, and a locking device attached to the carrier.

8. In a machine of the class described, the combination with a feeding mechanism, of a receptacle-carrier, comprising a plate, cross-rods on said plate, clamping-jaws adjustable on said rods for engaging with the sides of the receptacle, rods extended lengthwise of the plate, a clamping-plate supported by said rods, and an upwardly-extended plate attached to the end of the first-named plate and provided with an opening.

9. In a packing-machine, a hopper, a trough extended through the hopper, a tubular extension from said trough, a spiral conveyer arranged in the trough and extension, a driving-shaft having gear connection with said conveyer, a pulley-shaft, clutch members respectively on the said shafts, one of said members being movable lengthwise of its shaft, a receptacle-carrier, and means operated by the movements of said carrier for shifting the said movable clutch members.

10. In a packing-machine, a hopper, a trough extended through the lower portion of the hopper, a tubular extension from said trough, a spiral conveyer operating in the trough and extension, a vertically-movable packing-bar in the hopper, a crank-shaft carrying said bar, agitators secured to the shaft, a driving-shaft, driving connection between said crank-shaft and driving-shaft, and driving connections between said driving-shaft and the said conveyer.

749,645. FLUID-METER. ARTHUR S. TUTTLE, Brooklyn, N. Y., assignor to The National Meter Company, a Corporation of New York. Filed Apr. 29, 1901. Serial No. 58,045. (No model.)



Claim.—1. A fluid-measuring device comprising plural Venturi tubes having common supply and discharge pipes, and a fluid-registering mechanism acted upon by the flow through one of said Venturi tubes.

2. A meter comprising plural Venturi tubes having a common supply connection, said tubes discharging under substantially equal heads, and a registering mechanism acted upon by the flow through one of said tubes.

3. A meter comprising plural Venturi tubes connected to a common supply and having a pressure-equalizing connection between their throats and a registering mechanism acted upon by the flow through one of said tubes.

4. A meter comprising plural Venturi tubes connected to a common supply and having a common expanding section and a registering mechanism acted upon by the flow through one of said tubes.

749,646. WOOD-HOLDER. JOHN R. WALLIN, Tacoma, Wash. Filed Mar. 26, 1903. Serial No. 149,652. (No model.)



Claim.—1. The combination with a stand having three equidistant legs joined at their upper ends to form a seat, with a lug projecting upwardly from between two of the legs and facing toward the other leg, of a rockable presser-arm pivoted to said other leg, the upper end of said presser-arm extending up into the plane of said lug, whereby to adapt said upper end to move to and from said lug when the presser-arm is rocked.

2. The combination with a stand comprising three legs and a flat seat where the upper ends of the legs join, of a lug extended up from the seat between two of the legs, prongs on the inner face of the lug, and a curved presser-arm held to rock on the remaining leg, so that foot-pressure on the lower part of the arm will rock the upper end thereof toward the lug.

3. The combination with a stand comprising three legs integral with each other, and joined at their upper ends to form a flat seat, and an upright lug formed between two of the legs and having prongs on the side that faces said seat, of a presser-arm curved edgewise, and slotted between its ends to receive the remaining leg of the stand whereon said arm is pivoted, a treadle foot-block on the lower end of the arm, and diverged teeth on the upper end thereof.

4. The combination with a stand, comprising three equidistant legs joined at their upper ends to form a seat, and a projection extending upwardly between two of the legs at one side of said seat and facing toward the other leg at the opposite side of said seat, of a C-shaped presser-arm pivoted to said other leg with its upper end curving upwardly and inwardly toward said lug to clamp a piece of material against said upright projection, and its lower end curving downwardly and inwardly underneath said seat to form a treadle portion for the foot of the operator, said lower end of the C-shaped rocker-arm being longer than the upper end and extending downwardly and inwardly underneath said seat.

749,647. CURLING-IRON HEATER. OWEN WALSH, New York, N. Y. Filed Jan. 9, 1903. Serial No. 138,373. (No model.)



Claim.—1. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with upturned bridges integral therewith, and also provided with downturned tongues serving as supporting-legs, and with means for supporting a lamp in alinement with said bridges.

2. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with upturned bridges integral therewith, one of said bridges being immediately adjacent to said lamp and provided upon one of its edges with a single bite for engaging a substantially cylindrical portion of a curling-iron, the other of said bridges being disposed at a little distance from said lamp, and provided with a double bite for engaging a bifurcated portion of said curling-iron.

3. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with bridges and also provided with an aperture for admitting a lamp from the under side of said base, said base being further provided with yieldable tongues disposed adjacent to said aperture, for clamping said lamp.

4. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with upturned bridges integral therewith and with apertures created by the removal of metal of said bridges, said apertures being separated by a rib of residual metal left for the purpose of strengthening the base, and means for supporting a lamp adjacent to said bridges and in alinement therewith.

5. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with upturned bridges integral therewith and with apertures created by the removal of metal of said bridges, said apertures being separated by a rib of residual metal, said base being further provided with an aperture for admitting a lamp from the under side of said base, and with yieldable tongues integral with said base and engaging the under side of said lamp.

6. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with upturned bridges integral therewith, and with apertures created by the removal of metal of said bridges, said apertures being separated by a rib of residual metal left for the purpose of strengthening the base, said base being further provided with an aperture for admitting a lamp from the under side thereof, and with means for securing said lamp in position.

7. As an article of manufacture, a curling-iron heater, comprising a base of sheet metal provided with downturned tongues constituting a support and with upturned bridges, one having a single bite for engaging a substantially cylindrical portion of a curling-iron and the other having a double bite for engaging the bifurcated portion of said curling-iron, said base being also provided with an aperture for admiting a lamp from the under side thereof, and with tongues disposed adjacent to said aperture and free to bend upwardly toward the same for the purpose of engaging the under side of said lamp.

749,648. FASTENING DEVICE FOR GARMENTS. JAMES V. WASHBURNE and GEORGE J. RICHARD, Waterbury, Conn., assignors to said Washburne. Filed May 13, 1901. Serial No. 59,940. (No model.)



Claim.—1. In a fastening device the combination with a cup-shaped part or member, of a smaller cup-shaped part or member having resilient side walls outwardly overturned from the walls of the member and adapted to be snapped into connection with the larger cup-shaped part and to be held thereby, and means for connecting the respective parts to parts of a garment to be held together, substantially as set forth.

2. In a fastening device comprising two cup-shaped parts or members differentiated in size and adapted to be snapped into connection, whereby the smaller part is received and held by the larger part, the outer larger part having inwardly-turned side walls and the smaller part being provided with resilient side walls outwardly overturned from the inner continuous walls of the smaller part or member, and means for connecting the respective parts to parts of a garment to be held together, substantially as set forth.

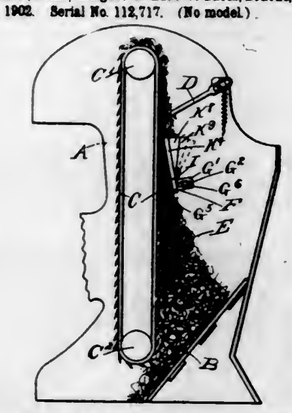
3. In a fastening device comprising two cup-shaped parts or members differentiated in size and adapted to be snapped into connection, the smaller part being provided with resilient side walls, outwardly overturned from the walls of the member, whereby the smaller part or member is received in and held by the larger part at the free edge of said resilient side walls, and means for connecting the respective parts to parts of a garment to be held together, substantially as set forth.

4. In a fastening device the combination with a cup-shaped part or member, of a smaller cup-shaped part or member having radially-slit side walls outwardly overturned from the walls of the member and adapted to be snapped into connection with the larger cup-shaped part and to be held thereby and means for connecting the respective parts to parts of a garment to be held together, substantially as set forth.

5. In a stud-and-socket fastening device comprising two members, a stud member having inner and outer side walls, the outer wall having a free resilient edge and being a bent-over continuation of the inner wall, and means for connecting the inner wall of the stud member to material.

6. In a stud-and-socket fastening device, comprising two members, a stud member having double side walls of substantially the same proportions, the outer of which side walls is a bent-over continuation of the inner side wall, and means for connecting the inner wall of the stud member to material.

749,649. CARD-FEEDING MACHINE. DOUGLAS H. WATERS, Poquetanuck, Conn., assignor to Eddo V. Bates, Dracut, Mass. Filed June 21, 1902. Serial No. 112,717. (No model.)



Claim.—1. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar fixed at each end to an inner side of the feeder-box so as to be in proximity to the rising portion of the spike-apron, a plurality of adjacent evening-boards independently hinged to said cross-bar, wings or plates affixed to adjacent edges of said evening-boards, suitable hinges which attach the evening-boards to the cross-bar, and suitable springs adapted to force the evening-boards independently toward the spike-apron and to allow said evening-boards to give back as stock accumulates between them and the spike-apron.

2. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar adjustably attached at each end to a side of the feeder-box so that its position relative to the rising portion of the spike-apron may be changed, a plurality of adjacent evening-boards each independently hinged to said cross-bar, wings or plates affixed to adjacent edges of said evening-boards, hinges adapted to connect the respective evening-boards with the cross-bar and springs adapted to keep the evening-boards normally pressed toward the spike-apron.

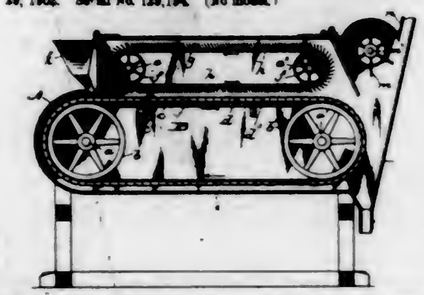
3. In a card-feeding machine, a cross-bar which is somewhat shorter in length than the inside width of the feeder-box, slotted angle-irons adjustably bolted to each end of the cross-bar and adapted to be adjustably bolted each to a side of the feeder-box, combined with suitable evening-boards attached by suitable hinges to the cross-bar and suitable springs adapted to press the evening-boards toward the spike-apron and a feeder-box and spike-apron together with wings or plates affixed to adjacent edges of said evening-boards, as described and for the purpose specified.

4. In a card-feeding machine, a cross-bar F, angle-irons G and G' adjustably attached one at each end of cross-bar F, slots G^4, in angle-irons G and G', bolts G^3, adapted to attach angle-irons G and G' to cross-bar F, and bolts G^4, adapted to pass through slots G^3 and G^4 in angle-irons G and G' and through casing A, whereby the position of cross-bar F may be adjusted relatively to spike-apron C, a casing A and a spike-apron C, combined with a plurality of evening-boards H, H', H^2, H^3, H^4, H^5, a plurality of wings or plates K, K', K^2, K^3, K^4, K^5, K^6, K^7, K^8, K^9, affixed to adjacent edges of evening-boards K, K', K^2, K^3, K^4, K^5, a plurality of hinges I, I', I^2, I^3, I^4, I^5, which attach said evening-boards to cross-bar F, and a plurality of springs J, J', J^2, J^3, J^4, J^5, adapted to press the said evening-boards toward the upwardly-moving portion of the spike-apron C, as described and for the purpose specified.

5. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar fixed at each end to a side of the inside of the feeder-box so as to be crosswise, parallel to and in proximity to the rising portion of the spike-apron, a plurality of adjacent evening-boards hinged at their upper edges to said cross-bar in such a manner as to be independently movable to and from the spike-apron, and springs so adapted as to normally hold the lower edges of said evening-boards in close proximity to said spike-apron and to allow the evening-boards to give back as stock accumulates between them and the spike-apron.

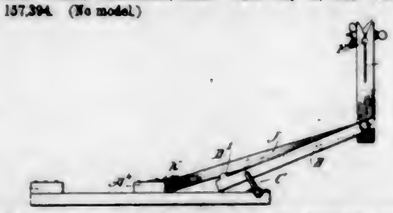
6. In a card-feeding machine, the combination with a feeder-box and spike-apron of a cross-bar fixed at each end to a side of the inside of the feeder-box so as to be crosswise, parallel to and in proximity to the rising portion of the spike-apron, a plurality of adjacent evening-boards hinged at their upper edges to said cross-bar in such a manner as to be independently movable to and from the spike-apron, suitable wings attached to adjacent edges of said evening-boards adapted to prevent the stock getting caught between said adjacent edges, and springs so adapted as to normally hold the lower edges of said evening-boards in close proximity to said spike-apron and to allow the evening-boards to give back as stock accumulates between them and the spike-apron.

749,650. **RICE-HULLING MACHINE.** ROSIA W. WELCH, Baltimore, Md., assignor, by direct and mesne assignments, to Royal Milling and Manufacturing Company, a Corporation of Maine. Filed Oct. 29, 1902. Serial No. 129,194. (No model.)



Claim.—A machine of the character described, comprising a casing provided at one end with a hopper and at the other end with a discharge, a horizontally-running belt conveyer mounted in said casing and provided with a series of transversely-extending corrugated plates secured to the belt conveyer and abutting one against the other and covering the entire outer surface of the said belt conveyer, a horizontally-running comb-belt mounted in said casing above said belt conveyer and provided with spring-teeth inclined in such direction that on the lower lap they will trend toward the discharge end of the casing, and a pulley for each of said belts, the pulley for the belt conveyer being smaller than the pulley for the comb-belt, whereby the former will run faster than the latter, and said pulleys being connected to run the belts in opposite directions, as and for the purpose set forth.

749,651. **TREADLE MECHANISM FOR LIGHT MACHINERY.** JOHN WIEBE, Whitewater, Kans. Filed May 16, 1903. Serial No. 157,394. (No model.)



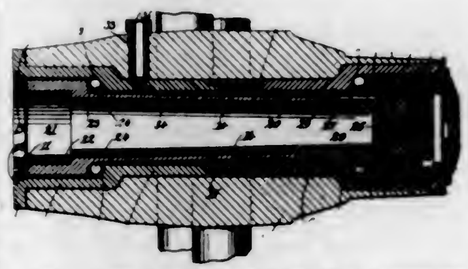
Claim.—1. A treadle mechanism for light machinery, comprising a link for connection with the part to be turned, two treadle-levers, a pivot extending through both of said treadle-levers at their forward ends and connecting them with the said link, one of the levers being hinged, and a crank-arm on which the other lever is fulcrumed, the crank-arm being located forward of the hinge of the first-mentioned lever, as set forth.

2. A treadle mechanism for light machinery, comprising a frame, having a forwardly-extending member at one side thereof, a crank-arm journaled at the front end of said member, a treadle-lever fulcrumed on the said crank-arm, in front of its foot-piece, a link pivotally connected with the forward end of the said treadle-lever and arranged for removable connection with the part to be turned, and a second treadle-lever mounted at its forward end on the pivot connecting the first treadle-lever with the link, and extending rearwardly beyond the rear end of the first-mentioned lever, the rear end of said second lever being hinged to the frame as set forth.

3. A treadle mechanism comprising a frame, a link for connection with the part to be turned, two treadle-levers both pivotally connected at one end by a common pivot with the link, one of said treadle-levers being hinged at its other end to the frame and the other treadle-lever being shorter than the first-mentioned lever and having its fulcrum mounted to rock on the frame, the rear end of said lever extending beyond the fulcrum and provided with a foot-piece, as set forth.

4. A treadle mechanism, comprising a frame having a forwardly-extending member at one side thereof, a treadle-lever having its fulcrum mounted to rock on the said member, the said treadle-lever having a foot-piece at the rear of the fulcrum, a link arranged for removable connection with the part to be turned and pivotally connected with the forward end of said treadle-lever, a second treadle-lever pivoted at its forward end on the said link-pivot, the said lever being longer than the first-mentioned lever and hinged at its rear end to the said frame, as set forth.

749,652. **BALL-BEARING WHEEL-HUB.** BENJAMAN P. YOUMANS and HARRY W. RAND, Vancouver, Wash. Filed June 3, 1903. Serial No. 159,886. (No model.)



Claim.—1. The combination of a boxing having enlargements at its end portions forming internal shoulders, an axle-journal, a sleeve enveloping said journal and having its inner end portion enlarged internally and externally and producing internal and external shoulders, the external shoulder of said sleeve cooperating with one internal shoulder of the boxing, bearing-balls between said cooperating shoulders, and an antifriction-bearing at the other end of the boxing.

2. The combination of an internally-shouldered boxing, a sleeve provided with a nut which is threaded internally and externally, a cone screwed on the externally-threaded part of the nut and into cooperative relation to a shoulder of the boxing, bearing-balls between said shoulder and cone, and means for locking the cone.

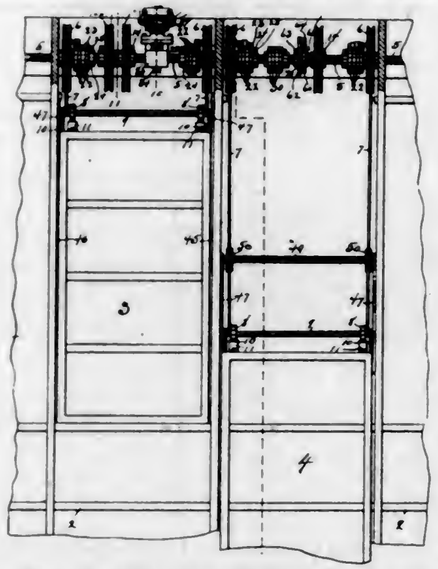
3. The combination with an internally-shouldered boxing, a sleeve having an enlarged shouldered inner end and provided at its outer end with a nut which is threaded internally and externally, a cone screwed on the externally-threaded nut and cooperating with one internal shoulder of the boxing, and bearing-balls between the boxing-shoulders, the sleeve-shoulder, and the cone.

4. The combination with a boxing, and an axle-journal, of a non-revoluble sleeve provided with a nut which has a female thread and a male thread, said nut being screwed on the journal and holding the sleeve fixed thereon, a cone screwed on said nut of the sleeve, and bearing-balls between the boxing and the cone.

5. The combination with a boxing having an internal shoulder, and an axle-journal, of a non-revoluble sleeve enveloping the journal and provided with an externally and internally threaded nut which is screwed on the journal, a cone screwed on the nut and cooperating with the shoulder of the boxing, and bearing-balls between the cone and the shoulder.

6. The combination with a boxing having a shoulder, and an axle-journal, of a non-revoluble sleeve enveloping and fixed to said journal and provided with a male thread and with a groove intersecting said thread, a cone screwed on the sleeve, interposed bearing balls, a washer having a projection fitting in said groove, and a lock-nut.

749,653. **MOVABLE STORAGE-POCKET.** COLLINS ARNOLD, Albany, N. Y. Filed Jan. 16, 1903. Serial No. 139,317. (No model.)



Claim.—1. A plurality of movable storage-pockets in combination with a counterbalance; and means whereby the pockets can be moved up and down, one at a time; and means for actively connecting the pockets, one at a time, with the counterbalance, substantially as described.

2. A plurality of separately-movable storage-pockets in combination with a counterbalance; operative connections, between the several pockets and the counterbalance, and means whereby the movement of any one pocket renders its connection active and all the other pocket connections inactive, substantially as described.

3. A plurality of movable storage-pockets; and means whereby the pockets can be moved one at a time; in combination with a counterbalance; operative connections between the several pockets and the counterbalance; and means for automatically inducing inaction in the several connections of all the other pockets by the movement of any one pocket, substantially as described.

4. A plurality of storage-pockets, movable, up and down, one at a time; in combination with locking mechanism at the highest level; and means whereby the movement of any one pocket from the highest level automatically locks all the other pockets at that level, substantially as described.

5. A storage-pocket movable, up and down; in combination with a supporting drum and cable; a cable-deflecting arm pivoted at its lower end to a stationary support and provided at its other end with cable-engaging mechanism for transferring the pocket from one vertical plane to another, substantially as described.

6. A storage-pocket, movable up and down; and a stationary support for the same; in combination with a supporting drum and cable; a cable-deflecting arm pivoted at its lower end to the stationary support and provided at its other end with cable-engaging mechanism for transferring the pocket from the plane of its support to a plane wholly outside of the support; and a bifurcate offset on the oscillatory end of the arm engageable with the pocket mechanism during the oscillatory movements of the arm, substantially as described.

7. A storage-pocket, movable up and down; a counterbalance and a supporting drum and cable connecting the pocket and counterbalance; in combination with an oscillatory cable-deflector, causing the pocket to travel in the arc of a circle during part of its up-and-down movements; and mechanism for automatically controlling the rate of travel during the latter part of its upward movement, substantially as described.

8. A storage-pocket, movable up and down; a counterbalance; and a supporting drum and cable connecting the pocket and counterbalance; in combination with an oscillatory cable-deflector; and a buffer adapted to be engaged by the pocket-frame at the end of its upward movement, substantially as described.

9. A storage-pocket, movable up and down; a counterbalance; and a supporting drum and cable connecting the pocket and counterbalance; in combination with mechanism adapted to be operated by hand for moving the cable in a direction to raise the pocket from one level to another, substantially as described.

10. A plurality of storage-pockets movable up and down, one at a time; a counterbalance; a drum-shaft; drums and cables for actively connecting the counterbalance with a pocket; and a hand-cable connected with the drum-shaft for raising the pocket from one level to another, substantially as described.

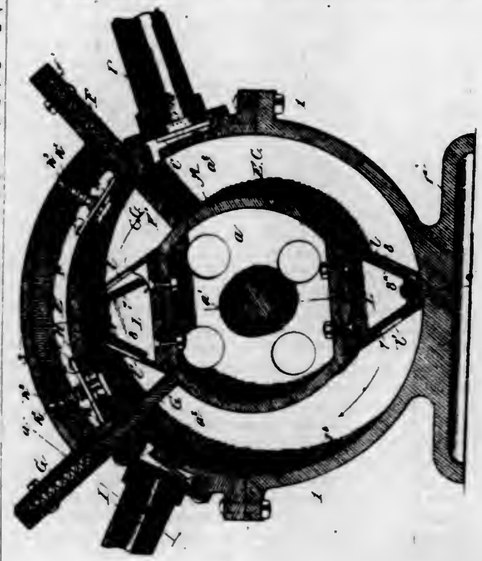
11. A storage-pocket movable up and down; and a counterbalance: in combination with a stop-lock adapted to close after a downward and a short, slow, upward movement to hold the pocket at a lower level and to open after a short downward and quick upward movement, substantially as described.

12. A plurality of storage-pockets movable up and down one at a time; and a counterbalance: in combination with a rotary shaft; bearings for supporting the shaft above the several pockets; one or more drums fixed upon the shaft: cable connection between the fixed drum and counterbalance: a plurality of drums loose on said shaft; cable connections between each pocket and one or more loose drums: and means for automatically rendering a loose drum active to the shaft during the down movement of the pocket supported by such drum, substantially as described.

13. A plurality of storage-pockets movable up and down one at a time; and a counterbalance; in combination with a rotary shaft; bearings for supporting the shaft above the several pockets; one or more drums fixed upon the shaft; cable connection between the fixed drum and counterbalance; a plurality of drums loose on said shaft; cable connections between each pocket and one or more loose drums; and automatically-operating mechanism for rigidly connecting with the shaft the loose drums when actively supporting a pocket, substantially as described.

14. A plurality of storage-pockets movable up and down one at a time; in combination with a weight in the form of a bar or roll; a rotary shaft supported above the pockets; fixed drums on the shaft; weight-supporting cables passed under the roll, each cable having one end secured to a stationary support and the other end to one of the fixed drums; loose drums on the shaft; cable connections between the several pockets and one or more loose drums; and means for maintaining an active connection between the shaft and the pockets one at a time, substantially as described.

749,654. **ROTARY EXPLOSIVE-ENGINE.** BERT BAETA and CHARLES MATHEWS, Fenton, Mich. Filed Apr. 21, 1903. Serial No. 153,644. (No model.)



Claim.—1. A rotary explosive-engine, comprising a cylindrical casing, a pair of oppositely-disposed radial abutments automatically closable, a mixing-chamber mounted externally of the casing between the abutments, means for supplying a working agent to the mixing-chamber, a valved exhaust connecting with the cylinder, a rotator mounted within the cylinder and including a hollow rotary piston having openings in the opposite impacting or pushing faces and whose outer end travels close against the inner face of the annular wall of the cylinder, a pair of oppositely-disposed internally-opening valves mounted within the hollow piston, a feed-port connecting the mixing-chamber with the cylinder at a point between the abutments, an automatically-actuated valve-operating means for tripping one of the hollow piston-valves to let out the charge in the said hollow piston when the said piston passes under the sliding abutment on the down-going side of the cylinder, and means actuated by the movement of the rotator for igniting the charge from the hollow piston, as set forth.

2. A rotary explosive-engine, comprising a cylinder, a rotator mounted therein, a mixing-chamber, a valved working-agent feed therefor controlled by the movement of the rotator, means mounted on the cylinder and the rotator cooperatively arranged whereby to draw in a charge into the cylinder, a second means actuated by the movement of the rotator for conveying the charge to a predetermined point within the cylinder, a valved exhaust for the cylinder and an igniting means actuated by the movement of the rotator for exploding the charge conveyed by the rotator, as set forth.

3. In a rotary gas-engine of the character described; a cylinder having valved induction and exhaust ports, a rotator within the cylinder having a radially-disposed hollow piston provided with an opening in each opposite or impacting face, valves automatically adjusted by the fluid-pressure in the cylinder externally or internally of the hollow piston, a pair of radially-sliding abutments automatically closable, said abutments being oppositely disposed, one at each side between the induction and exhaust ports of the cylinder, a means for tripping the valve on the rear side of the radial piston member after it passes under one of the abutments whereby to discharge the working agent within the hollow piston between said piston and the abutment, and a second means controlled by the forward motion of the rotator for igniting the said charge for the purposes set forth.

4. In a rotary explosive-engine; the combination with a cylinder, a pair of slidable radial abutments, an exhaust in advance of said abutments, an induction-port communicating with the cylinder at a point between the abutments, a rotator axially mounted within the cylinder including a hollow piston radially projected therefrom, said piston having an opening in each impacting face, a valve for each of said openings mounted within the said piston and actuated by the working-agent pressure in the cylinder externally and internally of the hollow piston whereby in approaching one of the said abutments, the valve on the front impacting face opens to let in a charge of igniting agent and hold the other valve to its closed position to create a vacuum between the rear face of the said hollow piston and the other abutment and thereby draw in a fresh charge through the induction port, said hollow piston having its impacting faces inclined whereby to raise the abutment-slides, a means controlled by the forward movement of the rotator for tripping the valve on the rear face of the piston to let out the charge held therein when the said face is passing under the abutment, means for automatically closing said abutment and igniting devices including an actuating member carried by the rotator for setting in operation said igniting devices immediately after the discharge passes from the hollow piston into the cylinder-space between it and the abutment under which it last passed, as set forth.

5. In a rotary gas-engine; the combination with the cylinder having induction and exhaust ports, of a piston rotatably mounted therein and including hollow radial projections whose opposite impacting faces are tapering, and each having an opening, valves located within the hollow projections inwardly and outwardly shiftable under external and internal fluid-pressure, and means controlled by the forward movement of the rotatable piston for opening the rear valve to exhaust the working charge into the cylinder between the back of the piston and an adjacent abutment, and for igniting the working charge, as set forth.

6. A rotary gas-engine, comprising an annular casing, a shaft-carried rotator or piston having a pair of diametrically opposite hollow radial chambers, each having an opening, and inwardly-opening valves on their impacting or pushing faces, a pair of sliding abutments automatically closable and movable to their open position by contact with the passing hollow piston-chambers, a valved exhaust cooperative with each abutment, a mixing-chamber having a plurality of valved inlets communicating with the casing in which the hollow piston-equipped rotator is mounted, automatically-actuated devices for admitting the explosive agent into the mixing-chamber, and trip mechanism for actuating the several valves within the hollow piston members at predetermined times and for setting in operation the igniting means, as set forth.

7. A rotary gas-engine of the character described, comprising an annular casing, a pair of oppositely-disposed sliding abutments automatically closable, a valved exhaust in advance of each abutment, a cooperative axially-disposed rotator within the casing having tapering hollow pistons projected radially, each provided with inwardly-opening valves in the pushing faces thereof, and a means for shifting the exhaust-valves whereby to bank the burned mixture when going in one direction to provide an air-cushion for reversing the motion of the rotator and the action of its valved hollow piston members, as set forth.

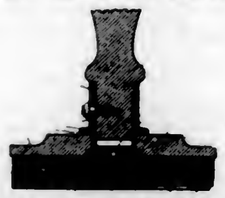
8. In a rotary gas-engine as described; an annular casing, a pair of oppositely and radially disposed sliding abutments automatically closable, induction-openings in the casing disposed between the abutments, one adjacent each abutment, a valve for each induction-opening automatically closable, a mixing-chamber with which the induction-openings communicate, a valved feed-pipe for leading the working agent to the mixing-chamber, a valved exhaust adjacent to and in advance of each sliding abutment, a rotator axially mounted within the casing having radial hollow piston members whose opposite faces are tapering and each formed with an opening, a valve for each opening hinged within the hollow piston, said valves being alternately held, one to its closed, and the other, to its open position by the influx of the working agent into the hollow pistons, said rotator, the hollow pistons, the valves therein and the mixing-chamber induction-ports and the sliding abutments, being cooperatively arranged whereby the charge within the cylinder between the abutments is forced into the hollow piston member and in passing through the said cylinder-space as a new charge is being sucked into the said space between the rear of the piston and its adjacent closed abutment, and means actuated by the down-going movement of the rotator for shifting the back face-valve of the hollow piston after it passes under the forward abutments to exhaust the charge contained within the hollow piston member into the cylinder between the said piston and the adjacent abutment and an igniting device set in operation by the movement of the rotator for exploding the said charge, as set forth.

9. In a rotary gas-engine, the combination with a cylinder having induction and exhaust ports, the latter being oppositely disposed and each having a cut-off valve, a pair of abutments piston-actuated to their open position, a piston rotatable in the cylinder, said piston including diametrically-disposed hollow radial extensions having an opening in each impacting or pushing face, valves for controlling said openings adapted to be moved to an open or closed position by fluid-pressure, a means controlled by the movement of the piston for opening said valves while under fluid-pressure and a shifting device external of the casing adapted when shifted to first close the exhaust-valve on the exhaust side of the cylinder and then open the valve for the opposite exhaust, for the purposes specified.

10. In a rotary gas-engine of the character described: the combination of an annular casing whose inner face is wedge-shaped in cross-section, a rotator axially mounted in said casing and comprising a central spider-frame and an annular chamber portion, the peripheral edge of which is wedge-shaped to fit wedge-tight within the annular casing, induction and exhaust ports communicating with the said chamber, said rotator also including diametrically and oppositely disposed radially-extended hollow chambers having tapering pushing or impacting faces, each of which has an opening, valves carried within the hollow chambers for closing said openings, and a pair of sliding abutments automatically closable and movable outward by the hollow pistons, and means for tripping said valves and for igniting the working-agent charge at predetermined intervals, as set forth.

11. In a rotary gas-engine as described; in combination with the cylinder, the inlets, the exhausts and the sliding abutments arranged substantially as shown, of the rotator including hollow radial piston members having tapering impacting surfaces in each of which is an opening, a pair of hinged valves in each hollow piston member adapted to be swung to an open or closing position under fluid pressure, and external means controlled by the down-going movement of the rotator to open the rear main one of the hinged valves against the fluid-pressure thereon to permit the escape of the working-agent charge within the hollow piston member into the explosion portion of the cylinder, means operable by the said down-going movement of the rotator for igniting the said charge when it passes into the said explosion-chamber, as set forth.

749,655. TIME HAND-STAMP. WILBUR F. BARTHOLOMEW, New York, N. Y. Filed Mar. 9, 1903. Serial No. 146,914 (No model.)



Claim.—1. A time hand-stamp provided with a bed-plate having an aperture therein, a handle extending through said aperture revoluble therein and having an annular outturned flange engaging the under side of the bed-plate and a vertically-adjustable flange engaging the top side of said bed-plate, means for securing said adjustable flange in binding engagement with the bed-plate whereby to clamp said bed-plate between said flanges into frictional engagement with said handle to prevent accidental rotation of the handle, a fixed dial-stamp fixed on the under side of the bed-plate, a pointer-stamp for the dial-stamp, held on the lower end of the handle and an indicating-dial, and pointer for the same, located on the upper side of the bed-plate, to indicate the position of the pointer-stamp on the dial-stamp, as set forth.

2. A time hand-stamp provided with a bed-plate having an aperture provided with an annular enlargement, a manually-controlled handle extending into said aperture to revolve therein and having an outwardly-extending annular flange received into the annular enlargement in the bed-plate, a collar received upon said handle above the bed-plate and vertically adjustable thereon to bring its lower end into engagement with the upper side of the bed-plate, means for holding said collar against rotation on the handle and in binding engagement with said bed-plate to prevent accidental rotation of the handle, a fixed dial-stamp fixed on the under side of the bed-plate, a pointer-stamp for the dial-stamp, held on the lower end of the handle and an indicating dial and pointer for the same, located on the upper side of the bed-plate to indicate the position of the pointer-stamp on the dial-stamp, as set forth.

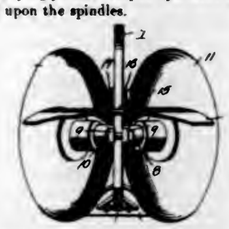
3. A time hand-stamp provided with a bed-plate having an aperture, provided with an annular enlargement, a manually-controlled handle extending into said aperture to revolve therein and having an outwardly-extending annular flange received into the annular enlargement in the bed-plate, a collar received upon said handle above the bed-plate and vertically adjustable thereon to bring its lower end into engagement with the upper side of the bed-plate, whereby said handle is rotatably held against vertical movement in the bed-plate, means for holding said collar against rotation in the handle and in binding engagement with said bed-plate to prevent accidental rotation of the handle, a washer of rubber or other resilient material surrounding the handle between said bed-plate and collar to increase the frictional contact between said parts when brought into binding engagement with each other, a fixed dial-stamp fixed on the under side of the bed-plate, a pointer-stamp for the dial-stamp held on the lower end of the handle, and an indicating dial and pointer for the same located on the upper side of the bed-plate to indicate the position of the pointer-stamp on the dial-stamp, as set forth.

4. A time hand-stamp provided with a bed-plate having an aperture therein, a handle extending through said aperture revoluble therein and having an annular outturned flange engaging the under side of the bed-plate, and a vertically-adjustable flange engaging the top side of said bed-plate, and means for securing said adjustable flange in binding engagement with the bed-plate, whereby to clamp said bed-plate between said flanges into frictional engagement with said handle to prevent accidental rotation of the handle as set forth.

5. A time hand-stamp provided with a bed-plate, carrying at its under face a fixed time dial-stamp and at its upper side or face a correspondingly fixed time-dial, a handle mounted to turn in the bed-plate, a pointer-stamp on the under side of the handle and operating in conjunction with the said time dial-stamp, a pointer on the handle operating in conjunction with the said fixed dial, a friction device between the said handle and the bed-plate, and means for adjusting the said friction device, as set forth.

749,656. LISTING-PLOW. EDWARD C. RADFORD and BENJAMIN DAWSON, Sheridan, Wyo. Filed Mar. 18, 1903. Serial No. 148,406. (No model.)

Claim.—1. In a listing-plow, a plow-beam having a downturned standard merging with a foot-piece carrying a point, in combination with spindle-carrying plates clamped upon said standard, and rotary disks mounted upon the spindles.

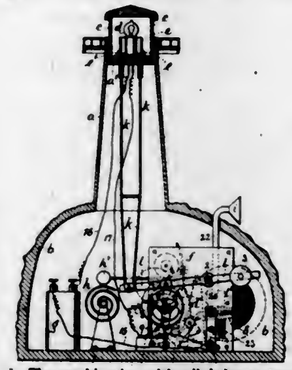


2. In a listing-plow, a plow-beam having a downturned standard merging with a foot-piece having a point provided with laterally-extending wings, a plow-point mounted upon said point and wings, spindle-carrying plates clamped upon the standard, and disks mounted upon the spindles and converging forwardly to cooperate with the plow-point.

3. In a device of the class described, a beam having a downturned standard merging with a foot-piece, spindle-carrying plates clamped adjustably upon said standards, disks mounted upon the spindles and provided with hubs or caps, and antifriction-balls interposed between said caps and spindles.

4. In a listing-plow, a beam having a downturned standard merging with a foot-piece, spindle-carrying plates clamped adjustably upon said standard, a slotted shield engaging said standard and having edges engaging the rear sides of the disks, and means for retaining said shield in position.

749,657. AMUSEMENT AND ADVERTISING DEVICE. MILES W. BERNER, New York, N. Y. Filed Jan. 5, 1903. Serial No. 137,836. (No model.)



Claim.—1. The combination with a lighthouse-tower, a support therefor, a cylinder of transparent material at the upper end of the tower, an incandescent electric lamp adjacent thereto, and a support for the lamp, of a cylinder of colored material above said support, a motor device, devices actuated by said motor for raising and lowering the said cylinder of colored material, and coacting devices for maintaining said cylinder in a depressed or elevated position.

2. The combination with a lighthouse-tower, a support for the same, a cylinder of transparent material at the upper end of the tower, an incandescent electric lamp adjacent thereto, and a support for the lamp, of a cylinder of colored material above said support, a motor device, an alarm device and devices actuated by said motor for raising and lowering the said cylinder of colored material and for sounding the alarm.

3. An amusement or advertising device comprising a lighthouse-tower and a suitable support for the same, a cylinder of transparent material at the upper end, of an incandescent electric lamp within the upper end of the tower, a support for the said lamp, electric wires and suitable devices for illuminating the lamp, a cylinder of colored material surrounding the support of the lamp, devices adapted to periodically raise and lower said cylinder of colored material or support the same in an elevated position, and a gong and hammer device for sounding an alarm and a horn structure to be sounded in imitation of a fog-horn, and a motor device for actuating said

latter devices and for raising and lowering the cylinder of colored material.

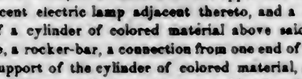
4. The combination with a lighthouse-tower, a support therefor, a cylinder of transparent material at the upper end of the tower, an incandescent electric lamp adjacent thereto, and a support for the lamp, of a cylinder of colored material above said support, a motor device, a rocker-bar, a connection from one end of the rocker-bar to the support of the cylinder of colored material, a cam-disk on the shaft of the motor device acting upon said rocker-bar for raising and lowering the said cylinder of colored material, and coacting devices for maintaining the cylinder of colored material in a depressed or elevated position.

5. The combination with a lighthouse-tower, a support therefor, a cylinder of transparent material at the upper end of the tower, an incandescent electric lamp adjacent thereto, and a support for the lamp, of a cylinder of colored material above said support, a motor device, a rocker-bar, a connection from one end of the rocker-bar to the support of the cylinder of colored material, a cam-disk on the shaft of the motor device acting upon said rocker-bar, a clutch on said motor-shaft, which, when in engagement, compels the cam-disk to turn with the shaft for progressively raising and lowering the cylinder of colored material so as to cause an alternate white and red light to be visible, a device manually operated for disengaging the clutch, and a spring upon said shaft coacting with this disengaging device for frictionally holding the cam-disk with the cylinder of colored material in a depressed or elevated position, whereby a steady white or steady colored light is visible.

6. The combination with a lighthouse-tower, a support therefor, a cylinder of transparent glass at the upper end of the tower, an incandescent electric lamp adjacent thereto and a support for the lamp, of a cylinder of colored glass above said support, a motor device, a rocker-bar, a connection from one end of the rocker-bar to the support of the cylinder of colored glass, a cam-disk on the shaft of the motor device acting upon said rocker-bar, a two-part clutch, one end fast on the shaft of the motor, and the other secured to the cam-disk and therewith loose on the motor-shaft, a head on the motor-shaft, and a spring between the head and the surface of the cam-disk opposite the clutch, an annulus surrounding the clutch device and bearing upon the surface of the cam-disk, and a pivoted arm therefor, a push-bar connected thereto and manually operated to separate the parts of the clutch, substantially as and for the purposes set forth.

7. The combination with a lighthouse-tower, a suitable base, a cylinder of transparent glass at the upper end, an adjacent incandescent electric lamp, and a support therefor, of a cylinder of colored glass surrounding the support of the lamp, a frame supporting said cylinder, guide-rods connected to said frame, a motor and devices actuated thereby for raising and lowering said cylinder of colored glass or for holding the same in a depressed or elevated position, a reciprocating plate to which one wire of the lamp is connected, a source of electric energy to which the other wire is connected, a contact-bracket connected to the frame of the motor and to which a wire from the source of electric energy extends, a contact-plate for an electric wire from the latter bracket, a contact-spring and contact-plate connected therewith, and a circuit-maker on the shaft of the motor contacting with said spring, whereby in one position of the reciprocating plate the current passes through the frame and shaft of the motor and through the circuit-maker and spring for giving a flashing light, while in the other position the current passes direct for giving a steady light.

749,658. VEHICLE-BODY. FRANK H. BOLTE, Peoria, Ill., assignor of three-fourths to Frank L. Kryder, Alton G. Seiberling, and Monroe Seiberling, Peoria, Ill. Filed May 2, 1901. Serial No. 58,442. (No model.)



Claim.—1. The herein-described vehicle-body, formed from a single piece of sheet metal, the sheet having cut-out portions in its opposite edges to form a curved upper edge and smooth curved joints at its corners, a lower flange portion, a rectangular skeleton frame supported by said flange and seat-supports attached to said frame, substantially as specified.

2. The herein-described vehicle-body, formed from a sheet of metal 1, provided with notches in its edges, and cut-out portions 5 at its opposite ends, the said sheet bent upon lines passing through the cut-out portions and provided with a convex upper edge and a flanged lower edge, a skeleton frame, seat-supports and seat-guards attached to the frame and upper curved edges of the body respectively, substantially as described.

3. The herein-described vehicle-body, having an upper flanged portion with a convex edge, suitable filling interposed at the corners of the body between the sides and aforementioned flanges, seat-supports attached to said body and seat-guards interlocked as shown to the flange of the body, substantially as described.

4. The combination in a vehicle-body made of one piece of sheet metal, having the upper convex edge 7, and depending portion 6, suitable metal filling at the corners interposed between the sides and ends and depending portion 6, the lower flange 8, rectangular frame 10, to which said flange 8, is secured, and suitable supports for a seat, said supports secured to the frame 10, all substantially as described.

5. A vehicle-body formed of the sheet 1, having the incisions 2, with tapered meeting sides on one edge, and incisions 4, on the opposite edge of said sheet, the corners of said body formed by bending the sheet on lines *c c* and *d d*, passing through the incisions 2, and 4, in combination with the skeleton frame 10, and the seat-guards 13, suitably attached to the body, and suitable seat-supporting means, in the manner described.

6. The herein-described vehicle-body, formed of the sheet-metal strip 1, having cut-out portions 5 at its opposite ends, and the cut-out portions 2 with tapered edges and cut-out portions 4 having converging edges, said strip bent on lines passing through the base of the cut-out portions 2, 4, and 5 and the opposite ends interlocked, means for supporting a seat and seat-guards, all substantially as described.

7. A vehicle-body formed in the following manner from a single piece of sheet metal: cutting out rectangular slots in the upper edge having meeting tapered sides, forming tapered slots on the opposite edge on lines *c c* and *d d* of said sheet, stamping or otherwise cutting the sheet at opposite corners as shown at 5, bending the sheet on lines *a a* and *b b*, to form the depending portion 6, and the flange 8, and joining the free ends of said strip by means of the lock-piece 11, attaching said body to the skeleton frame 10, and providing suitable seat-guards and seat-supports in the manner specified.

8. In combination with a metal body as shown having the convex upper edge and depending portion 6, and angle bottom 8, of the seat-guards comprising the flared sheets 13, having inturned end portions and an extension of said plate to overlap the portion , of the sides with which it contacts and suitable straps engaged by the inturned ends of the guards and having extended ends attached to means within the body and the angle upper ends for the purpose herein described.

9. In combination with a vehicle-body, having a depending upper flange, of suitable metal filling interposed between said flange and body portions at the corners thereof for the purpose of strengthening such parts and insuring a complete joint at the corners, substantially as described.

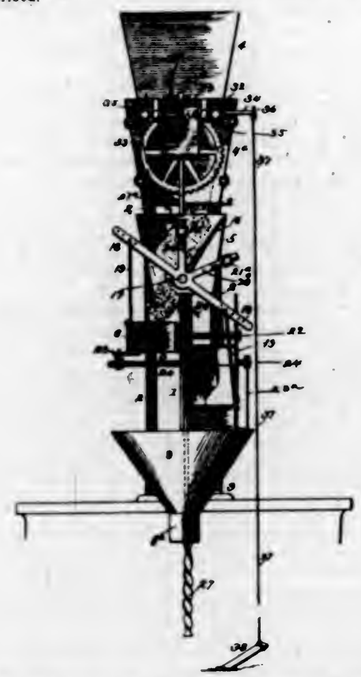
10. A vehicle-body comprising a skeleton frame of sheet metal, a depending upper flange with matching curved corners, a rectangular frame supported by the lower portions of the sides and ends of said body, seat-supports, and seat-guards, the guards interlocked with the depending flange and the seat-supports interlocked with the guards, substantially as described.

749,659. WEIGHING AND PACKAGING MACHINE. THOMAS J. BROGAN, Baltimore, Md. Filed May 29, 1903. Serial No. 159,362. (No model.)

Claim.—1. In a machine of the character described, the combination, with a receiving-hopper, of a rotary agitator comprising an outer perforated cylinder and an inner hub or cylinder, arranged concentrically with the outer one, and a series of pins adapted to slide in the outer cylinder and provided with heads for arresting them in their outward movement, the said pins being independent of each other and the inner cylinder, and sliding radially by the effect of gravity alone, substantially as described.

2. The combination, with the frame and the hopper, of a horizontal rock-shaft and valve fixed thereto and arranged centrally in the lower portion of the hopper, a lever fixed on the outer end of the rock-shaft and extending therefrom in opposite directions, two weighing-pans pivoted at their rear ends to the frame and thus adapted to swing on such fixed points, and rods connecting their free front ends with the ends of said lever, as described.

3. The combination with a hopper, a deflecting-valve therein, a rock-shaft upon which the valve is mounted, a lever connected with the rock-shaft, a weighing-pan pivoted below the hopper, and also connected with the aforesaid lever, the pan being provided with a swinging end, and a rod attached to a fixed portion of the frame of the machine and connected with the swinging end of the pan so that when the latter descends upon having received a certain quantity of the material to be weighed, the said end is swung outward automatically to allow discharge of the material, substantially as shown and described.



4. The combination with a hopper, of two oscillating weighing-pans arranged below the same and provided with swinging outer ends, a rocking lever provided with two graduated arms extending at an angle to each other in a vertical plane and provided with independently-adjustable weights, rods connecting the pans with the said levers and other rods fixed to the frame of the machine and connected with the swinging ends of the pans as shown and described.

5. The combination with a receiving-hopper, a rotary agitator therein, a guide-hopper arranged below the receiving-hopper, an attachment of the guide-hopper adapted for deflecting the material to be weighed alternately to the right and left, oscillating weighing-pans into which the material is received from the guide-hopper, and a delivery-hopper into which the pans discharge, substantially as shown and described.

6. The combination with a receiving-hopper and a rotary agitator therein, and oscillating weighing-pans, of a hopper arranged below the same, and a packaging mechanism comprising a rotary shaft provided with a spiral at its lower end which projects below the said hopper, and means which operatively connects the shaft with the agitator so that they rotate together, substantially as shown and described.

7. The combination with a receiving-hopper and an agitator therein, of a delivery-hopper and a packaging mechanism comprising a shaft passing through the lower hopper, and having a spiral projecting below the same, the rotatable gear through which the shaft passes, a gear mounted on the shaft of the agitator and a driving-shaft having a gear which meshes with both the aforesaid gear whereby rotation is simultaneously imparted to the agitator and the spiral packer, substantially as shown and described.

8. The combination with a receiving-hopper, a rotary agitator therein, and a gear fixed exteriorly on the shaft thereof, a delivery-hopper and a vertical shaft passing through the same and having a spiral portion below the hopper, a horizontal gear through which the shaft is adapted to slide vertically, a horizontal driving-shaft having a gear adapted to mesh with both the aforesaid gears, the said shaft being movable bodily vertically, and means for raising the said shaft for throwing its gear out of engagement with the gear of the agitator while remaining operatively connected with the gear of the spiral shaft, substantially as shown and described.

9. The combination with a receiving-hopper, and a rotary agitator therein, of a gear fixed exteriorly on the shaft of the latter, a horizontal gear arranged contiguous to the first-named one, a driving-shaft having a gear which engages both the first-named ones and is adapted to move bodily vertically, a counter-shaft arranged parallel to the driving-shaft and adapted to rock and provided with arms adapted to engage the driving-shaft for raising it when the counter-shaft is rocked, a treadle attachment connected with the counter-shaft, and a vertical shaft connected with the aforesaid horizontal gear and provided with a spiral at its lower end for packing the material in bags or other receptacles, substantially as shown and described.

10. The combination with a hopper and means for discharging material therefrom, of a packaging mechanism compriaing a vertically-slidable rod having a lower end provided with a spiral, a horizontal gear through which the shaft is adapted to slide, the said gear having a vertical stud and the shaft having a cross-pin adapted to engage the same, and means for driving such horizontal shaft, whereby the spiral shaft is rotated and rises simultaneously until freed from engagement with the aforesaid gear, substantially as shown and described.

11. The combination with a hopper and a discharger rotating therein and provided exteriorly with a worm-wheel arranged vertically, of a horizontal worm-wheel arranged contiguously to the first-named one, a driving-shaft arranged horizontally and provided with a worm which engages both the aforesaid wheels, the shaft being adjustable bodily vertically, a packaging-shaft having a spiral at its lower end and adapted to slide vertically in the horizontal worm-wheel and to be automatically disengaged therefrom and thus left motionless when the shaft has risen a certain height, a counter-shaft arranged contiguous to the driving-shaft and having arms adapted to engage the latter, a lever-arm applied to such counter-shaft, and a treadle connected with such lever-arm whereby upon depressing the treadle the counter-shaft is rocked and the driving-shaft disengaged from the agitator in the hopper in the manner described.

749,660. PARCEL-GRIP. ALEXANDER H. BROWNLEY, Onehunga, New Zealand, assignor to himself and Frank Gollar, Auckland, New Zealand. Filed May 12, 1903. Serial No. 156,756. (No model.)



Claim.—1. A device of the class described, and comprising an inner member and an outer member, arms formed angularly of said members; pivots coupling said arms, hooks formed on two of said arms; and clasps partially surrounding said hooks.

2. A device of the class described, and comprising an inner member and an outer member; arms formed angularly of said members; pivots coupling said arms, hooks formed on two of said arms; and clasps formed on two of said arms and partially surrounding said hooks.

3. A device of the class described, and comprising an inner member and an outer member, arms formed angularly of said members; pivots coupling said arms, hooks formed on two of said arms; clasps partially surrounding said hooks; and lugs formed on the inner member and arranged to retain thereon a card or plate.

4. A device of the class described, and comprising an inner member, and an outer member; arms formed angularly of said members; pivots coupling said arms; clasps formed on two of said arms and partially surrounding said hooks; and lugs formed on the inner member and arranged to retain thereon a card or plate.

749,661. SUSPENDING ATTACHMENT FOR GAME-BAGS, &c. GEORGE F. CLARKE, Toronto, Canada. Filed Sept. 1, 1903. Serial No. 171,480. (No model.)

Claim.—1. A bag-carrying attachment, comprising two bands, one of said bands being secured at its side upon the rear side of the bag near its top, forming a loop therein, and the other band connected by one end to a member of the looped band at an angle thereto, and then doubled and connected by the remaining end upon the rear end wall of the bag.

2. A bag-carrying attachment, comprising a band secured by its ends on the rear wall of the bag respectively near the opposite

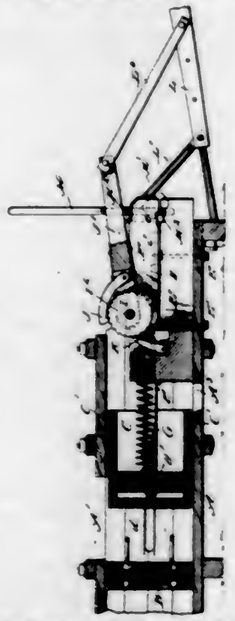
end walls thereof, forming a loop in said band, and another band having one end secured at an angle upon the first-named band near its loop, and the remaining end secured upon the rear end wall of the bag and forming a bight therein that may be extended laterally from the looped band and from the bag.



3. The combination with a bag open at the top, of a carrying attachment therefor, comprising two tabs affixed by one end of each upon the rear wall of the bag near the top and end walls thereof, and buckles on the free ends of the tabs, of a looped band the ends of which are respectively connected with the buckles, and another band having one end affixed upon a rear portion of the first-named band between the loop and buckle, and extended therefrom at an angle, a tab on the rear end wall of the bag, and a buckle thereon the remaining end of the second-named band having engagement with said buckle.

4. A bag-carrying attachment, comprising a band, securing means on each end of the band, adapted to connect with a bag, a coacting band fast by one end on the main band, and means on the opposite end of the coacting band for securing it to said bag.

749,662. **HAY-PRESS.** JOSEPH C. DAMRON, Roanoke, Va., assignor of one-half to Edmund C. Watson, Roanoke, Va. Filed June 25, 1903. Serial No. 163,058. (No model.)



Claim.—1. The improvement in presses herein described, comprising the bale-box, the framing, the plunger, the rack-bars connected with the plunger, the bed-frame having guides for said rack-bars, the gear-frame hinged at one end to the bed-frame, whereby its other end may be lifted, the shaft journaled to the gear-frame, the gear-wheels on said shaft, and meshed with the rack-bars of the plunger, the ratchet-wheel on said shaft, the detent-pawl engaging said ratchet-wheel, the pawl-lever having an operating-pawl engaging the ratchet-wheel, the handle-lever, connections between the handle-lever and the pawl-lever, and the locking and shifting lever provided with means for locking the gear-frame with its gear-wheels in mesh with the rack-bars of the plunger, and with means for lifting the gear-frame to move its gear-wheels out of mesh with said rack-bars, and the spring for readjusting the plunger.

2. In a press substantially as described, the combination of the plunger, the rack devices connected therewith, the bed-frame having guides for the rack devices, the gear-frame hinged to the bed-frame and having gear devices meshing with the rack devices of the plunger, means for operating the gear devices, and means for shifting the gear-frame whereby to set its gear devices out of mesh with the rack devices of the plunger.

3. The combination in a press of the plunger, the rack devices connected therewith, gear devices to mesh with the rack devices of the plunger, and the frame supporting said gear devices and movable whereby it may be moved to set its gear devices into and out of mesh with the rack devices of the plunger.

4. The combination in a press of the plunger, the rack devices of the plunger, the bed-frame having guides for said rack devices, the gear-frame hinged to the bed-frame, dowel devices between the bed-frame and the gear-frame, and the gear devices in the gear-frame meshing with the rack devices of the plunger.

5. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and means for locking the gear-frame with its gear devices in mesh with the rack devices.

6. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and the lever having a cross-bar movable to position to lock the gear-frame with its gear devices in mesh with the rack devices of the plunger.

7. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices for giving the pressing stroke to the plunger, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and devices for shifting the movable gear-frame whereby to set its gear devices out of mesh with the rack devices of the plunger.

8. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and a lever having a crank projection or portion to engage with the gear-frame and shift the same whereby to set its gear devices out of mesh with the rack devices of the plunger.

9. The combination in a press substantially as described, of the plunger having rack devices, the bed-frame having guides for said rack devices, the gear devices meshing with said rack devices, the gear-frame supporting said gear devices and movable whereby to set the gear devices in and out of mesh with the rack devices, and the lever having a cross-bar to engage with and lock the gear-frame with its gear devices in mesh with the rack devices of the plunger in one position of said lever, and having a crank projection or portion to engage with the gear-frame and shift the same to set its gear devices out of mesh with the rack devices of the bed-frame after the cross-bar has been moved out of engagement with the gear-frame.

10. The combination in a press, of the plunger, the rack devices connected with the plunger, the gear devices meshing with said rack devices for giving the pressing stroke to the plunger, and means for moving one of said devices relatively to the other, whereby they may be thrown out of mesh when it is desired to retract the plunger, substantially as set forth.

11. The combination in a press, of the framing, the bed-frame, the bolts securing the bed-frame to the framing and projecting above the bed-frame to form dowel devices between the same and the gear-frame, the gear-frame, the hinges connecting the gear-frame with the bed-frame, the plunger, the rack-bars connected with the plunger, guides on the bed-frame for said rack-bars, the gear-wheels on the gear-frame and meshing with the rack-bars, a locking and shifting lever for said gear-frame, and the pawl-lever and ratchet-wheel.

12. In a press, the combination of the baling-box and framing having guide-slots for the cross-rod of the plunger, the plunger, the rack-bars, within the baling-box and extending into the plunger, the cross-rod extending through the plunger and securing the rack-bars thereto, said cross-rod projecting at its ends into the guides of the bale-box, gear devices operating upon the rack-bars, and means whereby the gear devices and rack-bars may be moved relatively whereby they may be thrown out of mesh when it is desired to retract the plunger.

13. The combination in a press, of the plunger, rack devices connected with the plunger, gear devices meshing with the rack devices of the plunger for giving the pressing stroke to the plunger, means for operating the gear devices, and means for shifting one of said devices relatively to the other, whereby they may be set into and out of mesh.

14. The combination in a press, of the plunger, rack devices connected with the plunger, gear devices meshing with the rack devices, means for locking said devices in position to mesh with each other, and means for shifting said devices relatively whereby to set them out of mesh, substantially as set forth.

749,663. **CLIP.** EDGAR DE LAMATER, Ogden, Utah, assignor of one-fourth to A. D. F. Reynolds, Ogden, Utah. Filed Mar. 19, 1902. Serial No. 98,882. (No model.)

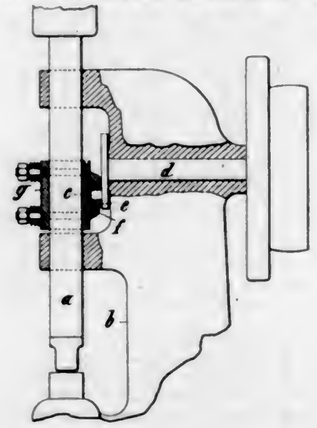


Claim.—1. In a clasp for supporting handkerchiefs upon the person, the combination with the back plate having the forwardly-projecting portion forming a rear horizontally-extended recess, of a pin and keeper sunk in said recess, a corrugated clamp-plate registering in size and form with said back plate, hinged on the front of the back plate, and having its lower end normally spring-pressed against the back plate.

2. In a clasp for supporting handkerchiefs, the combination with a back plate having the forwardly-projecting portion forming a rear horizontally-extended recess, and ears formed on the front thereof, of a pin and keeper sunk in said recess, a corrugated clamp-plate constructed with side flanges and registering in size and form with said back plate, said clamp-plate having rearwardly-projecting ears, and hinged thereby upon the front of the back plate by the first-named ears and also having a lower outwardly-turned end normally spring-pressed toward the back plate.

3. In a clasp for supporting handkerchiefs, the combination with a back plate having the forwardly-projecting portion forming a rear horizontally-extended recess, of a pin and keeper sunk in said recess, a corrugated clamp-plate pivotally mounted upon the front of the back plate and having inwardly-turned flanges and an outwardly-bent lower end, and a spring normally pressing it toward the back plate.

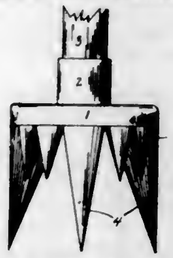
749,664. **KINETIC-ENERGY MACHINE.** EMILE L. N. DENIS, Paris, France. Filed Oct. 9, 1902. Serial No. 126,486. (No model.)



Claim.—1. In a machine of the character described, a reciprocating tool, a block having frictional sliding connection with the tool, the said block being provided with a slot, and a crank having its pin engaged in said slot.

2. In a kinetic-energy machine, a reciprocating striking-weight having friction connection, a link forming a portion of said friction connection, the said link being of such form that the pin of a crank rotating at a suitable and continuous rapidity transmits, during three-fourths of a revolution to said link and to the weight that it drags, the regular link movement, and immediately allows them to freely make the other half-rectilinear movement during the last quarter of the turn of the crank.

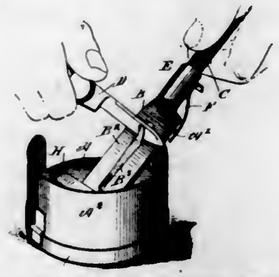
749,665. **ICE-PICK.** JOHN M. DIETERLE, St. Louis, Mo. Filed Feb. 16, 1903. Serial No. 143,524. (No model.)



Claim.—1. An ice-pick comprising a head, a set of long prongs secured to the lower face thereof, having their outer faces lying flush with the edges of said head and perpendicular to its lower face, and a set of short prongs secured in like manner to said lower face intermediate said long prongs.

2. An ice-pick comprising a head, a set of long prongs secured to the lower face thereof, having their outer faces lying parallel with the edges of said head, a set of short prongs secured to the said lower face intermediate said long prongs, all of said prongs having their inner faces inclined in opposing planes and a central prong, having tapering sides.

749,666. **DEVICE FOR USE IN SHARPENING PENCILS.** WALTER S. DOE, Jersey City, N. J. Filed Apr. 17, 1903. Serial No. 153,070. (No model.)



Claim.—1. A device for use in sharpening pencils, comprising a receiver for the end of the pencil, a guide for a knife, to bring the cutting edge thereof in engagement with the side of the pencil, and a yieldingly-mounted holder for the pencil, to bring the pencil side into the path of the knife, said holder consisting of a cylinder adapted to receive the pencil and to be brought into longitudinal axial alinement with the receiver-opening, as set forth.

2. A device for use in sharpening pencils, comprising a receiver having a conical recess for the end of the pencil, a guide for a knife, to trim the side of the pencil in the said receiver, and a yieldingly-mounted holder for the pencil, to project the pencil side through the said slot into the path of the knife, said holder consisting of a spring-supported cylinder adapted to receive the pencil, said cylinder being pressed by the spring in the direction of the open side of the receiver with its axial center always held parallel with the axial center of the receiver-opening, as set forth.

3. A device for use in sharpening pencils, comprising a receiver having a conical recess for the end of the pencil, a guide for a knife, to trim the side of the pencil in the said receiver, a yieldingly-mounted holder for the pencil, to project the pencil side through the

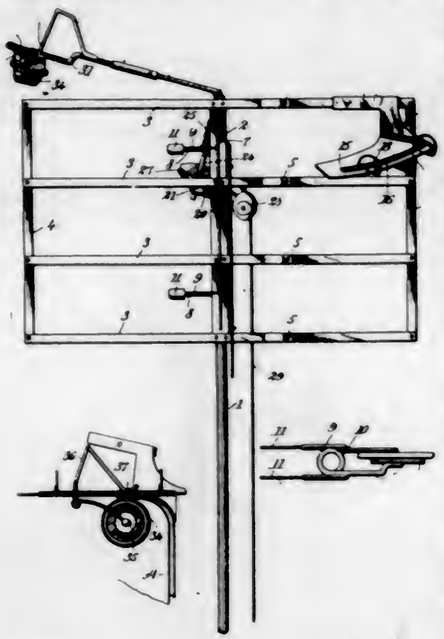
said slot into the path of the knife, said holder consisting of a spring-pressed cylinder in front of the receiving-opening, said cylinder being normally held with its axial center elevated slightly above the axial center of the receiver-opening and in parallelism therewith and a limiting stop-plate for the knife, as set forth.

4. A device for use in sharpening pencils, comprising a base, a receiver secured on the base and projecting from the top thereof in an inclined direction, the receiver having a conical recess, a guiding-face for a knife, and a slot connecting the recess with the said face, and a yieldingly-mounted holder for the pencil, arranged at the entrance end of the receiver, the holder serving to press the pencil, to project the pencil side through the said slot into the path of the knife, as set forth.

5. A device for use in sharpening pencils, comprising a receiver having a guide-face for a knife and a conical recess for the end of the pencil, said recess being intersected at one side by said guide-face and terminating at its apex end in a groove at an angle to the axis of the recess, to allow the point or graphite end of the pencil to yield downwardly when acted upon by the knife, for the purpose set forth.

6. A device for use in sharpening pencils, comprising a box-shaped base, a receiver secured on the base and projecting downwardly within the same from the top thereof in an inclined direction, the receiver having a recess, and a guiding-face for a knife intersecting one side of said recess, said box-shaped base having a portion of its rim cut away at one side to facilitate a ready entrance of the knife within the base.

749,667. **MUSIC-LEAF TURNER.** PETER ROSELKING and FERDINAND C. ROSELKING, Peters, Tex. Filed Jan. 13, 1903. Serial No. 138,747. (No model.)



Claim.—1. A music-sheet turner comprising a frame for supporting the music-sheets, means mounted on the frame for holding portions of said sheets curved or bent, means for grasping the said curved or bent portions of the sheets, said means comprising an arm, a roller, and a finger on said arm, tension devices normally holding the arm in such position that the roller and finger are in contact with the sheets, and means for actuating the arm to turn the sheets one at a time, substantially as set forth.

2. In a music-sheet turner, the combination of means for holding a sheet in an open position with a portion of said sheet curved or bent, said means consisting of a curved angle-plate, and means for grasping the curved or bent portion of the sheet and turning the same, substantially as set forth.

3. In a music-sheet turner, the combination with means for supporting a sheet, of means for curving a portion of said sheet, a spring-tensioned arm, grasping devices carried by said arm, such devices including a roller, and a spring bearing against the roller, and means for swinging the arm against the tension of the spring, such means including a disk on the arm, and a rope or cord connected with said disk, substantially as set forth.

4. In a music-sheet turner, the combination with means for supporting a sheet, of means for holding said sheet in a curved or bent position, said means consisting of a downwardly-inclined angle-plate, an arm, a grasping device carried by said arm and normally frictionally engaging with the sheet, and means for swinging the arm upon its axis to turn said sheet, substantially as set forth.

5. A music-sheet turner, comprising a frame, spring-pressed means for securing a music-sheet thereto, means for bending or curving a portion of said sheet, an arm mounted on said frame and having its axis inclined, a grasping device carried by said arm, means for holding said grasping device normally in contact with the sheet, and means for actuating the arm to move the grasping device away from the sheet-curving means, thereby turning said sheet, substantially as set forth.

6. A music-sheet turner, comprising a folding frame, adapted to support a music-sheet, means for imparting a curve or bend to the sheet, said means comprising a plate secured to the frame, a crank-arm secured to said frame and movable around an inclined axis, grasping devices carried by said arm, means for normally holding the grasping devices in contact with the curved portion of the sheet, and means for swinging the arm away from the plate, substantially as set forth.

7. A music-sheet turner comprising a folding frame adapted to support a music-sheet, means for imparting a curve or bend to the sheet, said means consisting of a plate secured to said frame, a crank-arm secured to said frame and movable around an inclined axis, grasping devices carried by said arm, said devices comprising a roller and a spring-arm contacting with said roller, a spring for normally pressing the roller and arm in contact with the sheet, means for swinging the arm away from the plate to turn the sheet, and means for limiting the movement of the arm away from said plate, substantially as set forth.

8. A music-sheet turner comprising a frame for supporting a music-sheet, a curved plate adjustably mounted thereon, said plate having a slot therein, a spring-held roller lying in said slot, a crank-arm on said frame, a ratchet-roller and a spring-arm forming a grasping device normally held on said plate, means for swinging said arm away from the plate, said means comprising a grooved disk on the arm, a pulley on the frame, and a rope lying in the groove of the disk and passing through the pulley, and means movable on the frame for limiting the movement of the arm away from the plate, substantially as set forth.

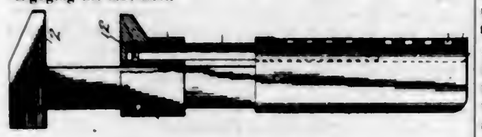
9. A music-sheet turner comprising a frame adapted to support a sheet or leaf, means for imparting a curve or bend to the sheet, said means consisting of a plate secured to said frame, a crank-arm secured to said frame and movable around an inclined axis, and grasping devices carried by said arm, said devices comprising a roller, a spring-arm contacting with said roller, and a spring for normally pressing the roller and arm into contact with the sheet, substantially as set forth.

10. A leaf-turner comprising a sheet-supporting frame, means for imparting a curve or bend to the sheet, said means consisting of a curved plate mounted on the frame, said plate having a slot therein, a spring-supported roller lying in said slot, a sheet grasping and carrying means movable on the frame, and means for moving said grasping and carrying means to and from the plate, substantially as set forth.

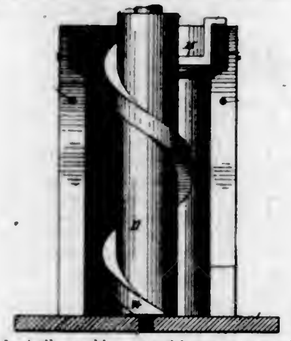
749,668. **WRENCH.** NOBLE O. FORSLUND, Cherokee, Iowa. Filed June 11, 1903. Serial No. 161,014. (No model.)

Claim.—1. A wrench having a shank with a rigid jaw and a handle with a bore, the said bore having an outwardly-opening slot with seat-slots alternately arranged in the opposite walls thereof, a sliding jaw on the shank, and a spindle rotatably secured in the sliding jaw and alternately movable in the bore of the handle, the rear extremity of the spindle having a headed end to engage the said seat-slots.

2. In a wrench, the combination of a shank having a rigid head at one end and a handle with a lateral projection at the opposite end, the said lateral projection of the handle being formed with a bore having an outwardly-opening slot with seat-slots in the opposite walls thereof arranged in alternation, a jaw slidably mounted on the shank, and a spindle rotatable in the said latter jaw and longitudinally shiftable in the handle, the said spindle having means for engaging the seat-slots.



749,669. **TILE-MACHINE.** DWIGHT E. PORTON, Evart, Mich. Filed May 27, 1903. Serial No. 158,968. (No model.)



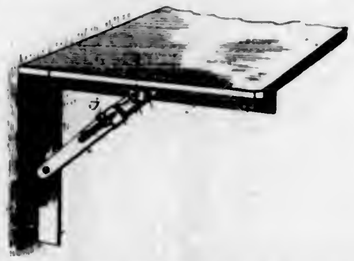
Claim.—1. A tile-machine comprising an outer casing or mold having an enlarged interior diameter at its upper end, a spindle arranged to rotate in the casing or mold, a spirally-disposed pressing-flange on said core or spindle, and a former at the upper portion of said core or spindle for forming the enlarged diameter portion of a tile.

2. In a tile-machine, an outer casing or mold, consisting of longitudinally-separable sections, a core or spindle arranged to rotate in said casing or mold, a spirally-disposed flange on said core or spindle, and a former at the upper end of said core or spindle, the said former having an outwardly-extended portion, an upwardly-extended portion, and an outwardly-extended portion at the upper end of said upwardly-extended portion.

3. A tile-machine comprising an outer casing, consisting of longitudinally-separable sections, dowel connections between the sections, locking devices for the sections, a base-plate, dowel connections between the base-plate and said sections, means for locking the sections to the base-plate, a core or spindle arranged in the outer casing, and having a step-bearing in said base-plate, and pressing and forming devices on said core or spindle.

4. A tile-machine comprising a casing having an enlarged interior diameter at one end, a spiral presser operating in the casing, a former carried with the presser and operating in the enlarged portion of the casing, and a paper lining for the casing.

749,670. **BRACKET.** JAMES GARDNER, Lismore, New South Wales, Australia. Filed Dec. 26, 1902. Serial No. 136,760. (No model.)



Claim.—1. A bracket substantially as herein described comprising the main section having a wing for connection with the support, and a wing at a right angle thereto for connection with the top arm and brace, the top arm having an upright wing pivoted at its inner end to the wing of the main section and provided with a longitudinal slot and adjacent thereto with a series of perforations, said arm also having a top wing at a right angle to its slotted wing upon which may be secured the shelf or other object to be supported, the brace pivoted at its inner end to the main section and provided at its outer end with a headed stud operating in the slot of the arm, the spring-actuated locking-bolt carried by the brace and arranged to engage in the perforations of the top arm, said bolt being provided with a projection for engagement by the keeper-plate, and the spring-actuated keeper-plate sliding along the brace and engaging above and below the projection of the locking-bolt in the different adjustments of the device substantially as and for the purpose set forth.

2. A bracket comprising a main section, a top arm pivoted at its inner end to the main section and provided with the longitudinal slot and with a series of perforations adjacent thereto, and the brace pivoted at one end to the main section and provided at its other end with devices engaging in the slot of the arm and with locking devices engaging in the perforations of said arm substantially as set forth.

3. The combination in a bracket with the main section and the arm pivoted at its inner end to the main section, and provided with a series of perforations of the brace pivoted at one end to the main section and slidably engaged at its other end with the arm, the bolt carried by said brace and engaging in the perforations of the arm, and locking means whereby the bolt may be secured in or out of engagement with the perforations of the arm substantially as set forth.

4. A bracket comprising the upright or main section having wings at a right angle to each other providing the wing for connection with the support and the forwardly-projecting wing for connection with the arm and the brace, the arm and brace pivoted at their inner ends to said wing and slidably engaged with each other whereby the arm may be adjusted to different angles, the spring-actuated bolt carried by the brace for engagement with the arm for securing the brace and arm in different adjustments, and the keeper-plate for holding said bolt in different adjustments, substantially as set forth.

5. The combination with the top arm, of the brace therefor having a sliding engagement with the arm, the spring-actuated bolt carried by the brace for engagement with the top arm for securing the arm and brace in different adjustments, and the spring-actuated keeper-plate carried by the brace for securing the bolt in or out of engagement with the top arm, substantially as set forth.

6. The combination in a bracket with the top arm and the brace having a sliding engagement with said arm, of a locking-pin engaging with the arm for securing the brace and arm in different adjustments, and a keeper-plate by which to secure the locking-pin in locked and unlocked positions substantially as set forth.

7. A bracket comprising the top arm having a longitudinal slot and a series of openings adjacent thereto, the brace sliding along said arm and having a pin or projection entering the slot thereof, a bolt on the brace entering the openings in the top arm, and devices on the brace for holding said bolt out of position to engage said openings substantially as set forth.

749,671. **ROTARY CAP-CLOSURE.** HENRY J. S. HALL, New York, N. Y. Filed June 6, 1903. Serial No. 160,369. (No model.)



Claim.—1. A rotary cap-closure comprising a nozzle round in cross-section provided with an outlet-opening, and a rotary cap provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also provided respectively with stops interlocked with each other, and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet, and is stopped whenever the outlet is fully closed.

2. A rotary cap-closure comprising a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named, and having a closed upper end, said nozzle and cap being also provided respectively with stops interlocked with each other and one of said stops being elon-

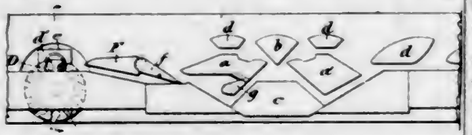
gated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet and is stopped whenever the outlet is fully closed.

3. A rotary cap-closure comprising a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet and is stopped whenever the outlet is fully closed, and further provided with a withdrawal-resisting swivel-joint inseparably attaching said cap to said nozzle.

4. A rotary cap-closure comprising a box-cover having a nozzle round in cross-section provided with an outlet-opening, and a rotary cap provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and further provided with a withdrawal-resisting swivel-joint inseparably attaching said cap to said nozzle and located below said outlet-openings so as to obstruct the escape of the contents at the lower edge of the cap.

5. A rotary cap-closure comprising a box-cover having a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named and having a closed upper end, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet and is stopped whenever the outlet is fully closed, and further provided with a withdrawal-resisting swivel-joint inseparably attaching said cap to said nozzle and located below said outlet-openings so as to obstruct the escape of the contents at the lower edge of the cap, substantially as hereinbefore specified.

749,672. STITCH-CAM FOR KNITTING-MACHINES. EMIL A. HIEBER, Allentown, Pa. Filed Jan. 12, 1903. Serial No. 138,607. (No model.)



Claim.—1. In the cam-cylinder of a circular-knitting machine, a set of reciprocatory knitting-cams, one of the stitch-cams of which has its lower portion cut away, while its main cam edge is downwardly supplemented by a pivoted latch-cam, substantially as described.

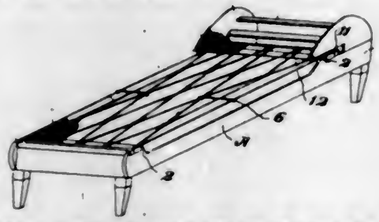
2. In the cam-cylinder of a circular-knitting machine, the combination of a set of reciprocatory knitting-cams, one of the stitch-cams of which has its bottom portion removed, and a latch-cam pivoted below this stitch-cam with its point yieldingly pressed against its lower corner nearest the bottom center cam, substantially as described.

3. In the cam-cylinder of a circular-knitting machine, a set of reciprocatory knitting-cams, one of the stitch-cams of which has its lower portion cut away, while its main cam edge is downwardly supplemented by a pivoted latch-cam, the lower edge of the stitch-cam being undercut and the point of the latch-cam being correspondingly beveled where they are in contact, substantially as described.

4. In the cam-cylinder of a circular-knitting machine, a set of reciprocatory knitting-cams, the lower edge of that cam which leads during full knitting being cut away; a switching mechanism whereby some of the needles may be deflected over this cam when it is the leading or idle stitch-cam; and a yielding latch-cam, occupying the cut-away portion of this stitch-cam, which yields to allow the balance of the needles to pass without material depression but which supplements the main cam edge of this stitch-cam during that portion of reciprocatory knitting when it is the following or active stitch-cam, to effect depression of the needles, substantially as described.

5. In the cam-cylinder of a knitting-machine, a stitch-cam provided with an intermediate horizontal path for the needle-hubs; in combination with a pivoted cam guarding one end of this path as against needles approaching the stitch-cam at that end, but yieldingly movable, under the influence of the needle-hubs alone, to allow the passage of needles entering such intermediate path at the other end, substantially as described.

749,673. COUCH. JOHN HOEY, San Francisco, Cal. Filed Sept. 10, 1903. Serial No. 172,639. (No model.)



Claim.—1. The combination with the side bars of a couch-frame, of end bars extending across and having their ends flush with the outer faces of the side bars, woven-wire fabric stretched between the end bars having its edges reinforced and flush with the ends of said bars, and a head portion rigid with the couch-frame at a point beyond the head end of the fabric and extending inwardly beyond the transverse bar at that end and forming an elastic junction with the seat portion.

2. The combination in a couch of a frame, a woven-wire fabric stretched between the end bars of the frame and having an elastic reinforced edge, a head rigid with the head end of the couch-frame at a point beyond the end bar at that end, said head covered with elastic woven wire and curved to form a junction with the seat portion, said junction being projected inwardly beyond the supporting end bar of the seat portion and having an elastic reinforcing edge.

3. The combination in a couch of a frame, a woven-wire fabric having reinforced edges and stretched between the end bars of the frame, a woven-wire head portion and supports therefor consisting of curved side pieces fixed to the frame at points beyond the adjacent end bar, said side pieces being cut away horizontally and projected beyond the head end bar, whereby the seat fabric is extended beneath these supports and with its edge substantially flush with the outer faces of said supports.

4. The combination in a couch of a frame having a woven-wire fabric stretched between transverse bars fixed to the foot and head of the frame, said fabric having reinforced edges flush with the ends of the bars, a woven-wire head portion stretched transversely between curved supports, said supports being fixed to the head end of the couch at a point beyond the head end bar and having the ends contiguous to the elastic seat fabric, cut away or channeled on the lower sides so that said ends are projected over the edges of the seat fabric, and the elastic edge of the head fabric extends transversely across and contiguous to the elastic seat fabric.

749,674. JAR-CLOSURE. OTTO H. HOFFMAN, St. Johnsville, N. Y. Filed June 4, 1903. Serial No. 160,090. (No model.)



Claim.—1. A jar-closure, embodying a yoke having a plurality of arms, two of said arms pressing on the jar-lid, and a bail-clamp

embracing the bottom and sides of the jar, the upper ends of said clamp detachably engaging the other arms of the yoke.

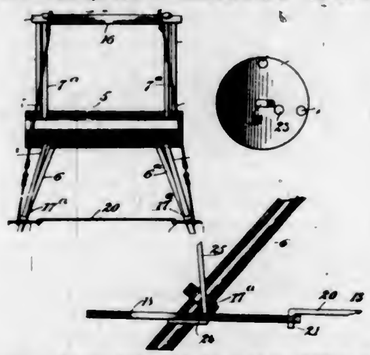
2. A jar-closure, embodying a yoke having arms, two of said arms having depending legs seating on the jar-lid, and a bail-clamp adapted to longitudinally embrace the jar, the ends of said clamp having detachable engagement with the other arms of the yoke.

3. A jar-closure, embodying a four-armed yoke of resilient metal, two of said arms having depending legs adapted to seat on the jar-lid, and a bail-clamp longitudinally embracing the jar, the ends of said clamp having loops adapted to engage the ends of the other arms on the yoke.

4. The combination with a jar-body, and a lid thereon, of a closure device, comprising a resilient yoke having four arms, two of said arms seating in pockets in the lid, and a clamp formed of wire, bent to embrace the jar longitudinally, the upper ends of the clamp having loops that detachably engage the ends of the other pair of arms.

5. The combination with a jar body and a lid thereon, the jar having a transverse groove in its bottom wall, and the lid being provided with two pockets disposed oppositely, of a closure device, comprising a resilient yoke formed of plate metal, and having four evenly-spaced arms, two of said arms having similar depending legs, and the other arms being provided with upturned keeper-ears on their ends, and a rectangular looped bail-clamp formed of wire, the upper ends of the clamp having loops thereon, the looped lower end of the clamp seating in the groove in the jar-bottom, the upper loops engaging the keeper-ears when the yoke is pressed toward the lid and presses said lid upon the jar.

749,675. FOLDABLE STOOL. WILLIAM R. S. HUSSA, West Hoboken, N. J. Filed Apr. 24, 1903. Serial No. 154,132. (No model.)



Claim.—1. A foldable stool comprising a hollow member provided near its end portions with sockets, pairs of seat-posts and legs each fitted detachably to said sockets of the member, and a seat having means for detachably supporting the same on the seat-posts; said legs, posts and seat being foldable compactly, and adapted to be housed within a receptacle afforded by said hollow member.

2. A foldable stool comprising a hollow member provided with sockets, pair of legs and seat-posts fitted detachably to said socketed portions of the hollow member, a seat, and seat-rails attached to the seat and fitted detachably to the seat-posts.

3. A foldable stool comprising a hollow member having reinforcements and sockets at its end portions, a closure for one end of said hollow member, pairs of seat-posts, legs fitted detachably to the socketed and reinforced end portions of said hollow member, and a seat having rails adapted to be fitted detachably to said posts.

4. A foldable stool comprising a hollow member having a reinforcement provided with offsets, legs and seat-posts fitted detachably to the member and its offset reinforcements, and a pliable seat having means for detachably connecting the same with said posts.

5. A foldable stool having a hollow member, legs and seat-posts fitted detachably to said member, a seat connected with said posts, foot-pieces fitted detachably to the legs, and a series of vertical stays attached to said foot-pieces and to the seat.

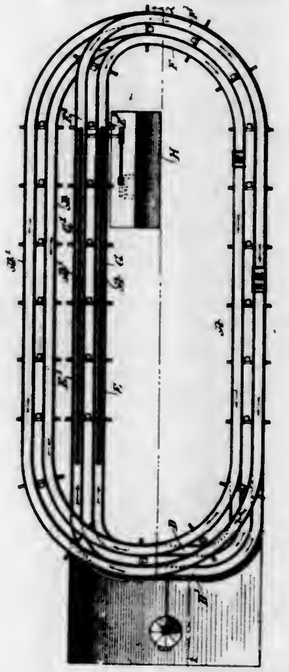
6. A stool having legs provided with shoulders, foot-pieces fitted to said legs and engaging with said shoulders, and two series of stays attached to said foot-pieces, the stays of one series having their respective ends connected to adjacent foot-pieces, and the stays of the other series rising upwardly from the foot-pieces and attached to parts of the stool.

7. A foldable stool having a series of legs, foot-pieces fitted individually to said legs and held thereon against movement in one direction, a series of horizontal stays connected detachably to said foot-pieces, and vertical stays each having detachable connection with one foot-piece and with parts of the chair.

8. A foldable stool comprising a hollow member, pairs of legs fitted detachably thereto, pairs of seat-posts also fitted detachably to said member, seat-rails having detachable connection with the seat-posts, and a seat supported by the rails; said hollow member in the assembled position of the parts lying transversely across the stool, and said member affording a receptacle for the parts in the folded condition thereof.

9. A foldable stool comprising a transverse member, legs and seat-posts connected thereto, foot-pieces fitted to said legs, seat-rails attached to the seat-posts, horizontal stays connected to the foot-pieces, and upright stays attached to the seat-rails and to the foot-pieces.

749,676. INCLINED RAILWAY. STEPHEN R. JACKMAN, New York, N. Y. Filed Nov. 6, 1903. Serial No. 180,060. (No model.)



Claim.—1. An inclined railway having two continuous race-tracks, arranged side by side and of the same inclination throughout their length, so that cars traveling down the tracks by their own gravity acquire different momenta, according to their weights.

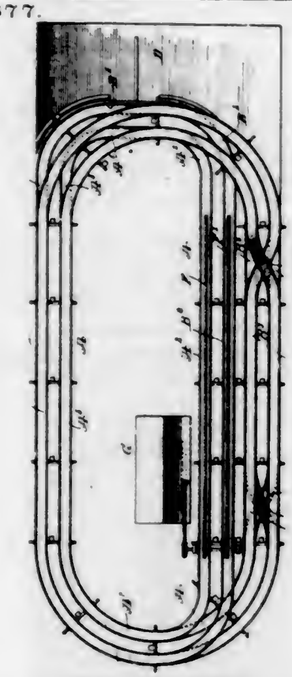
2. An inclined railway having two continuous race-tracks, arranged side by side, of different lengths and of the same inclination throughout their lengths, and cars of different weights traveling down the tracks by their own gravity, for the cars to acquire different momenta during the downward journey, as set forth.

749,677. INCLINED RAILWAY. STEPHEN R. JACKMAN, New York, N. Y. Filed Nov. 6, 1903. Serial No. 180,061. (No model.)

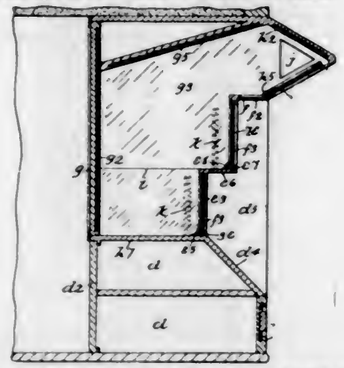
Claim.—1. A railway comprising a plurality of individually-continuous tracks, arranged side by side and having approximately the same inclination and length, the tracks crossing each other twice, one above the other, as set forth.

2. A railway comprising a plurality of individually-continuous tracks, arranged side by side and having approximately the same inclination and length, the tracks crossing each other twice, one above the other and in reverse order, as set forth.

749,677.



749,678. SHOW-WINDOW. GEORGE F. JEFFERSON, Brooklyn, N. Y. Filed Apr. 10, 1903. Serial No. 151,945. (No model.)



Claim.—1. A show-window comprising a front portion and an inclined end portion and a plurality of subdivisions arranged one above another, the bottom subdivisions being provided with a downwardly-inclined sill and the top subdivisions being projected, said window being also provided with a projecting top portion both at the front and inclined end thereof, substantially as shown and described.

2. A show-window comprising a front portion and an inclined end portion and a plurality of subdivisions arranged one above another, the bottom subdivisions being provided with a downwardly-inclined sill and the top subdivisions being projected, said window being also provided with a projecting top portion both at the front and inclined end thereof, and the inclined sill, the projecting top portion, the back of the window, one end thereof, and the top thereof being also provided with mirrors, substantially as shown and described.

3. A show-window comprising a front portion and an inclined end portion and a plurality of subdivisions arranged one above another, the bottom subdivisions being provided with a downwardly-inclined sill and the top subdivisions being projected, said window being also provided with a projecting top portion both at the front and inclined end thereof, and the inclined sill, the projecting top portion, the back of the window, one end thereof, and the top thereof being also provided with mirrors, and the bottom of the projecting top portion being provided with a transparent panel, substantially as shown and described.

4. A show-window comprising a front portion and one end of which is inclined backwardly, said front and end being provided with downwardly-inclined sills having mirrors, the body portion of said window comprising separate projecting divisions or panels, and the top thereof being provided with a projecting portion having a mirror in the corer and transparent panels in the bottom thereof, one end of the window and the back and top portion of the interior being provided with mirrors, substantially as shown and described.

5. A show-window composed of separate divisions arranged one above another and successively projected outwardly one above another, the bottom portion of the bottom divisions and of the outwardly-projected divisions thereover forming shelves and said divisions being provided with hinged transparent panels which are adapted to open inwardly, substantially as shown and described.

6. A show-window composed of separate divisions arranged one above another and successively projected outwardly one above another, the bottom portion of the bottom divisions and of the outwardly-projected divisions thereover forming shelves and said divisions being provided with hinged transparent panels which are adapted to open inwardly, and the bottom portion of the top division which is projected outwardly being partially horizontal and partially upwardly inclined and said portions being also provided with transparent panels one of which is adapted to swing inwardly, substantially as shown and described.

7. A show-window composed of separate divisions arranged one above another and successively projected outwardly one above another, the bottom portion of the bottom division and of the outwardly-projected division thereover forming shelves and said divisions being provided with hinged transparent panels which are adapted to open inwardly, and the bottom portion of the top subdivision which is projected outwardly being partially horizontal and partially upwardly inclined and said portions being also provided with transparent panels one of which is adapted to swing inwardly, said window being also provided at the top, sides and back with mirrors and the back being composed of a hinged door, substantially as shown and described.

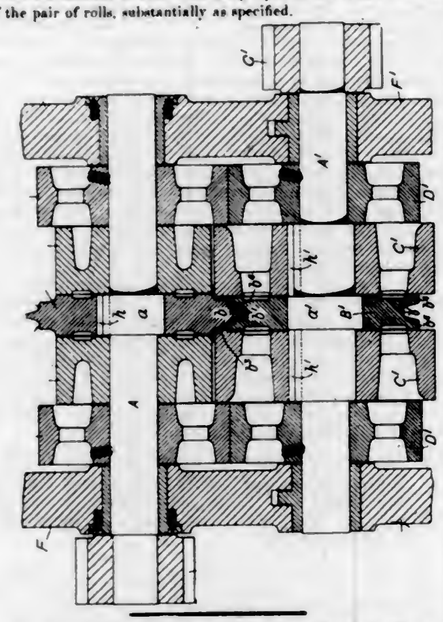
8. A show-window comprising a main portion the front of which is parallel with the front of a building and the end thereof adjacent to said door is inclined backwardly and in the direction of the door of said building, said window at both the front, and the said end being composed of different divisions arranged one above another and successively projected outwardly one above another, and the said divisions being provided with horizontal transparent panels adapted to swing inwardly, substantially as shown and described.

9. A show-window comprising a main portion the front of which is parallel with the front of a building and the end thereof adjacent to said door is inclined backwardly and in the direction of the door of said building, said window at both the front and the said end being composed of different divisions arranged one above another and successively projected outwardly one above another, and said divisions being provided with transparent panels adapted to swing inwardly the top and back of said window and one end thereof being also provided with mirrors, substantially as shown and described.

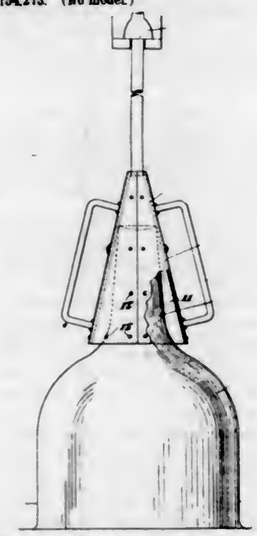
749,679. ROLLS FOR USE IN THE PRODUCTION OF SHEET-METAL STRIPS. GODFREY B. JOHNSON, London, England. Filed June 9, 1903. Serial No. 160,713. (No model.)

Claim.—1. A pair of rolls for shaping the cross-section of sheet-metal strips, consisting in the combination with a pair of shafts rotated at the same angular velocity, of independent annular sections carried thereby and constituting the operative surfaces of the rolls, the sections of the one roll matching the sections of the other roll of the pair, and some of the sections being of greater and some of lesser diameter than the mean diameter of the pair of rolls, the diameters of those sections which are of greatest and of least diameter being respectively equal for both rolls of the pair, and those sections whereof the diameter differs from the mean diameter to the greatest extent in the one respect being fast on their shaft, while those sections whereof the diameter differs from the mean diameter to the greatest extent in the other respect are loose on their shaft, substantially as specified.

2. A pair of rolls for shaping the cross-section of sheet-metal strips, consisting in the combination with a pair of shafts rotated at the same angular velocity, of independent annular sections carried thereby and constituting the operative surfaces of the rolls, the sections of the one roll matching the sections of the other roll of the pair, and some of the sections being of greater and some of lesser diameter than the mean diameter of the pair of rolls, the diameters of those sections which are of greatest and of least diameter being respectively equal for both rolls of the pair, those sections whereof the diameter differs from the mean diameter to the greatest extent in the one respect being fast on their shaft, while those sections whereof the diameter differs from the mean diameter to the greatest extent in the other respect are loose on their shaft, and the diameter of the end sections of both rolls being equal to the mean diameter of the pair of rolls, substantially as specified.



749,680. COOLING-RETARDER FOR DRAWING GLASS. LINCOLN THORNBURG, Gas City, Ind., assignor to the Window Glass Machine Company, a Corporation of New Jersey. Filed Apr. 25, 1903. Serial No. 154,273. (No model.)



Claim.—1. In glass-drawing apparatus, the combination with the bait, of a cooling-retarder arranged to prevent cooling of said bait; substantially as described.

2. In glass-drawing apparatus, the combination with a metal bait, of a shield arranged to retard cooling of the bait at its juncture with the glass; substantially as described.

3. In glass-drawing apparatus, a hollow metal bait connected to a source of gaseous pressure, and a surrounding shield for the bait at its juncture with the glass; substantially as described.

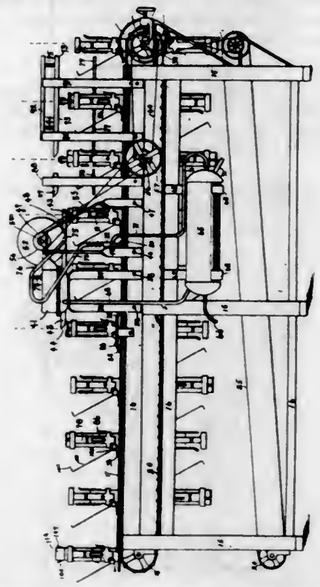
4. In glass-drawing apparatus, the combination with the bait arranged to draw hollow glass articles, of a cooling-retarder arranged to retard cooling of the bait at its juncture with the glass; substantially as described.

5. In glass-drawing apparatus, a metal bait and a surrounding shield for the same made of a plurality of hinged parts clamped around the bait; substantially as described.

6. In glass-drawing apparatus, a hollow pipe having a lower head, and a removable shield surrounding and supported upon said head; substantially as described.

7. In glass-drawing apparatus, the combination with a metal bait, of an annular shield having a non-conducting lining, and removably clamped around the bait; substantially as described.

749,681. PACKAGE-SEALING MACHINE. ROBERT F. W. BEARDSLEY, Chicago, Ill., assignor of four-fifths to Rose Levy, Lydia Levy, Harry D. Levy, and Bertram E. Nussbaum, Chicago, Ill. Filed Mar. 12, 1902. Serial No. 97,948. (No model.)



Claim.—1. In mechanism of the class described, the combination of a carton-carrying plug or holder, a weight slidably mounted within the plug, and members connected to said weight extending outside the plug, adapted to engage the carton, whereby when said plug is inverted, the weight forces the carton from the plug.

2. In a carton-sealing machine, a holder adapted to carry a carton with its flaps raised, pivoted fingers adjacent to said holder and held normally away from it each adapted to close one flap of the carton, mechanism for successively moving said fingers whereby said flaps of the carton are successively closed in and a weight slidably mounted within said holder having a part adapted to bear against the carton and remove it from the holder when the same is turned to an inverted position, for the purposes described.

3. In a carton-sealing machine, the combination of, a holder adapted to carry a carton, with its flaps raised through the machine, mechanism for moving said holder, pivoted L-shaped fingers adjacent to said holder, moving with it and normally held away from it, each adapted to close in one flap of the carton, mechanism for successively moving said fingers whereby said flaps of the carton are successively closed in, spring mechanism adapted to allow the top of each L-finger to be depressed on the carton-flap which it has closed in without the finger itself being depressed, the L-top of the finger remaining always in a horizontal position, and mechanism adapted

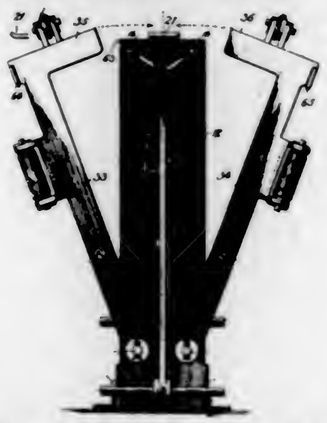
to so depress the top of each finger when said finger has closed in its flap.

4. In a carton-sealing machine, the combination of a carton-blank-holding block or plug, an L-shaped finger pivotally mounted to fold in a flap or carton on said plug, spring mechanism in the upright portion of said L-shaped finger adapted to allow the top of said L-shaped finger to be depressed by any suitable means on the carton-flap which said finger closes in.

5. In a carton-sealing machine, the combination of a holder adapted to receive and hold a carton with its flaps up, a finger 111 pivoted near the base of said holder adapted to be moved toward the plug and carton by any suitable means, a U-shaped spring 112 in the body of said finger, and an L-shaped top 114 extending from the top of the finger adapted to fold in the carton-flap, substantially as shown and described.

6. In a carton-sealing machine, the combination of a table, a continuously-moving carrier, a series of carton-holders mounted on said carrier adapted to carry a carton, a finger pivoted to the base of one of said carton-holders having an L-shaped top adapted to fit over a flap of the carton and hold it in when said finger is raised into contact with said carton, mechanism for normally holding said finger away from the carton, mechanism at the end of the machine for forcing said finger up against the carton and the L portion over the top of the carton whereby the carton is held on the carton-holder while the carrier is passing from the top of the table with the holder upright to the bottom of the table with the holder and carton upon it in an inverted position, and means for then releasing said finger for the purposes set forth.

749,682. PACKAGE-SEALING MACHINE. ROBERT F. W. BEARDSLEY, Chicago, Ill., assignor of four-fifths to Rose Levy, Lydia Levy, Harry D. Levy, and Bertram R. Nussbaum, Chicago, Ill. Filed Sept. 22, 1902. Serial No. 124,363. (No model.)



Claim.—1. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivotally mounted to fold in a flap of a carton on said plug, and spring mechanism supporting the pivotal mechanism of said finger in such a way that said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

2. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivotally mounted to fold in a flap of a carton on said plug, and spring mechanism, adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger, whereby said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

3. In mechanism of the class described, the combination of a carton-blank-holding plug or block, a folding-finger pivotally mounted to fold in a flap of a carton on said plug and coiled-spring mechanism adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

4. In mechanism of the class described, the combination of a carton-blank-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug, and spring mechanism supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

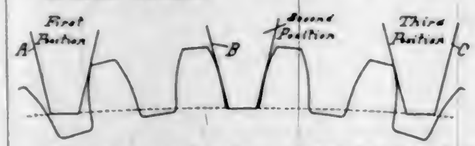
5. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug, and spring mechanism, adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

6. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug and coiled-spring mechanism adapted to move in a line parallel to the center of the plug, supporting the pivoted mechanism of said finger, whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

7. In mechanism of the class described, the combination of a carton-blank-holding block or plug, two flap-holding fingers pivoted in such a position that they are adapted to fold in opposite flaps of the carton on the plug, a spring mechanism supporting the pivotal mechanism of each finger whereby said finger may then be bodily moved parallel to itself by any suitable means to press down a carton-flap folded down by said finger and a spring secured to a fixed point having one end bearing on each finger adapted to normally hold it away from the block.

8. In mechanism of the class described, the combination of a carton-blank-holding block or plug, two flap-holding fingers pivoted to the base of the plug on two opposite sides each adapted to fold in the carton-flap adjacent to it, a coiled-spring mechanism supporting the pivotal mechanism of each finger whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger, and a spring secured to a fixed point at the base of the plug having one of its ends bearing on each finger adapted to normally hold it away from the block.

749,683. PROCESS OF SHAPING GEAR-TEETH. HUGO BILGRAM, Philadelphia, Pa. Original application filed Dec. 19, 1902, Serial No. 135,894. Divided and this application filed Apr. 18, 1903. Serial No. 153,222. (No model.)



Claim.—A process of shaping gear-teeth which consists in reciprocating a tool having the form of a rack-tooth across the face of the blank, rotating the blank and simultaneously moving the tool laterally to its cutting movement along a slightly-curved path concave on the side nearest the wheel center.

749,684. PAPER AND METHOD OF MAKING SAME FOR OBTAINING FAST COPIES FROM WRITINGS OF ANILIN INKS. MURRAY H. CHAPIN, Bridgeport, Conn., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Sept. 28, 1900. Serial No. 31,390. (No specimens.)

Claim.—1. The method of preparing paper for obtaining permanent records from anilin or copying inks, which consists in subjecting the paper to the action of a suitable mordant, substantially as described.

2. The method of preparing paper so as to render fast and permanent, against the action of water, copies taken from writings in anilin inks by the ordinary wet process of copying, which consists in applying to the paper a suitable mordant which will chemically combine with the coloring-matter in the ink and cause the same to be precipitated on the paper in the form of an insoluble compound, substantially as described.

3. The method of preparing copying tissue-paper so as to render fast and permanent, against the action of water, copies taken from writings done with anilin inks by the ordinary wet process of copying, which consists in applying to the copying tissue-paper a mordant which, under the action of the moisture used in press-copying, will cause the coloring-matter in the ink to be precipitated in the form of an insoluble compound, substantially as described.

4. The method of obtaining records insoluble in water from writings done with anilin ink, which consists in subjecting the coloring-matter in the ink to the action of a suitable mordant and to the action of moisture so as to cause such coloring-matter to be precipitated upon the paper in the form of an insoluble compound, substantially as described.

5. The method of preparing copying tissue-paper to obtain press copies from anilin ink and to cause said copies to resist the action of water, which consists in applying to or providing the tissue-paper with a suitable ingredient which in the presence of moisture and under pressure will cause the coloring-matter in the ink to be precipitated in the form of an insoluble compound, substantially as described.

6. The method of preparing copying tissue-paper for the purpose described, which consists in passing the same through a mordant bath and subsequently drying and smoothing it, substantially as described.

7. The method of preparing copying tissue-paper to receive press copies from anilin inks and to retain the same against subsequent obliteration by water, which consists in passing the paper through a mordant bath and subsequently drying and smoothing the paper, substantially as described.

8. The method of obtaining permanent ink records upon copying-paper and also upon the original sheet written with anilin ink, which consists in preparing the copying-paper with a suitable mordant and in pressing the original sheet upon the tissue sheet in the presence of moisture and so as to cause the mordant and the coloring-matter in the ink to chemically combine and form an insoluble precipitate, substantially as described.

9. The method of fixing copies made with anilin inks against subsequent obliteration by water, which consists in subjecting the coloring-matter in the ink to the action of a suitable mordant, substantially as described.

10. As a new article of manufacture, paper containing a suitable mordant adapted to chemically combine with the coloring-matter of anilin inks, substantially as described.

11. As a new article of manufacture, copying tissue-paper containing a mordant which is adapted to chemically combine with the coloring-matter of anilin inks, substantially as described.

12. As a new article of manufacture, a press copy-book whose leaves contain a suitable mordant adapted to chemically combine with the coloring-matter of anilin inks, substantially as described.

13. The method of preparing paper for obtaining permanent records from anilin inks which consists in subjecting the paper to the action of tannic acid, substantially as described.

14. As a new article of manufacture, paper containing tannic acid adapted to chemically combine with the coloring-matter of anilin inks, substantially as described.

15. As a new article of manufacture, a press copy-book whose leaves contain tannic acid adapted to chemically combine with the coloring-matter of anilin inks, substantially as described.

749,685. VAPOR GENERATOR AND BURNER. QUINCE CRANE and JAMES RESTINE, San Diego, Cal. Filed Mar. 11, 1903. Serial No. 147,237. (No model.)



Claim.—1. A vapor generator and burner, comprising a base-plate having apertures, a burner-body open at the top and bottom and held spaced from and above the apertures, a generator-chamber centrally apertured in its bottom and having an upstanding collar and a depending collar bounding said aperture, the depending collar entering the top of the burner-body, a cover-plate seated on the generator, and means for feeding liquid gaseous fuel into the generator

2. A vapor generator and burner, comprising a base-plate having curved apertures spaced by webs that support a center plate, a burner-body having short legs that seat upon the center plate, a generator-chamber having a central aperture and two border-flanges around said aperture, one depending and the other upstanding, the depending flange entering the top of the burner-body, and the other flange forming an annular wall rising from the bottom of said generator-chamber, a dished cover for the generator-chamber, and a liquid-feed pipe tapping said cover.

3. A vapor generator and burner, comprising a flat base-plate having three curved apertures circularly arranged, and three integral webs spacing said apertures apart, the webs holding a center portion of the base-plate concentric with the edges of the aperture, recessed seats on the center plate opposite the webs, a coniform burner-body having a circumferential deflector-flange thereon near the lower edge, legs depending from the burner-body and seating in the recesses of the center plate, a generator-chamber centrally apertured in its bottom wall and having two collar-flanges forming border-walls for said aperture, the lower flange entering the top of the burner-body, a dished cover-plate on the generator-chamber, and a feed-pipe tapping the cover-plate.

4. A vapor generator and burner, comprising a base-plate having spaced apertures forming a center plate, a burner-body supported on the said center plate, and a generator-chamber having a liquid-fuel inlet and provided with an aperture in its bottom bordered by flanges or collars, one of said flanges being depending and the other upstanding, the depending collar engaging the open top of the burner-body, as set forth.

749,686. KNITTING-MACHINE NEEDLE. JOHN C. BELT, Philadelphia, Pa., assignor to Keystone Knitting Machine Company, a Corporation of New Jersey. Filed Sept. 28, 1903. Serial No. 174,854. (No model.)

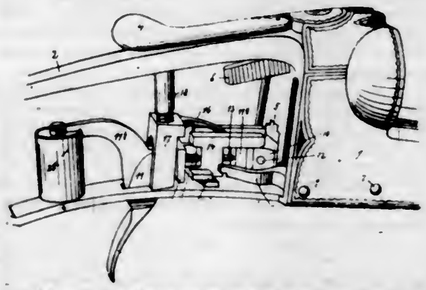


Claim.—1. In a knitting-needle, a hook, a recess in said hook and a latch pivoted to the needle and provided with a tongue adapted to seat in said recess, offsets on each side of said tongue, said offsets, at their outer edges, being of the same thickness as the outer walls of said hook and gradually reducing in thickness toward the body of said latch.

2. In a knitting-machine needle, a hook, a recess in the hook and a latch pivoted to the needle and provided with a tongue adapted to seat in said recess, offsets on each side of said tongue, said offsets extending at an obtuse angle to the inner edge of said latch, said offsets being provided at their outer edges with walls of the same thickness as the contiguous outer walls of said hook, the walls on said offsets converging downwardly toward the body of said latch.

3. In a knitting-machine needle, a hook, a recess in the hook and a latch pivoted to the needle and provided with a tongue adapted to seat in said recess, offsets on each side of said tongue, said offsets extending at an obtuse angle to the inner edge of said latch, said offsets being provided at their outer edges with walls of the same thickness as the contiguous outer walls of said hook, the walls on said offsets converging downwardly toward the body of said latch, and the outer edges of said latch and hook also forming an unbroken continuity.

749,687. SINGLE-TRIGGER MECHANISM FOR FIREARMS. ELIJAH D. FULFORD, Utica, N. Y., assignor of one-half to J. H. Webster and Paul North, Cleveland, Ohio. Filed Apr. 16, 1902. Serial No. 103,118. (No model.)



Claim.—1. In a firing mechanism, the combination of two sears, a single trigger, an independent automatic movable catch for each

sear mounted on the trigger, adapted to successively engage the sears, a manually-manipulated device for securing one only at a time of said catches in its set or retracted position out of engagement with the sear, means for resetting said catches and means for regulating the movement of the trigger, substantially as set forth.

2. The combination in a firing mechanism of the two sears, a trigger, means for regulating the movement of the trigger, catches on the trigger for successively engaging with said sears and means for resetting both, and means for temporarily securing one of said sear-catches out of engagement with its sear and releasing same upon operation of trigger, substantially as set forth.

3. The combination in a firing mechanism of the sears, the trigger, the two movable sear-catches mounted on the trigger each having a dependent tooth adapted to temporarily secure said catches in retracted position, a shifter consisting of a pivoted or swinging plate mounted on the trigger-plate in position to engage with said tooth or projection and means arranged on the outer side of the trigger-plate for operating said shifter, substantially as set forth.

4. The combination in a firing mechanism of the sears, the trigger part having the ways 13 arranged on either side thereof, the movable catches 14 mounted on said ways, springs impelling them toward a forward position, means for resetting the same, catches for temporarily securing one or the other of said sear-catches in its retracted position and means attached directly to the trigger for regulating the movement of the trigger, substantially as set forth.

749,688. **FIRE-EXTINGUISHER.** GEORGE C. HALE, Kansas City, Mo., assignor of one-half to Oscar C. Wiesner, Kansas City, Mo. Filed Nov. 6, 1902. Serial No. 130,324. (No model.)



Claim.—1. In a fire-extinguishing apparatus the combination of a generating-chamber and a fluid-pressure-controlled mechanism for regulating the mixing of chemicals for producing the fire-extinguishing fluid comprising normally inoperative levers, a chemical-containing vessel, and a rod carrying a stopper for said vessel and adapted to be actuated by said levers when the fluid-pressure has been removed.

2. In a fire-extinguishing apparatus the combination of a generating-chamber, a distributing system, a fluid-pressure-controlled mechanism for regulating the mixing of chemicals for generating the fire-extinguishing fluid, comprising normally inoperative levers, a chemical-containing vessel, and a rod carrying a stopper for said vessel and adapted to be actuated by said levers when the fluid-pressure has been removed, and means in said system for regulating said fluid-pressure mechanism.

3. In a fire-extinguishing apparatus the combination of a generating-chamber, a fluid-pressure mechanism for controlling the mixing of chemicals for generating the fire-extinguishing fluid, comprising normally inoperative levers, a chemical-containing vessel, and a rod carrying a stopper for said vessel and adapted to be actuated by said levers when the fluid-pressure has been removed, a distributing system, means in said distributing system for regulating the fluid-pressure mechanism controlled by atmospheric conditions.

4. In a fire-extinguishing apparatus the combination of a generating-chamber, a fluid-pressure-controlled mechanism for causing the mixing of chemicals for producing the fire-extinguishing fluid, comprising normally inoperative levers, a chemical-containing vessel, and a rod carrying a stopper for said vessel and adapted to be actuated by said levers when the fluid-pressure has been removed, a distributing system communicating with said fluid-pressure mechanism and said generating-chamber, means for normally shutting off communication between said distributing system and said generating-chamber adapted to be opened by the pressure of gases produced within the generating-chamber, and means within the distributing system for automatically controlling said pressure mechanism.

5. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, means arranged between said chambers for controlling the mixing of the chemicals within said generating-chamber, comprising normally inoperative levers arranged in said pressure-chamber, a chemical-containing vessel arranged in said generating-chamber, a rod carrying a stopper for said vessel and adapted to be actuated by said levers when the fluid-pressure has been removed, and a distributing system provided with means for controlling the pressure within said pressure-chamber.

6. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, means arranged between said pressure-chamber and said generating-chamber for controlling the generation of the fire-extinguishing fluid, comprising perforated bulged plates fixed between said generating and pressure chambers, a diaphragm arranged between said plates, a chemical-containing vessel suspended in said generating-chamber, normally inoperative levers arranged in said pressure-chamber, and a rod carrying a stopper for said vessel and adapted to be actuated by said levers when said pressure has been removed, a distributing system communicating with said generating-chamber and said pressure-chamber, means for normally shutting off communication between said distributing system and said generating-chamber adapted to be opened by the pressure of gases produced within the generating-chamber, and means in said distributing system for automatically controlling the pressure within said pressure-chamber.

7. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, a diaphragm, perforated bulged plates arranged between said pressure-chamber and said generating-chamber, said diaphragm being arranged between said plates, means connected to said diaphragm for controlling the mixing of the chemicals for generating the fire-extinguishing fluid, a distributing system connected to said pressure-chamber and means provided in said distributing system for automatically controlling the pressure in said pressure-chamber.

8. In a fire-extinguishing apparatus the combination of a generating-chamber, perforated bulged plates arranged between said chambers, a pressure-chamber, a diaphragm arranged between said plates, means connected to said diaphragm for controlling the mixing of the chemicals for generating the fire-extinguishing fluid, a distributing system communicating with said pressure-chamber and said generating-chamber, means for normally shutting off communication between said generating-chamber and said distributing system, and means in said distributing system for releasing the pressure within said pressure-chamber.

9. In a fire-extinguishing apparatus, the combination of a generating-chamber, a pressure-chamber, a diaphragm separating said chambers, a dumping-receptacle supported in said generating-chamber, means operatively connected up with, and actuated by, said diaphragm and carrying a stopper or plug engaging the mouth or opening of said dumping-receptacle and thus adapted to retain said dumping-receptacle in an upright position, raising and lowering means for said stopper or plug carrying means, and pressure-distributing means connected to said pressure-chamber, provided with means for automatically controlling the pressure within said pressure-chamber.

10. In a fire-extinguishing apparatus, the combination of a generating-chamber, a pressure-chamber, a diaphragm separating said chambers, a dumping-receptacle supported in said generating-chamber, means operatively connected up with, and actuated by, said diaphragm and carrying a stopper or plug engaging the mouth or opening of said dumping-receptacle and thus adapted to retain said receptacle in an upright position, raising and lowering means for said stopper or plug carrying means, means for retaining said plug-carrying and diaphragm means in its normally lowered position, and pressure-distributing means connected to said pressure-chamber, provided with means for automatically controlling the pressure within said pressure-chamber.

11. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, perforated bulged plates arranged between said chambers, a rod slidingly supported by said plates, a dumping-receptacle within said generating-chamber adapted to be held in an upright position by said rod when it is lowered, weighted levers within said pressure-chamber for lifting said rod and thereby releasing the dumping-receptacle, a diaphragm arranged between said plates for separating said generating-chamber and said pressure-chamber adapted to be sprung downwardly by a pressure within the pressure-chamber and to be sprung upwardly by said weighted levers, and a distributing system connected to said pressure-chamber and provided with means for automatically controlling the pressure within said chamber.

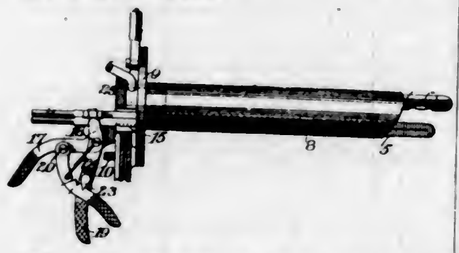
12. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, a diaphragm separating said chambers, a rod secured to said diaphragm adapted to retain a dumping-receptacle arranged within said generating-chamber in an upright position, means for lifting said rod and thereby releasing the dumping-receptacle, and means adapted to retain said rod in a lowered position.

13. In a fire-extinguishing apparatus the combination of a generating-chamber, a distributing system, a valve for normally shutting off communication between said distributiug system and said generating-chamber, comprising a perforated diaphragm, a lid for said perforated diaphragm, and the knife supported above said lid adapted to puncture the same when it is raised.

14. In a fire-extinguishing apparatus the combination of a generating-chamber, a pressure-chamber, perforated plates separating said chambers, a rod slidingly supported by said plates adapted when lowered to retain a dumping-receptacle within said generating-chamber in an upright position, weighted levers for lifting said rod, a diaphragm arranged between said plates and secured to said rod adapted to be sprung downwardly by pressure within the pressure-chamber and sprung upwardly by the weighted levers when said pressure is released, a distributing system connecting with said pressure-chamber and said generating-chamber, and a valve for shutting off communication between said generating-chamber and said distributing system adapted to be opened from pressure within the generating-chamber.

15. In a fire-extinguishing apparatus, the combination of a generating-chamber, a pressure-chamber, a diaphragm separating said chambers, a dumping-receptacle supported in said generating-chamber, a rod connected to, and actuated by, said diaphragm and carrying at its lower end a stopper or plug engaging the mouth or opening of said dumping-receptacle and retaining said receptacle in its normally lowered position, means for raising and lowering said rod, and a pressure-distributing system connected to said pressure-chamber, provided with means for automatically controlling the pressure within said pressure-chamber.

749,689. **SURGICAL INSTRUMENT.** THOMAS A. HOUGHTON, Rochester, N. Y., assignor to Electro Surgical Instrument Company, Rochester, N. Y., a Corporation of New York. Filed Apr. 17, 1903. Serial No. 153,017. (No model.)



Claim.—1. The combination with a sheath, a member located therein, and movable longitudinally thereof and a cutting instrument mounted thereon, of a second member movable relatively to the first and attached to the instrument and means for operating it.

2. The combination with a sheath, a member arranged therein and a cutting instrument pivoted thereto, of a second member movable relatively to the first member and attached to the cutting instrument, means for operating said member and means for adjusting both members longitudinally in the sheath.

3. The combination with two relatively movable bars and a cutting instrument movably attached thereto, of a removable sheath inclosing said bars and a device for adjusting the sheath and cutting instrument relatively.

4. The combination with a member, a relatively movable member and a cutting instrument attached to each, of a handle attached to one member, an arm attached to the other member and a locking device between the handle and lever.

5. The combination with a member, a relatively movable member and a cutting instrument pivotally attached to the members, of a handle mounted on one of the members, a pivoted lever attached to the other member and a locking device between the handle and lever.

6. The combination with a member, a relatively movable member and a cutting instrument pivotally attached to the members, of a handle mounted on one of them, a lever attached to the other member and pivotally attached to the handle and a latch operating to automatically lock said cutting instrument in adjusted position.

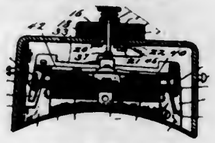
7. The combination with a member, a second member movable relatively thereto and a cutting instrument pivotally connected to both members, of a handle attached to one of them, a lever attached to the other member and pivotally connected to the handle and provided with a projection and a spring-operated latch mounted on the handle and cooperating with the projection to hold the member in adjusted position.

8. The combination with a member, a second member movable relatively thereto and a cutting instrument pivotally connected to both members, of a handle mounted on one of the latter, a lever attached to the other member and a latch device for holding them in adjusted position, a sheath inclosing the members and means for moving the latter longitudinally therein.

9. The combination with a bar provided with a channel and a cutting instrument pivotally attached to the bar and member, of a hollow sheath inclosing said parts, a guide therein and a removable plug closing the outer end of the sheath and provided with a notch

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749,690. **MASSAGE INSTRUMENT.** NICOLAY JACOBSEN, Christiania, Norway, assignor to R. Klaveness, Brookings, S. D. Filed May 16, 1903. Serial No. 157,475. (No model.)



Claim.—1. In an electric massage instrument, the combination with anvils; of an oscillating armature adapted to successively contact with said anvils, and means for oscillating the armature.

2. In an electric massage instrument, the combination with anvils; of an oscillating armature adapted to successively contact therewith, and means for adjusting the armature from or toward the anvils.

3. In an electric massage instrument, the combination with a casing; of an oscillating armature therein, and means for adjusting the armature to regulate the movement thereof within the casing.

4. In an electric massage instrument, the combination with anvils; of an oscillating armature extending thereover and adapted to contact therewith, means for adjusting the armature from or toward the anvils, and an indicator connected to the adjusting means.

5. In an electric massage instrument, the combination with magnets and anvils electrically connected to the cores thereof; of an armature extending over and adapted to alternately contact with the anvils, and means for actuating the armature.

6. In an electric massage instrument, the combination with magnets having anvils electrically connected to the cores thereof; of an armature extending over the anvils, means for actuating the armature to successively contact with the anvils, and adjusting means for moving the armature from or toward the anvils.

7. In an electric massage instrument, the combination with magnets and anvils electrically connected to the cores thereof; of an armature extending over and adapted to successively contact with the anvils, a swiveled adjusting-stem adapted when rotated to move the armature from or toward the anvil, and means for actuating the armature.

8. In an electric massage instrument, the combination with a casing having magnets therein and anvils electrically connected with the cores of the magnets and mounted on one face of the casing; of an armature pivoted within the casing and extending over the an-

vils, an adjusting-stem mounted within the casing, means whereby when the stem is rotated the armature is adjusted from or toward the anvils, and an indicator connected to the adjusting-stem.

9. In an electric massage instrument, the combination with a casing having a cross-strip therein, anvils at opposite sides of the strip, and means for alternately magnetizing the anvils; of an armature, a cross-strip extending thereunder and forming a bearing therefor, a stem swiveled within the first-mentioned cross-strip, and a threaded portion to said stem engaging the supporting-strip of the armature.

10. In an electric massage instrument, the combination with a casing having an oscillating armature therein; of a handle, a fork extending therefrom and embracing and connected to the casing, means for operating the armature, a block upon the casing, thimbles therein electrically connected with the operating means, a block engaging the fork and adapted to lock the same immovable upon the casing, and plugs carried by the block for engaging the thimbles.

11. In an electric massage instrument, the combination with a casing having a curved working face and a removable anvil; of an oscillating armature therein, anvils interposed between the armature and the working face, and means for actuating the armature.

12. In a device of the character described, the combination with a casing having a curved working face and means for securing said face upon a limb of a person; of an oscillating armature within the casing, and means for actuating the armature whereby vibrations are imparted to the working face.

13. In a device of the character described, the combination with a casing having a working face and means for fastening said face upon the limb of a person; of anvils within the casing and upon the working face, an oscillating armature adapted to successively contact with the anvils, and means for adjusting the armature from or toward the anvils.

14. In a device of the character described, the combination with a casing having a working face thereto and means for securing said face upon the limb of a person, of anvils upon said face and within the casing, magnets, the cores of which are electrically connected with the anvils, an armature pivotally mounted within the casing and extending over the anvils, and means for adjusting the armature from or toward the anvils.

15. In a massage instrument of the character described, the combination with a casing; of an electromagnetically-operated oscillating armature, arms extending therefrom, and anvils within the casing and adapted to be successively contacted by the arms.

16. In a massage instrument of the character described, the combination with a casing; of an electromagnetically-operated oscillating armature, anvils adapted to be successively contacted by the armature, and means for adjusting the armature in relation to the anvils.

17. In a massage device of the character described, the combination with an electromagnetically-operated oscillating armature; of electromagnets, the cores of which are extended to form anvils for the armature.

18. In a massage instrument of the character described, the combination with an electromagnetically-operated oscillating armature, and arms at the ends of the armature, of a pair of electromagnets, the cores of which are extended to form anvils in the paths of the arms.

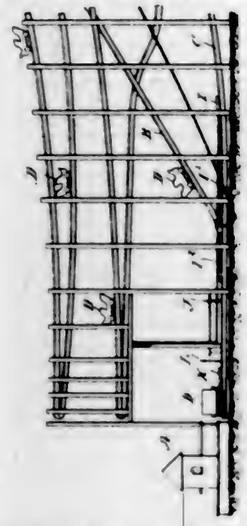
19. In a massage instrument of the character described, the combination with a casing having a working face thereto and means for securing said face upon a limb of a person, of an electromagnetically-operated oscillating armature within said casing, electromagnets, the cores of which are extended to form anvils for the armature, said anvils being arranged upon the working face, and a tapping device secured to the working face.

749,691. BRAKE MECHANISM FOR INCLINED RAILWAYS. STEPHEN E. JACKMAN, New York, N. Y. Original application filed Sept. 27, 1902, Serial No. 125,001. Divided and this application filed Aug. 3, 1903. Serial No. 168,019. (No model.)

Claim.—1. An apparatus of the class described, provided with a main track having a manually-controlled brake mechanism arranged in the track, to engage and brake the car on its downward travel, as set forth.

2. An apparatus of the class described, provided with a main track, a brake mechanism arranged in the track and adapted to engage and brake a car on its downward journey on the main track, and means under the control of an operator, to actuate the said brake mechanism independent of the occupants of the cars, as set forth.

3. An apparatus of the class described, provided with a main track having a manually-controlled brake mechanism arranged in the track, to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally in the track, a brake-plate arranged longitudinally on the car, in vertical alinement with the said brake-beam, and manually-controlled means for raising and lowering the said brake-beam, as set forth.



4. An apparatus of the class described, provided with a main track having a manually-controlled brake mechanism arranged in the track, to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally in the track, a brake-plate arranged longitudinally on the car, in vertical alinement with the said brake-beam, pivoted arms in the track, a link connecting the arms with each other, and a hand-lever connected with the said link, as set forth.

5. An apparatus of the class described, provided with a main track, brake mechanisms located in the track at a station, one in front of the other, adapted to engage an approaching car, and independent levers connected with the said brake mechanisms, to throw the same into action independent one of the other, to brake a car successively, as set forth.

6. An apparatus of the class described, provided with a main track, a plurality of brake-beams arranged longitudinally in the track, one in front of the other, and adapted to engage a brake-surface on the car traveling on the track, a lever under the control of the operator, located in advance of the brake-beams, and a connection between the lever and the said brake-beams, to operate the same, as set forth.

7. The combination with an inclined railway having a station-section, and a homestretch leading to the station-section, of a brake mechanism in the homestretch-section, for checking the speed of a car, and a brake mechanism in the exit side of the station-section for stopping and temporarily locking the car, for the disembarkation of the passengers in the car, as set forth.

8. The combination with an inclined railway having a station-section, and a homestretch leading to the station-section, of a brake mechanism in the homestretch-section, for checking the speed of a car, a brake mechanism in the exit side of the station-section, for stopping and temporarily locking the car, for the disembarkation of the passengers in the car, and a second brake mechanism in the station-section, at the entrance end thereof, for stopping and temporarily locking the car, for the embarkation of the passengers, as set forth.

749,692. HANDLE FOR VALVES, FAUCETS, PLUMBERS' FITTINGS, &c. HENRY P. KEIL, Brooklyn, N. Y. Filed June 27, 1903. Serial No. 163,446. (No model.)

Claim.—1. A handle for plumbers' fittings consisting of a flat plate provided with threaded pins or projections and balls secured thereto, and a hollow body portion, and means to secure the two together in a rigid relation.

2. A handle for plumbers' fittings consisting of a flat plate provided with pins or projections and balls secured thereto, and a hollow-body portion, and means to secure the two together in a rigid relation, the said body portion being provided with means to hold a name-plate, in combination with said name-plate.

3. A handle for plumbers' fittings consisting of a flat plate having a plurality of arms or extensions and provided with pins or projections and balls secured thereto, and an independent body portion, and means to secure the two together in a rigid relation.

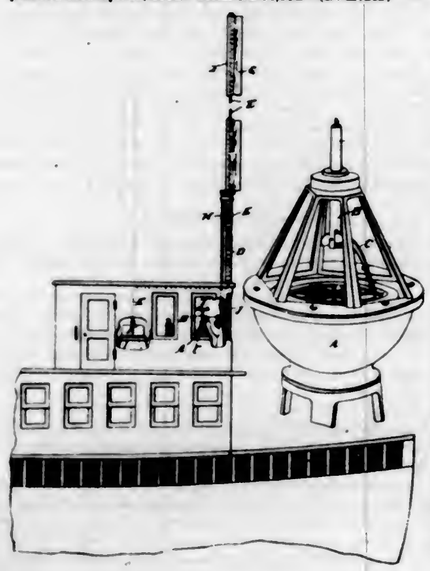
4. A handle for plumbers' fittings consisting of a flat plate having a plurality of radial arms or extensions and provided with pins or projections and balls secured thereto, and a hollow body portion provided with an angular bore, and means to secure the two together in a rigid relation.

749,693. WASHTUB-JOINT. MICHAEL J. KRESSER, Davenport, Iowa, assignor of one-half to Martin Silberstein, Max Silberstein, Emil Silberstein, and Louis Silberstein, Davenport, Iowa. Filed Feb 10, 1903. Serial No. 142,701. (No model.)

Claim.—1. A vessel of the character described composed of staves having opposing semicircular longitudinal grooves in their contiguous edges, and circular tenons conforming to and filling said grooves, the space between the contiguous edges of the staves above and below the tenon being unobstructed to thereby permit expansion and contraction of the staves and independent rocking movement thereof on the tenons.

2. A vessel of the character described having a curved bottom formed of staves provided with longitudinal semicircular grooves in their contiguous edges, and circular tenons conforming to and fitting said grooves and extending over the joints between the staves, the space between the contiguous edges of the staves above and below the tenon being unobstructed to thereby permit expansion and contraction of the staves and independent rocking movement thereof on the tenons.

749,694. MEANS FOR DETERMINING THE NAUTICAL BEARING OF NAVIGABLE VESSELS. HERROW W. LAGO, Boston, Mass. assignor to George R. Smith, trustee, Everett, Mass. Original application filed May 15, 1899, Serial No. 716,853. Divided and this application filed Apr. 22, 1901. Serial No. 56,814. (No model.)



Claim.—1. Means for receiving Hertzian-wave signals and messages, comprising a wave-catching conductor, in combination with a shield open on one side to expose said conductor to the transmitted waves in certain directions, and closed on its other sides to shield the conductor therefrom in other directions, for the purpose set forth.

2. Means for transmitting and receiving Hertzian-wave signals, and messages, comprising a wave-catching conductor, in combination with a movable shield adapted to alternately expose said conductor to and shield it from the influence of said waves, for the purpose set forth.

3. Hertzian-wave transmitting and receiving apparatus having elevated signal-conductors, in combination with a rotatable shield formed with an elongated vertical slot, adapted to expose said conductor to the signaling waves or impulses from the transmitter, only when the slotted portion of said shield is turned toward said transmitter, for the purpose set forth.

4. Hertzian-wave transmitting and receiving apparatus having elevated signal-conductors, in combination with a rotatable shield formed with an elongated vertical slot, adapted to expose said conductor to the signaling waves or impulses from the transmitter, only when the slotted portion of said shield is turned toward said transmitter, and with an indicating device in the same radial plane with said slot, and rotating in unison with said shield for the purpose set forth.

5. Hertzian-wave transmitting and receiving apparatus having wave-catching conductors, in combination with a rotatable shield formed with an elongated vertical slot having walls materially extended, radially, therefrom, to more accurately determine the nautical bearing of the transmitting instrument, and adapted to expose said conductor to the signaling waves or impulses, only when the slotted portion of said shield is turned toward the transmitter emitting said signal-waves, for the purpose set forth.

749,695. FERTILIZER-DISTRIBUTER. EDGAR C. LITCHFIELD and HENRY L. LITCHFIELD, Webster City, Iowa, assignors to the Litchfield Mfg. Co., Webster City, Iowa. Filed Oct. 1, 1903. Serial No. 175,344. (No model.)



Claim.—1. In a fertilizer-distributer, a receptacle, an endless support, and a plurality of slats carried thereby and serving to form a continuous bottom for the receptacle, said slats being movable to open position to permit the passage of the fertilizer between them.

2. In a fertilizer-distributer, a receptacle and an endless slat conveyer, the upper run of the conveyer forming a bottom for the receptacle and the slats of the lower end of said conveyer being arranged in spaced relation to afford a passage for the fertilizer or other material.

3. In a fertilizer-distributer, a receptacle, a conveyer forming

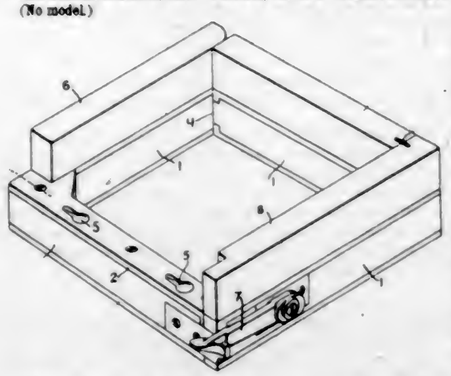
a bottom for said receptacle, said conveyer being formed of a plurality of slats overlapping to form the conveyer-bottom and movable by gravity into spaced relation under said bottom.

4. A conveyer comprising an endless support, and a plurality of slats pivotally connected to the support and adapted to open by gravity.

5. A conveyer comprising conveying-belts, and pivotally-mounted slats carried by the belts, the slats being movable to a position in the plane of the belts or to a position at right angles thereto.

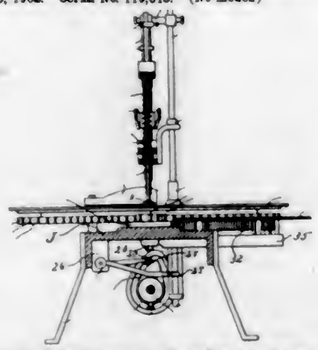
6. In a fertilizer-distributer, a receptacle, a conveyer forming a bottom for said receptacle, said conveyer being formed of a plurality of slats movable into spaced relation by gravity, substantially as specified.

749,696. **MOLDER'S FLASK.** WILLIAM LOTZ, Jr., CHRISTIAN WERMEYER, CHARLES S. HAMMER, FREDERICK THOMA, and HENRY A. REITSCHLER, Hamilton, Ohio. Filed May 22, 1903. Serial No. 158,233. (No model.)



Claim.—In a molder's flask, the combination, substantially as set forth, of a half-flask formed with walls having joint edges adapted to make contact with the wall edges of a cooperating half-flask, facing-strips secured upon the edges of the walls opposite the before-mentioned edges and provided with keyhole-shaped openings, extension-strips resting on said facing-strips, and buttons projecting from the lower edges of said extension-strips and engaging the openings in said facing-strips, said extension-strips overlapping at the corners in successive order whereby they may be serially positioned by endwise motion upon the facing-strips of the half-flask.

749,697. **FRUIT PITTING AND STUFFING MACHINE.** LAWRENCE MIDDLEKAUFF and CAREY A. SCHIRM, Los Angeles, Cal. Filed Aug. 15, 1902. Serial No. 119,815. (No model.)



Claim.—1. A fruit pitting and stuffing machine comprising a base-plate; a circular fruit-chamber plate revolubly and horizontally mounted on said base-plate; circular fruit-chambers in said plate having flaring tops; circular knives in said chambers; means to revolve said fruit-chamber plate intermittently; a stuffing-holding wheel revolubly and horizontally mounted on said base-plate below said fruit-chamber plate adapted to be revolved by said fruit-chamber plate; a top frame affixed to said base-plate; a pitter-rod mounted in said top frame above said fruit-chamber plate; means to intermittently move said pitter-rod vertically through the chambers in the fruit-chamber plate and to raise the same above said plate; a downwardly-spring-pressed pressure foot and rod mounted in said top frame; means to raise said pressure-foot and rod on the upward movement of said pitter-rod; a stuffing pressure-rod vertically mounted in the top frame connected to said pitter-rod; a stuffing-plunger vertically mounted below said stuffing-holding wheel; and means to cause said plunger to intermittently reciprocate vertically through said wheel and into the fruit-chamber.

2. In a fruit pitting and stuffing machine a revoluble plate provided with chambers for fruit, a stuffing-carrying revoluble plate having chambers therein adapted to receive the stuffing material; and means to bring said chambers in said two plates into successive register one after another; and means to eject the stuffing material out of the stuffing-chamber into the fruit in the fruit-carrying chamber.

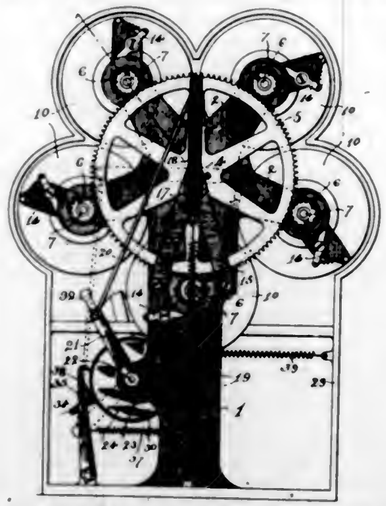
3. In a fruit pitting and stuffing machine having a base-plate and a top frame secured thereto, a circular fruit-chamber plate revolubly and horizontally mounted on said base-plate and having circular flaring-mouth fruit-chambers therein arranged in a circle; circular knives in said chambers extending into the flaring mouth; means to revolve said fruit-chamber plate intermittently; a pitter-rod, a pressure foot and rod, and a stuffing pressure-rod mounted in said top frame; means to intermittently and vertically move said pitter-rod, pressure foot and rod, and stuffing pressure-rod; a stuffing-holding wheel revolubly and horizontally mounted on said base-plate below said fruit-chamber wheel, having therein stuffing-holding chambers arranged in a circle and being provided with exterior cog-gear adapted to mesh with exterior cog-gear on the lower part of the fruit-chamber plate; a stuffing-plunger vertically mounted below said stuffing-carrying wheel; and means to cause said plunger to intermittently reciprocate vertically through said chambers in said stuffing-carrying wheel and into the chambers of the fruit-chamber plate, comprising a U-shaped rocking lever pivotally affixed to said base-plate, said lever having two arms, one of which passes through a notch in the side of said plunger, the other arm resting on a heart-shaped cam mounted on the driving-shaft and having a pin projecting therefrom; a heart-shaped cam mounted on said driving-shaft and adapted to engage said arm; and a face-plate having a heart-shaped flange adapted to engage said pin on said arm.

4. In a fruit pitting and stuffing machine having a base-plate, the combination of a fruit-chamber plate having fruit-chambers therein, revolubly and horizontally mounted on said base-plate; and means to intermittently move said plate; with means to eject fruit from said chambers in said plate, comprising an ejector-plunger below said plate adapted to reciprocate through said chambers; and means to cause the reciprocation of said plunger, comprising a downwardly-operating spring on the lower end of said plunger; a lever pivoted to bearings affixed to said base-plate and having the free end thereof bifurcated, the furcated arms straddling and passing through notches in said plunger; and means to remove the fruit from said fruit-chamber plate, comprising a shaft vertically mounted in said base exterior said fruit-chamber plate having a curved arm on the top thereof, adapted to be moved by the rotation of said shaft over the chamber in which the ejector-plunger is in while said plunger is at the upward limit of its stroke and to carry the fruit ejected thereby off said plate; a bevel-gear on the lower end of said vertical shaft; a bevel-gear on a horizontal shaft mounted in bearings affixed to said base-plate and adapted to mesh with the gear on the vertical shaft; a gear-wheel on said horizontal shaft; a second gear-wheel on the driving-shaft adapted to mesh with said gear on said horizontal shaft.

749,698. **COIN-CONTROLLED GAME APPARATUS.** CHARLES MOLITOR, Chicago, Ill. Filed Jan. 13, 1903. Serial No. 138,930. (No model.)

Claim.—1. In a coin-controlled game apparatus, the combination with two relatively movable members adapted to be interlocked by means of a coin, of a rotating member actuated to revolve in one direction by means of a spring, connection between said rotating member and one of said interlocking members to rotate said member against the action of said spring, a plurality of disks rotatably mounted on the frame of the machine, gearing between said disks and said rotating member, and clutch devices interposed in said gearing to cause said disks to be rotated by the motion of said rotating member in one direction, substantially as described.

2. In a coin-controlled game apparatus, the combination with a spur-gear revolubly mounted on the frame of the machine, connection between said spur-gear and a spring for normally holding said spur-gear in a given position, a plurality of disks revolubly mounted on said frame, gearing between said disks and said spur-gear, clutch devices interposed in said gearing to cause said disks to be revolved in unison with said spur-gear in one direction only, stop mechanism interposed in said gearing to cause said disks to stop in predetermined positions, a shaft journaled in the frame of said machine connection between said shaft and said spur-gear, coin-receiving devices on said shaft, and devices for engaging said coin and thereby rotating said shaft and said spur-gear against the action of the spring controlling the latter, substantially as described.

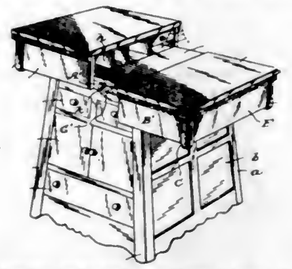


3. In a coin-controlled game apparatus, the combination with a spur-gear revolubly mounted on the frame of the machine, connection between said spur-gear and a spring for normally holding said spur-gear in a given position, a plurality of disks revolubly mounted on said frame, gearing between said disks and said spur-gear, clutch devices interposed in said gearing to cause said disks to be revolved in unison with said spur-gear in one direction only, stop mechanism interposed in said gearing to cause said disks to stop in predetermined positions, a shaft journaled in the frame of said machine connection between said shaft and said spur-gear, coin-receiving devices on said shaft, a revoluble member loosely mounted on said shaft, and devices carried thereby adapted to engage said coin to rotate said shaft in unison with said revoluble member, whereby said spur-gear is revolved against the action of said spring, substantially as described.

4. In a coin-controlled game apparatus, the combination with a spur-gear revolubly mounted on the frame of the machine, connection between said spur-gear and a spring for normally holding said spur-gear in a given position, a plurality of disks revolubly mounted on said frame, gearing between said disks and said spur-gear, clutch devices interposed in said gearing to cause said disks to be revolved in unison with said spur-gear in one direction only, stop mechanism interposed in said gearing to cause said disks to stop in predetermined positions, a shaft journaled in the frame of said machine connection between said shaft and said spur-gear, coin-receiving devices on said shaft, a spring-actuated revoluble member loosely mounted on said shaft and carrying devices adapted to engage the received coin to rotate said shaft, a ratchet-wheel on said shaft, a spring-actuated dog engaging same, and devices on said revoluble member adapted to engage said dog to throw the same out of engagement with said ratchet-wheel and release said shaft when said revoluble member is released, whereby said spur-gear and said shaft will be returned to their normal positions by the spring connected with said spur-gear and said disks will be revolved, substantially as described.

749,699. **CONVERTIBLE TABLE-DESK.** THOMAS M. MCKEE, Greenfield, Ind. Filed Dec. 1, 1902. Serial No. 133,338. (No model.)

Claim.—1. A convertible table-desk comprising a frame, a stationary top part, a movable top part, and two pairs of arms normally standing in inclined planes and pivoted to the frame and also to the movable top part and cooperating with the stationary top part thereby supporting the movable top part jointly by means of the arms and the stationary top part, the arms permitting the movable top part to be depressed at either side of the vertical positions of the arms.



2. A convertible table-desk comprising a frame provided with a pair of pivoting-plates each having a pair of pivots attached thereto, two pairs of isolated arms mounted on the pivots, a movable top part pivoted to the arms, and a stationary top part attached to the frame, the arms being adapted to be inclined and to hold the movable top part against the stationary top part in which position the movable top part is supported jointly by the arms and the stationary top part, the arms permitting the movable top part to be depreressed at either side of the vertical positions of the arms.

3. A convertible table-desk comprising a frame, a stationary top part having a projecting bottom and having sides extending below the projecting bottom, pivoting-plates secured to the opposite sides of the frame in a plane below the projecting bottom, radially-movable arms pivoted to the outer sides of the pivoting-plates, a pair of the arms at each side of the frame and having an upper plate pivoted to the ends thereof at the sides opposite to the pivoting-plates, and a movable top part secured to the upper plates at the sides thereof opposite to the movable arms, said arms being normally inclined, and said top part being normally held against the stationary top part by the inclination of said arms and the force of gravity.

4. A convertible table-desk comprising a frame, a stationary top part fixed to the frame, stationary plates attached to the frame, radially-movable arms pivoted to the stationary plates, a movable top part provided with a hinged guide-bar at the upper forward portion thereof and having plates attached to the inner faces of the sides thereof pivoted to the movable arms, a front pivoted to the frame, and a guide-block secured to the front and slidingly engaging the guide-bar.

5. In a convertible table-desk, the combination of a frame, a stationary top part, a movable top part, and supporting means for the movable top part comprising a pair of stationary pivoting-plates extending along the sides of the frame and having flanges bearing upon upper surfaces of the frame, a pair of pivoting-plates secured to the movable top part, and two pairs of arms pivoted to the stationary plates and also to the pivoting-plates, whereby the movable top part may be held against the stationary top part and partially supported thereby.

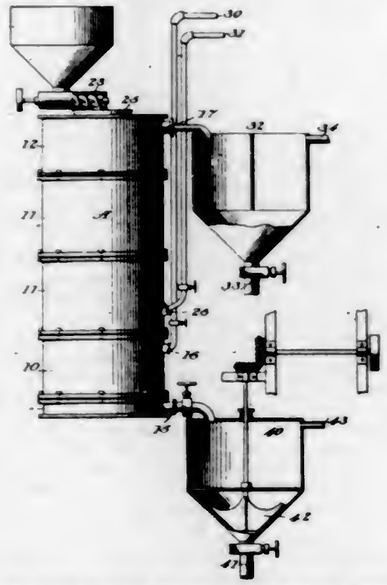
6. In a convertible table-desk, the combination with a frame having a hinged front and with a movable top part, of a pair of stationary plates secured to the frame, a pair of pivoting-plates secured to the movable top part, two pairs of radially-movable arms pivoted to the stationary plates and also to the pivoting-plates, a plurality of guide-blocks attached to the inner sides of the hinged front, and a plurality of guide-bars hinged to the upper forward portion of the movable top part and slidingly engaging the guide-blocks, substantially as set forth.

749,700. **PROCESS OF LIXIVIATING ORES.** PAUL NARP, New York, N. Y. Original application filed Apr. 2, 1894, Serial No. 506,108. Divided and this application filed May 24, 1902. Serial No. 108,814. (No specimens.)

Claim.—1. The herein-described method of lixiviating ores and other pulverulent materials, which consists in passing the ore downward in thinly-divided layers in a zigzag course through an ascending stream of leaching solution, whereby the ore and the solution passing in a serpentine course in opposite directions produces a prolonged and intimate contact of the ore and solution.

2. The herein-described method of lixiviating ores or other pulverulent materials, which consists in passing the ore downward in thinly-divided layers through an ascending stream of leaching solution and at the same time passing a current of air or gas repeatedly through the ore layers in numerously-divided jets, whereby the ore particles are agitated in the solution, and the same volume of gas acts successively as an agitating medium.

3. The herein-described method of lixiviating ores or other pulverulent material, which consists in passing the ore downward in thinly-divided layers through a leaching solution and at the same time passing a current of air or gas repeatedly through the ore layers in numerous divided jets, whereby the ore particles are agitated in solution and the same volume of gas acts successively as an agitating medium.



4. The herein-described lixiviating method, which consists in agitating a solid and a liquid in such a manner, that gaseous fluid acts several times as agitating medium successively.

749,701. **BRAKE-BLOCK SHOE.** MORGAN POTTER, Fishkill-on-the-Hudson, N. Y., assignor to The Morgan Potter Company, a Corporation of New York. Filed Mar. 30, 1903. Serial No. 150,097. (No model.)



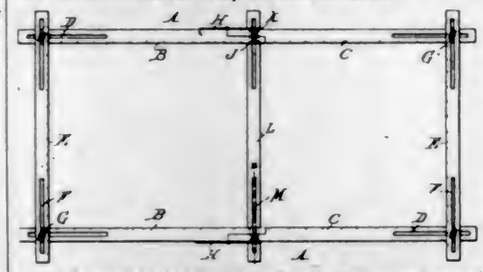
Claim.—1. In combination with a brake-block shoe, a projection at the top and a piece extending across the back, the latter piece being recessed at its upper part to receive the locking-bolt and being solid at its lower part to bear against the head of the bolt, substantially as shown and described.

2. The combination with a brake-block, of a brake-block shoe and a locking-bolt passing through the brake-block, the shoe being provided with a projection at its top and a piece extending across the back, the latter piece having a recess therein to receive the head of the locking-bolt and a solid portion at its lower part operating to bear against the head of the locking-bolt to prevent the shoe from being moved upwardly in its seat, substantially as shown and described.

749,702. **CURTAIN-STRETCHER.** JESSE W. REED, Detroit, Mich. Filed Oct. 24, 1903. Serial No. 178,308. (No model.)

Claim.—1. In a curtain-stretcher, side rails detachably joined to end rails, a brace-bar connecting the side rails at the middle of the stretcher, said side rails comprising bars edgewise foldably secured together by a connecting-hinge integrally formed with a strap adapted to lap the joint of the side rail, the joint between the members of each side rail being formed by a lap-joint.

2. In a curtain-stretcher, the combination with the end rails of side bars or rails divided at their middle by a lap-joint, hinges edgewise foldably connecting together the divided side rails and integrally formed with a strap adapted to lap the joint of the side rail, a brace-bar extending from side to side and crossing the rails at the joints and clamping-bolts one for each end of the brace-bar passing through apertures in the brace-bar, strap and side rail to rigidly unite the rail-sections and clamp the brace-bar thereto.



3. In a curtain-stretcher, side rails adjustably secured to end rails, such side rails comprising bars divided at their middle by a lap-joint edgewise foldably hinged together by a hinge secured to the outer edge of the bars and integrally formed with a strap lapping one side of the bars at the joint and having an aperture in alinement with an aperture in the other bar, a brace-bar having apertures at its opposite ends extending across the frame at the joint and bolts passing through said apertures to rigidly lock the bars of the side rails together and adjustably clamp the brace-bar thereto.

4. In a curtain-stretcher, side rails adjustably secured to end rails, such side rails comprising bars divided at their middle by a lap-joint and edgewise foldably secured together by a hinge secured to their outer edge, a strap adapted to lap the side of the joint, apertures in said strap and bar in alinement with each other, bolts passing through said apertures to lock the members of the side bars together, a brace-bar formed with slots at its opposite ends sleeved on said bolts and nuts on the bolts for clamping the bar to the side rails to form a rigid frame.

5. In a curtain-stretcher, side rails joined to end rails, such side rails comprising bars divided at their middle by a lap-joint and edgewise foldably secured together by a hinge, straps adapted to lap the side of the bars carried by one member of each bar and having an aperture in alinement with an aperture in the other member of each bar, and bolts passing through said apertures to rigidly unite said members.

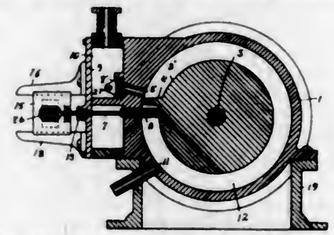
6. In a curtain-stretcher, side rails joined to end rails, a brace-bar connecting the side rails, such side rails comprising bars divided at their middle by a lap-joint and edgewise foldably secured together by a hinge secured to the edge of the bars at their lapped ends and provided with a strap adapted to lap the side of the bars at the joint, apertures in the strap, bar and brace-bar in alinement with each other, and a bolt provided with a winged nut passing through said apertures for clamping the parts together.

7. In a curtain-stretcher, side rails joined to end rails each provided with slots in the opposite ends and bolts provided with winged nuts adjustably securing the parts together through said slots, a brace-bar provided with slots in its opposite ends adjustably connecting the side rails, such side rails comprising bars divided at their middle by a lap-joint and edgewise foldably secured together by a hinge secured to the outer edge of the bars at their lapped ends and integrally formed with a strap adapted to lap the side of the joint, apertures in said strap and in the lapped ends of said bars, and bolts in said apertures, one of a length to pass through said apertures and clamp the slotted brace-bar.

8. In a curtain-stretcher, side rails adjustably joined to end rails, a brace-bar adjustably connecting the side rails of the stretcher, such side rails comprising bars divided at their middle by a lap-joint and edgewise foldably secured together by a hinge secured to the edge of the bars and provided with a strap adapted to lap the side of the bars at the joint, apertures in said strap and bars and bolts therein extending in opposite directions, one adapted to clamp the strap to the fixed bar and guide the brace-bar and the other adapted to unite the strap and movable bar and adjustably clamp the center bar to the side bar.

749,703. **ROTARY STEAM-ENGINE.** WILLIAM J. RICHMOND, Auburn, Ind., assignor of one-half to George W. Rudolph, Auburn, Ind. Filed Oct. 14, 1903. Serial No. 176,909. (No model.)

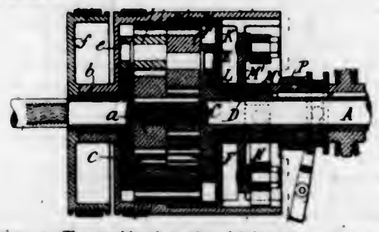
Claim.—1. The combination in a rotary steam-engine of a piston-cylinder provided with a steam-chamber for the cut-off valves, and having steam inlet and exhaust ports; a rotary concentric piston in said chamber and provided with a radial steam-vane; a cut-off valve in the steam-chamber; a slidable abutment arranged in the wall of the piston between the inlet and exhaust ports; means for withdrawing the abutment from the path of the piston by a timed movement, consisting of a wheel rigid on the main shaft, and having a curved peripheral groove, a curved arm whose forward end registers with the said groove, and whose rear end is loosely mounted in a boxing rigidly connected to the said abutment; and means for actuating the cut-off valve by a timed movement at each revolution of the piston, consisting of a wheel fixed on the main shaft having its perimeter arranged out of both vertical and horizontal alinement, a pivoted arm whose forward end loosely engages the perimeter of the said wheel and is actuated thereby, and whose rear end has a pivotal connection with the said valve, substantially as described.



2. In a rotary steam-engine a piston-cylinder having a steam-chamber connected therewith by an inlet-steam port; a sliding abutment mounted in a suitable opening in the wall of the cylinder between the inlet and outlet ports; a rotary piston in concentric arrangement in the cylinder and provided with a steam-vane forming a moving abutment therein; a cut-off valve in the steam-chamber; means for actuating the said sliding abutment consisting of a wheel fixed on the main shaft, and provided with a peripheral groove laterally curved at one point, a bent pivoted arm whose forward end has a pendent pin in register with the said groove, and whose rear end is loosely mounted in a proper boxing, and means for rigidly connecting the said boxing to the said abutment; and means for actuating the cut-off valve by a timed movement as described, after the steam-vane passes the inlet-port, all substantially as described.

3. In a rotary engine a working cylinder having a steam-chamber, cut-off valve and inlet and exhaust ports; a rotary concentric piston rigid on the main shaft and having a radial steam-vane forming a moving abutment in said cylinder; a sliding abutment in the wall of the cylinder between the inlet and exhaust ports; means for automatically withdrawing the said abutment momentarily from the path of the piston by a timed movement, and means for actuating the cut-off valve at each revolution of the piston after the steam-vane passes the inlet-port consisting of a wheel upon the main shaft having its perimeter arranged out of both vertical and horizontal alinement, a horizontal pivoted arm whose forward end loosely engages the perimeter of said wheel and is actuated thereby, and whose rear end is pivotally connected to said valve substantially as described.

749,704. **DRIVING MECHANISM.** CARL C. RIOTTE and EUGENE A. RIOTTE, New York, N. Y. Filed Sept. 3, 1901. Serial No. 74,116. (No model.)



Claim.—1. The combination of a driving part, a driven part mounted to rotate around the driving part, a drum mounted to rotate around the driving part, a rack carried by said drum, means to limit the rotation of said drum, a gear carried by the driving part, a pinion in mesh with said gear and said rack, means for supporting said pinion rigidly connected with said driven part, and connecting means for connecting said driven part with said drum, said connecting means being independent of the gearing and of the means for limiting rotation of the drum and being located between and separate from said driven part and said drum.

2. The combination of a driving part, a driven part mounted to rotate around the driving part, a drum mounted to rotate around the driving part, a rack carried by said drum, a friction-brake arranged to limit the rotation of said drum, a gear carried by the driving part, a pinion in mesh with said gear and said rack, means for supporting said pinion rigidly connected with said driven part, and friction devices independent of said brake for connecting said driven part with said drum independently of the gearing, said friction devices being located between and separate from said driven part and said drum.

3. The combination of a driving part, a sleeve mounted to rotate around the driving part, a driven part carried by said sleeve, a drum mounted to rotate around said driving part and having an end projecting over said sleeve, a rack carried by said drum, means to limit rotation of said drum and rack, a gear, a pinion in mesh with said gear and said rack, said sleeve having an extension for supporting said pinion, and means carried by said sleeve within the projecting end of said drum to lock the sleeve to said drum.

4. The combination of a driving part, a driven part, a rack independent of the driven part mounted to rotate around the driving part, gearing connecting the driving part with the driven part and with said rack, and friction devices for locking the driven part to said rack independent of the gearing, and additional gearing for transmitting motion from said driving part to said rack.

5. The combination of a driving part, a driven part, a rack independent of the driven part mounted to rotate around the driving part, gearing connecting the driving part with the driven part and with said rack, means to limit rotation of said rack, means for locking the driven part directly to said rack, and additional gearing for transmitting motion from said driving part to said rack.

6. The combination of a driving part, a driven part, a member mounted to rotate freely around the driving part, a rack carried by said member, a gear carried by the driving part, a pinion in mesh with said rack and gear, means rigidly connected to the driven part for supporting said pinion, and friction devices independent of the gearing for locking the driven part to said member, and additional gearing for transmitting motion from said driving part to said rack.

7. The combination of a driving part, a driven part, a member mounted to rotate freely around the driving part, a rack carried by said member, a brake to control the rotation of said member, a gear carried by the driving part, a pinion in mesh with said rack and gear, means rigidly connected to the driven part for supporting said pinion, and friction devices for connecting the driven part with said member independent of the gearing, and additional gearing for transmitting motion from said driving part to said rack.

8. In combination, a power-shaft, a pair of gears carried thereby, a pair of sleeves on said shaft, a pinion carried by each of said sleeves, each pinion meshing with one of said gears, a drum, a pair of gears carried thereby each of which meshes with one of said pinions, means for transmitting the motion of said shaft, and a clutch between said transmitting means and said drum.

9. In a driving-gear, a power-shaft, a pair of gears carried thereby, a pair of sleeves journaled thereon, a pinion carried by each of said sleeves, each pinion meshing with one of said gears, a drum, a pair of gears carried thereby each meshing with one of said pinions, the relative diameter of the first shaft-gear and drum-gear differing from that of the second shaft-gear and drum-gear, power-transmitting means connected to one of said sleeves, and a clutch acting between such sleeves and said drum.

10. In a driving-gear, a power-shaft, a pair of gears carried thereby, a pair of sleeves journaled thereon, a pinion carried by each of said sleeves, each pinion meshing with one of said gears, a drum, a pair of gears each carried thereby meshing with one of said pinions, the relative diameter of the first shaft-gear and drum-gear differing from that of the second shaft-gear and drum-gear, power-transmitting means connected to one of said sleeves, a clutch acting between such sleeve and said drum, and a brake for said drum.

11. In a driving-gear, a power-shaft, a pair of gears carried thereby, a pair of sleeves journaled thereon, a pinion carried by each of said sleeves, each pinion meshing with one of said gears, a drum, a pair of gears carried thereby each meshing with one of said pinions, the relative diameter of the first shaft-gear and drum-gear differing from that of the second shaft-gear and drum-gear, power-transmitting means connected to one of said sleeves, a clutch acting between such sleeve and said drum, a brake for the other of said sleeves, and a brake for said drum.

12. The combination with a driving part, a driven part, a sleeve mounted to rotate around the driving part and to which the driven

part is connected, a rack mounted to rotate around the driving part, a gear in mesh with said rack, means for communicating independent rotation from the driving part to said gear, means connected with said sleeve for locking it in connection with the driving part, and means for connecting said gear with said sleeve to actuate the latter and the driven part by the movement of said gear along said rack, of a second sleeve mounted to rotate around the driving part, a second rack independent of the driven part, a second gear in mesh with said second rack, means for communicating independent rotation from the driving part to said second gear, and means for locking said second sleeve against rotation, whereby when said second sleeve is locked the driven part will be operated in reverse direction.

13. The combination with a driving part, a driven part, a rack independent of the driven part mounted to rotate around the driving part, gearing connecting the driving part with the driven part and with said rack, and means for locking the driven part to said rack independent of the gearing, of a second rack independent of the driven part and mounted to rotate around the driving part, a gear driven by the driving part and mounted to rotate around the latter and meshing with said second rack, and means for preventing rotation of the last-mentioned gear around the driving part, whereby the driven part can then be driven in reverse direction.

14. The combination with a driving part, a driven part, a rack independent of the driven part mounted to rotate around the driving part, gearing connecting the driving part with the driven part and with said rack, means to limit rotation of said rack, and means for locking the driven part directly to said rack, of a second rack independent of the driven part and mounted to rotate around the driving part, a gear connecting the driving part with said second rack and mounted to rotate around the driving part, and means to limit the rotation of the last-mentioned gear, and means for locking said second rack directly to the driven part.

15. The combination with a driving part, a driven part, a member mounted to rotate freely around the driving part, a rack carried by said member, a gear carried by the driving part, a pinion in mesh with said rack and gear, means rigidly connected to the driven part for supporting said pinion, and means independent of the gearing for locking the driven part to said member, of a second rack carried by said member, a second gear carried by the driving part, a second pinion in mesh with said second rack and said second gear, and mounted to rotate around the latter, and means to limit rotation of said second pinion, whereby the driven part may be driven in reverse direction.

16. The combination with a driving part, a driven part, a member mounted to rotate freely around the driving part, a rack carried by said member, a brake to control the rotation of said member, a gear carried by the driving part, a pinion in mesh with said rack and gear, means rigidly connected to the driven part for supporting said pinion, and friction devices for connecting the driven part with said member independent of the gearing, of a second rack mounted to rotate around the driving part, a second gear carried by the driving part, a second pinion in mesh with said second rack and said second gear and mounted to rotate around the latter, a second brake controlling such rotation of said second pinion, and means for connecting said second rack with the driven part independent of the gear.

17. The combination with a driving part, a driven part mounted to rotate around the driving part, a drum mounted to rotate around the driving part, a rack carried by said drum, means to limit the rotation of said drum, a gear carried by the driving part, a pinion in mesh with said gear and said rack, means for supporting said pinion rigidly connected with said driven part, and means independent of the gearing for connecting said driven part with said drum, of a second rack carried by said drum, a second gear carried by the driving part, a second pinion in mesh with said second gear and said second rack and mounted to rotate around the driving part, means for supporting said second pinion, and means for preventing rotation of said second pinion around the driving part, whereby the driven part can be driven in reverse direction.

18. The combination with a driving part, a sleeve mounted to rotate around the driving part, a driven part carried by said sleeve, a drum mounted to rotate around said driving part, a rack carried by said drum, means to limit rotation of said drum and rack, a gear, a pinion in mesh with said gear and said rack, said sleeve having an extension for supporting said pinion, and means carried by said extension to lock the latter to said drum, of a second sleeve mounted to rotate around the driving part, a second rack carried by said drum, a second gear, a second pinion in mesh with said second gear and said second rack and mounted to rotate around the driving part, and means for preventing rotation of said second pinion, whereby the driven part can be driven in reverse direction.

19. A reversible and variable-speed planetary gearing, comprising a driver, a sun-gear keyed to said driver, a single set of planet-gears engaging said sun-gear, an internal gear engaging and encircling said planet-gears, a driven member, a planet-gear carrier, and a plurality of locking devices whereby the internal gear and the said planet-gear carrier may be locked together, so as to cause the driven member to rotate in unison with the said driver, and whereby relative rotation may be caused between said planet-gear carrier and said internal gear, so as to either reverse or vary the speed of said driven member.

749,705. **REGULATOR FOR INCANDESCENT LAMPS.** FREDERICK C. SCHOFIELD, Washington, D. C. Filed May 7, 1903. Serial No. 156,097. (No model.)



Claim.—1. In an electric-lamp regulator, the combination with a central tube, of a hollow core surrounding said tube and forming an air-space around the same, heads supporting said core at each end thereof and mounted on said tube, a resistance-coil wound on said core, and means for connecting varying amounts of said coil in the lamp-circuit.

2. In an electric-lamp regulator, the combination with a central tube, of a hollow core surrounding said tube and forming an air-space therearound, said core having serrated ends, heads supporting said core at each end and mounted on said tube, a resistance-coil wound on said core, means for connecting varying amounts of resistance in the lamp-circuit, a casing surrounding said coil and provided with a series of openings, and a cap adapted to fit over the upper end of said casing and head of said core.

3. In an electric-lamp regulator, the combination with an incandescent electric lamp and socket, of a tube through which the main lamp-wires pass, and connected to the lamp-socket, a hollow core surrounding said tube and forming an air-space around the same, heads supporting said core at each end and provided each with a central opening through which said tube passes, extending longitudinally through said core, a resistance-coil wound on said core, and a switch having contacts connected to sections of said coil and to the lamp-circuit direct for varying the resistance of said circuit.

4. In an electric-lamp regulator, the combination with a tube through which the main lamp-wires pass, of a hollow core surrounding said tube, forming an air-space therearound and provided with a series of side openings around each end, heads supporting said core at each end and mounted upon said tube which passes through said heads and longitudinally through the said core, a resistance-coil on said core, and means for connecting varying amounts of said coil in the lamp-circuit.

5. In an electric-lamp regulator, the combination with a central tube, of a hollow core surrounding said tube and forming an air-space therearound, heads of insulating material supporting said core at each end thereof and mounted on said tube, a resistance-coil wound on said core and adapted to connect to the lamp-circuit, a series of switch-contacts, mounted on one of the heads of said core, adapted to connect to said lamp-circuit and to points in the length of said resistance-coil, and a moving switch comprising a conductor adapted to pass over and in contact with said switch-contacts.

6. In an electric-lamp regulator, the combination with a resistance-coil, of a series of switch-contacts, a series of loops each forming a continuation of the resistance-conductor, and each loop connected to an individual switch-contact, and a movable switch adapted to engage said contacts and electrically connect the same.

7. In an electric-lamp regulator, the combination with an incandescent-electric-lamp circuit, of a resistance-coil connected thereto, and means for supporting said coil, a series of switch-contacts, conductors connecting two of said contacts to the lamp-circuit, and forming a shunt around the resistance-coil, and loops forming continuations of the resistance-conductor located at intervals in the length of said conductor and each loop connected to an individual switch-contact, and a movable switch adapted to connect said contacts together in combinations whereby the said resistance-coil may be shunted or various amounts thereof connected in the lamp-circuit.

8. In an electric-lamp regulator, the combination with a resistance-coil, of a core upon which said coil is wound, heads supporting said core at each end, one of said heads having an annular groove formed on one of its faces, a series of switch-contacts located in said groove and connected to points in the length of said resistance-coil, a movable metal ring mounted in said annular groove and forming a switch for connecting together said contacts in various combinations.

9. In an electric-lamp regulator, the combination with a resistance-coil, of a head forming a part of the support therefor, and having an annular groove in one of its faces, a series of switch-contacts located in said groove, a resilient bowed metal ring movable around in said groove and provided with an offset portion adapted to engage said contacts, and a cap bearing on said bowed ring whereby the same is held in position under tension.

10. In an electric-lamp regulator, the combination of a hollow core, the ends thereof being cut away so as to leave projecting portions and spaces between said portions for the purpose of ventilation, a resistance-coil mounted on said core, said resistance-coil being composed of two strands connected in series with the lamp, said strands being wound around said hollow core parallel to each other and terminating in a loop, whereby the inductive effect of an electric current is neutralized, and means for connecting varying amounts of said coil in the lamp-circuit.

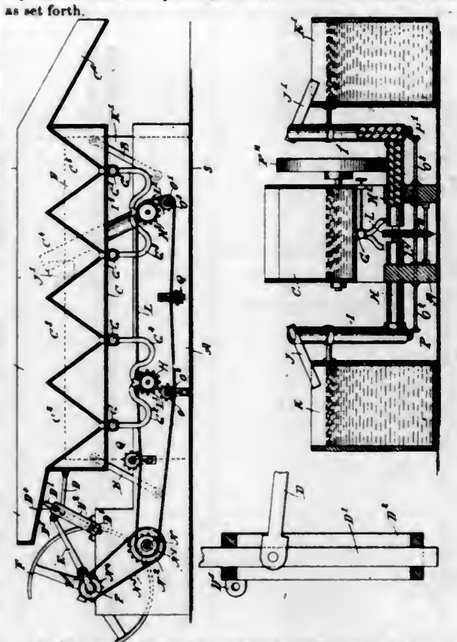
749,706. **CONCENTRATOR.** DANIEL M. STOREY, Weeping Water Neb. Filed Aug. 8, 1902. Serial No. 118,931. (No model.)

Claim.—1. A concentrator, comprising a box having a rocking motion and provided with transversely-extended V-shaped riffles, means for operating the box, settling-tanks arranged at the sides of the box and adapted to be filled with water to the level of the water in the box, a conveyer for conveying the concentrates from the bottoms of the forward riffles to one of the settling-tanks, a conveyer for conveying the concentrates from the bottoms of the rear riffles to the other settling-tank, and means for operating the conveyers from the box-operating means, as set forth.

2. A concentrator, comprising a pivotally-mounted box, riffles extending in the said box in a direction at right angles to the running motion of the box, the riffles being V-shaped, means for imparting a swinging movement to said box, transverse conveyers arranged below the box, flexible connections between the conveyers and the apex bottoms of the riffles, elevators connected with the outer ends of said conveyers, settling-tanks at opposite sides of the box and into which discharge the said elevators, and means for operating the conveyers and elevators from the box-operating means, as set forth.

3. A concentrator, comprising a box having a rocking motion, riffles extending in the said box in a direction at right angles to the running motion of the box, the riffles being V-shaped, transverse conveyers arranged below the box, flexible connections between the conveyers and the apex bottoms of the riffles, elevators connected with the outer ends of said conveyers, settling-tanks at opposite sides of the box and into which discharge the said elevators, a main shaft, and means for imparting motion to the box, conveyers and elevators from the said main shaft, as set forth.

4. In a concentrator, the combination with a swinging concentrating-box provided with riffles, and means for swinging said box, of conveyers arranged below the bottom of the box and provided with sprocket-wheels on their shafts, flexible connections between the bottom of the box and the conveyers, an endless sprocket-chain passing over the sprocket-wheels of the conveyers, means for operating the sprocket-chain, elevators into which discharge the conveyers, and means for operating the elevators from the endless chain, as set forth.



5. In a concentrator, the combination with a swinging concentrating-box provided with riffles, and means for swinging said box, of conveyers provided with sprocket-wheels on their shafts, flexible connections between the box and conveyers, an endless sprocket-chain passing over the sprocket-wheels of the conveyers, means for operating the sprocket-chain from the box-operating means, elevators into which the conveyers discharge, shafts provided with sprocket-wheels over which passes the sprocket-chain, elevators, and gearing between the elevator-shafts and the shafts carrying the sprocket-wheels, as set forth.

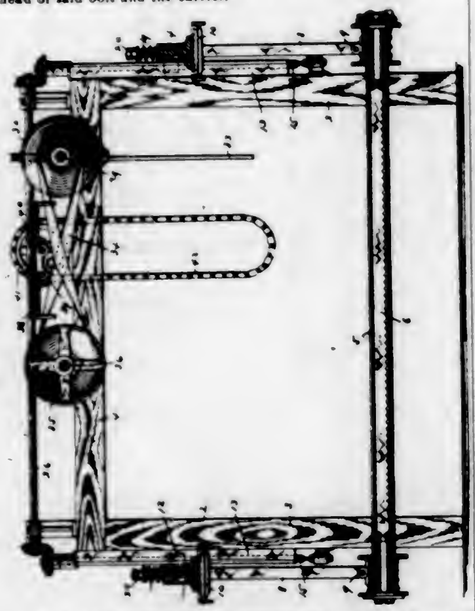
6. A concentrator, comprising a box mounted upon swinging supports and provided with V-shaped riffles extending transversely of the box, means for swinging said box, conveyers arranged transversely below the box, flexible connections connecting each conveyer with the apex bottoms of the riffles, one at the forward end of the box and the other at the rear end, elevators into which the conveyers discharge, a tank at each side of the box and into which the elevators discharge, and means for operating the conveyers and elevators from the box-operating means, as set forth.

7. A concentrator, comprising a box mounted on swinging supports, and provided with V-shaped riffles extending transversely of the box, means for swinging the box, said means including an adjusting device for regulating the throw of the box, conveyers arranged transversely below the box, flexible connections connecting each conveyer with the apex bottoms of two of the riffles, elevators at the outer ends of the conveyers and into which said conveyers discharge, a settling-tank at each side of the box and into which the elevators discharge, and means for operating the conveyers and elevators from the box-operating means, as set forth.

749,707. **STONE-SAWING MACHINE.** CHARLES A. THOMSON, Belleville, N. J., assignor to the Stone-Working Machine Company, New York, N. Y., a Corporation of New York. Filed Feb. 26, 1902. Serial No. 96,659. (No model.)

Claim.—1. In a sawing-machine, the combination with a saw-frame, of a supporting-arm pivoted at one end thereto and at the other end having a cross-head, an adjustable stationary beam providing an impact surface for said head to lie against, and a stationary spring mounted on said beam and holding said head seated.

2. In a sawing-machine, the combination with a saw-frame, of an adjustable stationary carrier having a central vertical passage or aperture, a swinging arm pivotally connected at one end of the saw-frame, and having at the other end a cross-head lying against said carrier, a headed bolt passed through the passage or aperture of said carrier and pivotally linked to the middle of said cross-head, the ends of said cross-head being free, and a spring between the head of said bolt and the carrier.



3. In a sawing-machine, the combination with a saw-frame, of a vertically-adjustable support recessed at its under surface and centrally perforated upward from said recess, a swinging arm at its lower end pivoted to the saw-frame and having at its upper end a cross-head lying in the recess of said support, and means extending through said perforation of the support and connected to the middle of the cross-head to hold the same resiliently to its seat, the ends of said cross-head being free.

4. In a sawing-machine, the combination with a saw-frame, of a carrier-beam providing a seat at its lower surface and being centrally apertured upward therefrom, a swinging arm pivoted at its lower end to said saw-frame and having at its upper end a cross-head adapted to lie against the said seat on the carrier-beam, a bolt passed loosely through the aperture in said beam above said cross-head and being pivotally connected at its lower end to the middle of the cross-head, a spiral spring on said bolt above the beam, and retaining means on said bolt above the spring.

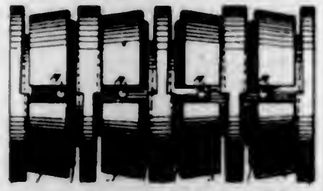
5. In a sawing-machine, the combination with a saw-frame, of a support 14, providing a plane impact surface, an arm pivoted at one end to said saw-frame, a cross-head at the other end of said arm and having a curved surface adapted to engage the said impact surface, and means for resiliently holding said cross-head seated.

6. In a sawing-machine, the combination with a saw-frame, upwardly-extending swinging supporting-arms for said frame, and means for moving said arms longitudinally as they swing, of other arms lying in a horizontal plane and having one end pivoted to the saw-frame and means at the other end of said arms for shifting them longitudinally as they swing.

7. In a sawing-machine, the combination with a horizontal saw-frame, of a horizontally-disposed arm pivoted at one end to said frame and projecting at the other end out over the frame, a block fixed relatively to the saw-frame, a fulcrum on said block slidably engaging the arm intermediate of its ends, and a link pivotally connecting said block and the outer end of the arm beyond said fulcrum.

749,708. **FRICTION SPRING MECHANISM.** GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed May 22, 1903. Serial No. 158,341. (No model.)

Claim.—1. A yielding-resistance mechanism comprising a plurality of resilient elements having coöperating frictional faces, and a pair of relatively movable members, one of said members having a helical surface for engaging one of the resilient elements.



2. A yielding-resistance mechanism comprising a plurality of resilient rings of circular form having coöperating frictional faces and a member movable longitudinally of the line of pressure and having a helical surface for engaging one of said resilient rings.

3. A yielding-resistance mechanism comprising a plurality of independent elements resilient transversely of the line of pressure and having inclined coöperating frictional faces, and a plurality of relatively movable members each having a helical surface for engaging one of said resilient elements.

4. A yielding-resistance mechanism comprising a series of resilient elements having coöperating inclined frictional faces, and relatively movable members, one of said members having other than a plane face for engaging one of the resilient elements.

5. A yielding-resistance mechanism comprising a series of resilient rings having coöperating inclined frictional faces, and a member movable longitudinally of the line of pressure and provided with other than a plane face for engaging one of said resilient rings.

6. A yielding-resistance mechanism comprising a series of resilient circular rings having inclined engaging frictional faces, and a member movable longitudinally of the line of pressure and provided with other than a plane face for engaging the edge of one of said resilient rings.

7. The combination with an expansible spring-ring and a compressible spring-ring having engaging frictional faces, of a member movable longitudinally of the line of pressure and provided with other than a plane face for engaging one of said spring-rings.

8. The combination with a series of split circular spring-rings having coöperating inclined frictional faces, of means for bending said rings to a helical form when subjected to compression.

9. The combination with a series of circular expansible spring-rings having inclined frictional faces, and a series of circular compressible spring-rings having inclined frictional faces engaging the frictional faces of the expansible rings, of means for bending said rings to a helical form when subjected to axial compression.

10. The combination with a series of resilient elements having engaging frictional faces, of a core supporting said elements and provided with flanges having other than plane surfaces for engaging said elements when subjected to compression.

11. The combination with a series of resilient rings having coöperating inclined frictional faces, of a sectional core for supporting said rings, said sections being provided with flanges having helical surfaces for engaging the rings when subjected to compression.

12. The combination with a series of pairs of resilient rings, each pair comprising a compressible and an expansible ring having engaging frictional faces, of relatively movable sections located between said pairs and having helical faces for engaging said rings when subjected to compression.

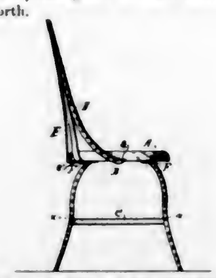
13. The combination with a series of split circular springs-rings having coöperating inclined frictional faces, of relatively movable members or sections having helical surfaces for engaging the rings when subjected to compression.

14. The combination with a series of split circular spring-rings having coöperating inclined frictional faces, of relatively movable members or sections having helical surfaces for engaging the rings when subjected to compression, and means for preventing the relative rotation of the rings and sections.

749,709. **FURNITURE.** MILLARD F. STOCKWELL, Grand Rapids, Mich., assignor to John A. Hodges and Ithiel J. Cilley, Grand Rapids, Mich. Filed Feb. 16, 1903. Serial No. 143,713. (No model.)

Claim.—1. In furniture construction, a top, tubular metal legs secured thereto, each of said legs provided with a mortise at the back, braces having the ends notched upon the lower edges and fitted to enter said mortises and rigidly support the legs, substantially as and for the purpose set forth.

2. In furniture construction, a top, open tubular legs secured thereto, said legs each having a mortise through the back wall, braces having the ends beveled, and notched in the lower edge, and interlocked in pairs closely fitting said mortises, substantially as and for the purpose set forth.

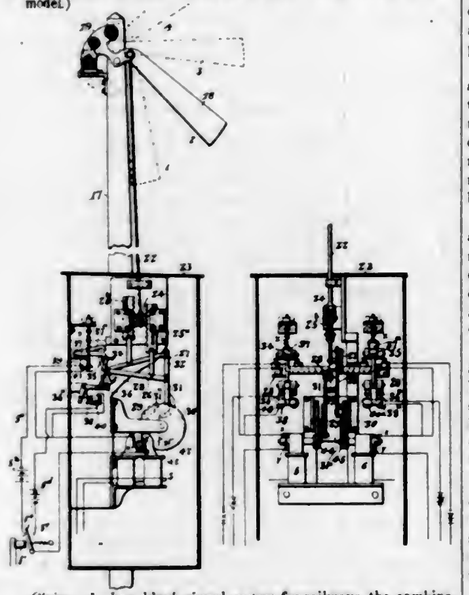


3. In furniture construction, a top, tubular legs, open at the back and the edges turned in, secured thereto, rivets passing through the tubes, braces having the ends notched and fitted to enter said tubes in pairs and engage the pins substantially as and for the purpose set forth.

4. In furniture construction, a top, tubular metal legs secured thereto and each of said legs provided with an opening for braces, braces having notches in the lower edge near the ends and fitted to enter said openings and rigidly support the legs; with a back made of a single piece of metal tube bent and having narrow mortises through the lower wall, and slats fitted snugly into said mortises and having the upper ends formed to fit the upper inner surface of the tube, the opposite ends thereof secured to the under side of the top, forming a chair-back, substantially as and for the purpose set forth.

5. In furniture construction a chair having a top tubular legs secured thereto and braces supporting said legs, in combination with a tubular back post in one piece and having mortises through the walls, catches formed at the end of said mortises, slats entering said mortises and having notches corresponding with the catches, the lower end of said slats secured to the chair-seat, substantially as and for the purpose set forth.

749,710. **ELECTRIC BLOCK-SIGNAL SYSTEM.** LOUIS C. WERNER, Broadbrook, Conn. Filed Dec. 12, 1901. Serial No. 85,595. (No model.)



Claim.—1. In a block-signal system for railways, the combination with a signal device, and a motor for moving the same to its different positions, of a pair of signal-locking devices, a motor-circuit controlling the operation of the motor in one direction and including an electromagnet disposed to operate one of the locking devices, a shunt-terminal for said motor-circuit, said shunt-terminal including an electromagnet controlling the operation of the other locking device, reversed generators in the motor-circuit and in the shunt-terminal thereof, respectively, and a relay disposed to close the circuit through either generator and magnet, whereby the motor may be operated in either direction, and the signal device locked in either of its set positions.

2. In a block-signal system for railways, the combination with a signal device, a pair of motors and differential connections for moving the signal device different distances in the same direction, of locking mechanism for locking the signal in its set positions, separate circuits controlling the operation of the motors and their associated locking mechanism, and a make-and-break device in each of said circuits.

3. In a block-signal system for railways, the combination with a signal device, and a pair of operating-motors, of a pair of locking devices associated with each motor to lock the signal in its set positions, an independent motor-circuit for each motor, said circuit including a generator and an electromagnet controlling the operation of one of the locking devices of the adjacent motor, and each of said motor-circuits having a shunt-terminal including a reversed generator and an electromagnet controlling the operation of the other locking device of the adjacent motor, and a relay having its armature interposed between the direct and shunt terminal of each motor-circuit, whereby the circuit may be closed through either generator and magnet to operate the motor in either direction, and to lock the signal in either of its set positions.

4. In a block-signal system for railways, the combination with a support, of a movable semaphore-arm, a pair of motor-arms, means for effecting an independent operative connection between the semaphore-arm and each motor-arm, and for imparting a different degree of movement to the semaphore-arm from each motor-arm, and a pair of motors carried by the support to operate the motor-arms independently in both directions.

5. In a block-signal system for railways, the combination with a swinging semaphore-arm, and a connecting-rod extending therefrom and provided with a pinion, of a pair of swinging motor-arms, locking means therefor, an independent motor for operating each arm in both directions independently of the other arm, and racks engaging the pinion and connected to the motor-arms.

6. In a block-signal system for railways, the combination with a swinging semaphore-arm, and a connecting-rod extending therefrom and provided with a pinion, of a pair of swinging motor-arms, an independent motor for operating each arm independently in both directions, racks engaging the pinion and connected to the motor-arms, and means for locking the arms to retain the signal in its set positions.

7. In a block-signal system for railways, the combination with a semaphore-arm, a pair of motor-arms, and means for connecting the motor-arms with the semaphore-arm in a manner to permit one motor-arm to operate the semaphore-arm without operating the other motor-arm, of a pair of rotary disks, links connected to the motor-arms and having eccentric connection with the disks, and means for rotating the disks to operate the motor-arms positively in both directions.

8. In a block-signal system for railways, the combination with a semaphore-arm, and a pair of motor-arms, of a pinion operatively related to the semaphore-arm and bodily movable therewith, racks engaging the pinion and connected to the motor-arms at different distances from the axes thereof, and means for operating the motor-arms positively in both directions to shift the semaphore-arm to different positions.

9. In a block-signal system for railways, the combination with a four-position semaphore-arm, a pair of motor-arms operatively related thereto, and means for operating the motor-arms to move the semaphore to either of its four indicating positions, of a pair of locking devices associated with each motor-arm to lock the same at the opposite limits of its movement, and independent controlling means for said locking devices.

10. In a block-signal system for railways, the combination with a four-position semaphore-arm, and a pair of motor-arms operatively related thereto, of means for operating the motor-arms to move the semaphore-arm to either of its four indicating positions, a pair of locking devices associated with each motor-arm, and electrical controlling mechanism common to each pair of locking devices.

11. In a block-signal system for railways, the combination with a four-position semaphore-arm, and a pair of motor-arms operatively related thereto to move the semaphore-arm to either of its four indicating positions, of a locking-head carried by each motor-arm, pivoted detents disposed to engage the opposite ends of each locking head, and means for operating the detents.

12. In a block-signal system for railways, the combination with a four-position semaphore-arm, a pair of motor-arms and differential connections between the motor-arms and the semaphore-arm to cause said motor-arms to impart different degrees of movement to the semaphore-arm operatively related thereto, of a pair of rotary disks, links connecting the disks with the motor-arms, and means for adjusting the link connections toward or from the axis of the adjacent motor-arm, whereby the throw of said arm may be regulated.

13. In a block-signal system for railways, the combination with a semaphore-arm, and a pair of independent swinging motor-arms operatively related thereto to move the semaphore-arm positively in both directions, of motors operatively connected with the motor-arms, and means for regulating the relative throw of said arms.

14. In a block-signal system for railways, the combination with a swinging semaphore-arm, a connecting-rod extending therefrom and provided with a pinion, and a pair of motor-arms provided with locking-heads, of racks engaging the pinion and connected to the motor-arms at different distances from the axes thereof, a pair of independent motors, rotary disks geared to the motors, links eccentrically connected to the disks and terminally connected to the motor-arms, a pair of detents associated with each of the locking-heads, electromagnets for operating the detents, a motor-circuit for each motor and each including a detent-operating magnet, a shunt-terminal for each motor-circuit, each shunt-terminal including a detent-operating magnet, reversed generators in the motor-circuits and the shunt-terminals thereof, and a make-and-break device in each of the motor-circuits.

15. The combination with a signal, of a plurality of independent reversible motors operatively connected to the signal to move the same to different set positions, and means for starting each motor to move the signal positively in either direction independently of any other motor.

16. The combination with a signal device, of a plurality of independent reversible motors each of which is connected to the signal device to operate the same positively in both directions independently of the other motor, and means whereby movement imparted to the signal device by one motor is greater than that imparted by the other.

17. The combination with a signal device, of a plurality of independent reversible motors and means operated thereby for imparting different degrees of movement in the same direction to the signal, and independent controlling devices for said motors.

18. The combination with a signal device, of a plurality of independent motors, differential connections between the motors and signal for imparting different degrees of movement in the same direction to the signal, and separate independent controlling devices for said motors.

19. The combination with a signal device, of a plurality of reversible motors, independent differential connections between the signal device and the motors to move said device in either direction without moving the other motor, whereby the signal device may be moved a given distance in either direction and subsequently moved a different distance in the same direction by the successive operation of the motors in any desired order.

20. The combination with a signal, of a plurality of locking devices therefor, a plurality of motors, differential connections, each operated by a motor to move the signal in both directions independently of the other, and separate electrical controlling devices, each of which is common to a locking device and motor and includes means for starting the motor in either direction.

21. In a block-signal system for railways, the combination with a signal device, and a pair of independent operating-motors for moving the signal device in the same direction to different points, of a pair of locking devices associated with each motor to lock the signal in its set positions, and an independent motor-circuit for each motor, each of said circuits including a generator and an electromagnet controlling the operation of one of the locking devices of the adjacent motor.

22. The combination with a signal device, of a plurality of independent motor-arms, and gearing connecting the device to the arms at different distances from the axes of the latter, so that one motor-arm may operate the semaphore-arm a greater distance than the other, and means for moving the motor-arms positively in both directions.

23. The combination with a four-position signal, of operating mechanism for moving said signal the distance between three positions, and separate independent operating mechanism for moving the signal independently in the same direction the distance of two positions, whereby the signal may be moved from "safety" to "danger," and then to "extreme danger" by the successive action of the operating mechanisms, or from "safety" to "caution" and then to "extreme danger" when said mechanisms are operated in reverse order.

24. The combination with a signal, and two operating means positively operated in each direction, and a connection between the signal and each operating means, whereby the signal may be moved by the independent operation of each means or by the conjoint operation thereof.

25. The combination with a signal, and two operating means positively operated in each direction, of a connection between the signal and each operating means, whereby the signal may be moved by the independent operation of each means, or by the conjoint operation thereof, and locking means for the signal.

26. The combination with a signal, and two operating means positively operated in each direction, of a connection between the signal and each operating means, whereby the signal may be moved by the independent operation of each means, or by the conjoint operation thereof, and separate locking devices associated with the two operating means to retain the signal in its set positions.

27. The combination with a four-position signal, and two operating means positively operated in each direction, and differential connections between the signal and said operating means, whereby the signal may be moved from "safety" to "caution," or from "safety" to "danger" by the independent operation of one or the other of said means, or from "safety" to "extreme danger" by the conjoint operation thereof.

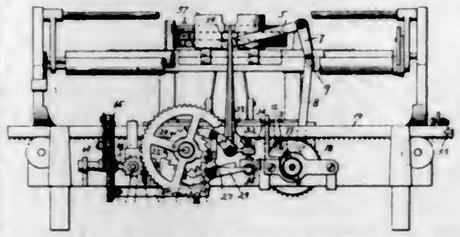
28. The combination with a signal, of a pair of operating devices, means whereby one of said devices will shift the signal twice the distance of the other in either direction, and locking devices for locking the operating devices to retain the signal in its set positions.

29. In a block-signal system for railways, the combination with a positively-operating signal device, of a pair of motors, motor-arms operated thereby, means whereby one of the arms will shift the signal in either direction twice the distance which said signal is shifted by the other, a locking-head on each arm, a pair of locking devices associated with each head, controlling mechanism for each motor and its associated locking devices, each of said controlling mechanisms including a motor-circuit having a battery therein and also having an electromagnet disposed to operate one of the locking devices, a shunt-terminal for said motor-circuit including a reversed battery and an electromagnet disposed to operate the other locking device, and a relay for closing the circuit through either generator and magnet whereby the motor may be operated in either direction and the signal device locked in either of its set positions.

30. The combination with a signal, of a plurality of motors, differential connections whereby one motor will impart a longer stroke to the signal than the other, and locking devices to lock the signal in position.

REISSUES.

12,190. TYPE-WRITING MACHINE. CHARLES SEARS, Cleveland, Ohio, assignor, by mesne assignments, to the Savings & Trust Company, trustee, Cleveland, Ohio. Filed June 6, 1901. Serial No. 63,464. Original No. 644,188, dated Feb. 27, 1900.



Claim.—1. In a type-writing machine, the combination of a movable carriage, and a spring-actuated impression-hammer, with two independently-operating motors, intermediate mechanisms whereby the carriage is moved by one motor, and the hammer is reset by the other motor, a differential escapement controlling the movements of the carriage, a uniform escapement controlling the movements of the hammer-resetting mechanism, key-levers, and intermediate mechanism whereby the operation of a key-lever trips both escapements, substantially as and for the purpose specified.

2. In a type-writing machine, the combination of the carriage, mechanism acting constantly on the carriage to draw it in the feeding direction, and a differential escapement which, whenever a key-lever is operated, permits the carriage to be moved a distance proportionate to the width of the corresponding character, with a spring-actuated impression-hammer, a rotatable ratchet under tension to move it in one direction, an escapement therefor which permits uniform movements of said ratchet whenever the key-levers are operated, and connections between said uniform escapement and impression-hammer, substantially as and for the purpose specified.

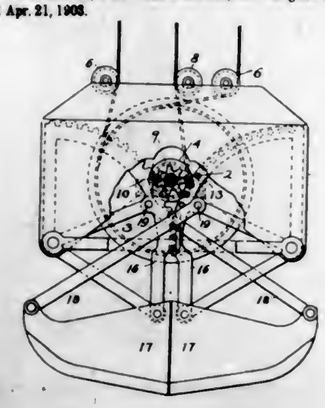
3. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the characters to the impression-point, and a spring-actuated impression-hammer, with a pivoted arm carrying an inking-roller which is adapted to contact with the character at the impression-point, and mechanism for positively moving said arm to carry said roller into contact with said character after the type segment or wheel has come to rest and before the hammer completes its impression-stroke, substantially as and for the purpose specified.

4. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the character to the impression-point, the combination of an impression-hammer, with an arm carrying an inking-roller and pivoted to a fixed support, which arm normally lies below the type segment or wheel and between it and the paper, and mechanism connecting said hammer and arm whereby the hammer in making its impression-stroke swings the arm upward with the result of causing the inking-roller to contact with the character at the impression-point and to move above the type segment or wheel and out of the way of the paper, substantially as and for the purpose specified.

5. In a type-writing machine having a type segment or wheel which turns upon a fixed axis to bring the characters to the impression-point, the combination of an arm pivoted to a fixed support and extending around behind the type segment or wheel and having an inking-roller mounted on its free end, said lever having an angle-arm, a bell-crank lever pivoted to a fixed support, a pin-and-slot connection between the angle-arm and one arm of said bell-crank lever, with a spring-actuated impression-hammer, a rock-shaft to which said hammer is attached, a forwardly-projecting arm attached to said rock-shaft and entering a slot in the horizontal arm of the bell-crank lever, and means for resetting said hammer and for releasing it to the action of its spring.

6. In a type-writing machine, the combination of the carriage, mechanism acting constantly on the carriage to draw it in the feeding direction, a differential escapement which, whenever a key-lever is operated permits the carriage to be moved a distance proportionate to the width of the corresponding character, a spring-actuated impression-hammer, a rotatable ratchet under tension to turn it in one direction, an escapement therefor which whenever the key-levers are operated permits uniform movements of said ratchet, and connections between the impression-hammer and said uniform escapement mechanism, with a pivoted arm carrying an inking-roller which is adapted to contact with the character at the impression-point, and mechanism intermediate of said arm and the hammer whereby the movement of the hammer causes a movement of the arm carrying the inking-roller, substantially as and for the purpose specified.

12,191. CLAM-SHELL BUCKET. SWAN SWEDENBORG, Ashtabula, Ohio. Filed Nov. 24, 1903. Serial No. 182,421. Original No. 725,794, dated Apr. 21, 1903.



Claim.—1. In a clam-shell bucket, the combination with two jaws, of a pair of opposed sectors having means for rocking them upon their opposed centers and having the inner ends of the jaws hinged at the lower ends of their segments, and links each pivoted to the outer end of a jaw and to the segment of the opposite sector.

2. In a clam-shell bucket, the combination with two jaws, of a pair of opposed sectors having segmental racks meshing with each other and fulcrumed to rock on opposed centers and having the inner ends of the jaws hinged at the lower ends of the segments, links each pivoted to the outer end of a jaw and to the segment of the opposite sector, and a pinion meshing with one of the segmental racks and having means for revolving it in opposite directions.

3. In a clam-shell bucket, the combination of two jaws 17, sector-shaped frames 16 fulcrumed on opposite centers and having intermeshing quadrant-racks 10 and 13 and having the inner ends of the jaws pivoted at the lower ends of such racks, links 18 pivoted to said racks and to the outer ends of the jaws, a shaft having pinions meshing with racks 10, a large pulley 3 upon said shaft, a hoisting-rope upon said pulley, a small pulley 4 upon the shaft, and an opening-rope upon said pulley.

4. In a clam-shell bucket, two quadrant-racks meshing with each other and actuating the jaws, one of said racks consisting of two parallel bars having short and round transverse rods to form an open rack and the other rack being cogged and having the spaces between the cogs formed with sharp edges.

5. In a clam-shell bucket, the combination of a frame, a pair of opposed sectors mounted thereon, and means for rocking them in opposite directions, with a pair of jaws which are respectively hinged to the lower ends of said sectors, and swinging links whose lower ends are pivotally connected with said jaws respectively.

6. In a clam-shell bucket, the combination of a frame, a pair of opposed sectors mounted thereon, and means for rocking them in opposite directions, with a pair of bucket-jaws having their inner ends hinged respectively to the lower ends of said sectors, and swinging links whose lower ends are pivotally connected with said jaws, respectively, near the outer ends thereof.

7. In a clam-shell bucket, the combination of a frame, a pair of opposed sectors mounted thereon, having segmental racks meshing with each other, with a pair of bucket-jaws which are pivotally connected at their front ends with the lower ends of the sectors, and swinging links whose lower ends are respectively pivoted to said jaws near the outer ends thereof, and a pinion meshing with one of the segmental racks and having means for revolving it in opposite directions.

12,192. KINETOSCOPIC FILM. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Dec. 17, 1903. Serial No. 185,597. Reissue No. 12,038, dated Sept. 30, 1902. Original No. 589,168, dated Aug. 31, 1897.



Claim.—1. An unbroken transparent or translucent tape-like photographic film having thereon uniform sharply-defined equidistant photographs of successive positions of an object in motion as observed from a single point of view at rapidly-recurring intervals of time, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, and sufficient in number to represent the movements of the object throughout an extended period of time, substantially as described.

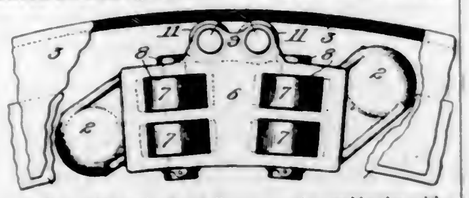
2. An unbroken transparent or translucent tape-like photographic film provided with perforated edges and having thereon uniform sharply-defined equidistant photographs of successive positions of an object in motion as observed from a single point of view at rapidly-recurring intervals of time, such photographs being arranged in a continuous straight-line sequence, unlimited in number save by the length of the film, and sufficient in number to represent the movements of the object throughout an extended period of time, substantially as described.

12,193. SIDE BEARING FOR RAILWAY-CARS. CHARLES F. HUNTOON, Chicago, Ill., assignor to the Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 8, 1903. Serial No. 138,324. Original No. 704,044, dated July 8, 1902.

Claim.—1. In a side bearing for railway-cars, the combination with spring-posts, of a casting carried by the upper ends thereof, antifriction devices arranged in said casting and capable of vertical and lateral contact, and means carried by the car-body for cooperating with said antifriction devices; substantially as described.

2. In a side bearing for railway-cars, the combination with suit-

able supports, of a casting, rollers mounted within said casting and protruding through the upper wall thereof, and rollers mounted at the sides of the casting for lateral contact; substantially as described



3. In a side bearing for railway-cars, the combination with a casting, of rollers housed within the casting and protruding through the top wall thereof, perforated lugs or ears projecting from the side of the casting, and rollers mounted between said lugs or ears; substantially as described.

4. In a side bearing for railway-cars, the combination with a casting, of antifriction devices carried thereby and capable of vertical and lateral contact, and angular projections at the ends of the casting, said projections being provided with sockets for receiving the ends of supporting-posts; substantially as described.

5. In a side bearing for railway-cars, the combination with spring supporting-posts, of a casting carried by the upper ends of said posts, rollers mounted in said casting and rotating about horizontal and vertical axes, respectively, and an angle-iron on the car-body whose horizontal leg coöperates with one set of rollers and whose vertical leg coöperates with the other set of rollers; substantially as described.

6. In a side bearing for railway-cars, the combination with a casting, of antifriction devices carried thereby, and projections at the ends of the casting, said projections being deflected laterally in opposite directions and having sockets for receiving the ends of supporting-posts.

7. In a bearing for railway-cars, the combination with a casing having antifriction devices for supporting the load, of beams yieldable under the influence of the load for holding the casing with the antifriction devices in active position and with which the casing is in rocking engagement.

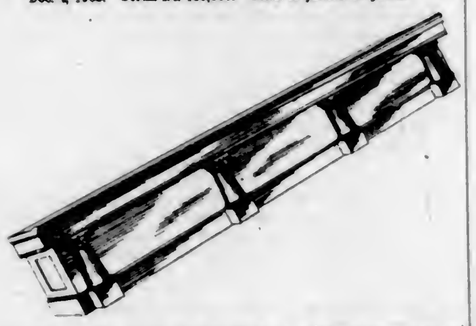
DESIGNS.

36,730. BADGE. JOSEPH T. BAILEY, Philadelphia, Pa., assignor to Bailey, Banks & Biddle Company, a Corporation of Pennsylvania. Filed Dec. 9, 1903. Serial No. 184,490. Term of patent 14 years.



Claim.—The ornamental design for a badge substantially as shown.

36,731. DRINKING COUNTER, OR BAR PROPER, FOR BAR-FIXTURES. JOHN EHRENFRIED, Chicago, Ill., assignor to the Brunswick-Balke-Collender Company, Chicago, Ill., a Corporation of Ohio. Filed Dec. 4, 1903. Serial No. 183,833. Term of patent 14 years.



Claim.—The ornamental design for a drinking counter, or bar proper, of a bar-fixture herein shown.

36,732. STOVE-DOOR. DANIEL F. PRIETZ, Reading, Pa. Filed Dec. 10, 1903. Serial No. 184,681. Term of patent 14 years.



Claim.—The ornamental design for a stove-door, as shown.

36,733. CARPET. FRANK A. HAAS, New York, N. Y., assignor to Matthew J. Whittall, Worcester, Mass. Filed Nov. 27, 1903. Serial No. 182,918. Term of patent 3½ years.



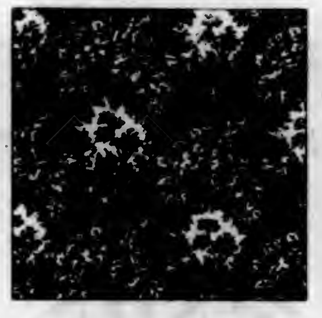
Claim.—The ornamental design for carpet as shown.

36,734. CARPET. FRANK A. HAAS, New York, N. Y., assignor to Matthew J. Whittall, Worcester, Mass. Filed Nov. 27, 1903. Serial No. 182,919. Term of patent 3½ years.



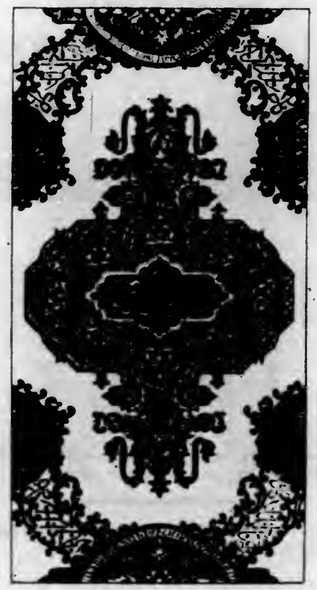
Claim.—The ornamental design for carpet as shown.

36,735. CARPET. LOUIS H. BROWN, Worcester, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed Nov. 27, 1903. Serial No. 182,920. Term of patent 3½ years.



Claim.—The ornamental design for carpet as shown.

36,736. CARPET. WILLIAM A. PERRY, Worcester, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed Nov. 27, 1903. Serial No. 182,921. Term of patent 3½ years.



Claim.—The ornamental design for carpet as shown.

TRADE-MARKS

REGISTERED JANUARY 12, 1904.

41,847. INDIA-RUBBER PENCIL-ERASERS. L. & C. HARDTMUTH, Vienna and Budweis, Austria-Hungary, and London, England. Filed Dec. 18, 1903.



The letter "H," two stars, and a circle surrounding the letter "H" and the stars. Used since January 1, 1879.

41,848. LENSES FOR EYEGLASSES AND SPECTACLES. EMIL A. METZROTTH, New York, N. Y. Filed Dec. 4, 1903.

KRYPTOK

The word-symbol "KRYPTOK." Used since November 11, 1903.

41,849. CELLULOID OR IMITATION-TORTOISE-SHELL HAIR-PINS. THOMAS J. TAYLOR, New York, N. Y. Filed Dec. 1, 1903.



The portrait of a woman surrounded by an ornamental border associated with the name "MARIE ANTOINETTE." Used since July, 1898.

41,850. INGRAIN, DAMASK, AND VENETIAN CARPETS. DONAN BROTHERS, Philadelphia, Pa. Filed Dec. 3, 1903.



The word "MONITOR" and a scene embodying a number of carpet-mills, a street in front of the same, with pedestrains, vehicles, animals, drivers, and rider. Used since December 1, 1863.

41,851. COTTON-DUCK CLOTH. WEST POINT MANUFACTURING CO., Langdale, Ga. Filed Dec. 9, 1903.



The representation of a magnolia-flower and the word "MAGNOLIA," said flower being surrounded by two concentric broken lines, between which is said word "Magnolia." Used since April, 1885.

41,852. ELASTIC WEBBING FABRICS AND GORING. BOSTON GORE AND WEB MANUFACTURING CO., Boston and Chelsea, Mass. Filed Nov. 13, 1903.



An oval-shaped band surrounding the letter "B." Used since April, 1894.

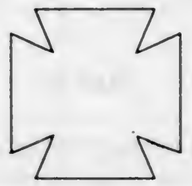
41,853. BOYS' AND CHILDREN'S COATS, VESTS, AND TROUSERS. G. LIPPMANN & SONS, New York, N. Y. Filed Dec. 3, 1903.

41,853.



The representation of a hand holding shears, with a scroll above and below the same, all being shown on a dark background. Used since October 15, 1903.

41,854. LEATHER BOOTS AND SHOES. JOHN H. CROSS, Lynn, Mass. Filed Sept. 27, 1901.



The representation of a Maltese cross. Used since January 1, 1885.

41,855. LEATHER BOOTS AND SHOES. THE JULIAN & KOKENGE CO., Cincinnati, Ohio. Filed Nov. 12, 1903.

SIL-KID

The compound word "SIL-KID." Used since August 1, 1903.

41,856. LEATHER BOOTS AND SHOES. THOMAS F. PEIRCE & SON, Providence, R. I. Filed Dec. 7, 1903.



The representation of a form or figure somewhat resembling a fleur-de-lis, with the letters "T. F. P. & SON" on said figure, and a panel horizontally crossing the figure below its middle portion. Used since January 1, 1901.

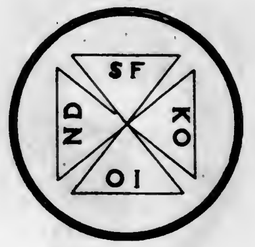
41,857. DYES. FARBWERKE-VORMALS MEISTER, LUCIUS & BRÜNING, Höchst-on-the-Main, Germany. Filed Nov. 14, 1903.

41,857.

THIOGEN

The word "THIOGEN." Used since December, 1902.

41,858. PREPARATIONS FOR BEAUTIFYING AND SOFTENING THE SKIN. EDWIN H. LOCKHART, New York, N. Y. Filed Feb. 21, 1903.



The representation of a Maltese cross having on the four limbs thereof the letters "8 F, K O, I O, N D," the whole surrounded by concentric rings. Used since September, 1902.

41,859. REMEDY FOR PILES. MARY LOUISE MARTIN, Denver, Colo. Filed Oct. 30, 1903.



The letters "M L M" in monogram form. Used since December 24, 1897.

41,860. SALVE. CHARLES S. T. HANSEN, Philadelphia, Pa. Filed Dec. 5, 1903.

MEVAN



The fanciful title "MEVAN" and a combined figure composed of the representations of a Latin cross, an anchor, and a heart. The heart is in the center and apparently covers portions of the cross and anchor, so that other portions of said cross and anchor project from the rim of the heart. Each member of the combined figure has its outlines and filling-in formed of representations of small crosses. Used since August 1, 1903.

41,861. EXTERNAL REMEDY FOR ANIMALS. ALBERT R. YOUNG, Buffalo, N. Y. Filed Nov. 30, 1903.



The representation of a barn of the hip-roof type, with a silo in rear of the same. Used since November 25, 1903.

41,862. SPRING-WATER FOR TABLE USE. THOMAS R. DEWAR, London, England, and New York, N. Y. Filed Dec. 19, 1903.

Rosbach

The word-symbol "ROSBACH." Used since 1900.

41,863. FRUIT-LEMONADE. WILHELM HOLST & SOHN, Wandsbek, near Hamburg, Germany. Filed Nov. 6, 1903.



The representation of a crest, arabesque ornaments on a background of sun-rays, and used in connection with the word "HOLSTENTRUNK." Three parts of the crest show instruments used in making liquors, the fourth part showing the initials of the proprietor of the firm of Wilhelm Holst & Sohn. Used since March 1, 1903.

41,864. TRAS. THE BOOKLOVERS LIBRARY, Camden, N. J., and Philadelphia, Pa. Filed Nov. 13, 1903.

Tabard Inn

The words "TABARD INN." Used since July 1, 1903.

41,865. MILK AND MILK PRODUCTS. THE BOOKLOVERS LIBRARY, Camden, N. J., and Philadelphia, Pa. Filed Nov. 13, 1903.

Tabard Inn

The words "TABARD INN." Used since July 1, 1903.

41,866. BREAD, BISCUITS, CRACKERS, GEMS, AND WAFERS. THE BOOKLOVERS LIBRARY, Camden, N. J., and Philadelphia, Pa. Filed Nov. 13, 1903.

Tabard Inn

The words "TABARD INN." Used since July 1, 1903.

41,867. CERTAIN NAMED FOOD PRODUCTS. ARMOUR & COMPANY, Chicago, Ill. Filed Jan. 31, 1903.

ASPAROX

The word-symbol "ASPAROX." Used since February 1, 1902.

41,868. CERTAIN NAMED BAKERY PRODUCTS. NATIONAL BISCUIT COMPANY, Jersey City, N. J., and Chicago, Ill. Filed Apr. 23, 1903.

Mary Ann

The word-symbol "MARY ANN." Used since March 1, 1900.

41,869. FLOUR. JAMES BUTLER, New York, N. Y. Filed Dec. 14, 1903.



The words "AUNT NANNA'S," together with the representation of a female figure carrying a plate of pancakes and surrounded by a wreath. Used since December 7, 1903.

41,870. LARD, TALLOW, LARD COMPOUNDS, AND SUBSTITUTES FOR LARD. CUDAHY BROS. CO., Cudahy, Wis. Filed Dec. 18, 1903.

SNOWBALL

The word "SNOWBALL." Used since December 18, 1903.

41,871. LARD, TALLOW, LARD COMPOUNDS, AND SUBSTITUTES FOR LARD. CUDAHY BROS. CO., Cudahy, Wis. Filed Dec. 18, 1903.

WHITE CHAMPION

The words "WHITE CHAMPION." Used since December 8, 1903.

41,872. PIE-FRUITS, DRIED FRUITS, PRESERVED FRUITS, FRUIT-JELLIES, FRUIT-JUICES, AND FRUIT-FLAVORINGS. SMITH, LICHTY & HILLMAN CO., Waterloo, Iowa. Filed Oct. 13, 1903.

RELIANCE



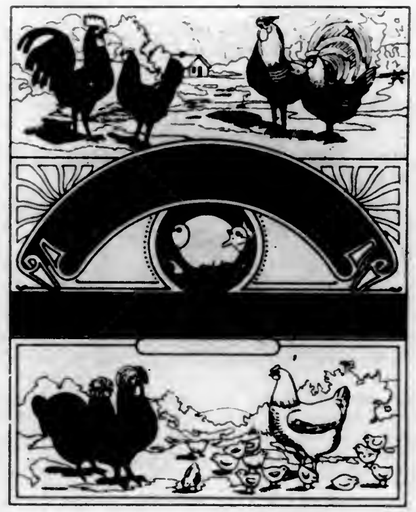
The representation of a dog's head and the word "RELIANCE." Used since September 1, 1903.

41,873. POWDER PREPARATION USED IN THE MANUFACTURE OF ICE-CREAM, WATER-ICE, AND PIES. OSCAR J. WEEKS, New York, N. Y. Filed Sept. 5, 1903.

CREAMTHICK

The word "CREAMTHICK." Used since April 1, 1901.

41,874. POULTRY-FOOD. MARION W. SAVAGE, Minneapolis, Minn. Filed Oct. 1, 1903.



A circle wherein the representation of an egg appears, with the heads of chickens breaking through the shell. Above the representation of the egg is a scroll and below a panel extending across the mark. At the top and bottom are panels whereon the representation of rural landscapes appear, with poultry in the foreground. Used since January 15, 1887.

41,875. MACHINES FOR RECEIVING AND REPRODUCING SOUNDS, PARTS THEREOF, AND ACCESSORIES FOR SAME. INTERNATIONAL TALKING MACHINE CO., Berlin, Germany. Filed Nov. 5, 1903.

ODEON

The word "ODEON." Used since October 1, 1903.

41,876. CERTAIN NAMED COATING MATERIAL. J. A. & W. BIRD & CO., Boston, Mass. Filed Dec. 3, 1903.

IBEX.

The word "IBEX." Used since October 1, 1903.

41,877. CERTAIN NAMED BEARING METALS. JOHN FINN METAL WORKS, San Francisco, Cal. Filed Dec. 1, 1903.

SEQUOIA

The word "SEQUOIA." Used since August 1, 1903.

41,878. CERTAIN NAMED BEARING METALS. JOHN FINN METAL WORKS, San Francisco, Cal. Filed Dec. 1, 1903.

AIDION

The word "AIDION." Used since October 26, 1900.

41,879. CERTAIN NAMED METALS. JOHN FINN METAL WORKS, San Francisco, Cal. Filed Dec. 1, 1903.



The representation of a disk, upon which appear the letters "J F" in monogram, with the letter "M" on the left and "W" on the right of said monogram and the whole inclosed by a circular line border. Used since August 1, 1903.

41,880. FLEXIBLE METAL PIPES. METALLSCHLAUCHFABRIK PFORZHEIM, (VORM. HCH. WITTENBAUER,) G. M. B. H., Pforzheim, Germany. Filed Nov. 10, 1903.

HYDRA

The word "HYDRA." Used since May 28, 1900.

41,881. COMPOSITION ROOFING. SALT MOUNTAIN ASBESTOS MFG. CO., Chicago, Ill. Filed Dec. 9, 1903.

MIKO

The word "MIKO." Used since January, 1900.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON D.C.

LABELS

REGISTERED JANUARY 12, 1904.

10,661.—*Title:* "TRIUMPH." (For Yarns.) WM. H. HORSTMANN COMPANY, Philadelphia, Pa.; New York, N. Y.; Boston, Mass.; Baltimore, Md.; Detroit, Mich., and Paris and Lyons, France. Filed December 18, 1903.

10,662.—*Title:* "RAMSAY MEXICAN SEA SALT SHAMPOO MASSAGES." (For Toilet Preparation.) WILLIAM J. RAMSAY, Des Moines, Iowa. Filed December 19, 1903.

10,663.—*Title:* "SPONGE LOAF." (For Baking-Powder.) WABASH BAKING POWDER CO., Wabash, Ind. Filed December 12, 1903.

10,664.—*Title:* "ELK." (For Oranges.) UNITED PAPER CO., Atlanta, Ga. Filed December 17, 1903.

10,665.—*Title:* "LAGIMA." (For Cigars.) EDWARD J. LUBOVITZ, New York, N. Y. Filed December 21, 1903.

10,666.—*Title:* "LAST ARROW." (For Cigars.) C. B. HENSCHEL MANFG. CO., Milwaukee, Wis. Filed December 18, 1903.

10,667.—*Title:* "EXTRA FINA CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,668.—*Title:* "SUPERIORES CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,669.—*Title:* "ELEGANTES CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,670.—*Title:* "CIGARROS HABANA." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,671.—*Title:* "PURO FINO CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,672.—*Title:* "CUBANAS CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,673.—*Title:* "HABANA CIGARROS." (For Cigars.) CENTRAL LITHO. CO., Cleveland, Ohio. Filed December 19, 1903.

10,674.—*Title:* "LA MARICA." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed December 17, 1903.

10,675.—*Title:* "MUNRO'S CORDED CERAMIC." (For Tiling.) JAMES H. MUNRO and JOHN M. VAN ORDEN, Newark, N. J. Filed December 17, 1903.

10,676.—*Title:* "PORTLAND PENNSYLVANIA CEMENT." (For Portland Cement.) PENNSYLVANIA CEMENT COMPANY, Bath, Pa., and New York, N. Y. Filed December 15, 1903.

10,677.—*Title:* "THE CORKER." (For Shingles.) ALLEN LUMBER CO., Rochester, N. Y. Filed December 18, 1903.

PRINTS

REGISTERED JANUARY 12, 1904.

878.—*Title:* "MEN'S APPAREL." (For Men's Apparel.) CAHN, WAMPOLD & COMPANY, Chicago, Ill. Filed December 21, 1903.

879.—*Title:* "PALMER'S PATENTED HAMMOCKS." (For Hammocks.) ISAAC E. PALMER, Middletown, Conn. Filed December 21, 1903.

880.—*Title:* "PRUNITURA." (For Medicinal Prune-Syrup.) L. PRANGE, Brooklyn, N. Y. Filed October 29, 1903.

881.—*Title:* "NECCO'S CHOCOLATES ARE RIPE." (For Chocolates.) NEW ENGLAND CONFECTIONERY CO., Boston, Mass. Filed December 19, 1903.

882.—*Title:* "HASN'T SCRATCHED YET." (For Scouring-Soap.) THE BON AMI CO., New York, N. Y. Filed December 17, 1903.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WM. T. REYNOLDS & CO.

Decided December 16, 1903.

1. LABEL—LACK OF ARTISTIC MERIT—TRADE-MARK.

A label which in itself possesses no artistic merit is not rendered registrable by including as one feature a registered trade-mark which does possess artistic merit.

2. SAME—SAME—SAME.

Where the only thing in a label founded in the creative powers of the mind is a registered trade-mark placed on it, *Held* that the label is not registrable.

ON appeal.

LABEL FOR COFFEE.

Application filed October 15, 1903, No. 5,078.

Mr. Joseph L. Atkins for the applicants.

ALLEN, *Commissioner:*

This is an appeal from the action of the Primary Examiner refusing to register a label for coffee on the ground that it is not an artistic production "founded in the creative powers of the mind." (*Higgins* v. *Keuffel*, 55 O. G., 1139.)

The label consists of ordinary printed matter arranged in the ordinary way, describing the article to which it is applied, and containing the name and address of the applicants. The label also includes in its upper portion an arbitrary figure which has been adopted by the applicants as their trade-mark and which has been registered in this Office, No. 40,500, June 2, 1903. This arbitrary figure is artistic and is the result of intellectual labor, and the sole question presented for determination is whether its addition to ordinary descriptive printing makes a registrable label.

The design constituting the registered trade-mark has been published and is therefore not now entitled to protection under the copyright law, of which the label law is a branch, even if it was entitled to protection when first made. It is public property in so far as the label law is concerned, and therefore any artistic merit in it alone cannot make the label upon which it appears registrable. The law expressly says that a trade-mark may not be registered as a label. The artistic merit in the label must therefore not reside in the trade-mark alone. The label in its entirety must be artistic. No intellectual labor was involved in the arrangement of the parts of the present label, since the arrangement is that which would naturally be adopted by the ordinary type-setter.

The decision of the Examiner refusing registration is affirmed.

EX PARTE LEWIS.

Decided December 16, 1903.

1. PETITION—COMPLAINT—NO SPECIFIC RELIEF ASKED.

A petition asking for no specific relief, but merely that the Examiner's actions be reviewed to determine whether or not they have been of an obstructive character, *Held* in the nature of a complaint and not proper subject-matter for petition.

2. SAME—MUST ASK SPECIFIC RELIEF—ISSUE BETWEEN APPLICANT AND EXAMINER.

Remedy by petition applies only to review a particular action or refusal to act where an issue has been reached between the applicant and the Examiner after a full discussion.

3. EXPLANATION BY EXAMINER—ACTION BY APPLICANT—PRACTICE.

Where the applicant makes no attempt whatever to point out the supposed errors in the Examiner's action, it is not incumbent upon the Examiner to point out wherein he has failed.

4. DIVISION—REQUIREMENT MADE AT LATE DATE.

A requirement for division will not be overruled merely because it is made for the first time late in the prosecution of the case.

5. EXAMINATION OF APPLICATION—ALL OBJECTIONS MADE WITHOUT DELAY—PRACTICE.

All objections to the application, whether relating to form or merits, should be made as soon as possible, and new objections late in the prosecution of a case should be necessary only in exceptional cases; but it does not follow that the objection is to be ignored because not discovered as soon as desirable.

ON petition.

BOTTLE-FILLING MACHINES.

Mr. Wallace A. Bartlett for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner in the above-entitled case. After reciting the actions in the case the petitioner says:

Wherefore it is requested that the Commissioner consider and rule from the face of the papers,

1. Whether the actions of the Examiner in the case have generally been of a character to expedite the business of the Office and the public, or have been of an obstructive character, and to instruct the Examiner accordingly.

2. Whether the Examiner is bound to inform applicant wherein he has failed to comply with a rule, in response to a request for such information, and to instruct the Examiner accordingly.

3. Whether the requirement for division, after applicant had expressed a desire for appeal, was in accordance with good practice and sound policy, and whether the reasons stated for such requirement were adequate, and that the Examiner be instructed accordingly.

The first paragraph of the petition is not a request for specific relief, but is in the nature of a complaint. It refers to past actions and does not ask that those actions be set aside or that any one of them be overruled, but merely asks for an expression of opinion as to the Examiner's conduct. It therefore has no proper place in a petition from the Examiner's action.

The second paragraph of the petition does not ask that the Examiner be overruled in his requirement, but merely that the applicant be informed wherein he has failed to comply with the requirement. On October 8, 1903, the applicant said: "Such action as will permit appeal is requested," and the Examiner replied: "Such communication is not a compliance with Rule 69." The Examiner's action is clear and means to any attorney practicing before the Office that he has not pointed out "the supposed errors in the Examiner's action." No effort whatever was made in the applicant's letter of October 8, 1903, to point out errors in the Examiner's action, and therefore no explanation by the Examiner wherein it failed to do so was necessary. The real point upon which the applicant and the Examiner seem to disagree is whether it was necessary for the applicant to point out the supposed errors in that letter in view of the previous correspondence. This has not been made an issue by the petition, however, and has not been discussed in the Examiner's answer.

The third paragraph of the petition does not raise the question whether or not the application should be divided. It merely objects to the time when the requirement for division is made. Good practice requires that a requirement for division be made at the earliest date upon which it appears that division is necessary. All objections to the application, whether relating to form or merits, should be made as soon as possible, and it should be only in exceptional cases that an objection is made for the first time late in the prosecution of the case. The first action should be careful and complete, and new requirements or references should not be necessary except where rendered so by the applicant's amendments. It cannot be held, however, that because an objection or a pertinent reference was overlooked in the first action it becomes the Examiner's duty to ignore it thereafter. The Office must correct an error whenever it is discovered and will not issue informal or invalid patents merely because it failed to discover the defect or informality as soon as desirable. The Examiner's requirement for division will not be set aside on account of the time when it was made.

The applicant has not asked the Examiner to point out more fully the reasons for his requirement for division, nor has he made an argument in regard to that matter. He is therefore not entitled to have that question reviewed on petition. Remedy by petition applies only where the Examiner has been requested to take a particular action and refuses to do so after the reasons have been fully stated and considered.

The petition is denied.

HOEFER, HOEFER, AND HOEFER *v.* BARNES.

Decided December 17, 1903.

INTERFERENCE—MOTION TO DISSOLVE—IRREGULARITY.

Where on a motion to dissolve it is contended that the issue is a species of the invention shown by H., H., and H. which they did not claim originally and that they should not have been permitted to shift from one species to another, *Held* that this is a mere matter of procedure alone which in no way affects the rights of B. and is not such irregularity as will preclude a proper decision as to priority of invention.

APPEAL on motion.

DRILLING-MACHINES.

Application of Frederick W., August G., and Emil A. Hoefer. Patent granted Benjamin F. Barnes.

Mr. L. L. Morrison for Hoefer, Hoefer, and Hoefer.

Mr. Luther L. Miller and *Mr. Arthur W. Harrison* for Barnes.

ALLEN, *Commissioner:*

This is an appeal by Barnes from the decision of the Primary Examiner denying his motion to dissolve the above-entitled interference on the ground that there is no interference in fact and on the ground that there was irregularity in the declaration.

Hoefer and Hoefer copied the claim of the issue from Barnes's patent for the purpose of securing an interference. It is very true, as suggested by Barnes, the fact that the claims are in the same words is not controlling, since interferences must be between things and not words. Comparing the words of the claim with the structures disclosed by the parties, they are found to mean the same thing in both cases. The elements of the claim are present in both cases, and they operate in substantially the same way and perform the same function. It must be held, therefore, that there is an interference in fact.

The principal contention on behalf of Barnes is that the declaration of the interference was irregular in view of the conduct of Hoefer and Hoefer in reference to the subject-matter in controversy. It is said that their application when filed contained no claim to the modification of the invention now in controversy, but contained claims limited to another modification. It also contained broad claims, but it is said that it could not under the settled practice of the Office include specific claims to two modifications. It is further said that the applicants were not entitled to shift from one species to another. The contention is therefore made that it was irregular to permit them to make the claim of the issue in this case and to declare an interference as to it.

Rule 122 does not provide for the dissolution because of any irregularity which may appear, and sound reason does not require such dissolution. Dissolution is necessary only where the irregularity is such "as will preclude a proper determination of the question of priority."

It is very clear that the question whether Hoefer and Hoefer have in their application other claims which should not under the Office practice be included in the same case as the claim of the issue can have no effect upon the determination of which party was the first inventor. The question is one of procedure merely and concerns the Office alone. The rights of Barnes are in no way prejudiced, and his ability to establish his rights by proper evidence is in no way interfered with. If it is conceded, therefore, that Hoefer and Hoefer are claiming two species contrary to the rules, it is not such

irregularity as will preclude a proper determination of the question of priority.

The decision of the Primary Examiner refusing to dissolve the interference is affirmed.

EX PARTE GORDON.

Decided December 18, 1903.

APPLICATION—CHANGING FROM SOLE TO JOINT APPLICATION.

Where an application is filed alleging that one party is the sole inventor and asking that a patent be granted to him, *Held* that it cannot be changed to a joint application including another party merely because that other party signed the papers.

ON reference.

MACHINES FOR FEEDING CANDY.

Mr. Richard J. McCarty for the applicant.

ALLEN, *Commissioner:*

The application clerk of this Office asks for instructions as to the date which he should give to the above-entitled application in view of a request by the Primary Examiner that he change in his records the name of the applicant.

It appears that the application as filed alleged that Horace S. Gordon was the inventor and asked that the patent be issued to him, and the oath to the application alleged that Horace S. Gordon was the sole inventor. The application papers, including the oath, were signed by Horace S. Gordon and Alvin E. Gordon, and some time after the application was filed it was alleged that Horace S. Gordon and Alvin E. Gordon were joint inventors of the matter disclosed in the application, and it was asked that the proper correction be made in the records. A substitute oath was filed setting up that the parties were joint inventors. The Examiner entered the amendment and the substitute oath and asked the application clerk to correct his records to show that the application was in the names of the parties as joint inventors.

It is believed that this action by the Examiner was not warranted and that the parties are not entitled to change the application from a sole application to a joint application. There was nothing about the original application to show that the parties were joint inventors except the signature of Alvin E. Gordon, and this was overcome by the direct statements that Horace S. Gordon was the sole inventor.

It must be held that this application must stand in the name of Horace S. Gordon, and if the parties are, in fact, joint inventors it will be necessary for them to file a new application.

EX PARTE LEILICH.

Decided December 18, 1903.

FINAL REJECTION—EXPLANATION OF REFERENCES.

Where the Examiner rejects the claims upon references and the applicant twice asks him to explain why the device shown in one of those references is operative and the Examiner has fully and carefully explained the reference and his position in regard to it, *Held* that he was justified in finally rejecting the claims.

ON petition.

BED-MOTIONS FOR CYLINDER PRINTING-PRESSES.

Mr. Leilich pro se.

ALLEN, *Commissioner:*

This is a petition that the Primary Examiner be directed to set aside his final rejection of September 5, 1903, as irregular and enter an amendment presented September 24, 1903.

The final rejection was made after five actions by the Examiner and responses from the applicant and after a full discussion of the questions at issue between them. It seems that the applicant alleged that a patent to Case, cited as a reference, was not sufficiently full and accurate to enable one skilled in the art to make an operative device. He stated his reasons, and in reply the Examiner discussed the question very fully in his letter of May 5, 1903, and made it clear why he regarded the Case patent as a valid reference. The applicant had furnished diagrams indicating his idea of the operation of Case's device, and the Examiner discussed these and stated that he had no difficulty in plotting an operative position in Case's device. The applicant in reply asked the Examiner on May 20, 1903, to furnish him information which would enable him to find the operative position in Case's device. Upon the Examiner's failure to do this to his satisfaction the applicant again requested the information on July 13, 1903. In neither of those communications did the applicant make any change in the claims, and in his letter of September 5, 1903, the Examiner said in reference to the Case patent:

> Nothing further can be said on this point than what has already been clearly and fully stated in the second paragraph of the said letter of May 5, 1903.

This letter of September 5, 1903, finally rejected certain of the claims. The Examiner's action in reference to the Case patent was as full and complete as could be required of him, and in so far as that matter was concerned his final rejection was in order. The applicant and the Examiner simply disagreed as to the Case patent after discussion, and the only way to settle the issue was by appeal.

The applicant, however, makes the point that his letter of July 13, 1903, did not ask for action upon the claims, but merely asked for information. He says, therefore, that a rejection of the claims was not called for. It is to be noted, however, that the letter of July 13 discussed other references besides the Case patent and made a slight amendment to one claim. It was properly construed as a request for reconsideration. The Examiner had explained his position in regard to the references, and unless he decided to recede from that position it was proper to finally reject the claims.

The petition is denied.

FOWLER *v.* BOYCE *v.* TEMPLE AND GOODRUM.

Decided December 21, 1903.

1. AMENDMENT TO PRELIMINARY STATEMENT—FAILURE TO DISCOVER FACTS SOONER—EXCUSE INSUFFICIENT.

Where in support of a motion to amend a preliminary statement it is said by F. that when preparing to take testimony he learned of an earlier disclosure than that alleged in his statement, but no good reason is shown for not discovering the fact sooner, *Held* that the amendment should not be permitted.

2. SAME—NO NEWLY-DISCOVERED FACTS—MISTAKE OF LAW.
Where a party wishes to amend his preliminary statement, setting up an earlier reduction to practice, and it appears that he has discovered no new facts, but upon consultation with his attorney has obtained a better idea of what in law constitutes a reduction to practice, *Held* that the amendment should not be permitted. He should consult his attorney when preparing his statement.

3. PRELIMINARY STATEMENTS—CARE NECESSARY IN PREPARATION.
Applicants should exercise the same care in preparing their preliminary statements that they exercise in discovering evidence after they learn the dates alleged by their opponents.

APPEAL on motion.

TELEPHONE SYSTEMS.

Application of Samuel B. Fowler. Application of Charles L. Boyce. Application of David L. Temple and Charles L. Goodrum.

Mr. C. A. Brown and *Mr. H. A. Seymour* for Fowler.

Mr. Thomas D. Lockwood and *Mr. Philip Mauro* for Boyce.

Mr. Charles C. Bulkley for Temple and Goodrum.

ALLEN, *Commissioner:*

This is an appeal by Fowler from the decision of the Examiner of Interferences denying his motion to amend his preliminary statement.

This is the second motion by Fowler to amend his statement, the first having been denied by me on October 24, 1903. The present motion is supported by a more detailed statement of the facts in affidavits by the same parties who filed affidavits in support of the first motion—viz., Fowler and Williams.

Fowler wishes to change his date of disclosure from May 1, 1902, to March, 1901, and his date of reduction to practice from May 1, 1902, to December, 1900. He makes no change in his date of conception. This change in the two most essential dates of the statement would carry Fowler's dates back of the corresponding dates alleged by some of the other parties.

Williams says that he had charge of the case for the attorney and that in preparing the original statement it was necessary to rely largely upon correspondence with Fowler. He does not say that he did not consult with Fowler orally or that he was unable to do so. When he was preparing to take testimony in the case, he consulted Fowler, and it then developed that Fowler had made a device in December, 1900, embodying the invention. He then informed Fowler that it was not necessary that the device be so finished as to be adapted for commercial use in order to constitute reduction to practice. It does not appear that he had explained this to Fowler before or why he had not.

Fowler says that his attorney by correspondence attempted to explain to him the facts which should be alleged in his statement, and he furnished him those alleged in the original statement. When preparing to take testimony, he called at his attorney's office and—

> • • • talked over at that time every detail of the development of my invention from the time of its first conception and I explained to Mr. Williams that in December, 1900, I set up certain apparatus to illustrate the operation of the signaling devices which I had invented.

It does not appear why he did not make this explanation to his attorney before preparing his original statement. He apparently knew the facts, but thought it unnecessary to state them, because he did not realize their legal effect. His attorney was, however, employed to advise him upon such matters, and it was as much his duty to make the explanation when preparing the statement as when preparing to take testimony.

After the above-noted consultation with his attorney Fowler went to his home, Lafayette, Ind., and there consulted—

> Mr. Doolittle, of the Sterling Electric Company, and Mr. Denig and Mr. Bullock, and certain other gentlemen employed by the company. I learned from them that I had disclosed this invention to them at a date much earlier than that of May, 1902.

Fowler is himself employed by the Sterling Electric Company, and it does not appear why he could not have discovered the facts from the parties mentioned before preparing his statement if he had made proper efforts to do so. The fact that he was away from Lafayette much of the time is no excuse.

This case is like many presented to this Office. The appellent prepared his statement without making a serious and earnest effort to discover and allege all of the pertinent facts, and after he was confronted with the allegations of the opposing parties he found no real difficulty in discovering other facts to support his case and in discovering the legal bearing of the facts previously within his knowledge. If parties exercised the care in preparing their statements which they exercise in discovering evidence after knowing their opponents' dates, motions to amend preliminary statements would seldom be made and parties would never find themselves in the position of being unable to produce pertinent evidence because of their preliminary statements.

It must be held that Fowler is not entitled to amend his statement, and therefore the decision of the Examiner of Interferences is affirmed.

IN RE CHARLES, PRINCE DE LOEWENSTEIN.

Decided December 21, 1903.

1. NAME OF APPLICANT—OFFICIAL TITLE.
Where the application papers were signed "Charles, Prince de Loewenstein," *Held* that the full name of the applicant was not given, as required in Rule 40.

3. SAME—SAME—TITLES NO PART OF NAME.
Honorable titles form no part of a person's name, however well they serve to identify the individual, and therefore they cannot be accepted as a compliance with the rule calling for the applicant's name.

IN the matter of the request of Charles, Prince de Loewenstein, that certain papers filed in this Office be entered as an application.

ALLEN, *Commissioner:*

This is a petition that certain papers filed in this Office on December 14, 1903, be entered as a complete application.

The papers were complete and formal in all respects, except that the applicant's name appeared both in the specification and in the signature as "Charles, Prince de Loewenstein." Because of this informality the papers were returned to the attorney for the applicant, and they were refiled on December 18 with the present petition.

Rule 40 of the Rules of Practice requires the full name of the inventor to be signed to the specification. The rule makes no provision for the insertion of honorable titles, and however well the identity of an individual may be made certain by the use of such titles they are for this purpose mere matters of description of the individual and not being a portion of his name cannot be taken for this purpose as a compliance with the rules of this Office.

My attention has been called to the fact that unless this application is given the date of December 14, 1903, it is barred by foreign patents. In view of this fact these papers should be accepted as an informal application. The applicant should be given the date of December 14, 1903, as his date of filing, and the informalities of the execution of this application should be corrected as soon as possible.

TRIPP *v.* WOLFF *v.* JONES.

Decided December 21, 1903.

1. TESTIMONY—INSUFFICIENT NOTICE.
Where notice was served in Chicago of testimony to be taken at Erie, Pa., less two days thereafter, *Held* that the notice was not reasonable and that the depositions taken will be suppressed.

2. SAME—SAME—NAMES OF WITNESSES NOT GIVEN.
Where notice was given that certain witnesses "and perhaps others" would be examined, *Held* where the opposing party objects the notice is insufficient except as to the witnesses whose names were given.

APPEAL on motion.

AUTOMATIC STOKER.

Application of Harry C. Tripp. Application of John Wolff. Application of Joel E. Jones.

Mr. Charles A. Brown and *Mr. H. A. Seymour* for Tripp.

Messrs. Gifford & Bull and *Messrs. Dyer & Dyer* for Wolff.

Messrs. Coburn & McRoberts for Jones.

ALLEN, *Commissioner:*

This is an appeal by Tripp from the decision of the Examiner of Interferences granting Jones's motion to suppress the deposition of the witness Williams examined on behalf of Tripp.

Jones moved to suppress the deposition of Williams—

> • • • for the reason that said deposition was taken without notice to Jones or to counsel for Jones and without waiver of such notice; and for the further reason that said deposition of said Williams was not seasonably taken, the time within which depositions of witnesses on behalf of Tripp, other than those named in the affidavit of said Tripp as basis for the motion made by said Tripp on May 28, 1903, having expired when said Williams's deposition was taken.

The deposition of the witness Williams referred to in the motion is that taken at Erie, Pa., on June 18, 1903. The notice under which that deposition was taken was that the witness George Geasel would be produced for examination, "and perhaps others." Williams's name was not mentioned, and, as pointed out by Jones, Tripp had no right to call Williams as a witness at that time by reason of the expiration of his time for examining any witnesses except those mentioned in his motion to extend his time. The notice was, furthermore, not served upon counsel for Jones in Chicago until about twelve o'clock on June 16, and the taking of testimony commenced at Erie, Pa., at ten a. m. on June 18. This was not reasonable notice even if it had included the name of Williams and even if Tripp was entitled to take his deposition.

The decision of the Examiner of Interferences is affirmed.

EX PARTE STURTEVANT *et al.*

Decided December 22, 1903.

1. DRAWINGS—INCONSISTENT VIEWS—AMENDMENT NECESSARY.
Where two figures of the drawings are inconsistent if intended to represent the same structure, *Held* that they should either be made consistent by amendment or the specification should state that they represent different modifications.

2. SAME—SHOULD CLEARLY DISCLOSE DEVICE.
It is a great *desideratum* of Patent Office drawings that they should tell their story to the eye without making it necessary to go into the specification for explanation, which should be apparent upon inspection.

ON petition.

SPARKING DEVICES FOR EXPLOSIVE-ENGINES.

Mr. Henry Calver for the applicants.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner objecting to Figures 1 and 2 of the drawings as being inconsistent.

It is apparent upon inspection of the drawings that the structures illustrated in Figs. 1 and 2 differ in some particulars. The section of Fig. 1 is a single plane, while the section of Fig. 2 is in two parallel planes. This occasions some difference in the connecting-pipe 17, and this pipe, it is contended, is not of the essence of the invention and is only conventionally shown and is intended to be disposed in any convenient manner.

It is a great desideratum of Patent Office drawings that they should tell their story to the eye without making it necessary to go into the specification for explanation, which should be apparent upon inspection. It is thought, however, that if the planes of the sections of Fig. 2 are described in the specification it will not be necessary in this case to change the drawings in order to obtain a clear conception of this invention.

The suggestion by the applicants that the Examiner's objection should not be insisted upon, simply because one skilled in the art could make the invention from the present disclosure, does not overcome this necessity for such representation of the invention in the drawings as will make it intelligible for the purposes of search.

Upon the insertion of a description of the planes of section of the drawings these drawings may be retained in their present form, and the petition is to this extent granted.

VANDEN BERGH & COMPANY *v.* BLANKENHEYM & NOLET.

Decided December 22, 1903.

1. TRADE-MARKS—INTERFERENCE—PRIORITY.
Held that V. B. & Co. adopted the mark for gin before B. & N. adopted it for geneva, and therefore priority awarded to V. B. & Co.

2. SAME—SAME—GOODS OF THE SAME CLASS—GIN AND GENEVA.

Where one party used the trade-mark upon gin and the other upon "Holland Schiedam Geneva," *Held* that the goods are substantially the same and that the first to adopt the mark is entitled to registration.

ON appeal.

TRADE-MARK FOR CORDIALS AND SPIRITS.

Application of Vanden Bergh & Company filed February 20, 1901, No. 62,735. Application of Blankenheym & Nolet filed September 24, 1896, registration No. 30,126.

Messrs. Briesen & Knauth for Vanden Bergh & Company.

Mr. Frederick G. Dieterich and *Mr. Vernon M. Dorsey* for Blankenheym & Nolet.

ALLEN, *Commissioner:*

This is an appeal by Blankenheym & Nolet from the decision of the Examiner of Interferences awarding priority of adoption and use to Vanden Bergh & Company of the trade-mark consisting of—

the representation of a bell for geneva, (gin.)

The junior party, Vanden Bergh & Company, registered its trade-mark for gin in 1876, the certificate of which registration is in evidence. (*Vanden Bergh's record*, p. 16.) The law under which such registration was made (the act of 1870) having been declared invalid by the Supreme Court, Vanden Bergh & Company filed its present application February 20, 1901.

Blankenheym & Nolet have taken no testimony on the question of priority, and accordingly they are restricted to their date of application, June 1, 1897.

It appears clearly from the testimony submitted in behalf of Vanden Bergh & Company that gin made by this company and bearing the trade-mark in issue has been sold in this country for over a quarter of a century, and this is not questioned seriously by Blankenheym & Nolet.

Blankenheym & Nolet contend, however, that the particular goods on which they use the trade-mark is "Holland Schiedam Geneva," and as it has not been shown that Vanden Bergh & Company has used the mark on this particular variety of goods they, Blankenheym & Nolet, are entitled to priority. They contend, in other words, that "gin" is a generic term, while "geneva" is a particular variety of gin, recognized by the trade as such, and that therefore proof of priority of adoption and use of the mark on gin is not proof of adoption and use of the mark as applied to geneva.

This contention is not well founded. These two terms are defined in the *Century Dictionary* as follows:

Gin. (Abbreviation of geneva, or rather of the older form genever.) An aromatic spirit prepared from rye or other grain and flavored with juniper-berries.

Geneva. (A corruption, by confusion with the town of Geneva in Switzerland of what would regularly be genever.) A spirit distilled from grain or malt with the addition of juniper-berries: now called, by contraction, gin.

Substantially the same definitions are given by other standard authorities.

It thus appearing that the terms "gin" and "geneva" are deduced from the same origin and mean the same thing and that the mark adopted in this case is thus used upon goods of the same descriptive properties, the judgment of the Examiner of Interferences awarding priority to Vanden Bergh is affirmed.

EX PARTE BROUGH.

Decided October 26, 1903.

APPLICATION COMPLETE—SUPPLEMENTAL OATH.

Where an application is filed complete and thereafter a supplemental oath is required and furnished, *Held* that the application must retain its original filing date and will not be given the date of the supplemental oath.

ON petition.

SAW-TOOTH SWAGER.

Mr. G. W. Bullard and *Mr. Wm. G. Henderson* for the applicant.

ALLEN, *Commissioner:*

This is a petition that the filing date of the above-entitled application be changed from September 9, 1902, to some date in November, 1902.

It appears that when the application was examined some objection was made to the disclosure of the invention as not being clear and complete, and a new oath was required because of delay in filing the case after the execution of the oath. It is because of these defects in the original case that the petitioner asks that the application be given a later date, when a new oath was executed.

No good reason is seen for the change in date, and it is contrary to the fixed and settled rules of the Office to make the change. The application was, in fact, filed complete on September 9, 1902, and to change it to November would be to make the patent when issued contain a false suggestion of fact. The defects in the original application were merely such as called for correction by amendment, and none of the necessary parts of a complete application were lacking.

The petition is denied.

Patents Nos. 749,711 to 750,244.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 108—No. 3. TUESDAY, JANUARY 19, 1904. PRICE—$5 per year.

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Designs	10	No. 36,737 to No. 36,746, inclusive.
Trade-Marks	49	No. 41,882 to No. 41,930, inclusive.
Labels	17	No. 10,678 to No. 10,694, inclusive.
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Total issue	615	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada	1	
Alaska Territory			New Hampshire	2	
Arizona Territory			New Jersey	30	2
Arkansas	1		New Mexico Ter'y		
California	19	2	New York	60	15
Colorado	6		North Carolina	2	
Connecticut	17	1	North Dakota	1	
Delaware	1		Ohio	49	5
District of Columbia	2		Oklahoma Terr'y	1	
Florida			Oregon	2	
Georgia	3	2	Pennsylvania	61	2
Hawaii Territory			Porto Rico		
Idaho	1		Rhode Island	7	1
Illinois	60	2	South Carolina	2	
Indian Territory	1		South Dakota		
Indiana	11		Tennessee		1
Iowa	11		Texas	9	1
Kansas	2	1	Utah	3	
Kentucky	4	2	Vermont	2	
Louisiana	3	2	Virginia	3	
Maine	3	1	Washington	8	
Maryland	3	1	West Virginia		
Massachusetts	26	5	Wisconsin	12	5
Michigan	22	2	Wyoming		
Minnesota	13		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	21	6			
Montana	1	1	Total to citizens of the United States	486	60
Nebraska	6				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Australia			Netherlands	1	
Austria-Hungary	2		Newfoundland		
Belgium			New South Wales		
Brazil			New Zealand	3	
British West Indies			Norway	2	
Canada	6		Portugal		
Cape Colony			Queensland		
Chile			Roumania		
China			Russia	1	1
Costa Rica			Scotland	1	
Cuba			South Africa		
Denmark	1		South Australia		
Ecuador			Spain		
England	19	1	Sweden		
France	7		Switzerland	1	
Germany	8	8	Transvaal, South Africa		
India			Victoria	4	
Ireland			Western Australia		
Italy	1				
Japan			Total to citizens of foreign countries	58	10
Java	1				
Mexico					

Communications to the Patent Office—Separate Letters.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Papers sent in violation of this rule will be returned.

Notice of Interference.

CARUNCHO *v.* CARUNCHO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 21, 1903.

Heirs, executor, or administrator of Eugen Caruncho, deceased, take notice:

Notice is hereby given that times have been set as follows for taking testimony in this interference and for its final hearing, to wit:

A. Caruncho's testimony-in-chief to close March 9, 1904. E. Caruncho's testimony to close April 9, 1904. A. Caruncho's rebuttal testimony to close May 9, 1904. Final hearing June 9, 1904.

Notice is further given that A. Caruncho has applied for a commission to take testimony abroad, as provided by Rule 158.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

December 22, 1903.

F. I. ALLEN,
Commissioner.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 12, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 24	Dec. 29	152
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Dec. 21	Dec. 29	100
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 18	Dec. 22	128
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 14	Dec. 29	196
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 14	Dec. 29	156
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 14	Dec. 29	241
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Dec. 14	Dec. 24	257
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 14	Dec. 24	152
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Dec. 14	Dec. 23	270
321	I. Tillage, etc., and Fences	Dec. 14	Dec. 19	174
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Dec. 14	Dec. 18	207
332	X. Carriages and Wagons.....	Dec. 14	Dec. 16	180
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 14	Dec. 14	376
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 14	Dec. 14	399
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 14	Dec. 14	237
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Dec. 14	Dec. 14	292
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 14	Dec. 10	304
109	XVI. Telegraphy and Telephony..	Dec. 14	Nov. 28	212
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 14	Oct. 30	426
244	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Dec. 12	Dec. 29	235
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Dec. 12	Dec. 29	210
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 12	Dec. 28	259
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 12	Dec. 28	192
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Dec. 12	Dec. 21	281
308	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 12	Dec. 18	276
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 12	Dec. 8	254
232	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 12	Nov. 25	338
133	XXII. Fire-Arms, Ordnance, Navigation.	Dec. 12	Nov. 11	198

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 12	Oct. 20	383
	Between one and two months.			
327	XVIII. Steam-Engineering, etc...	Dec. 8	Dec. 7	184
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Dec. 5	Dec. 7	422
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 5	Nov. 4	509
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 1	Dec. 7	322
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Nov. 27	Dec. 10	322
128	II. Farm Products, etc., Lubricators, Presses, etc.	Nov. 27	Nov. 14	307
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Nov. 21	Dec. 1	395
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps	Nov. 20	Nov. 6	529
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Nov. 16	Nov. 5	312

Total number of applications awaiting action.....10,347

Under one month.			
*Designs	Jan. 8	Jan. 9	13
†Trade-Marks	Dec. 29	Jan. 11	64
‡Labels and Prints	Jan. 12	Jan. 11	2

Amended Rule 110.

110. Each party to the interference will be required to file a concise preliminary statement, under oath, on or before a date to be fixed by the Office, showing the following facts:

1. The date of original conception of the invention set forth in the declaration of interference.
2. The date upon which a drawing of the invention was made.
3. The date upon which a model of the invention was made.
4. The date upon which the invention was first disclosed to others.
5. The date of the reduction to practice of the invention.
6. A statement showing the extent of use of the invention.
7. The applicant shall state the date and number of any application for the same invention filed within twelve months before the filing date in the United States in any foreign country adhering to the International Convention for the Protection of Industrial Property or having similar treaty relations with the United States.

If a drawing or model has not been made, or if the invention has not been reduced to practice or disclosed to others or used to any extent, the statement must specifically disclose these facts.

When the invention was made abroad the statement should set forth:

1. That the applicant made the invention set forth in the declaration of interference.
2. Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent, the date of publication, and the date of sealing thereof.
3. Whether or not the invention was ever described in a printed publication; if so, when and where, giving the title, place, and date of such publication.
4. Whether or not the invention was ever introduced into this country; if so, giving the circumstances, with the dates connected therewith, which are relied upon to establish the fact.

The preliminary statements should be carefully prepared, as the parties will be strictly held in their proofs to the dates set up therein.

If a party prove any date earlier than alleged in his preliminary statement, such proof will be held to establish the date alleged and none other.

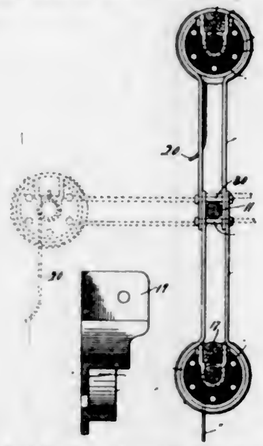
The statement must be sealed up before filing, (to be opened only by the Examiner of Interferences; see Rule 111,) and the name of the party filing it, the title of the case, and the subject of the invention indicated on the envelop. The envelop should contain nothing but this statement.

June 24, 1903.

PATENTS

GRANTED JANUARY 19, 1904.

749,711. HAY-RAKE. HENRY A. ADAMS, Sandwich, Ill. File Aug. 18, 1903. Serial No. 169,873. (No model.)



Claim.—1. In a hay-rake, in combination, a rotatable shaft cross-arms fixed to the shaft, a pair of rake-heads, a pivot-shaft attached to each head and journaled in the cross-arms, means for turning the pivot-shafts relatively as to the first-named shaft, a plate mounted upon each rake-head and having a peripheral face concentric with the pivot-shaft attached thereto, and a strap encircling the two plates.

2. In a hay-rake, in combination, a rotatable shaft, cross-arms fixed to the shaft, a pair of rake-heads, a pivot-shaft attached to each head and journaled in the cross-arms, means for turning the pivot-shafts relatively as to the first-named shaft, a radially-recessed plate mounted upon each rake-head and being concentric with the pivot-shaft attached thereto, and a strap encircling the two plates.

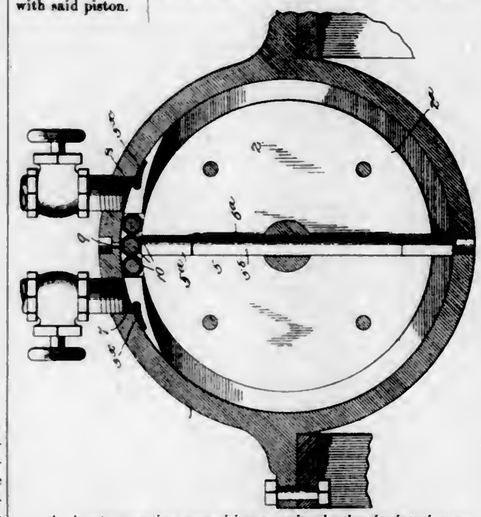
3. In a hay-rake, in combination, a rotatable shaft, cross-arms fixed to the shaft, a pair of rake-heads, a pivot-shaft attached to each head and journaled in the cross-arms, means for turning the pivot-shafts relatively as to the first-named shaft, a plate mounted upon each rake-head and being concentric with the pivot-shaft attached thereto, and a strap comprising two U-shaped members each fitted to one of the plates and having their ends secured together.

749,712. ROTARY ENGINE. CHARLES W. ALLEN, Merriman, Nebr. Filed May 6, 1903. Serial No. 155,914. (No model.)

Claim.—1. A rotary engine comprising a piston carrying a sliding valve and a cylinder having upon its inner surface ledges or ribs arranged on opposite sides of the steam and exhaust ports and adapted to form passages therebetween establishing communication between the cylinder or casing-chamber and said steam-exhaust ports, respectively, said ribs having lateral openings therethrough near their base and standing inward from the lateral edges of said casing or cylinder.

2. A rotary engine comprising a piston carrying a sliding valve, a cylinder or casing having, upon opposite sides of the steam and exhaust ports, ribs or ledges arranged eccentrically with the general outline of the cylinder-chamber, with their opposed ends or edges spaced apart, said ledges or ribs being laterally removed from the corresponding edges of said casing or cylinder and having lateral openings or ports therethrough, near their bases, and steam-tight packing arranged between said spaced-apart ends or edges or ribs.

3. A rotary engine comprising a piston carrying a sliding valve and a casing having upon its inner surface leuges or ribs arranged eccentrically to the general circle or interior of the chamber of said casing, and packing-rolls contacting with each other and hung between the opposite edges or ends of said ledges or ribs, in contact with said piston.



4. A rotary engine comprising a casing having its interior surface provided with ledges or ribs arranged in eccentric lines with the general outline of the chamber of said casing and having arranged between their opposite ends packing-rolls, and a piston carrying a sliding valve, said valve comprising closures or receptacles provided with suitable packing.

5. In a rotary engine, a piston sliding valve comprising a rod or bar and closures or receptacles adapted to receive said bar or rod and supplied with packing.

6. In a rotary engine, a piston-valve comprising a rod or bar and closures or receptacles supplied with packing and having their casings open at one side, said casings receiving the ends of said rod or bar through their bottoms.

7. In a rotary engine, the combination of a series of piston-cylinders and a series of pistons carrying sliding valves each comprising closures containing packing and a rod or bar let into the bottoms of said closures and a series of valved pipes effecting connection between each of said cylinders and with a suitable steam-supply source and adapted to exhaust beyond said series of piston-cylinders.

8. A rotary engine, comprising a piston-cylinder, a valved piston having a sliding valve, comprising a rod and closures containing packing and adapted to receive the ends of said rod, said rod passing through the piston-bearing shaft, steam supply and exhaust pipes, adapted to effect the steam-supply to said piston-cylinder and also to exhaust said steam-supply therefrom upon the completion of the rotation of such piston.

9. In a rotary engine, a piston-cylinder having upon opposite sides of the steam and exhaust ports, ledges or ribs, laterally removed from the corresponding edges of said cylinder and having lateral ports therethrough near their bases, said ledges adapted to form passages therebetween establishing communication between the chamber of said cylinder and said steam and exhaust ports, respectively, steam-tight packing arranged between the opposed ends or edges of said ledges or ribs, a piston carrying a sliding valve adapted to engage said ledges or ribs and packing, and valved steam supply and exhaust pipes communicating with said cylinder-chamber.

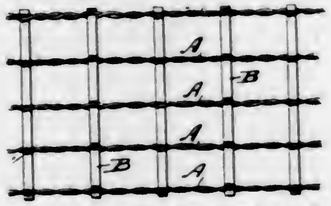
749,713. DEVICE FOR USE IN CONNECTION WITH THE SHARPENING OF LEAD-PENCILS, CRAYONS, OR THE LIKE. FREDERICK E. V. BARNES, Greenwich, England. Filed Sept. 14, 1903. Serial No. 173,143. (No model.)



Claim.—1. A guide for use in connection with sharpening lead-pencils comprising a holder having beaded edges, a longitudinal pencil-groove formed throughout the length of said holder and of a shape and depth approximating to half the diameter of the pencil, a curved knife-blade-guiding surface attached to one end of said holder at an angle therewith adapted to bear on the pencil and having a portion of its surface cut away in order to allow a portion of the end of the pencil equal in length to the length of point produced to project above the surface of said guide the remainder of which presents a broad and smooth surface for the knife to rest upon before the commencement of the cut as well as throughout the length of the same and a transverse stop adapted to form an abutment for the end of the pencil, as set forth.

2. A guide for use in connection with sharpening lead-pencils comprising a holder having beaded edges, a longitudinal pencil-groove formed throughout the length of said holder of a shape and depth approximating to half the diameter of the pencil, a curved knife-blade-guiding surface attached to one end of said holder at an angle therewith adapted to bear on the pencil and having a portion of its surface cut away in order to allow a portion of the end of the pencil equal in length to the length of point produced to project above the surface of said guide the remainder of which presents a broad and smooth surface for the knife to rest upon before the commencement of the cut as well as throughout the length of the same, a transverse stop adapted to form an abutment for the end of the pencil, and a clip sliding on said holder and adapted to engage the guiding-surface and keep it flat in contact with the said holder when not in use, as set forth.

749,714. FENCE. JOHN S. BARNES and CHARLES A. WILLMARTH, Detroit, Mich., assignors, by direct and mesne assignments, to the Majestic Wire Fence Company, Limited, Detroit, Mich. Filed Oct. 6, 1902. Serial No. 126,062. (No model.)

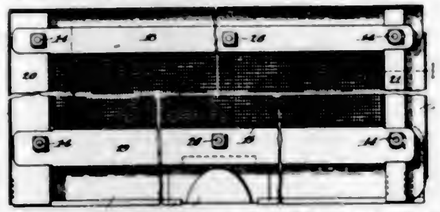


Claim.—A wire fence comprising runners formed of twisted strand-wires, and individual flat metallic stays intersecting the runners, each stay terminating immediately above the top strand-wires and at its point of intersection with each runner being provided with a single offset portion forming broad, flat bearing-surfaces for the strands, one strand of each runner passing through the offset portion of one stay and externally across the corresponding offset portion of the adjacent stay and in contact with the straight upright portion thereof, and the other strand passing externally across the first-mentioned offset portion and in contact with the upright portion thereof, and then through the offset portion of said next adjacent stay, said strands contacting with the straight upright portions of the stays to prevent twisting of the latter.

749,715. METAL WINDOW-SCREEN. SIMON W. BENSON, Denver, Colo. Filed Mar. 19, 1903. Serial No. 148,581. (No model.)

Claim.—1. A screen-frame having opposing frame members provided with inwardly-extending overlapping adjacent flanges between which screen material may be engaged, and means for adjusting the members to move the flanges thereof in parallel planes.

2. A frame comprising primary rail members having inner clamping edges folded transversely, opposing rail members having inner clamping edges correspondingly folded transversely and engaging said primary rails in the rear of the fold thereon, the screen material held between said adjacent folded edges, and clamping means connecting said rail members, substantially as described.



3. A frame comprising primary rail members having the inner clamping edges folded transversely, opposing rail members having both edges folded transversely and disposed with one of the folded edges engaging said primary rails adjacent to the folded edges thereof and with the other folded edges engaging the body portions of the primary rails, screen material held between said adjacent folded edges, and clamping means connecting said rail members, substantially as described.

4. A frame comprising primary rail members overlapping at the ends and formed into a rectangular frame, each rail member having its inner edge folded transversely, opposing rail members overlapping at the ends and having their edges reversely folded transversely and engaging said primary rail members with the folded edges thereof adjacent to the folded edges of the primary rail members, the screen material held between said rail members, and holding means connecting said rail members at their ends, substantially as described.

5. A frame comprising primary rail members overlapping at the ends and formed into a rectangular frame, each rail member having its inner edge folded transversely, opposing rail members overlapping at the ends and having their edges reversely folded transversely and engaging said primary rail members with their folded edges adjacent to the folded edges of the primary rail members, the screen material held between said rail members, a plurality of said rail members having elongated apertures at their crossing-points, and holding bolts through said apertures, whereby said screen-frame is laterally adjustable, substantially as described.

6. A frame comprising primary rail members having their ends rounded and overlapping and formed into a rectangular frame, each rail member having its inner edge folded transversely, opposing rail members overlapping at the ends and having their edges reversely folded transversely and engaging said primary rail members with their folded edges adjacent to the folded edges of the opposing rail members, the screen material held between said rail members, and holding means connecting said rail members at their ends, substantially as described.

7. In a screen-frame, a primary rail member having a centrally-disposed transverse aperture and with its inner edge folded transversely and with its outer edge folded into alinement with the body of the rail, an opposing rail member having its edges folded transversely and engaging said primary member, the screen material held between said rail members, a shield over said aperture and held in position with one edge between said rail members and the other edge supported by said folded edge of said primary rail member, substantially as described.

8. A frame comprising primary rail members having inner clamping edges folded transversely, opposing rail members having inner edges reversely folded transversely and engaging said primary rails, the screen material held between the adjacent folded edges, clamping-bolts connecting said rail members at their crossing-points, loops connected to said bolts and extending therefrom, and holding-pins extending from the window-frame and detachably engaging said loops, substantially as described.

9. A frame comprising primary rail members having inner clamping edges folded transversely, opposing rail members having inner edges reversely folded transversely and engaging said primary rails, the screen material held between the adjacent folded edges, clamping-bolts connecting said rail members at their crossing-points, spring-clips connected to said bolts, and stop-pins extending from the window-frame and yieldably engaged by said clips, substantially as described.

10. A frame comprising primary rail members having inner clamping edges folded transversely, opposing rail members having inner edges reversely folded transversely and engaging said primary rails, the screen material held between the adjacent folded edges, clamping-bolts connecting said rail members at their crossing-points,

spring-clips formed of a single piece of wire bent to shape and with a loop at one end connected to said bolts and with a loop at the other end yieldably engaging a stop-pin extending from the window-frame and with spring-coils between the looped ends, substantially as described.

749,716. RAIL CONTACT-SHOE. GEORGE W. BRADY and LAWRENCE R. JONES, Wheaton, Ill. Filed Jan. 26, 1903. Serial No. 140,468. (No model.)



Claim.—1. In combination with a conductor-rail having a head rounded at its upper corners, a rail contact-shoe comprising a body member having depending divergent sides arranged to make tangential contact with the rounded corners of the rail-head and to extend above its point of contact with the rail.

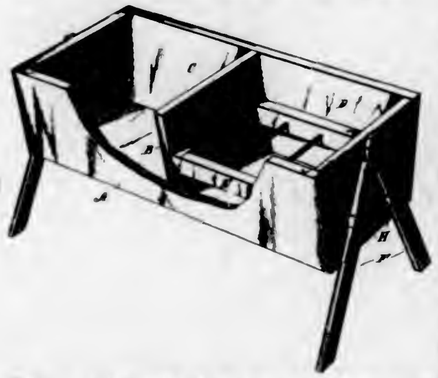
2. In a rail contact-shoe of the character described, contact members arranged for contact with corners of the rail-head, and a removable contact-block arranged between said members for contact with a flat surface of the rail.

3. In a contact-shoe of the character described, a body portion having divergent depending sides, adapted to contact with the corners of the rail, and a contact-block removably mounted in said body intermediate the depending sides thereof, and adapted for contact with the top of the rail.

4. In a contact-shoe of the character described a longitudinally-extended body portion comprising depending divergent side pieces adapted to partially embrace the rail-head, and contact-strips carried by said side pieces adapted for contact with the upper corners of said rail-head.

5. In a contact-shoe of the character described, a body portion of inverted-U shape in cross-section, provided with depending sides adapted to partially embrace the rail-head, sectional removable contact-strips secured to the inner surfaces of said sides for contact with the corners of the rail, and a removable contact-block secured to said body intermediate the strips and adapted for contact with the top of the rail.

749,717. FEED-TROUGH. THEOPHILUS L. CARPENTER, Hustonville, Ky. Filed June 29, 1903. Serial No. 163,646. (No model.)



Claim.—1. A feed-trough of the character described having separate feed-receptacles for a horse and colt, and a grating in the colt's receptacle having spaces to admit the colt but not the horse.

2. A feed-trough of the character described having a partition dividing it into separate feed-receptacles for a horse and colt, and a removable grating closely fitted in the colt's receptacle having spaces to admit the colt but not the horse.

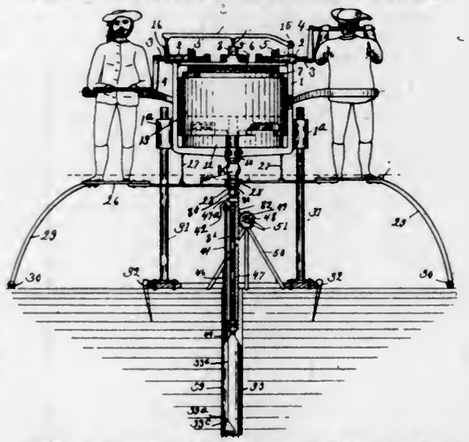
3. A feed-trough of the character described having separate feed-receptacles for a horse and colt, and a removable grating fitted within the colt's receptacle near the bottom thereof and having spaces to admit the colt but not the horse.

4. A feed-trough of the character described consisting of a rectangular box or receptacle having downwardly-converging front and back members and a partition dividing it into separate feed-boxes or compartments for a horse and colt, and a removable grating in the colt's receptacle comprising a frame fitted therein with its front and back sides similarly downwardly inclined and bars or rods forming spaces to admit the colt but not the horse.

5. As a new article of manufacture, a feed-trough of the character described having separate feed-compartments for a horse and colt, with a removable grating in the colt's compartment having spaces to admit the colt but not the horse, and detachable supporting-legs for said trough.

6. As a new article of manufacture, a feed-trough of the character described having separate feed-compartments for a horse and colt, with a removable grating in the colt's compartment having spaces to admit the colt but not the horse, and the herein described detachable supporting-legs, two at each end diverging downwardly, a sleeve into which the upper ends of each pair of legs are inserted together, and lower obliquely-disposed sleeves in which the legs are separately fitted.

749,718. PROSPECTING INSTRUMENT. MILTON CHASE, Haverhill, Mass. Filed Apr. 30, 1902. Serial No. 105,261. (No model.)



Claim.—1. A prospecting instrument comprising a boring-tool having a pair of liquid-tight passages connected at the lower end of the tool, and extending longitudinally thereof, means for operating said tool, a reservoir and means for circulating heated liquid through said reservoir and passages, substantially as described.

2. A prospecting instrument comprising a boring-tool having a cutting edge at its lower end, two liquid-tight passages which extend longitudinally of said tool and are connected at their lower ends closely adjacent said cutting edge, a reservoir into which both said passages lead, means for operating said tool, and means for circulating heated liquid through said reservoir and passages, substantially as described.

3. A prospecting instrument comprising a shaft having two liquid-tight passages which extend longitudinally thereof, a boring-tool which is connected to said shaft and is provided with passages which are respectively connected with the passages therein, said passages being connected near the cutting edge of the tool, a fluid-containing reservoir, means for heating the same, connections between said reservoir and the passages of said shaft, means for circulating heated liquid through said reservoir and passages, and means for rotating said shaft, substantially as described.

4. A prospecting instrument comprising a shaft having two passages which extend longitudinally thereof, a tool which is connected to one end of said shaft, said tool having passages which register with the passages of said shaft and are connected at the cutting end of said tool, a liquid-containing tank which is borne by said shaft and is connected to the passages therein, a pump for forcing the liquid into one of said passages and for causing the same to be discharged back into the tank through the other passage, means for rotating said shaft and for simultaneously operating said pump, substantially as described.

5. A device of the character described comprising a frame, a pair of driving-shafts journaled thereon, a tubular shaft which is journaled in said frame and is operatively connected with said driving-shafts and has a pair of liquid-passages therein, a tool which is connected to said shaft and is provided with a pair of liquid-passages which are respectively connected with the passages of said shaft, a liquid-containing tank which is carried by said shaft and is connected to the passages thereof, a pump which is operated by one of said driving-shafts and circulates the liquid in said tank through said passages, and means for heating said liquid, substantially as described.

6. A device of the character described comprising a frame, a pair of platforms which are flexibly connected to said frame at their adjacent ends, a supporting-leg for the opposite ends of each platform, a pair of driving-shafts which are journaled in said frame having cranks, an upright shaft which is journaled in said frame and is provided with a boring-tool at its lower end, and suitable connections between said upright shaft and said driving-shafts whereby the upright shaft may be rotated, substantially as described.

7. A device for the purpose described, comprising a frame, a pair of oppositely-arranged platforms which are flexibly connected to said frame at adjacent ends, supporting-legs which are connected to the opposite ends of said platforms, a pair of horizontal driving-shafts which are journaled in said frame having suitably-arranged cranks, an upright shaft which is journaled in said frame and is operatively connected with said driving-shaft, a boring-tool which is connected to said upright shaft, and arms which are rigidly connected with said frame and extend to one side of said platforms between the platforms and the cranks, substantially as described.

8. A device of the character described comprising a frame, a tubular shaft which is journaled in said frame and is provided with a pair of longitudinally-extending passages, means for closing both of said passages, a liquid-containing tank which is connected to said passages, means for heating the liquid in said tank, a boring-tool connected to said shaft beyond said closing means and provided with a pair of circulating-passages which extend to the upper end thereof, said passages registering with the passages of said shaft, means carried by said frame for rotating said tubular shaft, and means for conducting the liquid in said tank through said passages and returning the same thereto, substantially as described.

9. A device for the purpose described comprising a boring-tool having an earth-receiving recess, means for rotating the same, means for removing the borings of said tool comprising a tube open at its lower end and arranged in said recess, a flexible plate arranged to slide within said tube and connected to one side thereof, means for reciprocating said plate which extends upwardly from said tube, means for bending said blade to an oblique position as it is forced downwardly to thereby close the lower end of said tube, and means for lifting said tube out of said earth-receiving recesses, substantially as described.

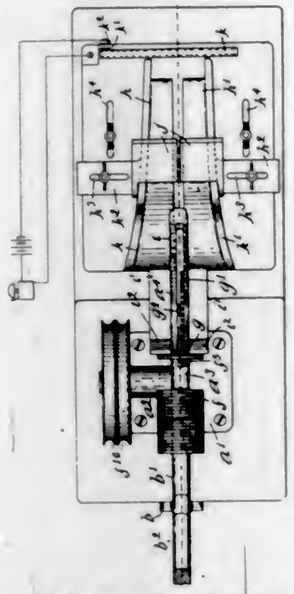
10. A device of the character described comprising a frame, an upright tool-carrying shaft which is journaled and held against longitudinal movement therein, a pair of oppositely-arranged platforms which are flexibly connected to said frame at adjacent ends, a supporting-leg for the opposite end of each platform, and means connected to said shaft for operating the same, substantially as described.

11. A device of the character described comprising a frame, an upright tool-carrying shaft which is journaled and held against longitudinal movement therein, a pair of platforms which are flexibly connected at adjacent ends to said frame, means for rotating said upright shaft, and means for guiding said frame in a direction parallel to the axis of said shaft, substantially as described.

12. A device for the purpose described comprising a vertically-movable frame, an upright shaft journaled therein, means for rotating said shaft, a boring-tool connected with the lower end of said shaft, a horizontally-arranged gear which is connected to said shaft, a pair of driving-shafts which are journaled in said frame and are provided with gears which mesh with said horizontal gear, cranks which are connected to the outer ends of said driving-shafts, a pair of platforms which are flexibly connected to said frame at their adjacent ends and are arranged beneath said cranks, a pair of legs which are connected to the opposite ends of said platforms, and curved arms which are connected to each side of said frame and extend to one side of each platform between the platforms and the cranks, substantially as described.

749,719. **MACHINE FOR FEEDING WELTS.** GEORGE D. CLAPP, Boston, Mass. Filed Mar. 30, 1903. Serial No. 150,086. (No model.)

Claim.—1. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof, but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a guideway, an intermediate runway between said auxiliary runway and guideway, and means for removing the endmost welt from the auxiliary runway and for moving it along said intermediate runway and for delivering it to the guideway, substantially as described.



2. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof, but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a guideway, an intermediate runway between said auxiliary runway and guideway, and means for removing the endmost welt from the auxiliary runway and for moving it along said intermediate runway and for delivering it to the guideway, substantially as described.

3. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof, but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a curved runway at the termination of said auxiliary runway and means for removing the endmost welt from the auxiliary runway, and for moving it along said curved runway, substantially as described.

4. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a curved runway at the termination of said auxiliary runway, a circularly-moving pick-off device for removing the endmost welt from the auxiliary runway, and for moving it along said curved runway, substantially as described.

5. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a guideway, an intermediate runway between said auxiliary runway and guideway, and means for removing the endmost welt from the auxiliary runway, and for moving it along said intermediate runway and for delivering it to the guideway, and means for turning the welt over endwise located between said intermediate runway, and the guideway, substantially as described.

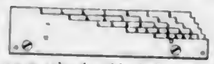
6. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a slotted runway at the termination of said auxiliary runway, a pick-off device working in the slot in said runway for removing the endmost welt from the auxiliary runway and for moving it along said slotted runway, substantially as described.

7. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a curved slotted runway at the termination of said auxiliary runway, a circularly-moving pick-off device working in the slot in said runway for removing the endmost welt from the auxiliary runway and for moving it along said slotted runway, substantially as described.

8. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a guideway, an intermediate runway and means for removing the endmost welt from the auxiliary runway and for moving it along said intermediate runway and for delivering it to the guideway, and an obliquely-disposed shield for directing the welt to said guideway, substantially as described.

9. In a welt-feeding device, the combination of a downwardly-inclined main runway, a downwardly-inclined auxiliary runway in continuation thereof but at a higher elevation, a welt-lifting device located at the junction of said runways, means for operating it, a guideway, an intermediate runway and means for removing the endmost welt from the auxiliary runway and for moving it along said intermediate runway and for delivering it to the guideway, and an indicating device located at the termination of said guideway for indicating when more than one welt passes along said guideways, substantially as described.

749,720. **JUSTIFYING MECHANISM.** FRANCIS B. CONVERSE, Jr., Louisville, Ky., assignor to the Converse Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 19, 1899. Serial No. 727,749. (No model.)



Claim.—1. A space-selecting block for a justifying mechanism composed of a plurality of series of steps, the first step measured from a given datum-line being of different lengths in the different series, which length is defined by the following mathematical relation, namely: the number of the particular series in which the step is located, plus the product of the difference between the maximum number of spaces in the line which the machine may justify and the number of the particular series, multiplied by the difference between the thickness of the temporary space and the thickness of the thinnest permanent space.

2. A space-selecting block for a justifying mechanism composed of a plurality of series of steps, the difference in length in units of the beginning steps of consecutive series being a constant which is one less than the difference between the thickness of the temporary space and the thickness of the thinnest permanent space.

3. A space-selecting block for a justifying mechanism composed of a plurality of series of steps, the first step measured from a given datum-line being of different length in the different series, which length is defined by the following mathematical relation, namely: the number of the particular series in which the step is located, plus the product of the difference between the maximum number of spaces in the line which the machine may justify and the number of the particular series, multiplied by the difference between the thickness of the temporary space and the thickness of the thinnest permanent space, combined with mechanism for measuring the amount which a given line of type and temporary spaces is less than a certain definite distance, which distance is the same for all lines for the same column and is equal to the width of the column plus the maximum number of spaces in the line which the machine may justify multiplied by the difference between the thickness of the temporary space and the thickness of the thinnest permanent space.

4. In a type-justifying mechanism, mechanism for measuring the amount which a given line of type and temporary spaces is less than a certain definite distance which distance is the same for all lines for the same column and is equal to the width of the column plus the algebraic excess of the aggregate thickness of the maximum number of temporary spaces over the aggregate thickness of the maximum number of the thinnest size of permanent spaces, combined with a selecting-block which governs the size of permanent spaces selected and which is shifted relative to its connection therewith under two influences, one of which is the above-mentioned absolute measurement not eliminating the temporary spaces and another of which is the number of spaces in the line, said selecting-block being composed of a plurality of series of steps the first step measured from a given datum-line being of different length in the different series, which length is defined by the following mathematical relation, namely: the number of the particular series in which the step is located, plus the product of the difference between the maximum number of spaces in the line which the machine may justify and the number of the particular series, multiplied by the difference between the thickness of the temporary space and the thickness of the thinnest permanent space.

5. A mechanism for justifying a line of type having interspersed temporary spaces, which includes a wedge which moves until stopped by compacting the line and thereby measures the amount which such composite line is less than a certain definite distance which definite distance is equal to the length the line is to be when justified plus the algebraic excess of the aggregate thickness of the maximum number of temporary spaces which the machine will justify over the aggregate thickness of the maximum number of the thinnest size of permanent spaces, and mechanism for causing this measurement to vary selecting mechanism, whereby when another variation according to the number of spaces has been given the proper size of permanent space is selected.

6. In a mechanism for justifying type, a wedge which moves until stopped by compacting the line against a stop which is rigid during the justification of one line, combined with said stop which is distant from the initial effective position of the wedge a distance equal to the length which the line is to be when justified plus the algebraic excess of the aggregate thickness of the maximum number of temporary spaces the machine may justify over the aggregate thickness of the maximum number of the thinnest size of permanent spaces, combined with space-selecting mechanism governed by said wedge.

7. In a justifying mechanism, in combination, measuring mechanism including a wedge for measuring the distance which a given composite line of type and temporary spaces is less than a definite distance which definite distance is equal to the length the line is to be when justified plus the algebraic excess of the aggregate of the thinnest size of permanent space, a case of permanent spaces, and a cooperating space-selecting block moved with relation to its connection with the permanent space-case according to the mechanism just mentioned and according to the number of spaces to be justified for selecting the proper size of permanent space, said space-selecting block being composed of a plurality of series of steps, the difference in length in units of the beginning steps of consecutive series being a constant which is one less than the difference between the thickness of the temporary space and the thickness of the thinnest permanent space.

749,721. **BUTTONHOLE-SEWING MACHINE.** CHARLES A. DAHL, Boston, Mass., assignor to the Reece Buttonhole Machine Company, Portland, Me. Filed Dec. 24, 1902. Serial No. 136,433. (No model.)

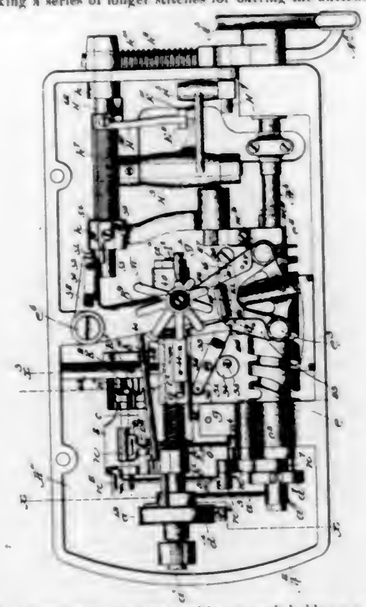
Claim.—1. In a buttonhole-stitching machine, a work-holder, a screw to move said holder, means to rotate said screw in one and then in an opposite direction, and means to move the work-holder laterally for the production of barring-stitches.

2. In a buttonhole-stitching machine, a needle-bar having a thread-carrying needle, a work-holder, means for reciprocating and laterally vibrating said needle-bar, two oscillating loopers, means to move the same in a vertical plane at right angles to the length of the buttonhole that said loopers may enter alternately loops of thread at the side of said needle, each looper as it retires from a loop of needle-thread holding and spreading the same for the entrance of the needle at its next descent, a work-holder, means to move it longitudinally while stitching one side of the buttonhole, independent means for moving the work-holder laterally for a plurality of strokes while barring-stitches are being made, said means leaving the work-holder in position at the end of said lateral movement to be again moved longitudinally in a path however to enable the material to receive overedge-stitches for the opposite side of the buttonhole.

3. A buttonhole-stitching machine comprising a needle-bar and needle, two independent oscillating loopers, a work-holder, a screw means to actuate said screw to move the work-holder longitudinally in opposite directions, means to move the holder laterally for a plurality of times between the completion of the stitches forming one side of the buttonhole and the commencement of the stitches for forming the other side thereof, that the buttonhole may be barred.

4. In a buttonhole-stitching machine, stitch-forming mechanism to make a series of stitches for the production of the opposite edges of a buttonhole, a work-holder, means to move the same longitudinally while stitching the side edges of the buttonhole, a spring-controlled device acting normally to move said work-holder in a direc-

tion at right angles to the length of the buttonhole, a cam having a series of high points and depressions, means to move said cam after the completion of the stitching of one side of a buttonhole, and means intermediate said cam and work-holder and moved by said cam to move the work-holder in opposition to said spring-controlled device while making a series of longer stitches for barring the buttonhole.



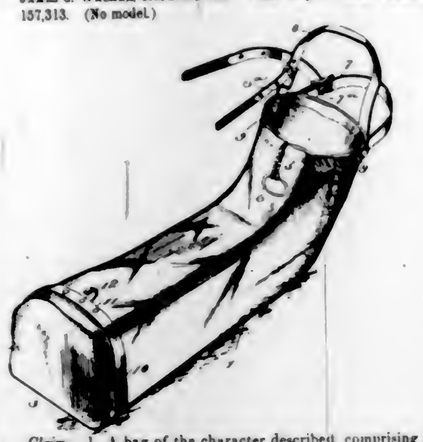
5. In a buttonhole-stitching machine, a work-holder, a needle-bar having a needle, means to move said needle-bar and needle both vertically and laterally, two oscillating loopers, and actuating means therefor, said loopers having their points facing and moving in a vertical circular path substantially parallel to the path of movement of the needle in its lateral stroke, said loopers acting alternately to engage the loops of needle-thread in the line of the depth and the edge stitches, each looper holding the loop of needle-thread entered by it until the needle at a subsequent descent enters said loop.

6. In a buttonhole-stitching machine, stitch-forming mechanism to form a series of overedge-stitches, a work-holder, a screw to move said work-holder, means to rotate said screw in one and then in an opposite direction to move the work-holder in the direction of the length of the buttonhole, means to stop the rotation of said screw at the end of each longitudinal movement of the work-holder, means to move the work-holder to and fro laterally for a plurality of times when the said screw is at rest while barring-stitches are being made, and means to shift the position of the work-clamp laterally that after the barring-stitches have been completed the work-holder in its return movement will present the work to the stitch-forming mechanism to make stitches for the opposite side of the buttonhole.

7. A work-holder having at its sides near its lower end parallel walls 40, 41, a spring-controlled device bearing against one of said walls, a lever bearing at one end against the other of said walls and having a projection, combined with a block having a plurality of high points and depressions to act successively on the projection of said lever to move it and the work-holder in opposition to the action of said spring-controlled device for a plurality of times, said block being then stopped and holding said lever in position to act as a guide for the work-holder as the latter is moved longitudinally.

8. In a machine for stitching buttonholes, a needle-bar, means to actuate it, complemental means coacting therewith for making a series of overedge-stitches, a work-holder pivoted above the needle-bar, a connection jointed to the lower end of the work-holder, means to move said connection and the work-holder longitudinally in one and then in the opposite direction to present the work to the needle while making stitches for one and then for the opposite side of the buttonhole, a spring-controlled device acting against the lower end of said work-holder at one side thereof, a lever acting against the other side of said work-holder, and a cam to move said lever intermittingly for a plurality of times and turn said connection on its moving means to effect a lateral movement of said work-holder at the completion of the stitching of each side of the buttonhole, to enable a plurality of barring-stitches to be made at each end of the buttonhole.

749,722. COTTON-PICKER'S BAG. FRANCIS M. DALTON and JAMES G. WALKER, Mardock, Okla. Filed May 15, 1903. Serial No. 157,313. (No model.)

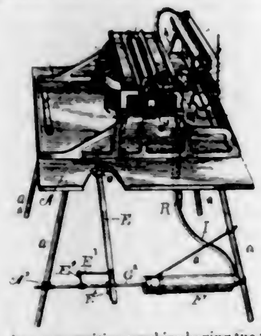


Claim.—1. A bag of the character described, comprising sides and bottom and adapted to be dragged upon the ground, said bag having one of the aforesaid sides cut away, and a protector-plate of sheet material secured to the cut-away side of the bag and extending the entire width and approximately the length thereof, said protector-plate having the rear and side edges upturned upon the body of the bag.

2. A bag of the character described having a protector extending longitudinally on one side thereof and approximately the length of the bag, a reinforcing-strip disposed at the rear end of the bag and secured at its ends to the edge portions of the protector, said rear reinforcing-strip embracing the body of the bag opposite the protector.

3. In a bag of the character described, having a side cut away, a protector of sheet material secured to the bag upon the cut-away side thereof and forming a side of the bag, a draw-string for closing the mouth of the bag, waist and shoulder straps secured to the bag adjacent the mouth thereof, a reinforcing-strip located at the rear end of the bag and embracing the same upon the side opposite the protector, a plate secured to the rear end portion of the bag adjacent the reinforcing-strap, a hook projected from the plate, and a ring secured to the draw-string and adapted for engagement with the aforesaid hook.

749,723. CARRIAGE-RETURN FOR TYPE-WRITERS. DOUGLAS S. DUFUR, The Dalles, Oreg. Filed Feb. 28, 1903. Serial No. 145,607. (No model.)



Claim.—1. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, and constructed to be moved rearwardly without affecting the pressure in said first cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

2. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, and constructed to be moved rearwardly without affecting the pressure in said first cylinder, means constructed to permit the piston in said first cylinder to be returned without affecting the pressure in its cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

3. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, a valve device constructed and arranged to permit the return of said second piston in its cylinder without affecting the pressure in the first cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

4. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, a valve device constructed and arranged to permit the return of said second piston in its cylinder without affecting the pressure in the first cylinder, means constructed to permit the piston in said first cylinder to be returned without affecting the pressure in its cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

5. In a type-writing machine having the usual carriage, the combination of pneumatically-actuated means arranged to return the type-writer carriage to position for beginning a line of type-writing, a pneumatic cylinder arranged in communication with said pneumatically-actuated means, a piston-rod carrying two abutments and provided with a bore-opening adjacent said abutments, a piston in said cylinder slidably mounted on the piston-rod between said abutments, and means arranged to operate said piston-rod and piston, substantially as described.

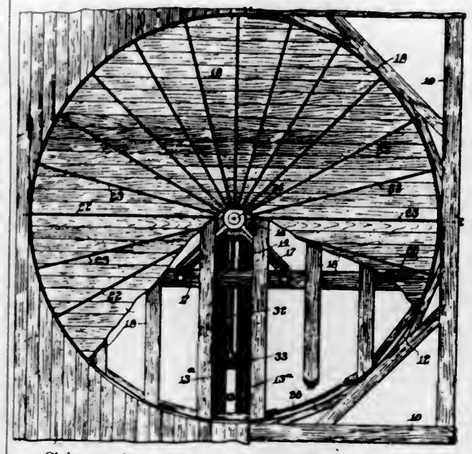
6. In a type-writing machine having the usual carriage, the combination of a cylinder and its piston, means arranged to connect said piston to the type-writer carriage, said means including a spring-bar, a second cylinder arranged in communication with the first cylinder, a piston in the second cylinder, and means arranged to operate said second piston, substantially as described.

7. In a device of the character described, the combination with a reciprocable member movable in one direction by the writing mechanism, of a cylinder, a piston movable in the cylinder and arranged to move said member in the opposite direction, a second cylinder having an axial aperture, a piston in said latter cylinder, a piston-rod in said latter cylinder passing through said apertured portion of the piston, two abutments on said piston-rod, one arranged on each side of said piston, said piston-rod having an axial aperture and radial apertures from said aperture arranged between said abutments, a pipe affording communication between the said cylinders, and means for operating the piston-rod in said second cylinder by the leg of the operator, substantially as described.

8. In a type-writing machine having the usual carriage and platen, the combination of a cylinder, its piston and piston-rod, a toothed wheel arranged to be secured to the type-writer platen, a shaft carrying a pawl in engagement with said toothed wheel, a crank secured on said shaft, a spring-bar connecting said crank and piston-rod, a second cylinder in communication with the first cylinder, a piston in said second cylinder, and means arranged to operate said second piston, substantially as described.

9. In a type-writing machine having the usual carriage and platen, the combination of a cylinder, its piston and piston-rod, a toothed wheel arranged to be secured to the type-writer platen, a shaft carrying a pawl in engagement with said toothed wheel, an adjustable stop arranged to limit the rotation of said shaft, a crank secured on said shaft, a spring-bar connecting said crank and piston-rod, a second cylinder in communication with the first cylinder, a piston in said second cylinder, and means arranged to operate said second piston, substantially as described.

749,724. TURN-TABLE. STERLING ELLIOTT, Newton, Mass. Filed June 3, 1903. Serial No. 159,901. (No model.)



Claim.—1. In a turn-table, the combination of a platform, a center support therefor, a center pintle to register said platform, stay-rods for the lower end of said pintle, and means for adjusting the position of said rods.

2. In a turn-table, the combination of a platform, a center support therefor, a center pintle to register said platform, a bearing for the lower end of said pintle, and means for adjusting the position of said bearing.

3. In a turn-table, the combination of a platform, a center support therefor, a center pintle to register said platform, a bearing for the lower end of said pintle, a support for said bearing arranged to permit a variation in the axis thereof, and means for adjusting the position of said support.

4. In a turn-table, the combination of a revoluble platform, a depending rim from said platform, and a trough beneath said depending rim.

5. In a turn-table, the combination of a platform, a center support therefor, mechanism supporting said platform and upon which it may be revolved about said center support, and a trough under the edge of said platform.

6. In a turn-table, the combination of a revoluble platform, a center support therefor, a center pintle to register said platform, a hole in the center pintle adapted to drain the platform, and means for supporting and bracing the lower end of said center pintle.

7. In a turn-table, the combination of a revoluble platform, a depending rim from said platform, a trough beneath said depending rim, and grooves in the upper surface of said platform inclining toward the edge thereof.

8. In a turn-table, the combination of a revoluble platform, a center support therefor, a center pintle to register said platform, a hole in the center pintle adapted to drain the platform, radial grooves in the upper surface of said platform inclining toward a central hole therein, and an adjustable support for the lower end of said center pintle.

9. In a turn-table, the combination of a revoluble platform, a depending rim therefrom, a trough beneath said depending rim, a center pintle to register said platform, a hole in the center pintle adapted to drain the platform, and two series of radial grooves in the upper surface of said platform, one series inclined toward a central hole therein and the other toward the edge thereof.

10. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a pair of parallel cross-beams secured to said framework, a center pintle, a base-plate of small diameter about said pintle secured to said cross-beams, and a series of antifriction members interposed between said base-plate and said platform.

11. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a pair of parallel cross-beams

secured to said framework, a center pintle secured to said framework to register said platform, and a series of antifriction supporting members for said platform mounted upon said cross-beams about said pintle and in close proximity thereto.

12. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a diametrical support secured to said framework, a base-plate of small diameter mounted upon said diametrical support beneath the center of said platform, and antifriction members interposed between said platform and said base-plate.

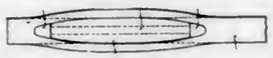
13. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a diametrical support secured to said framework, a center plate for said platform mounted upon said diametrical support, antifriction members interposed between said plate and platform, a center pintle to register said platform, and means for supporting the lower end of said center pintle secured to said surrounding framework.

14. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a diametrical support secured to said framework, a center plate for said platform mounted upon said diametrical support, antifriction members interposed between said plate and said platform, a center pintle to register said platform, a bearing for the lower end of said pintle, and means for adjusting the position of said bearing.

15. In a turn-table, the combination of a revoluble platform, a center support therefor, a framework surrounding said platform, a center pintle to register said platform and secured to said framework, and a bearing for the upper end of said pintle secured to the under side of said platform.

16. In a turn-table, the combination of a revoluble platform, a framework surrounding said platform, a center pintle to register said platform, a bearing for the lower end of said pintle, a support for said bearing arranged to permit a variation in the axis of said bearing, and means for adjusting the position of said support.

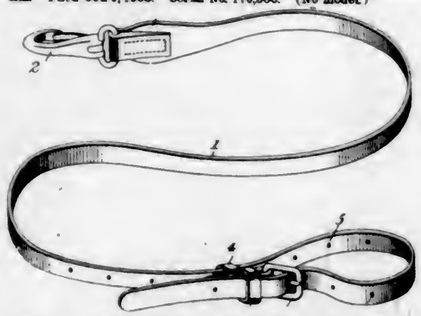
749,725. METHOD OF PRODUCING HEDDLES. WILLIAM FENN, Philadelphia, Pa. Filed Oct. 22, 1903. Serial No. 178,011. (No model.)



Claim.—1. The method of producing heddles, which consists in forming in a thin, flat narrow strip of metal a mortise or slot by slitting the metal and swaging the metal adjacent to the slit so as to expand the slit into a mortise or slot having a fin of swaged metal, substantially as and for the purposes described.

2. The method of producing heddles, which consists in forming in a thin, flat narrow strip of metal an eye or opening by slitting the metal and in then swaging the metal surrounding the slit to thereby expand the slit into an eye or opening surrounded by reinforced bearing-surfaces formed by a thin fin of swaged metal, substantially as and for the purposes described.

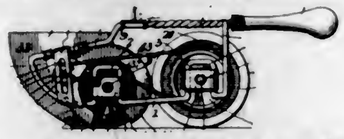
749,726. HITCHING-STRAP. EDWARD J. FENN, New Decatur, Ala. Filed Oct. 9, 1903. Serial No. 176,380. (No model.)



Claim.—1. The herein-described hitching device, consisting of a strap or band adapted to be connected at one end to the animal to be hitched and having a portion thereof increased in width, and a fastening device connected to said strap or band by a slide that is movable over the relatively narrow sections of said strap and will be held from movement when engaged with the wider section thereof.

2. The herein-described hitching device, consisting of a strap or band having a plurality of apertures formed therein and adapted to be connected at one end to the animal to be hitched, said strap being increased in width between said end and the series of apertures formed in its body, and a buckle secured to the strap by a slide that is movable freely over the apertured part of the strap, whereby the tongue thereof can enter either of said apertures, and said slide is adapted to be held from movement when engaged with said wider section of the strap.

749,727. HORSE-CLEANER. GEORGE R. FREDERICK, Hamler, Ohio. Filed June 1, 1903. Serial No. 159,662. (No model.)



Claim.—1. In a horse-cleaning device, a bent-wire frame, the sides of which are provided with loops for the mounting of a rotary brush and a traction-roller, straight portions spaced by a flanged plate, and intertwisted ends, in combination with a handle engaging said intertwisted ends.

2. In a horse-cleaning device, a frame having U-shaped loops, in combination with a revoluble member having a shaft, boxings upon the ends of said shaft, and means for connecting said boxings with said U-shaped loops.

3. In a horse-cleaning device, a frame having U-shaped loops, a revoluble member having a shaft, boxings upon the ends of said shaft engaging said U-shaped loops, and flanged plates exteriorly engaging said U-shaped loops and having perforations for the passage of the ends of the shafts.

4. In a horse-cleaning device, a frame having U-shaped loops, a revoluble member having a shaft, boxes upon the ends of said shaft containing antifriction-balls and engaging said U-shaped loops, flanged clip-plates exteriorly engaging said loops and having openings through which the ends of the shaft extend, and shaft-retaining means engaging the outer sides of said clips.

5. In a horse-cleaning device, a traction-roller having an inflatable tire adapted to yield by contact with the body of the animal.

6. In a horse-cleaning device, an inflatable traction-roller.

7. In a horse-cleaning device, a traction-roller having an inflatable peripheral covering.

8. In a horse-cleaning device, a traction-roller having a flat inflatable tubular tire.

9. In a horse-cleaning device, an inflatable traction-roller, a revoluble brush, and means for transmitting motion to the latter from the former.

10. In a horse-cleaning device, the combination of a frame, a revoluble brush member and a dust-receptacle having flanged ends forming guards for the ends of the revoluble brush, and a curved rear wall extending partially around and forming a shield for said brush member, said wall extension being connected with the flanges of the end pieces to form a brush-casing.

11. In a horse-cleaning device having a revoluble brush member and a dust-box provided with a slot for the ingress of dust, &c., a brush-cleaning device composed of a plurality of blades spaced apart and extending through the slot of the dust-receptacle into engagement with the bristles of the revoluble brush member.

12. In a horse-cleaning device of the class described, a brush-cleaner consisting of an approximately triangular bar having a convex side engaging the brush and provided with incisions forming a plurality of spaced blades.

13. In a horse-cleaning device having a revoluble brush member, a brush-cleaner comprising in its construction a plurality of approximately triangular blades suitably connected and spaced.

14. In a horse-cleaning device having a revoluble brush member, a brush-cleaning device comprising a plurality of approximately triangular blades, suitably spaced and connected and having curved sides engaging the bristles of the brush member throughout the greater portion of their lengths.

15. In a horse-cleaning device, a dirt-loosening device comprising a plurality of revoluble disks.

16. In a horse-cleaning device, a plurality of dirt-loosening disks revolubly mounted upon a shaft.

17. In a horse-cleaning device, a plurality of dirt-loosening disks mounted revolubly upon a shaft at an angle to the path of progress of the device.

18. In a horse-cleaning device, a revoluble brush member, a plurality of dirt-loosening disks mounted revolubly upon a shaft at an angle to the axis of the revoluble brush member.

19. In a horse-cleaning device having a revoluble brush member, a plurality of dirt-loosening disks mounted upon a shaft, said shaft being at an angle to the axis of the revoluble brush member.

20. In a horse-cleaning device having a revoluble brush member, an angular shaft and a plurality of dirt-loosening disks mounted revolubly upon said angular shaft.

21. In a horse-cleaning device having a revoluble brush member, an angular shaft and a plurality of dirt-looseoing disks mounted revolubly upon said angular shaft, said disks increasing in diameter from the outer ends of said shaft toward the central portion of the same.

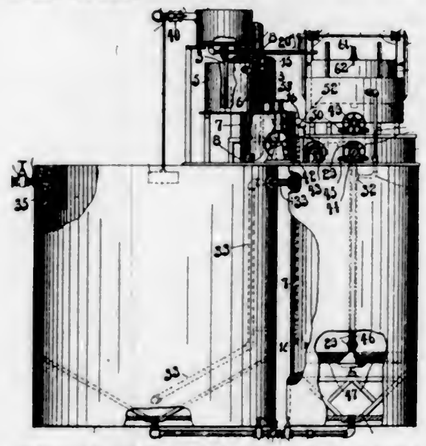
22. In a horse-cleaning device, a plurality of revoluble dished dirt-loosening disks.

23. In a horse-cleaning device, a plurality of revoluble dished dirt-loosening disks arranged in two series upon the ends of an angular shaft, the convex sides of said disks facing the ends of the shaft.

24. In a horse-cleaning device having a revoluble brush member and means for rotating the same, a dirt-receptacle having a curved wall engaging said revoluble brush member, brackets at the lower corner of said dirt-receptacle, a shaft mounted in said brackets, and dirt-loosening disks mounted revolubly upon said shaft.

25. In a horse-cleaning device, a revoluble brush member, means for operating the same, a dirt-receptacle, brackets supported by the latter, a shaft supported by said brackets, revoluble dirt-loosening disks mounted upon said shaft, and a scraper-bar disposed between said dirt-loosening disks and the rotary brush member.

749,728. WATER-PURIFYING APPARATUS. JOHN C. W. GRETH, Pittsburg, Pa., assignor to Wm. B. Scaife & Sons Company, Pittsburg, Pa., a Corporation of New Jersey. Filed June 13, 1903. Serial No. 161,268. (No model.)



Claim.—1. In a water-purifying apparatus, a tank to contain a chemical solution, a floating tank therein in which the solution is preliminarily mixed with water, a valve in the floating tank, means to raise the latter, and means for operating the valve, the construction being such that when the valve is unseated and the floating tank is rising, the liquid therein will be discharged into the first-named tank.

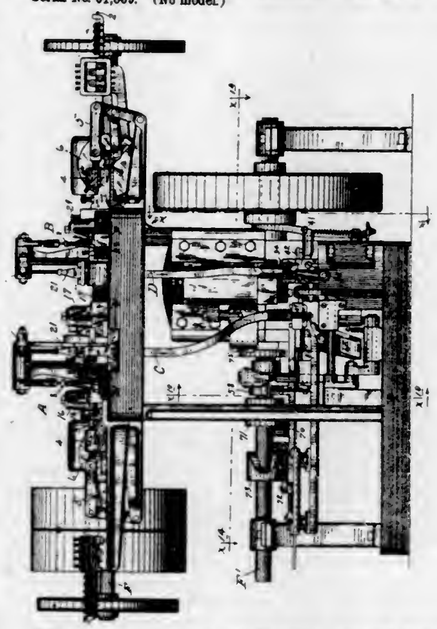
2. In a water-purifying apparatus, a water-distributing tank, a lime-slaking tank, a lime-solution tank, a chemical-tank, and a floating tank, each connected to the first-named tank so as to receive water therefrom, means for conducting the cream of lime from the slaking-tank to the lime-solution tank and the saturated solution of lime from the latter tank to the chemical-tank, a soda-solution tank in which the floating tank sits, a mixing-tank, means for conducting the lime-and-soda-treated water into the mixing-tank, and a settling-tank connected to the latter tank.

749,729. HINGE-PIN. JAMES C. GRIFFIN, Erie, Pa. Filed Nov. 10, 1902. Serial No. 130,748. (No model.)

Claim.—A hinge-pin having a rod portion with a shoulder on the portion of the rod within the head, and a hollow head of uniform thickness permanently secured on said rod portion by having the neck *b* pressed onto the rod against the said shoulder, and having its edge outturned forming the bearing and strengthening shoulder *b'*.



749,730. WIRE-WORKING MACHINE. THOMAS S. HALEY, New Haven, Conn., assignor to The Wire Novelty Manufacturing Company, New Haven, Conn., a Corporation of Connecticut. Filed May 25, 1901 Serial No. 61,869. (No model.)



Claim.—1. In combination in a machine of the class specified, a group of cutting and forming dies, a group of finishing-dies and assembling mechanism, feeding devices from the first to the second group of dies, and transfer devices from one to the other of the finishing-dies and to the assembling mechanism, substantially as set forth.

2. In combination in wire-working machines, a pair of shaping or forming dies, a lower set of finishing-dies, and assembling mechanism, feeding devices from the first set of dies to the second set, and transfer devices from one to the other of the second set of dies substantially as set forth.

3. In combination in wire-working machinery, groups of dies arranged to cut wire from the reel and form it in one part of the machine, and feeding devices from the above-named dies, a group of finishing-dies, and assembling mechanism located in another part of the machine, and transfer devices for moving the blank from one to the other of this second set of dies and to and from the assembling mechanism.

4. In combination in a machine of the class specified, a group of cutting, pointing and shaping dies, a group of finishing-dies, and assembling mechanism, feeding devices from the first set of dies to the second set, and means for automatically transferring the blank from one to the other of the finishing-dies and to and from the assembling mechanism, substantially as described.

5. In a buckle-making machine, a set of dies for forming the loop, and a second set of dies for pointing and forming the tooth, dies for flattening the face of the loop and for flattening and bending the ends thereof, transfer devices from one set of dies to the other and from there to the assembling mechanism, means for feeding the tooth to its proper position with relation to the loop, means for raising the ends of the loop while the tooth is being fed to place, and means for closing the ends of the loop about the tooth.

6. In a machine of the class specified, means for automatically transferring blanks from one set of operating-dies to another, and means for automatically assembling the parts of the article.

7. In a machine of the class described, the automatically-operating assembling mechanism comprising a rocking plate and closing dies.

8. In a machine of the class specified, means for assembling the parts of an article comprising a rocking plate carrying one of the parts, a feed and stop device for the other part, and closing dies for forming the hinge-connecting joint, substantially as described.

9. In a machine of the class specified, means for assembling the parts of an article comprising devices for transferring one of the parts to a rocking plate, means for rocking the plate, means for feeding in the other part to its proper position, and means for securing the parts together.

10. The herein-described assembling mechanism comprising a rocking plate supporting one of the parts to be assembled, and a feeding device for the other part.

11. The combination in a buckle-making machine, with the assembling mechanism comprising a plate supporting one of the members, a feeding device for the other member, and means for rocking the plate when the second member is fed into position.

12. Means for automatically uniting the parts of a buckle, comprising a rocking plate on which one of the members is located, means for rocking the plate, a feeding and stop device for the other member arranged to feed it toward the first member while the rocking plate is up, and closing dies for uniting the two members, substantially as described.

13. In a machine of the class specified, means for feeding the blanks to the dies and stops arranged to determine the position of the blanks, substantially as described.

14. In a wire-working machine, the combination with the sets of dies arranged adjacent to one another and adapted to act successively upon a blank, and means for moving a blank from one set of dies to another, of stops adapted to properly position the blank at the dies.

15. In a wire-working machine, the combination with the sets of dies arranged adjacent to one another and adapted to act successively upon a blank, and means for moving a blank from one set of dies to another, of stops adapted to properly position the blank at the dies, and means for holding the blank in position.

16. In a wire-working machine, the combination with the sets of dies arranged adjacent to one another and adapted to act successively upon a blank, transfer devices for moving the blank from one set of dies to another, stops adapted to properly position the blank at the dies, and springs for holding said blank in position.

17. In a wire-working machine, the combination with a group of dies arranged adjacent to one another, and a stop adapted to determine the position of a blank at the first set of dies and to move said blank to a second set of dies after the operation of the first-mentioned set, of a second stop actuated by the movement of the first-mentioned stop and adapted to position the blank at the second set of dies.

18. In a buckle-making machine, the combination with the dies for flattening the face and turning the ends of the buckle-loop blank, and means for moving the blank to said dies, of a stop adapted to be brought into the line of movement of the blank to position it at the second set of dies, substantially as described.

19. In a machine of the class specified, the dies for flattening the ends of the loop, automatically-operated devices for feeding blanks to said dies, a stop, and means for holding the blank in position between the dies.

20. In a buckle-making machine, the combination with the dies for flattening the face of the buckle-loop blank, of a stop to properly position the blank between the dies.

21. In a buckle-machine, dies for flattening the ends of the buckle-loop blank, dies for flattening the face of the loop located adjacent thereto and adapted to remain closed while the ends of the loop are bent, and means for automatically transferring the loop from the first to the second set of dies, substantially as described.

22. In a buckle-making machine, the combination with the dies for flattening the ends of a buckle-loop blank, and devices for feeding blanks to said dies, of a stop to properly position the blank at the dies, and means for maintaining the blank in position.

23. In a buckle-making machine, the combination with the dies for flattening the ends of the buckle-loop, and devices for feeding blanks to said dies, of a stop adapted to hold the blank in position while said dies are operating, and means for moving said stop in such manner that it transfers the blank to an adjacent set of dies.

24. In an automatically-operating buckle-machine, the combination with the dies for flattening the face of a buckle-loop, of a bending-die independent of the flattening-die and adapted to act upon the ends of the loop while the flattening-dies are closed.

25. The herein-described transfer devices comprising one or more hooked fingers, a lug, and a pivoted bridge coöperating therewith.

26. In a machine of the class specified, the combination with the finishing-dies and assembling mechanism, of automatically-operated transfer devices for moving the pieces from one set of sides to another and to the assembling mechanism, and means for disengaging the transfer devices from the pieces at the beginning of their return movement, substantially as described.

27. In a machine of the class specified, the automatically-operated transfer devices comprising the fingers, a lug thereon, and a movable bridge, said lug being adapted to override said bridge to disengage the transfer devices at the beginning of their return movement, substantially as described.

28. In a machine of the class specified, the forming-blocks, guides arranged at an acute angle thereto, and reciprocating forming-dies fitting in and moving along said guides in a direction at an acute angle to the forming-blocks, substantially as described.

29. In a machine of the class specified, two forming-blocks arranged side by side and in reverped positions, and a reciprocating cross-head located between said forming-blocks and carrying forming-dies which coöperate alternately with the forming-blocks; and forming-dies coacting with the outer faces of the forming-blocks; all of said forming-dies moving in a direction at an acute angle to the forming-blocks, substantially as described and for the purposes set forth.

30. In a machine of the class specified, a plurality of forming-blocks arranged side by side and in reversed positions, a reciprocating cross-head arranged between said forming-blocks with angular relation thereto and carrying at each end a die adapted to coöperate with one or the other of said forming-blocks at each end of its movement.

31. In a machine of the class specified, reciprocating forming-dies arranged in angular relation to the forming-block, and a compensating connection between said reciprocating dies and their operating-levers, substantially as described.

32. The forming-blocks, the cross-heads movable at acute angles to the forming-blocks and carrying forming-dies, levers pivoted at points between their ends, and a compensating connection between the levers and the cross-heads, substantially as described.

33. The combination of the forming-blocks, 20, 20, the end forming-dies, 10, 24, and the side forming-dies 12, 13 and 26, 27 moving in a line at an acute angle to the forming-blocks, all operating as and for the purposes specified.

34. The combination with the forming-block and the forming-dies carried by reciprocating cross-heads, of a block carried by and movable crosswise of said cross-heads, and a lever having one end pivotally secured to said block, substantially as described.

35. In a machine of the class specified, the combination with the forming-dies, of the "strings" and a positively-actuated stripper adapted to move the blank from the forming-block to the strings, substantially as described.

36. Means for simultaneously cutting and pointing wire comprising a beveled cutting-block and a coöperating beveled cutter, and a guide for said cutter, substantially as described.

37. In a wire-working machine, the combination with the feeding devices for the wire, of a pin adapted to engage the wire when a sufficient length has been fed forward and hold it against displacement during the retreat of the feeding devices.

38. In a wire-working machine, the combination with devices for feeding wire to the cutting-dies, of a pin mounted in a post through which said wire passes, said pin being adapted for movement to engage said wire.

39. In a machine of the class specified, devices for feeding the blanks to the dies and for transferring them from one die to another, the forward and inward movement of said devices being negative and their outward movement being positive, substantially as described.

40. The combination in a machine of the class described, of a cutting and gripping mechanism; blank-forming dies which move to form the blank while the material is held by said mechanism; transfer devices for shifting the blanks; finishing means; and mechanism for assembling the parts.

41. The combination of a cutting, gripping and bending mechanism by which the material is cut, gripped and initially bent; blank-forming dies which complete the formation of the blank; transfer devices for shifting the blanks; finishing means; and mechanism for assembling the parts.

42. The combination of devices which initially bend the material and then dwell; mechanism which moves to complete the formation of the blank during said dwell; transfer devices for shifting the blanks; finishing means; and mechanism for assembling the parts.

43. The combination of coöperating dies by which the material is initially bent to form a blank; a cutter carried by one of said dies; and blank-forming dies by which the blank is completed while upon the other of said dies.

44. In a machine of the class described, the combination of a cutter-carrying die by which the material is cut and given an initial bend about a forming-block; said forming-block; and blank-forming-dies by which the formation of the blank upon said block is completed.

45. The combination in a machine of the class described of forming-dies; assembling mechanism; and gravity transfer devices interposed therebetween.

46. The combination in a machine of the class described of forming-dies; stripping devices; gravity transfer devices; and assembling mechanism.

47. In a machine of the class described, cutting devices by which the stock is cut into the desired lengths; blank-forming devices by which the stock is bent into the desired shapes *in situ* where it is cut; transfer devices for shifting the blanks; and means for finishing and assembling the parts.

48. The combination of forming-dies; transfer devices for shifting the blanks; finishing mechanism for preparing the blanks for assemblage; devices by which the parts are positively positioned for assemblage; and assembling mechanism.

49. In a machine of the class described, the combination of flattening-dies by which the loop-blank is flattened, said dies dwelling after closing to flatten said blank; bending-dies by which the points of the said blank are shaped while said flattening-dies dwell; transfer devices by which the parts are positively positioned for assemblage; and assembling mechanism.

50. In a machine of the class described, the combination of flattening-dies by which the blank is flattened, said dies dwelling after closing to flatten said blank; and bending-dies by which are bent the points of said blank while it is held by the flattening-dies.

51. In a machine of the class described, the combination of a forming-block for the loop-blank; a forming-block for the tooth-blank and a blank-forming mechanism common to and coöperating with both of said blocks.

52. In a machine of the class described, the combination of dies for forming the loop-blank; and dies for forming the tooth-blank; said dies for forming the loop-blank being reversed in position in relation to the dies for forming the tooth-blank.

53. In a machine of the class described, the combination of cutting devices; with blank-forming dies by which the material is gripped and shaped *in situ* where cut without the intervention of transfer means between said devices and dies; means for shifting the blanks; and finishing and assembling mechanism.

54. In a machine of the class described, the combination of means for retaining the loop-blanks in a pile, one above the other; feeding devices for feeding said blanks to finishing-dies by which the loop-blank is shaped for assemblage; shifting devices by which the loop-blank is shifted from the finishing-dies to assembling mechanism; said finishing-dies; and said assembling mechanism.

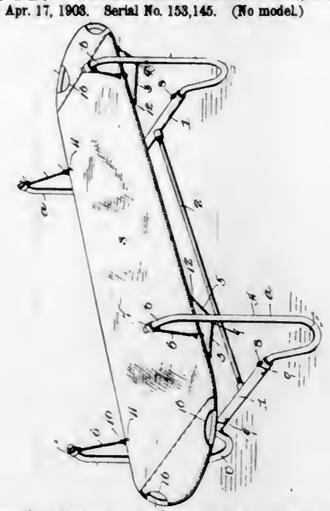
55. In a machine of the class described, the combination of means for retaining the loop-blanks in a pile, one above the other; feeding devices for feeding said blanks to finishing-dies; said finishing-dies; shifting devices by which the loop-blank is shifted from said finishing-dies to assembling mechanism; means for feeding and positioning the tooth-blank with relation to the loop-blank for assemblage; and said assembling mechanism.

56. In a machine of the class described, the combination of feeding devices for feeding the loop-blanks to finishing-dies; said finishing-dies; shifting devices by which the loop-blank is shifted from said finishing-dies to assembling mechanism; means for retaining the tooth-blanks in a pile one above the other; means for positioning the tooth-blank with relation to the loop-blank for assemblage; and said assembling mechanism.

57. In a machine of the class described, the combination of means for retaining the loop-blanks in a pile, one above the other; feeding devices for feeding the loop-blanks to finishing-dies; said finishing-dies; shifting devices by which the loop-blank is shifted from said finishing-dies to assembling mechanism; means for retaining the tooth-blanks in a pile, one above the other; means for positioning the tooth-blank with relation to the loop-blank for assemblage; and said assembling mechanism.

58. In a machine of the class described, coöperating dies by which the loop-blank is finished for assemblage; a transfer-finger which catches and shifts said blank to assembling mechanism; means for positioning the tooth-blank with relation to the loop-blank for assemblage; and said assembling mechanism.

749,731. STRETCHER-STAND. HARRY C. HALL, Telluride, Colo. Filed Apr. 17, 1903. Serial No. 153,145. (No model.)



Claim.—1. A stretcher-stand comprising two pair of standards each connected together by cross-bars, T-irons in which said cross-bars are capable of turning and a bar connecting said T-irons.

2. A stretcher-stand comprising a pair of standards, T-irons, connecting-bar, and means for securing the standards to the T-irons.

3. A stretcher-stand comprising standards bent to form upright sides, overhanging upper ends, U-shaped legs and connecting-bar, and means extending across from one standard to the other with which the standards are rotatably connected.

4. The combination with two pair of standards, and means connecting them so they may be folded, means for locking the standards, and a stretcher suspended from the standards.

5. The combination with a frame or stand, of a stretcher suspended therefrom, and springs extending from the stretcher to the standards, a swivel detachably connected with the standards for connecting the springs thereto, said standards having keyhole-slots wherein the swivels are detachably held.

6. The combination with a pair of standards, and connecting-bar rotatably connected therewith, of a stretcher, means for suspending the latter, spiral springs extending from the stretcher in pairs to the standards, and means connecting the adjacent ends of the springs rotatably and removably to the standards.

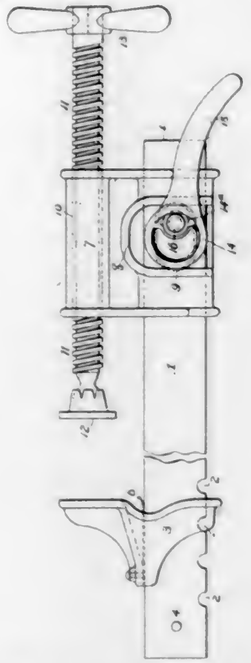
7. The combination with a folding stretcher-stand, of a stretcher detachably hinged thereto, and having means for absorbing upward, lateral and endwise jar and vibration, said stretcher comprising a frame, and a flexible cover detachably connected thereto, and having handle-openings formed at the corners thereof.

8. The combination with a stretcher, of a plurality of standards, each standard consisting of a U-shaped member, connecting means extending between the standards, the connecting means rotatably journaled upon the members, means for locking the connecting means and standards to one another against rotation, the stretcher supported by the standards and resilient means removably connected with the standards and stretcher respectively.

749,732. CLAMP. HENRY M. HANSON and CHARLES S. BENTLEY, Janesville, Wis., assignors to said Hanson. Filed May 14, 1903. Serial No. 157,117. (No model.)

Claim.—1. In a clamp, the combination with a bar and a tail-block thereon, of a head-block mounted on said bar and having an opening in one side, a pin secured to the bar and projecting into said opening, a cam mounted on said pin and coöperating with a wall of

the opening in the head-block and an adjustable clamp mounted in said head-block.



2. In a clamp, the combination with a bar and a movable tail-block thereon, of a head-block comprising a casting having a bore to receive the bar and open at its opposite sides, a cam pivotally secured to the bar in one of said openings and engaging the walls of said opening, and clamping means carried by the head-block.

3. In a clamp, the combination with a bar and a movable tail-block thereon, of a head-block comprising a casting having a bore to receive the bar and an opening on one side, a cam mounted in said opening in engagement with the vertical walls thereof, a hollow lug on the cam pivotally secured to the bar, an arm on the cam, and a screw-plunger carried by said head-block.

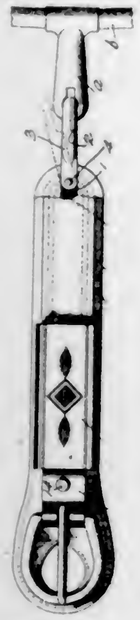
4. In a clamp, the combination with a bar having notches in its lower edge and a tail-block on the bar having a cross-pin to engage in said notches and a spring to hold the pin therein, of a head-block on the opposite end of the bar, comprising a casting having a bore to receive the bar and openings in its opposite sides, a cam mounted in one of said openings and engaging the vertical walls thereof, a hollow lug on the cam mounted in an opening in the bar, a rivet passed through said hollow lug and through a washer against the face of the bar, an arm on said cam, an elongated internally-screw-threaded bearing integral with said block, a screw in said bearing disposed parallel with the bar, a swiveled head on one end of said screw and a handhold on the other end of said screw.

749,733. HAME-TUG. FRED HAUFF, Akron, Ohio. Filed Feb. 6, 1903. Serial No. 142,207. (No model.)

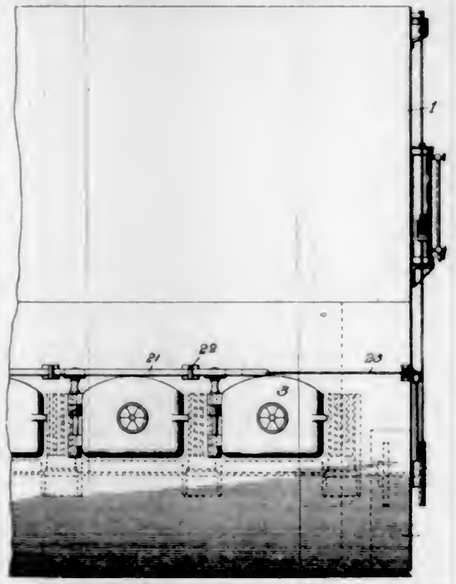
Claim.—1. In a hame-tug, the combination of a draft-bar having a tug-eye member formed integral at one end thereof, a tug-eye member pivoted to the draft-tug for lateral movement and coacting with the integral tug-eye member, and a housing inclosing the draft-bar and the inner pivoted portion of the pivoted tug-eye member, whereby the pivot of the latter is concealed, substantially as described.

2. In combination with a draft-bar, having an integral tug-eye member, and a pivoted laterally-movable tug-eye member at one end, a guard having a longitudinal recess to receive the draft-bar, and a trace-buckle strap secured on the guard, having an inner ply and an outer ply, the former having a recess at its outer end to receive the pivoted end of the pivoted tug-eye member, whereby the said pivoted end of the pivoted tug-eye member is concealed, substantially as described.

749,733.



749,734. MEANS FOR PREVENTING SMOKE. HERBERT H. HUGHES, St. Louis, Mo. Filed June 29, 1903. Serial No. 163,473. (No model.)



Claim.—1. In a furnace of the type set forth, a dead-plate, having its inner edge provided with an upturned flange, and being formed with openings in front thereof, and integral guards arranged between said openings and flange.

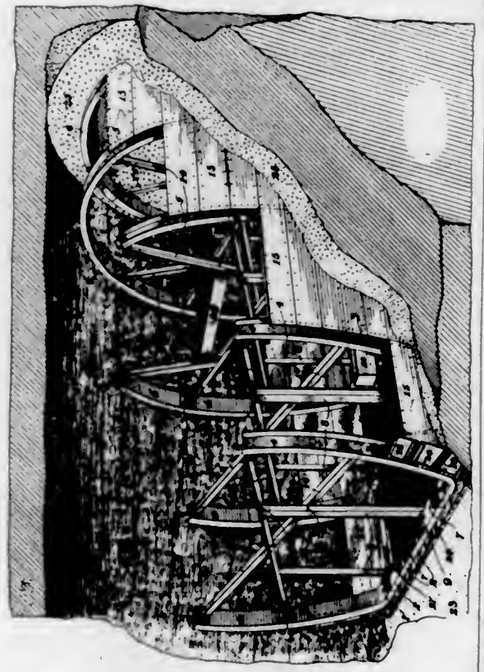
2. In a furnace of the type set forth, an air-superheating box formed of a plurality of spaced-apart ribs connected to an end wall, the remaining sides and end of the box being open.

3. In a furnace the combination with the doors, and the pivot-pins thereof, removable members mounted on the upper ends of said pins, toothed wheels carried by said members, cooperating lugs carried by said members, and wheels respectively, a slidably-mounted

toothed bar engaging said wheels, means for controlling the air-feed to the interior of the furnace, and means actuated by said bar for controlling said last-named means.

4. In a furnace, the combination with the doors and the dead-plate formed with openings, of dampers for closing said openings, a shaft to which all of said dampers are secured, a wheel on the outer end of said shaft, a pulley mounted on said shaft, toothed wheels mounted on the pivot-pins of said doors, a slidable toothed bar engaging said toothed wheels, a flexible connection between said pulley and bar, a dash-pot having a plunger, and a flexible connection passing over said first-named wheel and being connected to the plunger of the dash-pot.

749,735. TEMPORARY SUPPORTING FORM FOR MASONRY STRUCTURES. GEORGE W. JACKSON, Chicago, Ill., assignor to Jackson & Corbett Bridge and Steel Works, Chicago, Ill., a Corporation of Illinois. Filed July 28, 1902. Serial No. 117,310. (No model.)



Claim.—1. A temporary supporting-form comprising ribs and lagging, means for interlocking the said ribs and lagging the one with the other, end flights adapted to be attached to the said ribs at an angle thereto, and means for so attaching the said end flights, substantially as described.

2. A temporary supporting-form comprising ribs and lagging, means for interlocking said ribs and lagging the one with the other, braces for strengthening said ribs, said braces being arranged to provide one or more spaces for the passage of dump-cars, substantially as described.

3. A temporary supporting-form comprising sectional ribs and lagging, means for fastening together the different sections of said ribs, means for interlocking said ribs and lagging the one with the other, braces for strengthening said ribs, and one or more car-tracks supported by said braces above the base of said supporting-form substantially as described.

4. A temporary supporting-form comprising sectional ribs and lagging, means for attaching together the different sections of said ribs, means for interlocking said ribs and lagging the one with the other, diametrical braces attached to the said ribs, one or more upper and one or more lower car-tracks, substantially as described.

5. A sustaining-rib for temporary supporting-forms comprising curved sectional channel-bars, means for attaching the different sections together, means for engaging lagging-plates, and means for attaching end flights, substantially as described.

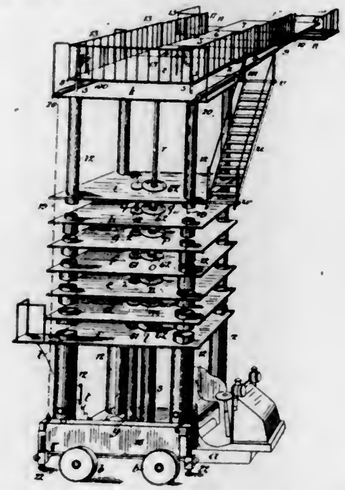
6. A sustaining-rib for temporary supporting-forms comprising a flanged bar adapted to engage lagging-plates, and means for attaching to said rib end flights at an angle thereto, substantially as described.

7. A sustaining-rib for temporary supporting-forms comprising a metallic bar having one or more flanges and means for attaching end flights, substantially as described.

8. A temporary supporting-form comprising ribs having flanges, and substantially rectangular lagging-plates provided with flanges at their edges, the flanges at the sides of said plates being cut away at each end so as to provide recesses between the ends of said side flanges and the end flanges to receive the flanges of said ribs whereby said lagging-plates are retained in position on said ribs.

9. A temporary supporting-form comprising ribs having flanges, and substantially rectangular lagging-plates having flanges formed integral at the edges thereof, the side flanges of each of said plates being cut away at the ends to provide recesses between the ends of said side flanges and the end flanges of said plates to receive the flanges of said ribs, whereby the lagging-plates are retained in position.

749,736. FIRE-ESCAPE. VICTOR JETLEY, London, England. Filed Jan. 19, 1903. Serial No. 139,701. (No model.)



Claim.—1. A fire-escape or elevator, comprising a portable rigid framework, a number of platforms movable up and down above the rigid framework, a number of laterally-movable platforms and a number of subsidiary platforms arranged to slide at right angles to the last-named platforms, substantially as set forth.

2. A fire-escape or elevator comprising a rigid framework on wheels, a number of platforms movable up and down, a number of laterally-movable platforms and telescopic rods extensible laterally for supporting the laterally-movable platforms, substantially as set forth.

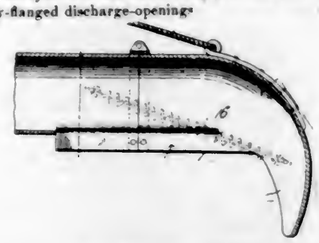
3. A fire-escape or elevator, comprising a rigid framework on wheels, a number of platforms movable up and down, a number of laterally-movable platforms, telescopic rods pivoted to the first-named platforms and extensible laterally for supporting the laterally-movable platforms at one end, and counterweights suspended from the opposite ends of the said rods, substantially as and for the purpose set forth.

4. A fire-escape or elevator, comprising a rigid framework on wheels, a number of platforms movable up and down, a number of laterally-movable platforms, telescopic rods pivoted to the first-named platforms and extensible laterally for supporting the laterally-movable platforms at one end, and tanks suspended from the opposite end designed to receive a liquid to act as a counterweight to the laterally-sliding platforms and to serve for storage of batteries and implements when emptied of said liquid, substantially as set forth.

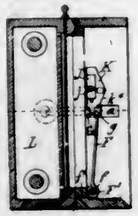
749,737. PNEUMATIC STACKER. JOSEPH H. LEY, Kellogg, Minn. Filed July 22, 1903. Serial No. 166,600. (No model.)

Claim.—In a pneumatic straw-stacker, a conveyer-tube having a hinged spring-actuated hood with a depending flange at its outer

end, said conveyer-tube and hood being provided with alining longitudinally-flanged discharge-openings.



749,738. MEANS FOR ATTACHING SUPPLEMENTARY PARTS TO PHOTOGRAPHIC CAMERAS. HARVEY W. LOCKE, Rochester, N. Y., assignor to Century Camera Company, Rochester, N. Y., a Corporation of New York. Filed Nov. 20, 1902. Serial No. 132,093. (No model.)



Claim.—1. The combination of a camera-box as one part; a detachable supplementary part substantially of the character described; arms detachably pivoted to one of the parts and sliding in guideways in the other of the parts and thereby adapted to be extended from and retracted on said part; and means acting on said arms for pressing said supplementary part and the camera-box together.

2. The combination of a camera-box as one part; a detachable supplementary part substantially of the character described; arms detachably pivoted to one of the parts and sliding in guideways in the other of the parts and thereby adapted to be extended from and retracted on said part; and a sliding catch adapted to engage said arms to retain them in their extended positions.

3. The combination of a camera-box as one part; a detachable supplementary part substantially of the character described; arms detachably pivoted to one of the parts and sliding in guideways in the other of the parts and thereby adapted to be extended from and retracted on said part; and a sliding catch adapted to engage said arms and retain them both in their extended and retracted positions.

4. The combination of a camera-box as one part; a detachable supplementary part substantially of the character described; arms detachably pivoted to one of the parts and sliding in guideways in the other of the parts and thereby adapted to be extended from and retracted on said part; sliding catches adapted to engage said arms, respectively, to retain them in their extended positions, each catch having a wedge that is adapted to engage one of said arms so as to press and lock said supplementary part upon said camera-box.

749,739. TURBINE-ENGINE. SAMUEL LOUNT, Barrie, Canada. Filed Nov. 14, 1902. Serial No. 131,426. (No model.)



Claim.—1. The combination of a casing, a wheel mounted and rotatable within said casing, a series of buckets formed on said wheel, a series of partitions set in the casing dividing the hollow annular space therein on each side of the wheel into separate chambers, each chamber on one side of the wheel overlapping the adjacent ends of two chambers on the other side of the wheel, together with a series of vanes set in the chambers and adapted to control the direction of the steam passing from said chambers to the buckets in the wheel.

2. The combination of a casing, a wheel mounted and rotatable within said casing, a series of buckets formed on said wheel, a series of partitions set in the casing dividing the hollow annular space therein on each side of the wheel into separate chambers, each chamber on one side of the wheel overlapping the adjacent ends of two chambers on the other side of the wheel, an inlet-chamber which is arranged opposite a part of one chamber only and an outlet-chamber of the same description, the intermediate overlapping chambers forming with the buckets on the wheel a connected series of passage-ways from inlet to outlet.

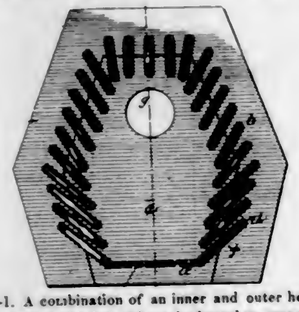
3. The combination of a hollow annular casing open throughout its inner circumference, a concentrically-mounted wheel, a series of peripheral projections formed on said wheel and relatively disposed to coöperate with the opening in the casing, partitions dividing the interior of the casing into a plurality of overlapping chambers alternately arranged upon opposite sides of the opening therein and communicating one with another by way of passages formed between the peripheral projections on the wheel.

4. The combination of an annular casing open throughout its inner circumference, a concentrically-mounted wheel, a series of inclined peripheral projections formed on said wheel and relatively disposed to coöperate with the opening in the casing, a central annular partition dividing the casing interiorly and projecting through the opening therein, cross-partitions forming a plurality of overlapping chambers alternately arranged upon opposite sides of said central annular partition and communicating one with another by way of passages formed between the peripheral projections on the wheel.

5. The combination of an annular casing open throughout its inner circumference, a wheel mounted and rotatable within said casing, a series of inclined peripheral projections formed on said wheel and relatively disposed to coöperate with the opening in the casing, a central annular partition dividing the casing interiorly and projecting through said opening, cross-partitions forming a plurality of overlapping chambers of increasing size, said chambers being alternately arranged upon opposite sides of the said central annular partition in the casing and communicating one with another by way of passages formed between the peripheral projections on the wheel, the chamber at one end of the series being open to fluid-pressure supply and the chamber at the opposite end to exhaust.

6. The combination of an annular casing open throughout its inner circumference, a wheel mounted and rotatable within said casing, a series of peripheral projections formed on said wheel and relatively disposed to coöperate with the opening in the casing, partitions dividing the interior of the casing into a plurality of overlapping chambers alternately arranged upon opposite sides of the opening therein and communicating one with another by way of passages formed between the peripheral projections on the wheel and directing vanes in the outlet from each chamber.

749,740. HOT-WATER FURNACE. FRED LUMYER, North Monroeville, Ohio. Filed July 29, 1903. Serial No. 167,433. (No model.)



Claim.—1. A combination of an inner and outer head having suitable apertures provided therein and adapted to connect a series of pipes communicating with said heads, substantially as and for the purpose described.

2. A combination of an inner and outer head with suitable apertures provided therein, a series of pipes adapted to fit said apertures, return-bends connecting said pipes whereby the inner and outer heads are connected together.

3. A hot-water furnace composed of an inner head, having a series of apertures provided through which water is delivered, a series of apertures provided in said head, a series of pipes fitted in the said apertures, an outer head adapted to fit the exterior of the inner head, having a series of apertures provided therein into which a series of pipes are fitted, a return-bend connecting the pipes so as to leave the pipes on an incline with relation to said heads, a series of apertures provided through which water is forced out.

4. In a hot-water furnace, a combination of an inner and outer head connected together by means of a series of pipes, said pipes being fitted on an incline with relation to the head and arranged to bring the surface of said pipe in close contact with the fuel, substantially as and for the purpose described.

5. A hot-water furnace, composed of an inner and outer head, a series of apertures provided therein, a series of pipes fitted to the outer head, a second series of pipes fitted to the inner head, return-bends connecting said pipes, whereby the inner and outer heads are brought in communication with each other, providing a means of circulating the water after its admission, substantially as and for the purpose described.

749,741. PACKING-CASE FOR BOTTLES. BERNARD F. MARTIN, Rochester, N. Y., assignor to Martin Packing Case Company, Rochester, N. Y. Filed Oct. 2, 1903. Serial No. 175,460. (No model.)



Claim.—1. The case having a series of bottle-supporting bars, one for each end of the bottles, a series of movable bars each adapted to hold down a plurality of bottles upon the supporting-bars, and means pivotally connected to the case for supporting the several series of movable bars away from the interior of the case, substantially as described.

2. The case having a series of bottle-holding bars comprising bars pivotally supported near the side of the case opposite said bars, said supports consisting of straps pivoted to the case near its side opposite the normal situation of the bars, said straps being integral with a connecting part and said part situated in a groove in the bar.

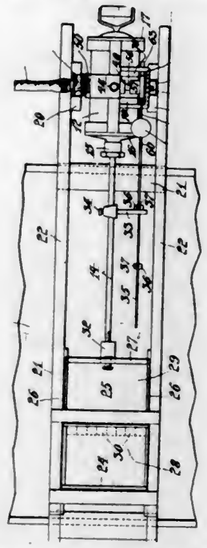
3. The case having a series of bottle-holding bars comprising bars pivotally supported near the side of the case opposite said bars, said supports consisting of straps pivoted to the case near its side opposite the normal situation of the bars, a part of said straps comprising an adjacent pair one movable at the side of the other to avoid interference.

4. The case having a series of bottle-holding bars comprising bars pivotally supported near the side of the case opposite said bars, said supports consisting of straps pivoted to the case near its side opposite the normal situation of the bars, said pivotally-supported bars being adapted to press slightly on the bottles situated in the case.

5. The combination of the case having bars fixed interiorly at one side thereof, a movable bar situated on the opposite side thereof and pivotally supported near the first-named side, whereby said pivoted bar can be turned against the side opposite normal situation when in use.

749,742. STEAM-ENGINE FOR CURD-CUTTING MACHINES. WARREN I. MCLEAN, Yonge Mills, Canada. Filed Sept. 2, 1902. Serial No. 121,773. (No model.)

Claim.—1. In a steam-engine, the combination of a valve-chest having a conical inner surface and suitable passage-ways leading to each end of the cylinder at opposite sides thereof and an exhaust passage-way leading from the upper side, a conical liner having ports therein adapted to register with said passage-ways, a conical valve-spindle oscillably mounted within said liner and having its opposite faces recessed opposite said passage-ways so as to form a diametrical partition separating the opposite cylinder-ports, said valve-spindle having a central steam-opening connecting with the lower side of said diametrical partition, a steam-pipe connection closing the head end of said valve-chest, whereby to admit steam to the central passage-way in the valve-spindle, and an adjustable step-bearing for the opposite end of said valve-spindle, whereby its longitudinal position in the valve-chest is regulated, substantially as described.



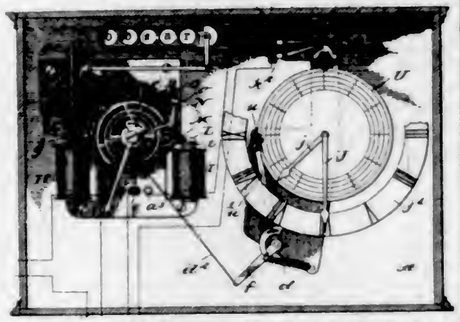
2. In a steam-engine, the combination of a valve-chest having a conical inner surface and suitable passage-ways leading to each end of the cylinder at opposite sides thereof and an exhaust passage-way leading from the upper side, a conical liner having ports therein adapted to register with said passage-ways, a conical valve-spindle oscillably mounted within said liner and having its opposite faces recessed opposite said passage-ways so as to form a diametrical partition separating the opposite cylinder-ports, said valve-spindle having a central steam-opening connecting with the lower side of said diametrical partition, a steam-pipe connection closing the head end of said valve-chest, whereby to admit steam to the central passage-way in the valve-spindle, and an adjustable step-bearing for the opposite end of said valve-spindle, whereby its longitudinal position in the valve-chest is regulated, the cylinder-ports in said conical liner being of different size one from the other, whereby more steam is admitted into one side of the engine than the other to permit more power to be exercised upon one stroke than the other, substantially as described.

3. In a steam-engine, the combination of a valve-chest having a conical inner surface and suitable passage-ways leading to each end of the cylinder at opposite sides thereof and an exhaust passage-way leading from the upper side, a conical liner having ports therein adapted to register with said passage-ways, a conical valve-spindle oscillably mounted within said liner and having its opposite faces recessed opposite said passage-ways so as to form a diametrical partition separating the opposite cylinder-ports, said valve-spindle having a central steam-opening connecting with the lower side of said diametrical partition, a steam-pipe connection closing the head end of said valve-chest, whereby to admit steam to the central passage-way in the valve-spindle, an adjustable step-bearing for the opposite end of said valve-spindle, whereby its longitudinal position in the valve-chest is regulated, a reciprocating valve-rod connected with said spindle to oscillate the same, means actuated by the piston of the engine for reciprocating said valve-rod at each end of the stroke, and a tumble-bob mounted on said valve-spindle and adapted to cause the same to be suddenly reversed in position, substantially as described.

4. In a steam-engine, in combination, a rotary valve-spindle, a tumble-bob attached thereto, a segment rigid with said valve-spindle, a rack coöperating with said segment, a dog carried by the piston of said engine, and adapted to reciprocate said rack, and stops adapted to limit the longitudinal movement of said rack.

5. In a steam-engine, in combination, a rotatable valve-spindle, a segment carried thereby, a tumble-bob rigid with said segment, a rack having an extension, collars carried by said extension, a piston for said engine, a dog carried by said piston and adapted to move between said collars, pins carried by said rack, a fixed member lying in the path of said pins, and adapted to limit the movement of said rack.

749,743. SPEED-INDICATOR. THOMAS H. MCQUOWN, Biggsville, Ill. Filed Sept. 26, 1902. Serial No. 124,910. (No model.)



Claim.—1. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine, a second movable part actuated by said first movable part, and a third movable part actuated by said second movable part; a holding device for holding each of said movable parts against return movement; and a periodically-controlled releasing device for periodically releasing said movable parts from said holding device, substantially as and for the purpose described.

2. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a wheel rotated by said machine, a second wheel rotated by the revolution of said first wheel, and a third wheel rotated by the revolution of said second wheel; a holding device for holding each of said wheels against return movement; and a clock-controlled electrical releasing device for periodically releasing said three wheels from said holding device, substantially as and for the purpose described.

3. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine by electrical means, a second movable part actuated by said first movable part, a third movable part actuated by said second movable part; a holding device for holding each of said movable parts against return movement; and a clock-controlled electrical releasing device for periodically releasing said three movable parts from said holding device, substantially as and for the purpose described.

4. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising a spring-pressed ratchet-wheel, a click actuated by said machine and adapted to rotate said ratchet-wheel, means for holding said ratchet-wheel against return movement, a spring-pressed brake-wheel, a lug on the ratchet-wheel adapted to engage a lug on the brake-wheel and rotate the brake-wheel with the ratchet-wheel, a second spring-pressed brake-wheel carrying an indicator-hand, a lug on the first brake-wheel adapted to engage a lug on the second brake-wheel and rotate the second with the first brake-wheel, brake-shoes adapted to hold said brake-wheels against return movement, and a clock-controlled electric releasing device for periodically releasing the said wheels and allowing them to return by the pressure of their springs, substantially as and for the purpose described.

5. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising a spring-pressed ratchet-wheel, a lever oscillated by said machine by electrical means, a click carried by said lever and adapted to rotate said ratchet-wheel, means for holding the ratchet-wheel against return movement, a spring-pressed brake-wheel, a lug on the ratchet-wheel adapted to engage a lug on the brake-wheel and rotate the brake-wheel with the ratchet-wheel, a second spring-pressed brake-wheel carrying an indicator-hand, a lug on the first brake-wheel adapted to engage a lug on the second brake-wheel and rotate the second with the first brake-wheel, brake-shoes adapted to hold said brake-wheels against return movement, and a clock-controlled electric releasing device for periodically releasing the said wheels and allowing them to return under the pressure of their springs, substantially as and for the purpose described.

6. In a speed-indicator having a wheel rotated by the machine to which the indicator is applied, and a second wheel rotated by said first wheel, and a third wheel rotated by said second wheel, a holding and releasing device for said wheels comprising a lever L having the projections l' and l^2, a bell-crank lever M having the arm m' and a suitable holding device for holding the second wheel against return movement, the bell-crank lever N having the arm n^2 and a suitable holding device for holding the third wheel against return movement and also having means whereby the first wheel is released from its holding device at the same time the third wheel is released, a suitable holding device for holding the first wheel against return movement, and clock-controlled means for periodically oscillating said lever L substantially as and for the purpose described.

7. A speed-indicator comprising an indicating device; an advancing mechanism for said indicating device comprising a wheel rotated by the machine to which the indicator is applied, a second wheel rotated by said first wheel, and a third wheel rotated by said second wheel; a holding and releasing device for said wheels comprising an armature-lever L having the projections l' and l^2, a bell crank lever M having the arm m' and a brake m for holding the second wheel against return movement, the bell-crank lever N having an arm n^2 and a holding-brake n' for holding the third wheel against return movement, a holding device for holding the first wheel against return movement, means for releasing the first wheel by the motion of the bell-crank lever N, a spring P, an electric magnet arranged to actuate the armature-lever L, and a clock-controlled circuit closer and breaker for periodically closing and breaking the current to said magnet, substantially as and for the purpose described.

8. A speed-indicator comprising an indicating device; an advancing mechanism for said indicating device comprising a spring-pressed ratchet-wheel a portion of whose periphery is untoothed, a click actuated by the machine to which the indicator is applied and adapted to rotate said ratchet-wheel, a spring-pressed keeper n^5 pivoted on the frame of the speed-indicator and adapted to prevent the click from skipping the teeth, a ratchet for holding the ratchet-wheel against return movement, a spring-pressed brake-wheel, a lug on the ratchet-wheel adapted to engage a lug on the brake-wheel and rotate the brake-wheel with the ratchet-wheel, a second spring-pressed brake-wheel carrying an indicator-hand, a lug on the first brake-wheel adapted to engage a lug on the second brake-wheel and rotate the second with the first brake-wheel; a holding and releasing device for said wheels comprising an armature-lever L having projections l' and l^2, a bell-crank lever M having an arm m' and a brake-shoe m for holding the first brake-wheel against return movement, the bell-crank lever N having an arm n^2 and a brake-shoe n' for holding the second brake-wheel against return movement, the rods O and o for disengaging the ratchet and the click from the teeth of the ratchet-wheel by the action of the bell-crank lever N, a spring P, an electric magnet to actuate the armature-lever L, and a clock-controlled circuit closer and breaker for periodically closing and breaking the circuit to the magnet, substantially as and for the purpose described.

9. A speed-indicator comprising a frame; an indicating device; an advancing mechanism for said indicating device actuated by an electric magnet on said frame; an electric circuit containing said magnet; a circuit closer and breaker in said circuit controlled by a movable part of the machine to which the indicator is applied; a holding and releasing device for said advancing mechanism actuated by another electric magnet on said frame; an electric circuit containing said second magnet; a clock-controlled circuit closer and breaker in the last-mentioned circuit for periodically energizing and deenergizing said second magnet, substantially as and for the purpose described.

10. In a speed-indicator, an indicating device; an advancing mechanism for the indicating device; an electrically-controlled holding and releasing device for the advancing mechanism; and a circuit-breaker in the circuit by which the holding and releasing device is controlled for automatically breaking said circuit when the indicator is at the zero position, said circuit-breaker comprising a lever-arm pivoted on the frame and bearing one electric contact-point, together with a striker carried by the advancing mechanism and placed in such position thereon as to impinge on said lever-arm to hold its contact-point away from the other contact-point to break said circuit when the indicator is at the zero position.

11. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine against the pressure of a spring, a second movable part actuated by said first movable part against the pressure of a spring, and a third movable part actuated by said second movable part against the pressure of a spring; a holding device for holding each of said movable parts against return movement; and a periodically-controlled releasing device for periodically releasing said movable parts from said holding device.

12. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a wheel rotated by said machine against the pressure of a spring, a second wheel rotated against the pressure of a spring by the rotation of the first wheel, and a third wheel rotated against the pressure of a spring by the revolution of the second wheel; a holding device for holding each of said wheels against return movement; and a clock-controlled releasing device for periodically releasing said three wheels from said holding device.

13. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine against the pressure of a spring by electrical means, a second movable part actuated by said first movable part against the pressure of a spring, and a third movable part actuated by said second movable part against the pressure of a spring; a holding device for holding each of said movable parts against return movement; and a clock-controlled releasing device for periodically releasing said three movable parts from said holding device.

14. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine, a second movable part actuated by said first movable part, and a third movable part actuated by said second movable part; and a holding and periodically-controlled releasing device for holding each of said movable parts against return movement and periodically releasing the same and adapted to hold the second movable part against return movement while releasing the first and third movable parts.

15. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a wheel rotated by said machine against the pressure of a spring, a second wheel rotated against the pressure of a spring by the revolution of said first wheel, and a third wheel rotated against the pressure of a spring by the revolution of said second wheel; and a clock-controlled holding and releasing device for holding each of said wheels against return movement and periodically releasing the same, and adapted to hold the second wheel against return movement while releasing the first and third wheels.

16. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine by electrical means, a second movable part actuated by said first movable part, and a third movable part actuated by said second movable part; and a clock-controlled holding and releasing device for holding each of said movable parts against return movement and periodically releasing the same, and adapted to hold the second movable part against return movement while releasing the first and third movable parts.

17. In a speed-indicator, having an electrically-controlled holding and releasing device for the advancing mechanism, an automatic circuit-breaker in the circuit containing said holding and releasing device for breaking said circuit when the indicator is at the zero position, and for closing said circuit when the indicator is advanced from the zero position, said circuit-breaker comprising a lever-arm turning on a pivot and bearing one electric contact-point, together with a striker carried by the advancing mechanism and placed in such position thereon as to impinge on said lever-arm to hold its contact-point away from the other contact-point when the indicator is at the zero position, and to release said lever-arm to allow the contact-points to connect when the indicator has advanced from the zero position.

18. A speed-indicator comprising an indicating device; an advancing mechanism for said indicating device comprising a wheel rotated by the machine to which the indicator is applied, a second wheel rotated by the first wheel, and a third wheel rotated by the second wheel; a holding and releasing device for said wheels comprising an armature-lever L having projections l' and l^2, a bell-crank lever M having the arm m' and a brake m for holding the second wheel against return movement, the bell-crank lever N having an arm n^2 and a holding-brake n' for holding the third wheel against return movement, a holding device for holding the first wheel against return movement, means for releasing the first wheel by the motion of the bell-crank lever N, a spring P, an electric magnet arranged to actuate the armature-lever L; a clock-controlled circuit closer and breaker for periodically closing and breaking the circuit to said magnet; and a circuit-breaker in said circuit comprising a lever Q, contact-points q and q^2 and a striker carried by the advancing mechanism and placed in such position thereon as to press on the lever when the indicator is at the zero position to separate the contact-points.

19. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine against the pressure of a spring, a second movable part actuated by said first movable part against the pressure of a spring, and a third movable part actuated by said second movable part against the pressure of a spring; a holding device for holding each of said movable parts against return movement; a periodically-controlled releasing device for periodically releasing said movable parts from said holding device; a cyclometer; and means for actuating the cyclometer from the advancing mechanism.

20. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine against the pressure of a spring, a second movable part actuated by said first movable part against the pressure of a spring, and a third movable part actuated by said second movable part against the pressure of a spring; a holding device for holding each of said movable parts against return movement; a periodically-controlled releasing device for periodically releasing said movable parts from said holding device; a recording device for recording the speed; and means for actuating said recording device from the advancing mechanism.

21. A speed-indicator actuated from the machine in connection with which the indicator is employed, comprising an indicating device; an advancing mechanism for said indicating device comprising a movable part actuated by said machine against the pressure of a spring, a second movable part actuated by the said first movable part against the pressure of a spring, and a third movable part actuated by said second movable part against the pressure of a spring; a holding device for holding each of said movable parts against return movement; a periodically-controlled releasing device for periodically releasing said movable parts from said holding device; a cyclometer; a recording device for recording the speed; and means for actuating said cyclometer and said recording device from the advancing mechanism.

740,744. MOTOR-VEHICLE. JAMES W. PACKARD and WILLIAM A. HATCHER, Warren, Ohio, assignors to Packard Motor Car Company, Warren, Ohio, a Corporation of West Virginia. Filed Nov. 14, 1902. Serial No. 131,336. (No model.)

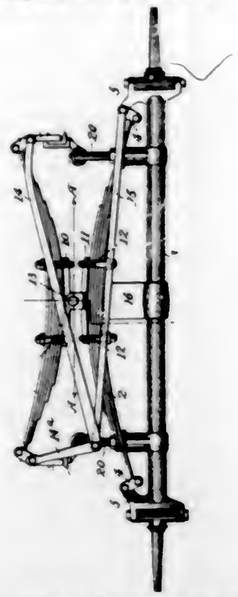
Claim.—1. In a motor-vehicle, the combination with the forward axle and the vehicle-body, of a semi-elliptic spring connected to the axle, and a second semi-elliptic spring connected with the body, said springs being centrally connected by a pivot-joint.

2. In a motor-vehicle, the combination with the forward axle of a semi-elliptic spring connected with the axle at its ends, a second semi-elliptic spring connected to the vehicle-body at its ends, a pivot located between and connecting said springs centrally, and a link and bar pivotally connected with the axle and the vehicle-body and with each other.

3. In a motor-vehicle, the combination with a forward axle, of a spring supported on said axle, a second spring supported on and pivotally connected to the first-named spring, a vehicle-body supported on said second spring, and lateral braces whereby lateral movement of the vehicle-body relatively to the axle is prevented.

4. In a motor-vehicle, the combination with a forward axle, the vehicle-body, the semi-elliptic springs connected respectively to said axle and vehicle-body, and the pivot-joints between said springs, of the bar 14 connected to the body at one side, the arm 14^a connecting said bar to the body at its opposite side, and the link extending across the vehicle and connecting said bar with the axle.

5. In a motor-vehicle, the combination with a body, the forward axle, and the intermediate spring, of the vertically-arranged plate 16 rigidly connected to said axle, means carried by the spring for guiding said plate, and supplemental means for preventing the plate from rattling in said guide, for the purpose set forth.



6. In a motor-vehicle, the combination with a body, the forward axle and the intermediate spring, of braces pivotally connecting said axle with the body, a vertically-arranged plate rigidly connected to said axle, and means for guiding said plate vertically, for the purpose set forth.

7. In a motor-vehicle, the combination with a body, the forward axle, and the intermediate spring, of the vertically-arranged plate, 16, rigidly connected to the axle, guiding means for said plate carried by the spring, and a yielding device bearing laterally against said plate and preventing the same from rattling, for the purpose set forth.

749,745. ROLLING-MILL. CASIMIR VON PHILP, West Bethlehem, Pa., assignor to Bethlehem Steel Company, South Bethlehem, Pa., a Corporation of Pennsylvania. Filed Sept. 10, 1903. Serial No. 173,641. (No model.)

Claim.—1. The combination of a rolling-mill having its rolls mounted in a frame that is movable through a window in one of the side frames of the mill, and means for moving said frame and the rolls therein to and from the mill through said window.

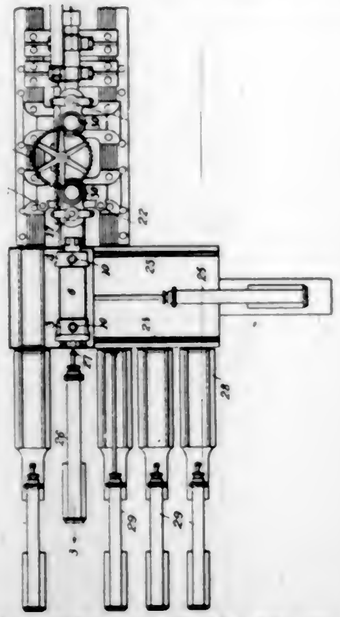
2. The combination with a rolling-mill provided with rolls that are movable endwise through a window in one of the housings or side frames thereof, a support for a pair of rolls arranged at one side of the mill, a transfer-car adapted to travel from said support to said window in the mill, and devices for moving a pair of rolls from said support to said car and from the car to the mill or vice versa.

3. The combination of a rolling-mill having its rolls mounted in a frame that is removable from the main frame of the mill, a support for such frame outside of the mill, and power devices for transferring said frame and the rolls mounted therein to and from the mill and said support.

4. The combination of a rolling-mill, having a window or passage formed in one of its side frames, a frame supporting a pair of rolls and adapted to be moved to and from the mill through said window, and means for locking said roll-frame in position in the mill.

5. In a rolling-mill, the combination of a main frame, a supplemental frame supporting the rolls and movable endwise in and out through a window in one of the sides of the main frame, and a series of locking devices arranged on opposite sides of said window and engaging said roll-frame when the rolls therein are in operative positive.

6. In a rolling-mill, the combination of a main frame, a supplemental frame supporting the rolls and movable to and from the main frame, a series of locking-cams pivotally mounted on the main frame on opposite sides of the roll-frame therein, and means for simultaneously moving said cams into and from engagement with said roll-frame.



7. In a rolling-mill, the combination of a main frame, a supplemental frame supporting the rolls and movable to and from the main frame through a window or opening in one of the side frames thereof, a series of locking-cams pivotally mounted on the main frame on each side of said window, and provided with sectional screw-faces adapted to engage the sides of the roll-frame, and means for simultaneously moving said screw-faces to and from engagement with the roll-frame.

8. In a rolling-mill, the combination of a main frame, a supplemental frame adapted to move to and from the main frame through a window formed in one of the side frames thereof, a lower roll mounted in stationary bearings on said supplemental frame, an upper roll mounted in bearings that are adjustable vertically of said roll-frame, and means for adjusting said upper roll vertically and maintaining it in its adjusted position, said means comprising separable parts secured respectively to the main and supplemental frames of the mill, whereby the latter, and the rolls therein, can be moved to and from a position within the main frame.

9. In a rolling-mill, the combination of a main frame, a supplemental frame movable to and from engagement with the main frame, a pair of rolls mounted in bearings in said supplemental frame, the bearings of the upper roll being movable to and from the lower roll, adjustable stops for limiting the upward movement of said upper roll, and means on the main frame for moving the bearings of said upper roll against said stops.

10. In a rolling-mill, the combination of a main frame, a supplemental frame movable to and from engagement with the main frame, a pair of rolls mounted in bearings in said supplemental frame, the upper roll being adapted to move vertically in said frame toward and from the lower roll, means on the main frame for moving the upper roll away from the lower roll, and means for withdrawing said lifting means from engagement with the supplemental frame when it is desired to withdraw the latter from the mill.

11. In a rolling-mill, the combination of a main frame, a supplemental frame adapted to slide through a window in one of the sides of the main frame, a pair of rolls mounted in bearings in said supplemental frame, rods extending downward from the bearings of the upper roll, rods mounted in guides on the main frame in alinement with the rods in the supplemental frame when the latter is within the mill, and means for moving said rods vertically to adjust the upper roll to and from the lower roll.

12. The combination of a rolling-mill having its rolls mounted in a frame that is movable endwise in and out from the main frame of the mill, a support for such supplemental frame and rolls at one side of the mill, a hydraulic or other power cylinder, and a piston arranged in said cylinder and adapted to be detachably connected to said supplemental frame to move it and the rolls therein from the mill onto said support, or vice versa.

13. The combination of a rolling-mill having its rolls mounted in a frame that is movable endwise in and out through a window in a side of the main frame of the mill, a hydraulic or other power cylinder arranged opposite said window in the frame of the mill, a piston fitted in said cylinder and adapted to be connected to the said roll-frame, and a movable support for said roll-frame and rolls arranged between the mill and said power-cylinder.

749,746. DEVICE FOR AUTOMATICALLY PREVENTING ESCAPE OF AIR FROM TRAIN-PIPE COUPLINGS. ROBERT C. POLLOCK, Kings Bridge, N. Y. Filed Sept. 24, 1903. Serial No. 174,476. (No model.)



Claim.—1. A train-pipe coupler provided with valve-carrying members adapted to be mounted in coupler-heads, a valve pivotally mounted upon an extended portion of each member and provided with a by-pass, a headed push-rod mounted centrally within each member, each valve being provided with a lug adapted to contact with the end of said push-rod, as set forth.

2. A train-pipe coupling comprising in combination with the coupler-heads, valve-carrying members mounted in the chambered portions of the coupler-heads, a lug projecting from each of said members, a valve pivotally mounted upon said lug, a headed push-rod, the stem of which has a movement through a cross-bar forming a part of said member and having its end turned at an angle, and an inclined lug mounted upon said valve adapted to contact with the free end of said stem, as set forth.

3. A train-pipe coupler comprising in combination with coupler-heads, annular valve-carrying members having threaded connection with the threaded walls of the chambered portions of the coupler-heads, packing-rings seated in annular recesses in said members, lugs projecting at right angles from said members, a valve pivotally mounted upon each of said lugs and provided with a by-pass, a lug projecting from the inner concaved face of each valve, a push-rod having an enlarged tapering-ended head, and a stem with an angled end adapted to contact with said lug upon the valve, as set forth.

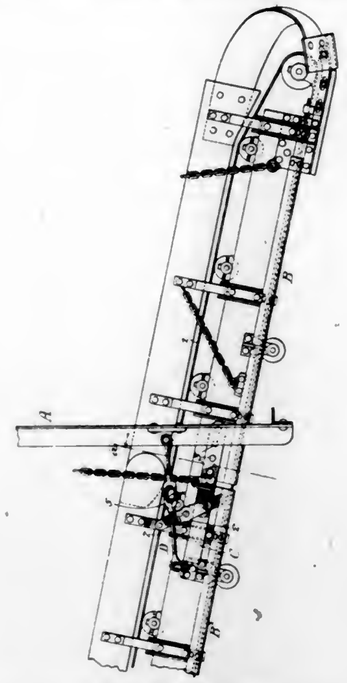
4. In a train-pipe coupling, an exteriorly-threaded valve-casing adapted to be threaded therein and provided upon one face with a pivoting lug, a valve pivoted to said lug and adapted to engage the face of said casing and provided with an aperture therethrough, an inwardly-extending projection from the inner face of said valve, a cross-bar in said casing, a push-rod slidably mounted in said cross-bar, a beveled head at one end of said push-rod, and an angularly-disposed finger at the opposite end of said rod adapted to engage the projection upon the inner face of the valve.

749,747. GRADING AND DITCHING MACHINE. BERT O. RHODES, Barberton, Ohio, assignor to National Drill and Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Nov. 16, 1903. Serial No. 181,359. (No model.)

Claim.—1. In an elevating-carrier for grading and ditching machines, the bed-frame having its upper end provided with longitudinal projecting track extensions rigid therewith; and the carrier-frame having rolls arranged to traverse said track extensions when the carrier-frame is swung independently of the bed-frame.

2. In an elevating-carrier for grading and ditching machines, the bed-frame having its upper end provided with longitudinal projecting track extensions rigid therewith; the carrier-frame having rolls arranged to traverse said track extensions when the carrier-frame is swung independently of the bed-frame; and a longitudinal adjustable link connection between the carrier-frame and the body-frame of the machine.

3. In an elevating-carrier for grading and ditching machines, the bed-frame having side bars rigid therewith and projecting longitudinally from its upper end to form tracks; the carrier-frame provided with rolls arranged to traverse said tracks; and adjustable links forming hinge connections between the carrier-frame and uprights of the body-frame of the machine at points above the said tracks.



749,748. GRADING AND DITCHING MACHINE. BERT O. RHODES, Barberton, Ohio, assignor to National Drill and Manufacturing Company, Chicago, Ill., a Corporation of West Virginia. Filed Nov. 16, 1903. Serial No. 181,360. (No model.)

Claim.—1. In a ditching and grading machine, a wheeled body-frame provided with a plow, and an evener for a back team of horses; an evener for a forward team of horses; and a draft attachment arranged as a connection between the plow and the forward evener; the draft strain incident to the use of the plow being upon the forward evener by means of the draft attachment and the resistance of the wheeled body-frame being upon the rear evener.

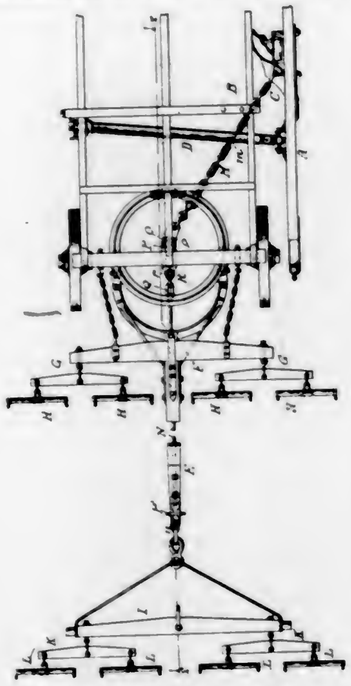
2. In a grading and ditching machine, a wheeled body-frame provided with a plow and having an evener for a back team of horses; a forwardly-arranged evener for a forward team of horses; and a draft attachment connecting the forward evener with the plow and having a limited shifting connection with the middle forward portion of the body-frame.

3. In a grading and ditching machine, a wheeled body-frame having a plow, and an evener for a back team of horses connected with the body-frame; a forwardly-arranged evener for a forward team of horses; a draft attachment arranged as a connection between the forward evener and the plow and comprising in part a chain and in part a rod, the rod being arranged to extend forwardly from the machine.

4. In a grading and ditching machine, a wheeled body-frame; a suspended plow-beam provided with a plow; a transversely-arranged stay-bar having hinged or pivotal connections with the plow-beam and the body-frame; and a draft attachment comprising a rod extending forwardly from the machine and a chain arranged as a connection between said rod and the plow, said draft attachment being guided and maintained at a point midway of the front wheels.

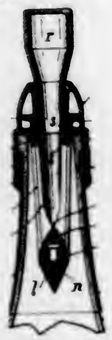
5. In a ditching and grading machine, a wheeled body-frame provided with a forwardly-extending pole and an evener for a back team of horses; a suspended plow-beam arranged at one side of the machine; a swinging stay-bar having hinged or pivotal connections

with the plow-beam of the body-frame; a forwardly-arranged evener for a forward team of horses disconnected from a pole; and a draft attachment connecting the forward evener with the plow and arranged to extend from its rear end obliquely forward to the middle forward portion of the machine and thence directly forward under the pole to the forward evener, said draft attachment having a shifting connection with the middle forward portion of the body-frame.



749,749. STOPPERING DEVICE FOR SPARKLING LIQUIDS.

JULES ROGER, Monceaux, near Lisieux, France. Filed Mar. 24, 1903. Serial No. 149,354. (No model.)



Claim.—1. In a stoppering device, the combination with a bottle-neck having a collar and a sectional casing adapted to engage the neck below the collar, of a cock having a hollow perforated plug with one end open and constituting the cock-outlet, and a guard inclosing the bottle-neck collar and securing the cock to the sectional casing with its outlet concentric with the bottle-neck.

2. In a stoppering device, the combination with a bottle-neck having a collar and a sectional casing adapted to engage the neck below the collar and having a screw-thread on its upper end, of a nut adapted to engage a portion of the screw-thread of the casing and clamp the sections thereof together and onto the bottle-neck, and a cock having a hollow perforated plug with one end open and constituting the cock-outlet, and a guard inclosing the bottle-neck collar and securing the cock to the sectional casing with its outlet concentric with the bottle-neck.

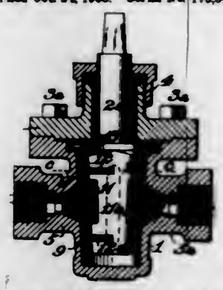
3. In a stoppering device the combination with a bottle-neck having a collar and a sectional casing adapted to engage the neck below the collar and with a screw-thread on its upper end, of a cock-casing placed within the bottle-neck, having a guard extending over the bottle-neck collar and screw-threaded internally to engage the sectional-casing thread; side openings in the cock-casing; a hollow plug fitting and rotatably secured within the cock-casing and having side openings and an open end; a head to the plug extending above the bottle-neck and adapted to rotate the same; substantially as specified.

4. In a stoppering device the combination with a bottle-neck having a collar, a sectional casing adapted to engage the neck below and the collar with a screw-thread on its upper end, and a nut adapted to engage a portion of the screw-thread of the casing, of a cock-casing placed within the bottle-neck; having a guard extending over the bottle-neck collar and screw-threaded internally to engage the sectional-casing thread; side openings in the cock-casing; a hollow plug fitting and rotatably secured within the cock-casing and having side openings and an open end; a head to the plug extending above the bottle-neck and adapted to rotate the same; substantially as specified.

5. In a stoppering device the combination with a bottle-neck having a collar and a sectional casing adapted to engage the neck below the collar and with a screw-thread on its upper end, of a cock-casing placed within the bottle-neck, having a guard extending over the bottle-neck collar and screw-threaded internally to engage the sectional-casing thread; side openings in the cock-casing; a hollow plug fitting and rotatably secured within the cock-casing and having side openings and an open end; the side openings ending in a slanting floor to prevent the lodgment of matter within the plug; a head to the plug extending above the bottle-neck and adapted to rotate the same; substantially as specified.

6. In a stoppering device the combination with a bottle-neck having a collar and a sectional casing adapted to engage the neck below the collar and with a screw-thread on its upper end, of a cock-casing placed within the bottle-neck, having a guard extending over the bottle-neck collar and screw-threaded internally to engage the sectional-casing thread; side openings in the cock-casing; a hollow plug fitting and rotatably secured within the cock-casing and having side openings and an open end; a head to the plug extending above the bottle-neck and adapted to rotate the same; a screw-thread within the upper portion of the hollow plug and a capsule having a neck shaped and screw-threaded to engage within the said plug and with the screw-thread thereof substantially as specified.

749,750. VALVE. JAMES J. RYLANDS, Homestead, Pa., assignor to Homestead Valve Manufacturing Company, a Corporation of Pennsylvania. Filed Oct. 24, 1903. Serial No. 178,307. (No model.)



Claim.—1. The combination of a valve-body having opposite inlet and discharge passages, and opposite cylinder-connection passages located transversely thereto, and a valve-plug seated in the body and having through-ports independently controlling communication between the cylinder-connection passages and the inlet and discharge passages, respectively, and a peripheral supply-port which communicates with the inlet-passage and with both the cylinder-connection passages when the latter are cut off from the discharge-passage.

2. The combination of a valve-body having opposite inlet and discharge passages, and opposite cylinder-connection passages located transversely thereto, a balancing-groove in the valve-body communicating with the inlet-passage, and a valve-plug seated in the body and having through-ports independently controlling communication between the cylinder-connection passages and the inlet and discharge passages, respectively, and a peripheral supply-port which is constantly open to the balancing-groove and has its terminals in a plane between the inner walls of the through-ports.

3. The combination of a valve-body having opposite inlet and discharge passages and opposite cylinder-connection passages located transversely thereto, a balancing-groove in the valve-body communicating with the inlet-passage, and a valve-plug seated in the body and having through-ports independently controlling communication between the cylinder-connection passages and the inlet and discharge passages, respectively, and two peripheral supply-ports located between the ends of the valve-plug and the adjacent end of the through-ports, said supply-ports being constantly open to the balancing-groove and having their terminals in a plane between the inner walls of the through-ports.

749,751. SAFETY-RAZOR FRAME. AUGUST W. SCHEURER, Hoboken, N. J. Filed Mar. 2, 1903. Serial No. 145,778. (No model.)



Claim.—1. In a safety-razor frame, a case having a blade-supporting portion, a lip adapted to bear against the rear of the blade, a spring on said casing for operating said lip, and clips formed integral with said spring, substantially as described.

2. In a safety-razor frame, a casing and blade-support movably secured thereto, a lip on said blade-support adapted to bear against the rear of the blade, a spring also on said blade-support for operating said lip, and clips formed integral with said spring, substantially as described.

3. In a safety-razor frame, a casing, a blade-support movably secured thereto, a catch for securing said blade-support to said casing, a lip on said blade-support adapted to bear against the rear of the blade, a spring also on said blade-support for operating said lip, and clips formed integral with said spring, substantially as described.

4. In a safety-razor frame, a casing, a blade-support pivoted at its front ends thereto, a catch for securing said blade-support to said casing, opposite the said pivots, a lip on said blade-support adapted to bear against the rear of the blade, a spring also on said blade-support for operating said lip, and said catch, and clips formed integral with said spring, substantially as described.

5. In a safety-razor frame, a casing, a blade-support pivoted at its front ends to said casing, a catch at the rear for securing the blade-support to said casing, a lip on said blade-support and adapted to bear against the rear of the blade, a spring also on said blade-support for operating said lip, and said catch, and clips formed integral with said spring, substantially as described.

6. In a safety-razor frame, a casing, a blade-support pivoted at its front ends thereto, a catch opposite said pivots for securing said blade-support to said casing, a swinging lip on said casing adapted to bear against the rear of the blade, a single spring also on said blade-support for operating said catch and said lip, and spring-clips formed integral with said spring, substantially as described.

7. In a safety-razor frame, a casing, a blade-support pivoted thereto, a catch for securing said blade-support to said casing, a lip on said blade-support, adapted to bear against the rear of the blade, a yoke-shaped spring with a dependiug tongue also on said blade-support for operating said catch and said lip and spring-clips formed integral with said spring, substantially as described.

8. A spring for a safety-razor frame substantially yoke-shaped and adapted to be secured at its two lower shoulders, said spring having a centrally-disposed depending tongue located within said yoke-shaped portion and between said shoulders and the ends of said spring being bent so as to form clips, substantially as described.

9. A spring for a safety-razor frame, provided with clips and having a portion for operating a lip for bearing against the rear of the blade, substantially as described.

10. A spring for a safety-razor frame substantially yoke-shaped and adapted to be secured to its two shoulders, said spring having a centrally-disposed depending tongue located within said yoke-shaped portion, and the ends of said spring being bent so as to form clips.

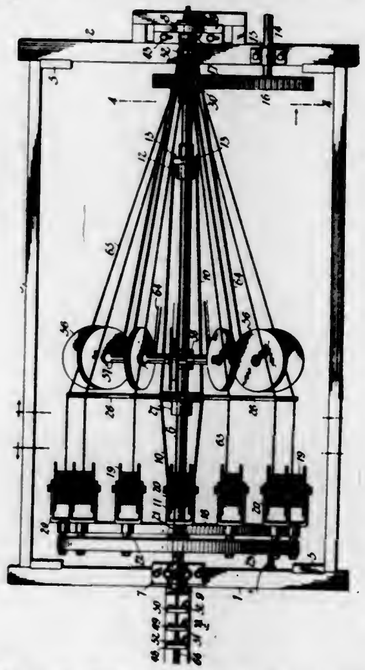
11. In a safety-razor frame, a casing having a blade-supporting portion, a lip adapted to bear against the rear of the blade, and a single spring having its middle portion secured to the casing, and being provided at its ends with L-shaped arms bent forward, outward and over the casing, the ends of said L-shaped arms being formed into clips for holding the blade, substantially as described.

12. In a safety-razor frame, a casing having a blade-supporting portion, a lip adapted to bear against the rear of the blade, and a single spring having its middle portion secured to the rear of the casing, and being provided at its ends with L-shaped arms bent forward, outward and over the casing, the ends of said L-shaped arms being formed into clips for holding the blade, substantially as described.

13. In a safety-razor frame, a casing, a blade-support movably secured thereto, a lip on said blade-support for bearing against the rear of the blade, and a single spring secured by its middle portion to said blade-support, said spring having at the ends thereof L-shaped arms bent forward, outward and over the edge of the blade-support, the ends of said arms being formed into clips for holding the blade, substantially as described.

14. In a safety-razor frame, a casing, a blade-support movably secured thereto, a lip adapted to bear against the rear of the blade on said blade-support, and a single spring secured by its middle portion to the rear wall of the blade-support and having at its ends L-shaped arms bent forward, outward and over the casing, the ends of said L-shaped arms being formed into clips for holding the blade, substantially as described.

749,752. CABLE-MAKING MACHINE. JAMES H. SCHOONMAKER, Winona, Minn., assignor to Winona Wire Cable Company, Winona, Minn., a Corporation. Filed Oct. 19, 1903. Serial No. 177,681. (No model.)



Claim.—1. In a machine of the class described, the combination of a shaft, means for rotating said shaft, a wheel on the shaft, spool-carrying brackets mounted on said wheel, a freely-suspended ring-weight having arm connection with each of said brackets, and a roller out of contact with the weight during low speed of the machine, but contacting therewith during high speed for preventing vibration of the weight.

2. In a machine of the class described, the combination of a tubular shaft, adjustable truss-rods for stiffening said shaft, means for rotating the shaft, a wheel on the shaft, spool-carrying brackets on the wheel, means connected with the brackets for maintaining the spools in vertical position, adjustable tension devices carried by said brackets, and strand-spacing separately-secured arms extending radially from the shaft and having holes for the passage of the strands.

3. In a machine of the class described, the combination of a tu-

bular shaft, a bearing for one end of the shaft, a disk on the other end of the shaft, a box in which said disk is rotatably confined said box being laterally movable relatively to the shaft-axis, means for rotating the shaft including two gear-wheels one carried by the shaft and means permitting the moving of the box and shaft end to disengage the gear-wheels for the purpose hereinbefore described.

4. In a machine of the class described, the combination of a tubular shaft, a bearing for one end of the shaft, a disk on the other end of the shaft, a box in which said disk is rotatably confined said box being movable to effect lateral movement of the shaft end, means for moving said box, means for securing the box in normal position, and means for rotating the shaft including two gear-wheels one on said shaft.

5. In a machine of the class described, the combination of a tubular shaft for the passage of a center strand, a plurality of spools carried by the shaft for supplying outlying strands, tension-equalizing means for said strands, strand-covering-strip spools carried by said shaft, means for concentrating and positioning the strands and strips, and dies on the shaft effecting the covering of the strands by said strips.

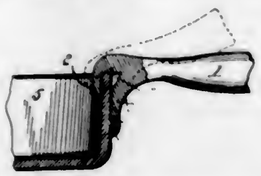
6. In a machine of the class described, the combinaton of a tubular shaft for the passage of a center strand, a plurality of spools carried by the shaft for supplying outlying strands, tension-equalizing means for said strands, strand-covering-strip spools carried by said shaft, a disk on the shaft having strand-holes and strip-slots said disk serving to concentrate and position the strands and strips, a strand and strip guiding disk on the shaft to the rear of the aforesaid disk, and two die-disks on the shaft effecting the covering of the strands by said strips one of said disks constituting the finishing-die, and a die-box in which said finishing-die is rotatably confined.

7. In a machine of the class described, the combination of a tubular shaft for the passage of a strip-covered center strand, dies at the front of the shaft for effecting such covering, a plurality of outlying strand-spools carried by the shaft, tension-equalizers for said strands, strand-covering-strip spools carried by said shaft, a disk on the shaft having strand-holes and strip-slots said disk serving to concentrate and position the strands and strips, a strand and strip guiding disk on the shaft to the rear of the aforesaid disk, and two die-disks on the shaft effecting the covering of the strands by said strips one of said disks constituting the finishing-die, and a die-box in which said finishing-die is rotatably confined.

8. In a machine of the class described, the combination of means for feeding center and outlying strands and covering-strips for the outlying strands including a tubular shaft, dies carried by the shaft for effecting the covering of the strands by said strips, and a disk on the shaft in advance of the dies said disk having strand-openings and strip-slots and arranged with reference to the die-openings to bring the strip-covering seams in position to be subsequently twisted innermost in the formation of the cable.

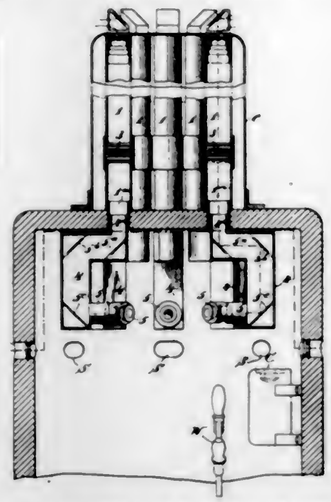
9. In a machine of the class described, the combination with the center and outlying strand-feeding means and strip-feeding means, of means effecting the covering of the strands by the strips, and means for twisting the covered strands into a cable with the strip-seams innermost.

749,753. DETACHABLE HANDLE. LOUIS H. SOISSON, Connellsville, Pa. Filed Aug. 20, 1903. Serial No. 170,143. (No model.)



Claim.—The combination of a cooking utensil and a detachable handle for said utensil, said handle comprising a handle-body provided at its forward end with two right-angular-extending lips one of said lips being of considerably greater length than the other of said lips, and having a portion of its inner face on a straight line parallel with the straight line inner face of the shorter lip, the remainder of said inner face of the longer lip curving rearwardly toward the handle, the said cooking utensil and the said longer lip of the handle being provided the one with an aperture and the other with a pin adapted to be brought into engagement with each other.

749,754. ALTISCOPE FOR SUBMARINE BOATS. LAWRENCE Y. SPEAR, Greenport, N. Y., assignor to Electric Boat Company, a Corporation of New Jersey. Filed Mar. 14, 1903. Serial No. 147,734. (No model.)



Claim.—1. An altiscope for submarine and other boats, comprising a group of upright, altiscope optical tubes connected with the turret or conning-tower of the boat, said tubes having their image-receiving mirrors faced outwardly in different directions and having their observing-telescopes within the turret directed radially inward, substantially as set forth.

2. An altiscope for submarine and other boats, comprising a group of upright, altiscope optical tubes mounted on the top of a turret of the boat with their image-receiving mirrors facing outwardly in different directions, angular tubes 4 within the turret and connected optically with the respective outer optical tubes, oblique mirrors in said angular tubes, and telescopes connected with the latter for observation, substantially as set forth.

3. The combination with a turret of a submarine boat, of a group of upright optical tubes mounted on turret in elliptical order as described, each of said tubes having at its upper end an oblique receiving-mirror which faces radially outward from the center of the group, the angular tubes 4 within the turret and connected optically with the respective outer tubes, the deflecting-mirrors in said tubes, and the telescopes at the lower extremities of said tubes, said telescopes being disposed in a circle and having their axes radial, substantially as set forth.

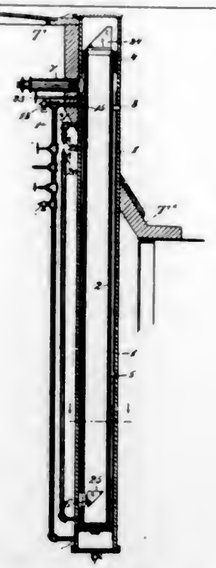
749,755. ALTISCOPE OR THE LIKE. LAWRENCE Y. SPEAR, Greenport, N. Y., assignor to Electric Boat Company, a Corporation of New Jersey. Filed Mar. 14, 1903. Serial No. 147,736. (No model.)

Claim.—1. The combination with a boat and its turret, of a sheath fixed in an upright position to said turret, a single optical tube mounted slidably in said sheath and provided near its lower end with an aperture 6 in its side and a prism opposite thereto, a telescope mounted in an aperture extending through the turret-wall and the wall of said sheath, and means for elevating said optical tube until its aperture 6 is opposite to said telescope.

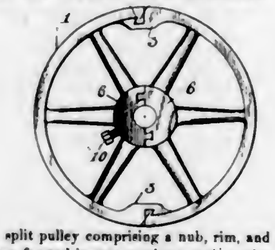
2. An altiscope for submarine and other boats, having a single optical tube mounted slidably in a fixed, upright inclosing sheath said sheath having a packing at its upper part to embrace the optical tube and a cap to close its upper end, and said tube having a piston at its closed lower end, means for admitting to the sheath a fluid under pressure for operating the tube, and means for cushioning the movement of said tube.

3. The combination with a boat and its turret, of a sheath fixed in an upright position to said turret and provided with a packing 4, an optical tube mounted slidably in said sheath and provided with a piston 3, and an aperture 6, a telescope mounted in the wall of the turret, means for admitting a fluid under pressure to the sheath for operating the optical tube and for regulating said fluid, means for preventing the axial rotation of the tube in its sheath, and means for securing the tube in its protruded position.

749,755.



749,756. SPLIT PULLEY. SAMUEL STROBA, Allegheny, Pa. Filed July 29, 1903. Serial No. 167,442. (No model.)



Claim.—A split pulley comprising a hub, rim, and connecting-spokes, and being formed in two sections, each section having one end of its rim formed with an enlargement extending beyond said end, said extended portion of said enlargement being formed with a groove, tongues formed on the inner faces of the opposite ends of said rim-sections adapted to fit into the grooves of the adjacent enlargements, and dovetail extensions, one being carried by each hub-section and said extensions being received in correspondingly-shaped grooves formed in the opposite sections.

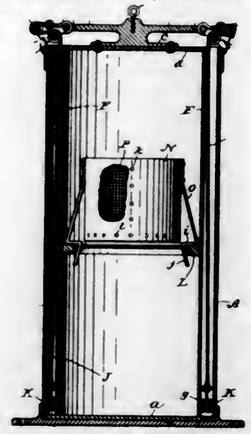
749,757. ACETYLENE-GAS GENERATOR. ORION K. STUART, Indianapolis, Ind., assignor of one-half to William R. Watson, Indianapolis, Ind. Filed Apr. 3, 1903. Serial No. 150,862. (No model.)

Claim.—1. Gas apparatus including a supporting vessel, a gas-holder in the supporting vessel, a carbid-holder in the gas-holder, an annular combined weight and guide extending about the lower portion of the gas-holder within the supporting vessel, and cables connected with the gas-holder and also with the combined weight and guide.

2. Gas apparatus including a supporting vessel, a gas-holder in the supporting vessel, a carbid-holder in the gas-holder, cables connected with the top of the gas-holder and extending at the exterior thereof into the supporting vessel, tension devices mounted on the supporting vessel and engaging the cables, and means within the supporting vessel whereby the cables may normally be held taut.

3. Gas apparatus including a supporting vessel adapted to contain a liquid substance and provided at the upper portion thereof with sheaves, a gas-holder in the supporting vessel and provided with cables extending in contact with the sheaves into the supporting vessel at the exterior of the gas-holder, a carbid-holder in the gas-holder, a combined weight and guide extending about the gas-holder within the supporting vessel and connected with the cables, and a conduit connected with the interior of the gas-holder.

4. Gas apparatus comprising a supporting vessel adapted to hold liquid, a gas-holder in the supporting vessel and having an annular ledge therein, a perforate carbid-holder having spring-arms engaging the ledge, a wire basket in the carbid-holder, cables connected with the gas-holder, a conduit connected with the gas-holder, and means whereby the cables may normally be held taut.



5. Gas apparatus comprising a supporting vessel having means whereby the same may be anchored, a gas-holder in the supporting vessel, arms attached to the top of the gas-holder and having apertures therein, sheaves mounted on the upper portion of the supporting vessel, cables having hooks in the apertures of the arms and extending in contact with the sheaves into the supporting vessel, a combined annular weight and guide in the supporting vessel about the gas-holder and connected with the cables, a carbid-holder in the gas-holder, and a conduit in communication with the interior of the gas-holder.

6. Gas apparatus comprising a supporting vessel adapted to contain a liquid substance and provided at the upper portion thereof with sheaves, a gas-holder in the supporting vessel and provided with arms at the top thereof, cables detachably connected to the arms extending in contact with the sheaves into the supporting vessel at the exterior of the gas-holder, a carbid-holder in the gas-holder, weighting devices connected to the cables within the supporting vessel at the exterior of the gas-holder, and a conduit connected with the interior of the gas-holder.

7. Gas apparatus comprising a supporting vessel adapted to contain a liquid substance and provided at the upper portion with sheaves, a gas-holder in the supporting vessel and provided at the top thereof with arms opposite to the sheaves, a carbid-holder in the gas-holder, cables detachably connected to the arms in contact with the sheaves and inclosed below the top of the supporting vessel, and weighting devices connected to the cables.

8. Gas apparatus comprising a supporting vessel adapted to contain a liquid substance and provided at the top thereof with a plurality of pairs of sheaves each pair comprising a lower inner sheave and an upper outer sheave, a gas-holder in the supporting vessel and provided with cables each extending in contact with a pair of the plurality of sheaves, weighting devices connected to the cables, and a carbid-holder in the gas-holder.

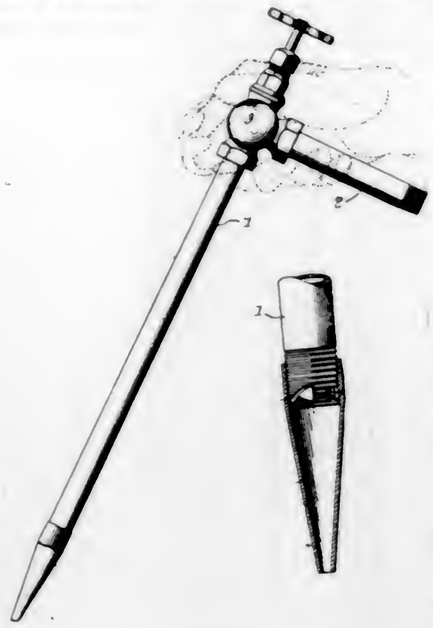
9. Gas apparatus comprising a supporting vessel adapted to hold liquid, a gas-holder in the supporting vessel and having arms at the top thereof, cables connected to the arms, weights connected to the cables, a perforate carbid-holder having spring-arms, means connected to the interior of the gas-holder adapted to be engaged by the spring-arms, a wire basket in the carbid-holder, and vertical partitions in the basket.

749,758. IRRIGATING DEVICE. WILLIAM G. TEMPLETON, Colorado Springs, Colo. Filed Sept. 18, 1902. Serial No. 123,917. (No model.)

Claim.—1. An irrigating device comprising a water-conducting tube having its lower end notched to form a plurality of teeth and the outer portion of the tube being threaded, and a removable nozzle adapted to the threaded portion of said tube.

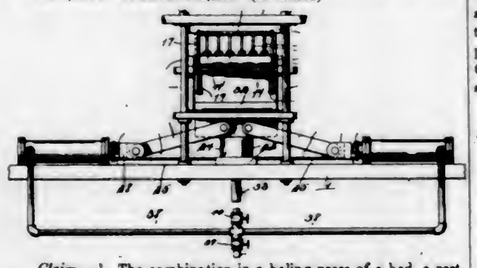
2. A manually-manipulated irrigating device, comprising a tube and a pair of interchangeable introducing members, one of said mem-

bers being detachable from the tube, thereby to permit the employment of either member.



3. A manually-manipulated irrigating device comprising a pair of tubes disposed at an angle to each other, a valve-casing to which both of the tubes are connected and forming in connection with one of the tubes a handle member and a hose-attaching means, and the other of said tubes being provided with means for facilitating its entrance into the ground.

749,759. BALING-PRESS. ALBERT C. TINSLEY, Fay, Tex. Filed Oct. 7, 1903. Serial No. 176,146. (No model.)

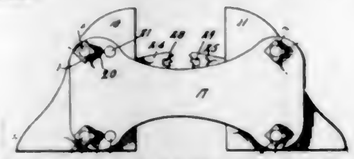


Claim.—1. The combination in a baling-press of a bed, a rest-block supported on said bed, a platen arranged for vertical reciprocation above the rest-block and normally supported on the rest-block, oppositely-arranged cylinders and pistons at the ends of the bed, toggle-levers connecting said pistons and platen, and a pressure-chamber within which said platen reciprocates.

2. The combination in a baling-press, of a bed, a rest-block mounted on said bed and provided with a central aperture, a platen normally resting upon said rest-block, a guide-rod rigidly connected with said platen and extending through the aperture in the rest-block, oppositely-arranged cylinders and pistons on said bed, toggle-links connecting said pistons and platen, and a pressure-chamber within which said platen reciprocates.

3. The combination in a baling-press, of a bed, a rest-block mounted on said bed and having an upward projection, a platen normally supported upon said projection, a pressure-chamber within which said platen reciprocates, track-plates arranged on opposite sides of said rest-block and presenting parallel ridges forming tracks, oppositely-arranged pistons and cylinders at the ends of said bed, brackets mounted at the inner ends of said cylinders, rollers having grooves engaging the ridges on said track-plates, and toggle-levers pivotally connected with said brackets and said platen.

749,760. PIPE OR ROD HOLDER. EVERETTE R. TOWNSEND, Fort Stockton, Tex. Filed Apr. 22, 1903. Serial No. 153,837. (No model.)



Claim.—1. A pipe or rod holder consisting of oppositely-disposed independent base-sections spaced apart, side bars detachably connected with said base-sections, and opposing gripping-jaws movably supported in said base-sections and adapted to operate upon opposite sides of an object disposed between the base-sections.

2. A pipe or rod holder consisting of oppositely-disposed base-sections spaced apart and having inwardly-facing cavities, side bars detachably connected to said base members, and opposing gripping-jaw members movably connected in said cavities and adapted to operate upon the pipe or rod disposed between said base-sections, substantially as described.

3. A pipe or rod holder consisting of oppositely-disposed base-sections spaced apart and having inwardly-facing cavities, side bars detachably connected to said base members, and opposing gripping-jaw members movably connected in said cavities and adapted to operate upon the pipe or rod disposed between said base-sections, and springs within said cavities and bearing upon said gripping-jaw members, and yieldably maintaining them normally in operative position, substantially as described.

4. A pipe or rod holder consisting of oppositely-disposed base-sections having transverse apertures, connecting-bars disposed upon opposite sides of said sections and provided with a plurality of spaced apertures adapted to register respectively with the apertures in said base-sections, tie-bolts adapted to engage said registering apertures, wherehy the base-sections may be detachably and adjustably connected, and opposing gripping-jaws movably supported in said base-sections and adapted to operate upon opposite sides of the pipe or rod held between the base-sections, substantially as described.

5. A pipe or rod holder consisting of oppositely-disposed base-sections spaced apart and connected detachably by side bars, and opposing gripping-jaws movably supported in said base-sections and adapted to operate upon opposite sides of the object disposed between the base-sections, said jaw members having oppositely-disposed recesses, and a spreader-key adapted to engage said recesses to maintain said jaw members distended in inoperative position, substantially as described.

749,761. ILLUMINATING PRISM-PLATE. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor, by mesne assignments, to Pressed Prism Plate Glass Company, a Corporation of West Virginia. Filed Apr. 25, 1898. Serial No. 678,743. (No model.)



Claim.—1. An illuminating prism-plate built up of a series of individual prism elements quadrilateral in cross-section, the meeting faces of the prisms being parallel and in optical contact.

2. A prism-plate of continuous transparent material constituted of a number of separately-formed prism elements of trapezoidal section with their parallel sides in optical contact with each other; substantially as described.

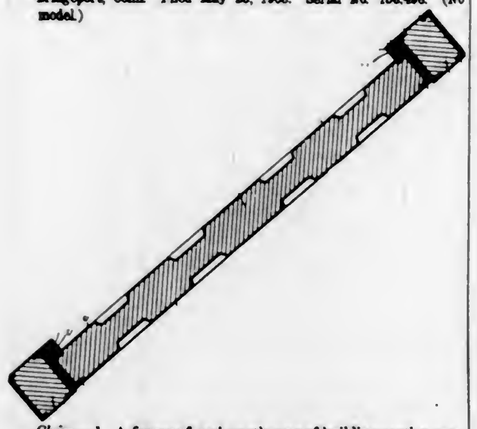
3. A prism-plate of continuous transparent material, constructed of a number of separately-formed prism elements of trapezoidal section with their parallel faces cemented together with transparent cement; substantially as described.

4. A prism-plate of continuous transparent material constructed of a number of similar separately-formed prism elements of trapezoidal section, with plain parallel sides in optical contact with each other, and the shorter of the remaining sides forming a continuous plane surface; substantially as described.

5. A prism-plate of continuous transparent material constructed of a number of similar separately-formed prism elements of trapezoidal section, with plain parallel sides in optical contact with each other, the shorter of the remaining sides forming a continuous plane surface, and an outer plain sheet of glass applied to said surface.

6. A prism-plate built up of a series of prism elements, each of trapezoidal cross-section with the parallel faces c, c' of the same in optical contact, and with the longer of the two remaining faces inclined to the faces c, c' at an angle of substantially thirty degrees; substantially as described.

749,762. SECTION FOR BUILDINGS. WILLIAM A. WARNER, Bridgeport, Conn. Filed May 23, 1903. Serial No. 158,498. (No model.)



Claim.—1. A fireproof and weatherproof building-section consisting of a non-metallic, non-conducting foundation provided with facing-strips of metal and then covered with an electrodeposit of metal.

2. A fireproof and weatherproof building-section consisting of a non-metallic, non-conducting foundation provided with a plurality of facing-strips of relatively inexpensive metal and then covered with an electrodeposit of more expensive metal.

3. A fireproof and weatherproof building-section consisting of a non-metallic, non-conducting foundation provided with U-shaped facing-strips of metal and then covered with an electrodeposit of metal.

749,763. HERMETICAL CASKET. WILLIAM A. WARNER, Bridgeport, Conn. Filed May 23, 1903. Serial No. 158,499. (No model.)

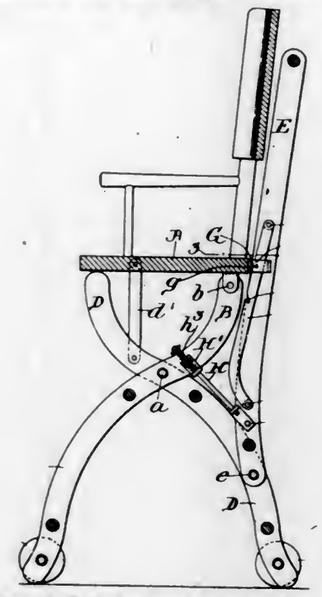


Claim.—1. A hermetical casket consisting of a body comprising sides, ends and bottom made of non-metallic material and provided with metal facing-strips, and the entire body then covered with an electrodeposit of metal and a cover likewise made of non-metallic material and provided with a metal facing-strip and then covered with an electrodeposit of metal.

2. A hermetical casket consisting of a body comprising sides, ends and bottom made of non-metallic material and provided with metal facing-strips and then covered with an electrodeposit of metal and the body as a whole then covered with an additional electrodeposit of metal and a cover likewise made of non-metallic material and provided with a facing-strip of metal and then covered with an electrodeposit of metal.

3. A hermetical casket consisting of a body comprising sides, ends and bottom made of non-metallic material and provided with U-shaped metal facing-strips and the entire body then covered with an electrodeposit of metal and a cover likewise made of non-metallic material and provided with a U-shaped metal facing-strip and then covered with an electrodeposit of metal.

749,764. FOLDING CHAIR. THEODORE W. WARBURN, Baldwinsville, Mass., assignor to Gilman Waite, Baldwinsville, Mass. Filed June 29, 1903. Serial No. 163,467. (No model.)



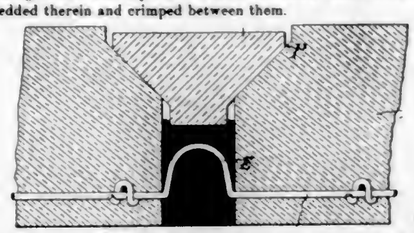
Claim.—1. The folding chair above described comprising a chair base; crossed legs pivoted together and to the chair-base; a handle-frame whose uprights are pivoted near their ends to the rear legs; guide-eyes each rigidly attached to the chair-base, and each with a pin rigidly attached to and extending across its guide-eye; rods, each rigidly attached at its ends to the uprights of the handle-frame, and each passing through its guide-eye; and notches in the edge of each rod, adapted to engage the fixed pins on the guide-eyes, and to be disengaged from those pins when the chair-base is slightly lifted and held out of engagement when the handle-frame is slightly swung away from the chair-base, allowing the chair to be lowered to a new position, all substantially as described.

2. In a folding chair the combination of a chair-base; crossed legs pivoted together and to the base; a handle-frame whose uprights are pivoted near their ends to the rear legs; a rod pivoted at its lower end to one of the uprights of the handle-frame; a bracket through which that rod extends and which is pivoted to one of the front legs, and a spiral spring with its inner end on the bracket, and its outer end under the head of the rod, all substantially as described.

3. In a folding chair the combination of a chair-base; crossed legs pivoted together and to the chair-base; a handle-frame whose uprights are pivoted near their ends to the rear legs; guide-eyes, each rigidly attached to the rear corners of the chair-base and each with a pin rigidly attached to and extending across its guide-eye; flat curved rods, each rigidly attached at its ends to the uprights of the handle-frame and each passing through its guide-eye; and slanting notches in the front edge of each flat curved rod; so that the weight of the chair-base holds the pins in the notches of the flat curved rods, and the handle-frame and rods must swing slightly away from the chair-base as the chair-base is moved to its different positions.

749,765. RESERVOIR-BOTTOM AND EXPANSION-JOINT. WILLIAM H. WIGHT and FRED E. TOWNSEND, New York, N. Y. Filed Mar. 9, 1903. Serial No. 146,905. (No model.)

Claim.—1. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks, and a reticulated metal reinforce embedded therein and crimped between them.



2. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks, and a sheet of waterproof fabric along the face of said blocks and crimped between them.

3. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks with a wide space between them, a reticulated metal reinforce embedded in said blocks and crimped between them, and a mass of plastic waterproof material in said space.

4. A masonry structure formed of two courses of masonry with a sliding joint between the courses.

5. A masonry joint formed of two courses of masonry with a sliding joint between the courses and each course being formed of blocks with expansion-joints between them.

6. A waterproof sliding joint between two courses of masonry comprising the two adjoining portions of masonry, and sheets of fabric applied on said faces by means of adhesive waterproof materia and having non-adhesive outer faces.

7. A waterproof sliding joint between two courses of masonry comprising the two adjoining portions of masonry, sheets of fabric applied on said faces by means of adhesive waterproof material and having non-adhesive outer faces, and an additional sheet of fabric between the other two and having non-adhesive faces.

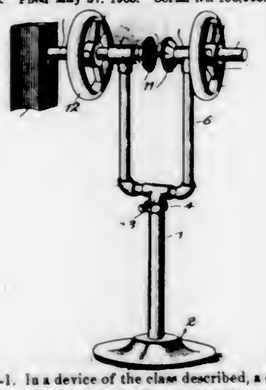
8. A masonry structure comprising two courses of masonry sheets of fabric applied on the adjacent faces thereof by means of adhesive material and having non-adhesive outer faces, said sheets being crimped between the blocks.

9. A masonry structure formed of two courses of masonry in blocks with wide joints between them, and a mass of plastic waterproof material in the joints.

10. An expansion-joint for masonry structures subjected to pressure against their faces comprising the two adjoining ends of masonry blocks, the edges of said blocks flaring toward the face of the structure, and a wedge-shaped plug in the space between said flared edges.

11. A reservoir-bottom or the like formed of two courses of concrete in blocks with open joints between them, a filling of plastic waterproof material in the joints, sheets of fabric applied on the adjoining faces of the courses by means of adhesive waterproof material and having non-adhesive outer faces, said sheets being crimped between the blocks, and metal reinforcing embedded in the blocks and crimped between them.

749,766. **DISK-GRINDING DEVICE.** FRED R. WILKISON, Horton, Kans. Filed May 27, 1903. Serial No. 158,996. (No model.)



Claim.—1. In a device of the class described, a disk-holding device comprising a pair of shafts disposed in alinement, one of said shafts being longitudinally movable, bearings for said shafts, and means for connecting the opposing ends of said shafts.

2. In a device of the class described, a disk-holding device comprising bearings disposed in alinement with each other, a pair of shafts journaled independently in said bearings, said shafts being provided with disk-clamping collars and one of said shafts being longitudinally movable in its bearing, the opposing ends of said shafts being provided with means whereby they may be temporarily connected.

3. In a device of the class described, a holding device comprising a fork, boxings mounted at the upper ends of the members of said fork in alinement with each other, shafts journaled in said boxings, said shafts being provided at their opposing ends respectively with a reduced screw-threaded portion and with an internally-threaded recess, and disk-clamping collars mounted upon said shafts.

4. In a device of the class described, a vertically-adjustable fork, boxes connected with the prongs of said fork, shafts journaled in said boxes, collars upon said shafts, a hand-wheel so secured upon one of the shafts as to prevent the longitudinal movement thereof, a hand-wheel so secured upon the other shaft as to admit of its movement longitudinally in its bearing, and means for temporarily connecting the ends of the shafts projecting inward beyond the opposing faces of the collars.

5. In a device of the class described, a supporting member having a foot-piece engaged by the foot of the operator and a disk-holding member vertically adjustable with relation to said supporting member, said disk-holding member including means for rotatably supporting the disk to be operated upon, and handle means whereby the device may be manipulated by the operator.

6. In a device of the class described, means for rotatably supporting a disk to be operated upon, said supporting means being revoluble in bearings and temporarily connected by male and female screw-threads and said supporting means being further provided with holding means whereby they may be restrained from rotating during the operation of the device.

7. In a device of the class described, shafts for rotatably supporting a disk, said shafts being provided with collars and with extensions at the opposing sides of said collars capable of screw-threaded connection with each other, one of said shafts being longitudinally slidable in its bearings and each of said shafts being provided with hand-wheels whereby the device may be controlled and the shafts turned to clamp the disk interposed between the collars with any desired degree of pressure.

8. In a device of the class described, a disk-holding device comprising independently-supported shafts having detachably-connected ends provided with collars, in combination with a shoe mounted loosely upon one of said shafts and having a concavity to engage the leg of the operator, and hand-wheels upon said shafts.

9. A disk-holding device comprising disk-clamping means having screw-threaded engagement with each other, and means for holding and guiding the device, said means serving also to regulate the friction of the clamping means against the disk.

10. In a device of the class described, disk-clamping means having screw-threaded engagement with each other through a central aperture of the disk, and hand-wheels mounted upon said screw-threaded clamping members.

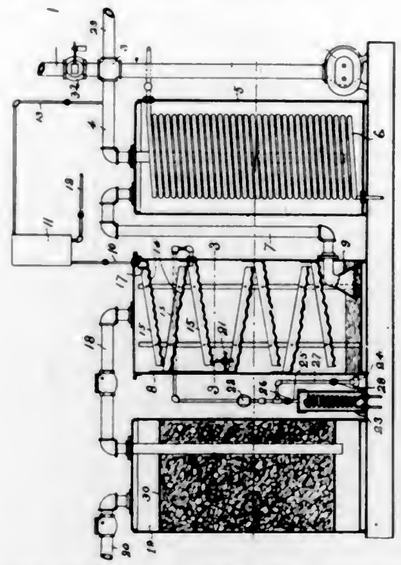
11. In a device of the class described, clamping means for frictionally engaging opposite sides of the disk to be operated upon, and holding and guiding means whereby said clamping means may be actuated and adjusted during the operation of the device.

749,767. **PROCESS OF PRODUCING CARBURETED AIR.** EDWARD F. WILSON, Chicago, Ill., assignor to George S. Welles, Chicago, Ill. Filed Oct. 19, 1903. Serial No. 177,642. (No specimens.)

Claim.—1. The herein-described process of producing carbureted fluid which consists in introducing a hydrocarbon fluid and air into a sealed vessel at opposite ends, causing the same to flow continuously in opposite directions through said vessel in a zigzag direction, finely dividing said liquid throughout its passage, and simultaneously atomizing said liquid and agitating said air at one point in their passage through said vessel.

2. The herein-described process for producing carbureted fluid which consists in introducing a hydrocarbon liquid and fluid to be carbureted into a sealed vessel at opposite ends causing said liquid and fluid to flow continuously through said vessel in opposite directions, atomizing said liquid and agitating said fluid during a part of their passage through said vessel, and interrupting the rapidity of the flow of said liquid at intervals during its passage.

3. The herein-described process for producing carbureted fluid which consists in introducing a hydrocarbon liquid into the upper end of a sealed vessel, introducing a previously-heated fluid to be carbureted into said vessel at its lower end, dividing said liquid into thin films during its downward passage through said vessel, atomizing said liquid at one point in its passage, causing said fluid to flow in a direction opposite to the flow of said liquid and agitating said fluid during a part of its passage



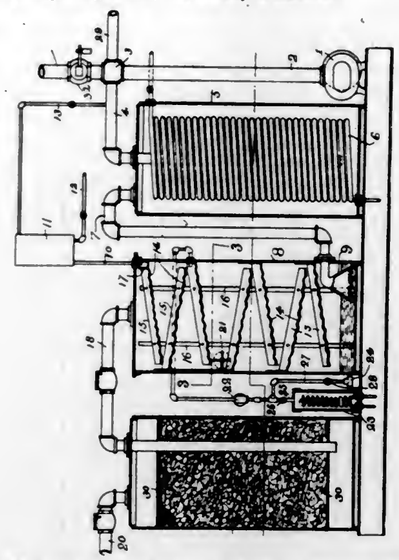
4. The herein-described process of producing carbureted fluid which consists in introducing into the upper end of a sealed vessel a hydrocarbon liquid, causing same to flow downwardly through said vessel in a finely-divided state and intermittently interrupting said flow, atomizing said liquid during a part of its passage, introducing previously-heated fluid into the bottom of said vessel and causing same to pass upwardly therethrough, and agitating said fluid during its passage.

5. The herein-described process of producing carbureted fluid which consists in introducing into the upper end of a sealed vessel a hydrocarbon liquid, causing same to flow downwardly through said vessel in a finely-divided state and intermittently interrupting said flow, atomizing said liquid during a part of its passage, returning liquid collecting in the bottom of said vessel back into the upper portion thereof, introducing fluid to be carbureted into the lower end of said receptacle and causing same to pass upwardly therethrough, and agitating said fluid during part of its passage.

6. The herein-described process of producing carbureted fluid which consists in introducing into the upper end of a sealed vessel a hydrocarbon liquid, causing same to flow downwardly through said vessel in a finely-divided state and intermittently interrupting said flow, atomizing said liquid during a part of its passage, draining off the liquid collecting in the lower end of said vessel, heating said liquid and returning same into said vessel to repass therethrough, introducing fluid to be carbureted into the lower end of said vessel and causing it to pass upwardly through the same, and agitating said fluid during part of its passage.

749,768. **APPARATUS FOR PRODUCING CARBURETED AIR.** EDWARD F. WILSON, Chicago, Ill., assignor to George S. Welles, Chicago, Ill. Filed Oct. 19, 1903. Serial No. 177,643. (No model.)

Claim.—1. In an apparatus for generating gas, the combination with a source of supply of a hydrocarbon liquid and a source of supply of air under pressure, of a carbureter comprising a sealed vessel having connection with said source of supply of liquid at its upper end and with said source of supply of air at its lower end, alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel, over which said liquid flows zigzag therethrough, an outlet for the carbureted air above the uppermost plate, and devices interposed in the path of said liquid below the delivery end of one of said plates for atomizing said liquid and agitating the air, substantially as described.



2. In an apparatus for generating gas, the combination with a source of supply of a hydrocarbon liquid and a source of supply of air under pressure, of a carbureter comprising a sealed vessel having connection with said source of supply of liquid at its upper end and with said source of supply of air at its lower end, alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel, over which said liquid flows zigzag therethrough, an outlet for the carbureted air above the uppermost plate, and devices interposed in the path of said liquid below the delivery end of one of said plates for atomizing said liquid and agitating said air, substantially as described.

3. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply of liquid and air respectively, a gas-outlet at the upper end of said vessel, and a plurality of alternately-oppositely-inclined relatively-staggered, laterally-corrugated plates mounted one above the other in said vessel over which said liquid flows zigzag therethrough, said plates being so inclined relatively to the depth of the corrugations therein as to permit the formation of little pools of liquid in each concave depression, said liquid and air being caused to pass through said vessel in opposite directions, substantially as and for the purpose described.

4. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply of liquid and air respectively, a gas-outlet at the upper end of said vessel, a plurality of alternately-oppositely inclined relatively-staggered, laterally-corrugated plates mounted in said vessel one above the other over which said liquid and air pass zigzag therethrough in opposite directions, said plates being so inclined relatively to the depth of the corrugations therein as to cause the formation of little pools of liquid in each depression, and devices interposed between the ends of said zigzag passage in the path of said liquid and said air for simultaneously atomizing the former and agitating the latter, substantially as and for the purpose described.

5. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply of liquid and air respectively, means for heating said air interposed in said connection, a plurality of alternately-oppositely-inclined relatively-staggered plates mounted one above the other in said vessel and over which the liquid and air pass continuously in opposite directions, a gas-outlet above the uppermost plate, and a circulating-pump connected at its suction end with the lower end of said vessel and at its delivery end with the upper portion thereof and adapted to return

liquid collecting at the bottom of said vessel upon one of said plates and cause it to repass through said vessel.

6. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply of liquid and air respectively, means for heating said air interposed in said connection, a plurality of alternately-opposite-inclined relatively-staggered plates mounted one above the other in said vessel and over which the liquid and air pass continuously in opposite directions, a gas-outlet above the uppermost plate, and a circulating-pump connected at its suction end with the lower end of said vessel and at its delivery end with the upper portion thereof and adapted to return liquid collecting at the bottom of said vessel upon one of said plates and cause it to repass through said vessel, and heating devices interposed in said connection.

7. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply, of liquid and air respectively, means for heating said air interposed in said connection, a plurality of alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel and over which said liquid and air pass zigzag in opposite directions therethrough, a gas-outlet in the upper end of said vessel, and a circulating-pump connected at its suction end with the lower end of said vessel and at its delivery end with the upper end of said vessel above the upper end of one of said plates.

8. In an apparatus for generating gas, the combination with a source of supply of hydrocarbon liquid, and a source of supply of air under pressure, of a carbureter comprising a sealed vessel connected at its upper and lower ends with said sources of supply, of liquid and air respectively, means for heating said air interposed in said connection, a plurality of alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel and over which said liquid and air pass zigzag in opposite directions therethrough, a gas-outlet in the upper end of said vessel, and a circulating-pump connected at its suction end with the lower end of said vessel and at its delivery end with the upper end of said vessel above the upper end of one of said plates, and heating devices interposed in said connection.

9. A carbureter comprising a sealed vessel having an inlet for hydrocarbon liquid at its upper end, an inlet for fluid to be carbureted at its lower end, an outlet for carbureted fluid at its upper end, a plurality of alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel, over which said liquid and the fluid to be carbureted pass in opposite direction, power-actuated devices interposed in the path of said liquid and fluid for atomizing the latter and agitating the former, and a circulating-pump connected at its suction end with the lower end of said carbureter and at its delivery end with the upper portion thereof above the said power-actuated atomizing and agitating devices.

10. A carbureter comprising a sealed vessel having an inlet for hydrocarbon liquid at its upper end, an inlet for fluid to be carbureted at its lower end, an outlet for carbureted fluid at its upper end, a plurality of alternately-oppositely-inclined relatively-staggered laterally-corrugated plates mounted one above the other in said vessel, over which said liquid and the fluid to be carbureted pass in opposite direction, power-actuated devices interposed in the path of said liquid and fluid for atomizing the latter and agitating the former, and a circulating-pump connected at its suction end with the lower end of said carbureter and at its delivery end with the upper portion thereof above the said power-actuated atomizing and agitating devices, and heating devices interposed in said connection between said pump and said carbureter.

11. A carbureter comprising a sealed vessel having a zigzag passage leading from the upper to the lower end of same, said vessel being provided at its upper end with an inlet for hydrocarbon liquid and an outlet for carbureted fluid, and at its lower end with an inlet for fluid to be carbureted, the hydrocarbon liquid and fluid to be carbureted being adapted to pass through said zigzag passage in opposite directions, and power-actuated devices interposed in said passage between the ends of same and in the path of the liquid and fluid for simultaneously atomizing the former and agitating the latter.

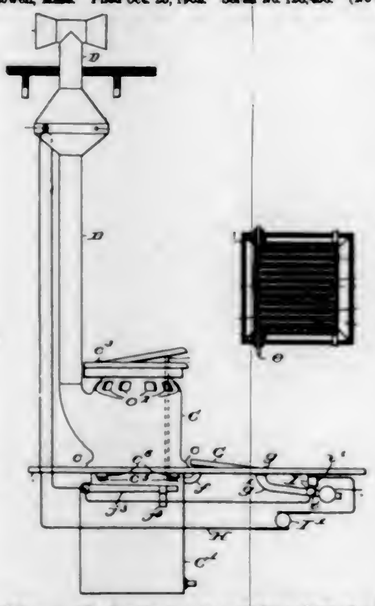
12. A carbureter comprising a sealed vessel having an inlet for hydrocarbon liquid and an outlet for gas at its upper end, an inlet for fluid to be carbureted at its lower end, and having an inclined zigzag passage leading from the upper to the lower end of said vessel through which the hydrocarbon liquid and the fluid to be carbureted pass in opposite directions, power-actuated means between the ends of said passage in the path of said liquid and fluid for atomizing the former and agitating the latter, and means for returning liquid collecting in the bottom of said vessel into said passage above said power-actuated atomizing and agitating devices.

13. A carbureter comprising a sealed vessel having internal partitions adapted to form a zigzag passage leading from the upper to the lower end of same, and being provided with an inlet for hydrocarbon liquid and an outlet for gas at its upper end, and with an inlet for fluid to be carbureted at its lower end, said liquid and fluid being adapted to pass through said zigzag passage in opposite directions, the walls of said passage being provided with recesses adapted to receive and retain little pools of liquid, and power-actuated atomizing and agitating devices located between the ends of the said zigzag passage in the path of said liquid and fluid.

14. A carbureter comprising a sealed vessel having internal partitions adapted to form a zigzag passage leading from the upper to the lower end of same, and being provided with an inlet for hydrocarbon liquid and an outlet for gas at its upper end, and with an inlet for fluid to be carbureted at its lower end, said liquid and fluid being adapted to pass through said zigzag passage in opposite directions, the walls of said passage being provided with recesses adapted to receive and retain little pools of liquid, power-actuated atomizing and agitating devices located between the ends of said zigzag passage in the path of said liquid and fluid, and means for returning liquid collecting in the bottom portion of said vessel into said passage above said atomizing and agitating devices.

15. A carbureter comprising a sealed vessel having internal partitions adapted to form a zigzag passage leading from the upper to the lower end of same, and being provided with an inlet for hydrocarbon liquid and an outlet for gas at its upper end, and with an inlet for fluid to be carbureted at its lower end, said liquid and fluid being adapted to pass through said zigzag passage in opposite directions, the walls of said passage being provided with recesses adapted to receive and retain little pools of liquid, and power-actuated atomizing and agitating devices located between the ends of said zigzag passage in the path of said liquid and fluid, means for returning liquid collecting in the bottom portion of said vessel into said passage above said atomizing and agitating devices, and means for heating said liquid during its return passage.

749,769. **ELECTRIC SANITARY CLOSET.** JAMES H. WILSON, Lowell, Mass. Filed Oct. 23, 1902. Serial No. 128,438. (No model.)



Claim.—1. The combination in a sanitary closet of a bowl, a part adapted to be depressed by the weight of a person thereon, an electric circuit, means for closing said circuit by the depression of said part, and a burner arranged in said circuit and forming the pan or bottom of said bowl.

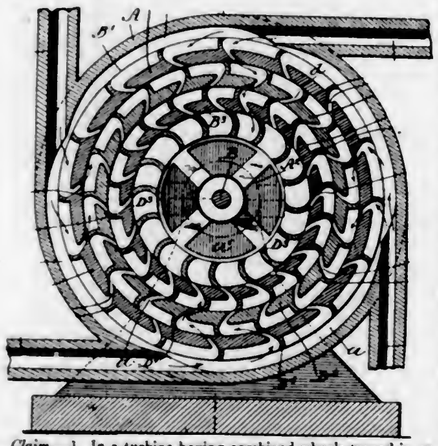
2. The combination in a sanitary closet of a bowl, a seat adapted to be depressed, an electric circuit, means for closing said circuit by the depression of said seat, and a burner arranged in said circuit below said seat and forming the pan or bottom of said bowl.

3. The combination in a sanitary closet of a bowl, a seat, a platform adapted to be depressed by the weight of a person approaching or leaving said closet, an electric circuit, means for closing said circuit by the depression of said platform, and a burner arranged in said circuit below said seat and forming the pan or bottom of said bowl.

4. The combination in a sanitary closet of a bowl, a seat, an electric circuit, means for closing said circuit by the weight of a person using said closet, a burner arranged in said circuit and forming the pan of said closet, a suitable receptacle in which said burner is pivoted, means of discharging the contents of said burner and a removable drawer arranged to slide in said receptacle below said burner and to receive matters discharged from said burner.

5. The combination of a sanitary closet, a chimney connected therewith, a normally open electric circuit, a burner arranged in said circuit within said closet, a heater situated in said chimney and included in said circuit, said burner and heater being operated by the closing of said circuit, and means of closing said circuit.

749,770. **TURBINE.** EDGAR J. WOOD, New York, N. Y., assignor to Margaret A. Wood, Brooklyn, N. Y. Filed June 1, 1903. Serial No. 159,551. (No model.)



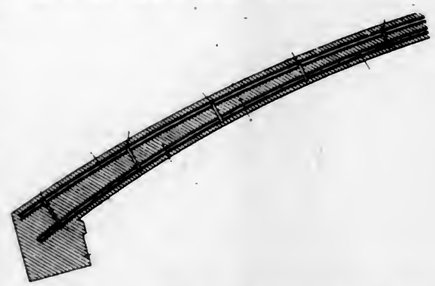
Claim.—1. In a turbine having combined wheels turned in opposite directions geared together, the several obliquely-perforated rings B^3 D^3 B^3 and corresponding series of smoothly-curved semivanes extending outward beyond the rings, receiving the strong steam at the periphery and allowing the weak to escape from a point near the center, proportioned and arranged to serve substantially as herein specified.

2. In a turbine having combined wheels turned in opposite directions geared together, the several obliquely-perforated rings B^3 D^3 B^3 and corresponding series of semivanes B^4 D^4 B^{4a}, the tangential nozzles A′ connected with a source of steam and the close-fitting casing A having a liberal passage *a* within its periphery, all arranged to serve substantially as herein specified.

3. In a turbine having combined wheels turned in opposite directions geared together the several obliquely-perforated rings B^3 D^3 B^3 and corresponding series of semivanes B^4 D^4 B^{4a} the tangential nozzles A′ connected with a source of steam and the close-fitting casing A having a liberal passage *a* within its periphery and concentric grooves a^3 in its interior faces, all arranged to serve substantially as herein specified.

4. In a turbine having combined wheels turned in opposite directions geared together, the tangential induction-nozzles A′ receiving elastic fluid at a high pressure at the periphery, the several obliquely-perforated rings B^3 D^3 B^3 and corresponding series of semivanes B^4 D^4 B^{4a} and the series of complete vanes D^4 carried on one of the wheels within said rings, all proportioned and arranged to serve substantially as herein specified.

749,771. **BRIDGE.** EUGENE H. ARNOLD, Wheaton, Ill. Filed Sept. 13, 1902. Serial No. 123,204. (No model.)



Claim.—1. In a bridge, an arch of concrete or other masonry having embedded therein arched metallic beams, each composed of two ribs of bars, rails, or other iron, arranged one above but separated from each other, and bonded by wire, or other straps wound around both ribs, substantially as described.

2. In a bridge, an arch of concrete or other masonry, having embedded therein ribs arranged one above but separated from each other and by the masonry, and composed of railroad-rails or other iron, said ribs being bonded together by metallic straps wound around them and at intervals of the length thereof, substantially as described.

3. The combination in a bridge of metallic arched beams consisting of rails or bars of iron arranged one above but separated from each other, and bonded by straps wound around both of them with a filling of concrete, or other masonry, of abutments, and plates supported by said abutments opposing the ends of the beams and forming a support therefor, and preventing an endwise movement of the beams in settling to place, or when heavily loaded, substantially as described.

4. In a bridge, an arch of concrete or other masonry, arched metallic beams embedded therein in combination with a transverse I or other metallic beam arranged between and supporting the ends of the arched beams at the apex of the bridge, and a lead or other metallic filling at a point between said ends, and the web of said transverse beam, substantially as described.

5. In a bridge, an arch of concrete or other masonry in transverse, separated sections, having embedded therein arched metallic beams, the space between said sections being bridged by slabs of metal or other material, and the continuous surface thus formed being covered by concrete, macadam or other paving material, substantially as described.

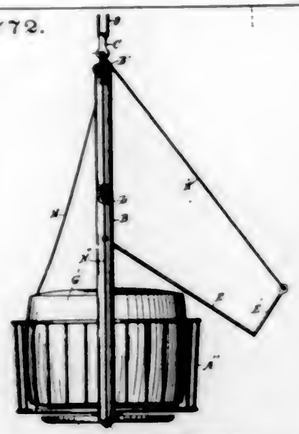
6. In a bridge, an arch of concrete or other masonry having embedded therein arched metallic beams, each composed of two ribs of bars, rails or other iron, arranged one above but separated from each other, bonds of wire or straps wound around both of said ribs in combination with an abutment, a plate mounted upon said abutment in a plane on a radial line to the curve of the arch, a soft-metal facing thereon forming a seat for the end of the beam, substantially as described.

7. In a bridge an arch of concrete or other masonry having embedded therein arched metallic beams, each composed of two ribs of bars, rails or other iron, arranged one above but separated from the other, and bonded together by wire or other strap, wound around both ribs in combination with a transverse I-beam at the apex of the arch, a soft-metal packing supporting one end of said beam, a soft-metal packing between said ends and beam, an abutment, a plate mounted thereon, supporting the opposite end of said beams, and a soft-metal packing between the ends of the beams and said plate, substantially as described.

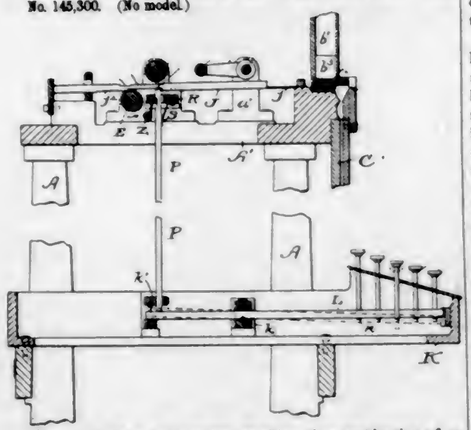
749,772. **TWINE-HOLDER.** PERRY H. CASNER, Nashville, Mich., assignor to Glenn H. Young and John A. Scarvell, Nashville, Mich. Filed Feb. 16, 1903. Serial No. 143,736. (No model.)

Claim.—The combination of a bed-plate, means for retaining a ball of twine upon the bed-plate, a frame attached to the bed-plate and extending above the same, an opening in the top of the frame, a loop attached to the frame and above the said opening, an opening in the loop, a guide-loop on the side of the frame, a take-up having its ends pivoted to the frame near the middle thereof, and extending therefrom in substantially parallel arms, and thence inward, and having an outwardly-curved middle portion connecting the arms, and an eye on said middle portion to receive the cord

749,772.



749,773. TYPE-SETTING MACHINE. FRANCIS H. CONVERSE, Jr., Cleveland, Ohio, assignor to the Converse Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 27, 1903. Serial No. 145,300. (No model.)



Claim.—1. In a type-setting machine, the combination of an ejector, mechanism for driving the same forward, a longitudinally-movable bar adapted to engage said ejector and raise it into engagement with said mechanism and hold it in engagement throughout the forward stroke of the ejector, and a member by which said bar may be held in such raised position, substantially as described.

2. In a type-setting machine, in combination, an ejector, driving mechaniam therefor, a bar adapted to raise said ejector into engagement with said mechanism, and hold it in engagement throughout the forward stroke of the ejector, a shoulder on said bar, a member over which said shoulder may hook when the bar is raised, and a spring tending to cause engagement between said bar and said member, substantially as described.

3. In a type-setting machine, an ejector, mechanism above the ejector for driving it forward, a bar adapted to raise said ejector into engagement with said mechanism, there being a shoulder on said bar, means with which said shoulder may engage and hold the bar raised, and a shoulder on the ejector adapted to release said bar from its raised position when the ejector reaches its forward position, substantially as described.

4. In a type-setting machine, a toothed rotatable roller, an ejector beneath the roller and having teeth on its upper side, a bar adapted to raise said ejector into engagement with said roller, and a guide for said bar having a slot through which the bar slides, there being a notch in the rear side of the bar adapted to engage said guide, and means whereby the ejector at the end of its forward movement engages the bar and releases it from the guide, substantially as described.

5. In a type-setting machine, a toothed rotatable roller, an ejector beneath the roller and having teeth on its upper side, a bar adapted to raise said ejector into engagement with said roller and hold it in engagement throughout the forward stroke of the ejector, a guide for said bar having a slot through which the bar slides, there being a notch in the rear side of the bar adapted to hook over said guide, a shoulder on the ejector adapted to engage said bar and move it from its hooked position when the ejector reaches its forward position, the slot in which said bar is guided allowing play backward or forward, and a spring tending to force said bar rearward, substantially as described.

6. In a type-setting machine, the combination of two toothed rollers, an ejector between them having teeth on its upper and under edges, a raising-bar beneath the ejector, a finger-key connected therewith and adapted to elevate the bar and thereby raise the ejector into engagement with the upper roller, a shoulder on the rear side of the raising-bar, a spring tending to move said bar rearward, and a member over which said shoulder may thereby hook, said ejector having on its under side a notch normally standing over the upper end of the raising-bar and over the lower roller, the rear end of said notch making a shoulder adapted to shove the raising-bar from its hooked position, when the ejector reaches its forward position, substantially as described.

7. In a type-setting machine, a series of key-levers, a series of ejectors, and driving means for the ejectors, combined with a series of raising-bars resting at their lower ends on the key-levers and having their upper ends standing below the ejectors and adapted to raise them into engagement with the driving means, said bars having shoulders on their rear sides, and means over which said shoulders hook and remain hooked throughout the forward movement of the ejector, substantially as described.

8. In a type-setting machine, the combination of a series of key-levers, a series of ejectors, driving means for the ejectors, a series of raising-bars resting at their lower ends on the key-levers and having their upper ends standing below the ejectors and adapted to raise them into engagement with the driving means, means for holding the raising-bars elevated after they have been raised until the ejector reaches the forward end of its stroke, and means for thereupon automatically releasing them, substantially as described.

9. In a type-setting machine, the combination of a series of key-levers, a series of ejectors, driving means for the ejectors, a series of flat raising-bars side by side resting at their lower ends on the key-levers and having their upper ends standing below the ejectors and engage them and raise them into engagement with the driving means and hold them in such engagement throughout the forward stroke of the ejectors, and slotted guides for said raising-bars, substantially as described.

10. In a type-setting machine, the combination of a series of key-levers, a series of long ejector-bars, driving means for the ejectors, a series of raising-bars connecting at their lower ends with the key-levers and having their upper ends standing below the ejectors and adapted to engage them and raise them into engagement with the driving means, and hold them in such engagement throughout the forward stroke of the ejectors, a guide for said raising-bars located adjacent to the rear ends of the key-levers, and a second guide for said raising-bars located adjacent to the ejectors, the last-mentioned guide being slotted with play forward and back, there being engageable shoulders on said raising-bars for holding them elevated, substantially as described.

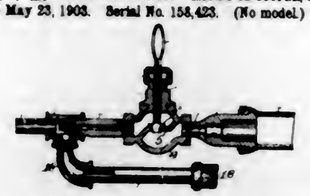
11. In a type-setting machine, the combination of a series of finger-keys, a series of pivoted key-levers with which the finger-keys connect, said key-levers being flat and set on edge, a series of flat upright raising-bars side by side and resting at their lower ends on the key-levers near their rear ends, said raising-bars being slidable vertically and the upper end thereof being movable also forward and back, driving mechanism, ejectors beneath the same, a type-case containing channels with which said ejectors cooperate, shoulders formed on the rear side of said raising-bars near their upper ends, springs tending to cause engagement of said raising-bars when they are raised, and shoulders on the ejectors adapted to release said raising-bars from such engagement at the completion of the forward stroke of the ejector, substantially as described.

12. In a type-setting machine, the combination of driving mechanism, an ejector, a bar adapted to raise said ejector into engagement with said mechanism, a member over which said bar hooks and by which it may be held in raised position throughout the forward movement of the ejector, and a releasing device in addition to the ejectors and adapted to release such raising-bar from engagement, substantially as described.

13. In a type-setting machine, the combination of driving mechanism, ejectors, bars adapted to raise said ejectors into engagement with said mechanism, a member over which said bars may hook and be held in raised position, a releasing-bar extending crosswise behind the raising-bars, and means for moving such releasing-bar forward to unhook any raising-bar which may be elevated, substantially as described.

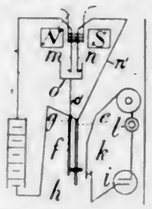
14. In a type-setting machine, the combination of a rotatable roller, ejectors, notched bars adapted to raise said ejectors into engagement with said roller, a member over which the notches of said bars may hook when the bars are in raised position, a pivoted releasing-bar having rib normally opposite the notches in the raising-bars but below said notches when the raising-bars are elevated, and means for swinging such releasing-bar forward at its upper end to cause the rib to engage any elevated bar below the notch therein, substantially as described.

749,774. PAINT-SPRAYER. HENRY R. COOPER, Sr., Butler, Pa. Filed May 23, 1903. Serial No. 158,423. (No model.)



Claim.—In a device of the type described, the combination with a compressed-air-supply means, a valve-casing secured thereon, a seat formed in said casing, a valve seated in said seat, a vertically-movable stem secured upon said valve having means thereon for operating said stem, a tapered nozzle connected with the interior of said valve-casing, a liquid-supply means adapted to feed the liquid in front of said nozzle and a connecting means secured to said nozzle and a liquid-supply means, substantially as described.

749,775. ELECTROSTATIC RELAY. DAN LA COUR, Copenhagen, Denmark. Filed Feb. 7, 1903. Serial No. 142,403. (No model.)



Claim.—1. The combination with an electroscope comprising a fixed and a movable electrode; a local source of electricity for charging said electrodes; circuit connections between said source and the electrodes whereby the latter may be charged with the same potential causing them to repel each other or with different potentials causing them to attract each other; and a device or instrument responsive to electrical influences independent of the local circuit for changing the status of the circuit connections and correspondingly the potentials of the electrodes.

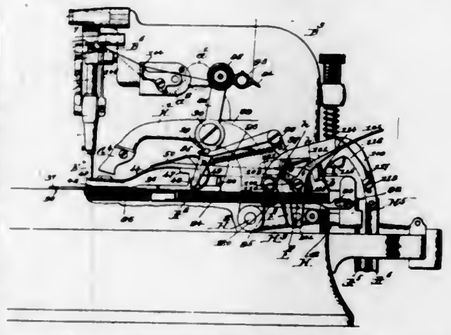
2. The combination with an electroscope comprising a fixed and a movable electrode, a local source of electricity for charging said electrodes; circuit connections between said source and the electrodes whereby the latter may both be charged from one pole of the source or separately from the two poles of the source respectively; and a device or instrument responsive to electrical influences independent of the local source for changing the status of the connections to charge the electrodes both from one pole of the source or separately from the respective poles.

3. The combination with an electroscope comprising a fixed and a movable electrode; a local source of electricity for charging said electrodes; a circuit-controlling device or instrument responsive to electrical influences independent of the local source; circuit connections from one pole of the source to one electrode and to the circuit-controlling device, from the other pole of the source to the circuit-controlling device and from the other electrode to said device, whereby the electrodes may be both connected to one pole of the source or respectively to different poles thereof, according to the position of the circuit-changer.

4. The combination with an electroscope comprising a fixed and a movable electrode; a local source of electricity for charging said electrodes; a circuit-controlling relay in a main line and comprising two fixed contacts and two movable contacts adapted to engage the fixed contacts respectively; and circuit connections from one pole of the source of electricity to one of the movable contacts, from the other pole of the source to the other movable contact and to one electrode, and from the other electrode to the fixed contacts.

5. The combination with an electroscope comprising a fixed and a movable electrode; a local source of electricity for charging said electrodes; a circuit-controlling relay in a main line and comprising two fixed contacts and two movable contacts adapted to engage the fixed contacts respectively; circuit connections from one pole of the source of electricity to one of the movable contacts, from the other pole of the source to the other movable contact and to one electrode, and from the other electrode to the fixed contacts; and a local circuit including working apparatus and a circuit-closer operated by movement of the movable electrode of the electroscope.

749,776. BUTTONHOLE-SEWING MACHINE. CHARLES A. DAHL, Boston, Mass., assignor to the Reece Button Hole Machine Company, Boston, Mass., a Corporation of Maine. Filed July 23, 1903. Serial No. 166,661. (No model.)



Claim.—1. In a buttonhole-sewing machine, a needle-bar, means to reciprocate and vibrate the same for overedge-stitching, and complemental means including two loopers to engage loops of needle-thread at alternate descents of the needle, a looper-shaft for each looper, an arm on each looper-shaft, a link connecting said arms, and means to actuate positively one of said looper-shafts, the link actuating the other looper-shaft and looper.

2. In a buttonhole-sewing machine, a work-holder, a radius-bar pivoted at its upper end on the head of the machine, and having at its lower end a tubular bearing, a needle-carrying bar located in said bearing and adapted to carry an eye-pointed needle, a rock-shaft having an arm, a link carried by said arm and connected with said needle-bar for reciprocating the same in said bearing, a sleeve sustained loosely on said rock-shaft, a connection between said sleeve and radius-bar, and means to rock said sleeve and move the radius-bar about its pivot between one and the next descent of the needle.

3. In a buttonhole-sewing machine, a work-holder, a radius-bar pivoted at its upper end on the head of the machine, and having at its lower end a tubular bearing, a needle-carrying bar located in said bearing and adapted to carry an eye-pointed needle, a rock-shaft having an arm, a link carried by said arm and connected with said needle-bar for reciprocating the same in said bearing, a sleeve sustained loosely on said rock-shaft, a connection between said sleeve and radius-bar, a link connected adjustably with an arm of said sleeve, and means to move said link to turn said sleeve and move the radius-bar about its pivot between one and the next descent of the needle.

4. In a buttonhole-sewing machine, a work-holder, a screw, a sleeve surrounding said screw and connected loosely with said work-holder, means to rotate said screw intermittingly step by step in one and then in an opposite direction to move longitudinally the work-holder step by step in one direction while stitching one and then the opposite direction while stitching the opposite side of a buttonhole, a vibratable lever, a right and left worm for moving said vibratable lever, stops carried by said sleeve, pin-carrying levers carried by said vibratable lever, and a regulating-lever carried by said vibratable lever, the adjustment of which thereon determines the length of buttonhole being stitched.

5. In a buttonhole-sewing machine, a work-holder, stitch-forming mechanism to form overedge-stitches, means to close the work-

holder on the work to be stitched, a tension device, means to lock the same at a distance from the needle-bar while the work-holder is opened, means to release said tension device and move it toward the needle-bar when the work-clamp is closed prior to starting into operation the stitch-forming mechanism, the movement of the tension device as described giving slack thread to the needle to insure the making of a stitch at the first descent of the needle-bar.

6. In a buttonhole-sewing machine, a lever and a needle-thread tension device thereon, combined with a work-clamp to turn said lever and move the tension device step by step in one direction while the machine is in operation to enable the tension device to deliver and store up thread between itself and the needle to be delivered to the needle after the machine had been stopped and during the first descent of the needle-bar and needle as sewing is again resumed.

7. In a buttonhole-sewing machine, stitch-forming mechanism to form a series of overedge-stitches, a work-holder, stopping means to stop the stitch-forming mechanism after the production of a buttonhole, a tension device for the needle-thread, and means to move said tension device in one direction while a series of successive stitches are being made, such movement of said tension device increasing the length of the needle-thread between said tension device and the eye of the needle, and means to move said tension device in the opposite direction to form slack thread and give it up immediately to the needle when desired.

8. In a buttonhole-sewing machine, a needle-bar and needle, means to reciprocate the same for stitching, a lever, a tension device carried by said lever, means to turn said lever to move the tension device during the insertion of a series of stitches for the production of a buttonhole, in a direction to increase gradually the amount of thread between said tension device and the eye of the needle, means to lock said lever in the desired position, and means to release and then turn said lever in the opposite direction that the tension device may immediately give up to the needle the thread accumulated between the tension device and the eye of the needle while stitching the buttonhole, substantially as described.

9. In a buttonhole-sewing machine, stitch forming mechanism, a tension device, means to move said tension device progressively in one direction during the formation of a series of overedge-stitches, and means operable after a buttonhole has been stitched for moving said tension device in the opposite direction while the stitch-forming mechanism is at rest, thread-cutting mechanism, means to operate the same between the complete stopping of the stitch-forming mechanism and the restarting of said stitch-forming mechanism.

10. In a buttonhole-sewing machine, stitch-forming mechanism to make overedge-stitches, a work-holder having a longitudinal groove and a pocket at its under side, a slide-bar having a projection to enter the longitudinal groove of the work-holder, a screw and a sleeve having a projecting stud to enter said pocket, means to actuate the screw and sleeve to move the holder longitudinally of the buttonhole, and means to move said slide-bar and with it said work-holder laterally with relation to the length of the buttonhole, to permit barring-stitches to be made at the ends of the buttonhole.

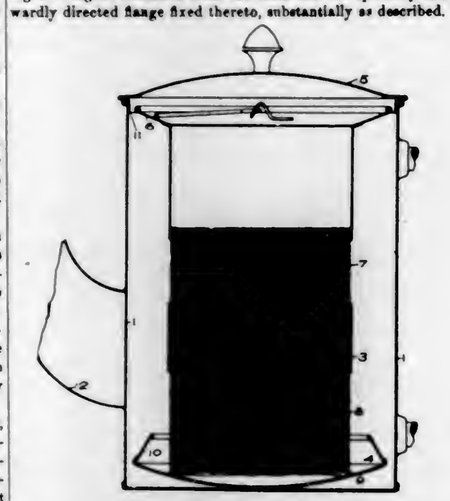
749,777. APPARATUS FOR MAKING COFFEE OR THE LIKE. FRANK W. DALLINGER, Cambridge, Mass. Filed Jan. 12, 1903. Serial No. 138,630. (No model.)

Claim.—1. An apparatus for making coffee or the like, having, in combination, a decoction-chamber, a perforated coffee-holder inclosed therein, and an annular imperforate upturned extension fixed to the coffee-holder below the perforation, substantially as described.

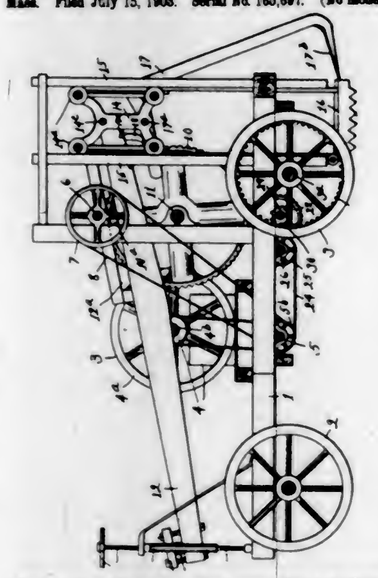
2. An apparatus for making coffee or the like, having, in combination, a decoction-chamber, a perforated coffee-holder inclosed therein, and an annular imperforate receptacle fixed to the bottom of the coffee-holder, the bottom of the coffee-holder and the receptacle being of slightly-less diameter than the decoction-chamber so as to direct outwardly the ascending currents in the chamber, substantially as described.

3. An apparatus for making coffee or the like, having, in combination, a decoction-chamber, a perforated cylinder of less diameter inclosed therein, and an imperforate downwardly-convex member closing the bottom of the cylinder, and extending to nearly the diameter of the decoction-chamber, the outer portion of the said member being retracted to form an annular receptacle between the perforated cylinder and the walls of the decoction-chamber, substantially as described.

4. An apparatus for making coffee or the like, having, in combination, a decoction-chamber, a perforated coffee-holder of less diameter inclosed therein, and an annular receptacle fixed to the coffee-holder below the perforations therein, the coffee-holder having an imperforate convex bottom and the annular receptacle comprising an integral extension from the same and an upwardly and inwardly directed flange fixed thereto, substantially as described.



749,778. DITCHING-MACHINE. MARK L. DOW, Salisbury, Mass., administrator of MARK B. TRUE, deceased, assignor, by direct and mesne assignments, to JOHN F. SMITH and MARK L. DOW, Salisbury, Mass. Filed July 15, 1903. Serial No. 165,697. (No model.)



Claim.—1. A ditching-machine comprising a carriage, a vertically-movable cutting-knife having longitudinally-extending side portions and a transverse portion connecting the front ends of said side portions, means for reciprocating said knife, a bottom cutter and means for moving the same transversely of said knife and adjacent thereto when the knife finishes its downward movement, substantially as described.

2. A ditching-machine comprising a carriage, a vertically-movable cutting-knife having longitudinally-extending side portions and a transverse portion connecting the front ends of said side portions, an oscillating lever, a loose connection between said knife and lever, a bottom cutter pivotally connected with said knife and having its cutting portion adapted and arranged to swing transversely of the path of said knife, adjacent thereto, and between the longitudinal portions thereof, a link connection between said lever and said cutter whereby said cutter is swung at the beginning of each oscillation of the lever, substantially as described.

3. A ditching-machine comprising a carriage having vertically-extending ways, a knife-frame reciprocably mounted therein, a knife connected to the lower end thereof having two parallel side portions and a transverse portion connecting the front end of said side portions, a bottom cutter comprising an arm pivoted to said frame and having a knife extending transversely from the lower end thereof and arranged to swing between said parallel portions of said knife, a lever, a loose connection between said lever and knife-frame, a link pivotally connected to said lever and to the opposite end of said arm from its cutter, and means for oscillating said lever, substantially as described.

4. A ditching-machine comprising a carriage having vertically-extending ways, a knife-frame reciprocably mounted therein, a knife connected to the lower end thereof having two parallel side portions and a transverse portion connecting the front end of said side portions, a bottom cutter comprising an arm pivoted to said frame and having a knife extending transversely from the lower end thereof and arranged to swing between said parallel portions of said knife, a knife-actuator loosely connected to said knife-frame, a link pivotally connected to said actuator and to the opposite end of said arm from said cutter, a lever, a loose connection between said lever and knife-frame, a link pivotally connected to said lever and to the opposite end of said arm from its cutter, and means for oscillating said lever, substantially as described.

749,779. ILLUMINATED SIGN OR NUMBER PLATE FOR AUTOMOBILE-LAMPS. THOMAS H. EDMONDS, Washington, D. C. Filed Oct. 23, 1903. Serial No. 178,236. (No model.)



Claim.—1. The combination with a lamp or lantern, of an attaching and holding device constructed with an embracing-yoke, having eyes at its outer ends, two outwardly-projecting arms having bent ends, and a sign or number plate having holes adapted to be engaged with said bent ends, substantially as described.

2. The combination with a lamp or lantern, of an attaching and holding device constructed with an embracing-yoke, having eyes at its outer ends, two outwardly-projecting arms having bent ends, a securing-bolt and nut in the eyes, and a sign or number plate having holes adapted to be engaged with said bent ends, substantially as described.

3. In a device for holding an illuminated sign or number plate for lamps, an attaching and holding device, consisting of a wire bent centrally to form an embracing-yoke, coiled or bent upon itself to form eyes at the angles of the yoke and recurved or folded on each side along the sides of the yoke to form supporting-arms, and said arms having their outer ends bent to engage with a sign or number plate, substantially as described.

4. The combination with a lamp or lantern, of an attaching and holding device constructed with a yoke adapted to embrace part of the lantern and having eyes for receiving a securing-bolt, two arms projecting outward beyond the eyes and having means at their outer ends for engaging with and supporting a sign or number plate, substantially as described.

749,780. SPEAR FOR SHADE-ROLLERS. CLAUDE FLAGLER, Bay City, Mich., assignor to the Quaker Shade Roller Company, Bay City, Mich. Filed Oct. 29, 1903. Serial No. 178,607. (No model.)

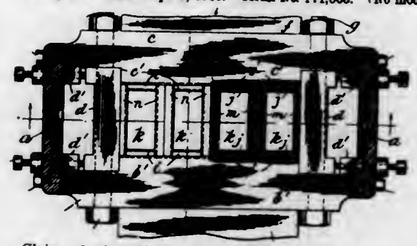
Claim.—1. In a spear for shade-rollers, having a cylindrical journal and a flatted end; a washer having an opening adapted to receive said flatted end; a projection on the spear engaging said opening and adapted to lock the washer against the end of the journal; said projection being formed by swaging out the metal of the spear.



2. A spear formed with a cylindrical journal and a flatted end a reduced portion intermediate the journal and the flatted end, said reduced portion being of less thickness than the diameter of the journal; a washer having an opening adapted to receive said reduced portion; the outer edges of said reduced portion being swaged outward to rigidly hold said washer against the end of said journal.

3. A spear formed with a short cylindrical journal and a flatted end; a reduced portion of approximately elliptical cross-section intermediate the journal and the flatted end; said reduced portion being of less thickness than the diameter of the journal; a washer of less thickness than the length of said reduced portion and having an opening adapted to receive said reduced portion, the outer edges of said reduced portion being swaged outward to overlap and rigidly hold the washer against the end of said journal.

749,781. MOLD FOR BRICK-MACHINES. HARRY J. FLOOD, Chicago, Ill. Filed Sept. 3, 1903. Serial No. 171,803. (No model.)



Claim.—1. A mold composed of cross-blocks as *b* and *c*, end blocks as *d* whose extremities are separately adjustable; side liner-plates; end liner-plates, one set of liner-plates abutting at their extremities against the other set of liner-plates; metallic soft backs interposed between said blocks and said liner-plates, said soft backs having flanges top and bottom flush with the inner surface of the liner-plates for preventing the vertical movement thereof; and a mortise connection between said soft backs and said cross-blocks.

2. A mold composed of end blocks; cross-blocks having recesses extending longitudinally therein; means for drawing said cross and end blocks together; metallic soft backs extending from one cross-block to the other and having projections for entering the recesses in said cross-blocks, said soft backs having recesses in the faces thereof; side liner-plates fitting in the recesses in said soft backs; and means at the ends of the mold for locking said liner-plates in position.

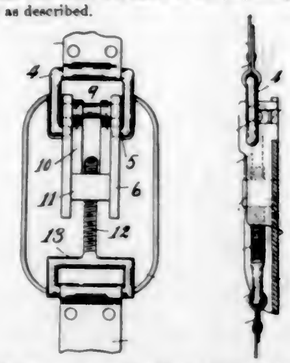
3. A mold composed of side liner-plates; end liner-plates; metallic soft backs recessed to receive said side liner-plates; other metallic soft backs recessed to receive said end liner-plates, the inner face of all of said liner-plates being flush with the inner surface of said soft backs; cross-blocks, as *b* and *c*, recesses in said cross-blocks; projections on the adjacent soft backs for engagement in said recesses; and end blocks as *d*, the extremities whereof are separately adjustable, said end liners extending between said side liners whereby the mold-inclosing parts are firmly locked in position when said cross and end blocks are drawn together.

749,782. TRUNK-STRAP. ROBERT FORBES, Downieville, Cal. Filed Aug. 26, 1903. Serial No. 170,890. (No model.)

Claim.—1. A trunk-strap comprising a band, a device secured to one end of said band and having a pivot, and a lever pivotally connected with the other end of said band and detachably engaging said pivot at a point on the side of said pivotal connection opposite to the main portion of the lever, substantially as described.

2. A trunk-strap comprising a band, a device secured to one end of said band and having a pivot, and a lever pivotally connected with the other end of said band and detachably engaging said pivot at a point on the side of said pivotal connection opposite to the main por-

tion of the lever, said lever having curved or beveled edges to rest upon the trunk and raise the same over a projecting obstruction, substantially as described.



3. A trunk-strap comprising a band, a device secured to one end of said band and having a pivot, and a lever pivotally connected with the other end of said band and detachably engaging said pivot at a point on the side of said pivotal connection opposite to the main portion of the lever, said device comprising adjustable portions whereby the length of the trunk-strap may be varied, substantially as described.

4. A trunk-strap comprising a band, a device secured to one end of said band and having a pivot, and a lever pivotally connected with the other end of said band and detachably engaging said pivot at a point on the side of said pivotal connection opposite to the main portion of the lever, the pivotal connection of said lever with the strap lying below its pivotal connection with the device when the lever is closed, substantially as described.

5. A trunk-strap comprising a band, a device secured to one end of said band and having a pivot, and a lever pivotally connected with the other end of said band and detachably engaging said pivot at a point on the side of said pivotal connection opposite to the main portion of the lever, and a locking device for holding said lever and device together, substantially as described.

749,783. COPY-HOLDING DEVICE. JOHN R. FOSTER, Chicago Ill. Filed Mar. 25, 1903. Serial No. 149,457. (No model.)

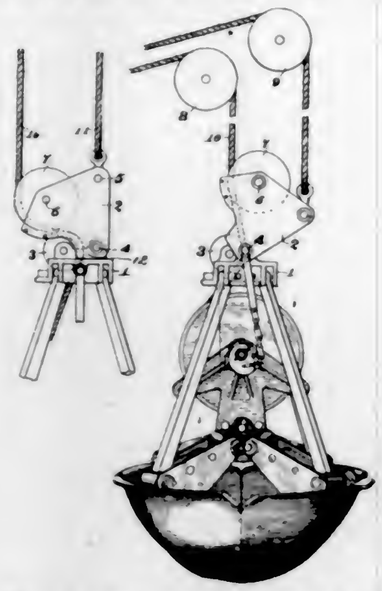


Claim.—1. A combined copy-holder and writing-pad, consisting of a bed, A, with spring-clip C attached to its back, in combination with a supporting wire leg B journaled to the upper end of bed A, said leg B fashioned with a U-shaped bend near the place at which it is journaled to said bed A, said U-shaped bend in leg B forming a minor leg when leg B is folded against bed A, capable of slightly elevating the upper end of bed A when laid on a table for use as a writing-pad substantially as shown and described.

2. In a combined copy-holder and writing-pad consisting of a flat bed to hold a note-book and a supporting adjustable leg, a supporting-leg constructed of wire as shown and described journaled to the upper end of the bed and constructed with a U-shaped bend at or near the point where it is journaled to said bed.

3. In a combined copy-holder consisting of a bed to hold the copy-book and an adjustable leg, a bed of light metal having a fixed vertical flange on one side and a movable flange and set-screws to adjust said movable flange on the other side, in combination with an adjustable wire leg, substantially as shown and specified.

749,784. SUSPENSION DEVICE FOR TWO-ROPE BUCKETS. JED S. FOSTER, Westfield, N. J., assignor to the Lidgerwood Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Oct. 29, 1903. Serial No. 178,968. (No model.)



Claim.—1. A suspension member for two-rope buckets having an attachment for one rope and a spreader-guide for the other rope to maintain the separation of said ropes.

2. A suspension member for two-rope buckets adapted for pivoted connection with the bucket and provided with a connection for one of said ropes and a spreader-guide for the other rope to maintain a considerable separation of said ropes.

3. A suspension member for two-rope buckets provided with a connection for the holding-rope and a guide-pulley between said holding-rope connection and the closing-rope.

4. The combination with a two-rope bucket having a guide for the closing-rope, of a suspension member provided with an attachment for the holding-rope and a spreader-guide for the closing-rope.

5. The combination with a two-rope bucket having a guide-sheave for the closing-rope journaled upon the bucket-head, a suspension member pivoted upon the bucket-head and provided with an attachment for the holding-rope, and a guide-sheave for the closing-rope adapted to maintain a considerable separation of said ropes.

6. The combination with a two-rope bucket of a suspension or link member for the bucket adapted to receive the holding-rope connection, a spreader-guide for the closing-rope controlled in position by the said suspension member, and a guide for the closing-rope adapted to lead the said rope adjacent to the center line of the bucket.

7. The combination with a two-rope bucket of a suspension member pivoted to the bucket and provided with a connection for the holding-rope and a spreader-guide for the closing-rope.

8. The combination with a two-rope bucket of an indrawing or centering guide for the closing-rope, and a suspension member pivoted to the bucket and provided with an attachment for the holding-rope and a spreader-guide for the closing-rope.

9. A suspension member for two-rope buckets comprising a frame adapted for a pivotal connection with the bucket and provided with an attachment for the holding-rope and a stop limiting its swing under the influence of the holding-rope, and also having a spreader-guide for the closing-rope.

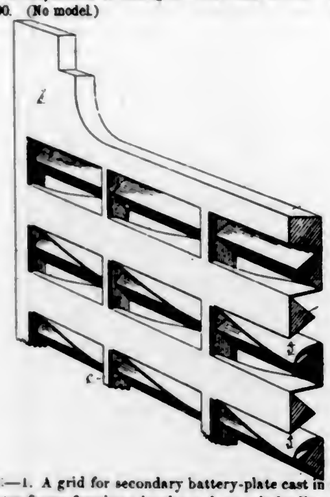
10. The combination with a two-rope bucket of a suspension member therefor adapted to spread the ropes and elevated supports for said ropes similarly separated.

11. The combination with a bucket employing a holding-rope and a closing-rope, of means for spreading said ropes as they leave the bucket, and elevated supports for said ropes likewise separated.

12. The combination with a bucket employing a holding-rope and a closing-rope, of a spreader attachment for said ropes adapted to be secured to the bucket and separately elevated supports for said ropes.

13. The combination with a bucket employing a holding-rope and a closing-rope, of a spreader attachment for said ropes adapted to be secured to said bucket and to maintain a constant central suspension thereof, and separated elevated supports for said ropes.

749,785. BATTERY-PLATE. OSKAR FRANK, Detroit, Mich., assignor to Levi J. Lennox and Michigan Storage Battery Co., Detroit, Mich., a Corporation of Michigan. Filed May 2, 1903. Serial No. 155,300. (No model.)



Claim.—1. A grid for secondary battery-plate cast in one piece with an outer frame forming a border and oppositely-disposed horizontal cross-bars of triangular cross-section connecting the sides of the frame at intervals apart and webs connecting said bars and adapted to form retaining-hooks for the active material.

2. A grid for secondary battery-plate cast in one piece with an outer frame forming a border, vertical bars spaced at intervals apart and horizontal cross-bars of triangular cross-section connecting the vertical bars at intervals apart and with the base of the triangles flush alternately with the opposite faces of the plate, and hooks carried by the bars.

3. A grid for secondary battery-plate cast in one piece with an outer frame forming a border, vertical bars spaced at intervals apart and horizontal cross-bars of triangular cross-section connecting the vertical bars at intervals apart and with the base of the triangles flush alternately with the opposite faces of the plate and oppositely-disposed hooks integrally formed with the base of said bars.

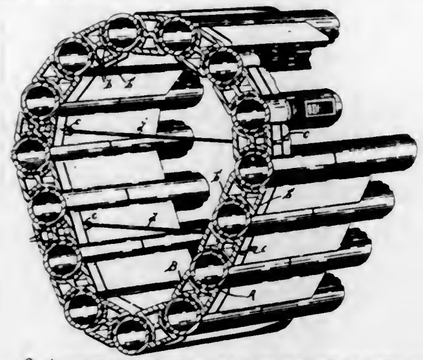
4. A grid for secondary battery-plate cast in one piece with an outer frame forming a border, vertical bars spaced at intervals apart and horizontal cross-bars of triangular cross-section connecting the vertical bars at intervals apart and with the base of the triangles flush alternately with the opposite faces of the plate, and webs connecting said bars and adapted to form hooks.

5. A grid for secondary battery-plate cast in one piece with an outer frame forming a border, vertical bars spaced at intervals apart and horizontal cross-bars of triangular cross-section connecting the vertical bars at intervals apart and with the base of the triangles flush alternately with the opposite faces of the plate, the bars being staggered upon opposite sides of the plate and webs connecting the bases of said bars and adapted to form hooks.

6. A grid for secondary battery-plate cast in one piece with an outer frame forming a border, vertical bars spaced at intervals apart and horizontal cross-bars of triangular cross-section and a thickness less than that of the plate measured by the height of the triangular cross-section said cross-bars connecting the vertical bars at intervals apart and with the base of the triangles flush alternately with the opposite faces of the plate, the bars being staggered upon opposite sides of the plate, and webs connecting the bases of the opposite bars and adapted to form retaining-hooks for the active material.

749,786. TILE. GEORGE G. FRYER, Syracuse, N. Y. Filed Aug. 12, 1901. Serial No. 71,691. (No model.)

Claim.—1. A masonry conduit comprising two sets of tiles, the members of one set being substantially circular in cross-section, and the members of the other set being arranged alternately in relation to the first-named members and having opposite concave surfaces each of substantially the same radius as the peripheries of the members of the first set and closely fitting any opposed arc of said peripheries for permitting the members of the second set to be adjusted about the members of the first set without the projection of the sides of the concave surfaces from the members of said first set, substantially as described.



2. A masonry structure having a curved cross-sectional formation comprising two sets of tiles the members of one set being of cylindrical shape and the members of the other set being arranged alternately in relation to the first-named members and having concave surfaces matching the peripheries of the members of the first set and designed to snugly fit the same, the members of the second set being adjustable about the members of the first set in assembling the tiles to form the complete structure.

3. The combination of two sets of tiles for forming masonry conduits of varying curved cross-sectional shape comprising a master set of tiles, the members of which are substantially circular in cross-section and an interfitting set of tiles, the members thereof having concave sides each concavity corresponding to an arc of the periphery of each major tile and being adapted to snugly fit any corresponding arc of the periphery of the same, substantially as described.

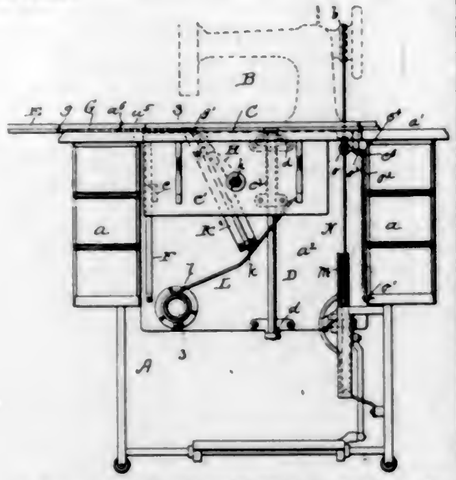
4. A sewer of substantially ovate cross-sectional shape having a wall of equal thickness throughout, the faces of which are substantially even or uninterrupted, said wall comprising a master set of cylindrical tiles and an interfitting set arranged in alternate relation to the master set, said interfitting set having flat faces extending tangentially from the exposed surfaces of the interposed master-tiles, the widths of the exposed surfaces of the master-tiles varying in the different parts of the complete structure.

749,787. DROP-TABLE FOR SEWING-MACHINES. WILLIAM GROTHE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Mar. 8, 1902. Serial No. 97,237. (No model.)

Claim.—1. In a sewing-machine, in combination, a table having an opening therein, a shelf adapted to form a support for the head, and adapted also to lie within said opening, a cover hinged to the top and adapted to fold over said opening, said table extending outwardly beyond the inner edge of said cover, wherefore it forms a support for said cover when the same is open, a link pivoted to said cover, another link pivoted to said first-named link, and pivotally connected with the said shelf, the hinge of the cover being placed substantially as described above the pivots at the ends of the first-named link when the cover is open, means for guiding said links at their point of connection, and means for guiding said shelf vertically up and down, substantially as and for the purpose specified.

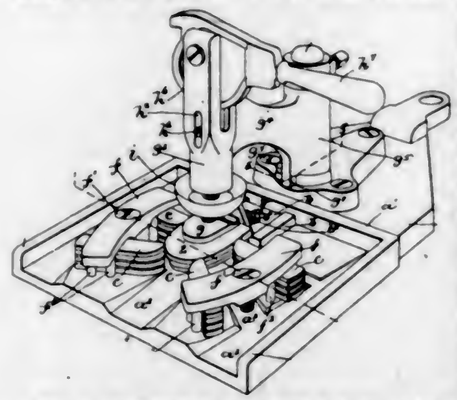
2. In a sewing-machine, in combination, a table having an opening through its top, a shelf adapted to close said opening when in its most elevated position, a vertical cylindrical guide-post, a vertical guide-bar, a sleeve secured to the said shelf and sliding upon said post, a finger secured to the shelf and engaging said guide-bar, a hinged cover, a link pivoted thereto at its outer end, another link pivoted to said shelf and to the inner end of the first-named link, and inclined guide-strips between which the last-named pivot slides, substantially as and for the purpose specified.

3. In a sewing-machine, in combination, a table having an opening therein, a vertically-movable support for the head, a hinged cover which may close said opening, means connecting said cover and support whereby said support is raised and lowered by the movement of said cover, a bent pivoted lever having in its upper end an eye which normally lies beneath said support, and through which the belt passes, and a bracket secured to the support and having an eye through which said bent lever passes, substantially as and for the purpose specified.



4. In a sewing-machine, in combination, a movable support for the head thereof, a driving-belt, means for depressing said support, a pivoted bent member, the body whereof lies outside of the path of said support, said member having an extremity which projects beneath said support and is adapted to engage said belt adjacent thereto, means carried by said support for engaging with said member, said member being bent in the plane in which it is pivoted wherefore it is moved when said support descends so that its extremity passes out of the path of said support, substantially as and for the purpose specified.

749,788. MACHINE FOR ASSEMBLING HEEL-BLANKS. Geo. R. Grover, Lynn, Mass., assignor of one-half to Charles R. Harwood, Lynn, Mass. Filed May 23, 1903. Serial No. 158,489. (No model.)



Claim.—1. In a machine of the character described, a plurality of sets of separately-adjustable members arranged on each side of a central forming-space, and a clamp for each pair of sets of members, said clamps being each provided with depending guide-pins adapted to form side rests for each of said sets of members.

2. In a machine of the character described, a plurality of sets of separately-adjustable members arranged on each side of a central forming-space and having pointed inner ends, a clamp for holding each pair of sets of separately-adjustable members, said clamp being provided with a set of guide-pins for each pair of members, the said guide-pins having an engagement with the base of the machine.

3. In a machine of the character described, a plurality of sets of separately-adjustable pointed members arranged about a central forming-space, an adjustable back rest forming a part of said central forming-space, clamps arranged to retain the sets of members in pairs in the desired position, said clamps comprising a curved bar spanning two of the sets of members and having a screw engagement with the base of the machine and being provided with sets of guide-pins having a sliding engagement with the base of the machine and forming side rests for each of the said sets of members.

4. In a machine of the character described, a plurality of sets of separately-adjustable pointed members arranged about a central forming-space, and clamping mechanism comprising a curved bar spanning two of the sets of members and being provided with sets of guide-pins having an engagement with the base of the machine, said sets of guide-pins being arranged near each end of the curved-bar portion whereby side rests for each of the sets of members are formed.

5. In a machine of the character described, a base having mounted thereon means for holding the material in the desired position, a tubular head having extended therefrom a horizontal arm, said arm being connected to the base of the machine to have a swinging movement, means for limiting the swinging movement, a sleeve slidingly mounted within the tubular head, and being provided at its upper end with a collar, a collar mounted upon the interior of the tubular head at its bottom portion, a spring interposed between said lower collar and upper collar, a stud extending from the upper collar through a guide-slot in the tubular head, a roller mounted above said stud, said tubular head being bifurcated at its upper portion, and a cam-lever mounted in said bifurcated portion, whereby a downward movement of the cam-lever will depress the presser-plate against the stress of the spring.

6. In a machine of the character described, a base having arranged thereon a plurality of sets of separately-adjustable form-pieces, guide-strips upon said base, and an adjustable back rest mounted upon the base of the machine and between the said guide-strips.

749,789. SOFA-BED. John Harvey, Grand Rapids, Mich., assignor of one-half to Peter H. Benjamin, Grand Haven, Ottawa county, Mich. Filed Apr. 27, 1903. Serial No. 154,418. (No model.)



Claim.—1. The combination of a stationary frame, a seat-frame adjustable thereon, rods pivoted at their respective ends to the respective frames and turning on said pivots to opposite horizontal positions, a back-frame hinged to said seat-frame and adjusted thereby at one side, and rods pivoted at one end to the stationary frame near the front thereof, and at the other end to the back-frame near the top thereof to adjust and support the other side of the same.

2. The combination of a stationary frame, a seat-frame horizontally slidable on the stationary frame at the rear, rods pivoted at their respective ends to the front of the seat-frame and to the stationary frame and adapted to turn to reversed horizontal positions, a back-frame hinged to the seat-frame, and rods pivoted at their respective ends to the stationary frame and to the back-frame, and adapted to turn from a horizontal to an inclined position.

3. The combination of a stationary frame, a seat-frame horizontally movable on the same, rods pivoted at their respective ends to the respective frames near the front thereof and adapted to turn to opposite horizontal positions, a back-frame hinged to the seat-frame, and rods pivoted at their respective ends to the back-frame and the stationary frame and adapted to contact the stationary frame and support the seat-frame when horizontal.

4. The combination of a stationary frame, a horizontally-movable seat-frame mounted thereon, a receptacle beneath the seat-frame, and rods pivoted at one end to the stationary frame near the front thereof, and at the other end to the seat-frame, and adapted to turn to a substantially vertical position to support the front of the seat in an elevated position, and also adapted to turn to opposite horizontal positions to horizontally adjust the seat-frame.

5. The combination of a stationary frame, a movable seat-frame mounted thereon, a receptacle beneath the seat-frame, rods pivoted at their respective ends to the stationary frame and to the seat-frame, and adapted to turn to opposite horizontal positions about their stationary pivots and to support the front of the seat-frame when in mid-position, and to hold the seat-frame from moving when in horizontal position, a back-frame pivoted to the seat-frame, and rods pivoted at their respective ends to the stationary frame near the front thereof and to the back-frame near the top thereof.

6. The combination of a stationary frame, a movable seat-frame mounted thereon, means for adjusting and holding the seat-frame horizontally, lugs on the seat-frame, a back-frame pivoted to the seat-frame, rods pivoted at their respective ends to stationary frame and to the back-frame, and engaging the lugs on the seat-frame.

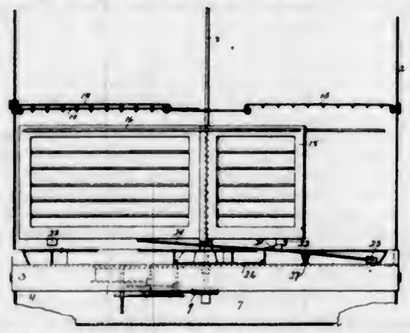
7. The combination of a stationary frame, angle-irons forming a part of the same and having upwardly-projecting vertical portions, and inwardly-projecting horizontal portions, a seat-frame and a back-frame hinged together and supported on the angle-irons, rods pivoted to the angle-irons near the ends thereof, and to the seat-frame, and adapted to adjust and to hold the same and also support the same, rods pivoted to the angle-irons, and to the back-frame, and lugs on the seat-frame to engage said rods.

8. The combination of a stationary frame, a movable seat-frame mounted thereon, a back-frame hinged to the seat-frame, a receptacle supported in the stationary frame and beneath the seat-frame, rods pivoted to the stationary frame at one end and near the front thereof, and to the seat-frame at the other end, and adapted to turn to opposite horizontal positions, to adjust and hold the seat-frame and also supporting the front of the seat-frame when in mid-position, and rods pivoted to the stationary frame and to the back-frame, and adapted to turn from an inclined position to a horizontal position, and lugs on the seat-frame to engage the said rods.

9. The combination of a stationary frame, angle-irons forming a part of said frame, and projecting upward and inward, a movable seat-frame supported on said irons, a back-frame hinged to the seat-frame and also supported by said irons, rods located between the vertical portions of said irons and the movable frames, and pivoted at one end to the vertical portions of said irons, and pivoted at the other end to the respective movable frames to adjust and hold the said movable frames.

10. The combination of a stationary frame having laterally-enlarged ends, angle-irons forming portions of said frames, and projecting upward and inward, a movable seat-frame supported on the angle-irons, a back-frame hinged to the seat-frame and also supported on said irons, a receptacle supported by the stationary frame and beneath the seat-frame, rods between the vertical portions of the angle-irons and the seat-frame, and pivoted to each at their respective ends, to adjust said seat-frame and also to support and to hold the same rods between the vertical portions of said irons and the back-frame and pivoted to each at their respective ends to support the back, and lugs on the seat-frame to engage the said rods.

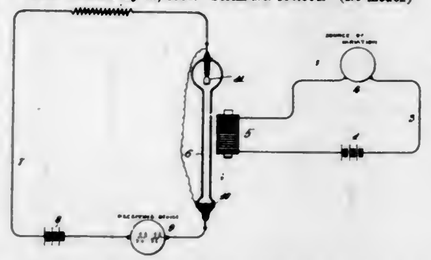
749,790. CAGE-TRAP. Andrew B. Hendryx, New Haven, Conn. Filed Sept. 2, 1903. Serial No. 171,596. (No model.)



Claim.—1. In a cage-trap, the combination with a wire cage having a detachable bottom, of a base connected with said bottom and forming a chamber, a vertically-arranged shaft extending upward from said chamber into said cage, driving mechanism in said chamber connected with said shaft for rotating it, radial gates mounted on said shaft within said cage, a trip arranged upon the bottom and adapted to engage and release said gates, a transverse partition above said gates, openings in said partition between the gates when in their normal position and slides by which the extent of the openings may be varied.

2. In a cage-trap, the combination with a circular wire cage having a bottom, a base secured to said bottom and forming a chamber, a vertically-arranged shaft extending upward from said chamber into said cage, driving mechanism in said chamber connected with said shaft for rotating it, radial gates mounted on said shaft within said cage, a trip arranged upon the bottom and adapted to engage and release said gates, an opening in the side of the cage adjacent to said trip, a transverse partition above said gates, and openings therein between the gates when in their normal position, substantially as described.

749,791. MEANS FOR REPRODUCING ELECTRICAL VARIATIONS. Peter C. Hewitt, New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed May 16, 1902. Serial No. 107,601. (No model.)



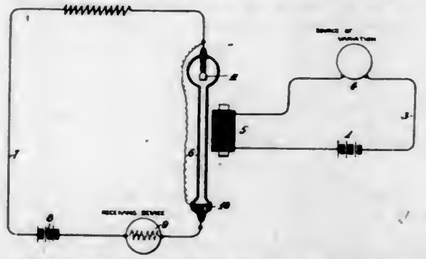
Claim.—1. As a means for reproducing the variations of current in an electric circuit, an electromagnet subject to the influence of said variations, and a gas or vapor apparatus of the character described located in the field of force of the said magnet.

2. As a means for reproducing current variations in an electric circuit, an electromagnet subject to the influence of said variations, a gas or vapor apparatus located in the field of force of the said magnet, and a receiving apparatus in circuit with the gas or vapor apparatus.

3. The combination of a telephonic transmitting-circuit, a telephone-receiver, a circuit including the latter, and an inclosed gas or vapor path included in the latter circuit, and an electromagnet traversed by electric currents due to the effects of the transmitting-circuit, and acting upon the gas or vapor path substantially as described.

4. The combination with a telephonic transmitting-circuit, an electromagnet included therein, a telephonic receiving-circuit having an inclosed gas or vapor path inserted therein, the gas or vapor path and the electromagnet occupying such relative positions that a portion at least of the lines of force from the electromagnet act upon the gas or vapor path.

749,792. METHOD OF REPRODUCING ELECTRICAL VARIATIONS. Peter C. Hewitt, New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed May 16, 1902. Serial No. 107,602. (No model.)



Claim.—1. The method of reproducing current variations in an electrical circuit, which consists in transforming these variations into a varying field of force, causing the said field of force to act magnetically upon an inclosed gas or vapor so as to produce variations of electrical resistance in another circuit.

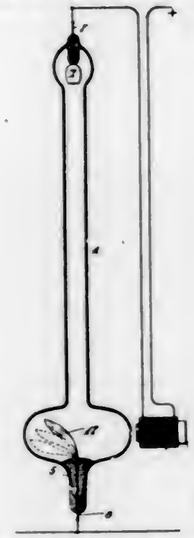
2. The method of producing in a circuit containing an inclosed conducting gas or vapor, variations of electrical resistance corresponding to variations of current in another circuit, which consists

in causing the variations of current in the second-named circuit to act magnetically upon the said gas or vapor and thereby vary the electrical resistance thereof and of the circuit.

3. The method of reproducing in a translating device included in a circuit containing an inclosed gas or vapor path, effects corresponding to electrical variations in another circuit, which consists in converting said electrical variations into magnetic variations, and causing such magnetic variations to act upon an inclosed gas or vapor path, thereby producing variations in the current-flow of the first-named circuit.

4. The method of reproducing in a translating device included in a circuit containing an inclosed gas or vapor, effects corresponding to variations of electrical resistance in another circuit, which consists in causing in the last-named circuit variations of current adapted to affect the translating device, converting these variations of current into magnetic variations, and causing such magnetic variations to act upon the inclosed gas or vapor.

749,793. REGULATOR FOR GAS OR VAPOR ELECTRIC APPARATUS. PETER C. HEWITT, New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed May 16, 1902. Serial No. 107,603. (No model.)



Claim.—1. In an electric vapor apparatus in which a path is provided for the electric current between a positive and a negative electrode, and in whose normal operation a negative flame is developed at the negative electrode, magnetic means for projecting the flame in such a direction with relation to the path of the current between the electrodes as to produce a definite normal resistance in the apparatus.

2. In an electric circuit, an electric vapor apparatus and an electromagnet in series therewith, the magnet being placed at the side of the apparatus and in operative proximity thereto.

3. The combination with an electric circuit containing a gas or vapor apparatus, of an electromagnet, placed in such relation to the negative electrode of the apparatus that electrical variations in the magnet-circuit will be reproduced in the circuit of the apparatus.

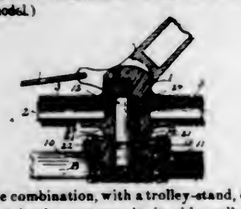
749,794. LATHE-CHUCK. FRED R. INMAN, Providence, R. I. Filed Apr. 15, 1903. Serial No. 152,773. (No model.)

Claim.—1. The improved work-centering mechanism for turning-lathes herein described, consisting of the combination of a head provided with a central hub, a plurality of lever-arms pivotally mounted at their inner ends to said head, a face-plate mounted centrally and rotatably upon said hub and having as many slots converging toward the center but eccentrically therewith as there are lever-arms, and a work-holding jaw pivotally mounted exterior to said face-plate upon the outer end of each of said lever-arms by a screw which passes through the adjacent slot in the face-plate, substantially as shown and for the purpose specified.

2. In a machine of the class described, the combination of a peripherally-flanged head having on its inner surface near its edge a concentric annular rib with three equispaced openings therein for receiving the movable ends of the lever-arms hereinafter named and also provided with a central hub, three sliding blocks movable in the three segmental channels so formed, three lever-arms pivotally mounted on said surface of the head at their inner ends and so located that their outer ends are movable into and out of said openings of the annular rib, respectively, a face-plate mounted centrally and rotatably upon said hub and having three slots converging inwardly to equispaced points, respectively, which are equally distant from the geometrical center of said face-plate, three work-holding jaws exterior to said face-plate connected to and carried by said lever-arms, respectively, by means of screws which respectively pass through said work-holding jaw and through said respective slots into the lever-arms adjacent to said holders and three clamping-screws passing through said face-plate into said sliding blocks, respectively, substantially as shown and for the purpose specified.



749,795. TROLLEY-STAND. JAMES KIDNATH, Detroit, Mich., assignor, by direct and mesne assignments, to Eclipse Manufacturing Company, a Corporation of Michigan. Filed Oct. 9, 1903. Serial No. 176,328. (No model.)



Claim.—1. The combination, with a trolley-stand, of a base provided with a socket having grooves in its side walls and divided transversely into two parts upon a line extending through said grooves at one side of the socket, a pivot-post provided with grooves to coincide with the grooves in the socket, balls adapted to be inserted in said grooves through the openings formed by dividing the base, and bolts extending through openings in each part of the base to secure the parts together.

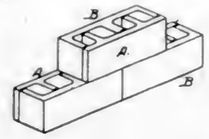
2. The combination, with a trolley-stand, of a base provided with a socket having grooves in its side walls and bottom and divided transversely into two parts, a pivot-post for supporting the stand and provided with grooves in its side and lower end to correspond with the grooves in the socket, balls in said grooves, dowel-pins on one of the parts of the base to engage openings in the other part, bolts, extending through openings in one part of the base and engaging screw-threaded openings in the other part to secure the parts together, and lock-nuts on said bolts.

3. The combination, with a trolley-stand, of a base provided with a socket having grooves in its side walls and divided transversely into two parts upon a line extending through said grooves at one side of the socket, a pivot-post provided with grooves to coincide with the grooves in the socket, balls adapted to be inserted in said grooves through the openings formed by dividing the base, bolts to secure the parts together, and balls interposed between the lower end of the post and base.

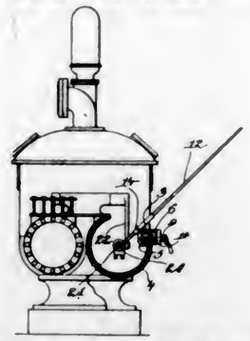
749,796. BUILDING BLOCK AND WALL. FRANK E. KIDDER, Denver, Colo., assignor to John A. Ferguson, Denver, Colo. Filed Apr. 13, 1903. Serial No. 152,362. (No model.)

Claim.—A wall composed of building-blocks A and B having right-angled projections as described, the two sets of blocks being arranged on opposite sides of the wall so that their projections interlock and break joints, the two sets of blocks alternating from side to side in the vertical courses.

749,796.



749,797. PUMP ATTACHMENT. EARLE F. KIMBALL, Chelsea, Mass., assignor of one-half to Charles W. Fuller, Chelsea, Mass. Filed June 8, 1903. Serial No. 160,503. (No model.)



Claim.—1. In a device of the class described, a fulcrum-block adapted to be clamped to the frame of a pump, and a lever fulcrumed on said block and adapted to engage the piston-rod of the pump whereby the position of said rod may be shifted.

2. In a device of the class described, a fulcrum-block, means to adjustably clamp said block to the frame of the pump, and a lever to engage and move the piston-rod fulcrumed on said block.

3. In a device of the class described, a fulcrum-block, a fulcrum-pin carried by said block, means to adjustably clamp said block to the frame of the pump, and a lever fulcrumed on said pin.

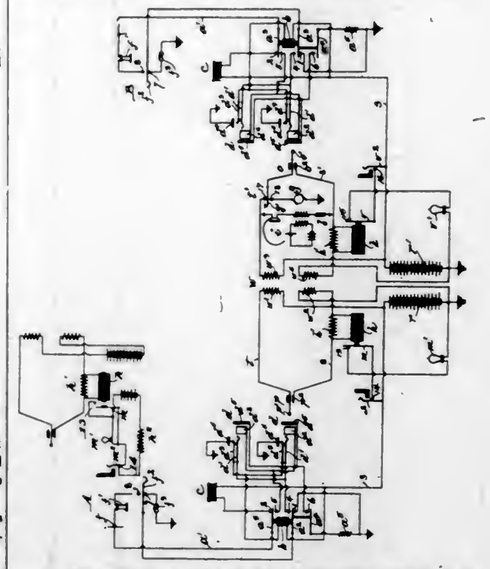
4. In a device of the class described, a fulcrum-block, a fulcrum-pin adjustably carried thereby, means to adjustably clamp said block to the frame of the pump, and a piston-rod-moving lever fulcrumed on said pin.

749,798. CENTRAL-ENERGY TELEPHONE SYSTEM. KEMPSTER B. MILLER, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 19, 1900. Serial No. 40,372. (No model.)

Claim.—1. The combination with a pair of telephone-lines, of a cord-circuit to loop said lines together for conversation and having a connecting-plug at each end, a pair of sources of electricity one for each line of the connected pair, a relay associated with each end of the cord-circuit and operated over the telephone-line during conversation from the corresponding source of current but deënergized when the subscriber's telephone is not in use, a plug-seat switch for each of the connecting-plugs, and a supervisory signal for each end of the cord-circuit controlled by the conjoint action of the relay and plug-seat switch associated with the corresponding end of the cord-circuit, substantially as described.

2. The combination with a plurality of telephone-lines, of a cord-circuit to loop any of said lines together in pairs for conversation and having a connecting-plug at each end, a pair of sources of electricity, one for each line of each connected pair, and placed in circuit therewith by the act of connecting the cord-circuit with the lines, a relay associated with each end of the cord-circuit and operated over the metallic telephone-line from the corresponding source of current, a plug-seat switch for each plug, and a supervisory signal for each end of the cord-circuit controlled by the conjoint action of the relay and plug-seat switch associated with the corresponding end of the cord-circuit, substantially as described.

3. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having connecting-plugs, a pair of sources of electricity, one for each line of each connected pair and placed in circuit therewith by the act of connecting the cord-circuit with the lines, the ends of said cord-circuit being inductively united together but conductively disconnected, a relay associated with each end of the cord-circuit and operated over the telephone-line from the corresponding source of current, a plug-seat switch for each plug of the cord-circuit, and a supervisory signal for each end of the cord-circuit controlled by the conjoint action of the relay and plug-seat switch associated with the corresponding end of the cord-circuit and operated over the telephone-line from the corresponding source of current, a plug-seat switch for each plug of the cord-circuit, and a supervisory signal for each end of the cord-circuit controlled by the conjoint action of the relay and plug-seat switch associated with the corresponding end of the cord-circuit and operated over the telephone-line from the corresponding source of current, a plug-seat switch for each plug of the cord-circuit, and a supervisory signal being actuated whenever the relay is deënergized and the plug is out of the seat and rendered inoperative whenever the plug is in its seat or the relay energized, substantially as described.



4. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having connecting-plugs, means to conductively separate but to inductively join the ends of said cord-circuit, a pair of sources of electricity, one bridged across each end of the cord-circuit and adapted to be included in the metallic telephone-line when a connection is established, a relay for each end of the cord-circuit and in the path of current over the metallic line, a plug-seat switch for each plug, and a supervisory signal for each plug having its circuit controlled by the corresponding switch and by said relay and so that the signal is actuated when the plug is out of its seat and the relay deënergized and is rendered inoperative at other times, substantially as described.

5. The combination with a plurality of telephone-lines, of a cord-circuit to connect said lines in pairs for conversation, said cord-circuit being provided with connecting-plugs, a repeating-coil interposed between said plugs to inductively unite the same together and to conductively separate them, a separate source of current associated with each end of the cord-circuit and adapted to send current over the metallic telephone-lines when a connection is established, a relay for each end of the cord-circuit in the path of current over the metallic telephone-line, a plug-seat switch for each plug, and a supervisory signal for each plug having its circuit controlled by the corresponding switch and relay, substantially as described.

6. The combination with a plurality of telephone-lines, of a cord-circuit to connect said lines together in pairs for conversation and having connecting-plugs, a repeating-coil having its windings connected across between the strands of said cord-circuit to inductively join the ends of the same together and to conductively separate them, a separate source of current connected with each end of the cord-circuit and between the windings of said repeating-coil, a relay associated with each end of the cord-circuit and in one strand thereof, said relay being in the path of current over the metallic telephone-line, a plug-seat switch associated with each end of the cord-circuit for the connecting-plug, and a supervisory signal for each plug having its local circuit controlled by the corresponding relay and plug-seat switch, substantially as described.

7. The combination with a plurality of telephone-lines, of a cord to variously loop said lines together for conversation and having a connecting-plug at each end, said cord-circuit having only two strands and the ends thereof being conductively discontinuous but inductively

united, a pair of sources of electricity associated with the cords and lines, one source being independently included in the circuit of each line during the connection, a separate and independent relay associated with each end of the cord-circuit and included in the metallic circuit with the corresponding source of current and telephone-line when a connection is established, and a supervisory signal for each end of the cord-circuit controlled during conversation by said relay, substantially as described.

8. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having a connecting-plug for each end, means to conductively separate but inductively unite the said ends of the cord-circuit, a pair of sources of electricity, one bridged across each end of the cord-circuit and adapted to be included in the metallic circuit with the corresponding telephone-line when a connection is established, a separate and independent relay for each end of the cord-circuit and in the path of current over the said corresponding metallic telephone-line, and a supervisory signal associated with each connecting-plug and controlled during conversation by the corresponding relay, substantially as described.

9. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having a connecting-plug for each end, means to conductively separate but inductively unite the said ends of the cord-circuit, a pair of sources of electricity, one bridged across each end of the cord-circuit and adapted to be included in the metallic circuit with the corresponding telephone-line when a connection is established, a separate and independent relay for each end of the cord-circuit and in the path of current over the said corresponding metallic telephone-line, a supervisory signal associated with each of the connecting-plugs, a local circuit for each said signal, said circuits being controlled at one point by the corresponding relays and at another point by auxiliary means, substantially as described.

10. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having a connecting-plug for each end, means to conductively separate but inductively unite the said ends of the cord-circuit, a pair of sources of electricity one bridged across each end of the cord-circuit and adapted to be included in the metallic circuit with the corresponding telephone-line when a connection is established, a separate and independent relay for each end of the cord-circuit and in the path of current over the said corresponding metallic telephone-line, a supervisory signal for each end of the cord-circuit, local circuits for said signals, said relays serving when actuated to open said local circuits at one point to render the said signals inert during conversation, and other means to close said circuits when the plugs are connected with the lines so that the said signals may be operated when the subscribers' telephones are not in use, and to open the same when the plugs have been disconnected from the lines so that the said signals are again rendered inert, substantially as described.

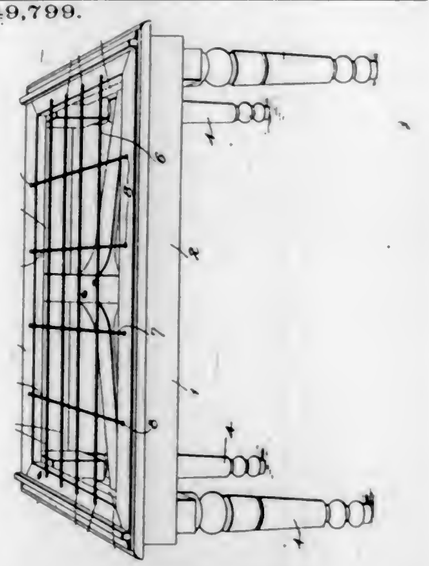
11. The combination with a plurality of telephone-lines, of a cord-circuit to connect any of said lines together in pairs for conversation and having a connecting-plug for each end, means to conductively separate but inductively unite the said ends of the cord-circuit, a pair of sources of electricity, one bridged across each end of the cord-circuit and adapted to be included in the metallic circuit with the corresponding telephone-line when a connection is established, a separate and independent relay for each end of the cord-circuit and in the path of current over the said corresponding metallic telephone-line, a supervisory signal associated with each plug, means controlled by each said relay for depriving the corresponding signal of operating-current when the said relay is energized whereby said signal is rendered inert during conversation, and other means for supplying current to said signals when the connection is established and for depriving them of current when the connecting-plugs have been returned to normal position whereby said signals are normally inert, substantially as described.

749,799. REMNANT-TABLE. CHARLES R. MITCHEL, Harvard, Ill. Filed Sept. 30, 1903. Serial No. 175,211. (No model.)

Claim.—1. In a table, a top comprising an open frame having perforations, intercrossed flexible elements threaded through the perforations and fastening devices engaged by said elements and operable for varying the tension of the latter.

2. In a table, a top comprising an open frame having perforations, intercrossed wires threaded through said perforations and fastening-screws engaged by said wires and operable for varying the tension of the latter.

749,799.

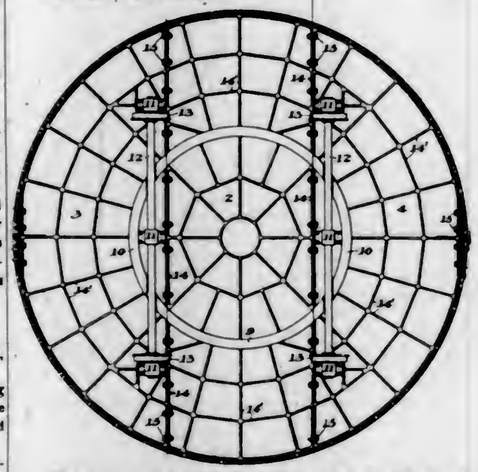


749,800. HOMOLOGOUS PROPIOLIC ACID AND PROCESS OF MAKING SAME. CHARLES MOUREU, Paris, France. Filed July 19, 1901. Serial No. 68,944. (Specimens.)

Claim.—1. The process of producing carboxylic acids of the acetylene family known as homologous propiolic acids of the series C_9 or C_7 by treating with carbon dioxid an alkaline compound of the described hydrocarbons.

2. A composition of matter containing a carboxylic, that is homologous propiolic, acid of the acetylene family of the series herein described, said acid being in the free state an oily liquid of specific gravity from 0.964 to 0.967, and boiling at 148° to 156° at eighteen to twenty-one millimeters pressure, and having the two other characteristics herein specified.

749,801. TABLE FOR GRINDING, SMOOTHING, AND POLISHING GLASS. DANIEL J. MURNANE, Kirkwood, Mo., and RODERICK W. DAVIES, Avonmore, Pa.; said Murnane assignor to St. Louis Plate Glass Company, a Corporation of Missouri. Filed Dec. 6, 1902. Serial No. 134,197. (No model.)



Claim.—1. A glass-supporting table or deck formed of a plurality of planed transverse non-radial sections; the edges of the sections extending entirely across the table at one side of the center, and being straight and parallel to each other; substantially as described.

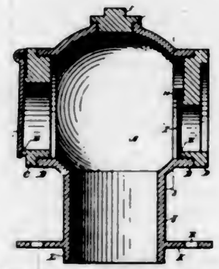
2. A glass-supporting table or deck formed of a plurality of transverse sections the edges of all the sections being parallel with each other and extending in straight lines across the table; substantially as described.

3. A glass-carrying table or deck formed of a plurality of sections having rabbeted joints extending across the table on non-radial lines; substantially as described.

4. A glass-carrying table or deck formed of a plurality of non-radial sections, said table having a supporting-ring formed on the under side of the several sections, and planed parallel with the surface; substantially as described.

5. A glass-carrying table or deck formed of a plurality of sections with planed parallel edges, and a planed supporting-ring transversely divided at the joints; substantially as described.

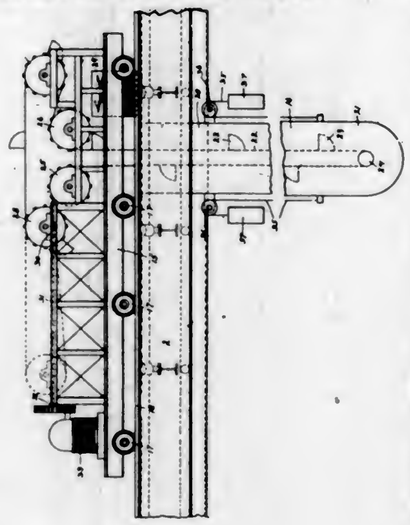
749,802. VENTILATING ATTACHMENT FOR TANKS. CHARLES MOLLER, Detroit, Mich. Filed Sept. 15, 1902. Serial No. 123,441. (No model.)



Claim.—1. The combination in ventilating attachment for tanks, of an air-receiver provided with a sight and gage opening, the detachable heads having an opening therein, and valves controlling the same attached thereto, substantially as described and for the purposes set forth.

2. In ventilating attachment for tanks, the combination with the air-receiver, the detachably-attached head provided with an air-inlet opening and the detachably-attached head provided with an air-outlet opening therein, valves attached to said heads, the sight and gage opening in said air-receiver, means for attaching said ventilating attachment to tanks, all connected and operated, substantially as described and for the purpose set forth.

749,803. CONVEYER. WILLIAM J. PATTERSON, Pittsburg, Pa. Filed June 9, 1902. Serial No. 110,796. (No model.)



Claim.—1. In hoisting apparatus, the combination of a traveling crane or bridge, and a telescoping elevator carried thereby and movable along said bridge.

2. In hoisting apparatus, the combination with a bridge, a transverse conveyer thereon, and an extensible elevator movable along the bridge and arranged to deliver the material to the transverse conveyer.

3. In hoisting apparatus, the combination with a traveling crane or bridge, of a traneverse conveyer thereon, and an extensible elevator mounted to move bodily along the bridge or crane and arranged to deliver the material to the transverse conveyer.

4. In hoisting apparatus, the combination with a traveling bridge or crane, a transverse conveyer thereon, and a telescoping elevator-leg mounted on and movable along the bridge and arranged to deliver the material to the transverse conveyer.

5. In hoisting apparatus, the combination with a movable bridge or crane, a hopper at one end thereof, a transverse conveyer on the bridge leading to the hopper, a trolley movable on the bridge, and an elevator carried by said trolley and arranged to deliver the coal to the transverse conveyer.

6. In hoisting apparatus, the combination with a movable bridge or crane, an elevator carried by and movable along said bridge, said elevator comprising telescoping members, elevator-chains therein, and means for lengthening and shortening the depending portions of said chains.

7. In hoisting apparatus, the combination with a movable bridge or crane, an elevator carried by and movable along said bridge, said elevator comprising telescoping members, means for extending or retracting said members, and a counterbalance for the movable member.

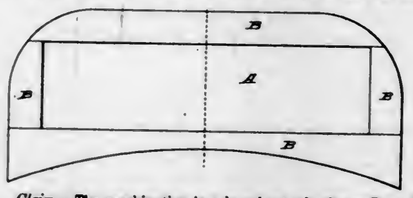
8. In hoisting apparatus, the combination with a movable bridge or crane, an elevator carried by said bridge, said elevator comprising telescoping members, an endless conveyer therein, guide-wheels over which said conveyer passes, and means for moving one set of said guide-wheels whereby the depending portion of the endless conveyer is shortened or lengthened.

9. In hoisting apparatus, the combination with a movable bridge or crane, an elevator carried thereby, said elevator comprising telescoping members, an endless conveyer in said members, guide-wheels over which said conveyer passes, a carriage in which one set of said guide-wheels are mounted, and a motor and gearing for moving said slide, whereby the depending portion of said conveyer is lengthened and shortened.

10. Hoisting apparatus comprising telescoping members, an endless conveyer in said members, guide-wheels at the lower end of the lower telescoping member around which said conveyer passes, guide-wheels on the stationary part of the apparatus over which said conveyer also passes, one set of said last-named guide-wheels being movable so as to lengthen and shorten the depending portion of said endless conveyer.

11. Hoisting apparatus comprising telescoping members, an endless conveyer, guide-wheels over which said conveyer passes, one set of said guide-wheels being located at the lower end of the lower telescoping member, and mechanism for moving one set of said guide-wheels, whereby the telescoping members are caused to move one on the other.

749,804. LAZY-BACK FOR VEHICLE-SEATS. BION C. PLACE, Hartwell, Ohio. Filed July 8, 1903. Serial No. 164,663. (No model.)



Claim.—The combination in a lazy-back of a frame B to which is attached in a suitable manner the tar-board back A substantially as described.

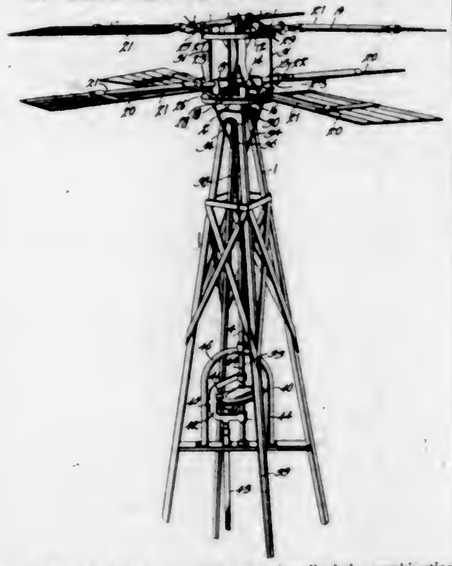
749,805. LAZY-BACK ATTACHMENT FOR VEHICLE-SEATS. BION C. PLACE, Hartwell, Ohio. Filed July 8, 1903. Serial No. 164,664. (No model.)

Claim.—The combination in a lazy-back of spring-clamps in conjunction with loops that engage with arms which are secured to the buggy-seat, substantially as described.

749,805.



749,806. WINDMILL. EDWARD RUE, Amboy, Minn., assignor of one-half to Christian L. Peterson, Amboy, Minn. Filed Feb. 24, 1903. Serial No. 144,756. (No model.)



Claim.—1. In a device of the class described the combination of a rotary frame, shafts journaled on the frame and provided with means for engaging the same for limiting their rotation, blades mounted on the shafts and capable of rotating independently of the same, and springs housed within the blades with and connected to the shafts and maintaining the same normally in operative position, substantially as described.

2. In a device of the class described the combination of a rotary frame, shafts journaled on the frame, blades mounted on the shafts and capable of rotating independently of the same, and provided with cams, means carried by the shafts for engaging the cams, springs connected with the shafts and the blades and holding the cams in engagement with the said means, and stops carried by the shafts and arranged to engage the frame to limit the rotation of the shafts, substantially as described.

3. In a device of the class described the combination of a rotary frame, shafts mounted on the rotary frame and provided with stops for engaging the same, blades arranged on the shafts and provided with cams and having arms, means carried by the shafts for engaging the cams, springs for holding the cams in such engagement, and means arranged to engage the arms for rotating the blades for arranging the same edgewise to the wind, substantially as described.

4. In a device of the class described the combination of a rotary frame having upper and lower bearings, upper and lower shafts provided with means for engaging the frame to limit their rotation, blades yieldably connected with the shafts and provided with arms, and vertically-movable upper and lower rings arranged to engage the arms, substantially as described.

5. In a device of the class described the combination of a rotary frame, a vertical shaft connected with the frame, upper and lower horizontal shafts journaled on the frame and provided with means for engaging the same, blades mounted on the shafts and provided with cams and having arms, means carried by the shafts for engaging the cams, springs for holding the parts in such engagement, a vertically-movable frame slidable on the shaft and provided with upper and lower rings for engaging the arms, and operating mechanism connected with the vertically-movable frame and having an elastic connection, substantially as described.

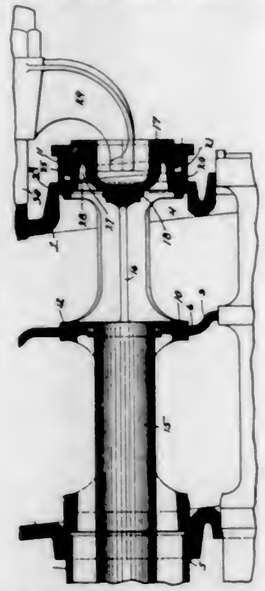
6. In a device of the class described the combination of a tower, a rotary frame, shafts mounted on the frame and provided with blades, a central vertical shaft connected with the rotary frame and provided with a cam, and a reciprocating frame terminally sleeved on the shaft and designed to be connected with a pump-rod and provided with means for engagement by the cam, substantially as described.

7. In a device of the class described the combination of a rotary frame having bearings, radial shafts carried by the bearings, spring-controlled blades yieldably connected with the shafts and provided with arms, and vertically-movable means arranged to temporarily engage the arms to oppose the springs.

8. In a device of the class described the combination of a rotary frame, shafts carried by the frame, spring-controlled blades yieldably connected with the shafts and provided with arms, and vertically-movable means in temporary engagement with the arms to oppose the springs.

9. In combination with a rotary frame, shafts carried by the frame, yieldable spring-controlled blades on the shafts, arms on the blades, means for temporarily engaging the arms to oppose the spring and a shifting device for actuating said means.

749,807. LANTERN-PLUG. JAMES P. SHEDDON, Barberton, Ohio, assignor to the Stirling Company, Chicago, Ill., a Corporation of New Jersey. Filed Jan. 24, 1903. Serial No. 140,349. (No model.)



Claim.—1. In Niclausse and similar water-tube boilers, the combination of an outer tube or lantern provided at its forward end with a seat for the lantern-plug and having a spiral groove or grooves formed therein, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the outer tube or lantern and provided with a projection or projections adapted to enter the spiral groove or grooves of the outer tube or lantern.

2. In Niclausse and similar water-tube boilers, the combination of an outer tube or lantern provided at its forward end with a conical seat on its inner face and having a spiral groove or grooves formed in said inner face, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the conical seat in the outer tube or lantern and provided with a projection or projections adapted to enter the spiral groove or grooves of the outer tube or lantern.

3. In Niclausse and similar water-tube boilers, the combination of an outer tube or lantern provided at its forward end with a seat for the lantern-plug and having a spiral groove or grooves formed therein, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the outer tube or lantern and provided with a face adapted to bear against the seat in the lantern, and having a projection or projections adapted to enter the spiral groove or grooves of the lantern.

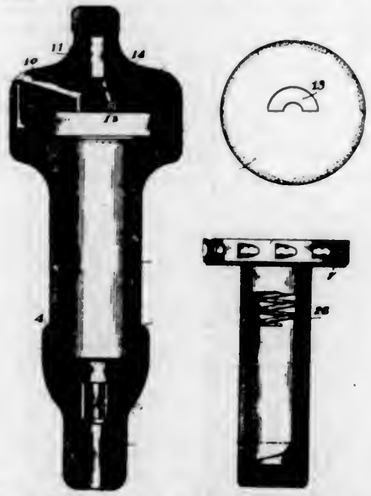
4. In Niclausse and similar water-tube boilers, the combination of a lantern adapted to have an outer tube attached to its rear end and provided at its forward end with a collar having a seat for the lantern-plug and having a spiral groove or grooves formed therein, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the lantern, and having a projection or projections adapted to enter the spiral groove or grooves of the lantern.

5. In Niclausse and similar water-tube boilers, the combination of a lantern adapted to have the outer tube attached to its rear end and provided at its forward end with a collar having a conical seat formed on its inner face and having a spiral groove or grooves formed in said face in advance of said seat, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the conical seat in the lantern and having a projection or projections adapted to enter the spiral groove or grooves in the lantern.

6. A lantern for Niclausse and similar water-tube boilers, comprising a skeleton frame provided with a conical seat on its outer face at the forward end and having a spiral groove or grooves in said inner face in advance of the conical seat.

7. A lantern-plug for Niclausse and similar water-tube boilers comprising a circular body having a smooth peripheral face and adapted to have the inner tube connected to its rear end and provided with one or more radially-extending projections in front of the smooth peripheral face.

749,808. PNEUMATIC HAMMER. CLYDE A. SPEER and EUGENE C. BOWMAN, Los Angeles, Cal. Filed May 28, 1903. Serial No. 159,181. (No model.)



Claim.—1. The combination with a reciprocating hammer, of a rotary cylinder, and means for applying fluid-pressure to the cylinder to cause it to move and means connected with the cylinder for applying fluid-pressure to the hammer.

2. The combination with a reciprocating hammer, of a rotary cylinder, and means for applying fluid-pressure to the cylinder to cause it to move and means connected with the cylinder for applying fluid-pressure to the hammer, to actuate it in one direction and means carried by the cylinder for moving the hammer in the opposite direction.

3. The combination with a suitable casing, and a cylinder fitted to turn therein and provided with a motor which causes it to rotate and also having a port through one end thereof, of a hammer keyed to slide or reciprocate in the casing and adapted to be actuated in one direction by fluid-pressure admitted through the port in the cylinder, and means carried by the cylinder for returning the hammer in the opposite direction.

4. The combination with a suitable casing, counterbored and provided with direct and exhaust ports, of a rotary cylinder fitted in the bore of the casing and provided with a motor which is driven by fluid-pressure through said ports, said cylinder having a port, and a hammer fitted to the cylinder and keyed against turning in the casing, and a cam carried by the cylinder for moving the hammer in one direction.

5. The combination with a suitable casing and a cylinder fitted thereto and provided with a turbine at one end with a concentric port therethrough, of a hammer keyed against turning in the casing and fitted within the cylinder, and means for creating fluid-pressure upon the turbine whereby to rotate the cylinder and for intermittently admitting fluid-pressure into the cylinder and permitting it to exhaust therethrough.

6. The combination with a suitable casing and a cylinder fitted thereto and provided with a turbine at one end with a concentric port therethrough, of a hammer keyed against turning in the casing and fitted within the cylinder, means for creating fluid-pressure upon the turbine whereby to rotate the cylinder and for intermittently admitting fluid-pressure into the cylinder and permitting it to exhaust therethrough, and means for positively forcing the hammer inward while the exhaust from the cylinder is taking place.

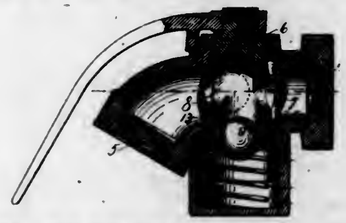
7. The combination with a suitable casing, of a cylinder fitted thereto and provided with a turbine through which a port is formed into the cylinder, of a hammer keyed against turning in the casing and adapted to move endwise in the cylinder, a cam carried by the cylinder and a lug by the hammer adapted to ride upon the cam with the rotation of the cylinder whereby the hammer is moved endwise in one direction, and a system of direct and exhaust ports, the former leading from the fluid-pressure supply to the turbine-blades and in position to register with the port through the turbine whereby to propel the cylinder and admit fluid-pressure thereinto to force the hammer in one direction.

8. The combination with a suitable casing, and a hammer, of a cylinder one head of which constitutes a motor and a valve which is propelled by fluid-pressure and which controls the passage of fluid into and out of the cylinder.

9. The combination with a casing, made in three sections screwed together, one section having ports therein, and a cylinder having a turbine-wheel, said cylinder and turbine fitted to the intermediate section of the casing, and having ball-bearings therefor, of a hammer fitted to the cylinder and means for exerting fluid-pressure against it in one direction whereby to force it endwise and means carried by the cylinder for forcing it back in the opposite direction.

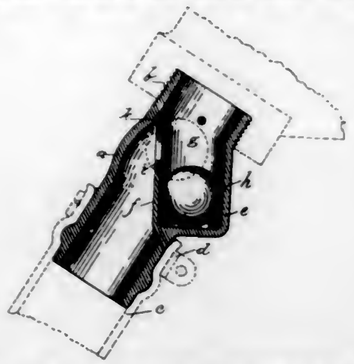
10. The combination with a suitable casing, of a motor-cylinder rotatably fitted therein and provided with a semicircular port extending through the motor end thereof to the interior of the cylinder, a hammer operating in the cylinder, and ports formed in the casing adapted to be alternately opened and closed by the head of the cylinder, as the latter rotates, and means for applying pressure to drive the cylinder.

749,809. AIR-BRAKE SAFETY DEVICE. CHARLES TRUMAN, Toledo, Ohio, assignor of one-half to William G. Smith, Toledo, Ohio. Filed July 7, 1902. Serial No. 114,582. (No model.)



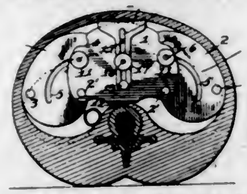
Claim.—In an air-brake safety device, an air-conduit, an angle-cock connected therewith, a hollow plug in the cock having a passage therethrough adapted to be thrown into and out of coincidence with the conduit, a ball-valve in the hollow of the plug, a seat for the ball and means for permitting the retarded passage of air around said valve when in closed position, the arrangement being such that the ball-valve is automatically seated and the conduit closed by the escape of air from said conduit.

749,810. AIR-BRAKE SAFETY DEVICE. CHARLES TRUMAN, Toledo, Ohio. Filed July 23, 1903. Serial No. 166,682. (No model.)



Claim.—An air-brake attachment consisting of a casing adapted to be connected at one end with a train-pipe and at its other end to an air-hose and having on the under side of its interior a recess, a ball which rests normally in said recess, a wall across the interior of the casing having an air-passage therethrough which forms a valve-seat for the ball, and means for permitting a retarded flow of air around the ball when in closed position.

749,811. SURGICAL RETAINER. AUGUSTUS C. BERNAYS, St. Louis, Mo. Filed Apr. 21, 1903. Serial No. 153,714. (No model.)



Claim.—1. A surgical retainer and expander for the abdominal cavity in performing laparotomy, which consists in a flat expansible device in the form of a plane plate having a superposed wing hinged thereto and the whole adapted to be inserted in the abdominal cavity to dam the intestines and prevent their invasion of the said cavity, substantially as described.

2. A surgical retainer and expander for the abdominal cavity in performing laparotomy, which consists in a flat expansible device in the form of a metallic plate having hinged wings superposed thereon, one at each end and adapted to be inserted in the abdominal cavity to dam the intestines and prevent their invasion of the said cavity, substantially as described.

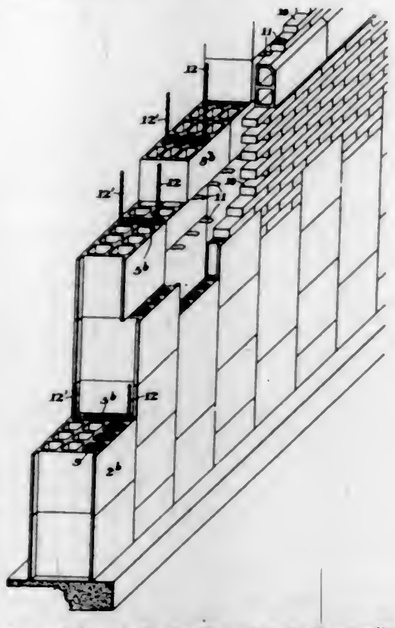
3. A surgical retainer and expander for the abdominal cavity in performing laparotomy, which consists in a flat expansible device in the form of a metallic plate provided with two hinged wings superposed thereon, one at each end and at the lower edge thereof and adapted to be inserted in the abdominal cavity to dam the intestines and prevent their invasion of the said cavity, substantially as described.

4. A surgical retainer and expander for the abdominal cavity in performing laparotomy, which consists in an expansible device provided with hinged wings and adapted to be inserted in the abdominal cavity to dam the intestines and prevent their invasion of the said cavity; and thumb-nuts for holding said wings in various adjustments, substantially as described.

5. A surgical retainer and expander for the abdominal cavity in performing laparotomy, which consists in an expansible device provided with hinged wings and adapted to be inserted in the abdominal cavity to dam the intestines and prevent their invasion of the said cavity; thumb-nuts for holding said wings in various adjustments, and retaining-prongs at the edges of said device, substantially as described.

749,812. FIREPROOF BUILDING CONSTRUCTION. CHARLES F. BURRY, Pittsburg, Pa. Filed Mar. 24, 1902. Serial No. 99,718. (No model.)

Claim.—1. A wall having separated vertical concrete columns, floor-beams supported on said columns, and hollow tiles between the columns; substantially as described.



2. A wall formed of hollow tiles with vertically-extending registering cells or cavities, cement filling a part only of said cavities and forming separated vertical columns, and floor-beams supported on said columns; substantially as described.

3. A wall composed of vertically-extending hollow tiles with recesses between their ends, vertical columns of concrete filling said recesses, and floor-beams supported on said columns; substantially as described.

4. A wall composed of hollow tiles with vertically-alined cavities, vertical concrete columns filling part of said cavities, metallic rods embedded in said concrete, and floor-beams supported upon said columns; substantially as described.

5. A wall composed of vertical hollow tiles with registering cavities containing vertical columns of concrete supporting the floor-beams, the outer cells only of the tiles being filled with concrete to strengthen the outer part of the wall against compression; substantially as described.

6. A wall composed of hollow cellular tiles with vertically-registering cavities and recesses between their meeting ends, concrete columns filling said recesses and containing embedded metallic rods or bars, and concrete filling the outer cells only of said tiles; substantially as described.

7. A wall composed of hollow tiles with vertically-extending cells, the tiles of one row having spaces between their ends registering with intermediate cells of the next horizontal row, concrete columns filling the spaces between the ends of the tiles of alternate rows and extending through the cells of the other rows, and floor-beams supported on the concrete columns; substantially as described.

8. A wall consisting of hollow tiles arranged vertically and containing concrete columns beneath the floor-beams, and veneering secured to the exterior of this wall; substantially as described.

9. A wall having concrete columns beneath the floor-beams, hollow tiles in the spaces between said columns, veneering on the exterior of the wall, and wall-ties connecting the tiles with said veneering; substantially as described.

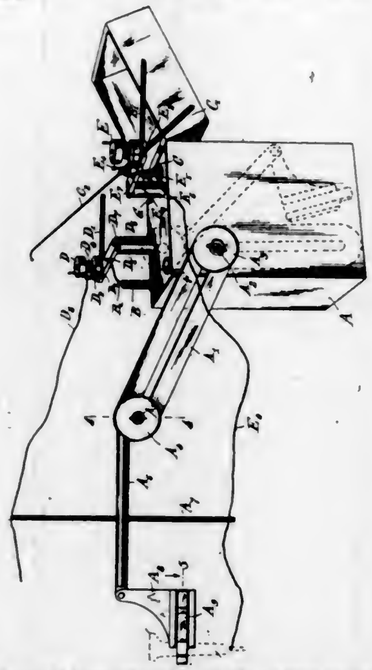
10. A wall having wide hollow tiles in its lower part, and upper and narrower hollow tiles, said tiles containing concrete columns beneath the floor-beams, and veneering resting upon the projecting portions of the lower tiles; substantially as described.

11. A wall having wide hollow tiles in its lower portion, the outer cells of which are filled with concrete, upper and narrower hollow tiles resting on the lower tiles, vertical concrete columns beneath the floor-beams, and veneering resting upon the concrete-filled cells of the lower tiles; substantially as described.

12. A building having a wall formed of hollow tiles, vertical concrete columns inclosed by the tiles which serve as molds therefor, and floor-beams supported on the concrete columns; substantially as described.

13. A building having a wall formed at least in part of hollow tiles, separated vertical concrete columns filled into vertically-alined cavities in the tiles, and floor-beams supported upon the concrete columns; substantially as described.

749,813. PORTABLE X-RAY APPARATUS. EUGENE W. CALDWELL, New York, N. Y. Filed Jan. 16, 1903. Serial No. 139,282. (No model.)



Claim.—1. In X-ray apparatus, a coil-box, a slotted arm adjustably secured to said coil-box, a rod slidingly mounted at the outer end of said arm and having a universal motion with respect thereto, means to secure said rod in position with respect to said arm and a tube-clamp at the outer end of said rod to adjustably support a tube from said coil-box.

2. In X-ray apparatus, a coil-box, a slotted arm adjustably secured to said box, a rod mounted in a universal joint at the end of said arm, a pivoted laterally-extending tube-clamp at the outer end of said rod and a gripping-jaw mounted on said clamp to engage a tube.

3. In X-ray apparatus, a coil-box, a slotted arm adjustably secured to said coil-box, washers mounted at the outer end of said arm, a rod passing through an opening in said washers to slide therein and to rotate with respect thereto, said rod being adjustably secured between said washers and a tube-clamp pivotally mounted at the outer end of said rod.

4. In X-ray apparatus, a support, a slotted arm adjustably mounted on said support, a rod sliding in an opening in the outer end of said arm and rotatable with respect thereto and means to secure said rod with respect to said arm and a tube-clamp mounted at the outer end of said rod.

5. In X-ray apparatus, a coil-box provided with a cover, a tube-support adjustably mounted on said coil-box, pillars secured to said box, hinged spool-bars mounted on said pillars and provided at their outer ends with conductor-spools, guides and regulator-balls mounted on said bars, a movable regulator provided with an insulating-handle mounted on each of said bars to cooperate with said regulator-ball thereon, each of said regulator-balls being connected with the coil-terminals and an adjustable discharger removably mounted on one of said terminals.

6. In X-ray apparatus, a coil-box provided with a cover, spool-bars carrying conductor-spools movably mounted on said box and regulators adjustably mounted on said bars adjacent said spools, said regulators being connected with the coil-terminals.

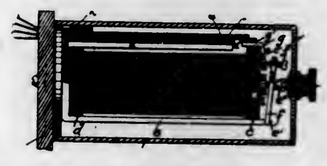
7. In X-ray apparatus, a coil-box, a spool-bar movably mounted on said coil-box, a conductor-spool on said spool-bar and a movable regulator on said bar connected with the coil-terminal.

8. In X-ray apparatus, a coil-box, a spool-bar hinged to said coil-box, a conductor-spool on said bar, a conductor-guide and a regulator-ball on said bar adjacent said spool and a movable regulator cooperating with said ball and provided with a folding handle mounted on said bar.

9. In X-ray apparatus, a coil-box, conductor-guides mounted on said box, adjustable regulators and adjustable dischargers mounted on said box providing series and parallel spark-guides for the secondary circuit.

10. In X-ray apparatus, a support, a spool-bar movably mounted on said support, a conductor-guide on said spool-bar, a conductor-spool revolubly mounted on said spool-bar and a flexible conductor secured to said spool passing through said guide to make contact therewith.

749,814. RELAY DEVICE. JOHN P. DOWDS, Cleveland, Ohio, assignor to the North Electric Company, Cleveland, Ohio, a Corporation of Ohio. Filed May 7, 1902. Serial No. 106,319. (No model.)



Claim.—1. In a telephone-relay device, the combination with a helix-wound core having a polar extension, of an armature mounted upon said polar extension in position to be actuated by the core, an intermediate lever part *g*, parallel contact-springs adapted to be moved into and out of engagement by said part *g*, and a screw adjustment interposed between said armature and part *g*, controlling the operative movement of the latter under the influence of the armature, substantially as set forth.

2. In a relay device, the combination with a helix-wound core, of a polar extension, an armature engaging therewith and disposed before the core, an interposed actuating part, a plurality of contact-springs adapted to be actuated into and out of engagement with each other, and adjusting means interposed between the armature and said actuating part, substantially as set forth.

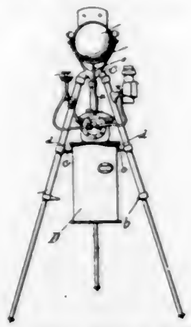
3. In a relay device of the class described the combination with a helix-wound core of its polar extension lying substantially parallel therewith and terminating in practically the plane of the forward end of said core, an armature mounted upon the forward end of said polar extension and magnetically engaging the same, an actuated part *g*, a plurality of contact-springs, and adjusting means interposed between the armature and actuated part substantially as set forth

4. In a telephone-relay device the combination with a helix-wound core, of a polar extension, an armature mounted before the same and adapted to be actuated by the core upon its excitation, an actuated part *g*, a plurality of contact-springs adapted to be moved into and out of electrical engagement by the said part, and an adjusting-screw interposed between the armatnre and said actuated part whereby their operative position may be regulated substantially as set forth.

5. In a telephone-relay device the combination with a helix-wound core of its U-shaped polar extension terminating in a slightly-rounded face substantially in the plane of its forward end, an armature secured thereto and engaging the same throughout their widths, an actuated part *g*, a plurality of contact-springs, and a screw *f* providing an adjustment between the armature and the actuated part substantially as set forth.

6. In a telephone-relay device the combination with a helix-wound core of its polar extension *e*, an armature *f* mounted upon the end of said polar extension before the core, a bell-crank lever *g*, an adjusting-screw *f'* disposed in the armature and bearing against the lower portion of the bell-crank lever, and a plurality of contact-springs adapted to be actuated into and out of electrical engagement through the medium of the bell-crank lever substantially as set forth.

749,815. SIGNALING APPARATUS. REGINALD W. EARLE, Brooklyn, and NELSON GOODYEAR, Flushing, N. Y., assignors to J. B. Colt Company, New York, N. Y., a Corporation of New Jersey. Filed July 11, 1902. Serial No. 115,164. (No model.)



Claim.—1. In a signaling apparatus, the combination with the supporting-legs of the apparatus and a signaling-lantern thereon, of a generator of illuminating-gas, detachably connected between the legs of the apparatus beneath the signaling-lantern and thereby serving to brace the legs of the tripod and fix their position, for substantially the purposes set forth.

2. In a signaling apparatus, the combination of the supporting-tripod and a gas-generator supported by and acting to brace said tripod, one of which is provided with hooks and the other with cooperating means, whereby the generator may be detachably connected to the legs of the tripod and serve as a brace for the same, substantially as and for the purposes set forth.

3. In a signaling apparatus, the combination with the supporting legs or frame, of a signal-lantern, means for adjusting it upon said frame, consisting of a segment connected to the lantern, a table carried by the frame and upon which the segment is rotatably mounted, and a split member carried by the frame and within which the segment fits, and means for clamping the segment within said split member, substantially as and for the purposes set forth.

4. In a signaling apparatus, the combination with the supporting legs or frame, of a signal-lantern, means for adjusting it upon said frame, consisting of a segment rigid with the lantern, a table carried by the frame and upon which the segment is rotatably mounted, and a split member carried by the frame for coöperating with the segment, and means for clamping the segment within said member, substantially as set forth.

5. In a signaling apparatus, the combination with the supporting legs or frame, of a signaling-lantern pivotally supported in forks, and means for adjusting said lantern in said forks, consisting of a segment connected to the lantern and movable therewith, a stationary split member carried by the support in a socket within which member the segment fits, and means for withdrawing the split member within the socket, whereby the segment may be clamped in any desired position to adjust the lantern, substantially as and for the purposes set forth.

6. In a signaling apparatus, the combination with a support or frame, of a flash-lantern, an acetylene-generator removably supported on the frame, connections for gas between the generator the burner of the lantern, a signaling-key and a spring-actuated valve operated thereby and arranged in said gas connections, whereby gas may be rapidly supplied to the lantern and signals flashed therefrom, substantially as and for the purposes set forth.

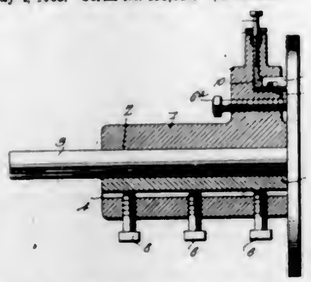
7. In a signaling apparatus, the combination with a support or frame, of a flash-lantern, an acetylene-generator supported on the frame, connections for gas between the generator and the burner of the lantern, and a signaling-key and plunger-valve arranged in said gas connections and provided with a by-pass for maintaining a small flame in the lantern, whereby the lantern may be suddenly supplied with gas and flashed by operating said key, substantially as and for the purposes set forth.

8. A signaling-key for a flash-lantern, consisting of inlet and outlet pipes with a main quick-action spring-actuated plunger-valve between the same adapted to be operated by pressure, a by-pass connection between said inlet and outlet pipes, and controlled by an adjustable valve, whereby a small flame may be maintained in the lantern by means of the gas entering through the by-pass connection while the admission of gas to said flame for signaling is controlled by the main valve, substantially as and for the purposes set forth.

9. In a signaling apparatus, the combination of a flash-lantern, a support or frame therefor, an additional lamp also supported upon said frame, a common source of fuel-supply mounted on the frame, and detachable connections between the said source and the lantern and lamp respectively, with provision for controlling said connections, for substantially the purposes set forth.

10. The combination of a flash signal-lantern, connections therewith from a suitable source of illuminating-gas under pressure, a plunger-valve controlling the supply of gas to the lantern, and a signaling-key connected to the valve, a resilient diaphragm supporting said key, whereby when the key is depressed the valve is quickly opened to permit free flow of gas to the lantern to flash the same.

749,816. SHAFT-STRAIGHTENER. HOLLIS R. GRANGER, St. Paul, Minn., assignor of one-half to Christ Dellwo, St. Paul, Minn. Filed May 4, 1903. Serial No. 155,612. (No model.)



Claim.—1. In a device of the class described, a stock having a bore with a communicating longitudinal groove, a clamping-jaw adjustably mounted in the groove and a disk-straightener carried by the stock and eccentric to the axis of the shaft.

2. In a device of the character described, a portable stock having a shaft-receiving bore, a clamping-jaw movable within the bore to engage the shaft, said stock being rotatable on the shaft and an eccentrically-disposed disk-straightener carried by the stock.

3. In a device of the class described, a stock having an arm, a disk-straightening means carried by the arm, a shaft-receiving opening in the stock and an adjustable clamping-jaw having a plurality of adjusting devices to hold it into engagement with the shaft.

4. In a device of the class described, a stock having a longitudinal shaft-receiving opening and a communicating groove, a shaft-straightener movable in the groove, alining adjusting devices for actuating the straightener, an arm carried by the stock, and a straightening device carried by the arm.

749,817. METALLIC RAILWAY-TIE AND RAIL-FASTENER. OLE GRANBERG, Blair, Wis. Filed Nov. 4, 1903. Serial No. 179,843. (No model.)

Claim.—1. A railway-tie consisting of a metallic plate having transversely-disposed clefts in its opposite sides and spaced from the ends to form tongues at the corners of the plate, and with its margins bent at right angles to the plane of the tie and said tongues interlapping the side margins and riveted thereto.

2. A hollow metallic tie having apertures near its sides, bolts engaging said apertures and having heads within the ties extending to the side walls thereof, the rails, and rail-plates engaging the rails and supported in position by said bolts, the rails being thereby clamped to the ties and the bolts prevented from rotating under the jars or concussions of passing trains.

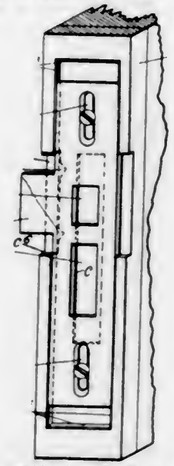
3. A hollow metallic tie, a rail-plate supported longitudinally of said tie and formed with a flange engaging one side of the base-flange of the rail and with spaced side bars extending beneath the rail, and a clamp-plate fitting between said side bars and having hooked ends for engagement with said rail-plate and the opposite side of said rail-flange, and clamp-bolts uniting said tie-plate and tie.

4. A rail-fastening comprising a member formed of a single metallic plate having spaced bars extending laterally therefrom and with the body of the member folded over upon the bars and bent to fit one side of the rail-flange, and a clamp-plate fitting between said bars and having flanges bent to form hooks upon its ends for engagement respectively with the folded portion of said plate and the opposite side of said rail-flange

749,817.



749,818. STRIKE-PLATE FOR LOCKS. CHARLES HAMEL, Lowell, Mass. Filed Apr. 30, 1903. Serial No. 154,995. (No model.)

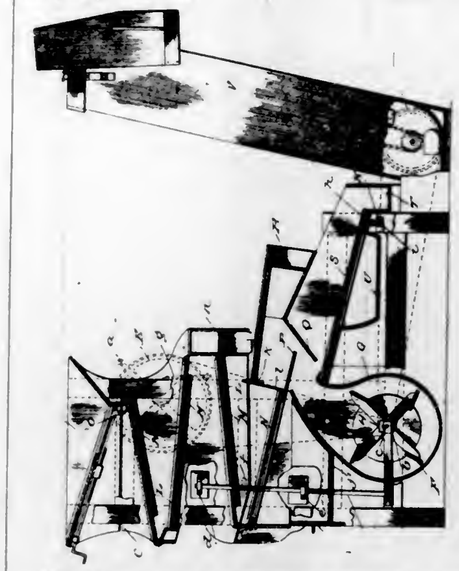


Claim.—1. The combination of the base-plate, the striking-plate adjustable thereon and having a strike, means of securing said plates to a jamb or door-casing, and an auxiliary base-plate adapted to be attached to said jamb or casing and to be retained thereon by said strike.

2. The base-plate having a rim, said base-plate being adapted to be let into a jamb or door-casing flush with the top of said rim, and a striking-plate adjustable on said base-plate within said rim and having a strike, said rim being discontinued for a distance to permit the adjustment of said strike.

749,819. FANNING-MILL. WILLIAM J. HAMMILL, Guelph, Canada, assignor of one-half to Abraham Groves, Fergus, Ontario, Canada. Filed Feb. 24, 1902. Serial No. 95,303. (No model.)

Claim.—1. In a fanning-mill the combination of a series of vibrating sieves located one above the other and alternately inclined in opposite directions; deflectors located below the sieves each adapted to carry the screenings of the sieve above it to the head of the next sieve below; an inclined board arranged a short distance in front of the lower end of the lowest sieve so that the screen discharges against it; a fan adapted to send an air-blast upwardly through and over the grain falling down the board; means for preventing the air-blast passing through or over the aforesaid sieves; and a vibrating sieve onto the head of which the said inclined board discharges, substantially as described



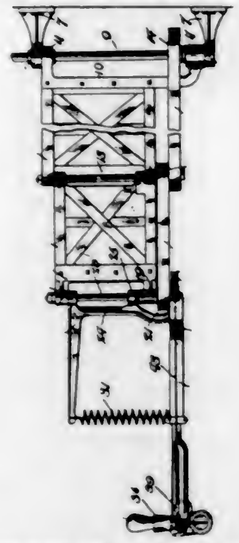
2. In a fanning-mill the combination of a series of four vibrating sieves located one above the other and alternately inclined in opposite directions; deflectors located below the sieves each adapted to carry the screenings of the sieve above it to the head of the next sieve below; a spout adapted to receive the tailings of the second sieve; a removable seedbox located below the lowest sieve; an inclined board arranged a short distance in front of the lower end of the lowest sieve so that the screen discharges against it; a fan adapted to send an air-blast upwardly through and over the grain falling down the board; means for preventing the air-blast passing through or over the aforesaid sieves; a vibrating sieve onto the head of which the said inclined board discharges; and a discharge-casing adapted to receive the dust and dirt blown up the inclined board and discharge it at one side of the mill, substantially as described.

3. In a fanning-mill the combination of a series of vibrating sieves located one above the other and alternately inclined in opposite directions; deflectors located below the sieves each adapted to carry the screenings of the sieve above it to the head of the next sieve below; an inclined board arranged a short distance in front of the lower end of the lowest sieve so that the screen discharges against it; a fan adapted to send an air-blast through and over the grain falling down the board; a vibrating sieve onto the head of which the said inclined board discharges; a discharge-casing adapted to receive the dust and dirt blown up the inclined board; and a flexible apron secured to the inner side of the said casing and adapted to rest on the said sieve, substantially as described.

4. In a fanning-mill a series of vibrating sieves; in combination with an inclined board arranged a short distance in front of the lower end of the lowest sieve so that the screen discharges against it; a fan adapted to send an air-blast through and over the grain falling down the board; a discharge-casing extending back partly over the said sieves; and a flexible apron secured to the inner side of the said casing and adapted to rest on the said sieve and close the end of the same whereby the grain can pass off of said sieve and the dust is prevented from being blown back by said fan, to prevent the air-blast passing over the said sieve, substantially as described.

749,820. CUTTING MACHINERY. THEODORE C. HANSEN, Chicago, Ill. Filed May 18, 1903. Serial No. 157,641. (No model.)

Claim.—1. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame member and movable laterally and vertically thereon, a bar carried by said third member and rotatable on its longitudinal axis thereon, a cutter carried on said bar, and means for driving said cutter, substantially as described.



2. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame-section and movable laterally and vertically thereon, a bar carried by said third member rotatable longitudinal of its axis and movable longitudinal of itself thereon, a cutter carried by said bar, and means for driving said cutter, substantially as described.

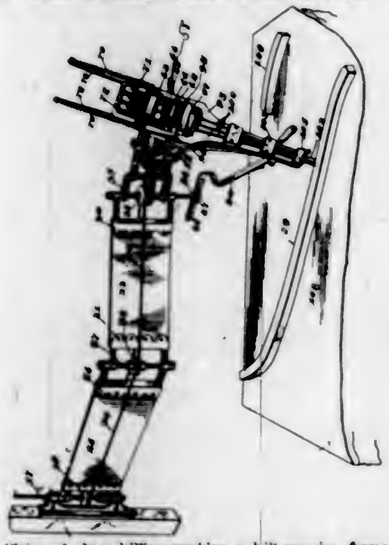
3. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame-section and movable vertically and laterally thereon, a sleeve on said third member, a bar rotatably mounted in said sleeve and movable longitudinally of itself therein, a spring in said sleeve bearing on said bar and adapted to force said bar outward, means for limiting the outward movement of said bar in said sleeve, a cutter carried by said bar, and means for driving said cutter, substantially as described.

4. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a third member pivoted to said second frame-section and movable vertically and laterally thereon, a sleeve on said third member, a bar rotatably mounted in said sleeve and movable longitudinally of itself therein, a spring in said sleeve bearing on said bar and adapted to force said bar outward, means for limiting the outward movement of said bar in said sleeve, a head on the outer end of said bar, a rotatable cutter carried by said head, means for driving said cutter, and a spring adapted to yieldingly support said third member, substantially as described.

5. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a bracket journaled on said second frame-section, rigid vertically and movable laterally thereon, a support pivoted on said bracket and adapted to be swung vertically on said pivot as a center and provided with a sleeve at its outer end, a spring connecting said bracket and said support and adapted to yieldingly support the same, a bar rotatably carried in said sleeve, a head mounted on said bar, a rotatable cutter journaled in said head, and means for driving said cutter, substantially as described.

6. The combination with a support, of a frame-section hinged thereto, rigid vertically and movable laterally thereon, and a second frame-section hinged to said first frame-section, rigid vertically and movable laterally thereon, of a bracket journaled on said second frame-section, rigid vertically and movable laterally thereon, a support pivoted on said bracket and adapted to be swung vertically on said pivot as a center and provided with a sleeve at its outer end, a spring connecting said bracket and said support and adapted to yieldingly support the same, a bar rotatably carried in said sleeve and movable longitudinally of itself therein, a spring mounted in said sleeve and bearing against said bar and adapted to force said bar outward, means for limiting the outward movement of said bar, a head carried on said bar, a rotatable cutter journaled on said head, and means for driving said cutter, substantially as described.

749,821. **DRILLING-MACHINE.** THEODORE C. HAMKEN, Chicago, Ill. Filed July 26, 1902. Serial No. 117,141. (No model.)



Claim.—1. In a drilling-machine, a drill-carrying frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, and a plurality of drills carried by the outer of said sections, the arrangement of said frame and said drills being such that a plurality of sets or series of holes may be drilled, each set or series of holes being parallel with the other sets or series.

2. In a drilling-machine, a support, a drill-carrying frame rigid vertically on said support, said frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, and a plurality of drills carried by the outer of said sections, the arrangement of said frame and said drills being such that a plurality of sets or series of holes may be drilled, each set or series of holes being parallel with the other sets or series.

3. In a drilling-machine, the combination with a support, of a drill-carrying frame hinged to said support and rigid vertically thereon, consisting of three or more sections rigid vertically and hinged together, whereby each may be swung laterally upon the other, a support pivotally mounted on the outer end of said last section so as to swing vertically thereon, a drill-supporting plate carried by said support and longitudinally movable thereon, means for moving said plate longitudinally, drilling mechanism mounted on said plate, and means for driving said drilling mechanism, substantially as described.

4. In a drilling-machine, the combination with a support, of a frame-section vertically hinged to said support and rigid vertically thereon, a second frame-section hinged to said first frame-section, rigid vertically and capable of being laterally swung thereon, a bracket vertically hinged to said second frame-section, tubes carried by said bracket, spring-seated rods slidingly mounted in said tubes, a bracket carried on the outer end of said rods, a drill-support pivotally mounted and capable of being vertically swung thereon, drill mechanism carried by said support, and means for driving said drilling mechanism, substantially as described.

5. In a drilling-machine, the combination with a support, of a frame-section vertically hinged to said support and rigid vertically thereon, a second frame-section hinged to said first frame-section, rigid vertically and capable of being laterally swung thereon, a bracket vertically hinged to said second frame-section, tubes carried by said bracket, spring-seated rods slidingly mounted in said tubes, a bracket carried on the outer end of said rods, a drill-support pivotally mounted and capable of being vertically swung thereon, a plate carried by said drill-support and movable longitudinally thereon, drilling mechanism carried by said longitudinally-movable plate, means for moving said longitudinally-movable plate, and means for driving said drilling mechanism, substantially as described.

6. In a drilling-machine, the combination with a support, of a plate carried thereby and movable longitudinally thereon, drill-driving shafts journaled in said plate and having on one end blocks and on the other end slotted heads, a drill-carrying plate removably mounted on said longitudinally-movable plate, drills journaled on said drill-carrying plate and having heads provided with keys adapted to engage said slotted heads, springs mounted on said longitudinally-movable plate and adapted normally to bear on said blocks and by said engagement therewith to hold said shafts in such position that the keys on the heads of said drills may enter said slots when said drill-carrying plate is placed in position, or may be free to move out of said slots when said drill-carrying plate is withdrawn means for freeing said springs from said blocks, and means for locking said drill-carrying plate in position on said longitudinally-movable plate, substantially as described.

7. In a drilling-machine, the combination of a drill-carrying frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, a longitudinally-movable drill-supporting plate carried by the outer of said sections, a plurality of drills carried by said drill-supporting plate, and means for operating said drills.

8. In a drilling-machine, a drill-carrying frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, a longitudinally-movable drill-supporting plate carried by the outer of said sections, a plurality of drills detachably connected to said plate, and means for operating said drill.

9. In a drilling-machine, a drill-carrying frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, a longitudinally-movable drill-supporting plate carried by the outer of said sections, a plurality of flexible drill-shanks provided at their lower ends with integral drills journaled on and carried by said plate and movable therewith, said drill-shanks converging in curves from their upper ends toward their lower ends and parallel with each other at their operative ends, and means for operating said drills.

10. In a drill, the combination with a support, a sliding plate mounted on said support and movable longitudinally of itself thereon, a plurality of shafts journaled on said sliding plate, and pulleys secured to said shafts, of a second plate removably mounted on said sliding plate, a plurality of drill-supporting shafts adapted to engage said first shafts at one end and receive each a drill-shank at its other end, flexible drill-shanks mounted in said drill-supporting shafts, converging in gradual curves toward their lower ends and parallel at their lower ends, and provided with integral drills at their lower ends, and supports in which said drill-shanks are journaled, secured to said second plate and adapted to rotatably support said drill-shanks in converging curves, substantially as described.

11. In a drilling-machine, the combination with a support, a sliding plate carried by said support and movable longitudinally of itself thereon, shafts journaled on said sliding plate and provided at one end with slotted heads, and means for rotating said shafts, of a second plate removably secured to said sliding plate, drill-shafts journaled on said second plate and provided with heads adapted to engage said slotted heads when said second plate is placed in position, and drills carried by said drill-shafts, substantially as described.

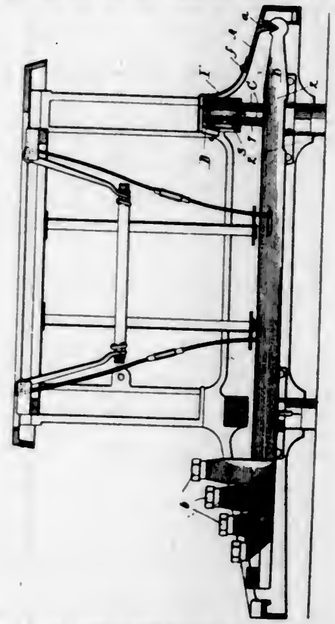
12. In a drilling-machine, the combination with a support, a sliding plate carried by said support and movable longitudinally of itself thereon, shafts journaled on said plate and provided at one end with slotted heads, means for rotating said shafts, and means for holding the slotted heads of said shafts in engaging position when said shafts are at rest, of a second plate removably secured to said sliding plate, drill-shafts journaled on said second plate and provided with heads adapted to engage said slotted heads when said second plate is placed in position, and drills carried by said drill-shafts, substantially as described.

13. In a drilling-machine, the combination with a support, a sliding plate carried by said support and movable longitudinally of itself thereon, shafts journaled on said plate and provided at one end with slotted heads, means for rotating said shafts, and means for holding the slotted heads of said shafts in engaging position when said shafts are at rest, of a second plate removably secured to said sliding plate, drill-shafts journaled on said second plate and provided with heads adapted to engage said slotted heads when said second plate is placed in position, drills carried by said drill-shafts and provided with flexible, integral shanks, and journals mounted on said plate, in which said drill-shafts turn, and adapted to support said flexible drill-shafts on said plate with their lower ends relatively closer together and parallel with each other, and thence diverging in curves to their points of engagement with said drill-shafts, substantially as described.

14. In a drilling-machine, a drill-carrying frame comprising three or more sections hinged together, the hinge-axes of said sections being parallel with each other, and drilling mechanism arranged transversely across the end of the outer section of said frame.

15. In a drilling-machine, a drill-carrying frame comprising three or more sections hinged together end to end, the hinge-axes of said sections being parallel with each other, and drilling-mechanism arranged transversely across the end of the outer section of said frame.

749,822. **TYPE-WRITING MACHINE.** HENRY HOCHKAMER, Chicago, Ill., assignor to Fay-Sholes Company, Chicago, Ill., a Corporation. Filed May 26, 1902. Serial No. 109,021. (No model.)



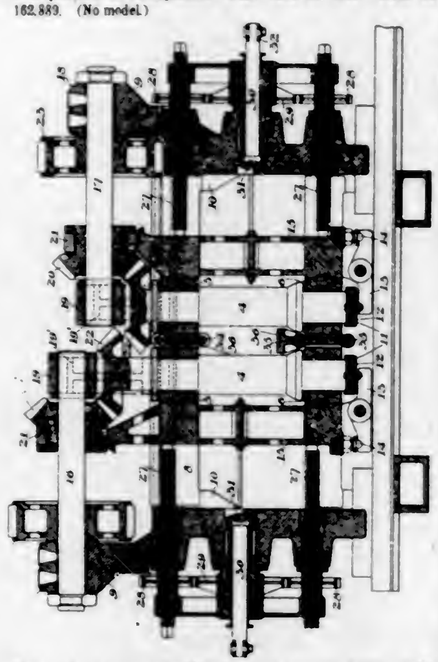
Claim.—1. In a type-writing machine the combination with pivoted key-levers, of coil-springs for retracting said levers to normal position, means whereby said springs may be individually adjusted, a bridge-bar to which the upper ends of said springs are connected and means for adjusting said bridge-bar.

2. In a type-writing machine, the combination with a lever, of a coiled retracting-spring for returning said lever to its normal position and a support having threads engaging the coils of said retracting-spring.

3. In a type-writing machine, the combination with a key-lever, of a coiled retracting-spring for returning said lever to normal position, a support for the upper end of said spring provided with a hole having threads with which the coils of the spring engage, whereby said spring may be adjusted.

4. In a type-writing machine, the combination with a key-lever, of a coiled retracting-spring for said lever, a support for the upper end of said spring having a hole provided with threads with which the upper coils of the spring engage, said spring being provided with an extension or projecting part whereby the spring may be turned to effect its adjustment.

749,823. UNIVERSAL MILL. ALBERT T. KELLER, Wilkinsburg, Pa., assignor of one-half to Mesta Machine Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 24, 1903. Serial No. 162,889. (No model.)



Claim.—1. A universal mill having two separate driving-shafts for the vertical rolls, both of said shafts being at the same end of the rolls; substantially as described.

2. A universal mill having a separate driving-shaft for each vertical roll, the two shafts being out of alinement and having gearing connections with the vertical rolls at the same ends thereof; substantially as described.

3. In a universal mill, a pair of vertical rolls, and a separate driving-shaft for each roll, said shafts being staggered relatively to each other, and connected to the same ends of the rolls, at least one of said shafts having a supporting-bearing at its inner end; substantially as described.

4. In a universal mill, a pair of vertical rolls, a separate actuating-shaft for each roll, said shafts being at the same end of the rolls and arranged at different levels and a driving-shaft having gearing connections with said two actuating-shafts; substantially as described.

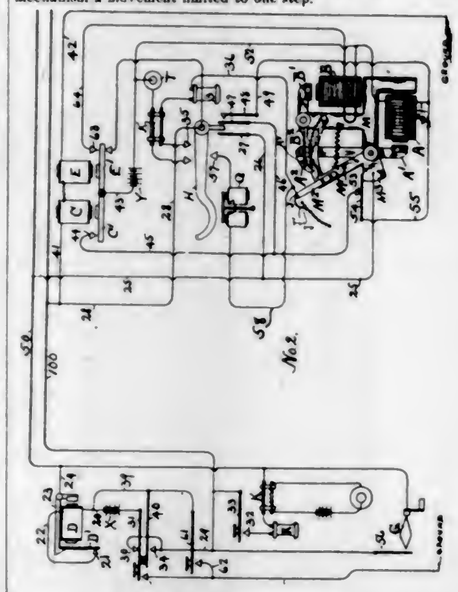
5. In a universal mill, a pair of vertical rolls, separated step-bearings at the lower ends of said rolls, separated levers on which the step-bearings are supported, mechanism for adjusting the levers independently of each other, and driving connections at the upper ends of said vertical rolls; substantially as described.

6. A universal mill having horizontally-extending rest-bars, vertical rolls carried on and movable along the rest-bars, and two separate driving-shafts for the vertical rolls, both of said shafts being at the same end of the rolls; substantially as described.

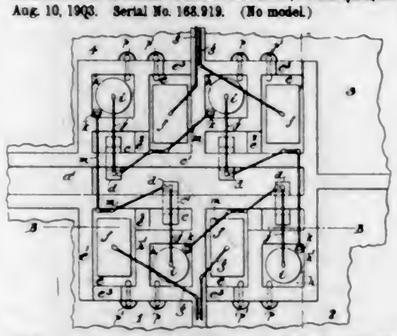
749,824. TELEPHONE-EXCHANGE. NILS E. NORSTROM, Chicago, Ill., assignor of two-thirds to John Anderson, Salina, Kans., and M. E. Richardson, Sterling, Kans. Filed Nov. 23, 1900. Serial No. 37,475. (No model.)

Claim.—1. The combination with the switching mechanism of a telephone-station comprising a series of contact-points, a contact-arm therefor, and a magnet for moving said contact-arm, of a battery and connections for operating said magnet, a circuit-breaking device in said connection, a receiver-hook arranged to close said device when in one position and to open it when in another position, a branch connection around said circuit-breaking device arranged to permit of a single movement of said contact-arm, a central office, connections from the central office to the station, and means whereby said magnet may be operated from said central office.

2. The combination with a switching mechanism arranged to be moved step by step to different positions, connections for causing such movement, and a receiver-hook arranged to make and break said connections, of a branch connection not including said receiver-hook, and means whereby said switching mechanism may be operated through said branch connection so as to give said switching mechanism a movement limited to one step.



749,825. APPARATUS FOR AUTOMATICALLY CONTROLLING THE FLOW OF LIQUIDS. ALBERT PRIESTMAN, Philadelphia, Pa. Filed Aug. 10, 1903. Serial No. 168,919. (No model.)



Claim.—1. In apparatus for automatically controlling the flow of liquids, the combination with a tank to receive the liquid, a liquid-inlet pipe, means controlled by the rise of liquid to air-bind said inlet-pipe, means also controlled by the rise of the liquid to unseal said inlet-pipe, an outlet-pipe for the discharge of the liquid from the tank, and means controlled by the rising liquid at the point of entering said tank to air-bind the outlet-pipe when the liquid commences to enter through the inlet-pipe.

2. In apparatus for automatically controlling the flow of liquids, the combination with a tank to receive the liquid, a liquid-inlet pipe, means controlled by the rise of liquid to air-bind said inlet-pipe, means also controlled by the rise of the liquid to unseal said inlet-pipe, an outlet-pipe for the discharge of the liquid from the tank, means controlled by the rising liquid at the point of entering said tank to air-bind the outlet-pipe when the liquid commences to enter through the inlet-pipe, and means controlled by the rise of the liquid to unseal said outlet-pipe.

3. In apparatus for automatically controlling the flow of liquids, the combination with a tank to receive the liquid, a liquid-inlet pipe, means controlled by the rise of liquid to air-bind said inlet-pipe, means

also controlled by the rise of the liquid to unseal said inlet-pipe, an outlet-pipe for the discharge of the liquid from the tank, means controlled by the rising liquid at the point of entering said tank to air-bind the outlet-pipe when the liquid commences to enter through the inlet-pipe, means controlled by the rise of the liquid to unseal said outlet-pipe, and means to control the flow of liquid to said means for unsealing the outlet-pipe, whereby the liquid may be retained for a greater or less period of time in said tank before it is discharged.

4. In apparatus for automatically controlling the flow of liquids, the combination of a series of tanks adapted to be filled and emptied in succession, a liquid-inlet pipe to each of said tanks, means controlled by the rise of the liquid in each tank to air-bind the inlet-pipe to that tank, an outlet-pipe from each tank, means also controlled by the rise of liquid in each tank to air-bind the outlet-pipe to that tank, means controlled by the rise of liquid in each tank to break the air seal in the inlet-pipe of the next tank in the series, and means controlled by the rise of liquid in each tank to break the air seal in the outlet from that tank.

5. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-pipe for conducting the liquid into said tank, means for controlling said inlet-pipe, an outlet-pipe from said tank, and means controlled by the rise of liquid in said tank to air-bind said outlet when the liquid begins to enter said tank.

6. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-pipe for conducting the liquid into said tank, means for controlling said inlet-pipe, an outlet-pipe from said tank, means controlled by the rise of liquid in said tank to air-bind said outlet when the liquid begins to enter said tank, and means also controlled by the rise of liquid to break said air seal in the outlet-pipe.

7. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-pipe for conducting the liquid into said tank, means for controlling said inlet-pipe, an outlet-pipe from said tank, an air-bell arranged in the inlet passage-way between said inlet-pipe and tank, and an air-pipe leading from said bell and dipping into said outlet-pipe.

8. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-pipe for conducting the liquid into said tank, an outlet-pipe from said tank, an air-bell arranged in the inlet passage-way between said inlet-pipe and tank, an air-pipe leading from said bell and dipping into said outlet-pipe, a chamber communicating with the tank, an air-bell in said chamber and an air-pipe leading from said outlet-pipe to break the air seal therein when air is compressed in said bell.

9. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-pipe for conducting the liquid into said tank, an outlet-pipe from said tank, an air-bell arranged in the inlet passage-way between said inlet-pipe and tank, an air-pipe leading from said bell and dipping into said outlet-pipe, a chamber communicating with the tank, a siphon-pipe leading from said outlet-pipe, an air-bell in said chamber, and an air-pipe leading from the bell in said chamber to the siphon-pipe from the outlet-pipe.

10. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-chamber, a second chamber between said inlet-chamber and the tank having communication with said inlet-chamber and with the tank, an inlet-pipe forming a communication between the inlet-chamber and the supply, an outlet-chamber adjacent to the outlet of the tank and having communication with said tank, an outlet-pipe forming a communication between said outlet-chamber and discharge, an air-bell in the chamber between the inlet-chamber and the tank, an air-pipe leading from said bell to the outlet-pipe, and means to control the supply-pipe.

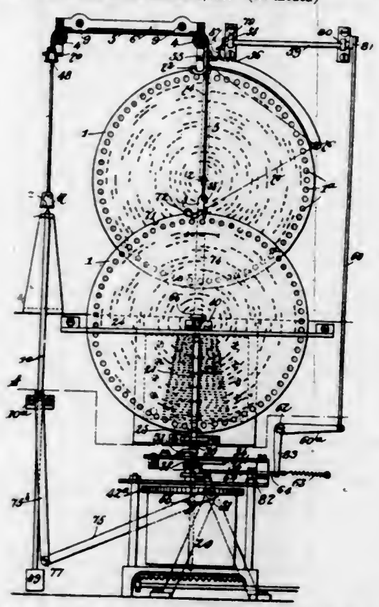
11. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-chamber, a second chamber between said inlet-chamber and the tank having communication with said inlet-chamber and with the tank, an inlet-pipe forming a communication between the inlet-chamber and the supply, an outlet-chamber adjacent to the outlet of the tank and having communication with said tank, an outlet-pipe forming a communication between said outlet-chamber and discharge, an air-bell in the chamber between the inlet-chamber and the tank, an air-pipe leading from said bell to the outlet-pipe, means to control the supply-pipe, a second chamber adjacent to the outlet-chamber, a siphon between said second chamber and the tank, an air-bell in said second chamber, and an air-pipe leading from said bell and communicating with the outlet-pipe.

12. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-chamber, a second chamber between said inlet-chamber and the tank having communication with said inlet-chamber and with the tank, an inlet-pipe forming a communication between the inlet-chamber and the supply, an outlet-chamber adjacent to the outlet of the tank and having communication with said tank, an outlet-pipe forming a communication between said outlet-chamber and discharge, an air-bell in the chamber between the inlet-chamber and the tank, an air-pipe leading from said bell to the outlet-pipe, a third chamber adjacent to the inlet-chamber, a siphon between said third chamber and the tank, an air-bell in said third chamber, and an air-pipe leading from said air-bell to the inlet-pipe.

13. In apparatus for automatically controlling the flow of liquids, the combination of a tank, an inlet-chamber, a second chamber between said inlet-chamber and the tank having communication with said inlet-chamber and with the tank, an inlet-pipe forming a communication between the inlet-chamber and the supply, an outlet-chamber adjacent to the outlet of the tank and having communication with said tank, an outlet-pipe forming a communication between said outlet-chamber and discharge, an air-bell in the chamber between the inlet-chamber and the tank, an air-pipe leading from said bell to the outlet-pipe, a third chamber adjacent to the inlet-chamber, a siphon between said third chamber and the tank, an air-bell in said third chamber, an air-pipe leading from said air-bell to the inlet-pipe, a second bell in said third chamber, and a relief-pipe leading from said second bell to the supply-pipe to another tank.

14. In apparatus for automatically controlling the flow of liquids, the combination of two tanks adapted to be filled and emptied in succession, a supply-pipe to each tank, a chamber adjacent to one supply-pipe, having communication with the tank, an air-bell in said chamber, an air-pipe from said bell to the supply-pipe of that tank, a second bell in said chamber, and a relief-pipe leading from said second bell to the supply-pipe of the next tank having a U-bend m' provided with an upright discharge-pipe m^3.

749,826. DEVICE FOR MECHANICALLY SUBSTITUTING ONE DISK FOR ANOTHER IN MUSIC-PIECES. ALFRED J. ROD, Ste. Croix, Switzerland, assignor to Hermann Chorens, Ste. Croix, Switzerland. Filed Jan. 15, 1900. Serial No. 1,539. (No model.)



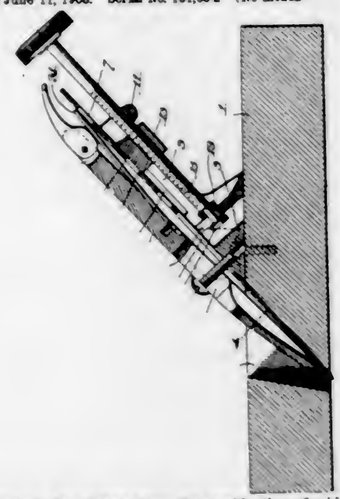
Claim.—1. In an apparatus of the character described, a plurality of music-disks, an adjustable frame, cords suspended from said frame and connected at one end with said disks, sockets secured to the other end of said cords, a rotatable drum, means operated by said drum for engaging and drawing down said sockets whereby the disks are raised into inoperative positions, and means for holding the disks in inoperative positions.

2. In an apparatus of the character described, a plurality of music-disks, an adjustable frame, cords suspended from said frame each of said cords connected at one end with a disk, sockets secured to the free ends of said cords, a hooked rod adapted to engage said sockets successively, means for disengaging the rod from said sockets, and means for raising and for lowering said rod.

3. In an apparatus of the character described, a plurality of music-disks, an adjustable frame, cords suspended from said frame and having one end connected with said disks, sockets secured to the opposite ends of said cords, means for automatically engaging and disengaging said sockets, said means being adapted to draw downwardly said sockets when engaged therewith, means for rotating said disks and means for preventing their accidental rotation.

4. In an apparatus of the character described, a plurality of musical disks, an adjustable frame, cords suspended from said frame and connected with said disks, sockets secured to the free ends of said cords, a suitably-driven drum, means operated by said drum for engaging and drawing down said sockets substantially in the manner and for the purpose set forth.

749,827. BENCH-PLANE. ERIC O. SJOLANDER, Deepwater, Tex. Filed June 11, 1903. Serial No. 161,054. (No model.)



Claim.—1. In a bench-plane, the combination of a bit bearing a scale located above the mouth of the plane, and a bit-clamping member having an indicator adapted to coöperate with said scale.

2. In a bench-plane, the combination of a bit bearing a scale above the mouth of the plane, and a clamping member having a shoulder adapted to form an indicator for coöperation with said scale.

3. In a bench-plane, the combination of a bit having a scale located along one lateral margin thereof above the mouth of the plane, and a clamping member having an indicator adapted to coöperate with said scale.

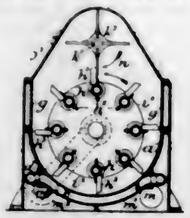
4. In a bench-plane, the combination of a bit, a support for the bit having a slot within its supporting range, a block supported in said slot and susceptible of movement longitudinally and laterally therein, said block being adapted for positive connection with the bit, and a pivoted member mounted within said slot along which said block is longitudinally movable.

5. In a bench-plane, the combination of a bit, a block adapted for positive connection with said bit, and a screw upon which said block is supported, said screw being pivotally mounted to swing laterally.

6. In a bench-plane, the combination of a bit, a bit-support having a longitudinally-arranged slot, oppositely-disposed ribs provided at one end of the slot, a screw arranged in said slot having collars near one end for loose engagement with said ribs and a block mounted on said screw and adapted for lateral and longitudinal movement in said slot and also adapted for positive connection with said bit.

7. In a bench-plane, the combination of a bit, a bit-support having a longitudinally-disposed slot, oppositely-disposed ribs at the lower end of said slot, a screw arranged in said slot and having at the lower end collars spaced apart and having the opposite faces rounded for engagement with said ribs, and a lock mounted on said screw and adapted for positive connection with said bit.

749,828. DRYING-MACHINE. FRANZ WERTENBRUCH, Nottingham, England. Filed Sept. 12, 1901. Serial No. 75,221. (No model.)



Claim.—1. In apparatus of the kind described the combination of a heated trough, heated tubes revolving in the trough, shovels attached to the heated tubes, beaters revolving between the shovels at a different speed and in the opposite direction, an air-heating chamber and connections between the air-heating chamber and the inside of the trough, substantially as described.

2. The combination of a trough in sections, a steam-passage under such sections, connecting-pipes between the ends of such passages, long longitudinal drying-tubes, and short longitudinal dry ng-tubes inside the drying-trough, ribs on the said tubes, shovels fixed to the outer ribs of the outer tubes, plates carrying the said tubes, revolving beaters, a steam-supply to the said tubes and a hot-air-supply pipe between the outer casing and the inside of the trough, substantially as herein described.

3. In a drying-machine of the class described, a drying-trough comprising a plurality of sections with a steam-passage under each section, coupling-pipes connecting said steam-passages, walls inclosing the space beneath the trough forming the air-heating chamber, and a pipe connecting said chamber with the interior of the trough, substantially as described.

4. In combination, the trough, steam heating-conduits beneath the bottom thereof, double side walls forming an air-space in proximity to said heating-conduits, a division-plate dividing said chamber into two compartments; one compartment having an air-inlet and an air-pipe connecting the other compartment with the interior of the trough, substantially as described.

749,829. DRAFT-RIGGING FOR CAR-COUPLINGS. EDWIN S. Woods, Chicago, Ill. Filed Nov. 10, 1902. Serial No. 130,696. (No model.)



Claim.—1. The combination with a draft-bar, its yoke and spring devices, of a draft-box having its bottom hinged at one side and detachably securable at the other.

2. The combination with draft-sills, shouldered draft-plates affixed thereto, a draw-bar, a draw-bar yoke, buffer-springs and follower-plates against which said springs bear and engaging at their ends the shoulders of the draft-plates, of a laterally-swinging frame or door, one side margin of which is hinged to swing laterally toward and from the draft-rigging and provided at its other side margin with parts of a locking device for holding the same in its uppermost position.

3. The combination with draft-sills, shouldered draft-plates affixed thereto, a draw-bar, a draw-bar yoke, buffer-springs and follower-plates against which said springs bear and engaging at their ends the shoulders of the draft-plates, of a laterally-swinging frame or door, one side margin of which is hinged to one of said draft-plates and adapted to be detachably locked at its other margin to the other draft-plate, said frame or door being provided with longitudinal ribs adapted, when the door is swung upwardly, to engage the lower margins of the draft and follower plates.

4. In a draft-rigging for car-couplers, the combination with the draft-rigging proper consisting of the draw-bar, and yoke, the buffer-springs, the follower-plates and the shouldered cheek or draft plates engaged by the ends of the follower-plates, of a door or frame acting when closed to hold said parts in position and when swung downwardly permitting free removal of the draft-rigging, and means for locking the door open and out of the way of the free removal of the draft-rigging.

749,830. VEHICLE-TIRE. JOSIAH Q. WORK, Lamar, Mo. Filed June 30, 1903. Serial No. 163,776. (No model.)



Claim.—1. A tire comprising an inflatable tube having a thickened tread portion provided with a longitudinal centrally-disposed rib and armor-plates applied to the tread at opposite sides of the rib.

2. A tire comprising an inflatable tube having a thickened tread portion provided with a longitudinal centrally-disposed rib, armor-plates applied to the tread at opposite sides of the rib, and a strengthening-sheet applied to the inner face of the tube beneath the tread portion.

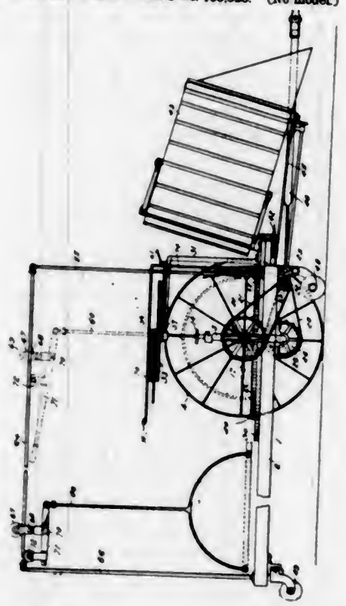
3. A tire comprising an inflatable tube having a thickened tread portion provided with a centrally-disposed hollow rib, a filling of cork or the like situated within the hollow rib, and an armature carried by the tire inwardly of the cork filling.

4. A tire comprising an inflatable tube having a thickened tread portion provided with a centrally-disposed hollow rib, a filling of cork or the like situated within the hollow rib, an armature carried by the tire inwardly of the cork filling, and armor-plates applied to the tread at opposite sides of the rib.

5. A tire comprising an inflatable tube having a thickened tread portion provided with a centrally-disposed hollow rib, a filling of cork or the like situated within the hollow rib, an armature disposed upon the inner face of the tire opposite the cork filling, a strengthening-sheet applied to the inner face of the tube over the armature, and armor-plates applied to the tread at opposite sides of the rib.

6. The combination with a wheel-rim, of an attaching member affixed thereto and having side flaps composed of a flexible non-elastic material slitted transversely at intervals, a longitudinal flange provided upon the outer face of each flap, and a tire having its edges disposed between the rim and flaps and provided upon its inner face with longitudinal flanges interchanging the flanges upon the flaps.

749,831. CORN-HARVESTER. SAMUEL C. ANDERSON, Xenia, Ohio. Filed Dec. 1, 1902. Serial No. 133,325. (No model.)



Claim.—1. In a corn-harvester, the combination of a shock-support, a frame provided with means for rotating said support, a track carried by said frame and extending from the support-rotating means to the point of discharge of the shock, and a trolley mounted to travel on said track and provided with means to engage and sustain said shock-support, substantially as described.

2. In a corn-harvester, the combination, with a frame provided with a rotary shocking-platform, of a shock-support removably mounted on said platform and rotating therewith, a track carried by said frame and extending from the rotary platform to the point of discharge of the shock, and a trolley mounted to travel on said track and provided with means to engage and sustain said shock-support, substantially as described.

3. In a corn-harvester, the combination, with a main frame, of cutting mechanism, a rotary shocking-platform located in the rear thereof, a plurality of stalk-supporting arms pivotally supported above said platform, means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and the platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, a shock-support removably mounted on said platform and rotating therewith, a track carried by the main frame and extending from the rotary platform to the point of discharge of the shock, and a trolley mounted to travel on said track and provided with means to engage and sustain said shock-support, substantially as described.

4. In a corn-harvester, the combination, with a main frame, of cutting mechanism, and a rotary shocking-platform located in the rear thereof, a shock-support removably mounted on said rotary platform, stalk gathering and conveying mechanism for delivering the stalks to said shock-support, a plurality of stalk-supporting arms pivotally supported above said platform and stalk-support, means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, a track carried by the main frame and extending from the rotary table to the point of discharge of the shock, and a trolley mounted to travel on said track and provided with means to engage and sustain said shock-support, substantially as described.

5. In a corn-harvester, the combination, with a main frame provided with a rotary platform, a track or way carried by said frame and extending from the rotary platform to the point of discharge of the shock, and a trolley mounted to travel on said track, of a shock-support pivotally suspended from said trolley and composed of separable sections provided with connecting devices for maintaining the sections in the same plane when united, substantially as described.

6. In a corn-harvester, the combination, with a main frame provided with a cutting mechanism, a rotary shocking-platform, an overhead track, and a trolley mounted to travel on said track, of a supporting-yoke suspended from said trolley, and a shock-support, the lower ends of said yoke and the shock-support being provided with detachable connecting devices, substantially as described.

7. In a corn-harvester, the combination, with a main frame provided with a cutting mechanism, a rotary shocking-platform an elevated track or way, and a trolley adapted to travel thereon, of a supporting-yoke suspended from said trolley, and a sectional shock-support provided with separable engaging devices to maintain the united sections in the same plane, the respective sections being pivotally and detachably connected to the lower ends of the supporting-yoke, substantially as described.

8. In a corn-harvester, the combination, with a main frame provided with a cutting mechanism, a rotary shocking-platform, and an overhead track, of a trolley adapted to travel thereon, a lever fulcrumed on the trolley, and a shock-support suspended from the lever, substantially as described.

9. In a corn-harvester, the combination, with a main frame provided with a cutting mechanism, a rotary shocking-platform, an overhead track, and a movable shock-support, of a trolley adapted to travel on said track, and comprising a frame and a trolley-wheel above the track, and a lever fulcrumed to the trolley-frame, connected with the shock-support on one side of the fulcrum, and provided on the other side of the fulcrum with a wheel to engage the under side of the track, substantially as described.

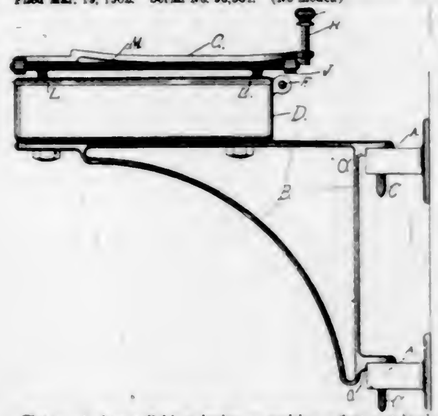
10. In a corn-harvester, the combination of a shock-support, a frame provided with means for rotating said support, a track carried by said frame and extending from the support-rotating means to the point of discharge of the shock, and a trolley mounted to

travel on said track and provided with means for engaging and lifting said shock-support, substantially as described.

11. In a corn-harvester, the combination, with a tilting main frame provided with a track extending from front to rear thereof, of a rotary shocking-platform mounted at the front of the frame, a shock-support removably mounted on said platform and rotating therewith, and a trolley mounted to travel on said track and provided with means to engage and sustain said shock-support, substantially as described.

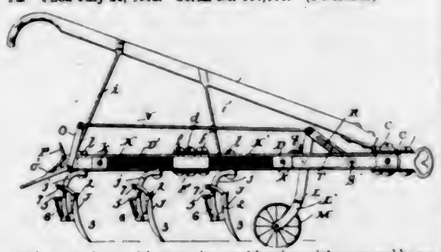
12. In a corn-harvester, the combination, with a main frame provided with cutting mechanism at the front thereof, of a rotary shocking-platform located in the rear of the cutting mechanism, a plurality of stalk-supporting arms pivotally supported above said platform, means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and the platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of the movement of the shock as it is being discharged, and curved arms pivotally supported at their forward ends, extending around to the rear of the shock, and having their free ends detachably connected, substantially as described.

749,832. SHOE-POLISHER. HENRY M. BACKUS, Weston, Ohio. Filed Mar. 19, 1902. Serial No. 98,881. (No model.)



Claim.—A shoe-polishing device comprising a foot-rest having arms extending laterally, on either side, from the heel and toe thereof, which arms support rods on either side of the foot-rest and parallel therewith, arranged to allow a polishing-cloth to pass over said foot-rest and under a rod on either side thereof, and an adjustable toe-stop adapted to prevent the polishing-cloth from slipping off from the shoe over the toe thereof, as the cloth is drawn across and over the shoe in polishing it; all substantially as described and for the purposes set forth.

749,833. CULTIVATOR. CLARENCE V. BARNHART, Waynesboro, Pa. Filed July 26, 1902. Serial No. 117,168. (No model.)



Claim.—1. In a cultivator, the combination with a central beam, of side tooth-beams pivoted thereto, a slidable cross-head carried by the central beam, springs bearing against said cross-head from opposite direction and transverse tooth-beams pivotally connected to the cross-head and the side tooth-beams, substantially as described.

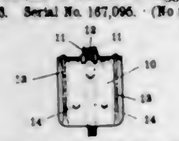
2. In a cultivator, the combination with a central beam, of side tooth-beams pivoted thereto, a slidable cross-head carried by the central beam, springs bearing against said cross-heads from opposite directions, transverse tooth-beams pivotally connected to the cross-head and the side tooth-beams, and handles connected to the side tooth-beams, whereby the side beams may be adjusted, substantially as described.

3. In a cultivator the combination with a central beam, of side tooth-beams pivoted thereto a slidable cross-head carried by the central beam, springs bearing against said cross-heads from opposite directions transverse tooth-beams pivotally connected to the cross-head and the side tooth-beams, a handle carried by each side beam, and teeth carried by the side beams and transverse beam, whereby the resistance thereon will hold the beams in their adjusted position, substantially as described.

4. In a cultivator, the combination with a central beam, side beams pivoted thereto, means for adjusting said beams, means for automatically holding the side beams in the adjusted position, levers intermediately pivoted to the forward end of the central beam, a draft-wheel between the lower ends of said lever, a rearwardly-extending bar pivoted between the upper ends of said levers, and a foot-lever intermediately pivoted to the rear end of the central beam, and its upper end connected to the said rearwardly-extending bar, whereby the teeth are raised from the ground, substantially as described.

5. In a cultivator, the combination with a central beam, side beams pivoted thereto, means for adjusting said beams, means for automatically holding the side beams in the adjusted position, levers intermediately pivoted to the forward end of the central beam, a draft-wheel between the lower ends of said lever, a rearwardly-extending bar pivoted between the upper ends of said levers, a foot-lever, intermediately pivoted to the rear end of the central beam, and the upper end of the rearwardly-extending bar, said lever having a notch adjacent its lower end, and a spring-pressed pawl adapted to enter said notch, whereby the teeth are raised from the ground and held in said raised position, substantially as described.

749,834. PACKAGING-CLIP. CHARLES E. BEISEL, Indianapolis, Ind., assignor of one-half to Richard F. Bigger, Indianapolis, Ind. Filed July 27, 1903. Serial No. 167,096. (No model.)



Claim.—1. A packaging-clip consisting of a strip of metal bent to form a pair of comparatively short divergent arms and having a portion cut from its middle at the line of divergence of the arms, and cord-retaining means carried by the clip.

2. A packaging-clip consisting of the strip 10 bent to form a pair of divergent arms, and ears 11, 11, formed from material cut from the clip at the line of divergence.

3. A packaging-clip consisting of the strip 10 bent to form a pair of divergent arms, ears 11, 11, formed from material cut from the clip at the line of divergence, and prongs 14 projecting from the inner faces of the divergent arms.

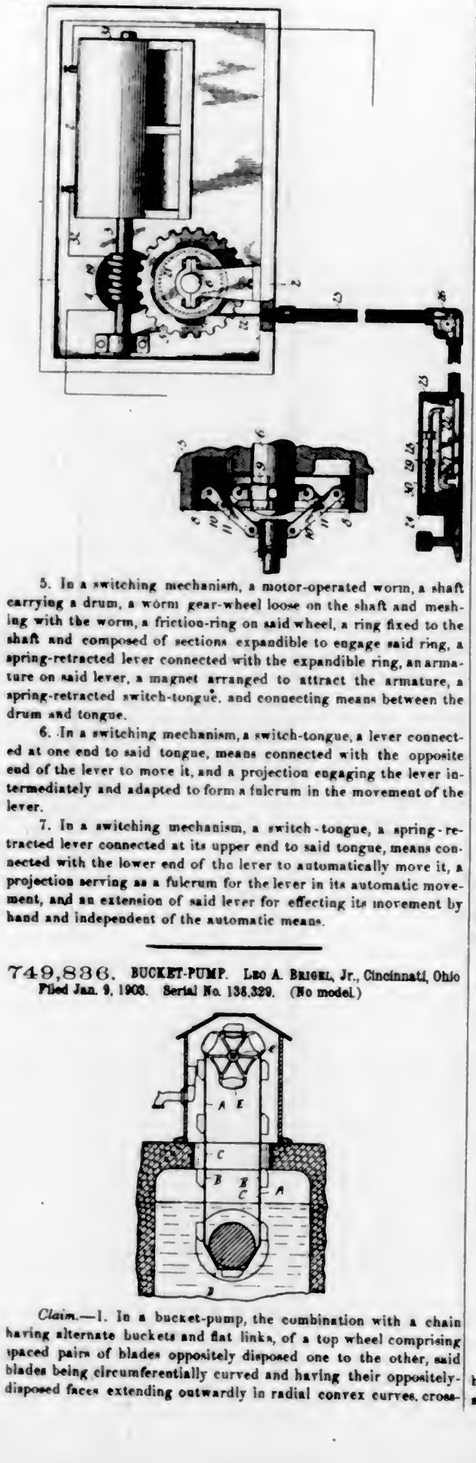
749,835. ELECTROMECHANICAL SWITCHING MECHANISM. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moss, Los Angeles, Cal. Filed May 29, 1903. Serial No. 159,268. (No model.)

Claim.—1. In a switching mechanism, a motor-operated member, a switch element, a member connected with the switch element, to move the latter, a clutch between the members, an electromagnet, and an armature connected with the clutch and arranged to be moved by said magnet.

2. In a switching mechanism, an electric-motor-operated member, a switch element, a member connected with the switch element to move the latter, a friction-clutch between the members, an electromagnet, and a spring-retracted armature connected with the clutch and arranged to be moved by said magnet.

3. In a switching mechanism, an electric motor, a shaft, a gear member fixed to the motor-shaft, a gear member loose on the first-named shaft, an electromagnet, an armature, a clutch member on the last-named gear member, a clutch member fixed to the first-named shaft and connected with the armature, a switch-tongue, and means connecting the tongue and the first-named shaft.

4. In a switching mechanism, a motor-operated gear member, a shaft, a gear member loose on said shaft and meshing with the aforesaid gear member and provided with a clutch member, a second clutch member fixed to the shaft, an armature operatively connected with the second clutch member, a spring-retracted switch-tongue, a drum on the shaft, and connecting means between the drum and tongue including a chain or cable.



5. In a switching mechanism, a motor-operated worm, a shaft carrying a drum, a worm gear-wheel loose on the shaft and meshing with the worm, a friction-ring on said wheel, a ring fixed to the shaft and composed of sections expandible to engage said ring, a spring-retracted lever connected with the expandible ring, an armature on said lever, a magnet arranged to attract the armature, a spring-retracted switch-tongue, and connecting means between the drum and tongue.

6. In a switching mechanism, a switch-tongue, a lever connected at one end to said tongue, means connected with the opposite end of the lever to move it, and a projection engaging the lever intermediately and adapted to form a fulcrum in the movement of the lever.

7. In a switching mechanism, a switch-tongue, a spring-retracted lever connected at its upper end to said tongue, means connected with the lower end of the lever to automatically move it, a projection serving as a fulcrum for the lever in its automatic movement, and an extension of said lever for effecting its movement by hand and independent of the automatic means.

749,836. BUCKET-PUMP. LEO A. BRIGEL, Jr., Cincinnati, Ohio. Filed Jan. 9, 1903. Serial No. 138,329. (No model.)

Claim.—1. In a bucket-pump, the combination with a chain having alternate buckets and flat links, of a top wheel comprising spaced pairs of blades oppositely disposed one to the other, said blades being circumferentially curved and having their oppositely-disposed faces extending outwardly in radial convex curves, cross-bars connecting each of said pairs of blades secured at the base of the radial curved portions thereof, and concave bars arranged between and connecting the blades of each of the pairs, substantially as set forth.

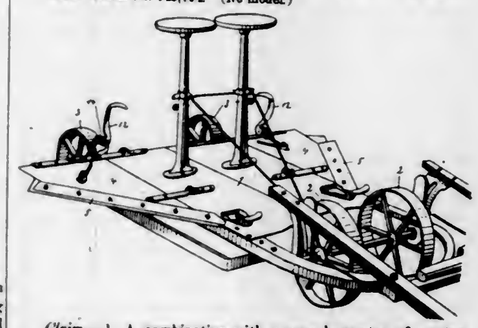
2. In combination with a bucket-pump and chain composed of alternate flat links and buckets, a top wheel provided with a plurality of oppositely-disposed blades arranged in pairs upon said wheel, said blades being curved in the direction of their length and having radial convex curves upon their oppositely-disposed faces, cross-bars connecting the blades of each pair and arranged at the base of the radial curved portions thereof, outwardly-curved reinforcing-ribs secured to the end blades and to said cross-bars, and concave bars connecting each of the blades of the several pairs whereby contact of the chain-links therewith is prevented, substantially as described.

749,837. VEHICLE-TONGUE. MARTIN R. BRUNER, Buckland, Ohio. Filed Nov. 7, 1903. Serial No. 180,149. (No model.)



Claim.—A channel-shaped vehicle-tongue constructed of sheet metal and having straight side walls the edges thereof extending inwardly at an angle to prevent the sharp edges of the metal coming in contact with the horse's legs, said edges being disconnected to leave a space between the same throughout the length of the tongue, substantially as and for the purpose set forth.

749,838. CORN-HARVESTER. HIRAM M. BURDICK, Utica, N. Y., assignor to Standard Harrow Company of Utica, N.Y. Filed Feb. 17 1903. Serial No. 143,794. (No model.)



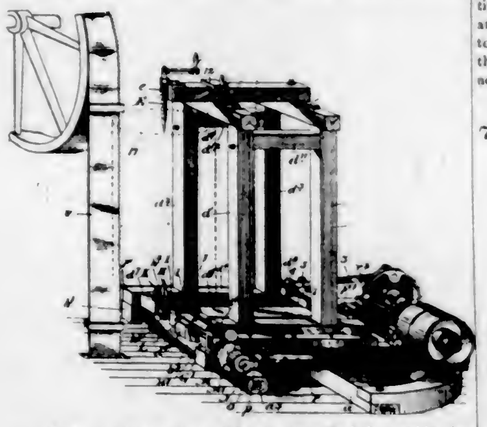
Claim.—1. A combination with a corn-harvester of a wing, having a fixed knife and a slotted opening with an offset at one end, a knife-guard and operating mechanism, consisting of a link con-

nected to the guard with a stud or shoulder running in said slot and adapted to become engaged on the offset thereof, and a treadle adapted to throw the stud out of engagement with the shoulder and operating the guard to folded position, substantially as set forth.

2. The combination in a corn-harvester, of a wing hinged or pivoted to the body of the machine, having a fixed knife and a slotted opening with an offset at one end, a knife-guard and operating mechanism consisting of a link connected at one end of the guard and having a shoulder or stud on the other end of the link running in said slot, a treadle mounted on the guard adjacent to the machine and connected with said stud or projection, and a spring for throwing the guard into extended position, substantially as set forth.

3. The combination with a corn-harvester, of a wing pivoted to the harvester, having a fixed knife arranged at an angle on the forward edge of said wing, and having a slotted opening with the offset at one end, a knife-guard mounted on said wing and operating mechanism, consisting of a link connected to the guard, with a shoulder or stud running in said slot and adapted to become engaged with the offset in the slot, a treadle mounted on the guard and a spring operating to extend the guard, and cause the shoulder on the link to lock with the offset in the slot, substantially as set forth.

749,839. BAND-SAW CLAPBOARD-MACHINE. AMOS J. BURTON, Parry Sound, Canada. Filed Apr. 4, 1903. Serial No. 151,135. (No model.)



Claim.—1. In a machine of the class described the combination with the slidable frame, of a beam located at the upper portion thereof, upper and lower center points, the lower center point secured to the movable frame and the upper center point secured to the forward end of said beam, a vertical pivot for securing the rearward end of the beam to the upper portion of the frame, a Z-shape plate secured to the center portion of the front of the upper part of the frame, and means for securing the forward end of the beam in said Z-plate.

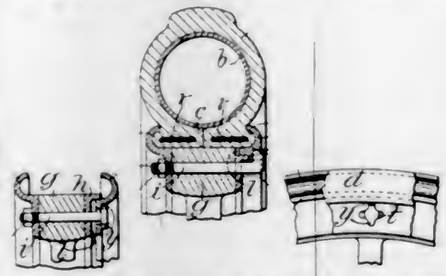
2. In a device of the class described the combination with the slidable frame and the base upon which the same is slidably mounted, of upper and lower center points, a shaft for driving the lower center point intermittently, a ratchet-wheel on the shaft, a rocking lever fulcrumed on the shaft, a plurality of pawls pivotally secured to the rocking lever and designed to rotate the ratchet-wheel during the upward swing of the rocking lever, a rocking bar, a projecting pin adjustably secured to the rocking bar, a roller mounted thereon over which the rocking lever is adapted to slide normally in a horizontal position, a shaft to which said rocking bar is secured, bearings for said shaft secured to the base of the machine, a cam on the end of the shaft and a trip or projection secured to the slidable frame and adapted to engage the cam during the motion of the slidable frame whereby the rocking bar, and consequently the rocking lever is raised and the center point is rotated as and for the purpose specified.

3. In a device of the class described the combination with the base and the slidable frame carrying the upper and lower center points, of a crank-wheel, a shaft upon which the same is mounted, bearings secured to the stationary portion of the base of the machine in which said shaft is journaled, a crank-pin secured to the crank-wheel, a pitman rotatably secured to the crank-pin, a rocking clamp adjustably secured to the pitman and rotatably secured to the slidable frame whereby the extreme forward and rear positions of the slidable frame may be varied according to the diameter of the bolt or log to be cut.

4. In a device of the class described the combination with the slidable frame and the pivoted beam resting on the top thereof and carrying the upper center point, of a bracket secured to a cross-beam of the frame and having an upwardly-extending portion and a horizontal portion adapted to overlap the top of the beam, a rod or bar extending through the vertical portion of the bracket and through the beam, an eccentric pivotally connected to one end of the bar and adapted to bear against the vertical portion of the bracket and draw the bar rearwardly, and a latch or hook pivotally secured to the opposite vertical side of the beam adapted to engage the end of the bar as and for the purpose specified.

5. In a device of the class described the combination with the stationary base and the slidable frame mounted thereon, the upper and lower center points carried by said slidable frame, of a driving-shaft for rotating said lower center point intermittently, a ratchet-wheel secured to said shaft, a rocking lever fulcrumed on the shaft, a plurality of pawls pivotally secured to the rocking lever and adapted to engage the ratchet-wheel when the lever is raised, a rocking bar having a longitudinal slot formed therein, a pin adjustably secured in said longitudinal slot and extending outwardly therefrom, a roller mounted upon said pin and adapted to support said rocking lever normally in a horizontal position, a shaft to which the rocking bar is rigidly secured, said shaft extending through the lower portion of the base, a cam adjustably secured to the end of the shaft and a trip or projection secured to the slidable frame and adapted to engage the cam when the bolt is clear of the saw thereby through the interposed mechanism causing the bolt to rotate through the necessary angle as and for the purpose specified.

749,840. RIM FOR VEHICLE-WHEELS. SAMUEL BUTLER, Westbury-upon-Trym, England. Filed Sept. 1, 1903. Serial No. 171,543. (No model.)



Claim.—1. The combination, with a rim; of a fixed retaining-flange located on one side of the rim, a fixed ring located on the other side of the rim, a removable retaining-flange and bolts whereby the removable retaining-flange is secured to the fixed ring and rim.

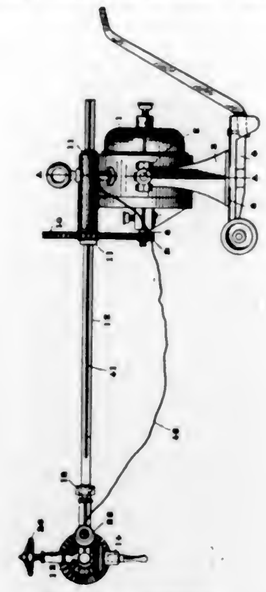
2. The combination, with a rim; of a fixed retaining-flange located on one side of the rim, a fixed flanged ring located on the other side of the rim, a removable retaining-flange, and bolts whereby the removable retaining-flange is secured to the fixed ring and rim.

3. The combination, with a rim; of a fixed retaining-flange located on one side of the rim, a fixed ring having a flange formed with slots and located on the other side of the rim, a removable retaining-flange having recesses coinciding with the slots, and securing-bolts having heads adapted to engage in the said slots and recesses.

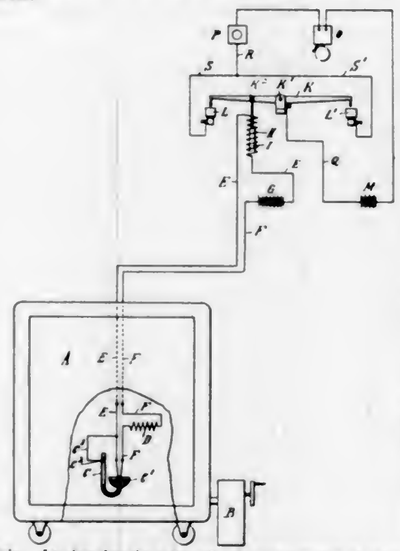
4. The combination of a rim having a recess, a fixed ring having an opening and a hollow tire provided with an air-valve extending through the recess of the rim and through the opening in the fixed ring.

749,841. PORTABLE ELECTRICALLY-DRIVEN DRILLING APPARATUS. GEORGE F. CAMPBELL and STANLEY T. ISHERWOOD, Bootle, near Liverpool, England. Filed Nov. 26, 1901. Serial No. 83,721. (No model.)

Claim.—In combination with a shaft 12, a frame swiveled on the end of this shaft, studs 49 and 45 exteuding from said frame inwardly toward each other and screw-threaded at their inner ends, a spindle-socket having a cross-piece into which the inner ends of the studs are screwed, a spindle carried by the spindle-socket, a gear on the said spindle, a gear turning loosely on the plain part of stud 49 and a gear connection therefrom to the shaft 12, substantially as described.



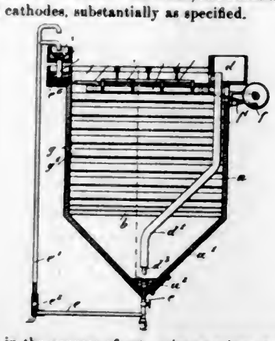
749,842. BURGLAR-ALARM FOR SAFES. HENRY R. CASSEL, London, England. Filed May 3, 1902. Serial No. 105,741. (No model.)



Claim.—In a burglar-alarm for safes, the combination of an air-tight safe with means for altering the pressure of the inclosed air, a main circuit having a contact influenced by the air-pressure, a resistance and solenoid in said main circuit, a beam influenced by the solenoid, two secondary circuits having contacts opposite the beam ends, and an alarm in both of said secondary circuits, substantially as specified.

749,843. PROCESS OF EXTRACTING PRECIOUS METALS BY ELECTROLYSIS. HENRY R. CASSEL, New York, N. Y. Filed Oct. 25, 1902. Serial No. 128,774. (No specimens.)

Claim.—1. A step in the process of extracting precious metals by electrolysis, which consists in lifting the pulp by an air-jet, distributing the same between the electrodes, and simultaneously amalgamating the cathodes, substantially as specified.



2. A step in the process of extracting precious metals by electrolysis, which consists in simultaneously lifting the pulp and mercury by air-jets, distributing the pulp between the electrodes, and simultaneously amalgamating the cathodes, substantially as specified.

3. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating a vertical cathode and deflecting the rebounding mercury back upon said cathode, substantially as specified.

4. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating a vertical cathode, and successively deflecting the rebounding mercury back upon said cathode substantially as specified.

5. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating a vertical cathode, and successively deflecting the rebounding mercury toward the cathode, substantially as specified.

6. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating a vertical cathode, successively deflecting the rebounding mercury toward the cathode, and simultaneously diverting the pulp toward the anode, substantially as specified.

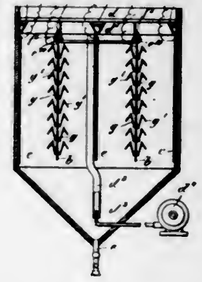
7. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating the cathode, and subjecting the mercury to the purifying and neutralizing action of an acid, substantially as specified.

8. A step in the process of extracting precious metals by electrolysis, which consists in amalgamating the cathode, collecting the coarse amalgam, subjecting the mercury to the purifying and neutralizing action of an acid, and distributing the mercury over the cathode, substantially as specified.

9. The process of extracting precious metals by electrolysis, which consists in circulating the pulp between vertical electrodes, amalgamating a vertical cathode, successively deflecting the rebounding mercury back upon said cathode, and returning the mercury to the cathode, substantially as specified.

10. The process of extracting precious metals by electrolysis, which consists in circulating the pulp between vertical electrodes, amalgamating a vertical cathode, successively deflecting the rebounding mercury back upon said cathode, removing the amalgam, neutralizing the alkali in the mercury, and returning the mercury to the cathode, substantially as specified.

749,844. APPARATUS FOR EXTRACTING PRECIOUS METALS BY ELECTROLYSIS. HENRY R. CASSEL, New York, N. Y. Filed Oct. 25, 1902. Serial No. 128,775. (No model.)



Claim.—1. An apparatus for the extraction of precious metals by electrolysis provided with a tank, vertical electrodes, a distributing pulp-box, a mercury-pot in the upper part of the tank, a perforated movable mercury-trough, and means for lifting the pulp and mercury into said distributing-box and pot respectively, substantially as specified.

2. An apparatus for the extraction of precious metals by electrolysis provided with a tank, vertical electrodes, a pulp-box, a communicating perforated launder above each anode, and an air-jet for raising the pulp from the bottom of the tank into said box, substantially as specified.

3. An apparatus for extracting precious metals by electrolysis, provided with a tank, vertical electrodes, an elevated mercury-pot, a communicating perforated movable mercury-trough and an air-jet for raising the mercury from the bottom of the tank into said pot substantially as specified.

4. An apparatus for extracting precious metals by electrolysis, provided with a tank having an inclined bottom, vertical electrodes within the tank, an elevated pulp-box, communicating distributing-launders, an elevated mercury-pot, a commnnicating perforated movable trough, and means for returning the pulp and mercury from said inclined bottom to the box and pot respectively, substantially as specified.

5. An apparatus for extracting precious metals by electrolysis, provided with a tank, vertical electrodes, an elevated pulp-box, and a perforated launder above each anode that communicates with said box, substantially as specified.

6. An apparatus for extracting precious metals by electrolysis, provided with a tank, inclosed electrodes, and a perforated movable mercury-trough that extends over the cathode, substantially as specified.

7. An apparatus for extracting precious metals by electrolysis, provided with a tank, inclosed electrodes, a perforated mercury-trough extending over the cathode, and means for imparting a reciprocating movement to said trough, substantially as specified.

8. An apparatus for extracting precious metals by electrolysis, provided with a tank, vertical electrodes, a box having a number of open transverse partitions, for admitting mercury to one end of said box, and means for discharging mercury from the other end of the box, substantially as specified.

9. An apparatus for extracting precious metals by electrolysis, provided with a tank, vertical electrodes, a mercury-pot, an inclosed filter, a communicating acid-box, and transverse open partitions within said box, substantially as specified.

10. An apparatus for extracting precious metals by electrolysis, provided with vertical electrodes, surrounding guards, means for circulating the mercury, means for separating the mercury from the cathode, and deflectors flanking the cathode, substantially as specified.

11. An apparatus for extracting precious metals by electrolysis, provided with a vertical cathode, and with a series of inclined mercury-deflectors at the side of the cathode, substantially as specified.

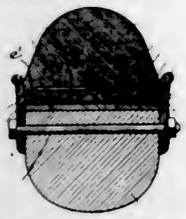
12. An apparatus for extracting precious metals by electrolysis, provided with a vertical cathode and a series of mercury-deflectors at the side of the cathode, said deflectors being inclined toward the cathode from top to bottom and approaching the same at their lower ends, substantially as specified.

13. An apparatus for extracting precious metals by electrolysis, provided with a vertical cathode, inclined mercury-deflectors at the side of the cathode, and pulp-guards projecting from the deflectors, substantially as specified.

14. An apparatus for extracting precious metals by electrolysis, comprising a tank, inclosed vertical electrodes, mercury-deflectors and pulp-guards at the sides of the cathode, an elevated pulp-box, communicating perforated launders, means for lifting the pulp into said box, an elevated mercury-pot, communicating slidable perforated troughs, and means for lifting the mercury into said pot, substantially as specified.

749,845. CUSHION-TIRE. JAMES COOMBER, New York, N. Y., assignor of three-fourths to John Caldwell, Harry E. Wood, and Aaron C. Gifford, New York, N. Y. Filed Feb. 18, 1903. Serial No. 143,950. (No model.)

Claim.—1. In a cushion-tire, the combination with a rim comprising side plates and a peripheral bearing-surface, of means for securing said side plates in position to form a channel therebetween, an elastic body within said rim, and having its base inclined, and a wedge movable laterally into position between said bearing-surface and said elastic strip or body, said wedge having an inclined surface fitting against the base of said strip or body and an inner straight surface engaging said bearing-surface.



2. In a cushion-tire, the combination with a rim comprising side plates and a peripheral bearing-surface, of means for securing said side plates in position to form a channel therebetween, an elastic body within said rim having a base reversely inclined, and a pair of wedges, movable laterally into position between said bearing-surface and said elastic strip or body, each of said wedges having an inclined surface fitting against the base of said strip or body and an inner straight surface engaging said bearing-surface.

3. In a cushion-tire, the combination with a rim comprising side plates and a peripheral bearing-surface of means for securing said side plates in position to form a channel therebetween, an elastic body within said rim, and having its base inclined, a wedge movable laterally into position between said bearing-surface and said elastic strip or body, and a separate wedge-strip shifted by one of the said plates, said strip having an inclined surface fitting against the base of said body, and an inner straight surface, engaging said bearing-surface.

4. In a cushion-tire, the combination with an elastic body having a longitudinal retaining-band, and a series of independent cross-stays supporting said band and extending across the elastic body, of a rim, having a channel therein, and a wedge-strip movable into and out of position between said rim and said body, and whereby the base portion of the elastic strip or body will be caused to fit snugly within said rim under restriction of the retaining-bands and cross-supports.

5. In a cushion-tire, the combination with an elastic body having a longitudinal retaining-band and a series of independent cross-stays supportidg said band, and extending across the elastic body, of a rim comprising a peripheral bearing-surface, side plates and wedge-strips movable laterally into and out of position between said body and said bearing-surface, each of said wedge-strips having an inclined surface fitting against the strip and a straight surface fitting against said bearing-surface, and whereby said strip or body will be held snugly within the rim-channel and whereby the base of the elastic body will be forced outwardly under restriction of the retaining-band and cross-stays.

6. In a cushion-tire, the combination with a rim having a channel therein, of an elastic strip or body, seated in said rim, a longitudinally-extending retaining-band, independent of the rim, and a plurality of independent cross-supports for the retaining-band, each of said supports being formed of a U-shaped strip extending transversely across, and embedded in the elastic body.

7. In a cushion-tire the combination with a rim having a channel therein of an elastic body seated in said rim, a longitudinal retaining-band extending longitudinally around said body and independent of said rim and a plurality of independent cross-supports, for said band and embedded in the elastic body, each of said supports being formed of a strip of metal having a pair of connected arms in close proximity to each other, and extending transversely across the elastic body and terminating within the elastic body.

8. In a cushion-tire, the combination with a rim comprising side plates and a peripheral bearing-surface, of an elastic strip within said rim, a longitudinal retaining-band, a series of wire staples independent of each other and independent of said retaining-band, said strip having its base formed with reversely-inclined surfaces and a pair of wedge-rings fitting between said strip and said bearing-surface and movable laterally into and out of position and having an inclined surface engaging the base of the elastric strip or body and a straight surface engaging said bearing-surface.

749,846. DENTAL-CEMENT-INJECTING TUBE. HENRY L. CRITTENDEN, Northfield, Minn. Filed Mar. 28, 1903. Serial No. 149,936. (No model.)

Claim.—A collapsible dental-cement-injecting tube having a large opening at one end and an attenuated discharge-nipple at its other end, said tube being formed of collapsible, transparent material, substantially as described.



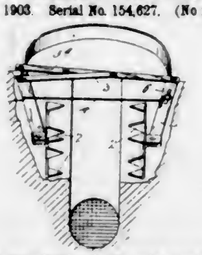
749,847. BALE-TIE. WALLACE B. CURTIS, Jamestown, N. Y. Filed May 27, 1903. Serial No. 159,008. (No model.)



Claim.—1. A bale-tie consisting of a metal plate having double lines of locking-slots, and the ends of said slots tapered, substantially as and for the purpose specified.

2. A bale-tie consisting of a metal plate having a double line of locking-slots, and notches in the ends of said plates, substantially as and for the purpose specified.

749,848. GOPHER-TRAP. JOHN J. DANIELS, Minneapolis, Minn. Filed Apr. 28, 1903. Serial No. 154,627. (No model.)

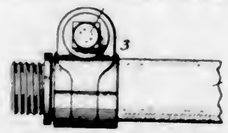


Claim.—1. A trap having jaws under strain to spring together, and means for holding the trap set with its jaws set, involving a cord extended from one side to the other of the trap, in the vicinity of its jaws, substantially as described.

2. A trap of the character described involving an approximately U-shaped spring having jaw-equipped arms, a toggle-link pivoted at its ends to the arms of said spring and adapted to hold the jaws separated, one member of said toggle having an extended tripping-arm, and a cord attached to said tripping-arm and adapted to be drawn taut from one arm to the other of said spring and attached to one of said arms, substantially as described.

3. The combination with the spring 1 having arm-sections 1^a provided with jaws 2, one of said arms having a notch 5 and the other having the catch 6, of the toggle 3 pivotally attached to the said arms 1^a for holding the same separated and the trap set, one member of said toggle having the trip-arm extension 3^a, and the cord 4 attached to the free end of said trip-arm and adapted to be passed through said notch 5 and secured by said catch 6, to hold the trap set, substantially as described.

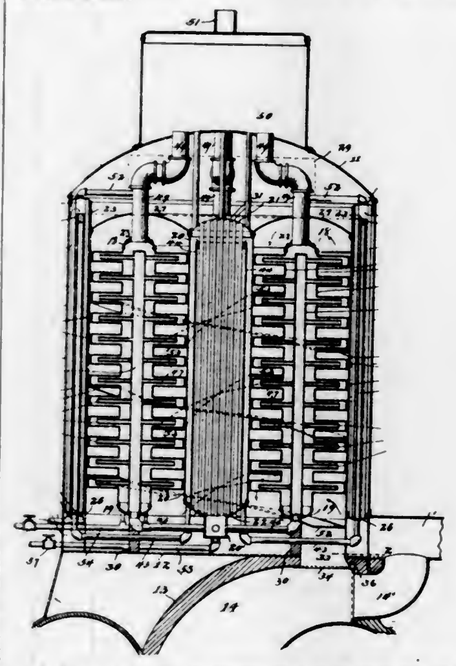
749,849. HOSE-CLAMP. VINCENT H. DAVISON, Park City, Utah. Filed Apr. 13, 1903. Serial No. 152,368. (No model.)



Claim.—In a device of the character described, a clamp provided with a slot extending longitudinally a predetermined distance of its body portion and having the remaining portion of its body formed in a narrow plate adapted to be drawn through the slot forming a band for encircling the hose, ears on the ends of the clamp bent at right angles to its body portion and provided with apertures, and a bolt for securing the ears together as and for the purpose set forth.

749,850. STEAM-BOILER. FRANCIS J. DOYLE, Chicago, Ill. Filed Mar. 5, 1903. Serial No. 146,311. (No model.)

Claim.—1. In a boiler the combination with an outer shell, of a hollow annular water-chamber disposed within said shell, to provide a surrounding gas-circulating space, a central chamber of less external diameter than the interior of said annular water-chamber, providing therewith an inner annular gas-circulating space, a plurality of gas-passages within and extending longitudinally throughout the length of said central chamber, an outer chamber surrounding the said annular water-chamber and likewise provided with gas-passages within and extending longitudinally throughout the length thereof and communicating passages or spaces at the ends of said several chambers.



2. In a steam-boiler the combination with an outer shell, of a hollow annular water-chamber of less dimensions than the interior of the boiler-shell and disposed therein to provide a surrounding gas-circulating space, an inner chamber of less external diameter than the interior of said annular water-chamber, and disposed within the latter to provide a second annular gas-circulating space, fire-tubes extending from end to end through said central chamber and opening into gas-spaces at the ends thereof, an outer annular chamber surrounding the said annular water-chamber, and likewise provided with fire-tubes extending longitudinally therethrough and opening into gas-spaces at the respective ends of the boiler, an annular partition separating the space within which the annular water-chamber is arranged, from the end space of the boiler into which the fire-tubes of the central and outer chambers open, a gas-inlet communicating with the circulating-space exterior to the annular water-chamber, and an outlet-flue communicating with the end space of the boiler into which the fire-tubes of the outer chamber discharge, substantially as described.

3. In a boiler the combination with an outer shell, of a hollow annular water-chamber of less external dimensions than the interior of the boiler-shell and disposed thereon to provide a surrounding gas-circulating space, said annular chamber forming in conjunction with its support a substantially complete annular partition, extending from one end of the boiler to a point near the opposite end thereof, a central chamber of less external dimensions than the interior of the annular water-chamber and disposed therein to provide a surrounding annular gas-circulating space, said central chamber terminating at each end short of the end walls of the boiler-shell and having fire-tubes extending longitudinally therethrough and opening into the end spaces of the boiler at the respective ends thereof an outer annular chamber of larger internal dimensions than the annular water-chamber and arranged concentrically therewith, said outer chamber being likewise provided with fire-tubes and terminating short of the end walls of the boiler so that said fire-tubes open

into the end spaces at the respective ends of the boiler, a partition extending between said outer and central chambers at a point between the upper end of the annular water-chamber and the adjacent end of the boiler, an annular chamber immediately below the end of the said outer chamber into which the fire-tubes of the latter discharge, an inlet-passage communicating with the circulating-space exterior to the annular water-chamber at the lower end thereof, an outlet passage or flue communicating with the annular chamber into which the fire-tubes of the outer chamber discharge, one or more steam-pipes communicating with the upper end of said annular water-chamber, means for supplying said outer annular chamber with water, communicating passages between the outer chamber and the central chamber and communicating passages between the central chamber and the annular water-chamber, as and for the purpose set forth.

4. In a boiler, the combination with an outer shell, of a hollow annular water-chamber of less external dimensions than the interior of the boiler-shell and disposed therein to provide a surrounding gas-circulating space, said annular chamber forming in conjunction with its support a substantially complete annular partition extending from one end of the boiler upwardly toward the opposite end thereof, a centrally-disposed chamber of less external dimensions than the interior of the annular water-chamber and disposed therein to provide a surrounding gas-circulating space, said central chamber terminating at each end short of the end walls of the boiler-shell and having gas-circulating passages extending longitudinally therethrough, and opening into the end spaces of the boiler, an outer annular chamber extending around the interior of the boiler-shell, said outer chamber being likewise provided with fire-tubes extending longitudinally therethrough and opening into the end spaces of the boiler, a partition extending between said outer and central chambers at a point between the upper end of the annular water-chamber and the adjacent end of the boiler, helically-disposed partitions arranged within the circulating-spaces exterior and interior to the annular water-chamber, inlet and outlet passages communicating with a source of heated gases and with a discharge-flue respectively, means for supplying liquid to said outer and central chambers and to the annular water-chamber, communicating passages between said chambers and one or more steam-outlet pipes communicating with the steam-space of the boiler, as and for the purposes set forth.

5. In a boiler, the combination with an outer cylindric shell, of a hollow cylindric annular water-chamber of less external diameter than the interior of the boiler-shell and disposed concentrically therein, said annular chamber forming in conjunction with its support a substantially complete annular partition extending from the lower end of the boiler upwardly toward the opposite end thereof, a centrally-disposed cylindric chamber of less diameter than the interior of said annular water-chamber and terminating at each end short of the end walls of the boiler-shell, one or more gas-passages within said central chamber and extending longitudinally throughout the length thereof and opening into the end spaces of the boiler, a helically-disposed partition surrounding the exterior of said annular water-chamber, a partition extending between said central chamber and the surrounding wall which incloses the annular water-chamber at a point above the upper end of said annular chamber and between the latter and the adjacent end wall of the boiler, a gas-inlet passage communicating with the circulating-space exterior to the annular water-chamber at the lower end thereof and a gas-outlet passage from the gas-space at the upper end of said boiler, substantially as described.

6. In a boiler, the combination with an outer cylindric shell, of a hollow cylindric annular water-chamber of less external diameter than the interior of the boiler-shell and disposed concentrically therein, said annular chamber forming in conjunction with its support a substantially complete annular partition extending from the lower end of the boiler upwardly toward the opposite end thereof, a centrally-disposed cylindric chamber of less diameter than the interior of said annular water-chamber but of substantially the same length and both terminating at each end short of the end walls of the boiler-shell, one or more gas-passages within and extending longitudinally throughout the length thereof and opening into the end spaces of the boiler, helically-disposed partition-strips extending around the exterior and interior of said annular water-chamber, a partition extending between said central chamber and the surrounding wall which incloses the annular water-chamber at a point above the upper end of said annular chamber and between the latter and the adjacent end wall of the boiler, a gas-inlet passage communicating with the circulating-space exterior to the annular water-chamber at the lower end thereof and a gas-outlet passage from the gas-space at the upper end of said boiler, substantially as described.

7. In a boiler of the character described, the combination of the outer chamber extending around the cylindric side wall of the boiler, the central chamber, the annular chamber interspaced between the outer and central chambers, of communicating gas-passages, means for supplying water to one end of the outer annular chamber, means within said outer chamber compelling the liquid to perform a longitudinal forth-and-return circulation therein, communicating passages extending between the inlet end of said outer annular chamber and the adjacent end of the central chamber, means within said central chamber for compelling the water to perform a longitudinal forth-and-return circulation therein, an inner annular chamber arranged concentrically within said annular water-chamber, communicating passages extending between the inlet end of said central chamber and the corresponding end of said inner annular chamber, outlet-passages at various points throughout the length of said inner annular chamber and one or more steam-pipes communicating with that end of the interspaced annular chamber remote from the inlets of the latter, as and for the purpose described.

749,851. CALCULATOR. EMILY C. DUNCAN, Jennings, La. Filed Nov. 29, 1902. Serial No. 133,961. (No model.)



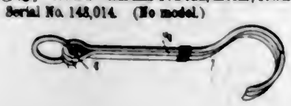
Claim.—1. A calculator comprising a base provided with an annular peripheral recess forming a thickened central body portion and a projecting peripheral flange, a circular plate secured detachably to the body portion of the base and projecting outwardly beyond the same and cooperating with the said peripheral flange to form a groove and terminating short of the edge of the flange, and a rotary ring or member arranged on the peripheral flange of the base and fitting against the periphery of the plate and provided with an inner projecting flange fitting in the said groove, substantially as described.

2. A calculator comprising a base provided with an annular recess at its upper face to form a projecting peripheral flange and to provide a thickened body portion, a rotary ring or member arranged in the annular recess of the base and provided at its inner edge with an outer or upper annular recess forming an inwardly-extending annular flange, and a circular plate secured to the body portion of the base and having its outer face flush with the outer face of the ring or member, said plate being extended outward beyond the said body portion to form a projecting flange to fit in the recess of the ring or member, substantially as described.

3. A calculator comprising a circular base provided with an annular recess, a rotary ring provided at its inner edge with an annular recess and arranged in the recess of the base, and provided at its outer face with characters for designating the months and the days of the same, and a circular plate secured to the central portion of the base and projecting outward beyond the same into the annular recess of the rotary ring and having its outer face flush with the outer face of the same, said circular plate being also provided with characters for designating the number of days of the period covered by the characters of the rotary ring, substantially as described

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749,852. HOOK. ALFRED F. DUBE, Moosr, Iowa. Filed Mar. 16, 1903. Serial No. 148,014. (No model.)



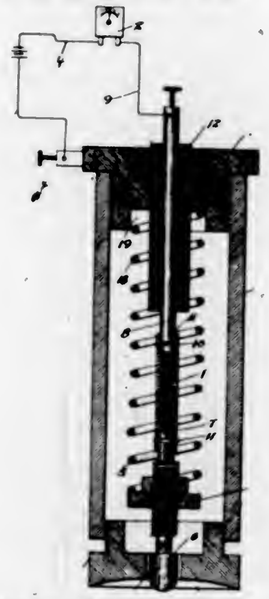
Claim.—In a hook, a shank composed of spring members arranged side by side in the same plane and having their free ends alternately bent in opposite directions to form an eye, said bent ends being free to move in or out with reference to the plane of the shank, substantially as described.

749,853. PROCESS OF MAKING BUTTER. JAMES ESTEP, Tacoma, Wash., assignor of one-half to Robert L. Bloom, Lakeview, Wash. Filed Dec. 22, 1902. Serial No. 136,293. (No specimens.)

Claim.—1. The process of preparing cream and milk for the manufacture of butter, consisting in subjecting the cream, before churning, to the actions of alum, pepsin, sugar of milk and saltpeter substantially as and for the purpose described.

2. The process of the manufacture of butter consisting in subjecting sweet cream to the actions of alum, pepsin, sugar of milk and saltpeter, churning said cream, removing the buttermilk, washing out said alum, pepsin, sugar of milk and saltpeter with other impurities, salting and working the butter.

749,854. MEANS FOR CONVERTING FAINT VIBRATIONS INTO ELECTRICAL ENERGY. WILLIAM H. FARNEY, Chicago, Ill. Filed Jan. 10, 1903. Serial No. 138,464. (No model.)

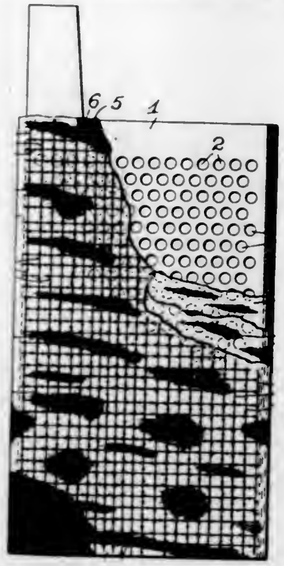


Claim.—1. In a device for the purpose described the combination of a plunger, an adjustable gage or support through which said plunger passes, a variable resistance operatively related to said plunger, an electric circuit including said resistance and means included in said circuit for indicating undulations in the strength thereof, substantially as set forth.

2. In a device for the purpose described the combination of a plunger, a nut adjustably secured thereon, a casing inclosing said nut and plunger, a spring bearing between one end of said casing and said nut, a support in said casing insulated therefrom, a compressible tube attached at one end to said support and at its other end to said plunger, a mass of conducting particles in said tube, an electric circuit including said mass of particles and means in said circuit for indicating undulations in the strength thereof, substantially as set forth.

749,855. PROCESS OF PRODUCING ELECTRODES FOR STORAGE BATTERIES AND ELECTRODE. FREDERICK A. FELDKAMP, Newark, N. J., assignor to Electra Manufacturing Company, a Corporation of New Jersey. Filed May 19, 1903. Serial No. 157,853. (No specimens.)

Claim.—1. A process of producing an electrode for storage batteries which consists in inclosing a perforated metal plate or grid in an open-mesh fabric, and securing said fabric on opposite sides of the plate or grid, and forcing an active material in a plastic or semiplastic state from the outer surface of the fabric on the one side of the plate or grid into and through the interstices of said fabric and directly upon the surface of the plate or grid and into and through the perforations in said plate or grid and into and through the fabric upon the opposite side of said plate or grid, and drying the active material to produce a hard mass of active material in which the threads of the fabric are incorporated, substantially as set forth.



2. A process of producing an electrode for storage batteries which consists in inclosing a perforated metal plate or grid in an open-mesh fabric, and securing said fabric on opposite sides of the plate or grid, and forcing an active material in a plastic or semiplastic state from the outer surface of the fabric on the one side of the plate or grid into and through the interstices of said fabric and directly upon the surface of the plate or grid and into and through the perforations in said plate or grid and into and through the fabric upon the opposite side of said plate or grid, then forcing an active material in a plastic or semiplastic state from the outer surface of the fabric upon the other side of the plate or grid and into and through the interstices of said fabric directly upon said other side of the plate or grid and into and through the perforations in the plate or grid, so as to become incorporated with the previously-inserted active material in said perforations, and then drying the active material to produce a hard mass of active material in which the threads of the fabric are incorporated, substantially as set forth.

3. A process of producing an electrode for storage batteries which consists in providing a metal plate or grid with openings, inclosing the said plate or grid in an open-mesh fabric, sewing the said fabric fast to the said plate or grid, and then forcing an active material through the meshes from the outer surfaces of the fabric directly upon the surfaces of the plate or grid and into and through the openings in said plate or grid, substantially as set forth.

4. A process of producing an electrode for storage batteries which consists in providing a metal plate or grid with a series of three layers of an open-mesh fabric on each side of the plate or grid, sewing the said layers of fabric fast to the said perforated plate or grid, and then forcing an active material through the meshes from the outer surfaces of the fabric directly upon the surfaces of the plate or grid and into and through the openings in said plate or grid, substantially as set forth.

5. A battery-electrode comprising a perforated metal plate or grid, an open-mesh fabric attached to said plate or grid, and an active material extending through the interstices of said fabric from its outer surface in an inward direction toward and directly upon the unperforated surface portion of the plate or grid and into the perforations in said plate or grid, substantially as and for the purposes set forth.

6. A battery-electrode comprising a perforated metal plate or grid, an open-mesh fabric attached to the said plate or grid on op-

posite sides of said plate or grid, active material extending through the interstices of the fabric on the one side of the plate or grid from the outer surface of the fabric in an inward direction toward and directly upon the unperforated surface portions of the plate or grid and through the perforations in said plate or grid and through the interstices of the fabric upon the other side of said plate or grid, and an active material extending through the interstices of said fabric on said other side of the plate or grid in an inward direction toward and directly upon the unperforated surface portions of the plate or grid and into the perforations in said plate or grid, so as to be incorporated in said perforations with the previously-inserted active material, substantially as and for the purposes set forth.

7. A battery-electrode comprising a perforated metal plate or grid, an open-mesh fabric on said plate or grid, stitching for securing said fabric in place, and an active material extending through the interstices of said fabric from its outer surface in an inward direction toward and directly upon the unperforated surface portion of the plate or grid and into the perforations in said plate or grid, substantially as and for the purposes set forth.

8. A battery-electrode comprising a perforated metal plate or grid, an open-mesh fabric on opposite sides of said plate or grid, stitching for securing said fabric in place, active material extending through the interstices of the fabric on the one side of the plate or grid from the outer surface of the fabric in an inward direction toward and directly upon the unperforated surface portions of the plate or grid and through the perforations in said plate or grid and through the interstices of the fabric upon the other side of said plate or grid, and an active material extending through the interstices of said fabric on said other side of the plate or grid in an inward direction toward and directly upon the unperforated surface portions of the plate or grid and into the perforations in said plate or grid, so as to be incorporated in said perforations with the previously-inserted active material, substantially as and for the purposes set forth.

9. A battery-electrode comprising a metal plate having perforations, an open-mesh fabric attached to the said plate or grid on opposite sides of said plate, active material incorporated in the interstices of the fabric from the outer surfaces of the fabric toward the plate, said active material being arranged in the perforations in the said plate from the opposite sides of the plate, and when set forming a lock, substantially as and for the purposes set forth.

10. A battery-electrode comprising a metal plate having perforations, an open-mesh fabric of from eight to ten threads per square inch, arranged on opposite sides of and attached directly to said plate, active material incorporated in the interstices of the said fabric from the outer surfaces of the fabric toward the plate, said active material being arranged in the perforations in the said plate from the opposite sides of the plate, and when set forming a lock, substantially as and for the purposes set forth.

11. A battery-electrode, comprising, a metal plate, an open-mesh fabric of interwoven threads on said plate, and an active material incorporated and hardened in the interstices formed by said threads, said threads extending from the outer surface of the mass of hardened active material throughout the body of said active material and upon the surface of the metal plate, substantially as and for the purposes set forth.

12. A battery-electrode, comprising, a metal plate provided with perforations, an open-mesh fabric of interwoven threads on the opposite sides of said plate, and an active material incorporated and hardened in the interstices formed by said threads and also in the perforations in said plate, said threads extending from the outer surfaces of the mass of hardened active material throughout the body of said active material, and upon the opposite sides of the metal plate, and said threads extending also into the perforations in said plate, substantially as and for the purposes set forth.

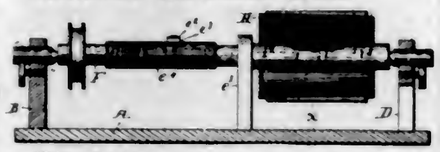
749,856. BUTTON. RUBE R. FOGEL, New York, and WILLIAM BOURKE, Brooklyn, N. Y. Filed July 29, 1901. Serial No. 70,032. (No model.)



Claim.—1. The combination in a button with a solid shank, a tubular end on said shank, and an upset or fold forming an annular rib around said tubular end, of a base or foot pierced for the reception of the tubular end, the said shank end being expanded down on the outside of said foot to hold it firmly against the said annular rib and prevent the base from chipping, substantially as described.

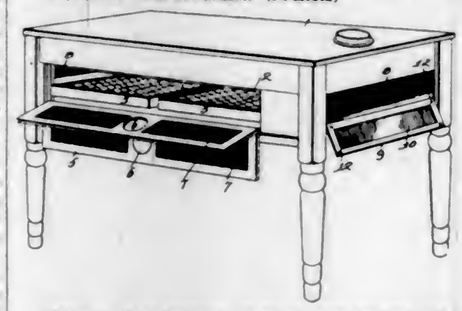
2. A button having the solid shank 3, the tubular end on said shank, the annular rib 4 and the separate base 2, the base 2 being held in contact with the rib 4, by an expansion of the tubular end forming a lip 5, substantially as described.

749,857. PHONOGRAPH. EDWARD GILMAN, New Haven, Conn. Filed Feb. 4, 1903. Serial No. 141,823. (No model.)



Claim.—In a phonograph the combination of the driving-shaft, the record-cylinder fitted freely thereon, and the frictional clamping-spring interposed between the shaft and the cylinder-shell, and adapted to be inserted within the cylinder through the shaft bearing or aperture in the head thereof, substantially in the manner and for the purpose specified.

749,858. INCUBATOR. GEORGE HACKER, St. Louis, Mo. Filed July 6, 1903. Serial No. 164,295. (No model.)



Claim.—1. In an incubator, an egg-chamber provided with an opening extending directly from the egg-chamber to the exterior of the incubator, and a sheet of perforate and pervious material whereby the opening is closed, substantially as described.

2. In an incubator, an egg-chamber provided with wall-openings extending directly from the egg-chamber to the exterior of the incubator, and strips of cloth or other perforate substance whereby the wall-openings are covered, substantially as described.

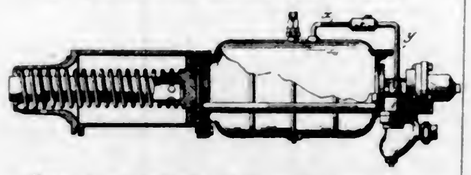
3. In an incubator, a casing provided with an egg-chamber wall-openings extending through the casing and into the egg-chamber, door-frames mounted in the wall-openings and strips of cloth or other perforate material mounted on the door-frames, substantially as described.

4. In an incubator, a casing provided with an egg-chamber, wall-openings extending through the casing and into the egg-chamber, an inner door-frame and an outer door-frame mounted at the front of the egg-chamber, the openings in the door-frames being covered with sheets of perforate and pervious material, substantially as described.

5. In an incubator, a casing provided with an egg-chamber, wall-openings extending through the casing and into the egg-chamber, an inner door-frame and an outer door-frame mounted at the front of the egg-chamber, the openings in the door-frames being covered with sheets of perforate and pervious material, the side and back wall-openings being provided upon their inner sides with sheets of perforate and pervious material, and door-frames mounted upon the outer sides of the last-named wall-openings and covered with sheets of perforate and pervious material, substantially as described.

6. In an incubator, a casing provided with an egg-chamber, wall-openings extending through the casing and into the egg-chamber, an inner door-frame and an outer door-frame mounted at the front of the egg-chamber, the openings in the door-frames being covered with sheets of perforate and pervious material, the side and back wall-openings being provided upon their inner sides with sheets of perforate and pervious material, door-frames mounted upon the outer sides of the last-named wall-openings and covered with sheets of perforate and pervious material, the door-frames in the side and back wall-openings being provided with buttons, and sheets of perforate and pervious material adapted to be moistened and buttoned over the said buttons, substantially as described.

749,859. VALVE FOR AIR-BRAKES. TIMOTHY HALEY, Xenia, Ohio. Filed Aug. 5, 1903. Serial No. 168,386. (No model.)



Claim.—1. In combination with the auxiliary reservoir, a valve-casing connected at one end with the said reservoir and connected at the other end with the release part, said casing having an outlet for the escape of air, and a double-headed valve arranged in the said casing and subjected to the pressure from the release part and the auxiliary reservoir, substantially as described.

2. In combination with the auxiliary reservoir and the release part of the brake, a valve-casing, a double-headed valve arranged therein, said casing having an escape-port between the valve-heads, one of the valve-heads having perforations, and pipe connections leading from the valve-casing to the auxiliary reservoir and release part, substantially as described.

3. A device for retaining the pressure on a brake, consisting of a double-headed valve both having a common rod connection and said valves and rod working within a cylinder suited to the same, and escape-ports to permit the air to escape from the cylinder.

749,860. MEANS FOR LOADING OR UNLOADING VESSELS. HENRY M. HARDING, New York, N. Y. Filed Jan. 16, 1902. Serial No. 89,933. (No model.)



Claim.—1. Means for loading, unloading or transferring freight and the like consisting of a float or barge, an overhead electric railway mounted thereon and inclosing substantially the area of the barge, and electrically-operated carriers moving on said railway, substantially as described.

2. Means for loading, unloading or transferring freight and the like consisting of a series of barges or floats, a section of overhead electric railway on each barge or float, flexible connections between said sections, and electrically-operated carriers traveling on said railway, substantially as described.

3. Means for loading, unloading or transferring freight and the like consisting of a float or barge carrying a section of overhead electric railway, a section of overhead electric railway on the dock, flexible connections between the sections of the barges and between the section on the barges and the dock, substantially as described.

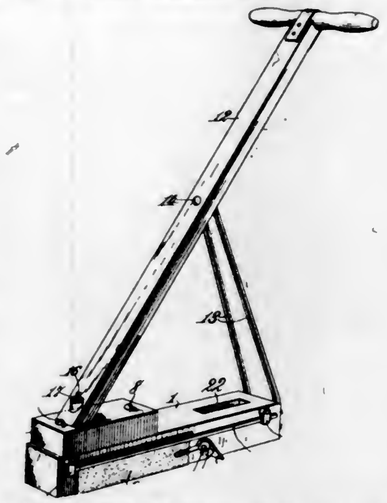
749,861. TOOL FOR SCRAPING AND FINISHING FLOORS. JOHN S. HARTMAN, Manchester, Pa., assignor of one-half to William S. Schroll, Manchester, Pa. Filed Sept. 19, 1903. Serial No. 173,841. (No model.)

Claim.—1. A tool for finishing and scraping floors comprising the base-block provided with an inclined scraper-blade on its under face and a counterbalancing-weight at one end of the block and back of the rear portion of the inclined scraper, substantially as described.

2. A tool for scraping and finishing floors comprising the base-block provided with a scraper-blade on its under face, and means for securing sandpaper to the block to the rear of the scraper-blade, substantially as described.

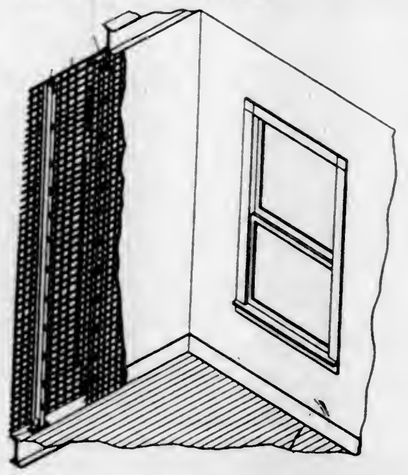
3. A tool for scraping and finishing floors comprising a base-block provided with a scraper-blade on its under face, strips for binding sandpaper to the block, and means for holding said strips in place, said strips lying above the top of the scraper-blade, substantially as described.

4. The tool for scraping and finishing floors consisting of the wooden base-block provided with a scraper-blade on its under face, a counterbalancing metal weight applied at one end of the base-block, the handle formed of the inclined bar connected at one end to the counterbalancing-weight and a rigid brace connecting said bar between its ends to one end of the base-block, and means for securing sandpaper to the base-block, substantially as described.



5. The combination with the base-block having a handle, and a counterbalancing-weight applied to the end of the block opposite to the end where the handle is grasped in operating the block, of means for securing sandpaper to the base-block, substantially as described.

749,862. METALLIC STUD OR THE LIKE. MARSELIUS HEGDON, Chicago, Ill., assignor to Frederick Voss, Chicago, Ill. Filed Mar. 14, 1903. Serial No. 147,792. (No model.)

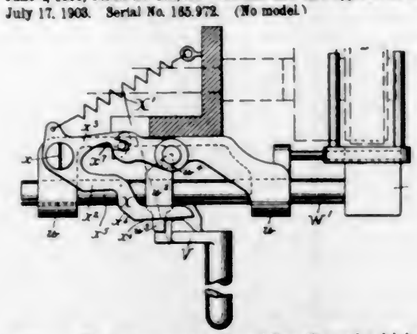


Claim.—1. A sheet of metal rolled to form a Z-bar, each of the lateral oppositely-directed flanges of said Z-bar having thereon a plurality of straps integral therewith and providing open loops adapted to receive fastening means.

2. A stud for the purpose specified comprising an integral web and oppositely-directed parallel flanges on each margin thereof, and a plurality of outwardly-directed straps integral at their ends with said side flanges of the stud and each forming an open loop and adapted to project through the interstices of metal lath or the like and to receive fastening means therein and metallic brackets adapted to receive the ends of said stud and to afford fastening means therefor

3. A metallic Z-bar stud comprising in combination a web and side flanges, having a plurality of integral outwardly-directed straps forming open loops and a bracket for each end of the stud having a width adapted to fit between the flanges and having parts thereon adapted to engage on each side of the web and shaped to admit of wedging the stud therein.

749,863. BELT-SHIFTING MECHANISM. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to Standard Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Original application filed June 4, 1903, Serial No. 159,996. Divided and this application filed July 17, 1903. Serial No. 165,972. (No model.)



Claim.—1. The combination, with an idle pulley and a driving-pulley and a belt, of a shifter-fork adapted to move the belt from the idle to the driving pulley, a movable belt-shifter rod, a spring tending to hold said belt upon one of the pulleys, a projection from said rod, a pivoted plate having a notch, a spring tending to move said plate toward said rod and means to hold said plate away from said rod until said projection has passed beyond the notch.

2. The combination, with an idle pulley and a driving-pulley and a belt, of a shifter-fork adapted to move the belt from the idle to the driving pulley, a movable belt-shifter rod, a spring tending to hold said belt upon one of the pulleys, a projection from said rod, a pivoted plate having a notch, a spring tending to move said plate toward said rod, a lever for moving said rod, said spring holding said plate toward said lever, there being an inwardly-inclined portion on said plate, said lever reaching said inwardly-inclined portion when the projection has passed beyond the notch.

3. As a locking and releasing device for a spring-actuated shifter-fork having a projection, the combination of a pivoted plate having a notch, a spring acting upon said plate, there being means to hold the plate against the action of the spring until the projection has passed beyond the notch.

4. As a locking and releasing device for a spring-actuated shifter-fork having a projection, the combination of a pivoted plate having a notch, a spring action upon said plate there being means to hold the plate against the action of the spring until the projection has passed beyond the notch, there being means to move the said plate to release said lever.

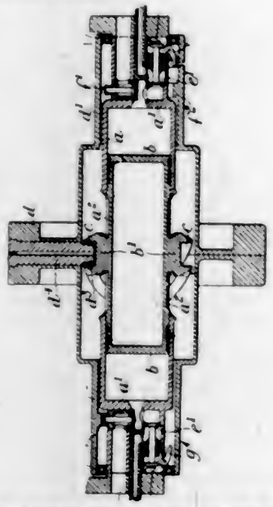
5. As a locking and releasing device for a spring-actuated shifter-fork, having a projection, the combination of a pivoted plate having two arms, one of which has a notch, a lever operatively connected with said belt-shifter, against which the other arm rests, a spring tending to hold the arm in contact with the lever, said arm having an inwardly-inclined portion forming a means to allow the plate to lock the shifter and release the plate from the lever.

749,864. STEAM OR INTERNAL-COMBUSTION ENGINE OR MOTOR. THOMAS S. JAMES, London, England. Filed June 25, 1903. Serial No. 163,104. (No model.)

Claim.—1. In a steam or explosion engine or motor the combination with the cylinder and piston, of a cam-groove which encircles the cylinder and of a roller engaging therewith one of the said members being rigidly connected to the fly-wheel of the engine and the other to the piston by connections running in slots in the cylinder, substantially as described.

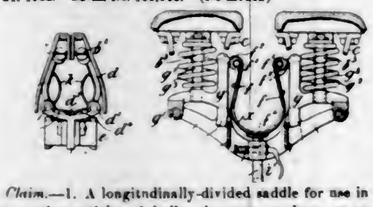
2. In a steam or explosion engine or motor, the combination with the cylinder and piston, of a cam-groove which encircles the cylinder and is united to the piston by connections running in slots in the cylinder, of a fly-wheel inclosing the cam-groove and of a roller upon the fly-wheel which engages the said cam-groove, substantially as described.

3. In a steam or explosion engine or motor, the combination with the cylinder and piston, of a cam-groove encircling the cylinder and secured to the piston by connections working in slots in the cylinder, of a fly-wheel inclosing the cylinder and mounted on bearings upon the ends thereof, of inlet and outlet valves for controlling the admission and exhaust of the motive fluid and of means, such as cams, in connection with the fly-wheel for operating the said valves, substantially as described.



4. In an explosion engine or motor the combination with the cylinder and piston, of a cam-groove encircling the cylinder and secured to the piston by connections extending through slots in the cylinder, of a fly-wheel inclosing the cylinder, the said fly-wheel being mounted on bearings upon the ends of the cylinder and forming an annular exhaust-space, of peripheral outlets from the annular exhaust-space, of central air-inlets to the said exhaust-space and of a cam rotating with the fly-wheel for controlling the inlet and exhaust valves, substantially as described.

749,865. CYCLE-SADDLE FOR SUPPORTING RIFLES OR OTHER ARTICLES. JOHN JARVIS, Kensington, England. Filed Apr. 21, 1902. Serial No. 103,963. (No model.)



Claim.—1. A longitudinally-divided saddle for use in carrying rifles, or other articles of similar character or shape, on cycles, having supports for the fore and after ends, the rods connecting the supports, a clip at the fore end comprising arms suspended from the tie-rods and hinged to a vertically-movable carrier and a clip at the after end comprising a horseshoe-shaped spring provided with a stem and means for holding the said stem in order to secure the spring in its closed position substantially as described.

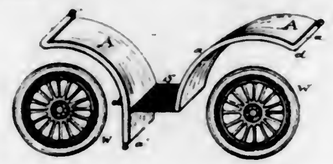
2. A longitudinally-divided saddle for use in carrying rifles or other articles of similar character or shape on cycles, having a clip at the fore end consisting of two arms hinged to a vertically-movable carrier, ties and a girder for connecting the arms and carrier of the said clip to the rear end of the saddle, a horseshoe-shaped spring-clip arranged at the rear end, a pair of bell-crank levers each having an arm connected to an extremity of the horseshoe-clip, a carrying-plate to which the other arm of the bell-crank levers is pivoted and a support at an intermediate point in each of the last-mentioned arms for the rear end of one portion of the saddle substantially as described.

3. A longitudinally-divided saddle for use in carrying rifles or other articles of a similar character or shape on cycles, two arms at the fore end, ties for connecting the upper ends of the arms to the rear of the saddle, a T-piece to which the lower ends of the arms are pivoted and having a slot in its stem, a girder provided with a bolt which engages the slot in the T-piece, levers pivoted to a plate at the rear end of the girder, supports on the levers for carrying the rear ends of the saddle and a spring-clip connected with the said levers substantially as described.

4. A longitudinally-divided saddle for use in carrying rifles or other articles of similar shape or character on cycles, having a clip at the fore end connected by ties to the rear of the saddle, a girder supporting said clip, two bell-crank levers pivoted to a plate at the rear end of the girder each carrying one of the rear ends of the saddle, a horseshoe-shaped spring having its ends connected with the levers, a slotted stem secured to the spring and a trigger engaging the slotted stem so as to hold the spring in its open or closed position substantially as described.

5. A longitudinally-divided saddle for use in carrying rifles or other articles of similar shape or character on cycles having a clip at the fore end connected by ties to the rear of the saddle, a girder supporting the said clip, two bell-crank levers pivoted to a plate at the rear end of the girder each carrying one of the rear ends of the saddle, a horseshoe-shaped spring, and right and left hand screws for connecting the ends of the spring with the levers substantially as described.

749,866. VEHICLE MUD-GUARD. HENRY B. KING and HIRAM M. QUICK, Paterson, N. J. Filed Sept. 22, 1903. Serial No. 174,233. (No model.)



Claim.—1. As a new article of manufacture, a mud-guard consisting of the main body portion in combination with a round border provided with a slot to receive and hold the outer edges of said body portion, substantially as set forth.

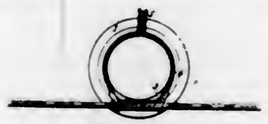
2. In a vehicle mud-guard, the main body portion in combination with a tubular metallic border provided with a slot into which the edges of the body portion enter and are secured, substantially as set forth.

3. In a vehicle, a step, rigidly secured to and in combination with mud-guards having a tubular metallic border, substantially as set forth.

4. In a vehicle mud-guard, the body portion having the exposed or outer corners rounded in combination with a tubular metallic border provided with a slot adapted to receive the outer edges of the body portion, and a beading-strip connecting the body portion and the tubular border, substantially as set forth.

5. In a vehicle mud-guard the body portion having the exposed or outer corners rounded, in combination with a tubular metallic border provided with a slot adapted to receive the outer edges of said body portion, means for securing the body portion to said border, and ornamental knobs secured to the extremities of said border, substantially as set forth.

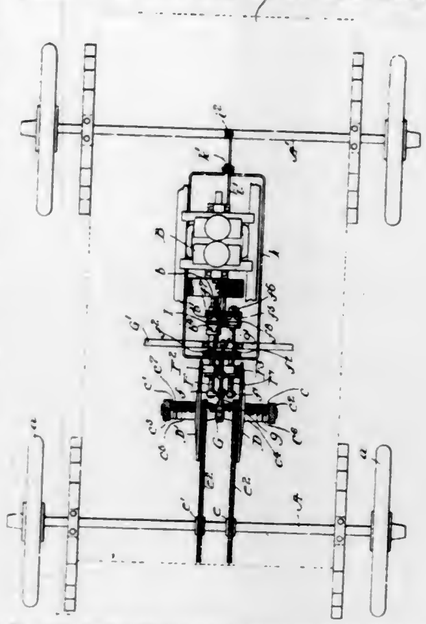
749,867. METHOD OF SECURING ELECTRIC WIRES. ALEXANDER KLIEB, Jersey City, N. J. Filed Mar. 31, 1902. Serial No. 100,866. (No model.)



Claim.—1. The combination substantially as shown of the electric line, the insulator, and the tie-wire, the tie-wire having a flattened middle portion wound spirally around the line, the ends of the tie-wire twisted together, and the several parts lying within the groove of the insulator.

2. A tie-wire, substantially as described, having a flattened middle part for winding around the line in the manner herein shown

749,868. POWER-TRANSMISSION DEVICE. JOHN F. KROMA, Chicago, Ill. Filed July 23, 1903. Serial No. 166,725. (No model.)



Claim.—1. The combination with a motor and its driving-shaft, of a frictional roller in peripheral engagement therewith, rotatable friction-disks engaging one on each side of said pair of friction-rollers, a rotative shaft, a non-rotative nut on each end thereof, adapted when said shaft is rotated to move said disks oppositely and a shaft operatively connected with said friction-disks and driven thereby.

2. The combination with a pair of inwardly-facing friction-disks, of friction-rollers engaged between the same and in mutual peripheral contact, means for rotating one of said rollers thereby rotating the other and said friction-disks simultaneously, a shaft operatively connected with the friction-disks and driven thereby, a rotative shaft loosely carrying said friction-disks and means on the end of said shaft adapted to regulate the pressure of said disks on the rollers.

3. The combination with inwardly-facing friction-disks having their faces in parallel planes, of friction-rollers engaged between the same and mutually engaging each other peripherally, an oppositely-threaded rotative shaft extending oppositely through said disks, means on the end thereof adapted when said shaft is rotated to vary the pressure of said disks on said roller, a constant motor and operative connections between the motor and both of said friction-rollers whereby either may be rotated thereby and whereby the direction of rotation of the friction-disks is dependent on the friction-roller driven by the motor.

4. The combination with a rotative shaft threaded oppositely at its ends, of friction-disks journaled thereon and having their adjacent faces in parallel planes, means on the threaded ends of said shaft adapted when the shaft is rotated to move said disks oppositely, a pair of friction-rollers engaged between said disks and in mutual peripheral engagement, means for driving each of said friction-rollers thereby rotating the other and said friction-disks.

5. The combination with a rotative shaft, of friction-disks journaled thereon and having their adjacent faces in parallel planes, a pair of friction-rollers engaged between the same and in mutual peripheral engagement, means for driving either of said friction-rollers thereby rotating the other and said friction-disks and means whereby the rotation of said shaft causes said disks to move oppositely to vary the pressure on the friction-rollers.

6. The combination with a shaft having oppositely-threaded ends, of friction-disks journaled thereon having their adjacent faces in parallel planes, a pair of friction-rollers engaged between the same and in mutual peripheral engagement, means on the threaded ends of said shaft adapted to adjust said disks with reference to said rollers,

means for driving either of said friction-rollers thereby rotating the other and said friction-disks and a lever rigidly engaged on said shaft acting to move said friction-disks oppositely varying the pressure thereof on the friction-rollers.

7. The combination with friction-disks having their adjacent faces in parallel planes, of a pair of friction-rollers engaged between the same and in mutual peripheral engagement, means for driving either of said friction-rollers thereby rotating the other and said friction-disks, a shaft journaled in said disks, a nut on each end of said shaft adapted to engage with said disks and means for rotating said shaft in said nuts by moving said disks oppositely.

8. The combination with an oppositely-threaded shaft, of revoluble inwardly-facing friction-disks thereon, a nut on each end of said shaft adapted to move said disks oppositely, rollers in peripheral contact and contacting each friction-disk, means acting to drive one of said rollers and means acting to vary the speed of rotation of said friction-disks independently of the speed of rotation of said friction-rollers operated by shifting said rollers simultaneously and radially of said disks.

9. The combination with revoluble inwardly-facing friction-disks, of rollers in peripheral contact and contacting each friction-disk, means acting to drive one of said rollers and means acting to vary the speed of rotation of said friction-disks independently of the speed of rotation of said friction-rollers operated by shifting said rollers simultaneously and radially of the disks, a shaft journaled in said disks and means on the end of said shaft acting when said shaft is rotated to vary the pressure of the disks upon the rollers.

10. The combination with revoluble inwardly-facing friction-disks, of rollers in peripheral contact and contacting each friction-disk, means acting to drive one of said rollers and means acting to vary the speed of rotation of said friction-disks independently of the speed of rotation of said friction-rollers operated by shifting said rollers simultaneously and radially of said disks, a shaft on which said disks are mounted and means related with said shaft whereby partial rotation thereof acts to shift the disks oppositely.

11. The combination with a pair of friction-disks having their adjacent faces in parallel planes, of a pair of friction-rollers engaged between the same and in mutual peripheral engagement, means for driving either of said rollers thereby imparting rotation to the other and to said friction-disks and means acting to shift said rollers simultaneously radially of said disks thereby varying the speed of rotation of the disks and threaded means acting to vary the pressure of said disks on said rollers.

12. In a device of the class described the combination with a shaft, of friction-disks journaled thereon and having the adjacent faces thereof parallel, a pair of friction-rollers in mutual peripheral engagement and in frictional engagement with and between said friction-disks, right and left screw-threads on the ends of said shaft, nuts adapted to engage thereon and held from rotation whereby a partial revolution of said shaft acts to move said friction-disks out of and into engagement with said rollers.

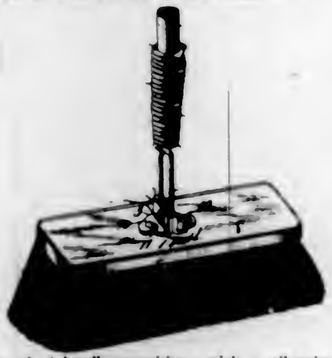
13. The combination with a shaft having right and left threaded ends, of complementally-threaded nuts engaged thereon, hangers in which said nuts non-rotatively engage, friction-disks on said shaft having elongated hubs, an antifriction-bearing between said nuts and the end of each hub and a lever engaged on said shaft and acting by partial revolution thereof to move said friction-disks oppositely.

14. The combination with a shaft having right and left threaded ends, of complementally-threaded nuts engaged thereon, hangers in which said nuts non-rotatively engage, friction-disks on said shaft having elongated hubs, a sprocket-wheel on each hub, an antifriction-bearing between said nuts and the end of each hub and a lever engaged on said shaft and acting by partial revolution thereof to move said friction-disks oppositely.

15. The combination with a shaft having right and left threaded ends, of complementally-threaded nuts engaged thereon, hangers in which said nuts non-rotatively engage, friction-disks on said shaft having elongated hubs and chambered or cored to provide an internal lubricant-receptacle, an antifriction-bearing between said nuts and the ends of each hub and a lever engaged on said shaft and acting by partial revolution thereof to move said friction-disks oppositely.

16. The combination with a shaft having right and left threaded ends, of a complementally-threaded nut on each end, hangers in which said nuts non-rotatively engage, friction-disks journaled on said shaft, an elongated hub on each, antifriction-bearings between the ends of said hub and said nuts, a lever adjustably engaged to said shaft intermediate the hubs and acting to partially rotate the shaft and to move said friction-disks oppositely and one or more friction-rollers engaged between said disks either of said elements acting to rotate the other.

749,869. HANDLE. WILLIAM N. LEWIS, Abingdon, Ill. Filed Sept. 3, 1903. Serial No. 171,761. (No model.)



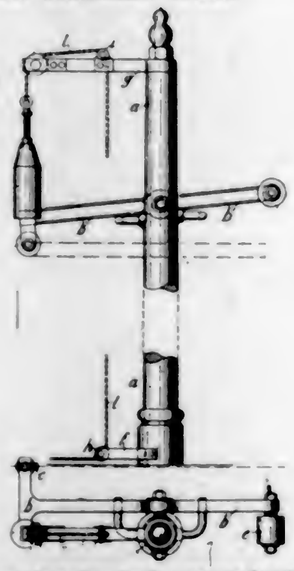
Claim.—1. A handle comprising a stick, a coil-spring member attached to said stick and formed with a loop, and attaching means secured to said loop, substantially as described

2. A handle comprising a stick, a spiral-spring member having a tubular socket adapted to be engaged by said stick and a loop, and attaching-brackets secured to said loop, substantially as described.

3. A handle comprising a stick having a screw-threaded end, a spring member having a tubular spirally-wound portion forming a screw-threaded socket to receive said screw-threaded end of the stick and an integral loop upon the end of said tubular socket portion, and attaching angle-brackets clamped to said loop, substantially as described.

4. The combination with a brush, of a spring-handle comprising a stick, a spiral-spring member attached to said stick and formed with a loop, a pair of angle-brackets adapted to clamp the loop between them and formed with ribs or flanges to engage said loop to prevent twisting or turning of the same, and means for securing said brackets to said brush, substantially as described.

749,870. SIGNAL. JOHANNES J. LUTTER, Batavia, Java. Filed Aug. 2, 1902. Serial No. 118,156. (No model.)



Claim.—1. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, and means for indicating the condition of the line according to the extent of movement given to the contact-lever by the auxiliary signal, substantially as described.

2. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide positively connected to said contact-lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, and capable of being held in any position into which it is uplifted by the slide aforesaid, and an aperture in said cabin in the line of the apertures in the loose indicating-slide, substantially as described.

3. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, means for indicating the condition of the line according to the extent of movement given to the contact-lever by the transmitter, and means for causing said contact-lever to assume its original position after passing the transmitter, substantially as described.

4. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide positively connected to said contact-lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, and capable of being held in any position into which it is uplifted by the slide aforesaid, and an aperture in said cabin in the line of the apertures in the loose indicating-slide, and means for causing said contact-lever to assume its original position after passing the transmitter, substantially as described.

5. In auxiliary signaling apparatus for railways in combination a transmitter provided near the rail-track and operated by the main signal, an indicator fitted within the locomotive-cabin, said indicator consisting of a contact-lever directly operated by the transmitter, a slide connected to said lever, a loose indicating-slide moved by said slide, said loose indicating-slide having apertures carrying different-colored glass, said slide having lateral springs engaging on guides by which it may be retained in any position in which it is uplifted, substantially as described.

6. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a lever piroted to said pillar, a weight carried by said lever, said weight being uplifted for signaling, an indicator fitted in the locomotive-cabin, said indicator consisting of a directly-operated contact-lever capable of being depressed by the lever of the transmitter, and means connected to said indicator-lever for indicating the position of the transmitter-lever and the condition of the line according to the movement given to the indicator contact-lever, substantially as hereinbefore described.

7. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a double-armed lever pivoted to said pillar, a weight carried by one arm of said lever, said weight being uplifted for signaling, and a counterweight carried by the other arm of said lever, an indicator fitted in the locomotive-cabin, said indicator consisting of a lever capable of being depressed by the lever of the auxiliary signal, and means connected to said indicator-lever for indicating the position of the lever of the transmitter and the condition of the line according to the movement given by the lever of the transmitter to the lever of the indicator, substantially as hereinbefore described.

8. In auxiliary signaling apparatus for railways in combination, a transmitter provided near the rail-track, said transmitter consisting of a pillar, a double-armed lever pivoted to said pillar, a weight carried by one arm of said lever, said weight being uplifted for signaling, a pulley carried by the same arm of said lever, and a counterweight carried by the other arm of said lever, an indicator fitted in the locomotive-cabin, said indicator consisting of a lever, said lever being provided with a rail capable of being depressed by the pulley provided on the auxiliary signal-lever, and means connected to said indicator-lever for indicating the position of the lever of the transmitter and the condition of the line according to the movement given by the auxiliary signal-lever to the indicator-lever, substantially as hereinbefore described.

9. In auxiliary signaling apparatus for railways in combination a transmitter provided near the rail-track, said transmitter consisting of a pillar, a lever pivoted to said pillar, a weight carried by said lever, a fixed arm carried by said pillar above said lever, said fixed arm carrying pulleys, a cord for carrying said weight passing over said pulleys and connected to the main signal, and an indicator fitted in the locomotive-cabin, said indicator consisting of a lever capable of being depressed by the lever of the auxiliary signal, and means connected to said indicator-lever for indicating the position of the transmitter-lever and the condition of the line according to the movement given to the indicator-lever, substantially as hereinbefore described.

749,871. EXTENSIBLE TROUGH OR FLUME. PATRICK MAGINNIS, Kimball, Nebr. Filed June 9, 1903. Serial No. 160,744. (No model.)



Claim.—1. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members conforming to the configuration of the sections, the exteriorly-arranged member being provided in its inner face with a groove or channel, and the interiorly-arranged member conforming to the configuration of the groove or channel and adapted to depress the overlapped sections into the same, said interiorly-arranged member being received within the depressed portions of the sections and having its upper or outer face flush with the latter to provide a smooth interior surface for the sections, and means for adjustably connecting the members, substantially as described.

2. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members conforming to the configuration of the sections, the outer member being provided with a channel or groove, and the inner member being adapted to depress the overlapped ends of the sections into the groove or channel and fitting in the depressed portions and having its upper or outer face flush with the adjacent faces of the sections to provide a smooth inner surface for the same, substantially as described.

3. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members, the outer clamping member being provided with a groove or channel, and the inner clamping member being adapted to depress the overlapped ends into the groove or channel and being seated in such depressed portions with its outer face substantially flush with the adjacent faces of the sections to provide a smooth inner surface, substantially as described.

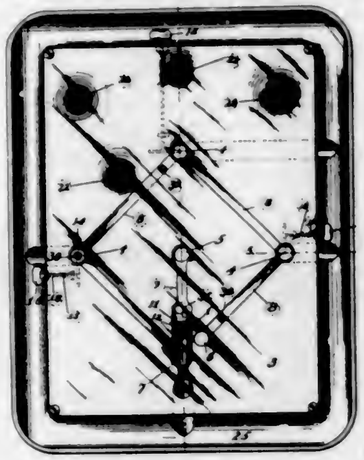
4. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members having their terminals extended outwardly and forming arms, the inner member being seated in a depression of the sections, and the outer member being provided with a groove or channel to receive the depressed portions of the sections, and adjusting devices connecting the arms, substantially as described.

5. In a device of the class described, the combination with two sections having overlapped ends provided with a depression, of inner and outer members, the outer member receiving the depressed portions of the sections and the inner member fitting in the said depression with its outer face substantially flush with the inner surfaces of the sections, substantially as described.

6. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members, the outer member being provided in its inner face with a channel or groove, and the inner member being adapted to depress the overlapped ends into the groove or channel and having its outer face substantially flush with the inner faces of the sections to provide a smooth continuous inner surface, and a supporting-bar adjustably connected with the members and extended beyond the sections, substantially as and for the purpose described.

7. In a device of the class described, the combination with two sections having overlapped ends, of inner and outer clamping members, the outer member being provided with a groove or channel, and the inner member being adapted to depress the sections into the said groove or channel, a supporting-bar extended beyond the sections, and adjustable fastening devices connecting the members and securing the same to the supporting-bar, substantially as described.

749,872. GAME APPARATUS. JOSEPH S. MATHER, St. Louis, Mo. Filed June 24, 1902. Serial No. 112,966. (No model.)



Claim.—1. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having bases, a cover having holes located above the bases, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, substantially as described.

2. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, substantially as described.

3. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, said bases being eccentrically mounted on rotatable spindles, substantially as and for the purpose set forth.

4. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, said bases being eccentrically mounted on rotatable spindles and a spring for retracting each spindle substantially as and for the purpose set forth.

5. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, said bases being mounted on longitudinally-movable spindles, substantially as described.

6. A game apparatus comprising a raised bottom having holes arranged in depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base and a bat arranged for manipulation and means whereby a ball may be moved to the bat, said bases being mounted on longitudinally-movable spindles and a spring for retracting each spindle, substantially as described.

7. A game apparatus comprising a raised bottom having holes arranged in depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, said bases being mounted on spindles and each spindle being movable longitudinally and rotatably, substantially as described.

8. A game apparatus comprising a raised bottom having holes arranged in depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond and also extending from the pitcher's box to the home base, bases at the corners of said diamond, a cover having holes above said bases and near the home base and above the pitcher's box, and a bat arranged for manipulation, said bases being mounted on spindles and each spindle being movable rotatably and longitudinally and a coiled spring fastened to said spindle and to the spindle-support respectively, substantially as described.

9. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, and a bottom board having an inclined upper surface, substantially as described.

10. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby the ball may be moved to the bat, and a bottom board having different portions of its surface inclined toward its edges at different angles, substantially as described.

11. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, and a bottom board having different portions of its surface inclined toward its edges at different angles and some of such inclined portions having obstacles thereon, substantially as described.

12. A game apparatus comprising a raised bottom having holes arranged in inclined depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, and a bottom board having grooves inclining downwardly from beneath said base-holes toward its edge, substantially as described.

13. A game apparatus comprising a raised bottom having holes arranged in depressions in its upper surface and having downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and near the home base, and a bat arranged for manipulation and means whereby a ball may be moved to the bat, and a bottom board having a groove around its border and having grooves inclining downwardly from beneath said base-holes, toward its edge, substantially as described.

14. A game apparatus comprising a raised bottom having holes arranged in depressions in its upper surface and having a downwardly-inclined groove extending from the pitcher's box to the bat and downwardly-inclined grooves arranged in the form of a diamond, bases at the corners of said diamond, a cover having holes above said bases and above the pitcher's box and near the home base, and a bat arranged for manipulation, and a bottom board having a groove around its border and having grooves inclining downwardly from beneath said base-holes toward its border groove, substantially as described.

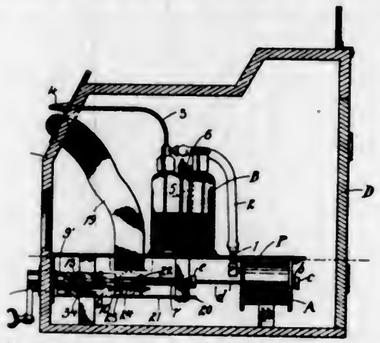
15. A game apparatus comprising a bottom board having its surface inclined, a false bottom arranged above said bottom board and having holes therein and having its surface inclined toward said holes respectively and having also inclined grooves in its upper surface arranged in the form of a diamond, a cover having holes arranged above the upper ends of said grooves, and a bat arranged for manipulation and means for moving the ball to the bat, substantially as described.

749,873. MEAT CUTTER OR CHOPPER. PATRICK F. MEHER, Boston, Mass. Filed Nov. 4, 1901. Serial No. 81,056. (No model.)

Claim.—A meat and vegetable cutter comprising a stem, recesses formed in the lower end on opposite sides, cutting-blades formed in one piece and each comprising vertical wings at right angles to each other, one wing of each of said blades seated in a recess, and extending to the lower end of the stem and said blades being located in different vertical planes and the vertical surfaces being flush with the vertical surfaces of the stem, bolts passing through two parallel wings of the cutting-blades and through the stem, and braces connecting the other wings with the stem, substantially as described.



749,874. COIN-CONTROLLED ATOMIZER. WILLIAM C. MEYER, St. Louis, Mo. Filed Oct. 3, 1903. Serial No. 175,885. (No model.)



Claim.—1. In a coin-controlled atomizer, a suitable force-pump, suitable actuating or driving screw mechanism, and intermediate devices interposed between said mechanism and pump for intercepting a coin introduced into the machine and effecting connection between the pump and said actuating mechanism, substantially as set forth.

2. In a coin-controlled atomizer, a suitable force-pump, an actuating or driving screw mechanism and devices interposed between said screw and the piston of said pump for intercepting a coin introduced into the machine and effecting a positive but movable connection between said screw and piston, substantially as set forth.

3. In a coin-controlled atomizer, a suitable force-pump, a piston and piston-rod therefor, a rotatable screw adapted to be operated from the inside of the machine, a suitable head mounted on the screw and connected to the piston of the pump, and means interposed between the screw and piston for intercepting a coin introduced into the machine, and, upon rotation of the screw, effecting positive engagement between the screw and head, whereby the latter upon rotation of the screw, is advanced in one direction, and the pump operated in one direction, substantially as set forth.

4. In a coin-controlled atomizer, a force-pump, a piston and piston-rod therefor, an actuating-screw, a head movable along said screw, suitable connections for coupling said head to the piston of the pump, suitable devices carried by the head for engaging the threads of the screw, and mechanism under the control of the operator for forcing said devices into such engagement with the rotation of the screw upon the introduction of a coin into the machine, substantially as set forth.

5. In a coin-controlled atomizer, an actuating-screw, a movable head loosely passed over the same, gripping-leaves pivoted to the head and having screw-threaded jaws fitting the threads of the screw, a pair of toggle-links pivoted to the ends of the adjacent arms of said leaves, a plunger-rod coupled to the head in the path of the hinge-axis of said links and having a slight play relatively to said head, the plunger-rod having a coin-slot disposed therein in a plane at right angles to the plane of oscillation of the links, and suitable devices controlled by the screw for forcing the coin lodged in said slot, against the hinge of the links, whereby the gripping-levers are rocked in a direction to effect operative engagement between the screw-threads and the jaws aforesaid, and whereby upon rotation of the screw the jaws and head are advanced along the same in one direction, substantially as set forth.

6. In a coin-controlled atomizer, an actuating-screw, a movable head loosely passed over the same, gripping-leaves pivoted to the head and having screw-threaded jaws fitting the threads of the screw, springs connecting the head to the stationary part of the machine, a pair of toggle-links pivoted to the ends of the adjacent arms of the levers, a plunger-rod coupled to the head through the medium of the links and disposed in the path of the hinge-axis of said links, and having a slight play relatively to said head, the plunger-rod having a coin-slot for receiving a coin in a position at right angles to the plane of oscillation of the links, and suitable devices for forcing the coin lodged in said slot, against the hinge of the links thereby unfolding the links and forcing the jaws into engagement with the threads of the screw, the jaws being released from their engaging position by the tension of the springs the instant their threaded faces have passed off the threads of the screw, the parts operating substantially as, and for the purpose set forth.

7. In a coin-controlled atomizer, an actuating-screw, a head loosely passed over the same, a plunger-rod coupled to the head and having a slot for the reception of the coin, a sliding abutment or wall operating on the plunger-rod, a spring-controlled rod coupled at one end to said abutment, a bent lever pivoted to the head and having one arm pivotally connected to the opposite or front end of the rod, a crank-handle for said screw, and devices interposed between said handle and lever for tripping the lever in one direction and drawing on the rod and abutment and thereby forcing the latter against the coin interposed between the abutment and head, substantially as set forth.

8. In a coin-controlled atomizer, a rotatable screw having a smooth outer portion, means for turning the screw from the outside of the machine, a suitable bearing for the smooth portion of, said screw, a push-block moving longitudinally in said bearing, and having an outer beveled end, a radially-disposed pin on the screw adapted to force itself against the incline of said beveled end of the push-block, and force the block inwardly, a spring for forcing the block in the opposite direction, a traveling head on the screw, and suitable mechaniam actuated by the inward movement of the push-block for forcing the coin introduced into the machine, toward, or against the head, substantially as set forth.

9. In a coin-controlled atomizer, an actuating-screw, a head adapted to travel along the same, a plunger-rod coupled to the head, a pump in connection with the plunger-rod, jaws mounted on the head, a coin-chute, a slot formed in the plunger-rod for receiving the coin from the chute, suitable mechanism adapted to be brought into mechanical connection with the coin while occupying its position in the slot, for forcing the jaws into engagement with the screw upon an initial rotation of the screw, and advancing the head along the screw and releasing the coin upon subsequent and further rotation of the screw, substantially as set forth.

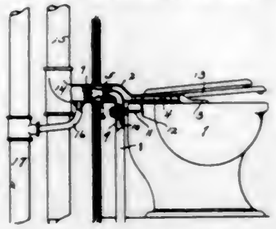
10. In a coin-controlled atomizer, an actuating-screw, a traveling head mounted on the same, a plunger-rod coupled to the head and to a suitable pump, screw-threaded jaws pivotally carried by the head and adapted to be positively forced into engagement with the screw upon introduction of a coin into the machine, and a subsequent initial rotation of the screw, the head being advanced along the screw upon further rotation, whereby the pump is operated in one direction, substantially as set forth.

11. In a coin-controlled atomizer, an actuating-screw, a traveling head mounted on the same, a plunger-rod coupled to the head and to a suitable pump, screw-threaded jaws movably mounted on the head and adapted to be pivotally forced into engagement with the screw upon introduction of a coin into the machine and upon a subsequent initial rotation of the screw, the head being upon further rotation of the screw advanced along the latter whereby the pump-piston is operated in one direction, and means for automatically releasing the jaws from the screw at the end of the advance of the head aforesaid, and drawing the head back to its original position, thereby actuating the pump-piston in the reverse direction, substantially as set forth.

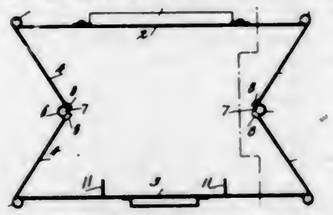
749,875. VENTILATOR FOR WATER-CLOSETS. CHARLES H. MUCKENHIRN, Detroit, Mich., assignor to John S. Tyler, Buffalo, N. Y. Filed July 24, 1902. Serial No. 116,770. (No model.)

Claim.—An attachment to be used with closet-bowls, comprising a casing provided with a flat open mouth adapted to be inserted between the edge of the bowl and the seat thereof, and to

extend into the bowl under the seat; a tubular extension therefrom, an eduction-thimble concentrically located into tubular extension, the said eduction-thimble having expanded ends and a constricted middle part, and having the periphery of the ends notched to provide air-passages additional to that through the constricted middle part, a water-jet nozzle arranged to deliver a jet of water through the constricted middle part of the thimble, and means for conveying away the spray-water, substantially as described.



749,876. CLOSURE FOR MAIL-POUCHES. JOHN L. McCORMICK, Emden, Ill. Filed Aug. 27, 1903. Serial No. 170,917. (No model.)



Claim.—1. A closure for mail-bags, comprising a pair of main plates, and two pairs of hinged end plates, each pair of end plates having their free ends pivoted to the ends of the main plates at right angles thereto and adapted to fold inwardly in the same longitudinal direction of said main plates and beneath the same.

2. A closure for mail-bags, comprising a pair of oppositely-disposed main plates, and two pairs of end plates hinged together, their free ends pivoted to matching ends of the oppositely-disposed main plates, the pivotal connections between the said end and main plates being at points removed from the outer faces of the said main plates, and the end plates lying beneath the main plates to permit the same to fold in planes parallel with the main plates and thereby bring the matching faces of the main plates contiguous.

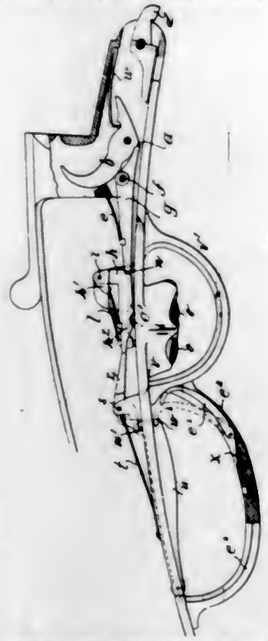
3. A closure for mail-bags, comprising oppositely-disposed main plates, hinged end plates having their free ends pivoted to the ends of the main plates at right angles thereto and adapted to fold inwardly in planes parallel with the main plates and beneath the same, and means on the main plates for holding the end plates in a relatively fixed position when the main plates are contiguous.

4. A closure for mail-bags, comprising a pair of oppositely-disposed main plates, and two pairs of end plates hinged together, their free ends pivoted to matching ends of the oppositely-disposed main plates, the pivotal connections between the said end and main plates being at points removed from the outer faces of the main plates and the end plates lying beneath the main plates to permit the same to fold in planes parallel with the main plates and thereby bring the matching faces of the main plates contiguous, and depending lugs from the bodies of the main plates with which the bodies of the end plates abut, as and for the purposes set forth.

5. A closure for mail-bags, comprising oppositely-disposed main plates, hinged end plates having their free ends pivoted to the ends of the main plates at right angles thereto and adapted to fold inwardly in planes parallel with the main plates and beneath the same, means on the main plates for holding the end plates in a relatively fixed position when the main plates are contiguous, and locking members of said main plates arranged in manner described and for the purposes set forth.

749,877. SMALL-ARMS. FRANZ NEUBER, Wiener-Neustadt, and JOSEPH TAUSSIG, Vienna, Austria-Hungary, assignors of one-third to Carl Colbert, Vienna, Austria-Hungary. Filed Nov. 22, 1900. Serial No. 37,364. (No model.)

Claim.—1. In a hand-firearm, a sear composed of two interlocking movable parts, a trigger adapted to move the rearward part out of engagement with the forward part, a spring-actuated hammer or tumbler adapted to be engaged by the forward end of the forward part of the sear and provided with a cam-face acting on said forward end to move it out of engagement with said hammer when said forward part is disengaged from the rearward part and a spring maintaining the hammer or tumbler and forward part of the sear in contact with each other, for the purpose set forth.



2. In a hand-firearm, a sear composed of two interlocking movable parts, a trigger adapted to move the rearward part out of engagement with the forward part, a spring-actuated hammer or tumbler adapted to be engaged by the forward end of the forward part of the sear and provided with a cam-face acting on said forward end to move it out of engagement with said hammer when said forward part is disengaged from the rearward part and a spring maintaining the hammer or tumbler and forward part of the sear in contact with each other, in combination with a safety locking device adapted to lock the rearward part of the sear against disengagement from the forward part and means for operating said locking device, for the purpose set forth.

3. In a hand-firearm, a sear composed of two substantially bar-shaped interlocking movable parts, a trigger adapted to move the rearward part out of engagement with the forward part, a spring-actuated hammer or tumbler adapted to be engaged by the forward end of the forward part of the sear and provided with a cam-face acting on said forward end to move it out of engagement with said hammer when said forward part is disengaged from the rearward part and a spring maintaining the hammer or tumbler and forward part of the sear in contact with each other, for the purposes set forth.

4. In a hand-firearm, a sear composed of two substantially alined and bar-shaped interlocking movable parts, a trigger adapted to move the rearward part out of engagement with the forward part, a spring-actuated hammer or tumbler adapted to be engaged by the forward end of the forward part of the sear and provided with a cam-face acting on said forward end to move it out of engagement with said hammer when said forward part is disengaged from the rearward part and a spring maintaining the hammer or tumbler and forward part of the sear in contact with each other, for the purpose set forth.

5. In a hand-firearm, a sear composed of two interlocking movable parts, a trigger adapted to move the rearward part out of engagement with the forward part, a spring-actuated hammer or tumbler provided with a cam-face terminating in an abrupt shoulder, the latter adapted to be engaged by the forward end of the forward part of the sear and said cam-face adapted to act on said forward end of the sear to disengage it from the aforesaid shoulder when the forward part of the sear is disengaged from the rearward part and a spring maintaining sear and hammer or tumbler in contact with each other, for the purpose set forth.

6. In a hand-firearm, a sear composed of two substantially bar-shaped abutting movable parts the forward end of the rear part of the sear provided with a lock-notch for the rear end of the forward part, a trigger adapted to move the rearward part out of engagement with the rear end of the forward part, a spring-actuated hammer or tumbler provided with a cam-face terminating in an abrupt shoulder adapted to be engaged by the forward end of the forward part of the sear, and said cam-face acting on said forward end to disengage it from the aforesaid shoulder when the forward part of the sear is disengaged from the rearward part, and a spring maintaining contact between the hammer or tumbler and said forward end of the sear, for the purposes set forth.

7. In a hand-firearm, a sear composed of two substantially bar-shaped and abutting parts, the forward end of the rearward part adapted to engage the rear end of the forward; in combination with a movable straight arm, means moving its outer end into engagement with the rear end of the rearward part of the sear and means moving said arm out of engagement therewith, for the purposes set forth.

8. The combination with the tumbler or hammer of a hand-firearm provided with a sear-notch; of a bar-shaped two-armed pivoted sear, a like-shaped trigger-controlled locking device in alinement with the sear, and an angular safety-lever arranged with one of its arms in alinement with the locking device, one arm of the sear engaging the aforesaid notch, one end of the bar-shaped locking device engaging the end of the other arm of said sear, and the arm of the safety-lever abutting against the rear end of the locking device when the hammer is at full-cock, a spring for each of said elements acting to maintain them in the relative positions described, and means adapted to be operated by pressure of the hand in grasping the gun-stock for disengaging the safety-lever from the locking device, for the purpose set forth.

9. The combination with the tumbler or hammer of a hand-firearm provided with a sear-notch; of a two-armed pivoted sear, one of the arms of which engages said notch when the hammer is at full-cock, a longitudinally-slidable and trigger-retracted locking-bar engaging the other arm of the sear when said hammer is at full-cock, and springs acting on the sear and locking-bar to maintain them in the relative positions set forth, for the purposes specified.

10. The combination with the tumbler or hammer of a hand-firearm provided with a sear-notch; of a two-armed pivoted sear, one of the arms of which engages said notch, a longitudinally-slidable and trigger-retracted locking-bar engaging the end of the other arm of the sear, and an angular safety-lever whose horizontal arm abuts against the rear end of said locking-bar when the hammer is at full-cock, springs acting on the sear-locking bar and safety-lever to maintain them in the relative positions set forth, and means acting on the vertical arm of the safety-lever by pressure thereon of the hand in grasping the gun-stock to release the locking-lever, for the purposes specified.

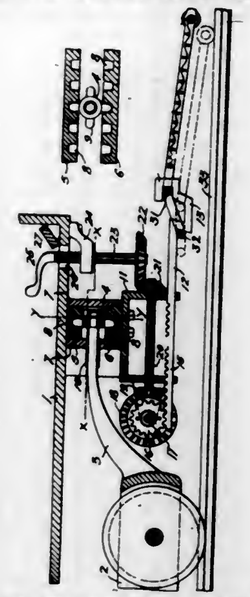
11. A gun-lock comprising a hammer, or tumbler and hammer, a sear, a trigger-operated locking device and a safety-lever, said parts arranged in substantially the same horizontal plane in the order named, engaging one another when the hammer is at full-cock and preventing the release of the tumbler or hammer through the trigger, and means for disengaging the safety-lever from the locking device, for the purpose set forth.

12. The combination with the sear, its trigger-operated locking device and a safety-lever adapted to engage and lock said locking device; of the lever *u* connected to and actuating said safety-lever and means locking lever *u* against motion, for the purpose set forth.

13. The combination with the sear, its trigger-operated locking-bar, and a safety-lever adapted to engage and lock said bar; of the lever *u*, a guard for said lever and a spring-controlled locking device pivoted to said guard and adapted to engage the forward end of the lever *u*, for the purpose set forth.

14. The combination with the gun-stock, the guard $e^{\times}$, the lever *u* and the mechanism locked thereby; of a locking-latch pivotally connected with said guard and having its free ends recurved and adapted to engage a recess or recesses in said lever, said latch having flat faces *c'*, *c'*, formed at its heel, and a spring secured to said guard and having bearing on one or the other of said faces according as the latch is moved into or out of engagement with said lever, for the purpose set forth.

749,878. FENDER. GEORGE PARSONS and JOSEPH H. GIDDINGS, Fall River, Mass., assignors of one-third to Oscar Bousquet, Fall River, Mass. Filed Sept. 5, 1903. Serial No. 172,092. (No model.)



Claim.—1. In a mechanism of the class described, the combination with the floor of a car of a truck, an arm upon the truck, a gear upon the arm, a guide-frame mounted beneath the floor and laterally impelled by the arm, a sliding plate upon the guide-frame and meshing with the gear, a supporting-frame mounted in the guide-frame, and a fender mounted in the supporting-frame.

2. In a mechanism of the class described, the combination with the floor of a car of a truck, an arm upon the truck, a laterally-slidable plate mounted beneath the floor, means upon the arm for actuating the slidable plate, a frame fixed to the slidable plate, a fender, and means connecting the frame and fender for supporting said fender.

3. In a mechanism of the class described, the combination with the fender of supports engaging the fender, a truck, an arm upon the truck, and means upon the arm for changing the direction of the supports.

4. In a mechanism of the class described, the combination with a car-floor of supports depending from the floor, a guide-frame suspended by the supports, a supporting-frame slidably mounted in the guide-frame, rack-teeth in the guide-frame, a pinion meshing with the rack-teeth, a rotatable shaft supported from the car-floor, a gear upon said shaft, and gearing intermediate and connecting said gear and pinion.

5. In a mechanism of the class described, the combination with a fender-frame of a roller mounted upon the forward portion of the frame, wheels upon the extremities of the rollers, a supporting-frame and means upon the rear of said fender-frame for engaging the supporting-frame.

6. In a mechanism of the class described, the combination with a supporting-frame of a fender-frame and transverse bars in the fender-frame frictionally engaging the supporting-frame.

7. In a mechanism of the class described, the combination with a supporting-frame of hooks upon the forward extremity of said frame, sockets in the frame adjacent and below the hooks, a fender, a bar in the fender resting in said hooks, and a second bar in the fender contacting the lower surface of the supporting-frame.

749,879. BUCKLE. HENRY L. PERRYMAN, Springfield, Ohio. Filed Aug. 7, 1902. Serial No. 118,712. (No model.)

Claim.—1. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body, so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis

and having a clearance-space between them, the engaging edge nearest said axis forming a locking device to hold the tongue in engaging position, and the engaging edge farthest from the pivotal axis serving to grip the belt or strap against the bearing-surface, substantially as described.

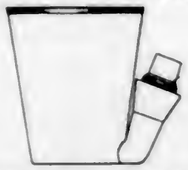


2. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body, so as to swing across said bearing-surface, the pivotal axis of the tongue lying between its engaging and free portions, its free portion having the attached end of the belt or strap connected thereto, the other or engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis and having a clearance-space between them, the engaging edge nearest said axis forming a locking device to hold the tongue in engaging position, and the engaging edge farthest from the pivotal axis serving to grip the belt or strap against the bearing-surface, substantially as described.

3. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body, so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis and having a clearance-space between them, the engaging edge nearest said axis being adapted to pass the shortest line between the bearing-surface and pivotal axis by compressing the free end of the belt or strap against said bearing-surface, so as to act as a locking device, the engaging edge farthest from the pivotal axis being at such a distance therefrom as to prevent its passing said line when the free end of the belt or strap is in position in the buckle, whereby said second engaging edge is adapted to grip said free end between it and the bearing-surface, substantially as described.

4. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body, so as to swing across said bearing-surface, the pivotal axis of the tongue lying between its engaging and free portions, the free portion of the tongue having the attached end of the belt or strap connected thereto, the other or engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis and having a clearance-space between them, the engaging edge nearest said axis being adapted to pass the shortest line between the bearing-surface and pivotal axis by compressing the free end of the belt or strap against said bearing-surface, so as to act as a locking device, the engaging edge farthest from the pivotal axis being at such a distance therefrom as to prevent its passing said line when the free end of the belt or strap is in position in the buckle, whereby said second engaging edge is adapted to grip said free end between it and the bearing-surface, substantially as described.

749,880. FLUID-STRAINER. IRVING W. PULLMAN, Bristol, Vt. Filed Mar. 26, 1901. Serial No. 52,910. (No model.)



Claim.—1. In combination in a sectional strainer, an inlet-section having an enlarged end, a tubular section located as to a part of its length within the inlet-section and forming with said inlet-section an annular strainer-chamber, and strainers arranged in the side walls and the end wall of the part projecting within the inlet-section.

2. In combination in a vessel, a strainer-tube secured at an opening into the lower part of the vessel and made up of two or more partible sections comprising an inlet-section and a strainer-section secured to and projecting within the inlet-section whereby an annular chamber is formed about the strainer-section, and strainers located in the side and end walls of the strainer-section.

749,881. THUMB-SUPPORT AND ROOT-BRACE FOR ENAMEL-CLEAVERS. FINIS E. KOACH, Chicago, Ill. Filed Nov. 24, 1902. Serial No. 132,846. (No model.)

Claim.—1. A dentist's thumb-support and root-brace comprising a thimble adapted to be worn upon the thumb and a point on the outer end thereof adapted to engage the root to be operated upon.



2. A device of the class described comprising a thimble, a curved point carried thereon, shaped to engage a tooth or root and a part on said thimble shaped to afford a guide for the tool.

3. A device of the class described comprising a thimble, means thereon for adjusting the same to a desired size and a point at the outer end thereof adapted to engage in the canal of a root or the like.

4. A device of the class described comprising a thimble adjustable as to size, a point at the outer end thereof adapted to engage in the canal of a root or the like, and a guide against which the operating-tool engages when in use.

5. A device of the class described comprising a thimble adjustable as to size, a shoulder thereon against which the tool when in use engages, and a sharp curved point at the outer end of the thimble adapted to engage the part to be operated upon and to hold the same against the action of the enamel-cleaver or the like.

6. A device of the class described comprising an open-work thimble, means admitting adjustment thereof as to size, an integral shoulder against which the tool when in use engages, and a sharp curved point at the outer end of the thimble adapted to engage the part to be operated upon and to hold the same against the action of the enamel-cleaver or the like.

7. A dentist's thumb-support and root-brace comprising a thimble adapted to be worn upon the thumb and a rotative point on the outer end thereof adapted to engage the root to be operated upon.

8. A dentist's thumb-guard and root-brace comprising a thimble adapted to be worn upon the thumb, means admitting of adjustment thereof as to size and a curved rotative point on the outer end thereof adapted to engage the root to be operated upon.

9. A device of the class described constructed from a blank a part of which comprises a thimble and a part of which comprises a socket opening therefrom, and removable spurs of varying sizes adapted to engage in said socket, some of said spurs having curved points.

10. A device of the class described comprising a thimble adjustable as to size and a rotatable curved point at the outer end thereof adapted to engage in the canal of a root or the like.

11. A thimble adapted to be adjusted upon the thumb, means for adjusting the same for different sizes and shapes of thumbs, a cylindric socket at the outer end of the thimble and rotatable partly-curved spurs of varying lengths adapted to be adjusted in the socket.

12. A thimble for the purpose specified comprising a resilient band adapted to engage around the thumb, integral straps of metal pivotally engaged thereon and extending downwardly on each side of the thumb, plates adapted to engage above and below the thumb and integral with said straps and a pointed spur secured at the junction of said plate and straps and extending outwardly therefrom.

13. A device for the purpose specified comprising a resilient split ring adapted to engage about the thumb near the first joint thereof, straps pivotally connected thereon and adapted to engage along the sides of the thumb when the device is in use, an elongated flat plate in position to engage below the thumb, a shorter plate to engage above the thumb, a sleeve extending outwardly from the open thimble thus formed and a pointed spur rotatively engaged therein having an outwardly-curved point.

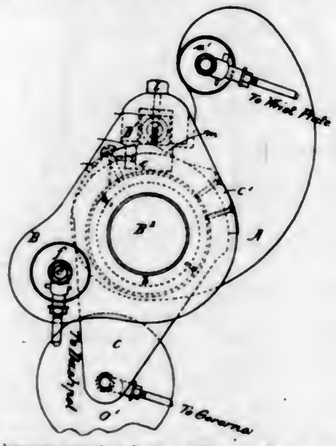
14. A skeleton-shaped thimble adjustable as to size and shape and adapted to be engaged upon the thumb and to extend to near the first joint thereof, an outwardly-opening socket at the extremity of the thimble and a spur rotatively engaged in the socket.

15. A thimble adapted to engage on the thumb of the operating-hand and a part thereon acting to engage and hold the tooth or root against the action of the tool.

16. A thimble for the purpose specified adapted to be worn on the thumb of the operating-hand and rotative means thereon acting to engage the tooth or root against the action of the tool.

749,882. RELEASING VALVE-GEAR FOR CORLISS ENGINES. CHARLES H. ROBINSON, Huntsville, Tex. Filed July 14, 1903. Serial No. 165,494. (No model.)

Claim.—1. An improvement in releasing valve-gears for steam-engines of the Corliss type, a combination, with a suitable steam-bracket, consisting of a loose arm, having a center hub, two side hubs or bosses, bored out centrally to the horizontal axis, means to receive any suitable steam-bracket and valve-stem, a bore in the upper part of said center hub, means to receive a wrist-plate pin, an aperture running through the depth of said loose arm, a steel plate attached on one side of said aperture; a stiff arm, having an outer hub, bored out centrally to the horizontal axis, means to receive a valve-stem, a slotted arm, with a hole centrally located in the top part of said arm, extending rectangularly, a square center block, turned on both ends, forming axles, said axles to receive two steel rollers, a threaded hole in top part of said center block, corresponding with the centrally-located hole in the top part of the slotted arm; a cap-screw; the center block and the rollers, constituting one part, are embedded in the slot of said slotted arm, and fitting loosely in said slot, therefore enabling through an easy vertical motion to operate the releasing-gear by gravity; a bore in the lower end of the said stiff arm, means to receive a pin for the dash-pot rod, substantially as described.



2. An improvement in releasing valve-gears for steam-engines of the Corliss type, a combination, with a suitable steam-bracket, consisting of a loose arm having a center hub, two side hubs or bosses bored out centrally to the horizontal axis, a bore in the upper part of the center hub, an aperture, running to the depth of the said loose arm, means to arrest the center block, in its gravitating motion in the space between the arm-slot of the stiff arm and the aperture of the said loose arm, a steel plate attached on one side of said aperture; a stiff arm, having an outer hub bored out centrally to the horizontal axis, a slotted arm, with a hole centrally located in the top part of said arm, extending rectangularly, a square center block, turned on both ends forming axles, said axles, receive two steel rollers, a threaded hole in the top part of said center block, corresponding with the centrally-located hole in the top part of the slotted arm, to receive a cap-screw, a bore in the lower end of the stiff arm: a right and left trip-arm, bored out centrally to the horizontal axis, means to receive the retaining-collars in addition to any suitable steam-bracket and valve-stem; both trip-arms having stationary trip-steels, movable safety-toes, placed on the upper concentric part of said trip-arms; a weight; a connecting-bolt, threaded on both ends; a bore in the lower part of said trip-arms, means to receive said connecting-bolt with said weight, which latter is placed between the right and left trip-steel; the connecting-bolt forming at the same time on one of its threaded ends a pin for the governor side rod, substantially as described before.

749,883. MUFFLER FOR HYDROCARBON-ENGINES. EDWIN L. RUSSELL, Cleveland, Ohio, assignor to Russell Motor Vehicle Co., Cleveland, Ohio, a Corporation of Arizona. Filed May 4, 1903. Serial 155,471. (No model.)

Claim.—1. A muffler for hydrocarbon-engines comprising a series of concentric cylinders, heads for said cylinders, an opening through one of said heads to the central cylinder, each cylinder being perforated for the passage of gas from the inner cylinder, and means mounted in the outer cylinder for causing the gas to escape in two series of jets and for causing one series of said jets to meet the other series of jets just as said jets reach the atmosphere, said means consisting of an annulus having an annular groove therein exposed to the atmosphere and a series of apertures in each part of said annulus opposite said groove.



2. A muffler for hydrocarbon-engines comprising a central cylinder for receiving spent gas from an engine, an intermediate cylinder whose volume is of greater capacity than the volume of said central cylinder circumscribing said central cylinder, an outer cylinder whose volume is of greater capacity than the volume of said intermediate cylinder circumscribing said intermediate cylinder, passages from each of said cylinders to the other, and means for dividing the outer cylinder into two parts and causing jets of gas from one part to impinge jets coming from the other part at the moment the gas reaches the atmosphere.

3. A muffler for engines comprising a series of concentric cylinders attached together, a passage from each cylinder to the other, means for dividing the outer cylinder into two parts and permitting one or more series of jets of gas from one of said parts to meet similar jets from the other part just after the jets come in contact with the atmosphere whereby the vibrations caused by the expansion of the gas are destroyed, said means consisting of an annulus having an annular groove therein exposed to the atmosphere and a series of apertures in each part of said annulus opposite said groove.

4. A muffler for engines comprising a series of concentric cylinders connected together, a connection for the central cylinder with an engine, a passage from each cylinder to the other, an annulus for dividing the outer cylinder into two parts, said annulus having an exterior annular groove, one or more series of perforations through said annulus whereby jets of gas will come from each of said parts and meet in said groove.

5. A muffler for engines comprising a series of concentric cylinders connected together, a connection for the central cylinder with an engine, a passage from each cylinder to the other, an annulus for dividing the outer cylinder into two parts, said annulus having an annular exterior groove and having one or more series of perforations through said annulus whereby gas may come from each of said parts and meet in said groove, and an exit-chamber for conveying the spent gas from said groove to one end of said muffler.

6. A muffler for engines comprising a series of concentric cylinders connected together, a connection for the central cylinder to an engine, a passage from each cylinder to the other, said cylinders being adapted to permit some expansion in each succeeding cylinder from the central cylinder to the outer cylinder, and an annulus having an exterior groove dividing the outer cylinder in two parts, said annulus having perforations therethrough whereby one or more series of jets of gas from each of said parts will meet in said groove.

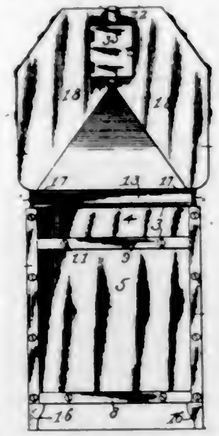
7. A muffler for engines having a series of cylinders concentrically arranged for permitting a series of expansions progressively therein, and means for dividing the outer cylinder in two parts and for permitting one or more jets of gas from one of said parts to meet directly similar jets of gas from the other part just after the gas comes in contact with the atmosphere, said means consisting of an annulus having an annular groove therein exposed to the atmosphere and a series of apertures in each part of said annulus opposite said groove.

8. A muffler for engines having a series of cylinders concentrically arranged for permitting a series of expansions progressively therein, means for dividing the outer cylinder in two parts, and for causing one or more series of jets of gas from one of said parts to meet directly similar jets of gas from the other part, said means consisting of an annulus having an annular groove therein exposed to the atmosphere and a series of apertures in each part of said annulus opposite said groove, and an exit-cylinder for conveying spent gas to one end of said muffler and discharging the same.

749,884. CABINET. FERDINAND J. SAIGER, Chicago, Ill. Filed Mar. 13, 1903. Serial No. 147,550. (No model.)

Claim.—1. A cabinet consisting of a lower portion comprising an inclosed compartment a side of which comprises a section which

is vertically movable in suitable guides and an open-sided upper portion the interior of which comprises upwardly-stepped pockets and a folding door adapted to close the open side of said upper portion, the side of the upper portion of said cabinet corresponding to the vertically-movable side of the lower portion of said cabinet terminating inside of said vertically-movable section, substantially as described.



2. A cabinet consisting of a base or support having a gable top and an upper portion comprising open-sided members the lower edges of which are fitted to the inclined sides of the top of said base, means to secure said upper portion in position upon said base and folding doors to close the open sides of the members of said upper portion, the interior of said upper portion of said cabinet comprising upwardly-stepped pockets, substantially as described.

3. A cabinet consisting of a base or support having a gable top and an upper portion comprising members having open sides and flat tops, the lower edges of said members being fitted to the inclined sides of the top of said base, means to secure said upper portion in position upon said base, and folding doors adapted to close the open sides of the members of said upper portion, the interior of said upper portion comprising upwardly-stepped pockets, substantially as described.

4. A cabinet consisting of a base or support having a gable top and an upper portion comprising open-sided members the lower edges of which are fitted to the inclined sides of the top of said base, means to secure said upper portion in position upon said base, folding doors adapted to close the open sides of the members of said upper portion, the interior of said upper portion comprising upwardly-stepped pockets, the bottoms of said pockets consisting of narrow rods or strips separated by relatively wide spaces, a change-tray supported beneath the lowermost of said pockets at a front edge of the upper portion of said cabinet and a lip or ledge on an inclined side of the top of the base of said cabinet adapted to conduct articles falling upon the top of said base into said change-tray, substantially as described.

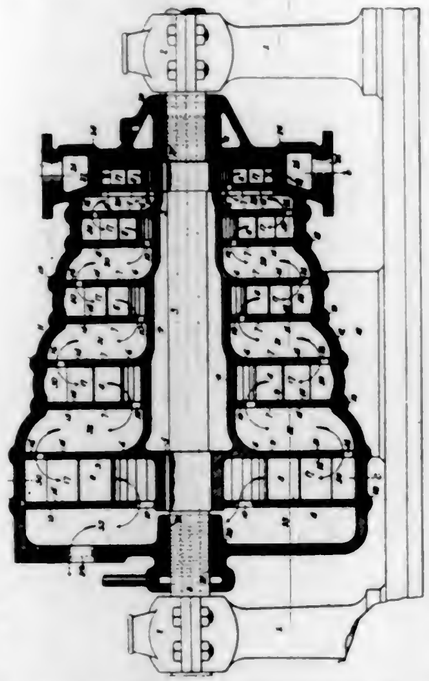
5. A cabinet, a side of which is open, and the interior of which comprises upwardly-stepped pockets, a folding door for closing the open side of said cabinet, means to lock said folding door from the inside, and a door in said cabinet and means to lock said door from the outside, substantially as described.

6. A cabinet a side of which is open and the interior of which comprises upwardly-stepped pockets, a folding door adapted to close the open side of said cabinet and a change-tray supported beneath the lowermost pocket of said cabinet at the lower front edge thereof, substantially as described.

7. A cabinet a side of which is open and the interior of which comprises upwardly-stepped pockets, the bottoms of which are formed by small rods or strips separated by relatively wide spaces, a change-tray supported beneath the lowermost pocket of said cabinet and an inclined plate beneath said pockets adapted to conduct objects falling thereon into said change-tray, substantially as described.

8. A cabinet having an open side and a flat top, the interior of which comprises upwardly-stepped pockets the bottoms of which are formed by small rods or strips separated by relatively large spaces, a change-tray supported beneath the lowermost pocket at the lower front edge of said cabinet, a plate beneath said pockets adapted to conduct objects falling thereon into said change-tray, a folding door adapted to close the open side of said cabinet adapted to be locked from the inside and a door in said cabinet adapted to be locked from the outside, substantially as described.

749,885. STEAM-TURBINE. SOMMERS H. SMITH, Philadelphia, Pa. Filed Apr. 9, 1903. Serial No. 151,884. (No model.)

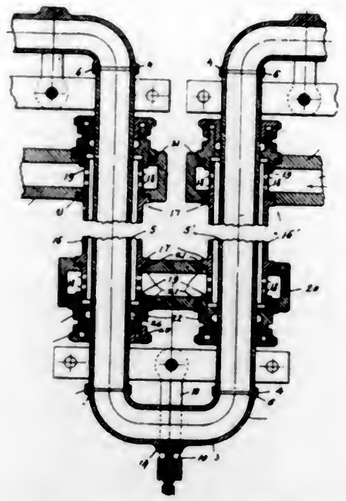


Claim.—1. The combination in a steam-turbine, of the casing made in halves and suitably secured together, segmental ring-sections secured in pairs to said half-sections of the casing, the latter being grooved to receive the said sections, guide-blades secured between said segmental ring-sections, the latter being grooved to receive said blades, a shaft, a spider mounted thereon and inclosed by said casing, a series of annular plates arranged in pairs and carried by said spider, a series of buckets secured between said annular plates and registering with the guide-blades carried by the casing, and means for directing steam to said blades and buckets.

2. In a steam-turbine, the combination of the casing made in halves and suitably secured together, a series of segmental ring-sections arranged in pairs and carried by said casing, the latter being grooved to receive said sections, guide-blades secured between said segments at the inner edge of the same, a shaft, a spider carried by said shaft, a series of annular plates arranged in pairs and carried by said spider, and a series of buckets held between said rings, the plates of the spider registering with the segmental ring-sections of the casing whereby the ranges of fixed and movable buckets or blades are disposed in line with each other, said guide-blades and segmental ring-sections and said buckets and spider being of such size and so disposed as to form annular chambers on opposite sides of the registering buckets and blades, and said segmental ring-sections and spider having apertures disposed at suitable intervals for the admission and passage of steam from one chamber to the next.

3. In a steam-turbine, the combination of the casing carrying rings in pairs, guide-blades secured between said rings, the latter being grooved for the purpose, a shaft, a spider carried by said shaft, and having a series of annular ribs or shoulders arranged in pairs, annular rings secured to said ribs or shoulders, buckets carried between said rings, the latter being grooved for the purpose, and means for directing steam to said blades and for passing such steam to the successive ranges of blades and buckets.

749,886. FLUID-CIRCULATING APPARATUS. HERMAN STIER, Chicago, Ill. Filed June 6, 1903. Serial No. 160,303. (No model.)

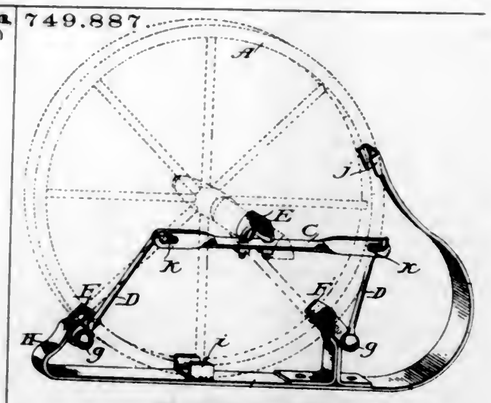


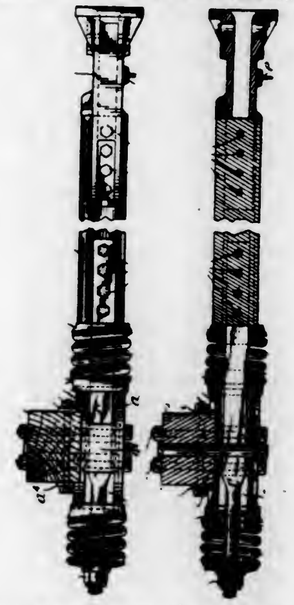
Claim.—1. In a circulating system, the combination of a hollow pipe connection closed at one end and having a transverse opening extending through opposite walls of said connection, said opening being counterbored in each of the opposite walls of said connection, an outer pipe provided with a flange near its outer end occupying one of said counterbores and suitable lateral openings communicating with the interior of said connection, a fiber ring between said counterbore and flange, an inner pipe projecting through said outer pipe, a collar surrounding said inner pipe, said collar having a flange surrounding the end of said outer pipe and having threaded engagement therewith, and having also an interior flange engaging said inner pipe, a fiber ring between said collar and the opposite counterbore, an annular nut having threaded engagement with said collar and a projecting flange between the latter and said inner pipe, and a fiber ring between the end of said flange and said interior flange.

2. In a circulating system, the combination of a hollow pipe connection having a transverse pipe opening at each end extending through opposite walls thereof, a pair of outer pipes having their ends mounted within said connection and provided with lateral apertures in said ends, an inner pipe extending through each of said outer pipes, a pair of clamps upon the ends of said inner pipes, a bent pipe-section connecting said ends, a forked yoke pivoted upon said clamps between said inner pipes, a set-screw having threaded engagement with the crotch of said yoke and adapted to clamp said pipe-section against the ends of said inner pipes, and means for simultaneously sealing each pipe-opening between the edges thereof, the outer walls and ends of said outer pipe and the outer walls of said inner pipes.

3. In a circulating system, the combination with a pair of parallel pipes, of a pipe-section connecting the ends of said pipes, a pair of clamps between said pipes engaging opposite sides thereof, a forked yoke pivoted upon said clamps and straddling said pipe-section and a set-screw in the crotch of said yoke for clamping said pipe-section upon the ends of said pipes.

749,887. RAILWAY DRAFT-RIGGING. WILLIAM T. VAN DORN, Chicago, Ill. Filed Oct. 1, 1903. Serial No. 175,361. (No model.)





Claim.—1. In a draft-rigging a unitary pivot-casing comprising horizontal upper and lower plates circular in form and integrally connected by relatively short side members, means for rigidly securing the same to the car and a central transverse, convex ridge on the inner side of each of said plates adapted to engage between the same a draft-iron or the like.

2. As an article of manufacture a circular pivot-casing comprising upper and lower circular plates, short side walls connecting the same, said plates being crowning centrally on the inner side to afford a pivot-bearing for a draft-iron extended therethrough.

3. A casing for the purpose specified comprising an upper and lower circular plate having a central aperture to receive a king-bolt, short integral walls connecting the same, a peripheral outwardly and vertically directed flange on each of the said plates affording a broad bearing at the edge of each of the same, a convex ridge on the inner side of each of said plates at the middle portion thereof adapted to receive a draft-iron between the same, the king-bolt affording a pivot-bearing therefor and means on one of said plates adapted to afford rigid connection with a part of the car-frame.

4. An article of manufacture comprising a circular unitary casing of cast metal having an opening extending therethrough and widely extended laterally at the front and rear of the casing, transverse rounded bearing-ridges in the top and bottom of the casing

749,887. SLEIGH-RUNNER ATTACHMENT FOR VEHICLES. HENRY THIEDEMANN, Hickman, Nebr. Filed Aug. 10, 1903. Serial No. 169,056. (No model.)

Claim.—1. The combination with a vehicle wheel and axle, of a sleigh-runner attachment secured to the wheel, a horizontally-disposed bar secured to the axle and extending in the front and rear thereof, and brace-rods extending from each end of the bar to the runner.

2. The combination with a vehicle wheel and axle, of a sleigh-runner attachment secured to the wheel, a horizontally-disposed bar having slotted ends, secured to the axle and extending outwardly on both sides thereof, and brace-rods pivoted to the runner and extending into the slots.

affording a pivot-bearing for a draft-iron or the like, and short side walls connecting the top and bottom of said casing.

5. A circular casing comprising an upper and a lower plate each provided centrally on the inner side with a transverse rounded ridge disposed oppositely of each other and apertured centrally to receive a pivot-bolt, parallel flanges on the upper of said plates adapted to engage on opposite sides of a sill or the like, a draft-iron extending through said casing and fitting closely between said oppositely-disposed ridges, a spring on said draft-iron on each side of said casing having positive bearing at one end of said draft-iron and an anti-friction-washer on said draft-iron at the front and at the rear of said casing and curved to conform with the face thereof and against which the other ends of said springs bear and a flange on each washer which engages in said end of said spring.

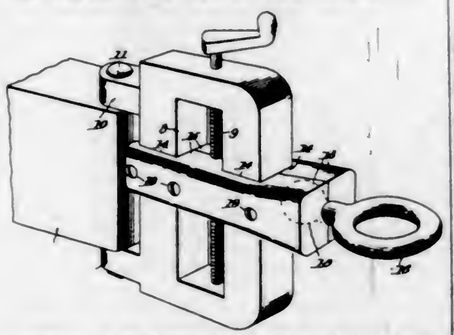
6. The combination with a unitary circular casing provided with a wide laterally-extended opening on the front and rear thereof and having flanges on the top of the same for engagement with a part of the car-frame, of a transversely-extended rounded ridge in the top and the bottom of the casing at the middle thereof, a draft-iron extending through the casing and connected at its front ends with a draw-head, an adjustable stop at the rear end of said draft-iron, a spring on each end of said draft-iron, an antifriction-washer on each side of said casing curved to fit thereto and bearing thereagainst and against which said springs press and relatively broad flanges extending upwardly and downwardly on the top and bottom of the casing at the front and rear edges and affording a broad seat for said washers and upon which the same slide vertically and laterally.

7. In a device of the class described the combination with centrally-apertured upper and lower plates, of means passing therethrough and adapted to rigidly engage said plates to a car-frame, a convex bearing-surface on the inner side of each plate and a draft-iron engaged between said bearing-surfaces and adapted for simultaneous vertical and lateral oscillation.

8. In a draft-rigging an upper and lower rounded plate, means for securing said plates to a car-frame, oppositely-disposed raised bearing-surfaces on the inner surface of each plate, a draft-iron engaged between said bearing-surfaces, a broad peripheral curved flange on the edges of said plates and automatically-adjustable means carried on the draft-iron and engaging on said flanges and adapted to hold the draft-iron between said plates.

9. In a draft-rigging a plurality of apertured circular plates each having a central raised bearing-surface on the inner face thereof, means for securing said plates to the car-frame, a draft-iron pivotally engaged between said bearing-surfaces and adapted for both independent and simultaneous lateral and vertical oscillation, concave washers on said draft-iron at diametrically opposite edges of said plate and springs bearing against a rigid part on the draft-iron and acting to hold said washers in positive bearing against said plates.

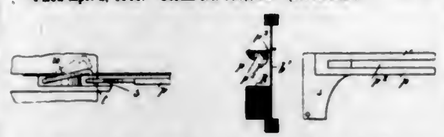
749,889. PLOW-CLEVIS. MELBOURN WHEELER, Prices Branch, Mo. Filed Sept. 18, 1903. Serial No. 173,648. (No model.)



Claim.—1. A clevis comprising a frame attachable to the front end of a plow-beam, a draft-piece embracing the frame formed of two meeting sections secured together, and having a cavity in the front end thereof, and a swivel-ring ending in a pin having a spherical head confined in said cavity.

2. A clevis comprising a frame having a vertical slot therein, a screw working in the slot, a draft-piece slidable on the frame and formed of meeting sections secured together and having shoulders fitting in the slot and a threaded hole for the screw, and a swiveling ring clamped between the front ends of said sections.

749,890. LOOM. ARNOLD WOLFENBERGER, West Hoboken, N. J. Filed Apr. 2, 1903. Serial No. 150,692. (No model.)



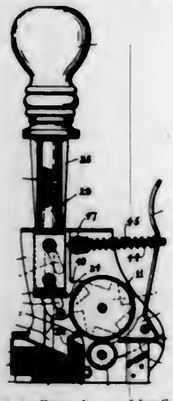
Claim.—1. In a loom, a lay having a lower shuttle-race and upper longitudinal stationary rails spaced apart to constitute an upper shuttle-race.

2. A loom adapted to weave an upper and lower fabric simultaneously and having a lay provided with a lower shuttle-race for the lower fabric and an upper shuttle-race for the upper fabric, the upper shuttle-race being formed with a longitudinal slot to permit inspection of the lower fabric and to reduce the friction on the shuttle.

3. A loom provided with a lay having a lower shuttle-race, an upper slotted shuttle-race, slides on the upper shuttle-race, and grooved rails on the lay adapted to engage said slides, substantially as specified.

4. A loom provided with a lay having a reed, a lower shuttle-race, two upper parallel rails in front of the reed to constitute an upper shuttle-race, slides on the upper shuttle-race, and rails on the lay adapted to engage said slides, substantially as specified.

749,891. LABEL OR STAMP AFFIXER. FRED C. ARNY, Chicago, Ill., assignor of one-half to J. Edmund Donaldson, Chicago, Ill. Filed Oct. 6, 1902. Serial No. 126,082. (No model.)



Claim.—1. In a label-affixer, in combination, a reciprocating plunger, a vertically and laterally movable moistening-pad normally in the path of the plunger, an oblique cam-face on the frame of the pad, and studs carried by the plunger and engaging the cam-face.

2. In a label-affixer, in combination, a frame, a downwardly and laterally movable moistening-pad pivotally connected to the frame, a spring-retracted plunger, and sliding connection between the pad and plunger.

3. In a label-affixer, in combination, a moistening-pad, a vertically-movable frame attached to the pad and pivotally connected to the supporting-frame and provided with an oblique cam-face, and a reciprocating handle mounted on the frame and carrying a stud engaging the cam-face.

4. In a label-affixer, in combination, a supporting-frame, a reciprocating plunger provided with severing means, a roll for feeding a label to the plunger, a ratchet-wheel attached to the roll, and a pawl actuated by the plunger, coacting with the ratchet and normally holding the latter against movement in either direction.

5. In a label-affixer, in combination, a reciprocating plunger, a vertically and laterally movable moistening-pad normally in the path of the plunger, an oblique cam-face on the frame of the pad, a stud carried by the plunger and engaging the cam-face, means for returning the plunger and the moistener to their original positions, and means for feeding a label to the plunger during such return movement.

6. In a label-affixer, in combination, a frame, a downwardly and laterally movable moistening-pad pivotally connected to the

frame, a reciprocating plunger, sliding connection between the pad and plunger, a feed-roll, and pawl-and-ratchet mechanism for turning the feed-roll and actuated by the plunger during the retraction of the latter.

7. In a label-affixer, in combination, a supporting-frame, a vertically-movable moistening-pad, levers attached to the pad and pivoted to the frame, a reciprocating handle, sliding connection between the handle and the levers for moving the pad downwardly and then turning the levers on their pivots to elevate the pad, and a label-affixing plunger connected to the handle.

8. In a label-affixer, in combination, a supporting-frame, a moistening-pad, levers attached to the pad and having elongated pivot-apertures and curved slots, pivots fixed to the frame and passing through the apertures, a reciprocating handle mounted on the frame and having arms provided with studs projecting into the lever-slots, and a label-affixing plunger carried by the arms.

9. In a label-affixer, in combination, a supporting-frame, a moistening-pad, levers attached to the pad and having elongated pivot-apertures and curved slots, pivots fixed to the frame and passing through the apertures, a reciprocating handle mounted on the frame and having arms provided with studs projecting into the lever-slots, a label-affixing plunger carried by the arms, and means for feeding a label to the plunger.

10. In a label-affixer, in combination, a supporting-frame, a moistening-pad, levers attached to the pad and each of which has a vertical elongated pivot-aperture at the upper end and a downwardly and rearwardly curved slot, pivots fixed to the frame and passing through the pivot-apertures, a reciprocating handle mounted on the frame, arms attached to the handle and extending downwardly at the sides of the frame and provided with studs projecting into the lever-slots, and a label-affixing plunger carried by the arms of the handle.

11. In a label-affixer, in combination, an affixing-plunger, a pawl having a downwardly and rearwardly inclined slot, a pin projecting from the plunger and into the slot, a feed-roll, and a ratchet-wheel fixed to the roll and with which the ratchet coacts.

12. In a label-affixer, in combination, a supporting-frame, a moistening-pad, levers attached to the pad and having elongated pivot-apertures and curved slots, pivots fixed to the frame and passing through the apertures, a reciprocating handle mounted on the frame and having arms provided with studs projecting into the lever-slots, a label-affixing plunger carried by the arms, means for feeding a label to the plunger, and a spring for returning the parts to their original positions, and means for feeding a label to the plunger during such return movement.

13. In a label-affixer, in combination, a reciprocating plunger, a moistener oscillating into and out of the path of the plunger, feed-rolls, a knife carried by the plunger, and a spring-pressed knife coacting with the plunger-knife and provided with a cam-face with which the plunger engages.

14. In a label-affixer, in combination, a supporting-frame, a moistening-pad, levers attached to the pad and each of which has a vertical elongated pivot-aperture at the upper end, and a slot the upper end of which curves downwardly and rearwardly, the lower end being straight and also inclined rearwardly, pivots fixed to the frame and passing through the pivot-apertures of the levers, a reciprocating handle mounted on the frame, arms attached to the handle and extending downwardly at the sides of the frame and provided with studs projecting into the lever-slots, a plunger carried by the arms of the handle, a knife carried by the plunger, a spring for returning the handle to its elevated position, a stationary knife coacting with the knife of the plunger when the latter is moved downward, feed-rolls, a ratchet-wheel attacheed to one of the feed-rolls, and a pawl carried by one of the handle-arms for actuating the ratchet-wheel.

15. In a label-affixer, in combination, a supporting-frame, a moistening-pad pivoted thereto, a reciprocating handle, connection between the handle and the pad for moving the pad against and then away from the surface to be moistened, a plunger attached to the handle and movable thereby downward against the moistened surface, a plate having parallel slots located one above the other and inclined downwardly and rearwardly, pins projecting from the plunger and through the said slots, a pawl carried by the plate, and feed-rolls one of which has fixed to it a ratchet-wheel with which the pawl coacts.

16. In a label-affixer, in combination, a supporting-frame, a moistening-pad pivoted thereto, a reciprocating handle, connection between the handle and the pad for moving the pad against and then away from the surface to be moistened, a plunger attached to the handle and movable thereby downward against the moistened surface, a knife carried by the plunger, a second knife attached to the frame and with which the knife of the plunger coacts and provided with cam-faces engaged by the plunger on the downward movement of the latter, a spring for pressing the second knife outwardly, and feed-rolls adjacent the spring-pressed knife.

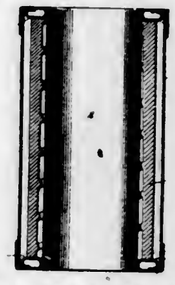
17. In a label-affixer, in combination, a frame having pivot-studs, a moistener-pad frame having vertically-elongated apertures engaging such studs and having downwardly and backwardly inclined ways, a spring-retracted vertically-reciprocating plunger-frame having studs running in the ways and engaging the upper ends thereof before the plunger-frame reaches the limit of its upward movement.

18. In combination with a label-affixer, a supporting-frame, a pair of feed-rolls, one of which is journaled in the frame, ratchet mechanism for driving said latter roll, a yoke pivoted to the frame and in which the other of said rolls is journaled, a lever extending from the yoke, and a spring for holding the lever normally outward and the roll carried thereby in contact with the first-mentioned roll.

19. In combination with a label-affixer, a supporting-frame, a pair of feed-rolls, one of which is journaled in the frame, means for driving the latter roll, a yoke pivoted to the frame and in which the other of said rolls is journaled, a lever extending from the yoke, a rod fixed to the frame, a stem pivoted to the rod and passing through the lever, and a spring coiled about the stem and reacting against the rod and the lever.

20. In a label-affixer, in combination, a supporting-frame, a reciprocating plunger, a moistening-pad normally in the path of the plunger, a pivoted frame carrying the pad and having elongated pivot-openings, fixed pivots on the frame entering such openings, and operative connection between the pad and plunger for moving the pad-frame downwardly and laterally.

749,892. BOX. CHARLES B. BALDWIN, Brooklyn, N. Y. Filed Mar. 17, 1902. Serial No. 98,536. (No model.)



Claim.—1. A box of the character described, comprising a body portion and a removable cover therefor, the said cover having an integral inwardly-folded arm forming a cushion, for the purpose set forth.

2. A box of the character described, comprising a body portion having an integral inwardly-folded arm forming a cushion, for the purpose set forth.

3. A box of the character described, comprising a body portion and a removable cover therefor, the said cover and the opposite wall or end of the box being each provided with an integral inwardly-folded arm forming a cushion, for the purpose set forth.

4. A box of the character described, comprising a body portion and a removable cover therefor, the said cover and the opposite wall or end of the box being each provided with a plurality of integral inwardly-folded arms forming cushions, for the purpose set forth.

5. A box of the character described, comprising a body portion and a removable cover therefor, the said cover and the opposite wall or end of the box being each provided with a circularly-arranged series of inwardly-folded portions forming opposing yielding cushions, for the purpose set forth.

6. A box of the character described, comprising a body portion having one end thereof provided with a circularly-arranged series of integral inwardly-folded portions, whereby an opening is formed in such end wall, a tube secured at one end within said opening, and a cover for the box.

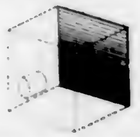
7. A box of the character described, comprising a body portion and a removable cover therefor, the said cover and the opposite end

wall of the box being each provided with a circularly-arranged series of integral inwardly-folded portions, whereby an opening is formed in the same, a tube secured at one end within the opening in the box-wall and at its opposite end being received within the opening in the cover when the latter is on the box, substantially as and for the purpose set forth.

8. A box of the character described, comprising an outer tube or body portion, an inner tube, an end piece permanently attached to said tubes at one end, and an end piece removably connected to said tubes at their opposite ends and constituting the box-cover, the said end pieces being each provided on their inner or adjacent sides with loosely-folded radially-arranged cushions located between the adjacent walls of the tubes, for the purpose set forth.

9. A box of the character described, comprising an outer tube or body portion, an inner tube, and a part loosely folded upon itself in a position between said tubes to form a seat or cushion that is yielding both laterally and longitudinally relatively to the box, for the purpose set forth.

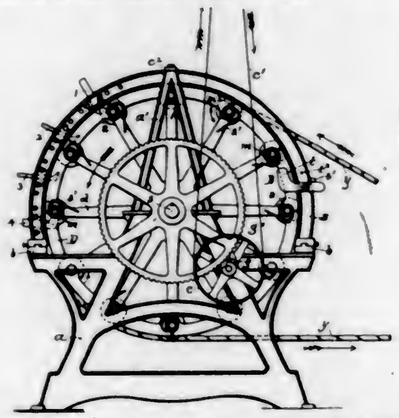
749,893. GRADED PHOTOGRAPHIC FILM. EDWIN F. BECKWITH, Ionia, Mich. Filed May 13, 1903. Serial No. 156,892. (No model.)



Claim.—1. An actinic surface for photographic use graded in sensitiveness from one portion to another thereof.

2. An orthochromatic actinic surface graded in sensitiveness from one portion to another thereof.

749,894. WOOD-TURNING MACHINE. JAMES R. BINER, Providence, R. I., assignor of one-half to Rodolph F. Morse, Providence, R. I. Filed Feb. 28, 1903. Serial No. 145,482. (No model.)



Claim.—1. In a wood-turning machine, provided with a slowly-revoluble drum or carrier D and a series of rapidly-revoluble work-holders mounted in said drum, each of said work-holders having a yielding or resilient hollow arbor and arranged to be driven by a continuously-traveling belt, the combination therewith of a corresponding series of guides and feeding devices also mounted in the drum and in axial alinement with said work-holders, a stationary cam or dog located in the path of said feeding devices arranged to engage with and successively actuate the latter, thereby mechanically advancing the stock or work z through the holders and thus extending the same the desired distance beyond the front end of the drum, and stationary cutters or tools adapted to successively engage the said portion of the stock extending through the drum, substantially as shown and described.

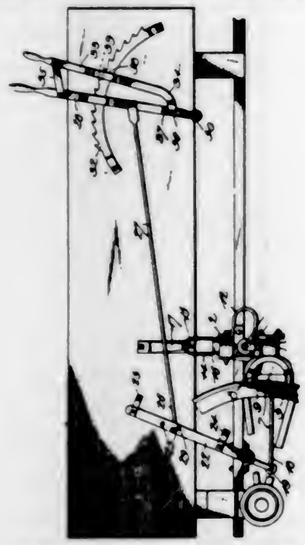
2. In a wood-turning machine, the combination with a slowly-revoluble drum or carrier D and a series of rapidly-revoluble work-holders mounted in said drum, of a corresponding series of guides and feeding devices also mounted in the drum, means located in the path of said feeding device arranged to engage the latter to advance the work or stock z beyond the front end or face of the drum, drilling devices mounted in the front end of the drum and in alinement with said feeding means, a stationary dog or cam adapted to actuate the drills in an endwise direction, and stationary cutters or tools arranged to successively engage the work or stock extending through the drum, substantially as described.

3. In a wood-turning machine, the combination with a revoluble drum D, of a pulley e mounted to revolve in bearings secured to or integral with the drum, and a hollow arbor or chuck e' secured to and passing through the center of said pulley, the walls of the front and rear end portions of said chuck being longitudinally slitted and slightly resilient and provided with spurs or dogs adapted to engage the stock or work z, substantially as hereinbefore described and for the purpose specified.

4. In a wood-turning machine, the combination with a revoluble drum D having a series of stock feeding and holding devices mounted therein, a corresponding series of spring-pressed drills mounted in the front end of said drum and being in alinement with the axes of said feeding and holding devices, and a stationary cam arranged to successively advance the drills into operative position with respect to the stock z, substantially as described.

5. In a wood-turning machine, the combination with a revoluble drum D provided with a series of stock feeding and holding devices, a normally stationary swinging stop-gage located contiguous to the front end of said drum and forming a gage against which the forward end of the stock abuts while it is being introduced into the drum, substantially as described.

749,895. VEHICLE-BRAKE. NATHAN L. BIRCHFIELD, Bowden, Ala. Filed Oct. 9, 1902. Serial No. 126,578. (No model.)

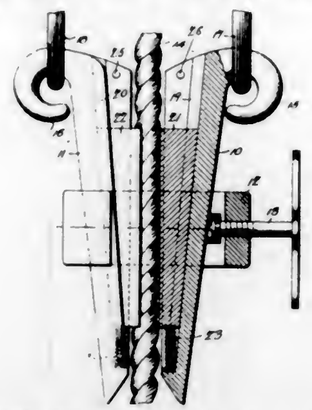


Claim.—The combination with a vehicle-brake and its wheels, of a running-gear, a transverse bar sustained by the running-gear, loops depending from said bar and having the lower side of each loop inclined uniformly downwardly and forwardly from the wheel and forming ways, a brake-beam having rollers arranged on the ways and adapted when the brake-beam is released to travel by gravity down the inclined ways to automatically move the brake-beam out of operative position.

749,896. CABLE-GRIP CLAMP. ELBERT J. BROWN, Coalinga, Cal. Filed May 8, 1903. Serial No. 156,257. (No model.)

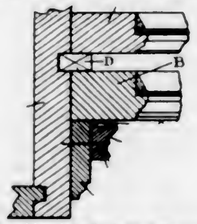
Claim.—1. A grip for cables and the like consisting of opposing jaws having longitudinal recesses in their contiguous faces, grip-plates mounted for longitudinal movement in said recesses and having cable-engaging channels in their contiguous faces, and means for laterally supporting said opposing jaw members.

2. A grip for cables and the like consisting of reversely-inclined opposing jaw members having longitudinal recesses in their contiguous faces, grip-plates mounted for longitudinal movement in said recesses and having cable-engaging channels in their contiguous faces, and a supporting-frame inclosing said jaw members, substantially as described.



3. A grip for cables and the like consisting of reversely-inclined opposing jaw members having longitudinal recesses in their contiguous faces, grip-plates mounted for longitudinal movement in said recesses and having cable-engaging channels in their contiguous faces, springs operating to maintain said grip-plates yieldably in inoperative position, and a supporting-frame inclosing said jaw members substantially as specified.

749,897. WEATHER-STRIP. FREDERICK FOURNIER, Pontiac Mich. Filed Apr. 1, 1903. Serial No. 150,572. (No model.)



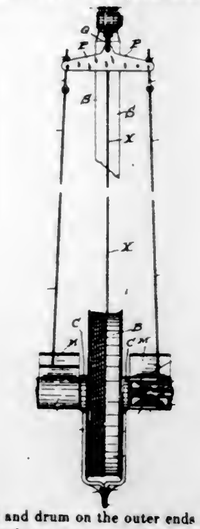
Claim.—1. The combination of a base-strip, a spring-tongue projecting across the side of said strip and a securing portion secured to the outer face of said strip as and for the purposes described

2. The combination of a base-strip or molding F of the spring-tongue G extending along one side thereof and the securing portion H extending across and secured to the outer face of the molding, the flange I at the edge of said securing portion entering a slot or recess in the face of the molding.

749,898. APPARATUS FOR RAISING OR LOWERING HEAVY BODIES. CHARLES V. FOWLER, Los Angeles, Cal. Filed Dec. 3, 1902. Serial No. 133,801. (No model.)

Claim.—1. The apparatus for raising and lowering heavy bodies consisting of the main drum operated by the hauling-rope, the drums carried upon the outer portions of the shaft of the main drum to which drums the suspension-ropes respectively are attached, the casings carried upon the outer portions of the shaft of the device, and which casings each constitute inclosed annular spaces around the drums to which the suspension-cables are attached and acting as guides for the suspension-cables, all in the manner and for the purposes substantially as hereinbefore described.

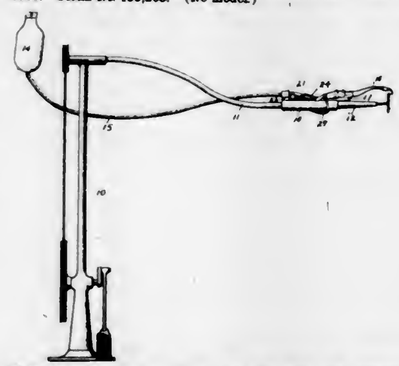
2. The apparatus for raising and lowering heavy bodies, consisting of the main drum operated by the hauling-rope, the drums of smaller diameter than that of the main drum upon the outer portions of the shaft of the main or hauling-rope drum, the suspension-ropes respectively, attached upon these outer drums, the casings carried upon the outer portions of the shaft of the device, said casings each constituting an inclosed annular space, respectively, around each outer drum, through which spaces the suspension-cables pass to the suspension-beam, the suspension-beam, with end adjustments, for the suspension-cables connected to the drums at the outer end of the shaft of the main drum, carrying the hauling-rope, all operating in the manner and for the purposes substantially as set forth.



3. The casing and drum on the outer ends of the driving-shaft of the apparatus having an open space formed by the outer ends of the curved plate uniting the ends of the casing, the said outer ends of the curved plate producing the opening through which the suspension-rope passes and is guided in winding on or unwinding from the drum in the manner and for the purposes substantially as hereinbefore described.

4. The combination of the main drum, the rope operating the main drum, the shaft on which the main drum is carried, the suspension-hook carried upon the driving-shaft of the apparatus, the suspension-cable drums, one at each end of the shaft of the apparatus, the casings inclosing each a space between itself and the suspension-cable drums, the suspension-beam, the adjustments for the suspension-cables attached to the ends of the suspension-beam, all operating together in the manner and for the purposes substantially as hereinbefore described.

749,899. SPRAYER FOR DENTAL POLISHING AND GRINDING INSTRUMENTS. HENRY H. GANTZ, Albia, Iowa. Filed Apr. 18 1903. Serial No. 153,265. (No model.)



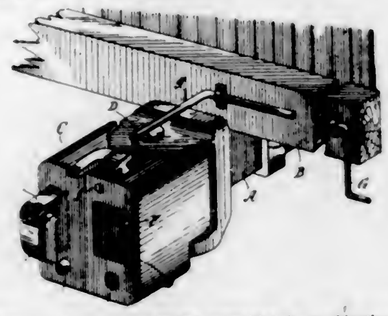
Claim.—1. In a device of the class described, the combination of a pivotally-mounted nozzle, a water-tube attached to said nozzle means for contracting said tube to prevent the water passing through the tube into the nozzle, substantially as and for the purposes stated.

2. In a device of the class described, the combination of a pivotally-mounted nozzle, a water-tube attached to said nozzle, a spring cut-off mounted adjacent to said tube and designed to prevent the water in the tube from passing through the nozzle, means for operating said spring cut-off, substantially as and for the purposes stated.

3. In a device of the class described, the combination of a pivotally-mounted nozzle, a water-tube attached to said nozzle, a spring cut-off mounted adjacent to said tube and designed to prevent the water in the tube from passing through the nozzle, means for operating said spring cut-off, a spraying-deflector detachably connected with the front end of the said nozzle, substantially as and for the purposes stated.

4. In a device of the class described, the combination of a body portion having springing sides therein, a nozzle pivotally mounted to the front end of said body portion, a tube attached to the rear end of said nozzle, a spring cut-off mounted at the rear of said body portion, designed to engage said tube and prevent the water in the tube from passing through the nozzle, a mechanism for forcing the forward end of the spring cut-off upwardly and allow the water to pass through the nozzle, and to allow the nozzle to be moved forwardly and rearwardly relative to the body portion, as the nozzle is swung on its pivot, substantially as and for the purposes stated.

749,900. COMBINED RAILWAY DRAW-HEAD AND AIR COUPLING. LOUIS LECOMPTE, Chicago, Ill. Filed Feb. 25, 1903. Serial No. 145,107. (No model.)



Claim.—1. A railway-coupling comprising in combination an axially-apertured draw-bar, a draw-head hinged thereto to permit vertical and lateral movement with respect to the draw-bar, and a spring in said aperture engaging said head and draw-bar and acting normally to hold the same in alinement.

2. The combination with a draw-bar, of a draw-head pivoted thereon by means affording lateral and vertical movement with respect thereto, a leaf-spring engaged in the draw-head and extending axially in the draw-bar and acting when the draw-head is flexed on the draw-bar to return the same to alinement.

3. The combination with a draw-bar, of a draw-head pivoted to swing laterally thereon by means of a vertical pivot-pin and adapted to have vertical movement with respect to the draw-bar as well as lateral movement with respect thereto, a spring engaged in said draw-head and extending axially of the draw-bar and acting to return the draw-head to alinement with the draw-bar when flexed thereon.

4. A draw-head having in its bottom a transverse chamber, a pipe connected with the chamber and a projection extending outwardly from the draw-head and provided with an aperture communicating in said chamber, said projection adapted to extend into an aperture in a corresponding draw-head and communicating with a like chamber therein, thereby permitting passage of air, steam or the like through the draw-head.

5. An automatic car and hose-pipe coupling comprising similar draw-heads having flat contact-faces and an arm each interlocking with a pin in the other, a lateral recessed hook on said arm, a chamber in the base of each draw-head, a conical tubular nipple extending outwardly from each chamber and adapted for connection in a bushed opening leading to the chamber in the other draw-head, and hose-pipe connections on the side of each coupler opening into the chamber therein.

6. A draw-head of the class described comprising an integral forwardly-extending arm, an inwardly-directed knuckle integral therewith, a recess in the outer end of the draw-head on the side opposite said arm, a pin having an inclined point and extending into the recess and forwardly-directed integral arms on the upper end of said pin one extending above the other and each adapted to engage respectively above and below the corresponding arms of the pin and the draw-head coupled therewith.

7. A coupler of the class described comprising in combination the draw-bar, a draw-head hinged thereon by means permitting vertical and lateral movement with respect thereto, means axially disposed in said draw-bar adapted to normally hold said draw-bar and draw-head in alinement, air connection through the bottom of said draw-head, means operated by the coupling of the draw-head for coupling the air connections.

8. A coupler of the class described comprising in combination the draw-bar, a draw-head hinged thereon by means permitting vertical and lateral movement with respect thereto, air connection through the bottom of said draw-head, a conical tube extending through the front of the draw-head adapted to seat in a complemental apertnre and acting by the coupling of the draw-head to couple the air connections, integral coupling means at the outer end of each draw-head adapted to interlock in a corresponding draw-head and means operated at a point remote from the draw-head for uncoupling the cars and air connection simultaneously.

9. The combination with corresponding draw-heads adapted to couple automatically when brought together, of a chamber in each, an air connection opening into each of said chambers and leading to the air-supply, integral arms on the ends of the couplers, inwardly-turned hoops thereon having their top portion recessed adapted when the draw-heads are brought together to couple the cars and air simultaneously and when the cars are uncoupled to simultaneously uncouple the air.

10. The combination with draw-heads each provided with a recess in and an outwardly-extending hooked arm on its outer end, of a pin in each draw-head seated in the recess in each draw-head and adapted to be lifted by the arm when entered therein and projecting arms thereon engaging respectively above and below like arms on the opposite pin on said pins whereby movement of one pin necessitates corresponding movement of the other.

11. The combination with draw-heads each provided with a recess in and an outwardly-extending hooked arm on its outer end, of a pin in each draw-head seated in the recess in each draw-head and adapted to be lifted by the arm when entered therein, a pair of interfitting arms on said pins whereby movement of one pin necessitates corresponding movement of the other, and a pivoted crank acting to simultaneously lift both pins.

12. The combination with draw-heads each provided with a recess in and an outwardly-extending hooked arm on its outer end, of a pin in each draw-head seated in the recess in each draw-head and adapted to be lifted by the arm when entered therein, a long and short arm on each pin, those of one adapted to engage above and beneath those of the other, and a crank pivoted on the end of a car and having flexible connection with one of the pins and acting simultaneously to lift both pins.

13. The combination with draw-heads adapted when coupled to form a rigid joint, of axially-apertured draw-bars to which the same are hinged by means affording lateral and vertical movement with respect thereto, a leaf-spring in said aperture, an air connection provided through said draw-head when coupled and pins forming the coupling and provided at their upper ends with interlocking parts whereby the lifting of one pin necessitates the lifting of the other.

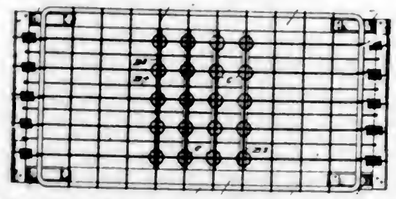
14. The combination with axially-apertured draw-bars, of draw-heads adapted when coupled to form a rigid connection and hinged thereto by means permitting lateral and vertical movement thereon, a leaf-spring in each draw-bar acting when the draw-heads are flexed thereon to return the same to alinement and corresponding coupling means in each draw-head whereby movement of one necessitates corresponding movement of the other.

15. A draw-head having an air-chamber in the bottom thereof and a plurality of apertures opening outwardly through the front end of the draw-head and a conical tube in one aperture which together with the other aperture are adapted to automatically connect with corresponding apertures and tubes in a corresponding draw-head when the same are brought together in coupling position.

16. A draw-head hinged to its draw-bar by means affording vertical and lateral movement with respect thereto, a forwardly-directed arm on the draw-bar, an integral knuckle on said arm having its upper surface beveled and air connections extending through said draw-head and adapted to be automatically connected with similar air connections in the corresponding couplers.

749,901. MATTRESS. FREDERICK J. LEWIEY, San Francisco, Cal. Filed Jan. 21, 1903. Serial No. 140,017. (No model.)

Claim.—1. In a mattress the combination of a frame having its end rails elevated above the side rails; an integral rectangular frame having non-resilient netting stretched thereon, suspended between the said elevated rails by spiral springs; cross-beams between said side rails, pillar-springs disposed under said netting on said cross-beams, and guy-wires stretched between said end rails under said cross-beams; substantially as described.



2. In a mattress the combination of a frame having its end rails elevated above the side rails; a non-resilient surface suspended between said end rails by resilient members; cross-beams between said side rails, and pillar-springs disposed beneath the said non-resilient surface on said cross-beams; substantially as described.

3. In a bed, the combination of a frame adapted to be supported by the side rails of said bed, of elevated end rails secured to said frame, and a substantially rigid mattress-surface which is adapted to move as an entirety suspended by springs between said elevated end rails.

4. In a bed, the combination of a frame adapted to be supported by the side rails of said bed, of elevated end rails secured to said frame, of a substantially rigid mattress-surface suspended between said elevated end rails.

749,902. VEHICLE-AXLE. FALKLAND R. A. MACKINNON, Grand Rapids, Wis. Filed May 18, 1903. Serial No. 157,652. (No model.)



Claim.—1. In a vehicle-axle, the combination with an I-beam, of reinforcements fitted in the channels of the beam, the ends of said beam and reinforcements being rounded and tapered and an axle-skein surrounding the rounded and tapered ends of the beam and reinforcements to secure the same together.

2. In a vehicle-axle, the combination with a metallic core comprising a vertical longitudinally-disposed plate, and flanges riveted to the upper and lower edges thereof, of longitudinal reinforcing-bars fitted between the flanges on opposite sides of the plate.

3. In a vehicle-axle, a metallic I-beam having hub-receiving terminals and comprising a longitudinal plate provided with projections on its edges, and angularly-disposed longitudinal flanges arranged on the opposite edges of said plate and having openings in which the projections are riveted.

4. In a vehicle-axle, the combination with an I-beam having its upper end portion reduced, of reinforcements extending longitudinally between the flanges and having their ends reduced and rounded, so that the terminals of the axle are substantially circular in cross-section, and an axle-skein fitted upon the reduced ends.

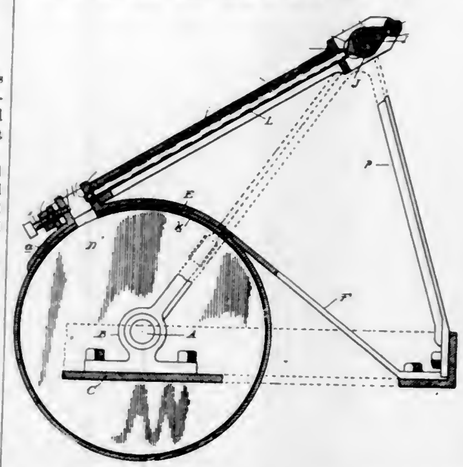
5. In a vehicle-axle, the combination with an I-beam core having its upper end portion reduced, the upper flange of said beam terminating at the reduced portion, of wooden reinforcing-bars fitted between the flanges and having reduced ends that extend to the reduced end of the core, a shank riveted to the core and projecting beyond the end thereof, an axle-skein fitted upon the reduced ends, and a nut threaded on the shank and holding the axle-skein against displacement.

6. In a vehicle-axle, the combination with an I-beam core having one end portion reduced and constituting a portion of the axle-spindle, the upper flange of said beam terminating at the reduced portion, of reinforcing-bars fitted between the flanges and having corresponding reduced ends which constitute the remaining portions of the axle-spindle, and means for securing the bars and core together.

7. In a vehicle-axle, the combination with an I-beam having the upper portions of its ends cut away and the upper flange terminating at the cut-away portion, the lower flange extending substantially to the ends of the beam and having its terminal portions rounded, of reinforcements fitted in the opposite channels of the beam and having the outer faces of their terminals convexed, and skeins fitted upon the ends of the beam and reinforcements.

8. In a vehicle-axle, the combination with a core comprising a vertical longitudinally-disposed plate, and separate flanges riveted to the upper and lower edges thereof, one of said flanges being of less width but greater in length than the other, and reinforcing-bars applied to opposite sides of the plate, substantially as described.

749,903. BRAKE MECHANISM. RANSOM E. OLDS, Detroit, Mich., assignor to Olds Motor Works, Detroit, Mich., a Corporation of Michigan. Filed Mar. 1, 1902. Serial No. 96,256. (No model.)



Claim.—1. The combination with a revoluble head, of an arm extending from a fixed support tangentially into proximity to the periphery of said head and continuing around a segment thereof in the direction of rotation, a flexible strap secured to the segmental portion of said arm and extending around said head, the opposite end of said strap being in proximity to the end of said arm, two slidably-connected rods respectively secured to the ends of said strap and arm and extending tangentially therefrom at an angle to the tangential member of said arm and means for moving said rods oppositely to tighten said strap.

2. The combination with a revoluble head, of an arm extending from a fixed support tangentially into proximity to the periphery of said head, and continuing around a segment thereof, terminating in an outwardly-extending ear, a flexible strap connected to the segmental portion of said arm, encircling said head and terminating in an ear in proximity to the ear on said arm, a rock-shaft, a sliding arm having yokes at opposite ends thereof respectively embracing said ears and said rock-shaft, a rod slidingly secured to said yoke-rod, and bearing at one end against the ear on said arm and a cam on said shaft intermediate said sliding rod and the bearing on said yoke, said cam being adapted to move said rods oppositely to tighten the strap.

3. The combination with a revoluble head, of a peripheral brake-strap therefor having its opposite ends in proximity, an anchor for said strap permitting of a limited movement of both ends thereof, a rock-shaft at one side of said head, a cam thereon, a member extending from the ends of said brake-strap to said shaft having a bifurcated end embracing said cam and the furcations thereof longitudinally slotted for the passage of said shaft, an antifriction-roll secured between said furcations beyond said cam, a rod slidably engaging said member with its outer end on the opposite side of said cam from said roll, and oppositely-arranged bearings at the inner ends of said rod and member adapted to engage with the ends of said brake-strap, substantially as and for the purpose described.

4. The combination with a revoluble head, and a brake-strap therefor having its opposite ends in proximity, of an operating connection for tightening said strap comprising two slidably-connected members respectively connected to said ends of the strap, and one of said members being bifurcated at its outer end, a rock-shaft passing through slots in the furcations a cam on said shaft between said furcations adapted to bear against the end of the other slidable member, an antifriction-roll secured between said furcations on the opposite side of said cam, adapted to bear thereon, said cam being provided with oppositely-projecting portions respectively adapted

to engage with said roll and the end of the other slidable member and the former being notched to form a locking engagement with the roll.

749,904. **SHOE-LACING.** HARRY W. PINKERTON, Randolph, Mass. Filed May 11, 1903. Serial No. 156,579. (No model.)



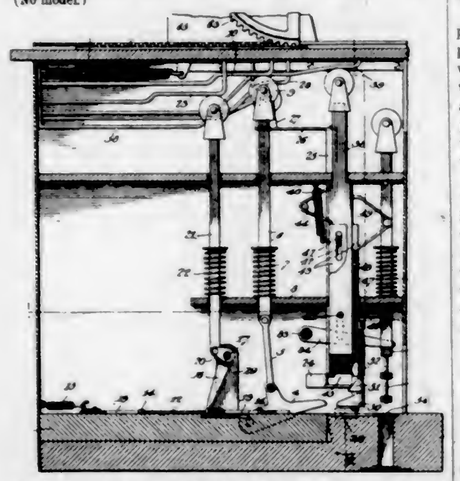
Claim.—1. A shoe-lacing having attached to it, at a point intermediate of its length, a fastening device, the lacing on one side of the fastening device being adapted to form a bow, and the lacing on the other side of the fastening device being adapted to cooperate with the said fastening device, after passing through the eyelets of the shoe.

2. A shoe-lacing having at one end a bow and a fastening device, the other end being adapted to engage with the fastening device and become a part of the bow.

3. A shoe-lacing, one end of which is permanently formed into a bow, with a fastening device attached to said bow and adapted to engage with the lacing near its other end, after the lacing has passed through eyelets of the shoe.

4. In combination with a shoe-lacing, a fastening device, one member of which is adapted to engage and hold the lacing at a point near one of its ends, and the other member of which is adapted to support and position the end of the lacing which is secured by the first-mentioned member, for the purposes specified.

749,905. **PAPER CUTTING AND FOLDING MACHINE.** SAMUEL D. RUTH, Beatrice, Nebr. Filed June 2, 1903. Serial No. 159,791. (No model.)



Claim.—1. In a device of the class specified, the combination with knives for forming convergent incisions, of knives for forming parallel incisions, means for raising the material at the outer wall of such parallel incisions, means for bending the tongue formed by the convergent incisions, and means for introducing the opposite sides of the tongue through the parallel incisions.

2. In a device of the class specified, cutting-knives for forming convergent incisions, pivotally-mounted blades for the formation of parallel incisions and for elevating the material at the outer walls of such parallel incisions, means for bending the tongues formed by the convergent incisions, and means for forcing the sides of said tongue through the parallel incisions.

3. In a device of the class specified, the combination with a recessed bed-plate, of a pair of strips of metal each provided at one end with a cutting edge and the opposite end of each being bent upward to extend above the upper surface of the bed-plate, clamping-blocks having cutting edges adapted to coact with those of the strips, said cutter-blocks causing operative movement of the strips by indirect contact with the upwardly-exteading portions of the strips, means for forming convergent incisions in the edge of the paper, means for bending the so-formed tongue, and means for forcing the side portions of said tongue through the parallel incisions.

4. In a device of the class specified, a recessed base, a pair of pivoted strips disposed within the recesses, cutting edges arranged at one end of each strip, an upwardly-bent arm at the opposite end of each strip, yieldably-mounted clamping-blocks having cutting edges coacting with those of the strips, said blocks being adapted to move the cutting-strips to operative position by indirect contact with the upwardly-bent arms and the lower portion of each block being recessed to permit upward movement of the strip, means for forming convergent incisions in the paper, means for bending the tongue formed by such incisions, and means for forcing the opposite edges of said tongue, through the parallel incisions.

5. In a device of the class specified, means for forming convergent incisions, means for forming parallel incisions, means for bending the tongue formed by the convergent incisions, a vertically-movable bar for engaging the tongue and moving the same through the parallel incisions, a spring having indirect connection with said bar, an inclined bending-anvil carried by the spring, and a cam-block also carried by the spring at a point above the anvil and adapted to be engaged by said bar on the downward movement of the latter.

6. In a device of the class specified, the combination with means for forming convergent incisions, of means for forming the parallel incisions, means for bending the tongue formed by the convergent incisions, means for forcing the opposite sides of such tongues through the parallel incisions, means for perforating the article being operated upon, and a single operating mechanism common to all of such means.

7. In a device of the class specified, the combination with means for forming incisions and for bending the tongue, of a bed-plate having female dies, a transverse bar, a plurality of male perforating-dies carried thereby, vertical bars carrying the transverse bar, a movable slide, and cams carried by said slide and serving as an operating means for all of the movable parts of the machine.

8. In a device of the class specified, the combination with a bed-plate, means for forming convergent incisions, means for forming the parallel incisions, means for bending the tongue formed by the convergent incisions, means for inserting the opposite sides of said tongue through the parallel incisions, means for perforating the paper, a slide, and a plurality of cams carried by the slide, said cams being so disposed as to permit of the operation of the perforating means after the tongue has been inserted, and an adjustable strip for limiting the movement of the slide, substantially as specified.

9. The combination with a bed-plate, of means for forming convergent incisions, means for forming parallel incisions, means for bending the tongue formed by the convergent incisions, means for forcing the opposite sides of such tongue through the parallel incisions, a perforating means, a movable slide, a plurality of cams carried by the slide and serving to operate all of such means, a rack carried by the slide, a gear-segment engaging with the rack, an operating-handle connected to the gear-segment, and a stop adjustable into and out of the path of movement of said operating-lever

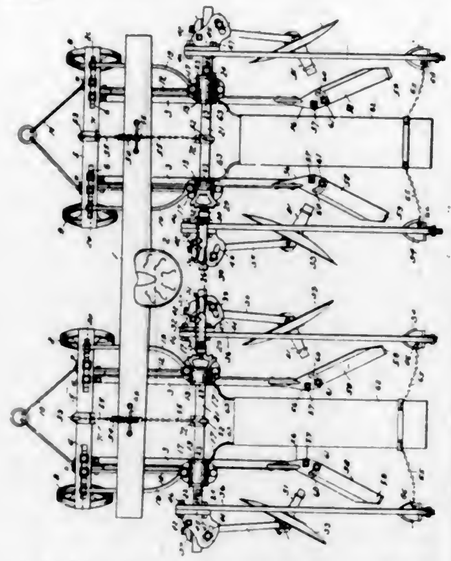
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749,906. **TWO-ROLL LISTER-CULTIVATOR.** ANDREW V. RYDER, Bellevue, Ohio, assignor to the Ohio Cultivator Company, Bellevue, Ohio, a Corporation of Ohio. Filed Nov. 6, 1902. Serial No. 130,282. (No model.)

Claim.—1. A two-row lister-cultivator, comprising two runner-frames and a seat-bar connecting the same and movable relatively thereto, each runner-frame being provided with a transverse rock-shaft having an operating-lever located adjacent to the seat, each rock-shaft being provided near its ends with couplings longitudinally adjustable on the rock-shaft, rearwardly-extending beams connected with said couplings and provided respectively with cultivating disks and shovels, the shovel-beams being pivotally connected to said couplings, so as to be independently adjustable both vertically and laterally, substantially as described.

2. A two-row lister-cultivator, comprising two runner-frames and a seat-bar connecting the same and movable relatively thereto, each runner-frame being provided with a transverse rock-shaft having an operating-lever secured on the inner end thereof outside the runner-frame, and cultivating devices having their beams connected to the rock-shafts, the rock-shafts lying rearward of the seat, and the operating-levers being inclined upward and inward to a point adjacent to and immediately in the rear of the seat, substantially as described.

3. In a lister-cultivator, the combination, with a runner-frame and a rock-shaft thereon, of a connecting device comprising three clamping-plates having clamping-bolts located on opposite sides of the rock-shaft, a disk-beam clamped between the first and second of said plates, and the rock-shaft clamped between the second and third of said plates, the third of said plates being provided with a slot for the passage of one of the clamping-bolts, whereby said plate has a pivotal adjustment around an axis transverse to the rock-shaft and a shovel-beam secured to said third plate, substantially as described.



4. In a lister-cultivator, the combination, with a rock-shaft, of a beam-connecting device comprising three plates and clamping-bolts located on opposite sides of the rock-shaft, a disk-beam clamped between the first and second of said plates, the rock-shaft being clamped between the second and third of said plates, said third plate being provided with a slot for one of the clamping-bolts, whereby it is given a pivotal adjustment around an axis at right angles to the rock-shaft, said third plate being provided with a vertical flange, slotted as described, and a shovel-beam pivotally connected to said flange and having a clamping-bolt extending through said slot, substantially as described.

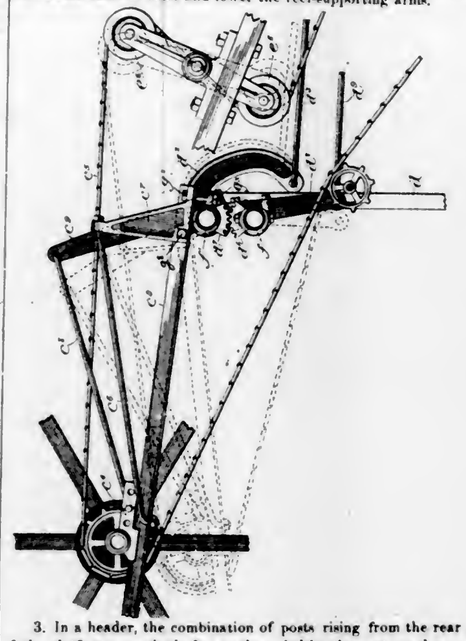
5. A two-row lister-cultivator, comprising a transverse seat-bar and two runner-frames movable relatively thereto, each frame comprising two runners, a front cross-bar connected with the same, and a rock-shaft located rearwardly thereof, said rock-shaft being provided with cultivating devices, an operating-lever, and a projection, the front cross-bar being also provided with a projection, and a lift-spring connecting said projections, substantially as described.

6. A two-row lister-cultivator, comprising two runner-frames and a seat-bar connecting the same and movable relatively thereto, each runner-frame being provided with a transverse rock-shaft having an operating-lever located adjacent to the seat, cultivating devices having their beams connected to the rock-shaft, so as to be raised and lowered thereby, and lift-springs to aid in the operation of the rock-shafts, substantially as described.

749,907. **GRAIN-HEADER.** JAMES A. SHARP, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Mar. 2, 1903. Serial No. 145,702. (No model.)

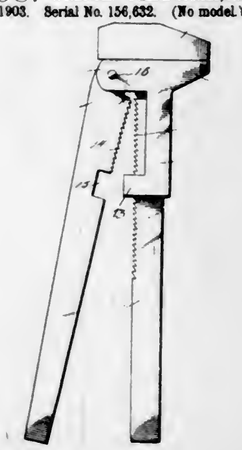
Claim.—1. In a header, the combination of posts rising from the rear part of the platform, a shaft or rod carried by the posts, reel-supporting arms sleeved on opposite ends of said shaft, a rock shaft or rod carried by the posts, gears at opposite ends of said rock-shaft and meshing with gears rigid with the reel-supporting arms, a lever within the driver's reach, and a connection from the lever to the rock-shaft.

2. In a header, the combination of posts rising from the rear of the platform, a rock shaft or rod carried by the posts, reel-supporting arms sleeved on opposite ends of the rock-shaft, a second rock shaft or rod carried by the posts, a connection between the reel and the first rock-shaft, a connection between the reel-supporting arms and the second rock-shaft, a reel mounted to slide on the supporting-arms, means for rocking the first-mentioned shaft to slide the reel in and out on the supporting-arms, and means for rocking the second shaft to raise and lower the reel-supporting arms.



3. In a header, the combination of posts rising from the rear of the platform, a rock shaft or rod carried by the posts, reel-supporting arms sleeved on opposite ends of the rock-shaft, a connection between the reel and the rock-shaft, a second rock shaft or rod carried by the posts, gears fixed at opposite ends of said second rock-shaft, gears sleeved on the first-mentioned rock-shaft and rigid with the reel-supporting arms and meshing with the gears on the second rock-shaft, a reel mounted to slide on the supporting-arms, a lever within the driver's reach, a connection from said lever to the first-mentioned rock-shaft to slide the reel in and out on the supporting-arms, a second lever within the driver's reach, and a connection from said second lever to the second rock-shaft for rocking the same to raise and lower the reel-supporting arms.

749,908. **WRENCH.** FRANK STUART, Ritzville, Wash. Filed May 11, 1903. Serial No. 156,632. (No model.)



Claim.—1. A wrench comprising a stem having a fixed jaw at one end and rack-teeth projecting from one face below the jaw, a sliding jaw mounted upon the stem, said jaw having laterally-spaced ears at its upper end and a loop encircling the stem at its opposite end, said jaw being cut away between the loop and ears to expose the teeth, and a locking-lever pivoted at its upper end between the ears and having rack-teeth disposed to engage the teeth of the stem, said lever having a recess below its teeth disposed to receive snugly the loop of the sliding jaw.

2. A wrench comprising a stem having a fixed jaw at one end and rack-teeth projecting from its face below the jaw, a sliding jaw mounted upon the stem and having laterally-spaced ears at its upper end and a loop embracing the stem at its opposite end, said jaw being cut away between the loop and ears to expose the teeth and a locking-lever pivoted at its upper end between the ears and having a degree of longitudinal lost motion, said lever having rack-teeth disposed to engage the teeth of the stem and a recess below its teeth to receive the loop of the sliding jaw, the lever having a socket in one end of its recess and the loop having a lug disposed to engage the socket when the lever is moved longitudinally with respect to the sliding jaw.

749,909. SHEATHING FOR VESSELS. RICHARD D. UPHAM, New York, N. Y. Filed Apr. 4, 1903. Serial No. 151,015. (No model.)

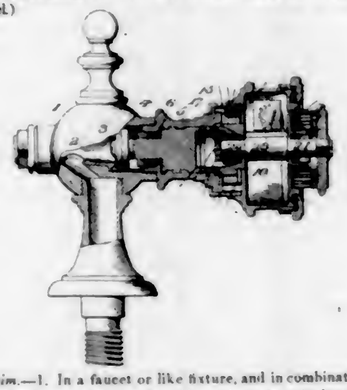
Claim.—1. A sheathing for vessels and the like, comprising a backing of flexible and tough sheet material, and a flexible facing compound on said backing and attached thereto, said compound consisting of a suitable insulating substance, and comminuted metal, intimately mixed and compressed, substantially as set forth.

2. A sheathing-plate for vessels and the like, comprising a roughened backing-sheet of flexible, tough material, and a flexible facing compound attached thereto and composed in the main of comminuted or fine particles of copper and a suitable insulating substance, intimately mixed and compressed, substantially as set forth.

3. A sheathing-plate for vessels and the like, comprising a flexible sheet of metal, roughened on its outer surface, and a facing composed of finely comminuted or divided metal intimately mixed with a suitable insulating substance, said flexible facing being attached to the backing, compressed, and of substantially uniform thickness, as set forth.

4. A sheathing-plate for vessels and the like, comprising a tough, flexible perforated and roughened metal sheet and a facing on said sheet of bituminous material and comminuted copper, thoroughly mixed and compressed on the sheet.

749,910. REGULABLE SELF-CLOSING FAUCET. EDWIN L. WALTER, Scranton, Pa. Filed Apr. 8, 1903. Serial No. 151,658. (No model.)



Claim.—1. In a faucet or like fixture, and in combination with the valve mechanism and chambered handpiece operatively connected therewith, a spring connected with said handpiece and normally tending to hold the valve seated and the faucet closed, a spring-actuated post, a ratchet mechanism controlled by said post and adapted to hold the handpiece against the tension of the valve-closing spring when said handpiece is turned to any desired point to open the faucet, a valved partition fixed with reference to the chamber of said handpiece, and a piston movable with the said post and provided with a minute opening to retard the return of the piston to a normal position, substantially as set forth.

2. In a faucet or like fixture, and in combination with the valve mechanism, a chambered handpiece, interlocking means between said handpiece and valve mechanism, and a spring for normally holding the valve seated and the faucet closed, a ratchet mechanism for holding the faucet open, a spring-actuated post having an eccentric extension for coöperation with the ratchet mechanism to throw same out of action, a fixed valved partition located within the chamber of the handpiece, and a piston connected with the aforementioned post to turn therewith and provided with a minute opening, substantially as specified.

3. In a faucet or like fixture, the combination of the body provided with a tubular portion having ratchet-teeth, a stem mounted in said tubular portion and adapted to effect seating or unseating of the valve, a chambered handpiece rotatably connected with said tubular portion and having a tubular extension adapted to make interlocking connection with the aforesaid stem, a spring-actuated dog mounted in the tubular extension of the handpiece and adapted to engage with any one of the aforementioned ratchet-teeth to hold the valve unseated, a closing-spring for holding the valve seated, a spring-actuated post mounted in the handpiece to turn therewith and independently thereof and having an eccentric extension to hold the dog out of engagement with the ratchet-teeth, and retarding means coöperating with said post consisting of a valved partition and a piston having a minute opening, said piston and partition being applied to and coöperating with the spring-actuated post and chambered handpiece, substantially as described.

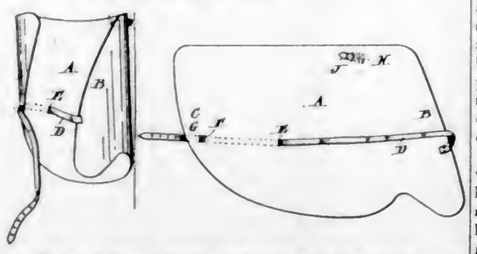
4. In a faucet or like fixture, the combination of the valve mechanism, chambered handpiece and closing-spring, a ratchet mechanism for holding the valve unseated against the tension of the closing-spring, a post having an eccentric portion for throwing the ratchet mechanism out of action, a retarding mechanism coöperating with said post and operating in the chamber of the handpiece and consisting of a piston having a minute opening and a valved partition, a plate attached to the outer end of said post and forming a grip for the hand, and a spring between the chambered handpiece and the plate or grip to effect a return of the post to a normal position, substantially as set forth.

5. In a faucet or like fixture, the combination of the valve mechanism, chambered handpiece and closing-spring, a ratchet mechanism for holding the valve unseated against the tension of the closing-spring, a post having an eccentric portion for throwing the ratchet mechanism out of action, a retarding mechanism coöperating with said post and operating in the chamber of the handpiece and consisting of a piston having a minute opening and a valved partition, a plate attached to the outer end of said post and forming a grip for the hand, a spring having one end connected to the chambered handpiece, and means for adjustably connecting the opposite end of the spring to the said plate or grip, substantially as set forth.

6. In a faucet, the combination of the valve mechanism, and a chambered handpiece having a tubular extension in interlocking connection with the valve-operating stem, a dog applied to said tubular extension, ratchet-teeth exterior to said tubular extension and connected with the body portion of the faucet, a post journaled in the walls of the chambered handpiece and having an eccentric portion for throwing the dog out of action, the walls of the chambered handpiece being provided with stuffing-boxes to make a tight joint with the post, a retarding mechanism coöperating with the handpiece and post and located within the chambered handpiece and consisting of a valved partition and a piston having a minute opening, a spring exterior to the handpiece and connected at one end thereto, and a plate forming a grip connected to the outer end of said post and having connection with the opposite end of the spring coöperating with the post, substantially as set forth.

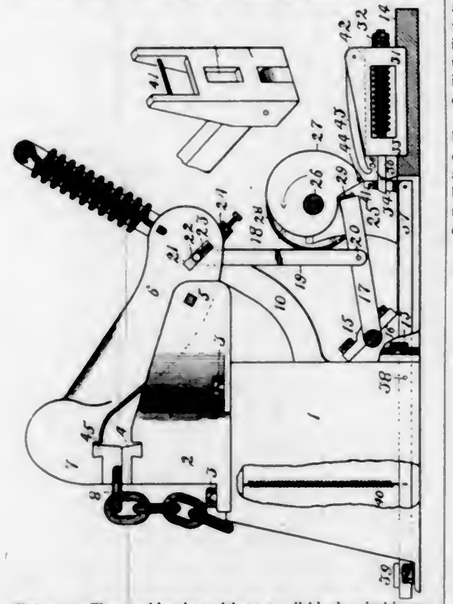
7. In combination, a faucet or like fixture provided with a tubular extension, a valve-operating stem passed through said extension, a stuffing-box near the inner end of said valve-operating stem, a chambered handpiece rotatably connected with the said tubular extension, a closing-spring for coöperation with the handpiece, to normally seat the valve and close the faucet, a ratchet mechanism for holding the valve open against the tension of the closing-spring, a spring-actuated post journaled in the walls of the chambered handpiece and having an eccentric portion for holding the ratchet mechanism out of action, stuffing-boxes applied to the walls of the chambered handpiece and receiving the end portions of said post, and a retarding mechanism coöperating with said post and comprising a valved partition and a piston provided with a minute opening, substantially as described.

749,911. PUTTIE-LEGGING. JOHN T. ALLINSON, Warragul, and WILLIAM T. S. ROBERTSON, Sale, Victoria, Australia. Filed Aug. 19, 1902. Serial No. 120,228. (No model.)



Claim.—A legging consisting of a single piece of material, provided with a series of slits extending substantially parallel to one another and with two of the slits arranged in close relation with each other and formed in the material at a point near said side edge and the other of the slits arranged at a point removed from said pair of slits and near the center of said material, a buckle secured to the outer face of said material near the top edge thereof, and a strap having one end secured to the inner face of said material near one side edge and below the center and extending through and bent over the material so that a portion of the length of said strap will lie against the inner face of said material, and said strap further extending through the single slit so that a portion of the length of the strap will lie against the outer face of said material, and said strap further extending through said pair of slits and wound spirally around the outer face of the material and engaging said buckle for securing the legging in position, substantially as herein shown and described.

749,912. CHAIN-MAKER'S POWER-HAMMER. WALLACE N. APPLETON, Kent, Ohio, assignor of one-half to George L. Darrow, Darrowville, Ohio. Filed July 6, 1903. Serial No. 164,400. (No model.)



Claim.—1. The combination with an anvil-block suitably supported provided with pivots therein, of an oscillatory hammer-head mounted on said pivots, links attached to the helve of said hammer, a rocking lever attached to the lower end of said links, a cam to depress said lever, a catch on the end of said lever arranged to normally engage a latch and be thereby retained in one position, a latch suitably placed to engage said catch and means to release said latch from engagement with said catch to permit the descent of said hammer.

2. The combination with an anvil-block suitably supported provided with pivots, of an oscillatory hammer-head, links adjustably attached to the helve portion thereof, a rocking lever attached to the lower ends of said links, a cam to depress the end of said lever, a catch on the end of said lever, a spring-pressed latch to engage said catch and retain said lever in one position, a foot-lever suitably mounted in said device, a trigger mounted on said foot-lever having a bifurcated head arranged to engage said latch, projecting pins on said cam to engage said bifurcated end of said trigger arranged when said foot-lever is operated to engage said trigger and disengage the union between said latch and catch and permit the descent of said hammer.

3. The combination with an anvil-block suitably supported provided with pivots of a hammer arranged to oscillate on said pivots, links attached to the helve portion of said hammer, a rocking lever attached to the lower ends of said links, a cam for rocking said lever, a catch on the end of said lever, a latch suitably mounted to engage said catch to retain said lever in one position, a foot-lever suitably mounted in said device, a trigger mounted on said foot-lever provided with a head of such configuration as to engage tripping mechanism on said cam, tripping means mounted on said cam arranged to revolve therewith, a catch to engage said trigger and retain it in one position after being actuated by said tripping means on said cam and retain said trigger free from engagement with said tripping mechanism during the depression of said foot-lever.

749,913. ANTHRAQUINONE DYE AND PROCESS OF MAKING SAME. OSCAR BALLY, Mannheim, Germany, assignor to Badische Anilin und Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Germany. Filed July 24, 1902. Serial No. 116,858. (Specimens.)

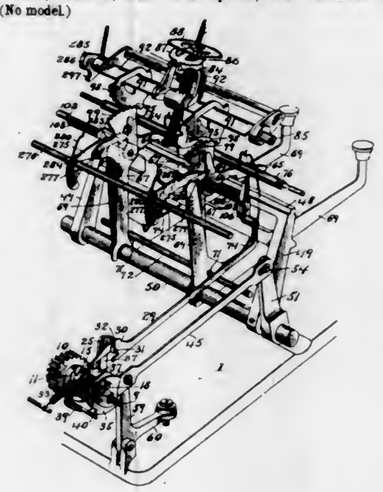
Claim.—1. The process of manufacturing coloring-matter of the anthracene series by condensing a hereinbefore-defined hydroxy-anthraquinone substance with a sulfo-acid of an aromatic amin.

2. The process of manufacturing coloring-matter of the anthracene series by condensing purpurin with sulfanilic acid.

3. As new products the coloring-matters which can be obtained from a hereinbefore-defined hydroxy-anthraquinone substance and a sulfonated aromatic amido body, which dye chrome mordanted wool blue-black to violet-black, whose solution in water, or in anilin, is reddish to violet, whose aqueous solution on the addition of caustic soda becomes bluer, whose solution in concentrated sulfuric acid is red to violet, which solution on the addition of boric acid becomes blue to violet.

4. As a new product the coloring-matter which can be obtained by condensing purpurin with sulfanilic acid, which dyes chrome mordanted wool blue-violet to blue-black, whose solution in water or anilin is red, whose aqueous solution on the addition of caustic soda becomes violet-blue, whose solution in concentrated sulfuric acid is red-violet, which solution on the addition of boric acid becomes dull blue.

749,914. TYPE-WRITING MACHINE. GEORGE C. BLICKENSDERFER, Stamford, Conn. Filed Apr. 30, 1903. Serial No. 154,931. (No model.)



Claim.—1. In a type-writer, the combination with a constantly-running power mechanism, of a type mechanism, an actuating mechanism, a key-lever, connections whereby the key-lever causes the power mechanism to operate the actuating mechanism, and positive means for interrupting said connections before the key-lever returns, whereby the parts are allowed to assume their normal position before the key-lever returns, substantially as described.

2. In a type-writer, the combination with a constantly-running power mechanism, of a type mechanism, an operating mechanism therefor, a key-lever, an actuating mechanism, key-controlled means whereby the operating mechanism is connected to the actuating mechanism, connections whereby the key-lever causes the power mechanism to operate the actuating mechanism, and means for positively interrupting said connections before the key-lever returns, whereby the parts are allowed to assume their normal position before the key-lever returns, substantially as described.

3. In a type-writer, the combination with a constantly-running power mechanism, of a type mechanism, an actuating mechanism, a bank of keys, connections including a series of connectors, one for each key, whereby the keys cause the power mechanism to operate the actuating mechanism, and means for positively releasing the connector for each key before the key is returned whereby the parts are allowed to resume their normal position before the key is returned, substantially as described.

4. In a type-writer, the combination with a constantly-running power mechanism, of a type mechanism, an actuating mechanism, operating means between the power mechanism and the actuating mechanism, a bank of keys, means including a series of connectors, one for each key, whereby the power mechanism is caused to operate the actuating mechanism, and power-operated means for releasing each connector before the key to which it corresponds is returned, substantially as described.

5. In a type-writer, the combinaton with a power mechanism, of a type mechanism, an actuating mechanism, a clutch mechanism and suitable operating connections, a bank of keys, key-controlled connections whereby each key brings the clutch mechanism into operation, whereby the power mechanism is enabled to operate the actuating mechanism, and positive means for interrupting the connections whereby each key effects the engagement of said clutch mechanism before the key is returned, substantially as described.

6. In a type-writer, the combination with a power mechanism, of a type mechanism, an actuating mechanism, a clutch mechanism and suitable operating connections, a bank of keys, key-controlled connections whereby each key brings the clutch mechanism in operation, whereby the power mechanism is enabled to operate the actuating mechanism, and power-operated means for interrupting the connections whereby each key effects the engagement of said clutch mechanism before the key is returned, substantially as described.

7. In a type-writer, the combination with a power mechanism, of a type mechanism, an actuating mechanism, a bank of keys, means including engaging devices between the power mechanism and the actuating mechanism through which the power mechanism operates the actuating mechanism, an operating member common to all the keys controlling the engagement of said devices, a connector between each key and the operating member, and means for interrupting the connection formed by each connector before its corresponding key is returned, substantially as described.

8. In a type-writer, the combination with a power mechanism, of a type mechanism, an actuating mechanism, a bank of keys, means including engaging devices between the power mechanism and the actuating mechanism, means including a connector for each key, whereby the keys effect the engagement of said devices and enable the power mechanism to operate the actuating mechanism, and positive means for interrupting the connection formed by each connector before its corresponding key is returned, substantially as described.

9. In a type-writer, the combination with a power mechanism, of a type mechanism, an actuating mechanism, a bank of keys, means including engaging devices between the power mechanism and the actuating mechanism, means including a connector for each key, whereby the keys effect the engagement of said devices and enable the power mechanism to operate the actuating mechanism, and power-operated means for interrupting the connections formed by each connector before its corresponding key is returned, substantially as described.

10. In a type-writer, the combination with a power mechanism of a type mechanism, an actuator, operating means including engaging devices between the actuator and the power mechanism, a bank of keys, key-controlled connections between the actuator and the type mechanism, an operating member common to all the keys, said member controlling the engagement of said engaging devices, a series of connectors between the keys and the operating member, and means for interrupting the connections formed by a connector before the corresponding key is returned, substantially as described.

11. In a type-writer, the combination with a continuously-running power mechanism, of a type mechanism, a normally stationary actuator, a bank of keys, key-controlled connections between the actuator and the type mechanism, connections including an operating member common to all the keys by which the power mechanism is caused to operate the actuator, a series of connectors between the keys and the operating member, and means for interrupting the connection established between said connectors and the keys before the corresponding keys are returned, substantially as described.

12. In a type-writer, the combination with a continuously-running power mechanism, of a type mechanism, a normally stationary actuator, a bank of keys, key-controlled connections between the actuator and the type mechanism, connections including an operating member common to all the keys by which the power mechanism is caused to operate the actuator, a series of connectors between the keys and the operating member, and power-operated means for interrupting the connection established between said connectors and the keys before the corresponding keys are returned, substantially as described.

13. In a type-writer, the combination with a power mechanism, of a type mechanism, operating means including engaging devices between the power mechanism and the type mechanism, a bank of keys, an operating member common to all the keys controlling the engagement of said engaging devices whereby the power mechanism is enabled to operate the type mechanism, a series of connectors between the keys and the operating member, and means for interrupting the connection established by said connectors before the corresponding keys are returned, substantially as described.

14. In a type-writer, the combination with a continuously-running power mechanism, of a type mechanism, operating means between the power mechanism and the type mechanism, a bank of keys, means including an operating member common to all the keys, whereby the power mechanism is caused to operate the type mechanism, a series of connectors between the keys and the operating member, and power-operated means for interrupting the connection established by said connectors before the corresponding keys are returned, substantially as described.

15. In a type-writer, the combination with a continuously-running power mechanism, of a normally stationary actuator, a bank of keys, a type mechanism, a series of connectors operated by the keys, means brought into operation by the connectors for causing the power mechanism to operate the type mechanism, and power-operated means for interrupting the connections established by the connectors, substantially as described.

16. In a type-writer, the combination with a continuously-running power mechanism, of a normally stationary actuator, a bank of keys, a series of connectors operated by the keys, means including an operating member common to all the connectors whereby the power mechanism is caused to operate the actuating mechanism, and means for interrupting the connection established by the connectors before the corresponding keys are returned, substantially as described.

17. In a type-writer, the combination with a continuously-running power mechanism, of a normally stationary actuator, a bank of keys, a series of connectors operated by the keys, means including an operating member common to all the connectors whereby the power mechanism is caused to operate the actuating mechanism, and power-operated means for interrupting the connection established by the connectors before the corresponding keys are returned, substantially as described.

18. In a type-writer, the combination with a type mechanism of a normally stationary actuator, a series of key-levers, normally inoperative connections between the actuator and the type mechanism, a series of connectors operated by the key-levers, means including a clutch mechanism and an operating member common to all the connectors and key-levers for rendering operative the connections between the actuator and the type mechanism whereby the power mechanism is caused to operate the actuator, and means for interrupting the connection established by each connector before the key-lever is returned, substantially as described.

19. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, a series of key-levers, normally inoperative connections between the actuator and the type mechanism, a series of connectors operated by the key-levers, means including a clutch mechanism and an operating member common to all the connectors and key-levers for rendering operative the connections between the actuator and the type mechanism whereby the power mechanism is caused to operate the actuator, and positive means for interrupting the connection established by each connector before the key-lever is returned, substantially as described.

20. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, a series of key-levers, normally inoperative connections between the actuator and the type mechanism, a series of connectors operated by the key-levers, means including a clutch mechanism and an operating member common to all the connectors and key-levers for rendering operative the connections between the actuator and the type mechanism whereby the power mechanism is caused to operate the actuator, and power-operated means for interrupting the connection established by each connector before the key-lever is returned, substantially as described.

21. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, means including a series of levers whereby the actuator operates the type mechanism, means for connecting each of said levers to the actuator, a constantly-running power mechanism, a series of key-levers, means including a series of connectors in engagement with the key-levers, whereby each key-lever causes the power mechanism to operate the actuator, and means for positively interrupting the connection established by each connector before its corresponding key-lever is returned, substantially as described.

22. In a type-writer, the combination with a type mechanism of a normally stationary actuator, means including a series of levers whereby the actuator operates the type mechanism, means for connecting each of said levers to the actuator, a constantly-running power mechanism, a series of key-levers, means including a series of connectors in engagement with the key-levers, whereby each key-lever causes the power mechanism to operate the actuator, and power-operated means for interrupting the connection established by each connector before its corresponding key-lever is returned, substantially as described.

23. In a type-writer, the combination with a power mechanism, of a normally stationary actuator, means including a clutch mechanism whereby the power mechanism operates the actuator, a series of key-levers, an operating member, means whereby the operating member brings the clutch mechanism into operation whereby the power mechanism is enabled to operate the actuator, a series of connectors between the key-levers and the operating member, and power-operated means for interrupting the connection between each key-lever and the operating member before the key-lever is returned, substantially as described.

24. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, means for connecting the actuator to the type mechanism, a constantly-running power mechanism, an operating member, means whereby the operating member causes the power mechanism to operate the actuator, a series of key-levers, a series of connectors between the key-levers and the operating member, said connectors being normally in engagement with the key-levers, and means for operating the connectors to break the connection between each key-lever and the operating member before said key-lever is returned, substantially as described.

25. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, means for connecting the actuator to the type mechanism, a constantly-running power mechanism, an operating member, means whereby the operating member causes the power mechanism to operate the actuator, a series of key-levers, a series of connectors between the key-levers and the operating member, said connectors being normally in engagement with the key-levers, and power-operated means for operating the connectors to break the connection between each key-lever and the operating member before said key-lever is returned, substantially as described.

26. In a type-writer, the combination with a type mechanism, of a normally stationary actuator, means for connecting the actuator to the type mechanism, a constantly-running power mechanism, an operating member, a series of key-levers, a series of sliding connectors between the operating member and the key-levers said connectors being normally in engagement with the key-levers, and means for breaking the connection between each connector and its cooperating key-lever before said lever is returned, substantially as described.

27. In a type-writer, the combination with a type mechanism, of a series of operating-levers therefor, a normally stationary actuator, means whereby each lever is connected to the actuator, a constantly-running power mechanism, means whereby the power mechanism operates the actuator, a series of key-levers, an operating member, connections whereby the operating member throws the power mechanism into operation, a series of connectors between the key-levers and the operating member, said connectors being normally in engagement with the key-levers, and means brought into operation by the key-levers for breaking the connections between the connectors and the key-levers, said means being brought into operation before the key-levers are returned, substantially as described.

28. In a type-writer, the combination with a type mechanism, of operating means therefor, said means including a series of operating-levers, a normally stationary actuator, a constantly-running power mechanism, operating connections between the power mechanism and the actuator, an operating rock-shaft, connections whereby the rock-shaft causes the power mechanism to operate the actuator, a series of key-levers, a series of connectors between the rock-shaft and the key-levers normally in engagement with the key-levers, and means brought into operation by the operating-levers for disengaging the connectors from the key-levers before the key-levers are returned, substantially as described.

29. In a type-writer, the combination with a type-wheel, of a series of key-levers, means whereby each key-lever effects the operation of the type-wheel to produce an impression, and positive means for interrupting the connection between a lever and the type-wheel before said lever is returned, substantially as described.

30. In a type-writer, the combination with a type-wheel, of a series of key-levers, means whereby each key-lever effects an operation of the type-wheel to produce an impression, and positive means brought into operation by the key-levers for interrupting the connection between the key-levers and the type-wheel before the levers are returned, substantially as described.

31. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, means intermediate the power mechanism and the type-wheel whereby said power mechanism operates the type-wheel to produce an impression, a bank of keys, connections whereby each key causes the power mechanism through said means to operate the type-wheel, and power-operated means for interrupting said connections before the key is returned, substantially as described.

32. In a type-writer, the combination with a constantly-running power mechanism, of a type-wheel, an actuating mechanism for operating the wheel to produce an impression, a bank of keys, connections including a series of connectors whereby the keys cause the power mechanism to operate the actuating mechanism, and means for positively releasing a connector which has been operated by a key before the key is returned, substantially as described.

33. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, a normally stationary actuator, a series of key-levers, key-controlled connections whereby the actuator operates the type-wheel, a series of connectors, one for each key-lever, with which the key-levers are normally in engagement, an operating member common to all the key-levers, connections between said operating member and the power mechanism whereby the power mechanism is caused to operate the actuator, and means for releasing the connector from its corresponding key-lever after the key-lever has been operated and before it is returned, substantially as described.

34. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, a normally stationary actuator, a series of key-levers, key-controlled connections between the operating-levers and the actuator, an operating member, a series of connectors between the key-levers and the operating member, whereby each key-lever operates said member, means whereby the operating member causes the power mechanism to operate the actuator, and means for interrupting the connection formed by a connector between the operating member and a key-lever when a key-lever is operated and before the key-lever is returned, substantially as described.

35. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, a normally stationary actuator, a series of key-levers, key-controlled connections between the operating-levers and the actuator, an operating member, a series of connectors between the key-levers and the operating member, whereby each key-lever operates said member, means whereby the operating member causes the power mechanism to operate the actuator, and means thrown into operation by the movement of an operating-lever for interrupting the connection formed by a connector between the operating member and a key-lever when a key-lever is operated and before the key-lever is returned, substantinily as described.

36. In a type-writer, the combination with a type-wheel, of a

constantly-running power mechanism, a series of operating-levers, a series of key-levers, a normally stationary actuator, key-controlled connections between the actuator and the operating-levers, connections whereby the operating-levers operate the type-wheel, an operating member, connections whereby said member causes the power mechanism to operate the actuator, a series of connectors intermediate the key-levers and the operating member, and means carried by each operating-lever for releasing the connection between the operating member and a key-lever formed by a connector before the key is returned, substantially as described.

37. In a type-writer, the combination with a type mechanism, of a power mechanism, operating connections between the power mechanism and the type mechanism, a series of key-levers, an operating member, means including a clutch mechanism whereby the operating member causes the power mechanism to operate the type mechanism, a series of connectors between the key-levers and the operating member, said connectors being normally in engagement with the key-levers, and means for releasing each connector from its key-lever after the lever has been operated and before it returns, substantially as described.

38. In a type-writer, the combination with a type mechanism, of a power mechanism, operating connections between the power mechanism and the type mechanism, said connections including a series of operating-levers, a series of key-levers, a series of connectors normally in engagement with the key-levers, said connectors being mounted to have a pivotal and sliding movement, means whereby each connector causes the power mechanism to operate the type mechanism when a key is operated, and means carried by the operating-levers for interrupting the connection between the connector and its corresponding key-lever after the key-lever is operated and before its return, substantially as described.

39. In a type-writer, the combination with a type mechanism, of a power mechanism, operating connections between the power mechanism and the type mechanism, said connections including a series of operating-levers, a series of key-levers, a series of connectors normally in engagement with the key-levers, said connectors being mounted to have a pivotal and sliding movement, means including an operating member common to all the connectors, connections between said member and the power mechanism, whereby the power mechanism is caused to operate the type mechanism when a key is operated, and means carried by the operating-levers for interrupting the connection between each connector and its corresponding key-lever after the key-lever is operated and before it is returned, substantially as described.

40. In a type-writer, the combination with a type mechanism, of a power mechanism, operating connections between the power mechanism and the type mechanism, said connections including a series of operating-levers, a series of key-levers, a series of connectors normally in engagement with the key-levers, said connectors being mounted to have a pivotal and sliding movement, means including an operating member common to all the connectors, connections between said member and the power mechanism, whereby the power mechanism is caused to operate the type mechanism when a key is operated, and means including a rock-shaft common to all the connectors for interrupting the connection between each connector and its corresponding key-lever after the key-lever is operated and before it is returned, substantially as described.

41. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, a normally stationary actuator, means including a series of operating-levers between the actuator and the type-wheel, a series of key-levers, key-controlled connections between the operating-levers and the actuator, an operating member, connections between said member and the power mechanism whereby the power mechanism is caused to operate the actuator, a series of connectors between the key-levers and the operating member said connectors being normally in engagement with the key-levers, and means for interrupting the connection between the operating member and a key-lever formed by a connector when said key-lever is operated and before the key is returned, substantially as described.

42. In a type-writer, the combination with a type-wheel, of a constantly-running power mechanism, a normally stationary actuator, means including a series of operating-levers between the actuator and the type-wheel, a series of key-levers, key-controlled connections between the operating-levers and the actuator, an operating member, connections between said member and the power mechanism whereby the power mechanism is caused to operate the actuator, a series of connectors between the key-levers and the operating member, said connectors being normally in engagement with the key-levers, and means including a rock-shaft common to all the connectors for interrupting the connection between the operating member and a key-lever formed by a connector when said key-lever is operated and before the key is returned, substantially as described.

43. In a type-writer, the combination with a type mechanism, of means for producing an impression movement of the type mechanism, and returning means, said means leaving the type mechanism free from returning force as it is completing the impression movement, substantially as described.

44. In a type-writer, the combination with a type mechanism, of means for producing an impression movement of the type mechanism, a returning member, and means whereby said member is prevented from exercising a returning force upon the type mechanism as said mechanism is completing the impression movement, substantially as described.

45. In a type-writer, the combination with a type mechanism, of means for producing an impression movement of the type mechanism, a returning-spring for the type mechanism, and means for preventing said spring from exercising a returning force on the type mechanism as said mechanism is completing the impression movement, substantially as described.

46. In a type-writer, the combination with a type mechanism, of a shaft, means for rocking the shaft to produce an impression movement of the type mechanism, and means for returning the shaft, said shaft being free from the returning action of said means as the type mechanism is completing the impression movement, substantially as described.

47. In a type-writer, the combination with a type mechanism, of a shaft, means for rocking the shaft to produce an impression movement of the type mechanism, a spring for returning the shaft, and means for preventing the spring from exercising a returning action on the shaft as the type mechanism is completing the impression movement, substantially as described.

48. In a type-writer, the combination with a type mechanism, of a power-operated means for producing an impression movement of the type mechanism, and returning means, said means leaving said type mechanism free from the returning force as it is completing the impression movement, substantially as described.

49. In a type-writer, the combination with a type mechanism, of power-operated means for producing an impression movement of the type mechanism, a returning member for the type mechanism, and means whereby said member is prevented from exercising a returning force upon the type mechanism as said mechanism is completing the impression movement, substantially as described.

50. In a type-writer, the combination with a type mechanism, of power-operated means for producing an impression movement of the type mechanism, a returning-spring for the type mechanism, and means for preventing said spring from exercising a returning force on the type mechanism as said mechanism is completing the impression movement, substantially as described.

51. In a type-writer, the combination with a type mechanism, of a shaft, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, and means for returning the shaft, said shaft being free from the returning action of said means as the type mechanism is completing the impression movement, substantially as described.

52. In a type-writer, the combination with a type mechanism, of a shaft, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, a spring for returning the shaft, and means for preventing the spring from exercising a returning action on the shaft as the type mechanism is completing the impression movement, substantially as described.

53. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, and returning means coöperating with said projection to return the shaft, said returning means being prevented from exercising a returning force on the projection as the shaft is completing the movement which produces the impression movement, substantially as described.

54. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, and returning means coöperating with said projection to return the shaft, said returning means being prevented from exercising a returning force on the projection as the shaft is completing the movement which produces the impression movement, substantially as described.

55. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, a returning-lever coöperating with said projection to return the shaft, said lever being prevented from exercising a returning force on the projection as the shaft is completing the movement which produces the impression movement, and means for operating said lever, substantially as described.

56. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, a returning-lever coöperating with said projection to return the shaft, said lever being prevented from exercising a returning force on the projection as the shaft is completing the movement which produces the impression movement, and means for operating said lever, substantially as described.

57. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, said projection being provided with a returning portion and a holding portion, a returning-lever, said lever being operated upon by the holding portion of the projection as the shaft completes the movement which produces the impression movement and by the returning portion as the shaft returns the type mechanism, and means for operating the lever, substantially as described.

58. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, said projection being provided with a returning portion and a holding portion, a returning-lever, said lever being operated upon by the holding portion of the projection as the shaft completes the movement which produces the impression movement and by the returning portion as the shaft returns the type mechanism, and means for operating the lever, substantially as described.

59. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, said projection being provided with a returning portion and a holding portion, and a spring-operated returning-lever, said lever being operated upon by the holding portion of the projection as the shaft completes the movement which produces the impression movement and by the returning portion as the shaft returns the type mechanism, substantially as described.

60. In a type-writer, the combination with a shaft, of a type mechanism operated thereby, power-operated means for rocking the shaft to produce an impression movement of the type mechanism, a projection on the shaft, said projection being provided with a returning portion and a holding portion, and a spring-operated returning-lever, said lever being operated upon by the holding portion of the projection as the shaft completes the movement which produces the impression movement and by the returning portion as the shaft returns the type mechanism, substantially as described.

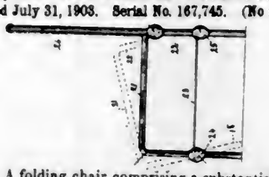
61. In a type-writer, the combination with a type mechanism, of means for producing an impression movement thereof, returning means for the type mechanism, said means including a spring which is given a bodily movement during the impression movement to prevent it from being placed under tension during said impression movement, substantially as described.

62. In a type-writer, the combination with a type mechanism, of means for producing an impression movement thereof, returning means for said mechanism, said means including a spring-operated lever, and a movable support to which said spring is attached, said spring being moved toward the support during the impression movement whereby the spring is prevented from being placed under strong tension during said movement, substantially as described.

63. In a type-writer, the combination with a type mechanism, of means for producing an impression movement, a returning member, means whereby said member is prevented from exercising its returning force upon the type mechanism as said mechanism is completing its impression movement, operating means for the returning member, and means whereby said operating means is prevented from exercising its full force upon the returning member during the impression movement, substantially as described.

64. In a type-writer, the combination with a type mechanism, of means for producing an impression movement, a returning-spring for said mechanism, means for preventing the spring from being placed under strong tension during the beginning of the movement and means for preventing the spring from exercising a returning force upon the type mechanism when said mechanism is completing its impression movement, substantially as described.

749,915. FOLDING FURNITURE. GEORGE H. BUCK, New York N. Y. Filed July 31, 1903. Serial No. 167,745. (No model.)



Claim.—1. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat pivotally secured at one end to the back bar and at the other to the front bar and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear bosses.

2. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat pivotally secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss.

3. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat pivotally secured at one end to the back bar and at the other to the front bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, and means for preventing sliding movement of the front feet in the front bosses.

4. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat pivotally secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, and means for preventing sliding movement of the front feet in the front bosses.

5. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat formed of stiff sheet metal pivotally secured at one end to the back bar and at the other to the front bar and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss.

6. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the end of a front bar similar to the back bar, a rigid seat formed of stiff sheet metal secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss.

7. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat formed of stiff sheet metal pivotally secured at one end to the back bar and at the other to the front bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, and means for preventing sliding movement of the front feet in the front bosses.

8. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open

end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat formed of stiff sheet metal pivotally secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, and means for preventing sliding movement of the front feet in the front bosses.

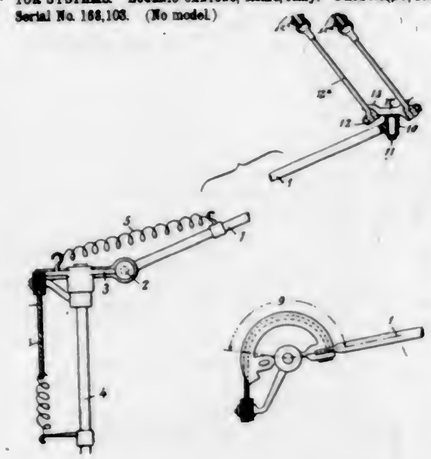
9. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a seat pivotally secured at one end to the back bar and at the other to the front bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, the top bar, back bar, front bar, back feet, front feet and arm-piece being formed of metal rods, the top bar and back feet being integral, the front feet and arm-piece being integral, and the bosses being of metal cast in position thereon.

10. A folding chair comprising a substantially U-shaped back-piece provided with a back bar some little distance from the open end thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a seat pivotally secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss, the top bar, back bar, front bar, back feet, front feet and arm-pieces being formed of metal rods, the top bar and back feet being integral, the front feet and arm-pieces being integral and the bosses being cast in position thereon.

11. A folding chair comprising a back-piece provided with a back bar some little distance from the ends thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a seat secured at one end to the back bar and at the other to the front bar, a back secured at one end to the top bar and at the other to the back bar, and a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses provided at the upper end with means for detachably securing the same to the rear boss.

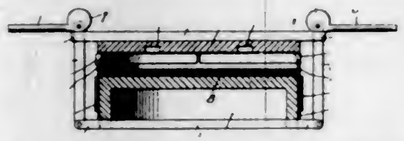
12. A folding chair comprising a back-piece provided with a back bar some little distance from the ends thereof secured thereto by bosses, like bosses secured to the ends of a front bar similar to the back bar, a rigid seat pivotally secured at one end to the back bar and at the other to the front bar, a back of flexible material secured at one end to the top bar and at the other to the back bar, a combined front foot and arm-piece extending through and pivotally secured in each of the front bosses, said arm-piece being provided with downwardly-turned ends fitted into holes or sockets formed in the rear bosses.

749,916. **TROLLEY FOR OVERHEAD-ELECTRICAL-CONDUCTOR SYSTEMS.** EUGENIO CAFFONE, Rome, Italy. Filed Aug. 3, 1903. Serial No. 168,103. (No model.)



Claim.—A trolley comprising a vertical rod, a pole, a horizontally-rotatable means carried by the rod, said means pivotally connected to one end of the rod, a spring connection between said means and pole for lifting the latter, a spring connection between said rod, and means adapted to rotate the latter, imparting a like movement to the pole, a horizontally-rotatable arm carried by the free end of said pole, a pair of rods pivotally connected to said arm and arranged in a fan-like manner, and a roller carried on the free end of each of said rods of said pair of rods.

749,917. **MACHINE FOR MANUFACTURING PAPER BOXES.** JACOB M. CARRICOMB, Jackson, Mich. Filed June 22, 1903. Serial No. 162,674. (No model.)



Claim.—1. In a paper-box machine, the combination with a mandrel, and means for holding the material in position thereon, of a disk, an expansible ring, and means for forcing said disk against the mandrel, for causing the ring to turn the edge of one section of the box and deposit another section thereon.

2. In a paper-box machine the combination with a mandrel, a ring surrounding the same, and a clip for holding said ring in position, of a disk, a plurality of movable sections carried thereby and means for forcing said sections against the mandrels for turning the edge of one section of a box and depositing another section thereon.

3. In a paper-box machine, the combination with a mandrel, a cushion carried thereby, and means for holding the material in position, of a disk, a plurality of movable sections therein and means for forcing said disk against the cushion, for turning the edges of one section of a box, and expanding said movable sections.

4. In a box-making machine, the combination with a mandrel, of a disk, a sectional ring carried thereby, and means for holding said sections together, the inner faces of said sections being inclined and means for connecting said disk and mandrel to expand said sections.

5. In a box-making machine the combination with a mandrel, of a disk, provided with a plurality of grooves in its face, arms moving in said grooves, sections carried by said arms, said sections being provided with a notch, springs for holding said sections in position, and means for forcing said disk against the mandrel to expand said sections.

6. In a box-making machine the combination with a mandrel, pivoted links carried thereby and cams pivoted to said links, of a disk, an expansible ring carried thereby, and projections extending beyond the periphery of said disk, for engaging the cams to force said disk against the mandrel, and expand said ring.

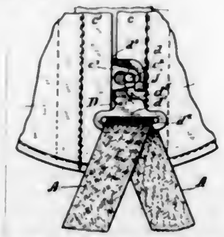
7. In a paper-box machine the combination with a hollow mandrel, a bar secured to the base thereof and extending beyond its sides, links pivoted to the free ends of the bars, and a cam-lever pivoted to the free ends of the links, of a disk, an expansible ring carried thereby and a bar secured across the top of said disk, the ends thereof projecting beyond the periphery of the disk for engagement with the cam-levers to expand the ring.

8. A box-former, comprising a mandrel carrying the body of a box, and the bottom-filler, a disk provided with an expansible ring carrying the bottom and means for forcing said disk against the mandrel, whereby the ends of the body are turned in against the filler, and the ring expanded for depositing the bottom upon the inturned ends.

9. In a box-making machine, the combination with a base-plate provided with a vertical flange having horizontal slots, of a plurality of radially-movable expanders attached to the base-plate and having base-plates engaging said slots, a centrally-disposed reciprocatory shaft, means for operating the same, and links connecting the expanders with the shaft.

10. In a box-making machine, the combination with a base-plate, of a plurality of radially-movable expanders associated therewith, a centrally-disposed reciprocatory shaft, operative connections between the shaft and expanders, a link pivoted to the base-plate and connected with and operable by the shaft, and a presser-plate carried by the link and movable thereby.

749,918. **HOSE-SUPPORTER.** JAMES B. CAROLIN, Newark, N. J., assignor to Adolph H. Cohn, New York, N. Y. Filed Mar. 14, 1901. Serial No. 51,148. (No model.)



Claim.—1. A clasp for hose-supporters comprising a front portion adapted to lie against the front of a corset-busk, a rear flange adapted to lie against the back of said busk, and a side flange uniting said front portion and rear flange.

2. A clasp for hose-supporters comprising a slotted front portion adapted to engage the stud and lie against the front of a corset-busk, a rear flange adapted to lie against the back of said busk, and a side flange uniting said front portion and rear flange.

3. A clasp for hose-supporters having its upper portion provided with a hook adapted to connect with the stud of a corset-fastening, the extreme end of said hook being curled upwardly, substantially as set forth.

749,919. **HANDLE FOR SNAP-SWITCHES.** CHARLES A. CLARK, Hartford, Conn. Filed Jan. 3, 1903. Serial No. 137,635. (No model.)

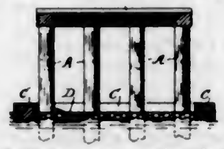


Claim.—1. A handle consisting of a body, a sleeve with an expanded portion between its ends embedded within the body, a plunger movable within the sleeve, a washer secured to the outer end of the sleeve and a spring thrusting against a portion of the plunger and against the washer secured to the outer end of the sleeve, substantially as specified.

2. A handle consisting of a body of molded insulating material, a sleeve that is angular in cross-section and has an expanded portion between its ends embedded within the body, a plunger having a head with an angular cross-section movable within the sleeve, a washer secured to the end of the sleeve and a spring surrounding the plunger and thrusting against the head and against the washer, substantially as specified.

3. A handle consisting of a body of molded insulating material, a sleeve that is angular in cross-section and has an expanded portion between its ends embedded within the body and headed lugs projecting downwardly from the open end, a plunger having a head with an angular cross-section movable within the sleeve, a washer having slots receiving the lugs and secured to the end of the sleeve by the lugs, and a spring surrounding the plunger and thrusting against the head and against the washer, substantially as specified.

749,920. **PILE-PROTECTOR.** AUGUSTUS S. COOPER, Oakland, Cal. Filed Sept. 8, 1903. Serial No. 172,250. (No model.)



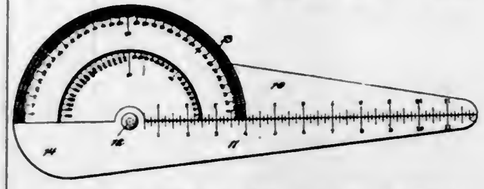
Claim.—1. A pile-protector comprising a floating substance noxious to pile-destroying worms, bugs and insects, and a dam to confine said floating substance about the pile.

2. A pile-protector comprising a floating substance noxious to pile-destroying worms and insects and a floating dam to confine said floating substance about the pile.

3. A pile-protector comprising a floating body of petroleum and a dam to confine it about the pile.

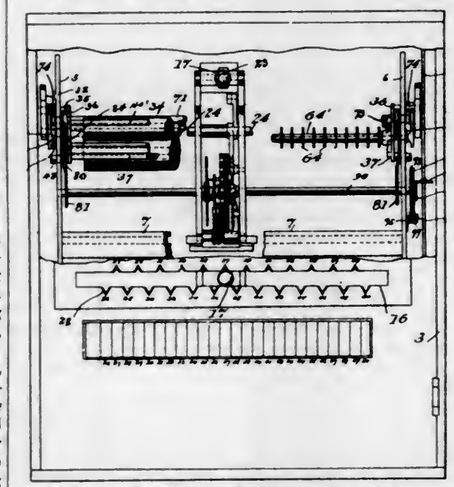
4. A pile-protector comprising a floating body of petroleum, and a floating dam to confine it about the pile.

749,921. **PLOTTING INSTRUMENT.** NELS G. DAVIDSON, Anaconda, Mont. Filed Oct. 27, 1902. Serial No. 129,007. (No model.)



Claim.—As an article of manufacture, an instrument of the class described comprising a pair of flat members pivoted together between their ends and swinging side by side in different planes, said members having adjacent straight edges, one of which extends from end to end thereof, coacting scales arranged on said coacting edges and extending from the pivot toward one end of the instrument, the portion of one arm surrounding the pivot being provided on one face with a sector-scale disposed concentrically to the pivot and extending on opposite sides of the same, the other member being movable over said face and having its straight edge coacting with the scale thereof.

749,922. **TIME-RECORDER.** JOHN W. DRÜBNER, Chicago, Ill., assignor, by mesne assignments, to the International Time Recording Company, a Corporation of New Jersey. Filed Sept. 15, 1900. Serial No. 30,067. (No model.)



Claim.—1. In a time-recorder, the combination of a clock-actuated printing-form, a sheet-supporting mechanism, means for shifting one of said mechanisms relatively to the other to cause the printing-form to traverse the recording-sheet, manually-operable means for taking an impression from the printing-form upon the recording-sheet, adapted for operation when said parts are shifted into various relations relatively to each other, and means acting automatically to feed one of said mechanisms a step forward relatively to the other in a direction transversely to the direction in which said other part is shifted manually.

2. In a time-recorder, the combination of a clock-actuated printing-form, a sheet-supporting mechanism, means for shifting one of said mechanisms relatively to the other to cause the printing-form to traverse the recording-sheet, manually-operable means for taking an impression from the printing-form upon the recording-sheet, adapted for impression when said parts are shifted into various relations relatively to each other, corresponding to the several registering positions, and means acting automatically to feed one of said mechanisms a step forward relatively to the other in a direction transversely to the direction in which said other part is shifted manually, said mechanism comprising a shifting mechanism which auto-

matically reverses itself each time it operates effectively, so as to act idly upon successive registrations in the same direction after the first, as and for the purposes set forth.

3. A time-recording machine comprising a form bearing time-indicating characters, adapted to be actuated by a clock mechanism having constant driving engagement with said form, manually-operable means for shifting said form to traverse it across a recording-sheet, manually-operable means for taking an impression from the form upon the recording-sheet, operable when said form is shifted into various positions relatively to said sheet and mechanism operating to feed the sheet forward a step at a time, said mechanism comprising a plurality of individual shifters respectively corresponding to the several printing positions, each adapted to be shifted alternately in opposite directions when successively recording operations are performed, and a paper-feeding mechanism proper having a part common to all of said shifters, and adapted to be acted upon whenever one of the latter is shifted in a direction the reverse of that of the last preceding shift.

4. In combination with a workman's time-recorder comprising clock-controlled printing mechanism and mechanism for taking impressions therefrom, an oscillatory lever having operative connection with said impression mechanism and adapted to be shifted manually back and forth along ways to bring it into register with various printing positions, said lever being mounted to oscillate transversely to the direction in which it is shifted manually, and its operative connections with the impression mechanism being such as to operate the latter when the lever is oscillated in either direction from a position located intermediate of the limits of its throw.

5. In combination with a workman's time-recorder comprising clock-controlled printing mechanism and an impression mechanism for taking impressions therefrom, of an oscillatory lever having operative connections with said impression mechanism, a guide-slot along which said lever is adapted to be shifted manually, and indicating-marks arranged at intervals along said guide-slots at each side thereof indicating the several printing positions, said oscillatory lever being mounted to oscillate in a direction transversely to the length of the guide-slot, and its operative connections with the impression mechanism being arranged to operate the latter when the oscillatory lever is oscillated toward either side of the guide-slot, as and for the purposes set forth.

6. In combination with a workman's time-recorder comprising clock-controlled printing mechanism and an impression mechanism for taking impressions therefrom, of an oscillatory lever having operative connections with said impression mechanism, a guide-slot along which said lever is adapted to be shifted manually, a plurality of notches formed in the opposite sides of said slot and constituting guides and indicating-marks designating the several printing positions, and guide projections upon the opposite sides of said oscillatory lever adapted to cooperate with said guide-notches, said oscillatory lever being mounted to oscillate in a direction transversely to the length of the guide-slot, and its operative connections with the impression mechanism being arranged to operate the latter when the oscillatory lever is oscillated toward either side of the guide-slot, as and for the purposes set forth.

7. In combination with a workman's time-recorder, comprising clock-controlled printing mechanism and an impression mechanism for taking impressions therefrom of an oscillatory lever having operative connections with said impression mechanism, a guide-slot along which said lever is adapted to be shifted manually, a plurality of notches formed in the opposite sides of said slot in offset relation to each other and constituting guides and indicating-marks designating the several printing positions, and guide projections upon the opposite sides of said oscillatory lever adapted to cooperate with said guide-notches, said oscillatory lever being mounted to oscillate in a direction transversely to the length of the guide-slot, and its operative connections with the impression mechanism being arranged to operate the latter when the oscillatory lever is oscillated toward either side of the guide-slot, as and for the purposes set forth.

8. In a time-recorder, the combination with a suitable frame, of a set of printing-forms mounted to reciprocate upon ways within said frame and adapted to be actuated by a clock mechanism having constant driving engagement with said printing-forms, a sheet-supporting impression-carriage of a width equal to the length of travel of the printing-forms along said ways and adapted to be brought into printing engagement with the printing-forms while the latter are in various positions, and an operating-lever connected to and moving with said printing-forms and having constant operative engagement with the impression-carriage, whereby the latter may be operated when the forms are shifted to another position, substantially as described.

9. In a time-recorder, the combination with a suitable frame, of a set of printing-forms mounted to reciprocate upon ways within said frame and adapted to be actuated by a clock mechanism having constant driving engagement with said printing-forms, a sheet-supporting impression-carriage of a width equal to the length of travel of the printing-forms along said ways and adapted to be brought into printing engagement with the printing-forms while the latter are in various positions, an operating-lever connected to and moving with said printing-forms and having constant operative engagement with the impression-carriage, whereby the latter may be operated when the forms are shifted to another position, a sheet-feeding mechanism and an operating member moving with the printing-forms and capable of acting upon said sheet-feeding mechanism to operate the latter in each of the printing positions to which the printing-forms may be shifted, as and for the purposes described.

10. In a time-recorder, the combination with a suitable frame, of a set of printing-forms mounted to reciprocate upon ways within said frame adapted to be actuated by a clock mechanism having constant driving engagement with said printing-forms, a sheet-supporting impression-carriage of a width equal to the length of travel of the printing-forms along said ways and adapted to be brought into printing engagement with the printing-forms while the latter are in various positions, an operative lever connected to and moving with said printing-forms and having constant operative engagement with the impression-carriage, whereby the latter may be operated when the forms are shifted to another position, a sheet-feeding mechanism and an operating member moving with the printing-forms and capable of acting upon said sheet-feeding mechanism to operate the latter in each of the printing positions to which the printing-forms may be shifted, said sheet-feeding mechanism comprising a plurality of individual shifters respectively corresponding to the several printing positions, each adapted to be shifted alternately in opposite directions when successive recording operations are performed, and adapted to be severally acted upon by the operating member moving with the printing-forms, as and for the purposes described.

11. In a time-recorder, the combination with a suitable casing, of a printing-form carriage mounted to reciprocate on ways within said casing and carrying a set of clock-controlled printing-forms, an operating-lever connected with said printing-form carriage and extending out through a slot in the casing, whereby the printing-carriage may be shifted manually, a sheet-supporting impression-carriage of a width equal to the length of travel of the printing-form carriage upon said ways and movably mounted within the casing so as to be capable of being brought into printing contact with said printing-forms, operative connections between the operating-lever and said impression-carriage, comprising a rock-shaft, an arm rigidly mounted upon said rock-shaft and engaging the printing-carriage, and operative connections between the rock-shaft and operating-lever, whereby the latter is free to be shifted longitudinally of the rock-shaft while retaining driving connection therewith, a series of oscillatory shifters mounted adjacent to the path of said printing-form carriage and an oscillatory lever mounted upon the printing-form carriage, having constant driving engagement with the operating-lever, and carrying a pawl adapted to act upon said shifters, a rock-shaft provided with a flange adapted to be acted upon by said shifters, and a paper-feeding mechanism adapted to be brought into operation by the oscillation of the last-mentioned rock-shaft, substantially as described.

12. In combination with a shiftable carriage, an operating-pawl carried thereby, a series of independently-operable shifters, one for each printing position, pivotally supported adjacent to the path of movement of the shiftable carriage, each shifter comprising a pair of pawl-engaging shoulders separated angularly from each other and an engaging projection, a rock-shaft mounted adjacent to the series of shifters and provided with means adapted to be engaged by the projections of the shifters, and a paper-feeding mechanism adapted to be brought into operation by the oscillation of the rock-shaft through the medium of either of said shifters, as and for the purposes set forth.

13. In combination with a shiftable carriage and an operating-pawl carried thereby, a series of independently-operable shifters, one for each printing position, pivotally supported adjacent to the path of movement of the shiftable carriage, each shifter comprising a pair of pawl-engaging shoulders separated angularly from each other and an engaging projection, a rock-shaft mounted adjacent to the series of shifters and provided with means adapted to be engaged by the projections of the shifters, an arm mounted upon said rock-shaft, a reciprocatory member connected with and operable by said arm, the connections between said reciprocatory member and rock-shaft being constructed to afford lost motion, and a paper-feeding mechanism adapted to be thrown into operation by the shifting of the reciprocatory member.

14. In combination with a shiftable carriage and an operating-pawl carried thereby, a series of independently-operable shifters, one for each printing position, pivotally supported adjacent to the path of movement of the shiftable carriage, each shifter comprising a pair of pawl-engaging shoulders separated angularly from each other and an engaging projection, a rock-shaft mounted adjacent to the series of shifters and provided with means adapted to be engaged by the projections of the shifters, an arm mounted upon said rock-shaft, a reciprocatory member connected with and operable by said arm, the connections between said reciprocatory member and rock-shaft being constructed to afford lost motion, and a paper-feeding mechanism adapted to be thrown into operation each time the reciprocatory member is shifted in either direction.

15. In a time-recorder, the combination with printing-forms and a movable paper-carriage adapted to be brought into printing contact with said printing-forms, of a paper-feeding mechanism comprising a feed-roll, a ratchet operatively connected with said feed-roll, an actuating-pawl and a lever all carried by the paper-carriage, and means for operating said paper-feeding mechanism, comprising a projectible stop and a cam for operating said stop to throw it into the path of the operating-lever of the paper-feeding mechanism when the paper-carriage is carried into printing contact, said cam being connected with and operated by a part of the impression mechanism which is actuated only when a reversal in the direction of recording occurs, substantially as described.

16. In a time-recorder, the combination with printing-forms and a movable paper-carriage adapted to be brought into printing contact with said printing-forms, of a paper-feeding mechanism comprising a feed-roll, an actuating-pawl and a lever all carried by the paper-carriage, and means for operating said paper-feeding mechanism comprising a spring-retracted projectible stop, and a shiftable bar or member provided with oppositely-inclined cam-surfaces adapted to project said stop when the shiftable member is reciprocated in either direction, substantially as described.

17. In a time-recorder, the combination with printing-forms and a movable paper-carriage adapted to be brought into printing contact with said printing-forms, of a paper-feeding mechanism comprising a feed-roll, an actuating-pawl and a lever all carried by the paper-carriage, and means for operating said paper-feeding mechanism comprising a spring-retracted projectible stop having an engaging projection adapted to engage the operating-lever of the paper-feeding mechanism and hold said stop from retraction, and a shiftable bar or member provided with oppositely-inclined cam-surfaces adapted to project said stop when the shiftable member is reciprocated in either direction, substantially as described.

18. In combination with a pivotally-mounted oscillatory shifter having two pawl-engaging shoulders separated angularly from each other, a pivotally-mounted operating-pawl movably supported to approach said shifter in a direction substantially radial to the pivotal axis of the latter and means holding said pawl yieldably in a position substantially in alinement with its path of approach to the shifter, substantially as and for the purposes set forth.

19. In combination with a paper-carriage having an impression-surface adapted to be moved bodily to bring it into engagement with a printing-form, a feed-ratchet carried by said carriage, a lever operatively connected with said feed-ratchet and a movable stop adapted to be thrown into position to engage said lever to effect the feeding of the paper when the carriage is moved to effect the impression.

20. In a time-recorder, the combination with a continuously-moving clock-controlled shaft, of means for converting the continuous movement of said shaft into an intermittent step-by-step movement comprising a gear upon the clock-controlled shaft, a second gear loosely mounted adjacent to and meshing with the gear of the clock-controlled shaft, a cam-wheel operatively connected to move with the driven gear, a cam-pallet arranged to cooperate with the cam-wheel, a driven shaft, an escapement-wheel non-rotatably mounted upon said driven shaft concentric with the cam-wheel, an escapement-pallet connected to and moving with the cam-pallet and arranged to control said escapement-wheel, and a yielding connection between the cam and escapement wheels, substantially as described.

21. In a time-recorder, the combination with a continuously-moving clock-controlled shaft, of means for converting the continuous movement of said shaft into an intermittent step-by-step movement comprising a gear upon the clock-controlled shaft, a second gear loosely mounted adjacent to and meshing with the gear of the clock-controlled shaft, a cam-wheel operatively connected to move with the driven gear, a cam-pallet arranged to cooperate with the cam-wheel and positively actuated in both directions by the latter, a driven shaft, an escapement-wheel non-rotatably mounted upon said driven shaft concentric with the cam-wheel, an escapement-pallet connected to and moving with the cam-pallet and arranged to control said escapement-wheel, and a yielding connection between the cam and escapement wheels, substantially as described.

22. In a time-recorder, the combination with a continuously-moving clock-controlled shaft, of means for converting the continuous movement of said shaft into an intermittent step-by-step movement comprising a gear upon the clock-controlled shaft, a second gear loosely mounted adjacent to and meshing with the gear of the clock-controlled shaft, a cam-wheel operatively connected to move with the driven gear, a cam-pallet arranged to cooperate with the cam-wheel, a driven shaft, an escapement-wheel non-rotatably mounted upon said driven shaft concentric with the cam-wheel, an escapement-pallet connected to and moving with the cam-pallet and arranged to control said escapement-wheel, a yielding connection between the cam and escapement wheels, a rigid stud projecting from the cam-wheel, and a fixed stop upon the escapement-wheel arranged in the path of movement of the rigid stud and adapted to be engaged by the latter so as to move the escapement-wheel positively with the cam-wheel when the latter advances an angular distance ahead of the escapement-wheel greater than the distance between successive teeth of the ratchet-wheel, as and for the purpose set forth.

23. In combination with a substantially continuously rotating driven member, means for imparting an intermittent step-by-step movement therefrom, comprising a second member mounted to rotate upon an axis concentric with the axis of rotation of the drive member, a spring yieldably connecting said members so that the driven member tends to move with the drive member, a ratchet-wheel connected to move positively with the driven member, a pair of ratchet-dogs, one fixed relatively to the forward movement of the ratchet-wheel and the other yieldable between fixed stops, limiting its movement to a distance corresponding to the distance between ratchet-teeth, and both arranged to move transversely into and out of the path of the teeth of the ratchet-wheel, a cam carried by or moving with the drive member and a wiper engaging said cam and operating to shift said ratchet-dogs, substantially as described.

24. In combination with a substantially continuously rotating driven member, means for imparting an intermittent step-by-step movement therefrom, comprising a second member mounted to rotate upon an axis concentric with the axis of rotation of the driven member, a spring yieldably connecting said members so that the driven member tends to move with the drive member, a ratchet-wheel connected to move positively with the driven member, a pair of ratchet-dogs, one fixed relatively to the forward movement of the ratchet-wheel and the other yieldable between fixed stops, limiting its movement to a distance corresponding to the distance between ratchet-teeth, and both arranged to move transversely into and out of the path of the ratchet-wheel, a helical cam arranged concentrically to and moving with the drive member, said cam having its lower and higher portions united by an abrupt drop, a wiper engaging said cam and operating to shift said ratchet-dogs, and a spring acting upon said wiper in opposition to its movement by the cam, substantially as described.

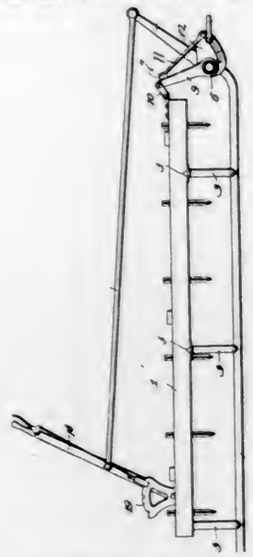
25. In combination with a substantially continuously rotating driven member, means for imparting an intermittent step-by-step movement therefrom, comprising a second member mounted to rotate upon an axis concentric with the axis of rotation of the drive member, a spring yieldably connecting said members so that the driven member tends to move with the drive member, a ratchet-wheel connected to move positively with the driven member, a pair of ratchet-dogs, one fixed relatively to the forward movement of the ratchet-wheel and the other yieldable between fixed stops, limiting its movement to a distance between ratchet-teeth, and both arranged to move transversely into and out of the path of the ratchet-wheel, a helical cam arranged concentrically to and moving with the drive member, said cam having its lower and higher portions united by an abrupt drop, a wiper engaging said cam and operating to shift said ratchet-dogs, a spring acting upon said wiper in opposition to its movement by the cam, and means for causing the driven member to move positively with the drive member, comprising a fixed stud or projection carried by the drive member and a stop or shoulder upon the driven member located in position to be engaged by the fixed projection when the drive member advances ahead of the driven member an angular distance greater than the angular distance between ratchet-teeth.

26. A longitudinally guided and movable carriage and a clock-operated type-disk mounted therein, a number-plate and a hatch se-

cured upon the carriage and adapted to engage the number-plate to secure said carriage in proper position with reference to the number-plate.

27. A longitudinally guided and movable carriage and a clock-operated type-disk mounted therein, a number-plate and operating means secured to said carriage and adapted to secure said carriage in proper position with reference to the number-plate.

749,923. SELF-CLEANING HARROW. ARTHUR DIXON, Rolla N. D. Filed Jan. 30, 1903. Serial No. 141,193. (No model.)



Claim.—1. The combination with a harrow, of means for positively cleaning the harrow-teeth operated solely by the forward pull of the draft-animals when the harrow is in use.

2. The combination with a harrow, of means for lifting the harrow bodily operated solely by the forward pull of the draft-animals when the harrow is in use.

3. The combination with a harrow, of means for simultaneously lifting the harrow from the ground and positively cleaning the harrow-teeth, said lifting and cleaning means being operated solely by the forward pull of the draft-animals when the harrow is in use.

4. The combination with a harrow, of means for lifting the harrow bodily and cleaning the teeth thereof, said means for lifting and cleaning being operated solely by the forward pull of the draft-animals when the harrow is in use and being controlled by the driver

5. The combination with a harrow, of lifting means therefor, a rocking draw-bar connected with said harrow, and connections between said draw-bar and lifting means whereby the rocking of the draw-bar will operate the lifting means.

6. The combination with a harrow, of lifting-bars beneath the harrow-frame, a rocking draw-bar, connections between said draw-bar and harrow, and connections between said draw-bar and lifter-bars whereby the rocking of the draw-bar will lower the lifter-bars and raise the harrow.

7. The combination with a harrow, of means for lifting the harrow bodily adapted to be operated solely by a forward pull of the draft-animals, and means operated by the driver for controlling the operation of the lifting means.

8. The combination with a harrow, of lifting means, a rocking draw-bar connected with said harrow, connections between the draw-bar and lifting means whereby rocking the draw-bar will lift the harrow, a draft device, connections between said draft device and draw-bar, whereby a forward pull on the draft device will rock the draw-bar.

9. The combination with a harrow, of lifter-bars, link connections between said lifter-bars and harrow, a rocking draw-bar, connections between the draw-bar and harrow and between the draw-bar and lifter-bars, said connections comprising levers, a draft device, connections between the draw-bar and draft device whereby a forward pull on the draft device will rock the draw-bar.

10. The combination with a harrow, of lifting means, a rocking draw-bar, connections between the draw-bar and lifting means and between the draw-bar and harrow, a plate rigidly secured to the draw-bar and provided with a cam-slot, a draft device movably mounted in said cam-slot, whereby a forward pull on said draft device will rock the draw-bar.

11. The combination with a harrow, of lifting means, a rocking draw-bar, connections between the draw-bar and the harrow and between the draw-bar and lifting means, whereby rocking the draw-bar will operate the lifting means, a draft device, connections between said draft device and draw-bar, whereby a forward pull on the draft device will rock the draw-bar, and means controlled by the driver for holding the draw-bar against rocking.

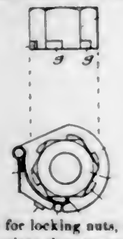
12. The combination of harrow-sections, lifting means for each section, a single draw-bar for all sections, connections between the draw-bar and the harrow-section, and between the draw-bar and lifting means, whereby rocking the draw-bar will simultaneously lift all the harrow-sections.

13. The combination of a plurality of harrow-sections, combined means for lifting and cleaning each section, a single draw-bar for all the sections, connections between the draw-bar and the harrow-sections and between the draw-bar and the combined lifting and cleaning means, whereby rocking the draw-bar will lift and clear all the sections simultaneously.

14. The combination of a plurality of harrow-sections, combined lifting and cleaning means for each section, a single draw-bar for all the sections, connections between the draw-bar and the harrow-sections and between the draw-bar and the combined lifting and cleaning means, whereby rocking the draw-bar will lift and clean all of the sections simultaneously, and a single means operated by the driver for controlling the rocking of the draw-bar.

15. The combination of a plurality of harrow-sections arranged side by side, a single draw-bar of truss-frame construction connected with all the harrow-sections extending transversely of the direction of movement of said sections, lifting means for each of the harrow-sections, and connections between the lifting means and the draw-bar, whereby rocking the draw-bar will operate all of the lifting means simultaneously.

749,924. LOCKING DEVICE FOR NUTS, &c. PIETER VAN DUIN, Almelo, and LAMBERTUS W. VAN THIEL, Helmond, Netherlands. Filed Mar. 5, 1903. Serial No. 146,390. (No model.)



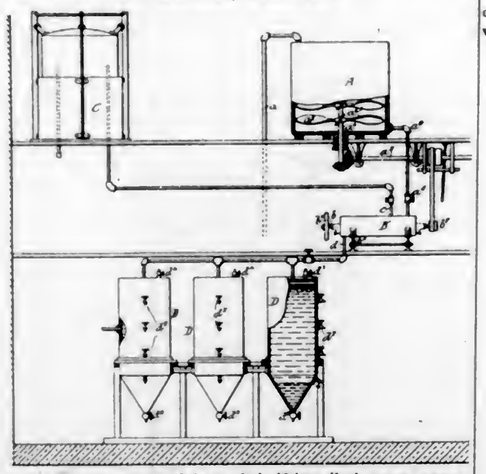
Claim.—1. A device for locking nuts, comprising in combination with a nut and projections thereon, a washer and a strip formed in one piece with same, such strip being bent at right angles to the washer for a portion of its length and then bent back upon itself to form a spring-pawl adapted to engage the projections of the nut, the right-angular portion limiting the backward movement of the spring portion.

2. A device for locking nuts, comprising in combination with a nut and projections thereon, a washer and a strip formed in one piece with same, such strip being bent at right angles to the washer for a portion of its length and then bent back upon itself to form a spring-pawl adapted to engage the projections of the nut, means for limiting the backward movement of such strip, and means for holding same out of engagement with the nut.

3. A device for locking nuts, comprising in combination with a nut and projections thereon a washer formed in one with a spring-pawl *b*, lugs *c* and *e* for holding the spring-pawl out of engagement with the nut and limiting its movement respectively and means for preventing the rotation of the washer.

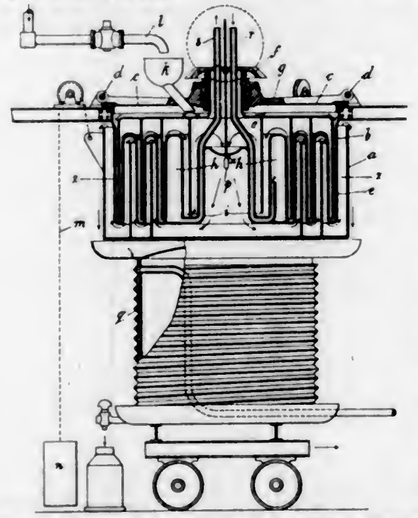
749,925. PROCESS OF REFINING OIL. JOHN C. FLEMING, New York, N. Y. Filed May 23, 1902. Serial No. 109,375. (No specimens.)

Claim.—1. The process of refining and clarifying oil, the same consisting in mixing a solution of borax with the oil, mingling carbon dioxid with said mass, subjecting the mixture to an atomizing action and finally permitting it to settle, thereby separating the objectionable elements, substantially as described.



2. The process of refining and clarifying oil, the same consisting in mixing a solution of borax and carbon dioxid with the oil, subjecting the mass to a sucking and forcing action whereby it is atomized and thoroughly commingled with the carbon dioxid and finally allowing the whole to settle whereby the objectionable ingredients are separated, substantially as described.

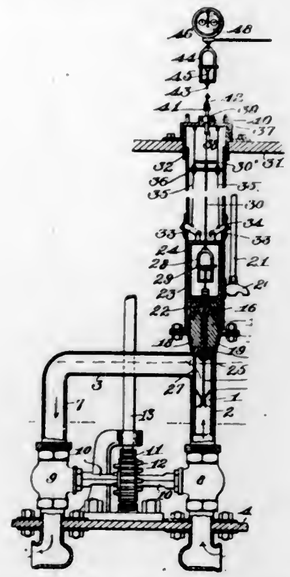
749,926. APPARATUS FOR HEATING LIQUIDS, ESPECIALLY MILK. JOSEF FLEISCHL, Mallmitz, Germany. Filed Mar. 23, 1901. Serial No. 52,534. (No model.)



Claim.—In an apparatus for treating and sterilizing or pasteurizing milk and also for heating other liquids, the combination with an outer cylinder *a*, an inner cylinder *b*, an agitator *c* set in rotation by bevel-gearing, and a central collecting-chamber *i* provided with a narrow opening through its top, around which a steam-chamber is provided, and a steam-inlet and a steam-outlet leading along the central collecting-chamber, the said narrow opening through the top of the collecting-chamber serving to mix the milk, substantially as described and set forth.

749,927. DISTANCE-RECORDER FOR SHIPS. WILLIAM C FORBES, Elsternwick, Victoria, Australia. Filed Mar. 28, 1903. Serial No. 150,084. (No model.)

Claim.—1. In a distance-indicator for ships, a pipe having an inlet and an outlet branch projecting through the ship's bottom, a valve in each of the branches, a worm-wheel on the stem of each of the valves, and a worm meshing with the worm-wheel and provided with an operating-spindle.



2. In a distance-indicator for ships, a pipe provided with an inlet and an outlet branch, a rotator arranged within the inlet branch, a plug, a sleeve having a head mounted in ball-bearings on the plug, and a rod attached to the rotator and adjustably connected with the sleeve.

3. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, a plug having its lower end adapted to fit snugly within the upper end of the inlet branch and provided at its upper end with ball-bearings, a sleeve adapted to revolve upon the ball-bearings, a rotator arranged within the inlet branch of the pipe, and a rod secured at one end to the rotator and having its other end adjustably connected with the said sleeve.

4. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, a plug arranged in the upper end of the inlet branch and carrying a liner-tube having an opening to communicate with the outlet branch, and a rotator arranged within the inlet branch.

5. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, a rotator arranged within the inlet branch, a stirrup, a rod connected at its lower end with the rotator and projecting through the stirrup, a cross-head carried by the rod and engaging the stirrup, a meter, and connections between the stirrup and the meter.

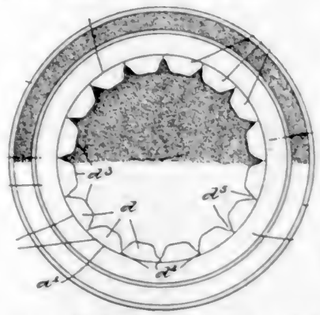
6. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, a tapered plug adapted to fit within the upper end of the inlet branch, and a non-circular box having a similarly-shaped cap at its lower end to fit within a correspondingly-shaped casing.

7. In a distance-indicator for ships, a non-circular box, an adjusting device mounted within the box, and retaining dogs or pawls carried by the adjusting device and engaging recesses in the said box.

8. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, the inlet branch having a flange at its upper end, a non-circular casing secured to the flange at its lower end, and a sleeve secured to the deck of the ship within which the upper end of said casing is adapted to work.

9. In a distance-indicator for ships, a pipe having an inlet and an outlet branch, a rotator arranged within the inlet branch thereof, a bearing-sleeve, a protector-box housing a stirrup-adjusting device, a rod secured at one end to the rotator, and secured at its opposite end to the sleeve and projecting into the protector-box, a flexible device connecting with the stirrup, a ball-bearing rod with which the said connection is connected, a meter, and a spring-stirrup-adjusting device connecting the ball-bearing rod and the meter.

749,928. CHILL. JAMES W. FULLER, Jr., Catasauqua, Pa. Filed July 31, 1903. Serial No. 167,658. (No model.)



Claim.—1. A chill, comprising a plurality of sections, each having a curved outer face arranged to form when the sections are assembled an annulus, said sections being each rhomboidal in outline, substantially as and for the purposes described.

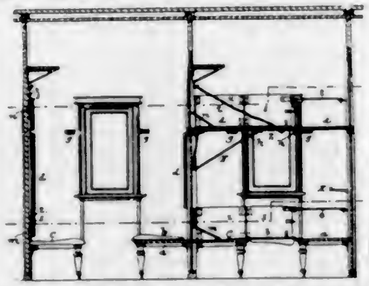
2. The combination with a mold or flask having a central filling, of a chill for the interior surface of a ring, comprising a plurality of sections, each having an outer curved face and relatively thin bearing edges and a frusto-conical back against which the central filling of the flask abuts, the outer curved faces of the sections when assembled forming an annulus and the central filling permitting the articulation of the sections, whereby an annulus contractible in diameter during the chilling operation may be formed by the outer curved faces of the sections.

749,929. CHECKREIN. WILLIAM H. FULLER, Abbeville, La. Filed Aug. 26, 1903. Serial No. 170,801. (No model.)



Claim.—A checkrein comprising a flexible non-elastic housing having an eyelet at one end, an extensible spring within the housing, fixed at one end thereto and having a button at the other end engageable in the eyelet, and hoops on the ends of the spring.

749,930. SLEEPING APPLIANCE FOR PASSENGER-CARS. ISAAC B. GUENZBURG, St. Petersburg, Russia. Filed Sept. 10, 1903. Serial No. 172,676. (No model.)



Claim.—1. In combination in a sleeping-car, the upper and lower berths, said upper berth comprising the hanging boards, means situated beneath one board for supporting the same, said board supporting the other board, substantially as described.

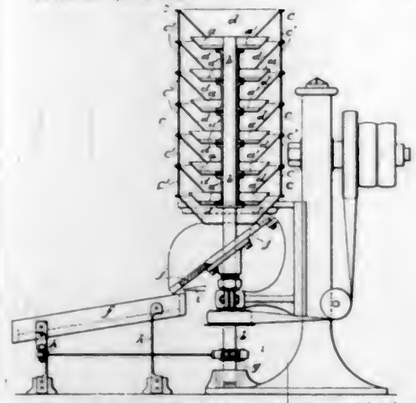
2. In combination, in a sleeping-car, the upper and lower berths, said upper berth comprising the hanging boards, a bracket adapted to support one of said boards, and a Z-shaped plate secured to the end of said board, the other suspending board being supported by said plate, substantially as described.

3. In combination in a sleeping-car, the upper and lower berths, said upper berth comprising hanging boards, means situated below one of said boards for supporting the same and a chain on the front side to prevent the occupant falling out.

4. In combination in a sleeping-car, transverse walls dividing it into compartments, upper and lower berths in said compartments, and head-rests in said berths consisting of a portion having lugs at one end, said lugs engaging slots formed in the transverse walls, substantially as described.

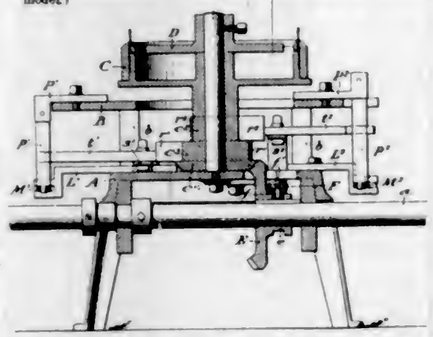
5. In combination in a sleeping-car, berths therein, and partitions dividing the berth into two parts, said partitions being composed of hinged sections whereby they may be folded up when not in use, substantially as described.

749,931. APPARATUS FOR CLEANING DRIED FRUITS. GEORGE HERBERT, Jr., Glasgow, Scotland. Filed Jan. 7, 1902. Serial No. 88,787. (No model.)



Claim.—In a fruit-cleaning machine, the combination with a casing comprising a series of flanged sections secured one to another by the flanges, of a plurality of frusto-conical shelves having flanges projecting outwardly therefrom at their wider ends, each of said shelves lying with its flange between the flanges of two of the cylindrical sections, said shelves projecting downwardly and inwardly of the casing, a rotatable shaft disposed longitudinally of the casing and centrally thereof, a plurality of circular trays secured to the shaft, each of said trays lying between two of the shelves and being adapted to receive the fruit from the shelves and to throw off said fruit centrifugally through rotation of the shaft and trays, a plurality of ribs within each tray projecting upwardly from the bottom thereof and radially from the shaft, an inclined chute disposed below the opening of the lowermost shelf, a plurality of spring uprights mounted adjacent to the base of the shaft, a screening-tray secured to the upper ends of the uprights and disposed with one of its ends below the lower end of the inclined chute, a pitman eccentrically connected at one of its ends with the shaft and secured at its remaining end to the screening-tray, and means for revolving the shaft.

749,932. STOP-MOTION FOR KNITTING-MACHINES. DAVID H. HILL, Philadelphia, Pa. Filed Oct. 3, 1901. Serial No. 77,352. (No model.)



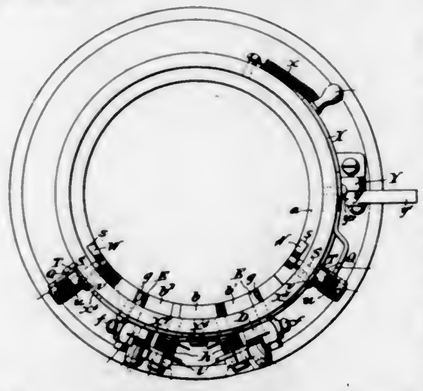
Claim.—1. In a circular-knitting machine, the combination of a friction-disk upon the axis of the revolving cylinder; a friction-band nearly surrounding the friction-disk; a pair of opposing levers, between the inner ends of which the extremities of the friction-band are inserted; a stop-lever whereby the power is disconnected from the revolving cylinder; and connections whereby the stop-lever,

when it disconnects the power, separates the outer ends of the opposing levers whereby frictional pressure is simultaneously applied to nearly all sides of the friction-disk, substantially as described.

2. In a circular-knitting machine, the combination of a friction-disk upon the axis of the revolving cylinder; a friction-band nearly surrounding the friction-disk; a pair of opposing levers, between the inner ends of which the extremities of the friction-band are inserted; a wedge-shaped lever inserted between the outer ends of the opposing levers; a stop-lever whereby the power is disconnected from the revolving cylinder; and connections whereby the stop-lever advances the wedge-shaped lever so as to separate the outer ends of the opposing levers, whereby the frictional pressure is simultaneously applied to nearly all sides of the friction-disk, substantially as described.

3. In a circular-knitting machine, the combination of a pair of friction-disks formed upon the axis of the revolving cylinder; friction-bands nearly surrounding each of the friction-disks and terminating at opposite sides of the machine; mechanisms for compressing together the ends of the friction-bands around the friction-disks, whereby frictional pressure is simultaneously applied to all sides of the axis of the cylinder; a stop-lever whereby the power is disconnected from the revolving cylinder; and connections whereby the stop-lever simultaneously operates the mechanisms for compressing together the ends of the friction-bands, substantially as described.

749,933. AUTOMATIC CIRCULAR-KNITTING MACHINE. JOHN B. HIPWELL, Philadelphia, Pa., assignor to the Windsor Machine Company, a Corporation of Pennsylvania. Filed July 25, 1903. Serial No. 166,929. (No model.)



Claim.—1. An automatic picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder and spring-pressed in relation to said cam-cylinder away from the center line; a secondary arm pivoted upon the free end of the main arm, and also independently spring-pressed in relation to said main arm away from the center line; and a needle-engaging finger mounted upon the free end of the secondary arm, extending into the path of the needle-hubs.

2. An automatic picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder and normally spring-pressed away from the center line; a secondary arm pivoted upon the free end of the main arm and also normally spring-pressed away from the center line; a needle-engaging finger mounted upon the free end of the second arm, and extending into the path of the needle-hubs; and a stop, whereby the motion of the main arm is arrested before the shifting of the needle is completed.

3. An automatic picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder and normally spring-pressed away from the center line; a secondary arm pivoted upon the free end of the main arm and also normally spring-pressed away from the center line; a needle-engaging finger mounted upon the free end of the secondary arm, and extending into the path of the needle-hubs; and means for adjusting said needle-engaging finger with relation to the secondary arm.

4. An automatic picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder; a secondary arm pivotally mounted thereon and arranged in the path of the needle-hubs; and means to positively rotate the secondary arm in a direction opposite to the rotary movement of the main arm, during both the forward and backward movements thereof.

5. A drop-picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder; a shaft journaled in the free end of said arm and projecting into the cam-cylinder; a needle-engaging secondary arm mounted upon the inwardly-projecting end of said shaft and arranged in the path of the idle needle-hubs; and means whereby, during the motions of the main arm toward and away from the center line, the shaft is rotated in an opposite direction.

6. A drop-picker for a circular-knitting machine, consisting of a main arm pivoted to the cam-cylinder; a shaft journaled in the free end of said arm and projecting into the cam-cylinder; a needle-engaging secondary arm mounted upon the inwardly-projecting end of said shaft; a guiding-arm also mounted upon said shaft; a lug upon the cam-cylinder and engaging with said guiding-arm, whereby the shaft is rotated in one direction when the main arm moves in the opposite direction; and a spring, whereby the secondary arm is normally pressed toward the center line.

749,934. LIGATURE-TUBE. BERTRAM K. HOLLISTER, Chicago, Ill., assignor to Bauer & Black, Chicago, Ill., a Corporation of Illinois. Filed Mar. 17, 1900. Serial No. 9,020. (No model.)



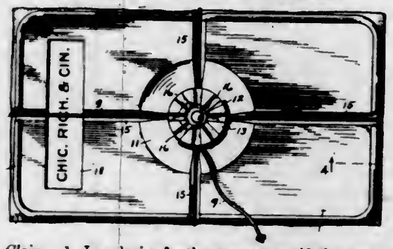
Claim.—1. A ligature tube or receptacle comprising an outer closed tube containing a liquid and a ligature-support movable therein from end to end and of slightly less diameter than the tube and closed to the passage of the liquid through itself, but permitting the liquid to pass alongside, whereby the support is cushioned in its movements.

2. A ligature-tube comprising an outer closed tube containing a liquid, and a closed inner tube therein around which the ligature is wound.

3. A ligature-tube comprising an outer closed tube containing a liquid, and a hollow tube closed at its ends and movable within the outer tube, such inner tube carrying the ligature and of slightly less diameter than the outer tube.

4. The combination of an outer sealed tube and an inner closed tube movable comparatively freely therein from end to end and on the outside of which the ligature is wound, such inner tube being substantially cylindrical and being, together with its ligature, slightly less in diameter than the inner diameter of the outer tube, whereby the movements of the inner tube from end to end of the outer tube are cushioned.

749,935. LETTER-PACKAGE TIE. CLAUDE S. KELLUM, Indianapolis, Ind., assignor of one-half to James Albert Hayes, Kokomo, Ind. Filed Mar. 24, 1903. Serial No. 149,257. (No model.)



Claim.—1. In a device for the purpose specified, a post, a plate on which the post is mounted, having corrugations radially of the post, a flexible tie secured at one end to the post, and means for removably securing the opposite end of said tie after the tie has been wrapped around the articles to be bound, said means comprising a radially-corrugated disk mounted on the said post.

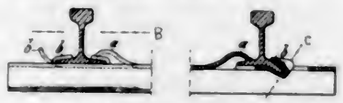
2. In a device for the purpose specified, a plate having a middle depression, a post secured to the plate in said depression, a cap mounted on the post, and a flexible tie having one end fastened to the post and its opposite end detachably secured by being caught between the cap and plate after being wound around the articles to be bound.

3. In a device for binding packages of mail-matter, a plate having longitudinal and transverse depressions, a locking-plate mounted below the outer face of the plate, a flexible tie secured to the plate at one end and adapted to lie in said depressions when wrapped

around the package and to be removably secured at its opposite end by introduction between the locking-plate and the first plate.

4. In a letter-tie, a plate having a middle depression and centrally-located longitudinal and transverse channels leading across the plate from said depression, a radially-corrugated disk mounted in said depression and a tie the wrappings of which are adapted to be laid in said channels and the loose end of the tie being adapted to be temporarily fastened between the plate and the corrugated disk.

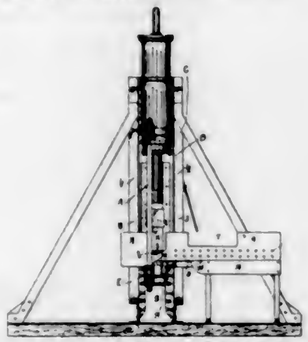
749,936. **RAIL-FASTENING.** ARTHUR KOPPEL, Berlin, Germany. Filed Oct. 2, 1903. Serial No. 175,501. (No model.)



Claim.—1. In combination with a rail and sleeper, a cramp formed on the sleeper engaging with the rail on one side, and a tongue bent up from the sleeper engaging the rail on the other side substantially as described.

2. In combination with a rail and sleeper, a cramp formed on the sleeper engaging the rail on one side and a tongue bent up from the sleeper engaging the rail on the other side, said tongue and that portion of the rail engaged thereby being bent down into the sleeper substantially as described.

749,937. **MACHINE FOR CUTTING AND SHAPING STONE.** PIERCE LANIGAN, Grey Lynn, New Zealand. Filed Nov. 3, 1902. Serial No. 130,003. (No model.)

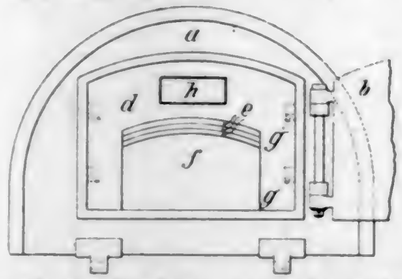


Claim.—1. In a machine for cutting and shaping stone, a lower block having a groove therein, a knife, having elongated slots therein, seated in the groove of said lower block, adjusting-bolts passing through said lower block and through the slots in said knife, an upper block having a groove therein, a knife, having a curved slot therein, seated in the groove of said upper block, an adjusting-bolt passing through said upper block and through the curved slot in said knife, means for operating said upper block, and a table located adjacent to said lower block.

2. In a machine for cutting and shaping stone, a lower block having a groove therein, a knife, having elongated slots therein, seated in the groove of said lower block, adjusting-bolts passing through said lower block and through the slots in said knife, an upper block having a groove therein, a knife, having a curved slot therein, seated in the groove of said upper block, an adjusting-bolt passing through said upper block and through the curved slot in said knife, means for operating said upper block, a stationary table, a hinged member attached to said table adjacent to said lower block, cushion-springs connected to said hinged member, and a rod for controlling the rebound of said hinged member.

3. In a machine for cutting and shaping stone, a lower block having a groove therein, a knife having an elongated slot therein seated in the groove of said lower block, an adjusting-bolt passing through said lower block and through the slot in said knife, an upper block having a groove therein, a knife having a slot therein, seated in the groove in said upper block, an adjusting-bolt passing through said upper block and through the slot in said knife, means for operating said upper block, and a table adjacent to said lower block.

749,938. **FURNACE FOR STEAM-GENERATORS.** FRANZ MAY, Hatschein, near Olmütz, Austria-Hungary. Filed Aug. 24, 1903. Serial No. 170,602. (No model.)



Claim.—1. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire door is opened consisting of the combination with the door-frame of the generator, of means mounted therein and supported thereby for decreasing the size of the fire-door opening.

2. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of adjustable means therein and supported thereby for decreasing the size of the fire-door opening.

3. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of detachable means mounted therein and supported thereby for decreasing the size of the fire-door opening.

4. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of detachable and adjustable means mounted therein and supported thereby for decreasing the size of the fire-door opening.

5. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of a yoke-shaped frame mounted therein and supported thereby for decreasing the size of the fire-door opening.

6. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of a detachable yoke-shaped frame mounted therein and supported thereby for decreasing the size of the fire-door opening.

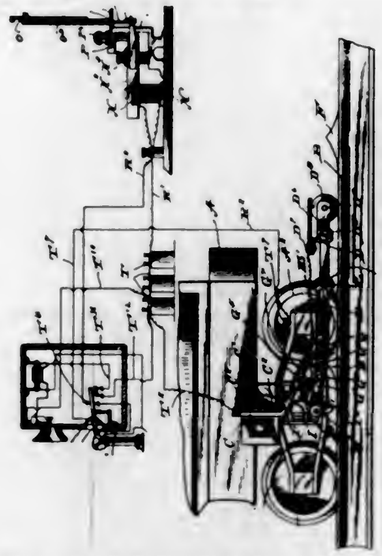
7. A fitting for steam-generating furnaces adapted to decrease the amount of air admitted above the grate when the fire-door is opened consisting of the combination with the door-frame of the generator, of an adjustable yoke-shaped frame mounted therein and supported thereby for decreasing the size of the fire-door opening.

749,939. **RAILWAY SIGNALING APPARATUS.** JNO. F. MICKEY, FRANK T. BAILEY, and JOSEPH J. HOFFENBERGER, Baltimore, Md. Filed Aug. 1, 1903. Serial No. 167,919. (No model.)

Claim.—1. A signaling apparatus for third-rail block systems, comprising a trolley-arm, a contact-roller mounted thereon, a brush connected to said roller, a danger-signal, electrical connections between the same and said brush, an antifriction-roller carried by the trolley-arm, a rail and a projection thereon adapted to contact with said roller to raise the trolley-arm, means for holding the trolley-arm raised, and mechanism for releasing the trolley-arm and allowing the same to fall by gravity so that the contact-roller carried thereby will engage the third rail, as set forth.

2. A signaling apparatus for third-rail block systems, comprising a tilting trolley-arm adapted to be connected to a truck, a contact-roller carried by said arm, a brush in contact with said roller, a danger-signal, electrical connections between the same and said brush, an antifriction-roller carried by the trolley-arm, a rail with projections thereon against which an antifriction-roller is adapted to contact to raise the trolley-arm so that the contact-roller thereon will be out of engagement with the third rail, a spring-actuated link adapted to hold the trolley-arm in an adjusted position, and means for releasing said trolley-arm to allow the contact-roller to engage the third rail, as set forth.

3. A signaling apparatus for third-rail block systems, comprising a pivoted trolley-arm mounted on a truck, a contact-roller carried by said trolley-arm, a brush in contact with said roller, a danger-signal, electrical connections between the same and the brush, an antifriction-roller carried by the trolley-arm, a rail with projections thereon against which said antifriction-roller is adapted to contact to raise the trolley-arm so that the contact-roller thereon will be out of electrical connection with the third rail, a pivoted spring-actuated link having notches therein adapted to engage and hold the trolley-arm in an adjusted position, and means for tilting said spring-actuated link to allow the trolley-arm to lower so that its contact-roller will engage the third rail, as set forth.



4. An electrical signaling apparatus for third-rail block systems, comprising a pivoted trolley-arm connected to a truck, a contact-roller carried by said arm, a brush in contact with said roller, a danger-signal and electrical connections between the same and said brush, an antifriction-roller, a rail with projections thereon against which said antifriction-roller is adapted to contact to raise the trolley-arm so that its contact-roller will be out of electrical connection with the third rail, a spring-actuated link having notches therein, a second link pivoted to the trolley-arm, and an antifriction-roller carried by said second link, which latter is adapted to throw the notched link out of engagement with the trolley-arm, and means for actuating said roller-carrying link, as set forth.

5. An electrical danger-signaling apparatus for third-rail systems, comprising in combination with a truck, a bar secured thereto, a trolley-arm pivotally connected to said bar, a contact-roller carried by the trolley-arm, a brush in engagement with said contact-roller, a danger-signal and electrical connections between the same and said contact-roller, a rail with projections thereon, an antifriction-roller carried by the trolley-arm and adapted to engage said projections to raise the contact-roller from the third rail, a spring-actuated notched link pivotally connected to said bar and engaged by the end of the trolley-arm, a roller-carrying link pivoted to the trolley-arm, the roller on said link adapted to engage projections on said rail, whereby the roller-carrying link may actuate said notched link to release the end of the trolley-arm therefrom to allow the contact-roller to fall by gravity against a third rail, as set forth.

6. A railway danger-signaling apparatus for third-rail systems, comprising in combination with a truck, a bar secured thereto, a pivoted trolley-arm mounted upon said bar, a contact-roller carried by the arm, a brush in contact with said roller, a danger-signal apparatus electrically connected with said brush, a notched and spring-actuated link pivoted to said bar, an antifriction-roller carried by said link, a spring-actuated roller-carrying link mounted upon the trolley-arm, and having a beveled end adapted to contact with the antifriction-roller on the notched pivoted link, an antifriction-roller upon the trolley-arm, a rail with projections thereon adapted to contact with said rollers to cause the trolley-arm to be raised and released, as set forth.

7. In combination with trolley mechanism with a contact-roller thereon adapted to ride upon a third rail, an electromagnet with armature, and electrical connections between said magnet and contact-roller, an angled plate secured to said armature, a tilting signal, a rod pivotally connected at one side of the pivotal point of said tilting signal, a slotted plate secured to said rod and engaged by the contracted end of said angled plate, whereby as the circuit is closed and opened, the signal will be displayed or lowered, as set forth.

8. In combination with trolley mechanism, a contact-roller carried by the truck and adapted to engage the third rail, an electromagnet with armature, and electrical connections between the armature and contact-roller, an angled plate secured to said armature and having a contracted end, a tilting signal, a post upon which the same is mounted, a rod pivotally connected at one end to said signal, a slotted plate secured at the lower end of said rod which is engaged by the contracted end of the angled plate, and means for guiding said rod in its longitudinal movements, as set forth.

9. In combination with the trolley mechanism, a contact-roller adapted for connection with a third rail, an electromagnet, an armature, and electrical connections between said electromagnet and the contact-roller, an angled plate adjustably held to the armature and having a contracted end, a bracket-arm, a recessed plate secured thereto, a post rising from said recessed plate, a danger-signal pivotally mounted upon said post, a rod pivotally connected to said danger-signal, a slotted plate at the lower end of the rod engaged by the contracted end of said angled plate, said rod having a contracted portion adapted to enter the contracted recess in the post-carrying plate, as set forth.

749,940. **MOP-HOLDER.** CHARLES MORGAN, Freeport, Ill., assignor to Arcade Manufacturing Company, Freeport, Ill., a Corporation of Illinois. Filed Oct. 1, 1903. Serial No. 175,331. (No model.)

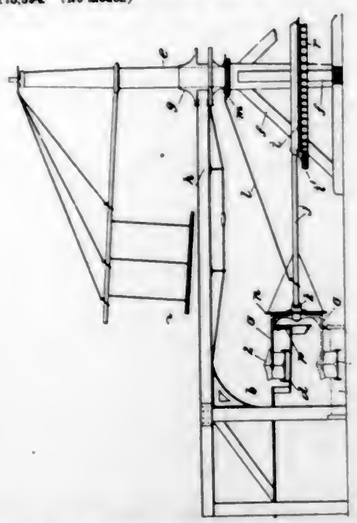


Claim.—1. In a mop-holder, the combination with a handle, a cross-head thereon, a yoke embracing the cross-head, a spring upon the handle, and a lever pivoted to the yoke and connected to the spring, of stops at the opposite ends of the spring rigidly secured to the handle and adapted to bear upon the ends of the wire of which the spring is formed to prevent angular movement thereof upon the handle.

2. The combination with a handle, a cross-head on the end thereof, a bail corresponding to the cross-head, a coiled spring on the handle, and a lever pivoted to the bail and connected to the spring, of stops rigid with the handle, for the ends of the wire of the spring-coil, to hold the same against angular movement in its extended position, the stop at the movable end of the spring being beveled or rounded off to receive and guide to place the movable end of the wire in case of a slight displacement from its angular position, about the handle.

3. The combination with a handle, a cross-head at the end thereof, a bail opposing the cross-head, a coiled spring on the handle, and a lever pivoted to the bail and connected to the spring, of means for holding the lower end of the spring against angular movement in one direction, and a stop, E, having an oblique downwardly-facing edge adapted to rest evenly upon one of the upper coils of the spring to limit the expansion thereof, and a lateral edge adapted to engage with the end of the wire of the spring-coil to prevent angular movement thereof about the handle in a direction opposite to that against which the spring is held at its lower end.

749,941. **AMUSEMENT APPARATUS.** ALFRED F. MUELLER, Philadelphia, Pa. Filed Oct. 9, 1902. Renewed Oct. 5, 1903. Serial No. 175,894. (No model.)



Claim.—1. An amusement apparatus of the class recited comprising a center pole, a collar, a revoluble member suitably mounted thereon, a series of radial arms extending from the revoluble member, angle-pieces having rollers, said angle-pieces being pivotally connected to the ends of said arms, means for affording bearing-surfaces for the rollers, a plurality of conveyances connected to the angle-pieces and arranged to travel in an undulating, circular path, means for equalizing changes in the plane of said conveyances in respect to the undulating path, and means for propelling the conveyances, substantially as described.

2. An amusement apparatus of the class recited comprising a center pole, a collar, a revoluble member suitably mounted thereon, a series of radial arms extending from said member, braces mounted between the arms, roller-supports carried by the braces, a circular track surrounding the arms, angle-pieces carrying wheels and rollers, said angle-pieces being pivotally secured to the arms, a plurality of conveyances connected to the angle-pieces and arranged to travel in a circular course, comprising a body of water and an inclined path, apparatus for causing the conveyances to respond to changes in the plane of the said path and means for propelling the conveyances, substantially as described.

3. An amusement apparatus of the type specified comprising a plurality of boats provided with wheels adapted to travel in a circular course, said course consisting of water and inclined ways forming a track, a carousel and its center pole, stays for said pole, a collar mounted around said stays, a revoluble member on said collar, arms extending radially therefrom, braces mounted between the arms, roller-supports carried by the braces, angle-pieces pivotally connected to the arms, rollers journaled at or near the center of the angle-pieces and adapted to track upon the supports, traveling wheels mounted on the angle-pieces, a circular track for said wheels and means for propelling the boats, substantially as described.

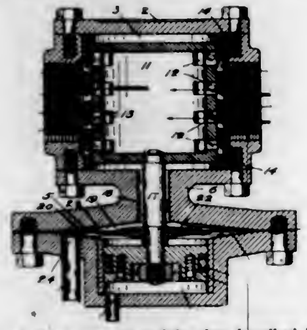
4. An amusement apparatus of the type specified comprising a plurality of conveyances adapted to travel in a circular course, said course consisting of water and inclined ways, a center pole, stays for the pole, a collar mounted upon said stays, a revoluble member on said collar, arms extending radially therefrom, braces mounted between the arms, roller-supports carried by the braces, angle-pieces pivotally secured to the arms, rollers journaled to the angle-pieces and adapted to track upon the supports, traveling wheels mounted upon the angle-pieces, a circular track for the wheels and means for propelling the conveyances substantially as described.

5. An amusement apparatus of the type recited comprising a center pole, stays for the pole, a collar mounted upon said stays, a revoluble member on said collar, arms extending radially therefrom, braces mounted between the arms, roller-supports carried by the braces, angle-pieces pivotally secured to the arms, rollers journaled to the angle-pieces and adapted to travel upon the supports, traveling wheels and pulleys upon the angle-pieces, a plurality of conveyances, cables secured to said conveyances and passing over said pulleys on the angle-pieces and secured at or near the pivotal points of said angle-pieces and means for propelling the conveyances, substantially as described.

6. An amusement apparatus comprising a center pole, a collar mounted upon said pole, a revoluble member, arms extending radially therefrom, braces mounted between the arms, roller-supports carried by the braces, angle-pieces pivotally secured to the arms, rollers journaled to the angle-pieces and adapted to track upon the supports, traveling wheels and pulleys mounted upon the angle-pieces, a track for the said wheels, a plurality of conveyances having wheels, cables secured to said conveyances and passing over the pulleys on the angle-pieces and secured at or near the pivotal points of said angle-pieces and means for propelling the conveyances, substantially as described.

7. An amusement apparatus comprising a circular course consisting of water and inclined ways, a center pole, a collar, a revoluble member suitably mounted thereon, arms extending radially from said member, braces mounted between the arms, roller-supports carried by the braces, angle-pieces pivotally secured to the arms, rollers journaled to the angle-pieces and adapted to track upon the supports, traveling wheels for the angle-pieces, a plurality of conveyances, means between the conveyances and the angle-pieces for equalizing the horizontal plane of the conveyances when mounting the inclined ways and means for operating the conveyances, substantially as described.

749,942. **AUTOMATIC CONTROLLER FOR FEED-PUMPS.** ROYAL J. MULLIN, Seattle, Wash. Filed Oct. 5, 1903. Serial No. 175,812. (No model.)



Claim.—1. In an apparatus of the class described, in combination, a casing having steam inlet and outlet openings and openings for the admission of water and air, a bushing in said casing provided with steam-ports, a valve-stem extending axially of and longitudinally movable in the casing and carrying at one end a valve for regulating opening of said bushing-ports, said valve, a piston mounted upon the opposite end of the valve-stem and intermediate the air and steam openings, a diaphragm mounted axially to the said valve-stem intermediate the water and steam openings and secured at its periphery to the casing, communicative connections between the said steam-inlet and the casing at each end of the valve and with the space within the casing at the adjacent side of the diaphragm, whereby the said valve will be moved longitudinally to regulate the opening of the said ports and control the passage of steam through the casing by reason of the differential pressures exerted upon one side of the diaphragm and the water upon the other side less the opposing action of the water upon the said piston.

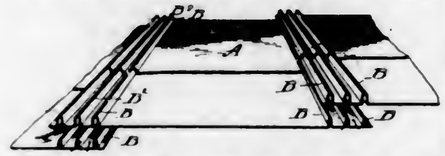
2. In an apparatus of the class described, the combination with a balanced steam-valve and a suitable containing-case, of means to control the movement of said valve for the purpose of regulating the flow of steam to a boiler-feed pump relatively of the pressure within the water-delivery pipe of said pump, such means comprising a diaphragm and a piston integrally connected by a stem whereby pressure introduced therebetween will be balanced in the proportion as the area of the piston is to the diaphragm and which unbalanced pressure acting against the opposing pressure of steam acting against the diaphragm will operate the valve and maintain an excess of water-pressure above the steam-pressure sufficient to maintain a positive feed of water to the boiler.

3. In a device of the type set forth, a casing having steam inlet and outlet openings, a neck connected to the lower end of the casing with a cylindrical chamber secured to said neck, a valve operating in the casing and a piston in said cylindrical chamber, with a stem connecting the valve and piston and passing through said neck, and a diaphragm secured to said neck above the piston and secured between said neck and said chamber, with a chamber formed between the neck and the piston in which said diaphragm extends, and a connection between said last-named chamber and the water-delivery pipe of the pump.

4. A device of the type set forth presenting a casing having inlet and outlet openings with a valve therein, a neck upon the casing, and a cylindrical chamber on the neck, a piston operating in said chamber with a stem connecting the valve and piston, and passing through the neck, a diaphragm secured to the stem and a second chamber formed between said chamber and the neck in which said diaphragm extends, and a connection between the under side of the diaphragm and the water-delivery pipe of the pump.

5. A device of the type set forth consisting of a casing having inlet and outlet openings, a neck on the casing with a chamber bolted onto the neck, the casing having a valve therein and the chamber, a piston with a stem connecting the two and passing through the neck, a diaphragm on the stem having its ends secured between the neck and chamber, a chamber between the diaphragm and piston with a connection between said chamber and the water-delivery pipe of the pump.

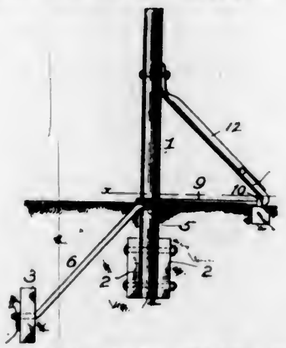
749,943. **SHEET-METAL ROOF-JOINT.** JOSEPH H. McEVOY, Dallas, Tex. Filed May 29, 1903. Serial No. 159,296. (No model.)



Claim.—1. A sheet-metal roofing-joint comprising a sheet having at one edge vertically-disposed parallel ridges separated by a flat securing portion, and an overlapping sheet having at one edge parallel ridges separated by a flat covering portion and seated upon the underlying ridges said ridges being bent downward into a horizontal plane upon the top of the overlapping sheet.

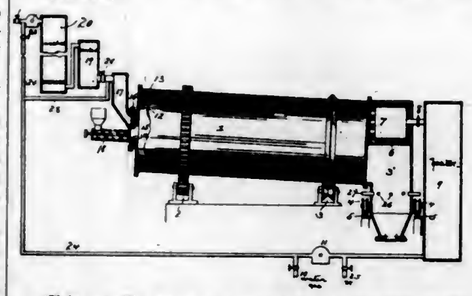
2. A sheet-metal roofing-joint comprising a sheet having at one edge parallel ridges separated by flat securing portions, and an overlapping sheet having corresponding ridges seated upon the underlying ridges and bent downward upon the top of the sheet, and a standing expansion-ridge between the edge ridges upon the underlying and overlapping sheets.

749,944. **FENCE-POST.** HIRAM McFERON, Burnsville, Ind. Filed Aug. 10, 1903. Serial No. 168,962. (No model.)



Claim.—A fence-post structure, comprising a post, a tubular brace secured at its upper end to the post and terminating near the ground-line, a brace coiled around the post in proximity to the ground-line, one arm of said last-mentioned brace extending from the coil, parallel with the ground-line, an anchor to which said arm is secured, the free end of said arm bent upwardly and entering the lower end of said diagonal tubular brace, the other arm of the brace having the coil, projecting downwardly and outwardly from said coil and a brace secured to the lower end of said last-mentioned arm.

749,945. **PROCESS OF MANUFACTURING GAS.** PAUL NAET, New York, N. Y. Filed Mar. 14, 1899. Serial No. 709,099. (No specimens.)



Claim.—1. The process of producing gas, which consists in passing a heated gas containing no nitrogen through a body of carbonaceous material to an extent sufficient only to absorb volatile matter from the fuel, and injecting steam and water into the fuel at a low level.

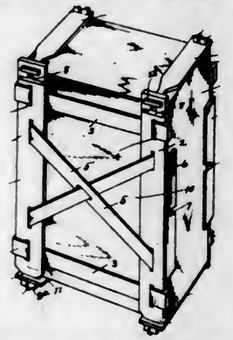
2. The continuous process consisting in passing heated water-gas mixed with steam through the fuel to distil therefrom illuminating-gas, treating the hot coke thus obtained with steam for the production of water-gas and ammonia, passing the said water-gas and ammonia through the fuel and mixing them with the gas distilled from the fuel, washing the gas thus derived for the recovery of by-products and delivering the coke into a generator for the water-gas to be used in the first step of the process, substantially in the manner and for the purpose specified.

3. The method which consists in injecting under pressure heated gas containing no nitrogen between the two ends of a column of fuel, passing the heated gas through the fuel, and then withdrawing the gas from and reheating and reinjecting some of it into the fuel, substantially as described.

4. The method which consists in injecting under pressure heated gas containing no nitrogen between the two ends of a column of fuel, passing the said gas through one half and withdrawing it at one end of the column of fuel, and treating the other half of the column of fuel (which consists of red-hot coke) with water, substantially as described.

5. The continuous process consisting in passing heated water-gas containing practically no nitrogen, mixed with steam through the fuel to distil therefrom illuminating-gas, treating the hot coke thus obtained with steam for the production of water-gas and ammonia, passing the said water-gas and ammonia through the fuel and mixing them with the gas distilled from the fuel, and washing the gas thus derived for the recovery of by-products, substantially in the manner and for the purpose specified.

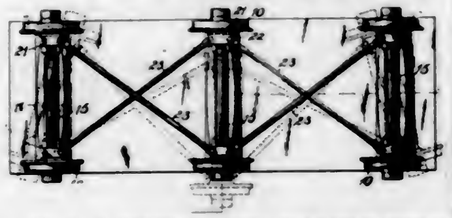
749,946. **CRATE.** JAMES C. HAGLE and BURT PROUTY, Columbus, Ohio. Filed Sept. 26, 1902. Serial No. 124,907. (No model.)



Claim.—In a crate, the combination with the crate-frame sections 1 comprising connected standards, the upper and lower ends of the latter being formed respectively with slotted openings and T-shaped extensions, said standards having side flanges 6, of upper and lower cross-bars 11, one end of each of said cross-bars having

an opening adapted to receive an end of one of said side frame standards and the remaining end having a head adapted to engage the slotted opening in the opposite standard, substantially as specified.

749,947. RAILWAY-TRUCK. CARL NORDELL, Stamford, Conn. Filed Mar. 26, 1903. Serial No. 149,627. (No model.)



Claim.—1. A car-truck comprising a middle section supported on wheels and arranged to have a sliding connection with its load, end sections supported on wheels and arranged to swivel in relation to their load, leaf-springs supporting the load of the several sections, and cross-rods pivotally connecting the axles of the several sections.

2. A car-truck comprising a middle section having a non-rotary axle, supporting-wheels and a bolster carried by the axle, the bolster being arranged to slide in relation to its load, end sections having non-rotary axles, supporting-wheels and arranged to swivel in relation to their load, and cross-rods connecting the axles, said rods being pivoted at the ends.

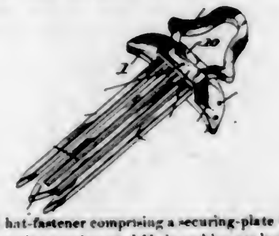
3. In a car-truck, the combination with the parallel axles and the wheels supporting them, of a bolster, leaf-springs hung on the axles and arranged at right angles thereto so as to support the bolster, and a second spring parallel with the bolster, the said spring having its ends supported from the above-mentioned axles.

4. In a car-truck, the combination with the parallel axles, of clips fitting the said axles, leaf-springs hung on the said clips, a bolster supported on the said leaf-springs, and means as the way carried by the axles and the legs hung on the bolster for guiding the bolster.

5. The herein-described truck-section, comprising a transverse bolster, springs supporting the bolster end, a guiding device to prevent displacement of the bolster, a pair of axles carrying the above-mentioned spring ends, and a second spring arranged beneath and parallel with the bolster, the said spring having its ends carried by the axles.

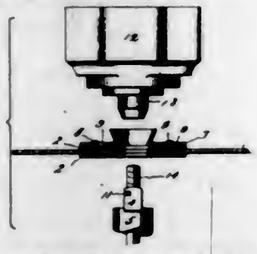
6. The herein-described truck-section comprising a bolster shaped to have a sliding connection with its load, a pair of parallel connected axles, clips supported on the axles, parallel leaf-springs hung in the clips and supporting the bolster ends, a second spring at right angles to the first springs and arranged to support the bolster and means as the legs on the bolster and the ways carried by the axles for guiding the bolster.

749,948. HAT-PIN. REINHART OHLOR, Pittsburg, Pa. Filed Jan. 30, 1902. Serial No. 90,509. (No model.)



Claim.—A hat-fastener comprising a securing-plate formed with a plurality of openings, an inverted-U-shaped keeper having its ends formed integral with said plate, and one of the edges thereof arranged flush with the front edge of the plate, and a pin formed with two side prongs engaging the side walls of said keeper, a stud arranged centrally of said keeper, and a prong arranged between said first-named prong and being formed with an elongated slot through which the said stud projects, the head of said pin being flat and engaging the said securing-plate beneath said keeper and projecting beyond the rear edge thereof, substantially as and for the purpose set forth.

749,949. INDICATING-DIAL FOR SNAP ELECTRIC SWITCHES. CHARLES G. PERKINS, Hartford, Conn. Filed Oct. 29, 1903. Serial No. 178,982. (No model.)



Claim.—1. An indicating-dial for an electric switch having a locking-plate movably attached to one face, substantially as specified.

2. An indicating-dial for an electric switch having a locking-plate movably attached to one face and provided with an opening that when moved to one position is eccentric with the opening through the dial, and that when moved to another position is concentric with the opening through the dial, substantially as specified.

3. An indicating-dial for an electric switch having perforations and a central opening, and provided with a movable locking-plate having corresponding perforations and a central opening, the perforations and the opening through the locking-plate being so arranged that when the opening is concentric with the opening through the dial the perforations do not coincide, but when the openings are eccentric the perforations coincide, substantially as specified.

4. In combination with an electric switch, a spindle-sleeve having extensions provided with notches, an indicating-dial adapted to be carried by the extensions from the end of the sleeve, a plate movably attached to the dial and adapted to engage the walls of the notches in the extensions when the dial is mounted on the sleeve, and a handle adapted to hold the plate so that it engages the notches in the extensions on the sleeve, substantially as specified.

5. In combination with an electric switch, a spindle-sleeve with upwardly-extending notched lugs, a dial with perforations adapted to receive the lugs projecting from the sleeve, a plate attached to one face of the dial and adapted to be extended into the notches in the lugs, and a handle adapted to hold the plate with its edges extending into the notches in the lugs, substantially as specified.

749,950. FREE-WHEEL AND BRAKE ATTACHMENT FOR CYCLES. WILLIAM POWELL, Normanton, England. Filed Aug. 20, 1902. Serial No. 120,396. (No model.)

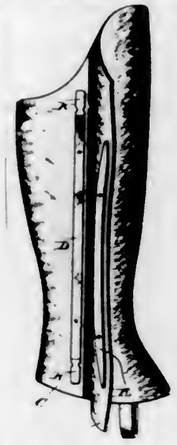


Claim.—1. In a free-wheel and back-pedaling attachment for cycles, the combination of a sprocket-wheel consisting of an inner and an outer ring, the latter being free to slide on the former, a stud carried by the outer part, a brake connected to the said stud and consisting of an inner and an outer band connected together, one end of said brake being fixed to the inner part of the said sprocket-wheel while the other end is operated by the said stud, and the drum and annulus against which the brake acts, the said inner and outer parts of the brake-band being located between the drum and annulus, substantially as described.

2. In combination, a sprocket-wheel, a ratchet on each side of the same, pawls engaging the ratchets, a connection between the pawls extending through the sprocket-wheel, the said sprocket-wheel consisting of the inner and outer part, the latter being free to slide on the former, a stud on the outer part, a brake connected with the said stud and consisting of an inner and an outer band connected together, one end of said brake being connected to the inner part of the sprocket while the other end is operated by the said stud, substantially as described.

3. In a free-wheel attachment for cycles, and in combination with the hub of the back wheel and its non-rotating axle, a sprocket-wheel rotating about said axle, a ratchet-wheel alongside the sprocket-wheel and held against rotation on the said non-rotary axle, a ratchet-wheel on the opposite side of the said sprocket-wheel and connected with the hub of the wheel, pawls on opposite sides of the sprocket-wheel to engage the ratchets and a connection between the pawls extending through the sprocket-wheel, substantially as described.

749,951. LEGGING-SPRING. MORRIS ROSENWASSER, New York, N. Y. Filed Apr. 17, 1903. Serial No. 153,006. (No model.)



Claim.—1. A means for connecting the flaps of a legging or similar article, comprising a member adapted to be attached to one flap, said member being bent outwardly at its ends and having apertures in said bent portions, and means in connection with the other flap for engaging said apertures and securing the flaps together.

2. A means for fastening the flaps of leggings or similar articles, comprising a member adapted to be attached to one flap, the material of said member being bent upwardly near its ends and provided with apertures in said bent portions, and a second member adapted to be attached to the other flap provided with parts adapted to enter and be held in said apertures.

3. In combination, a legging, an integral spring member attached to one flap of the legging having apertures therein and a second spring member attached to the other flap of the legging and having its ends shaped to engage and be held in the apertures of said first member.

749,952. LAMP-SOCKET. DUEY A. SCHUTT, Peru, Ind. Filed Jan. 28, 1902. Serial No. 91,609. (No model.)



Claim.—1. In a lamp-socket, the combination of abutting base members of insulating material provided with interior cavities, a contact member and central abutting spring secured in one of the bases, a wire-terminal and screw-shell secured together and to the said base, a wire-terminal and an interior contact-spring connected together and mounted in the other base, and means for actuating the contact-spring to make and break a circuit, substantially as set forth.

2. In a lamp-socket, the combination of abutting base members of insulating material provided with interior cavities, a contact member and central abutting spring secured in one of the bases, a wire-terminal and screw-shell secured together and to the said base, a wire-terminal and an interior contact-spring connected together and mounted in the other base, and a turning-stem and tumbler mounted between the bases and adapted to actuate the contact-spring to close the circuit, substantially as set forth.

3. In a lamp-socket, the combination of abutting base members of insulating material provided with interior cavities, a contact member and central abutting spring secured in one of the bases, a wire-terminal and screw-shell secured together and to the said base, a wire-terminal and an interior contact-spring connected together and mounted in the other base, a turning-stem mounted between the bases, and a tumbler mounted thereon formed of a blank having lugs turned up at each end and at each side to engage the stem, substantially as set forth.

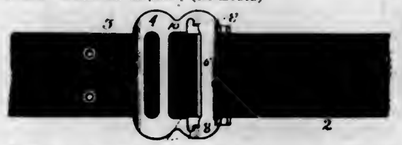
4. In a lamp-socket, a tumbler formed of a blank of sheet metal having opposite extensions adapted to be bent up to form the end bearings, an intermediate lateral perforated extension adapted to be bent up to form a stem-bearing at one side, and an oppositely-located lug adapted to be bent up and turned over the stem to form the other stem-bearing.

5. In combination with a turning-stem provided with lateral lips, a tumbler formed of a blank of sheet metal having opposite extensions adapted to be bent up to form the end bearings, an intermediate lateral perforated extension adapted to be bent up to form a stem-bearing at one side and an oppositely-located lug adapted to be bent up and turned over the stem to form the other stem-bearing.

6. In combination with an insulating-base, a removable shield of insulating material adapted to be inserted between retaining-lips in the side of the base.

7. In combination with a lamp-socket having base members of insulating material and terminals mounted therein: a removable shield of insulating material adapted to be inserted between retaining devices in the bases, to insulate the terminals from the shell.

749,953. BUCKLE. JOSEPH S. SOUREK, Ghent, Ohio. Filed Apr. 6, 1903. Serial No. 151,354. (No model.)

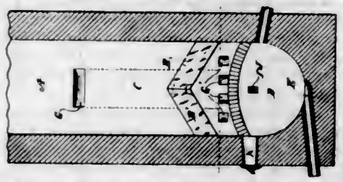


Claim.—1. A buckle made up in two parts, one whereof constitutes the main body portion of the buckle provided with a slotted opening therethrough, and having one working edge provided with means to engage a strap, the other portion of said buckle consisting of a slotted frame, said frame being provided with extended ears, and an abruptly-turned-up front edge arranged to pass through the slot in said main portion and to pivot on the projecting ears and to compress a belt between the abrupt turned-up portion and the working edge of said main body portion, substantially as shown and described.

2. A buckle consisting of a main body portion provided with a slot, a slotted tongue to pass through the slot in the main body portion and to be retained in position by elongated ears projecting from said tongue, said tongue being provided with an abruptly-turned-up front edge arranged to compress a belt between the working edge of said main body portion and itself, substantially as shown and described.

3. A buckle consisting of a main body portion slotted transversely to the line of the belt to which it is to be attached, and having the rear portion thereof offset from the line of the belt, a slotted tongue to pass through the slot in the body portion and pivot on ears projecting from said tongue, said tongue being provided with an abruptly-turned-up front edge placed to compress a belt between itself and the working edge of the main body portion of the buckle.

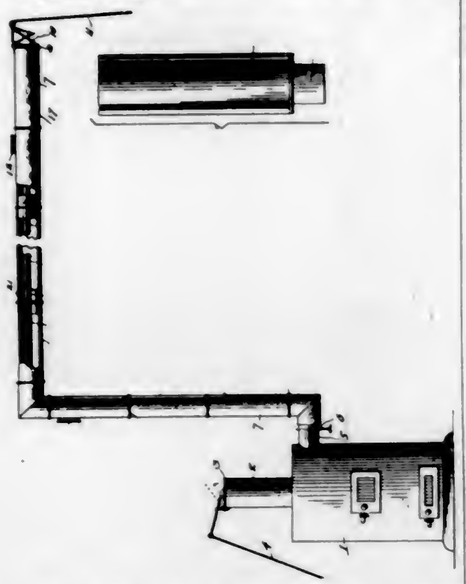
749,954. SMELTING-FURNACE. MATILDA L. TRAPP, Los Angeles, Cal. Filed June 27, 1902. Serial No. 113,533. (No model.)



Claim.—A smelting-furnace comprising a smelting and a receiving chamber adjacent to the bottom of the stack, a grate between said chambers composed of grate-bars of suitable material properly

spaced apart, the lower ends of the grate-bars resting in footing in the side walls of the stack and projecting therefrom in an upwardly-inclined angle and abutting the opposite bars at the center of the stack, the receiving-chamber being substantially oval-shaped at the bottom as shown; an observation-port in the wall of the said receiving-chamber; a slag-removing port; a metal-tapping port and ports for the passage therefrom of the metal fumes, the said ports opening into the top of said receiving-chamber and communicating with a flue extending therefrom to and into the stack above the smelting-chamber, in combination with means to apply liquid fuel thereto substantially as shown and described.

749,955. **PROTECTIVE COVERING FOR PIPES, &c.** WILLIAM H. WASHINGTON, Coatesville, Pa. Filed Dec. 16, 1901. Serial No. 86,123. (No model.)



Claim.—1. The combination with a fluid container or conductor, of a protector therefor comprising a pair of jackets adapted to be opened and closed about the same, retaining-strips for holding said jackets closed, said strips being normally exposed upon the exterior of the jackets, and a sectional junction piece or coupling for connecting the jackets together, said coupling having means for engaging the ends of the pipes and inwardly-projecting segmental perforated flanges forming portions to bear against the pipes and to hold the jackets centered thereon, substantially as described.

2. In a heating system for pipes, &c., the combination of jackets composed of tubes or cylinders, each being adapted to be independently opened and closed to fit about a pipe, retaining-strips for holding the jackets closed, a coupling device for connecting two adjoining jackets, the same having perforated plates or flanges to abut against the pipe, and means for connecting said coupling device to the jackets, substantially as described.

3. The combination with a conductor, of a protector comprising jackets arranged end to end and forming a conduit for circulation of a heating medium, and couplings connecting the ends of the jackets and supporting the jackets against endwise movement, closing the joints between the sections and having abutting members engaging the conductor to center the jackets thereon, said abutting members having ports establishing communication between the sections, substantially as described.

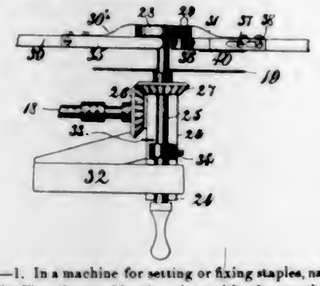
4. The combination with a conductor, of a heat-circulating conduit enveloping the same and comprising a plurality of jackets, and couplings uniting the jackets, each coupling having an oppositely-projecting portion to receive the contiguous ends of adjacent jackets and an outwardly-extending flange fitting between the ends of the jackets and forming a fluid-tight connection.

5. The combination with a conductor, of a heat-circulating conduit comprising a plurality of jackets enveloping the same and couplings connecting the jackets, each of said couplings consisting of a tube corresponding in cross-section to the jackets, said tube having an inner perforated flange fitting against the conductor, the outer flange fitting between the contiguous ends of the adjacent jackets, and end portions respectively fitting within the said ends of the jackets, substantially as described.

6. In a device for protecting liquid conductors and containers to prevent freezing of their contents, the combination of jackets composed of tubes or cylinders, each being adapted to be independently opened and closed to fit about the pipe, means for holding the jackets closed, a coupling device for connecting two adjoining jackets, the same having perforated plates or flanges to abut against the pipe, and means for connecting said coupling device to the jackets, substantially as described.

7. In a device for protecting liquid-containers to prevent freezing of the liquid in cold weather, a heated fluid-conducting jacket adapted to surround the container and form a fluid-passage having a fluid-inlet and a fluid-discharge, and provided with a door, substantially as described.

749,956. **MACHINE FOR SETTING STAPLES, NAILS, &c.** CHARLES H. WILKINSON, Huddersfield, England. Filed May 23, 1903. Serial No. 158,528. (No model.)



Claim.—1. In a machine for setting or fixing staples, nails, card-teeth, and the like, the combination therewith of a revolving spindle to which the work is attached, such spindle being carried on a slotted bar capable of moving endwise and of being adjusted when the axis of rotation of the work-spindle is at the required horizontal distance from the point of setting, for purposes described.

2. In a machine for setting or fixing staples, nails, card-teeth, and the like, the combination therewith of a revolving spindle to which the work is attached, such spindle being carried on a slotted bar capable of moving vertically and of being adjusted when the axis of rotation of the work-spindle is at the required distance above or below the point of setting, for purposes described.

3. In a machine for setting or fixing staples nails, card-teeth and the like, the combination therewith of a revolving spindle to which the work is attached, and means for traversing such spindle gradually during setting, for purposes described.

4. In a machine for setting or fixing staples, nails, card-teeth and the like, the combination therewith of a revolving work-spindle 25, and means for rotating such spindle, comprising eccentric 3, lever-arms 4 and 5, pawl 7, adjustable in lever-arm 6, ratchet-wheel 9, spur-wheels 15, 16, and bevel-pinions 26, 27, for purposes described.

5. In a machine for setting staples, the combination, with a work-spindle provided with a work-holder, of a support for the said spindle, means for adjusting the said support to place the axis of the said spindle at the required distance from the point of setting, and driving mechanism which revolves the said spindle step by step.

6. In a machine for setting staples, the combination, with a work-spindle provided with a work-holder, of a support provided with a cup-shaped socket in which the said spindle rests, a spring for holding the said spindle in engagement with the said socket, means for adjusting the said support to place the axis of the said spindle at the required distance from the point of setting, and driving mechanism which revolves the said spindle step by step.

749,957. **PILE-STRENGTHENER.** AUGUSTUS S. COOPER, Oakland, Cal. Filed June 25, 1903. Serial No. 163,009. (No model.)

Claim.—1. A pile-strengthener comprising a plurality of braces disposed to bridge the weakened portion of the pile and to bear with their ends against the upper and lower ends of said portion, and means for tying said braces together to hold them against the pile.

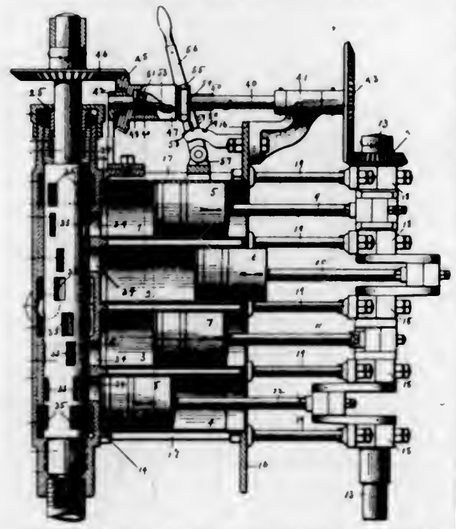
2. A pile-strengthener comprising a plurality of braces disposed to bridge the weakened portion of the pile, said braces having their ends chamfered and bearing with said chamfered ends against the upper and lower ends of said weakened portion of the pile, and means for tying said braces together to hold them against the pile.



3. A pile-strengthener comprising a plurality of braces disposed to bridge the weakened portion of the pile and to bear with their ends against the upper and lower ends of said portion, and bolts and nuts for tying said braces together and tightening them against the pile.

4. A pile-strengthener comprising a plurality of braces disposed to bridge the weakened portion of the pile, said braces having their ends chamfered and bearing with said chamfered ends against the upper and lower ends of said weakened portion of the pile, and bolts and nuts for tying said braces together and tightening them against the pile.

749,958. **STEAM-ENGINE.** CHARLES CROMPTON, Worcester, Mass. Filed Mar. 3, 1900. Serial No. 7,171. (No model.)



Claim.—1. In an engine, the combination of a hollow bar forming a steam-chest and having a series of sockets to receive the cylinders, a series of cylinders held in said sockets, said bar having a series of steam-spaces communicating with said cylinders and a valve contained in said hollow bar, whereby the flow of steam to said cylinders is controlled, substantially as described

2 In an engine, the combination of a hollow bar forming a steam-chest and having sockets to receive the ends of the cylinders, cylinders held in said sockets, a plate bearing against the opposite ends of said cylinders, tie-rods by which the cylinders are clamped between said hollow bar and said plate, and a valve contained in said hollow bar to control the flow of steam to said cylinders, substantially as described.

3. In an engine, the combination of a hollow bar forming a steam-chest and having sockets to receive the ends of the cylinders, cylinders held in said sockets, a plate bearing against the opposite ends of said cylinders, tie-rods between said plate and said hollow bar, journals for a crank-shaft and tie-rods connecting said plate and said journals and a valve for controlling the distribution of steam from said hollow bar to said cylinders, substantially as described.

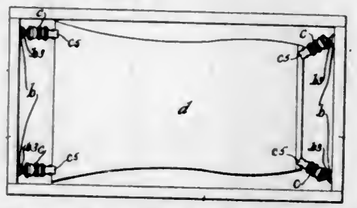
4. In an engine, a steam-chest having admission-ports leading to the cylinders, a cylindrical rotating valve journaled in said steam-chest and having a series of recesses in its periphery shorter than said admission-ports, a bearing-surface on the steam-chest at the side of the admission-ports bearing against said cylindrical valve, said bearing-surface being of less width than the width of said recess, substantially as described.

5. In an engine, the combination of a steam-chest having a longitudinal, cylindrical opening to receive a rotating cylinder journaled therein and having recesses in its periphery, annular chambers in said steam-chest around said cylinder and forming steam-spaces, a passage in said steam-chest leading to a source of steam-supply, admission-ports leading from said annular steam-spaces to the cylinders, the recesses in said rotating cylinder being shorter than said admission-ports and arranged to periodically connect said steam-spaces and said ports and means for continuously rotating said cylinder, substantially as described.

6. In a steam-engine, the combination of a steam-chest, a rotating valve journaled in said steam-chest, steam-admission ports leading to a steam-cylinder, a steam-space around said valve, recesses in the periphery of said valve, said steam-chest having a bearing-surface against said valve on one side of the steam-ports, greater than the width of said recesses and having a bearing-surface against said valve on the opposite side of said ports, less than the width of said recesses, whereby said recesses are caused to periodically span said narrow bearing-surfaces and thereby connect the steam-space with said ports, substantially as described.

7. In an engine, the combination with a series of single-acting cylinders, of a common steam-chest extending across the ends of said cylinders and provided with a longitudinal, cylindrical opening for a rotating cylindrical valve with recesses in the sides of said opening, a cylindrical valve journaled in said steam-chest and closing said recesses to form annular steam-spaces around said valve, a passage in said steam-chest connecting said annular steam-spaces with a source of steam-supply, admission-ports leading from said annular steam-spaces to said cylinders, recesses in the periphery of said valve by which the flow of steam to said cylinders is controlled, a longitudinal exhaust-passage through said valve, exhaust-ports in said steam-chest and openings in said valve by which said exhaust-ports and said exhaust-passage are periodically connected, substantially as described.

749,959. **GARMENT-HOLDING ATTACHMENT FOR TRUNKS.** DOROTHY W. CURTIS, Brooklyn, N. Y. Filed Mar. 31, 1903. Serial No. 150,365. (No model.)

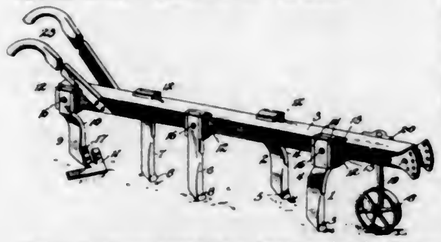


Claim.—1. A trunk provided at the ends with vertically-arranged rods and skirt-holding devices vertically movable thereon and comprising a link through which said rods pass, a buckle, an elastic strap passing therethrough and connected with said link, and a spring-clamp connected with said elastic strap, substantially as shown and described.

2. A trunk provided at the corners with vertically-arranged rods, and garment-holding devices vertically movable on said rods, and comprising a link through which said rods pass, a buckle, an

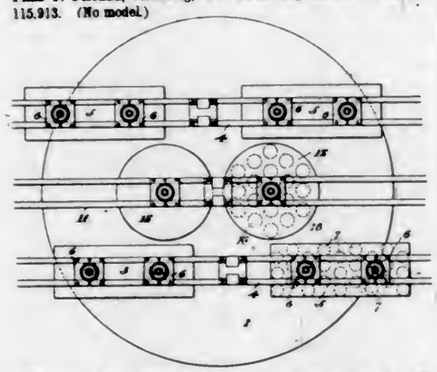
elastic strap connected with said buckle and a spring-clamp connected with said elastic strap, substantially as shown and described.

749,960. RICE-CULTIVATOR. HAMILTON D. DODD, Walterboro, S. C., assignor of one-half to D. Lawrence Smith, Walterboro, S. C. Filed May 14, 1903. Serial No. 157,147. (No model.)



Claim.—A cultivator comprising a beam, a series of cultivator-teeth located alternately at opposite sides of the beam, one of the teeth having an inwardly-bent shank or standard exteading to a point directly beneath the beam and the other teeth being provided with outwardly-curved standards, whereby they are offset different distances from the center of the beam, the outwardly-curved standards being interchangeable, a sweep provided with means for detachably securing it to the tooth having the inwardly-bent standard, and clips securing the standards to the beam, substantially as described.

749,961. APPARATUS FOR GRINDING OR POLISHING GLASS. FRED F. FISCHER, Pittsburg, Pa. Filed July 17, 1902. Serial No. 115,913. (No model.)



Claim.—1. The combination with a revolving table, of rigidly-mounted non-rotatory rubber supports coacting therewith and carrying rubbers, and mechanism for reciprocating the rubber supports, said mechanism having connections arranged to give a greater speed to the rubber acting upon the central portion of the table than to those acting on the side portions; substantially as described.

2. The combination with a revolving table, of non-rotatory rubbers coacting therewith, and a rotatory rubber arranged to act upon the central portion of the table; substantially as described.

3. The combination with a revolving table, of outer supports having non-rotatory rubbers, mechanism for reciprocating said outer supports, and an inner support having a rotary rubber; substantially as described.

4. The combination with a revolving table, of outer rubber supports, mechanism for reciprocating them, said supports carrying non-rotatory rubbers, an intermediate support, a rotary rubber mounted thereon, and mechanism for reciprocating the latter supports; substantially as described.

5. The combination with a revolving table arranged to receive the article to be treated, of rubber supports mounted over the table, and arranged to reciprocate in a straight line in contact with the article, a reciprocatory support, and a rotary rubber mounted thereon and arranged to act upon the intermediate part of the article, and actuating connections for reciprocating the rubber supports; substantially as described.

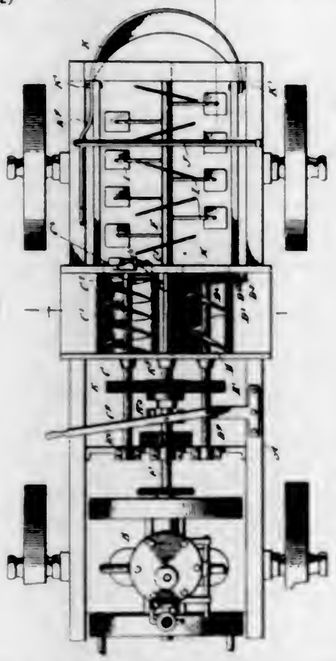
6. The combination with a revolving table arranged to receive glass, of a pair of reciprocating supports at opposite sides of the table arranged to reciprocate in straight lines and having rubbers, a reciprocating support between said pair of supports and having a rotary rubber mounted thereon, and mechanism for reciprocating the rubber supports; substantially as described.

7. The combination with a revolving table arranged to receive the glass, of a pair of rubber supports mounted over the table and arranged to reciprocate in straight lines, rubbers mounted thereon, actuating connections arranged to move one of the rubber supports in one direction and the other simultaneously in the opposite direction, a third rubber support between the pair and having a rotary rubber mounted thereon, and mechanism for reciprocating the last-named rubber support; substantially as described.

8. The combination with a revolving table arranged to receive the article to be treated, of rubber supports mounted over the table and arranged to reciprocate in straight lines in contact with said article, a series of substantially circular rubbers mounted on the rubber supports, and actuating connections arranged to move at least one of the rubber supports in one direction and another simultaneously in the opposite direction during the revolving of the table; substantially as described.

9. A revolving table, a pair of rubber supports at opposite sides of the table having non-rotatory rubbers secured thereto, a third rubber support between the outer two and having a rotatory rubber thereon, circular polishing-disks secured to the rubbers, and mechanism for reciprocating the rubber supports in straight lines during the revolving of the table; substantially as described.

749,962. MIXING-MACHINE. CHARLES E. FOOTE and CHESTER T. FOOTE, Nunda, N. Y. Filed June 18, 1902. Serial No. 112,252. (No model.)



Claim.—1. A mixing-machine comprising a feed-trough having feeding devices therein, a mixing-trough receiving the discharge from said feed-trough and having mixing devices therein, a vertically-swinging gate located at the discharge end of the mixing-trough, and constructed to contain or hold a definite quantity of material, means for dumping said gate of its contents when the same becomes filled, and a partition located at the discharge-opening of said feed-trough, formed of material yieldable in a direction substantially parallel with the direction of feed of the feeding devices in this trough, and normally closing upon these devices at such opening.

2. A mixing-machine, comprising a feed-trough having feed devices therein, and a partition located at the discharge-opening of said trough, formed of material yieldable in a direction substantially parallel with the direction of feed of the feed devices and normally closing upon these devices at such opening.

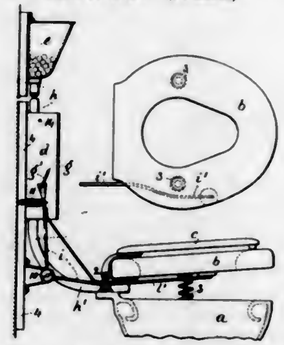
3. A mixing-machine, comprising duplicate feed-troughs, each having feed devices therein and provided with a discharge-opening, a swinging gate at the discharge-opening of one trough having an operating-handle for opening and closing the same, and a vertically-adjustable closure located at the discharge-opening of the other trough, said closure being formed of a series of brush-like wires, the lower ends of which are constructed to conform to and fit the feed devices at said discharge-opening at which the closure is situated.

4. A mixing-machine, comprising a feed-trough having a discharge-opening, and provided with feed devices located in line with the opening, and an adjustable closure or partition located at said opening and consisting of a series of closely-arranged vertically-disposed wires conforming at the lower ends thereof with the shape of the sides of the opening, and attached at their upper ends to a back or stock therefor.

5. A mixing-machine having a feed-trough, a feed-screw therein, and a brush adjustably mounted above said feed-screw, said brush being concaved at its lower portion and consisting of vertically-disposed straight wires attached to a backing extending transversely of said trough, substantially as set forth.

6. A mixing-machine comprising separate feed-troughs, a mixing-trough into which discharge the open ends of the feed-troughs, a feed-worm of different pitch working in each of said feed-troughs and adapted to force the materials to be mixed into the mixing-trough in relatively different quantities, and a single shaft provided with beater or mixing blades radially inclined relative to the shaft, for thoroughly commingling the materials in the mixing-trough, the shaft of one of said worms being provided with stirring-arms located close to the discharge-opening inside the corresponding feed-trough, substantially as set forth.

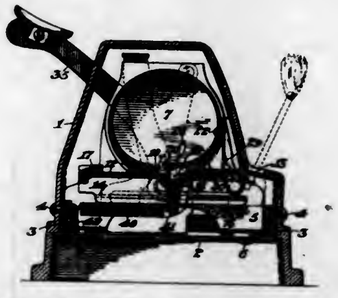
749,963. APPARATUS FOR APPLYING DISINFECTANTS TO WATER-CLOSETS. GEORGE S. GALLAGHER, New York, N. Y. Filed Dec. 17, 1901. Serial No. 86,200. (No model.)



Claim.—1. The combination with the hinged seat of a water-closet, of a wall-plate secured back of the closet, a case secured to said plate, a tube-section passing vertically through said case, a hopper for disinfectant secured to the wall-plate above the case, a tube extending from the hopper to one end of the tube-section and another tube extending from the lower end of the tube-section to and terminating above the rim of the closet-bowl, a pair of slide-plates and slideways therefor in said tube-section at a predetermined distance apart, a rocker-arm pivotally connected to the slide-plates and adapted to alternately move the same in said slideways, within and across the passage through the tube-section, a shaft connected to said rocker-arm, means for pivotally supporting said shaft upon said tube-section, the opposite end of said shaft passing through and being pivoted in said case and terminating in a downward-bent end, and a bell-crank lever pivotally supported upon the wall-plate, an arm forming a prolongation of the lower end of said bell-crank lever and extending beneath the closet-seat, the upper end of the bell-crank lever being provided with a recess or funnel receiving the bent end of said shaft, and a spring at one end secured to the upper end of the bell-crank lever, and at its other end to the wall-plate, substantially as and for the purposes set forth.

2. The combination with the hinged seat of a water-closet, of a wall-plate secured back of the closet, a case secured to said plate, a tube-section passing vertically through said case, a hopper for disinfectant secured to the wall-plate above the case, a tube extending from the hopper to one end of the tube-section, and another tube extending from the lower end of the tube-section to and terminating above the rim of the closet-bowl, a pair of slide-plates and slideways therefor in said tube-section at a predetermined distance apart, a rocker-arm pivotally connected to the slide-plates and adapted to alternately move the same in said slideways, within and across the passage through the tube-section, a shaft connected to said rocker-arm, means for pivotally supporting said shaft upon said tube-section, the opposite end of said shaft passing through and being pivoted in said case and terminating in a downward-bent end, and a device spring-actuated in one direction and actuated in the opposite direction by the downward movement of the seat and engaging the bent end of said shaft for effecting the movements of the rocker-arm and slide-plate, a pressure-blade secured within said case to said shaft, and a perfume-atomizer device, against the air-bulb of which said pressure-blade is adapted to bear to effect the operation of the perfume-atomizer with and by the movement of the other devices, substantially as set forth.

749,964. COMBINED CIGAR-CUTTER AND MATCH-IGNITER. JOSEPH T. GALETTI, New York, N. Y., assignor of part to Celestino Piva and Eduardo Pergoli, New York, N. Y. Filed Sept. 5, 1902. Serial No. 122,187. (No model.)



Claim.—1. A device of the character described, comprising a match-containing receptacle having a delivery-opening, a carrier exterior to the receptacle and movable across said opening and having a match-receiving recess, a feed-controller for the matches normally closing communication between the receptacle and the match-receiving recess of the carrier, and means for positively feeding a match past the said controller and into position to enter the said match-receiving recess of the carrier.

2. A device of the character described, comprising a match-containing receptacle having a discharge-opening, a carrier exterior to the receptacle and reciprocatory across said opening and having a match-receiving recess, a spring-pressed feed-controller normally closing communication between the discharge-opening of the receptacle and the match-receiving recess of the carrier, and means carried by the said carrier for positively feeding a match from the discharge-opening of the receptacle past the feed-controller and into position to enter the match-receiving recess of the carrier.

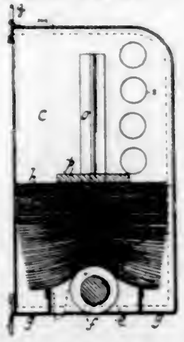
3. A device of the character described, comprising a match-containing receptacle having a discharge-opening, one wall of which is movable, a reciprocatory carrier movable across said opening exterior to the receptacle and having a match-engaging projection and a match-receiving recess, the said projection being movable across the receptacle discharge-opening to carry a match therein behind the movable wall of said opening and the said recess being movable to and from a position to receive the match located behind said movable wall, and means for ejecting the match from its position in said recess in the carrier.

749,965. PACKAGE OR SHEETS OF TOILET-PAPER AND CABINET THEREFOR. JAMES T. HOYT, New York, N. Y. Filed Jan. 15, 1903. Serial No. 139,207. (No model.)

Claim.—1. A package or sheets of toilet-paper provided with non-alined guide-cuts.

2. A package or sheets of toilet-paper provided with cuts extended through the ends or edge portions, said cuts being of sufficient width to allow free travel or feed of the sheet and of sufficient depth to form holding or retaining portions for the sheets, said cuts being out of alinement with one another.

3. A package or sheets of toilet-paper having cuts extended through the end portions of the sheets, each set of cuts being placed at respectively equal distances from the front and rear edges of the sheets and out of alinement with one another.



4. A package or sheets having cuts and a cabinet having rails adapted to be freely engaged by the cut portions of the sheet said cuts and rails being respectively non-alined and so placed as to register with one another and to allow the rails to enter the cuts when the position of the sheets in the cabinet is transposed or reversed.

5. A cabinet having an open back and guide-rails and adapted for the insertion of cut sheets made to engage the rails.

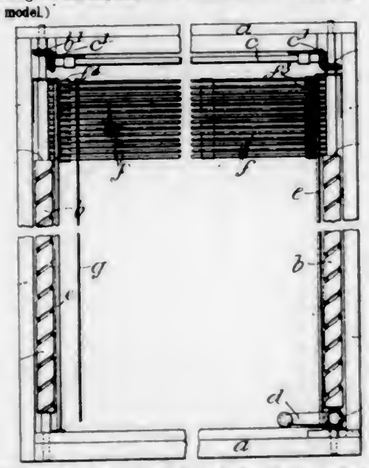
6. A cabinet having non-alined guide-rails and a supply-opening for placing sheets into the cabinet in engagement with the rails.

7. A cabinet having rails and an ejector and exit, said rails being made to lead or guide a package or sheets in the cabinet toward the exit.

8. A box or cabinet comprising a front, side and rear faces, a closed top, a partly-open bottom, and an ejector at said opening in the bottom, one of the side faces having sight or inspection openings, and the rear face having a filling-opening of oblong shape and of the width of the cabinet, and of diminished height as compared to the height of the cabinet to allow insertion of sheets into the cabinet and to form confining portions for the upper and lower sheets in the cabinet.

9. A cabinet having guide-rails and a supply-opening for placing sheets into the cabinet in engagement with the rails, said cabinet being of smaller size or measurement in one direction than the sheets so as to contain the latter in bent form.

749,966. **WINDOW BLIND OR SHUTTER.** GEORGE JARRETT, Tunbridge Wells, England. Filed Mar. 23, 1903. Serial No. 149,170. (No model.)

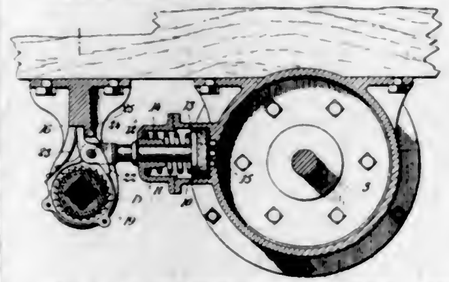


Claim.—1. In a window blind or shutter, having a frame, two screws mounted in said frame, means for causing them to rotate simultaneously, and two guides facing each other, the combination therewith of slats, and pins on each of said slats working in said guides and entering the threads of said screws, by which they are actuated, whereby all the slats are simultaneously raised and collected successively at the upper part of the window, substantially as set forth.

2. In a window blind or shutter, having a frame, screws mounted in said frame, means for causing them to rotate simultaneously, and guides facing each other, the combination therewith of weighted slats, pins on each of said slats working in the guides and actuated by the threads of the screws, and means for turning the slats, substantially as set forth.

3. In a window blind or shutter, the combination of the slats, two screws for raising and lowering the slats, means for rotating the screws simultaneously, pins carried by each of said slats and working on the screws, shoulders on said screws on which the slats are collected, plain cylindrical portions on the screws above the shoulders, and guides facing each other mounted adjacent the screws and in which the slats move up and down.

749,967. **BRAKE SLACK-ADJUSTER.** WILLIAM J. KEVILLE, Denver, Colo., assignor of one-half to Frederick R. Beck, Denver, Col. Filed Apr. 4, 1903. Serial No. 151,045. (No model.)



Claim.—1. The combination with a brake-cylinder, a piston therein and brake-levers operated by the piston, of an auxiliary cylinder attached to one side of the brake-cylinder and communicating with the brake-cylinder through a plurality of small ports formed in the wall of the braking-cylinder, a piston in the auxiliary cylinder, and means operated by said piston, for causing a relative adjustment between the brake-levers.

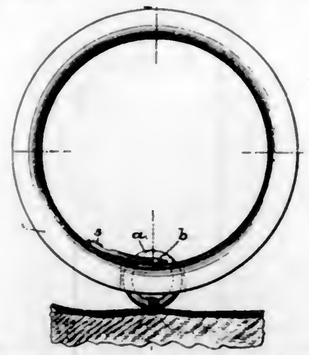
2. The combination with a brake-cylinder, a brake-piston therein, and brake-levers operated by the piston, of an auxiliary cylinder having port communication with the brake-cylinder and formed integral therewith, the said communication being at a point whereby it will be covered by the brake-piston at the end of its normal travel, a piston in the auxiliary cylinder, and means adapted to be operated by said piston, for causing a relative adjustment between the brake-levers.

3. In a brake system, a brake-cylinder, a brake-piston therein, brake-levers operating at opposite sides of said piston, an auxiliary cylinder communicating with the brake-cylinder, a piston in the auxiliary cylinder, a sleeve having ratchet-teeth, a rod extended loosely through said sleeve whereby it may be moved longitudinally but will rotate with the sleeve, the said rod having oppositely-disposed threaded ends, interiorly-threaded blocks for engaging said threaded ends, the said blocks being pivoted to the brake-levers, and a pawl operated by the piston in the auxiliary cylinder, for engaging with the ratchet-teeth.

4. The combination with a brake-cylinder, a brake-piston operating therein and brake-levers operating at opposite sides of the said piston, of an auxiliary cylinder having port communication with the brake-cylinder, a piston in said auxiliary cylinder, a spring in the cylinder for moving the piston in one direction, a ratchet-sleeve, rings loosely mounted on said sleeve on opposite sides of the ratchet-teeth, a pawl carried by said rings and having connection with the piston in the auxiliary cylinder, a rod movable through the ratchet-sleeve, but adapted to rotate therewith, the said rod having a left-hand thread at one end and a right-hand thread at the other end, and correspondingly-threaded blocks for engaging with said threads of the rod, the said blocks being pivotally connected to the brake-levers.

749,968. **DETACHABLE SAIL-FASTENING FOR MAST-HOOPS.** ALBERT KLATT, Collinsville, Cal., assignor of one-half to Emil Remington, Collinsville, Cal. Filed May 20, 1902. Serial No. 108,159. (No model.)

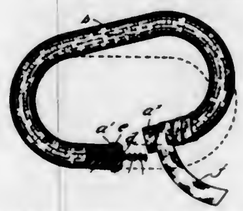
Claim.—1. A device for securing sails to mast-hoops, comprising a ring secured to the sail, a mast-hoop having an aperture to admit the ring, and a latch insertible through the ring between the hoop and the ring after the latter is passed through the aperture in the hoop.



2. The combination with a mast-hoop having an aperture transversely through its body, of a sail-ring insertible through the aperture in the hoop, and a removable latch-piece insertible through the ring between the mast-hoop and the ring.

3. A device for detachably securing sails to mast-hoops, comprising a sail-ring, a mast-hoop having an aperture for the ring, and a removable latch-piece adapted for insertion through the ring and between that part and the hoop after the ring is inserted in the aperture, said latch-piece having projections to engage the ring on both sides.

749,969. **PACKING FOR MANHOLES.** JOHN K. MUNSON, Houghton, Wash. Filed July 25, 1903. Serial No. 166,936. (No model.)



Claim.—A packing consisting of a hollow flexible core, wire-gauze surrounding said core, a stud having a plurality of annular ridges secured within said core and having a portion thereof protruding without the core, wire tightly wound around said core to compress the same about said stud, and a tape wound around the ends of the core after the same are joined.

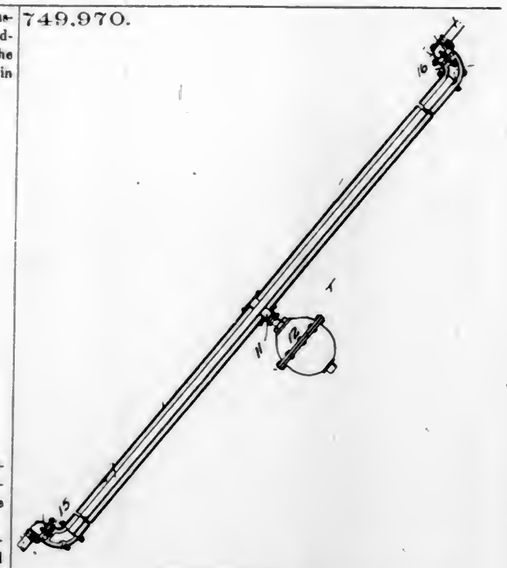
749,970. **STEAM-HEATING SYSTEM FOR RAILWAY-CARS.** NILS NILSON, Minneapolis, Minn. Filed Oct. 5, 1897. Serial No. 654,120. (No model.)

Claim.—1. The combination, with the train-pipe, of the downwardly-extending elbows, the insulator-pipe arranged between said elbows, the continuation of the train-pipe provided within said insulator-pipe and having its ends open within said downwardly-extending elbows, a steam-separator provided in each of said elbows, and a steam-trap depending from said pipe 10, substantially as described.

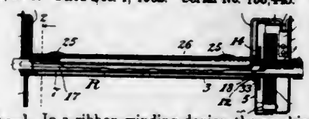
2. The combination, with the pipe 10, of the elbow 16, the train-pipe connected to said elbow 16, the pipe within said pipe 10 and having the upwardly-extending elbow within the elbow 16, the revoluble steam-separator provided in said elbow 16 above the smaller elbow within the same, and a suitable drain from said pipe 10, as and for the purpose specified.

3. The combination, with the insulating-pipe 10 having the opening 11 and the steam-trap 12, of the elbow 16 provided on the end of said pipe 10, the train-pipe 3 provided within said pipe 10 and having an elbow within said elbow 16, a revoluble steam-separator provided in said elbow 16 above said train-pipe elbow and a drain-hole 18 provided in said train-pipe elbow beneath said separator, substantially as described.

749,970.



749,971. **RIBBON-WINDING DEVICE.** ELSIE S. NORDHOFF, Alpine, N. J. Filed Dec. 1, 1902. Serial No. 133,445. (No model.)



Claim.—1. In a ribbon-winding device, the combination with a tubular reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of a reel-supporting frame passing through said reel and on which the reel is rotatable, and a reel-rotating spring connecting said reel and frame.

2. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and adapted to receive a ribbon, of reel-supporting means, a reel-rotating spring connecting said reel and the reel-supporting means, and a pair of ribbon-holding devices for engaging the inner end and the outer portion of a ribbon.

3. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and adapted to receive a ribbon, of reel-supporting means, a reel-rotating spring connecting said reel and the reel-supporting means, and a pair of ribbon-holding devices one carried by the reel and the other by said reel-supporting means for engaging the inner end and the outer portion of a ribbon.

4. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of reel-supporting means passing through said reel and on which the reel is rotatable, a reel-rotating spring connecting said reel and the reel-supporting means, and a spring-clip coöperative with the spindle of the reel for engaging the inner end of a ribbon.

5. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of reel-supporting means passing through said reel and on which the reel is rotatable, a reel-rotating spring connecting said reel and the reel-supporting means, and a spring-clip surrounding the spindle of the reel for engaging the inner end of a ribbon.

6. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of reel-supporting means passing through said reel and on which the reel is rotatable, a reel-rotating spring connecting said reel and the reel-supporting means, and a spring-clip surrounding and extending substantially from end to end of the spindle of the reel for engaging the inner end of a ribbon.

7. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of reel-supporting means passing through said reel on which the reel is rotatable, a reel-rotating spring connecting said reel and the reel-supporting means, and a yielding holding device carried by said reel-supporting means for engaging the outer end of a ribbon.

8. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and adapted to receive a ribbon, of reel-supporting means, a reel-rotating spring connecting said reel and the reel-supporting means, and a spring-pressed ball carried by said reel-supporting means for engaging the outer end of a ribbon.

9. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and adapted to receive a ribbon, of reel-supporting means, a reel-rotating spring connecting said reel and the reel-supporting means, and a spring-pressed ball carried by said reel-supporting means for engaging the outer end of a ribbon and shiftable between two extreme positions in one of which it is inoperative.

10. In a ribbon-winding device, the combination with a reel constituting the outer element of the device and having an exposed unobstructed spindle adapted to receive a ribbon, of reel-supporting means passing through said reel and on which the reel is rotatable, a reel-rotating spring connecting said reel and the reel-supporting means, and means for holding and releasing said reel.

11. In a ribbon-winding device, the combination with a reel having an exposed unobstructed spindle adapted to receive a ribbon, of a reel-supporting frame forming with one end of said reel a casing located outside the plane of the reel, and a spiral spring mounted in said casing and connecting said reel and frame.

12. In a ribbon-winding device, the combination with a tubular reel adapted to receive a ribbon, of a tubular spindle extending through said reel, a casing member carried by said spindle and forming with one end of the reel a closed casing, a spiral spring mounted in said casing and connecting said reel and spindle, means for coupling said reel and spindle, and an uncoupling-rod mounted to slide in said spindle.

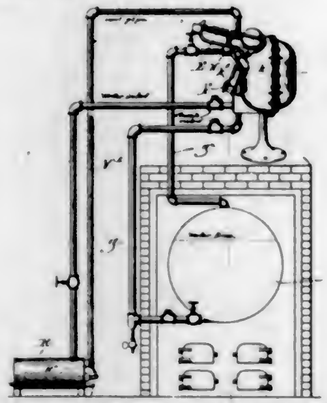
749,972. **GREENHOUSE-FRAME.** HARRY SIMPSON, Edgely, Pa. Filed Aug. 14, 1903. Serial No. 169,471. (No model.)



Claim.—A greenhouse-frame comprising a gutter having longitudinal troughs at its side edges and seats extending longitudinally at the inner edges of the troughs, bars resting with their lower ends in the seats, hangers connected to the bars and to the troughs, glass plates resting upon the bars with the lowermost plates having their lower edges in the seats, and means for holding the glass plates upon the bars.

749,973. **AUTOMATIC CONTROL FOR RETURN-TRAPS.** CHAS. A. SOUTHWICK, Peabody, Mass. Filed Mar. 23, 1903. Serial No. 149,009. (No model.)

Claim.—1. A steam-generator, means, including a return-trap, to return condensation-water to the generator, and means forming no part of the trap to control automatically the speed of operation of the trap in accordance with the quantity of condensation-water to be returned thereby to the generator.



2. A steam-generator, means, including a return-trap, to return condensation-water to the generator, a receiver in which such water collects, an inlet for the trap, communicating with the receiver, and means separate from and to control automatically the speed of operation of the trap in accordance with the rate of accumulation of the condensation-water in the receiver.

3. A steam-generator, means, including a return-trap to return condensation-water to the generator, a receiver in which such water collects, an inlet for the trap, communicating with the receiver, and means, including a valve operated by the water in the receiver, to control automatically the speed of operation of the trap in accordance with the inflow of condensation-water to the receiver, said means forming no part of the trap.

4. A steam-generator, means, including a return-trap, to return condensation-water to the generator, a receiver in which such water collects, said receiver forming no part of the trap, an inlet for the trap, communicating with the receiver, a float in the latter, and means, including a controlling-valve for the trap, operated by the float, to govern the speed of operation of the trap in accordance with the quantity of water entering the receiver.

5. In apparatus of the class described, a receiver for the water of condensation, a steam-generator, a return-trap to return automatically such water to the generator, a vent-pipe and a water-inlet pipe for the trap, a valve in one of said pipes, and means to adjust the effective opening of said valve automatically and thereby conform the speed of operation of the return-trap to the quantity of condensation-water entering the receiver.

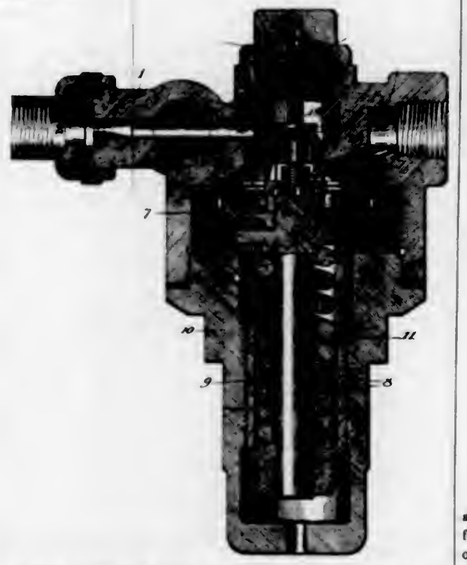
6. A steam-generator, means, including a return-trap to return condensation-water to the generator, a vent-regulating valve for the trap, and means to automatically open and close said valve to an extent in accordance with the rate of accumulation of the condensation-water, to vary the speed of operation of the return-trap in conformity therewith.

7. A steam-generator, means, including a return-trap, to return condensation-water to the generator, a receiver in which such water collects, an inlet for the trap, communicating with the receiver, a vent-regulating valve for the trap, a float in the receiver, and connections between the float and valve to vary the effective opening of the latter in accordance with the rate of influx of the condensation-water to the receiver, to vary the speed of operation of the return-trap in conformity therewith.

8. A receiver, means, including a return-trap intermittingly connected with a source of fluid-pressure, to discharge the receiver, and means forming no part of the trap to control automatically the speed of operation of the trap in accordance with the quantity of water to be discharged thereby from the receiver.

749,974. **FLUID-PRESSURE-REGULATING DEVICE.** PAUL SYNNESTVEDT, Glenview, Ill., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a Corporation of Pennsylvania. Filed Dec. 13, 1900. Serial No. 40,706. (No model.)

Claim.—1. The combination with a valve casing having an inlet and outlet and a valve seat, of a puppet valve, a movable abutment of larger area than the puppet valve, adjustable connections between the movable abutment and the puppet valve positively moving said valve both to and from its seat, but provided with means for play of motion between the two, the said abutment being placed upon the outlet side of the valve, whereby the low pressure side operates to positively seat the valve and said abutment may make small motions without moving the valve off its seat, substantially as described.



2. In a pressure regulating valve the combination with a puppet valve, a movable abutment on the low pressure side of the valve, differential connection between the valve and the abutment, and a valve seat in the form of a raised annular ring having an inside conical surface corresponding to the face of the valve, and an outside conical surface ending in a sharp annular ridge, substantially as described.

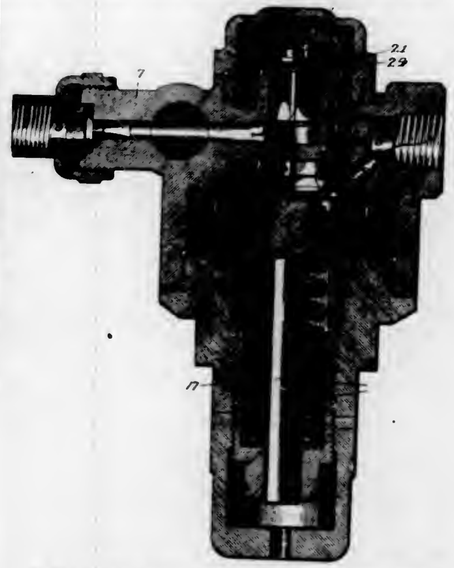
3. In a pressure regulating device the combination of a casing with an inlet and outlet and with an enlarged chamber, a movable abutment in said large chamber, a cap closing said chamber and a spring and stem for holding the abutment in normal position therein, a puppet valve between said inlet and outlet, a removable seat for said puppet valve comprising a sharp annular ridge with conical inside and outside surfaces, and a screw cap having means for guiding said valve.

4. In a pressure regulating valve the combination with a casing having a valve opening and a large chamber, a movable abutment in said chamber, a puppet valve, an adjustable connection allowing play between the stem of the puppet valve and said abutment, a spring for normally holding said abutment up and indirectly holding said puppet valve off its seat, and said abutment being on the low pressure side of the valve, whereby the escape of fluid acts upon said abutment to close said valve positively upon its seat, substantially as described.

5. In a pressure regulating valve the combination with a movable abutment, of a flanged retaining nut thereon, a sleeve having an annular flange loosely working in said flange nut, a valve stem screwed into said sleeve, a puppet valve and seat, the said movable abutment being placed on the low pressure side of the said valve, whereby the said abutment moves the valve to and from its seat but allows of some play of motion between the abutment and the valve, substantially as described.

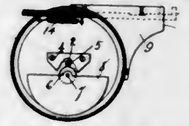
749,975. **FLUID-PRESSURE-REGULATING DEVICE.** PAUL SYNNESTVEDT, Glenview, Ill., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a Corporation of Pennsylvania. Filed Dec. 21, 1900. Serial No. 40,706. (No model.)

Claim.—1. In a pressure regulating device the combination with a casing having a main chamber and an inlet and an outlet port, of a boss extending into said chamber carrying a conical valve seat and loose puppet valve seated therein, a movable abutment in said main chamber subject to pressure on the outlet side of the valve and guided to move in vertical guides, and a yoke surrounding said boss, connected directly to the movable abutment and adapted to positively close the valve on its seat, substantially as described.



2. In a pressure regulating valve device, the combination with a valve casing having a main chamber, of a valve and a seat therefor, and means to close said valve on the seat comprising a pressure operated abutment in the chamber, and a yoke attached to said abutment, and provided with legs extending around the valve seat and a screw threaded cap borne on said legs, unconnected to the valve but directly and rigidly engaging the same to push it on the seat when the abutment is moved downward by the fluid pressure on the outlet side of the valve.

749,976. **ANGLE-INDICATOR.** ROBERT L. TURNER, Toledo, Ohio. Filed May 21, 1903. Serial No. 158,061. (No model.)



Claim.—1. In an instrument of the described class, a case, a dial having a bearing-surface adapted and arranged to contact with the bridge of the nose, an indicator adapted to indicate from one to ninety degrees, a weight mounted and adapted to swing in said case, and a four-to-one gear and pinion which communicate the motion of the weight to the indicator.

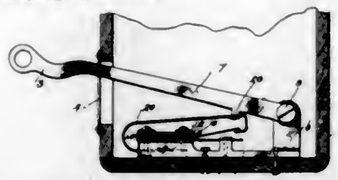
2. In an instrument of the described class, a case, a graduated dial, an indicator for the dial, a weight which cooperates with said dial and indicator, a bearing-surface upon the case arranged in such relation to the dial and indicator that the angle of the bearing-face to the vertical is indicated, and means for clamping upon said bearing-surface the object the angle of which is to be measured.

3. An instrument of the described class comprising a case, a dial on the case graduated from one to ninety degrees, an indicator for the dial, a weight within the case, a four-to-one gear intermediate the weight and indicator, a bearing-surface supported by the case and means for clamping upon the bearing-surface the object the angle of which is to be measured.

749,977. **TELEPHONE-HOOK SWITCH.** ERNEST E. YAXLEY, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation. Filed June 12, 1901. Renewed Dec. 23, 1903. Serial No. 186,413. (No model.)

Claim.—1. In a telephone-hook switch, the combination with a support, of a hook-lever arm pivoted to said support, switch-springs

insulatingly mounted adjacent said arm, a lifting-spring for said arm having a depression or recess in its upper surface, a lug on said arm entering said depression, said lifting-spring being adapted to engage said switch-springs and operate them.



2. In a telephone-hook switch, the combination with a supporting-plate having a standard thereon, a hook-lever pivoted to said standard, switch-springs insulatingly mounted upon said plate, and a leaf lifting-spring upon which said hook-lever bears having its free end interposed between said springs to operate them.

3. In a telephone-hook switch the combination with a supporting-plate having a standard thereon, a hook-lever pivoted to said standard, switch-springs mounted upon said plate beneath the hook with their free ends toward the standard, a leaf lifting-spring secured to said plate and extending rearwardly over and beyond said springs, the end of said lifting-spring being bent down to engage and operate the switch-springs, and the hook-lever being adapted to bear upon said lift-spring.

4. In a hook-switch, the combination with a supporting-plate, of a standard thereon at one end, a hook-lever pivoted to said standard, a set of switch contact-springs insulatingly mounted upon the other end of said supporting-plate with their free ends toward the said standard, a leaf-spring also secured to said front end of the supporting-plate and curved back over said switch-springs and extending beyond them, the extended end being bent downward and backward and interposed between the free ends of said switch-springs to operate them, the said spring having a depression therein adjacent the bent end, and a lug on said hook-lever bearing in said depression.

5. In a hook-switch, the combination with a supporting-plate, of a standard thereon at one end, a hook-lever pivoted to said standard, the other end of said plate having a raised portion with a recess in its lower or bottom face, a plurality of switch-springs insulatingly mounted on said raised portion, with their free ends extending toward the standard, a leaf lifting-spring secured at one end to the plate within the recess in its lower face and extending upwardly and rearwardly over and beyond the said switch-springs, said lifting-spring having its free end bent downwardly and engaging the free ends of said switch-springs to operate them and complete electric circuits therethrough.

6. In a telephone-hook switch, the combination with a supporting-plate, of a standard thereon, a lever-arm pivoted to said standard, three superimposed switch-springs with insulating-washers therebetween insulatingly secured to said plate, an insulating-strip mounted on said plate near the free ends of said springs, the lower spring being beneath the said strip and the other springs having their free ends side by side on top of said strip, a lifting-spring having its free end interposed between the ends of the upper and lower switch-springs, said lifting-spring being adapted to hold said lever-arm normally up.

7. In a telephone-hook switch, the combination with a supporting-plate, and a standard thereon, and a lever-arm pivoted to said standard, three switch-springs with insulating-washers therebetween insulatingly mounted on said plate, an insulating-strip mounted on said plate near the free ends of said springs, the lower switch-spring extending beneath the said strip, and the other switch-springs having their free ends arranged to lie side by side on top of said strip, a lifting-spring against which the lever-arm bears, said lifting-spring having its free end interposed between the upper and the lower switch-springs to operate them and change the circuits therethrough in the operation of the telephone-hook.

8. In a telephone-hook switch, the combination with a supporting-plate, a standard at one end of said plate, a lever-arm pivoted to said standard and forked at its free end, the other end of said plate having a raised portion recessed in its lower face, lugs intermediate said raised portion and standard on the upper face of said plate, switch-springs insulatingly secured to said raised portion with their free ends extending toward the standard, an insulating-strip secured to said lugs and lying between the upper and lower switch-springs, a leaf-spring having one end secured by a slot-and-screw connection in the recess in said raised portion said leaf-spring being curved upwardly and rearwardly over the said switch-springs and having a depression in its upper surface and at its free end bent downwardly and back between the ends of said switch-springs, and a lug on the lower edge of said lever-arm bearing in said depression, whereby when the lever is operated the leaf-spring is brought into contact with the switch-springs, to change the circuits therethrough.

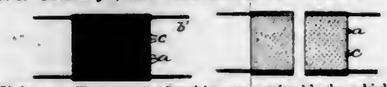
9. In a telephone-hook switch, the combination of a pivoted lever-arm, a plurality of switch-springs or contact-strips, and a lifting-spring having its free end interposed between the free ends of said switch-springs or contact-strips, said lifting-spring being adapted and arranged to hold said lever-arm normally up.

10. In a telephone-hook switch, the combination of a pivoted lever-arm, a pair of upper switch-springs or contact-strips, a lower switch-spring or contact-strip, and a lifting-spring having its free end interposed between the free ends of the said upper and lower switch-springs or contact-strips, said lifting-spring being adapted and arranged to hold said lever-arm normally up.

11. In a telephone-hook switch, the combination of a lifting-spring and a plurality of switch-springs or contact-strips, a base-plate, a fastening device extending through the switch-springs and the lifting-spring, so as to clamp the same upon said base-plate, a swinging lever-arm having a pivotal connection with the said base-plate, the free ends of said switch-springs and also the free end of the lifting-spring extending in the direction of the pivotal connection between the lever-arm and the base-plate, said lifting-spring being adapted and arranged to hold said lever-arm normally up, and the free end of said lifting-spring being arranged to engage the free ends of said switch-springs or contact-strips.

12. In a telephone-hook switch, the combination of a swinging lever-arm, a base-plate having a pivotal connection with said lever-arm, a plurality of switch-springs or contact-strips with interposed insulation, fastening devices for securing said switch-springs and interposed insulation upon the upper surface of said base-plate, a lifting-spring having one end secured to the under surface of said base-plate, said lifting-spring extending over the switch-springs, and the free end of the lifting-spring engaging the under side of the said lever-arm and also the free ends of said switch-springs.

749,978. COMPOSITE BLOCK FOR SOFT TREADS AND METHOD OF MAKING SAME. CHARLES W. ZARING, New York, N. Y. Filed May 1, 1903. Serial No. 155,094. (No model.)



Claim.—1. The process of making composite blocks, which consists in building up a blank with strips of woven fabric filled in and between with a cohesive material, using for the bottom and top one or more strips which are wider than the intermediate strips and then subjecting the blank to pressure and dividing it into blocks.

2. The process of making composite blocks, which consists in building up a blank with strips of woven fabric alternating with strips of a cohesive material, using for the bottom and top strips of fabric which are wider than the intermediate strips, and then subjecting the blank to pressure and dividing it into blocks.

3. The process of making composite blocks, which consists in building up a blank with strips of wire-cloth cut bias and filled in and between with rubber, using for the bottom and top strips of wire-cloth which are wider than the intermediate strips, and then subjecting the blank to pressure and dividing it into blocks.

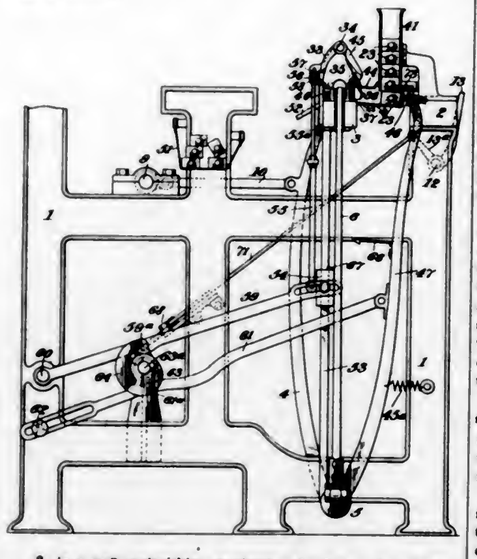
4. The process of making composite blocks, which consists in building up a blank with strips of wire-cloth alternating with strips of rubber, the strips of wire-cloth at the bottom and top being wider than the intermediate strips, and then subjecting the blank to pressure and dividing it into blocks.

5. A composite block composed of strips of woven fabric filled in and between with an elastic material and having one or more of the outside strips, on each side, projecting beyond the body of the block.

6. A composite block composed of strips of wire-cloth embedded in rubber and having one or more of the outside strips, on each side, projecting beyond the body of the block.

749,979. WEFT-REPLENISHING MECHANISM FOR LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC R. KIP, Montclair, N. J. Filed Jan. 7, 1902. Serial No. 88,731. (No model.)

Claim.—1. In a weft-replenishing mechanism for looms, a weft-exhaustion-indicating mechanism, and means set in motion thereby for supplying full shuttles to the loom as required, said means comprising a swinging shuttle-box, means for swinging said box, a placer, means for operating said placer, a shuttle-magazine, a support below the magazine consisting of a plurality of projecting fingers, and coacting fingers on the lay adapted to project into the spaces between the fingers on said support when the lay beats up to form a closed raceway.



2. In a weft-replenishing mechanism for looms, the swinging shuttle-box, having a front bar provided on its front face with an overhang to take over the fresh shuttle when the box is swung back and said bar becomes the back of the box, means for swinging the shuttle-box, a placer for the fresh shuttle, means for operating the placer, and weft-exhaustion-indicating means for operating the shuttle-box and placer.

3. In a weft-replenishing mechanism for looms, the swinging shuttle-box, having a fixed front bar with an overhang and a swell and its spring independent of said front bar, in combination with a placer for the fresh shuttle.

4. In a weft-replenishing mechanism for looms, the combination with a placer for placing the fresh shuttle and means for operating the same, of a swinging shuttle-box having fixed front and back bars, a swell and its spring at the normal front of the box, said swell being behind and independent of the front bar, and means for relieving the elastic pressure of the swell on the exhausted shuttle when the box is swung back.

5. In a weft-replenishing mechanism for looms, the combination with a shuttle-box mounted to turn about an axis for displacement and having slotted end plates, of a cross-rod engaging said slots, an operating-rod coupled to said cross-rod at its upper end and hinged below to a slide, means for operating said slide, and means for locking the shuttle-box when in its normal position on the lay.

6. In a weft-replenishing mechanism for looms, the combination with a swinging shuttle-box provided with slots 57, and a cross-rod 56 engaging said slots, of the brackets, having locking-notches 58 in position to engage the rod 56 normally, an operating-rod 55, having forks or branches coupled to the cross-rod, and means for operating the rod 55, substantially as set forth.

7. In a weft-replenishing mechanism for looms, a shuttle-box displaceable by rocking or swinging about an axis, and mechanism for operating said box, comprising a normally rotating cam-shaft, a cam splined and slidable thereon into and out of operative position, mechanism for sliding said cam into its operative position, a weft-exhaustion-indicating means controlling the operation of said mechanism, and means between said cam and shuttle-box whereby the former, when in operative position actuates the latter, substantially as set forth.

8. In a weft-replenishing mechanism for looms, a vibratable placer and its arm, and mechanism for drawing said placer up to the lay, comprising a normally rotating cam-shaft, a hook-cam splined and slidable on said shaft, a draw-bar coupled to the arm of the placer and having a slotted bearing on the loom-frame, a stud in said bar, mechanism for sliding said cam into position to engage the stud on the bar, and a weft-exhaustion-indicating means controlling the operation of the last-named mechanism.

9. In a loom, the combination with a swinging shuttle-box, a placer adapted to transfer a full shuttle from a magazine to the lay, its arm, and the said magazine, of means for operating said shuttle-box and placer, said mechanism comprising the cam-shaft, the connected cams 63 and 64 splined and slidable on said shaft, the spring behind said cams, the draw-bar 61 and its stud, said draw-bar being coupled to the placer-arm and slidably coupled to the loom-frame, the slide 54 and its guide, the lever 59 and its stud, said lever being fulcrumed on the frame and slidably coupled to the said slide, the branched operating-rod 55, hinged to the slide 54 and coupled through its branches to a cross-rod 56, engaging slots in the ends of the shuttle-box, the spring-latch 66 on the placer-arm, and adapted to engage a tooth on the slide, and means for sliding said connected cams on the cam-shaft, substantially as set forth.

10. In a weft-replenishing mechanism for looms, a weft-exhaustion-indicating mechanism, and means set in motion thereby for automatically supplying weft or filling, said means comprising a swinging shuttle-box, means for swinging said box, a shuttle-placer which forms the front of the shuttle-box for the first pick, means for operating said placer, and means for forming, at the supplying period a shuttle guide or chute level with the raceway, said chute having a top and bottom guide from the magazine to the raceway for properly guiding the shuttle in its movement from the magazine or holder to the picking-point.

11. In a loom, weft or filling replenishing means, including a shuttle-box, a magazine, a transferring or shifting placer and actuating means therefor, in combination with a shuttle chute or slideway which is, at the time of the transfer of a shuttle, level with the raceway and practically continuous from the lay to the magazine.

12. In a loom the combination with weft or filling replenishing means including a shiftable shuttle-box, a holder for the spare shuttle, a pushing-placer, means for operating the said box and placer, of a continuous raceway or chute for the placer, a part of said raceway being stationary and consisting of a plurality of projecting fingers, and a part vibrating in unison with the lay and consisting of fingers offset from those of the stationary part, said fingers being adapted to interlap when the lay beats up.

13. In a loom, the combination with the vibrating lay, and a weft or filling replenishing means including a shiftable shuttle-box, a holder for the spare shuttle, a placer, and means for operating said box and placer, of a top guide which vibrates with the lay and takes over the spare shuttle in its movement from said holder to the lay at the time of the transfer of said shuttle and the interlapping two-part trackway.

14. In a loom the combination with the vibrating lay, of a weft or filling replenishing mechanism which includes a magazine, a shuttle-box on the lay, a raceway for the spare shuttle on its way from the magazine to the lay, said raceway consisting of a plurality of fixed projecting fingers, corresponding fingers secured to the lay adapted to interlap with the fixed fingers when the lay beats up, and a pushing-placer which takes behind the spare shuttle supported on said raceway, and means for operating said placer.

15. In a weft or filling replenishing mechanism for looms, a vibrating placer device comprising a carrying-arm, a head to take behind the spare shuttle, and coiled springs behind said head, said springs occupying sockets, substantially as and for the purpose set forth.

16. In a weft-replenishing mechanism for looms, the combination with the magazine, the lay, a trackway between the magazine and lay and independent of the shuttle-box, to support the full shuttle in its movement from former to the latter, of the displaceable shuttle-box having a swell in its side adjacent to the magazine.

17. In a weft-replenishing mechanism for looms, the combination with the normally-rotating cam-shaft, the connected cams 63 and 64 splined and slidable on said shaft, the spring which holds said cams normally in inoperative position, means for sliding the cams into operative position, and means for holding said cams in operative position during a portion of their revolution, of the swinging shuttle-box, the magazine, the placer, and means between the said box and placer for operating the latter.

18. In a loom, the combination with an electric circuit including a magnet responsive to a change in the circuit, circuit-changing means consisting of a shuttle having a metal jaw or holding device inside the shuttle to hold the filling-holder, a movable piece connected with and inside the shuttle and a two-pole feeler one pole adapted to impinge on the said jaw and the other on said movable piece to thereby change the circuit when sufficient exhaustion of filling permits thereof.

19. In a loom, the combination with an electric circuit including a magnet responsive to a change in the circuit, circuit-changing means consisting of a shuttle having a metal jaw or holding device in its interior to grip and hold the filling-holder, a movable piece in the shuttle one end thereof adapted to overlap the said jaw, terminals of the circuit sustained exterior of the shuttle, and adapted to coöperate, when sufficient exhaustion of filling in the shuttle permits thereof, with the circuit-changing means in the shuttle to thereby change the circuit.

20. In a weft-replenishing mechanism for looms, the combination with the vibrating lay, a shuttle-box thereon, and a feeler device, of a shuttle having a U-shaped metal gripping-jaw 27 to grip and hold a filling-holder, a movable metal piece which is adapted to be pressed into contact with said jaw by one pole of the feeler, said shuttle having in it an aperture to afford access for the feeler to said jaw and movable piece for effecting electrical contact.

21. In a weft-replenishing mechanism for looms, the combination with the vibrating lay, a shuttle-box thereon, and a feeler device, of a shuttle having mounted in it a metal jaw which embraces and holds a filling-holder, and a metal contact-piece attached to the shuttle with its free end extending toward and overlapping said jaw, said shuttle having an aperture in its side for the entry of the feelers to impinge respectively on said jaw and contact-piece, whereby electrical communication may be established between said contact-piece and jaw.

749,980. PROCESS OF MAKING ACETYL-SALICYLIC ACID AND ESTERS THEREOF. BAPTISTE BALTHASARD, St. Fons, France, assignor to Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monnet et Cartier, St. Fons, near Lyons, France, a Corporation of France. Filed Jan. 27, 1903. Serial No. 140,784. (No specimens.)

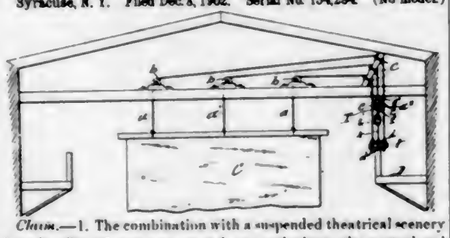
Claim.—1. In the manufacture of acetyl-salicylic compounds, the process which consists in heating acetate of sodium and a salicylic compound with an aromatic sulfochlorid.

2. In the manufacture of acetyl-salicylic compounds, the process which consists in heating acetate of sodium and a salicylic compound with paratoluene sulfochlorid.

3. In the manufacture of an esterified acetyl-salicylic acid, the process which consists in heating acetate of sodium and an esterified salicylic acid with an aromatic sulfochlorid.

4. In the manufacture of an esterified acetyl-salicylic acid, the process which consists in heating acetate of sodium and an esterified salicylic acid with paratoluene sulfochlorid.

749,981. THEATRICAL-SCENERY TRIMMER. JOHN R. CLANCY, Syracuse, N. Y. Filed Dec. 8, 1902. Serial No. 134,284. (No model.)

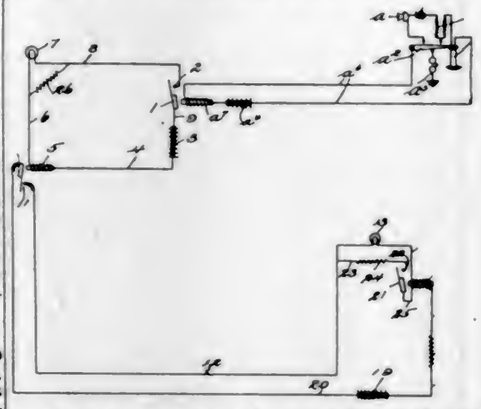


Claim.—1. The combination with a suspended theatrical scenery and a plurality of ropes connected respectively to the central and the end portions of said scenery, of a tackle-frame suspended from the central rope, a plurality of pulleys pivoted to different parts of said frame, and a compensating rope traversing said pulleys and connected to the end ropes as set forth.

2. The combination, with a theatrical scenery and a plurality of carrying-ropes suspending said scenery, of a tackle-frame provided at its upper and lower portions with pulleys pivoted to said frame and with a becket above the upper pulley and a becket on the bottom of the frame, means for fastening the upper becket to the central carrying-rope, a fall or manipulating rope connected to the bottom becket, and a compensating rope passing from the top of the upper pulley to the inner and under sides of the lower pulleys and attached at its ends to the ropes carrying the ends of the scenery as set forth.

749,982. ELECTRICAL SIGNALING SYSTEM. HENRY P. CLAUSEN, Chicago, Ill., assignor to the American Electric Telephone Company, Chicago, Ill., a Corporation. Filed Dec. 19 1901. Serial No. 86,435. (No model.)

Claim.—1. An electric lamp, a source of current-supply, a normally open circuit including said lamp and source of current-supply, said circuit and source of current-supply being capable of furnishing an abnormally strong current to said lamp, a normally open shunt or parallel connection extending around said lamp, and a relay for automatically closing said normally open shunt or parallel connection, so as to reduce the current through said lamp.



2. An electric lamp, a source of current-supply, a normally open circuit including said lamp and source of current-supply, suitable resistance in said circuit for permitting the passage of more than enough current to light said lamp, and a suitable relay and normally open shunt for automatically reducing the current through said lamp upon the closing of said circuit.

3. An electric lamp, a source of current-supply and a normally open circuit capable of supplying said lamp with more than enough current to light the latter, a normally open shunt of suitable resistance connected in parallel with said lamp, and a relay adapted and arranged to close said shunt upon the closing of the said circuit including the lamp and source of current-supply, said shunt when closed operating to reduce the current through the lamp.

4. The combination of an electric lamp, a source of current-supply, a normally open circuit including said lamp and source of current-supply, a relay for automatically closing said circuit and initially subjecting said lamp to an abnormally strong current, and an automatic switch or circuit-changing device connected and arranged for automatically reducing the current for said lamp upon the closing of said circuit.

5. An electric lamp provided with a normally open and automatically-closing shunt, the resistance of said lamp and said shunt being equal, or substantially the same, and a source of current connected and adapted for supplying an abnormally large current to said lamp, the said shunt closing before the current burns out the lamp.

6. An electric lamp provided with a normally open shunt, a source of current-supply and a circuit for said lamp, said circuit being capable of furnishing an abnormally strong current to said lamp, and a relay for automatically closing said shunt upon the closing of the lamp-circuit, the resistance of said shunt being suitable for reducing the current for said lamp, so as to prevent the latter from burning out when the lamp-circuit is maintained in a closed condition.

7. The combination of an electric lamp, a relay and a battery and suitable resistance connected up in series, a circuit-closing device also in series with said lamp and battery, a resistance and a circuit-closing device connected up in parallel with said lamp, said relay being arranged to operate the circuit-closing device in said parallel connection, the said battery and lamp circuit being capable of initially subjecting the lamp to an abnormally strong current, and said relay and parallel connection operating to then automatically reduce the current through the lamp before the latter burns out

8. In a telephone system, the combination of a substation and a central station and suitable line connection between the same, a source of current-supply, a calling-signal and suitable circuit connections for operating the same at the central station, an extension or pilot signal and suitable circuit connections for operating the same at the central station, the source of current-supply and the circuit for said extension or pilot signal being capable of furnishing the latter with an abnormally strong current, and a current-reducing device for automatically reducing the current for said extension or pilot signal, the said extension or pilot signal thereby being initially subjected to a current of undue strength and then automatically relieved of a portion of said current before injurious effects are caused.

9. In a telephone system, the combination of a substation and a central station and suitable line connection between the same, a signaling device at the substation and a signal at the central station capable of responding to such device, a source of current-supply and a circuit capable of furnishing an abnormally strong current to said signal, and a current-reducing device for automatically reducing the current through said signal, whereby the signal is initially subjected to an abnormally strong current, and whereby the current for the signal is then automatically and instantly reduced before injurious or harmful effects are caused.

10. In a telephone system, the combination of a substation and a central station and suitable line connection between the same, a signaling device at the substation and a signal-lamp at the central station adapted to be operated by said signaling device, a source of current-supply and a normally open circuit for said lamp, said source of current-supply and said circuit being capable of furnishing an abnormally strong current to said lamp, a relay and switch or circuit-changing device adapted and arranged to automatically reduce the current for said lamp, the lamp thereby being primarily or initially subjected to an abnormally strong current, and the relay and switch or circuit-closing device operating to then automatically and instantly reduce the current for the lamp before injurious or harmful effects are caused.

11. In a telephone system, the combination of a substation and a central station and suitable line connection between the same, a calling-signal lamp on the switchboard at the central station, a shunt for said lamp, a relay included in the circuit with the said lamp, an extension or pilot signal also located at said central station, a normally open circuit for said extension or pilot signal lamp adapted to be closed by said relay, a normally open shunt for said extension or pilot signal lamp, and a relay for automatically closing said shunt upon the closing of said normally open circuit, the said extension or pilot signal thereby being initially subjected to an abnormally strong current, and the said shunt when closed operating to then automatically and instantly reduce the current through said extension or pilot signal.

12. In a telephone system, the combination of a plurality of stations and suitable line connection between the same, a signaling device at one station, a lamp-signal at another station adapted to be operated by said signaling device, a source of current-supply and a normally open circuit capable of furnishing an abnormally strong current to said lamp-signal, whereby said lamp will respond fully and instantly when said signaling device is operated, and a current-reducing device and connection adapted to automatically reduce the current for said signal-lamp before injurious or harmful effects are produced by said abnormally strong current.

13. An electrical signaling system, comprising an incandescent lamp, a source of current and suitable connections for supplying current of a strength to burn out said lamp if permitted to continue flowing therethrough, and suitable means including one or more relays for momentarily subjecting said lamp to said current during the initial glowing of the lamp and for then reducing the current flowing through the lamp to proper proportions, whereby current of sufficient strength to burn out the lamp may be employed to produce a quick and practically instantaneous glowing of the lamp without danger of causing the lamp to burn out.

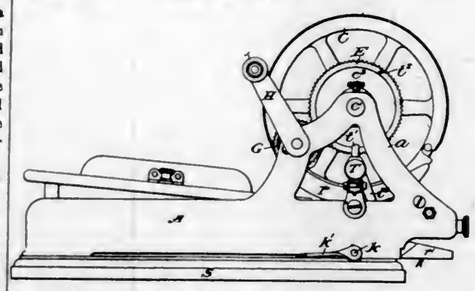
749,983. STENCIL-PRINTING MACHINE. ALBERT B. DICK, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1903. Serial No. 167,900. (No model.)

Claim.—1. In a stencil-printing machine, the combination with a stencil and means for supporting and moving the same, of a combined paper stop and stripper in operative relation thereto, substantially as set forth.

2. In a stencil-printing machine, the combination with a stencil and means for supporting and moving the same, of a combined paper stop and stripper in operative relation thereto, and means for moving the same to paper-stopping and paper-stripping positions, substantially as set forth.

3. In a stencil-printing machine, the combination with a stencil and means for supporting and moving the same, of a combined paper stop and stripper in operative relation thereto, and means for automatically moving the same to paper-stopping and paper-stripping positions, substantially as set forth.

4. In a stencil-printing machine, the combination with a stencil and means for supporting and moving the same, of a combined paper stop and stripper in operative relation thereto, and means controlled by the stencil supporting and moving mechanism for operating the same, substantially as set forth.



5. In a stencil-printing machine, the combination with a frame, of a stencil-carrier and means for operating the same, a combined paper stop and stripper mounted in said frame and mechanism for moving the same to stopping and stripping positions, substantially as set forth.

6. In a stencil-printing machine, the combination with a frame, of a stencil-carrier and means for operating the same, a combined paper stop and stripper pivotally mounted in said frame and mechanism for moving the same to stopping and stripping positions, substantially as set forth.

7. In a stencil-printing machine, the combination with a frame, of a stencil-carrier and means for operating the same, a combined paper stop and stripper, and operative connections between the same and said stencil-carrier and its operating means, substantially as set forth.

8. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising movable arms in juxtaposition to said stencil-carrier and means for operating said arms, substantially as set forth.

9. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising pivotally-mounted arms in juxtaposition to said stencil-carrier and means for operating said arms, substantially as set forth.

10. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising pivotally-mounted arms in juxtaposition to said stencil-carrier and provided with star-wheels and means for operating said arms, substantially as set forth.

11. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising movable arms in juxtaposition to said stencil-carrier, and operative connections between said paper stop and stripper and said stencil-carrier, substantially as set forth.

12. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising a pivotally-mounted bar and arms carried thereby in operative relation to said stencil-carrier, and means for moving said bar and arms into paper-stopping and paper-stripping positions, substantially as set forth.

13. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising a pivotally-mounted bar and arms carried thereby in operative relation to said stencil-carrier, and means for automatically moving said bar and arms into paper-stopping and paper-stripping positions, substantially as set forth.

14. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising a pivotally-mounted bar and arms carried thereby in operative relation to said stencil-carrier, and a cam carried by said stencil-carrier and coacting with said bar and arms, substantially as set forth.

15. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a combined paper stop and stripper comprising a pivotally-mounted bar and arms carried thereby in operative relation to said stencil-carrier, and a cam carried by said stencil-carrier and coacting with said

bar and arms through the medium of a rocking lever, substantially as set forth.

16. In a stencil-printing machine, the combination with a stencil and means for operating the same, of a pressure-roller and a combined paper stop and stripper in operative relation to said stencil and said roller, substantially as set forth.

17. In a stencil-printing machine, the combination with a stencil and means for operating the same, of a pressure-roller mounted in movable arms having curved ends, a shaft, and cams mounted on said shaft adjacent to said arms and coacting therewith to move said roller into and out of operative relation to said stencil, substantially as set forth.

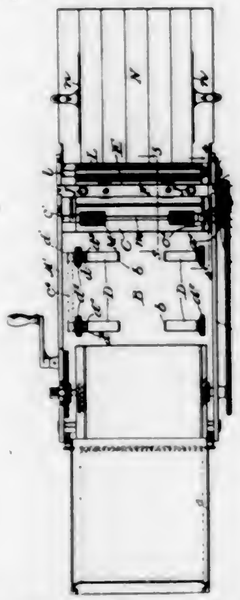
18. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a recording device, a pressure-roller mounted upon hinged arms, means for throwing said roller into and out of operative relation to said stencil-carrier, and a connection between said roller and said recording device, substantially as set forth.

19. In a stencil-printing machine, the combination with a stencil-carrier and means for supporting and moving the same, of a recording device, a pressure-roller mounted upon hinged arms, and a connection between said arms and said recording device, whereby both may be simultaneously moved to operative or inoperative position, substantially as set forth.

20. In a stencil-printing machine, the combination with a rotary stencil-carrier and a pressure-roller, of means for supporting and operating the same to produce prints from a stencil on said carrier, and stationary paper-guides rearward of said stencil-carrier and pressure-roller but in juxtaposition thereto and adapted to receive sheets from said carrier and roller and to curve the same between their edges in their passage from the machine, substantially as set forth.

21. In a stencil-printing machine, the combination with a stencil, means for supporting and moving the same and a pressure-roller coacting with such supporting means, of a paper-stripper having an arm or arms movable to operative and inoperative positions and terminating in juxtaposition to said pressure-roller and supporting means, the ends of said arm or arms being provided with star-wheels, substantially as set forth.

749,984. PAPER-FEEDING AND STENCIL-PRINTING APPARATUS. ALBERT B. DICK, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1903. Serial No. 167,901. (No model.)



Claim.—1. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll mounted below said bed and coacting successively with the lowermost sheets of the pile, and a reverse-roll in cooperative relation to said feed-roll of supporting mechanism therefor, and means for operating said feed-roll intermittently in one direction and said reverse-roll in the opposite direction, substantially as set forth.

2. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll mounted below said bed and coacting successively with the lowermost sheets of the pile and a reverse-roll in coöperative relation to said feed-roll, of supporting mechanism therefor, and means for operating said feed-roll intermittently in one direction and said reverse-roll continuously in the opposite direction, substantially as set forth.

3. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll mounted below said bed and coacting successively with the lowermost sheets of the pile and separated reverse-rolls in coöperative relation, of supporting mechanism therefor, and means for operating said feed-roll intermittently in one direction and said reverse-rolls in the opposite direction, substantially as set forth.

4. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll mounted below said bed and coacting successively with the lowermost sheets of the pile, an auxiliary feed-roll and a reverse-roll in coöperative relation to said feed-roll, of supporting mechanism therefor, and means for operating said feed-rolls intermittently in one direction and said reverse-roll in the opposite direction, substantially as set forth.

5. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll mounted below said bed and coacting successively with the lowermost sheets of the pile, an auxiliary feed-roll and a reverse-roll in coöperative relation to said feed-roll, of supporting mechanism therefor, and means for operating said feed-rolls intermittently in one direction and said reverse-roll continuously in the opposite direction, substantially as set forth.

6. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, a feed-roll coacting successively with the lowermost sheets thereof, and a reverse-roll in coöperative relation to said feed-roll, of supporting mechanism for said rolls, a power-transmitting device, and a stop mechanism coacting with said feed-roll, substantially as set forth.

7. In paper-feeding apparatus, the combination with a feed-roll and a reverse-roll in coöperative relation, of supporting mechanism therefor, a power-transmitting device, a stop mechanism, and connections between said device and stop mechanism and said rolls for operating the rolls in opposite directions, substantially as set forth.

8. In paper-feeding apparatus, the combination with a feed-roll and a reverse-roll in coöperative relation, of supporting mechanism therefor, a power-transmitting device, a stop mechanism, and connections between said power device, said stop mechanism and said rolls for operating one of said rolls intermittently, substantially as set forth.

9. In paper-feeding apparatus, the combination with a shaft carrying a feed-roll, of a clutch between said shaft and roll, and a reverse-roll in coöperative relation to said feed-roll, substantially as set forth.

10. In paper-feeding apparatus, the combination with a shaft carrying a feed-roll, of a clutch between said shaft and roll, means for imparting intermittent movement to said shaft, and a reverse-roll in coöperative relation to said feed-roll, substantially as set forth.

11. In paper-feeding apparatus, the combination with a feed-roll, of a reverse-roll above said feed-roll and in coöperative relation thereto, and means for adjusting one of said rolls toward or from the other, substantially as set forth.

12. In paper-feeding apparatus, the combination with feed-rolls mounted on shafts connected with a source of power, of clutches between said rolls and said shafts, means for imparting intermittent movement to said feed-rolls, and a reverse-roll in coöperative relation to said feed-rolls, substantially as set forth.

13. In paper-feeding apparatus, the combination with means for supporting a pile of sheets, of a separator-roll coacting with the under side of said pile adjacent to its forward edge, a feed-roll, and a rotary paper-stop coacting with the forward edge of said pile, substantially as set forth.

14. In paper-feeding apparatus, the combination with a feed-roll, of means for passing a pile of sheets thereto, and a vertically and horizontally adjustable paper-guard above said feed-roll and coacting with the forwad edge of the pile, substantially as set forth.

15. In paper-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, of a feed-roll coacting with the under side of said pile, and a paper-guard and movable paper-stop above said feed-roll and coacting with the forward edge of the pile, substantially as set forth.

16. In paper-feeding apparatus, the combination with a feed-roll, of means for passing a pile of sheets thereto, an adjustable paper-guard and movable paper-stop above said feed-roll, and coacting with the forward edge of the pile, and means for securing said guard and stop in adjusted position, substantially as set forth.

17. In paper-feeding apparatus, the combination with a feed-roll and an overlying and coöperating reverse-roll, of means for passing a pile of sheets thereto, a paper-guard in juxtaposition to said rolls and adapted to curve or bevel the advancing forward edge of said pile, and means for securing said guard in adjusted position, substantially as set forth.

18. In paper-feeding apparatus, the combination with a feed-roll and a reverse-roll, of mechanism for operating the same in opposite directions, an adjustable paper-guard in juxtaposition to said rolls and having a cut-away portion for coaction with the paper fed to said rolls, and means for securing said guard in adjusted position, substantially as set forth.

19. In paper-feeding apparatus, the combination with a feed-roll, of means for operating the same in one direction, and a reverse-roll above said feed-roll but having its axis forward of the axis of said feed-roll, substantially as set forth.

20. In paper-feeding apparatus, the combination with a feed-roll and means for operating the same, of a shaft above said feed-roll, means for operating said shaft, a reverse-roll mounted upon said shaft, and a paper-guard in juxtaposition to said reverse-roll and said feed-roll and extending on either side of said reverse-roll, said guard being adjustable toward and from said feed-roll, substantially as set forth.

21. In paper-feeding apparatus, the combination with an intermittently-operating feed-roll and a reverse-roll in coöperative relation thereto, of means, including an intermittently-operating separator-roll, for passing a sheet between said feed-roll and said reverse-roll, substantially as set forth.

22. In paper-feeding apparatus, the combination with an intermittent feed-roll, an intermittent separator-roll and a reverse-roll, of a paper-guard in operative relation to said feed-roll, and means for adjusting said reverse-roll and said guard relatively to said feed-roll, substantially as set forth.

23. In paper-feeding apparatus, the combination with a continuous feed-roll, an intermittent feed-roll and a reverse-roll in coöperative relation to said intermittent feed-roll, of means for passing a sheet between said intermittent feed-roll and said reverse-roll and thence to said continuous feed-roll, substantially as set forth.

24. In paper-feeding apparatus, the combination with a continuous feed-roll, an intermittent feed-roll, a reverse-roll coacting with said intermittent feed-roll, and an intermittent separator-roll, of means for passing a sheet over said intermittent separator-roll, between said intermittent feed-roll and said reverse-roll and to said continuous feed-roll, substantially as set forth.

25. In paper-feeding apparatus, the combination with an intermittent separator-roll, an intermittent feed-roll and a reverse-roll coacting with said feed-roll, of two rolls in juxtaposition to said feed and reverse rolls, and means, including said separator-roll, for passing a sheet between said feed-roll and said reverse-roll to the two rolls last named, substantially as set forth.

26. In paper-feeding apparatus, the combination with a feed-roll, of a shaft in juxtaposition thereto, adjustable supporting mechanism for said shaft, means for securing said shaft in adjusted position, and a roll carried by said shaft in operative relation to said feed-roll, substantially as set forth.

27. In paper-feeding apparatus, the combination with a feed-roll, of a shaft in juxtaposition thereto, mechanism adjustable both vertically and horizontally for supporting said shaft, and a roll carried by said shaft in operative relation to said feed-roll, substantially as set forth.

28. In paper-feeding apparatus, the combination with feeding mechanism, of a bed adapted to receive the sheets so fed, and separated rotary guides arranged adjacent to each edge of said bed and operating in one direction only, said guides having oblique operating-faces extending through openings in said bed for coaction with said sheets, substantially as set forth.

29. In paper-feeding apparatus, the combination with feeding mechanism, of a bed to receive the sheets so fed, and separated rolls and rotary guides, said guides being arranged adjacent to each edge of said bed and said rolls intermediate of said guides, both said rolls and said guides operating through openings in said bed in one direction only for passing and guiding the sheets thereon, substantially as set forth.

30. In paper-feeding and stencil-printing apparatus, the combination with sheet-feeding mechanism and a stencil-printing device including a drum carrying a stencil, of a bed intermediate of said feeding mechanism and said stencil-printing device, and a roll and a rotary guide mounted below said bed and portions whereof project through said bed, said rotary guide having an oblique operating-face, substantially as set forth.

31. In automatic paper-feeding and stencil-duplicating apparatus, the combination with paper-feeding mechanism, including a sheet-separating device and feed-roll and connections with a source of power for intermittently operating the same, of a stencil-printing device operated from the said source of power, and means for passing sheets from said feeding mechanism to said printing device in an approximately horizontal plane, substantially as set forth.

32. In automatic paper-feeding and stencil-duplicating apparatus, the combination with paper-feeding mechanism, including a sheet-separating device and feed-roll and connections with a source of power for intermittently operating the same, of a stencil-printing device operated from said source of power, a bed between said feeding mechanism and said device, and means in operative relation to said bed for passing sheets fed thereon by the feeding mechanism to said printing device, substantially as set forth.

33. In automatic paper-feeding and stencil-duplicating apparatus, the combination with paper-feeding mechanism, including a sheet-separating device and feed-roll and connections with a source of power for intermittently operating the same, of a stencil-printing device operated from said source of power, a bed between said mechanism and said device, and means in operative relation to said bed for passing sheets fed thereon by the feeding mechanism to said printing device in an approximately horizontal plane, substantially as set forth.

34. In paper-feeding apparatus, the combination with a bed adapted to receive and support a sheet pile in a fixed and approximately horizontal plane, of a feed-roll below said bed and mechanism for supporting and intermittently operating the same, and movable means in operative relation to said intermittent feed-roll for opposing the passage of more than one sheet at a time over said feed-roll, substantially as set forth.

35. In paper-feeding apparatus, the combination with a feed-roll and mechanism for supporting and intermittently operating the same, of a movable device in operative relation to said intermittent feed-roll and adjustable with respect to distance toward or from said feed-roll for opposing the passage of more than one sheet at a time over said feed-roll, substantially as set forth.

36. In paper-feeding apparatus, the combination with a bed adapted to receive and support a sheet pile in an approximately horizontal plane, of a feed-roll below said pile and mechanism for supporting and intermittently operating the same, means in operative relation to said intermittent feed-roll for opposing the passage of more than one sheet at a time over said feed-roll, and a connection between said operating mechanism and said means for imparting movement to the latter, substantially as set forth.

37. In paper-feeding apparatus, the combination with a bed adapted to receive and support a sheet pile in an approximately horizontal plane, a feed-roll, and a reverse-roll in coöperative relation to said feed-roll, of a source of power, and connections between the same and said feed and reverse rolls for operating the former intermittently in one direction and the latter in the opposite direction, substantially as set forth.

38. In paper-feeding apparatus, the combination with a bed adapted to receive and support a sheet pile in an approximately horizontal plane, a separator-roll, a feed-roll, and a reverse-roll in coöperative relation to said feed-roll, of a source of power, and connections between the same, said separator-roll, said feed-roll and said reverse-roll for operating said separator and feed rolls intermittently in one direction and said reverse-roll in the opposite direction, substantially as set forth.

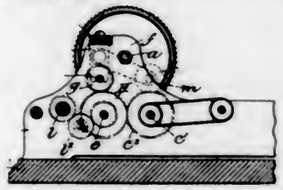
39. In paper-feeding apparatus, the combination with means for supporting the rearward end of a sheet pile in a fixed plane, of a separator-roll underlying said pile and supporting the forward end thereof, a feed-roll adapted to coact successively with the lowermost sheets of said pile, and a movable paper-stopping device arranged above said feed-roll and between which and said feed-rolls said sheets are passed, substantially as set forth.

40. In paper-feeding apparatus, the combination with means for supporting the rearward end of a sheet pile, of an intermittently-operating separator-roll underlying said pile and supporting the forward end thereof, a feed-roll adapted to coact successively with the lowermost sheets of said pile, and a movable paper-stopping device arranged above said feed-roll and between which and said feed-roll said sheets are passed, substantially as set forth.

41. In paper-feeding apparatus, the combination with means for supporting the rearward end of a sheet pile, of an intermittently-operating separator-roll underlying said pile and supporting the forward end thereof, an intermittently-operating feed-roll adapted to coact successively with the lowermost sheets of said pile, and a movable paper-stopping device arranged above said feed-roll and between which and said feed-roll said sheets are passed, substantially as set forth.

42. In paper-feeding apparatus, the combination with means for supporting the rearward end of a sheet pile, of a separator-roll underlying said pile and supporting the forward end thereof, a feed-roll adapted to coact successively with the lowermost sheets of said pile, and a paper-stopping device arranged above said feed-roll and coacting movably with said pile, substantially as set forth.

749,985. **PAPER-FEEDING APPARATUS.** ALBERT B. DICK and ERNEST BRAMBUR, Chicago, Ill., assignors to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 1, 1903. Serial No. 167,932. (No model.)



Claim.—1. In paper-feeding apparatus, the combination with a bed adapted to support a pile of sheets in a fixed plane and a feed-roll mounted below said pile and coacting successively with the lowermost sheets thereof, of a paper-stopping device in operative relation to said feed-roll and between which device and roll the paper to be fed is passed, and means for imparting movement concurrently to said device and said feed-roll, substantially as set forth.

2. In paper-feeding apparatus, the combination with a bed adapted to support a pile of sheets and a feed-roll mounted below said pile and coacting successively with the lowermost sheets thereof, of a rotary paper-stopping device in operative relation to said feed-roll and between which device and roll the paper to be fed is passed, and means for imparting movement to said device, substantially as set forth.

3. In a paper-feeding apparatus, the combination with a bed adapted to support a pile of sheets and a feed-roll mounted below said pile and coacting successively with the lowermost sheets thereof, of an adjustable rotary paper-stopping device in operative relation to said feed-roll and between which device and roll the paper to be fed is passed, and means for imparting movement to said device, substantially as set forth.

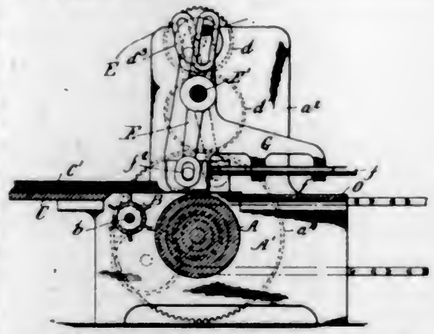
4. In paper-feeding apparatus, the combination with means for supporting a pile of sheets in an approximately horizontal plane and a feed-roll mounted below such pile and coacting successively with the lowermost sheet thereof, of a reverse-roll in cooperative relation to said feed-roll, and means for operating said feed-roll in one direction and said reverse-roll in the opposite direction, substantially as set forth.

5. In paper-feeding apparatus, the combination with means for supporting a pile of sheets in an approximately horizontal plane and a feed-roll mounted below such pile and coacting successively with the lowermost sheet thereof, of means for feeding such lowermost sheet to said feed-roll, a reverse-roll in cooperative relation to said feed-roll, and mechanism for operating said feed-roll in one direction and said reverse-roll in the opposite direction, substantially as set forth.

6. In paper-feeding apparatus, the combination with means for supporting a pile of sheets in an approximately horizontal plane, of a feed-roll and a separator-roll mounted below such pile and coacting successively with the lowermost sheet thereof, a reverse-roll in cooperative relation to said feed-roll, and means for operating said feed and separator rolls in one direction and said reverse-roll in the opposite direction, substantially as set forth.

749,986. **PAPER-FEEDING APPARATUS.** ALBERT B. DICK, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 21, 1903. Serial No. 170,276. (No model.)

Claim.—1. In sheet-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, and a feed-roll coacting with the under side of said pile, of a paper-stop in juxtaposition thereto, and means for intermittently moving said paper-stop in a plane substantially coincident with the direction of travel of said sheets, substantially as set forth.



2. In sheet-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, and a feed-roll coacting with the under side of said pile, of a series of paper-stops in juxtaposition thereto, and means for intermittently moving said paper-stops in a plane substantially coincident with the direction of travel of said sheets, substantially as set forth.

3. In sheet-feeding apparatus, the combination with a bed adapted to receive a pile of sheets, and a feed-roll coacting with the under side of said pile, of a series of paper-stops in juxtaposition thereto, and mechanism for intermittently moving certain of said stops in unison in a plane substantially coincident with the direction of travel of said sheets, substantially as set forth.

4. In sheet-feeding apparatus, the combination with a feed-roll, of a series of paper-stops, and means for moving certain of said stops in unison in one direction and certain others in unison in another direction, substantially as set forth.

5. In sheet-feeding apparatus, the combination with a feed-roll, of an auxiliary feed-roll coacting with the under side of the sheet pile, and a paper-stop intermittently coacting with the forward edge of said pile and means for operating the same in a plane substantially coincident with the direction of travel of the sheets, substantially as set forth.

6. In sheet-feeding apparatus, the combination with a feed-roll, of an auxiliary feed-roll coacting with the under side of the sheet pile, a series of paper-stops, and means coacting therewith for moving said stops, in a plane substantially coincident with the direction of travel of the sheets, into operative relation to the forward edge of said pile, substantially as set forth.

7. In sheet-feeding apparatus, the combination with a feed-roll, of an auxiliary feed-roll coacting with the under side of the sheet pile, a series of paper-stops, and means coacting therewith to move said stops intermittently, in a plane substantially coincident with the direction of travel of the sheets, into operative relation to the forward edge of said pile, substantially as set forth.

8. In sheet-feeding apparatus, the combination with a feed-roll, of an auxiliary feed-roll coacting with the under side of the sheet pile, a series of paper-stops, and means coacting therewith for intermittently moving said stops into operative relation to the forward edge of said pile, certain of said stops being simultaneously moved to inoperative position, substantially as set forth.

9. In sheet-feeding apparatus, the combination with a feed-roll and means for passing sheets over the same, of a paper-stop in juxtaposition to said feed-roll, and means for moving the same back and forth in a plane coincident with the direction of travel of said sheets, substantially as set forth.

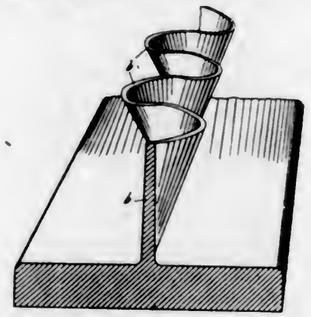
10. In sheet-feeding apparatus, the combination with a feed-roll and means for passing sheets over the same, of an adjustable paper-stop in juxtaposition to said feed-roll, and means for moving the same back and forth in a plane coincident with the direction of travel of said sheets, substantially as set forth.

11. In sheet-feeding apparatus, the combination with a feed-roll and means for passing sheets over the same, of a series of adjustable paper-stops coacting with said sheets, and means for moving the same back and forth in a plane coincident with the direction of travel of said sheets, certain of said stops being moved in one direction while the others are moved in a contrary direction, substantially as set forth.

12. In sheet-feeding apparatus, the combination with a feed-roll and means for passing sheets over the same, of a paper-stop, and means, including crank mechanism, for intermittently moving said paper-stop, in a plane substantially coincident with the direction of travel of said sheets, to operative position, substantially as set forth.

13. In sheet-feeding apparatus, the combination with a feed-roll and means for passing sheets over the same, of a series of paper-stops, and means, including crank mechanism, for intermittently moving said paper-stops, in a plane substantially coincident with the direction of travel of said sheets, to operative position, substantially as set forth.

749,987. **⊥-IRON BEARER FOR CONCRETE STRUCTURES.** THEODOR FRANKE, Berlin, Germany. Filed Sept. 2, 1903. Serial No. 171,696. (No model.)



Claim.—A ⊥-iron bearer for concrete structures, the web of which is corrugated, the said corrugations increasing in size toward the outer edge of the web, substantially as described.

749,988. **CABLE-CLIP.** OTTO C. HOFFMANN, Chicago, Ill., assignor to Fredric Greer, Chicago, Ill. Filed July 31, 1902. Serial No. 117,808. (No model.)



Claim.—1. A suspension-hook member for cable-clips, formed from a piece of wire bent in a complete loop intermediate the ends of said wire, one side of said loop forming a waist for said hook, the opposite side of said loop forming a clamping-bar, said wire also being bent at its ends to form a suspension-hook.

2. In a cable-clip, in combination, a suspension-hook member having a suspension-hook at one end, a clamping-bar at its other end, and a waist intermediate its ends; and a band looped around said waist and adapted to be passed around a cable and looped over said clamping-bar, said bar being adapted to exert pressure upon said band at a point intermediate said waist and the cable.

3. In a cable-hanger, the combination, with a hook provided with a heel portion having parallel members slightly spaced apart, of a strap having its ends rove in opposite directions in the space between said parallel members, substantially as described.

4. In a cable-clip, in combination, a hook member having a loop; and a band having its ends rove in opposite directions through said loop, one side of said loop constituting a clamping-bar adapted to exert pressure upon said band.

5. In a cable-clip, in combination, a hook member having a loop; and a band having its end rove in opposite directions through said loop, one side of said loop constituting a clamping-bar adapted to exert pressure upon said band, said band having one of its ends bent around one side of said loop, and its other end bent around the other side of said loop.

749,989. **CABLE-CLIP.** OTTO C. HOFFMANN, Chicago, Ill., assignor to Fredric Greer, Chicago, Ill. Filed Dec. 8, 1902. Serial No. 134,357. (No model.)

Claim.—1. In a cable-clip, a suspension-hook member having a curved hook portion, a base-bar near one end, a locking-bar near the extremity of the curved hook portion, and a cross-bar intermediate the base-bar and the locking-bar; in combination with a flexible band looped around the base-bar, over the cross-bar, and around the locking-bar.



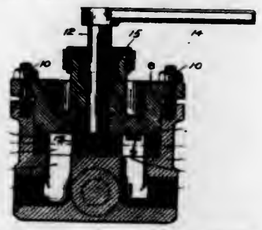
2. In a cable-clip, a suspension-hook member having a curved hook portion, a base-bar near one end, and a two-part cross-bar consisting of a loop of wire bent around the sides of the hook member; in combination with a flexible band looped around the base-bar near one of its ends and over one of said cross-bars and beneath and around the other of said cross-bars.

3. A suspension-hook member for cable-clips, having a curved hook portion, a base-bar at its lower end, a locking-bar at the outer extremity of the curved hook portion, and a cross-bar intermediate the base-bar and the locking-bar.

4. A suspension-hook member for cable-clips, having a curved hook portion, a base-bar at its lower end, a locking-bar at the outer extremity of the curved hook portion, and a two-part cross-bar intermediate the base-bar and the locking-bar.

5. A suspension-hook member for cable-clips, formed of wire, the middle portion of which constitutes a base-bar, said hook member having two side portions bent substantially at a right angle to said base-bar, a curved hook portion at the upper end of each side portion, a locking-bar formed by the inturned ends of the curved hook portion, and a two-part cross-bar consisting of a second wire wrapped around said side portions.

749,990. **VALVE.** EMIL F. HOLINGER, McKeesport, Pa. Filed Sept. 25, 1903. Serial No. 174,586. (No model.)



Claim.—1. In a valve, the combination of a body or casing provided with a seat having a plurality of openings or ports, a rotatable disk on said seat and provided with an opening or openings extending entirely through the same and coöperating with the ports in the valve-seat, and a backing-plate bearing against the face of said disk on the side opposite the valve-seat and arranged to close the opening or openings in said disk.

2. In a valve, the combination of a valve body or casing provided with a seat having a plurality of ports or openings, a rotatable disk on said seat and provided with an opening or openings and extending entirely through the same and coöperating with the ports in the valve-seat, a backing-plate bearing against the face of said disk on the side opposite the valve-seat, and arranged to close the opening or openings in said disk, and means for adjusting said backing-plate toward and from said disk.

3. In a valve, the combination of a body or casing provided with a seat having a plurality of ports or openings, a rotatable disk on said seat and with an opening or openings extending entirely through the same and coöperating with the ports in the valve-seat, and arranged to close the opening or openings in said disk, a backing-plate bearing against said disk on the face opposite the valve-seat, and an operating-stem connected to said disk and extending through said backing-plate.

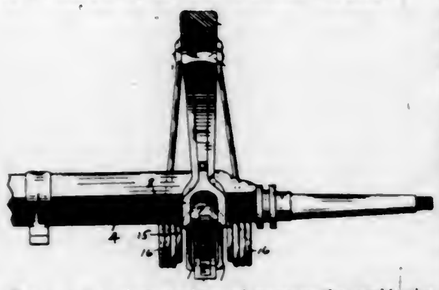
4. In a valve, the combination of a body or casing provided with a seat having a plurality of openings or ports, a rotatable disk

on said seat and provided with an arc-shaped opening or openings extending entirely through the same and coöperating with the ports in the valve-seat, a backing-plate bearing against said disk on the face opposite the valve-seat and arranged to close the opening or openings in said disk, and a lug on said backing-plate projecting into an opening in the disk for limiting the throw of the latter.

5. In a four-way valve, the combination of a casing or body provided with a seat having four ports or openings, a rotatable disk bearing against said seat and provided with two arc-shaped openings extending entirely through the same and arranged to coöperate with the ports in the valve-seat, and a backing-plate bearing against the face of said disk on the side opposite the seat and arranged to close the opening or openings in said disk.

6. In a valve, the combination of a body or casing provided with a valve-seat having a plurality of ports or openings, a rotatable disk on said seat and provided with an opening or openings extending entirely through the same and arranged to coöperate with the ports in the valve-seat, a backing-plate bearing against the face of said disk and arranged to close the opening or openings into said disk, on the side opposite the valve-seat, and threaded connecting means for securing said backing-plate to the valve-body and adjusting the same toward the rotatable disk.

749,991. **SHAFT-SUPPORTER.** WILLIAM E. HOYT, New York, N. Y. Filed Aug. 30, 1902. Serial No. 121,600. (No model.)



Claim.—1. In a shaft coupling and supporter the combination of the coupling device attached to the axle and having an eye on its forward portion to receive the shaft-pivot, the upper portion of said eye being hinged to the lower portion and formed with a hook on its rearwardly-extending end, a loop for securing said hinged portion adapted to engage over said hook, and a spring looped over said hook outside of said loop and passing down under and around the axle and engaged with the top of the vehicle-shaft, whereby said loop is prevented from accidentally working off said hook and the shaft is supported, substantially as set forth.

2. In a shaft-supporter, the combination of the coupling secured to the axle having an eye to receive the shaft-pivot, said eye being formed with an upper portion hinged to the lower portion, the shaft with its pivot mounted in said eye, a spring engaging a rearwardly-extending end of said hinged portion and having a coil formed in each branch thereof and its ends extending around and over the top of said axle and connected with a stirrup which is pivoted to a pivot-plate on the under side of said shaft, and said stirrup, substantially as set forth.

749,992. **LOCK FOR THE ADJUSTABLE BACKS OF LOOSE-LEAFED LEDGERS, ACCOUNT-BOOKS, RECORD-BOOKS, FILES, &c.** ANDREW D. HULQUIST, Chicago, Ill., assignor to J. S. McDonald, Chicago, Ill. Filed June 6, 1903. Serial No. 160,402. (No model.)



Claim.—1. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

2. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

3. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end which increases in depth as it extends from the adjacent extremity of said bolt; and a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

4. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

5. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt and increasing in depth as it extends from the adjacent extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is uneven; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

6. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is circumferentially grooved; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

7. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled device interposed between said bolt and tube for automatically locking the same together when in one position and unlocking them when in the reverse position.

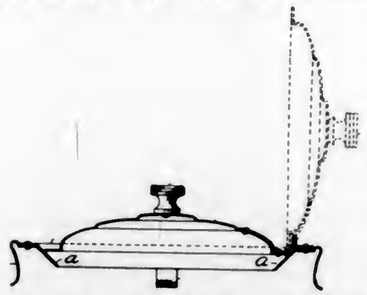
8. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

9. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end which increases in depth as it extends from the adjacent extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

10. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

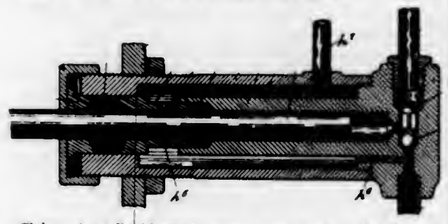
11. A lock comprising clamping-plates; a bolt rigidly secured to and projecting from one of said plates and provided with a longitudinally-disposed pocket in its unsecured end arranged oblique to the axis of said bolt and increasing in depth as it extends from the adjacent extremity of said bolt; a tube secured to the other plate into which said bolt enters, the surface of the inner wall of which is provided with a spiral groove; and an independent gravity-controlled ball seated in said pocket for automatically locking the tube and bolt together when in one position and unlocking them when in the reverse position.

749,993. **COVER FOR VESSELS.** BENJAMIN L. JOHNSON, Washington, Pa., assignor of one-half to William F. Ayers, Washington, Pa. Filed Sept. 22, 1903. Serial No. 174,206. (No model.)



Claim.—A cover for vessels, consisting of a ring provided with a downwardly and inwardly projecting flange which forms a draining-surface, springs or clamps secured to said ring or disk adapting same to be used on vessels of varying sizes, a hinge secured to said ring or disk and provided with an upwardly-projecting lug, in combination with a lid connected with said ring or disk by means of said hinge, adapted when open to rest against said lug, substantially as shown and described.

749,994. **LIQUID-FUEL-FEEDING SYSTEM.** DANIEL E. JOHNSON, Hartford, Conn., assignor to Frederic C. Billings, Hartford, Conn. Filed Apr. 11, 1902. Serial No. 102,431. (No model.)



Claim.—1. A liquid-supply system comprising a liquid-supply reservoir and a delivery-pump supplied therefrom provided with a leakage-chamber to receive leakage from the pump and having communication with the pump-supply through a plurality of separate passages.

2. A liquid-fuel-supply system for motor-vehicles comprising a fuel-supply reservoir and a delivery-pump supplied therefrom, and provided with a leakage-chamber in circulatory communication with said reservoir.

3. A pump of the class described comprising a pump-cylinder with its pump-chamber, a pump-operating member extending through said cylinder, inlet and discharge passages for said pump-cylinder, said pump having also a leakage-chamber to receive leakage therefrom, said chamber being in communication with a space adjacent said pump-operating member packed against the compression-pressure of the pump and also against the atmosphere.

4. A liquid-fuel-supply system for motor-vehicles provided with a delivery-pump having a pump-cylinder, a plunger reciprocable therein, a leakage-chamber surrounding said pump-cylinder, and separate packings between the pump-plunger and pump-cylinder and between the pump-plunger and leakage-chamber wall, said separate packings having a common intervening gland.

5. A liquid-fuel-supply system for motor-vehicles provided with a delivery-pump having a pump-cylinder, a plunger reciprocable therein, a leakage-chamber surrounding said pump-cylinder, and separate packings between the pump-plunger and pump-cylinder and between the pump-plunger and leakage-chamber wall, said separate packings having a common perforated gland to permit leakage from the innermost packing to escape into said leakage-chamber.

6. The within-described pump for motor-vehicle fuel-supply systems and the like, the same containing a pump-cylinder and its plunger, inlet and discharge passages for said pump-cylinder, and a leakage-chamber surrounding said pump-cylinder and in communication with said cylinder-inlet.

7. A pump of the class described comprising a pump-cylinder and its pump-chamber, a pump-operating member extending through said cylinder, inlet and discharge passages for said pump-cylinder, said pump having also a leakage-chamber to receive leakage from said pump in communication with a space adjacent said pump-operating member packed against the compression-pressure of said chamber and also against the atmosphere, and means to withdraw the leakage from said chamber.

8. A pump of the class described comprising a pump-cylinder with its pump-chamber, a pump-operating member extending through said cylinder, inlet and discharge passages for said pump-cylinder, a plurality of separate packings encircling said pump-operating member, and a leakage-chamber communicating with a space intermediate said packings and also in connection with the inlet-passage of the pump to receive the leakage from said pump.

9. A liquid-fuel-supply system comprising a supply-reservoir and a delivery-pump, an inlet-passage connecting the same with the supply-reservoir and a leakage-chamber for said pump in communication with the inlet-passage of said pump and having separate communication with said reservoir.

10. A liquid-supply system comprising a liquid-supply reservoir and a delivery-pump supplied therefrom, the latter having its pump-cylinder and inlet and outlet passages, and a chamber surrounding said pump-cylinder communicating with said inlet-passage and said reservoir.

11. A liquid-fuel-supply system comprising a reservoir and a pump having a pump-cylinder, a plunger, inlet and discharge passages, and a leakage-chamber surrounding said pump-cylinder and in communication with said cylinder-inlet and said reservoir.

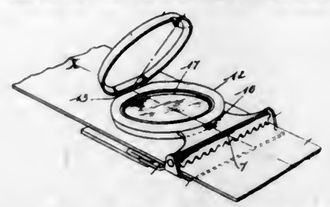
12. A pump of the class described comprising a cylinder, inlet and discharge passages, a plunger, packing between said cylinder and plunger, an outer cylindrical sleeve surrounding said pump-cylinder but leaving an annular space between said pump-cylinder and said sleeve, and a second packing between said cylindrical sleeve and said plunger, said plunger being exposed to said annular space intermediate said first and second packings.

13. A pump of the class described comprising a cylinder, inlet and discharge passages, a plunger, packing between said cylinder and plunger, an outer cylindrical sleeve surrounding said pump-cylinder but leaving an annular space between said pump-cylinder and said sleeve communicating with said inlet-passage, and a second packing between said cylindrical sleeve and said plunger, said plunger being exposed to said annular space intermediate said first and second packings.

14. A liquid-fuel-supply system comprising a reservoir, a pump, inlet and outlet passages therefor, a leakage-chamber to receive the leakage from said pump in communication with said inlet-passage, a communicating passage between said reservoir and said leakage-chamber, and a valve for said passage.

15. A pump of the class described comprising a cylinder, inlet and discharge passages, a plunger, an outer cylindrical sleeve surrounding said cylinder but leaving an annular space between said cylinder and said sleeve adapted to receive the leakage from said pump, and packing between said cylindrical sleeve and said plunger.

749,995. **GARMENT-BUCKLE.** WILLIAM H. JOHNSON, Revere, Mass., assignor to James A. Hewes and Frank W. Potter, Melrose, Mass. Filed Nov. 16, 1903. Serial No. 181,315. (No model.)

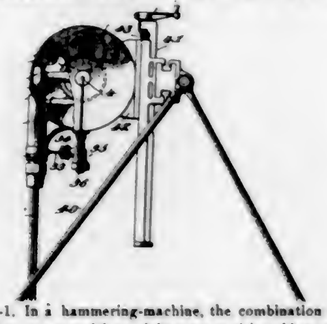


Claim.—1. In an article of manufacture, a casket composed of two members, connected together by a hinge so that one of said members is free to turn upon said hinge, the other member of said casket having an extension-piece rigidly secured thereto and forming the tongue of a garment-buckle, combined with the complementary part of such buckle to form a garment-fastening.

2. In an article of manufacture, a casket composed of two members connected together by a hinge so that one of said members is free to turn upon said hinge, the other member of said casket having an extension-piece rigidly secured thereto, constituting the tongue of a suspender-buckle, and pivoted to a buckle-back having a longitudinal slot formed therein for securing the webbing.

3. In an article of manufacture, a casket composed of two members connected together by a hinge so that one of said members is free to turn upon said hinge, the other member of said casket having an integral extension constituting the tongue of a suspender-buckle, said extension being pivoted to a buckle-back having a longitudinal slot formed therein for securing the webbing.

749,996. POWER-HAMMER AND ROCK-DRILL. JULIUS KRAUS, Cuyahoga Falls, Ohio. Filed May 21, 1903. Serial No. 158,126. (No model.)



Claim.—1. In a hammering-machine, the combination with a frame or casing, a motor-driven pinion mounted in said machine, a gear with which said pinion meshes, one or more hammers provided with arms which are pivotally connected directly to said gear, and an anvil or the like in line with the hammers when in their outermost positions.

2. In a hammering-machine, the combination with a frame or casing, of a gear mounted to rotate in said frame or casing, means for rotating said gear, one or more hammers provided with arms which are hinged directly to said gear, and an anvil or the like in line with said hammers when in their outermost positions.

3. In a drilling-machine, the combination with a frame or casing, of a gear rotatably mounted in said frame or casing, means for rotating said gears, one or more hammers provided with arms hinged directly to said gear, a drill-holder in line with the hammers when in their outermost positions, a ratchet on said drill-holder, a pawl for engaging said ratchet, and a cam formed on said gear for actuating said pawl.

4. In a hammering-machine, the combination with a frame or casing, of a rotating gear mounted in said casing, an electric motor mounted on said casing and having its armature-pinion meshing with said gear, one or more hammers provided with arms pivotally connected directly to said gear, and an anvil or the like in line with the hammers when in their outermost positions.

5. In a drilling-machine, the combination with a circular frame or casing, a rotating shaft mounted centrally therein, one or more hammers provided with arms hinged to said shaft, a drill-holder mounted in a tangentially-projecting hollow portion of said casing, a pump rigidly secured to said casing, an operating-rod for said pump actuated from said rotating shaft, and rigid pipe connections from said pump to the hollow tangentially-projecting portion of the casing.

749,997. HANDLE FOR BAGS. JOHN MEHL, Jr., Jersey City, N. J. Filed Nov. 28, 1903. Serial No. 182,969. (No model.)



Claim.—1. A handle for bags comprising a tubular casing of flexible material and a chain located therein for permitting the handle to be readily bent into various positions without breaking.

2. A handle for bags comprising a tubular casing of flexible material and a chain located therein arranged to be secured to the bag for carrying the weight thereof, the said handle being free to be bent into various positions without breaking.

3. A handle for bags comprising a tubular flexible casing, a chain located therein and tips for securing the corresponding ends of the chain and casing together, and to the bag.

749,998. ELECTRIC TUBE-LAMP. DANIEL M. MOORE, Newark, N. J. Filed Jan. 22, 1903. Serial No. 140,139. (No model.)



Claim.—1. In an electric lamp wherein the illuminating agent consists of a luminous gas traversed by electric currents and contained in a sealed inclosure, an internal electrode consisting essentially of a thin film of carbon applied to a non-conducting surface but in union with the leading-in wire.

2. In an electric lamp wherein the illuminating agent is a body of gas contained in a translucent envelop and wherein the energy passes by conductive action from one to the other of two electrodes both in direct contact with the gas, an internal electrode consisting essentially of a conducting coating applied to surfaces within said envelop and in direct contact with the gaseous contents.

3. In an electric lamp consisting essentially of a body of gas rendered luminous by the passage of electric currents by conductive action both to and from the body of gas, an internal electrode forming an adherent coating for surfaces within the gaseous inclosure.

4. In an electric lamp consisting essentially of a translucent inclosure for a body of gas adapted to be rendered luminous by electric currents passing by conducting action to and from the body of gas, an internal electrode consisting of an adherent coating upon the glass surfaces and consisting of a conducting material in electrical union with a leading-in wire.

5. In an electric lamp consisting essentially of a translucent envelop containing a body of gas adapted to be rendered luminous by electric currents passing by conducting action to and from the gas, an internal electrode consisting of a conducting coating applied to the interior surface of the wall for said envelop and electrically united with a suitable leading-in wire.

6. In an electric lamp consisting essentially of a glass inclosure containing a gas adapted to be rendered luminous by the passage of an electric current, an internal electrode consisting of an adherent coating of graphite in electrical union with a suitable leading-in wire.

7. In an electric lamp comprising a glass inclosure for a body of gas adapted to be rendered luminous by electric currents passing by conducting action to and from the gas, a leading-in wire extended into a thin coating of conducting material adherent to the interior surfaces of said inclosure.

8. In an electric lamp consisting essentially of a glass inclosure for a body of gas adapted to be rendered luminous by electric currents, an interior electrode consisting of a thin layer of graphite spread upon the inner surfaces of said inclosure and in electrical union or with suitable leading-in wires.

9. In an electric-lighting system, an electric lamp consisting essentially of a translucent tube or receptacle containing gas adapted to be rendered luminous by the application of electric energy, and interior electrodes at the opposite ends of said tube respectively, each said electrode consisting of an interior coating of conducting material.

749,999. ELECTRODE FOR ELECTRIC TUBE-LAMPS. DANIEL M. MOORE, Newark, N. J. Filed Feb. 26, 1903. Serial No. 145,185. (No model.)



Claim.—1. The combination with a tube or other receptacle containing a rarefied gas or vapor, of an exterior energy-transferring electrode and means for excluding air from a junction-point between said electrode and said tube or receptacle.

2. The combination with a lamp consisting of a tube or receptacle containing a gas or vapor rendered luminous by the application of electric energy, of a supplemental envelop 3 applied to said tube or receptacle as and for the purpose described.

3. The combination with a tube or other receptacle containing a rarefied gas or vapor, of an exterior conducting-cap or electrode consisting of a body of mercury or other good conductor in which the exterior walls of the receptacle are immersed.

4. The combination with a tube or other receptacle containing a rarefied gas or vapor, of an exterior conducting-cap or electrode consisting of a conductor in which the exterior walls of the receptacle are immersed.

5. In a lamp consisting of a tube or receptacle containing a gas or vapor to be rendered luminous by the application of alternating electric energy, an exterior conducting-cap or electrode consisting of a body of mercury or other good conducting liquid in contact with the exterior wall of said receptacle.

6. The combination with a sealed tube or receptacle containing a gas or vapor, of an exterior conducting-cap or electrode consisting of a body of mercury or other good conductor in contact with the wall of said gas-containing receptacle and means for insulating the same from contact with the air at the edge of its area of contact.

7. The combination with a sealed tube or receptacle containing a gas or vapor, of an exterior conducting-cap or electrode consisting of a body of mercury or other good conductor in contact with the wall of said gas-containing receptacle and sealed at the point of transference of the electric energy to the gas, as and for the purpose described.

8. In an electric lamp consisting of a glass tube or other receptacle containing a gas or vapor adapted to be rendered luminous by the application of alternating electric energy, a liquid-containing receptacle of glass sealed to said tube and adapted to hold the body of liquid in contact with the outer wall of the gas-containing receptacle as and for the purpose described.

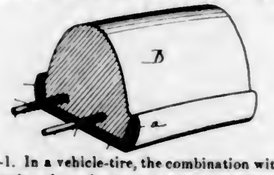
9. In an electric tube-lamp, the combination with a gas or vapor containing tube of glass, of an exterior liquid-containing receptacle sealed thereto, and a leading-in wire or conductor sealed in said outer liquid-containing receptacle, as and for the purpose described.

10. In an electric tube-lamp, the combination with a gas or vapor containing tube of glass, of an exterior receptacle sealed thereto, and a leading-in wire or conductor sealed in said outer receptacle, as and for the purpose described.

11. The combination with a vacuum-tube electrode applied to the exterior of the tube or receptacle, of means for excluding air from said electrode.

12. The combination with a tube or other receptacle containing a rarefied gas or vapor, of an energy-transferring electrode having an insulating-casing.

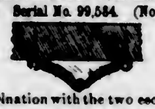
750,000. VEHICLE-TIRE. EUGENE F. MCARDLE, New York, N. Y. Filed Nov. 28, 1902. Serial No. 133,039. (No model.)



Claim.—1. In a vehicle-tire, the combination with a rim having a channel therein, of an elastic strip or body within said channel, and having a longitudinal bore or opening therein, a coil molded in the elastic strip or body and extending longitudinally through said strip and forming a flexible metallic lining for said bore or opening and a retaining-wire fitting snugly within said coil, and the bore or opening.

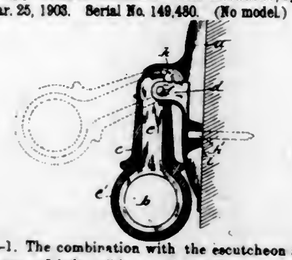
2. In a vehicle-tire, the combination with a rim having a channel therein, of an elastic strip or body fitting in said channel, having a plurality of longitudinal bores or openings therein extending through said strip or body, a coil of wire embedded in said strip or body, and extending longitudinally through said strip and around each of said bores or openings, to form a compressible metallic lining for each bore, and having an inner diameter substantially the same as the diameter of the bore, and a retaining-wire fitting snugly within each bore and coil.

750,001. CASKET-HANDLE. JOHN MCCARTHY, Syracuse, N. Y. Filed Mar. 24, 1902. Serial No. 99,584. (No model.)



Claim.—The combination with the two escutcheons, each formed with a vertical wall projecting from the front of the escutcheon, and the two handle-arms each fixed to the handle-bar and having its pivot projecting from one side of the arm and disposed reverse in relation to the pivot of the other arm and inserted into the aforesaid wall of the escutcheon, of braces attached to the escutcheons and extending vertically across the escutcheons adjacent to the aforesaid wall and engaging the fronts of the pivots, as set forth and shown.

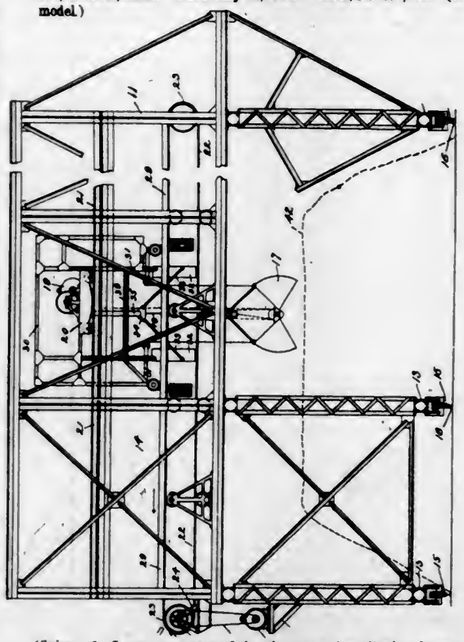
750,002. CASKET-HANDLE. JOHN MCCARTHY, Syracuse, N. Y. Filed Mar. 25, 1903. Serial No. 149,480. (No model.)



Claim.—1. The combination with the escutcheon and handle-arm, of two ears of infrangible metal rigidly attached to the escutcheon, the relief-bar inserted between said ears and pivoted thereto, and stops projecting from opposite sides of the relief-bar and engaging the tops of the ears as set forth.

2. The combination with the escutcheon and handle-arm, of infrangible metal ears formed separate and projecting from the escutcheon, a relief-bar secured to the handle-arm and having its pivoted end bifurcated and the prongs thereof deflected laterally in opposite directions to engage the tops of the aforesaid ears as and for the purpose set forth.

750,003. COAL-HANDLING APPARATUS. JAMES M. MCCLELLON, Everett, Mass. Filed May 14, 1903. Serial No. 157,092. (No model.)



Claim.—1. In an apparatus of the character described, a framework, a carriage arranged to run lengthwise of said framework, an elevator supported upon said carriage, means for moving said carriage horizontally lengthwise of said framework, mechanism carried by said carriage to move said elevator vertically, a conveyer, a chute to convey the material raised by said elevator to said conveyer, and mechanism operated by said elevator to move said chute longitudinally of said carriage and conveyer to an operative position beneath said elevator.

2. In an apparatus of the character described, a framework, a carriage arranged to run lengthwise of said framework, an elevator

-upported upon said carriage, means for moving said carriage horizontally lengthwise of said framework, mechanism carried by said carriage to move said elevator vertically, two conveyers, two chutes, and mechanism operated by said elevator to move said chutes toward each other to a position beneath said elevator and in position to convey the material raised by said elevator to said conveyers.

3. In an apparatus of the character described, an elevator, a framework upon which said elevator is supported, means for moving said elevator horizontally with relation to said framework, a conveyer-belt, a stationary chute, and a movable chute constructed to be moved lengthwise of said framework and convey the material raised by said elevator to said conveyer.

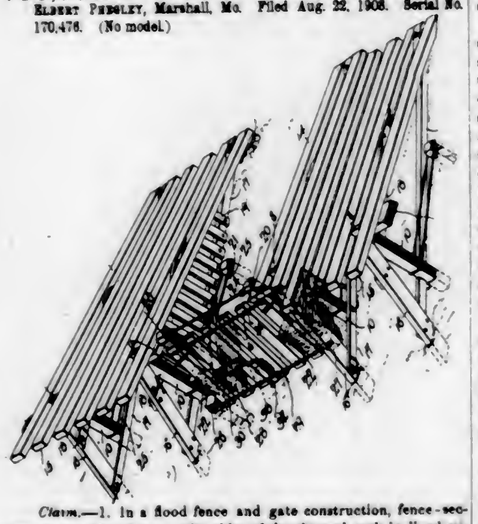
4. In an apparatus of the character described, an elevator, a framework upon which said elevator is supported, means for moving said elevator horizontally with relation to said framework, a conveyer-belt, a stationary chute, and a movable chute constructed to be moved lengthwise of said framework and convey the material raised by said elevator to said stationary chute, and thence to said conveyer.

5. In an apparatus of the character described, a framework, a carriage arranged to run lengthwise of said framework, an elevator supported upon said carriage, means for moving said carriage horizontally lengthwise of said framework, mechanism carried by said carriage to move said elevator vertically, two conveyers located upon opposite sides, respectively, of said carriage, a chute constructed to simultaneously convey the material raised by said elevator to said conveyers, and mechanism operated by said elevator to move said chute longitudinally of said conveyers to an operative position beneath said elevator.

6. In an apparatus of the character described, a framework, a carriage arranged to run lengthwise of said framework, an elevator supported upon said carriage, means for moving said carriage horizontally lengthwise of said framework, mechanism carred by said carriage to move said elevator vertically, two conveyers located upon opposite sides, respectively, of said carriage, an inverted-V-shaped chute, and mechanism operated by said elevator to move said chute longitudinally of said conveyers to an operative position beneath said elevator.

7. In an apparatus of the character described, a framework, a carriage arranged to run lengthwise of said framework, an elevator supported upon said carriage, means for moving said carriage horizontally lengthwise of said framework, mechanism carried by said carriage to move said elevator vertically, two conveyers located upon opposite sides, respectively, of said carriage, two chutes constructed to simultaneously convey material raised by said elevator to said conveyers, and mechanism operated by said elevator to move said chutes toward each other to a position beneath said elevator and in position to convey the material raised by said elevator to said conveyers.

750,004. **FLOOD GATE AND FENCE.** LOUIS W. PENDLEY and ELBERT PENDLEY, Marshall, Mo. Filed Aug. 22, 1903. Serial No. 170,476. (No model.)



Claim.—1. In a flood fence and gate construction, fence-sections arranged at the opposite sides of the channel each inclined upwardly toward their downstream ends and with vertically-arranged oppositely-disposed side panel, a gate disposed between said vertical sides and mounted to swing downstream, and a spring disposed to support said gate yieldably closed, substantially as specified.

2. In a flood fence and gate construction, fence-sections arranged on the opposite sides of the channel and inclined upwardly toward their downstream ends and provided with vertical oppositely-disposed side walls, oppositely-disposed brace-posts connected by a stay member in transverse alinement with the upper surfaces of said fence-sections, and a gate mounted to swing downstream between said fence-sections and engaging said brace-posts when in its closed position, substantially as specified.

3. In a flood fence and gate construction, fence-sections at the opposite sides of the channel inclined upwardly toward their downstream ends and provided with vertical oppositely-disposed side walls, oppositely-disposed brace-posts connected by a stay member in transverse alinement with the upper surfaces of said fence-sections, a gate mounted to swing downstream between said fence-sections and engaging said brace-posts when in its closed position, and breakable connecting means between the free side of said gate and said brace-posts, substantially as specified.

4. In a flood fence and gate construction, fence-sections disposed at the opposite sides of the channel and inclined upwardly toward the downstream ends and provided with vertical oppositely-disposed side walls, oppositely-disposed brace-posts disposed adjacent said vertical walls and connected by a stay member in transverse alinement with the upper surfaces of said fence-sections, a gate mounted to swing downstream between said fence-sections and engaging said brace-posts when in its closed position, and a spring connected to maintain said gate yieldably closed, substantially as specified.

5. In a flood fence and gate construction, fence-sections disposed at the opposite sides of the channel and inclined upwardly toward their downstream ends and provided with vertical oppositely-disposed side walls, oppositely-disposed brace-posts disposed adjacent said vertical walls and embedded in the bed of the stream, cribs formed of a plurality of members superimposed at their ends and inclosing said posts and ballasted to hold them in position, a gate mounted to swing downstream between said fence-sections and engaging said brace-posts when in closed position, substantially as specified.

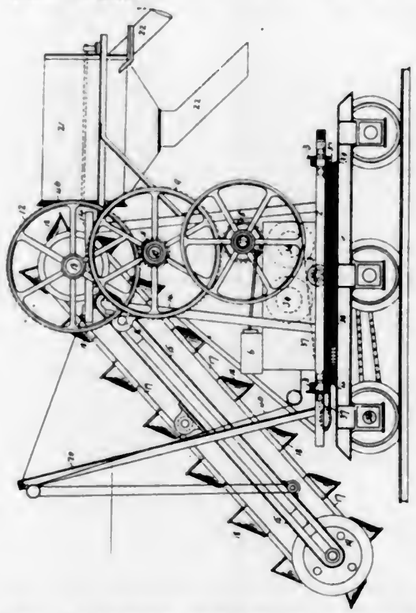
6. In a flood fence and gate construction, fence-sections disposed at the opposite sides of the channel and inclined upwardly toward their downstream ends and provided with vertical oppositely-disposed side walls, oppositely-disposed brace-posts disposed adjacent said vertical walls and embedded in the bed of the stream, cribs formed of a plurality of members superimposed at their ends and inclosing said posts and ballasted to hold them in position, a gate mounted to swing downstream between said fence-sections and engaging said brace-posts when in closed position, and a tie member connecting the upper ends of said brace-posts, substantially as specified.

7. In a flood-fence construction, a plurality of vertical posts spaced apart and embedded at their lower ends in the bed of the stream transversely thereof, horizontal cap-plates connected to the upper ends of said posts and with their inner ends terminating at opposite sides of the channel, sill-plates embedded in the bed of the stream transversely thereof and spaced upstream from said cap-plates and posts, brace members embedded in the bed of the stream downstream from said vertical posts and inclined toward the upper ends of said posts and cap-plates and connected thereto, tie-bars connecting said brace members vertical posts and sill members, stay-posts embedded at their lower ends in the bed of the stream their upper ends arranged adjacent the inner ends of said plate members, a tie member connecting the upper ends of said brace-posts and extending over the channel, and spaced fence members connected with said sill members and plate members and extending downstream in an upwardly-inclined position, substantially as specified.

8. A flood fence and gate construction, comprising spaced fence-sections composed of a plurality of vertical posts spaced apart with their lower ends embedded in the bed of the stream transversely thereof, horizontal cap-plates connected with the upper ends of said posts, sill-plates embedded in the bed of the stream transversely thereof and spaced upstream from said cap-plates and posts, brace members embedded in the bed of the stream downstream from said vertical posts and inclined toward the upper ends of said posts and cap-plates and connected thereto, tie-bars connecting said brace members vertical posts and sill members, spaced slats connected above said sill members and plate members and extending downstream in an upwardly-inclined position, spaced guard members forming closures to the inner faces of said fence-sections, and a gate mounted to swing downstream in the interval between said fence-sections, substantially as specified.

9. In a flood fence and gate construction, fence-sections spaced apart at opposite sides of the channel, posts embedded at their lower ends in the bed of the stream adjacent to said spaced supporting structures, a supporting-rod connecting said post members, a gate movably mounted upon said rod and adapted to engage said posts when in its closed position, a stake embedded in the bed of the stream adjacent to the upstream side of said gate, and a spring connected by one end to said stake and by the opposite end to the gate and operating to support said gate yieldably in closed position, substantially as specified.

750,005. **MACHINE FOR EXCAVATING, RAISING, SCREENING, AND FILLING GRAVEL BALLAST OR THE LIKE.** HILARY QUERTIER, Dunedin, New Zealand. Filed Nov. 17, 1903. Serial No. 181,514. (No model.)



Claim.—1. In a machine of the class described, and for the purpose indicated, in combination, a traveling truck, a circular turn-table thereupon, a bed-plate, friction-rollers in the plate running upon the turn-table, a king-post, winch-drums that are operated through a motor-driven shaft and worm and worm-wheels, lines upon the drums said lines passing through the bed-plate and around the waist of the turn-table reversely to each other in such a way that when one of the drums is revolved the bucket-ladder and the superstructure of the machine will be swung out of line, as specified.

2. In a machine of the class described, means for turning the superstructure upon its truck, comprising in combination, a traveling truck, a circular turn-table thereupon and a bed-plate upon the turn-table running on friction-rollers, a motor-driven shaft, a bevel-pinion upon the shaft gearing with a second pinion upon a vertical shaft, a friction-clutch on the vertical shaft operated by a lever, a worm upon the shaft end, a pair of worm-wheels upon parallel shafts with each of which the worm gears, winch-drums and double-acting clutches adapted to gear with said drums upon the worm-wheel shafts and lines upon the drums, the outer ends of said lines being wound upon the turn-table waist reversely to each other and having their ends secured therein, as specified and operating in the manner explained.

3. In a machine of the kind described, means for causing the machine to be self-propelled, comprising, in combination, a traveling truck, a hollow king-post, a vertical shaft within the king-post, a bevel-pinion upon its upper end, a motor-driven horizontal shaft, a sleeve upon the same slidable thereon and revolving therewith, bevel-wheels upon the sleeve each capable of being in turn brought to gear with said vertical shaft's bevel-pinion, means upon the lower end of said shaft for operating a horizontal shaft below the truck-floor, and a sprocket-wheel upon the last-mentioned shaft communicating motion to a second sprocket-wheel upon one of the truck-axles, as specified.

4. In a machine of the kind described, a traveling truck, a hollow king-post, a vertical shaft within the king-post, a bevel-pinion upon its upper end, a motor-driven horizontal shaft, a sleeve upon the same slidable thereon and revolving therewith, bevel-wheels upon the sleeve each capable of being in turn brought to gear with said vertical shaft's bevel-pinion, means upon the lower end of said shaft for operating a horizontal shaft below the truck-floor, a sprocket-wheel upon the last-mentioned shaft communicating motion to a second sprocket-wheel upon one of the truck-axles, in combination with loose drums upon the same axle as the driven sprocket, annular flanges upon the drum ends, bosses upon the sprocket, collars secured upon the axle-shaft that are enveloped by the flanges, and locking-pins that are inserted in holes passing through said flanges and into the bosses and collars aforesaid, substantially as described and for the purposes set forth.

5. In a machine of the kind described, the auxiliary self-propelling gear, comprising in combination, a sprocket-wheel suitably driven upon an axle of the machine's truck, winding-drums loosely mounted upon the axle, annular flanges upon the drum ends, collars secured upon the axle-shaft and bosses upon the sprocket-wheel that are enveloped by the annular flanges upon the drums, holes passing through the said flanges and ending in the bosses and collars, a recess around the top of each of the holes and a keyway therein, locking-pins that are inserted in the holes, a feather upon the pins and forked springs secured upon the drum-flanges that engage the pins, all as described, and operating in the manner and for the purposes set forth.

6. In a machine as specified, a traveling truck, a circular turn-table thereupon and a bed-plate upon the turn-table running on friction-rollers, a horizontal shaft, motor-driven, a friction-clutch upon the shaft in connection with a sprocket-wheel on the shaft end and means for operating the clutch, said sprocket-wheel communicating its motion through a chain to a second sprocket-wheel upon a counter-shaft, a bevel-pinion upon the said counter-shaft, and a bevel-wheel upon the screen 21 gearing with the bevel-pinion upon the counter-shaft, and means for supporting the screen, as described.

7. In a machine for excavating, raising, screening and filling gravel ballast and the like, in combination, a traveling truck, a circular turn-table thereupon, and a bed-plate upon the turn-table running on friction-rollers, a tumbler-framing, a bucket-ladder pivoted thereto, means for keeping the bucket-ladder at its work, an endless chain on the ladder a gauntree for supporting the same, and buckets upon the chain, upper and lower tumblers, a motor and means for communicating its motion to the bucket-ladder and also to self-propelling gear, winch-gear and screen-operating gear; a screen receiving the material from the topmost tumbler, swiveling chutes on the screen for discharging material from the same, a king-post, winch-drums, and lines upon the drums the outer ends of said lines being wound reversely to each other upon the turn-table waist, substantially as specified.

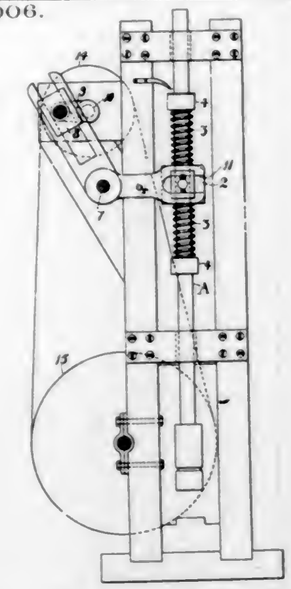
750,006. **STAMP-MILL.** GEORGE C. RICHARDS, Berkeley, Cal., assignor of one-half to Herman Murphy, San Francisco, Cal. Filed May 12, 1902. Serial No. 106,905. (No model.)

Claim.—1. The combination with a vertically guided and movable stamp-stem, having a tappet slidable upon it, a lifting-stop above, and a compressible spring below and in contact with the tappet, of a rigid bell-crank lever having its angle fulcrumed at one side of the line of travel of the stem, connections between one arm of the lever and the tappet, and slidable connections between the other arm and an operating-crank.

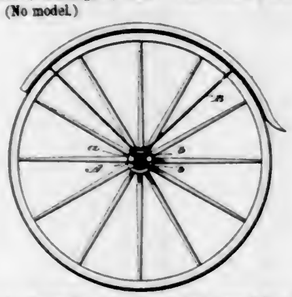
2. A vertically guided and movable stamp-stem, having a tappet slidable thereon, a lifting-spring device above the tappet, and a compressible spring below, a crank-shaft journaled at one side of the stem, an inflexible rigid bell-crank lever having its angle fulcrumed between the shaft and the tappet, and a slide movable in the outer arm of the lever and forming connection with the crank, said lever having its inner end connected with the tappet.

3. A vertically guided and movable stamp-stem having a tappet slidable thereon, compressible springs through which the tappet acts to impart motion to the stem, a bell-crank lever fulcrumed at one side of the stem, a slot and a slide movable thereon at the outer end of the lever, a crank engaging the slide and acting to rock the lever, slotted forks and boxes slidable thereon at the opposite end of the lever, and pins connecting the boxes with the tappet.

750,006.



750,007. COMBINED MUD AND DUST GUARD FOR VEHICLES. JOHN H. SCOTT, Huntington, Utah. Filed June 14, 1898. Serial No. 683,420. (No model.)



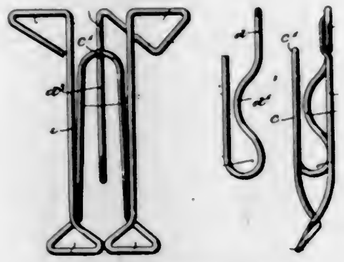
Claim.—1. A combined mud and dust guard for vehicles, comprising two rods, flattened at their lower ends, the said flattened portions being substantially parallel and constructed to be attached to the axle inside the hub, and carrying a sand-band, and the up portions of said rods being flared outward and carrying at their outer ends a mud-guard, substantially as described.

2. In a combined sand-band and dust-guard for vehicles, a sand-band carried by substantially parallel flattened rods, a mud-guard carried by an elongation of said rods bent along divergent lines, and said guard being constructed to approximate the shape of the tire and remain rigidly in juxtaposition thereto, and means for attaching said rods to the axle substantially as described.

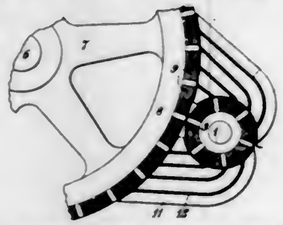
750,008. GARMENT-FASTENING. CHARLES M. SHUBERT, West Philadelphia, Pa. Filed Apr. 2, 1903. Serial No. 150,687. (No model.)

Claim.—1. A garment-hook, consisting of a single wire formed into two longitudinal portions, each portion having at each end an eye for securing the hook to the garment, a bill extending from and connecting the eyes at one end of the longitudinal portions, said bill arranged above and parallel with the longitudinal portions, and a part of the wire projecting in a yielding spring connection from another eye of one of the longitudinal members toward the center of the bill, said part being successively arched, formed into a hook and then into a free-ended tongue extending above the arch and within the bill, all arranged so that said part with its tongue may move at its spring connection with said eye portion of one longitudinal member and approach under spring tension the opposite eye portions of both longitudinal members.

2. A garment-hook, consisting of a single wire formed into two longitudinal portions, each portion having at each end an eye for securing the hook to the garment, a bill extending from and connecting the eyes at one end of the longitudinal portions, said bill arranged above and parallel with the longitudinal portions, a part of the wire projecting in a yielding spring connection from another eye of one of the longitudinal members toward the center of the bill, said part being successively arched, formed into a hook and then into a free-ended tongue extending above the arch and within the bill, all arranged so that said part with its tongue may move at its spring connection with said eye portion of one longitudinal member and approach under spring tension the opposite eye portions of both longitudinal members, in combination with an eye having a projection extending at right angles to the body of the eye and arranged to enter between the arch and free-ended tongue of the garment-hook to engage said hook.



750,009. ELECTROMAGNETIC GEARING. ERIC THORDON, Pittsburg, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Feb. 6, 1903. Serial No. 142,242. (No model.)



Claim.—1. An electromagnetic gear comprising a wheel having an annular set of electromagnet-coils, in combination with an adjacent wheel having an annular set of electromagnet-coils and means for conducting the magnetic flux between adjacent, unlike poles of the two wheels.

2. The combination with a driving-shaft having an annular set of electromagnet-coils, of a shaft having an annular set of electromagnet-coils arranged to move in proximity to the electromagnet-coils of the first set and means for conducting the magnetic flux between adjacent poles of the two sets of magnet-coils.

3. The combination with a shaft and a pinion or wheel thereon which is provided with an annular set of electromagnet-coils the poles of which alternate in sign, of an adjacent wheel having an annular set of electromagnet-coils the poles of which alternate in sign and masses of laminated iron located between the two sets of magnets and terminating in proximity to both sets.

4. The combination with a driving-shaft and a wheel or pinion thereon which is provided with an annular set of electromagnet-coils, of a driven shaft, a wheel thereon which is provided with an annular set of electromagnet-coils arranged to move in proximity to those of the first set and masses of laminated iron and interspersed plates of non-magnetic metal located between the two sets of electromagnets and terminating in proximity to both.

5. The combination with a driving-shaft and a pinion having an annular set of electromagnet-coils and pole-pieces, of a second shaft, a wheel mounted thereon and provided with an annular set of electromagnet-coils and pole-pieces movable in proximity to the first-named set, masses of curved iron laminæ located between the two sets of electromagnets so as to conduct the magnetic flux between the same and non-magnetic plates separating said iron laminæ into groups.

6. The combination with a driving-wheel having one or more annular sets of electromagnet-coils and pole-pieces, of an adjacent wheel differing in size from said driving-wheel and also having one or more annular sets of electromagnet-coils and pole-pieces and a curved flux-conductor which substantially surrounds the smaller wheel and projects into proximity to the adjacent portion of the larger wheel.

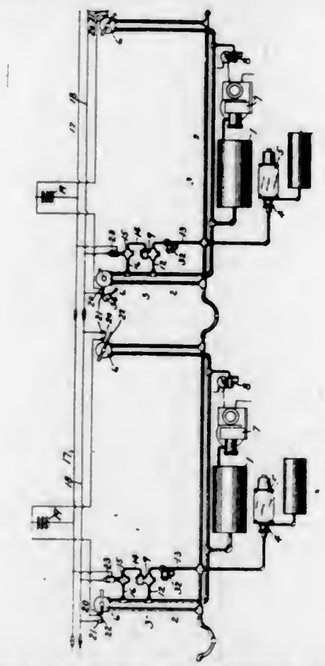
7. The combination with a driving-shaft and a wheel thereon which is provided with a plurality of annular sets of electromagnet-coils and pole-pieces, of an adjacent shaft, a wheel thereon which differs in size from the driving-wheel and is provided with a plurality of annular sets of electromagnet-coils and pole-pieces that are moved magnetically by the driving-wheel magnets and a flux-conductor which substantially surrounds the smaller wheel and projects into proximity to the adjacent portion of the larger wheel.

8. The combination with a driving-shaft, a wheel thereon which is provided with a plurality of annular sets of electromagnet-coils having pole-pieces disposed in a stepped or offset relation, of an adjacent shaft, and a wheel thereon which is provided with a plurality of annular sets of electromagnet-coils having pole-pieces that are oppositely disposed in a stepped or offset relation so as to magnetically intermesh with the magnets on the wheel of the driving-shaft.

9. The combination with a wheel having a peripheral set of radial pole-pieces and magnetizing-coils thereon, of an adjacent wheel having a peripheral set of radial pole-pieces and magnetizing-coils thereon and magnetic flux-conductors disposed between the two wheels.

10. The combination with two adjacent wheels of different size, each having a peripheral set of radial pole-pieces and magnetizing-coils thereon, of magnetic flux-conductors disposed between the two wheels.

750,010. AIR-BRAKE. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 2, 1903. Serial No. 159,744. (No model.)



Claim.—1. In an air-brake, the combination with a main reservoir and train-pipe, of an electrically-operated release-valve device for controlling communication from the main reservoir to the train-pipe and means within reach of the motorman for controlling the operation of said release-valve device.

2. In an air-brake, the combination with a main reservoir and train-pipe, of an electrically-operated release-valve device for controlling communication from the main reservoir to the train-pipe, an electric circuit for said device and a switch within reach of the motorman for controlling said circuit.

3. In an air-brake, the combination on a plurality of cars, each having a main reservoir, train-pipe and an electrically-operated release-valve device for controlling communication from the main reservoir to the train-pipe, of an electric circuit for said release-valve devices and a switch within reach of the motorman for controlling said circuit.

4. In an air-brake, the combination with a main reservoir, train-pipe and brake-valve, of electrically-actuated means for opening communication from the main reservoir to the train-pipe when the brake-valve is moved to release position.

5. In an air-brake, the combination with a main reservoir, train-pipe and brake-valve, of a release-valve device for controlling communication from the main reservoir to the train-pipe, and electrically-actuated means operated by the movement of the brake-valve handle for controlling the release-valve device.

6. In an air-brake, the combination with a main reservoir, train-pipe and motorman's brake-valve, of an electrically-operated release-valve device for controlling a separate communication from the main reservoir to the train-pipe, and means actuated by the movement of the brake-valve to release position for closing the circuit of the release-valve device.

7. In an air-brake, the combination with a main reservoir, train-pipe and brake-valve, of a separate release-valve mechanism for controlling communication from the main reservoir to the train-pipe, an electrically-actuated device for governing the release-valve, and contact-points operated by the movement of the brake-valve handle for opening and closing the circuit of said electrically-actuated device.

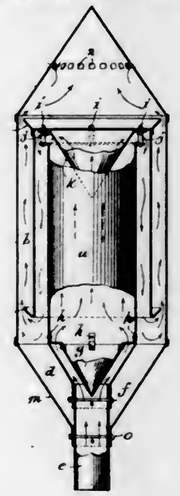
8. In an air-brake, the combination with a main reservoir, train-pipe and brake-valve, of a separate release-valve for controlling communication from the main reservoir to the train-pipe, an electromagnet-valve for governing the action of the release-valve, and switch-contacts operated by the movement of the brake-valve for closing the circuit to said electromagnet when the brake-valve handle is in release position.

9. In an air-brake for a plurality of cars, each having a main reservoir, train-pipe, brake-valve and an electrically-operated release-valve device for controlling communication from the main reservoirs to the train-pipe, in combination with an electric circuit for said devices, and means operated by the movement of one of the brake-valves for controlling said circuit.

10. A valve device comprising a casing, a valve controlling a passage through the casing, a piston and stem for operating said valve, and another valve on said stem for preventing leakage around the stem.

11. A valve device comprising a casing having a passage therethrough, a valve for controlling said passage, a piston having a sectional stem for operating said valve and a spring-pressed valve on one section of said stem for preventing leakage around the stem.

750,011. EXHAUST-MUFFLER. THOMAS J. WILLIS and GEORGE ANDRICHT, Milwaukee, Wis.; said Andricht assignor to said Willis. Filed Oct. 27, 1902. Serial No. 128,864. (No model.)



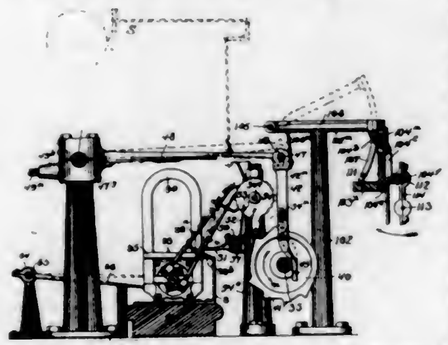
Claim.—1. An exhaust-muffler consisting of three shells arranged coaxially one within another and having inlet and outlet openings alternately at opposite ends, the inner shell being attached at one end to and communicating with the exhaust-pipe around which it is closed, and a conical deflector arranged in the inlet end of the inner shell with its apex projecting into the exhaust-pipe, substantially as described.

2. An exhaust-muffler consisting of an inner shell open at one end and having a tapering head attached to and closing it around the exhaust-pipe at the other end, an intermediate shell surrounding the inner shell and having one end open and the other end adjacent to the open end of the inner shell closed, and an outer shell inclosing the inner and intermediate shells, open to the atmosphere at the end adjacent to the closed end of the intermediate shell and closed at the other end, substantially as described.

3. An exhaust-muffler consisting of an inner shell open at one end and tapered at the other end, which is attached to and closed around the exhaust-pipe, an intermediate shell surrounding the inner shell and having a closed end adjacent to the open end of the inner shell, and an outer shell surrounding the intermediate shell and having conical heads and outlet-openings in the head adjacent to the closed end of the intermediate shell, substantially as described.

4. An exhaust-muffler consisting of three shells arranged coaxially one within another, the inner shell being open at one end and tapered at the other end which is attached to the exhaust-pipe, the intermediate shell having a closed end next to the open end of the inner shell and being open at the other end, and the outer shell having conical heads and outlet-openings in the head next to the closed end of the intermediate shell, conical deflectors arranged in the ends of the inner shell with their apexes toward the exhaust-pipe and flanges projecting outwardly from the ends of the intermediate shell toward the outer shell and inclined toward said outlet-openings, substantially as described.

750,012. FIRE-ALARM MECHANISM. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to Ann C. Cooney, Kenton, Ohio. Filed Apr. 27, 1903. Serial No. 154,549. (No model.)



Claim.—1. A machine of the character stated, comprising in combination with a drive mechanism, of a plurality of indicating devices, and means for bringing said indicating devices into operative connection with the drive mechanism said means including magneto-motors, for the purposes specified.

2. In a machine of the class described, a drive-motor, signal-setting and alarm-striker-operating devices, said devices each including a number-wheel, a common shaft for said number-wheels, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, for the purposes described.

3. In a machine of the character described, a drive-motor, signal-setting and alarm-striker-operating devices, said devices each including a number-wheel, a common shaft for said number-wheels, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, and means for bringing said pawls into engagement with said number-wheels at predetermined times, all for the purposes described.

4. In a machine of the character described, a drive-motor, signal-setting and alarm-striker-operating devices, said devices each including a number-wheel, a common shaft for said number-wheels, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, and means for bringing said pawls into engagement with said number-wheels at predetermined times, said last-named means including a magneto-electric motor adapted to be operated by the turning in of an alarm.

7. In a machine of the class described, a drive-motor, signal-setting and striker-operating devices, said devices each including a number-wheel, a common shaft upon which said number-wheels are mounted, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, and means including a ratchet-disk having arms adapted to engage said pawls, means for releasing the ratchet-disk arms from engagement with said pawls, for the purposes described.

8. In a machine of the class described, a drive-motor, signal-setting and striker-operating devices, said devices each including a number-wheel, a common shaft upon which said number-wheels are mounted, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, said means including ratchet-disks having arms adapted to engage said pawls, means for releasing the ratchet-disk arms from engagement with said pawls, said means including magneto-motors, each having a shaft, an arm on said shaft, a pair of pawls pivotally secured to said arm and normally held in engagement with said ratchet-disks, substantially as shown and for the purposes described.

9. In a machine of the class described, a drive-motor, signal-setting and striker-operating devices, said devices each including a number-wheel, a common shaft upon which said number-wheels are mounted, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, said means including ratchet-disks having arms adapted to engage said pawls, means for releasing the ratchet-disk arms from engagement with said pawls, said means including magneto-motors, each having a shaft, an arm on said shaft, a pair of pawls pivotally secured to said arm and normally held in engagement with said ratchet-disks, and means for releasing said pawls from said ratchet-disk at predetermined times, for the purposes specified.

10. In a machine of the class described, a drive-motor, signal-setting and striker-operating devices, said devices each including a number-wheel, a common shaft upon which said number-wheels are mounted, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, said means including ratchet-disks having arms adapted to engage said pawls, means for releasing the ratchet-disk arms from engagement with said pawls, said means including magneto-motors, each having a shaft, an arm on said shaft, a pair of pawls pivotally secured to said arm and normally held in engagement with said ratchet-disks, and means for releasing said pawls from said ratchet-disk at predetermined times, said means including a shaft carrying a finger for engaging said pawls at predetermined times, for the purposes described.

11. In a machine of the character described, a drive-motor, signal-setting and striker-operating devices, said devices each including a number-wheel, a common shaft upon which said number-wheels are mounted, gearing between said shaft and said drive-motor whereby said shaft and number-wheels will revolve together when the drive-motor is in operation, said devices also including a rockable frame, pendently-mounted pawls carried by said frame for coöperating with said number-wheels, means for normally holding said pawls out of engagement with said number-wheels, said means including ratchet-disks having arms adapted to engage said pawls, means for releasing the ratchet-disk arms from engagement with said pawls, said means including magneto-motors, each having a shaft, an arm on said shaft, a pair of pawls pivotally secured to said arm and normally held in engagement with said ratchet-disks, and means for releasing said pawls from said ratchet-disk at predetermined times, said means including a shaft carrying fingers for engaging said pawls at predetermined times, said shaft carrying said fingers being operated directly by the drive-motor.

12. In a machine of the class described, a plurality of signal-setting and striker-operated devices, a drive-motor common to all of said devices, a means for normally holding said drive-motor at rest, a means for bringing said signal-setting devices into operative connection with said drive-motor and then releasing said drive-motor whereby an alarm is sounded and a signal set.

13. In a machine of the class described, a plurality of signal-setting and striker-operating devices, a drive-motor common to all of said devices, a means for normally holding said drive-motor at rest, a means for bringing said signal-setting devices into operative connection with said drive-motor and then releasing said drive-motor whereby an alarm is sounded and a signal set, means for automatically stopping said drive-motor after an alarm is struck.

14. In a machine of the class described, a plurality of signal-setting and striker-operating devices, a drive-motor common to all of said devices, a means for normally holding said drive-motor at rest, a means for bringing said signal-setting devices into operative connection with said drive-motor and then releasing said drive-motor whereby an alarm is sounded and a signal set, means for automatically stopping said drive-motor after an alarm is struck, and means for restoring said signal-setting devices to their inoperative position after the alarm is sounded.

15. In a fire-alarm mechanism, a signaling-machine common to all the alarm-circuits, said machine including a series of signal-setting devices one for each circuit, a drive-motor common to all the said devices, each of said devices including a number-wheel, a common shaft geared with said drive-motor for said number-wheels, a rocker-frame common to all of said signal-setting devices, a series of pendently-held pawls mounted upon said rocker-frame, one for each signal-setting device, each of said signal-setting devices also including a disk having an arm for normally engaging with and holding each of said pawls out of engagement with their respective number-wheels, means for releasing said mechanism, a second shaft common to all the signal-setting devices, fingers mounted upon said second shaft one for each signal-setting device, each of said disks having a stud for engaging with said fingers whereby to rock said second shaft to release said drive-motor, as described.

16. In a machine of the class described, a drive-motor and a governor therefor, a plurality of signal-setting devices coöperatively joined with said drive-motor, a shaft carrying fingers common to all of said signal-setting devices, a catch mounted upon the motor-frame and connected with said shaft, a weight normally engaging said catch, a second shaft carrying an arm normally held in engagement with a portion of the governor, said second shaft having a finger normally in engagement with the drive-motor, a second finger carried by said second shaft for coöperating with said weight, each of said signal-setting devices including a mechanism for engaging with the fingers on the finger-carrying shaft for rocking said shaft at predetermined times whereby said shaft will cause said catch to release said weight to engage the said second finger on the second shaft, and thereby cause said shaft to move its arm out of engagement with the governor.

17. In a machine of the class described, a drive-motor and a governor therefor, a plurality of signal-setting devices coöperatively joined with said drive-motor, a shaft carrying fingers common to all of said signal-setting devices, a catch mounted upon the motor-frame and connected with said shaft, a weight normally engaging said catch, a second shaft carrying an arm normally held in engagement with a portion of the governor, said second shaft having a finger normally in engagement with the drive-motor, a second finger carried by said second shaft for coöperating with said weight, each of said signal-setting devices including a mechanism for engaging with the fingers on the finger-carrying shaft for rocking said shaft at predetermined times whereby said shaft will cause said catch to release said weight to engage the said second finger on the second shaft, and thereby cause said shaft to move its arm out of engagement with the governor, means for returning said weight to its catch-engaging position, said last-named means including a stud carried by the motor for engaging with said weight at predetermined times.

18. In a machine of the class described, a drive-motor and a governor therefor, a plurality of signal-setting devices coöperatively joined with said drive-motor, a shaft carrying fingers common to all of said signal-setting devices, a catch mounted upon the motor-frame and connected to said shaft, a weight normally engaging said catch, a second shaft carrying an arm normally held in engagement with a portion of the governor, said second shaft having a finger normally in engagement with the drive-motor, a second finger carried by said second shaft for coöperating with said weight, each of said signal-setting devices including a mechanism for engaging with the fingers on the finger-carrying shaft for rocking said shaft at predetermined times whereby said shaft will cause said catch to release said weight to engage the said second finger on the second shaft, and thereby cause said shaft to move its arm out of engagement with the governor, means for returning said weight to its catch-engaging position, said last-named means including a stud carried by the motor for engaging with said weight at predetermined times.

19. In a machine of the class described, a drive-motor and a governor therefor, a plurality of signal-setting devices coöperatively joined with said drive-motor, a shaft carrying fingers common to all of said signal-setting devices, a catch mounted upon the motor-frame and connected to said shaft, a weight normally engaging said catch, a second shaft carrying an arm normally held in engagement with a portion of the governor, said second shaft having a finger normally in engagement with the drive-motor, a second finger carried by said second shaft for coöperating with said weight, each of said signal-setting devices including a mechanism for engaging with the fingers on the finger-carrying shaft for rocking said shaft at predetermined times whereby said shaft will cause said catch to release said weight to engage the said second finger on the second shaft, and thereby cause said shaft to move its arm out of engagement with the governor, a means for returning said weight to its catch-engaging position, said last-named means including a stud carried by the motor for engaging with said weight at predetermined times, an arm mounted on said finger-carrying shaft for coöperating with said motor-carrying stud whereby said finger-carrying shaft will be returned to its normal position, as described.

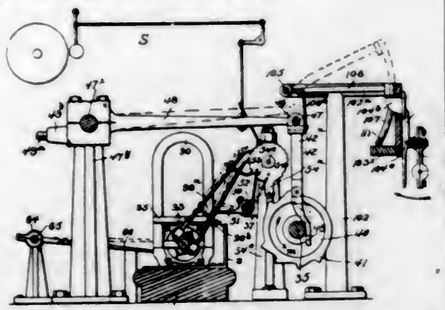
20. In a machine of the character described, independently-controlled signal-setting devices each including electric circuits, a drive-motor for said signal-setting devices, means for bringing one of said signal-setting devices into operative connection with the drive-motor and then releasing said drive-motor, means controlled by said drive-motor for opening the electric circuits immediately after the signal-setting devices are brought in operative connection with the drive-motor, automatically-operated devices for stopping said drive-motor after the alarm is sounded and the signal set, and for returning the signal-setting devices to their normal positions and then again closing the electric circuits.

21. In a machine of the character stated, comprising in combination with the rocker-frame having a pendently-mounted pawl, a number-wheel for coöperating with said pawl, means for normally holding said pawl out of engagement with said number-wheel, means for bringing said pawl into engagement with said number-wheel at predetermined times, a means for restoring said pawl to its number-wheel-disengaging position, for the purposes described.

750,013. FIRE-ALARM SYSTEM. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to Ann C. Cooney, Kenton, Ohio. Original application filed Apr. 27, 1903, Serial No. 154,549. Divided and this application filed July 6, 1903. Serial No. 164,457. (No model.)

Claim.—1. A fire-alarm system comprising in combination with a plurality of electric circuits including alarm-boxes containing magneto-generators, of a mechanically-operated signaling mechanism

adapted to be released by one of said generators, and means for cutting out said electric circuits, for the purposes specified.



2. A fire-alarm system comprising in combination with a plurality of electric circuits including alarm-boxes, of a signaling mechanism adapted to be set in operation by the turning in of an alarm, and means for cutting out all of the electric circuits immediately after the signaling mechanism is set in operation, for the purposes described.

3. A fire-alarm system, comprising in combination with a plurality of independently-operating electric circuits, each including an alarm-box, of a signaling mechanism common to all of said circuits and adapted to be set in operation by the turning in of an alarm at any one of the alarm-boxes, and means for cutting out the circuit in which the alarm has been sent in immediately after the signaling mechanism is set in operation.

4. A fire-alarm system, comprising in combination with a plurality of electric circuits including alarm-boxes and a signaling mechanism adapted to be set in operation by the turning of an alarm at one of the alarm-boxes, means for cutting out all of the electric circuits immediately after the signaling mechanism is set in operation, and means for again cutting in the electric circuits immediately after the alarm is sounded, for the purposes described.

5. In a fire-alarm system, a plurality of independently-operated electric circuits, a signaling mechanism common to all of said circuits, said signaling mechanism adapted to be set in operation by the turning in of an alarm at one of the alarm-boxes, automatic means for cutting out all the electric circuits immediately after the signaling mechanism is set in operation, and means for automatically cutting in the electric circuits immediately after the signaling mechanism has ceased to operate.

6. A fire-alarm system, comprising in combination with electric alarm-box circuits containing magneto-generators, of a signal-setting and alarm-striking mechanism, common to all of the alarm-box circuits, said mechanism including a drive-motor and a plurality of signaling operating devices, means for bringing the said signal-setting and alarm-striking device in connection with the drive-motor at predetermined times and means for cutting out said electric circuits during the striking of an alarm.

7. In a fire-alarm system, including alarm-box circuits including current-generators, an indicating mechanism, said indicating mechanism including a series of independently-controlled signal-setting and alarm-striking devices, a drive-motor common to all the signal-setting and alarm-striking devices, an independently-operated device for bringing said signal-setting and alarm-striking device into operative connection with the drive-motor, for the purposes described.

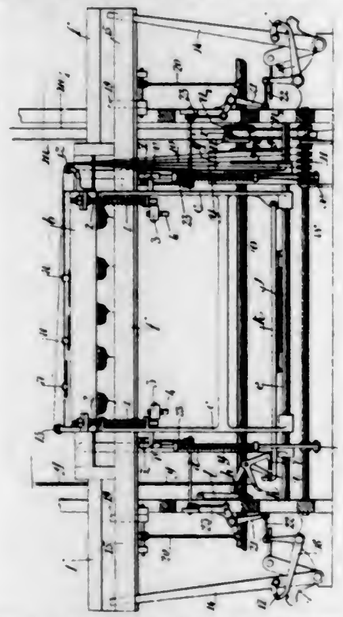
8. In a fire-alarm system including alarm-box circuits containing current-generators, an indicating mechanism, said indicating mechanism including a series of signal-setting and alarm-operating devices, a drive-motor common to all of the signal-setting and alarm-operating devices, an independently-operated device for bringing the signal-setting and alarm-operating devices into operative connection with the drive mechanism, said independently-operated devices each including a number-wheel and a magneto-motor, for the purposes described.

9. In a fire-alarm system, a plurality of independent electric circuits including current-generators, signal-setting and alarm-striking mechanism common to all of said circuits, said signal-setting and alarm-striking mechanism including magneto-motors, one for each of the alarm-circuits, a series of signal-setting devices controlled by said magneto-motor, a drive-motor common to all of said signal-setting devices, said drive-motor and said signal-setting devices adapted to be set in operation by the magneto-generator, of an alarm-circuit through which the alarm is sent in, for the purposes specified

750,014. PROCESS OF PREPARING PHOTOGRAPHIC PRINTS FOR TONING. THOMAS BAKER, Melbourne, Victoria, Australia. Filed Nov. 21, 1902. Serial No. 132,329. (No specimens.)

Claim.—The herein-described process of preparing photographic prints for toning, which consists in treating the prints with a solution consisting of chlorid of sodium, sulfate of alumina and water combined in substantially the proportions described, to convert the soluble silver salt contained in the prints into an insoluble salt.

750,015. LOOM FOR WEAVING FIGURED GOODS. ALEXANDRE BARBIER, CLAUDE CHARNETANT, and JOSEPH GRASSY, Lyons, France. Filed June 26, 1903. Serial No. 163,243. (No model.)



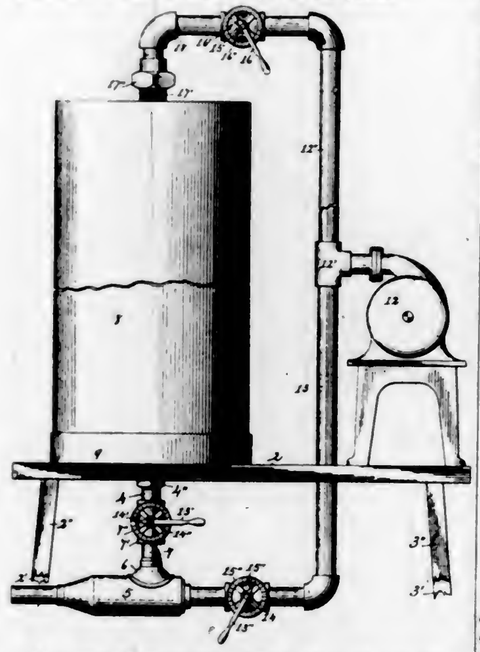
Claim.—1. In a loom for weaving, the combination of an embroidery or figuring apparatus independent of the batten, a frame by which the embroidery or figuring apparatus is carried, a batten, a pivot on which the batten moves, means for causing the frame to slide on the pivot of the batten, means with connections to the jacquard for fixing the frame to the batten when it is required to work and for suspending the throwing of the ground-shuttle at such time, substantially as set forth.

2. In a loom for weaving combined with an embroidery or figuring apparatus, the combination of a batten, jacquard-cords, a series of crank-levers operated separately by said cords, there being unequal projections on said levers, a connecting-rod *k* operated by said projections in one direction and by a spring in the contrary direction, a sliding frame operated by said connecting-rod, and embroidery or figuring apparatus carried by said frame, substantially as set forth.

750,016. GAS APPARATUS. FRANK W. BEARDSLEY, New York, N. Y. Filed Nov. 4, 1902. Serial No. 130,012. (No model.)

Claim.—1. A gas apparatus comprising a storage-tank for containing a dense gas; a mixer comprising a hollow member and a single, gas-intake pipe, the latter arranged interiorly of said member; a valve-controlled gas-delivery pipe whereby communication is established between said tank and said intake-pipe; an air-current generator; and valve-controlled connections by way of which the air-currents created by said generator may be conducted therefrom to and into said mixer, the latter being situated below said tank to facilitate the escape therefrom of the contents thereof, substantially as herein specified.

2. A gas apparatus comprising a storage-tank for containing a dense gas; a mixer comprising a hollow member and a single, gas-intake pipe, the latter being arranged interiorly of said member, angular in general contour, and perforated at its delivery end; and a valve-controlled delivery-pipe by way of which communication is established between said tank and said intake-pipe, said mixer being situated below said tank to facilitate the escape from the latter of the contents thereof, substantially as herein specified.



3. A mixer for an apparatus of the class herein described, comprising a hollow member and a single, gas-intake pipe, the latter being arranged interiorly of said member, primarily projecting downwardly from the upper portion of such member, being abruptly turned forwardly, and terminating within said member in a perforated delivery-nozzle, substantially as herein specified.

4. A gas apparatus comprising a bed having an opening formed therein; a storage-tank on said bed, said tank being provided for the storage of a dense gas; a mixer comprising a hollow member and a single, gas-intake pipe, the latter being arranged interiorly of said member, primarily projecting downwardly from the upper portion thereof, and terminating within such member in a delivery-nozzle; a threaded gas-delivery pipe projecting through the opening in said bed, and by way of which delivery-pipe communication is established between said tank and said intake-pipe; a valve for controlling said delivery-pipe, and nuts on the latter, said nuts being adapted, respectively, to engage the said bed at opposite sides thereof for the purpose of holding said delivery-pipe in position for service, when duly adjusted with respect to said bed, substantially as herein specified.

5. In a gas apparatus, in combination, a bed; a gas-delivery pipe projecting upwardly therefrom; a storage-tank having an outlet-opening surrounded by a depending nozzle, said nozzle engaging said delivery-pipe at the upper end portion thereof; a seal held within said nozzle, and traversing and closing the outlet-opening of said tank; and a seal-puncturing device, the latter being firmly disposed within said delivery-pipe, at its upper portion, projecting upwardly with respect thereto, and being adapted to engage and puncture said seal upon due movement being imparted to said tank, substantially as herein specified.

6. A gas apparatus comprising an air-current generator; a removable tank for containing a dense gas; a mixer; and pipe connections between said generator, mixer and tank, the plane of location of said mixer being below that of said tank, substantially as herein specified.

7. A gas apparatus comprising an air-current generator; a removable tank for containing a dense gas; a mixer; and valve-controlled pipe connections between said generator, mixer and tank, respectively, the plane of location of said mixer being below that of said tank, substantially as herein specified.

8. A gas apparatus comprising an air-current generator; a mixer, a tank for containing a dense gas; and pipe connections between said tank and said mixer, and between the latter and said generator, the plane of location of said mixer being below that of said tank, substantially as herein specified.

9. A gas apparatus comprising an air-current generator; a mixer; a tank for containing a dense gas; and valve-controlled pipe connections between said tank and said mixer, and between the latter and said generator, the plane of location of said mixer being below that of said tank, substantially as herein specified.

10. A gas apparatus comprising an air-current generator; a mixer; a gas-tank; and pipe connections whereby air may be delivered from said generator to and into said tank for pressure purposes; gas may be delivered from said tank to and into said mixer, and air may be delivered from said generator to and into said mixer, for gas-modifying purposes, substantially as herein specified.

11. A gas apparatus comprising a removable gas-tank; a mixer situated below the tank; a valve-controlled pipe establishing communication between said tank and said mixer; an air-current generator; and a system of valve-controlled pipes whereby air-currents may be conducted from said generator to and into said tank, at its top, for pressure purposes, and to and into said mixer for gas-modifying purposes, substantially as herein specified.

750,017. EYEGLASS OR SPECTACLE CASE. WILLIAM E. BIRMINGHAM, Philadelphia, Pa. Filed Dec. 6, 1902. Serial No. 134,150. (No model.)



Claim.—In an eyeglass or spectacle case, a body, a spring secured thereto and consisting of a central portion, resilient portions extending in opposite directions therefrom, said last-mentioned portions being bent reversely and extending toward each other, and having clenching ends secured upon said body and a lid hinged to said body, a cam on said lid engaging the central portion of said spring.

750,018. INCANDESCENT GAS-BURNER. JOHN W. BRAY, Leeds, England. Filed July 14, 1903. Serial No. 165,506. (No model.)



Claim.—1. In combination, a burner-tip having a substantially flat face, a circle of approximately rectilinear holes in said face, a socket D in said face, and means for holding a mantle-rod in said socket.

2. In combination with a burner-tip having a socket D, a spring-clip located in the socket and adapted to hold a mantle-rod, substantially as described.

3. In combination a burner-tip having its central portion provided with a socket and an inwardly-extending portion having a grooved outer face, and a rod-holding clip extending into the socket and having spring-arms engaging said grooved edge, substantially as described.

750,019. COMPOSITE BARREL-STAVE. FREDERICK BRENNER, Cincinnati, Ohio. Filed Feb. 21, 1903. Serial No. 144,509. (No model.)



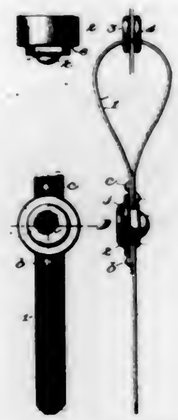
Claim.—1. As a new article of manufacture, a composite stave consisting of a central portion made of pulp or similar plastic matter and having each of its side edges lined or edged with a side portion of wood or equivalent workable material, the whole connected to form a complete integrally-constructed structure, the outer or free

edges of these side portions being each shaped to form the joints between adjoining staves.

2. As a new article of manufacture, a composite stave consisting of, a central portion made of pulp or similar plastic matter and having each of its side edges lined or edged with a side portion of wood or equivalent workable material, the adjoining surfaces between the pulp and wooden portions being provided with complementary projections and depressions adapted to engage each other to increase the adherence, the engagement taking place while the pulp portion is in its plastic state, so that the completed stave forms an integrally-connected structure.

3. A barrel composed of stave-sections of which each consists of a central portion made of pulp or similar plastic matter and having each of its side edges lined or edged with a side portion of wood or equivalent workable material, the outer or free edges of these side portions being each shaped to form the joints between adjoining sections.

750,020. SEAL. EDWARD J. BROOKS, East Orange, N. J. Filed Nov. 18, 1903. Serial No. 181,717. (No model.)



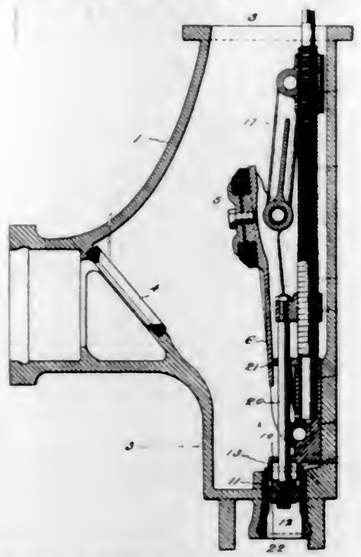
Claim.—1. A seal part, for a press-fastened seal, constructed in one piece of pliable sheet metal, such as tin, and having a circumferential shoulder, diametrically opposite slots adjacent to said shoulder, a circumferential rim at said shoulder, and an inwardly-projecting annular portion integral with said rim, in combination with a flexible shackle of like pliable metal adapted to be threaded through said slots and to receive a permanent bend within said seal part.

2. A seal part, for a press-fastened seal, constructed in one piece of pliable sheet metal, such as tin, and having a circumferential shoulder, diametrically opposite slots adjacent to said shoulder, a rigid inwardly-projecting lip integral with one of the longer sides of each slot, a circumferential rim at said shoulder, and an inwardly-projecting annular portion integral with said rim, in combination with a flexible shackle of like pliable metal adapted to be threaded through said slots and to receive a permanent bend within said seal part.

3. A seal part, for a press-fastened seal, constructed in one piece of pliable sheet metal, such as tin, and having a circumferential shoulder, diametrically opposite slots adjacent to said shoulder, a rigid inwardly-projecting lip integral with one of the longer sides of each slot, a circumferential rim at said shoulder, an inwardly-projecting annular portion opposed to such lips at the face of the seal, and a hollow central protuberance at the back of the seal, in combination with a flexible shackle of like pliable metal adapted to be threaded through said slots and to receive a permanent bend within said seal part in contact with said lips.

4. In a press-fastened seal, the combination with a compressible seal part having diametrically opposite slots, of a flexible shackle of pliable sheet metal, such as tin, adapted to have both ends threaded through said slots, and constructed with a pair of stops on one shackle end, projecting on one and the same side, and adapted for the location of the seal part between them, and an oppositely-projecting stop at a distance from the extremity of the other shackle end, forming a gage whereby the protrusion of the shackle end last named is limited, substantially as hereinbefore specified.

750,021. HYDRANT. WILLIAM W. COREY, St. Louis, Mo., assignor to Pratt & Cady Company, Hartford, Conn., a Corporation of Connecticut. Filed Nov. 28, 1903. Serial No. 183,033. (No model.)



Claim.—1. A hydrant having a main valve adapted to open and close a port part way up the case, a drip-valve adapted to open and close an opening through the bottom of the case, a block loosely held near the bottom of the case, a spindle with two threads supported by the block, a nut movable on the upper thread and connected with the main valve, and a nut movable on the lower thread and connected with the drip-valve, substantially as specified.

2. A hydrant having an inlet-port part way up the case, a drip-opening at the bottom of the case, a block loosely supported near the bottom of the case and having a portion that extends into the drip-opening, a spindle with two threads loosely supported by the block, a main valve hinged to the block, a nut movable on the upper thread of the spindle, a link connecting the nut on the upper thread with the main valve, a drip-valve movable in the drip-opening and having a stem extending through a portion of the block, and a nut movable on the lower thread of the spindle and connected with the drip-valve stem, substantially as specified.

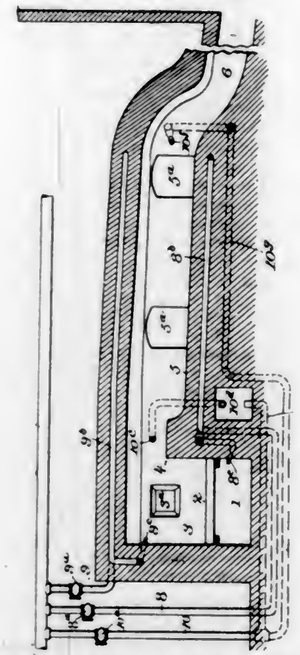
3. A hydrant having an inlet-port part way up the case, a drip-opening through the bottom of the case, a block loosely supported near the bottom of the case and having a forwardly-extending portion that enters the drip-opening, a spindle with two threads supported by the block, a valve hinged to the block, a nut movable on the upper thread of the spindle, a link connecting the nut on the upper thread with the back of the main valve, a drip-valve movable in the drip-opening, a nut movable on the lower thread of the spindle, and a valve-stem connecting the nut movable on the lower thread with the drip-valve and extending through the forwardly-extending portion of the block, substantially as specified.

4. A hydrant having a main valve adapted to open and close a port, a drip-valve adapted to open and close an opening, a block held near the bottom of the case, a spindle with two threads supported by the block, a nut movable on one thread and connected with the main valve and a nut movable on the other thread and connected with the drip-valve, substantially as specified.

750,022. METALLURGICAL FURNACE. WILLIAM S. DEMPSEY, New York, N. Y. Filed Dec. 8, 1902. Serial No. 134,264. (No model.)

Claim.—1. In a metallurgical furnace the combination, of a working chamber and a combustion-chamber opening into the same, oppositely-disposed blast-pipes below and above the grate in the combustion-chamber, the blast above the grate being arranged to drive the gases generated toward the working chamber and the blasts below the grate being directed angularly in an opposite direction to those above the grate, and cross-blasts within the working chamber directed from the opposite sides of said chamber and backward toward the combustion-chamber.

2. In a metallurgical furnace the combination, of a working chamber and a combustion-chamber opening into the same, oppositely-disposed blast-pipes below and above the grate in the combustion-chamber, the blasts above the grate being arranged to drive the gases generated toward the working chamber and the blasts below the grate being directed angularly in an opposite direction to those above the grate, and cross-blasts within the working chamber directed from the opposite sides of said chamber and backward toward the combustion-chamber, together with a source of air-supply and me[illegible] for preheating the air for the blasts.



3. In a metallurgical furnace the combination, in a heating-furnace, of a working chamber and a combustion-chamber opening into the same, oppositely-disposed blast-pipes below and above the grate in the combustion-chamber, the blasts above the grate being arranged to drive the gases generated toward the working chamber and the blasts below the grate being directed angularly in an opposite direction to those above the grate, and cross-blasts at opposite ends within the working chamber directed from the opposite sides of said chamber and backward toward the combustion-chamber, together with a source of air-supply, heating-coils interposed between the source of supply and the various blast-pipes and means for regulating the delivery of air.

750,023. TIRE. GEORGE M. DEPEW, Canandaigua, N. Y. Filed Aug. 29, 1903. Serial No. 171,204. (No model.)



Claim.—1. In a wheel, a rim, a pneumatic tube of rubber, the wearing-armor, the cushion of resilient material, and means whereby the armor is secured about the tube and cushion and the parts held in operative relation, said means comprising a fabric fitting the tire exteriorly and the rim interiorly.

2. In a wheel, the pneumatic tube of rubber, the wearing-armor, the cushion of resilient material, and means whereby the armor is secured about the tube and cushion and the parts held in operative relation, said means comprising a fabric distinct from the armor and fitting the tire exteriorly and the rim interiorly.

3. In a wheel, the pneumatic tube, the wearing-armor, the cushion of resilient material, means whereby the armor is secured about the tube and cushion and the parts held in operative relation, said means comprising a fabric distinct from the armor and fitting the tire exteriorly and the rim interiorly, and said rim, the joint between the armor and fabric being covered by the rim.

4. In a wheel, the pneumatic tube, the wearing-armor, the cushion of resilient material, means whereby the armor is secured about the tube and cushion and the parts held in operative relation, said means comprising a fabric distinct from the armor and fitting the rim exteriorly and the rim interiorly and composed of parts detachably connected by a fastening situated within the concavity of the rim, and said rim, the joint between the armor and fabric being covered by the rim.

750,024. PUNCH. EDWARD D. ETNYRE and WILLIAM A. WHITNEY, Oregon, Ill. Filed May 14, 1903. Serial No. 157,172. (No model.)



Claim.—1. The combination with a stationary handle, of a relatively movable handle associated therewith, a die carried by the stationary handle and a coöperating die associated with the movable handle and operable thereby for movement to both an active and an inactive position by a complete movement of the handle to either an open or closed position.

2. The combination with a stationary handle, of a relatively movable handle associated therewith, a die carried by the stationary handle, and a coöperating die associated with the movable handle and operable thereby for movement to both an active and an inactive position by complete movement of the handle to an open position.

3. The combination with a stationary handle, of a member pivotally associated therewith, a die carried by the stationary handle, a coöperating die carried by the member and a relatively movable handle operatively connected with the stationary handle and member for actuating the latter to move its die to both an active and an inactive position by a complete movement of the handle in either direction.

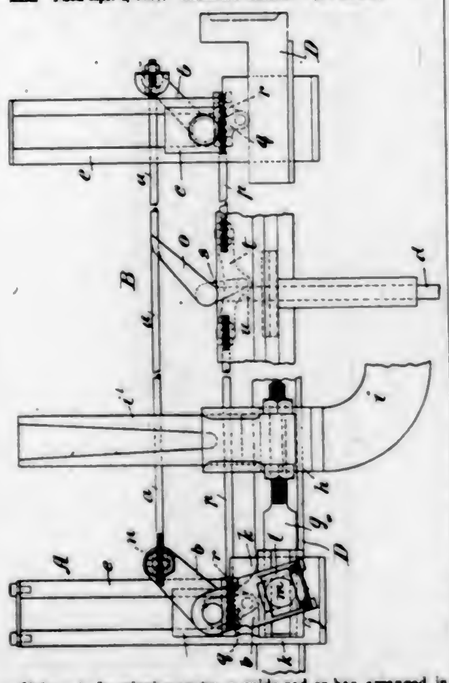
4. The combination with a stationary handle, of a member pivotally associated therewith, a die carried by the stationary handle, a coöperating die carried by the member, a relatively movable handle pivoted to the member and links connecting the stationary and relatively movable handles, said member being operable to move its die to both an active and an inactive position by a complete movement of the movable handle to either an open or closed position.

750,025. STREAM-MOTOR. TELJE A. FIDJELAND, Fostvedt in Iveland, near Christiansand S., Norway. Filed Mar. 7, 1902. Serial No. 97,209. (No model.)



Claim.—In a water-motor, the combination of a frame, a shaft turnable therein, a number of blades upon said shaft, arranged in separate groups, a holder for said blades having a cone-shaped end, a ring having an opening for receiving the cone-shaped end of the holder, means for clamping said ring to the shaft and transmitting means connected to the shaft substantially as described.

750,026. SPINNING-MULE. HENRY S. GOLLAND, Worsley, England. Filed Apr. 4, 1903. Serial No. 151,109. (No model.)



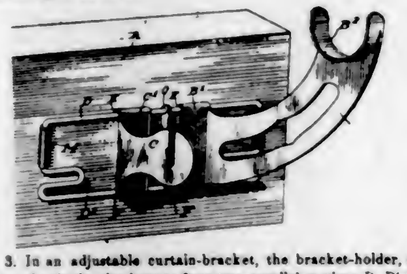
Claim.—1. In spinning-mules, a guide rod or bar arranged in juxtaposition with the spindles and below the threads, means for bringing the threads in contact with the said guide-rod and means for vibrating the rod in a substantially vertical path to guide the yarn upon the spindles in widely-pitched spirals substantially as described.

2. In combination in a spinning-mule, the spindles, a guide-rod associated therewith, means for bringing the threads in contact with said guide-rod, means for vibrating the guide-rod consisting of bell-crank levers connected to the guide-rod and supporting-fingers, and means for actuating the bell-crank levers and supporting-fingers whereby the guide-rod will be vibrated in a substantially vertical path.

750,027. ADJUSTABLE CURTAIN-BRACKET. ROSELLE T. GREEN, Worcester, Mass. Filed May 19, 1902. Serial No. 107,936. (No model.)

Claim.—1. In an adjustable curtain-bracket, the combination of a pair of connected, elastic, parallel wires, means for attaching said wires to a window-casing and a curtain-bracket provided with a hook to engage the upper of said parallel wires and a flange adapted to be pressed over the lower of said parallel wires, substantially as described.

2. The combination of the parallel, elastic wires D, D', and a curtain-bracket provided with a base-plate having a hook on one edge and a flange on the opposite edge, said hook and flange being adapted to engage said wires and support the curtain-bracket, substantially as described.



3. In an adjustable curtain-bracket, the bracket-holder, consisting of a single wire bent to form two parallel sections D, D', bent spring-sections between said parallel sections and means for fastening said holder to the window-casing, substantially as described.

4. The combination with a bracket for supporting a curtain-roll, of a bracket-holder formed from a single piece of bent wire, comprising a projecting spur on one end of said wire, two parallel sections to receive the bracket, and two elastic sections to allow a slight compression of said parallel sections, substantially as described.

5. The combination with a bracket-holder comprising a pair of parallel wires capable of yielding as the bracket is applied thereto, of a bar pivoted on one of said wires and adapted at its free end to engage the opposite wire and hold the wires from being pressed together, substantially as described.

6. In an adjustable curtain-bracket, the combination of a curtain-supporting bracket provided with a base-plate having a hook at one end and a flange at the other, a wire bent into a bracket-holder having parallel wires D, D', a spur G' at one end adapted to be driven into the window-casing and an ear at the opposite end to receive an attaching-screw, substantially as described.

750,028. RAILWAY-BRAKE. FÉLIX GRÉGOIRE, St. Jean Baptiste, Canada. Filed Apr. 2, 1903. Serial No. 150,744. (No model.)



Claim.—1. In a railway-brake, in combination, a member, brake-shoes carried thereby, means for moving said member in a substantially vertical direction, means for moving said member in a substantially horizontal direction, and independent means for producing said movements of said member.

2. In a railway-brake, in combination, a brake-frame, brake-shoes carried thereby, means for moving said frame in one direction, whereby a powerful brake force is applied, means for moving said brake-frame in another direction, whereby a less powerful brake force is applied, and independent means for moving said brake-frame in either direction.

3. In a railway-brake, in combination, a brake-frame, brake-shoes pivotally carried thereby, said brake-shoes constituting combination wheel and track brakes, means for depressing said frame to apply said brake-shoes, and means for moving said frame substantially horizontally to apply said brake-shoes.

4. In a railway-brake, in combination, a brake-beam, a shoe pivoted thereto and having rubbing-faces adapted to be applied respectively to the wheel and the rail, means for depressing said beam to apply said brake-shoe simultaneously to the wheel and the rail, and means for moving said beam to apply said brake-shoe to said wheel alone.

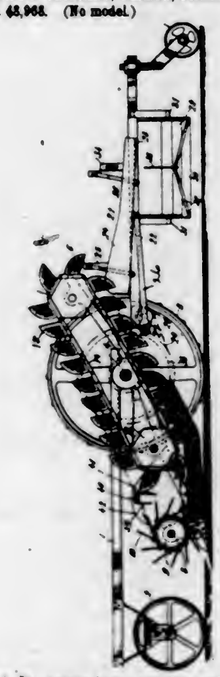
5. In a railway-brake, in combination, a truck, a brake-beam a shoe pivotally mounted thereupon and having faces adapted to be applied respectively to the wheel and the rail, a forwardly-extending member projecting beyond all other parts moving with said truck, and adapted to strike an obstruction upon the track, means actuated thereby for depressing said beam, and independent means for moving said brake-beam to apply said brake-shoe to said wheel alone.

6. In a railway-brake, in combination, a beam, shoes pivotally mounted thereupon and having faces adapted to be applied respectively to the wheel and the rail, said shoes being disposed forwardly and rearwardly of the wheels, means for forcing said beam downwardly to apply said shoes to the wheels and rails, and means for moving said beam forwardly or rearwardly to apply said shoes to the wheels alone.

7. In a railway-brake, in combination, a truck, a brake-beam, shoes pivotally mounted thereupon having faces adapted to be applied respectively to the wheels and the rails, a member extending forwardly and projecting in advance of all other parts moving with said truck and adapted to be actuated by striking an obstruction upon the track, means connecting said member with said beam to depress said beam, means for constraining said member toward an extended position, and independent means for moving said beam in a substantially horizontal direction.

8. In a railway-brake, in combination, a truck, a brake-beam, shoes pivotally mounted thereupon and having faces adapted to be applied respectively to the wheels and the rails, whereby the depressing of said beam may apply said shoes simultaneously to the rails and the wheels, a member extending forwardly and projecting in advance of all other parts moving with said truck, said member being adapted to be struck by an obstruction upon the track, means actuated thereby for depressing said beam, said shoes being disposed forwardly and rearwardly of the wheels, and means for moving said brake-beam forwardly and rearwardly.

750,029. MACHINE FOR HARVESTING POTATOES OR THE LIKE. CARL F. GROSSMANN, Güstrow, Germany. Filed Feb. 26, 1901. Serial No. 48,968. (No model.)



Claim.—1. In a potato-harvester, the combination of the wheeled axle and frame, a shovel, a sieve in rear of the shovel, a rotary cylinder above the shovel, provided with arms adapted to throw the potatoes backward into a sieve, stationary fingers adjacent to the cylinder adapted to coact with its arms and break the vines, and means for rotating said cylinder, with an elevated sieve in rear of the first sieve, a conveyer adapted to carry potatoes from the front to the rear sieve, and means for shaking the upper sieve, substantially as described.

2. In a potato-harvester, the combination of the wheeled axle, an inclined frame hung thereon, a shovel and a sieve attached to the lower end of the frame, a pair of rotating wheels on opposite ends of said frame, and an endless series of elevator-buckets supported between and operated by said wheels; with a cylinder journaled in the lower end of the frame and provided with projecting arms over the shovel, the arms of the cylinder being adapted to throw the potatoes back into the sieve, and gearing for rotating said cylinder from the axle, substantially as described.

3. In a potato-harvester, the combination of the main frame, the wheeled axle, an inclined frame supported on the axle, a shovel and a sieve attached to the lower end of the inclined frame, a pair of rotating wheels on opposite ends of the inclined frame, an endless series of elevator-buckets supported between and operated by said wheels, a cylinder provided with projecting arms journaled on the lower end of said inclined frame over the shovel, said arms being adapted to throw the potatoes back into the sieve, and gearing for rotating said cylinder; with a vibrating sieve mounted on the main frame in rear of the incline frame and into which the elevator discharges, and a hopper suspended from the main frame below the vibrating sieve, all substantially as and for the purpose described.

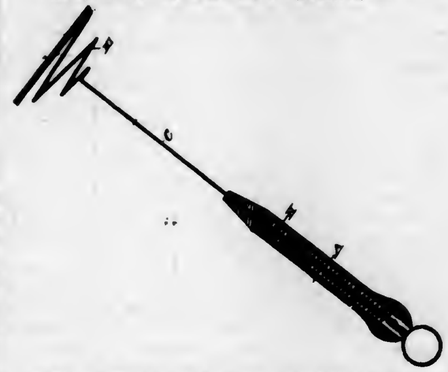
4. In a potato-harvester, the combination of the frame, the wheeled axle, a shovel, a sieve in rear of the shovel, a rotary armed cylinder above the shovel and means for driving it from the axle so as to cause its arms to throw the dirt and potatoes raised by the shovel back toward the elevator, with a series of fingers beside the cylinder coacting with the arms thereon to break the vines, and an endless conveyer adapted to remove the potatoes from the sieve, substantially as described.

5. In a potato-harvester, the combination of the wheeled axle, the inclined frame hung thereon, a shovel, and a sieve in rear of the shovel hung on said frame, an elevated sieve hung on the main frame in rear of the first sieve, and a conveyer supported in said inclined frame adapted to carry potatoes from the front to the rear sieve; with a rotary cylinder on the inclined frame above the shovel, and means for rotating it from the axle, and a series of arms on said cylinder adapted to throw the potatoes back into the sieve, substantially as described.

6. In a potato-harvester, the combination of the wheeled axle, an inclined frame hung thereon, a shovel and a sieve in rear of the shovel mounted on said frame, a rotary cylinder on the said frame above the shovel provided with arms adapted to throw the potatoes into the sieve, and means for driving the cylinder from the axle, with an elevated sieve on the main frame above and in rear of the first sieve, a conveyer adapted to carry potatoes from the front to the rear sieve; means for vibrating the rear sieve, and stationary fingers on the inclined frame adapted to coact with the arms on the cylinder to break vines, &c., substantially as described.

7. In a potato-harvester, the combination of the main frame, the wheeled axle, an inclined frame supported on the axle, a shovel and a sieve attached to the lower end of the inclined frame, a pair of rotating wheels on opposite ends of the inclined frame, an endless elevator carried on and operated by said wheels: a rotating series of projecting arms journaled on said inclined frame over the shovel, stationary fingers on the frame beside the arms, and gearing for rotating said series of arms whereby the arms are caused to throw the potatoes backward into the sieve, substantially as described.

750,030. INSECT-DESTROYER. JESSE HAM, Emery Mills, Me. Filed Apr. 3, 1903. Serial No. 150,903. (No model.)

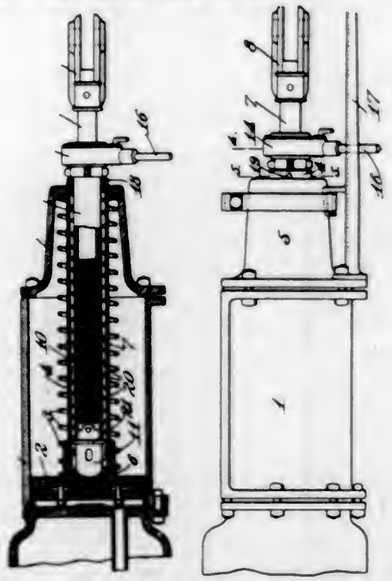


Claim.—1. In an insect-destroyer, a plunger, an evolute spring on the end of said plunger ending in a ring, a strip of wire-gauze fabric secured to said ring, and means to actuate the plunger, substantially as shown and described.

2. In an insect-destroyer, a plunger, an evolute spring on the end of said plunger ending in a ring, a strip of wire-gauze fabric secured to said ring, and a retractile coil-spring to actuate said plunger, substantially as shown and described.

3. In an insect-destroyer, a handle having a longitudinal bore, a plunger mounted in said bore, a retractile coil-spring wound around said plunger having one end secured to the end of said plunger and the other end secured in said bore, an evolute spring on the free end of said plunger ending in a ring, and a strip of wire-gauze fabric secured to said ring, substantially as shown and described.

750,081. **BRAKE-RELEASING DEVICE.** PHILIP R. HARRISON and CHARLES F. HUNTOON, Chicago, Ill., assignors to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 21, 1903. Serial No. 174,039. (No model.)



Claim.—1. In an air-brake, the combination with a cylinder and its piston, of a push-bar disconnected from the piston, and means located in the cylinder for restoring the push-bar upon the release of the brakes; substantially as described.

2. In an air-brake, the combination with a cylinder and its piston, of a push-bar disconnected from said piston, and a spring cooperating with the push-bar for returning the push-bar to its normal position upon release of the brakes; substantially as described.

3. In an air-brake, the combination with a cylinder and its piston, of a hollow piston-rod, a push-bar in said rod, a shoulder on the inner end of said push-bar, a shoulder on the outer end of the hollow piston-rod, and a spring interposed between said shoulders for the purpose of returning the push-bar to its normal position upon the release of the brakes; substantially as described.

4. In an air-brake, the combination with a cylinder and its piston, of a hollow piston-rod, a spring for returning the piston home when the brakes are released, a push-rod arranged in the hollow piston-rod, and a spring for returning the said push-rod home upon release of the brakes; substantially as described.

5. In an air-brake, the combination with a cylinder and its piston, of an extensible push-bar independent of the piston, and means in the cylinder for returning said push-bar to its normal position upon release of the brakes; substantially as described.

6. In an air-brake, the combination with a cylinder and its piston, of a hollow piston-rod, an independent extensible push-bar, means for extending said push-bar, and means within the hollow piston-rod for returning said extensible push-bar to its normal position upon release of the brakes; substantially as described.

7. In an air-brake, the combination with a cylinder and its piston, of an independent push-bar, and yielding means in the cylinder for restoring said independent push-bar and its connected rigging to normal position upon release of the brakes; substantially as described.

8. In an air-brake, the combination with a cylinder, its piston, and hollow piston-rod, of a comparatively heavy spring for returning said piston to its home position upon release of the brakes, an independent push-rod, and a comparatively light spring interposed between the hollow piston-rod and the push-rod for restoring said independent push-rod and its connected rigging to its home position after the release of the brakes; substantially as described.

9. In an air-brake, the combination with a cylinder, its piston, and hollow piston-rod, of a comparatively heavy spring for returning said piston home upon release of the brakes, an extensible push-rod arranged in the hollow piston-rod and having a shoulder at its inner end, a shoulder at the outer end of the hollow piston-rod, a comparatively light spring interposed between said two shoulders, and means for extending the push-rod without changing the normal relation of said shoulders; substantially as described.

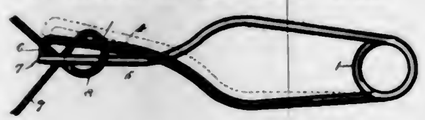
10. In an air-brake, the combination with a cylinder and its piston, of a push-bar disconnected from the piston, and means so arranged with respect to the push-bar and piston as not to resist the movement of the piston in applying power to the brakes, but which means restores the push-bar upon the release of the brakes; substantially as described.

750,082. **GARMENT-SUPPORTING HOOK-PIN.** EARNEST C. HERRING, Reno, Nev. Filed Feb. 5, 1903. Serial No. 142,015. (No model.)



Claim.—A garment-holder, formed of a single piece of wire bent to shape, and comprising oppositely-disposed side members, a bent hook merged with the lower end of said side members, each of said side members having a laterally and outwardly projecting bent loop disposed in the plane of the two side members, said loops having their outer ends bent rearward at right angles to the body of the device, one of the said side members having a spring-coil adjacent its lateral loop, and a transversely-projecting pin portion, the other side member having a vertically-extended guide-loop disposed at right angles to its adjacent lateral loop, and including a vertical member extended over the inner end of the said adjacent loop, said extended portion being wound over the neck of the said extended loop, and extended transversely and connected with the opposite side member to form a brace for the two side members, for the purposes set forth.

750,083. **KNOTTING-TOOL.** ADAM S. HORLACHER, Indianapolis, Ind. Filed Feb. 26, 1903. Serial No. 145,209. (No model.)



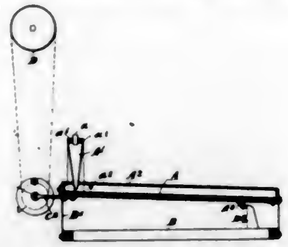
Claim.—1. A knotting-tool comprising two spring-connected arms formed of a single piece of metal, one of which arms is provided with an end hook or bend and the other plane arm adapted to bind on the end of said hook or bend.

2. A knotting-tool comprising two spring-connected arms formed of a single piece of metal bent at its center portion to cross intermediate the spring-connected ends of said arms and the free ends thereof, and one of which arms is provided with an end hook or bend and the other plane arm adapted to bind on the end of said hook or bend.

3. A knotting-tool comprising a single wire bent intermediate its ends to form a spring-coil and two projecting ends, said ends extending from said coil and bent to cross to form two closing arms, one of which is provided with an end hook or bend and the other plane end of the other arm adapted to bind on the end of said hook or bend to form a closed hook.

4. A knotting-tool comprising a single wire bent intermediate its ends to form two projecting spring-arms, the end of one of which is provided with a bend or hook and the opposing arm with a flat plane end adapted to bind on the end of said bend or hook to form a closed looped end.

750,084. **PROCESS OF SEPARATING ZINC-BLENDE FROM ORES.** WILLIAM JAMIESON and FRANCIS J. ODLING, Melbourne, Victoria, Australia. Filed June 2, 1903. Serial No. 159,816. (No specimens.)

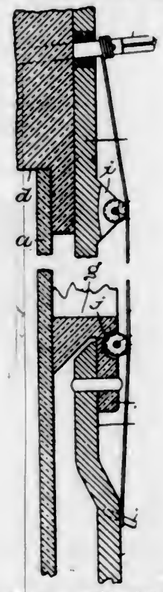


Claim.—1. In our process for the separation of zinc-blende from ore with which it is associated, treating the ore in a pulverized state and sufficiently wet condition with chlorin, for the purpose of attacking the surface of the zinc-blende and submitting the ore so treated to a vanning motion substantially as herein described.

2. In our process for the separation of zinc-blende from ore with which it is associated, treating the ore when in a sufficiently wet and pulverized condition with chlorin, in order to attack the surface of the zinc-blende and submitting the ore so treated to a vanning motion sufficient to bring the zinc-blende particles together and allow them to adhere to each other forming small masses so as to be easily separable by mechanical means from the rest of the ore and gangue substantially as herein described.

3. Our process for the separation of zinc-blende from ore with which it is associated consisting in first submitting the pulverized ore in a sufficiently wet condition to the action of chlorin, in order to attack the surface of the zinc-blende, vanning the treated ore sufficient to bring about the formation of the zinc-blende masses and then separating them from the rest of the ore and gangue substantially as herein described.

750,085. **PIANOFORTE.** FRANK MCNAMARA, Clinton, Mass. Filed Oct. 14, 1903. Serial No. 176,945. (No model.)

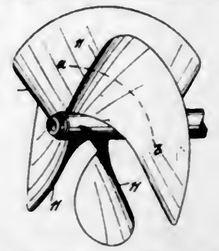


Claim.—1. In a piano, the combination of the sounding-board, the strings, the tuning-posts, the string-plate having means for supporting the strings at points near the tuning-posts, and the string-supporting bridge affixed to the portion of the string-plate which supports the fixed ends of the strings, said bridge being in contact with the sounding-board but supported by the string-plate.

2. In a piano, the combination of the sounding-board, the strings, the tuning-posts, the string-plate having a series of string-supporting antifriction-rollers located near the tuning-posts, and another series of antifriction-rollers supporting the strings near the fixed ends of the latter.

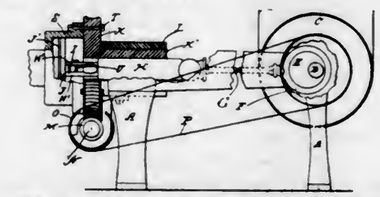
3. In a piano, the combination of the sounding-board, the strings, the tuning-posts, the string-plate having a series of string-supporting antifriction-rollers located near the tuning-posts, and a bridge affixed to the frame near the fixed ends of the strings and in contact with the sounding-board, said bridge having another series of string-supporting antifriction-rollers.

750,086. **SCREW-PROPELLER.** ERNST A. NILSEN, Christiania, Norway. Filed June 27, 1903. Serial No. 163,415. (No model.)



Claim.—A screw-propeller having blades, the middle portion of which is bent with constant pitch as a screw, and the leading and rear portion of which are bent inversely with a variable pitch, which increases continuously from the middle to the edges, where the pitch is greatest and in such a manner that the blades are inversely symmetrical to middle axis.

750,087. **MACHINE FOR GRINDING PISTON CHAMBERS AND RINGS.** JOHN R. PHILLIPS, San Bernardino, Cal. Filed Feb. 16, 1903. Serial No. 143,718. (No model.)



Claim.—1. In a machine for grinding piston chambers and rings, a frame; a gear rotatively mounted therein, said gear being adapted for having a piston-chamber secured thereto; means to rotate said gear; a mandrel in the hole in said gear, said mandrel having means to attach a piston thereto; and means to cause the reciprocation of said mandrel in said gear.

2. In a machine for grinding piston chambers and rings the combination of a frame; a worm-wheel having a hollow hub, said wheel being adapted for the attachment thereto of a piston-chamber; a worm-gear adapted to mesh with said worm-wheel; means to rotate said worm-gear; a mandrel having means to attach a piston thereto, said mandrel extending through said worm-wheel and adapted to reciprocate therein while said wheel revolves; and means to cause the reciprocation of said mandrel.

3. A machine for grinding piston-rings into piston-chambers, comprising a frame; a shaft rotatively mounted in said frame; pulleys and an eccentric on said shaft; an eccentric-strap on said eccentric; a traversing mandrel adapted to have secured thereto a piston; an eccentric-rod connecting said mandrel and said strap; a worm-wheel having a hollow hub mounted in said frame and surrounding a portion of said mandrel and adapted to rotate in said frame around said mandrel and to have attached thereto a piston-chamber; a worm-gear having a shaft rotatively mounted in said frame, said gear being adapted to mesh with said worm-wheel; a pulley on said worm-gear shaft; and a belt on said pulley and on the pulley on the shaft having the eccentric thereon.

750,088. **ATTEMPERATING DEVICE.** MILTON H. SHOENBERG, San Francisco, Cal. Filed Mar. 16, 1903. Serial No. 148,037. (No model.)

Claim.—1. The combination of a suitable support interposable in a fluid-conduit; a rheostat carried by said support; and connections including a conducting-plug parallel with the support and having a fluid-passage through it, and a solid conductor parallel with the said perforated plug said rheostat in electrical connection with the conductor and plug.

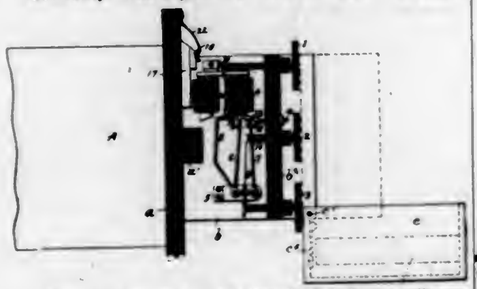


2. The combination of opposing unions forming a part of a fluid-conduit; a section having projecting ends to engage said unions said section perforated to one side of its axis; a conducting-plug fitting said perforations and having a longitudinally-extending fluid-passage; a conductor mounted in the section parallel with the plug and having its ends projecting beyond the section; a rheostat located in a chamber beyond the section and electrical connections between the same and the conductor and plug; and means for cutting off the fluid-passage in the plug and short-circuiting the electric current.

3. The combination of opposing unions forming a part of a fluid-conduit; a coupling-section having projecting ends to engage the unions said section perforated to one side of its axis; a conducting-plug in said perforation and having a longitudinal fluid-passage; a conductor in the section parallel with the plug and electrical connections between the rheostat and the conductor and plug, one of said unions having a chamber to contain the rheostat; and a plug disposed at right angles to the plug and conductor and traversing the fluid-passage in the plug, and provided with a port to register with said passage, said plug turnably mounted and provided with a recessed side to receive the conductor to maintain the turning plug out of contact with the conductor in one position and to contact with the plug to short-circuit the current when the plug is turned into position to cut off the fluid-passage.

4. A fluid-attemperating apparatus comprising a receiving-chamber connected with a source of fluid-supply, a discharge-conduit from said chamber, a discharge-noxxle, an insulator-section interposed between the conduit and nozzle, said section having a metallic core provided with an air passage-way, a cock controlling the flow through said passage-way, an electrical conductor carried by said insulator, a resistance-coil having one terminal connected with said core and the other with said conductor and extending into the nozzle-chamber, connections of the opposite ends of said conductor and core through said conduit with a source of electrical energy, and switch mechanism by which the conductor and core are brought into electrical connection to cut out the resistance-coil.

750,039. RUHMKORFF COIL. RICHARD VARLEY, Providence, R. I., assignor to Varley Duplex Magnet Company, a Corporation of New Jersey. Filed Aug. 21, 1903. Serial No. 170,281. (No model.)



Claim.—1. A vibrating circuit-controller for induction-coils, consisting of a rigid pivoted plate carrying one contact, a fixed companion contact, a spring tending to hold the rigid plate against the fixed contact, and an armature adapted to strike the rigid plate a hammer-like blow.

2. The combination of an induction-coil, an electromagnet and a vibratile circuit-controller, the circuit-controller being operated by the combined action of the coil and electromagnet, substantially as described.

3. The combination of an induction-coil, an electromagnet, an armature-lever common to both and a circuit-controlling element actuated by said lever.

4. The combination of an induction-coil, an electromagnet, an armature-lever common to both, a circuit-controlling element actuated by said lever and an adjustable spring against which the coil and magnet act.

5. The combination of an induction-coil, an electromagnet, an armature-lever common to both, two circuit-controlling elements actuated by said lever and adapted to control the circuits of the primary winding of said coil and the electromagnet respectively.

6. The combination with an induction-coil, of an armature-lever provided with two shoulders and a circuit-controlling plate projecting between said shoulders, the space between the shoulders affording a certain movement of the armature-lever independent of the plate, for the purpose set forth.

7. The combination with the primary winding of an induction-coil, of an electromagnet in parallel relation thereto, an armature lever common to both, a spring acting upon the lever in opposition to the magnetic pull, and a circuit-controller actuated by the armature-lever.

8. The combination with the primary winding of an induction-coil, of an electromagnet in parallel relation thereto, an armature-lever common to both, a spring acting upon the lever in opposition to the magnetic pull, and two circuit-controllers actuated by the armature-lever, one of which controls the circuit of the electromagnet while the other controls the circuit of the primary winding.

9. The combination with the primary winding of an induction-coil, of an electromagnet in parallel relation thereto, an armature-lever common to both, a condenser, two circuit-controllers actuated by the armature-lever and controlling the circuits of the primary winding and the electromagnet respectively, and means whereby the circuit of the electromagnet will be opened ahead of the primary circuit upon each stroke of the lever.

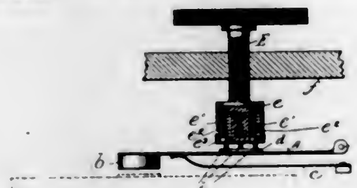
10. The combination with an induction-coil, of a detachable frame applied to the head thereof, said frame carrying a vibrator, substantially as described.

11. The combination with an induction-coil, of a detachable frame applied to the head thereof, said frame carrying a vibrator, and adjusting-screws exposed outside, and a condenser-casing hinged to said frame and adapted to cover said screws, substantially as described.

12. In a Ruhmkorff or other induction coil, the combination with a vibrator, of a contact-screw for the same, said screw having a head provided with a series of notches and a stationary spring-pressed pin adapted to engage with any of said notches for the purpose of locking the screw at any point of adjustment.

13. In a Ruhmkorff or other induction coil, the combination with the vibrator, of a pivoted spring-plate bearing at one end against the vibrator, a set-screw bearing against said plate and means for locking the set-screw at any point of adjustment.

750,040. VIBRATORY CIRCUIT-CONTROLLER. RICHARD VARLEY, Providence, R. I., assignor to Varley Duplex Magnet Company, a Corporation of New Jersey. Filed Oct. 19, 1903. Serial No. 177,519 (No model.)



Claim.—1. A vibratile contact device for electric circuits, consisting of two members, one of which is vibratory and the other fixed, one of them carrying a plurality of contacts adapted to engage with the other and a circuit in which said plurality of contacts are connected in parallel relation.

2. A vibratile contact device for electric circuits, consisting of two members, one of which is vibratory and the other fixed one of them carrying a plurality of independently-mounted contacts adapted to engage with the other and a circuit in which said plurality of contacts are connected in parallel relation.

3. In a vibrating circuit-controller, a vibratory element in combination with a fixed element, the latter carrying a plurality of spring-mounted pins facing up, and adapted to contact with the vibratory element.

4. In a vibrating circuit-controller, the combination of an armature-lever, a spring tending to retract the same, and a back contact consisting of a plurality of independent pins and springs acting independently upon the pins in opposition to the spring acting upon the armature-lever, substantially as described.

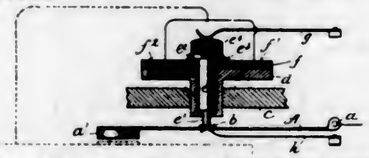
5. In a vibrating circuit-controller, the combination of a vibratile element having a circular contact-surface and a plurality of fixed contacts arranged in a circle and adapted to make simultaneous connections with said circular contact-surface.

6. A vibrating circuit-controller consisting of a vibratile element provided with a circular contact-surface in combination with a contact-carrier provided with a plurality of contact-points arranged in a circle thereon and adapted to make contact with said circular surface, and means for rotating said contact-carrier.

7. In a vibratory circuit-controller, the combination of a vibrating element provided with a circular contact-surface, an adjusting screw carrying a plurality of contacts arranged in a circle concentric with and adapted to engage said circular surface, substantially as described.

8. In a vibrating circuit-controller, a thumb-screw provided with an enlargement at its inner end, a plurality of cavities in said enlargement, a spring in each cavity, a perforated cap covering all of the cavities, contact-pins projected through the cap by the springs and an armature-lever with which all of said pins make contact.

750,041. VIBRATORY CIRCUIT-CONTROLLER. RICHARD VARLEY, Providence, R. I., assignor to Varley Duplex Magnet Company, a Corporation of New Jersey. Filed Oct. 19, 1903. Serial No. 177,520. (No model.)



Claim.—1. In a vibrating circuit-controller, the combination with the vibratile element, of means coöperating therewith for opening and closing the circuit successively more than once during each to-and-fro excursion of the vibratile element.

2. In a vibrating circuit-controller, the combination with a vibratile element of means coöperating therewith for opening the circuit twice during each to-and-fro excursion of the vibratile element.

3. In a vibrating circuit-controller, the combination with a vibratile element of means coöperating therewith for successively opening and closing the circuit twice during each to-and-fro excursion of the vibratile element.

4. In a vibrating circuit-controller, two sets of contacts arranged in series with each other, in combination with a vibrating element adapted to close one set and open the other on its stroke in one direction.

5. In a vibrating circuit-controller, the combination with a vibratory element, of two pairs of contacts and means whereby the momentum of the vibratory element on its back stroke will cause it to first close one pair of contacts and then open the other.

6. In a vibrating circuit-controller, the combination with a vibratory element, of two pairs of contacts, means whereby the momentum of the vibratory element of its back stroke will cause it to first close one pair of contacts and then open the other and means for thereafter closing the opened pair, substantially as described.

7. In a vibrating circuit-controller, two pairs of contacts, a spring tending to hold both pairs closed and a vibratile element adapted on its stroke in one direction to open one pair of contacts and on its stroke in the other direction to close the open pair and open the other pair of contacts.

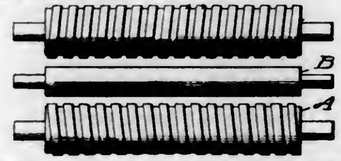
8. In a vibrating circuit-controller, the combination with a vibratile element, of a movable back-stop therefor and a pair of contacts controlled by the motions of the back-stop.

9. In a vibrating circuit-controller, the combination with a vibratory element, of a spring for retracting the same, a movable back-stop, a pair of contacts adapted to be opened by the movement of the back-stop and another spring for closing said contacts, substantially as described.

10. In a vibrating circuit-controller, the combination with a vibrating element, of a plunger acting as a back-stop therefor, a spring tending to hold said element against its back-stop, a pair of contacts controlled by the plunger and a spring stronger than the first-mentioned spring and tending to hold said contacts closed.

11. In a vibrating circuit-controller, the combination with a vibrating element of a thumb-screw having an axial chamber, a plunger therein making electric contact at its inner end with said vibratile element and at its outer end with the head of the thumb-screw, a spring tending to hold the inner contacts closed and the outer contacts open, and a stronger spring tending to hold the outer contacts closed, substantially as described.

750,042. MEANS FOR PRODUCING METALLIC FLOOR-PLATES. MASON G. WORTH, Philadelphia, Pa. Filed Oct. 27, 1903. Serial No. 178,775. (No model.)

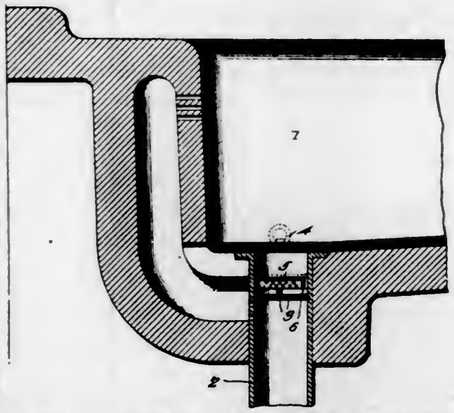


Claim.—1. A means for producing floor-plates, comprising a primary roll provided with grooves extending at an acute angle to its axis of rotation, and a secondary roll provided with grooves at an acute angle to its axis of rotation and extending in an opposite direction to the grooves upon the primary roll.

2. A means for producing floor-plates, comprising primary and secondary rolls grooved in opposite directions at an acute angle to their axes of rotation, and an intermediate plain roll.

3. The means of producing floor-plates, comprising a primary roll provided upon its periphery with means for producing a series of parallel ribs upon one surface of the plate and extending diagonally to the sides thereof, and a secondary roll provided upon its periphery with means for removing portions of said ribs to leave a series of projections upon the face of said plate.

750,043. STRAINER ATTACHMENT FOR WASHBASINS. DEBBIE B. ALLEN, San Francisco, Cal. Filed Apr. 30, 1902. Serial No. 105,397. (No model.)

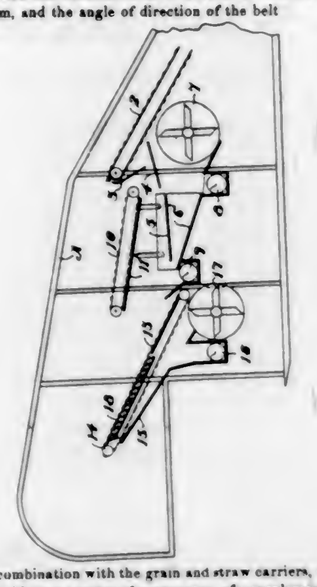


Claim.—A strainer composed of a single piece of foraminous material, polygonal in plan and having flanges downturned from the edges thereof and combining to form a marginal rim, the maximum diameter of the polygon being equal to the interior diameter of the waste-pipe in which the strainer is fitted, the perforated flanges forming the marginal rim being thereby spaced from the sides of such waste-pipe.

750,044. HARVESTER THRESHER AND SEPARATOR. WILLIAM V. ALLEN, Chico, Cal. Filed Aug. 20, 1903. Serial No. 170,132. (Model.)

Claim.—1. The combination in a threshing-machine of a combined grain and straw carrier, a cleaning-shoe, means for delivering the grain from the upper end of said carrier upon the cleaning-shoe, an inclined straw-carrier located to receive the straw from the first-named carrier, and a blast apparatus discharging through the cleaning-shoe, an inclined supplemental open-slat carrier upon which the second-named straw-carrier discharges, a blast apparatus discharging through said final carrier and between it and the discharge end of the second-named straw-carrier, and inclined transverse slats or direction-boards through which the air-blast passes.

2. The combination with grain and straw carriers, cleaning-shoe and blast apparatus of a threshing-machine, of a supplemental inclined open-slat straw-carrier adapted to receive the straw from the main straw-carrier of the machine and to carry it upwardly and outwardly, a return-bottom located beneath said carrier and an auger-spout into which grain is delivered from said bottom, a blast apparatus adapted to discharge through the supplemental straw-carrier and between its discharge end and the main straw-carrier, slats transversely disposed below the upper part of said supplemental carrier and pivoted and turnable so as to increase or decrease the space between them, and the angle of direction of the belt



3. The combination with the grain and straw carriers, cleaning-shoe and main blast apparatus of a separator, of a supplemental open-slat endless traveling belt adapted to receive the straw discharged from the main straw-carrier, hinged or pivoted transverse slats located beneath the upper part of said supplemental carrier, a rod or connection uniting the free edges of said slats, and an arm or arms by which the slats may be turned to increase or diminish the space between them and their angular position, an inclined closed bottom located below the carrier and adapted to receive any grain falling therefrom and a blast apparatus, discharging through the carrier and the slats thereof, substantially as described.

4. The combination with the grain and straw carriers main air-blast apparatus and cleaning-shoe of a grain-separator, and an outwardly-inclined tail-board at the rear of the cleaning-shoe, of a supplemental open-slat endless traveling belt adapted to receive the straw discharged from the main straw-carrier, hinged or pivoted transverse slats located beneath the upper part of said supplemental carrier, a rod or connection uniting the edges of said slats and an arm by which the slats may be turned to vary their angle and the space between them, a closed inclined bottom beneath the carrier and a receiving auger-spout, and a supplemental fan located beneath the supplemental carrier and the tail-board, and having a discharge-passage by which the air is so directed as to act upon the chaff as it leaves the tail-board, and the straw passing from the main to the supplemental carrier and over said carrier.

750,045. ADJUSTABLE BRACKET AND SUPPORT. ANGELIUS ANSPACH, Philadelphia, Pa., assignor of one-half to Thomas F. Bennett, Philadelphia, Pa. Filed Mar. 21, 1903. Serial No. 148,857. (No model.)



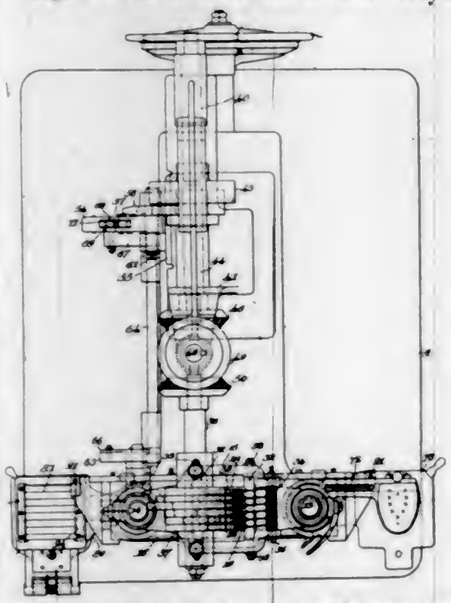
Claim.—Adjustable brackets and supports comprising vertical members having a series of elliptical apertures, and horizontal members or brackets, having elliptical projections which are adapted to pass through the apertures of the supports and interlocked therewith, in substantially the manner set forth.

750,046. DETACHABLE HANDLE FOR UMBRELLAS. EDWARD P. BEVILLARD, Rome, N. Y. Filed Apr. 13, 1903. Serial No. 152,436. (No model.)



Claim.—The combination in an umbrella of a handle having a cylindrical bore forming a socket, a plug having a beveled lower end secured in the upper portion of said socket, a rod having a beveled upper end adapted to contact with the bevel of the plug in the socket of the handle, a sleeve loosely mounted on said rod and having at its lower end an inwardly-disposed flange, a collar rigidly fastened on said rod and adapted for engagement with the flange on said sleeve, and means for securing said sleeve to said handle.

750,047. HEELING-MACHINE. HENRY BRIGGS, Hasbrouck Heights, N. J. Filed Mar. 28, 1902. Serial No. 100,443. (No model.)



Claim.—1. A heel-nailing machine, having, in combination, a shoe-supporting jack and mechanism for driving heel-attaching nails on both sides of the heel during the same interval of time acting to drive the nails on each side of the heel successively, substantially as described.

2. A heel-nailing machine, having, in combination, a shoe-supporting jack, and means for successively driving groups of the heel-attaching nails, each group containing nails upon each side of the heel, substantially as described.

3. A heel-nailing machine, having, in combination, a shoe-supporting jack, a sectional spanker-plate and means for actuating the sections of the spanker-plate successively to attach the top lift, substantially as described.

4. A heel-nailing machine, having, in combination, a shoe-supporting jack, and means for forcing the top lift upon the projecting heel-attaching nails successively, substantially as described.

5. A heel-nailing machine, having, in combination, a shoe-supporting jack, a series of driver-carriers, drivers carried thereby arranged to drive nails upon opposite sides of the heel simultaneously and means for actuating the driver-carriers successively, substantially as described.

6. A heel-nailing machine, having, in combination, a shoe-supporting jack, a nail-block, a series of driver-cariers, drivers carried thereby, means for relatively actuating the nail-driver carriers and nail-block to bring the drivers in close proximity to the holes in the nail-block, and means for successively actuating the driver-carriers to drive the nails, substantially as described.

7. A heel-nailing machine, having, in combination, a shoe-supporting jack, a stationary nail-block, a series of driver-carriers, drivers carried thereby, means for actuating the driver-carriers to bring the drivers in close proximity to the holes in the nail-block, and means for successively actuating the driver-carriers to drive the nails substantially as described.

8. A heel-nailing machine, having, in combination, a shoe-supporting jack, a series of driver-carriers, drivers carried thereby, a sectional spanker-plate movable into a position between the drivers and a shoe supported upon the jack, and means for successively actuating the driver-carriers to actuate the sections of the spanker-plate successively to attach the top lift, substantially as described.

9. In a heel-nailing machine, a top-lift carrier having in combination a frame, a spanker-plate movably mounted thereon, and a plate mounted to move on said frame with the spanker-plate provided with means for holding a top lift, substantially as described.

10. A heel-nailing machine, having, in combination, a shoe-supporting jack, and means for imparting to the top lift a series of sharp quick blows to force the top lift upon the heel-attaching nails successively, substantially as described.

11. A heel-nailing machine, having, in combination, a shoe-supporting jack, a nail-block, a heel-carrier provided with means for holding a heel and with a perforated separator-plate for supporting the heel at a distance from the surface of the nail-block, a spanker-plate, nail-drivers, and means for actuating the nail-drivers to drive the heel-attaching nails and to actuate the spanker-plate to attach the top lift, substantially as described.

12. A heel-nailing machine, having, in combination, a nail-block, a shoe-supporting jack upon one side of the block, a series of drivers upon the other side of the block, said block and drivers being relatively movable to allow the block to be loaded from the side on which the drivers are located and means for actuating the drivers to drive the nails successively, substantially as described.

13. A heel-nailing machine, having, in combination, a shoe-supporting jack, a series of driver-carriers, drivers carried thereby, a sectional spanker-plate movable into a position between the drivers and a shoe supported upon the jack, means for moving the driver-carriers toward the spanker-plate and means for successively actuating the driver-carriers to actuate the sections of the spanker-plate successively to attach the top lift, substantially as described.

750,048. CASEIN COMPOUND AND PROCESS OF PRODUCING SAME. HEZEKIAH K. BROOKS, Bellows Falls, Vt., assignor to Casein Company of America, a Corporation of New Jersey. Filed Mar. 31, 1903. Serial No. 150,422. (No specimens.)

Claim.—1. As an improved manufacture, oxidized casein in dry commercial form.

2. As an improved manufacture, oxidized casein in dry commercial form and consisting of casein and about five per cent. of an oxidizing agent which has been thoroughly incorporated therewith.

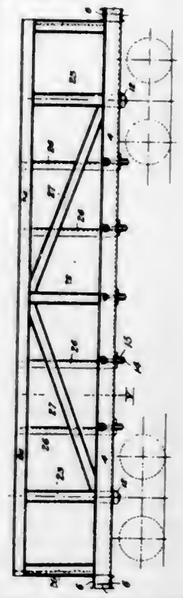
3. The herein-described casein compound, consisting of casein and persulfate of ammonia which has been thoroughly incorporated therewith.

4. The herein-described process of producing oxidized casein, consisting in dissolving an oxidizing agent in about an equal amount of water, by weight, and then thoroughly incorporating the oxidizing solution with the casein by stirring the same into the casein during rapid agitation.

5. The herein-described process for producing oxidized casein, consisting in dissolving persulfate of ammonia in about an equal amount of water, by weight, and then thoroughly incorporating the persulfate of ammonia with the casein by stirring the same into the casein during rapid agitation.

750,049. METALLIC-CAR CONSTRUCTION. CYRUS M. CARNAHAN, Allegheny, Pa., assignor to National Rolled Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Apr. 17, 1902. Serial No. 103,262. (No model.)

Claim.—1. In a metallic car, an underframe consisting of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges thereof conforming to a common floor-level and reinforcing end sills of structural members for the full width of the underframe above and below the top and bottom thereof, substantially as set forth.



2. In a metallic car, an underframe consisting of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges thereof conforming to a common floor-level, and reinforcing end sills of structural members for the full width of the underframe above the top thereof, means for securing the members together, a lower cross supporting-bolster, and truss-rods engaging the bolster and secured at each end to the side sills, substantially as set forth.

3. In a metallic car, an underframe consisting of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges thereof conforming to a common floor-level, and reinforcing end sills of structural members for the full width of the underframe extending above the top thereof, means for securing the members together, and transverse truss-rods supporting the center sills and secured to the side sills, substantially as set forth.

4. In a metallic car, an underframe consisting of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges thereof conforming to a common floor-level, and reinforcing end sills of structural members for the full width of the underframe extending above the top, means for securing the members together, and transverse body-bolsters of structural members in engagement with the center sills and secured to the side sills, substantially as set forth.

5. In a metallic car, an underframe consisting of side sills of Z-bars having outwardly-extending upper flanges, center sills, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level, means for securing the members together, and reinforcing end sills of structural members for the full width of the underframe extending above the top thereof, substantially as set forth.

6. In a metallic car, the combination of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges of said members conforming to a common floor-level, supplemental reinforcing end sills, post members for the sides and ends, and means for securing the members together, substantially as set forth.

7. A metallic car consisting of side sills, center sills, end sills and floor-beams of flanged structural members, the upper flanges of said members conforming to a common floor-level, supplemental reinforcing end sills, post members for the sides and ends, and sides and ends of plates secured thereto, substantially as set forth.

8. In car construction, an underframe composed of center sills of flanged structural members, side sills of Z-bars having outwardly-extending upper flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a

common floor-level, post members for the sides and ends, and means for securing the members together.

9. In car construction, an underframe composed of center sills of flanged structural members, side sills of Z-bars having outwardly-extending upper flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level, post members for the sides and ends, diagonal side-bracing members, and means for securing the members together.

10. In car construction, an underframe composed of center sills of flanged structural members, side sills of Z-bars having outwardly-extending upper flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level, post members for the sides and ends, top members for the sides and ends, diagonal side-bracing members, and means for securing the members together.

11. In car construction, an underframe composed of center sills, side sills having outwardly-extending upper flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level, inner and outer post members incorporated with the side sills and floor-beams, and means for securing the members together.

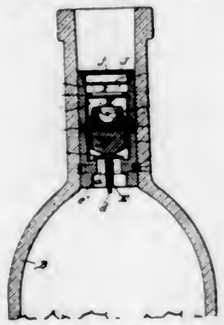
12. In a car construction, an underframe composed of center sills, side sills, floor-beams and end sills of flanged structural members, the upper flanges of the said members conforming to a common level, body-bolsters of structural material, inner post members incorporated with the side sills and bolster ends, and inner and outer post members connected with the floor-beams and side sills, with means for securing the members together.

13. In car construction, an underframe composed of center sills, side sills, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level, angle-brackets connecting the floor-beams and end sills with the side and center sills, and reinforcing upper and lower end sills secured to the side and center sills.

14. In car construction, an underframe, composed of center sills of flanged structural members, side sills of Z-bars having outwardly-extending upper flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level reinforcing end sills extending upwardly therefrom, and a floor structure laid over and supported by the side, center and cross sills and floor-beams, respectively.

15. In car construction, an underframe composed of center sills of flanged structural members, side sills of Z-bars having outwardly-extending flanges, floor-beams and end sills of flanged structural members, the upper flanges of said members conforming to a common floor-level reinforcing end sills extending upwardly therefrom, post members for the sides and ends, a floor structure, and sides and ends incorporated with the said framework, and means for securing the parts together.

750,050. NON-REFILLABLE-BOTTLE ATTACHMENT. JOHN J. FLANAGAN, Cleveland, Ohio. Filed May 7, 1902. Serial No. 106,324. (No model.)

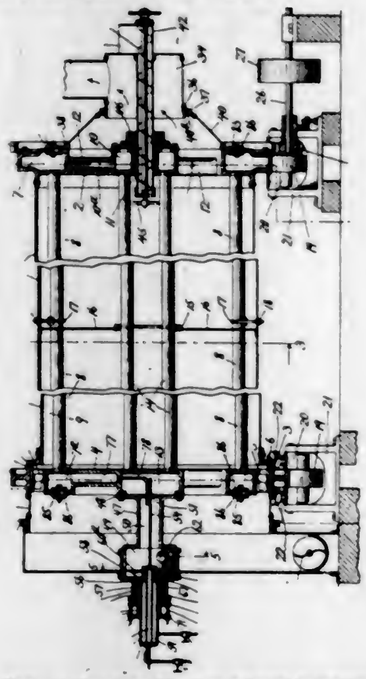


Claim.—1. In a bottle-stopper, the combination of a movable valve adapted to close the exit-opening from the bottle, a pivoted disk located outside of and adapted to contact on said valve with its periphery, said disk being cut away at one side to form a peripheral depression, its other side below the axis of the pivots being heavier so that gravitation acts to always keep the depressed side uppermost substantially as set forth.

2. In a bottle-stopper, the combination of a movable valve adapted to close the exit-opening from the bottle, a pivoted disk located outside of the valve, recessed at one side of the axis of its pivots and adapted to contact peripherally with said valve, a circular spindle pivoted in the recess of the disk on an axis above and at a right angle to the axis of the disk-pivots and having one flattened side, the full side of the disk and spindle being heavier below than above their pivots, and the longitudinal curvature of the sides of the spindle conforming to the peripheral curve of the disk, substantially as set forth.

3. In a bottle-stopper, the combination of a movable valve adapted to close the exit-opening of the bottle, a pivoted disk located outside of and adapted to bear on the valve, a recess in one side of the disk and a circular spindle pivoted therein on an axis above and at a right angle to the axis of the disk-pivots and having one flattened side, the longitudinal rounded sides of the spindle conforming to the peripheral curve of the disk, the full sides of both the disk and the spindle being heavier below than above their pivots for the purpose set forth, with a series of fixed, perforated diaphragms above the disk and spindle having their respective openings out of register, substantially as set forth.

750,051. DRIER. CHARLES E. OHMER, Louisville, Ky. Filed Oct. 5, 1903. Serial No. 175,757. (No model.)



Claim.—1. In a drier of the type indicated in combination with the cylinder, the manifold at the receiving end provided with steam-cavities and having apertures extending entirely through it without communication with said cavities; a frusto-conical hood secured at its larger base to said manifold at a line encompassing all said apertures; a fixed vapor-chamber having its mouth toward the manifold circular and registering with the smaller base of the frusto-conical hood, and a conduit for the material to be dried, penetrating the vapor-chamber.

2. In a drier of the type indicated in combination with the cylinder, the manifold at the receiving end provided with a central aperture and vapor-escape apertures aside from the center; a conveyer for the material to be dried protruding through the central aperture; a hood secured to said manifold by a tight joint therewith at the outer side thereof at a line encompassing the vapor-escape apertures of the manifold, and having a circular mouth conaxial with the manifold; and a fixed vapor-chamber penetrated by the conveyer having its mouth toward the manifold circular and registering with said circular mouth of the hood.

3. In a drier of the type indicated, in combination with the cylinder, a manifold at the receiving end provided with a central aperture and with non-central vapor-escape apertures, a conveyer for the material to be dried protruding through said central aperture; a conical hood secured at its base to the manifold at the outer side thereof at a line which encompasses the vapor-escape apertures of the manifold, and a fixed vapor-chamber penetrated by the conveyer and having a circular mouth open toward the manifold and registering with the outer end of the conical hood.

4. In a drier of the type indicated, in combination with a cylinder having its receiving end closed by a manifold provided with a central aperture, an annular cavity encompassing said central aperture and vapor-escape apertures outside the annular cavity; steam-pipes connected with said annular cavity; a vapor-chamber and means for leading into it the vapor from the vapor-escape apertures; a conveyer for the material to be dried penetrating the vapor-chamber and protruding into the cylinder through the central aperture and within the group of steam-pipes connected to the annular cavity, the rotating element in said conveyer having its shaft protruding beyond the case within said group of pipes and provided with a transversely-projecting arm or finger for clearing the material from the pipes as it is delivered from the conveyer.

5. In a drier of the type indicated, in combination with the cylinder, a manifold at the receiving end provided with a central aperture, a conveyer for the material to be dried, exteriorly supported and protruding through said aperture, and roller-bearings for the case of said conveyer mounted on the outer side of the manifold about the central aperture thereof.

6. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with an axial aperture leading into its cavity from the outer side and means by which it discharges the water of condensation through said aperture; a case secured to the manifold at the onter side and having its cavity communicating with said axial aperture and comprising a chamber for water of condensation of greater diameter than the aperture; a steam-supply fitting protruding into said case having a steam-passage communicating with the central chamber of the manifold through said aperture, and a water-passage separated from the steam-passage and provided with an exterior discharge-pipe; an inlet-tube or branch connected with the water-passage and leading down within said condensation-chamber to a point lower than the lower margin of said axial aperture; a valve which controls communication from the condensation-chamber of the case to the discharge of said discharge-pipe, and a float operated by the water of condensation operatively connected with said valve for opening it when the float is lifted by the accumulation of such water.

7. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with an axial aperture leading into its cavity and means by which it discharges the water of condensation through said aperture; a case secured to the manifold at the outer side and having its cavity communicating with said aperture and comprising a chamber for water of condensation of greater diameter than said aperture; a steam-supply fitting protruding into said condensation-chamber, said fitting comprising a steam-passage communicating with the cavity of the manifold through the axial aperture thereof, and a water-passage separated from the steam-passage and provided with an exterior discharge; an inlet-cock connected with said water-passage having its inlet-mouth within the condensation-chamber at a point lower than the lower margin of said axial aperture, and a float in said chamber connected with said cock for opening the same when the float is lifted.

8. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with steam-cavities and an axial aperture through the outer wall for communication therewith, means by which said manifold discharges the water of condensation through said aperture; a case secured to the manifold at the outer side having its cavity communicating with said aperture and comprising a chamber for the water of condensation of greater diameter than said aperture; a steam-supply fitting protruding into the case having a steam-passage communicating through the axial aperture with the steam-cavites of the manifold, and two water-passages partitioned from each other and from said steam-passage, each water-passage having an exterior discharge; two ducts opening in the lower portion of the condensation-chamber and leading therefrom to the two water-passages respectively, the exterior discharge from one of said passages having a valve for operation at will, and the duct leading into the other of said passages having a valve and a float in the condensation-chamber operatively connected therewith.

9. In a drier of the type indicated, in combination with the cylinder, the manifold at the discharge end having an annular chamber and a central chamber, the former being partitioned into compartments; two ducts connecting each compartment with the central chamber; steam-pipes connected with the annular chamber; a case connected with said manifold at the outer side having its cavity communicating axially with the central chamber of the manifold, and provided with a stuffing-box; a steam-supply fitting extending through said stuffing-box having a steam-passage and a water-chamber partitioned therefrom; a chamber in the case encompassing the end of the steam-supply fitting for receiving the water of condensation, the communicating aperture from the case to the manifold being of less diameter than said water-chamber of the case; a branch leading from the water-chamber of the steam-supply fitting downward within said water-chamber of the case to a point lower than the lower margin of said aperture; a discharge-pipe from said water-chamber of the steam-supply fitting outside the stuffing-box; a valve which controls communication from the water-chamber of the case to the discharge of said discharge-pipe; pipes leading from the inner ends of one of the two ducts from each compartment of the annular chamber through said central aperture for discharging the water of condensation into the case, and a float operated by said water of condensation, operatively connected with said valve for opening it when the float is lifted by the accumulation of such water.

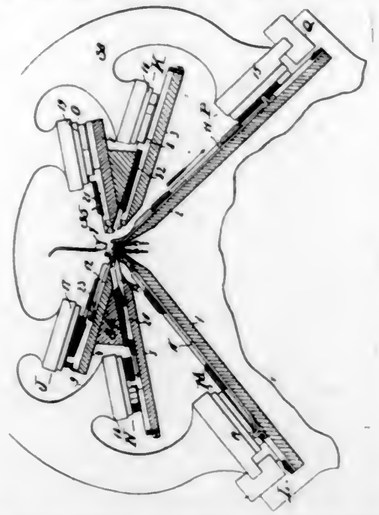
10. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with an annular chamber and partitioned into compartments, and steam-pipes connected therewith, the central chamber and steam and water ducts leading from said compartments respectively to said central chamber; a case secured to the manifold at the outer side and having its cavity communicating by an axial aperture with said central chamber, said case comprising a chamber for water of condensation, of greater diameter than said axial aperture; a stuffing-box at the outer end of the case; a cylindrical steam-supply fitting protruding through said stuffing-box into said condensation-chamber, said steam-fitting comprising a steam-passage communicating with the central chamber of the manifold, and a water-passage separated from said steam-passage, and provided with a discharge outside the stuffing-box; a cock connected with said water-passage and extending downward therefrom within the chamber of said case to a point lower than the lower margin of said axial aperture; a float in said chamber connected with said cock for opening the same when the float is lifted in said chamber, and pipes connecting the several water-passages.

11. In a drier of the type indicated, in combination with the cylinder, a manifold provided with an annular chamber partitioned into compartments and steam-pipes connected therewith, a central chamber and steam and water ducts connecting the said compartments respectively with the central chamber; a case secured to the outer side of the manifold having its cavity communicating with the central chamber through an axial aperture; pipes leading from the inner end of the water-ducts respectively through said central aperture, said case comprising an enlarged cavity for receiving the water of condensation; a stuffing-box at the outer end of the case; a steam-supply fitting extending through said stuffing-box having a steam-passage communicating with the central chamber of the manifold, and two water-passages separated from each other and from the steam-passage, each having a discharge exterior to the stuffing-box; two pipes leading from the lower portion of the condensation-chamber and effecting communication therefrom with the two water-passages respectively, the discharge-pipe from one of said passages having a valve operated at will, and the pipe leading into the other of said passages having a valve and a float in the condensation-chamber operatively connected with such valve.

12. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with an aperture about its axis; a chamber into which the aperture leads; a steam-pipe discharging through said chamber and said aperture into the manifold, said chamber comprising a cavity for accumulating water of condensation which extends lower than the lower margin of the aperture; a valve which controls discharge of the water of condensation from such cavity, and a float operatively connected with such valve.

13. In a drier of the type indicated, in combination with the cylinder, a manifold at the discharge end provided with an axial aperture for the entrance of steam and the escape of water of condensation, and means by which it discharges the water of condensation through said aperture; a chamber encompassing said aperture and communicating therethrough with the manifold-cavity, said chamber having a steam connection leading into it and additional space for the passage of water of condensation, and comprising a cavity for the accumulation of water of condensation extending lower than said axial aperture; a valve which controls discharge from said cavity, and a float in said cavity operatively connected with the valve.

750,052. LAMB KNITTING-MACHINE. ARTHUR ORRAUD, Angers, France. Filed Mar. 22, 1901. Serial No. 52,432. (No model.)



Claim.—1. In a knitting-machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles, a pair of beds for each set of counter-needles arranged above the beds of the machine-needles, means mounted in counter-needle beds for causing the traversing of the counter-needles from one of their beds to the other, and operating means for said traversing means.

2. In a knitting-machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, a pair of beds for each set of counter-needles, means mounted on counter-needle beds for causing the traversing of the counter-needles from one of their beds to the other, and means for alternately operating said machine-needles and said traversing means.

3. In a knitting-machine for tubular seamless knitting, two sets of counter-needles, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other, two sets of machine-needles arranged below said counter-needles, beds for said machine needles, and means for operating the sets of counter-needles simultaneously and alternately in operation with the remaining sets of needles.

4. In a knitting-machine for tubular seamless knitting, two sets of counter-needles, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other, jacks for said needles, two sets of machine-needles arranged below said counter-needles, beds for said machine-needles, and means for operating said sets of counter-needles simultaneously and alternately in operation with the remaining sets of needles.

5. In a knitting-machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, each counter-needle having a hook at one end and a hook and a latch at the other end, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other, four sets of jacks sliding in the four counter-needle beds and adapted to engage the hooks of said counter-needles for operating the same, and means for suitably operating said jacks and machine-needles.

6. In a knitting-machine for tubular seamless knitting, a plurality of sets of counter-needles, each needle having a hook at one end and a hook and a latch at its other end, a pair of beds for each set of counter-needles, means adapted to engage the ends of said needles for moving the same into and out of operative position, operating means therefor, a plurality of sets of machine-needles arranged below said counter-needles, and operating means therefor.

7. In a knitting-machine for tubular seamless knitting, two sets of counter-needles, a pair of separate beds for each set thereof, jacks mounted in the said beds and adapted to cause each set of needles to traverse from one bed of the pair of beds to the complementary bed of the pair of beds, two sets of machine-needles arranged below said counter-needles, beds for said machine-needles, and means for suitably operating said machine-needles and jacks.

8. In a knitting-machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, a pair of beds for each set of counter-needles, means for suitably operating the said machine and counter-needles, and means for guiding yarn to the said needles.

9. In a straight-knitting machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, each counter-needle having a hook and a latch at one end for seizing the yarn and knocking over the old loop and a hook at the other end for holding the new loop in inoperative position, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other, four sets of jacks sliding in the four counter-needle beds, each jack in the one bed of either of the two pairs of beds being adapted to engage the hook of the counter-needle for operating the same and each jack in the other bed being adapted to engage the other hook of the counter-needle for withdrawing and holding the same in its inoperative position, and means for suitably operating said jacks and machine-needles.

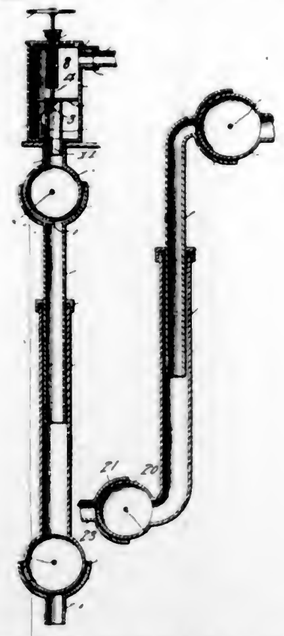
10. In a straight-knitting machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, each counter-needle having a hook and a latch at the one end for seizing the yarn and knocking over the old loop and a hook at the other end for holding the new loop in inoperative position, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other and the two beds of either pair having needle-grooves in the same parallel planes as the bed-grooves for that set of machine-needles which do not work with the respective counter-needles, four sets of jacks sliding in the four counter-needle beds, each jack in the one bed of either of the two pairs of beds being adapted to engage the hook end of the counter-needle for operating the same and each jack in the other bed being adapted to engage the hook and latch end of the counter-needle for withdrawing and holding the same in its inoperative position and thus permitting the machine-needle in its plane to work, means for suitably operating said jacks and machine-needles, and means for guiding yarn to the said needles.

11. In a straight-knitting machine for tubular seamless knitting, two sets of machine-needles, beds therefor, two sets of counter-needles arranged above said machine-needles, each counter-needle having a hook and a latch at the one end and a hook at the other end, a pair of beds for each set of counter-needles, the beds of the two pairs being placed one above the other and the beds of either pair having needle-grooves in the same parallel planes as the bed-grooves for that set of machine-needles which does not work with the respective counter-needles, four sets of jacks sliding in the four counter-needle beds, each jack in the one bed of either of the two pairs of beds being adapted to engage the hook end of the counter-needle for operating the same and each jack in the other bed being adapted to engage the hook and latch end of the counter-needle for withdrawing and holding the same in its inoperative position and thus permitting the machine-needle in its plane to work, means for guiding yarn to the said needles, means for so operating said jacks and machine-needles, that either set of machine-needles can knit a yarn to produce the external tube of a welt in plain fabric and their counter-needle immediately following can knit another yarn to produce the internal tube of the welt in plain fabric, and means for so operating said jacks and machine-needles, that either set of machine-needles can knit a single yarn with the corresponding set of counter-needles to produce a tubular ribbed fabric.

12. The jack having a butt at the one end and a hook at the other end and projecting downward to a certain height above the bottom side, which hook is provided with two oppositely-inclined faces, of which the external one is adapted to move over and engage the hook end of the counter-needle and the internal inclined face is adapted to move over and release the said hook end, substantially as herein shown and described.

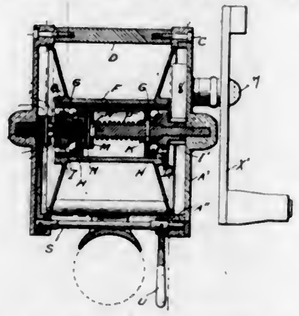
750,053. LUBRICATOR. SETH M. HALL, Akron, N. Y. Filed Feb. 11, 1903. Serial No. 142,914. (No model.)

Claim.—1. In a device of the character described, the combination with a receptacle having a transverse partition therein with an outlet therethrough; of a valve within said outlet, a transparent tube extending from said outlet to the bottom of the receptacle, an outlet in the bottom of the receptacle and below the tube, a hollow extension communicating with said outlet, a cup for the reception of the extension, a pivot-pin for supporting the extension in the cup, a washer within the cup, a pipe projecting from the cup, and an outlet in the extension.



2. The combination with a receptacle having an outlet and an inlet; of a transverse partition therein having an outlet, a valve in the latter outlet, a transparent tube inclosing and connecting the two outlets, telescoping pipes, a cup at one end of one of the pipes, a hollow extension communicating with the first-mentioned outlet and projecting into the cup, means for spacing apart the adjoining surfaces of the extension and cup, a hollow extension at the free end of the other pipe, a cup adapted to receive the same, means for spacing apart the adjoining surfaces of said extension and cup, a securing-pipe extending from said cup, pivot-pins for supporting the extensions in the cups and an outlet within each of the extensions.

750,054. FISHING-REEL. ROBERT L. HUNTER, Minneapolis, Minn., assignor to the American Signal & Power Company, a Corporation. Filed Mar. 26, 1900. Serial No. 10,306. (No model.)



Claim.—1. In a fishing-reel, the combination, with a suitable cage, of a shaft mounted in bearings in the ends of said cage, a portion of said shaft being hollow, a spool mounted on said shaft, a clutch arranged within said spool and adapted to connect said spool and said shaft, a spring normally holding said clutch in engagement with said spool, a clutch-operating rod, extending through the hollow portion of said shaft, and an operating-lever for moving said rod.

2. In a fishing-reel, the combination, with the driving-shaft and the spool mounted thereon, of the clutch for connecting said spool and said shaft, the collar P for moving said clutch, the lever R provided with a slotted head having an incline R" adapted to engage said collar, and a handle for moving said lever, substantially as described.

3. In a fishing-reel, the combination, with the cage provided with the end plate consisting of the ring A and the removable section A', of the bayonet-joint connection between said plate and said ring, and the spring-catch locking said section to said ring, for the purpose set forth.

4. In a fishing-reel, the cage, in combination, with a spool-shaft mounted in bearings in the ends of said cage, the crank upon the end of said cage, a pinion upon the end of said shaft, operated by said crank, a spool having bearings upon said shaft, a spring-pressed clutch upon said shaft between the bearings of said spool thereon, means slidable within said shaft for operating said clutch, means movable upon the end of said shaft to operate said slidable means, and an operating member associated with said means, substantially as described.

5. In a fishing-reel, the combination, of the cage, with the shaft having bearings therein, the spool having bearings upon said shaft, a clutch provided within the hub of said spool to connect the same with said shaft, means for driving said shaft, and means concealed between the end of the cage and the end of the spool for operating said clutch, substantially as described.

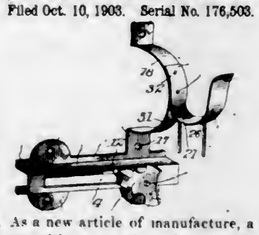
6. In a fishing-reel, the combination, of the cage, with the shaft having closed end bearings in said cage, the spool mounted upon said shaft, a clutch between said spool and shaft, means upon the cage for driving said shaft, a slide in said shaft for operating said clutch, and a cam-lever operating said slide through the medium of a part rotating with the shaft, substantially as described.

7. In a fishing-reel, the combination, of the cage, with the shaft therein, the spool mounted on ball-bearings on said shaft, the crank, and connections for driving said shaft in either direction, the clutch M, the slide Q, the slide-operating collar on said shaft, the cam-lever R, the rocking shaft S, and the operating-handle thereon, substantially as described.

8. In a fishing-reel, the cage, in combination, with the spool-shaft mounted in bearings in the ends of said cage, the crank mounted on the end of the cage, the spool mounted on said shaft, within the cage, the pinion mounted on said shaft between the end of the spool and the end of the cage, suitable means connecting said pinion and said crank, the clutch provided upon said shaft, within the cage, clutch-operating means provided between the end of the spool and the end of the cage and an external device connected with said means, substantially as described.

9. In a fishing-reel, the cage having suitable ends, one of which is provided with a central opening, in combination with the spool adapted for insertion or removal through said opening, the central section, closing the opening in said end and detachably secured therein, the central bearing provided in said section, a similar bearing provided in the opposite end of the cage, the shaft having its ends in said bearing, the bearings or journals for the spool on said shaft, the pinion on said shaft, within the cage, external driving means connected with said pinion, a clutch provided within the cage and normally connected with said shaft and spool, and external clutch-operating means, substantially as described.

750,055. CURTAIN-BRACKET. ADELARD LAMBERT, Manchester, N. H. Filed Oct. 10, 1903. Serial No. 176,503. (No model.)



Claim.—1. As a new article of manufacture, a bracket of the class described comprising a member adapted to be attached to a casement, a reversible member carried thereby, said reversible member being adapted to occupy substantially two positions adapted to support a curtain-pole in one position and curtain-rods in the other.

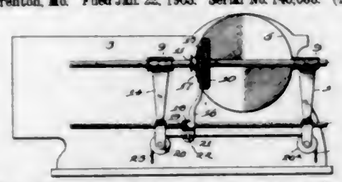
2. As a new article of manufacture, a bracket of the class described comprising a substantially horizontally disposed channel-shaped member near the lower portion thereof and having a slot therein, an adjustable head movably mounted in said slot, and a pivoted member attached to the upper portion of said bracket, said pivoted member being reversible, and adapted to support a curtain-pole in one position and curtain-rods in the other.

3. As a new article of manufacture, a bracket of the class described, comprising a member adapted to be permanently attached to a casement, a movable hanger pivotally attached thereto, said movable hanger being adapted to support a curtain-pole in one position, and curtain-rods in another position, there being interlocking means between said members adapted to maintain said hanger in either of its positions.

4. As a new article of manufacture, a bracket of the class described, comprising a member adapted to be permanently attached to a casement, and a reversible hanger connected therewith, said hanger comprising a normally upwardly turned member adapted to receive a curtain-pole, and vertically-projecting members adapted to retain curtain-rods.

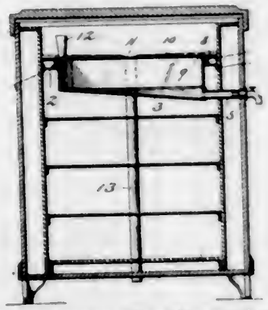
5. As a new article of manufacture, a bracket of the class described, comprising a substantially horizontally disposed channel-shaped member, an adjustable head movably mounted therein, said channel-shaped member having a substantially vertical extension integral therewith, said extension and said member being adapted for permanent attachment to a casement, and a hanger attached to said extension, and having a substantially horizontal axis of rotation, said hanger being adapted on one side to receive a curtain-pole, and upon its other side to receive curtain-rods, said hanger and said extension having, the one a projection, and the other recesses adapted to receive the same, one of said recesses being adapted to maintain said hanger in a reversed position.

750,056. **FRICTION SPEED-REGULATOR.** FRANK W. LINNERT, Warrenton, Mo. Filed Jan. 22, 1903. Serial No. 140,088. (No model.)



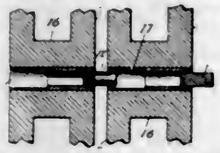
Claim.—A frictional speed-regulator, comprising the combination with a suitable motor-casing, of a driving-shaft mounted in the motor-casing; a face friction-wheel fixed upon one end of the shaft; bearing-brackets fixed to the motor-casing; a counter-shaft slidably and rotatably mounted in the bearings of the brackets, at right angles to the driving-shaft, a peripheral friction-wheel fixed upon the counter-shaft to engage and be driven by the face friction-wheel; shifting-rod brackets depending from the bearing-brackets; a shifting rod slidingly mounted in the shifting-rod brackets parallel with the counter-shaft; a fork fixed upon the shifting rod to slide the counter-shaft; pulleys mounted in the shifting-rod brackets below the shifting rod; and a cord attached to the shifting rod and passing over said pulley; all arranged so that by pulling one end of the cord, the speed of the counter-shaft is increased, and by pulling the other end of the cord the speed of the counter-shaft is decreased, substantially as specified.

750,057. **REFRIGERATOR ATTACHMENT.** CHARLES W. MCCLURE, Atlanta, Ga. Filed Aug. 26, 1903. Serial No. 170,857. (No model.)



Claim.—The combination with a refrigerator having an outlet-tube therein; of brackets within the refrigerator, cross-strips supported at their ends within the brackets, a receptacle between the cross-strips and having an outlet, beads integral with the walls of the receptacle and adapted to bear upon the cross-strips and support the receptacle, and a combined cover and ice-grate upon the receptacle having converging inclined corrugations extending from points adjacent the edges of the grate to an outlet-groove extending to one edge of the grate and opening into the outlet-tube, the outer ends of the corrugations being in the same plane with the edges of the grate, and an air-tube opening through and extending above the grate.

750,058. **VENEER-DRIER.** AARON S. NICHOLS, Boston, Mass. Filed Apr. 1, 1903. Serial No. 150,557. (No model.)



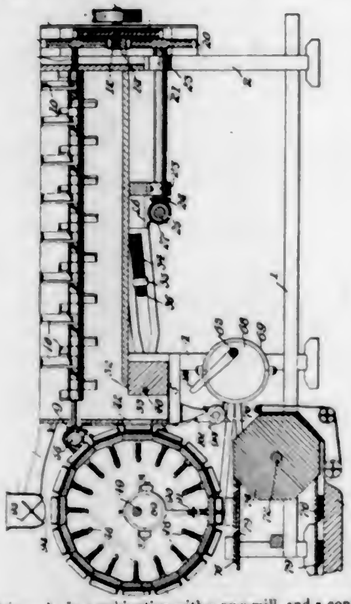
Claim.—1. The veneer-drier having vertical platens provided with means on their acting faces for supporting courses of veneers, and also provided with openings on their opposite faces to receive the supporting means of adjacent platens.

2. The vertical platen for use in driers provided with transverse openings arranged in horizontal lines, in combination with pins inserted in the openings and projecting from the same side of the platen so they may support the veneers.

3. The platen for use in driers, provided with transverse openings arranged in horizontal lines, said openings being furnished with bushings having one end threaded, and pins inserted in such bushings at one end thereof, the other end of the bushings being large enough to admit the pins of another platen.

4. The steam-heated platen for use in driers having transverse openings extending through its flat sides and internal bosses connecting the sides, and also having bushings in said openings adapted to prevent leakage of steam.

750,059. **BRICK-MAKING MACHINE.** WALTER R. OBERDAHL, East McKeesport, Pa. Filed Mar. 2, 1903. Serial No. 145,738. (No model.)



Claim.—1. In combination with a pug-mill, and a conveyer and clay-separating means, a wheel provided with a series of molds loosely mounted on a shaft, means for rotating the said shaft continuously, means for rotating the said wheel intermittently, and means actuated by the shaft for ejecting the clay from the molds.

2. In a brick-making machine, a wheel provided on its periphery with a plurality of molds, a shaft on which the said wheel is loosely mounted, presser-plates arranged in the said molds, rods connected to said plates and extending inwardly within the wheel, eccentrics secured to said shaft, straps for said eccentrics, provided with depending arms, a plate secured to the said depending arms of the straps and adapted to successively engage the said rods, in combination with means for operating the said shaft and wheel.

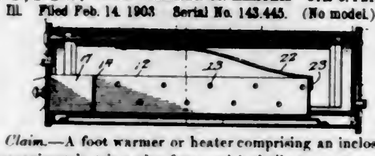
3. The combination with a rotatably-mounted shaft, of a wheel loosely mounted on the said shaft, and molds mounted on said wheel, plates arranged in said molds, spring-retracted rods secured to said plates, and extending inwardly within the wheel, means mounted on the shaft for successive engagement with the said rods, means for rotating the said wheel, and means for rotating the said shaft independently of the said wheel.

4. In combination with a pug-mill, and a rotatably-mounted mold-carrying wheel, a ratchet-wheel movable with the said first-named wheel, a shaft carrying a star-wheel, a cutter-bar operated by said shaft, a lever carrying a dog for engagement with the said ratchet-wheel, and means for operating said lever, said means including an arm engaged by the said star-wheel.

5. In combination with a shaft, of the mold-carrying wheel loosely mounted on said shaft, a ratchet-wheel carried by said first-named wheel, a lever carrying a dog loosely mounted on said shaft adapted to engage the said ratchet-wheel, means for rotating the said shaft, and means independent of the said first-named means for oscillating said lever.

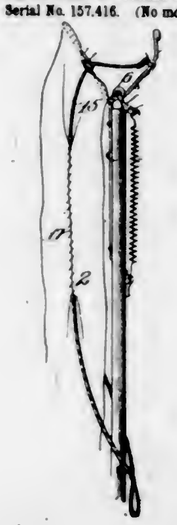
6. In combination with a shaft and a wheel provided on its periphery with a plurality of molds, said wheel being loosely mounted on said shaft, means for moving said wheel intermittently, means for moving said shaft a complete revolution for each movement of said wheel, ejecting means for said molds and means actuated from said shaft for actuating said ejecting means.

750,060. **FOOT WARMER OR HEATER.** OTIS O. PETTY, Olney, Ill. Filed Feb. 14, 1903. Serial No. 143,445. (No model.)



Claim.—A foot warmer or heater comprising an inclosing body of approximately triangular form and including an outer sheathing and opposite heads with damper and draft openings therein, a drawer removably mounted in the body through one of the heads and adapted to contain a heating medium, a guard-wall secured to the inner side of the sheathing and forming with the latter a chamber over and at opposite sides of the drawer, and a resilient device having one end depending to engage the end of the drawer when the latter is inserted in the body.

750,061. **FRUIT-PICKER.** PEARSE PINCH, Chicago, Ill. Filed May 16, 1903. Serial No. 157,416. (No model.)

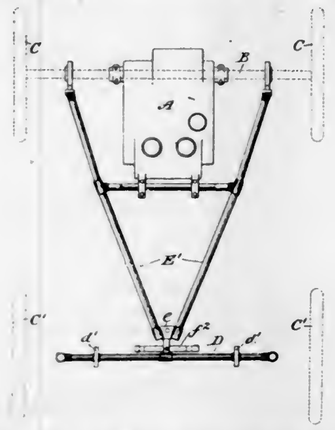


Claim.—1. In a fruit-picker, the combination of a staff, a receptacle, a substantially rectangular frame surrounding the mouth of the receptacle and connected with said staff, the sides of the frame having outwardly-extending eyes and the corners thereof having eyes disposed at an angle to said frame, a picking member provided with a cross-bar arranged to extend through the eyes at the corner of the frame and its extremities bent upon themselves, actuating-cords connected with the picking member depending therefrom and extending through the side eyes of said frame, an arm connected with the picking member, and a coiled spring connected with said arm and staff respectively for maintaining the picking member normally in its ineffective position.

2. In a fruit-picker, the combination of a staff, a flexible fruit-receptacle connected with the staff, stitched along its opposite sides to present loops, a picking member coöperative with the receptacle, and pull-cords connected with the opposite sides of the picking member, depending therefrom and passing through said loops.

3. In a fruit-picker, the combination of a staff, a fruit-receptacle, a frame surrounding the mouth of the fruit-receptacle and connected with said staff, an open-work swinging picking member having lateral projections to engage the said frame on the working movement of the said picking member, a substantially V-shaped arm connected with the picking member and terminating at its outer end in a lateral offset, a coiled spring connected with the offset and also with the staff, and cords united to the picking member, depending therefrom and joined together at a point below said picking member, the cords serving when pulled, to move the picking member toward the mouth of said receptacle.

750,062. **MOTOR-VEHICLE.** HARRY M. POPE, Hartford, Conn., assignor, by mesne assignments, to Morton Trust Company, trustee, a Corporation of New York. Filed Oct. 23, 1899. Serial No. 734,420. (No model.)



Claim.—1. In a vehicle having two axles held from relative displacement in a horizontal plane, one of said axles having independent pivoted steering-wheels, a running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles, and a spring connecting the apex of said reach member to the other axle to permit vertical oscillation of that axle.

2. In a vehicle having two axles held from relative displacement in a horizontal plane, one of said axles having independent pivoted steering-wheels, a two-part running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles, a spring connecting the apex of said reach member to the other axle to permit vertical oscillation of that axle, and a motor supported by the triangular frame adjacent to the driving-axle.

3. In a motor-vehicle, a running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles and its apex connected to the center of the other of said axles, independent steering-wheels borne upon the last-named axle, and a spring connection intermediate the apex of the triangular frame and center of said last-named axle, whereby relative vertical movement of the axle is permitted.

750,063. DISPLAY-RACK. MICHAEL J. REDDING, Baltimore, Md. Filed Sept. 17, 1903. Serial No. 173,515. (No model.)



Claim.—1. In a bottle-displaying device, the combination with the supporting-rod, of the rests each comprising a boss having an aperture through which the said rod projects, two fingers projecting from the said boss, and a disk adjustable upon the said fingers; and means to hold the said rest in the adjusted position.

2. In a bottle-displaying device, the combination with the supporting-rod, of the rests each comprising a boss having an aperture through which the rod projects, two fingers projecting laterally from said boss, and a disk adjustable upon the said fingers; a thumb-screw to lock the rest in its adjusted position on the said rod; and a clamp arranged on the said rod above each rest.

3. In a bottle-displaying device, the combination with the supporting-rod having a hook at its upper end, of the rests each comprising a boss having an aperture through which the said rod projects, two fingers projecting laterally from the said boss, and a disk having a plurality of eyes on its lower surface through which the said fingers project; means to hold the said rest in its adjusted position on the supporting-rod; and a clamp slidable on the said rod above each of the said rests.

750,064. BUCKLE-FASTENER FOR BELTS. HARRY M. ROSENBLATT, Philadelphia, Pa. Filed July 22, 1903. Serial No. 166,587. (No model.)



Claim.—1. A belt provided near one end thereof with a plurality of hooks and having orifices through said belt equal in number to said hooks adapted to engage said hooks, the distance between the extremities of the orifices being less than the distance between the extremities of the bills of the hooks, there being a portion of said belt between said hooks and orifices sufficient to engage the buckle.

2. A belt provided near one end thereof with a plurality of hooks and orifices through said belt equal in number to said hooks adapted to engage said hooks, there being a portion of said belt between said hooks and orifices sufficient to engage said buckle, the distance between the extremities of the orifices being substantially equal to the distance between the shanks of the hooks.

3. A belt provided near one end thereof with two hooks, the bills of which point in opposite directions and having orifices through said belt corresponding to said hooks, there being a portion of said belt between said hooks and orifices sufficient to engage the buckle.

4. A belt provided near one end thereof with two hooks, the bills of which point in opposite directions and having orifices through said belt corresponding to said hooks, there being a portion of said belt between said hooks and orifices sufficient to engage the buckle, the distance between the extremities of the orifices being less than the distance between the extremities of the bills of the hooks.

5. A belt provided near one end thereof with two hooks, the bills of which point in opposite directions and having orifices through said belt corresponding to said hooks, there being a portion of said belt between said hooks and orifices sufficient to engage the buckle, the distance between the extremities of the orifices being substantially equal to the distance between the shanks of the hooks.

750,065. TENDER FOR TRACTION-ENGINES. PLEB H. SAMPSON, Kansas City, Mo., assignor of one-half to W. H. S. Brady, Kansas City, Mo. Filed Nov. 17, 1903. Serial No. 181,491. (No model.)



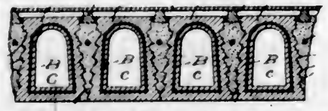
Claim.—1. In a tender for farm-engines of the character described, the combination of a pair of wheels, the tender mounted on the wheels, a pair of vertical hubs, outward-extending wheel-supporting spindles and inwardly-extending arms integral to said hubs, hub-supporting braces, a horizontal walking-beam mounted on the rear of said braces, arms pivotally carried by the walking-beam and the inwardly-extending arms, and means communicating between said arms and the front axle of the engine-carriage, to cause adjusting movements of the rear wheels, substantially as described.

2. In a tender for farm-engines of the character described, a pair of wheels, a tender mounted on the wheels, a pair of vertical hubs, brackets secured to the tender and resting on said hubs, inwardly-extending arms integral thereto, outwardly-extending spindles, engaging the hub of the wheel, forwardly-extending reaches engaging the front axle of the engine-carriage, the rear ends thereof engaging the inwardly-extending arms of the vertical hubs, rearwardly-extending rack beams or links pivotally secured to the inwardly-extending vertical hub-arms, a horizontal walking-beam, the rear ends of the rack-bar engaging said beam, substantially as described.

3. In a tender for farm-engines of the character described, a pair of wheels, a tender mounted on the wheels, a pair of vertical hubs, inwardly-extending arms integral to said hubs, a pair of reaches, the rear ends pivotally connected to the inwardly-extending arms, the front end connected to the front axle of the engine-carriage, a pair of extending arms 29 and 30, a cross-beam, elongated loops integral thereto, a cross-beam engaging said loops, extended brackets 34 and 35 engaging said cross-beam and secured to the platform located between the boiler and the tender, substantially as described.

4. In a tender of the character described, a pair of wheels, the tender mounted on the wheels, a rectangular supporting-frame between the wheels, a pair of vertical hubs supported by said rectangular frame, inwardly-extending arms integral to said hubs, forwardly-extending reaches pivotally secured to said arms at their rear ends, rearwardly-extending rack-arms, the front ends secured to the inwardly-extending hub-arms, their rear ends pivotally secured to a vertical walking-beam, a stationary frame supported by the rectangular frame, a yoke carried by the rear end of said frame, a depending loop 40 secured to the platform, a longitudinal reach supported in said loop at one end and in said yoke at the opposite end, substantially as described.

750,066. FIREPROOF FLOOR CONSTRUCTION. JOSEPH SCHALL, Evergreen Park, Ill. Filed Feb. 16, 1903. Serial No. 143,644. (No model.)



Claim.—1. In a fireproof floor construction, the combination with the floor-beams, of parallel rows of tiles supported at their end thereon, said tiles being narrower on their upper than at their lower edges to form V-shaped interstices between said rows, the side walls of said tiles being stepped to laterally contract said interstices at intervals between their upper and lower ends, chains suspended at their ends from the upper edges of said beams and depending freely into said interstices, and concrete fillings in said interstices introduced in a plastic condition and embedding said chains, said fillings when set forming intermediate interlocking tiles between said rows of tiles.

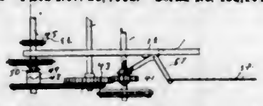
2. In a fireproof floor construction, the combination with the floor-beams, of parallel rows of tiles supported at their end thereon, said tiles being narrower on their upper than at their lower edges to form V-shaped interstices between said rows, the side walls of said tiles being stepped to laterally contract said interstices at intervals between their upper and lower ends, hooks secured to the upper edges of said beams, chains suspended at their ends from said hooks depending freely into said interstices, and concrete fillings in said interstices introduced in a plastic condition and embedding said chains, said fillings when set forming intermediate interlocking tiles between said rows of tiles.

3. In a fireproof floor construction, the combination with a plurality of rows of tiles contracted from their lower to their upper ends and having perforated metallic reinforcing devices intermolded therein, of plastic cement fillings in the interstices between said tiles, said fillings when set being integral with said tiles.

4. In a fireproof floor construction, the combination with the floor-beams, of a plurality of rows of hollow tiles supported thereon, said tiles being narrower at their upper than at their lower ends, sleeves in the tiles of each row spanning the joints, projections on the outer inclined side faces of said tiles, and cement fillings in the interstices between said tiles, said fillings being introduced in a plastic state and, when set, becoming integral with said tiles.

5. In a fireproof floor construction, the combination with the floor-beams, of a plurality of rows of hollow tiles supported thereon, said tiles being narrower at their upper than at their lower ends, reinforcing devices intermolded in said tiles, sleeves in the openings in the tiles of each row spanning the joints, projections on the outer inclined side faces of said tiles, and cement fillings in the interstices between said tiles, said fillings being introduced in a plastic state and, when set, becoming integral with said tiles.

750,067. MANURE-SPREADER. CHARLES W. SMITH, Buffalo Center, Iowa. Filed Nov. 28, 1902. Serial No. 133,164. (No model.)



Claim.—1. In a manure-spreader, the combination with a wagon, of a spreading-roller, means for driving the spreading-roller from one of the wagon-wheels, a roller mounted near the rear end of the wagon-box, a flexible apron having one end wound upon the roller and its body portion resting upon the bottom of the wagon-box, an upright at the forward end of the apron, means for actuating the apron-roller from one of the wagon-wheels, and a yielding clutch device interposed between the wagon-wheel and the winding-roller of the apron.

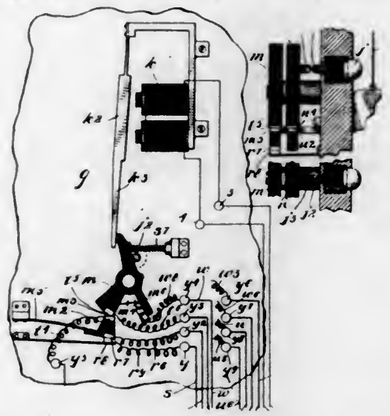
2. In a manure-spreader, the combination with a wagon, of a detachable frame secured to the rear of the wagon-box, a spreading-roller mounted therein, a sprocket-wheel on one end of the spreading-roller, a sprocket-rim secured to the adjacent wagon-wheel, an arm secured to the wagon-box, a sprocket-wheel carried thereby, a sprocket-chain passed around said wheels and normally resting on top of the sprocket-rim, and means for moving the arm bearing said sprocket-wheel, to position where the chain will be out of engagement with the sprocket-rim.

3. In a manure-spreader, the combination with a wagon, of a frame detachably connected with the rear end of the wagon-box, a spreading-roller mounted in said frame, means for driving said roller from one of the wagon-wheels, a roller-shaft rotatably mounted beneath the said frame, a flexible apron resting upon the bottom of the wagon-box and attached to said roller, a curved upright at the forward end of the apron, means driven by one of the wagon-wheels for rotating the said roller, a lever for throwing said roller-driving means in and out of gear, and a yielding clutch device interposed between the driving wagon-wheel and the said apron-winding roller.

4. In a manure-spreader, the combination with a wagon, of an auxiliary frame detachably connected with the rear of the wagon-box, a spreading-roller mounted in said frame, a frame having rollers on its top surface resting upon the bottom of the wagon-box, a flexible apron resting on top of said rollers, an upright at the front end of the apron, a winding-roller mounted in the frame, attached to the rear of the wagon-box and having the rear end of the said apron attached thereto, means driven by one of the wagon-wheels for winding up the apron on the roller, a cable attached to the front end of the apron and manually-operated means for winding up the cable to draw the apron forwardly.

5. In a manure-spreader, the combination with a wagon, of an auxiliary frame detachably connected with the rear of the wagon-box, a spreading-roller mounted therein, means for driving the spreading-roller from one of the wagon-wheels, brackets projecting downwardly from the frame, an apron-rolling shaft mounted in said brackets, a shaft mounted in the rear of the frame, a number of small sprocket-wheels on said shaft between the side of the frame, a flexible apron composed of sprocket-chains and cross-pieces, said chains attached at one end to the winding-roller, passed over the said small sprocket-wheels and resting upon the bottom of the wagon-box, a curved front at the forward end of the apron, and means driven from one of the wagon-wheels for driving the shaft to which the said small sprocket-wheels are attached, and means for gearing said shaft to the apron-roller shaft, and a yielding clutch interposed between the apron-roller shaft and the mechanism for rotating it, for the purposes stated.

750,068. ELECTRICALLY-OPERATED RAILWAY-GATE. MAX SPINRAD and HANS BUECHTING, New York, N. Y. Filed June 16, 1903. Serial No. 161,728. (No model.)

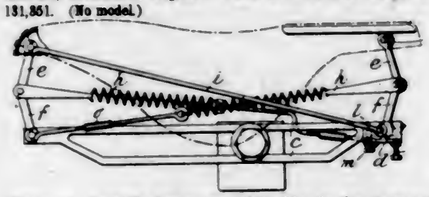


Claim.—1. In an apparatus for operating railway-gates, plates formed of insulating material and pivotally connected with the gate-supports, contact-points connected with said plates and with a source of electric supply, spring-arms attached to said supports and provided with contact-points which are adapted to engage with the said points upon the said plates and which are also connected with the source of electric supply, magnets secured to said supports and connected with the source of electric supply, armatures connected with the frame of the said magnets and having projecting fingers which are adapted to engage with the said plates, said armatures being operated by the aforesaid magnets and adapted to throw into and out

of contact the various points to break and close the various circuits, and devices connected with one of the rails of the track and adapted to be operated by the wheels of a car for moving the said plates to throw into and out of contact the various contact-points and to reverse the current which operates the motor, substantially as shown and described.

2. In an apparatus for operating railway-gates, plates formed of insulating material and pivotally connected with the gate-supports, contact-points connected with said plates and with a source of electric supply, spring-arms attached to said supports and provided with contact-points which are adapted to engage with the said points upon the said plates and which are also connected with the source of electric supply, magnets secured to said supports and connected with the source of electric supply, armatures connected with the frame of the said magnets and having projecting fingers which are adapted to engage with the said plates, said armatures being operated by the aforesaid magnets and adapted to throw into and out of contact the various points to break and close the various circuits, and devices connected with one of the rails of the track and adapted to be operated by the wheels of a car for moving the said plates to throw into and out of contact the various contact-points and to reverse the current which operates the motor, said supports being also provided with press-buttons adapted to engage with the said gate to operate the said plates to break the circuit, substantially as shown and described.

750,069. **SADDLE FOR CYCLES OR THE LIKE.** THOMAS G. STEVENS, Greenhithe, England. Filed Nov. 19, 1903. Serial No. 181,851. (No model.)

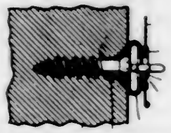


Claim.—1. A saddle for cycles and the like, having a supporting-frame, a seat portion, toggle-links connected to the supporting-frame and to the seat portion, and springs connected to the central pivots of the toggle-links and to the frame, substantially as described.

2. A saddle for cycles and the like, having a supporting-frame, a seat portion, toggle-links arranged in pairs and connected at the rear of the seat to the cantle and to the supporting-frame, and at the front to the peak and frame, spring-links connecting the central pivots of each pair of toggle-links with the frame, and stay-rods connecting the rear of the frame to the peak or front of the seat, substantially as described.

3. A saddle for cycles and the like, having a supporting-frame, a seat portion, toggle-links arranged in pairs and connected at the rear of the seat to the cantle and to the supporting-frame, and at the front to the peak and frame, means for limiting the motion of the toggle-links when loaded or unloaded and determining their extreme positions, spring-links connecting the central pivots of each pair of toggle-links with the frame, and stay-rods connecting the rear of the frame to the peak or front of the seat, substantially as described.

750,070. **FASTENER FOR AWNINGS.** JAMES W. STEVENSON, Philadelphia, Pa. Filed Sept. 8, 1903. Serial No. 172,223. (No model.)



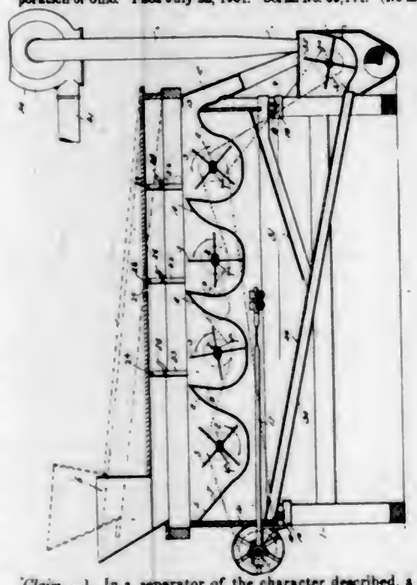
Claim.—1. As a new article of manufacture, a fastener consisting of a holding device adapted to be permanently secured to a support, and fastening members consisting of a hollow orificed cap and a button adapted to extend through said orifice into the hollow interior of the cap, one of said fastening members being secured to the holding device, substantially as described.

2. As a new article of manufacture, a fastener for detachably securing the ring of an awning to an awning-support, consisting of a holding device adapted to be permanently secured to the support, and fastening members consisting of a button having a shank and a hollow cap having an orifice, one of said fastening members being secured to the holding device, said button being adapted to extend into the hollow interior of the cap and said shank being adapted to extend through said orifice and ring, substantially as described.

3. As a new article of manufacture, a fastener consisting of a holding device adapted to be permanently secured to a support, and fastening members consisting of a slotted hollow cap and a button and shank, said button consisting of a cross-piece longer than the slot in the cap but adapted to be extended through said slot into the hollow interior of the cap, one of said members being secured to the holding device and the other of said members being adapted to turn upon the other member after they are so engaged, substantially as described.

4. As a new article of manufacture, a fastener for detachably securing the ring of an awning to an awning-support, consisting of a holding device adapted to be permanently secured to the support, an orificed cap secured to the holding device, and a button, thumb-piece and connecting-shank forming a clamp, said button being adapted to be inserted through said ring and orifice into the hollow interior of the cap and said shank being adapted to pass into said ring and orifice, substantially as described.

750,071. **SEPARATOR.** DOW L. ADELSPERGER, Springfield, Ohio, assignor to the Foos Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed July 22, 1901. Serial No. 69,171. (No model.)



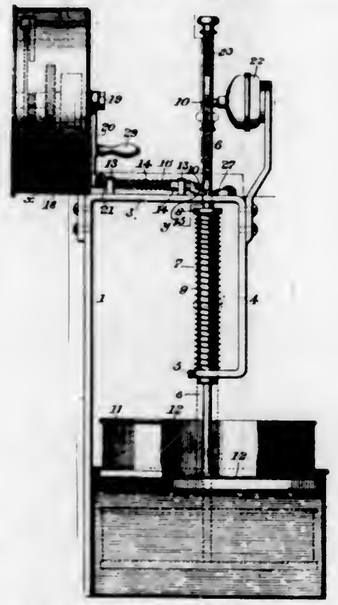
Claim.—1. In a separator of the character described, a series of revolving beaters, in combination with a corresponding series of concave screens, each having closed ends and lateral admission and discharge of the material operated on, said series being arranged to successively operate on said material, and means for imparting to said screens a vibratory motion transversely to the axes of revolution of the beaters and in the direction of the feed of the material, substantially as described.

2. In a separator of the character described, the combination, with a series of revolving beaters, of a corresponding series of concave screens having their receiving edges inclined toward the cooperating beater and their discharge edges inclined away from the same, said series being arranged to successively receive the material operated on, and means for imparting a vibratory motion to said screens transversely to the axes of revolution of the beaters and in the direction of the feed of the material, substantially as described.

3. In a separator of the character described, the combination, with a series of revolving beaters, of a corresponding series of concave screens, said series being arranged to successively receive the material operated on, the first and last of the beaters revolving in the same direction, and the intermediate beaters revolving in the opposite direction, and means for imparting to said screens a vibratory motion transversely to the axes of revolution of the beaters and in the direction of the feed of the material, substantially as described.

4. In a separator of the character described, the combination, with a plurality of revolving beaters arranged in a series, of a corresponding plurality of concave screens, an inclined screen located below said concave screens, means for imparting a vibratory motion to said screens, an auxiliary beater provided with a concave adapted to receive the surface discharge of the inclined screen, a casing, a conduit connecting the last concave screen with said casing, an uptake-pipe, and means for creating an ascending current of air in said uptake-pipe, substantially as described.

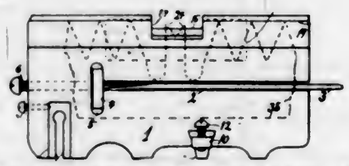
750,072. **EGG-BOILER.** JOHN ANDERSON, Philadelphia, Pa. Filed Sept. 5, 1903. Serial No. 172,073. (No model.)



Claim.—1. An egg-boiler comprising a hot-water receptacle, a frame connected therewith, a plunger-rod vertically movable in said frame, an egg-receptacle secured to said rod, a spring exterior of said water-receptacle and adapted to raise said plunger-rod, a latch on said frame engaging with said rod, a dial and a spring-actuated hand movable on said dial and adapted to withdraw said latch whereby said raising-spring is permitted to lift said egg-receptacle from the water.

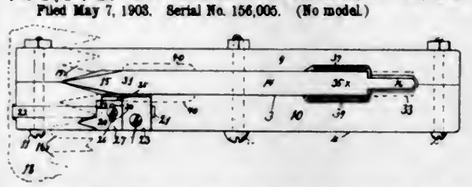
2. An egg-boiler comprising a hot-water receptacle, a frame connected therewith, a plunger-rod vertically movable in said frame, an egg-receptacle secured to said rod, a spring exterior of said water-receptacle and adapted to raise said plunger-rod, a latch on said frame engaging with said rod, a dial, a spring-actuated hand movable on said dial and adapted to withdraw said latch whereby said raising-spring is permitted to lift said egg-receptacle from the water and a handle on said hand for rotating same to wind the spring by which it is actuated.

750,073. **COMBINED SAW SET AND JOINTER.** JONAS ANDERSON, St. Paul, Minn. Filed May 7, 1903. Serial No. 156,004. (No model.)



Claim.—The combination of the flat handle-piece 1, having in one edge a transverse notch and in the notch an adjustable shelf 15 for guiding the direction of a file and regulating the depth the file is to cut, the guard 20 and the face 19 along said edge of the handle-piece, a gage-bar 10 secured across the opposite edge of the handle-piece; said face 19 standing at such an incline to the side of the handle-piece that a saw-blade placed flat upon the face 19 will clear the end of the bar 10, and said shelf 15 being inclined with its face at right angle with the face 19, substantially as and for the purpose set forth.

750,074. **SAW-GUMMER.** JONAS ANDERSON, St. Paul, Minn. Filed May 7, 1903. Serial No. 156,005. (No model.)



Claim.—1. A saw-gummer comprising an elongated main die with a longitudinal slot in it and a vertically-tilting die-bar fulcrumed in the middle of the slot, each end of the bar forming a cutting-die coacting with the adjacent edges of the slotted die.

2. A saw-gummer comprising an elongated main die with a longitudinal slot in it and a vertically-tilting die-bar fulcrumed in the middle of the slot, each end of the bar forming a cutting-die coacting with the adjacent edges of the slotted die; said main die being separable on a longitudinal vertical plane, for the purpose set forth.

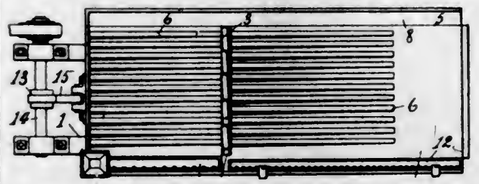
3. A saw-gummer comprising an elongated main die with a longitudinal slot in it and a vertically-tilting die-bar fulcrumed in the middle of the slot, each end of the bar forming a cutting-die coacting with the adjacent edges of the slotted die; said die-bar being substantially straight and extending diagonally through the main die so as to cut with one end from each side of the main die; the latter being reversible upside down.

4. In a saw-gummer, the combination with a slotted main die and a bar-shaped second die pivoted in the slot and operating with either end as a gumming-die coacting with the adjacent edges of the main die, of a longitudinally and transversely adjustable guide for the saw-teeth, such guide being secured upon the main die near the terminus of the slot.

5. In a saw-gummer, the combination with a slotted main die and a bar-shaped second die pivoted in the slot and operating with either end as a gumming-die coacting with the adjacent edges of the main die, of a longitudinally and transversely adjustable guide for the saw-teeth, such guide being secured upon the main die near the terminus of the slot and being transferable to either end of the main die.

6. A saw-gummer comprising an elongated die with a longitudinal slot in it, and a vertically-tilting die-bar fulcrumed in the middle of the slot, each end of the die forming a cutting-die of a different shape and coacting with the adjacent edges of the slotted die, to cut saw-teeth of different forms.

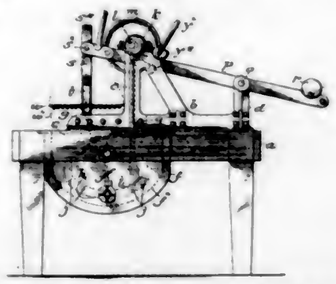
750,075. **CONCENTRATOR.** WILLIAM G. ANDERSON, San Francisco, Cal. Filed Aug. 10, 1903. Serial No. 168,899. (No model.)



Claim.—A concentrating-table sloping to one side and provided with means for imparting thereto a longitudinal reciprocating movement and consisting of upper and lower portions located longitudinally or endwise of each other each portion sloping longitudinally downward from the feed end of the table, said portions having a transverse drop therebetween, each portion having longitudinal riffles, the riffles of the upper portion extending down to said drop, a trough at said drop for conveying the pulp to the upper side of the table, said trough having holes for distributing the pulp upon the lower portion of the table, and means for removably and selectively closing said holes, and a series of spouts inclined downward toward the upper side of the table, and discharging from the upper riffles into said trough, in combination with means for discharging the

pulp upon the upper portion and water upon the lower portion, substantially as described.

750,076. MACHINE FOR COATING CONFECTIONS. JOHN P. ANNEN, Greenbay, Wis. Filed Oct. 12, 1903. Serial No. 176,722. (No model.)



Claim.—1. The combination with a trough and machine-supporting members thereon, united to said trough, of adjustably-weighted and vertically-reciprocable arms pivoted transversely to vertical oscillatable arms, a screen in the free ends of said arms and spring-actuated mechanism to frictionally hold said screen in horizontal position, substantially as specified.

2. The combination with a trough and machine-supporting mechanism thereon, united to said trough, of adjustably-weighted and vertically-reciprocable and cam-vibratable arms transversely set to vertical oscillatable screen-holding arms, a screen, and spring-actuated mechanism to frictionally hold and release said revoluble screen, substantially as specified.

3. The combination with a trough provided with agitating mechanism and machine-supporting members thereon, of adjustable weighted arms and vertically-reciprocable and cam-vibratable arms, a screen in the free ends of said arms, and spring-actuated mechanism to frictionally hold said screen in horizontal position, substantially as specified.

4. The combination with a double-bottomed trough provided with agitating mechanism, and machine-supporting members thereon, of adjustably-weighted arms and vertically-reciprocable and cam-vibratable arms, a screen in the free ends of said arms, and spring-actuated friction mechanism to hold and release said screen, rotatably, on the axis of said spring-actuated mechanism, substantially as specified.

750,077. TIN CAN. HENRY E. BANDLOW, Chicago, Ill. Filed Oct. 13, 1903. Serial No. 176,906. (No model.)



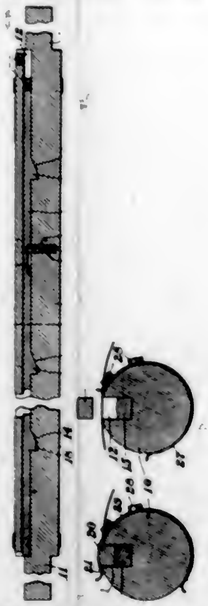
Claim.—1. A can-body of the type shown and described, having its edge flanged outwardly, the flange being folded back upon itself, the return portion extending beyond the plane of the wall of the body and forming a cover-seat.

2. In a can of the type shown and described, in combination, a body portion having one of its ends flanged outwardly, the flange being folded back upon itself and forming a cover-seat, the return portion projecting beyond the plane of the body, and a cover seated upon and soldered to the instanding flange.

3. A can-body of the type shown and described, angular in cross-section and having one of its edges flanged outwardly, the flange being folded back upon itself and forming a cover-seat, the return portion being prolonged beyond the plane of the body along the sides thereof.

4. A can-body of the type shown and described, having its edge flanged outwardly and then returned upon itself, the return portion lying in contact with the outstanding portion and projecting inwardly beyond the line of the can-body wall.

750,078. ARBOR. FRANK BARTER, Walpole, Mass., assignor to Lewis F. Pales, Walpole, Mass. Filed Apr. 10, 1903. Serial No. 152,016. (No model.)



Claim.—1. The combination with a support upon which material is to be wound, of a member carried by the support within the coil of material and adapted to be removed therefrom while the coil is upon the support, and a second member movable toward the position occupied by the first member.

2. The combination with a support upon which material is to be wound, of a member carried by the support within the coil of material and adapted to be removed therefrom while the coil is upon the support, a second member movable toward the position occupied by the first member, and means for limiting the movement of this second member.

3. The combination with a support upon which material is to be wound, of a member carried by the support within the coil of material projecting beyond the support into contact with the coil and adapted to be removed therefrom while the coil is upon the support, and a second member movable toward the position occupied by the first member with its outer face flush with that of the support.

4. The combination with a support provided with a recess, of a contact member and a filling member located within the recess.

5. The combination with a support provided with a recess, of a removable contact member and a filling member located within the recess, said filling member being adapted to be moved toward the place of the contact member.

6. The combination with a support provided with a recess, of a removable contact member and a filling member located within the recess, said filling member being adapted to be moved into the place of the contact member, and means movable with the filling member for limiting the movement thereof.

7. The combination with a support provided with a recess and having a cam-face, of a member provided with a coacting cam-face located at the inner portion of the recess, and a second member located at the outer portion of the recess.

8. The combination with a support provided with a recess and having a plurality of cam-faces, of an inner member provided with coacting cam-faces projecting for different distances therefrom, and a tapered member located at the outer portion of the recess and contacting with the inner member.

9. In an arbor, the combination with a body provided with a longitudinal slot, of inner and outer bars extending along the slot.

10. In an arbor, the combination with a body provided with a longitudinal slot, of an inner bar seated at the bottom of the slot, and outer bar having its outer face projecting beyond the surface of the body.

11. In an arbor, the combination with a body provided with a longitudinal slot, of an inner bar seated at the bottom of the slot and closely fitting the same laterally, and another bar fitting loosely in the slot.

12. In an arbor, the combination with a cylindrical body provided with a longitudinal slot, of an inner bar seated at the bottom of the slot and having its outer face curved to conform with the surface of the cylinder, and an outer bar having its outer face curved and projecting beyond the surface of the cylinder.

13. In an arbor, the combination with a tapered body provided with a longitudinal slot having cam-recesses opening therefrom, of a bar of uniform thickness extending along the slot and having cam projections of different length coacting with the recesses.

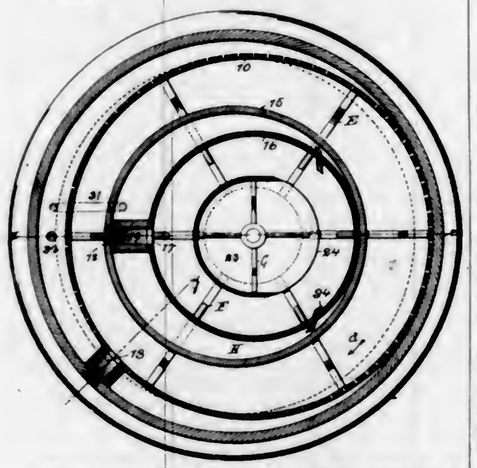
14. In an arbor, the combination with a body provided with a longitudinal slot having cam-recesses opening therefrom, of a bar extending along the slot and having cam projections coacting with the recesses, and a removable bar extending along the outer portion of the slot.

15. In an arbor, the combination with a tapered body provided with a longitudinal slot having cam-recesses opening therefrom, of a bar extending along the slot and having cam projections of different lengths coacting with the recesses, and a removable tapered bar extending along the outer portion of the slot.

16. In an arbor, the combination with a body provided with a slot and a recess, of a bar movable in the slot, a pin within the recess, and means for forcing the pin into engagement with the bar.

17. In an arbor, the combination with a body provided with a slot and a recess opening from the inner side thereof, of a bar movable outwardly in the slot, a pin movable in the recess, and a spring forcing the pin against the bar.

750,079. CENTRIFUGAL MACHINE. JOHN J. BERRIGAN, Orange, N. J., assignor to Francis J. Arend, New York, N. Y., and John Bernstrom, Stockholm, Sweden. Filed Apr. 30, 1903. Serial No. 155,005. (No model.)



Claim.—1. In a centrifugal machine, a rotary receptacle for combined solid and liquid materials to be separated and two eccentrically-disposed separating vessels within the same, the said vessels being placed one within the other—whereby the combined materials are subjected to two successive separations in said vessels.

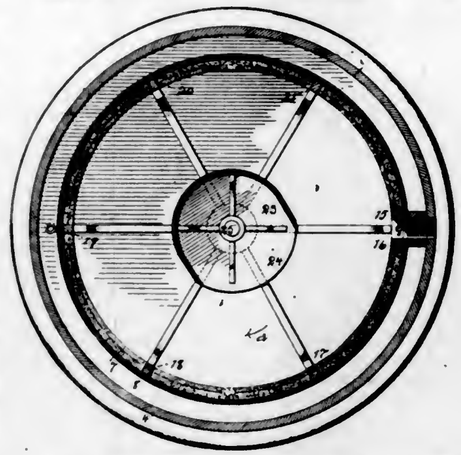
2. In a centrifugal machine, a rotary receptacle for combined solid and liquid materials to be separated and two eccentrically-disposed separating vessels within the same, the said vessels being placed one within the other and concentric—whereby the combined materials are subjected to two successive separations in said vessels.

3. In a centrifugal machine, a rotary receptacle for the combined solid and liquid materials to be separated and two eccentrically-disposed separating vessels within the same, the said vessels being placed one within the other and the outer vessel having a multiperforated wall—whereby the combined materials are subjected to two successive separations in said vessels.

4. In an apparatus for the separation of solids and liquids, a rotary receptacle and within the same an eccentrically-disposed strainer constructed to receive the materials to be separated; the said receptacle having an outlet at a distance from said strainer and between said strainer and the circumferential wall of said receptacle.

5. In an apparatus for the separation of solids and liquids, a rotary receptacle, an annular perforated partition eccentrically disposed within the same, a conduit between openings respectively in said partition and said receptacle, means for delivering the material to be separated into the space inclosed by said partition and means for conveying the solid material deposited on said partition to said conduit; the said receptacle having an outlet between said partition and the inner circumferential surface of said receptacle.

750,080. CENTRIFUGAL MACHINE. JOHN J. BERRIGAN, East Orange, N. J. Filed June 20, 1903. Serial No. 162,384. (No model.)



Claim.—1. In an apparatus for the separation of solids and liquids, a rotary receptacle, a cylindrical chamber therein having a perforated wall and means disposed within said chamber for preventing circulation of liquid around the inner periphery of said wall.

2. In an apparatus for the separation of solids and liquids, a rotary receptacle, a cylindrical chamber therein having a perforated wall and bars on the inner surface of said wall disposed parallel to the axis of rotation of said receptacle.

3. In an apparatus for the separation of solids and liquids, a rotary receptacle, a chamber therein concentric therewith and having a perforated wall and bars on the inner surface of said wall disposed parallel to the axis of rotation of said receptacle; the said receptacle having an opening in its bottom communicating with the space surrounding said chamber.

4. In an apparatus for the separation of solids and liquids a rotary receptacle, a cylindrical perforated partition within the same, a conduit between openings respectively in said partition and said receptacle, means for dividing the inner periphery of said perforated partition into sections adapted to become filled with solid material and means for conveying surplus solid material deposited on the surface of the material in said sections to said conduit.

5. In an apparatus for the separation of solids and liquids a rotary receptacle, a cylindrical perforated partition within the same, a conduit between openings respectively in said partition and said receptacle, means for dividing the inner periphery of said perforated partition into sections adapted to become filled with solid material, and means for conveying surplus solid material deposited on the surface of the material in said sections to said conduit; the said receptacle having an outlet for the escape of liquid located outside of said partition.

750,081. CLOTHES-LINE-SECURING DEVICE. JOHN BLASIUS, Bayonne, N. J. Filed Sept. 26, 1903. Serial No. 174,762. (No model.)



Claim.—A device of the class described, comprising a casing which is oblong in form and circular in cross-section and larger at the middle than at both ends, said casing being divided longitudinally into separate similar parts, and being provided at one end with a circular opening and at the other end with projecting side arms having segmental members forming a circular opening, said segmental members being provided at the top and bottom with vertically-arranged jaws, and an arm pivoted between the top jaws and provided with downwardly-directed teeth adapted to operate in the circular opening formed by said segmental members, the separate parts of said casing being also provided at the top with interlocking jaws, and the bottom of the casing being provided adjacent to the end opposite said arms with an opening, and an antifriction-roller mounted at the end of said opening adjacent to said arms, substantially as shown and described.

750,082. CHECK-VALVE AND COÖPERATING PARTS. WILLIAM BOEKEL and JULIUS BOEKEL, Philadelphia, Pa. Filed Aug. 5, 1903. Serial No. 168,326. (No model.)



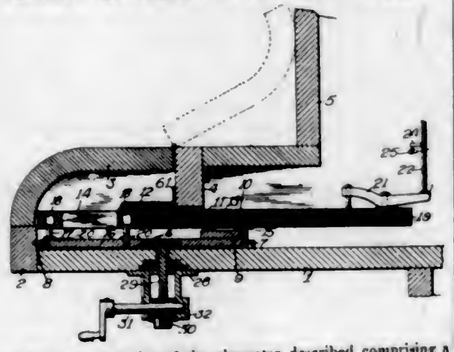
Claim.—1. A check-valve consisting of a valve-shell having an annular external groove and longitudinal slots connected therewith and a disk-form valve proper, resting on an inner shoulder of said shell, in combination with a part which is recessed to fit tightly the exterior of the said shell, forming therewith an annular passage and longitudinal passages and having also an inlet passage or bore through the valve-seat formed by said recessed part and an outlet from the said annular passage substantially as set forth.

2. A check-valve consisting of a disk-form valve proper and a valve-shell having an annular external groove, an externally-screw-threaded part and longitudinal slots connecting with the said groove and being also provided with an internal shoulder for the said valve proper, in combination with a part recessed to fit the body of said valve-shell, screw-threaded to engage the screw-threads thereof and provided with a seat for said valve proper, an inlet through said seat and an outlet substantially as set forth.

3. A valve-shell provided with an internal shoulder, slots or passages extending from the inlet end of said shell beyond the said shoulder and an external groove connected with the said slots, in combination with a valve supported by said shoulder and a part recessed to fit said shell and form a seat for said valve, the said part being also provided with an inlet through the said valve-seat and an outlet from the space formed by the said groove substantially as set forth.

4. A valve-shell provided with an internal shoulder and inlet and outlet passages in combination with an inclosing part coöperating to form said passages and provided with a valve-seat and an inlet through the same and a valve proper consisting of two disks, one rigid and resting on the same, the other flexible and arranged for immediate contact with the seat substantially as set forth.

750,083. TRANSPOSING-KEYBOARD. JOHN H. BRADY, Baltimore, Md. Filed Jan. 22, 1903. Serial No. 140,151. (No model.)

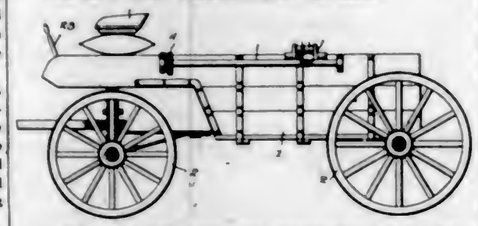


Claim.—1. A device of the character described comprising a supporting-bed, a shifting keyboard, means for raising the actions above said board upon movement of the same, means for indicating the position of the board, a slidable plate having guide-receiving grooves formed therein, guides engaging in said grooves to support the plate above the supporting-bed, a rack member carried by said plate, a pinion engaging the rack and means carried below the bed of the piano for actuating said pinion to move the plate, substantially as described.

2. In combination with the bed of a piano a transposing-keyboard, a supporting-bed, a slidable plate having guide-receiving recesses formed in the ends thereof, keys pivotally secured to said plate, guides mounted in the frame of the piano engaging in the recesses of the plate to slidably support the same above the supporting-bed of the piano, a rack mounted on the plate, rotatable means engaging said rack adapted to give the same a longitudinal movement, indicating means for said plate, and means adapted to engage the actions to elevate the same above the plate on movement thereof, substantially as described.

3. In combination with the bed of a piano a transposing-keyboard, a supporting-bed, a slidable plate having keys thereon and provided with guide-receiving recesses, guides for said plate, said guides being extended above the supporting-bed of the piano-frame, a rack member carried by the plate, means for longitudinally moving said rack member, means mounted below the supporting-bed in engagement with said last-named means whereby the plate may be shifted, and means engaging the actions to elevate the same upon movement of the plate, substantially as described.

750,084. DUMPING-WAGON. ELZA D. BRANCH, Chardon, Ohio. Filed Oct. 21, 1903. Serial No. 177,935. (No model.)



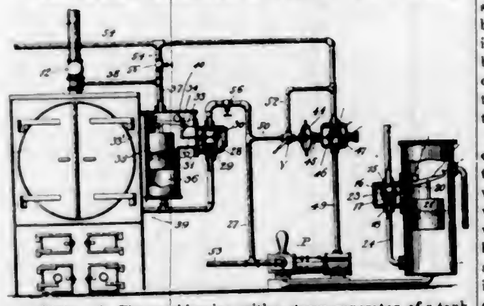
Claim.—1. In a dumping-wagon, the combination with a wagon-body having a bottom section hinged to one side thereof; of a shaft journaled upon one side of a wagon-body, a flexible strip secured to the shaft and bottom section and adapted to be wound upon the shaft, an operating-shaft, means for transmitting rotary motion therefrom to the shaft on the side of the wagon, a ratchet-wheel upon the operating-shaft, a locking-lever normally engaging the same, and an operating-lever adapted to engage and rotate the ratchet-wheel.

2. In a dumping-wagon the combination with a wagon-body having bottom sections hinged to the sides thereof, and shafts journaled upon the sides of the wagon-body; of flexible strips secured at opposite ends to the shafts and bottom sections, an operating-shaft, means for transmitting rotary motion therefrom to the side shafts, a ratchet-wheel upon the operating-shaft, a hooked lever normally engaging the ratchet-wheel, a pawl adapted to engage the ratchet-wheel, a lever for operating the pawl, and a foot-operated lever for disengaging the hooked lever from the ratchet-wheel.

3. In a dumping-wagon, the combination with a wagon-body having bottom sections hinged to the sides thereof; of an operating-shaft journaled upon the wagon-body, a ratchet-wheel secured thereto, a lever fulcrumed upon the shaft, a pawl pivoted to the lever and adapted to engage the ratchet-wheel, an operating-lever connected to the first-mentioned lever, a hooked lever normally engaging the ratchet-wheel, a foot-operated lever fulcrumed upon the wagon-body and engaging the hooked lever, shafts journaled upon the sides of the wagon-body, means for transmitting rotary motion from the operating-shaft to the side shafts, rollers journaled upon the sides of the wagon-body, and a flexible strip secured at opposite ends to the side shafts and bottom sections and bearing on the rollers.

4. In a dumping-wagon, the combination with a wagon-body having bottom sections hinged to the sides thereof; of an operating-shaft journaled upon the wagon-body, sprockets upon said shaft, a ratchet-wheel secured to the shaft, a lever fulcrumed upon the shaft, a pawl pivoted to the lever and adapted to engage the ratchet-wheel, an operating-lever fulcrumed upon the wagon-body and connected to the first-mentioned lever, a hooked lever normally engaging the ratchet-wheel and adapted to hold the pawl out of engagement with said ratchet-wheel, a foot-operated lever fulcrumed to the wagon-body and engaging the hooked lever, shafts journaled upon the sides of the wagon-body, sprockets thereon, chains mounted on the sprockets on the operating and side shafts, rollers journaled upon the wagon-body, and flexible strips secured at their ends to the side shafts and bottom sections and mounted on the rollers.

750,085. FEEDER FOR STEAM-BOILERS. JAMES J. BURKE, Hartford, Conn. Filed Apr. 29, 1903. Serial No. 154,764. (No model.)



Claim.—1. The combination, with a steam-generator, of a tank located adjacent to said generator; pipes connecting said tank with the steam and water spaces of said generator; a float in the tank; a lever to which the float is pivoted; a primary feed-water-supply receptacle; a valve-chamber carried by the tank; valve mechanism in said chamber, and controlled by the lever to which the float is pivoted; a water-supply pipe leading to the valve-chamber; a pump for forcing water from the primary receptacle to said valve-chamber; and means for automatically starting and stopping the pump.

2. The combination, with a steam-generator, of a tank located adjacent to said generator; pipes leading from said tank to the water and steam spaces of the generator; a float in the tank; a pivoted lever to which said float is connected; a primary feed-water receptacle; a valve-chamber adjacent to the tank; valve mechanism in said valve-chamber, and connected to the pivoted lever; a supply-pipe to the valve-chamber; a pump for forcing water into said supply-pipe; means for connecting said pump with the primary feed-water receptacle; and means for automatically starting and stopping the pump.

3. The combination, with a steam-generator, of a tank connected with the steam and water spaces of said generator; a float in said tank; a valve-chamber; a chamber surrounding said valve-chamber; valve mechanism in the valve-chamber; means for connecting said valve mechanism with the float in the tank; a pipe for supplying water to the valve-chamber; a conduit connecting the valve-chamber with the steam-generator and with the tank; a pump for forcing water into the pipe leading to the valve-chamber; a controlling device for said pump; a second valve-chamber; and steam connections leading to said controlling device, and from said second valve-chamber to the pump.

4. In an apparatus of the class described, the combination, with a steam-generator, of a feed-water-supply tank located adjacent to said generator; means for connecting said tank with the steam and water spaces of the boiler; a float in said tank; a two-armed lever pivoted in the tank; means for accelerating the action of said lever; a valve-chamber in communication with the tank; valve mechanism in said valve-chamber, said mechanism being controlled by the float; a water-supply pipe; a pump in communication with said water-supply pipe; valve mechanism for controlling the supply of steam to said pump; a chamber in which said mechanism is located; and a steam-pipe communicating with said chamber.

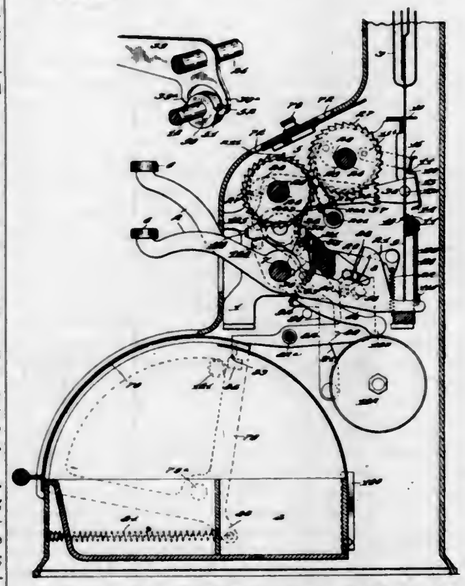
5. In apparatus of the class described, the combination, with a steam-generator, of a feed-water-supply tank; means for connecting said supply-tank with the steam and water spaces of the steam-generator; a float in said supply-tank; a pivoted lever to which the float is connected; means for accelerating the motion of said lever; valve mechanism connected to one arm of said lever; a valve-chamber; a supply-pipe leading to said valve-chamber; a steam-pipe leading to said valve-chamber; a pump; a steam-pipe leading to the pump; valve mechanism for controlling the supply of steam to the pump; a chamber in which said mechanism is located; a balanced diaphragm connected with the mechanism in said chamber; steam and water connections for controlling the movement of said diaphragm; and a steam-pipe leading from the steam-generator to the valve-chamber.

6. In apparatus of the class described, the combination, with a generator, of a feed-water-supply tank located adjacent to said generator; means for connecting said tank with the steam and water spaces of the generator; a float in said supply-tank; a pivoted lever to one arm of which the float is connected; a valve-rod connected to the other arm of said lever; a chamber; a pair of valves for opening and closing ports in said chamber, said valves being carried by the valve-rod; a water-supply pipe leading to the valve-chamber; a pump in communication with said water-supply pipe; a steam-pipe; a chamber into which said steam-pipe passes, said chamber having an extension; a valve-chamber within the chamber having an extension; a diaphragm in the extension of said chamber; a branch pipe leading from the water-supply tank to the diaphragm-chamber; valve mechanism in the valve-chamber and controlled by the diaphragm; and a steam-pipe leading from the valve-chamber to the pump.

7. The combination, with a steam-generator, of a tank connected with the steam and water spaces of said generator; a float in the tank; a valve-chamber communicating with the tank; valves in said valve-chamber; means for connecting said valves with the float; a water-supply pipe to the valve-chamber; a pump communicating with the water-supply pipe; a chamber surrounding the valve-chamber; a conduit leading from the surrounding chamber to the tank and to the steam-generator; a diaphragm-chamber; a pipe connecting the water-supply pipe to the valve-chamber with the diaphragm-chamber; a pump communicating with the water-supply pipe; a diaphragm in the diaphragm-chamber; valve mechanism controlled by the diaphragm; a pipe for supplying steam to the valve-chamber; and a pipe leading from the valve-chamber to the pump.

8. In apparatus of the class described, the combination, with a steam-generator, of means for automatically supplying water to said generator; a tank constituting a part of said means; a float in said tank; means for mannally actuating said float when required; a valve-chamber; and valve mechanism mounted in said valve-chamber and connected with the float.

750,086. CASH-REGISTER. THOMAS CARROLL, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 23, 1900. Serial No. 24,541. (No model.)



Claim.—1. In a cash-register, the combination with a series of counting elements of a series of keys, a series of pawls mounted respectively on said keys, a movable member common to said keys and a spring-pressed device mounted on the movable member and common to all of the pawls to hold them to engagement with the counting elements.

2. In a cash-register, the combination with a series of keys, of a series of adding-wheels, pawls movably mounted on said keys for

operating said adding-wheels, a member common to said keys, and a movable device on said member engaging said pawls to hold them all to their work in connection with the adding-wheels.

3. In a cash-register, the combination with a series of keys, of a series of adding-wheels, pawls mounted on said keys for operating said wheels, a member common to said keys, and a spring-pressed device mounted on said member and engaging all of said pawls to hold them to their work with spring-pressure.

4. In a cash-register, the combination with a series of keys, of a series of adding-wheels, a member common to said keys, operating-pawls for the adding-wheels mounted upon said keys, and movable spring means on the common member arranged to engage all of the operating devices and hold them to their work and prevent them from disengaging from the adding-wheels as they make their final movements.

5. In a cash-register, the combination with a series of keys, of a series of adding-wheels, pawls mounted on said keys for operating said wheels, a member common to said keys, and a spring-pressed plate mounted on said member and arranged to be moved against the tension of its springs by said pawls upon the operation of the keys and to finally arrest said pawls to prevent overthrow of the adding-wheels.

6. In a cash-register, the combination with a series of keys, of a series of adding-wheels provided with ratchet-wheels, pawls mounted on said keys and engaging said ratchet-wheels, a member common to said keys and a spring-pressed bar mounted on said member and engaging said pawls.

7. In a cash-register, the combination with a series of keys, of a cash-till, a movable cover for said till, a latch for said cover, a member common to said keys and adapted to have a lateral movement imparted to it, and a projection on said member so located as to be brought into position to operate the latch by the lateral movement of said member.

8. In a cash-register, the combination with a series of keys, of a cash-till, a latch for the till, and a movable member common to the keys and arranged to move in one vertical plane to operate the latch and in a second vertical plane to freely pass the latch without engaging it.

9. In a cash-register, the combination with a series of keys, of a series of adding-wheels, pawls mounted on said keys for operating said wheels, a member common to said keys, and a spring-pressed plate mounted on said member so as to have only a limited movement and engaging said pawls to hold them to their work and also to form a stop therefor.

10. In a cash-register, the combination with registering devices, of means for turning the same to zero including a gear, a pivoted pawl for locking said gear and a slide for obscuring the registering devices arranged to lock and unlock said pawl.

11. In a cash-register, the combination with a series of keys, of an oscillatory member common thereto and arranged to be swung laterally, and a movable device for holding said movable member in its lateral adjusted position during its oscillation.

12. In a cash-register the combination with the indicators having stems each formed with a shoulder, of an indicator-supporting frame having an upper flange and a lower flange, and means for swinging the lower flange over the shoulders of the unoperated indicator-stems to lock them when the upper flange is swung in position to permit the shoulders of the operated indicator-stems to pass it.

13. In a cash-register the combination with the indicators having stems each formed with a shoulder, of a cooperating supporting-frame arranged to retain the operated indicator in indicating position, and a starting yoke or frame arranged to bear upon the stems of the operated indicators, thereby tending to force the latter out of indicating positions.

14. In a cash-register the combination with the indicators having stems each formed with a shoulder, of a cooperating indicator-supporting frame, an arm carried by the frame, a pivoted lever which is jointed to said arm, and a shifting-cam for moving said lever to operate the indicator-supporting frame, substantially as described.

15. In a cash-register the combination with the indicator-stems each having a shoulder, of the indicator-supporting frame having an upper and a lower flange, and means to first move the lower flange outward to permit the passage of the shoulders of the operated indicator-stems, second, to interpose the lower flange into the path of the shoulders of the unoperated indicator-stems to lock the latter, and third, to move the upper flange under the shoulders of the operated indicator-stems so as to support the operated indicators in indicating position.

16. In a cash-register, the combination with a series of keys, of a cash-till, a movable cover for the same, a latch for said cover, means connected to the keys for operating said latch, means for preventing a second operation of the latch until the keys have returned to normal position and a variable spring device connected to said latter means.

17. In a cash-register, the combination with a cash-receptacle, of a cover for the same, a pivoted latch for said cover, a pivoted lever arranged to engage said latch to hold it in inoperative position and variable spring devices connecting said lever to the movable parts of the machine.

18. In a cash-register, the combination with registering devices, of means for turning the same to zero, a removable key for operating the turn-to-zero devices, and a pivoted stop-pawl for said key which must be operated before the key is inserted.

19. In a cash-register, the combination with a series of keys, of a cash-receptacle, a latch for said receptacle, a member common to said keys, and means for moving the member laterally so as to move it into and out of operative relation with the latch.

20. In a cash-register, the combination with a series of keys, of a cash-receptacle, a latch for the same, means connected to the keys for operating said latch, and variable spring devices for preventing a second operation of the latch until the keys have returned to normal position.

21. In a cash-register the combination with an operating mechanism, of a cash-receptacle, a latch for said receptacle, and variable spring devices intermediate the operating mechanism and said latch for preventing a second operation of the latter until said mechanism has returned to its normal position.

22. In a cash-register, the combination with an operating mechanism, of a cash-receptacle, a latch for said receptacle, a spring for controlling said latch, a locking device for the latch, and a spring connecting said locking device to the operating mechanism.

23. In a cash-register, the combination with an operating mechanism including a movable member having a vertical and a lateral movement, of a cash-receptacle, and a latching device for said receptacle adapted to be operated by the movable member.

24. In a cash-register, the combination with an operating mechanism including a movable member having a vertical and a lateral movement, of a cash-receptacle, a latch for the receptacle, and a projection on said member so located as to be brought into position to operate the latch by the lateral movement of said member.

25. In a cash-register, the combination with an operating mechanism including a movable member arranged to operate in two vertical planes and to be moved laterally from one to the other, of a cash-receptacle, and a latch for said receptacle arranged to be operated by the movable member when moving in one of its vertical planes but not in the other.

26. In a cash-register, the combination with an operating mechanism, of a cash-receptacle, a lock for said receptacle connected to the operating mechanism and arranged to lock said mechanism when it is not locking the receptacle.

27. In a cash-register, the combination with an operating mechanism including a series of keys, and a member common to said keys, of a cash-receptacle, and a latch for said receptacle arranged to lock the receptacle or the registering mechanism.

28. In a cash-register, the combination with an operating mechanism, of a cash-receptacle, a latch for said receptacle arranged to lock the operating mechanism when it is not locking the receptacle, and means for permanently holding the latch on one of its adjusted positions.

29. In a cash-register, the combination with registering devices, of a key for returning the same to zero, formed with a stop projection, and a movable spring-actuated stop device arranged to be engaged by the key projection to arrest the key and to move out of the path of the key projection when the key is withdrawn.

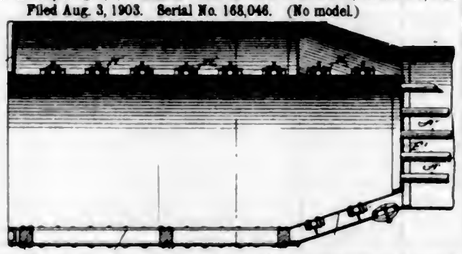
30. In a cash-register, the combination with a series of keys, of a movable member common to all of said keys, devices for shifting said member while it is being moved by said keys, an alarm, and means connected to the common member for sounding the alarm.

31. In a cash-register, the combination with a registering mechanism, of a slide for normally obscuring the same, an auxiliary registering device, and a spring-actuated member connected to the auxiliary device and arranged to be struck and operated by the slide.

32. In a cash-register, the combination with a registering mechanism including a movable member operable in two different vertical planes and movable laterally from one plane to the other, of a series of indicators, an indicator-support, and operating means intermediate the movable member and said support controlled by both the vertical and lateral movements of said member whereby different portions of said intermediate means are brought into operation by the lateral movement of said member.

33. In a cash-register, the combination with a series of keys, of a member common thereto and movable in two independent vertical planes and also laterally from one of said planes to the other, devices for giving said member a lateral movement because of its vertical movement, indicators, an indicator-support, and means intermediate the laterally-movable member and said support controlled by both the vertical and lateral movements of said member whereby different portions of said intermediate means are brought into operation by the lateral movement of said member.

750,087. STEAM-BOILER. FLOYD T. CHASE, Smithville, Tex.
Filed Aug. 3, 1903. Serial No. 168,046. (No model.)



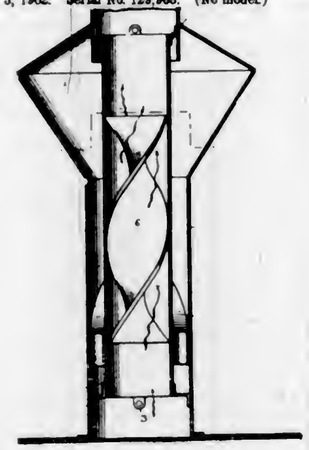
Claim.—1. The combination with a fire-box adapted to lie within the water-space in a boiler-shell, of larger rings encircling the fire-box without touching the same, and connections joining each ring to the fire-box walls at short intervals.

2. A smooth cylindrical fire-box encircled by larger parallel rings whose centers are approximately in the axis of the fire-box, struts holding the rings at the proper distance from the walls of the fire-box, and rivets binding both rings and fire-box wall to said struts, respectively.

3. The combination with a boiler-shell having a small cylindrical front section, a larger cylindrical rear section, and a tapering or conical connecting-section, of a fire-box lying within the last two sections slightly above the lower side thereof and having its body a smooth cylinder with its rear end secured to the boiler-head, rings larger than the fire-box encircling the same, thimbles holding the rings at the proper distance from the fire-box walls, and rivets passing through the rings, thimbles and fire-box walls and binding the whole together.

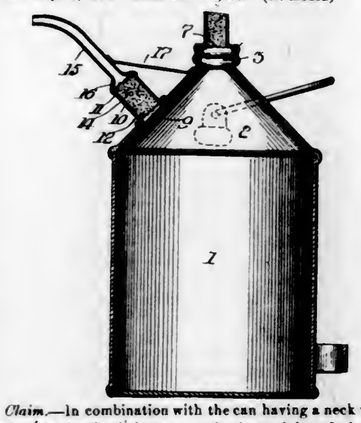
4. The combination with the fire-box having a cylindrical body, of a ring or frame fitting the exterior of said body, rigidly united thereto and extending approximately from end to end of the same, a boiler-shell inclosing the fire-box and fitting against the exterior of said frame and hermetically secured thereto throughout, ribs engaging the frame on one side, extending around the fire-box at some distance from its walls and engaging the opposite side of the frame, means for supporting the fire-box wall from many points of each ring, said shell and fire-box being cut away to form openings registering with the interior of said frame.

750,088. SPARK-ARRESTER. DWIGHT S. CHILD, Holden, Mo.
Filed Nov. 3, 1902. Serial No. 129,963. (No model.)



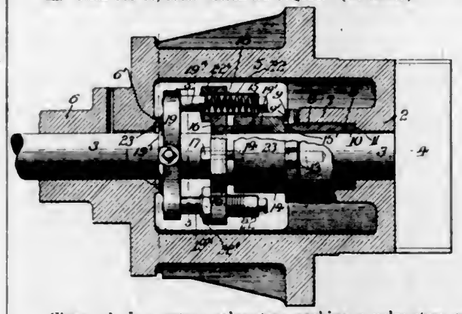
Claim.—The combination with a stack having an outlet-cylinder secured in the upper end thereof, of a flue disposed concentrically within the stack and of less diameter than the said outlet-cylinder, the upper end of the flue projecting into the cylinder and secured to the latter to provide an annular outlet between the cylinder and flue, a spiral baffle secured in the flue, and depressed substantially U-shaped obstructing-flanges interposed between diametrically opposite portions of the lower extremity of the flue and the body of the stack and forming closing partitions, the lower central portions of the flanges having openings therein communicating with depending tubes which are snugly held between the flue and the body of the stack to provide directing-outlets for the products of combustion falling back into the stack, the tubes depending from the flanges terminating above the lower end of the flue.

750,089. NON-EXPLOSIVE OIL-CAN. JESSE CHILDS, Hite, Pa.
Filed Sept. 3, 1903. Serial No. 171,735. (No model.)



Claim.—In combination with the can having a neck forming an outlet and an opening in its top constituting an inlet, of a body of sand packed so as to render said body porous, a foraminous closure at the upper and lower termination of said body for retaining the said body in its packed form, with cylinders having open ends within which said body is mounted, said cylinders being arranged in said neck and in said outlet, the lower of the said foraminous plates facing the interior of the can, the cylinder of the inlet being adapted to be secured to the can over the said inlet, the upper of the plates within said cylinder constituting the top of the cylinder.

750,090. VALVE-STEM PACKING. EDGAR P. COLEMAN, Chicago, Ill. Filed Oct. 10, 1903. Serial No. 176,528. (No model.)



Claim.—1. In a rotary valve-stem packing, a valve-stem and its bearing, in combination with a ball sleeve and ring making a joint in proximity to said bearing, a stuffing-box provided on said stem and making a joint with said sleeve, packing in said box, a gland for said box and means for forcing said gland and box inward toward said bearing, substantially as described.

2. In a rotary valve-stem packing, a valve-stem and its bearing, in combination with a stuffing-box, means for maintaining a tight joint between said stuffing-box and bearing, a gland for said stuffing-box, means connecting the gland and stuffing-box for motion together, a soft packing in said box, and means for driving said gland

against said packing and said box against said bearing, substantially as described.

3. In a rotary valve-stem packing, a valve-stem and the usual bearing and stuffing-box, in combination with a ball-ring in said stuffing-box, a ball-sleeve for engagement therewith, an outer revoluble stuffing-box bearing against said ball-sleeve, soft packing in said outer box, a gland for said outer box, a follower on said stem, and springs between said follower and said stem, substantially as described.

4. In a rotary valve-stem packing, a valve-stem and the usual bearing and stuffing-box, in combination with a ball-ring in said stuffing-box, a ball-sleeve for engagement therewith, an outer revoluble stuffing-box bearing against said ball-sleeve, soft packing in said outer box, a gland for said outer box, packing-tightening means between said outer box and gland, a follower for said stem, and springs between said follower and said gland, substantially as described.

5. In a rotary valve-stem packing, the valve-stem and its bearing, in combination with a rotary stuffing-box having a suitable joint with said bearing, a gland for said stuffing-box, soft packing provided in the box, means for driving the gland against said packing, adjustable thimbles provided on said gland, the springs therein, and a follower attached to the stem and against which said springs exert their force, substantially as described.

6. In a rotary valve-stem packing, a valve-stem and the bearing or stationary part of the engine, in combination with a stuffing-box containing packing material and thereby clamped upon said stem to rotate therewith, non-rotary metallic packing interposed between said box and said stationary part, and means for holding the parts together and against said stationary part, substantially as described.

7. In a rotary valve-stem packing, a valve-stem and its bearing, in combination with a follower on and revoluble with said stem, a stuffing-box having a gland, soft packing, means for forcing the gland into said stuffing-box, to clamp the same for rotation with said stem, and means in connection with said follower for forcing the stuffing-box against the stationary part or bearing of the engine, substantially as described.

8. In a rotary valve-stem packing, a valve-stem and its bearing, in combination with a cup-ring for vibration on said bearing, an oscillatory part bearing upon said cup-ring, a stuffing-box joined thereto, a gland revoluble with said box, soft packing in said box and clamping said box, a gland upon the stem, and a suitable follower part which holds the several parts together and against said bearing, whereby the transverse joints of the bearing are closed by parts free to vibrate and oscillate with the stem, and the longitudinal joint about the stem is closed by a packing device and packing that rotate therewith, substantially as described.

9. In a rotary valve-stem packing, a valve-stem and its bearing, in combination with a cup-ring for vibration on said bearing, a stuffing-box, a ball interposed between the box and said cup-ring, a gland attached to said stuffing-box, soft packing in said box, clamping the same upon said stem, and a follower revoluble with the stem and holding the parts thereon together and against said bearing, substantially as described.

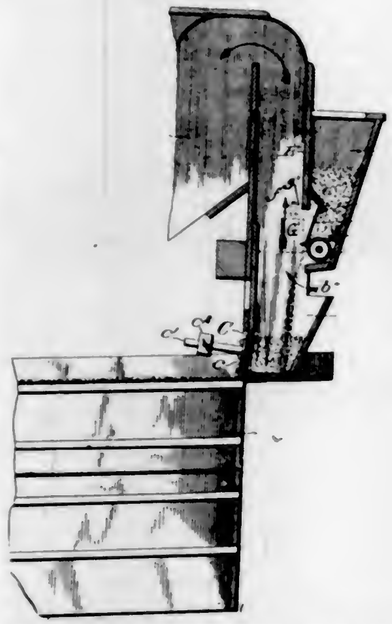
750,091. THRESHING-MACHINE TOOTH. WILLARD J. COOK, Dexter, Iowa. Filed Apr. 7, 1902. Serial No. 101,674. (No model.)



Claim.—A threshing-machine tooth, comprising a shank designed for attachment to a cylinder or concave, a head thereon, a series of smooth convex ribs on each side of the head extended from the outer end of the head inwardly approximately parallel with the front edge of the tooth, spaced apart from each other, and each succeeding rib on each side from the front to the rear projecting farther from the fore-and-aft center of the tooth, said tooth having flat faces on its sides adjacent to the front edge of the tooth, approximating in width that of one of the ribs.

750,092. FEEDER FOR GRAIN-SEPARATORS. JOHN B. CORNWALL, Moline, Ill., assignor to the Barnard and Leas Manufacturing Company, Moline, Ill. Filed Sept. 15, 1903. Serial No. 173,272. (No model.)

Claim.—1. In combination with the screen-shoe, a feed-hopper having its lower end closed by said shoe, a regulating-valve at the inner side and lower end of the hopper, and a roller-feeder in the hopper above the said valve, substantially as and for the purpose described.



2. The combination of a vibrating screen, a hopper having its lower end closed by said screen; a regulating-valve at the inner side and lower end of the hopper; a roller-feeder in the hopper above the valve, and an inlet for an air separating-current in the front of the hopper below the roller-feeder, substantially as described.

3. In a grain-separator the combination of a shaking-shoe, a feed-hopper having a shake-feed at its lower end, a roller-feed above the shake-feed, and a separating air-current inlet whereby the grain is subjected to the action of an air-blast between the two feeds for the purpose and substantially as described.

4. In a grain-separator, the combination with the shaking-shoe; a feed-hopper above the same having its lower end closed by the upper part of said shoe; a feed-regulating valve on the lower end and inner side of the hopper; an inlet for an air separating-current in the front side of the hopper above the shoe; a feed-roller in the hopper above said air-inlet; a swinging valve coacting with said roller; and a partition in the hopper above said roller separating the upper part of the hopper into a grain-chamber, and an air-passage, all substantially as and for the purpose described.

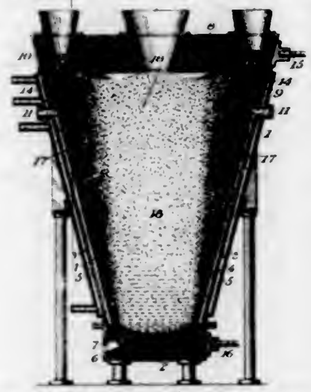
750,093. ELECTRIC-RESISTANCE FURNACE. ALFRED H. COWLES, Cleveland, Ohio. Original application filed Nov. 20, 1902, Serial No. 132,134. Divided and this application filed Apr. 21, 1903. Serial No. 153,702. (No model.)

Claim.—1. An electric-resistance furnace, comprising a resistance-conductor in position to heat the charge, and means for passing through said conductor an electric current the density of which increases through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, as set forth.

2. An electric-resistance furnace, comprising a resistance-conductor in position to heat the charge, means for passing through said conductor an electric current the density of which increases to a maximum through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

3. An electric-resistance furnace, comprising a resistance-conductor in position to heat the charge, and means for passing through said conductor an electric current the density of which increases along the path of the current through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, as set forth

4. An electric-resistance furnace, comprising a resistance-conductor in position to heat the charge, means for passing through said conductor an electric current the density of which increases to a maximum along the path of the current through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.



5. An electric-resistance furnace, comprising a resistance-conductor of varying cross-section, in position to heat the charge, and means for passing through said conductor an electric current the density of which increases along the path of the current in the conductor and substantially inversely as the cross-section of the conductor, and thereby heating it ununiformly, as set forth.

6. An electric-resistance furnace, comprising a resistance-conductor of varying cross-section, in position to heat the charge, means for passing through said conductor an electric current the density of which increases to a maximum along the path of the current in the conductor and substantially inversely as the cross-section of the conductor, and thereby heating it ununiformly, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

7. An electric-resistance furnace for the production of carbids, comprising a resistance-conductor in proximity to the charge of carbid-forming materials, and means for passing through said conductor an electric current the density of which increases through a portion of said conductor in proximity to the materials to a point where the heat generated by the resistance of the conductor will cause the materials to react to form carbid, as set forth.

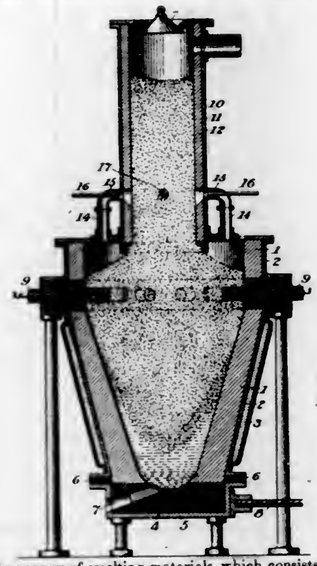
8. An electric-resistance furnace for the production of carbids, comprising a resistance-conductor in proximity to the charge of carbid-forming materials, means for passing through said conductor an electric current the density of which increases through a portion of said conductor in proximity to the materials to a point where the heat generated by the resistance of the conductor will cause the materials to react to form carbid and the carbid to be brought into a molten condition, and means for withdrawing the molten carbid by gravity, as set forth.

9. An electric-resistance furnace, comprising a resistance-conductor of loose, broken or granular material, in position to heat the charge, and means for passing through said conductor an electric current the density of which increases through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, as set forth.

10. An electric-resistance furnace, comprising a resistance-conductor of loose, broken or granular material, in position to heat the charge, means for passing through said conductor an electric current the density of which increases to a maximum through a portion of said conductor in proximity to the charge, and thereby heating it ununiformly, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

750,094. PROCESS OF SMELTING MATERIALS AND PRODUCING CARBID. ALFRED H. COWLES, Cleveland, Ohio. Filed Oct. 20, 1903. Serial No. 177,762. (No model.)

Claim.—1. The process of smelting materials, which consists in preheating a charge by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, and increasing the heat supplied by said resistance-conductor along the path of the electric current to a point where the products become molten and may be tapped out, as set forth.



2. The process of smelting materials, which consists in preheating a charge by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, and increasing the heat supplied by said resistance-conductor along the path of the electric current to a point where the products become molten and may be tapped out, as set forth.

3. The process of producing calcium carbid, which consists in preheating a charge of lime and carbon by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, and increasing the heat supplied by said resistance-conductor along the path of the electric current, as set forth.

4. The process of producing calcium carbid, which consists in preheating a charge of lime and carbon by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, increasing the heat supplied by said resistance-conductor along the path of the electric current to a point where the carbid becomes molten, and tapping out the molten carbid, as set forth.

5. The process of producing calcium carbid, which consists in preheating a charge of lime and carbon by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, increasing the heat supplied by said resistance-conductor along the path of the electric current, and burning the gases produced by the reaction to preheat the charge, as set forth.

6. The process of producing calcium carbid, which consists in preheating a charge of lime and carbon by passing hot gases through it whereby its electrical conductivity is increased, electrically heating the preheated charge to the required temperature by an electric current passing through a resistance-conductor, increasing the heat supplied by said resistance-conductor along the path of the electric current to a point where the carbid becomes molten, tapping out the molten carbid, and burning the gases produced by the reaction to preheat the charge, as set forth.

750,095. PROCESS OF ELECTRICALLY HEATING MATERIALS. ALFRED H. COWLES, Cleveland, Ohio. Filed Nov. 5, 1902. Serial No. 130,191. (No model.)

Claim.—1. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the cur-

rent density along the path of the current, through a portion of the conductor in proximity to said material, as set forth.



2. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, as set forth.

3. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor effects reduction, as set forth.

4. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor effects reduction, as set forth.

5. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid, as set forth.

6. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid, as set forth.

7. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, as set forth.

8. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, as set forth.

9. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor, passing an electric current through said conductor, increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh material as required, as set forth.

10. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, increasing the current density along the path of the current, through a portion of the conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh material as required, as set forth.

11. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density in a portion of said conductor, in proximity to said material, thereby heating it ununiformly, as set forth.

12. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density in a portion of said conductor, in proximity to said material, thereby heating it ununiformly, as set forth.

13. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor effects reduction, as set forth.

14. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor effects reduction, as set forth.

15. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor, passing an electric current through said conductor, and increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid, as set forth.

16. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, and increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid, as set forth.

17. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor, passing an electric current through said conductor, increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh materials as required, as set forth,

18. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of loose, broken or granular material, passing an electric current through said conductor, increasing the current density in a portion of said conductor in proximity to said material, to a point where the heat generated by the resistance of the conductor causes the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh material as required, as set forth.

19. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor of varying cross-section and resistance, and passing an electric current through said conductor, the current density increasing along the path of the current through a portion of the conductor in proximity to said material, thereby heating the material non-uniformly, as set forth.

20. The process of heating materials, which consists in placing the material in proximity to a resistance-conductor of varying cross-section and resistance and of loose, broken or granular material, and passing an electric current through said conductor and thereby heating the material non-uniformly, as set forth.

21. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor of varying cross-section and resistance, and passing through said conductor an electric current of sufficient volume to effect reduction, as set forth.

22. The process of reducing a compound, which consists in placing a mixture of the compound and a reducing agent in proximity to a resistance-conductor of varying cross-section and resistance and of loose, broken or granular material, and passing through said conductor an electric current of sufficient volume to effect reduction, as set forth.

23. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of varying cross-section and resistance, and passing through said conductor an electric current of sufficient volume to cause the materials to react to form carbid, as set forth.

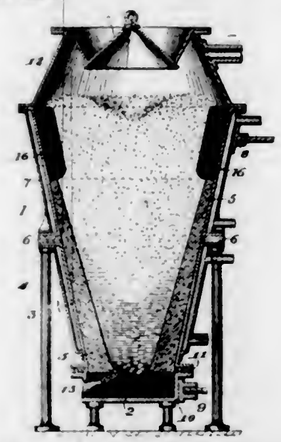
24. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of varying cross-section and resistance, passing through said conductor an electric current of sufficient volume to cause the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh materials as required, as set forth.

25. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of varying cross-section and resistance and of loose, broken or granular material, and passing through said conductor an electric current of sufficient volume to cause the materials to react to form carbid, as set forth.

26. The process of producing carbids, which consists in placing carbid-forming materials in proximity to a resistance-conductor of varying cross-section and resistance and of loose, broken or granular material, passing through said conductor an electric current of sufficient volume to cause the materials to react to form carbid and the carbid to be brought into a molten condition, and tapping off said molten carbid and supplying fresh materials as required, as set forth.

750,096. PROCESS OF EFFECTING CHEMICAL CHANGES.

ALFRED H. COWLES, Cleveland, Ohio. Filed Nov. 5, 1902. Serial No. 130,192. (No model.)



Claim.—1. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, and increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

2. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, and increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

3. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

4. The process of producing calcium carbid, which consists in placing the terminals of a source of electric current in contact with different parts of a mixture containing a calcium compound and carbon, passing an electric current between said terminals, and increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

5. The process of producing calcium carbid, which consists in placing the terminals of a source of electric current in contact with different parts of a mixture containing a calcium compound and carbon, passing an electric current between said terminals, and increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten condition, as set forth.

6. The process of producing calcium carbid, which consists in placing the terminals of a source of electric current in contact with different parts of a mixture containing a calcium compound and carbon, passing an electric current between said terminals, increasing the current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

7. The process of producing carbid, which consists in interposing a body of carbid-forming materials as a resistance-conductor in an electric circuit, passing through said body a current of sufficient volume to cause the materials to react to form carbid and the carbid to be brought into a molten condition, removing the molten carbid and supplying fresh materials as required, and moving the charge substantially along the path of current-flow, as set forth.

8. The process of producing carbids, which consists in interposing a body of carbid-forming materials as a resistance-conductor in an electric circuit, and increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

9. The process of producing carbids, which consists in interposing a body of carbid-forming materials as a resistance-conductor in an electric circuit, and increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, as set forth.

10. The process of producing carbids, which consists in interposing a body of carbid-forming materials as a resistance-conductor in an electric circuit, increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

11. The process of producing calcium carbid, which consists in interposing a mixture containing a calcium compound and carbon as a resistance-conductor in an electric current, and increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

12. The process of producing calcium carbid, which consists in interposing a mixture containing a calcium compound and carbon as a resistance-conductor in an electric circuit, and increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, as set forth.

13. The process of producing calcium carbid, which consists in interposing a mixture containing a calcium compound and carbon as a resistance-conductor in an electric circuit, increasing the current density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and

tapping off said molten carbid and supplying fresh material as required, as set forth.

14. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, and increasing the energy density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

15. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, increasing the energy density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

16. The process of producing carbids, which consists in interposing a body of carbid-forming materials as a resistance-conductor in an electric circuit, and increasing the energy density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

17. The process of producing calcium carbid, which consists in interposing a mixture containing a calcium compound and carbon as a resistance-conductor in an electric current, increasing the energy density in a portion of said body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

18. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, and causing the lines of current-flow from one terminal or set of terminals to converge to the other terminal and thereby increasing the energy and current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid, as set forth.

19. The process of producing carbids, which consists in placing the terminals of a source of electric current in contact with different parts of a body of carbid-forming materials, passing an electric current between said terminals, causing the lines of current-flow from one terminal or set of terminals to converge to the other terminal and thereby increasing the energy and current density along the path of the current in the body to a point where the heat generated by the resistance of the body causes the materials to react to form carbid and the carbid to be brought into a molten state, and tapping off said molten carbid and supplying fresh material as required, as set forth.

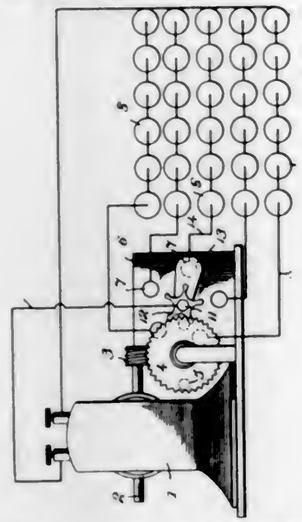
750,097. ATTACHMENT FOR BOOTS. JOSEPH T. DAILEY, St. Louis, Mo. Filed Aug. 5, 1902. Renewed Oct. 12, 1903. Serial No. 176,796. (No model.)



Claim.—1. An attachment for boots or leggings, consisting of a number of sections provided with cutting edges applied to the front and top of the boot, and means consisting of curved slots in the overlapping ends of the sections, and bolts passing through the slots for connecting the sections together so that the instep of the boot may bend without obstruction when worn, substantially as specified.

2. An attachment for boots and leggings, consisting of a number of metallic sections provided with cutting edges and having lateral projections, means for connecting the projections to the boot or legging, means consisting of curved slots in the overlapping ends of the sections, and bolts passing through the slots for connecting the different sections together, whereby the said sections will be moved when the boot or legging is bent in walking, substantially as specified.

750,098. MOTOR. BERTRAM J. DELSEIT, Philadelphia, Pa. Filed Oct. 31, 1903. Serial No. 179,369. (No model.)



Claim.—1. The combination with a motor, of independent series of batteries electrically connected to one brush thereof, and means operated by the motor for electrically connecting the series to the other brush of the motor successively.

2. The combination with a motor, of independent series of batteries electrically connected to one brush thereof, contact-plates electrically connected to the series of batteries, and means operated by the motor for successively electrically connecting said plates to the other brush thereof

3. The combination with a motor, of independent series of batteries electrically connected with one brush thereof, contacts electrically connected to the series of batteries, a disk adapted to be rotated by the motor, and means operated by the disk for establishing an electrical connection between the contacts successively and the other brush of the motor.

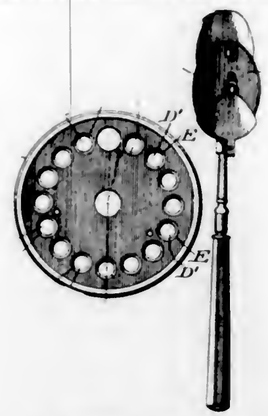
4. The combination with a motor, a rotary disk, and means for imparting rotation to the disk from the motor, of a rotary contact operated by the disk, contact-plates in the path thereof and adapted to be successively contacted thereby, independent series of batteries electrically connected to their respective contact-plates and to one brush of the motor, and an electrical connection between the rotary contact and the other brush.

5. The combination with a motor having a revoluble worm, a toothed disk engaged by the worm, and a lug upon the disk, of a revoluble stem electrically connected to one brush of the motor, a wheel secured thereto and adapted to be contacted by the lug, a contact extending from the stem, contact-plates in the path thereof and adapted to be successively contacted thereby, and independent series of batteries electrically connected to their respective contact-plates and to the other brush of the motor.

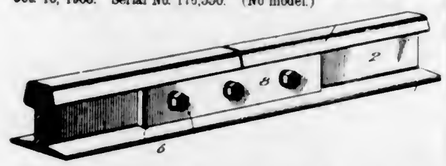
750,099. OPHTHALMOSCOPE. HENRY L. DE ZENG, Philadelphia, Pa., and PHILIP S. REID, Hammonton, N. J. Filed Oct. 6, 1903. Serial No. 175,918. (No model.)

Claim.—1. In an ophthalmoscope, a main disk, a retaining-disk and a series of lenses, said disks having a series of openings in which said lenses appear and means connecting said disks as one, the openings in one disk having shoulders on which said lenses are seated and said retaining-disk having its openings of less diameters than those of the lenses.

2. In an ophthalmoscope, a pair of disks, a series of lenses, said disks having a series of openings in which said lenses appear, and shoulders upon which said lenses are rested and clamped.



750,100. RAIL-JOINT. FRANK DODSON, Allegheny, Pa. Filed Oct. 10, 1903. Serial No. 176,550. (No model.)



Claim.—1. In a rail-joint the combination with rails having recesses in the ends thereof and recesses in the base-flanges of the rails; of fish-plates upon the base-flanges and in the recesses, a projection upon one of the fish-plates seated within the end recesses, and means for binding the plates upon the rails.

2. In a rail-joint the combination with rails having registering recesses in their ends and recesses in the base-flanges of the rails; of fish-plates upon opposite sides of the rails, a projection upon one of the plates snugly fitted within the end recesses, said plates being arranged in the flange-recesses, and means for securing the plates to the rails.

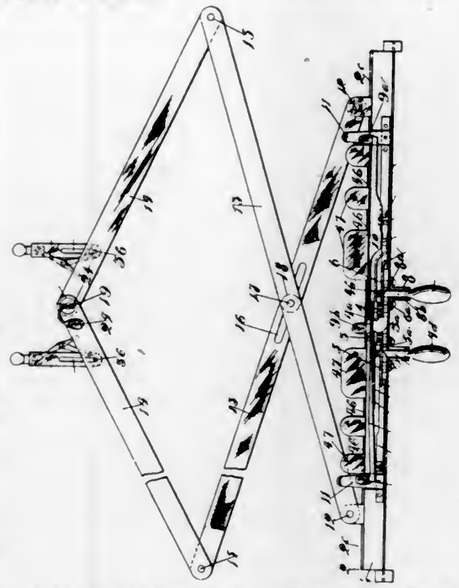
3. In a rail-joint the combination with rails having registering recesses in their ends, and recesses in the base-flanges of the rails; of fish-plates upon the base-flanges and in their recesses, a projection on one of the fish-plates snugly seated within the end recesses and bolts extending through the plates and rails for securing them together.

750,101. SHEET-MUSIC TURNER. EDWIN DOUDEN, Brooklyn, N. Y. Filed Sept. 25, 1901. Serial No. 76,454. (No model.)

Claim.—1. In a music-sheet turner, a casing, vertically-arranged shafts mounted centrally thereof and each provided with a pinion, segmental spring-operated gears pivoted laterally of said shafts and operating in connection with said pinions, angle-arms pivotally supported at the front of said casing and connected with said gears, a spring throwing-arm connected with each of said shafts, and turning-arms mounted on one of said shafts and adapted to be operated upon by said throwing-arms, said music-turning arms being provided with clamps, substantially as shown and described.

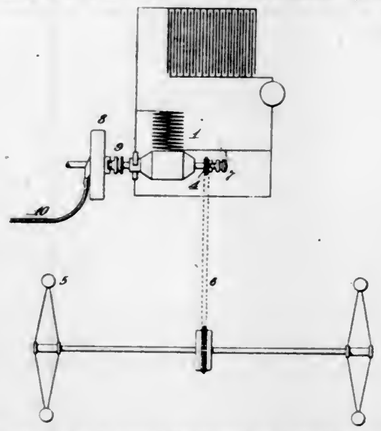
2. In a music-sheet turner, a casing, vertically-arranged shafts mounted centrally thereof and each provided with a pinion, segmental spring-operated gears pivoted laterally of said shafts and operating in connection with said pinions, angle-arms pivotally supported at the front of said casing and connected with said gears, a throwing-arm connected with each of said shafts, and turning-arms mounted on one of said shafts and adapted to be operated upon by said throwing-arms, said turning-arms being provided with clamps, said casing being also provided with a vertically-adjustable back frame provided at the top with pivotally-supported and vertically-adjustable buffers, substantially as shown and described.

3. In a sheet-music turner, a casing, vertically-arranged shafts mounted centrally thereof and each provided with a pinion, segmental spring-operated gears pivoted laterally of said shafts and operating in connection with said pinions, angle-arms pivotally supported at the front of said casing and connected with said gears, a throwing-arm connected with each of said shafts and turning-arms mounted on one of said shafts and adapted to be operated upon by said throwing-arms, said turning-arms being provided with clamps, said casing being also provided with a vertically-adjustable back frame provided at the top with pivotally-supported and vertically-adjustable buffers and also with a pivoted and spring clamp, substantially as shown and described.



4. A music-turner comprising a casing open at the front and provided with means for turning separate sheets of music, said casing being also provided with a vertically-adjustable back frame having at the top pivoted and vertically-adjustable buffers, substantially as shown and described.

750,102. ELECTRICAL AUTOMOBILE. THOMAS A. EDISON, Orange, N. J. Filed Jan. 9, 1903. Serial No. 138,427. (No model.)



Claim.—1. In an electric automobile, the combination with the driving-motor and the storage batteries, of a separate fluid-pressure engine connected with the armature-shaft of the motor for operating the latter as a generator for recharging the batteries, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

2. In an electric automobile, the combination with the driving-motor and the storage batteries, of a separate rotary fluid-pressure

engine connected with the armature-shaft of the motor for operating the latter as a generator for recharging the batteries, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

3. In an electric automobile, the combination with the driving-motor and the storage batteries, of a separate turbine fluid-pressure engine connected with the armature-shaft of the motor for operating the latter as a generator for recharging the batteries, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

4. In an electric automobile, the combination with the operating-motor and batteries, of a fluid-pressure engine normally disconnected from the armature-shaft of the motor but adapted to be connected therewith for operating the motor as a generator for recharging the batteries, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

5. In an electric automobile, the combination with the operating-motor and batteries, of a rotary fluid-pressure engine normally disconnected from the armature-shaft of the motor but adapted to be connected therewith for operating the motor as a generator for recharging the batteries, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

6. In an electric automobile, the combination with the operating-motor and batteries, of a fluid-pressure turbine-engine normally disconnected from the armature-shaft of the motor but adapted to be connected therewith for operating the motor as a generator for recharging the batteries, and a flexible connection with said engine for supplying the fluid-pressure thereto, substantially as and for the purposes set forth.

7. In an electric automobile, the combination with the motor, batteries and connections between the motor and the driving-wheels, of a fluid-pressure engine connected to the armature-shaft for operating the motor as a generator, and means for disconnecting the armature-shaft from the driving-wheels, and a flexible connection with said engine for supplying fluid-pressure thereto, substantially as and for the purposes set forth.

8. In an electric automobile, the combination with the driving-motor, batteries and connections between the motor and driving-wheels, of a fluid-pressure engine normally disconnected from the armature-shaft but adapted to be connected therewith to operate the motor as a generator, and a flexible connection with said engine for supplying the fluid-pressure thereto, substantially as and for the purposes set forth.

750,103. **BED-PAN.** ARTON C. EGGERS, New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., and New York, N. Y., a Corporation of Connecticut. Filed May 16, 1903. Serial No. 157,424. (No model.)



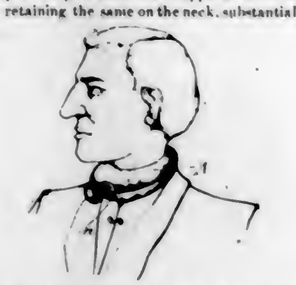
Claim.—1. A rubber bed-pan, consisting of an inflated ring or bulb, a bottom web, and an intermediate web connecting the circumference of the ring or bulb with the bottom web, substantially as set forth.

2. A rubber bed-pan, consisting of a ring or bulb, means for inflating the same, a bottom web, and an intermediate web connecting the circumference of the ring or bulb with the bottom web so as to permit the inverting of the bottom through the opening of the ring or bulb to the opposite side of the same for permitting the thorough cleaning of the pan portion proper, substantially as set forth.

3. A rubber bed-pan, consisting of an inflated ring or bulb, and a bottom web connected with the ring or bulb at the periphery of the bed-pan, substantially as set forth.

750,104. **THROAT-BAG.** ARTON C. EGGERS, New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., and New York, N. Y., a Corporation of Connecticut. Filed May 16, 1903. Serial No. 157,425. (No model.)

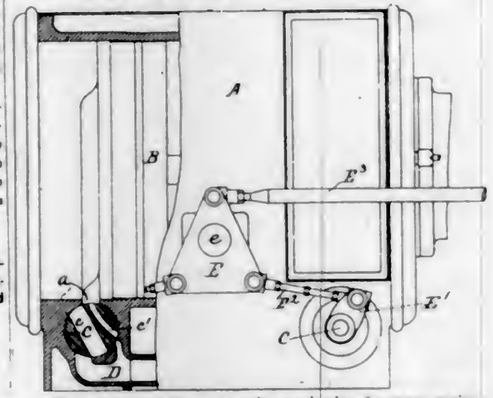
Claim.—1. A throat-bag, consisting of a bag of crescent shape, means for filling the same, and a flat spring, the ends of which are normally in proximity to each other, applied to the inner surface of the bag for retaining the same on the neck, substantially as set forth.



2. A throat-bag, consisting of a bag of a segmental or crescent shape, means for filling the same, a flat spring applied to the inner surface of the bag, and a covering of knit fabric applied to the bag for retaining the spring in position on the bag, substantially as set forth.

3. In a throat-bag, the combination, with a crescent-shape bag proper, of a flat spring, the ends of which are normally in proximity to each other, applied to the bag proper for retaining the same on the neck, substantially as set forth.

750,105. **DISCHARGE-VALVE MECHANISM FOR STEAM-ENGINES.** CARL A. FERRARI and JOHN R. WHITTEMORE, Erie, Pa., assignors to Erie City Iron Works, Erie, Pa. Filed Mar. 21, 1903. Serial No. 148,390. (No model.)



Claim.—1. In a discharge-valve mechanism for steam-engines and the like, the combination of a cylinder; and exhaust-steam chest having a cylinder-port and outlet-port; and a rotative valve having a main and an auxiliary port therein, the main port being larger than the auxiliary port, the valve-seats on the exhaust-chest and valve-ports being arranged to cut off the main valve-port from the cylinder, except when exhausting.

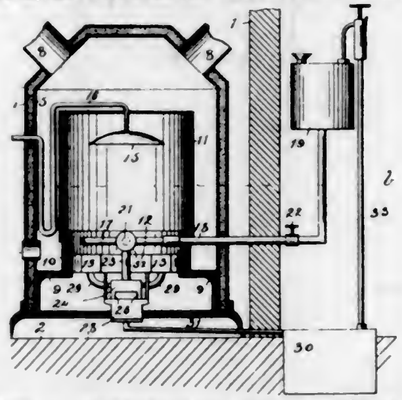
2. In a discharge-valve mechanism for steam-engines and the like, the combination of a cylinder, and exhaust-steam chest having a single cylinder-port connection with the cylinder and an outlet-port; and a rotative valve having a main and an auxiliary port therein, the main port being larger than the auxiliary port, the valve-seats on the exhaust-chest and valve-ports being arranged to open both the main and auxiliary valve-ports to the cylinder-port simultaneously and to cut off the auxiliary port at the outlet end.

3. In a discharge-valve mechanism for steam-engines and the like, the combination of a cylinder; and exhaust-steam chest having a single cylinder-port connection with the cylinder and an outlet-port; and a rotative valve having a main and an auxiliary port therein, the main port being larger than the auxiliary port, the valve-seats on the exhaust-chest and valve-ports to the cylinder-port simultaneously and to cut off the auxiliary port at the outlet end and the main port except when exhausting.

4. In a discharge-valve mechanism for steam-engines and the like, the combination of a cylinder and exhaust-steam chest having a cylinder-port and two outlet-ports; and a rotative valve having a main and an auxiliary port therein, said ports operating upon said outlet-ports, the valve-seats and ports being arranged to cut off the main and auxiliary ports at the outlet ends.

5. In a discharge-valve mechanism for steam-engines and the like, the combination of a cylinder and exhaust-steam chest having the cylinder-port *a* and two outlet-ports and a rotative valve C having the main port *c* and the auxiliary port *c'*, both of said ports being arranged to open to the cylinder-port *a* and both of said ports operating upon the outlet-ports from the steam-chest, the ports and steam-chest seats being arranged to cut off the main port *c* from the cylinder, except when exhausting.

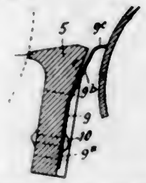
750,106. **VAPOR-BURNING FURNACE.** JOSEPH H. FINK, Kansas City, Mo. Filed Oct. 13, 1902. Serial No. 127,085. (No model.)



Claim.—1. The combination with a drip-cup provided with two lateral vertical plates, of a burner, two mixing-chambers connected therewith, a supplemental generator located between the said two vertical plates and provided at opposite sides with a series of discharge-openings, two series of vapor-conductors located respectively one series opposite each set of discharge-openings and extending through the said vertical plates to the two mixing-chambers respectively, a generator located adjacent to the burner and connected with the supplemental generator, and provided with a supply-pipe, substantially as described.

2. The combination with an annular burner provided with two hollow arms interiorly connected therewith and disposed parallel with each other, of a generating-tube located adjacent to the burner, a supply-tank, a conductor connecting the supply-tank with the generator, a valve controlling the said conductor, a second generator located below and between the said two arms and provided with two series of discharge-openings, a conductor connecting the two generators, a valve controlling this conductor, two series of vapor-conducting tubes connected respectively with the two parallel arms and disposed respectively opposite the two series of discharge-openings, a waste-receptacle, a drip-cup located below the second generator, a pipe connecting the drip-cup with the waste-receptacle, and a pump connected with the waste-receptacle and discharging into the said tank, substantially as described.

750,107. **CUTTING-MACHINE.** EDWARD F. GIBBONS, Salem, Ohio, assignor to the Silver Manufacturing Company, Salem, Ohio, a Corporation. Filed July 21, 1903. Serial No. 166,463. (No model.)

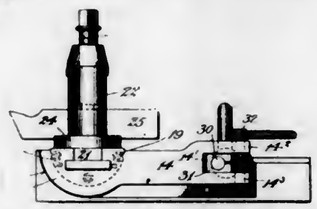


Claim.—1. In combination with a cutting-machine having a stationary cutter-bar and a revolving feed-roller, a spring guard-plate fastened to the cutter-bar near the lower edge of said plate, and having its upper portion bent outwardly and horizontally at its upper edge spring-pressed upon the surface of the feed-roller.

2. In a cutting-machine the combination of a stationary cutter-bar, a revolving feed-roller and a spring guard-plate clamped at its lower part to the cutter-bar, but having its upper half slightly offset from the cutter-bar, and its extreme upper edge in contact with the cylindrical surface of the feed-roller.

3. As an article of manufacture, the therein-described resilient guard-plate for cutting-machines having its lower half adapted for attachment to a cutter-bar, its upper half bent at an angle to clear it from said cutter-bar, and its extreme upper edge bent into a plane approximately at right angles to that of the lower half.

750,108. **TOOL-HOLDER.** BENOT M. W. HANSON, Hartford Conn., assignor to Pratt and Whitney Company, Hartford, Conn., a Corporation of New Jersey. Filed Apr. 11, 1903. Serial No. 152,106. (No model.)



Claim.—1. The combination, with a support having a concave seat and end recesses, each having an inclined wall, of a tool-carrying block fitted in said seat; means for rocking said block; a rib having an inclined wall rigid with one end of the block, and fitting in one of said end recesses; a device carrying a rib with an inclined wall fitted in the other end recess; and means for adjusting one of said ribs to take up lost motion between the block and its support.

2. The combination, with a slide having a concave seat, of a tool-block having a convex surface fitting in said seat; an arm projecting from said tool-block, said arm being slotted; a block working in the slot of the arm; means for actuating said block; and means for securing the arm.

3. The combination, with a support, of a tool-carrying block mounted for rocking movement on said support; a slotted arm rigid with said block; a shaft having a crank for actuating the arm; a box in which the crank is fitted, said box being in the slot of the arm; and means for locking the arm.

4. The combination, with a support, of a tool-carrying block mounted for rocking movement thereon; an arm having a bifurcated free end; a block fitted between the arms of the bifurcation; means for actuating said block thereby to adjust the tool-carrying block; and means for securing the tool-carrying block after it has been adjusted.

5. The combination, with a support, of a rocking tool-carrying block mounted thereon, said block being slotted; a tool-post having a post fitted in the slot of the block; a device bearing against one end of the support, said device having a slot through which the tool-post may be inserted into the slot of the block; and means for adjusting said device to take up lost motion of said block.

6. The combination, with a support having a concave recess and parti-circular grooves in the walls of said recess, said grooves each having an inclined surface, of a tool-carrying block fitting said concave recess; devices carried by the tool-block, and having inclined walls fitting said grooves; and means for removably securing one of said devices to the end of the tool-carrying block.

7. The combination, with a support having a transverse, concave recess and parti-circular grooves with inclined walls in its sides, of a tool-carrying block fitted in said recess and having a parti-circular rib with an inclined surface; a plate having a parti-circular rib fitted in one of the grooves; and means for securing said plate to the end of the tool-carrying block.

8. In a tool-holder, the combination, with a support having a transverse, concave recess, of a tool-carrying block fitting said recess; a device rigid with said block and having compressible portions; a block movable between said compressible portions; a rock-shaft having a wrist-pin fitted in the block mounted between the compressible portions of said device; means for actuating the rock-shaft; and means for clamping the compressible portions of the device upon the block in which the wrist-pin is mounted.

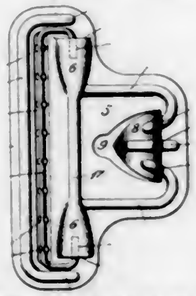
9. The combination, with a support having a transverse, concave recess, of a tool-carrying block mounted in said recess; a tool-post adjustable in a groove of said block; an arm rigid with the block and having a slot in its free end; a rock-shaft having a wrist-

pin; a compressible device mounted in the slot in the free end of the arm, and adapted to receive said wrist-pin; and means for clamping the walls of the slot upon said compressible device.

10. In a tool-holder, the combination, with a slide having a transverse, concave recess, and also having a pair of bearing-lugs; of a tool-carrying block mounted in said concave recess; an arm rigid with the tool-carrying block and having a slot in its free end; a split block mounted between the arms of said slot; a rock-shaft having a wrist-pin fitted in an opening of said split block; means for actuating the rock-shaft; and means for compressing the arms between which the split block is mounted upon said block.

11. In a tool-holder, the combination, with a slide having a transverse, concave recess, of a tool-carrying block having a convex under surface fitted in said recess; an arm rigid with the tool-carrying block and having a bifurcated free end; a rock-shaft having a wrist-pin; a split block mounted in the bifurcated end of the arm; and a screw for clamping the parts of said arm between which the split block is mounted upon said block.

750,109. BACK-BAND BUCKLE. WALTER H. HART, New Britain, Conn., assignor to the Stanley Works, New Britain, Conn., a Corporation of Connecticut. Filed Sept. 3, 1903. Serial No. 171,311. (No model.)



Claim.—1. A buckle having a slot for the reception of the ends of the band, a corrugation adjacent to and parallel with said slot, bearings over the ends of which the corrugation extends, and a web-holder journaled in said bearings.

2. A corrugated, sheet-metal buckle having a slot for the reception of the band, a web-holder, bearings in which the free ends of said web-holder are inserted, and a corrugation for stiffening the metal adjacent to the slot, said corrugation extending at its ends opposite the outer extremities of said bearings.

3. A back-band buckle comprising a plate having a slot adjacent to one end, a corrugated hook projecting from the plate adjacent to its opposite end, bearings formed from the plate, a web-holder having its ends inserted in said bearings, and corrugations extending longitudinally of the plate on each side of the slot, one of said corrugations having ends located opposite the outer extremities of the bearings.

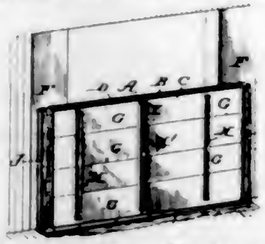
4. A back-band buckle formed from sheet metal, and comprising a plate having a slot at its forward end for the reception of the end of the band, a corrugation parallel to said slot, a pair of bearings connected by a corrugation, a web-holder with ends mounted in said bearings, a hook, and corrugations extending from the plate and along the surface of said hook.

750,110. RAIL-TIE. JOSEPH R. HUBBARD, Trimble, Mo. Filed Aug. 12, 1903. Serial No. 169,239. (No model.)



Claim.—In railway construction, the combination of ties having bodies with seats extending longitudinally through the upper portion thereof and also provided with centrally-depending flanges, the seats having opposite holding-walls, railroad-rails having their base-flanges held in the said seats, connecting-rods engaging the inner opposing edges of the ties, and links for connecting the terminals of the ties.

750,111. GRAIN-CAR DOOR. ELMER E. KENFIELD, Washburn, Wis. Filed Aug. 31, 1903. Serial No. 171,361. (No model.)



Claim.—A car door or barrier, of the character described, consisting of inner and outer board layers and an interposed fabric, the end and bottom edges of the fabric being made projecting, and the several layers and fabric held together by suitably-secured vertical cleats, substantially as described.

750,112. SPRING DRAFT ATTACHMENT. GEORGE W. KING, Washington, D. C. Filed Oct. 30, 1903. Serial No. 179,126. (No model.)



Claim.—1. A draft attachment, consisting of two pairs of bowed spring-arms having free ends and hooks at their ends adapted to embrace the trace, whereby the two arms on each side have a spring action to and from each other as well as a spring action toward a straight longitudinal line, substantially as described.

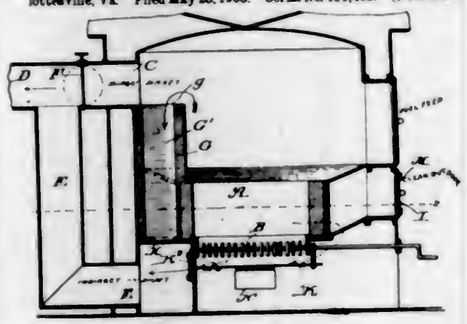
2. A draft attachment, consisting of two pairs of bowed arms having hooks at their ends adapted to embrace the trace and having in the middle a transverse spiral spring substantially as described.

3. A draft attachment, consisting of two pairs of bowed arms, having hooks at their ends adapted to embrace the trace, the upper spring-arm on one side being made continuous with the lower spring-arm on the other side and bent in the middle to form a transverse spiral spring, and the two spring members being interlocked in the middle to form a double spiral spring, substantially as described.

750,113. GREEN DYE. ARTHUR LÜTTRINGHAUS, Ludwigshafen-on-the-Rhine, Germany, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Germany. Filed May 27, 1902. Serial No. 109,225. (No specimens.)

Claim.—As a new article of manufacture coloring-matter containing sulfur, such as can be obtained from methylene-violet, sodium tetra-sulfid, carbon disulfid and alcohol, which dissolves in a water solution of sodium sulfid, which solution dyes unmordanted cotton green, which green on suitable treatment with sulfuric acid and bichromate of potash is changed to blue.

750,114. HOT-AIR FURNACE. THEODORE F. MEINHARDT, Charlottesville, Va. Filed May 23, 1903. Serial No. 158,482. (No model.)



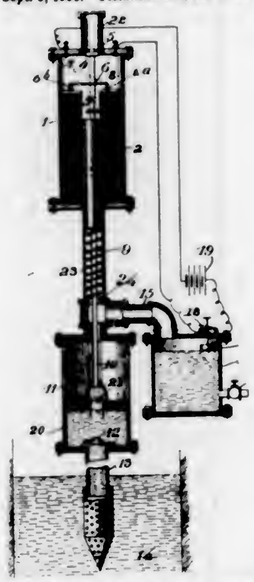
Claim.—1. The improvement in furnaces herein described, consisting in the combination with the fire-pot, the ash-pan chamber below the same, and the direct and indirect draft connections, of the down-flue at the rear side of the fire-pot and extending at its upper end within the fire-pot and having an intermediate upright partition dividing it into two upright flue-sections, the upper drum having flues communicating at their rear ends with the flue-sections of the upright flue and extending thence forwardly around the opposite sides of the fire-pot and discharging at their front ends to the flues of the lower drum, the lower drum having flues communicating at their front ends with the front ends of the flues of the upper drum and extending thence rearwardly on opposite sides of the ash-pan chamber, and discharging at their rear ends to the indirect-draft connection, and the dust-door at the rear side of the ash-pan chamber in communication with the indirect-draft connection, and the hot-air chamber outside the said upper and lower drums, substantially as set forth.

2. In a hot-air furnace, the combination of an upper drum or covered passage, extending from the rear to the front of the furnace, on opposite sides of the fire-pot, and a lower drum or covered passage on the opposite sides of the ash-pan extending from front to rear of the furnace for the course of the products of combustion and the down-flue at the rear side of the fire-pot having an intermediate partition dividing it into upright flue-sections discharging independently at their lower ends to the opposite sides of the upper drum.

3. The combination of the fire-pot, and the down-flue at the rear side thereof, and divided into independent upright flue-sections, the upper drum having the opposite flues communicating at their rear ends with their respective upright flue-sections and extending thence forwardly on opposite sides of the fire-pot, the lower drum having side flues communicating at their front ends with the front ends of the upper drum-flues and extending thence rearwardly on opposite sides of the ash-pan chamber, and indirect-draft connections with the rear ends of said flues, substantially as set forth.

4. The combination of the fire-pot, an upper drum or covered passage extending from the rear to the front of the furnace on opposite sides of the fire-pot, and a down-flue at the rear side of the fire-pot and extending at its upper end above the fire-pot and provided with an intermediate upright partition dividing it into upright flue-sections discharging at their lower ends to their respective side portions of the upper drum or covered passage, substantially as set forth.

750,115. AUTOMATIC ELECTRIC PUMP. FRANCIS L. ORR, Thurman, Iowa, assignor of one-half to William W. Keyser, Percival, Iowa. Filed Sept. 9, 1903. Serial No. 172,494. (No model.)



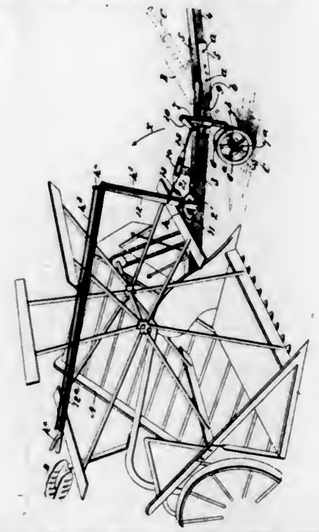
Claim.—1. An automatic electric pump, comprising a pump-barrel with piston, piston-rod and valves, a battery-circuit, a solenoid with reciprocating core connected in alinement with the pump piston-rod, an automatic switch controlled by the solenoid-core and an inclosing casing for the solenoid made tight and in open communication with the top of the pump to form an air-chamber for the same substantially as described.

2. An automatic electric pump, comprising a pump-barrel with piston, piston-rod and valves, and electric circuit, a solenoid with reciprocating core connected in alinement with the pump piston-rod, an upward extension from the solenoid-core bearing tappet projections, a switch-arm hinged upon one side of said solenoid and having electrical connection with one terminal of the solenoid-coil, a contact on the opposite side connected to the other terminal of the coil, the said switch-arm extending transversely to the solenoid-axis and lying between the tappet projections and acted upon alternately by the same substantially as described.

3. An automatic electric pump, comprising a pump-barrel with piston, piston-rod and valves, an electric circuit, a solenoid with reciprocating core connected in alinement with the pump piston-rod, an automatic switch controlled by the solenoid-core, an air-tight casing for the solenoid and switch, a pipe connecting the air-tight casing to the pump-barrel and a spring arranged in said pipe about the pump piston-rod and sustaining the weight of the piston, piston-rod and solenoid-core, substantially as described.

4. An automatic electric pump, comprising a pump-barrel with piston, piston-rod and valves, an electric circuit, a solenoid with reciprocating core connected in alinement with the pump piston-rod, an automatic switch controlled by the solenoid-core, an air-tight casing for the solenoid, a pipe connecting the same to the pump, a water-tank, a branch pipe connecting the tank to both the air-tight casing and the upper end of the pump-barrel, a float in said tank, an automatic switch controlled by said float and an electric circuit extending to the solenoid and controlled by the tank-switch substantially as described.

750,116. TONGUE-SUPPORT AND SIDE-DRAFT CHECK FOR GRAIN OR GRASS HARVESTERS. CARL F. ORTMAN, Martinton, Ill. Filed Oct. 17, 1902. Serial No. 127,628. (No model.)



Claim.—1. The combination with a harvester-tongue, of an obtuse-angularly-bent standard, the straight portion of which is held to rock on said tongue, an inclined spindle on the bent portion of said standard, a flanged wheel rotatably held on the spindle, and means for controlling the rocking movement of the standard.

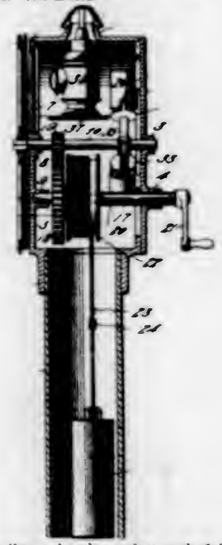
2. The combination with a harvester-tongue, of a standard held to rock upright on said tongue, the standard having an obtuse-angular bend below the tongue, a spindle extended at an obtuse angle from the bent member on the standard, a wheel held to rotate on the spindle and having a peripheral flange on the edge farthest from the tongue and that by the trend of the spindle is inclined away from the tongue, means for holding said flange substantially parallel with the tongue, and means for turning the standard so as to dispose the flange at an angle with the tongue.

3. The combination with a harvester-tongue, and a journal-box

thereon, of an upright standard held to rock in the box and having an obtusely-bent member below the box, a laterally and downwardly bent spindle on the bent member of the standard, a wheel having a peripheral flange on the edge farthest away from the tongue and held to rotate on the downwardly-inclined spindle, a rock-arm on the upper end of the standard, and a device connected with the rock-arm and adapted to enable the rocking movement of the arm from a point on the harvester.

4. The combination with a rockably-supported standard on a harvester-tongue, said standard having an obtuse-angular-bent member extended from the lower portion thereof, and a downwardly-inclined spindle on the lower end of said member, of a rock-arm on the upper end of the standard, a sector carried on the rear portion of the tongue, a lever pivoted on the sector and having a pawl adapted to engage the sector, means for adjusting the pawl, a two-part connecting-rod extended from the lever to the rock-arm and pivoted thereon, and a coupling-nut on the rod connecting its members and adapted to lengthen or shorten it.

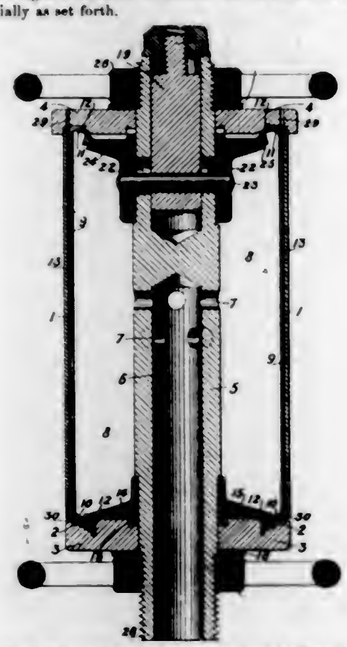
750,117. ELECTRICAL OPERATED AND CONTROLLED RAILWAY-SIGNAL. ROBERT D. PETERS, Knox, Ind. Filed Nov. 21, 1902. Serial No. 132,301. (No model.)



Claim.—In a railway-signal, a casing, a shaft journaled in the casing, a circular frame mounted on the shaft and divided into segmental areas, transparencies of different colors in the segmental areas, a semaphore secured to the circular frame, a disk on the shaft formed with a stop-lug, a pinion on the shaft, a second shaft journaled in the casing, a gear-wheel thereon in mesh with the pinion, a drum on the latter shaft, a cable on the drum, a weight on the cable, radially-arranged electromagnets, circuits to operate the magnets independently of each other, pivotally-supported armatures for the magnets arranged to stand normally with their free ends in the path of the stop-lug on the disk, and a lamp to illumine the segmental panes.

750,118. APPARATUS FOR DUPLICATING SOUND-RECORD CYLINDERS OF PHONOGRAPHS, &c. ADENOR N. PETIT, Waterloo, near Liverpool, England. Filed Mar. 25, 1903. Serial No. 149,474. (No model.)

Claim.—1. In an apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines; the combination with an electrodeposit cylindrical matrix to receive a blank celluloid cylinder having inturned ends, an inwardly-extending flange at the base of the matrix to support the wider flange of the blank cylinder, a bolt passing centrally and axially through the blank cylinder and matrix, and having a central axial passage-way from the external end of the bolt to about the central part thereof, and ports through the bolt-walls to the interior of the cylinder-blank, a base-plate near the lower end of the bolt having a circular groove in its upper face to receive the flange of the matrix, a top plate having a groove on its under face to receive the upper end of the matrix and the flange of the blank, a central aperture in the top plate through which the bolt passes, and means for clamping the top plate upon the bolt to clamp the matrix between the top plate and the base-plate; of upper and lower flanged collars on the bolt, an annular elastic washer between the under surface of the top plate and the upper surface of the adjacent flanged collar, an elastic washer between the upper face of the base-plate and the under face of the other flanged collar on the bolt, and means for compressing the elastic washers against the inner surfaces of the top plate and base-plate, substantially as set forth.



2. In an apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines; the combination with an electrodeposit cylindrical matrix to receive a blank celluloid cylinder having integrally-inturned ends, an inwardly-extending flange at the base of the matrix to support the wider flange of the blank cylinder the flange being perforated for the escape of air from between the blank and matrix, a bolt passing centrally and axially through the blank cylinder and the matrix, and having a central axial passage-way from the external end of the bolt to about the central part thereof for the entrance of the pressure steam or air, and having lateral ports through the walls to admit the pressure steam or air to within the cylinder-blank to force the latter against the matrix for impressing the blank, a base-plate near the lower end of the bolt, having a circular groove in its upper face to receive the inwardly-turned flange of the matrix, a top plate having a groove on its under surface to receive the upper end of the matrix and the smaller flange of the cylinder-blank, and having perforations through the top plate for the escape of air from between the blank and the matrix, a central aperture in the top plate through which the bolt passes, and a nut on the projecting upper end of the bolt to clamp the matrix between the top plate and the base-plate; of upper and lower flanged collars on the bolt, an annular elastic washer between the under surface of the top plate and the upper surface of the adjacent flanged collar, an elastic washer between the upper face of the base-plate and the under face of the other flanged collar on the bolt, and means for compressing the elastic washers against the inner surfaces of the top plate and base-plate to make steam-tight joints between the latter plates and the flanges of the cylinder-blank, substantially as set forth.

3. The combination with an electrodeposit cylindrical matrix to receive a blank celluloid cylinder, having integrally-inturned ends which is to be impressed with the sound-record, an inwardly-extending flange at the base of the matrix to support the wider flange of the blank cylinder, a bolt passing centrally and axially through the blank cylinder and matrix, and having a central axial passage-way from the external end of the bolt to about the central part thereof, and lateral ports through the walls of the bolt to the interior of

the matrix, a base-plate having a circular groove on its upper face to receive the flange of the matrix and a central aperture in the base-plate through which the bolt passes, a collar fixed on the bolt, an elastic washer between the collar and the upper face of the base-plate, and a nut on the lower end of the bolt to compress the elastic washer between the base-plate and the fixed collar to make a tight joint between the base of the blank and the base-plate; of a top plate having a central aperture through which the bolt passes, and having a circular groove to receive the matrix and blank-cylinder end, a nut on the exterior upper end of the bolt to cause the top plate to clamp the matrix, a collar on the bolt opposite the inner face of the top plate and capable of sliding on the bolt, an elastic washer between the collar and the top plate, and means operated from the exterior of the apparatus for sliding the collar on the bolt to compress the elastic washer and so make a tight joint between the top plate and the blank, substantially as set forth.

4. The combination with an electrodeposit cylindrical matrix to receive a blank celluloid cylinder having integrally-inturned ends, which is to be impressed with the sound-record, an inwardly-extending flange at the base of the matrix to support the wider flange of the blank cylinder, a bolt passing centrally and axially through the blank cylinder and matrix, and having a central axial passage-way from the external end of the bolt to about the central part thereof, and lateral ports through the walls of the bolt to the interior of the matrix, a base-plate having a circular groove on its upper face to receive the flange of the matrix and a central aperture in the base-plate through which the bolt passes, a collar fixed on the bolt, an elastic washer between the collar and the upper face of the base-plate, and a nut on the lower end of the bolt to compress the elastic washer between the base-plate and the fixed collar to make a tight joint between the base of the blank and the base-plate; of a top plate having a central aperture through which the bolt passes, and having a circular groove to receive the matrix and blank-cylinder end, a nut on the exterior upper end of the bolt to cause the top plate to clamp the matrix, a collar on the bolt opposite the inner face of the top plate and capable of sliding on the bolt, an elastic washer between the collar and the top plate, a slide-plug passing from the exterior upper end of the bolt into an axial bore-hole therein, slots in the walls of the bolt below the top plate, a transverse pin connecting the slide-plug and the collar and passing through the slots in the walls of the bolt, and a nut on the exterior end of the slide-plug acting against the end of the bolt for operating the slide-plug to draw up the collar and make the joint, substantially as set forth.

5. In an apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines, the combination with a cylindrical electrodeposit matrix having at one end an inwardly-extending flange and adapted to receive a blank celluloid cylinder having inturned ends, one of which is supported upon the flange of the aforesaid matrix, of a base-plate having a circular groove in its upper face to receive the flange of the matrix, a top plate having a groove on its under face to receive the upper end of the matrix and flange of the blank, means for connecting the said base and top plates and for applying compressive tension thereto, annular elastic washers against the inner surfaces of the base and top plates, and means for applying pressure to the elastic washers to hold the same against the inner faces of the top and base plates, substantially as set forth.

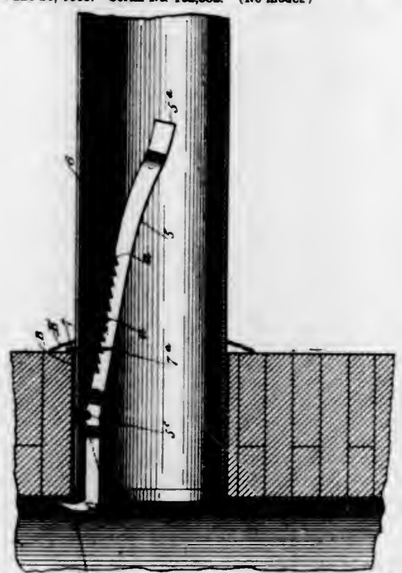
6. In an apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines, the combination with a cylindrical electrodeposit matrix having at one end an inwardly-extending flange and adapted to receive a blank celluloid cylinder having inturned ends, one of which is supported upon the flange of the aforesaid matrix, of a base-plate having a circular groove in its upper face to receive the flange of the matrix, a top plate having a groove on its under face to receive the upper end of the matrix and flange of the blank, means for connecting the said base and top plates and for applying compressive tension thereto, annular elastic washers against the inner surfaces of the base and top plates, upper and lower flanged collars bearing against the said elastic washers, means for compressing the elastic washers against the inner surfaces of the top and base plates, and means providing for the introduction within the matrix and blank celluloid cylinder of a fluid under pressure, substantially as set forth.

750,119. CELLULOID PHONOGRAPH RECORD-CYLINDER. ADENOR N. PETIT, Waterloo, near Liverpool, England. Filed Mar. 25, 1903. Serial No. 149,475. (No model.)

Claim.—As a new article of manufacture, a celluloid cylinder for receiving phonographic records, consisting of a tube of celluloid of sufficient thickness to be self-supporting, of larger internal diameter than the mandrel by which it is to be carried, and having integral inwardly-bent ends, the length inwardly bent at one end being greater than the length inwardly bent at the other end, a metal ring of channel-section having the flanges of the channel facing outwardly from the axis of the ring to receive and carry the smaller diameter edge of one inturned end of the cylinder, and a similar ring of larger diameter having an outwardly-facing channel to receive the edges of the inturned part of the other end of the cylinder, the internal diameters of the two metal rings being such as to fit on the mandrel of the machine, and a phonographic record formed on the outer surface of the cylinder, substantially as set forth.



750,120. STOVEPIPE-LOCK. WILLIAM A. PETRIE, Petoskey, Mich., assignor of one-half to Earl Brackett, Petoskey, Mich. Filed June 20, 1903. Serial No. 162,352. (No model.)

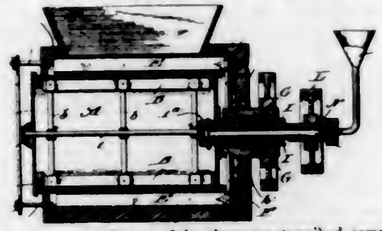


Claim.—1. The combination with a stovepipe insertible in an aperture in the wall of a chimney, of a locking device adapted to hold the pipe from withdrawal, comprising a bar hinged between its ends on the inner and upper surface of the stovepipe, one end of said bar near the hinge having a hook thereon the outer edge of which is sloped to form a latch which may engage the inner edge of a chimney-wall into which the pipe is inserted, the bar having sufficient weight toward the opposite end to normally depress said end to insure the latched engagement of the hook with the wall, and means to lift the weighty end of the bar for release of the hook.

2. The combination with a stovepipe insertible into an aperture in the wall of a chimney, and a scutcheon-ring mounted thereon, of a locking device adapted to hold the pipe from withdrawal, comprising a bar hinged nearer one end thereof within the pipe, a hook on the end of the bar near its hinge, said hook having a sloped upper edge to form a latch which may engage the inner edge of the chimney-aperture, a weight at the other end of the bar, and a looped rod engaging its looped end with the bar and thence passing up through a perforation in the pipe near the chimney-wall beneath the scutcheon-ring that contacts with said wall.

750,121. ICE-CREAM FREEZER. JULIUS PRADE, Waco, Tex. Filed May 28, 1903. Serial No. 159,100. (No model.)

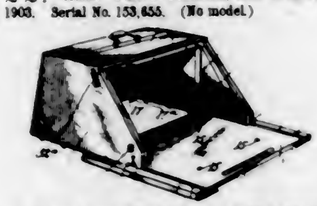
Claim.—1. The combination with the outer casing open at one end and having an axial aperture in the other end, a hollow hub journaled on the said axial aperture provided with a drive-gear on its outer end, a series of radial arms connected with the inner end of the said hollow hub, and a series of longitudinally-extended dasher-blades connected to the outer ends of the said radial arms; of a cylinder endwise insertible through the open end of the casing between the aforesaid dasher-blades, said cylinder having a hollow journal adapted to project through the hollow hub mounted in the casing, a feed-tube projected through the said hollow journal to discharge into the hollow outer end of the cylinder, being removable, a discharge-blade-equipped shaft journaled at one end in the removable end of the cylinder and having means for detachably connecting with the inner end of the hollow feed-journal to rotate therewith, said journal having a drive-pulley on its outer end, means mounted on the casing for holding the removable end of the cylinder in the closed position, a means for feeding the refrigerant into the casing and a separate means for feeding the material to be frozen into the hollow feed-journal, all being arranged as shown and described.



2. An ice-cream freezer of the character described, comprising an outer casing having a large opening at one end and a smaller axial opening at the other end, a cylinder endwise insertible through the large opening in the casing, said cylinder including a removable end or cap portion, the latter having a central bearing and an outlet for the frozen material, stud-bolts projected from the casing end, the slat or cross-plate detachably mounted on the said bolts and adapted to bear against the detachable cover end of the cylinder, a hollow hub journaled in the small axial opening on the casing, rotary arms connected to the inner end of the said hub, longitudinal blades operable between the casing and the cylinder connected to the said rotary arm, a hollow journal on the front end of the cylinder mounted in the hollow hub, a feed-tube extended through the hollow journal into the cylinder, said feed-tube having a drive-pulley at its outer end, a dasher rotatably mounted within the cylinder connected with and driven by the rotatable feed-tube, as specified.

3. In an ice-cream freezer of the character described, the combination of a stationary outer casing, a cylinder stationarily held therein, a means for feeding a refrigerant into the space between the cylinder and the casing; a hub rotatably mounted in one end of the casing, a series of radial arms connected to the inner end thereof, stirrer-blades movable in the space between the casing and the cylinder connected to the said arms, said hub having a drive-gear on its outer end and a hollow feed-tube rotatably mounted within the aforesaid hub carrying a drive-gear at its outer end and having its inner end extended into the cylinder, a dasher rotatable within the cylinder connected to the inner end of the feed-tube and rotatable therewith, a means for feeding the material to be frozen into the outer end of the feed-tube, all being arranged substantially as shown and described.

750,122. CASE. JOHN F. PRENTICE, New York, N. Y. Filed Apr. 21, 1903. Serial No. 153,655. (No model.)



Claim.—1. A case, comprising a base, a cover mounted to slide thereon, a weight, means for movably mounting the weight on the cover, a cord attached at one end to the base and at the other end to the cover, and means on the cover with which the cord has running engagement, said cord also having running engagement with the weight.

2. A case, comprising a base, a cover mounted to slide thereon, a weight, means for movably mounting the weight on the cover, a cord having one end attached to the base and one end to the cover, means on the cover with which the cord has running engagement and the cord also having running engagement with the weight, the front side of the cover being open, a curtain adapted to close said side, a spring-roller on which the curtain is wound, said roller being located at the upper side of the cover, and means at the lower portion of the cover for removably engaging the free end of the curtain to hold the curtain in active position, said free end of the curtain when thus engaged serving to hold the cover in closed position.

3. A case, comprising a base, a cover mounted to slide thereon, a weight, means for movably mounting the weight on the cover, a cord attached at one end to the base and at the other end to the cover, said cord having running engagement with the weight, means on the cover with which the cord also has running engagement, the front side of the cover being open, and removable means for closing the front side of the cover, said means being mounted on the cover, and serving when in active position to hold the cover in closed position.

4. A case comprising a base, a cover mounted to slide thereon, a weight, means for movably mounting the weight on the cover, a cord having one end attached to the base and the other end to the cover, said cord having running engagement with the weight, means on the cover with which the cord has running engagement, the front side of the cover being open, for the purpose specified, a spring-roller mounted on the top of the cover at the front thereof, a curtain wound over the roller and having at its free end a slat, the ends of which project beyond the side edges of the curtain, and hooks attached to the sides of the cover at the lower portion thereof, said hooks serving removably to hold the ends of the slat in engagement with the base.

5. A case, comprising a base, a cover mounted to slide thereon, a weight, means for movably mounting the weight on the cover, and a cord attached to the base and having running engagement with the cover, said cord also having engagement with the weight.

6. A case, comprising a base, a cover mounted to slide thereon, a guide-rod mounted on the cover, a weight arranged to slide on said rod, an eye attached to the cover, and a cord run loosely through the eye and having the weight loosely engaged with the cord, said cord having one end fastened to the cover and the other to the base.

7. A case, comprising the combination of a base, a cover mounted to slide horizontally on the base and having an open front side, means exerting a pressure on the cover to move the cover rearward, a removable closure for the said open front side of the cover, and means for removably holding the cover in its forward or active position, said means also removably holding the closure in its active position.

8. A case, comprising the combination of a base, a cover arranged to slide back and forth thereon, means tending to move the cover rearward, the cover having an open front side, a curtain mounted at the upper portion of the cover and serving removably to close said open front side of the cover, a slat attached to the lower or free end of the curtain, and hooks attached to the cover at the lower front portion thereof, said hooks projecting below the upper surface of the base and arranged to slide back and forth along grooves in said base and adapted to be removably engaged by the slat, whereby to hold the cover in extended or active position and to hold the case against rearward movement.

750,123. NOSE-RING FOR ANIMALS. EDMUND K. REA, Ovid, Mo. Filed Aug. 31, 1903. Serial No. 171,419. (No model.)



Claim.—1. A nose-ring consisting of two hinged sections, the free ends of which are obliquely scarfed to overlap each other, their scarfed faces being free from surface projections.

2. A nose-ring consisting of two hinged sections, the free ends of which are obliquely scarfed to overlap each other, one of said ends having a sharp point or cutting edge, and both being free from surface projections.

3. A nose-ring consisting of two hinged sections, the free ends of which are obliquely scarfed to overlap each other, their meeting faces being without projections, one of said ends having a sharp point or cutting edge, and said ends being secured by a screw.

4. A nose-ring for animals comprising two curved members hinged together and having their free ends obliquely scarfed and complementary to each other, their meeting faces being free from surface projections.

5. A nose-ring for animals comprising two curved members hinged together and having their free ends obliquely scarfed, one of the scarfed faces being convex and the other being concave, and both being free from surface projections.

750,124. METHOD OF PRODUCING BOTTLE-CLOSURES. FREDERICK REGBY, Brooklyn, N. Y., assignor to Rex Cap & Cork Company, New York, N. Y., a Corporation of New York. Filed Jan. 27, 1902. Serial No. 91,434. (No model.)



Claim.—1. The hereinbefore-described method of forming a discontinuous cork ring from a strip of cork which consists in subjecting the strip to compression endwise along its medial line and coiling it to the desired curvature while subjected to compression.

2. The hereinbefore-described method of forming a discontinuous cork ring from a strip of cork which consists in subjecting the strip to compression widthwise and coiling it to the desired curvature while subject to compression.

3. The hereinbefore-described method of forming a discontinuous cork ring from a strip of cork which consists in subjecting the strip to compression endwise along its medial line and widthwise and coiling it to the desired curvature while subject to compression.

4. The hereinbefore-described method of forming a discontinuous cork ring from a strip of cork in which the pores are transverse to the side walls of the strip, which consists in subjecting the strip to compression transversely to the direction of the pores and coiling it to the desired curvature about an axis parallel to the direction of the pores while subject to compression.

5. The hereinbefore-described method of treating a wet ring of cork in which the pores of the cork are transverse to the plane of the ring which consists in subjecting the ring to compression transversely to the pores and maintaining the compression until set.

6. The hereinbefore-described method of forming a discontinuous cork ring from a wet strip of cork which consists in subjecting the strip to compression, coiling it to the desired curvature and maintaining it in its compressed and coiled form until set.

7. The hereinbefore-described method of forming a discontinuous cork ring from a wet strip of cork which consists in subjecting the strip to compression, coiling the strip to the desired curvature, maintaining the strip in its compressed and coiled form, and drying the strip while maintained in its coiled form.

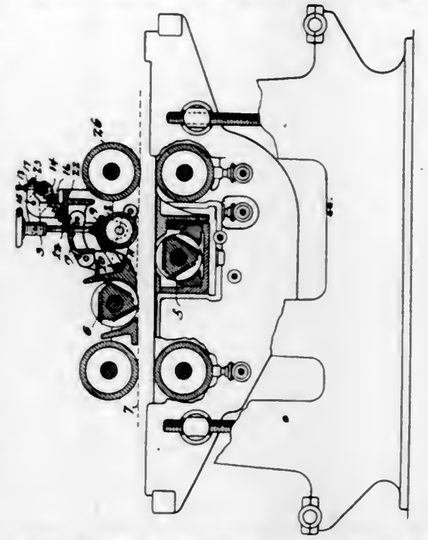
8. The hereinbefore-described method of forming a discontinuous cork ring from a wet strip of cork which consists in subjecting the strip to compression, coiling the strip to the desired curvature, maintaining the strip in its compressed and coiled form, drying the strip while maintained in its coiled form, and removing the external pressure.

9. The hereinbefore-described method of forming a discontinuous cork ring from a wet strip of cork in which the pores of the cork are transverse to the side walls of the strip which consists in subjecting the strip to compression transversely to the pores, coiling the strip to the desired curvature about an axis parallel to the direction of the pores, maintaining the strip in its compressed and coiled form, and drying the strip while maintained in its coiled form.

10. The hereinbefore-described method of forming a bottle-closure from a cork strip and suitably-formed metal cap which consists in subjecting the strip to compression, coiling the strip to the interior curvature of the cap while subject to compression, and inserting the strip into the cap.

11. The hereinbefore-described method of forming a bottle-closure from a wet strip of cork and a suitably-formed metal cap, which consists in subjecting the strip to compression, coiling the strip to the interior curvature of the cap while subject to compression, and maintaining the strip in its compressed and coiled form, drying the strip while maintained in its coiled form, and transferring the coiled strip to the cap.

750,125. PLANING-MACHINE. HARRY B. ROSS, Beloit, Wis., assignor to the Berlin Machine Works, Beloit, Wis., a Corporation of Wisconsin. Filed Dec. 18, 1902. Serial No. 135,812. (No model.)



Claim.—1. In a planing-machine, the combination with the upper and lower cutting-cylinders, of a yielding pressure device for the lower cylinder comprising two members designed to bear on the upper surface of the stock on opposite sides and immediately adjacent to the cut of the lower cylinder, the member beyond the cut serving also as a chip-breaker for the upper cylinder, substantially as described.

2. In a planing-machine, the combination with the upper and lower cutting-cylinders, of a yielding pressure device for the lower cylinder comprising two members designed to bear on the upper surface of the stock on opposite sides and immediately adjacent to the cut of the lower cylinder, the member beyond the cut serving also as a chip-breaker for the upper cylinder, said pressure devices being independently yieldable, substantially as described.

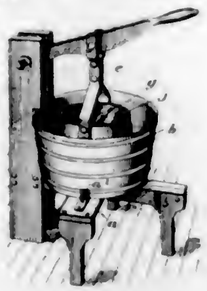
3. In a planing-machine, the combination with the upper and lower cutting-cylinders, of a yielding pressure device for the lower cylinder comprising two members designed to bear on the upper surface of the stock on opposite sides and immediately adjacent to the cut of the lower cylinder, the member beyond the cut serving also as a chip-breaker for the upper cylinder, said pressure devices being yieldably mounted, and means for guiding them in their vertical vibrations, substantially as described.

4. The combination in a planing-machine with the upper and lower cutting-cylinders, of a yielding pressure device adapted to bear on the upper surface of the stock in advance of the cut of the lower cylinder, an adjustable frame or housing carrying said pressure device, a second pressure device yieldably mounted and arranged parallel to the first-mentioned pressure device and immediately adjacent to the line of cut of the lower cylinder and adapted to serve as a chip-breaker for the upper cylinder, and a yielding connection between said pressure devices, substantially as described.

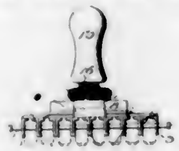
5. The combination in a planing-machine with the upper and lower cutting-cylinders thereof, of a pressure device adapted to bear on the upper surface of the stock in advance of the cut of the lower cylinder, a second pressure device adapted to bear on the upper surface of the stock immediately adjacent to the cut of the lower cylinder, and in advance of the cut of the upper cylinder whereby it serves as a chip-breaker for the latter, said pressure devices being pivotally mounted and having a yielding connection between them, substantially as described.

750,126. WASHING-MACHINE. WILLIAM T. RUSK, Sterling, Nebr. Filed Aug. 21, 1903. Serial No. 170,297. (No model.)

Claim.—A washing-machine, comprising a tub, an agitator therein, the agitator comprising a shell having continuous side walls and open at each end, and also having a rod extending horizontally across the shell from side to side, and means for mounting and operating the agitator.



750,127. TYPE-HOLDER. JOSEPH E. SCHLOEFF, Pesotum, Ill. Filed July 9, 1903. Serial No. 164,863. (No model.)



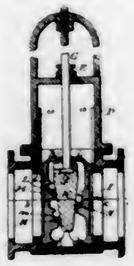
Claim.—1. A type-holding device of the class set forth, consisting of a plurality of type-holding bars, a part of which have inwardly-extending arms with flanges bearing on the intermediate bars, a resilient stem having terminals to engage portions of the said arms, a clamping-ring on the stem, and a handle applied to said stem.

2. A type-holding device of the class set forth, consisting of a series of loosely-assembled bars, the outer bars having clamping elements extending inwardly over the intermediate bars, a clamping-stem having terminals to engage portions of said elements, a movable clamping device on the stem, and a grip fitted over a part of the stem.

3. A type-holding device of the class set forth, consisting of a series of loosely-assembled bars, the outer bars having inwardly-extending arms with vertical and horizontal flanges, a split stem in the lower extremity of which the vertical flanges of the arms are movably mounted, the stem having lower hooked terminals to take under the horizontal flanges of the arms, means on the stem for causing the same to firmly bind against the flanges of the arms, and a grip disposed over a part of the stem.

4. A type-holding device consisting of a series of loosely-assembled bars, the outer bars having inwardly-extending arms with vertical flanges contiguously arranged and outer horizontal flanges, a clamping-stem into the lower extremity of which the vertical flanges movably project and provided with hooked terminals to take under the horizontal flanges, the said stem having a conical screw-threaded boss thereon, a clamping-ring movable on the boss, and a grip extending partially over the stem.

750,128. VALVE. JOHN E. SCHNEIDER, Allegheny, Pa. Filed Nov. 14, 1902. Serial No. 131,402. (No model.)



Claim.—1. In a valve the combination of movable gates, a wedge-shaped block having rounded sides and cylindrical rollers arranged between said block and gates substantially as described.

2. In a valve the combination with movable gates and a wedge-shaped block attached to the valve-stem and adapted to force the gates against their seats of rollers arranged one at the center of one gate and two above and below the center of the other gate substantially as described.

750,129. BOTTLE. JOHN E. SCHNEIDER, Allegheny, Pa. Filed July 17, 1903. Serial No. 165,986. (No model.)



Claim.—1. A bottle having a neck, a portion of which is of incomplete cylindrical shape interiorly, and having a groove surrounding said neck portion, whereby, when the bottle is ruptured on the groove-line a non-cylindrical opening will be left.

2. A bottle having a neck and oppositely-located shoulder-offsets and a grooved breaking-joint extending around said neck and offsets, whereby, when the neck is broken, on said joint, a non-cylindrical opening will be left.

3. A non-refillable bottle consisting of a body, elongated shoulder-offsets and a neck, said offsets and neck being grooved horizontally, to facilitate separation of the neck and offsets from the body of the bottle.

750,130. NUT-LOCK. JOHN N. SMITH, Roanoke, Va., assignor of one-half to Rockingham Paul and Joseph S. Tipton, Roanoke, Va. Filed July 29, 1903. Serial No. 167,414. (No model.)



Claim.—1. In a nut-lock the combination with a bolt; of a washer adapted to engage the same, a spring-arm integral with the washer, and eccentric thereto but in the same plane therewith, teeth upon the outer face of the arm, a nut, and lugs upon the nut adapted to overlap the teeth, the teeth being continuously engaged by one of the lugs when overlapped thereby.

2. In a nut-lock the combination with a bolt having an angular portion, of a washer adapted to engage the angular portion, a spring-arm integral with the washer and eccentric thereto, said arm being in the same plane with the washer, teeth upon the outer face of the arm, a nut, and lugs integral with and extending inwardly from the nut and adapted to overlap and engage the teeth.

750,131. FIBER-GATHERING CAN FOR SPINNING-MACHINES. GUIDO STIEBEL, Seltmanns, Harbatshofen, Germany. Filed July 25, 1903. Serial No. 166,972. (No model.)



Claim.—1. In a can of the class described, the combination with the can-body, of an open resilient clamping-ring secured within the lower edge of the body and having a multiplicity of spring clamping-tongues, and a plurality of cushion-blocks removably and replaceably fitted in the ring and each held by a tongue.

2. In a can of the class described, the combination with the can-body, of a clamping-ring carried by the lower edge of the body and

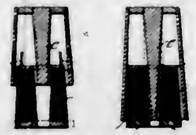
provided with a multiplicity of spring clamping-tongues, and a plurality of cushion-blocks each removably and replaceably held in place by a tongue.

3. In a can of the class described, the can-body, an inverted-U-shaped ring having a folded fastening-flange secured around the lower edge of the body and also provided with an inner yieldable slitted leg member having a multiplicity of spring-tongues, and a plurality of cushion-blocks each held in place by a tongue.

4. In a can of the class described, the can-body, an inverted-U-shaped ring secured to the lower edge of the body and having an inner yieldable leg member provided with an inturned rest-leg, the cushion-blocks held in place within the ring, and the can-bottom fitted in the ring upon the rest-flange.

5. In a can of the class described, the combination with the can-body and the resilient clamping-ring, of a plurality of cushion-blocks separately held in place by the spring clamping pressure of the ring and each provided upon its outer face with a protective metallic plate, also held engaged therewith by said pressure.

750,132. ELECTROMAGNET. ILLIUS A. TIMMIS and EDGAR W. TIMMIS, London, England. Filed June 19, 1903. Serial No. 162,374. (No model.)

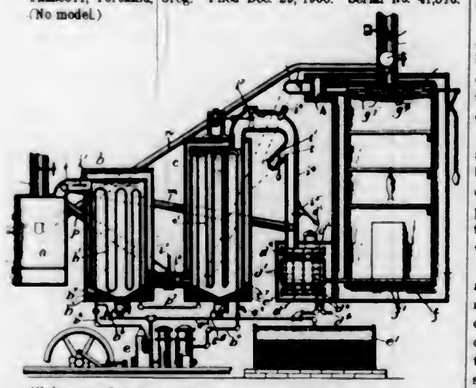


Claim.—1. In an electromagnet, the combination with a helix having a tapering central cavity and a tapering external surface, of a naked armature having a tapering core and a tapering rim, substantially as described.

2. The combination in an electromagnet of a helix having a tapering central cavity and a tapering external surface with a naked armature having a core and a depending rim both tapered on lines parallel to the adjacent surfaces of the helix, substantially as described.

3. The combination in an electromagnet, of a helix having a lining and covering of magnetizable material, the said lining and covering being of increasing thickness from top to bottom, substantially as described, with a naked armature having a tapering core and a tapering rim, as set forth.

750,133. PLANT FOR CURING FOOD PRODUCTS. CHARLES B. TRESCOTT, Portland, Oreg. Filed Dec. 29, 1900. Serial No. 41,516. (No model.)



Claim.—1. In a food-curing apparatus, and in combination with a communicating curing-chamber and source of curing medium, of refrigerating means arranged in said communication and adapted to precipitate moisture and impurities from the curing medium, a source of heat, and means arranged to connect said source of heat to the refrigerating means at will, whereby the precipitated moisture and impurities will be removed from said refrigerating means, substantially as described.

2. In a food-curing apparatus, and in combination with a communicating curing-chamber and source of curing medium, of refrigerating means arranged in said communication and adapted to precipitate moisture and impurities from the curing medium, a source of heat, means arranged to connect said source of heat to the refrigerating means at will, whereby the precipitated moisture and impurities will be removed from said refrigerating means, and means constructed to create a forced draft in the apparatus, substantially as described.

3. A food-curing plant, comprising a preservative-generator, a cooler arranged in communication therewith, a curing-chamber communicating with said cooler, means constructed to remove the collected impurities from said cooler, and means arranged to cause circulation of the preservative, substantially as described.

4. A food-curing plant, comprising a preservative-generator, a cooler, a reheater, a curing-chamber, all arranged in communication, and means arranged to create a forced draft through the plant, substantially as described.

5. A food-curing plant, comprising a preservative-generator, a cooler, a reheater, a curing-chamber, all arranged in communication, means arranged to create a forced draft through the plant, and means constructed to permit escape of the preservative, substantially as described.

6. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, a reheater, and a curing-chamber, a flue arranged in direct communication with said generator and reheater, a pressure-changing device in said flue, and means arranged to cut out the cooler at will and thereby cause the preservative to pass directly from the generator to the reheater, substantially as described.

7. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, and a curing-chamber, and means constructed to cause a continuous circulation of the preservative through the curing-chamber and cooler in cycle, substantially as described.

8. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, a reheater, and a curing-chamber, and means constructed to cause continuous circulation of a portion of the preservative from the curing-chamber through the cooler and reheater, substantially as described.

9. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, and a curing-chamber, means constructed to cause circulation of the preservative from the curing-chamber to the cooler, and means constructed to reheat the preservative issuing from the cooler and thereby raise the temperature in the curing-chamber, substantially as described.

10. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, a reheater, and a curing-chamber, means constructed to regulate the heat of said heater, as required, means constructed to create circulation of the preservative throughout the plant, and a vent arranged to permit escape of a portion of the preservative, substantially as described.

11. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, a reheater, and a curing-chamber, means constructed to regulate the heat of said heater, as required, means constructed to create circulation of the preservative throughout the plant, and an adjustable vent arranged to permit escape of a portion of the preservative, substantially as described.

12. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, a reheater, and a curing-chamber, means constructed to regulate the heat of said heater, means constructed to create circulation of the preservative throughout the plant, a vent arranged to permit escape of a portion of the preservative, and means constructed to project the preservative uniformly within said curing-chamber, substantially as described.

13. A food-curing plant, comprising a preservative-generator, a cooler, a reheater, and a curing-chamber, connected in communicating series by a plurality of flues, means constructed to create circulation of the preservative throughout the plant, and valves located in the several flues and arranged to regulate the passage of the preservative to different parts of the plant, substantially as described.

14. A food-curing plant, comprising a preservative-generator, a cooler, a reheater, and a curing-chamber, connected in communicating series by a plurality of flues, means constructed to create circulation of the preservative, an adjustable vent arranged to permit escape of a portion of the preservative, valves located in said flues and arranged to regulate the passage of the preservative to the different parts of the plant, and means constructed to project the preservative within said curing-chamber in a multiple of jets, substantially as described.

15. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, and a reheater, independent heating-coils located within the heater and connected with a source of

heat-supply, and valves in said heating-coils, whereby any desired number of the coils may be cut out of circulation, substantially as described.

16. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, and a curing-chamber, means constructed and arranged to remove the collected impurities from said cooler, means constructed to create a circulation of the preservative throughout the plant, and means constructed to permit escape of a portion of the preservative, substantially as described.

17. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber connected in communicating series by suitable flues, a by-pass connecting said cooler and the inlet-flue to the curing-chamber, and means constructed to cause a return circulation through said by-pass, substantially as described.

18. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by suitable flues, an adjustable by-pass connecting said cooler and the inlet-flue of the curing-chamber, and means constructed to cause a return circulation through said by-pass, substantially as described.

19. A food-curing plant, comprising a preservative-generator, a plurality of cooling-chambers, a reheater, and a curing-chamber, connected in communicating series by a plurality of flues, a pressure-changing device located in the flue connecting the last of said cooling-chambers and the reheater, and arranged to cause suction in the preservative-generator and cooling-chambers, and to create pressure in the reheater and curing-chamber, substantially as described.

20. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, valves arranged in said flues, a by-pass connecting the cooler and the flue from said cooler to the curing-chamber, and means constructed to create circulation of the preservative, substantially as described.

21. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, valves arranged in said flues, an adjustable by-pass connecting the cooler and the flue from said cooler to the curing-chamber, and means constructed to create circulation of the preservative, substantially as described.

22. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, a by-pass connecting said return-flue with the inlet-flue to the curing-chamber, and means constructed to create circulation of the preservative, substantially as described.

23. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, an adjustable by-pass connecting said return-flue with the inlet-flue to the curing-chamber, and means constructed to create circulation of the preservative, substantially as described.

24. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, a by-pass connecting said return-flue with the inlet-flue to the curing-chamber, a valve positioned in said inlet-flue and arranged intermediary the mouth of said by-pass and the curing-chamber, and means constructed to create circulation of the preservative, substantially as described.

25. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, a by-pass connecting said return-flue with the inlet-flue to the curing-chamber, a valve positioned in said inlet-flue and arranged intermediary the mouth of said by-pass and the curing-chamber, means constructed and arranged to heat the preservative, and means constructed to create circulation of the preservative, substantially as described.

26. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, a by-pass connecting said return-flue with the inlet-flue to the curing-chamber, means constructed to permit escape of a portion of the preservative, and means constructed to create circulation of the preservative, substantially as described.

27. A food-curing plant, comprising a preservative-generator, a cooler, and a curing-chamber, connected in communicating series by a plurality of flues, a return-flue connecting said curing-chamber and cooler, means constructed to permit escape of a portion of the preservative, and means constructed and arranged to cause a continuous circulation of a portion of the preservative from the curing-chamber to the cooler and from the cooler to the curing-chamber mixed with fresh preservative, substantially as described.

28. A food-curing plant, comprising, in communicating series, a preservative-generator, a cooler, and a curing-chamber, and means constructed to raise the temperature of the preservative passing from said cooler, to raise the temperature in said curing-chamber, substantially as described.

29. A food-curing plant, comprising a preservative-generator, a plurality of cooling-chambers, a reheater, and a curing-chamber, connected in communicating series, flues connecting the preservative-generator, respectively, with the last of said cooling-chambers, the curing-chamber, and the reheater, valves in said flues, and means constructed to create circulation of the preservative, substantially as described.

30. A food-curing plant, comprising a preservative-generator a plurality of cooling-chambers, a reheater, and a curing-chamber, connected in communicating series, flues connecting the preservative-generator, respectively, with the last of said cooling-chambers, the curing-chamber, and the reheater, valves in said flues, means constructed to permit escape of a portion of the preservative, and means constructed to create circulation of the preservative, substantially as described.

750,134. TOY GOLF-PLAYER. PERCY A. VAILE, Auckland, New Zealand. Filed Apr. 24, 1903. Serial No. 154,126. (No model.)



Claim.—1. A toy figure of the class described, having a sectional body, the members of which are pivoted together, a head portion connected pivotally with one member of the body the axes of movement of the movable body portion and the head portion being in parallel planes, and means whereby the body may move in one direction without changing the position of the head portion, the latter being capable of movement with a body member when moving in an opposite direction.

2. A toy figure having a divided body the members of which are pivoted together, one of said members being normally held by gravity in a given position, and a club having a detachable interlocking engagement with a portion of said movable body member.

3. A toy figure of the class described, having a divided body, the members of which are pivoted together, one member of said body occupying a normal position by gravity, a stud carried by one body member, and a spring on the other body member, normally free from the stud and in the path of said stud, said movable body member being shiftable to make the stud displace the spring, the reaction of which spring accelerates the swing of the movable body member in one direction.

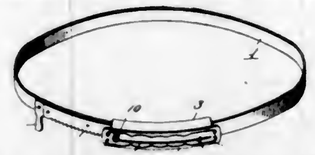
4. A toy figure having a laterally-swinging body member mounted to turn on a horizontal axis and provided with a slotted neck portion, a head portion connected to said body portion to turn on a horizontal axis which is parallel to that of the body portion, and a stud on the head portion arranged to play in the slot of the body portion.

5. A toy figure of the class described, having a movable body member provided with weighted arms, one of the hands of the figure having a socket, a club fitted in said socket, and means for determining the position of the club and for locking the latter detachably in said socket.

6. A toy figure of the class described, having a divided body the members of which are pivoted together, one member of said body being movable and held by gravity in a normal position, a spring in the path of a part of said movable body portion for accelerating the movement thereof in one direction, a head portion connected pivotally to said movable body portion and movable in one direction therewith, and an operating-cord connected with said movable body member for positively moving the same in a direction which places the spring under tension

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750,135. NECKTIE-HOLDER. JAMES W. VAN PLEW, Chicago, Ill. Filed Sept. 4, 1903. Serial No. 172,003. (No model.)



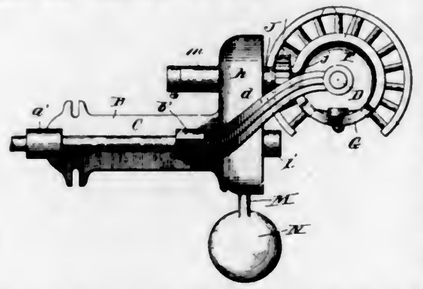
Claim.—1. In a necktie-holder the combination with a flexible band having a toothed portion, of a casing secured to the band and adapted to receive the toothed portion, means upon the casing for engaging the teeth, and a tie-securing device upon the casing.

2. A tie-holder comprising a flexible band having a toothed portion, a casing secured to the band and adapted to receive the toothed portion, teeth-engaging means upon the casing, a handle extending from the band, and tie-engaging means connected to the casing.

3. A tie-holder comprising a plate, tie-engaging means thereon, a casing on said plate, a flexible band secured thereto at one end and having teeth at its opposite end, said toothed end being adapted to be inserted into the casing, an arm pivoted to the plate, a lug thereon adapted to engage the teeth, and means for holding said lug in engagement with the teeth.

4. A tie-holder comprising a plate having tie-engaging means thereon, a casing upon the plate having an aperture therein, an arm pivoted to the plate, a lug upon the arm normally projecting through the aperture, a flexible band secured at one end to the casing and having a toothed end adapted to project into the casing and be engaged by the lug, and a handle upon the band.

750,136. MECHANICAL MOVEMENT. WILLIAM H. VOSS, Davenport, Iowa. Filed June 22, 1903. Serial No. 162,589. (No model.)



Claim.—1. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft and a gear thereon through the medium of which said pinion indirectly imparts motion to said rotary reciprocal shaft.

2. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft and an idle gear thereon through the medium of which said pinion indirectly imparts motion to said rotary reciprocal shaft.

3. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously revolving parallel shaft, an idle gear thereon engaged by said pinion and a spur-wheel connected with said idle gear and engaging said rack.

4. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft, an idle gear thereon engaged by said pinion and a spur-wheel on the same shaft as said idle gear and engaging said rack.

5. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack moving in one plane secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft and a gear thereon through the medium of which said pinion indirectly imparts motion to said rotary reciprocal shaft.

6. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack moving in one plane secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft and an idle gear thereon through the medium of which said pinion indirectly imparts motion to said rotary reciprocal shaft.

7. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack moving in one plane secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft, an idle gear thereon engaged by said pinion and a spur-wheel connected with said idle gear and engaging said rack.

8. The combination with a continuously-revolving shaft, of a rotary reciprocal shaft, a segmental rack moving in one plane secured to said rotary reciprocal shaft, a pinion on said continuously-revolving shaft, a continuously-revolving parallel shaft, an idle gear thereon engaged by said pinion and a spur-wheel on the said shaft as said idle gear and engaging said rack.

9. The combination with a continuously-revolving shaft, a pinion thereon, a movable gear-case loosely mounted on said shaft, a short shaft journaled in said gear-case, an idle gear thereon engaged by said pinion and a spur-wheel on the extended end of said short shaft, of a rotary reciprocal shaft and a segmental rack thereon engaged by said spur-wheel.

10. The combination with a continuously-revolving shaft, a pinion thereon, a movable gear-case loosely mounted on said shaft, a short shaft journaled parallel to said continuously-revoluble shaft in said gear-case, an idle gear thereon engaged by said pinion and a spur-wheel on the extended end of said short shaft, of a rotary reciprocal shaft and a segmental rack thereon engaged by said spur-wheel.

11. The combination with a continuously-revolving shaft, a pinion thereon, and an idle gear meshing therewith and having a limited circumferential movement thereon, of a rotary reciprocal shaft and a segmental rack thereon indirectly actuated by said idle gear.

12. The combination with a continuously-revolving shaft, a pinion thereon, an idle gear meshing therewith, a short shaft upon which said idle gear is mounted having a limited movement whereby said idle gear has reciprocal circumferential movement on said pinion, of a rotary reciprocal shaft, a segmental rack thereon, and a suitable reversing-guide between the ends of said rack, said short shaft having its end adjacent to said rack extended and engaging the guiding elements thereof.

13. The combination with a continuously-revolving drive-shaft, a pinion thereon, a gear-case loosely mounted thereon, a short shaft journaled in said gear-case, an idle gear thereon which meshes therewith, which gear-case, short shaft and idle gear have a limited movement whereby said idle gear has a reciprocal circumferential movement on said pinion, of a rotary reciprocal shaft, a segmental rack thereon, and a suitable reversing-guide between the ends of said rack, said short shaft having its end adjacent to said rack extended and engaging the guiding elements thereof.

14. The combination with a continuously-revolving drive-shaft, a pinion thereon, a gear-case parallel to said drive-shaft loosely mounted thereon, a short shaft journaled in said gear-case, an idle gear thereon which meshes therewith and a spur-wheel mounted on said short shaft and revoluble therewith, which gear-case, short shaft idle gear and spur-wheel have a limited movement whereby said idle gear has a reciprocal circumferential movement on said pinion, of a rotary reciprocal shaft, a segmental rack thereon, and a suitable reversing-guide between the ends of said rack, said short shaft having its end adjacent to said rack extended and engaging the guiding elements thereof.

15. A mechanical movement, comprising a rotary reciprocal segmental rack; a continuously-revolving pinion, the axis of which is at right angles to that of said rack, and gearing actuated thereby the axis of which is also at right angles to that of said rack, which alternately engages the upper and lower sides of said rack.

16. A mechanical movement, comprising a rotary reciprocal

segmental rack rotating in one plane, a continuously-revolving pinion the axis of which is at right angles to that of said rack, and gearing actuated thereby the axis of which is also at right angles to tha. of said rack, which alternately engages the upper and lower sides of said rack.

750,137. DISPLAY-SIGN. JOSEPH WARD, Wellston, Ohio, assignor of one-half to Arthur E. Woodrow, Wellston, Ohio. Filed Aug. 20, 1903. Serial No. 170,202. (No model.)



Claim.—1. The combination in a display-sign, of a standard, a frame pivotally mounted on the standard and projecting therefrom on one side, a sign-board mounted on said frame and projecting therefrom on the opposite side of the standard, a wind-wheel journaled in said frame, a rotary disk mounted in said frame driven by said wind-wheel, a tappet mounted on said disk, a bell supported by said frame, and means operated by said tappet for sounding said bell.

2. The combination in a display-sign, of a rotatable frame, a sign-board mounted on the frame, a wind-wheel mounted in the frame, a bell carried by said frame and having a reciprocable operating-rod, a pivoted arm having a weight normally resting upon said rod, a rotary disk driven by said wind-wheel also mounted in the frame, and a tappet provided on said disk and adapted for engagement with said weight-carrying lever to raise the weight and allow it to descend when the tappet passes out of engagement with the lever.

3. The combination in a display-sign of a frame, a sign-board mounted on the frame, a wind-wheel carried by the frame, a globe bearing an appropriate design rotatably mounted upon said frame, a lamp supported within said globe, and driving connections between said wind-wheel and said globe.

4. The combination in a display-sign of a frame, a sign-board mounted on the frame, a wind-wheel carried by the frame, a rotary globe-support mounted at the top of said frame, a globe bearing an appropriate design mounted on said support, a lamp supported within said globe, and driving connections between said wind-wheel and said support.

5. The combination in a display-sign, of a frame, a sign-board mounted on the frame, a wind-wheel carried by the frame, a disk mounted on top of the frame for rotation in a horizontal plane, a lamp mounted on said disk and having a globe bearing an appropriate design, and driving connections between said wind-wheel and said disk.

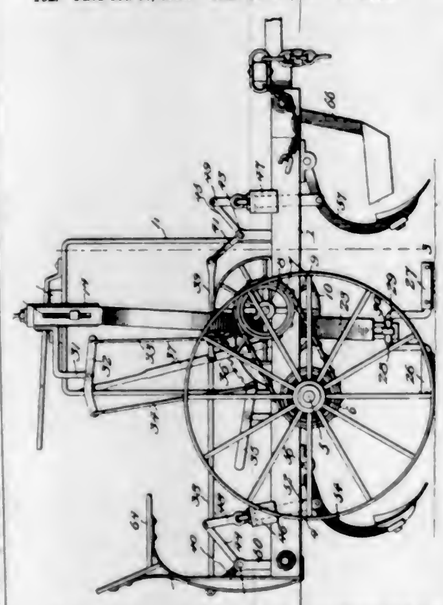
6. The combination in a display-sign, of a frame, a sign-board carried by said frame, a wind-wheel mounted in said frame, a disk provided with a plurality of openings therein mounted on top of said frame for rotation in a horizontal plane, driving connections between said disk and said wind-wheel, and a lamp having a globe bearing an appropriate design supported upon said disk.

7. The combination in a display-sign, of a frame, a sign-board carried by said frame, a wind-wheel mounted in said frame, a disk mounted for rotation in a horizontal plane above said frame and provided with a circumferential groove on its periphery, a lamp supported above said disk for rotation therewith, a belt engaging the hub of said wind-wheel and the groove on said disk, and a belt-tightener comprising an L-shaped arm pivoted at one end, and a pair of guide-pulleys supported on said arm for contact with said belt.

8. The combination in a display-sign, of a frame, a sign-board carried by said frame, a wind-wheel mounted in said frame and having an elongated hub provided with a cylindrical extension having a circumferential groove, a disk mounted above said frame for rotation in a horizontal plane and having a circumferential groove on its periphery, a lamp supported above said disk for rotation therewith, a belt engaging the groove in said disk and the groove on the extension of the hub of the wind-wheel, and a belt-tightener comprising an L-shaped arm pivoted at one end to a portion of said frame, and a pair of pulleys, arranged with their axes inclined to each other at an obtuse angle, supported by said arm and engaging said belt.

9. The combination in a display-sign, of a vertical shaft, a frame rotatably mounted thereon, a wind-wheel mounted in said frame, a sign-board hinged to said frame and held normally in a plane at right angles to the plane of rotation of said wind-wheel, an arm projecting from said frame and provided with a notch, and a notched bar pivoted to said sign-board and adapted to engage with said arm to hold the sign-board at any desired inclination to the plane of rotation of the wind-wheel.

750,138. COTTON-CHOPPER. DAVID WASHINGTON, Rusk, Tex., assignor of two-thirds to Juan Navarrete and Allen Mathews, Rusk, Tex. Filed Oct. 17, 1902. Serial No. 127,703. (No model.)



Claim.—1. In a cotton-chopper, the combination with a frame, of a revolving cam-wheel carried on the frame, a vibrating wheel suspended from the frame, a laterally-sliding bar to which the hoe-handle is secured, and a lever connected to the bar and adapted to move it so as to throw the hoe out of engagement with the cam-wheel.

2. In a cotton-chopper, the combination with a frame, of a revolving cam-wheel carried on the frame, a second frame provided with a slotted block, a transverse bar secured in the slot, a bracket on one end of the bar, a hoe-handle loosely mounted in the bracket, a spring secured at one end to the bracket and having its opposite end bearing against the hoe-handle, and means for drawing the hoe out of engagement with the cam-wheel.

3. In a cotton-chopper, the combination with a frame, of a revolving cam-wheel carried on the frame, a second frame provided with a slotted block, a transverse bar secured in the slot, a bracket on one end of the bar, a hoe-handle provided with an opening within the bracket, a bolt passing through the sides of the bracket and the opening in the hoe-handle, said bolt being of less diameter than the opening in the handle, a U-bolt secured to the top of the handle, means for exerting spring-pressure on the hoe-handle and means for drawing the hoe out of engagement with the cam-wheel.

4. In a cotton-chopper, the combination with a frame, of a vibrating hoe-handle carried thereby, the lower extremity of the handle being restricted, a sleeve having an opening near its top, surrounding the extremity, a clevis slidably mounted on the restricted end of the hoe-handle, an extension on the clevis passing through the opening in the sleeve, bars carried by the clevis, and connections between the free end of the extension of the clevis and a pivoted lever on the frame.

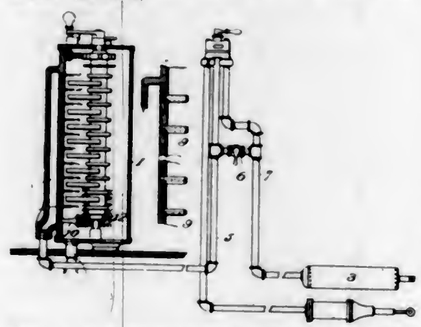
5. In a cotton-chopper, the combination with a frame, of a vibrating hoe-handle carried thereby, said handle being restricted at its lower extremity, a sleeve having an opening surrounding the extremity, a clevis free to move within the sleeve and on the restricted end of the handle, a U-shaped bolt on the clevis, and hoes having overlapping shanks extending through the U-shaped bolt on the clevis.

6. In a cotton-chopper, the combination with a frame, of a bracket superimposed above the frame, a bar leading from the bracket and slidably secured with relation to the frame, a vibrating hoe-handle carried in the bracket, a vibrating device for actuating the hoe-handle, and a lever connected to the bar for throwing the hoe-bar out of engagement with the vibrating device.

7. In a cotton-chopper the combination with a frame, of a vibrating hoe-handle carried thereby and a pair of vertically and laterally adjustable hoes carried by the handle.

8. In a cotton-chopper the combination with a frame, of a sliding bar supported on the frame, a depending hoe-handle pivotally carried by the bar, means for imparting a vibratory motion to the hoe-handle and means for sliding the bar so as to cause the hoe-handle to be thrown into and out of contact with the first-named means.

750,139. ELECTRICAL CONTROLLER FOR RAILWAY-CARS. HARLAN P. WELLMAN, Ashland, Ky. Filed Nov. 19, 1903. Serial No. 181,843. (No model.)



Claim.—1. In an electric-railway car, in combination, an electrical controller, an air-brake system carried by the car, and means for injecting air therefrom against the parts of such controller.

2. In an electric-railway car, in combination, an electrical controller and casing therefor, a fluid-pressure brake system, a valve for the latter, and an exhaust-pipe leading from such valve to said casing for discharging the exhaust fluid thereinto.

3. In an electric-railway car, in combination, an electrical controller and casing therefor, a fluid-pressure brake system, a valve therefor, the exhaust-pipe leaning from said valve to said casing, and means for discharging the exhaust from said valve into the casing in the form of sprays, as set forth.

4. In an electric-railway car, in combination, an electrical controller and casing therefor, a duct or channel communicating with the interior of said casing at different points longitudinally thereof, a fluid-pressure brake system, a valve therefor, and an exhaust-pipe leading from said valve into said duct or channel, as set forth.

5. In an electric-railway car, in combination, an electrical controller, a casing therefor having a series of openings in one of its walls, a duct or channel into which such openings extend, nozzles extending through said openings, a fluid-pressure brake system, a valve therefor, and an exhaust-pipe leading from said valve into said duct or channel.

6. In an electric-railway car, in combination, an electrical controller having its casing formed with a series of openings, a second casing removably secured to said former casing over said openings, a fluid-pressure system, a valve therefor, and an exhaust-pipe leading from said valve into said second casing.

7. In an electric-railway car, in combination, an electrical controller having its casing formed with a series of openings, a second casing removably secured to such former casing and having a duct or channel, and a series of nozzles extending therefrom through said openings, a fluid-pressure brake system, a valve therefor, and an exhaust-pipe leading from said valve into said second casing.

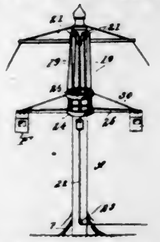
8. In an electric-railway car, in combination, an air-brake system having an exhaust-pipe, an electrical controller into whose casing said exhaust-pipe enters, said casing forming a muffler for such exhaust, and an outlet for such exhaust leading from said casing, as set forth.

9. In an electric-railway car, in combination, an electric controller, a fluid-pressure brake system having a pipe opening into said controller, and a valve for controlling communication between said system and said controller, as set forth.

10. In an electric-railway car, in combination, an electric controller, a fluid-pressure brake system having a reservoir, brake-cylinders, engineer's valve, pipes between said reservoir and valve and the valve and brake-cylinder, and an exhaust-pipe leading from said valve into said controller, and a valved by-pass between said exhaust-pipe and the pipe connecting the reservoir and engineer's valve.

11. In an electric-railway car, in combination, an air-brake system having an exhaust-pipe, a controlling-valve from which such pipe extends, and an electrical controller into whose casing said exhaust-pipe discharges, said casing forming a muffler for such exhaust, as set forth.

750,140. AERIAL WHIRLING TOWER. JOHN H. WELSH, New York, N. Y. Filed Feb. 27, 1903. Serial No. 145,316. (No model.)



Claim.—1. An amusement apparatus comprising a tower, a non-revoluble carriage limited to slidable movement on said tower, a carrier revoluble on said carriage and movable vertically therewith, a counterweight slidable in the tower and connected operatively with said carriage, the aggregate weight of the carriage and the carrier exceeding the counterweight, and a hoisting mechanism connected to the counterweight and tending to pull the latter in an opposite direction against the gravity of the carrier and the carriage.

2. An amusement apparatus comprising a tower, a non-revoluble carriage slidable thereon, a carrier revolubly mounted on the carriage and slidable therewith, a counterweight, flexible connections between the carriage and the counterweight, the aggregate weight of said carrier and the carriage exceeding the counterweight and movable by gravity to a lowered position relative to the tower, a hauling-cable attached to the counterweight, and a suitable motor or engine for pulling on the cable and the counterweight to counteract the gravity of the carrier and carriage.

3. An amusement apparatus comprising a tower having a series of posts forming external track-surfaces, a non-revoluble carriage slidable relatively to the tower, rollers mounted on the carriage to turn on horizontal axes and arranged to ride against the track-surfaces of the tower-posts, said rollers being grouped in pairs at each angle of the tower, and the rollers of each pair lying at right angles to one another and disposed to ride against separate track-faces of one tower-post; a revoluble carrier on said slidable carriage, mechanism for imparting vertical movement to the carriage, and means for rotating said carrier.

4. An amusement apparatus comprising a tower having corner-

posts of angular cross-sectional form, a slidable and revoluble carrier arranged externally on the tower, a counterweight slidable inside of the tower, rollers mounted on the corner portions of the counterweight to rotate on horizontal axes and riding against track-faces afforded by the inner angular portions of the tower-posts, flexible connections between the carriage and said counterweight, and a hauling-cable attached to the counterweight.

5. In an amusement apparatus, the combination with a tower, of a non-revoluble carriage limited to slidable movement thereon, a revoluble carrier mounted on said carriage, a motor carried by one of said parts, gearing between the motor-shaft and the other part, conductor-rails supported by the tower, and current-collectors carried by the carriage and frictionally engaging with the conductor-rails.

6. An amusement apparatus having a tower, a non-revoluble carriage slidable on said tower, a carrier supported revolubly on said carriage, an externally-toothed circular rack in fixed relation to said slidable carriage, a motor mounted on said carrier to travel therewith, and a counter-shaft geared to the motor-shaft and to the rack, whereby the carrier may be rotated around the carriage

750,141. HITCHING DEVICE. WILLIAM J. WILLEY, Clayton, Del. Filed May 13, 1903. Serial No. 156,999. (No model.)



Claim.—1. A hitching device substantially as described, comprising a hollow body, a weight suspended within the body, suspending means for the aforesaid weight constituting the attaching means of the device, the body being provided longitudinally thereof with a plurality of openings, and a supporting-pin adapted for adjustment within the aforesaid openings to limit the movement of the weight within the body.

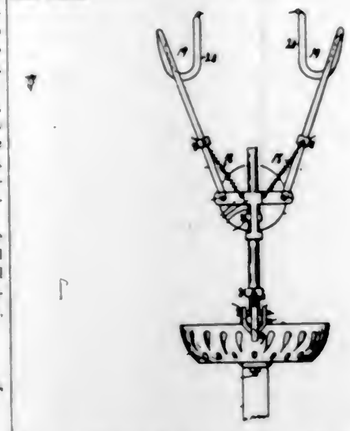
2. In a hitching device, comprising a hollow body, a weight suspended therein, suspending means for the weight comprising attaching means for the device, a head disposed upon the body and comprising a cap having pairs of ears projected therefrom, said pairs of ears being disposed at approximately right angles with reference to each other, and rollers journaled between corresponding pairs of ears and adapted to permit free movement of the suspending means aforesaid in any direction

3. In a hitching device comprising a tubular body, a weight suspended therein, suspension means for the aforesaid weight, the body being provided with a plurality of openings longitudinally and at intervals thereon, a supporting-pin adapted for adjustment within the aforesaid openings to limit the movement of the weight, a head disposed upon the body of the device and comprising a cap having corresponding pairs of ears projected therefrom and disposed at right angles with reference to each other and rollers journaled between the said ears.

750,142. SEAT FOR FARM MACHINERY. CÆSAR WILSON, Greenleaf, Minn. Filed June 4, 1903. Serial No. 160,066. (No model.)

Claim.—1. A seat having a vertically-adjustable back-rest and arm-supports pivoted thereto and provided with springs tending to close them together.

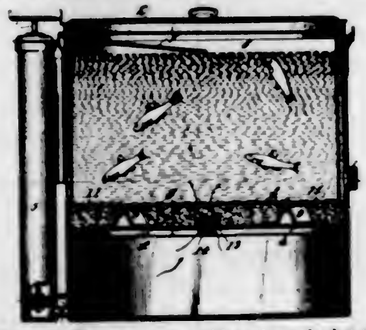
2. A seat having a standard pivoted adjacent to and projecting upward from the rear of the seat, a spring tending to draw the standard rearward and means for stopping the action of the spring at various points; a revoluble vertically-adjustable spring-supported frame on the standard, a back-rest and pivoted arm-rests carried by said frame.



3. A seat having a standard pivoted adjacent to and projecting upward from the rear of the seat, a spring tending to draw the standard rearward and means for stopping the action of the spring at various points, a revoluble vertically-adjustable spring-supported frame on the standard, a back-rest and pivoted arm-rests carried by said frame, and springs with adjustable tension holding said arm-rests toward the occupant of the seat.

4. The combination with a seat, of an attachment securable to the seat or to its support and comprising a suitable frame-piece, a rearwardly-spring-held standard pivoted thereto with its lower end, a vertically-adjustable, spring-supported, revoluble frame or piece upon the standard, and a back-rest and two arm-rests carried thereby, and means for stopping the rearward swinging of the standard.

750,143. MINNOW-BUCKET. THOMAS B. WILSON and AIKEN L. DAVID, Epes, Ala. Filed Sept. 5, 1903. Serial No. 172,162. (No model.)

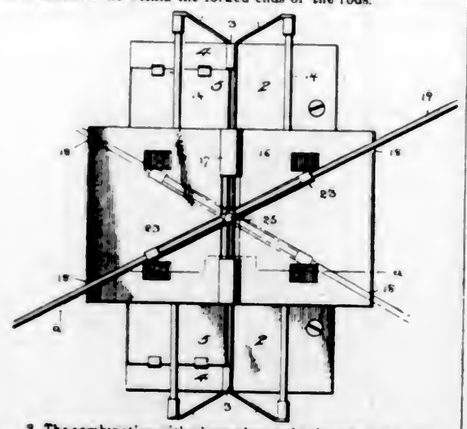


Claim.—1. The combination, with a minnow-bucket having a horizontal partition provided with a valved air-nozzle, of a layer of sand covering such nozzle, and an air-pump connected with the body of the bucket at a point below said partition, whereby air may be forced into the lower compartment and through the valved nozzle of the partition and through the sand resting on the latter, as and for the purpose specified.

2. The combination, with the minnow-bucket proper having an air-pump attached and a transverse partition or false bottom provided with a check-valve opening upward, and a series of brackets, of a minnow-holder proper having a perforated bottom and resting upon said brackets, and a layer of sand interposed between the partition and minnow-holder substantially as described.

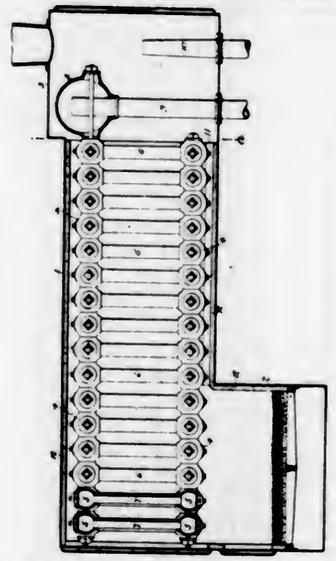
750,144. SAW-SHARPENER. WILLIAM J. WINTER, Christopher, Wash. Filed May 20, 1903. Serial No. 158,020. (No model.)

Claim.—1. The combination with a base-plate, and a clamping-plate adapted to secure a saw-blade in position upon the base-plate; of oppositely-extending arms to the base-plate, rods supported thereby, longitudinally-movable plates upon the rods and having slotted angular extensions, a rod slidably mounted within the slots of said extensions, inwardly-projecting forked ends to the rods, sleeves mounted upon the rod and its ends, and a cam upon the rod adapted to secure a file within the forked ends of the rods.



2. The combination with a base-plate and a clamping-plate adapted to secure a saw-blade in position upon the base-plate; of oppositely-extending arms on the base-plate, rods supported thereby, longitudinally-movable plates upon the rods having angular extensions and a saw-sharpening device slidably mounted within and adapted to be guided by said extensions.

750,145. LOCOMOTIVE-BOILER. JONES WISTER, Philadelphia, Pa. Filed Feb. 18, 1903. Serial No. 143,931. (No model.)



Claim.—1. A locomotive-boiler having an outer casing which contains a combustion-chamber closed except at the ends, a depending fire-box communicating with one end of said chamber and an outlet-stack communicating with the other end of the same, and a water-tube boiler contained wholly within said combustion-chamber, substantially as specified.

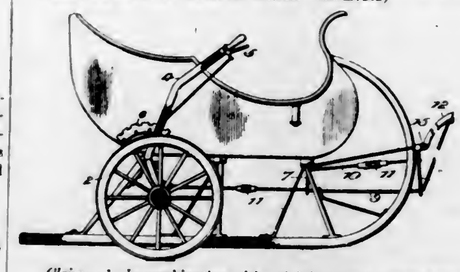
2. A locomotive-boiler having an outer casing which contains a combustion-chamber closed except at the ends, a depending fire-box communicating with one end of said chamber and an outlet-stack communicating with the other end of the same, and a water-tube boiler contained wholly within said combustion-chamber and projecting over the depending fire-box, substantially as specified.

3. A locomotive-boiler having an outer casing which contains a combustion-chamber closed except at the ends, a depending fire-box communicating with one end of said chamber and an outlet-stack communicating with the other end of the same, and a water-tube boiler contained wholly within said combustion-chamber, and removable through one of the ends of the casing, substantially as specified.

4. A locomotive-boiler having an outer casing which contains a combustion-chamber closed except at the ends, a depending fire-box communicating with one end of said chamber, an outlet-stack communicating with the other end of the same, a water-tube boiler contained in said combustion-chamber and rails or bars in the lower portion of the combustion-chamber for the support of said boiler, substantially as specified.

5. A locomotive-boiler having a fire-box and a longitudinal combustion-chamber casing enlarged at the forward end, and a water-tube boiler contained in said casing and having at the forward end a steam-drum contained in said enlarged portion of the casing, substantially as specified.

750,146. WHEELED SLEIGH. JOHN H. WOLF, Sun Prairie, Wis. Filed June 13, 1903. Serial No. 161,383. (No model.)



Claim.—1. In combination with a sleigh, a truck comprising an arched axle journaled to the sleigh, an arm pendent from the horizontal portion of the arched axle, a connection joined at one end to the outer end of said pendent arm and secured at its opposite end to the pole or thills in advance of the pivotal connection thereof with the sleigh, and a hanger pendent from the sleigh and deflecting said connection near its front end in the rear of the pivotal connection of the pole or thills with the sleigh, substantially as set forth.

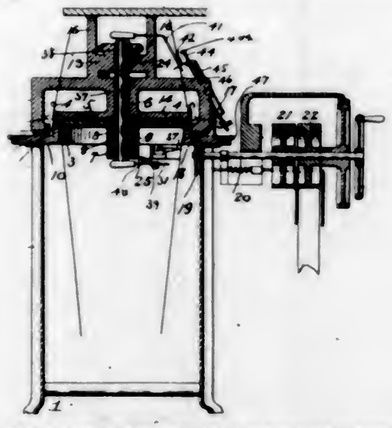
2. In combination with a sleigh, a truck comprising an arched axle journaled to the sleigh, means for raising and lowering the supporting-wheels of the truck by turning the arched axle in its bearings, a hanger pendent from the front portion of the sleigh, a connection slidable in the lower end of said hanger and having its front portion upwardly deflected and secured to the pole or thills in advance of the pivotal connection thereof with the sleigh, and an arm pendent from the arched portion of the axle and having the rear end of said connection attached thereto, substantially as specified.

3. In combination with a sleigh, an arched axle journaled thereto, supporting-wheels applied to the spindle-arms of the axle, an operating-lever projected from the arched portion of the axle to admit of turning same in its bearings, means for securing the lever in an adjusted position, an arm pendent from the arched portion of the axle, hangers pendent from the sleigh, a tie-rod connecting said hangers intermediate of their upper and lower ends, a connection slidable in the lower ends of the hangers and having its front portion upwardly deflected and attached to the pole or thills in advance of the pivotal connection thereof with the sleigh, and a flexible connection between said pendent arm of the arched axle and the aforementioned slidably-mounted connection, substantially as and for the purpose set forth.

750,147. STOP-MOTION DEVICE FOR KNITTING-MACHINES. EMANUEL WRIGLEY, Woonsocket, R. I. Filed June 16, 1903. Serial No. 161,707. (No model.)

Claim.—1. In a stop-motion for knitting-machines, the combination of a dial-post bearing an arm, a trigger-lever fulcrumed on said arm and bearing a spring-pressed finger located to engage the surface of the knit fabric, a spring yieldingly holding said lever in alinement with said arm, a shaft rotatably mounted in a longitudinal aperture in said dial-post and bearing an arm extending at an angle to said first-mentioned arm, a catch whereby said shaft is held against turning relative to said dial-post, said catch being arranged to be disengaged by a pivotal movement of said lever, an elastic

member acting in opposition to said catch, an arm carried by said shaft, and means operated by said last-mentioned arm whereby the driving means of a knitting-machine is disengaged, substantially as described.



2. In a stop-motion device for knitting-machines, the combination with the dial-post mounted to revolve relative to the surface of the knit fabric, the arm rigidly connected to said dial-post, the pivoted latch-lever mounted on said arm, the shaft mounted to rotate relative to said dial-post, the pivoted catch carried by said arm and located to be engaged by said latch-lever, the tooth mounted on said first-mentioned arm and engaged by said catch, the elastic member acting in opposition to said catch to rotate said shaft, and means operated by a rotation of said shaft to stop the knitting-machine, substantially as described.

3. In a stop-motion for knitting-machines, the combination of the hollow dial-post mounted to rotate relative to the fabric, the rigid arm carried by said dial-post, the shaft rotatably mounted in the bore in said dial-post, the arm carried by said shaft, the catch mechanism carried by said last-mentioned arm, the trigger mechanism carried by said rigid arm whereby said catch mechanism is operated to release said arm, and the finger carried by said trigger mechanism and located to bear on the surface of the fabric, and means actuated by the shaft in the dial-post, to stop the action of the machine, substantially as described.

4. In a stop-motion for knitting-machines, the combination of the hollow dial-post rotatably mounted relative to the needle-cylinder, the rigid arm carried by said dial-post, the shaft rotatably mounted in said dial-post, the arm carried by said dial-post, the slotted tension-plate mounted on said rigid arm, the catch pivoted to said last-mentioned arm and passing through the slot in said arm, the stop mounted on said catch and located to engage said arm to limit the movement of said catch, the tooth mounted on said rigid arm and engaged by said catch, the elastic member connected to said arms and opposing said catch and the trigger carried by said arm and engaging said catch, and means actuated by the shaft in the dial-post, to stop the action of the machine, substantially as described.

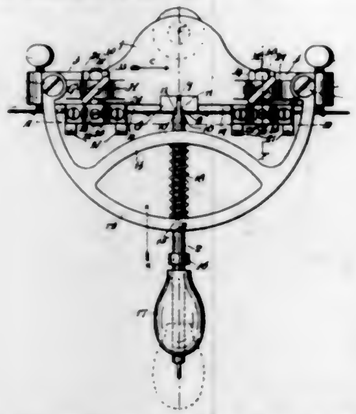
750,148. **SAW-SETTING DEVICE.** WILLIAM F. ARANTS, Indianapolis, Ind. Filed Mar. 21, 1902. Serial No. 99,239. (No model.)

Claim.—1. In a saw-set, the combination with a forming-die provided with a slot terminating in diverging forming planes, of a forming-tool arranged opposite said die, a tongue formed on said tool working in said slot, means for supporting the device on the work, means for presenting the tool to the die at an incline, and means sliding on said tool for imparting a blow thereto, substantially as described.

2. In a saw-set, the combination with a forming-die provided with a slot, of a forming-tool arranged opposite said slot, having a tongue working in said slot, means for reciprocating said tool, and a pair of pivoted saddles for holding the device on the saw-blade, substantially as described.

3. In a saw-set, the combination with an anvil, a die carried thereby, and a forming-tool working against the die, of pivoted supporting means upon the anvil, means for vertically adjusting the supporting means, and means for adjusting the supporting means to conform to the line of saw-teeth, substantially as described.

4. In a saw-set, an anvil, a forming-die carried by the anvil and having a slot terminating at its forward end in diverging forming planes, a forming-tool supported opposite the die, having a tongue formed on the tool constantly operating within the slot, and shoulders on the tool parallel with the said planes, means for forcing the tool against the die, and means for returning the tool to its normal position, substantially as described.

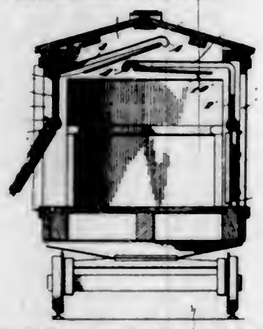


5. In a saw-set, an anvil, a die having a slot terminating in forwardly-disposed diverging forming planes, a forming-tool arranged opposite the die, having a tongue formed on the said tool and constantly operating within the slot, and shoulders on the tool parallel to the forming planes, means for supporting the set on the saw-teeth between the die and the shoulders and slidable means on the tool for moving the same forward to cause the teeth to be forced by the shoulders against the forming planes, substantially as described.

6. In a saw-set, the combination with an anvil, a die situated centrally on the face of said anvil and provided with a central slot extending at right angles with the face of said die and inclined on angled planes on each side of said slot, supporting and guiding means on the ends of said anvil whereby the latter is held in position on saws of different diameters, of a setting-tool provided with a flattened end portion or tongue adapted to fit in said die-slot, said setting-tool provided with side setting-shoulders situated on either side of the said tongue of said tool and having their surfaces parallel with the surfaces of the inclined setting planes of said die, and means for guiding said tool and supporting the latter in position relatively to the die.

7. In a saw-set, the combination with an anvil, a forming-die situated centrally on said anvil and a forming or setting tool supported in an inclined position opposite said forming-die, of supporting and guiding means situated at or near the ends of said anvil, and means whereby the angle of the face of the anvil may be adjusted relatively to the plane or side of the saw.

750,149. **GRAIN-CAR DOOR.** JAMES BARRY, Seattle, Wash., assignor of one-half to Augusta F. Johnson, Seattle, Wash. Filed Dec. 23, 1902. Serial No. 136,394. (No model.)

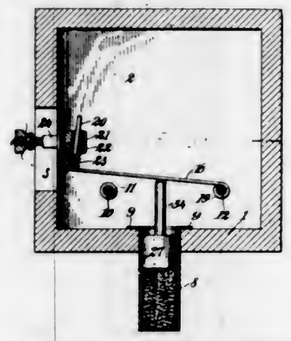


Claim.—1. In a grain-car door, the combination with a body, of sets of parallel links carried thereby, bolts carried by the outer ends of each set of links, means pivotally connecting the inner ends of all of said links and spacing the same apart and adapted to be moved vertically for moving said links longitudinally while maintaining their parallelism, and vertically-moving bolts carried by some of said links.

2. In a grain-car door, the combination with a body, of sets of parallel links, a bolt carried by each set of links, and means spacing the links apart and designed to be shifted for moving said links longitudinally while maintaining their parallelism, whereby said bolts may be projected or retracted.

3. In a grain-car door, the combination with a body, of a normally horizontally arranged link pivotally carried by each side of said body, means pivotally connecting the inner ends of said links, similarly-arranged links carried by said body beneath the first-mentioned links and arranged parallel to said first-mentioned links, the upper and lower links of each side of the door forming a pair, a bolt carried by each pair of links, and a bar connecting the inner ends of said links for simultaneously moving the same while maintaining their parallelism.

750,150. **ELECTRIC FIRE-ALARM.** JOSEPH A. BARTEN and SAMUEL R. SHERRINGER, Philadelphia, Pa. Filed Apr. 30, 1903. Serial No. 154,919. (No model.)



Claim.—1. In an electric fire-alarm, the combination of a contact provided with a movable member, means for closing said contact when the temperature reaches a predetermined degree, a guide-rod mounted upon said movable member, a head mounted adjacent to said guide-rod, a spiral spring encircling said guide-rod and engaging said movable member and said head, and means controllable at will for securing said head at different points for the purpose of tensioning said spring to any desired degree.

2. In an electric fire-alarm, the combination of a frame, a contact provided with a movable lever, a fusible substance connected with said movable lever and normally opposing the motion thereof, spring mechanism for tensioning said movable lever, an adjustable slide mounted upon said frame and engaging said spring mechanism, and means for indicating the relative position of said slide thereby showing the degree of tension upon said spring mechanism.

3. In an electric fire-alarm, the combination of a frame provided with a longitudinal slot, a contact provided with a movable lever, a fusible substance connected with said movable lever and normally opposing the motion thereof, a spiral spring mounted upon said lever, a movable member engaging said slot and free to move relatively thereto, and means controllable at will for securing said member in different positions relatively to said slot for the purpose of tensioning said spring.

4. In an electric fire-alarm, the combination of a frame provided with a longitudinal slot, a movable member mounted within said slot, a heat-controlled device normally restraining said member against movement, an electric contact closable by movement of said member but normally open, a spring connected with said member for moving the same, a member engaging said spring and also engaging said slot, and mechanism controllable at will for securing said member at different points relatively to said slot.

5. In an electric fire-alarm, the combination of a frame provided with a longitudinal slot, a movable member mounted within said slot, a heat-controlled device normally restraining said member against movement, an electric contact closable by movement of said member but normally open, a spring connected with said member for moving the same, a member engaging said spring and also engaging said slot, mechanism controllable at will for securing said member at different points relatively to said slot, and an index for indicating the position of said member engaging said slot thereby showing the degree of tension exerted by said spring.

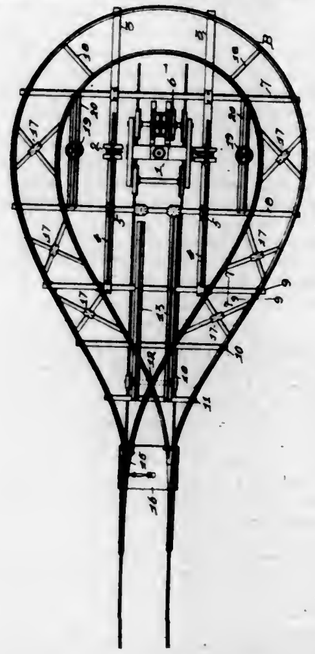
750,151. **LAND-ANCHOR.** WILLIAM G. BEACH, Grandlake, Ark. Filed Oct. 7, 1903. Serial No. 176,076. (No model.)



Claim.—1. A land-anchor, comprising a post having a substantially diamond-shaped head at its lower end, the lower end of said head being pointed to penetrate the earth, an offset on one side of said head at the lower end thereof, and a pair of arms separately pivoted to said head slightly above said offset and adapted to swing upwardly into a vertical position and outwardly into a horizontal position, said arms being adapted to abut one against the other at their inner ends when brought to a horizontal position to prevent further downward movement of the arms, said arms also being curved outwardly at their free ends.

2. In a land-anchor, the combination of a post having its lower end tapered, a pair of arms separately pivoted on said end, and arranged to swing upward into alinement with the post, a shoulder on each arm, which shoulders when the arms are swung downward to a position transverse with the post will mutually engage and prevent further downward movement, and an offset portion on the post end below said arms, having a face in close proximity to said arms when they are in said mutually engaging position.

750,152. **CANTALIVER CAR-TRACK.** EDWARD J. BEARD, Kansas City, Mo. Filed Apr. 7, 1903. Serial No. 151,550. (No model.)



Claim.—1. A device of the class named, consisting of an annular track slidably mounted upon a permanent track, substantially as and for the purposes specified.

2. A cantaliver car-track for use in embankment construction, consisting of an annular track, a truck carrying the frame, and means whereby the truck, frame and track may be propelled forwardly as the work progresses, substantially as and for the purposes specified.

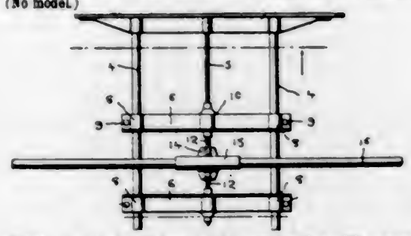
3. A device of the class named, consisting of an annular track adapted to engage with a permanent track, an automatic switch seated in the track at the point of its engagement with the permanent track, a frame upon which the annular track is mounted, wheels whereby the frame is carried, and means whereby the annular track may be moved forwardly or backwardly with reference to the permanent track, substantially as described.

4. A device of the class named, consisting of an annular track, and means whereby the annular track may be adjusted to a horizontal plane transversely, substantially as specified.

5. In a device of the class named, jacks located in the frame whereby the annular track is carried at points outside the permanent track and within the width of the embankment being built, substantially as and for the purposes specified.

6. A device of the class named, consisting of an annular track adapted to engage with a permanent track, an automatic switch seated in the track at the point of its engagement with the permanent track, a frame upon which the annular track is mounted, wheels whereby the frame is carried, means whereby the annular track may be adjusted to a horizontal plane, and means whereby the annular track may be moved forwardly or backwardly with reference to the permanent track, substantially as and for the purposes specified.

750,153. SHAFT-HANGER. JOSEPH W. BECKTOL and JAMES C. MANLEY, Tacoma, Wash. Filed Aug. 29, 1903. Serial No. 171,284. (No model.)



Claim.—1. In a shaft-hanger, the combination with a securing-plate; of hangers detachably connected thereto, a threaded rod swiveled within the plate and depending therefrom, brackets having forked ends adjustably mounted upon the hangers, said brackets engaging and adapted to be adjusted by the rod, oppositely-disposed stems adjustably secured to the brackets at points removed from the hangers, and a bearing interposed between and secured to the stems.

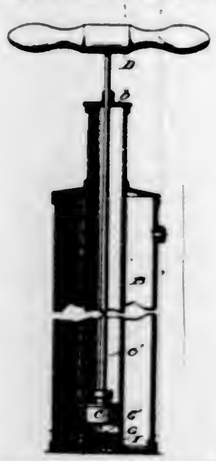
2. In a shaft-hanger, the combination with a securing-plate; of hangers detachably secured to said plate, brackets having forked ends engaging the hangers, means for clamping said ends upon the hangers, a threaded adjusting-rod swiveled to the plate and projecting through and engaging the brackets, said brackets having extensions projecting beyond the hangers, oppositely-arranged stems adjustably mounted within the extensions, and a shaft-bearing interposed between and secured to the stems.

750,154. PUMP CYLINDER, TANK, AND BASE-PLATE. WILLIAM BOEKEL and JULIUS BOEKEL, Philadelphia Pa. Original application filed Aug. 3, 1903, Serial No. 168,336. Divided and this application filed Oct. 3, 1903. Serial No. 175,573. (No model.)

Claim.—1. In combination with the cylinder of a pump and an inclosing tank, a check-valve, a casing therefor and a base-plate, provided with a recess for said valve-casing and raised parts to fit the said cylinder and tank, one of the said parts being provided also with an inlet from said cylinder to said recess above the valve and with an outlet from said cylinder below the valve proper to the said tank substantially as set forth.

2. In combination with a fixed fastening-plate of dovetailed and tapering form, a base-plate grooved to fit the said plate and recessed to receive a check-valve casing, and a pump-cylinder and a tank arranged concentrically and attached to said plate substantially as set forth.

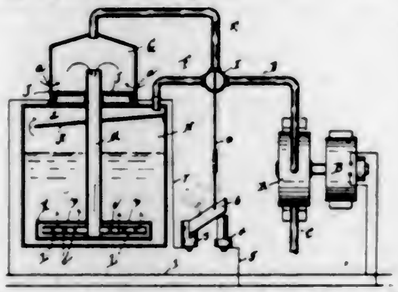
3. In combination with a check-valve and its casing, a base-plate for a pump and tank provided with a part which is recessed to receive this valve and casing and provided with an inlet-passage from the interior of said pump to the said recess and an outlet-passage from the said recess to the interior of the said tank, the said valve fitting the said recess and provided with passages between these parts which permit the inflow of the air through the valve to the tank and the closing of the valve by back pressure substantially as set forth.



4. In combination with cylindrical tank A and pump-cylinder B, the circular base-plate F supporting the said parts, this base-plate being provided with a raised rim fitting around the lower end of the said tank, a ledge for the latter to rest on, a central hub fitting within the lower end of the said cylinder, a lateral passage *f* communicating with the interior of the tank, an outlet-bore G′ communicating with the interior of the pump-cylinder and a check-valve between the said passages and bore substantially as set forth.

5. In combination with a tank and pump-cylinder arranged concentrically and a tapering dovetailed fastening-plate adapted to be attached to a supporting article or structure, a base provided with a tapering, dovetailed groove, fitting the said fastening-plate, a raised peripheral rim and hub, fitting said tank and cylinder respectively, a central recess the wall of which is screw-threaded at its outer end, passages connecting the said recess with the interior of the said tank and cylinder respectively, a check-valve in said recess automatically governing communication between these passages and a casing for said valve, said casing being screw-threaded for engaging the screw-threaded part of the wall of the recess to hold the said valve detachably in place substantially as set forth.

750,155. APPARATUS FOR SUPPLYING VARIOUS ATMOSPHERES. ODIN R. BOSS, Cincinnati, Ohio, assignor to Automatic Humidifier Company, Cincinnati, Ohio, a Corporation. Filed Jan. 8, 1903. Serial No. 138,193. (No model.)



Claim.—1. In an apparatus for supplying atmospheres of various humidities, an air-pump, means for operating the same, an air-humidifying tank containing water, an air-tank, an exit-pipe leading from each tank to the pump, a pipe leading from the air-tank to beneath the water-level of the humidifying-tank, and valve mechanism adapted to open communication directly between the air-tank and the pump, or indirectly through the humidifying-tank, substantially as described.

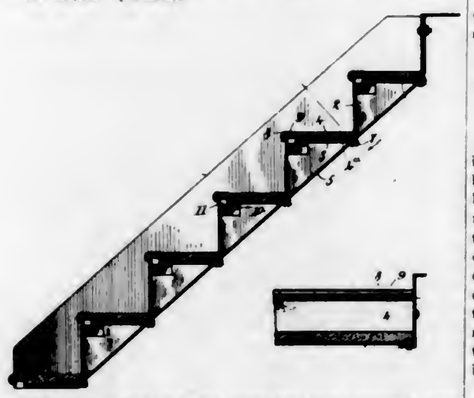
2. In an apparatus for supplying atmospheres of varying humidity, an air-pump, means for operating the same, an air-tank, an air-supply and air-exit therefor, a heater for said air-tank, an air-humidifying tank under said air-tank and containing water, an exit-pipe in the top of said humidifying-tank, an air-pipe leading from the air-tank to beneath the level of the water in the humidifying-tank constituting the air-supply therefor, radial pipes having air-orifices extending from said air-pipe, a pipe connecting said exhausts with the air-pump, and a valve mechanism adapted to open communication directly between the air-tank and the pump or indirectly through the humidifying-tank whereby cold or heated dry air, and cold or heated moist air may be distributed by said pump, substantially as described

3. In an apparatus for supplying atmospheres of varying humidity, an air-pump, means for operating the same, an air-humidifying tank containing water, an air-tank, an air-supply and air-exit therefor, a pipe leading from the air-tank to below the water-level of the humidifying-tank, constituting the air-supply therefor, a pipe connecting said exhausts with the air-pump, and a valve mechanism adapted to open communication directly between the air-tank and the pump or indirectly through the humidifying-tank, substantially as described.

4. In an apparatus for supplying atmospheres of varying humidity, an air-pump, means for operating the same, an air-tank, an air supply and exit therefor, an electric heater in the bottom of said tank, an air-humidifying tank containing water and under the air-tank, an exit-pipe at the top thereof, a vertical pipe extending from the air-tank into the humidifying-tank to beneath the water-level thereof, constituting an air-supply therefor, a subcompartment in the bottom of the humidifying-tank into which said vertical pipe terminates, said vertical pipe having radial pipes within said subcompartment, air-orifices in said radial pipes and subcompartment, a pipe connecting said exits with the air-pump, and a valve mechanism therein adapted to open communication directly between the air-tank and the pump or indirectly through the humidifying-tank, substantially as described.

5. In an apparatus for supplying atmospheres of varying humidity, an air-pump, means for operating the same, an air-tank, an air supply and exit therefor, a heater for said tank, an air-humidifying tank, an air-supply pipe therefor leading from the air-tank to beneath the water-level of the humidifying-tank, an exit for said humidifying-tank leading from the top thereof, a pipe connecting said exits with the air-pump, a valve mechanism therein adapted to control said exits, and an electric switch connected to and actuated by said valve automatically, whereby the air-tank heater is operated at predetermined positions of valve adjustment, substantially as described.

750,156. STAIR STRUCTURE. NATHANIEL BOIS, New York, N. Y., assignor to Clara Bois, Brooklyn, N. Y. Filed May 2, 1903. Serial No. 155,391. (No model.)

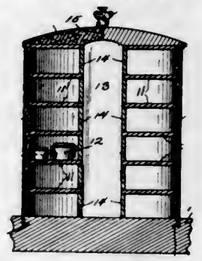


Claim.—1. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges, a plurality of steps and risers formed of a single length of sheet metal, the steps having depressed portions, the material at the junction of the steps and risers being formed at an angle parallel with the flanges, fastening devices extended through said portions and the flanges, and concrete or cement in said depressions.

2. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges, a plurality of steps and risers formed of a single length of sheet metal secured to the flanges, the steps having depressed portions, concrete or cement in said depressed portions, and tie-plates having their ends secured to the string-pieces, the said tie-plates being extended across the steps between the front walls of the depressions and the adjacent risers.

3. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges at the lower edge, a plurality of steps and risers formed of a single strip of sheet metal, the steps having depressions, means for connecting the steps and risers to the flanges, tie-plates extending underneath the steps and connecting with the string-pieces, concrete in the depressions, and nose-pieces having corrugated portions extended over the front edges of the steps.

750,157. MAUSOLEUM OR BURIAL-VAULT. GEORGE Y. BONUS, Chicago, Ill. Filed Feb. 21, 1903. Serial No. 144,503. (No model.)



Claim.—1. In a vault, the combination of a casing lined with non-heat-conducting material; a roof; an entrance-door; a plurality of shelves; and a concrete floor substantially as described.

2. In a vault, the combination of a casing lined with non-heat-conducting material; a roof; an entrance-door; a plurality of shelves provided with doors; and the said casing anchored in a concrete floor, substantially as and for the purpose specified.

3. In a vault, the combination of a sheet-metal casing; a cement roof; a lining within the casing; a sheet-metal entrance-door; a plurality of fireproof shelves; and a concrete floor substantially as described.

4. In a vault, the combination of a casing; a lining of non-heat-conducting material; a cement roof; an entrance-door; a plurality of fireproof shelves provided with doors; and the said casing anchored in a concrete floor, substantially as and for the purpose specified.

5. In a vault the combination of a sheet-metal casing, a cement roof and a lining within the casing substantially as and for the purpose specified.

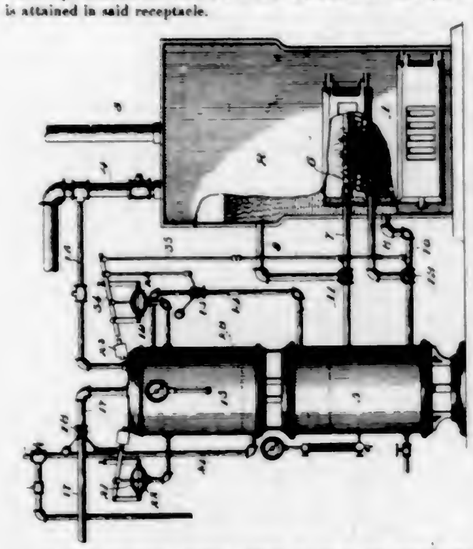
6. In a vault the combination of a casing, a lining of non-heat-conducting material, a cement roof, and shelving within the casing substantially as described.

750,158. VACUUM AND CIRCULATORY SYSTEM FOR HEATING. GEORGE L. BOTTUM, Chicago, Ill. Filed May 5, 1902. Serial No. 105,869. (No model.)

Claim.—1. In combination with a circulatory heating system in which the heating medium issues from and returns into a chamber in which it is heated, a steam-generator distinct from such chamber; a steam-receptacle communicating at the upper part with the return-pipe of the system and also communicating with such generator; a valve which controls the latter communication; a steam-condensing water-supply pipe leading to said steam-receptacle; a valve controlling the communication of the water-supply therewith; means operated by the tension in the steam-receptacle for opening the water-controlling valve and closing the steam-controlling valve, said means being constructed and adapted to admit the condensing-water and to cut off the steam upon predetermined changes of tension in the steam-receptacle.

2. In combination with a circulatory heating system in which the heating medium issues from and returns into a chamber in which it is heated, a steam-generator distinct from such chamber; a steam-receptacle communicating therewith and also communicating at the upper part with the return-pipe of said system; a valve which controls the former communication; a steam-condensing water-supply pipe leading to the steam-receptacle; a water-controlling valve in the pipe, and means operated by excess of atmospheric pressure over the tension in the steam-receptacle for closing the water-supply pipe

when a predetermined reduction of said tension below atmospheric is attained in said receptacle.



3. In a circulatory heating system, in which the heating medium issues from and returns into a chamber in which it is heated, in combination with such chamber and the return-pipe of such system, a steam-generator distinct from such chamber; a steam-receptacle communicating with such chamber, and also communicating at the upper part with said return-pipe; a valve which controls the former communication; a steam-condensing water-supply pipe leading to the steam-receptacle; a water-controlling valve in such pipe; means operated by the difference between atmospheric tension and the tension in the steam-receptacle for opening the steam-controlling valve when the tension in said receptacle rises toward atmospheric pressure, and for closing it when a predetermined reduction below atmospheric pressure is attained, and means also operated by the difference between the tension in said receptacle and atmospheric pressure, for opening the water-controlling valve after the steam-controlling valve is opened, and for closing it upon a predetermined further reduction of tension in the receptacle below normal atmospheric pressure.

4. In a circulatory heating system in which the heating medium issues from and returns into a chamber in which it is heated, in combination with such chamber and the return-pipe of the system, a steam-generator distinct from the chamber; a steam-receptacle communicating with such generator; a valve which controls such communication; means operated by the difference between atmospheric pressure and the tension in the steam-receptacle for actuating the controlling-valve, said return-pipe being in communication with said receptacle; a water-supply pipe also communicating with the receptacle; a water-controlling valve therein; means operated by the difference between atmospheric tension and that in the receptacle for actuating the water-controlling valve to admit water to the receptacle when a predetermined pressure of steam is attained therein, and means for draining the water from said receptacle.

5. In a vacuum heating system a steam-generator and a steam-receptacle communicating therewith; a valve which controls such communication; a circulatory system communicating with said receptacle; means for producing a vacuum by condensation of steam in said receptacle; a furnace and a coil exposed to the heat thereof in circuit with the generator; and means operated by the tension in the steam-receptacle for controlling the circulation between such coil and the generator.

6. In a vacuum heating system a hot-water boiler and a circulatory system issuing therefrom and returning thereinto, a steam-generator; a furnace for heating the boiler; a coil exposed to the furnace in circuit with the generator and the boiler and provided with valves to direct the circulation through either, according to the position of the valves; a steam-receptacle communicating with the generator, and a valve controlling such communication, a circulatory system leading from and back into the boiler, said system being in communication with said steam-receptacle; means for producing condensation of steam in the receptacle to cause vacuum therein; means operated by the tension in said receptacle for operating the valves to direct the circulation of the coil to the generator or boiler.

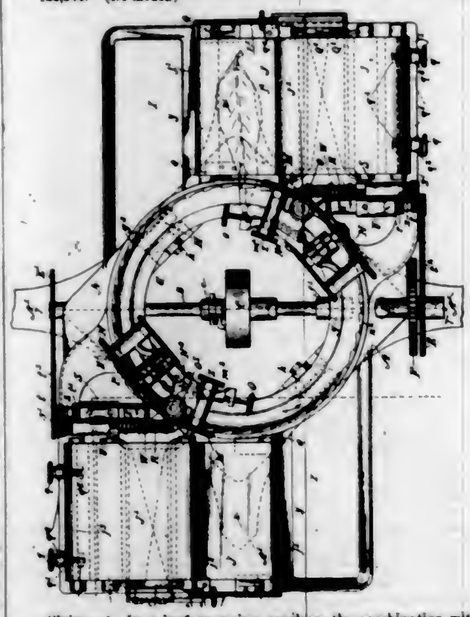
7. In a circulatory system of vacuum heating, in combination with the circulating-pipes of the system, a boiler in circuit with the pipes; a furnace for heating same; a steam-generator and a coil from the furnace in circuit with such steam-generator; connections from said coil by which it may be put in circuit with the boiler and valves which control the connections to cause the coil to be in circuit with either the steam-generator or the boiler, according to the position of the valves; a steam-receptacle in communication with the steam-generator and a valve which controls such communication, a water-supply pipe also communicating with the steam-receptacle and a water-controlling valve therein; means operated by the tension in the receptacle for operating the valves to admit the water thereto and cut off the steam therefrom, and connections by which the same valve-operating means operate the valves in the coil-circuit to shift said circuit from the generator to the boiler when the steam-controlling valve is closed, and from the boiler to the generator when said valve is opened.

750,159. KETTLE. RUDOLPH BRANDT, Athens, Ga. Filed Jan 13, 1903. Serial No. 138,896. (No model.)



Claim.—A kettle or boiler having its bottom provided with an anaular rim corrugation and with a circular draft-space within the same and an outlet notch or notches, and having within said annular corrugation parallel corrugations, the draft-spaces between said parallel corrugations discharging at their ends into the circular draft-space within the annular corrugation substantially as and for the purposes set forth.

750,160. MACHINE FOR STEMMING TOBACCO-LEAVES. WILLIAM C. BRIGGS, Winston-Salem, N. C. Filed Oct. 1, 1902. Serial No. 125,579. (No model.)



Claim.—1. In a leaf-stemming machine the combination with stemming mechanism of means for feeding leaves thereto, and supplemental means for reversing the movement of broken or unstemmed

leaves and moving them toward the point where they were first delivered to the machine.

2. In a leaf-stemming machine, the combination with stemming mechanism, of overlapping feed-aprons between which the leaves are fed toward the stemming mechanism, and which after passing the stemming mechanism return and feed broken or unstemmed leaves in a reversed direction away from the stemming mechanism.

3. In a leaf-stemming machine, the combination with stemming mechanism, of two feed-aprons having overlapping portions which move toward the stemming mechanism and carry the leaves thereto, and also have overlapping portions which commence to move in a reverse direction after leaving the stemming mechanism and carry the leaves away from said stemming mechanism.

4. In a leaf-stemming machine, the combination with stemming mechanism, of a feed-apron having an upper portion moving toward the stemming mechanism, and a lower portion moving away from it in a reverse direction, and another apron overlapping a portion of the top of the first-mentioned apron and running in the same direction therewith, and another portion which runs in close contact with the under portion of said first-mentioned apron, and rollers for supporting said aprons arranged on opposite sides of the stemming mechanism, for the purpose specified.

5. The combination with the stemming mechanism, of an annular toothed carrier revolving in a plane parallel with the stemming mechanism and which carries the leaves into engagement therewith.

6. The combination with the stemming mechanism, of an annular carrier and a band engaging therewith, and between which and the carrier the leaf is held while being fed to the stemming mechanism.

7. The combination with the stemming mechanism, of an annular carrier, a band engaging it and between which and the carrier a leaf is grasped, the stemming mechanism and a cutter for severing one portion of the leaf from the other portion thereof after the leaf has been engaged by the stemming mechanism.

8. The combination with stem-drawing rolls, of means for feeding the leaves into engagement therewith, a cutter which severs the tip of the leaf from the other portion thereof while engaged by the stemming-rolls, and stem-drawing rolls which draw the stems between them and discharge them after the tip has been severed.

9. The combination with means for feeding the leaves, of two stemming-rolls each of which is spirally threaded and which have a space between them divided by the spirals into a series of separate openings, and means for drawing the stems successively through these openings.

10. The combination with means for feeding the leaves, of two tapered spirally-threaded rolls revolving about parallel axes and having a space between them divided by the spirals into a series of openings and means for drawing the stems successively through these openings.

11. The combination with means for feeding a leaf, of the stemming-rolls spirally threaded and having a tapered opening at their entrance ends and revolving about parallel axes.

12. The combination with means for feeding a leaf, of stemming-rolls tapered at their entrance ends and gradually tapering toward their exit ends, spiral threads on the rolls gradually increasing in depth toward the exit ends of the rolls, and stem-drawing rolls which draw the stem of a leaf successively through the spaces between the spirals.

13. The combination with the stemming-rolls, of the stem-drawing rolls having tapered entrance ends and one of which has a threaded portion at its entrance end.

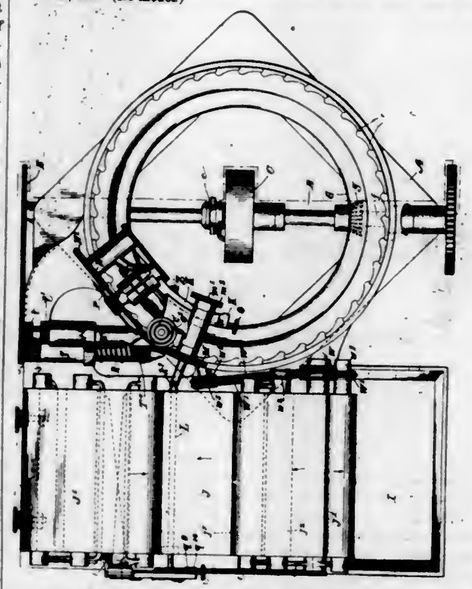
14. The combination with the annular toothed carrier and means for holding a leaf in engagement therewith, of the spirally-threaded stemming-rolls, and the stem-drawing rolls whose entrance ends are arranged in rear of the entrance ends of the stemming-rolls.

15. The combination with means for feeding the leaves sidewise, of stemming-rolls with a longitudinal space between them to allow the stems to move sidewise, transverse ribs on the rolls having spaces between them to allow the stems to pass through the rolls, and means for drawing the stems through the rolls, substantially as described.

16. The combination with stemming mechanism comprising spirally-threaded rolls and stem-drawing rolls, of a horizontally-arranged annular carrier, a band engaging therewith and between which and the carrier the leaf is held while being fed to the stemming mechanism, and endless feed-aprons arranged on horizontal rollers and adapted to feed the leaves toward the stemming mechanism and also at times to feed unstemmed leaves away from it.

17. The combination with stemming mechanism comprising spirally-threaded rolls and stem-drawing rolls, of a horizontally-arranged annular carrier, a band engaging therewith and between which and the carrier the tip of the leaf is held while being fed to the stemming mechanism, a cutter for severing the tip from the body of the leaf, an endless feed-apron arranged on horizontal rollers and adapted to receive the leaf on its upper surface, and to feed the leaf into engagement with the toothed carrier and the band, and also into engagement with the stemming mechanism, another overlapping feed-apron coöperating with that first mentioned to feed the leaves to the stemming mechanism, and means for adjusting the tension of the aprons.

750,161. MACHINE FOR STEMMING TOBACCO-LEAVES. WILLIAM C. BRIGGS, Winston-Salem, N. C. Filed Apr. 29, 1903. Serial No. 154,866. (No model.)



Claim.—1. In a leaf-stemming machine the combination with stemming mechanism of means for feeding leaves thereto, and for automatically moving unstemmed or broken leaves past and returning them to the stemming mechanism.

2. In a leaf-stemming machine the combination of stemming mechanism, means for feeding leaves thereto, and devices which receive leaves that pass the stemming mechanism and automatically return them to said stemming mechanism.

3. In a leaf-stemming machine, the combination with stemming mechanism, of means for feeding leaves thereto sidewise, and for automatically returning the leaves to such mechanism, and supplemental means for moving the leaves endwise while returning.

4. In a leaf-stemming machine, the combination with stemming mechanism, of overlapping feed-aprons for feeding leaves toward the stemming mechanism, and for automatically returning leaves thereto, and endless cords for assisting the aprons in reversing the movement of the leaves.

5. In a leaf-stemming machine, the combination with leaf-stemming mechanism, of overlapping feed-aprons for feeding leaves toward the stemming mechanism, and for automatically returning leaves thereto, and endless cords coöperating with the feed-aprons and inclined relatively thereto to move the leaves endwise.

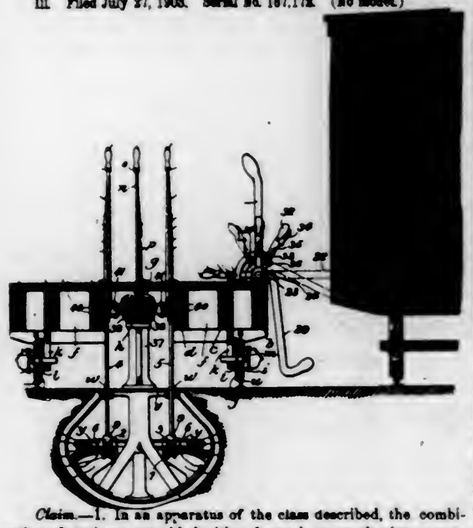
6. In a leaf-stemming machine, the combination with stemming mechanism of endless feed-aprons having overlapping portions at opposite ends, and which extend past the stemming mechanism and carry leaves thereto, and endless cords at one end of the aprons for giving an endwise movement to the leaves.

7. In a leaf-stemming machine, the combination with stemming mechanism, of an endless feed-apron having a lower horizontal loop and an upper, overhanging horizontal loop of less length, connected to the lower loop by a vertical portion, and a second endless apron having a portion overhanging and in contact with the lower loop of the first apron, and a portion running beneath and in contact with

said loop, and another portion running in contact with the vertical portion of the first apron.

8. In a leaf-stemming machine the combination with stemming mechanism, of overlapping feed-aprons between which the leaves are fed toward the stemming mechanism, and which after passing the stemming mechanism return and feed broken or unstemmed leaves in a reverse direction away from the stemming mechanism, and then again toward the stemming mechanism.

750,162. APPARATUS FOR SWITCHING CARS. MICHAEL BROSNAN, Chicago, Ill., assignor of one-half to Leon Garrow, Chicago, Ill. Filed July 27, 1903. Serial No. 167,172. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a grip-car provided with a frame, lever mechanism mounted on such frame and extending outward laterally thereof for engaging the car to be driven, traction-cable mechanism mounted beneath such grip, and grip mechanism mounted upon such grip-car in engagement with the traction-cable mechanism, substantially as described.

2. In an apparatus of the class described, the combination of a grip-car provided with a frame and supporting-wheels, tracks upon which such supporting-wheels are mounted, lever mechanism movably mounted on the frame of such car and extending downwardly laterally thereof for engaging the car to be driven on an adjoining track, traction-cable-car mechanism mounted beneath such grip-car, grip mechanism mounted upon such car in engagement with the traction-cable mechanism, independently-mounted rigid brace-beam mechanism extending longitudinally of the grip-car adjacent to the frame thereof, and antifriction-wheels mounted intermediate such brace-beam mechanism and the grip-car frame, substantially as described.

3. In an apparatus of the class described, the combination of a grip-car provided with a frame and supporting-wheels, traction-cable mechanism mounted beneath such grip-car comprising a cable having two stretches moving longitudinally of the car in opposite directions, grip mechanism mounted upon the car, means for connecting such grip mechanism with either of such stretches of the cable, and means for connecting such cable with a suitable source of power, substantially as described.

4. In an apparatus of the class described, the combination of a grip-car provided with a frame and supporting-wheels, lever mechanism movably mounted on the frame of such car and extending outward laterally thereof for engaging the car to be driven, traction-cable mechanism mounted beneath such car comprising stretches moving in opposite directions longitudinally of the car, grip mechanism mounted upon such car, means for connecting such grip mechanism with the desired stretch of such traction-cable, and means for connecting such traction-cable with a suitable source of power, substantially as described.

5. In an apparatus of the class described, the combination of a grip-car provided with a frame and supporting-wheels, lever mechanism movably mounted on the frame of such car and extending outward laterally thereof for engaging the car to be driven, traction-cable mechanism mounted beneath such car comprising parallel stretches moving in opposite directions longitudinally of the car, grip mechanism mounted upon such car, means for connecting such grip mechanism with the desired stretch of such traction-cable, fixed brace-beam mechanism extending longitudinally of the grip-car adjacent to the frame thereof, and horizontal rotatable wheels mounted upon the car-frame in engagement with such fixed brace-beam mechanism, substantially as described.

6. In an apparatus of the class described, the combination of a grip-car provided with a frame having supporting-wheels mounted thereon, lever mechanism movably mounted on the frame of such car comprising a lever extending upward therefrom when in one position and outward laterally thereof when in a second position, means for operating such lever, means for holding it in either its upright or extended position, traction-cable mechanism mounted beneath such car, and grip mechanism mounted upon the car for engaging such traction-cable mechanism, substantially as described.

7. In an apparatus of the class described, the combination of a grip-car provided with a frame having supporting-wheels mounted thereon, lever mechanism pivotally mounted on the frame of such car comprising a lever extending upward from the point of pivotal connection with the frame in one position and outward laterally thereof in a second position and a second lever extending downward from the point of pivotal connection with the frame in one position and outward laterally thereof in a second position, means for operating such levers and holding them in any desired position, traction-cable mechanism mounted beneath such car, a rigid brace-beam mounted independently of the car and extending longitudinally thereof adjacent to the car-frame, and antifriction-wheels mounted upon the car-frame in engagement with such rigid brace-beam, substantially as described.

8. In an apparatus of the class described, the combination of a grip-car provided with a frame having supporting-wheels mounted thereon, tracks for supporting such car, lever mechanism pivotally mounted on the frame of such car comprising a lever extending upward from the point of pivotal connection with the frame in one position and outward laterally thereof in a second position and a second lever extending downward from the point of pivotal connection with the frame in one position and outward laterally thereof in a second position, means for operating such levers and holding them in any desired position, traction-cable mechanism mounted beneath such car, a rigid brace-beam mounted independently of the car and extended longitudinally thereof adjacent to the car-frame, antifriction-wheels mounted upon the car-frame in engagement with such rigid brace-beam, and brake mechanism for retarding and stopping the movement of such car, substantially as described.

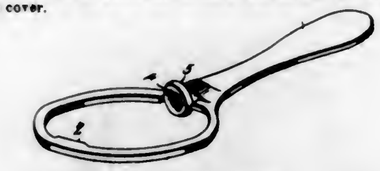
9. In an apparatus of the class described, the combination of a grip-car provided with a frame having supporting-wheels mounted thereon, lever mechanism movably mounted on such frame and extending outward laterally thereof for engaging a car to be driven on an adjoining track, brace-beam mechanism mounted independently of the car and extending longitudinally thereof, horizontally-rotatable wheels mounted upon the car-frame in engagement with such brace-beam mechanism, a traction-cable mounted beneath such car, grip mechanism mounted upon the car for engaging such cable mechanism, and means for connecting and disconnecting such grip and cable mechanism, substantially as described.

10. In an apparatus of the class described, the combination of a grip-car provided with a frame having supporting-wheels mounted thereon, lever mechanism movably mounted on such frame and extending outward laterally thereof for engaging a car to be driven on an adjoining track, brace-beam mechanism mounted independently of the car and extending longitudinally thereof, horizontal rotatable wheels mounted upon the car-frame in engagement with such brace-beam mechanism, a traction-cable mounted beneath such car having stretches moving in opposite directions longitudinally thereof, grip mechanism mounted upon the car for engaging such cable, means for connecting such mechanism to either stretch of such cable, and means for connecting such traction-cable with a suitable source of power, substantially as described.

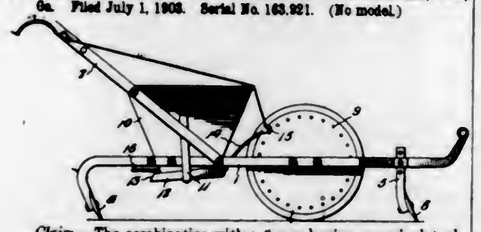
750,163. JAR-SEALING WRENCH. LUCIOUS D. BURLINGHAM, Warren, Ohio, assignor to the Warren Novelty Company, Warren, Ohio, a Corporation of Ohio. Filed May 21, 1903. Serial No. 158,196. (No model.)

Claim.—1. A device for straightening jar-covers, comprising a ring of greater diameter than the cover, an engaging tooth carried by the ring for engagement with the threads of the cover, a rotatable presser member movable into engagement with the lower portion of the cover when the tooth engages the threads.

2. A device for straightening jar-covers, comprising a ring of greater diameter than the cover and having a tooth on the same plane as the adjacent portion of the ring for engagement with the threads of the cover, and a presser member for contact with the lower portion of the cover and movable transversely of the threads of the cover.

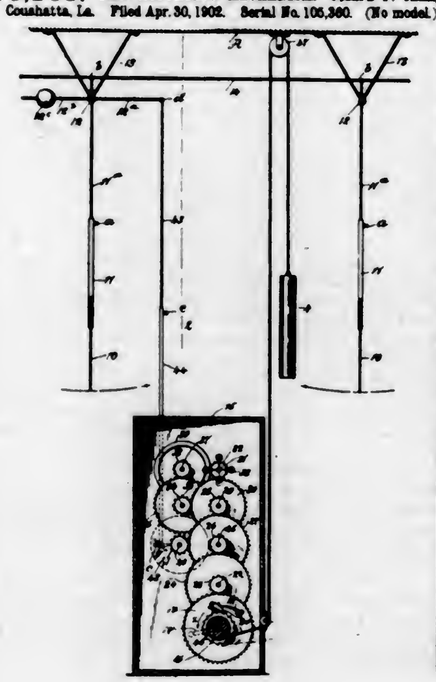


750,164. FERTILIZER-DISTRIBUTER. JOHN CAMPBELL, Sam, Ga. Filed July 1, 1903. Serial No. 163,221. (No model.)



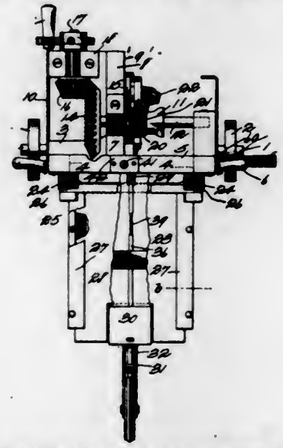
Claim.—The combination with a frame having an axle detachably secured therein, and handles secured to the frame; of a wheel loosely mounted upon the axle, pins extending laterally therefrom, a hopper secured within the frame and to the handles and having an outlet, a hanger pivoted at its ends to the sides of the hopper and extending under the outlet of the hopper, a bottom mounted upon the hanger and having an outlet at the rear end thereof, said bottom having flanges overlapping the outlet end of the hopper, a spring-arm secured to and extending from the bottom of the hopper, a wear-plate upon the arm and adapted to be successively contacted by the pins, a slide within the outlet of the hopper and adapted to close the same, and a flexible strip secured at opposite ends to the spring-arm and one of the handles, respectively.

750,165. FAN-ACTUATING MECHANISM. JOSEPH F. CARR, Coushatta, La. Filed Apr. 30, 1902. Serial No. 105,360. (No model.)



Claim.—In mechanism of the character described, the combination of a plurality of rock-shafts, an arm pendent from each shaft, and provided at its lower end with a fan, said arms each having a portion extending above its shaft, and a horizontal rod movably connecting said portions, an arm carried by one of these shafts, and provided at one end with an adjustable weight, a mechanism comprising a drum, a motor, a crank-disk and a governor, said crank-disk having a radial slot therein, a pusher-rod pivotally connected at its upper end to the weighted arm, and having its lower end in similar connection with said crank-disk, at the slot therein, and a cord for winding upon said drum, extending over a guide, and provided with an operating-weight, substantially as shown and described.

750,166. COMBINED TRUCK AND HOIST. DAVID Z. CLAY, East Hanover, Pa. Filed Feb. 12, 1903. Serial No. 143,074. (No model.)



Claim.—1. A combined truck and hoist comprising a frame having supporting devices whereby it may be moved from place to place, a frame slidably connected to the first-mentioned frame and adapted to be raised and lowered, and having a pivoted standard provided with a supporting device, a winch carried by the first-mentioned frame, and a flexible connecting element adapted to be attached to said winch, engaged with said slidable frame and also to said pivoted standard, substantially as described.

2. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, and a slidable platform carried by said hoisting-frame, substantially as described.

3. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, a platform carried by said hoisting-frame, and a supporting element carried by said platform and movable angularly with reference thereto, substantially as described.

4. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, and means to secure said hoisting-frame to said truck-frame at any desired adjustment of the former, substantially as described.

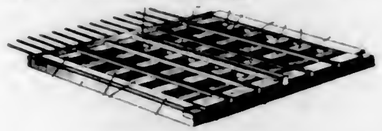
5. In a combined truck and hoist, a truck-frame, a hoisting-frame adapted to be raised and lowered thereon, a supporting element connected to the hoisting-frame and movable angularly with relation thereto, and means for simultaneously raising or lowering said hoisting-frame and moving said supporting element angularly, substantially as described.

6. In a device of the class described, the combination of a frame, a hoisting-frame, carried thereby, a supporting element for said hoisting-frame, adapted for angular movement, and means to simultaneously raise or lower said hoisting-frame and impart angular movement to said supporting element, substantially as described.

750,167. GRAIN-SIEVE. HENRY K. CLEMENT, Laporte, Ind. Filed Nov. 8, 1902. Serial No. 130,592. (No model.)

Claim.—A grain-sieve comprising a rectangular frame, a central longitudinal strip carried by said frame, end strips resting on the sides of the frame, a plurality of transverse metallic strips having

ears at their ends, said ears resting on the sides of the frame beneath the end strips, forwardly-projecting ears projecting centrally from the transverse strips and secured to the under side of the longitudinal strip, said metallic strips comprising horizontal and inclined portions, and strips arranged parallel to each other and above and transverse to the transverse metallic strips.



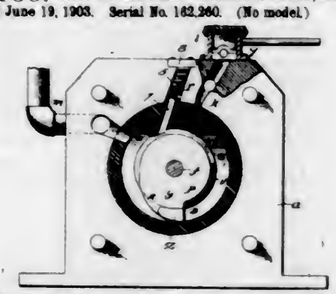
750,168. TOILET ARTICLE. ERNEST E. CLEVELAND, Worcester, Mass. Filed Apr. 18, 1903. Renewed Dec. 22, 1903. Serial No. 186,238. (No model.)



Claim.—1. In a device of the character described, the combination with a tubular casing open at one end and adapted to contain a brush; of a tubular soap-holder formed in a single piece of metal, a tapered longitudinally-slotted end to the holder to provide grasping members integral therewith adapted to be inserted into the open end of the casing and to engage soap within the holder, means for limiting the movement of the holder into the casing, and a detachable cap at the outer end of the holder.

2. In a device of the character described, the combination with a tubular casing open at one end and adapted to contain a brush; of a tubular soap-holder open at both ends, one of said ends being tapered and slotted longitudinally to provide grasping members integral therewith which are adapted to engage soap within the holder, a bead upon the holder for limiting the movement of said holder into the casing, and a cap adapted to be secured to one end of the holder.

750,169. ROTARY ENGINE. WILLIAM I. COOLEY, Saltville, Va. Filed June 19, 1903. Serial No. 162,260. (No model.)



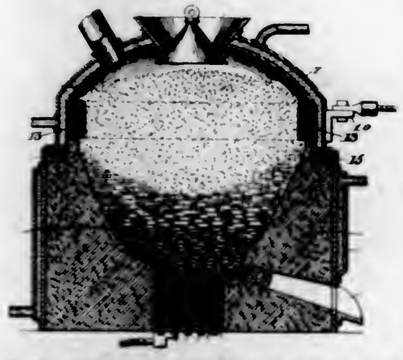
Claim.—1. In a rotary engine, the combination of the cylinder having the annual channels, the inclined slots, and the central abutments provided with notches in their convex superficies, the opposite laterally-extended, cam-piston flanges of the piston-head, the shaft, the inclined cut-off slides in said slots and engaging said notches, the springs for said slides, the reciprocating valve, and the eccentric on said shaft connected with said valve, substantially as specified.

2. In a rotary engine, the combination with the annularly-channeled middle portion of the casing, and the annularly-channeled cylinder-heads, of the central abutments of the piston-chambers, the opposite laterally-extended piston-flanges of the piston-heads, the shaft, the slots of the casing, the inclined cut-off slides, their springs, the reciprocating valve, and its connections, and the eccentric on the shaft, substantially as specified.

750,170. METHOD OF ELECTRIC HEATING. ALFRED H. COWLES, Cleveland, Ohio. Filed Nov. 5, 1902. Serial No. 130,193. (No specimens.)

Claim.—1. The herein-described process which consists in passing an electric current through a pool of conductive material, maintaining in such pool a region of maximum current density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum current density, as set forth.

2. The herein-described process which consists in passing an electric current through a pool of conductive material of varying cross-section, thereby maintaining in such pool a region of maximum current density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum current density, as set forth.



3. The herein-described process which consists in passing an electric current through a pool of calcium carbid, maintaining in such pool a region of maximum current density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum current density, as set forth.

4. The herein-described process which consists in passing an electric current through a pool of calcium carbid of varying cross-section, thereby maintaining in such pool a region of maximum current density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum current density, as set forth.

5. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of conductive material, maintaining in such pool a region of maximum current density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum current density, as set forth.

6. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of conductive material of varying cross-section, thereby maintaining in such body a region of maximum current density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum current density, as set forth.

7. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of calcium carbid, maintaining in such pool a region of maximum current density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum current density, as set forth.

8. The herein-described process which consists in passing an electric current through a pool of calcium carbid of varying cross-section, thereby maintaining in such body a region of maximum current density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum current density, as set forth.

9. The herein-described process which consists in passing an electric current through a pool of conductive material, maintaining in such pool a region of maximum energy density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum energy density, as set forth.

10. The herein-described process which consists in passing an electric current through a pool of conductive material of varying cross-section, thereby maintaining in such pool a region of maximum energy density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum energy density, as set forth.

11. The herein-described process which consists in passing an electric current through a pool of calcium carbid, maintaining in such pool a region of maximum energy density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum energy density, as set forth.

12. The herein-described process which consists in passing an electric current through a pool of calcium carbid of varying cross-section, thereby maintaining in such pool a region of maximum energy density, feeding into contact with such pool a suitable charge, and withdrawing the product from the region of maximum energy density, as set forth.

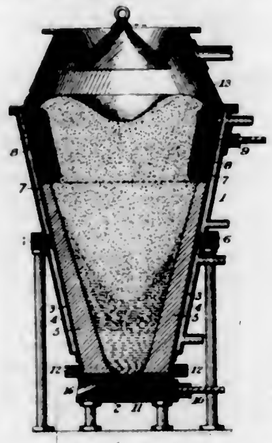
13. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of conductive material, maintaining in such pool a region of maximum energy density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum energy density, as set forth.

14. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of conductive material of varying cross-section, thereby maintaining in such body a region of maximum energy density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum energy density, as set forth.

15. The herein-described process of making calcium carbid which consists in passing an electric current through a pool of calcium carbid, maintaining in such pool a region of maximum energy density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum energy density, as set forth.

16. The herein-described process which consists in passing an electric current through a pool of calcium carbid of varying cross-section, thereby maintaining in such body a region of maximum energy density, feeding into contact with such pool a mixture of a calcium compound and carbon, thereby producing calcium carbid, and withdrawing the carbid from the region of maximum energy density, as set forth.

750,171. ELECTRIC FURNACE. ALFRED H. COWLES, Cleveland Ohio. Filed Nov. 20, 1902. Serial No. 132,134. (No model.)



Claim.—1. An electric resistance-furnace, comprising a hearth arranged to support a body of conductive material, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

2. An electric resistance-furnace, comprising a hearth arranged to support a body of conductive material, a plurality of electrodes in contact with said body and so arranged and connected to the source of electric current as to pass through the body an electric current the density of which increases to a maximum along the path of the current in the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

3. An electric resistance-furnace, comprising a hearth arranged to support a body of conductive material of varying cross-section, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and inversely as the cross-section of the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

4. An electric resistance-furnace, comprising an inclined hearth arranged to support a body of conductive material of varying cross-section, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and inversely as the cross-section of the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

5. An electric resistance-furnace, comprising an annular hearth with converging sides, arranged to support a body of conductive material of varying cross-section, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and inversely as the cross-section of the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

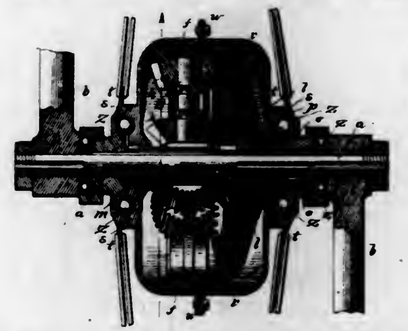
6. An electric resistance-furnace, comprising an annular hearth with downwardly-converging sides, arranged to support a body of conductive material of varying cross-section, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and inversely as the cross-section of the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

7. An electric resistance-furnace, comprising an annular hearth with downwardly-converging sides, arranged to support a body of conductive material of varying cross-section, means for passing through said body an electric current the density of which increases to a maximum along the path of the current in the body and inversely as the cross-section of the body, and a tap-hole extending through the hearth at or near the lower end of the furnace, as set forth.

8. An electric resistance-furnace, comprising a hearth supporting a body of a conductive carbid or carbid-forming material, and means for passing through said body an electric current the density of which increases to a maximum in the body, as set forth.

9. An electric resistance-furnace, comprising a hearth supporting a body of a conductive carbid or carbid-forming material, means for passing through said body an electric current the density of which increases to a maximum in the body, and means adjacent to the region of maximum current density for withdrawing a product by gravity, as set forth.

750,172. DIFFERENTIAL GEARING. HENRY T. CRAVEN, Vineland, N. J. Filed May 14, 1903. Serial No. 157,135. (No model.)



Claim.—1. The combination with the radial shafts and the two pinions on each such radial shaft, of the main driving-shaft, the large gear-wheel fixed to said driving-shaft, the sleeve-shaft, and its pinion journaled on the driving-shaft, the inner frame carrying the radial shafts, and the flanged inclosing hub of the driven wheel, substantially as specified.

2. The combination with the radial shafts, and the two bevel-pinions on each such radial shaft, of the main driving-shaft, the large bevel-wheel fixed to said driving-shaft, the sleeve-shaft and its bevel-pinion journaled on the driving-shaft, the inner frame carrying the radial shafts, and the flanged inclosing hub of the driven wheel, substantially as specified.

3. The combination with the radial shafts, and the two bevel-pinions on each such radial shaft, of the main driving-shaft, the large bevel-wheel fixed to said driving-shaft, the sleeve-shaft, and its bevel-

pinion journaled on the driving-shaft, the inner frame carrying the radial shafts, and the casing extensions of the hub of the driven wheel, substantially as specified.

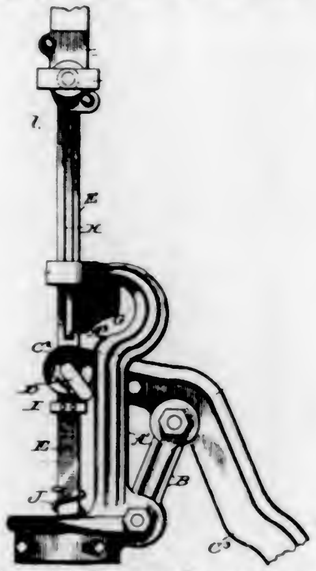
4. The combination with the radial shafts, the inner bearing-frame therefor secured to the main frame, and the double pinions on said radial shafts, of the main frame, the driving-shaft, the bevel-wheel secured on said driving-shaft, the sleeve-shaft, and its pinion journaled on said driving-shaft, and the casing extensions of the hub inclosing the inner frame and gearing, substantially as specified.

5. The combination with a frame, of the radial shafts and their double pinions, the gear-shaft frame fixed to said main frame, the driving-shaft, and its large bevel-wheel, the sleeve-shaft and its bevel-pinion journaled on said driving-shaft, and the hub and its casing extensions, of the driven wheel, substantially as specified.

6. In a bicycle, the combination with the main frame, and a trifurcate gear-frame secured thereto, of the driving-shaft, the sleeve-shaft, and pinion journaled on said driving-shaft, the bevel-wheel secured to the driving-shaft, the radial shafts bearing in said gear-frame, the double pinions of said radial shafts, and the hub and its flanged extensions inclosing said gear-frame, bevel-wheel, sleeve-shaft and pinion, and the double pinions of said radial shafts, substantially as specified.

7. The combination with the driving-shaft, and the large bevel-wheel secured thereto, of the radial shafts in a plane at right angles to the driving-shaft, the double pinions, the sleeve-shaft in the driving-shaft, its bevel-pinion, the fixed bearing-frame of the radial shafts, and the hub portion of the driven wheel inclosing such fixed frame and the gearing, substantially as specified.

750,173. WINDMILL-PUMP COUPLING. CARL W. DECKER, Charles City, Iowa, assignor of two-thirds to Frank R. Hirsch and George W. Von Berg, Charles City, Iowa. Filed July 3, 1903. Serial No. 164,717. (No model.)



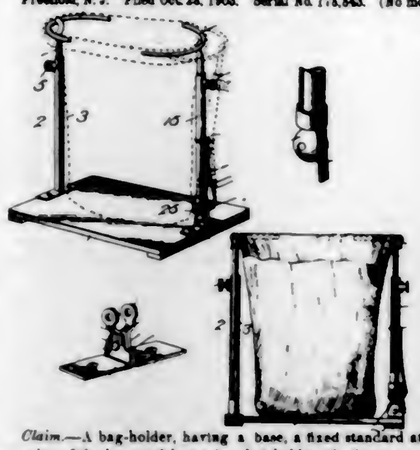
Claim.—1. A windmill-pump coupling, comprising an upper yoke-coupling arranged to slide horizontally, a lower yoke-coupling arranged to slide horizontally, a vertical pump-rod having a lever embedded within the same, a hand-lever, and a windmill-rod connection, the embedded lever of the pump-rod being arranged to be operated on at its opposite ends to alternately couple and uncouple the pump-rod and the windmill-rod, and also the pump-rod and hand-lever as described.

2. In a windmill-pump coupling, the combination with the pump-rod; of a yoke-shaped coupling having inwardly-projecting pins or lugs and a spring, a longitudinally-divided two-part bar for connection with the windmill-rod, and means for connecting the two parts together, the said yoke-shaped coupling inclosing both the pump-rod and the lower ends of the longitudinally-divided windmill-rod connection substantially as shown and described and for the purpose set forth.

3. In a windmill-pump coupling, the combination with the pump-rod; of a yoke-shaped coupling having inwardly-projecting pins or lugs and a spring, a hand-lever having its upper end made in two longitudinal sections and means for connecting them together, the said yoke-shaped coupling inclosing both the pump-rod and the two-part end of the hand-lever substantially as shown and described and for the purpose set forth.

4. In a windmill-pump coupling, the combination of a pump-rod having a longitudinal lever embedded within the same and a beveled-face notch below it, a hand-lever recessed to receive the pump-rod, a horizontally-sliding and spring-seated yoke embracing both the end of the hand-lever and pump-rod and formed with inwardly-projecting pins, a windmill-rod connection, a horizontally-sliding and spring-seated yoke embracing both the windmill-rod connection and the pump-rod and having inwardly-pointing pins or lugs for engaging the pump-rod, and a stationary guide for the hand-lever mounted on the pump-head and having a downwardly-projecting yoke-retainer for holding the yoke after being disengaged from the pump-rod substantially as described.

750,174. BAG-HOLDER. FRANK DENISE and WILLIAM T. BUCK, Freehold, N. J. Filed Oct. 28, 1903. Serial No. 178,843. (No model.)



Claim.—A bag-holder, having a base, a fixed standard at one extremity of the base, a fulcrum-bracket held on the base at a point opposite the fixed standard and provided with upstanding members terminating in outwardly-bent arms and also provided with an outer shoulder, a second standard having a lower spherical end held between the outwardly-bent arms and provided with a depending guard to engage said shoulder, and a spring connected to the standard held by the bracket and engaging a portion of the latter, both standards being vertically adjustable and having bag-holding means.

750,175. EXPLOSIVE. HENRY DERAVY, Sudbury, Canada. Filed Dec. 22, 1902. Serial No. 136,272. (No specimens.)

Claim.—1. An explosive compound consisting of a mixture of from seventy to eighty per cent. of nitroglycerin, ten to fifteen per cent. of oil of mirbane and from ten to fifteen per cent. of petrolatum.

2. The process of preparing an explosive which consists first in mixing together from seventy to eighty per cent. (by weight) of nitroglycerin and from ten to fifteen per cent. (by weight) of petrolatum at a temperature of from 100° to 110°, Fahrenheit, and second, mixing from ten to fifteen per cent. (by weight) of oil of mirbane at about the same temperature, substantially as described.

750,176. FLUE-EXPANDER. JOHN W. FAESSLER, Moberly, Mo. Filed Nov. 6, 1903. Serial No. 180,056. (No model.)

Claim.—1. A flue-expander comprising a roller-box having a circumferential shoulder provided with notches and a removable collar fitted to the body of the box and having lugs adapted to fit in the said notches, substantially as described.

2. In a flue-expander of the type indicated, the combination, with the roller-box having a radial shoulder, of the removable collar having projections that enter corresponding sockets in the shoulder as and for the purpose specified.

750,176.



750,177. FLUE-EXPANDER. JOHN W. FAESSLER, Moberly, Mo. Filed Nov. 7, 1903. Serial No. 180,186. (No model.)



Claim.—1. In a flue-expander of the type specified, the combination, with the roller-box having a radial circumferential shoulder provided with transverse sockets terminating at their rear ends in shoulders as stated, of the removable wear-pieces adapted to fit in said sockets, their rear ends abutting the rear shoulders of the sockets, and made accessible for the purpose of facilitating removal, as described.

2. In a flue-expander of the type specified, the combination, with a roller-box having a radial circumferential shoulder provided with transverse sockets of dovetail form, terminating at their rear ends in shoulders as specified, of the removable steel wear-pieces having a dovetail shape corresponding to the sockets, and their rear ends abutting the shoulders of the sockets, while their front ends project on the front of the collar, substantially as described.

3. In a flue-expander of the type specified, the combination, with the roller-box having a circumferential collar provided with transverse dovetail sockets that extend through said collar, of hardened wear-pieces having a dovetail shape corresponding to the said socket and also provided with a shoulder which appears on the rear side of the collar, as described.

4. In a flue-expander of the type specified, the combination, with the roller-box having a circumferential collar provided with dovetail longitudinal sockets, of hardened wear-pieces having a dovetail shape corresponding to the said sockets and also provided with a shoulder on the rear or outer end, substantially as described.

750,178. KNOCKDOWN UMBRELLA. HERMAN FRENFELD, Hoquiam, Wash. Filed June 3, 1902. Serial No. 110,052. (No model.)

Claim.—1. In an umbrella, the combination with a stick, of a thimble mounted upon the stick and having a flange at one end, a disk secured to one end of the thimble and provided with bearings, a second thimble mounted to slide on the first thimble and having one end enlarged to form an annular space between it and the first thimble, a coiled spring in the space between the thimbles and having its ends bearing on the flange of the first thimble and the shoulder formed by the enlargement of the second thimble, and a disk secured to the second thimble and engaging the first disk, as set forth.

2. In an umbrella, the combination with a stick, of a thimble mounted upon the stick and having a flange at one end, a disk secured to one end of the thimble and provided in one face with recesses having hemispherical inner portions, a second thimble mounted to slide on the first thimble and having one end enlarged to form an annular space between it and the first thimble, a coiled spring in the space between the said thimbles, and having its ends bearing on the flange of the first thimble and the shoulder formed by the enlargement of the second thimble, and a disk secured to the end of the second thimble and provided with radial slots terminating at their inner ends in cavities, as set forth.



3. In an umbrella, the combination with a stick, of a thimble mounted upon the stick and provided with an outwardly-projecting flange at its lower end and with a stud intermediate its ends, a disk secured to the upper end of the thimble and provided on its under face with recesses having hemispherical inner portions, a second thimble mounted to slide on the first thimble and having its lower end enlarged to form an annular space between it and the first thimble, said thimble being provided with a longitudinal slot to receive the stud of the first thimble, a coiled spring in the space between the said thimbles, and having its ends bearing on the flange of the thimble and the shoulder formed by the enlargement of the second thimble, and a disk secured to the upper end of the second thimble and provided with radial slots terminating at their inner ends in cavities, as set forth.

750,179. ELECTRIC BLANKET. CHARLES FOGLESONG, St. Paul, Minn. Filed Sept. 14, 1903. Serial No. 173,126. (No model.)



Claim.—1. An electrotherapeutic blanket comprising in its construction an inner sheet or section 1 of absorbent material, adapted to come into contact with the skin of the patient and to absorb perspiration or sweat exuding from the skin: an intermediate sheet or section 2, comprising two layers of canvas having continuous wires laid closely therein or running therethrough; and an outer sheet or member 3, formed of non-conducting material, the several sheets or members being united to form a common blanket or sanitary article of manufacture.

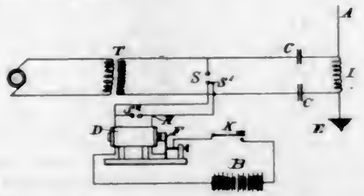
2. An electrotherapeutic blanket comprising in its construction an inner sheet or section, 1, of absorbent material adapted to come into contact with the skin of the patient and to absorb the perspiration or sweat exuding from the skin; an intermediate sheet or section, 2, comprising two layers of canvas, having continuous wires,

comprising two resistances, as shown and described, laid therein or running therethrough; and an outer sheet or member, 3, formed of non-conducting material, the several sheets or members being united to form a common blanket or sanitary article of manufacture.

3. An electrotherapeutic blanket comprising in its construction quite flexible inner sheet or section, 1, of absorbent material adapted to come into contact with the skin of the patient and to absorb or "sponge up" the exuding perspiration; an intermediate section, 2, comprising two layers of canvas, having continuous wires laid therein or running therethrough, and an outer sheet or member, 3, formed of non-conducting material, the outer member being free above its outer surface, and the three members being united at their edges to form a unitary structure, but leaving the absorbing member or section, 1, throughout its body part loose and free to conform to the form of the person about which it is wrapped

750,180. METHOD OF CONTROLLING SPARK PRODUCTION.

LEE DE FOREST, New York, N. Y. Filed June 17, 1903. Serial No. 161,391. (No model.)



Claim.—1. In spark telegraphy, the method of precipitating sparks between normally inoperative sparking terminals which consists in increasing at will the condition of ionization of the medium between the sparking terminals.

2. In spark telegraphy, the method of precipitating sparks between normally inoperative sparking terminals which consists in increasing at will the specific conductivity of the medium between said terminals.

3. In spark telegraphy, the method of determining the intermittent production of the signal-sparks which consists in intermittently subjecting the medium between the sparking terminals to an ionizing influence corresponding in time and duration with the time and duration of the sparks desired.

4. In spark telegraphy, the method of determining the spark production which consists in separating the terminals by a distance normally too great to permit sparking, and in then reducing the resistance of the medium between said terminals at times corresponding with the times of the sparks desired.

5. In spark telegraphy, the method of producing the signal-waves which consists in employing a normally inoperative spark-gap and in intermittently subjecting the same in accordance with the elements of a signal-code, to an influence adapted to lower the insulating capacity of the media between the sparking terminals.

6. In spark telegraphy, the method of determining the time of spark discharge, which consists in intermittently subjecting a normally inoperative spark-gap to electrical radiations from an independent source.

7. In spark telegraphy, the method of determining the production of the spark discharge which consists in employing a normally inoperative spark-gap and in intermittently making the same operative by the production of an auxiliary or precipitating spark adjacent thereto.

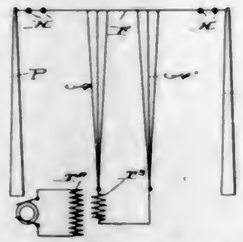
8. In spark telegraphy, the method of producing the spark discharge in a normally inoperative spark-gap which consists in subjecting the media between the sparking terminals at will to the influence of an independent force adapted to break down its resistance.

750,181. DEVICE FOR CLEARING ICE FROM ANTENNÆ.

LEE DE FOREST, New York, N. Y., and WALTER G. CLARK, Seattle, Wash. Filed June 17, 1903. Serial No. 161,396. (No model.)

Claim.—1. In a wireless signaling apparatus, the combination with an antenna, a generator of electromotive force of large amperage, and a conductor connected with the upper end of the antenna, of means for including said conductor and the antenna in a closed circuit with said generator.

2. In a wireless signaling apparatus, the combination with an antenna and a conductor connected with the upper end of said antenna, of a generator of electromotive force, a step-down transformer adapted to have its primary connected with said generator, and means for connecting the antenna and the conductor connecting with its upper end in a closed circuit with the secondary of said transformer.



3. In a wireless signaling apparatus, in combination, a plurality of antennæ adapted to be connected to form a complete circuit, and means for passing a heating-current therethrough.

4. In a wireless signaling apparatus, in combination, a plurality of antennæ adapted to be connected to form a complete circuit, a step-down transformer and means for connecting the secondary of said transformer in said antennæ-circuit.

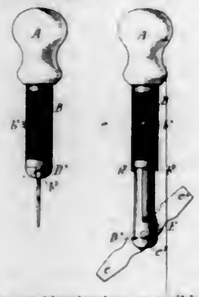
5. In a wireless signaling apparatus, in combination, a plurality of antennæ electrically connected at their upper ends, and means for connecting their lower ends with a source of electromotive force adapted to heat the antennæ.

6. In a wireless signaling apparatus, in combination, two elevated supports, an elevated conductor extending between said supports but insulated therefrom, a plurality of antennæ connected with said conductor, and means for connecting the lower ends of said antennæ with opposite poles of a source of electromotive force whereby the said antennæ may be heated.

7. In a wireless signaling apparatus, in combination, two elevated supports, an elevated conductor extending between said supports but insulated therefrom, a plurality of antennæ connected with said conductor, a source of electromotive force, a step-down transformer having its primary in the circuit of said source of electromotive force and means for connecting the secondary of said transformer with the lower ends of different antennæ.

750,182. REVERSIBLE SCREW-DRIVER.

ZACHRY T. FURBISH, Philadelphia, Pa., assignor to North Brothers Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 17, 1903. Serial No. 103,379. (No model.)



Claim.—1. The combination in a reversible tool, of a handle, a shell secured to the handle, a carrier within the shell, a double blade pivoted to the carrier, a head on the outer end of the carrier, said head being slotted, a tongue on the end of the shell arranged to enter the slot, and a friction-bolt for retaining the carrier in its closed position, substantially as described.

2. The combination in a reversible tool, of a handle, a shell secured to the handle, a carrier arranged to slide within the shell, said carrier being slotted from the outer end, a blade pivoted to the carrier and arranged to turn in the slot, a head on the end of the carrier, said slot being cut through the head, tongues on the end of the shell entering the slot beyond the blade, and a friction-bolt tending to keep the carrier in its closed position, the tongues preventing the carrier moving in the shell, substantially as described.

3. The combination in a reversible tool, of a handle, a shell secured to the handle, tongues on the outer end of the shell, a carrier arranged to move in the shell and having a head at its outer end, said carrier being slotted, the slot in the head being enlarged, a double-ended blade pivoted to the outer end of the carrier, the tongues on the end of the shell entering the enlarged slots in the head when the tool is closed, a spring-pressed ball mounted in the carrier and arranged to enter a hole in the shell so as to frictionally hold the carrier in its closed position, substantially as described.

4. The combination of a handle, a slotted shell within the handle, a key-plate having each end tapered and having a shoulder, substantially as described.

750,183. RATCHET-TOOL.

ZACHRY T. FURBISH, Philadelphia, Pa., assignor to North Brothers Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Mar. 27, 1903. Serial No. 149,839. (No model.)



Claim.—1. The combination of a body portion, a spindle, ratchet-teeth, pawls pivoted to the body portion, each pawl having an arm extending beyond the pivot, a spring tending to force the pawls into engagement with the ratchet-teeth, and a cam movable in an arc of a circle concentric with the spindle and acting on the arms of the pawls to throw them out of engagement with the teeth, substantially as described.

2. The combination of a body portion, a spindle having ratchet teeth, a slot in the body portion, a pivot-bar crossing the slot, a relatively long pawl mounted in the slot so as to be substantially parallel to the spindle, said pawl being hung on the pivot and having an arm extending beyond the same, means for forcing the pawl into engagement with the ratchet-teeth, and a cam movable in the arc of a circle concentric to the spindle and constructed to force the arm of the pawl toward and from said spindle, substantially as described.

3. The combination of a body portion having two radial slots, a spindle having ratchet-teeth, said teeth being within the body portion, a pivot-bar crossing the radial slots and pawls hung on the pivot so as to lie substantially parallel to the spindle, said pawls having each a relatively long arm provided with a beveled portion placed to engage the ratchet-teeth of the spindle, and a double-ended cam placed to move concentrically with the spindle and acting on the rear end of each pawl, substantially as described.

4. The combination of a body portion, a radial slot therein, a spindle mounted in said body portion, ratchet-teeth on the spindle, a pawl pivoted in the radial slot, annular grooves in the body portion, a spring in one groove, a pivot-bar in another groove, and a cam arranged to slide in still another groove and acting upon the rear end of the pawl in opposition to the spring, substantially as described.

5. The combination of a body portion having an opening therein, radial slots extending from said opening, a spindle having ratchet-teeth thereon, pawls mounted in the radial slots and arranged to engage the teeth of the spindle, three annular grooves in the body portion, a segmental spring in one of said grooves engaging both pawls, a segmental wire in another slot acting as a pivot for the pawls, with a cam in the third slot acting on the rear arms of the pawls, and a casing secured to the cam, substantially as described.

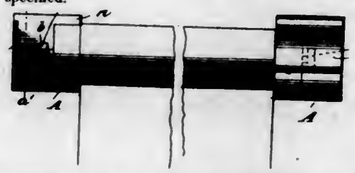
6. The combination of a body portion having two radial slots, a segmental pivot extending across the two slots, pawls in the slots and hung on the pivot, and a spindle having a toothed portion with which the pawls engage, substantially as described.

7. The combination of a body portion, a spindle having ratchet-teeth, a curved pivot-wire bent so as to grip the body portion, a pawl pivotally held by said wire and placed to engage the teeth on the spindle, said pawl having an arm extending beyond the said pivot-wire, with means free to act on said arm and to move the pawl out of engagement with the teeth, with means for holding the pivot-wire to the curved surface of the body portion, substantially as described.

750,184. WINDOW-SHADE BRACKET.

JOHN R. GILL, Jefferson, Iowa. Filed Feb. 19, 1903. Serial No. 144,090. (No model.)

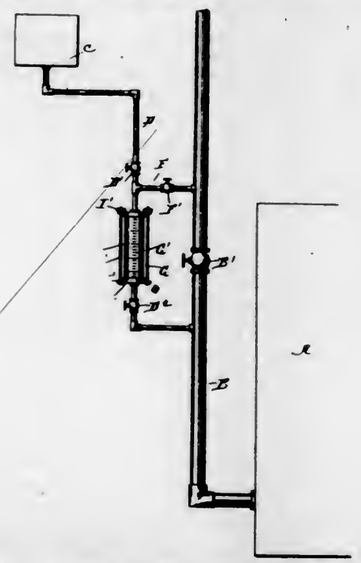
Claim.—1. A window-shade bracket comprising the bracket made in U-shaped form and having a cross-bar inclosed and secured between the inner surfaces, the walls thereof provided with an opening or bearing therein, a disk or circular plate likewise secured to said bracket between its outer surrounding edges, and means on said bracket for attaching the same to a window-frame, substantially as specified.



2. A window-shade bracket comprising the bracket made in U-shaped form, having secured approximately to the central portion of its inner walls a cross-bar having an opening or bearing therein, a circular plate or disk also secured between said walls at one end thereof, said bracket also having an enlarged rear and bottom portion, and means secured to said rear portion of the bracket for attaching the same to the window-frame, substantially as specified.

750,185. BLUING GAGE AND MIXER FOR WASHING-MACHINES.

ETHEL W. GRACE, Sapulpa, Ind. Ter. Filed May 9, 1903. Serial No. 156,365. (No model.)



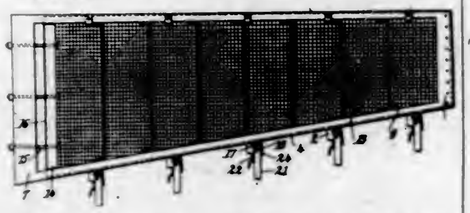
Claim.—1. In a device of the character described, the combination of a washing-machine and water-supply pipe leading thereto, with a bluing-tank arranged at an elevation, a pipe leading from said bluing-tank to the water-pipe, a graduated gage interposed between the sections of the bluing-pipe, a branch pipe leading from the bluing-pipe to the water-pipe above the gage, a valve arranged in the bluing-pipe above the branch-pipe connection, a valve arranged in the bluing-pipe below the gage, and a valve arranged in the branch pipe, as and for the purpose specified.

2. In a device of the character described, the combination of a washing-machine, the water-supply pipe leading thereto with a bluing-reservoir arranged at an elevation, a pipe leading from said reservoir to the water-pipe, a gage interposed between the sections of the bluing-pipe, a branch pipe connecting the bluing-pipe with the water-pipe above the gage, said gage consisting of a glass cylinder with graduations marked thereon, and valves arranged in the bluing-pipe and branch pipe adapted to control the supply of water and bluing, as and for the purpose specified.

3. In combination with a washing-machine and water-supply pipe leading thereto, a bluing-tank arranged at an elevation, a pipe leading from said tank downward to the water-pipe, a gage interposed between the sections of this bluing-pipe, said gage consisting of a glass cylinder, caps arranged upon each end of the cylinder, ears extending outward from the caps, rods passing through the ears, said rods being headed upon one end and provided with thumb-nuts

upon the other end for drawing the caps against the ends of the cylinder, the bluing-pipe being threaded through the caps, a branch pipe extending from the bluing-pipe above the gage to the water-pipe, a valve arranged within this branch pipe, a valve arranged in the bluing-pipe above the branch-pipe connection, and a valve arranged in the bluing-pipe below the gage, as and for the purpose specified.

750,186. TROUSERS CREASER AND PRESSER. EDINBURGH GRAHAM, Orangeburg, S. C. Filed June 2, 1903. Serial No. 159,813. (No model.)



Claim.—1. A trousers-creaser, comprising a bed-plate, a frame mounted to swing relatively to the bed-plate, and an open-mesh material held in said frame.

2. A trousers-creaser, comprising a bed-plate, a frame mounted to swing relatively to the bed-plate, an open-mesh material held in the frame, and a thin fabric secured to the frame and passing underneath the open-mesh material.

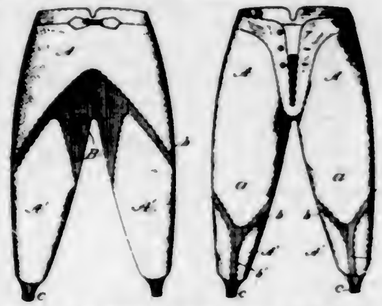
3. A trousers creaser and presser, comprising a bed-plate, a frame, open-mesh material held in the frame, adjustable hinge connections between the frame and bed-plate, and adjustable locking devices for locking the frame in position over the bed-plate.

4. In a trousers creaser and presser, a bed-plate, cross-bars on the under side of the bed-plate, a frame, an open-mesh material carried by the frame, hinge connections between said frame and said cross-bars, swinging blocks on the cross-bars, latch-plates having adjustable connection with said blocks, devices on the frame for engaging with said latch-plates, and spring-pressed stop-plates pivoted to the blocks for engaging with the ends of the cross-bars.

5. A trousers-creaser, comprising two members having swinging connection, and locking devices consisting of plates having hook portions at opposite sides, and swinging blocks on one of the members, the said plates having swinging and adjustable connection with said blocks.

6. A trousers-creaser, comprising a bed-plate, a fabric covering thereon, a frame mounted to swing relatively to the bed-plate, means for locking the frame in closed position, an adjustable bar in the frame, and an open-mesh material secured at one end to said bar and at the other end to the frame.

750,187. DRAWERS. JONAS GOODENHEIM, GEORGE A. CAPITON, LEMAN D. HERRICK, and HENRY JACOBS, Scranton, Miss. Filed Oct. 2, 1903. Serial No. 175,479. (No model.)

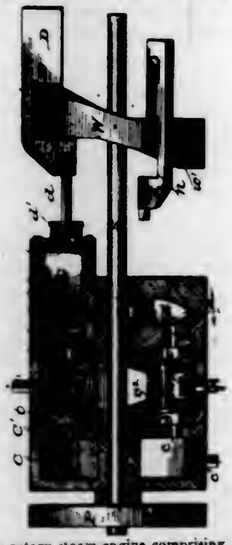


Claim.—1. The improved drawers composed of inelastic upper and lower leg portions, and an elastic portion which forms the seat and has narrow diagonal extensions on each side of each leg, the said extensions meeting on the front of the leg below the knee and proceeding thence to the ankle, as shown and described.

2. The improved drawers composed of the inelastic upper part extending downward on the front of each leg and terminating adjacent to the knee, and a similarly inelastic lower part forming the back and sides of the lower portion of the leg, and an elastic part which forms the seat of the garment and has narrow extensions leading in opposite directions laterally and downward on each leg and meeting on the front of the legs at the knee, as shown and described.

3. The improved drawers formed of inelastic upper parts A and lower parts A', and the elastic seat part B formed of ribbed fabric with the ribs running vertically, and having the narrow diagonal extensions *b* on each leg, and the further vertical extension *b'* on the front of each leg, as shown and described.

750,188. ROTARY ENGINE. CHARLES A. HASTINGS, Lewiston, Idaho, administrator of William S. Chapman, deceased, assignor of one-half to Erick Erickson and Albert H. Peterson, Kippen, Idaho. Filed Oct. 26, 1903. Serial No. 178,618. (No model.)



Claim.—1. A rotary steam-engine comprising a central steam-chest, an exhaust-chamber arranged on one side of said steam-chest, a piston-chamber arranged on the other side of the steam-chest, and a shaft passing through said chambers and carrying a piston in the working steam-chamber, and a rotary double-acting valve in the steam-chest controlling both the induction and exhaust of steam substantially as described.

2. A rotary steam-engine comprising a central steam-chest, an exhaust-chamber arranged on one side of said steam-chest, a piston-chamber with revolving piston arranged on the other side of the steam-chest, and a rotary double-acting valve arranged in the steam-chest and consisting of two disks with connected pockets in their outer faces, said disks being provided with a sliding coupling for the pockets, to permit the disks to be pressed away from each other, and one of said disks having an induction-port for the working steam-chamber substantially as described.

3. A rotary steam-engine having a working steam-chamber and rotary piston at one end, an exhaust-chamber at the other end, a steam-chest in the middle, and a shaft connected to the piston and extending through the steam-chest and bearing a rotary valve in the steam-chest having ports adapted to communicate with the working chamber and exhaust-chamber to secure the passage of live and exhaust steam through the steam-chest in opposite directions substantially as described.

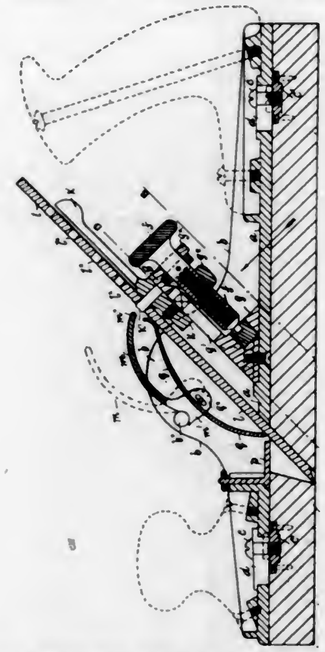
4. A rotary steam-engine having a working steam-chamber with a ring-shaped steam-space and a piston revolving therein, said steam-chamber having casings containing sliding abutments on one side, and having on the other side pockets to receive the ends of sliding abutments and also ports opening laterally into the steam-space, a rotary valve outside these ports constructed and arranged to successively introduce and exhaust steam through these same ports substantially as described.

5. A rotary steam-engine comprising a ring-shaped steam-chamber with revolving piston, sliding abutments for the chamber and

ports opening sidewise from the steam-chambers corresponding in number to the sliding abutments, a steam-chest arranged beside the working steam-chamber, an exhaust-chamber arranged beyond the steam-chest and having exhaust-ports through its sides corresponding to the ports of the working steam-chamber, a rotary valve fitting the steam-chest and having an elongated inlet-port and a through inlet passage-way for steam registering with the ports of the working steam-chamber and exhaust-steam chamber, and sliding abutments arranged to divide the steam-chamber as described.

6. A rotary steam-engine comprising a working steam-chamber, a steam-chest, and an exhaust-chamber arranged side by side with the steam-chest in the middle, bolts connecting the said parts, a shaft passing through the same and carrying a rigidly-attached valve in the steam-chest, a piston in the working chamber and a cam-wheel, an inclosing frame with bearings for the shaft, movable abutments for dividing the steam-chamber having operating-slides with notches embracing the cam-wheel, and guides for the outer ends of these slides substantially as and for the purpose described.

750,189. HAND-PLANE. EDWARD HAYDOCK, Manchester, England. Filed Dec. 14, 1901. Serial No. 85,900. (No model.)

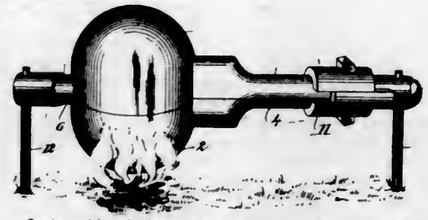


Claim.—1. A hand-plane consisting of a metallic stock with keyhole-slots in the stock-sole, the enlarged opening of the keyhole being toward the front of the stock-sole, wooden soles carrying screws adapted to be passed through the keyhole-slots and inclined wedge-surfaces on one of the parts, whereby, upon forcing the metal stock forward the wooden sole will become secured to the metallic stock and by striking the rear of the sole it will become detached, substantially as described.

2. A hand-plane having a metallic stock with a flat sole-face, elongated recesses in said sole and a number of separate wood soles, each having a flat surface and projections thereon adapted to fit into aforesaid recesses, the projections fitting the forward portion of said recesses loosely and fitting the rear portion tightly so that the sole may be slid against the surface of the stock to secure the wood sole to the metallic stock, whereby on striking the rear of the sole it will become detached, substantially as described.

750,190. COOKING DEVICE. JOSEPH HENAULT, Los Angeles, Cal. Filed Sept. 23, 1903. Serial No. 174,305. (No model.)

Claim.—1. A cooking device comprising two substantially bowl-shaped sections adapted when placed together to form an oven or cooking-chamber, projections from opposite sides of the sections and means for engaging with said projections and removably connecting the sections together.



2. A cooking device comprising two substantially bowl-shaped members, forming a chamber or oven, extensions from opposite sides of said members, the said extensions being hollowed at the inner side, a pan adapted to be arranged in the chamber or oven, an extension from one side of said pan for passing into the hollow of the extensions at one side, a projection from the other side of said pan for passing through the hollow of the projection of said side of the oven-sections, and means for locking the parts together.

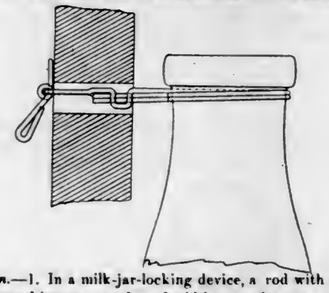
3. A cooking device comprising two substantially bowl-shaped sections adapted to be placed together to form a closed oven or cooking-chamber, a pan adapted to be arranged therein, a handle extended from one side of the pan, projections from the oven, members between which said handle passes, said handle having an enlarged portion, sliding plates on the enlarged portion for engaging with said extensions of the oven, a projection on the opposite side of said pan, a socket member on said projection, and extensions from the oven-sections for engaging around said projection and in said socket member.

4. A cooking device comprising two bowl-shaped members adapted to be removably secured together, a pan adapted to be placed in said members, a tubular handle for said pan being extended outward from said members, and supporting-legs designed to be placed in the tubular handle when not in use.

5. A cooking device comprising two substantially bowl-shaped members which when placed together form an oven or cooking-chamber, a pan adapted to be placed in said oven or cooking-chamber, a tubular handle on the pan, supporting-legs adapted to be placed in the tubular handle when not in use and a water-holder supported by said pan.

6. A cooking device comprising two bowl-shaped members adapted to be removably secured together, a pan designed to be placed in the oven or chamber formed by said members, a tubular handle on the pan, supporting-legs adapted to be placed therein and a water-holder having removable connection with said pan.

750,191. MILK-JAR-LOCKING DEVICE. GUSTAV HOLLÉ and CLAYTON STEVENSON Philadelphia, Pa.; said Stevenson assignor to said Hollé. Filed Mar. 4, 1903. Serial No. 146,201. (No model.)



Claim.—1. In a milk-jar-locking device, a rod with a loop, a tongue formed by an extension of said loop, a clasp, to engage said tongue, an oscillatory key forming a cross-head with said rod, all substantially as set forth.

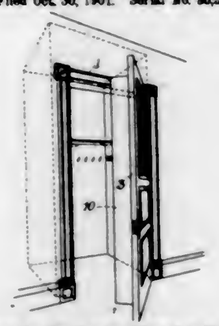
2. In a milk-jar-locking device an oscillatory key appendant to a rod, in connection with a loop, a tongue extending from said loop, a clasp on said rod, said key forming a cross-head with said rod, all substantially as set forth.

750,192. SAND-PUMP. FREDERICK G. IRVINE, Marietta, Ohio. Filed Sept. 25, 1903. Serial No. 174,616. (No model.)

Claim.—A sand pump or bailer for wells, comprising a tubular portion having a flat face formed on its lower end at right angles to its axis, a bottom section of the same exterior diameter as the tubular portion provided with an upwardly-opening valve and having a flat face at its upper end to fit against the flat face formed on the tubular portion, a hinge connecting the bottom section to the tubular portion, a longitudinal recess formed in the exterior of the tubular portion opposite the hinge, a catch arranged in the recess and secured at its upper end to the tubular portion, a longitudinal recess formed in the bottom section to receive the catch having a shoulder formed therein, and a cross-recess formed in the bottom section below the shoulder; substantially as described.



750,193. WARDROBE, CLOSET, &c. WILLARD C. JAMES, Cucamonga, Cal. Filed Oct. 30, 1901. Serial No. 80,566. (No model.)



Claim.—A door having a compartment on its inner or rear side, an opening in the front face of the door leading into said compartment, and a movable panel closing said opening, in combination with a recessed structure adapted to receive the compartment when the door is in closed position, said door being hinged to said structure.

750,194. MECHANICAL RABBLE FOR ORE ROASTING OR CALCINING FURNACES. ALFRED E. JOHNSON, Colorado Springs, Colo. Filed Feb. 16, 1903. Serial No. 143,719. (No model.)



Claim.—1. The combination with a rabble-arm, of a plow or blade loosely mounted thereon and extending downwardly on the side of the arm toward the direction of travel.

2. The combination with a rabble-arm provided with lugs or projections on its upper side when in the operative position, and rabble arms or plows having openings to permit them to be hung upon the lugs of the arms whereby the blades are readily detachable.

3. The combination with a suitable rabble-arm, of a blade or plow loosely connected therewith and whose upper portion is shaped to conform to the shape of the arm in front or on the side toward the direction of travel whereby the resistance acting on the lower part of the blade, causes the latter to tightly engage the arm.

4. In rabbling mechanism for roasting or calcining furnaces, the combination of the rabble-arm, blades loosely connected with the arm at the top and shaped to fit the arm in front, substantially as described.

5. The combination of a rabble-arm provided with detachable lugs or projections, and rabble-arms hung loosely thereon.

6. The combination of a rabble-arm having protruding studs at the top and blades or plows having their upper extremities provided with openings to receive the studs of the arm, whereby the blades may be loosely hung thereon, readily detachable and held securely in place when in operation.

7. The combination of a tubular rabble-arm, screw-studs threaded therein at the top at suitable intervals and protruding therefrom, and rabble blades or plows having openings in their upper extremities and having their upper portion curved to conform to the shape of the arm whereby the blades may be loosely hung on the arm, and held securely in place during operation but readily detachable.

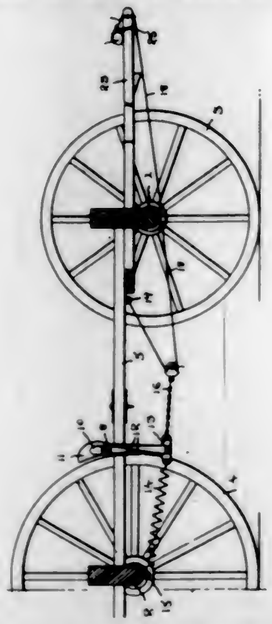
8. A rabble-arm, provided with plow-teeth, loosely and liftably suspended therefrom.

9. A rabble-arm, provided with plow-teeth, loosely and liftably suspended therefrom, by a slot-and-pin connection.

10. A rabble-arm, provided with plow-teeth having a limited play with respect to the arm, whereby they may be moved respectively into locking and unlocked position.

11. A rabble-arm, provided with pins along its upper side, in combination with teeth having slots engaging the pins, the teeth being freely suspended from the pins.

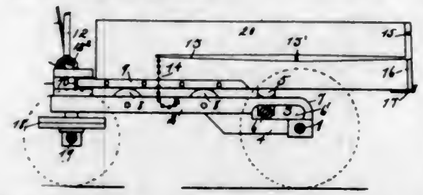
750,195. AUTOMATIC VEHICLE-BRAKE. ERICK J. JOHNSON, Gilmanton, Wis., assignor of one-third to Julius J. Hoppenstad, Decorah, Iowa. Filed July 20, 1903. Serial No. 167,431. (No model.)



Claim.—1. An automatic wagon-brake mounted wholly upon the truck or running-gear and comprising a rock-shaft having cranked extremities, brake-shoes applied to said extremities, a lever for operating said rock-shaft, a cross-head at the extremity of said lever, a brake-releasing spring interposed between said cross-head and a fixed part of the running-gear, a pulley-block flexibly connected to the other arm of said cross-head, and a flexible connection attached at one end to the running-gear, passing around said pulley-block and attached to and adapted to be operated by the neck-yoke, substantially as described.

2. An automatic wagon-brake mounted wholly upon the truck or running-gear and comprising a rock-shaft with cranked extremities, brake-shoes mounted on said extremities, a lever connected with said rock-shaft and provided with a cross-head, a brake-releasing spring connected to one arm of said cross-head, brake connections interposed between the other arm of said cross-head and the neck-yoke, a lever-socket connected directly to said rock-shaft, a detachable hand-lever associated with said lever-socket, and a hook on the socket adapted to engage means on the wagon-body to hold said socket against movement, substantially as described.

750,196. DUMPING-WAGON. GEORGE KAUTZ, Sr., Albany, N. Y., assignor to Huldah M. Kautz, Albany, N. Y. Filed Jan. 20, 1903. Serial No. 139,764. (No model.)



Claim.—1. In a dumping-wagon a box attached to a bolster arranged to have a backward and forward movement and to rest and rock on the stringers or wagon-frame; actuating devices pivotally attached to said bolster and arranged to move the bolster back and forth; a wheel arranged to operate in one direction only; a link or rod connected with the wheel and with the actuating device all operating so that when the wheel is revolved the bolster with the box will be drawn backward and forward at will substantially as described.

2. In a dumping-wagon a box arranged to move forward and rearward; a moving and tipping bolster to which the box is attached; antifriction devices in connection with said bolster and on which it moves and a track for them to run on lower than the lower side or surface of the side stringer of the wagon and means for moving said box and bolster substantially as described.

3. In a dumping-wagon a frame or side stringer having an opening in its rear end; an antifriction device arranged to move in said opening, said antifriction device being operatively attached to a bolster, said bolster having an opening in its end in which rests a portion of the frame or side stringer, and a projection resting over the frame or side stringer, and having a rounded under surface; the rear end of the stringer rounded, all arranged and operating so that the bolster may move backward and forward and roll over the rounded end of the stringer substantially as described.

4. In a dumping-wagon a box attached to a bolster; the bolster resting and moving in a recess or opening in the stringer or wagon-body at a point below the top surface of said frame or body; antifriction devices arranged in said recess and moving therein and operatively attached to the bolster, the bolster having a rocking motion and arranged to allow the box to dump substantially as described.

5. In a dumping-wagon a box having a projection at its forward end; a foot board or member having an opening as 10 therein; means for sliding or moving the box forward and rearward, all arranged so that when the box is in its forward position the projection will rest in contact with the foot board or member and the box be prevented from tipping substantially as described.

6. In a dumping-wagon a box and a single bolster attached thereto, said bolster having antifriction devices in operative connection therewith; a wagon-frame having openings or recesses formed therein arranged to receive and allow of movement of the antifriction devices therein, all arranged and operating so that the box may be moved back and forth in relation to the frame and be caused to dump its load at will substantially as described.

7. In a dumping-wagon a box having a rear bolster and antifriction devices operatively connected therewith; a wagon-frame consisting of side stringers and a member as 4 connected therewith; an opening or recess as 6', the antifriction devices moving in said recess, and rollers or their equivalents as 8 attached to the wagon-body all arranged and operating so that the box may be moved forward and rearward and dumped at will substantially as described.

8. In a dumping-wagon means for moving the box lengthwise the wagon body or frame consisting of a movable and tipping bolster carrying the wagon-box; actuating-rods as 5 or their equivalents pivoted to the bolster at a point below its longitudinal axis; a revoluble member or wheel attached to the wagon frame or body and means for revolving it in one direction only; an arm or connecting-rod operatively attached to the revoluble member and to the actuating-rods, all arranged and operating to force the box and bolster lengthwise the wagon-body and allow the box and bolster to tip when in the act of dumping the load substantially as described.

9. In a dumping-wagon a rear bolster arranged to move lengthwise the wagon-body and having a tipping or rocking motion and a bar or its equivalent pivoted to the rear bolster at a point below the longitudinal axis of the bolster by which the bolster is forced back and forth and means for actuating the bar or its equivalent substantially as described.

10. In a dumping-wagon a rear bolster arranged to move lengthwise the wagon-body and having a tipping or rocking motion and a bar or its equivalent movably attached to the rear bolster at a point below the longitudinal axis of the rear bolster and arranged to allow the bolster to rock or tip and means for actuating the bar and bolster substantially as described.

750,197. NAPKIN-RING. WILLIAM M. KENDALL, Manchester, N. H. Filed May 16, 1903. Serial No. 157,476. (No model.)



Claim.—1. A napkin-ring comprising a tubular body, bars arranged within one side of the body, the knobs at the ends of the bars forming feet.

2. A napkin-ring comprising a tubular body formed of a single strip of material and having apertures in the ends thereof, fastening-bars arranged within the apertures, and feet at the ends of the bars.

3. A napkin-ring comprising a tubular body formed of a strip of resilient material having apertures in the ends thereof, slits connecting the apertures, fastening-bars adapted to be inserted into the slits and apertures, and feet at the ends of the bars.

4. A napkin-ring comprising a resilient strip having apertures in the ends thereof connected by slits and adapted to aline, fastening-bars adapted to be inserted into the slits and to be retained in the apertures by the edges of the slits, and knobs at the ends of the bars forming feet for the ring.

750,198. SOCKET FOR INCANDESCENT LAMPS. OWEN E. KENNEY, Toledo, Ohio, assignor to Yost-Miller Company, a Corporation of Ohio. Filed June 16, 1902. Serial No. 111,952. (No model.)



Claim.—1. In a lamp-socket such as described, in combination with the switch-containing barrel composed of upper and lower sections of insulating material secured together by conductor-plates, having their ends curved and in parallelism with the insulator-sections and secured thereto by screws, a vibrative switch composed of a single piece of spring metal returned at one end to conform to the curve of the conductor-plate, and secured in fixed relation therewith by the screw employed to attach the conductor-plate to the insulator.

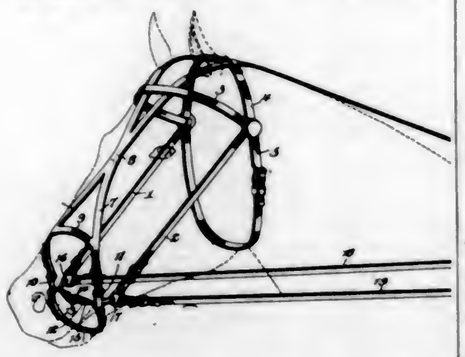
2. In a lamp-socket such as described, in combination with a spring vibrative switch rigidly connected at one end to one of the conducting-plates, a contact-plate arranged below the vibrative switch in fixed and rigid relation with the insulator-block, and provided at its outer or radial end with a raised step or platform, whereby a rubbing action may take place between the switch and contact-plate, substantially as and for the purposes set forth.

3. In a socket such as described the switch composed of a single piece of spring metal rigidly secured at one end to one of the conductor-plates, and having its free end returned upon itself to stiffen and finish said free end, substantially as set forth.

4. In a lamp-socket such as described, the vibrative switch composed of a single piece of spring metal rigidly secured to one of the

conductor-plates, and formed near its fixed end with a lateral shoulder or projection, in combination with the lower section of the switch-barrel provided with a diametric recess or channel having its side wall formed with a shoulder, substantially as and for the purpose set forth.

750,199. BIT. BENJAMIN W. KINDIG, Jr., York, Pa., assignor of one-half to Thomas I. Welsh, York, Pa. Filed Sept. 30, 1902. Serial No. 125,401. (No model.)



Claim.—1. A combination-bit, comprising a substantially semicircular line-bit and a straight overdraw-bit resting thereon and having medial connection therewith to present the ends of the line-bit substantially in line with, and the overdraw-bit across, the horse's mouth.

2. A combination-bit, comprising a substantially semicircular line-bit and a straight overdraw-bit resting upon and flexibly connected at its middle to the middle of the line-bit, whereby in use the lower jaw of the animal will contact with the line-bit at points in rear of the overdraw-bit to prevent the horse from securely clamping the combined bit between his teeth.

3. A combination-bit, comprising a substantially semicircular line-bit and a straight overdraw-bit connected thereto, said overdraw-bit having terminal loop-bars disposed in a direction transverse to the horse's mouth, and the ends of said line-bit being extended rearwardly substantially in line with the horse's mouth and having means for the attachment of the lines.

4. The combination with a substantially semicircular line-bit having its ends extended rearwardly substantially in line with the horse's mouth, of a straight overdraw-bit located over the line-bit, said bits being connected at their middle portions for limited movement, and a jaw-strap connected to the opposite ends of the overdraw-bit and passed under the jaw of the animal to hold the connected bits securely in place.

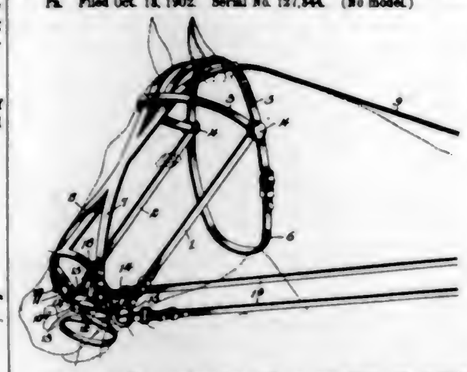
5. The combination with a substantially semicircular line-bit having its ends extended rearwardly substantially in line with the horse's mouth for the attachment of the lines, of a straight overdraw-bit flexibly connected at its middle with the middle of the line-bit, loop-bars located at the opposite ends of the overdraw-bit and disposed substantially transverse to the horse's mouth, a jaw-strap connected at its opposite ends to the lower ends of the loop-bars, and an overdraw connected to the upper ends of said loop-bars.

6. A combination-bit, comprising a curved line-bit formed midway of its ends with an opening, and a straight overdraw-bit having its middle portion bent out of the plane of the bit and passed into the opening in the line-bit, said middle portion of the overdraw-bit being provided with a ball of greater diameter than the width of the opening in the line-bit.

7. A combination-bit comprising a curved line-bit and a straight overdraw-bit resting thereon and having flexible connection therewith to present the ends of the line-bit rearwardly toward the end of, and the overdraw-bit across, the horse's mouth.

8. A combination-bit comprising a curved line-bit and a straight overdraw-bit having flexible connection therewith, whereby in use the lower jaw of the animal will contact with the line-bit at points in rear of the overdraw-bit to prevent the horse from securely champing the combined bit between his teeth, and nose and jaw straps both connected to the overdraw-bit to hold the latter in fixed position while the line-bit is moved in the horse's mouth by the manipulation of the lines.

750,200. BRIDLE AND BIT. BENJAMIN W. KINDIG, Jr., York, Pa. Filed Oct. 18, 1902. Serial No. 127,844. (No model.)



Claim.—1. The combination with an overdraw-bit provided with fixed guide-rings extending laterally therefrom at its opposite ends, of a flexible loop-bit designed to encircle the lower jaw of a horse and having its ends passed through the guide-rings, means for attaching an overdraw to the overdraw-bit, and means for attaching the lines to the ends of the loop-bit.

2. The combination with a bridle including cheek-straps, an overdraw and a nose-strap, of an overdraw-bit connected to the overdraw and provided with fixed guide-rings extending laterally from the bit and connected to the nose-strap and cheek-straps, a flexible loop-bit designed to encircle the lower jaw of a horse and having its ends passed through the guide-rings, and means for attaching the lines to the ends of the loop-bit.

3. An overdraw-bit formed in a single integral structure and comprising the bit proper, straight end bars extended above and below the same, parallel elongated eyes at the upper ends of the end bars, coaxial guide-rings extended rearwardly from the end bars at points below the bit and having their upper sides located in the horizontal plane of the bit proper when the end bars are disposed vertically, and strap-loops carried by the guide-rings for the attachment of the nose and cheek straps of the bridle.

750,201. MANUFACTURE OF HOPPLE-LOOPS. JOHN P. KLINE, Brooklyn, Mich. Filed May 1, 1903. Serial No. 155,179. (No model.)



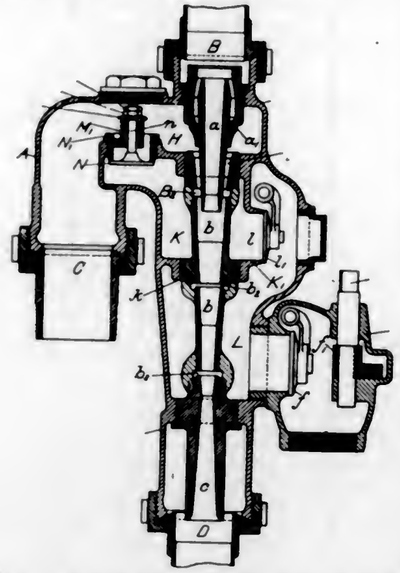
Claim.—1. The described improvement in the manufacture of hopple-loops, which consists in first bending to a loop shape having an exterior segmental groove an outer strip or covering, next stretching over the same, and in the segmental groove, a filling-strap, and next, while thus stretched, stitching the edges of the covering-strip together over the filling-strap.

2. The described improvement in the manufacture of hopple-loops, which consists in first bending to a loop shape having an exterior segmental groove a covering-strip, stretching the same and securing the ends thereof, next stretching over the same and in the segmental groove thereof a filling-strap and securing the ends of the latter, and then stitching the edges of the covering-strip together over the filling-strap.

3. The described method of manufacturing a hopple-loop, which consists in first bending to the desired shape, stretching and temporarily securing the ends of a covering-strip, next bending and stretching over the same a filling-strap and temporarily securing the ends of the same, next stitching the edges of the covering-strip over the filling-strap, next releasing the attached ends of the covering-strip and the filling-strap, trimming the ends of the covering-strip and finally securing together the ends of the filling-strap.

4. The described improvement in the manufacture of hopple-loops, which consists in first bending to a loop shape having an exterior segmental groove a covering-strip, stretching the same and securing the ends thereof, next applying a coat of cement, next stretching over the same and in the segmental groove of the covering-strip a filling-strap and securing the ends of the latter and then stitching the edges of the covering-strip together over the filling-strap.

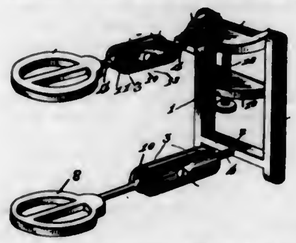
750,202. INJECTOR. STRICKLAND L. KNEASS, Philadelphia, Pa., assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Filed Oct. 6, 1903. Serial No. 175,980. (No model.)



Claim.—1. In an injector, a water-supply chamber, an overflow-chamber provided with an outwardly-opening check-valve and containing a lateral opening to the forcing combining-tube, in combination with a check-valve between said chambers balanced against the head of the water-supply.

2. In an injector, a water-supply chamber, an overflow-chamber provided with an outwardly-opening check-valve and containing the rearmost lateral opening to the forcing combining-tube, in combination with a check-valve between said chambers balanced against the head of the water-supply.

750,203. DENTAL ARTICULATOR. LEWIS KNIGHT, Beloit, Kans. Filed Nov. 4, 1902. Serial No. 130,105. (No model.)



Claim.—1. A dental articulator comprising standards having a pair of ball members secured thereto, a pair of model-holders formed integral with ball members, and duplicate clamps for assembling the aforesaid members in a predetermined position.

2. A dental articulator comprising standards and model-holders secured thereto by duplicate clamps interposed between said standards and model-holders, said clamps comprising parallel-arranged plates and means for retaining said plates in a locked position.

3. A device of the character described comprising standards, a rigid and a pivoted ball members secured thereto, model-holders provided with ball members assembled with said standard and its ball members by means of clamps.

4. A device of the class described comprising standards, rigid and pivoted ball members secured thereto, model-holders formed integral with ball members, duplicate clamps comprising parallel plates provided with ball-sockets near each end and centrally-mounted assembling means therefor, said clamps adapted to secure all of the ball members in an assembled position.

750,204. GAGE. ROBERT A. LACHMANN, Chicago, Ill. Filed Feb. 25, 1903. Serial No. 145,059. (No model.)



Claim.—1. In a device of the character described, the combination with a grooved plate, and a grooved block secured to one end thereof to form a head; of a slide adjustably mounted within the grooved plate and having a toe projecting from one end of the slide, and a spring-strip secured to the block and adapted to contact with the slide and plate.

2. In a device of the character described, the combination with a plate having a grooved face, and a head at one end of the plate; of a slide adjustably mounted within the grooved plate and having a toe extending from the slide, and a slotted spring-strip secured to the head and adapted to bear upon the plate and slide, said slot being adapted to receive the toe of the slide.

3. In a device of the character described, the combination with a plate having a groove in one face thereof, and a grooved block secured upon the plate at one end thereof; of a slide adjustably mounted within the groove and having a toe extending from the slide, a groove being formed within the slide at the base of the toe, and a slotted spring-strip secured to the block and adapted to bear upon the slide and plate, said slot being adapted to receive the toe of the slide.

4. In a device of the character described, the combination with a grooved plate, and a grooved block secured thereto at one end having a concaved inner face, the ends thereof being in a plane at right angles to the side of the plate and block; of a slide adjustably mounted within the grooves and having a toe extending therefrom and above the inner face of the plate, and a slotted spring secured to the block and adapted to contact with the slide and plate, said slot serving to receive the toe of the slide.

5. In a device of the character described, the combination with a plate having a groove in one face thereof, and a head at one end of the plate having a passage therethrough registering with the groove; of a slide mounted within the groove and having a toe extending therefrom and above the face of the plate, a threaded end to the slide slidably mounted within the passage, means thereon for adjusting the slide within the groove and passage, and a spring secured to the head and adapted to contact with the slide and plate.

6. In a device of the character described, the combination with a plate having a groove in one face thereof, and a head at one end of the plate having passage registering with the groove; of a slide mounted within the groove and having a threaded cylindrical end to the slide slidably mounted within the passage, a slotted spring-strip secured to the head and adapted to bear upon the slide and plate, the slide having a toe extending therefrom and adapted to travel within the slot in the spring-strip, and means upon the cylindrical portion of the slide for adjusting said slide within the groove and passage.

7. In a device of the character described, the combination with a plate having a grooved face, and a block secured to said plate and having a groove adapted to register with the groove in the plate to form a passage, one side of said block and plate being concaved at opposite edges to form a centrally-located straight-edge; of a slide mounted within the groove in the plate and having a toe extending therefrom, said slide also having a threaded cylindrical portion adjustably mounted within the passage, means upon said cylindrical portion for adjusting the slide in the grooves, and a slotted spring-strip secured to the block and adapted to bear upon the plate and slide, said slot being adapted to receive the toe.

8. In a device of the character described, the combination with a plate having a grooved face, and a block secured to one end of said

plate and having a groove adapted to register with the groove in the plate, said block and plate having one side concaved at opposite edges to form a straight-edge; of a slide mounted within the groove in the plate and having a toe at one end thereof, a groove being arranged in the slide at the base of the toe, the slide being provided with a threaded cylindrical portion slidably mounted between the block and plate, said cylindrical portion having a threaded recess in the outer end thereof, means upon the cylindrical portion for adjusting the slide within its groove, and a spring-bearing for said means, a slotted spring-strip secured to the block and adapted to bear upon the plate and slide, said slot being adapted to receive the toe of the slide, the block being provided with a concaved inner face.

9. In a device of the character described, the combination with a grooved plate, and a grooved block secured to one end thereof to form a bead; of a slide adjustably mounted within the grooved plate and having a toe at one end thereof, the opposite end of said slide having a passage therethrough and being provided with longitudinally-extending slots, a nut mounted upon the slotted portion of the slide, and a spring-strip secured to the block and adapted to contact with the slide and plate.

10. In a device of the character described, the combination with a grooved plate, and a grooved block secured to one end thereof to form a head; of a slide adjustably mounted within the grooved plate and head and having a toe projecting from one end of the slide, the opposite end of said slide being tapered and having a passage therethrough and longitudinally-extending slots, a nut mounted upon the tapered end of the slide and adapted to contract the same, and a spring-strip secured to the block and adapted to contact with the slide and plate.

750,205. WELL MECHANISM. MARLON R. LAYNE, Rock Rapids, Iowa. Filed Feb. 3, 1902. Serial No. 92,383. (No model.)



Claim.—1. An improved well mechanism comprising a screen, and a centering device for the screen constructed to pass within the inside of a well casing, and surround the upper end of the screen, whereby on removal of the centering device the drilling out of the screen is possible, substantially as described.

2. A well mechanism comprising the combination of a casing, a screen projecting at the bottom of the casing, a device for centering the upper end of said screen, relative to said casing, a soft packing, and means constructed to bear against the top end of the screen for tightening said packing, substantially as described.

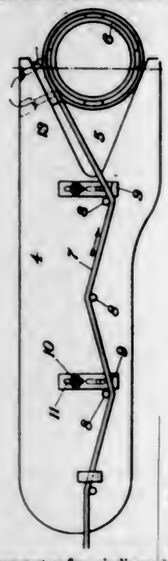
3. In well mechanism a centering device comprising a bell-shaped ring and means to hold it in place against the inner wall of the well casing, a well pipe having its end extending into the casing, and the said centering adapted to pass over the end of said pipe to center the same.

4. A well mechanism comprising the combination of a casing, a sand screen projecting therefrom, the centering device, a soft packing, and means for compressing said packing, receiving pressure from the upper end of the screen, substantially as described.

5. A well mechanism comprising the combination of a casing, a screen, a soft packing, a ring, and an inner and outer collar for compressing said packing, said inner collar constructed to abut against the top of said screen, and connections between said inner and outer collar, whereby said packing is compressed by the abutment of the inner collar against the top of the screen.

6. In well mechanism the combination with a well casing, of a sealing device therein provided with means for compressing the packing to fix it in place, and having a depending bell-shaped ring adapted to go over and center a pipe or screen which projects into, the well casing from below, substantially as described.

750,206. WIRE-WINDING TOOL. MARLON R. LAYNE, Rock Rapids, Iowa. Filed Jan. 8, 1903. Serial No. 138,216. (No model.)



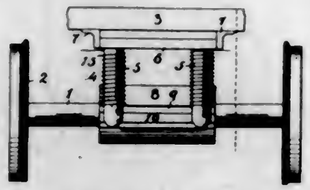
Claim.—1. An apparatus for winding wire comprising a body part or handle having a forked end, tension devices for the wire, and a guide plate therefor upon one of the forks of the handle having a plurality of slots, substantially as described.

2. A tool comprising a body with a divergent forked jaw to embrace a supporting frame, tension devices for a wire on the body and slotted guides in the forked jaws for engaging the wound wire on the frame to steady the same and space the wire.

3. A device for winding wire comprising in combination a body portion, divergent forked extremities upon said body portion, adapted to embrace the article to be wound, a guide attached to one of said forked extremities, designed to engage the strands of the wire after they are wound upon the article, and thereby feed the winding device along.

4. A wire winding tool comprising a handle having regulable tension devices for the wire, a rigid forked end, and one of the jaws of the fork having an interchangeable slotted guide to space and feed the wire along the support upon which it is being wound.

750,207. ELECTROMAGNETIC BRAKE. JOHN S. LOCKWOOD, Kansas City, Mo. Filed June 23, 1902. Serial No. 112,743. (No model.)



Claim.—1. The combination with a magnetizable drum, of a suitable support, an electromagnet movably mounted on said support and having two cores provided each with a groove, and an armature mounted in said grooves and adapted to bear upon said drum and comprising two magnetic portions and a third non-magnetic connecting portion, substantially as described.

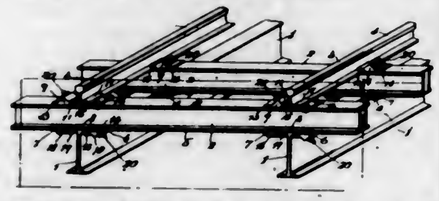
2. The combination with a rotatable magnetizable body, of an electromagnet having two cores in the magnetic field of which the said body is located, and an armature detachably secured to both cores and located between the cores and the said body.

3. The combination with the wheel of a magnetizable body rotatable therewith, an electromagnet having two cores provided with a groove in each, and an armature extending from one core to the other and mounted in said grooves and disposed between the said body and the two cores.

4. The combination with the wheel, of a magnetizable body rotatable therewith, an electromagnet having two cores and movable toward and from the said body, and an armature extending from one core to the other and detachably connected with the two cores and disposed between the cores and the magnetizable body.

5. The combination with the wheel, of a magnetizable body rotatable therewith, an electromagnet having two cores and movable toward and from the said body, and an armature extending from one core to the other and detachably connected with the two cores and located between the cores and the said body, the armature comprising three portions the intermediate of which is non-magnetic.

750,208. BRIDGE CROSS-TIE. JOSEPH B. LOGAN, Lebanon, Ind. Filed Oct. 19, 1903. Serial No. 177,652. (No model.)



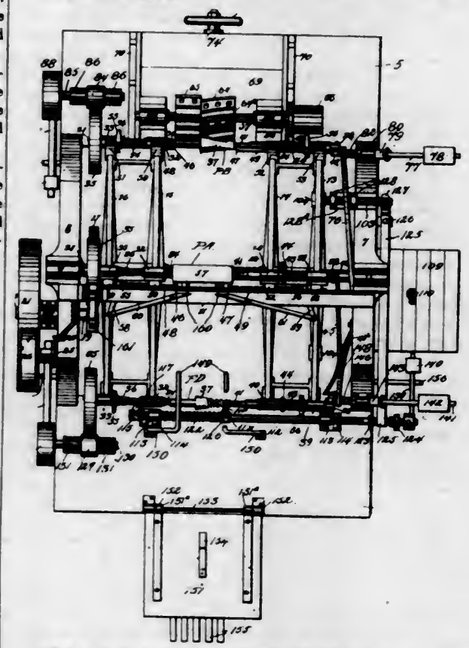
Claim.—1. In a railroad-bridge track, the combination with longitudinally-extending bridge-chords, cross-ties resting on and supported by said chords, and rails resting on said cross-ties, of retaining-plates situated on the under sides of said cross-ties between which said bridge-chords fit, chord-retaining plates situated on the under sides of said cross-ties and retaining-lips on said retaining-plates projecting over and engaging the top portions of said chords, upper rail-retaining plates situated diagonally over said lower retaining-plates and having their retaining-lips adapted to engage the said rails, anchor-plates adapted to clamp the upper portions of said chords opposite said lower retaining-plates and upper clamping-plates adapted to engage the said rails and bolts extending diagonally from each of said anchor-plates to said clamping-plates and arranged in parallel relation.

2. In a railroad-bridge track the combination with longitudinally-extending bridge-chords, cross-ties resting on and supported by said bridge-chords and provided with gaps to receive the latter and rails resting on said cross-ties, retaining-plates situated on the top side of said cross-ties and engaging said rails each on the same side, lower chord-retaining plates diagonally opposite said upper retaining-plates and secured to the under side of said cross-ties, anchor-plates situated opposite said lower retaining-plates, and adapted to engage said chords, upper clamping-plates situated diagonally above said lower anchor-plates and adapted to engage said rails, and clamping bolts extending diagonally through said anchor-plates and said upper clamping-plates and situated in parallel relation.

3. In a railroad-bridge track the combination with the longitudinally-extending chords of a bridge, a series of cross-ties resting on and supported by said chords and provided with lower retaining-gaps for receiving said chord, and rails resting on said cross-ties, of retaining-plates situated on the top and bottom sides of said cross-ties, lower anchor-plates situated beneath said cross-ties, clamping-plates situated above said cross-ties and each of said retaining-plates, anchor and clamping plates arranged in diagonally-opposing pairs and brace-bolts extending diagonally through each of the pairs of anchor and clamping plates said plates and bracing-bolts of the one cross-tie extending and inclined oppositely to those of the next adjacent cross-tie.

4. In a railroad-bridge track the combination with the chords and the rails thereof, of a series of cross-ties situated on said chords in parallel relation and upon which cross-ties said rails rest and diagonally-extending brace-bolts from one side of said rails to the opposing sides of said chords, in parallel relation, said brace-bolts of the one cross-tie extending and inclined oppositely to those of the next adjacent clamping-bolts.

750,209. AUTOMATIC TURNING-MACHINE. BONAVENTURE T. MAGERS, Madison, Ind., assignor to the Indianapolis Arm, Bracket and Pin Company, Madison, Ind. Filed Feb. 13, 1903. Serial No. 143,269. (No model.)



Claim.—1. In an automatic turning-machine, the combination with a revoluble carriage, of a head-stock and tail-stock carried thereby, gage-toes carried by said carriage arranged behind in the course of travel of said head and tail stocks and coöperating with said head and tail stocks, and means for coöperating said toes, and a cutting means coöperating with said stocks, substantially as described.

2. In an automatic turning-machine, the combination with a carriage, of a head and tail stock, means for reciprocating said tail-stock, means for rotating said head-stock, reciprocating gage-toes on said carriage arranged behind and in the course of travel of the head-stock and coöperating with said stocks, and means for actuating said gage-toes, substantially as described.

3. In an automatic turning-machine, the combination with shaping means, of a carriage, chucking means and gage-rods carried thereby, said gage-rods arranged behind and in the course of travel of the head and tail stocks, and means for reciprocating said chucking means, and means for reciprocating said gage-rods, substantially as described.

4. In an automatic turning-machine, the combination with a frame and a shaping-head, of a carriage mounted in said frame, chucking means carried by said carriage, gage-rods carried by the carriage and arranged behind and in the course of travel of the head and tail stocks, overhanging cams for operating said gage-rods, and cams on said frame for reciprocating said chucking means and gage-rods, substantially as described.

5. In an automatic turning-machine, the combination with a revoluble carriage and its supporting-frame, a series of head and tail stocks, each of said tail-stocks comprising a revoluble center, a master-screw on said revoluble center, said stocks arranged at equal intervals apart round the periphery of said carriage equally distant from the axis thereof and parallel thereto, opposing gage-rods extending longitudinally and rearwardly of each of said stocks and each pair of said rods having their bends or gaging-toes directed toward and equally distant rearwardly of the common axis of said stocks, of a blank-receiving platform situated centrally on said frame

and under the path of the upward-moving stocks, said platform co-operating with each pair of said gage-rods to center the blank to be turned, a tool traversing the carriage-bar, its returning-spring, a threading-tool carried by said bar, suitably-fixed bearings wherein said bar is adapted to be turned a limited amount and to be moved longitudinally, a revolving knife-head adjustably mounted on said frame, a latch, a latch-lever, stops on said tool-carrying bar arranged to operate said latch-lever, a master-screw chasing-tool, so situated on said traversing tool-bar, that, the master-screw of each of said chucking-centers engages said chaser alternately to traverse said tool-bar and to disengage said latch to release the latter whereby said carriage is permitted to rotate to interchange each of said stocks from one position to its next adjacent position, and disengaging said master-screw and said chaser to permit said tool-carrying bar to instantaneously return to its normal position, and suitable means and fixed cams situated to operate said stocks in their proper order and time during each movement of said carriage.

6. In an automatic turning-machine, the combination with a revoluble carriage, the cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a series of head and tail stocks, each of said head-stocks comprising a revoluble chucking center, a master-screw on said revoluble center, and a dead and traversing center, said chucking-centers arranged at equal intervals apart round the periphery of said carriage, equally distant from the axis thereof and parallel thereto, opposing gage-rods extending longitudinally and rearwardly of each of said centers and each pair of said gage-rods having their bends or gaging-toes directed toward and equally distant rearwardly of the common axis of said centers, of a blank-receiving platform, situated centrally under the path of the upwardly-moving head and tail stocks, a revolving knife-head, a knock-out lever pivotally mounted on said frame and under said carriage, a latch, a latch-lever, a traversing tool-carrying bar, a threading-tool carried by said bar, a chasing-tool so situated on said tool-carrying bar that the master-screw of each of said chucking-centers engages said chasing-tool alternately to traverse said bar and thereby operate said latch-lever to release said carriage whereby the latter is permitted to move to interchange each of said chucking-centers from one position to its next adjacent position, and releasing said master-screw from said chaser to permit said tool-carrying bar to return to its normal or starting position ready to thread the next consecutive piece, suitable springs on said gaging and said dead-centers, and suitable fixed cams arranged and situated to operate to control the operation of said gaging-rods and dead-centers at their proper times and simultaneously with the movements of said carriage, and cams for positively closing said dead-center to retain said blank when being worked, and for positively opening said dead-center to release the article when finished, and a suitable receiving and delivering chute situated in position on said frame to receive each of the articles when discharged therefrom.

7. In an automatic turning-machine, the combination with a shaping-head, of traveling chucking means, gage-toes arranged behind and in the course of travel of the chucking means, means for projecting said chucking means, and means for projecting said gage-toes prior to the projection of said chucking means, substantially as described.

8. In an automatic turning-machine, the combination with a shaping-head, of traveling chucking means, gage-toes arranged behind and in the course of travel of the chucking means, means for projecting said chucking means, means for projecting said gage-toes prior to the projection of said chucking means, and means for withdrawing said gage-toes subsequent to the projection of said chucking means, substantially as and for the purpose set forth.

9. In an automatic turning-machine, the combination with a carriage and feed means, of work-holding means on said carriage, spring-pressed reciprocating gage-rods arranged behind and in the course of travel of the work-holding means, adjustable cam-dogs secured thereon, and cams adapted to be engaged by said cam-dogs, substantially as and for the purpose set forth.

10. In an automatic turning-machine, the combination with a frame, of a revoluble carriage, a rotary head-stock and a reciprocating tail-stock on the carriage, cams on the frame for withdrawing and projecting said tail-stock, gage-rods mounted on said carriage arranged behind and in the course of travel of the head and tail stocks, cams on the frame for projecting said gage-rods, and springs on said gage-rods for withdrawing the same, substantially as described.

11. In an automatic turning-machine, the combination with a cutting means, of a revoluble carriage work-holding means thereon, a resilient cam having a fixed end and its free end adapted to engage with the work-holding means, the work-holding means first engaging the fixed end of the cam, and means for forcing said free end of the cam against the work-holding means, substantially as described.

12. In an automatic turning-machine, the combination with a revoluble carriage, each cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a blank-receiving platform situated centrally over said carriage, a thread-cutting tool, and a forming cutter-head, of a series of revoluble head and reciprocating tail stocks all supported by said frame, said head and tail stocks supported on the periphery of said carriage at equal intervals apart equally distant from and in a parallel relation with the axis of said carriage, a master-screw on the spindle of each of said revoluble head-stocks so arranged on said carriage that, when the first head-stock is receiving its blank, the second head is operating to turn its blank, and the master-screw of the last or third operating head-stock is operating to traverse said threading-tool, and means connected to said threading-tool whereby the periods of motion and rest of said carriage are controlled.

13. In an automatic turning-machine, the combination with a revoluble carriage, each cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a blank-receiving platform situated centrally over said carriage, a thread-cutting tool, a bar carrying said tool, and a forming cutter-head all supported by said frame, said head and tail stocks arranged around and secured on the periphery of said carriage, equally distant from and in parallel relation with the axis of the latter, a master-screw on each of the spindles of said revoluble head, and said head and tail stocks so situated and arranged on the periphery of said carriage that, when the first stock is receiving its blank, the second stock is operating to turn its blank, and the master-screw of the third operating-center is engaging said tool-carrying bar to traverse the same and its threading-tool longitudinally of the piece to be threaded, and means connected to said tool-carrying bar whereby the periods of motion and rest of the carriage are controlled.

14. In an automatic turning-machine, the combination with a revoluble carriage, each cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a blank-receiving platform situated centrally over said carriage, a thread-cutting tool, a traversing-bar carrying said tool, bearings wherein said bar is supported to slide and be turned a limited amount therein, and whereby the said bar is maintained in parallel relation with the axis of said carriage, and a cutter-head all supported by said frame, of a series of revoluble head-stocks and reciprocating tail-stocks arranged at equal intervals apart round the periphery of said carriage equally distant from and in parallel relation to the axis thereof, a master-screw on each of the spindles of said revoluble head-stocks, said head and tail stocks so situated and arranged on the periphery of said carriage that, when one head-stock is receiving its blank, the head-stocks are operating to turn the piece, and the master-screw of the third operating head-stock is in engagement with said tool-carrying bar to traverse the same and to operate the threading-tool thereof, a latch-lever and a stop on said tool-carrying bar whereby said latch-lever is operated to release said carriage to permit the movement of the latter to interchange the said stocks.

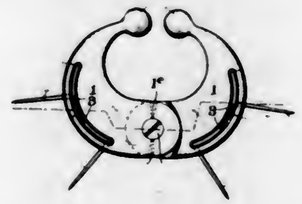
15. In an automatic turning-machine, the combination with a revoluble carriage, each cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a blank-receiving platform situated centrally over said carriage, a thread-cutting tool, and a tool-carrying bar, bearings whereby said bar is supported, and maintained in parallel relation with said carriage and wherein said bar is adapted to be turned a limited extent and to be traversed longitudinally, suitable means connected to said bar to move the threading-tool into normal and operative position, and a revoluble cutter-head, of a series of revoluble head-stocks and reciprocating tail-stocks arranged at equal intervals apart around the periphery of said carriage equally distant from and in parallel relation to the axis thereof, a master-screw on each of the spindles of said revoluble head-stocks, said stocks so situated and arranged on the periphery of said carriage that, when one stock is receiving its blank, the second stock is operating to turn its piece and the master-screw of the third operating-stock is in engagement with said tool-carrying bar to traverse the same and to operate the threading-tool thereof, a latch-lever and a stop on said tool-carrying bar whereby said latch-lever is operated to release said carriage to permit the movement of the latter to interchange the said stocks.

16. In an automatic turning-machine, the combination with a revoluble carriage, each cycle of which is divided into alternate periods of motion and rest, its supporting-frame, a blank-receiving platform situated centrally over said carriage, a thread-cutting tool, a tool-carrying-bar, bearings whereby said bar is supported and maintained in parallel relation with the axis of said carriage and wherein said bar is adapted to be turned a limited extent and to be traversed longitudinally, a revolving knife-head, a spring operatively connected to said bar to return the tool thereof into operative normal position, of a series of revoluble head-stocks and reciprocating tail-stocks arranged at equal intervals apart around the periphery of said carriage, equally distant from the axis thereof, and in parallel relation thereto, a suitable spring operatively connected to said tail-stock to move the same to engage the blank to be carried by said stocks, a master-screw on each of the spindles of said revoluble head-stock and having its profile conforming with the profile of the article to be threaded, said head and tail stocks so situated and arranged on the periphery of said carriage that, when one stock is receiving its blank, a second stock is operating to turn its piece and the master-screw of the third operating-stock is in engagement with said tool-carrying bar to traverse the same and to operate the threading-tool thereof, means for maintaining said tool-carrying bar in engagement with said master-screw while the carriage is at rest, a latch-lever operatively connected to said tool-carrying bar whereby, when said thread-cutting tool has traversed the full extent of its path, said latch-lever will operate to release said carriage and to permit the same to move to interchange the stocks and suitable fixed cams arranged and situated so that, when said carriage is moved the reciprocating tail-stock will be maintained open to receive the blank, then released to engage the latter and finally to firmly hold said stock in engagement with said blank while the latter is being turned and threaded.

17. In an automatic turning-machine, the combination with a revoluble carriage, of feeding means, a shaping-cutter, knock-out means and a further tool, means for traversing said tool to cut a thread and a stripping means all arranged in the path of travel of said carriage, head and tail stocks on said carrriage, depressing-cams engaging with said head and tail stocks, a withdrawing-cam engaging with said head and tail stocks, a discharge-hopper relative to said stripping means, automatic means for rotating said head and tail stocks relative to said shaping-cutter and threading-tool, centering means adapted to act in conjunction with said feeding means, and a brake for stopping said head and tail stocks relative to said feeding and centering means, substantially as described.

18. In an automatic turning-machine, the combination with a frame, of a revoluble carriage, chucking means carried by said carriage, centering means carried by said carriage, feeding means, a shaping-cutter, and a further tool arranged on the frame in the path of travel of said chucking means, and means on the frame for braking said chucking means relative to the said feeding and centering means, substantially as described.

750,210. MUZZLE FOR ANIMALS. BENJAMIN P. MERRY, Archbold, Ohio. Filed May 18, 1903. Serial No. 157,696. (No model.)



Claim.—1. In a muzzle of the character described the combination of two jaws having their free ends adapted to contact with the animal's nose, grooves in said jaws, pricking-prongs formed of rebent strips with their outstanding portions passing through orifices in said jaws and the loop portions housed in said grooves, substantially as set forth.

2. As a new article of manufacture, a muzzle of the character described comprising two jaws having their free ends adapted to contact with the animal's nose, said jaws having grooves therein, pricking-prongs formed of rebent strips with their outstanding portions passing through orifices in said jaws and the loop portions housed in said grooves, said jaws having their connected ends provided with an offset portion and a portion seated upon the latter, respectively, and a headed and nut-provided bolt passing through apertures in the latter-referred-to portions, said latter-referred-to portions being provided with registering ribs and notches, respectively, radiating from the bolt-receiving orifices of said jaws.

750,211. NUT-LOCK. WILLIAM C. MEYER, Traverse City, Mich., assignor of one-half to William I. De Kay, Traverse City Mich. Filed Sept. 19, 1903. Serial No. 173,855. (No model.)



Claim.—1. The combination with a nut adapted to be tapped on to a threaded bolt and having a transverse internally-threaded opening, of a pressure member removably tapped into said opening, an engaging member having a stem extended wholly through the pressure member and headed at its outer end, the inner end of the engaging member being formed for frictional engagement directly with the threads of the bolt, and a normally expanded spring mounted upon the stem and serving to press the engaging member into engagement with the bolt, said pressure member being freely adjustable longitudinally for varying the tension of the spring and the consequent pressure of the latter upon the engaging member.

2. The combination with a nut adapted to be tapped on to a threaded bolt and having a transverse internally-threaded opening, of a pressure member removably tapped into said opening, an engaging member having a stem extended wholly through the pressure member and headed at its outer end, a pair of toothed engaging fingers provided upon the inner end of the engaging member for frictional engagement directly with the threads of the bolt, and a normally expanded spring mounted upon the stem and serving to press the engaging member into engagement with the bolt, said pressure member being freely adjustable longitudinally for varying the tension of the spring and the consequent pressure of the latter upon the engaging member.

750,212. ETHER OF AMYLPROPIOLIC ACID. CHARLES MOUREU, Paris, France. Original application filed July 19, 1901, Serial No. 68,944. Divided and this application filed Mar. 3, 1903. Serial No. 146,003. (No specimens.)

Claim.—1. An ether of amylpropiolic acid of the type

$$R.CO_2C{=}C.CH_2.CH_2.CH_2.CH_3CH_3$$

and

$$R_1.CO_2C{=}C.CH_2.CH_2.CH_2.CH_2.CH_3,$$

R being an aliphatic radical as methyl, ethyl, &c., or allyl, and R, being an aromatic radical as benzyl, &c., said ethers being oily colorless or practically colorless transparent liquids of agreeable aroma, non-crystallizable by ordinary methods at temperatures above 0° centigrade, and having the properties and characteristics herein specified.

2. A beta-ketonic ether of amylpropiolic acid of the type

$$R.CO_2.CH_2.CO.CH_2.CH_2.CH_2.CH_2.CH_3,$$

R being an alcoholic radical as methyl, ethyl, &c., said ethers being oily colorless or practically colorless transparent liquids of agreeable aroma, non-crystallizable by ordinary methods at temperatures above 0° centigrade, and having the properties and characteristics herein specified.

750,213. ETHER OF PROPIOLIC ACID, &c. CHARLES MOUREU, Paris, France. Original application filed July 19, 1901, Serial No. 68,944. Divided and this application filed Aug. 8, 1903. Serial No. 168,821. (No specimens.)

Claim.—1. An ether of hexyl propiolic acid of the type

$$R.CO_2C{=}C.CH_2CH_2CH_2CH_2CH_2CH_3,$$

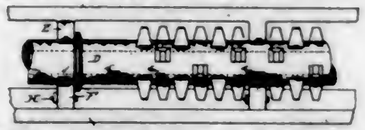
R being an alcoholic radical, said ethers being oily, colorless or practically colorless transparent liquids of agreeable aroma, non-crystallizable by ordinary methods at temperatures above 0° centigrade, almost insoluble in water, easily soluble in alcohol, ether, benzene and gasolene, and having the properties and characteristics herein specified.

2. A beta-ketonic ether of hexyl propiolic acid of the type

$$R.CO_2CH_2CO\,CH_2CH_2CH_2CH_2CH_2CH_3,$$

R being an alcoholic radical, said ethers being oily, colorless or practically colorless transparent liquids of agreeable aroma, non-crystallizable by ordinary methods at temperatures above 0° centigrade, almost insoluble in water, easily soluble in alcohol, ether, benzol and gasolene, and having the properties and characteristics herein specified.

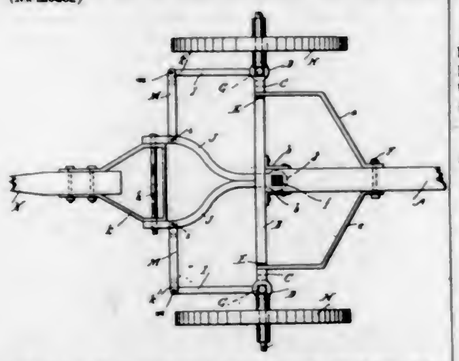
750,214. **FURNACE.** THOMAS MURPHY, Detroit, Mich. Filed May 27, 1901. Serial No. 62,059. (No model.)



Claim.—1. In combination with a clinker-bar, of supporting means therefor including a cross-bar underlying said clinker-bar and provided at its respective sides with upwardly-extending end portions spaced apart by the upper portion of the clinker-bar embracing opposite sides of said clinker-bar and extending but partially around the upper portion thereof sufficiently only to retain the same in place.

2. In combination with a clinker-bar, of supporting means therefor including a cross-bar underlying said clinker-bar and provided at its respective sides with upwardly-extending end portions spaced apart by the upper portion of the clinker-bar embracing opposite sides of said clinker-bar and extending but partially around the upper portion thereof sufficiently only to retain the same in place, in combination with detachable securing devices for one of said upwardly-extending portions whereby the same may be removed.

750,215. **STEERING-GEAR FOR WAGONS.** ANDY MCKEEVER, South Presque Isle, Me. Filed June 2, 1903. Serial No. 159,223. (No model.)



Claim.—1. The combination, with a wagon reach-bar, and a cross-bar secured to its front end, said cross-bar having upwardly-projecting pillars and two bearings D and c at its ends; of vertical shafts journaled in the said bearings and provided with axle-bearings above the said bearings D at their upper ends, outer arms secured below the said bearings c to the lower ends of the said shafts, inner arms having their rear ends pivoted to the said reach-bar, a draft-pole connected to the front ends of the said inner arms, and connecting-rods pivoted to the said inner and outer arms at each side of the draft-pole.

2. The combination, with a wagon reach-bar, and a cross-bar secured to its front end, said cross-bar having upwardly-projecting pillars and two bearings D and c at its ends; of brace-rods secured between the said reach-bar and the upper parts of the said pillars, vertical shafts journaled in the said bearings and provided with axle-bearings above the said bearings D at their upper ends, upwardly-curved outer arms secured below the said bearings c to the lower ends of the said shafts, upwardly-curved and diverging inner arms having their rear ends pivoted to the said reach-bar, a draft-pole pivoted between the front ends of the said inner arms, and connecting-rods pivoted to the said inner and outer arms at each side of the draft-pole.

750,216. **PLAYING-CARD SHUFFLER.** HERBERT F. H. NEWDEROS, Ticehurst, England. Filed Sept. 10, 1903. Serial No. 172,619. (No model.)

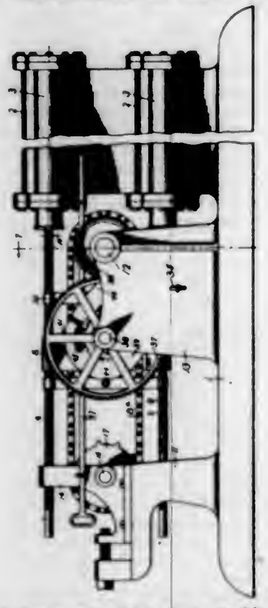
Claim.—1. A card-shuffler comprising a box having a wedge shaped plane piece disposed at one end thereof, and a plurality of wedge-shaped partitions disposed between and spaced from its ends and also spaced from the sides of the box and from each other.

2. A card-shuffler comprising a box, provided with wedge-shaped plane pieces at its ends, spaced from opposite sides, and wedge-shaped partitions disposed longitudinally in the box between and spaced from the ends thereof, and spaced from opposite sides of the box and from each other.



3. A card-shuffler comprising a box, provided with wedge-shaped plane pieces at its ends spaced from opposite sides, and wedge-shaped partitions disposed longitudinally in the box between and spaced from the ends thereof, and spaced from opposite sides of the box and from each other, said partitions having projections on their sides.

750,217. **EXPANSIVE-FLUID MOTOR.** JAMES A. NORTON, Odebolt, Iowa. Filed Mar. 12, 1903. Serial No. 147,392. (No model.)



Claim.—1. An expansive-fluid motor comprising a plurality of cylinders and pistons operating therein, rigidly connected; valves controlling the admission and exhaust of motive fluid for the cylinders respectively; a main shaft and connections from the pistons for driving the same, comprising two clutches, each adapted to drive in one direction only, the driving direction of said clutches being the same, and means by which such clutches are rotated in their driving direction by the opposite strokes of the piston.

2. An expansive-fluid motor comprising two cylinders and pistons therein, rigidly connected; a driving-shaft and two clutches thereon, arranged to drive in the same direction, the exterior element of each said clutches being a sprocket-wheel; a counter-shaft and sprocket-wheels thereon corresponding to the clutch sprocket-wheels; a drive-chain connecting the clutch sprocket-wheels with the counter-shaft sprocket-wheels, opposite plies of said chains respectively being positively connected with the pistons for actuation by the latter, valves controlling the motive fluid into and out of the cylinders respectively, having their stems rigidly connected, and means actuated by the main shaft for moving the valves.

3. An expansive-fluid motor comprising cylinders, and pistons therein rigidly connected and operating together; a main shaft to which the pistons communicate rotary movement; two clutches by which such movement is communicated, arranged to engage the shaft for driving by movement in the same directions, and connections by which the pistons oscillate the clutch elements in opposite directions; valve mechanism and means for operating it deriving actuation from the main shaft and in uniform time relation thereto.

4. An expansive-fluid motor comprising two parallel cylinders, and rigidly-connected pistons operating therein respectively; a main shaft extending transversely with respect to the plane of the axes of the two pistons adjacent to the ends of the cylinders from which the piston-stems emerge; a counter-shaft parallel with the main shaft more remote from said end; two sprocket-wheels loose on the main shaft, and corresponding sprocket-wheel on the counter-shaft, and chains connecting the corresponding wheels respectively, the pistons being positively connected to opposite plies of the chains for actuating them in opposite directions, and clutches connecting the sprocket-wheel with the main shaft arranged to drive said shaft by their alternate movements in the same direction; valves controlling the supply and exhaust of motive fluid for the cylinders respectively having their stems rigidly connected, and means for actuating said valves comprising a wheel rotated positively by connection with the main shaft, and located between the same and the counter-shaft.

5. An expansive-fluid motor, in combination with the cylinders and rigidly-connected pistons therein; valves for controlling the motive fluid having their chambers and paths of travel parallel with the cylinders respectively; a main shaft rotated by a clutch connection with the pistons; a wheel rotated by the main shaft having cam projections; an arm connected with the valve-stems extending across the face of such wheel and having abutments in the path of said cam projections, whereby the rotation of the wheel causes the projections to actuate the valve-stems in fixed time relation to the rotation of the main shaft.

6. An expansive-fluid motor comprising two cylinders and pistons therein; a main shaft having two clutch connections with said pistons adapted to rotate the shaft in the same direction by the opposite movements of the pistons; a wheel actuated in uniform time relation with the main shaft; valves controlling the motive fluid; a bar rigid with both said valves, and abutments on said bar between which the cam-wheel revolves, and which are encountered by the cam projections of said wheel in such revolution to actuate the valves longitudinally, one of said projections being adapted to be adjusted angularly with respect to the other to vary the cut-off.

7. An expansive-fluid motor comprising, in combination with the cylinder, a piston operating therein, and valves for controlling its operation; a main shaft and connections from the piston for rotating the same, consisting of two clutches, adapted to drive in the same direction, means for operating them in their driving direction by opposite strokes of the piston and means for reversing the clutching action of the clutches.

8. An expansive-fluid motor comprising, in combination with the cylinder and its piston, a controlling-valve; a main shaft and one-way driving-clutch connections from the piston for driving the same, means for operating the valves actuated in uniform time relation with the main shaft, and means for actuating said valve-operating devices independently of their actuation by the shaft for rectifying the relation of the valve action to the piston action.

9. In an expansive-fluid motor, comprising, in combination with the cylinder and piston, and its controlling-valves, a main shaft and one-way driving connections from the piston for driving same, means for reversing the clutching action of the clutches to reverse the direction of rotation of the main shaft; means for moving the valves actuated in uniform time relation with the main shaft, and comprising a clutch device for communicating rotary motion in one direction; means for reversing the action of such clutch connected with and operated by the means for reversing the action of the main-shaft clutches.

10. In an expansive-fluid motor comprising, in combination with the cylinder, its piston and controlling-valve, a main shaft and one-way driving-clutch connections from the piston for rotating the same; a wheel rotated in uniform time relation with the main shaft having cam projections for actuating the valves; an element connected with the valves for their actuation, having abutments at points diametrically opposite with respect to the axis of said cam-wheel.

11. In an expansive-fluid motor comprising a cylinder and its piston and controlling-valve, a main shaft and one-way driving-clutch connections from the piston for rotating the shaft; a wheel rotated in uniform time relation with the main shaft and having cam projections for actuating the valve, one of said projections being adjustable to vary the angular distance between the two for regulating the cut-off.

12. An expansive-fluid motor comprising, in combination with the cylinders and rigidly-connected pistons operating therein, a driving-shaft and two clutches thereon arranged to drive in the same direction, the exterior element of each of said clutches being a sprocket-wheel, a counter-shaft and sprocket-wheels thereon corresponding to the clutch sprocket-wheels; drive-chains connecting the clutch sprocket-wheels with the counter-shaft sprocket-wheels; a cross-head rigidly connecting the two pistons, said cross-head being attached positively to one ply of one of the drive-chains, and to the opposite ply of the other drive-chain; valves controlling the motive fluid into and out of the cylinders respectively; a cross-head rigidly connecting the stems of the valves; two abutments carried by said cross-head, and cam devices rotated by connection with the main shaft for encountering said abutments to operate the valve-stems.

13. An expansive-fluid motor comprising, in combination with the cylinder and piston operating therein, valves for controlling its operation; a main shaft and connections from the piston for rotating the same, consisting of two clutches adapted to drive in the same direction; means for operating them in their driving direction by opposite strokes of the piston, said clutches comprising each an interior and an exterior element, and an annular group of balls between said elements, the inner element having for each ball a seat between which and the outer element the ball may be wedged by movement in either direction from the middle point of the seat; a third element which retains the balls between said inner and outer elements, having fingers between which the balls are checked; means for adjusting said third element to check the balls from passing the center of their seats respectively in one direction or the other, according to the adjustment, whereby the clutches may be set to drive in either direction according to the adjustment of said third element.

14. In an expansive-fluid motor, in combination with the cylinder and piston, main shaft and one-way driving-clutch on said main shaft, and connections from the piston for driving said clutch, the clutch comprising the outer element, 21, and the inner element, 20, and the annular ball between said elements, and the ball-retaining element, 25, the element, 20, having for each ball a seat which trends from its middle point in both directions converging toward the annular wall of the outer element, said retaining element having the fingers, 27, between which the balls respectively are checked, the sleeve, 28, feathered and adapted to move longitudinally on the shaft, and cam connections between said sleeve and said ball-retaining elements for rocking the latter on the shaft when the sleeve is moved longitudinally thereon, and a shipping-arm engaging said sleeve to thus move it longitudinally, whereby the driving direction of the clutch may be reversed at will.

15. An expansive-fluid motor comprising two parallel cylinders and rigidly-connected pistons operating therein respectively; a main shaft to which the pistons communicate rotary movement; two clutches by which said movement is communicated, arranged to engage the shaft for driving by movement in the same direction, the outer element of each of said clutches being a sprocket-wheel, and means for connecting said clutches with the piston, consisting of chains engaging said sprocket-wheels, and having opposite plies oppositely connected to the two pistons respectively, said clutches each comprising, in addition to said outer sprocket-wheel and inner element, an annular series of balls between the two elements and a ball-retaining element inclosing the annular chamber for the balls and provided with fingers projecting between the balls, the inner element having for each ball a seat which trends from a middle point in opposite directions convergingly toward the annular wall of the outer sprocket-wheel element; sleeves feathered on the shaft adjacent to the clutches respectively, having cam connections between said sleeves and said ball-retaining elements respectively, adapted to rock the ball-retaining elements on the shaft when the sleeves are moved longitudinally, the shipping-bar, 34, and forked arms therefrom engaging the sleeves, and means for operating the bar to slide the sleeves on the shaft at will to reverse the driving direction of the clutches.

16. An expansive-fluid motor comprising, in combination with two parallel cylinders rigidly united, parallel pistons rigidly connected, operating therein; valves for controlling their operation; a main shaft and connections from the pistons for rotating the same, consisting of two clutches adapted to drive in the same direction; means for operating them in their driving direction by opposite strokes of the pistons, and means for reversing the clutching action of the clutches.

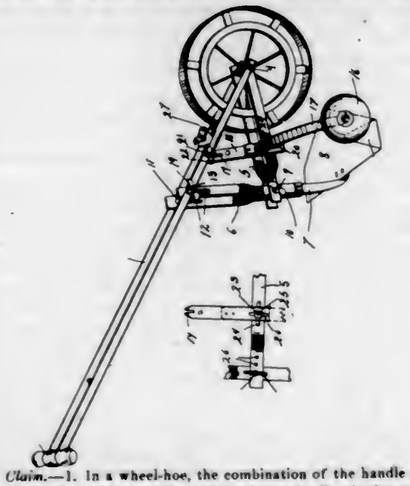
17. An expansive-fluid motor comprising, in combination with two parallel cylinders rigidly joined, pistons operating therein, rigidly connected; controlling-valves; a main shaft and one-way driving-clutch connections from the pistons for driving the same; means for operating the valves actuated in uniform time relation with the main shaft, and means for actuating said valve-operating devices independently of their actuation by the shaft for rectifying the relation of the valve action to the piston action.

18. In an expansive-fluid motor comprising, in combination with two parallel cylinders rigidly joined, operating therein, and the controlling-valves for the same, a main shaft and one-way driving-clutch connections from the pistons for driving the shaft; means for reversing the clutching action of the clutches to reverse the direction of rotation of the shaft; means for moving the valves actuated in uniform time relation with the main shaft, and comprising clutch devices for communicating rotary motion in one direction; means for reversing the action of such clutch devices connected with and operated by the means for reversing the action of the main-shaft clutches.

19. In an expansive-fluid motor comprising, in combination with two parallel and rigidly-joined cylinders, their rigidly-connected pistons and controlling-valves; a main shaft and one-way driving-clutch connections from the pistons for rotating the shaft; a wheel rotated in uniform time relation with the main shaft, having cam projections for actuating the valves, and an element connected with the valves for their actuation, having abutments at points diametrically opposite with respect to the axis of same cam-wheel.

20. In an expansive-fluid motor comprising two parallel rigidly-united cylinders and their respective rigidly-united pistons and controlling-valves, a main shaft and one-way driving-clutch connections from the pistons for rotating the shaft; a wheel rotated in uniform time relation with the main shaft, and having cam projections for actuating the valves, one of said projections being adjustable to vary the angular distance between the two for regulating the cut-off.

750,218. WHEEL-HOE. EDMUND PIGGOTT, Detroit, Mich., assignor to Piggott Manufacturing Company, Ltd., Detroit, Mich. Filed Oct. 10, 1902. Renewed June 4, 1903. Serial No. 160,021. (No model.)

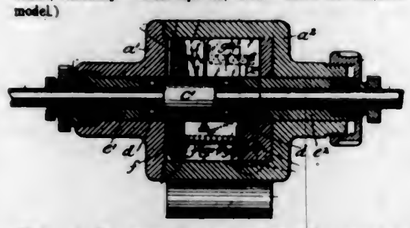


Claim.—1. In a wheel-hoe, the combination of the handle the wheel journaled at the end thereof, the fork extending horizontally from the axle of the wheel, a vertical fork connected to the handle to allow a vertical movement of the handle thereon, the lower end of the vertical fork being adjustably connected between the sides of said horizontal fork, a blade, a vertical standard connected thereto, said standard being secured to the lower end of said vertical fork.

2. In a wheel-hoe, the combination of a handle composed of parallel bars, a transporting-wheel journaled between said bars, a horizontally-extending fork mounted on the axle of said wheel, a vertical fork attached to the horizontal fork and to the handle, a hoe-blade depending from said vertical fork, a rotary cutter-disk adapted to travel slightly in advance of the blade at one side thereof, said disk depending from a vertical standard attached to the horizontal fork and to the handle, said standard being adjustable vertically and horizontally, and means for locking said standard in position.

3. In a wheel-hoe, the combination of a handle, a transporting-wheel journaled on the handle, a horizontal fork embracing the wheel and extending rearwardly, a hoe-blade, a vertical standard attached to the hoe-blade, said standard being adjustably connected to the handle and to the horizontal fork.

750,219. ROTARY ENGINE. WILHELM VON PITTLER, Leipsig-Gohlis, Germany. Filed Apr. 23, 1902. Serial No. 104,255. (No model.)



Claim.—1. In a motor the combination with a power or operating chamber of a cam in one end of said chamber having a curved rise portion and a flat portion, said curved rise portion ascending gradually over a portion of the circular surface of the cam to the maximum rise and then falling gradually over a like portion of the surface, the rise and fall each forming a concavity and being symmetrical with respect to the maximum rise, longitudinally-movable piston-slides guided by the cam and a head for holding said slides, said cam and head being adapted to have a relative rotary movement.

2. In a motor the combination with a power or operating chamber of a cam in one end of said chamber having a curved rise portion and a flat portion, said curved rise portion ascending gradually over substantially one quarter of the circular surface of the cam to the maximum rise and then falling gradually over substantially the next quarter of the surface, the rise and fall each forming a concavity and being symmetrical with respect to the maximum rise, two longitudinally-movable piston-slides one hundred and eighty degrees apart guided by the cam, and a head for holding said slides, said cam and head being adapted to have a relative rotary movement.

3. In a motor, the combination with a power or operating chamber, of a rotating head, means for longitudinally adjusting said head, a cam in one end of said chamber, and a longitudinally-reciprocating piston-slide in said rotating head and guided by the cam.

4. In a motor, the combination with a power or operating chamber, of a rotating head, a cam in one end of said chamber, a longitudinally-reciprocating piston-slide in said rotating head and guided by the cam, and a channel communicating with both ends of said slide.

750,220. BOTTLE-CLOSURE. FREDERICK REGHT, New York, N. Y., assignor to Rex Cap & Cork Company, New York, N. Y., a Corporation of New York. Original application filed Jan. 27, 1902, Serial No. 91,434. Divided and this application filed Nov. 15, 1902. Serial No. 131,466. (No model.)



Claim.—1. A cork strip forming a discontinuous ring the length of which along its medial line is less than the length of the strip from which it is formed.

2. A packing-ring for a bottle-closure consisting of a discontinuous cork ring in which the pores are transverse to the plane of the ring.

3. A packing-ring for a bottle-closure consisting of a cork strip forming a discontinuous ring in which the pores are transverse to the plane of the ring and the length along the medial line of the ring is less than the length of the strip from which the ring is formed.

4. A bottle-closure consisting of a bottle-cap and a cork strip forming a discontinuous ring contained within the cap in which the length of the medial line of the ring is less than the length of the strip from which the ring is formed.

5. A bottle-closure consisting of a bottle-cap and a discontinuous cork ring in which the pores are transverse to the plane of the ring.

6. A bottle-closure consisting of a bottle-cap and a cork strip forming a discontinuous ring in which the pores are transverse to the plane of the ring and the length along the medial line of the ring is less than the length of the strip from which the ring is formed.

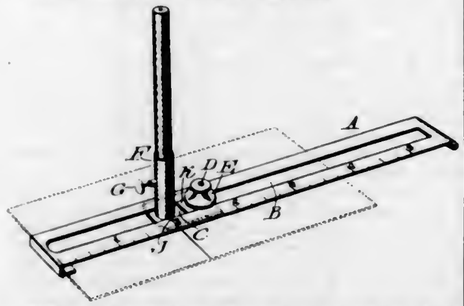
7. The combination with a bottle of a cap for the mouth thereof, means for securing the cap to the bottle, and a cork strip forming a discontinuous ring interposed between the cap and the bottle in which the length of the medial line of the ring is less than the length of the strip from which the ring is formed.

8. The combination with a bottle of a cap for the mouth thereof, means for securing the cap to the bottle, and a flat cork strip forming a discontinuous ring interposed between the cap and the bottle in which the pores are transverse to the plane of the ring and the thickness of the ring is less than the width of the strip from which the ring is formed.

9. The combination with a bottle of a cap for the mouth thereof, means for securing the cap to the bottle, and a flat cork strip forming a discontinuous ring interposed between the cap and the bottle in which the length of the medial line of the ring is less than the length of the strip from which the ring is formed, and the thickness of the ring is less than the width of the strip from which the ring is formed.

10. The combination with a bottle of a cap for the mouth thereof, means for securing the cap to the bottle, and a cork strip forming a discontinuous ring interposed between the cap and bottle in which the pores are transverse to the plane of the ring and the length along the medial line of the ring is less than the length of the strip from which the ring is formed.

750,221. GAGE AND MARKER FOR DRESSMAKERS OR OTHERS. MORRIS M. REIS, Philadelphia, Pa., assignor, by mesne assignments, to Franklin M. Underkuffler, Philadelphia, Pa. Filed Mar. 11, 1903. Serial No. 147,288. (No model.)



Claim.—1. A gage and marker comprising a base-plate, a guiding elbow on said plate, a slide movable on said plate and engaging opposite sides thereof, means for clamping said slide on said plate, a holder for a pencil or line-marking object secured to said slide and separate means on said holder for detachably engaging said object therein.

2. A gage and marker comprising a base-plate, a guiding-elbow on said plate, a slide movable longitudinally on said plate, means for clamping said slide on said plate and a tubular pencil-holder secured to said slide substantially at a right angle with said plate.

3. A gage and marker comprising a longitudinally-slotted base-plate, a guiding-elbow on said plate, a slide movable on said plate, clamping means on said slide passing through such slot, a pencil-holder on said slide, its lower end adjacent said slot and separate clamping means on said holder adapted to engage said pencil.

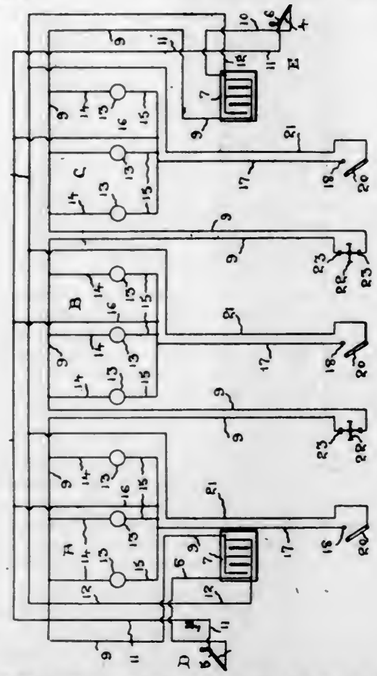
4. A gage and marker comprising a graduated base-plate, a guiding-elbow, a slide movable on said plate, clamping means on said slide, a pencil-holder on said slide, a finger on said pencil-holder adjacent said graduations and separate clamping means on said pencil-holder.

750,222. BELT-HOLDER. ELIZA E. ROBERTSON, New York, N. Y. Filed July 18, 1903. Serial No. 166,122. (No model.)

Claim.—In a device of the character described, the combination with a base-plate having eyes at one end, and laterally-extending lugs at the other end; of a securing-pin pivoted between the eyes, a spring-strip engaging the lugs, a lever pivotally mounted upon said strip, belt-engaging teeth at the inner end of the lever, and a spring-clip integral with the lever and adapted to engage the eyes of the base-plate.



750,223. ELECTRIC BLOCK SYSTEM. FREDERICK G. ROBINSON, Farmington, Me. Filed Aug. 22, 1903. Serial No. 170,441. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a source of electricity at each end thereof; of a series of lamps electrically connected with said sources and arranged in groups, switches adjacent the ends of the series, electrical connections between the switches and the sources of electricity and the lamps, whereby when the switches are closed the lamps are included in an electric circuit, and independent means for throwing each group of lamps into circuit with the sources of electricity.

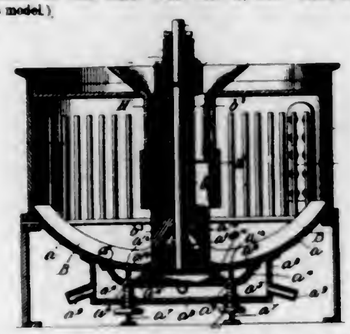
2. In an apparatus of the character described, the combination with a series of lamps arranged in groups; of a source of electricity at each end of the series, a switch adjacent each end of the series of lamps, electrical connections between the switches, sources of electricity and lamps, whereby when the switches are closed a circuit is established through the lamps, and a switch electrically connected to each group of lamps and adapted to throw its group into circuit with the sources of electricity independently of the positions of the first-mentioned switches.

3. In an apparatus of the character described, the combination with sources of electricity, an electrical connection between said sources, and circuit-breakers within the connection; of a series of lamps arranged in groups, electrical connections between the lamps and the sources of electricity, switches adjacent the ends of the series of lamps and adapted when both are closed to establish a circuit through the lamps, a switch electrically connected to each group of lamps and adapted to throw said group into circuit with the sources

of electricity independent of the positions of the first-mentioned switches.

4. In an apparatus of the character described, the combination with contacts; of a line-wire connecting the contacts, switches adapted to be moved into position over the contacts, a line-wire connecting the switches, sources of electricity electrically connected to said second line-wire, a circuit-breaker electrically connected to said second line-wire, groups of lamps electrically connected to both of the line-wires, a third line-wire connecting the sources of electricity, switches, electrical connections between said switches and the last-mentioned line-wire, and contacts for the switches, each contact being electrically connected to one of the groups of lamps.

750,224. AMALGAMATOR AND CONCENTRATOR. JOHN B. ROSSMAN, St. Paul, Minn. Filed Mar. 16, 1901. Serial No. 51,540. (No model.)



Claim.—1. An apparatus of the character specified, comprising a bowl having a curved bottom slightly rising in the center, in combination with rubbers centrally pivoted, extending radially and having close contact with the bottom, means for imparting a circular, oscillatory motion to the rubbers, and rods projecting above the rubbers and operating to disintegrate the material within the bowl and to break up any currents formed therein, substantially as described.

2. An apparatus of the character specified, comprising a bowl having a curved bottom slightly rising in the center, in combination with rubbers centrally pivoted, extending radially and having close contact with the bottom, a feed-funnel arranged at the center of the bowl, means for imparting a circular, oscillatory motion to the rubbers, and rods projecting above the rubbers and operating to disintegrate the material within the bowl and to break up any currents formed therein, substantially as described.

3. An apparatus of the character specified, comprising a bowl having a curved bottom slightly rising in the center, in combination with rubbers centrally pivoted, extending radially and having close contact with the bottom, means for imparting a circular, oscillatory motion to the rubbers, rods projecting above the rubbers and operating to disintegrate the material within the bowl and to break up any currents formed therein, and valve-controlled openings in the bottom near the center, substantially as described.

4. An apparatus of the character specified, comprising a bowl having an outwardly-convexed bottom, rubbers centrally pivoted, extending radially and fitting the bottom, means for imparting a circular oscillatory motion to the rubbers, rods mounted upon and projecting above the rubbers, a sluice-box concentrically located in the bowl-bottom and valved discharge-openings in the sluice-box, substantially as described.

5. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, means for imparting motion to the rubbers, a curved sluice-box located in the bowl-bottom, said sluice-box being of different depths in different portions, and valve-controlled discharge-openings in the lower portions of said sluice-box, substantially as described.

6. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, means for imparting vibratory motion to the rubbers, a curved sluice-box located in the bowl-bottom, said sluice-box being of different depths in different portions, and discharge-openings in the lower portions of said sluice-box, substantially as described.

7. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, a curved sluice-box located in the bowl-bottom discharge-openings in said sluice-box, a runway or casing secured below said sluice-box and provided with suitable discharge-openings, and means for imparting motion to the rubbers, substantially as described.

8. An apparatus of the character specified, comprising a bowl having a curved bottom slightly rising in the center, in combination with rubbers centrally pivoted, extending radially and having close contact with the bottom, means for imparting a circular oscillatory motion to the rubbers, rods projecting above the rubbers and operating to disintegrate the material within the bowl and to break up any currents formed therein, and a series of vertically-arranged valved openings in the side of the bowl, substantially as described.

9. An apparatus of the character specified, comprising a bowl having a curved bottom, a central shaft, rubbers pivoted upon said central shaft and fitting the bowl-bottom, means for imparting motion to said shaft, an arm carried by the shaft and operating at predetermined intervals to actuate the shaft-operating means and effect a reversal of motion in said shaft and rubbers, substantially as described.

10. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, a curved sluice-box located in the bowl-bottom, a removable covering adapted to fit the sluice-box and serve as a contact bearing-surface for the rubbers, and means for imparting motion to the rubbers, substantially as described.

11. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, an annular curved sluice-box concentrically located in the bowl-bottom, a removable covering adapted to fit the sluice-box and serve as a contact bearing-surface for the rubbers, and means for imparting motion to the rubbers, substantially as described.

12. An apparatus of the character specified, comprising a bowl having a sloping bottom, rubbers located within the bowl and closely fitting the bottom, a curved sluice-box located in the bowl-bottom and provided with valved discharge-openings, and with a removable cover flush with the bowl-bottom and adapted to serve as a bearing-surface for the rubbers, and means for imparting motion to the rubbers, substantially as described.

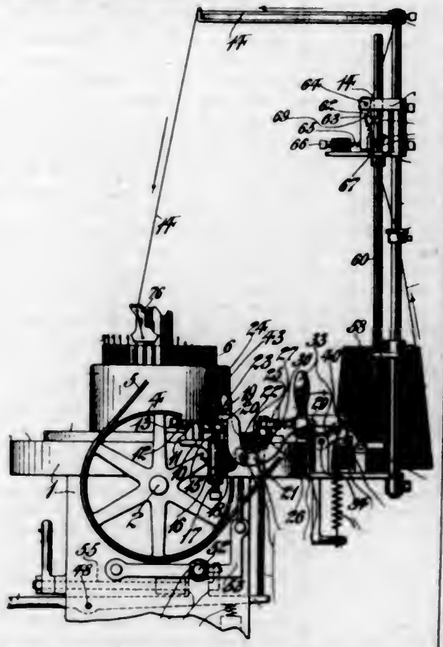
13. An apparatus of the character specified, when used as a concentrator, comprising a bowl having a curved bottom, rubbers closely fitting the bottom, means for imparting an oscillatory motion to the rubbers, a feed-funnel arranged at the center of the bowl, a curved sluice-box arranged at the bottom of the bowl, and mechanism carried by the rubbers for causing disintegration of the material in the bowl and agitation of the substance within the sluice-box, substantially as described.

14. An apparatus of the character specified, when used as a concentrator, comprising a bowl having a curved bottom, rubbers closely fitting the bottom, means for imparting an oscillatory motion to the rubbers, a feed-funnel arranged at the center of the bowl, a curved sluice-box arranged at the bottom of the bowl, mechanism carried by the rubbers for causing disintegration of the material in the bowl and agitation of the substance within the sluice-box, and valve-controlled openings arranged at the side of the bowl, substantially as described.

15. An apparatus of the character specified, when used as a concentrator, comprising a bowl having a curved bottom, rubbers closely fitting the bottom, means for imparting an oscillatory motion to the rubbers, a feed-funnel arranged at the center of the bowl, a curved sluice-box arranged at the bottom of the bowl, mechanism carried by the rubbers for causing disintegration of the material in the bowl and agitation of the substance within the sluice-box, orifices in the bottom of the sluice-box, plugs for closing the orifices, a runway or casing below the sluice-box, and valve-controlled openings arranged at the side of the bowl, substantially as described.

16. An apparatus of the character specified, when used as a concentrator, comprising a bowl having a curved bottom, rubbers closely fitting the bottom, means for imparting an oscillatory motion to the rubbers, a feed-funnel arranged at the center of the bowl, a curved sluice-box arranged at the bottom of the bowl, mechanism carried by the rubbers for causing disintegration of the material in the bowl and agitation of the substance within the sluice-box, orifices in the bottom of the sluice-box, plugs for closing the orifices, a runway or casing below the sluice-box, valve-controlled openings arranged at the side of the bowl, and a ring or closure fitting a circular opening in the bottom of the bowl and conforming to the shape of the bowl, substantially as described.

750,225. STOP-MOTION FOR KNITTING-MACHINES. GEORGE W. RUTH, Norristown, Pa., assignor to Ruth Automatic Knitting Machine Company, a Corporation of Delaware. Filed Feb. 19, 1903. Serial No. 144,075. (No model.)



Claim.—1. In a stop-motion for knitting-machines, a rotatable cylinder having a flange, a drop-rod supported in inoperative position during the normal working condition of the yarn and adapted to be released under abnormal condition of the yarn, a brake disposed adjacent the rotatable cylinder and adapted to contact with the flange thereof, means for applying the brake, devices operative by the dropping of the drop-rod to release the brake to the action of its operating means, a belt-shipper, means for moving the same to ship the belt and devices actuated by movement of the brake-releasing devices to release the belt-shipper to the action of its operating means.

2. In a stop-motion for knitting-machines, a rotatable cylinder, a drop-rod supported in inoperative position during normal working condition of the yarn and adapted to be released upon the breaking of a yarn, a brake disposed adjacent the cylinder to contact with a part thereof, means for applying the brake, brake-releasing device for releasing the brake to the action of its actuating means upon the dropping of the drop-rod, a belt-shipper, means for moving the same, to ship the belt, mechanism actuated by movement of the brake-releasing devices to release the belt-shipper to the action of its operating means and a lever under control of the said releasing devices to move the brake into inoperative position when said releasing devices are reset.

3. In a stop-motion for knitting-machines, a rotatable cylinder, a brake disposed adjacent said cylinder to contact therewith, means for operating said brake, a latch for normally maintaining the brake in inoperative position, devices for tripping said latch upon the breaking of a yarn to free the brake in the action of its operating means, a lever under the control of said devices for releasing the brake from contact with the cylinder and to enable the brake to be caught and held by said catch when the said tripping devices are reset.

4. In a stop-motion for knitting-machines, a rotatable cylinder, a brake disposed adjacent said cylinder and adapted to contact with a part thereof, means for operating said brake, a latch for normally maintaining the brake in inoperative position, devices for tripping said latch upon the breaking of a yarn to free the brake to the action of its operating means, a cam movable by said tripping devices, a belt-shipper, means to actuate it, mechanism disposed between the said cam and belt-shipper and operable by said cam to release the belt-shipper to the operation of its actuating means, and means operable on the resetting of the tripping devices to release the brake from the cylinder and to enable the latch to engage and hold the brake in its inoperative position.

5. In a stop-motion for knitting-machines, the combination of a rotatable cylinder, a brake disposed adjacent thereto and adapted to contact with a part thereof, means for operating said brake, a latch having an inclined face and adapted to engage the brake and maintain it in inoperative position, a pivoted lever having a portion to engage said inclined face of the latch and trip it from its engagement with the brake, devices operable upon the breaking of a yarn for actuating said pivoted lever, and means under control of said devices for disengaging the brake from the cylinder after the same has acted, and when the said devices are reset.

6. In a stop-motion for knitting-machines, the combination of a rotatable cylinder, a brake disposed adjacent thereto and adapted to contact with a part thereof, means for operating said brake, a latch having an inclined face and adapted to engage the brake and maintain it in inoperative position, a pivoted lever having a portion to engage said inclined face of the latch and trip it from its engagement with the brake, said lever having a cam-surface, a belt-shipper, and connections between the belt-shipper and said cam-surface for actuating the belt-shipper upon movement of the pivoted lever, devices operable upon the breaking of a yarn for actuating said pivoted lever, and means under control of said devices for disengaging the brake from the cylinder after the same has acted, and when the said devices are reset.

7. In a stop-motion for knitting-machines, the combination of a rotatable cylinder having a flange, a brake disposed adjacent said cylinder and adapted to act upon said flange, a spring normally tending to apply the brake, a latch for maintaining the brake from action against said spring, said latch having an inclined face, a pivoted lever for acting upon said inclined face to trip the latch, means for actuating said lever upon the breaking of a yarn, and a lever engaging the free end of the brake and operable to release the same from the cylinder and depress the free end that it may be engaged by the latch when the actuating means are reset.

8. In a stop-motion for knitting-machines, the combination of a rotatable cylinder having a flange, a brake disposed adjacent said cylinder and adapted to act upon said flange, a spring normally tending to apply the brake, a latch for maintaining the brake from action against said spring, said latch having an inclined face, a pivoted lever for acting upon said inclined face to trip the latch, said pivoted lever having a cam on its under surface, a spring-acting belt-shipper, tripping devices for the belt-shipper under control of said cam for releasing the belt-shipper to the action of its spring, means for actuating said lever upon the breaking of a yarn, and a lever engaging the free end of the brake and operable to release the same from the cylinder and depress the free end that it may be engaged by the latch when the actuating means are reset.

9. In a stop-motion for knitting-machines, a drop-rod normally held in elevated position during proper working condition of the yarn and adapted to be released upon the breaking of a yarn, a trigger adapted to be operated by the dropping of the drop-rod, a rotatable cylinder, a brake adapted to act upon a portion thereof, a spring-latch for holding the brake out of action, a pivoted lever for tripping said latch, devices disposed between the trigger and pivoted lever to operate the latter when the trigger is tripped, means operable by resetting of said devices for releasing the brake and moving it in position to be engaged by the latch, the devices between the trigger and pivoted lever being yielding in one direction to permit resetting of said devices while the latch is disengaged from the brake.

10. In a stop-motion for knitting-machines, the combination of a rotatable cylinder having a flange, a pivoted brake, adapted to engage with said flange, a latch for holding the brake out of action, said latch having an inclined face, a pivoted lever for tripping said latch, said lever having a cam, a belt-shipper, means for operating it, devices operable by the said cam for releasing the belt-shipper to the action of its actuating means, a trigger, a drop-rod, devices disposed between the trigger and pivoted lever for operating the latter on the dropping of the drop-rod, a lever having one end disposed adjacent one end of the pivoted brake and its opposite end under control of said devices, whereby upon resetting of said devices the brake is brought into position to be engaged by the latch.

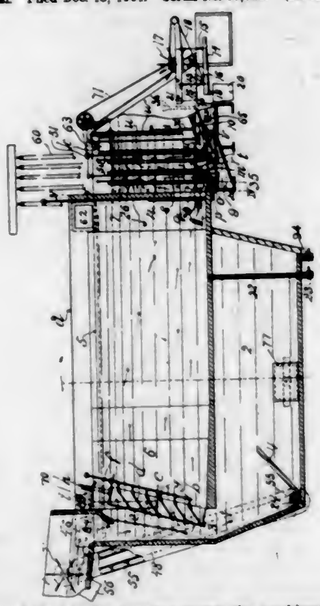
750,226. OFFICE-INDICATOR. CHARLES F. RUTTMAN, Valparaiso, Nebr. Filed July 8, 1903. Serial No. 164,730. (No model.)

Claim.—In an indicator, the combination with a casing comprising side walls having their inner faces recessed and front and rear

walls bearing upon the edges of the side walls and closing the ends of the recesses, of substantially U-shape springs seated one in each of the recesses, plates attached to the inner faces of the side walls for closing the recesses and inclosing and retaining the springs in the latter, said plates being provided with longitudinal bearing-slots, a tension-roller having journals extending through the bearing-slots and resting on the springs, a master-roller and guide-rollers journaled within the casing, and an endless belt passed around the master and guide rollers and engaging the tension-roller.



750,227. GOLD-SAVING APPARATUS. LOUIS SACHSE, Los Angeles, Cal. Filed Dec. 13, 1901. Serial No. 85,843. (No model.)



Claim.—1. In a gold-saving apparatus, the combination with a tank having upper and lower compartments arranged one above the level of the other and having a floor between them, and communicating with each other through an opening in said floor, of means for supplying gold-carrying water to said tank vertically above said opening; means for restricting the outflow from the upper compartment; and means vertically over the opening, adapted and arranged to intercept the inflowing liquid and to direct the precipitants from such liquid through the opening into the lower compartment.

2. In a gold-saving apparatus, the combination with a tank having upper and lower compartments arranged one above the level of the other and having a floor between them, and communicating with each other through an opening in said floor; of means for supplying gold-carrying water to said tank vertically above said opening; means for restricting the outflow from the upper compartment, and adjustable means vertically over the opening adapted and arranged to intercept the inflowing liquid and to direct the precipitants from such liquid through the opening into the lower compartment.

3. In a gold-saving apparatus, means for separating black sands from water or tailings comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle, and communicating therewith through an opening at the inlet end of the passage, said receptacle being closed throughout except at said opening at the inlet end of the passage; and means vertically over said opening for deflecting the current over said opening at the inlet end of the passage.

4. In a gold-saving apparatus, means for separating black sands from water or tailings comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; said opening extending transversely of the passage; means for discharging liquid under pressure into said passage vertically above the opening; and means vertically over said opening for deflecting the current above said opening.

5. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby, comprising a receptacle constructed and arranged to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening at the intaking end only; means vertically above said opening for directing water or tailings downward toward said opening; and adjustable means vertically above said opening for deflecting the current and directing the same upward again vertically above said opening.

6. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby, comprising a receptacle constructed and arranged to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; and a vertical series of adjustable deflectors arranged in said passage vertically above the opening to deflect the current above said opening.

7. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby, comprising a receptacle constructed and arranged to hold a body of water approximately still; a passage arranged above said receptacle and communicating therewith through an opening; means vertically above the opening for directing liquid under pressure downward into said passage above the opening, and an adjustable deflector in the passage to deflect the current above said opening.

8. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; means for directing liquid downward into said passage and toward said opening; pivoted deflectors constructed to deflect the current upwardly above said opening; and means for adjusting the inclination of said deflectors.

9. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; an adjustable frame in said passage; and a plurality of deflectors in said frame above said opening.

10. In a gold-saving apparatus, means for separating black sands from water or tailings and silica carried thereby comprising a receptacle constructed to hold a body of water approximately still; a passage arranged above said receptacle and communicating therewith through an opening; means for directing liquid downward into said passage and toward said opening; an adjustable frame in said passage, and a plurality of deflectors in said frame above said opening.

11. In a gold-saving apparatus, means for separating black sands from water or tailings comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; a frame pivoted in said passage; deflectors pivoted in said frame above said opening; means for adjusting the inclination of the frame; and means for adjusting the inclination of the deflectors in the frame.

12. In a gold-saving apparatus, the combination of a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; means for directing water or tailings downward above said opening; a screen extending downward above said opening to retard the flow of water toward said passage; and a deflector above said opening to receive the water or tailings and deflect the same upward after they have passed the screen.

13. In a gold-saving apparatus, means for separating black sands from water or tailings comprising a receptacle constructed to hold a body of water approximately still; a passage for water or tailings arranged above said receptacle and communicating therewith through an opening; means for deflecting the current above said opening; a side opening in the receptacle; a screw conveyer extending across the receptacle to convey the black sands through said side opening; a wheel on the end of said screw; a box covering said side opening and extending upward therefrom and containing said wheel; a power-wheel at the upper end of the box; and an elevator-belt driven by said power-wheel and constructed to drive the conveyer-wheel and furnished with elevator-buckets to elevate the material delivered by the screw.

14. In a gold-saving apparatus, a tank furnished with a passage having a level floor and a receptacle below the level of said floor; means at the upper end of said passage for precipitating black sand into said receptacle below said floor; and a valved test-pipe opening downward directly from said floor to the passage to allow the operator to test for black sands passing through the passage.

15. In a gold-saving apparatus, the combination of a passage V shape in cross-section and approximately horizontal; a receptacle below the level of the floor of said passage means for precipitating black sand at the upper end of such passage; and a test-pipe having its month at the level of the floor and opening down directly from the bottom of the V-shape passage to test the presence of black sand in said passage.

16. In a gold-saving apparatus, a tank furnished with a compartment constructed to hold a body of water approximately still; means for supplying water to the tank; a passage arranged above said compartment and communicating with said compartment through an opening beneath such means; means for deflecting the current above said opening; the upper portion of said tank being furnished with a contracted passage; means at the lower end of said passage for restricting the flow therethrough; and a pressure-regulating well connected with the compartment.

17. In a gold-saving apparatus, a tank furnished with a compartment constructed to hold a body of water approximately still; means for supplying water to the tank; a passage arranged above said compartment and communicating with the compartment through an opening beneath such means; means for deflecting the current above said opening, the upper portion of said tank being furnished with a contracted passage; means at the lower end of said passage for restricting the flow therethrough; a relief-well connected with the compartment; and an overflow-outlet communicating with said passage below the top of said well.

18. A gold-saving apparatus comprising an amalgamating-box adapted to contain a body of liquid mercury; means for supplying gold-bearing water or tailings to said box under pressure; means for restricting the discharge from said box; upright amalgamating-plates arranged above the mercury-level and close thereto providing between said mercury-level and the lower edge of said plates a passage of smaller area than the outlet, thereby to bring said water or tailings into forcible contact with the mercury.

19. A gold-saving apparatus comprising an amalgamating-box adapted to contain a body of liquid mercury; means for supplying gold-bearing water or tailings to said box; adjustable means for restricting the discharge from and producing pressure in said box; and amalgamating-plates arranged above the mercury-level with their lower edges close thereto and providing a passage between said mercury and the lower edge of said plates.

20. A gold-saving apparatus comprising an amalgamating-box having an outlet; means for supplying gold-bearing water or tailings to said box; adjustable means for restricting the discharge from said box; a body of liquid mercury in the box; amalgamating-plates arranged above said mercury and providing a passage between said mercury and the lower edge of said plates; a roller or rollers floating in the mercury between said plates; and means for rotating said rollers.

21. The combination of an amalgamating-box; means for supplying gold-bearing water or tailings to said box; a restricted outlet from said box; a body of liquid mercury in said box; an amalgamating-plate extending across said box above said mercury, providing a passage under said plate of less area than said outlet; a roller floating in the mercury behind said plate; and means for rotating said roller.

22. In a gold-saving apparatus, a box, an amalgamating-plate arranged upright in said box; a frame carrying said amalgamating-plate and provided at its lower end with a trough below the lower edge of the plate and with an outlet or outlets through the bottom of said trough.

23. The combination of an amalgamating-box, adapted to contain a body of liquid mercury; an amalgamating-plate therein; a trough at the lower edge of said plate; and a pipe or pipes and open at one side to prevent clogging with sand extending from said trough to the mercury-chamber.

24. In an amalgamating-box having a restricted outlet adapted to contain a body of liquid mercury, the combination of a frame; an amalgamating-plate at the lower portion of said frame; a passage being provided between the mercury-level and the plate; a passage being provided in the box above said plate; and adjustable shutters in the latter passage.

25. The combination of an amalgamating-box; a body of liquid mercury in said box; an amalgamating-roller floating freely in said mercury; ways in which the roller may move up and down; and a worm-gear for rotating said roller.

26. The combination of an amalgamating-box furnished with an outlet; a body of liquid mercury in said box; an amalgamating-roller floating freely in said mercury; ways in which the roller may move up and down; worm-gear for rotating said roller; means for supplying water or tailings to the amalgamating-box under pressure; said box being furnished with an outlet; a water-wheel at said outlet; and means connecting the water-wheel with said worm to rotate said roller.

27. The combination of an amalgamating-box adapted to contain a body of liquid mercury in said box; amalgamating devices above said mercury-level; means for supplying water or tailings to the box; the outlet leading from said box and furnished with an upwardly and outwardly sloping floor; and a grating over said floor.

28. An amalgamator having openings through the floor of its outlet; riffles to conduct material to said openings; a trough, closed at one end and open to discharge at the other end and having its bottom sloping toward the closed end, and an outlet at the lower portion of said bottom, and means to conduct the material which flows through the openings in said floor to said trough whereby any escaped mercury may be collected.

29. An amalgamator having openings through the floor of its outlet; riffles to conduct material to said openings; a trough, closed at one end and open to discharge at the other end and having its bottom sloping toward the closed end, and a valved outlet at the lower portion of said bottom; means to conduct the material which flows through the openings in said floor to said trough, whereby any escaped mercury may be collected; and means for shaking the trough.

30. A float-gold-saving apparatus comprising a precipitating-tank arranged to receive the sluice-tailings at one end and provided with means for separating the iron sands from such tailings by gravity, said tank being also provided at the other end with means for restricting the discharge of the tailings from said tank; an amalgamating apparatus which receives the tailings from the precipitating-tank and adapted to contain a body of liquid mercury below the level of the discharge from said tank and furnished with vertically-staggered amalgamating-plates, the lower edges of which are arranged at such a distance from the mercury-level that a portion of said liquid will thereby be forced to impinge on the mercury; and means for controlling the discharge of the tailings from said amalgamating apparatus.

31. The combination of a tank to receive the sluice-tailings at one end and furnished with upper and lower compartments communicating with each other through an opening at the receiving end of the tank; a frame pivoted in the tank on a horizonal axis above the rear edge of said opening; slats pivoted in said frame; means for adjusting said slats; means for adjusting the inclination of the frame; a partition in the lower compartment rearwardly of said opening, a contracted passage being provided in the upper compartment of said tank between the receiving and discharging ends of the tank, and an outlet being provided at the discharge end of the tank; a gate for controlling the flow from said outlet; an amalgamating-box to receive the discharge from said outlet; a charge of mercury in said amalgamating-box; an amalgamating-plate arranged to form a vertical partition across said box above the charge of mercury; an amalgamating-roller partially immersed in the mercury below said amalgamating-plate to obstruct the flow of the tailings and to force a portion of said tailings to flow over said amalgamating-plate, an

open space being left between the top of the roller and the bottom of the plate; another amalgamating-plate forming a vertical partition across the box, an open space being left between said amalgamating-plate and the mercury; another amalgamating-plate forming a vertical partition across the amalgamating-box; an amalgamating-roller partially immersed in the mercury below said last-named amalgamating-plate, an open space being between the top of the roller and the bottom of said amalgamating-plate, and a passage being provided above said amalgamating-plate; another amalgamating-plate forming a vertical partition across the amalgamating-box above the mercury, a passage being provided for the tailings between the lower edge of said plate and the surface of the mercury; a partition separating the rear of the amalgamating-box into upper and lower compartments, each of which extends above and below the surface of the mercury; and means for controlling the discharge of tailings over said partition.

32. In a float-gold-saving apparatus, an amalgamating-box furnished with a mercury-reservoir and adapted to contain a body of liquid mercury; a plurality of amalgamating-plates forming partitions in the box, each with its lower edge directly above said mercury, one of said plates being arranged close to the mercury and adapted to cause the gold-containing water to pass both over and under said plate, thereby to force a portion of the mineral into contact with the mercury, a succeeding plate being adapted and arranged to allow the water to pass under said plate and being located close to the mercury and adapted to force the flowing material into contact with the mercury; means for supplying the float-gold-carrying water or tailings to the amalgamating-box; and means for retarding the discharge of water from said box to maintain a level of water in the box above the first-named amalgamating-plate.

33. In a float-gold-saving apparatus, an amalgamating-box furnished with a mercury-reservoir; a body of liquid mercury in said reservoir; an amalgamating-plate extending above the reservoir to form a partition across the box; an amalgamating-roller extending across the reservoir and partially submerged in the mercury; means for rotating the roller; a passage for the gold-carrying water or tailings being provided between the roller and the lower edge of the amalgamating-plate; and means for causing gold-carrying water or tailings to flow under pressure over the surface of the mercury in the amalgamating-box.

34. In a float-gold-saving apparatus, the combination of an amalgamating-box; means for supplying gold-carrying water or tailings to said box; a mercury-reservoir in said box adapted to contain a body of liquid mercury; an amalgamating-plate forming a partition across the box above the mercury-level and arranged to leave a passage between the mercury and the lower edge of said plate, the upper edge of said plate terminating below the top of the box; devices arranged above the amalgamating-plate to impede the flow of water or tailings above said plate; another amalgamating-plate arranged in said box to receive the water which flows over the first-named plate, and to leave a passage between its lower edge and the mercury-level; and means for regulating the discharge of the tailings from the box.

35. In an amalgamator, the combination of an amalgamating box furnished with a mercury-reservoir; a body of liquid mercury in said reservoir; a roller furnished with a copper surface and partially immersed in and floating in the mercury and being raised and lowered thereby; blades on the roller; means for supplying gold-carrying water or tailings to the head of the box and for directing such water or tailings against the blades of the rollers; and means to turn said rollers.

36. In an amalgamator, an amalgamating-box; a body of liquid mercury therein; an amalgamating-roller partially submerged in and floating in said mercury and being raised and lowered thereby; copper plates fastened to the roller, and arranged radiating from said roller; and means for directing gold-carrying water or tailings onto the surface of the mercury and onto said copper plates.

37. The combination of an amalgamating-box; a body of liquid mercury in said box; an amalgamating-roller floating in and extending above said mercury and being raised and lowered thereby; vertical ways forming guides for said roller; means for supplying gold-carrying water or tailings to the box; means for directing said water or tailings against said roller; and means for rotating said roller.

38. An amalgamating-roller for partial submersion in liquid mercury under floating water or tailings; comprising a shaft; hollow copper cases on said shaft; a filling of metal in said cases, having greater specific gravity than copper; and means for holding said cases spaced apart endwise.

39. An amalgamating-roller having a copper surface and furnished with circumferential channels, the surfaces of which are likewise of copper and are conical.

40. In an amalgamator, the combination of an amalgamating-box adapted to contain a body of liquid mercury; means for supplying gold-carrying water or tailings to said box at one end thereof; ways above the mercury; removable frames to slide in said ways and furnished with an amalgamating-plate set on edge and with means at the lower edge of such plate to receive mercury from said plate and to direct it downward; and means for regulating the flow of the water or tailings through the box.

41. In an amalgamator, an amalgamating-box furnished with upright ways; a frame in said ways furnished with an amalgamating-plate set on edge and with a gutter to receive mercury from the lower edge of said plate, and with an outlet from said gutter.

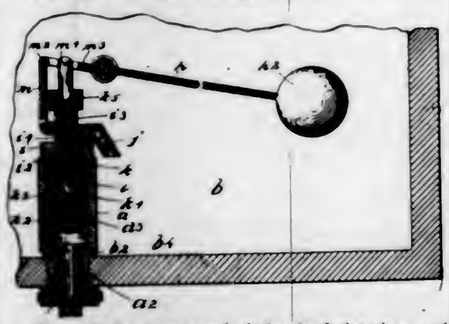
42. In an amalgamator, the combination of a tank furnished at one end with a current-deflector; a box with outlet to direct water or tailings downward into the tank above the current-deflector; a partition below the current-deflector separating the tank into upper and lower compartments with a passage through such partition below the outlet of said box; a passage being provided extending lengthwise of the tank in the upper compartment; a gate at the tail of the tank; and a relief-well opening upward from the lower compartment.

43. In an amalgamator, the combination with an amalgamating-box; of a body of liquid mercury in said box; a roller having a copper surface partially submerged in the mercury and furnished with journals; vertical ways inside the box in which said journals move up and down; and yielding mechanical means constructed and arranged for regulating the depth to which the roller will be sunk in the mercury.

44. In an amalgamator, the combination with an amalgamating-box; of a body of liquid mercury in said box; a roller having a copper surface partially submerged in the mercury and furnished with journals; vertical ways inside the box in which said journals move up and down; followers of said journals, respectively, constructed and arranged to hold the roller at a determined depth in the mercury and yielding means for controlling said followers.

45. In an amalgamator, the combination with an amalgamating-box; of a body of liquid mercury in said box; a roller having a copper surface partially submerged in the mercury and furnished with journals; ways in which said journals move up and down; followers on said journals, respectively, to hold the roller at a determined depth in the mercury; and springs for said followers, respectively.

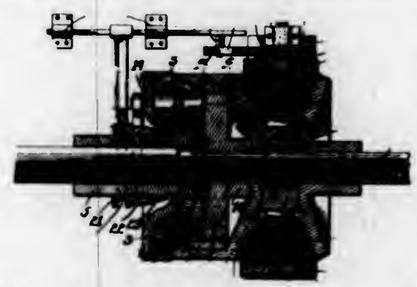
750,228. FLUSH-TANK APPARATUS. JAMES H. SHAOKE and JOHN J. KELLY, Flushing, N. Y. Original application filed Apr. 21, 1903, Serial No. 153,702. Divided and this application filed July 8, 1903. Serial No. 164,990. (No model.)



Claim.—1. In a water-supply device for flush-tanks, a casing forming an air-cushion chamber and provided at one end with means for securing a water-supply pipe thereto, a detachable cap connected with the other end of said casing and provided with a tube which passes into said casing a predetermined distance, said cap being also provided with an extension having a central bore which communicates with the central bore of the said tube, and said extension being also provided at one side with a discharge, a valve-rod passing loosely through said extension and said tube and provided at its inner end with a valve which operates in connection with the inner end of the said tube within said chamber, and a float-rod connected with said cap at one end and in operative connection with the outer end of said valve-rod, substantially as shown and described.

2. The combination with a flush-tank of a water-supply device, comprising a casing forming an air-cushion chamber and provided at its lower end with a reduced extension which passes through the bottom of the tank, a detachable cap connected with the upper end of said casing and provided with a tubular member which passes downwardly thereto a predetermined distance, said cap being also provided with a vertical extension having a central bore which communicates with the central bore of said tube, and said extension being also provided at one side with a discharge-spout, a valve-rod passing loosely through said extension and said tube and provided at its inner end with a valve which operates in connection with the inner end of said tube within said chamber, and a float-rod loosely connected with said cap at one side thereof and in operative connection with said valve-rod whereby the vertical movement of said float-rod will raise and lower said valve and open and close said tube, substantially as shown and described.

750,229. SHAFT-REVERSING MECHANISM. JOHN S. SHEPARD, Bennington, Pa. Filed May 20, 1903. Serial No. 157,907. (No model.)



Claim.—1. The combination of the driving-shaft, the expansion-ring carried thereby, the tail-shaft, an outer ring carried thereby, means for causing said expansion-ring to frictionally engage said outer ring when required, the bevel-gear carried by said driving-shaft, the wheel rotatably mounted upon said tail-shaft, the bevel-gears radially journaled on said wheel, and engaging the first-mentioned gear, the bevel-gear fixed to the tail-shaft, with which gear the bevel-gears of said wheel engage; and means for preventing the rotation of said wheel on said tail-shaft, when required, substantially as and for the purpose set forth.

2. The combination of the driving-shaft, the hollow cylinder secured thereto, the bevel-gear mounted upon said cylinder, the tail-shaft, the wheel rotatively mounted upon the latter, the bevel-gears radially journaled on said wheel and engaging the first-mentioned gear, the bevel-gear fixed upon the tail-shaft, with which gear the bevel-gears of said wheel engage, the outer expansible and contractible friction-ring, within said cylinder, and carried by the tail-shaft, the similar inner friction-ring within said cylinder and connected with the driving-shaft, so as to rotate therewith, means for expanding and contracting said inner friction-ring with relation to said outer ring, and means for preventing rotation of said wheel on the tail-shaft, when required, substantially as and for the purpose set forth.

3. The combination of the driving-shaft, the hollow cylinder secured thereto, the bevel-gear mounted upon said cylinder, the tail-shaft, the wheel rotatively mounted upon the latter, the bevel-gears radially journaled on said wheel and engaging the first-mentioned gear, the bevel-gear fixed upon the tail-shaft with which gear the gears on said wheel engage, the elastic expansible and contractible friction-ring within said cylinder and connected with said tail-shaft and rotatable therewith, the similar inner friction-ring connected with and carried by said driving-shaft, means for causing the said inner friction-ring to expand into frictional contact with said first-mentioned ring, and to permit the same to contract out of such frictional contact, and means for preventing the rotation of said wheel when required, substantially as and for the purpose set forth.

4. The combination of the driving-shaft, the elastic, split, expansion-ring carried thereby, the tail-shaft, an outer ring carried thereby, the bevel-gear carried by said driving-shaft, the bevel-gear fixed to said tail-shaft, the wheel rotatively mounted on said tail-shaft, the bevel-gears engaging said gears of the driving and tail shafts respectively, and means for causing the said expansion-ring to expand into frictional contact with said outer ring and to permit the same to contract out of such frictional contact, together with means for preventing the rotation of said wheel when required, substantially as and for the purpose set forth.

5. The combination of the driving-shaft, the hollow cylinder fixed thereto, the bevel-gear mounted upon said cylinder, the tail-shaft, the bevel-gear fixed thereto, the wheel rotatively mounted on said tail-shaft, the bevel-gears radially journaled on said wheel, and engaging the other two mentioned gears, the expansible and contractible friction-ring within and contiguous to the inner periphery of said cylinder, and connected with and carried by the tail-shaft, the inner elastic split friction-ring connected to and rotatable with said cylinder, the cam journaled to and within the latter and adapted to expand and permit the contraction of the last-mentioned ring, the sleeve having the higher and lower portions, and slidably mounted on said driving-shaft, the arm connected to said cam, and adapted to bear upon said sleeve, the friction-strap encircling the said wheel, and means for bringing the same into and out of frictional contact with said wheel, substantially as and for the purpose set forth.

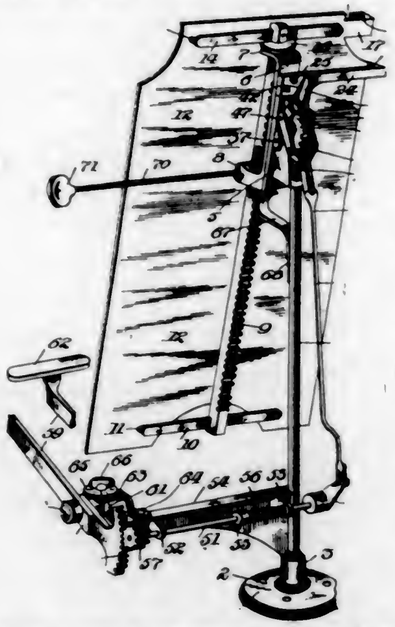
6. The combination of the driving-shaft, the hollow cylinder fixed thereto, the tail-shaft, the bevel-gear mounted on said cylinder, the wheel rotatably mounted upon said tail-shaft, the bevel-gear fixed to the latter, the bevel-gears radially journaled to said wheel and engaging said two other bevel-gears, the expansible and contractible ring, contiguous to the inner periphery of said cylinder, and connected to said tail-shaft so as to rotate therewith, the inner friction-ring, contiguous to said outer ring and connected to said cylinder, means for expanding and contracting said inner friction-ring, means for holding said wheel to prevent rotation thereof on the tail-shaft, and for releasing the same, and mechanism connecting said two means for simultaneously causing the first-mentioned means to contract said inner friction-ring and the second-mentioned means to operate to prevent the rotation of said wheel, and to simultaneously expand said ring, and permit the said wheel to rotate, substantially as and for the purposes set forth.

7. The combination of the driving-shaft, the hollow cylinder fixed thereto, the tail-shaft, the bevel-gear mounted on said cylinder, the wheel rotatably mounted upon said tail-shaft, the bevel-gear fixed to the latter, the bevel-gears radially journaled to said wheel and engaging said two other gears, the expansible and contractible friction-ring, contiguous to the inner periphery of said cylinder, and connected to said tail-shaft so as to be rotatable therewith, the inner elastic split ring contiguous to said outer ring and connected to and rotatable with said cylinder, the cam between the free ends of said inner ring, and journaled to said cylinder, the slidable cam-sleeve upon the driving-shaft, having the high and low portions, the arm connected to the journal of said cam and adapted to bear upon said sleeve, the yoke, connected to the latter, the movable bar to which said yoke is secured, the elastic friction-strap encircling said wheel, the pivoted cam-lever connected to said bar and adapted when thrown in one position to simultaneously bring said strap into frictional contact with said wheel, and to retract said sleeve with relation to said arm connected to the said inner ring-cam, and thereby permit said ring to contract, and the converse, when said lever is thrown to another position, substantially as and for the purpose set forth.

8. In a shaft-reversing mechanism, the following elements in combination, to wit: the driving-shaft, the hollow cylinder secured thereto, the tail-shaft, the bevel-gear fixed to said cylinder, the bevel-gear fixed to said tail-shaft, the rimmed wheel rotatable upon said tail-shaft, and having the series of radial spokes or shafts, the bevel-gears rotatably mounted upon said shafts respectively, and engaging said other two gears, the spider secured to the tail-shaft, the outer expansible and contractible friction-ring carried by said spider, and contiguous to the inner periphery of said cylinder, the inner expansible and contractible friction-ring, carried by said cylinder, and contiguous to said outer friction-ring, a cam adapted to expand and to permit the contraction of said inner ring, the slidable cam-sleeve upon said driving-shaft, having the high and low portions, the arm connected to said cam and adapted to bear upon said sleeve, the yoke connected to the latter, the slidable bar to which said sleeve is secured, the friction-strap encircling the said wheel, the fixed support to which one end of said strap is secured, the bell-crank lever pivoted to said support, one arm of which lever has a cam portion adapted to bear against the free end of said strap, and the other arm of said lever is provided with an inclined slot, the stud carried by said bar and entered into said slot, all constructed and adapted to operate substantially as and for the purpose set forth.

750,230. COPY-HOLDER. FREDERICK C. SHOBERT, Pittsburg, Pa. Filed June 25, 1902. Serial No. 113,061. (No model.)

Claim.—1. In a copy-holder, the combination of a copy-holder plate, means to elevate said copy-holder plate, means to release said copy-holder plate from said first-named means, and means to automatically lower said copy-holder plate.



2. In a copy-holder, the combination of a copy-holder plate, a cog-rack secured thereto, a suitable standard, a cog-wheel mounted in said standard engaging said cog-rack, and means whereby said cog-wheel is operated to elevate the said cog-rack and copy-holder plate, substantially as described.

3. In a copy-holder, the combination of a copy-holder plate, a cog-rack secured to the rear face thereof, a standard carrying a casing, a cog-wheel secured in said casing, means to actuate said cog-wheel, and a gage that will retain its position during the operation of said cog-rack, substantially as described.

4. In a copy-holder, the combination of a copy-holder plate, a cog-rack secured to the rear face thereof, a suitable standard or support, a casing secured to the upper end of said standard, a cog-wheel secured in said casing, guides secured to said casing through which said cog-rack operates, a bracket rigidly secured to said standard, and a spring-pressed gage secured to said bracket, substantially as described.

5. In a copy-holder, the combination of a copy-holder plate, a cog-rack secured thereto, means carried by said copy-holder plate to retain the copy, a suitable standard or support carrying a casing at its upper end, a cog-wheel secured in said casing, operating-pawls to actuate said cog-wheel, means to actuate said pawls, and gravity-pawls to retain said cog-wheel in an inoperative position, substantially as described.

6. In a copy-holder, the combination of a copy-holder plate, a cog-rack secured thereto, a suitable standard or support, a casing secured to the upper end of said standard, a cog-wheel rotatably mounted in said casing, and means to engage and disengage said cog-rack with said cog-wheel, substantially as described.

7. In a copy-holder, the combination of a movable copy-holder plate, a cog-rack secured thereto, a suitable standard or support, a casing secured at the upper end of said standard, a cog-wheel rotatably mounted in said casing, guides rigidly secured to said casing through which said cog-rack operates, a yoke secured to the shaft of said cog-wheel, operating-pawls secured in said yoke, an operating-lever, a shaft and crank-shaft connecting the lower end of said operating-lever, a pinion carried by said shaft, a segmental cog-rack meshing with said pinion, and an operating-lever formed integral with said segmental cog-rack, substantially as described.

8. In a copy-holder, the combination of a suitable base, a standard secured to said base, a bracket secured to said standard, a casing secured to the upper end of said standard, a shaft extending through said casing, a cog-wheel loosely mounted upon said shaft, a yoke secured to the ends of said shaft, spring-pressed pawls secured in said yoke operating upon said cog-wheel, gravity-pawls secured in said casing to lock said cog-wheel, an operating-rod connected to said yoke, a crank-arm secured to the lower end of said operating-rod, a shaft secured to said crank-arm, a spring encircling said shaft, the one end of said spring being connected to said bracket, a pinion secured to the end of said shaft, a segmental cog-rack meshing with said pinion, an operating-lever formed integral with said segmental cog-rack, a bearing secured to said bracket, a regulating-screw extending through said bearing, forming a stop for said operating-lever, guides carried by said casing, a copy-holder plate, a cog-rack secured to the rear face of said copy-holder plate operating through said guides, and means whereby said rack and cog-wheel may be thrown into and out of engagement, substantially as described.

9. In a copy-holder, the combination of a suitable base, a standard secured to said base, a bracket secured to said standard, a casing secured to the upper end of said standard, a shaft extending through said casing, a cog-wheel loosely mounted upon said shaft, a yoke secured to the end of said shaft, spring-pressed pawls secured in said yoke operating upon said cog-wheel, gravity-pawls secured in said casing to lock said cog-wheel, an operating-rod connected to said yoke, a crank-arm secured to the lower end of said operating-rod, a shaft secured to the crank-arm, a spring encircling said shaft, the one end of said spring being connected to said bracket, a pinion secured to the end of said shaft, a segmental cog-rack meshing with said pinion, an operating-lever formed integral with said segmental cog-rack, a bearing secured to said bracket, a regulating-screw extending through said bearing, forming a stop for said operating-lever, a rack, a spring-pressed arm carried by said rack, a clamp pivotally connected to said arm to retain the paper in position upon the said rack, a cog-rack secured to the rear face of said rack, guides secured to the casing through which said cog-rack operates, a bracket rigidly secured to said guides, a spring-pressed hinged arm secured in said bracket, and a guide or line indicator pivotally secured to the end of said arm, and an extension slidably secured in said guide or line indicator, substantially as described.

10. In a copy-holder, the combination of a copy-holder plate, means to retain a copy thereon, means to raise said plate, and independent means to release said plate.

11. In a copy-holder, the combination of a copy-holder plate, a suitable support, a stationary gage carried by said support, means to elevate said plate, and releasing means whereby said plate is automatically lowered.

12. In a copy-holder, the combination of a copy-holder plate, a suitable support, and a buffer arranged between said support and copy-holder plate.

13. In a copy-holder, the combination of a copy-holder plate, means to elevate said plate, means to regulate the intermittent movement of said last-named means, and means to automatically lower said plate.

14. In a copy-holder, the combination of a copy-holder plate, means carried thereon to retain the copy, means to elevate said plate, a stationary gage, means to release said plate, means to automatically lower said plate, and a buffer to cushion the downward movement of said plate, substantially as described.

15. In a copy-holder, the combination with an intermittently-movable copy-holder plate, of a scale mounted to lie in front of the copy carried by said plate and adjustable lengthwise to conform to the width of said copy, substantially as described.

16. The combination with an intermittently-movable copy-holder and means for intermittently actuating said holder, of a graduated scale adjustable lengthwise whereby it is adapted to different-width copy, substantially as described.

17. In a copy-holder, the combination of a copy-holder plate, and means for imparting an intermittent or step-by-step movement to said plate, of separate means for lowering said copy-holder plate and locking the same at any desired point of its travel, substantially as described.

18. In a copy-holder, the combination with a copy-holder plate, and means for imparting an intermittent or step-by-step movement to said plate, of means for automatically lowering the said plate any desired distance within the limit of its travel, and means for regulating the distance traveled by the copy-holder plate at each operation thereof, substantially as described.

19. In a copy-holder, the combination with a copy-holder plate, of a spring-pressed graduated scale mounted to lie in front of and engage the copy carried by the plate, said scale being adjustable lengthwise whereby it is adapted to different width of copy, substantially as described.

750,231. MECHANISM FOR ATTACHING END PLATES TO ARBORS. THOMAS H. SIMPSON and EDWARD L. NELSON, Detroit, Mich.; said Nelson assignor to said Simpson, trustee. Filed June 6, 1903. Serial No. 160,351. (No model.)



Claim.—1. The combination with an arbor provided with shoulders toward its extremities, of end plates sleeved upon the extremities of the arbor, the shoulders of the arbor and the adjacent end plates having a jointed relation the one to the other respectively whereby the arbor may be adjusted to the position of the end plates substantially as described.

2. The combination with an arbor constructed with shoulders toward its extremities having rounded surfaces, of end plates sleeved upon the extremities of the arbor and constructed with rounded surfaces to fit the rounded shoulders of the arbor, and means to clamp the end plates upon the shoulders of the arbor.

3. The combination with an arbor constructed with shoulders toward its extremities, of end plates sleeved upon the extremities of the arbor, the shoulders of the arbor and the adjacent faces of the end plates respectively the one having a convexed surface and the other a concaved surface, said convexed and concaved surfaces fitting the one upon the other, and means to clamp the end plates upon the shoulders of the arbor.

4. The combination with an arbor constructed with shoulders toward its extremities having convexed or rounded outer surfaces, of end plates sleeved upon the extremities of the arbor and constructed with concaved or rounded surfaces to fit upon the rounded surface of the said shoulders, and means to clamp the end plate upon the shoulder of the arbor.

5. The combination with an arbor constructed with shoulders toward its extremities having convexed or rounded shoulders, of end plates sleeved upon the extremities of the arbor constructed with concaved surfaces adjacent to said shoulders and with convexed surfaces on the opposite face of the end plates, collars concaved on their inner surfaces to fit upon the adjacent convexed surfaces of the end plates respectively, and means to clamp the collars upon the end plates thereby to clamp the end plates upon the arbor.

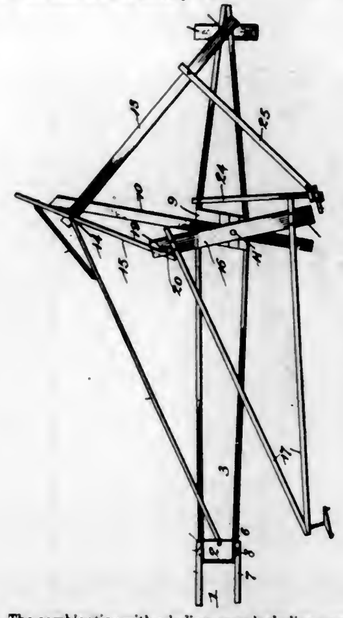
750,232. BALING-PRESS. ERNEST D. SMITH, Lockhart, Tex., assignor of one-half to Francis L. Hillyer, Lockhart, Tex. Filed June 15, 1903. Serial No. 161,570. (No model.)

Claim.—1. The combination in a baling-press, of a compression-box and plunger, a system of toggle-levers connected to the plunger and including an intermediate operating-bar, a horse-power, means for connecting the horse-power to the intermediate bar, and means carried in part by the toggle mechanism for positively disengaging such connecting means at the limit of the compression-stroke.

2. The combination in a baling-press, of a compression-box and plunger, a system of toggle-levers operatively connected to the plunger and including an intermediate bar, a hook member carried by said bar, a revoluble horse-power including a pivotally-mounted bar, pins carried by the opposite end portions of said pivotally-mounted bar and adapted to engage the hook member, means operable in part by the toggle mechanism for positively disengaging the hook at the limit of each compression-stroke.

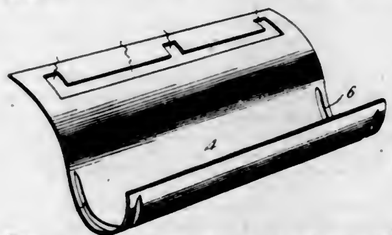
3. The combination in a baling-press, of a compression-box and plunger, a system of toggle-levers operatively connected to the plunger, a horse-power, means for connecting the horse-power to the toggle mechanism, a pair of bars pivotally connected at one end and at their opposite ends connected respectively to a fixed point and to one of the toggle-levers, the pivotally-connected ends of said bars being moved during the compression-stroke to a position to effect the disengagement of the means for connecting the horse-power and toggle mechanism.

4. The combination in a baling-press, of a compression-box and plunger, a system of toggle-levers operatively connected to the plunger, a horse-power, means for connecting the same to the toggle mechanism, means for disconnecting the toggle mechanism and horse-power at the limit of the compression-stroke, consisting of a pair of pivotally-connected bars of which one is connected to one of the toggle-levers, the connected ends of the bars being disposed in the path of movement of the horse-power.



5. The combination with a baling-press including a compression-box and plunger, of a toggle mechanism operatively connected to the plunger and including an intermediate bar, a revoluble sweep, a pin or lug carried by a portion of the sweep, a hook member carried by the intermediate bar of the toggle and adapted to be engaged by the pin or lug, a pair of pivotally-connected bars of which one is pivoted to a fixed point and the other to one of the toggle-levers, and a pair of fingers carried by said bars and disposed one in the path of movement of the hook and the other in the path of movement of the sweep, said fingers serving respectively to release the hook and to operatively connect the toggle mechanism to the horse-power and return the parts to initial position.

750,233. TYPE-WRITER ATTACHMENT. NORMAN J. SMITH, Philadelphia, Pa. Filed Oct. 11, 1902. Serial No. 126,923. (No model.)



Claim.—A type-writer attachment of the class described, comprising a curved plate having slots in the upper portion thereof for the insertion of an eraser therethrough, and a lower terminal pocket to receive the material resulting from the erasure on the surface of paper, the said pocket having a rib at each end extending circumferentially thereof to prevent the erased material from falling out of the trough at the ends thereof.

750,234. SKIRT. WALTER T. SMITH and JOHN V. MALNIGHT, Jackson, Mich., assignors to the Jackson Skirt & Novelty Co., a Corporation of Michigan. Filed Oct. 17, 1901. Serial No. 79,020. (No model.)

Claim.—A skirt provided with a plaited back width and with a placket adjacent to each edge thereof, free approximately triangular wings at the edges of the back width and projecting laterally

beyond the lines of the plackets, the bases of the wings being disposed downward, side flaps foldable over the wings and lying in contact therewith, a waistband carried partly by the back width and partly by the flaps, and spaced fastening means disposed between the back width and the side flaps.



750,285. **FILTER-TABLET.** WILLIAM G. TOOBEY, Somerville, Mass. Original application filed Dec. 23, 1902, Serial No. 136,349. Divided and this application filed June 3, 1903. Serial No. 160,479. (No model.)

Claim.—1. A filter-tablet composed of a plurality of layers of porous material secured together and having aluminium hydroxid, or similar salt, upon their inner faces, substantially as described.

2. A filter-tablet composed of a plurality of layers of porous material secured together and having aluminium hydroxid or similar salt, impregnated in their inner faces, substantially as described.

3. A filter-tablet composed of a plurality of layers of fibrous material secured together at their edges and having their inner faces coated with aluminium hydroxid, or similar substance, substantially as described.

4. A filter-tablet composed of a plurality of layers of fibrous material peripherally secured together by an insoluble cement inclosing their edges, and having a filtering material between them, substantially as described.

5. A filter-tablet of fibrous material having its peripheral edges stiffened and strengthened by an insoluble size or varnish, substantially as described.

6. A filter-tablet composed of a plurality of layers of fibrous material peripherally united, inclosing powdered charcoal, and coated with aluminium hydroxid upon their inner faces, substantially as described.

7. A filter-tablet composed of a plurality of layers of fibrous material having their peripheral edges covered by an insoluble coating, inclosing powdered charcoal, and having their inner faces coated with aluminium hydroxid, or similar salt, substantially as described.

8. A porous filtering-tablet having aluminium hydroxid and powdered charcoal secured to a face thereof, substantially as described.

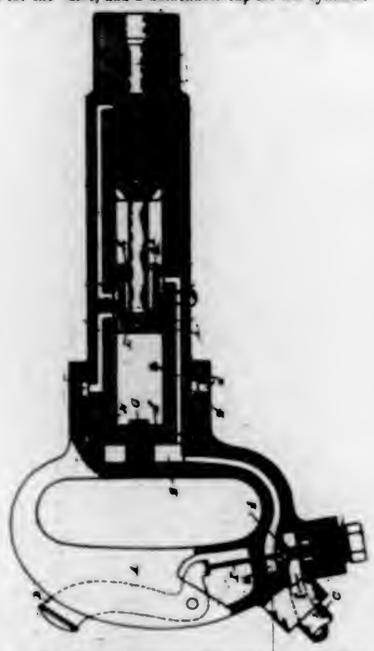
9. A filter-tablet composed of a plurality of layers of fibrous material having aluminium hydroxid and pulverized charcoal between them, substantially as described.

750,286. **PNEUMATIC TOOL.** LUKE W. TURNBULL, Port Huron, Mich. Filed Apr. 27, 1903. Serial No. 154,547. (No model.)

Claim.—1. In a pneumatic tool, the combination of a cylinder, a tubular piston-controlling valve fitting in said cylinder, a rod movable through said valve without contact, and a piston and a collar at opposite ends of said rod for actuating said valve.

2. In a pneumatic tool, the combination of a cylinder, a tubular valve, a piston fitting in the cylinder, a rod connected to said piston, passing through without contacting with said valve, a collar on the end of said rod, and a stop for determining the movement of the valve.

3. In a pneumatic tool, the combination of the body having a cylinder formed therein extending from the handle end to near the tool end, a piston fitting in one end of the cylinder, an annular controlling-valve fitting in the cylinder near the end of the stroke of the piston, a stem connected to the piston passing through the valve without contacting, a collar or shoulder thereon, a detachable stop for the valve, and a detachable cap for the cylinder.



4. In a pneumatic tool, the combination of a handle having an annular supply-chamber, a cylinder attached to said handle having a port, a plate interposed between the bore of the cylinder and said supply-chamber having one port connecting the port of the cylinder, with the said supply-chamber and a second smaller port connecting the supply-chamber with the said bore.

5. In a pneumatic tool, a cylinder having a fluid-supply port, an exhaust-port and a by-pass port and a tubular valve fitting in the cylinder and provided with an exterior annular chamber for connecting the supply-port with the by-pass port and the by-pass port with the exhaust-port and means for actuating the valve by the piston.

6. In a fluid-actuated tool, a cylinder having a supply-port and a by-pass port, and a tubular valve for permitting the passage of the fluid from the supply-port through said valve to one end of the cylinder and said valve having an exterior annular chamber for permitting the passage of the fluid around said valve and through the by-pass port to the other end of the cylinder.

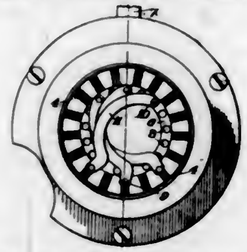
7. In a fluid-actuated tool, a cylinder having a fluid-supply port, an exhaust-port, and a by-pass port, a tubular valve provided with an exterior annular chamber for connecting the supply-port with the by-pass port and the by-pass port with the exhaust-port, and a piston slidable in said cylinder for actuating said valve.

8. In a fluid-actuated tool, a cylinder having a fluid-supply port and a by-pass port, a tubular valve for permitting the passage of the fluid from the supply-port through said valve to one end of the cylinder, said valve having an exterior annular chamber for permitting the passage of the fluid from said supply-port around said valve and through the by-pass port to the other end of the cylinder, a piston reciprocating in said cylinder, a rod attached to said piston passing through said valve without contacting with the same and a collar on the other end of said rod, said collar and piston serving to actuate said valve.

9. In a pneumatic tool, a cylinder having ports, a tubular valve, having an exterior annular chamber, slidable in said cylinder, a piston slidable in said cylinder, a rod connected to said piston and passing freely without contact through said valve, a collar on the other end of the rod, said rod and piston serving to actuate said valve and a screw-stop passing through the wall of the cylinder and entering said annular chamber of the valve to control its movement.

10. In a pneumatic tool, the combination of a body having a cylinder formed by a continuous straight bore from one end to near the other, the ports leading into said cylinder, the piston fitting said cylinder and operating at one end, a detachable controlling-valve fitting said cylinder near the end of the movement of said piston, and means for operating said valve by the piston.

750,287. **IRIS-DIAPHRAGM.** EDWARD BAUSCH and GEORGE HOMMEL, Rochester, N. Y., assignors to Bausch & Lomb Optical Company, Rochester, N. Y., a Corporation of New York. Original application filed Dec. 3, 1900, Serial No. 38,415. Divided and this application filed June 18, 1903. Serial No. 162,089. (No model.)



Claim.—1. In a diaphragm, the combination of the outer ring-frame having the radial slots therein, the relatively movable rotary ring arranged inside the ring-frame having the apertures therein, and the overlapping leaves or blades having the pins at opposite ends and on the same side or face entering the slots and apertures respectively.

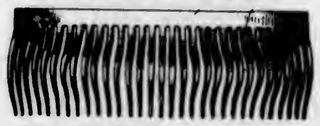
2. In a diaphragm, the combination of the outer ring-frame having the radial slots therein, the relatively movable rotary ring arranged inside the ring-frame having the apertures therein, the overlapping leaves or blades having the pins at opposite ends and on the same side or face entering the slots and apertures respectively, and the ring cover-plate secured upon the outer ring-frame and extending over the ends of the blades or leaves.

3. In a diaphragm, the combination of the threaded ring-frame having the radial slots in its upper end open at both ends, the inner ring rotarily movable relatively to the outer ring-frame and having the apertures therein, the overlapping leaves or blades having the pins at opposite ends projecting from the same side or face and adapted to enter the slots and apertures respectively, and the cover-ring extending over the top and outer ends of the slots and having the threaded portions engaging the ring-frame.

4. In a diaphragm, the combination with the relatively movable rings, one having the radial slots closed at both ends and the other having apertures, of the blades or leaves having the pins projecting from opposite ends of the same side or face of the blades and entering the slots and recesses respectively in the rings.

5. In a diaphragm, the combination with the relatively movable rings one having the radial slots on one face or edge and the other extending across the inner ends of the slots and having the apertures, of the overlapping blades or leaves having the pins projecting from opposite ends of the same faces or sides of the leaves and operating in the slots and apertures respectively.

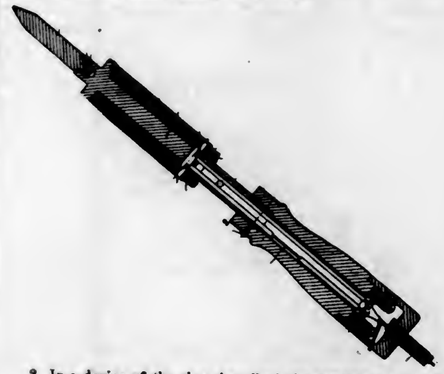
750,288. **COMB.** WILLIAM S. BRONTOLD, Newark, N. J. Filed Mar. 17, 1903. Serial No. 148,162. (No model.)



Claim.—As a new article of manufacture, a comb having a body provided with projecting teeth with curves intermediate of their ends and said teeth being arched to radii decreasing toward the center of the comb, substantially as and for the purpose specified.

750,289. **ELECTRICALLY-HEATED SOLDERING-IRON.** WILLIAM J. BOWEN, Cleveland, Ohio, assignor to the Williams-Abbott Electric Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 17, 1903. Serial No. 169,732. (No model.)

Claim.—1. In an electrically-heated soldering-iron, the combination with the heating-coil, of the metallic core or spool whereon it is mounted, the same being provided with a tapped receptacle or socket at its forward end, a removable soldering-tip similarly tapped and adapted to screw into the socket, and a covering of graphite or similar substance, adapted to assist in protecting the engaging parts of the screw-joint, substantially as set forth.



2. In a device of the class described, the combination with the heating-coil, of its metallic spool or core carrying the same, said core being provided with a suitable receptacle or socket, a removable tip portion adapted to be mounted in said receptacle, and an interposed layer of inert material such as described, adapted to protect the mounting portions of said tip and its receptacle or holder, substantially as set forth.

3. In an electrically-heated soldering-iron, the combination with the heating-coil, of the spool whereon it is mounted, the same being provided with a receptacle at its forward end, a removable soldering-tip mounted therein, and a stratum or covering of inert material such as described, assisting in protecting the mounting parts of the tip, substantially as set forth.

4. In an electrically-heated soldering-iron, the combination with the heating-coil, of a rimmed tubular casing containing the same, a flanged shank or stem carried by the handle, and a section of heat-insulating material closing the rimmed end of the casing and mounted therein, the same being interposed directly between the flanged portion of the shank and the casing to form an auxiliary mounting and prevent the access of heat to the handle, substantially as set forth.

5. In an electrically-heated appliance of the class described, the combination with a spool or core, of the heating-conductor wound thereon between insulating-wrappings, and a heat-resisting washer having bored projecting nipples, mounted in the head of the spool, through which nipples the extremities of the heating-conductor are brought out and insulated, substantially as set forth.

6. In an electrically-heated appliance of the class described, the combination with a mounting spool or core, of the heating-conductor insulated thereon, and a heat-resisting washer such as lava, having elongated, outwardly-extending nipples bored to receive the ends of the heating-conductor and carry them past the surrounding metallic parts, whereby the conductors are insulated and prevented from being broken for a distance beyond the rear of the heating-coil, substantially as set forth.

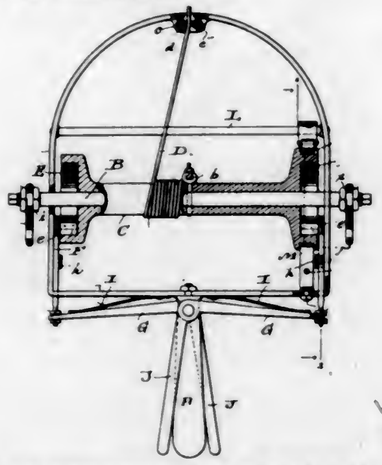
7. In an electrically-heated appliance of the class described, the combination with the heating apparatus, of the tubular stem or shank carrying the same, the handle mounting said shank, the heavy ferrule inclosing the telescoping end portions of said parts, a screw uniting the handle and ferrule, and angularly-disposed screws entering tapped holes in the inserted end of the shank and clamping it within the handle and ferrule, substantially as set forth.

750,240. **FIRE-ESCAPE.** BERNHARD BRIELMAIER, Milwaukee, Wis. Filed June 22, 1903. Serial No. 162,476. (No model.)

Claim.—1. A fire-escape comprising a frame having bell-crank levers in pivotal suspension therefrom, a spindle having its bearings in sides of the frame, a spool fast on the spindle, a cable connected at one end to the spool and guided through an upper eye in said frame, spool-clutches, means in connection with said levers for actuating the clutches, means for a sling in connection with the machine, and a spool-brake adjustable as the tension in proportion to weight of an operator in the sling.

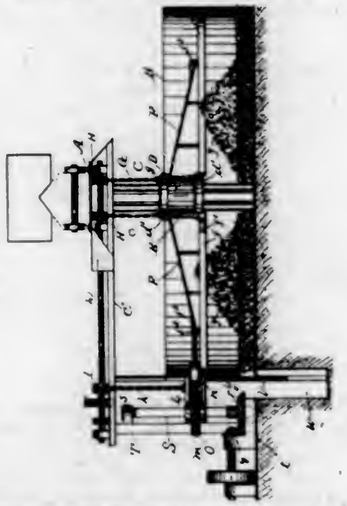
2. A fire-escape comprising a frame having bell-crank levers in

pivotal suspension therefrom, a spindle having its bearings in sides of the frame, a spool fast on the spindle, a cable connected at one end of the spool and guided through an upper eye in said frame, spool-clutches, means in connection with said levers for actuating the clutches, springs arranged to oppose the clutching throw of the aforesaid levers, means for attaching a sling in connection with the machine, and a spool-brake adjustable as to tension in proportion to weight of an operator in the sling.



3. A fire-escape comprising a frame having bell-crank levers in pivotal suspension therefrom, a spindle having its bearings in sides of the frame, a spool fast on the spindle, a cable connected at one end to the spool and guided through an upper eye in said frame, split spring-rings engaging end recesses in the spool, ring-spreaders in connection with said levers, means for attaching a sling in connection with the machine, a band-brake consisting of a stationary section and a hinged section arranged in the aforesaid frame, to encompass the spool, and a set-screw adjustable in connection with the brake to regulate the tension of the same.

750,241. SPREADING-MACHINE. CARL F. BUCK, Salt Lake City, Utah. Filed May 19, 1903. Serial No. 157,873. (No model.)



Claim.—1. A spreading-machine comprising a vertical frame having exterior vertical guides, an axle having interior recesses to engage said guides and vertically movable on said frame, a hub on said axle, horizontal arms on said hub and means to raise and lower and to rotate said hub and arms as specified.

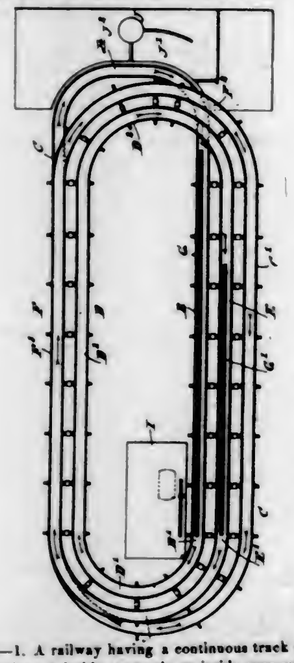
2. In a spreading-machine having arms carried by a hub on an axle which is vertically movable on a frame, a cross-beam at the top of said frame properly supported, a horizontal shaft having bearings mounted on said cross-beam, wheels keyed on said shaft, chains carried by said wheels, eyes on said hub to which said chains are attached, and means to revolve said shaft whereby the said hub is raised and lowered for the purpose specified.

3. In a spreading-machine a bin, a central vertical frame therein, arms carried by a hub on an axle which is vertically movable on said frame, a band around the outer ends of said arms, an exterior groove on said band, a continuous chain in said groove passing through a vertical slot in said bin and around a sprocket-wheel, and means to actuate said sprocket-wheel, for the purpose herein set forth.

4. In a spreading-machine having a bin with vertically-movable revolving arms therein and a vertically-movable frame carrying part of the arm-revolving mechanism, a vertical door in said bin fixed to said frame and vertically movable therewith for the purpose described.

5. In a spreading-machine a vertical axle having collars at its upper and lower edges, a hub on said axle between said collars, an exterior annular groove c on the lower edge of said axle, a band c' on said hub whose lower edge enters said groove, an annular groove c^3 near the upper edge of said hub, a band c^4 on the upper collar of said axle whose lower edge enters said groove c^3, and roofs to overlap said grooves substantially as herein set forth.

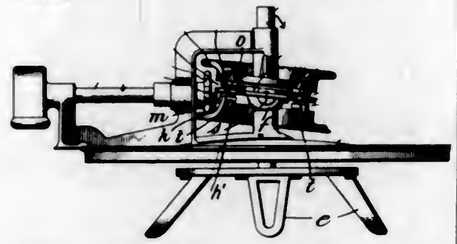
750,242. RAILWAY. STEPHEN R. JACKMAN, New York, N. Y. Filed Sept. 9, 1903. Serial No. 172,471. (No model.)



Claim.—1. A railway having a continuous track consisting of a station-section, an inside up-track, an inside race-section leading downwardly from the summit of the up-track, an outside up-track, in the lower end of which terminates the lower end of the said inside race-section, an outside race-section leading from the summit of the outside up-track in a downward direction, adjacent to and parallel with the first race-section and on the outside thereof, and a homestretch leading from the end of the outside race-section and terminating in the station-section, the upper portion of the homestretch extending outside the said outside up-track, as set forth.

2. A railway having a continuous track consisting of a station-section, an inside up-track, an inside race-section leading downwardly from the summit of the up-track, an outside up-track, in the lower end of which terminates the lower end of the said inside race-section, an outside race-section leading from the summit of the outside up-track in a downward direction, adjacent to and parallel with the first race-section and on the outside thereof, and a homestretch leading from the end of the outside race-section and terminating in the station-section, the upper portion of the homestretch extending outside the said outside up-track and the said station-section crossing with its forward portion below a portion of the homestretch and below the ends of the race-sections, to connect with the lower end of the inside up-track, as set forth.

750,243. GEARING FOR WASHING-MACHINES. FREDERICK T. BROSI, Quincy, Ill. Filed July 31, 1903. Serial No. 167,729. (No model.)



Claim.—1. In transmitting mechanism and in combination, a drive-shaft, a driven shaft, rack mechanism comprising parallel sections and end-connecting portions, a hub on the driven shaft, supporting means interposed between the same and the rack mechanism to permit of the tilting of the latter, and a pinion carried by the drive-shaft coacting with the rack, substantially as described.

2. In transmitting mechanism and in combination, a drive-shaft, a driven shaft, rack mechanism comprising parallel sections and end-connecting portions, a hub on the driven shaft, supporting means interposed between the same and the rack mechanism to permit of the tilting of the latter, including a ring pivoted to the hub and to the rack mechanism, and a pinion fixed to the drive-shaft, substantially as described.

3. In transmitting mechanism for converting a rotary movement in one direction into an oscillatory movement and in combination, a drive-shaft, a driven shaft, rack mechanism including two horizontally-disposed rack-bodies carrying rack-sections curved in a horizontal plane, and end continuations curved in substantially vertical planes, a ring interposed between said body portions and separated a distance therefrom to provide a guideway, a hub on the driven shaft, a second ring arranged in the first concentric therewith, pivots diametrically arranged for connecting the rings, other pivots diametrically arranged for connecting a second ring to the hub, and a pinion mounted on the drive-shaft, substantially as described.

4. In transmitting mechanism for converting a rotary movement in one direction into an oscillatory movement and in combination, a drive-shaft, a driven shaft, rack mechanism associated with the latter comprising two horizontally-disposed rack-bodies carrying rack-sections curved in a horizontal plane and end continuations curved in substantially vertical planes, a hub on the driven shaft, supporting means interposed between the same and the rack mechanism to permit of the tilting of the latter and a pinion carried by the drive-shaft coacting with the racks, substantially as described.

5. In a transmitting mechanism for converting a rotary movement in one direction into an oscillatory movement and in combination, a drive-shaft, a driven shaft, rack mechanism associated with the latter comprising two horizontally-disposed rack-bodies carrying rack-sections curved in a horizontal plane and end continuations curved in substantially vertical planes, a hub on the driven shaft, supporting means interposed between the same and the rack mechanism to permit of the tilting of the latter and a pinion designed to engage with first one and then another section of the rack, a projection upon said pinion coacting with a guideway between said rack-sections, substantially as described.

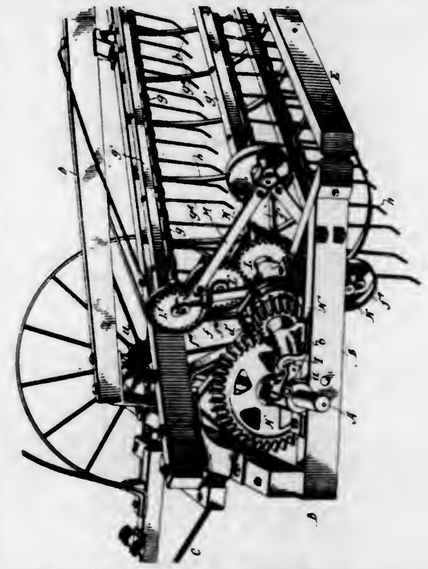
750,244. FUSE FOR ELECTRIC CIRCUITS. EDWOOD C. PHILLIPS, Chicago, Ill. Filed Jan. 9, 1903. Serial No. 138,394. (No model.)

Claim.—A device of the class described, comprising a cylindrical insulating-base having a metal sleeve on one end and having its opposite end diametrically enlarged, provided with a central cavity open on one side and an annular cavity surrounding the same and provided in its outer wall with a recess 15, a cap detachably secured on the enlarged end of the base and forming a closure therefor, a conductor 11 in a central bore of the base, having its inner end in the central cavity and its outer end forming an electrical terminal 5, clamp-plates connected to the inner end of the said conductor, having their inner ends disposed in the central cavity, said clamp-plates extending through the open side of said cavity and across the annular cavity, clamp-plates disposed angularly with reference to the first-mentioned clamp-plates, across the annular cavity, one of them engaging the recess 15 and the other being connected to the metal sleeve, and an annular fuse-piece, in the annular cavity, and having its ends detachably secured between the clamp-plates, substantially as described.



REISSUES.

12,194. HAY-RAKE. WARD LINCOLN, Rockfalls, Ill., assignor to the Sterling Manufacturing Company, Rockfalls, Ill., a Corporation of Illinois. Filed Oct. 27, 1903. Serial No. 178,800. Original No. 740,769, dated Oct. 6, 1903.



Claim.—1. In a side-delivery hay-rake, the combination of a wheeled driving-axle carrying a beveled gear-wheel, a shaft having a stationary short section loosely carrying a beveled pinion meshing with said gear-wheel, and a rotatable relatively longer section carrying a plurality of rotatable rakes, a clutch connection between the beveled pinion and the rotatable shaft-section, and means for maintaining the rakes in vertical position throughout their rotation.

2. In a side-delivery hay-rake, the combination of a wheeled driving-axle, a shaft having a short section and a relatively longer section, beveled gearing connected with the driving-axle, a clutch connection between said gearing and the longer shaft-section, a stationary gear-wheel through which the longer shaft-section passes, a plurality of rotatable rakes, a crank gear-wheel on one of the rake-bars, a gear-wheel meshing with the aforesaid gear-wheel and crank gear-wheel, cranks on the other rake-bars, and an endless pitman connecting the crank gear-wheel and cranks.

3. In a side-delivery hay-rake, the combination with a shaft and means for effecting its rotation, of a gear-wheel and a frame on the shaft, said frame having radial members, rotatable rake-carrying

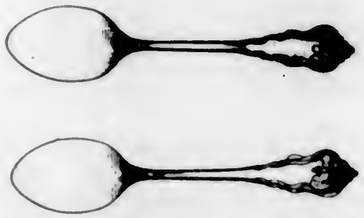
bars journaled in the frame members, a crank gear-wheel on one of said bars, cranks on the other bars, a gear-wheel meshing with the aforesaid gear-wheel and crank gear-wheel and an endless angular pitman connecting the cranks and crank gear-wheel.

4. In a side-delivery hay-rake, the combination with a shaft and means for rotating it, of a frame fixed to said shaft and provided with flanged radial members, a stationary gear-wheel about the shaft at said frame, an intermediate gear-wheel mounted on the frame and meshing with the aforesaid gear-wheel, rake-carrying bars journaled in the ends of the frame members, a crank gear-wheel fixed to one of said bars at the frame member and meshing with the intermediate gear-wheel, cranks fixed to the other bars at the frame members, and an endless angular pitman connecting the cranks and crank gear-wheel and through which the shaft extends.

5. In a side-delivery hay-rake, the combination with a wheeled driving-axle, of a rake device comprising a rigid frame, a shaft journaled on said frame, a plurality of rakes journaled in bearings carried by said shaft and each comprising a rake-bar formed of a shaft having a bar mounted upon it to extend lengthwise thereof and teeth coiled at intervals about said shaft and engaging at one end with said surmounting bar, and driving mechanism for the shaft journaled in said frame and for said rakes, geared to said axle to be actuated by its rotation.

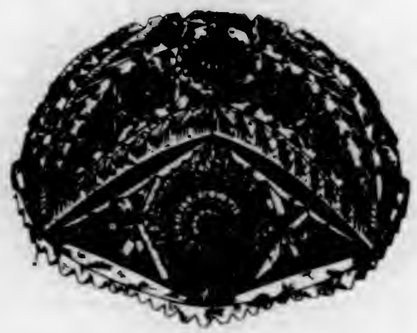
DESIGNS.

36,737. HANDLE FOR SPOONS OR SIMILAR ARTICLES. SAMUEL J. LARSH, Bristol, Conn., assignor to American Silver Company, Bristol, Conn., a Corporation. Filed Dec. 17, 1903. Serial No. 185,595. Term of patent 7 years.



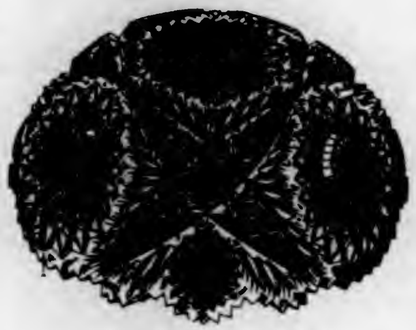
Claim.—The ornamental design for the handle of a spoon or similar article as shown.

36,738. CUT-GLASS VESSEL. WILLIAM C. ANDERSON, Lansing, Mich., assignor to American Cut Glass Co., Lansing, Mich., a Corporation of Illinois. Filed Dec. 14, 1903. Serial No. 185,172. Term of patent 7 years.



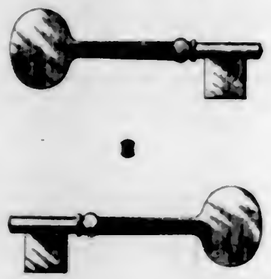
Claim.—The ornamental design for cut-glass vessel as shown.

36,739. CUT-GLASS VESSEL. WILLIAM C. ANDERSON, Lansing, Mich., assignor to American Cut Glass Co., Lansing, Mich., a Corporation of Illinois. Filed Dec. 14, 1903. Serial No. 185,173. Term of patent 7 years.



Claim.—The ornamental design for a cut-glass vessel as shown.

36,740. KEY. CHARLES J. CALEY, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Dec. 15, 1903. Serial No. 185,317. Term of patent 14 years.



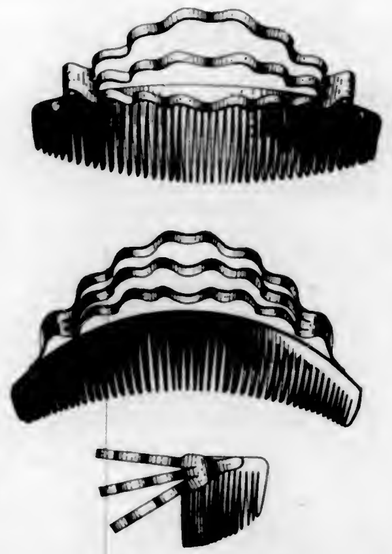
Claim.—The ornamental design for a key as herein shown.

36,741. KEY. CHARLES J. CALEY, New Britain, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Dec. 18, 1903. Serial No. 185,749. Term of patent 14 years.



Claim.—The ornamental design for a key as herein shown.

36,742. POMPADOUR-PUFF COMB. BERNARD W. DOYLE, Leominster, Mass., assignor to Sterling Comb Company, Leominster, Mass. Filed Oct. 22, 1903. Serial No. 178,157. Term of patent 3½ years.



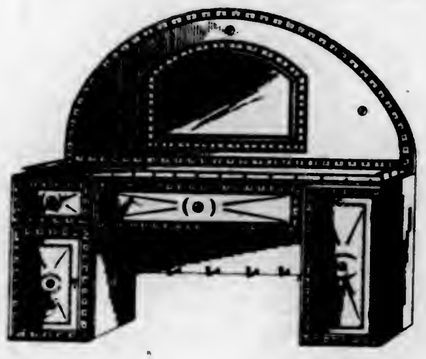
Claim.—The ornamental design, for a pompadour-puff comb, as shown.

36,743. GLOBE-SUPPORT FOR INCANDESCENT-LIGHTING APPARATUS. LEMUEL R. HOPTON, New York, N. Y., assignor to the Oxley Enos Company, New York, N. Y., a Corporation of New York. Filed Apr. 24, 1903. Serial No. 154,188. Term of patent 3½ years.



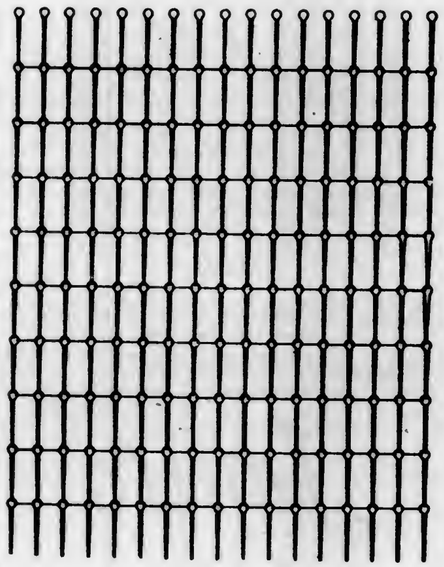
Claim.—The ornamental design for a globe-support for incandescent-lighting apparatus as herein shown.

36,744. KITCHEN WALL-CABINET. ROSA M. VERNON, Gambier Ohio. Filed Nov. 5, 1903. Serial No. 179,997. Term of patent 3½ years.



Claim.—The ornamental design for a kitchen wall-cabinet, as shown.

36,745. WIRE FABRIC. OSELLO R. HUNT, Kenosha, Wis., assignor to the Simmons Manufacturing Company, Kenosha, Wis., a Corporation of Wisconsin. Filed Dec. 22, 1902. Serial No. 136,305. Term of patent 14 years.



Claim.—The herein-shown ornamental design for a wire fabric.

36,746. BRAID. HANS P. VON HOSTITZ, New York, N. Y. Filed Dec. 9, 1903. Serial No. 184,483. Term of patent 3½ years.



Claim.—The ornamental design for a braid, substantially as shown.

TRADE-MARKS

REGISTERED JANUARY 19, 1904.

41,882. BOOKS. EDGAR L. DU BOSE, Port Arthur, Tex. Filed Dec. 4, 1903.

I.C.& T.C.

The letters "I. C. & T. C." Used since September 1, 1903.

41,883. PORTABLE CIRCULATING LIBRARIES, BOOKS, PERIODICALS, AND PAMPHLETS. THE BOOKLOVERS LIBRARY, Camden, N. J., and Philadelphia, Pa. Filed Oct. 29, 1903.

Tabard Inn

The words "TABARD INN." Used since January 1, 1901.

41,884. CORSETS. WEINGARTEN BROS., New York, N. Y. Filed Dec. 22, 1903.

Jonita

The word "JONITA." Used since January, 1903.

41,885. CORSETS. BIRDSEY & SOMERS, New York, N. Y. Filed Dec. 12, 1903.

F.P.

The letters "F. P." Used since 1886.

41,886. OVERALLS, PANTS, AND BLOUSE OR WORK SHIRTS. MARCUS LOEB & Co., Atlanta, Ga. Filed Oct. 10, 1903.



The representation of a man standing with one hand upon a wheel, and the abbreviations "M L & Co" appear adjacent to the head of the figure and are arranged in the form of a monogram. Used since September 17, 1903.

41,887. LEATHER BOOTS AND SHOES. BOEGLE BROS., St. Joseph, Mo. Filed Nov. 3, 1903.



The word "PRIMROSE" and the representation of a primrose intertwined with the letter "P" of said word. Used since January 1, 1903.

41,888. CERTAIN NAMED BOOTS AND SHOES. ISIDORE KEIFFER & Co., New Orleans, La. Filed Dec. 24, 1903.



The representation of a lancer mounted on a flying horse and the whole surrounded by concentric circles, as shown in the accompanying facsimile. Used since October 1, 1903.

41,889. LEATHER SHOES. MYRON L. WHITCOMB, Haverhill, Mass. Filed Dec. 4, 1903.

The Sole of Honor

The words "THE SOLE OF HONOR." Used since November 28, 1903.

41,890. CREAM DRESSINGS FOR LEATHER. WILHELM RAUH Nuremberg, Germany. Filed Dec. 5, 1902.

REFLEX

The word "REFLEX." Used since April 4, 1902.

41,891. METAL-POLISHES. RAIMES & Co., LTD., Stockton-on-Tees, England. Filed Nov. 14, 1903.



The device of a hand holding a palm-leaf. Used since prior to October 30, 1903.

41,892. PURIFIED WATER. THE STANDARD WATER PURIFYING Co., Cleveland, Ohio. Filed Dec. 14, 1903.

KATHAROS

The word "KATHAROS." Used since September 22, 1903.

41,893. COFFEE. JOSEPH WILLIAM POPE, St. Louis, Mo. Filed Dec. 18, 1903.



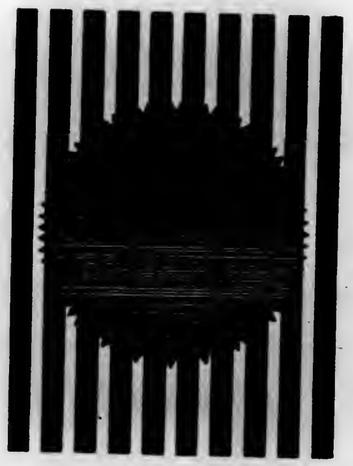
The representation of the upper half of a male human figure apparelled as a cardinal, with one arm and hand resting upon a table, on which is a plate, a cup in the other hand, and overarched by a fanciful border associated with the word "CARDINAL." Used since June, 1902.

41,894. BISCUITS. AUSTIN, YOUNG & Co., Chelsea, Mass. Filed Dec. 12, 1903.



An octagonal design in the center of which appears a shield-shaped design, in which is outlined the monogram "A Y & Co." Used since October 1, 1903.

41,895. WHEAT-FLOUR. C. R. MALTBY & Co., Corning, N. Y. Filed Nov. 10, 1903.



A rectangular field composed of parallel spaced bars having arranged thereon a blue seal, as shown in the accompanying facsimile. Used since September, 1902.

41,896. PICKLES. STERLING PICKLING WORKS, St. Joseph, Mo. Filed Aug. 27, 1903.



A pound-sterling sign arranged within a double circle. Used since February 1, 1901.

41,897. LARD, TALLOW, LARD COMPOUNDS, AND SUBSTITUTES FOR LARD. CUDAHY BROS. Co., Cudahy, Wis. Filed Dec. 9, 1903.



PEACOCK

The representation of a peacock and the word "PEACOCK." Used since July 1, 1903.

41,898. VEGETABLE OIL-CAKE. F. G. KINNEY & Co., New Orleans, La. Filed Dec. 21, 1903.

41,898.



The figure of an open hand with the words "THE OPEN" arranged adjacent thereto. Used since September 1, 1903.

41,899. SOAP. FRANK O. IVES, Cheshire, Conn. Filed Dec. 5, 1903.

QUICK O

The word "QUICK O," arranged as shown—*i. e.*, the first and last letters of the word being in capitals. Used since September 26, 1903.

41,900. COUGH REMEDY. ALBERT B. LIPP, Sidney, Mo. Filed July 17, 1903.

Eld. A. B. Lipp

The autograph signature of "ELD. A. B. LIPP." Used since June, 1903.

41,901. MEDICINE FOR CERTAIN NAMED DISEASES. CHARLES ENYER, Berlin, Germany. Filed Aug. 4, 1903.



A large heart bearing across the top the word "MACROBIOTOGEN" and at the bottom a sparkling diamond having a small heart in the center thereof. Used since May, 1903.

41,902. REMEDIES FOR CURE OF CERTAIN NAMED DISEASES. HENRY L. LAUTENBAHN, Newark, N. J. Filed Dec. 11, 1903.



Henry L. Lautenbahn

A pictorial representation of the registrant, with the facsimile representation of his signature, both the portrait and signature being surrounded by a frame. Used since December 1, 1902.

41,903. REMEDY FOR ALL DISEASES OF THE KIDNEYS, BLADDER, STOMACH, AND BOWELS. VERNAL REMEDY COMPANY, Buffalo, N. Y. Filed Nov. 25, 1903.

VERNAL PALMETTONA

The words "VERNAL PALMETTONA." Used since October 21, 1903.

41,904. ANTISEPTIC PREPARATIONS. JOHN F. A. C. WARTHAN, Milwaukee, Wis. Filed Nov. 16, 1903.



The representation of a branch of pine and eucalyptus tied together with a ribbon in the shape of a square streaming knot, associated with the word "LYPTORIA." Used since August, 1902.

41,905. RUBBER SPONGES. RUSSIAN-AMERICAN INDIA RUBBER CO., St. Petersburg, Russia. Filed June 27, 1902.



A triangle containing within it the figures "1860" and the letters "T P A P M." Used since January, 1888.

41,906. TOOTH-BRUSHES. DWIGHT M. CLAFF, Boston, Mass. Filed May 6, 1903.

ROLLING

The word "ROLLING." Used since March 1, 1903.

41,907. METALLIC SURGICAL INSTRUMENTS. THE KNY-SCHEERER CO., New York, N. Y. Filed June 20, 1903.

ASTA

The word "ASTA." Used since June 12, 1903.

41,908. INDUCTION-COILS. VARLEY DUPLEX MAGNET COMPANY, Providence, R. I. Filed Dec. 24, 1903.

Jumphlame

The word "JUMPHLAME." Used since November 13, 1903.

41,909. COPPER PIGS, BARS, AND SLABS. PITTSBURGH & MONTANA COPPER CO., Butte, Mont. Filed Dec. 9, 1903.

PITTSMONT

The word "PITTSMONT." Used since June 1, 1903.

41,910. SHIRTS, COLLARS, AND CUFFS. INTERNATIONAL SHIRT AND COLLAR CO., Troy, N. Y. Filed Dec. 16, 1903.



Armor

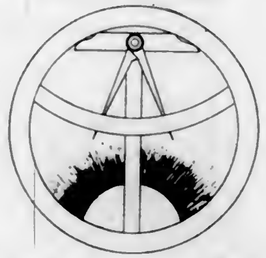
The word "ARMOR" and the representation of a breastplate superimposed upon a pair of crossed swords. Used since May, 1893.

41,911. SUSPENDERS. LOSEE, COLEMAN & MARCUS, New York, N. Y., TRADING AS CONSOLIDATED MANHATTAN SUSPENDER CO. Filed Dec. 14, 1903.

REX

The word "REX." Used since August, 1903

41,912. LEATHER BOOTS AND SHOES. WILLIAM P. CRAMER, Catawissa, Pa. Filed Nov. 25, 1903.



The representation of a square and compass and the rising sun inclosed within concentric rings, the square and compass being crossed by the arc of a circle displayed horizontally. Used since February 1, 1903.

41,913. CLEANING COMPOUND. HUFF AND WEDGE, New York, N. Y. Filed Sept. 19, 1903.



The figure of a wedge in perspective, showing three sides—the top in white, one of the long sides in black, and the under side white. Used since July 1, 1903.

41,914. NERVE AND STOMACH TONIC. JEROME B. WELLS, Cleveland, Ohio. Filed Dec. 26, 1903.

VICURA

The word "VICURA." Used since October, 1902.

41,915. STOMACH-BITTERS AND TONIC MEDICINES. HENRY KUHN, New York, N. Y. Filed Dec. 14, 1903.

KUNOLENE

The word "KUNOLENE." Used since December 1, 1903.

41,916. PRODUCT OF THE ACTIVE PRINCIPLE OF THE SUPRARENAL GLAND. H. K. MULFORD CO., Philadelphia, Pa. Filed Dec. 24, 1903.

ADRIN

The word "ADRIN." Used since December 1, 1903.

41,917. MEDICINAL PREPARATION FOR CERTAIN NAMED DISEASES. J. D. RIEDEL, Berlin, Germany. Filed Dec. 28, 1903

BORNYVAL

The word "BORNYVAL." Used since July 1, 1903.

41,918. CERTAIN NAMED PROPRIETARY MEDICINES. FRANK HOBART, Topeka, Kans. Filed Dec. 22, 1903.

KAS-KENNA

The hyphenated word "KAS-KENNA." Used since November 1, 1902.

41,919. REMEDY FOR COUGHS AND COLDS. JOSEPH R. MUSE, Baltimore, Md. Filed Dec. 5, 1903.



The letters and character "B & O" and the representation of a locomotive and tender. Used since September 1, 1903.

41,920. REMEDIES FOR CURE OF ANEMIA, CHLOROSIS, AND SIMILAR TROUBLES. DR. A. GUDE & CO., Leipsig, Germany. Filed Dec. 21, 1903.

GUDMANGAN

The word "GUDMANGAN." Used since November 15, 1903.

41,921. REMEDIES FOR CURE OF ANEMIA, CHLOROSIS, AND SIMILAR TROUBLES. DR. A. GUDE & CO., Leipsig, Germany. Filed Dec. 21, 1903.

GUDOL

The word "GUDOL." Used since November 15, 1903.

41,922. REMEDIES FOR CURE OF ANEMIA, CHLOROSIS, AND SIMILAR TROUBLES. DR. A. GUDE & CO., Leipsig, Germany. Filed Dec. 21, 1903.

GUDIRON

The word "GUDIRON." Used since November 15, 1903.

41,923. REMEDIES FOR CURE OF ANEMIA, CHLOROSIS, AND SIMILAR TROUBLES. DR. A. GUDE & CO., Leipsig, Germany. Filed Dec. 21, 1903.

GUDINE

The word "GUDINE." Used since November 15, 1903.

41,924. REMEDIES FOR CURE OF ANEMIA, CHLOROSIS, AND SIMILAR TROUBLES. DR. A. GUDE & CO., Leipsig, Germany. Filed Dec. 21, 1903.

MANGISEN

The word "MANGISEN." Used since November 15, 1903.

41,925. TABLETS CONTAINING A REMEDY FOR LIVER AND KIDNEY DISEASES. YELLOW ACTORS COMPANY, LIMITED, Grand Rapids, Mich. Filed Dec. 10, 1903.

ACTORS

The word "ACTORS." Used since August 17, 1903.

41,926. REMEDIES FOR VENEREAL DISEASES. NEHER, RUHR & WEIPER, Eau Claire, Wis. Filed Dec. 14, 1903.

VS

The letters "V S." Used since August 4, 1903.

41,927. ANTIPYRETIC. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Dec. 22, 1903.

MARETIN

The word "MARETIN." Used since July 1, 1903.

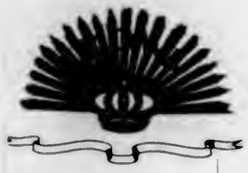
41,928. ANTISEPTIC MEDICINE FOR INTERNAL USE. GEORGE BRACKETT, Boston, Mass. Filed Dec. 14, 1903.

"Are you a Sport?"



The interrogatory phrase "ARE YOU A SPORT?" in quotation-marks, associated with the pictorial representation of a man laughing. Used since November 1, 1903.

41,929. ANIMAL-DIP AND INSECTICIDES. PERCY R. PALMORE, Louisville, Ky. Filed Dec. 15, 1903.



The pictorial representation of a crown, a background formed by light-rays, the word "CROWN" on the background, and a scroll. Used since November 21, 1903.

41,930. SKIN-LOTIONS. ELSA DUAHL, New York, N. Y. Filed Dec. 19, 1903.



The word "VELVEDERMA," in connection with the representation of a cupid holding a bottle and seated upon a globe. Used since December 15, 1903.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

LABELS

REGISTERED JANUARY 19, 1904.

10,678.—*Title:* "SEED BOLLS FROM OUR POTATO FIELDS." (For Seed-Potatoes.) THE JOHNSON SEED POTATO CO., Richmond, Me. Filed December 12, 1903.

10,679.—*Title:* "SWAN ISLAND BRAND." (For Canned Salmon.) CHRISTIAN L. BENSON, Chicago, Ill. Filed December 26, 1903.

10,680.—*Title:* "GRELL'S ROSE LEAF BRAND CREAMERY BUTTER THE BUTTER THAT BETTERS THE BREAD." (For Butter.) H. J. GRELL BUTTER & EGG CO., Johnson Creek, Wis. Filed December 28, 1903.

10,681.—*Title:* "BUCKEYE." (For Crackers.) TOLEDO BISCUIT COMPANY, Toledo, Ohio. Filed December 26, 1903.

10,682.—*Title:* "TOLEDO FLAKES." (For Flakes.) TOLEDO BISCUIT COMPANY, Toledo, Ohio. Filed December 26, 1903.

10,683.—*Title:* "MAUNA MOUNTAIN." (For Coffee.) ACKER, MERRALL & CONDIT COMPANY, New York, N. Y. Filed December 26, 1903.

10,684.—*Title:* "FAXON'S BLACK & GREEN TEA." (For Tea.) WILLIAM H. FAXON, Buffalo, N. Y. Filed December 23, 1903.

10,685.—*Title:* "SALAX." (For Mineral Water.) EDGAR ROBERTS, East St. Louis, Ill. Filed September 25, 1903.

10,686.—*Title:* "WAGNER'S LITHIATED VICHY." (For Artificial Mineral Water.) W. T. WAGNER'S SONS, Cincinnati, Ohio. Filed December 26, 1903.

10,687.—*Title:* "OLD KAINTUCK." (For Cigars.) H. G. TROMPETER, Louisville, Ky. Filed August 17, 1903.

10,688.—*Title:* "SALAX." (For Medicine.) FRANK L. MCCLINTIC, Battlecreek, Mich. Filed December 15, 1903.

10,689.—*Title:* "CLAY'S SURE CURE FOR RHEUMATISM." (For Medicine.) EDWARD J. KIEFFER, Savannah, Ga. Filed December 28, 1903.

10,690.—*Title:* "SANTOL." (For Medicine.) HARVEY E. KELTY, San Francisco, Cal. Filed December 11, 1903.

10,691.—*Title:* "NADINE FACE POWDER." (For Face-Powder.) NATIONAL TOILET CO., Paris, Tenn. Filed December 26, 1903.

10,692.—*Title:* "KREMO DENTINE." (For Tooth-Powder.) THOMAS HENRY MARSHALL, Kingston, N. Y. Filed December 24, 1903.

10,693.—*Title:* "H L C TOOTH BLEACH." (For Dentifrice.) LEE A. JACKSON, Boston, Mass. Filed July 20, 1903.

10,694.—*Title:* "MARTHA WASHINGTON'S LILY OF THE VALLEY CREAM." (For Complexion-Cream.) M. M. BENBOW, St. Louis, Mo. Filed November 27, 1903.

PRINTS

REGISTERED JANUARY 19, 1904.

883.—*Title:* "PHENOLENE." (For Insect-Destroyer.) A. R. COULSON CO., INC., Petaluma, Cal. Filed December 23, 1903.

884.—*Title:* "THE EXCELSIOR DRESS-MAKERS FITTING SADDLE." (For Dressmakers' Fitting-Saddles.) MARIE LOUISE SOULE, St. Louis, Mo. Filed December 26, 1903.

885.—*Title:* "ART SHIRT WAIST." (For Shirt-Waists.) RAYMOND & PIERCE, New York, N. Y. Filed December 26, 1903.

886.—*Title:* "ADLER'S SPRING FASHIONS FOR 1904." (For Men's Apparel.) DAVID ADLER & SONS CLOTHING CO., Milwaukee, Wis. Filed December 26, 1903.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BUTTERFIELD.

Decided May 28, 1903.

1. ANTICIPATION—RUBBER-SOLED SHOES.

Held that a claim for a leather boot or shoe provided with a rubber outer sole secured by vulcanization directly to the under surface of the inner sole and welt does not involve invention over an English patent which shows that it is old to secure a rubber sole by vulcanization to the inner sole of a shoe which has no welt, as welts are old and well known in this art.

2. SAME—SAME.

It being old, as shown in an English patent, to secure a rubber sole by vulcanization to an inner sole of a shoe, and the particular way adopted by the appellant of securing rubber to leather being old, as shown in United States patents, it is not invention to secure the rubber sole to the leather sole of the English patent by the old way of securing rubber to leather disclosed by the United States patents.

3. METHOD—NECESSARY MODE OF MAKING AN ARTICLE—NOT PATENTABLE.

A method claim is not patentable which on its face is nothing more than the necessary or obvious mode of making the shoe of the application. (*Ex parte Trevette*, 97 O. G., 1173.)

APPEAL from Examiners-in-Chief.

RUBBER-SOLED BOOTS AND SHOES.

Application filed September 30, 1896, No. 607,418.

Mr. A. H. Spencer for the applicant.

ALLEN, *Commissioner:*

This is an appeal from a decision of the Examiners-in-Chief affirming the rejection by the Examiner of the following claims:

1. As an improved article of manufacture, a leather boot or shoe provided with a rubber outer sole secured by vulcanization directly to the under surface of the inner sole and welt, whereby the usual leather outer sole is dispensed with, and the rubber sole takes firm hold of and conforms to every inequality of the lasted shoe-bottom, the seam being embedded in and covered by the rubber during vulcanization, substantially as set forth.

2. The improved boot or shoe described, having a rubber outer sole vulcanized directly upon the under surface of the leather insole and welt, covering and adhering to the fastenings which unite them to the upper, and filling the interstices thereof, substantially as set forth.

3. The described method of making rubber-soled leather boots and shoes, consisting in first lasting the boot or shoe body in the usual way, whereby the inner sole and welt are firmly secured to the upper and lining; then applying to the bottom of such lasted shoe-body an outer sole of vulcanizable rubber compound and holding the shoe firmly thereon, and afterward vulcanizing the rubber while its plastic surface is so pressed against and caused to conform to the irregularities of the unfinished bottom, its fastening-seam being thereby embedded in and covered by the rubber, substantially as set forth.

The references are the patents to Elliott, October 9, 1866, No. 58,623; Flynn, November 2, 1869, No. 96,412; West, April 14, 1885, No. 315,869; Butterfield, March 5, 1889, No. 399,130; Douglas, (British,) No. 7,631 of 1886.

The article of manufacture covered by claims 1 and 2 consists of a boot or shoe provided with a rubber outer sole. This rubber outer sole is vulcanized directly upon the leather inner sole and welt. The welt is, as usual in this art, secured to the inner sole and edge of the upper. The rubber outer sole completely covers the seam between the inner sole, upper, and welt of the shoe.

The patent to West shows a construction of shoe in which the inner sole, welt, and upper are secured together in substantially the same way as is done by the appellant. West, however, secures a leather sole to the inner sole and welt, and in this fact lies the difference between his construction and that of the appellant.

The patents to Elliott and to Butterfield show that it is old to secure a rubber sole to one side of a leather sole by vulcanization. The surface of the leather sole is roughened, india-rubber cement is applied thereto, and the rubber sole is then applied and subjected to heat and pressure. This combined leather and rubber sole is then applied to the upper and welt, as in Elliott, or the rubber sole is applied to the leather sole of an otherwise completely made shoe, as in the patent to Butterfield.

The invention covered by the appealed claims differs from these in that the outer sole is made completely of rubber and is vulcanized upon the inner sole as well as upon the welt and the edge of the upper. The English patent discloses a shoe which has an outer rubber sole secured to the upper and inner sole by the process of vulcanization. The shoe of the English patent has no welt.

As welts are old and well known, an instance of which is shown in the patent to West, it does not amount to invention to secure a welt to the upper and insole of the English patent, nor is it invention to secure the outer rubber sole to the inner leather sole of the English patent by the old way of securing rubber to leather, as disclosed by Elliott and Butterfield.

The alleged process of claim 3 is not a true process. It is but another way of stating the construction of the article. The various steps set forth are well known and their results are well known. This claim is anticipated by the English patent, taken

in connection with either the patent to Elliott or Butterfield, for the reasons given above. Besides this, as stated by the Examiners-in-Chief—

the method claim is, on its face, nothing more than the necessary or obvious mode of making the shoe of the application, and is therefore not patentable. (*Ex parte Trevette*, 97 O. G., 1173.)

The decision of the Examiners-in-Chief is affirmed.

EX PARTE MARCONI.

Decided December 2, 1903.

1. ABANDONED APPLICATION—DELAY NOT UNAVOIDABLE.

Where there was a delay of more than sixteen months in acting upon a case and it is said that for the first seven months the attorneys were waiting for an opportunity to consult the inventor and during the balance of the time were waiting for instructions from him and no reason appears why he did not give the instructions except that he was busy, *Held* that the delay was not unavoidable and the case is abandoned.

2. SAME—SAME—CONSULTATION BETWEEN ATTORNEY AND INVENTOR.

Where it is said that intelligent action could not be taken by the attorneys without consulting the inventor, but no attempt was made to consult him for several months, and after being consulted he did not furnish the information required or make a real effort to do so, *Held* that the delay was not unavoidable.

3. SAME—SAME—MEANING OF "UNAVOIDABLE."

The word *unavoidable* in the statute means more than that to act would have been inconvenient, and the mere plea that the inventor was busy upon other matters cannot be accepted as showing that the delay was unavoidable.

ON petition.

APPARATUS FOR WIRELESS TELEGRAPHY.

Messrs. Betts, Betts, Sheffield & Betts and *Mr. T. E. Robertson* for the applicant.

ALLEN, *Commissioner:*

This is a petition for a ruling that the above-entitled application is not abandoned notwithstanding the fact that no action was taken in prosecution thereof for more than one year. It is contended that the delay in prosecution was unavoidable.

The last Office action was taken June 3, 1902, and no reply was received until this petition was filed on October 12, 1903.

The facts relied upon as showing that the delay was unavoidable are set forth in two affidavits by one of the attorneys. It is said that the Examiner's letter raised certain technical questions which Marconi himself could best answer and that—

it was decided to await his arrival in this country before submitting the questions raised by the Examiner's letter to him.

It is said, further, that Marconi did not, in fact, come to this country until January 27, 1903, at which time the papers in the case were submitted to him, and he then gave the attorneys some information, but not enough to enable them to make a completely responsive action in the case. It is said that Marconi found it necessary to consult certain records in London before he could furnish all of the information necessary. Marconi then left this country for Europe, and thereafter the attorneys wrote two letters to his company asking for information and the papers. On April 11, 1903, they received a letter from the company saying that the "affidavits" had been despatched; but they were never received. Two more letters were written to the company, and on July 3 a cablegram was received saying that Marconi was ill and that the papers could not be forwarded at once. On August 21 the papers were received, but were accompanied by no remarks or explanation by Marconi. Marconi was in New York from September 28 to October 3, and the information desired was then available.

This showing attempts to excuse the failure of the attorneys to act by the statement that it was necessary to consult the inventor; but no effort whatever was made to consult the inventor for seven months after the Office action. He was consulted in January, 1903, however, and assuming that he was the one then called upon to act there is no satisfactory explanation why he did not furnish the information desired. The suggestion is made that he was very busy upon other matters which he seems to have regarded as more important; but this is not a sufficient excuse for inaction. It does not appear that he was any more busy then than at any other time. It appears merely that he was a busy man and by choice devoted his attention to other matters instead of this. The cablegram as to Marconi's illness was after the application was abandoned, and therefore it does not appear that the illness had anything to do with the failure to act within the year.

After the Examiner had answered this petition the attorney presented a supplemental affidavit, attempting to explain the inaction for the first seven months of the year fixed by law for action. It was there said:

Mr. Marconi was not, unless for very brief periods of time, in a position to take up the amendment of his application and could not be visited by his attorneys.

It is said that in July, 1902, Marconi went to Italy, and a few weeks later to Russia, and expected to return to England and then go to Canada in September, 1902. He did not, in fact, reach Canada until December, 1902, and arrived in this country on January 27, 1903. The attorneys were awaiting his arrival in this country, and say:

It was always, however, represented to us that he was coming to this country soon.

The movements of Marconi before coming to this country might be pertinent if they were what prevented the attorneys from communicating with him; but that does not appear to have been the case. No effort seems to have been made to communicate with him. It seems clear that the consultation might have been conducted by correspondence, and that, in fact, seems to have been the intention after the interview of January 27, 1903.

The year allowed by law for action is ample, and it is only under very exceptional circumstances that a delay for a longer period is justified. The mere plea that the inventor was busy upon other matters and did not have time to devote to the case under consideration cannot be accepted as a showing that the delay for such a long time was unavoidable. The word "unavoidable" in the statute means more than that to act would have been inconvenient.

Since the delay in this case is attempted to be explained on the ground that Marconi did not furnish the necessary information, it cannot be held that the delay was unavoidable in the absence of a showing by him of good reasons why he did not furnish the information.

The petition is denied.

HOEGH v. GORDON.

Decided December 3, 1903

1. INTERFERENCE—STAY OF PROCEEDINGS—SEPARATE MOTION NECESSARY.

Where after judgment by the Examiner of Interferences certain motions are made and appeal taken thereon within the limit of appeal from the judgment, *Held* that neither the motions nor the appeal operated as a stay, since Rule 123 specifically requires a separate motion for a stay of proceedings.

2. JURISDICTION OF EXAMINER OF INTERFERENCES—MOTION TO RESTORE JURISDICTION.

Where the limit of appeal from his judgment has expired, the jurisdiction of the Examiner of Interferences to reconsider the matter can be restored only by a motion before the Commissioner for that purpose.

APPEAL on motion.

TOOL-SUPPORTS.

Application of Hans J. Hoegh. Application of Charles Gordon.

Messrs. Brown & Seward for Hoegh.

Messrs. Benedict & Morsell for Gordon.

ALLEN, *Commissioner:*

This is an appeal by Gordon from a decision of the Examiner of Interferences granting a motion by Hoegh to vacate a record judgment rendered in favor of Gordon and to set new times for taking testimony.

In behalf of Gordon it is contended that the Examiner of Interferences did not have jurisdiction to determine the motion and also that due service of notice of the motion was not made.

The records show that Hoegh failed to take his testimony within the time set for that purpose. At the expiration of the time for taking testimony, on motion by Gordon under Rule 119 an order was issued that judgment should be rendered against Hoegh unless good and sufficient cause should be shown within a certain time specified why such action should not be taken.

No showing was made, and on August 10, 1903, judgment of priority of invention was rendered in favor of Gordon, limit of appeal being set to expire August 31, 1903. On August 15 a motion to set aside the judgment and set new times for taking testimony was filed by Hoegh, which motion was denied on August 22, 1903, on the ground that sufficient cause for such action had not been shown. The limit of appeal from this decision was set to expire August 28, 1903. This motion was not accompanied either by a motion to extend the limit of appeal from the decision of August 10, 1903, awarding priority of invention in favor of Gordon, or to suspend proceedings pending determination of the motion.

Rule 123 provides in part as follows:

The filing of motions will not operate as a stay of proceedings in any case. To effect this, motion should be made before the tribunal having jurisdiction of the interference, who will, sufficient grounds appearing therefor, order a suspension of the interference pending the determination of such motion.

The provisions of this rule are explicit and clear. No motion to suspend proceedings having been made, the time within which to appeal continued to run.

On August 27, 1903, an appeal was taken from the decision of August 22. It thus appears that the decision on the motion was rendered and appeal taken within the limit set for appeal from the decision awarding priority of invention.

A motion was made on August 29, 1903, before the Examiner of Interferences for rehearing of his decision rendered August 22, 1903, which was dismissed because due notice had not been served. Gordon filed proof of service on September 9, 1903, and renewed his motion for rehearing. The Examiner of Interferences granted this motion and set the case down for hearing and rendered his decision on September 16, from which decision this appeal was taken. The Examiner of Interferences having assumed jurisdiction, Hoegh, on September 14, 1903, withdrew the appeal which he had taken to the Commissioner.

As stated above, Rule 123 provides that the mere "filing of motions will not operate as a stay of proceedings in any case." It was evidently assumed by the Examiner of Interferences that the appeal from his decison of August 22, which was filed August 27, four days before the expiration of the limit of appeal on the question of priority, operated as a stay. In this he was mistaken, for so to hold would make one rule for such cases as this and another rule for cases which because of the condition of work before the Examiner of Interferences would prevent the rendering of a decision and appeal being taken therefrom within the time originally set for appeal.

It is deemed better in the interest of uniform practice to require that motions be filed as provided in Rules 122 and 123 should a suspension of proceedings be desired pending the determination of any lawful motion.

The Examiner of Interferences was without jurisdiction when he rendered his decision of September 16, 1903. It is also apparent that due service of the motion papers, affidavits, and exhibits were not made upon Gordon.

As held in the decisions of *Garrison* v. *Hübner*, (54 O. G., 1889,) *Benger* v. *Burson*, (93 O. G., 1917,) and *Osborn* v. *Hotsapillar*, (102 O. G., 1296,) motion should have been made before the Commissioner for permission to file the motion for rehearing before the Examiner of Interferences of the motion to vacate judgment and to set times for taking testimony. If, however, no motion to restore jurisdiction is made and the Examiner of Interferences should desire to rehear a motion made in an interference proceeding, it would be proper for him to inform the Commissioner of that fact and request jurisdiction for that purpose.

The merits of this case have been considered, and I am convinced that justice requires that the jurisdiction of the Examiner of Interferences be

restored for the purpose of rehearing the motion to vacate judgment and set times for taking testimony after Hoegh has made due service on Gordon of copies of all papers relating to the motion.

It may be said, in order to save time and expense to the parties, that from the facts now appearing of record the decision of the Examiner of Interferences rendered September 16, 1903, is right.

The Examiner of Interferences having rendered a decision when he was without jurisdiction, that decision from which this appeal was taken is set aside. Jurisdiction is, however, restored to the Examiner of Interferences for action in accordance herewith.

EX PARTE TOURNIER.

Decided December 3, 1903.

1. PUBLIC USE OF INVENTION—DECISION OF COURT—REJECTION.

Where in considering an application for patent the court has ruled that the evidence in possession of the Office showed public use of the invention for more than two years before the filing date, *Held* that the Office is justified in rejecting a subsequent application by the same party claiming the same device on the ground of public use.

2. SAME—TESTIMONY NOT OVERCOME BY AFFIDAVITS.

Where public use is shown by testimony regularly taken, *Held* that its effect cannot be overcome by *ex parte* affidavits, but only by evidence taken in the regular way.

3. DECISIONS OF COURT—JUDICIAL NOTICE OF FINDINGS—BASIS FOR OFFICE ACTION.

The Office is bound to take notice of the decisions of the court and may base its actions upon the findings of facts contained therein.

ON reference.

FUSE-PLUG.

Mr. Albert G. Davis for the applicant.

ALLEN, *Commissioner:*

The above-entitled application has been referred to me for determination of the question whether further evidence should be received in regard to public use of the invention, which question has been raised by the Examiner.

It is admitted by the applicant that the device here claimed is substantially the same as that which the court of appeals recently held to have been in public use for more than two years before the date upon which this application was filed. (*In re Tournier*, 94 O. G., 2166.)

In the above-cited case the court was considering a design application, whereas the present case is a mechanical application; but both relate to the same article. The court said in regard to that article:

> • • • The article for which patent is claimed, was openly in use in the shops of the company, the assignee of the invention, without the slightest injunction of secrecy upon any one, from the spring or early part of the summer of 1896, continuously on to the present. The use was not only open to the employees of the company, but also to any portion of the public that might desire to see and inspect it. Such use was a public use in the fullest sense of the patent law.

The court referred to the question whether there could be such a thing as experimental use of a design, but proceeded:

> In the present case, if it were conceded that experimental use could be set up to answer the objection of a public use for more than two years prior to the application, the proof on the part of the applicant falls far short of the requirement of the rule laid down in the case just cited.

That this Office is justified in basing its action upon the findings of the court is made clear by the decision in *Drawbaugh* v. *Seymour*, (88 O. G., 313,) wherein it was said:

> The officials in that Office, as well as this court, and all other United States courts, were and are bound to take notice of that decision and the findings and conclusions of the court, and to act in conformity to them.

It does not appear that this Office has information of additional evidence tending to show public use, and therefore unless the applicant wishes to take testimony to overcome the case made by the decision of the court and the evidence therein referred to there seems to be no reason for instituting public-use proceedings. If such proceedings are instituted, therefore, it will be only upon the request of the applicant and for his benefit. It does not appear that he has expressed any desire to produce testimony in regard to the matter.

If the applicant can overcome the effect of the evidence now in the possession of the Office, it is only by explanatory evidence of like character and not by *ex parte* affidavits, as suggested by the Examiner.

The application is remanded to the Primary Examiner for consideration and action.

EX PARTE RIPPEN.

Decided December 8, 1903.

1. LABELS—COAT OF ARMS OF FOREIGN NATION—REGISTRATION REFUSED.

A label will not be registered where it includes as a feature thereof the coat of arms of a foreign nation.

2. SAME—SAME—PUBLIC POLICY.

The grounds of public policy which prevent the registration of the coat of arms of a nation as a trade-mark have equal force in the matter of the registration of labels.

ON appeal.

LABEL FOR TOBACCO.

Application for registration filed July 25, 1903, No. 4,754.

Mr. Stephen J. Cox for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the action of the Primary Examiner refusing to register a label which includes, among other things, the coat of arms of Hungary.

The label in question consists of this coat of arms, above and below which is some printed matter, surrounded by an ornamental border. The border and the printed matter of themselves would never confer registrability upon this label. They are simply such grouping of materials as is expected of any type-setter. The only feature of this label which may be said to include anything artistic is the coat of arms of Hungary. Therefore the argument of the appellant that "in the label in question the coat of arms is a minor feature" is not convincing, and it is thought that since the objectionable element is the only element containing anything artistic it is relatively important and that the action of the Examiner in refusing it registration was right. The grounds of public policy which would be applicable in cases of trade-mark are of equal force in the matter of the registration of labels.

I therefore agree with the conclusion of the Examiner that "applicant is not entitled to protection under section 3 of the Copyright Act for a label which involves as a feature thereof the pictorial representation of the coat of arms of a foreign nation," and his decision is accordingly affirmed.

LOTTERHAND *v.* HANSON.

Decided January 7, 1904.

1. INTERFERENCE—CONCEPTION—WHAT CONSTITUTES.

Where an inventor has only a conception of what he wanted to accomplish and not a conception of the means to be used to that end, *Held* that it is not an "available conception within the meaning of the law." (*Mergenthaler* v. *Scudder*, 81 O. G., 1417.)

2. SAME—CONSTRUCTIVE REDUCTION TO PRACTICE—WHAT CONSTITUTES.

When anapplicant filed a complete application for a patent on a certain invention and thereafter files another application for the same invention the two applications pending at the same time, and subsequently permits the first application to become abandoned, he is entitled to the date of the first application for his date of constructive reduction to practice for the invention which is common to the two applications.

3. SAME—CONTINUOUS APPLICATIONS—EFFECT OF.

When two applications filed by the same applicant are pending together, the applicant has the benefit of the first date of filing for a constructive reduction to practice, as the whole constitutes one continuous proceeding.

4. SAME—PRIORITY.

H. having a constructive reduction to practice prior to the date of L.'s established conception is entitled to the award of priority of invention.

APPEAL from Examiners-in-Chief.

CALCULATING-MACHINE.

Application of Jason C. Lotterhand. Application of Hans Hanson.

Messrs. Foster & Freeman for Lotterhand.

Messrs. Williamson & Merchant for Hanson.

ALLEN, *Commissioner:*

This is an appeal by Lotterhand from a decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Hanson upon the following issue:

> 1. In adding attachments for type-writers, the combination with the transversely-movable paper-carriage and the regular type-keys and printing devices of the type-writer, of a supplemental series of adding-keys arranged to actuate the printing devices of the corresponding type-keys, and an adding mechanism operated by the adding-keys to add together the amounts printed by the operation of said keys.
> 2. The combination with a type-writer involving finger-operated numeral-keys, of computing mechanism comprising a bank of finger-operated digit-keys, with finger-pieces exposed where they may be struck by the fingers, and connections between the numeral-keys of the type-writer and the corresponding digit-keys of said computing mechanism which connections cause the latter to operate the former, but permit the former to be operated without operating the latter.

The award of priority of invention in this case rests largely upon the determination of a question of law with regard to Hanson's constructive reduction to practice. The Examiner of Interferences and the Examiners-in-Chief have carefully considered the evidence submitted in support of Lotterhand's allegation of conception, and they are right in their opinion that Lotterhand has failed to establish a date of conception of the invention prior to March 31, 1898, the date on which Hanson filed his application Serial No. 675,842, of which application his application directly involved in this proceeding is a continuation.

Prior to March 31, 1898, as shown by the evidence, Lotterhand had only a conception of what he wanted to accomplish, and not a conception of the means to be used to that end. His ideas prior to March 31, 1898, do not meet the requirement of a complete conception of an invention laid down by the Court of Appeals of the District of Columbia in *Mergenthaler* v. *Scudder*, (81 O. G., 1417.) In that case the court said:

> A complete conception as defined in an issue of priority of invention is matter of fact and must be clearly established by proof. The conception of the invention consists in the complete performance of the mental part of the inventive act. All that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention. It is, therefore, the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice that constitutes an available conception within the meaning of the patent law.

Hanson filed a complete application for a patent on the invention in controversy on March 31, 1898, Serial No. 675,842. On August 13, 1900, he filed the present application, which is involved in this interference. The issue of this interference is completely described in both applications. Subsequently to the filing of the present application the original became abandoned.

Lotterhand makes the following contention in his brief, page 32:

> In course of time the Patent Office and courts have recognized a "constructive" reduction to practice, giving the inventor who has filed an application the benefit of an assumption that the construction shown therein is operative, and apparently this assumption is to hold even if the construction of the application is not operative, provided it contains the elements of the issue. Without here raising any question on this point we make the proposition that it is going beyond the bounds of practice hitherto, and beyond reason also, to hold that a constructive reduction to practice can be assumed *on an abandoned application.*

This contention is not supported by the decisions of the courts and the Patent Office upon this subject. The weight of authorities is that when an applicant files a complete application for a patent on a certain invention and thereafter files another application for the same invention, the two applications pending at the same time, and subsequently permits the first application to become abandoned, the applicant is entitled to the date of the first application for his date of constructive reduction to practice for the invention which is common to the two applications. The effect is different if he permits the first application to become abandoned before he files the second one; but when the two applications are pending together the applicant has the benefit of the first date of filing for a constructive reduction to practice, as the whole constitutes one continuous proceeding.

To this effect is the case of *Dederick* v. *Fox* (63 O. G., 1993; U. S. C. C.) and the case of *Cain* v. *Park*, (C. D., 1899, 278; 86 O. G., 797.) In the case of *Bundy* v. *Rumbarger* (92 O. G., 2002; C. D., 1900, 143) it was said:

> As stated by the court in *Cain* v. *Park*, the Office is justified in taking notice of facts shown by its records in order that justice may be done. (See also *Hunter* v. *Wightman*, C. D., 1897, 173; 81 O. G., 1788.)
> The invention in issue being disclosed in the prior application and the second application being filed while the first was pending, the second is a continuation of the first for the purpose of giving Bundy the benefit of its date for a constructive reduction to practice.

Hanson having a constructive reduction to prac-

tice prior to the date of Lotterhand's established conception is entitled to the award of priority of invention. With this view of the case it is unnecessary to consider whether or not Lotterhand was diligent in reducing his invention to practice.

The Examiners-in-Chief have, however, made the following statement with regard to Lotterhand's claim of diligence, and it meets with my approval:

Conceding, however, that Lotterhand did have a conception of means satisfying the issue of this interference prior to the date of Hanson's constructive reduction to practice, it appears that he was not reasonably diligent in reducing the invention to practice, for after the disclosures in the early part of 1897 nothing definite was accomplished until after he went to Europe in October, 1898, although in the meantime he had concluded arrangements with Langhorne for exploiting the invention. Before any active steps were taken by Lotterhand Hanson appeared in the field with his application on March 31, 1898. There appears to have been no reason why, even though adverse conditions prevented him from constructing an actual machine, Lotterhand did not avail himself of his privilege of filing an application in the United States Patent Office so as to obtain a date of constructive reduction to practice. Langhorne appears to have been a man of means and Lotterhand himself was not in such financial straits that he could not raise the money required for filing and prosecuting an application. The delay is sought to be excused by the statement that a new typewriter had to be built in order to utilize the new invention. Even supposing the fact to be as stated, Lotterhand was very late in beginning the construction of such a machine. Evidently he was not diligent in his exploitation of his invention.

The decision of the Examiners-in-Chief awarding priority of invention to Hans Hanson is affirmed.

REGISTRATION OF FOREIGN PATENTS, TRADE-MARKS, ETC., IN CUBA.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE,
Washington, D. C., January 9, 1904.

The following part of an inclosure in a letter of the Secretary of State transmitted to this Office by the Secretary of the Interior is published for the information of those concerned.

F. I. ALLEN,
Commissioner.

REPUBLIC OF CUBA.

DEPARTMENT OF AGRICULTURE, INDUSTRY, AND COMMERCE.

INSTRUCTIONS relative to the Procedure to be followed for the Registry in this Republic of Foreign Patents and Trade-Marks.

For the registry and consequent protection in this Republic of any foreign patent, the interested party must solicit same from the Department of Agriculture, Industry and Commerce, either in person or by power of attorney, remitting a certified copy of its registration in the country of origin, with the corresponding explanatory memorial.

The signature of the Commissioner of Patents or of the Chief of the Department of the country of origin, authorizing the said copy, in order to have due legal effect, must be legalized in the manner prescribed in Presidential Decree No. 48 of April 11, 1903.

All documents should be accompanied by a Spanish translation, made or attested by any of the notaries public of the Republic authorized to that end, or by her diplomatic or consular agents residing in the country of origin of the said documents. These, as well as the plans of the patent, must be presented in duplicate; the second copy of the translation may be signed by the interested party.

If a patent owner desires to register same in this Republic through a third person, he must forward at the same time a properly drawn up power of attorney in favor of the person who is to represent him. To have due legal effect this power must also be legalized in the manner above mentioned.

After acceptance of the registry in this Republic, if proper, said acceptance will be communicated to the petitioner (owner or representative) in order that he may pay into the office of the Administrator of Rents and Taxes of the Fiscal Zone of Habana the fees amounting to $35.00 United States currency; and on presentation in the Department of Agriculture, Industry and Commerce of the receipt for said amount from the Treasury Department, the deposit certificate of the patent will be at once issued, in favor of the owner of the same.

For the registry of marks of all kinds, industrial drawings, etc., the procedure will be the same as for registry of patents. The only difference being in the amount of fees, in this case, being reduced to $12.50 United States currency, and that after acceptance of the registry and before issuing the deposit certificate of the same, the petitioner must present five more copies of the corresponding industrial drawing or sketch of the mark.

To facilitate despatch of these matters in the Republic of Cuba, it is suggested that some person in this city be appointed and given the full and necessary powers.

Habana, May 5, 1903.

The Sub-Secretary,
B. PICHARDO.

Approved:
MANUEL L. DIAZ,
Acting Secretary.

OFFICIAL GAZETTE, *Monday, April 20, 1903.*

(DECREE No. 48.)

DEPARTMENT OF STATE AND JUSTICE.

I hereby decree the following, by virtue of the authority given me by the Constitution:

ARTICLE I. The legalization, required by law, for public or official documents of all kinds issued in foreign countries by foreign functionaries, to become effective in Cuba, must be made by a diplomatic or consular agent of the Republic or such persons as act in their places. When a document has been issued in a country where there is no accredited diplomatic or consular agent of Cuba, it may be legalized by the diplomatic agent or any of the consular agents of the same country, accredited in the Republic.

ART. II. For legalizations made in accord with the provisions of the foregoing article to be held as good in Cuba, it shall also be an indispensable requisite that the signature of the functionary who appears as authorizing them be legalized by the Department of State or Director of the Department. Notarial documents issued by diplomatic or consular agents of the Republic, and those they may issue referring to the Civil Registry must contain the same requisite to be considered in Cuba as authentic.

ART. III. The provisions of the two foregoing articles will be applicable to documents presented in courts or offices of the Government, from the date the present decree takes effect.

Done at Habana, President's Palace, on April 14, 1903.

T. ESTRADA PALMA,
President.

CARLOS DE ZALDO,
Secretary of State and Justice.

Patents Nos. 750,245 to 750,787.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 108—No. 4. TUESDAY, JANUARY 26, 1904. PRICE—$5 per year.

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Trade-Marks	34	No. 41,931 to No. 41,964, inclusive.
Labels	14	No. 10,695 to No. 10,708, inclusive.
Prints	2	No. 887 to No. 888, inclusive.
Reissues	1	No. 12,195.
Total issue	609	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	----	Nevada	1	----
Alaska Territory	----	----	New Hampshire	2	----
Arizona Territory	1	----	New Jersey	26	2
Arkansas	2	----	New Mexico Ter't'y	----	----
California	13	----	New York	69	13
Colorado	3	----	North Carolina	2	----
Connecticut	18	2	North Dakota	2	----
Delaware	1	----	Ohio	49	2
District of Columbia	1	----	Oklahoma Territ'y	3	----
Florida	4	----	Oregon	1	----
Georgia	4	1	Pennsylvania	50	1
Hawaii Territory	----	----	Porto Rico	----	----
Idaho	----	1	Rhode Island	5	1
Illinois	41	5	South Carolina	----	----
Indian Territory	1	----	South Dakota	2	----
Indiana	11	----	Tennessee	5	----
Iowa	14	2	Texas	8	----
Kansas	5	1	Utah	1	----
Kentucky	2	1	Vermont	----	----
Louisiana	3	----	Virginia	3	----
Maine	4	----	Washington	9	1
Maryland	5	1	West Virginia	3	----
Massachusetts	42	6	Wisconsin	16	----
Michigan	19	1	Wyoming	----	----
Minnesota	6	1	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	26	3			
Montana	----	----	Total to citizens of the United States	493	45
Nebraska	5	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Australia	----	----	Netherlands	----	----
Austria-Hungary	3	----	Newfoundland	----	----
Belgium	----	----	New South Wales	----	----
Brazil	----	----	New Zealand	----	----
British West Indies	----	----	Norway	----	----
Canada	6	----	Persia	1	----
Cape Colony	----	----	Queensland	----	----
Chile	----	----	Roumania	----	----
China	----	----	Russia	----	----
Costa Rica	----	----	Scotland	3	----
Cuba	----	----	South Africa	----	----
Denmark	----	----	South Australia	1	----
Ecuador	----	----	Spain	1	----
England	9	4	Sweden	3	----
France	6	1	Switzerland	2	----
Germany	28	----	Transvaal, South Africa	----	----
India	1	----	Victoria	----	----
Ireland	1	----	Western Australia	----	----
Italy	----	----			
Japan	----	----	Total to citizens of foreign countries	65	5
Java	----	----			
Mexico	----	----			

Changes in Classification.

(ORDER No. 1,568.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 15, 1904.

The following change in classification is hereby directed:

In Division XXX, class 67, Lamps and Gas-Fittings, establish subclass 150, Bicycle-lamp supports.

F. I. ALLEN,
Commissioner.

Notice of Interference.

CARUNCHO *v.* CARUNCHO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 21, 1903.

Heirs, executor, or administrator of Eugen Caruncho, deceased, take notice:

Notice is hereby given that times have been set as follows for taking testimony in this interference and for its final hearing, to wit:

A. Caruncho's testimony-in-chief to close March 9, 1904. E. Caruncho's testimony to close April 9, 1904. A. Caruncho's rebuttal testimony to close May 9, 1904. Final hearing June 9, 1904.

Notice is further given that A. Caruncho has applied for a commission to take testimony abroad, as provided by Rule 158.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

December 22, 1903.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 19, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 4	Jan. 6	160
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 2	Dec. 26	147
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Dec. 29	Jan. 4	111
321	I. Tillage, etc., and Fences	Dec. 23	Dec. 23	192
327	XVIII Steam-Engineering, etc	Dec. 22	Dec. 14	188
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 21	Jan. 6	240
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 21	Jan. 5	187
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 21	Jan. 5	188
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 21	Jan. 5	264
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 21	Jan. 5	210
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 21	Jan. 2	160
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 21	Dec. 30	342
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Dec. 21	Dec. 28	287
333	X. Carriages and Wagons	Dec. 21	Dec. 26	198
143	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Dec. 21	Dec. 21	254
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 21	Dec. 21	243
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 21	Dec. 21	268
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 21	Dec. 20	254
100	XVI. Telegraphy and Telephony	Dec. 21	Dec. 3	187
133	XXII. Fire-Arms, Ordnance, Navigation.	Dec. 21	Nov. 13	207
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 21	Oct. 31	439
344	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Dec. 19	Jan. 5	208
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Dec. 19	Jan. 2	253
308	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 19	Dec. 28	260
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Dec. 19	Dec. 23	215
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Dec. 19	Dec. 21	289
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 19	Dec. 19	244
253	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 19	Dec. 7	325
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 19	Nov. 5	360

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Between one and two months.			
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Dec. 17	Jan. 5	244
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 14	Dec. 14	323
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Dec. 10	Dec. 1	404
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Dec. 7	Dec. 14	378
128	II. Farm Products, etc., Lubricators, Presses, etc.	Dec. 5	Nov. 27	401
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 3	Dec. 17	307
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 1	Nov. 5	532
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Nov. 21	Nov. 9	317
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 20	Nov. 16	503
	Total number of applications awaiting action			10,289
	Under one month.			
	*Designs	Jan. 8	Jan. 7	17
	†Trade-Marks	Jan. 9	Jan. 15	62
	‡Labels and Prints	Jan. 18	Jan. 19	3

Attorneys.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 20, 1904.

This Office has been advised by the Secretary of the Interior that William Zimmerman, of Chicago, Ill., was relieved on January 7, 1904, from Department order of July 22, 1903, suspending him from practice for the period of one year before the Department and its Bureaus.

F. I. ALLEN,
Commissioner.

Communications to the Patent Office—Separate Letters.

RULE 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

Papers sent in violation of this rule will be returned.

Punctuation and Amendments.

Attention is called to Order 799, dated November 26, 1892, which is as follows:

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

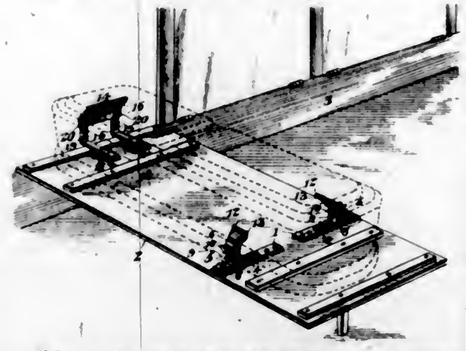
This order is still in force.

Examiners are prohibited from making any change in the claims or specification of an application without the consent of applicants or their attorneys; but when amendment becomes necessary the Office will duly advise, by letter, the applicant or his representative before passing a case to issue.

PATENTS

GRANTED JANUARY 26, 1904.

750,245. CASKET-HOLDER. GODFREY ARPIN, Clark, S. D. Filed Apr. 17, 1903. Serial No. 153,130. (No model.)



Claim.—1. In a device of the class described, the combination with means for engaging the sides of a casket, of a foot rest or clamp comprising a pair of brackets spaced apart, and a bar or jaw capable of vertical adjustment on the brackets, whereby it is adapted to engage a casket above the bottom molding, substantially as described.

2. In a device of the class described, the combination with means for engaging the sides of a casket, of brackets arranged at the foot of the casket and provided with upwardly-extending arms, and a transverse bar or jaw connecting the arms and adjustably secured to the same, whereby it is adapted to be arranged above the bottom molding of the casket, substantially as described.

3. In a device of the class described, the combination with means for engaging the sides of a casket, of a pair of L-shaped brackets arranged at the foot of the casket and having upwardly-extending slotted arms, and a bar or jaw connecting the slotted arms and provided with fastening devices operating in the slots, said bar or jaw being inclined inward to clear the bottom molding, substantially as described.

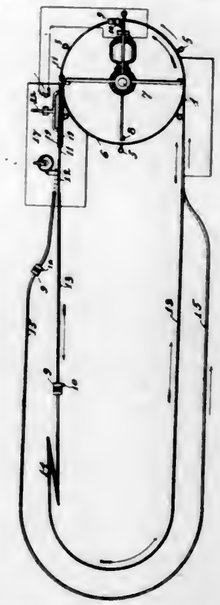
4. In a device of the class described, the combination with a bracket having an upright portion, of a vertically-adjustable clamp consisting of a lower upright portion adjustably secured to the upright portion of the bracket, an upper upright casket-engaging portion, and an inclined connecting portion inwardly offsetting the upper portion from the said lower portion, whereby the clamp is adapted to engage a casket above the bottom molding, substantially as described.

5. A device of the class described comprising a pair of L-shaped brackets capable of adjustment toward and from each other and having upwardly-extending slotted arms, side clamps having fastening devices operating in the said slots, said side clamps being inclined inward to clear the bottom molding of the casket; and a foot rest or clamp, substantially as described.

750,246. PLEASURE-RAILWAY. LINA BEECHER, Batavia, N.Y., assignor to Beecher Construction Company, a Corporation of Missouri. Filed Mar. 6, 1903. Serial No. 146,540. (No model.)

Claim.—1. A pleasure-railway comprising a tower, a single line winding up said tower in a helical course, a plurality of branch lines extending downwardly from the upper part of said tower, a switch arranged to put either of said branch lines into operative relation to the helical course, and means for forcing cars up said helical course.

2. A pleasure-railway comprising a tower, a track having a helical course on said tower, a plurality of branch lines extending downwardly from the upper part of said tower, a switch arranged to put either of said branch lines into operative relation to the helical course, a loop in one of said branch lines, and means for forcing cars up said helical course.



3. A monorailway comprising a tower, a line extending up said tower in a helical course, a plurality of branch lines extending downwardly from the upper part of said tower, a switch permanently connected to the helical course and comprising a track-section consisting of a rail, cross-ties and a support therefor pivotally mounted to be moved into alinement with either of said branch lines, and means forcing cars up said helical course.

4. A pleasure-railway comprising a tower, a line extending up said tower in a helical course, a substantially horizontal section at the top thereof and a line extending downwardly from said horizontal section, and means for forcing cars up said helical course, said horizontal section being arranged to hold a plurality of cars beyond the range of action of said lifting mechanism.

5. A pleasure-railway comprising a tower, a main line extending up said tower in a helical course, a substantially horizontal section at the top of said helical course, a plurality of branch lines extending downwardly from the upper part of said tower, a switch arranged to put said horizontal section into operative relation to either of said branch lines, and means for forcing cars up said helical course.

6. A pleasure-railway comprising a tower, a main line extending up said tower in a helical course, a substantially horizontal section of track at the top of said helical course, and a plurality of branch lines extending downwardly from the upper part of said tower, a brake arranged in position to control the cars on said horizontal section, and a switch for putting said horizontal section into operative relation to either of said branch lines, and means for forcing cars up said helical course.

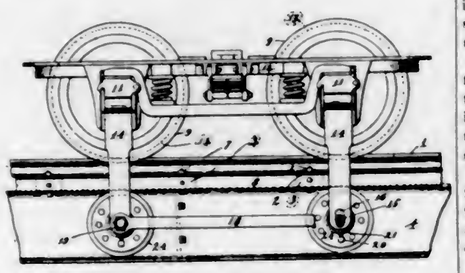
7 A pleasure-railway comprising a tower, a line extending up

said tower in a helical course, a substantially horizontal section at the top thereof, and a line extending downwardly from said horizontal section, a brake arranged to control cars on said horizontal section, and mechanism for forcing cars up said helical course, and means located in the upper portion of said tower for controlling said mechanism.

8. A pleasure-railway comprising a tower, a line extending up said tower in a helical course, a substantially horizontal section at the top thereof, and a line extending downwardly from said horizontal section, a brake arranged to control cars on said horizontal section, and mechanism for forcing cars up said helical course, and means in the upper portion of said tower for controlling said mechanism and close to the means for manipulating the brake.

9. A pleasure-railway comprising a tower, a line extending up said tower in a helical course, a substantially horizontal section at the top thereof, a plurality of branch lines extending downwardly from said horizontal section, a switch arranged to put said horizontal section into operative relation with either of said branch lines, and a brake arranged to control cars on said horizontal section, and mechanism for forcing said cars up said helical course, and means located on the upper portion of said tower for operating the switch and the brake and for controlling the forcing mechanism.

750,247. MONORAILWAY AND TRUCK THEREFOR. LINA BEECHER, Batavia, N. Y., assignor to Beecher Construction Company, a Corporation of Missouri. Filed Mar. 6, 1903. Serial No. 146,541. (No model.)



Claim.—1. A truck for a monorailway comprising a frame and traction-wheels journaled therein in alinement with each other and having peripheral grooves arranged to coöperate with the track-rail, and guard-wheels suspended from said truck below the axles and vertically adjustable on their supports and arranged to bear upwardly against their tracks, the bearing portion of said guard-wheels being made of rubber, substantially as and for the purpose set forth.

2. A truck for a monorailway, comprising a frame and traction-wheels journaled therein in alinement with each other, and having peripheral grooves arranged to coöperate with the track-rail, and guard-wheels suspended from said truck below the axles, the bearing portion of said guard-wheels being made of rubber, each of said guard-wheels being mounted upon a vertically-adjustable spindle and having a ball-bearing on said spindle.

3. A monorailway comprising girders, cross-ties thereon, a main track on said cross-ties consisting of slightly-convex T-rails adapted to coöperate with peripherally-grooved wheels, and angle-plates arranged on the projecting ends of said cross-ties parallel with the main track to constitute flat guard-wheel tracks.

4. A monorailway comprising girders, cross-ties supported thereon and projecting beyond said girders, a main track on said cross-ties, and angle-plates arranged on the projecting ends of said cross-ties parallel with the main track to constitute tracks for the guard-wheels.

5. The combination with a monorailway comprising girders, cross-ties thereon, traction-rails with a convex upper face on said cross-ties and smooth guard-tracks parallel with the main track and consisting of angle-plates arranged on the under side of the cross-ties at the ends thereof, of a truck comprising a frame and traction-wheels journaled therein in alinement with each other and having peripheral grooves arranged to coöperate with the track-rail and having guard-wheels suspended from said frame and arranged to bear upwardly against said guard-tracks, substantially as described.

750,248. SOUNDING-BOARD FOR PIANOS. WILLIAM J. BRAMBACH, Wilmington, Del., assignor, by mesne assignments, to C. J. Heppe & Son, Philadelphia, Pa., a Firm. Filed June 10, 1903. Serial No. 160,800. (No model.)



Claim.—1. In a piano, the combination with the casing, of a string-frame mounted therein, a main sounding-board also mounted in the casing and carrying the string-bridges, and a supplementary sounding-board supported from the string-frame, substantially as described.

2. In a piano, the combination with the casing, of a string-frame mounted therein, a main sounding-board also mounted in the casing and carrying the string-bridges, a supplementary sounding-board supported from the string-frame, and connections between the main sounding-board and the supplementary sounding-board, substantially as described.

3. In a piano, the combination with the casing, of a string-frame mounted therein, a main sounding-board supported solely by the casing independently of the string-frame, and a supplementary sounding-board supported by the string-frame independently of the casing, substantially as described.

4. In a piano, the combination with the casing, of the string-frame mounted therein, the main sounding-board, and a supplementary sounding-board in the rear of the piano supported from the string-frame, substantially as described.

5. In a piano, the combination with the casing, of the string-frame mounted therein, the main sounding-board also mounted in the casing, a supplementary sounding-board in the rear of the piano supported from the string-frame, and pin connections between the main sounding-board and the supplementary sounding-board, substantially as described.

6. In a piano, the combination with the casing, of the string-frame mounted therein, the main sounding-board also mounted in the casing, a supplementary sounding-board at the rear of the piano, and pins passing through the framing of the casing threaded into the string-frame at their front ends and supporting the supplementary sounding-board at their rear ends, substantially as described.

7. In a piano, the combination with the casing, of the string-frame mounted therein, the main sounding-board also mounted in the casing, a supplementary sounding-board in the rear of the piano of less area than the rear opening leaving spaces around the board, and connections from the string-frame supporting said supplementary sounding-board, substantially as described.

8. In a piano, the combination with the casing, of the string-frame mounted therein, the main sounding-board also mounted in the casing, a supplementary sounding-board at the rear of the piano, brackets or hangers secured to the edges of the supplementary sounding-board, and pins threaded at their forward ends into the string-frame and connected at their rear ends with said brackets or hangers thereby supporting the supplementary sounding-board from the string-frame, substantially as described.

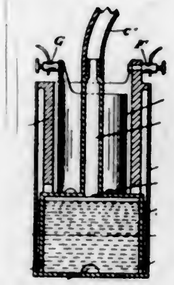
750,249. PROTECTIVE BAND FOR PNEUMATIC TIRES. HARRY BROOKES, Stirchley, near Birmingham, England. Filed Aug. 8, 1903. Serial No. 168,838. (No model.)

Claim.—1. In a protective band for pneumatic tires the combination of hinged sections, rubber strips above and below them adapted to prevent them coming apart while allowing some relative movement, and rivets having screw-washers adapted to hold the separate parts together substantially as and for the purposes set forth.



2. In a protective band for pneumatic tires which comprises a series of overlapping sections, strips of rubber to cover them, and rivets to hold the pieces together, the combination therewith of strips of canvas to protect the ends of the rivets substantially as described.

750,250. ELECTRIC BATTERY. WINFIELD S. BRYAN, Cincinnati, Ohio. Filed Sept. 26, 1903. Serial No. 174,923. (No model.)

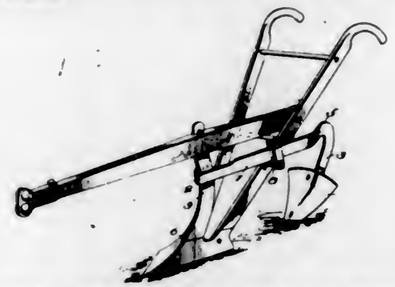


Claim.—1. A battery-cell comprising a containing element an inverted cup resting on the bottom thereof, provided with openings at its lower edge, a tube extending in the neighborhood of the top of the containing element, connected with a source of fluid-pressure, said tube opening into and being secured to the inverted cup, and the positive and negative elements of the battery resting on the top of the inverted cup, substantially as and for the purpose described.

2. A battery-cell comprising a jar, an inverted cup resting on the bottom thereof provided with openings at its lower edge, a tube opening into and secured to the top of said inverted cup, and the positive and negative elements of said battery resting on the top of said inverted cup, substantially as and for the purpose described.

3. A battery-cell comprising a jar, an inverted cup resting on the bottom thereof, provided with openings at its lower edge, a tube opening into and secured to said inverted cup, said tube connecting with a source of fluid-pressure, the positive and negative elements of the battery resting upon said inverted cup, and the battery liquid filling said jar up to a point below said positive and negative elements, substantially as and for the purpose described.

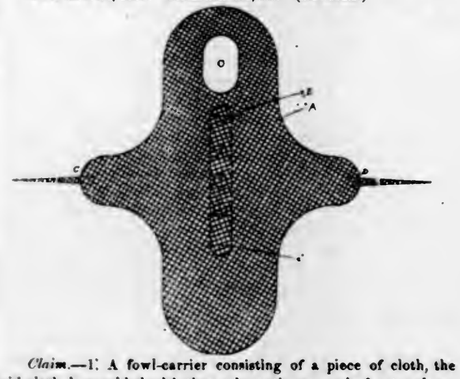
750,251. PLOW ATTACHMENT. THOMAS BURNETT and LOT C. DAVENPORT, McCrory, Ark. Filed June 11, 1903. Serial No. 161,085. (No model.)



Claim.—1. An attachment for plows and like agricultural implements, the same consisting of a flat bar having its front end bent laterally to form a hook at one side of the bar, and having its rear portion curved downward and forward to provide a standard to receive a shovel or plow-point, the rear portion of the bar being laterally deflected, and a clip loose upon the bar for adjustable connection thereof to a support, substantially as specified.

2. In a plow or like implement, the combination of a beam, pendent portions attached to the beam longitudinally spaced, a flat bar placed against said pendent portions and having a lateral hook at its front end to engage around the front edge of the foremost pendent portion, and having its rear portion laterally deflected and curved downward and forward, and a clip embracing the bar and rear pendent portion and adjustably connecting them, substantially as set forth.

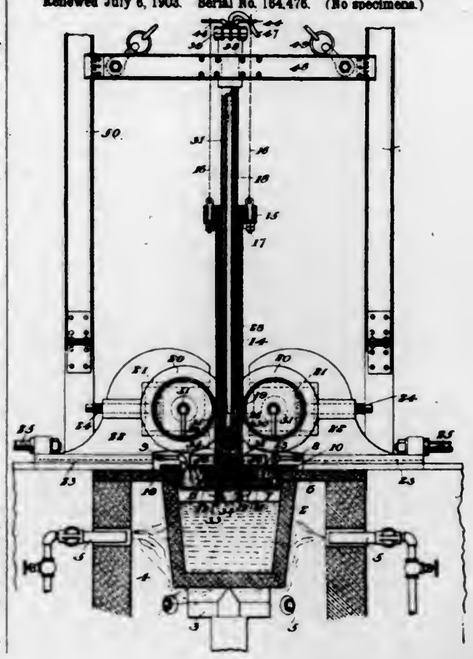
750,252. FOWL-CARRIER. GEORGE F. BURR, Pricedale, Pa. Filed Nov. 24, 1903. Serial No. 182,506. (No model.)



Claim.—1. A fowl-carrier consisting of a piece of cloth, the said cloth is provided with three elongations, one in front and one on each side, the one in front being perforated and the lateral flaps are provided with extended extremities; also the said cloth is perforated with a series of holes along the linear axis, as set forth and described.

2. A fowl-carrier consisting of a piece of cloth, the said cloth being provided with three elongations, viz: one in the front part thereof and provided with a perforation, and one on each side thereof provided with extended extremities; also the said cloth is provided with a handle attachment securely attached to each end along the linear axis of the device as set forth and described.

750,253. METHOD OF DRAWING ARTICLES FROM MOLTEN BATH. CLARENCE P. BYRNES, Sewickley, Pa. Filed Mar. 28, 1902. Renewed July 6, 1903. Serial No. 164,476. (No specimens.)



Claim.—1. The method of forming homogeneous metal articles, consisting in lowering the lower end of a bait into a metallic bath, and gradually raising the same to form an article depending from the lower end of said bait; substantially as described.

2. The method of forming metallic articles, consisting in lowering a bait or former into a molten metallic bath, drawing the article upwardly, and chilling at or near the drawing-point; substantially as described.

3. The method of shaping metallic articles, consisting in drawing the article upwardly from a molten metallic bath, and chilling the same by radiation at or near the drawing-point; substantially as described.

4. The method of shaping metallic articles, consisting in drawing the same upwardly from a molten metallic bath and applying gaseous coaling fluid at or near the drawing-point; substantially as described.

5. The method of forming a metallic article, consisting in drawing the same upwardly from a molten metallic bath and compressing and shaping the same as it is lifted; substantially as described.

6. The method of shaping a metallic article, consisting in drawing the article upwardly from a molten metallic bath, chilling the article at or near the drawing-point, and rolling the article as it is formed; substantially as described.

7. The method of shaping a metallic article, consisting in drawing the article upwardly from a molten metallic bath, applying heat to the bath, cutting off the heat from the article at the drawing point, and chilling the article at or near the drawing-point; substantially as described.

8. The method of shaping a hollow metallic article, consisting in drawing the same upwardly from a molten metallic bath, supplying a fluid to the interior of the article being drawn, and chilling the same at or near the drawing-point substantially as described.

9. The method of shaping hollow metallic articles, consisting in drawing the same upwardly from a molten bath over an inner relatively stationary gaseous-supply nozzle, and continuously applying a cooling fluid to said nozzle; substantially as described.

10. The method of forming hollow articles, consisting in drawing them upwardly from a molten metallic bath over a relatively stationary shaping-mandrel, and feeding a gaseous fluid into the interior of the article during its formation; substantially as described.

11. The method of shaping hollow metallic articles consisting in drawing the article upwardly from a molten metallic bath, supplying gaseous fluid to the interior of the article, and allowing at least a portion of the fluid to escape during drawing; substantially as described.

12. The method of forming a hollow metallic article consisting in drawing the article upwardly from a molten bath over a shaping-mandrel and rolling its exterior during the forming of the article; substantially as described.

13. As a new article of manufacture, a drawn metallic article formed directly from a molten or plastic bath, substantially as described.

14. As a new article of manufacture, a hollow tube or billet drawn directly from a molten metal bath; substantially as described.

15. As a new article of manufacture, a rolled metallic article drawn directly from a molten bath; substantially as described.

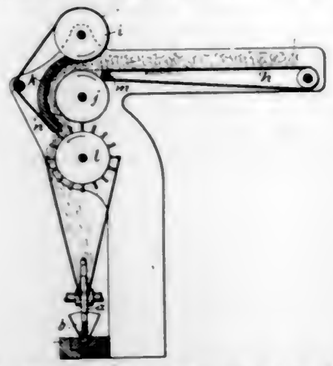
16. The method of shaping hollow articles consisting in drawing the hollow article upwardly from a bath of molten material and around a depending core above the level of the molten bath, and supplying air to the interior of the hollow article through the depending core, substantially as described.

750,254. CIGARETTE-MACHINE. GEORG M. CALBERLA, Dresden, Germany. Filed Nov. 2, 1901. Serial No. 80,344. (No model.)

Claim.—1. In cigarette-machines, the combination with a funnel-shaped conduit, of a convexed-rimmed tobacco-collecting roller, a continuous traveling endless belt on the bottom of said conduit, a grooved tobacco-forming roller behind the collecting-roller, and a bridge between the rollers, substantially as described.

2. In cigarette-machines, the combination with a feeding-conduit, of a convexed-rimmed tobacco-collecting roller, a continuous traveling endless belt on the bottom of said conduit, a grooved tobacco-forming roller behind the collecting-roller, and bridge between the rollers, said bridge being formed of the same piece of material as the conduit for the collecting-roller, substantially as described.

3. In a cigarette-machine, in combination, a feed-roller having a rough surface, an endless traveling apron or belt carrying the tobacco tangentially to said roller and passing over a small pulley adjacent to the same, a smooth roller on top of the rough roller for pressing the tobacco continuously fed by the belt, a curved bottom plate having a lower rounded end and forming a passage behind the rough feed-roller, and a picker-roller below the passage taking the tobacco from the lower, rounded end of the curved plate, a chute or trough below the picker-roller from which it receives the tobacco to feed it to the filler-forming device, substantially as described.



4. In a cigarette-machine, in combination, a feed-roller having a rough surface, an endless traveling feeding-belt directed tangentially to the roller in front of the same, a small pulley over which the belt passes, a smooth roller for pressing the tobacco fed continuously by the traveling belt; a curved bottom plate rounded at its lower end forming a passage along which the feed-roller carries the tobacco, a picker-roller taking the tobacco from the lower rounded end of the plate, a chute or trough beneath the picker-roll, receiving the tobacco therefrom to feed it to the filler-forming device, and a band or belt moving over the surface of the curved plate, along which the tobacco passes, to prevent checking of the tobacco but insure a smooth passage of the same, substantially as described.

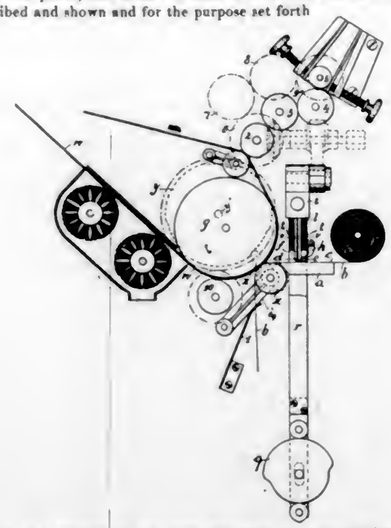
5. In a cigarette-machine, in combination, a feed-roller having a rough surface, an endless feeding-belt or the like, directed tangentially toward the roller and passing in front of the same, a pulley of small diameter over which the belt passes, a smooth roller for pressing the tobacco continuously fed by the belt, a curved bottom plate rounded at its lower end, forming a passage in which the feed-roller carries on the pressed tobacco, a picker-roller taking the tobacco from the lower rounded end of the curved plate, a chute or trough below the picker-roll receiving the tobacco therefrom to feed it to the filler-forming device, and a band or belt passing over the collecting and pressing roller and the inner surface of the curved plate along which the tobacco moves, to prevent checking of the tobacco and insure a smooth even passage of the tobacco, and also prevent a space or crevice between the pressing-roller and the curved plate and to carry the tobacco with uniform speed onto the picker-roller, substantially as described.

750,255. APPARATUS FOR COATING CIGARETTE-PAPER WITH LEAF METAL. GEORG M. CALBERLA, Dresden, Germany. Filed Nov. 21, 1901. Serial No. 83,137. (No model.)

Claim.—1. In a machine of the class described, the combination with the continuously-rotating roller over which the cigarette-paper passes, of a feeding and pressing roller for the leaf metal operated by the continuously-rotating roller, means to throw the pressing-roller into and out of engagement with the cigarette-paper whereby the feed of the leaf metal is interrupted and the pressing of the same intermittingly effected, means to clamp and sever the leaf metal during the interruption of the feed, and a knife reciprocating between said clamping means, substantially as described and shown and for the purpose set forth.

2. In combination with a continuously-operating roller over which the cigarette-paper passes, a feeding and pressing roller for the leaf metal rotated by the continuously-rotating roller, means to intermittingly interrupt the feed of the leaf metal, means for clamping and severing the leaf metal during the interruption of the feed, and means to operate the clamping means, consisting of vertically-guided rods, fastened to the clamping means and operated by continuously-rotating cams, substantially as described and shown and for the purpose set forth.

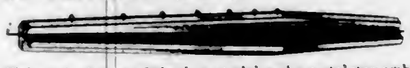
3. In a machine for coating cigarette-paper with leaf metal, the combination of the bed-plate and the means for feeding the leaf metal over the same, means to interrupt the feed of the leaf metal, clamping-plates adapted to engage the leaf metal with a yielding pressure, during the interruption of the feed, a cutter operating between the plates, and means to effect a draw cut, substantially as described and shown and for the purpose set forth



4. In a machine of the class described, the combination with the bed-plate over which the leaf metal passes, a feeding and pressing roller for the leaf metal, means for interrupting the feeding of the same, means for clamping and cutting the leaf during the interruption of the feed, said means consisting of a reciprocating block, clamping-plates carried by the block and having a yielding connection therewith, a cutter mounted between the plates, and means to effect a draw cut, substantially as described and shown and for the purpose set forth.

5. In a machine of the class described, the combination with a bed-plate over which the leaf metal passes, a feeding and pressing roller for the leaf metal, means for interrupting the feeding of the same, means for clamping and cutting the leaf during interruption of the feed, said means consisting of a reciprocating block, having a recess formed therein, a spring in said recess, clamping-plates carried by the block and engaged by said spring whereby the plates engage the leaf metal with a yielding pressure, and a cutter operating between said plates, substantially as described and shown and for the purpose set forth.

750,256. FENCE-POST. SOLON O. CAMPBELL, East Peru, Iowa, assignor of one-half to E. C. Tilley, Kansas City, Mo. Filed July 20, 1903. Serial No. 166,390. (No model.)



Claim.—1. A post of plastic material, and a metal stay embedded therein and comprising loop-shaped elements crossing at their ends, and means embracing and connecting the loops at their point of crossing and extended beyond the extremities of the post, substantially as set forth.

2. A post of plastic material, comprising a plurality of wings each tapering in opposite directions toward the ends of the post, a stay of skeleton form composed of loops crossed at their ends, a member of each loop being embedded in a wing of the post and deflected to conform to the opposite taper of the wing, and means embracing and connecting the loops at their point of crossing, said means being centrally disposed and projected beyond the extremities of the post, substantially as specified.

750,257. CLOSURE. EARLE E. CHAPMAN, Los Angeles, Cal., assignor to the Standard Bottle Closure Company, Los Angeles, Cal., a Corporation of California. Filed Oct. 14, 1902. Renewed May 13, 1903. Serial No. 157,024. (No model.)

Claim.—1. A closure provided with resilient engaging projections and a vessel having receiving-recesses terminating in intermediate plane surfaces upon the circumference of the vessel-neck, whereby said projections enter said recesses to retain the parts in position, and are rotated upon said intermediate surfaces to permit the removal of the parts.

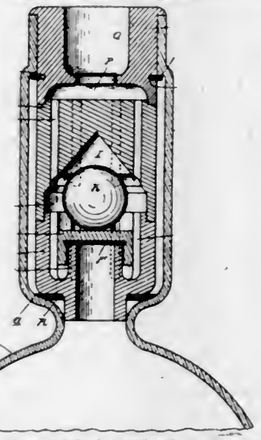


2. A closure provided with resilient engaging projections, a packing within the closure and a vessel having receiving-recesses terminating in intermediate circumferential surfaces, whereby the parts are connected by the engagement of said projections within said recesses and may be disconnected when the former are rotated upon said intermediate surface.

3. A closure provided with a cap or cover having internal engaging projections and a vessel having recesses upon the exterior thereof terminating upon the circumference of said neck, whereby said projections enter said recesses to retain said parts together, and are rotated out of said recesses to permit the disengagement of the parts.

4. A closure provided with a cap or cover having engaging projections, an expansible disk within said cover and a vessel having external receiving-recesses terminating upon the circumference of the vessel, whereby the parts retained together while said projections are within said recesses and may be disconnected when said projections are turned out of said recesses.

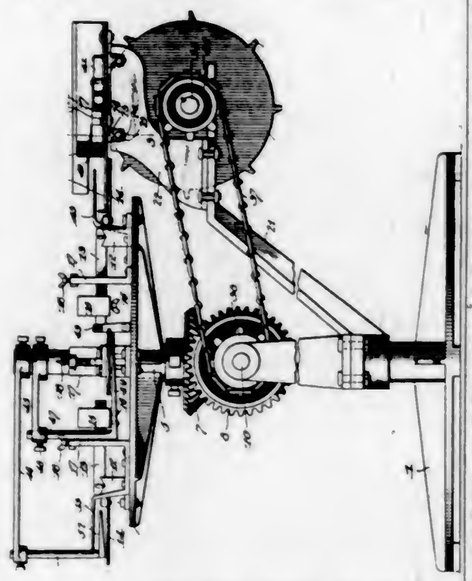
750,258. BOTTLE. CLEMENT CLARK, Sandusky, Ohio. Filed June 13, 1903. Serial No. 161,263. (No model.)



Claim.—1. In a non-refillable bottle, the combination with a bottle-neck, of a cup-shaped bushing fitting therein in adjacence to the bottle-body, and carrying a central tubular stem, an inverted-cup-shaped valve mounted upon and inclosing the upper portion of the stem, a guide-block above the bushing having one or more vertical ports registering with the outlets from the bushing, and a conical chamber formed therein, a freely-moving ball arranged between the guide-block and valve adapted to be guided by the walls of the chamber to the valve when the bottle is in a position other than the pouring position, and a second bushing fixed at the mouth of the bottle and coupled to the upper portion of the guide-block, said last-mentioned bushing having a portion overhanging the vertical ports in said guide-block and also having a final outlet-opening for the bottle contents.

2. In a non-refillable bottle, the combination with a bottle-neck, of a bushing fitting therein in adjacence to the bottle-body and carrying a tubular stem, said bushing having outlets, an inverted flanged valve mounted upon and closing the upper portion of the stem, a guide-block above the bushing having one or more vertical ports registering with the outlets from the bushing and a chamber formed therein, a freely-moving ball arranged between the guide-block and valve, adapted to rest upon the valve when the bottle is in a position other than the pouring position, and a second bushing fixed at the mouth of the bottle and coupled to the upper portion of the guide-block, said last-mentioned bushing having a portion overhanging the vertical ports in said guide-block and also having a final outlet-opening for the bottle contents.

750,259. CAN-WEIGHING MACHINE. WILLIAM H. COFFELT, Anacortes, Wash. Filed Mar. 31, 1903. Serial No. 150,483. (No model.)



Claim.—1. In a weight-testing machine, a movable carrier, scale-beams mounted thereon and each provided with an article-receiving platform, means for feeding the articles to be tested, and a plurality of discharging means of which one is arranged in a horizontal plane below the plane of the unloaded or lightly-loaded platform and the second is disposed in a plane above the plane of such platform.

2. A weight-testing device comprising a movable carrier, scale-beams mounted thereon and each provided with an article-receiving platform, a chute to which the article to be weighed is delivered, the discharge end of said chute extending over the line of movement of the platforms, and feeding-fingers secured to the carrier at points adjacent to the platforms and adapted to engage the articles and transfer the same from the chute to the platform, the fingers traveling at the same speed as the platforms and causing the latter to gradually receive the articles as said platforms pass beneath the chute.

3. In a weight-testing device, a movable carrier, a plurality of scale-beams carried thereby and each provided with a receiving-platform, a feed-chute to which the articles to be weighed are delivered, the bottom of said chute being at a point immediately above the plane of the unloaded platforms, a feeding-finger secured to the carrier at a point adjacent to each platform and serving to engage the article and deliver the same from the chute to the platform, and discharging means disposed in different horizontal planes for engaging and delivering articles of different weight.

4. In a weight-testing mechanism, the combination with a movable carrier, of a plurality of scale-beams mounted thereon and each provided with an article-receiving platform, a delivery-chute to which the articles to be tested are fed, the bottom of said chute being in a plane immediately above the horizontal plane of the unloaded receiving-platforms, an article-engaging finger secured to the carrier at a point adjacent to each platform and serving to engage and remove the articles from the chute, and a plurality of spaced discharging-cams arranged in different horizontal planes and adapted respectively to engage articles of different weight.

5. In weight-testing mechanism, the combination with a revoluble support, of a plurality of radially-disposed scale-beams each provided with a receiving-platform, an adjustable poise or counterbalance carried by each scale-beam, means for limiting the movement of the scale-beam, a feed-chute of which the lower portion is in a plane slightly above the plane of the unloaded platforms, a feeding-finger carried by the platform at a point immediately to the rear edge of each scale-platform and serving to engage the articles on the chute and deliver the same to the scale-platforms, and discharging means arranged at different levels for engaging and discharging articles of different weight.

6. In a weight-testing mechanism, a revoluble support, a plurality of scale-beams carried thereby and each provided with an article-receiving platform, a counterbalance weight or poise on each scale-beam, a vertically-slotted standard forming a guide for the scale-beam, an adjustable screw carried by the standard and serving as a means for limiting the upward movement of the scale-beam, a feed-chute having its lower portion in a plane slightly above the horizontal plane of the unloaded platforms, a feeding-finger carried by the support at a point immediately to the rear of each platform, article-discharging means, and mechanism associated with the chute for engaging and moving successive articles to the delivery-point.

7. In a weight-testing machine, a revoluble support, a plurality of weight-testing devices carried thereby, a feed-chute for delivering the articles to be tested to said testing devices, a revoluble disk arranged under the feed-chute and having peripheral fingers extending through a slot in the bottom of the chute for engagement with the successive articles, and a driving mechanism for imparting uniform speed to the carrier and the feeding-disk.

8. In a weight-testing machine, the combination with a movable support, of a plurality of testing devices carried thereby, a feed-chute having a slotted bottom, a revoluble disk having radial engaging fingers extending through the slot in the bottom of the chute and engaging successive articles, and a spring-pressed finger carried by the chute and projecting into the path of movement of the articles, substantially as specified.

9. In a weight-testing machine, the combination with a movable support, of a plurality of weight-testing devices carried thereby, a feed-chute, a feeding means associated with the chute, means for adjusting the vertical height of the chute, laterally-adjustable side walls forming a part of the chute, and means for discharging the articles from the testing devices.

10. In a device of the class specified, the combination with the base, of a vertical stationary spindle, a platform, a sleeve depending from the platform and mounted on said spindle, a collar bolted to the spindle and serving to maintain the horizontal position of the platform, a miter-gear carried by the sleeve, a driving-shaft, a miter-gear carried by the driving-shaft, weight-testing devices carried by the platform, a feed-chute, a feeding-disk having article-engaging fingers projecting into the chute, a shaft carrying said disk, sprocket-gears disposed on the driving-shaft and the disk-shaft respectively, and a link belt connecting said sprocket-gears, substantially as specified.

750,260. ATOMIZER. FRANK B. COMINS, Sharon, Mass., assignor to American Moistening Company, Boston, Mass., a Corporation of Maine. Filed Sept. 11, 1903. Serial No. 172,768. (No model.)



Claim.—1. An atomizer comprising a reservoir, a liquid-feed pipe connected therewith, atomizer means mounted on the reservoir, and a pressure-supply pipe connected to such atomizer means.

2. An atomizer comprising a reservoir, a liquid-feed pipe connected therewith, a fluid-delivery tube, a pressure-tube mounted on the reservoir, and a pressure-supply pipe connected with such pressure-tube.

3. An atomizer comprising a reservoir, a liquid-delivery tube movably mounted in the reservoir and extending therefrom, a pressure-tube fixed on an extension from said reservoir, means for moving the liquid-delivery tube toward the pressure-tube, and supply-pipes connecting respectively with the reservoir and with the pressure-tube.

4. An atomizer comprising a fixed pressure-tube having a contracted outlet, a rod movably mounted in said tube and having an end adapted to close said outlet, a liquid-delivery tube movably mounted with respect to the pressure-tube and having a contracted outlet, a rod fixed in position and extending through the bore of the liquid-delivery tube and having a contracted end adapted to close the outlet of said tube, and means for moving the rod of the pressure-tube away from its closing position and the liquid-supply tube away from its rod.

5. An atomizer comprising a fixed pressure-tube, a liquid-supply tube movably mounted, a valve mounted within the supply-tube and fixed against movement, and means for moving the supply-tube away from its valve.

6. An atomizer comprising a fixed pressure-tube, a movable liquid-supply tube, movable means for closing and clearing the outlet of the pressure-tube, fixed means for closing and clearing the outlet of the liquid-supply tube and means for operating the movable closure of the pressure-tube and the movable liquid-supply tube.

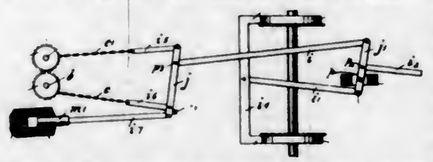
7. The combination with the reservoir 5, the fitting 6 having the channeled portion 7 secured to said reservoir, a liquid-supply pipe connected with such channeled portion, a pressure-tube mounted on said fitting; and a pressure-supply pipe connected therewith, of a liquid-delivery tube extending from the reservoir.

8. The combination with the reservoir 5, the fitting 6 having the base 10 and the tubular extension 11, secured to such reservoir, and the tube 12 movably mounted in the extension 11 and having a contracted outlet, the rod 16 secured to the extension 11 and extending through the bore of the tube 12, said rod having an end adapted to act as a valve and a clearer for the outlet in such tube, of means for moving the tube 12 to open its outlet.

9. The combination with the base 10 having the tubular extension 11 and the channeled portion 7, the plug 19 having the perforation 20 and the outlet 21 secured in said channeled portion, the rod 24 movably mounted in said perforation, the tube 12 movably mounted in the extension 11, and the rod 16 secured to such extension and extending through the tube 16, of the thumb-lever 27, pivotally mounted on the portion 7, and having the arms 28 and 29, the arm 28 being connected with the tube 12, the member 31 connected with the arm 29 and with the rod 24, and the spring 30 connected with said lever and with the portion 7 and adapted to retract said arm, as and for the purpose described.

10. In an atomizer, the combination with a reservoir, of a liquid-supply pipe connected therewith, a pressure-supply pipe located within the liquid-supply pipe, and a pressure-tube with which the pressure-supply pipe is connected.

750,261. BRAKE FOR VEHICLES. WILLIAM H. COOLEY, Brockport, N. Y. Filed Dec. 9, 1902. Serial No. 134,584. (No model.)



Claim.—1. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism.

2. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension and adjustable to operate at different tensions applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism.

3. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism and means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism.

4. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension and adjustable to operate at different tensions applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism and means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism.

5. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism, means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism and means whereby the motion of the handle for applying the series of increasing braking efforts from the electrically-operated mechanism only takes up the slack created by the increased braking effort from the electrically-operated mechanism.

6. In a combined electrical and hand brake, an operating-handle and means controlled by the tension and adjustable to operate at different tensions applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism, means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism and means whereby the motion of the handle for applying the series of increasing braking efforts from the electrically-operated mechanism only takes up the slack created by the increased braking effort from the electrically-operated mechanism.

7. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism, means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism, means whereby, during that portion of the further movement of the handle throughout which the action of the electrically-operated mechanism is increased, the handle is operable to apply the full force of the electrically-operated brake without applying any further braking effort through the hand-operated mechanism other than the taking up of the slack caused by the increased force with which the brakes are electrically applied and means whereby, during this same movement, the handle applies the hand-operated brake, should the electrical brake become inoperative.

8. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension and adjustable to operate at different tensions applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied to the braking apparatus by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism, means whereby the further movement of such handle applies an increased effort from such electrically-operated mechanism, means whereby, during that portion of the further movement of the handle throughout which the action of the electrically-operated mechanism is increased, the handle is operable to apply the full force of the electrically-operated brake without applying any further braking effort through the hand-operated mechanism other than the taking up of the slack caused by the increased force with which the brakes are electrically applied, and means whereby during this same movement, the handle applies the hand-operated brake, should the electrical brake become inoperative.

9. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension applied to the braking apparatus, whereby, when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism through a leverage increased above that through which the hand-operated brake is applied.

10. In a combined electrical and hand brake, an operating-handle and means, controlled by the tension and adjustable to operate at different tensions, applied to the braking apparatus, whereby,

when such handle has reached a point in its course where a predetermined braking effort is applied by the hand-operated mechanism, a braking effort is also applied by the electrically-operated mechanism through a leverage increased above that through which the hand-operated brake is applied.

11. In a braking system, a movable body connected to the brakes, means whereby such movable body may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes and means for releasing such movable body upon the release of the brakes.

12. In a braking system, a movable body connected to the brakes, means whereby such movable body may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes, means for releasing such movable body upon the release of the brakes and means whereby to such movable body there may be imparted an additional movement corresponding to a predetermined amount of additional slack when such predetermined amount thereof has accumulated.

13. In a braking system, a movable body connected to the brakes, means whereby such movable body may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes, means for releasing such movable body upon the release of the brakes, means whereby to such movable body there may be imparted an additional movement corresponding to a predetermined amount of additional slack when such predetermined amount thereof has accumulated, and means for preventing the complete return of such movable body, after each additional movement thereof, to its last initial position, by an amount corresponding to each such additional movement.

14. In a braking system, a drum connected to the brakes, means whereby such drum may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes and means for releasing such drum upon the release of the brakes.

15. In a braking system, a drum connected to the brakes, means whereby such drum may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes, means for releasing such drum upon the release of the brakes and means whereby to such drum there may be imparted an additional movement corresponding to a predetermined amount of additional slack when such predetermined amount thereof has accumulated.

16. In a braking system, a drum connected to the brakes, means whereby such drum may be operated to take up the slack of the apparatus and then locked in that position during the further application of the brakes, means for releasing such drum upon the release of the brakes, means whereby to such drum there may be imparted an additional movement corresponding to a predetermined amount of additional slack when such predetermined amount thereof has accumulated and means for preventing the complete return of such drum, after each additional movement thereof to its last initial position, by an amount corresponding to each such additional movement.

17. In a braking system, in combination with means for applying the brakes by the operation of a brake-staff, means for maintaining a practically uniform slack of the apparatus, comprising a movable body connected to the brakes and connections between such movable body and such brake-staff for operating such movable body to take up any additional slack when a predetermined amount thereof has accumulated.

18. In a braking system, in combination with means for applying the brakes by the operation of a brake-staff, means for maintaining a practically uniform slack of the apparatus comprising a drum and a chain connected thereto and to the brakes and connections between such drum and such brake-staff for operating such drum and such chain to take up any additional slack therein when a predetermined amount of such additional slack has accumulated.

19. In a braking system, in combination with means for applying the brakes by means of a brake-staff, a drum operable from such brake-staff and connected by a chain to the brakes for the purpose of taking up the slack of the apparatus, means under the control of such brake-staff, for maintaining a practically uniform slack of the apparatus and for maintaining a practically uniform angular motion of the brake-staff in the return of the drum to give such practically uniform slack, such means independent of the amount of angular motion which must at any time be imparted to such drum relative to a first zero-point therefor before any wear of the parts has occurred.

20. In a braking system, in combination with means for applying the brakes by means of a brake-staff, a movable body operable from such brake-staff and connected to the brakes for the purpose of taking up the slack of the apparatus, means under the control of such brake-staff for maintaining a practically uniform slack of the apparatus and for maintaining a practically uniform motion of the brake-staff in the return of such movable body to give such practically uniform slack, such means independent of the amount of motion which must at any time be imparted to such movable body relative to a first zero-point therefor before any wear of the parts has occurred.

21. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus and means whereby by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof.

22. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus and means whereby by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof.

23. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof and means for adjusting such predetermined tension.

24. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus and means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof.

25. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus and means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof.

26. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof and means for adjusting such predetermined tension.

27. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus, means whereby by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof and means whereby the movements of such first and second bodies apply braking efforts through lesser and greater leverages respectively.

28. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof and means whereby the movements of such first and second bodies apply braking efforts through lesser and greater leverages respectively.

29. In a braking system, two movable bodies connected to the brakes, a handle, means whereby by the operation of such handle such first body is moved to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby, by the further operation of the handle such first movable body is released and locked against backward motion in the position to which it has been driven and such second movable body is moved and the brakes further applied by the movement thereof, means for adjusting such predetermined tension and means whereby the movements of such first and second bodies apply braking efforts through lesser and greater leverages respectively.

30. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus, means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof and means whereby the operations of such first and second drums apply braking efforts through lesser and greater leverages respectively.

31. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof and means whereby the operations of such first and second drums apply braking efforts through lesser and greater leverages respectively.

32. In a braking system, two drums connected to the brakes, a handle, means whereby by the movement of such handle the first drum is operated to take up the slack of the apparatus until a predetermined tension is applied to the braking apparatus, means whereby by the further movement of such handle the first drum is released and locked against backward motion in the position to which it has been driven and the second drum is engaged and the brakes further applied by the operation thereof, means for adjusting such predetermined tension and means whereby the operations of such first and second drums apply braking efforts through lesser and greater leverages respectively.

33. In a braking system, means, controlled by the braking effort applied and adjustable to operate at different braking efforts, whereby the application of any desired predetermined braking effort from one braking mechanism applies also a braking effort from a second braking mechanism.

34. In a braking system, means, controlled by the braking effort applied and adjustable to operate at different braking efforts, whereby the application of any desired predetermined braking effort from one brake-actuating mechanism applies also a braking effort from a second brake-actuating mechanism.

35. In a braking system, means, controlled by the braking effort applied and adjustable to operate at different braking efforts, whereby the application of any desired predetermined braking effort from one braking mechanism applies also a braking effort from a second braking mechanism through a leverage increased above that through which such first predetermined braking effort is applid.

36. In a braking system, means, controlled by the braking effort applied and adjustable to operate at different braking efforts, whereby the application of any desired predetermined braking effort from one brake-actuating mechanism applies also a braking effort from a second brake-actuating mechanism through a leverage increased above that through which such first predetermined braking effort is applied.

37. In a braking system, electrically-operated mechanism permanently connected to the brakes and means for applying a braking effort from such mechanism at a constant air-gap for the initial relative positions of the magnetic elements in such system.

38. In a braking system, electrically-operated mechanism permanently connected to the brakes and means whereby, upon the application of a predetermined and adjustable tension to the braking apparatus, a braking effort is applied by such electrically-operated mechanism and at a constant air-gap for the initial relative positions of the magnetic elements in such system.

39. In a combined hand and electric braking system, means for applying an effort from the electrically-operated mechanism at a constant air-gap for the initial relative positions of the magnetic elements in such system and at a leverage greater than that at whicl the brakes are applied by the hand-operated mechanism.

40. In an electric braking system, means whereby, upon the application of a predetermined and adjustable tension to the braking apparatus, a braking effort is applied by the electrically-operated mechanism at a constant air-gap for the initial relative positions of the magnetic elements in such system and at a leverage greater than that at which such predetermined and adjustable tension is applied.

41. In a combined electric and hand brake, means for applying a braking effort by the hand-operated mechanism until a predetermined and adjustable tension has been applied to the braking apparatus by the operation of the handle and means whereby, during the further operation of such handle, a maximum braking effort may be applied by the electrically-operated mechanism, by relative motion between magnetic elements in such system, such relative motion always contained between two constant extremes.

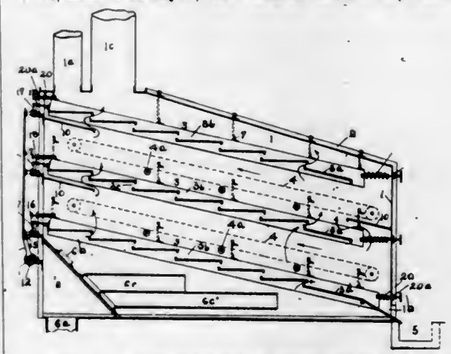
42. In a combined electric and hand brake, means for applying a braking effort by the hand-operated mechanism until a predetermined and adjustable tension has been applied to the braking apparatus by the operation of the handle and means whereby, during the further operation of such handle, a maximum braking effort may be applied by the electrically-operated mechanism, by relative motion between magnetic elements in such system, such relative motion always contained between two constant extremes and starting at one of them.

43. In a braking system, an electromagnetically-operated element connected to the brakes, a stop limiting the return of such element to its initial or starting position, means whereby there may be applied any desired initial braking effort before the movement of such magnetic element and means whereby, upon the movement of such magnetic element, a braking effort is applied at a leverage greater than that at which such initial braking effort is applied before the movement of such element.

44. In a braking system, in combination with an electromagnetically-operated element connected to the brakes, a stop for fixing the initial position of such element before the movement thereof and means for applying a predetermined and constant braking effort before such element is caused to move in the application of a braking effort.

45. In a braking system, an electrically-operated element permanently connected to the brakes and means for securing practically uniform relative positions of the magnetic elements in such system at the commencement of the relative movement of such elements.

750,262. VIBRATORY DRIER. MORTIMER E. COOLEY, Ann Arbor, Mich. Filed May 11, 1903. Serial No. 156,714. (No model.)



Claim.—1. A drier comprising in combination series of inclined chutes adapted to vibrate longitudinally; each chute comprising a plurality of inclined pans arranged in echelon, a downwardly-projecting flange on the lower edge of each pan, an upwardly-projecting flange on the upper edge of the next succeeding pan and underlapping the flange of the first pan; a plurality of bell-crank levers arranged in vertical series and adapted to oscillate; a vertical transversely-yielding bar-spring connecting the horizontal members of said levers and rigidly secured to each; a transversely-yielding bar-spring for each lever, having one end rigidly secured to the vertical member of the lever and the other end secured to the chute; conveyers adapted to carry material from the foot of one chute to the top of the next chute; a housing inclosing said chutes and conveyers; means for discharging heated gases into said housing simultaneously at several points below the lowest chute; suitable baffles, and means for actuating said chutes and conveyers.

2. A drier comprising in combination series of inclined chutes adapted to vibrate longitudinally, each of said series comprising a plurality of pans arranged in echelon and having successively overlapping flanged edges arranged to leave openings for the passage of air between the pans and to deflect the air downward against the upper surfaces of the pans; means for supporting and vibrating said pans; conveyers adapted to carry material from the foot of each chute to the top of the next chute; a housing inclosing said shakers and conveyers; means for admitting heated gases into said housing simultaneously at several points below the lowest chute; baffles adapted to guide the gases through and over the series of pans; means for discharging gases from above the upper chute; and means for actuating said chutes and conveyers.

3. In a drier having a series of vibrating pans arranged in echelon and provided with means for operating them; a downwardly-projecting flange on the lower edge of each pan; an upwardly-projecting flange on the upper edge of the next succeeding pan and underlapping the flange of the first pan, said flanges being arranged to interrupt ascending currents of air and to deflect them downward with a swirling movement against the upper surfaces of the pans.

4. In a drier having vibrating shakers; means for vibrating the shakers, comprising a plurality of bell-crank levers arranged in vertical series and adapted to oscillate; a vertical transversely-yielding bar-spring connecting the horizontal members of said levers and rigidly secured to each; a transversely-yielding bar-spring for each lever, having one end rigidly secured to the vertical member of the lever and the other end secured to the shaker.

5. In a drier having vibrating shakers; means for vibrating the shakers, comprising a plurality of bell-crank levers arranged in vertical series and adapted to oscillate; a vertical transversely-yielding bar-spring connecting the horizontal members of said levers and rigidly secured to each; a transversely-yielding bar-spring for each lever, having one end rigidly secured to the vertical member of the lever and the other end secured to the shaker; together with cushioning-springs secured to said shakers and means for adjusting the tension in said springs.

750,263. FELLY-JOINT HOLDER. WILLIAM J. CRAWFORD, Spokane, Wash. Filed Nov. 23, 1903. Serial No. 182,251. (No model.)



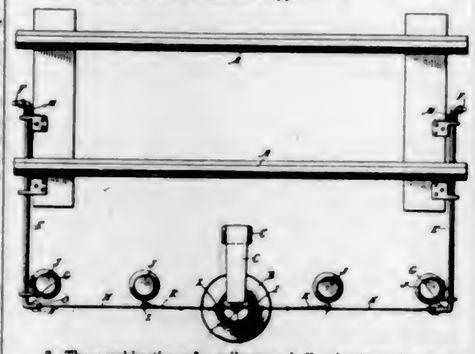
Claim.—1. A joint-holder for the fellies of vehicle-wheels and other objects, said holder having inclined walls and miter-shaped rim extending around the three sides of the walls, and miter-shaped spurs extending out from the incline walls, substantially as and for the purpose set forth.

2. A joint-holder for the fellies of vehicle-wheels and for other objects, said holder having inclined walls, a U-shape miter-formed band extending out from the inclined walls, miter-shaped spurs extending from the walls and between the sides of the bands, and a suitably-formed hole extending through the holder to receive a suitable dowel-pin, substantially as and for the purpose described.

750,264. WARNING-SIGNAL FOR RAILROAD-CROSSINGS. JAMES CRUMLEY, Grand Rapids, Mich. Filed Apr. 4, 1903. Serial No. 151,043. (No model.)

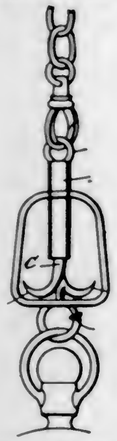
Claim.—1. The combination of a railway, a rock-shaft, means for operating the shaft by a passing train, an arm on the shaft, a bell mounted on a pivoted support, a longitudinally-movable cord or wire connected to the arm and to the bell-support, a series of posts, pendent hangers supported by the posts at their upper ends and rigidly attached to the cord or wire at their lower ends and movable therewith, and a spring between the cord or wire and the bell-support.

2. The combination of a railway, a rock-shaft, an arm on the shaft extending upward between the rails, an arm on the shaft extending downward, a spring to yieldingly retain the arms in position, a bell, a pivoted support for the bell, a cord or wire connected to the downwardly-projecting arm, and to the bell-support, a series of posts, horizontally-projecting supports on the posts, pendent hangers attached to the supports and to the cord or wire, and a spring between the cord or wire and the bell-support.



3. The combination of a railway, a bell, a horizontal arm projecting from a post, a handle attached to the bell and pivoted on the arm, a rock-shaft, an arm projecting upward from the rock-shaft and between the rails, an arm projecting downward from the shaft, a spring attached to the arm, a weight attached to the spring, a spring attached to the upwardly-projecting arm, a cord or wire connected to the downwardly-projecting arm and to the bell-handle, a spring between the cord and bell-handle, a series of posts and pendent hangers supported by the posts and connected to the cord or wire.

750,265. SAFETY-GUARD. GERARD O. CURTIS, Hartford, Conn. Filed May 18, 1903. Serial No. 157,572. (No model.)



Claim.—1. In a safety-guard for watches, the combination with a frame of a rod pivoted in the frame, prongs radiating from the rod, and means upon the rod for rotating the latter.

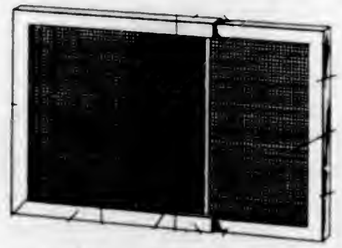
2. In a safety-guard for watches, the combination with a frame of a rod rotatably mounted in the frame, prongs radiating from the rod, a sliding member mounted in the frame, and means in the sliding member for turning the vertical rod.

3. In a safety-guard for watches, the combination with a frame of a rod pivotally mounted in the frame, prongs radiating from the rod, a sliding member mounted in the frame and around the rod for rotating the latter and a spring within the sliding member bearing against the frame.

4. In a safety-guard for watches, the combination with a frame of a rod, pivotally mounted in the frame, a volute shank upon the rod, prongs projecting from the rod, a housing slidably mounted in the frame and surrounding the shank, a slot in the lower end of the housing through which the shank passes.

5. In a safety-guard for watches, the combination with a frame of volute pivotal member mounted in the frame, prongs radiating from the pivotal member, and means carried by the frame for turning the pivotal member.

750,266. WINDOW-SCREEN. CHARLES D. CUTTS, Toronto Junction, Canada. Filed Apr. 29, 1903. Serial No. 154,884. (No model.)

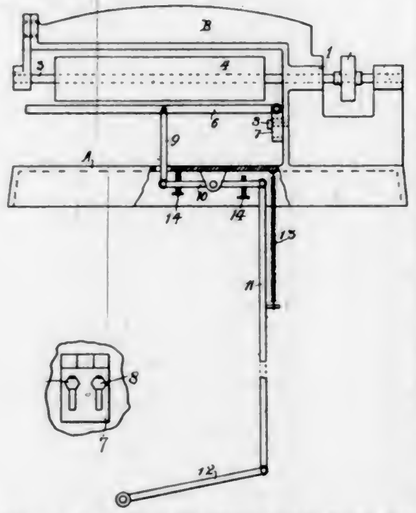


Claim.—1. A window-screen comprising in its construction two U-shaped tubular telescopic frame-sections, the free ends of one of the said frame-sections slidably contained within the free ends of the other said frame-section, and screens fitted in said frame-sections, substantially as specified.

2. A window-screen comprising in its construction two U-shaped tubular telescopic frame-sections, the free ends of one of the said frame-sections slidably contained within the free ends of the other frame-section, a groove formed by a space in the tubular part of each of the said frame-sections, screens slidably contained in the groove in each of the said frame-sections, substantially as described.

3. A window-screen comprising in its construction two U-shaped tubular telescopic frame-sections, the free ends of one of the said frame-sections slidably contained within the free ends of the other frame-section, a groove formed by a space in the tubular part of each of the said frame-sections, screens slidably contained in the groove in each of the said frame-sections, a metal strip bent on the edges of said screens, said strip forming a frame, substantially as described.

750,267. BOOK-COVER CLEANING AND POLISHING MACHINE. THOMAS DANIELS, Brooklyn, N. Y. Filed June 30, 1903. Serial No. 163,732. (No model.)

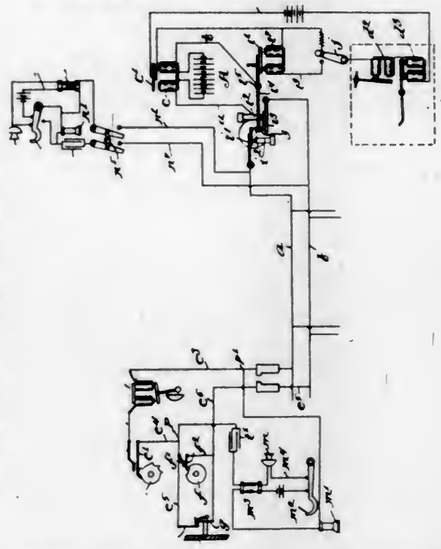


Claim.—1. In a brushing and polishing machine for the use of bookbinders, &c., the combination of a framework, a rotary brush mounted therein, a work-support hinged at one end to the frame, a treadle, and lever-and-link connections between the treadle and the work-support, substantially as described.

2. In a brushing and polishing machine for the use of bookbinders, &c., the combination of a framework, a rotary brush mounted therein, a plate adjustably connected with said framework, a work-support hinged to said plate, and a treadle connected with and operating said support, substantially as described.

3. In a brushing and polishing machine for the use of bookbinders, &c., the combination of a framework, a rotary brush mounted therein, a work-support hinged at one end and having said hinge adjustably connected with said framework, a treadle connected with and operating said work-support, and an adjustable stop for limiting the motion of said support toward said brush, substantially as described.

750,268. ELECTRIC SIGNALING APPARATUS. WILLIAM E. DECROW, Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y., a Corporation of New York. Filed Apr. 29, 1901. Serial No. 57,959. (No model.)



Claim.—1. In an electric signaling system, the combination of a battery and two main circuit-wires *a*, *b*, leading from the opposite poles thereof, constituting a normally open circuit, signal-receiving apparatus adapted to be operated by said circuit, a plurality of box-number circuit-operating devices, a plurality of sets of connecting-wires between said main circuit-wires *a*, *b*, including said box-number circuit-operating devices, a switch for each set of connecting-wires for opening and closing it, means for operating said switch, an answer-back bell included in series with the box-number circuit-operating device in each set of connecting-wires, and means for operating said bell which is operated by the signal-receiving apparatus, substantially as described.

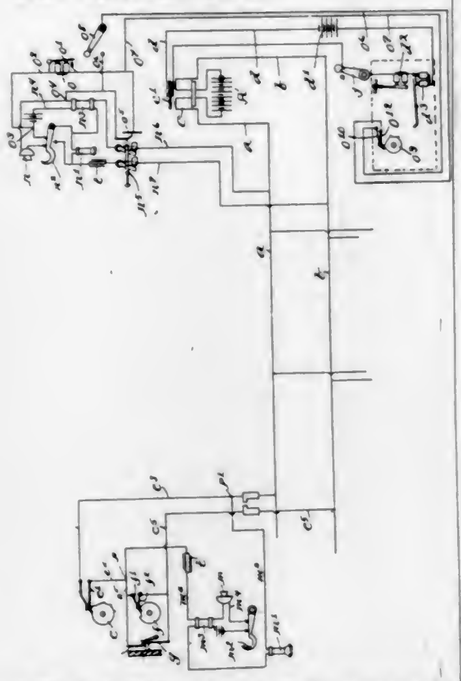
2. In an electric signaling system, the combination of a battery and two main circuit-wires *a*, *b*, leading from the opposite poles thereof, constituting a normally open circuit, signal-receiving apparatus adapted to be operated by said circuit, a plurality of box-number circuit-operating devices, a plurality of sets of connecting-wires between said main circuit-wires *a*, *b* including said box-number circuit-operating devices, a switch for each set of connecting-wires for opening and closing it, means for operating said switch, an answer-back bell included in series with the box-number circuit-operating device in each set of connecting-wires, and an operating device for said answer-back bell connected with the circuit of and operated by the signal-receiving apparatus, substantially as described.

3. In an electric signaling system, the combination of a battery and two main circuit-wires *a*, *b*, leading from the opposite poles thereof, constituting a normally open circuit, signal-receiving apparatus adapted to be operated by said circuit, a plurality of box-number circuit-operating devices, a plurality of sets of connecting-wires between said main circuit-wires *a*, *b*, including said box-number circuit-operating devices, a switch for each set of connecting-wires for opening and closing it, means for operating said switch, a polarized bell included in series with the box-number circuit-operating device in each set of connecting-wires, and a pole-changing device for operating it which is adapted to be operated by the signal-receiving apparatus, substantially as described.

4. In an electric signaling system, the combination of a battery and two main circuit-wires *a*, *b*, leading from the opposite poles thereof, constituting a normally open circuit, signal-receiving apparatus adapted to be operated by said circuit comprising a signal-re-

ceiving relay, a local circuit operated by it and a register operated by said local circuit, a plurality of box-number circuit-operating devices, a plurality of sets of connecting-wires between said main circuit-wires *a*, *b*, including said box-number circuit-operating devices, a switch for each set of connecting-wires for opening and closing it, means for operating said switch, a polarized bell included in series with the box-number circuit-operating device, in each set of connecting-wires, a pole-changing device for operating said bell, an electromagnet for operating said pole-changing device, and means for including said electromagnet in the circuit of the signal-receiving apparatus, substantially as described.

750,269. **ELECTRIC SIGNALING APPARATUS.** WILLIAM E. DECROW, Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y., a Corporation of New York. Filed June 17, 1901. Serial No. 64,817. (No model.)

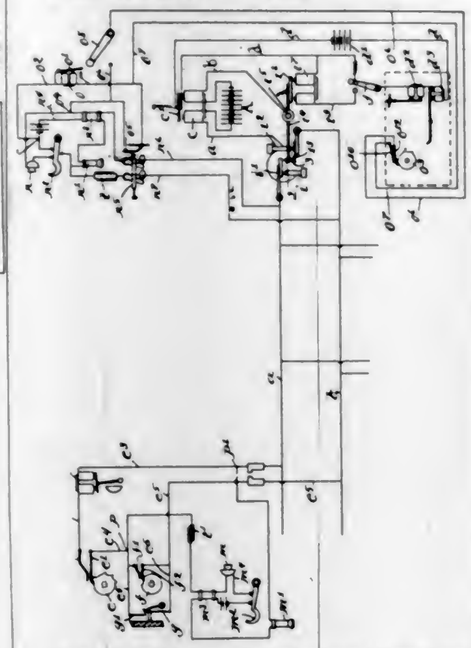


Claim.—1. In an electric signal system, the combination of a circuit, signal-transmitting devices for operating said circuit, signal-receiving apparatus operated by said circuit, telephonic instruments and a condenser connected with said circuit at the signal-transmitting stations and also at the signal-receiving station, an electromagnetically-operated buzzer at the signal-receiving station, and means for connecting it in circuit with one of the coils of the induction-coil of the telephonic equipment, and a switch operated by the box-door at each signal-transmitting station for including the telephonic receiver thereat, substantially as described.

2. In an electric signal system, the combination of a circuit, signal-transmitting devices for operating said circuit, signal-receiving apparatus operated by said circuit, telephonic instruments and a condenser connected with said circuit at the signal-transmitting stations and also at the signal-receiving station, an electromagnetically-operated buzzer at the signal-receiving station, and means for connecting it in circuit with one of the coils of the induction-coil of the telephonic equipment, and a switch operated by the signaling-train at each signal-transmitting station for including the telephonic receiver thereat, substantially as described.

3. In an electric signal system, the combination of a signaling-circuit, signal-transmitting devices for operating said circuit, signal-receiving apparatus operated by said circuit, telephonic instruments and a condenser connected with said circuit at the signal-transmitting stations and also at the signal-receiving station, an electromagnetically-operated buzzer at the signal-receiving station, a circuit operated by said buzzer including one of the coils of the induction-coil of the telephonic equipment, a train-controlled operating device for operating said buzzer-circuit, an electromagnet for releasing the train controlling said operating device, operated by means controlled by the signaling-circuit, a switch for said buzzer-circuit, and a switch at each signal-transmitting station for including the telephonic receiver thereat, substantially as described.

750,270. **ELECTRIC SIGNALING APPARATUS.** WILLIAM E. DECROW, Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y., a Corporation of New York. Filed Sept. 27, 1901. Serial No. 76,727. (No model.)



Claim.—1. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two answer-back signal-transmitting devices of different kinds connected with said circuit at the signal-receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station independently responsive to said answer-back transmitting devices, and means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, substantially as described.

2. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two automatic answer-back signal-transmitting devices of different kinds connected with said circuit at the signal-receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station, independently responsive to said automatic answer-back signal-transmitting devices, and means operated by the signal-receiving apparatus for operating both automatic answer-back signal-transmitting devices, substantially as described.

3. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two answer-back signal-transmitting devices of different kinds connected with said circuit at the signal-receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station independently responsive to said answer-back transmitting devices, means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, and a switch o^3, for disconnecting one of said answer-back signal-transmitting devices from the signal-receiving apparatus, substantially as described.

4. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two answer-back signal-transmitting devices of different kinds connected with said circuit at the signal-receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station independently responsive to said answer-back transmitting devices, means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, and a switch *j*, for disconnecting one of said answer-back signal-transmitting devices from the signal-receiving apparatus, substantially as described.

5. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two answer-back signal-transmitting devices of different kinds connected with said circuit at the signal receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station independently responsive to said answer-back transmitting devices, means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices and two switches for separately disconnecting said answer-back signal-transmitting devices from the signal-receiving apparatus, substantially as described.

6. In a nelectric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, two answer-back signal-transmitting devices of different kinds connected with said circuit at the signal-receiving station, two answer-back signal-receiving devices connected with said circuit at each transmitting-station independently responsive to said answer-back transmitting devices, means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, a switch o^3 for disconnecting one of said answer-back signal-transmitting devices from the signal-receiving apparatus and means for manually operating said answer-back signal-transmitting device which is thus disconnected, substantially as described.

7. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, telephonic equipment connected with said circuit at each transmitting-station and also at each receiving-station, two answer-back signal-transmitting devices of different kinds connected with the circuit at the signal-receiving station comprising a pole-changing device included in circuit at said receiving-station, and an electromagnetically-operated "buzzer" connected in circuit with one of the coils of the induction-coil of the telephonic equipment at said receiving-station, two answer-back signal-receiving devices connected with the circuit at each signal-transmitting station independently responsive to said answer-back signal-transmitting devices, and means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, substantially as described.

8. In an electric signaling apparatus, a plurality of signal-transmitting devices connected in circuit with a signal-receiving apparatus, telephonic equipment connected with said circuit at each transmitting-station and also at each receiving-station, two answer-back signal-transmitting devices of different kinds connected with the circuit at the signal-receiving station comprising a pole-changing device included in said circuit at said receiving-station, and an electromagnetically-operated "buzzer" connected in circuit with one of the coils of the induction-coil of the telephonic equipment at said receiving-station, two answer-back signal-receiving devices connected with the circuit at each transmitting-station, independently responsive to said answer-back signal-transmitting devices, comprising a polarized bell and the receiver of said telephonic equipment at said signal-transmitting station, and means operated by the signal-receiving apparatus for operating both answer-back signal-transmitting devices, substantially as described.

750,271. **FOUNTAIN-PEN.** AUGUST EBERSTEIN, Boston, Mass., assignor to Charles Brandt and Charles E. Brandt, Boston, Mass. Filed Sept. 4, 1902. Renewed Oct. 13, 1903. Serial No. 176,851. (No model.)



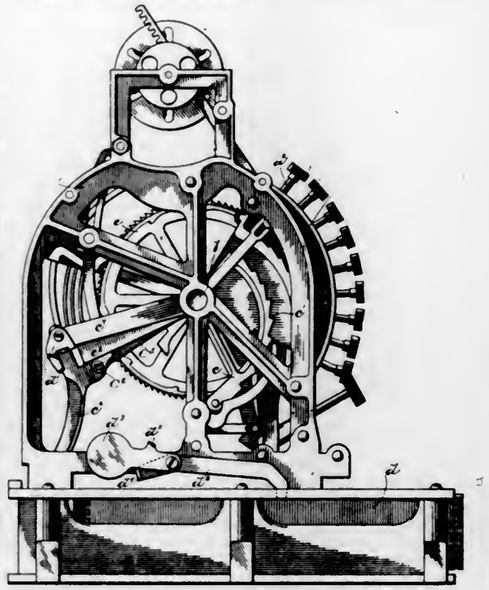
Claim.—1. In a fountain-pen, a feed-bar having the usual feed-groove and provided with one or more capillary reservoirs situated out of the line of conduction from the main reservoir to the pen-nibs, but in indirect communication therewith.

2. In a fountain-pen, a main reservoir, and a pen, combined with a feed-bar having in addition to the ordinary feeding-groove, one or more capillary apertures which are independent from said feeding-groove.

3. In a fountain-pen, a main reservoir, and a pen, combined with a feed-bar having in addition to the usual feed-groove for conducting the ink from the main reservoir to the pen, a plurality of capillary reservoirs situated on each side of the feed-groove and in indirect communication therewith.

4. In a fountain-pen, a main reservoir, and a pen, combined with a feed-bar having in addition to the usual feeding-groove one or more capillary apertures which are independent from said feeding-groove, the said feed-bar being shaped to contact with substantially the entire outside of the pen.

750,272. **CASH REGISTER AND INDICATOR.** JOSEPH P. EMORY, Columbus, Ohio, assignor to the Hall-Wood Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 5, 1902. Serial No. 134,049. (No model.)



Claim.—1. In a registering-machine, the combination of registering mechanism with a prime mover, a secondary mover, actuating devices for the registering mechanism, means for causing said actuating devices to operate said registering mechanism by the prime mover and means controlled by the secondary mover for holding same engaged during the registering operation, for the purpose specified.

2. In a registering-machine, the combination of registering mechanism with actuating parts consisting of pawl-levers and pawls, a prime mover adapted to move said pawls into locking position and to operate said pawl-levers and pawls when said pawls are in locking position, and a secondary mover and locking devices operated by same for locking said pawls when in engaging position.

3. In a registering-machine, the combination of registering mechanism with a prime mover, a series of actuating devices normally out of engagement with the registering mechanism, and means controlled by said prime mover adapted to move and lock said devices into engagement with said mechanism when said prime mover is operated in one direction, and a secondary mover adapted to cause said devices to be locked against engagement with said mechanism upon the return movement of said prime mover and devices in the opposite direction.

4. In a registering-machine, the combination of registering mechanism with a prime mover, a series of operating-pawls, and means controlled by said prime mover adapted to lock said pawls in engagement with said mechanism when said prime mover is operated only in one direction, and a secondary mover adapted to hold said pawls locked against engagement with said mechanism upon the return movement of said prime mover and pawls.

5. In a registering-machine, the combination of registering devices, a series of operating-pawls, a main operating-yoke, auxiliary yokes supported by said main yoke, operating-pawls adapted to rest on said auxiliary yokes, means for locking said pawls against en-

gagement with said registering devices until thrown into engagement therewith by the main operating-yoke substantially as set forth.

6. In a registering-machine, the combination of registering devices, a series of operating-pawls, a main operating-yoke and auxiliary yokes supported by said main yoke, means controlled by said main yoke tor locking said pawls against engagement with said registering devices and means for forcing same into engagement therewith the moment the operating-pawls begin to move, for the purpose specified.

7. In a registering-machine, the combination of registering mechanism, a series of operating-pawls, a series of auxiliary yokes upon which said pawls rest, and a main operating-yoke for said series, means for locking the pawls against engagement with the registering mechanism but adapted to permit the pawls to move in one direction independent of the registering mechanism, for the purpose specified.

8. In a registering-machine, the combination of registering devices, a series of pawls, a series of auxiliary yokes adapted to carry said pawls, a main operating-yoke, means for holding said pawls out of engagement with said registering devices when said operating-yoke is moved in one direction, and means for locking said pawls in engagement with the registering devices when said main operating-yoke is moving in the opposite direction, for the purpose specified.

9. In a registering-machine, a series of operating-pawls, locking devices for said pawls, auxiliary yokes adapted to carry said pawls, a main operating-yoke and means thereon for holding said pawls in engagement with the registering mechanism but adapted to permit same to drop out of engagement for the purpose specified.

10. In a registering-machine, the combination of a series of registering devices, a main operating device and a series of auxiliary operating devices, means for disconnecting the auxiliary devices from the registering devices during the movement of the main operating device in one direction, and means connected with said main operating device for locking said auxiliary operating devices and said registering devices in engagement during movement in the opposite direction, for the purpose specified.

11. In a registering-machine, the combination of registering devices, with actuating devices for said registering devices, a main yoke and a secondary yoke and means connected with said yokes for operating said actuating devices simultaneously by both of said yokes, for the purpose set forth.

12. In a registering-machine, the combination of registering devices with actuating devices for said registering devices, a main yoke and a secondary yoke, said actuating devices being in part supported on the main and in part on the secondary yokes, but adapted to be operated simultaneously by said main and secondary yokes, for the purpose specified.

13. In a registering-machine, the combination of registering devices with pawl-levers and pawls for said pawl-levers, a main yoke and a secondary yoke, said pawl-levers and pawls being adapted to be operated simultaneously by both of said yokes, and means operated by said main yoke for holding said pawls in engagement with said registering devices during the movement of said pawl-levers in one direction, and means operated by said secondary yoke for holding the pawls against engagement with said registering-wheels during the movement of said pawl-levers in the opposite direction, for the purpose specified.

14. In a registering-machine, the combination of registering devices with pawl-levers and pawls for said registering devices, a main yoke and a secondary yoke, said main yoke and secondary yoke forming independent rests or stops for the pawl-levers and pawls adapted to cause simultaneous operation of the pawl-levers and pawls by said main and secondary yokes, for the purpose specified.

15. In a cash-register, a main operating device and a registering device connected therewith, means for moving said operating device, a stop device for said means normally in the path of movement of said means and adapted to be vibrated by said means whenever said machine is operated, for the purpose specified.

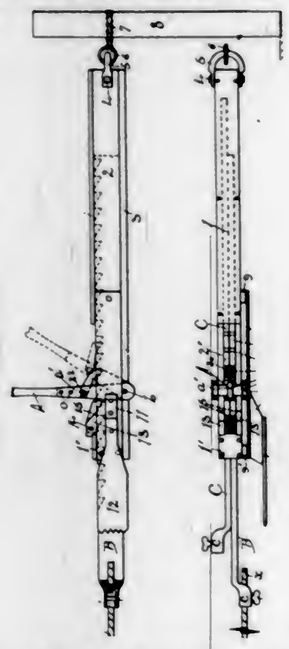
16. In a cash-register, a main operating device and means to move said device, a stop mechaniam for said means, including a weighted lever to normally hold said stop in inoperative position, said operating device being adapted to raise said lever to permit said stop to drop into operative position to prevent another operation of said device until said device has come to rest, substantially as specified.

17. In a cash-register, a main operating device and a drawer adapted to move said device, a normally inoperative stop for said drawer adapted to be thrown into operative position for a limited period by said operating device to prevent another movement of the drawer until said device has come to rest, substantially as specified.

18. In a cash-register, the main operating mechanism, a drawer, and stop mechanism for said drawer consisting of a lever with a weighted arm pivoted thereon, means connected with the operating mechanism for moving the weighted arm independently of said lever, for the pupose set forth.

19. In a cash-register, a main operating device, a drawer, and a stop-lever with a weighted arm, said lever having its inner end extending within the path of the drawer, but normally held out of the path of said drawer by said weighted arm, and means connected with said operating device for raising the weighted arm and thereby permitting the lever to be projected into the path of movement of the drawer, for the purpose specified.

750,273. WIRE-STRETCHER. DAVID M. FRY, Ulysses, Nebr., assignor of one-half to Elbert B. Zimmerman, Ulysses, Nebr. Filed June 20, 1902. Serial No. 112,501. (No model.)

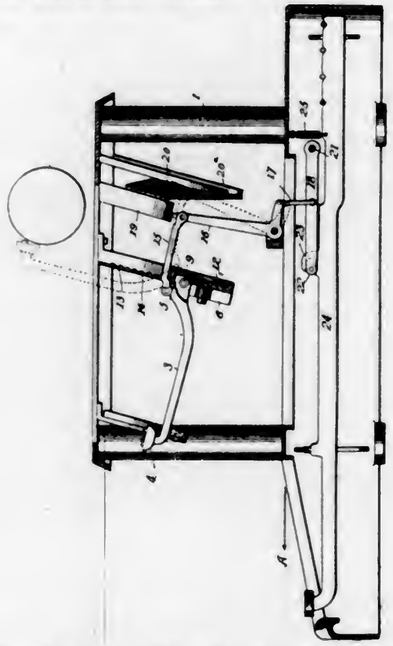


Claim.—1. The combination with an open-ended housing, of two rack-bars held within said housing, a clamp secured to each rack-bar, two pawls secured to said housing each engaging one of said rack-bars, a pivoted handle secured to said housing, pawls secured to said handle to engage said rack-bars, and a forwardly-projecting extension secured to said housing, as and for the purpose set forth.

2. In a wire-stretcher, the combination with an elongated open-ended housing provided with an opening in its top, of a pair of rack-bars slidably mounted in said housing and having their teeth directed toward said opening, a pair of pawls pivoted to the housing at one end of said opening and each engaging the teeth of one of the rack-bars, said rack-bars having clamps at their outer ends for engaging a line-wire, a bifurcated operating-handle straddling the housing above the opening of the latter and pivoted to the housing, pawls pivoted to said handle and engaging the rack-bars for moving the latter within the housing, and a forwardly-projecting extension secured to the housing and serving to anchor the stretcher to a post.

3. In a wire-stretcher, the combination with an elongated open-ended housing provided with an opening in its top, of a pair of rack-bars slidably mounted in said housing and having their teeth directed toward said opening, a pair of pawls pivoted to the housing at one end of said opening and each engaging the teeth of one of the rack-bars, said rack-bars having clamps at their outer ends for engaging a line-wire, a bifurcated operating-handle straddling the housing above the opening of the latter and pivoted to the housing, pawls pivoted to said handle and engaging the rack-bars for moving the latter within the housing, a longitudinally-extending bar arranged at the side of the housing but spaced therefrom, the operating-handle being interposed between said bar and the housing, and a forwardly-projecting extension secured to said bar and serving to anchor the stretcher to a post.

750,274. TYPE-WRITING MACHINE. CARL GABRIELSON, Worcester, Mass., assignor to L. C. Smith and Bros. Typewriter Company, Syracuse, N. Y., a Corporation of New York. Filed Feb. 18, 1903. Serial No. 143,896. (No model.)



Claim.—1. In a type-writing machine, the combination with a platen and a curved type-bar support below the platen, of a series of front-strike type-bars pivotally connected to said support, each of said type-bars consisting of a piece of sheet metal folded along a central line, the folded edge of the type-bar being arranged uppermost and the sides being separated at the pivotal end of the bar to receive the hanger, whereby the type-bar forms a shield for its bearing.

2. In a type-writing machine, the combination with a curved type-bar support, of a series of type-bar hangers detachably connected to said support and type-bars pivotally connected to said hangers, the said hangers having enlarged portions to receive fastening devices and the enlarged portions of adjacent hangers being staggered, whereby they may be closely arranged.

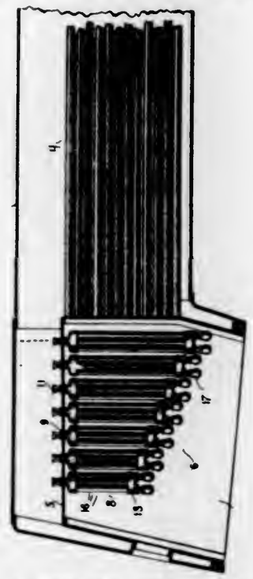
3. In a type-writing machine, the combination with a solid type-bar hanger having opposite plain bearing-faces, of a type-bar having a section arranged to embrace the hanger, and a hollow rivet passing through said type-bar and hanger and arranged to connect the parts without lost motion, said rivet being upset or headed at both ends and thus permanently connected with the type-bar.

4. In a type-writing machine, the combination with a type-bar, a sublever and a link connecting said type-bar and sublever, of a key-lever, a horizontal arm mounted on a stationary pivot and operated from the key-lever, and a link connecting the arm with the sublever, said parts being connected without lost motion.

5. In a type-writing machine, the combination with a type-bar, a sublever, and a connecting-link, of a key-lever, a pivoted arm having a pin-and-slot connection with the key-lever and a link connecting said arm with the sublever.

6. In a type-writing machine, the combination with a series of front-strike type-bars, a series of right-angled sublevers, and links connecting the vertical arms of the sublevers with the type-bars, of a series of key-levers, a fan-shaped series of arms each pivoted at its rear end and having a sliding connection with the key-lever at its forward end, and links connecting the intermediate parts of said arms with the sublevers, the pivotal point of each arm and the points of its connection with the link and the key-lever being substantially in a straight line, for the purpose set forth.

750,275. STEAM-BOILER. EUGENE U. GIBBS, Peterboro, Canada. Filed Apr. 29, 1903. Serial No. 154,776. (No model.)



Claim.—1. In a steam-boiler, the combination, substantially as set forth, of a hollow head having an outlet connection and having in its lower wall a central and a surrounding series of apertures, a hollow base having an inlet connection and having in its upper wall a central and a surrounding series of apertures a tube engaging the central aperture of one of said members and having a tapering fit in the central aperture of the other member, and tubes having right and left hand thread engagement with the surrounding apertures of the two members.

2. In a steam-boiler, the combination, substantially as set forth, of a hollow head having an outlet connection and having in its lower wall a central and a surrounding series of apertures, a hollow base having an inlet connection and having in its upper wall a central and a surrounding series of apertures a tube screwed into the central aperture of one of said members and having a tapering fit in the central aperture of the other member, and tubes having right and left hand thread engagement with the surrounding apertures of the two members.

3. In a steam-boiler, the combination, substantially as set forth, of a barrel, horizontal boiler-tubes therein, a tube-sheet in which the end of said tubes are secured, a rank of independent units disposed parallel with and near said tube-sheet at one side of the horizontal center of width of the tube-sheet, a rank of independent units similarly disposed to the other side of the horizontal center of width of the tube-sheet, each of said units being formed of a group of vertical tubes with a chamber at each end of the group, water connections from the lower chambers of the units to the interior of the boiler, and steam connections independent of each other from the upper chambers of all the units to the interior of the boiler.

4. In a steam-boiler, the combination, substantially as set forth, of a barrel, horizontal boiler-tubes therein, a tube-sheet in which the end of said tubes are secured, a rank of independent units disposed parallel with and near said tube-sheet at one side of the horizontal center of width of the tube-sheet, a rank of independent units similarly disposed to the other side of the horizontal center of width of the tube-sheet, an additional pair of ranks of independent units disposed near the first-mentioned ranks but farther from the tube-sheet, each of said units being formed of a group of vertical tubes with a chamber at each end of the group, water connections from the lower chambers of the units to the interior of the boiler, and steam connections independent of each other from the upper chambers of all the units to the interior of the boiler.

5. In a steam-boiler, the combination, substantially as set forth,

of a barrel, horizontal boiler-tubes therein, a tube-sheet in which the end of said tubes are secured, a rank of independent units disposed parallel with and near said tube-sheet at one side of the horizontal center of width of the tube-sheet, a rank of independent units similarly disposed to the other side of the horizontal center of width of the tube-sheet, each of said units being formed of a group of vertical tubes with a chamber at each end of the group, water connections from the lower chambers of the units to the interior of the boiler, and steam connections independent of each other from the upper chambers of all the units through the crown-sheet to the interior of the boiler.

6. In a steam-boiler, the combination, substantially as set forth, of a barrel, a fire-box, fire-box tube-sheet, horizontal boiler-tubes, a rank of independent units each formed of a group of vertical tubes with a chamber at each end of the group, disposed parallel with and near said tube-sheet, connections from the upper chambers of the units through the crown-sheet of the fire-box to the interior of the boiler, and connections from the lower chambers of the units through the side sheets of the fire-box to the water-legs of the boiler the units composing the half-rank at one side of the center of width of the fire-box having their lower ends at levels increasing in height toward the center of width of the fire-box.

7. In a steam-boiler, the combination, substantially as set forth, of a barrel, a fire-box, fire-box tube-sheet, horizontal boiler-tubes, a rank of independent units each formed of a group of vertical tubes with a chamber at each end of the group, disposed parallel with and near said tube-sheet, connections from the upper chambers of the units through the crown-sheet of the fire-box to the interior of the boiler, and connections from the lower chambers of the units through the side sheets of the fire-box to the water-legs of the boiler the units composing the half-rank at one side of the center of width of the fire-box having their upper ends at levels increasing in height toward the center of width of the fire-box.

750,276. VAGINAL SYRINGE. FRANCIS J. OBUSS, San Francisco, Cal. Filed May 5, 1903. Serial No. 155,715. (No model.)

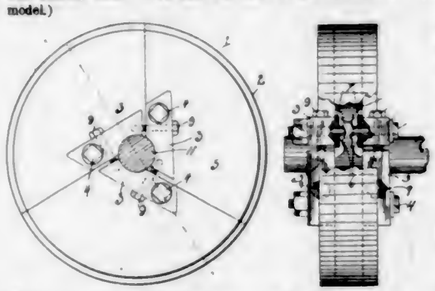


Claim.—1. A vaginal syringe comprising an outer slotted shell or casing having openings for the escape of fluid in each end, a receiving-barrel rotatably fitted within the shell or casing, said barrel having discharge-openings in its upper end and in its body portion.

2. A vaginal syringe comprising an outer shell or casing, the same having a series of openings throughout a portion of its length and escape-openings for the fluid in each of its ends, and a barrel rotatably secured within the outer shell or casing, said barrel having a series of outlet-openings in its upper end and in its body portion.

3. A vaginal syringe comprising an outer shell or casing having openings therein for the passage of the fluid, and a barrel rotatably mounted within the outer shell or casing, said barrel having tangential outlet-openings in its body portion for the discharge of the fluid.

750,277. SECTIONAL HUB FOR PULLEYS. EVLYN S. HAMILTON, Adrian, Mich. Filed Mar. 16, 1903. Serial No. 147,876. (No model.)



Claim.—1. A pulley having a sectional hub, the members of which are mounted upon the outer faces of the web of the pulley and are independently movable in a plane eccentric to the axis of the pulley and means for moving said hub members in said plane to engage and clamp the shaft.

2. A pulley having a sectional hub comprising a plurality of members mounted upon opposite sides of the web of the pulley and adapted to have movement at one end in a plane eccentric to the axis of the pulley, each of said members adapted to have a bearing upon the shaft and each having means for forcing it into contact with the shaft to lock the pulley thereto.

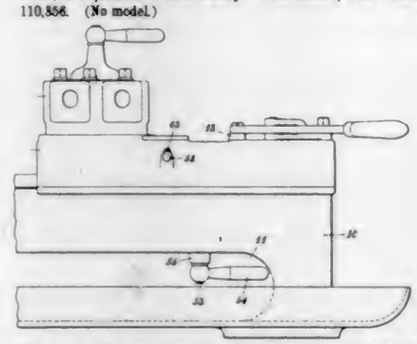
3. The combination with a pulley, of a sectional hub mounted thereon, said hub comprising a plurality of independent members arranged in pairs, the opposed members of each pair being located on opposite sides of the web of the pulley and adapted to have independent contact with the shaft, each of said members having a point of fulcrum, and a binding-screw passing through each of said members into another of said members.

4. The combination with a pulley, of a sectional hub comprising a plurality of movable members pivoted in pairs to opposite sides of the pulley and adapted at their free ends to engage the shaft, and binding-screws passing freely through each of said members and adapted to screw into another of said members to bind said members of the hub to the shaft.

5. The combination with a pulley, of a sectional hub mounted thereon comprising a plurality of members, transverse bolts passing through said members and the pulley, whereby said members are journaled in pairs upon said bolts, and means for moving the free ends of each of the members of the hub forcibly into contact with the shaft.

6. A pulley, having a hub divided into two opposed parts, located upon opposite sides of the web of the pulley, each part of said hub being divided into three members, and each member having a fixed point of fulcrum and a movable portion adapted to have a bearing upon the axle, and a screw passing freely through each of said members, and screwing into another of said members whereby each may be independently clamped upon the axle.

750,278. TOOL-TURRET MECHANISM. BENGT M. W. HANSON, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn., a Corporation of New Jersey. Filed June 9, 1902. Serial No. 110,856. (No model.)



Claim.—1. The combination with turret-operating mechanism of a bed, an abutment mounted for longitudinal adjustment on the bed beneath the said mechanism, and provided with means for cooperating with the said mechanism, during movement of the turret.

2. The combination with turret-operating mechanism, of a bed, provided with a slideway for the turret mechanism, and an abutment mounted for longitudinal adjustment on a slideway of the bed, alongside of the slideway of the turret mechanism, and provided with means for coöperating with the said mechanism during movement of the turret.

3. The combination with turret-operating mechanism, of a bed provided with a slideway for the turret mechanism, a slideway having an abutment mounted therein for longitudinal adjustment, and provided with means for coöperating with the said mechanism during movement of the turret, and a clamping device for said abutment operable from beneath the turret mechanism.

4. The combination with a turret mounted upon a slide, and arranged to be automatically indexed by the longitudinal movement of the slide, a pivoted indexing-pawl mounted to swing into and out of the path of travel of its coöperating indexing member of the turret, and means operable from the exterior of the mechanism for holding the pawl out of the path of travel of its coöperating indexing member of the turret.

5. The combination with a turret provided with an indexing member, and mounted upon a slide arranged to be automatically indexed by the longitudinal movement of the slide, a pivoted indexing-pawl mounted to swing into and out of the path of travel of the indexing member of the turret, and a manual controlling device for the pawl, comprising a longitudinally-movable plunger extending from the exterior of the mechanism and movable into and out of engagement with the pawl to hold it out of the path of travel of the indexing member of the turret.

6. The combination with a turret provided with an indexing member, and mounted upon a slide and arranged to be automatically indexed by the longitudinal movement of the slide, a pivoted indexing-pawl 35, having a rearward extension 60, a manually-operated plunger 58 movable into or out of engagement with the extension 60, and provided with a locking-groove, and a pin for locking it in and out of its pawl-engaging position.

750,279. JOURNAL-BEARING. RUSSELL HARDING, St. Louis, Mo. Filed June 9, 1902. Serial No. 110,716. (No model.)



Claim.—1. In a journal-bearing, the combination with a brass, of a key or wedge, one of said parts being provided with a face longitudinally concave and transversely straight, and the other with a face longitudinally convex and transversely straight, said faces being in contact substantially throughout the length of the bearing.

2. In a journal-bearing, the combination with a brass having an upper face longitudinally convex and transversely straight, of a key or wedge provided with a lower face longitudinally concave and transversely straight, said faces being in contact substantially throughout the length of the bearing.

750,280. SHOE-POLISHER. MORRIS A. HEIMANN, St. Louis, Mo. Filed June 22, 1903. Serial No. 162,519. (No model.)



Claim.—1. In a shoe-polisher, the combination with a handle, of a member carried by said handle, a pile of fabric pierced by said member, and means for holding said pile in position.

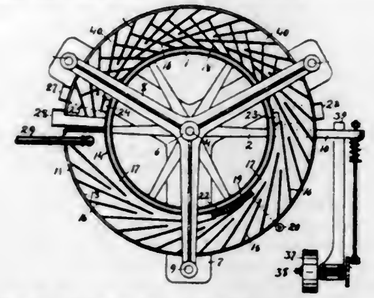
2. In a shoe-polisher, the combination with a handle, of a plurality of rods carried by said handle, a pile of fabric pierced by said rods, and means for holding said pile in position.

3. In a shoe-polisher, the combination with a handle, of a plurality of rods carried by said handle, a sinuously-folded pile of fabric pierced by said rods, and means for holding said pile in position.

750,281. ORE-CONCENTRATOR. THOMAS H. HICKS, Fort Wayne, Ind., assignor to the Hicks Gold and Silver Extraction Company, a Corporation of Georgia. Filed Mar. 8, 1902. Serial No. 97,236. (No model.)

Claim.—1. In an ore-concentrator, a spirally-descending concentrating-trough; a series of riffles 16 arranged diagonally upon the bottom of said trough and converging toward the inner wall thereof; and means to differentially oscillate the trough.

2. In an ore-concentrator, a spirally-descending concentrating-trough having a series of riffles arranged diagonally upon its bottom and converging toward the inner wall thereof; a series of diverting-blades 18 arranged upon the tops of said riffles and diverging from said inner wall; and means to oscillate the trough.



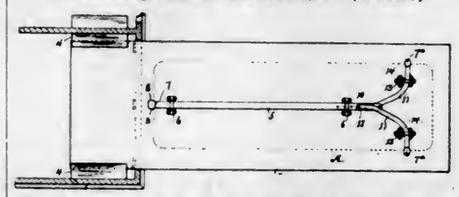
3. In an ore-concentrator, a spirally-descending concentrating-trough; a passage-way 17 for concentrates along the inner wall of said trough; a series of riffles arranged diagonally upon the bottom of the trough and converging toward said passage-way; and means to differentially oscillate the trough.

4. In an ore-concentrator, a spirally-descending concentrating-trough; a passage-way 17 for concentrates along the inner wall of the trough; a series of riffles 16 arranged diagonally upon the bottom of the trough and converging toward said passage-way; a series of diverting-blades 18 arranged upon the tops of said riffles, diverging from the inner wall of said trough and extending to points near the outer wall thereof, thereby leaving a passage-way 40 for ore-tailings along said outer wall; and means to differentially oscillate the trough.

5. In an ore-concentrator, a vertical series of spirally-descending concentrating-troughs mounted to oscillate upon a common center; a series of riffles arranged diagonally upon the bottom of each trough; and means to differentially oscillate the series of troughs.

6. In an ore-concentrator, a spirally-descending concentrating-trough having an inner wall 14, and mounted to oscillate upon its center; a passage-way 17 for concentrates in the bottom of the trough along said inner wall; a series of riffles 16 arranged diagonally upon the bottom of said trough and converging toward the inner wall thereof; a stationary water-pipe 30 located along said inner wall and arranged to discharge water into said passage-way to wash the concentrates therein; and means to oscillate the trough.

750,282. CASKET-HOLDER. GOTTLOB F. HOWOLD, Sheboygan, Wis. Filed Aug. 31, 1903. Serial No. 171,364. (No model.)



Claim.—1. A casket-holder, comprising an uptiltable support an elongated bar having a projecting catch at its lower end and slidable endwise on the support, and branching obliquely-disposed arms pivoted to the elongated bar near its other end and provided with terminal catches and secured movably to the support so as by the movement of the bar endwise to be caused to separate or to move toward each other, the construction being such that the weight of a casket on the catch at the lower end of the bar occurring by the uptilting of the support with the casket thereon forces the bar downwardly and draws the branch bars inwardly causing the catches to seize and hold the casket in place on the support.

2. A casket-holder, comprising an uptiltable support, an elongated bar secured to and slidable endwise on the support and having a terminal projecting catch at its lower end, two branching arms pivoted at one end to the elongated bar and slidable laterally toward and from each other in ways therefor on the support, said ways, and projecting terminal catches on said arms, the construction being such that the weight of a casket on the catch at the lower end of the bar

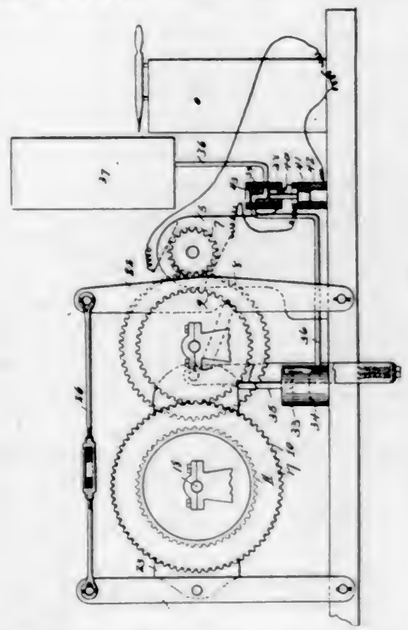
occurring by the uptilting of the support with the casket thereon forces the bar downwardly and draws the branch bars inwardly causing the catches to seize and hold the casket in place on the support.

3. In combination, a door hinged to be capable of being swung up and down, guides secured to the door, an elongated bar the lower end of which is turned outwardly forming a catch said bar being slidable endwise in said guides and adapted to be forced down by a weight on said catch when said door is uptilted, branching arms pivoted to the upper end of said bar the outer free ends of which arms are overturned outwardly forming catches, and other guides on the door in which the arms are mounted and travel laterally.

4. In a device for seizing and holding a casket, a main bar and branching arms pivoted thereto, said bar and arms being overturned at their free ends forming catches, said catches having upturned side wings, and pads inserted between the wings and secured to the catches.

5. In a device for seizing and holding a casket, a support, a main bar movable endwise on the support, branching arms pivoted to the main bar near its top and movable laterally toward and from the bar, and guides for the arms provided with bearing-wheels disposed to receive the travel of the lower edges of the arms thereon

750,283. BRAKE FOR HOISTING-MACHINES. FRANK K. HOOVER and ARTHUR J. MASON, Chicago, Ill. Filed May 1, 1903. Serial No. 155,188. (No model.)



Claim.—1. In a hoisting apparatus, the combination with a motor, a winding-drum shaft and driving connections therebetween, of a brake-pulley mounted on a rotating shaft of the apparatus, a brake applied thereto, means for normally forcing said brake against the pulley, and means actuated by the actuating agent of the motor for counteracting said brake-applying force during the hoisting of the load only, substantially as described.

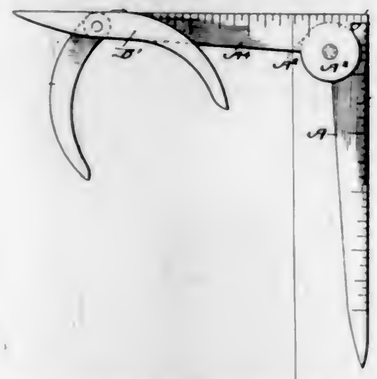
2. In a hoisting apparatus, the combination with a brake-pulley, of a brake-shoe applied to the periphery thereof, a back strut supporting said brake-shoe against the pulley and constituting one link of a toggle whereof the other link is constituted by a sector of the brake-pulley between its axis and the brake-shoe, means connected to said brake-shoe normally tending to draw the same in a direction to spread the links of the toggle, and means for counteracting said brake-shoe-actuating means during the hoisting of the load, substantially as described.

3. In a hoisting apparatus, the combination with a brake-pulley, of a pair of equalizing-bars pivotally mounted at corresponding ends on each side of said pulley, a connection between the opposite ends of said equalizing-bars, a brake-shoe carried by one of said equalizing-bars and bearing on the periphery of said pulley, a second brake-shoe applied to the periphery of said pulley opposite said first-named brake-shoe, a back strut interposed between said last-named brake-shoe and the adjacent equalizing-bar and constituting one link of a toggle whereof the other link is constituted by a sector of the brake-pulley between its axis and said brake-shoe, means connected to said brake-shoe normally tending to draw the same against the brake-pulley in a direction to spread the links of the toggle, and means for counteracting said brake-shoe-actuating means during the hoisting of the load, substantially as described.

4. In a hoisting apparatus, the combination with a brake-pulley, of a pair of equalizing-bars pivotally mounted at their lower ends on each side of said pulley, an adjustable connecting-rod uniting the upper ends of said equalizing-bars, a brake-shoe carried by one of said equalizing-bars and bearing on the periphery of said pulley, a second brake-shoe applied to the periphery of said pulley opposite said first-named brake-shoe, a back strut interposed between said last-named brake-shoe and the adjacent equalizing-bar and constituting one link of a toggle whereof the other link is constituted by a sector of the brake-pulley between its axis and said brake-shoe, a spring and connections therefrom to said brake-shoe normally tending to draw the latter against the brake-pulley in a direction to straighten the links of the toggle, and means for counteracting said brake-shoe-actuating means during the hoisting of the load, substantially as described.

5. The combination with a brake-wheel and a shaft on which the same is mounted, of a pair of brake-shoes applied to opposite portions of the periphery of the latter, a toggle arm or strut supporting one of said brake-shoes against the brake-wheel, means for drawing said last-named brake-shoe against the brake-pulley in a direction to straighten the toggle, and jointed connections between said brake-shoes whereby the brake-applying force is equally divided between said brake-shoes and the pressure on the shaft equalized, substantially as described.

750,284. COMBINATION-TOOL. JAMES JENKINS, Buckley, Wash. Filed June 6, 1903. Serial No. 160,370. (No model.)

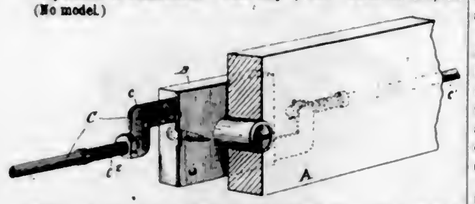


Claim.—1. A pair of dividers having one leg shorter than the other, an arm pivoted to the free end of the shorter leg, said arm having a pointed, straight portion in advance of the pivotal point and curved in the rear of said point, and a second arm pivoted to the said end of the shorter leg and curved inwardly.

2. A pair of dividers having one leg shorter than the other, an arm pivoted to the free end of the shorter leg, said arm having a curved portion, and a flat, tapering portion adapted to be brought into alinement with the leg, a lug formed on said arm and bent back upon itself and adapted to engage an edge of the shorter leg, and a second arm pivoted adjacent the first arm and curved in a direction, opposite the curve of the first arm.

3. A pair of dividers having flat legs formed with a straight edge, a scale marked on said edges, lugs projecting from said legs adjacent their pivotal point and adapted to contact and limit the outward movement of the legs when the latter are at right angles to each other, a flat arm pivoted to the free end of said legs and having a curved portion to the rear of its pivotal point and a tapering portion having a straight edge adapted to form a continuation of the straight edge of the arm, and a shorter curved arm pivoted to the said leg on the side opposite the first-mentioned arm.

750,285. LOCK. CHARLES E. JOHNSON, New Britain, Conn., assignor to the Corbin Cabinet Lock Company, New Britain, Conn., a Corporation of Connecticut. Filed July 1, 1902. Serial No. 113,943. (No model.)



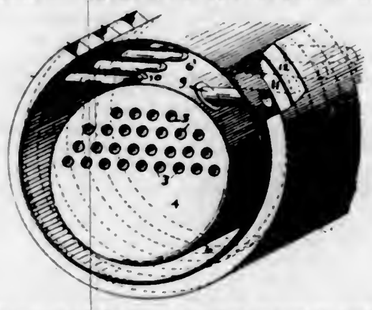
Claim.—1. In a device of the class specified, the casing, and the lock-bolts having shoulders; in combination with the bolt-actuator adapted to operate said bolts and to engage said shoulders when the bolts are extended, and means for holding the actuator in engagement with the shoulders at that time, substantially as described and for the purposes set forth.

2. In a device of the class specified the casing, the lock-bolts having shoulders, and the bolt-actuator, in combination with the spring-pressed dog coöperating with said actuator when it engages said shoulders, substantially as described and for the purposes set forth.

3. In a device of the class specified, in combination, the casing, the compound lock-bolts normally extended, said lock-bolts being made up of two parts yieldingly secured together, the tumblers, the spring-pressed dog, the bolt-actuator with which said dog coöperates, and the solid strike-plate, substantially as described and for the purposes set forth.

4. In a device of the class specified, the casing, the compound lock-bolts having parts adapted for movement independent of one another and provided with notches having shoulders, the tumblers, and the key-operated bolt-actuator working in said notches and engaging said shoulders when the bolts are in extended position; in combination with a spring-pressed dog coöperating with said actuator and holding it against said shoulders, and a projecting solid strike-plate, substantially as described.

750,286. WATER-TUBE BOILER. THOMAS W. JOHNSON, San Francisco, Cal. Filed Mar. 17, 1903. Serial No. 148,150. (No model.)



Claim.—1. In a boiler for the described purpose, the combination with the outer cylinder, of an inner water-tube cylinder arranged therein, a water-space surrounding the inner cylinder with which the tubes of said cylinder communicate, and heat-flues arranged to convey the hot products of combustion entirely around the outer cylinder, said flues connecting with the interior of the inner cylinder by means of laterally-extending flues leading therefrom.

2. A boiler for the described purpose, the same comprising an inner and an outer cylinder, a water-circulating space existing between the walls of the cylinders, a series of water-circulating tubes extending longitudinally through the inner cylinder and communicating with the water-circulating space, a series of heat-circulating flues surrounding the outer cylinder, said flues communicating with an outlet-chamber at alternate sides of the outer cylinder, and a series of laterally-extending flues leading from the inner cylinder at opposite sides and alternately connecting with the heat-circulating flues of the outer cylinder.

3. A boiler for the described purpose, the same comprising an inner and an outer cylinder, a water-circulating space existing between the inner cylinder and the outer cylinder, a series of water-tubes extending through the inner cylinder and communicating with the water-circulating space, and heat-circulating flues surrounding the outer cylinder for receiving the hot products of combustion from the inner cylinder at opposite points and discharging the same into an outlet to the stack at points opposite to the receiving-points.

4. A boiler of the character described, the same comprising an inner cylinder and an outer cylinder, the ends or heads of said cylinders being united, a water-circulating space between the walls of the said cylinders, water-circulating tubes extending longitudinally through the inner cylinder, and communicating with the water-space, and a series of heat-circulating flues surrounding the outer cylinder, said flues communicating with the inner cylinder from opposite sides.

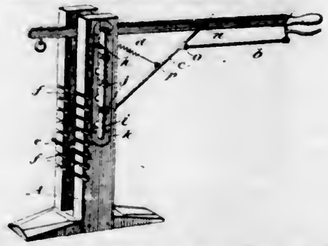
5. A boiler of the character described, the same comprising an inner and an outer cylinder, a water-circulating space between the inner cylinder and the outer, and heat-circulating flues surrounding the outer cylinder for receiving the products of combustion from the inner cylinder and leading the same in opposite directions around the outer cylinder.

6. A boiler of the character described, the same comprising an inner cylinder and an outer cylinder, a water-circulating space between the inner cylinder and the outer cylinder, a steam-drum communicating with the interior of the outer cylinder and heat-circulating flues surrounding the outer cylinder, said flues receiving the hot products of combustion from the inner cylinder and conveying the same in opposite directions around the outer cylinder.

7. The combination with an outer cylinder, of an inner cylinder arranged therein, a water-circulating space between the inner and the outer cylinders, water-tubes extending through the inner cylinder and communicating with the water-circulating space, heat-circulating flues for leading the products of combustion from the inner cylinder and conveying the same around the outer cylinder in opposite directions.

8. In a boiler of the described character, the combination with an outer cylinder, of an inner cylinder arranged therein, a water-circulating space between the cylinders, a series of water-tubes extending through the inner cylinder and communicating with the water-circulating space, a series of heating-flues surrounding the outer cylinder, said flues communicating with and receiving the products of combustion from the inner cylinder at opposite points, and water-receiving compartments which receive the feed-water for the boiler.

750,287. LIFTING-JACK. LUMAN C. KIMBERLY, Circleville, Ohio. Filed June 1, 1903. Serial No. 159,473. (No model.)



Claim.—1. In a lifting-jack; a foot or base, having two perpendiculars detachably secured to it, one near the middle of each side, at right angles to said foot, said perpendiculars having their broad sides parallel, and each perpendicular having a slot in the one directly opposite the slot in the other, said slots running lengthwise of said perpendiculars and each slot having opposite recesses arranged in pairs, one in each pair being in each perpendicular, each successive pair being located, higher and lower, and alternately in the opposite sides of the slots, substantially as described.

2. In a lifting-jack, a foot or base, having two perpendiculars detachably secured to it, one near the middle of each side, at right angles to said foot said perpendiculars having their broad sides parallel, and each perpendicular having a slot in the one directly opposite the slot in the other said slots running lengthwise of said perpendiculars and each slot having opposite recesses arranged in pairs one in each pair being in each perpendicular, each successive pair being located, higher or lower, and alternately in the opposite sides of the slots; and each perpendicular being provided with opposite notches or recesses arranged in pairs, one of each pair being opposite the other on the edge of each perpendicular which recesses engage the cross-head of the rod holding the lever in position when holding a weight, substantially as described.

3. In a lifting-jack, the combination with a foot and perpendiculars attached to each side of it as herein described, of a lever, one end of which passes between said perpendiculars, having two holes in said end in which pins are removably placed which pins may be engaged in any pair of recesses in the slots of said perpendiculars; said lever having a T-shaped lever or handle, hinged with one end of its cross-head to its under side near the end opposite the perpendiculars, the other end of the cross-head being hinged to a rod which extends along the lower side of the lever and hinges at its other end to a rod having a cross-head which hinges with one end near the middle of the lever then passes down below the lever and between the perpendiculars to their recessed edges where its cross-head may be engaged in any pair of said recesses, substantially as described.

4. In a lifting-jack, the combination with a foot and perpendiculars attached to each side of it a lever one end of which passes between said perpendiculars, having two holes in said end in which pins are engaged and having a T-shaped handle for lever hinged with one end of its cross-head to its lower edge, near the end opposite the perpendiculars, the other end of the cross-head being hinged to a rod which extends along the lower side of the lever and hinges at the other end to a cross-head rod which hinges with one end to near the middle of the lever and then passes below the lever between the perpendiculars, of a coil-spring attached with one end to the last described rod near its middle and passing obliquely upward attaching at its other end to the lever near the pins, substantially as described.

5. In a lifting-jack, the combination with a foot and perpendicular attached to each side of it, a lever one end of which passes between said perpendiculars, having two holes in said end in which pins are engaged and having a T-shaped handle for lever hinged with one end of its cross-head to the lower edge of said lever, near the end opposite the perpendiculars, the other end of said cross-head being hinged to a rod which extends along the lower side of the prying-lever and hinges at the other end to a rod which hinges with one end to near the middle of said lever, and then passes below the lever between the perpendiculars, a spiral spring attached with one end to the last described rod near its middle and passing obliquely upward and attaching at its other end to said lever near the pins, of a ring, secured to the lower side of said lever near its lifting end and close to the perpendiculars, substantially as described.

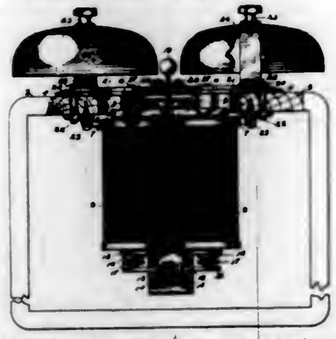
6. In a lifting-jack, the combination with a foot and perpendicular attached to each side of it, a prying-lever one end of which passes between said perpendiculars, having two holes in said end in which pins are engaged and having a T-shaped handle for lever hinged with one end of its cross-head to the lower edge of said lever, near the end opposite the perpendiculars, the other end of said cross-head being hinged to a rod which extends along the lower side of the prying-lever and hinges at the other end to a rod which hinges with one end to near the middle of said lever, and then passes below the lever between the perpendiculars, a coil-spring attached with one end to the last described rod near its middle and passing obliquely upward and attaching at its other end to said lever near the pins, of a reinforcing-plate attached to the side of each perpendicular, substantially as described.

7. In a lifting-jack, the combination of a base, two reinforced perpendiculars, each of said perpendiculars having one of its edges recessed, and having a recessed slot, a lever with pins having a ring attached to its under side, a T-shaped lever connected with a rod to a rod with a cross-head, each attached to the lower side of said prying-lever, a coil-spring connecting said cross-head rod with said prying-lever, substantially as described.

750,288. RINGER. ANTON M. KNUDSEN, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a Corporation of Illinois. Filed June 6, 1902. Serial No. 110,432. (No model.)

Claim.—1. In a polarized signaling-bell, the combination with a supporting-plate adapted to be secured to the outside of a suitable box, of gongs upon the outer side of said plate and adjustably carried therefrom, magnet-coils and associated parts including a permanent magnet carried upon the inner side of said plate and adapted to project through the wall of and into said box, whereby the mountings of the said gongs and their distances from the outside of the said box is independent of the thickness of the walls thereof, substantially as described.

2. The combination with an inclosing box, of a self-contained bell including assembled and adjusted gongs and electro and permanent magnets, one wall of said box having an aperture, and means, carrying said gongs upon one side and said magnets upon the other, for bodily mounting said bell upon said wall of the box without disassembling the same or disturbing its adjustment by passing the said magnets through said aperture from the outside and securing the bell in place thereon with the said magnets inside the box and the said gongs outside, substantially as described.



3. The combination with an inclosing box having an aperture formed in one of its walls, of a self-contained signaling-bell having a supporting escutcheon-plate fitting over said aperture on the outside of the said wall, said plate being secured to the said wall and concealing the said aperture therein, magnet-coils for the bell carried upon the inner side of said plate and projecting through said aperture into the said box, and gongs for the bell upon the outer side of said plate, whereby the said self-contained bell may be mounted upon the box with its magnets within the same and its gongs outside without disassembling the same and a finished and neat appearance is presented when the bell is so mounted, substantially as described.

4. The combination with an inclosing box having an aperture in one of its walls, of a self-contained signaling-bell comprising a supporting-plate, magnet-coils and associated parts mounted upon the inner side of said plate within the limits of said supporting-plate and adapted to readily pass through said aperture, whereby the bell may be mounted upon the box by passing the said coils and associated parts through said aperture into the box and securing the said plate to the outer face of the said wall, said plate forming an escutcheon for the said aperture and concealing the same when secured in place, and gongs for the bell upon the outer side of said plate and carried thereby, substantially as described.

5. The combination with a self-contained polarized signaling-bell comprising a supporting escutcheon-plate, a pair of magnet-coils and the associated permanent magnet and armature secured to the inner side of said plate and all within the outer limits thereof, a pair of gongs adjustably mounted upon the outer side of said plate, and a bell-tongue extending from said armature through said plate and carrying a hammer or ball in operative relation with said gongs, of an inclosing box having an aperture formed in one of its walls of sufficient size to permit said magnet-coils and associated parts to readily pass therethrough but small enough to be covered and concealed by said plate, whereby said bell may be readily mounted on said box by passing the said coils and associated parts through said aperture and securing said plate to the outer face of said box-wall without the necessity of disassembling the bell or disturbing the adjustment of its gongs, whereby the said aperture is concealed and the distance of the gongs from the outer face of the box is independent of the thickness of the walls thereof so that a neat appearance is always presented, substantially as described.

750,289. TELEGRAPH-INSTRUMENT STAND. JAMES W. LESCH, Staunton, Va. Filed Jan. 6, 1903. Serial No. 138,061. (No model.)

Claim.—1. A stand comprising a base, a standard arranged upon the base, a relay-board, and a resonator-box above the board and the side pieces connecting the relay-board and resonator-box.

2. A stand comprising a base, a standard thereon, a board upon the standard, the metal side pieces secured to the board and the resonator-box arranged upon the metal side pieces.

3. A stand comprising a base, a tubular standard, a board upon the standard, the metallic side pieces connected to the board, the resonator-box supported upon the metallic side pieces and means for making electrical connection with said side-pieces.

4. A stand comprising a base having a key arranged thereon, a tubular standard, a board and a relay arranged thereon, a resonator-box having a sounder arranged thereon, and the metallic side pieces connecting the relay-board and resonator-box, said side pieces forming part of the circuit between the relay and sounder, as specified.



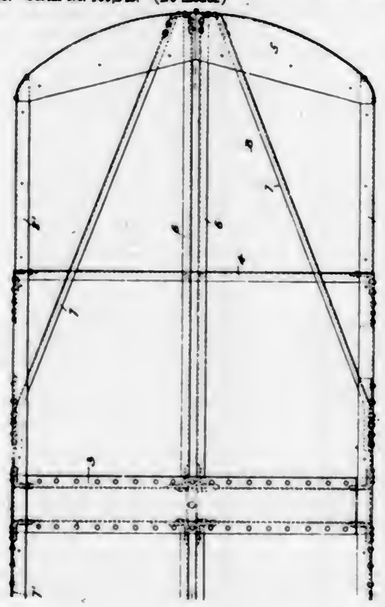
5. In a telegraph-instrument stand, a relay-base provided with means for receiving electrical connections, a resonator-box above the same provided with means for receiving electrical connections, metallic side pieces secured to the base and the box respectively, and means for making electrical connections with said side pieces.

6. In a telegraph-instrument stand, a relay-base and a resonator-box, one above the other and each provided with means for receiving electrical connections, metallic side pieces secured to the base and the box, respectively, and holding the base of the resonator substantially parallel with the relay-base, and means for forming electrical connections with the side pieces.

7. In a telegraph-instrument stand, a relay-base and a resonator-box above the same, each provided with means for receiving electrical connections, metallic side pieces secured at their ends to the base and the box respectively, and each provided with means for forming electrical connections, and a hollow standard secured to the base and provided with means for forming electrical connections with instruments on the base and in the box respectively, and with said side pieces.

8. In a telegraph-instrument stand, a perforated relay-base, a resonator-box, metallic side pieces secured to said base and box respectively, a hollow standard secured to the base with its hollow registering with said perforations, wires in the standard and wires connected with the side pieces for forming electrical connections therewith.

750,290. CAR-FRAME. CHARLES A. LINDSTRÖM, Allegheny, and JOHN F. STREIB, Avalon, Pa., assignors to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Aug. 12, 1903. Serial No. 169,345. (No model.)



Claim.—1. A metal car-frame having side sills, an end sill, and a platform-frame comprising beams supported by and above the end sill; substantially as described.

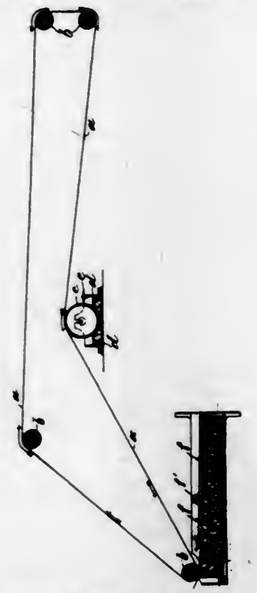
2. A metal car-frame having side sills, an end sill, and a platform-frame comprising a draft-sill extending over the end sill and supported thereby; substantially as described.

3. A metal car-frame having side sills, an end sill, and a platform-frame comprising a draft-sill and braces extending over the end sill and supported thereby; substantially as described.

4. A metal car-frame having side sills, an end sill, and a platform-frame comprising diagonal braces extending from the platform end sill over the end sill of the car-frame and fixed to the side sills near the bolster; substantially as described.

5. A metal car-frame having side sills, an end sill, a platform-frame comprising diagonal braces extending from the platform end sill and fixed to the side sills near the bolster and having extensions reinforcing the side sills and extending to the rear of the bolster; substantially as described.

750,291. APPARATUS FOR COATING PAPER OR THE LIKE WITH ADHESIVES. FELIX MAGNE, Warrington, England. Filed June 24, 1902. Serial No. 113,014. (No model.)



Claim.—1. Apparatus for feeding and pasting paper comprising an endless traveling band; a series of rollers supporting said band; a pasting device in contact with the band and a receptacle to contain a pile of papers to be fed and pasted so pivoted that the weight of the papers or rear end of the receptacle acts to bring each sheet successively against the traveling band substantially as described.

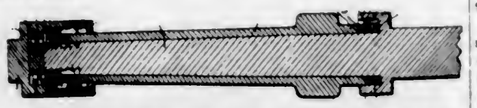
2. In apparatus for feeding and pasting paper, the combination with an endless traveling band supplied with a coating of adhesive of a stationary frame provided at its front end with a series of plates projecting therefrom, an overweighted paper-receptacle pivoted thereto and a series of pins located on the front end of said receptacle adapted to pass between the plates on the stationary frame substantially as described.

750,292. AXLE BOX AND SPINDLE. GILBERT MARTIER, Mansfield, Ohio. Filed June 9, 1903. Serial No. 160,695. (No model.)

Claim.—1. The combination with a cap-nut, of a washer endwise movable longitudinally therein, and comprising members one adapted to rotate upon the other and to bear upon the hub, antifriction-bearings between said members, and a spring bearing against said members for the purpose set forth.

2. A cap-nut, having a spring-pressed washer to bear against the outer end of the hub on a spindle, said washer comprising a longitudinally-movable non-rotatable member, a rotatable member, the

latter bearing on the hub, and antifriction-bearings between the two members.

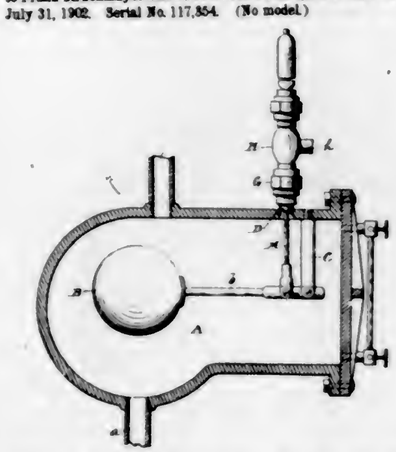


3. A cap-nut, a spring-pressed washer disposed therein and comprising a member held from rotation within the nut, a second member adapted to bear against the vehicle-box, antifriction-bearings between the two members, and a spring acting on the washers.

4. A cap-nut having grooves therein, a spring-pressed washer comprising a member having projections entering said grooves to hold it against rotation, a second member adapted to bear against a vehicle-box, ball-bearings between the two members, and a spring acting on the washer.

5. The combination of an axle-spindle having a threaded end, a cap-nut having a threaded socket receiving said threaded end and having a chamber outside said socket, an axle-box disposed upon said spindle and having its outer end entering the cap-nut in line with said outer chamber, a collar mounted upon the inner end of the cap-nut and encompassing the outer end of the axle-box so as to inclose the same within the cap-nut, a spring in said outer chamber, and a washer acted upon by said spring, said washer comprising two members one laterally movable within the cap-nut but held from rotation and engaged by the spring, and the other rotatably mounted within the cap-nut and bearing upon the end of the axle-box, and antifriction-bearings between the said members of the washer.

750,293. AUTOMATIC WATER-FEED REGULATOR AND LOW WATER ALARM. ARTHUR M. MASTERS, Jacksonville, Ill., assignor to Frank Birkenmayer and Fred W. Sibert, Morgan county, Ill. Filed July 31, 1902. Serial No. 117,354. (No model.)



Claim.—1. In a water-feed regulator and low-water alarm, a steam-duct connected with a boiler, a valve-stem in said duct, two valve-faces on said stem, one connected with the water-supply pump, the other with an alarm, and means to control the action of said valve-stem, substantially as shown and described.

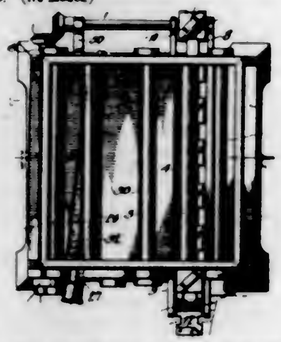
2. In a water-feed regulator and low-water alarm, a steam-duct connected with a boiler, a float-controlled valve-stem therein, and two valve-faces on said stem, one connected with the water-supply pump, the other with a suitable alarm, substantially as shown and described.

3. In a water-feed regulator and low-water alarm, a vertical steam-duct connected with a boiler, a float-controlled valve-stem therein, a valve-face on said stem connected with the water-supply pump, a valve-stem loosely but operatively connected with the first-mentioned valve-stem, and a valve-face on said stem connected with a suitable alarm, substantially as shown and described.

4. In a water-feed regulator and low-water alarm, a vertical steam-duct connected with a boiler, a valve-stem in said duct, means to control the action of said valve-stem by the rise and fall of the water in the boiler, a valve-face on said stem connected with the water-supply pump, a valve-stem loosely but operatively connected with the first-named valve-stem, and a valve-face on the last-named valve-stem connected with an alarm, substantially as shown and described.

5. In a water-feed regulator and low-water alarm, a casing connected with the boiler, a float pivoted therein, a valve-stem connected with said float, a valve-face on said stem to seat in the water-feed-pump steam-supply valve-port, a valve-stem mounted in a bore in the end of the first-mentioned valve-stem, a pin in said valve-stem fitting in slots in said first-mentioned valve-stem, and a spring to keep said valve-stem in position to close the valve, substantially as shown and described.

750,294. WOOD SCRAPING AND SMOOTHING MACHINE. NICKELS J. MATTHIESEN, Clinton, Iowa. Filed Jan. 27, 1903. Serial No. 140,773. (No model.)



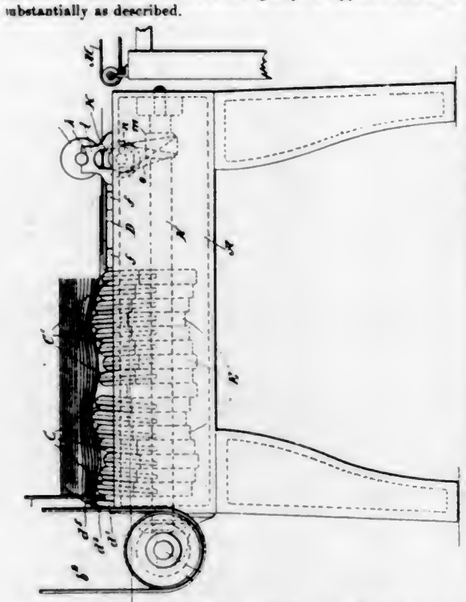
Claim.—1. The combination in a machine of the class described of a supporting-frame, a feed-bed mounted on said frame and having transverse openings therein, feed-rolls mounted in openings in said bed, an endless belt traveling below said bed, means for imparting movement to said belt, a plurality of scraper-blocks mounted on said belt, each of said blocks having on the face thereof a rib disposed obliquely to the line of travel of the blocks and having the forward surface thereof inclined rearwardly, and a plurality of scraping-cutters mounted upon the ribs upon said scraper-blocks.

2. The combination in a machine of the class described of a supporting-frame, feed mechanisms carried by said frame, an endless chain disposed transversely of said supporting-frame, scraper-blocks mounted on said chain, scraping-carriers secured to said blocks, guiding means for said blocks comprising a trough having a rib on each side extending longitudinally thereof and engaging corresponding grooves on said blocks, and means for adjusting the height of said trough, said adjusting means comprising a shaft disposed transversely of the main frame and having a gear at each end, rack-bars extending downward from said trough and meshing with said gears, and a worm-gear intermediate the ends of said shaft, and a counter-shaft connected with the shaft carrying the gears by means of said worm-gear, substantially as described.

3. The combination in a machine of the class described, of a supporting-frame having a feed-bed provided with transverse openings, an endless belt traveling beneath said bed near the forward portion of the machine, a plurality of scraper-blocks mounted on said belt and traveling in an opening in said bed, a sand-roll mounted in an opening in said bed near the rear thereof, a main driving-shaft rotatably mounted in said frame beneath said belt, a counter-shaft at the rear of said frame, a second counter-shaft at one side of said frame, bevel-gearing connecting said counter-shafts, a pulley on the last-named counter-shaft over which the scraper-carrying belt travels, a pulley on the first-mentioned counter-shaft, a pulley on the sand-roll, a plurality of pulleys on the main driving-shaft, and belts extending from the pulleys on the main driving-shaft to the pulley on the first-mentioned counter-shaft and to the pulleys on the sand-roll, whereby motion is imparted to the sand-roll and to said counter-shaft.

750,295. PAPER-FEEDING MACHINE. CHARLES R. MAXSON, Westerly, R. I., assignor to the Maxson Printing Press Company, Westerly, R. I., a Corporation of New Jersey. Filed Apr. 7, 1903. Serial No. 151,474. (No model.)

Claim.—1. The combination, with the supporting and feeding bars of a feeding-machine divided into a plurality of groups, of mechanism for imparting an up-and-down movement to said bars progressively from one end of the row to the other and inclining the movement of the bars of the alternative groups in opposite directions substantially as described.



2. The combination, with the supporting and feeding bars of a feeding-machine comprising a front and a rear group, of which the bars of the former group are more numerous than those of the latter group, and an upwardly-extending vertical wall or abutment arranged in rear of the rear group, of mechanism for imparting an up-and-down forwardly-inclined movement to the bars of the rear group and an up-and-down rearwardly-inclined movement to the bars of the front group, progressively from the extreme end of one group to the opposite extreme end of the other, substantially as described.

3. The combination, with the supporting and feeding bars of a feeding-machine comprising a front and a rear group, of which the bars of the former group are more numerous than those of the latter group, an upwardly-extending vertical wall or abutment, and delivery-rolls, of mechanism for rotating such rolls and imparting an up-and-down forwardly-inclined movement to the bars of the rear group and an up-and-down backwardly-inclined movement to the bars of the front group, progressively from the rear of the rear group to the front of the front group, substantially as described.

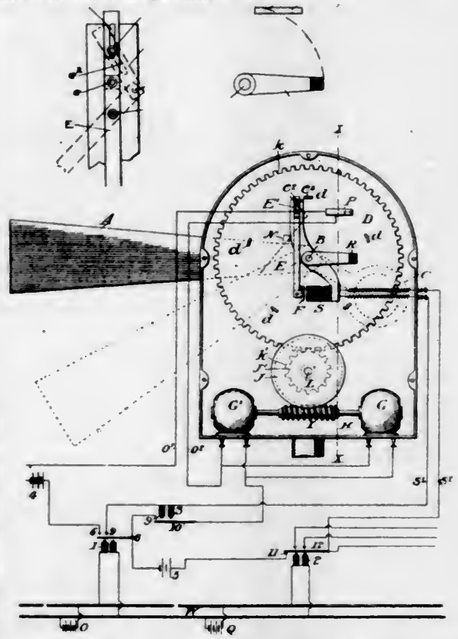
4. The combination, with the main frame of a paper-feeding machine, and a series of supporting and feeding bars arranged side by side and adapted to move up and down independently of one another in said main frame, of cams by which these supporting and feeding bars are operated, and shoes interposed between these bars and their respective cams, substantially as described.

5. The combination, with the supporting and feeding bars of a feeding-machine, and the cams by which they are operated, of shoes pivoted to such bars and engaging with said cams, whereby the operation of the bars is effected from the cams through said shoes, substantially as described.

750,296. ELECTRIC RAILWAY-SIGNAL. WILLIAM V. MOAK, Albany, N. Y. Filed Dec. 8, 1902. Serial No. 134,289. (No model.)

Claim.—1. In an electric railway-signal operated automatically by means of track-relays; a compound lever mounted fixedly on the semaphore-shaft; said compound lever being composed of two parts pivoted together at their adjacent ends, each part turning on its separate stationary pivot; a driving-wheel loosely mounted on said semaphore-shaft and adapted to engage said lever; an electromagnet also fixedly mounted upon said semaphore-shaft controlling said lever, in combination with an electric motor operating said driving-wheel and electrical circuits controlling said motor and said magnet by means of said track-relays, substantially as described and for the purposes set forth.

2. In an electric signal for railways, a signal-blade mounted fixedly upon the semaphore-shaft; a driving-wheel mounted loosely upon said shaft; a compound lever, composed of two parts pivoted together at their adjacent ends and each part turning on its separate pivot, mounted fixedly upon said shaft; an electromagnet also mounted fixedly upon said shaft; said electromagnet adapted to control said compound lever and when magnetized to hold said compound lever rigid; projections on said driving-wheel adapted to engage said compound lever when the same is held rigid by the electromagnet and not otherwise; one or more electric motors mounted upon another shaft and adjusted not to stop on a dead-center; means for operating said driving-wheel by said motors; electrical circuits connecting said motors and said magnet with the track-relays, whereby said motors and said magnet will be controlled by said track-relays and operated automatically by passing trains, substantially as described and for the purposes set forth.



3. An electrical railway-signal consisting of a signal-blade mounted fixedly upon a shaft; a driving-wheel provided with catches and mounted loosely upon the same shaft; a compound lever mounted fixedly upon the same shaft and adapted to be engaged by said catches, when the compound lever is rigid and straight; an armature of soft iron attached to one end of said compound lever and adapted to come in contact with an electromagnet; an electromagnet controlling said compound lever and holding it rigid and straight when magnetized and releasing it when demagnetized; an electrical circuit through said electromagnet and a signal-relay said circuit being controlled by the track-relays; a motor mounted upon another shaft; an electrical circuit through said motor controlled by a track-relay; intermediate connections for operating said driving-wheel by said motor; a signal-relay; two or more track-relays arranged and adapted to be operated by the passing train, substantially as described and for the purposes set forth.

4. In an electrical railway-signal, adapted to be operated automatically by means of passing trains; a signal-blade mounted fixedly upon a shaft; an overbalance on the opposite side of said shaft adapted to hold said signal-blade in a horizontal position when the mechanism of said signal is not acted upon by an electrical current; a driving-wheel mounted loosely upon said shaft; one or more catches upon said wheel adapted to engage a compound lever mounted fixedly upon said shaft and thereby to revolve said shaft, moving said signal-blade from its horizontal position; an electromagnet revolving with said shaft and adapted to hold said shaft in position when magnetized and to release the same when demagnetized; an electrical circuit controlled by a track-relay through said electromagnet; a circuit-breaking arm fixedly mounted upon said shaft and arranged and adapted to come in contact with a circuit-breaking spring when said shaft revolves; a circuit-breaking spring adapted to be acted

upon by said current-breaking arm, and when so acted upon break the motor-circuit; one or more motors mounted upon another shaft; means for operating said driving-wheel by means of one or more intermediate gear wheels and shafts, in combination with two track-relays and one signal-relay and an electrical circuit controlled by a track-relay through the armature connection in the signal-relay to said motors, which track-relays are operated automatically by means of passing trains, substantially as described and for the purposes set forth.

3. In an electric railway-signal, two insulated sections of the rail; an electric battery connected to each of said insulated sections; two track-relays one connected to each of said sections and operated by the current of said batteries automatically by means of passing trains; an electric railway-signal and means for operating the same by an electric motor; an electric motor adapted to operate the same; an electromagnet controlling said signal; a signal-relay and an electric battery connected with said signal-relay; an electric circuit through said signal-relay and the said electromagnet and controlled by said track-relays; substantially as described and for the uses and purposes heretofore set forth.

6. In a system of electric railway-signals, a railway divided into signal-blocks; two insulated sections of the rail in each signal-block; an electric battery connected to each section of insulated rail; two track-relays one connected to each of said insulated sections of each block and operated by the current of said batteries automatically by means of passing trains; the second section of each individual signal-block being the first section of the following or succeeding block; the second-section track-relay of each individual signal-block being the first-section track-relay in the following or succeeding block; an electric railway-signal located in each block; an electromagnet controlling the action of the signal-blade of each signal, electrical connection from the second-section track-relay of the immediate semaphore to the following or succeeding semaphore; a signal-relay and a battery connected therewith for each semaphore; the circuit of said battery being controlled by a track-relay and completed through the signal-relay and the electromagnet which it operates, said signal-relay with said track-relay controlling the motor-circuit, substantially as described and for the uses and purposes heretofore set forth

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750,297. NASAL DOUCHE. FRED W. MOFFITT, Chicago, Ill. Filed Feb. 24, 1903. Serial No. 144,553. (No model.)



Claim.—1. A nasal douche comprising a transparent reservoir having openings at its opposite ends, an apertured stopper adapted to contain a nasal or ear tube for one of said openings, a boss near the bottom of said reservoir provided with intersecting apertures, one thereof communicating with the exterior of said reservoir when the other aperture is closed, a valve seated in one of said apertures and controlling both thereof, and means upon the body of said reservoir for measuring contents therein.

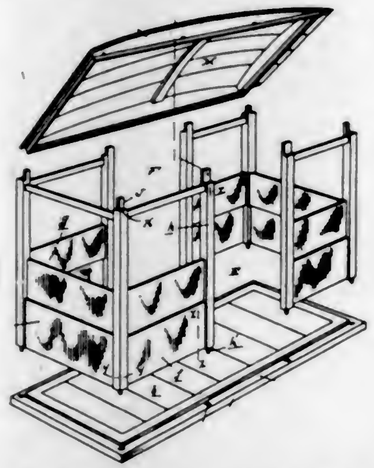
2. A nasal douche having a boss near its bottom, oppositely-disposed medicine and air inlets in the body of said reservoir, one of said inlets extending through said boss, said inlets being directed in planes at right angles to each other, an apertured stopper for one of said inlets and a rotary valve seated in said boss-inlet controlling the flow of medicine out of the other inlet.

3. A nasal douche, comprising a reservoir having an upper mouth and provided with a boss, an air-inlet through said boss, a transverse aperture extending through the side of said boss and communicating with said air-inlet and a stopper and a tube for the mouth of said reservoir.

4. A nasal douche, comprising a reservoir having an upper mouth and a projecting boss at its bottom, an air-inlet in said boss communicating with the interior of the reservoir, a transverse valve-aperture extending through the side of said boss and communicating with said inlet and the valve for said inlet controlling said aperture.

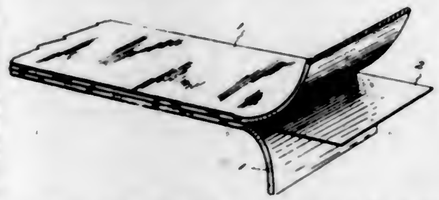
5. A nasal douche comprising a reservoir having an upper mouth or opening and a lower enlargement provided with an air-inlet extending therethrough and through the wall of said reservoir, a passage extending through one side of said enlargement, an apertured stopper and tube for said mouth adapted, respectively, to serve as a filler-opening and a discharge-outlet and a rotary valve controlling said inlet and passage for admitting and controlling the quantity of air through the lower part of said reservoir.

750,298. VEHICLE-BODY. ROBERT F. MONROE, Pontiac, Mich. Filed Dec. 2, 1902. Serial No. 133,554. (No model.)



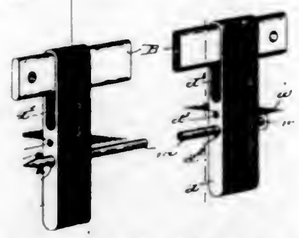
Claim.—In a wagon-body the combination with a base-section provided with a reduced marginal portion projecting outwardly from an adjoining surrounding shoulder or abutment and a plurality of apertures disposed at predetermined points around said margin, a pair of independent substantially rectangular subsections separated to form door-openings, each section having posts abutting the surrounding shoulder on the base-section and provided with pins at their lower ends fitting the apertures in the margin of said base-section, the upper corners and sides of the posts being cut away to form inside projecting portions, and a cover having a downwardly-extending surrounding flange fitting outside of said projecting portions of the posts and resting thereon.

750,299. BELTING. CHARLES E. NEWTON, Hartford, Conn. Filed Sept. 25, 1902. Serial No. 124,786. (No model.)



Claim.—A belt consisting of an inner ply of partially-vulcanized rubber-gum and sulfur, and two outer plies of tawed leather having its gelatinous matter rendered insoluble in water and its pores permeated with partially-vulcanized rubber-gum, the plies having been united and solidified by heat and pressure, substantially as specified.

750,300. WARP STOP-MOTION FOR LOOMS. WILLIAM OLDFIELD, New Bedford, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 23, 1903. Serial No. 182,325. (No model.)



Claim.—1. In a warp stop-motion for looms, a series of longitudinally-slotted controlling-detectors each having a warp-eye, a detector-support extended through the slots, and means to temporarily retain the lower ends of the detectors in substantial alinement after the warps are drawn in and prior to positioning of the detectors in the loom.

2. In a warp stop-motion for looms, a series of longitudinally-slotted controlling-detectors each having a warp-eye, and an opening below it, a detector-support extended through the slots, and a tie-rod adapted to be temporarily inserted in the openings of the detectors after the warps are drawn in, to prevent separation of the lower ends of the detectors and entanglement with the warps prior to positioning of the detector-support and detectors in the loom.

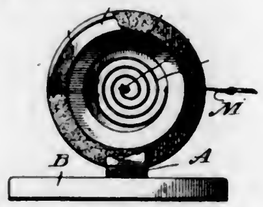
3. In a warp stop-motion for looms, a series of longitudinally-slotted controlling-detectors each having a warp-eye, and an opening below it, a detector-support extended through the slots, a rod having a head at one end, adapted to be temporarily inserted in the openings of and retain the detectors substantially alined after drawing in of the warps and a detachable retaining device for the other end of the rod.

4. In a warp stop-motion for looms, a series of longitudinally-slotted controlling-detectors each having a warp-eye, a detector-support extended through the slots, and means to temporarily engage the individual detectors and hold their lower ends together after the warps have been drawn in, to prevent entanglement of the warps.

5. In a warp stop-motion for looms, a series of controlling-detectors each having a warp-eye, and a separate opening for a detector-support, and means cooperating with said detectors on that side of the warp-eyes beyond the support-receiving openings to hold the warps between said means and the detector-support.

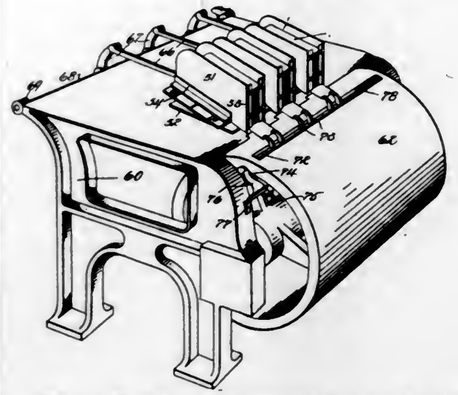
6. In a warp stop-motion controlling-detector having an elongated slot adapted to receive a detector-support, a warp-eye, and an opening below and independent of the warp-eye, substantially for the purpose set forth.

750,301. ROTARY WHEEL FOR SHARPENING RAZORS. CORNELIUS PHILIUS, Olean, N. Y. Filed Mar. 18, 1903. Serial No. 148,394. (No model.)



Claim.—A rotary wheel for sharpening razors comprising a base, a U-shaped yoke secured to said base and having a rectangular outlined aperture in one of its ends, a shaft, one end of which is rectangular shaped and is adapted to conform to and be held by said aperture and its other end mounted in the opposite end of the yoke, a winding-drum mounted upon said shaft, a wheel rotating with said drum and having one of its faces recessed, a spring seated in said recess having one end secured to said shaft and the other to the marginal wall of said recess, a cover closing said recess, an emery surface surrounding said cover and adjacent to the marginal circumference of said wheel, and a strap about the circumference of the wheel, as shown and described.

750,302. APPARATUS FOR FEEDING SELF-OPENING SQUARE PAPER BAGS. WILLIS PIPPERT, Rumford Falls, Me., assignor to Continental Paper Bag Company, Rumford Falls, Me., a Corporation of Maine. Filed Sept. 30, 1903. Serial No. 175,129. (No model.)



Claim.—1. Feeding apparatus comprising a tray having a yieldable bottom at one end; a stop at such end for a pile of material to be fed; a yieldable finger adapted to engage the lowermost article of the pile; means to actuate the same to engage such article and press the yieldable bottom and be depressed by said stop in issuing from the tray with the engaged article.

2. In an apparatus to feed paper bags, the combination of a tray; fingers adapted to engage the diamond fold at the bottom of the lowermost bag in a pile; means to reciprocate said fingers to feed forward the engaged bag; and yieldable means in the path of movement of the fingers to normally sustain the bottom ends of a pile of bags at one end of the tray.

3. In apparatus to feed paper bags, the combination of a tray open at one end near the bottom, yieldable means to normally sustain the bottom ends of a pile of bags at the open end of the tray; a reciprocatable member adjacent to such portion of the tray, a fork carried thereby and having tines to engage the front triangular fold of the bottom of the lowermost bag, a portion to depress said support, and means to reciprocate said member to feel the engaged bag out of the tray.

4. In an apparatus to feed paper bags one at a time from a pile, the combination of a tray; a spring-support at one end thereof for the bottom ends of a pile of bags; a track parallel with one bottom of such tray; a carriage upon the track; means to reciprocate the carriage; fingers to engage the lowermost bag of such pile at the front diamond fold; a stop at the front of the tray to maintain the bags in the tray, and organized upon the reciprocation of the fingers with an engaged bag to depress such fingers as the end of the bag is projected from the tray.

5. Feeding apparatus comprising a receptacle to contain a pile of articles to be fed, a yieldable support at each side of the bottom and adjacent to one end of said receptacle, an opening in such end of the receptacle and the end wall thereof engaged by such supports when in their normal position; a yieldable member on each side organized to engage the lowermost article on the pile, depress the supports, be depressed by the end wall and carry such article below such wall, and having an obtuse end with one corner turned upwardly.

6. In an apparatus to feed paper bags, the combination of a tray open at one end near its bottom and having sides adjustable toward and from each other to accommodate bags of different widths, a shiftable support in the tray for the bottom ends of the bags at the open end thereof; a member mounted for reciprocation lengthwise of the tray; a fork carried thereby and having tines to engage the front triangular fold of the lowermost bag; means to adjust the tines toward and from each other to assume positions to engage bags of different widths, a portion of said member to depress said support, and means to reciprocate said member to feed the engaged bag out of the open end of the tray.

7. In combination with a printing-press having a number of feed-grippers working in unison, of a number of receptacles to contain piles of the articles to be fed, yieldable supports at the bottom of each receptacle at each side thereof and adjacent to one end, an opening in such end of the receptacle and the end wall thereof engaged

by such supports when in their normal position; a yieldable member on each side organized to engage the lowermost article on the pile, depress the supports, be depressed by the end wall and carry such article below such wall, and having an obtuse end with one corner turned upwardly, and means controlled by the press to actuate the same in unison.

8. In an apparatus to feed paper bags to a printing-press having means to grip a series of such bags at intervals, the combination of a series of trays each open at one end near its bottom and having sides adjustable toward and from each other to accommodate different sizes of bags, a shiftable support in the tray for the bottom ends of the bags at the open end thereof; a member mounted for reciprocation lengthwise of the tray; a fork carried thereby and having tines to engage the front triangular fold of the lowermost bag; means to adjust the tines toward and from each other to assume positions to engage different sizes of bags, a portion of said member to depress said support; and means to reciprocate said members in unison to feed a bag out of the open end of each of the trays.

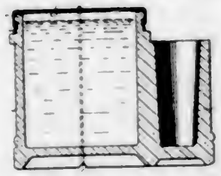
9. In an apparatus for feeding paper bags, the combination with a tray to contain a pile of bags to be fed and having an opening at one end, of a spring-support to hold the bags in position; spring-fingers to engage the bags one at a time; and means to advance the fingers; the organization being such that the fingers at their advance will engage the bag, depress the spring-support, and be depressed by the front stop upon projecting the bag from the tray.

750,303. BOTTLE. CHARLES B. RHOADS, Kimmundy, Ill. Filed Mar. 20, 1903. Serial No. 148,781. (No model.)



Claim.—In combination, a bottle having an inner tubular extension about in line with the neck, said extension being provided with lateral openings, a plug of soft material insertible into the said tubular extension through the neck of the bottle adapted to close the lateral openings thereof a perforated stop located at the inner end of the tubular extension aforesaid, and a protector disposed upon the plug and comprising a head and stem, the stem being received by the plug and the head integrally formed with the stem and disposed upon the upper side of the plug to prevent insertion of an extracting instrument into the said plug.

750,304. PASTE-RECEPTACLE. AUGUST N. RITZ, Milwaukee, Wis. Filed Mar. 20, 1902. Serial No. 99,067. (No model.)

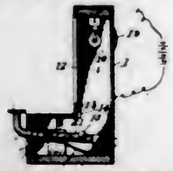


Claim.—1. A receptacle for paste or analogous adhesive material, having an annular groove in its outer surface adjacent to its upper end, said groove having an absolutely straight inclined wall, intermediate of its upper and lower walls, in combination with a surrounding flexible gasket fitting within said groove, and having its entire upper and lower edges in contact with the upper and lower walls of said groove, and a cover having an absolutely vertical depending flange for engagement with the outer straight inclined surface of said gasket.

2. A receptacle for paste or analogous adhesive material, formed with a series of notches or depressions in its lower edge and with an oblique walled annular groove in its outer upper end, said groove being of greater diameter at its lower than at its upper edge, in combination with an elastic gasket fitting within said groove; a cover having a series of notches or depressions in its upper edge, and a depending flange in engagement with said gasket, and a wire or analogous device fastened around the closed receptacle, and fitting within said notches or depressions in the receptacle base and cover, whereby the cover is held downward on the gasket, against the continuous upward pressure of the latter.

3. In a paste-receptacle, the combination with the vessel-body having an obliquely-disposed elastic gasket held against the outer surface of its upper end, of a cover having a downward flange impinging upon the said gasket, and a fastening-wire surrounding said receptacle and cover, whereby the said cover-flange is held with downward pressure on the said gasket, and the upward pressure of the latter thereby restrained, as long as said wire is kept fastened.

750,305. CIGAR-CUTTER. WILLIAM M. ROBERTS, Newport News, Va. Filed Oct. 22, 1902. Serial No. 128,212. (No model.)



Claim.—1. A cigar-cutter, consisting of a casing having an opening for a suitable display or advertisement, electric lights in rear of said space or opening, connections leading from said lights, a movable contact for engaging said connections and a cutter having a movable contact mounted thereon, said cutter adapted to cut the cigar and simultaneously move said contact to close the circuit and light the lights to display the advertisement.

2. A cigar-cutter, consisting of a casing, a lever pivoted in said casing and carrying a knife, a movable contact mounted upon and operated by said lever, electrical connections leading to lamps and lighted by the said movable contact engaging said connection.

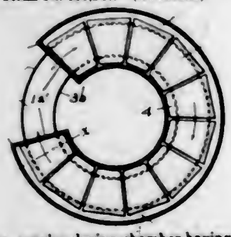
3. A cigar-cutter consisting of a casing having a display-window, lamps in rear of said window, electrical connections leading from said lamps, contact-plates to which said connections lead, a lever moving between said contact-plates, a knife carried by said lever for cutting the end of the cigar, and a movable contact mounted in the lever and adapted to engage the contact-plates to light the lamps.

4. A cigar-cutter consisting of a casing, an advertising device within the casing, lights for illuminating said advertising device, connections leading from said lights, contact-plates to which said connections lead, a lever pivoted in the casing carrying a cutter, and a movable contact carried by the lever and when operated to cut the cigar simultaneously causing the movable contact-plates to close the circuit and light one of the lights to illuminate the advertisement.

5. The combination of a casing, an advertising device arranged in said casing, incandescent lamps for illuminating said advertising device, contact-plates connected with said lamps, a lever having a cigar-cutter, and a movable contact carried by said lever and moving in guides of said lever and engaging the contact-plates when the lever is moved to light the lamps and display the advertisement in the casing.

6. The combination of a casing, an advertising device in said casing, incandescent lamps for illuminating said advertising device, contact-plates connected with said lamps, a lever having a cigar-cutter and having a channel on its upper face, a movable contact traveling in said channel for engaging the contact-plates.

750,306. DRY-KILN. EDWIN F. ROUSE, Bay City, Mich. Filed June 5, 1903. Serial No. 160,248. (No model.)

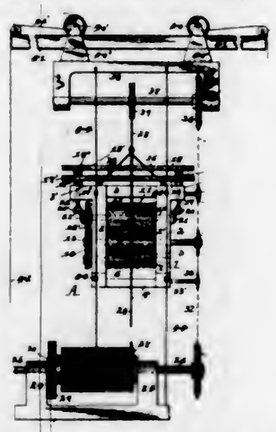


Claim.—1. An annular drying-chamber having closed ends facing each other across an open space; continuous circular tracks through said chamber and across the open space and separate cars adapted to travel around said tracks.

2. An annular drying-chamber having closed ends facing each other across an open space; continuous circular tracks through said chamber and across the open space and separate cars adapted to travel around the tracks and filling the tracks within the chamber, so that pushing another car into one end will push out a car at the opposite end into said open space.

3. An annular drying-chamber having closed ends facing each other across an open space; continuous circular tracks through said chamber and across the open space and separate cars adapted to travel around the tracks and filling the tracks within the chamber, so that pushing another car into one end will push out a car at the opposite end into said open space; each car having radially-disposed axles, and having small wheels adapted to roll on the inner rail and large wheels adapted to roll on the other rail, said wheels having diameters proportional to the distance of the rails from their common center.

750,307. PAINTING-MACHINE. GEORGE RUSSELL, McKeesport, Pa., assignor to McKeesport Plate Company, McKeesport, Pa., a Firm. Filed June 19, 1903. Serial No. 162,343. (No model.)



Claim.—1. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, brushes on said frame adapted to supply and spread the material on the wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes, means for permitting the main frame to travel vertically along said wall, and means for permitting the main frame to travel horizontally along said wall.

2. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to said wall, brushes on said frame adapted to supply and spread the material on the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes and rollers, means for permitting the main frame to travel vertically along said wall, and means for permitting the main frame to travel horizontally along said wall.

3. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, a brush on said frame for supplying the material to the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, means for spreading the material on said wall, mechanism for operating said supply-brush, rollers and spreading means, and means for permitting the main frame to travel along said wall.

4. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, a brush on said frame for supplying the material to the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, brushes on said frame for spreading the material on said wall, mechanism for operating said supply-brush, feeding-rollers and spreading-brushes, and means for permitting the main frame to travel along said wall.

5. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, means for gathering the material from a suitable source and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, and means connected to said supporting and main frames for permitting the said frames to travel along said wall.

6. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, means for gathering the material from a suitable source and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, a sheave mounted on a shaft in said supporting-frame, and a rope passing around said sheave and connected to said main frame and to a suitable source of power for permitting said main frame to be raised and lowered along said wall.

7. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, means for gathering the material from a suitable source and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, a sheave mounted on a shaft in said supporting-frame, and a rope passing around said sheave and connected to said main frame and to a power-driven winding-drum for permitting said frame to be raised and lowered along said wall.

8. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes, a frame supporting the main frame adjacent to the wall, means connected to said supporting-frame and main frame for permitting the main frame to be raised and lowered along said wall, and means connected to said supporting-frame for permitting said frame and main frame to be moved horizontally along said wall.

9. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on said wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, means for operating said brushes, a frame for supporting the main frame adjacent to the wall, means connected to said supporting-frame and main frame for permitting the main frame to be raised and lowered along said wall, a track supported adjacent to said wall, and wheels on said supporting-frame and engaging with said track for permitting said supporting and main frames to be moved horizontally along said wall.

10. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, means for gathering the material from a suitable source and feeding the same to the supply-brush, means for permitting the main frame to travel horizontally along said wall, means for permitting said main frame to travel vertically along said wall, and gearing mechanism connecting said brushes and gathering means with a suitable source of power for operating the same.

11. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, means for permitting said main frame to travel vertically along said wall, means for permitting said main frame to travel horizontally along said wall, and gearing mechanism connecting said brushes and rollers with a suitable source of power for operating the same.

12. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, a frame for supporting the main frame adjacent to the wall, means connected to said supporting and main frames for permitting said frames to travel along said wall, and mechanism connecting said brushes, rollers and supporting-frame with a suitable source of power for operating said brushes and rollers.

13. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, gearing mechanism connecting said brushes and rollers, a frame for supporting the main frame adjacent to the

wall, means connected to said supporting and main frames for permitting said frames to travel along said wall, and mechanism connecting one of said rollers and the supporting-frame with a suitable source of power for operating said brush and rollers.

14. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the wall, rollers on said frame for gathering the material from a suitable source of supply and feeding the same to the supply-brush, gearing mechanism connecting said brushes and rollers, a frame for supporting the main frame adjacent to the wall, means connected to said supporting and main frames for permitting said frames to travel along said wall, a sprocket-wheel on said supporting-frame and on one of said rollers, and a chain connecting said sprocket-wheels and a sprocket-wheel on a power-driven shaft for operating said brushes and rollers.

15. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, brushes on said frame adapted to supply and spread the material on the wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes, means for permitting the main frame to travel vertically along said wall, means for permitting the main frame to travel horizontally along said wall, and means for holding said brushes in contact with said wall.

16. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on the walls, means for gathering the material from a suitable source and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, means connected to said supporting and main frames for permitting said frames to travel along said wall, and a rope connected to said supporting-frame and adapted to engage the main frame for holding the brushes in contact with said wall.

17. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on said wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, means connected to said supporting and main frames to travel along said wall, and means for moving and holding said main and supporting frames in position for the brushes to operate on the wall.

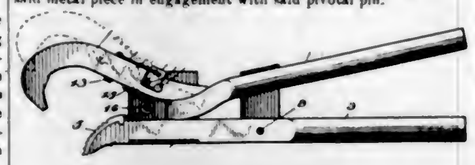
18. In a machine for painting walls and other like surfaces, the combination of a main frame, brushes on said frame for supplying and spreading the material on said wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, mechanism for operating said brushes, a frame for supporting the main frame adjacent to the wall, means connected to said supporting and main frames to be moved along said wall, a track supported adjacent to said wall for carrying said frames, and ropes connected to said supporting-frame and passing over sheaves on the track for moving and holding said main and supporting frames in position for the brushes to operate on the wall.

19. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, a brush on said frame for supplying the material to the wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, brushes on said frame for spreading the material on said wall, mechanism for operating said supply-brush, gathering means and spreading-brushes, means for permitting the main frame to travel along said wall, and means on said frame for forcing the spreading-brushes out of line for contacting with said wall.

20. In a machine for painting walls and other like surfaces, the combination of a main frame adapted to be supported adjacent to the wall, a brush on said frame for supplying the material to the wall, means for gathering the material from a suitable source of supply and feeding the same to the supply-brush, brushes on said frame for spreading the material on said wall, mechanism for operating said supply-brush, gathering means and spreading-brushes, means for permitting the main frame to travel along said wall, and rollers on said frame adapted to engage with said spreading-brushes and force the same out of line to permit said brushes to contact with said wall.

750,308. PIPE OR NUT WRENCH. MATHEWS N. SAWYER, Rapid City, S. D. Filed Apr. 24, 1903. Serial No. 154,175. (No model.)

Claim.—In a wrench, the combination of a fixed jaw, a pivoted jaw and handles therefor, said pivoted jaw having a cut-out portion through which the pivotal pin of said jaw passes, a metal piece carried in said cut-out portion and adapted to engage said pivotal pin at different points on said metal piece, and a spring arranged to hold said metal piece in engagement with said pivotal pin.



750,309. ANNUNCIATOR. LAMBERT SCHMIDT, Weehawken, N. J. Filed Aug. 28, 1901. Serial No. 73,552. (No model.)



Claim.—1. In an annunciator, the combination of a magnet-core having a relatively flat pole-piece disposed in the plane of one end and having its other end extended, an armature mounted upon the extended end of the core and having its free end overlying the pole-piece, a spring to cooperate with said armature, and a shutter normally held in a vertical position and in operative relation with said armature, substantially as shown and described.

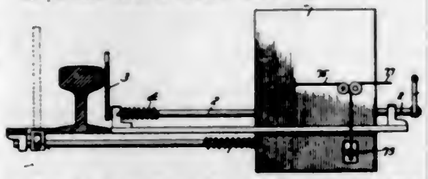
2. In an annunciator, the combination of a magnet-core having a pole-piece at one end and having its other end beveled to form a knife-edge, an armature mounted upon said knife-edge and having its free end overlying the pole-piece, a spring to cooperate with said armature, and a shutter in operative relation with said armature, substantially as shown and described.

3. In an annunciator, the combination of a magnet-core having a pole-piece at one end and having its other end beveled to form a knife-edge, an armature mounted upon said knife-edge, and a screw passing loosely through said armature into said core to prevent accidental dislodgment of the armature from the knife-edge, substantially as shown and described.

4. In an annunciator, the combination of a magnet-core having a pole-piece at one end, an L-shaped armature, mounted upon the other end of said core, and having its free end overlying the pole-piece, a pin passed through the armature into the head of the magnet and having an adjusting-nut, and a spring interposed between said nut and the armature, substantially as shown and described.

5. In an annunciator, the combination of a magnet-core having a relatively flat pole-piece disposed in the plane of one end, an armature mounted at the other end of the magnet and overlying the pole-piece, and a shutter hung in a suitable support and held normally in a vertical position, said shutter having a finger or projection underlying the free end of the armature, substantially as shown and described.

750,310. APPARATUS FOR AUTOMATICALLY STOPPING RAILROAD-TRAINS. HIRAM G. SEDGWICK, Brooklyn, N. Y. Filed Apr. 8, 1903. Serial No. 151,664. (No model.)



Claim.—1. In a railway safety appliance, the combination, of a device on the road-bed for actuating train-stopping mechanism on a passing train, means for holding it in an inoperative position, a setting mechanism adapted to be operated by the trains to be protected, and means adapted to be operated by the train to be stopped for bringing said road-bed device into operative position.

2. In a railway safety appliance, the combination, of a device on the road-bed for actuating the train-stopping mechanism on a passing train, means for normally tending to bring said device into operative position, means for holding it out of operative position, a setting mechanism adapted to be operated by the train to be protected, and means adapted to be operated by the train to be stopped

to release said road-bed device through the medium of the setting mechanism and permit it to assume its operative position.

3. An apparatus for stopping railroad-trains comprising a train-stopping mechanism carried by a train, and an apparatus located near the track and adapted to be brought to its set position by a moving train and to be actuated when in its set position by a passing train to operate the train-stopping mechanism on the passing train.

4. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, an apparatus located near the track and adapted to be brought to its set position by a moving train, and means for retaining said apparatus set for a period of time, whereby should a train pass and operate the apparatus while it is set the train-stopping mechanism on said passing train would be actuated.

5. An apparatus for stopping railroad-trains comprising a pressure-releasing mechanism carried by a train, an apparatus located near the track and adapted to be brought to its set position by a moving train, and means for retaining said apparatus set for a period of time, whereby should a train pass and operate the apparatus while it is set the pressure-releasing mechanism on said train would be actuated.

6. An apparatus for stopping railroad-trains comprising a brake-applying mechanism carried by a train, an apparatus located near the track and adapted to be brought to its set position by a moving train, and means for retaining said apparatus set for a period of time, whereby should a train pass and operate the apparatus while it is set the brake-applying mechanism on said train would be actuated.

7. An apparatus for stopping railroad-trains comprising a train-stopping mechanism carried by a train, an apparatus located near the track and adapted to be brought into its set position by a passing train, and means for retaining said apparatus set for a predetermined period of time, whereby should a following train reach the set apparatus the train-stopping mechanism on said train would be operated.

8. An apparatus for stopping railroad-trains comprising, a brake-applying mechanism carried by a train, an apparatus located near the track and adapted to be brought into its set position by a passing train, and means for retaining said apparatus set for a predetermined period of time, whereby should a train reach the set apparatus the brake-applying mechanism on said train would be operated.

9. An apparatus of the class described, comprising a pressure-releasing mechanism carried by a train, an actuating-arm located near the track and adapted to be depressed by the wheels of a passing train, mechanism on the road-bed for actuating the pressure-releasing means on the train, and means operated by the actuating-arm to bring said mechanism to its set position, and means for maintaining said mechanism in its set position the desired length of time.

10. An apparatus of the class described, comprising an actuating part adapted to be moved by the wheels of a passing train, an operating-arm normally held out of operative position, a tripping mechanism to release said operating-arm said mechanism being normally out of operative position, means set in motion by the actuating part for moving said tripping mechanism to its set position, said means maintaining the tripping mechanism set for a predetermined time and then releasing it, and means adapted to be operated by a passing train when the tripping mechanism is set to release the operating-arm, means for moving said operating-arm into operative position, and a train-stopping mechanism carried by the train and adapted to be operated by the said arm.

11. An apparatus of the class described, comprising a train-stopping mechanism carried by a train, a contact device on the road-bed and adapted in its operative position to actuate the train-stopping mechanism on the train, said contact device being normally out of operative position, mechanism for bringing said contact device to its operative position said means being normally at rest or unset means actuated by a moving train for bringing said mechanism to its set position, and means actuated by a passing train to bring the contact device to its operative position to permit it to actuate the train-stopping mechanism on the train.

12. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being adapted to be operated by trains moving in one direction, and the other series being adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train moving in the proper direction, and means connecting the mechanism of each stop-box to the next box ahead of the opposite series whereby the two boxes thus connected will be set simultaneously, means for maintaining said boxes set for the desired length of time, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated.

13. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being adapted to be operated by trains moving in one direction, and the other series being adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train moving in the proper direction, and means connecting the mechanism of each stop-box to the next box ahead of the opposite series whereby the two boxes thus connected will be set simultaneously, means for maintaining said boxes set for the desired length of time, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated.

14. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train and two series of stop-boxes located near the road-bed one of said series being on one side of the track and adapted to be operated by trains moving in one direction, and the other series being located on the opposite side of the track and adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train moving in the proper direction, and means connecting the mechanism of each stop-box to the next box ahead on the opposite side of the track whereby the two boxes thus connected will be set simultaneously, means for maintaining said boxes set for the desired length of time, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated.

15. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being on one side of the track and adapted to be operated by trains moving in one direction, and the other series being located on the opposite side of the track and adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train moving in the proper direction, and means connecting the mechanism of each stop-box to the next box ahead on the opposite side of the track whereby the boxes thus connected will be set simultaneously, means for maintaining said boxes set for a predetermined time, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated.

16. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being on one side of the track and adapted to be operated by trains moving in one direction, and the other series being located on the opposite side of the track and adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train passing in the proper direction, and means connecting the mechanism of each stop-box to the next box ahead on the opposite side of the track whereby the two boxes thus connected will be set simultaneously, and devices to simultaneously lock said mechanism set, and means in each box actuated by a passing train and connected to the locking mechanism of the adjacent box on the opposite side of the track and the next box in the rear on the same side of the track to simultaneously release the set mechanism in said boxes, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated.

17. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being on one side of the track and adapted to be operated by trains moving in one direction, and the other series being located on the opposite side of the track and adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train passing in the proper direction, means connecting the mechanism of each stop-box to the next box ahead on the opposite side of the track whereby the two boxes thus connected will be set simultaneously, devices to simultaneously lock said mechanism set, means in each box actuated by a passing train and connected to the locking mechanism of the adjacent box on the opposite side of the track to release the set mechanism in said box

and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated and said train stopped.

18. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, and two series of stop-boxes located near the road-bed one of said series being on one side of the track and adapted to be operated by trains moving in one direction, and the other series being located on the opposite side of the track and adapted to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train passing in the proper direction, means connecting the mechanism of each stop-box to the next box ahead on the opposite side of the track whereby the two boxes thus connected will be set simultaneously, devices to lock the mechanism in the box ahead in its set position, means in each box actuated by a passing train and connected to the locking mechanism of the adjacent box on the opposite side of the track to release the set mechanism in said box, and mechanism connected to said stop-boxes whereby the train-stopping mechanism of a train passing either of said set boxes in the proper direction will be operated and said train stopped.

19. An apparatus for stopping railroad-trains comprising a train-stopping mechanism carried by a train, a series of stop-boxes located at one side of the track and separated a suitable distance from each other, mechanism in each stop-box adapted to be brought to its set position by a passing train, means for retaining said mechanism in its set position, and devices connecting the mechanism of each stop-box with the mechanism of the stop-box next in the rear and operated by a passing train to release the mechanism in said rear box to permit it to return to its normal or unset position, and means actuated by a passing train when the stop-box mechanism is set to operate the train-stopping mechanism on said train.

20. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, a series of stop-boxes located at one side of the track and separated a suitable distance from each other, mechanism in each stop-box and adapted to be brought to its set position by a passing train, means for locking said mechanism in its set position, and devices connecting the mechanism of each stop-box with the locking means of the stop-box next in the rear and operated by a passing train to release the mechanism in said rear box to permit it to return to its normal or unset position, and means actuated by a passing train when the stop-box mechanism is set to operate the train-stopping mechanism on said passing train.

21. An apparatus for stopping railroad-trains comprising, a train-stopping mechanism carried by a train, a pair of stop-boxes separated a suitable distance and located on opposite sides of the railroad-track, a contact device on the road-bed adjacent each of said boxes, said devices being normally out of operative position, mechanism in each box for bringing said contact device into operative position, said device being normally at rest or unset, and means connecting the mechanism of one box to the mechanism of the other and maintaining said mechanisms in their unset positions, means for moving said mechanism to its set position when the said connecting means is broken, and means actuated by a passing train to move the contact device into operative position when the mechanism in the stop-box is set.

22. An apparatus for stopping railroad-trains, comprising mechanism located near the track and adapted to be brought to its set position by a moving train, mechanism for maintaining said apparatus set for a certain period of time and a motor for driving said setting mechanism.

23. An apparatus for stopping railroad-trains comprising, mechanism located near the track and adapted to be brought to its set position by a moving train, mechanism for maintaining said apparatus set for a certain period of time, a motor for driving said setting mechanism, and mechanism operatedly a passing train to rewind said motor.

24. An apparatus for stopping railroad-trains comprising, mechanism located near the track and adapted to be brought to its set position by a moving train, mechanism for maintaining said apparatus set for a certain period of time, a motor for driving said setting mechanism, and mechanism for permitting said motor to operate for a predetermined time and for then stopping said motor.

25. A stop-box for a train-stopping apparatus, comprising, mechanism located near the track and adapted to be brought to its set position by a moving train, a timing-disk, a means for rotating said timing-disk, and means for maintaining the mechanism set during the greater part of the rotation of the timing-disk.

26. An apparatus for stopping railroad-trains comprising, mechanism located near the track and adapted to be brought to its set position by a moving train, mechanism for maintaining said mechanism set for a certain period of time, a motor for driving said setting mechanism, a timing-disk rotated by said motor, and means for permitting said timing-disk to make one complete revolution and to then check the movement of said timing-disk.

27. An apparatus for stopping railroad-trains comprising, mechanism located near the track and adapted to be brought to its set position by a moving train, means for maintaining said mechanism set for a certain period of time, a spring-motor for driving said setting mechanism, and mechanism operated by a passing train to rewind said motor, and means to prevent the overwinding of said motor.

28. In a stop-box the combination, of a rock-shaft, an actuating-arm thereon to be depressed by the wheels of a train, a setting mechanism, a presser-bar adapted to be moved to its set position by said mechanism, means operated through the rock-shaft to release said setting mechanism, a valve-operating arm normally locked out of operative position, and means operating through the presser-bar to release the valve-operating arm should the actuating-arm be depressed when the presser-bar is in its set position.

29. In a stop-box, the combination of a rock-shaft, an actuating-arm thereon adapted to be depressed by the wheels of a train, a presser-bar, a setting mechanism to move said bar to its set position, a timing-disk and means for rotating it, means for holding the presser-bar in its set position during a portion of the rotation of the timing-disk, means actuated through the rock-shaft to release the setting mechanism, a valve-operating arm normally locked out of operative position, and means operating through the presser-bar to release the valve-operating arm should the actuating-arm of the rock-shaft be depressed while the presser-bar is in its set position.

30. In a stop-box the combination of a rock-shaft, an actuating-arm thereon, a presser-bar, a setting mechanism to move said bar to its set position, means for permitting said setting mechanism to operate for a predetermined time and to then arrest said mechanism, means for holding the presser-bar in its set position until the setting mechanism is arrested, a valve-operating arm normally locked out of operative position, and means operating through the presser-bar to release the valve-operating arm should the arm on the shaft be depressed while the presser-bar is set.

31. In a stop-box the combination, of a rock-shaft, an actuating-arm thereon, a presser-bar, a setting mechanism, a spring-motor for operating said setting mechanism, mechanism operated by the rock-shaft for winding said spring-motor, said means consisting of a ratchet-wheel frictionally held on the spring-winding shaft, and a pawl adapted to engage therewith to rotate the spring-winding shaft and to be operated by the rock-shaft, whereby the spring will be wound to the desired tension and the ratchet-wheel will then slip on its shaft.

32. In a stop-box the combination, of a shaft, an actuating-arm thereon, a presser-bar, a setting-lever for moving the presser-bar to its set position, means for holding said lever out of operative position, a valve-operating arm normally locked out of operative position, means operating through the presser-bar when it is in its set position to release the valve-operating arm, and means for releasing the setting-lever.

33. In a stop-box the combination, of a shaft, an actuating-arm thereon, a presser-bar, a motor-operated mechanism for moving said presser-bar to its set position, a valve-operating arm normally locked out of operative position, means operating through the presser-bar should the arm on the rock-shaft be depressed while the said bar is in its set position to release the valve-operating arm, and means independent of the motor-operated mechanism for setting the presser-bar.

34. In a stop-box the combination, of a shaft, an actuating-arm thereon, a presser-bar, a series of setting-levers for moving the presser-bar to its set position, wires connected to said setting-levers and normally holding them out of operative position, and means whereby when any one of said wires is broken or slackened the presser-bar will be set, a valve operating arm normally out of operative position, and means operating through the set presser-bar to release the valve-operating arm.

35. In a stop-box the combination, of a rock-shaft, a presser-bar, motor-operated mechanism for setting said presser-bar, means adapted to be operated by the rock-shaft to release said setting mechanism, a pull-bar, means operated by the rock-shaft to draw said pull-bar rearward, means for locking said bar in its rearward position, a release-bar, a release-cam to normally hold said release-bar out of operative position and to permit it to move rearward when the setting mechanism is released, means adapted to be operated by the rock-shaft to cause the release-bar to release the pull-bar, a trip-bar to release the setting mechanism independently of the rock-shaft, a valve-operating arm, means for normally locking said arm out of operative position, and means adapted to be operated by a moving train to release said arm when the presser-bar is set.

36. In a stop-box, the combination of a rock-shaft, a presser-bar, motor-operated mechanism for setting said presser-bar, means adapted to be operated by the rock-shaft to release said setting mechanism, a pull-bar, means operated by the rock-shaft to draw said pull-bar rearward, means for locking said bar in its rearward position, a release-bar, means to normally hold said bar out of operative position and to permit it to move to its operative position when the setting mechanism is released, means to cause the release-bar to release the pull-bar, a trip mechanism to release the setting mechanism independently of the rock-shaft, a contact-arm and means operated through the rock-shaft to bring said arm to operative position.

37. An apparatus for stopping trains, comprising a pair of stop-boxes adapted to be located a suitable distance apart, one of said boxes being operated by trains moving in one direction and the other by trains moving in the opposite direction, a setting mechanism in each of said boxes, means for operating it, means operated by a moving train for releasing said setting mechanism, a presser-bar moved by said setting mechanism, a pull-bar, means operated by a moving train to draw said pull-bar inward, means to release the pull-bar when the setting mechanism is released, a trip-bar normally releasing the setting mechanism independently of the train-actuated means, and means connecting the pull-bar of one box with the trip-bar of the other box, a valve-operating arm connected to each box, and means actuated by a moving train when the presser-bar is set to bring said arm to its operative position.

38. In a stop-box, the combination of a presser-bar, motor-operated mechanism for setting said presser-bar, means operated by a moving train to release said setting mechanism, a pull-bar, means adapted to be operated by a moving train to draw said pull-bar inward, means for locking said bar in its inward position, a release-bar, means to normally hold said release-bar out of operative position and permit it to move when the setting mechanism is released, means adapted to be operated by a moving train to cause the release-bar to release the pull-bar, a trip-bar to release the setting mechanism independently of the train-actuated means, a valve-operating arm, means for normally locking said arm out of operative position, and means adapted to be operated by a moving train to release said arm when the presser-bar is set.

39. In a stop-box, the combination of a presser-bar, motor-operated mechanism for setting said presser-bar, means adapted to be operated by a moving train to release said setting mechanism, and a locking mechanism operated by the setting mechanism to lock the presser-bar in its set position, a valve-operating means, means for normally locking said valve-operating means out of operative position, and means adapted to be operated by a moving train to release said valve-operating means when the presser-bar is set.

40. A train-stopping mechanism comprising, a pair of stop-boxes adapted to be located near the road-bed, one of said boxes being adapted to be operated by trains moving in one direction, the other to be operated by trains moving in the opposite direction, mechanism connected to each box and adapted to be brought to its set position by a train moving in the proper direction, and means operated by said moving train to lock the mechanism of said box in its set position, and means connecting the apparatus of each box to the locking mechanism of the other box whereby a train passing said boxes and operating the mechanism of one box will release the locked mechanism of the opposite box.

41. An apparatus for stopping railroad-trains comprising, a pair of stop-boxes located near the road-bed, one of said boxes being adapted to be operated by trains moving in one direction and the other to be operated by trains moving in the opposite direction, a presser-bar in each of said boxes, a motor-operated mechanism for setting said presser-bar, means adapted to be operated by a moving train to release said setting mechanism, a locking mechanism operated by the setting mechanism to lock the presser-bar in its set position, means connecting the locking mechanism of each box with the train-actuated means of the opposite box, whereby when the setting mechanism of one box is released the locked presser-bar of the opposite box will also be released, a valve-operating means means for normally locking said valve-operating means out of operative position, and means adapted to be operated by a moving train to release said valve-operating means when the presser-bar is set.

42. In a stop-box, the combination of a presser-bar, mechanism for setting said presser-bar, means adapted to be operated by a moving train to release said setting mechanism, a signaling means, and means operated through the setting mechanism to set the signaling means.

43. An apparatus for stopping railroad-trains, comprising a train-stopping mechanism carried by a train, an apparatus located at a fixed point and adapted to be brought into operative position by a moving train to actuate the train-stopping mechanism carried by a passing train, and a signaling means operated through said train-actuated apparatus.

44. In combination, a series of stop-boxes adapted to be located near the track and separated a suitable distance from each other, mechanism in each box adapted to be brought to its set position by a passing train, a trip-bar for retaining said mechanism in its set position and devices connecting the mechanism of each box with the trip-bar of the box next in the rear to move said trip-bar and thereby release the mechanism of said box.

45. In a train-stopping apparatus the combination of two series of stop-boxes one series adapted to be operated by trains moving in one direction and the other by trains moving in the opposite direction, a presser-bar in each box, a train-actuated means for moving said bar to its set position, a pull mechanism, means operated by the train-actuated means for operating said pull mechanism, a setting means to move the presser-bar independently of the train-actuated setting means, means connecting this latter setting means to the pull mechanism of a box in the rear of the opposite series, whereby said setting means will be normally held out of operative position, and will be released to set the presser-bar when the pull mechanism of the rear box is released.

46. In a train-stopping apparatus, the combination of two series of stop-boxes one series adapted to be operated by trains moving in one direction and the other by trains moving in the opposite direction, a presser-bar in each box, a train-actuated means for moving said bar to its set position, a pull mechanism, means operated by the train-actuated means for operating said pull mechanism, a setting means to move the presser-bar independently of the train-actuated setting means, means connecting this latter setting means to the pull mechanism of a box in the rear of the opposite series, whereby said setting means will be held normally out of operative position, and will be released to set the presser-bar when the pull mechanism of the rear box is released, and a yielding means interposed in said connecting means, whereby the pull mechanism may be returned to its normal position without releasing the box ahead.

47. In a train-stopping apparatus the combination of two series of stop-boxes one series adapted to be operated by trains moving in one direction and the other by trains moving in the opposite direction, a presser-bar in each box, a train-actuated means for moving said bar to its set position, a pull mechanism, means operated by the train-actuated means for operating said pull mechanism, a setting means to move the presser-bar independently of the train-actuated setting means, means connecting this latter setting means to the pull mechanism of a box in the rear of the opposite series, whereby said setting means will be normally held out of operative position, and will be released to set the presser-bar when the pull mechanism of the rear box is released, and means operated by the mechanism of one box to release the setting mechanism of the adjacent box of the opposite series.

48. A stop-box, comprising a train-actuated mechanism, a contact-bar arranged between the tracks and normally out of operative position, and means adapted to be operated by a passing train to move the contact-bar to its operative position.

49. In a train-stopping block system for railways, the combination of a series of train-engaging devices on the road-bed, a series of setting devices and means connecting them, whereby a train passing any one will automatically set in operative position the one ahead and also the one in rear, for the purpose set forth.

50. A safety train-stopping block system for railways, consisting of a series of train-engaging devices along the road-bed, a series of setting devices, means connecting said series of setting devices, and means adjacent to each one of said setting devices whereby a passing train sets in operative position one of the setting devices in the rear of the train.

51. In a train-stopping apparatus, the combination of a contact-arm mounted on the road-bed and adapted to actuate the brake-applying mechanism on the train, and means operated by the train to be stopped to elevate this arm to operative position.

52. In a train-stopping apparatus, the combination of train-engaging devices on the road-bed, means for setting the stopping device, a motor for actuating the same, a winding device for this motor, and means for operating this winding device by a passing train.

53. In a train-stopping apparatus, the combination of means for setting the stopping device, a motor for actuating the same, a winding device for this motor embodying means for preventing overwinding, and a device for actuating the winding device by the wheels of a passing train.

54. In an apparatus of the class described, the combination of means for setting the stopping device, a motor for actuating the setting device, means for winding this motor embodying means for preventing overwinding, and a spring-actuated rock-shaft for actuating the winding device, this rock-shaft carrying a wheel-operated arm.

55. In an apparatus of the class described, the combination, of means for setting the stopping device, a motor for actuating the same, means for releasing the motor to set the stopping device, and means actuated by a passing train to both rewind the motor and actuate the releasing device.

56. In an apparatus of the class described, the combination, of a stopping device on the road-bed, means for setting the same, a motor for actuating said setting device, means for releasing the motor to actuate the setting device, means for rewinding the motor, and a single wheel-actuated shaft for actuating the rewinding device and the releasing device.

57. In an apparatus of the class described, the combination of a contact-arm supported on the road-bed, means for elevating it, and wheel-operated means for actuating the elevating means, whereby the contact-arm will be elevated after the passage of the pilot of the train to be stopped.

58. In a safety appliance for railways, the combination of a train-engaging device on the road-bed for engagement with the train to be stopped, and means operated by the train to be protected for rendering said train-engaging device operative at a predetermined time after this latter train has passed said means, whereby the train to be protected shall have time to pass said means before said device is rendered operative.

59. In a safety appliance for railways, the combination of a train-engaging road-bed device for engagement with the train to be stopped, and means adapted to be operated by the train to be protected for rendering said device operative at a predetermined time after this latter train has passed said means and maintaining it operative for a predetermined length of time, for the purposes set forth.

60. In an apparatus of the class described, the combination of a train-engaging device, a setting device and means normally tending to actuate it, and means for releasing said means, for the purpose set forth.

61. In an apparatus of the class described, the combination with a train-engaging device on the road-bed for stopping a passing train, a setting device therefor, of means operated by another train for setting said setting device.

62. In an apparatus of the class described, the combination with a device on the road-bed adapted to operate train-stopping mechanism on a passing train, a setting device therefor, of mechanism adapted for operation by the train to be protected for setting said setting device in operative position, this mechanism being located at a distance from said device.

63. In an apparatus of the class described, the combination of a road-bed device adapted to operate a train-stopping braking system on a passing train, a setting device therefor with means for automatically setting said setting device in operative position by the train to be protected, said means including a wheel-operated device adjacent to one of the rails.

64. In an apparatus of the class described, the combination with a road-bed device adapted to engage and operate train-stopping devices on a passing train, a setting device, of means on the road-bed adjacent to said device for setting it in operative position, said means consisting of a wheel-operated part and spring-actuated parts connected thereto.

65. In an apparatus of the class described, the combination of a road-bed device adapted to actuate a train-stopping means on a passing train, with means for actuating said device by the train to be stopped, a device normally tending to set said means, and means for holding said settting device out of action.

66. In a safety appliance for railways, the combination of a road-bed device, means for bringing it to its operative position, said means being adapted to be operated by the train to be protected, means for maintaining it in its operative position a predetermined length of time and then rendering it inoperative.

67. In an apparatus of the class described, the combination of a train-stopping device on the road-bed, with a setting device, means for adjusting said setting device into operative position, a signal device, and means connecting said setting device to the signal device, whereby the signal device is set whenever the setting device is.

68. A safety train-stopping block system for railways, consisting of a series of train-engaging devices arranged at separated points along the railway, a setting device for each train-engaging device, means connecting these setting devices, and train-operated means on the road-bed for setting these setting devices in succession as a train moves along, whereby the train will be progressively protected.

69. A train-stopping block system for railways consisting of a series of train-engaging devices arranged at separated points along the railway, a setting device for each train-engaging device, means connecting these setting devices, and train-operated means on the road-bed for setting a distant setting device.

70. A train-stopping block system for railways, consisting of a series of train-engaging devices arranged at separated points along the railway, a setting device for each train-engaging device, means connecting these setting devices, and train-operated means on the road-bed for setting one of these setting devices ahead of the train and releasing one of said setting devices in the rear.

71. A safety train-stopping block system for railways consisting of a series of train-engaging devices arranged at separated points along the railway, a series of setting devices, means connecting these setting devices and train-operated means on the road-bed for setting these setting devices in succession as a train moves along and for releasing one of said devices in the rear of the train.

72. An apparatus for stopping railroad-trains, comprising a train-stopping mechanism carried by a train, an apparatus located at a fixed point and adapted to be brought into operative position by a moving train to actuate the train-stopping mechanism carried by a passing train, and means for retaining said apparatus in operative position for a predetermined period of time.

73. An apparatus for stopping railroad-trains comprising a pressure-releasing mechanism carried on a train, an apparatus located at a fixed point and adapted to be brought into operative position by a moving train to actuate the pressure-releasing mechanism on a passing train, and means for retaining said apparatus in operative position for a predetermined period of time.

74. An apparatus for stopping railroad-trains comprising, mechanism located near the track and adapted to be brought to its operative position by a moving train, and mechanism for maintaining said apparatus in operative position for a predetermined period of time.

75. A safety train-stopping block system for railroads consisting of a series of train-engaging devices arranged along the railroad at each end of the blocks thereof, means connecting these train-engaging devices, train-operated means on the road-bed and adapted to be actuated by a passing train to bring these train-engaging devices into operative position as the train passes each one and means whereby when one train-engaging device is brought into operative position the corresponding device next in the rear will be released from its operative position.

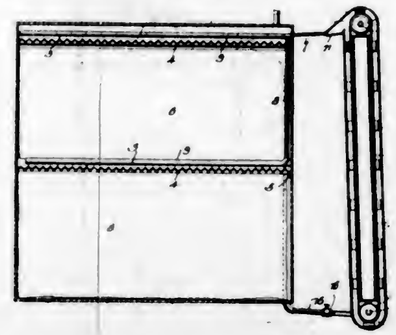
76. A safety train-stopping block system for railroads consisting of two series of stop-boxes located near the road-bed, one of said series being adapted to be operated by trains moving in one direction and the other series being adapted to be operated by trains moving in the opposite direction, one box of each series being arranged at each end of each block, mechanism connected to each box and adapted to be brought to its operative position by a train moving in the proper direction, and means connecting the mechanism of each box to the next box ahead of the opposite series whereby the two boxes thus connected will be simultaneously brought to its operative position, and mechanism connected to each box to release the mechanism of the adjacent box of the opposite series and the next box in the rear of the same series.

750,311. CARBURETER. WALLACE L. SEVERANCE, Freeport, Ill. Filed Mar. 18, 1903. Serial No. 148,422. (No model.)

Claim.—1. A carbureter having superposed chambers separated by perforated horizontal partitions, absorbent material suspended under said partitions, and an inlet-pipe for the hydrocarbon liquid at the top of the uppermost chamber, and passages connecting said chambers so arranged that air may pass through all of the chambers successively.

2. A carbureter having superposed chambers separated by perforated horizontal partitions, absorbent material suspended under said partitions, a hydrocarbon-inlet pipe at the top of the uppermost chamber, an outlet-pipe at the bottom of the lowermost chamber, and passages connecting the chambers so arranged that air may be passed through all of the chambers successively.

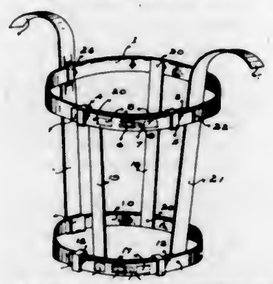
3. A carbureter having a plurality of carbureting-chambers, vertically-disposed curtains of absorbent material suspended in said chambers, a perforated distributer-plate disposed above said curtains, and a hydrocarbon-supply pipe provided with perforations at intervals throughout its length extending over said distributer-plate.



4. A carbureter having a plurality of carbureting-chambers arranged in superposed tiers, perforated distributer-plates over each tier of chambers, a hydrocarbon-supply pipe at the top of the carbureter having perforated branches disposed over each distributer-plate, and vertically-disposed absorbent curtains in each chamber below the distributer-plates.

5. A carbureter having a carbureting-chamber provided at its top with a perforated distributer-plate, a layer of absorbent material beneath said plate and substantially parallel therewith, and vertically-disposed absorbent curtains suspended beneath said layer of absorbent material.

750,312. MILK-PAIL HOLDER. FREEMAN L. SHATTUCK, Paterson, N. J. Filed June 8, 1903. Serial No. 160,477. (No model.)



Claim.—1. Two flexible bands, means integral therewith for engaging the ends of each band, to form two extensible rings, in combination with stationary and movable strips connecting said rings, two of said connecting-strips having extended curved arms, substantially as set forth.

2. Two flexible bands, means integral therewith for engaging the ends of each band, to form two extensible rings, in combination with stationary and movable strips connecting said rings, two of said connecting-strips having extended curved arms, and loose sliding loops adapted to surround the overlapping ends of said bands, substantially as set forth.

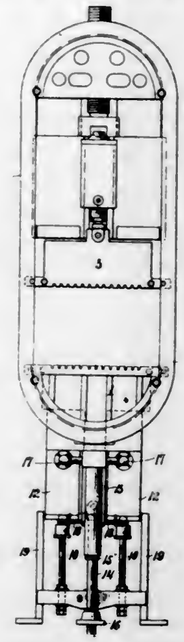
3. A milk-pail holder comprising two flexible extensible rings, stationary and movable strips connecting said rings two of said strips being extended to form supporting-arms and loops adapted to surround the overlapping portions of said rings, substantially as set forth.

4. In a milk-pail holder two flexible extensible circular bands and means for connecting the same one above the other in combination with a stationary and a movable handle or support, substantially as set forth.

5. A support for a bucket or other vessel, comprising two flexible bands suitably connected in parallel planes means integral with each band for engaging the opposite ends thereof at various points to form two extensible rings and a movable handle secured to and adapted to slide on said extensible rings, substantially as set forth.

6. A pail or other support, comprising two flexible bands, each provided with openings at one end thereof and at the other end thereof provided with a tongue cut out of the band and bent back forming a hook adapted to pass outside of and to engage either of the openings in the other end of the band, to form two extensible rings, movable and stationary strips connecting and holding said rings in parallel planes, curved supporting-arms adapted to be adjusted according to the size of the extensible rings, and loops adapted to pass around the overlapping portions of said rings, substantially as set forth.

750,313. COMPRESSOR. JESSE SHIPWAY, Memphis, Tenn. Filed Dec. 2, 1899. Serial No. 739,013. (No model.)



Claim.—1. In a cotton-compress, the combination with a pair of platens, of sides or plates adapted to move independently of the platens, forming a compression-space and adapted to move the bale to a position to receive a second compression, and mechanism moving the sides or plates.

2. In a cotton-compress, the combination of a pair of platens, and plates or sides movable upwardly to form a reduced compression-space in connection with said platens, and to move the bale into a position to receive a second compression, and mechanism for moving said sides or plates.

3. In a cotton-compress, the combination of a lower platen, plates movable upwardly to form therewith a compression-space of reduced transverse dimension and adapted to shift the material to bring it into said reduced space and present a narrower side of the body of the material to the platen, and mechanism for moving said plates.

4. In a cotton-compress, the combination of a lower platen, means mounted on the lower platen and movable upwardly to form a compression-space, and mechanism for moving said means.

5. In a cotton-compress, the combination of a lower platen, plates mounted on said platen and movable upwardly to form a compression-space, and mechanism for moving said plates.

6. In a cotton-compress, the combination of a lower movable platen, plates mounted on and carried by the said platen and movable upwardly to form a compression-space.

7. In a cotton-compress, the combination of a lower movable platen, plates mounted on and carried by the said platen and movable upwardly to form a compression-space, and means also carried by the platen for moving said plates.

8. In a cotton-compress, the combination of a lower movable platen, means mounted on and carried by said platen, and movable upwardly to form a compression-space, and fluid-operated means

also mounted on and carried by said platen operating said space-forming means.

9. In a cotton-compress, the combination of a lower movable platen, plates mounted on and carried by said platen, and movable upwardly to form a compression-chamber; and fluid-operating means also mounted on and carried by the platen, operating the movable plates.

10. In a cotton-compress, the combination of a lower movable platen, plates mounted on and carried by said platen, and movable upwardly to form a compression-space, a piston-cylinder also moving with the platen, a piston-head, connection between the piston-head and plates and connection between the piston-cylinders and a fluid-supply.

11. In a cotton-compress, the combination of a moving platen, means mounted on and carried by the platen, and adapted to be moved from and to the plane of the platen to form a compression-space, and means operating the compression-space-forming means also moving with the platen.

12. In a cotton-compress, the combination of a movable platen, sliding plates mounted on and carried by the platen, a piston-cylinder also mounted on and carried by the platen, a piston-head, connections between piston-head and the sliding plates, and a fluid-conducting cylinder also mounted on and carried by the platen and having telescopic connection with a fluid-supply pipe.

13. In a cotton-compress, the combination of a movable platen, sliding plates mounted on and carried by the platen, a plurality of piston-cylinders also mounted on and carried by the platen, a piston-head in each cylinder, connections between the piston-heads and the sliding plates, and two fluid-conducting cylinders also mounted on and carried by the platen and having telescopic connections with the supply-pipe.

14. In a cotton-compress, the combination of a movable platen, sides carried thereby adapted to move the material to a position to receive a second compression by the compress, and mechanism for moving the sides.

15. In a cotton-compress, the combination of a lower platen and means extending through said platen for moving a bale to a position to receive a second compression by the compress and said means forming a reduced compression-chamber with said platen.

16. In a cotton-compress, the combination of a lower movable platen and plates adapted to reciprocate extending through the platen.

17. In a cotton-compress, the combination of a lower platen and plates adapted to move upwardly in relation to the platen to move the bale to a position to receive a second compression by the compress, and said platen forming with the platen a compression-chamber in which the second compression takes place.

18. In a cotton-compress, the combination of upper and lower platens, and sides mounted to move upwardly relatively to the lower platen, to form with it a compression-chamber of reduced transverse dimension; said sides being movable relatively to the lower platen as the latter moves upward to effect compression in the reduced chamber.

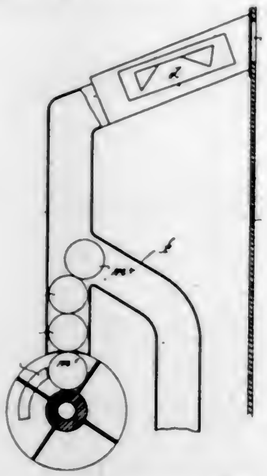
19. The herein-described platen for the compressors having relatively movable plates, formed with a vertical slot 5, and with outwardly-extending stiffening-rib 20 beyond the wall of said slot 5, and with the vertical strengthening-bracket 21 beneath the said rib, substantially as and for the purpose set forth.

20. In combination with a compress, plates or sides mounted upon the movable platen of the compress and movable into and out of position thereon to provide a compression-chamber of reduced dimension; substantially as herein explained.

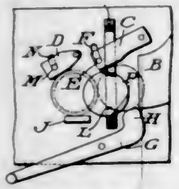
21. In combination with a compress having a lower movable platen, plates or sides mounted upon said lower movable platen and movable thereon into and out of position to provide, in connection with said platen, a compression-chamber of reduced horizontal dimension, and pressure-cylinders also mounted upon and moving with said lower moving platen, and having pistons connected with the sides or plates for moving the latter relatively to the platen into and out of their position aforesaid.

750,314. COIN-CONTROLLED APPARATUS. MAX SIELAFF, Berlin, Germany. Filed Aug. 26, 1902. Serial No. 121,140. (No model.)

Claim.—In a device for preventing the choking up of the coin-chute in coin-controlled apparatus, the combination of the coin-chute proper, with a branch channel rigidly fixed to the coin-chute and leading to the outside of the apparatus, said branch channel being located relatively to and communicating with the coin-chute proper at such a point that when more than a predetermined number of coins have been deposited within the coin-chute proper the excess coins will pass into the branch channel and be conducted thereby to the outside.



750,315. VENDING-MACHINE. JOSEPH J. SLEEPER, Philadelphia, Pa. Filed Mar. 5, 1903. Serial No. 146,271. (No model.)



Claim.—1. A coin-controlled vending-machine comprising a coin-holder consisting of separate closure-operating members adapted to be operatively connected by a coin of a standard thickness, means for selectively removing thinner coin from between said members and a secondary coin-holder adapted to receive both standard and thinner coins.

2. A coin-controlled vending-machine comprising a coin-holder consisting of separate closure-operating members adapted to be operatively connected by a coin of a standard thickness, a recessed bar adapted to remove from between said members, thinner coins, a secondary coin-holder adapted to receive both standard and thinner coins and a window in the case of said machine through which the coin in said secondary holder is visible.
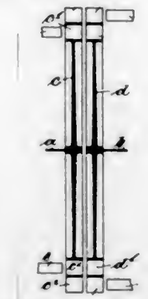
3. In a coin-controlled vending-machine, a case, a chute, a lever extending through said case, an arm connected with the closure of the machine, the inner end of said lever and said arm being located adjacent to the discharge end of said chute and a bar having a recess adapted to guide a coin emerging from said chute into operative engagement between said lever and said arm.

4. In a coin-controlled vending-machine, a case, a chute, a lever extending through said case, an arm connected with the closure of the machine, the inner end of said lever and said arm being located adjacent to the discharge end of said chute, a bar having a recess adapted to guide a coin emerging from said chute into operative engagement between said lever and said arm, and a second recess in said bar adapted to engage a coin of less than standard thickness and to guide it out of engagement between said lever and said arm.

5. In a coin-controlled vending-machine, a case, a chute, a lever extending through said case, an arm connected with the closure of said machine, the inner end of said lever and said arm being located adjacent to the discharge end of said chute and adapted to be operatively connected by a coin emerging from said chute and a secondary coin-holder adapted to retain coin forced thereinto by a succeeding coin emerging from said chute.

6. In a coin-controlled vending-machine, a case, a chute, a lever extending through said case, an arm connected with the closure of said machine, the inner end of said lever and said arm being located adjacent to the discharge end of said chute and adapted to be operatively connected by a coin emerging from said chute, a secondary coin-holder adapted to retain a coin forced thereinto by a succeeding coin emerging from said chute, and a window in said case through which one of said coins may be seen.

750,316. STEAM OR GAS TURBINE. JOHANN STUMPF, Charlottenburg, Germany. Filed Sept. 8, 1903. Serial No. 172,241. (No model.)



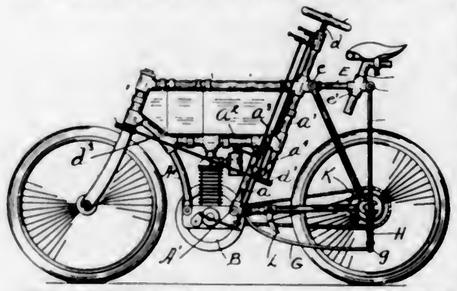
Claim.—1. In a steam or gas turbine, the combination of two turbine-wheels rotating in opposite directions, with two concentric vane-rims for each turbine-wheel, and means for leading steam to the inner rim of one turbine-wheel and means for leading steam to the outer rim of the second one, substantially as described and for the purpose set forth.

2. In a steam or gas turbine, the combination of several turbine-wheels, each provided with several concentric vane-rims, means being provided for leading steam to both sides into the concentric rows of vanes, substantially as described and for the purpose set forth.

3. In a steam or gas turbine, the combination of two or more turbine-wheels, the adjacent wheels adapted to rotate in opposite directions, two or more vane-rims for each turbine-wheel, and independent means for leading steam to the alternate sides of the said vane-rims, substantially as described.

4. In a steam or gas turbine, the combination of a plurality of turbine-wheels, each wheel having two or more vane-rims, and nozzles for leading steam alternately to the opposite sides of said vane-rims, substantially as described.

750,317. MOTOR-BICYCLE. WILLIAM A. SUDDARD, Providence, R. I. Filed Sept. 23, 1903. Serial No. 174,313. (No model.)



Claim.—1. In a motor-driven bicycle, the combination of a main frame for supporting the propelling mechanism, an independent spring-supported auxiliary frame for supporting the rider, substantially as described.

2. In a motor-driven bicycle, the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame, rearwardly extending from said main frame for carrying the rider, substantially as described.

3. In a motor-driven bicycle the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent auxiliary frame, rearwardly extending from said main frame for carrying the rider, a spring for supporting said auxiliary frame, substantially as described.

4. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, substantially as described.

5. In a motor-driven bicycle, the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, an independent spring-supported auxiliary frame rearwardly extending from said frame for carrying the rider, running-boards connected to the lower portion of said auxiliary frame, substantially as described.

6. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, means connecting said steering-shaft with the forward forks, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, substantially as described.

7. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, flexible means connecting the lower end of said steering-shaft with the forks of the forward wheel, a spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, substantially as described.

8. In a motor-driven bicycle, the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, running-boards connected to the lower portion of said auxiliary frame, substantially as described.

9. In a motor-driven bicycle, the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, running-boards pivoted at one end to the lower portion of said auxiliary frame, the opposite end of said boards being pivoted to said main frame, substantially as described.

10. In a device of the character described, the combination of a main frame for supporting the weight of the propelling and steering mechanism, an auxiliary frame including a seat-post-supporting bar pivoted to the main frame, depending rods pivotally connected to said supporting-bar, running-boards pivoted at one end to the lower end of said depending rods, the opposite end of said boards being pivoted to said main frame, spring means for supporting all of said auxiliary frame, substantially as described.

11. In a device of the character described, the combination of a main frame for supporting the weight of the propelling and steering mechanism, an auxiliary frame including a seat-post-supporting bar pivoted to the main frame, depending rods pivotally connected to said supporting-bar, running-boards pivoted at one end to the lower end of said depending rods, the opposite end of said boards being pivoted to said main frame, spiral springs supported from the main frame, means on said depending rods for engaging said spiral springs for supporting said auxiliary frame, substantially as described

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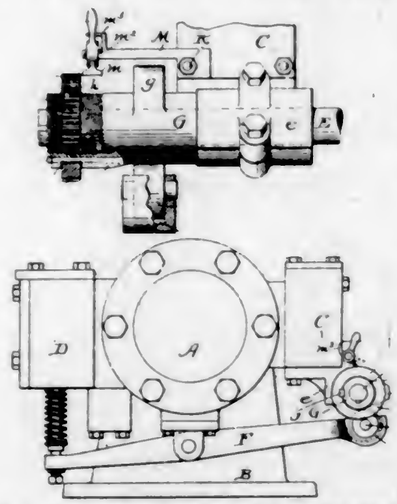
750,318. STARTING DEVICE FOR EXPLOSIVE-ENGINES. JOHN W. SWAN, Lima, Ohio, assignor to the John W. Swan Company, Lima, Ohio, a Corporation of Ohio. Filed Aug. 13, 1902. Serial No. 119,470. (No model.)

Claim.—1. In a gas-engine, the combination with the exhaust-valve-operating cam adapted to be held from endwise movement, a wedge-block slidably mounted with respect to said cam, and adapted to open said valve on the compression-stroke, and means for shifting said wedge-block into the path of operation, substantially as described.

2. In a gas-engine, in combination with the exhaust-valve-operating cam, a wedge-block slidably mounted on said cam, a ring engaging a screw-threaded portion of said cam and adapted to shift said block into the path of operation, and means for holding said ring from rotation, substantially as described.

3. In a gas-engine, the combination with the exhaust-valve-operating cam, a lever extending in the path of said cam, a wedge-block suitably mounted so as to move into the path of said cam, of a ring operating upon a suitable screw-threaded portion of said cam

for moving said wedge-block, and a pawl for holding said ring against rotation with said cam, said ring traveling out of engagement with said pawl as the engine gets under way, substantially as described.

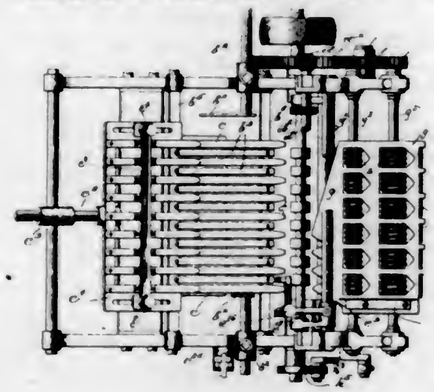


4. In a gas-engine, the combination with the exhaust-valve-operating cam carried by a sleeve having a screw-threaded portion, a lever in the path of said cam, a wedge-block slidable in a longitudinal groove in said screw-threaded portion and having a notch, a ring provided with serrations and operating upon said screw-threaded portion of said sleeve and occupying said notch, and a pawl operating in said serrations, said ring being adapted to travel out of engagement with said pawl when the engine gets under way, substantially as described.

5. In a gas-engine, the combination with the valve-operating cam, of a valve-operating lever extending approximately horizontally beneath the valve-operating cam, the end of said lever being formed into an upwardly-opening oil-pocket, and a frictional roller mounted in said oil-pocket and having its upper periphery adapted to engage said cam, and its lower periphery adapted to be immersed in oil in the pocket, substantially as described.

6. In a gas-engine, the combination with the shaft for carrying the exhaust-cam, a cam having a sleeve rigid upon said shaft, an operating-lever, an upwardly-opening pocket carried by said lever, a frictional roller mounted within said pocket and having the upper portion extending above the side walls thereof, and a wedge-block slidably mounted upon said cam-sleeve and adapted to extend across the wall of said pocket and engage said roller, substantially as described.

750,319. **PAPER-FEEDING MECHANISM.** WILLIAM A. TARBOX, Stoneham, Mass., assignor to William B. Cohen, Salem, Mass. Filed Feb. 14, 1903. Serial No. 143,406. (No model.)



Claim.—1. In a machine of the kind described, means for holding a stack of sheets, means for feeding said sheets from the bottom of the stack, a delivery device including means for supporting the under side of the bottom sheet, and means for setting said delivery device to the thickness of the sheet, and means for maintaining the delivery device opposite the leading end of the bottom sheet with a uniform upward pressure.

2. In a machine of the kind described, a hopper for a stack of sheets, means for supporting said sheets to the rear of the front of the stack, yielding means for maintaining a uniform upward pressure beneath the front edge of the bottom sheet, and feeding mechanism for feeding the sheets successively from the bottom of the stack.

3. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a movable delivery device provided with a narrow throat adapted to permit the passage of one sheet at a time, and means for automatically maintaining said throat and the front edge of the bottom sheet in accurate delivery alinement.

4. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a delivery device for engaging the bottom sheet having a sheet-receiving throat formed by opposite jaws, means for adjusting said jaws toward and from each other, and means for regulating the upward pressure of said delivery device against the bottom sheet, independently of the size of the stack.

5. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a delivery device pivoted at the front bottom edge of said stack and provided with arms carrying at their free ends opposite jaws forming a throat for receiving the sheets as successively fed, and automatic means for changing the position of said throat, as required, to maintain it in alinement with the front edge of the bottom sheet.

6. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a delivery device pivoted at the front bottom edge of said stack and provided with arms carrying at their free ends opposite jaws forming a throat for receiving the sheets as successively fed, a lip extending beneath the front edge of the bottom sheet, and means maintaining said throat and lip yieldingly in position.

7. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a delivery device pivoted at the front bottom edge of said stack, and provided with jaws forming between them a throat for receiving a sheet when fed, the lower jaw carrying a lip extending beneath the front edge of the bottom sheet, and means maintaining said throat and lip yieldingly in position.

8. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism for feeding the sheets successively from the bottom of the stack, a delivery device pivoted at the front bottom edge of said stack and provided with jaws forming between them a throat for receiving a sheet when fed, the lower jaw being adjustable and carrying a lip extending beneath the front edge of the bottom sheet, and means maintaining said throat and lip yieldingly in position.

9. In a machine of the kind described, a hopper for a stack of sheets, a support for said stack, feed-rolls at the front edge of the bottom sheet for receiving said front edge and pulling the sheet forward when partially fed from beneath the stack, a movable delivery device provided with means for preventing the delivery of the superimposed sheets, automatic means for maintaining said delivery device in position for receiving the bottom sheet, and means for feeding said bottom sheet thereto.

10. In a machine of the kind described, a hopper for a stack of sheets, a support for said stack, feed-rolls at the front edge of the bottom sheet for receiving said front edge and pulling the sheet forward when partially fed from beneath the stack, a movable delivery device provided with means for preventing the delivery of the superimposed sheets, automatic means for maintaining said delivery device in position for receiving the bottom sheet, and feeding mechanism for engaging the bottom sheet and provided with an extension end for supporting the extreme front edge of the sheet as the latter is fed forward to said rolls.

11. In a machine of the kind described, a hopper for a stack of sheets, a support for said stack, feed-rolls at the front edge of the bottom sheet for receiving said front edge and pulling the sheet forward when partially fed from beneath the stack, a movable delivery device provided with means for preventing the delivery of the superimposed sheets, automatic means for maintaining said delivery device in position for receiving the bottom sheet, and feeding mechanism provided with a frictional engaging surface for contacting with the bottom sheet over a considerable area thereof.

12. In a machine of the kind described, a hopper for a stack of sheets, a support therefor, feed-rolls at the front edge of the bottom sheet for receiving said front edge and pulling the sheet forward when partially fed from beneath the stack, and feeding mechanism provided with a frictional engaging surface for contacting with the bottom sheet over a considerable area thereof, and having at its forward end an extension end for supporting the extreme front edge of the sheet as the latter is fed forward to said rolls.

13. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism consisting of a series of flat arms having their upper surfaces extending in the same plane and provided with a frictional upper surface for contacting with the bottom sheet over a considerable area thereof, means for maintaining said frictional surface in pressing engagement against said bottom sheet and moving the same forward, and means for retracting said feeding mechanism and preventing engagement of said frictional surface with the stack during the backward movement.

14. In a machine of the kind described, a hopper for a stack of sheets, a support having separated slats for supporting said sheets, feeders in the form of parallel slat-like arms extending in the same plane parallel to the bottom sheet and adapted to rise and fall between said slats for simultaneously engaging a large area of said paper, and a four-motion feed-operating mechanism therefor.

15. In a machine of the kind described, a hopper for a stack of sheets, a support having separated slats terminating back from the front of the stack for supporting said sheets, excepting at their front ends, feeders adapted to rise and fall between said slats for engaging said paper, said feeders extending to the front edge of the sheets for supporting the same, and a four-motion feed-operating mechanism therefor.

16. In a machine of the kind described, a hopper for a stack of sheets, a support having separated slats for supporting said sheets, feeders adapted to rise and fall between said slats for engaging said paper, said feeders having an upper surface of highly-frictional material, and shields extending over the rear portions of said feeders and adapted to rest beneath the rear under side of said stack for preventing the disturbance of the superimposed sheets by said feeders, and means for reciprocating said feeders.

17. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism therefor, having an upper surface of highly-frictional material for engaging a considerable area of the bottom sheet, and a shield extending over the rear portion of said frictional material to rest beneath the rear under side of said stack, and means for reciprocating said feeding mechanism.

18. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism therefor having an upper surface of highly-frictional material for engaging a considerable area of the bottom sheet, and a stationary shield extending over the rear portion of said frictional material to rest beneath the rear under side of said stack, and means for reciprocating said feeding mechanism.

19. In a machine of the kind described, a hopper for a stack of sheets, feeding mechanism therefor, having an upper surface of highly-frictional material for engaging a considerable area of the bottom sheet, and a shield extending over the rear portion of said frictional material to rest beneath the rear under side of said stack, means for adjusting said shield for different-sized sheets, and means for reciprocating said feeding mechanism.

20. In a machine of the kind described, a hopper for a stack of sheets, a support for said sheets, reciprocating feeding mechanism for feeding said sheets from the bottom of the stack, a four-motion feed-operating mechanism therefor, and means for lowering said operating mechanism out of operative contact with the sheets.

21. In a machine of the kind described, a hopper for a stack of sheets, a slat-like support normally supporting the sheets, but terminating short of their front edges, feed-rolls for receiving the front edge of the sheet being fed and pulling the same from beneath the stack, said feed-rolls being reduced in diameter at short intervals, and feeders for occupying the spaces between the slats, said feeders being provided at their front ends with thin extension ends for supporting the front edge of a sheet and feeding the same between said rolls, said extension ends being in alinement with and entering between said rolls where the latter are reduced in diameter.

22. In a machine of the kind described, a hopper for a stack of sheets, a slat-like support normally supporting the sheets, but terminating short of their front edges, feed-rolls for receiving the front edge of the sheet being fed and pulling the same from beneath the stack, said feed-rolls being reduced in diameter at short intervals, feeders for occupying the spaces between the slats, said feeders being provided at their front ends with thin extension ends for supporting the front edge of a sheet and feeding the same between said rolls, said extension ends being in alinement with and entering between said rolls where the latter are reduced in diameter, and guide-plates for receiving the sheet beyond said feed-rolls, said guide-plates having their receiving ends flared outwardly and provided with nose-shaped oblique edges for facilitating the entry of the paper, said sheets having a series of apertures cut through them, and a second set of feed-rolls operating through said apertures.

23. In a machine of the kind described, means for supporting a stack of sheets, means for feeding the sheets successively, feed-rolls, a stop-gate beyond said feed-rolls, a side gage at one side of the machine, means for momentarily separating said feed-rolls when the sheet reaches said stop-gate, and means provided on said feed-rolls for thereafter automatically shifting the sheet sidewise into register with said side gage.

24. In a machine of the kind described, means for supporting a stack of sheets, means for delivering the same one by one, means for receiving said sheets as delivered, said means including opposite pairs of feed-rolls, a stop-gate beyond said feed-rolls, and means for simultaneously separating said pairs of feed-rolls while the sheet is in engagement with said gate, for permitting the sheet to flatten itself.

25. In a machine of the kind described, means for supporting a stack of sheets, means for delivering the same one by one, means for receiving said sheets as delivered, said means including opposite pairs of feed-rolls, a stop-gate beyond said feed-rolls, a frame carrying the upper rolls of said pairs, and means for raising said frame while the sheet is in engagement with said stop-gate to permit it to recover its normally flat condition.

26. In a machine of the kind described, a plurality of pairs of feed-rolls, means for delivering sheets thereto one by one, a stop-gate, a side gage, and means provided on said feed-rolls for automatically, after the sheet reaches said stop-gate, shifting said sheet sidewise against said side gage.

27. In a machine of the kind described, a plurality of pairs of feed-rolls, means for delivering sheets thereto one by one, a stop-gate, and a side gage, said pairs of feed-rolls having their surfaces composed of beaded spirals, right and left respectively, for automatically shifting the sheet sidewise.

28. In a machine of the kind described, means for feeding a sheet, including a pair of spirally-beaded rolls for receiving said sheet between them, one of said rolls having a right-hand spiral and the other of said rolls having a left-hand spiral adapted to frictionally engage the sheet between them and feed the same, and means for checking the advance movement of the sheet, thereby causing said spirals to feed the sheet laterally.

29. In a machine of the kind described, means for feeding a sheet, including a pair of spirally-beaded rolls for receiving said sheet between them, one of said rolls having a right-hand spiral and the other of said rolls having a left-hand spiral adapted to frictionally engage the sheet between them and feed the same, the projections of one roll being in alinement with the groove of the opposite roll.

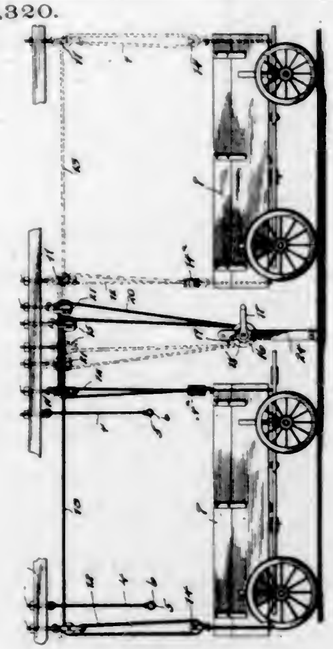
30. In a machine of the kind described, means for feeding a sheet, including a pair of feed-rolls, one of which is spirally beaded, and means for checking the advance movement of the sheet for permitting said spiral to shift the sheet laterally.

31. In a machine of the kind described, feeding means including main and secondary feeding-rollers, the main feeding-rollers feeding the sheet through the machine the secondary rollers acting on the sheet at the plurality of points at right angles to the direction in which it is being moved by the main feeding-rollers, said secondary rollers exerting friction on the sheet oppositely toward its edges, to smooth and straighten out the sheet substantially as described.

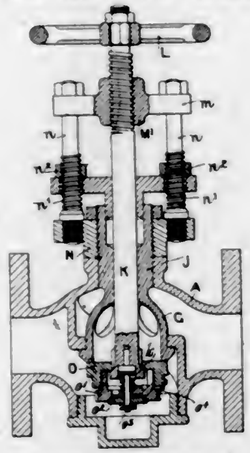
750,320. **LIFTING APPARATUS.** JAMES A. TAYLOR, Wabash, Ind. Filed Sept. 16, 1903. Serial No. 173,459. (No model.)

Claim.—The combination with suitable supporting-beams of a plurality of eyebolts each located in its proper relative position substantially as set forth, and a pair of complementary cables 13 and 20, pulley-blocks engaging with said eyebolts and additional pulley-blocks engaging the wagon-bed, a winding-drum engaging the ends of said cables and suitable means to hold the drum in an adjusted position whereby the wagon-bed may be sustained as elevated or may be again lowered in position upon the wagon proper, all substantially as specified and for the purpose set forth.

750,320.



750,321. VALVE. WILLIAM H. THOMPSON, London, England. Filed July 11, 1902. Serial No. 115,114. (No model.)



Claim.—1. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup and having a recess on its lower or under side, a screw-plug closing the said recess, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally, a spindle on which said valve is mounted and supported passing up through said hollow stem and movable therein, a pilot-valve mounted in the main valve and held to its seating by the pressure of the steam, one or more passages putting the upper side of the main valve into communication with the under side thereof when the pilot-valve is opened, a gland-nut provided with screw-threads and adapted to screw on the top of said hollow stem, means for adjusting and holding said valve-cup in position, means for operating said valve, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

2. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup, and having a recess on its lower or under side, a screw-plug closing said recess, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally, a spindle on which said valve is mounted and supported passing up through said hollow stem and movable therein, a pilot-valve mounted in the main valve and held to its seating by the pressure of the steam, one or more passages putting the upper side of the main valve into communication with the under side thereof when the pilot-valve is opened, a gland-nut provided with screw-threads and adapted to screw on the top of said hollow stem a second nut below the said gland-nut engaging the screw-threads on said hollow stem and adapted to adjust and hold said valve-cup in position, means for operating said valve, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

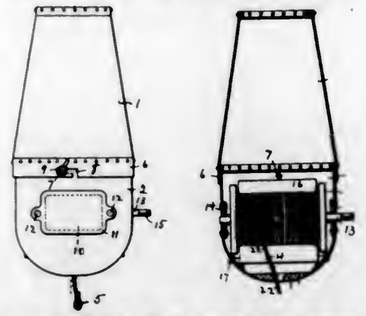
3. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup and having a recess in its lower or under side, a screw-plug closing said recess, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally at its upper end, a spindle on which said valve is mounted and supported passing up through said hollow stem and movable therein, a flanged nut provided with screw-threads engaging the screw-threads on said hollow stem and adapted to adjust and hold said valve-cup in position, pillars carried by the flanged nut and supporting a cross-bar carrying a threaded boss with which the threaded part of the spindle carrying the valve engages, means for operating the spindle, a gland closing the upper end of the stem of the valve-cup, means for adjusting the said gland, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

4. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup and having a recess in its lower or under side, a screw-plug closing said recess, a hollow stem formed by an upward extension of said cup passing through an aperture in said casing and screw-threaded externally at its upper end, a spindle on which said valve is mounted and supported passing up through said hollow stem and movable therein, a pilot-valve mounted in the main valve, one or more passages putting the upper side of the main valve in communication with the under side thereof when the pilot-valve is opened, a flanged nut provided with screw-threads engaging the screw-threads on the said hollow stem and adapted to adjust and hold the said valve-cup in position, pillars carried by the flanged nut and supporting a cross-bar carrying a threaded boss with which the threaded part of the spindle carrying the main valve engages, means for operating the said spindle, a gland for closing the top of the stem of the valve-cup, means for adjusting the said gland, and an opening with movable cover in the bottom of said casing for withdrawing the valve, substantially as set forth.

5. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup, a hollow stem formed by an upward extension of said cup passing through an opening or aperture in the upper side of said casing and screw-threaded externally, a spindle on which said valve is mounted passing up through said hollow stem and movable therein, a sleeve-nut provided with screw-threads internally to engage the threads on the hollow stem of the valve-cup, a flanged cap adapted to fit over the sleeve-nut and close the aperture in the casing and also engage a shoulder on the lower end of the sleeve-nut, a lock-nut threaded on the exterior of the sleeve-nut and adapted to adjust and hold said sleeve-nut in position in the flanged cap, a gland-nut provided with screw-threads and adapted to screw on the top of said hollow stem, a second nut below the said gland-nut engaging the screw-threads on said hollow stem and adapted to adjust and hold said valve-cup in position in the sleeve-nut, and means for operating said valve, substantially as set forth.

6. In a valve, the combination of a valve-casing, a valve-cup seating in said casing, a perforated valve-cup bearing against said seating, a valve closing the open bottom of said cup, a hollow stem formed by an upward extension of said cup passing through an opening or aperture in the upper part of said casing and screw-threaded externally, a spindle on which said valve is mounted passing up through said hollow stem and movable therein, a pilot-valve mounted in main valve, one or more passages putting upper side of main valve in communication with lower side thereof when pilot-valve is opened, a sleeve-nut provided with screw-threads internally to engage the threads on the hollow stem of the valve-cup, a flanged cap adapted to fit over the sleeve-nut and close the aperture in the casing and also engage a shoulder on the lower end of the sleeve-nut, a lock-nut threaded on the exterior of the sleeve-nut and adapted to adjust and hold said sleeve-nut in position in the flanged cap, a gland-nut provided with screw-threads and adapted to screw on the top of said hollow stem, a second nut below the said gland-nut engaging the screw-threads on said hollow stem and adapted to adjust and hold said valve-cup in position in the sleeve-nut, and means for operating said valve, substantially as set forth.

750,322. BUOY FOR SUNKEN VESSELS. JOSEPH F. TRIBBLE, Norwich, Conn., assignor of one-half to Agnes V. Peabody, Worcester, Mass. Filed Oct. 31, 1903. Serial No. 179,269. (No model.)



Claim.—1. In a buoy for sunken vessels, the combination of an air-chamber, a chamber containing a reel with cable wound thereon and separable from said air-chamber, means for detachably securing said air-chamber and said reel-chamber together, with the axis of said reel-chamber coincident with the axis of said air-chamber, substantially as described.

2. In a buoy for sunken vessels, the combination of an air-chamber provided with a flange at one end, a chamber containing a reel and cable wound thereon, and means for detachably attaching said reel-chamber to said flange, substantially as described.

3. In a buoy for sunken vessels, the combination of an air-chamber, a reel-chamber, a reel inclosed in said chamber and a spring-actuated brake arranged to govern the movement of said reel, substantially as described.

4. In a buoy for sunken vessels, the combination of an air-chamber, a reel-chamber, a reel inclosed in said reel-chamber and a cable wound thereon, a spring-actuated brake arranged to press against the wound cable, a flange at one end of said air-chamber and provided with angular slots, bolts, and tightening-nuts carried by said reel-chamber and adapted to engage said angular slots, substantially as described.

5. In a buoy for sunken vessels, the combination of an air-chamber, a reel-chamber detachably attached to said air-chamber, with the axes of said chambers coincident, a reel inclosed in said reel-chamber and having a spindle projecting outside said reel-chamber to receive a crank, substantially as described.

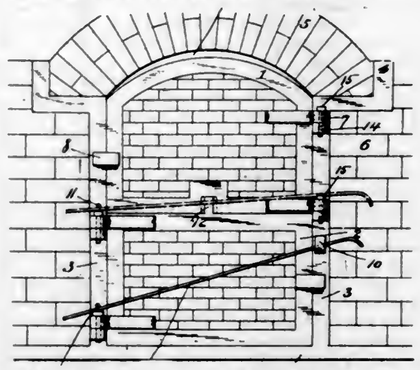
6. In a buoy for sunken vessels, the combination of an air-chamber, a reel-chamber detachably attached to said air-chamber, an opening in the side of said reel-chamber, and a reel inclosed in said reel-chamber, substantially as described.

7. In a buoy for sunken vessels, the combination of an air-chamber, a reel-chamber, a reel inclosed in said chamber, a flat brake inclosed between the heads of said reel and arranged to bear against a cable wound on the reel, a spring pressing against said brake to compress the cable, and an opening in said reel-chamber to allow access to said reel and brake, substantially as described.

8. In a buoy for sunken vessels, the combination of a reel-chamber, an inclosed air-chamber detachably attached thereto with the axes of said chambers coincident, a reel inclosed in said reel-chamber, and a counterweight in the end of said reel-chamber opposite said air-chamber, substantially as described.

9. In a buoy for sunken vessels, the combination of an inclosed air-chamber, a reel-chamber detachably attached thereto with the axes of said chambers coincident, a reel inclosed in said reel-chamber, a metal counterweight in the end of said reel-chamber opposite said air-chamber, and a hole through said counterweight to receive a cable wound in said reel.

750,323. COKE-OVEN DOOR. BIRDINE TROUTMAN, Saxton, Pa. Filed May 8, 1903. Serial No. 156,207. (No model.)



Claim.—1. In a device of the character described, the combination with the doors, of a lug formed upon the lower door, and the upper-door frame having a recess within which the lug is adapted to be received and lock the lower door, said pin also acting as a fulcrum for the coal-leveling implement

2. In a device of the character described, the combination with the doors, formed of metallic skeleton frames and fire-brick, of a wedge-shaped lug formed upon the lower door and the upper door formed with a converging recess, so that the lower door is locked when the upper is closed.

3. In a device of the character described, the combination with the doors composed of upper and lower sections formed of metallic skeleton frames, of interlocking means for the sections, and a metallic skeleton frame having the sill extending beyond the jambs to receive the brickwork and an angular upper portion to receive the arch.

750,324. BALING-PRESS. JOSIAH S. TUTTLE, Kansas City, Mo., assignor to Whitman Agricultural Company, St. Louis, Mo., a Corporation. Filed Aug. 14, 1903. Serial No. 169,426. (No model.)



Claim.—1. In a baling-press, the combination of a feeder, a power-head, and means interposed between the feeder and power-

head to cause the former to be moved by the latter; said means consisting of a pivoted lever provided with a cam-head on one end, a chain connecting the other end of the lever to the feeder, and a pivoted arm having a long end adapted to engage said cam-head and a short end adapted to be engaged by said power-head, substantially as set forth.

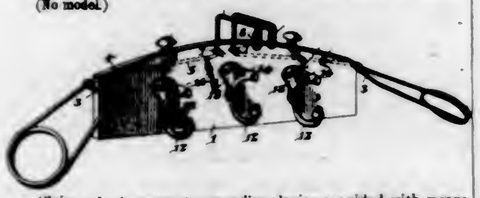
2. In a baling-press, the combination of a plunger, a power-head, and means for starting the backward movement of the plunger in case it should tend to stick; said means consisting of a pivoted lever having a cam-head, a chain connecting the other end of the lever to the plunger, and a pivoted arm one end of which is adapted to engage said cam-head and the other end of which is adapted to be engaged by said power-head, substantially as set forth.

3. In a baling-press, the combination of a feeder, means for operating the feeder, and a hinged plate forming the back of the hopper and which is connected to said feeder so as to be thrown forward when the feeder moves downwardly, substantially as set forth.

4. In a baling-press, the combination of a feeder, means for moving the feeder, a strap for arresting the backward movement of the feeder, a plate hinged to said strap, and links connecting said plate to said feeder, substantially as and for the purpose set forth.

5. In a baling-press, the combination of a plunger, a movable plate supported by the plunger, and a chain connecting said plate to a fixed point; whereby the plate is carried forward with the plunger for a distance and then its movement is arrested by said chain, substantially as and for the purpose set forth.

750,325. COMBINATION GARMENT-SUSPENDER. WILLIAM R. TYLER, Camden, N. J. Filed Dec. 23, 1902. Serial No. 136,348. (No model.)



Claim.—1. A garment-suspending device provided with means for holding garments, and having an upwardly-extending transversely-disposed hook composed of two sides spaced apart and provided at the outer ends thereof with a connecting portion arranged to engage a fastening device, said hook being adapted to engage a pole or rod and to support the collar of a garment, substantially as described.

2. A garment-suspending device provided with means for holding garments, and having an upwardly-extending collar-supporting device consisting of a transversely-disposed hook adapted to engage a pole or rod and composed of two sides spaced apart, and an inverted-U-shaped portion connecting the bills of the hooks and arranged to engage a fastening device, substantially as described.

3. A garment-suspending device comprising a bar or body portion, coat-supporting loops, and a collar-supporting device formed integral with the loops, and consisting of a centrally-arranged upwardly-extending transversely-disposed double hook composed of two sides spaced apart, and an inverted-U-shaped portion connecting the sides of the double hook at the bills thereof, substantially as described.

4. A garment-suspending device comprising a bar forming a body portion and presenting flat vertical front and rear faces, means for suspending it from a support, and garment-receiving means projecting from each of the faces of the bar or body portion, substantially as described.

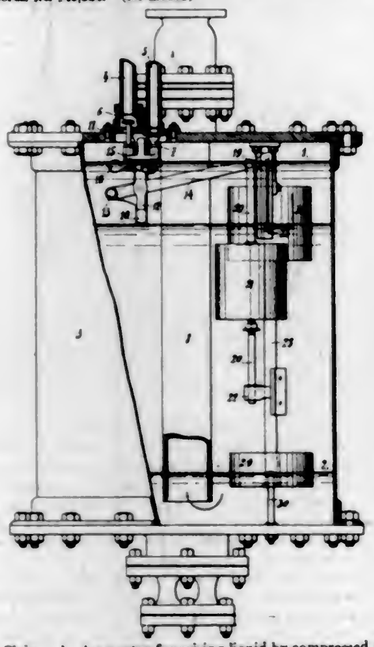
5. A garment-suspending device comprising a bar forming a body portion presenting flat vertical front and rear faces, means arranged at the top thereof for suspending it from a support, and hooks extending from each of the faces of the bar or body portion and arranged to receive garments, substantially as described.

6. A garment-suspending device comprising a bar forming a body portion presenting flat vertical front and rear faces, knobs projecting from the bar at the upper edges thereof, and a suspending device located between the knobs and arranged to support a collar, substantially as described.

7. A garment-suspending device comprising a bar forming a body portion presenting flat vertical front and rear faces, a central collar-supporting device consisting of a hook for suspending the bar or body portion from a support, garment-receiving hooks projecting from each of the faces of the bar or body portion, and knobs arranged at the upper edge of the bar or body portion, substantially as described.

8. A garment-suspending device comprising a bar or body portion, coat-supporting loops extending from the ends of the bar or body portion, a central collar-supporting device consisting of a transversely-disposed double hook composed of two sides spaced apart, and an inverted-U-shaped portion connecting the sides of the double hook at the bills thereof and arranged to engage a fastening device, knobs arranged at the upper edge of the bar or body portion and located at opposite sides of the collar-supporting device, and garment-receiving hooks extending from the opposite faces of the bar or body portion, substantially as described.

750,326. PNEUMATIC FLUID ELEVATOR OR PUMP. ANTONIO MONTENEGRO Y VAB-HALEN, Madrid, Spain. Filed Mar. 24, 1903. Serial No. 149,320. (No model.)

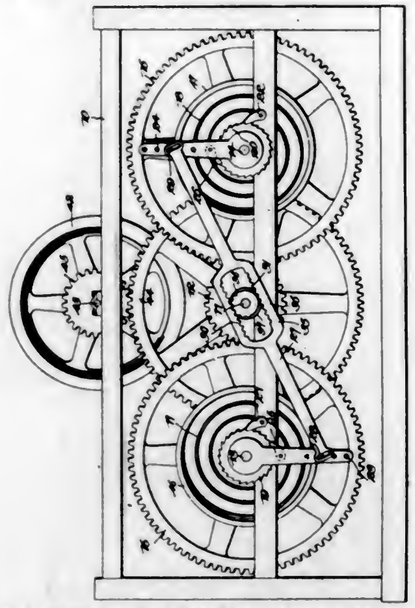


Claim.—1. Apparatus for raising liquid by compressed air comprising a closed chamber provided with liquid and air inlet and outlet, valves governing the air-inlet and air-outlet, a valve-operating lever, a float for actuating said lever, two catches adapted to engage the valve-lever in its raised and in its depressed positions respectively, a lever for operating said catches, and a float actuating the last-mentioned lever, the said catches being simultaneously operated through said last-mentioned lever and float, the one to release and the other to be free to engage said valve-lever as the last-named float reaches the end of its upward or downward stroke.

2. Apparatus for raising liquid by compressed air comprising a closed chamber provided with liquid and air inlet and outlet, valves governing the air-inlet and air-outlet, a support for said valves, a lever operating the support, a float for actuating the lever, the said valves having a limited independent movement in said support and one of them being normally held in its raised position therein, two catches adapted to engage the said lever in its raised position and depressed position respectively, a lever for operating said catches and a float actuating the last-mentioned lever, said catches being operated simultaneously by said last-mentioned lever and float, one to release said valve-lever and the other to be free to engage same as the last-mentioned float reaches the end of its upward or downward stroke.

750,327. SPRING-MOTOR. WILHELM WEBER, Wymore, Nebr., assignor of one-half to Henry Schmitz, Wymore, Nebr. Filed May 1, 1903. Serial No. 155,208. (No model.)

Claim.—1. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame, shafts mounted for rotation upon said frame and having operating-springs connected therewith, means connected with said shafts for operating said driven shaft, an arm connected to said spring-shafts, and adapted to be vibrated longitudinally, and means carried by said driven shaft for alternately operating said arms to rewind said springs intermittently and alternately, substantially as described.



2. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame, shafts mounted for rotation upon said frame and having operating-springs connected therewith, means connected with said shafts to operate said driven shaft, ratchet-wheels carried by said spring-shafts, ratchet-levers having pawls engaging said ratchet-wheels and mounted for oscillation upon said spring-shafts, an arm connected by its ends to said ratchet-levers, and means carried by said driven shaft to alternately operate said arm to intermittently and alternately rewind said springs, substantially as described.

3. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame, shafts mounted for rotation upon said frame and having operating-springs connected therewith, and means connected with said shafts to operate said driven shaft, an arm operatively connected by its ends to said spring-shafts, and provided with an intermediate aperture having oppositely-disposed longitudinal gear-racks, a mutilated pinion carried by said driven shaft and adapted to alternately engage said gear-racks, and to correspondingly vibrate said arm to cause said springs to be intermittently and alternately rewound, substantially as described.

4. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame and carrying a pinion, spring-shafts mounted for rotation upon said frame at opposite sides of said driven shaft and having gears engaging the pinion thereon, springs connected to independently rotate said spring-shafts, ratchet-wheels upon said spring-shafts, reversely-disposed ratchet-levers mounted for rotation upon spring-shafts and having pawls engaging said ratchet-wheels, an arm connected by its ends to the free ends of said ratchet-levers, and means carried by said driven shaft for alternately vibrating said arm to alternately actuate said ratchet mechanisms and intermittently and alternately rewind said springs, substantially as described.

5. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame and carrying a pinion, spring-shafts mounted for rotation upon said frame at opposite sides of said driven shaft and having gears engaging the pinion thereon, springs connected to independently rotate said spring-shafts, reversely-disposed ratchet-wheels upon said spring-shafts, ratchet-levers mounted for rotation upon the spring-shafts and having pawls engaging said ratchet-wheels, an arm connected by its ends to the free ends of said ratchet-levers and having oppositely-disposed intermediate gear-racks, and a mutilated pinion carried by said driven shaft and adapted to alternately engage said racks, substantially as described.

6. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame, spring-shafts mounted for rotation upon said frame and having means connected therewith to operate said driven shaft, springs connected to operate said spring-shafts, an arm operatively connected by its ends to said spring-shafts and provided with a longitudinal aperture having oppositely-disposed gear-racks therein and provided with guide-tracks parallel to said racks, a mutilated pinion carried by said driven shaft and operating between said racks, and a guide-disk carried by said driven shaft and operating between said tracks, and means whereby said pinion is caused to be alternately engaged with said racks and vibrate said arm, substantially as described.

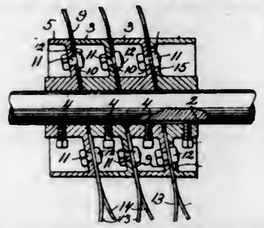
7. A spring-motor consisting of a main frame, a driven shaft mounted for rotation upon said frame, spring-shafts mounted for rotation upon said frame and having means connected therewith to operate said driven shaft, springs connected to operate said spring-shafts, an arm operatively connected by its ends to said spring-shafts, and provided with an intermediate aperture having oppositely-disposed longitudinal gear-racks, with the end teeth of each rack reduced in height, a mutilated pinion carried by said driven shaft and adapted to alternately engage said gear-racks, and correspondingly vibrate said arm, to intermittently and alternately rewind said springs, substantially as described.

750,328. PROJECTILE. KARL WIESER, Rüttenscheid, near Essen-on-the-Ruhr, Germany, assignor to Fried. Krupp, Essen-on-the-Ruhr, Germany. Filed Jan. 9, 1902. Serial No. 89,043. (No model.)



Claim.—An approximately conical-shaped metallic projecting-cap for projectile-fuses secured over the end of the fuse by fitting to the periphery thereof, and a tearing or ripping and detaching wire having one end secured to the cap on one side thereof, and passing thence to the other side of the fuse below the edge of the cap and causing the cap to come away with the wire by splitting transversely, when the wire is pulled, the fitting part of the cap from the rim toward the apex, whereby one side of the cap is first opened and a pull is finally given near the apex to permit the cap to be removed from the fuse through the slit thus formed.

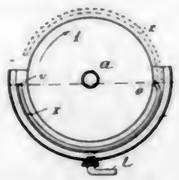
750,329. CORN-SHREDDER. NELS N. WINDINGSTAD, Manitowoc, Wis., assignor to Smalley Manufacturing Company, Manitowoc, Wis. Filed Oct. 31, 1902. Serial No. 129,622. (No model.)



Claim.—In a corn-shredder, the combination with a shaft, of a series of oblique cylindrical shells, secured thereto, and a series of independently-movable cutting-blades whose shanks are adjustably secured to said shells, each blade having one shank and two divergent cutting ends, projecting beyond the cylindrical surface of said shells, one cutting end of each blade being bent or curved back of the line of the shell-plate to which its shank is secured, and the other cutting end being bent or curved forward of said line.

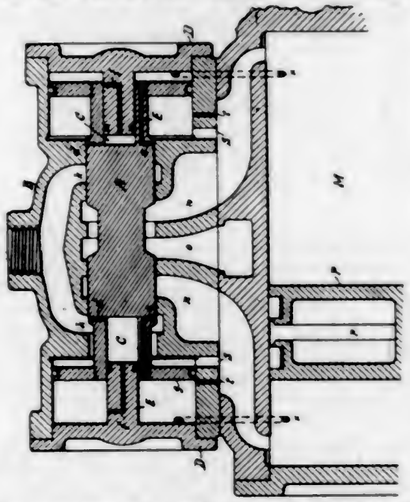
750,330. ROTARY VESSEL WITH CHARGING OR DISCHARGING MEANS. ALOIS WÜNSCH, Prague-Smichow, Austria-Hungary. Filed Jan. 21, 1902. Serial No. 90,700. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a rotary vessel, of means for charging and discharging the contents thereof, including a flexible semi-annular conduit communicating at one end with the interior of the vessel and open at its other end, and means for holding the flexible conduit, substantially as described.



2. In an apparatus of the character described, the combination with a rotary vessel, of means for charging and discharging the contents thereof, including a flexible semi-annular conduit communicating at one end with the interior of the vessel, and open at its other end, and means for reversing the direction of the flexible conduit round the circumference of the vessel, substantially as described.

750,331. **STEAM-ACTUATED VALVE.** ROLLIN D. ACKLEY, Battlecreek, Mich., assignor to American Steam Pump Company, Battlecreek, Mich. Filed Oct. 5, 1903. Serial No. 175,901. (No model.)

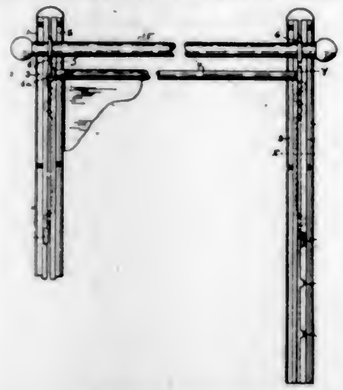


Claim.—In a steam-actuated valve of the class described, a steam-chest having suitable induction and eduction ports, in combination with a steam-valve arranged to operate therein having interior end cushion-chambers, said valve being further provided with small ports entering each cushion-chamber at its inside terminal wall and with preadmission-ports leading through the stem and valve heads, cushion plugs or pistons slidingly embraced within the cushion-chambers, and attached to the respective chest-heads, provided with central and lateral passages.

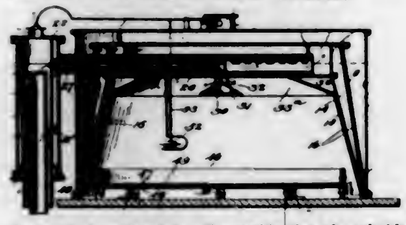
750,332. **WINDOW CURTAIN AND SHADE ADJUSTER.** HENRY P. ADAMS, Salem, Ohio. Filed Oct. 26, 1903. Serial No. 178,465. (No model.)

Claim.—1. In a window curtain and shade adjuster, vertical channel-bars provided with notches, curtain-pole and shade-roller carrying bars adjustably connected to the channel-bars, said carrying-bars provided with knobs or handles adapted to engage the notches in the channel-bars, and the adjustable bars provided with curtain-pole loops and shade-roller support loops, and the adjustable bars provided with lateral bends, substantially as and for the purpose specified.

2. Vertical guide-bars having adjustably attached thereto pole and shade-roller carrying bars, said carrying bars provided with spring-loops at their upper ends, one of said bars provided with a journal-loop, and another with a spring-bar open loop and lateral bends formed in said bars and the bars provided with operating-knobs, and means for holding the bars at predetermined points of adjustment, substantially as and for the purpose specified.



750,333. **INCUBATOR.** THOMAS P. ADAMS, Indianola, Nebr. Filed May 25, 1903. Serial No. 158,691. (No model.)



Claim.—1. In an incubator, the combination of a suitable supporting-table, a heating drum or casing pivotally mounted upon said table so as to tilt and means for supporting said drum in an elevated position, substantially as described.

2. In an incubator, the combination of a suitable supporting-table having a hinged portion or leaf, a heating drum or casing mounted upon said hinged leaf and adapted to be tilted by the movement of the same, and a pivoted bracket for supporting said drum in an elevated position, substantially as described.

3. In an incubator, the combination of a suitable supporting-table, heating drum or casing pivotally mounted thereon so as to tilt and forming an egg-chamber, an egg-tray mounted upon said table beneath said drum and adapted to be exposed by the tilting of the drum, substantially as described.

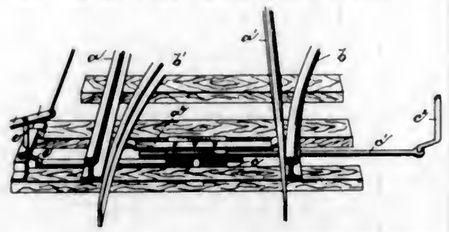
4. In an incubator, the combination of a suitable supporting-table, a tilting heating drum or casing mounted upon said table and forming an egg-chamber, and an egg-tray revolubly mounted upon said table beneath the drum, whereby any portion of said tray may be exposed when the drum is tilted, substantially as described.

5. In an incubator, the combination of a suitable supporting-table, a casing mounted thereon and having an egg-chamber, a hot air-discharge space and an intermediate dead-air space, a heater carried by said casing, a pipe or connection for discharging the heat from said heater into said egg-chamber, outlet-pipes between said egg-chamber and hot-air-discharge space, and an adjustable discharge-tube for said hot-air-discharge space, substantially as described.

6. In an incubator, the combination of a suitable supporting-table, a casing mounted thereon and forming an egg-chamber, a water-compartment in said casing, a heater carried by said casing, a pipe establishing communication between said heater and casing above said water-compartment, and outlet-pipes leading from said casing above the water-compartment, substantially as described.

7. In an incubator, the combination of suitable supporting-table, a casing mounted thereon and forming an egg-chamber, a heater carried by said casing, and comprising an inner and an outer hot-air space, an intermediate cold-air space, concentric discharge-pipes connecting said casing with said outer hot-air and said inner cold-air spaces, and a controlling-damper for said cold-air space, substantially as described.

750,334. **RAILWAY-SWITCH.** FRANK BAYLESS, Springfield, Ohio. Filed Mar. 19, 1903. Serial No. 148,510. (No model.)



Claim.—1. In a railway-switch, the combination, with the movable rails thereof and a hand-switch detachably connected to said rails, of means, operated by a moving car or train and normally disconnected from said rails, for disconnecting said hand-switch from said rails and operating said rails independently thereof, substantially as specified.

2. In a railway-switch, the movable rails thereof having a hand-switch normally connected thereto, and train-operated devices normally disconnected from said movable rails but adapted to be operated by a moving train or car to disconnect said hand-switch from said rails and move said rails to a different position, substantially as specified.

3. In a railway-switch, the movable rails thereof, a hand-operated device for throwing said rails either to an open or closed position, said hand-operated device being detachably connected to said rails, and devices, normally disconnected from said rails, adapted to be operated by a moving car or train, when rails are in an open position, to disconnect said hand-operated device and move said rails to a closed position.

4. In a railway-switch, the movable rails, a hand switch-bar having a connection to said rails, a train-operated bar independent of but adapted to release said hand-bar from said connection and move said connection to throw the switch.

5. In a railway-switch, the movable rails thereof, a hand-operated bar for said switch, devices for connecting said bar to said rails, a train-operated bar extending in proximity to said connecting devices and adapted, when operated, to contact directly with said connecting devices to release said hand-operated bar from said rails and move said rails to a different position.

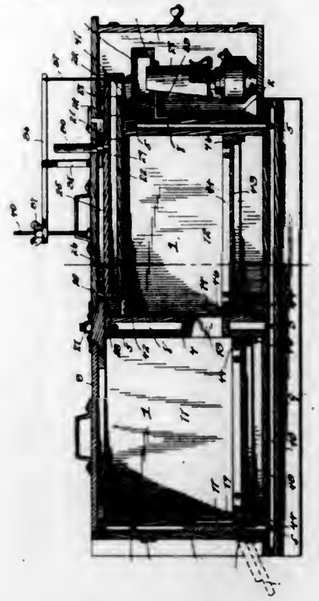
6. In a railway-switch, the movable rails thereof, a frame or casing located between said rails and connected rigidly thereto, a hand switch-bar detachably connected to said frame or casing, and a train-operated bar adapted, when operated, to disconnect said hand switch-bar from said frame or casing and operate said frame or casing to move said movable rails to a different position, substantially as specified.

7. In a railway-switch, the movable rails thereof, a frame or casing located between said rails and connected thereto, a switch-bar extending into said frame or casing, spring-pressed plates in said casing to engage said switch-bar and connect the same to said frame or casing, a train-operated bar also extending into said frame or casing adapted when operated to disconnect said spring-pressed plates from said switch-bar and move said casing to throw the switch-rails to a different position, substantially as specified.

8. In a railway-switch, the movable rails, a hand switch-bar connected to said rails by spring-pressed devices engaging therewith, a train-operated bar extending in proximity to said spring-pressed devices and provided with a beveled or wedge-shaped portion adapted, when said train-bar is operated, to contact with and disconnect said spring-pressed devices from said hand-bar, and means on said train-bar for moving said rails by a further movement of said bar, substantially as specified.

750,335. **BROODER.** WILLIAM H. BENNETT, Chicago, Ill. Filed Aug. 31, 1903. Serial No. 171,417. (No model.)

Claim.—The herein-described brooder comprising suitable end, side, top and bottom walls, suitable means to separately connect said parts whereby they may be disposed to occupy a small amount of space; the brooding-chamber being provided with a removable floor; a frame-section adapted to slidingly hold said floor; a scraper or knife carried by said frame-section and held in close contact with the surface of the removable floor whereby when the latter is withdrawn the surface will be thoroughly scraped or cleansed, in combination with a suitable heat-supplying device and means to convey the heat from the lamp to the brooding-chamber all combined substantially as specified and for the purpose set forth.



750,336. **COMBUSTION-MOTOR.** JACOB F. BENTZ, Schenectady, N. Y. Filed June 19, 1903. Serial No. 162,211. (No model.)



Claim.—1. In a combustion-motor having induction and eduction ports, the combination with the case having a piston-chamber; of a crank-disk rotary within such chamber and in engagement with the piston; a crank-shaft fixed to the disk and projecting exteriorly of the case; a piston reciprocatory in the piston-chamber; an operative connection in the piston-chamber between the disk and piston; and means for igniting an explosive mixture in the piston-chamber, substantially as described.

2. In a combustion-motor, the combination with the case having a piston-chamber; of a crank-disk rotary within such chamber and in engagement with the piston; a crank-shaft fixed to the disk and projecting exteriorly of the case; a piston reciprocatory in the piston-chamber; an operative connection in such chamber between the disk and piston; means for igniting an explosive mixture in the piston-chamber; a valve-controlled induction-port; and a disk-controlled eduction-port, substantially as described.

3. In a combustion-motor having induction and eduction ports, the combination with the case having a piston-chamber; of a crank-disk rotary within such chamber and in engagement with the piston; a crank-shaft fixed to the disk and projecting exteriorly of the case; a piston reciprocatory in the case, and dividing the piston-chamber into mixing and combustion compartments; a piston-controlled by-pass port leading from the mixing-compartment to the combustion-compartment; means for igniting an explosive mixture in the combustion-compartment; and an operative connection in the piston-chamber between the disk and piston, substantially as described.

4. In a combustion-motor, the combination with the case having a piston-chamber; of a crank-disk rotary within such chamber and in engagement with the piston; a crank-shaft fixed to the disk and projecting exteriorly of the case; a piston reciprocatory in the

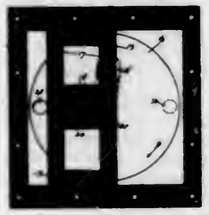
piston-chamber; an operative connection between the disk and piston in such chamber; means for igniting an explosive mixture in the piston-chamber; a valve-controlled induction-port; a piston-controlled by-pass port; and an eduction-port comprising an aperture in the case leading to the atmosphere and a passage-way in the disk leading from the piston-chamber and adapted to register with the port-aperture in the case after each explosive combustion and while open to the combustion-chamber, substantially as described.

5. In a combustion-motor, the combination with a piston-chamber case, having a countersink in a wall of the piston-chamber and an induction-aperture opening into such countersink; of a piston; a crank-disk, rotary in such countersink and in engagement with the piston, having a segmental annular plane surface for closing the induction-aperture and provided with a segmental annular groove adapted to register with such aperture, at each rotation of the disk, and one or more port-holes adapted to connect such groove with the piston-chamber alternately on opposite sides of the piston; means for exploding a combustible mixture in the piston-chamber; and operative connections between the disk and piston, substantially as described.

6. In a combustion-motor, the combination with a piston-chamber case, having a countersink in a wall of the piston-chamber and an induction-aperture opening into such countersink; of a piston, dividing the piston-chamber into a mixing-compartment and a combustion-compartment; a crank-disk, rotary in such countersink, and forming a part of the compartment-wall in both the mixing and combustion compartments, having a segmental annular plane surface for closing the induction-aperture and provided with a segmental annular groove adapted to register with such aperture and one or more port-holes adapted to connect such groove with both compartments alternately at each rotation of the disk; a piston-controlled by-pass port leading from the mixing-compartment to the combustion-compartment; means for exploding a combustible mixture in the combustion-compartment; means for exhausting such compartment; and operative connections between the disk and piston, substantially as described.

7. In a combustion-motor having induction and eduction ports the combination with a case having a combustion-chamber; of a crank-disk rotary within such chamber and in engagement with the piston; a crank-shaft fixed to the disk and projecting exteriorly of the case; a piston reciprocatory in the piston-chamber; an operative connection in the piston-chamber between the crank-disk and piston consisting of a crank-pin fixed to the disk and a bearing for the pin movable in a slideway in the piston; and means for igniting an explosive mixture in the piston-chamber.

750,337. **FLUID-MOTOR.** JACOB F. BENTZ, Schenectady, N. Y. Filed June 19, 1903. Serial No. 162,212. (No model.)



Claim.—1. In a fluid-motor, the combination with the piston; and chamber-case provided with induction-ports; of a crank-shaft projecting exteriorly of the case; a crank-disk let into a case-wall along the path of the piston and provided with an eduction-port leading to the atmosphere through the disk and shaft; and operative connections between the disk and piston, substantially as described.

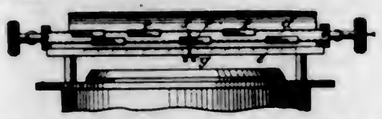
2. In a fluid-motor, the combination with the chamber-case; and piston; of a crank-shaft projecting exteriorly of the case; an apertured crank-disk let into a case-wall along the path of the piston and provided with a piston-controlled eduction-port leading to the atmosphere through the disk and shaft; a disk-controlled induction-port leading into the chamber; and operative connections between the disk and piston, substantially as described.

3. In a fluid-motor, the combination with a reciprocatory piston; and a chamber-case having a countersink on the inner side of one of its side walls and a pair of induction-ports opening into such countersink on opposite sides thereof; a crank-disk rotary in such countersink with its inner face located along the path of the piston and having a port-aperture, opening into the piston-chamber, adapted to alternately register with the induction-ports during the rotary movements of the disk; and an eduction-port leading from the chamber to the atmosphere; and operative connections between the disk and piston, substantially as described.

4. In a fluid-motor, the combination with a reciprocatory piston; and a chamber-case having a countersink on the inner side of one of its side walls and a pair of induction-ports opening into such countersink on opposite sides thereof; a crank-disk rotary in such countersink with its inner face located along the path of the piston and in engagement therewith and having a plurality of port-apertures opening into the piston-chamber adapted to successively register with the induction-ports, alternately, during the rotary movements of the disks; and the eduction-port leading from the chamber to the atmosphere; and operative connections between the disk and piston, substantially as described.

5. In a fluid-motor, the combination with the chamber-case and crank-shaft; of a crank-disk; a piston; connections between the disk and the piston all located within the case and so disposed relatively to each other that the piston reciprocates across the face of the disk, in engagement therewith, and causes a full rotation of the disk at every back-and-forth movement of the piston; and ports having eduction and induction openings in the face of the disk movable into and out of connection with the ports and so disposed that one is continually separated from the other by the piston, substantially as described.

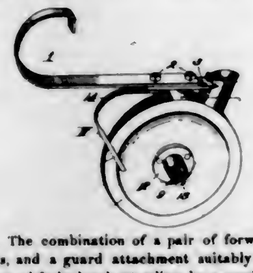
750,838. **TABULATING DEVICE FOR TYPE-WRITING MACHINES.** ADOLF P. BEYERLEN, Stuttgart, Germany. Filed June 22, 1903. Serial No. 162,631. (No model.)



Claim.—1. In a type-writer's tabulator, a rail for the carriage, a series of graduated or numbered slides, mounted in upper and lower rows on said rail, the slides in one row being capable of adjustment past those of the other, in combination with an indicator or pointer for attachment to the usual fixed graduated scale.

2. In a type-writer's tabulator, a rail for the carriage having upper and lower webs or ribs, and upper and lower graduated or numbered slides gripping said webs and of a width to allow either series to slide past the other, in combination with an indicator or pointer for attachment to the usual fixed scale.

750,339. **ATTACHMENT FOR DOUBLE-DISK GRAIN-DRILLS.** JAMES A. BINGHAM, Lahoma, Okla. Filed July 6, 1903. Serial No. 164,305. (No model.)

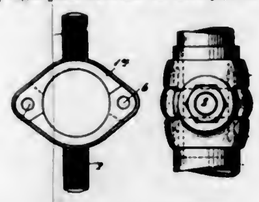


Claim.—1. The combination of a pair of forward-converging grain-drill disks, and a guard attachment suitably supported and having its lower end forked and extending downward and rearward, the tines of its fork frictionally engaging the outer sides of the disks.

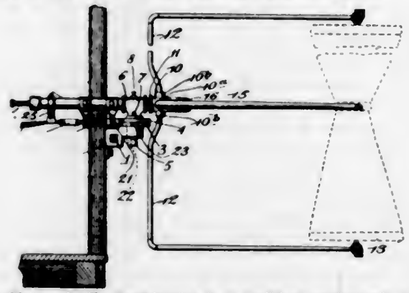
2. The combination of a grain-drill tube provided with an enlargement at its lower front end having its opposite sides converging forward, a shaft carried by said enlargement and projecting beyond and at right angles to said sides, disks journaled upon said projecting ends and bearing against said sides, nuts engaging the shaft to hold the disks in place, and a guard attachment supported from the drill-tube and having its lower portion forked and extending downward and rearward, and bearing lightly against the outer sides of the disks.

750,340. **HOSE-PIPE FASTENER.** FRITZ BISSING, Kreuzlingen, Switzerland. Filed Mar. 3, 1903. Serial No. 146,110. (No model.)

Claim.—A hose-pipe fastener comprising a round yoke provided with threaded bolts or the like arranged diametrically opposite one another which yoke is formed in separable sections to adapt it to be opened and passed laterally over the hose-pipe, and semicircular or approximately semicircular jaws which are pressed on the hose-pipe by means of said bolts which jaws press the elastic hose-pipe firmly against and laterally on both sides of the pipe both in proximity to the yoke and also between the two jaws thereby insuring a thoroughly tight joint between the hose-pipe and the pipe.



750,341. **MAIL-BAG CATCHER.** ALMOND P. BOWER, Pleasanthill, Ill. Filed June 1, 1903. Serial No. 159,561. (No model.)



Claim.—1. The combination in a mail-bag catcher, of a supporting-bar adapted to be fixed across the door of a mail-car, a bearing-block slidably mounted on said bar, and a mail-bag hook and mail-bag-supporting arms pivotally supported on said block.

2. The combination in a mail-bag catcher, of a square supporting-bar adapted to be fixed in horizontal position across a car-door, a bearing-block slidably mounted on said supporting-bar, and a mail-bag hook and mail-bag-supporting arms pivotally supported on said block.

3. The combination in a mail-bag catcher, of a supporting-bar, a bearing-block slidably mounted on said bar, a member pivotally mounted on said bearing-block, a mail-bag hook, mail-bag-supporting arms carried by said member, and means for locking said member in position upon said bearing-block.

4. The combination in a mail-bag catcher, of a supporting-bar, a bearing-block slidably mounted on said bar and having a recessed bearing-plate formed on the upper surface thereof, a member having a recessed bearing-plate pivotally mounted on said supporting-block with the bearing-plate of said member resting upon the bearing-plate of said block, a mail-bag hook and mail-bag-supporting arms carried by said member, and a locking-bolt carried by said member and adapted to engage the recesses provided in said bearing-plates to lock them in adjusted position.

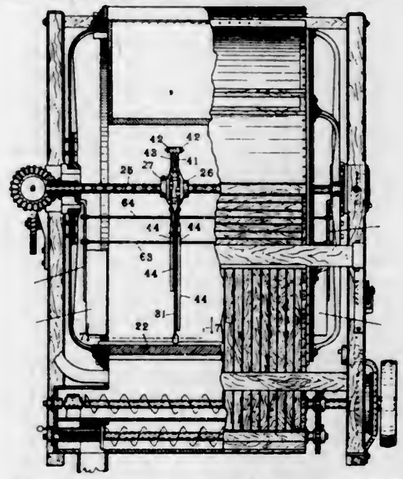
5. The combination in a mail-bag catcher, of a supporting-bar, a bearing-block slidably mounted on said supporting-bar, a tubular supporting member pivotally mounted on said bearing-block, a shaft journaled in said supporting member, a mail-bag hook rigidly attached to said shaft, means for locking said supporting member in relation to said bearing-block, and means for locking said shaft against rotation in said supporting member.

6. The combination in a mail-bag catcher, of a suitable support, a bearing-block carried thereby, a tubular supporting member pivotally mounted on said bearing-block, a shaft journaled within said tubular supporting member and susceptible of longitudinal movement therein, a mail-bag hook rigidly attached to said shaft, a fixed locking-lug carried by said shaft and adapted to engage recesses in the end of said tubular supporting member, and means for locking said supporting member in position on said bearing-block.

7. The combination in a mail-bag catcher, of a suitable support, a bearing-block mounted thereon, a tubular supporting member pivotally mounted on said bearing-block and having recesses formed at one end thereof, a shaft journaled in said tubular member and susceptible of longitudinal movement therein, a locking-lug rigidly attached to said shaft, a spring in said tubular member adapted to hold said locking-lug normally in engagement with one of said recesses, and means for locking said tubular member to said bearing-block.

8. The combination in a mail-bag catcher, of a suitable supporting structure, a bearing-block mounted on said supporting structure, a supporting member pivotally mounted on said bearing-block, a pair of mail-bag-supporting arms carried by said member, and a pair of oppositely-disposed mail-bag-supporting clips secured to each of said arms.

750,342. **DUST-COLLECTOR.** ALLEN C. BRANTINGHAM, Toledo, Ohio. Filed Apr. 8, 1903. Serial No. 151,599. (No model.)



Claim.—1. The combination, with a dust-collector embodying a multiplicity of chambers for receiving the dust-laden air, of a central shaft, dust-dislodging devices carried by said shaft and adapted to travel back and forth (between the chambers,) frame members arranged in the outer portion of the dust-collector and having guiding-ways with which an arm on the traveling dust-dislodging structure will engage, the adjacent walls of said ways being cut away at the ends, thus permitting said arm to swing from one to the other at the end of the journey, whereby the dust-dislodging devices are enabled to act upon the several chambers in succession.

2. The combination, with a dust-collector embodying a multiplicity of chambers for receiving the dust-laden air arranged radially about a central shaft, of a dust-dislodging device mounted upon and adapted to travel longitudinally of said shaft, means whereby said dust-dislodging device is shifted from one section to another at the ends of its respective journeys to and fro, and means whereby the dust-collector is caused to revolve a distance substantially equal to the distance allotted to each chamber synchronously with the time of each journey of the dust-dislodging devices.

3. The combination, with a dust-collector, of a dust-dislodging device composed of a double-threaded screw-shaft, a traveling head mounted thereon and adapted to travel back and forth from end to end thereof, a cam also mounted on said shaft to revolve therewith and also adapted to travel longitudinally thereof, and whippers mounted on said traveling head and adapted to be actuated by said cam to strike the chamber-walls of the dust-collector.

4. The combination, with a dust-collector, of a dust-dislodging device comprising a shaft, a traveling head mounted on said shaft and adapted to be moved thereon past the chambers of the dust-collector, a cam carried and adapted to be revolved by said shaft and also adapted to travel longitudinally thereof with said traveling head, and whippers carried by said traveling head and operated by said cam to strike the chamber-walls of the dust-collector.

5. The combination, with a dust-collector, of a dust-dislodging device comprising a shaft, a housing-shaped traveling head mounted on said shaft, means for causing said head to travel longitudinally of said shaft, a cam contained within the housing of the traveling head and carried longitudinally of the shaft thereby, a spline whereby said cam is engaged by and caused to revolve with said shaft, and whip-

pers mounted on said traveling head and operated by said cam to strike the chamber-walls of the dust-collector.

6. The combination, with a dust-collector, of dust-dislodging device comprising a shaft, a traveling head mounted on said shaft, means for propelling said head longitudinally of the shaft, a cam mounted upon and revolved by the shaft and moved longitudinally thereof by the traveling head, whippers mounted on said traveling head and operated in one direction by the cam, and springs also carried by said traveling head and operating on said whippers in the reverse direction.

7. The combination, with a dust-collector, of dust-dislodging device comprising a shaft, a traveling head mounted on said shaft, means for propelling said head longitudinally of the shaft, a cam mounted upon and revolved by the shaft and moved longitudinally thereof by the traveling head, whippers mounted on said traveling head and operated in one direction by the cam, springs also carried by said traveling head and operating on said whippers in the reverse direction, and buffers for limiting the inward movement of the whippers.

8. The combination, with a dust-collector, of dust-dislodging device comprising a shaft, a traveling head mounted on said shaft, means for propelling said head longitudinally of the shaft, a cam mounted upon and revolved by the shaft and moved longitudinally thereof by the traveling head, whippers mounted on said traveling head and operated in one direction by the cam, springs also carried by said traveling head and operating on said whippers in the reverse direction, and adjustable buffers for limiting the inward movement of the whippers.

9. The combination, with a dust-collector embodying a multiplicity of chambers for receiving the dust-laden air arranged radially to a shaft, of a dust-dislodging device mounted on the same axis as the said dust-collector and comprising a traveling head, means for propelling said traveling head longitudinally of its shaft back and forth, whippers secured on both sides of said traveling head and extending down on both sides of the individual chamber being operated upon, and means for operating said whippers and thus dislodging the dust from both walls of the chamber at the same operation.

10. The combination, in a dust-collector, with the chambers thereof, of a shaft, a traveling head thereon, and intermittingly-operated whipping-fingers carried by said head and adapted to operate upon the walls of the chambers.

11. The combination, in a continuously-rotating dust-collector, of the chambers thereof, dust-dislodging devices adapted to advance with the chamber structure during operation and to operate upon the walls of said chambers, and means for automatically shifting the dust-dislodging structure from section to section of the dust-collector during operation.

12. The combination, in a dust-collector, of the chambers thereof, a traveling dust-dislodging device adapted to operate upon the walls of said chambers and to pass successively from one chamber to another at the ends thereof, guiding-ways for guiding the path of said dust-dislodging device alongside each of said pockets or chambers, and blocks arranged at the ends of the said chambers or sections of substantially the same form in cross-section and adapted to receive said dust-dislodging device as the same passes therefrom, and guides operated by the dust-dislodging device for holding said blocks into registry with the section with which it is at the time operating.

13. The combination, in a dust-collector, of a central shaft, a traveling head mounted thereon and adapted to travel from end to end of the machine, a dust-dislodging device mounted on said traveling head, blocks arranged at the ends of the chambers or sections of the dust-collector and suspended from said shaft, and means controlled by the traveling head whereby said blocks are guided into registry with said chambers or sections at the time the dust-dislodging device approaches them.

14. The combination in a dust-collector, of a rotary structure containing chambers, a central shaft therein about which said sections or chambers are radially disposed, a dust-dislodging device carried upon said central shaft, a guide-arm extending out therefrom, a guideway arranged alongside each dust-collector section, the adjacent faces of the guideway-walls being cut away at the ends thus enabling said arm to swing from one to the other, and spring-catches for holding said guide-arm from rebounding when it has completed its swinging movement.

750,343. JOINT-COUPLING. ALBERT P. BROCKWAY, Tampa, Fla. Filed July 20, 1903. Serial No. 166,398. (No model.)

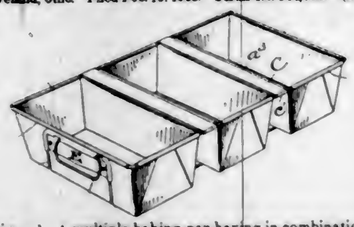
Claim.—1. In a device of the class described, the combination with a primary section provided with an end socket having outwardly-diverging walls, the walls of the socket being incised longitudinally of a sleeve receiving the end of said section and having an expanding member seated in the socket, a secondary section, and an expander carried thereby for spreading the expanding member.



2. In a device of the class described, the combination with a primary section provided with a conical end socket having its walls incised longitudinally, of a sleeve embracing and fixed upon the end of said section and carrying a conical expanding member seated in the socket, said member being slotted longitudinally, a secondary section, and an expander provided thereon for spreading the expanding member.

3. In a device of the class described, the combination with a primary section provided with a conical end socket having its walls incised longitudinally, of a sleeve embracing and fixed upon the end of said section and carrying a conical expanding member seated in the socket, said member being slotted longitudinally, a secondary section, and an expander carried by the section and having a threaded portion engaging the sleeve and a conical portion seated in and spreading the expanding member.

750,344. MULTIPLE BAKING-PAN. ADELBERT R. BROWSON, Cleveland, Ohio. Filed Feb. 19, 1903. Serial No. 144,050. (No model.)



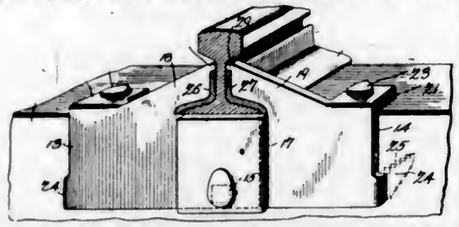
Claim.—1. A multiple baking-pan having in combination a plurality of individual pans, a unitary wire passing around the pans at their upper edges and secured thereto, a bridge-strip separate from said pans and extending longitudinally between adjacent pans, said bridge-strip being secured to the upper edges of said pans and having its ends secured to said wire, substantially as described.

2. A multiple baking-pan having in combination a plurality of individual pans, a bridge-strip between the upper edges of adjacent pans, the edges of the bridge-strip and the cooperating edges of the pans being complementarily formed to interlock, and means for binding together the said pans, to which means the ends of said pans and said bridge-strip are secured, substantially as described.

3. A multiple baking-pan having in combination a plurality of individual pans, a unitary wire passing around the same at their upper edges, a bridge-strip between adjacent pans, the edges of said bridge-strip and cooperating edges of said pans being complementarily rolled to interlock, substantially as described.

4. A multiple baking-pan having in combination a plurality of individual pans, a unitary wire passing around the same at their upper edges, a bridge-strip between adjacent pans, the edges of said bridge-strip and cooperating edges of said pans being complementarily rolled to interlock, and the ends of said bridge-strip being rolled over said wire, substantially as described.

750,345. RAILROAD-RAIL FASTENER. RICHARD D. BURCHILL, Tampa, Fla. Filed June 29, 1903. Serial No. 163,827. (No model.)



Claim.—1. A rail-fastener comprising oppositely-disposed plates bearing against the side of the tie and overlapping beneath the rail and having braces bearing against opposite sides thereof and provided with registering spike-apertures, whereby both plates may be fastened by the same holding-spike, substantially as described.

2. A rail-fastener comprising oppositely-disposed plates extending beneath the rails and provided with braces bearing against opposite sides thereof one of said plates having an offset overlapping the adjacent portion of the other plate, and with registering spike-apertures, whereby both plates will closely engage the tie and be fastened by the same holding-spike, substantially as described.

3. A rail-fastener comprising oppositely-disposed plates bearing against the side of the tie and overlapping beneath the rail and having braces bearing against opposite sides thereof and provided with registering spike-apertures in the overlapping portions and with lateral lugs bearing upon the upper surface of the tie and provided with spike-apertures, substantially as described.

4. In a rail-fastener, the combination with the abutting rail ends having longitudinally-disposed clamp-plates engaging their opposite sides, of oppositely-disposed lock-plates bearing against the side of the tie and overlapping beneath the rail, and having braces bearing against said clamp-plates from opposite sides of the rails and with registering spike-apertures in said overlapping portions, substantially as described.

5. In a rail-fastener, the combination with the abutting rail ends, of longitudinal clamp-plates engaging the rails from opposite sides and overlapping their adjacent ends, and provided with oppositely-disposed recesses, oppositely-disposed transverse lock-plates bearing against the side of the tie and overlapping beneath the rails and having braces bearing against said longitudinal clamp-plates and engaging the recesses therein, and means for fastening said lock-plates to the tie, substantially as described.

6. In a rail-fastener, the combination with the abutting rail ends having longitudinal clamp-plates engaging their opposite sides, of oppositely-disposed lock-plates bearing against the side of the tie and overlapping beneath the rail, and having braces bearing against said clamp-plates from opposite sides of the rails and with lateral lugs bearing upon the tie, and means for fastening said lock-plates to the tie, substantially as described.

7. A rail-fastener comprising a lock-plate bearing against the side of the tie and against the bottom of the rail and formed with a brace bearing against the side thereof, said plate having an integral spike extending therefrom and adapted to be driven into the tie, substantially as described.

8. A rail-fastener comprising a lock-plate bearing against the side of the tie and against the bottom of the rail and formed with a brace bearing against the side thereof and with lateral lugs bearing upon the upper surface of the tie, said plate having an integral spike extending therefrom and adapted to be driven into the tie, substantially as described.

9. A rail-fastener comprising oppositely-disposed plates bearing against the side of the tie and overlapping beneath the rail and having braces bearing against the opposite sides of the rail and provided with registering spike-apertures, in the overlapping parts, said plates having integral spikes extending therefrom and adapted to be driven into the tie, substantially as described.

10. A rail-fastener comprising a lock-plate bearing against the side of the tie and against the bottom of the rail and formed with a brace bearing against the side of the rail, said plate having an integral spike extending therefrom tapering toward its free end and formed with spaced laterally-extending barbs and adapted to be driven into the tie, substantially as described.

11. A rail-fastener comprising a lock-plate bearing against the side of the tie and against the bottom of the rail and formed with a brace bearing against the side of the rail, said plate having an integral spike extending therefrom tapering toward its free end and formed with spaced laterally-extending barbs decreasing in size toward the point of the spike and adapted to be driven into the tie, substantially as described.

750,346. GAME-BOARD. WILLIAM E. BUTLER, Millersburg, Ky. Filed Sept. 30, 1903. Serial No. 175,182. (No model.)

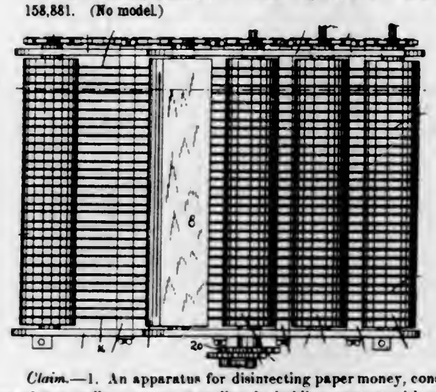


Claim.—1. A game-board comprising a pair of heads forming oppositely-disposed playing-fields, a spacing-strip secured to the heads and defining an intermediate compartment, a centrally-disposed chamber arranged within the compartment, and a reinforced marginal wall secured to the heads and extending above and below the same, one of said heads being concavo-convex and provided with a central opening communicating with the chamber.

2. A game-board comprising a pair of spaced heads forming oppositely-disposed playing-fields, a central chamber interposed between the heads, one of said heads being concavo-convex and provided with a central opening communicating with said chamber and the opposite head having reinforcing-strips secured to the bottom thereof, a plurality of staples or wickets arranged to represent a croquet-field passing through said head and reinforcing-strips, and a circular wall secured to the heads and extending above both of the same.

3. A game-board comprising a pair of spaced heads forming oppositely-disposed playing-fields and defining an intermediate compartment, a plurality of reinforcing-strips arranged within the compartment and secured to one of said heads, a central chamber secured to one of the reinforcing-strips and in communication with the opposite head, a circular strip extending above both heads and forming an annular wall, said wall being secured to the heads and reinforced above the same, and wickets or staples passing through one of the heads and secured to the reinforcing-strips.

750,347. APPARATUS FOR DISINFECTING PAPER MONEY. CHARLES B. CLARK, Buffalo, N. Y. Filed May 26, 1903. Serial No. 158,881. (No model.)



Claim.—1. An apparatus for disinfecting paper money, consisting of two endless aprons traveling in holding contact with each other, the contacting portions moving in the same direction, a series of moistening, feed, and heating rollers, around which the endless aprons travel, and means for applying the liquid disinfectant to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the vaporized disinfectants.

2. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length, traveling in holding contact with each other, the contacting portions moving in the same direction, a series of moistening, feed, and heating rollers, around which the endless aprons travel, and means for applying the liquid disinfectant to the bills, as they are fed between the endless aprons, to be subjected to the action of the vaporized disinfectants.

3. An apparatus for disinfecting paper money, consisting of two endless aprons traveling in holding contact with each other, the contacting portions moving in the same direction, moistening and feed rollers, a series of heating-rollers around which the endless aprons travel, and a tank for the liquid disinfectant, adjacent to the moistening-rollers for feeding the liquid to the bills, as they are fed be-

tween the moving aprons, to be subjected to the action of the vaporized disinfectants.

4. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length traveling in holding contact with each other, the contacting portions moving in the same direction, moistening and feed rollers, a series of heating-rollers around which the endless aprons travel, and a tank for the liquid disinfectant adjacent to the moistening-rollers, for feeding the liquid to the bills, as they are fed between the moving endless aprons to be subjected to the action of the vaporized disinfectants.

5. An apparatus for disinfecting paper money consisting of two endless aprons formed of spaced endless wires, traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening, feed, and heating rollers, around and in the grooves of which the endless wires travel, and means for applying the liquid disinfectant to the bills, as they are fed between the moving endless aprons, to be subjected to the actions of the vaporized disinfectants.

6. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length formed of spaced endless wires traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening, feed, and heating rollers, around and in the grooves of which, the endless wires travel, and means for applying the liquid disinfectant to the bills, as they are fed between the endless aprons, to be subjected to the action of the vaporized disinfectant.

7. An apparatus for disinfecting paper money, consisting of two endless aprons formed of spaced endless wires, traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening feed and heating rollers, around and in the grooves of which the endless wires travel, and a tank for the liquid disinfectant adjacent to the moistening-rollers for feeding the liquid to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the heat and vaporized disinfectant.

8. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length, formed of spaced endless wires, traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening, feed, and heating rollers, around and in the grooves of which, the endless wires travel, and a tank for the liquid disinfectant adjacent to the moistening-rolls, for feeding the liquid to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the heat and vaporized disinfectant.

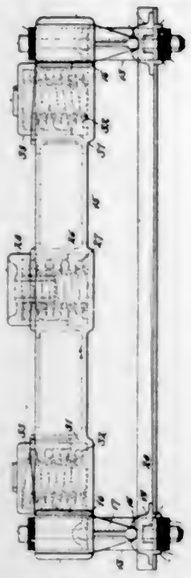
9. An apparatus for disinfecting paper money, consisting of two endless aprons traveling in holding contact with each other, the contacting portions moving in the same direction, moistening and feed rollers, a series of heating-rollers around which the endless aprons travel, and a tank for the liquid disinfectant, adjacent to the moistening-rollers, for feeding the liquid to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the vaporized disinfectants, and a fender or guard in front of the upper feed-roller.

10. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length traveling in holding contact with each other, the contacting portions moving in the same direction, moistening and feed rollers, a series of moistening-rollers around which the endless aprons travel and a tank for the liquid disinfectant adjacent to the moistening-rollers, for feeding the liquid to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the vaporizing disinfectants, and a fender or guard in front of the upper feed-rollers.

11. An apparatus for disinfecting paper money, consisting of two endless aprons formed of spaced endless wires, traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening, feed, and heating rollers, around and in the grooves of which the endless wires travel, and a tank, for the liquid disinfectant adjacent to the moistening-rollers for feeding the liquid to the bills, as they are fed between the moving endless aprons to be subjected to the action of the heat and vaporized disinfectants, and a fender or guard in front of the upper feed-roller.

12. An apparatus for disinfecting paper money, consisting of two endless aprons of unequal length, formed of spaced endless wires traveling in holding contact with each other, the contacting portions moving in the same direction, a series of grooved moistening, feed and heating rollers, around and in the grooves of which the endless wires travel, and a tank for the liquid disinfectants adjacent to the moistening-rolls, for feeding the liquid to the bills, as they are fed between the moving endless aprons, to be subjected to the action of the heat and vaporized disinfectant, and a fender or guard in front of the upper feed-roller.

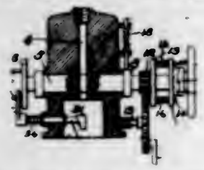
750,348. CAR-TRUCK BOLSTER AND BEARING THEREFOR. EDWARD CLIFF, Newark, N. J., assignor to Vose and Cliff Manufacturing Company, New York, N. Y., a Corporation of New York. Filed July 23, 1903. Serial No. 116,646. (No model.)



Claim.—1. The bolster having at its center one recess, the spring therein and the cap entering said recess and bearing on said spring and forming at its upper end the center bearing, and having adjacent to its ends the recesses, the springs therein and the caps entering said recesses and bearing on said springs and constituting at their upper ends the supports for the sides of the car-body, combined with antifriction-supports for the ends of said bolster, whereby the bolster is allowed a limited movement transversely of the car-truck; substantially as set forth.

2. As a new article of manufacture, the hereinbefore-described integral car-truck bolster having at its center the recess, the spring therein and the cap entering said recess and bearing on said spring and forming at its upper end the center bearing-plate, and having within its end portions the recesses, the springs therein and the caps entering said recesses and bearing on said springs and constituting at their upper ends the supports for the sides of the car-body, said spring-supported caps being arranged on a plane adapting them under the normal running conditions of the car to take substantially uniformly upon themselves the weight of the car-body and its load; substantially as set forth.

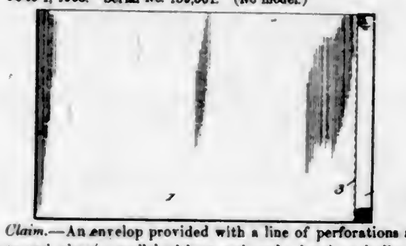
750,349. COMBINED GAS CONTROLLER AND IGNITER FOR EXPLOSIVE-ENGINES. STEWART CUNNINGHAM, Turtlecreek, Pa. Filed May 20, 1903. Serial No. 157,974. (No model.)



Claim.—1. In an igniter for explosive-engines, the combination of a sparking-chamber arranged upon and communicating with the explosive-chamber and provided with a passage-way communicating with the gas-supply line, an electric circuit, a pair of contact members arranged in said sparking-chamber and included in said circuit one of which is adjustably secured therein and the other arranged upon a shaft provided with a rock-lever, an automatically-operated intermittingly-rotatable valve-shaft extending through said passage-way and provided with a port adapted to register with said passage-way and control the gas therethrough, a member carried by one end of said valve-shaft adapted to engage with and operate said rock-shaft in one direction to cause said contacts to engage, and a spring to return said rock-shaft to its normal position and thereby break the contact between said members, as shown and set forth.

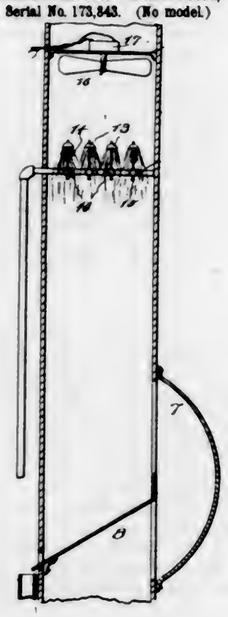
2. In an igniter for explosive-engines, the combination of a sparking-chamber arranged upon and communicating with the explosive-chamber and provided with a passage-way communicating with the gas-supply line, an electric circuit, a pair of contact members arranged in said sparking-chamber and included in said circuit one of which is adjustably secured therein and the other arranged upon a shaft provided with a rock-lever, an automatically-operated intermittingly-rotatable valve-shaft extending through said passage-way and provided with a port adapted to register with said passage-way and control the gas therethrough, a member carried by one end of said valve-shaft adapted to engage with and operate said rock-shaft in one direction to cause said contacts to engage, means to intermittingly rotate said valve-shaft independent of the automatic means to control the gas-supply, and a spring to return said rock-shaft to its normal position and thereby break the contact between said members, as shown and set forth.

750,350. ENVELOP. CLAUDE B. DENSON, Raleigh, N. C. Filed June 1, 1903. Serial No. 159,581. (No model.)

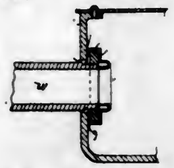


Claim.—An envelop provided with a line of perforations adjacent to and about parallel with an end, and a band encircling the end portion beyond the line of perforations and affixed thereto and having the inner corner of the rear portion cut away so as not to obstruct the sealing-flap, substantially as specified.

750,351. SMOKE-PURIFIER. JOHN F. DOYLE, Chicago, Ill. Filed Sept. 19, 1903. Serial No. 173,843. (No model.)



750,352. OUTLET-BUSHING FOR JUNCTION-BOXES. FREDERICK W. ERICKSON, Boston, Mass. Filed Oct. 5, 1903. Serial No. 175,899. (No model.)



Claim.—1. An outlet-bushing, consisting of two parts, one being a nut with squared edges and an interior thread, the other composed of thin sheet metal whose edges embrace and hold the nut and whose outer face is provided with an outwardly-flaring circular orifice, as set forth.

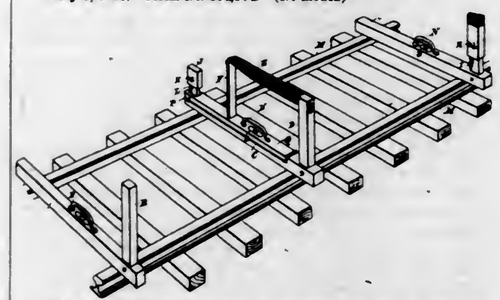
2. An outlet-bushing, consisting of an internally-threaded nut with squared edges, and a hollow thin metal part drawn up from ductile metal having an outwardly-rounding central orifice and a peripheral portion covering and embracing the nut with its outer edges turned over onto the same, as set forth.

3. An outlet-bushing, consisting of an internally-threaded nut with squared edges, inclosed in a hollow thin metal part drawn up from ductile metal and embracing the edges and sides of the nut and provided with an outwardly-rounding central orifice whose inner edge is on a plane with the face of the inclosed nut, as set forth.

4. An outlet-bushing, consisting of an internally-threaded nut with polygonal sides and right-angled edges inclosed in a hollow thin metal part drawn up from ductile metal and embracing the edges and sides of the nut and provided with an outwardly and inwardly rounding central orifice whose inner edge is on a plane with the face of the inclosed nut, as set forth.

5. An outlet-bushing, consisting of two parts, one being a nut with an interior thread, the other composed of thin sheet metal whose edges embrace and hold the nut, and whose outer face is provided with an outwardly-flaring circular orifice which is surrounded with a ring-like protnberance, as set forth.

750,353. TRACK-LEVELER. JOHN FINN, Montgomery, Miss., assignor of one-half to Edward A. Gullibyle, Louisville, Ky. Filed July 6, 1903. Serial No. 164,374. (No model.)

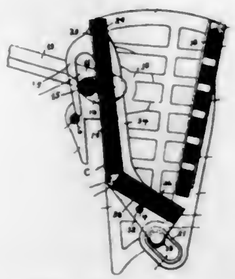


Claim.—1. A combination as an implement of track-leveling of three frames, each consisting in the main of a horizontal beam and an upright piece, which in the first and second are of the same height, and in the third can be shifted up or down a gage, to a greater or less height than the two others, with a set-screw to hold it in position; and in the second with a bright-colored piece supported by a stick on a beam bearing a spirit-level and hinged to the horizontal beam under it; substantially as shown and described in the drawing and specification.

2. A combination as an implement for track-leveling of three frames, each consisting in the main of a horizontal beam and upright piece, the middle of these frames bearing on the side opposite to the

upright piece a gage along which a beam bearing a spirit-level and hinged on the upper surface of the horizontal beam can be shoved up or down; substantially as shown and described in the drawing and specification.

750,354. **MOP-WRINGER.** CHARLES S. FOWLER and FRANK C. WETZLER, Toledo, Ohio. Filed June 29, 1903. Serial No. 163,516. (No model.)



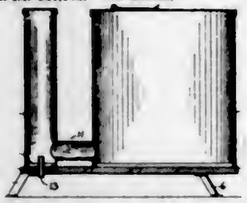
Claim.—1. In a mop-wringer, the combination with a stationary frame comprising side plates secured in parallel position by cross-rods, of coactingly-connected front and rear pressure-frames inversely pivoted respectively to top and bottom cross-rods and reversely movable laterally between the side plates by the movement of the rear pressure-frame, and means to actuate the rear pressure-frame and thereby move the front pressure-frame oppositely thereto substantially as set forth.

2. In a mop-wringer, the combination with a stationary frame comprising side plates secured in parallel position by cross-rods and means for rigidly suspending the frame within a vessel by its rim, of front and rear pressure-plates coactingly connected and inversely pivoted to diagonally opposite cross-rods, and reversely movable laterally between the side plates of the stationary frame by the pivotal movement of the rear pressure-plate, and means to actuate the rear pressure-plate and thereby move the front pressure-plate oppositely thereto, substantially as set forth.

3. In a mop-wringer, the combination with a stationary frame comprising side plates secured in parallel position by cross-rods, and means for rigidly suspending the frame within a vessel by its rim, of front and rear pressure-frames coactingly connected and inversely pivoted to diagonally opposite cross-rods, and reversely movable laterally between the side plates of the stationary frame by the pivotal movement of the rear pressure-frame, a rock-shaft pivotally mounted in the stationary frame, and having a double crank engaging the rear frame and adapted to move it pivotally, forward or backward, and thereby move the front pressure-frame reversely thereto, substantially as set forth.

4. The herein-described mop-wringer, comprising a stationary frame formed of side plates secured in parallel position by cross-rods, and having hooked portions for engaging the rim of a vessel and rigidly suspending the frame within the vessel, a rock-shaft journaled in the side plates parallel with the cross-rods and having a double crank extending from side plate to side plate, and a lever for operating the shaft, a front pressure-frame comprising a perforated pressure-board and arms secured to the ends of the board having slotted lower end extensions, and upper end extensions pivotally mounted on an upper cross-rod of the stationary frame, a rear pressure-frame comprising a pressure-board, a bottom board, and angled arms secured to the ends of the pressure-board and the bottom board, and adapted to hold the bottom board inclined to an obtuse angle from the pressure-board, the arms having oppositely-perforated lip extensions projecting downward from their lower angled portions and hooks projecting rearward and downward over the crank-rod of the shaft from their upper portions, the rear pressure-frame being pivotally mounted by the perforations of the lips on a lower cross-rod of the stationary frame with the pressure-board extending upward between the side plates opposite the front pressure-board and with the bottom board inclined downward beneath the pressure-board of the front pressure-frame, and with the lip extensions of the arms of the rear pressure-frame between the lower extensions of the arms of the front pressure-frame, and projections secured to the lower portions of the lips and extended into the slots of the lower extensions of the arms of the front pressure-frame, substantially as set forth.

750,355. **STOVE.** ALBERT B. FOX, Brasil, N. D. Filed Mar. 5, 1903. Serial No. 146,372. (No model.)

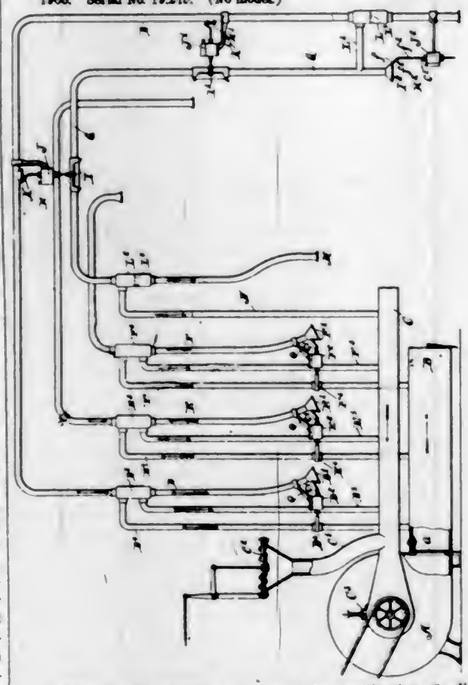


Claim.—1. The combination with a stove and the smoke-pipe thereof, of an air-inlet nipple entering said pipe below its point of connection with the body of the stove, and rising above the inner face of the bottom of the pipe.

2. The combination with a stove and a smoke-pipe therefor, of a pipe connecting the stove with the smoke-pipe at a point above the lower end of the latter, said smoke-pipe having an air-inlet through its lower end and a nipple connected with the air-inlet and rising above the inner face of the bottom of the pipe.

3. The combination with a stove and the smoke-pipe thereof having a lateral connection with the stove, of an air-inlet pipe entering the smoke-pipe through the bottom thereof and rising to a point slightly below the lateral connection.

750,356. **PNEUMATIC CONVEYER.** MELVIN J. FOYER, Chicago, Ill., assignor, by mesne assignments, to Bostedo Pneumatic Tube Company, Chicago, Ill., a Corporation of Illinois. Filed June 6, 1900. Serial No. 19,215. (No model.)



Claim.—1. In a pneumatic conveyer, the combination of a distributing-tube, a collecting-tube connected with the distributing-tube near the delivery end of the same, a despatching-door for said collecting-tube, an air-admission valve on the distributing-tube connected with said door, means for controlling the period of closing the said air-admission valve, an inwardly-seating valve at the delivery end of said distributing-tube, and means for applying suction to said collecting-tube near its delivery end.

2. In a pneumatic conveyer, the combination of a distributing-tube, a collecting-tube provided with a despatching-station, means for applying pressure to said distributing-tube, and suction to said collecting-tube, valves controlling the flow of air into and through said tubes, a pipe connecting said distributing-tube near its delivery end with said collecting-tube, and an inwardly-seating valve in the delivery end of said last-named distributing-tube beyond or outside of said connecting-pipe.

3. In a pneumatic carrying system, the combination of a plenum side, a vacuum side, mechanism for maintaining the pressure on both sides, and an automatic governing device operatively connected with one side of said system and operated by variations in pressure on the side with which it is connected and arranged to control said pressure-supplying mechanism whereby the operation of the latter is accelerated whenever the pressure which operates the governing device falls below a determined point.

4. In a pneumatic carrying system, the combination of a plenum side, a vacuum side, a blower having its inlet connected with the vacuum side, and its outlet discharging into the plenum side, a motor actuating said blower, a governor controlling said motor, and a pressure-actuated governor connected with one side of the system and adapted to act upon the motor-controlling governor.

5. In a pneumatic conveyer system, the combination of a distributing-tube, a collecting-tube, a blower having its outlet and inlet sides respectively connected with said distributing and collecting tubes, a connecting-passage between said collecting and distributing tubes at a point remote from the blower, and means for passing carriers through either side of said system.

6. In a pneumatic conveyer system, the combination of a distributing-tube, a collecting-tube, a blower having its outlet and inlet sides respectively connected with said distributing and collecting tubes, a connecting-passage between said collecting and distributing tubes at a point remote from the blower, and means for passing carriers through either side of said system, a motor driving said blower and an automatic governor controlling said motor and operatively connected with one side of said system, whereby variations in pressure operate to control the speed of the motor.

750,357. **HOUSEHOLD IMPLEMENT.** RODMOND GIBBONS, New York, N. Y.; John K. Beach administrator of said Rodmond Gibbons, deceased. Filed Dec. 9, 1895. Serial No. 571,561. (No model.)



Claim.—1. The combination of a rigid handle, a single brush-head and an intermediate elastic, resilient section connecting the two consisting of a spiral spring inclosed with a waterproof sheathing, said intermediate section having a diameter relatively less than that of said brush, substantially as described.

2. The combination of a rigid handle, a single brush-head and an intermediate elastic section connecting the two having a graduated elasticity from the handle toward the brush-head, substantially as described.

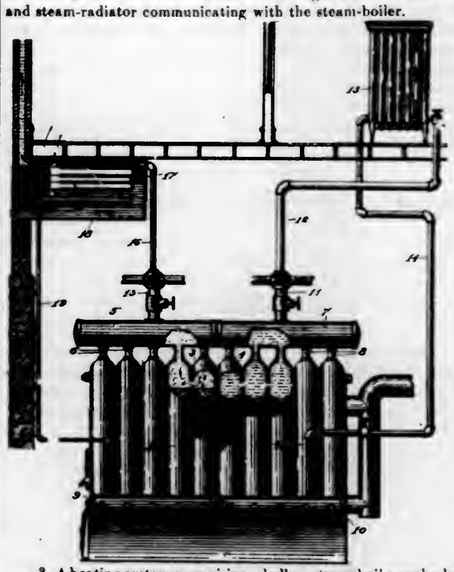
3. The combination of a rigid handle, a brush-head, an intermediate elastic section connecting the two (consisting of a spiral spring inclosed with a waterproof sheathing) and a combined dowel-pin and spring-holder by means of which the said intermediate section is secured to the rigid handle and which serves also for reinforcing the said spiral spring at the end next to the rigid handle, substantially as described.

4. The combination of a rigid handle, a brush-head, an intermediate elastic section connecting the two consisting of a spiral spring covered with a waterproof sheathing and having on the inside thereof at the end farthest from the handle, a chock-bead, substantially as described.

750,358. **HEATING SYSTEM.** FRANK C. GOFF, Denver, Colo. Filed Jan. 19, 1900. Serial No. 2,033. (No model.)

Claim.—1. A heating system comprising a hollow steam-boiler section and hollow hot-water-boiler section independent of each other and each of which is provided with a combustion-chamber forming with the other when assembled a common furnace extending through said sections, hot-water radiators communicating with the water-boiler section, and steam-radiators communicating with the steam-boiler section, all cooperating substantially as described.

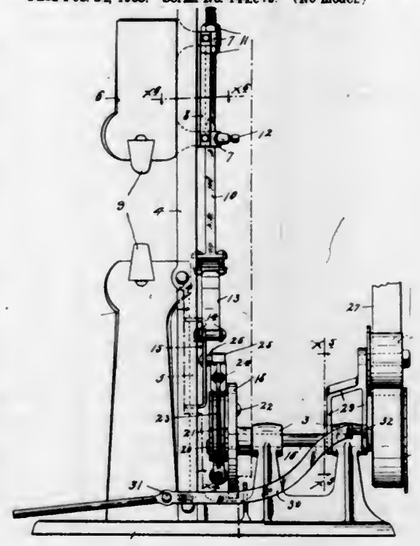
2. A heating system comprising a hollow steam-boiler section and hollow hot-water-boiler section, independent of each other and each of which is provided with a combustion-chamber forming with the other a common furnace throughout the said sections, a door opening into fire-box at the steam-boiler end, a flue at the water-boiler end, hot-water radiators communicating with the water-boiler, and steam-radiator communicating with the steam-boiler.



3. A heating system comprising a hollow steam-boiler and a hollow hot-water boiler both being entirely independent, but placed end to end and each of which is provided with a combustion-chamber forming with the other a common furnace throughout the said sections so that they can be heated by the same fire, both of said boilers consisting of a series of vertical sections of hot-water radiators communicating with the water-boiler, and a steam-radiator system with the steam-boiler, all operating substantially as, and for the purpose described.

4. A heating system comprising a hollow steam-boiler at the furnace end, a hollow hot-water boiler at the other end, both boilers being independent of each other, but placed end to end and consisting of a series of vertical sections each of which is provided with a combustion-chamber forming with the other a common furnace throughout the said sections, but adapted to operate independently as to the circulation of steam and water therein; substantially as and for the purpose described.

750,359. **POWER-HAMMER.** AUGUST GROENIG, Holloway, Minn. Filed Feb. 24, 1903. Serial No. 144,579. (No model.)



Claim.—In a power-hammer, the combination with an anvil and vertical guides, of a hammer mounted for straight-line reciprocating movements on said guides, a plunger adjustably connected to said hammer, a bow-spring rigidly connected to the lower end of said plunger, a cross-head also mounted for straight-line reciprocations on said guides, an eccentric below said bow-spring, an eccentric-strap working on said eccentric and connected to said cross-head, and links pivotally connecting the ends of said bow-spring to said cross-head, substantially as described.

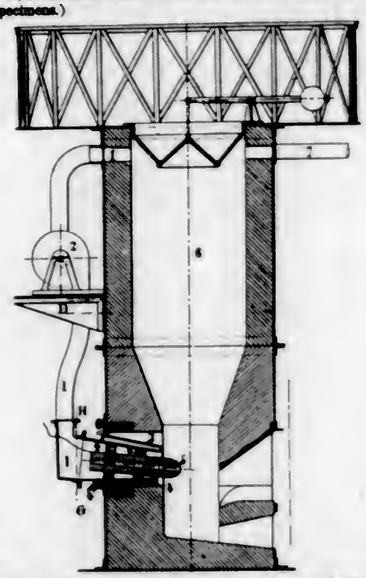
750,360. COLLAR-BUTTON. SCHUYLER H. HALL, Meriden, Conn. Filed Apr. 30, 1903. Serial No. 155,070. (No model.)



Claim.—1. In a button, the combination with the base having a stem circular in cross-section, the upper portion of said stem being reduced in size to form a shoulder, of a tubular section rotatably mounted upon said stem, the lower end of said section resting against said shoulder, said stem being provided with means to secure it and said tubular-section together, a head secured to said section, a retaining member rigidly secured to the lower end of said tubular section, said member comprising a body portion 6 and arms 7 and 8, substantially as and for the purpose set forth.

2. As an article of manufacture, a button comprising the base member having a stem circular in cross-section, a tubular section fitting over said stem and adapted to revolve freely thereon, means to hold said tubular section upon said stem, a head secured to said section, a retaining member rigidly secured to the lower end of said tubular section, said member having a body portion 6 and arms 7 and 8, said arms being so constructed as to form substantially a sector of a circle, all combined substantially as set forth.

750,361. ELECTROMETALLURGY OF IRON OR STEEL. HENRI HARMET, St. Etienne, France. Filed Sept. 30, 1901. Serial No. 77,012. (No specimens.)



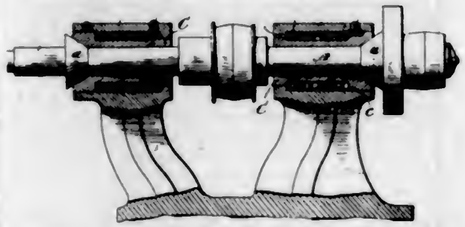
Claim.—1. The process of continuously and sequentially reducing and fusing iron ores by electrometallurgy, which consists in first charging the ore and an excess of reducing-carbon into the upper portion of an electric furnace, second, heating the base of the furnace from electrodes to form a fusion zone or crucible in the furnace, third, conveying gas taken from above the charge into the fusion zone adjacent to the electrodes, fourth, forcing said gas under pressure through the fusion zone to thereby diffuse the heat of the zone, extend its area and convert the gas into carbon monoxid, and finally forcing the carbon monoxid thus formed through the charge to create a reducing zone in the charge above the fusion zone of the furnace.

2. The improvement in the conversion of iron ore into iron or steel by electrometallurgy, which consists in first charging the ore and an excess of reducing materials into an electric blast-furnace, second, heating the base of the charge by electric heat conveyed through electrodes to thereby fuse the charge, third, collecting from above the charge the gas arising through the charge from the point of fusion, and fourth, forcing said gas under pressure into and through the fusion zone and charge successively to thereby diffuse and extend the area of the electric heat and create in the charge a reducing zone above the fusing zone of the furnace.

3. The improvement in the electrometallurgy of iron and similar ores, which consists in first charging the furnace with the materials to be reduced and fused in conjunction with an excess of reducing-carbon, second, heating the base of the charge with an electric current derived from opposing electrodes, third, forcing reducing-gas into the fusion zone adjacent to the electrodes to diffuse said zone and increase its area, and fourth, creating in the charge above the fusion zone a reducing zone by forcing the gases successively through the fusion zone and charge.

4. The improvement in the electrometallurgy of iron and similar ores, which consists in first charging an electric furnace with the materials to be reduced and fused in conjunction with an excess of reducing-carbon, second, maintaining the interior of the furnace under pressure and excluding the external air from said furnace, third, heating the base of the charge by electric heat derived from opposing electrodes, fourth, conveying gases arising from above the charge to the base of the charge adjacent to the electrodes, and fifth, forcing said gases under pressure upward through the charge to create a diffused fusion zone preceded by a reduction zone, whereby the reduction and fusion of the ore may proceed continuously and sequentially.

750,362. SHAFT-BEARING. JOHN J. HARRINGTON, Brockton, Mass. Filed June 3, 1903. Serial No. 159,941. (No model.)



Claim.—1. The combination with a shaft provided with two enlargements, a bearing part for engaging one enlargement, a second bearing part for engaging the other enlargement, and automatic means to simultaneously maintain engagement of both enlargements and their respective bearing parts, whereby the shaft is held steadily in position.

2. The combination of a shaft provided with two enlargements, a movable part encircling the shaft for engaging one enlargement, a second part for engaging the other enlargement, and a spring that acts on the movable part and causes engagement between both parts and the respective enlargements, whereby the shaft is held steadily in position.

3. The combination of a shaft, two bearings therefor, one of which has a longitudinally-movable member, enlargements on the shaft engaging the respective bearings, and means acting only on said movable bearing member to automatically cause engagement of the shaft enlargements with the respective bearings.

4. The combination of a shaft, a bearing therefor having stationary and longitudinally-movable members, the shaft having enlargements, and means to automatically press said movable member against one of the shaft enlargements, and the other shaft enlargement against the stationary member.

5. The combination of a shaft having two conical enlargements, a movable part for engaging one of said enlargements, a stationary part for engaging the other enlargement, and automatic means acting upon the movable part that causes engagement of the enlargements with their respective parts.

6. The combination of a shaft, a bearing-box, a sleeve in the box, the shaft having enlargements, one of which is engaged by said sleeve, a spring within the box, and pressing the sleeve against one of the shaft enlargements, and a stationary bearing part for engagement with the other enlargement, such engagement also being produced by said spring.

7. The combination of a shaft, bearing-boxes, a sleeve in each box, one stationary and the other longitudinally movable, the shaft having conical enlargements engaging the respective sleeves at opposite ends, and a spring within the box containing the movable sleeve and acting to cause engagement of the shaft enlargements and the sleeves.

750,363. OPENING ATTACHMENT FOR DOORS. EMERY F. HICKS, Whitehall, Ill. Filed Oct. 31, 1903. Serial No. 179,319. (No model.)



Claim.—The herein-described opening attachment for doors, comprising the combination with a door, of a controlling-lever 11 pivotally mounted in position, a pulley member 6 having an arm 5 rigidly connected thereto, said pulley member having a peripheral groove, suitable supporting-brackets for said pulley-wheel, a finger 4 having an antifriction-roller thereon adapted to lie in the path of the arm 5, a bracket 3 designed to hold said finger in position, a cable connecting said pulley-wheel and lever, whereby a downward movement of the lever will open the door, one end of said cable being secured to the arm 5 adjacent to the pulley-wheel 6 and lying in the peripheral groove in said wheel, and a spring 15 carried by said pulley-wheel and designed to return said wheel and arm 5 to their normally inward position, as set forth.

750,364. NUT-LOCK. FRANK A. HOWARD, Fresno, Cal. Filed July 9, 1903. Serial No. 164,913. (No model.)



Claim.—1. In a nut-lock, the combination of the bolt having a plurality of longitudinally-disposed grooves on its threaded end, of a nut adapted to fit said threaded end and having a recess cut in one corner thereof, a detent 5 pivotally mounted in said recess and having a tooth upon its inner end, and a depending handle portion 8 at its outer end, said detent replacing the part of the nut cut away whereby the general outline of the nut is maintained, a spring secured at one end to said nut, its opposite end entering a recess in said detent and bearing against said depending handle, and a keeper pivotally secured to said nut adjacent to the inner end of said detent, adapted to lock said detent in its operative position, substantially as set forth.

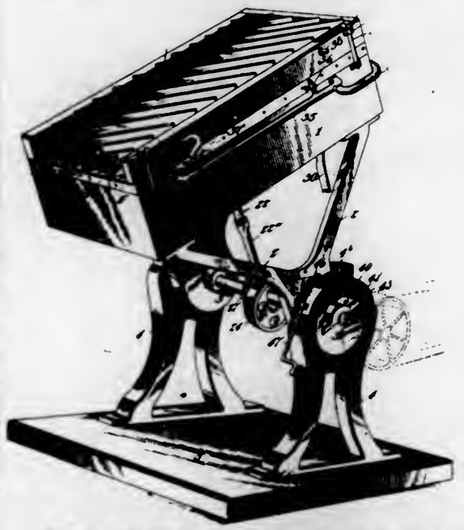
2. In a nut-lock, the combination with a bolt having a plurality of longitudinally-disposed grooves on its threaded end, of a nut adapted to fit said threaded end and having a recess cut in one corner thereof, a detent 5 pivotally mounted in said recess and having a tooth upon its inner end adapted to engage a longitudinal groove, a depending handle 8 at the opposite end of said detent, said detent having a recess on its under side adjacent to said handle, a spring carried by said nut, the free end of which enters said recess, a part of the depending handle being cut away, whereby, the remaining part may freely pass said spring when the handle is moved inward incidental to the release of the detent from engagement with the bolt, a keeper 12 pivotally secured to the nut and adapted to have its free end moved over said detent to lock it in its operative position, substantially as set forth.

750,365. NUT-LOCK. THOMAS G. INGLE, Dayton, Ohio, assignor of one-half to John H. Huesman, Dayton, Ohio. Filed July 1, 1903. Serial No. 163,533. (No model.)



Claim.—A bolt having a tapered longitudinal groove, a nut having a longitudinal notch in its side faces, and a key constructed to enter the bolt-groove and adapted to be engaged by the thread of the nut, and bent at its outer end to engage the notched face of the nut, all combined as set forth.

750,366. PNEUMATIC DRY ORE-SEPARATOR. EDWIN M. JANRAUD, Dayton, Ohio. Filed Oct. 15, 1902. Serial No. 127,404. (No model.)



Claim.—1. The combination, with suitable supports and a horizontal axis, of an ore-separator box having pendent arms which are journaled on such axis, an eccentric on such axis, a jointed piston-rod connected with the said eccentric, an air-piston arranged in the box and reciprocated through the medium of the piston-rod, a toothed arc formed on the side of one of the pendent arms, a hand worm-shaft journaled on one of the fixed supports, its worm engaging the toothed arc, as shown and described.

2. The combination with vertical standards, or supports, of a dry ore-separator having pendent portions provided with circular bosses adapted to fit and rotate in bearings in said uprights, a rotatable shaft passing through the center of said bosses, an eccentric mounted on the said shaft, a piston adapted to reciprocate in the air-box of the separator, and a jointed piston-rod connecting the same, substantially as shown and described.

3. The combination with uprights having circular openings, of a dry ore-separator having pendent arms provided with circular bosses adapted to fit and rotate in said openings, a crank-shaft passing through the center of said bosses, an air-piston arranged in the air-box of the separator and means connecting the piston with the crank-shaft, and means for adjusting the pitch of the separator and locking it in any adjustment, the same consisting of a toothed arc arranged upon the pendent portions of the separator, and a worm and shaft having bearings upon one of the uprights, substantially as shown and described.

4. In a dry ore-separator, the combination of the air-box having pendent portions or arms with fixed uprights having circular openings adapted to receive bosses as described, the said bosses be-

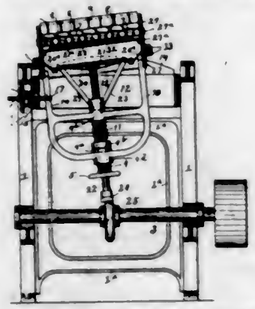
ing recessed in their upper portion, the shaft passing through the center of the bosses and secured by caps arranged in said recesses, an eccentric mounted on the shaft, a piston-rod connected therewith, and a piston arranged in the air-box of the separator, substantially as shown and described.

5. The combination with uprights and a separator proper having pendent portions having bearings in the uprights, a rotatable shaft passing through the center of the bearings, clamp-collars applied to said shaft and arranged in contact with said pendent portions of the separator, an eccentric mounted on the shaft, a jointed piston-rod connected therewith and a piston adapted to reciprocate in the air-box of the separator, substantially as shown and described.

6. In an ore-separator, the combination with the air-box having a rigid grating composed of parallel bars arranged diagonally, and a fabric stretched over said bars, of a superposed frame having riffles constructed of metal and arranged directly over and at the same inclination as the grating-bars, and provided on their under sides with a longitudinal channel; said riffles being applied directly over and straddling the bars, and their side edges resting upon the screen cloth and pressing the same down slightly below the plane of the grating-bars, and means for applying pressure upon the riffles, whereby slack in the cloth is taken up and the same held taut between the bars, as shown and described.

7. In a dry ore-separator, the combination with the air-box, a permeable screen, riffles applied thereto, and diagonal strips or plates constituting the skimmer, and arranged above the riffles and screen as described, of nozzles arranged horizontally in the sides of the box and between the skimmer-plates and pointed in a direction parallel to such plates, and an air-forcing apparatus connected with said nozzles, as described.

750,367. ORE-CONCENTRATOR. EDWIN M. JANRAUD, Dayton, Ohio. Filed Nov. 3, 1902. Serial No. 130,437. (No model.)



Claim.—1. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft, an inner supporting-frame adjustable on said tracks, an ore-bed and air-box carried by said inner frame, and operating mechanism between said air-box and shaft and adjustable along with the air-box, substantially as described.

2. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft provided with a cam, an inner supporting-frame with means for support and adjustable on said tracks, an ore-bed and air-box carried by said inner frame, and an actuating-rod carried by the air-box and arranged in the path of the cam, substantially as described.

3. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft, an inner supporting-frame with means for support and adjustable on said tracks, an ore-bed and air-box carried by said inner frame, the ore-bed constituting the top of the air-box and the said bed and box being relatively fixed so as to maintain their relations throughout their adjustment, and operating mechanism between said air-box and shaft and adjustable along with the air-box, substantially as described.

4. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft, an inner supporting-frame with means for support and adjustable on said tracks, an ore-bed and air-box carried by said inner frame, the ore-bed constituting the top of the air-box and the said bed and box being relatively fixed so as to maintain their relations throughout their adjustment, a yoke secured to the air-box and provided with bearings and stroke-regulating means, and an operating-rod for the air-box mounted in said bearings and having its lower end in operative relation with the cam throughout the range of adjustment of the air-box and ore-bed, substantially as described.

5. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft, an inner supporting-frame with means for support and adjustable on said tracks and itself provided with segmental tracks at right angles to those of the main frame and having bearing-surfaces which are arcs of circles of a radius adapted to maintain the proper relative position of the parts of the air-box-operating mechanism, an ore-bed and air-box adjustable on the tracks of said inner frame, and operating mechanism between said air-box and shaft and adjustable along with the ore-box, substantially as described.

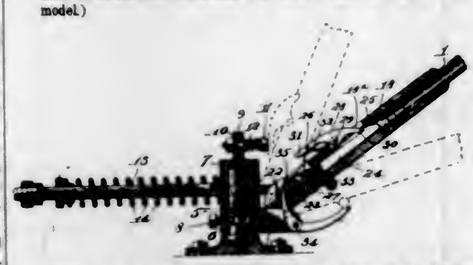
6. In a concentrator, a main supporting-frame having segmental tracks thereon, the bearing-surfaces of which are arcs of circles concentric with the main driving-shaft, a main driving-shaft provided with a cam, an inner supporting-frame with means for support and adjustable on said tracks and itself provided with segmental tracks located at right angles to those of the main supporting-frame, an ore-bed and air-box, adjustable in unison on the tracks of said inner frame, and an operating-rod for the air-box carried by and adjustable along with said box, the center of curvature of the tracks of the inner frame being such as to preserve the operative relations between said operating-rod and the cam, substantially as described.

7. In a concentrator, a main and an inner supporting-frame having segmental tracks at right angles to each other, a main driving-shaft, an ore-bed and air-box provided with operating mechanism and mounted on the tracks of the inner frame, and adjusting mechanism for moving the inner frame on the tracks of the outer frame and the air-box and ore-bed on the tracks of the inner frame while the machine is in operation, the curvatures of the segmental tracks being arranged to maintain operative contact between that portion of the operating mechanism carried by the main drive-shaft and that portion of the operating mechanism carried by the air-boxes, substantially as described.

8. In a concentrator, supporting-frames, an ore-bed and air-box adjustable in unison or curved tracks at right angles to each other, a main driving-shaft provided with a cam, a yoke secured to the air-box and provided with bearings and stroke-regulating means, and an operating-rod for the air-box mounted in said bearings and having its lower end in operative relation with the cam throughout the range of adjustment of the air-box and ore-bed, substantially as described.

9. In an ore-concentrator, an air-box, an ore-bed forming the top of the air-box and comprising parallel grate-bars, a continuous fabric stretched above said grate-bars, and riffle-bars located above the fabric, one adjacent to and parallel with each grate-bar, the lower edge of each riffle-bar extending below the plane of the top of the corresponding grate-bar immediately adjacent thereto, whereby the fabric is strained over the tops of the grate-bars and under the lower edges of the riffle-bars without being clamped between said bars, so that its tension is maintained throughout its entire body, substantially as described.

750,368. TROLLEY FOR ELECTRIC-RAILWAY CARS. CHARLES J. JOHNSON, St. Louis, Mo., assignor of one-half to Charles W. Benedict, St. Louis, Mo. Filed May 14, 1903. Serial No. 157,030. (No model.)



Claim.—1. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, and means of connection between said spring and said pole-base operating in the slot therein, substantially as set forth.

2. In a trolley, the combination of a head, a pole-supporting spring carried thereby, a slotted pole-base pivoted to said head, means of connection between said spring and pole-base arranged to operate in the slot in said head, a member carried by said pole-base and having connection to said spring-and-base-connecting means, and means for holding said member to retain said connecting means in a fixed position while the trolley has contact with an overhead conductor, substantially as set forth.

3. In a trolley, the combination of a head, a pole-supporting spring carried thereby, a slotted pole-base pivoted to said head, means of connection between said spring, and a pole-base arranged to operate in the slot in said base, a member carried by said pole-base and having connection to said spring-and-base-connecting means, and means for holding said member to retain said connecting means in a fixed position while the trolley has contact with an overhead conductor, and means whereby said member is released when the trolley becomes displaced from said overhead conductor, substantially as set forth.

4. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, means connecting said spring and pole-base and operating in the slot in said base, a slide-bolt carried by said head connected to said spring-and-pole-base-connecting means, and means for holding said slide-bolt in a fixed position while the trolley is in contact with an overhead conductor, substantially as set forth.

5. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, means connecting said spring and pole-base and operating in the slot in said base, a slide-bolt carried by said head connected to said spring-and-pole-base-connecting means, and means for holding said slide-bolt in a fixed position while the trolley is in contact with an overhead conductor, and means whereby said slide-bolt is released when the trolley is displaced from contact with the overhead conductor, substantially as set forth.

6. In a trolley, the combination of a head, a pole-supporting spring carried by said head, pull-rods having bearing against said pole-supporting spring, a slotted pole-base pivoted to said head, a cross-rod united to said pull-rods and operating in the slot in said pole-base, a slide-bolt connected to said cross-rod, and a dog engaging said slide-bolt to hold said cross-rod in a fixed position in the slot in said pole-base, substaptially as set forth.

7. In a trolley, the combination of a head, a pole-supporting spring carried by said head, pull-rods having bearing against said pole-supporting spring, a slotted pole-base pivoted to said head, a cross-rod united to said pull-rods and operating in the slot in said pole-base, a slide-bolt connected to said cross-rod, and a dog engaging said slide-bolt to hold said cross-rod in a fixed position in the slot in said pole-base, and means for tripping said dog to free said slide-bolt, substantially as set forth.

8. In a trolley, the combination of a head, a pole-supporting spring carried by said head, pull-rods having bearing against said pole-supporting spring, a slotted pole-base pivoted to said head, a cross-rod united to said pull-rods and operating in the slot in said pole-base, a slide-bolt connected to said cross-rod, and a dog engaging said slide-bolt to hold said cross-rod in a fixed position in the slot in said pole-base, and a tripping-pin carried by said head to receive said dog and trip it to free said slide, substantially as set forth.

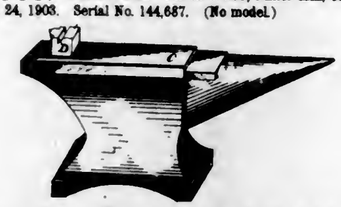
9. In a trolley, the combination of a head, a pole-supporting spring carried by said head, pull-rods having bearing against said pole-supporting spring, a slotted pole-base pivoted to said head, a cross-rod united to said pull-rods and operating in the slot in said pole-base, a slide-bolt connected to said cross-rod, a dog engaging said slide-bolt to hold said cross-rod in a fixed position in the slot in said pole-base, and a cushioned tripping-pin to receive the impact of said dog and to free said slide-bolt, substantially as set forth.

10. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, means connecting said spring to said pole-base and operating in the slot therein, a retaining member carried by said pole-base and united to said connecting means, means for holding said retaining member, and means for moving said retaining member to receive its holding means and to shift the position of said spring-and-pole-base-connecting means in the slot in said pole-base, substantially as set forth.

11. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, means connecting said spring to said pole-base and operating in the slot therein, a retaining member carried by said pole-base and united to said connecting means, means for holding said retaining member, and a cam-rocker for moving said retaining member to receive its holding means and to shift the position of said spring-and-pole-base-connecting means in the slot in said pole-base, substantially as set forth.

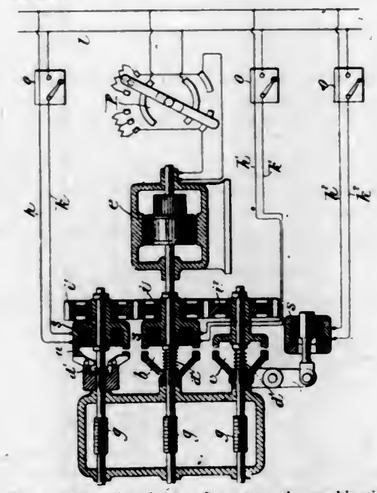
12. In a trolley, the combination of a head, a pole-supporting spring carried by said head, a slotted pole-base pivoted to said head, pull-rods having engagement with said spring, a cross-rod connected to said pull-rods and operating in the slot in said pole-base, a slide-bolt connected to said cross-rod, a dog carried by said pole-base for engaging said slide-bolt, a two-armed cam-rocker having pivoted connection with said head, a roller carried by said cross-rod to engage one of said rocker-arms, and a second roller carried by said pole-base to engage the other of said rocker-arms, substantially as and for the purpose set forth.

750,369. TOE-SWAGE. DAVID C. JOY, Flints Mill, Ohio. Filed Feb. 24, 1903. Serial No. 144,687. (No model.)



Claim.—The combination with a block having means whereby it is retained in an anvil, of an integral lip carried by said block, the face of said lip being substantially semicircular in form and flushing with the face of the block.

750,370. ELECTRIC GEAR FOR CRANES. OTTO KAMMERER, Charlottenburg, Germany. Filed May 11, 1900. Serial No. 16,388. (No model.)

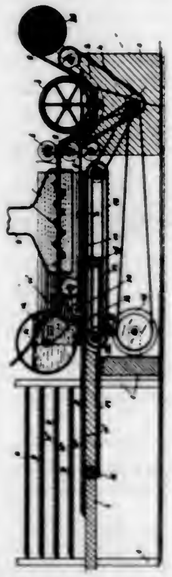


Claim.—In an electric gear for cranes, the combination with a motor, rotatable in both directions, and electric wires for leading an electric current to the motor, of magnetic clutches consisting of two members, one of which members is geared to the motor, while the other is rigidly connected to a crane-gear, electric coils provided in connection with one member of each clutch, electric wires connected to the wires mentioned above and leading to each coil, switches for interrupting and closing the current streaming through these wires, and means arranged in the magnetic clutches and adapted to keep both members of the same apart, substantially as described and for the purpose set forth.

750,871. PRODUCTION OF SUBSTANCES RESEMBLING LEATHER. HUGO KARLE, Seckenheim, and JEAN SCHMIDT, Mannheim, Germany. Filed Sept. 30, 1902. Serial No. 125,359. (No specimens.)

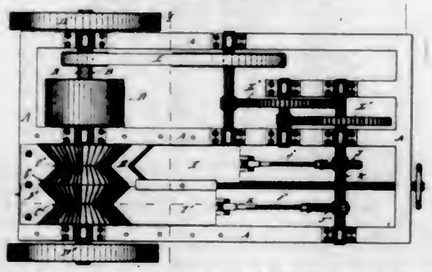
Claim.—1. A process for the production of material resembling leather, consisting of first impregnating fibrous substances with a liquid which is prepared by mixing a decoction of poppy-oil and "white-

burnt" vitriol with a decoction of fibrin-glue fish-oil, extract of leather, potash and camphor, diluted with hot water up to eighty or ninety per cent., then removing the excess of liquid from the fibrous material, then drying the same, then mixing it with a solution of caoutchouc resin solution such as linseed-oil or resin solution, then subjecting the fibrous material to a final drying process and finally finishing or dressing it, substantially as described.



2. A process for the production of material resembling leather, consisting of first impregnating fibrous substances with a liquid which is prepared by mixing a decoction of poppy-oil and "white-burnt" vitriol with a decoction of fibrin-glue, fish-oil, extract of leather, potash and camphor, diluted with hot water up to eighty or ninety per cent., then removing the excess of liquid from the fibrous material, then drying the same, then mixing it with a solution of caoutchouc, thickening same with Borneo mort and resin, then subjecting the fibrous material to a final drying process and finally finishing or dressing it, substantially as described.

750,372. GRINDING-MACHINE. DAVID KENNEDY, Erie, Pa. Filed June 2, 1902. Serial No. 109,923. (No model.)



Claim.—1. The combination in a grinding-machine, of a corrugated grinding-cylinder, a compound grinding-jaw consisting substantially of a vertically-adjustable lower jaw member, and two or more upper jaw members reciprocating alternately toward and from the grinding-cylinder, and mechanism for alternately moving said reciprocating jaw members, substantially as and for the purpose set forth.

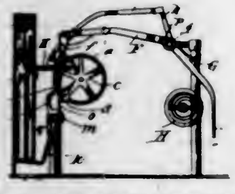
2. The combination in a grinding-machine, of an annularly-grooved corrugated cylinder, a compound grinding-jaw consisting substantially of a longitudinally-adjustable lower jaw member provided with a yielding support under its jaw end, and two or more upper jaw members reciprocating alternately toward and away from the grinding-cylinder, and crank or eccentric mechanism for reciprocating said upper jaw members and moving them alternately toward and from the grinding-cylinder, so that one of them is constantly forcing the material being ground against the grinding-cylinder, substantially as set forth.

750,373. TRACE-HOOK. BLANCH T. KINNEAR, Clinton, Mass. Filed Sept. 16, 1903. Serial No. 173,435. (No model.)



Claim.—The herein-described hook comprising the body portion 1, having at one end a tapered hook-terminal 2, so formed that the seat of the hook will be disposed in a median line or line of draft, said body portion also having the extension 11 disposed substantially parallel with the hook-section; a spring having a closure member 6 upon the free end thereof; suitable means to secure said spring to the body portion whereby it may be readily removed for the purpose of replacement or repair, and suitable means to connect the body portion of the hook to the article for which it is designed, all combined substantially as specified and for the purpose set forth.

750,374. COIN-CONTROLLED CLOCK AND MONEY-BOX. LOUIS F. KLEEMAN, El Paso, Tex. Filed May 9, 1903. Serial No. 156,367. (No model.)



Claim.—1. In a toy savings-bank or money-box, a clock mechanism, mechanism for stopping said clock at stated periods, and mechanism actuated by the deposit of a coin to release the stopping mechanism, and mechanism for supporting the coin without causing it to effect said release until said stated periods are reached; substantially as described.

2. In combination with a suitable receptacle, a clock mechanism, automatic means for braking the clock mechanism at stated periods, a coin-support independent of but operable with the brake mechanism to release the coin when the brake is applied and means operated by the coin after it leaves the support for releasing the brake mechanism; substantially as described.

3. In combination with a suitable receptacle, a clock mechanism, automatic means for braking the clock mechanism at stated periods, a coin-support movable with the brake mechanism to release the coin when the brake is applied, and a tripping device beneath the coin-support operated by the coin for releasing the brake mechanism; substantially as described.

4. In combination with a suitable receptacle, a clock mechanism, a pivoted brake-lever adapted to bear at one end upon a moving part of the clock mechanism, and at the other end adapted, when operated, to engage the clock mechanism to brake it, a lever secured to the brake-lever and operatively connected with a sliding coin-support, and means for tripping the brake-lever; said coin-support being arranged above said tripping means; substantially as described.

5. In combination with a suitable receptacle, a clock mechanism, a brake mechanism, a member operated by the clock mechanism to engage the brake mechanism at stated periods to cause it to engage and stop the clock mechanism, and a coin-controlled tripping mechanism to release the brake mechanism from said member, and a coin-support operated by the brake mechanism to hold the coin until the brake is applied, and then release it to allow it to operate the tripping mechanism; substantially as described.

6. In combination with a suitable receptacle, a clock mechanism, a brake mechanism adapted to be operated by the driving mechanism of the clock to brake the same at stated periods, a coin-controlled tripping mechanism adapted to release the brake mechanism, and means for supporting the coin and holding it from engagement with the brake mechanism even when deposited, until the driving

mechanism of the clock manipulates the brake; substantially as described.

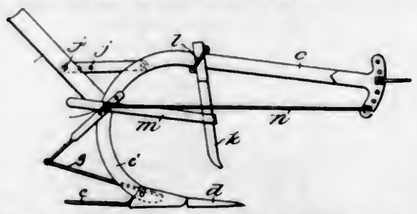
7. In combination with a suitable receptacle, a clock combined therewith, a stop mechanism operatively connected with the hour-hand mechanism of the clock to stop said clock at stated periods of time and a coin-operated tripping mechanism to release the stop mechanism, and a support for the coin operated by the stop mechanism to release the coin when the stop mechanism is applied and permit it to operate the tripping mechanism; substantially as described.

8. In a coin-controlled money-box, a clock mechanism, a rotating wheel connected with the hour mechanism of the clock, and having a projecting lug or tooth, a pivoted lever having a pawl normally in the path of movement of the lug or tooth whereby said lever may be swung on its pivot, and its opposite end depressed to be brought into engagement with the balance-wheel of the clock, a coin-chute, a tripping mechanism adapted to be engaged by the coin in its descent, and including a swinging arm adapted in its movement to force the pawl out of the path of movement of the lug or projection; substantially as described.

9. In a coin-controlled money-box, a clock mechanism, a rotating wheel connected with the hour mechanism of the clock, and having a projecting lug or tooth, a pivoted lever having a pawl normally in the path of movement of the lug or tooth whereby said lever may be swung on its pivot, and its opposite end depressed to be brought into engagement with the balance-wheel of the clock, a coin-chute, a tripping mechanism adapted to be engaged by the coin in its descent, and including a swinging arm adapted in its movement to force the pawl out of the path of movement of the lug or projection, and a coin-support, with connections between it and the pivoted lever, whereby it is moved into and out of the chute to support the coin until the lever has engaged the balance-wheel of the clock; substantially as described.

10. In a coin-controlled money-box, a clock mechanism, a rotating wheel connected with the hour mechanism of the clock, and having a projecting lug or tooth, a pivoted lever having a pawl normally in the path of movement of the lug or tooth whereby said lever may be swung on its pivot, and its opposite end depressed to be brought into engagement with the balance-wheel of the clock, a coin-chute, a tripping mechanism adapted to be engaged by the coin in its descent, and including a swinging arm adapted in its movement to force the pawl out of the path of movement of the lug or projection, and a coin-support, with connections between it and the pivoted lever, whereby it is moved into and out of the chute to support the coin until the lever has engaged the balance-wheel of the clock, and a spring engaging the lever to return the same and the coin-slide to normal position; substantially as described.

750,375. POTATO-DIGGER. HENRY KNIPHALA, Davenport, Iowa. Filed July 13, 1903. Serial No. 165,341. (No model.)

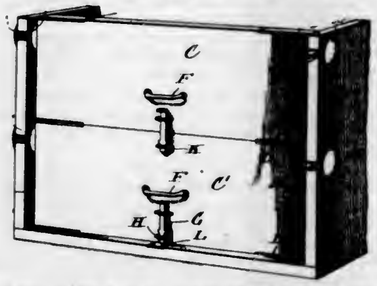


Claim.—1. In a potato-digger, a beam, frame and handles, a concaved plowshare secured to the frame; said share having downturned sides, guides secured to the sides and projecting rearwardly therefrom, separator-bars supported from the under surface of the plowshare and having a vertical swing, and means for adjustably supporting the bars.

2. In a potato-digger, a beam and frame, handles, a plowshare concaved transversely provided with downturned side flanges, guides secured to the flanges and extending rearwardly, a plate hinged under the plowshare, separator-bars secured thereto, means for supporting the bars in varying adjustments, weed-turners extending rearwardly and secured on a bolt common to the weed-turners, bar-hangers, frame and handles.

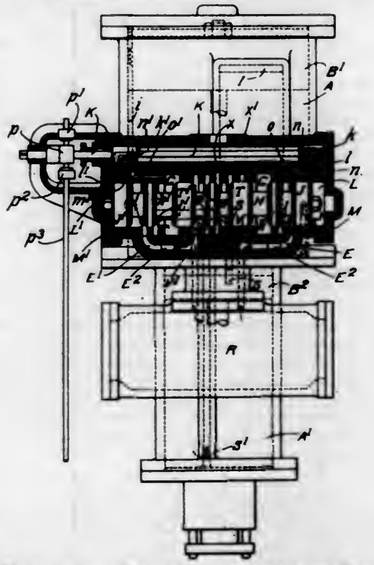
3. In a potato-digger, a suitable beam, frame and handles, a concaved plowshare secured to the frame, a plate hinged to the under surface of the plowshare, rods secured to the plate and projecting rearwardly and upwardly, hangers secured to the outer rods, means for adjustably securing the hangers with relation to the frame, weed-deflectors extending from the forward portion of the beam to the frame, a second set of deflectors extending from a point intermediately of the frame and end of the beam and frame and securing means common to weed-deflectors, the hanger-rods and the handles.

750,376. END-GATE FOR WAGONS. EDWIN A. LAMPITT, Pekin, Ill. Filed Oct. 31, 1903. Serial No. 179,326. (No model.)



Claim.—A end-gate for a wagon comprising in combination with a box having socket members mounted in recesses in the ends of the sides thereof, horizontally-disposed openings in said socket members, an end-gate, angle-irons secured to the ends of said gate, flanges D' at corresponding ends of said angle-irons, rectangular-outlined lugs projecting from said flanged ends and having heads thereon, said lugs adapted to be inserted through the openings into said socket member and adapted to be locked therein as the gate is swung closed, and a latch adapted to hold the gate in a locked relation, as set forth.

750,377. ENGINE. GEORGE DE LAVAL, Cambridge, and GEORGE P. ABORN, Boston, Mass., assignors to International Steam Pump Company, New York, N. Y., a Corporation of New Jersey. Filed July 10, 1903. Serial No. 164,994. (No model.)



Claim.—1. In a direct-acting compound engine the combination with high and low pressure cylinders, and motor-pistons therein, of main ports for said cylinders, starting-ports for one of said cylinders, and a piston-valve provided with pistons for controlling the admission and exhaust of the motor fluid through the main ports of both cylinders and the admission of the motor fluid to the starting-ports.

2. In a direct-acting compound engine the combination with high and low pressure cylinders, and motor-pistons therein, of main ports for said cylinders, starting-ports for the low-pressure cylinder,

and a piston-valve provided with pistons for controlling the admission and exhaust of the motor fluid through the main ports of both cylinders and the admission of the motor fluid to the starting-ports of the low-pressure cylinder.

3. In a direct-acting compound engine the combination with high and low pressure cylinders and motor-pistons therein, of main ports for said cylinders, starting-ports for one of said cylinders, a piston-valve provided with pistons for controlling the admission and exhaust of the motor fluid through the main ports and the admission of steam to the starting-ports, and an auxiliary valve for distributing the motor fluid to reciprocate the piston-valve.

4. In a direct-acting compound engine the combination with high and low pressure cylinders and motor-pistons therein, of main ports for said cylinders, a receiver forming a part of the communication between the ports of the high and low pressure cylinders, starting-ports for the low-pressure cylinder, and a valve for controlling the distribution of the motor fluid through the main and starting ports.

5. In a direct-acting compound engine the combination with high and low pressure cylinders and motor-pistons therein, of main ports for said cylinders, starting-ports for the low-pressure cylinder, a receiver forming a part of the communication between the main ports of the high and low pressure cylinders, and a piston-valve provided with pistons for controlling the distribution of the motor fluid through the main and starting ports.

6. In a direct-acting compound engine the combination with high and low pressure cylinders, passages between the exhaust-ports of the high-pressure cylinder and the supply-ports of the low-pressure cylinder, a throttling-valve in each passage, and separate exhaust-passages for the low-pressure cylinder, substantially as described.

7. In a direct-acting compound engine the combination with high and low pressure cylinders, a communication between the exhaust-ports of the high-pressure cylinder and the supply-ports of the low-pressure cylinder, a receiver forming part of said communication, and throttling-valves between the receiver and the ports of the low-pressure cylinders, substantially as described.

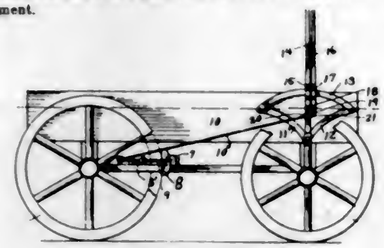
8. In a direct-acting compound engine the combination with the high and low pressure cylinders and motor-pistons therein, of supply and exhaust passages for the high-pressure cylinder, main ports for said cylinder between said supply and exhaust passages, supply-passages for the low-pressure cylinder communicating with the exhaust for the high-pressure cylinder, exhaust-passages for the low-pressure cylinder, main ports for said cylinder between the supply and exhaust passages, starting-ports for the low-pressure cylinder, and a piston-valve having a series of pistons for controlling the communication between the main ports and the supply and exhaust passages and between the starting-ports and the supply-passages of the low-pressure cylinder.

9. In a direct-acting compound engine the combination with high and low pressure cylinders and motor-pistons therein, of main ports for said cylinders, starting-ports for the low-pressure cylinder and a single valve for controlling the admission and exhaust of motor fluid through the main ports and the admission of motor fluid to the starting-ports.

10. In a direct-acting compound engine the combination with high and low pressure cylinders and motor-pistons therein, of main ports S, S' for the high-pressure cylinder, exhaust-passages V, V', a receiver to which said exhaust-passages lead, supply-passages E, E' for the low-pressure cylinder communicating with the receiver, main ports I, I', for low-pressure cylinder, starting-ports *i*, *i'* for the low-pressure cylinder, a supply-passage for the high-pressure cylinder, exhaust-passages for the low-pressure cylinder, and a piston-valve having pistons W, T, T' for controlling the supply and exhaust through the ports S, S' and pistons *h*, *h'*, J, J', for controlling the supply and exhaust through ports I, I and the supply to ports *i*, *i'*.

750,378. VEHICLE-BRAKE. ALBERT M. LEDBETTER, Vixen, La. Filed Sept. 26, 1903. Serial No. 174,781. (No model.)

Claim.—The combination with a brake-beam, of a hand-lever, a segment with respect to which the hand-lever is concentrically pivoted, a latch-lever having gripping-jaws disposed above and below the segment and in close relation thereto, links pivoted to the latch-lever adjacent to its lower end and to the hand-lever at a point between its fulcrum and the segment for movement of the latch-lever with its jaws into and out of engagement with the segment, said hand-lever having a perforation therethrough below said links, additional links pivoted to the latch-lever below the first-named links and lying at opposite sides of the hand-lever, a brake-rod connected with the brake-beam at one end and having its opposite end bifurcated and embracing the last-named links, and a bolt passed through the bifurcated portion of the brake-rod, the last-named link and the perforation of the hand-lever, said bolt having movement in said perforation laterally of the lever sufficient to permit of movement of the latch-lever with its jaws into and out of engagement with the segment.



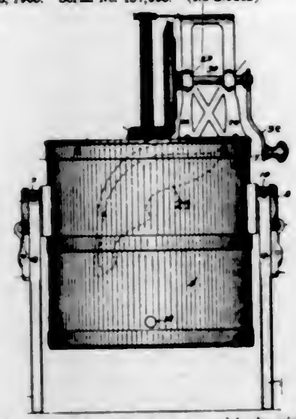
750,379. PNEUMATIC-TIRED WHEEL. THEODORE LINDENBERG, Columbus, Ohio. Filed Aug. 18, 1902. Serial No. 120,011. (No model.)



Claim.—1. In a pneumatic-tired wheel, the combination with opposing ring-plates 3, a wheel-rim clamped by the inner portions of said ring-plates, and separated shoes 5 clamped between the outer portions of said ring-plates, of a pneumatic tire arranged between the ring-plates and between the shoes and wheel-rim and a pliable tread-body contained in each of said shoes and projecting therefrom, substantially as specified.

2. In a pneumatic-tired wheel, the combination with opposing side ring-plates 3, a wheel-rim embraced by the inner portions of said ring-plates and secured thereto and a pneumatic tire embraced between the central portions of said ring-plates, of shoes 5 arranged at intervals between and embraced by the outer portions of the ring-plates, bolts connecting said ring-plates between said shoes and pliable tread-bodies connected with and projecting from each of said shoes, substantially as specified.

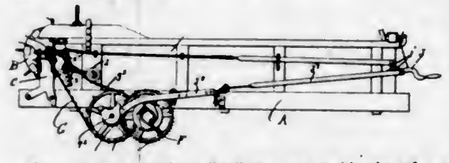
750,380. CHURN. JOHN S. LINDQUIST, Swedeburg, Nebr. Filed May 13, 1903. Serial No. 157,695. (No model.)



Claim.—1. In a churn having a round body with a removable two-part top, a shaft extending vertically therethrough with an agitator secured on the lower portion of said shaft and a breaker secured to the under side of the lid and corresponding with said agitator, a gear-wheel secured to said shaft above the lid of the churn, supports secured to and rising from the top of the churn, a pair of boxings carried on the upper ends of said supports, a horizontal shaft carried in said boxings, the inner end of said horizontal shaft carrying a bevel gear-wheel meshing at right angles with said gear-wheel on the main-shaft, a crank mounted on the outer end of the horizontal shaft, a hanger rising from said boxings with an inward projection carrying a bearing for the upper end of the main shaft, all substantially as shown and described.

2. In a churn having a round body with a removable two-part lid, a pair of oppositely-disposed trunnions secured near the top on the outside of said body, a pair of triangular blocks adapted to fit in grooves in the periphery of said trunnions, each of said blocks having a pair of legs radiating therefrom, hooks pivoted to said legs and adapted to engage in holes in said trunnions, a shaft extending vertically through the interior of said body and pivoted in the bottom thereof, a bevel gear-wheel secured to said shaft above the lid, an agitator secured on the lower portion of said shaft, a breaker having a large upper end secured to one side of the under surface of said lid and extending down the interior of the churn in a curve terminating in a point, supports secured to and rising from the lid, a pair of boxings carried on the upper ends of said supports, a horizontal shaft carried in said boxings, a bevel gear-wheel secured to the inner end of said horizontal shaft and meshing at right angles with said bevel gear-wheel on the main shaft, a crank mounted on the outer end of said horizontal shaft, and a bearing secured to said boxing for the upper end of the main shaft, all substantially as shown and described.

750,381. FERTILIZER-DISTRIBUTER. ROBERT LOVE, Syracuse, N. Y., assignor to Kemp & Burpee Manufacturing Company, Syracuse, N. Y., a Corporation of New York. Filed Sept. 9, 1901. Serial No. 74,720. (No model.)



Claim.—1. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, and a supporting member for the discharging device, said supporting member being movable rectilinearly for moving the discharging device from the contiguous portion of the fertilizer substantially as and for the purpose described.

2. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a supporting member for the discharging device, said supporting member being reciprocally movable in a retilinear plane and an actuating member for moving the discharging device from the contiguous portion of the fertilizer, substantially as and for the purpose specified.

3 In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle being provided with a guide, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, and a supporting member for the discharging device, said supporting member being movable in the guide for moving the discharging device from the contiguous portion of the fertilizer, substantially as and for the purpose set forth.

4. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle being provided with separated guides arranged one in advance of the other, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, and a supporting member for the discharging device provided with oppositely-extending arms movable in the guides for moving the discharging device from the contiguous portion of the fertilizer, substantially as and for the purpose described.

5. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle being provided with a guide, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a supporting member for the discharging device, said supporting member being movable in the guide of the fertilizer, and an actuating member connected to the supporting member for moving the same in the guide, substantially as and for the purpose specified.

6. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle being provided with guides arranged at opposite sides thereof, a rotary discharging device having its opposite ends provided with trunnions, and supporting members for the trunnions, said supporting members being freely movable to and fro in the guides, substantially as and for the purpose set forth.

7. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, said receptacle being provided with guides arranged at opposite sides thereof, a rotary discharging device having its opposite ends provided with trunnions, supporting members for the trunnions, said supporting members being movable to and fro in the guides, an actuating member, and connecting members at opposite sides of the receptacle for connecting the supporting members to the actuating member, substantially as and for the purpose described.

8. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a supporting member fixed to the receptacle and provided with a guide, and a second supporting member connected to the discharging device and movable in the guide for moving the discharging device from the contiguous portion of the fertilizer, substantially as and for the purpose specified.

9. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a fixed supporting member provided with separated arms having guides, and a second supporting member connected to the discharging device and provided with arms freely movable in the guides, substantially as and for the purpose set forth.

10. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a rotary discharging device having its opposite ends provided with trunnions, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, fixed supporting members disposed at opposite sides of the receptacle and each provided with guides arranged substantially parallel with the line of draft, and additional supporting members provided with bearings for the trunnions and oppositely-extending arms movable in the guides of the former supporting members, substantially as and for the purpose described.

11. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a rotary discharging device having its opposite ends provided with trunnions, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, fixed supporting members at opposite sides of the receptacle provided with guides arranged substantially parallel with the line of draft, additional supporting members provided with bearings for the trunnions and oppositely-extending arms movable in the guides of the former supporting members, an actuating member, and connecting parts at opposite sides of the receptacle for connecting the additional supporting members to the actuating member, substantially as and for the purpose specified.

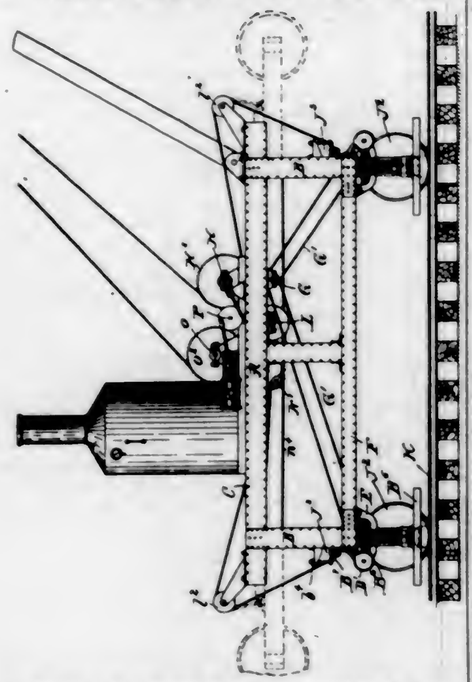
12. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a movable supporting member for the discharging device, power-transmitting mechanism for actuating the discharging device, said mechanism being provided with a sprocket-chain, and means movable with the supporting member for preventing undue slack in said sprocket-chain, substantially as and for the purpose set forth.

13. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a movable supporting member for the discharging device, power-transmitting mechanism for actuating the discharging device, said mechanism being provided with a sprocket-chain, means actuated by the supporting member for preventing undue slack in said sprocket-chain, and an actuating member for moving the discharging device from the contiguous portion of the fertilizer and thereby moving the supporting member and operating said means, substantially as and for the purpose described.

14. In a fertilizer-distributer, the combination of a receptacle for the fertilizer, a discharging device, said device being movable for discharging the fertilizer and being at rest when not discharging the fertilizer, a reciprocating supporting member for the discharging device, power-transmitting mechanism for actuating the discharging device, said mechanism being provided with a sprocket-chain, a support movable with the reciprocating supporting member and provided with means engaged with the sprocket-chain for preventing

undue slack of said chain, substantially as and for the purpose specified.

750,382. LOADING DEVICE. ARTHUR R. MERRILL, Cleveland, Ohio, assignor to the Clyde Iron Works, Duluth, Minn., a Corporation of Minnesota. Filed Apr. 18, 1902. Serial No. 103,546. (No model.)



Claim.—1. In a loading device, the combination of a frame, means embodied in the structure of the loading device for rendering it movable upon a track adapted to be removed therefrom so as to permit the passage of cars beneath said frame and upon said track, and means for raising and lowering the frame whereby the first-named means may be placed in operative relation with the frame and track and be caused to engage the latter.

2. In a loading device, the combination of a frame, means embodied in the structure of the loading device for rendering it movable upon a track and adapted to be removed therefrom so as to permit of the passage of cars upon said track and beneath said frame, extensible standards, and means for operating the latter to raise or lower the said frame.

3. In a frame for a loading device, the combination with swinging trucks provided with traction-wheels adapted to engage a track, of means for raising and lowering said frame whereby said trucks may be placed in operative relation with the frame and track and said wheels be caused to engage the latter.

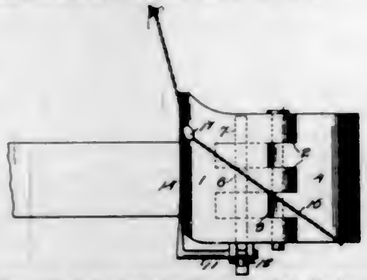
4. In a frame for a loading device, the combination of swinging trucks provided with traction-wheels adapted to engage a track, extensible standards, means for operating the latter to raise the frame whereby said trucks may be placed in operative relation relatively thereto, and means for operating said standards to lower said frame whereby such wheels may be caused to engage said track.

5. In a frame for a loading device, the combination of trucks oscillatorily supported upon the frame and provided with traction-wheels adapted to engage a track, downwardly-extending standards provided with extensible foot portions and adapted to support such frame at points adjacent to such track, means for raising and lowering such trucks and means for moving said extensible portions of said standards.

6. In a frame for a loading device, the combination of movable trucks secured thereto and provided with traction-wheels adapted to engage a track, extensible standards and means for operating same so as to raise or lower such frame, and means for operating said trucks whereby they may be placed in position above said track or removed therefrom.

7. In a loading device, the combination of a rigid frame structure, extensible supporting-standards, swinging trucks secured at the frame structure's ends, and provided with traction-wheels adapted to engage a track, means for moving said trucks toward and from said track and means for operating said standards to extend or contract whereby said wheels may be caused to disengage or engage said track.

750,383. CAR-COUPLING. ALEXANDER MOFFITT, Elkins, W. Va. Filed Mar. 30, 1903. Serial No. 150,271. (No model.)



Claim.—1. In a car-coupler, the combination of a draw-head, a pivoted knuckle provided with a locking-arm, a notched gravity-dropping latch-bar, a horizontally-disposed bell-crank lever arranged upon the under side of the draw-head and acting on the bar to raise the same to permit the arm of the knuckle when the latter is open to enter the notch in the bar, a flexible connection secured at one end to the car and at the other end to said lever, a second flexible connection secured at one end to the base of the knuckle, and a coupling connecting the other end of said second flexible connection to the first-named flexible connection and forming a handle by which both connections may be simultaneously drawn upon to actuate the knuckle and bell-crank lever, substantially as described.

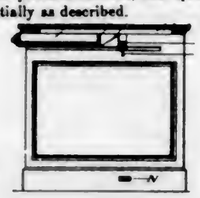
2. A car-coupler, comprising a chambered draw-head having an opening in the bottom thereof, a knuckle pivoted to the draw-head and provided with curved locking-arms, a gravity-dropping latch-bar vertically movable in said opening and in the chamber of the draw-head and provided with notches and with a key seat or groove, a slidable key mounted on the draw-head and projecting into said key seat or groove and adapted to limit the movement of the bar, a bell-crank lever acting on the bar to raise the same to permit the arms of the knuckle when the latter is open to enter said notches, an operating-handle, and connections between said handle and the knuckle and bell-crank lever, whereby the latch-bar may be raised and the knuckle simultaneously swung open, substantially as described.

3. A car-coupler, comprising a chambered draw-head having an opening in the bottom thereof, a knuckle pivoted to the draw-head and provided with curved locking-arms, a gravity-dropping latch-bar vertically movable in said opening and in the chamber of the draw-head and provided with notches and with a key seat or groove, a slidable key mounted on the draw-head and projecting into said key seat or groove and adapted to limit the movement of the bar, a bell-crank lever acting on the bar to raise the same to permit the arms of the knuckle when the latter is open to enter said notches, a flexible connection secured at one end to the car and at the other end to said lever, a secured flexible connection secured at one end to the knuckle, and a coupling connecting the other end of said second flexible connection to the first-named flexible connection and forming a handle by which both connections may be simultaneously drawn open to actuate the knuckle and bell-crank lever, substantially as described.

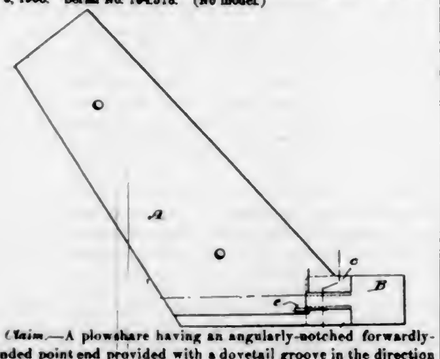
4. A car-coupler, comprising a draw-head, a swinging knuckle provided with locking-arms, an adjustable latch-bar coacting with said arms, a bell-crank lever for operating the latch-bar, a flexible connection attached at one end to the car and at the other end to the lever, a second flexible connection attached at one end to the knuckle, and a knob or sleeve connecting the other end of said second flexible connection to the lever-operating flexible connection, and forming a coupling and a handle by which both connections may be simultaneously operated to release and swing open the knuckle, substantially as described.

750,384. DESK-LOCK. LAFAYETTE MOORE, Tuskegee, Ala. Filed June 20, 1902. Serial No. 112,476. (No model.)

Claim.—In a cabinet-desk having a series of drawers in each pedestal and an upper central drawer, said central drawer having rearwardly-projecting inclined sides, a horizontal bar in the path of movement of said inclined sides, a guide-bar in the lower portion of the desk in vertical alinement with the said horizontal bar and formed with suitable perforations, a vertical bar secured to each end of the horizontal bar, their lower ends passing through the perforations in the guide-bar, hooks on said vertical bars adapted to engage the rear ends of the pedestal-drawers, and springs under the horizontal bar, substantially as described.



750,385. PLOW. JOSEPH HAIDUL, Milwaukee, Wis. Filed July 6, 1903. Serial No. 164,318. (No model.)



Claim.—A plowshare having an angularly-notched forwardly-extended point end provided with a dovetail groove in the direction of the draft of a plow, a plow-point consisting of a block rearwardly notched to provide a dovetail rib engageable with said groove and to have match fit on the point end of said plowshare, and a taper pin having wedging contact in a tapered seat between said rib and a side of the aforesaid groove at the rear of same longitudinally thereof.

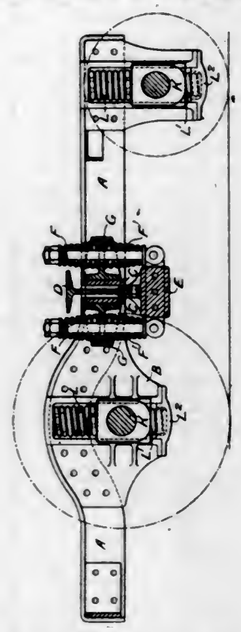
750,386. MUD-GUARD FOR CYCLES. JACOB HEINEMS and HUBERT KLEINBIELEN, Goldern, Germany. Filed Aug. 7, 1903. Serial No. 168,562. (No model.)



Claim.—A mud-guard for cycles composed of a rail, a slide movable thereon, a telescoping spring-influenced shield pivoted to the slide, and a scraper and hook adapted to engage the shield, substantially as specified.

750,387. BOGIE OR TRUCK FOR TRAMWAY-CARS, RAILWAY-CARRIAGES, OR THE LIKE. ANDREW S. NELSON, ALBERT STEWART, and THOMAS J. FOSTER, Motherwell, Scotland. Filed July 7, 1902. Serial No. 114,587. (No model.)

Claim.—1. In a bogie or truck for tram-cars or like vehicles, the combination with solid angular side bars A, of separate pedestals B, a metallic cross-bolster C secured to said side bars A, a swing-bolster D, brackets E, secured to said swing-bolster D, brackets G secured to the cross-bolster C, bolts passing through said brackets G and connected to brackets E, nuts at the ends of said bolts and springs F interposed between said nuts and said brackets G, check-springs F' interposed between said brackets G and said brackets E, a pivoted center casting H and side bearing-castings I fitted on said swing-bolster D as and for the purpose set forth.

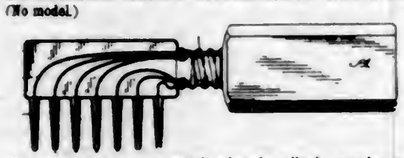


2. In a bogie or truck for tram-cars or like vehicles, the combination with solid angular side bars A, of separate pedestals B, a metallic cross-bolster C secured to said side bars A, a swing-bolster D, brackets E, secured to said swing-bolster D, brackets G secured to the cross-bolster C, bolts passing through said brackets G and connected to brackets E, nuts at the ends of said bolts and springs F interposed between said nuts and said brackets G, check-springs F' interposed between said brackets G and said brackets E, a pivoted center casting H and side bearing-castings fitted on said swing-bolster D, and checks J of rubber to cushion the transverse movement of the bolster.

3. In a bogie or truck for tram-cars or like vehicles, the combination with solid angular side bars A, of separate pedestals B, a metallic cross-bolster C secured to said side bars A, a swing-bolster D, brackets E secured to said swing-bolster D, brackets G secured to the cross-bolster C, bolts passing through said brackets G and connected to brackets E, nuts at the ends of said bolts and springs F interposed between said nuts and said brackets G, check-springs F' interposed between said brackets G and said brackets E, a pivoted center casting H and side bearing-castings fitted on said swing-bolster D, axle-boxes K, spiral bearing-springs L fitted on top, and check-springs L^2 beneath said axle-boxes as and for the purpose set forth.

4. In a bogie or truck for tram-cars or like vehicles, the combination with solid angular side bars A, of separate pedestals B, a metallic cross-bolster C secured to said side bars A, a swing-bolster D, brackets E, secured to said swing-bolster D, brackets G secured to the cross-bolster C, bolts passing through said brackets G and connected to brackets E, nuts at the ends of said bolts and springs F interposed between said nuts and said brackets G, check-springs F' interposed between said brackets G and said brackets E, a pivotal center casting H and side bearing-castings I fitted on said swing-bolster D, axle-boxes K, and a spring S carried on the car-body bearing on the truck adjacent to the small wheels of the truck as and for the purpose set forth.

750,888. COMB FOR APPLYING LIQUID TO THE SCALP. JOHN B. O'HIGGINS, New York, N. Y. Filed Jan. 19, 1903. Serial No. 139,649. (No model.)

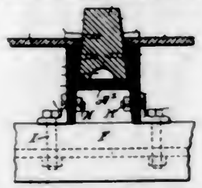


Claim.—1. In apparatus of the class described a comb comprising a hollow body with an opening therein; hollow tapering teeth connected therewith, each having an aperture in its point; tapering plugs adapted to close the said teeth at their points and to project through the apertures in the same; and springs adapted normally to cause the said plugs to close the apertures, substantially as described.

2. In apparatus of the class described a comb comprising a hollow body with an opening at one end; hollow tapering teeth connected therewith, each having an aperture in its point; tapering plugs adapted to close the said teeth and to project through the apertures in the same; and spring-stems connected to the said plugs, bent round and secured to the body of the comb adjacent to the said opening, substantially as described.

3. In apparatus of the class described a comb comprising a hollow body, with an opening at one end; hollow tapering teeth connected therewith, each having an aperture in its point; tapering plugs adapted to close the said teeth at their points and to project through the apertures of the same; and spring-stems integrally connected to the said plugs, bent round and secured to the body of the comb adjacent to the said opening, substantially as described.

750,889. GLAZED STRUCTURE. JOHN A. PAYNE, Jersey City, N. J. Filed Apr. 13, 1903. Serial No. 152,399. (No model.)



Claim.—1. A glazed structure provided with a sash-bar comprising an I-beam, a wooden bar having tapering sides and resting with its base on the middle member of the I-beam, a portion of the wooden bar extending between the glasses and projecting beyond the same, the lower portions of the said tapering sides forming spaces with the inner adjacent faces of the end members of the I-beam, for the reception of putty or the like, the said wooden bar being provided at its bottom with a longitudinally-extending drainage-groove, and means for fastening the wooden bar in position on the I-beam, as set forth.

2. A glazed structure provided with a sash-bar comprising an I-beam, a wooden bar having four flat longitudinal faces, with the bottom one of said faces resting on the middle member of the I-beam and having a longitudinal drainage-groove, the sides of said bar tapering inwardly toward each other from the bottom to the top, a portion of the wooden bar extending between the glasses and projecting beyond the same, the lower portions of the said tapering sides from their bottoms upwardly to the outer face of the glass forming spaces with the inner adjacent faces of the end members of the I-beam, for the reception of putty or the like, means for fastening the wooden bar in position on the I-beam, a girder for the I-beam to rest on, in the shape of an I-beam, and means for fastening the I-beam of the sash-bar to the said girder, as set forth.

3. In a glazed structure, a metal beam having vertical flanges joined together by a connecting-web, a wooden bar resting on the web of the beam and projecting above the flanges of the said beam, the said bar being of less width than the distance between the said flanges, a packing of an impervious substance filling the spaces between the opposite sides of the bar and the beam-flanges, and means for securing the said bar in position, as set forth.

4. In a glazed structure, a metal beam having vertical flanges and a web connecting the same, a wooden bar resting upon the web of the beam and projecting above its flanges, said bar having its sides tapering upwardly and inwardly toward each other whereby a space will be left on each side of the bar between it and the flanges of the beam, a material such as putty filling the spaces between the bar and beam-flanges, and means for securing the said bar in position, as set forth.

5. In a glazed structure, a metal beam having vertical flanges and a web connecting the same, a wooden bar resting upon the web and projecting above the flanges of the said beam, the said bar being of less width than the distance between the said flanges, a packing of an impervious substance filling the spaces between the opposite sides of the bar and the beam-flanges, means for securing the bar on the beam, a girder grooved longitudinally in its upper face and upon which the said beam rests, and means for securing the beam to the girder, as set forth.

750,890. RECORD-RETAINER FOR LIQUID-PACKAGES. THOMAS PENDERGAST, Lancaster, Pa., assignor of fifty-one one-hundredths to John Hertzler, Lancaster, Pa. Filed Feb. 3, 1903. Serial No. 141,752. (No model.)



Claim.—1. A label or record retainer for liquid and other packages consisting of a metal ring converging toward one end which has an outturned sharp edge, said ring being adapted to be sunk into a cavity therefor in the package and to be expanded therein and have its lower sharp edge embedded in the sides of the cavity.

2. A label or record retainer of the character described consisting of an expansible ring converging toward one end, the edge of which is turned outward, the ring being adapted to be fitted and secured in a cavity therefor in a package by expanding it into straight form.

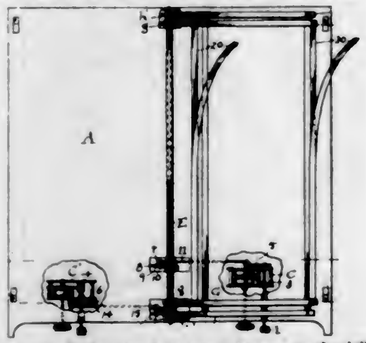
3. A label or record retainer of the character described consisting of a metal ring adapted to be fitted within a cavity therefor in a package, and having a lower sharp projection adapted to be forced into the sides of the cavity, said projection constituting a shoulder beneath which the label may be retained.

4. A label or record retainer of the character described, consisting of a metal ring having an upper outward flange, said ring converging toward one end which has a sharp outturned edge or extremity, substantially as and for the purpose described.

5. In combination with a cask having a cavity therein, a metal ring fitted in said cavity having its lower end outturned and embedded in the walls of said cavity, thus securing the ring in place, said lower outturned end also forming a shoulder beneath which a label may be held.

6. A label or record retainer of the character described consisting of a ring constructed for insertion in a correspondingly-shaped recess in a cask or other receptacle and having an expansible end with an outwardly-turned edge for embedding in the sides of the recess, whereby the ring is secured in place and a shoulder is provided for retaining the label inserted in the ring.

750,891. SHEET-MUSIC TURNER. MARTIN T. PHILLIPS, Akron, Ohio. Filed July 29, 1902. Serial No. 117,529. (No model.)



Claim.—1. In sheet-music turners, a base, a set of axially-rotatable parts arranged across said base, top to bottom, means on each part to support and carry a sheet of music, an arm free to rotate on each part, an arm fixed upon each part, and contacts and stops between said arms to provide for a positive starting movement and with a free play at the end of the movement, in combination with clock mechanism, and means connecting the same operatively with the said arms whereby a sheet of music is automatically turned, substantially as set forth.

2. In sheet-music turners, a rotatable shaft and a rotatable sleeve on said shaft and a base upon which the said shaft is supported at its ends, arms on said shaft and said sleeve, respectively, to carry the music, crank-arms fixed upon said shaft and sleeve, respectively, separate operating-arms free upon said shaft and sleeve, and engaging stops between said crank-arms and operating-arms, in combination with separate clock mechanism operatively connected with said operating-arms, substantially as described.

3. In a sheet-music turner, a suitable base, a rotatable shaft supported in bearings across said base from top to bottom and a rotatable sleeve on said shaft, a fixed and a free arm on both shaft and sleeve, and connections between said fixed and free arms constructed to give a positive starting movement and a free continued movement within limits, in combination with mechanism having an eccentric connection with each of said arms, respectively, and a finger-key to release said clock mechanism and throw said eccentric into action, substantially as described.

4. In a sheet-music turner, a suitable base and a shaft and sleeve thereon, sheet-turning arms fixed to said shaft and sleeve, respectively, and pairs of detachable transparent strips connecting said arms adapted to hold a sheet of music between them, in combination with separate mechanism connected with said shaft and sleeve to rotate the same and turn the music, substantially as described.

5. In a sheet-music turner, a suitable base and a rotatable part supported across said base centrally from top to bottom and sheet-turning arms affixed to its respective ends, and two sets of transparent strips across said arms adapted to engage on opposite sides of the sheets and detachable connections at the top of said strips, in combination with clock mechanism connected with said rotatable part to turn the music-supporting arms, substantially as described.

6. In a sheet-music turner, a suitable base and sheet-turning mechanism comprising a set of arms top and bottom for each sheet, in combination with detachable transparent connections between said arms adapted to lie across a sheet of music, substantially as described.

7. In a sheet-music turner, a suitable base and a rotatable part supported thereon and provided with sheet-turning arms at its respective ends, in combination with clock mechanisms and a set of arms operatively connected with said mechanisms and with said rotatable part, and one of said arms fixed upon said part and the other free to turn thereon, substantially as set forth.

8. In sheet-music turners, a suitable base and mechanism to turn the sheets, comprising a shaft and a sleeve thereon and a rotatable arm on each said shaft and said sleeve, respectively, and leaf-turning arms rigid with said shaft and sleeve, respectively, in combination with a clock mechanism for said shaft and another clock mechanism for said sleeve and connections between said parts constructed to open one sheet at a time and to close all the sheets at the same time, substantially as set forth.

750,892. EYEGLASSES. CHARLES H. PIXLEY, Chicago, Ill. Filed May 23, 1900. Renewed June 1, 1903. Serial No. 159,518. (No model.)



Claim.—1. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge having a curved portion adapted to conform to and rest directly upon the nose, and guards having stems secured directly to the saddle-bridge at points between its points of attachment to the lenses and its surface of contact with the nose, said guards being adjustable independently of said curved portion of the saddle-bridge, substantially as described.

2. As a new article of manufacture, an eyeglass having in combination, lenses, a saddle-bridge adapted to conform to and rest directly upon the nose, and guards secured directly to the saddle-bridge at points intermediate of its points of attachment to the lenses the guards being made of material sufficiently ductile to permit them to be bent and thereby adjusted to the proper shape and at the same time sufficiently elastic to retain their shape under ordinary usage, substantially as and for the purpose described.

3. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge adapted to conform to and rest directly upon the nose, and guards each formed of a single piece of metal reflexed or doubled upon itself to provide a stem and a pad lying side by side, the stems of the guards being secured directly to the saddle-bridge at points intermediate of its points of attachment to the lenses, substantially as described.

4. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge comprising a bridge proper adapted to conform to and rest upon the bridge of the nose, and reflexed shanks, and guards having stems secured to the saddle-bridge in the crotches between the bridge proper and the shanks thereof, substantially as described.

5. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge comprising a bridge proper adapted to conform to and rest upon the bridge of the nose, and reflexed shanks, and guards, each having a stem and a pad lying side by side the stems being secured directly to the saddle-bridge at points intermediate of its points of attachment to the lenses and occupying positions approximately at right angles to the plane of the bridge, substantially as described.

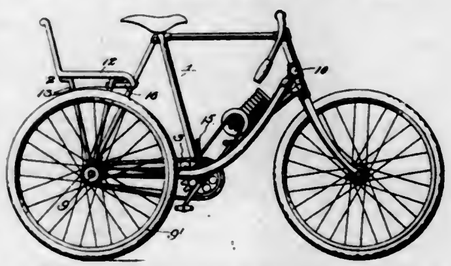
6. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge comprising a bridge proper adapted to conform to and rest upon the bridge of the nose, and reflexed shanks, and guards, each of the guards comprising a stem disposed in a position approximately at right angles to the plane of the saddle-bridge and secured directly thereto at points intermediate of its points of attachment to the lenses, and a pad joined at one end to one end of the stem and disposed approximately parallel therewith, the stem and pad being made of metal sufficiently ductile to permit them to be bent and thereby adjusted to the desired position and at the same time sufficiently elastic to retain their shape under ordinary usage, substantially as described.

7. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge having a curved portion adapted to conform to and rest directly upon the nose, and guards having stems secured directly to the saddle-bridge at points between its points of attachment to the lenses and the extremities of said curved portion, said guards having also pads lying between the extremities of said curved portion and adjustable independently of said curved portion, substantially as described.

8. As a new article of manufacture, an eyeglass having, in combination, lenses, a saddle-bridge adapted to conform to and rest directly upon the nose, and guards each formed of a single piece of metal reflected or doubled upon itself to provide a stem and a pad lying side by side, the stems of the guards being secured directly to the saddle-bridge at points intermediate of its points of attachment to the lenses, and the pads being between the stems, substantially as set forth.

9. As a new article of manufacture, an eyeglass having lenses, a saddle-bridge comprising a bridge proper adapted to conform to and rest upon the bridge of the nose, and reflexed shanks joining the ends of the bridge, the lenses being secured to said shanks, and guards each having a stem and a pad lying side by side and formed of a single piece of metal doubled upon itself, the stems of the pads being secured directly to the saddle-bridge in the crotches between the bridge proper and the shanks, and the pads being disposed transversely to the general plane of the bridge, substantially as described.

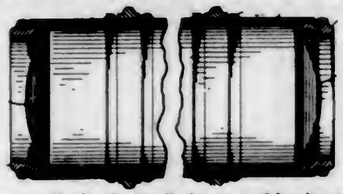
750,893. ATTACHMENT FOR BICYCLES. ALBERT L. PORTER, Leonard, N. D., assignor of one-half to Charles A. Roberts, Leonard, N. D. Filed Apr. 9, 1903. Serial No. 151,791. (No model.)



Claim.—An attachment of the character described, comprising a frame having at front and rear on one side flexible couplings for

attachment to the frame of a bicycle or motor-cycle, each of said couplings consisting of a headed member, provided with a clamp and a bifurcated socket member provided with means for adjusting the sections thereof to receive and retain said headed member between them, and having at the rear on the opposite side a spindle pivotally mounted and adjustable at an angle to the frame, and a trail-wheel mounted on said spindle, substantially as described.

750,894. METHOD OF MAKING METAL BARRELS OR LIKE STRUCTURES. HENRY S. REYNOLDS, Brooklyn, N. Y., assignor to Iron Clad Manufacturing Company, Brooklyn, N. Y., a Corporation of New York. Filed May 23, 1903. Serial No. 159,060. (No model.)

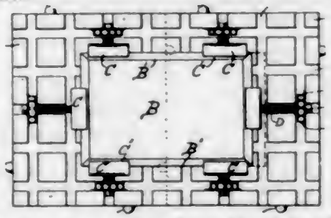


Claim.—1. The herein-described process of forming metal barrels or like structures comprising the throwing up of integral projections from the tubular portion of the barrel and shrinking a metallic hoop on said tubular portion in such manner as to be locked in place by the said tubular projections.

2. The herein-described process of forming a metal barrel or like structure comprising the throwing up of a projection or bead *b* from the tubular portion of the structure, thereupon shrinking a hoop *c* upon the said tubular portion of the barrel *a* and thereupon throwing up a bead or projection *c* on the side of the hoop opposite to the side upon which the bead or projection is located.

3. The herein-described process of forming a metal barrel comprising the throwing up of a plurality of beads from the cylindrical portion thereof and shrinking upon the said cylindrical portion a hoop *c* of greater height than the beads or projections, whereby the hoop will be efficiently locked in place substantially as described and for the purposes set forth.

750,895. PRINTING-PLATE HOLDER. CHARLES F. ROCKSTROH, Brooklyn, N. Y., assignor to Rockstroh Manufacturing Company, a Corporation of New Jersey. Filed June 26, 1903. Serial No. 163,251. (No model.)



Claim.—1. A clamp mechanism for a bed for printing-plates having a slot-connecting detent-acting tumbler device combined therewith, substantially as specified.

2. A clamp mechanism for a bed for printing-plates having a clamp-slot therein, consisting of the clamp and a detent-acting tumbler device adapted to engage in the slot and thereby secure the clamp to the bed, substantially as specified.

3. A clamp mechanism for a bed for printing-plates having clamp-slots therein, consisting of a clamp, a detent-acting tumbler and a screw, the screw provided with means for its adjustment and fitted to the clamp and tumbler and connecting them together, substantially as specified.

4. In combination with a bed for printing-plates having clamp-slots therein at right angles with each other, and of dimensions in width and apart corresponding to the pica system of measurement, a clamp mechanism constructed so as to be insertible in said slots at the point of their intersection in the plate-bed and being provided with a detent-acting tumbler means for being secured thereto when thus inserted in said slots and having a lateral adjusting-screw device, substantially as specified.

5. In combination with a bed for printing-plates having clamp-slots therein at right angles with each other, a clamp mechanism constructed so as to be insertible in said slots at the point of their intersection in the plate-bed and being provided with a detent-acting tumbler means for being secured thereto when thus inserted in said slots and having a lateral adjusting-screw device, substantially as specified.

6. In combination with a bed for printing-plates having clamp-slots therein at right angles with each other, a clamp mechanism provided with a tumbler and lateral adjusting-screw and constructed so as to be insertible in said slots at the point of their intersection in the plate-bed, substantially as specified.

7. The folder-point device for a bed for printing-plates having clamp-slots therein, provided with a tumbler and a lateral adjusting-screw connecting the point and the tumbler together, substantially as specified.

8. In combination with a bed for printing-plates having clamp-slots therein, a folder-point device provided with a tumbler and a lateral adjusting-screw connecting the folder-point and the tumbler, substantially as specified.

9. The clamp device for a printing-plate holder consisting of the clamp, the tumbler, and the screw, and the clamp and tumbler being connected to the screw, and all combined, substantially as specified.

10. The clamp device for a printing-plate holder consisting of the clamp, the tumbler, and the screw provided with a pinion-head, and the clamp and tumbler being threaded and fitted to the screw and all combined, substantially as specified.

11. The clamp device for a printing-plate holder consisting of a clamp having a swivel-head, the tumbler having the lateral flanges on its upper extremity, and the screw provided with a pinion-shaped head and the tumbler and clamp being threaded to fit the screw and all combined, substantially as specified.

12. In a printing-plate holder having a longitudinal clamp-slot having side slots therein, the combination therewith of a plate-clamp device provided with a tumbler having lateral flanges in its upper extremity which are adapted to engage with the side slots in the clamp-slot in the holder and the clamp and tumbler being provided with a screw fitted to the clamp-and-tumbler mechanism and having a pinion-head and a washer fitted thereto and the pinion-head of the screw and the washer adapted to fit in a transverse slot in the holder and adapted to give a lateral means of adjustment to the clamp, substantially as specified.

13. In combination with a bed for printing-plates having clamp-slots therein at right angles with each other, a folder-point mechanism provided with a tumbler and lateral adjusting-screw and constructed so as to be insertible in said slots at the point of their intersection in the plate, substantially as specified.

14. In a printing-plate holder the combination therewith of the end stop, I, having the rack-section, I', in combination with the rack-section, J, having the slot-registering lugs, J', J³, substantially as specified.

15. In a printing-plate holder having slots therein the combination therewith of the side stop, H, having the lateral projecting rib, H', adapted to fit in corresponding lateral slots in the clamp-slots in the holder and being provided with the laterally-projecting lugs, H², H³, substantially as specified.

16. A side stop, H, for a printing-plate holder having a lateral projecting rib, H', on one of its sides and the lip, H³, and the shoulder, H⁴, upon its opposite side, the shoulder adapted to support the edge of the plate and the stop being provided with the laterally-projecting lugs, H², H³, substantially as specified.

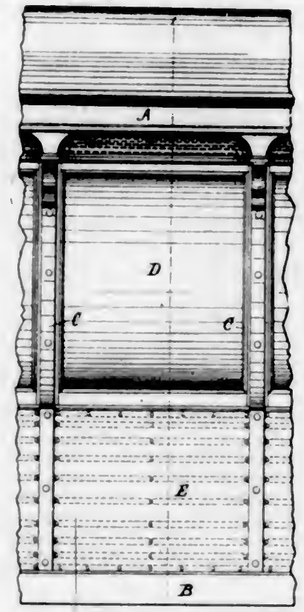
750,896. CONVERTIBLE VEHICLE. HERMANN ROSENDER, Bloomsbury, N. J. Filed Feb. 24, 1903. Serial No. 144,563. (No model.)

Claim.—1. A convertible vehicle provided with movable side sections, composed of a rigid curved window-sash, substantially as described, and a flexible panel, which consists of a number of wood-veneer plates connected together by a number of horizontal slats so arranged as to leave air-spaces between said slats on the inside of said plates.

2. A flexible panel for movable side sections in convertible vehicles, consisting of wood-veneer plates, slats or laths between the veneer plates and connected preferably by means of rivets, producing an air-space between the two plates forming the inner and outer walls of the flexible panel.

3. A flexible panel for movable side sections in convertible passenger-cars, consisting of two or more water and weather proof wood-veneer plates and a number of horizontal slats or laths, suitably connected and a window-sill secured thereto.

4. A flexible panel movable in grooves provided in the side posts of convertible vehicles and composed of a number of wood-veneer plates each of which consists of two or more layers of wood veneer, the alternate layers being laid with the grain reversed, and all the layers secured together by a waterproof gluing composition; and a window-sill, composed of two portions, suitably held together and to the panel, and provided with a recess upon which the bottom rail of the window-sash rests when the window is closed.



5. A flexible panel for movable side sections in convertible passenger-cars consisting of an outer and an inner water and weather proof wood-veneer plate, separate by one or more air-spaces formed by a number of horizontal slats or laths, holding these plates together by means of bolts or otherwise.

6. A convertible vehicle provided with a number of side posts, suitably grooved longitudinally to receive sliding side sections, each sliding side section being composed of a flexible panel consisting of a window-sill and an outer and an inner wall formed of water and weather proof wood-veneer plates made of two or more layers of wood veneer, the grain of alternate layers being reversed, united by a waterproof gluing composition under heat and pressure; said inner and outer walls being suitably connected so as to leave one or more air-spaces between the wood-veneer plates; and a large curved window provided with a rigid curved window-sash, the upright stiles of which are curved, this curvature corresponding with that of the side-post groove in which the sash is raised or lowered.

7. A convertible car provided with a number of movable side sections, adapted to be raised and lowered in grooves of the side posts separating the successive side sections, each side section consisting of a window curved to conform to the groove in the side post in which it slides when raised or lowered and a flexible panel consisting of a number of water and weather proof wood-veneer plates, a number of horizontal slats or laths preferably of metal or wood or other material, suitably connected, whereby one or more air-spaces are formed between the wood-veneer plates, and a window-sill secured to the top of the panel, the said panel being adapted to slide in the side-post grooves and owing to its flexibility accommodating itself to the variations of the side-post-panel grooves.

8. In a convertible car, a number of side sections, movable in grooves of the side posts separating the successive side sections and substantially filling the space between the roof and floor of the vehicle on both sides, when closed and retreating into the roof, when open; each side section being composed of a curved window in a rigid curved window-sash, substantially as described, and a flexible panel consisting of a number of water and weather proof wood-veneer plates connected by a number of horizontal slats or laths so arranged as to leave air-spaces between said wood-veneer plates; and a window-sill securely connected to the upper part of said plates, the window when closed, resting against the said window-sill.

750,897. STROPPING-MACHINE. AUGUST W. SCHEUBER, Hoboken, N. J. Filed Feb. 21, 1903. Serial No. 144,277. (No model.)



Claim.—1. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction device concentric therewith, and means connecting said blade-holder and friction device whereby a movement of the friction device in one direction causes a movement of the blade-holder in an opposite direction, substantially as described.

2. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction-roller concentric therewith, and means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction causes a rotation of the blade-holder in an opposite direction, substantially as described.

3. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction device concentric therewith, means connecting said blade-holder and friction device whereby a movement of the friction device in one direction causes a movement of the blade-holder in an opposite direction, and automatic means for moving the blade out of contact with the strop, substantially as described.

4. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction-roller concentric therewith, means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction causes a rotation of the blade-holder in an opposite direction and automatic means for moving the blade out of contact with the strop, substantially as described.

5. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction device concentric therewith, means connecting said blade-holder and friction device whereby a movement of the friction device in one direction causes a movement of the blade-holder in an opposite direction, and spring-actuated means for returning the blade-holder to a normal position, substantially as described.

6. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a movable blade-holder on said spindle, a friction-roller concentric therewith, means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction causes the rotation of the blade-holder in an opposite direction, and spring-actuated means for returning the blade-holder to a normal position, substantially as described.

7. In a stropping-machine, a spindle, a friction-roller and blade-holder thereon, and gear-wheels connecting said friction-roller and blade-holder, substantially as described.

8. In a stropping-machine, a spindle, a friction-roller and blade-holder thereon, and beveled gear-wheels connecting said friction-roller and blade-holder.

9. In a stropping-machine, a spindle, a friction-roller and blade-holder thereon, gear-wheels connecting said friction-roller and blade-holder, and automatic means for returning the blade-holder to a normal position, substantially as described.

10. In a stropping-machine, a spindle, a friction-roller, and blade-holder thereon, a beveled gear connecting said friction-roller and blade-holder, and automatic means for returning the blade-holder to a normal position, substantially as described.

11. In a stropping-machine, a spindle, a friction-roller, and blade-holder thereon, a beveled gear connecting said friction-roller and blade-holder, and spring-actuated means for returning the blade-holder to a normal position, substantially as described.

12. In a stropping-machine, a guard-plate, a detachable handle, a spindle, a friction-roller and blade-holder on said spindle, a beveled gear connecting said friction-roller and blade-holder, a pinion operatively connected to the friction-roller, a movable rack engaging said pinion, and a spring contacting with said rack, substantially as described.

13. In a stropping-machine, a spindle, a suitable support therefor, a friction-roller and a blade-holder on said spindle, a beveled gear connecting said friction-roller and blade-holder, a pinion operatively connected to the friction-roller, a movable rack engaging said pinion, and a spring contacting with said rack, substantially as described.

14. In a stropping-machine, a spindle, a friction device on said spindle, a blade-holder concentric with said friction device, and a beveled gear connecting said friction device and said blade-holder, substantially as described.

15. In a stropping-machine, a spindle, a friction device on said spindle, a blade-holder concentric with said friction device, a beveled gear connecting said friction device and blade-holder, and automatic means for returning the blade-holder to a normal position, substantially as described.

16. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a friction-roller and blade-holder thereon, a beveled gear connecting said friction-roller and blade-holder, and automatic means for returning the blade-holder to a normal position, substantially as described.

17. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a friction-roller and blade-holder thereon, a beveled gear connecting said friction-roller and blade-holder, and spring-actuated means for returning the blade-holder to a normal position, substantially as described.

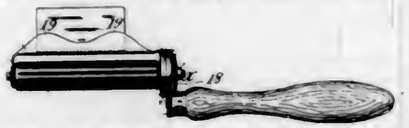
18. In a stropping-machine, a guard-plate, a spindle rigidly secured thereto, a friction-roller and blade-holder on said spindle, a beveled gear connecting said friction-roller and blade-holder, a pinion on said blade-holder, a movable rack engaging said pinion, and a spring contacting with said rack, substantially as described.

19. In a stropping-machine, a guard-plate, a detachable handle, a spindle rigidly secured to said guard-plate, a friction-roller and blade-holder on said spindle, a beveled gear connecting said friction-roller and blade-holder, a pinion on said blade-holder, a movable rack engaging said pinion, and a spring contacting with said rack, substantially as described.

20. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller whereby a movement of the friction-roller in one direction causes a movement of the blade-holder in an opposite direction, and a coiled spring, the ends of which are in operative contact with the blade-holder for moving the blade out of contact with the strop, substantially as described.

21. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller, whereby a movement of the friction-roller in one direction causes a movement of the blade-holder in an opposite direction, and a coiled spring on said spindle, the ends of which are adapted to contact with a portion of the blade-holder for moving the blade out of contact with the strop, sustantially as described.

750,398. STROPPING-MACHINE. AUGUST W. SCHRUBER, Hoboken, N. J. Filed Apr. 27, 1903. Serial No. 154,553. (No model.)



Claim.—1. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, and gear-wheels connecting said blade-holder and friction-roller, said gear-wheels being in the same plane and arranged so that a rotation of the friction-roller in one direction brings about a rotation of the blade-holder in an opposite direction, substantially as described.

2. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller, and means for moving the blade-holder out of contact with the strop, said gear-wheels being in the same plane, and arranged so that a rotation of the friction-roller in one direction causes a rotation of the blade-holder in an opposite direction, substantially as described.

3. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction brings about an opposite rotation of the blade-holder, the movement of the friction-roller and blade-holder being substantially as two is to one, substantially as described.

4. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction brings about a rotation of the blade-holder in an opposite direction, the movement of the friction-roller being relatively greater than the movement of the blade-holder, substantially as described.

5. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction brings about an opposite rotation of the blade-holder, the movement of the friction-roller being relatively greater than the movement of the blade-holder, and means for moving the blade out of contact with the strop, substantially as described.

6. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller, whereby a rotation of the friction-roller in one direction brings about an opposite rotation of the blade-holder, and means for moving the blade out of contact with the strop, the movement of the friction-roller and blade-holder being substantially as two is to one, substantially as described.

7. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction causes a rotation of the blade-holder in an opposite direction, said gear-wheels being in the same plane and arranged so that the movement of the friction-roller and blade-holder is substantially in the proportion of two to one, substantially as described.

8. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller whereby a rotation of the friction-roller in one direction causes a rotation of the blade-holder in an opposite direction and means for moving the blade out of contact with the strop, said gear-wheels being in the same plane and arranged so that the movement of the friction-roller and blade-holder is substantially in the proportion of two to one, substantially as described.

9. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller whereby a movement of the friction-roller in one direction causes a movement of the blade-holder in an opposite direction, and a coiled spring, the ends of which are in operative contact with the blade-holder, for moving the blade out of contact with the strop, substantially as described.

10. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller, and a coiled spring on said spindle, the ends of which are adapted to contact with a portion of the blade-holder for moving the blade out of contact with the strop, substantially as described.

11. In a stropping-machine, a spindle, a blade-holder and friction-roller thereon, gear-wheels operating in the same plane and connecting said blade-holder and friction-roller, and a spring so arranged that its ends are in operative contact with the blade-holder for moving the blade out of contact with the strop, substantially as described.

12. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, gear-wheels connecting said blade-holder and friction-roller, and a spring on said spindle having its ends adapted to contact with a portion of the blade-holder, for moving the blade out of contact with the strop, said gear-wheels being in the same plane and arranged so that the movement of the friction-roller is relatively greater than the movement of the blade-holder, substantially as described.

13. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, an internal gear secured to said blade-holder, a pinion or gear secured to said friction-roller, and idler-gears, connecting the said pinion and internal gear, substantially as described.

14. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, an internal gear secured to said blade-holder, a pinion or gear secured to said friction-roller, idler-gears connecting said pinion and internal gear, and means for moving the blade out of contact with the strop, substantially as described.

15. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, an internal gear secured to said blade-holder, a pinion or gear secured to said friction-roller, idler-gears connecting said pinion and internal gear, and a spring also on said spindle, having its ends adapted to contact with a portion of the blade-holder for moving the blade out of contact with the strop, substantially as described.

16. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a blade-holder and friction-roller on said spindle, gear-wheels operating in the same plane and connecting said blade-holder and friction-roller, and a spring also on said spindle, having its ends adapted to contact with a portion of the blade-holder, for moving the blade out of contact with the strop, substantially as described.

17. In a stropping-machine, a suitable frame or support, a spindle rigidly secured thereto, a blade-holder and friction-roller on said spindle, gear-wheels operating in the same plane, and connecting said blade-holder and friction-roller, a spring also on said spindle, having

its ends adapted to contact with a portion of the blade-holder, for moving the blade out of contact with the strop, and a guard-plate protecting said spring, substantially as described.

18. In a stropping-machine, a suitable frame or support, a spindle mounted thereon, a blade-holder and friction-roller on said spindle, means connecting said blade-holder and friction-roller for imparting reciprocal motion thereto, and a handle located in a plane below the lower surface of the friction-roller, substantially as described.

19. In a stropping-machine, a suitable frame or support, a blade-holder and friction device mounted thereon and means connecting said blade-holder and friction device whereby the effect of a given pressure upon the friction device is increased in its action of forcing the blade upon the stropping-surface, substantially as described.

20. In a stropping-surface, a suitable frame or support, a spindle, blade-holder and friction-roller mounted thereon, means connecting said blade-holder and friction-roller whereby the effect of a given pressure upon the friction-roller is increased in its action of forcing the blade upon the stropping-surface, substantially as described.

21. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, and means connecting said blade-holder and friction-roller whereby the effect of a given pressure upon the friction-roller is increased in its action of forcing the blade upon the stropping-surface, substantially as described.

22. In a stropping-surface, a spindle, a blade-holder and friction-roller on said spindle, and a differential gearing connecting said blade-holder and friction-roller, whereby the effect of a given pressure upon the friction-roller is increased in its action of forcing the blade upon the stropping-surface, substantially as described.

23. In a stropping-machine, a spindle, a blade-holder and friction-roller on said spindle, a differential gearing connecting said blade-holder and friction-roller, whereby the effect of a given pressure upon the friction-roller is increased in its action of forcing the blade upon the stropping-surface, and spring-actuated means for moving the blade out of contact with the strop, substantially as described.

24. A blade-holder having a plurality of opposing gripping-surfaces, substantially as described.

25. A blade-holder having two pairs of gripping-surfaces for holding the blade, substantially as described.

750,399. RAZOR-SHARPENING MACHINE. AUGUST W. SCHRUBER, Hoboken, N. J. Filed Sept. 4, 1903. Serial No. 171,955. (No model.)



Claim.—1. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a movable handle and a yielding connection between said handle and support, whereby the free movement of the handle is prevented, substantially as described.

2. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle and a revolving handle on said spindle, and a drag or braking device adapted to prevent the free movement of the handle, substantially as described.

3. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle and a revolving handle on said spindle, and a spring-actuated drag or braking device adapted to prevent the free movement of the handle, substantially as described.

4. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device on said spindle, a movable handle and a yielding connection between said handle and support, whereby the free movement of the handle is prevented, substantially as described.

5. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device on said spindle, a movable handle, and a drag or braking device adapted to prevent the free movement of the handle, substantially as described.

6. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device on said spindle, a movable handle, and a spring-actuated drag or braking device adapted to prevent the free movement of the handle, substantially as described.

7. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device upon said spindle, a second spindle, a revolving handle on said last-mentioned spindle, and a drag or braking device adapted to prevent the free movement of the handle, substantially as described.

8. In a razor-sharpening machine, a suitable support, a spindle and a blade-holder and friction device upon said spindle, a second spindle, a revolving handle on said last-mentioned spindle, and a spring-actuated drag or braking device adapted to prevent the free movement of the handle, substantially as described.

9. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a movable handle located in a plane below the stropping-surface, and a yielding connection between said handle and support whereby a free movement of the handle is prevented, substantially as described.

10. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle and a revolving handle on said spindle, said handle located in a plane below the stropping-surface, and a drag or braking device adapted to prevent the free movement of the handle, substantially as described.

11. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle and a revolving handle on said spindle, said handle located in a plane below the stropping-surface, and a spring-actuated drag or braking device adapted to prevent the free movement of the handle, substantially as described.

12. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device on said spindle, a movable handle located in a plane below the stropping-surface, and a drag or braking device adapted to prevent the free movement of the handle, substantially as described.

13. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device on said spindle, a movable handle located in a plane below the stropping-surface, and a spring-actuated drag or braking device adapted to prevent the free movement of the handle, substantially as described.

14. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted thereon, and a movable handle detachably connected to said support, substantially as described.

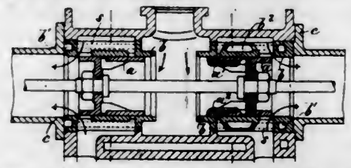
15. In a razor-sharpening machine, a suitable support, a spindle, a blade-holder and friction device mounted thereon and a movable handle detachably connected to said support in a plane below the stropping-surface, substantially as described.

16. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle detachably secured to said support, a movable handle on said spindle, and a drag or braking device operatively connected to said handle for preventing the free movement thereof, substantially as described.

17. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle detachably connected to said support, a movable handle on said spindle, a drag or braking device in operative contact with said handle for preventing the free movement thereof, and means for temporarily locking said handle and spindle for inserting or removing the spindle from the support, substantially as described.

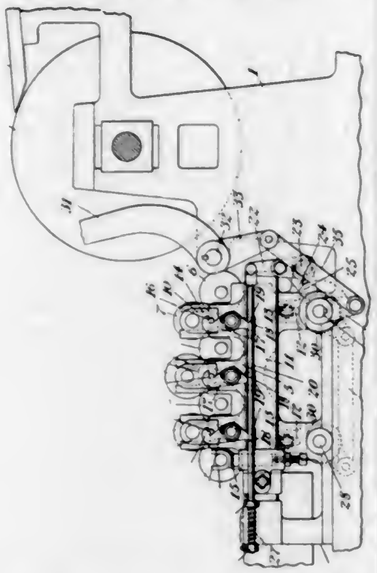
18. In a razor-sharpening machine, a suitable support, a blade-holder and friction device mounted upon said support, a spindle detachably connected to said support, a disk rigidly connected with said spindle and provided with lugs or projections, a spring-drag on said spindle between said disk and said handle, and recesses in said handle adapted to interlock with said lugs for turning the spindle, substantially as described.

750,400. PISTON-VALVE FOR STEAM-ENGINES. WILHELM SCHMIDT, Wilhelmshöhe, near Cassel, Germany. Filed Sept. 27, 1901. Serial No. 76,770. (No model.)


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2. In piston-valves for steam-engines, the combination of the valve-piston, an annular channel provided in said piston, and channels connecting this annular channel with that side of the piston situated toward the exhaust-pipe, of a removable bushing forming the valve-seat, annular channels provided in said bushing, and channels connecting these annular channels to the admission-chamber thereby heating the bushings by the admission-steam and the piston by the exhaust-steam, substantially as described and for the purpose set forth.

750,401. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Filed May 5, 1903. Serial No. 155,757. (No model.)



Claim.—1. In a printing-machine, the combination with a plurality of rollers, of means for moving said rollers into and out of working position with relation to the plate on the bed, and means for automatically locking the rollers when in their working position.

2. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers, of means for moving said rollers into and out of working position with relation to the plate on the bed, and means for automatically locking the rollers when in their working position.

3. In a printing-machine, the combination with a plurality of rollers, of means for normally keeping said rollers locked in their working position with relation to the plate on the bed, and means which, when uninterruptedly operated, unlocks said rollers and moves them away from the said bed.

4. In a printing-machine, the combination with two sets of rollers, one set superposed above the other, of means for normally keeping said rollers locked in their working position with relation to the plate on the bed, and means which, when uninterruptedly operated, unlocks said rollers and moves them away from the said bed.

5. In a printing-machine, the combination with a plurality of rollers, of means for lifting and lowering said rollers into and out of working position with relation to the plate on the bed, means for locking and unlocking the said rollers when in their working position, and a common operating device for locking and unlocking and for lifting and lowering the rollers.

6. The combination with a plurality of form-rollers and a plurality of rider-rollers, of means for lifting and lowering said rollers into and out of working position with relation to the plate on the bed, means for locking and unlocking the said rollers when in their working position, and a common operating device for locking and unlocking and for lifting and lowering the rollers.

7. In a printing-machine, the combination with a plurality of rollers mounted in sliding boxes, of pins on said boxes, hooks arranged to normally keep the rollers locked by engaging with the pins, and means for disengaging said hooks from the pins.

8. In a printing-machine, the combination with a plurality of form-rollers and a plurality of rider-rollers mounted in sliding boxes, of pins on said boxes, hooks arranged to normally keep the rider-rollers locked against the form-rollers by engaging with the pins, and means for disengaging said hooks from the pins.

9. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers mounted in sliding boxes, of means for raising and lowering said rollers, pins carried by the boxes of the rider-rollers, hooks engaging said pins when the rollers are in their working position, and an operating-lever and connections for causing the hooks to disengage the pins and the rollers to be raised when moved in one direction, and for causing the rollers to be lowered and the hooks to engage the pins when moved in the other direction.

10. In a printing-machine, the combination with a plurality of form-rollers, and a plurality of rider-rollers mounted in sliding boxes, of means for raising and lowering said rollers, pins carried by the boxes of the rider-rollers, hooks engaging said pins when the rollers are in their working position, a horizontally-disposed rod having apertures, projections on the hooks entering said apertures, a spring normally causing the rod to maintain the hooks hooked over the pins, and an operating-lever and connections, for moving the rod so as to cause the hooks to disengage the pins and the rollers to be raised, when moved in one direction, and for causing the parts to assume their normal position, when moved in the other direction.

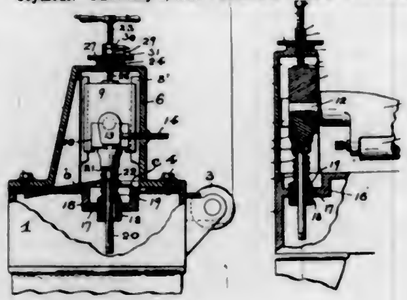
750,402. TRUCK-LADDER. THOMAS U. SECHLER, Fort Scott, Kans. Filed July 8, 1903. Serial No. 164,706. (No model.)



Claim.—1. In a truck-ladder, the combination, with a truck having two side frames united by cross-bars, and road-wheels journaled at the middle parts of the said frames; of a cross-piece pivoted at one end of the said frames and provided with guide-bars at its middle part arranged parallel with the said frames, a guide-block slidable in the said guide-bars, a cross-piece pivoted to the said guide-block, means for clamping the two said cross-pieces together, and a ladder having its middle part secured to the last said cross-piece.

2. In a truck-ladder, the combination with a two-wheeled truck, of a cross-piece pivoted at one end of the truck and provided with longitudinal guide-bars at its middle part, a guide-block slidable in the said guide-bars, a cross-piece provided with a screw-threaded pivot which projects through the said guide-block, a hand-wheel screwed on the end portion of the said pivot and clamping the two said cross-pieces together, and a ladder having its middle part secured to the last said cross-piece.

750,403. LEATHER-SPLITTING MACHINE. JAMES M. SEYMOUR and ADELBERT M. HARRIS, Newark, N. J.; said Harris assignor to said Seymour. Filed May 3, 1902. Serial No. 105,856. (No model.)



Claim.—1. In a leather-splitting machine, the combination, with the bed and a housing, of a cross-head in said housing for supporting the end of the beam and adjusting roll of the machine, a tubular and screw-threaded nut removably arranged in a screw-threaded opening in said bed, a guide-rod extending through the tubular portion of said nut and having its upper end connected with said cross-head, and a spring arranged between the said nut and cross-head, said spring encircling the said guide-rod, and being removable from said rod and the housing when said nut is unscrewed, substantially as and for the purpose set forth.

2. In a leather-splitting machine, the combination, with the bed and a housing, of a pocket-shaped enlargement on said bed provided with a screw-threaded hole, a cross-head in said housing for supporting the end of the beam and adjusting-roll of the machine, a tubular and screw-threaded nut removably arranged in the screw-threaded hole of said pocket-shaped enlargement, a guide-rod extending through the tubular portion of said nut and having its upper end connected with said cross-head, and a spring arranged between the said nut and cross-head, said spring encircling the said guide-rod, and being removable from said rod and the housing when the said nut is unscrewed, substantially as and for the purpose set forth.

3. In a leather-splitting machine, the combination, with the bed and a housing, of a cross-head in said housing for supporting the end of the beam and adjusting-roll, an adjusting-screw movably arranged in a portion of said housing and having a portion in engagement with said cross-head, an index-dial on said housing, a stop on said dial, and a pair of index-hands on said screw, said hands being capable of independent movement on said screw, and independent of each other, and capable of moving with said screw, and one of said index-hands being adapted of being brought in engagement with said stop on the dial, substantially as and for the purpose set forth.

4. In a leather-splitting machine, the combination, with a movable cross-head, of an adjusting-screw having a portion in engagement with said cross-head, an index-dial on said housing, and a pair of index-hands on said screw, said hands being capable of independent movement on said screw, and independent of each other, and capable of moving with said screw, substantially as and for the purpose set forth.

5. In a leather-splitting machine, the combination, with frame and housings of the machine, of a beam and its adjusting-roll, means for adjustably supporting the ends of said beam in said housings, an adjusting-screw in each housing, an index-dial through which each screw projects, a stop on each dial, and an index-hand on each screw adapted to be brought in engagement with such stop, substantially as and for the purpose set forth.

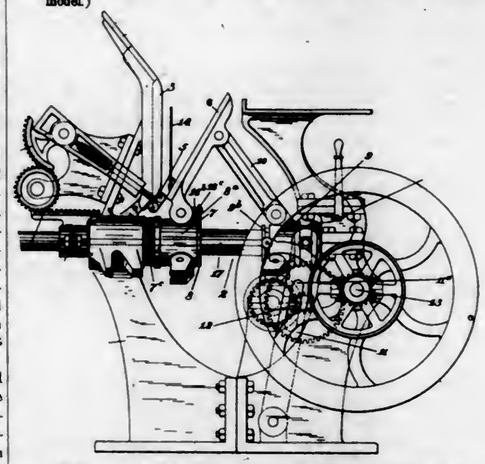
6. In a leather-splitting machine, the combination, with the frame and housings of the machine, of a beam and its adjusting-roll, means for adjustably supporting the ends of said beam in said housings, comprising, a cross-head in each housing, a tubular and screw-threaded nut arranged in openings in each frame, a guide-rod extending through the tubular portion of each nut and having its upper end connected with said cross-head, and a spring encircling each guide-rod, said spring being removable from the rod and housing when the nut is unscrewed, a cutter or splitting-knife, and means for bringing the central vertical axis of said roll in direct vertical alinement with the cutting edge of said cutter or knife, consisting of a projection 13 on said beam, and a screw 14 arranged in the said housing, said screw having its end in movable engagement with said projection 13, substantially as and for the purpose set forth.

750,404. FASTENING DEVICE FOR DRIVING-BELTS. ALFRED H. B. SHARPE, Lincoln, England, assignor of one-third to John Henry Foster, Lincoln, England. Filed July 3, 1903. Serial No. 164,123. (No model.)



Claim.—The herein-described means for securing the ends of a belt together, consisting of two swinging hook devices both of which are permanently pivoted at one end to one end of the belt and provided at their opposite ends with oppositely-directed hooks and a pin secured in the other end of the belt and with which said hooks are adapted to engage, substantially as shown and described.

750,405. MULTICOLOR-PRINTING PRESS. CLARENCE M. SHIGLEY, Columbus, Ohio. Filed Sept. 24, 1903. Serial No. 174,479. (No model.)



Claim.—1. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders having their faces radially arranged in a plane and about an axis, inking-rollers, and means for reciprocating them across the faces of the type-beds, and a radiating platen or platens adapted to be revolved with respect to said axis and moved thereon up to said type-beds.

2. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders having their faces radially arranged in a plane about a stationary shaft, the said shaft, a platen or platens, a hub to which said platen is hinged having a limited longitudinal play on its bearing, a spring for holding said hub away from the beds, and means for moving the platen or platens with the hub toward the type-beds.

3. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders having their faces radially arranged in a plane about a stationary shaft, the said shaft, inking-rollers, and means for reciprocating them across the faces of the type-beds, a platen or platens, a hub to which said platens are attached and means for rotating said hub to bring the platen successively into printing position opposite each of the type-beds.

4. In a multicolor-printing press, the combination of a plurality of radially-arranged type beds or holders, inking-rollers, and means for reciprocating them across the faces of the type-beds, and a radiating platen, and mechanism for locating said platen successively in printing position with respect to each of said type-beds.

5. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders having their faces arranged in a plane about a stationary shaft, the said shaft, a hub bearing a platen or platens rotatable about said shaft, connected grooves 2^a, 2^b and 2^c in said shaft, collar 7 and guiding-dog 7^a thereon engaging said grooves, means connecting said collar and platen, and means for reciprocating said collar on said shaft, substantially as described.

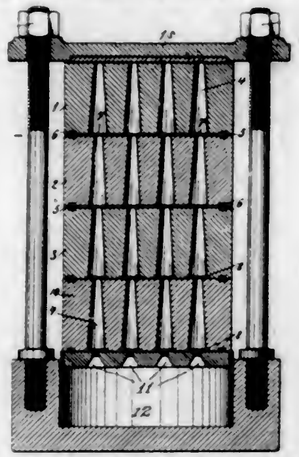
6. In a multicolor-printing press, the combination of a plurality of stationary type holders or beds having their faces arranged in a plane about a stationary shaft, the said shaft, a hub bearing a platen or platens rotatable about said shaft, connected grooves 2^a, 2^b, and 2^c in said shaft, collar 7 and guiding-dog 7^a thereon engaging said grooves, means connecting said collar and platen or platens, inking mechanism, rods 17 connected with said collar 7 and inking mechanism, and means for reciprocating said collar on said shaft, substantially as described.

7. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders having their faces arranged in a plane about a stationary shaft, the said shaft, a hub bearing a platen or platens rotatable about said shaft, fenders for said platens, means for normally holding said fenders against said platens, means for intermittently rotating said hub to bring the platens successively into printing position opposite the type-beds, and means for automatically separating the fenders from said platens, substantially as described.

8. In a multicolor-printing press, the combination of a plurality of stationary type beds or holders arranged in a plane about a shaft, the said shaft, a hub supporting a platen revoluble to be brought

successively into printing position with respect to said type-beds, a bearing for said hub stationary on said shaft, a reciprocating collar on said shaft, means connecting the collar and platen, and inking mechanism, and a rod 17 connecting said collar and inking mechanism passing through the bearing of the hub and inside the path of its rotation.

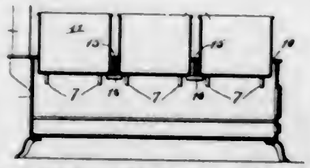
750,406. **MOLD-PRESS FOR MAKING CIGARETTE OR CIGAR HOLDERS OR THE LIKE.** ERNST SIMON, Vienna, Austria-Hungary. Filed Feb. 3, 1903. Serial No. 141,693. (No model.)



Claim.—1. In a mold-press of the character described, a series of solid blocks, each provided with one or more hollows or chambers extending from end to end through the block, said blocks superposed with their respective hollows or chambers in alinement and separated from each other in a plane at right angles to the axis of the mold-chambers, combined with means for forcing material to be molded into and through the mold-chambers in a direction parallel to the axis of said chambers.

2. In a mold-press of the character described, a series of superposed solid blocks, each provided with one or more mold-chambers extending from end to end through the block, said blocks separated from each other in a plane at right angles to the axes of the mold-chambers of the blocks, a perforated plate or disk arranged between contiguous faces of adjacent blocks, all arranged so that the axes of the mold-chambers of the series of blocks register with each other and with the perforations of the plates or disks, combined with means for forcing material to be molded through the mold-chambers in the blocks and through the perforated disks or plates separating the blocks in a direction corresponding to the axes of said chambers.

750,407. **CANNING DEVICE FOR FRUITS OR VEGETABLES.** FRANK G. SLEMMER, Goldsboro, Md. Filed Sept. 17, 1903. Serial No. 173,596. (No model.)

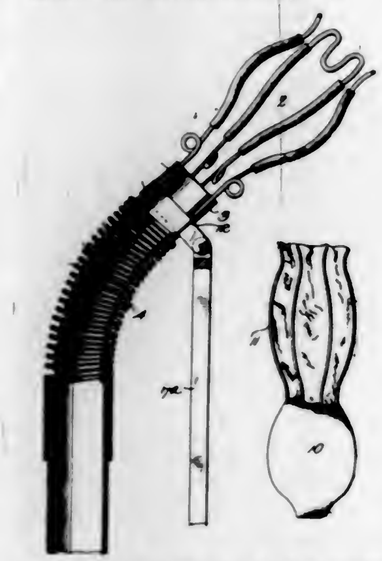


Claim.—1. In a device of the class described, a tank-like heater-body having an inwardly-extending flange extending entirely around the upper edge thereof and provided with cross-bars connecting opposite sides of the flange, supporting-brackets disposed interiorly upon the sides of said body and protruding beyond the inner edge of the top flange, and tanks fitting closely in the openings or compartments thus formed.

2. In a device of the class described, a tank-like heater-body having an inwardly-extending flange extending entirely around the upper edge thereof and provided with cross-bars connecting opposite sides of the flange, supporting-brackets disposed interiorly upon the sides of said body and protruding beyond the inner edge of the top flange, inverted-T-shaped lugs depending from the cross-bars and forming additional supports, and tanks fitting closely in the openings or compartments thus formed.

3. In a device of the class described, a tank-like heater-body having a circumferential, inwardly-extending flange, cross-bars provided with depending inverted-T-shaped lugs, the side walls of said tank being provided on their inner sides with downwardly and outwardly extending recesses, in combination with supporting-brackets having hooks engaging said recesses whereby said brackets are supported detachably in the same horizontal plane as the cross-bars of the inverted-T-shaped lugs, and tanks tightly fitting in the openings in the top of the heater and supported by said brackets and inverted-T-shaped lugs.

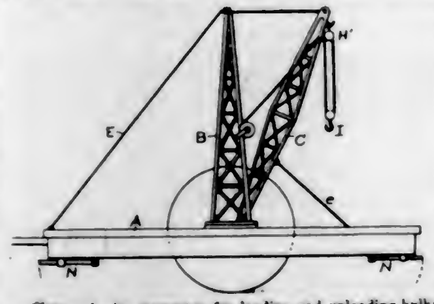
750,408. **TOOL FOR REMOVING OR REPLACING INCANDESCENT-ELECTRIC-LIGHT BULBS.** ALLEN T. SPEELMAN, Crestline, Ohio. Filed July 1, 1903. Serial No. 163,934. (No model.)



Claim.—1. A device of the class described comprising a staff, a jaw carried by the staff and having yielding fingers and a supplemental jaw to engage said yielding fingers, and having cloth-engaging yielding fingers spaced apart approximately the distance equal to the diameter of the incandescent-light bulb.

2. A device of the class described, comprising a staff, a jaw carried by the staff, and a removable supplemental jaw engaging the first-named jaw, and having yielding fingers.

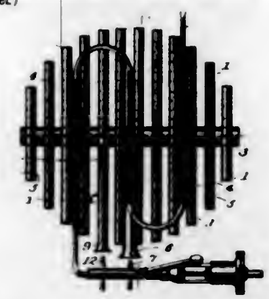
750,409. **LIFTING MECHANISM.** THOMAS L. F. STACK, Drumquin, Ireland. Filed June 17, 1901. Serial No. 64,845. (No model.)



Claim.—1. An apparatus for loading and unloading bulky or heavy articles, comprising a cart or wagon on which is fixed a mast, a jib with guy-rope at one side of said mast, and at the other side two or more guy-ropes so connecting the cart with the top of the mast as to steady the latter, and resist the weight of the load carried by the jib, in combination with front and rear legs hinged to the cart at opposite sides of its axle so that it can when required be made rigid on the ground, and thus support the weight of the crane without having to hold the shafts or having the weight coming on a horse in the shafts, substantially as described.

2. In apparatus of the kind mentioned, the combination with the jib of a loose guy-rope *c* secured at one end to the cart and at its other end secured to the lower portion of the jib to confine the jib to a limited range of motion, substantially as described.

750,410. **VAPOR-BURNER.** FRANCIS E. STANLEY and FREELAN O. STANLEY, Newton, Mass. Filed July 24, 1901. Serial No. 69,567. (No model.)



Claim.—1. A burner having a series of parallel perforated pipes communicating with a transverse mixing-tube, a section of one of said perforated pipes closed at the inner end and open at the outer end to constitute the mixing-tube of a pilot-burner, and vapor-nozzles one opposite and arranged to supply vapor to each mixing-tube, substantially as set forth.

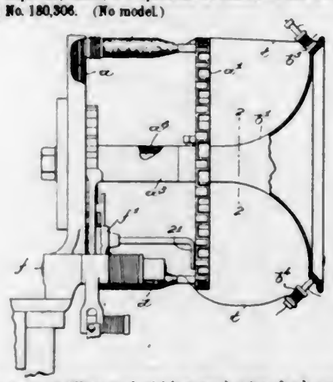
2. The combination in a burner, of a series of parallel perforated separated tubes 1, a mixing-tube communicating therewith, a partition in one of the tubes 1 and a nozzle for supplying vapor to the end of the said tube having the partition, and a conducting-pipe communicating with the nozzle and extending adjacent to the last-named tube, substantially as set forth.

3. The combination in a burner, of a series of parallel perforated separated pipes 1, a mixing-tube communicating therewith, a partition in one of the tubes 1, and a nozzle for supplying vapor to the end of the said tube having the partition, substantially as set forth.

4. The combination in a vapor-burner, of a series of perforated parallel but separated tubes, one of said tubes open at the end and provided with a partition, a nozzle arranged opposite the open end of said tube to constitute the latter a mixing-tube, and a mixing-tube for the main portion of the burner, substantially as set forth

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750,411. **FILLING-END-HOLDING MEANS FOR AUTOMATIC LOOMS.** MELVIN L. STONE, Lowell, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 9, 1903 Serial No. 180,306. (No model.)



Claim.—1. In filling-replenishing mechanism for looms, a movable feeder to contain a supply of filling, and a gravity-controlled filling-end holder movable with and also relatively to the feeder, movement of the latter to bring the supply of filling into transferring position causing relative movement of the holder to slacken the filling end.

2. In filling-replenishing mechanism for looms, a movable feeder to contain a series of filling-carriers, and a corresponding series of gravity-controlled filling-end holders movable with and also relatively to the feeder, movement of the latter to position a filling-carrier for transfer causing relative movement of its corresponding holder to slacken the filling end.

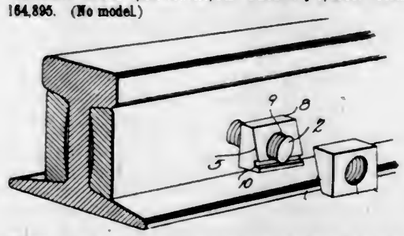
3. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, and a corresponding series of gravity-controlled filling-end holders supported at the outer end of and also movable relatively to the feeder, movement of the latter to position a filling-carrier for transfer causing movement of its co-operating holder to slacken the filling end.

4. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, a series of gravity-controlled filling-end holders sustained at the outer end of the hopper opposite the filling-carriers, and means operative automatically upon movement of a filling-carrier into transferring position to cause its coöperating holder to move toward and thereby slacken the filling end of such filling-carrier.

5. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, a disk at the outer end of and rotatable with the feeder, a series of pins carried on the periphery of said disk and inclined toward the feeder, and filling-end holders slidably mounted on said pins, movement of the feeder to position a filling-carrier for transfer causing its coöperating holder to slide downward on its pin and toward the feeder, to thereby slacken the filling end.

6. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, a series of pins located in radial planes and inclined toward the feeder, means to support said pins on and beyond the outer end of the feeder, and gravity-controlled filling-end holders slidably mounted on the pins.

750,412. **NUT-LOCK.** HIRAM C. STOUFFER, Mineralridge, Ohio, assignor of five-sixths to Alexander T. Hunt, Elmer O. Dilley, and Henry K. Dilley, Warren, Ohio, James C. Hunt, Leavittsburg, Ohio, and Clifford M. Hunt, Newcastle, Pa. Filed July 9, 1903. Serial No. 164,895. (No model.)



Claim.—1. In a nut-lock, a bolt, a washer and a nut having meeting faces at other than right angles to the axis of the bolt, and means for mutilating a portion of the threads of the bolt adjacent to the washer to thereby prevent the rotation of the latter.

2. In a nut-lock, a bolt, a nut and a washer having meeting faces at other than right angles to the axis of the bolt, said washer having a recess therein, and a key driven in said recess and engaging the threads of the bolt to prevent the rotation of the washer.

3. In a nut-lock, a bolt, a nut and a washer having meeting faces at other than right angles to the axes of the bolt and nut, a recess in the face of the washer adjacent to the face of the nut and coöperating therewith to form a drift and a key engaging the latter and the threads of the bolt adjacent thereto.

750,413. **SHOVEL.** GEORGE THOMPSON, Vincennes, Ind. Filed Oct. 24, 1903. Serial No. 178,303. (No model.)

Claim.—1. In an implement, the wooden bow-handle, provided with the short extension wooden shank B integral therewith, and the separate long wooden shank C, the ferrule D embracing the short shank B and the upper portion of the shank C, the ferrule having the extensions against the adjacent edges of the handle-piece A^5, and means for securing the long shank to the ferrule, and the extensions to the bow-handle, substantially as and for the purposes specified.

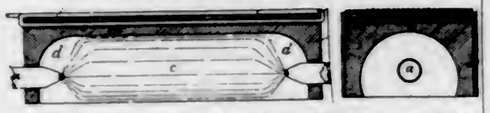
2. In an implement, the wooden bow-handle, provided with the short extension wooden shank B integral therewith, and the separate long wooden shank C, the ferrule D embracing the short shank

B and the upper portion of the shank C, the ferrule having the extensions against the adjacent edges of the handle-piece A^2, and means for securing the long shank to the ferrule end, the bolt F^3, connecting the extensions and the handle-piece A^2, substantially as and for the purposes specified.



3. In an implement, the wooden bow-handle, provided with the short extension wooden shank B integral therewith, and the separate long wooden shank C, the ferrule D embracing the short shank B and the upper portion of the shank C, the ferrule having the extensions against the adjacent edges of the handle-piece A^2, the rod F^3 connecting the extensions and the handle-piece, and the bolt C^3 connecting the ferrule and the long shank, substantially as and for the purposes specified.

750,414. DEVICE FOR PRODUCING ELECTRIC LIGHT. HERMANN VIERTEL, Charlottenburg, Germany, assignor to Gebrüder Siemens & Co., Charlottenburg, near Berlin, Germany. Filed June 1, 1903. Serial No. 159,715. (No model.)



Claim.—1. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material having an opening at its bottom, of electrodes projecting into said hollow body or chamber, the latter having a greater length than diameter, as and for the purpose set forth.

2. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material, having an opening at its bottom, of electrodes arranged horizontally or nearly horizontally and projecting into said hollow body or chamber, the latter having a greater length than diameter, as and for the purpose set forth.

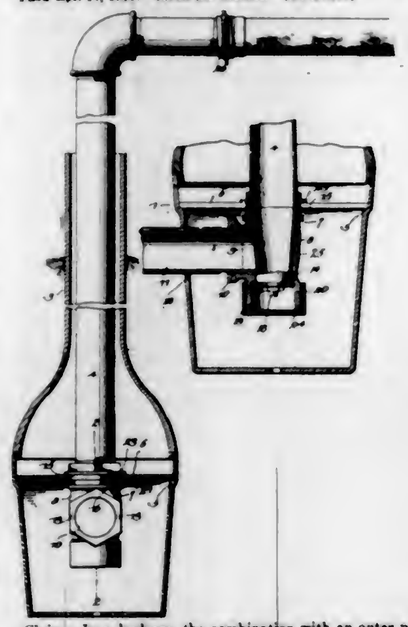
3. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material having an opening at its bottom, of electrodes containing substances which will produce at high temperatures highly-luminous vapors, and projecting into said hollow body or chamber, the latter having a greater length than diameter, as and for the purpose set forth.

4. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material having an opening at its bottom, of electrodes arranged horizontally or nearly horizontally containing substances which will produce at high temperatures highly-luminous vapors, and projecting into said hollow body or chamber, the latter having a greater length than diameter as and for the purpose set forth.

5. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material having an opening at its bottom, of electrodes projecting into said hollow body or chamber, the latter having a greater length than diameter, and of a magnetic field to act on the arc, as and for the purpose set forth.

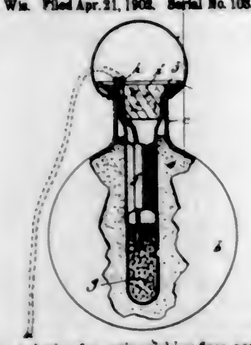
6. In a device for producing light by means of conducting light-emitting vapors kept incandescent by the passage of an electric current through them, the combination with a closed tubular horizontal hollow body or chamber of refractory material having an opening at its bottom, of electrodes projecting into said hollow body or chamber, the latter having a greater length than diameter, and of a magnetic field to act on the arc, consisting of a sheet-iron case covering the hollow body and provided with windings excited by the main current.

750,415. HYDRANT. WILLIAM VOLKHARDT, Stapleton, N. Y. Filed Apr. 17, 1903. Serial No. 153,140. (No model.)



Claim.—In a hydrant, the combination with an outer protecting-casing, of a platform sustained therein, a valve comprising an outer barrel and an inner rotatable hollow plug or key, a flange associated with the key for engagement with the platform to sustain the valve within the casing, a main or conduit extending into the casing and connected with the barrel, and a stand-pipe connected with the key, said pipe being operable for rotating the key to establish communication through the latter between the conduit and stand-pipe.

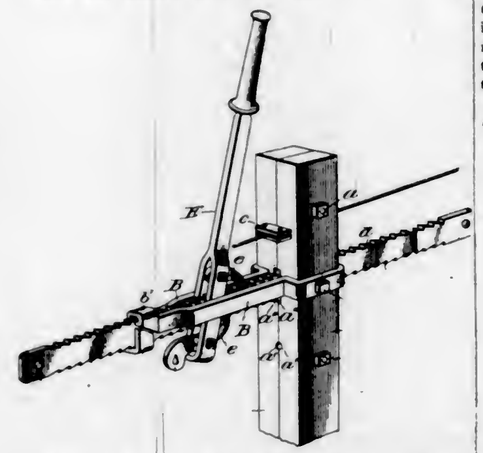
750,416. FIRE-EXTINGUISHING DEVICE. JOHN H. WALRATH, Milwaukee, Wis. Filed Apr. 21, 1902. Serial No. 103,890. (No model.)



Claim.—1. A device for extinguishing fires, comprising an outer vessel, having a contracted neck, flared outwardly at its upper end, and containing a dry fire-extinguishing powder, in combination with a close-bottomed tube, having its upper end correspondingly flared outwardly to fit snugly on the flared upper end of the vessel-neck, and partly filled with an explosive; a fuse leading from said explosive up through and out of said tube; an imperforate stopper of expansible material, closing said tube and wholly outside of said fuse, the latter being held between the stopper, and the inner wall of the said tube; sealing material uniting the vessel and tube firmly together, and excluding air therefrom; and a non-combustible loop or ring surrounding said vessel-neck, for suspension of the said vessel in an upright position.

2. A device for extinguishing fires, comprising an outer vessel of heavy paper or pasteboard, having a contracted neck, outwardly flared at its upper end, and containing a dry fire-extinguishing powder, in combination with a close-bottomed glass tube having a correspondingly-flared upper end, and partly filled with an explosive; a fuse leading from said explosive up through and out of said tube; an imperforate cork stopper closing said tube and pressing expansively against said fuse and the wall of the tube; a cement seal above the top of said tube, and securely uniting it to the vessel-neck; and a wire loop surrounding said vessel-neck, and projecting upward above the top thereof.

750,417. WIRE-STRETCHER. ISAAC M. WARNER, Union City, Mich., assignor to Joseph W. McCausey, Leo S. Parsons, Addison J. Boyer, and William Oden Hughart, Jr., Grand Rapids, Mich. Filed Oct. 3, 1903. Serial No. 175,561. (No model.)



Claim.—1. In a wire-stretcher, in combination, a rack-bar adapted to be anchored at one end, a laterally-separable wire-grip slidably embracing said rack-bar, and a lever fulcrumed in separable supports on said wire-grip and having pawls pivoted on opposite sides of its fulcrum, said pawls being adapted to alternately engage with the teeth of said rack-bar.

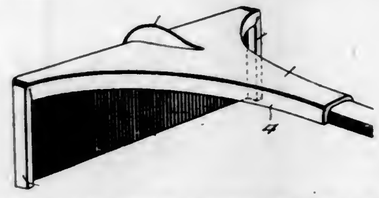
2. In a wire-stretcher, in combination, a horizontally-arranged bar, means for securing one end thereof to a stationary support, teeth on the opposite edges of said bar, a separable wire-grip slidably embracing said bar, a lever fulcrumed in supports on said wire-grip, pawls pivoted to said lever above and below said bar, the lower pawl being counterweighted to cause it to engage the lower rack-teeth, whereby oscillation of said lever will intermittently move said wire-grip relatively to said toothed bar.

3. In a wire-stretcher, in combination, a separable wire-grip, a rack-guide therein, a lever-support attached thereto, a second rack-guide on said lever-support, a lever fulcrumed on said lever-support, and connections between said lever and said rack for moving the wire-grip relatively to said rack.

4. In a wire-stretcher, in combination, a separable wire-grip, laterally-extending, separable lever-supports mounted on corresponding portions of said grip, alined rack-guides in said wire-grip and lever-support respectively, a rack-bar with two serrated edges adapted to pass through said guides, a double pawl-lever mounted on said lever-support and adapted to move said rack-bar relatively to said guides and wire-grip.

5. In a wire-stretcher, the combination of separable wire-grips, a rack-guide therein, lever-supports secured thereto, a rack-guide on said supports, pivot-lugs on said supports between said rack-guides, a bifurcated lever pivoted on said lugs, a rack-bar serrated on both of its edges and adapted to pass through said rack-guides and said bifurcated lever, and gravity-actuated pawls on said lever, adapted to move said rack-bar relatively to said wire-grips.

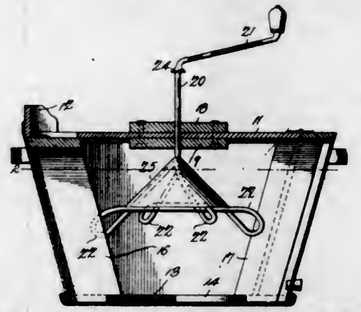
750,418. HOE. EMIL WEBER, Peoria, Ill., assignor of one-half to Emil F. Weber, Peoria, Ill. Filed May 28, 1903. Serial No. 159,152. (No model.)



Claim.—1. A hoe consisting of a single sheet of metal and comprising a blade, integral flanges at the sides thereof, a web integral with the upper edge of the hoe, flanges at the sides of the web, and a rib upon the web and blade and across the line of conjunction therebetween.

2. A hoe comprising a blade, integral flanges at the side edges thereof, a web integral with the upper edge of the hoe and extending laterally therefrom, flanges integral with the edges of the web, a rib upon the blade and web and extending over the line of conjunction therebetween, and a handle extending from the web and between the flanges thereof.

750,419. WASHING-MACHINE. ELMER V. ALLEN, Hiawatha, Kans. Filed June 18, 1903. Serial No. 162,126. (No model.)



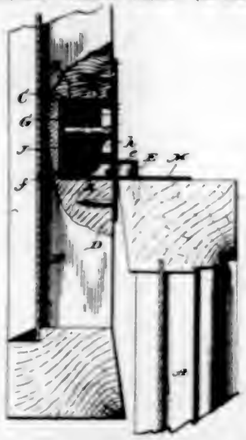
Claim.—1. In a washing-machine, an agitator comprising a rod extended at one end into a handle and with the other end provided with radiating laterally-extending wings formed by bending the rod into oppositely-disposed loops with the extremity of the rod returned and fastened to the body thereof between the loops and handle portion, substantially as specified.

2. In a washing-machine, an agitator comprising a rod extended at one end into a handle and with the other end provided with radiating wings formed by bending the rod into oppositely-disposed loops with the extremity of the rod returned and fastened to the body thereof between the loops and handle portion, and a conical hood partially inclosing said wing members, substantially as specified.

3. In a washing-machine, a receptacle for the clothes, a cover member removably connected to said receptacle, in combination with an agitator formed of a rod longitudinally movable through said cover member and extended into a handle exteriorly of the cover and with its opposite end provided with radiating wings formed by bending the rod into oppositely-disposed loops, with the extremity of the rod returned and fastened to the rod between the wings and cover member, and a conical shell connected to the rod and partially inclosing said wings, substantially as specified.

4. A washing-machine comprising the clothes-receptacle, oppositely-disposed stop-plates within the receptacle and extending toward the center thereof and spaced from the side walls of the receptacle, and an agitator mounted for oscillation between said plates and having laterally-extended wings adapted to alternately engage said plates, and vertical ribs disposed between said stop-plates and spaced from the walls of the receptacle to change the direction of the water-currents.

750,420. **SASH-FASTENER.** JOSEPH ANDERSON, Seattle, Wash. Filed Dec. 11, 1903. Serial No. 184,823. (No model.)



Claim.—1. In a sash-lock of the character indicated, the combination with a casting having a bolt-guideway, and a drum-receiving chamber, of a bolt in the guideway, a rotary drum in the chamber, means for rotating the drum, a pin on the bolt, and an inclined groove in the drum into which the pin enters.

2. In a sash-lock of the character indicated, the combination with a casting, of a sliding bolt member and a rotating member with means interposed between the members whereby the rotation of the rotating member reciprocates the sliding bolt member, and means for securing the two members in the casting.

3. In a sash-lock of the character indicated, the combination with a casting having a bolt-guideway and a cylindrical chamber, of a slidable bolt in the guideway and a rotatable drum in the chamber having a cam-groove, a thumb-piece for moving the drum, and a projection on the bolt engaging the cam-groove.

4. In a sash-lock of the character indicated, the combination with a casting having a bolt-guideway and a cylindrical chamber, of a slidable bolt in the guideway and a rotatable drum in the chamber having a cam-groove, a thumb-piece for moving the drum, a projection on the bolt engaging the cam-groove, and an upwardly-opening lid on the casting.

5. In a sash-lock of the character indicated the combination with a casting having a bolt-guideway and a drum-receiving chamber, a partition back from the forward edge thereof, a spindle having its end located in advance of the partition, a thumb-piece connected with the spindle, a drum on the spindle in the rear of the partition having a cam thereon, a bolt in the guideway, and a projection on the bolt engaging the cam.

6. In a sash-lock for ventilating purposes, the combination with an upper sash, of a lock secured thereto comprising a sliding bolt, rotary means for reciprocating the bolt, and an upwardly-swinging lid extending over said means.

7. In a sash-lock of the character indicated, the combination with a casting having a substantially T-shaped bolt-guideway in its lower portion, a bolt located within said guideway, having a projecting rib, a cylindrical member located above the bolt, engaging means between the bolt and the cylinder for reciprocating the bolt on the rotation of the cylinder, and means for rotating the cylinder.

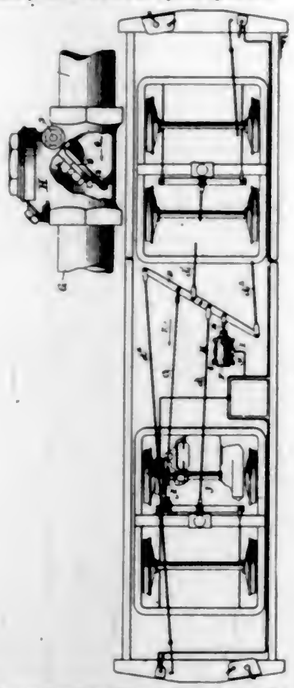
750,421. **ELECTRIC BRAKE.** GEORGE C. ARTHON, Medford, Mass., assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass., a Corporation of Maine. Filed Nov. 30, 1901. Serial No. 84,191. (No model.)

Claim.—1. The combination with an electrically-applied brake of a liquid or fluid locking device, an automatic check-valve therefor, and releasing means controlled by the operator.

2. The combination with a railway-brake of an operating connection between it and the car-axle, an automatic liquid or fluid lock for the brake and a releasing device therefor under the control of the operator.

3. The combination with a railway-brake of an operating connection between it and the car-axle, an electromagnetic device controlling the said connection, an automatic liquid or fluid lock therefor and a releasing device under the control of the operator.

4. The combination with a railway-brake of a locking-cylinder containing a piston and a suitable fluid, of an automatic check-valve controlling the flow of fluid from one end of the cylinder to the other and a releasing-valve controlled by the operator.



5. The combination with a railway-brake of a mechanical operating device therefor, an electrical controller for said device, an automatic liquid or fluid lock for the brake and an electric controller for the said lock.

6. The combination with a railway-brake of a winding-drum operated by the car-axle, an electromagnetic clutch for mechanically connecting the said drum to the axle, a controller for the said clutch, an automatic liquid or fluid lock for the brake, an electromagnetic releasing device for the said lock and a controller for the said releasing device.

7. A liquid or fluid lock for a railway-brake, comprising a cylinder and piston adapted to be connected to the brake, a check-valve contained in a tube leading from one end of the piston to the other and a release-valve in a second tube also leading from one end of the cylinder to the other.

8. A liquid or fluid lock for a railway-brake, comprising a cylinder and piston and two tubes or passage-ways for the liquid around the cylinder, one provided with an automatic check-valve and the other with a manually-controlled releasing-valve.

9. The combination with a railway-brake of an automatic liquid or fluid lock therefor, a release-valve for said lock and an electromagnet controlling said valve.

10. In an electric railway-brake the combination with a wheel and axle, of a propelling electric motor for the vehicles mounted upon said axle, a winding-drum for the brake mounted upon said axle between the motor and the wheel and an electromagnetic clutch for engaging the drum with the axle.

11. In a railway-brake the combination with a wheel and axle of a propelling electric motor for the vehicle mounted upon the axle, a winding-drum for the brake mounted on the axle between the motor and the wheel and a clutch for engaging the said drum with the axle so that it may be operated thereby.

12. In an electric railway-brake the combination with a wheel and axle of an electric motor mounted upon the axle, a winding-drum for the brake also mounted on the axle between the motor and wheel, a disk keyed to the axle, a friction-clutch mounted on the said drum engaging the external periphery of said disk to connect the drum and axle so that the former may be operated by the latter, and an energizing-coil for said clutch having its axis radial to the axle.

13. In an electric railway-brake the combination with a wheel and axle of a winding-drum mounted on the axle and adjacent to the wheel and embracing the hub thereof, a friction-clutch for engaging the said drum with the axle, and an energizing-coil for said clutch having its axis radial to the axle.

14. In an electric railway-brake the combination with an axle of a winding-drum thereon, a disk inclosed by said drum and keyed to the axle, a friction-clutch also contained within the said drum for engaging the drum with the axle, and an energizing-coil for said clutch having its axis radial to the axle.

15. In an electric railway-brake the combination with an axle of a disk keyed thereto, a winding-drum inclosing the said disk, frictional devices between the outside periphery of the disk and the inside wall of the drum, and an energizing-coil for said clutch having its axis radial to the axle.

16. In an electric railway-brake the combination with an axle of a disk keyed thereto, a winding-drum, electromagnetic friction-shoes surrounding the said disk and retracted therefrom when de-energized by gravity, and an energizing-coil for said clutch having its axis radial to the axle.

17. In an electric railway-brake the combination with an axle of a brake-disk thereon, a winding-drum, a friction-clutch between the disk and drum comprising electromagnetic brake-shoes inclosed by the drum and engaging with the periphery of the said disk, and an energizing-coil for said clutch having its axis radial to the axle.

18. In an electric railway-brake the combination with an axle of a disk mounted thereon, a winding-drum inclosing the said disk, and an internal brake-shoe contained within the said drum and carrying a coil having its axis radial to the axle and connected with the external circuit.

19. In an electric railway-brake the combination with an axle of a winding-drum and an intermediate electromagnetic clutching device comprising a separable brake-shoe and an energizing-coil thereon having its axis radial to the axle.

20. A detachable electromagnetic brake-shoe containing an embedded energizing-coil with its terminal connected to an external contact-button on the shoe itself.

21. A detachable electromagnetic brake-shoe comprising a coil embedded in its bearing-face, the terminal of the coil being connected to an external contact-button on one of the other faces of the shoe.

22. An electromagnetic friction-clutch comprising separable brake-shoes having an energizing-coil thereon, exposed contact-buttons connected to the respective terminals of the coil and a carrier for the shoe having contacts connected with the energizing-circuit and adjusted to connect with the buttons aforesaid when the shoe is placed in position.

23. In an electric railway-brake the combination with a winding-drum of a friction-disk inclosed within said drum, a magnet having its axis radial to the axle and a contact-ring on said drum with which a stationary contact-point makes connection.

24. An electromagnetic clutching device having exposed contact-buttons for the terminals of its energizing-coil, a contact-ring with which a stationary contact-point makes connection and a contact-plate connected to the said ring with which the said buttons connect when the parts are placed in position.

25. In an electric railway-brake the combination with an axle of a disk keyed thereto, a winding-drum embracing the said disk on both sides and bearing on the axle, a series of separable brake-shoes interposed between the outer periphery of the disk and the inner wall of the drum and connected to the latter, exposed contact-buttons for the energizing-coils of said shoes, a contact-plate on the interior walls of the drum, an external contact-ring for the drum connected to the said plate and a stationary contact connected with the said external circuit bearing upon the said brake.

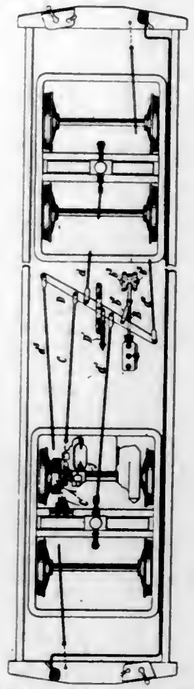
26. In an electric railway-brake the combination of a winding-drum for the brakes, an electromagnetic clutch for connecting the said drum to the axle, a regulating resistance in the circuit of said clutch and a storage battery connected to line-circuit in multiple with the said clutch.

27. In an electric railway-brake the combination with a winding-drum, an electromagnetic clutch for connecting the said drum to the axle, the said clutch being connected to the supply-line and operated therefrom and a storage battery also connected to the said supply-line in multiple with the said clutch.

28. In an electric railway-brake the combination with a brake-controlling magnet connected to the line-circuit, a regulator thereof and a storage battery connected to the line-circuit in multiple therewith.

29. In an electric railway-brake the combination with an electromagnet controlling the said brake and connected to the supply-line, of a storage battery also connected to the supply-line in multiple with the said magnet and regulating devices for the said battery.

750,422. **ELECTRIC BRAKE.** GEORGE C. ARTHON, Medford, Mass., assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass., a Corporation of Maine. Filed Apr. 11, 1902. Serial No. 102,365. (No model.)



Claim.—1. In a fluid-lock for an electric brake the combination with a cylinder and piston, of a by-pass tube connecting the opposite ends of said cylinder and means for controlling the flow of liquid in the said tube comprising an automatic check-valve and a control-valve and an electromagnet for operating the control-valve.

2. In a fluid-lock for electric braking apparatus the combination with a piston and cylinder of a by-pass tube connecting the opposite ends of said cylinder, an automatic check-valve, a controlling-valve balanced by pressure on opposite sides thereof and a magnet for operating said controlling-valve.

3. In a fluid-lock for braking apparatus the combination with a piston and cylinder, of a reservoir formed in one with the said cylinders, and a by-pass tube and operating-magnet therefor both supported on the cylinder.

4. In a magnetic clutch, the combination with a brake-disk, of an external drum, intermediate brake-shoes bearing upon the periphery of the said disk and loosely engaging the interior of the said drum, and coils for energizing the brake-shoes embedded therein.

5. In a magnetic clutch, the combination with a brake-disk of an external drum, intermediate brake-shoes bearing upon the periphery of the disk and engaging the drum, and oil-deflecting devices for preventing the access of oil to the friction-surfaces.

6. In a magnetic clutch, the combination with a brake-disk of an external drum, intermediate brake-shoes bearing upon the periphery of the disk, coils on the said brake-shoes, and electrical connecting devices between the terminals of adjacent coils, the said connecting devices being located opposite to openings or hand-holes in the wall of the said drum.

7. The combination with an electromagnetic brake-shoe of terminal connections for the coils thereon comprising an insulated socket and a plug adapted to enter the said socket.

8. The combination with two adjacent electromagnetic brake-shoes, of insulated terminal sockets on each shoe and a jumper for

connecting the coils of the two shoes provided with plugs at its opposite ends adapted to enter the said sockets.

9. An electromagnetic brake-shoe having an insulating-coil thereon, and contact-terminals for the coil in the form of insulated sockets adapted to receive a connecting-plug.

10. The combination in an electromagnetic clutch of a brake-disk, an inclosing drum, an intermediate brake-shoe bearing upon the periphery of the disk and a lug projecting from the rear of said brake-shoe and loosely engaging a socket on the inner wall of the said drum

11. In an electric brake apparatus, the combination with a winding-drum, of a brake-disk, magnetic clutching devices having one coil-terminal connected with a contact-point rotating with the drum and a stationary contact-ring engaging the said contact-point.

12. The combination with a rotating magnetic clutch, of a stationary contact-ring, and a spring contact-plate rotating with the clutch and forming the terminal of the exciting-coil of the clutch.

13. The combination with a rotating magnetic clutch containing exciting-coils, of a stationary contact-ring, external insulation therefor, a ring protecting the said insulation and a spring contact device rotating with the said drum and bearing upon the inner surface of the said stationary ring.

14. The combination with a rotating magnetic clutch of exciting-coils therefor, two branch terminals for the said coil, rotating with the clutch and a stationary contact engaging with both of the said terminals.

15. In an electrically-propelled vehicle supplied with current from a line-wire the combination with an electric translating device on the vehicle, of a storage battery in shunt to the motor and a controlling-switch for connecting the battery to said translating device and to the line-wire alternately comprising contacts connected to said battery, translating device and line-wire respectively.

16. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an electromagnetic brake on the vehicle, of a storage battery in shunt to the motor and a controlling-switch for connecting the battery to said brake and to the line-wire alternately comprising contacts connected to said battery brake and line-wire respectively.

17. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an axle of a disk thereon, a winding-drum, an electromagnetic clutch, a storage battery in shunt to the motor and a controlling-switch for connecting the battery to said clutch and to the line-wire alternately comprising contacts connected to said battery, clutch and line-wire respectively.

18. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with the brakes thereof, of a disk on the axle, a winding-drum, a brake-shoe for clutching the drum to the said disk, an energizing-coil embedded in said shoe, a storage battery in shunt to the motor, a controller for connecting the said battery to the said coil and means for charging the battery from the line-wire

19. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with the brakes, of a winding-drum therefor, an electromagnetic clutch for engaging the said drum with the axle, a storage battery in shunt to the motor, a controller for connecting the battery to the said clutch, regulating resistances operated by the said controller and means for charging the battery from the line-wire.

20. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an electromagnetic brake, of a storage battery in shunt to the motor, a regulating-controller between the battery and the brakes and means for charging the battery from the line-wire.

21. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an electromagnetic brake, of a storage battery, a regulating-controller for applying the battery to the brakes and contacts on the controller for admitting the line-current to the brakes at will.

22. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with electromagnetic brakes, of a storage battery normally connected to the line-wire in shunt to the motor, a regulating-controller for connecting the battery to the brakes and circuit-breaking contacts thereon for disconnecting the battery from the line-wire.

23. In an electrically-propelled vehicle supplied by current from a line-wire, the combination with an electromagnetic brake, of a storage battery normally connected to the line-wire, a regulating-controller for connecting the battery to the brake, circuit-breaking contacts thereon for disconnecting the battery from the line-wire and additional contacts for connecting the line-wire directly to the brake.

24. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with the brakes, of a winding-drum, brake-shoes for connecting the drum to the axle, energizing-coils embedded in said shoes, a regulating resistance, a controller and a storage battery in shunt to the motor but adapted to be connected to the said coils by means of the controller and means for charging the battery from the line-wire.

25. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an electromagnetic brake, of an automatic lock therefor, a storage battery, a controller for applying the battery to the brake, a release-magnet, controller-contacts for energizing the said release-magnet from the line-wire and means for charging the battery from the said line-wire.

26. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with electromagnetic brakes, of a storage battery normally connected to the line and a controller comprising contacts operated by a forward movement thereof to connect the battery to the brakes and disconnect it from the line and contacts operated by a reverse movement of the controller for energizing a brake-releasing magnet.

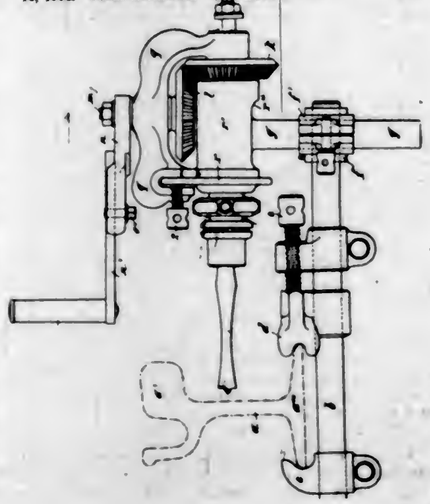
27. In an electric-railway vehicle supplied with current from a line-wire, the combination with an electromagnetic brake, of a fluid-lock therefor, an automatic check-valve for retaining the brake, a releasing-valve and operating-magnet therefor, a storage battery charged from the line-wire and a controller comprising contacts operated by one direction of movement thereof to apply the battery to the brake and contacts operated by a different movement thereof to operate the release-magnet.

28. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with an electromagnetic brake, of a storage battery normally connected to the line-wire in series with the resistance and a controller comprising contacts for connecting the battery to the brake and contacts for disconnecting the battery from the line-wire at a point between the battery and the said resistance.

29. In an electrically-propelled vehicle supplied with current from a line-wire, the combination with electromagnetic brakes, of a storage battery charged by the line-wire in series with a resistance, a regulating-controller for applying the battery to the brakes, a release-magnet for the brakes, a resistance therefor and contacts on the controller for connecting the said magnet to the line-wire in series with the said resistance.

30. In an electrically-propelled vehicle supplied with current from the line-wire, the combination with the brakes, of a winding-drum therefor, an electromagnetic clutch, for engaging the drum with the axle, a storage battery charged from the line-wire in series with a resistance, a controller for connecting the battery to the clutch, regulating resistances in circuit with the battery and operated by said controller and a release-magnet governed by a separate movement of the said controller.

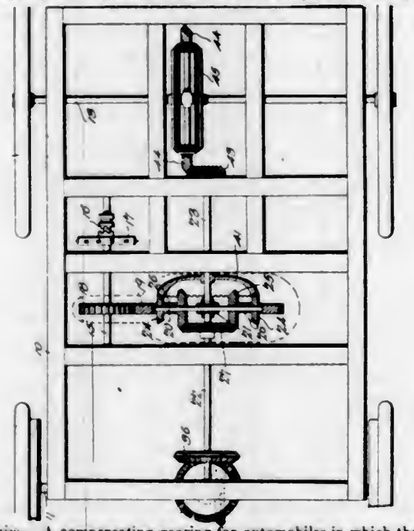
750,423. DRILLING-MACHINE. HENRI BALLUET, Nouzon, France, assignor to Julien Emile Thomé, Nouzon, France. Filed June 18, 1901. Serial No. 65,044. (No model.)



Claim.—1. In combination with the drill-holder, a gear-wheel thereon a sleeve or socket also supported on the drill-holder, a second gear meshing therewith, a crank connected with the said second gear, a crank-rest supported on the drill-holder at one end, a sleeve supported on the drill-holder between which and the crank-rest the first-mentioned gear is supported, said sleeve having a collar engaging the crank-rest and means for holding the crank-rest and collar together, substantially as described.

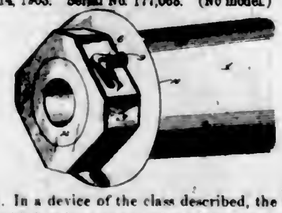
2. In combination, the drill-holder, a supporting-rod *g* having a socket *g'* through which the drill-holder extends, a socket-piece *r* within which the socket *g'* is located, the gearing, a crank, a crank-rest connected with the drill-holder and with the socket *r'*, said socket *r'* having a slot *r''* to permit a relative movement between the supporting-rod *g* with its socket and the socket *r'*.

750,424. PROPULSION-GEARING. WILLIAM B. BARD, Elizabethtown, Pa. Filed Dec. 27, 1901. Serial No. 87,465. (No model.)



Claim.—A compensating gearing for automobiles in which the front set of wheels is of smaller diameter than the rear set of wheels, said gearing comprising a central hub, a pair of alining shafts having end bearings in said central hub, the shafts extending longitudinally of the automobile and having gearing connections with the front and rear axles thereof, a plurality of spokes radiating from the hub, a toothed rim secured to the spokes and forming a gear-wheel, a beveled gear 27 secured to the front longitudinal shaft, a beveled gear 41 of greater diameter secured to the rear longitudinal shaft, revoluble sleeves mounted on the several spokes, two beveled pinions secured to or forming a part of each sleeve, the outer of said pinions being of smaller diameter than the inner and intermeshing with the larger beveled gear 41 and the inner of said beveled pinions meshing with the smaller beveled gear 27, whereby when rotative movement is imparted to the toothed rim the gearing will automatically compensate for the difference in diameter of the front and rear wheels and will transmit rotative movement to the front wheels at a higher rate of speed than the rear wheels and will impart to said rear wheels an increase in power corresponding to the reduction in speed.

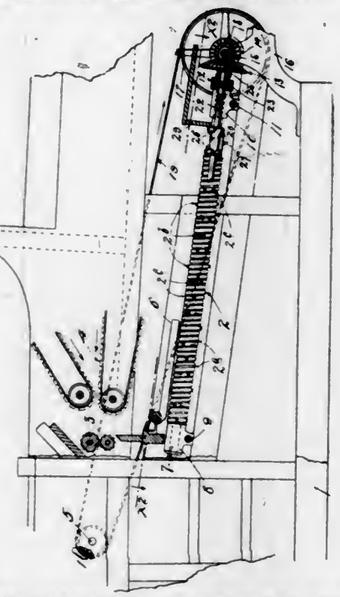
750,425. LOCK FOR SPINDLE-NUTS. SAMUEL C. BAUGHN, Jr., Bertrand, Mo., assignor of one-half to Henry L. Finley, Bertrand, Mo. Filed Oct. 14, 1903. Serial No. 177,068. (No model.)



Claim.—1. In a device of the class described, the combination of an axle provided at its outer portion with a notch, an axle-nut having an opening, a circular spring arranged at the inner end of the axle-nut and encircling the axle, and provided with an engaging portion arranged to interlock with the said notch, said spring being provided with an arm extending through the said opening, substantially as described.

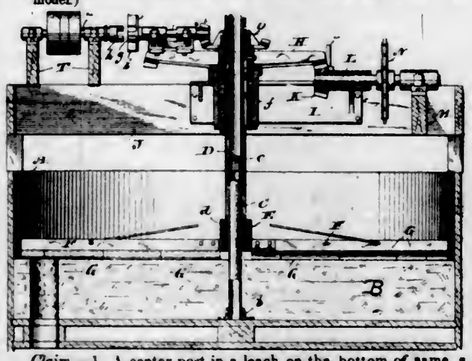
2. In a device of the class described, the combination of an axle provided at its outer end, adjacent to its threaded portion, with a shoulder and having a notch therein, an axle-nut having a groove and provided with an opening communicating therewith, and a circular spring arranged in the groove of the nut and provided with an arm extending outward from one end of the spring through the said opening and arranged on the exterior of the nut in position to be engaged by a wrench, said spring being provided at the inner end of the arm with an engaging portion to interlock with the said notch, substantially as described.

750,426. CORN-HUSKER. CHARLES G. BILLINGS, Eau Galle, Wis. Filed Dec. 15, 1902. Serial No. 135,211. (No model.)



Claim.—In a corn-husker, a pair of reversely-driven husking-rollers provided one with a right and the other with a left thread spiral groove and both thereof having projecting husking-pegs, and cooperating peg-seats, which seats are located between said grooves and are independent thereof, substantially as described.

750,427. LEACH-CLEARING MECHANISM. CHARLES P. BOESERT, Milwaukee, Wis. Filed Oct. 13, 1903. Serial No. 176,926. (No model.)



Claim.—1. A center post in a leach on the bottom of same, a spent-bark scraper having an upwardly-extending post engaging axial sleeve rigid therewith, and means for imparting continuous ro-

tary motion and automatic intermittent downward travel to the sleeve on the post.

2. A center post in a leach on the bottom of same, a spent-bark scraper having an upwardly-extending post-engaging axial sleeve rigid therewith, means for imparting continuous rotary motion to the sleeve, and other means for imparting automatic intermittent downward travel to said sleeve on the post while in rotation and for adjusting the same up or down when the means for its rotation are idle.

3. A center post in a leach, a spent-bark scraper having an upwardly-projecting exteriorly-screw-threaded axial post-engaging sleeve rigid therewith, a gear-wheel the hub of which turns in a stationary bearing and has spline connection with the sleeve, means for driving the wheel, a spindle having its bearings on said wheel, a nut on said sleeve in gear with the spindle but held against other than rotary motion, and means by which intermittent rotary motion is imparted to said spindle incidental to revolution of the aforesaid wheel.

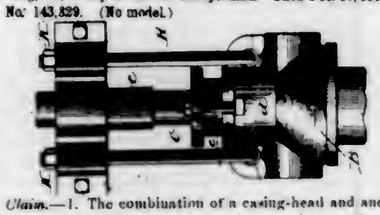
4. A center post in a leach, a spent-bark scraper having an upwardly-projecting exteriorly-screw-threaded axial post-engaging sleeve rigid therewith, a gear-wheel the hub of which turns in a stationary bearing and has spline connection with the sleeve, means for driving the wheel, a spindle having its bearings on said wheel, a nut on said sleeve in gear with the spindle, a disk fast on said spindle and provided with wipers, the disk-hub being made to constitute a clutch-section, a stationary stud arranged to be acted upon by the wipers of the disk, a drive-spindle mounted in stationary bearings to be alined with the former spindle, and a clutch-section adjustable on the drive-spindle to be put in or out of engagement with the other clutch-section.

5. A center post in a leach, a spent-bark scraper having an upwardly-projecting exteriorly-screw-threaded axial post-engaging sleeve rigid therewith, a gear-wheel the hub of which turns in a stationary bearing and has spline connection with the sleeve, means for driving the wheel, a spindle having its bearings on said wheel, a nut on said sleeve in gear with the spindle, a disk fast on said spindle and provided with wipers, the disk-hub being made to constitute a clutch-section, a stationary stud arranged to be acted upon by the wipers of the disk, a drive-spindle mounted in stationary bearings to be alined with the former spindle, means for locking the aforesaid gear-wheel to preserve the alinement of said spindles, and a clutch-section adjustable on the drive-spindle to be put in or out of engagement with the other clutch-section.

6. A center post in a leach, a spent-bark scraper having an upwardly-projecting exteriorly-screw-threaded post-engaging sleeve rigid therewith, a frame supported on the leach, a casting in connection with the frame, a gear-wheel the hub of which has spline connection with the sleeve and is loose in a socket with which the casting is provided, a drive-spindle in bearings on the frame and casting, a pinion fast on the spindle and in mesh with the gear-wheel, another spindle having its bearings on said wheel, a nut on said sleeve in gear with the latter spindle, a disk fast on this latter spindle and provided with wipers, the disk-hub being made to constitute a clutch-section, a stud arranged on said casting to be acted upon by the wipers of the disk, another drive-spindle mounted in stationary bearings to be alined with the spindle that is carried by said gear-wheel, a pin engageable with this wheel and the aforesaid casting to preserve the alinement of spindles, and a clutch-section adjustable on the latter drive-spindle to be put in or out of engagement with the other clutch-section.

7. A hollow guide-post set in a leach on the bottom thereof central of the same, and a post-plug having a center depression therein.

750,428. CASING-HEAD AND TUBING-ANCHOR. JAMES C. BOYCE, Pittsburg, Pa., assignor to Oil Well Supply Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Feb. 17, 1903. Serial No. 143,829. (No model.)



Claim.—1. The combination of a casing-head and anchor-rods having cast-off connections, a tubing-clamp, and means for straining the anchor-rods between the tubing-clamp and casing-head, substantially as and for the purposes specified.

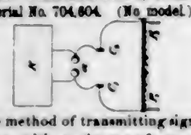
2. The combination of a casing-head and anchor-rods said head and rods having cast-off connections comprising hook-and-eye devices, a tubing-clamp, and means for connecting the anchor-rods to the tubing-clamp, substantially as and for the purposes specified.

3. The combination of a casing-head and anchor-rods, said head and rods having cast-off connections comprising perforated lugs or eyes on the casing-head and hooks on the extremities of the anchor-rods, a tubing-clamp, and means for adjustably connecting the anchor-rods with the tubing-clamp, substantially as and for the purposes specified.

4. The combination of a casing-head having a stuffing-box for the passage of the tubing, anchor-rods threaded at one end and provided with nuts for straining said anchor-rods, cast-off connections between the casing-head and anchor-rods comprising perforated lugs or eyes on the head and hooks on the rods, and a tube-clamp between which and the casing-head the anchor-rods are strained, substantially as and for the purposes specified.

5. The combination of a casing-head having nipples for the reception of the ends of the gas-pipes, anchor-rods, cast-off connections between the casing-head and the anchor-rods comprising perforated lugs on the casing-head above and in line with the nipples thereof and hooks on the anchor-rods, a separable tube-clamp having passages for the anchor-rods, and means for straining the anchor-rods between the tube-clamp and casing-head, substantially as and for the purposes specified.

750,429. WIRELESS ELECTRIC TRANSMISSION OF SIGNALS OVER SURFACES. FERDINAND BRAUN, Strassburg, Germany. Filed Feb. 6, 1899. Serial No. 704,604. (No model.)



Claim.—1. The method of transmitting signals electrically from one station to another without the use of connecting-wires, consisting in supplying currents by means of an oscillation-circuit containing a condenser and a spark-gap to earth-plates connected to opposite poles of the transmitting apparatus, and collecting the impulses by earth-plates at the receiving-station connected to opposite poles of the collecting apparatus, substantially as described.

2. The method of transmitting signals electrically from one station to another without the use of connecting-wires, consisting in supplying currents by means of an oscillation-circuit containing a condenser, a spark-gap and an induction-coil to earth-plates connected to opposite poles of the transmitting apparatus, and collecting the impulses by earth-plates at the receiving-station connected to opposite poles of the collecting apparatus, substantially as described.

3. The method of transmitting signals electrically from one station to another without the use of connecting-wires, consisting in supplying currents produced by an oscillation-circuit containing a condenser, a spark-gap and the primary coil of a transformer to earth-plates connected to opposite poles of the secondary coil of said transformer, and collecting the impulses by earth-plates at the receiving-station connected to opposite poles of the collecting apparatus, substantially as described.

750,430. FOUNTAIN-PEN. FRANCIS C. BROWN, New York, N. Y. Filed Aug. 19, 1903. Serial No. 169,972. (No model.)



Claim.—1. A cap for a fountain-pen provided with a key at its closed end, in combination with a penholder provided with rotary operative mechanism adapted to receive and be rotated by said key.

2. A cap for a fountain-pen provided with a key at its closed end, in combination with a penholder provided at its rear end with a recess for receiving said key.

3. A cap for a fountain-pen provided at its closed end with a longitudinally-projecting stud and a lateral projection on said stud, in combination with a penholder provided at its rear end with a receptacle for said stud and a bayonet-slot for the reception of said lateral projection.

4. A closure for a fountain-pen, provided with a thread at one end and an external key at its other end, in combination with a penholder having a complementing thread at one end and mechanism to be engaged with and operated by said key at its other end.

5. A fountain-pen provided with rotatable mechanism for projecting and retracting the nib, and a removable cap provided with a key arranged for engagement with said mechanism.

6. A fountain-pen provided with rotatable mechanism for projecting and retracting the nib, said mechanism comprising a head located at the rear end of the holder and provided with a recess, and a cap detachable from the forward end of the holder and provided with a key adapted to fit said recess of the said head.

7. A fountain-pen comprising a case made in two sections, the forward one of which is adapted to contain ink, a nib-projecting mechanism contained in the rear section, and a connector engaging both sections and having a collar located between the adjacent end surfaces of the two sections.

8. A fountain-pen comprising a case having an ink-receptacle, a nib projectable from and retractable into said case, a chamber in said case separate from said ink-receptacle, operating mechanism for said nib located within said chamber and a cap adapted to close the nib end of said case and having an external key adapted to engage and operate said operating mechanism when the cap is applied in a reversed position to the rear end of said case.

9. A fountain-pen comprising a case having an ink-receptacle in its forward portion, a nib operatively mounted in the forward end of said case, a chamber in the rearward portion of said case separate from said ink-receptacle, rotary operating mechanism in said chamber operatively connected through said ink-receptacle with said nib to project said nib from and retract the same into said case and a closure for the forward end of said case having a key adapted to engage and rotate said operating mechanism when applied to the rearward end of said case.

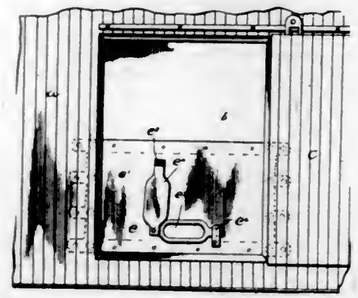
10. In a fountain-pen, a case comprising two chambers separated by a partition, a nib mounted for longitudinal movement in the forward end of the forward of said chambers, a rod connected with said nib, passing through a packed aperture in said partition and projecting into the rearward of said chambers, a barrel having a spiral slot mounted to rotate in said rearward chamber and restricted against longitudinal movement therein, a longitudinal slot in the wall of said rearward chamber, a pin projecting laterally from said rod through said spiral slot in said barrel and into said longitudinal slot in said wall and a closure for the forward end of said case having a key portion adapted to engage and rotate said barrel when applied to the rear end of said case.

11. In a fountain-pen, a case comprising two chambers having a partition therebetween, a nib mounted in the forward end of the forward of said chambers and projectable from and retractable into said chamber, a rod connected to said nib, passing through said partition and projecting into said rearward chamber, a longitudinal slot in the wall of said rearward chamber, a pin fast to said rod and projecting laterally into said longitudinal slot, rotative operating mechanism in said rearward chamber for moving said rod longitudinally and a closure for the forward end of said case having a key adapted to engage and operate said operating mechanism when applied to the rearward end of said case.

750,431. GRAIN-CAR DOOR. SYLVESTER A. BUSHEY, Denton Tex. Filed Sept. 4, 1903. Serial No. 171,944. (No model.)

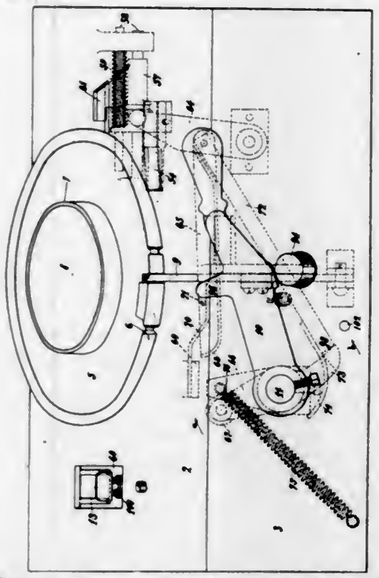
Claim.—1. In combination with the door-frame of a car having plates secured thereto, at opposite sides thereof, said plates being provided with a plurality of studs having apertures therein, of a grain-door having its respective ends provided with apertures to receive said studs, and wedges or pins adapted to be inserted into the apertures in the studs to secure the door in position.

2. The combination with the door-frame of a car having plates secured thereto, at opposite sides thereof, said plates being provided with a plurality of studs having apertures therein, of a grain-door provided with a marginal frame of metal to strengthen the same, and having its respective ends provided with apertures to receive said studs, and wedges or pins adapted to be inserted into the apertures in the studs to secure the door in position.



3. The combination with the door-frame of a car having plates secured thereto, said plates being provided with a plurality of studs having apertures therein, of a grain-door provided with a grain-exit and a cover thereto, and having its respective ends provided with apertures to receive said studs, and wedges or pins adapted to be inserted into the apertures in the studs to confine the door in place.

750,432. COIN-CONTROLLED DEVICE FOR EMBOSSING STRIPS OF METAL, &c. HERMAN CASLER and JOHN A. PROSS, Canastota, N. Y., assignors to Simplex Manufacturing Company, New York, N. Y., a Corporation of New Jersey. Filed Oct. 2, 1901. Serial No. 77,339. (No model.)



Claim.—1. The combination of a pair of annular embossing-dies, a rotatable carrier for the dies, a feeder on one side of the annular dies for passing a strip of material between the dies, cut-off dies for severing the embossed strip, arranged on the other side of the annular embossing-dies and stationary relative to the rotation thereof, and means for actuating the cut-off dies at will, as set forth.

2. The combination of a pair of annular embossing-dies, a rotatable carrier for the dies, a feeder outside of the annular dies for passing a strip of material between the dies, cut-off dies for severing the embossed strip, arranged inside the annular embossing-dies and stationary relative to the rotation thereof, means for engaging the cut-off dies when the annular dies are rotated to a certain position, and means for actuating said annular dies to operate the cut-off dies, as set forth.

3. The combination of a pair of annular embossing-dies, a rotatable carrier for the dies, a feeder outside of the annular dies for passing a strip of material between the dies, cut-off dies for severing the embossed strip, arranged inside the annular embossing-dies

and stationary relative to the rotation thereof, a projection on one of the annular dies to engage the cut-off dies when the said annular dies are rotated to a certain position, and means for actuating the annular dies to operate the cut-off dies, as set forth.

4. The combination of a set of dies, a reciprocating feeder engaging a strip during the forward reciprocation to advance the same lengthwise between the dies and passing idly along the strip during the backward reciprocation, a stop carried by the feeder, moving parallel to the strip and in unison therewith, and means for intercepting said stop to limit the movement of the feeder, as set forth.

5. The combination of a set of rotatable dies, an exposed setting-disk for rotating the dies, a reciprocating feeder engaging a strip of material to advance the same between the dies, a stop carried by the feeder, moving parallel to the strip and in unison therewith, arranged to be intercepted by the edge of the exposed setting-disk to limit the movement of the feeder, and one or more notches in the edge of the setting-disk, whereby at certain positions of the disk the stop will enter a notch to feed a greater amount of the strip forward, as set forth.

6. The combination of a set of dies, a carrier therefor having a circular exposed setting-disk provided with a flange which is notched at certain points, and a reciprocating feeder for a strip of material to be operated upon by the dies, having a projecting part, moving with and parallel to the feeder and the strip adapted to engage with the said flange of the setting-disk, or to pass through the notches therein accordingly as the disk is set, in order to feed the strip to a greater or less extent, substantially as described.

7. The combination of a set of embossing-dies, devices for operating the dies, a feeder for feeding a strip of material between the dies and a lock for holding the feeder in its backward position while the dies are being operated, substantially as described

8. The combination of a set of embossing-dies, means for operating the dies, a feeder for feeding a strip of material between the dies, a lock for holding the feeder in its backward position while the dies are being operated, and means for releasing the feeder from said lock after the dies have operated, substantially as described.

9. The combination of a set of dies, means for operating the dies, a reciprocating feeder for feeding a strip of material between the dies, a spring arranged to move the feeder in its forward direction, a positively-operating mechanism for moving the feeder backward, and a lock for holding the feeder in its backward position, substantially as described.

10. The combination of a set of embossing-dies, means for operating the dies, a reciprocating feeder for feeding a strip of material between the dies, positively-actuating means for moving the feeder in a backward direction, a spring for moving the feeder in a forward direction, a lock for holding the feeder in its backward position, and a trip for releasing the feeder from the lock and allowing it to be moved forward by the spring, substantially as described

11. The combination of a set of embossing-dies, means for operating the dies, a reciprocating feeder arranged to feed a strip of material between the dies, a lever arranged to move the feeder, a locking-link 65 connected with the said lever, a stop or abutment with which the said link engages when the feeder is moved back, whereby the feeder is locked, an operating-arm arranged to engage with and move the link, a tripping-link 72 connected with the lever, and an arm 73 arranged to engage with the tripping-link to release the link 65 from its locking position, substantially as described.

12. In a machine for embossing a strip of material, the combination of a set of embossing-dies and a feeder for feeding the strip between the dies, having a set of jaws arranged a distance apart substantially equal to the thickness of the strip whereby when a letter is embossed the struck-up portion of the material is adapted to operate as an abutment with which the jaws of the feeder may engage, substantially as described.

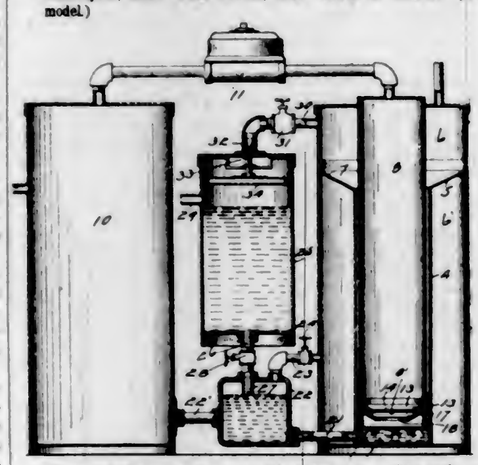
13. The combination of a set of embossing-dies, means for operating the dies, means for feeding a strip of material between the dies, an intercepter arranged to prevent the operation of the dies, and a catch device for holding the intercepter out of operative position, the said catch device being disposed in the path of the embossed strip, whereby the intercepter will be tripped by the strip when it has been advanced a certain distance beyond the dies, substantially as described.

14. The combination of embossing-dies, means for operating the dies, a feeder for feeding a strip of material between the dies, a power-shaft, connections therefrom to the feeder, a device loosely mounted on the shaft to actuate the die-operating means, and a key carried by the loosely-mounted device extending into a transverse slot in the shaft, whereby the die-operating means will not be actuated till the feeding devices have completed their movements, as set forth.

15. The combination of a set of embossing-dies, means for feeding a strip of material between the dies, means for reciprocating one of the embossing-dies, the cut-off dies comprising a die arranged to reciprocate with the reciprocating embossing-die, and another die opposed thereto and mounted loosely in its carrier or holder, and means for locking the last-named cut-off die in its holder at will, whereby a movement of the reciprocating dies will cause the strip to be severed, substantially as described.

16. The combination of a set of embossing-dies, a means for setting the dies, means for reciprocating one of the dies toward and from the other dies, a pair of cut-off dies, one of which is arranged to be reciprocated with the reciprocating embossing-die and the other of which is free to slide in its carrier or holder, and a rigid abutment carried by the setting mechanism and arranged to be moved into engagement with the sliding cut-off die and to lock it in its holder, substantially as described.

750,433. **CARBURETER.** HARRY B. CORNISH, Minneapolis, Minn., assignor of two-thirds to I. D. Cooper, R. G. Ford, and W. R. Ford, Minneapolis, Minn. Filed Oct. 19, 1903. Serial No. 177,512. (No model.)



Claim.—1. A carbureter comprising an outer member, an inner member inclosed by said outer member and spaced therefrom and having an air-passage communicating with said space and the interior of said inner member, means for feeding gasolene or other volatile fluid into the space between said members and past the discharge end of said passage, and means for supplying air under pressure to said inner member and said passage.

2. A carbureter, comprising a tank, two cylinders concentrically arranged therein with a space between them, the outer cylinder having an open upper end to receive the lower end of said inner cylinder, a radial air-passage being provided near the lower end of said inner cylinder leading to the space between said cylinders, means for delivering gasolene to the space between said cylinders below said air-passage, and means for supplying air under pressure to said inner cylinder.

3. A carbureter comprising two concentric cylinders with an annular space between them, the outer cylinder having a closed lower end and the inner cylinder having an opening in its lower end and raised above the lower end of said outer cylinder, a cup provided in the space between the lower ends of said cylinders and separated from the wall of said outer cylinder and the lower end of said inner cylinder forming an air-discharge passage between said cup and said inner cylinder, means for feeding gasolene into the space between said cylinders and past said air-discharge passage, and means for supplying air under pressure to said inner cylinder and said passage.

4. A carbureter comprising two concentric cylinders with a space between them, the outside cylinder having a closed lower end and the inner cylinder having a closed upper end and raised above the top of said outer cylinder, a convex cap having an orifice provided in the lower end of said inner cylinder, a cup arranged in said outer cylinder and spaced from the walls thereof and having a concave top that is spaced from the convex surface of said cap forming therewith an annular air-passage, means for feeding gasolene into the space between said cylinders and past said air-passage and means for delivering air under pressure to said inner cylinder and air-passage.

5. The combination, with a tank, of a cylinder arranged therein and having an open top and closed bottom, a second cylinder concentric with said first-named cylinder and spaced from the walls thereof, said second cylinder having a closed top and an open bottom and the lower end of said second cylinder being elevated above the closed bottom of said first-named cylinder, a cap having a discharge-orifice in the lower end of said second cylinder, a cup provided in said first-named cylinder between its closed lower end and said cap and spaced from the latter to form an annular air-passage, and also separated from the walls of said outer cylinder, means for delivering gasolene into the space between said cylinders and past said air-passage, and means for supplying air under pressure to said inner cylinder.

6. The combination, with a tank and two concentric cylinders provided therein, the walls of said cylinders being spaced from each other forming an annular passage between them, said inner cylinder provided with an air-passage leading from its interior to the space between said cylinders, means for delivering air under pressure to said inner cylinder, a gasolene-receptacle provided outside said tank and communicating with the space between said cylinders below said air-passage, and means for maintaining the gasolene in said receptacle and between said cylinders at a certain predetermined level, for the purpose specified.

7. The combination, with a tank, of two concentric cylinders therein, ribs provided on said inner cylinder separating it from said outer cylinder, an air-passage being provided radiating outwardly from the lower end of said inner cylinder and communicating with the space between said cylinders, a gasolene-receptacle arranged opposite said air-passage and communicating with the space between said cylinders below said passage, a gravity feed-reservoir provided above said receptacle and a nipple connected with said reservoir and projecting into said receptacle, for the purpose specified.

8. The combination, with a carbureting-tank, of a closed gasolene-reservoir located near said tank, a gravity feed apparatus connecting said reservoir with the lower part of said carbureting-tank, a pipe connecting the top of said reservoir with the upper part of said tank and a float-valve arranged within said reservoir and arranged to shut off the passage to said pipe when the gasolene in said reservoir rises above a certain predetermined level.

9. The combination, with a tank, of two concentric cylinders having a space between them arranged therein, an air-passage being provided radiating outwardly from the lower end of said inner cylinder and communicating with the space between said cylinders, a gasolene-receptacle communicating with the space between said cylinders below said passage, a gravity feed-reservoir and a nipple leading from said reservoir and projecting into said receptacle, for the purpose specified.

10. The combination, with a tank, of two concentric cylinders having a space between them arranged therein, an air-passage being provided radiating outwardly from the lower end of said inner cylinder and communicating with the space between said cylinders, a gasolene-receptacle provided outside said tank, a pipe leading from the upper part of said receptacle into said tank, a feed-pipe leading from the bottom of said receptacle into the space between said cylinders below said passage, and a gravity feed-reservoir connected with said receptacle, for the purpose specified.

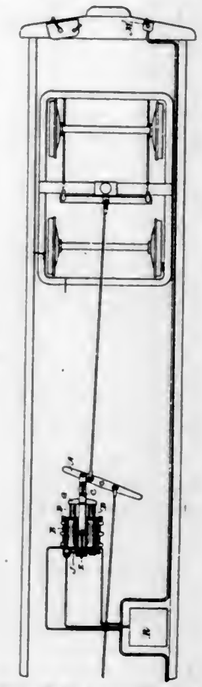
750,434. **ELECTRIC BRAKE.** PERLEY P. CRAFTS, Boston, Mass., assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass., a Corporation of Maine. Filed Nov. 29, 1899. Serial No. 738,622. (No model.)

Claim.—1. The combination with a spindle of an electric-brake controller, of a removable collar thereon, a handle pivoted to the said collar, a locking device between the collar and the spindle controlled by the said handle, a mechanical lock for the brake, a magnet controlling the said lock, and a switch in the circuit of said magnet operated by the movement of the said handle on its pivot.

2. The combination with a brake-magnet of the solenoid type, having two parallel coils and cores, of a link leading to the brake-lever applied centrally between the two coils and cores and a clutch for the cores applied in a line with the pivotal point of the link.

3. The combination with a brake-magnet of the solenoid type having two parallel coils and cores of a forked link or stirrup embracing the said magnet and intervening between the said cores and the brake-rod.

4. The combination with a vehicle, a friction-brake therefor, a controlling-switch for the brake-magnet admitting line-current thereto, and an emergency braking device, consisting of a switch connecting the motor-terminals to short-circuit the motor exclusive of the said magnet in the event of a cessation of the line-current supplied to the vehicle.



5. A braking device for an electric-railway vehicle, consisting of a friction-brake, a magnet for operating the same, a controlling-switch admitting line-current to the magnet, and an emergency-switch for opening the circuit between the trolley or supply-terminal and the motor and short-circuiting the motor upon itself exclusive of the said magnet in the event of a cessation of the line-current supplied to the vehicle.

6. A braking device for an electric vehicle comprising in combination a friction-brake, an operating-magnet for the brake, a controlling-switch admitting line-current to the magnet, an emergency braking device, consisting of a switch connecting the motor-terminals to short-circuit the motor exclusive of the said magnet in the event of a cessation of the line-current supplied to the vehicle, and a common operating device for the said switches operating the former by its normal movement and the latter by an abnormal movement.

7. The combination with a vehicle, a friction-brake therefor, an operating-magnet for the brake contained in a circuit parallel to the circuit of the propelling-motor, a controlling-switch admitting line-current to the magnet, an emergency braking device, consisting of a switch connecting the motor-terminals to short-circuit the motor exclusive of the said magnet in the event of a cessation of the line-current supplied to the vehicle and a common operating device for the said switches operating the former by its normal movement and the latter by an abnormal movement.

8. The combination with a brake-operating magnet, of a controlling-switch admitting line-current thereto, electrical emergency braking devices and an emergency-switch for said devices normally held stationary, but operated by the controlling-switch at a predetermined point in the movement of the latter.

9. The combination of a friction-brake, an operating-magnet therefor, a controlling-switch admitting line-current to the magnet, electrical emergency braking devices and an emergency-switch therefor normally held stationary but having a projection in the path of movement of the controlling-switch so as to be operated by an abnormal movement thereof.

10. The combination with a vehicle, of a friction-brake therefor, an operating-magnet for the brake, a controlling-switch admitting line-current to said magnet, an emergency-switch for short-circuiting the propelling-motor of the vehicle, normally held station-

ary, and an operating connection between the emergency-switch and controlling-switch adapted to come into action at a predetermined point in the range of movement of the latter, whereby the emergency-switch is operated by an abnormal movement of the controlling-switch.

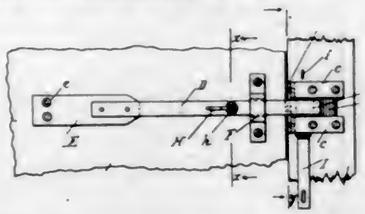
11. The combination of a vehicle, a friction-brake therefor, an operating-magnet for the brake, a controlling-switch admitting line-current to said magnet, an emergency braking-switch having a loose connection with the controlling-switch so as to be operated therewith by an abnormal movement thereof and provided with a stop for holding it when free of the controlling-switch.

12. The combination with a braking device operated by the line-current, of an emergency-switch, a stop therefor and a magnet operated by the line-current for holding said stop in position to prevent the operation of the emergency-brake, except when the line-current is interrupted.

13. The combination with a vehicle, a normal brake therefor, a magnet operating said brake, a controlling-switch admitting line-current to said magnet, an emergency braking device, consisting of a switch controlling the motor-circuits and a disabling device for the latter switch controlled by the line-current.

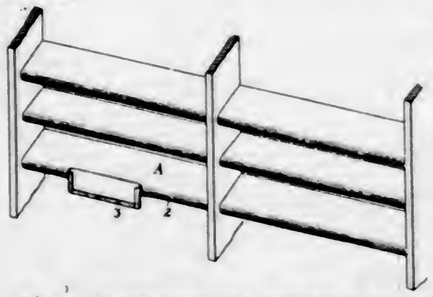
14. The combination with a brake for an electric vehicle, of an operating-magnet therefor, a switch for admitting line-current to the said magnet, a motor-controller for the propelling-motors of the vehicle, a reversing-switch for said motor, and an emergency-switch having its contacts included in loop-circuits between the controller and reversing-switch and adapted to disconnect the motor from the supply and short-circuit it directly upon itself.

750,435. LATCH. JAMES A. CRAIG, Stockbridge, Mich. Filed July 22, 1903. Serial No. 166,563. (No model.)



Claim.—The combination, with a slidable door, a latch-bolt having a hooked catch at one end, a spring-plate secured to the said door and to the other end portion of the said latch-bolt, a handle projecting from one side of the latch-bolt through a hole in the door, and an opening attachment secured to the other side of the said latch-bolt of a door-post, a latch-plate provided with two arms which are secured to the said door-post, a staple projecting from the door above the said arms, and a locking-hasp pivoted to the lower of the said arms and projecting across the free end portion of the said locking-bolt and engaging with the said staple.

750,436. LABEL-HOLDER FOR LIBRARY-SHELVES. LOUIS C DE CARLI, San Jose, Cal. Filed Oct. 21, 1903. Serial No. 177,906. (No model.)

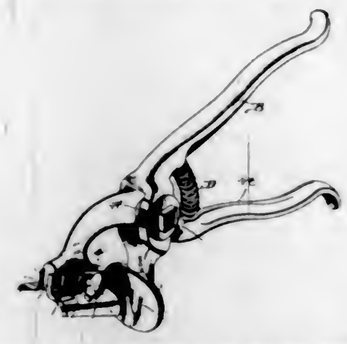


Claim.—1. The combination with a library-shelf having a channeled guide, of a card or label holder having a rearwardly-extending portion substantially conforming to said guide and slidably fitting the same.

2. The combination with a library-shelf of a curved guide, a card or label holder having a rearwardly-projecting curved plate, said plate being slidably fitted within the guide.

3. The combination with a library-shelf of a curved guide upon the front of the shelf, a card-holder, a curved plate extending rearwardly therefrom and having the end curved to extend into and slidably interlock with the guide, said interlocking portion also serving to retain the label-holder in a substantially upright position.

750,437. HOG-TAMER. ALEXANDER C. DECKER, Keokuk, Iowa. Filed Oct. 17, 1903. Serial No. 177,475. (No model.)



Claim.—1. In an instrument of the character specified, a pair of cutters, each having a straight and a curved portion, the latter having the general contour of a hog's snout, the straight portions when in use passing down through the nose of a hog to each side of the center thereof while the curved portions pass through the edge or rim of the snout and form fingers at each side of said center.

2. In an instrument of the character specified, the combination of an anvil; and a pair of cutters, said cutters being separated from each other and having their adjacent edges arranged at approximately right angles to the remaining portions of the cutters, which latter portions take the general contour of a hog's snout, substantially as described.

3. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; an anvil carried by one of said members; and a pair of cutters carried by the second member, said cutters taking the general form of a pig's nose or snout throughout the major portion of their cutting edges and being being separated at their adjacent faces, said faces extending outwardly at an angle to the main cutting-line, whereby when the cutters are brought down on the anvil, fingers, one at each side of the center of the hog's nose, will be formed, while said center will remain undisturbed and uninjured.

4. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; an anvil carried by one of said members; and a pair of cutters carried by the second member, said cutters taking the general form of a pig's snout or nose throughout the major portion of their cutting edges, and being separated at their adjacent faces, said faces extending outwardly in approximate parallelism to each other and at substantially right angles to the main cutting-line, whereby fingers will be formed, one at each side of the center of the hog's nose, while said center will remain uninjured.

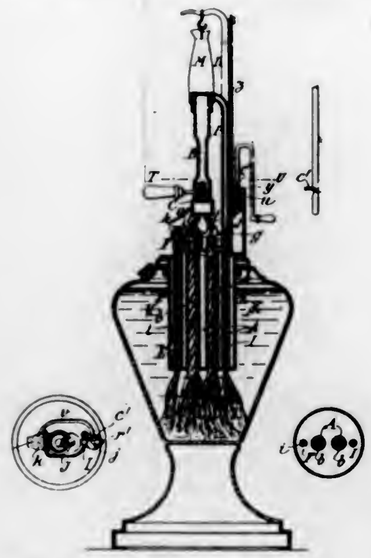
5. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; an anvil carried by one of said members; and a pair of cutters removably secured to the second member, each of said cutters being sharpened at both ends and having one end wider than the other, whereby the cutters may be reversed and the aggregate length of the cutting edge varied as desired.

6. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; an anvil carried by one of said members; and a pair of cutters removably secured to said second member, each of said cutters being sharpened at both ends and having a straight and a curved portion, the curved portion being longer at one end than at the other.

7. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; an anvil carried by one of said members; a rib E formed upon the outer end of the opposite member; a cutter embracing the rib upon its opposite faces; and means for detachably securing said cutter to the rib, whereby cutters of different forms may be employed, substantially as described.

8. In an instrument of the character specified, the combination of a pair of pivoted levers or handles; a copper anvil carried by one of said members; a rib E formed upon the outer end of the opposite members; reversible cutters, each having a straight and a curved portion, substantially as described; blocks bearing against the outer faces of said straight portions of the cutters and holding them against the rib; and a screw passing through said blocks, cutters and rib, whereby the parts are secured in position, substantially as described.

750,438. INCANDESCENT VAPOR-LAMP. LOUIS DENAYROUSE, Neuilly, France. Filed Mar. 5, 1902. Serial No. 96,741. (No model.)



Claim.—1. In an incandescent lamp of great intensity burning vapor of liquid hydrocarbon, the combination of a group of casings each containing a squeezed wick in a tube of German silver so as to form a cellular lamp, vaporizing-chambers at the upper ends of each one of these different wick-tubes, a single chamber provided with the gas-outlet nozzle, and conduits connecting said vaporizing-chambers with said single chamber.

2. In an incandescent lamp burning vapor of liquid hydrocarbon, the combination of a Bunsen tube, a second tube adjacent thereto and containing a small wick in its lower part, with a lateral air-hole and an opening at the top at the base of the refractory mantle, and means for communicating heat at starting to this vertical tube, and producing a little vapor which is lighted at the top so as to cause the commencement of incandescence of the mantle.

3. In an incandescent lamp burning vapor of liquid hydrocarbon, the combination of means for making a starting-flame, and means for automatically extinguishing the same after the lamp is started.

4. In an incandescent lamp burning vapor of liquid hydrocarbon, the combination of means for making a starting-flame and a blower adapted to automatically extinguish the starting-flame, consisting of a cylinder, a piston therein, a catch holding said piston retracted against the pressure of said spring, and means operated by the heat of the mantle for releasing said catch.

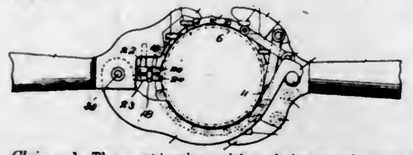
750,439. TOILET-STAND. JOHN C. DOWD, New York, N. Y. Filed Jan. 2, 1903. Serial No. 137,605. (No model.)

Claim.—As an improved article of manufacture, a toilet-stand comprising a single base, a mirror-supporting standard arising from the base, a cup-holder also carried by the base, and a holder-block secured flat upon the base at a point between said standard and cup-holder and provided with a longitudinal trough for receiving the shaving-brush and in rear of the latter with a V-shaped or tapered holding-groove providing a wedging holder for the comb.

750,439.



750,440. DOUBLE-ACTING CHAIN WRENCH. WILLIAM H. DOWNING, Parkersburg, W. Va., assignor of one-half to John W. Solley, Parkersburg, W. Va. Filed Nov. 4, 1903. Serial No. 179,840. (No model.)



Claim.—1 The combination, with a chain wrench, having fulcrum-posts, of a spanner having a fixed jaw, and pivoted arms to straddle the wrench and hook to the said post.

2. The combination, with a chain wrench, of a two-part chain-coupling one part thereof forming a fulcrum-lever, a cam-lever carried by the other part and working against the fulcrum-lever, and the links connecting the parts.

3. The combination, with the chains, and means for clamping them together, of the rigid jaws having a handle-socket, and the links pivoted to the jaws and connecting the chains with the jaws.

4. The combination, with the chains, and means for clamping them together, of the rigid jaws having a handle-socket, a pair of links pivoted to the face of one jaw, and a pair of links pivoted to the opposite face of the other jaw.

5. The combination, with the rigid jaws having a handle-socket, a pair of links pivoted to each jaw, and a pair of chains attached to the links, of a two-part chain-coupling one part thereof forming a fulcrum-lever and the other part having a cam-lever working against the fulcrum-lever.

6. The combination, with the jaws having fulcrum-posts, a pair of links pivoted to each jaw, a pair of chains attached to the links, and the two-part chain-coupling, of the spanner carried by the said posts astraddle the chain, jaws and coupling, the latter being operated to close the chains and the spanner simultaneously.

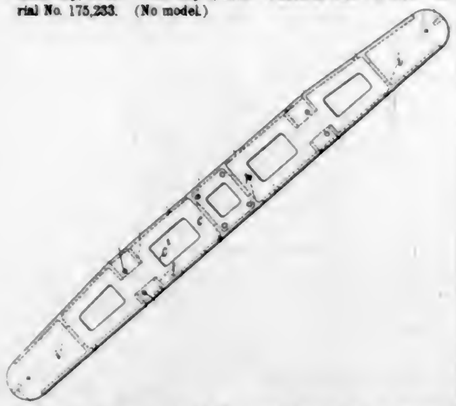
7. In a chain wrench, the combination, with the rigid jaws having bits, and the chain-coupling, of a pair of overlapping arms pivoted to the face of one jaw, and a pair of overlapping arms pivoted to the opposite face of the other jaw and connecting the chains to the jaws.

8. In a double-acting implement for screwing and unscrewing well-casing sections, the combination, with the wrench-jaws rigid with a handle-socket and having bits, arms pivoted to the jaws, fulcrum-posts projecting centrally between the jaws, and the chains connected to the jaws by the arms, of the spanner-jaw rigid with a handle-socket and having bits, a pair of arms pivoted to the spanner-jaw and terminating in hooks to fit the fulcrum-posts, and the chain coupling or clamp to effect and release the grip of the wrench and the spanner.

9. In a wrench, the combination of the chains pivotally connected to the wrench-jaws, a spanner having jaws to straddle the chains, spanner-arms connected to the wrench-jaws astride the latter and said chains, and a coupling device to open and close the chains and thereby effect simultaneous coaction of the spanner and wrench jaws

10. In a wrench, the combination of the chains having a link leverage connection with the wrench-jaws, a spanner having jaws between which the chains are coupled, arms pivoted to the spanner-jaws and detachably connected to the wrench-jaws astride the latter and the chains, and a coupling device to open and close the chains and thereby effect simultaneous coaction of the spanner and the wrench jaws.

750,441. LOCOMOTIVE BUFFER-BEAM. JAMES F. DUNN, Salt Lake City, Utah. Filed July 5, 1902. Renewed Sept. 30, 1903. Serial No. 175,233. (No model.)



Claim.—1. A locomotive buffer-beam, formed of an integral mass of cast metal and having a continuous cavity extended longitudinally through it from end to end, and said beam being open at each end for the purpose specified, and two transverse cavities communicating with the longitudinal cavity and serving to receive the engine-frame beams.

2. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and said beam being open at each end for the purpose specified, and a plurality of cavities extending upward and downward through the top and bottom walls of the beam and serving to receive supports for the core-beam of the mold in which the buffer-beam is cast.

3. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and said beam being open at each end for the purpose specified, and a plurality of cavities extending transversely through certain walls of the beam and serving to receive supports for the core-beam of the mold in which the buffer-beam is cast.

4. A locomotive buffer-beam formed of an integral mass of cast metal, said beam being hollow and having internal strengthening-ribs extending transversely around its walls, said ribs leaving an unobstructed central opening, for the purpose specified.

5. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and vertical ties or ribs located at each end of the beam and extending between the upper and lower walls thereof.

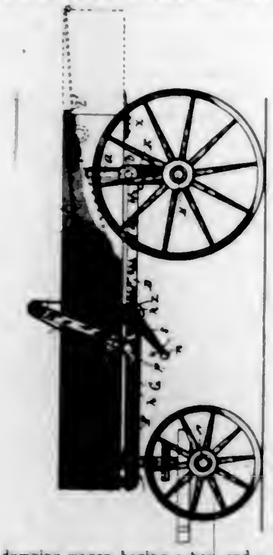
6. A locomotive buffer-beam formed of an integral mass of cast metal, and having a longitudinal cavity extending through it from end to end, the ends of the buffer-beam being open to permit the core of the mold to project to or beyond the ends of the beam, for the purpose specified and said beam having transverse openings facilitating its attachment to the locomotive.

7. A locomotive buffer-beam formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, said beam being open at each end for the purpose specified, and also having an internal strengthening-rib extending transversely around its walls, said rib leaving an unobstructed central opening.

750,442. DUMPING-WAGON. DANIEL S. EVERETT, Macedon, N. Y. Filed Nov. 8, 1903. Serial No. 180,088. (No model.)

Claim.—1. A dumping-wagon comprising a box, a frame beneath the box, and a main carrying-roller for the box near the rear axle, there being guides on the frame at the sides of the box, and parts carried by the box to traverse the guides, and means for moving the box longitudinally, the guides being bent to carry the box out of a horizontal position.

2. A dumping-wagon comprising a box, a frame beneath the box, and a main carrying-roller for the box near the rear axle, and guides on the frame at the sides of the box, and parts carried by the box to traverse the guides, a shaft with crank on the frame provided with sprockets, a series of sprockets on each guide coacting with the respective sprockets on the shaft, and chains on the two series or sets of sprockets, connected with the box.



3. A dumping-wagon having a box, and a frame beneath the box for supporting it, a rear end piece for the box adapted to turn on bearings on the box to form an open rearward extension for the box, and means for moving the box backward on its bearings on the frame.

4. A dumping-wagon having a box, and a frame beneath the box for supporting the latter, a rear end piece for the box adapted to turn on bearings on the box to form an open rearward extension for the box, said end piece having inclined parts for reducing the opening at the rear end of the box, and means for moving the box on the frame.

5. A dumping-wagon having a box open at its rear end, an end piece for the box, consisting of three vertical plates or sides joined, the intermediate side being transverse of the box and serving to close the rear open end of the box, and the extreme sides being parallel with and adjacent to the sides of the box, the end piece being held to the box by a hinge-joint and adapted to turn thereon to bring its said intermediate side into the plane of the bottom of the box.

6. A dumping-wagon having a box open at its rear end, and an end piece joined to the box by a hinge-joint to close said open end of the box, and means for tilting the box and for automatically returning the hinged end piece to its normal or closed position after discharging the load.

7. A dumping-wagon having a movable box, a rear bolster having vertical stakes at the sides of the box, and a horizontal carrying-roller for the box held by the bolster beneath the box, and vertical rollers in the stakes to meet the sides of the box, and means for moving the box between the stakes.

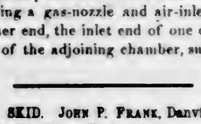
750,443. GLOVE. FREDERICK W. FARRANT, San Francisco, Cal. Filed Sept. 29, 1903. Serial No. 175,016. (No model.)



Claim.—1. The combination in a glove of a body portion having an elongated egg-shaped opening for the thumb, a piece having the convergent outer edges curved and uniting in a notch at the top and the interior curves S adapted to be stitched into the palm-opening whereby the seam of the thumb is carried to the back thereof and a reinforce extending around the base of the thumb and over the uniting-seam thereof, said reinforce fashioned from a piece which is of oval shape and has one long edge made of greater convexity than the opposite end, and slitted between the edge to form a tongue which when the reinforce-piece is slipped over the thumb, is turned upwardly and will extend up on the inner side of the thumb.

2. The combination in a glove of the body and palm portion having an elongated egg-shaped cut made to form the thumb-opening, the thumb-piece having the sides convergent from the base to the tip and curved to form an inwardly-extending notch central of the top of the tip, convexed curves from the lower ends of the divergent sides extending upwardly into the body and adapted to be stepped into the thumb-opening of the glove, a continuous reinforce extending around the base of the thumb covering the seam by which it is united to the palm, said reinforce fashioned from a piece of substantially oval form, having one long edge made more convex than the other said piece being slitted longitudinally parallel with one edge and provided with a cut-out portion in the lower portion thereby forming a tongue which when the reinforce piece is slipped over the thumb, is turned upwardly and will extend up on the inner side of the thumb, the inner part of the reinforce-piece extending well into the palm portion of the glove.

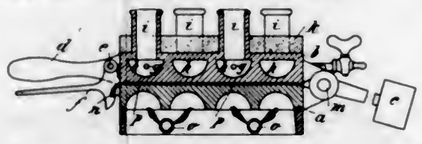
750,444. PIPE-COUPLING. PHILLIP E. FISHER, Spokane, Wash. Filed Nov. 16 1903. Serial No. 181,297. (No model.)



Claim.—1. A pipe-coupling comprising, in combination, pipe lengths each having an exteriorly-reduced end providing a shoulder, and having an inner annular recess, and a coupling consisting of an inner sleeve entering the recesses of adjacent pipe ends to be flush with the inner wall of the pipe, and an outer collar encircling the reduced ends of said pipe lengths and engaging said shoulders.

2. A pipe-coupling comprising, in combination, pipe lengths each having an exteriorly-reduced and tapered end providing a shoulder, and having an inner annular recess, and a coupling consisting of an inner sleeve entering the recesses of adjacent pipe ends to be flush with the inner wall of the pipe, an outer sleeve encircling the reduced ends of said pipe lengths to said shoulders and having its inner surface tapered to conform to the taper of said ends, and a web joining said collar and sleeve.

750,445. BAKING-MOLD. CARL FORCKE, Hanover, Germany. Filed June 11, 1903. Serial No. 160,992. (No model.)



Claim.—1. A baking-mold composed of a lower section and an upper movable section, means for heating the lower section, a chamber in the upper section, a gas-nozzle and an air-inlet at one end of the chamber, and a chimney at the other end, substantially as specified.

2. A baking-mold composed of a lower section and an upper movable section, means for heating the lower section, a series of parallel chambers in the upper section, each chamber being provided with a gas-nozzle and an air-inlet at one end and with a chimney at the other end, and a packing above the chambers, substantially as specified.

3. A baking-mold provided with a series of parallel chambers, each chamber having a gas-nozzle and air-inlet at one end, and a chimney at the other end, the inlet end of one chamber alternating with the exit end of the adjoining chamber, substantially as specified.

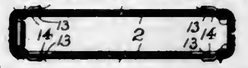
750,446. SKID. JOHN P. FRANK, Danville, Ky. Filed Oct. 8, 1903. Serial No. 176,194. (No model.)



Claim.—1. In a skid, the combination, with two runners provided with pointed and diverging portions at one end, of cross-bars which hold the main portions of the runners parallel with each other.

2. In a skid, the combination, with two runners having upwardly-curved front ends and curved and pointed rear end portions which are also curved outwardly, of cross-bars which hold the main portions of the said runners parallel with each other.

750,447. MATCH OR OTHER BOX. ALBERT F. FULLER, Newark, N. J., assignor to the J. E. Mergott Company, a Corporation of New Jersey. Filed June 1, 1903. Serial No. 159,591. (No model.)



Claim.—1. In a match and other box, the combination, with the body of the box provided with holding portions, of edge plates having marginal guide or receiving portions, and means connected with said guide or receiving portions in engagement with the holding portions of the body of the box, substantially as and for the purposes set forth.

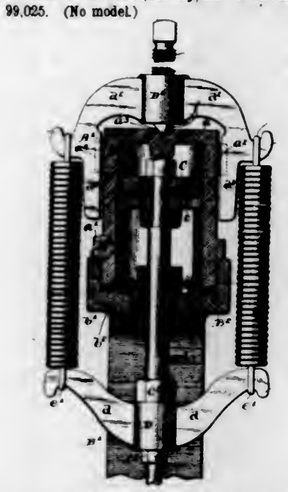
2. In a match and other box, the combination, with the body of the box provided with holding portions, of edge plates having marginal guide or receiving portions, means connected with said guide or receiving portions in engagement with the holding portions of the body of the box, and a card bearing a design or printed matter on its face having its marginal edges arranged beneath said guide or receiving portions of the edge plates, substantially as and for the purposes set forth.

3. In a match and other box, the combination, with the body of the box provided with receiving-openings in its sides, of an edge plate at each end of said box, and holding-lugs on said plates arranged in said openings and bent over against the under surfaces of the sides of the box, substantially as and for the purposes set forth.

4. In a match and other box, the combination, with the body of the box provided with receiving-openings in its sides, of an edge plate at each end of said box, a marginal receiving portion connected with each edge plate, and holding-lugs on said plates arranged in said openings and bent over against the under surfaces of the sides of the box, substantially as and for the purposes set forth.

5. In a match and other box, the combination, with the body of the box provided with receiving-openings in its sides, of an edge plate at each end of said box, a marginal receiving portion connected with each edge plate, and holding-lugs on said plates arranged in said openings and bent over against the under surfaces of the sides of the box, and a card bearing a design or printed matter on its face having its marginal edges arranged beneath said marginal receiving portions, substantially as and for the purposes set forth.

750,448. PRESSURE-REGULATOR FOR STEAM-PUMP GOVERNORS. JOHN W. GARDNER, Quincy, Ill. Filed Mar. 19, 1902. Serial No. 99,025. (No model.)



Claim.—1. In a pressure-regulator for steam-pump governors, a two-part, telescopic cylinder, one of which parts is integral with

the frame, a piston within the cylinder, a piston-stem extending through one head of the cylinder, a yoke having oppositely-directed arms secured to the piston-stem outside of the cylinder, a second yoke having arms parallel with the arms of the first yoke and pressing downwardly on the cylinder, and two springs, one at each side of the device, extending between and connecting said yokes.

2. In a pressure-regulator for steam-pump governors, a two-part, telescopic cylinder, one of which parts is integral with the frame, a piston within the cylinder, a pistou-stem which extends through one of the cylinder-heads, a yoke secured to the piston-stem outside of the cylinder, a second yoke located above the cylinder, and springs extending between said yokes and provided with loops which engage hooks on said yokes.

3. In a pressure-regulator for steam-pump governors, a cylinder comprising two parts which have telescopic engagement at their open ends, one of which is immovable, a piston in the cylinder provided with a stem which extends outside of the cylinder, a yoke attached to said stem, a valve-stem attached to said yoke, a yoke bearing on the end of the cylinder remote from said stem, and springs extending between and connecting the arms of said yokes.

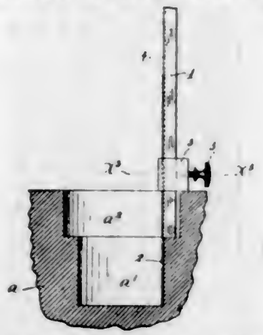
4. In a pressure-regulator for steam-pump governors, a two-part, telescopic cylinder, one part of which is integral with the frame, a piston within the cylinder, a piston-stem extending through one of the cylinder-heads, a yoke secured to said piston-stem and having oppositely-directed arms, a second yoke having arms parallel with the arms of the first yoke, an adjusting-screw extending centrally through said second yoke and bearing on the adjacent cylinder-head, and springs extending between and connecting the ends of said yoke-arms.

5. In a pressure-regulator for steam-pump governors, a two-part telescopic cylinder, one part of which is integral with the frame, a piston within the cylinder, a piston-stem extending through one of the cylinder-heads, a yoke secured to said piston-stem and having oppositely-directed arms, a second yoke having arms parallel with the arms of the first yoke, and an adjusting-screw extending centrally through said second yoke and bearing on the adjacent cylinder-head, springs extending between and connecting the adjacent ends of said yoke-arms, and guide-arms on the upper yoke which engage guide-lugs on the side walls of the cylinder.

6. In a pressure-regulator for steam-pump governors, a two-part telescopic cylinder, one of which parts is integral with the frame, a ring on one part and a suitable stop or shoulder upon the other to limit the telescopic movement, a yoke position to engage one of the cylinder members, a second yoke secured to the piston-stem, springs engaging the two yokes and an adjusting-bolt passing through the upper yoke and engaging the cylinder.

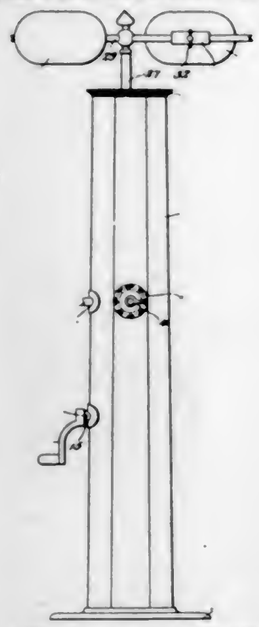
7. In a pressure-regulator for steam-pump governors, a two-part telescopic cylinder, one of which parts is integral with the frame, a ring on one part and a suitable stop or shoulder upon the other to limit the telescopic movement, a yoke positioned to engage one of the cylinder members, a second yoke secured to the piston-stem, springs engaging the two yokes, an adjusting-bolt passing through the upper yoke and engaging the cylinder, the cylinder being provided exteriorly with guides or ways engaging the adjacent yoke, and the other yoke having a guide-arm engaging a guideway in the frame, whereby the alinement of the two yokes will be maintained.

750,449. DEPTH-SCALE. WILLIAM J. GILLARD, Minneapolis, Minn. Filed Aug. 6, 1903. Serial No. 168,399. (No model.)



Claim.—A depth-scale comprising a graduated body-scale 1, having the longitudinal groove 4, the graduated supplemental scale 2 slidably mounted in said groove 4, and the clamp 3 embracing the two scales and slidably mounted thereon, said clamp having the screw 5 for holding the same and the said two scales in various adjustments, substantially as described.

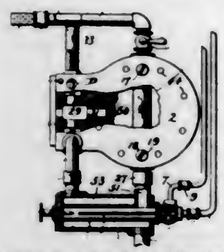
750,450. VENTILATING-FAN. OLIVER GILTNER, Portland, Oreg. Filed Mar. 10, 1903. Serial No. 147,135. (No model.)



Claim.—1. A device of the character described comprising a train of gearing, means for operating the same, a horizontal fan-shaft operated by said gearing, a vertical fan-shaft operated by said horizontal shaft, a shaft having a bifurcated end bearing against said horizontal shaft and means for regulating the pressure of said bifurcated shaft against said horizontal shaft.

2. A device of the character described comprising a train of gearing, means for operating the same, a horizontal fan-shaft operated by said gearing, a vertical fan-shaft operated by said horizontal shaft, a shaft having a bifurcated end, rollers mounted in said bifurcated end and bearing against said horizontal shaft, and a tension device working on the opposite end of said bifurcated shaft.

750,451. VAPORIZER FOR GAS-ENGINES. WILLIAM W. GRAFT, Brooklyn, N. Y. Filed Feb. 13, 1902. Serial No. 93,824. (No model.)



Claim.—1. In a gas-engine, the combination with a combustion-chamber, of a vaporizer, an air-supply passage to said combustion-chamber and a plurality of ducts connecting said vaporizer and air-passage and means for closing any or all of said ducts.

2. In a gas-engine, a vaporizer mechanism secured about the engine, and adapted and provided, to become heated by hot gases evolved within the engine, whereby to heat liquid fed thereinto as a preparatory step for obtainment of a heated product from liquid, which is to be later incorporated with some gaseous body—such as atmospheric air—to effect thereby a combustible compound to effect operation of the engine; inlet and outlet passages upon the vaporizer mechanism, separate pipes conducting separate liquids of differing densities, valve mechanism for effecting control of liquid-discharge from any of said pipes into the vaporizer mechanism; adjustable valves upon and about vaporizing mechanism for controlling discharge into and from the vaporizing mechanism; air-inlet passage communicating with combustion-chamber and with outlet from vaporizer mechanism; extra passages for air, and for vapor of liquid, transmission; plugs for estopping such passages as require to be closed against discharge.

3. In a gas-engine, a vaporizer located in the combustion-chamber of the engine, for rarefying and vaporizing liquid discharged into the vaporizer, such rarefying and vaporizing of liquid transpiring in consequence of heat evolved within the combustion-chamber of the engine; and the liquid thus rarefied, to be thereafter admixed with atmospheric air; inlet and outlet passages upon the vaporizer; liquid-supply pipes; connection made upon the supply-pipes and upon the vaporizer for passage therethrough of liquid from the required supply-pipe and for effecting control of the supply of liquid to discharge into the vaporizer; a passage establishing communication between the interior of the vaporizer and interior of valve-chest; an opening upon this passage having thereon a removable plug; a passage for conveying air into the valve-chest; an inlet-valve disposed upon this air-passage; the air-passage and the passage from the vaporizer disposing to discharge in proximity to the inlet-valve seated in the valve-chest, whereby the air and the heated products of liquid mingle and passing by the valve enter the cylinder, through communicating port, to the combustion-chamber of the engine, to be there utilized for effecting operation of the engine.

750,452. CHECK-BOOK. EDWIN F. GREEN, St. Louis, Mo., assignor to Stephens Lithographing & Engraving Company, St. Louis, Mo., a Corporation of Missouri. Filed Nov. 28, 1903. Serial No. 183,041. (No model.)



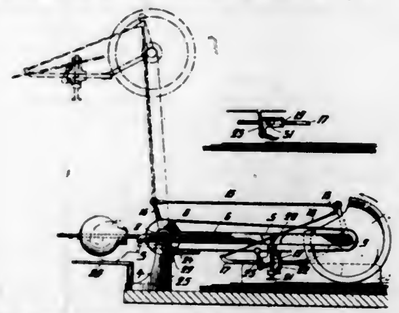
Claim.—1. In a check-book, the combination with a cover having a pocket upon one of its cover-boards, of a backing including front and rear boards, said rear board being extended to produce a tongue fitting in said pocket, checks between said front and rear boards of said backing, and commercial paper-fasteners extending through said checks and said front and rear boards of said backing and securing said boards together; substantially as described.

2. In a check-book, the combination with a cover having one of its boards provided with a pocket, of a backing comprising front and rear filler-boards and a covering which is bent about the free edge of said upper filler-board, has its layers pasted together intermediate said filler-boards to form a back for said backing, and has its layers upon opposite edges of said backing pasted upon opposite faces of said filler-boards, said lower filler-board being extended to form a tongue received in said pocket, checks between said front and rear boards of said backing, and commercial paper-fasteners extending through said filler-boards and said checks and securing said parts together, the free ends of said fasteners being spread and lying between said lower filler-board and the covering-strip pasted upon the under side thereof, whereby said covering-strip secures said fasteners substantially as described.

750,453. PAPER-FEEDING MACHINE. ERNST J. HALLBERG, Stockholm, Sweden. Filed July 8, 1901. Serial No. 67,521. (No model.)

Claim.—1. An apparatus for feeding single sheets of paper from a pile comprising a frame movable toward and from the pile, a suitable feeding device carried thereby, a presser device carried by said frame in rear of said feeding device, a spring tending to force said presser device in contact with the pile of sheets and simultaneously raise the frame and feeding device, and means for holding said presser device raised against the tension of the spring, substantially as described.

2. An apparatus for feeding single sheets of paper from a pile, comprising a frame movable toward and from the pile, a feed device carried thereby, a presser device adjustably carried by said frame, a spring tending to force said presser device in contact with the pile and thereby raise the feed device from the pile, and means for holding said presser device out of contact with the pile against the tension of the spring, substantially as described.



3. In combination, a pivoted supporting-frame, a feeding device mounted thereon with means for operating it, a second frame carried by the pivoted support and adjustable toward and from the feed device, a spring-pressed presser device carried by said frame, and means for holding said presser device elevated until a sheet has been fed from beneath the presser device, substantially as described.

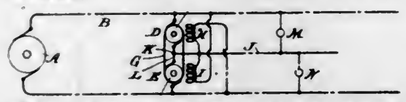
4. In combination, a pivoted supporting-frame, a feed device carried thereby, a bar supported from the frame, means whereby said bar is maintained in a horizontal position without regard to its elevation, a frame adjustably mounted on said bar, a presser device carried by said frame and means for lowering said presser device into contact with the pile and simultaneously raising the feed device, substantially as described.

5. In combination, the pivoted frame or support, a feed device carried thereby, a two-armed lever carried by said frame, a bar having its ends linked to said two-armed lever, a connection from said two-armed lever to a stationary part of the device, a frame adjustably carried by said bar, a presser device movably carried by said frame, and means for operating said presser device, substantially as described.

6. In combination, a pivoted frame or support, a counterbalance therefor, a jointed connection between said counterbalance and frame permitting raising of the frame, a feed device carried by the frame, a presser device carried by the frame in rear of the feed device and means whereby the presser device may be lowered into contact with the pile and the feed device raised on the feeding of the topmost sheet, substantially as described.

7. In combination, a vertically-movable frame or support, a feed device carried thereby, a vertically-movable presser device supported by said frame, a spring tending to force the presser device down into contact with the pile of paper and elevate the frame, a bell-crank lever having one arm engaging said presser device and connections to the other arm for holding the presser device elevated against the tension of the spring, substantially as described.

750,454. SYSTEM OF ELECTRICAL DISTRIBUTION. JOSEF H. HALLBERG, New York, N. Y. Filed Oct. 16, 1903. Serial No. 177,361. (No model.)

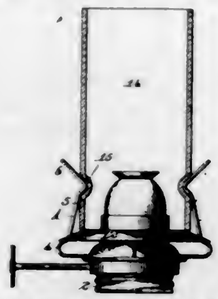


Claim.—1. A multivoltage distribution system, comprising a generator, main conductors leading therefrom, an equalizing-conductor, two motors having their armatures connected across the distribution-circuit, and centrally to an equalizing-conductor, and each its field-magnets across the armature of the opposite motor, together with means for driving the motors at a uniform speed.

2. A multivoltage distribution system, comprising a generator, a system of conductors including an equalizing-conductor, together with means for balancing the current between the conductors in the distribution system in accordance with the load; said means comprising a pair of motors driven at the same speed and having their armatures in series across the distributing-conductors and individually across a distributing-conductor and the equalizing-conductor, and the field-magnets of each motor connected across an equalizing-conductor and the main conductor opposite to that to which the armature of said motor is connected.

3. As a means for balancing the current in individual circuits of a multivoltage system, a pair of motors having their armatures driven at the same speed and connected to supply the required voltages, and the field-magnets of said motors connected in such manner that the field-magnet of a motor will receive current from the circuit in which the armature of the opposite motor is included.

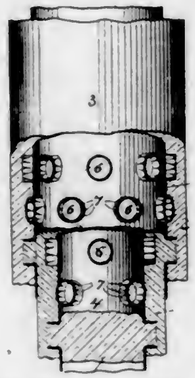
750,455. LAMP-BURNER. WILLIAM S. HAMM, Chicago, Ill., assignor to the Adams and Westlake Company, of Illinois. Filed Aug. 3, 1903. Serial No. 168,083. (No model.)



Claim.—1. In a lamp-burner, a base, and a series of chimney-supporting wires each branching therefrom and extending upwardly, combined with a gallery supported by said wires, a space being left between the inner diameter of the gallery and the cone, substantially as set forth.

2. In a lamp-burner, a base, and a series of wires each branching therefrom and extending inwardly and upwardly, and each having a final outward bend, combined with a gallery supported by said wires, an annular space being left between the inner diameter of the gallery and the cone, said series of wires being adapted to fit and support a chimney having an annular groove, substantially as set forth.

750,456. COMPOSITE BUILDING MATERIAL. RUDOLPH HARTMAN, Madison, Wis. Filed Jan. 24, 1903. Serial No. 140,386. (No model.)

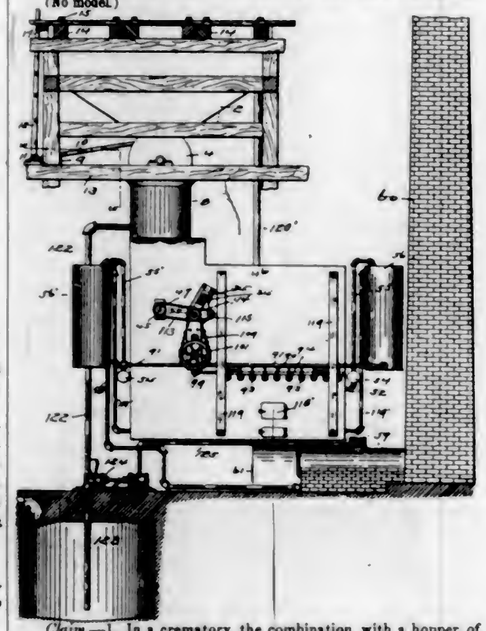


Claim.—1. A composite building material, comprising a solid mass of concrete, having a metal cylinder embedded therein, the walls of said cylinder having tongues or projections punched therefrom, and with the concrete filling the openings thereby made, and at every point inseparably united to the said cylinder.

2. A composite building block or column, designed to resist compression, comprising a solid mass of concrete having a metal cylinder embedded therein, said cylinder being formed with tongues or projections punched therefrom, leaving perforations in the cylinder-wall, and with the concrete filling the said perforations, whereby the said concrete on each side of the said cylinder will be continuously united at the points of said perforations, and both surfaces of the said cylinder be everywhere in contact with and completely covered by the said concrete.

3. A composite building block or column, designed to resist compression, comprising a solid mass of concrete, having a metal cylinder embedded therein, the wall of said cylinder being perforated at intervals but the metal of said cylinder being otherwise continuous, and said perforations being disposed in rows at right angles to the direction of applied pressure, and with the concrete filling the said perforations, and in contact with the wall of the cylinder, on both sides thereof, at every point.

750,457. CREMATORY. FRANK E. HAYCOCK and JOSEPH MCDERMOTT, Minneapolis, Minn. Filed Apr. 18, 1903. Serial No. 153,161. (No model.)



Claim.—1. In a crematory, the combination, with a hopper, of an oscillating member having a series of curved teeth provided in the bottom thereof, a concave having a series of curved teeth arranged to coöperate with the teeth of said member, and means for oscillating said cylinder

2. In a crematory, the combination, with a hopper, of an oscillating member provided in the bottom thereof and having a series of downwardly-turned teeth, and a concave also having a series of downwardly-curved teeth arranged to coöperate with said member, for the purpose specified.

3. In a crematory, the combination, with a hopper, of means provided in the bottom thereof for reducing the material to fragments of uniform size, means for operating said reducing means, a suitable cover for said hopper, and means controlled by the starting and stopping of said operating means for locking and unlocking said cover, substantially as described.

4. In a crematory, the combination, with a hopper, of means provided in the bottom thereof for reducing the material to fragments of uniform size, means for operating said reducing means, wagon-supporting timbers extending across said hopper, gates provided between said timbers and arranged to be opened to allow the discharge of material into said hopper, and means controlled by the starting of said operating means for locking the said gates, substantially as described.

5. In a crematory, the combination, with a hopper, of an oscillating toothed member provided in the bottom thereof, a concave having a series of teeth coöperating with the teeth of said member, a suitable cover for said hopper, and a friction-drive device arranged to simultaneously lock said cover and actuate said member, substantially as described.

6. In a crematory, the combination, with a suitable hopper, of means for reducing the material therein to fragments of uniform size, a perforate floor, a device having obliquely-arranged arms operating thereover, said arms having a series of teeth in their upper edges, for the purpose specified.

7. In a crematory, the combination, with a suitable hopper, of a perforate floor, a crushing and squeezing device arranged to revolve over said floor and having a series of obliquely-arranged arms, and said arms having a series of cutting edges in their lower sides, for the purpose specified.

8. In a crematory, the combination, with a funnel, of a perforate floor therein, a revolving device provided thereon and having a series of radiating arms, said arms being arranged obliquely with respect to the surface of said floor and having a series of teeth in their upper edges, for the purpose specified.

9. In a crematory, the combination, with a funnel, of a perforate floor therein, a revolving device arranged to sweep over the surface of said floor and provided with a series of arms arranged obliquely with respect to said floor, a series of teeth provided in the upper sides of said arms and a series of cutting edges in the lower sides of said arms, for the purpose specified.

10. In a crematory, the combination, with a drying-chamber, of means for extracting the liquids from the solid material before delivery of the latter to said chamber, and means operating to clean the surface of said liquid-extracting means and for spreading the material evenly over the floor of said chamber.

11. In a crematory, the combination, with a drying-chamber, of rolls arranged to extract the liquids from the solid material before delivery of the latter to said chamber, and a revolving brush provided in advance of and in contact with said rolls and arranged to receive the material therefrom and spread it evenly over the floor of said chamber.

12. In a crematory, the combination, with a drying-chamber, of a sliding grate provided in the bottom thereof, and liquid-extracting rolls through which the material passes prior to its discharge into said chamber.

13. In a crematory, the combination, with a drying-chamber, of a sliding grate provided in the bottom thereof, liquid-extracting rolls between which the material passes before its entrance into said chamber, and means for distributing the material from said rolls evenly over said grate.

14. In a crematory, the combination, with a fire-box and grate, of a series of flattened water-tubes swiveled in their supports and forming a close floor above said grate, and a fluid-circulating system connected with said tubes.

15. In a crematory, the combination, with an incinerating-chamber, of means for reducing the solid material to fragments of uniform size, pressure-rolls arranged to receive the crushed material from said reducing means, and a revolving brush arranged to distribute the material from said rolls uniformly within said chamber.

16. In a crematory, an incinerating-chamber provided with a fire-box and grate, a drying-chamber having a sliding grate in the upper part of said incinerating-chamber, a superheating-chamber arranged intermediate to said drying-chamber and said fire-box, and a water-grate separating said superheating-chamber from said fire-box.

17. In a crematory, an incinerating-chamber, comprising a fire-box having a suitable grate, in combination with a superheating-chamber arranged above the same, and a series of swiveled flattened water-tubes closing communication between said fire-box and said superheating-chamber, and a series of water-pipes extending through said fire-box and connected with said water-tubes.

18. In a crematory, the combination, with means for reducing the garbage material to fragments of uniform size, of means for extracting the liquid from the solid material, a drying-chamber whereto the solid material is delivered, a fire-box and grate whereon the material is discharged from said chamber, a filtering apparatus arranged to receive the liquid extracted from said solid material, a condensing device, and a fluid-circulating system extending through said fire-box and connecting said filtering apparatus and said condenser.

19. In a crematory, the combination, with means for separating the liquids from the solids, of a fire-box and grate and a chamber provided above the same, oscillating water-tubes separating said fire-box from said chamber, a filtering apparatus, a condenser, and a fluid-circulating system extending through said fire-box and connecting said filtering apparatus and said condenser with said water-tubes.

20. In a crematory, an incinerating-chamber, comprising a fire-box and grate, a superheating-chamber arranged above the same, a series of oscillating water-tubes separating said fire-box and said superheating-chamber, a drying-chamber provided above said superheating-chamber, a sliding grate therefor, means for discharging the material to be destroyed upon said grate, and means for operating said grate and said water-tubes alternately, substantially as described.

21. In a crematory, an incinerating-chamber, comprising a fire-box and grate, a superheating-chamber provided above said fire-box, water-tubes separating said fire-box from said superheating-chamber, a drying-chamber, a grate separating said drying-chamber from said superheating-chamber, bars connected with said grate and with said water-tubes, multiple-crank shafts whereto said bars are connected, pinions provided on said shafts, and a mutilated gear interposed between said shafts and pinions and arranged to operate them alternately, substantially as described.

22. In a crematory, a closed incinerating-chamber having a fire-box and grate, a superheating-chamber above said fire-box, a series of water-tubes separating said fire-box and said chamber, a drying-chamber above said superheating-chamber, a sliding grate in the bottom of said drying-chamber and whereon the material is deposited preparatory to the burning operation, and flues leading from said drying-chamber to the bottom of said fire-box.

23. In a crematory, the combination, with an incinerating-chamber having a fire-box, of means for separating the liquids from the solids prior to the delivery of the latter to said chamber, a filtering apparatus whereto the liquid is delivered, a suitable condenser, fluid-circulating pipes leading from said filtering apparatus to said condenser, and a gas-conducting pipe leading from said condenser to the bottom of said fire-box.

24. The combination, with an incinerating-chamber, of means for separating the liquids from the solids prior to the delivery of the latter to said chamber, a filtering apparatus whereto the liquid is delivered, a suitable condenser, and fluid-circulating pipes leading from said filtering apparatus through said incinerating-chamber to said condenser.

25. In a crematory, an incinerating-chamber provided with a fire-box and grate, in combination with a flue arranged to project through and above said grate, and a fire-box and grate outside said chamber and communicating with the outer end of said flue.

26. In a crematory, an incinerating-chamber having a fire-box and grate, in combination with flues leading from the upper part of said chamber to the bottom of said fire-box, and a flue projecting through and above said grate, and a second fire-box and grate connected with the outer end of said flue, substantially as described.

27. In a crematory, an incinerating-chamber having closed walls and a fire-box and grate, of a flue extending through the bottom of said chamber and projecting through and above said grate, a boiler provided outside said chamber and having a grate and fire-box communicating with said flue, and a suitable stack connected with said boiler.

28. The combination, with a suitable boiler, of an incinerating-chamber having closed walls and provided with a suitable grate, of flues leading from the upper part of said chamber to a point beneath said grate, and a flue projecting through and above said grate and connecting with the fire-box of said boiler, for the purpose specified.

29. In a crematory, the combination, with means for squeezing and crushing the garbage material, of an inclined perforated floor beneath said crushing and squeezing means, liquid-extracting rolls arranged to receive the coarse material from said inclined floor, and a filtering-chamber provided beneath said floor, substantially as described.

30. In a crematory, a series of flattened-oscillating water-tubes, in combination with a drying-chamber, a movable grate therein, and means for alternately operating said water-tubes and said movable grate.

31. In a crematory, the combination with an inclined perforated floor, of a filtering-chamber beneath the same, liquid-extracting rolls arranged to receive the material from said floor, a brush on the discharge side of said rolls and contacting therewith, and a drying-chamber whereto the material is delivered from said brush.

32. In a crematory, the combination, with a drying-chamber having a movable grate, of a superheating-chamber provided with a series of swiveled water-tubes, and means for alternately operating said grate and said tubes.

33. In a crematory, the combination, with a superheating-chamber, of a series of flattened water-tubes swiveled therein and arranged when in their normal position to form a close floor in the bottom of said chamber, and a fluid-circulating system connected with said tubes.

34. In a crematory, the combination, with a fire-box and grate, of a series of swiveled water-evaporating tubes provided above said grate, a filtering apparatus, steam-condensers, and a fluid-circulating system connecting said filtering apparatus and said condensers with said tubes.

35. In a crematory, the combination, with a fire-box and grate, of water-tubes provided above the same, a fluid-circulating system connected with said tubes, a filtering apparatus, and steam-condens-

ers connected with said filtering apparatus and said fluid-circulating system.

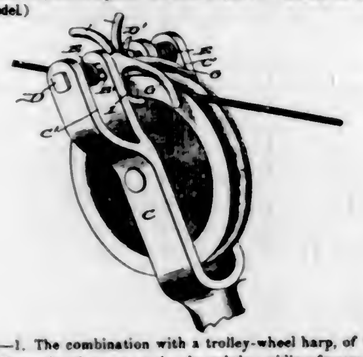
36. In a crematory, the combination, with a fire-box and grate, of a superheating-chamber arranged above the same, and a series of flattened water-tubes separating said fire-box from said chamber and normally closing communication between the same, substantially as described.

37. In a crematory, the combination, with a fire-box and grate, of water-tubes provided above the same, a fluid-circulating system, a steam-condenser connected with said tubes, and a flue leading from the upper part of said condenser to said fire-box.

38. In a crematory, the combination, with a fire-box and grate, of a flue arranged to project up through said grate, a cap provided on said flue, and a second fire-box communicating with the outer end of said flue, for the purpose specified.

39. In a crematory, an incinerating-chamber, comprising a fire-box and grate, a superheating-chamber provided above said grate, a series of flattened water-tubes separating said superheating-chamber from said fire-box and forming a close floor between them, a drying-chamber above said superheating-chamber, and a movable grate separating said drying and superheating chambers, substantially as described.

750,458. **OVERHEAD-TROLLEY ATTACHMENT.** CHARLES HOLYLAND, Sr., Pittsburg, Pa. Filed June 6, 1903. Serial No. 160,368. (No model.)



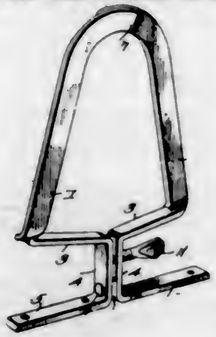
Claim.—1. The combination with a trolley-wheel harp, of the oppositely-disposed spring-actuated rods and the guiding-fingers attached to the inner ends of said rods, said fingers extending in divers directions, as set forth.

2. A trolley-wheel harp having spring-actuated rods, said rods having heads at their inner ends, each head being provided with a plurality of guide-fingers, substantially as described.

3. A trolley-harp having the spring-actuated rods arranged therein, said rods having the curved guiding-fingers, substantially as described.

4. A trolley-wheel harp having bifurcated upper ends, the rods arranged in said bifurcated ends, the spring surrounding said rods and holding their inner faces together, the inner end of each rod being provided with an upwardly, forwardly, a rearwardly, and a downwardly curved finger, all arranged and adapted to operate substantially as described.

750,459. **DIPPER-SCRAPER.** LUCIAN H. JOHNSON, Bonifay, Fla. Filed June 29, 1903. Serial No. 163,629. (No model.)

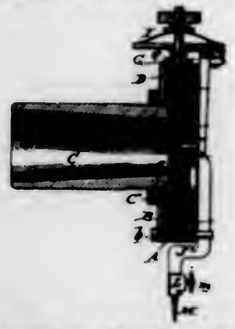


Claim.—1. A cup-scraper formed of a plurality of overlapping resilient scraping members, forming a continuous scraping-blade thereby to permit of contact of the blade with the sides and bottom of the cup.

2. A cup-scraper formed of a plurality of scraping-blades having overlapping arms, and means for adjusting the arms to accommodate cups of different diameter without destroying the continuity of the scraping-blade.

3. A cup-scraper formed of a pair of strips of metal each bent to form a foot or base, a vertical portion extended from the foot, a laterally-extended arm at the upper end of the vertical portion, a scraping-blade formed by turning the strip at a right angle to the plane of the end portion, strips overlapping at their upper ends to form a continuous blade, and means for connecting the two strips to each other.

750,460. **SOUND RECORDING AND REPRODUCING MACHINE.** HENRY JONES, Philadelphia, Pa., assignor to Robert L. Gibson, Philadelphia, Pa. Filed Dec. 7, 1900. Serial No. 39,031. (No model.)



Claim.—1. In a sound recording and reproducing machine, a sound-box having a circular interior an inwardly-directed flange at its outer end and open at its inner end, combined with a diaphragm having a diameter approximately equal to the internal diameter of the box, circular rubber cushions arranged upon each side of the diaphragm close to its periphery and inclosed within the circular box, a stylus-lever adapted to be operated by the diaphragm and having fulcra pivoted to the sound-box in alinement with the plane of the diaphragm-springs projecting upon each side of the fulcra for holding the same down to their seats and producing an elastic resistance to the movement of the stylus-lever in either direction, a stylus-point detachably secured to the stylus-lever and arranged in the same plane with the diaphragm and fulcra of the stylus-lever, and guiding knife-edges K, K for holding the stylus-lever against vibrations in a direction parallel with the plane of the diaphragm.

2. In a sound recording and reproducing machine, a sound-box having a circular interior an inwardly-directed flange at its outer end and open at its inner end, combined with a diaphragm having a diameter approximately equal to the internal diameter of the box, circular rubber cushions arranged upon each side of the diaphragm close to its periphery and inclosed within the circular box, a stylus-lever adapted to be operated by the diaphragm and having fulcra pivoted to the sound-box in alinement with the plane of the diaphragm, springs projecting upon each side of the fulcra for holding the same down to their seats and producing an elastic resistance to the movement of the stylus-lever in either direction, and an additional adjusting-spring acting upon the structure carrying the stylus-lever on opposite sides of the plane through the diaphragm and fulcra, and an adjusting device to vary the tension on both ends of the springs simultaneously.

3. In a sound recording and reproducing machine, a sound-box containing a diaphragm, combined with a rearwardly-extending tubular part having a conical interior with the smallest end adjacent to the diaphragm, means for adjusting and locking the said tubular extension in definite position upon the sound-box whereby the inner end thereof is brought nearer to or farther from the diaphragm but at all times held out of contact therewith, and a suitably-arranged stylus and lever adapted to be operated by the diaphragm.

4. In a sound recording and reproducing machine, a sound-box case having a diaphragm and a back plate, a stylus-lever and stylus adapted to be operated by the diaphragm, and a detachable rearwardly-extending cylindrical part having a conical aperture in which the smallest end of the aperture is adjacent to the diaphragm and

the inner end of the cylindrical part projects beyond the inner face of the back plate of the case.

5. In a sound recording and reproducing machine, a sound-box having a diaphragm, a stylus-lever and stylus adapted to be operated by the diaphragm, springs carried by the stylus-lever plate and extending upon opposite sides of a plane through the pivots, adjusting-screws extending through the free ends of the springs for attaching them to the sound-box or an extension thereof, and an adjustable spring device having extensions acting upon the fulcrum-lever plate upon each side of a plane through the fulcra whereby an increased or decreased resistance may be exerted simultaneously to oppose to a more or less degree a movement of the stylus-lever in either direction.

6. In a sound recording and reproducing machine, a sound-box having a diaphragm, a stylus-lever and stylus adapted to be operated by the diaphragm, springs carried by the stylus-lever plate and extending upon opposite sides of a plane through the pivots, adjusting-screws extending through the free ends of the springs for attaching them to the sound-box or an extension thereof, and a common adjustable spring device having extensions acting upon the fulcrum-lever plate upon each side of a plane through the fulcra whereby an increased or decreased resistance may be exerted simultaneously to oppose to a more or less degree a movement of the stylus-lever in either direction, said spring devices consisting of a leaf-spring I having its ends resting upon the stylus-lever plate, a vertical stud H carried by the sound-box and screw-threaded, and an adjustable nut *h* adapted to the stud and operating upon the middle portion of the leaf-spring.

7. In a sound recording and reproducing machine, the combination of a sound-box having a diaphragm, with a stylus-lever J connecting with the diaphragm and provided with a plate E having pivots *e e*, springs F, F, projecting in opposite directions from the plate E and a plane through the fulcra-pivots parallel to the diaphragm, adjusting-screws F′ for varying the tension of said springs, and rubber cushions *f* surrounding the adjusting-screws F′ and adapted to receive the spring *f*.

8. In a sound recording and reproducing machine, a sound-box having a diaphragm, combined with a stylus-lever extending transversely across the open end of the sound-box and connecting with the central part of the diaphragm and having one end pivoted to the sound-box in the plane of the diaphragm and having the other end provided with a stylus-point also in the plane of the diaphragm.

9. In a sound recording and reproducing machine, a sound-box having a diaphragm, combined with a stylus-lever extending transversely across the open end of the sound-box and connecting with the central part of the diaphragm and having one end pivoted to the sound-box in the plane of the diaphragm and having the other end provided with a stylus-point also in the plane of the diaphragm, spring devices for holding the pivoted end of the stylus-lever to the sound-box, and guides K, K, for holding the opposite end of the stylus-lever against vibration in a direction parallel to the plane of the diaphragm.

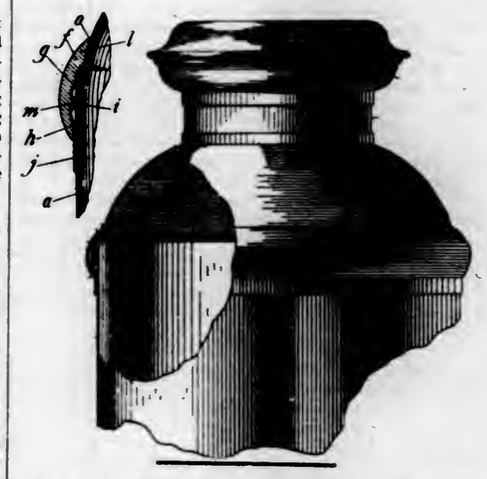
10. In a sound recording and reproducing machine, the combination of a sound-box having a diaphragm, with a stylus-lever structure pivoted to the sound-box at widely-separated places by fulcra-pivots arranged in the plane of the diaphragm a bow or leaf spring I having its ends acting upon the stylus-lever structure on opposite sides of the pivot-points and plane of the diaphragm, a stud H carried by the sound-box, and an adjusting-nut *h* on said stud acting on the central portion of the spring I for varying the resistance to movement of the stylus-lever in either direction.

750,461. **MILK-CAN.** HENRY A. KEINER, Brooklyn, and EDWARD R. GILMAN, New York, N. Y., assignors to Elizabeth C. Seaman, New York, N. Y. Filed Nov. 22, 1901. Renewed June 2, 1903. Serial No. 159,814. (No model.)

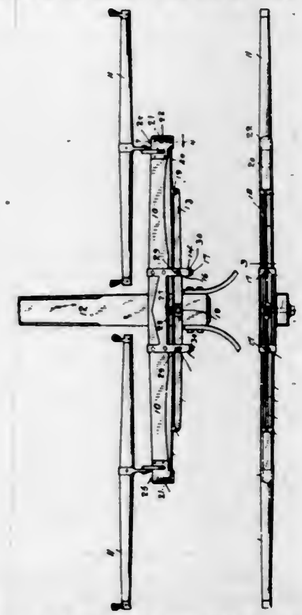
Claim.—1. A milk-can having a cylinder and breast the breast overlapping the cylinder and being provided with an interior bead in the lower part thereof combined with a hoop having a thinned edge extending upon the breast above and overlapping the joint between the cylinder and breast and provided with an interior bead to engage the interior bead of the breast substantially as described.

2. In a milk-can the combination of a suitable cylinder, a breast offset to receive the upper end of said cylinder having a skirt with an inwardly-projecting bead, a ring surrounding the joint between the breast and cylinder and provided with an inwardly-projecting complementary bead *i*, and a thinned or beveled portion *o* extending into the offset on the exterior of the breast above and around the upper edge of the cylinder.

750,461.



750,462. **DRAFT-LIGHTENER.** BENJAMIN H. KELLOGG, Sherman, Conn. Filed Nov. 23, 1903. Serial No. 182,280. (No model.)



Claim.—1. A draft-lightener comprising a draw-bar having fulcrums on opposite sides of the center, levers engaging said fulcrums whose short arms have a common fixed pivot, a flat spring lying between the levers and the draw-bar, a central coil-spring intermediate the flat spring and the draw-bar and coil-springs intermediate the ends of the flat spring and the draw-bar, the long arms of the levers engaging the flat spring intermediate the center spring and the end springs.

2. A draft-lightener comprising a draw-bar having fulcrums on opposite sides of the center, levers engaging said fulcrums, a fixed bolt on which the short arms of the levers are pivoted, a flat spring lying between the levers and the draw-bar and engaged by the long arms of the levers, a central coil-spring intermediate the flat spring and the draw-bar and coil-springs intermediate the ends of the flat spring and the draw-bar.

3. A draft-lightener comprising a draw-bar provided with fulcrums, levers engaging said fulcrums, a fixed bolt on which the short arms of the levers are pivoted and which connects the draw-bar to

the resistance, a flat spring lying between the levers and the draw-bar and engaged by the long arms of the levers, a central coil-spring intermediate the flat spring and the draw-bar and coil-springs intermediate the ends of the flat spring and the draw-bar.

4. A draft-lightener comprising a draw-bar provided with fulcrums, levers engaging said fulcrums, a fixed bolt to which the short arms of the levers are pivoted, a flat spring lying between the levers and the draw-bar and engaged by the long arms of the levers, a relatively weak coil-spring intermediate the center of the flat spring and the draw-bar, and relatively strong coil-springs intermediate the ends of the flat spring and the draw-bar.

5. A draft-lightener comprising a draw-bar provided with fulcrums, levers engaging said fulcrums, a fixed bolt on which the short arms of the levers are pivoted, a flat spring lyiog between the levers and the draw-bar, a central coil-spring intermediate the flat spring and the draw-bar, and stronger coil-springs intermediate the ends of the flat spring and the draw-bar, the long arms of the levers engaging the flat spring at points nearer to the end coil-springs than to the center coil-spring.

6. A draft-lightener comprising a draw-bar provided with slotted fulcrums, levers having hubs, pivot bolts passing through the hubs and engaging the slots in the fulcrums, screw-bolts engaging the fulcrums and bearing against the hubs, a flat spring lying between the levers and the draw-bar, the long arms of the levers engaging the flat spring and the short arms being pivoted to each other and to the resistance, a central coil-spring intermediate the flat spring and the draw-bar and stronger coil-springs intermediate the ends of the flat spring and the draw-bar, the parts being so combined and arranged that adjustment of the screw-bolts may be made to equalize uneven pulling by draft-animals.

7. A draft-lightener comprising a draw-bar, yoke-shaped fulcrums rigidly secured thereto and provided with slots in their opposite sides, levers having hubs lying within the fulcrums, pivot-bolts passing through the hubs and engaging the slots, screw-bolts engaging the fulcrums and bearing against the hubs whereby the levers may be adjusted for the purpose set forth, a flat spring lying between the levers and the draw-bar, the long arms of said levers engaging the flat spring and the short arms being pivoted together and to the resistance, a central coil-spring intermediate the flat spring and the draw-bar and stronger coil-springs intermediate the ends of the flat spring and the draw-bar.

8. A draft-lightener comprising a draw-bar provided with fulcrums, levers engaging said fulcrums, a flat spring lying between the levers and the draw-bar, the long arms of said levers engaging the flat spring and the short arms being pivoted together and to the resistance, a central coil-spring intermediate the flat spring and the draw-bar, stronger coil-springs intermediate the ends of the flat spring and the draw-bar and means for adjusting the tension of the stronger coil-springs.

9. A draft-lightener comprising a draw-bar provided with fulcrums on opposite sides of the center and at its ends with boxes, coil-springs in said boxes, a flat spring whose ends lie in said boxes and rest upon the coil-springs, levers engaging the fulcrums whose short arms are pivoted together and to the resistance and whose long arms are provided with clips which engage the flat spring, a central coil-spring intermediate the flat spring and the draw-bar and movable plates in the boxes for adjusting the tension of the end coil-springs.

750,463. FERTILIZER AND GRAIN DISTRIBUTER. RICHARD Y. KNELLER, Pawnee, Ill. Filed Oct. 29, 1903. Serial No. 179,062. (No model.)

Claim.—1. In combination, a hopper, a tube projected from the hopper in an approximately horizontal position and provided at intervals in its length with discharge-openings, a cap for closing the outer end of the tube and detachably fitted thereto, a feeder insertible into the tube through the cap-closed opening thereof, actuating means for the feeder, a cut-off applied to the tube for regulating the effective size of the discharge-openings, and scatterers for effecting a broadcast delivery of the material, substantially as set forth.

2. In combination, a hopper, a tube connected thereto and provided at intervals in its length with discharge-openings, a feeder for moving the material from the hopper through the tube, and scatterers secured to said tube, each consisting of a frame comprising a lower horizontal and vertical side bars, the latter being connected at their upper ends to opposite sides of the tube, the upper side of the horizontal bar being oppositely inclined, substantially as and for the purpose set forth.

3. In combination, a hopper, a tube projected approximately horizontally therefrom and provided at intervals in its length with discharge-openings, a feeder operating in the tube, a cut-off for regulating the size of the discharge-openings, and scatterers secured to the tube and provided with supports for sustaining the cut-off in working position, substantially as set forth.

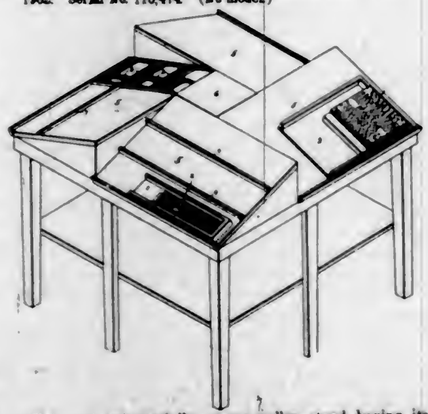


4. In combination, a hopper, a tube projected laterally therefrom and provided at intervals in its length with discharge-openings, a feeder arranged within the tube, a cut-off for regulating the size of the discharge-openings, and scatterers for effecting a broadcast distribution of the material, each of said scatterers consisting of a frame comprising a lower horizontal bar and vertical side bars, the latter having their upper ends embracing opposite sides of the tube and secured thereto and having inwardly-extended lugs to support the cut-off, the lower horizontal bar having its upper side oppositely inclined, substantially as set forth.

5. In combination, a hopper, tubes connected to opposite sides of the hopper by means of a screw-thread joint and having discharge-openings at intervals in their length, handpieces secured to the tubes, and braces connecting the handpieces with the hopper, substantially as set forth.

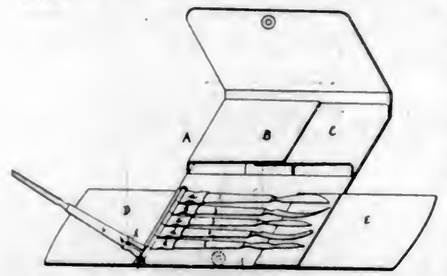
6. In combination, a hopper having its lower portion provided with a central casing in which is formed an opening and having outward passages at each side of the central casing, tubes connected to opposite sides of the hopper, and provided at intervals in their length with discharge-openings, a shaft journaled in the side walls bordering upon the opening in the central part of the hopper, an operating element mounted upon said shaft and located in the opening of said central casing of the hopper, and feeders arranged in the tubes and connected at their inner ends with the said shaft, substantially as set forth.

750,464. GALLEY-STAND. JOHN C. KLING, Canton, Ohio, assignor of one-half to George B. Fresse, Canton, Ohio. Filed June 6, 1902. Serial No. 110,474. (No model.)



Claim.—A substantially square galley-stand having its top shaped as four rectangular working boards, each inclined downward and outward, with one end of each board adjoining the line of the back of another board.

750,465. SURGICAL-INSTRUMENT CASE. FREDERICK A. KOCH, New York, N. Y. Filed Sept. 15, 1903. Serial No. 173,247. (No model.)



Claim.—1. A surgical-instrument holder, consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder, the longitudinal edges of which are left free, one face of said cylindrical holder being longer than the other at the lower end and rolled in such a way as to permit of a rod being inserted, thus forming a hinge, each side of said holder being perforated with a hole extending nearly its entire length, substantially as described.

2. A surgical-instrument holder, consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder, the longitudinal edges of which are left free, one face of said cylindrical holder being longer than the other at the lower end and rolled in such a way as to permit of a rod being inserted, thus forming a hinge, each side of said holder being perforated with a hole extending nearly its entire length, the edges of the upper surface of the holder being beveled or swelled in such a manner as to admit of the tip of the finger being inserted in order that the holder with the instrument may be turned or lifted outwardly, substantially as described.

3. In a surgical-instrument case, the combination, in a folding case, of a group of surgical-instrument holders, all attached, by hinge, to a rod fastened to the interior surface of said case, each holder rotating independently of the others, and each of said holders in said group consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder, the longitudinal edges of which being left free, one face of said cylindrical holder being longer than the other at the lower end and rolled in such a way as to permit of said rod being inserted, thus forming said hinge, each side of each holder being perforated with a hole extending nearly its entire length, substantially as described.

4. In a surgical-instrument case, the combination in a folding case, of groups of surgical-instrument holders, all holders of each group attached, by hinge, to rods fastened to the interior surface or surfaces of said case, each holder rotating independently of the others, and each of said holders in each group consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder, the longitudinal edges of which being left free, one face of each said cylindrical holder in said groups being longer than the other and rolled in such a way as to permit of said rods of said groups being inserted, thus each holder forming said hinge, each side of each holder being perforated with a hole extending nearly its entire length, substantially as described.

5. In a surgical-instrument case the combination, in a folding case, of a group of surgical-instrument holders, all attached, by hinge, to a rod fastened to the interior surface of said case, each holder rotating independently of the others, and each of said holders in said group consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder, the longitudinal edges of which being left free, one face of said cylindrical holder being longer than the other at the lower end and rolled in such a way as to permit of said rod being inserted, thus forming said hinge, each side of each holder being perforated with a hole extending nearly its entire length, the edges of the upper surface of each holder being beveled or swelled in such a manner as to admit of the tip of the finger being inserted in order that each holder with the instrument may be turned or lifted outwardly, substantially as described.

6. In a surgical-instrument case, the combination, in a folding case, of groups of surgical-instrument holders, all holders of each group attached, by hinge, to rods fastened to the interior surface or surfaces of said case, each holder rotating independently of the others, and each of said holders in each group consisting of a metal or other substance having the qualities of a spring, said metal or other substance being so folded or bent as to resemble a flattened cylinder the longitudinal edges of which being left free, one face of each said cylindrical holder in said group being longer than the other and rolled in such a way as to permit of said rods of said groups being inserted, thus each holder forming said hinge, each side of each holder being perforated with a hole extending nearly its entire length, the edges of the upper surface of each holder being beveled or swelled in such a manner as to admit of the tip of the finger being inserted in order that each holder with the instrument may be turned or lifted outwardly, substantially as described.

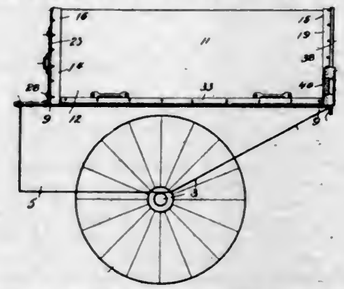
750,466. NUT-LOCK. FRANK P. KOEHIG, Lower St. Clair township, Allegheny county, Pa. Filed Aug. 31, 1903. Serial No. 171,362. (No model.)



Claim.—1. In a device of the character described a combination with the nut, of a bolt, slots formed on opposite sides adjacent to the outer end of said bolt, metallic plate substantially U-shaped, a slot formed in one portion of said plate, the other portion of the plate being cut away to conform to the exterior contour of the nut, tapering sides to the part in which the slot is formed whereby the ends thereof may be bent over after the said slot engages the slot and the bolt, substantially as and for the purpose described.

2. In a nut-lock, a combination with the nut, of the bolt, cut-away portions formed in the opposite sides of the bolt adjacent to the outer end thereof, a metallic U-shaped part, one portion of said part being cut away to conform with the exterior contour of the nut, a slot formed in the other portion of said part, said slot being adapted to engage the slots formed in the holt, the said portion in which the said slot is formed being cut on a taper whereby the ends thereof may be readily bent when the said part is in position on the bolt, substantially as described.

750,467. CART-COVER. SAMUEL KURZMAN, New York, N. Y. Filed June 24, 1903. Serial No. 162,849. (No model.)



Claim.—1. A cover for ash-carts and the like comprising ends, guides, slides operating between said guides and ventilating-openings in said ends.

2. A cover for ash-carts and the like comprising ends, a door in one of said ends, guides fixed to said ends, and slides moving in said guides.

3. A cover for ash-carts and the like comprising ends, guides, doors at one end hinged to said guides and slides adapted to move between said guides.

4. A cover for ash-carts and the like comprising ends, guides fixed to said ends, slides adapted to move between said guides and angle-irons at the lower ends of said slides.

5. A cover for ash-carts and the like comprising ends, guides fixed to said ends, slides adapted to move between said guides and

means adjacent to the lower edges of said slides to make them form a tight joint with a cart-bed.

6. A cover for ash-carts and the like comprising ends, guides fixed to said ends and interengaging slides adapted to move between said guides.

7. A cover for ash-carts and the like comprising ends, guides fixed to said ends, a tie-rod connecting said guides, and slides adapted to move between said guides.

8. A cover for ash-carts and the like comprising ends, guides fixed to said ends, one of said ends being composed of doors with lauges adapted to rest on one of said guides, and slides adapted to move between said guides.

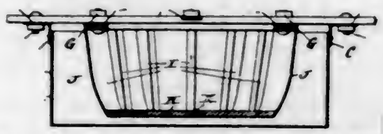
9. A cover for ash-carts and the like comprising ends with ventilating means and opening means between said ends.

10. A cover for ash-carts and the like comprising ends, ventilating means in said ends, opening means between said ends, and means for opening the cover at one end whereby the contents of the cart may be removed.

11. A cover for ash-carts and the like comprising ends, opening means between said ends and hinged and flanged doors at one of said ends.

12. A cover for ash-carts and the like comprising ends, opening means between said ends, hinged doors at one of said ends, a latch on one of said doors and a catch on the other whereby the said doors are held in a closed condition.

750,468. TANK-MOLD. MARION LEE, Angola, Ind. Filed June 1, 1903. Serial No. 159,597. (No model.)



Claim.—1. In tank-mold, the inner part having its outer wall formed of overlapping plates having crevices at their joints and having holes in its bottom, as and for the purpose described.

2. In a tank-mold, the inner part having its outer wall formed of overlapping plates with narrow crevices at their joints and having holes in its bottom, an outer casing, and means to support said inner part on the casing, substantially as shown and described.

3. In a tank-mold, an outer casing, and an inner part supported by said casing, said inner part being composed of overlapping plates having crevices between them, substantially as shown and described.

4. In a tank-mold, an outer casing, brackets on said casing, cross-bars secured to said brackets, and an inner part secured to said cross-bars having its outer surface made up of overlapping plates having crevices between them, substantially as shown and described.

5. In a tank-mold, an outer casing consisting of a continuous band of metal having its overlapping ends suitably secured, and an inner part supported by said casing having its outer surface composed of overlapping plates having crevices between them, substantially as shown and described.

6. In a tank-mold, an outer casing, brackets on said casing, cross-bars secured to said brackets and an inner part secured to said cross-bars consisting of a ring, a bottom plate, ribs connecting said ring and bottom plate, and overlapping sheathing-plates, substantially as shown and described.

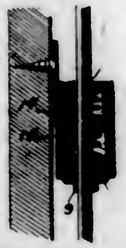
7. In a tank-mold, an outer casing consisting of a continuous band of metal having its overlapping ends suitably secured, brackets secured to said band of metal, cross-bars removably secured to said brackets, and an inner part secured to said cross-bars, having its sides formed of overlapping plates with crevices between them, substantially as shown and described.

8. In a tank-mold, an outer casing consisting of a continuous band of metal having its overlapping ends suitably secured, brackets secured to said band of metal, cross-bars removably secured to said brackets, and an inner part secured to said cross-bars consisting of a ring, a bottom plate, ribs connecting said ring and bottom plate, and overlapping sheathing-plates, substantially as shown and described.

9. In a tank-mold, an outer casing consisting of a continuous band of metal having its overlapping ends secured by screw-bolts and nuts, brackets secured to said band of metal, cross-bars removably secured to said brackets by bolts and nuts, a ring secured to said cross-bars, vertical ribs secured to said ring and inclined inwardly, a bottom plate having holes therein secured to said ribs, and sheathing-plates secured to said ring, ribs, and bottom plate and overlapped to form crevices, substantially as shown and described.

10. In a tank-mold, an outer casing consisting of a continuous band of metal having its overlapping ends secured by screw-bolts and nuts, angular brackets secured to said band of metal, crossed bars removably secured to said brackets by bolts and nuts, a ring secured to said bars, vertical ribs secured to ring and inclined inwardly, a perforated bottom plate secured to the lower end of said ribs, and sheathing-plates secured to said ring, ribs, and bottom plate and overlapped to form narrow crevices at their joints, substantially as shown and described.

750,469. SASH-HOLDER. WILLIAM LENKE, Camden, N. J. Filed Sept. 17, 1903. Serial No. 173,609. (No model.)



Claim.—1. A sash-holder comprising a rod, a member slidably related thereto and having a tapered bore through which the rod extend a laterally-expansible friction-clutch member in the bore and on the rod, and movable longitudinally thereof, and yielding means to exert pressure on opposite sides of said laterally-expansible friction-clutch member.

2. A sash-holder comprising a rod, a member slidably related thereto and having a tapered bore through which the rod extends, a laterally-expansible friction-clutch member in the bore and on the rod, and movable longitudinally thereof, yielding means to exert pressure on opposite sides of said laterally-expansible friction-clutch member, and means to vary the tension of said pressure-exerting means.

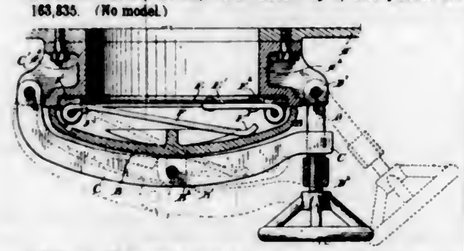
3. In a sash-holder, the combination with a window-frame having supporting-rods fixed thereto, of a sliding sash carrying movable members arranged to engage and slide on said rods, said movable members consisting of hollow cylindrical bodies closed at one end and having open interiorly-threaded opposite ends, nuts or threaded plugs adapted to be screwed into and close said open-threaded ends, a laterally-expansible washer arranged within said hollow cylindrical bodies and around said rods, and means arranged above and below said washer to expand the same and thereby cause a frictional engagement thereof with the inner walls of said cylinder and with said rods, substantially as described.

4. In a sash-holder, the combination with a window-frame having supporting-rods fixed thereto, of a sliding sash carrying movable members arranged to engage and slide on said rods, said movable members consisting of hollow cylindrical bodies closed at one end and having open interiorly-threaded opposite ends, nuts or threaded plugs adapted to be screwed into and close said open threaded ends, a laterally-expansible washer arranged within said hollow cylindrical bodies and around said rods, metallic washers arranged on each side of said expansible washer, springs arranged above and below said washers, the tension of which is exerted to laterally expand said expansible washer, substantially as described.

5. In a sash-holder, the combination with a window-frame having supporting-rods fixed thereto, of a sliding sash carrying movable members arranged to engage and slide on said rods, said movable members consisting of hollow cylindrical bodies closed at one end and having open interiorly-threaded opposite ends, nuts or threaded plugs adapted to be screwed into and close said open threaded ends, a laterally-expansible washer arranged within said hollow cylindrical bodies and around said rods, metallic washers arranged on either side of said expansible washer, a light spring arranged above said washers and a heavy spring arranged below the same, the tension of said spring being exerted to expand said expansible washer, and means whereby the tension of said springs and the expansion of said washer may be increased, substantially as described.

6. In a sash-holder, the combination with a window-frame having supporting-rods fixed thereto, of a sliding sash carrying movable members, said movable members consisting of hollow cylindrical bodies having conical-shaped cavities closed at one end and having open interiorly-threaded opposite ends, nuts or threaded plugs adapted to be screwed into and to close said open threaded ends, alined opening formed in the closed end and nuts of said cylindrical bodies through which pass said supporting-rods, a split, expansible washer arranged within said conical cavities and around said rods, metallic washers arranged on each side of said split washer, a light spring coiled around said rods above said washers and a heavy spring similarly arranged below the same, the tension of said springs being exerted to expand said split washer, and means whereby the tension of said springs and the expansion of said washer may be increased, substantially as described.

750,470. SAFETY DUMPING-DOOR FOR GAS-PURIFIERS. HERBERT F. LLOYD, Detroit, Mich. Filed July 1, 1903. Serial No. 163,835. (No model.)



Claim.—1. The combination of an outer door hinged at one side of an opening to close the same, an inner door at the inner side of the outer door, hinged at the side of said opening diametrically opposite that at which the outer door is hinged and held closed by the outer door, and means for holding the outer door closed.

2. The combination of an outer door, an inner door located at the inner side of the outer door, means for engaging the inner door, pivoted at one end and operated by the movement of the outer door for releasing the inner door, and means for holding the outer door closed.

3. The combination of an outer door, an inner door located at the inner side of the outer door, means pivoted at one end adjacent to the edge of the inner door to engage the same and engaging the outer door at its opposite end, whereby the inner door is released when the outer door is fully opened, and means for holding the outer door closed.

4. The combination of an outer door hinged at one side of the discharge-opening, an inner door located within the opening at the inner side of the outer door and hinged at the diametrically opposite side of said opening from that at which the outer door is hinged, and means engaged by the outer door for holding the inner door closed, whereby the inner door is released when the outer door is fully opened.

5. The combination of an outer door, an inner door hinged at at one side of the discharge-opening of the purifier, and means pivoted at the opposite side of said opening to hold the door closed and operated by the outer door to release the inner door.

6. The combination of an outer door, an inner door hinged at one side of the discharge-opening of the purifier, and means pivoted at the opposite side of said inner door and held in engagement therewith by the outer door, whereby the opening of the outer door releases the inner door.

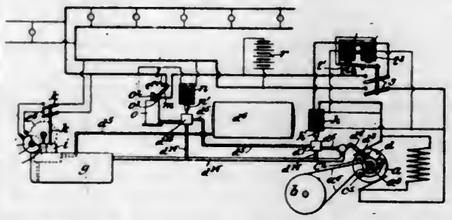
7. The combination of an outer door, an inner door hinged at one side of the discharge-opening of the purifier, a lever pivoted at the opposite side of the opening and adapted to be engaged by the inner door near its pivot and to engage the outer door at its end to move therewith and release the inner door.

8. The combination with a purifier-box having a discharge-opening, an outer door hinged to the box at one side of said opening, an inner door hinged to the box at the opposite side of said opening, a lever pivoted to the box diametrically opposite the hinge of the inner door and adapted to be engaged by said door near its pivot and engaging with its free end the side of the outer door farthest from its hinge.

9. The combination with a purifier-box having a discharge-opening, a curved bar pivoted to the box at one side of the opening, an outer door pivoted to said bar, an inner door hinged to the box at the opposite side of the opening, a bar pivoted at one end to the box diametrically opposite the hinge of the inner door and having a curved end engaging the outer door, and a yoke to engage the end of the curved bar and hold the outer door closed.

10. The combination with a purifier-box having a discharge-opening, a flange on the box around said opening provided with a recess and a seat, an outer door to engage the seat, a curved bar pivoted to the flange at one end and to which the outer door is pivotally attached, a yoke pivoted to the flange and engaging the opposite end of said curved bar, a screw carried by said yoke to engage the bar, an inner door within the recess of the flange and hinged to the flange at one side, a lever pivoted to the flange adjacent to the inner door and at the side thereof opposite the hinge and extending across beneath the door to engage the outer door at its free end, and a shoulder on said lever to engage the inner door.

750,471. SYSTEM OF ELECTRICAL GENERATION, DISTRIBUTION, AND CONTROL. LAMAR LYNDON, New York, N. Y., and ELMER A. SPERRY, Cleveland, Ohio, assignors to National Battery Company Jersey City, N. J., a Corporation of New Jersey. Filed Jan. 17, 1903. Serial No. 139,399. (No model.)



Claim.—1. The combination of a variable power source, an electric generator, a variable power transmission between the power source and the generator, fluid-pressure-operated devices for varying the transmission of power, and electrically-actuated devices in the circuit and including a statically-balanced moving element for controlling said devices.

2. The combination of a variable power source, an electric generator, a variable power transmission between the power source and the generator, fluid-pressure-operated devices for varying the power transmission, a two-way valve for controlling said devices, and electrical devices in the circuit to actuate said valve.

3. The combination of a variable power source, an electric generator, a variable power transmission between the power source and the generator, fluid-pressure-operated devices for varying the power transmission, a balanced valve to control said devices, and electrical devices in the circuit to actuate said valve.

4. The combination of a variable-speed-power source an electric generator, a variable-friction power transmission between the power source and generator, fluid-pressure-operated devices for varying the friction, and electrically-actuated devices in the circuit and including a statically-balanced moving element for controlling said devices.

5. The combination of a variable-speed-power source, an electric generator, a variable-friction power transmission between the power source and the generator, fluid-pressure-operated devices for varying the friction, a two-way valve for controlling said devices, and electrical devices in the circuit to actuate said valve.

6. The combination of a variable-speed-power source, an electric generator, a variable-friction power transmission between the power source and the generator, fluid-pressure-operated devices for varying the friction, a balanced valve to control said devices, and electrical devices in the circuit to actuate said valve.

7. The combination of a power source, an electric generator, a variable power transmission, electric translating devices, a current-controller between the translating devices and the generator, actuating devices for both the current-controller and the variable power transmission, and a common source of power for said actuating devices.

8. The combination of a power source, an electric generator, a variable power transmission, electric translating devices, a current-controller between the translating devices and the generator, actuating devices for both the current-controller and the variable power transmission, a common source of power for said actuating devices, and a motor for said source of power in circuit with the translating devices.

9. The combination of a source of power, an electric generator, a variable power transmission, electric translating devices, a current-controller between the translating devices and the generator, actuating devices for both the current-controller and the variable power

transmission, and electrical devices in the circuit to control the actuating devices.

10. The combination of a source of power, an electric generator, a variable power transmission, electric translating devices, a current-controller between the translating devices and the generator, actuating devices for both the current-controller and the variable power transmission, and statically-balanced electrical devices in the circuit to control the actuating devices.

11. The combination of a power source, an electric generator, a variable-speed power transmission, electric translating devices, a current-controller between the translating devices and the generator, fluid-pressure-actuating devices for both the current-controller and the variable power transmission, and a common source of fluid-pressure for said actuating devices.

12. The combination of a power source, an electric generator, a variable-speed power transmission, electric translating devices, a current-controller between the translating devices and the generator, fluid-pressure-actuating devices for both the current-controller and the variable power transmission, a common source of power for said actuating devices, and a motor for said source of power in circuit with the translating devices.

13. The combination of a source of power, an electric generator, a variable-speed power transmission, electric translating devices, a current-controller between the translating devices and the generator, fluid-pressure-actuating devices for both the current-controller and the variable power transmission, and electrical devices in the circuit to control the actuating devices.

14. The combination of a source of power, an electric generator, a variable-speed power transmission, electric translating devices, a current-controller between the translating devices and the generator, fluid-pressure-actuating devices for both the current-controller and the variable power transmission, and statically-balanced electrical devices in the circuit to control the actuating devices.

15. The combination of a power source, an electric generator, a variable-power-transmission device for the generator, devices in operative relation with the generator to establish fluid-pressure, means operated by the fluid-pressure to control the variable-power-transmission devices, electrical actuating means for said fluid-pressure devices and circuit connections between the generator and the electrical actuating means.

16. The combination of a power source, an electric generator, a variable-power-transmission device for the generator, devices in operative relation with the generator to establish fluid-pressure, and means operated by the fluid-pressure to control the variable power transmission, electrical actuating means for said fluid-pressure devices and shunt connections between the generator and the electrical actuating means.

17. The combination of a power source, a shunt-wound electric generator, a variable-transmission device for the generator, devices in operative relation with the generator to establish fluid-pressure, and means operated by the fluid-pressure to control the variable power transmission, electrical actuating means for said fluid-pressure devices and circuit connections between the generator and the electrical actuating means.

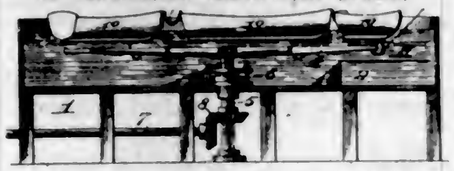
18. The combination of a power source, an electric generator, a variable-power-transmission device for the generator, devices in operative relation with the generator to establish fluid-pressure, and means operated by the fluid-pressure to control the variable power transmission, electrical actuating means for said fluid-pressure devices, circuit connections between the generator and the electrical actuating means, and a storage battery in circuit with the generator.

19. The combination of an electric generator, a variable-power-transmission device for the generator, devices in operative relation with the generator to establish fluid-pressure, and means operated by the fluid-pressure to control the variable power transmission, electrical actuating means for said fluid-pressure devices, circuit connections between the generator and the electrical actuating means, a storage battery in circuit with the generator, and a switch between the generator and the battery.

20. The combination of a source of power, an electric generator, a variable-power-transmission device for the generator, electrically-actuated devices in operative relation with the generator to establish fluid-pressure, and means operated by the fluid-pressure to control the variable power transmission, electrical actuating means for said fluid-pressure devices, circuit connections between the generator and the electrical actuating means, a storage battery in circuit with the generator, a switch between the generator and the battery, and electrical devices included in the circuit to control said switch.

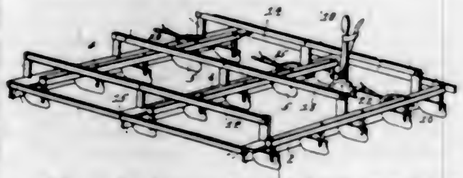
21. The combination of a group of electric translating devices, a storage battery, an electric generator, a variable-speed-power source for the generator, means for controlling the speed of the generator, a switch between the generator and battery, a rheostat between the generator and the translating devices, means to operate said switch and said rheostat, and electrical devices included in the circuit to control the operation of said speed-controlling means.

750,472. WATER-CAROUSEL. ALEXANDER MEFFERT, St. Louis, Mo. Filed Oct. 15, 1903. Serial No. 177,130. (No model.)



Claim.—In a water-carousel, the combination of a tank, inclined benches surmounting the bottom of said tank to be submerged beneath water in the tank, a rotatable spider having paddle-shaped arms for operation within the water in the tank to agitate said water and create swells over said benches and boats connected to said spider-arms, substantially as set forth.

750,473. HARROW. HARRY J. METZ, Bellevue, Iowa. Filed Sept. 2, 1902. Serial No. 121,821. (No model.)



Claim.—1. In a harrow, a draw-bar, shovels attached to the draw-bar and adapted for universal movement at their forward ends, means for suspending the shovels at their rear ends, and means for deflecting the line of travel of the shovels.

2. In a harrow, draw-bars, shovels attached to the draw-bars and adapted for universal movement at their forward ends and suspended at their rear ends, means for deflecting the line of travel of the shovels and means for tilting the shovels longitudinally.

3. In a harrow, a draw-bar, shovels attached to the draw-bar and adapted for universal movement at their forward ends and suspended at their rear ends, and means for tilting the shovels longitudinally.

4. In a harrow, a frame, a draw-bar pivoted to the frame, shovels attached to the draw-bar and adapted for universal movement at their forward ends, means for deflecting the line of travel of the shovels, and a lever for tilting the shovels longitudinally.

5. In a harrow, a draw-bar pivoted in the frame, shovels loosely attached at their forward ends to the draw-bar, and pivotally suspended from their rear ends, and a lever for deflecting the line of travel of the shovels.

6. In a harrow, a frame, draw-bars pivoted in the frame, shovels attached at their forward ends to the draw-bars by link attachment and pivotally suspended at their rear ends, and means for tilting the shovels longitudinally.

7. In a harrow, a frame, draw-bars pivoted in the frame, shovels linked to the draw-bars and adapted for universal movement at their forward ends, and a lever for deflecting the line of travel of the shovels.

8. In a harrow a series of pivotally-hung draw-bars, means for connecting the draw-bars together, shovels loosely attached at their forward ends to the draw-bars and a lever attached to one of the draw-bars for rotating said bars and tilting the shovels longitudinally upon their rear ends.

9. In a harrow, a frame, draw-bars pivoted to the frame and connected together, shovels universally attached at their forward ends to the draw-bars and pivotally suspended at their rear ends, means for deflecting the line of travel of the shovels and a lever for tilting the shovels on their rear ends.

10. In a harrow, a series of draw-bars each formed substantially as described and shown said draw-bars pivoted in the frame and connected together, shovels loosely attached to the draw-bars a lever attached to one of the draw-bars for rotating the draw-bars and tilting the shovels longitudinally.

11. In a harrow, a frame, draw-bars formed in angle shape pivotally set in the frame, connection between the draw-bars, shovels loosely attached to the draw-bars outside of the center of rotation of the draw-bars, means secured to the shovels for deflecting their line of travel, and a lever secured to one of the draw-bars for rotating the draw-bars to tilt the shovels longitudinally and force them into the ground.

12. In a harrow, the combination of a frame, draw-bars connected together and pivoted in the frame, shovels loosely attached to the draw-bars, a lever attached to one of the draw-bars for rotating the same and tilting the shovels, a dog secured to the lever and adapted to engage a sector-plate to hold the shovels in their tilted position, a bar 12, means for pivoting the rear of the shovels to said bar and a lever attached to a draw-bar and bar 12 for deflecting the line of travel of the shovels.

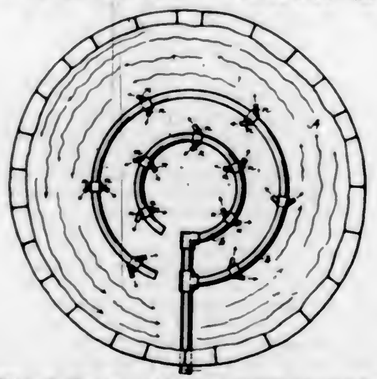
13. In a harrow, a frame, draw-bars pivoted to the frame, shovels loosely attached to the draw-bars at their forward ends, means for pivoting the shovels at their rear ends, a lever for rotating the draw-bars to raise the forward ends of the shovels and depress their rear ends by contact with the rear of the draw-bars, means attached to the lever for holding the shovels in their longitudinally-tilted position, levers secured to the draw-bars and connected to the means for pivoting the shovels at their rear ends for deflecting the shovels in their line of travel and means for holding the shovels in such deflected position.

14. In a harrow, one or more draw-bars, shovels as described loosely attached at their forward ends to the draw-bars and pivotally suspended at their rear ends and means for deflecting the line of travel of the shovels.

15. In a harrow, a draw-bar of angle-bar shape, shovels as described loosely attached to the draw-bars outside of the center of rotation of the draw-bar and adapted for universal movement at their forward ends, means for pivotally suspending the shovels at their rear ends, a lever for deflecting the line of travel of the shovels and a lever for forcing the shovels into the ground by raising the forward ends of the shovels and depressing their rear ends by contact with the draw-bars.

16. In a harrow, a frame, draw-bars of angle-bar shape, shovels attached at their forward ends to the draw-bars at an angle to the center of rotation of the draw-bars and pivotally suspended at their rear ends, connection between the draw-bars, and a lever for rotating the draw-bars to force the shovels into the ground by raising the front end of the shovels and depressing the rear ends by contact with the draw-bars.

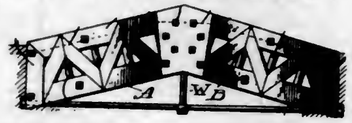
750,474. WATER PURIFICATION. CLEOPHAS MOREAU, Middletown, Ohio. Filed Dec. 31, 1901. Serial No. 87,876. (No model.)



Claim.—1. The process of purifying water impounded in settling or other reservoirs in a system of water-supply, consisting in keeping the impounded water flowing or circulating in contact with the atmosphere and simultaneously increasing aeration by discharging air in small streams therein in the direction of the flow desired.

2. The process of purifying water impounded in settling or other reservoirs in a system of water-supply, consisting in keeping the water so impounded flowing or circulating in contact with the atmosphere by discharging water and air commingled in a plurality of small streams therein, in the direction of the flow desired.

750,475. CONSTRUCTION OF BRIDGES. JOHN F. MORTON, St. Louis, Mo., assignor of one-half to David A. Morton, Montauk, Mo. Filed May 7, 1903. Serial No. 156,060. (No model.)



Claim.—A bridge made up of two inclined sections, each section comprising two series of beams obliquely disposed in vertical planes, mortised together at angles to one another, parallel series of beams mortised to the meeting ends of said series which are disposed at vertical planes, two series of intersecting cross-brace beams parallel with each other and mortised to said parallel series of beams, bolts holding the beams together, vertically-disposed meeting beams fastened to each section and bolted together, plates bolted to said meeting beams and to each other, a truss-rod connecting the outer ends of the sections, and a rod fastened to said truss-rod and engaging said meeting beams, as shown and described.

750,476. LAMP-BURNER. JOHN A. MOSHER and WILLIAM D. LEECH, Chicago, Ill., assignors to the Adams and Westlake Company, of Illinois. Filed Aug. 3, 1903. Serial No. 168,092. (No model.)



Claim.—1. In a lamp-burner, the combination of a chambered base, a wick-tube passing centrally therethrough, a cone the lower portion of which is secured to said base and the upper portion of which is provided with openings, and a flame-spreader seated within and extending beyond said cone, substantially as set forth.

2. In a lamp-burner, the combination of a chambered and vented base, a wick-tube passing centrally therethrough, a cone the lower portion of which is secured to said base and the upper portion of which is provided with openings, and a flame-spreader seated within and extending beyond said cone, substantially as set forth.

3. In a lamp-burner, the combination of a chambered and vented base, a lower cone-section secured to the dome of said base, an upper detachable cone-section provided with openings, and a flame-spreader seated within and extending beyond said cone and within the same to a short distance from the top of the wick-tube proper, substantially as set forth.

4. In a lamp-burner, the combination of a chambered and vented base, a lower cone-section secured to the dome of said base, an upper detachable cone-section provided with openings, and a tubular flame-spreader seated within and extending beyond said upper section of the cone and having a cup-shaped top, said spreader also extending into the cone to and within a short distance from the top of the wick-tube proper, the construction being such that a free circulation of air shall be provided for throughout the cone and around the apex of the wick-tube and said flame-spreader, substantially as set forth.

5. In a lamp-burner, a chambered base, a wick-tube passing centrally therethrough, and a cone the lower portion of which is secured to said base and whose upper portion is provided with openings, combined with a flame-spreader seated within and projecting beyond the cone and also within the same to a short distance from the top of the wick-tube proper, the construction being such that there may be a free circulation of air through the cone and about the apex of the wick-tube and the flame-spreader, substantially as set forth.

750,477. APPARATUS FOR APPLYING COUPLINGS TO AND REMOVING COUPLINGS FROM SHAFTING. WALTER J. MUSGRAVE, Cumberland, Md., assignor of one-half to Cumberland Steel Company, Cumberland, Md., a Corporation of Maryland. Filed Jan. 25, 1902. Serial No. 91,230. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a suitable bed; a press mounted at one end thereon; a frame at the opposite end of the bed; truss-rods connecting said frame and the body of the press; an abutment mounted upon the bed intermediate the press and the frame; a series of shaft-supports

mounted on the bed; connections intermediate said supports and the truss-rods; and means for centering and clamping shafts of varying diameters on said supports, substantially as described.



2. In an apparatus of the character described, the combination of a suitable bed; an abutment for the end of a shaft, mounted on the bed and movable lengthwise thereon; means for securing the abutment in place; a press secured to the bed at the opposite end thereof, and means mounted on the bed intermediate the press and the abutment for clamping and centering shafts of varying diameters and holding the same against lateral deflection.

3. In an apparatus of the character described, the combination of a suitable bed; a press secured to the bed at one end thereof; truss-rods extending from the press in line with the bed; an abutment adjustably mounted on the bed; connections intermediate said abutment and the rods; a series of adjustable clamping-supports for the shaft mounted on the bed intermediate the press and the abutment; and connections intermediate said supports and the truss-rods.

4. In an apparatus of the character described, the combination of a suitable bed; a press secured to the bed at one end thereof; a frame secured to the opposite end of the bed; truss-rods mounted intermediate said frame and the press; a movable abutment mounted on the bed; adjustable connections intermediate the abutment and the rods; and a series of adjustable shaft supporting and clamping devices mounted on the bed, said devices embracing the truss-rods, substantially as described.

5. In an apparatus of the character described, the combination of a suitable bed; a press mounted on one end thereof; an abutment mounted on the bed; truss-rods extending longitudinally of the bed; a series of shaft supporting and clamping devices mounted on the bed, said devices embracing the truss-rods; and means for securing the supporting and clamping devices to the bed.

6. In an apparatus of the character described, the combination of a suitable bed; a press mounted on one end thereof; a series of shaft-supports also mounted on the bed for centering and clamping the shaft being operated upon; a member mounted on the bed adjacent to the press, said member having a recess formed therein; and a bushing seated in said recess, substantially as and for the purpose described.

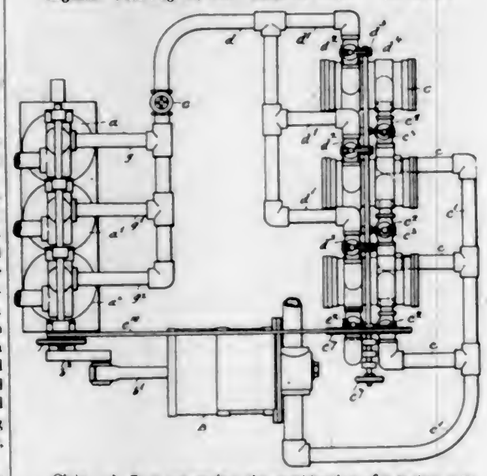
7. In an apparatus of the character described, the combination of a suitable bed; a press mounted on one end thereof; a series of shaft-supports mounted on the bed for centering and clamping the shaft being operated upon; a member mounted on the bed adjacent to the press; truss-rods extending outwardly from the press and in operative connection with said member; and a removable U-shaped bushing mounted in the member, substantially as and for the purpose described.

8. In an apparatus of the character described, the combination of a suitable bed; a press mounted on one end thereof; a fixed frame secured to the opposite end of the bed; threaded truss-rods extending from the press to said frame; an adjustable abutment mounted on the bed and embracing the truss-rods; means acting in conjunction with said threaded rods for securing said abutment in its adjusted position; a series of shaft supporting and clamping devices mounted on the bed and embracing the rods; and means for securing said devices to the bed in their adjusted positions.

9. In an apparatus of the character described, the combination of a suitable bed; a press mounted on one end thereof; a fixed frame secured to the opposite end of the bed; a pair of threaded truss-rods extending from the press to the frame; an abutment adjustably mounted on the bed and embracing the rods; nuts mounted on the rods in rear of said abutment; a series of shaft supporting and clamping devices adjustably mounted on the bed and embracing the rods; and means for securing said devices to the bed, substantially as described.

10. In an apparatus of the character described, the combination of a suitable bed, a press mounted thereon; a frame fixed to the opposite end of the bed; threaded truss-rods mounted intermediate the press and said frame; an adjustable abutment mounted on the bed and embracing the rods; means for moving said abutment longitudinally of the bed; nuts mounted on the rods in rear of said frame; a series of frames *a* mounted on the bed and likewise embracing the rods; adjustable shaft-supports mounted upon and carried by said frames; a yoke secured to the upper portion of each frame; clamps carried by said yokes arranged to bear upon the upper face of the shaft; means for securing said frames to the bed; and means for traversing said frames along the bed to secure their initial adjustment.

750,478. GAS AND OIL ENGINE. BERNARD MUSGRAVE, Heaton, England. Filed Aug. 29, 1902. Serial No. 121,511. (No model.)



Claim.—1. In a gas-engine, the combination of a motor, a rotary shaft for said motor, a force-pump, three combustion-chambers distinct from said motor and from said pump, an inlet-valve, an outlet-valve, a discharge-valve and an ignition device for each of said chambers, passages connecting said pump with each of said chambers other passages connecting each of said chambers with said motor, and mechanism for operating said valves and ignition devices in such manner that during each revolution of said motor-shaft one of said chambers is filled with compressed carbureted air by said pump, the mixture in the second chamber exploded and supplied to the motor, and the remaining combustion-gases discharged from the third chamber.

2. In a gas-engine, the combination of a motor having inlet and exhaust ports, a rotary shaft for said motor, a force-pump having an inlet and an outlet, three combustion-chambers distinct from said motor and from said pump, each of said chambers having an inlet-opening, an outlet-opening and a discharge-opening, a valve in each of said openings, an ignition device for each of said chambers, passages connecting the outlet of said pump with the inlet of each of said chambers, other passages connecting the outlet of each of said chambers with the inlet of said motor, and mechanism for operating said valves and ignition devices in such manner that during each revolution of said motor-shaft one of said chambers has its inlet-valve in open and its other valves in closed position, the second chamber has its ignition device operated and its outlet-valve opened, its other valves being at the time in closed position, and the third chamber has its discharge-valve in open and its other valves in closed position.

3. In a gas-engine, the combination of a motor, inlet and exhaust valves for the same, a crank-shaft for said motor, a compressor, three independent combustion-chambers communicating each with said compressor and with said motor but distinct therefrom, an inlet-valve, an outlet-valve, a discharge-valve and an ignition device for each of said chambers, and mechanism for operating said valves and ignition devices in such manner that during each working stroke of the motor one of said chambers is filled with compressed explosive mixture by the said compressor, and during the next stroke of the motor the mixture in said chamber is exploded and supplied to the motor, and during the third stroke of the motor the remaining combustion-gas is discharged from said chamber.

4. A carbureted-air engine, consisting of the combination of a motor, a compressor driven by the motor, three independent combustion-chambers, pipes connecting each of said chambers with said compressor, a second range of pipes connecting each of said chambers with said motor, a third range of pipes forming a communication between each of said chambers and the atmosphere, a valve in each of said pipes, an electric ignition device for each of said chambers, said valves and said ignition devices being controlled by said motor so that while the charge in one of said chambers after ignition is acting on said motor, the second chamber is receiving its charge from said compressor, while the residue of exploded gases in the third of said chambers is discharging into the atmosphere.

5. A carbureted-air engine consisting of the combination of a motor, a rotary shaft for said motor, a force-pump driven by said shaft and having an inlet and an outlet, three independent combustion-chambers, each of said chambers having an inlet-opening, an outlet-opening and a discharge-opening to the atmosphere, a valve in each of said openings, an ignition device for each of said chambers, passages connecting the inlet of each of said chambers with the outlet of said pump, other passages connecting the outlet of each of said chambers with the inlet of said motor, said ignition devices and said valves being controlled by said motor-shaft, the ignition and valve control being so timed that first the charge in one chamber is exploded and then the outlet-valve leading to the motor is immediately opened, while at the same time the inlet-valve of the second chamber is open to the passage leading from the said pump, and the third chamber has its discharge-valve open allowing the residue of the exploded charge to escape to the atmosphere, the other valves of each chamber during this time being in closed position.

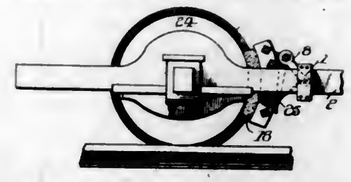
6. A carbureted-air engine consisting of the combination of a motor, inlet and exhaust valves for the same, a crank-shaft for said motor, a force-pump driven by said crank-shaft, inlet and outlet valves for said pump, a plurality of combustion-chambers, passages connecting each of said chambers with the outlet of said pump, other passages connecting each of said chambers with the inlet of said motor, a discharge-passage to the atmosphere for each of said chambers, a valve in each of said passages, an electric ignition device for each of said chambers, shafts rotated at a speed reduced relatively to the said motor-shaft in proportion to the number of said chambers, cams on said shafts operatively connected to the valves of said passages, contacts for said ignition devices carried by said shafts, said cams being so arranged as to operate the inlet, outlet and discharge valve of each chamber alternately and also to operate the valves of the same kind belonging to the different chambers alternately with each other, and said contacts so arranged as to operate the several ignition devices alternately with each other.

7. In a gas-engine, the combination of a motor, a force-pump driven by said motor, and a series of combustion-chambers distinct from said motor and from said pump, said pump being so arranged as to compress a charge into each of said chambers in succession and to charge one of said chambers at each stroke.

8. In a gas-engine, the combination of a motor, a rotary shaft for said motor, a force-pump driven by said shaft at a speed so as to make one working stroke for each revolution of said shaft, three combustion-chambers distinct from said motor and from said pump, said pump compressing and delivering a charge of fuel-vapor to one of said chambers at each stroke and to each of said chambers in succession.

750,479. CAR-WHEEL-GRINDING DEVICE. PATRICK F. McCORMICK, East Pittsburg, Pa., assignor of three-fourths to Richard J. McCormick and Samuel Gallinger, Allegheny, Pa., and Patrick J. McMurphy, McKeesport, Pa. Filed June 3, 1903. Serial No. 159,967. (No model.)

Claim.—1. A car-wheel-grinding device of the herein-described character comprising a clamp to which is pivotally connected a box adapted to hold the grinding material, means for securing said clamp upon the trucks of a car adjacent to the wheels thereof, means for securing the grinding material within said box, means carried by the clamp for continuously holding the grinding material in engagement with the flange and surface of the wheel, substantially as described.

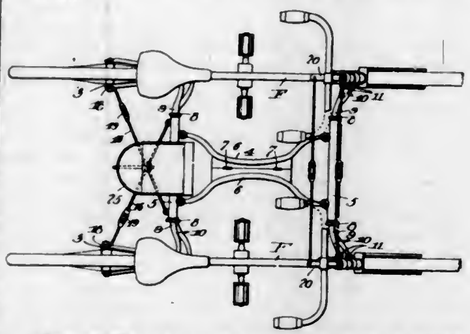


2. A car-wheel-grinding device of the character herein described, said wheel-grinding device comprising a clamp adapted to be secured to the side rails of a truck, a box comprising two sections in which is adapted to be secured the grinding material, said box adapted to be pivotally secured to the clamp, means carried by said clamp for normally holding the wheel-grinding material in contact with the surface of the wheel, means for securing the clamps to the side rail of the car, substantially as described.

3. A car-wheel-grinding device comprising a clamp which is adapted to be secured to the side rails of a car, a spindle carried by said clamp upon which is adapted to be pivotally mounted a box, said box comprising two sections, means carried by said sections for securely holding the grinding material, means carried by the clamp for normally holding the grinding material against the surface and flange of the car-wheel, and means for securing said clamp to the side rail of the truck or car, substantially as described.

4. A car-wheel-grinding device comprising a clamp adapted to be bolted to the side rails of a car, a spindle carried by said clamp, links mounted upon said spindle, a box pivotally secured to the other end of said links, said box comprising two sections, one of said sections adapted to be secured to the other section, a wedge-shaped recess carried within said sections and adapted to hold the grinding material, said grinding material having a groove formed in its outer surface, springs secured to the spindle of the clamp, said spring adapted to engage the rear face of the box and normally hold the grinding material in contact with the flange and periphery of the wheel, substantially as described.

750,480. ATTACHMENT FOR BICYCLES. JOHN MCLARTY, Seattle, Wash. Filed July 23, 1903. Serial No. 166,755. (No model.)

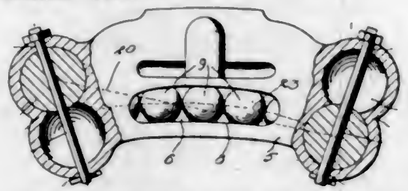


Claim.—1. The combination in a coupling device for bicycles, of a horizontally-disposed frame comprising transverse members provided on their opposite faces with dovetailed sockets and curved longitudinal members hinged together midway between their ends and provided at their ends with dovetailed heads to coöperate with said sockets.

2. The combination in a coupling device for bicycles, of a horizontally-disposed frame comprising transverse members made up of telescopically-associated sections, downwardly-tapering dovetailed sockets rigidly attached to said transverse members and curved longitudinal members hinged together midway of their ends and provided with tapered dovetailed heads for locking engagement with said sockets.

3. A bicycle-coupling device consisting of a horizontally-disposed frame having tubular transverse members with open ends, forks having threaded stems of slightly-smaller diameter than the internal diameter of said tubular members, cap-nuts mounted on said threaded forked stems and adapted to close the ends of said tubular members, curved longitudinal members detachably connected with said transverse members and hinged together intermediate of their ends.

750,481. UNIVERSAL STREET-CAR SIDE BEARING. JOHN E. NORWOOD, Baltimore, Md., assignor to Baltimore Railway Specialty Company, Baltimore, Md., a Corporation. Filed Aug. 5, 1903. Serial No. 168,346. (No model.)



Claim.—1. In a bearing for railway-cars, a main body portion having means for receiving the weight of the car-body and having at each end a plurality of sockets disposed side by side transversely of the body portion and adapted to receive in diagonally opposite pairs, supporting-posts.

2. In a side bearing for railway-cars, a main body portion having means for receiving the weight of a car-body and having at each end, a plurality of support-securing portions arranged side by side transversely of the body portion and adapted in diagonally opposite pairs, to receive supporting-posts.

3. The combination with a truck having supporting-posts at each side thereof located at different distances from the center of oscillation of the truck, of a bearing member at each side of the truck, each of the bearing members having a pair of sockets at each end, disposed side by side transversely of the member adapted for engagement in diagonally opposite pairs with the posts at opposite sides of the truck interchangeably.

4. In a side bearing for railway-cars, the combination with a casing, of antifriction devices carried thereby and having an arc-shaped active path of movement, and projections at the ends of the casing, said projections each having a pair of sockets for receiving the ends of supporting-posts, said sockets being disposed side by side transversely of the direction of movement of the antifriction devices and in such positions that lines connecting the diagonally opposite sockets will intersect the active path of movement of the antifriction devices.

5. In a side bearing for railway-cars, the combination with a casing, of antifriction devices carried thereby and projections at the ends of the casing, said projections each having a plurality of sockets disposed side by side transversely of the casing and adapted to receive in diagonally opposite pairs, supporting-posts.

6. The combination with a truck having at each side supporting-posts displaced longitudinally of the truck from the center of oscillation of the latter, of a bearing for each side of the truck having a curved active portion adapted to lie concentric with the center of oscillation of the truck, each of said bearings having at its ends a separate means for reception of said supporting-posts, said means being so positioned that when engaged with the posts, the bearing will be concentric with the axis of oscillation of the truck.

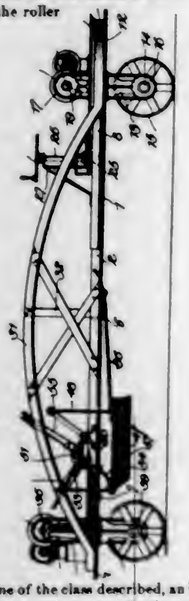
750,482. ROAD-MAKING MACHINE. IRVIN OGDEN, Whatcheer, Iowa. Filed Aug. 15, 1903. Serial No. 169,631. (No model.)

Claim.—1. In a machine of the class described, an independent, revoluble turn-table, and a roller supporting the same.

2. In a machine of the class described, an independent, revolnble front truck comprising a turn-table, brackets upon the under sides of said turn-table, an axle journaled in said brackets, and a roller mounted upon said axle.

3. In a machine of the class described, an independent, revoluble front truck comprising a turn-table, and rotary supporting means for the same, in combination with a motor supported upon said revoluble front truck.

4. In a machine of the class described, an independent, revoluble front truck comprising a turn-table, brackets upon the under sides of the same, a shaft journaled in said brackets, and a roller mounted upon said shaft, in combination with a motor supported upon said front truck, and means for transmitting motion from said motor to the shaft carrying the roller



5. In a machine of the class described, an independent, revoluble front truck, rotary supporting means for the same, a motor supported upon said front truck, and means for transmitting motion from said motor to the rotary supporting means of the truck.

6. In a machine of the class described, the combination with a frame, of an independently-revoluble front truck comprising a turn-table, rotary supporting means for the same, a motor supported upon said turn-table, means for transmitting motion from said motor to the rotary supporting means, and means for rotating the turn-table.

7. In a machine of the class described, the combination with a frame, of a front truck comprising a revoluble turn-table, rotary supporting means for the same, a motor supported upon said turn-table, means for transmitting motion from said motor to the revoluble supporting means, an annular toothed ring upon the turn-table, a pinion engaging said toothed ring, and means for manipulating said pinion to effect, when desired, the complete rotation of the turn-table.

8. In a machine of the class described, a frame, brackets depending from the rear end of the same, a shaft journaled in said brackets, rollers mounted upon said shaft, a platform supported by the rear end of the frame, a motor upon said platform, means for transmitting motion from said motor to the roller-carrying shaft, an independently-revoluble front truck, rotary supporting means for the latter, and independent motive power for said rotary supporting means.

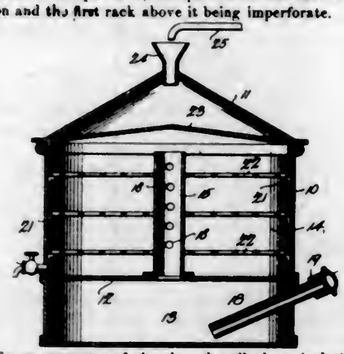
9. In a machine of the class described, a frame, rotary supporting means for the rear end of said frame, an independently-revoluble turn-table constituting a front truck, rotary supporting means for the latter, and independent motors for imparting motion to the rear rotary supporting means and to the rotary supporting means of the front truck.

10. In a machine of the class described, a frame having side, front and rear members and transverse braces, trusses for the side members of said frame, an independent transverse truss connecting the trusses of the side members with the central transverse brace, rotary supporting means for the front and rear ends of said frame, and means for independently operating said front and rear rotary supporting means.

750,483. CLOTHES-STEAMER. JOHN A. OWENS, Moultrie, Ga. Filed Aug. 17, 1903. Serial No. 169,810. (No model.)

Claim.—1. In an apparatus of the class described, a casing having a cover and provided with a transverse partition spaced from the bottom, a perforated tube extending upwardly from said partition, means for supplying water to said casing below said partition, and a draw-off leading from said casing above said partition, adjacent thereto.

2. A clothes-steamer comprising a vessel having a transverse partition spaced from the bottom thereof, said partition having an aperture therein, spaced racks supported in said vessel above said partition, a perforated tube extending upwardly from said partition over said aperture, and an outlet leading from said vessel above and at a point adjacent to said partition, and an inlet for said vessel arranged below said partition, that portion of the tube between the partition and the first rack above it being imperforate.



3. In an apparatus of the class described, an inclosing casing having a transverse partition spaced from the bottom thereof to form a water-compartment in the lower part, a perforated tube extending upwardly from said water-compartment, an outlet for said casing disposed above and adjacent to said partition, a detachable cover to said casing, a diaphragm with an imperforate portion arranged over said tube and with the remainder thereof perforated, said cover having a water-inlet above said diaphragm.

750,484. BELT-HOLDER OR ATTACHING DEVICE. HOWARD PARKER, New York, N. Y. Filed May 16, 1903. Serial No. 157,494. (No model.)



Claim.—1. A belt holding or attaching device, comprising a plate provided at its upper end with a backwardly and downwardly directed member having a central opening and a laterally-directed passage, said plate being provided at its lower end with an outwardly and upwardly directed hook, and with backwardly-directed side jaws and a clamp pivoted therein, substantially as shown and described.

2. A belt holding or attaching device, comprising a plate provided at its upper end with a backwardly and downwardly directed member having a central opening and a laterally-directed passage, said plate being provided at its lower end with an outwardly and upwardly directed hook, and with backwardly-directed side jaws and a clamp pivoted therein, and a strap secured to the upper end of said plate, substantially as shown and described.

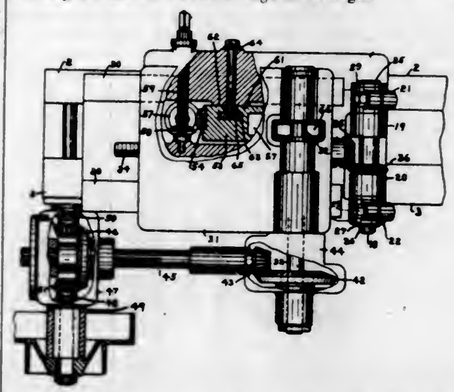
750,485. GEAR-CUTTING MACHINE. JOHN PARKER, Providence, R. I., assignor to The Brown and Sharpe Manufacturing Company, Providence, R. I., a Corporation of Rhode Island. Filed Aug. 23, 1897. Serial No. 649,192. (No model.)

Claim.—1. In a gear-cutting machine the combination, with a tilting bed, of a cutter-carriage mounted to reciprocate thereon, a segmental arm extending from said tilting bed and located directly in the rear of the cutter, and means for clamping said arm in adjusted position, whereby the cutter is rigidly supported in line with the resistance thereto and is held rigidly up to the work.

2. In a gear-cutting machine the combination, with an adjustable slide, of a tilting bed pivoted on said slide, a cutter-carriage mounted to reciprocate on said bed, a segmental arm extending from said tilting bed and located directly in the rear of the cutter, and means for rigidly clamping the arm to said slide in any of its adjusted positions.

3. In a gear-cutting machine the combination, with an adjustable slide, of a tilting bed pivoted thereon, a cutter-carriage mounted to reciprocate on said bed, a segmental arm extending from the tilting bed directly in the rear of the cutter, an engaging surface on the slide arranged to engage the side of said arm, an undercut groove in the side of said arm, and a nut and bolt for clamping the arm to said engaging surface.

4. In a gear-cutting machine the combination with a bed having guiding-ways, of an adjustable slide mounted on said ways, a reciprocating cutter-carriage supported on said slide, tapered gibs between said ways and said slide and devices for moving said gibs to clamp said slide to the bed throughout its length.



5. The combination with a bed 1 having ways 2 and 3, a slide 7 mounted thereon having ways 5 and 6, a tapered gib 8 between ways 2 and 5, a tapered gib 9 between ways 3 and 6, and means for forcing said gibs longitudinally.

6. The combination of a tilting bed, a cutter-carriage mounted to reciprocate on said bed, a support for said tilting bed, a pivotal connection between said support and bed rigidly connected to one of said parts, and means for rigidly connecting the other part to said connection.

7. The combination of a tilting bed, a cutter-carriage mounted to reciprocate on said bed, a support for said bed, a pivotal connection between said support and bed rigidly connected to said support and means for rigidly connecting said bed to said connection.

8. The combination of a tilting bed, a cutter-carriage mounted to reciprocate thereon, a rigid stud on which said table is pivoted means for adjusting said bed about said stud, and means for clamping said bed to said stud.

9. The combination of a tilting bed provided with split ears, a support provided with lugs, a stud passing through said ears and lugs, and secured to one of said lugs, a split sleeve surrounding said stud and passing through one of said ears and the other of said lugs, and means for springing together the split ears.

10. The combination of a tilting bed, a cutter-carriage mounted to reciprocate thereon, an arm depending from said bed, and a chip-chute formed in said arm.

11. The combination of a tilting bed, a cutter-carriage mounted to reciprocate thereon and having an opening therein under the cutter, an arm depending from said bed, and provided with a chip-chute, with which said opening registers.

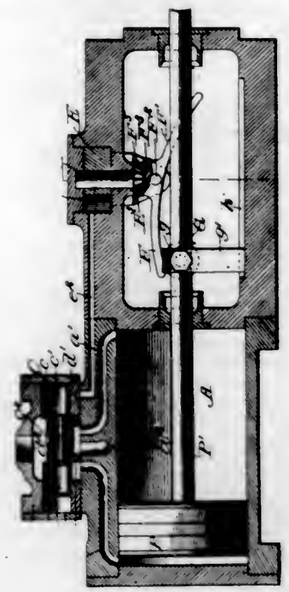
12. The combination of a tilting bed, a cutter-carriage mounted to reciprocate thereon, an arm depending from said bed, and a chip chute in said arm provided with a lateral opening.

750,486. STEAM-ACTUATED VALVE. EDWIN W. PENFOLD, Battlecreek, Mich. Filed May 4, 1903. Serial No. 155,648. (No model.)

Claim.—1. In combination, the engine-cylinder, piston, inlet and exhaust ports, and main valve; with a main-valve casing beside the cylinder having chambers in its ends, a piston-valve in said casing, connected with the main valve and having its head in said chambers, a controlling-valve chamber in advance of the cylinder and adjacent to the piston-rod, steam-passages leading through the walls of the cylinder and valve-chamber from the opposite chambers in said casing to said controlling-valve chamber, and an exhaust-passage leading from the latter chamber back to the exhaust-port in the main-valve chamber, an oscillating valve in the controlling-valve chamber adapted to establish communication between either steam-inlet passage and the exhaust-passage, and means actuated by the piston-rod for operating said controlling-valve, substantially as described.

2. In combination with the cylinder, piston, ports, main valve and piston-valve connected therewith, the main-valve casing having chambers in which the piston-valve heads work, and ports leading

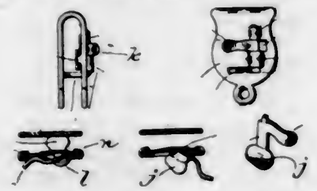
from the cylinder to said chambers; with the controlling-valve chamber adjacent to the piston-rod and in advance of the main-valve casing, the valve in said controlling-valve chamber, steam inlet and outlet parallel passages in the walls of the cylinder and controlling-valve chamber, leading respectively from the opposite piston-valve chambers forward to the controlling-valve chamber, an exhaust-passage in the walls of the cylinder and controlling-valve chamber and leading from the controlling-valve chamber to the exhaust-port in the main-valve chamber, and means substantially as described for operating the controlling-valve from the main piston.



3. In combination with the cylinder, its inlet and exhaust ports, the main valve, the main-valve casing having chambers in its ends, the piston-valve connected with the main valve and having its heads working in said chambers, the controlling-valve chamber, passages leading from said controlling-valve chamber to the chambers in the main-valve casing, respectively, and an intermediate exhaust-passage leading from the controlling-valve chamber, with an oscillating valve in said controlling-valve chamber rocking arms exterior to the controlling-valve chamber and adjacent to the piston-rod, gearing between said arms and said controlling-valve, and means on the piston-rod adapted to engage and rock said arms, substantially as described.

4. The combination with the main cylinder, its piston and ports, the main-valve chamber, the main valve, the steam-actuated piston-valve, connected with the main valve, steam-passages for controlling the said piston-valve, and the oscillating controlling-valve for said passages; with a segment pivoted beside the piston-rod, gearing between said segment and the controlling-valve, oppositely-extending arms on said segment, a bracket on the piston-rod, a roller thereon adapted to alternately engage said arms as the piston-rod reciprocates, and a guide for said bracket, all substantially as described.

750,487. CLASP. AXEL PERSON, Attleboro, Mass., assignor to Watson & Newell Company, a Corporation of Rhode Island. Filed Sept. 21, 1903. Serial No. 173,926. (No model.)



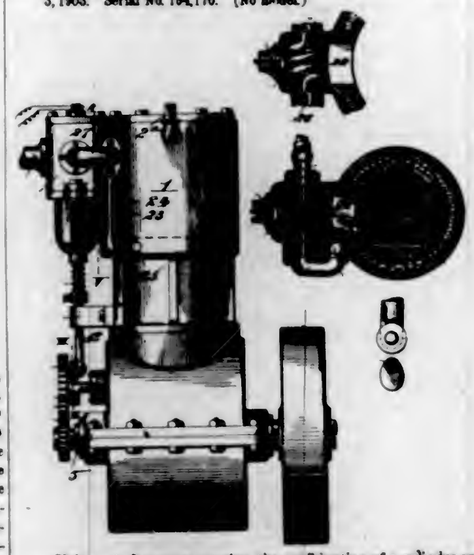
Claim.—1. In a clasp, the combination with a U-shaped frame of a rotatable post mounted in one of the walls of the frame, a lever upon the post, a cam upon the post adapted to approach the other wall when the post is rotated, and means engaging the post for retaining the cam in open or closed position.

2. In a clasp, the combination with a U-shaped frame of a rotatable post mounted in one of the walls of the frame, a lever upon the post, a cam upon the post adapted to approach the other wall when the post is rotated, and spring means in said wall for retaining the cam in open or closed position.

3. In a clasp, the combination with a U-shaped frame of a flat post rotatably mounted upon the inner face of one of the walls of said frame, a lever-arm projecting from and in the plane of the post, a lateral extension upon the post, and a spring upon the inner face of the wall for tensioning the rotatable post.

4. In a clasp, the combination with a U-shaped frame of a rotatable post mounted in one of the walls of the frame, a lever upon the post, a cam upon the post adapted to approach the other wall when the post is rotated, and means in said wall for retaining the cam in open or closed position.

750,488. VAPOR-ENGINE. BERNARD H. POWERBOY, St. Louis, Mo., assignor to William R. Johnston, East St. Louis, Ill. Filed July 3, 1903. Serial No. 164,170. (No model.)



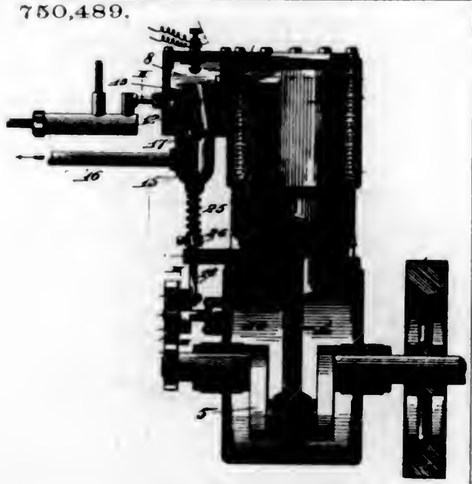
Claim.—1. In a vapor-engine, the combination of a cylinder and piston, an igniting-chamber, and a radiator located in the igniting-chamber; said radiator communicating with the lower part of said cylinder whereby when the piston reaches its downward movement hot gas will pass to said radiator for heating the vapor before it is ignited, substantially as set forth.

2. In a vapor-engine, the combination of a cylinder and piston, an igniting-chamber communicating with the interior of the cylinder, a hollow radiator located in the igniting-chamber, a valve for admitting vapor to said chamber and which is adapted to be opened by the suction of said piston, a valve for permitting the exhaust from said chamber, and a cam for moving the last-mentioned valve; said radiator having a communication with the interior of said cylinder which is opened when the piston reaches the lowest part of its movement, substantially as set forth.

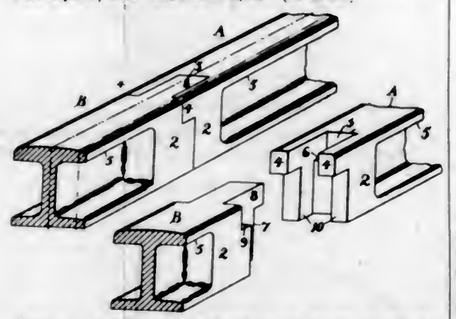
750,489. PETROLEUM-ENGINE. BERNARD H. POWERBOY, St. Louis, Mo., assignor to William R. Johnston, East St. Louis, Ill. Filed July 3, 1903. Serial No. 164,171. (No model.)

Claim.—In a petroleum-engine, the combination of a cylinder provided with a piston, a chamber located on one side of the engine and communicating therewith through means of a combined inlet and exhaust port, a valve controlling the exhaust of gases from the chamber, means for operating said valve, and an open-ended vaporizer located in said chamber over said valve, substantially as set forth.

750,489.



750,490. RAILWAY-RAIL JOINT. CHARLES L. POPE, Ely, Nev. Filed Sept. 21, 1903. Serial No. 174,010. (No model.)



Claim.—1. A rail-joint comprising a rail having its end provided with an open vertical slot extending from top to bottom of the rail, the upper part of said slot extended backward along the tread of the rail, and the bifurcated portion of the tread on each side of the slot projecting beyond the end of the rail, the opposed rail having a complementary vertical constricted portion matching the slotted portion of the first rail and coacting therewith to support the interlocking tread portions of the rails and to resist side thrust at all points between the bottom and top of the interlocking rail ends.

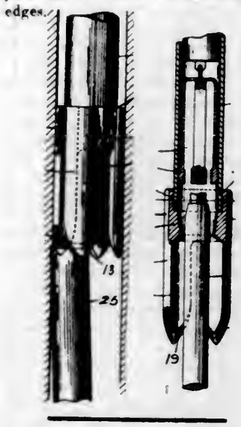
2. A rail-joint comprising a rail-section having a thickened end provided with a vertical open slot, said slot extended backward along the tread to form a shoulder 6; said section having the lateral projections 4 extending beyond the slotted web portion of the rail; the opposite rail-section having a thickened end and a constricted web portion fitting the slotted web of the first section, and also having a central projection continuous with its tread and interlocking with the bifurcated tread portion of the first section and supported on shoulder 6; the bifurcated web of the first section and the constricted web portion of the second section serving to support the respective tread projections of the sections and to resist lateral thrust at all points between the bottom and top of the joint.

750,491. FISHING-TOOL FOR OIL OR LIKE WELLS. CHAS. A. SARGENT, Sheridanville, Pa. Filed Oct. 24, 1903. Serial No. 178,310. (No model.)

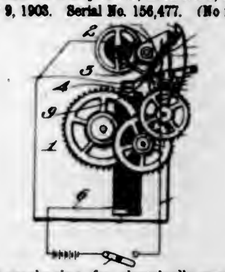
Claim.—1. In a fishing-tool, a head or socket having tapering projections extending down therefrom with beveled inner edges.

2. In a fishing-tool, a head or socket, guide-reins projecting down therefrom, said guide-reins having tapering ends and beveled inner edges.

3. In a fishing-tool, a head or socket having guide-reins projecting down therefrom, grooves in said head connecting with the slots formed by said guide-reins, said reins having tapering ends and beveled inner edges.



750,492. ELECTRIC CLOCK. FRED SCHMIDT, Oak Station, Pa., assignor of one-half to Henry Bauer, Lock No. 3, Allegheny county, Pa. Filed May 9, 1903. Serial No. 156,477. (No model.)



Claim.—1. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, an insulated impulse-wheel adapted to engage with and when operated to operate the movement, said wheel further adapted to make and break the circuit, electrically-operated means engaging with said wheel for imparting an impulse thereto, and means bearing against said wheel for opening and closing the circuit when the wheel is operated.

2. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, an insulated impulse-wheel adapted to engage with and when operated to operate the movement, said wheel further adapted to make and break the circuit, electrically-operated, counterbalanced means engaging with said wheel for imparting an impulse thereto, and means bearing against said wheel for opening and closing the circuit when the wheel is operated.

3. A mechanism for electrically operating clock and watch movements comprising means for establishing an electrical circuit, an insulated toothed impulse-wheel adapted to engage with and when operated to operate the movement said wheel further adapted to make and break the circuit, an operating-lever engaging the teeth of said wheel and when operated in one direction adapted to impart movement to said wheel, an electrically-operated means connected to said lever and adapted when the circuit is formed to impart movement in one direction to said lever thereby operating said wheel and when the circuit is broken, to return said lever to its inoperative position, and means bearing against said wheel for opening and closing the circuit when the wheel is operated.

4. A mechanism for electrically operating clock and watch movements comprising means for establishing an electrical circuit, an insulated toothed impulse-wheel adapted to engage with and when operated to operate the movement, said wheel further adapted to make and break the circuit, an operating-lever engaging the teeth of said wheel and when operated in one direction adapted to impart movement to said wheel, an electrically-operated counterbalanced means connected to said lever and adapted when the circuit is formed to impart movement in one direction to said lever, thereby operating said wheel and when the circuit is broken, to return said lever to its inoperative position, and means bearing against said wheel for opening and closing the circuit when the wheel is operated.

5. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, an insulated impulse-wheel adapted to engage with and when operated to operate the movement, said wheel further adapted to make and break the circuit, and an electrically-operating mechanism for operating said wheel and adapted to impart an impulse thereto.

6. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, an insulated impulse-wheel adapted to engage with and when operated to operate the movement, said wheel further adapted to make and break the circuit, and an electrically-operating counterbalanced mechanism for operating said wheel and adapted to impart an impulse thereto.

7. In combination, a rock-shaft, a counterbalanced armature carried thereby, a magnet, said magnet when energized adapted to rock said shaft in one direction, said armature rocking said shaft in the opposite direction when said magnet is deënergized, means for establishing an electrical circuit, an impulse-wheel engaging with and adapted to operate the clock or watch movement, said wheel further adapted to make and break the circuit, an insulated lever carried by said shaft and adapted to engage said wheel for imparting impulses thereto when the said magnet is energized, and means bearing against said wheel and coöperating therewith for opening and closing the circuit.

8. Mechanism for electrically operating clock and watch movements comprising a rotatable shaft, a pinion carried thereby and adapted to engage the said movement for operating it when the shaft is rotated, means for establishing an electrical circuit, an impulse-wheel carried by the said shaft and adapted when operated to rotate said shaft, said wheel further adapted to make and break the circuit, means bearing against the said wheel and coöperating therewith for opening and closing the circuit, an operating-lever adapted to engage said wheel and when operated in one direction to impart movement to said wheel, a rock-shaft carrying the said lever and adapted to rock in opposite directions moving thereby the said lever to operative and inoperative positions, and an electrically-operated means carried by said shaft and adapted to operate the said shaft in opposite directions.

9. Mechanism for electrically operating clock and watch movements, comprising a rotatable shaft, a pinion carried thereby and adapted to engage the said movement for operating it when the shaft is rotated, means for establishing an electrical circuit, an insulated impulse-wheel carried by the said shaft and adapted when operated to rotate said shaft, said wheel further adapted to make and break the circuit, means bearing against the said wheel and coöperating therewith for opening and closing the circuit, an insulated operating-lever adapted to engage said wheel and when operated in one direction to impart movement to said wheel, a rock-shaft carrying the said lever and adapted to rock in opposite directions moving thereby the said lever to operative and inoperative position, and an electrically-operating means carried by said shaft and adapted to operate the said shaft in opposite directions.

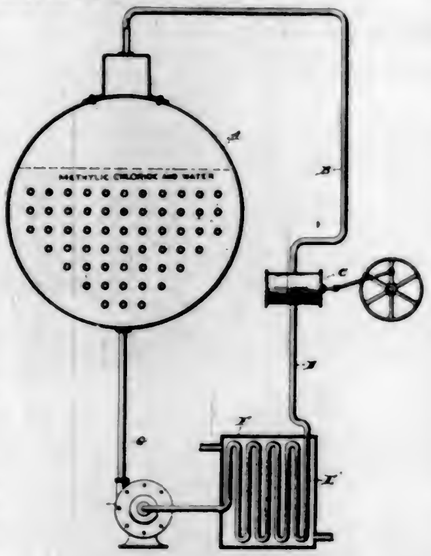
10. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, a toothed impulse-wheel having one face suitably insulated, means bearing against said insulated face of said wheel for opening and closing the circuit, and an electrically-operating means coöperating with said wheel for operating it.

11. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, a toothed impulse-wheel having one face suitably insulated, means bearing against said insulated face of said wheel for opening and closing the circuit, and an electrically-operating counterbalanced means coöperating with said wheel for operating it.

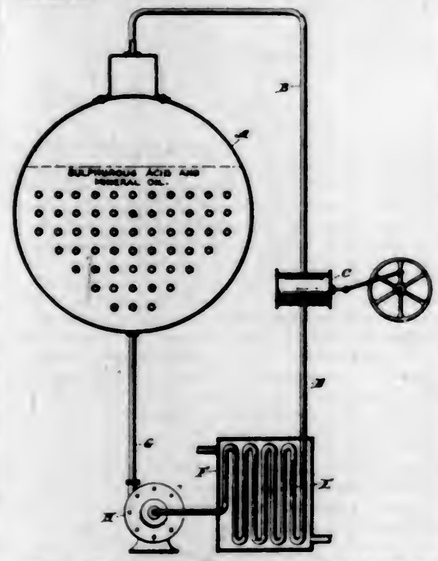
12. A mechanism for electrically operating clock and watch movements, comprising means for establishing an electrical circuit, an insulated toothed impulse-wheel, said wheel adapted to engage with the movement and operate it, said wheel further adapted to make and break the circuit, means bearing against said wheel and coöperating therewith for opening and closing the circuit, a lever engaging with said wheel and adapted when operated in one direction to impart movement to said wheel, electrically-operating means connected with the said lever and adapted to move the said lever in opposite directions, and means coöperating with said electrically-operating means for returning said lever to its normal position.

750,493. PROCESS OF GENERATING MOTIVE POWER. ALFRED SCHÜTT, Charlottenburg, Germany. Filed Apr. 23, 1902. Serial No. 104,336. (No specimens.)

Claim.—The herein-described process of generating motive power, which consists in mixing methylic chlorid with water, heating the mixture to vaporize the methylic chlorid while leaving the water in a liquid condition, and utilizing the methylic chlorid vapors as a driving medium.



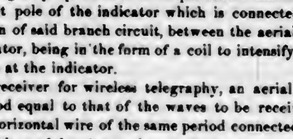
750,494. GENERATION OF MOTIVE POWER. ALFRED SCHÜTT, Charlottenburg, Germany. Filed May 2, 1903. Serial No. 155,402. (No model.)



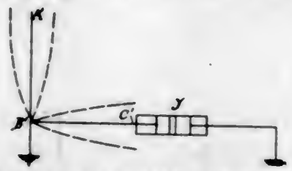
Claim.—The herein-described process of producing motive power which consists in mixing sulfurous acid with a mineral oil, heating the mixture to vaporize the sulfurous acid, while leaving the oil in a liquid condition, and utilizing the sulfurous-acid vapor as a driving medium.

750,495. HARROW-TOOTH. JOHANN SCHWEINFURTH, Richen, Germany. Filed Apr. 3, 1903. Serial No. 150,860. (No model.)

Claim.—A harrow-tooth characterized by a tooth-body in the shape of a closed pipe, a closed point at the lower end of said body, the fore edge e of said point lying in the same line with the body, the upper part of the pipe having a short fissure, so that when the tooth is forced into the harrow-frame the fissured part acts as a spring and holds the tooth firmly in the frame.



750,496. SPARK TELEGRAPHY. ADOLF SLABY, Charlottenburg, and GEORG G. ARCO, Berlin, Germany. Filed Apr. 9, 1901. Serial No. 54,990. (No model.)



Claim.—1. In a receiver for wireless telegraphy, an aerial conductor having a ground connection, a wire branched on said conductor adjacent to the node of potential, an indicator one pole of which is connected with said wire, and a ground connection at the other pole of the indicator, the self-induction and capacity of the branch circuit in which the indicator is located being so proportioned as to produce a maximum of potential at that pole of the indicator which is connected with said wire.

2. In a receiver for wireless telegraphy, an aerial conductor, a wire branched on said conductor adjacent to the node of potential, an indicator one pole of which is connected with said wire, and a capacity connection from the other pole of the indicator, the self-induction and capacity of the branch circuit in which the indicator is located, being so proportioned as to produce a maximum of potential at that pole of the indicator which is connected with said wire.

3. In a receiver for wireless telegraphy, an aerial conductor, a wire branched on said conductor adjacent to the node of potential, an indicator one pole of which is connected with said wire, and a capacity connection from the other pole of the indicator, the self-induction and capacity of the branch circuit in which the indicator is located, being so proportioned as to produce a maximum of potential at that pole of the indicator which is connected with said wire, a portion of said branch circuit being in the form of a coil to intensify the potential amplitude at the indicator.

4. In a receiver for wireless telegraphy, an aerial conductor, a wire branched on said conductor adjacent to the node of potential, an indicator one pole of which is connected with said wire, and a capacity connection from the other pole of the indicator, the self-induction and capacity of the branch circuit on which the indicator is located, being so proportioned as to produce a maximum of potential at that pole of the indicator which is connected with said wire, a portion of said branch circuit, between the aerial conductor and the indicator, being in the form of a coil to intensify the potential amplitude at the indicator.

5. In a receiver for wireless telegraphy, an aerial conductor having a period equal to that of the waves to be received, an approximately horizontal wire of the same period connected with said conductor at the nodal point, and an indicator connected with the said wire, at the antinodal point.

6. In a receiver for wireless telegraphy, a conducting system adapted to vibrate electrically in response to vibrations sent from a transmitter, and an indicator connected with said system at a point of maximum potential.

7. In a receiver for wireless telegraphy, a conductor adapted to vibrate electrically in response to vibrations sent from a transmitter, a branch wire of the same vibratory period as the conductor connected with the latter at the nodal point, and an indicator connected with said wire at the antinodal point.

8. A transmitter for wireless telegraphy, comprising a sending-wire connected with the earth, a wave-generator connected with the said wire directly, and an intensifier in the sending-circuit.

9. A transmitter for wireless telegraphy, comprising a sending-loop grounded at both ends, and a wave-generator connected with said loop.

10. A transmitter for wireless telegraphy, comprising a sending-loop grounded at both ends and having unevenly-distributed self-induction, and a wave-generator connected with said loop.

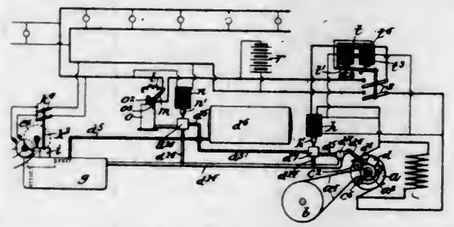
11. A transmitter for wireless telegraphy, comprising a sending-loop grounded at both ends and having unevenly-distributed self-induction, a wave-generator connected with the said loop, and a regulating-coil in circuit with the wave-generator.

12. A transmitter for wireless telegraphy, comprising a sending-wire connected with the earth, a wave-generator connected with said wire directly, and a regulating-coil in circuit with said wave-generator.

13. In a receiver for wireless telegraphy a conducting system adapted to vibrate electrically in response to vibrations sent from a transmitter, a local battery in the receiving-circuit, a condenser in a shunt to the battery, the battery and condenser being located at the nodal point of the vibrations of the receiving-circuit, and an indicator located at the antinodal point.

14. In a receiver for wireless telegraphy, an aerial conductor adapted to vibrate electrically in response to impulses sent from a transmitter, a ground connection from said conductor, a regulating-coil in said ground connection, a branch wire connected with said conductor at its nodal point, and an indicator connected with said wire at its antinodal point.

750,497. SYSTEM OF ELECTRICAL GENERATION, DISTRIBUTION, AND CONTROL. ELMER A. SPERRY, Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed Dec. 5, 1902. Serial No. 134,035. (No model.)



Claim.—1. In an electric-car-service system, the combination of a car-axle, a generator, driving means including a belt between the car-axle and the generator, a belt-tightener adapted to act upon either side of the belt and means whereby the belt-tightener is carried to take up the slack of the slack side of the belt when the direction of movement of the car is reversed.

2. In an electric-car-service system, the combination of a car-axle, a generator, driving means including a belt between the car-axle and the generator, a belt-tightener having two parts arranged for coöperation with the two sides of the belt respectively, and means acting upon both parts to press them against opposite sides of the belt, whereby either part takes up the slack of the slack side of the belt when the direction of movement of the car is changed.

3. The combination with a power source and an electric generator relatively movable in position, of a driving-gear between the power source and the generator, and devices actuated by variations in relative position, of the power source and the generator to control the engagement of said driving-gear.

4. The combination with a power source and an electric generator relatively movable in position, of a driving-gear between the power source and the generator, a pressure device to regulate the engagement of said driving-gear, and devices actuated by variations in relative position of the power source and the generator to control said pressure device.

5. The combination with a power source and an electric generator relatively movable in position, of a driving-gear between the power source and the generator, a fluid-pressure device to regulate the engagement of said driving-gear and devices actuated by variations in relative position of the power source and the generator to control said fluid-pressure device.

6. The combination with a power source and an electric generator relatively movable in position, of a driving-gear between the power source and the generator, a fluid-pressure device to regulate the engagement of said driving-gear, means to supply fluid under pressure, a valve having a relatively large discharge to relieve the pressure in said device and devices actuated by variations in relative position of the power source and the generator to open said valve.

7. The combination with a power source and an electric generator relatively movable in position, of a belt between the power source and the generator, a belt-tightener, and devices actuated by variations in relative position, of the power source and generator to control said belt-tighter.

8. The combination with a power source and an electric generator relatively movable in position, of a belt between the power source and the generator, a belt-tightener, a fluid-pressure device to control said belt-tightener, a valve to control said fluid-pressure device and devices actuated by variations in relative position of the power source and the generator to control said valve.

9. In an electric-car-service system, the combination of a relatively fixed generator, an oscillating truck-frame, driving means between the car-axle and the generator, and devices actuated by the oscillations of the truck-frame to control the engagement of the driving means.

10. In an electric-car-service system, the combination of a relatively fixed generator, an oscillating truck-frame, a car-axle, driving means including a belt between the axle and the generator, a belt-tightener, and devices actuated by the oscillations of the truck-frame to control the belt-tightener.

11. In an electric-car service system, the combination of a relatively fixed generator, an oscillating truck-frame, a car-axle, driving means including a belt between the axle and the generator, a belt-tightener, a fluid-pressure device to control the belt-tightener, a valve to control said fluid-pressure device, and means actuated by the oscillation of the truck-frame to operate the valve.

12. The combination of a generator, driving means, controlling devices for said driving means, translating devices in circuit with the generator, and an electromagnetic device to actuate said controlling devices, said electromagnetic device having one winding in multiple with the translating devices and another winding in series in one side of the circuit, with a resistance bridged across the terminals of said last-named winding, whereby said last-named winding may assist the first-named winding to actuate said controlling devices.

13. The combination of a generator, translating devices in circuit with the generator, a switch between the generator and the translating devices, a storage battery in circuit with the translating devices, said generator being connected with said storage battery and said translating devices through said switch only, and a differential magnet operatively connected with said switch, said magnet having one set of windings in multiple with the generator and the other set of windings connected in series in one side of the circuit through the contacts of the switch, whereby said switch is opened when the electromotive force of the battery exceeds that of the generator and all connection between the generator and the storage battery and transmitting devices is interrupted.

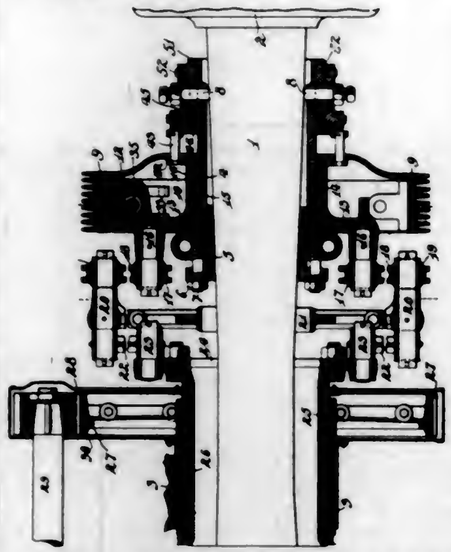
14. In an electric-car-service system, the combination of a generator, current-controlling devices, fluid-pressure devices to operate said controlling devices, a pump to supply fluid under pressure, a motor to operate the pump in circuit with the generator, a switch between the motor and the generator, means to operate said switch, and a non-centralizing device acting upon said switch to throw it quickly past its center of movement.

15. In an electric-car-service system, the combination of a generator, current-controlling devices, fluid-pressure devices to operate said controlling devices, a pump to supply fluid under pressure, a motor to operate the pump in circuit with the generator, a switch between the motor and the generator, a plunger operated by the fluid under pressure, and operatively connected with the switch, and a non-centralizing device acting upon said switch to throw it quickly past its center of movement.

16. In an electric-car-service system, the combination of a generator, current-controlling devices, fluid-pressure devices to operate said controlling devices, a pump to supply fluid under pressure, a motor to operate the pump in circuit with the generator, a switch between the motor and the generator, a plunger operated by the fluid under pressure and operatively connected with the switch, a lost-motion device in the connection between the plunger and the switch, and a non-centralising device acting upon said switch to throw it quickly past its center of movement.

17. In an electric-car-service system, the combination of a generator, current-controlling devices, fluid-pressure devices to operate said controlling devices, a pump to supply fluid under pressure, a motor, a plunger subject to the pressure developed by the pump, means actuated by the plunger to control the pump, a second plunger subject to the pressure developed by the pump, and a valve operated by the second plunger to control the admission of the fluid under pressure behind the first plunger.

750,498. POWER-TRANSMITTING MECHANISM. ELMER A SPERRY, Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed Mar. 5, 1903. Serial No. 146,280. (No model.)



Claim.—1. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a driver and a driven part movable relatively to each other both in the direction of the axis and transversely and concentrically mounted, and a universal coupling between the driver and the driven part.

2. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a driver and a driven part movable relatively to each other both in the direction of the axis and transversely and concentrically mounted, and a universal coupling comprising a floating frame and links connecting the frame on each side with the driver and the driven part respectively.

3. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a driver and a driven part movable relatively to each other in the direction of the axis and concentrically mounted, and a coupling comprising links connected by ball or universal joints at each end with the driver and driven part respectively.

4. The combination with a car-axle and a truck-frame, of a driver secured to the axle to move therewith, a driven part mounted upon the truck-frame concentrically with the axle, and a universal coupling between the driver and the driven part.

5. The combination with a car-axle and a truck-frame, of a driver secured to the axle to move therewith, a driven part mounted upon the truck-frame concentrically with the axle, and a coupling comprising links connected by ball or universal joints at each end with the driver and the driven part respectively.

6. The combination of a car-axle and a truck-frame, of a driver secured to the axle to move therewith, a driven part mounted upon the truck-frame concentrically with the axle, and a coupling comprising a floating frame and links connecting the frame with the driver and the driven part respectively and relatively disposed substantially at right angles.

7. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a driven part, a friction transmitting device and a coupling between the friction transmitting device and the driven part and comprising a floating frame and links connecting the frame with the friction transmitting device and the driven part respectively and relatively disposed substantially at right angles.

8. The combination with a car-axle and a truck-frame, of a friction transmitting device mounted upon the axle to move therewith, a driven part mounted on the truck-frame concentrically with the axle, and a coupling comprising links connected by ball or universal joints at each end with the friction transmitting device and the driven part respectively.

9. The combination with a car-axle and a truck-frame, of a

friction transmitting device mounted upon the axle to move therewith, a driven part mounted on the truck-frame concentrically with the axle, and a coupling comprising a floating frame and links connecting the frame with the friction transmitting device and the driven part respectively and relatively disposed substantially at right angles.

10. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a driven part, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel and free from end to end and an abutment connected with the driven part and interposed between the ends of the expansible ring.

11. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel and free from end to end, a carrier having a lug interposed between the ends of the expansible ring and a driven part operatively connected to said carrier.

12. A combination with a car-axle and a part to be driven therefrom of a friction-wheel carried with the axle, an expansible ring cooperating with the friction-wheel and free from end to end, and an abutment connected with the driven part and interposed between the ends of the expansible ring.

13. The combination with a car-axle and a driven part mounted concentrically with the axle, of a friction-wheel carried with the axle, an expansible ring cooperating with the friction-wheel and free from end to end, and a carrier connected with the driven part and having a lug interposed between the ends of the expansible ring.

14. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel, a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring, and a driven part in operative relation with the expansible ring.

15. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel, a weighted, centrifugal lever pivoted on one end of the expansible ring, a headed bolt engaging the other end of the expansible ring and the weighted lever, and a driven part in operative relation with the expansible ring.

16. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel, a spring acting to separate the ends of the expansible ring, a weighted, centrifugal lever carried by the expansible ring and acting upon the ends of the expansible ring in opposition to the spring, and a driven part in operative relation with the expansible ring.

17. The combination with a car-axle and a part to be driven therefrom, of a friction-wheel carried with the car-axle, an expansible ring cooperating with the friction-wheel and operatively connected with the driven part, and a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring.

18. The combination with a car-axle and a part to be driven therefrom, of a friction-wheel carried with the car-axle, an expansible ring cooperating with the friction-wheel, a carrier operatively connected with the driven part and having a lug interposed between the ends of the expansible ring, and a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring.

19. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel and operatively connected with the driven part, a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring, a spring connected with the centrifugal lever to oppose the centrifugal action thereof, and means to vary the tension of the spring.

20. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel, a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring, a spring connected with the centrifugal lever to oppose the centrifugal action thereof, a carrier driven by the expansible ring, a second lever mounted upon said carrier and connected to said spring, and means rotating with the friction-ring to act upon said lever and vary the tension of the spring.

21. A power-transmission mechanism for axle-driven electric car-lighting systems, &c.. comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible-ring cooperating with the friction-wheel, a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring, a spring connected with the centrifugal lever to oppose the centrifugal action thereof, a carrier driven by the expansible ring, a second lever mounted on the carrier and connected to said spring, a shoe carried by said second lever, a ring rotating with the friction-wheel and movable in the direction of the axis against said shoe, and means to shift said ring.

22. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source, a friction-wheel carried with the power source, an expansible ring cooperating with the friction-wheel, a weighted, centrifugal lever carried by the expansible ring and operatively connected with the ends thereof to control the expansion of the ring, a spring connected with the lever to oppose the centrifugal action thereof, a ring shiftable axially and rotating with the friction-wheel in operative relation with said spring, and means to shift said ring axially to vary the tension of said spring.

23. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a variable-speed power source having a longitudinal floating movement, a friction transmitting device carried by said variable-speed power source, a lever operated from a relatively fixed frame and connections to vary the frictional engagement of the members of said friction transmitting device, and means to shift the fulcrum of said lever to correspond with the endwise floating movement of the power source, whereby the action of said lever upon the friction transmitting device is unaffected by said floating movement of the variable-speed power source.

24. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a power source having an endwise floating movement, a speed transmitting and controlling device carried with the power source, a lever operated from a relatively fixed point and connections to said speed controlling and transmitting device to control the same, and means to shift the fulcrum of said lever to correspond with the endwise floating movement of the power source, whereby the action of the lever is unaffected by said floating movement of the power source.

25. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a power source having an endwise floating movement, a regulating device carried with said power source, a lever operated from a relatively fixed point and connections to said regulating device to control the same, and means to shift the fulcrum of said lever to correspond with the endwise floating movement of the power source, whereby the action of the lever is unaffected by said floating movement of the power source.

26. A power-transmission mechanism for axle-driven electric car-lighting systems, &c., comprising a power source having an endwise floating movement, a regulating device carried with the power source, a lever operated from a relatively fixed point and connected to said regulating device to control the same, a second lever having one end connected to the power source to partake of the endwise floating movement, and the other end connected to a relatively fixed point, and a pivotal connection between said levers whereby the fulcrum of the first lever is shifted according to the endwise floating movement of the power source.

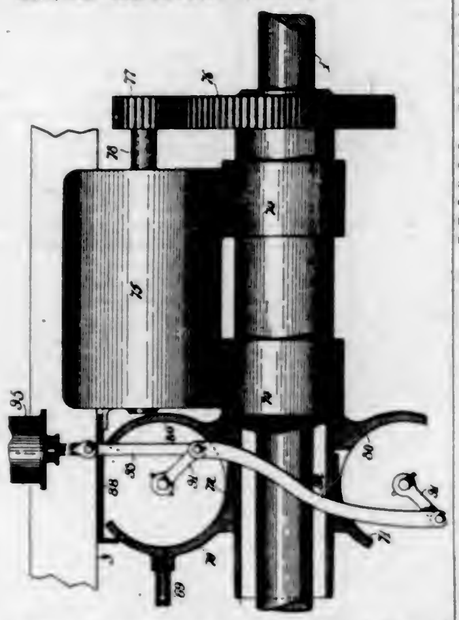
27. The combination with a car-axle having an endwise floating movement and a truck-frame, of a regulating device carried with the axle, a lever and connections to said regulating device to control the same, means mounted upon the truck-frame to actuate said lever and means to shift the fulcrum of said lever to correspond with the endwise floating movement of the axle.

28. The combination with a car-axle having an endwise floating movement and a truck-frame, of a regulating device carried with the axle, a lever and connections to said regulating device to control the same, means mounted on the truck-frame to actuate said lever, a second lever having one end connected to the axle to partake of the endwise floating movement and the other end pivotally connected to the truck-frame, and a pivotal connection between said levers.

29. The combination of a car-axle having an endwise floating movement, a power-transmitting and speed-regulating device mounted on the axle, a longitudinally-shiftable ring mounted on the axle and connections to control said power-transmitting and speed-regu-

lating device, a second ring fixed on the axle, a lever engaging the shiftable ring, and means mounted on the axle to actuate said lever, a second lever engaging the fixed ring at one end and pivotally connected to the truck-frame at the other end, and a pivotal connection between said levers.

750,499. **POWER-TRANSMITTING MECHANISM.** ELMER A. SPERRY, Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed Mar. 5, 1903. Serial No. 146,231. (No model.)



Claim.—1. The combination with a car-axle, a truck-frame and a generator, of a sleeve mounted in bearings in the truck-frame, a power-transmission mechanism comprising a driver mounted for rotation on said sleeve and a driven part fixed to said sleeve, said driving and driven part having opposed annular working faces curved substantially in the arc of a circle, and a transmitting-wheel interposed between said working faces and in contact therewith, connections between the axle and the driver, gearing between the sleeve and the generator, and means to shift said wheel to vary the position of the lines of contact of said wheel with said working faces.

2. The combination with a car-axle, a truck-frame and a generator, of a sleeve mounted in bearings in the truck-frame concentric with the axle, a power-transmission mechanism mounted on said sleeve and comprising an annular driver, an opposed annular driven part, and a transmitting-wheel shiftable between said driver and driven part to vary the speed of the latter, connections between the axle and the driver, connections between the driven part and the generator, and means to shift said transmitting-wheel.

3. The combination with an axle, truck-frame and generator, of a sleeve mounted in bearings in the truck-frame concentric with the axle, a power-transmission mechanism comprising an annular driver loose on said sleeve, an opposite annular driven part fixed to said sleeve, a transmitting-wheel shiftable between said driver and driven part to vary the speed of the latter, connections between the axle and the driver, gearing between the sleeve and the generator and means to shift said wheel.

4. The combination with an axle, a truck-frame and a generator, of a sleeve mounted in bearings in the truck-frame concentric with the axle, a power-transmission mechanism mounted on the sleeve and comprising an annular driver, an opposed annular driven part and a transmitting-wheel shiftable between the driver and the driven part to vary the speed of the latter, a universal coupling between the axle and the driver, connections between the driven part and the generator, and means to shift said wheel.

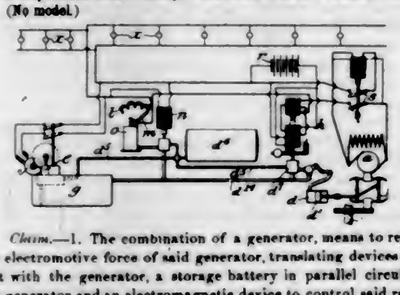
5. The combination with an axle, a truck-frame and a generator of a sleeve mounted in bearings in the truck-frame concentric with the axle, a variable-speed power-transmission mechanism mounted on said sleeve, a universal coupling between the axle and the driving member of said transmission mechanism, and connections between the driven member of said transmission mechanism and the generator.

6. The combination with an axle, truck-frame and generator, of a variable-speed power-transmission mechanism mounted concentric with the axle, a universal coupling between the axle and the driving member of said variable-speed transmission mechanism, and connections between the driven member of said variable-speed power-transmission mechanism and the generator.

7. The combination with an axle, truck-frame and generator, of a power-transmission mechanism mounted concentric with the axle and a universal coupling between the axle and the driving member of the power-transmission mechanism and comprising a floating ring, a driver secured to the axle, links connecting said driver to said ring, and links connecting said ring to said power-transmission mechanism.

8. The combination with an axle, truck-frame and generator, of a power-transmission mechanism concentric with the axle and a coupling between the axle and the power-transmission mechanism and comprising a floating ring, a driver secured to the axle, links connecting the driver with the ring at opposite points, and links connecting the ring at intermediate points with the power-transmission mechanism.

750,500. **SYSTEM OF ELECTRICAL GENERATION, DISTRIBUTION, AND CONTROL.** ELMER A. SPERRY, Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed July 1, 1903. Serial No. 163,532. (No model.)



Claim.—1. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator and an electromagnetic device to control said regulating devices, said electromagnetic device having one winding in a shunt from the battery, a second winding in series with the generator and the translating devices, and a third winding in series with the generator and the battery.

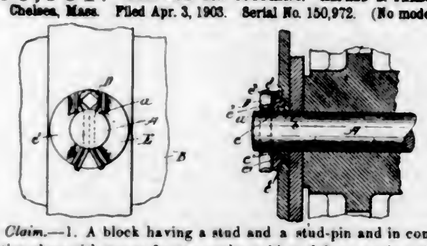
2. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating devices and having a winding in a shunt from the battery, and a second electromagnetic device having a winding in circuit with the generator and the translating devices and coöperating with the first-named electromagnetic device.

3. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating devices and having a winding in a shunt from the battery, and a second electromagnetic device having one winding in series with the translating devices and another in series with the generator and coöperating with the first-named electromagnetic device.

4. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating devices and having one winding in a shunt from the battery and two other windings in series with the generator and with the translating devices and the battery respectively, and a second electromagnetic device coöperating with the first and having one winding in series with the translating devices and another in series with the generator.

5. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, a solenoid to control said regulating devices having a winding in a shunt from the battery, and a second solenoid having its core in line with and above the core of the first solenoid, said second solenoid having a winding in circuit with the generator and the translating devices.

750,501. **STUD AND PIN COUPLING.** ALFRED R. TARBOX, Chelsea, Mass. Filed Apr. 3, 1903. Serial No. 150,972. (No model.)



Claim.—1. A block having a stud and a stud-pin and in combination therewith means for preventing said stud from turning, the same comprising a coupling interposed between the stud-pin and the rigid portion of the block through which the stud passes, the said coupling comprising a plate having a hole through which the stud extends and formed upon its one side with means for holding and preventing the stud-pin from turning relatively to it and upon its other side with means for engaging the said rigid portion of the block.

2. As a separate article of manufacture, a stud-coupling of the character specified, the same comprising a plate having a hole through which the stud is adapted to pass, there being formed upon its one side means extending for engaging a stud-pin in a manner to hold said pin from turning thereon, and means extending from its other side whereby said plate is held in a relatively fixed position against turning.

3. As a separate article of manufacture, a stud-coupling of the character specified, the same comprising a plate having a hole through which the stud is adapted to pass and relatively flat, parallel surfaces, there being means extending from one surface for engaging the stud-pin in a manner to hold said pin from turning thereon and from endwise movement, and means extending from the other surface whereby said plate may be held in a relatively fixed position against turning.

4. As a separate article of manufacture, a stud-coupling of the character specified, the same comprising a plate having a hole through which the stud is adapted to pass and formed upon its one side with projections for receiving and holding a stud-pin, and which projections are adapted to be headed while the said cotter or similar pin is being driven whereby the same may be held against endwise movement, and formed upon its other side with engaging means whereby said plate may be held relatively fixed against turning.

750,502. **ART OF MAKING ARTIFICIAL SILK.** EDMUND THIELE, Barmen, Germany. Filed June 29, 1903. Serial No. 163,656. (No model.)



Claim.—1. An apparatus for the production of artificial silk consisting in a funnel-shape spinning vessel closed on its top and having a narrow opening at its bottom, and a delivery-pipe flexibly connected with the spinning vessel.

2. An apparatus for making artificial silk comprising a spinning vessel, closed on its top and having a narrow opening at its bottom, a nozzle for the spinning liquid in the upper part of said vessel and a supply-pipe for the precipitation-bath delivering into said vessel.

3. An apparatus for the production of artificial silk comprising a funnel-shape spinning vessel, closed on its top and having a narrow opening at its bottom, a nozzle for the spinning liquid in the upper part of said vessel and a supply-pipe for the precipitation-bath delivering into said vessel.

4. An apparatus for the precipitation of artificial silk consisting of a funnel-shape spinning vessel, closed at the top and having a narrow opening at the bottom, a delivery-pipe from said vessel, said pipe being flexibly connected with the spinning vessel and in the upper part of which vessel a spinning-nozzle and a supply-pipe for the precipitation-bath are inserted.

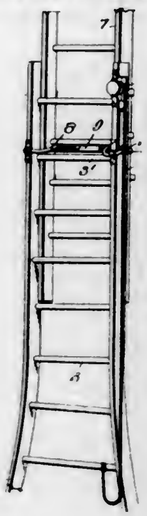
750,503. **WATCH-HOLDER.** GEORGE R. H. THORN, Swampscott, Mass. Filed Nov. 25, 1903. Serial No. 182,575. (No model.)



Claim.—1. The herein-described watch-holder, consisting of a shell, open at front and closed at its rear and having a cut-away notch on its circumference, in combination with a screw-threaded ring adapted to hold the watchcase in position and a pair of notched closing-plates G, G, having notches *g*, *g*, adapted to interlock with a groove on the watch-stem for the purpose of closing the notched or cut-away portion in the shell substantially as and for the purpose set forth.

2. The herein-described watch-holder, consisting of an open-front shell having a closed rear portion, and having a watch-stem-receiving notch on its circumference in combination with a screw-threaded watch-retaining ring E having an annular tapering or inclined projection, and a pair of notched closing-plates G, G, adapted to interlock with a groove on the watch-stem and adapted to close the notched or cut-away portion in the shell adjacent to the watch-stem of the watch inclosed within the watch-holder, substantially as and for the purpose set forth.

750,504. **EXTENSION-LADDER.** CHARLES G. TIEFEL, Rochester, N. Y. Filed May 13, 1903. Serial No. 156,925. (No model.)



Claim.—1. A ladder consisting of sections slidably attached to each other, a pulley attached to one section, a cord passing over said pulley and attached to another section, a catch pivoted to one section and adapted to engage another section, a link pivoted to one section and engaging said catch and said cord engaging said link.

2. A ladder consisting of sections slidably attached to each other, a pulley attached to one section, a cord passing over said pulley and attached to another section, a catch pivoted to one section and adapted to engage another section and having a bent extended end, a link pivoted to one section and receiving the end of said catch, said cord passing through said link.

3. A ladder consisting of sections slidably attached to each other, a pulley attached to one section, a cord passing through said pulley and attached to another section, a catch pivoted to one section and adapted to engage another section and having an end bent at an angle to a longitudinal axis thereof, said end being curved, a link pivoted to one section and receiving the curved portion of the end of said catch, said cord passing through said link.

750,505. HEAT-PROTECTOR FOR ANIMALS. FRANZ K. WALTHER, Berlin, Germany. Filed Sept. 4, 1903. Serial No. 171,945. (No model.)



Claim.—In a protecting device against heat-stroke and sun-stroke for horses the combination with a felt pad or plate of cork ledges set on edge and shaped to fit the skull adapted to support the pad and cross-pieces between the ledges, substantially as described and for the purpose specified.

750,506. TOY. JOHN C. WELLS, East Hampton, Conn. Filed Oct. 4, 1902. Serial No. 125,927. (No model.)



Claim.—1. A running-gear for toys comprising a pair of wheels having their members arranged in the same axial line, an axle connecting said wheels and formed integral therewith, said axle joining the wheels at points substantially opposite their central axis, a support mounted upon said axle, said support having an inturned lip, an inclosing sound-yielding member mounted upon said lip, and a free-moving striker retained within the inclosing sound-yielding member and the lip.

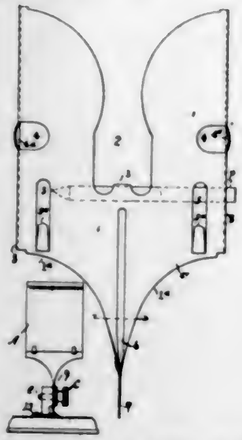
2. In combination in a toy, a pair of oppositely-disposed wheels, an axle joining said wheels, a base-plate mounted upon the axle and having an upwardly-extending portion, a gong secured to said plate, a pocket formed by the gong and upwardly-extending portion of the plate, and a free-moving striker for the gong arranged to roll in said pocket in various directions.

3. In combination in a toy, a base-piece having the form of the legs, head and tail of a turtle, a pair of oppositely-disposed wheels, an axle joining said wheels and arranged transversely to their central axis, said axle adapted to support the base-piece, a gong mounted upon said base-piece and forming the shell of the turtle, an upwardly-extending projection from the base-piece within the gong cooperating therewith to form a pocket, and a free-moving sounder arranged within said pocket.

4. In combination in a toy, a pair of wheels, a support operatively arranged with relation to the wheels, an inclosure formed by an upturned lip upon the body, and a gong mounted on the upturned lip, a free-moving striker located in the inclosure, and means intermediate the wheels and support for causing a movement of the free-moving striker as the wheels are rolled.

750,507. INDEX AND ADVERTISING DEVICE. CHARLES F. WEST, Wollaston, Mass. Filed June 3, 1903. Serial No. 159,843. (No model.)

Claim.—1. An index and advertising device consisting of a holder made from a single piece of sheet metal provided with side guards, hinging-clips and an attaching member; of a plurality of cards having orifices at their lower edges registering with each other and adapted to be inclosed by said guards and supported by said hinging-clips, and provided with tabs at their upper edges for reference characters, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space; with a suitable base member provided with means for adjustably supporting the said holder and cards.



2. An index and advertising device consisting of a holder made from a single piece of sheet metal of uniform width, the tapering extensions of the lower portion of one holder cut from the central upper portion of the contiguous holder, provided with side guards, hinging-clips and an attaching member; of a plurality of cards having orifices at their lower edges registering with each other and adapted to be inclosed by said guards and supported by said hinging-clips, and provided with tabs at their upper edges for reference characters, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space; with a suitable base member provided with means for adjustably supporting the said holder and cards.

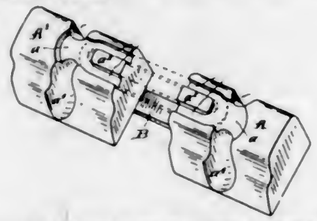
3. An index and advertising device consisting of a holder made from a single piece of sheet metal of uniform width provided with side guards cut from the back of the piece and bent outward, hinging-clips cut from the lower sides of the piece and curved upward and inward, and an attaching member turned one-quarter around; a plurality of cards having orifices at their lower edges registering with one another and adapted to be inclosed by said guards and supported by said hinging-clips, one card having an erasable surface while the remaining cards are provided with tabs at their upper edges for reference characters to constitute an index, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space; with a suitable base member provided with a clamping-screw for adjustably supporting the said holder and cards.

4. An index and advertising device consisting of a holder made from a single piece of sheet metal provided with side guards, hinging-clips and an attaching member; a plurality of cards having orifices at their lower edges registering with each other and adapted to be inclosed by said guards and supported by said hinging-clips, and provided with tabs at their upper edges for reference characters, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space; with a base member to receive said attaching member consisting of a telephone-supporting arm provided with a clamping-screw.

5. An index and advertising device consisting of a holder made from a single piece of sheet metal of uniform width provided with side guards cut from the back of the piece and bent outward, hinging-clips cut from the lower sides of the piece and curved upward and inward, and an attaching member turned one-quarter around; a plurality of cards having orifices at their lower edges registering with one another and adapted to be inclosed by said guards and supported by said hinging-clips, one card being longer than the remainder and having an erasable surface while the remaining shorter cards are provided with tabs at their upper edges for reference characters, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space, the outer short cards having an index to the advertising-spaces of all the cards; with a base member to receive said attaching member consisting of a telephone-supporting arm provided with a clamping-screw.

6. An index and advertising device consisting of a holder made from a strip of sheet metal of uniform width in a single piece provided with side guards cut from the back of the piece and bent outward, hinging-clips cut from the lower sides of the piece and curved upward and inward, and a tapering attaching member cut from the top portion of a contiguous holder having a tongue cut from its central part, the tongue of the top portion bent into a curve to constitute a pencil-holder; a plurality of cards having orifices at their lower edges registering with one another and adapted to be inclosed by said guards and supported by said hinging-clips, one card being longer than the remainder and having an erasable surface while the remaining shorter cards are provided with tabs at their upper edges for reference characters, one surface of each card ruled to receive names and addresses while the opposite side is an advertising-space, the outer short card having an index to the advertising-spaces of all the cards; with a base member to receive said attaching member consisting of a telephone-supporting arm provided with a clamping-screw.

750,508. MOLD FOR CASTING TERMINALS FOR RAIL-BONDS. WILLIAM H. WHERRY, Cleveland, Ohio. Filed Nov. 3, 1902. Serial No. 129,798. (No model.)



Claim.—1. A mold part for casting rail-bond terminals, provided with a recess for receiving a conducting-wire and a recess adjacent thereto for forming the bond-terminal, such mold part being provided with a suitable sprue for receiving the molten metal and communicating with such terminal-recess.

2. A mold part for casting rail-bond terminals formed to fit against the rail-web, the surface adapted to contact the latter being provided with a recess for receiving a conducting-wire, and a recess adjacent thereto for forming the bond-terminal, the mold part being further formed with sprues communicating with such terminal-recess.

3. Mold parts for casting rail-bond terminals, adjustably secured to each other, each such mold part provided with a recess for receiving a conducting-wire and a recess adjacent to such wire-recess for forming a terminal.

4. In molds for casting rail-bond terminals, a mold part adapted to fit between the rail tread and flange against the web, the surface adapted to contact the latter being provided with a recess for receiving a conducting-wire and a recess adjacent thereto for forming a terminal, such mold part being further provided with sprues communicating with said terminal-recess.

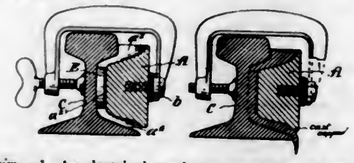
5. A mold part for casting rail-bond terminals, provided with a recess for receiving a conducting-wire and a recess adjacent thereto for forming the bond-terminal, such part being provided with a suitable sprue for receiving the molten metal and communicating with such terminal-recess, and a section of rail against which such mold part presses.

6. Mold parts for casting rail-bond terminals, adjustably secured to each other, each such part provided with a recess for receiving a conducting-wire, a recess adjacent to such wire-recess for forming a terminal, and a section of rail against which such mold part presses.

7. In molds for casting rail-bond terminals, a mold part provided with a recess for receiving a conducting-wire and a recess adjacent thereto for forming the bond-terminal, such part being provided with a suitable sprue for receiving the molten metal and communicating with such terminal-recess, a section of rail against which such mold part presses, and a conductor fitting within said conducting-wire recess.

8. Mold parts for casting rail-bond terminals consisting of, two mold parts adjustably secured to each other, each such part provided with a recess for receiving a conducting-wire, a recess adjacent to such wire-recess for forming a terminal, a section of rail against which such mold part presses, and a conductor fitting within said conducting-wire recess.

750,509. ELECTRICAL CONDUCTOR. WILLIAM H. WHERRY, Cleveland, Ohio. Filed Nov. 3, 1902. Renewed Oct. 1, 1903. Serial No. 175,324. (No model.)



Claim.—1. An electrical conductor, consisting of two conductors, a length of wire to serve as an electrical connector between said two conductors, and cast-metal terminals interposed between the wire and the conductors, said terminals inclosing the ends of the wire, each terminal being cast integral with the wire and a conductor.

2. An electrical conductor, consisting of two conductor-rails, a length of wire to serve as an electrical connector between said conductor-rails, and cast-metal terminals interposed between said wire and conductor-rails, each terminal cast integral with the wire, and alloyed with a conductor-rail.

750,510. PROCESS OF FORMING ELECTRICAL RAIL-BONDS DIRECTLY IN PLACE ON THE RAILS. WILLIAM H. WHERRY, Cleveland, Ohio. Filed Jan. 22, 1903. Renewed Oct. 1, 1903. Serial No. 175,325. (No model.)



Claim.—1. In a process of forming electrical rail-bonds directly in place on the rail: locating the wire in position; casting a terminal on the wire and rail by continuing to pour molten metal upon them until they are sufficiently heated and softened to allow of the intimate and permanent union of the metal and rail, whereby the heat of the fluid metal which forms the terminal is used to heat and soften the rail, and thereby the terminal and rail are made integral with each other.

2. In a process of forming electrical rail-bonds directly in place on the rail: locating the wire in position; fitting a mold over the rail; casting a terminal on the wire and rail by continuing to pour molten metal into the mold and upon the rail and wire until they are sufficiently heated and softened to allow of the intimate and permanent union of the metal and rail, whereby the heat of the fluid metal which forms the terminal is used to heat and soften the rail, and thereby the terminal and rail are made integral with each other.

3. In a process of forming electrical rail-bonds directly in place on the rail: locating the wire in position, fitting a mold over the rail; casting a terminal within the mold on the wire and rail; and utilizing the mold as a chill to prevent too great heat on the thin portion of the cast terminal where contact is made with the portion of the wire that is farthest removed from the rail.

4. In a process of forming electrical rail-bonds directly in place on the rail: locating the wire in position; fitting a mold over the rail with proper sprues to allow of the entrance and escape of molten metal; pouring molten metal into the mold and upon the rail and wire until the latter are made soft and porous; plugging up the mold, whereupon the retained fluid metal is made integral with the softened and porous rail.

5. In a process of forming electrical rail-bonds directly in place on the rails: cleaning the surface of such rail; nicking the surface of such rail; locating the wire in position; fitting a mold over the rail; casting a terminal on the wire and rail by continuing to pour molten metal into the mold and upon the rail and wire until they are sufficiently softened to allow of the intimate and permanent union of the metal and rail, whereby the heat of the fluid metal which forms the terminal is used to heat and soften the rail, and thereby the terminal and rail are made integral with each other.

6. In a process of forming electrical rail-bonds directly in place on the rails: locating the wire in position; heating such rails until they are made soft and porous; and then casting a terminal on the

wire and rail by pouring molten metal upon them, whereupon the terminal thus cast is made integral with the soft and porous rail.

7. In a process of forming electrical rail-bonds directly in place on the rails: locating the wire in position: and then casting a terminal on the wire and rail by continuing to pour molten metal upon them until they are made soft and porous by the heat of the molten metal, whereupon the terminal thus cast is made integral with the soft and porous rail.

8. In a process of forming electrical rail-bonds directly in place on the rail: locating the wire in position: fitting a mold over the rail with proper sprues to allow of the entrance and escape of molten metal; pouring molten metal into the mold and upon the rail and wire until the latter are made soft and porous; plugging up the mold, whereupon the retained fluid metal is made integral with the softened and porous rail; and utilizing the mold as a chill to prevent too great heat on the thin portion of the cast terminal where contact is made with the portion of the wire that is farthest removed from the rail.

9. In a process of forming electrical rail-bonds directly in place on the rail: cleaning the surface of such rail by means of emery; or other mechanical device: nicking the surface of such rail; locating the wire in position; spreading refractory material over those exposed parts of the rail which should be protected from molten metal; fitting a mold over said rail which has proper sprues to allow of the entrance and escape of molten metal; pouring molten metal into the mold and upon the rail and wire until the latter are made soft and porous, plugging up the mold, whereupon the retained fluid metal is made integral with the softened and porous rail; allowing the rail and cast terminal to cool and removing mold.

750,511. PROCESS OF UNITING TWO METALS. WILLIAM H WHERRY, Cleveland, Ohio. Filed Apr. 6, 1903. Serial No. 151,258 (No specimens.)



Claim.—1. A process of uniting two metals, consisting of: applying to one of such metals a flux that will combine chemically with both the metals, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such molten metal and phosphorus upon the other treated metal.

2. A process of uniting two metals, consisting of: applying to one of such metals a flux that will combine chemically with both metals and that will lower the fusing-points of both metals, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such molten metal and phosphorus upon the other treated metal.

3. A process of uniting two metals, consisting of: applying to one of such metals a flux that will combine chemically with both the metals, and that will lower the fusing-points and increase the fluidity of both metals, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such metal and phosphorus upon the other treated metal.

4. A process of uniting two metals, consisting of: applying to one of such metals a flux consisting of phosphorus, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such molten metal and phosphorus upon the other treated metal.

5. A process of uniting two metals, consisting of: applying to one of such metals a flux consisting of phosphorus mixed with an acid, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such molten metal and phosphorus upon the other treated metal.

6. A process of uniting two metals, consisting of: applying to one of such metals a flux consisting of phosphorus mixed with muriatic acid, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, and then pouring such molten metal and phosphorus upon the other treated metal.

7. A process of uniting copper with steel, consisting of: applying to such steel a flux that will combine chemically with both the steel and the copper, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the steel.

8. A process of uniting copper with steel, consisting of: applying to such steel a flux that will combine chemically with both the steel and the copper, and that will lower the fusing-points and increase the fluidity of both metals, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the steel.

9. A process of uniting copper with steel, consisting of: applying to such steel a flux consisting of phosphorus, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the steel.

10. A process of uniting copper with steel, consisting of: applying to such steel a flux consisting of phosphorus mixed with an acid, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the steel.

11. A process of uniting copper with steel, consisting of: applying to such steel a flux consisting of phosphorus mixed with muriatic acid, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the steel.

12. A process of uniting two metals, consisting of: cleaning the surface of one metal by means of emery or other mechanical device, nicking the surface of such metal, applying to such metal a flux consisting of phosphorus mixed with muriatic acid, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, spreading refractory material over those exposed parts of the cold metal which should be protected from molten metal, fitting a mold over the metal which has proper sprues to allow of the entrance and escape of molten metal, and pouring the molten metal and phosphorus into the mold and upon the cold metal, until the latter is sufficiently heated to allow of the intimate and permanent union of the two metals, allowing the metals to cool and then removing the molds.

13. A process of uniting two metals, consisting of cleaning the surface of one of the metals by means of emery or other mechanical device, nicking the surface of such metal, applying to such metal a flux consisting of phosphorus mixed with muriatic acid, adding to the other metal in a molten condition approximately one-fifth per cent. of phosphorus, spreading refractory material over those exposed parts of the cold metal which should be protected from molten metal, fitting a mold over the metal which has proper sprues to allow of the entrance and escape of molten metal, heating the cold metal by a blast or other means until it is sufficiently heated to form an intimate and permanent union with the molten metal and phosphorus, and then pouring any desired amount of such molten metal and phosphorus into the mold and upon the other metal, allowing the metals to cool and removing the molds.

14. A process of uniting copper with steel, consisting of: cleaning the surface of such steel by means of emery or other mechanical device, nicking the surface of such steel, applying to such steel a flux consisting of phosphorus mixed with muriatic acid, adding to molten copper approximately one-fifth per cent. of phosphorus, spreading refractory material over those exposed parts of the steel which should be protected from molten metal, fitting a mold over the steel which has proper sprues to allow of the entrance and escape of molten metal, and pouring the molten copper and phosphorus into the mold and upon the steel, until the latter is sufficiently heated to allow of the intimate and permanent union of the steel and the copper, allowing the steel and the cast copper to cool and then removing the molds.

15. A process of uniting copper with steel, consisting of: cleaning the surface of such steel by means of emery or other mechanical device, nicking the surface of such steel, applying to such steel a flux consisting of phosphorus mixed with muriatic acid, adding to molten copper approximately one-fifth per cent. of phosphorus, spreading refractory material over those exposed parts of the steel which should be protected from molten metal, fitting a mold over the steel which has proper sprues to allow of the entrance and escape of molten metal, heating the steel by a blast or other means until it is sufficiently heated to form an intimate and permanent union with the molten copper and phosphorus and then pouring any desired amount of such copper and phosphorus into the mold and upon the steel, allowing the metals to cool and removing the molds.

16. A process of casting a rail-bond integral with steel rails, consisting of: applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux that will combine chemically with both the steel and the copper, placing such length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, and then pouring molten metal upon the ends of the length of copper wire, to form the terminals of the bond.

17. A process of casting a rail-bond integral with steel rails, consisting of: applying to the ends of a length of copper wire, intended to form the electrical connector between two steel rails, a flux that will combine chemically with both the steel and the copper and that will lower the fusing-points of both metals, placing such length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, and then pouring molten metal upon the ends of such length of copper wire, to form the terminals of the bond.

18. A process of casting a rail-bond integral with rails, consisting of: applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux consisting of phosphorus, placing such length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, and then pouring molten metal upon the ends of the length of copper wire, to form the terminals of the bond.

19. A process of casting a rail-bond integral with rails, consisting of: applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux consisting of phosphorus mixed with muriatic acid, placing such length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, and then pouring molten copper upon the ends of such length of copper wire, to form the terminals of the bond.

20. A process of casting a rail-bond integral with rails, consisting of: applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux consisting of phosphorus mixed with muriatic acid, placing such length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the molds to the rails, adding to molten copper approximately one-fifth per cent. of phosphorus, and then pouring such molten copper and phosphorus upon the ends of such length of copper wire, to form the terminals of the bond.

21. A process of casting a rail-bond integral with rails, consisting of: cleaning the surfaces of such rails by means of emery or other means, nicking the surfaces of such rails, applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux consisting of phosphorus mixed with muriatic acid, spreading refractory material over those exposed parts of the rails which should be protected from molten metal, placing the length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, adding to molten copper approximately one-fifth per cent. of phosphorus, pouring the molten copper and phosphorus into the mold and upon the ends of such length of copper wire, to form the terminals of the bond, until the rails are sufficiently heated to allow of the intimate and permanent union of the bond-terminals thus cast and the rails, and then allowing the rails and cast terminals to cool, and removing the mold.

22. A process of casting a rail-bond integral with rails, consisting of: cleaning the surfaces of such rails by means of emery or other means, nicking the surfaces of such rails, applying to the ends of a length of copper wire, intended to form the electrical connector between two rails, a flux consisting of phosphorus mixed with muriatic acid, spreading refractory material over those exposed parts of the rails which should be protected from molten metal, placing the length of copper wire in a mold that has proper sprues to allow of the entrance and escape of molten metal, applying the mold to the rails, adding to molten copper approximately one-fifth per cent. of phosphorus, heating the rails hot until they are sufficiently heated to form an intimate and permanent union with the molten copper and phosphorus, pouring such molten copper and phosphorus into the mold, and upon the ends of the length of copper wire, to form the terminals of the bond, and then allowing the rails and the cast terminals to cool and removing the mold.

750,512. FLUX. WILLIAM H. WHERRY, Cleveland, Ohio. Filed Apr. 6, 1903. Serial No. 151,300. (No specimens.)

Claim.—1. An improved flux for uniting metals containing phosphorus.

2. An improved flux for uniting metals containing red phosphorus.

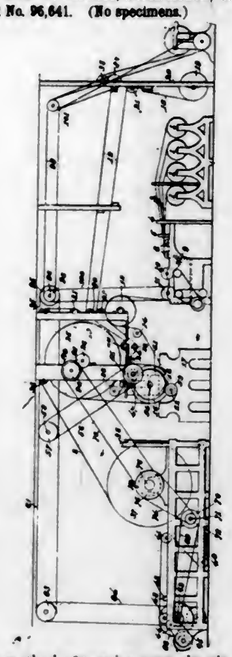
3. An improved flux for uniting metals containing phosphorus and an acid.

4. An improved flux for uniting metals containing phosphorus and muriatic acid.

5. An improved flux for uniting metals containing red phosphorus and an acid.

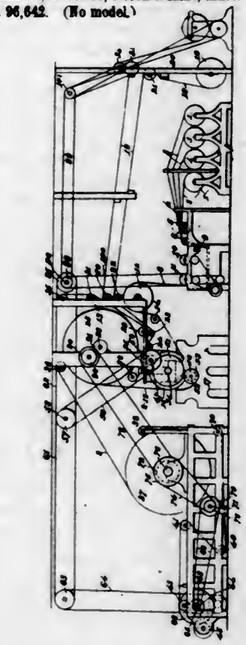
6. An improved flux for uniting metals containing red phosphorus and muriatic acid.

750,513. PROCESS OF PRINTING WARPS. GEORGE H. WINSLOW and CHARLES W. DENNETT, North Adams, Mass. Filed Mar. 4, 1902. Serial No. 96,641. (No specimens.)



Claim.—The method of treating warps herein described, which consists in communicating to a warp motion at a uniform rate of speed from beam to beam, moistening, printing and drying the same; and in varying at will the presentation of the warp to the printing-roller, by condensing or expanding the spaces between the warp-threads comprising the warp.

750,514. WARP-PRINTING MACHINE. GEORGE H. WINSLOW and CHARLES W. DENNETT, North Adams, Mass. Filed Mar. 4, 1902. Serial No. 96,642. (No model.)



Claim.—1. In a warp-printing machine the combination with means for imparting to the warp a regulated degree of moisture, printing mechanism, a warp-receiving beam, and a drying-cylinder between said beam and printing mechanism, of means for compelling contact between said cylinder and the warp and its backing-cloth throughout the greater portion of the periphery of said cylinder, and synchronously-operative driving mechanism.

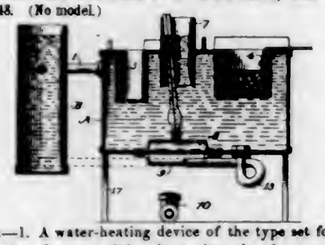
2. In a warp-printing machine the combination with suitable driving mechanism and printing mechanism, of an obliquely-movable reed adapted to regulate the spaces between the warp-threads passing through its dents with reference to the printing mechanism.

3. In a warp-printing machine, the combination with a reed, of means for adjusting it obliquely to the warp-threads passing through its dents.

4. The combination with a pair of parallel bars constituting a reed-supporting frame, of a reed carried thereby, and means for adjusting the position of the reed obliquely to the bars, at will.

5. The combination with a pair of parallel bars constituting a supporting-frame, of a reed-supporting bar obliquely adjustable thereon, and a reed-frame transversely adjustable upon the supporting-bar.

750,515. PARAFFIN-BATH FOR MICROSCOPISTS. FREDERICK A. WUNDERLICH, New York, N. Y. Filed Feb. 4, 1903. Serial No. 141,848. (No model.)

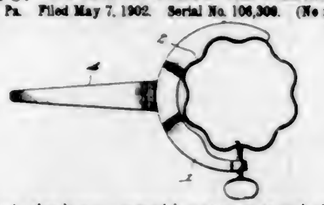


Claim.—1. A water-heating device of the type set forth, comprising a series of cup-receiving depressions therein, an open cylindrical extension opening into said device, an interiorly-arranged raised plate secured below said extension on the bottom of the water-heating device, an exteriorly-arranged plate secured below the last-named plate, and a secondary tank connected with said water-heating device, substantially as described.

2. In a device of the character described, a main tank, having a number of vessel-receiving depressions therein, a tubular extension open at both ends carried by said tank, raised plates arranged beneath the said extension exteriorly and interiorly with relation to the bottom of said tank, and a secondary tank connected to the main tank to permit of the circulation of the water between the two, substantially as described.

3. In a water-heating device of the character described, the combination with a main tank having vessel-receiving depressions therein, an open cylindrical extension formed in the tank, a pair of raised plates secured to the bottom of the tank forming spaces between the said bottom and plates, and a secondary tank having connection with the main tank for circulation of water therebetween, substantially as described.

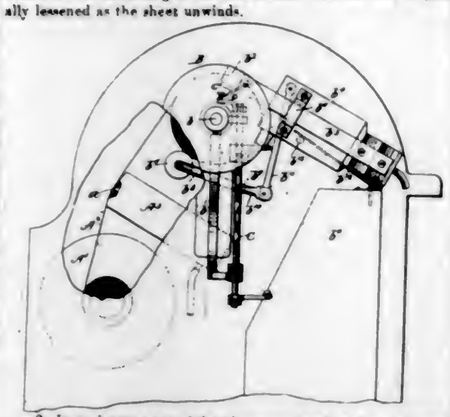
750,516. PIPE OR SPOUT HOLDER. JOHN V. ARBOGAST, Philadelphia, Pa. Filed May 7, 1902. Serial No. 106,308. (No model.)



Claim.—A pipe-hanger comprising an open curved rigid jaw having an extent greater than a semicircle and formed with an inner reduced corrugated biting edge and a securing-shank projecting therefrom, and a clamping-screw mounted in one terminal of the jaw.

750,517. DEVICE FOR AUTOMATICALLY PLAYING PIANOS. OLIVER H. ARNO, Boston, Mass., assignor of one-half to Alexander Steinert, Boston, Mass. Filed June 18, 1903. Serial No. 162,089. (No model.)

Claim.—1. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, and means for opposing the rotation of said roll, the resistance of which to the unwinding of the music-sheet thereon will be gradually lessened as the sheet unwinds.



2. In an instrument of the character specified, the combination of a music-roll, a perforated music-sheet, and means for opposing the rotation of said roll, the resistance of which to the unwinding of the music-sheet thereon will be changed dependent upon the amount of paper upon said roll.

3. In an instrument of the character specified, the combination of a music-roll having normally a constant resistance against turning, a take-up roll, a perforated music-sheet, and means for graduating the resistance of the music-roll that the music-sheet may be unwound therefrom upon the take-up roll with a uniform tension.

4. In an instrument of the character specified, the combination of a music-roll having normally a constant resistance against turning, a take-up roll, a perforated music-sheet, and means for gradually decreasing the resistance of said roll to the unwinding of the paper that the paper may be unwound therefrom upon the take-up roll with a uniform tension.

5. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-bearing brake for opposing the motion of said music-roll, and means for regulating said friction-bearing brake that it may oppose the motion of said music-roll with a gradually-lessening degree of opposition dependent upon the amount of paper on the music-roll.

6. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, and means for opposing the motion of said music-roll to the unwinding of the paper, which means becomes lessened in its degree of opposition when the paper draws to wind upon the take-up roll with an increased tension.

7. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a frictional means for opposing the motion of said music-roll to the unwinding of the paper, and means for regulating the said frictional means to oppose the motion of said music-roll with a less degree of opposition when the paper draws to wind upon the take-up roll with an increase of tension.

8. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a friction piece or brake adapted to bear against said disk, and means for regulating said friction-piece to oppose the motion of said disk and so the motion of the music-roll with a lesser degree of opposition when the paper draws to wind upon the take-up roll with an increase of tension, substantially as and for the purposes set forth.

9. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a friction piece or brake to bear with tension against said disk, a support for said friction piece or brake adapted to carry the same from a point contacting with the disk nearer its outer edge or periphery to a point contacting therewith nearer its axis of turning, and means for changing the position of said support and so of the friction-piece in its bearing against said disk dependent upon the amount of paper in the music-roll.

10. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a friction piece or brake to bear against said disk, a friction roll or member contacting to bear against the paper upon said music-roll, and means connecting with and interposed between said friction roll or member and the friction-piece aforesaid having such relative arrangement that the friction roll or member is made to follow and so keep in contact with the paper on the music-roll as the same becomes unwound, and simultaneously the friction-piece be moved to where it will contact with the friction-disk with a correspondingly lessening degree of opposition.

11. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a friction piece or brake borne to bear with tension against said disk, a hinged support for said friction-piece adapted to carry the same from a point contacting with the disk nearer its outer edge to a point nearer its center or axis of turning, a friction roll or member to bear against the paper on the music-roll, means connecting said roll or member with said support for the friction-piece aforesaid, which means are adapted to carry said roll or member whereby it will keep in continued contact with the paper on said music-roll as the same becomes unwound, and simultaneously impart the movement thereof to the support for the friction-piece whereby the same will be changed in its position of contact against the friction-disk varying with the amount of paper upon the music-roll, and means for holding the parts in normally operable position.

12. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, frictional means for opposing the rotation of the music-roll to turn with some resistance to the unwinding of the music-sheet therefrom, and means for controlling the said frictional means, the opposition of which becomes eliminated or lessened when the exhaust in the instrument causes the music-sheet to wind upon the take-up roll with an increase of tension.

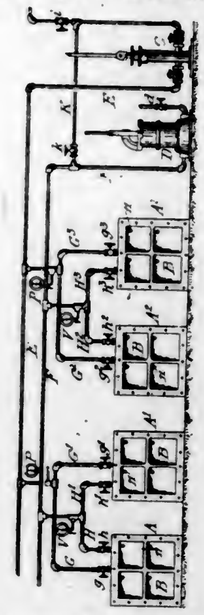
13. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a frictional brake for opposing the turning of said music-roll to the unwinding of the paper therefrom, a pneumatic connecting with the wind-chest for regulating the frictional opposition of said brake to the said music-roll, means connecting said pneumatic with said wind-chest, and means connecting the same with said brake.

14. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a frictional piece or brake adapted to bear with tension against said disk to oppose the turning of the same, a pneumatic connecting with the wind-chest with the movable side of which pneumatic the friction piece or brake aforesaid is connected, a friction roll or member contacting to bear against the paper upon the music-roll whereby its position is defined, means connecting said friction roll or member with said pneumatic, which means are adapted to carry said friction roll or member whereby it will keep in continued contact with the paper on said music-roll as the same becomes unwound and simultaneously will impart its motion to the pneumatic bearing the friction piece or brake whereby said brake will be changed in the position of its bearing against the friction-disk varying with the amount of paper upon the music-roll, substantially as and for the purposes set forth.

15. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a brake for opposing the rotation of said music-roll to the unwinding of the paper therefrom, means for controlling said brake to oppose the rotation of said music-roll with a lesser degree of opposition when the paper draws to wind upon the take-up roll with an increased tension, and means whereby said brake may be thrown out of operable relation with respect to said music-roll or its frictional opposition thereto lessened.

16. In an instrument of the character specified, the combination of a music-roll, a take-up roll, a perforated music-sheet, a friction-disk connected with said music-roll to turn therewith, a frictional piece or brake normally bearing against said disk to oppose the same, a friction roll or member normally bearing against the paper upon the music-roll by which its position is defined, means connecting said friction roll or member and the brake aforesaid whereby said friction roll or member will follow the gradually-lessening diameter of the music-roll as the paper unwinds therefrom and simultaneously the brake be moved to where it will contact with the friction-disk with a correspondingly lessening degree of opposition, and means for throwing said frictional members aforesaid out of their normally operable bearing with respect to said music-roll whatever their relative positions may be, substantially as and for the purposes set forth.

750,518. APPARATUS FOR PRESERVING PERISHABLE SUBSTANCES. CHARLES BLAGBURN, San Francisco, Cal. Filed May 3, 1899. Renewed June 29, 1903. Serial No. 163,660. (No model.)



Claim.—1. An apparatus for preserving perishable substances, having a series of exhaust and pressure chambers connected together by separate exhaust and pressure pipes having controlling-valves, means for exhausting the chambers, means for supplying preservative gas under pressure, and connections from the said exhaust and pressure pipes respectively to the exhausting means and to the supplying means; all constructed and arranged so that the preservative gas can be caused to pass from chamber to chamber in order to secure economy in the use of the main gas-supply.

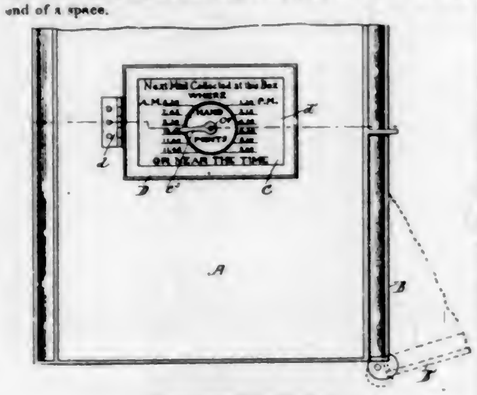
2. An apparatus for preserving perishable substances, having an exhaust-pump, a pressure-pump, a series of exhaust and pressure chambers, adapted to receive transportable receptacles and connected together by separate valved exhaust-pipes and pressure-pipes, which pipes are themselves connected with the exhaust and pressure pumps, a gas-supply connected to the pressure-pump, and means for closing the transportable receptacles while in the said chambers; all constructed and arranged so that preservative gas can be caused to pass from chamber to chamber and used in the series in order to secure economy in the use of such gas.

3. In an apparatus for preserving perishable substances, the combination with a series of air-tight chambers adapted to contain removable packing-cases, of a pressure-pump C having a gas-supply pipe I and pressure-pipe E, an exhaust-pump D, having an air-exhaust pipe F, pressure and exhaust connections from said pipes to each chamber, and between the chambers valves in said connections whereby communication between said chambers can be controlled, a pipe K connecting the exhaust-pipe F to the supply-pipe I and a valve J for cutting off the main supply; whereby the pump C can draw gas from any of said chambers through said pipes F and K and force it into any other chamber through said pipe E.

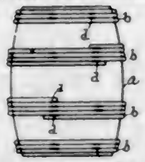
750,519. INDICATOR FOR MAILING OR SIMILAR BOXES. JAMES BOOTH, Taunton, Mass., assignor of one-half to Peter H. Corr, Taunton, Mass. Filed Apr. 12, 1900. Serial No. 12,564. (No model.)

Claim.—An indicator for mail and other boxes, the same comprising an indicator-hand adapted to be turned at will and an indicator-card having in it for disclosing indications of a permanent nature a circular hole of a radius less than the length of the indicator-hand so that the end of the indicator-hand shall extend over

it, and horizontal lines extending from the circular hole upon each side thereof and forming spaces for receiving figures indicating times of collection, and said figures columnally arranged in such spaces, the spaces and the end of the indicator-hand so cooperating that the end of the indicator-hand may always be moved over the inner end of a space.

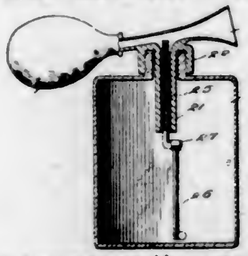


750,520. BARREL-HOOP. EDWARD L. BRADDOCK, Winchester, Mass. Filed Feb. 19, 1900. Serial No. 5,814. (No model.)



Claim.—A barrel-hoop composed of a plurality of convolutions of wire having contiguous convolutions metallically secured together at a plurality of points in the circumference of the hoop and between the convolutions, substantially as described.

750,521. ATOMIZER. FORREST V. BRAYMER, Blooming Valley, Pa., assignor of one-third to Clifton W. Braymer, Blooming Valley, Pa. Filed June 10, 1903. Serial No. 160,802. (No model.)



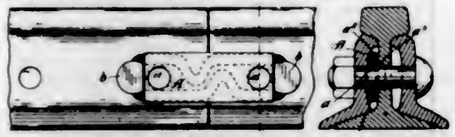
Claim.—1. An atomizer comprising a reservoir, a suction-tube and means for producing suction in the tube, the suction-tube comprising an upper member and a lower member pivoted thereto.

2. An atomizer comprising a reservoir, a supporting-tube having a head provided with a discharge-nozzle, a suction-tube comprising an upper member rotatably mounted in the supporting-tube and a lower member pivoted to the upper member, and means connected with the head of the support-tube for producing suction in the suction-tube.

3. An atomizer comprising a reservoir, a supporting-tube having a head provided with a discharge-nozzle, a suction-tube comprising an upper portion rotatably mounted in the supporting-tube and projecting into the head and a lower portion lying at an angle to the upper portion, and means connected with the head of the supporting-tube for producing suction in the suction-tube.

750,522. APPARATUS FOR BONDING RAILS. WILLIAM R. CLEVELAND, Cleveland, Ohio. Filed Oct. 30, 1902. Serial No. 129,393. (No model.)

Claim.—1. The combination of rails, a joint-plate, a flexible rail-bond intermediate of said rails and plate, a protecting-sheath intermediate of said plate and bond and intermediate of the bond-heads, engaging opposite outer longitudinal surfaces of said bond and extending transversely across its flexible portion.



2. The combination of rails, a joint-plate, a rail-bond intermediate of said rails and plate, and a protecting-sheath intermediate of said plate and bond, said sheath provided with a bolt-hole registering with the bolt-hole in the rail, the peripheral edge of such sheath bolt-hole being provided with a flange extending inwardly into its corresponding rail bolt-hole.

3. The combination of rails, a joint-plate, a rail-bond intermediate of said rails and plate, and a protecting-sheath intermediate of said plate and bond and overlapping the latter and formed with a bolt-hole registering with the bolt-hole in the rail, the peripheral edge of such sheath bolt-hole being formed with a flange extending inwardly into its corresponding rail bolt-hole intermediate of the bolt in such latter hole and the rail.

750,523. ADJUSTABLE WRENCH. JOHN W. DAVIS, Palmyra, Ill. Filed Aug. 30, 1902. Serial No. 121,624. (No model.)



Claim.—1. A wrench comprising a smooth four-sided shank having a stationary jaw, a sliding jaw mounted on the shank having a recess, a cam-lever pivoted in the recess and having smooth bearing-surfaces to coact with one of the smooth sides of the shank, the pivotal opening of the lever being of a larger diameter than the pivotal pin of the recess substantially as specified.

2. A wrench comprising a shank having a stationary jaw, a sliding jaw mounted thereon provided with a recess, the stationary and sliding jaw being constructed to provide a pipe-wrench, a cam-lever having a smooth bearing-surface pivoted in the recess, and the pivotal opening of the cam-lever being of a larger diameter than the pivotal pin in the recess to permit of said cam-lever to coact with the smooth surface of the shank to hold the sliding jaw thereto, and said shank and sliding jaw being also constructed to provide a nut-wrench opposite to that of the pipe-wrench, substantially as specified.

750,524. RAILWAY CATTLE-GUARD. ALBERT R. DAWSON, Hamilton, Canada. Filed Mar. 30, 1903. Serial No. 150,314. (No model.)



Claim.—1. In a cattle-guard the combination with a depressible platform of a plurality of series of plates adapted to obscure the view of the ground beneath, and means whereby the platform when depressed will cause the plates to shake and vibrate as and for the purpose specified.

2. In a cattle-guard the combination with the depressible platform of a plurality of sets of plates suitably linked together and adapted to obscure the view of the ground beneath, springs secured to the end plate of each set the opposite ends of the springs being secured to a stationary part, said sets of plates being normally loosely hung, and means whereby the platform when depressed will pull the sets of plates tight thereby causing them to vibrate as and for the purpose specified.

3. In a cattle-guard the combination with a depressible platform and a plurality of sets of plates, the plates of each set being linked together loosely in lines parallel with the rails, and spring connections for securing the outer end of each set to a suitable stationary support, of a tilting board, a hinged connection between the platform and one side of the board, and suitable means for securing the inner end of each set of plates to the other edge of the tilting board as and for the purpose specified.

4. In a cattle-guard the combination with a plurality of sets of square plates, the plates of each set being diagonally disposed with respect to the rails, and secured together loosely at their adjacent corners, the side corners of one set of plates extending into the angles between the plates of adjacent sets, and each set extending parallel with the rails, of means for supporting the ends of each set of plates and means whereby the plates will be caused to vibrate when an animal endeavors to cross the guard as and for the purpose specified.

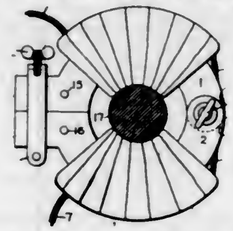
5. In a cattle-guard the combination with a plurality of plates loosely secured together in sets, of means for suspending said plates loosely in a substantially horizontal position, and means operated by the weight of an animal endeavoring to cross the guard for causing the plates to shake and vibrate as and for the purpose specified.

6. In a cattle-guard the combination with a plurality of plates loosely secured together in sets, of spring means for suspending said plates loosely in a substantially horizontal position, and means operated by the weight of an animal endeavoring to cross the guard for causing the plates to shake and vibrate as and for the purpose specified.

7. The combination with a rigidly-formed depressible covering for the space between the rails, of a vibratory covering connected thereto designed to be vibrated by the depression of the rigidly-formed covering as and for the purpose specified.

8. The combination with a rigidly-formed depressible covering for the space between the rails, of a vibratory covering connected thereto designed to be vibrated by the depression of the rigidly-formed covering and spring means connected to the vibratory covering for inducing a maximum vibration as and for the purpose specified.

750,525. TRANSFORMER. AUGUSTUS R. EVERETT, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Aug. 11, 1902. Serial No. 119,178. (No model.)



Claim.—1. A transformer having its core made of two bowed members hinged together at one end and provided with engaging extensions at the other end, said engaging extensions having engaging surfaces greater than the cross-sectional area of the main portion of the core.

2. A transformer having a laminated core made in sections and hinged together, alternate groups of laminations in each section being of a different length from the intervening group of laminations, the longer groups of one section being interleaved with the longer groups of the other section to form the hinge.

3. A transformer having a laminated core made in sections and hinged together, alternate groups of laminations in each section being of a different length from the intervening group of laminations, the longer groups of one section being interleaved with the longer groups of the other section to form a hinge, a bolt forming the hinge of said hinge, and means for clamping said interleaving portions together.

4. A transformer having laminated core-sections hinged together, the knuckles of the hinge being formed of elongated groups of laminations.

5. A transformer having a core in two sections, the sections having a hinged joint at one end and a butt-joint at the other, and means for clamping the sections together at the joints.

6. A magnetic core comprising sections of laminated material hinged together, the knuckles of the hinge connection being formed of elongated groups of laminations.

750,526. SHOE-LACE FASTENER. GEORGE C. FERGUSON, Fredericton, Canada. Filed June 6, 1903. Serial No. 160,400. (No model.)

Claim.—1. A fastener for the loose ends of cords comprising a pin or stud having two annular flanges, between which the cord is adapted to be wound, and a tongue forming an extension on one of said flanges and recurved over the same, and between which and the flange the end of the cord is adapted to be wedged.



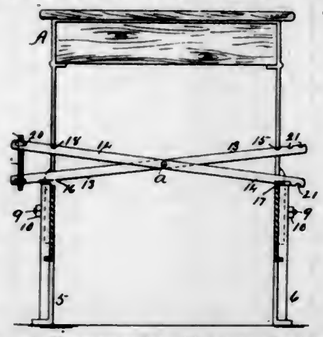
2. A fastener for the free ends of shoe-laces and other cords comprising a stem, a pair of annular flanges at opposite ends thereof, and a tongue forming an extension on the outer of said flanges, said tongue being recurved over said flange and again recurved between said first recurved portion and said flange, and said second portion being resiliently held in contact with said flange, whereby the end of the cord is adapted to be wedged between it and said flange.

3. A fastener for the free ends of shoe-laces and other cords comprising a stem, a pair of annular flanges at opposite ends thereof, and a tongue forming an extension on the outer of said flanges, said tongue being recurved over said flange and again recurved between said first recurved portion and said flange, and said second portion being resiliently held in contact with said flange, whereby the end of the cord is adapted to be wedged between it and said flange, the latter having a notch in its side at the base of said tongue.

4. A fastener for the loose ends of cords comprising a pin or stud having two annular flanges, between which the cord is adapted to be wound, and a tongue forming an extension on one of said flanges and recurved over the same, and between which and the flange the end of the cord is adapted to be wedged, the opposed faces of said flanges converging toward the center.

5. A fastener for the free ends of shoe-laces and other cords comprising a stem, means for fixing it to a stationary object, a wide annular flange 8 formed upon the base of said stem, a similarly-formed annular flange 7 around the upper end of said stem, the opposed faces of said flanges being conical and converging toward each other, and a tongue 10 forming an extension on said flange 7 and having a recurved portion 11 extending over said flange, and a recurved portion 13 extending between said portion 11 and said flange and resiliently held against the latter, there being a notch 15 in said flange 7 at the base of the said tongue.

750,527. SCHOOL-DESK. JOHN F. FIELD, Chicago, Ill. Filed Apr. 19, 1902. Serial No. 103,706. (No model.)



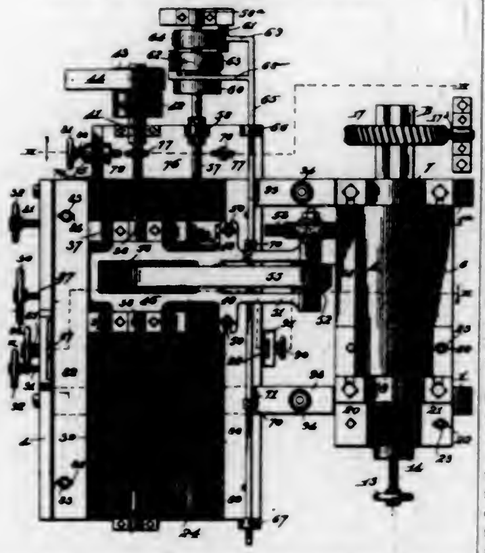
Claim.—1. The combination with a joint school-desk and seat structure, of supporting legs or standards provided with vertical slots and clamping-bolts inserted in said slots and engaging the desk and seat parts and locking the same at any elevation within the range of adjustment, the companion crossed levers having a detachable operative connection in their working position, and means for expanding or contracting said levers in changing the relative elevations of the desk and seat parts, substantially as set forth.

2. A portable attachment for adjusting the elevation of combination desk and seat structures, comprising a pair of levers pivoted together near their longitudinal center in a crossed position, a screw-rod, and means for securing said screw-rod to the adjacent ends of said levers, whereby the respective ends of the levers may be expanded or contracted in accordance with the direction in which the screw-rod is turned, substantially as set forth.

3. A school desk and seat adjusting attachment, comprising a pair of levers pivoted together in a crossed position, the threaded nuts, pivotally seated in the outer ends thereof, a screw-rod having a right and left hand thread and engaging said nuts, and means for

rotating said rod in spreading or contracting said levers, substantially as set forth.

750,528. ROLL-GRINDING APPARATUS. GEORGE R. FORD and BENJAMIN F. ALLEN, St. Louis, Mo.; said Allen assignor to said Ford. Filed Mar. 12, 1903. Serial No. 147,441. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a roll-support, a bed-plate movable longitudinally with respect to said roll-support, and a reciprocating grinding-wheel carriage mounted on said bed-plate for movement longitudinally of said roll-support, substantially as set forth.

2. In an apparatus of the character described, the combination of a roll-support, a bed-plate movable transversely with respect to said roll-support, and a reciprocating grinding-wheel carriage mounted on said bed-plate for movement longitudinally of said roll-support, substantially as set forth.

3. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, and means for reciprocating said carriage to and fro on said bed-plate, substantially as set forth.

4. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, a feed-screw having engagement with said carriage, and means whereby said feed-screw is rotated to reciprocate said carriage, substantially as set forth.

5. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, means for reciprocating said carriage, comprising a feed-screw, tight and loose pulleys mounted on said screw, belts traveling on said pulleys, a shifter through which said belts move, and means whereby said shifter is actuated to shift said belts upon the reciprocation of said grinding-wheel carriage, substantially as set forth.

6. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, means for reciprocating said carriage, comprising a feed-screw, tight and loose pulleys mounted on said screw, belts traveling on said pulleys, a shifter through which said belts move and fingers carried by said shifter, and an arm projecting from said carriage to strike said fingers in the reciprocation of said carriage, substantially as set forth.

7. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, guide-bars on said bed-plate between which the base of said carriage travels, one of said guide-bars being laterally adjustable with respect to the other, substantially as set forth.

8. In an apparatus of the character described, the combination of a roll-support, a bed-plate, a grinding-wheel carriage reciprocally mounted on said bed-plate, a carriage guide-bar fixed to said bed-plate, a second carriage guide-bar adjustably mounted on said bed-plate, and means for holding said last-named guide-bar to the base of said grinding-wheel carriage, substantially as set forth.

9. In an apparatus of the character described, the combination of a roll-support, a reciprocating grinding-wheel carriage, a support for said carriage, and means for moving said carriage in a curving path during its reciprocation, substantially as set forth.

10. In an apparatus of the character described, the combination of a roll-support, a reciprocating grinding-wheel carriage, a support for said carriage, a pair of guide-bars mounted on said carriage-support at opposite sides of the carriage, and means for bowing said guide-bars to vary the path of travel of said carriage, substantially as set forth.

11. In an apparatus of the character described, the combination of a roll-support, a reciprocating grinding-wheel carriage, a support for said carriage, a pair of guide-bars mounted on said carriage-support at opposite sides of the carriage, and held to said support at their ends, and adjustment-screws having engagement with the central portions of said guide-bars for the purpose of bowing said central portions to cause said carriage to reciprocate in a curving path, substantially as set forth.

12. In an apparatus of the character described, the combination in a roll-support of a bearing-box in which one of the journals of the roll to be operated upon is mounted, and an adjustable tail-stock in which the other roll-journal is mounted, substantially as set forth.

13. In an apparatus of the character described, the combination of a roll-support, comprising a table, a bearing-box to receive one of the roll-journals, a tail-stock to receive the other roll-journal, and means for shifting said tail-stock, substantially as set forth.

14. In an apparatus of the character described, the combination of a roll-support comprising a slotted table, a bearing-box to receive one of the roll-journals and an adjustable tail-stock mounted on said table to receive the other roll-journal, an anchor-bolt arranged in the slot in said table to secure said tail-stock thereto, and an adjustment-rod for shifting said tail-stock, substantially as set forth.

15. In an apparatus of the character described, the combination of a roll-support, a reciprocating grinding-wheel carriage, a bed-plate movable transversely with respect to said roll-support and on which said carriage is mounted, mechanism for reciprocating said carriage and operating a grinding-wheel carried thereby, and a journal-carrying plate by which said mechanism is supported, substantially as set forth.

16. In an apparatus of the character described, the combination of side frames, a roll-support, a reciprocating grinding-wheel carriage, a bed-plate movably mounted on said frames, and by which said grinding-wheel carriage is supported, and keepers mounted on said side frames and projecting over said bed-plate, substantially as set forth.

750,529. ROLL-GRINDING APPARATUS. GEORGE R. FORD and BENJAMIN F. ALLEN, St. Louis, Mo.; said Allen assignor to said Ford. Filed Mar. 12, 1903. Serial No. 147,442. (No model.)

Claim.—1. In a roll-grinding apparatus, the combination of a grinding-wheel, a reciprocating roll-carriage, guide-bars on which said carriage moves, and means for bowing said guide-bars to vary the path of travel of said carriage, substantially as set forth.

2. In an apparatus of the character described, the combination of a grinding-wheel, a roll-carriage, guide-bars provided with runways and on which said carriage reciprocates, and shoes connected to said carriage and operating in said runways, substantially as set forth.

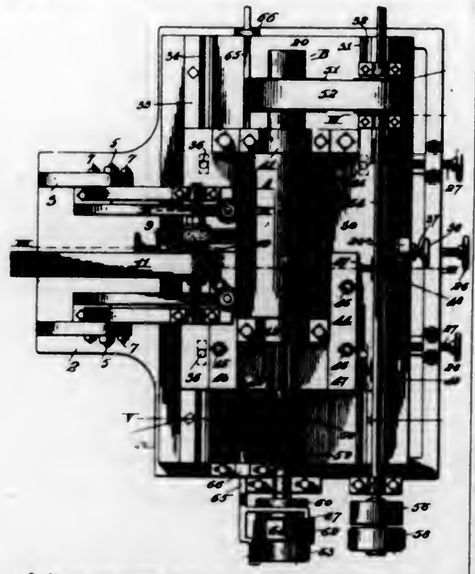
3. In an apparatus of the character described, the combination of a grinding-wheel, a roll-carriage, guide-bars provided with runways and on which said carriage reciprocates, shoes connected to said carriage and operating in said runways, and means for bowing said guide-bars to vary the path of travel of said shoes, substantially as set forth.

4. In an apparatus of the character described, the combination of a reciprocating roll-carriage, and an adjustably-supported grinding-wheel, substantially as set forth.

5. In an apparatus of the character described, the combination of a reciprocating roll-carriage, a grinding-wheel and a vertically-adjustable support for said grinding-wheel, substantially as set forth.

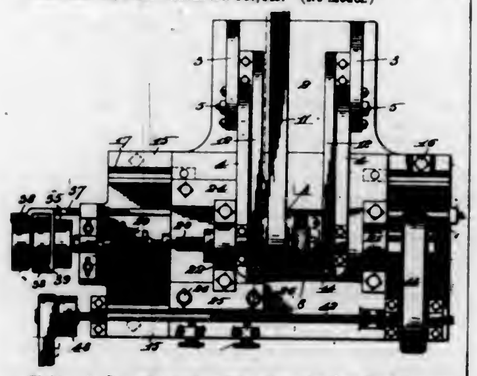
6. In an apparatus of the character described, the combination of a reciprocating roll-carriage, a pair of standards, swing-arms adjustably connected to said standards, and a grinding-wheel journaled in said swing-arms, substantially as set forth.

7. In an apparatus of the character described, the combination of a reciprocating roll-carriage, a pair of standards, swing-arms pivoted to said standards, a grinding-wheel journaled in said swing-arms, posts adjacent to said swing-arms, and means whereby said swing-arms are adjustably connected to said posts, substantially as set forth.



8. In an apparatus of the character described, the combination of a reciprocating roll-carriage, a pair of standards, swing-arms pivoted to said standards, a grinding-wheel journaled in said swing-arms, posts adjacent to said swing-arms, and adjustment-screws connecting said swing-arms to said posts, substantially as set forth.

750,530. ROLL-GRINDING APPARATUS. GEORGE R. FORD and BENJAMIN F. ALLEN, St. Louis, Mo.; said Allen assignor to said Ford. Filed Mar. 12, 1903. Serial No. 147,443. (No model.)

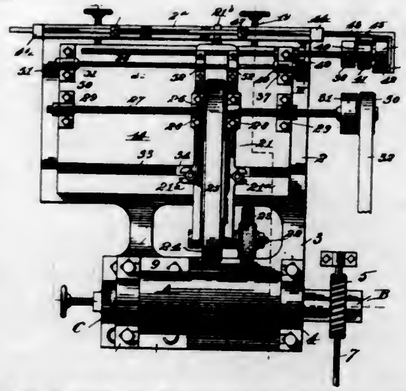


Claim.—1. In an apparatus of the character described, the combination of a bed, a grinding-wheel located above said bed, curved track-rails mounted on said bed, and a roll-carriage to travel on said track-rails in a downwardly and upwardly curving path beneath said grinding-wheel, substantially as set forth.

2. In an apparatus of the character described, the combination of a bed, a grinding-wheel surmounting said bed, track-rails having their upper surfaces curved downwardly and upwardly and provided with grooves, a roll-carriage mounted on said track-rails, and shoes extending from said carriage into said track-rail grooves, substantially as set forth.

750,531. ROLL-GRINDING APPARATUS. GEORGE R. FORD and BENJAMIN F. ALLEN, St. Louis, Mo.; said Allen assignor to said Ford. Filed Mar. 12, 1903. Serial No. 147,445. (No model.)

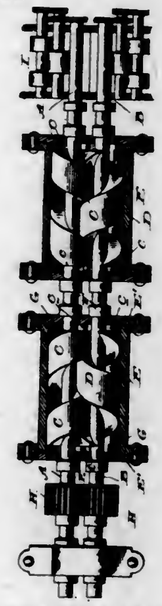
Claim.—1. In an apparatus of the character described, the combination of a roll-support, a grinding-wheel carriage, means for reciprocating said carriage, a grinding-wheel journaled to said carriage, means for driving said grinding-wheel, and a guide-rod passing through said carriage to direct its course, substantially as set forth.



2. In an apparatus of the character described, the combination of a roll-support, a grinding-wheel carriage, means for reciprocating said carriage, a grinding-wheel journaled to said carriage, means for driving said grinding-wheel, and a curved guide-rod passing through said carriage to direct its course, substantially as set forth.

3. In an apparatus of the character described, the combination of a roll-support, a grinding-wheel carriage, a grinding-wheel journaled to said carriage, means for driving said grinding-wheel, means for reciprocating said carriage, a bed-plate, a shoe reciprocally positioned in said bed-plate, connections between said shoe and said carriage, and a guide-rod having its ends secured to said bed-plate and passing loosely through said grinding-wheel carriage, substantially as set forth.

750,532. STEAM AND HYDRAULIC SPIRAL MOTOR. SEYMOUR GEORGE, Altoona, Pa., assignor of one-half to Charles Francis Harris, Pittsburg, Pa. Filed Mar. 5, 1896. Renewed Oct. 30, 1903. Serial No. 179,237. (No model.)



Claim.—1. In a motor of the class described, the combination of two spiral motors in separate casings, with the angles of the threads of the two motors diverging in the same general direction, each screw having similar threads and grooves to equalize the power on

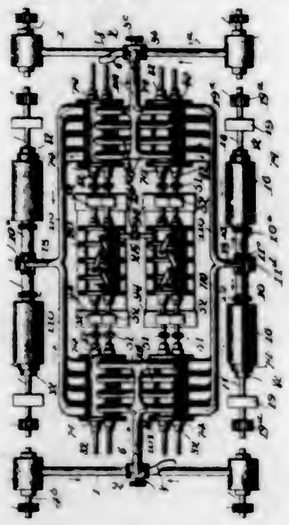
the two screws, the angles of the threads of the one motor designed for pumping water being not more than twenty-two and a half degrees, and that of the other designed to be driven by steam or water being substantially forty-five degrees, whereby the resistance of the former is reduced so as to be overcome by the power of the latter and means for the admission and exhaust of steam to and from the ends of said casings, substantially as described.

2. In a spiral motor, the combination of two shafts arranged parallel with each other, each shaft having alternate threads and grooves of the same width and the threads on each shaft being disposed at an angle of substantially forty-five degrees and comprising two complete threads only with the threads of each shaft fitting tightly the grooves of the opposite shaft, and two independent sets of threads on the same shafts with the angles the same but diverging in the opposite direction, whereby the two motors will counteract the centrifugal force of each other and thus overcome end thrust and means for the admission of steam to and its exhaust from the ends of said casings, substantially as described.

3. In a motor of the class described, the combination of two intermeshing right and left hand screws with two complete threads only on each screw with the threads and grooves of each screw the same width and their sides and perimeters tightly fitting the sides and bases of the grooves so that the power is applied equally to the two screws, and the outer faces of each screw cut away at substantially right angles with their shafts so that the terminations of the threads at each end of the same shall form practically sharp angles to prevent the ends of the threads from obstructing the admission of steam or other fluids in their passage to the grooves whereby the exhaust at one end will occur simultaneously with the cut-off at the other end and means for the admission and exhaust of steam to and from the ends of said casings, substantially as described.

4. In a spiral rotary motor, the combination with two spiral motors in separate casings with the angles of the threads of the two motors diverging in the same general direction, each screw having similar threads and grooves to equalize the power on the two screws, the angles of the threads of the one motor designed for pumping water being not more than twenty-two and one-half degrees, and that of the other designed to be driven by steam or water being substantially forty-five degrees, whereby the resistance of the former is reduced so as to be overcome by the power of the latter, and means for admission and exhaust of steam to and from the ends of said casing, and means for taking up the lost motion from wear of the bearings of the outer shaft resulting from side pressure horizontally, or the sinking of the same vertically, thereby avoiding leakage of steam between the perimeters of the threads of the screws and the base of the grooves and casings, all substantially as shown and described.

750,533. JET PROPULSION APPARATUS FOR VESSELS. SEYMOUR GEORGE, Pittsburg, Pa., assignor of one-half to Charles Francis Harris, Pittsburg, Pa. Filed Sept. 2, 1898. Renewed Oct. 30, 1903. Serial No. 179,238. (No model.)



Claim.—1. In a jet propulsion apparatus for vessels, the combination with a rotary pump and means for operating the pump, of a jet mechanism having a discharge-pipe connected to the pump and provided with a siphon which extends considerably above the normal water-line of the vessel, substantially as described.

2. In a jet propulsion apparatus for vessels, the combination with a rotary pump and means for operating the pump, of a jet mechanism having a discharge-pipe connected to the pump and provided with a siphon which extends considerably above the normal water-line of the vessel, and an air-chamber in communication with the siphon, substantially as described.

3. In a jet propulsion apparatus for vessels, the combination with a high-speed rotary pump and means for operating the pump, of a jet mechanism having discharge-pipes connected to the pump and provided with siphons which extend considerably above the normal water-line of the vessel, substantially as described.

4. In a jet propulsion apparatus for vessels, the combination with a pump and means for operating the pump, of a jet mechanism having a siphon extended above the normal water-line of the vessel and discharge-pipes connected to the pump and opening through the bottom of the vessel at each side of the longitudinal center of said vessel.

5. In a jet propulsion apparatus for vessels, the combination with a pump and means for operating the pump, of a discharge-pipe provided with a siphon and connected to the pump and opening at the bottom of the vessel, substantially as described.

6. In a jet propulsion apparatus for vessels, the combination with a pump and means for operating the pump, of a discharge-pipe, a siphon extended above the normal water-line of the vessel and connected to the pump, opening through the vessel, and arranged to discharge at an angle downward.

7. In a jet propulsion apparatus for vessels, the combination with a pump and means for operating the pump, of a discharge-pipe provided with a siphon and connected to the pump, said discharge-pipe having its axis lying in a vertical plane parallel to the vertical plane through the keel of the vessel and arranged to discharge downward through the bottom of the vessel at an angle to the normal water-line, substantially as described.

8. In a jet propulsion apparatus, the combination with two pairs of discharge-pipes having siphons extended above the normal water-line of the vessel and arranged, one pair on each side of the longitudinal center of the vessel, one pipe of each pair opening forward at the bottom of the vessel and the other aft, of a pump connected to the discharge-pipes, and means for controlling the flow of water through the discharge-pipes whereby the vessel may be propelled in any direction or turned around.

9. In a jet propulsion apparatus, the combination with a common pipe and two branch pipes communicating therewith, of a valve in the common pipe at the junction of said branch pipes, valves controlling the outer ends of said branch pipes at the bottom of the vessel, and a siphon communicating with the common pipe, substantially as described.

10. In a jet propulsion apparatus for vessels, the combination with a common pipe and two branch pipes communicating therewith, of a valve in the common pipe at the junction of said branch pipes, valves controlling the outer ends of said branch pipes, a siphon communicating with the common pipe, and an air-valve mounted upon said siphon, substantially as described.

11. In a jet propulsion apparatus for vessels, the combination with two discharge-pipes, a valve common to both, and valves controlling the outer ends of said discharge-pipes, of a siphon with two distinct and separate passages communicating with the valve common to both discharge-pipes, substantially as described.

12. In a jet propulsion apparatus for vessels, the combination with two discharge-pipes, a valve common to both, and valves controlling the outer ends of said pipes, of a siphon with two distinct and separate passages communicating with the valve common to both of said pipes, and an air-valve controlling a passage connected with the siphon, substantially as described.

13. In a jet propulsion apparatus for vessels, the combination with inlet-pipes opening through the hull of the vessel below the normal water-line, of an inside feed-pipe extending downward toward the bottom of the vessel and opening inside the hull, a pump in communication with the inlet-pipes, and a valve arranged to connect the pump to the inside feed-pipe and to shut off communication between the pump and inlet-pipes, whereby the water may be pumped from the inside of the vessel.

14. In a jet propulsion apparatus for vessels, the combination with two inlet-pipes communicating with the outside of the vessel below the normal water-line, valves controlling each of said inlet-pipes, and a junction-valve common to both of said pipes, of a pipe extending downward toward the bottom and opening inside the hull, said pipe being arranged to communicate with the junction-valve, a siphon having two independent connections with said valve and a pump connected to said siphon, substantially as described.

15. In a jet propulsion apparatus for vessels, the combination with a discharge-pipe, of a valve connected to one end of the discharge-pipe and opening outside the vessel, said valve having an inclined passage-way whose axis is in a vertical plane when the valve is open.

16. In a jet propulsion apparatus for vessels, the combination with two discharge-pipes, valves controlling said pipes opening at the bottom of the vessel and having inclined passages, a junction-valve common to both of said discharge-pipes, and a siphon having two independent connections with said junction-valve, of a pump connected with said siphon, and an inlet-pipe also connected with said pump by a siphon connection, substantially as described.

17. In a jet propulsion apparatus for vessels, a discharge-valve comprising a cylindrical body portion having an inclined passage therethrough, affording communication between an opening in the hull at the bottom of the vessel and a pipe above, substantially as described.

18. In a jet propulsion apparatus for vessels, a discharge-valve comprising a cylindrical body portion with an inclined passage therethrough for affording communication between an opening in the hull at the bottom of the vessel and a pipe above, and a shaft mounted in suitable bearings and connected to the body portion of said valve for rotating the same, substantially as described.

19. In a jet propulsion apparatus for vessels, the combination with a vessel's hull having one-half of a valve-casing formed integral therewith at the bottom of the vessel, of a second half of a valve-casing detachably secured to that which is integral with the hull, and a valve capable of rotation within the casing.

20. In a jet propulsion apparatus for vessels, the combination with a vessel's hull having one-half of a valve-casing formed integral therewith and provided with a discharge-outlet, opening at the bottom of the vessel outside said hull, of a second half of a valve-casing detachably secured to that which is integral with the hull, and a valve capable of rotation within the casing and provided with a passage-way arranged to communicate with the discharge-outlet.

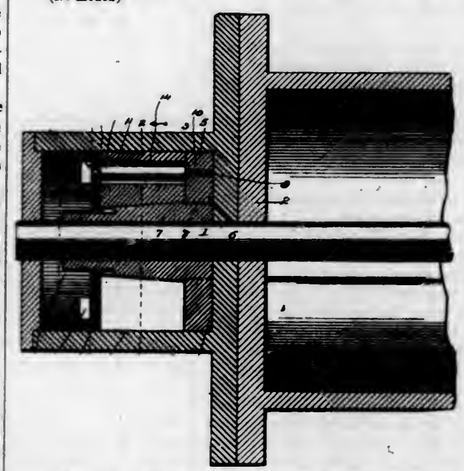
21. In a jet propulsion apparatus, the combination with a discharge-valve comprising a cylindrical body portion with an inclined passage therethrough opening at the bottom of the vessel outside the hull of the vessel, a valve-casing surrounding said body portion, and means for rotating said body portion, of a pump and connections between the discharge-valve and pump, whereby water is driven through the said discharge-valve to propel the vessel.

22. In a jet propulsion apparatus, the combination with a pair of motors, a pair of pumps each driven by a motor, and a discharge-pipe connected to each pump, said discharge-pipe opening at the bottom on opposite sides of the longitudinal center of the vessel, of branch steam-pipes for supplying steam to the two motors, a common steam-pipe, to which said branch pipes are connected, and a valve at the junction of said pipes and arranged to reduce the supply of steam to one motor and increase it to the other, whereby the vessel may be steered, substantially as described.

23. In a jet propulsion apparatus for vessels, the combination of a valve-casing with a vessel's hull at the bottom of the vessel formed integral therewith, of a second half of a valve's casing detachably secured to that half which is integral with the hull, and a cylinder-valve capable of rotating within the casing, having an inclined passage therethrough on a line diagonal with the shaft of said valve and communicating at one end of the casing with the discharge-pipe of a pump and affording communication through an opening in the periphery of said valve and casing at their opposite ends and through the hull at the bottom of the vessel to the water below, and said valve having a shaft suitably mounted for rotating the same in its casing, whereby the water may be shut off at the outer end of said discharge-passage at the bottom of the vessel, and vice versa, substantially as described.

24. In a jet propulsion apparatus for vessels the combination of two inlet-pipes opening at the bottom of the vessel communicating with the periphery of a valve-casing at one side, two discharge-pipes communicating with the periphery of said casing at the opposite side, with a cylinder-valve adapted to fit tightly the walls of said casing, said cylinder having a shaft suitably mounted and adapted to rotate in said casing, and said cylinder having a passage-way through its diameter-body on a line at right angles with its shaft, and in communication with one of said inlet-pipes on the right, and one of said discharge-pipes on the left, when in register with said inlet-pipe, and vice versa, whereby the water may be directed from one of said inlet-pipes on the right, into one of said discharge-pipes on the left, and vice versa, by which means the vessel's motion may be reversed from forward to aft, and vice versa, substantially as described.

750,534. ADJUSTABLE PACKING DEVICE FOR THE STUFFING-BOXES OF ROTARY MOTORS. SEYMOUR GEORGE, Derry Station, Pa., assignor of one-half to Charles Francis Harris, Pittsburg, Pa. Filed Aug. 28, 1901. Renewed Oct. 23, 1903. Serial No. 178,281. (No model.)



Claim.—1. A device for the purposes described, embodying a flange or base-plate, a conical thimble sleeved on the shaft of a rotary motor and adjustable in said base-plate, packing-rings in segments surrounding said thimble and arranged to break joints, and means for moving the thimble endwise outward on a line with the shaft for the purpose of forcing the segments of said rings outward from their center lines, as set forth.

2. A device for the purpose described comprising a base-plate, a conical thimble screw-threaded into said base-plate, rings in segments around said thimble and arranged to break joints, bolts through the face of said rings with reduced inner and outer ends thus forming shoulders flush with the inner and outer faces of said rings, a face-plate with bolt-holes adapted to receive the outer reduced ends of said bolts, the inner reduced ends of said bolts being screw-threaded and screw-threaded bolt-holes in said base-plate, adapted to receive said screw-threaded inner ends of said bolts, the reduced outer ends of said bolts being screw-threaded, said shoulders on the inner ends of said bolts engaging the outer face of said base-plate, shoulders on the outer ends of said bolts engaging the inner face of said face-plate, nuts on the outer ends of said bolts engaging the outer face of said face-plate, whereby said face-plate and said base-plate are clamped solidly together against the shoulders of said bolts, thereby forming a ring-rack whereby said rings are held neatly together on said thimble, but movable outward from their center lines when actuated by said conical thimble, means for drawing said thimble outward endwise on a line with said shaft and thereby forcing the segments of the said rings outward from their center lines, all substantially as herein shown and described and for the purpose specified.

3. In a device for the purpose described, a base-plate and a conical thimble having its inner end threaded into said base-plate, rings in segmental parts, around said thimble, a face-plate, the inner face engaging the outer face of said outer ring, the inner face of said inner ring engaging the outer face of said base-plate, bolts having one end seated in said base-plate and the other ends passed through said face-plate, and nuts on the outer ends of said bolts whereby said face-plate and said base-plate are held tightly together, thus forming a rack in which said rings are held in position on said thimble and their segments movable outward only from their center lines when said thimble is advanced endwise and outward on a line with said shaft, and for the purpose specified.

4. In a device for the purpose specified, a base-plate, a conical thimble having its inner end adjustable in said base-plate, a ring in

segments, (arranged to break joints) around said thimble between said base-plate and said face-plate, and means for holding said ring against movement otherwise than toward the walls of the chamber or cylinder of the stuffing-box within which it is located, as and for the purpose specified.

5. In a device for the purpose described, a base-plate, a conical thimble adjustable therein, a ring in segments, around said thimble its inner face engaging the outer face of said base-plate, a face-plate its inner face engaging the outer face of said ring, means for clamping said base-plate and said face-plate for the purpose of securing said ring in its adjustable position on said thimble, and also to permit a free movement of the segments of said ring outward only from their center lines, means adapted to turn said thimble so as to draw the same outward on a line with the shaft for the purpose of spreading and forcing the segments of said ring toward the walls of the chamber or cylinder of the stuffing-box within which they are located, as and for the purpose specified.

6. In a device for the purpose described, a base-plate, a conical thimble having its inner end threaded into the base-plate, segmental rings around the conical body of the thimble, and adapted to break joints, and a face-plate, bolts having reduced ends held in the base and face plates with shoulders engaging the adjacent faces of said plates, and nuts on the outer ends of said bolts, as and for the purpose specified.

7. In a device for the purpose described, a base-plate, a conical thimble adjustable in said base-plate, a ring in segments, arranged to break joints, sleeved around said thimble, a face-plate bearing against the outer face of said ring and the inner face of said ring bearing against the outer face of said base-plate, and means adapted to turn the thimble to draw the same outward on a line with the shaft and at the same time spread the segments on said ring, and thereby force them outward from their center lines, as and for the purpose set forth.

8. In a device for the purpose described, a base-plate and a conical thimble adjustable therein, a ring in segments, sleeved around the conical body of said thimble and having its inner face bearing closely against the adjacent face of said base-plate, a second ring also in segments, around the conical body of said thimble, and its inner face bearing against the outer face of said first-mentioned ring, and the two rings arranged to break joints, and means for adjusting the thimble by moving it outward endwise for the purpose of forcing the segments of said rings outward from their center lines, as and for the purpose set forth.

9. In a device for the purpose described, a base-plate, and a conical thimble its inner edge detachably secured to said base-plate, a ring in segments, around the conical body of said thimble, a face-plate and means for confining said ring between said face-plate and base-plate, means for drawing said thimble outward on a line with its shaft, to force the segments of said ring outward from their center lines, as and for the purpose specified.

10. In a device for the purpose described, a conical thimble, sleeved on the shaft of a steam rotary motor and located within the interior of the chamber or cylinder of the stuffing-box attached to the casing or steam-cylinder head of said motor, a base-plate and the inner end of said thimble being screw-threaded into said base-plate, rings around the conical body of said thimble in segments and arranged to break joints, and means for automatically adjusting said rings and thereby creating a steam-tight joint between the periphery of said rings and the circular walls of said stuffing-box, as set forth.

11. In a device for the purpose described, a conical thimble, a base-plate in which it is adjustably held, rings in segments around said thimble, a face-plate bearing against the outer face of the outer ring and the inner face of the inner ring bearing against the outer face of the said base-plate, and an automatic device around the outer end of said thimble for the purpose of adjusting said rings, as set forth.

12. In a device for the purpose described, a base-plate, a conical thimble in which base-plate said thimble is detachably and adjustably secured, a ring in segments with overlaps to break joints around the conical body portion of said thimble, a face-plate bearing against the outer face of said ring and its inner face bearing against the outer face of said base-plate, bolts passing through the face of said ring, one end seated in the base-plate and the other end projecting through the face-plate, the bolt-holes being of greater diameter than the bolts to provide a space between said bolts and the bolt-holes in said ring to permit the segments to move outward from their centers, shoulders on said bolts flush with the inner and outer faces of said ring, engaging the base-plate and face-plate, nuts on the outer ends of said bolts bearing against the outer face of said face-plate, the inner ends of said bolts seated in said base-plate, and means surrounding the outer end of the thimble for automatic adjustment of said ring, as and for the purpose specified.

13. In a device for the purpose described, a base-plate, a conical thimble adjustably held therein at the inner end, a ring in segments, sleeved on said thimble, and a face-plate, bearing against the outer face of said ring, and the inner face of said ring bearing against the outer face of said base-plate, means for clamping said base-plate and face-plate firmly together thus forming a ring-rack whereby said ring is held in its adjusted position on said thimble, bolts through the face of said ring to hold it from movement on said thimble except outward from its center line, means around said thimble beyond the face-plate for automatically adjusting said ring and said thimble as and for the purpose set forth.

14. A device for the purpose described, embodying a base-plate, a face-plate, a thimble having a conical portion with one end adjustable in the base-plate, a packing-ring in segments surrounding the conical portion of the thimble and adapted to be spread outward by the endwise movement of the thimble, and means for holding the base-plate, face-plate and ring together, as and for the purpose specified.

15. In a device for the purpose described, a base-plate, a conical thimble having one end adjustably held thereto, a face-plate, bolts having shoulders near opposite ends, segmental rings around the conical thimble, means for drawing the thimble endwise to force the rings outward, and means in addition to said first-mentioned means for holding the rings against movement otherwise than outward toward the walls of the casing or box within which they are disposed, as set forth.

16. In a device for the purpose described, a base-plate, a face-plate, a conical thimble, segmental rings between the base and face plates, and surrounding the thimble, means for drawing the thimble outward to spread the rings outward from their center lines, bolts for connecting the base and face plates, and means on the ends of the bolts for adjustably holding their inner ends to the base-plate and adjusting their outer ends, as and for the purpose specified.

17. In a device for the purpose described, a base-plate, a conical thimble having one end adjustably held therein, segmental rings around the thimble, a face-plate, means for holding the base-plate and face-plate together and the rings between them against movement except outward toward the walls of the chamber within which they are located, and means for drawing the thimble outward to spread the segments of the rings outward, as set forth.

18. In a device for the purpose described, a base-plate, a face-plate, a conical thimble having one end adjustable in the base-plate, segmental rings around the conical portion of the thimble, means connecting the base-plate and face-plate and passing loosely through holes in the rings, the said means having shoulders bearing against the outer face of the base-plate and against the inner face of the face-plate, and means on the outer ends of said means for adjusting the same, and means for drawing the thimble endwise as and for the purpose specified.

19. A conical thimble sleeved on the shaft of a rotary motor and located within the interior chamber or cylinder of the stuffing-box attached to the casing or steam-cylinder head of said motor, said thimble having a flange or base-plate detachably secured to its inner end, rings in segments sleeved on the conical thimble, bolt-holes through the face of said rings, bolts in said bolt-holes of smaller diameter than the bolt-holes, a face-plate, its inner face engaging the outer face of the outer ring, and the inner face of the inner ring engaging the outer face of said flange or base-plate and said bolts having reduced inner and outer ends and being screw-threaded on said ends, screw-threaded bolt-holes in the outer face of said flange or base-plate adapted to receive the reduced inner ends of said bolts, bolt-holes in said face-plate registering with the bolt-holes in said rings and adapted to receive the reduced outer ends of said bolts, shoulders on the inner and outer ends of said bolts flush with the inner and outer faces of said rings, the inner shoulders of said bolts engaging the outer face of said base-plate and the outer shoulders of said bolts engaging the inner face of said face-plate, and nuts on the outer ends of said bolts engaging the outer face of said face-plate, whereby said base-plate and said face-plate are clamped solidly together, thus forming a ring-rack by which means said rings are held in their adjusted position on said thimble and while being steam-tight between their faces, are loose enough to move outward from their center lines when actuated by said conical thimble as and for the purpose set forth.

20. In a device for the purpose described, a pair of rings in segments, a plurality in each ring, and arranged to break joints, a conical thimble surrounded by said rings, said thimble sleeved on the shaft of a rotary motor and located within the interior chamber or cylinder of the stuffing-box attached to the casing or steam-cylinder head of said motor, said thimble having a flange or base-plate detachably secured to its inner end, said flange or base-plate having a screw-threaded bore, and said thimble being screw-threaded on a portion of its inner end and adapted to fit the screw-threaded bore of said flange or base-plate, bolt-holes through the face of said rings, said bolt-holes in one ring registering with the bolt-holes in the other ring, when said rings are in their adjusted position on said thimble, bolts in said holes of smaller diameter than said bolt-holes to afford space for the segments of said rings to move outward from their center lines and means for holding said rings in proper position on said conical thimble, whereby said rings while being steam-tight between their faces will move outward from their centers freely when actuated by said conical thimble, means for turning said thimble on said shaft for the purpose of moving the same on a line with its shaft outward and thus causing the segments of said rings to spread and move outward from their centers, until their periphery-surfaces engage the interior circular walls of said stuffing-box, and thereby packing the same for the purpose of making a steam-tight joint between said surfaces, as and for the purpose set forth.

21. A ring in segments, a second ring in segments, one face of the first ring engaging one face of the second ring, and the two rings sleeved on a thimble on a rotary shaft of a rotary motor and located within the interior chamber or cylinder of the stuffing-box attached to the casing or a steam-cylinder head of a motor, the diameter of said rings being equal to the interior diameter of said stuffing-box, bolt-holes through the face of said rings, said holes in one ring registering with said holes in the other ring, bolts in said holes whereby the said rings break joints, bolt-holes in said rings of larger diameter than the bolts, to afford space for the segments of said rings to spread when forced outward from their center lines, means for spreading the segments of said rings by forcing them outward from their center lines until their periphery-surfaces engage the inner circular surface of the walls of said stuffing-box and thereby making a steam-tight joint between the periphery of said rings and said walls and a base-plate as set forth.

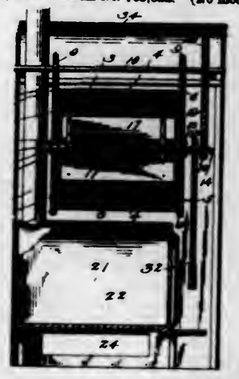
22. A conical thimble, a ring in segments, sleeved on said conical thimble and said thimble also sleeved on a thimble on a rotary shaft of a motor and located within the interior chamber or cylinder of a stuffing-box attached to the casing or steam-cylinder head of said motor, said ring arranged to break joints at its segment-joints to prevent the escape of steam through the same, the diameter of said ring being equal to the interior diameter of the chamber or cylinder of said stuffing-box, bolt-holes through the face of said ring and bolts of smaller diameter than said bolt-holes to afford space for the segments of said ring to spread when actuated by said conical thimble, said thimble having a flange or base-plate at its inner end and said thimble being screw-threaded on a portion of its inner end, and said flange or base-plate having a screw-threaded bore adapted to receive the screw-threaded inner end of said thimble, whereby said thimble is detachably secured to said flange or base-plate, means for turning said thimble and thereby unscrewing the same from its flange or base-plate and thus moving said thimble endwise outward on its shaft, whereby the conical surface of said thimble engages the conical bore of said ring, thereby spreading its segments and forcing them outward from their center lines, means for holding said ring in its adjusted position on said thimble from movement in all directions except outward from its center line, substantially as and for the purpose specified.

23. A conical thimble, a ring in segments, sleeved on said thimble, said thimble being sleeved on a rotary shaft of a motor and located within the interior chamber or cylinder of a stuffing-box attached to the casing or steam-cylinder head of a motor, the diameter of said ring being equal to that of the interior of the chamber or cylinder of said stuffing-box, means for spreading the segments of said ring by forcing them outward from their center lines, whereby their periphery-surfaces engage the circular walls of said stuffing-box, thereby creating a steam-tight joint between said surfaces of said ring and said walls and means for holding said segments of said ring in their adjusted position on said shaft, and means for preventing the movement of the segments of said ring in all directions except outward from their center lines, as and for the purpose set forth.

24. A conical thimble, a ring in segments, sleeved on said thimble, the latter being sleeved on a thimble on the shaft of a rotary motor and located within the interior chamber or cylinder of a stuffing-box attached to the casing or steam-cylinder head of said motor, said ring having overlaps at its segment-joints to prevent the escape of steam therethrough, and the diameter of the said ring being equal to the interior diameter of the chamber or cylinder of said stuffing-box, means for forcing said ring outward by forcing its segments outward from their center lines, and means for holding said ring in its adjusted position on said shaft against movement otherwise than outward from its center line, as and for the purpose specified.

25. A conical thimble sleeved on the shaft of a rotary motor and located within the interior chamber or cylinder of the stuffing-box attached to the casing or steam-cylinder head of said motor, said thimble having a flange or base-plate detachably secured to the inner end of said thimble, said thimble being screw-threaded on a portion of its inner end and said flange or base-plate having a screw-threaded bore adapted to receive the screw-threaded inner end of said thimble, packing-rings in segments sleeved on the conical body portion of said thimble, the inner face of said ring engaging the outer-face of said base-plate, a face-plate, its inner face engaging the outer face of said outer ring and means for clamping said face-plate firmly to said base-plate, said thimble being cylindrical on a portion of its outer end and having a loose collar sleeved thereon, said cylindrical outer end of said thimble being provided with a groove or key-seat on its periphery-surface parallel with its shaft and said loose collar also having a corresponding groove or key-seat in its bore parallel with said groove or key-seat in the outer end of said thimble and adapted to receive a loose tongue or key, whereby said loose collar when turned to the right or left will also turn said thimble in the same direction, and thus move said thimble inward or outward on a line with said shaft, a ratchet-box or cylindrical chamber surrounding said cylindrical outer end of said thimble, said ratchet-box being attached or detachably secured to the outer face of said face-plate, said ratchet-box having a base at its inner end and a cap detachably secured to its outer end, bolts with reduced inner and outer ends and being screw-threaded on said ends, screw-threaded bolt-holes in said base to receive the screw-threaded inner ends of said bolts, bolt-holes in the face of said cap adapted to receive the reduced outer ends of said bolts, and nuts on the outer ends of said bolts whereby said bolts are secured firmly to said base and said cap, a subcollar surrounding said loose collar, attached or detachably secured thereto, a spring secured at one end to one of said bolts and wrapping around the periphery of said subcollar and secured thereto at the opposite end of said spring, whereby said spring will turn said thimble and thereby move the same endwise outward on its shaft, by which means the conical body portion of said thimble will spread said rings and force their segments outward from their center lines, for the purpose of packing said stuffing-box automatically, a clutch pivoted on its outer end to one of said bolts, and its inner end slightly off its center line engaging the periphery-surface of said loose collar, thereby forming a clutch-lock for the purpose of preventing said thimble when turned by said spring from turning backward, a second clutch or lock pivoted on a second one of said bolts and its inner end slightly off its center line in an inverse or opposite order to the before-mentioned clutch engaging the periphery-surface of said loose collar, whereby said spring will be locked and thus prevented from turning said thimble and thereby removing the automatic pressure of said conical body of the said thimble against the segments of said rings, for the purpose of preventing friction between the periphery-surfaces of said rings and the circular walls of said stuffing-box when the shaft of said motor is revolving, as and for the purpose set forth.

750,535. EVAPORATOR. ELISHA R. GOINES, Clay City, Ill. Filed July 16, 1903. Serial No. 165,832. (No model.)



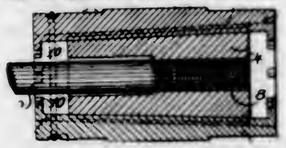
Claim.—1. An evaporator comprising a suitable casing, a shaft journaled in said casing, means for rotating said shaft, a receptacle within said casing adapted to contain the substance to be dried, and means for simultaneously suspending said receptacle and rotating the same from said shaft, substantially as described.

2. An evaporator comprising a suitable casing, a shaft journaled in the upper portion of said casing, means for rotating said shaft, a cylindrical receptacle within said casing, sprocket-chain gearing between said shaft and receptacle, adapted to both suspend and rotate said receptacle, a shaft journaled within said receptacle, a fan carried by said shaft, and means for rotating the latter-mentioned shaft, substantially as described.

3. An evaporator comprising a suitable casing, a shaft journaled in the upper portion of said casing, means for rotating said shaft, a cylindrical receptacle within said casing, sprocket-chain gearing between said shaft and receptacle, adapted to both suspend and rotate said receptacle, a shaft journaled within said receptacle, a fan carried by said shaft, means for rotating the latter-mentioned shaft, a heater in said casing, below said receptacle, and a blower or fan adapted to force the evaporating medium into said casing below said heater substantially as described.

4. An evaporator comprising a suitable casing, a shaft journaled in the upper portion of said casing, means for rotating said shaft, a cylindrical receptacle within said casing, sprocket-chain gearing between said shaft and receptacle adapted to both suspend and rotate said receptacle, a shaft journaled within said receptacle, a fan carried by said shaft, a driving connection between said shafts, a heater in said casing beneath said receptacle, a blower or fan adapted to force the evaporating medium into said casing below said heater, and a driving connection between said blower and the latter-mentioned shaft, substantially as described.

750,536. **EXPANSION-BOLT.** CHARLES H. HAGGERTY, Brooklyn, N. Y. Filed Feb. 28, 1903. Serial No. 145,511. (No model.)



Claim.—1. In an anchoring device, a shell formed by a plurality of sections independent of each other; the said sections held against disassemblage by surrounding wires or straps, the outer surface of the said sections being substantially parallel with the axis of the shell, and the inner surfaces angularly disposed with reference to the said axis, thereby forming a tapering bore, the outer surface of the said sections being provided with upstanding projections adapted to secure the shell against movement, and a block adapted to fit the tapering bore of the shell, together with means whereby the block can be drawn forward thereby expanding the shell.

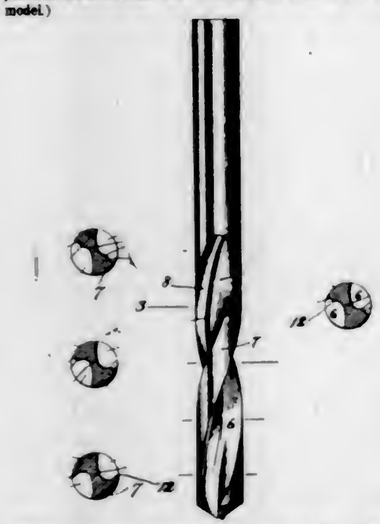
2. In an anchoring device, a shell formed by a plurality of sections independent of each other; the said sections held against disassemblage by surrounding wires or straps, the outer surface of the said sections being substantially parallel with the axis of the shell, and the inner surfaces angularly disposed with reference to the said axis, thereby forming a tapering bore, the outer surface of the said sections being provided with upstanding projections adapted to secure the shell against movement, and a block adapted to fit the tapering bore of the shell, the said block provided with a tapped hole in which a bolt can be inserted, whereby the block can be drawn forward, thereby expanding the shell.

3. In an expansion-bolt, the combination of a cylindrical shell, formed by a plurality of cylindrical segments, independent of each other; the said segments held against displacement by a surrounding wire retained in a recess therefor, the outer surfaces of the said segments substantially parallel to the axis of the shell, and the inner surfaces angularly disposed in reference to the said axis, thereby forming a tapering bore; the outer surfaces of the segments being provided with an upstanding projection, thereby holding the shell against rotation, the edges adjacent to the inner surface of the segments recessed throughout their length, as shown, and a conical block adapted to fit the tapered bore of the shell; the said block provided with upstanding ribs, adapted to fit within the said recessed edges of the segments, and a threaded hole within the said block, adapted to receive the threaded end of a bolt or rod, for the purpose set forth.

4. In an expansion-bolt, the combination of a cylindrical shell, formed by a plurality of cylindrical sectors independent of each other; the said sectors secured against displacement by a surrounding wire or strap retained in a recess therefor; the outer surface of said sectors substantially parallel with the axis of the shell, the inner surface angularly disposed in reference to the said axis, thereby forming a tapering bore; upstanding projections upon the outer surface of the sectors acting to prevent a rotary movement of the shell; the sectors recessed at the edges adjacent to the inner surface, as shown; and a block adapted to fit the conical bore of the shell, upstanding ribs upon the periphery of the said block, adapted to fit within the recessed edges of the sectors, and an eye, integral with the said block, in which a hook may be inserted for the purpose set forth.

5. In an expansion-bolt, the combination of a cylindrical shell formed by a plurality of cylindrical segments, independent of each other, secured against displacement by a surrounding wire or strap retained in a recess therefor; the outer surface of said segments substantially parallel to the axis of the shell; the inner surface angularly disposed in reference to said axis, thereby forming a tapering bore, upstanding projections upon the outer surface of the segments, acting to prevent rotary movement of the shell; the edges adjacent to the inner surface of the segment recessed throughout their length, as shown, inwardly-projecting members upon the ends of the said segments, acting to prevent dislodgment of the block, and a block adapted to fit the tapering bore of the shell, upstanding ribs upon the periphery of the said block, adapted to fit within the recessed edges of the segments, and means whereby the block may be drawn forward, thus expanding the shell, for the purpose set forth.

750,537. **DRILLING-TOOL.** BENOT M. W. HANSON, Hartford, Conn., assignor to Pratt & Whitney Company, Hartford, Conn., a Corporation of New Jersey. Filed June 6, 1903. Serial No. 160,357. (No model.)



Claim.—1. A tool having a spiral groove with a side of constant angle, and adjacent to said groove a clearance-space of gradually-increasing width from point to rear.

2. A tool having a pair of spiral grooves each with a side of constant angle, a spiral rib or ridge intermediate each pair of grooves, and clearance-spaces of gradually-increasing width from point to rear.

3. A tool having pairs of spiral grooves, the grooves of one pair being each of a constant lead, and those of the other pair increasing gradually in width from front to rear, and having each a constant lead different from the lead of the other pair.

4. A tool having main spiral grooves, spiral ribs of gradually-increasing projection from point to rear, and spiral clearance-grooves separated from the main grooves by said ribs.

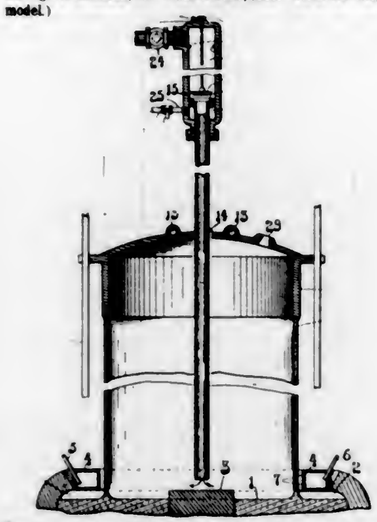
5. A tool having a pair of spiral grooves, one of said grooves being of constant lead, and the other of said grooves gradually increasing in width from front to rear, and being of a different constant lead.

6. A tool having a web of substantially uniform thickness, main spiral grooves, spiral strengthening ribs or ridges, and clearance-grooves of gradually-increasing width from point to rear, and separated from the main grooves by said ribs.

7. A tool having a pair of spiral grooves merging into each other adjacent to the cutting end, one of said grooves being of gradually-increasing width from front to rear, and a spiral rib of gradually-increasing projection from front to rear separating said grooves.

8. A twist-drill having main spiral grooves, clearance-grooves merging into the main grooves at the point of the drill, spiral ribs or projections of constantly-varying angle separating the main and clearance grooves, and a web of substantially uniform thickness.

750,538. **GLASS-DRAWING MACHINE.** GEORGE H. HARVEY, borough of Glenfield, Pa. Filed Dec. 29, 1903. Serial No. 186,945. (No model.)



Claim.—1. In the art of manufacturing glass, a gatherer adapted to draw glass in cylindrical or other inclosed form having an opening therein, means for discharging a cooling fluid through said opening at substantially the bottom of the draw during substantially the entire operation of drawing the glass and secondary means arranged within said draw for deflecting the current of discharged fluid toward the interior wall of the draw of glass.

2. In the art of manufacturing glass, a gatherer adapted to draw glass in cylindrical or other inclosed form having an opening therein, means for discharging a cooling fluid through said opening at substantially the bottom of the draw, a receptacle and means within said receptacle for deflecting the current of cooling fluid discharged from said first means from impinging directly upon the surface of the glass contained in said receptacle.

3. In the art of manufacturing glass, a gatherer adapted to draw glass in hollow form, an inlet-tube extending through said gatherer and movable longitudinally relative thereto and an outer cooler adjacent to said draw.

4. In the art of manufacturing glass, a gatherer, an inlet-tube arranged to extend into said gatherer, a hollow piston integral with said inlet-tube, said piston and tube movable longitudinally relative to said gatherer, an opening in said piston and means for closing said opening.

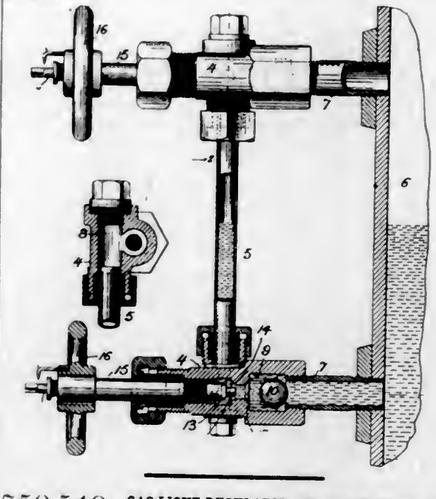
5. In the art of manufacturing glass, a gatherer, an inlet-tube arranged to extend into said gatherer, a hollow piston integral with said tube, said piston and tube movable longitudinally relative to said gatherer, an opening in said piston and a valve adapted to cover said opening.

6. In the art of manufacturing glass, a gatherer, an inlet-tube arranged to extend into said gatherer, a hollow piston integral with said tube, an opening in said piston, a valve adapted to cover said opening and a stop arranged to release said valve from said opening.

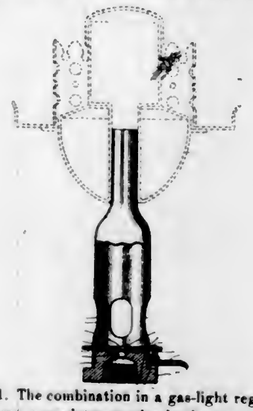
7. In the art of manufacturing glass, a gatherer, an inlet-tube extending into said gatherer and means situated below said tube adapted to deflect laterally a current of fluid discharged by said tube.

750,539. **WATER-GAGE.** NICOLAI H. HILLER, Carbondale, Pa. Filed Dec. 12, 1903. Serial No. 184,865. (No model.)

Claim.—In a device of the class described, the combination with the valve-casing having a passage therethrough and oppositely-disposed valve-seats in said passage of a ball check-valve adapted to coöperate with the inner seat; a controlling-valve device coöperating with the other seat; a movable rod attached to the controlling-valve device, and means for adjusting said rod longitudinally with relation to the controlling-valve, substantially as and for the purpose set forth.



750,540. **GAS-LIGHT REGULATOR.** SAMUEL W. HYATT, Mount Vernon, Ohio, assignor of one-half to Oscar Wise, Mount Blanchard, Ohio. Filed May 14, 1903. Serial No. 157,174. (No model.)



Claim.—1. The combination in a gas-light regulator, of a base having a gas-port, a regulator member having an opening adapted to register with the walls of said port, means for shifting the regulator member, and a prolongation upward of one side wall of the port.

2. The combination in a gas-light regulator, of a base member having a central gas-port, a lug projecting upward and forming an extension of the side wall of said port, a regulator member slidable above said base member and having an opening adapted to register with said port at one side thereof, and permitting the upward passage of said lug, and means for shifting said regulator member.

3. The combination in a gas-light regulator, of a base member having a gas-port, a lug projecting upward and forming an extension of the side wall of said gas-port, a regulator member movably supported above said base member and having an opening adapted to register with one side of said gas-port and permit the passage of said lug, said lug being of such height that the top lies in the plane of the upper surface of said regulator member, and means for shifting said regulator member.

4. The combination in a gas-light regulator, of a base member having a gas-port in the upper surface thereof, an air-mixing tube mounted on said base member, a lug projecting upward at one side of said port and forming an extension of the side wall thereof, a regulator member movably mounted above said base member and having

an opening adapted to register with said port at one side and to permit the passage of said lug at the other side, and means for imparting movement to said regulator member.

5. The combination in a gas-light regulator, of a base member having a gas-port in the top thereof, a disk adapted to rest upon said base and having an opening adapted to register with said gas-port, a lug projecting upward at one side of the opening in said disk and forming an extension of the side wall of said port, a movable regulator member adapted to register at one side with the opening in said disk and at the other side to permit the passage of said lug, and means for shifting said regulator member.

6. The combination in a gas-light regulator, of a base member having in the bottom thereof an opening for engagement with the gas-pipe and a gas-port in the upper portion thereof, an air-mixing tube mounted upon said base member, a disk within said air-mixing tube and having an opening adapted to register with said gas-port, a lug on said disk projecting upward at one side of the opening therein, a movable regulator member resting upon said disk and having an opening adapted to register at one side with the opening in said disk and at the other side to permit the upward passage of said lug, and means external to said air-mixing tube for shifting said regulator member.

750,541. MANUFACTURE OF WHITE LEAD. JOHN W. H. JAMES, Philadelphia, Pa. Filed May 10, 1902. Serial No. 106,757. (No specimens.)

Claim.—1. As an improvement in that process of making white lead which consists in subjecting oxid of lead to the action of acetic acid and carbonic-acid gas, heating said oxid of lead to about 200° Fahrenheit before the acetic acid and carbonic-acid gas is caused to act upon the same, substantially as specified.

2. As an improvement in that process of making white lead which consists in subjecting oxid of lead to the action of acetic acid and carbonic-acid gas, treating the resulting carbonate of lead with oxygen gas, substantially as specified.

3. The within-described method of making white lead which consists in first mixing oxid of lead with water containing acid whereby any metallic lead present with the oxid is converted into a salt, then heating the mixture, then subjecting it to the action of acetic acid and carbonic-acid gas whereby the oxid of lead is converted to a carbonate, and then subjecting the latter to the action of oxygen gas, substantially as specified.

750,542. SKATE. NESTOR G. JOHNSON, Chicago, Ill. Filed Feb. 3, 1903. Serial No. 141,639. (No model.)



Claim.—1. In a skate, the combination with a runner support or holder, of a foot-support arranged above the same and having its lower end secured thereto and extended down completely underneath the bottom thereof, substantially as described.

2. In a skate, the combination of a tubular runner-support, and a cup-shaped foot-support having its lower end extended completely underneath and secured to the bottom of the tubular runner-support, substantially as described.

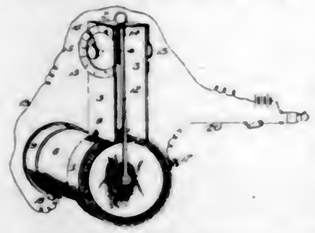
3. In a skate, the combination with a runner-tube, of a cup-shaped foot-support having its lower end soldered to the runner-tube and extended down completely underneath the bottom of the same, substantially as described.

4. The combination with a runner-tube longitudinally split along its under side and having downwardly-extending side extensions, of a runner secured between the split portion of said tube and the side extensions thereof and having its portion within the interior of the tube laterally bent, substantially as described.

5. In a skate, the combination of a cylindric tubular runner-support provided with longitudinally-extending beads, and a foot-support secured to said tube and extended down and over said beads, the sides of said foot-support being constructed to fit over said beads substantially as described.

6. In a skate, the combination of a cylindric tubular runner-holder provided with outwardly-projecting longitudinally-extending beads, and a foot-support secured to said runner-holder and extended down underneath the bottom thereof, the sides of said foot-support being cut away to provide recesses for said beads, substantially as described.

750,543. HEAT-ALARM. HOWARD F. JONES, Wilson, N. C. Filed Apr. 13, 1903. Serial No. 152,306. (No model.)

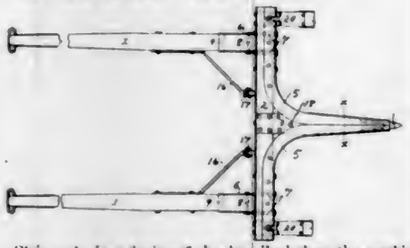


Claim.—1. In an electrical alarm and in combination, a suitable frame, a tube fixed therein, a rod loosely mounted centrally within the tube, a contact-making arm on said rod, a cap fitted to turn upon the inner end of said tube, a thermostatic coil attached at one end to said cap and its other end attached to the rod, contact screw-points for the arm, and electrical connections in the alarm-circuit.

2. In an electrical heat-alarm, a fixed tube, a rod mounted to freely rotate therein, a contact-arm on the front end of said rod, a cap free to rotate on the inner end of the tube, a thermostatic coil having one end connected to the rod and its other end connected to the cap, contact screw-points for the arm, index-pointers connected with the contact screw-points for indicating their set position, a scale indicating such position, and electrical connections in the alarm-circuit.

3. In a heat-alarm, a sheet-metal tube or shell, a rod mounted to rotate loosely therein, a thermostatic coil attached to the rod, a contact-making arm attached to the rod, contact-points, a sheet-metal frame rolled to form a case within which the tube or shell is fixed, an insulating-pad between the tube or shell and the frame-case, and electrical connections in the alarm-circuit.

750,544. DRAFT CONNECTION. LOUIS KEDING, Milwaukee, Wis., assignor to John W. Suetterle, Milwaukee, Wis. Filed May 26, 1902. Serial No. 108,931. (No model.)



Claim.—1. In a device of the described class, the combination of a cross-head; of a king-bar for connecting the same with the vehicle, provided with a point bearing at its rear end, and having a king-bolt aperture; angle-iron braces reinforcing said bar from the point bearing to a point near the king-bolt aperture, and curved outwardly and attached to the cross-head; and a plurality of tongue-pivotally secured to the cross-head.

2. In a device of the described class, the combination with a suitable cross-head; a king-bar for attachment to the vehicle; a plurality of tongues attached to said cross-head by suitable pivot-bolts; brackets projecting from the cross-head and provided with rests for the tongues; and latch-and-catch mechanism located on the tongues and adapted to engage said brackets.

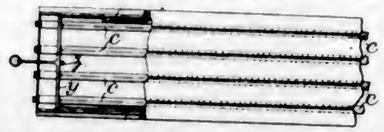
3. In a device of the described class, the combination with a suitable cross head; a king-bar for attachment to the vehicle; a plurality of tongues attached to said cross-head by suitable pivot-bolts; brackets projecting from the cross-head and provided with rests for the tongues; a spring-actuated latch located on the under side of each tongue and adapted to engage underneath the bracket-rest, when the tongue is lowered to horizontal position.

4. In a device of the described class, the combination with a suitable cross-head; a king-bar for attachment to the vehicle; a plurality of tongues attached to said cross-head by suitable pivot-bolts; brackets projecting from the cross-head and provided with rests for the tongues; a spring-actuated latch located on the under side of each tongue and adapted to automatically engage underneath the bracket-rest when the tongue is lowered to horizontal position.

5. In a device of the described class, the combination with a suitable support, of a tongue pivotally connected therewith; a bracket projecting from the support and provided with a rest for the tongue; and latch-and-catch mechanism located on the tongue and adapted to engage said bracket.

6. In a device of the described class, the combination with a suitable support, of a tongue pivotally connected therewith; a bracket projecting from the support and provided with a rest for the tongue; and latch-and-catch mechanism located on the tongue and adapted to engage said bracket; together with a diagonal brace-bar, pivoted to the support and rigidly connected with the tongue.

750,545. RACE GAME. ARTHUR W. M. KERR, London, England, assignor of two-thirds to Charles Stanley Gardner and Ernest Watson, London, England. Filed Sept. 9, 1903. Serial No. 172,514. (No model.)



Claim.—1. In a race game the combination of a series of separate tracks, different kinds of running-surfaces on different parts of the tracks, and means for changing the position of the separate tracks, substantially as set forth.

2. In a race game the combination of a series of separate tracks, different kinds of running-surfaces on different parts of the tracks, means for changing the position of the separate tracks and objects provided with wheels to run on the tracks, substantially as set forth.

3. In a race game the combination of a series of tracks, different kinds of running-surfaces on different parts of the tracks, means for changing the position of the tracks, slots or flanges arranged above said tracks and objects provided with wheels to run on said running-surfaces and guided by said slots or flanges, substantially as set forth.

4. In a race game, the combination of a series of separate tubular tracks, slots in such tracks, flanges arranged to cooperate with said slots, means for rotating said tubular tracks and different kinds of running-surfaces arranged within said tracks, substantially as set forth.

5. In a race game, the combination of a sloping foundation, separate tracks carried by said foundation, different kinds of running-surfaces at different parts of the tracks, means for changing the positions of the tracks and objects provided with wheels to run on said tracks substantially as set forth.

750,546. FOUNTAIN-PEN. FRANK M. KNORR, Philadelphia, Pa. Filed Apr. 16, 1903. Serial No. 152,955. (No model.)



Claim.—1. A feed for fountain-pens and the like consisting of a tube embodying a longitudinal ink-passage, and inlet and outlet openings communicating therewith, said passage being enlarged or widened at a point between the inlet and outlet openings.

2. A feed for fountain-pens and the like comprising a longitudinal ink-passage closed at one end and open at the other, said passage being provided intermediate its ends with an offset and also provided near its closed end with an eduction-port.

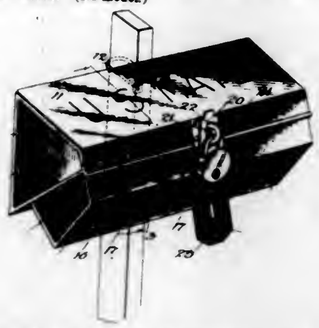
3. A feed for fountain-pens and the like comprising a tube having a longitudinal ink-passage open at the inner end and closed at the outer end, the outer end of the feed being provided with one or more cross-ducts for conveying ink from the longitudinal passage to the pen which lies in contact with the feed.

4. A feed for fountain-pens and the like comprising a tube having a longitudinal ink-passage closed at one end and open at the other, said tube being provided near its closed end with a plurality of cross-ducts leading from the outer surface of the tube into the longitudinal ink-passage.

5. A feed for fountain-pens and the like comprising a tube closed at one end and open at the other, said tube being also provided adjacent to its closed end with a plurality of cross-ducts consisting of kerfs extending from the outer surface of the tube approximately half-way through the bore of the tube.

6. A feed for fountain-pens and the like consisting of a tube closed at one end and open at the other, the bore or passage in the tube being enlarged or widened at a point intermediate the ends thereof, and the tube being provided adjacent to its closed end with a plurality of cross-ducts in the form of kerfs leading from the outer surface of the pen inward and communicating with the bore or passage.

750,547. RURAL MAIL-BOX. CHARLES F. KELLER, Chicago, Ill., assignor to George L. Lavery, Chicago, Ill. Filed Mar. 1, 1902. Serial No. 96,320. (No model.)



Claim.—1. In a rural mail-box, in combination, a weatherproof hood part, pivots adjacent to the inside of the rear wall of said hood and above the base thereof, a receptacle hinged by said pivots and adapted to gravitate to a limited open position within the lower front edge of said hood and having its front higher than its bottom when in said open position, and a hasp and catch adapted to secure said receptacle in its closed position under the hood, substantially as specified.

2. In a rural mail-box, in combination, a weatherproof hood part, a hasp and catch adapted to secure said receptacle in its closed position, and an additional signal-hasp adapted to drop to its display position or be locked up with and over the aforesaid other hasp to indicate whether or not the box is empty, substantially as specified.

3. In a rural mail-box, in combination, a hasp and catch adapted to secure the box in a closed position, and an additional signal-hasp adapted to drop to its display position or be locked up with and over the aforesaid other hasp to indicate whether or not the box is empty, substantially as specified.

4. A mail-box having a body and lid, a signal, means for locking the box in a closed position, said means serving to lock the signal by engagement therewith in either folded or extended position.

750,548. CORKWOOD. PHILIP F. LENHART, New York, N. Y., assignor to Old Colony Cork Wood Company, Portland, Me., a Corporation of Maine. Filed June 2, 1903. Serial No. 159,810. (No specimens.)

Claim.—1. A composition of matter containing carbonate of soda, glue, water, and cork.

2. A composition of matter containing, chlorid of calcium, carbonate of soda, glue, water, and cork.

3. A corkwood consisting of chlorid of calcium, carbonate of soda, glycerin, glue, water, and cork.

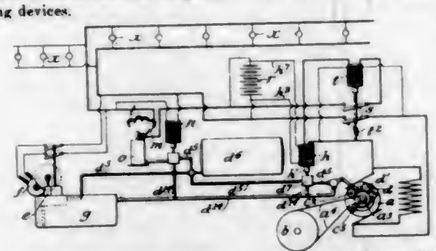
4. A corkwood consisting proportionately by weight, of chlorid of calcium one-sixty-fourth, glycerin one-sixty-fourth, carbonate of soda one-fourth, glue two, water eight, and cork twenty.

750,549. SYSTEM OF ELECTRICAL GENERATION, DISTRIBUTION, AND CONTROL. LAMAR LYNDON, New York, N. Y., assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed Jan. 22, 1903. Renewed Dec. 8, 1903. Serial No. 184,361. (No model.)

Claim.—1. The combination of a generator, driving means, controlling devices for said driving means, translating devices in circuit with the generator, an accumulator in parallel circuit with the generator and an electromagnetic device to actuate said controlling devices, said electromagnet device having a fine-wire winding connected with the terminals of the accumulator and a coarse-wire winding in series with the generator.

2. In combination with a generator, driving means, controlling devices for said driving means, translating devices in circuit with the generator, an accumulator in parallel circuit with the generator, and an electromagnetic device to actuate said controlling devices, said electromagnetic device having a fine-wire winding connected

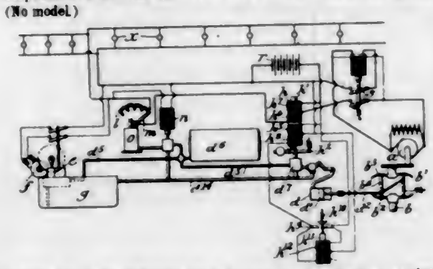
with the terminals of the accumulator and a coarse-wire winding in series with one side of the generator between it and the translating devices.



3. The combination of a generator, driving means, controlling devices for said driving means, translating devices in circuit with the generator, an accumulator in parallel circuit with the generator, a cut-out switch between the generator and the accumulator, an electromagnetic device to control said switch and an electromagnetic device to actuate said controlling devices, said last-named electromagnetic device having a fine-wire winding connected with the terminals of the accumulator and a coarse-wire winding in series with the generator and the first-named electromagnetic device.

4. The combination of a generator, driving means, controlling devices for said driving means, translating devices in circuit with the generator, an accumulator in parallel circuit with the generator, a cut-out switch between the generator and the accumulator, an electromagnetic device to control said switch and having one winding in a shunt from the main circuit and another winding in series in one leg of the main circuit, and an electromagnetic device to actuate said controlling devices, said last-named electromagnetic device having a fine-wire winding connected with the terminals of the accumulator and a coarse-wire winding in series with the generator.

750,550. **SYSTEM OF ELECTRICAL GENERATION, DISTRIBUTION, AND CONTROL.** LAMAR LYNDON, New York, N. Y., assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y., a Corporation of New Jersey. Filed July 18, 1903. Serial No. 166,098. (No model.)



Claim.—1. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device in circuit with the generator to control said regulating means, and means normally inoperative and controlled by the voltage of the battery and generator circuit to vary the magnetization of said electromagnetic device.

2. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device in circuit with the generator to control said regulating means, means normally inoperative to vary the magnetization of said electromagnetic device, and a switch to control said means and operated through a variation in the voltage of the battery and generator circuit.

3. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device in circuit with the generator to control said regulating means, means normally inoperative to vary the magnetization of said electromagnetic device, and an electromagnetic switch to control said means, said switch having a coil included in a shunt from the battery and generator circuit.

4. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device in circuit with the generator to control said regulating means, means normally inoperative to vary the magnetization of said electromagnetic device, and an electromagnetic switch to control said means, said switch having one coil included in a shunt around the battery and a second coil included in a normally open shunt around the battery and adapted to be closed by the closing of the switch.

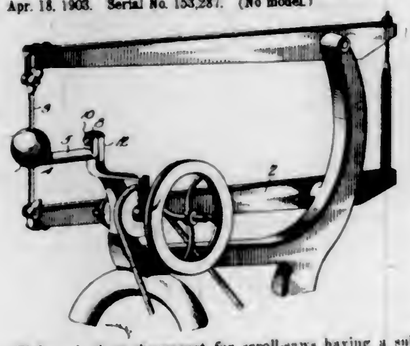
5. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating means and having two windings in series with the battery and the generator respectively and a shunt-winding and means normally inoperative and controlled by the voltage of the battery to add to the magnetic pull of said shunt-winding.

6. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating means and having two windings in series with the battery and the generator respectively and a shunt-winding, means normally inoperative to add to the magnetic pull of said shunt-winding, and a switch to control said means operated by a variation in the voltage of the battery and generator circuit.

7. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating means and having two windings in series with the battery and the generator respectively and a shunt-winding, an additional winding on said electromagnetic device to supplement the shunt-winding and included in a normally open shunt from the battery, and a switch operated by variations in the voltage of the battery and generator circuit to control said shunt.

8. The combination of a generator, means to regulate the electromotive force of said generator, translating devices in circuit with the generator, a storage battery in parallel circuit with the generator, an electromagnetic device to control said regulating means and having two windings in series with the battery and the generator respectively and a shunt-winding, an additional winding on said electromagnetic device to supplement the shunt-winding and included in a normally open shunt from the battery, and an electromagnetic switch to control said shunt, said switch having a winding included in a shunt from the battery around the normally open contacts of the switch, and a second winding included in a shunt from the battery through the normally open contacts of the switch.

750,551. **BRACKET SAW-TABLE.** JOSEPH C. MALLOWER, Denver, Colo., assignor of one-half to Bert A. Owen, Denver, Colo. Filed Apr. 18, 1903. Serial No. 153,287. (No model.)



Claim.—1. A work-support for scroll-saws having a substantially spherical head, the only projection from the sphere being that of a relatively small supporting-arm.

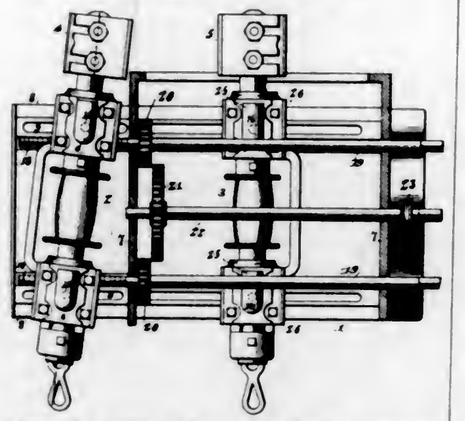
2. A work-support for scroll-saws, comprising a laterally-extending arm or bracket provided with a substantially spherical head and means for securing the arm in position.

3. A work-support for scroll-saws comprising a horizontally-disposed arm or bracket provided with a substantially spherical head having a vertical slot or opening for the passage of a saw-blade, and means for detachably securing the arm in position.

4. A work-support for scroll-saws, comprising a horizontally disposed arm or bracket, provided with a substantially spherical head having a vertically-disposed metal-lined slot or opening for the passage of the saw, and means for detachably securing the arm in position.

5. A work-support for scroll-saws comprising an arm or bracket provided at one end with a substantially spherical head having a vertically-disposed metal-lined slot or opening therein for the reception of the saw-blade, the opposite end of the arm being provided with an angular extension having an opening formed therein adapted to receive a securing means.

750,552. **MOLDING-MACHINE.** CALVIN D. MARER, Williamsport, Pa., assignor to Hermance Machine Company, Williamsport, Pa. Filed Aug. 29, 1903. Serial No. 171,281. (No model.)



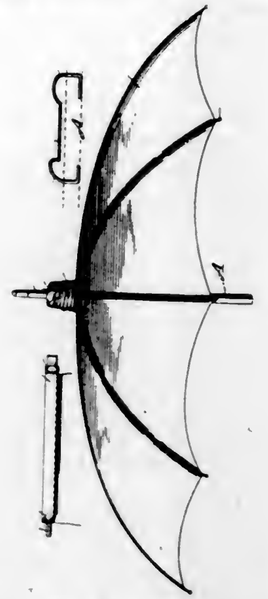
Claim.—In a machine of the class described, the combination with a frame, of transverse shafts having a bearing at two separated points in the frame, one end of each shaft being threaded, and the other end being extended from the machine and constructed to receive an operating means, pinions provided on each shaft within the frame, an intermediate shaft journaled on the frame at two separated points, head-stocks slidable on the frame and operated by the threaded portions of the transverse shafts, and a pinion mounted on the intermediate shaft within the frame and of greater size than the pinions of the transverse shafts, the end of the intermediate shaft being extended from the machine and constructed to receive an operating means, and said shaft being longitudinally movable to carry its pinions into or out of engagement with the pinions of the transverse shafts, whereby the operating means may be applied either to the intermediate shaft to impart increased speed to the transverse shafts, or to any one of the transverse shafts to rotate the latter at a reduced speed when the pinions are in mesh, or to any one of said transverse shafts to move the same independently of the intermediate shaft when the pinions are not in mesh, substantially as described.

750,553. **UMBRELLA.** EMMA T. MILLER, Urumia, Persia. Filed May 20, 1903. Serial No. 157,971. (No model.)

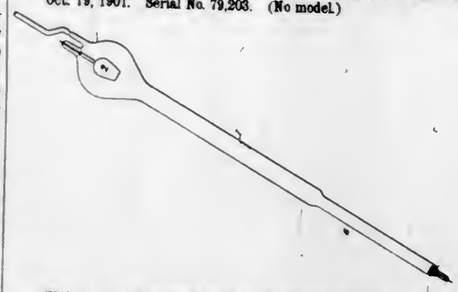
Claim.—1. In an umbrella, the combination with a rod provided with a frame and cover and an extension beyond said frame and cover, of a case provided at one end with a collar, means for detachably securing said collar on said extension and means on the other end of said case for retaining the same in position, substantially as and for the purpose described.

2. In an umbrella, the combination with a rod provided with an ordinary frame and cover and an extension beyond said frame and cover, of a case provided with a collar, a spring secured to said extension, said spring being provided with a depressed portion adapted to receive said collar, an enlarged portion adapted to retain said collar in said depression and an enlarged portion adapted to be depressed to allow the removal of said collar from said depressed portion, substantially as described.

3. In an umbrella, the combination with a rod provided with an ordinary frame and cover and an extension beyond said frame and cover, of a case provided with a collar, a spring secured to said extension, said spring being provided with a depressed portion adapted to receive said collar, an enlarged portion adapted to retain said collar in said depression and an enlarged portion adapted to be depressed to allow the removal of said collar from said depressed portion, a band or strap secured to said case and provided with a button and loop, of a hook secured to said strap and adapted to engage said spring to hold said button stationary, substantially as described.



750,554. **BALLAST DEVICE FOR VAPOR-LAMPS.** HENRY N. POTTER, New Rochelle, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed Oct. 19, 1901. Serial No. 79,203. (No model.)



Claim.—1. The combination in an electric circuit, of a conducting gas or vapor path in series with a second conducting gas or vapor path of inferior light-producing but better current-regulating power.

2. The combination in an electric circuit, of a gas or vapor electric lamp consisting of a container and a gas or vapor path within the same operating below its point of maximum self-regulation, and a container and a similar gas or vapor path in series with the first, operating at a point nearer its point of maximum self-regulation.

3. In an electric circuit, a container and a gas or vapor path inclosed within the same, in combination with a regulating device therefor consisting of a gas or vapor path in series therewith and operating at a different point of its characteristic.

4. A lamp consisting of electrodes, a gas or vapor path, an inclosing chamber therefor, of general uniform diameter, the said portion of uniform diameter constituting the luminous portion of the lamp, a cooling or condensing chamber, and a portion of smaller diameter between the said cooling or condensing chamber and the main luminous portion of the lamp.

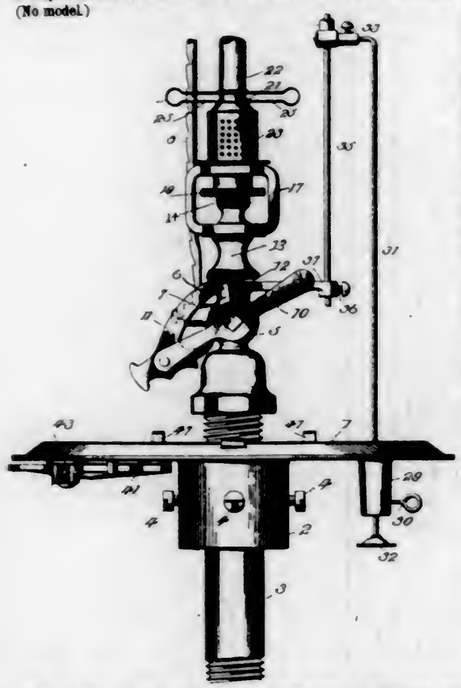
5. In an electric circuit, a gas or vapor constituting a path for an electric current, the said gas or vapor being inclosed in a container having different degrees of heat-radiating capacity through-

out different portions of its length, the dimensions of the main portion of the container being selected for light-giving purposes, and those of the other portion or portions being selected for both light-giving and self-regulating purposes.

6. The combination with a gas or vapor electric lamp, of a gas or vapor of the same general character in series therewith, the said gas or vapor having a high positive temperature coefficient.

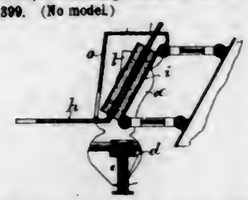
7. A lamp consisting of electrodes, a gas or vapor path between the same, an inclosing chamber therefor of uniform diameter, the said portion of uniform diameter constituting the main luminous portion of the lamp, and a portion of smaller diameter interposed between the electrodes.

750,555. **STREET-LIGHT.** DANIEL J. PRENDERGAST, New York, N. Y., and VICTOR H. SLINACK and THOMAS WILSON, Philadelphia, Pa., assignors to Pennsylvania Globe Gas Light Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed June 3, 1901. Serial No. 63,006. (No model.)



Claim.—The combination of a lantern-base, a gas-valve sustained thereby, an incandescent burner mounted in relation to said valve and served with a mantle, a support projecting from the casing of the valve, an upright capable of vertical adjustment in said support, a sleeve adjustable on said upright, a tube carried by said sleeve adapted to cover and uncover the mantle, and a support for said sleeve capable of vertical adjustment in the lantern-base, substantially as described.

750,556. **SAFETY ARRANGEMENT FOR BICYCLE-LANTERNS.** ALBERT REIMANN, Waldenburg, Germany. Filed Nov. 11, 1902. Serial No. 130,899. (No model.)



Claim.—The combination with a lantern-holder adapted to be secured to a bicycle-frame and consisting of a horizontal and an upwardly-inclined portion, of a lantern-socket fitting over the inclined portion, and a shell or case fitting over the holder and socket, said shell comprising a rigid top having a slot to fit over the upper forward end of the holder, a rigid side connected with said rigid top, a side hinged to the top opposite to the rigid side, a bottom side hinged to the bottom of the rigid side, and a lock for securing the free edges of the two hinged sides together, substantially as described.

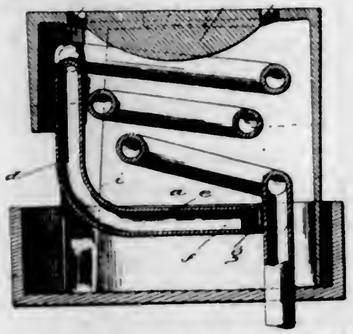
750,557. **CREDIT ACCOUNT.** WILL R. SWAN, Columbus, Ohio, assignor to Hallwood Cash Register Company, Columbus, Ohio, a Corporation of New Jersey. Filed May 19, 1902. Serial No. 107,956. (No model.)



Claim.—1. In means for keeping credit accounts, the combination with an envelop adapted to have written thereon the name and address of a customer and having an opening in its face, and printed matter arranged in lines on said envelop and leading to said opening, of account-slips adapted to contain a date, a customer's name and address, an itemized statement of articles purchased and amounts charged therefor, said statement adapted to indicate the total amount of the bill, total amount of previous bills, and total amount of all bills to date, said account-slip adapted to be received by the envelop so that said totals will be displayed through the envelop-opeoing and opposite the proper printed matter on said envelop, substantially as specified.

2. In means for keeping a credit account, the combination with an envelop having thereon blank spaces for the reception of the name of a customer and his address and parallel columns provided with suitably-printed headings, said envelop having formed in its face near one end an opening e and lines of printed matter on the face of the envelop leading to said opening, of account-slips adapted to be inserted within said envelop, said account-slips adapted to contain and display through said envelop-opening opposite the proper lines of printed matter on said envelop the amount of the last bill, amount of previous bills, and total amount of bills to date, substantially as specified.

750,558. **OIL-GAS GENERATOR AND BURNER.** RUSSELL THAYER, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., a Corporation of West Virginia. Filed Nov. 21, 1902. Serial No. 132,230. (No model.)



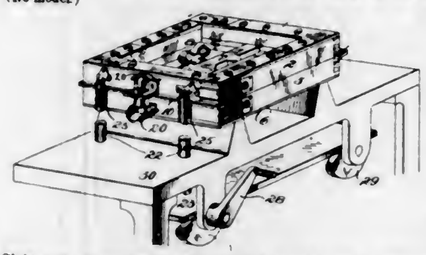
Claim.—1. The combination of a main burner, a vapor-generator consisting of a helical coil which communicates with the main burner and whereof the helices are exposed to the main-burner flame, and a refractory body overlying and supported independently of the generator and burner and provided with a depending convex portion which projects partly within the axial plane of the coil and constitutes a spreader for the main-burner flame, and with openings at the base of said convex portion for the emissioo of flames and products of combustion, and with an overhang or flange, which constitutes a baffle for the discharge end of the coil, substantially as described.

2. The combination of a vapor-generator consisting of an inverted spiral coil provided at its lower end with an oil-inlet and having its other end extending downwardly and transversely of the coil and served centrally thereof with a vapor-discharge outlet, a basin below the coil, and a detachable refractory body overlying the coil and having a depending convex portion which projects partly within the axial plane of the coil to constitute a spreader for the flame, and having openings at the base of said convex portion for the emission of flames and products of combustion.

3. The combination of a vapor-generator consisting of an inverted spiral coil provided at one end with an oil-inlet and having its other end terminating in an L-shaped portion which extends below the coil and is provided axially thereof with a vapor-discharge outlet, a basin below the coil, and a detachable refractory body overlying the coil and having legs or supports which rest upon the bottom of the basin, said body having a downwardly-directed convex portion or spreader projecting partly within the axial plane of the coil, and having an overhang or flange, which constitutes a baffle for said L-shaped portion, substantially as described.

4. The combination of a vapor-generator consisting of an inverted spiral coil provided at one end with an oil-inlet and having its other end terminating in an L-shaped portion which extends below the coil and is provided axially thereof with a vapor-discharge outlet, a basin below the coil, a detachable refractory body overlying the coil and having legs or supports which rest upon the bottom of the basin, said body having a downwardly-directed convex portion or spreader projecting partly within the axial plane of the coil, and a depending segmental flange which serves to deflect heat upon said L-shaped or discharge portion of the coil, substantially as described.

750,559. **MOLDER'S FLASK AND GATED PATTERN.** HENRY G. VOIGHT, New Britain, Conn. Filed May 8, 1903. Serial No. 156,169. (No model.)



Claim.—1. A gated pattern comprising a gate and elongated bearing-plates at the ends of such gate, extending transversely thereof substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position.

2. A gated pattern comprising a gate and elongated bearing-plates at the ends of such gate, extending transversely thereof substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, said bearing-plates being adapted to project to beyond the sides of the flask.

3. A gated pattern comprising a gate and elongated bearing-plates at the ends of such gate and extending transversely thereof substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, said bearing-plates being adapted to project beyond the sides of the flask, in combination with means for engaging with the projecting edges of said bearing-plates and withdrawing the pattern from the drag.

4. A flask having in combination, a cope-section provided with downwardly-extending projections, a drag-section, guide devices for confining the cope-section to a right-line movement, a gated pattern, a notched bearing-plate at each end of the gate extending transversely thereof substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, an adjustable guide-block fitting into the notch in each bearing-plate, and means cooperative with said cope projections for separating the sections of the flask and the pattern.

5. A gated pattern comprising a gate, bearing-plates at the ends of said gate, and projections extending from said bearing-plates, combined with a flask having a cope provided with dependent posts, a series of lifting-pins adapted to contact with said projections and said posts and mechanism for operating said pins.

6. A flask comprising a cope-section provided with projections; and a gated pattern comprising elongated bearing-plates at the ends of the gate which extend transversely to the latter substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, said bearing-plates projecting beyond the sides of the flask, in combination with means for engaging with the projections of the cope-section and thereby lifting the section and for coöperating with the projecting portions of said bearing-plates and lifting the pattern some time after the cope-section begins its ascent.

7. A cope-section; a drag-section, and a pattern comprising bearing portions extending beyond the sides of the assembled flask-sections substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, combined with a guide-pin at each side of the flask extending from one of the flask-sections; a guide-block rigid with each guide-pin; and coöperative guide devices extending from the other flask-section, the said coöperative guide device and projecting bearing portion at each side of the flask engaging one with said guide-pin and one with said guide-block at that side.

8. A cope-section; a drag-section; and a pattern comprising bearing portions extending beyond the sides of the assembled flask-sections substantially to the front and rear sides of the drag-section with the upper edge of which the bearing-plates are adapted to contact, the contiguous edges of the flask-sections both at the front and rear being permitted to meet by the pattern when in position, combined with a guide-pin at each side of the flask extending from the drag-section; a guide-block on the inside of each guide-pin; and coöperative guide devices extending from the cope-section and engaging with the outer faces of the respective guide-pins, said projecting bearing portions of the pattern each having at the side of the flask a notch the walls of which engage with the inner face of said guide-block on that side.

9. A cope-section; a drag-section; and a pattern comprising bearing portions extending beyond the sides of the assembled flask-sections, combined with a guide-pin at each side of the flask extending from the drag-section; a guide-block adjustably secured to the inside of each guide-pin; brackets at opposite sides of the cope-section; and coöperative guide devices adjustably secured to each bracket and engaging with the outer face of the guide-pin at that side, said projecting bearing portions of the pattern each having at the side of the flask a notch the walls of which engage with the inner face of said guide-block on that side.

10. A cope-section; a drag-section; and a pattern comprising bearing portions extending beyond the sides of the assembled flask-sections, combined with a longitudinally-slotted guide-pin at each side of the flask and extending from the drag-section; a guide-block located on the inside of each guide-pin and adjustable both longitudinally and transversely of the pin; screws extending from each guide-block and constituting positioning devices for determining the lateral adjustment position of the block; a fastening-screw extending through the slot in each guide-pin and engaging with the block on the inside of the latter; brackets at opposite sides of the cope-section and a coöperative guide device adjustably secured to each bracket and engaging with the outer face of the guide-pin at that side, said projecting bearing portions of the pattern each having at the side of the flask a notch the walls of which engage with the inner face of said guide-block on that side.

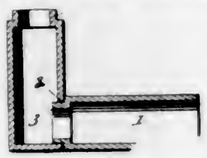
11. A cope-section provided with downwardly-extending projections; a drag-section; a pattern comprising bearing portions extending beyond the sides of the assembled flask-sections and having downwardly-extending projections adjacent to the respective projections of the cope-sections, said projections on said bearing portions terminating above the ends of the cope-section projections; and guide devices for the flask-sections and the pattern, combined with a series of lifting-pins each having a cross-sectional area sufficient to enable it to impinge against both a projection on the cope-section and the adjacent projection extending from said bearing portion of the pattern; and mechanism for operating said lifting-pins.

750,560. **PUMP.** CHARLES J. ALLEN, Sabina, Ohio. Filed Nov. 11, 1903. Serial No. 180,788. (No model.)

Claim.—The combination with the wooden pump-body A having a cylindrical bore E and an integral head B of the pump-rod H, the cylindrical vitreous piston or plunger F formed with vertical grooves *f* the stock H and the valves H and K secured respectively to the top of said stock and to the plunger or piston, substantially as described.

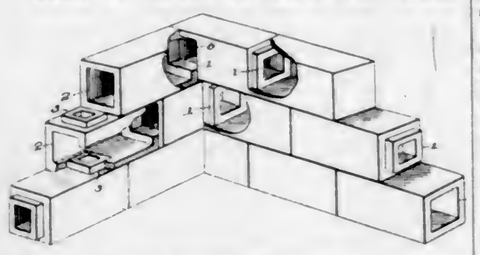


750,561. TILE. CLETUS N. ALLERDING, Mansfield, Ohio. Filed Dec. 19, 1902. Serial No. 135,924. (No model.)



Claim.—A tile comprising a hollow rectangular body portion having a closed end and an open end, the open end being provided with a projecting rectangular tongue or flange, said body portion being also provided with a rectangular side opening leading into the hollow body portion and arranged above and contiguous with said closed end, substantially as and for the purpose specified.

750,562. BUILDING-BLOCK AND WALL. CLETUS N. ALLERDING, Mansfield, Ohio. Filed Nov. 5, 1903. Serial No. 179,935. (No model.)



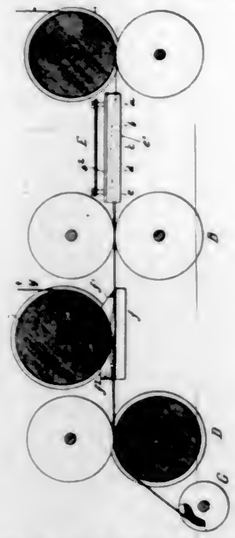
Claim.—1. A wall composed of a series of building-blocks, each comprising a hollow body portion, and having means for engaging each other consisting of projecting apertured tongues or flanges formed therein engaging suitable apertures in adjoining blocks, the whole adapted to form a continuous angled wall having its blocks interlocked horizontally both along the straight faces thereof and at the angles thereof.

2. A wall composed of a series of building-blocks, each comprising a hollow body portion, and having means for engaging each other consisting of projecting apertured tongues or flanges formed in the ends and sides thereof engaging suitable apertures in the ends and sides of adjoining blocks, the whole adapted to form a continuous wall having its blocks interlocked horizontally and its courses interlocked vertically.

3. A hollow building-block, having a projecting apertured tongue or flange in one end, and a projecting apertured tongue or flange in one side, and formed of one material.

4. A hollow building-block, having a projecting apertured tongue or flange in one end, a corresponding aperture in its other end, a projecting apertured tongue or flange in one side, and a corresponding aperture in the other side.

750,563. PROCESS OF COVERING WIRE. JAMES C. ANDERSON, Jersey City, N. J., assignor to Varley Duplex Magnet Company, a Corporation of New Jersey. Filed Apr. 30, 1903. Serial No. 154,922. (No model.)



Claim.—1. The process of covering flat wire in single lengths which consists in making longitudinal scorings in a strip of covering material, then applying the wire lengthwise to said strip, folding the latter along the scorings to envelop the edges of the wire and finally creasing the folds to retain the covering on the wire.

2. The process of insulating wire which consists in forming an elongated envelop of insulating material, then opening the envelop longitudinally, inserting the wire and finally closing the envelop.

3. The process of insulating wire which consists in folding over the lateral edges of an elongated strip upon the body of the strip to form an envelop, then raising said folded edges and inserting a wire and finally folding the edges upon the wire.

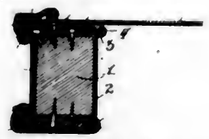
4. The process of insulating flat wire which consists in folding over the lateral edges of an elongated strip upon the body of the strip, then pressing the folds, then raising said folded edges, then inserting the wire between the raised edges and finally folding the edges upon the wire.

5. A process of insulating flat wire which consists in first making longitudinal scorings in a strip of material, then folding said material along the scored lines, then raising the folds and inserting the wire and finally replacing the folds.

750,564. VALANCE FOR VEHICLE-TOPS. CLARENCE S. APPLER, Celina, Ohio. Filed Nov. 25, 1903. Serial No. 182,641. (No model.)

Claim.—1. In a valance for vehicle-tops, the combination of a flange-piece, a clamping-strip around the same, and a facing-piece over the clamping-strip forming a facing for the flange and having its edge secured by the clamping-strip, substantially as described.

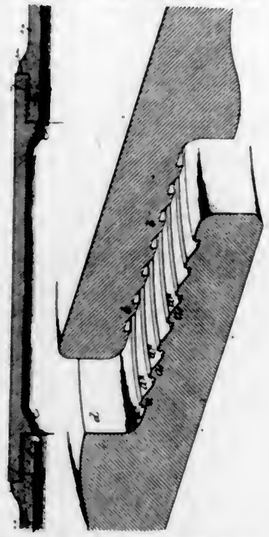
2. In a valance for vehicle-tops, the combination with a vehicle-top bow, of a flange-strip attached thereto and having one edge projecting therefrom, a clamping-strip around the said projecting edge and a facing-piece over the clamping-strip having a facing for the flange, and having its edge secured by the clamping-strip, substantially as described.



3. In a valance for vehicle-tops, the combination of a vehicle-top bow, a flange-strip secured thereto and having one edge projecting therefrom, a facing-cover lying against the bow and having one edge outturned and bearing against the inner side of the projecting portion of the flange-strip, a clamping-strip around the flange of the flange-strip, and clamping the edge of the facing-cover thereto, and a facing-piece over the clamping-strip, forming a facing for the flange and having its edge secured by the clamping-strip.

4. A metallic clamping-strip for vehicle-top valances, having its outer edge reversely turned to form a groove or gutter for the reception of the outer edge of the facing-piece.

750,565. JOINT FOR CONTAINERS. WILLIAM L. AUSTIN, Philadelphia, Pa., assignor to Burnham, Williams & Company, Philadelphia, Pa., a Firm. Filed Nov. 27, 1903. Serial No. 182,939. (No model.)



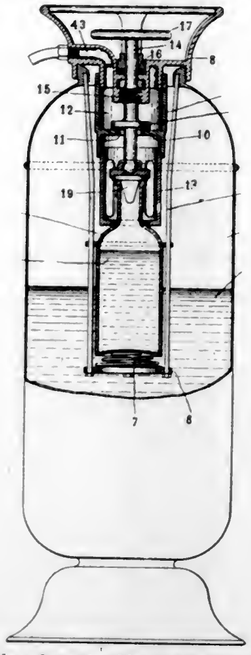
Claim.—1. The combination in a container, of two sections, one section overlapping the other section, the underlapping section having a series of annular external ribs at one end, the overlapping section having a series of annular internal ribs at one end, the sections being so proportioned that the ribbed end of one section will slip over the ribbed end of the other section when heated, the external section being shrunk upon the internal section and binding tightly upon the ribbed portions thereof, substantially as described.

2. The combination in a container, of two sections, one section designed to slip over the other section when heated, the external section having a series of internal ribs, the internal section having a series of external ribs meshing with the ribs of the external section, each section having flanges abutting the ends of the other section, substantially as described.

3. The combination in a container, of two sections, one section arranged to slip over the other section when heated, one section having a series of internal ribs, each rib being abrupt on one side and inclined on the opposite side, the other section having a series of external ribs abrupt on one side and inclined on the opposite side, said external section being shrunk upon the internal section and binding tightly upon the flanged portion thereof, thereby forming a tight joint, substantially as described.

4. The combination in a container, of three sections, each end section having a series of external ribs on one end, an intermediate section having a series of internal ribs on each end, the sections being so proportioned that the intermediate section when heated will expand sufficiently to allow the other sections to be inserted in each end thereof, said intermediate section being shrunk upon the other sections and binding tightly upon the flanged portion thereof forming a tight joint, substantially as described.

750,566. CHEMICAL FIRE-EXTINGUISHER. ARTHUR C. BADGER, Boston, Mass. Filed Mar. 14, 1903. Serial No. 147,720. (No model.)



Claim.—1. In a fire-extinguisher, a container or canister having an outlet, an inner receptacle adapted to discharge into said canister, an adjustable stem having rigid valves controlling said outlet and the mouth of said receptacle respectively, and yielding means permitting one valve to seat after the other.

2. In a fire-extinguisher, a container or canister, a valve-chamber therefor having an inlet from said canister surrounded by a valve-seat and having also a discharge-outlet, an inner receptacle adapted to discharge into said canister, an adjustable stem having a rigid valve in said valve-chamber coöperating with the valve-seat thereof and a second rigid valve coöperating with the mouth of said inner receptacle, and yielding means permitting one valve to seat after the other.

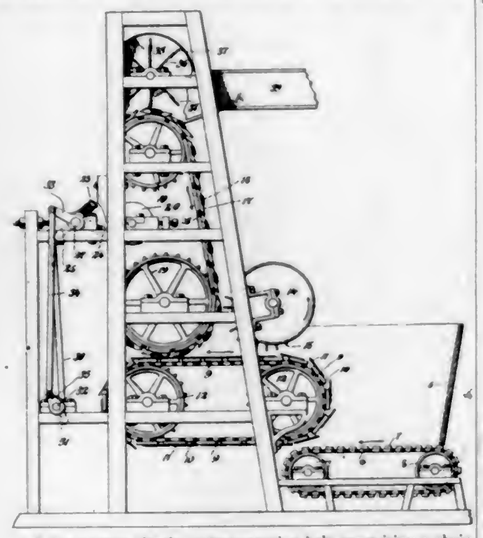
3. In a fire-extinguisher, a canister having a bottle-cage, an outlet-chamber provided with a discharge-outlet, a bottle mounted in said cage, a spring interposed between the bottle and cage and a stem having positively-seating valves for controlling respectively the bottle-mouth and the passage between said canister and outlet-chamber.

750,567. COTTON-GIN. EUGENE R. BARBER, Valdosta, Ga. Filed Aug. 20, 1902. Serial No. 120,311. (No model.)

Claim.—1. In a cotton-gin, the combination with the means for carrying the cotton, of a driven rock-shaft, a series of picking-fingers fast thereon and spaced from each other, a second series of picking-fingers mounted loosely on the shaft, respectively between the first-named picking-fingers, connections between the second-named picking-fingers to cause them to move in unison, and means for driving the second series of picking-fingers independently of the movement of the shaft.

2. In a cotton-gin, the combination of a roller having an annular groove therein, a chain running in said groove, cotton-holding means attached to said chain, a blade past which said cotton-hold-

ing means run, the roller serving to press the cotton-holding means against the blade, picking devices located adjacent to said blade, said cotton-holding means comprising transverse slats connected to the chain and having toothed edges serving to hold the cotton, and strips of relatively yielding material set into the outer faces of the slats.



3. In a cotton-gin, the cotton-carrying belt, comprising a chain or chains, transversely-disposed slats fastened thereto and having toothed edges adapted to hold the cotton, and strips of relatively yielding material set into the outer faces of the slats.

4. In a cotton-gin, the combination with the means for carrying the cotton, of a driven rock-shaft, picking-fingers carried fast thereon, additional picking-fingers loose on the rock-shaft, and means for independently driving said additional picking-fingers.

5. In a cotton-gin, the combination with the means for carrying the cotton, of a driven rock-shaft, picking-fingers fast thereon, additional picking-fingers loose on the rock-shaft, a connection between said additional picking-fingers, and means for independently driving the additional picking-fingers.

6. In a cotton-gin, the combination with the means for carrying the cotton, of a rock-shaft, picking-fingers fast thereon, additional picking-fingers loose thereon, a drive-shaft, a crank connection between the rock-shaft and drive-shaft, and a second crank connection between the drive-shaft and the said additional picking-fingers.

7. In a cotton-gin, the cotton-carrying belt, comprising slats, means for mounting the slats to form the belt, said slats engaging the cotton, substantially as described, and sections of relatively yielding material set into the surfaces of the slats.

8. In a cotton-gin, the combination of a stationary blade, picking devices working past the edges thereof, and a cotton-carrying belt moving past the blade and picking devices, and comprising slats, means to which the slats are attached, whereby to form the belt, and sections of relatively yielding material set into the faces of the slats adjacent to said blade.

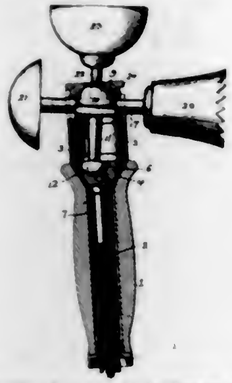
9. In a cotton-gin, the combination with the ginning devices proper, of a cotton-carrying belt, comprising slats and a flexible endless member to which said slats are attached substantially as described, a conveyer-chute to which said cotton-carrying belt leads, and a fan located in proximity to the belt and blowing into the chute.

750,568. MASSAGE IMPLEMENT. JAMES BARKER, Philadelphia, Pa. Filed Aug. 26, 1903. Serial No. 170,343. (No model.)

Claim.—1. The combination in a massage implement, of the massage member, a bar carrying the same, and means for imparting to said bar to-and-fro movements of partial rotation around the longitudinal axis of the bar, substantially as specified.

2. The combination in a massage implement, of the massage member, a bar carrying the same, and means for imparting to said bar to-and-fro movements of partial rotation around the longitudinal axis of the bar, and other movement in addition to said movement of partial axial rotation, substantially as specified.

3. The combination in a massage implement, of a massage member, a bar carrying the same, and means for imparting to said bar to-and-fro movement of partial rotation around the longitudinal axis of the bar, and also vibratory movement in addition to said movement of partial rotation around its axis, substantially as specified.



4. The combination, in a massage implement, of a bar having a massage member at each end, and means for imparting movement to said bar so as to simultaneously operate both of said massage members, substantially as specified.

5. The combination, in a massage implement, of a universally rocking head, a bearing therefor, and arms projecting in different directions from said rocking head and each carrying a massage member, substantially as specified.

6. The combination, in a massage implement, of a mechanically-actuated carrier having three arms projecting therefrom in different directions, and a massage member carried by each of said arms, substantially as specified.

7. The combination, in a massage implement, of a stud having a rounded head-block, a concave bearing therefor, means for rocking the block in its bearing, and a bar projecting from said block at an angle in respect to the stud, said bar carrying a massage member at its outer end, substantially as specified.

8. The combination, in a massage implement, of a stud having a rounded head-block, a concave bearing therefor, means for rocking the block in its bearing, and a bar passing through the block and having at each end a massage member, substantially as specified.

9. The combination, in a massage implement, of a stud having a rounded head-block, a concave bearing therefor, means for rocking the block in its bearing, a bar passing through said block and having at each end a massage member, and a stem adapted to a threaded opening in the block and serving as a retainer for said transverse bar, said stem also carrying a massage member, substantially as specified.

10. The combination, in a massage implement, of a vibrator consisting of a stud having rounded heads at its opposite ends, a concave bearing for the outer head, a shaft having an eccentrically-disposed cup for receiving the inner head, and a massage member carried by a bar projecting from said vibrator, at an angle to the stud, substantially as specified.

11. The combination, in a massage implement, of a vibrator consisting of a stud having rounded heads at its opposite ends, a casing having at one end a rounded bearing for the outer head, a shaft having a head also adapted to a bearing on the casing and having an eccentrically-disposed cup for receiving the inner head, and a massage member carried by a bar projecting from said vibrator, substantially as specified.

12. The combination, in a massage implement, of a vibrator consisting of a stud having a rounded head at each end, a casing having an adjustable block with concave bearing for the outer head, a shaft having a bearing in the casing and provided with an eccentrically-disposed cup into which the inner head of the stud is pressed by contact of the concave bearing with the outer head, and a massage member carried by a bar projecting from said vibrator, substantially as specified.

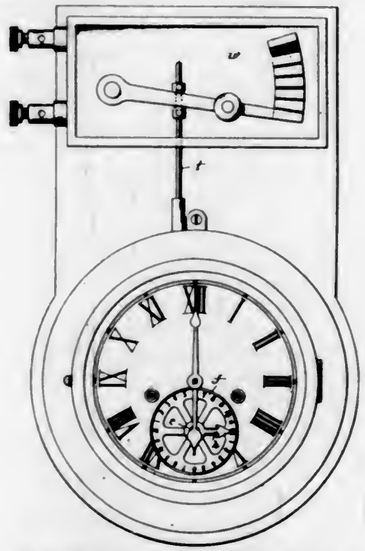
13. The combination, in a massage implement, of a vibrator consisting of a stud having at each end a rounded head, a split casing, a plug adapted thereto and having a concave bearing for the head at the outer end of the vibrator, means for contracting the split casing upon the plug, a shaft having a bearing in the casing and an eccentrically-disposed cup receiving the rounded head at the inner end of the vibrator, and a massage member carried by a bar projecting from said vibrator, substantially as specified.

14. The combination, in a massage implement, of a handpiece having a sleeve secured thereto and enlarged in diameter at one end, a vibrator consisting of a stud having a rounded head at each end, an adjustable plug with rounded bearing for the outer head, a shaft having an enlarged head seated upon that portion of the sleeve which connects the enlarged and contracted portions of the same, said head having an eccentrically-disposed cup for receiving the inner head of the vibrator, and a massage member carried by a bar projecting from said vibrator, substantially as specified.

15. The combination, in a massage implement, of a handpiece having a sleeve secured thereto, said sleeve having an enlarged outer portion connected to the smaller portion by means of a conical neck, a vibrator consisting of a stud having a rounded head at each end, an adjustable plug adapted to the enlarged portion of the sleeve and having a rounded bearing for receiving the outer head of the vibrator, a shaft having a head seated upon said conical neck of the sleeve and provided with an eccentrically-disposed cup which receives the inner head of the vibrator, and a massage member carried by a bar projecting from said vibrator, substantially as specified.

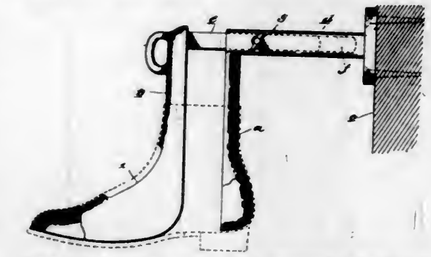
16. The combination, in a massage implement, of a casing having a slot therein, a vibrator consisting of a stud having a rounded head at each end, a plug adjustable in the casing and having a concave bearing for the outer head, said plug also having a slot parallel with that in the casing, a shaft adapted to a bearing in the casing and having an eccentrically-disposed cup for receiving the inner head of the vibrator, and a massage member carried by a bar projecting from said vibrator through the slots in the sleeve and plug, substantially as specified.

750,569. ELECTRIC TIME-ALARM. THEOPHILOUS L. BEAR, Camden, N. J. Filed Sept. 27, 1901. Renewed Aug. 8, 1903. Serial No. 168,764. (No model.)



Claim.—In combination, a clockworks, a gear driven by a pinion carried upon the arbor of the minute-wheel so as to make one revolution in twenty-four hours, said pinion and minute-wheel, a sleeve carried by said gear, a pointer carried by and turning with said sleeve, an index-wheel frictionally carried by said sleeve one half of said index-wheel being divided into equal divisions representing the hours of the day and the other half into similar divisions representing the hours of the night, a cam carried by said index-wheel, a lever pivoted at one end, a stop carried by said lever adapted to engage said cam, a spring for throwing said lever toward said cam, a rod carried by the free end of said lever, a trigger adapted to be operated by said rod, a rod furnished with a detent adapted to be engaged and held by said trigger when said rod is lowered, and a spring for actuating said rod when released by said trigger.

750,570. BOOT OR SHOE HOLDER. WILLIAM C. BENKERT, Philadelphia, Pa. Filed Apr. 18, 1901. Serial No. 56,376. (No model.)



Claim.—1. In a shoe-supporter, a horizontal bracket-arm secured at one end to a suitable support and having a bearing-channel extending horizontally outward from the point of support, a depending arm secured to said bracket-arm below said bearing-channel, a bar sliding in said bearing-channel, a depending arm on said bar, a heel rest or support on one of said depending arms and a toe rest or support on the other depending arm, and means securing said bar in adjusted position on said bracket-arm.

2. In a shoe-supporter, the combination of a horizontal bracket-arm secured at one end to a suitable support, a slidable member supported to move horizontally on said bracket-arm opposite its point of support, a depending arm on said bracket-arm, a depending arm on said slidable member, a toe rest or support on one depending arm and a heel rest or support on the other depending arm, and means securing said slidable member in adjusted position on said bracket-arm.

3. A boot or shoe holder consisting of two members, constituting respectively the heel and toe portions of a boot or shoe form, one of said members being fixedly supported and the other being carried by and bodily adjustable on said fixed member, whereby the size of the form composed of said members may be enlarged or decreased to suit the size of the boot or shoe placed on them, said toe portion having an opening or recess adjacent to the instep to facilitate the application or removal of a shoestring.

4. A boot or shoe holder consisting of two members, constituting respectively the heel and toe portions of a boot or shoe form, and adjustable with reference to one another to suit the size of the boot or shoe to be placed upon them, said toe portion being provided with an opening or recess adjacent to the instep to facilitate the application and removal of a shoestring.

5. A boot or shoe holder consisting of two members, constituting respectively the heel and toe portions of a boot or shoe form, and adjustable with reference to one another to suit the size of the boot or shoe to be placed upon them, said toe portion being provided with an opening or recess adjacent to the instep to facilitate the application and removal of a shoestring and a bracket, adapted for attachment to a fixed support, carried by one of said members.

750,571. PNEUMATIC SEAT. CHARLES I. BERGER, Richmond, Ind., assignor of one-half to Ray Morrow, Minneapolis, Minn. Filed Aug. 18, 1902. Serial No. 119,995. (No model.)



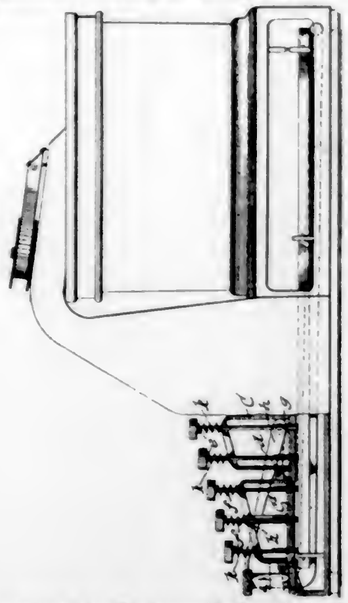
Claim.—1. The combination with a frame, of a pneumatic rubber seat having vulcanized folds at various points in the seat portion thereof, and a covering secured to said vulcanized folded portions and to the frame.

2. The combination with a frame, of a pneumatic rubber seat having vulcanized folds at various points in the seat portion thereof, pins vulcanized to said vulcanized folded portions, a covering secured to the frame and having openings through which said pins pass, and buttons vulcanized to the outer ends of said pins.

3. The combination with a frame, of a rubber sheet, a second rubber sheet of larger size vulcanized at its edges to the inner side of said first sheet and forming therewith a pneumatic seat and having vulcanized folds at various points therein, and a covering secured to said vulcanized folded portions and to the frame.

750,572. KEYBOARD FOR TYPE-WRITING MACHINES. ANGELO BEYERLEN, Stuttgart, Germany. Filed June 4, 1903. Serial No. 159,989. (No model.)

Claim.—1. In a type-writer, the combination of a fixed key-board-section having keys, each representing a single character and adapted to coöperate with a single printing means, and a shiftable keyboard-section carrying keys, each representing a plurality of characters and adapted to coöperate with one printing means when in normal position and with a different printing means when in shifted position.



2. The combination with a sectional keyboard having fixed and shiftable sections, of a plurality of levers, the keys of the fixed section each representing a single character and coöperating with a single lever and the keys of the movable section each representing a plurality of characters and coöperating with one lever when in normal position and with a different lever when shifted.

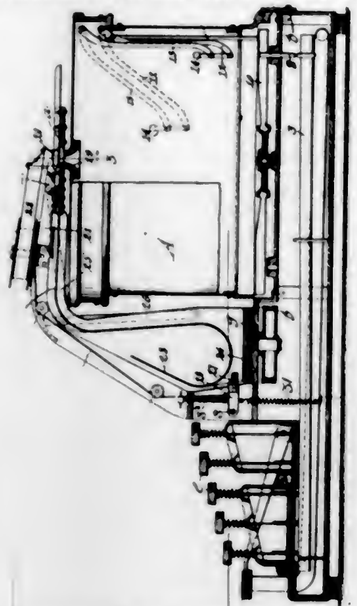
3. The combination with a sectional keyboard having fixed and shiftable sections, of a plurality of levers, the keys of the fixed section each representing a single character and coöperating with a single lever and the keys of the movable section each representing a plurality of characters and coöperating with one lever when in normal position and with a different lever when shifted, a shift-key for shifting said shiftable section in one direction, and automatic means for shifting it in the other direction.

4. In a type-writer, the combination of a plurality of fixed keys spaced apart and carrying each a character of single form, a plurality of laterally-shiftable keys arranged in gronps between said fixed keys and carrying each a character having a plurality of forms, a carriage supporting said laterally-shiftable keys in fixed relation relatively to each other, key-levers in opposition to the fixed and movable keys, an extra set of key-levers for each group of shiftable keys, and means for moving said carriage to bring said shiftable keys over said extra set of key-levers, but not in opposition to the levers of the fixed keys, substantially as set forth.

5. In a type-writer, the combination of a plurality of fixed keys spaced apart and carrying each a character of single form, a plurality of laterally-shiftable keys arranged in groups between said fixed keys and carrying each a character having a plurality of forms, a carriage supporting said laterally-shiftable keys in fixed relation relatively to each other, key-levers in opposition to the fixed and movable keys, an extra set of key-levers for each group of shiftable keys, lugs, one at each side of said carriage, projecting therefrom, above the bottom frame of the machine, lugs projecting upwardly from said bottom frame into line with the lugs of the carriage, extension-springs between the lugs of the frame and carriage, and an operating-lever pivoted at its rear end adjacent the fixed keys and extending forward opposite said carriage and provided beyond the same with an operating-handle, substantially as set forth.

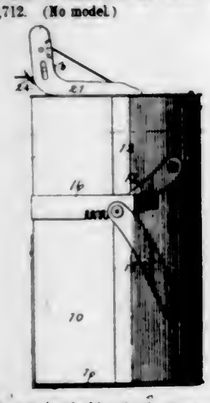
750,573. TYPE-WRITER. ANGELO BEYERLEN, Stuttgart, Germany. Filed July 18, 1903. Serial No. 166,067. (No model.)

Claim.—1. In a type-writer, the combination, with a removable type-lever basket, of a keyboard in front of the same, levers in said basket pivoted to strike from below at an impression-point, a paper-carriage between the keyboard and type-lever basket, an escapement mechanism between the keyboard and the basket, a rigid arm between the keyboard and the basket, and extending over the latter, a stationary anvil supported by said arm, a ribbon-operating device supported by said arm, and key-levers and push-rods, one for each type-lever extending from the same, opposite the key-levers, but not connected with the latter, substantially as set forth.



2. In a type-writer, the combination, with a removable type-lever basket provided with upwardly-moving type-levers carrying positive type, of a rigid arm projecting over said type-lever basket and connected to the bottom frame of the machine, an anvil carried by said arm, a ribbon-operating device carried by said arm, a ribbon below the anvil, means guiding the paper to be imprinted below the ribbon, means in said basket for actuating said type against the paper, the latter against the ribbon, and both together against the anvil, and key-levers independent of said basket and of said actuating means, substantially as set forth.

750,574. TWINE-HOLDER AND TENSION DEVICE FOR HARVESTERS. FRANK A. BICKET, Traer, Iowa. Filed Apr. 21, 1903. Serial No. 153,712. (No model.)



Claim.—1. In a twine-holder for harvesters, a cylindrical case consisting of two sections hinged together at their vertical edges, a bottom fixed to one section, a cover hinged to one section, and means for adjustably connecting the free edges of the sections, for the purposes stated.

2. A twine-holder case for harvesters composed of two sections hinged together at their edges, a bottom fixed to one of the sections, a cover hinged to one of the sections and provided with an aperture at its central portion, a latch, having a plurality of notches, pivoted to the outside and center of one of the hinged sections and straps fixed to the outside of the other section and connected at their ends by means of a fixed stud, for the purposes stated.

3. An adjustable twine-holder and tension device comprising a cylindrical case consisting of two sections hinged together, a fixed bottom on the end of one section, a hinged cover at the top of one section, a pivoted latch on the outside and center of one section provided with notches and straps fixed to the outside of the other section and their ends connected by a fixed stud, and a tension device fixed on top of the hinged cover, arranged and combined to operate in the manner set forth for the purposes stated.

750,575. PROCESS OF MANUFACTURING VARNISH SUBSTITUTES. RICHARD BLUMER, Magdeburg, Germany. Filed July 9, 1903. Serial No. 164,787. (No specimens.)

Claim.—1. The process of manufacturing a varnish substitute which consists in mixing rosin-oil with non-drying oils and rosin-pitch until a uniform mixture is obtained

2. The process of manufacturing a varnish substitute for rosin-oil which consists in mixing a non-drying oil with rosin-pitch, heating the mixture until a uniform mixture and dissolution is obtained and then adding and incorporating rosin-oil with the mixture.

3. The process of manufacturing a varnish substitute which consists in preparing a mixture of non-drying oils with rosin-pitch, and then adding and incorporating rosin-oil and driers with the mixture and heating the mixture until the desired uniform consistence is obtained.

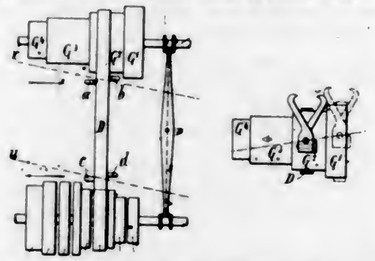
4. The process of manufacturing a varnish substitute which consists in preparing an intimate mixture of castor-oil, rosin-pitch and almond-oil, mixing the same with rosin-oil and drier and heating the mixture to a suitable temperature.

5. The herein-described varnish substitute which consists of non-drying oil, rosin-oil and rosin-pitch, substantially as described.

6. The process herein described of manufacturing a varnish substitute which consists in mixing at a suitable temperature, rosin-pitch, and non-drying and drying oils with rosin-oil, the latter being largely in excess of the entire amount of the other constituents.

7. The herein-described composition of matter which consists of rosin-pitch, drying and non-drying oil, and an amount of rosin-oil largely in excess of the total amount of the other constituents.

750,576. BELT DRIVING-GEAR. AMÉDÉE BOLLÉE Père, Le Mans, France. Filed May 7, 1898. Serial No. 680,036. (No model.)



Claim.—1. Belt-and-pulley gearing comprising pulleys of graduated diameters, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band.

2. Belt-and-pulley gearing comprising pulleys of graduated diameters, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band and having the parts thereof which so engage the edges of the band near the driving and driven pulleys respectively, inclined to one another.

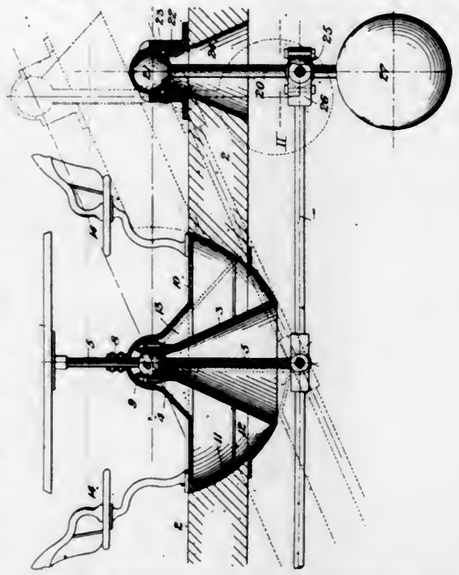
3. In belt-and-pulley gearing comprising driving-pulley of graduated diameter, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band, a driven pulley comprising a plurality of alternately fast and loose sections.

4. Belt-and-pulley gearing comprising driving and driven pulleys of graduated diameters having opposite sections of smaller combined diameter than the working sections, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band.

5. Belt-and-pulley gearing comprising driving and driven pulleys of graduated diameters adjustable in the direction of their axes simultaneously in opposite directions, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band.

6. Belt-and-pulley gearing comprising pulleys of graduated diameters, a power-transmitting band and a band-shifter engaging the upper and lower portions of the band and at different distances from the surfaces of the driving and driven pulleys at each edge of the band, the driven pulley being capable of being rendered fast or loose on the driven shaft.

750,577. SELF-LEVELING FURNITURE. GRANT W. BOSTWICK and ROBERT W. BOSTWICK, Pittsburg, Pa. Filed Apr. 1, 1903. Serial No. 150,576. (No model.)



Claim.—1. In a self-leveling apparatus, a supporting-stem provided with a bearing-ball, a socket-bearing therefor, a table-top supported by the stem, and a floor-plate secured to the stem and provided with seats, with means for holding the stem in a vertical position, substantially as set forth.

2. In a self-leveling apparatus, a supporting-stem provided with a bearing-ball, a hollow coniform support terminating in a bearing-socket, a table-top supported upon the stem, a base secured to the stem and provided with a surrounding downwardly-extending middle portion and a peripheral flat floor portion; with seats secured to the floor portion, and means for maintaining the stem in a vertical position, substantially as set forth.

3. In a self-leveling apparatus, a supporting-stem provided with a bearing-ball, a hollow coniform support terminating in a bearing-socket, a table-top supported upon the stem, a base secured to the stem and provided with a surrounding downwardly-extending middle portion and a peripheral flat floor portion having a downwardly-extending spheroperipheral flange, a bowl-shaped cavity therefor, seats secured to the floor-portion, and means for maintaining the stem in a vertical position, substantially as set forth.

4. In a self-leveling apparatus, the combination with a supporting-stem provided with an attached table and chair support, a universal bearing-support and a downward extension; of a gravity-actuated controlling-frame in engagement with the stem and sus-

pended from bearings on the same plane as said universal bearing-support, substantially as set forth.

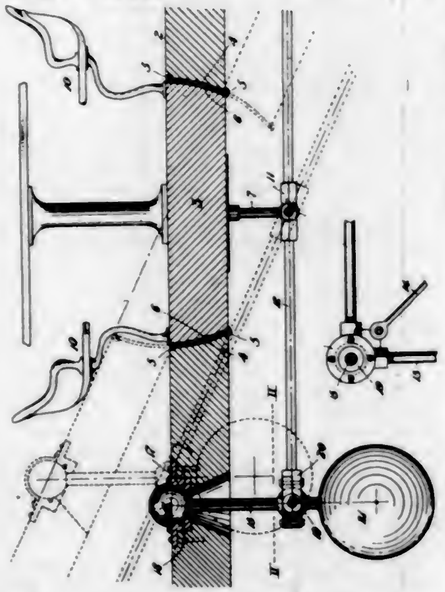
5. In self-leveling apparatus, the combination with a supporting-stem provided with an attached table and chair support, a universal bearing-support and a downward extension, of a gravity-actuated controlling-frame, having a universal joint in engagement with said stem and supporting means suspended from bearings and connected with the frame on the same planes respectively, as the said bearings, substantially as set forth.

6. In a self-leveling apparatus, the combination with a supporting-stem provided with an attached table and chair support, a universal bearing-support and a downward extension, of a gravity-actuated controlling-frame, having a universal joint in engagement with said stem and supporting means suspended from bearings and connected with the frame on the same planes respectively, as the said bearings, and carrying controlling-weights, substantially as set forth.

7. In a self-leveling apparatus, the combination with a supporting-stem provided with a table-top, a universal bearing-support and a downward extension; of a gravity-actuated controlling-frame in engagement with the stem and a series of independent depending weights and stems connected with the frame at positions lateral to the stem, substantially as set forth.

8. In a self-leveling apparatus, the combination with a supporting-stem provided with a table-top, and a coonected floor with seats mounted thereon, and a downward extension; of a gravity-actuated controlling-frame in engagement with the stem and a series of depending weights connected with the frame, substantially as set forth.

750,578. SELF-LEVELING FURNITURE. GRANT W. BOSTWICK and ROBERT W. BOSTWICK, Pittsburg, Pa. Filed Apr. 24, 1903. Serial No. 154,112. (No model.)



Claim.—1. A self-leveling furniture-support consisting of a movable floor structure provided with a bowl-shaped receiving and supporting cavity having internal bearing-surfaces, a platform adapted to interfit therein, and means for maintaining the platform in a horizontal position, said means being supported independently of the platform and connected therewith, substantially as set forth.

2. A self-leveling furniture-support consisting of a movable floor structure provided with a bowl-shaped receiving and supporting cavity having internal bearing-surfaces, a platform adapted to interfit therein, and gravity-actuated controlling means suspended from bearings on a plane corresponding with the level of the floor structure and connected with the platform, substantially as set forth.

3. The self-leveling apparatus consisting of a floor structure provided with a bowl-shaped receiving and supporting cavity, a platform adapted to interfit therein and aline therewith provided with a vertical stem, ball-bearings interposed between the walls of the cavity and the platform, an article of furniture secured to the upper surface of the platform, and a controlling-framework suspended from bearings located on the floor-level and connected with the platform-stem for maintaining the platform in a horizontal position, substantially as set forth.

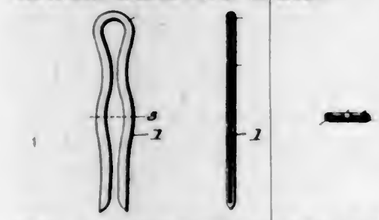
4. In a self-leveling apparatus, the combination with a movable floor provided with a spherical-shaped cavity having an internal bearing, of the correspondingly-shaped platform adapted to interfit therein and to aline with the floor-surface, a controlling-stem therefor, and a gravity-controlled frame connected with the stem and suspended from bearings in the floor and on substantially the same plane therewith, for maintaining the platform in a horizontal position independent of the movement of the floor, substantially as set forth.

5. In a self-leveling apparatus, the combination with a movable floor provided with a spherical-shaped cavity having an internal bearing, of a correspondingly-shaped platform adapted to interfit therein and aline with the floor-surface, a downwardly-exteoding controlling-stem, a gravity-actuated controlling-plane in engagement with the stem, and a series of depending weights connected with the frame, and suspended from bearings on a plane passing through the center of the spherical cavity and platform, substantially as set forth.

6. In a self-leveling apparatus, the combination with a movable floor provided with a spherical-shaped cavity having an internal bearing, of a correspondingly-shaped platform adapted to interfit therein and aline with the floor-surface, a downwardly-extending controlling-stem, a gravity-actuated controlling-frame in engagement with the stem, and a series of depending weights suspended from the floor by universal joints on the floor-level and connected with the frame, substantially as set forth.

7. In self-leveling apparatus, the combination of a movable floor or deck provided with a spherical-shaped cavity having an internal lining and ball-bearings, a correspondingly-shaped platform adapted to interfit therein and to aline with the floor-surface and having a downwardly-extending controlling-stem, a series of laterally-disposed depending stems and weights supported in universal bearing-supports on a plane substantially level with the floor-surface, and a controlling-framework connected with said stems and with the platform-stem by universal bearings, substantially as set forth.

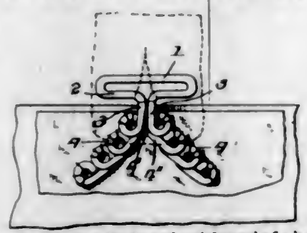
750,579. HAIR-PIN. ANDREW BOWERS, Stroud, Okla. Filed Oct. 20, 1903. Serial No. 177,732. (No model.)



Claim.—1. A hair-pin having the outer faces of its legs provided with unobstructed longitudinal grooves throughout their entire length, for the purpose of ventilation.

2. A hair-pin having its legs provided with grooves on both their faces throughout the entire length thereof, for the purpose of ventilation.

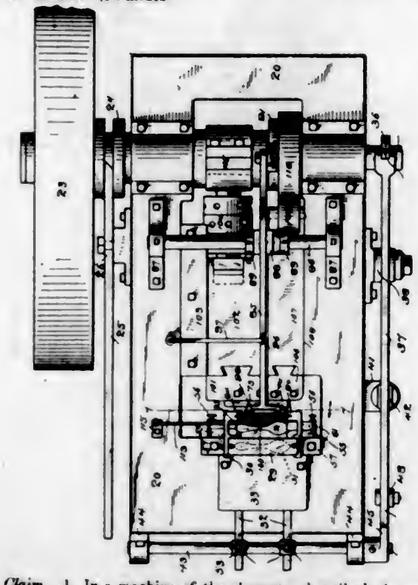
750,580. SUSPENDER-BUTTON. ANDREW BOWERS, Stroud, Okla. Filed Oct. 20, 1903. Serial No. 177,733. (No model.)



Claim.—1. A button having a head formed of a horizontal portion of wire, with its ends bent under at right angles, and inwardly in the same plane therewith, to a central point thereof, and then downwardly at right angles forming neck portions, and a series of coils formed of the diverging extensions of the said neck.

2. A button with a head formed of a horizontal portion of wire, a neck portion extending at right angles thereto, and a plurality of coils formed of the diverging ends of said neck.

750,581. MACHINE FOR FORMING SHEET-METAL ARTICLES. HENRY L. BRADLEY, New Haven, Conn. Filed Feb. 16, 1903. Serial No. 143,498. (No model.)



Claim.—1. In a machine of the character described, the combination with a blank-holder, of feed-slides which reciprocate under the blank-holder and are provided with shoulders the height of a blank which engage the lowest blank in the holder and carry it forward, said slides having blank-bearing surfaces in advance of said shoulders, and a way for the blanks, said way being located in line with and beyond the ends of the slides.

2. In a machine of the character described the combination with a blank-holder and feed-slides which reciprocate under the blank-holder and are provided with shoulders the height of a blank, which engage the lowest blank in the holder and carry it forward, said slides having blank-bearing surfaces in advance of said shoulders, of blocks having ways which receive the blank as it is carried forward by the feed-slides and spring-controlled retaining-fingers which retain each blank in the position in which it is left by the feed-slides.

3. In a machine of the character described the combination with a blank-holder and feed-slides which remove blanks therefrom, of spring-controlled retaining-fingers which are raised by a blank as it is carried forward by the feed-slides and then drop behind the blank as it passes from under them, and other spring-controlled retaining-fingers which are raised by the blank as it is carried forward and remain in engagement therewith when the feed-slides move backward.

4. In a machine of the character described the combination with a blank-holder and feed-slides which remove blanks therefrom, of ways which receive the ends of the blanks and are provided with deepened portions terminating rearwardly in shoulders, spring-controlled retaining-fingers which are raised by a blank as it is carried forward by the feed-slides and then drop behind the blank as it passes from under them, and other spring-controlled retaining-fingers which are raised by the blank as it is carried forward and press the blank downward in front of the shoulders in the ways when the feed-slides pass from under it in the backward movement.

5. In a machine of the character described the combination with a blank-holder and feed-slides which remove blanks therefrom and are provided with bearing portions and recesses 69, of ways which receive the blanks as they pass from the holder and retaining-fingers which retain each blank in the position to which it is carried by the feed-slides, said retaining-fingers being provided with engaging portions 81 which engage the blanks and also the bearing-surfaces and recesses of the feed-slides.

6. In a machine of the character described the combination with a blank-holder and feed-slides having at their forward ends undercut recesses terminrting in shoulders 67, and bearing-surfaces terminating rearwardly in shoulders 35, of ways which receive the blanks from the holder and are provided with deepened portions terminating rearwardly in shoulders 82 and retaining-fingers 55 and 61, whereby when the feed-slides move forward the lowest blank in the holder is engaged by shoulders 35 and carried past fingers 55 which drop down behind it and under fingers 61 which press it down in front of shoulders 82 when the feed-slides move backward, the second forward movement of the feed-slides carrying a second blank to the position just described, the first blank being engaged by shoulders 67 and carried forward in the ways.

7. In a machine of the character described the combination with a blank-holder and feed-slides having at their forward ends undercut recesses with overhanging lips and terminating rearwardly in shoulders 67, and bearing-surfaces terminating rearwardly in shoulders 35, of ways which receive the blanks from the holder and are provided with deepened portions terminating rearwardly in shoulders 82, and retaining-fingers which retain the blank against backward movement and press it down in front of shoulders 82 when the feed-slides move backward, the blank in the ways being engaged by shoulders 67 at the next forward movement of the feed-slides and again carried forward in the ways, the overhanging lips preventing the blank from rising or buckling.

8. In a machine of the character described the combination with a blank-holder and ways the forward ends of which curve downward, of retaining-fingers, feed-slides by which the lowest blank is removed from the holder and carried to the fingers and a blank at the fingers is carried forward into the descending portion of the ways, and plungers which engage the blank in the descending portion of the ways and place it in position to be operated upon.

9. In a machine of the character described the combination with a blank-holder and ways having deepened portions terminating rearwardly in shoulders 82, the forward ends of said ways curving downward, of feed-slides having shoulders and blank-bearing surfaces in front of said shoulders by which the lowest blank is removed from the holder and carried forward, and retaining-fingers which prevent the blank from moving backward with the feed-slides and press it down in front of the front ends of said slides and in front of shoulders 82, whereby a blank already in the position described will be carried forward by the feed-slides and into the descending portion of the ways.

10. In a machine of the character described the combination with a blank-holder and ways the forward ends of which curve downward, of feed-slides which remove blanks from the holder and carry them into the descending portion of the ways, spring-wires by which the blanks are held in the descending portion of the ways and plungers by which the blanks are carried into position to be operated upon.

11. In a machine of the character described the combination with a blank-holder and blocks provided with ways, the forward ends of which curve downward, of feed-slides which remove blanks from the holder and carry them into the descending portions of the ways, said descending portions being open, spring-wires 64 by which the blanks are retained in said ways, one of said wires being anchored in the lower end of the corresponding block, the upper end being free, the other wire being anchored in the top of the corresponding block the lower end being free and shorter, and an obliquely-moving spring-actuated block 71 which when thrown forward laps past the lower end of the corresponding way.

12. In a machine of the character described the combination with a blank-holder and blocks provided with ways the forward ends of which curve downward, and horizontal grooves in their inner faces leading inward from the ways, of feed-slides which remove blanks singly from the holder and carry them into the descending portions of the ways, said descending portions being open, spring-wires 64 in the open portions of said ways, one of said wires being anchored in the bottom of the corresponding block, the upper end being free and provided with a boss 99, the other wire being anchored in the top of the corresponding block the lower end being free and shorter, and an obliquely-moving spring-actuated block 71 which in its forward position laps past the lower end of the way, said boss and spring-actuated block acting to retain the ends of the blanks in the grooves.

13. In a machine of the character described the combination with a blank-holder, ways leading therefrom and retaining-fingers, of feed-slides having shoulders which engage the lowest blank in the holder and carry it to the retaining-fingers and other shoulders which engage a blank held by the retaining-fingers and carry it forward in the ways.

14. In a machine of the character described the combination with a blank-holder, ways the forward ends of which curve downward and retaining-fingers, of feed-slides having shoulders which engage the lowest blank in the holder and carry it to the retaining-fingers, and other shoulders which engage a blank held by the retaining-fingers and carry it into the curved portion of the ways.

15. In a machine of the character described the combination with a blank-holder, ways which are provided with deepened portions terminating rearwardly in shoulders 82, and retaining-fingers, of feed-slides having shoulders which engage the lowest blank in the holder and carry it to the retaining-fingers by which it is held against backward movement and pressed into the deepened portion of the ways, and other shoulders which engage a blank at the retaining-fingers and carry it forward in the ways.

16. In a machine of the character described the combination with a blank-holder, ways leading therefrom the forward ends of which curve downward and are open, and a spring-wire and spring-actuated block in the open portion of the ways, of feed-slides having shoulders which engage the lowest blank in the holder and carry it to the retaining-fingers and other shoulders which engage a blank held by the retaining-fingers and carry it into the curved portion of the ways and plungers which then engage the blank and carry it into position to be operated upon where it is held by the spring-wire and the spring-actuated block.

17. In a machine of the character described the combination with a fixed die and means for retaining a blank in position to be operated upon, of a movable die which coacts with the fixed die to form a portion of the blank and then hold it rigidly in place, means for positively actuating said movable die, an independently-acting die also coacting with the fixed die which forms the other portion of the blank, means for positively actuating the last-mentioned movable die, and means for holding the first-mentioned movable die in place while the last-mentioned movable die is acting.

18. In a machine of the character described the combination with a fixed die and independent movable dies of mechanism for positively causing said movable dies to act successively, whereby a blank is partly formed and is held firmly gripped between one movable die and the fixed die while the other movable die is completing the formation of the article, means being provided for holding the first-acting movable die while the second die is acting.

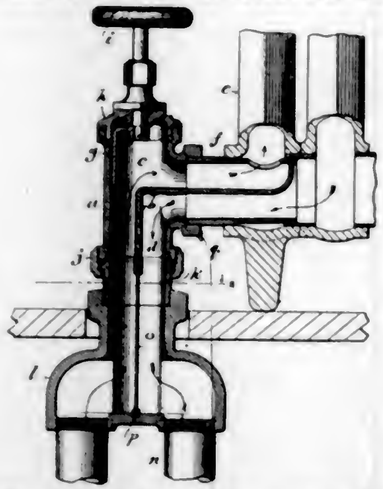
19. In a machine of the character described the combination with a fixed die, and independently-acting movable dies, the first of which to act is provided with an extension 76, of blank-feeding mechanism and an obliquely-moving spring-actuated block which laps past the end of the fixed die in front of a blank when in position to be operated upon and which is engaged and forced to its retracted position by the forward movement of the first movable die.

20. In a machine of the character described the combination with a fixed die and successively-acting movable dies, the first of which to act is provided with an extension 76, of feeding mechanism, blocks having ways in which the blanks are carried into position to be operated upon, grooves in said blocks leading inward from the ends of the ways, and adapted to receive the ends of the blanks, a spring-wire which retains one end of the blank in the corresponding groove, and a spring-actuated obliquely-moving block which retains the other end of the blank in the corresponding groove and is pressed backward by the extension of the first movable die when the latter moves forward.

21. In a machine of the character described the combination with a fixed die and successively-acting movable dies, of a blank-holder, ways leading therefrom and having downwardly-curved ends, retaining-fingers, feed-slides which carry blanks from the holder to the retaining-fingers and carry blanks from the retaining-fingers into the descending portion of the ways, plungers which press the blanks downward into position to be operated upon and means for retaining the blanks until the first movable die has acted.

22. In a machine of the character described the combination with dies, a blank-holder, ways leading therefrom and having downwardly-curved ends and feed-slides by which the blanks are carried from the holder into the descending portion of the ways, of plungers by which the blanks are placed in position to be operated upon, a cross-piece secured to the plunger and carrying a guide 112, a stripper adapted to reciprocate in the guide, a lever pivoted to one end of the cross-piece, links connecting the ends of said lever respectively to the stripper and to a fixed portion of the machine, and means for reciprocating the cross-piece and the plungers, whereby the stripper is caused to move upward and downward with the plungers and to move faster than the plungers.

750,582. RADIATOR CONNECTION. JOHN S. BRENNAN, Milwaukee, Wis. Filed Nov. 19, 1903. Serial No. 181,809. (No model.)



Claim.—1. A connection for radiators consisting of an elbow divided by a partition into two passages and of a head swiveled to said elbow and having inlet and outlet connections and a pivoted partition between them attached to and forming an extension of the partition in said elbow, substantially as described.

2. A connection for radiators consisting of an elbow divided by a partition into inlet and outlet passages and provided with a valve in one passage, and of a hollow head, swiveled to said elbow and provided with inlet and outlet connections and between them with a movable partition attached to and forming an extension of the partition in said elbow, substantially as described.

3. A connection for radiators comprising an elbow having separate inlet and outlet passages, a valve controlling one of said passages, a hollow head having a cylindrical part swiveled to said elbow and provided with a partition movable therein between inlet and outlet openings and arranged to form a continuation of the passages in said elbow, said elbow and head having marks to indicate how far the elbow may be turned without bringing the inlet and outlet passages into direct communication with each other, substantially as described.

4. A connection for radiators comprising an elbow divided by a partition into two passages and provided with a valve in one of said passages, a head having a cylindrical part swiveled to said elbow and provided on opposite sides with inlet and outlet connections, and a partition fitted to turn in said cylindrical part between said inlet and outlet connections and forming a continuation of the partition in said elbow, substantially as described.

750,583. FOUNTAIN-PEN. FRANCIS C. BROWN, New Brighton, N. Y. Filed Aug. 25, 1903. Serial No. 170,694. (No model.)

Claim.—1. A cap for fountain-pens, combined with a holder, a writing-point movable into and out of the holder, and a member without the holder and connected with the writing-point to move therewith, the cap and said member being adapted to abut each other and being of such length as to prevent contact of the writing-point with the cap.

2. A fountain-pen comprising an ink-holder having an external screw-thread at its forward end, a writing-point adapted to be projected through said end, or to be withdrawn into the holder, a cap provided with an internal screw-thread to fit that of the holder, and a sleeve surrounding the holder and of such length as to act as a stop for the open end of the cap before the latter can engage the writing-point.

3. In a fountain-pen, a holder, a writing-point movable relatively to the holder, to be projected therefrom or withdrawn into the same, a sleeve surrounding the holder and connected with said writing-point to move therewith, and a cap arranged to fit over the forward end of the holder and to abut the front end of said sleeve.

4. A cap for fountain-pens, provided with one or more elastic prongs at its open end and with an interior screw-thread at its closed end.

5. A cap for fountain-pens, provided with one or more elastic prongs at its open end.



6. A fountain-pen comprising a holder screw-threaded externally at its forward end, a writing-point movable lengthwise within the holder, to be projected therefrom or retracted into the same, a sleeve surrounding the holder, and connected with the writing-point to move therewith, and a cap adapted to fit over the forward end of the holder and provided with an internal screw-thread at its closed end, and at its open end with one or more elastic prongs arranged to fit over the forward end of said sleeve.

7. A fountain-pen comprising a holder, a writing-point carrier movable lengthwise within said holder, a pin or stud secured to said carrier, a sleeve surrounding a portion of the carrier and provided with a spiral slot through which said pin projects, said sleeve being connected with the holder and the holder being provided with a longitudinal groove engaged by the said pin.

8. A fountain-pen comprising a holder having a screw-thread at its rear end, a sleeve fitted within the rear portion of the holder and screw-threaded to fit the holder, said sleeve being provided with a spiral slot, a writing-point carrier, extending into said sleeve, an external sleeve surrounding the holder, said holder being provided with a longitudinal slot, and a pin connecting the external sleeve with the writing-point carrier and extending through the slots of the holder and of the internal sleeve.

9. A fountain-pen, comprising a barrel made of two sections, a transverse partition located at the junction of said two sections and clamped between their adjacent ends, a writing-point carrier movable lengthwise of the barrel and extending through said partition with an ink-tight fit, and mechanism located in the rear of said partition for moving the writing-point carrier lengthwise of the barrel.

10. A cap for fountain-pens, combined with a holder, said cap being provided with one or more elastic prongs at its open end, and with means for securing it to the holder at its closed end.

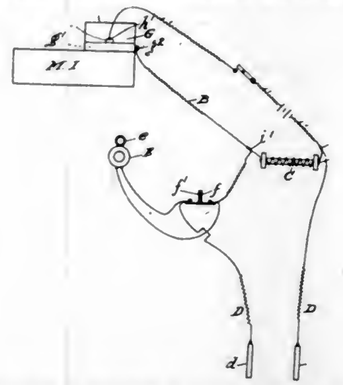
11. A cap for fountain-pens provided with two fastening devices adapted for coöperation with the holder, one of said devices being located at the open end of the cap and the other being located within the cap.

750,584. PROCESS OF ADMINISTERING ELECTRICAL VIBRATIONS. FRED H. BROWN, Los Angeles, Cal. Filed Aug. 25, 1902. Serial No. 120,900. (No specimens.)

Claim.—1. The process of subjecting an animal organism to electrical action, consisting in passing a continuous electrical current through said organism and rhythmically varying the strength of the current without affecting its continuity.

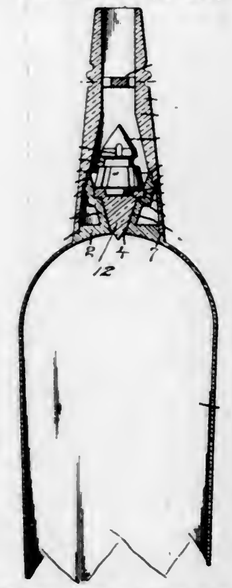
2. The process of subjecting an animal organism to electrical action, consisting in passing a continuous electrical current through said organism and magnetically varying said current without affecting its continuity.

3. The process of subjecting an animal organism to electrical action, consisting in passing a continuous electrical current through said organism and simultaneously therewith rhythmically converting a portion of said current into magnetic force, then converting said force into electrical energy and then restoring said energy to the original current without affecting the continuity of said current.



4. The process of subjecting an animal organism to electrical action, consisting in passing a continuous electrical current through said organism and simultaneously with said passage, rhythmically converting two portions of said current, each into magnetic force, transforming one of said forces into acoustical energy, reconverting the other force into electrical energy, and then restoring said electrical energy to the original current without affecting the continuity of said current.

750,585. BOTTLE-VALVE. JOHN J. BROWN, Toledo, Ohio. Filed May 23, 1903. Serial No. 158,503. (No model.)

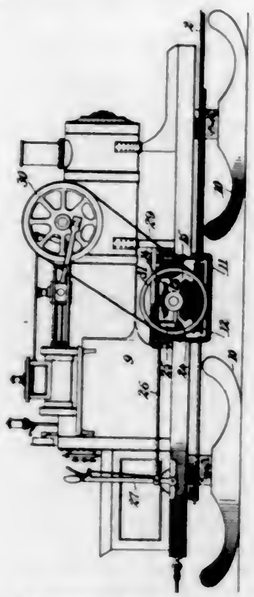


Claim.—1. The combination of a bottle having the upper end thereof provided with an extension having a conically-shaped valve-seat, a shoulder adjacent the upper end of the valve-seat, a conically-shaped valve provided with a flange, a separable neck secured to the bottle and provided with a tapered chamber, and a valve weight or controller adapted to retain the valve normally seated and provided with grooves arranged in staggered relation and a recess interposed between the grooves.

2. The combination of a bottle having the upper end thereof provided with a flange provided with a shoulder and from which projects a hollow extension, said extension being provided with a conical valve-seat, a shoulder communicating with the upper end of the

valve-seat, a conical valve provided with a recess and flange, a weight or controller provided with grooves and a recess situated between the grooves, a lug carried by the weight or controller and adapted to be received by the recess in the valve, a neck provided with a tapered chamber, and a guard situated in the upper end of the neck.

750,586. **DRAFT MECHANISM FOR TRACTION-SLEDS.** NAT E. BROWN, Robbinsdale, Minn. Filed June 8, 1903. Serial No. 160,516. (No model.)



Claim.—1. The combination with a traction-sled and a winding-drum operated by the engine thereon, of a transmission-cable engaging with the drum, and an anchoring device attached to each end of said cable.

2. The combination with a traction-sled and a winding-drum operated by the engine thereon, of a transmission-cable engaging with the drum, means for operating the drum in opposite directions, and an anchoring device on each end of the cable.

3. The combination with a traction-sled and a drum mounted thereon, of a driving connection between said drum and the engine on the sled, a clutch mechanism for changing the direction of rotation of the drum, a cable engaging with said drum, anchoring devices attached to the ends of the cable, and sleds on which said anchoring devices are mounted.

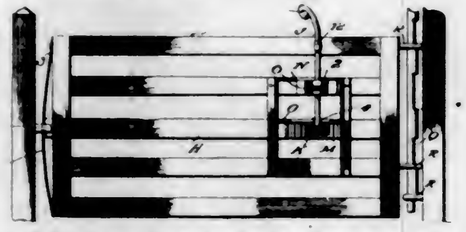
4. An anchoring device for the purpose described, comprising a sled, an arched bar mounted to swing on said sled, a pointed member having swinging connection with said arched bar, a draw-bar having a sliding connection with the sled, and a link connection between said draw-bar and the arched member.

5. The combination of a traction-sled with an engine thereon, and a winding-drum operating a cable-winding or draft side, and a cable unwinding or delivering side behind or between two alternating anchoring devices.

6. An anchoring device for the purpose described, comprising a sled, an arched bar mounted to swing on the sled, an arm or lever having swinging connection with said bar, a pointed member extended downward from said arm or lever, the said pointed member being inclined rearward, a draw-bar having sliding connection with the sled, and a connection between said draw-bar and the arched bar.

750,587. **SWINGING GATE.** ELI BROWNING and WILLIAM R. BROWNING, Iowa City, Iowa, assignors to Browning Brothers Company, Westbranch, Iowa. Filed Sept. 15, 1902. Renewed Sept. 11, 1903. Serial No. 172,824. (No model.)

Claim.—1. Mechanism for opening and closing a swinging gate, comprising pivoted operating-levers, means for connecting the inner ends of the operating-levers, a movable slat carrying a cog-track, a cog-wheel engaging said track, means for protecting the cog mechanism against weather and inopertune operation, means for connecting the cog mechanism with the operating-levers, means for limiting the longitudinal motion of the slat, means for holding the operating-levers in the line of a vertical plane while in motion, a latch-spring attached to and worked by the movable slat, adjustable pintle and pintle-bolts for swinging the gate at any desired height from the ground and means for preserving the connection between the operating-levers and the cog mechanism in any adjusted position of the gate, substantially as described.



2. In gate-operating mechanism, the combination, with pivoted operating-levers, of means for connecting the inner ends of the operating-levers, comprising a connecting-rod having at one end thereof a vertically-oscillating hinge provided with arms to span and be firmly fastened to the inner end of one of the levers and at the other end thereof a terminal ball adapted to be received by a bore down the inner end of the other lever and means suitable for preventing the terminal ball from being pulled out of said bore as the operating-levers are worked up and down, substantially as described.

3. In gate-operating mechanism, the combination, with a swinging gate, pivoted operating-levers and a movable slat located on the gate and carrying a cog-track, of mechanism for moving said slat, comprising a cog-wheel meshing with the cog-track secured to said movable slat and provided with a vertical shaft having a gate-opening and gate-closing connection with the operating-levers, substantially as described.

4. In gate-operating mechanism, the combination, with pivoted operating-levers of a slat movably mounted within the framework of the gate about midway thereof and having its ends passed slidingly through apertures provided through the end pieces of the gate-frame, cog mechanism for moving said slat and connection between said mechanism and the operating-levers, substantially as described.

5. In gate-operating mechanism, the combination, with pivoted operating-levers and cog mechanism for moving a slat, of means for connecting the operating-levers with the cog mechanism, comprising a vertical shaft forming the spindle of the cog-wheel, extending thence vertically up the side of the gate to which it is rotatably secured, and having its projection above the gate provided with a lateral extension and a link between said lateral extension and one of the operating-levers to swing said lateral extension around laterally on the arc of a circle when the levers are raised or depressed, substantially as described.

6. In gate-operating mechanism, the combination, with pivoted operating-levers and cog mechanism for moving a slat, of means for limiting the longitudinal motion of the slat, comprising a fixture attached to one side of the gate, encompassing the vertical shaft of the cog mechanism and provided with a lateral oblong slot through which a lug projects horizontally outward from the body of the vertical shaft and passes from one end of the oblong slot to the other end thereof as the shaft turns and thus limits the longitudinal motion of the slat, substantially as described.

7. In gate-operating mechanism, the combination, with pivoted operating-levers, of means for holding said levers in the line of a vertical plane while in motion, comprising two arms extended convergently downward and outward from the cross-beam on the side thereof away from the operating-levers and a third arm extended downwardly across underneath the cross-beam and joined with the other two arms at their point of intersection below the level of the cross-beam, together with a link having pivotal connection with the united end of the three arms and one of the operating-levers, substantially as described.

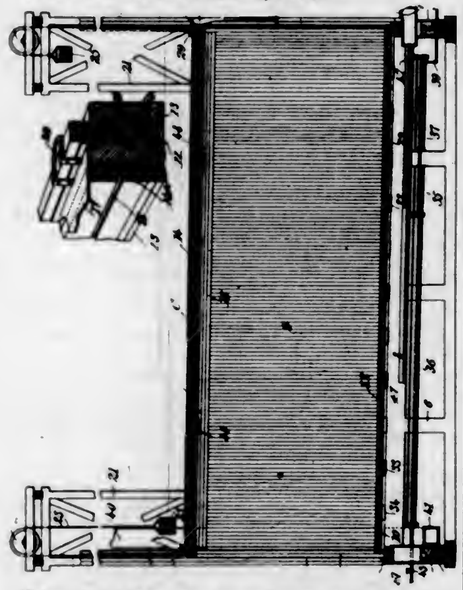
8. In gate-operating mechanism, the combination, with pivoted operating-levers, a slat and cog mechanism for moving said slat, of a latch-spring attached to and worked by said slat, comprising a strip of spring metal having its body bowed outwardly from the outer end face of the gate-frame, its lower end fastened in a vertical position against said outer end face, its bowed part attached to said movable slat and its upper end provided with a slot adapted to play up and down on a bolt holding its upper end in position as the spring moves inwardly and outwardly, substantially as described.

9. The combination, with a gate, of an adjustable pintle and pintle-bolts for swinging the gate at any desired height from the ground, comprising a pintle or rod provided with elongated adjustment-shoulders at stated distances apart on one side thereof, and two pintle-bolts having their bolt ends provided with nut-threads and their pintle ends provided with an eye; the eye of one of them having, on the bolt side thereof, a vertically-disposed groove running from the top to the bottom thereof and adapted to pass the adjustment-shoulders of the pintle; and the eye of the other one having a similar groove on the side thereof away from the bolt end and a similarly-shaped bed or rest provided on the bolt end side thereof, running only part of the way through from top to bottom and adapted to dovetail with and lock the terminal shoulders of the pintle or rod and hold it in place, substantially as described.

10. In gate-operating mechanism, the combination, with pivoted operating-levers, cog mechanism for moving a slat, carrying part of said cog mechanism and means for connecting said cog mechanism with said operating-levers, of means for preserving the connection between the cog mechanism and the operating-levers in any adjusted position of the gate, comprising the provision on one of the operating-levers of adjustment-holes through any of which the bolt holding the upper end of the link which connects the vertical shaft of the cog mechanism with the operating-levers may be passed after adjusting the gate to different heights from the ground, substantially as described.

11. In gate-operating mechanism, the combination, with pivoted operating-levers, a movable slat and cog mechanism for moving said slat, of means for holding the cog-wheel on its track while said slat is being moved, comprising a horizontally-disposed piece projected outwardly from the movable slat above the cog mechanism and provided with a longitudinal slot, encompassing the vertical shaft and permitting it to travel backward and forward therein, as the slat moves inwardly or outwardly, substantially as described.

750,588. **KILN.** HORATIO M. BUCK, Burlington, Wash. Filed Apr. 29 1903. Serial No. 154,815. (No model.)



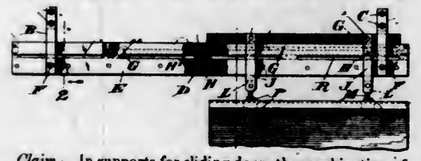
Claim.—1. A kiln having a drying-chamber and a suitable floor, a heater below said floor and consisting of headers and a series of pipes all arranged in the same plane, a fresh-air box at one end of the kiln, and a plurality of fresh-air-distributing pipes communicating with said box and extending between the floor and the members of said heater for discharging atmospheric air above the heater.

2. A kiln having a drying-chamber and a suitable floor, a heater disposed below the floor and consisting of headers and a series of pipes all arranged in the same plane, a fresh-air box having a valve-controlled air-inlet, and a plurality of distributing-pipes communicating with said box and extending to different points in the space between the floor and the heater; said pipes discharging atmospheric air above said heater.

3. A kiln having a drying-chamber and a suitable floor, a heater disposed below said floor and consisting of headers and a series of pipes all arranged in the same plane, a steam-supply for one of said headers, a moist-air duct disposed at one end of the kiln on a plane below the heater and having an external uptake, a steam-pipe connected to the steam-supply and arranged to discharge a jet of steam to the uptake of said duct, and means for supplying atmospheric air to the kiln above the plane of the heater.

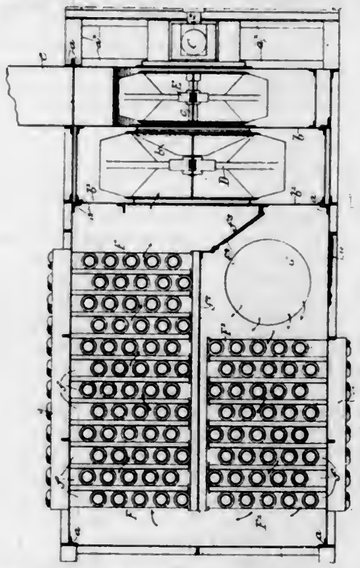
4. The combination of a kiln having an open end and door-stops adjacent to said open end, a door slidably fitted between said stops, a keeper attached to the roof of the kiln, and a cam-lever having means for detachably engaging with said keeper and adapted to force said door into binding engagement with said stops.

750,589. **DOOR-HANGER.** FREDERICK A. BURDETT, New York, N. Y. Filed Dec. 18, 1902. Serial No. 135,786. (No model.)



Claim.—In supports for sliding doors the combination of a horizontal bar or track, side pieces thereon, disks resting on the bar between the side pieces, an upper horizontal bar resting on the disks, straps depending from the upper bar, and embracing the track-bar and side pieces, a door suspended from the upper bar, and hangers secured to and supporting the track-bar and serving as stops to limit the sliding movement of the door, substantially as described.

750,590. **FUEL-ECONOMIZING APPARATUS.** GEORGE H. BURPEE, Philadelphia, Pa., assignor to Fuel Economizer Company of America, Camden, N. J., a Corporation of New Jersey. Filed Aug. 26, 1902. Serial No. 121,068. (No model.)



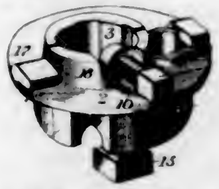
Claim.—1. The combination of a casing having within it partitions forming chambers, a motor, a fan in each of two of said chambers operatively connected to said motor, and an economizer in another chamber, said latter chamber having an inlet and an outlet, there being an opening in the partition between one of the fan-chambers and the economizer, one of said fans being adapted to deliver air to the combustion-chamber of a boiler and the other being adapt-

ed to draw the products of combustion from said chamber through the economizer, substantially as described.

2. The combination of a foundation-framework, a single casing supported thereby, partitions in the casing forming three chambers, an engine also supported on the foundation-framework, a fan in each of two of said chambers, the same being direct-connected to said engine, and an economizer in the third chamber, inlets and outlets to said chamber, there being an opening in the partition between one of the fan-chambers and the economizer, one of said fans being adapted to deliver air to the combustion-chamber of a boiler and the other being adapted to draw the products of combustion from said chamber through the economizer, substantially as described.

3. The combination of a supporting-framework, a single casing carried thereby, two transverse partitions in said casing forming three chambers, and a longitudinal partition in one of said chambers, a door-closed opening in said longitudinal partition and economizing-sections on both sides of the partition, a fan in each of the remaining chambers, one of said fans being adapted to deliver air to the combustion-chamber of a boiler and the other being adapted to draw the products of combustion from said chamber through the economizer, a direct-connected motor for operating said fans, the same being carried by the supporting-framework and being outside of the casing together with inlets and outlets for the several chambers, substantially as described.

750,591. CLAMP FOR SECURING PUMPS TO BARRELS. WILLIAM J. BUSHNGER, Philadelphia, Pa., assignor to National Specialty Manufacturing Company, Philadelphia, Pa., a Firm. Filed Oct 23, 1903. Serial No. 177,997. (No model.)



Claim.—1. A pump-clamp in two sections adapted to be inserted in the bung-hole of a barrel, one of said sections having bearing portions and the other a pivoted jaw having at one end a lug and at the other adjustable means both adapted to bear against the pump-tube.

2. A pump-clamp in two sections adapted to be inserted in the bung-hole of a barrel, one of said sections having bearing portions and the other a pivoted jaw having at its lower end a lug and at its upper end a screw, both said lug and set-screw being adapted to bear against the pump-tube.

3. A pump-clamp in two sections, each consisting of a body portion adapted to fit within a bung-hole, a flange adapted to rest on the head of a barrel, and an upwardly-extending flange, one of said sections having bearing portions of substantial length, the other being recessed, a jaw pivoted in said recess and having at its lower end a lug and at its upper end a set-screw, both said lug and said set-screw being adapted to bear against the pump-tube.

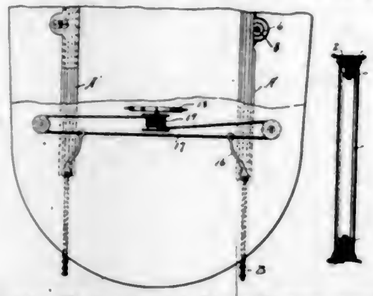
4. A pump-clamp in two sections adapted to be inserted in the bung-hole of a barrel, each of said sections having recesses cooperating to form apertures for the retention of a pump-tube and for the free passage of an actuating-rod, one of said sections having bearing portions and the other a pivoted jaw having at one end a lug and at the other adjustable means, both adapted to bear against the pump-tube.

5. A pump-clamp adapted to be inserted in the bung-hole of a barrel comprising two sections one of which is provided with bearing portions for a pump-tube and the other with a pivoted portion having at one side of its pivot adjusting means, whereby said adjusting means and the end of said pivoted portion at the opposite side of said pivot may be brought into engagement with the pump-tube.

750,592. RUDDER. THEODORE P. BYRAM, Detroit, Mich. Filed Dec. 29, 1902. Serial No. 136,896. (No model.)

Claim.—1. In combination with a vessel, an auxiliary rudder, a chamber in the vessel into which to withdraw said rudder, a bearing-frame to which said rudder is hinged, means arranged to reciprocate the frame, and a fixed tiller normally disconnected from but adapted to be connected to the rudder, substantially as described.

2. In combination with a vessel provided with a chamber into which to withdraw an auxiliary rudder, a frame arranged to carry said rudder, a rudder hinged thereto, an anviliary fixed tiller-post normally disengaged from but provided with means for engaging the auxiliary rudder and actuating the same, substantially as described.



3. An auxiliary rudder, a shaft to said rudder, a rudder-compartment, means for actuating the rudder to withdraw it into and project it from said compartment, a fixed rudder-post adapted to engage the rudder-shaft, substantially as described.

4. In combination, a fixed rudder-post extending below the plating of the vessel, a rudder adapted to be normally withdrawn into a chamber formed in the plating of the vessel, means for projecting the rudder and bringing it into operative engagement with the post, substantially as described.

750,593. BLOW-TESTING APPARATUS. HENRY G. CADY, Pine Bluff, Ark. Filed June 25, 1903. Serial No. 163,081. (No model.)

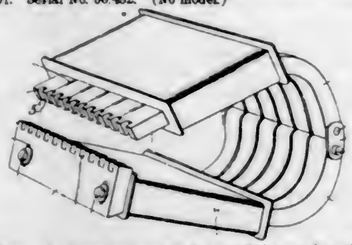


Claim.—1. In a blow-testing apparatus, the combination, of a wall-plate, a vertically-disposed flexible bag of soft material attached thereto and filled with water, and a tube open at its ends and let into the upper end of the bag from which latter it projects vertically.

2. In a blow-testing apparatus, the combination, of a wall-plate, a vertically-disposed flexible bag of soft material attached thereto and filled with water, a tube open at its ends and let into the upper end of the bag from which it projects vertically, and a buoyant figure in the tube on the column of water therein.

3. In a blow-testing apparatus, the combination, of a flexible bag suitably supported and filled with water, a tube let into the upper part of the bag and projecting above the same, and an indicator or figure in the tube and provided at its lower end with a bag adapted to frictionally engage the tube.

750,594. MAGNET. HENRY P. CAMPBELL, Boston, Mass., assignor, by direct and mesne assignments, to National Magnetic Mineral Separating Company, a Corporation of Maine. Filed May 16, 1901. Serial No. 60,432. (No model.)



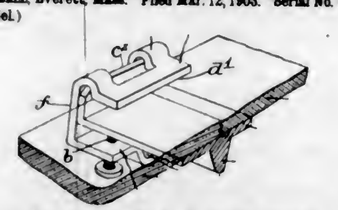
Claim.—1. A magnet comprising parallel horseshoe-shaped bars arranged to have an air-space between them, means for magnetizing said bars, and a pole-piece adjustably mounted upon the lower ends of the said bars.

2. A magnet comprising parallel horseshoe-shaped bars each of which is provided with a cut-out portion whereby air-spaces are formed between the bars, means for magnetizing the bars, and an adjustable pole-piece mounted upon the ends of the lower portion of said bars.

3. A magnet comprising parallel horseshoe-shaped bars having a portion of their contacting faces cut away to form an air-space, the upper ends of said bars being serrated, means for magnetizing the bars, and a pole-piece adjustably mounted upon the lower ends of the said bars, the portion of said pole-piece adjacent to the upper ends of the bars being serrated.

4. A horseshoe-shaped magnet having means whereby the distance between its ends or poles may be varied, and having one of its ends or poles gashed or formed with a staggered or interrupted surface to produce magnetic zones of varying predetermined arrangement and potentiality, all of the projecting portions of each pole having the same polarity.

750,595. CLAMP FOR HOLDING GLASS SHELVES. WILLIAM H. CAMPBELL, Everett, Mass. Filed Mar. 12, 1903. Serial No. 147,369. (No model.)



Claim.—1. The combination of a bracket, shelving bearing thereon, and a clamp having a base projecting under the bracket and provided with adjustable means for engaging the bracket, and a jaw connected with and overhanging the base and bearing on the upper surface of the shelving.

2. The combination of a bracket, shelving bearing thereon, and a clamp having a base projecting under the bracket and provided with adjustable means for engaging the bracket, and a jaw connected with and overhanging the base and bearing on the upper surface of the shelving, said bracket and clamp having complemental engaging parts for preventing displacement of the clamp.

3. A clamp comprising a base having bearing-screws adapted to bear on the under side of a bracket, and a jaw connected with and overhanging the base and adapted to bear on the shelving supported by the bracket, said base having a recess formed to engage a rib on the under side of the bracket and prevent displacement of the clamp crosswise of the bracket.

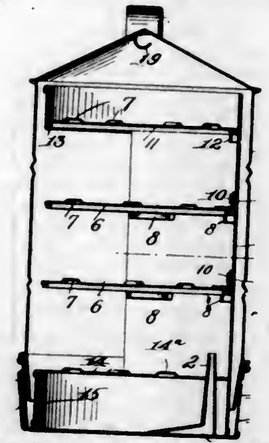
4. A clamp comprising a base having bearing-screws adapted to bear on the under side of a bracket, and a jaw connected with and overhanging the base and adapted to bear on the shelving supported by the bracket, the connections between the base and jaw being recessed to engage a transverse flange on the outer end of the bracket and prevent displacement of the clamp endwise of the bracket.

5. A clamp comprising a base having a recess formed to engage a rib on the under side of a bracket, bearing-screws engaged with said base and adapted to bear on the under side of the bracket, a jaw overhanging the base and adapted to bear on shelving supported by the bracket, and arms connecting the base with the jaw, said arms having recessed necks formed to engage a transverse flange on the outer end of the bracket.

6. The combination with a bracket having a longitudinal rib on its under side, and a transverse upwardly-projecting flange on its outer end, of a clamp comprising a base having bearing-screws adapted to engage the under side of the bracket, and a jaw overhanging the base, said clamp having means for engaging the bracket-rib to prevent displacement of the clamp sidewise of the bracket, and means for engaging the bracket-flange to prevent displacement of the clamp endwise of the bracket.

750,596. STEAM-COOKER. CHARLES CANNON, London, Canada. Filed Feb. 18, 1903. Serial No. 143,947. (No model.)

Claim.—1. A steam-cooker comprising a steam-generating pan, a removable jacket forming a continuation of the pan and completing the cooking-chamber, a removable shell situated within the jacket and resting upon the bottom of the pan, and a utensil-support carried by the shell and forming, in conjunction with the bottom of the steam-generator and the lower portion of the shell, a steam-chamber.

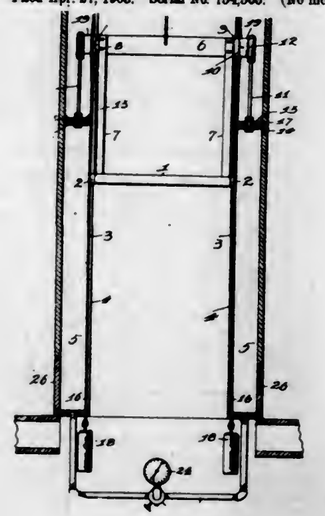


2. A steam-cooker comprising a steam-generating pan, a removable jacket forming a continuation of the pan and completing the cooking-chamber, a removable shell situated within the jacket and resting upon the bottom of the pan, a utensil-support carried by the shell and forming, in conjunction with the bottom of the generator and the lower portion of the shell, a steam-chamber, the shell being cut away between its ends on one side and provided with utensil-supports.

3. A steam-cooker comprising a steam-generating pan, a removable jacket forming a continuation of the pan and completing the cooking-chamber, a removable shell situated within the jacket and resting upon the bottom of the pan, a utensil-support carried by the shell and forming, in conjunction with the bottom of the steam-generator and the lower portion of the shell, a steam-chamber, said support being provided with orificed teats and with an opening, and a steam-vent pipe projecting upward through said support.

4. A steam-cooker comprising a steam-generating pan, a removable jacket forming a continuation of the pan and completing the cooking-chamber, a removable shell situated within the jacket and resting upon the bottom of the pan, the shell being cut away between its ends on one side and provided with a plurality of rests, orificed utensil-supports adapted to engage the rests, the lower support forming, in conjunction with the bottom of the steam-generator and the lower portion of the shell, a steam-chamber.

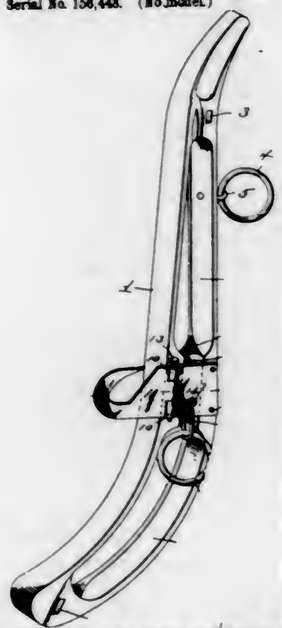
750,597. ELEVATOR-BRAKE. GEORGE E. CARNES, St. Louis, Mo. Filed Apr. 27, 1903. Serial No. 154,565. (No model.)



Claim.—1. A brake mechanism for elevators, comprising a suspension member adapted to support the elevator-cage, a plurality of air-chambers mounted vertically upon the elevator-shaft and provided with longitudinal slots, valves mounted upon the suspension member and within the air-chambers, the air-chambers being connected together at their bottoms for the purpose of equalizing the air-pressure within them, and means whereby the slot will be closed beneath the valves when the elevator-car moves downwardly in excess of a predetermined rate of speed, substantially as described.

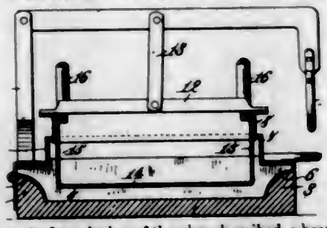
2. A brake mechanism for elevators, comprising a suspension member adapted to support the elevator-cage, a plurality of air-chambers vertically mounted upon the elevator-shaft and provided with longitudinal slots, valves mounted upon the suspension member and within the air-chambers, a pipe connecting the bottoms of the air-chambers, a valve mounted upon the pipe, a gage connected to the valve, and means whereby the slot will be closed beneath the valves when the elevator-car moves downwardly in excess of a predetermined rate of speed, substantially as described.

750,598. **HAME.** WILLIAM H. CARR, Rochelle, Ga. Filed May 9, 1903. Serial No. 156,448. (No model.)



Claim.—A skeleton hame formed of metal shaped to fit against the shoulders of an animal and having a groove at an intermediate point in the outer face thereof, a supporting-plate removably secured to the outer face over the groove and having a tug-hook, and a pole-strap ring connected to the supporting-plate by a link, the latter being disposed to move in the lower portion of the groove.

750,599. **BAR-CUTTER.** HENRY A. CHRISTENSEN, Chattanooga, Tenn. Filed Sept 1, 1903. Serial No. 171,547. (No model.)



Claim.—1. In a device of the class described, a base-piece having parallel elongated strips rising from its front and rear respectively, a main frame hinged to the rear strip, of open form, provided with a plurality of parallel knives connecting two bars thereof, an auxiliary frame supported within the main frame, a plurality of parallel clearers for said knives consisting of flat strips having upturned angular ends fastened to the auxiliary frame, yieldable means acting against the auxiliary frame to hold the clearers thereof in their ineffective positions, and means operative in opposition to the said yieldable means for acting against the auxiliary frame to move the clearers into their effective positions.

2. In a device of the class described, a base-piece having parallel elongated strips rising from its front and rear respectively, a main frame hinged to the rear strip, of open form, provided with a plurality of parallel knives connecting two bars thereof, an auxiliary frame supported within the main frame, a plurality of parallel clearers for said knives consisting of flat strips having upturned angular ends fastened to the auxiliary frame, yieldable means acting against the auxiliary frame to hold the clearers thereof in their ineffective positions, a cross-piece on the auxiliary frame, a standard on the main frame, a lever supported by the standard, and a link connecting the cross-piece and lever respectively.

3. In a device of the class described, a base-piece having parallel elongated strips rising from its front and rear respectively, a main frame hinged to the upper portion of the rear strip, of approximately rectangular form, an auxiliary frame also of approximately rectangular form, freely fitted within the main frame, parallel knives connected with the front and rear bars of the main frame, parallel clearers between the knives, each consisting of a flat strip having upturned angular extensions suitably fastened to the front and rear bars of the auxiliary frame, a standard rising from the rear bar of the main frame, a lever pivotally supported by said standard, having a bail at its free end, a cross-piece connecting the front and rear bars of the auxiliary frame on the upper sides thereof, a link pivotally connected with the cross-piece and lever respectively, and yieldable means acting against the auxiliary frame to hold the same in an elevated position with respect to the main frame.

4. In a device of the class described, a main frame having a plurality of knives, provided with reduced ends, an auxiliary frame freely fitted within the main frame and provided with clearers for said knives, strips fastened to the main frame and extending across the reduced ends of said knives, yieldable means for holding the auxiliary frame in an elevated position with respect to the main frame, and mechanism for operating the auxiliary frame in opposition to said yieldable means.

5. In a device of the class described, a main frame having a plurality of knives, an auxiliary frame having a plurality of clearers for said knives, between the same, the auxiliary frame being fitted and freely movable within the main frame, hollow pillars supported by the main frame, constituting guides for the auxiliary frame, springs inclosed by the pillars and connected respectively thereto and to the auxiliary frame, and means for actuating the auxiliary frame in a downward direction independently of the main frame.

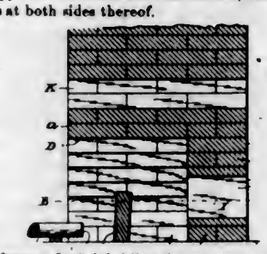
6. In a device of the class described, a main frame having a plurality of knives, an auxiliary frame having a plurality of clearers for said knives, between the same, the auxiliary frame being fitted and freely movable within the main frame, hollow pillars supported by the main frame, constituting guides for the auxiliary frame, springs inclosed by the pillars and connected respectively thereto and to the auxiliary frame, and a hand-lever carried by the main frame and operatively connected with the auxiliary frame.

7. In a device of the class described, a base for supporting a receptacle, a main frame hinged at one side to the base and provided with a plurality of parallel knives connected with its side bars, an auxiliary frame inclosed by and freely movable within the main frame and provided with clearers for said knives, hollow pillars supported by the main frame and constituting guides for the auxiliary frame, springs inclosed by the pillars and connected respectively thereto and to the auxiliary frame, a bar extending across said auxiliary frame, a bearing upon the main frame, a lever fulcrumed upon the bearing, and a link pivotally connecting the lever and cross-bar between the ends thereof.

750,600. **BRICK-KILN FURNACE.** ELI M. CLARK, Sycamore, Kans. Filed June 11, 1903. Serial No. 160,966. (No model.)

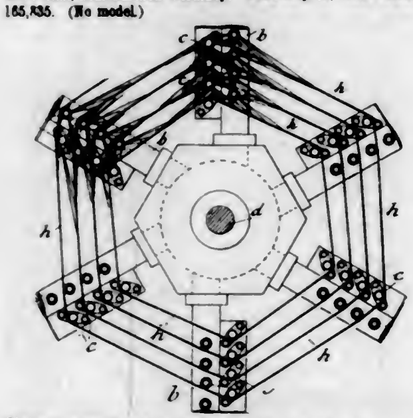
Claim.—1. A brick-kiln including a wall having recesses in the outer portion thereof extending upwardly from the floor of the kiln and having uniform area from the front to the rear thereof, there being openings at the rear of the recesses in the inner portion of the wall, and a narrow baffle-wall in each of said recesses extending upwardly from the floor-line of the kiln independent of said wall, in combination with a gas-burner having the outlet-orifice thereof opposite to the front of said baffle-wall.

2. In a furnace for brick-kilns, the combination of the wall having the arched recesses forming the furnaces in the outer portion thereof and the openings in the inner portion thereof, the gas-burners at the bottoms of said recesses having the outlet-orifices thereof disposed opposite the inner portions of said wall below said openings, and the narrow baffle-walls extending upwardly from the floor-line of the kiln opposite said orifices of said burners, said baffle-walls having passages at both sides thereof.



3. In a furnace for brick-kilns, the combination of the wall having the arched recesses forming the furnaces in the outer portion thereof and the openings in the inner portion thereof, and the gas-burners at the bottoms of said recesses having the outlet-orifices thereof opposite and directed toward the inner portions of said wall below said openings, substantially as set forth.

750,601. **APPARATUS FOR DYEING, &c.** FRIEDRICH CLEFF, Rauenthal, near Barmen, Germany. Filed July 16, 1903. Serial No. 165,835. (No model.)



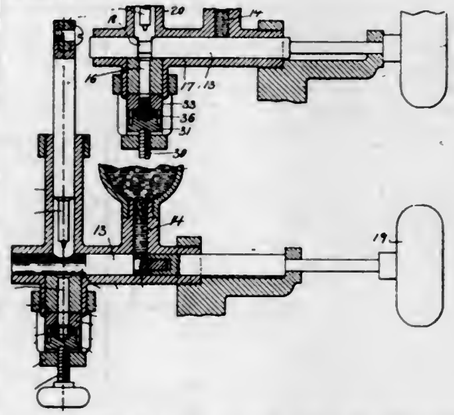
Claim.—Apparatus for dyeing, bleaching, mordanting, washing and drying fabric, comprising a vat, and a winding-frame rotating within the same, consisting of longitudinally-extending hollow, removable, perforated, cross members arranged in a plurality of circles of different diameters over each of which the fabric can be spirally wound, and means for supporting the same at either end, the cross members communicating with the interior of said supporting means, whereby liquid may be forced through the winding-frame, substantially as described.

750,602. **MOLD FOR LACING-HOOKS.** PATRICK CLIFFORD, Quincy, Mass. Filed Apr. 27, 1903. Serial No. 154,385. (No model.)

Claim.—1. A molding-machine comprising a supporting-frame having a conduit, a matrix communicating with said conduit and having a shank-forming portion in line with the conduit, means for measuring and delivering charges of molten metal through said conduit to the matrix, a shank-forming plunger movable into and out of the conduit, and a guide therefor arranged to direct said plunger into the conduit and into the shank-forming portion of the matrix.

2. A molding-machine comprising a supporting-frame having a conduit composed of an upper portion, a lower portion offset from the upper portion and an intermediate connecting portion, means for transferring charges of molten metal from the upper to the lower portion, a matrix communicating with the lower portion, a shank-forming plunger, and a guide therefor arranged to direct said plunger into the shank-forming portion of the matrix.

3. A molding-machine comprising a supporting-frame having a conduit composed of an upper portion, a lower portion offset from the upper portion, and an intermediate connecting portion, a charge-feeding plunger movable in said intermediate portion, a matrix communicating with the said lower portion, a shank-forming plunger, and a guide thererefor arranged to direct the plunger into the shank-forming portion of the matrix.



4. A molding-machine comprising a supporting-frame having a matrix-seat, a conduit extending through said seat, a sectional matrix detachable from said seat and having a shank-forming portion in line with the conduit, means for detachably securing a matrix to said seat, and means for measuring charges of molten metal and feeding the same through the conduit to the matrix.

5. A molding-machine comprising a supporting-frame having a matrix-seat, a conduit extending through said seat, a sectional matrix detachable from said seat and having a shank-forming portion in line with the conduit, means for detachably securing a matrix to said seat, a shank-forming plunger, and a guide therefor arranged to direct said plunger into the conduit and into the shank-forming portion of the matrix.

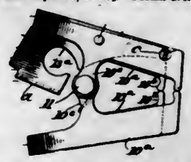
6. A sectional matrix formed to mold a lacing-hook and comprising a base-section, a top section, an intermediate or back section, and a sliding section, said sections being separably connected.

7. A sectional matrix formed to mold a lacing-hook and comprising a base-section, a top section, an intermediate or back section, and a sliding section, said sections being separably connected and provided with means for operating the sliding section.

8. A molding-machine comprising a supporting-frame having a conduit, a sectional matrix communicating with the conduit and having a shank-forming portion in line with the conduit, and a head-forming portion below the shank-forming portion, means for detachably securing the head-forming portion to the shank-forming portion, and means for measuring charges of molten metal and delivering the same to the conduit.

9. A molding-machine comprising a supporting-frame having a conduit, a sectional matrix communicating with the conduit and having a shank-forming portion in line with the conduit, and a head-forming portion below the shank-forming portion, said head-forming portion having a sliding section movable edgewise into and out of the matrix-cavity.

750,603. **FLY-CLOSER FOR SHOE-UPPERS.** SAMUEL CLOUTIER, Lewiston, Me. Filed Apr. 20, 1903. Serial No. 153,578. (No model.)



Claim.—1. A fly-closer for shoes, comprising two substantially U-shaped clamping-sections, limbs thereon, and lateral toes on said limbs, arms on the clamping-sections lapped together, a pivot-shaft engaged at its ends in perforations in the lapped arms, and a spring mounted upon the shaft having ends thereof respectively engaged with a limb on each clamping-section.

2. A fly-closer for shoes, comprising two substantially U-shaped clamping-sections, each having two slightly-diverging limbs, toes on

like edges of the limbs on each clamping-section, arms projected laterally from side edges of the limbs on each clamping-section, the arms on one section lapping upon the arms on the other clamping-section all the arms being perforated in alinement, a pivot-shaft held by its ends in the perforations, and a coiled spring mounted upon the shaft, the ends of the spring respectively having engagement with a limb on a respective clamping-section.

3. A fly-closer for shoes, comprising two substantially U-shaped clamping-sections each having two flat limbs, and a lateral toe on a like edge of each limb at its end, arms extended from said edges one on each limb at an equal distance from the toes, the arms on one clamping-section lapping upon the arms of the other clamping-section, the arms being perforated in alinement, a pivot-shaft engaged at its ends in the perforations of the arms, a coiled spring mounted upon the shaft and having its ends engaged respectively with a limb on a respective clamping-section, and a guard-spring carried by one limb of a clamping-section, said guard-spring being adapted to control the extent of divergence given to the limbs of the clamping-sections at their toes.

750,604. MOVABLE TOP. SAMUEL CLOUTIER, Lewiston, Me. Filed Aug. 22, 1903. Serial No. 170,421. (No model.)



Claim.—1. The combination with a top of the character described, having a stem projected centrally from its crown, of a thin disk having a circular edge and a central perforation therein, and a headed pin loosely inserted through the perforation and into the axis of the stem until the head of the pin loosely contacts with the disk.

2. The combination with a top of the character described, and a stem projected from the crown of the top-body at its axial center, said stem having a convexed free end, of a plate-like disk having a circular periphery and a central perforation therein, and a headed pin inserted through the perforation into the center of the stem, so that the head of the pin may loosely contact with the upper surface of the disk, and afford means for lifting the top while it is spinning.

750,605. NAIL OR TACK DRIVING IMPLEMENT. STANLEY A. COHEN, New York, N. Y. Filed Feb. 18, 1903. Serial No. 143,910. (No model.)



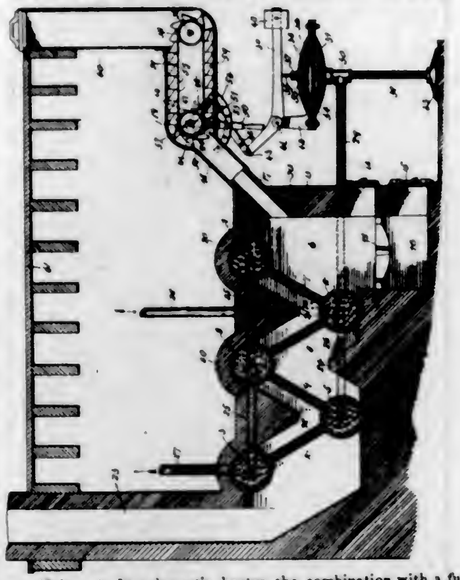
Claim.—1. In a tack or nail driving implement a guideway, a driving-plunger adapted to be reciprocated therein, a paper or fabric strip adapted to carry the reserve supply of tacks or nails, rollers between which the strip is led and devices for revolving the rollers to feed a tack into position in the path of the driving-plunger at every full stroke thereof.

2. In a tack or nail driving implement a driving-plunger; a strip carrying the tacks or nails; an automatic feeding mechanism engaging said strip at a point beyond the path of the driving-plunger so that the strip is free from the tacks or nails where engaged for the feeding.

3. In a tack or nail driving implement a driving-plunger; a strip carrying the tacks or nails; automatic feeding mechanism engaging said strip at a point where it is free from nails and means for disengaging the feeding mechanism at will.

4. In a tack or nail driving implement a driving-plunger; automatic feeding mechanism and a strip carrying the tacks or nails perpendicular to said strip and having lines stamped or cut therein so that the tacks or nails will be released by the impact of the driving-plunger without carrying away any portion of said strip.

750,606. DOMESTIC HEATER. CHARLES A. CONNISKEY, Indianapolis, Ind. Filed June 12, 1903. Serial No. 161,125. (No model.)

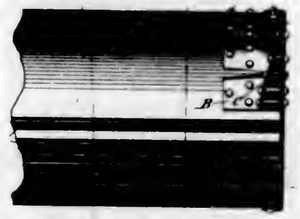


Claim.—1. In a domestic heater, the combination with a furnace, a boiler, a feed-chute, and fuel-containing means, of a fuel-conveying means arranged in said fuel-containing means, a pressure-operated mechanism connected to said boiler and a pawl-and-ratchet mechanism connected to said conveying means and pressure mechanism in such a manner that when the pressure in said boiler is reduced said pressure mechanism operates to cause said conveying means to feed the fuel in said chute into said furnace.

2. In a domestic heater, the combination with a furnace, a boiler, a feed-chute, and fuel-containing means, of a fuel-conveying means arranged in said fuel-containing means, a pressure-operated mechanism connected to said boiler and a pawl-and-ratchet mechanism connected to said conveying means and pressure mechanism in such a manner that when the pressure in said boiler is reduced said pressure mechanism operates to cause said conveying means to feed the fuel in said chute into said furnace, and means for actuating said conveying means independent of said pressure mechanism.

750,607. BOILER-BRACE. EVERETT COOK, Portland, Me., assignor of one-fourth to Delia Pray, Shapleigh, Me. Filed Sept. 21, 1903. Serial No. 174,013. (No model.)

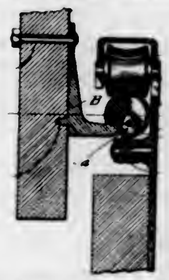
Claim.—1. A boiler-brace made of a single piece of material and comprising a ring-section for attachment to the head of the boiler, angular flanges extending integrally from the outer edge of the said ring-section and arranged for engagement with the shell, and a spherical central portion extending integrally from the inner edge of the said ring-section, as set forth.



2. The combination with a boiler, of a boiler-brace extending between the head of the boiler and the shell thereof, in the upper portion of the boiler, the said boiler-brace being made of a single piece of material comprising a ring-section for attachment to the head of the boiler, angular flanges extending integrally from the outer edge of the said ring-section, to engage the said shell, a spherical central portion extending integrally from the inner edge of the said ring-section and projecting from the inner face of the head, fastening devices for connecting the ring-section and the spherical central portion to the boiler-head, and fastening devices for securing the flanges to the shell, as set forth.

3. The combination with a boiler, of a boiler-brace extending between the head of the boiler and the shell thereof, in the upper portion of the boiler, the said boiler-brace being made of a single piece of material comprising a ring-section for attachment to the head of the boiler, angular flanges extending integrally from the outer edge of the said ring-section, to engage the said shell, a spherical central portion extending integrally from the inner edge of the said ring-section and projecting from the inner face of the head, rivets for fastening the ring-section to the boiler-head, rivets for fastening the flanges to the boiler-shell, and stay-rivets connecting the spherical central portion to the boiler-head, as set forth.

750,608. DOOR-HANGER. FRANK B. COOK, Chicago, Ill. Filed May 16, 1903. Serial No. 157,348. (No model.)



Claim.—1. A door-hanger comprising a longitudinally-slotted tube, supporting-brackets projecting through the said slot and engaging the interior of the tube, said longitudinal slot permitting endwise or longitudinal movement of the tube relative to the supporting-brackets and a hanger member supported by and adapted to travel upon the exterior of said tube.

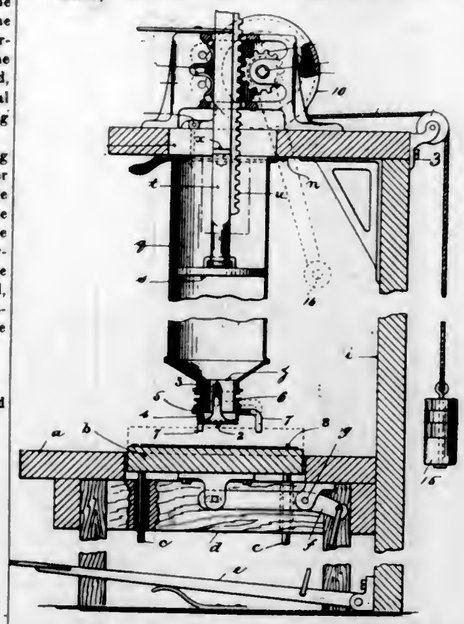
2. A door-hanger comprising a hollow member slotted longitudinally from end to end, said slot being disposed between the bottom and inner side of the tube, supporting means extending through the slot and engaging the interior of the said hollow member, said longitudinal slot permitting relative endwise or longitudinal movement of the tube on the supporting means, and a hanger member supported by and adapted to travel upon the exterior of said hollow member.

3. A door-hanger comprising a longitudinally-slotted tube, supporting-brackets projecting through the said slot and engaging the interior of the tube, said longitudinal slot permitting endwise or longitudinal movement of the tube relative to the supporting-brackets and a hanger member supported by and adapted to travel upon the exterior of said tube and means adapted to engage the lower portion of said tube to prevent displacement of said hanger member.

4. A door-hanger comprising a tube slotted longitudinally substantially its entire length, said slot being disposed between the bottom and inner side of the tube, supporting-brackets projecting through said longitudinal slot and engaging the interior of said tube said slot permitting relative shift between the brackets and tube longitudinally of the latter and adapting the tube to drain itself of water, a hanger member supported by and adapted to travel upon the exterior of said tube and means to engage the lower bearing portion of the tube to prevent displacement of the hanger member.

5. A door-hanger comprising supporting-brackets, a tube slotted from end to end and adapted to be engaged with the supporting-brackets by relative longitudinal movement therewith, said brackets extending through the slot and having enlarged portions and engaging the interior of said tube, a hanger member supported upon the exterior of said tube and means for preventing displacement of the hanger member, the said slot being disposed between the bottom and inner side of the tube.

750,609. MACHINE FOR MOLDING PASTRY. VICTOR COTÉ, Turners Falls, Mass. Filed May 19, 1903. Serial No. 157,849. (No model.)



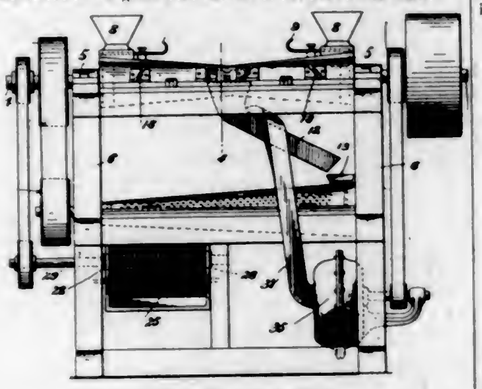
Claim.—The combination with a table having an opening therein, of a vertically-movable section fitting said opening, and means to reciprocally move said section; a dough-cylinder supported above said movable section, a plunger in said cylinder, a plunger-rod projecting above the cylinder, and means to maintain a constant downward pressure on the plunger; said cylinder having an outwardly-opening discharge-outlet; a spring-actuated collar adapted to normally close said discharge-outlet, and means on said collar to cooperate with said movable table-section to raise said collar and disclose said outlet.

750,610. GRAIN-HULLER. ALBERT B. COUCH, Houston, Tex. Filed Dec. 13, 1901. Serial No. 85,799. (No model.)

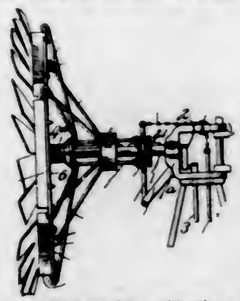
Claim.—1. In a machine for hulling grain, two oppositely-located rotatable cones having a common axis, a suitable casing for said cones, means on each cone for moving grain toward the contiguous ends of the cones, an inlet-opening in the casing for each cone, an outlet-opening in the casing at the delivery end of said cones, a bar on each cone axially located thereon and projecting beyond the surface thereof, and huller-bars parallel with the surface of the cone, adjustably supported in the casing opposite each cone, and means for adjusting said huller-bars toward and from said cones, combined with a polishing-cone and means for conveying grains from the hulling-cones to the polishing-cone.

2. In a machine for hulling grain, a rotatable cone having an axially-disposed rib thereon, propeller-blades secured to the large end of the cone, a casing for the cone, a huller-bar in the casing, the operative surface of which bar is concave, and the axis of said surface eccentric to that of the cone, the surface of said bar having

spirally-disposed ribs thereon oppositely inclined to the direction of movement of the grain from one end of the cone to the other.



750,611. **WIND-WHEEL.** ALPHEUS M. COX, Haviland, Kans. Filed July 6, 1903. Serial No. 164,382. (No model.)



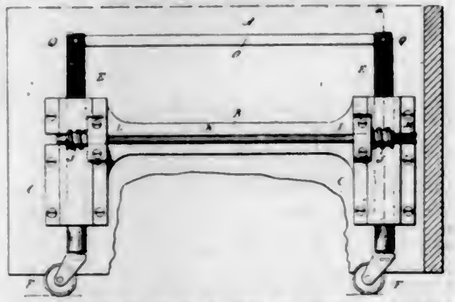
Claim.—1. In a wind-wheel the combination with a suitably-mounted shaft, of a wheel slidably mounted upon the outer end of said shaft, pivoted fan-blade sections carried by said wheel, a hub fixedly mounted upon said shaft in rear of said wheel, radially-diverging, spring-arms having one end connected to said hub and formed on their opposite ends with hooks which are adapted to have a loose connection with said fan-blade sections, whereby, upon the inward or outward movement of said wheel said fan-sections will be thrown out of or into operation, and means for moving said wheel inwardly or outwardly, substantially as described.

2. In a wind-wheel, the combination with a suitably-mounted shaft, of a wheel slidably mounted upon the outer end of said shaft, pivoted fan-blade sections carried by said wheel, a hub fixedly mounted upon said shaft in rear of said wheel, radially-diverging spring-arms having one end connected to said hub and formed on their opposite ends with hooks which are adapted to have a loose connection with said fan-blade sections, whereby, upon the inward or outward movement of said wheel, said fan-sections will be thrown out of or into operation, a grooved collar slidably mounted on said shaft, rods connecting said collar with the hub of said wheel, a lever suitably mounted upon the bearing of said shaft, said lever being forked and adapted to engage said grooved collar, and an operating chain and rod connected to the upper end of said lever whereby the same may be rocked to manually shift said wheel to throw said fan-blade sections out of operation, substantially as described.

750,612. **ADJUSTING DEVICE FOR CASES OF AUTOMATIC PIANO-PLAYERS.** FRANK V. CROFUT, Derby, Conn., assignor to the Sterling Co., Derby, Conn., a Corporation. Filed Nov. 13, 1903. Serial No. 181,012. (No model.)

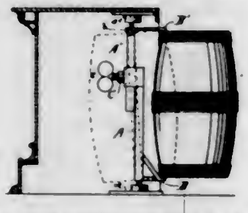
Claim.—1. An adjusting device for cases for automatic piano-players consisting of a yoke having sockets at each end, vertical screw-threaded spindles arranged in said sockets carrying casters at their lower ends, nuts on said spindles, and means for simultaneously turning both nuts, substantially as described.

2. An adjusting device for cases for automatic piano-players consisting of a yoke having sockets at each end, vertical screw-threaded spindles arranged in said sockets carrying casters at their lower ends, nuts on said spindles said nuts having external teeth and a transversely-arranged shaft having worms at opposite ends meshing with the teeth on said nuts, substantially as described.



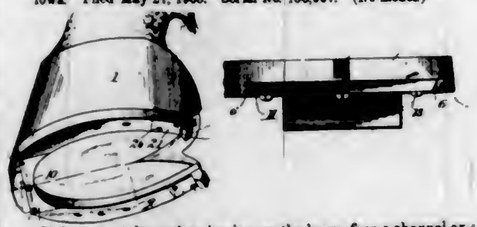
3. An adjusting device for cases for automatic piano-players consisting of a yoke having sockets at each end, vertical screw-threaded spindles arranged in said sockets carrying casters at their lower ends said spindles connected together at their upper ends, nuts on said spindles, and means for simultaneously turning the nuts on both spindles, said means being accessible at the front of the case, substantially as described.

750,613. **BARREL-SUPPORT.** EDWARD R. CROSS, Alanson, Mich. Filed Oct. 17, 1901. Serial No. 78,975. (No model.)



Claim.—In a barrel-support, a standard, an integral supporting-arm at the lower end; in combination with a longitudinally-adjustable extension to the standard, a vertically-adjustable arm upon the extension, and a clamp upon the standard engaging the extension, said standard and extension pivotally supported in a vertical position, substantially as and for the purpose set forth.

750,614. **HORSESHOE-CALK.** CHARLES L. DAILY, Decorah, Iowa. Filed May 27, 1903. Serial No. 158,967. (No model.)



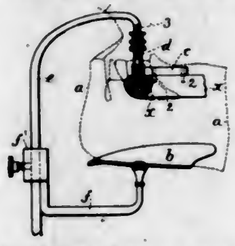
Claim.—1. A horseshoe having on the lower face a channel extending longitudinally, the shoe having the opposite side walls of the channel converging downward thereby forming a dovetailed recess, a calk-plate of substantially dovetailed section and arranged to snugly fit said channel in the shoe, a hook-shaped extension on the rear of the plate that projects upward and then forward, a correspondingly-shaped notch in the shoe in which said extension fits and thereby resists the forward and downward movement of the plate, a calk on said plate, screws securing the plate to the shoe, and a lug extending downward from the shoe at the bottom wall of said channel at the front portion of the shoe, the calk-plate having a notch arranged to receive said lug when the calk-plate is in place.

2. A horseshoe having on the lower face a channel extending longitudinally, the shoe having the opposite side walls of the channel converging downward thereby forming a dovetailed recess, a calk-plate of substantially dovetailed section and arranged to snugly fit said channel in the shoe, a hook-shaped extension on the rear of the plate that projects upward and then forward, a correspondingly-shaped notch in the shoe in which said extension fits and thereby resists the forward and downward movement of the plate, a calk on said plate, screws securing the plate to the shoe, and a dovetailed projection extending downward from the shoe from the bottom of said channel at the forward portion of the shoe, the calk-plate having a correspondingly-shaped groove arranged to engage said latter projection.

3. A horseshoe having on the lower face a channel extending longitudinally, the shoe having the opposite side walls of the channel converging downward thereby forming a dovetailed recess, a calk-plate of substantially dovetailed section and arranged to snugly fit said channel in the shoe, a hook-shaped extension on the rear of the plate that projects upward and then forward, a correspondingly-shaped notch in the shoe in which said extension fits and thereby resists the forward and downward movement of the plate, a calk on said plate, screws securing the plate to the shoe, and a lug extending downward from the shoe at the bottom wall of said channel on each side at the front portion of the shoe, the calk-plate having notches arranged to receive said lugs when the calk-plate is in place.

4. A horseshoe having at both ends thereof a calk-plate, said end being rabbeted on its lower side, a calk-plate arranged to lie in said rabbeted portion on the plate, an extension on the rear portion of said plate projecting upward and then forward, the shoe having a correspondingly-shaped notch arranged to fit said projection, said plate having a calk on its rear end, and having apertures in its other portion, and screws securing the plate to the shoe at said apertured portions.

750,615. **DENTAL APPLIANCE.** WILBER M. DAILEY, New York, N. Y. Filed Aug. 8, 1903. Serial No. 168,706. (No model.)



Claim.—1. As a dental appliance, a plate adapted to bear beneath the chin, a bar adapted to rest upon a roll of aseptic cotton within the mouth, an adjustable frame connected pivotally to each of said parts, the pivotal connections thereof being in the same vertical axis so as to permit the frame to swing without disturbing the parts.

2. As a dental appliance and in combination, a plate having a curved outer edge and incurved rear edge and concave in section so as to fit beneath and conform generally to the chin, a bar having depending prongs or their equivalent and adapted to rest upon a roll of aseptic cotton fitted in the mouth between the teeth and the tongue, a frame of adjustable parts pivotally connected to both said chin-plate and to said bar, the pivotal connections thereto being in the same vertical axis thereby permitting the frame to be swung into different positions without affecting the said plate or bar.

3. As a dental appliance and in combination, a bar having depending prongs adapted to rest upon a bent roll of aseptic cotton fitted in the mouth between the teeth and the tongue, a plate adapted to fit beneath the chin and an adjustable frame having pivotal connections with both said bar and plate, said pivotal connections being in the same vertical axis, substantially as set forth.

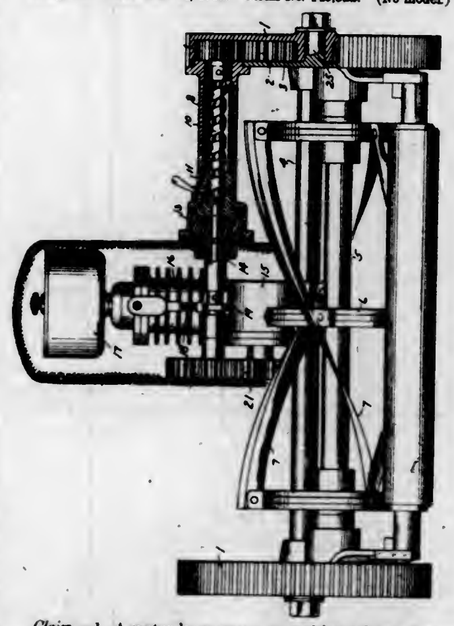
4. As a dental appliance and in combination, a plate having a curved outer edge and an incurved rear edge and concave so as to fit beneath the chin, a bar of substantially U form having depending prongs or their equivalent adapted to rest upon a bent roll of aseptic cotton in the mouth between the teeth and the tongue, an adjustable frame having pivotal connections with both said chin-plate and frame, said pivotal connections being in the same vertical axis permitting the frame to swing, and one or more plates secured to the said bar and rising therefrom within the mouth for keeping back the tongue.

5. As a dental appliance, a plate adapted to bear beneath the chin, a bar adapted to rest upon a roll of aseptic cotton or other material within the mouth, and an adjustable frame at one end connected to the plate and at the other end removably connected to the bar to receive other interchangeable bars or parts, substantially as specified.

6. As a dental appliance and in combination, a plate having a curved outer edge and an incurved rear edge and concave so as to fit beneath the chin, a bar of substantially U form having depending prongs or their equivalent adapted to rest upon a bent roll of aseptic cotton in the month between the teeth and the tongue, an adjustable frame having pivotal connections with both said chin-plate and frame, said pivotal connections being in the same vertical axis permitting the frame to swing.

7. As a dental appliance, and in combination, a bar having depending prongs adapted to rest upon a bent roll of aseptic cotton fitted in the mouth between the teeth and the tongue, a plate adapted to fit beneath the chin, and an adjustable frame at one end connected to the plate and at the other end removably connected to the bar to receive other interchangeable bars or parts of different sizes, substantially as specified.

750,616. **MOTOR LAWN-MOWER.** ISAAC H. DAVIS, Boston, Mass., assignor of one-half to Henry Herman Westinghouse, Pittsburg, Pa. Filed Mar. 24, 1903. Serial No. 149,322. (No model.)



Claim.—1. A motor lawn-mower comprising a frame, a revolving knife-reel and a power-motor for operating the same, the motor being located on the frame in position to receive a blast of air produced by the revolving knives.

2. In a lawn-mower, the combination with a frame, a driving-gear and revolving knives, of a power-motor carried by the frame in position to receive a cooling blast of air from the revolving knives.

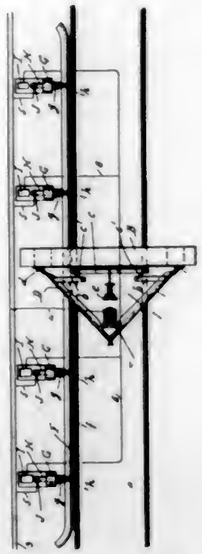
3. In a lawn-mower, the combination with a frame, a revolving knife-reel and a power-motor for operating the same located on the frame in position to receive a blast of air produced by the revolving knives, and a screen for preventing the grass from being thrown on the motor.

750,617. **AIR-DOOR.** JOHN T. DEVIESE, Crownhill, W. Va. Filed July 30, 1903. Serial No. 167,635. (No model.)

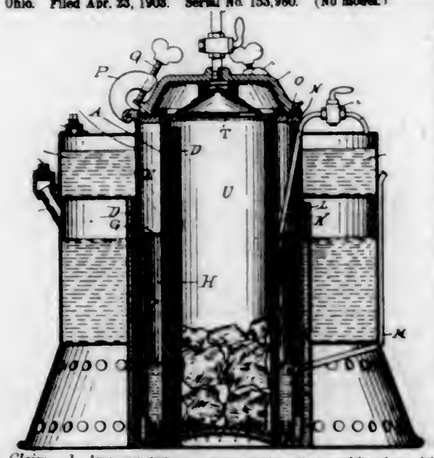
Claim.—1. In a mine air-door, the combination, with the hinged door-plates provided with arms, of a bar operatively connected with the said arms, an armature carried by the said bar, and an electro-magnet for attracting the armature and opening the door.

2. In a mine air-door, the combination, with a door-frame, a triangular supporting-plate secured to the upper part of the door-frame, and door-plates hinged to the said frame; of arms which project from the said door-plates, a bar operatively connected with the said arms, an armature carried by the said bar, and an electromagnet secured to the apex of the said supporting-plate and operating when energized to attract the said armature and open the door.

3. The combination, with a mine air-door, an electromagnet and intermediate actuating mechanism between the said electromagnet and the mine-door; of a tappet-bar which extends under the said door longitudinally of the track, a series of spring-pressed bars which normally press the said tappet-bar laterally in one direction, contact pieces and plates arranged in pairs and placed in contact when the said spring-pressed bars are retracted, and conductors connected with the said electromagnet and with the said contact pieces and plates.



750,618. **ACETYLENE-GAS GENERATOR.** LORENZ DIETRICH, Wapakoneta, Ohio, assignor of one-half to Franz Krein, Sr., St. Marys, Ohio. Filed Apr. 23, 1903. Serial No. 153,980. (No model.)



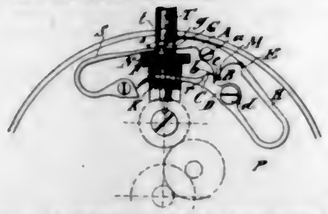
Claim.—1. In an acetylene-gas generator, the combination with the generating-chamber, and an annular chamber surrounding same, of a feed-water chamber, feed-water connection between said feed-water chamber and said generating-chamber above the normal water-level in the former, a pipe connecting the upper end of said feed-water chamber with the upper end of said annular chamber, a second water-chamber, and a pipe connecting the lower end of the latter with the lower end of said annular chamber, substantially as and for the purpose set forth.

2. In an acetylene-gas generator, the combination with the generating-chamber and a feed-water chamber, and a pipe connecting said feed-water chamber with said generating-chamber at a point within the latter higher than the normal water-level in said feed-water chamber, of an air-chamber, a pipe connecting same with said feed-water chamber above the water-level in the latter, a second water-chamber, and connection from the lower end of same to the lower end of said air-chamber, substantially as and for the purpose set forth.

3. In an acetylene-gas generator, the combination with a generating-chamber, a water-feed chamber connected therewith, an air-chamber, a pipe connecting said air-chamber with said water-feed chamber, and a valve interposed in said connection, of a pressure-controlling water-chamber, and connection between said water-chamber and said air-chamber to compress the air in the latter, whereby when said valve is opened said pressure will be communicated to said water-feed chamber to cause the latter to feed water to the carbid contained in the generating-chamber.

4. In an acetylene-gas generator, the combination with the generating-chamber and a feed-water chamber, of a second water-chamber, a fluid-pressure chamber interposed between said two water-chambers and connected at its upper end with said feed-water chamber above the water-level of the latter, a valve interposed in said connection, and connection between said fluid-pressure chamber and said second water-chamber below the water-level in the latter, substantially as and for the purpose described.

750,619. **WATCH WINDING AND SETTING MECHANISM.** ACHILLE DITISHEIM, La Chaux-de-Fonds, Switzerland. Filed June 26, 1903. Serial No. 163,260. (No model.)



Claim.—1. In combination with the crown-wheel N and sliding clutch F and stem, a lever A connected to the stem directly to be positively operated thereby, said lever being pivoted intermediate of its length and having on its free end feet e and c, a setting-bar D having one end engaging the clutch-sleeve and having also a projecting foot r to be engaged by the foot e on the lever A, said setting-bar being pivoted intermediate of its length and having a tail-spring R in contact with the foot e of the lever A, substantially as described.

2. In combination with the crown-wheel N and sliding clutch F and stem, a lever A connected to the stem directly to be positively operated thereby, said lever being pivoted intermediate of its length and having on its free end feet e and c, a setting-bar D having one end engaging the clutch-sleeve and having also a projecting foot r to be engaged by the foot e on the lever A, said setting-bar being pivoted intermediate of its length and having a tail-spring R in contact with the foot e of the lever A, a crown-stem for pressing the stem first mentioned and a spring S pressing upwardly under the end of the lever A, substantially as described.

750,620. **SAMPLE-SHEET.** JOHN DONNE, New York, N. Y. Filed Oct. 26, 1903. Serial No. 178,474. (No model.)



Claim.—1. A sample-sheet divided into color-display sections, each section bearing its own reference-key and the reference-keys of one or more other sections.

2. A sample-sheet divided into separable color-display sections, each section bearing its own reference-key and the reference-keys of one or more other sections.

3. A sample-sheet divided into color-display sections arranged in vertical and transverse columns, each section having a key denoting its position in the vertical column and a key denoting its position in a horizontal column.

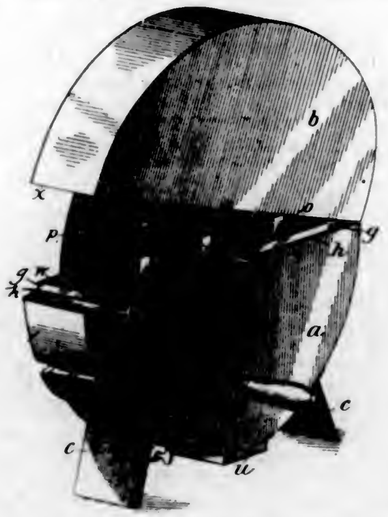
4. A sample-sheet divided into color-display sections arranged in vertical and transverse columns, each section having a key denoting its position in the vertical column, a key denoting its position in a horizontal column and also reference-keys of one or more other sections.

5. A sample-sheet divided into color-display sections, each section displaying on its face its reference-key and on its back the reference-keys of one or more other sections.

6. A sample-sheet divided into separable sections, each section displaying on its face a color and its reference-key and on its back the reference-keys of one or more other sections.

7. A sample-sheet divided into separable color-display sections by cross-lines of perforations, each section bearing its own reference-key and the reference-keys of one or more other sections.

750,621. **PHOTOGRAPHIC-PLATE-TREATING APPARATUS.** GEORGE H. DORR, New Rochelle, N. Y. Filed June 27, 1903. Serial No. 163,375. (No model.)



Claim.—1. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber, and a disk rotatably mounted in said tank having a plate-receiving pocket upon one face of the same arranged to hold a plate with its face substantially parallel with the face of said disk and to pass said plate through said pool-chamber as the disk is rotated, substantially as described.

2. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber, and a plurality of disks rotatably mounted in said tank each having a plate-receiving pocket upon one face of the same arranged to pass through said pool-chamber as the disk is rotated, the pocket of each disk operating independently of the pockets of the other disks in carrying the plates, substantially as described.

3. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber, and a disk rotatably mounted in said tank having a plurality of plate-receiving pockets upon one face of the same arranged to hold a plurality of plates in substantially the same plane and to pass said plates through said pool-chamber as the disk is rotated, substantially as described.

4. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber, and a disk rotatably mounted in said tank having plate-receiving pockets upon both faces of the same arranged to hold plates upon opposite sides of said disk with their faces substantially parallel to the faces of the latter and to pass said plates through said pool-chamber as the disk is rotated, substantially as described.

5. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a plurality of disks mounted in said tank, each of said disks having a plurality of plate-receiving pockets upon one of the faces of the same arranged to hold a plurality of plates in substantially the same vertical plane and to pass said plates through said pool-chamber as the disk is rotated, said planes of the plates of the several disks being substantially parallel to one another, substantially as described.

6. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a disk rotatably mounted in said tank, said disk having a plurality of equidistantly-spaced plate-receiving pockets on the face thereof arranged to be passed through said pool-chamber as the disk is rotated, each of said pockets including surfaces coacting with the end and side edges of the plates, whereby each pocket is constructed to support a plate unassisted, substantially as described.

7. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a single disk rotatably mounted in said tank, carrying a plurality of plates, said disk having a plate-receiving pocket associated with each quadrant thereof arranged to be passed through said pool-chamber as the disk is rotated, substantially as described.

8. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a disk rotatably mounted in said tank, said disk having a plate-receiving pocket associated with each quadrant thereof, said pockets being alternately disposed at right angles to one another, and arranged to be passed through said pool-chamber as the disk is rotated, substantially as described.

9. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a disk rotatably mounted in said tank, said disk having a plate-receiving pocket associated with each quadrant thereof, to hold a plate with its face substantially parallel to the face of said disk, said pockets having their mouths presented outwardly and their opposite ends closed, and arranged to be passed through said pool-chamber as the disk is rotated, substantially as described.

10. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a disk rotatably mounted in said tank, and a plurality of sets of retainers projecting from one of the faces of said disk, said retainers comprising members having alining surfaces and overhanging surfaces and other yielding members, substantially as described.

11. In a photographic-plate-treating apparatus and in combination, a tank comprising a lower portion constituting a pool-chamber, an upper cover portion displaceable at one peripheral edge from the contiguous edge of the lower portion, a disk revolubly mounted in the lower portion, and a plurality of plate-receiving pockets on the face of the disk having mouths opening outwardly designed to be successively presented toward the spaces between said edges of the bottom and cover when the latter is displaced and above the upper edge of the former, with the lower sides of said pocket parallel with the upper edge of the lower portion of the tank, substantially as described.

12. In a photographic-plate-treating apparatus and in combination, a tank, a shaft journaled therein, a disk having the quadrants thereof defined by diametrical lines intersecting said shaft, and a plate-receiving pocket located in each of said quadrants, arranged to hold a plate with its face parallel to the face of said disk, substantially as described.

13. In a photographic-plate-treating apparatus and in combination, a tank, a shaft journaled therein having one end extending through one of the sides of said tank and provided with a crank, said tank having a pool-chamber below a horizontal plane intersecting said shaft, a disk fixed to said shaft, a plate-holder on the face thereof to one side of a plane at right angles to said crank and intersecting said shaft, and a second holder upon the opposite side of said plane, said holders retaining the plates carried by the same with their faces parallel to the face of said disk, substantially as described.

14. In a photographic-plate-treating apparatus and in combination, a tank, a shaft journaled therein having one end extending through one of the sides of said tank and provided with a crank, said tank having a pool-chamber below a horizontal plane intersecting said shaft, a single disk fixed to said shaft, carrying a plurality of plates, a plurality of plate-holders on the face thereof to one side of a plane at right angles to said crank and intersecting said shaft, and a plurality of holders upon the opposite side of said plane, substantially as described.

15. In a photographic-plate-treating apparatus and in combination, a tank, a shaft journaled therein having one end extending through one of the sides of the tank and terminating in a crank, said tank having a pool-chamber below a horizontal plane intersecting said shaft, a disk fixed to said shaft having the quadrants thereof defined by diametrical lines, one of said lines registering with said crank, a plate-receiving pocket located in each quadrant, constructed to hold a plate with its face parallel to the face of the disk,

and a mark on the exterior of the tank with which said crank is designed to coact, substantially as described.

16. In a photographic-plate-treating apparatus and in combination, a cylindrical tank including a lower portion providing a pool-chamber, and a cover portion hinged at one peripheral edge to said lower portion, the latter portion having a rabbeted edge providing a shoulder to receive the edge of the cover, and a rim overlapping the edge of said cover upon the inner side of the tank, cup-shaped sockets secured to the opposite sides of the rim, a plate-carrying disk, a shaft having said disk secured to the same, the edge of said cover portion and the said rim of the bottom portion being recessed to accommodate said shaft, washers carried by the shaft finding bearings in said cups, one of said washers overlapping the edges of the recess in said rim, and a third washer overlapping the edge of the recess in said cover, substantially as described.

17. In a photographic-plate-treating apparatus and in combination, a cylindrical tank including a lower portion providing a pool-chamber, and a cover portion hinged at one peripheral edge to said lower portion, the latter portion having a rabbeted edge providing a shoulder to receive the edge of the cover, and a rim overlapping the edge of said cover upon the inner side of the tank, cup-shaped sockets secured to the opposite sides of the rim, a plate-carrying disk, a shaft having said disk secured to the same, the edge of said cover portion and the said rim of the bottom portion being recessed upon one side to accommodate said shaft and imperforate upon the opposite side, washers carried by the shaft finding bearings in said cups, one of said washers overlapping the edges of the recess in said rim, and a third washer overlapping the edge of the recess in said cover, substantially as described.

18. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber therein, a plate-carrying disk revolubly mounted therein, and filling and draining means for said tank, said draining means comprising a supplemental chamber communicating at one end with the pool-chamber in the tank and having a discharge at its opposite end, and baffle-surfaces extending across the intermediate portion of said chamber, substantially as described.

19. In a photographic-plate-treating apparatus and in combination, a light-tight tank having a pool-chamber in the lower portion thereof, and sight-openings through the upper portion of the side walls of the same, a disk rotatably mounted in said tank having an opening through the same designed to register with the sight-opening in the tank, and means associated with said disk for holding a plate thereon in register with said opening, substantially as described.

20. In an apparatus for developing or fixing photographic plates and in combination, a light-tight tank having a pool-chamber therein and a displaceable portion, a carrier mounted in the tank, means extending outside of the tank for rotating the carrier, and a plurality of plate-receiving means associated with the carrier arranged to be registered with the opening exposed by the shifting of said displaceable portion of the tank, whereby the plates may be inserted into or removed from the carrier, said means being so disposed as to hold the plates with their sensitized surfaces parallel to a plane at right angles to the axis of the carrier, whereby when the latter is rotated the plates will be moved edgewise through the pool of treating liquid, substantially as described.

750,622. COLLAR-BUTTON. JOHN ECKSTORM, Baltimore, Md. Filed Feb. 18, 1903. Serial No. 143,919. (No model.)



Claim.—A button comprising a base, a centrally-arranged shank extending therefrom, an L-shaped arm extending laterally from the outer end of the shank, and a knob concentrically arranged upon the free end of said arm and out of alinement with the shank.

750,623. CARTRIDGE. JOHN M. EDMUNDS, New York, N. Y. Filed Mar. 14, 1901. Serial No. 51,146. (No model.)



Claim.—1. A projectile comprising a solid bullet end and a flexible shell integral therewith and enlarging from said bullet end, said shell being reducible by the rifling when the projectile is fired.

2. A projectile comprising a solid bullet end carrying an elongated tapering shell, the enlargement of the taper being farthest from said bullet end, and the wall of said shell being of a material sufficiently pliable so that it is reduced in size when entering the rifling of the gun, and a primer-cap frangibly fitted into the mouth of the shell.

3. A projectile comprising a solid bullet end, a shell at the rear thereof and enlarging therefrom, said shell being flexible so that when the projectile is fired the former will become reduced in size and fit the rifling.

4. A projectile comprising a solid bullet end carrying at its rear a flexible shell which provides a powder-chamber, said shell being reduced in size in the rifling when the projectile is fired, and a primer-cap fitted into the mouth of said shell.

5. A projectile comprising a bullet end, a flexible shell integral therewith and enlarging therefrom and being reducible into the rifling when the projectile is fired, and a primer-cap frictionally fitted into the mouth of the shell.

6. A projectile comprising a solid bullet end, a shell integral with and enlarging therefrom and being adapted when the projectile is fire to become reduced whereby to fit the rifling closely and form a gas-check.

7. A projectile comprising a solid bullet end, a flexible shell integral therewith and enlarging therefrom, said shell when the projectile is fired becomes reduced whereby to closely fit the rifling and form a gas-check, and a primer-cap frictionally fitted into the mouth of the shell.

750,624. PRIMER. JOHN M. EDMUNDS, New York, N. Y. Filed Feb. 12, 1903. Serial No. 143,050. (No model.)



Claim.—1. A primer-plug for projectiles comprising a member provided with an annular recess a pocket formed in the base thereof and adapted to contain a fulminate and a bridge or anvil fitted into said pocket for holding said fulminate in place.

2. A primer-plug for projectiles comprising a member provided with an annular recess a pocket formed in the base thereof and adapted to contain a fulminate and a perforated bridge or anvil fitted into said pocket for holding said fulminate in place.

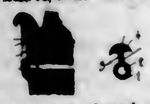
3. A primer-cap for projectiles comprising a head provided with a pocket to receive a fulminate said pocket being sufficiently deep to materially reduce the thickness of the head, a fulminate in said pocket and a perforated bridge pressed into the pocket and upon the fulminate.

4. A primer-cap for projectiles comprising a member having an annular recess, a portion of the wall of which is thin whereby to readily impart a blow to a fulminate and an anvil secured in said recess for holding the fulminate in place.

5. A primer-cap for projectiles comprising a member provided with a recess a seat within said recess adapted to receive a fulminate, a thin partition at the seat portion to receive and impart the blow to the fulminate from the hammer and a perforated anvil secured within the recess for receiving the blow.

6. A primer-cap for projectiles comprising a member provided with a recess, a seat within said recess adapted to receive a fulminate, a thin partition at the seat portion to receive and impart the blow to the fulminate from the hammer and an anvil secured within the recess for receiving the blow.

750,625. EAR-DRUM PROTECTOR. JAMES A. R. ELLIOTT, Kansas City, Mo. Filed Aug. 16, 1903. Serial No. 169,948. (No model.)



Claim.—1. An ear-protector adapted to fill the ear-aperture, having a recess opening into the ear-aperture and a stem provided with a passage-way communicating with such recess.

2. In an ear-protector the combination between a body portion having a recess therein and a stem provided with a passage-way therethrough, such stem being adjustably attached to the body portion by means of a screw-thread substantially as and for the purposes set forth.

3. An ear-drum protector consisting of a body portion, adapted to fit into the ear-aperture and provided with a recess opening in the ear-aperture and a stem provided with a passage-way communicating with said recess, such stem having a head adapted to fit into the fold of the outer ear and hold the protector in position in the ear.

4. An ear-drum protector consisting of a body portion adapted to fill the ear-aperture, having a small opening therethrough adapted to communicate with the ear-passage and with the outer air and a hollow stem adapted to fit into the fold of the outer ear and hold the protector in position in the ear.

5. An ear-drum protector consisting of a body portion adapted to fill the ear-aperture and a hollow stem, the passage-way through said stem being adapted to communicate with the ear-passage and with the outer air substantially as and for the purposes set forth.

750,626. NECK-YOKE. AUGUST H. ENGELJOHN and SAMUEL WEALE, Farina, Ill. Filed Nov. 12, 1903. Serial No. 180,947. (No model.)



Claim.—1. A breast-yoke for vehicle-poles comprising a bar member, a bolster member and a pole-carrying member having a pivot entering said bolster member, said bolster member containing a ring of ball-bearings for said pivot.

2. A breast-yoke for vehicle-poles comprising a bar member, a bolster member having a circular extension provided with a corresponding recess, a chamber and a passage connecting the latter two, said chamber containing a ring of ball-bearings, and a pole-carrying member having a pivot extension passing through said passage and having a shoulder entering said recess and a washer resting upon said ball-bearings and suitably held upon said pivot extension.

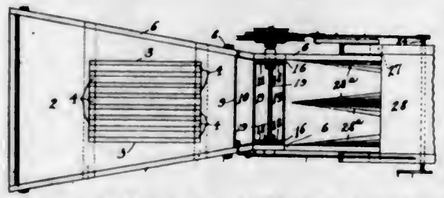
750,627. PROCESS OF MAKING DIALKYL BARBITURIC ACID. MAX ENGELMANN, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Oct. 23, 1903. Serial No. 178,290. (No specimens.)

Claim.—1. The process for the production of dialkyl barbituric acids having the above-given general formula, which process consists in first condensing guanidin and dialkyl-cyano-acetic esters by means of alcoholates of alkalies and secondly splitting off the two imino groups in 2-4 position from the resulting 5-dialkyl-2-4-diimino-6-oxypyrimidin by treatment with acids, substantially as hereinbefore described.

2. The process for the production of diethyl-barbituric acid, which process consists in first condensing guanidin and diethyl-cyano-acetic ester by means of alcoholates of alkalies and secondly splitting off the two imino groups in 2-4 position from the resulting 5-diethyl-2-4-diimino-6-oxypyrimidin by treatment with acids, substantially as hereinbefore described.

3. The process for the production of diethyl-barbituric acid, which process consists in first condensing guanidin and the ethylic ester of diethyl-cyano-acetic acid by means of sodium ethylate and secondly splitting off the two imino groups in 2-4 position from the resulting 5-diethyl-2-4-diimino-6-oxypyrimidin by treatment with hot sulfuric acid, substantially as hereinbefore described.

750,628. FRUIT-FEEDER. IRVING H. FAY, Indio, Cal., assignor to Fred Stobler, Riverside, Cal. Filed Aug. 30, 1901. Serial No. 73,882. (No model.)

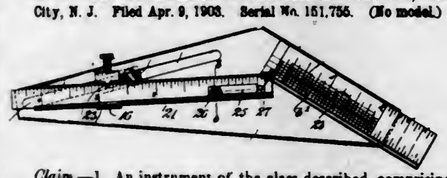


Claim.—1. In a fruit cleaning and feeding device, a hopper having a portion of the bottom intermediate of the ends thereof barred or slatted longitudinally to permit the extraneous matter, to pass through the hopper, the bottom of the hopper having a portion thereof cut away at one end, a gate pivoted to the sides of the hopper near one end of the same, the said gate forming a covering for the cut-away portion of the bottom of the hopper near said end thereof, which permits the passage of the fruit through the hopper in combination with a rotary feeding device located at the end of the hopper beyond said gate, and a trough beyond said feeding device.

2. A fruit-cleaning device comprising a hopper having a cut-out portion in the bottom near the center thereof covered with bars or rods to permit the extraneous matter to pass through the hopper, a portion of the bottom of the hopper cut away at one end thereof, a gate pivoted to the sides of the hopper within the said cut-away portion, means for elevating and lowering the gate, the said gate when in the same plane with the bottom of the hopper permitting the fruit to pass through the hopper, and when elevated above the plane of the bottom of the hopper, prevents the fruit from passing therethrough and a rotary feeding device beyond and adjacent said gate.

3. In a fruit-feeding device, a hopper cut away at the bottom at one end and provided with bearings inserted through the sides thereof, a shaft extending across the end of the hopper, adapted to revolve in said bearings, castings keyed upon said shaft within the hopper, said castings having pairs of radial flanges made a part thereof, between which flanges the feeding wings or blades are inserted and held therebetween, the feeding wings or blades, cone-pulleys fixed to said shaft, and means for revolving the pulley and shaft at different rates of speed, and a gate pivoted in said cut-away portion of the hopper between the feeding device and the feeding end of said hopper.

750,629. INSTRUMENT FOR DETERMINING THE POSITION OF CUTTERS ON MOLDING CUTTER-HEADS. JOHN FAY, Jersey City, N. J. Filed Apr. 9, 1903. Serial No. 151,755. (No model.)



Claim.—1. An instrument of the class described, comprising a body having two guideways inclined oppositely to each other, a graduated rule confined slidably by one guideway for movement on the body, a pivoted clip slidably confined in the other guideway, a graduated bar mounted on said clip for pivotal movement and slidable with the clip on the body, said bar being shiftable into variable and operative relations to said rule, and means for individually holding said rule and the bar in place.

2. An instrument of the class described, comprising a body provided with two guideways inclined reversely to each other, a graduated rule confined by one guideway for slidable movement on the body, a pivotal clip fitted slidably to the other guideway of the body for adjustment toward and from the rule, and a graduated bar fitted slidably to said clip for adjustment therewith and for independent movement thereon, said graduated bar being movable to various positions in cooperative relation to the rule.

3. An instrument of the class described, having a body, a rule fastened adjustably thereto, a clip pivotally supported on the body, a guide-bar held in said clip and shiftable into engagement with said rule, and a graduated bar supported by the guide-bar and adjustable to variable positions relative to the rule.

4. An instrument of the class described, having a body, an adjustable rule thereon, a clip pivotally supported on the body, a channeled guide-bar adjustable in said clip for movement therewith and shiftable into engagement with the rule, and a graduated bar held adjustably in said guide-bar and shiftable to variable positions relative to the rule.

5. An instrument of the class described, having a body, an adjustable rule thereon provided with a notch, a guide-bar shiftable on said body into and from engagement with said notch of the rule, and a graduated bar held adjustably in the guide-bar and movable to different positions relative to the rule.

6. An instrument of the class described, having a body, a pivoted clip, a rule adjustable on said body, a channeled guide-bar mounted for endwise movement in said clip, and a graduated bar fitted for endwise movement in the channeled bar and shiftable to different positions along the edge of the rule or over the face thereof.

7. An instrument of the class described, having a body, a graduated rule shiftable thereon, a clamp for holding said rule to variable predetermined positions on said body, a guide-bar adjustable into engagement with the rule and movable relatively thereto, and a graduated bar carried by said guide-bar.

8. An instrument of the class described, comprising a slotted body, a rule adjustable thereon, a clip having pivotal and adjustable connection with said slotted body, a channeled bar in said clip, and a graduated bar carried by the channeled bar and shiftable relatively to the rule.

9. An instrument of the class described, having a body, an adjustable rule thereon, a pivoted and adjustable clip provided with an index or pointer, a channeled bar clamped in said clip, and a graduated bar clamped adjustably in the channeled bar and shiftable relatively to the rule.

750,630. **WIRE-WORKING TOOL.** BARTON B. FELTUS, Mingary, South Australia, Australia. Filed Sept. 12, 1902. Serial No. 123,196. (No model.)



Claim.—1. A wire-working tool comprising jaws, a tubular wire-clamping device mounted to rotate in one of the jaws, and a tubular bolt operating in the other jaw, the opening of said bolt being in alinement with the opening of the clamping device, substantially as specified.

2. A wire-working tool comprising two jaws, a sleeve mounted to rotate in one of the jaws, a clamping device at the outer end of said sleeve, and a tubular bolt operating in the other jaw and having a head, the opening of said bolt being in alinement with the opening of the sleeve, substantially as specified.

3. A wire-working tool comprising jaws, handles on said jaws, one of said jaws having a transverse opening, a curved bolt pivoted to one of the jaws and passing through said opening, and a clamping-nut on said bolt, substantially as specified.

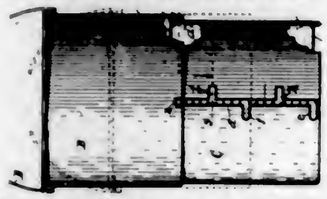
4. A wire-working tool comprising clamping-jaws, wire-stretching devices carried by the jaws, cutters carried by the jaws, the said jaws being provided with transverse openings normally out of alinement for receiving the ends of wires to be twisted together, and means for clamping the jaws together, substantially as specified.

750,631. **UMBRELLA.** ALFRED FIELDHOUSE, Paterson, N. J. Filed Oct. 24, 1903. Serial No. 178,405. (No model.)



Claim.—In an umbrella or parasol, the combination of the stick or staff, the ribs, means for pivotally connecting the ribs to the staff, the stretchers, means for pivotally connecting the stretchers to the ribs, the runner comprising an annulus having sockets opening downwardly, said stretchers having the ends thereof adjacent the annulus formed with balls disposed in said sockets, a disk taking against the under side of said annulus, said runner having an abutment disposed beneath the annulus, and a split clip receiving the runner and interposed between said disk and abutment, substantially as described.

750,632. **TELESCOPIC MEASURING-PAIL.** CHARLES FISHER, Phelps, N. Y. Filed Oct. 29, 1903. Serial No. 178,995. (No model.)



Claim.—1. A telescopic measuring-pail comprising two cylindrical vessels or hollow sections adapted to slide longitudinally one upon the other, the upper section being provided with a bail and with an inwardly-turned bead at its lower end, and the lower section provided with an outwardly-turned bead at its upper end to meet said bead of the upper section, and means formed in and integral with and extending outwardly beyond the surface of said heads and receiving means on the other section for holding said sections in longitudinal adjustments.

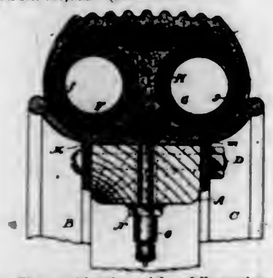
2. A telescopic measuring-pail comprising two cylindrical vessels or hollow sections adapted to slide longitudinally one upon the other, the upper section being provided with a bail, and both sections being provided with beads projecting from their surfaces, the lower section having integral longitudinal, branched grooves with their walls extending beyond the surface of the wall of the section, and the upper section having studs to occupy said grooves.

3. A telescopic measuring and carrying pail comprising two cylindrical vessels or hollow sections adapted to slide longitudinally one upon the other, the upper section being provided with a bail, and the lower section being formed with circular projecting rests for holding diaphragms or floors, and with channels or depressions in its exterior surface, and the upper section having rigid studs to occupy said channels.

4. A telescopic measuring-pail comprising two cylindrical vessels or hollow sections of different diameters adapted to slide longitudinally upon each other, and formed with coacting beads to limit their relative longitudinal motions upon each other, each section having a removable bottom, the depth of the sections being unlike to give the sections equal capacities.

5. A telescopic measuring-pail comprising two hollow, cylindrical sections, open at both ends, held to slide longitudinally one upon the other, the upper section having a bail at its upper end and an inwardly-turned bead at its lower end, and with rigid studs projecting inwardly from its inner surface, and the lower section having an outwardly-turned bead at its upper end and an inwardly-turned bead at its lower end to support a removable bottom, and grooves in its sides to receive said studs of the upper section.

750,633. **MULTIPLE-TUBE PNEUMATIC TIRE.** HENRY G. FISKE, New York, N. Y., assignor, by mesne assignments, to Morton Trust Company, trustee, a Corporation of New York. Filed June 17, 1899. Serial No. 720,914. (No model.)



Claim.—1. The combination with a felly having a substantially flat outer tread, of an elastic tire having its width greater than its thickness and having its seat portion substantially flat from side to side, whereby it can be slid upon the felly from either side, said seat portion of the elastic tire being of greater width than the width of the felly, a flange at each side of the felly standing against the flat side portion of the felly and having an abrupt offset starting on a level with and laterally from the flat tread of the felly, said flanges curving upward and inclosing the lateral edges of the elastic tire, and bolts passing through said flanges and felly to secure the whole in position; substantially as described.

2. In combination with a felly comprising a main felly portion and a superimposed metal band, said main felly portion and band each having a flat face or tread of uniform diameter, an elastic tire having its width greater than its thickness and being of greater width than the felly resting on the flat face of the felly, side flanges each having a straight side portion engaging the side of the felly and offset at right angles flush with the face of the felly, said flanges extending outward and turning upward, and having a bead portion formed at their extreme edges, the overhanging edges of the superimposed elastic tire resting within the lateral flange extension and the lateral walls of said elastic tire being within the lateral limits of the outwardly-extending portion of said flanges, whereby said lateral flanges protect the elastic tire from abrasion; substantially as described.

3. In combination with a compound felly, a superimposed elastic tire having its width greater than its thickness and having a normal tread portion of greater width than the felly, said felly-tread and base portion being substantially horizontal, whereby the tire may be slipped upon the felly from either side, detachable lateral flanges engaging respectively opposite sides of the felly and each offset flush with the tread of the felly starting at right angles with the main portion of the flanges and curved upward supporting the overhanging portion of the elastic tire, and bolts passing through the felly and the side flanges securely holding the whole in position; substantially as described.

4. In combination with a felly and an encircling metal band presenting a flat tread from side to side thereof, lateral flanges engaging with the sides of said felly and offset at the level of the flat tread, whereby an extended flat seat portion is presented having a substantially level portion of a width greater than the felly, the lateral flanges being extended outward and upward, a one-piece elastic tire having its width greater than its thickness and being of greater width than the felly and having a flat level seat whereby it may be slipped upon the felly from either side, the base portion of said tire having its lateral edges overhanging the main felly portion, said lateral edges supported by and inclosed in the upper portion of said side flanges, whereby said side flanges project beyond and thereby not only support but also protect the lateral portions of said tire against abrasion from outside sources; substantially as described.

5. A tire, comprising a plurality of rubber air-tubes, having inclosing layers of fabric and elastic material, and spaced apart at their adjacent sides and wholly embedded in india-rubber, which is deposited in the spaces between, surrounds the tires, and secures them firmly together; substantially as described.

6. A tire, comprising a plurality of rubber air-tubes, having inclosing layers of fabric and elastic material, and spaced apart at their adjacent sides and wholly embedded in india-rubber, which is deposited in the spaces between, surrounds the tires, and secures them firmly together, the rubber being thickened at the outer periphery of the tire to form the tread; substantially as described.

7. A tire, comprising a plurality of parallel, reinforced air-tubes, spaced apart at their adjacent sides, and wholly embedded in india-rubber which fills the spaces, surrounds the tires, and secures them firmly together, and a layer of fabric embedded in the rubber around both of said tubes to assist in holding the parts in position; substantially as described.

8. A tire, comprising a plurality of parallel, reinforced air-tubes, spaced apart at their adjacent sides, and wholly embedded in and surrounded by india-rubber, layers of fabric of varying width embedded in the rubber in the upper and lower widening spaces between said tubes, and a layer of fabric embedded in the rubber around both tubes and the said layers of fabric to hold the parts in position; substantially as described.

9. A tire, comprising a plurality of parallel, reinforced air-tubes, spaced apart at their adjacent edges and wholly embedded in india-rubber, an annular air-passage being formed in the rubber between the adjacent sides of the tubes to allow them to expand or flatten inwardly, a strengthening-band embedded in the rubber around said tubes; substantially as described.

10. A tire, comprising a plurality of parallel, reinforced air-tubes, wholly embedded in india-rubber which extends outwardly beyond the tubes to form the tread, layers of fabric embedded in the rubber within the gradually widening spaces between the tubes, a strengthening band or layer of fabric embedded in the rubber around the said tubes and serving to hold all the parts together, and fastening devices embedded in the inner bridging bands and rubber and exposed through the tire; substantially as described.

11. A tire, comprising a plurality of rubber air-tubes, having inclosing layers of fabric and elastic material, and embedded side by side and wholly inclosed by india-rubber thickened to form the tread, layers of fabric embedded in the rubber within the gradually widening spaces between the tubes, a strengthening band or strip embedded in the rubber and inclosing said tubes and layers of fabric to bind the parts together, and fastening devices embedded in the inner layers of fabric and rubber and exposed through the tire; substantially as described.

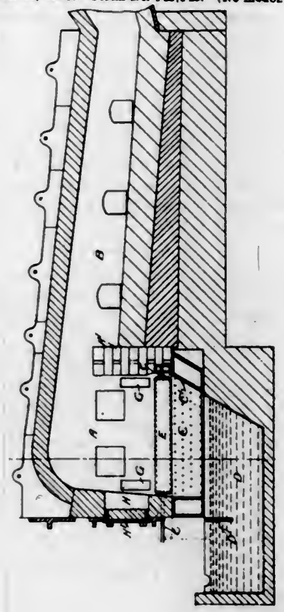
750,634. **HAT-HOLDER.** MARTIN N. GAMLE, Flint, Mich. Filed July 24, 1902. Serial No. 116,801. (No model.)



Claim.—1. In a device of the character described, a casing, a curved finger having a cam edge at its rear end, a pin for pivoting the rear end of the finger to the casing, means for securing the casing to a suitable base, combined spring and buffer comprising a flat piece of metal secured at one end to the base and having its other end extending into the casing and bent up to bear against the cam edge of the finger as and for the purpose described.

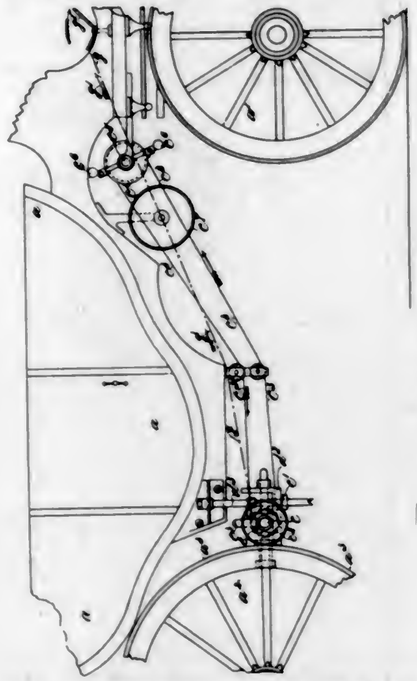
2. In a hat-holder a casing, a hook having an end pivoted in the casing, means for securing the casing to the back of a pew, a combined buffer and spring secured to the pew below the casing, in such position as to be engaged by the end of the hook, one end of the spring extending through an opening in the end of the casing and bent up to press up against the inner end of the hook substantially as described.

750,635. **FURNACE.** GEORGE GARRETT, Coatbridge, Scotland. Filed Feb. 26, 1903. Serial No. 145,143. (No model.)



Claim.—In a heating-furnace the combination with a fuel-inclosing chamber of a hollow air-casing located under and serving as a support for the side walls thereof, the said casing being formed with perforations on its inner face and being furnished with a pipe connection to an air-blower and water-boxes located over the air-box in the side walls of the furnace.

750,636. **ALARM FOR ROAD-VEHICLES.** NAROTTAM M. GOCULDAS and KAKHOOROO S. IRANI, Bombay, India. Filed June 18, 1903. Serial No. 162,017. (No model.)



Claim.—In combination with a transporting-wheel of a vehicle, a friction-wheel bearing thereon, a shaft carrying said friction-wheel at one end and having so much play as to permit said friction-wheel to be moved into and out of contact with said transporting-wheel at will, a slide-block *e* in which one end of said shaft is mounted and which is provided with guide-pins $e' e^2$, a bracket d^4 having guide-bearings for said pins, a spring d^5 arranged in one of the said guide-bearings and normally holding the friction-wheel out of contact, a lever bearing on a part of the said slide-block and arranged to be operated by the driver to force the said friction-wheel into contact, an alarm, and connections between it and the shaft of the friction-wheel substantially as set forth.

750,637. **FLASK FOR VOLATILE OR OTHER LIQUIDS.** HENRI GOSTS, Frankfort-on-the-Main, Germany. Filed Dec. 26, 1902. Serial No. 136,644. (No model.)

Claim.—1. A flask comprising a body portion, a capillary discharge-tube therefor, a hollow connection joining said flask and tube, and a second capillary tube communicating with and arranged beneath the first-mentioned tube, and extending into the flask.

2. A flask for storing volatile liquid, comprising a body portion, a capillary discharge-tube therefor, a metallic sleeve threaded upon the neck of the flask, said sleeve having a perforated partition therein through which the discharge-tube passes.

3. A flask for storing volatile liquid, comprising a body portion, a collar cemented to the neck thereof, a capillary tube for said flask, a sleeve designed to be threaded upon the collar, said sleeve having a perforated partition through which the capillary tube passes, a rubber gasket or washer interposed between the partition of the sleeve and the neck of the flask, and a cap fitting on said sleeve.

4. The combination of a flask, a metallic capillary tube extending down into the neck thereof, and a glass capillary tube mounted above and communicating with the metallic tube.

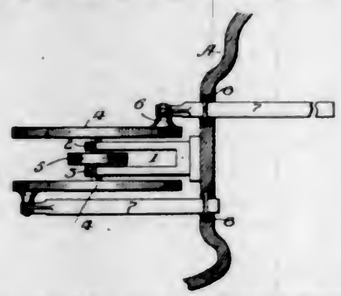


5. A flask comprising a body portion, having a neck formed thereon, a sleeve secured upon said neck, a perforated partition formed in said sleeve, dividing the latter into two parts, a washer interposed between the partition and the neck of the flask, and a capillary tube adapted to pass through the partition of the sleeve and into the neck of the bottle, one end of said tube having a flange formed thereon, said flange resting upon the partition of the sleeve.

6. A flask comprising a body portion, a sleeve secured to the neck thereof, a tube supported from said sleeve and extending into the neck of the bottle, a capillary discharge-tube arranged in the sleeve above the first-mentioned tube, a body of absorbent material held within the discharge-tube, and a cap fitting on said sleeve.

7. A flask comprising a body portion, a sleeve secured to the neck of said flask, capillary tubes arranged within said sleeves, one of said tubes extending into the neck of the flask, a cap for said sleeve, and washers surrounding said tubes and so arranged that an air-tight receptacle is obtained.

750,638. **PROPELLING MECHANISM.** DAVID L. GRAHAM, Wilkinsburg, Pa. Filed July 15, 1903. Serial No. 165,551. (No model.)



Claim.—A propelling apparatus of the type set forth comprising a standard having outwardly-extending parallel arms, secured to the wall of a vessel, a shaft mounted in said arms, a wheel carried thereby between the arms and adapted to rotate said shaft, fly-wheels mounted without the arms upon the ends of said shaft, wrist-pins carried by each of said wheels, rotatable means mounted in the walls of the vessel at each side of the standard, and propeller or sculling blades extending through said rotatable means and pivotally connected with the said wrist-pins, substantially as described.

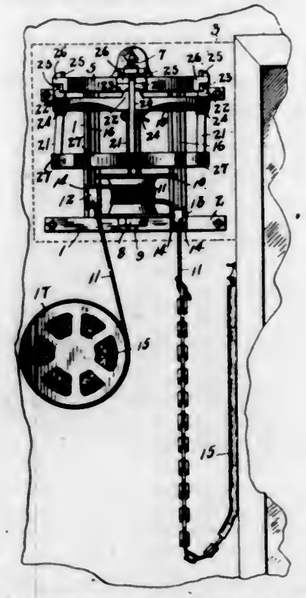
750,639. **METHOD OF MANUFACTURING ATTRITION-DISKS AND THE PRODUCT THEREOF.** JOHN C. GRAFT, East Orange, N. J. Filed July 11, 1903. Serial No. 165,069. (Model.)



Claim.—1. The herein-described process for manufacturing dental attrition devices consisting in coating a sheet of plastic material such as celluloid with a cement and pulverulent attrition material, and then subjecting the combined mass to heat and pressure.

2. As a new article of manufacture, a dental attrition device composed of a body of plastic material, such as celluloid, a coating of cement, and a pulverulent attrition material having its particles partially embedded in said body and held thereto at and near their bases by the cement within the cavities in the body, substantially as described.

750,640. **FIRE-ESCAPE.** CHARLES J. HAGSTROM, Warren, Pa. Filed June 29, 1903. Serial No. 163,579. (No model.)



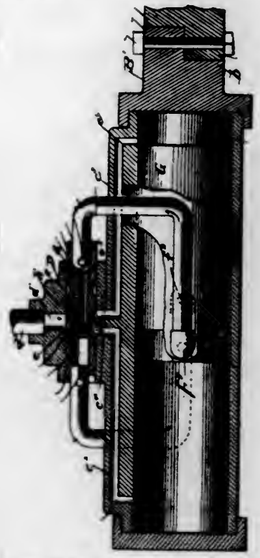
Claim.—The combination with a frame provided with bearing-brackets, of a shaft journaled in said bearing-brackets, a drum upon the lower end of said shaft, guide-pulleys mounted upon said frame, a rope wound around said drum and having its ends pendent from said pulleys, springs for holding said rope upon the pulleys and keeping the same taut upon the drum, a plate or spider fixed to the upper end of said shaft to turn therewith, a relatively fixed friction-disk, levers pivoted intermediate their ends to said plate, brake-shoes carried by the upper ends of said levers for frictional contact with said disk, and weights upon the lower ends of said levers, substantially as described.

750,641. **VIBRATOR FOR MOLDING APPARATUS.** FREDERICK W. HALL, Camden, N. J., assignor of one-half to J. W. PAXSON Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed June 30, 1903. Serial No. 163,736. (No model.)

Claim.—1. In a vibrator for molding-machines, the combination of a cylinder, a piston movable therein, a valve-chamber, a valve movable in said chamber, and having a recess or exhaust-controlling seat at each end, exhaust-pipes connected to the cylinder and having side exhaust-ports, the ends of said pipes projecting into the exhaust-controlling seats in the ends of the valve, said seats opening and closing the side exhaust-ports in the pipes as the valve is moved longitudinally.

2. In a vibrator for molding-machines, the combination of a cylinder having suitable inlet and exhaust ports and passages, a piston movable in the cylinder, an open-ended valve-chamber connected to said cylinder, a slide-valve movable in said chamber and having an exhaust-controlling seat or recess at each end, exhaust-pipes connected to the cylinder and having side exhaust-ports, the ends of said pipes projecting into the exhaust-controlling seats in the ends of the valve, said seats opening and closing the side exhaust-ports in the pipes as the valve is moved longitudinally.

3. In a vibrator for molding-machines, the combination of a cylinder having suitable inlet and exhaust ports and passages, a hammering-piston movable in the cylinder, an open-ended valve-chamber connected to said cylinder, a slide-valve movable in said chamber, and having an exhaust-controlling seat or recess at each end movable past the open end of the valve-chamber, and exhaust pipes or conduits connected to the cylinder and having side exhaust-ports, the ends of said pipes or conduits projecting into the exhaust-controlling seats or recesses in the ends of the valve, said seats opening and closing the side exhaust-ports in the pipes or conduits as the valve moves longitudinally, and means for holding the valve with the ports thereof in position for starting the vibrator while the vibrator is not in use.



4. In a vibrator for molding-machines, the combination of a cylinder, a piston, and suitable inlet and exhaust ports and passages, a valve-chamber, a valve movable therein, exhaust pipes or conduits having a sliding connection with the ends of the valve for controlling the movement thereof under fluid-pressure, and a spring for holding the valve in position for starting when the vibrator is not in use.

5. In a vibrator for molding-machines, the combination of a cylinder, a piston, and suitable inlet and exhaust ports and passages, a valve-chamber, a valve movable therein, exhaust pipes or conduits having a sliding connection with the ends of the valve for controlling the movement thereof under fluid-pressure, and a spring disposed between the end of one of said pipes or conduits and the valve for holding the latter at one limit of its movement when the vibrator is not in use.

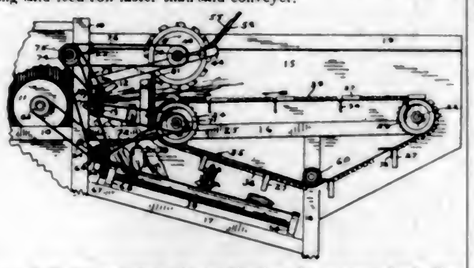
6. In a vibrator for molding-machines, the combination of a cylinder, a piston, and suitable inlet and exhaust ports and passages, a valve-chamber, a valve longitudinally movable therein and having an exhaust-controlling seat or recess at each end, exhaust-pipes connected to the exhaust-ports of the cylinder, the ends of said pipes projecting into the exhaust-controlling seats or recesses, a spring seated in the end of one of the exhaust-pipes and bearing upon the valve to maintain it at one end of its movement when the vibrator is not in use.

7. In a vibrator for molding-machines, the combination of a cylinder, piston, and suitable ports and passages, a valve-chamber, a valve longitudinally movable therein and having at each end an exhaust-controlling seat or recess, and a spring-recess at one end, exhaust pipes or conduits connected to the exhaust-ports of the cylinder, the ends of said pipes projecting into the exhaust-controlling seats or recesses, a spring seated in the end of one of said pipes and bearing in the spring-recess of the valve to maintain the valve at one end of its movement when the vibrator is not in use.

750,642. **FEEDING DEVICE FOR CORN-HUSKING MACHINES.** JOSEPH R. HALL, Indianapolis, Ind. Filed Feb. 9, 1903. Serial No. 142,645. (No model.)

Claim.—1. In a corn-husker, the combination of a conveyer for feeding the material to the machine, a feed-roll mounted above the inner end of the conveyer and depressed by gravity, teeth mounted on said feed-roll in diagonal series diverging from the center and each tooth having an inclined face on the side away from the center

of the feed-roll, means for driving said conveyer, and means for driving said feed-roll faster than said conveyer.



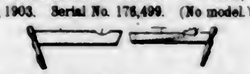
2. In a corn-husker, the combination of a conveyer for feeding the material to the machine, a feed-roll mounted above the inner end of the conveyer and depressed by gravity, springs resisting the downward movement of said feed-roll, and means for driving the conveyer and feed-roll.

3. In a corn-husker, the combination with husking-rolls, of a conveyer for feeding the material to the machine, means for mounting said conveyer so that its under side will be substantially parallel with said husking-rolls, transverse slats pivoted to the conveyer, and means that cause said slats to extend downward from the under side of the conveyer into close proximity to the husking-rolls as the under side of the conveyer moves outward.

4. In a corn-husker, the combination with husking-rolls, of a conveyer for feeding the material to the machine formed of a sprocket-chain on each side thereof, transverse slats secured to the sprocket-chains in groups with an intervening space between each group of slats, a widened slat or board adapted to occupy such intervening space, the ends of said widened slat or board pivotally connected with the sprocket-chains, a heel-piece extending from such pivotal connection at substantially a right angle to the widened slat or board, and means which said heel-piece engages as the conveyer operates for forcing said widened slat or board into a vertical position as it passes along the under side of the conveyer.

5. In a corn-husker, the combination of husking-rolls, a conveyer for feeding the material to the machine formed of a sprocket-chain on each side thereof, transverse slats secured to the sprocket-chains in groups with an intervening space between each group of slats, a widened slat or board adapted to occupy such intervening space, the ends of said widened slat or board being pivotally connected with the sprocket-chains, a heel-piece extending from such pivotal connection at substantially a right angle to the widened slat or board, and a guideway for the under side of said conveyer formed of two parallel plates, said chains adapted to drag and move upon the lower plate and said heel-pieces adapted to engage the upper plate so that it will hold the widened slat or board down in a vertical position.

750,643. CUFF-BUTTON. ERNEST P. HAPPICH, Philadelphia, Pa. Filed Oct. 10, 1903. Serial No. 176,499. (No model.)

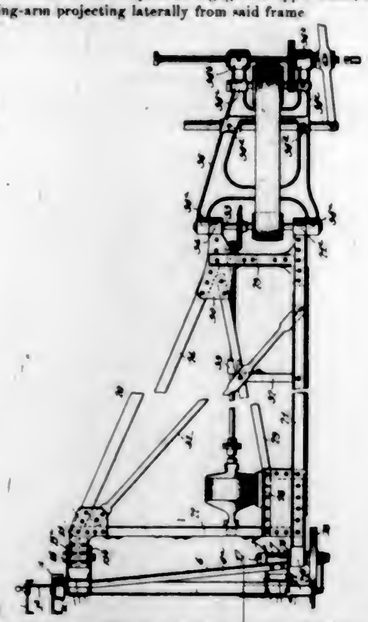


Claim.—A button composed of opposite heads, a shank joining said heads and formed of sections fitted to each other telescopically and having registering openings in the sides thereof, said sections being non-rotatable on each other, a spring in the inner section, and a catch-piece adapted to occupy both said openings, said spring being fixed at one end of said inner section, extending longitudinally through the latter and being confined by and guided in its movements on the side walls of its section and carrying said catch at its free end.

750,644. TRAVELING CARRIER FOR METAL-WORKING MACHINES. SAMUEL R. HARDING, Waukesha, Wis. Filed June 9, 1903. Serial No. 160,766. (No model.)

Claim.—1. The combination with upper and lower tracks, of a carrier comprising a frame, having an elongated base, supporting-wheels at the ends of said frame, a thrust-resisting wheel between said supporting-wheel, said wheels being adapted to travel upon the lower track, a wheel adapted to engage the upper track, and a supporting-arm projecting laterally from said carrier-frame.

2. The combination with upper and lower tracks, of a carrier comprising a frame, having an elongated base, supporting-wheels at the ends of said frame, a thrust-resisting wheel between and below said supporting-wheels, said wheels being adapted to engage the lower track, a wheel adapted to engage the upper track, and a supporting-arm projecting laterally from said frame.



3. The combination in a traveling carrier, of a frame comprising top and bottom horizontal members, horizontal spindles carried by each of said members, wheels rotatably mounted on said spindles, vertical spindles carried by said frame at the bottom and top thereof, thrust-resisting wheels rotatably mounted upon said vertical spindles, and a supporting-arm pivotally connected with said frame and projecting laterally therefrom.

4. The combination in a traveling carrier, of a frame comprising top and bottom horizontal members, wheels mounted to rotate in a vertical plane provided at the ends of both of said members, thrust-resisting wheels mounted to rotate in horizontal planes carried by both of said members and disposed intermediate of the ends thereof, and a pivoted supporting-arm projecting laterally from said frame.

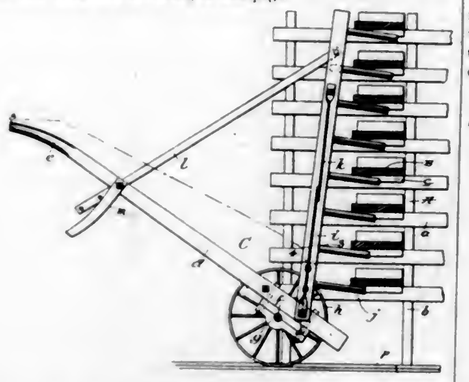
5. The combination in a traveling carrier, of a frame provided with wheels adapted to travel upon suitable tracks, said frame comprising top and bottom horizontal members, and a standard at each end thereof composed of inclined members spaced apart at their lower ends and converging toward their upper ends where they are secured to the horizontal members of the frame.

6. In a traveling carrier, a frame provided with wheels adapted to travel upon suitable tracks, said frame comprising top and bottom horizontal members, end standards, and a central standard composed of a pair of members converging upwardly and inclined rearwardly toward their upper ends.

7. The combination in a traveling carrier, of a frame, wheels rotatably mounted in said frame and adapted to support said frame upon suitable rails, brackets projecting laterally from said frame, said brackets being vertically alined, pivots provided in said brackets, one of said pivots being extended downwardly, a laterally-projecting supporting-arm mounted upon said pivots below said brackets, and a thrust-resisting wheel provided on one of said pivots below the supporting-arm mounted thereon.

750,645. BRICK-HANDLING APPARATUS. LOUIS F. HART, Baton Rouge, La. Filed June 20, 1903. Serial No. 162,367. (No model.)

Claim.—A brick-handling apparatus made up of a rack having two vertical and parallel tiers of horizontal rests, and a truck movable between the said tiers of rests, and consisting essentially of a body, an axle connected to the body at an intermediate point in the length, and adjacent to the forward end thereof, one or more traveling wheels on said axle, a frame connected to and extending upwardly and rearwardly from the body at a point in front of the axle to a point in rear of the vertical plane of the axle, pegs extending forwardly from said frame at intervals in the height thereof, and removable pallet-boards resting on said pegs.



750,646. COMBINED ELECTRICAL-BATTERY RECEPTACLE AND BELL-SUPPORT. WILLIAM A. HARVEY, Scranton, Pa., assignor of two-thirds to Charles Schlager and Walter L. Schlager, Scranton, Pa. Filed Sept. 9, 1903. Serial No. 172,511. (No model.)



Claim.—The combination with the bell of the class carrying its controlling mechanism and binding-posts, and cells for operating the same, of a receptacle for the cells of a size to closely surround the same, and provided with vertically-elongated openings in its front wall and other openings in the front wall adjacent the vertically-elongated openings, a cover provided with an opening in its rear, means extending through the vertical openings for detachably securing the bell on the outside of the receptacle, wires passing from the binding-posts on the bell through the other openings to some of the poles of the cells, and wires passing from other poles of the cells through the opening in the cover to a circuit-closer without.

750,647. VEHICLE-TIRE PROTECTOR. FREDERICK B. HAYDEN, Belleville, N. J. Filed Oct. 26, 1903. Serial No. 178,483. (No model.)



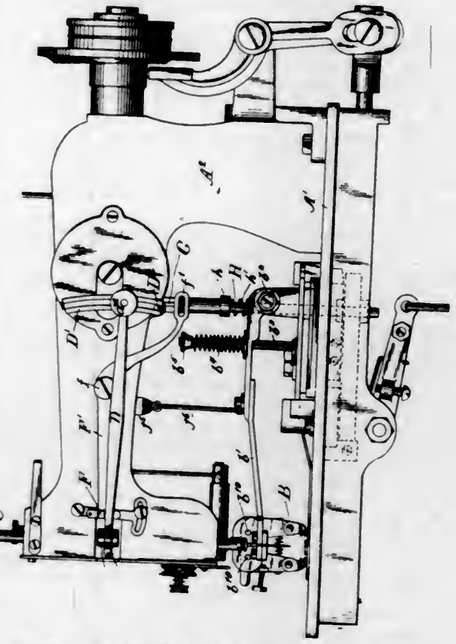
Claim.—1. In a protective covering for vehicle-tires, an annulus of thin metal encircling the tire and curved transversely to match thereto, having a width greater than the tire, and an outwardly-extending circumferential flange on each projecting edge.

2. In a protective covering for vehicle-tires, an annulus of thin metal encircling the tire and curved transversely to match thereto, having a width greater than the tire, circumferential ridges on opposite sides of the peripheral line of the annulus, and an outwardly-extending circumferential flange on each projecting edge.

3. In a protective covering for vehicle-tires, an annulus of thin metal encircling the tire and curved transversely to match thereto, an outwardly-projecting circumferential flange on each edge of said annulus, a second annulus encircling the first-named, and matching thereto, having a circumferential ridge on each side of the peripheral line and a circumferential flange on each edge lying within the corresponding flange on the first-named annulus.

4. In combination with a pneumatic tire, an annulus of thin metal encircling said tire, and curved transversely to match thereto when said tire is inflated, a circumferential ridge on each side of the peripheral line of said annulus, and an outwardly-extending circumferential flange on each edge of said annulus.

750,648. NEEDLE-VIBRATING MECHANISM FOR SEWING-MACHINES. JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, Troy, N. Y., a Corporation of New York. Filed Mar. 29, 1902. Serial No. 100,538. (No model.)



Claim.—1. In a sewing-machine the combination of stitch-forming mechanism comprising a needle-bar, a work-support, means to impart a vibratory movement to said needle-bar comprising a rod, and means comprising a cam carried by the arm of the machine and engaging said rod to disconnect said rod from the needle-bar frame.

2. In a sewing-machine the combination of stitch-forming mechanism comprising a needle-bar, a work-support, means to impart a vibratory movement to said needle-bar, and means comprising a normally stationary cam and an opposing spring for making and breaking connection between said rod and needle-bar and means for operating said cam to move said rod.

3. In a sewing-machine the combination of stitch-forming mechanism comprising a needle-bar, a work-support, a rod for imparting a vibratory movement to the needle-bar and means comprising a cam and a lever arranged lengthwise of the sewing-machine arm for making and breaking connection between said rod and needle-bar.

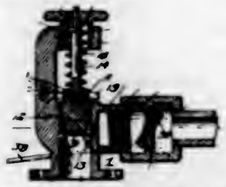
4. In a sewing-machine the combination of stitch-forming mechanism comprising a needle-bar, a work-support, a rock-lever, a rod connecting said lever to the needle-bar frame, means for making and breaking connection between said rod and needle-bar frame comprising a cam and lever and another lever extending transversely to the sewing-machine arm and a cam for actuating the latter.

750,649. ENGINE-GOVERNOR. OLE HOVE, Ellsworth, Wis. Filed Aug. 20, 1903. Serial No. 170,209. (No model.)

Claim.—1. A governor-valve having reciprocatory motion under the varying engine-pressure and rotary motion under the varying boiler-pressure, and means for effecting said motions, substantially as described.

2. In a governor, the combination with a casing having inlet and outlet ports, of a valve having reciprocatory motion to vary the

inlet of steam to the engine under the varying engine-pressure, and means for manually rotating said valve to vary the inlet of steam to the engine, substantially as described.



3. In a governor, the combination with a casing having inlet and outlet ports, of a valve having reciprocatory motion to vary the inlet of steam to the engine under the varying engine-pressure, means for rotating said valve to vary the inlet of steam to the engine, and an adjustable connection between said means and said valve whereby the movements of said connected parts may be varied, substantially as described.

4. In a governor, the combination with a casing having inlet and outlet ports, of a valve having reciprocatory motion to vary the inlet of steam to the engine under the varying engine-pressure, and means for rotating said valve to vary the inlet of steam to the engine, substantially as described.

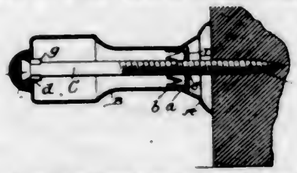
5. In a governor, the combination with a casing having inlet and outlet ports, a valve-chamber, an equalizing-chamber, and ports affording communication between said chambers, of a rotary reciprocatory valve in said valve-chamber adapted to close said communicating ports by its reciprocatory motion and provided with lugs adapted to close said communicating ports by its rotary motion, means for reciprocating said valve, and means for rotating said valve, substantially as described.

6. In a governor, the combination with a casing having inlet and outlet ports, a valve-chamber, an equalizing-chamber, and ports affording communication between said chambers, of a rotary reciprocatory valve in said valve-chamber adapted to close said communicating ports by its reciprocatory motion and provided with lugs adapted to close said communicating ports by its rotary motion, a spring for actuating said valve against the engine-pressure, means for adjusting the tension of said spring, a stem for said valve adapted to limit its upward movement, a cross-pin carried by said valve and adapted to limit the downward movement of the same, and an operating-rod connected to said pin whereby said valve may be manually rotated, substantially as described.

7. In a governor, the combination with a casing having inlet and outlet ports, a valve-chamber, an equalizing-chamber, and ports affording communication between said chambers, of a rotary reciprocatory valve in said valve-chamber adapted to close said communicating ports by its reciprocatory motion and provided with lugs adapted to close said communicating ports by its rotary motion, a spring for actuating said valve against the engine-pressure, means for adjusting the tension of said spring, a stem for said valve adapted to limit its upward movement, a cross-pin carried by said valve and adapted to limit the downward movement of the same, an operating-rod, and means for automatically operating said rod upon the variation of the boiler-pressure, substantially as described.

8. The combination with a governor having a valve for controlling the inlet of steam to an engine, of an operating-rod connected to said valve, a cylinder having connection with the steam-space of a boiler, a piston in said cylinder, and a rod connected to said operating-rod and actuated by said piston, substantially as described.

750,650. **DOOR-CHECK.** RICHARD W. HUBBARD, Ashtabula, Ohio. Filed Nov. 9, 1903. Serial No. 180,423. (No model.)



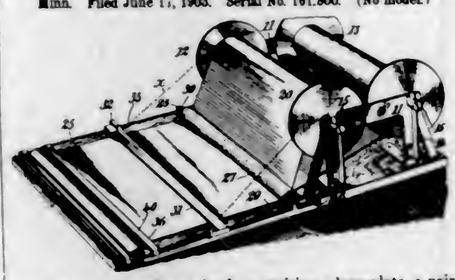
Claim.—1. As an improved article of manufacture, a door-check of the buffer type comprising a hollow, sheet-metal body open at its inner end, a rod secured in the body, and having a threaded portion extending beyond the inner end thereof, and a base secured on the threaded portion of the rod and against the inner end of the body, whereby the body, the rod and the base are fixedly held together.

2. As an improved article of manufacture, a door-check of the buffer type comprising a hollow, sheet-metal body open at its inner end, a rod secured in the body, and having a threaded portion extending beyond the inner end thereof, a base mounted on the threaded portion of the rod and against the inner end of the body, and having means for engaging and holding said inner end against lateral movement, and a device arranged against the inner side of the base and held on the rod by the thread thereof.

3. A door-check of the buffer type comprising a hollow, sheet-metal body open at its inner end, and having an aperture and one or more offsets from said aperture in its outer end, a connecting-rod extending through and beyond the inner end of the body, and having a head at its outer end, and one or more fins engaging the offsets of the body, and also having its extended portion threaded and pointed, a tip secured on the head of the connecting-rod, a sheet-metal base arranged on the connecting-rod and against the inner end of the body, and having a flange disposed in said end, and a nut mounted on the threaded portion of the rod, and holding the base against the inner end of the body.

4. A door-check of the buffer type, comprising a hollow, sheet-metal body open at its inner end, and having an aperture and one or more offsets from said aperture in its outer end, a connecting-rod extending through and beyond the inner end of the body, and having one or more fins engaging the offsets of the body, and also having its extended portion threaded, a sheet-metal base arranged on the connecting-rod and against the inner end of the body, and having a flange disposed in said end, and a nut mounted on the threaded portion of the rod, and holding the base against the inner end of the body.

750,651. **ROLL NOTE-BOOK.** OLIVER HULBACK, Crookston, Minn. Filed June 17, 1903. Serial No. 161,800. (No model.)



Claim.—1. A roll note-book comprising a base-plate, a pair of rollers removably mounted on the rear portion of said plate, a frame mounted to swing on the front portion of the base-plate and comprising side members, a roller mounted near the free ends of said side members, and a roller mounted on the base near the forward end.

2. A roll note-book, comprising a base-plate, a pair of rollers removably mounted on the rear portion of said base-plate, a frame mounted to swing on the forward end of the base-plate and comprising side members, one of said side members being, when in position, below the top plane of the base-plate, a roller mounted on said side members near the free ends, a cross-plate having sliding connection with said side members, and a roller mounted on the forward end of the base-plate.

3. A roll note-book, comprising a base-plate, rollers supported on the rear portion thereof, a frame mounted to swing on the front portion of the base-plate and having side members, a roller mounted on said side members near the free ends, a cross-plate mounted to slide on the side members of the frame, means for securing said cross-plate as adjusted, a roller arranged at the forward end of the base-plate, and a plate carried by the frame for extending over said last-named roller.

4. A roll note-book comprising a base-plate, rollers supported on the rear portion of said base-plate, a frame mounted to swing on the front end of the base-plate and having side members extending along the sides of said base-plate, a roller mounted to swing on one of said side members near the free ends and having locking connection with the other side member, a cross-plate adjustable along the side members, a roller mounted to swing on the front end of the base-plate, and a plate connected to the frame for passing over said last-named roller.

5. A roll note-book, comprising a base-plate, rollers supported on the rear portion thereof, a frame comprising side members mounted to swing on the forward portion of the base-plate, a roller having swinging connection with one of said side members, and detachable locking connection with the other of said side members, absorbent material on said roller, and a roller at the forward portion of the base-plate.

6. In a roll note-book, a base-plate, frames extended upward from said base-plate near one end, rollers having their bearings in said frames, spring-yielding plates for engaging with the extended portions of the shaft, a frame mounted to swing on the forward portion of the base-plate and comprising side members, a roller supported on said side members near the free ends, and a roller supported on the base-plate near the free end.

7. In a roll note-book, a base-plate, rollers supported on the rear portion thereof, a roller at the front portion of the base-plate, a rod on which the said roller is mounted, a swinging connection between said rod and the base-plate at one side, a plate on the opposite side of the base and having an outwardly-opening notch for receiving the opposite end of said rod, a frame mounted to swing on the front end of the base-plate and comprising side members having an upwardly-extended loop portion for engaging over the said rod near the notched plate, and a plate attached to said side members for extending over said last-named roller.

750,652. **HOSE-SUPPORTER.** ERNEST N. HUMPHREY, New Britain, Conn., assignor to the Traut & Hine Manufacturing Company New Britain, Conn., a Corporation of Connecticut. Filed Aug. 13, 1903 Serial No. 169,377. (No model.)



Claim.—1. A joint with which a cast-off is adapted to be engaged and from which it is adapted to be disengaged, the same comprising a connector and a member pivoted with relation thereto and having a plurality of parts disposed around the pivotal axis of the joint with each of which parts said cast-off is engageable.

2. The combination with a joint comprising a connector, of a band one of whose ends is secured to said connector; a cast-off secured to the opposite end of the band; and a member pivoted with relation to said connector and having a plurality of parts disposed around the pivotal axis of the joint with each of which parts said cast-off is engageable.

3. The combination with a joint comprising a connector, of a band one of whose ends is secured to said connector; a cast-off secured to the opposite end of the band; and a disk-like member pivoted with relation to said connector and having a plurality of parts disposed around the pivotal axis of the joint with each of which parts said cast-off is engageable.

4. The combination with a joint comprising a connector, of a band one of whose ends is secured to said connector; a hook secured to the other end of said band; and a disk-like hook-engageable member pivoted with relation to said connector and having around its periphery a number of hook-receiving openings separated by cross-pieces.

5. The combination with a joint comprising a connector, of a band one of whose ends is secured to said connector; a hook secured to the opposite end of said band; a disk-like hook-engageable member pivoted with relation to said connector and having a plurality of parts disposed around the pivotal axis of the joint with each of which parts said hook is engageable; and a ball-bearing between said member and said connector.

6. In a hose-supporter the combination with a joint comprising a hanger and a connector, of a band, one of whose ends is secured to said connector; a cast-off secured to the opposite end of the band; and a member pivoted with relation to the hanger and connector and having a plurality of parts disposed around the pivotal axis of the joint with each of which parts said cast-off is engageable.

7. In a hose-supporter, the combination of a hanger; a connector; a band one of whose ends is secured to said connector; a hook secured to the other end of said band; a member having a plurality of hook-receiving openings; a pivot-pin upon which said member, said connector, and said hanger are journaled; and antifriction-balls interposed between the parts.

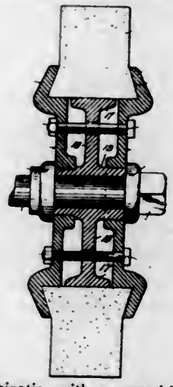
8. In a hose-supporter, the combination of a hanger provided with a plurality of ball-receiving slots; antifriction-balls in said slots; a connector on one side of said hanger for the supporter-band; a hook, a hook-engageable member on the opposite side of said hanger, and provided at its periphery with a plurality of hook-receiving openings, said connector and member being provided with ball-races; and a pivot-pin defining the pivotal axis of the parts.

9. In a hose-supporter, the combination of a hanger provided with a plurality of ball-receiving slots; antifriction-balls in said slots; a connector on one side of said hanger for the supporter-band; a hook; a hook-engageable member on the opposite side of said hanger, and provided at its periphery with a plurality of hook-receiving openings separated by cross-pieces, said connector and member being provided with ball-races; and a pivot-pin defining the pivotal axis of the parts.

10. In a hose-supporter, the combination with a centrally-located hanger and which is provided with a plurality of ball-receiving slots whose walls determine the movement of the balls, of antifriction-balls in said slots; a connector for the encircling band of the supporter and which connector is located on one side of said hanger and formed with a ball-race; a hook; a hook-engageable member located on the opposite side of said hanger and provided with a plurality of hook-receiving openings and which is also formed with a ball-race; and a pivot-pin defining the pivotal axis of the parts.

11. In a hose-supporter the combination with a hanger provided with a plurality of ball-receiving slots, of antifriction-balls in said slots; a connector located on one side of said hanger and formed with a cup-shaped portion constituting a ball-race; a band, one of whose ends is secured to said connector; a cast-off secured to the opposite end of the band; a disk-like member provided with a plurality of parts disposed around the periphery of the member with each of which parts said cast-off is engageable, said member being provided with a cup-shaped portion constituting a ball-race; and a pivot-pin connecting the hanger, connector and disk-like member.

750,653. **ABRASIVE WHEEL.** DAVID B. HYDE, Springfield, Ohio. Filed Jan. 10, 1902. Serial No. 89,099. (No model.)

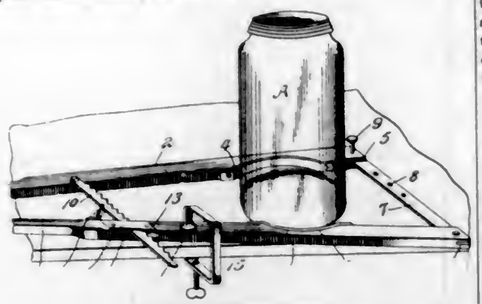


Claim.—The combination, with a composition abrasive annulus, of side plates adapted to grip the annulus laterally and support the same against inward thrust, a sleeve to which one of said side plates is secured, the other plate fitting movably on said sleeve, means for drawing said side plates toward each other to grip the annulus and to hold the plates and annulus in position on the sleeve, and a spindle fitting said sleeve and provided with means for clamping said sleeve thereon, said sleeve being provided with a central radial annular projection against which the inner surface of the abrasive annulus bears and by which the central portion thereof is supported, substantially as described.

750,654. **FRUIT-JAR HOLDER.** KATE A. JOHNSON, Lorene, Wash. Filed May 7, 1903. Serial No. 156,121. (No model.)

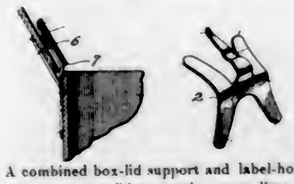
Claim.—A holder of the character described, comprising a pair of clamping members having handles at one end, a link pivotally connecting the opposite ends of said members, one of them being adjustable on the link, a screw-clamp pivoted to one of the clamping members, the latter having also a recess 11, a plate 12 covering said recess and provided at one side with the detent portion 13, a ratchet-bar pivoted to the other clamping member and extending through

the recess 11 and under said plate, and a spring to normally engage one of the teeth of the ratchet-bar with the detent portion 13 of plate 12, substantially as described.



750,655. COMBINED BOX-LID SUPPORT AND LABEL-HOLDER.

JAMES JONES, Jr., Jasper, Tex. Filed June 1, 1903. Serial No. 159,670. (No model.)



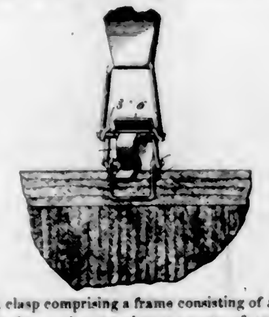
Claim.—1. A combined box-lid support and label-holder comprising box-engaging arms, box-lid-supporting arms disposed at any angle to the box-engaging arms, and a tongue projecting upward from between said lid-supporting arms, and bent backward substantially into parallelism with said lid-supporting arms.

2. A combined box-lid support and label-holder comprising box-engaging arms, lid-supporting arms disposed at an angle to the box-engaging arms, a tongue of slightly-resilient material projecting upward between said lid-supporting arms, then bent backward into substantially parallelism with said lid-supporting arms, and having an offset about midway of its length.

3. The combination with a combined box-lid support and label-holder comprising box-engaging arms, lid-supporting arms, and a label-holding tongue disposed in substantial parallelism with said lid-supporting arms and having an offset therein, of a label having a smooth forward surface and provided on the rear surface thereof with a strap forming a guide within which the tongue fits snugly.

750,656. CLASP.

OWEN J. JONES, Bangor, Pa. Filed June 4, 1903. Serial No. 160,035. (No model.)

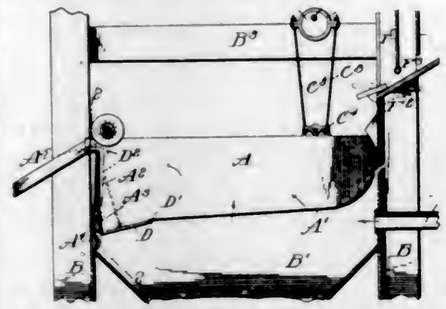


Claim.—A clasp comprising a frame consisting of a single length of wire bent to form a jaw member, two sets of eyes, and a loop above the eyes, a jaw-plate having trunnion-bearings in the lower eyes, and a cam-plate having trunnion-bearings in the upper eyes, the said cam-plate having a curved end for engaging with the jaw-plate.

750,657. COAL-SEPARATOR.

GEORGE A. KENNER, Herrin, Ill. Filed Apr. 3, 1902. Serial No. 101,237. (No model.)

Claim.—1. A coal-separator comprising a tank having an upward water-feed, a receptacle disposed within said tank in a substantially horizontal plane, a pivotal support at the delivery end thereof, means at the opposite end for oscillating the feed end of said receptacle upon said pivoted end entirely above its normal horizontal plane for feeding material toward and over the delivery end, and an automatically-operated downwardly-opening discharge-gate in the bottom of the receptacle at the pivoted delivery end thereof and connected to the receptacle by tension devices attached substantially at the pivoted axis of the receptacle.



2. In a coal-separator, a receptacle disposed in a substantially horizontal plane and having a reticulated bottom inclined from the receiving to the delivery end, a pivotal bearing at the lower portion of the delivery end thereof, an eccentric mechanism connected to the receiving end of said receptacle by sleeve and hangers for oscillating the same upon said pivoted end entirely above its normal horizontal plane, a pivoted downwardly-opening discharge-gate in the bottom of the lower portion of the pivoted delivery end, and a spring tension device located upon the receptacle above and connected to the gate by depending rods.

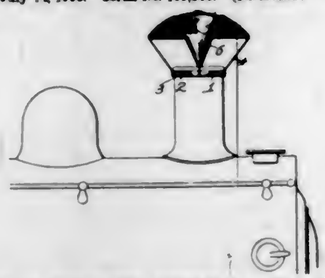
3. In a coal-separator, a receptacle or basket having a reticulated bottom, a bearing at the lower portion of the delivery end thereof, an eccentric mechanism connected to the opposite end of said receptacle for oscillating the same upon said bearing, a pivoted discharge-gate, a spring tension device for normally holding said gate closed comprising hangers extending from the gate to a rotatable shaft under tension, an overflow-spout from said receptacle, and a water-supply beneath said receptacle at the opposite side from said overflow; substantially as specified.

4. In a coal-separator, a receptacle or basket provided with a discharge-gate at its lower portion, a tension device for closing said gate comprising a shaft having a hand-wheel and a ratchet secured thereto, a pawl upon the receptacle to engage said ratchet, coiled springs extending from said hand-wheel, and a connection extending from said gate to said springs for increasing the tension thereon when the gate is opened; substantially as specified.

5. In a coal-separator, a receptacle disposed in a substantially horizontal plane and having a reticulated bottom, a pivotal bearing at the delivery end thereof, mechanism connected to the receiving end of said receptacle for oscillating the same upon said pivoted end entirely above its normal horizontal plane, a pivoted downwardly-opening discharge-gate in the bottom of the receptacle at its pivoted delivery end, and a spring tension device located upon the receptacle above and connected to the gate.

750,658. SPARK-ARRESTER.

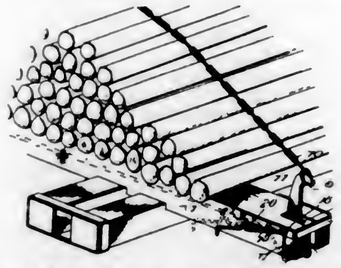
JOSEPH D. KING, Wellsville, Mo. Filed July 14, 1903. Serial No. 165,500. (No model.)



Claim.—A spark-arrester, consisting of a collar, rods extending upwardly from the collar and bent inwardly at their upper extremities, a circular plate carried by the upper extremities of the rods, an inverted cone carried by the circular plate, and a metallic web surrounding the base of the cone, substantially as described.

750,659. LOG-CAR STANDARD.

EDWARD W. KLINGENSMITH and FREDERICK W. LANE, Century, Fla. Filed May 14, 1903. Serial No. 157,151. (No model.)



Claim.—1. In a car, a loosely-mounted standard having a hook near each end combined with means for locking it in either its operative or inoperative position.

2. In a car, a standard loosely mounted within a slot in the bunk, and having a hook near each end combined with means for supporting and locking it in its operative position and for supporting and locking it in its inoperative position.

3. In a car, a bunk, a standard having a hook near each end and loosely mounted within a slot and unattached to said bunk, and means for holding the standard in its uppermost or lowermost position.

4. In a car, a standard mounted loosely within a slot and unattached to the bunk, combined with a rotatable shaft, and a cam-lug thereon to engage said standard.

5. In a car, a standard mounted loosely within a slot and unattached to the bunk, combined with a rotatable shaft, and a cam-lug thereon to engage said standard, said standard being hooked at one end.

6. In a car, a standard mounted loosely within a slot and unattached to the bunk, combined with a rotatable shaft, a cam-lug thereon to engage said standard, said standard being hooked at one end, and means traversing the slot in the bunk to engage said hook.

7. In a car, a slotted bunk, a standard having a hook near each end and mounted within said slot for bodily vertical movement, and means for supporting said standard either in its operative or inoperative positions and a tripping device for said means.

8. In a car, a slotted bunk, a standard having a hook near each end and mounted within said slot for bodily vertical movement, and means for supporting said standard in either its operative or inoperative positions, and a common means for locking it in either of said positions.

9. In a car, a standard mounted for bodily vertical movement in a slot in the bunk and having a hook at its upper end, a recess and a curved socket and convex lower end, and a cam-lug carried by a rotatable shaft and having a convex portion and a concave portion.

10. In a car, a standard mounted for bodily vertical movement in a slot in the bunk and having a hook at its upper end, a recess and a curved socket and convex lower end, a cam-lug carried by a rotatable shaft and having a convex portion and a concave portion, and a transverse rod traversing said slot.

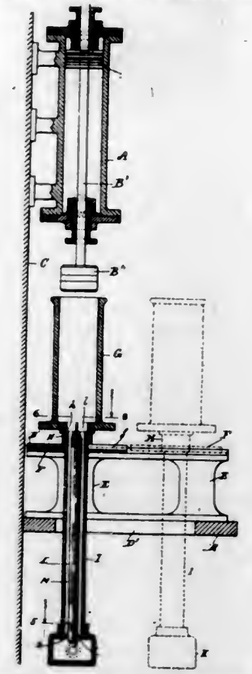
11. In a car, a standard mounted for bodily vertical movement in a slot in the bunk and having a hook at its upper end, a recess and a curved socket and convex lower end, a cam-lug carried by a rotatable shaft and having a convex portion and a concave portion, and upper and lower transverse rods traversing said slot.

750,660. MACHINE FOR LINING PIPES.

JOHN T. LANGFORD, Newton, Mass. Filed June 8, 1903. Serial No. 160,536. (No model.)

Claim.—1. In a machine for lining pipes, the combination of a lining-core, a lining-base, a ventilating device and a reservoir containing cement or other lining material, all connected to a pipe to be lined and detachable from said pipe after lining, and a power or pressure device adapted to force said lining material from said reservoir into the interspace between the core and the inside of the pipe during the process of lining the pipe, substantially as and for the purpose set forth.

2. In a machine for lining pipes, the combination of a lining-core, a lining-base, a ventilating device, a reservoir containing cement or other lining materials, also a suction or vacuum device adapted to produce a vacuum in the interspace between the core and the inside of the pipe to be lined, all detachably connected to said pipe, and a power or pressure device adapted to force said lining material from said reservoir into said interspace during the process of lining the pipe substantially as and for the purpose set forth.



3. In a machine for lining pipes, the combination of a supporting-frame, a table movable thereon and supporting a pipe to be lined having a lining-core, a lining-base, a ventilating device, and a reservoir containing cement or other lining material, all detachably connected to said pipe, and a power or pressure device adapted to force said lining material from said reservoir into the interspace between the core and the inside of said pipe during the process of lining the pipe, substantially as and for the purpose set forth.

4. In a machine for lining pipes, the combination of a supporting-frame, a table movable thereon and supporting a pipe to be lined, having a lining-core, a lining-base, a ventilating and filtering device, a suction or vacuum device, and a reservoir containing cement or other lining material, all detachably connected to said pipe, and a power or pressure device adapted to force said lining material from said reservoir into the interspace between said core and the inside of said pipe during the process of lining the pipe substantially as and for the purpose set forth.

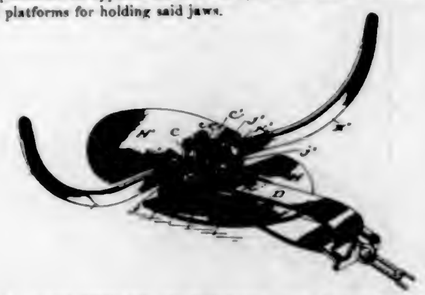
5. In a machine for lining pipes, the combination of a reciprocating plunger or pressure device, a core centrally inserted within a pipe to be lined, a reservoir containing lining material, the pipe and reservoir adapted to be moved in and out of alinement with said pressure device, a frame having a movable table on which the pipe and its connections and the reservoir are supported during the lining operation substantially and for the purpose set forth.

6. In a machine for lining pipes, the combination of a power-cylinder having a reciprocating piston and plunger, a suction or vacuum device, a core centrally inserted within a pipe to be lined, a reservoir containing lining material, the pipe and reservoir adapted to be moved in and out of alinement with said power-cylinder, a frame having a movable table on which the pipe and its connections and the reservoir are supported during the lining operation substantially as and for the purpose set forth.

750,661. ANIMAL-TRAP.

MITCHEL LARAMIE, Willimantic, Conn. Filed Sept. 3, 1903. Serial No. 171,760. (No model.)

Claim.—1. A trap comprising spring-operated jaws, independent platforms on opposite sides of said jaws, and means carried by said platforms for holding said jaws.



2. A trap comprising spring-operated jaws, independent platforms on opposite sides of said jaws and independent means carried by said platforms for holding said jaws.

3. A trap comprising spring-operated jaws, independent pivoted platforms on opposite sides of said jaws, and means carried by said platforms for holding said jaws.

4. In a trap, the combination with spring-operated jaws, of independently-pivoted platforms on opposite sides of said jaws, and inwardly-extending members carried by said platforms and adapted to hold said jaws.

5. In a trap, the combination with spring-operated jaws, of independently-pivoted platforms on opposite sides of said jaws and inwardly-extending members carried by said platforms and engaging said spring-jaws.

6. In a trap, the combination with spring-operated jaws, of independent platforms on opposite sides of said jaws, and inwardly-extending members carried by said platforms and adapted to hold said jaws in a downward position.

7. In a trap, the combination with upwardly spring-pressed jaws, of independent platforms on opposite sides of said jaws, inwardly-extending members carried by said platforms and adapted to extend over said jaws and hold them in a downward position against the tension of the spring.

8. In a trap, the combination with a base, of upwardly-extending members carried by said base, jaws pivoted between said members, a spring surrounding said members, stops carried by the upper ends of said members, to prevent the jaws from passing each other, independent platforms carried by said base and means carried by said platforms for holding the jaws in a downward position.

9. In a trap, the combination with a base, of upwardly-extending members carried by said base, jaws pivoted between said members, a V-shaped spring having its end surrounding said members, stops carried by the upper ends of said members to prevent the jaws from passing each other, independent platforms pivoted to said base, and means carried by said platforms for holding the jaws in a downward position.

10. In a trap, the combination with a base, of upwardly-extending members formed integral therewith, jaws pivoted between said members, a spring surrounding said members, inwardly-extending stops formed integral with said members at their upper ends, independent platforms carried by said base on opposite sides and means carried by said platforms for holding said jaws in a downward position.

11. In a trap, the combination with a base, spring-operated jaws pivoted to the same, upwardly-extending ears carried by said base, independent platforms pivoted to said ears on opposite sides of said jaws, and means carried by each platform for holding said jaws in a downward position.

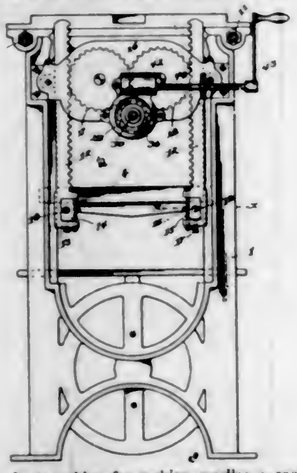
12. In a trap, the combination with a base, spring-operated jaws pivoted to said base, upwardly-extending ears carried by said base, U-shaped members independently pivoted to said ears at their lower ends, platforms carried by said members on opposite sides of said jaws, and the upper portion of said U-shaped members adapted to pass over said jaws and hold them in a downward position against the tension of the spring.

13. In a trap, the combination with a base, upwardly-extending ears carried by said base, and having laterally-turned upper portions provided with diagonally opposite cut-away portions, spring-operated jaws mounted between said ears, independent platforms pivoted to said base, and independent means carried by each platform for holding the said jaws in a downward position independent of the other.

14. In a trap, the combination with a base, of upwardly-extending members formed integral therewith and having their upper ends cut away leaving diagonally opposite members which are turned down forming stops, jaws pivoted between said upwardly-extending members, a leaf-spring between said members, independent platforms pivoted to said base and means carried by said platforms for holding the jaws in a downward position.

15. In a trap, the combination with a base, of upwardly-extending members formed integral therewith, stops carried by the upper ends of said members, jaws pivoted between said members, a U-shaped spring surrounding said members and bearing against said jaws, upwardly-extending ears formed integral with the base on each side of the upwardly-extending members, platforms independently pivoted between said ears on each side of the jaws, and independent means carried by each platform for holding said jaws.

750,662. CANDLE-MOLDING MACHINE. SETH H. LEAVENWORTH, Cincinnati, Ohio, assignor to Homan & Company, Cincinnati, Ohio. Filed July 28, 1903. Serial No. 167,366. (No model.)



Claim.—1. In a machine for making candles, a cooling-tank, molds therein, a cross-head under the tank, plungers thereon entering the molds, lifting-racks having clamping-jaws at their lower ends, the cross-head being supported in said jaws, means carried by said jaws for adjusting the cross-head at each corner, and means for raising and lowering the racks, substantially as specified.

2. In a machine for making candles, a cooling-tank, molds therein, a cross-head under the tank, plungers thereon entering the molds, lifting-racks having clamping-jaws at their lower ends, the cross-head having at each end a pillar-block supported by the said clamping-jaw and means carried by each clamping-jaw for adjusting each pillar-block, substantially as specified.

3. In a machine for making candles, a cooling-tank, molds therein, a cross-head under the tank, plungers thereon entering the molds, lifting-racks having clamping-jaws at their lower ends, the cross-head having on the under side two or more cross-rods, a pillar-block in each clamping-jaw, supporting one end of said rods, and means for adjusting the pillar-block in the jaws, substantially as specified.

4. In a machine for making candles, a cross-head for expressing the candles from the molds, the cross-head having at each edge and intermediate thereto, parallel binding and bracing strips projected below the cross-head, transverse truss-rods extended through the sides of the end bracing-strips through the side edges of the cross-head, and across the bottom edges of the intermediate bracing-strips, and means for governing the tension of said truss-rods, substantially as specified.

5. In a machine for making candles, a cross-head for expressing the candles from the molds, the cross-head having at each edge and intermediate thereto, parallel binding and bracing strips projected below the cross-head, transverse truss-rods extended through the sides of the end bracing-strip, through the side edges and bottom of the cross-head, under the bottom edges of the intermediate bracing-strips, means for governing the tension of said truss-rods, transverse supporting-rods under the cross-head engaging through the bracing-strips, the ends of said supporting-rods, projecting laterally beyond the cross-head, and a lifting device engaging the ends of said supporting-rods, substantially as specified.

6. In a machine for making candles, a cross-head for expressing the candles from the molds, the cross-head having at each edge and intermediate thereto, parallel binding and bracing strips projected below the cross-head, transverse truss-rods extended through the sides of the end bracing-strips, through the side edges and bottom of the cross-head under the bottom edges of the intermediate bracing-strips, means for governing the tension of said truss-rods, transverse supporting-rods under the cross-head engaging through the bracing-strips, the ends of said supporting-rods, projecting laterally beyond the cross-head, lifting-racks, each having a clamping-jaw as its lower end, a pillar-block held by each jaw, engaging the ends of the cross-head, supporting-rods and means for adjusting said blocks in said jaws, substantially as specified.

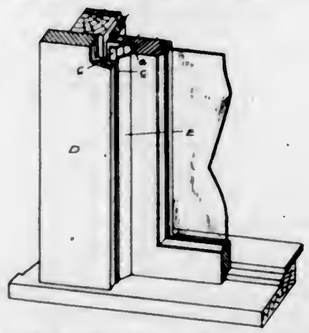
7. In a machine for making candles, molds, plungers and cross-head, racks supporting the cross-head, intermeshing gears supported in engagement with the racks, a driving-shaft, a worm-shaft, pawl, ratchet and worm mechanism for imparting either a power-feed or a fast feed to said expressing mechanism, substantially as specified.

8. In a machine for making candles, the frame, molds, plungers, cross-heads and lifting-racks for the cross-head, a plate supported by the frame, intermeshing gear-wheels journaled on the plate engaging said racks, a driving-shaft, a driving gear-wheel thereon, in mesh with one of the first-named gear-wheels, a worm-shaft, worm, pawl-and-ratchet mechanism adapted to be thrown into and out of driving relation with said driving-shaft, and means for rotating said shafts whereby a power-feed or fast feed may be imparted to the expressing mechanism, substantially as specified.

9. In a machine of the class described, an expressing mechanism consisting of lifting-racks, a stationary supporting-plate, intermeshing gear-wheels thereon engaging the racks, a driving-shaft, and intermeshing gear-wheel thereon in train with the first-named gear-wheels, a ratchet-pinion fixed on the end of said driving-shaft, a worm-wheel loose on the end of said driving-shaft, pawls pivoted to the worm-wheel, and engaging said ratchet-teeth, a worm-shaft engaging said worm-wheel, and means for disengaging the pawls from the ratchet-teeth, substantially as specified.

10. In a machine of the class described, an expressing mechanism consisting of lifting-racks, a stationary supporting-plate, intermeshing gear-wheels thereon engaging the racks, a driving-shaft, intermeshing gear-wheels thereon, in train with the first-named gear-wheels, a ratchet-pinion fixed on the end of said driving-shaft, a worm-wheel loose on the end of said driving-shaft, a pawl pivoted to the worm-wheel and engaging said ratchet-teeth, a worm-shaft engaging said worm-wheel, a disk loose on the driving-shaft adapted to be rotated thereon by hand to lift said pawls from engagement with the ratchet-teeth, and means for rotating said worm and driving shafts, whereby a power-feed or fast feed may be imparted to the expressing mechanism, substantially as specified.

750,663. WEATHER-STRIP. SAMUEL LEEDER, Detroit, Mich. Filed Aug. 29, 1903. Serial No. 171,211. (No model.)



Claim.—1. The combination with a window-frame, of a slidable sash associated therewith, a resilient strip bent back upon itself and abutting a portion of the sash, the respective arms of which yieldably engage an angle bearing on the frame.

2. The combination with a window-frame having a longitudinal stop thereon, of a sash within said frame having a bearing portion, and a resilient strip abutting said bearing portion and having laterally-projecting portions arranged to engage respectively one side and edge of said stop to yieldably center the sash within said frame.

3. The combination with a window-frame, of a sash within the same, having a bearing portion, a resilient strip bent back upon itself, the bent portion resting in said bearing portion, and its arms loosely engaging respectively one side and edge of the frame.

4. The combination with a window-frame, and a stop thereon, of a sash slidable within said frame, and a strip for yieldingly holding said sash against the stop, said strip having a return-bent cross-section with the angle thereof engaging with the bearing on the sash, and the edges yieldably embracing an angle bearing on the frame.

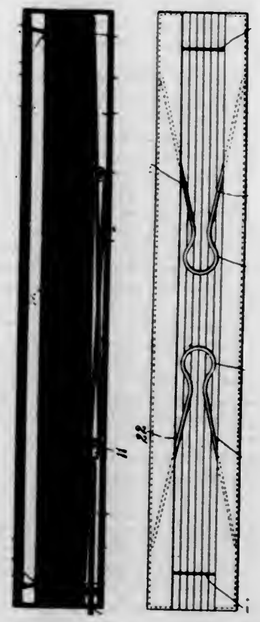
5. A weather-strip comprising a resilient strip of return-bent cross-section, forming a central angle portion separated portions extending from said angle portion, and edge portions substantially parallel respectively with the opposite sides of said angle portion.

6. The combination with a window-frame having stops thereon, of a sash slidable between said stops, and rabbeted on one side to form a clearance from one stop, and a strip of return-bent cross-section having its bent edge engaging an angle of said rabbet, and the edges of its separate sides respectively engaging the stop and side of the adjacent stop.

7. The combination with a window-frame and slidable sash, of a stop on the frame inside of the sash, and a resilient strip on the outside of the sash, yieldingly pressing thereon and having laterally-projecting arms yieldingly engaging a side and edge of said frame to form a weather-tight joint, and also a frictional engagement between the sash and stop.

8. The combination with a window-frame, of a slidable sash, a stop on said frame inside the sash, and a resilient strip yieldingly pressing against the outer face of said sash, and inclined in relation thereto, a portion of said strip extending over the outer edge of said frame whereby dust is deflected and prevented from lodging in the joint.

750,664. BINDER FOR LOOSE-LEAF LEDGERS. LEON M. LESLIE, New York, N. Y. Filed Oct. 12, 1903. Serial No. 176,604. (No model.)



Claim.—1. A temporary binder comprising covers, a binder-cord having its ends attached to one cover, means carried by the other cover engaging the cord for drawing the covers toward each other and means tending to force the covers apart.

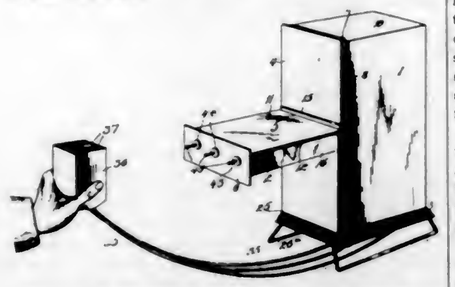
2. A temporary binder comprising covers, a binder-cord having its ends attached to one cover, means carried by the other cover engaging the cord for drawing the covers together and springs interposed between the covers tending to force them apart.

3. A temporary binder comprising covers, a binder-cord hav-

ing its ends attached to one cover, a stationary pulley and a traveling pulley located in the other cover engaged by the cord, means for moving the traveling pulley toward and away from the stationary pulley to release or tighten the cord and means tending to force the covers apart.

4. A temporary binder comprising covers, a binder-cord having its ends attached to one cover, a traveling screw located in the other cover, a pulley carried by the screw and a pulley carried by the last-named cover engaging the cord, and means tending to force the covers apart.

750,665. DAYLIGHT PLATE-DEVELOPING APPARATUS. JOSEPH LESPERANCE, Montreal, Canada. Filed June 1, 1903. Serial No. 159,517. (No model.)



Claim.—1. In apparatus of the class described, in combination, a plate-holder, a cup, means for opening communication between the interior of said plate-holder and said cup, whereby plates contained in said plate-holder may pass into said cup, and a member adapted to separate said plate within said cup.

2. In apparatus of the class described, in combination, a plate-holder, a cup disposed therebelow, means for opening communication between the interior of said plate-holder and said cup, whereby plates contained in said plate-holder may descend into said cup, and a member dividing said cup, and adapted to lie between said plates within said cup.

3. In apparatus of the class described, in combination, a plate-holder, a developing-cup disposed in connection therewith, means for opening communication between the interior of said plate-holder and said cup, whereby the plates within said plate-holder may pass into said cup, and a dividing-wire lying within said cup and adapted to separate said plates when received thereby, said dividing-wire affording means for guiding said plates into said cup.

4. In apparatus of the class described, in combination, a casing, a plurality of developing-cups received in the lower portion thereof, means for receiving a plurality of plate-holders above said cups within said casing, means for passing the plates from said plate-holder into said cups, and means for controlling the flow of a developing agent to said cup.

5. In apparatus of the class described, in combination, a casing, a plurality of developing-cups disposed in the lower portion of said casing, a plurality of compartments formed in the upper portion of said casing and communicating respectively with said cups, said compartments being adapted to receive plate-holders, means for passing the plates from said plate-holders into said cups, and means for controlling the flow of a developing fluid into said cups.

6. In apparatus of the class described, in combination, a casing, a plurality of developing-cups disposed in the lower portion thereof, a plurality of partitions dividing the upper portion of said casing, said partitions being received between the said cups and forming compartments adapted to receive plate-holders, means for opening communication from the plate-holders into said cups, and means for controlling the flow of a developing fluid into said cups.

7. In apparatus of the class described, in combination, a casing, a plurality of developing-cups received in the lower portion thereof, said developing-cups being open above, a plurality of partitions dividing the upper portion of said casing into compartments, said partitions being received between the upper edges of said cups, said compartments being adapted to receive plate-holders disposed above said cups, means for opening communication from said plate-holders into said cups, and means for controlling the flow of a developing fluid to said cups.

8. In apparatus of the class described, in combination, a casing, developing-cups received in the lower portion of said casing and having oppositely-disposed shoulders at the upper portion thereof, a partition dividing the upper portion of said casing into compartments, the lower edge whereof rests upon said shoulders, plate-holders adapted to be received by said compartments, means for opening communication from said plate-holders into the said developing-cups, and means for controlling the flow of a developing fluid into said cups.

9. In apparatus of the class described, in combination, a casing, a developing-cup received in the lower portion of said casing, a plate-holder adapted to be received in the upper portion of said casing, said plate-holder and said casing having, the one a recess, and the other a projection received thereby, said recess and said projection being adapted to support said plate-holder, and means for opening communication between the interior of said plate-holder and said cup.

10. In apparatus of the class described, in combination, a casing, a plurality of developing-cups received in the lower portion thereof, a plurality of partitions dividing the upper portion of said casing into compartments, plate-holders adapted to be received by said compartments, there being an interlocking connection between said plate-holders and the wall of said compartments operating to support said plate-holders, and means for opening communication from said plate-holders into said cups.

11. In apparatus of the class described, in combination, a developing-cup adapted to receive a plate to be developed, a base adapted to support said developing-cup, and having an opening therethrough, a second cup adapted to be held in one's hand, a hose attached to said second cup and communicating with the interior of said developing-cup through said opening.

12. In apparatus of the class described, in combination, a developing-cup, means for supporting the same with its bottom in an elevated position, a spout communicating with the interior of said cup, a second cup adapted to receive a developing fluid, and a flexible tubular connection between said spout and said second cup.

13. In apparatus of the class described, in combination, a casing, a developing-cup received in the lower portion thereof, a base adapted to support said casing and said cup, a spout projecting downwardly below said base and communicating with the interior of said developing-cup, a hand-cup, and a flexible tubular connection between said hand-cup and said spout.

14. In apparatus of the class described, in combination, a bottomless casing, a base supporting the same, a removable developing-cup mounted in the lower portion of said casing, and having a spout projecting downwardly therefrom, there being an opening through said base through which said spout passes, a hand-cup adapted to contain a developing fluid, and a flexible tubular connection between said hand-cup and said spout.

15. In apparatus of the class described, in combination, a bottomless casing, a plurality of developing-cups disposed in the lower portion thereof and having downwardly-projecting spouts, a base adapted to support said casing and said developing-cups, a hand-cup, and tubular connections leading from said hand-cup to said spouts.

16. In apparatus of the class described, in combination, a bottomless casing, a plurality of developing-cups received in the lower portion thereof, a base adapted to receive said casing, a hand-cup having compartments therein and adapted to receive a developing fluid, and flexible tubular members connecting said compartments respectively with said developing-cups.

17. In apparatus of the class described, in combination, a casing, a developing-cup contained therein, a plate-holder within said casing and connecting with said cup, pull-rods adapted to open communication between said plate-holder and said cup, and a housing for said pull-rods, said casing and said housing being adapted to exclude light from the interior thereof.

18. In apparatus of the class described, in combination, a casing having an opening through a vertical wall thereof, a plate-holder adapted to be introduced into said casing through said opening, a removable cover for said opening, said casing having a lateral extension below said opening, a removable cover for said lateral extension, said covers having edges overlapping with said casing, a developing-cup in the lower portion of said casing, and adapted to receive a plate from said plate-holder, a removable member adapted to open communication between the interior of said plate-holder and said cup, and means for advancing said removable member into said lateral extension.

19. In apparatus of the class described, in combination, a casing having an opening through a vertical wall thereof, and having a lateral extension adjacent to said opening, a removable cover for said opening and a removable cover for said extension, plate-holders adapted to be introduced into said casing through said opening, developing-cups carried within said casing beneath said plate-holders, sliding heads carried by said plate-holders, and adapted to open communication between the same and said cups, and pull-rods carried within said extension and connecting with said sliding heads, said covers affording means for excluding the light from the interior of said casing.

20. In apparatus of the class described, in combination, a casing, plate-holders adapted to be introduced into said casing, developing-cups carried within said casing, and connecting with said plate-holders, sliding members carried by said plate-holders and adapted to open communication between the interior thereof and said cups, said casing having a lateral extension opposite to said sliding members, and means for advancing said sliding members into said extension, said extension being adapted to exclude light from the interior of said casing.

21. In apparatus of the class described, in combination, a casing, plate-holders adapted to be introduced therein, developing-cups in conjunction with said plate-holders, removable heads adapted to open communication between the interior of said plate-holders and said cups, said casing having a lateral extension opposite the said removable heads, a removable cover for said extension, and means for advancing said removable heads into said extension, said cover being adapted to exclude light from the interior of said casing.

22. In apparatus of the class described, in combination, a casing, a plate-holder adapted to be introduced into said casing, a developing-cup in connection with said plate-holder, a sliding head carried by said plate-holder, and adapted to open communication between the interior of said plate-holder and said cup, said casing having a lateral extension opposite to said sliding head, a removable cover for said extension, a member carried in said extension and adapted to withdraw said sliding head, and a removable connection between said member and said sliding head.

23. In apparatus of the class described, in combination, a casing, a plate-holder adapted to be introduced into the same, a developing-cup, a sliding head carried by said plate-holder and adapted to open communication between the interior thereof and said cup, said casing having a lateral extension opposite to said sliding head, a pull-rod carried in said extension, a removable cover for said extension, and a hook-and-eye connection between said pull-rod and said sliding head.

24. In apparatus of the class described, in combination, a developing-casing adapted to receive plate-holders, said casing having a lateral extension, a removable cover for said extension, a removable cover for said casing adjacent to said extension, said covers having overlapping edges adapted to exclude the light from the interior of said casing, and members carried in said extension and adapted to open said plate-holders.

25. In apparatus of the class described, in combination, a developing-casing adapted to receive plate-holders, and having a lateral extension, a removable cover for said casing, a removable cover for said extension, said removable covers having abutting edges, means whereby said edges may exclude the light, members carried within said extension and projecting through the wall thereof, said members being adapted to open said plate-holders, and developing-cups adapted to receive the plates from said plate-holders.

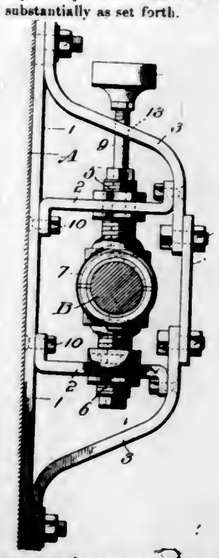
26. In apparatus of the class described, in combination, a developing-casing, comprising, in combination, a body adapted to receive plate-holders and having a lateral extension, said lateral extension having a removable head, members mounted in said head and adapted to open said plate-holders, and developing-cups adapted to receive the plates from said plate-holders.

27. In apparatus of the class described, in combination, a casing adapted to receive plate-holders, said casing having an opening in the vertical wall thereof and a substantially horizontal extension below said opening, a removable cover for said extension, the inner edge whereof projects beyond the edges of said casing, said cover having an upwardly-projecting flange near the inner edge thereof, a removable cover for said opening, the edge whereof abuts said flange, members carried within said extension and projecting through the wall thereof, said members being adapted to open said plate-holders.

28. In apparatus of the class described, in combination, a casing having a substantially horizontal extension and an opening in the vertical wall thereof above said extension, said casing being adapted to receive plate-holders, the lower edges whereof are in substantial alinement with said extension, a removable cover for said opening, a removable cover for said extension, a removable head for said extension, and members mounted in said head and adapted to open said plate-holders.

750,666. SHAFT-HANGER. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed May 19, 1903. Serial No. 157,822. (No model.)

Claim.—1. A support or hanger for shafting comprising a main base member, the cross members between which the shaft is arranged attached at their inner ends to the base, and the brace or truss members attached respectively to the base and the outer ends of the cross members, substantially as set forth.



2. A shaft support or hanger comprising a main base member, cross members each attached at one end to the base member, the truss or brace members connected respectively with the base member and the outer or free ends of the cross members, the two cross members and the base member constituting respectively three sides of a space in which the shaft is situated, and a tie-bar connected with the outer ends of the cross members arranged to constitute the fourth side of the space in which the shaft is situated, substantially as set forth.

3. In a support or hanger for shafting, the combination of a vertically-disposed base member, the horizontally-disposed cross members, 2, 2, attached at their inner ends to the base member, the adjusting devices for the shaft-bearings carried by the said cross members, and the brace members, 3, 3, connected respectively with the base member and the outer ends of the cross members, substantially as set forth.

4. A bracket or hanger for shafting, comprising a main attaching bar or plate, 1, the substantially horizontal bars, 2, 2, supporting the bearings for the shaft, and the truss members, 3, 3, the said parts of the hanger or support being formed of bar metal and being detachably connected, whereby the parts may be easily assembled and disassembled, substantially as set forth.

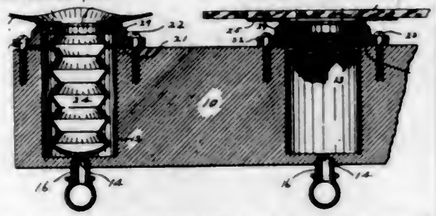
5. A shaft support or hanger comprising a main base member, cross members between which the shaft is arranged each attached at one end to the base member, the truss or brace members attached respectively to the base member and to the outer or free ends of the cross members, the brace members being continued beyond their points of attachment to the cross members, and a tie-piece uniting the ends of the brace members, substantially as set forth.

6. In a hanger or support for shafting, the combination of the vertical base or supporting member, 1, the substantially horizontal members, 2, 2, detachably connected to the base at their inner ends, adjusting devices for the shaft-bearing supported by the said horizontal members, 2, the brace or truss members, 3, 3, detachably connected respectively with the base member, 1, and the outer ends of the horizontal members, 2, 2, the ends of the brace or truss members being extended beyond their connections with the horizontal members, but separated from each other sufficient to permit the shaft to pass between them, and the tie-plate 4 connecting the ends of the brace members, substantially as set forth.

750,667. VACUUM-FRAME. OSCAR I. LEWELLYN and JAMES W. SCHOCK, Kokomo, Ind. Filed Aug. 24, 1903. Serial No. 170,657. (No model.)

Claim.—1. A vacuum-frame having a plurality of suction-holders, a single means for exhausting air therefrom, and means controlled by the outside air-pressure for stopping the exhaust.

2. A vacuum-frame having a plurality of suction-holders with an exhaust-port leading therefrom, a single means for exhausting air from said suction-holders, and a diaphragm within the suction-holder that is moved by the external air-pressure into a position for closing the exhaust-port.



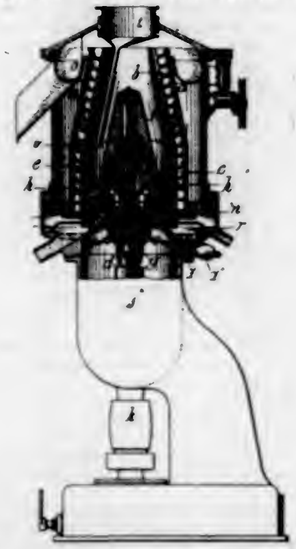
3. A vacuum-frame having a plurality of exhaust-chambers with a port leading from each, a single means for exhausting the air from said chambers, and a diaphragm in each chamber that is moved by the external air-pressure into a position to close the exhaust-port leading from said chambers when the air is exhausted from said chambers.

4. A vacuum-frame having a plurality of exhaust-chambers with an exhaust-port leading from each, a suitable mouthpiece for each chamber, a single means for exhausting the air from said chambers, and a bellows-shaped diaphragm secured in said chamber with its outer end open and its inner end closed so that the external air-pressure will move the inner end to close the exhaust-port when the air is exhausted from said chambers.

5. A vacuum-frame having a plurality of exhaust-chambers with an exhaust-port leading from each, an annular head secured at the mouth of each chamber, a flexible mouthpiece secured to said annular head, a bellows-shaped diaphragm secured in said chamber to said annular head, and a single means for exhausting air from said chambers.

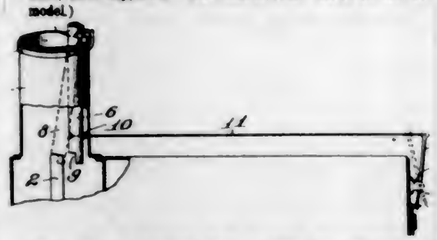
6. A vacuum-frame formed of a number of bars crossing each other at right angles and widened at their intersection, an exhaust-chamber formed in such widened portion at said points of intersection and having an exhaust-port leading from the inner end thereof a collapsible mouthpiece secured to the outer end of each exhaust-chamber, a diaphragm in each exhaust-chamber that is moved by the outside air-pressure to close the exhaust-port when the air is exhausted from said chamber, a series of pipes connected with said exhaust-chambers, and a single pipe through which the air may be exhausted from all of said exhaust-chambers through the exhaust-ports and said series of pipes.

750,668. CENTRIFUGAL APPARATUS. ALARIK LIEDBECK, Stockholm, Sweden. Filed Oct. 27, 1903. Serial No. 178,701. (No model.)



Claim.—In a centrifugal apparatus for separating solids and liquids, the combination of an upwardly-tapering outer drum *a*, an inner drum *c*, having on its outside one or more screw-threads *b* fitting closely to the inner side of the outer drum, discharge-apertures *k* arranged near the bottom of the inner drum, between the threads, and outlets *m*, *n* for liquid, located in the bottom of the outer drum at different distances from the center, all for the purpose that the space between the outer and inner drums may form a vessel or separating-chamber where the mixture will be subjected to the action of the centrifugal force for a comparatively long period and the separation consequently become as complete as possible.

750,669. AUTOMATIC DRAFT-REGULATOR. GILBERT O. LINDGREN, Sioux City, Iowa. Filed June 23, 1903. Serial No. 162,788. (No model.)



Claim.—In an automatic draft-regulator, the combination with the stack, exhaust-nozzle and the door of the fire-box of an engine, of an adjustable conducting-pipe arranged within the stack and cut away so as to form a depending projection on its lower end, said depending projection adapted to act as a stop to arrest the inward movement of the conducting-pipe and to cause the said pipe and nozzle to register with one another when the pipe is in its adjusted position, a band surrounding and projecting over and above the top of the stack, said pipe having its upper end pivotally connected to said projecting portion of the band, a shifting arm extending at one end through the stack and pivotally connected to the pipe, and a rocking lever pivotally connected with the engine, connected at its upper end to the other end of said shifting arm and having its lower portion extending directly in front of said door so that it will be engaged and rocked when the door is opened, causing thereby the automatic adjustment of said pipe, substantially as herein shown and described.

750,670. COMBINED FREIGHT AND DUMP CAR. ARTHUR LIPSCHUTZ, St. Louis, Mo., assignor of two-thirds to MAX TOLTZ, St. Paul, Minn., and H. W. WOLF, St. Louis, Mo. Filed Feb. 9, 1903. Serial No. 142,453. (No model.)



Claim.—1. A freight-car, having its floor substantially wholly composed of a single set of drop-doors and narrow floor-plates in the

plane of said doors, means being provided for holding the doors in their normal positions, substantially as described.

2. A freight-car, having its floor substantially wholly composed of a single set of drop-doors and narrow floor-plates, in a single horizontal plane, substantially as described.

3. A combined freight and dump car, having a suitable center sill and having a straight level floor substantially wholly composed of a plurality of narrow floor-plates and a single set of drop-doors arranged in two series, one series on each side of said center sill, substantially as described.

4. A combined freight and dump car provided with parallel side girders and having a straight, level floor substantially wholly composed of normally horizontal doors, hinged parallel with and adjacent to the longitudinal axis of the car and having their free ends supported from said girders, substantially as described.

5. A combined freight and dump car, comprising the trucks, in combination with the body-bolsters, the side girders supported upon said bolsters, cross-beams each extending from side girder to side girder and a plurality of doors arranged between said cross-beams, said cross-beams transmitting the loads of said doors from the center of the car to said side girders, substantially as described.

6. A combined freight and dump car, comprising the trucks, in combination with the side sills or girders, the cross-beams extending between said girders, two thereof being the body-bolsters, horizontal floor-plates secured from the tops of said beams and the car-floor composed of a plurality of drop-doors hinged between said beams, substantially as described.

7. A combined freight and dump car, comprising the trucks, in combination with the body-bolsters, having horizontal tops, the side girders supported on said bolsters, the end and cross beams parallel with said bolsters and the normally horizontal level car-floor made in sections and detachably supported between said beams, substantially as described.

8. A combined freight and dump car body, comprising the parallel center and side sills or girders, in combination with the body-bolsters, the end and cross sills extending between the side girders and supporting said center girder, and the car-floor carried by said parallel beams and bolsters, substantially as described.

9. A combined freight and dump car body, comprising the side girders, in combination with suitable body-bolsters and end beams or sills, the rectangularly-arranged narrow floor-plates, widely spaced and supported between said side girders and a car-floor composed of doors that close upwardly beneath said floor-plates with their tops in the plane of said plates, substantially as described.

10. A combined freight and dump car body, comprising vertical sides and ends, in combination with the widely-spaced cross beams or girders extending from side to side of the car and the series of drop-doors constituting the floor of the car-body and extending from end to end thereof, substantially as described.

11. A combined freight and dump car body, comprising the vertical sides and ends, in combination with a plurality of cross-girders parallel with said ends and supported by said sides, the articulated or sectional center girder, supported by said cross-beams and extending between said ends, and a plurality of drop-doors arranged between said girders and the sides and ends, substantially as described.

12. A combined freight and dump car, comprising suitable sides and ends, in combination with a plurality of cross-girders extending between said sides, a center girder, the tops of said girders being in substantially the same plane, the overhanging floor-plates provided thereon and the drop-doors normally flush with said plates and provided with joint-closing flanges, substantially as described.

13. A combined freight and dump car, comprising suitable sides and ends, in combination with a plurality of cross-beams extending between said sides, the longitudinal girder-sections attached to the ends and cross-girders, the series of doors upon each side of the center girder constituted by said longitudinal sections and means for normally supporting the same to constitute the car-floor and for dropping them to discharge the contents of the car, substantially as described.

14. A combined freight and dump car, comprising parallel girder sides, in combination with a plurality of cross-girders extending between said sides, two thereof being the body-bolsters, the normally vertical hinged ends and car-floor composed of a series of drop-doors arranged between said cross-girders and extending from end to end of the car, substantially as described.

15. A combined freight and dump car, comprising suitable sides and ends, a plurality of cross-beams parallel with said ends, a suitable center girder or sill, having draft-rigging connections at its ends, the trucks, the brake mechanism arranged beneath said center sill and the series or rows of drop-doors suitably supported between said cross-beams, those at the ends of the car above the trucks being limited as to downward movement, substantially as described.

16. A combined freight and dump car, having a longitudinal beam extending throughout the length of the car, in combination with side girders supporting said longitudinal beam and the drop-bottom doors hinged parallel with said longitudinal beam, substantially as described.

17. A combined freight and dump car, comprising suitable sides and ends, in combination with a plurality of cross beams or girders, the drop-doors hinged midway of said cross-beams and having free ends normally supported from said sides and adapted to drop parallel therewith, substantially as described.

18. A combined freight and dump car, having drop-bottom doors hinged from a beam or beams extending throughout the length of the car-underframe, cross-beams supported on the sides of the car and supporting the center beam or center beams.

19. A combined freight and dump car, comprising the sides, in combination with the cross-beams, the drop-doors fitted between and hinged midway of said cross-beams and a floor-plate extending the full length of the car, substantially as described.

20. A combined freight and dump car, comprising the underframe composed of rectangularly-arranged sides and beams, having stop-flanges, in combination with drop-doors having their tops in the plane of said flanges and therewith constituting the floor of the car, substantially as described.

21. The car-underframe, comprising the side girders, in combination with the cross-beams joining them, the articulated center girder joining said beams and the doors closing the spaces between said girders, substantially as described.

22. The underframing for a freight and dump car, comprising the side and center girders, in combination with the body-bolsters, the end girders, the intermediate beams all extending from side girder to side girder and the series of doors extending from end to end of the underframe thus composed, substantially as described.

23. The parallel side girders, in combination with a plurality of cross-beams, two of which are body-bolsters, and the drop-doors supported by said cross-beams and ultimately supported by said side girders and the bolsters, substantially as described.

24. A combined freight and dump car having a straight and level floor extending from end to end of the car and substantially wholly composed of a plurality of doors, arranged to be dropped away from the sides of the car to discharge the contents of the car throughout the whole car-bottom, substantially as described.

25. A combined freight and dump car, comprising suitable sides and ends, in combination with a plurality of cross beams or girders, extending between said sides, a plurality of drop-doors suitably hinged upon said cross-beams, said cross-beams and said sides being provided with narrow overhanging floor-flanges and said doors closing tightly beneath and against said flanges, substantially as described.

26. A combined freight and dump car, comprising the parallel side girders, in combination with the transverse girders connecting them and supported thereby, the horizontal stop-flanges provided upon said sides, the longitudinal floor-plate, the transverse floor-plates upon said girders and the doors, hinged upon said girders and provided with projecting strengthening-flanges, closing the joints between the side flange and said plates and the doors, substantially as described.

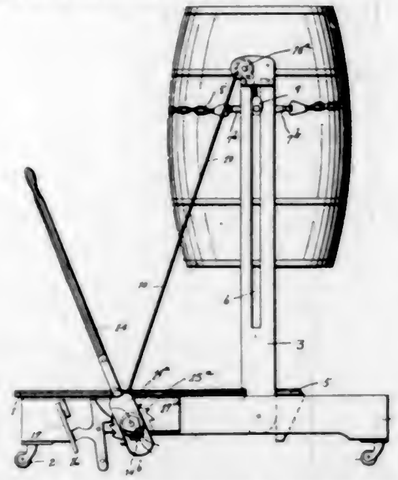
750,671. BARREL TRUCK AND HOIST. EDMUND B. LITTLE, Union City, Tenn. Filed Dec. 17, 1902. Serial No. 135,622. (No model.)

Claim.—1. In a device of the character described, a truck provided with pivoted standards, means for the retension of said standards in a fixed position, grappling-hooks adapted to slide in said standards, means for engaging said grappling-hooks to a cask or barrel, means for raising and lowering said grappling-hooks, comprising a shaft carrying a drum and ratchet, a dog adapted to engage said ratchet, a lever slidingly mounted upon said shaft and having means for engagement with said ratchet and dog respectively.

2. In a device of the character described, a truck provided with standards, grappling-hooks adapted to slide in said standards, means connecting together said grappling-hooks and adapted to engage the barrel or cask, and means for raising and lowering said grappling-hooks, comprising a shaft carrying a ratchet, a spring-pressed dog engaging said ratchet, a lever having a sliding connection with said shaft and provided with lateral studs or pins, one adapted to engage said ratchet and the other adapted to engage said dog.

3. In a device of the character described, a truck equipped with standards, sliding grappling devices arranged in said standards, means

connecting said grappling devices together when applied to a barrel or cask, and means for raising and lowering said grappling devices, comprising a winding-shaft carrying a fixed ratchet, said shaft being connected up with said grappling devices, an endwise-movable lever arranged upon said winding-shaft, a spring-actuated dog adapted to engage said ratchet and having a lateral stud, said lever having its lower end adapted to engage said lateral stud.



4. In a device of the character described, a truck provided with standards, sliding grappling-hooks arranged in said standards and adapted to be connected together for raising a cask or barrel, and means for raising and lowering said grappling-hooks, comprising a shaft carrying a fixed ratchet, a spring-pressed dog engaging said ratchet, a sliding lever provided with lateral studs or pins, one of said studs engaging said ratchet and the other pin or stud adapted to engage said dog.

5. In a device of the character described, a truck provided with standards, sliding grappling devices arranged upon said standards, and adapted to be applied to a cask for raising and lowering the same, and means for raising and lowering said grappling-hooks, comprising a shaft having a fixed ratchet thereon, a spring-actuated dog provided with a lateral stud or projection, a sliding lever arranged upon said shaft and provided with lateral lugs or pins, one adapted to engage said ratchet and the other adapted to engage said dog.

6. In a device of the character described, a truck provided with standards, sliding grappling-hooks adapted to be connected together when applied to a cask, means for raising and lowering said grappling-hooks, comprising a shaft carrying a fixed ratchet, a spring-actuated dog adapted to engage said ratchet having a lateral stud or projection, and a sliding lever arranged upon said ratchet-shaft and having lateral studs or pins, one adapted to engage said ratchet and the other adapted to engage said dog, said lever having its lower end adapted to engage the lateral stud or projection of said dog.

7. In a device of the character described, a truck equipped with standards, sliding grappling devices arranged upon said standards and having means for their application to a barrel or cask, means for raising and lowering said grappling devices, comprising a shaft carrying a fixed ratchet, a dog engaging said ratchet and having a conical-ended extension or cam, a spring adapted to engage said conical extension or cam, and a sliding lever arranged upon said ratchet-shaft and provided with lateral studs or pins, one engaging said ratchet and the other engaging said dog, said lever or pawl adapted to engage at its lower end a lateral stud of said dog.

8. In a device of the character described, a truck equipped with standards, sliding grappling devices arranged upon said standards adapted for application to a barrel or cask, and means for raising and lowering said grappling devices, comprising a shaft carrying a fixed ratchet, a dog engaging said ratchet and having a lateral stud and a rearward conical extension or cam, a spring adapted to engage said conical extension or cam, and a sliding lever arranged upon said ratchet-shaft and having lateral studs or pins, one adapted to engage said ratchet and the other adapted to engage said dog.

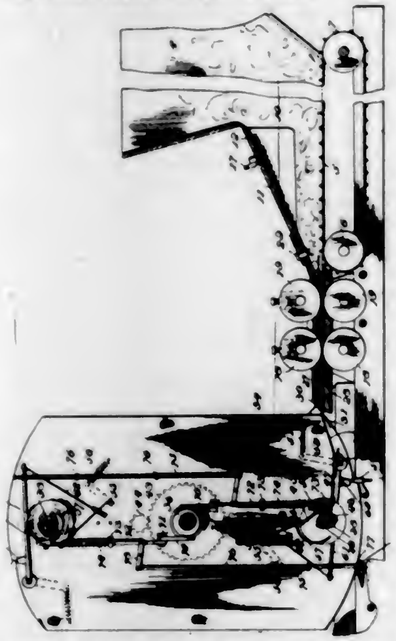
9. In a device of the character described, a truck equipped with standards, sliding grappling devices arranged upon said standards, each grappling device having teeth adapted to engage a cask or barrel and to be connected with means for application to a barrel or cask, and means for effecting the raising and lowering of said grappling-hooks.

10. In a device of the character described, a truck provided with standards having longitudinal slots therein, grappling devices having screw-threaded trunnion-like projections arranged to slide in said slots and provided with plates having teeth adapted to be applied to a barrel, &c., arranged laterally of said standards, means adapted to connect up said grappling devices after application to a barrel or cask, lines or cables connected to said plates or disks of said grappling devices, and means for actuating said lines or cables.

11. In a device of the character described, a truck equipped with supports, grappling devices, each having means to engage a cask or barrel, arranged to slide upon said supports and means for connecting said grappling devices after application to a barrel or cask, said supports having pulleys arranged at their upper ends, cables or lines passed over said pulleys and connected to said grappling devices and means for actuating said lines or cables.

12. In a device of the character described, a truck equipped with standards, sliding grappling-hooks arranged upon said standards, means for actuating said grappling-hooks, and means comprising keys or wedges arranged in slots laterally of said standards, whereby the withdrawal of which wedges or keys will permit said standards to be adjusted to an inclined position.

750,672. MACHINE FOR COMPRESSING AND REELING FIBROUS MATERIAL. MELCHIOR L. LUEBBEN, Sutton, Nebr. Filed Mar. 10, 1903. Serial No. 147,140. (No model.)



Claim.—1. A baling-machine comprising a compress mechanism, a feeder for supplying the material thereto, a reel for winding the mat or web formed by the compress mechanism, and a cutting mechanism actuated by the reel to sever the mat or web when the bale or roll reaches a predetermined size, substantially as set forth.

2. In a baling-machine, a compress mechanism for forming the material into a mat or web, a feeder for supplying the material thereto, a reel, a spindle journaled to the frame of the reel and adapted to wind the mat or web thereon, and actuating means for intermittently operating the reel to carry the completed roll or bale to the point of discharge, substantially as described.

3. In a baling-machine, a compress mechanism for forming the material into a web or mat, a feeder for supplying the material thereto, a distributer arranged above the feeder for spreading the material thereon, and means for imparting a lateral vibratory movement to the distributer, substantially as specified.

4. In a baling-machine, a compress mechanism for forming the material into a web or mat, a feeder for supplying the material thereto, and a distributer arranged above the feeder for spreading the material thereon and inclined thereto for gradually compressing the material during its travel to the compress mechanism, substantially as described.

5. In a baling-machine, a compress mechanism for forming the material into a web or mat, a feeder for supplying the material thereto, and a distributer arranged above the feeder for spreading the material thereon and provided with pendent portions upon its lower face, and means for imparting a lateral vibratory movement to said distributer, substantially as specified.

6. In a baling-machine, the combination of compress mechanism for forming the material into a mat or web, a feeder for supplying the material thereto, a distributer located above the feeder and arranged at an upward and forward inclination, wings pendent from the lower side of the distributer, and operating mechanism for imparting a lateral vibratory movement to the distributer, substantially as set forth.

7. In a baling-machine, the combination of a compress mechanism for forming the material into a web or mat, a hopper for receiving the material and having its bottom and inner lower side open, a feeder arranged beneath the hopper for supporting the material and supplying the same to the compress mechanism, and a distributer located above the feeder intermediate of the hopper and compress mechanism and inclined from the upper end of the opening in the inner side of the hopper downwardly toward the compress mechanism, and means for imparting vibratory movement to the distributer, substantially as specified.

8. In a baling-machine, the combination of a compress mechanism for forming the material into a web or mat, a guide for receiving and directing said mat having portions cut away to admit of operation of the compress mechanism therethrough, and a feeder for supplying the material to the guide, substantially as set forth.

9. In a baling-machine, a compress mechanism for forming the material into a mat or web, a guide for receiving and directing the mat and having portions cut away to admit of operation of the compress mechanism, an endless apron having its upper portion about in the plane of the lower side of the guide, and a distributer extended from the upper portion of said guide and inclined away from said apron to form a flaring space therewith for reception of the material and gradually compressing the same on its way to the compress mechanism, substantially as specified.

10. In a baling-machine, and in combination with a compress mechanism for forming the material into a mat or web, a reel, a plurality of spindles applied to the frame of the reel and adapted to wind the web or mat thereon, actuating means for the reel thrown into operation by the bale or roll when it reaches a predetermined size, means for automatically throwing the reel out of gear when an empty spindle is brought into position to receive the web or mat, a catch for holding the reel in proper position, and a trip mechanism for releasing the catch when the roll or bale has reached the given size, substantially as set forth.

11. In a baling-machine, and in combination with the compress mechanism for forming the material into a web or mat, a reel, a series of spindles applied to the frame of the reel and adapted to wind the mat thereon, actuating means for the reel adapted to be controlled by the roll to automatically throw the reel into gear when said roll reaches a predetermined size, a catch for holding the reel in a given position, a trip controlled by the said roll for automatically releasing the catch, a cutter mechanism actuated by the reel to sever the mat or web, and means for automatically throwing the reel out of gear when the empty spindle next in order reaches a position to receive the mat, substantially as set forth.

12. In a baling-machine, and in combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon into a roll, and actuating means for rotating the spindle at a differential speed and controlled by the increase in diameter of the size of the roll, whereby the mat is wound approximately at a uniform speed corresponding to the speed of production of the mat by the compress mechanism, substantially as set forth.

13. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, actuating means for said spindle comprising a pair of oppositely-disposed cone-pulleys and a connecting-belt, a belt-shipper, and means for moving the belt upon the cone-pulleys and controlled by the increase in the diameter of the roll, whereby the spindle is driven at a gradually-slowing speed to admit of an approximately uniform winding of the mat, substantially as set forth.

14. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, actuating means for said spindle comprising a pair of oppositely-disposed cone-pulleys and a connecting-belt, a belt-shipper, a spring for normally holding the belt-shipper in a given position, and means for moving the belt-shipper against the tension of said spring and controlled by the increase in diameter of the roll for driving the spindle at a gradually-slowing speed, substantially as set forth.

15. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, a spring-actuated bar and a compressor attached to and carried by said spring-actuated bar and coöperating with the spindle to insure compact winding of the mat thereon, substantially as set forth.

16. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, and a compressor coöperating with the spindle to insure compact winding of the mat thereon and comprising a plurality of spring-fingers arranged for direct contact with the roll, substantially as described.

17. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, a compressor coöperating with the spindle to insure compact winding of the mat thereon and comprising a plate for directing the mat to the spindle, and a plurality of spring-fingers for direct engagement with the roll, substantially as set forth.

18. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, spring-actuated bars arranged upon opposite sides of the spindle, a compressor attached to and carried by each of said spring-actuated bars and arranged to operate upon opposite sides of the spindle to insure compact winding of the mat thereon, substantially as set forth.

19. In a baling-machine, the combination with the compress mechanism for forming the material into a web or mat, a spindle for winding said mat thereon, a compressor arranged for coöperation with the spindle to insure compact winding of the mat thereon, and a holder carried by said compressor for coöperation therewith to support the roll, substantially as described.

20. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat, a reel, a spindle applied to the frame of the reel and adapted to wind the mat thereon, a cutting mechanism operated by the reel for severing the mat after the bale has reached the required size, a catch for holding the reel in proper position, a compressor applied to the reel and coöperating with the spindle and actuated by the increasing size of the roll, and an arm connected with said compressor and adapted to trip the catch and release the reel, substantially as set forth.

21. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel, a spindle applied to the frame of the reel and adapted to wind the mat thereon, a cutting mechanism operated by the reel for severing the mat after the bale has reached the required size, a catch for holding the reel in proper position, a compressor applied to the reel and coöperating with the spindle and actuated by the increasing size of the roll, an arm connected with said compressor and adapted to trip the catch and release the reel, operating mechanism for the spindle and comprising a movable element for varying the speed, and a connection between said movable element and the arm connected with the compressor, substantially as set forth.

22. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel, a spindle applied to the frame of the reel and adapted to wind the mat thereon, a cutting mechanism operated by the reel for severing the mat after the bale has reached the required size, a catch for holding the reel in proper position, a compressor applied to the reel and coöperating with the spindle and actuated by the increasing size of the roll, an arm connected with said compressor and adapted to trip the catch and release the reel, actuating mechanism for the reel embodying a clutch normally unshipped, and means for throwing said clutch into engagement and held in restraint by the arm connected with said compressor and movable therewith to admit of shipping of the clutch the instant the reel is tripped, substantially as set forth.

23. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel, a spindle applied to the frame of the reel and adapted to wind the mat thereon, a cutting mechanism operated by the reel for severing the mat after the bale has reached the required size, a catch for holding the reel in proper position, a compressor applied to the reel and

cooperating with the spindle and actuated by the increasing size of the roll, an arm connected with said compressor and adapted to trip the catch and release the reel, operating mechanism for the spindle and comprising a movable element for varying the speed, a connection between said movable element and the arm connected with the compressor, actuating mechanism for the reel embodying a clutch normally unshipped, and means for throwing said clutch into engagement and held in restraint by the arm connected with said compressor and movable therewith to admit of shipping of the clutch the instant the reel is tripped, substantially as set forth.

24. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel, a spindle applied to the frame of the reel and adapted to wind the mat thereon, a cutting mechanism operated by the reel for severing the mat after the bale has reached the required size, a catch for holding the reel in proper position, a compressor applied to the reel and cooperating with the spindle and actuated by the increasing size of the roll, an arm connected with said compressor and adapted to trip the catch and release the reel, actuating mechanism for the reel embodying a clutch normally unshipped, means for throwing said clutch into engagement and held in restraint by the arm connected with said compressor and movable therewith to admit of shipping of the clutch the instant the reel is tripped, a bar carried by the reel, and a trip for operating said bar to throw the clutch-operating mechanism out of action, thereby permitting the automatic unshipping of the reel, substantially as specified.

25. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel comprising a frame, a shaft having said frame loosely mounted thereon, means for imparting continuous rotary movement to said shaft, a clutch between the frame of the reel and said shaft and normally held out of action, spindles journaled to the frame of the reel, gearing between said spindles and shaft for imparting continuous movement thereto, a catch for holding the reel in a given position, a trip mechanism cooperating with each spindle for releasing the catch when the roll reaches a predetermined size, and a second trip mechanism controlled by the first-mentioned trip mechanism to throw the reel in gear, substantially as set forth.

26. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel comprising a frame, a shaft having said frame loosely mounted thereon, means for imparting continuous rotary movement to said shaft, a clutch between the frame of the reel and said shaft and normally held out of action, spindles journaled to the frame of the reel, gearing between said spindles and shaft for imparting continuous movement thereto, a catch for holding the reel in a given position, a trip mechanism cooperating with each spindle for releasing the catch when the roll reaches a predetermined size, a spring-actuated bar normally tending to throw the reel in gear and held in restraint by the said trip mechanism, and a bar extended in an opposite direction to the trip-bar and connected therewith for throwing it out of operative position when the reel has completed the movement necessary to bring the empty spindle next in order in position for reception of the web, substantially as set forth.

27. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel comprising oppositely-disposed heads, spindles journaled between said heads and adapted to have the mat wind thereon, a movable bearing for the outer end of each of the spindles normally supporting the same, and means for pushing said movable bearing aside to admit of stripping the roll from the spindles, substantially as set forth.

28. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel comprising oppositely-disposed heads, spindles journaled between said heads and adapted to have the mat wind thereon and provided at one end with heads, a bearing for the opposite end of each of the spindles and constituting a head to assist in evening the winds of the mat, and means for pushing the movable bearing aside to admit of removal of the rolls from the spindle, substantially as set forth.

29. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, a reel comprising oppositely-disposed heads, spindles journaled between said heads and adapted to have the mat wind thereon, arms pivoted to the head of the reel adjacent to the free ends of the spindles, slotted bearings applied to said arms to normally receive an end of the spindles, an extension projected laterally from each of the pivoted arms for cooperation with a trip to move said arms and bearings out of the path of the bales, and means for throwing the bearings into position after the bales have been discharged, substantially as specified.

30. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, and an ejector normally held out of the path of the reel to admit of its turning and adapted to automatically take hold of the bales and discharge the same, substantially as set forth.

31. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for discharging the bales from the reel, means for normally tending to throw the ejector into working position, and a track applied to the reel for holding the ejector out of the path of the reel when in motion and provided with depressions positioned with reference to the spindles to admit of the ejector automatically coming into play for discharging the bales, substantially as set forth.

32. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for automatically discharging the bales, the same comprising cooperating gripper-rolls, substantially as set forth.

33. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for automatically discharging the bales, the same comprising sets of gripper-rolls, one set comprising a pair beveled to centralize and properly position the bales, substantially as described.

34. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for automatically discharging the bales, the same comprising toothed gripper-rolls to make positive engagement with the bales, substantially as specified.

35. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for effecting an automatic discharge of the bales, and comprising a toothed wheel for tucking in the loose end portion of the mat to confine and secure the same, substantially as described.

36. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for automatically effecting a discharge of the bales, and a cutting mechanism for trimming the end portion of the mat simultaneously with the operation of the ejector, substantially as specified.

37. In a baling-machine, and in combination with the compress mechanism for forming the material into a mat or web, an intermittently-operated reel provided with spindles adapted to have the mat wind thereon, an ejector for effecting an automatic discharge of the bales and comprising a toothed wheel for tucking in the loose end portion of the mat for confining or securing the same, and a cutting mechanism for trimming the loose end of the mat simultaneously with the operation of said toothed wheel, substantially as set forth.

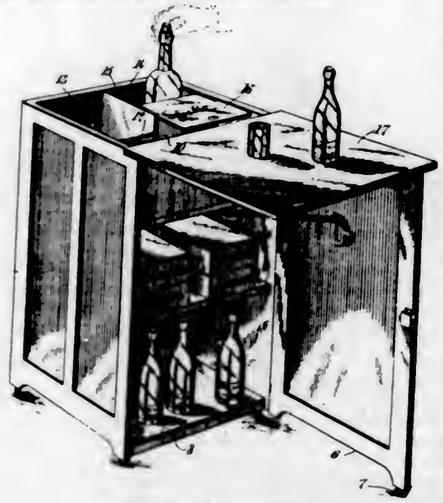
750,673. CABINET. ISAAC MASON, New York, N. Y. Filed July 7, 1903. Serial No. 164,541. (No model.)

Claim.—1. A cabinet open at its front and top, a horizontally-swinging door for the front opening, and a closure for the top opening secured to said door whereby it may swing therewith.

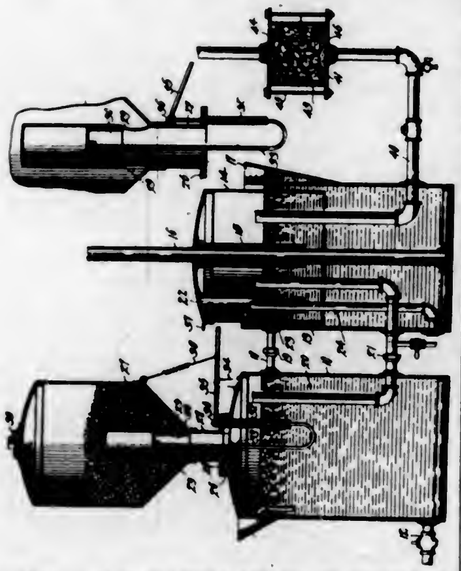
2. A cabinet open at its front and top, a horizontally-swinging door for the front opening, a top closure having swinging connection with the door, and means for limiting the outward-swinging movement of the door.

3. A cabinet open at the front and top, a shelf in said cabinet, a tray in the upper portion of the cabinet, the said cabinet having upward and outward openings from the space below the tray, a cover for one of said openings, a horizontally-swinging door for the front opening, and a top closure attached to the door so as to swing therewith.

4. A cabinet open at its front and top, a shelf arranged in the cabinet above the bottom thereof, a tray in the upper front portion of the cabinet, a rack in said tray, said cabinet having upward and outward openings at the rear of the tray, a sliding cover for one of said openings, a horizontally-swinging door for the front opening of the tray, a top closure attached to said door so as to swing therewith, a caster on the lower portion of the door, and means for limiting the outward-swinging movement of the door.



750,674. ACETYLENE-GENERATOR. WALTER S. MAY, Clifton Ariz. Filed June 21, 1902. Serial No. 112,647. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of the generating-tank, a carbid-holder, a tube forming a passage for the carbid from the holder to the tank, said tube extending upward within the holder and having a closed upper end and the side walls of the tube being provided with a plurality of ports to permit the passage of carbid from the holder to the tube, and a cylindrical valve in the form of an inverted cup fitted snugly within the tube and guided thereby, the valve when in open position being wholly above the ports and permitting the unobstructed flow of carbid through the tube to the generating-tank, said valve being balanced by the weight of carbid to which it is exposed through the plurality of ports.

2. The combination in an acetylene-gas generator, of the gas-generating tank having a top opening, a vertically-disposed ported tube having a lower flange secured to the top of the generator, a holder surrounding the upper portion of the tube and supported thereby, a valve guided within the tube and movable to an open position wholly above the port to thereby permit the unobstructed flow of the carbid through the tube.

3. The combination in an acetylene-gas generator, of the generating-tank having a flanged opening, a carbid-holder, a carbid-discharge tube having a closed upper end within the holder and provided with a lower flange adapted to be secured to the generating-tank, there being carbid ports or passages in said tube, a depending tube secured to and removable with the tube-flange and having its lower end extending below the water-line of the generating-tank, a vertically-movable valve arranged within the carbid-discharge tube, a U-shaped valve-operating bar having one end or arm extending through the depending tube and the other arm secured to the valve, a lever pivotally connected to said rod, and a movable gas-bell adapted to operate on said lever.

750,675. NUT FOR SAFETY-BOLTS, AIR-VALVE CAPS, OR OTHER ANALOGOUS PURPOSES. EDOUARD MICHELIN, Clermont-Ferrand, France. Filed Sept. 18, 1902. Serial No. 123,848. (No model.)



Claim.—1. The combination of a sleeve of which a portion only of the length contains a female screw-thread adapted to receive and engage an externally-screw-threaded central part and which portion is divided by longitudinal cuts or slots into several arms having a tendency to so spread out from the center as to permit the sleeve to slide freely along the central part, and an outer socket surrounding this sleeve and capable of sliding along it and so compressing its arms and causing their screw-thread to engage the screw-thread of the central part, said outer socket being provided with interior projections so engaging the slots between the arms of said sleeve that when it is turned it carries the latter with it with the screw-thread of said arms in engagement with the screw-thread of said central part.

2. The combination of a sleeve the lower portion only of which contains a female screw-thread adapted to receive and engage an externally-threaded central part and which portion is divided by longitudinal slots into several arms having a tendency to so spread out from the center as to permit the sleeve to slide freely along said central part, said sleeve being also provided with an enlargement at its upper and also at its lower part, and a socket surrounding this sleeve and capable of sliding along it down to the bottom, so as to compress the arms and cause their screw-thread to bite the screw-thread of the central part, this outer socket being provided with interior projections engaging the slots situated between the arms of the interior sleeve, so that when it is turned it carries the latter with it in its rotation and thus produces the desired binding, and being provided also with an interior annular recess at its lower part, so as not to be arrested in its descent by the projection of the sleeve which it surrounds.

750,676. TEMPORARY BINDER. JOHN L. C. MONTAGUE, Christiansburg, Va. Filed Aug. 10, 1903. Serial No. 168,993. (No model.)



Claim.—1. In a temporary binder, the combination of side pieces, stub-shafts secured to one of said side pieces, locking members connecting said side pieces and adapted to be coupled or uncoupled by a rotary movement of one of said members, said rotary members being swiveled upon said stub-shafts and provided with gears, and an operating member for rotating said gears, substantially as described.

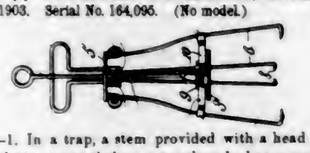
2. In a temporary binder, the combination of side pieces, headed stub-shafts secured to one of said side pieces, locking members connecting said side pieces and adapted to be coupled or uncoupled by a rotary movement of one of said members with respect to the other, said rotary members being swiveled upon said stub-shafts and being provided with gears, an operating member for rotating said gears, and means for operating said member, substantially as described.

3. In a temporary binder, the combination of side pieces headed

stub-shafts secured to one of said side pieces, locking members connecting said side pieces and adapted to be coupled or uncoupled by a rotary movement of one of said members with respect to the other, said rotary members being swiveled upon said stub-shafts and being provided with gears, a rack-bar for rotating said gears, and means for reciprocating said rack-bar, substantially as described.

4. In a temporary binder, the combination of side pieces, headed stub-shafts secured to one of said side pieces, locking members connecting said side pieces and adapted to be coupled or uncoupled by a rotary movement of one of said members with respect to the other, said rotary members being swiveled upon said stub-shafts and being provided with gears, a rack-bar for rotating said gears, a key-shaft, and a gear upon said key-shaft adapted to actuate said rack-bar, substantially as described.

750,677. GOPHER-TRAP. JOHN MORAWETZ, Castella, Cal. Filed July 2, 1903. Serial No. 164,095. (No model.)



Claim.—1. In a trap, a stem provided with a head having a plurality of slots open at their outer ends, a body surrounding the stem and movable relatively thereto, jaws, the upper ends of which are provided with springs, connected with said body, and links pivotally connected with the stem and jaws respectively, said springs serving to close the jaws, and the links being adapted to enter the slots upon the closing of the jaws.

2. In a trap, a stem having a slotted head at its lower end and an eye at its upper end, a body surrounding the stem and movable relatively thereto between said head and eye, a handle connected with the upper side of the body, jaws, provided at their upper ends with closing-springs, connected with said body, and links pivotally connected with the stem and jaws respectively, said links being adapted to enter the slots in the head upon the closing of the jaws.

3. In a trap, a stem having a slotted head at its lower end, a body surrounding the stem and movable relatively thereto, jaws, provided with springs at their upper ends, connected with said body, links pivotally connected with the stem and jaws respectively and adapted to enter said slots upon the closing of the jaws, and an adjustable stop upon the stem for limiting the upward movement of said body.

4. In a trap, a stem having a slotted head at its forward end, a body surrounding the stem and movable relatively thereto, jaws, provided with springs at their upper ends, connected with said body, links pivotally connected with the stem and jaws respectively and adapted to enter said slots upon the closing of the jaws, and a nut threaded onto the stem for limiting the upward movement of the body.

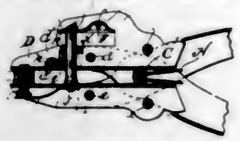
5. In a trap, a stem provided with a slotted head at one end and a shoulder arranged above the head, a body surrounding the stem and movable relatively thereto, jaws provided with closing-springs connected with said body, links pivoted to the stem between said head and shoulder and also pivotally connected with said jaws, the links, upon the closing of the jaws, being adapted to enter said slots, and a setting-handle connected to said body.

6. In a trap, a stem provided with a slotted head at one end and an eye at the other, a body surrounding the stem and movable relatively thereto, jaws, provided with closing-springs, connected with said body and having inwardly-disposed prongs at their free ends, links pivotally connected with the stem and jaws respectively and adapted to enter the slots in the head upon the closing of the jaws, and a setting-handle of substantially T shape fastened to the upper side of said body.

750,678. PUNCH, PLIERS, &c. WILLIAM M. MORTON, Essex, Conn., assignor to the William Schollhorn Company, New Haven, Conn., a Corporation of Connecticut. Filed May 15, 1902. Serial No. 107,486. (No model.)

Claim.—1. In pliers, punches, and similar tools, the combination with cross operating-levers; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; and a spring tending to force said jaws in the reverse direction parallel to each other, substantially as described.

2. In pliers, punches, and similar tools, the combination with hollow cross operating-levers; of jaws provided with pivotal connections with the forward ends of said levers and extending rearward into the hollow interior of said levers, the backs of said levers bearing on said jaws; and a spring tending to force said jaws apart and against the backs of said levers, substantially as described.



3. In pliers, punches, and similar tools, the combination with cross operating-levers forked at their forward ends; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; and abutments on said jaws bearing on said forked portions of said levers, substantially as described.

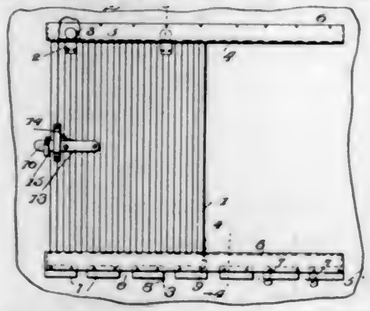
4. In pliers, punches, and similar tools, the combination with hollow cross operating-levers forked at their forward ends; of jaws provided with pivotal connections with the forward ends of said levers and extending rearward into the hollow interior of said levers, the backs of said levers bearing on said jaws; and abutments on said jaws bearing on the edges of the forked portions of said levers, substantially as described.

5. In pliers, punches, and similar tools, the combination with cross operating-levers forked at their forward ends; of jaws having pivotal connections with said levers; means for closing said jaws parallel to each other; abutments on said jaws bearing on said forked portions of said levers; and a spring tending to force said jaws apart, substantially as described.

6. In punches, or similar tools, the combination with the jaws, one of which is formed of sheet metal stamped up to form parallel side portions; of extensions on said side portions; a plate held by said side portions forming a receiving-die; and a punch carried by the other jaw and passing through said jaw and into said die, substantially as described.

7. In pliers, punches, or similar tools, the combination with a jaw having parallel side portions; a plate adapted to bear against the edges of said side portions and having a bridge formed integral therewith; and a pin or rivet passing through said side portions and between said plate and bridge, substantially as described.

750,679. CAR OR BARN DOOR. GORDON B. MURRAY, Allendale, Mo. Filed July 18, 1903. Serial No. 166,091. (No model.)



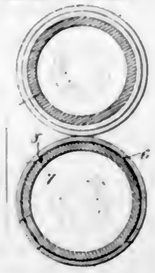
Claim.—1. The combination with the sliding door having rollers and brackets therefor at its top and bottom, of upper and lower housings, said upper housing having tracks at its bottom for the top rollers and said lower housing having tracks at its top for said lower rollers, as set forth.

2. The combination with the sliding door having rollers and brackets therefor at its top and bottom, of upper and lower housings, said upper housing having tracks at its bottom for the top rollers and said lower housing having tracks at its top for said lower rollers, and means carried by the car for clearing the opening of the lower housing through which the bottom brackets are extended, as set forth.

3. The combination with the sliding door having rollers and brackets therefor at its top and bottom, of upper and lower housings, said upper housing having tracks at its bottom for the top rollers and said lower housing having tracks at its top for said lower rollers, and a plate secured to one end of the door extended downwardly into the lower housing through the opening therein for the passage of the bottom brackets, as set forth.

4. The combination with the sliding door having rollers and brackets therefor at its top and bottom, of upper and lower housings, said upper housing having tracks at its bottom for the top rollers and said lower housing having tracks at its top for said lower rollers, a base-piece for said lower housing having cut-outs, and a plate secured to one end of the door extended downwardly into the lower housing through the opening therein for the passage of the bottom bracket, as set forth.

750,680. RINGED ROLLER FOR LINE-PRINTING AND RULING MACHINES. GEORGE F. MCADAMS, New York, N. Y. Filed Jan. 30, 1903. Serial No. 141,120. (No model.)



Claim.—1. A roller comprising a shaft and rings removably sprung onto the shaft out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

2. A roller comprising a shaft, rings removably mounted thereon and interposed longitudinal ribs or lugs serving to spring the rings out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

3. A roller comprising a shaft, rings removably mounted thereon and longitudinal ribs or lugs on the shaft serving to spring the rings out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

4. A roller comprising a shaft, rings removably sprung onto the shaft out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft and means for locating the rings in their proper rotary positions with respect to the shaft.

5. A roller comprising a shaft, rings removably sprung onto the shaft out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft and means for locating the rings in their proper rotary positions with respect to the shaft comprising a groove in the shaft and tongues projecting inwardly from the rings into the said groove.

6. The combination with a printing-roller having line-printing rings thereon, of an impression or foundation roller comprising a shaft and circumferentially-grooved rings mounted on the shaft and spaced apart whereby the rings on the line-printing roller are arranged successively opposite the grooves in the foundation-roller rings and the spaces between the said rings, substantially as set forth.

750,681. LINE-PRINTING MACHINE. GEORGE F. MCADAMS, New York, N. Y. Filed Apr. 28, 1903. Serial No. 154,630. (No model.)



Claim.—1. A roller comprising a shaft, rings removably mounted thereon, and lugs projecting inwardly from the rings serving to spring the rings out of their normal circular shape on the shaft, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

2. A printing-disk roller for line-printing machines comprising a shaft, line-printing rings removably mounted thereon and lugs projecting inwardly from the said rings into engagement with the shaft serving to spring the rings out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

3. A printing-disk roller for line-printing machines comprising a shaft, a ring mounted thereon comprising an inner ring member, a printing-disk ring engaged therewith and an outer ring member engaging the inner ring member and disk-ring.

4. A foundation-roller for line-printing machines comprising a shaft, rings removably mounted thereon and lugs projecting inwardly from the rings into engagement with the shaft serving to spring the rings out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

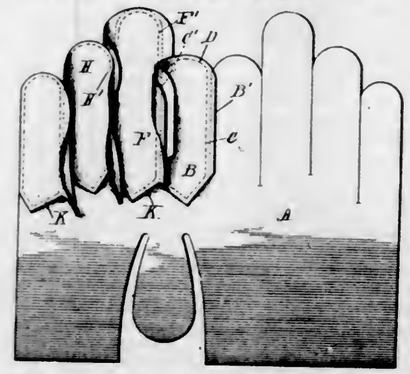
5. A foundation-roller for line-printing machines comprising a shaft, a plurality of rings removably mounted thereon and spaced apart to form annular grooves around the roller between the rings, the said rings being provided with annular peripheral grooves and also provided with lugs projecting inwardly therefrom into engagement with the shaft, said lugs serving to spring the rings out of their normal circular shape, the peripheries of the rings being afterward trued concentric with the axis of the shaft.

750,682. BOILER-CLEANING COMPOUND. JAMES MCCORMACK, Chicago, Ill. Filed Apr. 15, 1903. Serial No. 152,791. (No specimens.)

Claim.—1. A boiler-cleaning compound consisting of hemlock extract, soda-ash and water.

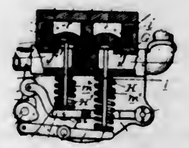
2. A boiler-cleaning compound consisting of hemlock extract, soda-ash and water in a hard, dry form.

750,683. GLOVE. ROBERT B. MCMASTERS, Marathon, N. Y. Filed Aug. 27, 1903. Serial No. 170,953. (No model.)



Claim.—A glove comprising a blank having integral straps forming the backs and the fronts for the fingers, and reinforcing-straps stitched to the marginal edges of the back straps of the fingers, the longitudinal edges of the fronts to the fingers being stitched to said reinforcing-straps forming seams intermediate the fingers, the inner ends of said reinforcing-straps being sewed to the palm side of said blank and stitched at their outer ends to the ends of the straps forming the backs and the fronts of the fingers and at their inner ends stitched together intermediate the fingers, as shown and described.

750,684. VALVE-GEAR FOR EXPLOSIVE-ENGINES. RANSOM E. OLDS, Detroit, Mich., assignor to Olds Motor Works, Detroit, Mich., a Corporation of Michigan. Filed Oct. 18, 1901. Serial No. 79,082. (No model.)



Claim.—1. In an explosion-engine, the combination with a cylinder-head, of a valve-chest projecting outward from a segment of

said head, admission and exhaust valves in said chest, stems for said valves projecting outward from said chest toward the complementary segment of said head, a rotary shaft at one side of said complementary portion of the head having admission, exhaust and relief cams thereon, a lever forming an intermediate connection between said admission-cam and the stem of said admission-valve, a second lever extending across said complementary segment of said head and bifurcated to embrace the stem of said admission-valve, said lever being adapted to engage with said exhaust-cam and the stem of said exhaust-valve and being fulcrumed at its opposite end, and means for shifting said lever upon its fulcrum into engagement with said relief-cam.

2. In an explosion-engine, the combination with a cylinder-head of a valve-chest projecting outward from a segment of said head, admission and exhaust valves in said chest, stems for said valves projecting outward from said chest toward the complementary segment of said head, a rotary shaft at one side of said complementary portion of the head having admission and exhaust cams thereon, a lever forming an intermediate connection between said admission-cam and the stem of said admission-valve, a second lever extending across said complementary segment of said head and bifurcated to embrace the stem of said admission-valve, said lever being adapted to engage with said exhaust-cam and the stem of said exhaust-valve.

3. In an explosion-engine, the combination with a cylinder-head, of a valve-chest projecting outward from a segment of said head, admission and exhaust valves in said chest, stems for said valves projecting outward from said chest toward the complementary segment of said head, a rotary shaft at one side of said complementary portion of the head having admission and exhaust cams thereon, a lever pivoted intermediate its ends on the complementary portion of the head forming an intermediate connection between said admission-cam and the stem of said admission-valve, a second lever extending across said complementary segment of said head pivoted at its end and adapted to engage with said exhaust-cam and the stem of said exhaust-valve.

4. In an explosion-engine, the combination with a cylinder-head, of a valve-chest projecting outward from a segment of said head, admission and exhaust valves in said chest, stems for said valves projecting outward from said chest toward the complementary segment of said head, a rotary shaft at one side of said complementary portion of the head having admission, exhaust and relief cams thereon, a lever forming an intermediate connection between said admission-cam and the stem of said admission-valve, a second lever extending across said complementary segment of said head adapted to engage with said exhaust-cam and the stem of said exhaust-valve and being fulcrumed at its opposite end, and means for shifting said lever upon its fulcrum into engagement with said relief-cam.

5. In an explosion-engine, the combination with a cylinder-head, of a valve-chest projecting outward from a segment of said head, admission and exhaust valves in said chest, stems for said valve projecting outward from said chest toward the complementary segment of said head, a rotary shaft at one side of said complementary portion of the head having admission and exhaust cams thereon, a lever pivoted intermediate its ends on the complementary portion of the head forming an intermediate connection between said admission-cam and the stem of said admission-valve, a second lever extending across said complementary segment of said head pivoted at its end and bifurcated to embrace the stem of said admission-valve said lever being adapted to engage with said exhaust-cam and the stem of said exhaust-valve.

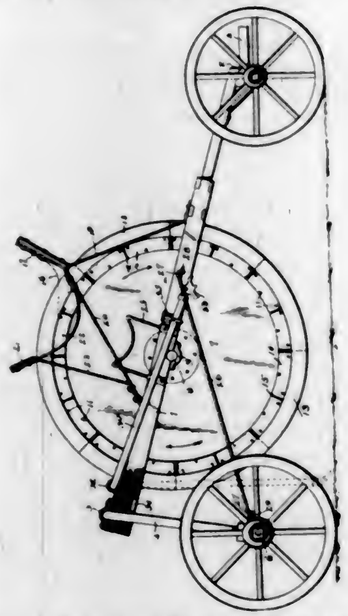
750,685. **SHAFT FOR VEHICLES.** ELI PACKER, Des Moines, Iowa. Filed June 23, 1903. Serial No. 162,765. (No model.)



Claim.—1. A thill-iron for vehicle-shafts consisting of a metal strap adapted to be hinged to the axle of a vehicle and having an integral right-angled projection and an integral pulley-bearer projecting forward at an angle as shown and described for the purposes stated.

2. A shaft for vehicles consisting of two thills rigidly connected at their rear end portions by a cross-piece and reinforced by thill-irons having integral right-angled extensions and integral pulley-bearers and pulleys mounted in said bearers, and a shield fixed on the top of the cross-piece, arranged and combined as shown and described for the purposes stated.

750,686. **DITCHING-MACHINE.** JOHN PAGE, Lima, Ohio. Filed Mar. 26, 1903. Serial No. 149,659. (No model.)



Claim.—1. In an excavator, the combination with front and rear wheeled axles, of a frame connected to one of the axles, a support rising from the other axle and pivoted to the frame to permit raising and lowering of one end of the latter, excavating means carried by the frame, and means to lock the frame and the support against relative movement when the frame is in its elevated position to maintain the excavating means out of engagement with the ground.

2. In an excavator, the combination with front and rear wheeled axles, of a frame having one end supported upon one of the axles, an arched support rising from the other axle and pivotally connected to the adjacent end of the frame, whereby the latter may be raised and lowered, excavating means carried by the frame, and means to connect the arched support and the frame against relative movement when the frame is in its elevated position.

3. In an excavator, the combination with front and rear wheeled axles, of a frame supported at one end upon one of the axles, a support rising from the other axle and pivotally connected to the adjacent end of the frame, excavating means carried by the frame, corresponding keepers upon the axle having the support rising therefrom and the frame, and rods having hooked terminals for engagement with the keepers to lock the support and the frame against relative movement.

4. In an excavator, the combination with an open substantially rectangular frame, of a wheeled axle supporting the front of the frame, a rear wheeled axle, supporting-arms rising from the rear axle and pivotally connected to the rear end of the frame to support it in an elevated position, an excavating-wheel mounted within the frame, corresponding keepers upon opposite sides of the frame and the rear axle, and opposite rods having terminal hooks for detachable engagement with the corresponding keepers to lock the frame and the supporting-arms against relative movements in the elevated position of the frame.

5. In an excavator, the combination with a wheeled frame, of a support rising from one of the axles and pivotally connected to the frame, excavating means carried by the frame, and means carried by the frame for engagement with the ground to elevate said frame upon its pivotal support by a forward movement of the machine.

6. In an excavator, the combination with a vertical adjustable wheeled frame, of excavating means carried by the frame, and means carried by the frame for engagement with the ground to elevate the frame by forward movement of the machine.

7. An excavating-machine, having means for engagement with the ground to automatically elevate the excavating means out of engagement with the ground by a forward movement of the machine.

8. An excavating-machine, having a pivotal arm which is mounted to have its free end dropped into engagement with the ground and form a propping-lever to elevate the excavating means when the machine is moved forward.

9. In an excavator, the combination with a vertically-adjustable wheeled frame, of excavating means carried thereby, and a pair of arms pivoted at their rear ends to opposite sides of the frame with their forward free ends arranged to be dropped into engagement with the ground and form elevating-levers to elevate the frame when the machine is moved forwardly.

10. In an excavator, the combination with a vertically-adjustable wheeled frame, of excavating means carried thereby, of a yoke-shaped elevating device straddling the frame with its cross-bar portion pivoted thereto and the free ends of its side arms normally held in an elevated position and capable of being dropped into engagement with the ground and form levers for elevating the frame when the machine is moved forwardly.

11. In an excavator, the combination with a vertically-adjustable wheeled frame, of an excavating-wheel carried thereby, of a yoke-shaped elevating device straddling the excavating-wheel with its cross-bar portion in rear of the wheel and journaled upon the frame, the forward free ends of the opposite side arms of the device being normally elevated and capable of being dropped into engagement with the ground to form elevating-levers for raising the frame when the machine is moved forwardly.

12. In an excavator, the combination with a vertically-adjustable wheeled frame, of excavating means carried thereby, an elevating-arm having its rear end pivoted to the frame and its front free end capable of being dropped into engagement with the ground and form a lever for elevating the frame when the machine is moved forwardly, and means for normally supporting the arm in an elevated position, embodying a hook-shaped seat hinged to the frame for adjustment out of the path of the arm when raising and lowering the same.

13. In an excavator, the combination with front and rear wheeled axles of a frame having its front ends supported upon the front axle, opposite supporting members rising from the rear axle and pivoted to the frame, excavating means carried by the frame, and an elevating device having its rear end pivoted to the frame with its forward free end normally elevated and capable of being dropped into engagement with the ground and automatically swing the rear end of the frame upwardly upon its pivotal support when the machine is moved forwardly.

14. In an excavator, the combination with front and rear wheeled axles, of a frame having its front end supported upon the front axle, opposite supporting members rising from the rear axle and pivoted to the rear end of the frame, opposite rods having detachable connections with the frame and the rear axle to lock the frame and the supports against relative movements, excavating means carried by the frame, elevating-arms having their rear ends pivotally connected to opposite sides of the frame and their front ends capable of being dropped into engagement with the ground, and means for supporting the free ends of the arms in elevated positions.

15. An excavating-wheel, comprising a wheeled body, and sectional rim members embracing and secured to the outer edge portion of the body, each member being provided at its outer edge with an outwardly-directed flange, and also provided at the outer edge of the flange with a rim portion set at substantially right angles thereto and beveled to form an outer cutting edge.

16. An excavating-wheel, comprising a wheel-body and rim-sections embracing the outer edge portion of the body and disposed to break joints, each section being angular in cross-section and provided with an outer peripheral cutting-flange.

17. An excavating-wheel, comprising a wheel-body and rim-sections embracing the outer edge portion of the body and disposed to break joints, each section being angular in cross-section and provided with an outer peripheral cutting-flange, and brace-webs between the members of each rim-section.

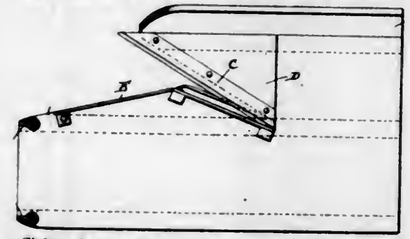
18. An excavating-wheel, comprising a wheel-body and rim-sections embracing the outer edge portion of the body and disposed to break joints, each section being angular in cross-section and provided with an outer peripheral cutting-flange, and brace-webs disposed in the angle between the members of each rim-section.

19. In an excavating-machine, the combination with a frame, of an excavating-wheel carried thereby, a bracket carried by the frame, a wheel-scraper carried by the bracket, a second bracket, and a chute carried between and by the two brackets for the purpose set forth.

20. In an excavating-machine, the combination with a frame, of an excavating-wheel carried thereby, a bracket carried by the frame, a wheel-scraper carried by the bracket, a second bracket in rear of the first-mentioned bracket, a plate carried by the second bracket and disposed across the periphery of the wheel, and a chute carried between and by the two brackets with its inner end disposed to receive the soil discharged from the wheel by the scraper.

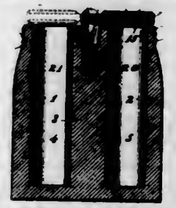
21. In an excavating-machine, the combination with a frame, of an excavating-wheel mounted thereon and provided with opposite peripheral cutting-flanges, front and rear brackets rising from the frame at opposite sides of the wheel, bars disposed across the periphery of the wheel and carried by the respective pairs of front and rear brackets, a scraper carried by the front cross-bar and projected rearwardly therefrom between the flanges of the wheel, seats carried by and extending between the front and rear brackets at each side of the wheel, and discharge-chutes supported in the seats with their upper ends disposed to receive the soil discharged from the wheel by the scraper.

750,687. **CORN-HARVESTER.** WALLACE R. PAGE, North Salem, Ind. Filed May 6, 1903. Serial No. 155,830. (No model.)



Claim.—In a corn-harvester of the character described, a platform, a series of longitudinal runners upon which the platform is supported, a knife secured to said platform, the cutting edge of said knife extending from the forward end of the machine upon one side rearward in a diagonal direction toward the center of the machine, and also at the same time extending upward in an inclined position from the forward to the rearward end, a guiding edge formed on the platform, the rearward portion of said guiding edge extending underneath the knife at an angle, said guiding edge being for the purpose of guiding the stalks in toward the knife and causing the same to be severed between the knife and the guiding edge, a guard-rail extending upward from the platform and arranged parallel with the guiding edge, and a side-board secured on the side of the machine upon which the knife is located, as and for the purpose specified.

750,688. **COMPOSITE CONDIMENT-HOLDER.** LYMAN B. PARKER, Chickasha, Ind. Ter. Filed June 13, 1903. Serial No. 161,301. (No model.)



Claim.—In a composite condiment-holder the combination with a plurality of compartments provided with an intermediate spring-socket, of lugs upon opposite sides thereof, a cap provided with a tailpiece pivoted between said lugs, and a trigger-spring seated in the socket and engaging the end of the tailpiece on the other side of the pivot from the cap, to hold said cap firmly over either compartment of the holder.

750,689. **PLUG FOR TELEPHONE-SWITCHBOARDS.** FRANK D. PEARCE, Chicago, Ill., assignor to Pearce, Krum & Company, Chicago, Ill., a Copartnership. Filed Apr. 20, 1903. Serial No. 153,567. (No model.)

Claim.—1. A switchboard-plug provided with line-terminals and with supplemental-circuit terminals and means carried by the plug for automatically controlling the passage of current between said supplemental terminals as the plug is shifted to and from its normal position and into and out of the switchboard-jacks.



2. The combination with a switchboard-plug, of line-wires and supplemental-circuit wires leading to the plug, means automatically controlling the passage of current through the terminals of said supplemental-circuit wires comprising a movable body carried by the plug and shiftable by gravity to make and break connection through said terminals as the plug is shifted to and from its normal position and into and out of the switchboard-jacks.

3. A switchboard-plug provided with line and supplemental-circuit terminals and with means automatically controlling the passage of current between said supplemental terminals as the plug is shifted to and from normal position and into and out of the switchboard-jacks, said means comprising a casing carried by the plug and having contacts with which the supplemental-circuit terminal-wires are connected and a movable body within said casing adapted to shift by gravity as the plug is moved from horizontal to vertical position and thereby change the condition of the supplemental circuit at the plug.

4. The combination with a switchboard-plug and with line and supplemental-circuit wires connected to said plug, of means for automatically controlling the passage of current through said supplemental circuit as the plug is shifted into and out of the switchboard-jacks, such means comprising a casing or tube mounted on the plug, a movable body within said casing or tube and contacts exposed within said casing or tube to contact with said movable body and connect the supplemental-circuit wires.

5. A switchboard-plug provided with line and supplemental-circuit terminals and with means automatically controlling the passage of current between said supplemental terminals as the plug is shifted into and out of the switchboard-jacks, said means comprising a hermetically-sealed tube or casing, a movable body of fluid within said tube or casing, contacts within said tube or casing adapted to be engaged by said fluid body and connected to said supplemental-circuit terminals

6. The combination with a switchboard-plug and with line and supplemental-circuit wires connected thereto, of means for automatically controlling the passage of current through said supplemental-circuit wires as said plug is shifted into and out of the switchboard-jacks comprising a tube or casing carried by the plug and having contacts extending from the interior to the outside thereof, terminals connecting said contacts with said supplemental-circuit wires and a movable body within said tube or casing for controlling the passage of current between said contacts.

7. A switchboard-plug provided with line and supplemental-circuit terminals and with means automatically controlling the passage of current between said supplemental terminals as the plug is shifted to and from normal position and into and out of the switchboard-jacks, said means comprising a hermetically-sealed glass tube or casing, contacts extending from different points of the interior of said tube or casing to the outside thereof and connected to said supplemental-circuit terminals and a body of mercury within said tube or casing for controlling the passage of current between said contacts.

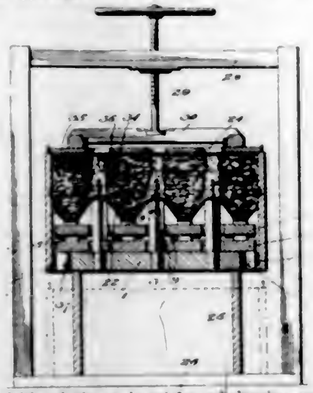
750,690. UPHOLSTERING DEVICE. HENRY B. PITNER, East Aurora, N. Y. Filed May 7, 1903. Serial No. 156,125. (No model.)

Claim.—1. In an upholstering device, the combination of a tufting or pin board provided with tuft formers or pins and a plaiting-board provided with plait holding or clamping devices arranged between said tuft formers or pins and means for simultaneously releasing said holding or clamping devices.

2. In an upholstering device, the combination of a tufting or pin board provided with tuft formers or pins and a plaiting-board provided with plait holding or clamping devices arranged between said tuft formers or pins and means for simultaneously releasing a plurality of said holding or clamping devices, substantially as described.

3. A platting device comprising opposing members movable longitudinally with relation to each other, one having holders, and the other having keepers to engage and disengage the holders by the longitudinal movement of the opposing members.

4. In combination with a base having spaced tufting-studs, and cooperating means to form tufts, a plaiting device comprising opposing members movable longitudinally with relation to each other and having openings through which the tufting-studs project, one of said movable members having holders and the other having keepers to engage and disengage the holders by the relative movement of said opposing members.



5. A plaiting device or board for upholstering, comprising an upper member, a lower member having longitudinal and transverse sliding movements with respect to said upper member, sliding latches carried by said upper member and engaged with the lower member whereby they are operated by the movement of said lower member, and spring-keepers upon the upper members for said latches, substantially as described.

6. In an upholstering device, the combination with an apertured plait-holding board and a correspondingly-apertured follower, of a button or nail holding and inserting device comprising an apertured base or board, tapered tubes surrounding the apertures in said board and holders within said tubes provided with spring-fingers adapted to engage the buttons or nails, substantially as described.

7. In an upholstering device, the combination of a tufting-board provided with tuft-forming pins, a plaiting-board adapted to hold the plaits of the covering down between said pins, removable guide and holding pegs upon said pins, a stuffing-box or frame, a follower, formed with apertures registering with the said pins, and means for depressing the follower, substantially as described.

750,691. LACING STUD OR EYELET. JAMES L. POALK, Merchantville, N. J., assignor to New Century Hook and Eyelet Company, Camden, N. J., a Corporation of New Jersey. Filed Mar. 28, 1901. Serial No. 53,183. (No model.)



Claim.—A lacing-fastener, consisting of an eyelet having a flange at one end and a curved finger integral with said flange and separated therefrom by an irregular slot, said finger having the portion thereof adjacent to said flange at substantially the same distance from the free end of the eyelet as is the flange of the eyelet, and said finger being at a greater distance from said free end of the eyelet and parallel with said flange and connected with the first-named portion by an upwardly-inclined connection, substantially as and for the purposes described.

750,692. PORTABLE FASTENER FOR DOORS. ROBERT F. POENITZ, Indianapolis, Ind. Filed Nov. 9, 1903. Serial No. 180,292. (No model.)

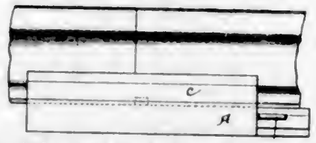


Claim.—1. A door-fastener comprising a base-plate having a threaded cylindrical claw mounted therein, a face-plate having the claw rotatively secured therein, and a latch supported by the plates.

2. A door-fastener comprising a pair of connected plates having apertures therein and hinge parts at the point of connection thereof, one of the hinge parts having a recess therein, a pivot-pin in the hinge parts, a latch mounted on the pivot-pin and having a lug extending into the recess in the hinge part, a spring for the latch, and a claw connected to both of the plates.

3. In a portable door-fastener, the combination of the base-plate and the face-plate having the apertures therein, the latch adapted to be contained in the apertures, the pivot-pin connecting the latch to the plates, one of said plates having a recess therein near said pivot-pin, and the latch having a lug extending into said recess, the spring for said latch, and the cylindrical pointed claw swiveled into one of said plates and screwed into the other one of said plates, substantially as and for the purposes set forth.

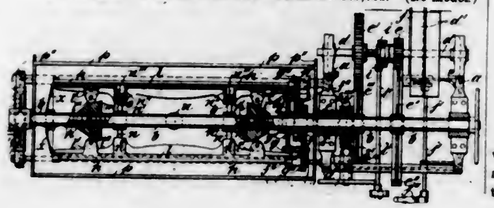
750,693. RAIL-JOINT. GEORGE F. C. POWELL, Titusville, Pa. Filed Aug. 12, 1903. Serial No. 169,184. (No model.)



Claim.—1. In a joint for railroad-rails consisting of two main portions, each portion being provided with an overhanging longitudinal lip adapted to come in contact with the upper surface of the flange of the rail upon each side, one of the portions adapted to be driven longitudinally between the upper face of the other portion and the lower surface of the rails, the upper face of the lower portion being provided with a longitudinal groove, a longitudinal tongue formed upon the under surface of the upper portion adapted to fit in the longitudinal groove of the other portion to prevent lateral movement of the two portions relative to one another, an undercut channel formed longitudinally along the edge of the lower portion opposite that edge upon which the overhanging lip is located, a longitudinal inwardly-extending lip formed upon the upper portion adapted to fit under the hang formed by the undercut upon the other portion for the purpose of preventing vertical movement of one part relative to the other, a keyway formed laterally through the upper surface of the lower portion and through the tongue of the upper portion, and a key adapted to be driven into the keyway to prevent longitudinal movement of one part relative to the other, as and for the purpose specified.

2. A joint for railroad-rails consisting of two parts, each part being provided with an overhanging lip upon its upper surface, said lips adapted to come in contact with the upper surface of the flange of the rail, one part adapted to be driven between the upper surface of the lower part and the under surface of the rail, the lower portion being provided with a longitudinal tapering groove formed in its upper surface, a longitudinal tapering tongue formed upon the lower surface of the upper part adapted to fit into the groove, means for preventing vertical displacement of the two parts relative to one another, a keyway formed in the upper surface of the lower part flush with the bottom of the groove, a keyway formed laterally through the tongue of the other portion adapted to register with the keyway in the lower portion when the two parts are together, a tapering key adapted to be forced into the keyway to prevent longitudinal displacement of one part relative to the other, a lug extending downward from the under side of the overhanging lip of the lower portion against which the ends of the flange of the rails upon one side will abut, the flange of the rail being cut out at this point to allow the ends of the rails to come in close contact with one another, as and for the purpose specified.

750,694. APPARATUS FOR MERCERIZING. TOM PRATT, Shipley, England. Filed Mar. 21, 1903. Serial No. 149,002. (No model.)

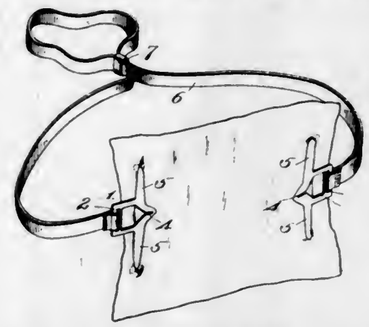


Claim.—1. A machine or apparatus for mercerizing cotton yarns, comprising a rotatable reel to carry the yarn, the longitudinal bars of which are capable of rotation, means for rotating said bars when required; cones capable of moving the longitudinal bars of the reel inward or outward so as to vary the tension on the yarn being treated; means for inclosing the reel and internal parts of the apparatus hermetically; means for adjusting the inclosing medium with relation to the reel; and means for controlling the inlet to the inclosing chamber and the outlet therefrom of any liquid or fluid substantially as described.

2. In a machine for the purposes referred to a yarn-carrying reel comprising a central tubular shaft on which is mounted bosses provided with radial arms engaging with tubular bosses formed on the reel-bars for guiding and controlling the latter; sliding cones engaging with inwardly-projecting arms carrying rollers and operated by a screw to increase the diameter of the reel; rotatable bars carried by the reel-bars and spur-gear mechanism for operating said reel and bars substantially as described.

3. In a machine for the purposes referred to the combination with a yarn-carrying reel of yarn changing and doffing mechanism comprising a rotatable disk with a portion cut away and resting in a semicircular bearing, together with a conical distending-plate mounted on the reel-shaft substantially as described.

750,695. RUBBER-DAM HOLDER. ANDREW J. PRICE, Dobson, Miss. Filed Apr. 28, 1903. Serial No. 154,709. (No model.)

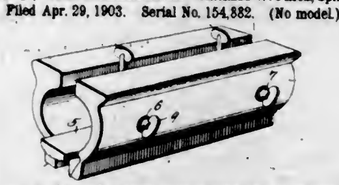


Claim.—1. As a new article of manufacture, a rubber-dam holder having a body portion provided with a slot adapted to exert a pinching action on material inserted thereinto, and a pair of transversely-extending arms on said body portion, said holder having means for attaching a strap or head-band thereto.

2. As a new article of manufacture, a rubber-dam holder having a body portion provided with a slot adapted to exert a pinching action on material inserted thereinto, and a pair of transversely-extending arms on said body portion, the outer end of each arm being rounded and curved off at an angle to said arm.

3. As a new article of manufacture, a rubber-dam holder stamped from a single piece of sheet metal, said holder comprising a body portion having a transversely-extending slot near its lower end to receive a strap and having an interior cut-away portion terminating at its upper end in a slot adapted to exert a pinching action on material inserted therein, and a pair of oppositely-disposed, transversely-extending arms on said body portion, the outer end of each arm being rounded and curved off at an angle to said arm.

750,696. SKATE-SHARPENER. CHARLES W. PRICE, Spirit Lake, Iowa. Filed Apr. 29, 1903. Serial No. 154,882. (No model.)



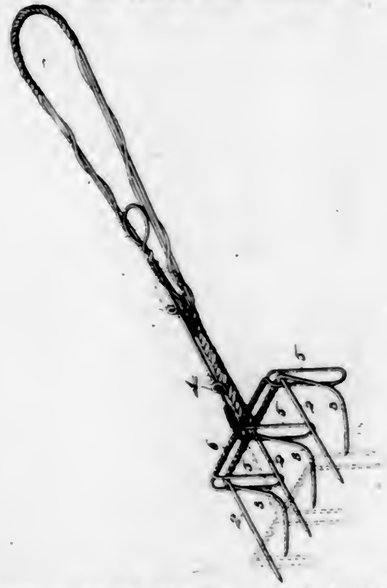
Claim.—1. A skate-sharpener comprising two members, transverse adjusting means for the members, a separate block transversely adjustable on the adjusting means, and clamping means carried by the block and projecting outwardly from between the two members.

2. A skate-sharpener comprising two members having depending guide-flanges, separate transversely-disposed devices for varying the distance between the members, clamping devices, a block carrying the clamping devices and adjustable on the transversely-disposed devices so that the clamping devices will at all times aline with the space between the two members.

3. A skate-sharpener comprising two members, a separate block, clamping means carried by the block and means for adjusting the two members and for moving the block so that the clamping devices will at all times aline with the space between the two members.

4. A skate-sharpener, comprising two relatively adjustable file-carrying members, a block movable separately of the members and means for maintaining the block in constant alinement with the space between the adjustable members, and file-clamping means carried by the block.

750,697. KITCHEN-FORK. JENNY PROSKAUER, St. Louis, Mo. Filed Sept. 26, 1903. Serial No. 174,717. (No model.)



Claim.—1. In a fork, the combination of a handle, a series of upper straight tines projecting from said handle, and a series of downturned curved lower tines projecting from said handle, substantially as set forth.

2. In a fork, the combination of a handle, upper and lower tines carried by said handle, and discharging means slidingly connected to said handle and encircling said tines, substantially as set forth.

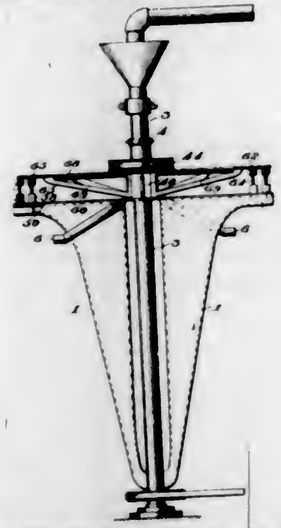
3. In a fork, the combination of a handle, upper and lower series of tines carried by said handle, and discharging means slidingly connected to said handle, said discharging means comprising a series of loops encircling said tines and a handle for moving said loops, substantially as set forth.

4. In a fork, the combination of a handle, upper and lower series of tines carried by said handle, and discharging means slidingly connected to said handle; said discharging means comprising a cross-rod, a series of loops carried by said cross-rod, a handle extending from said cross-rod, a stop carried by said handle, and a loop projecting from the shank of the fork-handle through which the handle of said discharging means operates, substantially as set forth.

750,698. CENTRIFUGAL MACHINE. HARALD DE RAASLOFF, New York, N. Y. Original application filed Nov. 1, 1901, Serial No. 80,709. Divided and this application filed Mar. 26, 1902. Serial No. 100,032. (No model.)

Claim.—1. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating gates in said outlet, and means adapted to reciprocate said gates successively in such manner that the outlet is always closed by at least one gate, substantially as described.

2. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating gates in said outlet and means for intermittently opening and closing one gate while another gate is closed, whereby said outlet is always sealed, substantially as described.



3. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of independently-reciprocating gates in said outlet and differential-speed means for operating said gates independently and intermittently, substantially as described.

4. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating gates in said outlet, and a differential-speed cam adapted to intermittently operate said gates, substantially as described.

5. In a centrifugal machine, the combination with a rotary separating-chamber provided with an outlet, of two reciprocating gates in said outlet, and a differential-speed rotor provided with two cams respectively adapted to intermittently operate one gate while the other gate is closed, substantially as described.

6. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of independently-reciprocating gates controlling said outlet, differential-speed means for independently and intermittently opening and closing said gates, and means for varying the speed of said first-named means, substantially as described.

7. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating gates controlling the outlet, differential-speed cams for actuating said gates, and means for varying the speed of said cams, substantially as described.

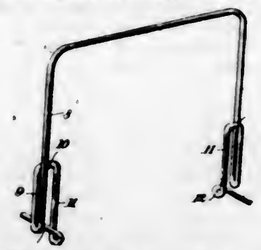
8. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating gates controlling said outlets, differential-speed rotary cams for intermittently operating said gates, and a friction-brake for varying the speed of said cams, substantially as described.

9. In a centrifugal machine, the combination with a plurality of rotary separating-chambers symmetrically disposed around the axis of rotation and each provided with an outlet and with an inlet, of a plurality of reciprocating gates controlling the outlet of each chamber, differential-speed rotary cams adapted to intermittently and successively operate said gates, and means for varying the speed of said cams, substantially as described.

10. In a centrifugal machine, the combination with a rotary separating-chamber provided with a discharge-outlet, of a plurality of reciprocating spring-opened gates controlling the outlet, and a plurality of differential-speed rotary cams adapted to intermittently and successively close said gates, substantially as described.

750,699. HANDLE FOR BASKETS. BENJAMIN J. RAGATS, St. Joseph, Mich. Filed Sept. 28, 1903. Serial No. 174,895. (No model.)

Claim.—1. A basket-handle, comprising a rod bent to form a bail and having at each end a substantially U-shaped bend, opening downward and having its parallel legs in close proximity and arranged to engage both sides of a basket at the upper edge of the same, the free leg of said bend having its lower end extending horizontally and projecting into the U-shaped member.



2. A basket-handle, comprising a rod bent to form a bail and having at each end a substantially U-shaped bend, opening downward, the bend having parallel legs lying in close proximity and arranged to engage both sides of the edge of a basket at its upper portion, the free extremity of said U-shaped portion being bent to lie at a right angle with the plane of the U-shaped member and also at a right angle to the leg of said member, and also projecting inside of the U-shaped bend.

3. A basket-handle made from a single rod having at each end a U-shaped section opening downward, said section having vertical parallel sides lying in close proximity to each other and adapted to receive between them one side of the basket at its top edge, one of the legs of each U-shaped member being bent upon itself at its lower extremity a short distance from the end of the rod, with the extreme end portions of the rod each lapping the inner side of the leg to which it is connected and extending in a horizontal direction, one forwardly and the other rearwardly with respect to the longitudinal extent of the basket to which the handle is to be attached.

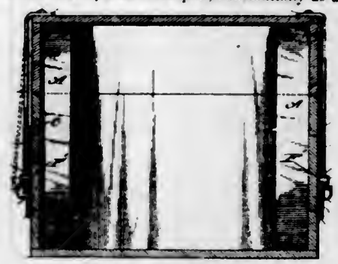
4. A basket-handle having at its ends U-shaped sections opening downwardly each of said sections having its sides lying in close proximity to each other and adapted to receive between them one side of the basket at its top edge, one of the legs of each U-shaped member being bent upon itself at its lower end to form a horizontal section lapping the inner side of the leg to which it is connected, these two terminal sections extending one forwardly and the other rearwardly with respect to the longitudinal extent of the basket to which the handle is to be attached.

5. A basket-handle, comprising a rod bent into the form of a handle and terminating at its ends in rigid integral clamping-sections U-shaped in form, opening downwardly and extending transversely in direction of each other, the outer leg of each of said U-shaped members being connected at its lower end directly to the end of the handle proper and lying in parallel engagement with said end to form the outer leg of each U-shaped member double, said double-leg sections each lying in a vertical plane at right angles to the plane occupied by the main body-section of the handle, and the inner leg of each U-shaped member being bent upon itself at its lower extremity near the end of the rod, with the extreme end portions of the rod each lapping the inner side of the leg to which it is connected and extending in a horizontal direction.

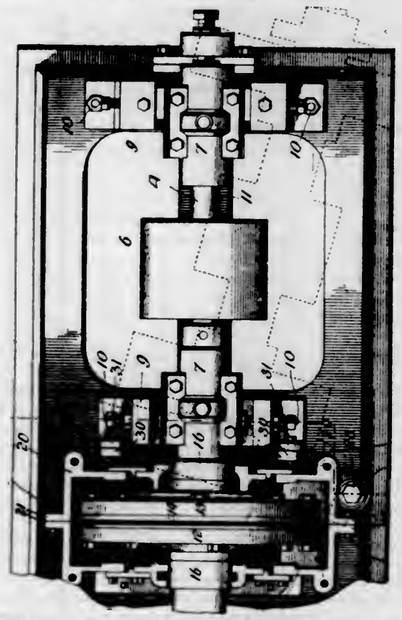
6. A basket-handle, comprising a rod bent into the form of a handle and terminating at its ends in rigid integral clamping-sections U-shaped in form, opening downwardly and extending transversely in direction of each other, the outer leg of each of said U-shaped members being connected at its lower end directly to the end of the handle proper and lying in parallel engagement with said end to form the outer leg of each U-shaped member double, said double-leg sections lying in planes parallel with each other and disposed at right angles to the plane occupied by the main body-section of the basket-handle, the outer leg of one U-shaped member being at one side of said latter plane and the outer leg of the other U-shaped member being at the opposite side of said plane, the inner leg of each U-shaped member being bent upon itself at its lower extremity near the end of the rod, with the extreme end portions of the rod each lapping the inner side of the leg to which it is connected and extending horizontally in opposite directions.

750,700. BOX-FASTENER. EMMET T. REILLY, Evansville, Wis. Filed Jan. 6, 1903. Serial No. 138,061. (No model.)

Claim.—The combination in a box-fastener, of fastening-straps secured at their upper ends to the lid, at the opposite sides of the latter, and depending alongside the box proper and provided a short distance above their lower ends with openings, pins on the box proper to fit in said openings whereby the fastening-straps are held against lengthwise movement, and buttons pivoted to the box proper, below the said pins, arranged to be turned and overlie the extreme lower ends of the strap below the pins, substantially as described.



750,701. GRINDING-MILL. AARON J. ROBINSON, Fremont, N. H. Filed Mar. 13, 1903. Serial No. 147,637. (No model.)



Claim.—1. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, longitudinally-divided separable lower sections one of which is stationary and the other pivotally connected to the base so as to swing horizontally, and a bearing-yoke for one of the shaft-sections rigidly connected with the pivoted section of the casing and adapted to swing therewith.

2. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, removable grinding-plates secured to said disks, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, longitudinally-separable lower sections, one of which is stationary and the other pivotally connected to the base so as to swing horizontally, and yoke-connected bearings for one of the shaft-sections rigidly connected with the divided section of the casing and adapted to swing therewith.

3. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, longitudinal separable lower sections, one of which is stationary and the other pivotally connected to the base so

as to swing horizontally, yoke-connected bearings for one of the shaft-sections, rigidly connected with the pivoted section of the casing and adapted to swing therewith, and means for securing the pivoted and horizontally-swinging section of the casing to the base and to the stationary section.

4. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, longitudinally-separable lower sections one of which is stationary and the other pivotally connected to the base so as to swing horizontally, and yoke-connected bearings for one of the shaft-sections rigidly connected with the pivoted section of the casing and adapted to swing therewith, the pivoted section of the casing being provided with an offstanding pivot-lug to one side of its inner abutting surface.

5. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, and a longitudinally-divided semicylindrical lower portion, the divided portions of which are relatively movable toward and away from each other, sectional casing-rings secured to opposite sides of the casing, and sectional collars detachably secured to said rings and extending around the hub portions of the disks, one of said collars forming a portion of the feed-throat leading to the grinding-space.

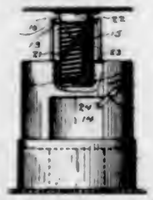
6. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, and a longitudinally-divided semicylindrical lower portion, the sections of which are relatively movable one toward and away from the other, sectional casing-rings permanently secured to opposite sides of the casing, sectional sleeves or collars removably secured to said rings and extending around the hub portions of the disks, one of said sleeves or collars forming a portion of the feed-throat leading to the grinding-space, a feed-throat arranged at one side of the casing, and removable upper, outer and lower feed-throat sections secured thereto and extending around the hub of one of the disks, substantially as described.

7. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, and a longitudinally-divided semicylindrical lower portion, the sections of which are relatively movable one toward and away from the other, sectional casing-rings permanently secured to opposite sides of the casing, sectional sleeves or collars removably secured to said rings and extending around the hub portions of the disks, one of said sleeves or collars forming a portion of the feed-throat leading to the grinding-space, a feed-throat arranged at one side of the casing, removable inner and outer feed-throat sections removably secured thereto and extending over the hub of one of the disks, and a lower feed-throat section removably secured thereto and extending beneath said hub with the upper feed-throat sections resting thereon, substantially as described.

8. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a supporting-base, a casing inclosing the grinding-disks and embodying a removable semicylindrical hood, and a longitudinally-divided semicylindrical lower portion, the sections of which are relatively movable one toward and away from the other, sectional casing-rings permanently secured to opposite sides of the casing, sectional sleeves or collars removably secured to said rings and extending around the hubs of the disks, and hub-sections detachably connected with the hubs of the grinding-disks and lying within said sleeves or collars, substantially as described

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750,702. TRAP-NEST. ALBERT G. ROOT, Danbury, Conn. Filed Apr. 24, 1903. Serial No. 154,056. (No model.)



Claim.—1. A trap-nest comprising a base having an opening, a box having an opening out of alinement therewith in the raised position and in alinement therewith in the lowered position, a spring for holding the box at the raised position and means for causing the box to turn spirally when it is moved downward against the power of the spring by the weight of a hen.

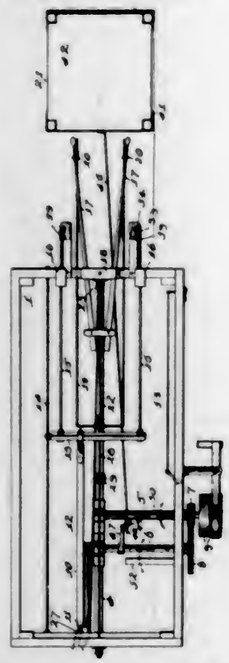
2. A trap-nest comprising a base having an opening in the rear, a spirally-moving box having an opening in front when at the raised position, a spring for holding the box at the raised position and means for causing the box to make a partial turn spirally when the power of the spring is overcome by the weight of a hen, so that the opening in the box will register with the opening in the base.

3. A trap-nest comprising a base having an opening, a box having an opening out of alinement therewith in the raised position and in alinement therewith in the lowered position, a depending stud having spiral grooves, fixed and loose collars on said stud, a coil-spring between said collars and arms extending upward from the box and engaging the grooves above the loose collar, the spring acting to hold the box at the raised or receiving position until its power is overcome by the weight of a hen entering the box, which will then move downward spirally and place the opening in the box in alinement with the opening in the base.

4. A trap-nest comprising a base having an opening, a box having an opening out of alinement therewith in the raised position and in alinement therewith in the lowered position, a spring for holding the box at the raised position, means for causing the box to descend spirally when the power of the spring is overcome by the weight of a hen entering the box and a catch for locking the box at the lowered position against the power of the spring.

5. A trap-nest comprising a base having an opening, a box having an opening out of alinement therewith in the raised position and in alinement therewith in the lowered position, a depending stud having spiral grooves, a collar adjustably secured to the lower end of the stud, a loose collar on said stud, a coil-spring between said collars and arms extending upward from the box and engaging the grooves above the loose collar, substantially as shown, for the purpose specified.

750,703. BAG-TURNER. HENRY ROPPEL, St. Louis, Mo. Filed June 9, 1903. Serial No. 160,765. (No model.)



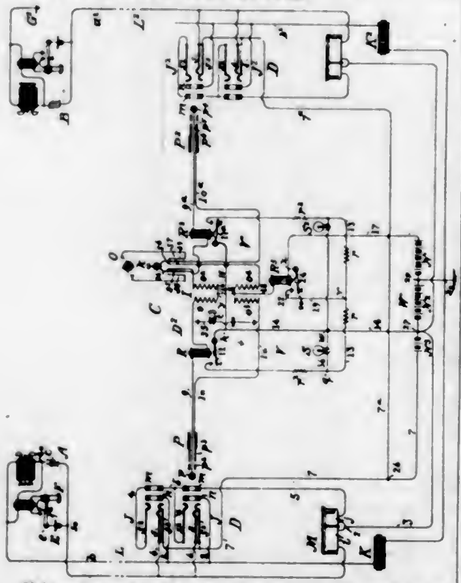
Claim.—1. An improved bag-turner, comprising a suitable frame, a table located upon said frame, arms projecting from said frame over which the bags are turned, a yoke operated within said frame, its ends projecting and provided with clamps, bars projecting from said frame in alinement with said yoke, hooks located upon said arms for holding the edge of the bag in alinement with the clamps of the yoke, a mechanism located within said frame for operating the yoke a delivery device operating beneath the projecting arms and adapted to pass within the turned bag and deliver it from said arms, and means whereby the devices are operated and automatically released during the operation of the device, substantially as specified.

2. An improved bag-turner, comprising a suitable frame, a yoke slidably mounted at an incline in said frame, clamping devices formed on the ends of said yoke whereby the end of the bag is held, a pair of projecting arms arranged in line with the movement of the yoke and projecting from the frame, knobs formed on the end of said arms for the free movement of the bag when pulled thereover, a shaft located within the frame provided with a crank whereby the yoke is reciprocated, wires projecting through said frame and in alinement with the projecting arms and arranged to pass within the bag when turned, a hook formed on the end of the yoke-operating device, a cable provided with an eye operated by the yoke-operating device, said wires being advanced forward when the cable is pulled upon and released at a given period during the operation, a table automatically raised and lowered by the operation of the device to receive the bag when delivered from the projecting arms, substantially as specified.

3. An improved bag-turner, comprising a reciprocating yoke for advancing the bag in its unturned position, bringing it in contact with projecting arms and turning said bag during its backward movement, an automatic means to deliver the bag from said arms and locating it upon a table, and a means for automatically operating and releasing the movement of the delivery device, substantially as specified.

4. An improved bag-turner, provided with a reciprocating yoke, a shaft provided with a crank for imparting motion to said yoke, arms projecting from a frame over which the bag is turned, wires located beneath the projecting arms and arranged to pass within the bag and deliver it from said arms when turned, a cable automatically operating and releasing said wires at a given time, a table adapted to be raised and lowered by the operation of the device for receiving the bag when delivered from the arms, clamping devices arranged upon the ends of the yoke for gripping the bag, and a means whereby the bag is held in position to be received by the clamping devices for repeating the bag-turning operation, substantially as specified.

750,704. TELEPHONE SWITCHING AND SIGNALING APPARATUS. MALCOLM C. ROBTY, Dedham, Mass., assignor to American Telephone and Telegraph Company, a Corporation of New York. Filed Jan. 3, 1902. Serial No. 88,315. (No model.)



Claim.—1. In a telephone-exchange apparatus, the combination of a number of substation-circuits; substation telephone apparatus at the substation of each circuit including a switch to open and close the said circuit; branch-terminal multiple switchboard apparatus at a central station to which said substation-circuits converge, said apparatus comprising a switchboard-circuit having two conductors only, a common source for supplying current for talking and the transmission of incoming signals, central-station annunciators through which each substation-circuit is permanently connected to the common source of current, a local locking and resetting circuit for each annunciator connected to the common source of current, an appropriate busy-test system for the switchboard, supervisory signals representing the substations of any two circuits united at said switchboard, means for connecting the common source of current with any pair of lines united at said switchboard and with the said signals, and means responsive to the substation-switches for controlling the display of said signals.

2 The combination in a branch-terminal multiple switchboard, of a plurality of switch-sockets for each main-line circuit converging to said switchboard; a number of two-conductor switchboards each provided at both ends with a switch-plug adapted to enter and coöperate with the said sockets; an annunciator locking and resetting local circuit for each series of main-circuit switch-sockets; and a busy test associated with each and adapted to be set when said local circuit is closed; a supervisory relay associated with each switch-plug and connected in the main cord conductor extending between the tip-contacts of said plugs; a central source of current bridged between the two conductors of the said cords; a governing-relay in a local circuit containing a section of said source; and two supervisory signals in local circuits receiving current from said source through the local points of said governing-relay, each signal being provided with a shunt leading through the local points of the corresponding supervisory relay; the switchboard-circuits including said supervisory relays, the controlling-relay local circuit, and the annunciator-locking circuit, being all established through registering contacts of switch-sockets of their respective lines and switch-plugs inserted in said sockets, substantially as set forth.

3. The combination with a switchboard having terminal plugs provided with a plurality of switch-contacts, and containing two conductors electrically uniting corresponding contacts of said plugs; a source of current in a bridge between said conductors; and two signal devices associated with said plugs respectively; of a relay in said bridge controlling the current supplied to said signal devices; and two relays in circuit with the said cord conductors one on either side of the said bridge, said relays controlling shunts of the said signals respectively, and thereby determining the display or withdrawal of said signals, substantially as set forth.

4. In the switchboard apparatus of a telephone system, and in combination with a circuit-controlling switch at a substation; a switch-socket; and a two-conductor switch-cord having switch-plugs adapted for insertion in said sockets; of a source of current at the central station in a bridge between said cord conductors; a signal device in a local circuit of said source associated with a plug of said cord; a governing-relay in a branch circuit of said source controlling the supply of current to said signal devices; and a supervisory relay in the circuit of said cord conductor, and thereby (when said plug is inserted in a switch-socket) in the line or substation circuit represented by said socket, said relay controlling a shunt of said signal device to determine the display and withdrawal thereof; the said supervisory relay being responsive to the operation of both the substation-switch and to the plug-and-socket switch, and the said governing-relay being responsive to the operation of the plug-and-socket switch only, substantially as described.

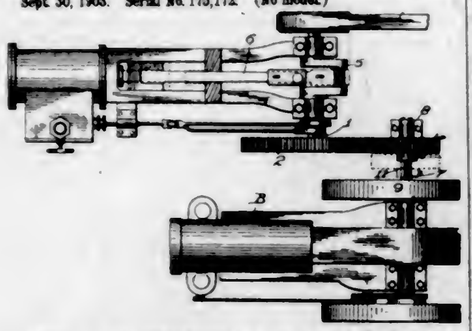
5. In the switchboard apparatus of a telephone system; and in combination with circuit-controlling switches at two substations; switch-sockets; and a two-conductor switch-cord having switch-plugs adapted for insertion in said sockets; of a source of current at the central station in a bridge between said cord conductors; two signal devices such as glow-lamps in different local circuits of said source associated with the said plugs respectively; a governing-relay in a branch circuit of said source formed in part of said bridge, controlling the current supplied to the local circuits of said signal devices; and two supervisory relays in circuit with the said cord conductors on either side of the connection therewith of said bridge, and thereby (when the said plugs are in the appropriate switch-sockets) also in circuit with the substation-switches respectively of the lines represented by said sockets, the said relays controlling shunts of the said signal devices respectively to determine the display and withdrawal thereof; the said supervisory relays being each responsive to the operation of both the substation-switch and the plug-and-socket switch on its own side of said bridge, and the said governing-relay being responsive to the operation alone of the plug-and-socket switches on both sides of said bridge.

6. In a telephone-exchange the combination of branch-terminal switchboard apparatus comprising the self-setting annunciator having actuating and locking helices, and switch-socket devices representing the substation-circuits centering in said switchboard, and containing switch-contacts of the several associated main and local circuits; with a switch-cord circuit having but two conductors both arranged to form main-circuit link conductors, and switch-plugs at its ends adapted to be inserted in said sockets, and each having tip, ring and sleeve contacts arranged to register with the corresponding contacts in said sockets; the tip and sleeve contacts of each plug being united by said cord conductors with the corresponding contacts of the other, and the intermediate or ring contacts of both plugs being unconnected with either or any cord conductor and adapted to serve when the plug is in a socket as a medium for uniting spring-contacts of said socket; a local central-station circuit including the locking-helix of the annunciator and said spring-contacts and adapted to be closed by the ring-contact of a plug; and a central and common battery in a bridge between said cord conductors as a source of transmitter-current and connected with the actuating-helix of the annunciator as a source of incoming signal-current; substantially as set forth.

7. In a branch-terminal switchboard, organized for operation in connection with a system of central and universal current-supply, a switch-cord circuit extending between two switch-plugs having each tip, ring, and sleeve switch-contacts, and comprising two conductors uniting the tip and sleeve contacts respectively of said plugs, the ring-contacts of said plugs being unconnected with either or any cord conductor; the central source of current in a bridge between the said cord conductors; an induction-coil interposed in said cord conductors having half of both of its windings in each, one of the said half-windings on each side of the point of bridge connection; two supervisory relays in said main conductors associated with the said two plugs respectively; and a governing-relay in a branch circuit of said source of current formed in part of a portion of said bridge; combined with two supervisory signals in local circuits external to said switch cord conductors, and a controlling shunt-circuit for each signal, the said local circuits being extended through the local points of said governing-relay, and their shunt-circuits through the local points of the supervisory relays respectively.

8. The combination with a switchboard having terminal plugs provided with a plurality of switch-contacts, and containing two conductors electrically uniting corresponding contacts of said plugs, a source of current in a bridge between said conductors, and two signal devices associated with said plugs respectively, of relay mechanism in the circuits of said conductors and source of current controlling the current supplied to said signal devices, two relays in circuit with the said cord conductors one on either side of the said bridge, and shunt-circuits controlling said signals and controlled by said two relays, thereby determining the display or withdrawal of said signals, substantially as set forth.

750,705. ENGINE. ALEXANDER RUSSELL, Hobiestown, Pa. Filed Sept. 30, 1903. Serial No. 175,172. (No model.)

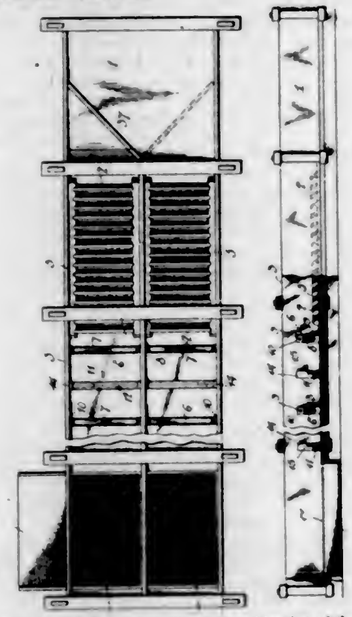


Claim.—1. The combination with the drive-shaft of a steam-engine, and a gear on said shaft, of the drive-shaft of a gas-engine, and a pinion splined on said gas-engine drive-shaft means whereby the said pinion may be moved into or out of mesh with the gear on the steam-engine drive-shaft, as and for the purpose described.

2. The combination with the drive-shaft of a steam-engine and the drive-shaft of a gas-engine, of a gear acting as the fly-wheel of a steam-engine and secured to the drive-shaft thereof, a pinion slidably mounted on the drive-shaft of the gas-engine to be moved into and out of engagement with said gear of the steam-engine, and means for retaining said pinion in its predetermined position.

3. The combination with the drive-shaft of a steam-engine, of the gear on said shaft, of the drive-shaft of the gas-engine, and a pinion mounted on said gas-engine drive-shaft, with means for mounting said pinion so that the same may be slid into and out of engagement with said gear, and means for securing said pinion in predetermined position.

750,706. COMBINED CONCENTRATOR AND AMALGAMATOR. HIRAM J. RUSSELL, Crescent Mills, Cal. Filed Oct. 18, 1902. Serial No. 127,884. (No model.)



Claim.—1. In a concentrator, the combination of the flume, riffles arranged transversely on the floor of the flume, revolving catchers rotatively supported in the flume and adapted to be rotated by the flow in the flume, screens placed at the lower end of the flume and arranged to receive the discharge from the flume, a chute situated beneath the said screens, a feed-box supported near the said chute, and means whereby the flow is conducted from the chute to the said feed-box, pivoted tables arranged to receive the flow from the feed-box, the said tables having surfaces covered with woolly fabric, and a concentrates-tank beneath the tables.

2. In a combined concentrator and amalgamator, the combination of a flume, riffles, revolving catchers in the flume, screens placed at the end of the flume, a chute beneath the screens, amalgamators arranged to receive the flow from the said chute, a feed-box beneath the amalgamators, pivoted tables having woolly fabric surfaces disposed and adapted to receive the flow from said feed-box, and a concentrates-tank.

3. In a concentrator, the combination with a flume, of revolving catchers in said flume transversely disposed and each of said catchers comprising a central or body part provided at intervals with separate projecting portions of woolly material extending lengthwise of the body of the catcher, and supporting devices constructed and arranged to hold said catchers rotatively within and across said flume at different heights whereby said catchers are revolved by the flow in the flume acting against said projecting portions of woolly material successively in their lowest positions said woolly portions being thereby alternately dipped into the flow without touching the flume-bottom and lifted out of the flow.

4. In a concentrator, the combination of a flume, and current-splitters each comprising a body of wedge-shaped or triangular cross-section arranged transversely in the flume, one edge of the said triangular body being presented against the flow in the flume whereby the said flow is split and part of it caused to pass beneath the current-splitter and part compelled to move upwardly over the inclined face of said triangular body, the faces of the said triangular

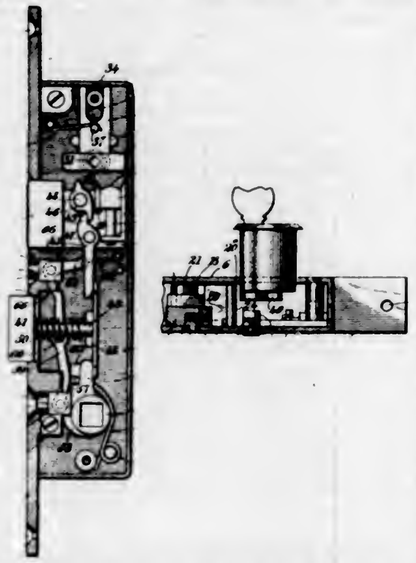
body being provided with woolly material to catch the gold particles, and devices constructed and arranged to hold the said current-splitters stationary at different heights in the flume.

5. In a concentrator, the combination in a flume, of revolving catchers consisting of rotatively-supported bodies provided with projecting portions of woolly material separated from each other, means for supporting said bodies transversely in the flume at different heights whereby the said projecting woolly portions are dipped into the flow in the flume and the said catchers caused to revolve by the movement of the flow, wedge-shaped current-splitters arranged transversely in the flume and having edges presented to the flow splitting the flow and causing part to pass under and part over the current-splitters, the faces of said current-splitters being covered with woolly material, and means for holding said current-splitters stationary at different heights, one of said current-splitters being placed after each revolving catcher.

6. In a concentrator, the combination with a flume, of removable sets of riffles within the flume, each riffle comprising a board or plate transversely disposed and set up on edge in the flume presenting one flat side or face against the flow in the flume, and each riffle having a plurality of lengthwise grooves in its said face, one or more of said grooves being provided with woolly material secured therein.

7. In a concentrator and amalgamator, the combination of a flume, riffles in the flume, revolving catchers and current-splitters constructed as described and arranged in said flume, screens at the end of the flume, a chute beneath the screens, an amalgamator receiving from the chute, a feed-box beneath the amalgamators, invertible tables covered with woolly fabric receiving from the feed-box, and a concentrates-tank beneath the said tables.

750,707. COMBINED LOCK AND LATCH. BARNEY SCHACHT, New York, N. Y. Filed Sept. 15, 1903. Serial No. 173,275. (No model.)



Claim.—1. A combined lock and latch having a lock-bolt, an independent latch-bolt, a spring-pressed lock-bolt dog mounted to slide on the lock-bolt in a direction at right angles to the path of movement of the bolt, a fixed locking projection for engagement by said dog, a lock-bolt actuator for operating the lock-bolt from one side of the door, the said actuator being arranged to first engage and depress the lock-bolt dog and then to engage and move the lock-bolt, a cylinder member having a tailpiece arranged to engage and depress the lock-bolt dog and operate the lock-bolt independently of the said lock-bolt actuator, and devices controllable by the said tailpiece for operating the latch-bolt.

2. A combined lock and latch having a lock-bolt, an independent latch-bolt, a lock-bolt dog mounted to slide on the lock-bolt in a direction at right angles to the path of movement of said lock-bolt, a fixed locking projection for engagement by said dog, a cylinder member having means adapted when turned in one direction to depress said lock-bolt dog to release the same from the locking projection and to move the lock-bolt, and a train of connections controllable by the said cylinder member when the latter is turned in an opposite direction for actuating the latch-bolt.

3. A combined lock and latch having a lock-bolt, an independent latch-bolt, a cylinder member having a tailpiece adapted to actuate the lock-bolt, devices controllable by said tailpiece for actuating the latch-bolt, a separate bolt-actuator cooperating with the lock-bolt, another bolt-actuator in operative relation to the latch-bolt, the said latch-bolt actuator comprising two members provided with arms for engaging the latch-bolt, one of said members being mounted to turn freely on the other and provided with a locking-lug, and a dog mechanism operatively related to the latch-bolt and its actuator.

4. A combined lock and latch having a lock-bolt formed with an integral shank, parallel guide-flanges on said shank, a dog mounted to slide between said guide-flanges in a direction at right angles to the path of movement of the lock-bolt, a cylinder member having a rotary tailpiece arranged to act on the upper end of said dog to depress the same and also to act on the lock-bolt, and an independent bolt-actuator also arranged to depress the said dog and act on the lock-bolt.

5. A combined lock and latch, having a casing formed with a slot and provided with a flange adjacent to and parallel with said slot, the flange having a locking projection, a slidable lock-bolt having a stud engaging said slot, a spring-pressed dog slidably mounted on said lock-bolt and movable therewith, the said dog being provided with a lug having a notch therein, the projection on the casing cooperating with said dog for holding the bolt in its retracted and projected positions, and means whereby the dog may be moved from engagement with the projection and the lock-bolt may be moved endwise.

6. A combined lock and latch having a slidable lock-bolt, a spring-pressed dog slidably mounted on said lock-bolt and movable therewith, the dog being mounted to slide in a direction at right angles to the path of movement of the lock-bolt, a fixed projection cooperating with said dog for holding the bolt in its retracted and projected positions, and means whereby the dog may be moved against the tension of its spring to disengage said dog from the projection and the lock-bolt may be moved endwise.

7. A combined lock and latch having a lock-bolt, an independent latch-bolt, a bolt-actuator comprising two members mounted to turn one on the other, and each member provided with an arm cooperating with said latch-bolt, a dog-lever provided at one end with an arm engaged by a spring, slidable blocks pivoted to said dog-lever and each provided with a push-button, one of said blocks being in cooperative relation with a locking-lug on one of the members of the bolt-actuator, a cylinder member having a tailpiece disposed to actuate the lock-bolt, and a train of connections between the path of the tailpiece and the latch-bolt for actuating the latter when the bolt-actuator is locked by the dog mechanism against movement.

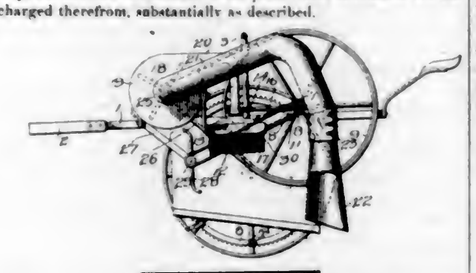
8. A combined lock and latch having a lock-bolt, an independent latch-bolt having a guide-stem provided at its inner end with a cross-head, a latch-bolt actuator comprising two members having arms adapted to engage one end of said cross-head, a dog mechanism for the latch-bolt actuator, a lever pivoted on the lock-bolt and adapted to engage the other end of said cross-head, a cylinder member for actuating the lock-bolt, and connections between the cylinder member and the lever engaging the cross-head of the latch-bolt, for actuating the latch-bolt when the latch-bolt actuator is locked by the dog mechanism.

9. A combined lock and latch having a casing, a lock-bolt slidable in said casing and provided with a shank, parallel guide-flanges on the shank one of said guide-flanges having a right-angular extension, a lock-bolt dog arranged to slide between the guide-flanges and having a stem engaging an opening in the said angular extension, a projection on the casing cooperating with said dog for holding the bolt in its retracted and projected positions, and means for disengaging the dog from said projection and moving the lock-bolt.

750,708. INSECT-EXTERMINATOR. JOSEPH SCHILLER, Burlington, Tex. Filed Dec. 30, 1902. Serial No. 137,126. (No model.)

Claim.—In a machine of the class described, the combination of longitudinally-disposed fenders abreast of each other, spaced apart and provided with means for arresting the descent of insects thereon and for discharging the insects at the rear ends thereof, a beater between the fenders, and an exhaust element having a funnel

disposed between the fenders at the point where the insects are discharged therefrom, substantially as described.



750,709. BELT AND GARMENT FASTENER FOR SUPPORTING SKIRTS OR TROUSERS. GEORGE SCHMITT, Pittsburg, Pa. Filed Feb. 28, 1903. Serial No. 145,559. (No model.)



Claim.—1. The improved garment-fastener, consisting of the body portion having the form of an inverted U, the rear or inner prong of the same having the lateral extensions 4, and an attaching device which projects from said prong and lies parallel thereto and below the top of the body portion, as shown and described.

2. The improved garment-fastener consisting of the inverted-U-shaped body portion, having an attaching device projecting from the rear prong and lying parallel thereto, as shown and described.

3. The combination, with a garment for covering the lower portion of the person, of the described fastener having an inverted-U-shaped body portion whose rear prong is provided with an attaching device projecting rearward and the lateral extension 4, the latter being secured to the waistband of the garment and the attaching device projecting on the inner side of the same, as shown and described.

750,710. ROLLER-WHEEL FOR FORM-INKING ROLLERS OF PRINTING-PRESSES. SAMUEL H. SHAW, Philadelphia, Pa. Filed Dec. 14, 1901. Serial No. 85,929. (No model.)



Claim.—1. An adjusting device for printing-rollers comprising one or more compressible and elastic bands at each end of the roller arranged to travel in contact with a track and adapted to be removed and replaced to adjust the roller.

2. An adjusting device for printing-rollers comprising a series of superimposed compressible and elastic bands at each end of the roller arranged to travel in contact with a track.

3. A truck for printing-rollers comprising a body having one or more thin compressible and elastic bands arranged thereon and adapted to be removed and replaced on the body to change the diameter of the truck.

4. A truck for printing-rollers comprising a body having one or more endless compressible and elastic bands arranged thereon and adapted to be removed and replaced on the body to change the diameter of the truck.

5. A truck for printing-rollers comprising a body having a series of superimposed removable compressible and elastic bands arranged thereon.

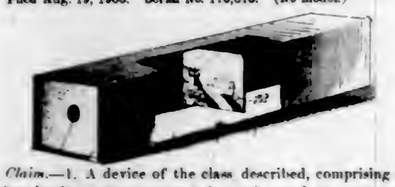
6. The combination of the roller-wheel of the form-inking roller of a printing-press, with a resilient tire applied thereto and having continuous edge ribs or flanges overlapping the sides of the roller-wheel, substantially as specified.

7. The combination of the roller-wheel of the form-inking roller of a printing-press, with a tire of resilient material applied thereto and having embedded within it a single layer of stiffening and strengthening web, substantially as described.

8. The combination of the roller-wheel of the form-inking roller of a printing-press, with a series of superposed tires applied thereto and each having a stiffening and strengthening core embedded therein, substantially as specified.

9. The combination of the roller-wheel of the form-inking roller of a printing-press, with a resilient tire applied thereto and having combined therewith a stiffening and strengthening web composed of woven fabric having its warps and wefts diagonally disposed so as to permit of its expansion and contraction, substantially as specified.

750,711. OPTICAL DEVICE. MICHAEL F. SHEA, Newport, R. I. Filed Aug. 19, 1903. Serial No. 170,013. (No model.)



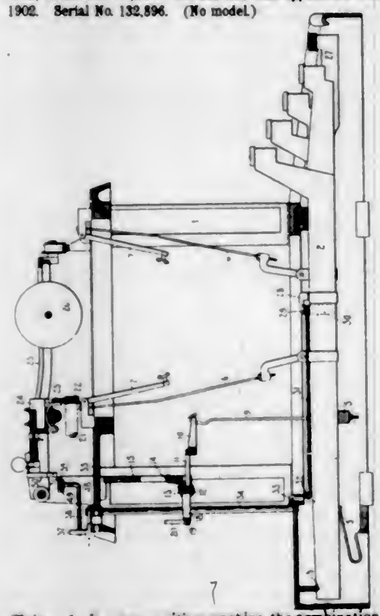
Claim.—1. A device of the class described, comprising a box member having a transparent end member and an apertured end member, and a transparent picture or view suspended from the interior top side of the box, substantially as set forth.

2. A device of the class described, comprising a box member, and views hinged to opposite sides of the interior of the box, substantially as set forth.

3. A device of the class described, comprising a box member having a transparent end member, and an apertured front plate, a picture or view hinged to the top interior side of the box, and a second picture or view hinged to the bottom interior side of the box out of the line of travel of the top picture or view so as not to interfere with the latter when moved upon its hinge, substantially as set forth.

4. A device of the class described, comprising a box member having a transparent end portion and an apertured front plate, and transparent pictures or views suspended from opposite interior sides of the box, the construction being such that when one view is hanging vertically in the line of vision of the box, the view suspended from the opposite side will lie flat against said side, substantially as set forth.

750,712. TYPE-WRITING MACHINE. CHARLES H. SHEPARD, New York, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Original application filed July 18, 1902, Serial No. 116,043. Divided and this application filed Nov. 26, 1902. Serial No. 132,896. (No model.)



Claim.—1. In a type-writing machine, the combination of means operated by the carriage-propelling power and adapted to be thrown into and out of locking engagement with the key-levers for locking the key-levers together at any predetermined point in the travel of the carriage, so that when pressure is applied to one key-lever to depress the same said pressure is resisted by the key-levers thus locked together.

2. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers, and a line-lock bar which is controlled by the carriage and is supported by the various key-levers and is adapted to lock them together when an end of a line is reached, whereby the combined resistance of the locked key-levers resists the actuation of any one of them.

3. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers, restoring-springs therefor, and means for automatically employing the resistance of all of said restoring-springs to prevent the depression of any key-lever when an end of a line is reached.

4. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers, restoring-springs therefor, and means for automatically employing the resistance of all of said restoring-springs and the combined weight of the parts controlled by the key-levers to prevent the depression of any key-lever when an end of a line is reached.

5. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers each of which has an engaging abutment thereon, a locking-bar which is supported by said key-levers, and means controlled by the carriage for automatically moving said locking-bar into engagement with all of said abutments when an end of a line is reached, whereby the key-levers will each afford a resistance to the depression of the others.

6. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, a line-lock abutment carried thereby, key-levers each of which has an engaging abutment thereon, a locking-bar which is supported by said key-levers, a spring-returned line-lock abutment on the frame of the machine and which is adapted to coöperate with the said abutment on the carriage, means for adjusting the abutments one with relation to the other, means for operatively connecting the abutment on the frame of the machine to the locking-bar, for automatically moving said locking-bar into engagement with all of said engaging abutments when an end of a line, as determined by the relative positioning of said line-lock abutments, is reached, whereby the various key-levers will each afford a resistance to the depression of the others.

7. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers, a line-lock bar which is controlled by the carriage and is supported by the various key-levers and is adapted to lock them together when an end of a line is reached, and means for guiding said locking-bar in its movements into and out of locking engagement.

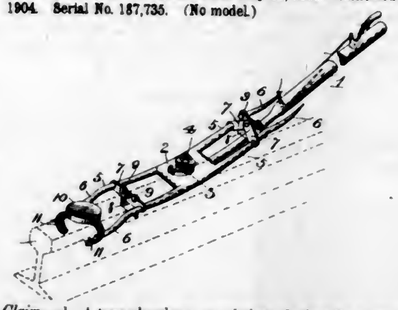
8. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, key-levers each of which has a locking-hook on the top thereof, a locking-bar which rests on and is supported by said key-levers, and means controlled by the carriage for moving the locking-bar into and out of engagement with said locking-hooks.

9. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, a line-lock abutment carried by said carriage, a longitudinally-movable stop-bar, a line-lock abutment carried by said stop-bar, key-levers, a locking-bar supported by said key-levers, locking means carried by each of said key-levers and with which the locking-bar coöperates to lock the key-levers together when the carriage reaches an end of a line, and intermediate actuating means between the longitudinally-movable stop-bar and the locking-bar.

10. In a type-writing machine and line-lock mechanism therefor, the combination of a carriage, a line-lock abutment carried by said carriage, a longitudinally-movable spring-restored stop-bar, a line-lock abutment carried by said stop-bar, means for adjusting said line-lock abutments with relation to each other to determine the length of a line, key-levers, a locking-bar supported by said key-levers, locking means carried by each of said key-levers and with which the locking-bar coöperates to lock the key-levers together when the carriage reaches an end of a line, and an intermediate rock-shaft between the longitudinally-movable bar and the locking-bar and operatively connected thereto.

11. In a type-writing machine, the combination of key-levers, engaging means secured thereto, a locking-bar that is adapted to move into engagement with the engaging means on the key-levers and so that the combined resistance to the depression of the various key-levers will be employed to prevent the depression of any one of them, and means for automatically moving the locking-bar to locking engagement when an end of a line is reached.

750,713. RAILROAD TORPEDO-PLACER. FRANK G. SHIMP and JAMES C. GRIFFIN, Patoka, Ill. Filed May 16, 1903. Renewed Jan. 4, 1904. Serial No. 187,735. (No model.)



Claim.—1. A torpedo-placer consisting of a handle, a revolving head located thereon, and adapted to carry torpedoes.

2. A torpedo-placer consisting of a handle, a revolving head located thereon, and adapted to carry torpedoes, and a means for liberating the torpedoes successively.

3. A torpedo-placer consisting of a handle, a revolving head located thereon, and adapted to carry torpedoes, and a spring connection between said handle and said head.

4. A torpedo-placer consisting of a handle, a revolving head located thereon, and adapted to carry torpedoes, and a means for interrupting the revolution of said head.

5. A torpedo-placer consisting of a head, suitably-mounted spring-forks attached to said head and adapted to carry torpedoes, and a means for holding said forks apart.

6. A torpedo-placer consisting of a head suitably mounted, spring-forks attached to said head and adapted to carry torpedoes, a means for holding said forks apart and a means for operating the last said means.

7. A torpedo-placer consisting of a revolving head suitably mounted, spring-forks attached thereto and adapted to carry torpedoes.

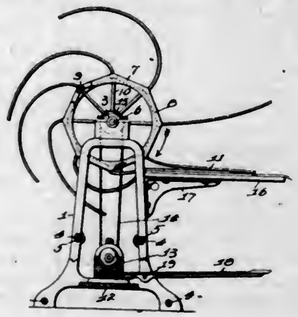
8. A torpedo-placer consisting of a head suitably mounted, spring-forks attached thereto and adapted to carry torpedoes, said forks having their ends pointed and bent downwardly.

9. A torpedo-placer consisting of a head suitably mounted, spring-forks attached thereto and adapted to carry torpedoes, links pivoted together at their inner ends and at their outer ends to opposite forks.

10. A torpedo-placer consisting of a head suitably mounted, spring-forks attached thereto, and adapted to carry torpedoes, links pivoted together at their inner ends and at their outer ends to said forks, a plate pivoted to the pivotal points of said links.

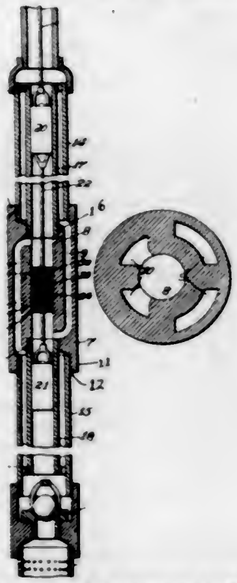
11. A torpedo-placer consisting of a head suitably mounted, spring-forks attached to said head and adapted to carry torpedoes, links pivoted together at their inner ends and at their outer ends pivoted to said forks, a plate pivoted to the pivotal point of said links and having at its upper edge flanges adapted to pass over said links.

750,714. FUR-BEATER. SAMUEL P. SHRIBER, St. Louis, Mo. Filed June 23, 1903. Serial No. 162,737. (No model.)



Claim.—The improved fur-beater, comprising two vertical frames having journal-boxes at their upper ends, a horizontal shaft mounted in said journal-boxes, a whip-cage mounted upon said shaft between the upper ends of said vertical frames, a horizontal platform beneath said cage, a motor mounted on said platform, a belt connecting said motor to said cage for rotating the latter, a work-table projecting laterally from said vertical frames at a point below the plane of said journal-boxes, and a foot-lever pivotally connected to one of said frames and extending beneath said work-table for the purpose of controlling said motor, substantially as described.

750,715. **WORKING BARREL FOR WELLS.** WILLIAM W. SLEEMAN, Oil City, Pa. Filed Oct. 14, 1903. Serial No. 177,010. (No model.)

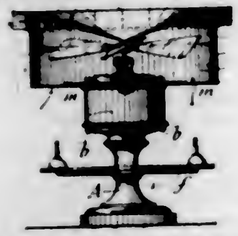


Claim.—1. In a device of the character described, the combination of a casing, a plurality of passages, formed in said casing, a cylinder formed in said casing, part of said passages connecting with said cylinder at its lower end, the remainder of said passages connecting with the cylinder at its upper end, cylinders connected with the said cylinders at either end thereof, pipes connected with said casing at either end thereof outside of the last-named cylinders, the part of said passages formed in said casing which connect with the lower end of the cylinder formed in said casing connecting with the annular space formed between the cylinder and the pipe at the opposite end of the casing, the remaining passages which connect to the upper end of the cylinder within the casing connecting with the annular space formed between the cylinder and the pipe at the lower end of the casing, and a piston in each cylinder which is connected with the cylinder formed within the casing, substantially as described.

2. In a device of the character described, the combination of a casing, a cylinder formed in said casing, pipes connected with said cylinders at either end thereof forming pumping-cylinders, pistons operatively placed within said pumping-cylinders, pipes connected with each end of said casing and surrounding said pumping-cylinders, a plurality of vertical passages formed in said casing a portion of which connects the lower end of the cylinder formed within said casing with the annular space formed between the upper pumping-cylinder and the pipe surrounding the same, the remaining vertical passages connecting the annular space formed between the lower pumping-cylinder and the pipe surrounding the same with the upper end of the cylinder formed within the casing, outlet-ports formed in said casing, and means whereby the said outlet-ports may be controlled, substantially as described.

3. In a device of the character described, the combination of a casing, said casing being formed as a cylinder, pipes connected with said cylinder at each end thereof, said pipes forming pumping-cylinders, pipes connected to said casing and surrounding said pumping-cylinder pipes, pistons operatively placed within said pumping-cylinders, passages formed in said casing which connect the lower end of the cylinder formed in said casing with the annular opening formed between the upper pumping-cylinder and the pipe thereabout, passages connecting the upper end of said cylinder formed within the casing with the annular opening formed between the lower pumping-cylinder and pipe therearound, ports connecting the cylinder formed in the casing with the exterior of the same, a stuffing-box which normally closes said ports, and connections between said pumping-valves and stuffing-box whereby the said stuffing-box may be actuated, substantially as described.

750,716. **ELECTRIC FAN.** ADOLPH T. SMITH, New York, N. Y., assignor of one-half to Myron R. Matthews, Passaic, N. J. Filed Aug. 10, 1903. Serial No. 168,863. (No model.)

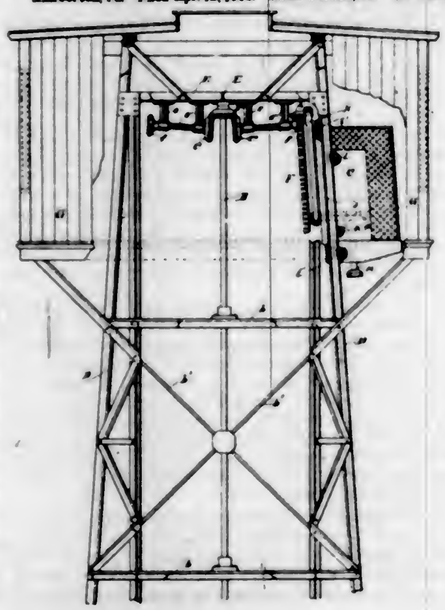


Claim.—1. An electric fan consisting of an electromotor, the shaft of which is vertically arranged, a fan rotated in a horizontal plane by said motor, a casing surrounding said fan and formed of a cylindrical lower part having openings in its bottom, a conical top part, and an annular opening between the lower part and top part, substantially as set forth.

2. An electric fan, consisting of an upright stand, an electromotor located in vertical position on the same, a fan rotated in a horizontal plane by said motor, a casing surrounding said fan and provided with bottom openings, and a conical top separated from the casing proper by distributing-vanes, substantially as set forth.

3. The combination, with an electric fan provided with a fan rotated in a horizontal plane, of a casing surrounding said fan and provided with bottom openings and outlets near its top so as to throw out the air in a horizontal plane, of gas-burners supported below the casing for heating the air thrown out by the fan, substantially as set forth.

730,717. **ROTARY PLEASURE-TOWER.** WILLIAM R. SNYDER, Kimberton, Pa. Filed Apr. 12, 1902. Serial No. 102,632. (No model.)



Claim.—1. A rotating tower having a plurality of sides, provided with inclined guideways, elevating-carriages mounted to travel up and down in said guideways while the tower is rotating, and a circular track upon which the tower rotates as described.

2. A tower having a plurality of sides, a circular track upon which the tower rotates, horizontal shafts projecting from the extreme corners of said tower and swings revolving upon the shafts, said shafts diverging from a central vertical driving-shaft within the tower, as set forth.

3. The combination of a rotating tower, elevating-carriages arranged to travel up and down in guideways in the sides of the tower, revolving swings projecting from the extreme corners of the tower, and horizontal shafts diverging from a central vertical driving-shaft within the tower and upon which the swings revolve as described.

4. A tower, a circular track upon which the tower rotates, elevating-carriages arranged to travel up and down the sides of the tower, revolving swings projecting from each of the extreme corners of the tower, and a shelter-top and lookout-house upon the summit of the tower, said lookout-house rotating with the tower, as shown and described.

5. In combination with a rotating tower, a central vertical driving-shaft extending from the base to the top of the tower, a shifting gear-wheel upon the lower end of said shaft beneath the floor of the tower, a horizontal power-shaft beneath the floor of the tower and provided with a pinion with which said gear-wheel is adapted to be thrown in and out of mesh, means for shifting said gear-wheel, and a cog-wheel bolted to the tower beneath the base, said cog-wheel meshing with the said pinion upon the power-shaft, as shown and described.

6. A rotating tower having a vertical central driving-shaft extending from the base to the top of the tower, a pinion on said shaft at an intermediate point between the base and top of the tower, a plurality of gear-wheels meshing with said pinion, horizontal shafts diverging from the center of the tower and carrying said gear-wheels, and revolving swings carried directly by said shafts, as shown and described.

7. A rotating tower having a vertical central driving-shaft extending from the base to the top of the tower, a pinion at the upper end of said shaft, a plurality of cog-gears with which said pinion meshes, a plurality of horizontal shafts disposed at right angles to each other, and carrying said cog-gears, sprocket-wheels mounted on the shafts at the outer ends thereof, endless sprocket-chains carried by said sprocket-wheels, sprocket-wheels at the base of the tower around which said sprocket-chains pass, said sprocket-wheels being each mounted upon a tension-block and elevating-carriages adapted to move up and down in guideways on the tower and connected with the said sprocket-chains, as described.

8. A rotating tower having inclined guideways, a plurality of elevating-carriages each adapted to be moved up and down one of said inclined guideways, an endless sprocket-chain for moving each carriage, a connecting-arm, a wrist-pin secured to the sprocket-chain and having a swivel connection with the upper end of the connecting-arm, and a supporting-yoke having a shaft to which the lower end of the connecting-arm is pivotally joined, the said yoke terminating at its forked ends in pivotal bearings beneath the carriage-seat, substantially as shown and described.

9. A rotating tower having inclined guideways, a plurality of elevating-carriages, each carried up and down one of said guideways, an endless sprocket-chain carrying each of said carriages, a connecting-arm, a wrist-pin connecting the upper end of said arm to the sprocket-chain, a yoke having a shaft end pivotally connected to said connecting-arm, said yoke being provided with forked ends having pivotal bearing beneath the carriage-seat, a spring having its free end situated above and engaging the shaft end of said yoke, a crank-lever pivotally attached to the side of said yoke, a clutch-shaft with the end of which the said lever is rigidly connected, and an eccentrically-disposed tooth-clutch attached to the outer end of said shaft, the said clutch being adapted to engage with the wooden track of the guideway, should the sprocket-chain break, as set forth.

10. A rotating tower, a circular track upon which said tower rotates a central vertical driving-shaft for said tower, a sleeve passing through the floor and base of the tower for receiving the lower part of said vertical shaft and forming a long bearing for the same, and a foot-bearing for receiving the lower end of the vertical shaft as shown and described.

11. A rotating tower having inclined sides provided with guideways, and a plurality of elevating-carriages adapted to travel up and down said inclined sides in said guideways, the said elevating-carriages in their transit, while the tower is rotating, describing a vertical cone-shaped spiral, and revolving swings diverging from the corners of the tower, the said swings while revolving describing a horizontal circular spiral when the tower is rotating, as described.

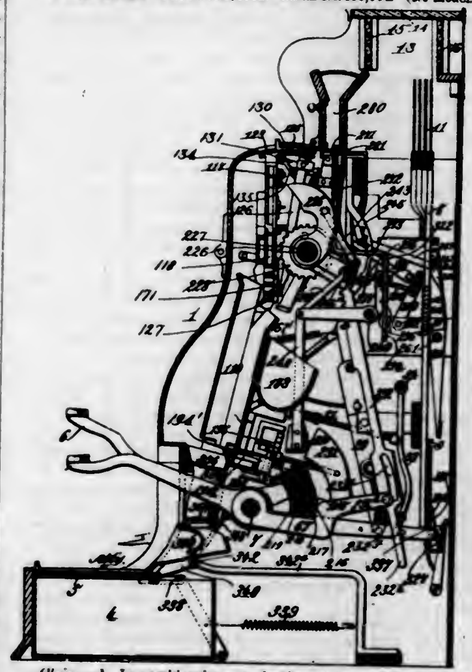
12. A pleasure-tower, flanged wheels carried at the base of the tower, a circular track upon which the wheels run and keepers at the base of the tower and extending beneath the wheels and the flanges of the track, the said tower being provided on its sides with elevating-carriages, and adapted to rotate upon the said circular track while the elevating-carriages are traveling up and down, or to remain at rest while the elevating-carriages are in motion, as set forth.

13. A pleasure-tower, a circular track upon which the tower is adapted to rotate, the said tower being adapted to remain stationary at the will of the operator, a plurality of elevating-carriages upon the sides of the tower, and revolving swings diverging from the corners of the tower, said elevating-carriages and revolving swings being adapted to remain at rest or to be in motion while the tower revolves, or while the tower is stationary, as described.

14. A rotating tower having a vertical central driving-shaft extending from the base to the top of the tower, a pinion at the upper end of the shaft, a plurality of horizontal shafts disposed at right angles to each other and provided with gear-wheels meshing with said pinion, a plurality of elevating-carriages arranged to travel up and down the sides of said tower, means actuated from the said horizontal shafts for moving said carriages, a pinion on said vertical driving-shaft at a point between the base and top of the tower, horizontal shafts driven from said pinion and revolving swings carried by said shafts, as set forth.

15. A rotating tower having a central vertical driving-shaft, extending from the base to the top of the tower, pinions on the said shaft, elevating-carriages mounted to travel up and down in guideways in the sides of the tower, revolving swings projecting from the tower, and means for actuating the said carriages and swings from the said pinions on the vertical driving-shaft, as set forth.

750,718. **MACHINE FOR RECEIVING, DELIVERING, SORTING, REGISTERING, AND DETECTING COINS.** EDWIN H. SPEAR, New York, N. Y., and EDWARD MORIARTY, London, England, assignors to the F. S. M. Syndicate, Limited, London, England, a Corporation of Great Britain. Filed Dec. 2, 1902. Serial No. 133,604. (No model.)



Claim.—1. In combination, an ejecting-plate, an operating-pin therefor, a movable regulating-pin adapted when in its normal position to retain said operating-pin in its operative position and when in its inoperative position adapted to permit of said operating-pin assuming an inoperative position, operating means for said operating-pin, and means for operating said regulating-pin.

2. In combination, an ejecting-plate, an operating-pin therefor, a vertically-movable regulating pin adapted to engage said operating-pin for retaining it in an upright position, a fork engaging with and adapted to suitably operate said regulating-pin, means for operating said fork, and means adapted to engage and operate said operating-pin when the latter is in its upright position causing thereby the operation of said ejecting-plate.

3. In a machine of the character described, a change making and ejecting mechanism adapted to have its operation controlled by the diameter of a circular object, a registering mechanism for recording the value of a sale, means for indicating the amount of cash inserted in the machine and adapted to have its movement controlled by the diameter of a circular object, means for indicating the amount of a sale, means for distributing the cash inserted in the machine, and means for operating said mechanisms, cash-indicating, sale-indicating and cash-separating means, said mechanisms, cash-indicating, sale-indicating and separating means operatively connected with each other.

4. In a machine of the character described a change making and ejecting mechanism, said mechanism adapted when operated to eject the change between the value of a sale and the value of the money tendered in payment thereof, mechanism for controlling the operation of said change making and ejecting mechanism, a cash-separating means adapted to be engaged and operated by said controlling mechanism when the latter is operated, a registering mechanism for recording the value of the sale, and means for simultaneously operating said mechanisms.

5. In a machine of the character described a change making and ejecting mechanism, said mechanism adapted, when operated, to eject the change between the value of a sale and the value of the money tendered in payment thereof, mechanism adapted to engage the edge of and have its movement controlled by the diameter of a coin for controlling the operation of said change making and ejecting mechanism, registering mechanism for recording the value of the sale, and means for suitably operating said mechanisms.

6. A machine of the character described comprising a series of cash-receptacles, a cash separating and delivering mechanism for delivering cash to the said receptacles, a cash detecting and deflecting mechanism engaging with and operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, and means engaging with and operating the registering mechanism, cash ejecting and changing mechanism and said controlling mechanism.

7. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver the cash to said receptacles, a cash deflecting and detecting mechanism engaging with and operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, and means engaging with and operating the cash-ejecting and change-making mechanism and said controlling mechanism.

8. In a machine of the character described, a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver the cash to said receptacles, a cash detecting and deflecting mechanism operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, and means engaging with and simultaneously operating said registering mechanism, cash ejecting and changing mechanism and said controlling mechanism.

9. In a machine of the character described a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver cash to said receptacles, a cash deflecting and detecting mechanism engaging with and operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, and means engaging with and simultaneously operating the said cash-ejecting and change-making mechanism and said controlling mechanism.

10. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver the cash to said receptacles, a cash deflecting and detecting mechanism engaged and operated by said delivering and separating mechanism, a change making and ejecting mechanism adapted to engage the cash in, and eject the same from the said receptacles, a controlling mechanism for said change making and ejecting mechanism, a primary cash receiving, sorting and delivering mechanism communicating with the said receptacles and adapted to be engaged and operated by said controlling mechanism, and means engaging with and operating the change making and ejecting mechanism and said controlling mechanism.

11. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver the cash to said receptacles, a cash deflecting and detecting mechanism engaged and operated by said delivering and separating mechanism, a change making and ejecting mechanism adapted to engage the cash in, and eject the same from the said receptacles, a controlling mechanism for said change making and ejecting mechanism, a primary cash receiving, sorting and delivering mechanism communicating with the said receptacles and adapted to be engaged and operated by said controlling mechanism, and means engaging with and simultaneously operating the change making and ejecting mechanism and said controlling mechanism.

12. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver cash to said receptacles, a cash deflecting and detecting mechanism engaged and operated by said delivering and separating mechanism, a change making and ejecting mechanism adapted to engage the cash in, and eject the same from said receptacles, a controlling mechanism for said change making and ejecting mechanism, a primary cash receiving, sorting and delivering mechanism communicating with the said receptacles and adapted to be engaged and operated by said controlling mechanism, a registering mechanism, and means engaging with and operating the said registering mechanism, change making and ejecting mechanism and said controlling mechanism.

13. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism adapted, when operated, to deliver cash to said receptacles, a cash deflecting and detecting mechanism engaged and operated by said delivering and separating mechanism, a change making and ejecting mechanism adapted to engage the cash in, and eject the same from said receptacles, a controlling mechanism for said change making and ejecting mechanism, a primary cash receiving, sorting and delivering mechanism communicating with the said receptacles and adapted to be engaged and operated by said controlling mechanism, a registering mechanism, and means engaging with and simultaneously operating the said registering mechanism, change making and ejecting mechanism and said controlling mechanism.

14. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with said receptacles and adapted to suitably deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the said ejectors, means engaging with the ejectors for operating them, mechanism for operating and controlling said operating means for the ejectors, and means for operating said regulating and controlling mechanisms.

15. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with said receptacles and adapted to suitably deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the said ejectors, operating means for the said ejectors, mechanism for operating and controlling the operating means for the ejectors, a registering mechanism, and means for operating said regulating, controlling and registering mechanisms simultaneously.

16. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with said receptacles and adapted to suitably deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the said ejectors, means engaging with the ejectors for operating them, mechanism for controlling and operating the operating means for the ejectors, key-levers for operating said regulating and controlling mechanism, and a locking mechanism for the key-levers suitably engaged and operated by said cash delivering and separating mechanism.

17. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with the said receptacles and adapted, when operated, to deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the ejectors, means engaging with the ejectors for operating them, mechanism for controlling and operating the operating means for the ejectors, a registering mechanism, key-levers for operating said regulating, controlling and registering mechanisms, and a locking mechanism for the key-levers suitably engaged and operated by said cash delivering and separating mechanisms.

18. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with the said receptacles and adapted, when operated, to deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the ejectors, means engaging with the ejectors for operating them, mechanism for controlling and operating the operating means for the ejectors, a registering mechanism, key-levers engaging with and simultaneously operating said regulating, controlling and registering mechanisms, a cash deflecting and detecting mechanism suitably engaged and operated by said cash delivering and separating mechanism, and a locking mechanism for the key-levers suitably engaged and operated by said cash delivering and separating mechanism.

19. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with the said receptacles and adapted when operated to deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the ejectors, means engaging with the ejectors for operating them, mechanism for controlling and operating the operating means for the ejectors, a registering mechanism, key-levers engaging with and simultaneously operating said regulating, controlling and registering mechanisms, and a locking mechanism for the key-levers suitably engaged and operated by said delivering and separating mechanism.

20. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism communicating with the said receptacles and adapted, when operated, to deliver cash thereto, ejectors for discharging cash from the said receptacles, mechanism for regulating the movement of the ejectors, means engaging with the ejectors for operating them, mechanism for controlling and operating the operating means for the ejectors, a registering mechanism, key-levers for simultaneously operating said regulating, controlling and registering mechanisms, a cash deflecting and detecting mechanism suitably engaged and operated by said cash delivering and separating mechanism, a primary cash receiving, sorting and delivering mechanism engaged and operated by said controlling mechanism, and a locking mechanism for the key-levers suitably engaged and operated by said delivering and separating mechanism.

21. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from the said receptacles, a regulating mechanism for said ejectors, means engaging with the ejectors for operating them, a controlling mechanism for the ejectors' operating means, means for operating said regulating and controlling mechanisms, and a cash deflecting and detecting mechanism engaged and operated by the cash delivering and separating mechanism.

22. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from the said receptacles, regulating mechanism for said ejectors, means engaging with the ejectors for operating them, a controlling mechanism for the ejectors' operating means, a registering mechanism, means for operating said regulating, controlling and registering mechanisms, and a deflecting and detecting mechanism engaged and operated by the cash delivering and separating mechanism.

23. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from the said receptacles, regulating mechanism for said ejectors, means engaging with the ejectors for operating them, a controlling mechanism for the ejectors' operating means, a registering mechanism, means for simultaneously operating said regulating, controlling and registering mechanisms, and a deflecting and detecting mechanism engaged and operated by the said delivering and separating mechanism.

24. A machine of the character described comprising a series of cash-receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from the said receptacles, regulating mechanism for said ejectors, means engaging with the ejectors for operating them, a controlling mechanism for the ejectors' operating means, a registering mechanism, means for simultaneously operating said regulating, controlling and registering mechanisms, a deflecting and detecting mechanism engaged and operated by the cash delivering and separating mechanism, and a primary cash receiving, sorting and delivering mechanism engaged and operated by said controlling mechanism.

25. A machine of the character described comprising a cash-changing mechanism adapted to have its movement controlled by the diameter of a movable circular object, a registering mechanism for registering the amount of a sale, and means for operating said mechannisms simultaneously.

26. A machine of the character described comprising a cash-changing mechanism, a primary cash receiving, sorting and delivering mechanism, a registering mechanism, mechanism for controlling the operation of the cash-changing mechanism and for operating the said primary cash receiving, sorting and delivering mechanism, and means for simultaneously operating said cash-changing mechanism, controlling mechanism and registering mechanism.

27. A machine of the character described comprising a cash-changing mechanism adapted to have its movement controlled by the diameter of a movable circular object, a cash deflecting and detecting mechanism, operating means for said detecting mechanism, a registering mechanism, and means engaging with and when operated adapted to operate said cash changing and registering mechanisms.

28. A machine of the character described comprising a cash-changing mechanism adapted to have its movement controlled by the diameter of a movable circular object, a cash deflecting and detecting mechanism, operating means for said detecting mechanism, a registering mechanism, and means engaging with and when operated adapted to simultaneously operate the said cash changing and registering mechanisms.

29. A machine of the character described comprising a plurality of cash-receptacles, a primary cash receiving, sorting and delivering mechanism for said receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from said receptacles, regulating means for the ejectors, means for operating the ejectors, means for controlling the movement of said ejectors' operating means and for operating said primary cash receiving, sorting and delivering mechanism, a registering mechanism, and means engaging with and operating said regulating means, said ejectors' operating means, said controlling means, and said registering mechanism.

30. A machine of the character described comprising a plurality of cash-receptacles, a primary cash receiving, sorting and delivering mechanism for said receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from said receptacles, regulating means for the ejectors, means for operating the ejectors, means for controlling the movement of said ejectors' operating means and for operating said primary cash receiving, sorting and delivering mechanism, a registering mechanism, and means engaging with and simultaneously operating said regulating means, said ejectors' operating means, said controlling means, and said registering mechanism.

31. A machine of the character described comprising a plurality of cash-receptacles, a primary cash receiving, sorting and delivering mechanism for said receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from said receptacles, regulating means for the ejectors, means for operating the ejectors, means for controlling the movement of said ejectors' operating means and for operating said primary cash receiving, sorting and delivering mechanism, a registering mechanism, and a series of key-levers engaging with and operating said regulating means, said ejectors' operating means, said controlling means, and said registering mechanism.

32. A machine of the character described comprising a plurality of cash-receptacles, a primary cash receiving, sorting and delivering mechanism for said receptacles, a cash delivering and separating mechanism for said receptacles, ejectors for discharging cash from said receptacles, regulating means for the ejectors, means for operating the ejectors, means for controlling the movement of said ejectors' operating means and for operating said primary cash receiving, sorting and delivering mechanism, a registering mechanism, and a series of key-levers engaging with and simultaneously operating said regulating means, said ejectors' operating means, said controlling means and said registering mechanism.

33. A machine of the character described comprising a rocking frame, keys coöperating therewith, a vertically-movable key-lifting bar slidably connected to said frame, and operatable devices coöperating with said bar.

34. A machine of the character described comprising a rocking frame, keys coöperating therewith, a vertically-movable key-lifting bar slidably connected with said frame and operated when said frame is operated, means for retaining the bar in its operative position, and operatable devices coöperating with said bar.

35. A machine of the character described comprising a rocking frame, a bank of key-levers for operating said frame, and a vertically-movable bar slidably connected with said frame and adapted when the frame is operated to move under and engage and elevate the lever or levers which has or have been operated.

36. A machine of the character described comprising a rocking frame, a series of key-levers for operating said frame, a vertically-movable bar slidably connected with said frame and adapted when the frame is operated to move under and engage and elevate the lever or levers which has or have been operated, and means for retaining the bar in its operative position.

37. In a machine of the character described, a bank of key-levers, a rocking frame adapted to be operated when one or more of said key-levers of the bank is or are operated, and a vertically-movable bar slidably connected with said frame and adapted when the frame is operated to move under and engage and lift the lever or levers which has or have been operated.

38. A machine of the character described, comprising a series of key-levers, means for indicating the amount of a sale adapted to be engaged and operated by said key-levers, a series of pivotal plates adapted to engage with and suitably lock the key-levers from movement, a series of levers connected with said plates and adapted to operate them, and means having its movement controlled by the diameter of a circular object and adapted to engage and suitably operate said levers, causing thereby the operation of said plates.

39. In a machine of the character described, a bank of key-levers, a rocking frame adapted to be operated when one or more of said key-levers is or are operated, a vertically-movable key-lifting bar slidably connectd with said frame and adapted when the frame is operated to move under and engage and elevate the lever or levers which has or have been operated, and a key-arresting bar normally extending over the rear end of said key-levers and in the path of said lifting-bar, said arresting-bar moved from its normal position when the said lifting-bar is elevated and assumes its normal position when said lifting-bar is above it and thereby prevents the operation of those key-levers of said series which have not been operated.

40. A machine of the character described comprising a change making an ejecting mechanism, mechanism controlled by the diameter of a coin for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, and operating means for said mechanisms.

41. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, and means for simultaneously operating said mechanisms.

42. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, and a series of key-levers for operating said mechanisms.

43. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, and a series of key-levers for simultaneously operating said mechanisms.

44. A machine of the character described comprising a change making and ejecting mechanism, mechanism controlled by the diameter of a coin for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, a registering mechanism, and operating means for said mechanisms.

45. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, a registering mechanism, and means for simultaneously operating said mechanisms.

46. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, a registering mechanism, and a series of key-levers for operating said mechanisms.

47. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, a registering mechanism, and a series of key-levers for simultaneously operating said mechanisms.

48. A machine of the character described comprising a change making and ejecting mechanism, mechanism controlled by the diameter of a coin for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, and operating means for said mechanisms.

49. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, and means for simultaneously operating said mechanisms.

50. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, and a series of key-levers for operating said mechanisms.

51. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, and a series of key-levers for simultaneously operating said mechanisms.

52. A machine of the character described comprising a change making and ejecting mechanism, mechanism controlled by the diameter of a coin for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, a registering mechanism, and operating means for the said mechanisms.

53. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, a registering mechanism, and means for simultaneously operating said mechanisms.

54. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, a registering mechanism, and a series of key-levers for operating said mechanisms.

55. A machine of the character described comprising a change making and ejecting mechanism, mechanism for controlling the operation of said change making and ejecting mechanism, means operated by said controlling mechanism for indicating the amount of cash to be changed, releasing means for the said indicating means, a registering mechanism, and a series of key-levers for simultaneously operating said mechanisms.

56. A machine of the character described comprising means for indicating the amount of cash to be changed, consisting of a vertically-movable rod provided with a series of beveled studs, a stop-pin, and a card having suitable inscriptions thereon, and operative devices cooperating with said indicating means, said indicating means adapted to have its movement controlled by the diameter of a circular object.

57. A machine of the character described comprising a vertically-movable means for indicating the amount of cash to be changed, means for suitably elevating the said indicating means, said elevating means having its movement controlled by the diameter of a circular object, means engaging with the indicating means for retaining it in elevated position, and means for releasing the indicating means to permit of its return to its normal position.

58. A machine of the character described comprising means for indicating the amount of cash to be changed consisting of a vertically-movable rod provided with a series of beveled studs, a stop-pin, and a card provided with suitable inscriptions, means for suitably elevating the said rod, said elevating means adapted to have its movement controlled by the diameter of a circular object, means engaging the studs for retaining the rod in its elevated position, and means for releasing the rod to permit of its return to its normal position.

59. A machine of the character described comprising means for indicating the amount of cash to be changed consisting of a vertically-movable rod provided with a series of beveled studs, a stop-pin, and a card provided with suitable inscriptions, means for suitably elevating the said rod, said elevating means adapted to have its movement controlled by the diameter of a circular object, means engaging the studs for retaining the rod in its elevated position, means for releasing the rod to permit of its return to its normal position, and means engaging with the said pin for arresting the return movement of the rod.

60. A machine of the character described comprising means for indicating the amount of cash to be changed, means controlled by the diameter of the coin and engaging therewith for suitably operating it, means engaging with the indicating means for retaining it in its operating position, means for releasing the said indicating means to permit of its return to its normal position and means for limiting the return movement of the said indicating means.

61. A machine of the character described comprising an indicator consisting of a vertically-movable rod provided with a card having an inscription thereon and a forked arm pivoted to the rod and provided with a series of operating-tines and adapted when operated to operate said rod, and means for operating the tines.

62. A machine of the character described comprising an indicator consisting of a vertically-movable rod provided with a card having an inscription thereon and a forked arm pivoted to the rod and provided with a series of operating-tines for operating said rod, means engaging with the said tines for operating said arm to suitably elevate the rod, and means for releasing said arm from its operating means to permit said rod to return to its normal position.

63. A machine of the character described comprising an indicator consisting of a vertically-movable rod provided with a card having an inscription thereon and a forked arm pivoted to the rod and provided with a series of operating-tines for operating said rod, means engaging with the said tines for operating said arm to suitably elevate the rod, means for releasing said arm from its operating means to permit said rod to return to its normal position, and means for engaging said tines to limit the return movement of said rod.

64. A machine of the character described comprising a vertically-movable indicator, a forked arm for operating said indicator, means engaging with said arm for operating it, means for releasing said arm to permit the indicator to return to its normal position, and means engaging the said arm to limit the return movement of the said indicator.

65. A machine of the character described, comprising a stationary cash-storage chamber, a series of key-levers, a spring-actuated door for closing said chamber, and an adjustable releasing means for the door, said means when in its adjusted position adapted to be engaged and operated by any of the key-levers of the series to release said door to open the chamber and when in its normal position adapted to be engaged and operated by certain of the keys of the series of key-levers to release the door to open the chamber.

66. A machine of the character described, comprising the combination a cash-receptacle and a series of keys, and means cooperating with the keys for opening the cash-receptacle, said means being adjustable to operative or inoperative relation to the keys.

67. A machine of the character described comprising a stationary cash-storage receptacle, a releasable cover for closing the said receptacle, a plurality of banks of key-levers, means engaging with said cover and adapted when operated by any lever of one of the banks of key-levers to release and open said cover, thereby permitting access to be had to said receptacle, and money-changing devices operated by one of the banks of key-levers.

68. A machine of the character described, a cash-storage chamber, a normally closed spring-actuated door for said chamber, means engaging with the door for retaining it in its closing position, a series of key-levers, and an adjustable slotted plate connected with said retaining means for operating it, said plate when in its adjusted position adapted to be engaged by and operated by any one of the series of key-levers to operate said retaining means and when in its normal position adapted to be engaged by and operated by certain of the key-levers of the series to operate the retaining means while the remaining levers of the series are adapted to enter the slots of the plate to prevent its operation.

69. In a machine of the character described a cash-storage chamber, a normally closed door for said chamber, a series of key-levers, and an adjustable releasing means for the door engaged and operated by the levers, said means in its normal position adapted to be engaged and operated by certain of the key-levers and when in its adjusted position engaged and operated by all of the key-levers.

70. A machine of the character described, comprising a cash-storage chamber, a spring-actuated means for normally closing the said chamber, an arm engaging with the said means for retaining it in its closing position, a rock-shaft connected to said arm, a slotted plate connected to said rock-shaft and adapted when operated to rock the shaft to move the said arm out of engagement with the said means so that the latter can open, and two banks of key-levers, the levers of one bank adapted when operated to engage said plate and operate it, and the levers of the other bank when operated adapted to engage in the slots of said plate to prevent its operation.

71. A machine of the character described, comprising a cash-storage chamber, a spring-actuated door for normally closing the said chamber, an arm engaging with the said door for retaining it in its closing position, a rock-shaft connected to said arm, an adjustable slotted plate connected to said rock-shaft and adapted when operated to rock the shaft to move the said arm out of engagement with the said door, so that the said door can open, and two banks of key-levers, said plate when adjusted adapted to be engaged and operated by any lever of either bank of key-levers when depressed and when in its normal position adapted to be engaged and operated by any key-lever of one bank of key-levers when operated, and the levers of the other bank of key-levers when operated adapted to engage in the slots of the plate to prevent its operation.

72. A machine of the character described comprising a series of key-levers, and a mechanism for suitably locking the key-levers consisting of a series of pivoted plates terminating at their top in a neck portion, levers suitably connected to the neck portions for operating the plates, and means for selectively operating said levers.

73. A machine of the character described comprising a series of key-levers, a mechanism for suitably locking the key-levers from movement consisting of a series of pivoted plates which terminate at their top in a neck portion, and levers suitably connected to the neck portions for operating the plates and having their forward ends overlapping each other.

74. A machine of the character described comprising a series of key-levers, a series of pivoted plates for suitably locking the said levers, each of said plates at its top terminating in a neck portion, overlapping levers connected to the neck portions for operating the plates, and means engaging with the overlapping ends of the levers for suitably operating them.

75. A machine of the character described comprising a series of key-levers, a series of pivoted plates for suitably locking the said levers, each of said plates at its top terminating in a neck portion, overlapping levers connected to the neck portions for operating the plates, means engaging with the overlapping ends of the levers for operating them, and means for suitably releasing the plates.

76. A machine of the character described comprising a series of key-levers, a series of plates adapted, when operated, to engage with said levers to prevent their movement, levers connected with said plates for operating them, said levers provided with overlapping ends, means controlled by the diameter of the coin and suitably engaging with the overlapping ends of the levers for operating them, thereby bringing the plates into locking engagement with the key-levers.

77. A machine of the character described comprising a series of key-levers, a series of plates adapted, when operated, to engage with said levers to prevent their movement, levers connected with said plates for operating them, said levers provided with overlapping ends, means controlled by the diameter of the coin and suitably engaging with the overlapping ends of the levers for operating them, thereby bringing the plates into locking engagement with the key-levers, and means for suitably releasing the plates from their engagement with the key-levers.

78. A machine of the character described, comprising a series of regulating-bars each provided with an upwardly-extending yoke, and regulating means cooperating with said yokes.

79. In combination with a series of regulating-bars each suitably cut away and provided with a yoke, a series of forks having rearward extensions projecting through the yokes and engaging the bars, a shaft for supporting the forks, a series of forwardly-movable ejectors, a series of regulating-pins extending through said ejectors and engaging in said forks, and a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably engaged by the regulating-pins.

80. In combination with a series of regulating-bars each suitably cut away and provided with a yoke, a series of forks having rearward extensions projecting through the yokes and engaging the bars, a shaft for supporting the forks, a series of forwardly-movable ejectors, a series of regulating-pins extending through said ejectors and engaging in said forks, a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably engaged by the regulating-pins, and a yoke-shaped arm fixedly connected to the top of said ejectors.

81. In combination with a series of regulating-bars, each suitably cut away and provided with a yoke, a series of forks having rearward extensions projecting through the yokes and engaging the

said bars, a shaft for supporting the forks, a slotted supporting-plate, a series of forwardly-movable ejectors mounted upon said plate and provided with lugs depending through the slots of the plate, a series of regulating-pins extending through said ejectors and their lugs and engaging in said forks, a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably engaged by the regulating-pins, and a yoke-shaped arm fixedly connected to one of said ejectors.

82. In combination with a series of regulating-bars each suitably cut away and provided with a yoke, a series of forks having rearward extensions projecting through the yokes and engaging in the said bars, a shaft for supporting the forks, a slotted supporting-plate, a series of forwardly-movable ejectors mounted upon said plate and provided with lugs depending through the slots of the plate, a series of regulating-pins extending through said ejectors and their lugs and engaging in said forks, a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably engaged by the regulating-pins, a yoke-shaped arm fixedly connected to one of said ejectors, and a bar extending through said plate and engaging with the said lugs and adapted whon operated to move the said ejectors rearwardly.

83. In combination with a series of regulating-bars each suitably cut away and provided with a yoke, a series of forks having rearward extensions projecting through said yokes and engaging the said bars, a shaft for supporting the forks, a slotted supporting-plate, a series of forwardly and rearwardly movable ejectors mounted upon said plate and provided with depending lugs extending through the slots of the plate, a series of regulating-pins extending through said ejectors and their lugs and engaging in said forks, a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably engaged by the regulating-pins, a yoke-shaped arm pivotally connected to one of said ejectors, a bar adapted when operated to suitably engage said regulating-pins and move the ejectors forward, and a bar extending through said plate aod engaging the lugs of the ejectors and adapted when operated to move the said ejectors rearwardly.

84. A machine of the character described comprising a series of regulating-bars each suitably cut away and provided with a yoke, a plurality of ejecting-plates, operating-pins therefor, regulating-pins for controlling the operation of the operating-pins and adapted to be operated by said bars and returned to their normal positions by said yokes, and means for operating said bars.

85. In combination with a series of movable regulating-bars each suitably cut away and provided with a yoke, a series of rocking forks having rearward extensions projecting through the yokes and engaging the said bars, a shaft for supporting the forks, a series of forwardly and rearwardly movable ejectors provided with depending lugs, a series of vertically-movable regulating-pins extending through said ejectors and engaging in and operated by said forks, a series of operating-pins pivotally connected to the top of the ejectors and adapted to be suitably retained in a vertical position by the regulating-pins, an arm fixedly connected to one of said ejectors, a bar adapted when operated to suitably engage said operating-pins for forwardly moving the ejectors, and a bar adapted when operated to engage the said lugs for moving the ejectors rearwardly.

86. A machine of the character described comprising a change making and ejecting mechanism, mechanism adapted to engage the edge of and have its movement controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a registering mechanism for recording the value of a sale, means for indicating the amount of a sale, and means engaging with and adapted to operate said indicating means and mechanism simultaneously.

87. A machine of the character described comprising a discharge-chute consisting of an enlarged upper portion terminating into a cylindrical portion, and a spring-actuated closure-plate for the cylindrical portion and having a downwardly-depending curved extension.

88. A machine of the character described comprising a rack-bar having an enlarged portion provided with a slot, a rocking frame connected to the slotted portion of said bar, means for throwing said bar out of and into operative connection with said frame, operatable devices coöperating with said bar, and operatable devices coöperating with said frame.

89. A machine of the character described comprising a rack-bar having an enlarged portion provided with an L-shaped slot, a rocking frame connected to the slotted portion of said bar, means for throwing said bar out of and into operative connection with said frame, operatable devices coöperating with said bar, operatable devices coöperating with said frame, and a series of key-levers for operating said frame.

90. In combination with a plurality of chutes, one of which is provided with a hinged portion having L-shaped arms and further provided in its interior with a pair of lugs, of a series of cash-receptacles communicating with the said chutes, a series of coin receivers and transferrers communicating with the said chutes, operating means for said coin receivers and transferrers, and means for operating the hinged portion of one of the said chutes.

91. In a machine of the character described, a cash delivering and separating mechanism comprising a pair of chutes 117 and 118, said chute 117 provided with a holding-lever and a deflecting mechanism, and said chute 118 provided with a distributing means for the coins, said chute 118 further provided with a closure-plate for the bottom thereof, a sliding plate carried by the chute 117, a finger pivotally connected with the said chute 117, said finger having an enlarged lower end, a lever adapted to engage the closure-plate for the chute 118 and retain it in its closing position, said lever connected with said sliding plate and adapted when operated to engage with the finger to operate the finger and to release the closure-plate, and selective devices engaged and operated by the enlarged end of said finger.

92. A machine of the character described comprising a series of key-levers provided with studs, a bodily-movable series of cams engaged and operated by certain of said studs when the key-levers are operated, a bodily-movable series of auxiliary cams engaged and operated by the other of said studs when the key-levers are operated, a registering mechanism operated by said cams, a change making and ejecting mechanism operatively connected with said key-levers, mechanism controlled by the diameter of a circular object for controlling the movement of said change making and ejecting mechanism, means operatively connected with said key-levers for indicating the amount of cash received, and means operatively connected with said key-levers for indicating the amount of a sale.

93. In combination with a chute provided with a deflecting mechanism and a holding-lever, of a balance-bar having a weighted upper end, a coin-pan carried by the lower end of said bar, a series of weights, lifting-arms for the said weights, spring-actuated connecting-arms adapted to engage with the lifting-arms for connecting the weights with the weighted portion of the balance-bar, a series of angle-levers adapted to suitably engage with the connecting-arms to operate them, a lever for retaining the coin-pan in its normal position, and means connected with the chute and adapted when operated to suitably operate the said angle-levers and the said holding and retaining levers.

94. A machine of the character described, comprising a cylindrical cash-circulating closed receptacle provided with a slot, a slide for closing said slot, and means for limiting the movement of said slide.

95. In combination, an ejecting-plate, an operating-pin carried thereby, a vertically-movable regulating-pin extending through said plate and adapted to retain said operating-pin in an upright position, and suitable means for operating said regulating-pin.

96. In combination, an ejecting-plate, an operating-pin carried thereby, a vertically-movable regulating-pin extending through said plate and adapted to retain said operating-pin in an upright position, a fork engaging with said regulating-pin and adapted when operated to vertically move said regulating-pin, and suitable means for operating said fork.

97. A machine of the character described comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacles, communicating therewith and adapted when operated to deliver cash to the said receptacles, a series of ejectors mounted upon said plate and when operated adapted to move between said plate and receptacles to eject cash from the latter, a series of forwardly-movable regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means suspended in the frame and adapted to suitably engage with the ejectors to operate them, means for controlling the operation of the ejectors' operating means and engaging with the separating and delivering mechanism for returning it to its normal position, operating mechanism for the registering device supported in the frame, and a series of key-levers engaging with and simultaneously operating the regulating-bars, said controlling means and the operating mechanism for the registering device.

98. A machine of the character described, comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacles, communicating therewith and adapted when operated to deliver cash to the said receptacles, a series of ejectors mounted upon said plate and when operated adapted to move between said plate and receptacles to eject cash from the latter, a series of forwardly-movable regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means suspended in the frame and adapted to suitably engage with the ejectors to operate them, means for controlling the operation of the ejectors' operating means and engaging with the separating and delivering mechanism for returning it to its normal position, operating mechanism for the registering device supported in the frame, and a series of key-levers engaging with and simultaneously operating the regulating-bars, said controlling means and the operating mechanism for the registering device.

99. A machine of the character described, comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacles, communicating therewith and adapted when operated to deliver coin to the said receptacles, a cash-deflecting mechanism carried by the cash separating and delivering mechanism and operated thereby, a cash-detecting mechanism supported by the cash separating and delivering mechanism and operated thereby simultaneously with the operation of the deflecting mechanism, a series of ejectors mounted upon said plate and operating between the same and said receptacle and adapted to eject cash from the latter, a series of regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means arranged in the frame and engaging with the ejectors for operating them, means for controlling the movement of the ejectors' operating means and engaging with the cash separating and delivering mechanism for returning it to its normal position, operating mechanism for the registering device, and a series of key-levers engaging with and simultaneously operating the said regulating-bars, said controlling means and the operating mechanism for the registering device.

100. A machine of the character described, comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacles, communicating therewith and adapted when operated to deliver coin to the said receptacles, a cash-deflecting mechanism carried by the cash separating and delivering mechanism and operated thereby, a cash-detecting mechanism supported by the cash separating and delivering mechanism and operated thereby simultaneously with the operation of the deflecting mechanism, a series of ejectors mounted upon said plate and operating between the same and said receptacles and adapted to eject cash from the latter, a series of regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means arranged in the frame and engaging with the ejectors for operating them, means for controlling the movement of the ejectors' operating means and engaging with the cash separating and delivering mechanism for returning it to its normal position, operating mechanism arranged in the frame for the registering device, and a series of key-levers engaging with and operating the said regulating-bars, said controlling means and the operating mechanism for the registering device.

101. A machine of the character described comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacles, communicating therewith and adapted when operated to deliver cash to the said receptacles, a series of ejectors mounted upon said plate and operating between the same and said receptacles and adapted to eject cash from the latter, a series of regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means engaging with the ejectors for operating them, means connected with the operating means for the ejectors for controlling the movement thereof and engaging with the cash separating and delivering mechanism for returning it to its normal position, a primary receiving, sorting, and delivering mechanism communicating with said receptacles for delivering cash thereto and engaged and operated by the said controlling means, operating mechanism arranged in the frame for said registering device, and a series of key-levers engaging with and operating the said regulating-bars, said controlling means and the operating mechanism for the registering device.

102. A machine of the character described comprising a frame, a slotted supporting-plate suitably secured therein, a series of cash-receptacles mounted upon said plate and provided with an overflow-pocket, a registering device suitably supported within said frame, a cash separating and delivering mechanism arranged above said receptacle, communicating therewith and adapted when operated to deliver cash to the said receptacles, a series of ejectors mounted upon said plate and operating between the same and said receptacles and adapted to eject cash from the latter, a series of regulating-bars arranged in the frame, connected with the ejectors and adapted when operated to regulate the movement of the ejectors, means engaging with the ejectors for operating them, means connected with the operating means for the ejectors for controlling the movement thereof and engaging with the cash separating and delivering mechanism for returning it to its normal position, a primary receiving, sorting and delivering mechanism communicating with said receptacles for delivering cash thereto and engaged and operated by the said controlling means, operating mechanism arranged in the frame for said registering device, and a series of key-levers engaging with and simultaneously operating the said regulating-bars, said controlling means and the operating mechanism for the registering device.

103. A machine for receiving, delivering, sorting, registering and detecting coins, comprising a shaft, a series of key-levers mounted thereon, a series of regulating-bars connected with the shaft and suitably engaging with and operated by the key-levers when they are operated, a rocking frame connected with the shaft and normally engaged by the key-levers and adapted to be rocked when the key-levers are operated, a series of ejectors connected with the regulating-bars and adapted to be regulated thereby when the said bars are operated, a series of cash-receptacles arranged in suitable relation to the said ejectors, means arranged in suitable relation to the ejectors and when operated adapted to suitably operate the ejectors, said means adapted to be engaged and operated by the rocking frame, a controlling mechanism for the said means operatively connected with the said rocking frame and adapted to be operated when the rocking frame is operated, and a chute adapted to receive the cash ejected from the said receptacles.

104. A machine for receiving, delivering, sorting, registering and detecting coins comprising a shaft, a series of key-levers mounted thereon, a series of regulating-bars connected with the shaft and suitably engaging with and operated by the key-levers when they are operated, a rocking frame connected with the shaft and normally engaged by the key-levers and adapted to be rocked when the key-levers are operated, a series of ejectors connected with the regulating-bars and adapted to be regulated thereby when the said bars are operated, a series of cash-receptacles arranged in suitable relation to the said ejectors, means arranged in suitable relation to the ejectors and when operated adapted to suitably operate the ejectors, said means adapted to be engaged and operated by the rocking frame, a controlling mechanism for the said means operatively connected with the said rocking frame and adapted to be operated when the rocking frame is operated, a chute adapted to receive the cash ejected from said receptacles, a cash-storage chamber, automatic operating means for opening said chamber, a retaining means engaging with the opening means for holding it in its closing position, said retaining means adjustable and engaged by and released from its engagement with the opening means by the key-levers, and means for adjusting the retaining means and for throwing out the operative connection between the rocking frame and the said controlling means.

105. A machine of the character described comprising a cash separating and delivering mechanism, a series of cash-receptacles commnicating therewith, a change making and ejecting mechanism adapted when operated to eject cash from said receptacles, a chute arranged in relation to the cash-receptacles and adapted to receive the cash ejected therefrom, operating means for said change making and ejecting mechanism, a rocking frame engaging with and operating the operating means for the change making and ejecting mechanism, a controlling mechanism operatively connected with said rocking frame and adapted when operated to control the movement of the operating means for the change making and ejecting mechanism, a cash-storage chamber, automatically-operating means for opening the said chamber, an adjustable releasing means for the said opening means, a series of key-levers for operating said rocking frame and said adjustable retaining means, and means for adjusting the said retaining means and for throwing out the operative

connection between the said rocking frame and said controlling means.

106. A machine of the character described, comprising a cash separating and delivering mechanism, a series of cash-receptacles communicating therewith, a change making and ejecting mechanism adapted when operated to eject cash from said receptacles, a chute arranged in relation to the cash-receptacles and adapted to receive the cash ejected therefrom, operating means for said change making and ejecting mechanism, a rocking frame engaging with and operating the operating means for the change making and ejecting mechanism, a controlling mechanism operatively connected with said rocking frame and adapted when operated to control the movement of the operating means for the change making and ejecting mechanism, a cash-storage chamber, automatically-operating means for opening the said chamber, an adjustable releasing means for the said opening means, a registering mechanism, a series of key-levers for simultaneously operating said registering mechanism, said rocking frame and said retaining means, and means for adjusting said retaining means and throwing out the operative connection between the rocking frame and said controlling means.

107. In a machine of the character described, a controlling mechanism comprising a rack-bar having its lower end enlarged and provided with an L-shaped slot, one portion of which being substantially in the form of an arc, and operating devices cooperating with the said slot.

108. In a machine of the character described, a controlling mechanism comprising a rack-bar having its lower portion enlarged and provided with a slot substantially L-shaped in contour, the vertical part of the slot extending in the form of an arc and of greater length than the horizontal portion, a rocking frame engaging with the horizontal portion of said slot and adapted when operated to operate the said bar, and means for shifting the engagement of the frame with the bar out of the horizontal portion of the slot so that when the rocking frame is operated, the connection between the frame and bar will be such that the bar will not be operated when the frame is.

109. In a machine of the character described, mechanism adapted to receive cash of a greater value than a sale, a change making and ejecting mechanism adapted when operated to deliver an amount of cash equal to the difference between the value of the sale and the cash inserted in the receiving mechanism, means for regulating the operation of the change making and ejecting mechanism and adapted to cause the change making and ejecting mechanism to deliver an amount of cash between the value of the sale and the value of the cash inserted in the receiving mechanism, means for operating said ejecting mechanism, a controlling mechanism for the said operating mechanism, means for operating simultaneously the said regulating and controlling mechanisms, and a receiving means for the cash ejected.

110. In combination with a shaft, of a pair of arms 67 mounted thereon, a bar connecting the arms together, a forwardly-projecting arm connected to one of said arms 67, a forwardly-projecting arm connected with said bar, a roller connected to the rear end of one of said arms 67, and operating devices cooperating with said arms and bar.

111. In combination with a shaft, of a pair of arms 67 mounted thereon, a bar connecting the arms together, a forwardly-projecting arm connected to one of said arms 67, a forwardly-projecting arm connected with said bar, a roller connected to the rear end of one of said arms 67, a bar having its ends connected to the said forwardly-projecting arms and operating devices cooperating with said arms and bars.

112. In a machine of the character described, a cash separating and delivering mechanism comprising a pair of chutes 117 and 118 communicating with each other, a vertically-extending rod connecting the two chutes together at one end, said chute 117 provided with an inclined slot 120, a vertically-extending slot 121, and a pair of slots 122 extending diagonally in opposite directions, a slotted curved plate extending rearwardly from the upper end of said chute 117, an actuating-slide mounted upon said slotted plate, an elongated trip-lever 126 having a hook at its lower end and connected at its upper end to the said actuating-slide, an actuating-finger connected to said trip-lever, an arm 131 pivoted to the chute 117, a finger 135 pivoted to the forward end of said arm 131 and having its rear end enlarged, the forward end of said finger adapted to operate in the chute 117, springs for returning the said arm 131 and finger 135 to their normal positions, a stop-lever 150 pivoted to the chute 117 and provided with an offset adapted to extend in the slot 120, a spring for retaining the offset in the slot 120, a stud 154 carried by the lever 126 and adapted to engage the lever 150 for operating it, a holding-arm 155 pivoted to the bar 119, an L-shaped pin carried by the lever 126 and adapted to surround the arm 155, a spring connected to the arm 155, a pair of forwardly-projecting offsets carried by the arm 155 and adapted to extend through the slots 122, a stop and releasing lever 163 adapted to engage the arm 155, a spring connected to the lever 163, a distributing-bar arranged in the chute 118 and provided with a series of shoulders on its lower edge, said shoulders extending one above the other, a spring-actuated closure-plate connected to the bottom of the chute 118 and adapted to be retained in its closing position by the engagement therewith of the hook on the lower end of the lever 126, and a series of pins connected to the bottom of the chute 118 and surrounded by the said closure-plate.

113. In a machine of the character described, a cash separating and delivering mechanism comprising a pair of chutes 117 and 118 communicating with each other, a vertically-extending rod connecting the two chutes together at one end, said chute 117 provided with an inclined slot 120, a vertically-extending slot 121, and a pair of slots 122 extending diagonally in opposite directions, a slotted curved plate extending rearwardly from the upper end of said chute 117, an actuating-slide mounted upon said slotted plate, an elongated trip-lever 126 having a hook at its lower end and connected at its upper end to the said actuating-slide, an actuating-finger connected to said trip-lever, an arm 131 pivoted to the chute 117, a finger 135 pivoted to the forward end of said arm 131 and having its rear end enlarged, the forward end of said finger adapted to operate in the chute 117, springs for returning the said arm 131 and finger 135 to their normal positions, a stop-lever 150 pivoted to the chute 117 and provided with an offset adapted to extend in the slot 120, a spring for retaining the offset in the slot 120, a stud 154 carried by the lever 126 and adapted to engage the lever 150 for operating it, a holding-arm 155 pivoted to the bar 119, an L-shaped pin carried by the lever 126 and adapted to surround the arm 155, a spring connected to the arm 155, a pair of forwardly-projecting offsets carried by the arm 155 and adapted to extend through the slots 122, a stop and releasing lever 163 adapted to engage the arm 155, a spring connected to the lever 163, a distributing-bar arranged in the chute 118 and provided with a series of shoulders on its lower edge, said shoulders extending one above the other, a spring-actuated closure-plate connected to the bottom of the chute 118 and adapted to be retained in its closing position by the engagement therewith of the hook on the lower end of the lever 126, a series of pins connected to the bottom of the chute 118 and surrounded by the said closure-plate, a series of cash-receptacles arranged below the bottom of the chute 117 and having their rear portions at their top extending rearwardly, and an overflow-pocket connected to the back of said cash-receptacles.

114. A machine of the character described comprising a series of cash-receptacles, a cash separating and delivering mechanism communicating with said receptacles, a deflecting and a detecting mechanism engaging with and operated by the said separating and delivering mechanism, a deflecting-chute communicating with said separating and delivering mechanism, a primary cash receiving, sorting and delivering mechanism communicating with said receptacles and engaged and suitably operated by the said cash delivering and separating mechanism, and mechanism for operating the said primary receiving, sorting and delivering mechanism before the same is operated by the cash separating and delivering mechanism.

115. In a machine of the character described, a change making and ejecting mechanism adapted to have its operation controlled by the diameter of a circular object, a registering mechanism for recording the value of a sale, means for indicating the amount of cash placed in the machine, means for indicating the amount of a sale, means for distributing the cash placed in the machine, and means for operating said mechanisms, cash-indicating, sale-indicating and separating means, said mechanism, cash-indicating, sale-indicating and distributing means operatively connected with each other.

116. A machine of the character described comprising a change making and ejecting mechanism, said mechanism adapted when operated to eject the change between the value of a sale and the value of the money tendered in payment thereof, mechanism adapted to engage the edge of and have its movement controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a cash-separating mechanism engaged and operated by said controlling mechanism, a registering mechanism for recording the value of a sale, and means operatively connected with said mechanisms for operating the same in conjunction with one another.

117. A machine of the character described comprising a cash separating and delivering mechanism, a cash detecting and deflecting mechanism engaging with and operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, and means engaging with and operating the registering mechanism, cash-ejecting and change-making mechanism and said controlling mechanism.

118. A machine of the character described comprising a change-ejecting and change-making mechanism, said mechanism when operated adapted to eject the change between the value of a sale and the value of the money tendered in payment thereof, mechanism adapted to engage the edge of and have its movement controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, means for indicating the amount of a sale, a cash separating and delivering mechanism, a deflecting mechanism engaging with and operated by said delivering and separating mechanism, a registering mechanism for recording the value of a sale, and means engaging with and operating the registering mechanism, cash-ejecting and change-making mechanism, controlling mechanism and indicating means in conjunction with one another.

119. A machine of the character described comprising a series of key-levers, a series of pivotal plates for suitably locking said levers, each of said plates terminating at its top in a neck portion, overlapping levers connected to the neck portions for operating the plates, means engaging with the overlapping ends of the levers for operating them, said means adapted to have its movement controlled by the diameter of a circular object, and means for suitably releasing the plates.

120. A machine of the character described comprising a cash separating and delivering mechanism, a deflecting and detecting mechanism carried by the said cash separating and delivering mechanism, a change making and ejecting mechanism, a series of key-levers adapted to operate said change making and ejecting mechanism, mechanism controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a series of pivotal plates for suitably locking the key-levers, and means carried by the cash separating and delivering mechanism and controlled by the diameter of a coin for suitably operating said detecting mechanism and said plates.

121. A machine of the character described comprising a cash separating and delivering mechanism, a deflecting and detecting mechanism carried by the said cash separating and delivering mechanism, a change making and ejecting mechanism, a series of key-levers adapted to operate said change making and ejecting mechanism, mechanism controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a series of pivotal plates for suitably locking the key-levers, means carried by the cash separating and delivering mechanism and controlled by the diameter of a coin for suitably operating said detecting mechanism and said plates, and a registering mechanism operating in conjunction with said change making and ejecting mechanism.

122. A machine of the character described comprising a cash separating and delivering mechanism, a deflecting and detecting mechanism carried by the said cash separating and delivering mechanism, a change making and ejecting mechanism, a series of key-levers adapted to operate said change making and ejecting mechanism, mechanism controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a series of pivotal plates for suitably locking the key-levers, means carried by the cash separating and delivering mechanism and controlled by the diameter of a coin for suitably operating said detecting mechanism and said plates, a registering mechanism operating in conjunction with said change making and ejecting mechanism, means for indicating the amount of a sale operated by said key-levers and in conjunction with said change making and ejecting mechanism and said registering mechanism, and means for indicating the amount of cash placed in the machine operated by said controlling mechanism and having its movement controlled by the diameter of a circular object.

123. In a machine of the character described, a series of key-levers, a registering mechanism operated thereby, a change making and ejecting mechanism operated by the key-levers and in conjunction with said registering mechanism, mechanism having its movement controlled by the diameter of a circular object and operated by the key-levers and adapted to control the movement of said change making and ejecting mechanism, means for suitably locking the key-levers, a cash separating and delivering mechanism, and means carried by said cash separating and delivering mechanism and adapted to have its movement controlled by the diameter of a circular object and when operated adapted to suitably operate the said locking means.

124. In a machine of the character described, a series of key-levers, a registering mechanism operated thereby, a change making and ejecting mechanism operated by the key-levers and in conjunction with said registering mechanism, mechanism having its movement controlled by the diameter of a circular object and operated by the key-levers and adapted to control the movement of said change making and ejecting mechanism, means for suitably locking the key-levers, a cash separating and delivering mechanism, means carried by said cash separating and delivering mechanism and adapted to have its movement controlled by the diameter of a circular object and when operated adapted to suitably operate the said locking means, means for indicating the amount of a sale engaging with and operated by said key-levers and operating in conjunction with said registering mechanism and cash changing and ejecting mechanism, and means for indicating the amount of cash placed in the machine engaged by and operated by said controlling mechanism for the change making and ejecting mechanism, said cash-indicating means operating in conjunction with the registering mechanism, sale-indicating means and cash changing and ejecting mechanism.

125. A machine of the character described comprising a rocking frame, a bank of key-levers adapted to operate the frame, means slidably connected with the frame and adapted when the frame is operated to move under a depressed key-lever or a plurality of key-levers to elevate said lever or levers, means for guiding said elevating means to its operative and inoperative position, and means for retaining the said elevating means in its operative position.

426. A machine of the character described comprising a lever, a finger eccentrically pivoted to one end of said lever and having its rear end enlarged, said finger adapted to have its movement controlled by the diameter of a circular object, and selective devices engaged and operated by said finger.

127. A machine of the character described comprising a series of key-levers, means for indicating the amount of a sale adapted to be engaged and operated by said key-levers, a series of pivotal plates adapted to engage said indicating means to arrest the movement thereof thereby locking the key-levers from movement, a series of levers connected with said plates and adapted to move them into and out of engagement with said indicating means, and means having its movement controlled by the diameter of a circular object and adapted to engage the said levers for suitably operating them, causing thereby the operation of said plates.

128. A machine of the character described comprising a cash-receiving mechanism, a change making and ejecting mechanism, a bank of key-levers for operating said change making and ejecting mechanism, and means for locking those key-levers of said bank that register a larger amount than the value of the cash inserted in the machine.

129. A machine of the character described comprising a cash-receiving mechanism, a change making and ejecting mechanism, means controlled by the diameter of a circular object for controlling the operation of said change making and ejecting mechanism, a bank of key-levers for operating said change making and ejecting mechanism and controlling means, and means for locking those key-levers of said bank that change or register a larger amount than the value of the cash inserted in the machine.

130. A machine of the character described comprising a cash-receiving mechanism, a change making and ejecting mechanism, mechanism for controlling the movement of said change making and ejecting mechanism, a bank of key-levers for operating said mechanisms, and means having its operation controlled by the diameter of a circular object and adapted when operated to lock those key-levers of said bank that register a larger amount than the value of the cash inserted in the machine.

131. A machine of the character described comprising a cash-receiving mechanism, a bank of key-levers, operative devices cooperating with said key-levers, and means for locking those key-levers of said bank that register a larger amount than the amount of cash inserted in the cash-receiving mechanism.

132. A machine of the character described comprising a cash-receiving mechanism, a bank of key-levers, operative devices cooperating with said key-levers, and means controlled by the diameter of a circular object for locking those key-levers of said bank that register a larger amount than the value of the cash inserted in the cash-receiving mechanism.

133. In a machine of the character described, a change making and ejecting mechanism, mechanism adapted to engage the edge of and have its movement controlled by the diameter of a circular object for controlling the operation of said change making and eject-

ing mechanism, a registering mechanism for recording the value of a sale, a bank of key-levers for operating said mechanisms in conjunction with one another, and means for locking those key-levers of said bank that register a larger amount than the value of the cash inserted in the machine.

134. A machine of the character described comprising a cash separating and delivering mechanism, a cash detecting and deflecting mechanism engaging with and operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, a series of key-levers engaging with and operating the registering mechanism, cash-ejecting and change-making mechanism and said controlling mechanism, and means for locking those keys-levers of said series that register a larger amount than the value of the cash inserted in the machine.

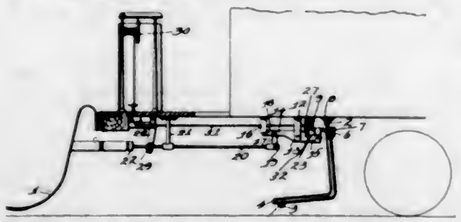
135. In a machine of the character described, a series of cash-receptacles, a cash delivering and separating mechanism adapted when operated to deliver the cash to said receptacles, a cash-deflecting mechanism operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, a series of key-levers for operating said registering, cash-ejecting and change-making and controlling mechanisms, and means for locking those key-levers of said series that register a larger amount than the value of the cash inserted in the machine.

136. In a machine of the character described, a series of cash-receptacles, a cash delivering and separating mechanism adapted when operated to deliver the cash to said receptacles, a cash-deflecting mechanism operated by said delivering and separating mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, a bank of key-levers for operating said registering, cash-ejecting and change-making and controlling mechanisms, and means having its movement controlled by the diameter of a circular object and adapted when operated to lock those key-levers of said bank that register a larger amount than the value of the cash inserted in the machine.

137. A machine of the character described, comprising a cash separating and delivering mechanism, a change making and ejecting mechanism, a controlling mechanism for said change making and ejecting mechanism, a registering mechanism, means operated by the controlling mechanism for indicating the amount of cash inserted in the machine, means for indicating the amount of a sale, a bank of key-levers for operating said sale-indicating means, a registering mechanism, controlling mechanism and change making and ejecting mechanism, and means for locking those key-levers of said bank that register a larger amount than the value of the cash inserted in the machine.

138. A machine of the character described, comprising a cash separating and delivering mechanism, a change making and ejecting mechanism, a registering mechanism, means operated by the controlling mechanism for indicating the amount of cash inserted in the machine, means for indicating the amount of a sale, a bank of key-levers for operating said sale-indicating means, registering mechanism, controlling mechanism and change making and ejecting mechanism, and means having its operation controlled by the diameter of a circular object and adapted when operated to lock those key-levers of said bank that register larger amounts than the value of the cash inserted in the machine.

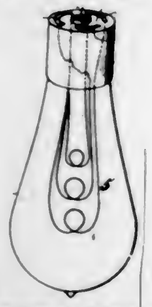
750,719. CAR-FENDER. EMIL SPRICH, St. Louis, Mo. Filed Aug. 28, 1903. Serial No. 171,113. (No model.)



Claim.—1. A car-fender adapted to be secured beneath the car and composed of two telescoping sections, said sections being horizontally adjustable, and means for operating said sections, substantially as specified.

2. A car-fender mechanism, comprising a fender located in front of the car, a horizontally-adjustable fender composed of sections located beneath the car, means for supporting said sections beneath the car, means for holding said sections in a set position, and means carried by the car whereby the rearward deflection of the fender carried by the front end of the car actuates the sections located beneath the car and thrusts the same in a transverse direction, substantially as specified.

750,720. INCANDESCENT LAMP. WALTER A. SPRINGALL, San Antonio, Tex. Filed June 25, 1903. Serial No. 163,114. (No model.)



Claim.—1. The combination of a lamp and a cap rotatably connected thereto, the lamp having a bulb, a contact, a plurality of filaments in the bulb, one end of each filament being connected to said contact, the latter consisting of a nut, a series of contacts insulated from each other and from the first-mentioned contact to which the other ends of said filaments are connected, said series of contacts being in a substantially common plane at approximately right angles to the longitudinal axis of the bulb, and the cap having therein a contact to engage any one of said series of contacts upon the rotation of one of said first-mentioned parts with respect to the other and also having in its top a hole registering with said first-mentioned contact or nut.

2. The combination of a lamp and a cap rotatably connected thereto, the lamp having a bulb, a contact, a plurality of filaments in the bulb, one end of each filament being connected to said contact, a series of contacts insulated from each other and from the first-mentioned contact to which the other ends of said filaments are connected, said series of contacts being in a substantially common plane at approximately right angles to the longitudinal axis of the bulb, said first-mentioned contact consisting of a nut projecting above the top of the lamp, the cap inclosing the top of the lamp, having a hole registering with said first-mentioned contact, and a single spring-contact electrically connected with its top and adapted to engage any one of said series of contacts upon the turning of one of said first-mentioned parts with respect to the other.

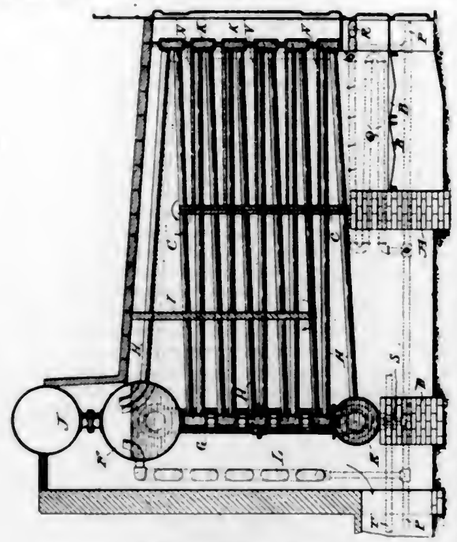
750,721. STEAM-BOILER. JAMES C. STEAD, Brooklyn, N. Y. Filed Sept. 23, 1902. Serial No. 124,599. (No model.)

Claim.—1. In a steam-boiler, the combination of a bottom header, a separator parallel therewith and at the upper portion of the boiler, circulating-pipes leading from the header and arranged in layers each layer connected by a similar header and one layer above the other longitudinally of the boiler and at right angles to the separator, the upper layer of said pipes extending from the upper header and entering the separator on the side thereof and having their ends curved upwardly and terminating above the normal water-line therein.

2. In a steam-boiler, the combination of a bottom header, a separator parallel therewith and at the upper portion of the boiler, circulating-pipes leading from the header and arranged in layers each layer connected by a similar header, some of said layers inclining upwardly in one direction and others inclining upwardly in the opposite direction, the upper layer of said pipes extending from the upper header and entering the separator on the side thereof, and having their ends curved upwardly and terminating above the normal water-line therein.

3. In a steam-boiler, the combination of circulating-pipes extending longitudinally backward and forward of the boiler and arranged in upwardly-inclined layers, the number of pipes per layer increasing with the height of the layer in the boiler, and means for circulating water through said pipes from the bottom to the top, substantially as set forth.

4. In a steam-boiler, the combination of circulating-pipes extending longitudinally backward and forward of the boiler and arranged in upwardly-inclined layers, the number of pipes per layer increasing with the height of the layer in the boiler, means for circulating water through said pipes from the bottom to the top, and substantially horizontally arranged baffle-plates between the rows of pipes in said layers, substantially as set forth.



750,722. INSULATOR. LOUIS STEINBERGER, New York, N. Y. Filed May 25, 1903. Serial No. 158,674. (No model.)



Claim.—1. An insulator, comprising an outer casing of metal, and a body of insulating material disposed therein and provided with means for supporting the same, said casing and said body of insulating material being provided with tie-holes and with a portion through which a cable may be threaded.

2. An insulator, comprising an outer casing provided with lugs for engaging a tie-wire and with tie-holes for engaging said tie-wire, and a body of insulating material disposed within said casing and provided with means for supporting itself and for supporting a cable, said body of insulating material being further provided with holes mating said tie-holes of said casing.

3. An insulator, comprising an outer casing provided with a constricted portion, and also provided with indentations, and a body of insulating material, disposed within said casing and provided with a portion mating said constricted portion of said casing, said body of insulating material being provided with an indentation mating those of said casing but smaller than the same for the purpose of supporting the cable out of contact with said casing.

4. An insulator, comprising an outer casing provided with indentations through which a cable may be threaded and also provided with a constriction presenting a concave surface external to said outer casing, and a body of insulating material disposed within said casing and having a portion of such conformity as to make said constriction of said casing, the arrangement being such that said cable may at will be threaded through said indentations, or free to engage said constriction.

5. An insulator, comprising an outer casing of metal provided with a constriction and with indentations, and a body of insulating material molded within said outer casing and prevented from removal therefrom by said constriction, said body of insulating material being provided with an indentation for the purpose of supporting a cable out of contact with said casing.

6. An insulator, comprising an outer casing of metal, a body of insulating material disposed within said casing, said body of insulating material being provided with indentations for engaging a cable, and also with tie-holes for securing a wire thereto, and clamping mechanism independent of said tie-holes for securing a cable in position.

7. An insulator, comprising an outer casing of metal, a body of insulating material disposed within said casing, said casing and said body of insulating material being provided with indentations and with tie-holes for securing a wire thereto, said body of insulating material being free to support a cable within said indentations.

8. An insulator, comprising a longitudinal casing provided with an opening extending throughout its entire length and also provided with a constriction, and a body of insulating material disposed within said casing and extending substantially throughout the length thereof, said body of insulating material being provided with means for supporting a conductor.

9. An insulator, comprising a casing having an outer portion provided with indentations through which a cable may be threaded and with lugs disposed adjacent to said indentations, said lugs serving the double purpose of strengthening the casing and of affording means whereby a tie-wire may be secured to said casing and to said cable, and a mass of insulating material disposed within said casing.

10. An insulator, comprising a casing of substantially frusto-conical form and encircled about its middle with a constriction of annular form affecting both the internal and external conformity of said casing, said casing being provided with a screw-thread, a body of insulating material disposed within said casing and provided about its middle with a groove mating said constriction, and a cap provided with a screw-thread for engaging said screw-thread of said casing.

11. An insulator, comprising a body member of insulating material provided at its top with upright arms and with a channel, and a metallic casing engaging the exterior of said body member and also engaging said arms, said metallic casing being provided with indentations and with semiring-shaped lugs disposed intermediate of said indentations.

12. An insulator, comprising a casing provided with a constriction, and also provided at its top with upright arms, and a body of insulating material also provided with a constriction, said body of insulating material engaging said casing and also said upright arms, said body member of insulating material having a channel free to support a conductor, and said upright arms being provided with semiring-shaped lugs for the purpose of affording a grip for a tie-wire.

750,723. BINDING-POST. LOUIS STEINBERGER, New York, N. Y. Filed June 22, 1903. Serial No. 162,573. (No model.)



Claim.—1. A binding-post, comprising a member provided with a stem having a plurality of portions immovable relatively to each other and of different diameters, and separate fastening mechanisms respectively engaging said portions of different diameters for the purpose of separately securing wires to said members.

2. A binding-post, comprising a member having a plurality of portions immovable relatively to each other and of different diameters, said portions of different diameters each being provided with a hole for engaging a conductor, and separate clamping members engaging said portions of different diameters.

3. A binding-post, comprising a member having a plurality of portions immovable relatively to each other and of different diameters, each of said portions being provided with an aperture for admitting a wire, and a clamping member mounted upon each of said portions and free to move relatively thereto for engaging said wire.

4. A binding-post, comprising a member provided with portions of different diameters disposed one over the other so as to form terraces and immovable relatively to each other, each of said portions being provided with an aperture for engaging a wire, and a clamping

member engaging each of said portions of different diameters and free to move relatively thereto.

5. A binding-post, comprising a member provided with portions of different diameters disposed one over the other so as to form terraces and immovable relatively to each other, each of said portions being provided with an aperture for engaging a wire, said aperture of one portion being spaced a slight distance over the terrace below it for admitting a washer between said aperture and said terrace, and detachable clamping members engaging the several portions of different diameters.

6. A binding-post, comprising a member having portions of different diameters each provided with a screw-thread, said portions being disposed one above the other so as to form terraces, and immovable relatively to each other, each of said portions being provided with an aperture for receiving a wire, and a revoluble nut mounted upon each of said portions and provided with a screw-thread engaging said screw-thread of said portion.

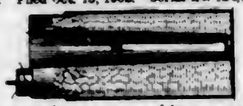
7. A binding-post, comprising a member provided with two portions of different diameters, said portions of different diameters being immovable relatively to each other and with a screw-thread upon each of said portions, said portions of different diameters being each provided with an aperture for receiving a wire, and a revoluble nut mounted upon each of said portions of different diameters and provided with a screw-thread engaging said screw-thread of said portion.

8. As an article of manufacture, a metallic member provided with oppositely-disposed ends, one of said ends having threads and terraces for engaging nuts of different diameters, said terraces being immovable relatively to each other, the other of said ends being provided with means for securing said metallic member to a base.

9. A binding-post, comprising a member provided with two portions of different diameters and with two terraces of different diameters, said portions being immovable relatively to each other and each having a screw-thread, one of said portions being upset, and a revoluble nut mounted upon each of said portions of different diameters and provided with a screw-thread engaging said screw-thread thereof.

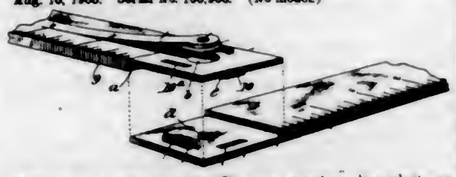
10. A binding-post, comprising a member provided with two ends, each of said ends having terraces of different diameters and each of said ends having means to secure said member upon a base or to secure conductors upon said member, as desired, said binding-post being reversible.

750,724. **CURLING-IRON CASE.** CHARLES O. STERLING, Washington, D. C. Filed Oct. 13, 1902. Serial No. 127,107. (No model.)



Claim.—A curling-iron case comprising an outer case, the upper end of which is contracted and shouldered and provided with a closure having two openings therein, one of which openings is eccentrically located and the other one is elliptical in cross-section, the longest diameter of the elliptical opening being almost as great as the diameter of the case and located a trifle to one side of the center of the case away from the other opening, a removable stopper in the eccentrically-located opening, a tapering case secured in the elliptical opening with its lower end closed and at a short distance from the bottom of the outer case, the side walls of said inner case being substantially flat and nearly parallel and the end walls being of a greater taper than the side walls, and a cap for the upper reduced end of the outer case.

750,725. **SQUARE.** GAVIN A. STEPHENS, Memphis, Tenn. Filed Aug. 10, 1903. Serial No. 168,968. (No model.)

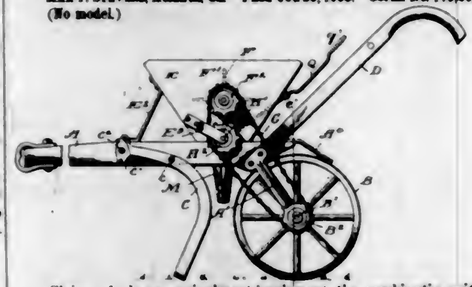


Claim.—1. A square, comprising two members lapped at one end, means for holding the members at a right angle to each other, a spring-tongue carried by one member, said tongue and the other member being oppositely perforated, and a clamping-rivet adapted to draw the spring-tongue toward the perforated member, thus securing the members together and diverged at a right angle.

2. A square, comprising two flat members, each having at one end a joint-leaf of reduced thickness, forming a transverse shoulder at right angles to side edges of said member, a tenon-and-slot connection between the joint-leaves, a spring-tongue on one of said members and the leaf thereon having a perforation in its free end, the other leaf having a perforation, and a rivet engaging the perforations and adapted to clamp the leaves together when the square members are disposed at a right angle.

3. A square, comprising two flat members, each reduced at one end to provide a joint-leaf half the thickness of the body, forming a transverse vertical shoulder at a right angle to the side edges of a respective leaf, an elongated rectangular tenon projected laterally from the reduced side of one joint-leaf and having the end sloped on the upper side, a slot in the joint-leaf at right angles to the tenon and respectively disposed parallel with one side edge and the true transverse end of the joint-leaf, the other joint-leaf having mating tenon and slot therein, the engagement of the slots, tenons, shoulders and edges, holding the square members at a right angle to each other edgewise, a spring-tongue working in a longitudinal opening in one of said members and the joint-leaf thereon, said tongue being fast at one end and having a perforation in its free end, the other joint-leaf having a perforation opposite the perforation in the tongue, and a clamping-rivet adapted to engage the perforated tongue and joint-leaf.

750,726. **FERTILIZER-DISTRIBUTER AND SEED-DRILL.** JOHAN P. STEVENS, Atlanta, Ga. Filed Oct. 29, 1903. Serial No. 179,084. (No model.)



Claim.—1. In an agricultural implement, the combination with a frame and a driving-wheel supporting the same, of a hopper, stirrers mounted transversely in said hopper, a cylindrical casing mounted in the bottom of said hopper cut away at the top and also at an angle at one end, a feeding-screw journaled in said casing, a chute connected to the cut-away end of said casing, and means operated by the driving-wheel for rotating said stirrers and said feeding-screw, substantially as described.

2. In an agricultural implement, the combination with a frame and a driving-wheel supporting the same, of a hopper, stirrers mounted transversely in said hopper, a cylindrical casing mounted in the bottom of said hopper cut away at the top and also at an angle at one end, a feeding-screw journaled in said casing, an adjustable slide mounted over said casing to limit the feed thereto, a chute connected to the cut-away end of said casing, and means operated by the driving-wheel for rotating said stirrers and said feeding-screw, substantially as described.

750,727. **NUT OR PIPE WRENCH.** DAVID STEWART, Govan, Scotland. Filed Mar. 3, 1903. Serial No. 145,938. (No model.)



Claim.—1. In a wrench, a slide-bar, a slide piece or sleeve sliding on the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, and means carried by the slide-bar for preventing movement of the adjusting-screw relative thereto.

2. In a wrench, a slide-bar, a slide piece or sleeve sliding on the slide-bar, a jaw-piece carried by the slide piece or sleeve, an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, and means carried by the slide-bar for preventing movement of the adjusting-screw relative thereto.

3. In a wrench, a slide-bar, a slide piece or sleeve sliding on the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, and an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, the jaw-piece and slide-bar being each provided with abutting grooved edges, which when in position form a cylindrical cavity for the reception of the adjusting-screw.

4. In a wrench a slide-bar having a jaw-head, a slide piece or sleeve sliding on the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, and means carried by the slide-bar for preventing movement of the adjusting-screw relative thereto.

5. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve sliding on the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, the jaw-piece and slide-bar being each provided with abutting grooved edges which when in position form a cylindrical cavity for the reception of the adjusting-screw.

6. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve sliding on the slide-bar, a jaw-piece carried by the slide piece or sleeve, an adjusting-screw working in a thread in the slide piece or sleeve and lying in the space between the slide-bar and the jaw-piece, the jaw-piece and slide-bar being each provided with abutting grooved edges which when in position form a cylindrical cavity for the reception of the adjusting-screw.

7. A wrench having a slide-bar provided with a jaw-head having an outer clutching-surface, a second jaw-head having an inner clutching-surface adapted to coact with the outer clutching-surface of the slide-bar jaw-head to form a nut or pipe engaging jaw between them, a pivoted connection securing the second jaw-head to the slide-bar in such manner that the same may be reciprocated on the slide-bar so as to open or close the jaw, such pivoted connection being always located entirely below the working face of the slide-bar jaw-head, and an adjusting male screw reciprocating the second and pivoted jaw-head, located between the pivotal connection and the slide-bar.

8. In a wrench, a slide-bar having a jaw-head, a shoe piece or sleeve sliding on the slide-bar, a central fin formed on the rear side of the slide piece or sleeve flanked on either side by a recess rounded at the forward end, a jaw-piece having a jaw-head adapted to coact with the jaw-head of the slide-bar provided at the bottom with side wings fitting into the recesses of the slide piece or sleeve so as to rock slightly therein, a pivot-pin securing the jaw-piece to the slide piece or sleeve, and means for adjusting the slide-piece upon the slide-bar.

9. In a wrench a slide-bar having a jaw-head, a slide piece or sleeve sliding on the slide-bar having a central fin on the rear side flanked by recesses rounded at the forwarded ends and having substantially straight upper and lower walls at the rear open sides thereof, a jaw-piece having a jaw-head adapted to coact with the jaw-head of the slide-bar provided at the bottom with side wings or extensions adapted to fit into the recesses of the slide piece or sleeve, a pivot-pin passing through the side wings of the jaw-piece and through the fin of the slide piece or sleeve, and means for adjusting the slide piece or sleeve upon the slide-bar, the construction being such that when strain is brought upon the wrench the same is brought mainly upon the side wings of the jaw-piece and the walls of the recesses in the slide-piece rather than upon the pivot-pin.

10. A wrench having a slide-bar provided with a jaw-head, a pivoted jaw-piece having a coacting head adapted to be reciprocated along the slide-bar, means for limiting the vibratory movement of the jaw-piece upon its pivot, and an adjusting-screw lying between the slide-bar and the jaw-piece.

11. In a wrench, a slide-bar having a tang at one end and a jaw-head at the other and provided with a groove in the inner edge thereof extending from end to end, a slide piece or sleeve reciprocating on the slide-bar, a jaw-piece pivoted at the bottom to the slide piece or sleeve, a handle-piece having at one side of the upper end a thumb-nut recess the top prong of which is slotted to receive the adjusting-screw, and an adjusting-screw the actuating thumb-nut of which lies between the side prongs of the handle and the rear side of which rests in the groove on the edge of the slide-bar.

12. In a wrench, a slide-bar having a tang at one end and a jaw-head at the other, and provided with a groove in the inner edge thereof extending from end to end, a slide piece or sleeve reciprocating on the slide-bar, a jaw-piece pivoted at the bottom to the slide piece or sleeve, a handle-piece having at one side of the upper end a thumb-nut recess the top prong of which is slotted to receive the adjusting-screw, and an adjusting-screw the actuating thumb-nut of which lies between the side prongs of the handle and the rear side of which rests in the groove on the edge of the slide-bar, the adjusting-screw extending and lying between the slide-bar and movable jaw-piece.

13. In a wrench, a slide-bar having a tang at one end and a jaw-head at the other and provided with a groove in the inner edge thereof extending from end to end, a slide piece or sleeve reciprocating on the slide-bar, a jaw-piece pivoted at the bottom to the slide piece or sleeve, a handle-piece having at one side of the upper end a thumb-nut recess the top prong of which is slotted to receive the adjusting-screw, and an adjusting-screw the actuating thumb-nut of which lies between the side prongs of the handle and the rear side of which rests in the groove on the edge of the slide-bar, the adjusting-screw extending and lying between the slide-bar and movable jaw-piece, and working in a thread in the slide piece or sleeve.

14. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot and a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece so as to normally force the jaw into the open position.

15. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, a spring-dog located in the slide-bar adjacent to the jaw-piece the end of which rests in a groove on the inner edges of the jaw-piece and side wing-pieces carried by the jaw-head of the slide-bar extending rearward over the jaw-piece.

16. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and the jaw-piece, and a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece.

17. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and the jaw-piece, a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece, and side wing-pieces carried by the jaw-head of the slide-bar extending rearward over the jaw-piece.

18. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and jaw-piece, and a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece, the pivot-pin securing the slide piece or sleeve and the jaw-piece together having a groove at one side to register with the threaded orifice of the slide piece or sleeve to permit the passage by the same of the adjusting-screw.

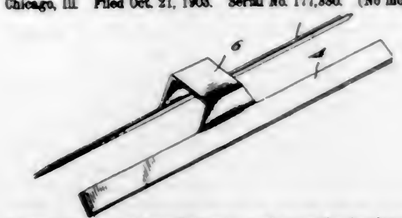
19. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and jaw-piece, a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece, and side wing-pieces carried by the jaw-head of the slide-bar extending rearward over the jaw-piece, the pivot-pin securing the slide piece or sleeve and the jaw-piece together having a groove at one side to register with the threaded orifice of the slide piece or sleeve to permit the passage by the same of the adjusting-screw.

20. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and jaw-piece, and a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece, the pivot-pin securing the slide piece or sleeve and

the jaw-piece together having a groove at one side to register with the threaded orifice of the slide piece or sleeve to permit the passage by the same of the adjusting-screw, the side slot or groove of the pivot-pin being threaded to allow the adjusting-screw to work therein and assist in holding the same in position.

21. In a wrench, a slide-bar having a jaw-head, a slide piece or sleeve reciprocating upon the slide-bar, a jaw-piece pivoted to the slide piece or sleeve, means for limiting the vibratory movement of the jaw-piece upon the pivot, an adjusting-screw working in a threaded orifice in the slide piece or sleeve and extending into the space between the slide-bar and jaw-piece, a spring-dog located in the slide-bar the end of which rests in a groove on the inner edges of the jaw-piece, and side wing-pieces carried by the jaw-head of the slide-bar extending rearward over the jaw-piece, the pivot-pin securing the slide piece or sleeve and the jaw-piece together having a groove at one side to register with the threaded orifice of the slide piece or sleeve to permit the passage by the same of the adjusting-screw, the side slot or groove of the pivot-pin being threaded to allow the adjusting-screw to work therein and assist in holding the same in position.

750,728. BRAKE-SHOE. OSCAR M. STIMSON and PETER PARKS, Chicago, Ill. Filed Oct. 21, 1903. Serial No. 177,380. (No model.)



Claim.—1. A pair of parallel anchor and strengthening bars suitably connected together.

2. A pair of parallel anchor and strengthening bars connected together at their center.

3. A pair of parallel anchor and strengthening bars having integrally-connecting means.

4. A pair of longitudinally-extending parallel anchor and strengthening bars suitably connected together.

5. A pair of longitudinally-extending parallel anchor and strengthening bars connected together at their center.

6. A pair of longitudinally-extending parallel anchor and strengthening bars integrally connected with one another.

7. A pair of parallel anchor and strengthening bars extending at an inclination with respect to each other and suitably connected together.

8. A pair of parallel anchor and strengthening bars extending at an inclination with respect to one another and suitably connected together at their center.

9. A pair of parallel anchor and strengthening bars extending at an inclination with respect to one another and integrally connected together.

10. A pair of parallel anchor and strengthening bars extending longitudinally and at an inclination with respect to each other and suitably connected together.

11. A pair of parallel anchor and strengthening bars extending longitudinally and at an inclination with respect to one another and connected together at their center.

12. A pair of parallel anchor and strengthening bars extending longitudinally and at an inclination with respect to each other and integrally connected together.

13. A pair of parallel anchor and strengthening bars, and a loop for connecting said bars together.

14. A pair of longitudinally-extending parallel anchor and strengthening bars, and a loop for connecting said bars together.

15. A pair of parallel anchor and strengthening bars, and an inverted-U-shaped loop for connecting said bars together.

16. A pair of longitudinally-extending parallel anchor and strengthening bars, and an inverted-U-shaped loop for connecting said bars together.

17. The combination in a brake-shoe, a pair of longitudinally-extending parallel strengthening-bars embedded in the back thereof for preventing the shoe from breaking under unequal strain.

18. The combination in a brake-shoe, a pair of longitudinally-extending parallel strengthening-bars embedded in the back thereof for preventing the shoe from breaking under unequal strain, said bars extending toward each other at an inclination.

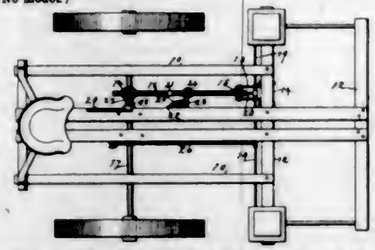
19. The combination in a brake-shoe, a pair of longitudinally-extending parallel strengthening-bars embedded in the back thereof, and a loop having its lower portion embedded in the back of the shoe and connected to said bars.

20. The combination with a brake-shoe, of a loop embedded partly therein, and a pair of longitudinal parallel anchors embedded in the shoe and formed integral with said loop.

21. The combination with a brake-shoe, of a loop embedded partly therein, and a pair of longitudinal parallel anchors embedded in the shoe and formed integral with said loop, said anchors extending at an inclination.

22. The combination with a brake-shoe, of a loop embedded partly therein, and a pair of longitudinal parallel anchors embedded in the shoe and formed integral with said loop, said anchors extending at an inclination away from each other.

750,729. AUTOMATIC CHECK-ROW CORN-PLANTER. EUGENE O. STORRS, Winterset, Iowa. Filed Oct. 8, 1903. Serial No. 176,324. (No model.)

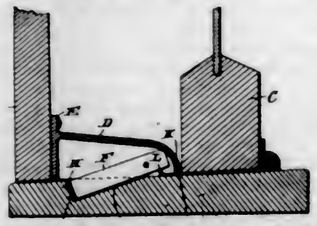


Claim.—1. In a corn-planter attachment, a frame for a wheel-bearer fixed to the runner-frame, a sprocket-wheel mounted in said wheel-bearer frame, a sprocket-wheel mounted on the carriage-axle, a chain, having fixed strikers projected vertically and adapted to engage a lug on a rock-shaft, and a rock-shaft having a lug adapted to be engaged by the strikers on the chain, and an arm fixed to the rock-shaft to extend rearward arranged and combined to operate in the manner set forth for the purposes stated.

2. In a corn-planter attachment, a frame for a wheel-bearer fixed to the runner-frame, a sprocket-wheel mounted in said wheel-bearer frame, a sprocket-wheel mounted on the carriage-axle, a chain having fixed strikers projected vertically and adapted to engage a lug on a rock-shaft and a rock-shaft having a lug adapted to be engaged by the strikers on the chain, an arm fixed to the rock-shaft to extend rearward and an automatic chain tension device, arranged and combined to operate in the manner set forth for the purposes stated.

3. An automatic attachment for corn-planters comprising a sprocket-wheel having a fixed clutch member on the end of its hub and a mating clutch member adapted to be fixed on a rotating carriage-axle, a wheel-bearer frame fixed to the runner-frame of a planter and a sprocket-wheel mounted in said frame, a chain for connecting the sprocket-wheels and strikers fixed to chain-links, to project vertically a rock-shaft mounted on the runner-frame and provided with a lug projecting at right angles therefrom, an arm fixed to the rock-shaft to extend rearward to be manually operated, an automatic chain-tightener and means for connecting and disconnecting the clutch members, to be applied and operated in the manner set forth for the purposes stated.

750,730. WINDOW-BLIND LOCK. WILLIAM F. STOCKS, Prattville, Ala. Filed Apr. 22, 1903. Serial No. 153,777. (No model.)

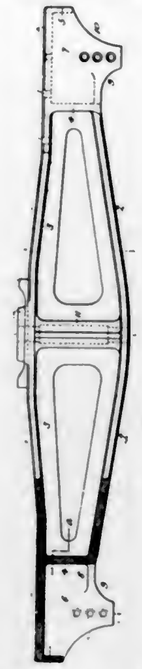


Claim.—1. In combination with a window sill and blind, a casing secured to the blind, a latch pivoted in said casing, a notch in the sill to receive said latch, and means to positively hold said latch in a locked position, substantially as shown and described.

2. In combination with a window sill and blind, a casing secured to the blind, a latch pivoted in said casing, a notch in the sill having a slanting bottom and adapted to receive said latch, and a key having a lug to lift said latch from said notch, and to positively hold it in a locked position, substantially as shown and described.

3. In combination with a window sill, sash and blind, a casing secured to the blind, a latch pivoted in said casing, a notch in the sill having a slanting bottom and adapted to receive said latch, and a key having a lug, said lug adapted to seat under the free end of said latch and the key under the window-sash when the blind is locked, and to slide down the slanting bottom of said notch when lifting the latch, substantially as shown and described.

750,731. TRUCK-BOLSTER FOR RAILWAY-CARS. CLEMENT F. STREET, Cleveland, Ohio. Filed June 12, 1903. Serial No. 161,237. (No model.)



Claim.—1. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form, substantially as specified.

2. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form whose outer sides are shorter than the inner sides, substantially as specified.

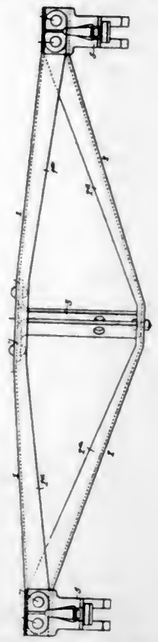
3. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form whose outer sides are shorter than the inner sides and whose front and rear sides have recesses in their outer portions, substantially as specified.

4. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form whose front and rear sides have recesses in their inner portions, substantially as specified.

5. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form whose outer sides are shorter than the inner sides and whose front and rear sides have recesses in both their inner and outer portions, substantially as specified.

6. A metallic truck-bolster for railway-cars having a central or body portion of I section, and end portions of inverted-box form, the top member of the bolster being beveled, but having fillets forming side bearings or bearing-seats, substantially as specified.

750,732. METALLIC BRAKE-BEAM. ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Jan. 5, 1903. Serial No. 137,828. (No model.)



Claim.—1. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, substantially as specified.

2. A metallic brake-beam having compression and tension members with edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such edge flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

3. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends, and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the shallow ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

4. A metallic brake-beam having compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, substantially as described.

5. A metallic brake-beam having compression and tension members each with top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

6. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

7. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and having edge flanges projecting therefrom in a direction parallel with the direction of thrust upon the beam, said flanges overlapping each other at the ends of the beam, substantially as specified.

8. A metallic brake-beam having compression and tension members with edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such edge flanges being widest at the ends of the truss member and overlapping each

other at such ends and gradually diminishing in width toward the center of the beam, substantially as specified.

9. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends, and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the shallow ends of each truss member and overlapping each other at such ends, and gradually diminishing in width toward the center of the beam, substantially as specified.

10. A metallic brake-beam having compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beams, and overlapping each other at the ends of the beam, substantially as described.

11. A metallic brake-beam having compression and tension members each with top and bottom edge flanges projecting therefrom in a direction parallel with the direction of thrust upon the beam, such flanges overlapping each other and being widest at the ends of each truss member and gradually diminishing in width toward the center of the beam, substantially as specified.

12. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges overlapping each other and being widest at the ends of each truss member and gradually diminishing in width toward the center of the beam, substantially as specified.

13. A metallic brake-beam consisting of a compression member, and a tension member, each deep in the center and shallow at the ends, and each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, and said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

14. A metallic brake-beam consisting of a compression member and a tension member each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said edge flange being widest at the ends of each member and gradually diminishing in width toward the center of the same, and the two members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

15. A metallic brake-beam consisting of a compression member and a tension member each deep in the center and shallow at the ends, and each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flange being widest at the shallow ends of the member and gradually diminishing in width toward the center of the same, and said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

16. A metallic brake-beam consisting of a compression member and a tension member each deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of thrust upon the beam, said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

17. A metallic brake-beam consisting of a compression member and a tension member each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the ends of the beam and gradually diminishing in width toward the center of the same and said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

18. A metallic brake-beam consisting of a compression member and a tension member each deep in the center and shallow at the ends, and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the ends of the beam, and gradually diminishing in width toward the center of the same, and said members being connected together at the ends of the beam, but separated from each other by an interposed strut at the center of the beam, substantially as specified.

19. A metallic brake-beam consisting of a truss with compression and tension members each deep in the center and shallow at the ends and having edge flanges which project in a direction parallel with the direction of thrust upon the beam and overlap each other at the ends of the beam, substantially as specified.

20. A metallic brake-beam consisting of a truss with compression and tension members having edge flanges wide at the ends of the beam and narrower at the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

21. A metallic brake-beam consisting of a truss with compression and tension members each deep at the center and shallow at the ends and having edge flanges which are widest at the ends and gradually decrease in width toward the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

22. A metallic brake-beam consisting of a truss with compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges which overlap each other at the ends of the beam, substantially as specified.

23. A metallic brake-beam consisting of a truss with compression and tension members each having top and bottom edge flanges widest at the ends of the beam and narrower toward the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

24. A metallic brake-beam consisting of a truss with compression and tension members each deep at the center and shallow at the ends and each having top and bottom edge flanges which are widest at the ends and narrower toward the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

25. A metallic brake-beam consisting of truss members having edge flanges projecting therefrom in a direction parallel with the direction of thrust upon the beam and overlapping each other at the ends of the beam, brake-heads, and fastening devices which serve to secure said overlapping flanges together at the ends of the beam, and also secure the brake-heads to said beam, substantially as specified.

26. A metallic brake-beam consisting of truss members having edge flanges which overlap each other at the ends of the beam, interposed filling-pieces, brake-heads and fastening devices which serve to secure together at each end of the beam the brake-head, the filling-piece and the overlapping flanges of the truss members, substantially as specified.

27. A metallic brake-beam consisting of truss members each having top and bottom edge flanges which overlap each other at the ends of the beam, brake-heads and fastening devices which serve to secure said overlapping flanges together and also to secure the brake-heads to the beam, substantially as specified.

28. A metallic brake-beam consisting of truss members having upper and lower edge flanges which overlap each other at the ends of the beam, interposed filling-blocks, brake-heads and fastening devices which serve to secure together at each end of the beam a brake-head, a filling-block and the overlapping flanges of the truss members, substantially as specified.

29. A metallic brake-beam consisting of truss members connected together at the ends of the beam, and separated at the center by means of a strut consisting of a strip of metal bent into U form and having lateral flanges at the open end of the U, substantially as specified.

30. A metallic brake-beam consisting of compression and tension members having edge flanges projecting in a direction parallel with the direction of the thrust upon the beam, said members being secured together at the ends of the beam, and separated by an interposed strut at the center of the beam, substantially as specified.

31. A metallic brake-beam consisting of compression and tension members each having top and bottom edge flanges projecting in a direction parallel with the direction of the thrust upon the beam, said members being secured together at the ends of the beam, and separated by an interposed strut at the center of the beam, substantially as specified.

32. A metallic brake-beam consisting of compression and tension members having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges overlapping and being secured together at the ends of the beam, the central portions of said members being separated by an interposed strut, substantially as specified.

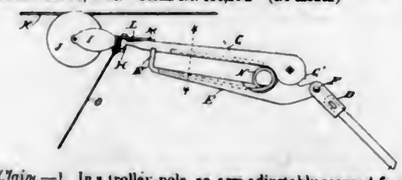
33. A metallic brake-beam consisting of compression and tension members each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges overlapping and being secured together at the ends of the beam, the central portions of said members being separated by an interposed strut, substantially as specified.

34. A brake-beam, having a compression and a tension member, each of which has flanged sides, the flanged edges of one member being nested within the flanged ends of the other member, and a liner or filler-block in each end.

35. A brake-beam, having a compression and a tension member, each of which has flanged sides, the flanged edges of one member being nested within the flanged ends of the other member, and a liner or filler-block in each end, combined with brake-shoe heads, and fastening devices connecting the brake-shoe heads, liners or filler-blocks and tension member.

36. A brake-beam, having a compression member and a tension member, each of which has flanged sides, and liners or filler-blocks arranged within the ends of the channels, and all united by suitable fastenings.

750,733. TROLLEY-POLE. JOHN J. TARTT, Los Angeles, Cal. Filed Mar. 30, 1903. Serial No. 150,294. (No model.)

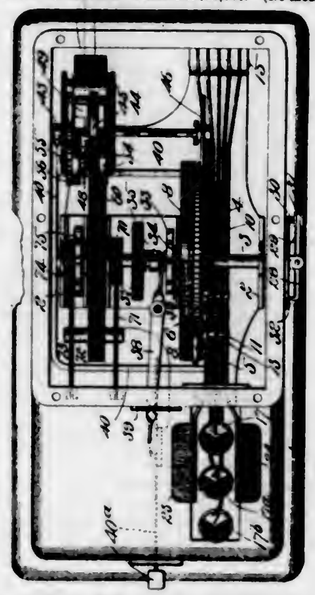


Claim.—1. In a trolley-pole, an arm adjustably secured for vertical movement to the end of the body of the trolley-pole; a second arm pivoted to the first arm on the upper side thereof; a trolley-harp attached to said last arm; a spring between said arms adapted to cause their free ends to separate.

2. In a trolley-pole, an arm adjustably secured for vertical movement to the end of the body of the trolley-pole; means to cause said connection to become rigid; a second arm pivoted to the first arm on the upper side thereof and having stops on its upper side; a trolley-harp attached to said last arm by a hinged joint movable horizontally; a spring affixed to said harp and passing through the stops on said arm.

3. A trolley-pole comprising a spring-operated base; a body connected to said base; an arm adjustably secured for vertical movement to said body; means to make said connection rigid; a second arm pivoted to said first arm; a spring between said arms adapted to throw their free ends apart; a trolley-harp connected to said second arm.

750,734. ADDING-MACHINE. PHILIP H. THOMPSON, St. Louis Mo. Filed July 18, 1903. Serial No. 166,076. (No model.)



Claim.—1. In an adding-machine, the combination with a registering-wheel, of a vibratory pawl-carrying disk for driving the same, said disk being provided with teeth, a printing mechanism in mesh with the teeth on said disk, a plurality of pins extending laterally from said disk at different distances from its axis of rotation, and a plurality of key-bars having slotted projections coöperating with said pins; substantially as described.

2. In an adding-machine, the combination with a registering-wheel, of a vibratory pawl-carrying disk for driving the same, said disk being provided with teeth, a printing mechanism in mesh with the teeth on said disk, and key-bars connected to said disk at varying distances from its axis of rotation; substantially as described.

3. In an adding-machine, the combination with a registering-wheel, of a vibratory disk for driving the same, said disk being provided with teeth, a printing mechanism in mesh with the teeth on said disk, key-bars operatively connected to said disk at varying distances from its axis of movement, and springs for holding said key-bars normally elevated; substantially as described.

4. In an adding-machine, the combination with a registering-wheel, of a vibratory disk for driving the same, said disk being provided with teeth, a printing mechanism in mesh with the teeth on said disk, key-bars operatively connected to said disk, at varying distances from its axis of movement, springs for holding said key-bars normally elevated, and means for controlling the strokes of said key-bars; substantially as described.

5. In an adding-machine, the combination with a registering-disk, of a vibratory pawl-carrier for driving the same, a key-bar operatively connected to said pawl-carrier, and a shiftable controlling device movable under the key-bar for regulating its stroke; substantially as described.

6. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a key-bar operatively connected to the pawl-carrier, and a shiftable controlling device having stop-pins in different horizontal planes for coöperating with the key-bar to regulate its stroke; substantially as described.

7. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a plurality of key-bars operatively connected to the pawl-carrier, and a shiftable controlling device having stops in different horizontal planes designed to be placed in operative positions under the key-bars for controlling their stroke; substantially as described.

8. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a plurality of keys connected to the pawl-carrier at different distances from its axis of movement, a controlling device having stop-pins in different horizontal planes for coöperating with the key-bars to control their movement, and means for moving a stop-pin into and out of position under the key-bars; substantially as described.

9. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a key-bar operatively connected to the pawl-carrier, a shiftable controlling device carrying stop-pins in different horizontal planes designed to be located under the key-bar to control the stroke thereto, and means for moving said controlling device in either direction; substantially as described.

10. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a key-bar operatively connected to the pawl-carrier, means for adjustably limiting the stroke of said key-bar, and a shift-key for controlling the position of said means; substantially as described.

11. In an adding-machine, the combination with a registering-wheel, of a pawl-carrier for driving the same, a plurality of key-bars operatively connected to the pawl-carrier, a shiftable controlling device for regulating the stroke of the several keys whereby the pawl-carrier may be driven varying distances, and shift-keys for moving said controlling device in either direction; substantially as described.

12. In an adding-machine, the combination with registering devices, of keys for actuating the same, a shiftable controlling device for regulating the stroke of the several keys, and shift-keys for moving said controlling device in opposite directions from its normal position; substantially as described.

13. In an adding-machine, the combination with a registering mechanism, of actuating devices therefor including depressible keys, shiftable controlling devices coöperating with said keys for determining the distances of movement thereof, and means for moving the controlling devices laterally into and out of position under the actuating-keys, whereby said actuating-keys are arrested in different positions; substantially as described.

14. In an adding-machine, the combination with a registering mechanism, of actuating-keys therefor, each key having one or more numbers on its face, a shiftable controlling device designed to be moved into and out of position under said actuating-keys, and means located on each side of the actuating-keys and designed to be pri-

marily operated to place the controlling device under the actuating-keys to arrest them in different positions; substantially as described.

15. In an adding-machine, the combination with registering mechanism, of keys for actuating the same, each key having a plurality of numbers on its face, said numbers appearing on colored backgrounds, and shift-keys identified with controlling devices for regulating the distance of movement of the main operating-keys, said shift-keys being colored corresponding to the backgrounds on the main keys, substantially as described.

16. In an adding-machine, the combination with registering mechanism, of three keys for driving the same, said keys bearing a plurality of numbers on their faces, and shiftable controlling devices for regulating the distance of movement of the respective keys, and shift-keys for actuating said controlling devices; substantially as described.

17. In an adding-machine, the combination with registering mechanism, of keys for driving the same, a shiftable controlling device carrying stop-pins, a guideway in which said device is slidingly mounted, and shift-keys having oppositely-inclined slots coöperating with lateral projections on said device, whereby upon the depression of either of said shift-keys, the device is moved according to the will of the operator; substantially as described.

18. In an adding-machine, the combination with registering mechanism, of actuating devices therefor, a shiftable controlling device, carrying movable stop-pins designed to be placed in the path of the actuating devices to regulate the distance of movement thereof, and printing mechanism operated from the actuated stop-pin; substantially as described.

19. In an adding-machine, the combination with registering mechanism, of actuating devices therefor, a shiftable block carrying movable stop-pins, a printing-frame which is actuated by the operated stop-pin, and means for depressing said printing-frame out of the path of movement of said stop-pin; substantially as described.

20. In an adding-machine, the combination with a registering-wheel, of a vibratory pawl-carrier for driving the same, means for actuating said pawl-carrier different distances, a printing-wheel operated by said pawl-carrier, and a shiftable controlling device carrying pins, which when operated, cause the printing-wheel to make a printing impression; substantially as described.

21. In an adding-machine, the combination with registering mechanism, of a vibratory pawl-carrier for driving the same, a disk 46 in mesh with said pawl-carrier, a printing-wheel driven by said disk, means for arresting the printing-wheel just previous to the completion of movement imparted thereto by the vibratory pawl-carrier, and means for causing said printing-wheel to make the printing impression; substantially as described.

22. In an adding-machine, the combination with registering devices, of a printing-wheel moved or actuated from the driving devices for the registering mechanism, said printing-wheel being yielding in one direction on its shaft, means for arresting said printing-wheel before the driving mechanism ceases its motion, and means for effecting a printing impression from said printing-wheel, substantially as described.

23. In an adding-machine, the combination with a registering mechanism and its driving devices, of a printing-wheel actuated from the driving devices, a spring connecting said printing-wheel to its shaft, whereby the shaft is capable of slight independent rotation, pins 48 on the printing-wheel, a stop-finger 49 coöperating with said pins, and means for lifting one end of the printing-wheel shaft and the printing-wheel to make a printing impression; substantially as described.

24. In an adding-machine, the combination with a registering-wheel, and its shaft, of a lever 28 pivoted in the end of the shaft, a lug 30 with which one end of said lever coöperates, a spring 29 for holding one end of the lever outwardly, a handle 31 on one end of said lever, and a projection 32 on the other end of said lever for limiting the outward thrust of the spring; substantially as described.

25. In an adding-machine, the combination with a registering-wheel, and means for driving the same, of a wheel of higher order mounted adjacent thereto, a star-wheel conjoined to said wheel of higher order, a projection mounted on the primary register-wheel for coöperating with the star-wheel, and passing the wheel of higher order, and means for throwing the star-wheel into and out of the path of movement of said projection; substantially as described.

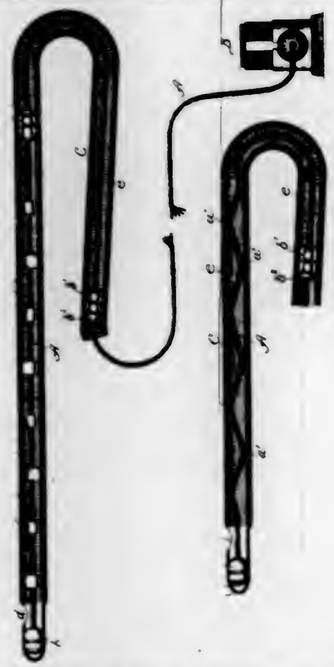
26. In an adding-machine, the combination with item-printing devices, of a total-printing mechanism comprising flat-faced rollers designed to engage and feed the strip of paper over the total-printing wheels so as to locate the items above the total, a cam conjoined to said flat-faced rollers, a platen for making the printing impression, and means for rotating said flat-faced rollers and cam; substantially as described.

27. In an adding-machine, the combination with item-registering and printing devices, of a total-printing mechanism, including printing-wheels operatively connected to the item-registering wheels, rollers having flat faces 63 and 64, and a handle for driving said rollers, whereby the peripheries engage and feed the paper to be printed upon, and cam 65 opposite flat faces 64, and a platen 66 which is actuated by the cam 65; substantially as described.

28. In an adding-machine, the combination with the item-register and its means of actuation, of a total-register, wheels of higher order actuated from the item-register, and a connection between said wheels comprising pinion 70 conjoined to the wheel of higher order which is primarily driven from the item-registering wheel, a segment 71 fixed to a rock-shaft 72, a segment 73, a pinion 74 in mesh with the segment 73 and the printing-wheel 75; substantially as described

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750,735. IMPLEMENT FOR MECHANICAL VIBRATORY TREATMENT. FENTON B. TURCK, Chicago, Ill. Filed Mar. 30, 1903. Renewed Dec. 14, 1903. Serial No. 185,171. (No model.)



Claim.—1. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided with one or more lateral projections between its ends, and adapted to be connected at one end, for its rapid rotation, with a motor, and means on said shaft for holding it at its distal end and permitting it to be rotated, substantially as and for the purpose set forth.

2. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided with one or more lateral projections between its ends, and adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of said shaft, substantially as and for the purpose set forth.

3. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of said shaft, substantially as and for the purpose set forth

4. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided at intervals between its ends with laterally-projecting strikers extending in spiral relation to each other along the length of the shaft, said shaft being adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of the shaft, substantially as and for the purpose set forth.

5. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible sheath with in which said shaft is rotatably confined, substantially as and for the purpose set forth.

6. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided with one or more lateral projections between its ends and adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

7. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided with one or more lateral projections between its ends and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

8. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible internally-armored sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

9. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, a flexible sheath within which said shaft is rotatably confined, and one or more journal-bearings for said shaft between its ends within said sheath, substantially as and for the purpose set forth.

10. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals, between its ends with laterally-projecting strikers extending in spiral relation to each other along the length of the shaft, said shaft being adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of the shaft, a flexible sheath within which said shaft is rotatably confined, and one or more bearings for said shaft between its end within said sheath, substantially as and for the purpose set forth.

11. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

12. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

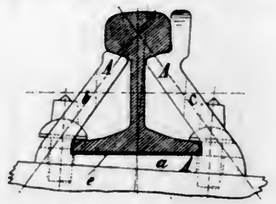
13. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible internally-armored tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

14. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft and one or more bearings thereon between its ends, and a flexible tube closed at one end and within which said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

15. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of the shaft, and a flexible sheath with an opening adjacent thereto, within which tube said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

16. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals with laterally-projecting strikers extending in spiral relation to each other along the length of the shaft, said shaft being adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft and one or more bearings thereon between its ends, and a flexible internally-armored tube closed and tapering at one end with an opening adjacent thereto and within which tube said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

750,736. CHAIR FOR RAILWAY-RAILS AND RAIL-JOINTS. RUDOLF URBANITZKY, Linz, Austria-Hungary. Filed Nov. 10, 1902. Serial No. 130,740. (No model.)



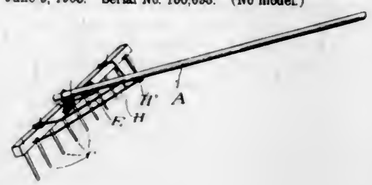
Claim.—1. A railway-chair for use as described consisting essentially of a base-plate, and lateral supports integral therawith, said supports converging inwardly at their upper ends and each being provided at the upper end with a seat adapted to occupy a position beneath the head of a rail at each side of the web thereof and form a support for said head, and said base-plates and supports being so constructed relatively to each other that when the rail-head is seated upon the seats of the supports the base of the rail will be out of contact with the base-plate of the chair.

2. The combination with a rail, of a chair consisting of a base-plate, lateral supports integral with the base-plate and converging inwardly at their upper ends, and having seats at their upper ends against which bears the head of the rail at opposite sides of the web, the base of the rail being out of contact with the base-plate of the chair, and a filling-piece between the base of the rail and the said base-plate.

3. The combination with a rail, of a chair consisting of a base-plate, lateral supports integral with the base-plate and converging inwardly at their upper ends, and having seats at their upper ends against which bears the head of the rail at opposite sides of the web, the base of the rail being out of contact with the plate of the chair, and a compressible filling-piece between the base of the rail and the said base-plate.

4. The combination with a rail, of a chair consisting of a base-plate, lateral supports integral with the base-plate and converging inwardly at their upper ends, and having seats at their upper ends against which bears the head of the rail at opposite sides of the web, the base of the rail being out of contact with the base-plate of the chair, and a filling-piece between the base of the rail and the said base-plate, and means for engaging the base of the rail and drawing the same downwardly and for securing it to a sleeper.

750,737. RAKE. MYLES Y. WARREN, Philadelphia, Pa. Filed June 9, 1903. Serial No. 160,693. (No model.)

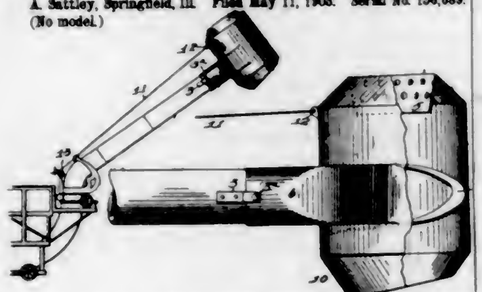


Claim.—1. In a rake, a handle, a cross-bar hinged to the handle so as to allow the same to bend inward toward the handle, teeth secured in the cross-bar, a spring interposed between the cross-bar and handle for returning and holding the cross-bar in its normal position, and a staple secured in the cross-bar and straddling the end of the handle and raised above the handle so as to limit the movement of the cross-bar relative thereto, as and for the purpose specified.

2. In a rake, a handle, a cross-bar hinged to the handle in such a manner as to allow the cross-bar to bend inward toward the handle, teeth secured in the cross-bar, a spring interposed between the cross-bar and handle, a staple secured in the cross-bar and straddling the end of the handle and raised above the handle so as to limit the movement of the cross-bar relative to said handle, a bail, each end of which is pivotally connected to the cross-bar near each of its ends, a staple secured in the handle through which the loop of the bail passes, said staple being elongated so as to allow for the movement of the bail therein but to limit such movement when the cross-bar and teeth have been bent to the desired angle, as specified.

3. In a rake, a handle, a cross-bar hinged to the handle so as to allow for the cross-bar bending toward the handle, a bail, each end of which is hinged to the cross-bar, the loop of the bail being secured to the handle, teeth depending from the cross-bar, a spring interposed between the cross-bar and handle to return and hold the cross-bar in its normal position, and means for limiting the movement of the cross-bar and teeth relative to the handle, as specified.

750,738. HOOD FOR PNEUMATIC STACKERS. IRA A. WEAVER, Springfield, Ill., assignor of one-half to Samuel R. Prather and Clyde A. Sattley, Springfield, Ill. Filed May 11, 1903. Serial No. 156,689. (No model.)



Claim.—1. A hood for pneumatic stackers, consisting of a drum provided with means for imparting circular motion to the discharge from the stacker-tube, an upper discharge-opening, a depending perforated collar mounted within the upper discharge-opening, and a lower discharge-opening, substantially as and for the purposes specified.

2. A device of the class named, consisting of a drum adapted to be mounted upon the chute of a pneumatic stacker, the drum being provided with means for imparting a circular motion concentric with the longitudinal axis of the drum to the contents received by it from the chute, and means whereby the dust contained in such contents may be separated and ejected through the top of the drum and the straw ejected through the bottom of the drum, substantially as and for the purposes specified.

3. A hood for pneumatic stackers, consisting of a drum, a tube mounted upon the side of the drum, a deflecting-partition mounted within the tube, a spiral rib mounted within the drum, the drum being provided with openings at its ends, and a depending perforated collar within its upper end, substantially as and for the purposes specified.

4. A hood for pneumatic stackers, consisting of a drum, a tube extending from the side of the drum, a deflecting-partition mounted within the tube, a spiral rib mounted within the drum, the drum being provided with openings at its ends, a depending perforated collar within its upper end, and a hinge whereby the hood is pivotally mounted upon the outer end of the chute of a pneumatic stacker.

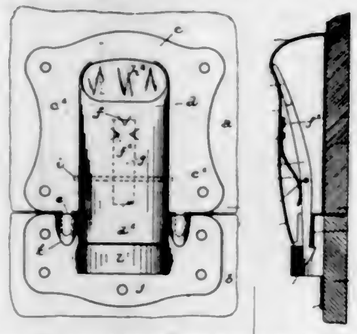
5. A hood for pneumatic stackers, consisting of a drum, a tube extending from the side of the drum, a deflecting-partition mounted within the tube, a spiral rib mounted within the drum, the drum being provided with openings at its ends, a depending perforated collar within its upper end, a hinge whereby the hood is pivotally mounted upon the outer end of the chute of a pneumatic stacker, and means whereby the drum may be tipped back and forth in order to discharge the straw on the near or far side of the stack, substantially as and for the purposes specified.

6. A hood for pneumatic stackers, consisting of a drum adapted to be mounted upon the outer end of the chute of a pneumatic stacker, the drum being provided at each end with a cone-shaped extension surrounding its discharge-openings, the opening in the lower cone-shaped extension being truncated in a plane at an angle to the plane of the bottom of the drum, substantially as and for the purposes specified.

7. A hood for pneumatic stackers, consisting of a drum adapted to be mounted upon the outer end of the chute of a pneumatic stacker, provided with means whereby the dust and straw discharged from the chute may be separated, the dust discharged upwardly and the straw discharged downwardly, means whereby a circular motion concentric with the longitudinal axis of the drum may be imparted to the discharge received by the drum, and means whereby the dust may be separated and expelled vertically and the straw expelled downwardly, substantially as and for the purposes specified.

8. A hood for pneumatic stackers, consisting of a drum provided with means for imparting circular motion concentric with the longitudinal axis of the drum to the discharge from the stacker-tube, an upper discharge-opening, and a lower discharge-opening, substantially as and for the purposes specified.

750,739. TRUNK-FASTENER. BENJAMIN WEBER, Baltimore, Md., assignor of one-half to Charles Dittmar, Baltimore, Md. Filed June 10, 1903. Serial No. 160,810. (No model.)

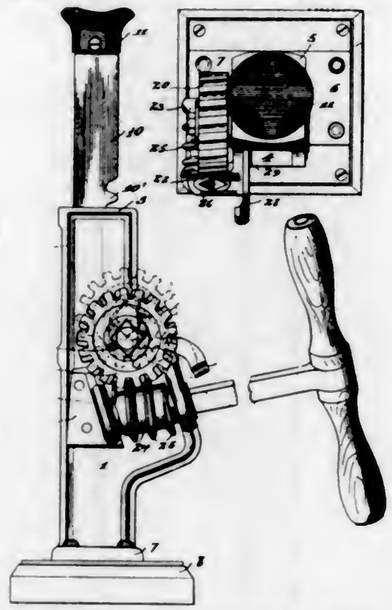


Claim.—In a trunk-lid lifter and fastener the combination with the lid of the trunk; a central vertical housing having a laterally-projecting flange for attachment to said lid and also having an opening at each end; a tongue pivoted to said housing between said two end openings and having a hook at its lower free end which protrudes through the lower open end of the housing; a keeper for attachment to the trunk-box and having a cross-bar, *j*, over which the lower open end of the housing takes and with which the lower hook end of the tongue engages, said keeper also having two outwardly-projecting shoulders, *k*, between which the said lower open end of the housing projects and also having a guard, *l*, which takes over the lower free end of the projecting tongue.

750,740. JACK. RICHARD H. WELLS, Kenosha, Wis. Filed Aug. 14, 1903. Serial No. 169,491. (No model.)

Claim.—1. A lifting-jack, comprising in combination a standard, a rack-bar mounted to reciprocate longitudinally therein, a pinion-shaft mounted within said standard adjacent and in transverse relation to the toothed side of said rack-bar, a pinion rigid upon said pinion-shaft and operatively engaging said rack-bar, a worm-gear non-rotatably mounted upon said pinion-shaft, a worm-shaft provided with a worm and revolubly but otherwise immovably mounted upon said standard below and in operative engagement with said gear, said worm-gear and its revoluble support being capable of rising and falling movement, whereby the gear and worm are brought more positively into engagement under weight upon the rack-bar, and means for actuating said worm-shaft.

2. A lifting-jack, comprising in combination a standard provided with oppositely-disposed elongated bearing-apertures, a pinion-shaft seated within said bearing-apertures and provided with a pinion rigid thereon, a rack-bar mounted to reciprocate vertically in said standard adjacent to and operatively engaged with said pinion, a worm-gear mounted upon said pinion-shaft, a worm-shaft revolubly but otherwise immovably mounted in tangential relation to, and below the periphery of said worm-gear and provided with a worm operatively engaging said gear, a leverage mechanism arranged for positively lifting said pinion-shaft to carry the worm-gear out of mesh with the worm, and means for rotating said worm-shaft, substantially as described.



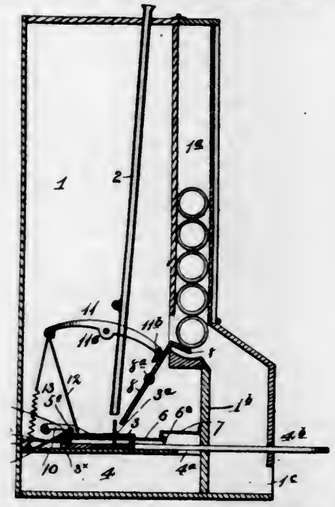
3. A lifting-jack, comprising in combination a standard provided with oppositely-disposed and vertically-elongated bearing-apertures, a pinion-shaft seated within said bearing-apertures and provided with a pinion rigid thereon, a rack-bar mounted to reciprocate vertically in said standard adjacent to and operatively engaged with said pinion, a worm-gear mounted upon said pinion-shaft, a worm-shaft revolubly but otherwise immovably mounted in tangential relation to, and below the periphery of said worm-gear and provided with a worm operatively engaging said gear, a leverage mechanism arranged for positively lifting said pinion-shaft to carry the worm-gear out of mesh with the worm, and means for rotating said worm-shaft, substantially as described.

4. A lifting-jack, comprising in combination a standard provided with oppositely-disposed and vertically-elongated bearing-apertures, a pinion-shaft seated within said bearing-apertures and provided with a pinion rigid thereon, a rack-bar mounted to reciprocate vertically in said standard adjacent to and operatively engaged with said pinion, a worm-gear mounted upon said pinion-shaft, a worm-shaft revolubly but otherwise immovably mounted in tangential relation to, and below the periphery of said worm-gear and provided with a worm operatively engaging said gear, a leverage mechanism for positively lifting said pinion-shaft to carry the worm-gear out of mesh with the worm comprising a lever pivotally mounted between its ends upon the standard and having its engaging end arranged to extend transversely to and below said pinion-shaft and its opposite end extending out to form a lever-handle, and means for rotating said worm-shaft, substantially as described.

5. A lifting-jack comprising in combination, a standard provided with oppositely-disposed bearing-apertures, a pinion-shaft seated within said apertures, a pinion rigidly mounted upon said shaft, a rack-bar mounted to reciprocate longitudinally within said standard, in operative engagement with said pinion, a worm-gear rigidly mounted upon said pinion-shaft, a worm-shaft with worm thereon revolubly mounted upon said standard and in such operative engagement with said worm-gear that weight upon said rack-bar makes more positive the mesh between said gear and said worm, and means for actuating said worm-shaft, for the purpose described.

6. In a lifting-jack the combination of a frame, a rack-bar mounted to reciprocate therein, a pinion operatively engaged with said rack-bar, a worm-gear connected to rotate positively with said pinion and a worm revolubly but otherwise immovably journaled adjacent to and controlling the worm-gear, the bearing-supports of said worm-gear being constructed to permit movement of the latter into and out of mesh with the worm and the arrangement of said bearings being such as to induce a relative movement of the worm-gear into more positive mesh with the worm under the increase of load upon the rack-bar.

750,741. VENDING-MACHINE. CHARLES V. WERTS, Portsmouth, Ohio. Filed Aug. 29, 1903. Serial No. 171,273. (No model.)



Claim.—1. The combination of means for releasing a cylinder or package containing an article for vending, comprising a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the latter, means adapted to receive and carry a coin to engage and actuate said lever, a locking means for said lever consisting of a pivoted arcuate frame engaging said lever, retaining means for the coin-carrying means, connected to said pivoted arcuate frame, and means for actuating said coin-carrying means.

2. The combination of means for releasing a cylinder or package containing an article for vending, comprising a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the latter, a slide adapted to receive and carry a coin to engage and actuate said lever, a locking means for said lever consisting of a pivoted arcuate frame engaging the latter, retaining means for said slide, connected to said pivoted arcuate frame, and means for actuating said slide.

3. The combination of means for releasing a cylinder or package containing an article for vending, comprising a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the latter, a slide adapted to receive and carry a coin, means for locking said lever consisting of a pivoted arcuate frame engaging the latter, a dog engaging said slide and connected to said pivoted arcuate frame, and means for actuating said slide.

4. The combination of means for releasing a cylinder or package containing an article for vending, comprising a lever about centrally pivoted and having a right-angled upper end portion arranged in alinement with the latter, a slide adapted to receive and carry a coin to engage and actuate said lever, a pivoted arcuate frame engaging said lever, a dog engaging said slide and connected to said pivoted frame, a pawl and ratchet for limiting the rearward movement of said slide, and means for actuating said slide.

5. In a vending-machine, the combination of a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the chamber containing the article for vending, a slide adapted to receive and carry a coin to engage and actuate said lever, a pivoted arcuate frame engaging the last-named part, a dog engaging said slide, means effecting connection between said lever-engaging frame and said dog, a pawl and ratchet for limiting the inward or rearward movement of said slide, means to effect the automatic reëngagement of said dog with said slide, and means for actuating said slide.

6. In a vending-machine, the combination of a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the chamber containing the article for vending, a slide adapted to receive and carry a coin to engage and

actuate said lever, a pivoted arcuate frame engaging the last named, a dog engaging said slide, means effecting connection between said dog and arcuate frame, a pawl and ratchet for limiting the rearward or inward movement of said slide, means for effecting the automatic reëngagement of said dog with said slide, means for elevating said pawl and temporarily holding it in an elevated position, and means for actuating said slide.

7. In a vending-machine, the combination ot a lever about centrally fulcrumed and having a right-angled upper end portion arranged in alinement with the chamber containing the article for vending, a slide adapted to receive and carry a coin to engage and actnate said lever, a pivoted arcuate frame engaging said lever, a dog engaging said slide, means effecting connection between said pivoted arcuate frame and dog, a pawl and ratchet for limiting the inward or rearward movement of said slide, an independently-movable rod carried hy said slide and adapted to engage and elevate said pawl when said slide has been moved to the limit of its forward movement, and means for actnating said slide.

8. In a vending-machine, the combination of a lever about centrally fulcrumed and having a right-angled upper portion arranged in alinement with the chamber containing the article for vending, a slide adapted to receive and carry a coin to engage and actuate said lever, a pivoted arcuate frame engaging said lever, a dog engaging said slide, means effecting connection between said pivoted arcuate frame and dog, a pawl and ratchet for limiting the rearward movement of said slide, an independently-movable rod adapted to engage and elevate said pawl when said slide has reached the limit of its forward movement, an inward-extending arm adapted to engage said rod when said slide has reached the limit of its opposite movement, and means for actnating said slide.

9. A vending-machine, embracing a pivoted package or cylinder releasing device having a right-angled package engaging or supporting end, means for automatically retaining said end in normal position, comprising a spring-pressed lever-frame with its forward edge engaging said releasing device, a slide or carrier adapted to receive a coin deposited therein and carry said coin into engagement with, and actuating, said pivoted package-releasing device, and a pawl-and-ratchet mechanism to limit the rearward movement of said slide or carrier, the pawl being pivoted to said slide and engaging the ratchet.

10. A vending-machine comprising a pivoted package or cylinder releasing device adapted to normally engage or support a package or cylinder, a slide adapted to receive a coin deposited therein and carry said coin into engagement with, and actuating, said device, a dog or detent for locking said slide in position, and means connected to said dog, adapted to be actuated by said package or cylinder releasing device, and to simultaneously disengage said dog from said slide.

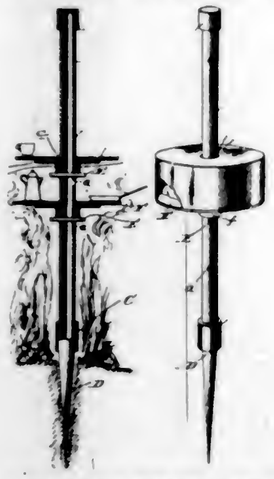
11. A vending-machine comprising a pivoted package or cylinder releasing device adapted to normally engage or support a package or cylinder, a slide or carrier adapted to receive and carry a coin, deposited therein, into engagement with, and actuating, said package-releasing device, dogs for locking said slide or carrier in position, a pivoted frame or lever connected to said dogs and adapted to be actuated by said package or cylinder releasing device.

12. A vending-machine comprising a pivoted package or cylinder releasing device, adapted to normally engage or support a cylinder or package containing an article for vending, a slide or carrier adapted to receive and effect the carrying of a coin deposited therein, into engagement with, and actuating, said package-releasing device, dogs adapted to lock said carrier or slide in position, and a lever-frame comprising centrally-pivoted lateral members and longitudinal member secured to the latter, one longitudinal member arranged to be engaged by said package-releasing device and said lateral members having connection with said dogs.

13. A vending-machine embracing a pivoted package-releasing device adapted to normally engage or support a package or cylinder containing an article for vending, a slide adapted to receive a coin deposited therein and carry said coin into engagement with, and actuating, said package or cylinder releasing device, a pawl-and-ratchet mechanism for limiting the rearward movement of said slide or carrier, a sliding rod or finger upon said slide and means adapted to engage said rod and cause it to elevate the pawl to a point above said ratchet during the forward movement of said slide or carrier.

14. A vending-machine comprising a pivoted package-releasing device, adapted to normally engage or support a package or cylinder containing an article for vending, a slide or carrier adapted to receive a coin, placed therein, and carry said coin into engagement with, and actuating, said package-releasing device, ratchet-and-pawl mechanism for limiting the rearward movement of said slide or carrier, a sliding rod or finger arranged upon said slide or carrier, and having a head at one end and its opposite end relatively disposed to the pawl, and a trip adapted to engage said head and move said rod to lower said pawl to its normal position, after previous elevation, for reëngagement of said pawl with the ratchet.

750,742. PORTABLE CAMP-STOVE. WILLIAM WESTON, Denver, Colo. Filed Aug. 3, 1903. Serial No. 168,040. (No model.)



Claim.—1. A portable stove comprising a tube or pipe; said tube or pipe being threaded at its upper and lower ends and provided, at intervals of its height, with diametrical apertures, a removable cap engaging the upper, threaded end of the tube or pipe, a threaded sleeve arranged on the lower end of the tube, a wooden peg held in said sleeve, pins removably arranged in the apertures of the tube or pipe, and extending in opposite directions therefrom, and removable shelves arranged on the tube or pipe, and resting on the pins.

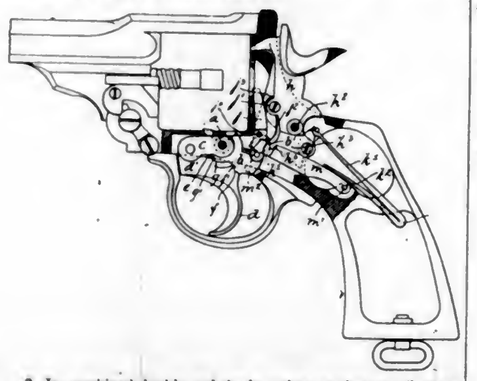
2. In a portable camp-stove, the combination with a stake or post adapted to be secured in the ground, and supporting means on said stake or post; of a shelf removably arranged on said stake or post, and an oven open at its lower end, and having a top provided with an opening to receive the stake or post; said oven being arranged on the stake or post, with its lower end resting on the shelf, and being removable from both stake and shelf.

3. A portable stove comprising a tube or pipe adapted to be secured in the ground; said tube or pipe being threaded at its upper end, and provided, at intervals of its height with diametrical apertures, a removable cap engaging the upper, threaded end of the tube or pipe, pins removably arranged in the apertures of the tube or pipe, and extending in opposite directions therefrom, removable shelves arranged on the tube or pipe, and resting on the pins, and an oven open at its lower end, and having a top provided with an opening to receive the tube or pipe; said oven being arranged on the tube or pipe, with its lower end resting on the lowermost shelf, and being removable from both stake and shelf.

4. In a portable camp-stove, the combination of a cover having a loop on its perimeter, and a handle, recessed to receive the cover, and having an upturned end adapted to rest in the loop thereof.

750,743. REVOLVING FIREARM. WILLIAM J. WHITING, Handsworth, near Birmingham, England. Filed Apr. 14, 1903. Serial No. 152,578. (No model.)

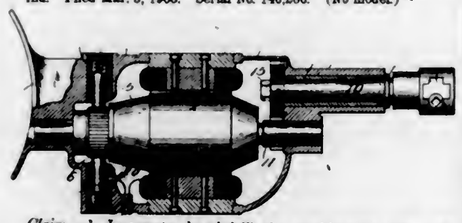
Claim.—1. In combined double and single action revolver small-arms; the combination, with a hammer having a bent which is engaged by the sear on the hammer being placed at full-cock by hand and a yielding cocking-piece adapted to be engaged by the said sear for cocking the hammer, in double-action shooting, of a shifting or swinging sear provided with separated shoulders or the like constituting respectively a single-action firing-bent and a double-action cocking and firing bent, and a trigger provided with means whereby it is automatically taken into operative engagement either with the double-action sear-bent after each discharge of the revolver, or with the single-action sear-bent on the revolver being cocked by hand, for the purpose as herein described.



2. In combined double and single action revolver small-arms; the combination with a hammer having below its center a rigid forward extension in which a single-action bent is formed, and a yielding double-action cocking-piece located above said extension, of a shifting or rocking sear provided on its under side with a single-action firing-bent, and a double-action cocking and firing bent, a trigger provided with notches corresponding to the sear-bents, and springs acting upon the hammer, the trigger and the sear; substantially as shown and described and for the purpose set forth.

3. In combined double and single action revolver small-arms; the arrangement and combination with the rocking or shifting sear, of a radius-link pivoted on the same center as the sear and having the trigger jointed to its forward end, such trigger being provided with an auxiliary spring for raising same into engagement with the sear when the latter is elevated by the hammer on the revolver being cocked by hand, substantially as and for the purpose herein described and set forth.

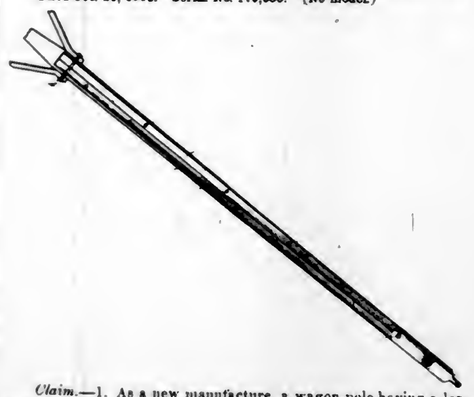
750,744. PORTABLE DRILL. JAMES F. WILLEY, Jeffersonville, Ind. Filed Mar. 5, 1903. Serial No. 146,286. (No model.)



Claim.—1. In a motor hand-drill, the combination with a motor of the rotary type comprising a rotary driving member and a casing inclosing the same, said casing having at one end a bearing for a drill-spindle eccentric to the center of gravity of the drill and of the axis of rotation of the driving member, and at the other end an operator's body-piece in line with said bearing; and having also a handle projecting from the side of the casing opposite the bearing end of the said body-piece; of a spindle within said bearing, and intermeshing gears within the motor-casing mounted on said spindle and on the rotary member of the motor, the drill having also provision for hand-support at a point adjacent the drill-spindle, whereby the drill is provided with a three-point support, its center of gravity lying within a triangle formed by lines connecting the said points of support.

2. A motor hand-drill comprising the armature and field-magnet of an electric motor, a casing, a drill-spindle, and gearing connecting the same with the said armature, the said casing comprising three members arranged in line with each other and longitudinally bolted together, each of the end members having a bearing for the said armature, one of the said members carrying the drill-spindle, the bearing therefor in the said member being arranged to one side of the armature-bearing, the other of said end members provided with an operator's body-piece arranged in line with the said drill-spindle, and the middle member supporting the field-magnet of the electric motor, whereby upon disconnection of the three casing members the drill-spindle and gear thereupon will be removed with one of the said end members, and the body breast-piece with the other of said members, permitting free removal of the armature and free access to the field-magnet supported by the middle member.

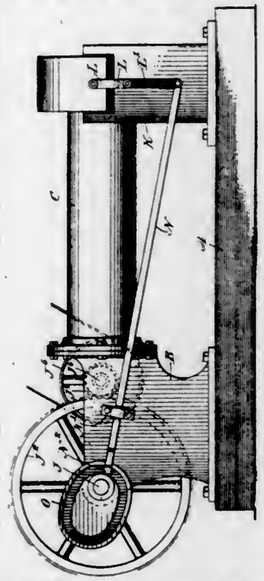
750,745. WAGON-POLE. FREDERICK G. WINNEK, Holton, Kans. Filed Oct. 29, 1903. Serial No. 179,055. (No model.)



Claim.—1. As a new manufacture, a wagon-pole having a longitudinal groove and a T-shaped metal bar the web whereof fills the groove and the flanges form a facing secured to the grooved side of the pole closing the edges of the groove on each side of the web, securing the latter within the groove and preventing the spreading or warping of the sides of the pole.

2. In combination with a wagon or vehicle pole having a longitudinal groove, of a bar of T shape the web whereof is separate from the flange, the web having lips on its edge and the flange having slots registering with the web-lips whereby the two parts are secured together and the bar secured in the groove.

750,746. PUNCHING-MACHINE. OSCAR P. WOODBURN, Pierce. Tex. Filed May 16, 1903. Serial No. 157,395. (No model.)



Claim.—1. A punching-machine comprising a support for the article to be punched, an inside punch in the support, movable outward, to punch the article from the inside, and a die on the outside of the article, in alinement with the inside punch, as set forth.

2. A punching-machine comprising a support for the article to be punched, an inside punch in the support, movable outward, to punch the article from the inside, a die on the outside of the article,

in alinement with the inside punch, and means for automatically locking the die in place on the article, as set forth.

3. A punching-machine comprising a hollow support, over which the article to be punched is slipped, inside punches within the support, movable outward to punch the article from the inside, and dies on the outside of the article, in alinement with the inside punches, as set forth.

4. A punching-machine comprising a hollow support over which the article to be punched is slipped, inside punches within the support, movable outward to punch the article from the inside, dies on the outside of the article, in alinement with the inside punches, and means for automatically locking the dies in place on the article, to hold the latter against movement during the punching operation, as set forth.

5. A punching-machine comprising a support for the article to be punched, an inside punch in the support, movable outward to punch the article, a spring-pressed punch-plate for carrying the said punch, and a wedge for engaging the punch-plate, to move the same and the punch, for the latter to punch the article from the inside, as set forth.

6. A punching-machine comprising a hollow cylindrical support, over which the article to be punched is shifted, a plurality of punches inside of the said support and arranged opposite each other, to punch the article from the inside, spring-supported punch-plates carrying the said punches, and a reciprocating wedge between the said punch-plates for moving the same in opposite directions, to cause the punches to punch the article, as set forth.

7. A punching-machine comprising a hollow cylindrical support, over which the article to be punched is shifted, a plurality of punches inside of the said support and arranged opposite each other, to punch the article from the inside, spring-supported punch-plates carrying the said punches, a reciprocating wedge between the said punch-plates for moving the same in opposite directions, to cause the punches to punch the article, dies for engaging the outside of the article to be punched and arranged in alinement with the said punches, a saddle for carrying one of the dies, and a yoke hinged on the saddle and carrying the other die, the yoke having an up-and-down swinging movement, to move the dies in and out of engagement with the article to be punched, as set forth.

8. A punching-machine comprising a hollow cylindrical support, over which the article to be punched is shifted, a plurality of punches inside of the said support and arranged opposite each other, to punch the article from the inside, spring-supported punch-plates carrying the said punches, a reciprocating wedge between the said punch-plates, for moving the same in opposite directions, to cause the punches to punch the article, dies for engaging the outside of the article to be punched and arranged in alinement with the said punches, a saddle for carrying one of the dies, a yoke hinged on the saddle and carrying the other die, the yoke having an up-and-down swinging movement, to move the dies in and out of engagement with the article to be punched, and means, substantially as described, for simultaneously actuating the said wedge and the said yoke, as set forth.

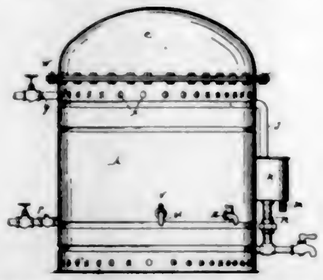
9. A punching-machine, comprising an apertured support, an outwardly-movable punch in the support, means for moving the punch outward through the aperture of the support, and a die outside of the support and between which and the said support the article to be punched is adapted to be passed, as set forth.

10. A punching-machine, comprising a hollow apertured support, a spring-pressed punch arranged in the hollow support, means for moving the punch outward through the aperture of the support, and a die outside of the support and between which and the said support the article to be punched is adapted to be passed, as set forth.

750,747. WATER-STILL. GEORGE A. YOUNG and CHARLES A. YOUNG, Detroit, Mich. Filed Mar. 6, 1903. Serial No. 146,433. (No model.)

Claim.—1. A still embodying a steam-generating chamber, a condenser-chamber above the generating-chamber provided with an annular gutter at its base projecting outwardly from the top of the generating-chamber, a condenser-tank surrounding the generating-chamber located below said gutter, a condenser-pipe within the condenser-chamber leading through the base of the gutter, an overflow-pipe leading from the condenser-tank into the generating-chamber, a regulating device interposed in the overflow-pipe, and a waste-pipe leading from the regulator, the wall of the generating-chamber projecting upward within the condensing-chamber.

2. A still embodying a steam-generating chamber, a condenser-chamber over the generating-chamber provided with an annular gutter at its base projecting outwardly from the top of the generator, a cylindrical condensing-tank surrounding the generator below said gutter spaced from the generating-chamber, a condenser-pipe within the condenser-tank and leading through the base of said gutter, an overflow-pipe communicating with the top of the condenser-tank and with the generating-chamber and a regulator in said overflow-pipe.



3. A still embodying a steam-generating chamber provided with a non-conducting jacket, a condensing-chamber above the generator into which the generator communicates provided with an annular gutter at the base thereof projecting outwardly from the top of the generating-chamber, a condensing-tank below said gutter surrounding the generator and spaced therefrom, a condenser-pipe within said tank and leading through the base of said gutter, an overflow-pipe communicating with the top of the condenser-tank, a regulating device into which the overflow-pipe leads, a pipe leading from the regulating device into the generating-chamber to carry the overflow from the condenser-tank back into the generator, and a waste-pipe leading from said regulating device.

4. A still embodying a generating-chamber, a steam-pipe leading into and arranged therewithin, a condensing-chamber above the generating-chamber into which the upper end of the generating-chamber communicates provided with an annular gutter at the base thereof projecting outwardly from the top of the generator, a condenser-tank located about the generator below said gutter, a condenser-pipe within the condenser-tank to carry condensed water from the gutter through the condenser-tank, an outlet for said pipe, means to supply a cooling fluid to the condenser-tank, an overflow device leading from the condenser-tank back into the generator-chamber, and a regulator in said overflow device.

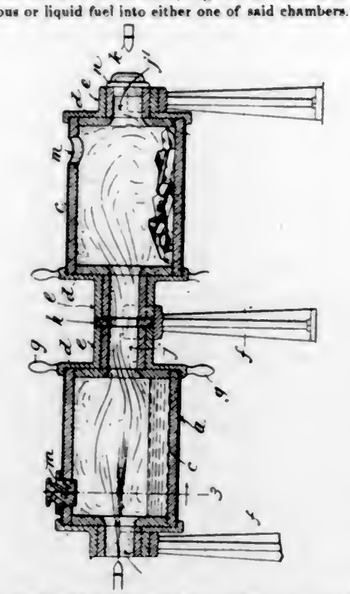
5. A still embodying a generating-chamber, a condensing-chamber above the generating-chamber into which the generator communicates, a gutter at the base of the condensing-chamber, a condenser-tank, means to lead the water of condensation from the gutter through the condenser-tank, means to supply a cooling liquid to the condenser-tank, a pipe to carry the overflow from the condenser-tank back into the generating-chamber, and a regulator located in said pipe, the wall of the generating-chamber projecting upwardly within the condensing-chamber.

6. A still embodying a generating-chamber, a condenser-chamber arc shape in vertical section into which the generator communicates, an annular gutter at the base of the condenser-chamber projecting outwardly from the top of the generating-chamber, a condenser-tank, means to supply water to said tank, means to conduct the condensed water from the gutter through the condensing-tank, an overflow-pipe leading from the top of said chamber into the generating-chamber, and an automatic regulator interposed in the overflow-pipe, the wall of the generating-chamber projecting upwardly within the condensing-chamber.

7. A still embodying a generating-chamber, a condensing-chamber into which the generating-chamber communicates provided with an annular gutter at the base thereof projecting outwardly from the top of the generating-chamber, a condensing-tank surrounding the generator and spaced therefrom and from said gutter, an overflow-pipe communicating with the condenser-tank, a regulating device into which the overflow-pipe leads, and a pipe leading from the regulating device into the generating-chamber to carry the overflow from the condenser-tank back into the generator, the still constructed to provide a circulation of air between the generating-chamber and the condenser-tank.

750,748. MELTING-FURNACE. JOHN F. BARKER, Springfield, Mass., assignor to the Gilbert & Barker Manufacturing Company, Springfield, Mass., a Corporation. Filed Aug. 8, 1903. Serial No. 168,740. (No model.)

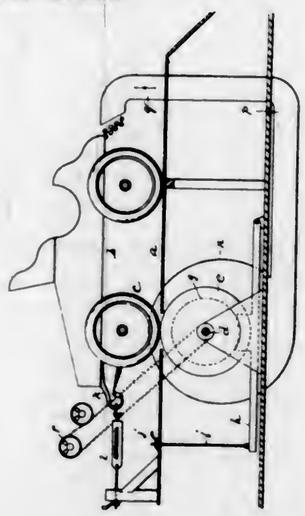
Claim.—1. The combination in a melting-furnace, of two separate chambers to receive charges of material, said chambers being independently revoluble on a common axis, and there being a passage from one chamber to the other; together with means to introduce gaseous or liquid fuel into either one of said chambers.



2. The combination in a melting-furnace, of two separate chambers to receive charges of material, said chambers being independently revoluble on a common axis, there being a passage from one chamber to the other, a gate in said passage, and means to introduce gaseous or liquid fuel into either one of said chambers.

3. The combination of two cylindrical furnaces, independently revoluble on a common axis, there being an axially-located opening in each end of each furnace, the openings in the contiguous ends of said furnaces constituting a passage from one to the other; a gate in said passage; there being a charging and pouring opening in each furnace near the outer end thereof, together with means to introduce gaseous or liquid fuel into either furnace.

750,749. TESTING DEVICE FOR SELF-PROPELLED VEHICLES. ALANSON P. BRUSH, Detroit, Mich. Filed Sept. 29, 1903. Serial No. 175,044. (No model.)



Claim.—1. In a testing device for vehicles the combination of rotatable friction-wheels, brake mechanism for said wheels, means for measuring the traction effect of the vehicle, and means for producing an air-blast upon the front of the vehicle.

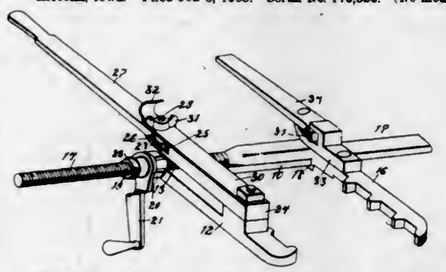
2. In a testing device for vehicles the combination of rotatable friction-wheels, brake mechanism for said wheels, means for measuring the traction effect of the vehicle, means for producing an air-blast, said means arranged to automatically control said blast.

3. In a testing device for vehicles the combination of rotatable friction-wheels provided with a shaft, brake mechanism therefor, means for measuring the traction effect of the vehicle, and means for producing an air-blast, actuated by the shaft of said wheels.

4. In a testing device for vehicles the combination of a support, rotatable friction-wheels located below the support, adjustable brake mechanism therefor, means for producing an air-blast, mechanism to control the blast, and a horizontally-adjustable scale to engage the vehicle.

5. In a testing device for vehicles the combination of rotatable friction-wheels, means for producing an air-blast automatically controlled by the revolution of the friction-wheels, a speed-recording device, a horizontally-adjustable traction-scale, and brake mechanism to control said wheels.

750,750. FENCE-WIRE STRETCHER. ADONIRAM J. CHANDLER, Altoona, Iowa. Filed Oct. 8, 1903. Serial No. 176,826. (No model.)



Claim.—1. In a fence-wire stretcher, a frame having a toothed jaw extending at right angles at one end and a bearing for a screw at the inner end of said jaw, a screw extended through said bearing and a jaw extended at right angles from the end of the screw and parallel with the jaw on the end of the frame, a bar bifurcated at one end to produce a shoulder, an extension at its bifurcated end and its other end pivoted to the free end of the jaw extending from the end of the frame and a lever having an integral eccentric at its end pivoted in said bifurcated end of said bar and means for operating the screw, arranged and combined for the purposes stated.

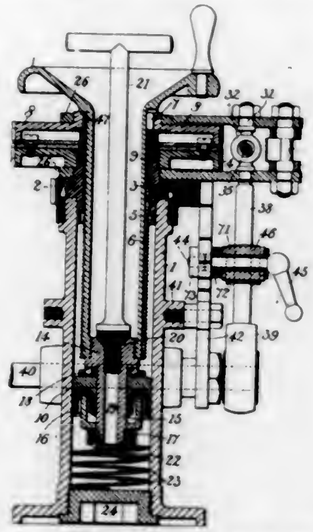
2. In a fence-wire stretcher, a frame having a toothed jaw extending at right angles at one end and a bearing for a screw at the inner end of said jaw, a screw extended through said bearing and a jaw extended at right angles from the end of the screw and parallel with the jaw on the end of the frame, a bar having a shoulder and an extension at its free end pivoted to the free end of the jaw extending from the end of the frame and a lever having an eccentric pivoted to said extension and a bearer on the inner end of the jaw on the end of the screw and a lever having an eccentric on its end pivoted to said bearer and means for operating the screw, arranged and combined for the purposes stated.

3. A fence-wire stretcher comprising a frame consisting of a straight bar having a toothed jaw extending at right angles from one end, a bearer for a screw at the inner end of the jaw, a bar, having a shoulder and an extension at its free end, pivotally connected with the outer end of the jaw and a lever having an eccentric at one end pivoted to the extension of said pivoted bar, a screw having a toothed jaw at its rear end slidingly connected with the end of the frame, a bearer on the inner end of the jaw on the screw, a lever having an eccentric on its end pivoted to said bearer and means for operating the screw, arranged and combined to operate in the manner set forth for the purposes stated.

750,751. LUBRICATOR. LEONARD CHAPMAN, London, England, assignor of one-half to William Humphrey Knowles, London, England. Filed Nov. 10, 1902. Serial No. 130,786. (No model.)

Claim.—1. In a lubricator, the combination with a closed receptacle for the lubricant, of a piston and means including a part movable rotatively and longitudinally for applying pressure to ex-

trude the lubricant, such means including also a pair of ratchet-wheels, one having a greater number of teeth than the other, a pawl for driving said wheels, means for giving motion to the pawl, means whereby the movable part is rotated from one ratchet-wheel to exert pressure, and the rapidity of its longitudinal movement reduced by the other, and means whereby the two ratchet-wheels are locked and travel together, when the movable part reaches its extreme position.



2. In a lubricator, and in combination, a pair of ratchet-wheels one having a greater number of teeth than the other, a movable externally-screwed part to which one of same is secured with provision for longitudinal movement, a rotatable nut engaging said externally-screwed part, and to which the second ratchet-wheel is secured, means for holding the nut against longitudinal movement, a part carried by the nut on which the first ratchet-wheel abuts, a part carried by the movable part adapted to abut on the other side of said ratchet-wheel, and means for rotating both ratchet-wheels whereby two motions are obtained for the movable part, until its limit of longitudinal movement is reached, when all the parts will receive movement of rotation only.

3. In a lubricator, the combination with a pair of differential ratchet-wheels, a movable part, and means connecting the three, whereby the movable part is both rotated and moved longitudinally, of a pawl, means for carrying same, an arm connected at one end to such means, an eccentric connected to the other end of such arm, means for carrying and rotating the eccentric, and a fulcrum for the arm and means for adjusting the position of said fulcrum whereby the throw of the pawl can be varied.

4. In a lubricator, and in combination, a receptacle for the lubricant, a piston therein and a piston-rod therefor, means for imparting both a rotating and a longitudinal movement to the piston-rod, and a compressible stirrer carried by said piston-rod and rotatable therewith.

5. In a lubricator, and in combination, a receptacle for the lubricant, a piston and piston-rod therein, means for imparting both a rotating and longitudinal movement to the latter, and a helical-spring stirrer carried by said piston-rod and rotatable therewith.

6. In a lubricator, the combination with a receptacle for the lubricant having a feed-outlet, of a pistou having an opening therethrough, a tubular part 15 to admit the lubricant to the receptacle passing through said opening and rotatable therein, an externally-screwed trunk portion 5 forming a tubular piston-rod attached to said part 15, means for rotating and traversing said trunk portion and tubular part whereby the piston may be traversed without rotation, and means for closing the opening of the tubular part leading to the receptacle.

7. In a lubricator, the combination with a receptacle for the lubricant of a trunk portion forming a piston-rod, a part 15 carried by said trunk portion having a filling-passage therethrough, a plug for closing said passage, a piston surrounding said part, and in which the latter is free to rotate, a cup-leather carried by said piston, means carried by the part 15 for holding the cup-leather to the piston, and means for rotating the trunk and moving same longitudinally.

8. In a lubricator, and in combination, a receptacle for the lubricant having a feed-outlet, a trunk portion in said receptacle having an exterior screw, a ratchet-wheel, a nut driven by same, and engaging said trunk for giving the latter a longitudinal movement by means of said screw, means for driving the ratchet-wheel, a piston having an opening therethrough, a tubular part carried by the trunk to admit the lubricant and passing through the opening in the piston in such a manner that it may revolve therein, means for retaining said tubular part in the piston, and means for closing the opening of the tubular part.

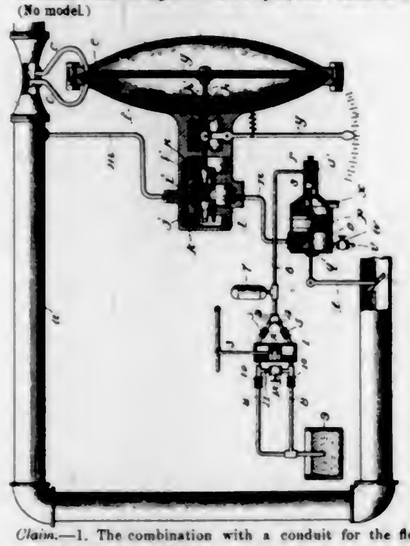
9. In a lubricator, and in combination a cylinder 1, an open trunk portion 5 in the same, means for imparting a rotary and a longitudinal movement to same, a tubular extension 15 carried by the trunk, a plug for closing the opening in said extension, a piston through which such extension passes and in which it can rotate, and a stirring device carried by said extension and capable of being rotated with it.

10. In a lubricator, the combination with a receptacle for the lubricant, a piston therein, a part carrying said piston, and passing through same, means for imparting both a rotating and a longitudinal movement to said part, a stirring device in said receptacle, means for connecting it to the rotating part carrying the piston, an outlet-pipe for said lubricator, a flexible spiral wire in said pipe, and means connecting said spiral wire to the rotating part carrying the piston whereby said wire is rotated to propel the lubricant through the pipe and prevent it from settling.

11. In a lubricator the combination with a cylinder 1, a delivery-pipe connected thereto, an open trunk portion 5 located in the cylinder, means for imparting a rotary and longitudinal movement to same, a tubular extension 15 carried by the trunk, a piston carried by said tubular extension, a plug for closing the opening in said extension, a helical stirring device 23 carried by such extension, and a spiral wire 49 also carried by said extension and located in the discharge-pipe.

750,752. MEANS FOR CONTROLLING FLOWING STREAMS.

EDWARD S. COLE, Chicago, Ill. Filed July 25, 1902. Serial No. 117,011. (No model.)



Claim.—1. The combination with a conduit for the flowing stream, of a device controlled by variations in the velocity of the stream, mechanism receiving fluid from the conduit and operated thereby, for varying the extent of flow in the conduit, and means actuated by said device for controlling the passage of fluid passing to said mechanism, substantially as described.

2. The combination with a conduit for the flowing stream, of a drum divided into two chambers by a flexible diaphragm, and a pair of tubes connecting the interior of the conduit with the two chambers of said drum, one of said tubes being extended into the passage-way and arranged to face the oncoming fluid of the flowing stream, substantially as described.

3. The combination with a conduit for the flowing stream, of a drum divided into two chambers by a flexible diaphragm, a pair of tubes connecting the interior of the conduit with the two chambers of said drum, one of said tubes being extended into the passage-way and arranged to face the means in said conduit for oncoming fluid of the flowing stream controlling the flow therein, and means actuated by said diaphragm for actuating said flow-controlling means, substantially as described.

4. The combination with a conduit for the flowing stream, of a drum containing a diaphragm dividing it into two chambers, a pair of tubes connecting the interior of the conduit with the two chambers of the drum, one of said tubes being extended into a passage-way and arranged to face the oncoming fluid of the flowing stream, valve mechanism controlled by said flexible diaphragm, a pipe connection between said valve mechanism and the conduit, a piston and cylinder connected with said valve mechanism and controlled by the fluid passing through the same, and a valve in the conduit controlled by said piston, substantially as described.

5. The combination with a conduit for the flowing stream, of a pair of tubes *c*, *c'*, a drum containing a diaphragm dividing it into two chambers, the pipes *c*, *c'* being connected with the two chambers of said drum, a balanced valve mechanism controlled by the flexible diaphragm in said drum, a connection between said balanced valve mechanism and the conduit in which the stream flows, a piston and cylinder, the latter having a connection with the balanced valve mechanism, a valve controlling the flow of fluid in the conduit, and a connection between said piston and said valve, substantially as described.

6. The combination with a conduit for the flowing stream, having a section *b* forming a contracted orifice, of a pair of tubes *c*, *c'*, a drum containing a diaphragm dividing it into two chambers, the tubes *c*, *c'* being connected with the two chambers of said drum, a balanced valve controlled by the flexible diaphragm in said drum, a connection between said balanced valve and said conduit, a piston and cylinder, the latter having a connection with the balanced valve, a valve controlling the extent of flow in said conduit, and a connection between said piston and said valve, substantially as described.

7. The combination with a cylinder *o* having a piston *p*, of means for varying the pressure in the cylinder on one side of the piston, means for controlling the flowing stream actuated by the piston in accordance with such variations, and a pump and connections whereby the operation of the pump varies the pressure on the other side of the piston, substantially as described.

8. The combination with a conduit for a flowing stream, of valve mechanism, means controlling said mechanism, said means being operable by variations in the current velocity, a piston and cylinder, the cylinder being connected with said valve mechanism, and a valve controlling the flow in the conduit, actuated by said piston.

9. The combination with a conduit for the flowing stream, of tubes *c*, *c'*, connected with the conduit, a drum *d* containing a flexible diaphragm dividing the drum into two chambers with which the tubes *c*, *c'* are respectively connected, and balanced valve mechanism *j* having valves *i*, *i'* carried by a rod *h*, which latter is controlled by the diaphragm in the drum *d*, substantially as described.

10. The combination with a conduit for the flowing stream, of a device operable by variations in the velocity of the stream, a piston and cylinder, means for admitting fluid into said cylinder on one side of the piston, means for controlling the flow thereof by said device, a valve in the said conduit controlled by said piston and cylinder, and means for producing a counter-pressure on the other side of the piston varying in accordance with variations in the current-flow, substantially as described.

11. The combination with a conduit for the flowing stream, of tubes *c*, *c'* opening into said conduit, one of said tubes being extended into the same and being bent so as to face the oncoming fluid, a drum having a diaphragm dividing it into two compartments, the tubes *c*, *c'* communicating with the two chambers of the drum, a valve *u* in the said conduit, and means for controlling the valve *u* by movements of the diaphragm in said drum, substantially as described

12. The combination with a conduit for the flowing stream, of a tapering section thereof providing a contracted orifice, tubes *c*, *c'* opening into said tapering section, one of said tubes being extended into the same and being bent so as to face the oncoming fluid, a drum having a diaphragm dividing it into two compartments, the tubes *c*, *c'* communicating with the two chambers of the drum, a valve *u* in said conduit, and means for controlling the valve *u* by movements of the diaphragm in said drum, substantially as described.

13. The combination of a conduit for the flowing stream, of tubes *c*, *c'* opening into said conduit, one of said tubes being extended into the same and being bent to face the oncoming fluid, a drum having a diaphragm *e*, the said tubes *c*, *c'* being connected with said drum, valve mechanism operated by the diaphragm *e*, a pipe *m* connecting the said conduit with the valve mechanism, and means controlled by variations in the flow of the fluid through the valve mechanism for governing the flow of fluid in said conduit, substantially as described.

14. The combination with a conduit for the flowing stream, of means operated by variations in the velocity of the stream for controlling the same, a pump, and means for opposing the action of the pump to said controlling means, whereby the latter will be adapted to control an increase in the flowing stream, substantially as described.

15. The combination with a conduit for the flowing stream, of a device operable by variations in the velocity of the stream, a piston and cylinder, means for admitting fluid into said cylinder on one side of the piston, means for controlling the flow thereof by said device, a valve in the said conduit controlled by said piston and cylinder, and means for producing a variable counter-pressure on the other side of the piston, substantially as described.

16. The combination with a conduit for the flowing stream, of a device operable by variations in the velocity of the stream, a piston and cylinder, means for admitting liquid into said cylinder on one side of the piston, means for controlling the flow thereof by said device, a valve in the said conduit controlled by said piston and cylinder, and a pump and connections whereby the pressure produced by the pump opposes the piston action caused by said admission of liquid on one side thereof, substantially as described.

17. The combination with a conduit for the flowing stream, of a device operable by variations in the velocity of the flow, a piston and cylinder, means for admitting liquid into said cylinder on one side of the piston, means for controlling the flow thereof by said device, a valve in the said conduit controlled by said piston and cylinder, a pump-cylinder 1 having a piston 2 connected with the main pump of the system, and a pipe 6 extending to the said cylinder and communicating with the same in the rear of the piston, substantially as described.

18. The combination with the cylinder *o* having a piston *p*, of a valve *u* controlled by said piston, means for varying the pressure in the cylinder on one side of the piston to actuate the same to control the valve *u*, and a pump and connections whereby the operation of the pump varies the pressure on the other side of the piston, substantially as described.

19. The combination with a conduit for the flowing stream, of tubes *c c'* opening into the same, one of said tubes *c* being extended into the conduit and being bent so as to face the oncoming fluid, a drum *d* having a diaphragm *e* dividing it into two chambers, the tubes *c*, *c'* being in communication with said chambers, a rod *h* connected with said diaphragm, balanced valve mechanism *j* having valves *i*, *i'* mounted on the rod *h*, a tube or pipe connection *m* between said conduit and the balanced valve mechanism *j*, a cylinder *o* having a piston *p*, the cylinder *o* being constructed with an extension *o'* and provided with a valve-outlet pipe *v*, and the piston-rod having a supplemental piston *n* arranged to work in the extension *o'*, a pipe connection between the balanced valve mechanism and the cylinder *o* whereby the pressure is varied in front of the piston, a valve *u* in said conduit, and means for connecting the same with the piston-rod, a pump-cylinder 1 connected with the extension *o'* of the cylinder *o*, a reservoir 9, pipes 8, 8 extending between the reservoir 9 and the pump-cylinder 1, said pipes having check-valves 10 10, and a valved connecting-pipe 11 between the pipes 8, 8, substantially as described.

20. The combination of a device having a flexible member, of means for communicating to said member the velocity-pressure of a flowing stream so that variations in such pressure will actuate said member, and means operated by said device for controlling the flowing stream, substantially as described.

21. The combination with a drum having a diaphragm, of means for communicating the static pressure of a flowing stream to both sides of the diaphragm, and the velocity-pressure to one side only thereof, and means operable by the diaphragm for controlling the flowing stream, substantially as described.

22. The combination with a drum having a diaphragm, of means for communicating the static pressure of a flowing stream to both sides of the diaphragm, and the velocity-pressure to one side only thereof, and means operated by the diaphragm for maintaining the liquid-flow practically constant, substantially as described.

23. The combination with a drum having a diaphragm, of means for communicating the static pressure of a flowing stream to both sides of the diaphragm, and the velocity-pressure to one side only thereof, and means operated by the diaphragm for restraining an excessive flow, substantially as described.

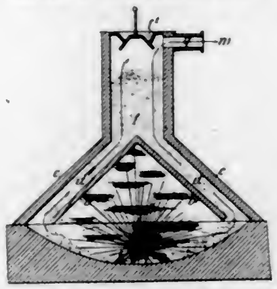
24. The combination of a drum having a flexible diaphragm, and a pair of tubes communicating respectively with the interior of the drum on opposite sides of the diaphragm and having their ends located close to one another, the ends of one of said tubes being bent laterally, substantially as described.

25. The combination with a drum having a flexible diaphragm, of means for communicating the static pressure of a flowing stream to both sides of the diaphragm and the velocity-pressure to one side only thereof, a valve adapted to control the flowing stream, a device for actuating the valve, and means operated by the diaphragm for controlling the valve-actuating device, substantially as described.

26. The combination of a drum having a flexible diaphragm, means for communicating the static pressure of a flowing stream to both sides of the diaphragm and the velocity-pressure to one side only thereof, a valve adapted to control the flowing stream, a cylinder having a piston connected with said valve, and means operated by said diaphragm for controlling the pressure acting on one side of said piston, substantially as described.

27. The combination of a drum having a flexible diaphragm, of a valve, a cylinder having a piston connected with said valve, a pipe connected with said cylinder, and means actuated by said diaphragm for regulating admission to or flow in said pipe.

750,753. ELECTRIC FURNACE. RAMON C. CONTARDO, Sèvres, France. Filed Aug. 24, 1900. Serial No. 27,913. (No model.)



Claim.—1. An electric-arc furnace, comprising a hearth having an inclined surface, electrodes above the same, an arch above the hearth consisting of two symmetrically and downwardly inclined surfaces, and side walls parallel to said arch forming inclined flues, substantially as described.

2. An electric-arc furnace, comprising a hearth having an inclined surface, electrodes above the same, an arch consisting of two symmetrically and downwardly inclined surfaces, side walls parallel thereto forming flues, and a vertical shaft above the arch connected to the side walls, substantially as described.

3. An electric-arc furnace, comprising a hearth having an inclined surface, electrodes above the same, an arch consisting of two symmetrically and downwardly inclined surfaces, side walls parallel thereto, a vertical shaft, a pipe leading from said shaft, and means for opening and closing the charging-opening of said shaft, substantially as described.

4. An electric furnace, comprising a hearth upwardly inclined at each side of the center, electrodes above the same, an arch formed by surfaces downwardly inclined from the center, and feed-flues above the arch connecting the outer ends of the hearth with a charging-shaft, substantially as described.

5. An electric furnace, comprising a hearth having surfaces upwardly inclined at each side of the center, electrodes above the same, and an arch arranged above the hearth and electrodes and formed by two surfaces sloping downwardly from the center and forming the bottoms of feed-flues, said feed-flues communicating with the outer ends of the hearth and a charging-shaft, substantially as described.

6. An electric furnace, comprising a hearth having surfaces upwardly inclined at each side of the center, electrodes above the same, an arch above the hearth, feed-flues above the arch connecting the hearth with a charging-shaft, a gas-outlet in the charging-shaft, and means for closing the charging-opening of said shaft, substantially as described.

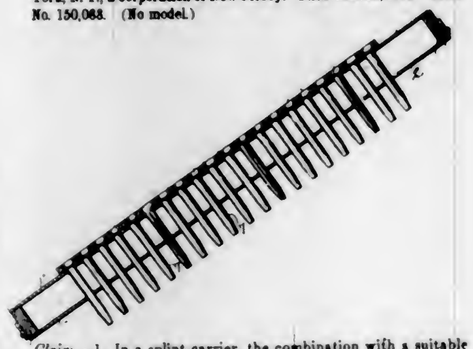
7. An electric furnace, comprising a hearth upwardly inclined at each side of the center, electrodes above the same, an arch formed by surfaces downwardly inclined from the center, feed-flues above the arch connecting the outer ends of the hearth with a charging-shaft, means for opening and closing the charging-opening of the charging-shaft, and a gas-outlet in said shaft, substantially as described.

8. An electric furnace, comprising a hearth upwardly inclined at each side of the center, electrodes above the same, an arch formed by surfaces downwardly inclined from the center, feed-flues above the arch connecting the outer ends of the hearth with a charging-shaft, means for opening and closing the charging-opening of the charging-shaft, a gas-outlet for said shaft, and means for aspirating gas through said outlet, substantially as described.

9. An electric furnace, comprising a hearth extended and raised symmetrically on each side of the center as inclined surfaces, electrodes above the hearth, and an arch arranged above the hearth and electrodes, and formed by two symmetrically-inclined plates sloping downwardly from substantially the center of the furnace, said plates forming the bottoms of two inclined feed-flues, terminating at their lower ends a little above the outer ends of the inclined surfaces of the hearth and uniting at their upper ends in a vertical charging-shaft, substantially as described.

10. An electric furnace, comprising a hearth extended and raised symmetrically on each side of the center as inclined surfaces, electrodes above the hearth, and an arch arranged above the hearth and electrodes, and formed by two symmetrically-inclined plates sloping downwardly from their points of jointure at substantially the center of the furnace, the ends of said plates resting on the end walls of the furnace and the said end walls extending above the inclined plates and supporting side walls arranged parallel to said plates, thereby forming inclined feed-flues above the arch of the furnace, substantially as described.

750,754. SPLINT-CARRIER. FERRAL C. DIBBERT, Jr., New York, N. Y., assignor to American Match Manufacturing Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 30, 1903. Serial No. 150,068. (No model.)



Claim.—1. In a splint-carrier, the combination with a suitable support, of a plurality of splint-grippers comprising spring-fingers arranged longitudinally of the longitudinal axes of the splint supported thereby and inwardly tapered at their extreme inner ends.

2. In a splint-carrier, the combination with a suitable support, of a plurality of individual splint-carriers each comprising a tube having a plurality of longitudinally-divided sections, the inside diameter of the extreme inner end of each tube being smaller than the diameter thereof at any other point therein.

3. In a splint-carrier the combination with a suitable support stationary therewith, of a plurality of individual splint-holding fingers, each secured at one part to a portion stationary with said support, and having an unsupported portion extending freely in a line longitudinally with the longitudinal axis of a splint when engaged thereby, said unsupported portion convergent at its inner end and adapted to bear at its extreme inner end against the splint it is supporting with a yielding pressure.

4. In a splint-carrier the combination with a suitable support of a plurality of individual splint-carriers comprising split tubular supports, each having a spring-section, the inner end of which is convergent toward the axis of the tube, and forms an abrupt shoulder for engaging a splint.

5. In a splint-carrier the combination with a suitable support of a plurality of individual splint-carriers comprising tubes each formed of a plurality of longitudinally-divided sections, having a portion tapering inwardly and terminating in an abrupt shoulder.

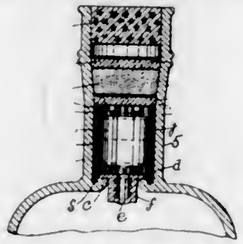
6. In a splint-carrier the combination with a suitable support of a plurality of individual splint-carriers comprising tubes each formed of a plurality of longitudinally-divided sections, rigidly supported at one of their ends, and having their other ends free to yield laterally under pressure; and a guide-plate arranged intermediate the ends of the tubes, provided with a plurality of orifices through which the tubes are arranged to pass, but within which said tubes are permitted limited lateral movement.

7. In a splint-carrier the combination with two supporting-plates having a plurality of corresponding splint-receiving orifices, of a plurality of individual splint-carriers comprising tubular supports having laterally-projecting ears, said tubular supports projecting through the orifices in one of said plates and having their ears clamped between the said plates; and a guide-plate arranged intermediate the ends of the said tubular supports, provided with a plurality of orifices through which the tubular supports are arranged to pass, but within which said tubular supports are permitted limited lateral movement.

8. In a splint-carrier the combination with a frame comprising two plates secured together and having a plurality of corresponding orifices, of a plurality of individual splint-carriers comprising tubular supports having laterally-projecting ears, said tubular supports projecting through the orifices in said plates and having their ears resting on the outside of one of the said plates; and a cover-plate, having orifices corresponding to the orifices in the other said plates, secured to said frame and clamping the ears of the said tubular supports between it and the said plate upon which they are resting.

9. In a splint-carrier the combination with a frame comprising two plates permanently secured together and having a plurality of corresponding orifices, of a plurality of individual splint-carriers comprising tubular supports having laterally-projecting ears, said tubular supports projecting through the orifices in said plates and having their ears resting on the outside of one of the said plates; and a cover-plate, having orifices corresponding to the orifices in the other said plates, removably secured to said frame and clamping the ears of the said tubular supports between it and the said plate upon which they are resting.

750,755. NON-REFILLABLE BOTTLE. CHARLES M. DRENNAN, Boston, Mass. Filed June 15, 1903. Serial No. 161,453. (No model.)



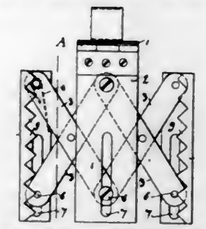
Claim.—1. In an article of the class described, in combination, a body portion having a neck provided with an upwardly inclined or beveled inner surface intermediate the ends of the said neck, an inwardly-extended flange forming a port or opening, a valve coöperating with said port and having a stem extended therein, a float in the neck coöperating with said valve, a disk having a port or opening through it and provided with a beveled or inclined edge coöperating with the beveled or inclined inner surface of the neck portion, and a second disk provided with a port or opening, and with a beveled or inclined edge coöperating with said inclined inner surface of said neck, substantially as described.

2. In an article of the class described, in combination, a body portion having a neck provided with an upwardly beveled or inclined inner surface, and an annular inwardly-projecting flange forming a port or opening, a valve coöperating with said port and having a stem extended therein, a float above said valve and coöperating therewith, and a disk provided with an opening through it and with a beveled edge coöperating with the beveled inner surface of the said neck, substantially as described.

3. In an article of the class described, in combination, a body portion having a neck provided with corrugations on its inner surface and with a beveled or inclined surface above said corrugations, an inwardly-projecting flange forming a port or opening, a disk valve coöperating with said port and having a stem provided with laterally-extended wings movable in said port, a float coöperating with said valve, and a disk having a beveled edge which coöperates with the beveled surface of the neck, substantially as described.

4. In combination, a glass bottle having a neck portion provided on its interior with an inclined ground surface, and with an annular flange forming a port, a glass valve comprising a disk and a stem having wings, said valve being located in the neck of the bottle and having its stem extended into the said port, a hollow glass float above the said valve, and a glass disk having a port or opening through it and provided with an inclined ground edge, which fits the ground surface of the neck, substantially as described.

750,756. CHEESE-HOLDER. ISAK I. EKLUND, Stockholm, Sweden. Filed July 2, 1903. Serial No. 163,994. (No model.)



Claim.—1. A cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, means for adjustably supporting the jaws from said plate, and a second plate secured to one transverse end of the first plate, substantially as described.

2. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, means for adjustably supporting the jaws from said plate, and a second plate pivotally secured to one transverse end of the first plate, substantially as described.

3. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, means for adjustably supporting the jaws from said plate, and a second plate pivotally secured to one transverse end of the first plate having a limited pivotal movement, substantially as described.

4. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, means for adjustably supporting the jaws from said plate, and means for normally forcing the jaws toward each other, substantially as described.

5. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, means for adjustably supporting the jaws from said plate, and a spring for normally forcing the jaws toward each other, substantially as described.

6. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof having flanged upper and lower longitudinal edges, said upper flanges being serrated and the lower flanges being provided with longitudinally-extending slots, and Nuremberg shears connecting the jaws to said plate, the outer ends of one set of links of said shears coacting with said slots in the lower flanges of said jaws, substantially as described.

7. In a cheese-holder and in combination, a central supporting-plate, jaws disposed on each longitudinal side thereof, Nuremberg shears adjustably connecting the jaws to said plate, and a spring coacting with one of said jaws and one of the links of said shears for normally forcing the jaws toward each other, substantially as described.

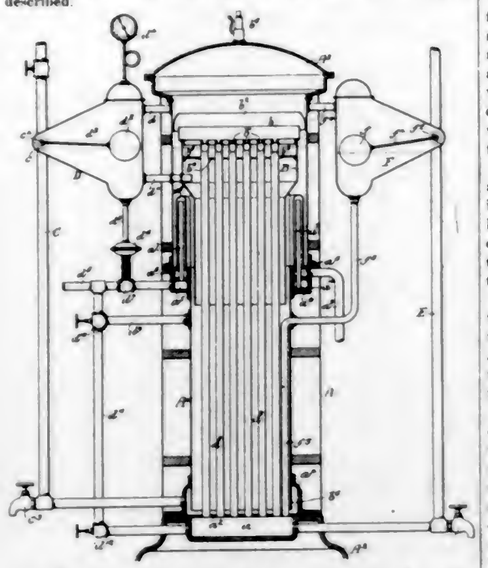
750,757. APPARATUS FOR HEATING AND STERILIZING. JOHN S. FORBES, Philadelphia, Pa. Filed Feb. 27, 1903. Serial No. 145,305. (No model.)

Claim.—1. The combination in a sterilizer, of a casing, means for maintaining liquid normally below a predetermined level therein means for heating a portion of the liquid and means for carrying away heated liquid rising above the predetermined level, together with means for limiting the steam-freeing surface of said portion of liquid to be treated, substantially as described.

2. The combination in a sterilizer, of a casing connected to a source of liquid-supply, a conduit or conduits therein connected to an outlet, means for maintaining the level of liquid in the casing below an opening or openings into said conduit or conduits, means for applying heat to a portion of the liquid in the casing and means for limiting the steam-freeing surface of said heated portion of liquid, substantially as described.

3. The combination in a sterilizer, of a liquid-containing casing, means for applying heat to a portion of the liquid in the casing,

means for retaining the liquid normally at a predetermined level, means for carrying away liquid rising above said level, and means whereby a portion of the liquid heated is confined within a space having but a relatively small steam-freeing surface, substantially as described.



4. The combination in a sterilizer, of a casing, means for applying heat to a definite volume of water therein, a partition within the casing confining the liquid heated to the highest temperature to a space having a relatively small steam-freeing surface, a conduit or series of conduits for removing liquid from the casing, a source of supply for delivering liquid to the casing, and means for guiding liquid raised above a predetermined level into said discharge-conduits, substantially as described.

5. The combination of a casing having within it a conduit open at one end and connected at the other end to an outlet, a conduit for supplying liquid to the casing, means for maintaining said liquid normally at a predetermined level in the casing, and means for guiding said liquid into the conduit when it is caused to rise above its normal level, substantially as described.

6. The combination in a sterilizer, of a casing, means for heating liquid, a conduit or conduits connected to an outlet and provided with a liquid-collecting vessel, means for normally maintaining the liquid within the casing at a predetermined level, and a device for guiding liquid into said vessel whenever said liquid rises a predetermined distance above its normal level, substantially as described.

7. The combination in a sterilizer, of a casing, a conduit or conduits therein connected to an outlet, means for supplying liquid to the casing, a float-chamber containing a float operative upon the supply-conduit, for normally maintaining the liquid within the casing at a predetermined level, with means for connecting the interior of the casing with the float-chamber both above and below the normal fluid-level, substantially as described.

8. The combination of a casing having supply and discharge pipes, means within the casing for conducting fluid rising above a predetermined level to the discharge-pipe, means for heating the casing by fluid, means for maintaining the liquid in the casing normally below a predetermined level and means operated by the pressure within the casing for governing the supply of heating fluid thereto, substantially as described.

9. The combination of a casing, a casting having two chambers separate from the space within said casing, a source of supply for heated fluid connected to one of said chambers, a series of tubes extending within the casing, and serving to connect said two chambers, with means for supplying fluid to and conducting it from said casing, substantially as described.

10. The combination of a casing, a casting having two chambers of which one is connected to a source of supply for heating fluid, a series of tubes extending from the first chamber, a second series in communication with the first series and connected with the second chamber, an outlet-conduit from the second chamber, means for maintaining the fluid within the casing at a predetermined level, means for supplying fluid to be heated, and means for conducting said liquid from the casing after it has been heated, substantially as described.

11. The combination in a sterilizer, of a casing, having conduits for fluid supplied to and discharged from the same respectively, means operative upon the fluid entering the casing for normally maintaining the top surface of said fluid below a predetermined level, a weir within the casing having a space on one side of it connected with the liquid-supply system and having the space on its other side connected with the liquid-discharge system, and means operated by variations in the level of the liquid on the discharge side of the weir for regulating the flow of fluid therefrom, substantially as described.

12. The combination in a sterilizer, of a casing having a weir, a supply and a discharge conduit connected respectively to the spaces in communication with the two sides of said weir a device governed by the changes in the level of the fluid on one side of the weir for controlling the supply of said liquid, and means operated by fluid on the other side of the weir controlling the discharge of said fluid from the casing, substantially as described.

13. In a sterilizer, the combination of a casing, a weir within the same, means for heating the fluid on one side of said weir, means for automatically maintaining the level of the fluid to be heated at a level normally below the edge of the weir, and means for automatically preventing the liquid on the other side of the weir from falling below a predetermined level, substantially as described.

14. The combination in a sterilizer, of a casing having a conduit within it formed to act as a weir, a pipe connected to the interior of the conduit and a second pipe connected to the space surrounding said conduit, with a float-chamber containing a float operated by changes of fluid-level in the space around the conduit, a second float-chamber having a float operated by changes of the level of the fluid within said conduit, and valves in said two pipes operated respectively by said floats for controlling the two levels of said fluid within the casing, substantially as described.

15. The combination in a sterilizer, having within it a weir, of two float-chambers each connected with the space above the weir and also with the liquid-filled spaces below said weir, a supply and a delivery pipe connected respectively to liquid-containing spaces on the two sides of the weir, and a valve in each of said pipes having floats within said float-chambers for controlling the flow of liquid through the casing, substantially as described.

16. The combination in a sterilizer, of a casing having within it a partition, means for heating liquid within one of the spaces formed by said partition, a weir in the casing, a float-chamber, a float therein having means whereby liquid to be heated is normally maintained below the level of the weir, and a connection between the float-chamber and the casing, said connection being made to that portion in the interior of the casing divided off from the source of heat by the partition, substantially as described.

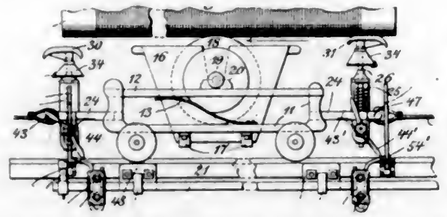
17. The combination in a sterilizer, of a casing including a casting having within it chambers of which one is connected to a source of supply for heating fluid, a series of tubes connecting said chamber with another chamber in the said casting, an outlet from said second chamber, and means for collecting liquid condensed in the first chamber and discharging it into the second chamber, substantially as described.

18. In a sterilizer, the combination of a main casing, a casting having chambers of which one is in connection with a source of supply for heating fluid, a series of openings in the second chamber of said casting having tubes closed at one end and extending into said main casing, a second series of tubes within the first series extending into openings in the first chamber, an outlet-conduit from said second chamber, with means for retaining liquid within the casing above the level of said tubes, substantially as described.

19. The combination of a casing having within it a partition provided with openings, a series of tubes held at one end in said openings and free at their other ends, with a movable sheet having openings loosely receiving the free ends of said tubes, substantially as described.

750,758. APPARATUS FOR COLORING YARNS. ALFRED FORNANDER, New York, N. Y., assignor to the Carpet Yarn Printing Company, a Corporation of New York. Filed Mar. 30, 1903. Serial No. 150,126. (No model.)

Claim.—1. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a support for said scraper, a guide for moving said scraper along said support in a direction substantially at right tangles to and away from the axis of the drum, a spring for forcing the scraper and guide toward the axis of the drum, and automatic means for locking the scraper against movement along its guide in the direction in which said spring acts.



2. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a support for the same, and automatic locking means interposed between the scraper and its support for locking the scraper against movement in a direction substantially at right angles to the printing-surface on the drum.

3. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a support for the same, means for preventing movement of the scraper with reference to said support in the direction of the travel of the carriage along the drum and automatic locking means for preventing movement of the scraper along its support at right angles to the direction of such travel.

4. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a support for said scraper, and means for automatically locking said scraper to said support, said locking means being placed underneath the rubbing-surface of the scraper.

5. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a support for a scraper mounted upon the carriage, a scraper, a device for automatically locking the scraper to said support, and a cap or shield interposed between the scraper and said locking device and inclosing the latter.

6. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a post upon which it is mounted, a spring placed around said post and adapted to actuate the same, a casing surrounding said spring and a portion of said post, a cap fitted around said post and secured to the upper portion of said casing and serving as a guide for said post, and a hood integral with the scraper and interposed between the same and the guiding-surfaces between cap and post and firmly locked to said post.

7. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a support for the same to which it is detachably secured, a guide for said support, a shield between the scraper and the surfaces along which the support is guided, and a spring attached to said shield and in engagement with said support for guarding against detachment of the scraper.

8. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, a spring having a seat stationary with reference to the color-carriage for forcing the scraper toward the drum and means for withdrawing the scraper from the drum and thereby increasing the strain upon the spring while said color-carriage is passing from underneath the drum.

9. In an apparatus for printing yarns, the combination with the yarn-drum, the color-carriage, the carriage-track, and the color-wheel, of a scraper mounted on the carriage and between the rails of the track, a tripper placed to one side of said track, and a mechanism having a revoluble shaft extending above and across one of the rails of the carriage-track and interposed between said scraper and tripper for varying the elevation of the scraper while said mechanism contacts with the tripper.

10. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage, the carriage-track and the color-wheel, of a scraper mounted on the carriage and between the rails of the track, a tripper placed above and to one side of said track, a revoluble shaft placed crosswise with reference to one of the rails of the track, a lever on said shaft adapted to engage with said tripper and means interposed between the shaft and the scraper for actuating the latter while the lever engages with the tripper.

11. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage extending therefrom transversely with reference to the direction of its travel, a scraper, a support for the same movably mounted upon said bracket, a rocking lever for varying the elevation of the support, a tripper for actuating said lever, and a cam mounted upon said bracket and having its operative bearing-surface in engagment with said support for raising and lowering the same.

12. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage, a scraper, a support for the same movably mounted upon said bracket, a rocking lever for raising the support another rocking lever for lowering the same, a shaft upon which said levers are mounted, trippers for actuating said levers, and means for converting revolving movement of the shaft into movement of said support.

13. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage, a scraper, a support for the same movably mounted upon said bracket, a rocking lever for raising the support; another rocking lever for lowering the same, a shaft upon which one of said levers is mounted rigidly and the other is mounted revolubly, stops for limiting such revoluble movements, and trippers for actuating said levers.

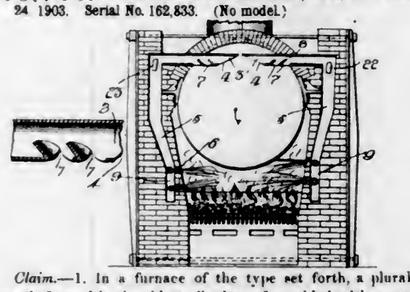
14. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage, a scraper, a support for the same movably mounted upon said bracket, a rocking lever for raising the support, another rocking lever for lowering the same, a shaft upon which one of said levers is mounted rigidly and the other is mounted revolubly, means for limiting such revoluble movements attached to the rigidly-mounted scraper, and trippers for actuating said levers.

15. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage, a scraper, a support for the same movably mounted upon said bracket, a shaft, a rocking lever for lowering the support fixedly mounted upon and extending upward from said shaft, a second rocking lever for raising the support mounted upon and adapted to partly revolve around said shaft and extending downward therefrom, and trippers for actuating said levers.

16. In an apparatus for coloring yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a bracket on the carriage, a scraper, a support for the same movably mounted upon said bracket, a shaft, a rocking lever for lowering the support fixedly mounted upon said shaft, a fixed tripper for actuating said lever, a second rocking lever for raising said support mounted upon said shaft and adapted to partly revolve around the same, a second tripper for actuating said second lever, and means for throwing said second tripper into and out of its operative position.

17. In an apparatus for printing yarns, the combination with the yarn-drum, the color-carriage and the color-wheel, of a scraper, means mounted upon the carriage for varying the elevation of the same, a tripper-bar for actuating said means and a clamp for holding said tripper-bar in position, the portion of the tripper-bar in engagement with said clamp being made U-shaped and the branches of said U-shaped portion being capable of sliding along the members forming said clamp.

750,759. FURNACE. ROBERT S. FRANZ, Etna, Pa. Filed June 24 1903. Serial No. 162,833. (No model.)



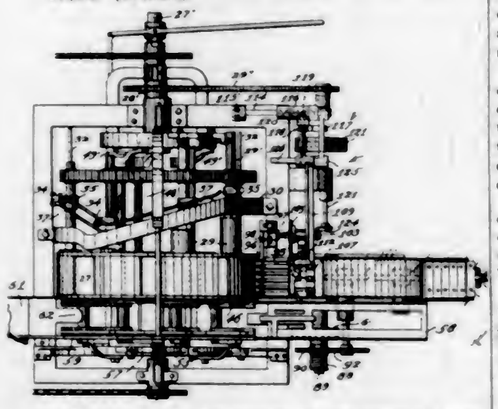
Claim.—1. In a furnace of the type set forth, a plurality of channels formed in the side walls thereof provided with ports leading therefrom to the combustion-chamber, steam-pipes mounted in said channels in communication with said ports, vertical channels formed in the side walls of the furnace, horizontal flues located in

the smoke-exit and communicating with said channels, the lower edges thereof being sheared to form apertures and deflectors, whereby the unconsumed products are deflected into the said flues, substantially as described.

2. In a furnace, a plurality of channels formed in the side walls of the furnace, a plurality of ports leading from said channels to the combustion-chamber, steam-pipes having ports formed therein supported in said channels, and adapted to be connected to a suitable steam-supply, means for controlling said steam-supply, vertical channels formed in the side walls of the furnace, horizontal flues connecting with said channels, the ends of said flues adapted to be located adjacent to the crown-plate of the boiler, the lower edge of said flues being sheared to form apertures and deflectors, cold-air flues extending longitudinally of the furnace and having outlets in the bridge-wall of the furnace, substantially as described.

3. In a furnace, a plurality of channels formed in the side walls of the furnace, a plurality of ports leading from said channels to the combustion-chamber, air-pipes having ports formed therein and supported in said channels, a suitable air-supply connected to said pipes, vertical channels formed in the side walls of the furnace, horizontal flues connecting with said channels, the ends of said flues adapted to be located adjacent to the crown-plate of a boiler, the lower edges of said flues being sheared to form apertures and deflectors, and an air or steam supply connected to said vertical channels, cold-air flues passing longitudinally of the furnace and outlets in the bridge-wall of the furnace, substantially as described.

750,760. **CAN-FILLING MACHINE.** FRED R. FULTON, Anacortes, Wash., assignor of one-half to Letson & Burpee, Fairhaven, Wash., and Vancouver, Canada, a Firm. Filed Oct. 13, 1902. Serial No. 127,203. (No model.)



Claim.—1. In a can-filling machine, the combination of a frame, a carrier moving in said frame, of a vent means on said carrier, and means on said frame adapted to be engaged by said vent means for operating said vent means, substantially as and for the purpose set forth.

2. In a can-filling machine, the combination with a plunger, a vent-rod operating therein, means encircling said plunger for operating said vent-rod independent of said plunger, and means for operating said plunger, substantially as and for the purpose set forth.

3. In a can-filling machine, the combination with a filling-pocket, and a can-holding device, of a plunger operating in said filling-pocket, and a can-venting device adapted to operate in the said filling-pocket and in the can independent of said plunger, substantially as and for the purpose set forth.

4. In a can-filling machine, the combination with a filling-pocket and a can-holding means, of a plunger operating in said filling-pocket, a vent-rod carried by said plunger, said rod adapted to enter the can simultaneously with the entry of said plunger into the said filling-pocket, substantially as and for the purpose set forth.

5. In a machine of the nature indicated; the combination with a movable carrier having a pocket for filling, a can-seat on said carrier and a plunger mounted on said carrier and adapted to pass filling from the pocket to a can; of a can-venting device and means to actuate said device by and during movement of said carrier.

6. In a machine of the nature indicated; the combination with a movable carrier having a pocket for filling and a can-seat thereon, and a can-filling plunger mounted on said carrier and adapted to enter said pocket; of a longitudinally-reciprocating can-entering vent-rod and means to reciprocate same correlatively to actions of said plunger.

7. In a machine of the nature indicated; the combination with a movable carrier having a pocket for filling and a can-seat thereon, and a reciprocating pocket-entering plunger mounted on said carrier; of a longitudinally-reciprocating can-entering vent-rod mounted on said carrier and means to advance and retract said rod by and during movement of the carrier.

8. In a machine of the nature indicated; the combination with a movable carrier having a pocket for filling and a can-seat thereon and a reciprocating pocket-entering plunger mounted on said carrier; of a longitudinally-reciprocating can-entering vent-rod mounted on said carrier with the forward end portion in said pocket and means to operate said rod.

9. In a machine of the nature indicated; the combination with a can-seat, a pocket for filling material and a pocket-entering plunger, having a longitudinally-disposed groove in the periphery; of a vent-rod slidably mounted in said groove and means to reciprocate said rod longitudinally.

10. In a machine of the nature indicated; the combination with a movable carrier having a can-seat and a pocket for filling material, and a pocket-entering plunger mounted on the carrier and having a groove in the periphery; of a can-venting device mounted in said groove with a can-entering portion normally lying in said pocket and means to operate said device to enter and withdraw said portion relatively to a can, by and during movement of the carrier.

11. In a machine of the nature indicated; the combination with a rotatable carrier having a can-seat and a pocket for filling material, and a pocket-entering plunger mounted on the carrier and having a longitudinally-disposed groove in the periphery; of a can-entering tubular vent-rod slidably mounted in said groove with one end portion normally extending across said pocket and means to advance and retract the rod relatively to said seat, by and during rotation of the carrier.

12. In a machine of the nature indicated; the combination of an endless-belt conveyer having barbs, a conveyer-trough having a downwardly-inclined bottom at the delivery end, an endless-belt trough-top at said end, a packing-chamber over the incline with the bottom arranged in line with the conveyer and having barb-receiving slots in one end and a knife mounted to cut transversely said chamber.

13. In a machine of the nature indicated; a packing-chamber comprising a bottom wall and side walls and a top wall hinged at one end to said side walls and fitting therebetween, a stud on said top at the free end, a lug on one side wall and nuts on the stud embracing said lug.

14. In a can-filling machine, the combination of a packing-chamber, a feed-chamber, a knife arranged to pass between said chambers, means to force filling into the said packing-chamber, and means in vertical alinement with said knife to pass filling from said feed-chamber, substantially as and for the purpose set forth.

15. In a machine of the nature indicated; the combination of a conveyer having barbs arranged to carry filling, a packing-chamber having the outer edge of the bottom wall arranged substantially in the same plane with the conveyer and formed with barb-receiving slots in said edge, a feed-chamber beyond said packing-chamber, a knife having a broad blade arranged to pass intermittently between said chambers, and means to pass the filling from the feed-chamber.

16. In a machine of the nature indicated; the combination of a conveyer-trough, an endless top mounted at the delivery end of said trough, a packing-chamber at said end, a feed-chamber, a knife between said chamber and means to pass filling from the feed-chamber.

17. In a machine of the nature indicated; the combination with a conveyer having fish-penetrating barbs; of a fish-receiving plate with one edge arranged in substantially the same plane as the conveyer and having barb-receiving slots in said edge.

18. In a machine of the nature indicated; the combination with a conveyer having fish-penetrating barbs; a conveyer-trough having the bottom at the delivery end inclined downwardly, a fish-receiving plate over said incline with one edge arranged in substantially the same plane as the conveyer and having barb-receiving slots in said edge.

19. In a machine of the nature indicated; the combination of a conveyer having flesh-engaging parts, a packing-chamber at the delivery end of said conveyer and means to yieldingly drive said conveyer.

20. In a machine of the nature indicated; the combination of a conveyer having flesh-engaging barbs, a conveyer-trough, a trough-top comprising an endless belt and means to yieldingly drive said conveyer and top correlatively.

21. In a machine of the nature indicated; the combination of a conveyer having flesh-engaging barbs, a conveyer-trough, a trough-top comprising an endless belt, adjustable bearing-strips arranged to guide said top, and friction-wheels coöperatively connected with said conveyer and top to yieldingly drive same.

22. In a machine of the nature indicated; the combination of a feeding-fork, an arm carrying said fork, means to support said arm for reciprocation in two directions and means to move the arm in said directions alternately.

23. In a can-filling machine, the combination with a feeding-chamber of a feeding-fork, and pivotal means having a lateral movement on its pivot for operating said fork in said chamber, substantially as and for the purpose set forth.

24. In a machine of the nature indicated; the combination of a pivotally-mounted arm arranged to move in a line parallel to its own axis, a feeding-fork, a reciprocating lever, a rock-arm and means to operate said lever and rock-arm correlatively.

25. In a machine of the nature indicated; the combination of a pivotally-mounted arm arranged to move parallel to its own axis a feeding-fork, a reciprocating lever pivoted to said arm and at right angles thereto, a rock-arm mounted concentric with said axis and carrying a pin parallel thereto on which said arm slides, and a rotatable cam having tracks arranged to operate said lever and rock-arm correlatively.

26. In a can-filling machine, the combination of a packing-chamber, a feed-chamber, an adjustable top for said chambers, forks operating in said chambers, and means for operating said forks, substantially as and for the purpose set forth.

27. In a can-filling machine, the combination of a packing-chamber, a feed-chamber, means provided with forks for moving filling from said packing-chamber into said feed-chamber, and forks on said means for moving the filling from said feed-chamber, substantially as and for the purpose set forth.

28. In a machine of the nature indicated; the combination with a rotatable carrier having a pocket; of a stationary feed-chamber, a packing-chamber, a knife coöperatively related to the carrier and arranged to pass transversely between said chambers and mechanism coöperatively related to said carrier and knife to pass filling from the packing-chamber to the feed-chamber.

29. In a machine of the nature indicated; the combination with a rotatable carrier having a pocket; of a feed-chamber, a packing-chamber, means to convey filling to the packing-chamber, a rotatable knife having a broad blade coöperativly related to said carrier, and arranged to pass transversely between said chambers, a feeding-fork operatively related to said knife and carrier and adapted to pass filling from the feed-chamber to said pocket and a second fork operatively related to the first to advance filling from the packing-chamber.

30. In a machine of the nature indicated; the combination with a rotatable carrier having a pocket; of a feed-chamber and a packing-chamber each formed with prong-receiving slots in the walls, means to convey filling to said packing-chamber, a rotatable knife having a substantially broad blade coöperatively related to said carrier and arranged to pass transversely between said chambers and reciprocal feeding-forks operatively related to said knife and carrier with the prongs received in said slots.

31. In a machine of the nature indicated; a rotatable carrier having a series of pockets formed in the periphery and a rim portion extending over one end of each pocket and adapted as a packing-plate and a movable molding-jaw in each pocket normally lying beneath a respective plate.

32. In a machine of the nature indicated; the combination of a rotatable carrier having a series of pockets formed in the periphery with the bottom surface of each curved eccentrically to the carrier, a jaw fixed in one end of each pocket, a second jaw movably seated on each of said surfaces and means to operate the movable jaws by and during rotation of the carrier.

33. In a machine of the nature indicated; the combination of a rotatable carrier having pockets formed therein and a jaw fixed in one end of each pocket, a movable jaw in each pocket, rock-shafts mounted in the carrier eccentric thereto, arms on said shafts to which said movable jaws are fixed, and means to operate said rock-shafts by and during rotation of the carrier.

34. In a machine of the nature indicated; the combination of a rotatable carrier having a series of pockets formed in the periphery with the bottom surface of each curved eccentrically to the carrier, a jaw fixed in one end of each pocket, a rim portion over the opposite end of each pocket, a movable jaw in each pocket lying when in open position beneath said portion, rock-shafts mounted in the carrier concentric with said bottom surfaces, means to coöperatively connect the shaft to respective movable jaws, and means to operate said rock-shafts by and during rotation of the carrier.

35. In a can-filling machine, the combination with a carrier having a pocket, of a can-holding device, means to close said pocket, and means to force the can against said carrier after the said first-named means has been passed, substantially as and for the purpose set forth.

36. In a machine of the nature indicated; the combination with a rotatable carrier having a pocket formed in the periphery, molding-jaws in said pocket, and means to feed filling to the pocket; of an adjustable guard-plate arranged at the point of filling and adapted to cover the mouth of said pocket during closing action of the jaws.

37. In a machine of the nature indicated; the combination with a rotatable carrier having a pocket formed in the periphery, a jaw fixed in one end of said pocket and a movable jaw therein, a rim portion over the opposite end of the pocket adapted to shield said movable jaw when open, a stationary guard-plate arranged to cover the mouth of the pocket during closing action of said jaw, rearwardly-extending fingers fixed to the lower edge of said guard and means to pass filling to said pocket beneath said fingers.

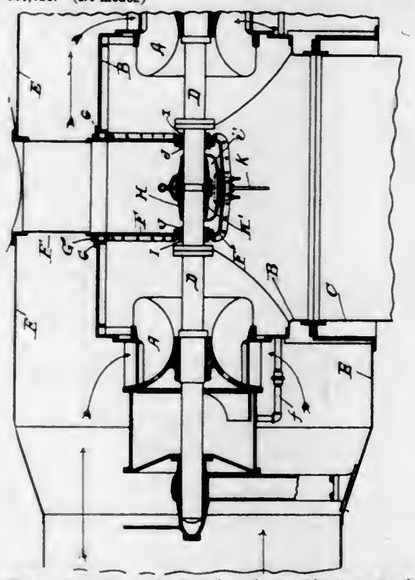
38. In a can-filling machine, the combination with packing and filling chambers, of rotary packing-moving means, rotary packing-cutting means, and means on said last-named means for operating said first-named means, substantially as and for the purpose set forth.

39. In a can-filling machine, the combination with a filling-plunger, of a vent-rod, and means to advance said plunger and vent-rod simultaneously and to retract said vent-rod prior to said plunger, substantially as and for the purpose set forth.

40. In a can-filling machine, the combination with a filling-pocket, of a plunger operating therein, a vent-rod, and means to project said vent-rod from said pocket simultaneously with the entry of said plunger into said pocket, substantially as and for the purpose set forth.

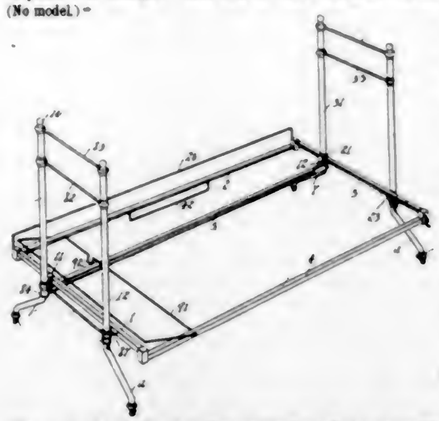
41. In a can-filling machine, the combination with a filling-pocket, of a plunger operating therein, a vent-rod, means to project said vent-rod from said pocket simultaneously with the entry of said plunger into said pocket, and means to retract said vent-rod prior to the retraction of the said plunger, substantially as and for the purpose set forth.

750,761. **WATER-WHEEL SETTING.** ARTHUR GIBBLER, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Co., Dayton, Ohio, a Corporation of New Jersey. Filed Apr. 7, 1902. Serial No. 101,723. (No model.)



Claim.—In a water-wheel setting, the combination of a draft-box, a bearing-chamber within said draft-box and from which water is excluded, a water-wheel shaft extending through said bearing-chamber, and a bearing located within said chamber for said shaft, substantially as set forth.

750,762. FOLDING BED. VERNOR J. GILLETT, Detroit, Mich. assignor to Standard Metal Furniture Company, Detroit, Mich., a Corporation of Michigan. Filed May 25, 1903. Serial No. 158,562 (No model.)



Claim.—1. In a folding bed, the combination of a bar supported by posts at the ends thereof that extend below for leg-terminals and above for pintles, a headboard vertically pivoted to one of said pintles, a footboard vertically pivoted to another of said pintles, a mattress-supporting frame hinged with respect to said bar, and rest brackets for the mattress-supporting frame on both head and foot boards.

2. In a folding bed, in combination with a horizontally-pivoted mattress-supporting frame, a vertically-pivoted headboard, a supporting-bracket on the headboard for the mattress-supporting frame, a pivoted locking-loop engaging under the bracket, substantially as described.

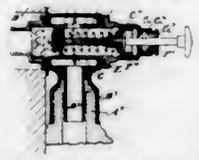
3. In a folding bed, the combination of a bar provided with feet and with pintle-posts at each end thereof, a headboard having a tubular post engaging over a pintle-post, a mattress-support pivotally supported to the bar, a rest-bracket on the headboard, a locking device on the mattress-support and a locking projection on the headboard, substantially as described.

4. In a folding bed, in combination with a horizontal bar and means for supporting the same, a mattress-supporting frame pivotally connected thereto, head and foot boards connected by vertical pivots to the horizontal bar, rest-brackets on the head and foot boards for the mattress-supporting frame, and interlocking mechanism engaging the mattress-supporting frame and a fixed part of the frame substantially as described.

5. In a folding bed, in combination with a horizontal bar and means for supporting the same, a mattress-supporting frame pivotally connected thereto, head and foot boards connected by vertical pivots to the ends of the horizontal bar, rest-brackets on the head and foot boards for the mattress-supporting frame, and an interlocking mechanism engaging the mattress-supporting frame and the foot of an end board, substantially as described.

6. In a folding bed, in combination with a horizontal bar and supports therefor, a mattress-supporting frame pivotally connected thereto, head and foot boards pivotally connected to the ends thereof, a mattress-binder, and means on the mattress-binder for interlocking the binder and the horizontal bar, substantially as described

750,763. FLUSHING-VALVE. ROBERT F. GILLIS, New York N. Y. Filed Jan. 29, 1903. Serial No. 140,986. (No model.)



Claim.—1. A valve-casing having a water-inlet at one end and a valve-operating means at the other end, a valve within said casing, a thimble on said inlet end having a flange, and a flange on the opposite end of said casing, in combination with a shell receiving said casing and holding the latter by the engagement of said flanges with said shell and having a downwardly-projecting bell and tube extending within the same, and a discharge-opening in said casing within said shell.

2. The valve-casing C having a discharge-opening *c* therein, a flange C′ on one end of said casing, the thimble D on the opposite end having a flange D′ thereon, the valve F in said casing and means for operating it, in combination with a shell of larger diameter than said casing, in which the latter is received and held by the engagement of said shell between said flanges, and a passage from said shell to a bowl, whereby water entering said casing through said thimble will be discharged through said opening to the interior of said shell and thence through said passage to said bowl, said shell having a depending bell adapted to loosely inclose the nipple of the bowl, and a tube mounted concentrically in said bell and extending loosely within said nipple.

3. The valve-casing C having a discharge-opening *c* therein, a flange C′ on one end of said casing, the inlet-thimble D on the opposite end having the flange D′, the diaphragm C³ and valve-seat C⁴ in said casing, the valve F matching to said seat and arranged to open against the pressure of water entering said thimble, the valve-stem F′, extending axially of said casing, the cup-leather piston F⁴ on said stem, the plug G serving to close the outer end of said casing and also as a cylinder for said piston, a spring H between the latter and said diaphragm and aiding the water-pressure in urging said valve to its seat, all combined and arranged to serve with a shell of greater diameter than said casing, in which said casing is received and held by the engagement of said flanges with the opposite faces of said shell and said shell formed with a depending bell portion and a detachable tube disposed concentrically thereof and adapted to extend within the nipple of the bowl.

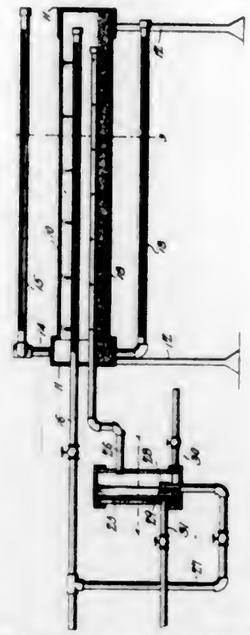
4. The cylindrical valve-casing C having a diaphragm C³ and valve-seat C⁴ therein, a valve F on the pressure side of said diaphragm, a valve-stem extending axially through said casing from said valve and serving as a means for forcing said valve from its seat, a cup-leather piston F⁴ on said stem, and a cylinder G′ therefor, a spring H between said diaphragm and piston tending to close said valve, and a conical swell on said stem adjacent to said valve and serving gradually to close the opening in said valve-seat as the valve approaches the latter in the act of closing, the flange C′ on said casing, the thimble D on the inlet end thereof having the flange D′, and a shell of larger diameter than said casing, serving to receive said casing and hold it by being engaged between said flanges, and a discharge-opening in said casing within said shell.

5. The valve-casing C having a discharge-opening *c* therein and a series of smaller holes *c′*, a flange C′ on one end of said casing, the inlet-thimble D on the opposite end having the flange D′, the valve F in said casing and means for operating it, in combination with a shell of larger diameter than said casing, in which the latter is received and held by the engagement of said shell between said flanges, and a passage from said shell to a bowl, whereby water entering said casing through said thimble will be discharged through said discharge-opening to the interior of said shell and thence through said passage to said bowl, and any water not discharged through said opening will escape through said holes, said shell being formed with a downwardly-projecting bell and a tube concentrically mounted within said bell and detachably secured to the upper portion thereof and adapted to extend loosely within the nipple of a bowl.

750,764. CARBURETER. FREDERIC HARMANY, Marietta, Ohio, assignor, by direct and mesne assignments, of part to Ida M. Butts, James McCormick, Forrest Clymer, and James B. McCormick, Marietta, Ohio. Filed Nov. 24, 1902. Serial No. 132,612. (No model.)

Claim.—1. The combination in a device for vaporizing and burning hydrocarbon oils, of a mixing-chamber provided with a fixed abutment, a discharge-orifice within the chamber below the abutment, means for forcing a fine stream or jet of oil through the discharge-orifice upwardly against said abutment, by which it is deflected downward in the form of spray or vapor, means for introducing air into the mixing-chamber below the discharge-orifice to mix with the spray or vapor to form a combustible mixture, means for heating the mixture thus formed to convert it into a substantially fixed gas, and means for conveying the gas to a burner; substantially as described.

2. The combination in a device for vaporizing and burning hydrocarbon oil, of a mixing-chamber provided with a fixed abutment, a discharge-orifice within the chamber below the abutment, means for forcing a fine stream or jet of oil through the discharge-orifice upwardly against said abutment, by which it is deflected downward in the form of spray or vapor, means for introducing air under pressure into the mixing-chamber below the discharge-orifice to mix with the spray or vapor, a retort-vaporizer, a connection from the mixing chamber to the retort-vaporizer for conveying the mixture thus formed to the retort-vaporizer, and a burner connected with the retort-vaporizer and arranged to heat the same; substantially as described.



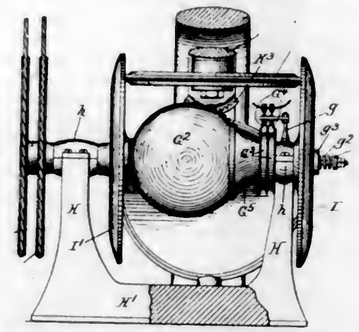
3. In a device of the class specified, the combination with a retort, of means for heating the retort, a mixing-chamber, an oil-supply pipe leading into the mixing-chamber and provided with a discharge-orifice for directing a jet of oil against the top of the mixing-chamber, an air-supply pipe leading into the lower portion of the mixing-chamber at a point below the discharge-orifice and adapted to direct a jet of air into contact with the oil-pipe, and a piping connection between the mixing-chamber and the retort for conveying the air and atomized oil from the mixing-chamber.

4. The combination with the retort, of means for heating the retort, a mixing-chamber closed at its upper and lower ends, an oil-supply pipe leading into the lower end of the mixing-chamber and provided with a perforated cap through which a jet of oil may be discharged against the top of the mixing-chamber, a radially-disposed air-supply pipe leading into the mixing-chamber at a point below the perforations of the cap and adapted to direct a jet of air against the cap and upper portion of the oil-supply pipe, and a pipe leading from the upper portion of the mixing-chamber into the retort and there provided with orifices, the upward-moving body of air in the mixing-chamber meeting the deflected jet of oil in said chamber and becoming saturated with the oil before its passage through the pipe leading to the retort.

750,765. ELECTRIC MOTOR. THADDEUS W. HERRMANN, Chicago, Ill. Original application filed Dec. 4, 1899, Serial No. 739,068. Divided and this application filed Jan. 22, 1900. Serial No. 2,289. (No model.)

Claim.—1. The combination with a rotative armature and rotative field-magnet of two wheels or pulleys through the medium of which power is transmitted from the motor to the part or parts to be driven, one of said wheels or pulleys being driven by the field-magnet and the other by the armature and a change-speed mechanism between the rotative armature and field-magnet which is connected with said rotative parts in such manner that when the speed of one of said parts is retarded the speed of the other is correspondingly increased, and vice versa, and the available power of the motor remains constant.

2. The combination of a motor comprising a rotative armature and rotative field which turn in opposite directions, shafts connected with and driven by said armature and field, friction-disks connected respectively with said armature and field shafts which rotate about a common axis, an oscillatory disk which has opposite peripheral contact with the opposing surfaces of said friction-disks and oscillates on an axis transverse to its axis of rotation, and means giving oscillatory motion to said oscillatory disk and means for adjusting said friction-disk with respect to the oscillatory disk.



3. The combination of a motor comprising a rotative armature and rotative field, which turn in opposite directions, shafts connected with and driven by said armature and field, disks attached to said shafts which rotate about a common axis, an oscillatory disk which has opposite peripheral contact with the opposing faces of the disks, a frame carrying said oscillatory disk which oscillates on an axis transverse to the axis of rotation of the disk, means for giving said frame and disk oscillatory movement about its transverse axis, a shaft attached to said frame, a cross-piece on said shaft, and actuating-cables connected with the opposite ends of said cross-piece.

4. A differential rope hoisting mechanism for elevators comprising an electric motor embracing a rotative armature and a rotative field-magnet, change-speed mechanism between the armature and field-magnet which is connected with said rotative parts in such manner, that when the speed of one of said parts is retarded, the speed of the other is correspondingly increased and vice versa and the available power of the motor remains constant, two driving-pulleys one connected with the armature and the other with the field-magnet, two traveling sheaves, and endless cable trained about said sheaves and driving-pulleys.

5. The combination of a motor having armature and field capable of opposite rotation, a driving-pulley associated with the armature, a driving-pulley associated with the field, and a mechanical change-speed device coacting with said pulleys and operating to maintain different speed ratios of said pulleys while retaining constant the available power of the motor.

6. The combination of a motor having armature and field capable of opposite rotation, a driving-pulley associated with the armature, a driving-pulley associated with the field, and a mechanical change-speed device coacting with the armature and field for maintaining different speed ratios of said armature and field, and constructed to retain constant the available power of the motor.

7. The combination of a motor having armature and field capable of opposite rotation, shafts connected with and driven by said armature and field, respectively, friction-disks connected respectively with the armature and field shafts, one on each side of the motor, and a disk extending between and having opposite frictional contact with opposing surfaces on the friction-disks and oscillating on an axis transverse to its axis of rotation.

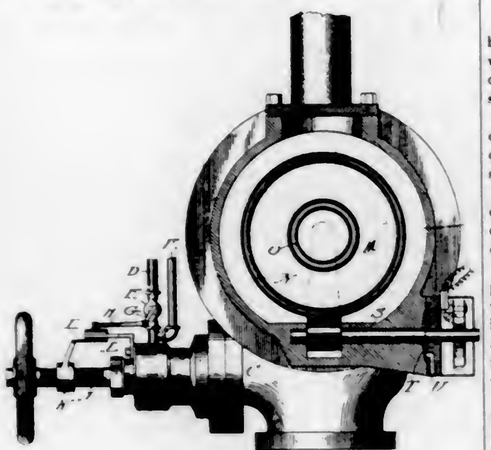
8. The combination of a motor comprising a rotative armature and rotative field which turn in opposite directions, shafts connected with and driven by said armature and field, one of which is tubular and surrounds the other, friction-disks connected severally with said shafts, one on each side of the motor, and an oscillatory disk extending between and having opposite peripheral contact with the opposing faces of said friction-disks and oscillating about an axis transverse to its action of rotation.

9. The combination of a motor comprising a rotative armature and rotative field which turn in opposite directions, shafts connected with and driven by said armature and field, friction-disks connected respectively with said shafts and rotating therewith, one on each side of the motor, a plurality of oscillatory disks having opposite peripheral engagement with the opposing faces of the friction-disks, and rotating on axes transverse to their axes of oscillation, said oscillatory disks surrounding said field and armature.

10. The combination of a motor comprising a rotative armature and rotative field which turn in opposite directions, shafts connected

with and driven by said armature and field, friction-disks connected with said shafts respectively, one located on each side of the motor, a plurality of disks which have opposite frictional contact with the opposing faces of the friction-disks, a frame for each of said latter disks, each capable of oscillating about an axis transverse to the axis of rotation of its associated disk, and gears connecting said frames whereby they may be oscillated simultaneously to oscillate the disks carried thereby in a manner to move the contacting faces of said disks toward the center of one friction-disk and toward the periphery of the other friction-disk and vice versa.

750,766. **PACKING FOR SHAFTS.** GEORGE E. HIBBARD, Chicago, Ill. Filed Aug. 27, 1900. Renewed June 23, 1903. Serial No. 162,780. (No model.)



Claim.—1. In a packing for shafts, the combination of a shaft adapted to turn about its axis, an opening to be packed against the flow of fluid, a shoulder carried by the shaft, a flexible packing-disk surrounding the shaft and cooperating with said shoulder, and means for preventing endwise movement of the shaft, substantially as described.

2. In a packing for shafts, the combination of a shaft adapted to turn about its axis, a chamber through which the shaft passes, means for preventing endwise movement of the shaft, an annular packing-disk surrounding the shaft and bearing at its outer margin upon the outer wall of the chamber in which it is contained, and a shoulder on the shaft engaging the inner margin of the disk, substantially as described.

3. In a packing for shafts, the combination of a shaft adapted to turn about its axis, a chamber through which it passes, means for preventing the endwise movement of the shaft, a packing-disk bearing at its outer margin upon the outer wall of the chamber in which it is contained, means for preventing the disk from moving longitudinally relatively to the shaft, and a drain-passage communicating with said chamber on the outer side of the disk, substantially as described.

4. In a packing for shafts, the combination of a shaft, a bearing in which it fits, a chamber through which it passes, a flexible diaphragm or disk having its inner margin secured to the shaft and bearing at its outer margin upon the outer wall of the chamber in which it is contained, substantially as described.

5. In a packing for shafts, the combination of a shaft, a bearing in which it fits, a chamber through which it passes and a flexible disk or diaphragm in the form of a ring having its inner margin secured to the shaft and having a marginal flange bearing against the outer wall of the chamber in which it is contained, the chamber being provided with a drain-passage leading from the outer face of the disk, substantially as described.

6. The combination with two chambers having openings in their walls and a shaft occupying said openings, of an annular packing-disk surrounding and borne upon by the shaft, a chamber in which said packing-disk is arranged so that it bears against one side thereof, and a drain-passage communicating with said chamber at the side thereof against which the disk bears, substantially as described

750,767. **SPRINKLER-HEAD FOR AUTOMATIC FIRE-EXTINGUISHERS.** GEORGE E. HIBBARD, Chicago, Ill. Filed May 20, 1901. Renewed June 23, 1903. Serial No. 162,781. (No model.)



Claim.—1. An element for sprinkler-heads comprising two parts having oblique engaging surfaces adapted to resist the relative endwise movement of said parts, and a key crossing the general plane of said parts and soldered to them upon opposite sides of said plane, substantially as set forth.

2. An element for sprinkler-heads comprising two parts having complementary corrugations, and a key crossing the general plane of said parts and soldered to them upon opposite sides of said plane, substantially as set forth.

3. An element for sprinkler-heads comprising two parts having complementary corrugations of angular cross-section, and a key crossing the general plane of said parts and soldered to them upon opposite sides of said plane, substantially as set forth.

4. An element for sprinkler-heads, comprising two overlapping parts movable endwise relatively to each other, and means for preventing the relatively endwise movement of said parts, said means including a key crossing the general plane of said parts obliquely and soldered to them on opposite sides of said plane, the meeting faces of said overlapping parts being also soldered together, substantially as set forth.

5. An element for sprinkler-heads comprising two overlapping parts soldered together, and a key crossing the general plane of said parts obliquely, said parts having, upon opposite sides of said plane, oblique surfaces to which the key is soldered, substantially as set forth.

6. An element for sprinkler-heads comprising two overlapping parts movable endwise relatively to each other and means for preventing relatively endwise movement of said parts, said means including a key passing through said parts obliquely and soldered to them on opposite sides of their general plane, said parts themselves being soldered together and provided with openings for the passage of said key, substantially as set forth.

7. An element for sprinkler-heads comprising two overlapping parts soldered together and having openings through them, and a key passing through said openings obliquely, said parts having, adjacent to said openings, oblique surfaces to which said key is soldered, substantially as set forth.

8. An element for sprinkler-heads comprising two overlapping parts soldered together, and a straight key crossing the general plane of said parts obliquely, said parts having oblique surfaces to which the key is soldered, substantially as set forth.

9. An element for sprinkler-heads comprising two parts having engaging surfaces oblique with respect to the length of said parts and having also flanges which are transverse to the plane of said engaging surfaces, and a key crossing the general plane of said parts and soldered to said flanges, substantially as set forth.

10. An element for sprinkler-heads comprising two parts having complementary corrugations of angular cross-section and having also openings through them, and a key passing through said openings and crossing the general plane of said parts, said key being soldered to said parts upon opposite sides of said plane, substantially as set forth.

11. An element of sprinkler-heads comprising two parts having complementary corrugations of angular cross-section, said parts having also openings and flanges adjoining said openings, and a key passing through said openings and soldered to said flanges, substantially as set forth.

12. In a sprinkler-head, the combination with the nozzle and the valve, of a yoke, means to which the sides of the yoke are secured on opposite sides of the nozzle, whence the sides of the yoke proceed outward beyond the nozzle, their outer ends being movable toward and from each other whereby they may be folded inward toward each other, or allowed to move outward from their folded positions, a distributer, means connecting the distributer with the free outer extremities of the sides of the yoke, and means including a fusible joint for holding the sides of the yoke in folded positions, substantially as set forth.

13. In a sprinkler-head, the combination with the nozzle and the valve, of a yoke, means to which the sides of the yoke are secured on opposite sides of the nozzle, whence the sides of the yoke proceed outward beyond the nozzle, their outer ends being movable toward and from each other whereby they may be folded inward toward each other, or moved outward from their folded positions, a cross-bar carried by the free ends of the yoke sides, a distributer carried by the cross-bar, and means including a fusible joint for holding the sides of the yoke in folded positions, substantially as set forth.

14. A sprinkler-head having a nozzle, a valve, a yoke having spring sides, a cross-bar having a slot through which the sides of the yoke pass, a distributer carried by the cross-bar, and means for holding the spring sides of the yoke restrained until subjected to a predetermined temperature substantially as set forth.

15. In a sprinkler-head, the combination of a nozzle, a valve, a distributer, a cross-bar carrying the distributer, a yoke having spring sides engaging the cross-bar, and means for holding the cross-bar in position to hold the valve seated in opposition to the force of the spring sides of the yoke, substantially as set forth.

16. In a sprinkler-head, the combination of a nozzle, a valve for closing it, a cross-bar, a distributer journaled to the cross-bar, a valve held seated by the cross-bar, a yoke having spring sides engaging the cross-bar, levers fulcrumed to the base of the sprinkler-head and engaging the cross-bar, and a link having a fusible joint engaging the lever, substantially as set forth.

17. In a sprinkler-head, the combination with the nozzle and the valve, of a yoke having spring sides, means to which said spring sides are secured on the opposite sides of the nozzle, whence they proceed outward beyond the nozzle whereby they may be folded inward toward each other, or moved outward from their folded positions, a distributer, means connecting the distributer with the free extremities of the spring sides of the yoke, and means including a fusible joint for holding the sides of the yoke in folded positions, substantially as set forth.

750,768. **SPRINKLER-HEAD FOR AUTOMATIC FIRE-EXTINGUISHERS.** GEORGE E. HIBBARD, Chicago, Ill. Filed Mar. 3, 1902. Serial No. 96,482. (No model.)



Claim.—1. An element for sprinkler-heads comprising two parts having oblique engaging surfaces adapted to resist their relative endwise movement, and a key crossing the general plane of the said parts and soldered to them upon opposite sides of said plane, said key being disposed transversely to the direction or line of strain to which the element is subjected, while in use, substantially as described.

2. An element for sprinkler-heads comprising two parts having oblique engaging surfaces adapted to resist their relative endwise movement, said parts having through them registering openings, and a key having a portion passing through said openings and having portions engaging the outer faces of said parts, the latter portions being disposed transversely with relation to the line of strain to which the element is subjected when in use, substantially as described.

3. An element for sprinkler-heads comprising two parts having oblique engaging surfaces adapted to resist their relative endwise movement, said parts having through them registering openings, and a key having a portion passing through said openings and portions engaging the outer faces of said parts, the sides of that portion of the key which passes through said openings being sloped or inclined in opposite directions toward both ends of the element, substantially as described.

4. An element for sprinkler-heads comprising two parts having oblique engaging surfaces adapted to resist their relative endwise movement, each of said parts having openings through it and the openings of the two parts registering, and a pair of keys having portions extending through said registering openings and portions engaging the outer faces of the two parts, these latter portions being arranged transversely, substantially as described.

5. An element for sprinkler-heads comprising two overlapping parts, means for resisting their relative endwise movement, said parts having through them registering openings disposed longitudinally, and a key having a portion passing through said openings and having portions engaging the outer faces of said parts, the latter portions being disposed transversely with relation to the line of strain to which the element is subjected when in use, substantially as described.

6. The combination with a sprinkler-head having a valve-holding device with a fusible joint, of a cap inclosing the valve-holding device, an anchor located within the cap and soldered to the top thereof, and a spring engaging the cap and normally exerting its pressure thereon so as to dislodge it when the joint for holding the cap weakens, substantially as described.

7. The combination with a sprinkler-head having a valve-holding device with a fusible joint, of a cap inclosing the valve-holding device, an anchor located within the cap and soldered to the top thereof, and a spring surrounding said anchor and bearing in one direction against the frame of the sprinkler and in the other direction against the cap, substantially as described.

8. The combination with a sprinkler-head, having a valve-holding device with a fusible joint, of an air-tight cap inclosing the valve-holding device, and containing a partial vacuum, and a fusible joint for holding the cap in place, substantially as described.

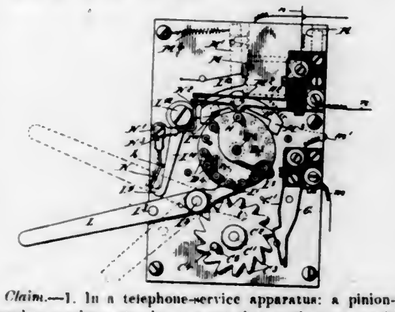
9. The combination with a sprinkler-head having a valve-holding device with a fusible joint, of an air-tight cap inclosing the valve-holding device and containing a partial vacuum, means for forming an air-tight joint between said cap and the sprinkler-head, and a spring engaging the cap and exerting a constant pressure thereon, tending to dislodge it, substantially as described.

10. The combination with a sprinkler-head having a valve-holding device with a fusible joint, of an air-tight cap inclosing the valve-holding device and containing a partial vacuum, means for forming an air-tight joint between said cap and the sprinkler-head, an anchor fixed to the sprinkler-head and soldered to the top of the cap, and a spring arranged between the top of the sprinkler-head and the cap, substantially as described.

11. The combination with a sprinkler-head having a valve-holding device with a fusible joint, of a cap inclosing the valve-holding device, a joint, made of solder fusible at a low temperature, located within the upper part of the cap for holding it in place, and a spring bearing in one direction against the sprinkler-head and in the other direction against the cap for dislodging it when the fusible joint of the valve-holding device gives away, substantially as described.

12. In a sprinkler-head, the combination of a sealed cover having a partial vacuum formed within it, anchoring devices adapted to attach the said cover to the sprinkler-head, the said anchoring devices including a fusible joint, and a spring arranged to throw the said cover off when said joint is fused.

750,769. **TELEPHONE-SERVICE APPARATUS.** URIAH S. JACKSON, Ossipee, N. H., assignor to the Superior Automatic Telephone Company, Boston, Mass., a Corporation of Maine. Filed May 31, 1902. Serial No. 109,796. (No model.)



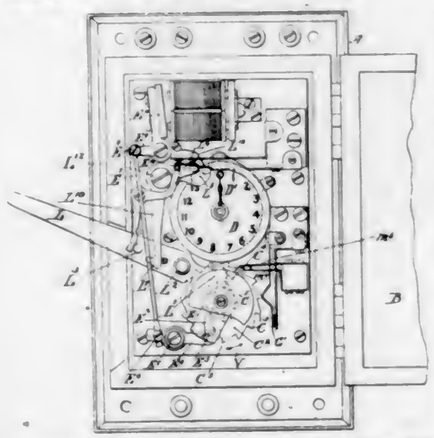
Claim.—1. In a telephone-service apparatus: a pinion-wheel adapted to receive a step-by-step rotating motion: means for producing said motion: a pointer on said wheel adapted to indicate on a dial a box-number, as described: a cam-boss on said pinion; a locking bell-crank lever having a hook upon one end, and arranged

to be operated by said cam-boss; and a winding-up lever having a pin, with which the said hook engages and thereby locks the said winding-up lever, substantially as and for the purpose set forth.

2. In a telephone-service apparatus: a clock-train; a hand-lever adapted to give motive energy to the said clock-train; an electrical circuit, a spring-actuated bent lever constructed to close said electrical circuit; and a pin on said hand-lever adapted to hold back the said spring-actuated bent lever when said hand-lever is up, and to release said spring-actuated bent lever when depressed, whereby said circuit is closed, substantially as and for the purpose set forth.

3. In a telephone-service apparatus: an electric telephone-circuit a pinion-wheel adapted to receive a step-by-step rotating motion means for producing said motion a pin, A, on said wheel constructed to close the said telephone-circuit: a boss, L^9, on said wheel: a bent lever L^{10} L^{11} acted upon by said boss and constructed to lock a winding-up lever, and said winding-up lever substantially as and for the purpose set forth.

750,770. TELEPHONE-SERVICE APPARATUS. URIAH S. JACKSON, Boston, Mass., assignor to the Superior Automatic Telephone Company, Boston, Mass., a Corporation of Maine. Filed Apr. 22, 1903. Serial No. 153,854. (No model.)

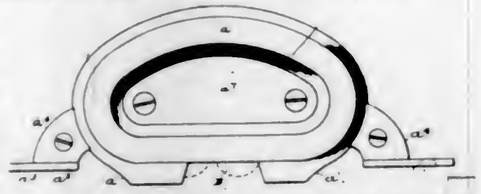


Claim.—1. In a telephone-service apparatus a circuit make-and-break wheel and mechanism for operating the same, a pawl-wheel attached to the said circuit make-and-break wheel and having the same number of notches as there are make-and-break points on the said circuit make-and-break wheel; a pawl-arm constructed to turn on the axis of the said make-and-break wheel and having a pawl adapted to engage with the notches of the said pawl-wheel and also having a pointer to indicate on a numbered dial the position of the said pawl in relation to the points of the make-and-break wheel, whereby the number on the dial at which the said pointer stands will indicate the box to be called, the said numbered dial and an electrically-controlled mechanism by which the said arm and its pawl are held or released, substantially as and for the purpose set forth.

2. In a telephone-service apparatus: a circuit make-and-break wheel and mechanism for operating the same, a pawl-wheel attached to the said circuit make-and-break wheel and having the same number of notches as there are make-and-break points on the said circuit make-and-break wheel; a pawl-arm constructed to turn on the axis of the said make-and-break wheel and having a pawl adapted to engage with the notches of the said pawl-wheel and also having a pointer to indicate on a numbered dial the position of the said pawl in relation to the points of the make-and-break wheel, whereby the number on the dial at which the said pointer stands will indicate the box to be called; the said numbered dial, an electrical circuit constructed to operate said pawl-arm; and a telephone-receiver having make-and-break electrodes connected with said circuit and having an attached push-button by which said make-and-break electrodes are controlled; substantially as and for the purpose set forth.

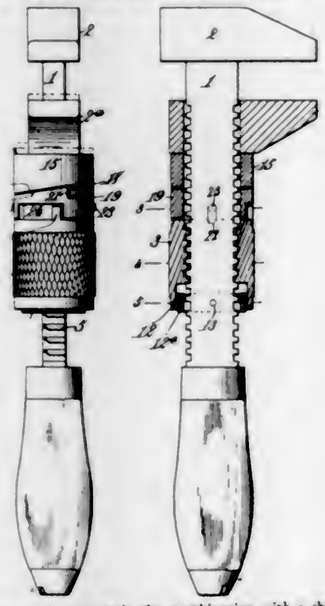
750,771. BALL-BEARING SHEAVE. HENRY F. KEIL, Bronxville, N. Y. Filed Aug. 19, 1903. Serial No. 170,072. (No model.)

Claim.—1. A ball-sheave comprising two similar members, each provided with an endless groove the lower portion of which lies in a practically horizontal position and the part thereof extending upwardly being of semi-elliptical shape, and each member being also provided with a horizontal wide and narrow plate projecting respectively outwardly from the two lower side portions of the same, the wide plates of each member partly inclosing and registering with and extending out to the line of the outer edge of the narrow plates of the other member and being provided with orifices—and a vertical web intermediate the said plates and the endless groove, in combination with a series of balls to work in the said groove.



2. A ball-sheave comprising two similar members each provided with depending flanges and an angular endless groove, the lower portion of which lies in a practically horizontal position and the part thereof extending upwardly being of semi-elliptical shape, thus forming two corners only for the balls to turn, and each member being also provided with a horizontal plate projecting outwardly from one of the lower side portions of the sheave and widened at its extremity, and a vertical web located in the plane of the said groove and at right angles to the horizontal plate and intermediate the said plate and the endless groove, in combination with a series of balls to work in the said groove.

750,772. WRENCH. MARCUS M. LE MAY, Leighton, Ala., assignor of three-fourths to Frank R. King, Leighton, Ala., Andrew M. Young, Fort Worth, Tex., and Manoah B. Hampton, Leighton, Ala. Filed May 4, 1903. Serial No. 155,686. (No model.)



Claim.—1. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided on opposite side with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw, or the racks of the sliding jaw, and means carried by the sliding jaw for effecting an independent and more accurate adjustment of the sliding jaw toward the rigid jaw.

2. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite side of said shank, the sliding jaw mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with racks on the shank carrying the rigid jaw or the racks of the sliding jaw, and collars having coacting cam-faces arranged on the shank of the sliding jaw between said jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw.

3. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw or the racks of the sliding jaw, collars having coacting cam-faces arranged on the shank of the sliding jaw between the sliding jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw, and means for preventing the rotation but permitting a limited longitudinal movement of the other collar relatively to the sliding jaw.

4. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed upon opposite sides of said shank, a sliding jaw mounted on said shank and provided upon opposite sides with racks, a rotatable sleeve mounted on said sliding jaw and provided internally upon opposite sides with racks, said sleeve being adapted to lock either with the racks on the shank carrying the rigid jaw or the racks of the sliding jaw, collars having coacting cam-faces arranged on the shank of the sliding jaw between said jaw and rotatable sleeve, one of said collars being rotatable to effect an independent and more accurate adjustment of the sliding jaw toward the rigid jaw and the other collar being fixed against rotation, and means for limiting the rotative movement of the rotatable sleeve relatively to the fixed collar for the purpose specified.

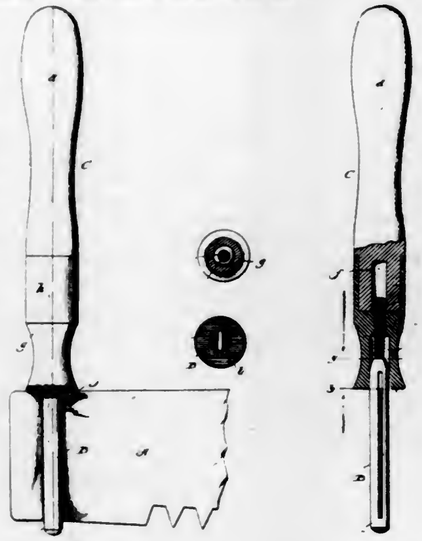
5. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage the racks of the shank or the racks of the pendent arms, a stop-collar mounted on the pendent arms and adapted to limit the rotation of the first-mentioned sleeve so as to cause the engagement of its racks with the engagement of the racks of either the shanks or the pendent arms, and a rotatable collar mounted on the pendent arms between the stop-collar and the sliding jaw, the adjacent faces of said collars being provided with coacting cam-faces for independently adjusting the sliding jaw toward the rigid jaw, and means for preventing the rotation but permitting longitudinal movement of the stop-collar on the pendent arms.

6. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage either the rack of the shank or the racks of the pendent arms, a stop-collar mounted on the pendent arms and adapted to limit the rotation of the first-mentioned sleeve so as to cause the engagement of its racks with the engagement of the racks of either the shanks of the pendent arms, the said stop-collar being splined on the pendent arms, and a stop-ring rigidly fixed on the rear ends of the pendent arms and loosely seated in the adjacent end of the rotatable sleeve to prevent disengagement of the latter from said pendent arms.

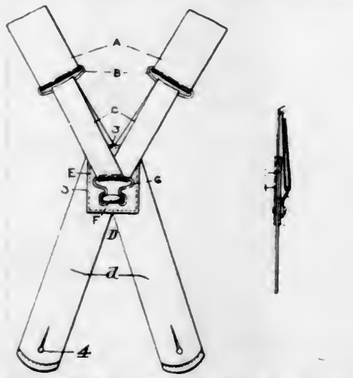
7. In a wrench, the combination with a shank carrying a rigid jaw, of racks formed on opposite sides of said shank, a sliding jaw mounted on said shank and provided with pendent arms having racks formed thereon, a rotatable sleeve mounted on said pendent arms and formed with racks adapted to engage either the racks of the shank or the racks of the pendent arms, a stop-collar mounted on pendent arms and adapted to limit the rotation of the rotatable sleeve so as to cause the engagement of its racks with the racks of either the shanks or pendent arms, the said stop-collar being splined on the pendent arms.

750,773. CROSSCUT-SAW HANDLE. WILLIAM MACLENNAN, Bowie, La. Filed May 27, 1903. Serial No. 159,001. (No model.)

Claim.—In a crosscut-saw handle, a ferrule comprising a sleeve portion which incloses the end of the handle and a solid portion integral therewith substantially closing the outer end of the ferrule, and having a threaded aperture through the face abutting the handle which is expanded into a smooth, cylindrical bore opening through the outer end or face of the solid portion; said outer face being flat or smooth and sufficiently wide to afford a considerable bearing on the back of the saw which it engages directly, in combination with a clamping-bolt having an upper threaded portion arranged in and engaging the threaded aperture of the ferrule, and a lower portion of circular form in cross-section and slightly less diameter than the smooth bore of the ferrule, snugly occupying said bore, and provided with a longitudinal, diametrically-disposed slot of greater length than the width of the saw to be held.



750,774. SUSPENDERS. HUGH G. MACWILLIAM, New Rochelle, N. Y. Filed Apr. 18, 1902. Serial No. 103,543. (No model.)



Claim.—1. A pair of suspenders comprising, in combination, a pair of shoulder-straps provided each with a terminal loop, a back suspender-end, means for connecting the suspender-end with the rear of the trousers, a loop carried by the suspender-end, said loop having its upper part free and turned outwardly away from the plane of the suspender-end, and a flat strap passing runningly through said loop and having its ends secured to the suspender-end, and passing intermediately on either side through the loop upon the adjacent shoulder-strap.

2. A pair of suspenders comprising, in combination, a pair of shoulder-straps provided each with a terminal loop, a back suspender-end, means for connecting the suspender-end with the rear of the trousers, a loop secured upon the outer side of the suspender-end, and a flat strap passing runningly through said loop and having its ends secured upon the under side of the suspender-end, and passing

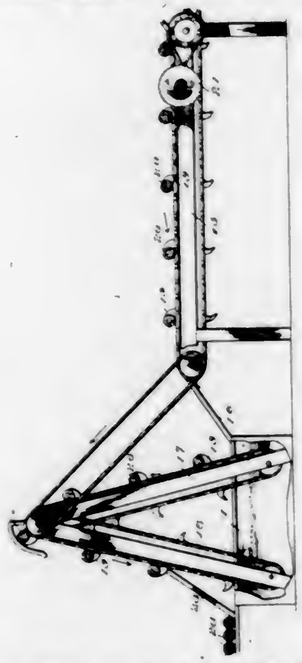
intermediately on either side through the loop upon the adjacent shoulder-strap.

3. A pair of suspenders comprising, in combination, shoulder-straps provided each with a terminal loop, a back suspender-end at the rear, means for connecting the suspender-end with the rear of the trousers, a loop carried by the suspender-end and having its upper side bowed upwardly, a flat strap having its ends secured to the suspender-end and passing runningly in succession through the loop upon the adjacent shoulder-strap, thence downwardly through the loop upon the suspender-end, thence upwardly through the loop upon the other shoulder-strap and thence back to the suspender-end.

4. A pair of suspenders comprising, in combination, shoulder-straps provided each with a terminal loop, a back suspender-end at the rear, means for connecting the suspender-end with the rear of trousers, an upwardly-bowed loop carried by the suspender-end, the upper part of the loop being turned outwardly away from the plane of the suspender-end, and a flat strap passing runningly through said loop and having its ends secured to the suspender-end, and passing intermediately on either side through the loop upon the adjacent shoulder-strap.

5. A pair of suspenders comprising, in combination, a pair of shoulder-straps provided, each, with a terminal loop, a back suspender-end and means for connecting it with the rear of the trousers, a loop carried by the suspender-end, and a flat connecting-strap passing runningly through the loop upon the suspender-end and having its ends secured to the suspender-end and passing intermediately on either side through the loop upon the adjacent shoulder-strap, the upper side of the loop carried by the suspender-end lying in a different vertical plane from the secured ends of the connecting-strap, for the purpose set forth.

750,775. **APPARATUS FOR HANDLING LUMBER OR LATHS.** WILLIAM A. MARSHALL, Washburn, Wis. Filed Sept. 12, 1903. Serial No. 173,005. (No model.)



Claim.—1. Apparatus constructed substantially as set forth for automatically handling lumber, the same comprising a tank for containing a solution, a conveyer for directing the material and feeding the same into the tank, an elevator for lifting the material from the solution in the tank inclined to permit draining of the material, a stripper for detaching and receiving the material from the elevator, and means for receiving the material from the stripper, substantially as specified.

2. In apparatus for handling lumber, the combination of a tank for containing a solution, means for feeding the material to the tank, upwardly-converged elevators provided with arms for engaging with and receiving the material, and a guard arranged at converged ends of the elevators to insure delivery of the material from the up side of one elevator to the down side of the companion elevator, substantially as set forth.

750,776. **EXTENSIBLE CURTAIN-SUPPORT.** ELMER W. MATHEWSON, East Greenwich, R. I. Filed Feb. 18, 1902. Serial No. 94,608. (No model.)

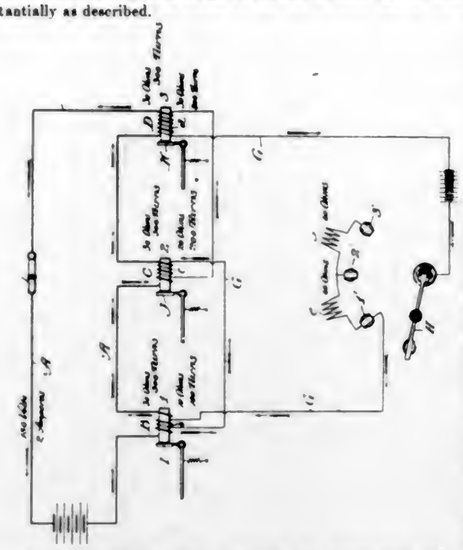


Claim.—The combination with the flat overlapped front and rear bars each having at its overlapping end a clip loosely encircling the companion bar and each having its free end portion twisted ninety degrees, bent downward and perforated to receive a curtain-roller, of two set-screws passing through the fronts of the clips, respectively, working against the bars sliding in the clips and bearing at their front ends ornamental devices concealing the clips, respectively, and the supporting-screws having their shanks bent into dependent, upwardly open hooks in which the rear and front bars fit, respectively, substantially as set forth.

750,777. **APPARATUS FOR SELECTIVE SIGNALING.** KENNETH MOODIE and JOHN S. SMALL, Chicago, Ill., assignors, by direct and mesne assignments, of one-fourth to Richard H. Pierce and Samuel G. Neller, Chicago, Ill. Filed Sept. 13, 1902. Serial No. 123,244. (No model.)

Claim.—1. In a device of the class described, the combination with a main circuit and an operating-circuit, of a plurality of helices interposed in each of said circuits, said helices being arranged in pairs, each pair comprising a main-circuit helix and an operating-circuit helix, and means for operatively neutralizing the effect of any main-circuit helix by sending a current of suitable amperage over the operating-circuit, certain of said helices being relatively so arranged and so energized as not to be neutralized by an operating-current which will result in neutralizing another of said helices substantially as described.

2. In a selective signaling system, the combination with a main circuit and an operating-circuit, of a plurality of helices interposed in each of said circuits, said helices being arranged in pairs, each pair consisting of a main-circuit helix and an operating-circuit helix, each being arranged to operatively neutralize the electromagnetic effect of the other upon being supplied with a sufficient current therefor from their respective circuits, means for so modifying the amperage of the operating-current that each operating-circuit helix may, at will, be supplied with a current which shall operatively neutralize the effect of the main-circuit current passing over the adjacent main-circuit helix, without thereby neutralizing the effect of the main-circuit current in others of the main-circuit helices, substantially as described.



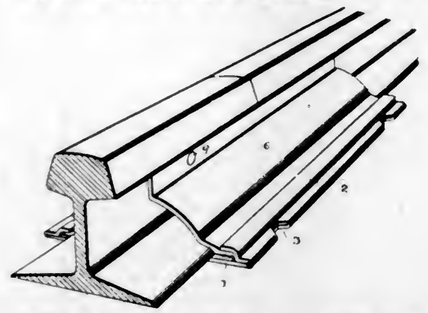
3. In a selective signaling apparatus, the combination with a plurality of electromagnets, of a main circuit, helices interposed in said main circuit and wound around each of said electromagnets, an operating-circuit, helices interposed in said operating-circuit and so disposed with reference to said main-circuit helices as to neutralize the effect of said main-circuit helices upon said electromagnets whenever supplied with a current of sufficient amperage, and current-modifying means connected with the operating-circuit, whereby each one of the operating-circuit helices may, at will, receive a current efficient to operatively neutralize the effect on the adjacent magnet of the main current passing through the adjacent main-circuit helix, substantially as described.

4. In a selective signaling system, the combination with a main circuit and an operating-circuit, of a plurality of electromagnets, each of said magnets being wound with a helix interposed in the main circuit and a complementary helix interposed in the operating-circuit, the helices of each such pair being so arranged that, when both circuits are closed, either helix may be used to neutralize the electromagnetic effect of the other upon the magnet, and means connected with the operating-circuit for modifying the operating-circuit current, whereby any of the operating-circuit helices may, at will, be given from the operating-circuit a current which shall operatively neutralize the effect of the main-circuit current on the magnet about which said helix is wound, substantially as described.

5. In a system for selective signaling, the combination with a main circuit, of a main station and a plurality of substations upon said main circuit, a helix interposed in said main circuit at each of said substations, an operating-circuit connecting said main station with said substations, operating-helices interposed in said operating-circuit and arranged adjacent to said main-circuit helices, said operating-helices being so arranged that, when the operating-circuit is closed, the current passing through the operating-circuit helices will flow in a direction opposite to the current passing through the main-circuit helices, and current-modifying means connected with said operating-circuit, whereby any one of the operating-circuit helices may be supplied with a current sufficient to neutralize the current passing through its adjacent main-circuit helix, without operatively affecting others of the main-circuit helices, substantially as described.

6. In a selective signaling system, the combination with a main station and a plurality of substations, of an electromagnet at each substation, a main circuit connecting said main station with said substations, helices interposed in said main circuit so as to normally energize said electromagnets, an operating-circuit connecting said main station with said substations, helices interposed in said operating-circuit and so arranged as to neutralize the main-circuit helices and demagnetize the electromagnets at the substations when said operating-circuit is closed, and current-modifying devices connected with said operating-circuit, whereby the operating-current may, at will, be controlled so as to neutralize the magnetizing effect of the main-circuit current at any one of the substations, without thereby neutralizing such effect at others of the substations, substantially as described.

750,778. **RAIL-JOINT.** SIDNEY S. MOORE, Crockett, Tex. Filed Mar. 25, 1903. Serial No. 149,576. (No model.)

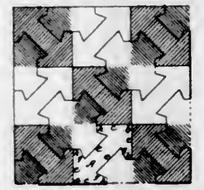


Claim.—1. In a rail-joint, the combination with a base-plate having inwardly-extending flanges; of a supporting-plate comprising a bottom, a curved support having a groove at the bottom thereof, a clamping-section at the upper edge of the support, and a lug on said section.

2. A rail-joint comprising holding-plates, each having a bottom, a curved support having a groove in its lower portion, a clamping-section, lugs thereon, a base-plate having a recess in each side thereof, and flanges on the plate adapted to extend over the bottoms of the holding-plates.

3. A rail-joint comprising holding-plates, each consisting of a bottom, clamping-sections, supports connecting the clamping-sections and bottoms and adapted to receive the base of a rail, a base-plate, and inwardly-extending flanges engaging the bottoms, said plate having recesses in its sides.

750,779. **INTERLOCKING TILE FOR FLOOR OR WALL COVERINGS.** AXEL W. NILSSON, New York, N. Y. Filed June 25, 1903. Serial No. 163,013. (No model.)

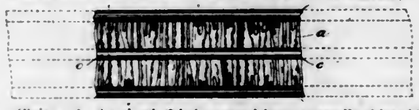


Claim.—1. A floor or wall covering composed of tiles of the general shape of a Maltese cross, having differently-colored parts arranged radially about the center, interlocked with tiles of the shape of a double-headed arrow, forming a pattern or design irrespective of the interlocked portions of the tiles, as set forth.

2. A floor or wall covering composed of interlocked solidly-colored tiles and tiles party-colored symmetrically and radially and having a pattern or design therein, the outlines thereof being formed by the colors on the tiles irrespective of the interlocked portions of the tiles.

3. As a new article of manufacture, a tile of the general form of a Maltese cross, having differently-colored parts thereon symmetrically arranged about the center of the tile for the purposes set forth.

750,780. **ELASTIC BAND OR STRAP.** JOHN D. O'BRIEN, Boston, Mass. Filed Dec. 29, 1902. Serial No. 136,933. (No model.)

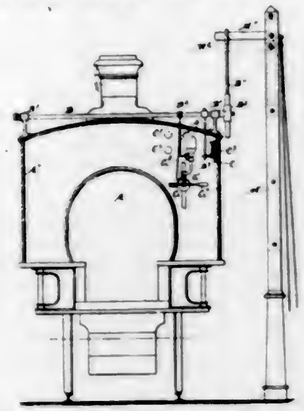


Claim.—1. An elastic fabric comprising a normally shirred body and elastic edgings therefor.

2. An elastic fabric comprising a normally shirred body provided with elastic edgings and one or more elastic strips secured to said body between said elastic edgings.

3. An elastic fabric comprising an inelastic normally shirred body having an elastic edge binding.

750,781. SAFETY DEVICE FOR RAILWAY SERVICE. EDMUND B. POWERS, New York, N. Y., assignor, by direct and mesne assignments, to Railway Cab Signal & Equipment Company, Portland, Me., a Corporation of Maine. Original application filed Apr. 8, 1902, Serial No. 101,880. Divided and this application filed Mar. 5, 1903. Serial No. 146,266. (No model.)



Claim.—1. In an apparatus of the character set forth, a shaft mounted in the cab, an arm adjustably secured to the shaft, adapted to be deflected by contact with an obstruction in its path and partially rotate said shaft, connections from the latter to signals within the cab, and a plurality of such obstructions each independent of the other and arranged at different heights to act each independently of the other and adapted to induce correspondingly different degrees of deflection of said arm, and means whereby said differences in deflection actuate correspondingly different signals in said cab through the medium of said shaft.

2. In an apparatus of the character set forth, a shaft mounted in the cab, an arm adjustably secured thereto and adapted to be deflected by contact with an obstruction in its path, two or more signals within said cab, connections from said shaft for actuating said signals successively by differences in the degrees of deflection of said arm, and a plurality of such obstructions each independent of the other and arranged at different heights relatively to said arm on independent pivots on a common support and adapted to induce correspondingly different degrees of deflection of the latter.

3. In an apparatus of the character set forth, a shaft mounted in the cab, an arm secured thereto adapted to be deflected and correspondingly partially rotate said shaft, means extending at right angles from said shaft and at right angles to said arm and connections to actuating means for a plurality of signals within said cab, in combination with a plurality of relatively stationary vanes arranged at different heights relatively to said arm and in the path of the latter, adapted to induce correspondingly different degrees of deflection of said arm, whereby said signals are successively operated.

4. In an apparatus of the character set forth, a shaft extending transversely of the cab, an arm secured to said shaft adapted to be deflected and correspondingly partially rotate said shaft, connections from the latter to actuating means for a plurality of signals within said cab, arranged to be actuated successively by increased degrees of deflection of said arm, and a plurality of independent obstructions on independent pivots and arranged in the path of said arm, and means for varying the height of the arm relatively to said obstructions to induce the desired deflections.

5. The combination with a locomotive-cab, of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a series of independent obstructions mounted to extend at right angles to said arm in different planes, a lever mounted on said shaft and extending into said cab, said obstructions being mounted on independent pivots, an electric switch operated by the movement of said lever, a lamp-signal within said cab, and a source of electricity and connections therefrom to said switch and lamp-signal whereby the movement of said lever will luminate said lamp-signal.

6. The combination with a locomotive-cab, of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a plurality of independent obstructions mounted in different vertical planes to extend into the path of said arm, a lever mounted on said shaft and extending into said cab, said obstructions being mounted on independent pivots, an electric switch having a plurality of contact-points and operated by the movement of said lever, a plurality of lamp-signals within said cab, a source of electricity and connections therefrom to said switch, contact-points and lamp-signals, whereby a movement of said lever in one direction will luminate one of said lamp-signals and a further movement of said lever in the same direction will luminate a second lamp-signal.

7. The combination with a locomotive-cab, of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a plurality of independent vanes mounted in different vertical planes to extend into the path of said arm, a whistle located in said cab and mechanism for operating it, said obstructions being mounted on independent pivots, and connections from said shaft for actuating such mechanism and sounding said whistle.

8. The combination of a locomotive-cab, a shaft mounted therein, an arm adjustably secured to the shaft at right angles thereto and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a plurality of independent obstructions mounted in different vertical planes to extend into the path of said arm, a finger carried by said shaft, said obstructions being mounted on independent pivots, a whistle located in said cab and mechanism for operating it, locking means for holding said mechanism in an inoperative condition, and connections from said finger to said locking means whereby a partial revolution of said shaft will release said operating means and sound said whistle.

9. The combination with a locomotive-cab of a shaft extending transversely thereof, an arm secured to the shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, a finger carried by said shaft, a whistle located in said cab and mechanism for operating it, connections from said finger to said mechanism whereby a partial rotation of said shaft in one direction will operate said whistle, a brake-controlling mechanism located in said cab, and connections from said finger to said controlling mechanism, whereby a further rotation of said shaft in the same direction will move said controlling mechanism in the direction to apply the brake.

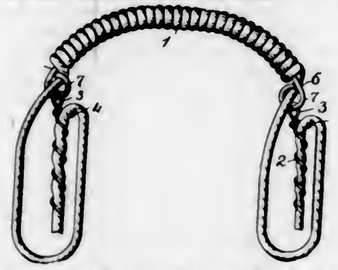
10. The combination of a locomotive-cab, a shaft extending transversely thereof, an upwardly-extending arm secured to the shaft and adapted to partially rotate said shaft by the deflection of said arm in contacting with an obstruction in its path, a lever on said shaft, an electric switch operated by the movement of said lever in one direction, an electric lamp illumined by such movement, a second electric lamp illumined by a further movement of said lever and switch in the same direction, a finger on said shaft, a whistle and operating means therefor, connections from said finger to said operating means whereby the partial rotation of said shaft will sound said whistle, a brake-controlling mechanism, means tending to move said controlling mechanism to apply the brake and a restraining means therefor, and connections from said finger to said restraining device, whereby the further rotation of said shaft in the same direction will apply the brake, the said lamps, whistle, and brake-controlling mechanism located within said cab and serving as signals to an occupant thereof.

11. In an apparatus of the character set forth, a standard located near the track, two vanes pivotally mounted therein, one at a higher level than the other, adapted to hang vertically on such standard or to be held extended transversely to the line of said track, in combination with an arm carried on the cab of a locomotive on said track, arranged to strike said vanes and be deflected thereby, a finger also carried by said shaft, and means permitting said finger to descend idly, a signal located in said cab adapted to be operated by the deflection of said arm caused by passing beneath the uppermost of said vanes, and another independent signal located in said cab and adapted to be operated by a further deflection of said arm induced by passing beneath the lowermost of said vanes.

12. An electric switch having two contact-points, a pair of electric lamps, a source of electricity, and connections from the latter to said switch, contact-points and lamps, whereby the movement of said switch to one of said contact-points will illumine one of said lamps and a further movement to the second contact-point will illumine the second lamp, in combination with a lever arranged to strike said switch to cause said movements, and a finger extending from said shaft at an angle to said arm and lever, and an arm connected to said lever and arranged to be deflected by contact with an obstruction in its path, the degree of deflection being determined by the height at which said obstruction is placed, said finger being disposed to operate a plurality of signals, all arranged to serve with a locomotive as herein set forth.

13. The whistle D located in the cab of a locomotive and having the operating valve-stem F^3, the detent F^2, and spring-dog F' engaging said detent, a chain connected to said dog near its free end, the arm F^5 on said valve-stem, and spring F^4 tending to move said stem in the direction to admit pressure to said whistle when the detent is released, connections from said chain to an arm on the exterior of said cab arranged to be deflected by contact with an obstruction in its path and thereby lift said dog and release said detent, and an obstruction disposed at right angles to said arm on the cab to deflect the same and to actuate the arm to elevate said arm.

750,782. ROPE-TIE. LEWIS F. RAMSEY, Kansas City, Mo. Filed Sept. 24, 1903. Serial No. 174,393. (No model.)



Claim.—1. A rope-tie comprising a spirally-formed body having at one end a rope-engaging device, the interior diameter of the coils of the spiral being less than the diameter of the rope adapted to be held therein and the distance between the different coils being greater than the interior diameter of the coils, whereby the rope when engaged by the coils will be crimped and thrown out of a straight line between the coils.

2. A rope-tie comprising a spirally-formed body having an eye at one end for engaging a rope, the interior diameter of the coils of the spiral portion being less than the diameter of the rope adapted to be held therein and the distance between the different coils being greater than the interior diameter of the coils, whereby the rope when engaged by the coils will be crimped and thrown out of a straight line between the coils.

3. A rope-tie comprising a body formed from a single piece of wire into a spiral form, a portion of the wire near one end being formed into an eye, and the said end being hook-shaped and disposed between the said eye and the first adjacent coil of the spiral.

4. A rope-tie comprising a body formed from a single piece of wire into a spiral form, the diameter of the coils of the spiral being less than the diameter of the rope to be held therein, a portion of the wire near one end being formed into an eye, and the said end being hook-shaped and disposed between the eye and the adjacent coil of the spiral, the point of the hook extending in a direction opposite to the coiled portion of the wire.

5. A rope-tie comprising a spirally-formed body having at one end a rope-securing device, the interior diameter of the coils being less than the distance between the coils.

6. A rope-tie comprising a spirally-formed body having at one end a rope-securing device, and a fulcrum intermediate the said device and the first coil of the spiral, the interior diameter of the coils of the spiral being less than the distance between the coils.

7. A rope-tie comprising a spirally-formed body having at one end an eye, a fulcrum intermediate the eye and the first coil of the spiral, the interior diameter of the coils of the spiral being less than the distance between the coils.

8. A rope-tie comprising a wire part of which is spirally formed, one end of the wire being first formed into an eye and then given a turn around itself between the eye and the first coil of the spiral, the extreme end thus formed being turned in a direction opposite the spiral portion.

9. In a rope-tie, the combination with a handle having an eye formed at each end, of two rope-engaging devices comprising each a spiral-formed body having an eye each at one end, the eyes of the said spiral bodies being engaged respectively with the eyes of the said handle.

10. A rope-tie comprising a handle having an eye at each end, and two spirally-formed devices connected one to each of said eyes, the interior diameter of the coils of each of said devices being less than the distance between the coils.

11. A rope-tie comprising a handle having an eye at each end, and two spirally-formed devices connected one to each of said eyes of the handle, each of said devices being provided with a fulcrum for the rope disposed between the handle and the adjacent coil of the spiral.

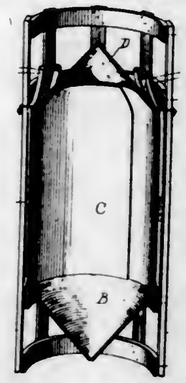
12. A rope-tie comprising a handle having two eyes, one at each end, two rope-engaging devices secured one to each of said eyes, each of said devices being spirally formed a portion of its length and provided with a fulcrum for the rope between the handle and the adjacent coil of the spiral, the interior diameter of the coils of each device being less than the distance between the coils.

13. A bundle tie or carrier comprising a handle, two spirally-formed members connected one to each end of the handle, and a rope or similar article engaging the handle and having its ends adapted to encircle the bundle and be twisted into the coils of the spiral members respectively, the interior diameter of said coils being less than the distance between the coils and less than the diameter of the rope.

14. A bundle tie or carrier comprising a handle, two spirally-formed members connected one to each end of the handle, each of said members being provided with a fulcrum adapted to receive a rope and disposed between the handle and the adjacent coil of the spiral, and a rope or similar article engaging the handle and adapted to have its ends encircle the bundle and be twisted, after engaging the said fulcrums, around the coils of the spiral members.

15. A rope-tie comprising a spiral body having a supporting means at one end and free at the other end and adapted to have a rope, cord or similar article wound within the coils, the interior diameter of the coils being less than the distance between the coils.

750,783. BANANA-SHIPPING CASE. FRANK SCHMITZ, Chicago, Ill. Filed Jan. 22, 1902. Serial No. 90,736. (No model.)



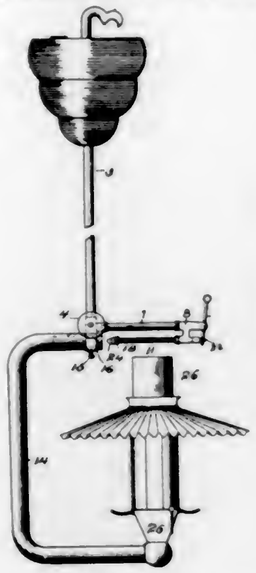
Claim.—1. In a banana-shipping case, the combination with a suitable crate, a suitable bottom suspended therein and an elastic tubular casing confined within said crate, of packing-strips confined between said elastic casing and the walls of said crate and running about said tubular casing in a transverse direction; substantially as described.

2. In a banana-shipping case, the combination with a suitable crate, a bottom suspended therein and an elastic tubular casing supported within said crate, of packing-strips confined between said tubular casing and the walls of the crate, said tubular casing being composed of a suitable tube, C, inclosing a yielding body, the lower extremities of said tube being bent over to form the corners, c', c^2, the packing-strip being secured to the crate by confining its thickened portion between one of the hoops of the crate and one of the longitudinal strips; substantially as described.

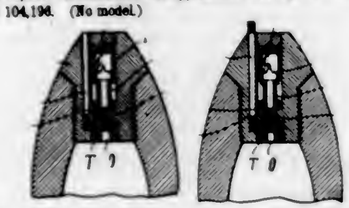
750,784. INCANDESCENT VAPOR-LAMP. WILLIAM TURBE, Granville, Ill., assignor of one-half to Alfonso Burdell Child, Granville, Ill. Filed June 16, 1903. Serial No. 161,737. (No model.)

Claim.—The herein-described hydrocarbon-burner or gas-generator comprising a suitable supply-pipe and reservoir in combina-

tion with a body portion or union 4 having a bore 6; a branch extension communicating with said bore and connected with said body; a member 8 having connection with said pipe and provided with a bracket or extension 19 said member 8 also having a downwardly-extending bore and a pipe 11 communicating therewith; a nipple or vent 24 carried by said pipe 11; a lever 20 pivoted in said bracket; a needle operatively connected with said lever and adapted to have its free sharpened end enter the aperture in said nipple whereby the movement of the lever will open or close said vent; a removable thimble 13 and a lamp-supporting pipe adapted to receive said thimble at its open end diametrically opposite said nipple and convey the gas from said nipple to the burner and suitable means within the supply-pipe adapted to free the oil and gas from impurities, all combined substantially as specified and for the purpose set forth.



750,785. **PERCUSSION-FUSE FOR EXPLODING SHELLS.** KARL WIEBER, Rüttenscheid, Germany, assignor to Fried. Krupp, Essen-on-the-Ruhr, Germany. Original application filed Sept. 21, 1901, Serial No. 76,019. Divided and this application filed Apr. 22, 1902. Serial No. 104,196. (No model.)



Claim.—1. A fuse for shells having two separate passages, one of which is permanently open to the interior of the shell, and is provided with means for communicating ignition thereto with delay, while the other communicates ignition without delay, and means manually movable to close the passage which communicates ignition without delay.

2. A fuse for shells having two separate passages, one of which is permanently open to the interior of the shell and is provided with means for communicating ignition thereto with delay, while the other communicates ignition without delay, and means operable from the exterior of the fuse and adapted to open and close the passage which communicates ignition without delay.

3. A fuse having two separate passages, between the ignition-chamber and the interior of the shell, one of which is permanently open and contains a retarding medium and communicates ignition with delay, and the other of which forms a by-pass around the retarding medium and transmits ignition without delay, and means for cutting off said by-pass manually.

4. In a percussion-fuse for shells, the combination of two connections between the percussion-chamber of the fuse and the bursting charge of the shell, one of which connections is substantially direct between the said space and said charge while the other has an interposed slow-burning mass, and a screw-bolt adapted for interrupting the direct connection between the fuse and the bursting charge, substantially as described.

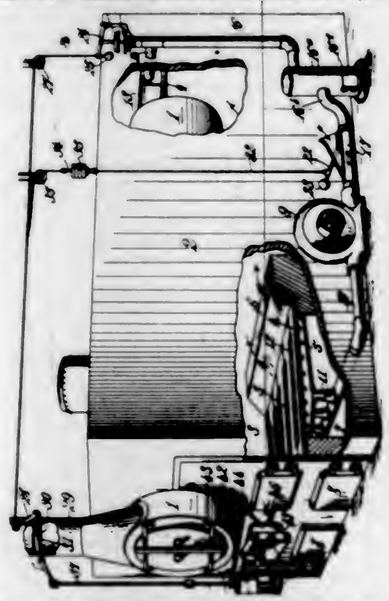
5. A fuse having a passage communicating between the igniting-chamber and the interior of the shell, a slow-burning medium interposed in said passage, a laterally-disposed bore having communication with the ignition-chamber and the interior of the shell, forming a by-pass around the slow-burning medium, and a manually-adjusted device movable in said bore, opening or closing the same, and permitting immediate transmission of the igniting-flame or causing the igniting-flame to be transmitted through the slow-burning medium, according as it opens or closes the by-pass.

6. A fuse having a passage communicating between the igniting-chamber and the interior of the shell, a slow-burning medium interposed in said passage, a laterally-disposed bore having communication with the ignition-chamber and the interior of the shell, forming a by-pass around the slow-burning medium, a reinforcing charge of rapidly-burning explosive in said laterally-disposed bore, and a manually-adjusted device movable in said bore, opening or closing the same, and permitting immediate transmission of the igniting-flame or causing the igniting-flame to be transmitted through the slow-burning medium, according as it opens or closes the by-pass.

7. A fuse having two channels forming communications between the point of ignition and the interior of the projectile, a retarding medium in one of said channels, and the other channel forming a by-pass around said retarder, a chamber forming a part of both channels containing a reinforcing charge, a longitudinal bore in the reinforcing charge leading from the retarding medium, a transversely-disposed bore in the reinforcing charge forming a part of said by-pass, and means for closing said by-pass.

8. In a percussion-fuse, the combination with the primer, of two passages communicating ignition to the bursting charge, a delay-action device in one of said passages, and manually-operated means movable independently of the primer to open and close the other passage.

750,786. **SMOKE-CONSUMING FURNACE.** JAMES A. WILLARD, Chattanooga, Tenn., assignor of three-fourths to William M. Lasley, Theodore H. Lasley, and Charles L. Hall, Chattanooga, Tenn. Filed Jan. 6, 1903. Renewed Oct. 23, 1903. Serial No. 178,283. (No model.)



Claim.—1. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve arranged in the suction-pipe and operating to control the connection between the blower and the intake and between the blower and the atmosphere, and means controlled by the movement of the fire-door for actuating said valve to regulate the admission of both air and furnace-gases to the fire, substantially as described.

2. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake and between the blower and the atmosphere, a damper in the furnace-stack, and means actuated by the opening movement of the fire-door for actuating said valve, substantially as described.

3. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake and between the blower and the atmosphere, a damper in the furnace-stack, and means actuated by the opening movement of the fire-door for closing the damper in the stack and for turning the said valve to place the blower in communication with the intake and simultaneously cut off the admission of air to said valve, substantially as described.

4. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake and between the blower and the atmosphere, a damper in the furnace-stack, means actuated by the opening movement of the fire-door for actuating said valve, and a supplemental valve for admitting air to the suction-pipe substantially as described.

5. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake, means actuated by the movement of the fire-door for actuating said valve, a damper in the furnace-stack, and means actuated by the closing movement of the damper for automatically admitting air to the suction-pipe, substantially as described.

6. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake, a damper in the furnace-stack, means actuated by the opening movement of the fire-door for turning said valve to establish communication between the blower and the intake, means for automatically turning said valve to cut off the intake from the blower when the damper is open, and means for retarding the opening movement of the damper, substantially as described.

7. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake, a damper in the furnace-stack, a supplemental air-inlet valve in the suction-pipe, means actuated by the opening movement of the fire-door for simultaneously closing the damper and turning the valves to establish communication between the intake and the blower and admit air to the suction-pipe, and means for automatically turning said valves to shut off the intake from the blower and prevent the air from entering the suction-pipe through the supplemental air-valve when the damper is opened, substantially as described.

8. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower a valve in the suction-pipe arranged to control the communication between the blower and the intake and between the blower and the atmosphere, a damper in the furnace-stack, a supplemental air-inlet valve in the suction-pipe, means actuated by the opening movement of the fire-door for simultaneously closing the damper and turning the valves to admit air to the suction-pipe and place the blower in communication with said intake, and means for automatically turning the said valves to shut off the intake from the blower and place the blower in communication with the atmosphere and prevent the air from entering the suction-pipe through the supplemental air-valve when the damper is opened, substantially as described.

9. In a steam-boiler, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake, a damper in the furnace-stack, a cylinder connected with the boiler, a piston in the cylinder, means actuated by the movement of the piston for controlling said damper and valve, and means actuated by the movement of the fire-door for putting the cylinder into and out of communication with the boiler, substantially as described.

10. In a steam-boiler furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a valve in the suction-pipe arranged to control the communication between the blower and the intake, a damper in the furnace-stack, an air-inlet valve in the suction-pipe, a cylinder connected with the boiler, a piston in the cylinder, means actuated by the movement of the piston for controlling said damper and valve, and means actuated by the movement of the fire-door for putting the cylinder into and out of communication with the boiler, substantially as described.

11. In a steam-boiler furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower and provided with an aperture opening to the atmosphere, a valve arranged to alternately open and close said aperture and open and close the communication between the blower and the intake, a damper in the furnace-stack, and means actuated by the movement of the fire-door for actuating said damper and valve, substantially as described.

12. In a steam-boiler furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower and provided with an aperture opening into the atmosphere, a flaring open-ended hood arranged over the end of the aperture, a valve arranged to alternately open and close said aperture and open and close the communication between the blower and the intake, a damper in the stack, and means actuated by the movement of the fire-door for actuating said damper and valve, substantially as described.

13. In a steam-boiler furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, of a suction-pipe connecting the intake with the blower and provided with an aperture opening into the atmosphere, a valve arranged to alternately open and close said aperture and open and close the communication between the blower and the intake, a weighted arm normally holding said valve open to admit air, a damper in the furnace-stack, a crank-arm on the damper for turning the latter, a cylinder connected with the boiler, a piston in the cylinder, a valve controlling the communication between the cylinder and the boiler, a lever arranged to be turned to open the valve by the opening movement of the fire-door, a connection between the piston and damper for closing the latter when the fire-door is open, and a connection between the crank-arm on the damper and the said weighted arm for actuating the valve in the suction-pipe, substantially as described.

14. In a steam-boiler furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower and provided with an aperture opening into the atmosphere, a valve arranged to alternately open and close said aperture and open and close the communication between the blower and the intake, a weighted arm normally holding said valve open to admit air to the blower, a damper in the furnace-stack, a crank-arm on the damper for turning the latter, a cylinder connected with the boiler, a piston in the cylinder, a valve controlling the communication between the cylinder and boiler, a lever arranged to be turned to open the valve by the opening movement of the fire-door, a connection between the piston and damper for closing the latter when the fire-door is open, a connection between the crank-arm on the damper and the said weighted arm for actuating the valve in the suction-pipe, a supplemental air-inlet valve in the suction-pipe, a weighted lever normally holding said valve closed, and a connection between said lever and the crank-arm on the damper for opening the supplemental air-inlet valve when the damper is closed, substantially as described.

15. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a settling-chamber interposed in said suction-pipe between the intake and the blower, a valve arranged in the suction-pipe operating to control the connection between the blower and the intake and

between the blower and the atmosphere, and means controlled by the movement of the fire-door for actuating said valve to regulate the admission of both air and furnace-gases to the fire, substantially as and for the purpose specified.

16. In a furnace, the combination with a blower having a discharge-pipe leading to the furnace, of an intake for collecting the furnace-gases, a suction-pipe connecting the intake with the blower, a settling-chamber interposed in said suction-pipe between the intake and the blower, the inlet portion of the suction-pipe communicating with the upper portion of the settling-chamber and the outtake portion of said suction-pipe communicating with said settling-chamber between its ends, a valve arranged in the suction-pipe and operatively controlling the connection between the blower and intake and between the blower and the atmosphere, and means controlled by the movement of a fire-door for actuating said valve to regulate the admission of both air and furnace-gases to the fire, substantially as described.

750,787. CLOCK-CASE. AARON D. BLODGETT, Newton, Mass., assignor to Blodgett Clock Company, Portland, Me., a Corporation of Maine. Filed Nov. 29, 1901. Serial No. 83,982. (No model.)



Claim.—1. The clock-case herein described, the same comprising a metal shell adapted to be built into or contained in a tower or other support, an integral joint-sealing flange outwardly extending from the outer end of the said shell against the face of the tower or support, an integral inwardly-extending outer flange, a transparent guard-plate adapted to bear against the said inwardly-extending flange, a yielding packing placed about the edges of said plate to provide a weatherproof joint and a detachable plate for closing the inner end of the chamber.

2. The clock-case herein described, the same comprising a metal shell adapted to be built into or contained in a tower or other support, an integral joint-sealing flange outwardly extending from the outer end of the said metal shell against the face of the tower or support, an integral, outwardly-extending inner flange adapted to receive a detachable back plate, an integral inturned outer flange, a transparent guard-plate adapted to bear against the said inwardly-extending flange, and to provide a weatherproof face-plate for the outer end of the shell-inclosed chamber substantially as described.

3. The clock-case herein described, the same comprising a metal shell adapted to be built into or contained in a tower or other support, an integral joint-sealing flange outwardly extending from the outer end of the said metal shell against the face of the tower or support, an integral inturned outer flange, a transparent guard or face plate adapted to be held against the inwardly-extending flange, a detachable back plate, and yielding packing placed about the edges of the end-closing plates to the shell-inclosed chamber providing a weatherproof compartment substantially as described.

4. The clock-case herein described, the same comprising an exterior shell having at its outer end an integral inwardly-extending flange, a transparent guide-plate contained within the cavity to the shell, a yielding packing placed about the edges of said plate, means attached to the exterior shell aforesaid for holding said guard-plate and packing against said inturned flange, also locating and providing a bearing for the dial-plate contained within the case, said dial-plate and means for holding it against the guard-plate holder, the said plates and holders being accessible and removable from the back end of the case, and means for closing the back end of the case.

5. The clock-case herein described, the same comprising an exterior shell having at its outer end an integral inwardly-extending flange, a transparent guard or face plate packed about its edges, means attached to the exterior shell aforesaid for holding said plate and packing against the said inturned flange, also locating and providing a bearing for the dial-plate contained within the case, said dial-plate, means for holding it against the guard-plate holder, a detachable back plate having a packed edge and means for attaching it to the exterior shell or case whereby there is provided a weatherproof chamber substantially as described.

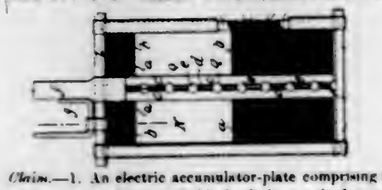
6. The clock-case herein described forming a part of a tower or similar structure, comprising a metal shell, accessible from its inner end, flush or practically flush at its outer end with the face of the tower or supporting structure, and having, respectively, outwardly and inwardly turned outer flanges, a transparent guard or face plate, a yielding packing placed around the edge of said guard-plate, an annular flange detachably secured to the shell of the casing for holding said guard-plate and packing clamped against said inturned flange, a transparent dial-plate, an annular flange detachably attached to the casing and adapted to hold the dial-plate in place resting against the exterior annular flange, a means for illumination in the chamber back of the transparent dial-plate, and a detachable back plate for closing the inner end of the casing substantially as described.

7. In a tower or other clock, a metal case having a guard-plate and a transparent dial-plate and one or more holes in its side or end with an insulator and electric lamp for each hole of a size to enter the hole, the said hole being larger in diameter than the diameter of the lamp whereby the insulator and lamp may be attached together and placed or removed as an entity.

8. In a clock as herein described a shell for the clock-movement adapted to be contained in a suitable support, a joint-sealing flange outwardly extending from the outer end of said shell against the face of the support, the shell having also an outer flange, extending inwardly beyond the inner circumference of the shell, a plate adapted to be inserted through the shell from the rear and to be stopped by and bear against the said inwardly-extending flange, and means for retaining said plate in position.

REISSUES.

12,195. ELECTRICAL ACCUMULATOR. CHARNONOVITE P. FLIZON and VLADIMIR DE BOBINSKY, Paris, France. Filed Oct. 26, 1903. Serial No. 178,541. Original No. 692,433, dated Feb. 4, 1902.



Claim.—1. An electric accumulator-plate comprising a centra conducting-core, and strips of thin lead alternately flat and corrugated, attached at one end to each side of the core and free at their other end.

2. The combination with an accumulator-plate having a central conducting-core, and strips of thin lead alternately flat and corrugated, attached at one end to each side of the core and free at their other end, and a strengthening-frame comprising upper and lower cross-pieces of insulating material and india-rubber ligatures binding the whole together but allowing a free lateral expansion of the thin lead strips.

3. An electric accumulator-plate having openings for active material; each of said openings being constructed to contract and expand in two dimensions by and conformably to corresponding changes in dimension of the active material contained therein.

4. In an electric accumulator-plate, a central conductor and two series of strips of thin metal electrically connected thereto and disposed on opposite sides thereof; the said strips being constructed and supported so that the movement of their outer extremities due to contraction and expansion may be universal in the plane of said plate.

5. In an electric accumulator-plate, a central conductor and two series of strips of thin metal electrically connected thereto and disposed on opposite sides thereof; the said strips being constructed and supported so that the movement of their outer extremities due to contraction and expansion may be universal in the plane of said plate, and means for elastically retaining the strips of each series in relative proximity.

6. An electric accumulator-plate having a central conductor and two series of strips of thin flexible metal respectively disposed on opposite sides thereof, each of said strips being attached at one end to said conductor and unattached at the other end.

7. An electric accumulator-plate having a central conductor of rigid metal and two series of superposed strips of thin flexible lead respectively disposed on opposite sides thereof—each of said strips being attached at one end to said conductor and unattached at the other end.

8. In an electric accumulator-plate, two series of superposed thin flexible metallic strips, the strips of each series being united at one end and disposed with the united ends of the strips of one series facing the united ends of the strips of the other series and a bar of conducting material connected to the united ends of both series of strips and interposed between them.

9. In an electric accumulator-plate having a series of superposed thin flexible metallic strips united at one end and guard-strips of metal extending transversely across said strips, disposed on opposite sides thereof and covering the junctions of said strips.

10. In an electric accumulator-plate having a rigid central conductor, a series of flexible metallic strips united at one end to said conductor and guard-strips of metal extending transversely across said strips, disposed on opposite sides thereof and covering the junctions between said strips and said conductor.

11. In an electric accumulator-plate a central conductor, two series of thin metal strips electrically connected thereto, disposed on opposite sides thereof and constructed and supported so that the movement of their outer extremities due to contraction and expansion may be universal in the plane of the plate and a strengthening-frame of non-conducting material secured to and surrounding said plate.

12. In an electric accumulator-plate, a central conductor, two series of thin metal strips electrically connected thereto, disposed on opposite sides thereof and constructed and supported so that the movement of their outer extremities due to contraction and expansion may be universal in the plane of the plate, and an elastic strengthening-frame of non-conducting material secured to and surrounding said plate and having its lateral members extending parallel to said conductor.

13. In combination with an electric accumulator-plate having a rigid central conductor and two series of thin flexible lead strips attached to opposite sides thereof, a bar of insulating material detachably secured on and transversely to said conductor, a loose parallel bar of insulating material and elastic bands inclosing said plate and connecting said bars.

14. In an electric accumulator-plate, having a rigid central conductor and thin flexible superposed strips of metal extending from opposite sides thereof, parallel metallic loops disposed at one end of said plate, a bar of insulating material passing through said loops, a bar of insulating material in contact with the opposite end of said plate and elastic bands connecting said bars.

15. In combination with an accumulator-plate having a compound strengthening-rib comprising two united longitudinal bars and thin lead strips extending laterally from each of said bars, a solid stem connected to both of said bars and extending upward to form a handle for said plate.

16. In combination with an ac umulator-plate having a compound strengthening-rib comprising two united longitudinal bars and thin lead strips extending laterally from each of said bars, a solid stem connected to both of said bars and extending upward to form a handle for said plate and provided with a transverse opening, and a frame of insulating material surrounding said plate and having one of its members received in said opening.

17. In an accumulator-plate, a compound strengthening-rib comprising two united longitudinal bars and thin lead strips extending laterally from each of said bars.

18. In an electric accumulator-plate, a rigid leading in and out conductor forming part of said plate and consisting of a plurality of parallel separated metallic bars united by a plurality of separated transverse metallic connecting-pieces.

19. In an electric accumulator-plate a rigid leading in and out conductor forming part of said plate and consisting of a plurality of parallel separated metallic bars united by a plurality of separated transverse metallic connecting-pieces in combination with two series of thin flexible superposed metallic strips respectively projecting from opposite sides of said conductor.

20. In an accumulator-plate a composite flexible strip of thin metal forming part of the active element and composed of a plurality of individual strips superposed and united.

DESIGNS.

36,747. FINGER-RING. HARRY S. DANA, San Francisco, Cal. Filed Dec. 17, 1903. Serial No. 185,596. Term of patent 3½ years.

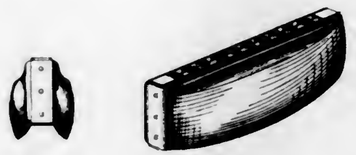


36,747.



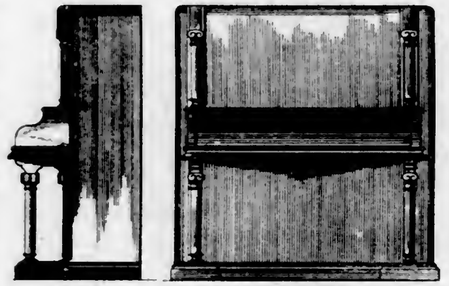
Claim.—The ornamental design for a finger-ring, as shown.

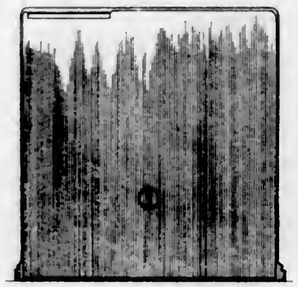
36,748. MOUTH-HARMONICA. HANS HOHNER, Trossingen, Germany. Filed Aug. 1, 1901. Serial No. 70,514. Term of patent 14 years.



Claim.—The ornamental design for a mouth-harmonica, as shown.

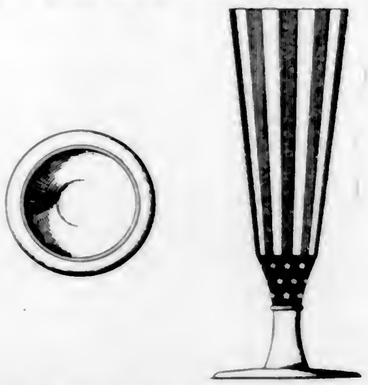
36,749. MONEY-BANK. JOHN B. WEIR and IRA D. PERRY, Chicago, Ill. Filed Sept. 12, 1903. Serial No. 173,016. Term of patent 7 years.





Claim.—The ornamental design for a money-bank, substantially as herein shown.

36,750. LIQUID-CONTAINER. OTTO KRAUSE, New York, N. Y. Filed Dec. 16, 1903. Serial No. 185,446. Term of patent 14 years.



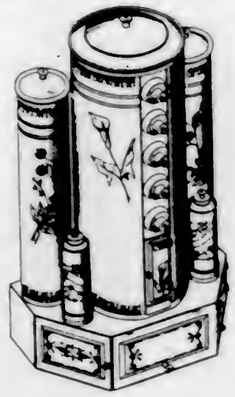
Claim.—The new, original and ornamental design for a liquid-container substantially as shown.

36,751. STANDARD FOR LIGHTS, CLOCKS, OR SIMILAR ARTICLES. ELLERSON L. BRAINARD, Danbury, Conn. Filed Dec. 5, 1903. Serial No. 183,980. Term of patent 3½ years.



Claim.—The ornamental design for a standard for lights, clocks, and similar articles, substantially as described.

36,752. KITCHEN-CABINET. CHARLIE A. POST, Kansas City, Mo. Filed Oct. 19, 1903. Serial No. 177,707. Term of patent 7 years.



Claim.—The ornamental design for a kitchen-cabinet as herein shown.

36,753. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1903. Serial No. 186,131. Term of patent 3½ years.



Claim.—The ornamental design for a collar, substantially as herein shown.

36,754. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1903. Serial No. 186,132. Term of patent 3½ years.



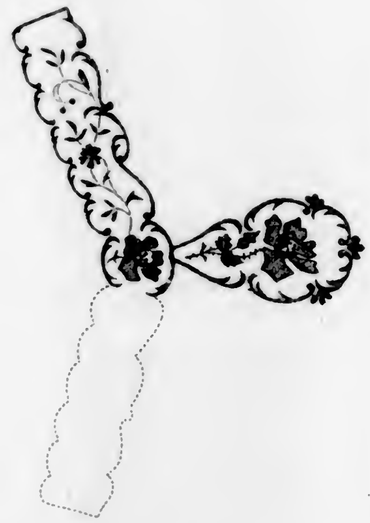
Claim.—The ornamental design for a collar, substantially as herein shown.

36,755. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1903. Serial No. 186,133. Term of patent 3½ years.



Claim.—The ornamental design for a collar, substantially as herein shown.

36,756. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1903. Serial No. 186,134. Term of patent 3½ years.



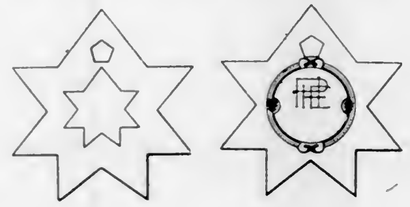
Claim.—The ornamental design for a collar, substantially as herein shown.

36,757. BROOCH, BUTTON, OR BUCKLE-PLATE, OR SIMILAR ARTICLE. SIDNEY A. KELLER, New York, N. Y., assignor to Bristol Manufacturing Company, a Corporation of Rhode Island. Filed Dec. 30, 1903. Serial No. 187,233. Term of patent 3½ years.



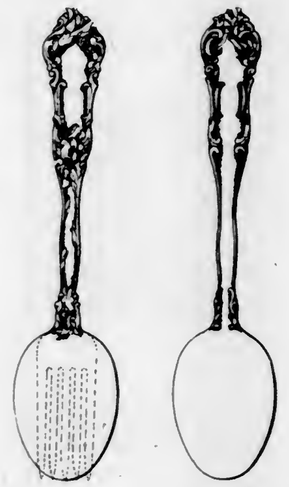
Claim.—The ornamental design for a brooch, button, or buckle-plate, or similar article, as herein shown.

36,758. BADGE. PATRICK H. ENGLEWOOD, Bristol, Conn. Filed Dec. 26, 1903. Serial No. 186,756. Term of patent 14 years.



Claim.—The ornamental design for a badge, as herein shown.

36,759. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. JOHN H. HOBSON, North Attleboro, Mass., assignor to Henry H. Curtis, North Attleboro, Mass. Filed Dec. 30, 1903. Serial No. 187,234. Term of patent 3½ years.



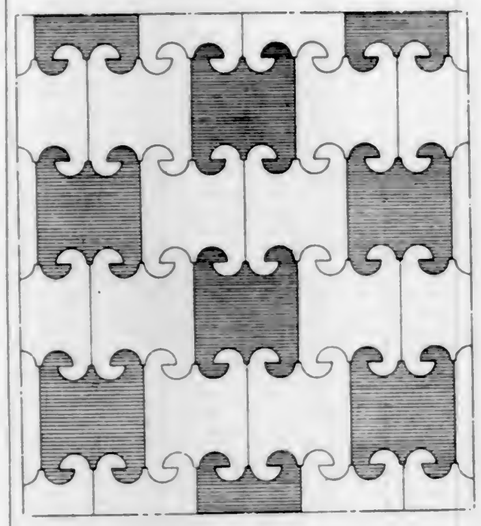
Claim.—The ornamental design for the handle of a spoon, fork, or similar article, as herein shown.

36,760. BACK FOR BRUSHES, MIRRORS, OR SIMILAR ARTICLES. HERBERT J. STRAKER, North Attleboro, Mass., assignor to George K. Webster, North Attleboro, Mass. Filed Dec. 26, 1903. Serial No. 186,757. Term of patent 3½ years.



Claim.—The ornamental design for the back of a brush, mirror, or similar article, as herein shown.

36,761. TILING. ALFRED A. SPADONE, New York, N. Y. Filed Jan. 2, 1904. Serial No. 187,600. Term of patent 14 years.



Claim.—The new, original and ornamental design for tiling as shown.

TRADE-MARKS

REGISTERED JANUARY 26, 1904.

41,931. LEATHER BOOTS AND SHOES. THE RETAILERS SPECIALTY MFG. CO., Haverhill, Mass. Filed Dec. 23, 1903.



The representation of a Roman soldier seated under an arch upon which is inscribed the word "DICTATOR," the whole appearing within a square panel or space. Used since April 4, 1902.

41,932. LEATHER BOOTS AND SHOES. THE RETAILERS SPECIALTY MFG. CO., Haverhill, Mass. Filed Dec. 23, 1903.

DICTATOR

The word "DICTATOR." Used since April 4, 1902.

41,933. HAMMOCKS. ISAAC R. PALMER, Middletown, Conn. Filed Dec. 30, 1903.

REPOSO

The word-symbol "REPOSO." Used since October 7, 1902.

41,934. YARNS. BROWN, DURRELL & CO., Boston, Mass. Filed June 26, 1903.



The representation of an open fireplace with a fire therein, a crane from which is suspended a kettle, a chair by the fireplace, an elderly woman sitting in the chair knitting, a ball of yarn, which has fallen from her lap to the floor, a corner of a table, a teapot upon it, and a bit of window-frame with sunlight and sash shadow upon it. Used since 1880.

41,935. SPOOL-COTTON, THREAD, AND SEWING-COTTON. THE AMERICAN THREAD COMPANY, Jersey City, N. J. Filed Dec. 31, 1903.

PURITAN

The word "PURITAN." Used since 1894.

41,936. SILK DRESS GOODS. STEWART SILK COMPANY, New York, N. Y. Filed Dec. 31, 1903.

PURÉDI

The word "PURÉDI." Used since January 15, 1903.

41,937. MARKING SUBSTANCES AND CRAYONS AND PENCILS. BENNET & SMITH CO., New York, N. Y. Filed Dec. 9, 1903.



RUBENS

The word "RUBENS," together with a portrait of the artist. Used since November 30, 1903.

41,938. PROCESS PICTURES. ALFRED W. BLOM, Boston, Mass. Filed Dec. 24, 1903.



The representation of a dolphin inclosed in a polygonal figure. Used since March, 1903.

41,939. PLAYING-CARDS. THE NEW YORK CONSOLIDATED CARD COMPANY, New York, N. Y. Filed June 22, 1903.



A fanciful device in which, within a parallelogram, four sphinx-like figures appear at the corners. In the center is a conventional design having four oval frames, each inclosing a five-pronged device extending outward from a round center. A circular border with zig-zag ornamentation surrounds said conventional design, and from said border extend four heads or busts within frames which partially surround the same, the two end heads being Medusa-like and the two side heads being capped and winged. Used since 1874

41,940. BOOKS. LOTHROP PUBLISHING COMPANY, Boston, Mass. Filed Dec. 7, 1903.

PEPPER

The word "PEPPER." Used since 1881.

41,941. ANTINARCOTIC MEDICINES. JOHN W. FOWLKING, Albia, Iowa. Filed Nov. 13, 1903.



The representation of a hand extending to the wrist and holding a vial or small bottle from which rays of light extend. Used since October 28, 1893.

41,942. CERTAIN NAMED DRUGS AND CHEMICALS. BRUNNER MOND & CO., LIMITED, Northwich, England, and New York, N. Y. Filed Nov. 6, 1903.

SALAMAC.

The word "SALAMAC." Used since September 1, 1903.

41,943. EMBALMING FLUIDS AND FORMALDEHYDE COMPOUNDS. WILLIAM S. CARPENTER, Des Moines, Iowa. Filed Oct. 1, 1903.

Rex

The word "REX." Used since May 1, 1902.

41,944. TURKISH CIGARETTES. RESHID SADI BEY, London, England. Filed Dec. 21, 1903.



The representation of a quartered shield displaying four stars and two crescents thereon. Used since November 10, 1903.

41,945. WINE. F. CHAUVENET, Nuits, France. Filed Jan. 5, 1904.

PINK CAP

The words "PINK CAP." Used since March 1, 1903.

41,946. COFFEE. A. ENGELHARD & SONS CO., Louisville, Ky. Filed June 30, 1902.



The representation of a shield surrounded with ornamental scrollwork and the words "FILSON CLUB" arranged above the shield. Used since June 15, 1902.

41,947. CONDENSED MILK. SANITAS CONDENSED MILK CO., Seattle, Wash. Filed Dec. 31. 1903.

SANIPURE

The word "SANIPURE." Used since December 2, 1903.

41,948. NEUFCHÂTEL CHEESE. WILLIAM A. LAWRENCE, Chester, N. Y. Filed Apr 18, 1902.



The representation of a cow. Used since August, 1877.

41,949. YEAST. NEW PROCESS YEAST CO., Chicago, Ill. Filed Jan. 2, 1904.



The representation of a heart. Used since December 10, 1903.

41,950. CONCENTRATED MEAT AND VEGETABLE PREPARATION FOR SOUP-MAKING. THE MARMITE FOOD EXTRACT COT., LTD. London, England. Filed Dec. 19, 1903.

MARMITE

The word "MARMITE." Used since June, 1902.

41,951. STOCK-FOOD. MONARCH STOCK FOOD CO., Kansas City Mo. Filed July 29, 1903.



The representation of a steer's head, with the word "MONARCH" associated therewith and arranged thereunder in the form of an arc Used since March 2, 1903.

41,952. LAUNDRY BLUING. THE LAUNDRY BLUE COMPANY, Chicago, Ill. Filed Jan. 2, 1904.

Wiggle-Stick

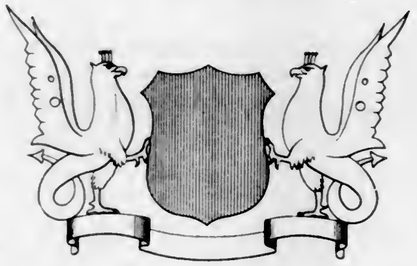
The compound word "WIGGLE-STICK." Used since July 1, 1902.

41,953. CLEANING OR POLISHING COMPOUNDS. HERMAN NETHEIM. Newark, N. J. Filed Oct. 21, 1903.

E-Z-KLENE

The symbol "E-Z-KLENE." Used since July, 1902.

41,954. METAL AND FURNITURE POLISH. THE EAGLE MANUFACT'G CO., Cleveland, Ohio. Filed Dec. 14, 1903.



The representation of two mythical birds standing face to face upon a scroll, each having one foot on the scroll and supporting a shield with the claws of the other, the shield being between them. Used since November 1, 1903.

41,955. CERTAIN NAMED LUBRICANTS. THE OHIO FILLER & SHIELD CO., Columbus, Ohio. Filed Jan. 2, 1904.



The representation of a shield upon which appear two bevel gear-wheels, one in mesh with the other, and a wire rope or cable crossing the upper portion of the shield and looped or knotted to one of the upper corners of the latter. Used since December 1, 1903.

41,956. ASPHALT ROOFING. PATENT VULCANITE ROOFING CO., Chicago, Ill. Filed Dec. 26, 1903.

BLACK CAT

The words "BLACK CAT." Used since November 21, 1903.

41,957. SUSPENDER-BUCKLES. HARRIS SUSPENDER CO., New York, N. Y. Filed Dec. 23, 1903.

TABELLE

The word "TABELLE." Used since May 14, 1903.

41,958. ELECTRIC BELTS. THE ELECTRIC APPLIANCE CO., Burlington, Kans. Filed Oct. 1, 1903.

MIOXRLS

The word "MIOXRLSR." Used since April 1, 1903.

41,959. PIANOS. STEINWAY & SONS, New York, N. Y. Filed Dec. 31, 1903.

VERTEGRAND

The word "VERTEGRAND." Used since November 20, 1903.

41,960. CERTAIN NAMED HAND CUTTING-TOOLS. MARSH BROTHERS CO., Sheffield, England. Filed Sept. 5, 1902.

ROXO

The word "ROXO," followed by the conventional representation of a fleur-de-lis, below which is the letter "y" and a Maltese cross. Used since 1760.

41,961. LOCKS AND LATCHES. P. & F. CORBIN, New Britain, Conn. Filed Dec. 29, 1903.

UNIT

The word "UNIT." Used since April 15, 1899.

41,962. INDUCTION-COILS. VARLEY DUPLEX MAGNET COMPANY, Providence, R. I. Filed Dec. 30, 1903.

AUTOCOIL

The word "AUTOCOIL." Used since December 28, 1903.

41,963. AUTOMOBILES AND THEIR PARTS. THE C. H. BLOMSTROM MOTOR CO., Detroit, Mich. Filed Dec. 26 1903.

QUEEN

The word "QUEEN." Used since August 1, 1903.

41,964. ARTIFICIAL STONES. JACOB H. LOEVENHART, St. Louis Mo. Filed Sept. 22, 1903.

RÉMOH

The word "RÉMOH." Used since July 1, 1901.

THE NORRIS PETERS CO.

LABELS

REGISTERED JANUARY 26, 1904.

10,695.—*Title:* "ALTA VISTA." (For Wine.) ACKER, MERRALL & CONDIT, New York, N. Y. Filed November 17, 1903.

10,696.—*Title:* "PUROCK." (For Bottled Water.) THE CHARLES E. HIRES COMPANY, Malvern and Philadelphia, Pa. Filed December 18, 1903.

10,697.—*Title:* "PERFECT JELLY POWDER." (For Jelly Powder.) O. J. WEEKS & Co., New York, N. Y. Filed January 4, 1904.

10,698.—*Title:* "THE BUSTER BROWN BELT AND BUCKLE." (For Belts and Buckles.) E. & J. BASS, New York, N. Y. Filed December 29, 1903.

10,699.—*Title:* "BOISE NATURAL MINERAL WATER." (For Mineral Water.) B. H. COLEMAN, Boise, Idaho. Filed January 5, 1904.

10,700.—*Title:* "OZONETS." (For Breath-Perfuming Candies.) LAWRENCE HESSELROTH, Chicago, Ill. Filed January 5, 1904.

10,701.—*Title:* "NOXALL LOUSE KILLER." (For Insecticide.) VANDOLAH & PULLINS, Kahoka, Mo. Filed January 5, 1904.

10,702.—*Title:* "GUZO CALVARIAN ELIXIR." (For Medicine.) P. J. GUZOWSKI, Chicago, Ill. Filed December 14, 1903.

10,703.—*Title:* "REJUVENATOR MEDICINE CO." (For Medical Preparations.) S. E. TILLINGHAST, Atlanta, Ga. Filed December 12, 1903.

10,704.—*Title:* "THE CLIPPER CLIP." (For Paper-Clips.) CLIPPER MANUFACTURING COMPANY, New York, N. Y. Filed December 31, 1903.

10,705.—*Title:* "THE FAY CLIP." (For Paper-Clips.) CLIPPER MANUFACTURING COMPANY, New York, N. Y. Filed December 31, 1903.

10,706.—*Title:* "THE GEM CLIP." (For Paper-Clips.) CLIPPER MANUFACTURING COMPANY, New York, N. Y. Filed December 31, 1903.

10,707.—*Title:* "THE NIAGARA CLIP." (For Paper-Clips.) CLIPPER MANUFACTURING COMPANY, New York, N. Y. Filed December 31, 1903.

10,708.—*Title:* "GREEN SPRING VALLEY." (For Whisky.) ELDER-HARRISON CO., Baltimore, Md. Filed December 31, 1903.

PRINTS

REGISTERED JANUARY 26, 1904.

887.—*Title:* "WALTHAM WATCHES." (For Watches.) AMERICAN WALTHAM WATCH COMPANY, Waltham, Mass. Filed December 31, 1903.

888.—*Title:* "THE CANDY GIRL." (For Candy.) BERRIS FORD CANDY CO., St. Paul, Minn. Filed December 30, 1903.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE PAYNE.

Decided December 3, 1903.

1. EXAMINATION—PRACTICE—PERPETUAL-MOTION MACHINE—CITATION OF REFERENCES.

Where claim is made to a perpetual-motion machine, *Held* that the Examiner may properly reject the claim on the ground of inoperativeness without making a search through and citing the prior art.

2. SAME—SAME—SAME—NOT NECESSARY TO MAKE SEARCH.

As an ordinary rule all reasons for rejection should be given; but an exception may be made properly where the alleged invention is based on principles in direct conflict with the fundamental laws of science and mechanics.

3. SAME—SAME—SAME—INOPERATIVENESS.

The objection of inoperativeness on the ground that the machine is a perpetual-motion machine does not stand upon the same footing as an objection of inoperativeness based upon some mechanical defect in the device.

ON petition.

WATER-POWER APPARATUS.

Mr. T. F. Bourne for the applicant.

ALLEN, *Commissioner:*

This is a petition requesting that the Examiner in charge of the above application—

> * * * be instructed to withdraw his requirement for a working model or other demonstration equally satisfactory of the operativeness of the invention, and that he be directed to examine the claims upon their merits.

The record shows that the claims of the application were not rejected on the first action. The first official letter stated:

> This application appearing to involve the idea of perpetual motion, a working model is required or other demonstration equally satisfactory of the operativeness of the invention.

In response to this letter the applicant did not go into the question of inoperativeness raised by the Examiner, but requested that "the claims be examined upon their merits."

The Examiner thereupon rejected the claims, the official letter stating:

> The Examiner must decline to examine the claims upon the merits in the sense of making a systematic search into the novelty of each and giving treatment accordingly. The question involved in perpetual-motion machines is *sui generis*, and not one of ordinary inoperativeness. In the latter case it is often a question of opinion, or of the proportions, arrangement, or structure of details; that is, there is room for doubt or for correction. It is to such cases that the decisions cited by the applicant apply. In the present case, however, if the apparatus be operative, perpetual motion is presented. Perpetual motion being impossible, room for doubt as to inoperativeness is not perceived. Time spent in such searches and treatment as would be involved in complying with applicant's request would, in the firmest opinion of the Examiner, be thrown away. He must therefore hold as above, and the applicant may, for the purpose of a petition to the Commissioner, if he should deem the same advisable, consider this decision as final.

> The claims are formally rejected as based upon an inoperative structure, and the applicant may, if he desires, for the purpose of an appeal, consider this rejection as final.

No further action was taken by applicant until he filed the present petition.

Applicant has had action on the merits of the case, therefore; but such action is not as complete as he desires, since the Examiner has not considered the prior art as bearing on the question of patentability. His object in taking the present petition is to determine whether the Examiner was right in refusing to give him a full and complete action on the merits.

It is well settled, as a general rule, that when the claims of an application are rejected all grounds of rejection should be given in order that the case may be disposed of on a single appeal. (*Ex parte Burt*, 49 O. G., 1986; *ex parte Roberts*, 51 O. G., 155; *ex parte Bailey*, 52 O. G., 608.) As to the soundness of this practice there can be no serious doubt.

When, however, claims are made to a machine or device the alleged operation of which is based on principles in direct conflict with the fundamental laws of science and mechanics, it is thought a case is presented which should be made an exception to this rule. It is not to be presumed that an Examiner will reject a device as being a claim to a so-called "perpetual-motion" structure without giving the same careful consideration, and when he has reached such conclusion it disposes of the whole case unless his views are found to be untenable. Patents are granted because of the contributions which the inventors are supposed to make to the progress of science and the useful arts. When, therefore, an application is made for a patent on an alleged invention based on principles which run counter to such a well-recognized law as that of the conservation of energy, the Office is justified in holding that the applicant has not complied with the statutory requirement of showing that his invention is "sufficiently useful and important" (Rev. Stats., sec. 4893) to warrant the grant of a patent therefor until he has shown that the invention is capable of operation.

Devices of the character under consideration are frequently quite complicated, and unless an applicant can present some reasonable grounds for his contention that the device will operate it would seem to be a waste of time which the Office cannot spare to make an examination into the novelty of the same. In other words, when it has been point-

ed out that the device will not operate because based on a mode of operation contravening well-established principles of science and mechanics the burden is shifted on applicant to show it will operate, and until this burden is overcome the Office is justified in refusing to give the case further consideration on the merits.

In those cases, however, where doubts exist as to the operativeness of a device the application should receive full examination.

Inoperativeness based on perpetual motion is a very different kind of inoperativeness from that which usually arises in the Office, where it is held that a device is inoperative because certain parts thereof are not properly proportioned, or where a pipe which should be perforated is shown closed, or where belts are improperly crossed, or for various other reasons, many of which are merely draftsmen's errors. In these cases where the inoperativeness can obviously be readily overcome full action on the merits should be given.

In the present case, as appears from the Examiner's actions, the rejection for inoperativeness is based on perpetual motion, and accordingly it is held that it is unnecessary to give applicant further action on the merits until proof of operativeness has been furnished.

The petition is therefore denied.

RITTER *v.* KRAKAU AND CONNER, JR.

Decided December 3, 1903.

MOTION TO REOPEN INTERFERENCE—QUESTION OF JOINT INVENTION—STATUTORY BAR.

Where a party is in interference with joint applicants and makes a motion to reopen to take newly-discovered evidence tending to show that the joint applicants are not joint inventors, *Held* that the question relates to a statutory bar and not to the question of priority of invention, and therefore the motion denied.

ON motion.

DRAFT-GEAR FOR RAILWAY-CARS.

Application of Gilbert P. Ritter. Application of Harry T. Krakau and Lendell A. Conner, Jr.

Mr. W. H. Singleton for Ritter.

Messrs. Bakewell & Byrnes for Krakau and Conner, Jr.

ALLEN, *Commissioner:*

This is a motion by Ritter that the decisions of the Examiners-in-Chief and Examiner of Interferences be set aside and that the interference be reopened for the taking of newly-discovered evidence.

It is said that after testimony was taken and after the decisions above referred to were rendered Ritter discovered a patent granted to Krakau which he says indicates that Krakau was the sole inventor of the subject-matter of the present interference and not a joint inventor with Conner.

The question whether Krakau and Conner are joint inventors affects the question whether their present application shall be allowed; but it does not affect the question whether Ritter was the first inventor.

The question of priority is no more involved in the question of joint inventorship than it would be in the question whether one of the parties received the invention from some stranger to the record. Joint inventors constitute a different entity from a sole inventor. This Office and the courts have ruled that in an interference evidence that one of the parties was not an original inventor, but received it from some one other than his opponent, is not competent. (*Foster* v. *Antisdel*, 88 O. G., 1527.)

In the above case the court of appeals said:

That proceeding was instituted to determine as between the parties to it which of them is entitled to priority of the invention claimed. Both cannot be entitled, but one may be entitled as against the other, though there may be some third person who might, if the claim of that person were placed in issue as between that person and one or both of the parties to the present interference proceeding, show that he was in fact and reality entitled to priority of the invention in controversy.

The interference relates to priority, and if it appears from the evidence that Krakau and Conner were first in possession of the invention the decision must be in their favor, although for some other reason they may not be entitled to a patent. The question of joint inventorship relates to a statutory bar which does not affect Ritter's claim as prior inventor.

The motion is denied.

EX PARTE STACEY.

Decided December 7, 1903.

DIVISION—MIXING-MACHINE AND CLEANING-MACHINE.

Held that division was properly required between claims to a mixing and kneading machine and claims covering a cleaning-machine, since they constitute independent inventions and are examinable in different divisions of the Office.

ON petition.

MIXING AND BEATING AND CLEANING MACHINE.

Mr. A. L. Jackson for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between claims 4 and 5 and the remaining claims of the application.

The specification states that the invention relates to—

apparatus adapted for use in mixing and beating various ingredients for making batter or dough, for making whipped cream and articles of similar consistency, and for cleaning currants or raisins.

The device set out in claims 1 to 3 and 6 to 8 is adapted for use as a mixing and kneading machine, machines of which character are classified in Division XV under "Bread, Pastry and Confection Making, Mixers, Beaters and Kneaders."

Claims 4 and 5 include as an element a screen or its equivalent, the use of which in connection with the other elements of the machine renders it particularly useful as a cleaning-machine. Cleaning-machines of this type are classified in Division XXV under the class of "Mills, Sifters and Screens, Household."

The inventions covered by the two sets of claims have distinct uses, are separately classified in the Office, and appear to be regarded commercially as distinct machines. Under these conditions they should be presented in separate applications.

The petition is accordingly denied.

EX PARTE SILSBY.

Decided December 7, 1903.

FINAL REJECTION—PRACTICE.

Where the applicant explains his position in regard to the references fully and asks for reconsideration, *Held* that the Examiner properly rejected the claims finally, stating his reasons fully. The case is different from one where explanation is asked on some point before action.

ON petition.

DIE-PRESS.

Messrs. Burton & Burton for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner be directed to enter certain amendments presented in the above application and to act on the merits of the new claims.

It appears that in the official action of May 27, 1903, claims 1 to 5, inclusive, were rejected on certain references, and claims 12 and 13 were rejected on the patent to Barr, No. 252,989. On June 18, 1903, the applicant traversed the rejection of all the claims, discussed the references fully, and pointed out clearly wherein in his opinion they failed to anticipate the rejected claims. The closing paragraph in the letter is as follows:

We shall have to request the Examiner to point out the supposed applicability of the Barr reference, and meanwhile the claims rejected thereon are insisted upon. Reëxamination is requested.

In the Office letter of July 24, 1903, the Examiner allowed claim 13, formerly rejected on Barr, and finally rejected claims 1 to 5 and claim 12. He explains at length the ground on which the claims were finally rejected. Subsequently applicant filed two amendments, one on August 14, 1903, and the other on September 4, 1903, both of which the Examiner has refused to enter. It is from the refusal of the Examiner to enter these amendments that the present petition is taken.

It is not seen wherein the Examiner's action was not strictly in accordance with the rules. He rejected the claims and gave his reasons therefor. Applicant traversed the rejection and requested reconsideration. Thereupon the Examiner gave him the reconsideration required by the rules and finally rejected the claims. This final rejection was not premature. If applicant instead of requesting reconsideration of the Examiner's action rejecting the claims had requested merely that he be given an explanation of the reference on which the rejection was based, the case would be different, but having requested reëxamination the Examiner was right in taking such action on the merits of the claims as he thought justifiable.

Petitioner cites the case of *ex parte Miller* (104 O. G., 309) as showing that the Examiner's action in finally rejecting the claims was not warranted. This decision, however, is not in point. In that case Miller had requested merely that he be given an explanation of the references, which explanation the Examiner refused to give. In the present case the Examiner gave applicant a full explanation of the references, as requested, and also an action on the merits.

For the reasons given the Examiner's action was right, and the petition is accordingly denied.

EX PARTE EDWARDS.

Decided December 7, 1903.

ABANDONED APPLICATION—ACTION NOT RESPONSIVE.

Where the applicant is twice informed that the claims are finally rejected and that an amendment presented involves new matter and at the end of the time allowed by law for action he presents substitute claims and an argument as to new matter, *Held* that his action is not such as the condition of the case required and that it is abandoned.

ON petition.

LUBRICATORS.

Mr. E. H. Bond for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to enter a certain amendment on the ground that the application has become abandoned.

The record shows that after seven actions on the merits of the case the claims were finally rejected on June 17, 1902. The letter objected to certain amendments to the specification as involving new matter.

In a letter of June 21, 1902, the applicant traversed the action of the Examiner, holding that the changes made in the specification involved new matter, and argued, also, that his claim should be allowed.

In the Office action of July 9, 1902, the Examiner repeated his objection as to new descriptive matter and again rejected the claims finally.

On July 14, 1902, applicant presented an amendment wherein he attempted to overcome the objection to new matter. This amendment was accompanied by an argument to the effect that the finally-rejected claims were patentable. The Office letter of July 29, 1902, stated that the amendment of July 14 had been entered and, further, that the previous action finally rejecting the claims was adhered to. On August 2, 1902, applicant wrote to the Office stating that he did not understand from the last official letter whether his previous amendment had overcome the objection to new matter. The official letter of September 19, 1902, called attention to the fact that the objection to new matter still existed.

No further action was taken by applicant until August 14, 1903, when he presented an amendment to three of the finally-rejected claims and an argument to the effect that the objection to new matter was improperly taken.

The Examiner has refused to enter this amendment on the ground that it is not responsive to the last official action. The action of the Examiner is clearly right. The prosecution of the case was closed before him at least as early as the official action of September 19, 1902, wherein it was made clear to applicant that he, the Examiner, adhered to the final rejection and the objection to new matter.

In view of the formal objection to new matter applicant could not take an appeal to the Examiners-in-Chief. (Rule 134.) The only proper action on his part was to petition, under Rule 145, from the Examiner's action on the question of new matter. This he did not do, and consequently his at-

tempted action on August 14 was not responsive to the previous official letter. It was not such an action as tended to close the prosecution of the case. The Examiner's action in refusing to enter the amendment and in holding that the application had become abandoned was right.

The petition is accordingly denied.

EX PARTE HEWLETT.

Decided December 8, 1903.

AMENDMENT—FIXING TIME FOR ACTION LESS THAN THAT ALLOWED BY LAW.

Where after a decision against the applicant in an interference the Examiner rejects certain claims as not patentable over the issue and requires the applicant to amend or cancel them within a fixed time, *Held* that the Examiner had no authority to require action within any time less than that fixed by law.

ON petition.

ROTARY ENGINE.

Messrs. Bond, Adams, Pickard & Jackson and *Mr. James L. Norris* for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner insisting on applicant amending certain claims within a specified time or else canceling them.

It appears that this application was involved in interference with an application of one Jones on claims 1, 6, 7, 8, 9, and 10. This interference was decided adversely to Hewlett. After judgment of priority the Examiner rejected the claims which were involved in the interference and rejected also claims 11 to 14 on the ground that they were not patentable over the issue. The rejection of these latter claims was in accordance with the practice announced in *Wolfenden* v. *Price*, (83 O. G., 1801.)

The Examiner now requires applicant to amend these claims within twenty days or cancel them, and it is from this requirement that the present petition is taken.

It may be stated that since the termination of the interference between the applications of Hewlett and Jones the Examiner has suggested certain claims to Hewlett which he has made, and presumably he intends to place the application of Hewlett in interference with that of another party.

It does not appear why the Examiner has taken the action under consideration with reference to applicant's claims 11 to 14. In his answer to the petition he states:

> It is not apparent why the failure to make a suggested claim within a limited time should operate as a disclaimer of the subject-matter and the failure to properly amend rejected claims not also so operate.

The two cases are different. In one instance there is an allowable claim under consideration, and a party who can make it and will not do so within a specified time after it is suggested to him should not be allowed to delay proceedings further to the prejudice of another party. In the other instance, however, no one is injured, presumably, by the failure of a party to take action on a claim which the Examiner has held to be lacking in patentability.

The Examiner's action is not in accordance with the rules or decisions, and the petition is accordingly granted.

EX PARTE BROWN.

Decided December 8, 1903.

DIVISION—DIFFERENT SPECIES.

Where one set of claims calls for an element which is not applicable to or capable of use in the structure covered by another set of claims, *Held* that this shows the inventions covered by the sets of claims respectively are for different species, and the requirement of division is sustained.

ON petition.

LUBRICATORS.

Application filed February 25, 1903, No. 144,939.

Mr. Joseph L. Atkins for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner—

> requiring division between claims 1 and 3 to 7, inclusive, on the one hand, and claims 8 and 9 on the other.

As stated by the Examiner—

> Applicant's invention is a lubricator for moving parts, the appliance being of that class in which a stationary well is provided with a controlling-valve adapted to be wiped by the moving part.

Two forms of oil-well are shown, one in Figures 1, 2, and 3, the other in Fig. 6. In the device shown in the first group of figures the oil-reservoir is separate and independent of the oil-well, but the reservoir is so arranged as to permit the oil to drip therefrom into the well. There is an opening in the bottom of the well forming a seat for an oil-valve. This valve has an upwardly-projecting hollow stem having lateral inlets, the bore of the stem registering with a perforation in the valve, so that if the valve fails to work and the oil accumulates in the well it may pass into the stem and out through the perforation in the valve, thereby preventing overflow in the well.

The lateral inlets to the stem are provided with hoods 22 23, which prevent the direct passage of the oil from the reservoir 9 through the oil-stem.

In the device shown in Fig. 6 the independent oil-reservoir is dispensed with, the oil-well being located within the reservoir instead of being separate therefrom, as in the other construction.

Claim 2 is generic to both constructions. Claims 1 and 7 include the screw-cap 12, which is shown only in Figs. 1, 2, and 3, (which embrace the first specific form,) and which cap would not appear to be applicable to the modified structure shown in Fig. 6.

Claims 8 and 9 are clearly specific to the form of the invention shown in Fig. 6. Further, claims 3, 4, 5, and 6 are limited to a device having a hollow valve-stem, which would not appear to be applicable to the form of lubricator shown in Fig. 6.

It must be held, therefore, that claims 1 and 3 to 7 cover a specifically different invention from that covered by claims 8 and 9. Applicant should therefore restrict his case to claim 2 and either claims 1, 3 to 7 on the one hand or claims 8 and 9 on the other.

The petition is accordingly denied.

NEWELL v. HUBBARD.

Decided December 8, 1903.

INTERFERENCE—SUSPENSION TO ADD NEW COUNT—TESTIMONY TAKEN.

Where both partie shave completed their testimony-in-chief, the interference will not be suspended to add new counts consisting of claims made by one party, which claims the opposing party is presumed to have known even before the declaration of the interference. If there is to be a contest as to them, it must be a separate interference.

APPEAL on motion.

ELECTRIC BRAKE.

Application of Frank C. Newell. Application of Moses G. Hubbard, Jr.

Mr. J. Snowden Bell and *Mr. E. A. Wright* for Newell.

Messrs. Bakewell & Bakewell for Hubbard.

ALLEN, *Commissioner:*

This is an appeal by Hubbard from the decision of the Examiner of Interferences denying his motion to transmit the above-entitled interference to the Primary Examiner.

It appears the interference was declared June 24, 1902, and that both parties have completed their testimony-in-chief. Hubbard now desires to add certain claims to his application which are found in a patent to the other contestant granted June 4, 1901, and to have such claims made counts in the present interference. Newell's patent was issued, therefore, more than a year prior to the declaration of the interference, so that Hubbard has had constructive notice of it for over two years.

In view of the fact that the testimony is practically completed in the present interference it would serve no useful purpose to suspend it at this time to add the proposed new counts. On the other hand, if these counts were added to the interference new preliminary statements would have to be filed and further testimony taken, thus involving Newell in long delay. If Hubbard desires to contest Newell's right to the claims in his (Newell's) patent, he can do so just as well in a new interference.

The decision of the Examiner of Interferences is accordingly affirmed.

EX PARTE LOVEJOY.

Decided December 8, 1903.

ABANDONMENT OF APPLICATION—ARGUMENT BY APPLICANT—DIVISION.

Where the Examiner requires division and within the year fixed by law the applicant presents an argument pointing out wherein he thinks the Examiner is wrong, *Held* that the application is not abandoned.

ON petition.

APPARATUS FOR EFFECTING CHEMICAL ACTION IN GASES.

Messrs. Knight Bros. for the applicant.

ALLEN, *Commissioner:*

This is a petition asking that the Examiner be instructed that the above application has not become abandoned and that the claims therein cover a unitary invention.

The invention relates to an apparatus for bringing about chemical reaction between gases.

In the first official action the Examiner required division. In response to this action the applicant amended his specification and presented an argument wherein he pointed out that in his opinion the Examiner erred in requiring division. This action was taken within the year; but the case was not reached for consideration by the Office until the year had expired, whereupon the following letter was written:

> Division having been required on Sept. 10, 1902, and the applicant not having complied within the year allowed by the rules, this case became abandoned Sept. 10, 1903.

It is from this action that the present petition is taken.

Rule 67 provides that—

> 67. Whenever in the treatment of an *ex parte* application, an adverse decision is made upon any preliminary or intermediate question, without the rejection of any claim, notice thereof, together with the reasons therefor, will be given to the applicant, in order that he may judge of the propriety of the action. If, after receiving such notice, he traverse the propriety of the action, the matter will be reconsidered.

It is clear from this rule that the applicant is entitled to reconsideration of the Examiner's action requiring division. Furthermore, according to the provisions of Rule 145, before a question can be taken to the Commissioner on petition it must have been "twice acted upon by the Examiner."

Applicant's request for reconsideration being in compliance with the rules, it was an error to hold that the application had become abandoned. The petition from this action of the Examiner is therefore granted.

As the question of division has not been twice acted upon, that part of the petition asking that the Examiner be instructed that the claims cover a unitary invention is premature, and it is accordingly dismissed. (Rule 145.)

EX PARTE POWERS.

Decided December 10, 1903.

1. REISSUE—REJECTION—APPEAL TO EXAMINERS-IN-CHIEF.

Where the Examiner rejects the claims of a reissue application on the ground that the application for reissue was not filed within two years after the grant of the patent, *Held* that the remedy is by appeal to the Examiners-in-Chief and not by petition.

2. SAME—APPLICATION COMPLETE—ABSTRACT OF TITLE.

A reissue application cannot be entered as a complete application until the certified abstract of title called for in Rule 86 is furnished.

ON petition.

CASE FOR PERFORATED MUSIC-SHEETS FOR MUSICAL INSTRUMENTS.

Mr. Howard P. Denison and *Messrs. H. C. Evert & Co.* for the applicant.

ALLEN, *Commissioner:*

This case comes up on a petition—

> from the refusal of the Examiner to consider this application, for the reason that the same was not given a filing date as within two years from the date of the original patent allowed by law.

The facts as revealed by the record do not support this assertion by the petitioner. The Examiner has not refused to consider the application. On the other hand, careful consideration was given to the application. Objections were made to the oath and division was required between certain groups of claims. The Examiner also referred to the fact that the application for reissue was filed

more than two years after the date on which the patent was granted. He said:

The statement that the patent failed to secure to the patentee all that he was entitled to claim does not give a sufficient reason for the grant of Reissue Letters Patent, inasmuch as there has been a delay of over two years in applying for a reissue, and as such delay has been held to be an unreasonable one in the leading cases of the United States Supreme Court when the purpose of the reissue is to broaden the claims.

While this question relates to the merits of this application and should be considered on appeal in the first instance by the Examiners-in-Chief, provided the Examiner adheres to such holding, it may be stated that there does not seem to be any warrant in the decisions of the courts for such a broad statement.

The real purpose of this petition is evidently to obtain an earlier filing date than that given. All the parts of this application for reissue, with the exception of the certified abstract of title, were filed on July 17, 1903. The certified abstract of title was filed on October 17, 1903, and the application was accepted as filed complete on October 17, 1903. Rule 86 provides that:

86. The petition for a reissue must be accompanied by a certified copy of the abstract of title, giving the names of all assignees owning any undivided interest in the patent. In case the application be made by the inventor it must be accompanied by the written assent of such assignees.

The petition for reissue was not accompanied by a certified copy of abstract of title. The assent of the present assignees has not been given to the application for reissue. Following the practice laid down in *ex parte Griffin*, (91 O. G., 2001,) it must be held that this applicant is not entitled to a date of filing earlier than October 17, 1903. It appears that this petition was taken for the same purpose as prompted the petition in the case of *ex parte Griffin, supra*. What was said by Commissioner Duell in that case applies as well to this. He said:

It seems that this petition is taken because the applicant wishes to have it appear that his application for reissue was filed in the Office within two years from the date of his patent, assuming that unless this were done he would be barred from obtaining a reissue. I know of no rule or decision of a court that makes it mandatory upon an applicant for reissue to file his application within two years from the date of the patent, and I cannot see any material benefit to be obtained by applicant by having the date of his application changed so that it would appear to have been filed a few days before the expiration of two years from the date of his patent.

The petition is denied.

HALL *v.* WEBER.

Decided December 12, 1903

INTERFERENCE—USE OF TESTIMONY IN DIFFERENT PROCEEDING—RULE 157.

Where in one interference one of the applicants admits that the proceeding is closely related to another interference in which he was involved and introduces in evidence the decision in that other interference and says that he has no objection to the introduction of the entire record, *Held* that the opposing party may refer to the entire record without printing it as a part of his proofs.

APPEAL on motion.

INSULATED RAIL-JOINTS.

Patent granted George L. Hall September 2, 1902, No. 708,349. Applications of George A. Weber.

Mr. Harry Van Ness Philip for Hall.

Messrs. Dickerson, Brown & Raegener and *Messrs. Foster & Freeman* for Weber.

ALLEN, *Commissioner:*

This is an appeal by Hall from the decision of the Examiner of Interferences denying his motion under Rule 157 to be permitted to use in the above-entitled case testimony taken in another interference between the same parties.

The motion was opposed by Weber and was denied upon the ground that it was not shown that the testimony is relevant and material. It appears that Hall wishes to use all of the testimony taken in the prior interference, since he does not specify any particular part in his motion. The showing in support of the allegation that the testimony would be pertinent consists of quotations from Weber's testimony in the present case indicating that he regards the two interferences as relating to substantially the same thing. It also includes quotations from the record showing that Weber introduced the decision in the prior interference as a part of his evidence in this case. Following this introduction the record contains the following:

Objection is made to the introduction of the Examiner's decision unless the record of the interference proceeding is also introduced.

Counsel for Weber says: We have no need or use for that record but shall offer no objection if you see fit to offer it in evidence, print it and make it part of your record.

In view of this statement upon the record and of Weber's admission that, in his opinion, the two cases refer to substantially the same thing, it must be held that Hall's right to refer to the record in the prior case is not to be denied upon the ground that it is not relevant. By his statement upon the record counsel for Weber waived any objection to the subject-matter of the record in the prior interference and practically admitted its relevancy. He said that Hall should print it and make it a part of his record; but that did not go to the merits of the question whether it should be considered.

The record is on file in this Office, and no reason is seen why Hall should not refer to the testimony contained therein without reprinting it as a part of his evidence.

The decision of the Examiner of Interferences is reversed.

Patents Nos. 750,788 to 752,439.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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ISSUE OF FEBRUARY 2, 1904.

Patents	652	No. 750,788 to No. 751,439, inclusive.
Designs	16	No. 36,762 to No. 36,777, inclusive.
Trade-Marks	39	No. 41,965 to No. 42,003, inclusive.
Labels	13	No. 10,709 to No. 10,721, inclusive.
Prints	5	No. 889 to No. 893, inclusive.
Reissues	1	No. 12,196.
Total issue	726	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2		Nevada		
Alaska Territory			New Hampshire	2	1
Arizona Territory			New Jersey	36	
Arkansas	3		New Mexico Ter't'y		
California	16	1	New York	120	15
Colorado	9		North Carolina	4	
Connecticut	12		North Dakota		
Delaware		1	Ohio	43	6
District of Columbia	3		Oklahoma Territ'y	3	
Florida			Oregon	5	
Georgia	5		Pennsylvania	67	7
Hawaii Territory			Porto Rico		
Idaho	1		Rhode Island	1	
Illinois	65	2	South Carolina	2	
Indian Territory			South Dakota	1	
Indiana	8	1	Tennessee	5	
Iowa	13	1	Texas	7	
Kansas	12		Utah	2	
Kentucky	4	1	Vermont	3	
Louisiana	1		Virginia	9	
Maine	1		Washington	7	1
Maryland	8		West Virginia	4	1
Massachusetts	40	2	Wisconsin	9	3
Michigan	15	2	Wyoming	1	
Minnesota	18	4	U. S. Army		
Mississippi	2	1	U. S. Navy	2	
Missouri	20				
Montana	1		Total to citizens of the United States	604	51
Nebraska	8	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Australia			Netherlands		
Austria-Hungary	4		Newfoundland		
Belgium	2		New South Wales		
Brazil			New Zealand	1	
British West Indies			Norway		
Canada	8	2	Persia		
Cape Colony	1		Queensland		
Chile			Roumania		
China			Russia	1	
Costa Rica			San Salvador	1	
Cuba		1	Scotland		1
Denmark	1		South Africa		
Ecuador			Spain		
England	21	2	Sweden	3	
France	6		Switzerland		
Germany	12		Transvaal, South Africa	1	
India			Victoria		
Ireland	1		Western Australia		
Italy					
Japan					
Java					
Mexico	1		Total to citizens of foreign countries	64	6

Notice of Interference.

CARUNCHO *v.* CARUNCHO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., December 21, 1903.

Heirs, executor, or administrator of Eugen Caruncho, deceased, take notice:

Notice is hereby given that times have been set as follows for taking testimony in this interference and for its final hearing to wit:

A. Caruncho's testimony-in-chief to close March 9, 1904. E. Caruncho's testimony to close April 9, 1904. A. Caruncho's rebuttal testimony to close May 9, 1904. Final hearing June 9, 1904.

Notice is further given that A. Caruncho has applied for a commission to take testimony abroad, as provided by Rule 158.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

December 22, 1903.

F. I. ALLEN,
Commissioner.

Access to Pending Applications.

RULE 18. Before any attorney, original or associate, will be allowed to inspect papers or take action of any kind, his power of attorney must be filed. But general powers given by a principal to an associate cannot be considered. In each application the written authorization must be filed. A power of attorney purporting to have been given to a firm or copartnership will not be recognized, either in favor of the firm or of any of its members, unless all its members shall be named in such power of attorney.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 26, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 14	Jan. 14	147
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 7	Jan. 12	106
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 5	Dec. 29	163
812	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 4	Dec. 30	306
321	I. Tillage, etc., and Fences	Dec. 30	Dec. 23	241
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 29	Jan. 12	180
332	X. Carriages and Wagons	Dec. 29	Jan. 7	201
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 29	Nov. 9	442
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 28	Jan. 12	271
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 28	Jan. 12	275
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 28	Jan. 12	218
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 28	Jan. 11	179
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 28	Jan. 2	297
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 28	Dec. 28	238
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 28	Dec. 28	280
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 28	Dec. 28	234
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 28	Dec. 28	227
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Dec. 28	Dec. 15	254
233	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 28	Dec. 12	328
244	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Dec. 26	Jan. 12	198
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Dec. 26	Jan. 12	229
303	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 26	Jan. 8	223
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 26	Jan. 6	159
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Dec. 26	Jan. 6	256
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Dec. 26	Jan. 6	288
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Dec. 26	Jan. 5	205
327	XVIII. Steam-Engineering, etc...	Dec. 26	Dec. 24	152
109	XVI. Telegraphy and Telephony..	Dec. 26	Dec. 5	197
133	XXII. Fire-Arms, Ordnance, Navigation.	Dec. 26	Nov. 25	192

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 26	Nov. 12	264
	Between one and two months.			
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Dec. 19	Dec. 8	409
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 18	Dec. 23	312
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 15	Dec. 14	330
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Dec. 14	Dec. 28	376
128	II. Farm Products, etc., Lubricators, Presses, etc.	Dec. 10	Dec. 9	415
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Dec. 7	Nov. 7	520
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 3	Nov. 10	346
	Between two and three months.			
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 25	Nov. 25	468

Total number of applications awaiting action.....10,226

	Under one month.		
*Designs	Jan. 18	Jan. 22	19
†Trade-Marks	Jan. 9	Jan. 25	64
‡Labels and Prints	Jan. 25	Jan. 25	8

Patents to Assignees.

RULE 200. In every case where it is desired that the patent shall issue to an assignee, the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

Rule 96 of the Rules of Practice.

Interference—Suggested Claims.

Rule 96 of the Rules of Practice of the United States Patent Office, revised edition of January 2, 1903, reprinted April 15, 1903, is amended to read as follows:

96. Whenever the claims of two or more applications differ in phraseology, but cover substantially the same patentable subject-matter, the Examiner, when one of the applications is ready for allowance, will suggest to the parties such claims as are necessary to cover the common invention in substantially the same language. The parties to whom the claims are suggested will be required to make such claims and put the applications in condition for allowance within a specified time in order that an interference may be declared. Upon the failure of any applicant to make the claim suggested within the time specified, such failure or refusal shall be taken without further action as a disclaimer of the invention covered by the claim, and the issue of the patent to the applicant whose application is in condition for allowance will not be delayed unless the time for making the claim and putting the application in condition for allowance be extended upon a proper showing. If a party make the claim without putting his application in condition for allowance, the declaration of the interference will not be delayed, but after judgment of priority the application of such party will be held for revision and restriction, subject to interference with other applications.

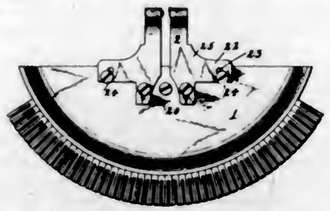
Examiners' Letters and Amendments.

Examiners are directed to recite in each letter in an application the date of the action by the applicant to which it is a reply, and applicants are requested to indicate in their actions on an application the date of the last Office letter.

PATENTS

GRANTED FEBRUARY 2, 1904.

750,788. TYPE-WRITER ALINEMENT AND ADJUSTMENT. JESSE ALEXANDER, New York, N. Y., assignor of one-half to Frederick H. Ward, Brooklyn, N. Y. Filed Nov. 8, 1902. Serial No. 130,547. (No model.)



Claim.—1. An alining device for a type-writer, comprising, a supporting-plate, a pair of pivoted brackets, a pair of revoluble balls situated between their adjacent faces, each bracket having a side extension-arm slotted to provide adjustment about the pivots and set-screws for securing said brackets.

2. An alining device for type-writers, comprising, pivoted L-shaped brackets having upright and horizontal arms, revoluble guide-balls carried by the uprights and reinforcing web portions from the uprights to the arms, said arms being slotted for permitting the adjustment of said arms and brackets.

3. An alining mechanism for type-writers including a supporting-plate, a series of type-bar-carrying fingers mounted in groups on said plate with the pivot-axes for said type-bars in a single curved line, and a common securing-screw for each group to fasten said group to the supporting-plate.

4. An alining mechanism for type-writers comprising, a supporting-plate, a series of type-bar-carrying fingers mounted in groups on said plate, a common securing-screw for each group and an individual securing-screw for each finger.

5. An alining mechanism for type-writers comprising, a supporting-plate, a series of type-bar-carrying fingers mounted in groups on said plate, a common securing-screw for each group and an individual securing-screw for each finger, said fingers being slotted to receive said screws.

6. An alining mechanism for type-writers comprising, a substantially semicircular supporting-plate, a series of type-bar-carrying fingers mounted radially in groups on said plate, a common securing-screw for each group and an individual securing-screw for each finger.

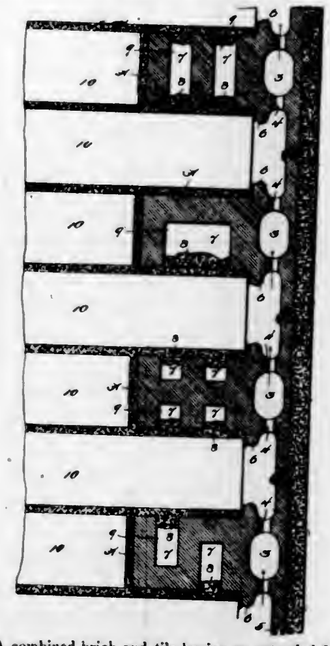
7. An alining mechanism for type-writers comprising, a substantially semicircular supporting-plate, a series of type-bar-carrying fingers mounted radially in groups on said plate, a common securing-screw for each group and an individual securing-screw for each finger, said fingers being slotted to receive said screws.

750,789. COMBINED BRICK AND TILE. DAVID W. ANDERSON, Richmond, Va. Filed Dec. 20, 1902. Serial No. 136,006. (No model.)

Claim.—1. A combined brick and tile, consisting of a body portion, having openings in its sides, extending transversely to its length, to serve as anchor-recesses for mortar, an extended facing or tile portion, and a neck connecting the tile with the body portion of the brick, as herein set forth.

2. A combined brick and tile, consisting of a body portion, having openings in its sides, extending transversely to its length, to serve as anchor-recesses for mortar, an extended facing, or tile portion, and a reduced neck portion, connecting the tile, and body portion, said neck having a longitudinal opening, and air-holes extending transversely through the neck, as herein set forth.

3. A combined brick and tile, consisting of a body portion, a facing tile portion, and a reduced neck, connecting the body and tile, and mortar recesses or pockets, in the body portion transverse thereto and opening out of its sides, as herein set forth.



4. A combined brick and tile having an extended facing, a reduced neck portion provided with ventilating-openings therein, and longitudinal grooves or openings in the body of the brick upon opposite sides thereof to form dowels or anchor-recesses for mortar, substantially as described.

5. A combined brick and tile, comprising a body portion, having transverse openings in its sides, an extended tile portion, and a neck portion, connecting integrally the tile and body, and perforated longitudinally, as herein set forth.

750,790. COMBINED BRICK AND TILE. DAVID W. ANDERSON, Richmond, Va. Filed Feb. 6, 1903. Serial No. 142,178. (No model.)

Claim.—1. A combined brick and tile, comprising a brick portion, a tile portion having a number of openings of various shapes, and sizes, and an intermediate portion, connecting the brick, and tile, and integral therewith, as herein set forth.

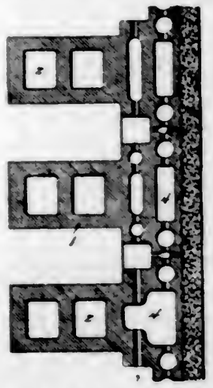
2. A combined brick, and tile, comprising a brick portion, a tile portion having a number of openings, and air-passages intersecting such openings, and an intermediate portion, connecting the brick, and tile, and integral therewith, as herein set forth.

3. A combined brick, and tile, comprising a hollow brick portion, a tile portion having openings of various shapes, and sizes, and an intermediate portion, connecting the brick, and tile, and integral therewith as herein set forth.

4. A combined brick and tile comprising a hollow tile portion, a brick portion, and an intermediate integral portion having perforations, substantially as described.

5. A combined brick and tile, comprising a brick portion, a tile portion having a number of openings, and an intermediate or neck

portion having a number of openings, and air-passages intersecting said openings, said neck being integral with the tile and brick, as herein set forth.

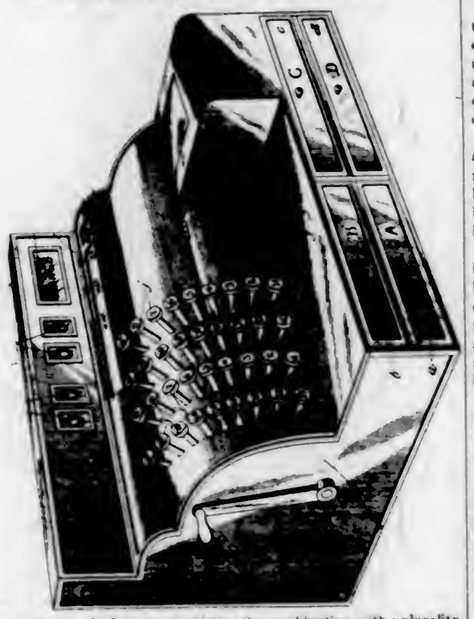


6. A combined brick and tile, comprising a brick portion, a tile portion having a number of openings, and perforations intersecting said openings, and an intermediate or neck portion connecting, and integral with said tile and brick, and having a number of openings, and perforations intersecting said openings, as herein set forth.

7. A combined brick and tile having openings in the tile portion, openings or hollows in the brick portion, and an intermediate extended neck portion having perforations, substantially as described.

8. A combined brick and tile having longitudinal grooves to serve as mortar anchors and guides, substantially as described.

750,791. CASH-REGISTER. EUGENE W. APPLEGATE, Chicago, Ill., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., and Dayton, Ohio, a Corporation of New Jersey. Filed Sept. 5, 1899. Serial No. 729,465. (No model.)



Claim.—1. In a cash-register, the combination with a plurality of cash-receptacles each provided with a latching device, of a corresponding number of special registers, a general register, a single register-operating mechanism, means normally connecting the general register with the register-operating mechanism, special setting devices, and means by which the operation of a special setting device will release the latch of a certain receptacle, connect the corresponding special register with the register-operating mechanism and disconnect the general register therefrom.

2. The combination with a plurality of drawers, each provided with a locking device, a corresponding number of special registers, a general register, a single register-operating mechanism, means normally connecting the general register with the register-operating mechanism, special keys, and means by which the operation of any one of the special keys will unlock the lock on the corresponding drawer, and will connect the corresponding register with the register-operating mechanism and will disconnect the general register therefrom.

3. In a cash-register, the combination with a plurality of cash-receptacles each provided with a locking device, of a general register and a number of special registers corresponding to the number of cash-receptacles, a single register-operating mechanism, printing-types for indicating the users of the respective receptacles, means normally connecting the general register with the register-operating mechanism, special keys, and mechanism whereby the operation of any one of the special keys will unlock the corresponding receptacle, will set the corresponding type, will connect the corresponding special register with said register-operating mechanism and will disconnect the general register therefrom.

4. The combination with a plurality of drawers, each provided with a locking device, of a general register and a number of special registers corresponding to the number of drawers, a single register-operating mechanism, types for indicating the users of the drawers, means normally connecting the general register with said register-operating mechanism, special keys and mechanism whereby the operation of any one of the special keys will unlock the lock on the corresponding drawer, will set the corresponding type in printing position, will connect the corresponding special register with said register-operating mechanism and will disconnect the general register therefrom.

5. The combination with a plurality of drawers, of a corresponding number of registers and special keys, locking devices for said drawers, a single register-operating mechanism, and mechanism whereby the operation of any one of the special keys will simultaneously connect the corresponding register with said register-operating mechanism and unlock the locking device on the corresponding drawer.

6. The combination of a plurality of drawers, a general register, and a number of special registers corresponding to the number of drawers, a single register-operating mechanism, means normally connecting the general register with said register-operating mechanism, and means for disconnecting said register from said mechanism and connecting any one of the special registers therewith, and also fo opening the drawer corresponding to the connected special register

7. A cash-register comprising mechanism for registering values a plurality of drawers, each provided with a locking device, a plurality of corresponding registers, special keys and mechanism whereby the operation of any one of the special keys will unlock the locking device of the corresponding drawer and connect the corresponding register with the value mechanism.

8. In a cash-register, the combination with a common operating mechanism, of a series of special registers any one of which may be brought into connection with said operating mechanism, a series of cash-drawers, locks for said drawers, a series of special keys, and mechanism intermediate the keys and drawer-locks and the keys and registers for unlocking a particular drawer and throwing its respective register into connection with the operating mechanism by the operation of such key.

9. In a cash-register, the combination with a plurality of cash-receptacles, a plurality of corresponding registers, means for locking the receptacles and mechanism for partially and completely unlocking the receptacles in different operations.

10. In a cash-register, the combination with an operating mechanism, of a plurality of special counters any one of which may be brought into connection with said operating mechanism, a plurality of independent cash-receptacles, means for partially unlocking any desired receptacle and bringing its corresponding counter into operative relation with the operating mechanism, and independent devices for completely unlocking a selected receptacle.

11. In a cash-register, the combination with an operating mechanism, of a series of special counters any one of which may be brought into connection with the operating mechanism, a series of independent cash-receptacles, a printing mechanism, selective means for throwing a desired one of the counters into connection with the operating mechanism and partially unlocking the corresponding cash-receptacle, and independent means for fully unlocking the selected receptacle and operating the printing mechanism.

12. The combination with an operating mechanism, of a plurality of independent registers, a plurality of corresponding drawers, a plurality of identifying devices for the users of the several drawers, a single register-operating mechanism for operating any one of the registers, and a series of keys which when operated unlock the selected drawer, throw the proper register into connection with the operating mechanism and set the corresponding identifying device.

13. The combination with a plurality of cash-receptacles, of a plurality of corresponding registers, a single set or bank of value-keys for use in connection with each one of the registers, means for selecting the desired register and cash-receptacle, and mechanism intermediate the keys and the registers, for operating the latter, upon being moved by the depression of the keys.

14. The combination with a plurality of cash-receptacles, a plurality of corresponding registers, a single register-operating mechanism, a series of keys which when depressed actuate said register-operating mechanism, means for causing the operation of said mechanism to operate any desired one of the registers, means for opening the receptacle corresponding to the register receiving the registration, and means for printing the amount of the registration.

15. The combination with a plurality of drawers, of a plurality of corresponding registers, a single bank or set of operating value-keys for use in connection with all the registers, means receiving motion from the value-keys and arranged to transmit such motion to the selected register, means for opening the drawer corresponding to the register receiving the registration, and devices for printing the amount of the registration and the identity of the user of the drawer.

16. The combination with one or more rows or banks of value-keys, of a corresponding number of oscillatory segments, links having different lengths pivotally connected with the value-keys and the segments, a number of shafts gear-connected with said segments, a plurality of registers, and connections for connecting any one of said registers with said shafts.

17. The combination of one or more banks or rows of value-keys, a corresponding number of oscillatory segments, links connecting each segment with its keys, a corresponding number of shafts gear-connected with the segments, a plurality of registers, each consisting of a number of sets of wheels corresponding to the number of rows or banks of value-keys, and connections whereby all of said shafts can be connected with the sets of wheels composing any one of the registers.

18. The combination with the register-wheels, of toothed segments gearing with pinions thereon, and swinging arms having hooks adapted to engage said segments, and to be disengaged therefrom, whereby, when the same are drawn longitudinally, the pinions will be turned if the hooks are in engagement with the segments, but will not be turned if the same are disengaged therefrom.

19. The combination with a plurality of rows or banks of value-keys, of a corresponding number of swinging segments, links having successively greater lengths connecting the keys in each row or bank with the segment therefor, said links being arranged at an inclination to the key-shanks, so that the depression of the various keys in each row will swing the segment therefor successively greater amounts, a number of shafts corresponding to the number of rows or banks of keys, said shafts being gear-connected with the swinging segments, crank-arms on said rotary shafts, a general register and a plurality of special registers, each consisting of a number of sets of wheels corresponding to the number of rows or banks of value-keys, toothed segments gearing with pinions on each set of wheels, said segments being provided with pins, sets of swinging arms, one for each register, said arms having hooks adapted to engage the pins on the toothed segments, the arms of the general register being arranged below the pins, and the arms for the special registers being arranged above the pins, whereby the general register will be connected and the special registers disconnected when the respective arms thereof are elevated, and also whereby the general register will be connected and the special register connected when the respective arms thereof are lowered, pivoted levers and links connecting the swinging arms with the crank-arms on said rotary shafts, vertically-reciprocating bars, one for each register engaging all of the swinging arms of said register, springs tending to hold said reciprocating bars normally in elevated position, a horizontally-arranged shaft having arms, one of which is pivotally connected to the reciprocating bar of the general register, and the others of which are below pins on the said bars of the special registers, and special keys, each of which is adapted to engage a pin on the bar of the corresponding special register, and to lower said bar and thereby cause the simultaneous depression of the bar of the general register.

20. The combination with the value-keys, the links pivotally connected therewith, and the oscillatory segments pivotally connected to the links, of shafts gear-connected with the segments, and provided with lateral arms, rack's pivotally connected to the ends of the arms, pulleys having pinions meshing with said racks, and indicator-bands mounted upon said pulleys.

21. The combination with a plurality of drawers respectively provided with locking devices, a corresponding number of special registers, a type-wheel having types for designating the users of the special drawers, special keys and mechanism whereby the operation of any one of the special keys will simultaneously unlock the locking device on the corresponding drawer, connect the corresponding register for registration, and turn the type-wheel so as to bring the corresponding type into printing position.

22. The combination with the general register and a plurality of special registers, of a number of drawers corresponding to the number of special registers, a single register-operating mechanism for operating any one of the registers, means normally connecting the general register with the register-operating mechanism, means for connecting any one of the special registers with said register-operating mechanism and disconnecting the general register therefrom, and also for unlocking the drawer corresponding to the connected register.

23. The combination with a plurality of drawers, of locking-bars, one for each drawer, bell-cranks to which said bars are pivotally connected, links pivotally connected to the other arms of said bell-cranks, pivoted levers connected with said links, and special keys adapted to swing said pivoted levers.

24. The combination with the type-wheel bearing the types to designate the users of the machine, of a link pivotally connected therewith, a rock-shaft having an arm pivotally connected with said link, and also having arms extending laterally at different inclinations, and keys having inclines adapted to strike said differently-inclined arms, and thereby rock said shaft different amounts.

25. The combination with a plurality of rows of value-keys, of a corresponding number of rotatable segments, links connecting the value-keys in each row with the corresponding segments, rotary shafts gear-connected with the segments and provided with swinging arms, racks pivotally connected to the ends of said arms, and a plurality of type-wheels, one for each row of value-keys, gear-connected with pinions which mesh with said racks.

26. The combination with the type-wheels, of a rock-shaft having spring-controlled arms adapted to engage teeth on said type-wheels, a link pivotally connected with a rocker-arm on said shaft, a second rock-shaft having a long arm pivotally connected with said link, and having a plurality of short arms, and special keys having inclined surfaces adapted to strike said short arms and thereby rock the last-mentioned rock-shaft.

27. The combination with a plurality of drawers, of a plurality of corresponding special registers, a general register, a single register-operating mechanism, means normally connecting the general register with the register-operating mechanism, means for connecting any one of the special registers with such mechanism and for disconnecting the general register therefrom, means for opening the drawer corresponding to the connected register, and means for printing the amount of the registration.

28. The combination with a printing-platen, of a rock-shaft having arms link-connected with the platen, a spring tending to turn said shaft so as to swing the arms thereon upward, a hand-operated shaft having a crank-arm, and a catch pivotally connected to the end of the crank-arm and constructed to engage a dog on said rock-shaft, and also constructed with a lug adapted to strike when the hand-operated shaft is turned so as to swing the catch and thereby trip or release the dog.

29. The combination with the printing-platen, of a rock-shaft having arms link-connected with the platen, means tending to turn said rock-shaft so as to swing the arms upward, a second rock-shaft provided with a catch adapted to engage the first-mentioned shaft and swing it downwardly when turned, and means for tripping said catch so as to release the first-mentioned shaft when the second-mentioned one is sufficiently turned.

30. The combination of a rock-shaft, a feed-roller having a pinion loose upon the spindle thereof and provided with pawl-and-ratchet mechanism, a toothed segment gearing with said pinion and link-connected with a crank-arm on said rock-shaft, spring means tending to swing the segments in a direction to cause the pinion to drive the roller whereby the turning of the rock-shaft to operate the platen will cause the segment to turn the pinion loosely, and the return of the rock-shaft to normal position will cause the pinion to turn the feed-roller through the pawl-and-ratchet mechanism.

31. The combination with a storage-reel having a pinion loose

on its spindle, pawl-and-ratchet mechanism for driving the reel when the pinion is turned in one direction, a toothed segment gearing with said pinion, a spring tending to swing said segment in a direction to cause the pinion to turn the reel, a link having a slot in which the pin on said segment can work, and mechanism for reciprocating the link.

32. The combination of a feed-roller and a storage-reel, each having a pinion mounted loosely upon its spindle, and provided with pawl-and-ratchet mechanism for turning it in one direction only, toothed segments meshing with said pinions, spring means tending to swing both of said segments in a direction to cause the pinions to turn the roller and reel respectively, a link pivotally connected with an extension on the segment meshing with the feed-roller segment, and having a slot on which the pinion on the reel-segment works, a link pivotally connected with an arm extended laterally on the roller-segment, and a rock-shaft having a crank-arm pivotally connected with the other end of said link.

33. The combination with a reciprocating locking-bar, of the pivoted lever pivotally connected therewith, and a rock-shaft having a collar which is constructed with a dog adapted to engage one end of said pivoted lever and swing the same when the rock-shaft is turned.

34. A cash-register comprising a plurality of drawers, a plurality of corresponding registers, means for locking the drawers, and mechanism for partially and completely unlocking the drawers in different operations.

35. A cash-register comprising mechanism for registering values, a plurality of drawers, a corresponding number of independent registers, means for printing the amount of the registration, means for connecting any one of the registers with the registering mechanism, and for partially unlocking the corresponding drawer, and means for simultaneously operating the printing mechanism and completely unlocking said drawer.

36. A cash-register comprising mechanism for registering values, a plurality of independent cash-drawers, corresponding keys and special registers, mechanism whereby the operation of any one of the special keys connects the corresponding register with the registering mechanism, types to indicate the amount of registration, and also the operator of the machine, mechanism whereby the operation of the registering mechanism sets the proper types in position irrespective of the register connected with such mechanism, mechanism whereby the operation of one of the special keys sets the corresponding type in printing position, means for partially unlocking the drawer upon the operation of any one of the special keys, printing mechanism, and means for simultaneously operating the printing mechanism and completely unlocking said drawer.

37. A cash-register comprising mechanism for registering values, a plurality of independent drawers, corresponding special keys and special registers, a general register, means for normally connecting the general register with the registering mechanism, type-wheels to designate the amount of the registration and also the user of the machine, means whereby the operation of any of the special keys will disconnect the general register from the registering mechanism, and connect the corresponding special register therewith, and will also partially unlock the corresponding drawer and set the proper type in printing position, means whereby the operation of the registering mechanism will set the proper type-wheel in printing position irrespective of the register connected for registration, printing mechanism, and means for simultaneously operating the printing mechanism and completely unlocking the drawer previously partially unlocked.

38. The combination with the register-wheels provided with pinions, of toothed segments gearing with said pinions and provided with pins, swinging arms having hooks capable of engaging said pins, pivoted levers connected with said arms, links pivotally connected with said levers, and rock-shafts having crank-arms pivotally connected with said links.

39. The combination with the register-wheels having pinions, of toothed segments gearing with said pinions, swinging arms having hooks capable of engaging said pins, pivoted levers pivotally connected with said arms, links pivotally connected with said levers, rock-shafts having crank-arms pivotally connected with said links, value-keys and rotatable segments operated by said value-keys, and gear-connected with the shafts carrying said crank-arms.

40. The combination with the register-wheels provided with pinions, of toothed segments gearing with said pinions, swinging arms adapted to be engaged with and disengaged from said segments, means for drawing said arms so as to turn the segments and thereby turn the register-wheels, means for swinging all of said arms simultaneously into engagement with the toothed segments and special keys for operating said mechanism.

41. The combination with the register-wheels, of means for operating the same, means for throwing said operating mechanism into and out of engagement with the register-wheels, a special key for actuating the engaging means, said keys being separable and adapted to operate the engaging means when inserted.

42. The combination with the register-wheels, of the swinging arms for operating the same, a reciprocating bar engaging said arms and provided with a shoulder, a spring tending to hold said bar in normal position, and a key having an inclination adapted to engage the shoulder on said bar and move the bar when operated.

43. The combination with the register-wheel provided with pinions, of toothed segments meshing with said pinions and provided with pins, swinging arms having hooks adapted to engage said pins, means for operating said swinging arms so as to cause them to operate the register-wheels, a reciprocating bar engaging all of said arms and provided with a shoulder, and keys having an inclination adapted to strike against the shoulder on said bar and thereby cause the longitudinal movement of the bar.

44. The combination with the register-wheels provided with pinions, of toothed segments meshing with said pinions and provided with pins, swinging arms having hooks capable of engaging said pins, pivoted levers pivotally connected with the ends of said arms, links pivotally connected with said levers, rock-shafts having crank-arms pivotally connected with said links, the value-keys, and means for turning said rock-shafts by the operation of such keys, a reciprocating bar engaging said crank-arms, a spring tending to hold said bar in normal position, and a detachable key adapted to engage said bar when inserted and operate the same against the force of the spring.

45. The combination with a general and a special register each consisting of a number of sets of register-wheels, each of which is provided with a pinion, of toothed segments gearing with said pinions and provided with pins, swinging arms having hooks adapted to engage the pins on said segments, the hooks of the general-register arms being on one side of the pins, and the hooks of the special-register arms being on the other side of the special-register pins, means for operating said arms so as to cause the turning of the register-wheels when the arms are engaged with pins, a couple of reciprocating rods respectively engaging the arms of the general and special registers, springs tending to hold said arms in corresponding positions whereby the arms of one register will be engaged with the segments thereof, and the arms of the other will be disengaged from its segments, a rock-shaft having arms engaging bars, and a special key adapted, when operated, to actuate the bar engaging the arms of the special register, and thereby the connections of the two registers.

46. The combination with a set of register-wheels, each provided with pinions, of toothed segments gearing with said pinions, swinging arms, one for each segment, each adapted to be moved longitudinally and each provided with an engaging device capable of being engaged with and disengaged from the cooperating engaging device on its alloted segment, so that if the arms are drawn longitudinally they will operate the segments and thereby turn the register-wheels if the engaging devices on the arms and segments are in engagement with one another but will not turn such segments if such engaging devices are not in engagement, and mechanism for moving said arms longitudinally.

47. The combination with a general register and a number of special registers, of a number of sets of vertically-swinging arms, one set for each register, means whereby the arms for the special registers are connected with said registers when in their lowered positions, and are disconnected therefrom when in their elevated positions, means whereby the arms of the general register are connected therewith when in their elevated positions, and disconnected therefrom when in their lowered positions, reciprocating bars, each one connecting together the arms of one of the registers, a rock-shaft having arms extending below said reciprocating bars so that the depression of any one thereof will turn the rock-shaft, spring means holding all of said bars in an elevated position, and keys for the special registers adapted, when operated, to engage the corresponding reciprocating bar and depress the same and thereby connect the corresponding special register and disconnect the general register.

48. The combination with a general register and a number of special registers, of a number of sets of vertically-swinging arms, one set for each register, means whereby the arms of the special registers are connected with said registers when in lowered positions and are disconnected therefrom when in elevated positions, means whereby the arms of the general register are connected therewith when in elevated positions and disconnected therefrom when in lowered positions, a number of reciprocating bars each one connecting together the arms of one of the registers, a rock-shaft having arms extending below said reciprocating bars so that the depression of any one thereof will turn the rock-shaft, spring means holding all of said bars in an elevated position, and keys for the special registers adapted, when operated, to engage the corresponding reciprocating bar and depress the same and thereby connect the corresponding special register and disconnect the general register.

49. The combination with the value mechanism, of a couple of registers, means normally connecting one of said registers with said mechanism, means whereby the other register can be connected with the same, and a detachable key and mechanism whereby said key can, upon insertion, disconnect the general register and connect the special register, and will, upon withdrawal, allow the restoration of the original conditions.

50. The combination with a plurality of rows or banks of value-keys, of a general register and a plurality of special registers, each consisting of a number of sets of wheels corresponding to the number of rows or banks of value-keys, means normally connecting the general register with the value-keys, a plurality of separable or detachable keys, and means whereby any such key will, upon insertion, connect its corresponding register and disconnect the general register.

51. In a cash-register, the combination of a plurality of separable keys, all having like inclined surfaces or shoulders, and all having longitudinal grooves which are dissimilarly situated in the different keys, and a device arranged over all of the keys and operated by the inclined surfaces or shoulders thereon.

52. In a cash-register, the combination with an operating mechanism, of a general register, a plurality of special registers, means normally connecting the general register with the operating mechanism, a series of detachable keys, means operated by a key, when the same is inserted, to bring its respective special register into connection with the operating mechanism and disconnecting the special register, and means for automatically restoring the general register to its operative condition upon the withdrawal of the inserted key.

53. In a cash-register, the combination with a common operating mechanism, of a general register normally connected thereto, a series of special registers, a series of detachable keys, means operated by the insertion of any one of the keys for bringing its respective register into connection with the operating mechanism and disconnecting the general register therefrom, means for automatically disengaging the special register from the operating mechanism when the key is withdrawn, and independent means for automatically reconnecting the general register with the operating mechanism.

54. In a cash-register, the combination with a series of cash-receptacles, of two locks for each receptacle, a special operating device for operating one of the locks of any desired receptacle, an operating-lever, and cams actuated by said lever for operating the remaining lock of the receptacle.

55. In a cash-register, the combination with a plurality of cash-receptacles, of two locks for each of said receptacles which are arranged to successively unlock the receptacles, selective means for operating one of the locks of the desired receptacle, and independent means for operating the remaining lock of the desired receptacle.

56. In a key-operated cash-register, the combination with a common operating mechanism, of keys for actuating the same graduated distances, a general register normally in connection with the operating mechanism, a series of special registers, and special keys for bringing any desired one of the special registers into connection with the operating mechanism and throwing the general register out of such connection.

57. In a cash-register, the combination with a series of special registers and a general register, of a series of oscillatory register-operating elements arranged to move automatically in one direction and be positively moved in the opposite direction, ratchet-and-pawl connections between the operating elements and the respective counters, and mechanism for rendering the ratchet-and-pawl connections of any desired one of the special counters operative in connection with the oscillatory operating elements and simultaneously breaking the connection between the ratchet-and-pawl devices of the general register and said register-operating elements.

58. In a cash-register, the combination with a series of special counters having ratchet-and-pawl operating devices, of a general counter having similar operating devices, an oscillatory register-operating member automatically moving in one direction, means for positively moving said member in the opposite direction, a series of special keys, and means arranged to be operated by the special keys for establishing the operative relation of the ratchet-and-pawl devices of one of the special counters with the oscillatory operating member and simultaneously breaking the operative connection of the ratchet devices of the general register with said operating member.

59. In a cash-register, the combination with a series of special registers having ratchet-and-pawl operating devices, of a general register having similar operating devices, oscillatory members having graduated movements, means for moving said members positively in one direction, springs for moving the members in the opposite direction, selecting devices, and means intermediate the selecting devices for establishing an operative relation between the register-operating member and the ratchet-and-pawl devices of one of the special registers and simultaneously breaking a similar connection with the general register.

60. The combination with a plurality of cash-receptacles, of a plurality of corresponding registers, a register-operating mechanism, printing devices connected to said mechanism, means for causing the operation of said mechanism to operate any desired one of the registers, means for opening the receptacle corresponding to the register receiving the registration, and means for printing a designation indicative of the register into which the transaction has been added.

61. The combination with a plurality of cash-receptacles, of a plurality of corresponding registers, a single register-operating mechanism, a printing mechanism, and a single selective mechanism which when operated controls the opening of a receptacle, the operation of a certain register, and the printing of a certain designation by the printing device.

62. The combination with a plurality of drawers, of a corresponding number of registers, locking devices for said drawers, a single register-operating mechanism for operating any one of said registers, and mechanism for connecting any register with said register-operating mechanism and for simultaneously unlocking the locking device on the drawer, corresponding to the connected register.

63. The combination of a plurality of drawers, a plurality of corresponding registers, a single register-operating mechanism for operating any one of the registers, and means for unlocking the drawer corresponding to the register receiving the registration.

64. The combination of a plurality of drawers, a plurality of corresponding registers, a plurality of identifying devices for the users of the devices, a single register-operating mechanism for operating any one of the registers, and means for connecting any one of the registers with said mechanism and also for unlocking the corresponding drawer and setting the corresponding indicating devices for record.

65. The combination of a plurality of drawers, a plurality of corresponding registers, a single set or bank of value-keys for use in connection with each one of the registers, means for registering the values of such keys upon any one of the registers as the result of the operation of such keys, and means for unlocking the drawer corresponding to the register receiving the registration.

66. The combination of a plurality of drawers, a plurality of corresponding registers, a single register-operating mechanism, means for causing the operation of said mechanism to operate any desired one of the registers, means for opening the drawer corresponding to the register receiving the registration, and means for printing the amount of the registration.

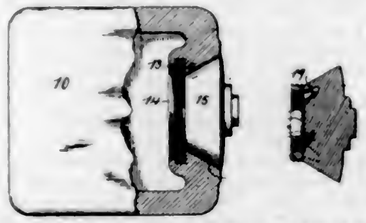
67. A cash-register comprising a plurality of drawers, a plurality of corresponding registers, a single register-operating mechanism means for causing the operation of any one of the registers by the register-operating mechanism, and means for opening the drawer corresponding to the register receiving the regristration.

68. The combination of a plurality of drawers, a plurality of corresponding registers, a single bank or set of value-keys for use in connection with all of the registers, means for registering upon any one of the registers the amounts designated by the value-keys upon the operation thereof, means for opening the drawer corresponding to the register receiving the registration, and means for printing the amount of the registration and the identity of the user of the drawer.

750,792. DOOR FOR SCREW-DOOR SAFES. WILBER E. ARNOLD, Madisonville, Ohio. Filed July 8, 1903. Serial No. 164,632. (No model.)

Claim.—1. In a door for a screw-door safe where the same is of non-workable cast metal, the combination of an independent ring 14 which has formed around its outside, one of the complementary parts of the screw connection whereby the door is held in its locked position within the door-opening of the safe-body, a ring 18 of workable metal on the inner side of the safe-door and upon and around which ring 14 is secured, and spaced projections circularly disposed

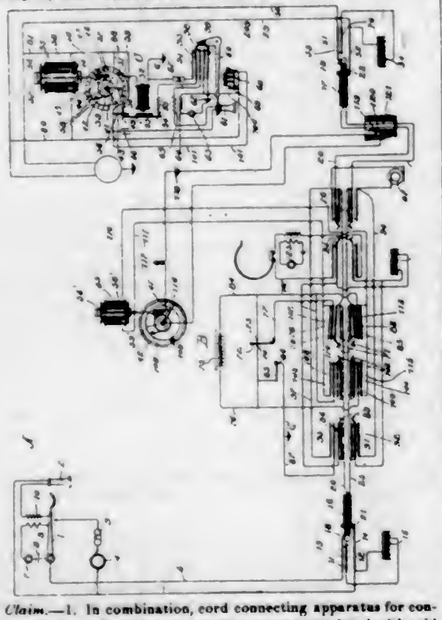
around ring 18, arranged at an angle thereto and extending into the cast metal of the door into which metal they are embedded and whereby the two rings are held in position on the safe-door.



2. In a door for a screw-door safe where the same is of non-workable cast metal, the combination of an independent ring 14 which has formed around its outside one of the complementary parts of the screw connection whereby the door is held in its locked position within the door-opening of the safe-body and a ring 18 of workable metal projecting from the inner side of the safe-door and upon and around which ring 14 is secured, ring 18 being provided with two sets of tenons arranged at opposite angles to such ring and extending into the cast metal of the door into which they are embedded during the act of casting this latter and whereby the two rings mentioned are held in place.

3. In a door for a screw-door safe where the same is of non-workable cast metal, the combination of an independent ring 14 which has formed around its outside, one of the complementary parts of the screw connection whereby the door is held in its locked position within the door-opening of the safe-body and a ring 18 of workable metal projecting from the inner flat side of the safe-door and upon and around which ring 14 is secured, ring 18 being provided with projections extending into the cast metal of the door into which they are embedded, said projections projecting also laterally beyond the periphery of the ring and affording means to receive locking and attaching screws to hold ring 14 on ring 18 and to secure internal locking mechanism in place.

750,793. SELECTIVE SIGNALING SYSTEM. GARRISON BABCOCK, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed July 17, 1903. Serial No. 166,027. (No model.)



Claim.—1. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending current impulses in either direction over a telephone-line with which said cord connecting apparatus is connected, an electromagnetic switching device associated with said cord connecting apparatus, said switching device being actuated in one direction upon the actuation of said means to send a current impulse in one direction over said line and in the reverse direction upon the actuation of said means to send a current impulse in the reverse direction over said line, and a signaling instrument jointly controlled by said electromagnetic switching device and by the operative position of a plug of said cord connecting apparatus.

2. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending current impulses in either direction over a telephone-line with which said cord connecting apparatus is connected, an electromagnetic switching device associated with said cord connecting apparatus, said switching device being actuated in one direction upon the actuation of said means to send a current impulse in one direction over said line and in the reverse direction upon the actuation of said means to send a current impulse in the reverse direction over said line, a plug-seat switch, and a signaling instrument jointly controlled by said electromagnetic switching device and said plug-seat switch.

3. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending a current impulse in either direction over a telephone-line with which said cord connecting apparatus is connected, an electromagnetic switching device associated with said cord connecting apparatus, said switching device being actuated in one direction upon the actuation of said means to send a current impulse in one direction over said line and in the reverse direction upon the actuation of said means to send a current impulse in the reverse direction over said line, a plug-seat switch and a signal-lamp having a local illuminating-circuit jointly controlled by said electromagnetic switching device and said plug-seat switch.

4. In combination, cord connecting apparatus for connecting telephones-lines for conversation, means associated with said cord connecting apparatus for sending current impulses in either direction over a telephone-line with which said cord connecting apparatus is connected, an electromagnetic switching device associated with said cord connecting apparatus, said switching device being actuated to close a circuit between switch-contacts thereof upon an actuation of said means to send a current impulse in one direction over said line and to open the circuit between said contacts upon the actuation of said means to send a current impuse in the reverse direction over said line, a plug-seat switch having contacts adapted to be brought into electrical connection when a plug of said cord connecting apparatus is seated in its socket, and a signal-lamp having a local illuminating-circuit including switch-contacts of said electromagnetic switching device and of said plug-seat switch.

5. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending a current impulse in either direction over a telephone-line with which said cord connecting apparatus is connected, an electrically-operated signaling instrument whose controlling-circuit includes switch-contacts adapted to be brought into electrical connection upon the actuation of said means to send a current impulse in one direction over said line and to be electrically disconnected upon the actuation of said means to send a current impulse in the reverse direction over said line, and additional switch-contacts also included in said controlling-circuit and controlled by the operative position of a cord-plug.

6. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending a current impulse in either direction over a telephone-line with which said cord connecting apparatus is connected, an electrically-operated signaling instrument whose controlling-circuit includes switch-contacts adapted to be brought into electrical connection upon the actuation of said means to send a current impulse in one direction over said line and to be electrically disconnected upon the actuation of said means to send a current impulse in the reverse direction over said line, and a plug-seat switch having contacts included in the controlling-circuit for said signaling instrument.

7. In combination, cord connecting apparatus for connecting telephone-lines for conversation, means associated with said cord connecting apparatus for sending a current impulse in either direction over a telephone-line with which said cord connecting apparatus is connected, an electrically-operated signaling instrument whose controlling-circuit includes switch-contacts adapted to be brought into electrical connection upon the actuation of said means to send a current impulse in one direction over said line and to be electrically disconnected upon the actuation of said means to send a current impulse in the reverse direction over said line, and a plug-seat switch having contacts included in the controlling-circuit for said signaling instrument, the switch-contacts of said plug-seat switch being brought into electrical contact when the associated plug of the cord connecting apparatus is seated in its socket and electrically disconnected when said plug is removed from its seat for connection with the telephone-line.

8. In combination, cord connecting apparatus for connecting telephone-lines for conversation, a calling-key for connecting the terminals of a source of current in one direction with the cord-strands, a releasing-key for connecting the terminals of said source of current in the reverse direction with the cord-strands, a polarized electromagnetic switching device, means whereby the actuation of said calling-key causes an actuation of said switching device in one direction, means whereby the actuation of said releasing-key causes an actuation of said switching device in the other direction, an electrically-actuated signal whose circuit is jointly controlled by said switching device, and switching-contacts controlled by the position of a plug of said cord connecting apparatus.

9. In combination, cord connecting apparatus for connecting telephone-lines for conversation, a calling-key for connecting the terminals of a source of current in one direction with the cord-strands, a releasing-key for connecting the terminals of the source of current in the reverse direction with said cord-strands, a switching device, means whereby the actuation of said calling-key causes an actuation of said switching device in one direction, means whereby the actuation of said releasing-key causes an actuation of said switching device in the other direction, an electrically-operated signal whose circuit is jointly controlled by said switching device, and switching-contacts controlled by the position of a plug of said cord connecting apparatus.

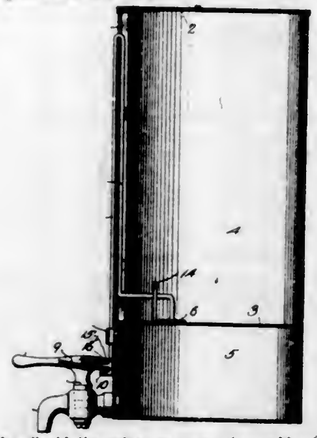
10. In combination, cord connecting apparatus for connecting telephone-lines for conversation, a calling-key for connecting the terminals of a source of current in one direction with the cord-strands, a releasing-key for connecting the terminals of a source of current in the reverse direction with the cord-strands, an electrically-operated signal whose controlling-circuit includes the contacts of an electromagnetic switching device, a plug-seat switch whose contacts are included in the controlling-circuit for said signal, means whereby the actuation of said calling-key causes an actuation of said switching device to close a break in the controlling-circuit for said signal, and means whereby the actuation of said releasing-key breaks the circuit through said electrically-operated signal.

11. In combination, a telephone party-line leading from a central exchange to a series of substations, selective signaling instruments at each of said substations, cord connecting apparatus at the central exchange for connecting said telephone-line for conversation, a calling-key for connecting the terminals of a source of current in one direction with the cord-strands connected with said telephone-line to actuate said selective signaling instrument in connecting the telephone instruments at one of said substations with said telephone-line for conversation, a releasing-key for connecting the terminals of said source of current in the reverse direction with said cord-strands for restoring said selective instruments to their normal condition, an electromagnetic switching device, an electrically-operated signal whose controlling-circuit includes contacts of said switching device, a plug-seat switch having contacts included in said controlling-circuit said contacts being adapted for electrical connection to close said circuit when said plug is seated in its socket and to be electrically disconnected when said plug is removed from said socket for connection with said telephone-line, means whereby the actuation of said calling-key causes an actuation of said switching device in one direction to close the break in said controlling-circuit between the contacts of said switching device, and means whereby the actuation of said releasing-key causes an actuation of said switching device in the reverse direction to break the connection between the contacts of said switching device.

750,794. DISPENSING-TANK. WILLIAMSON R. BARTON, Iola, Kans. Filed July 30, 1903. Serial No. 167,633. (No model.)

Claim.—1. In a liquid-dispensing apparatus, the combination with a receptacle, of a measuring vessel in communication therewith, a valve controlling the flow of liquid from the receptacle, a cock communicating with the measuring vessel and provided with an operating-lever, a cam carried by said lever, and a valve-stem formed of a single piece of wire one end of which is provided with outwardly-extending ears or lugs adapted to engage the cam, the opposite end thereof being secured to the valve.

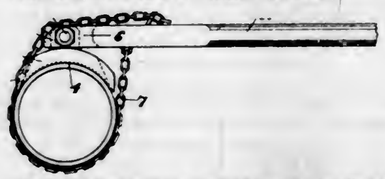
2. In a liquid-dispensing apparatus, the combination with a receptacle having a slot in the upper portion thereof, a measuring vessel in communication with said vessel, a valve controlling the flow of liquid from the receptacle, a cock, a cam carried by the cock, a vent-tube, and a valve-stem one end of which engages the cam, the opposite end of the stem passing through the slot in the receptacle and being secured to the valve.



3. In a liquid-dispensing apparatus, the combination with a receptacle, of a measuring vessel communicating therewith, a reciprocating valve controlling the flow of liquid from the receptacle, a cock provided with an operating-handle, a cam carried by said handle, a positive connection between the cam and the valve, and a stop or projection secured to the receptacle and adapted to limit the rotary movement of the cock.

4. In a liquid-dispensing apparatus the combination with a receptacle having a slot in the upper part thereof, of a partition or diaphragm dividing said receptacle into two compartments, a valve controlling the flow of liquid from one compartment to the other, a cock communicating with the lower compartment, a cam secured to the cock, a valve-stem one end of which engages the cam, the opposite end thereof passing through the slot and being bent at right angles and secured to the valve, a vent-tube within the receptacle and terminating at a point adjacent the slot, a stop or projection secured to the receptacle, and a lever carried by the cock and adapted to engage the stop when the cock is open.

750,795. PIPE-WRENCH. EUGENE J. BATES, Bakersfield, Cal. Filed Dec. 2, 1902. Serial No. 133,633. (No model.)



Claim.—An improved wrench consisting of a handle one end of which is forked said handle having, on its upper side, a keeper; a segmental jaw having a lug fitting the forked part of the handle, and a bolt passing through said lug and the fork members of the handle and pivotally mounting the jaw, said jaw having its greatest length longitudinal of the pipe to be gripped and having its long sides notched to form guides; and a chain having one end permanently attached to the under side of the handle and adapted to be passed around the pipe in the line of said guides and to enter the guides whereby the chain is prevented from shifting sidewise, said chain having its free end removably fitted to said keeper.

750,796. NUT-LOCK. HENRY J. BERKLEY, Baltimore, Md. Filed Mar. 24, 1903. Serial No. 149,262. (No model.)

Claim.—1. The herein-described nut-lock consisting of a split washer having one end bent upwardly and said end provided with two prongs, the inner one of which has its upper surface gradually

thinned toward its point, and the outer prong being thicker than the inner one and having the same thickness as the other parts of the washer, and also slightly inclined sidewise toward the thinner prong; and the opposite end of the split washer bent downwardly and provided on its lower surface with a cutting edge.



2. As an article of manufacture, a nut-lock consisting of a split washer having at one end, 3, and on the lower surface thereof a cutting edge, and having at the other end, 2, a V-shaped cut-out forming two prongs the outer one of which is as thick as the first-named end of the washer and said outer prong to serve as a locking-shoulder, and the inner prong which in operation is to take under the nut being relatively thinner than the end which has the said cutting edge.

750,797. HOG-HOLDING IMPLEMENT. WALTER BIDWELL, Plain City, Ohio. Filed Apr. 24, 1903. Serial No. 154,071. (No model.)



Claim.—1. A hog-holding implement comprising a tubular body, a rod fitting and free to slide longitudinally therein, and a flexible loop having its ends connected respectively to the adjacent ends of the tube and rod, the rod being provided at its opposite end with a handle, and with means for engaging the same with a fixed object, such as a board of a pen or fence, substantially as described.

2. A hog-holding implement comprising a tubular body, a rod fitting and free to slide longitudinally therein, and a flexible loop having its ends respectively connected to the adjacent ends of the tube and rod, the rod being provided at its opposite end with a handle and with means located eccentrically relatively to the axial line of the implement for engagement with a fixed object, such as a board of a pen or fence, substantially as described.

3. A hog-holding implement comprising a tubular body, a rod fitting and free to slide longitudinally therein, and a flexible loop having its ends respectively connected to the adjacent ends of the tube and rod, the opposite end of the rod being provided with a handle and with a sharp hook-like projection extending laterally therefrom and adapted to engage a fixed object, such as a board of a pen or fence, substantially as described.

750,798. JEWEL-MOUNTING. ALFRED A. BOISMAURE, New York, N. Y., assignor to the Boismaure Oscillating Jewelry Company, of New Jersey. Filed June 6, 1903. Serial No. 160,312. (No model.)

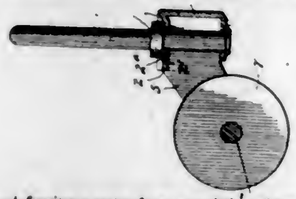


Claim.—1. A device of the class described, comprising a support, a central stationary setting for a precious stone or other ornament, and a vibratory member surrounding said setting and resiliently connected with said support, substantially as shown and described.

2. A device of the class described, comprising a support, a stationary setting for a precious stone or other ornament connected therewith, said support being also provided with forwardly-directed hollow cylindrical members at the opposite sides of said setting, and a vibratory member surrounding the setting and provided with backwardly-directed hollow members adapted to receive said cylindrical members, and pins passed vertically through said backwardly-directed members and through said hollow cylindrical members and provided with springs which are secured thereto and to said hollow cylindrical members, substantially as shown and described.

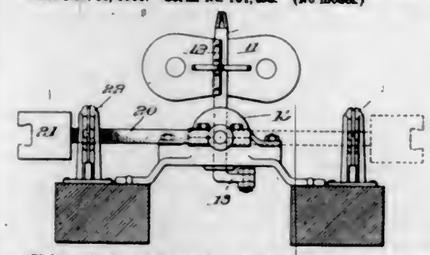
3. A device of the class described, a frame or support, a central setting for a jewel or other ornament, and an annular member inclosing said setting and resiliently connected with the frame or support whereby said annular member is maintained in a state of vibration, substantially as shown and described.

750,799. FURNITURE-CASTER. JOSEPH BORNEMANN, New York, N. Y. Filed Feb. 24, 1903. Serial No. 144,804. (No model.)



Claim.—A furniture-caster frame, consisting of top, bottom, end and side walls, and shaft-supporting arms, formed of a single piece of sheet metal, said side walls having straight horizontal upper edges, and said top wall having its side edges resting on said upper edges of the side walls and being depressed between said side walls to form a concaved seat, a reinforcing fold or angle and a shoulder against which the said side walls abut, the said shoulder, side edges of the top plate and folds serving to stiffen the structure and prevent deflection thereof under strain, substantially as described.

750,800. SWITCH-STAND. RUDOLPH L. BROWN, Chicago, Ill. Filed Nov. 16, 1903. Serial No. 181,432. (No model.)



Claim.—1. A switch-stand comprising a target-staff connected with the switch-points, means for operating said staff, and a breakable key between the staff and said operating means.

2. A switch-stand comprising a target-staff connected with the switch-points, a collar on said staff, a segment carried by said collar, a gear meshing with teeth on said segment, means for operating the gear, and a breakable key passing transversely through the gear and collar to lock said parts together.

3. A switch-stand comprising a target-staff, a collar on said staff carrying a toothed segment, a gear meshing with said segment, means for operating the gear, means for fastening the staff and collar together, and locking-lugs on said staff adapted to enter recesses in the collar when the fastening means are removed.

4. A switch-stand comprising a target connected with the switch-points, means for operating said target, means for locking said operating means, and a breakable connection between the target and said operating means adapted to permit the target to be thrown to correspond with the position of the switch-points when the latter are moved while said target-operating means remain locked.

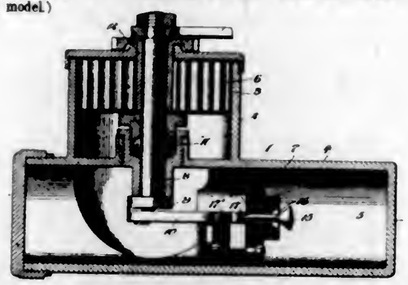
750,801. MANUFACTURE OF BOTTLES. GEORGE BRYAN, St John, Canada, assignor of two-thirds to John M. Smith and Thomas P Pugsley, St. John, New Brunswick, Canada. Filed June 18, 1903. Serial No. 162,043. (No model.)



Claim.—The combination, in a bottle, of a recess, E, with the ends of two wires B B cast or fitted therein, in combination with the seal

F having two holes through which said wires pass and a lip D on the bottle around which said wires pass and underneath which their ends are tied.

750,802. DOOR CHECK AND CLOSER. WILLIAM J. BRYON, Jr., New York, N. Y. Filed May 29, 1902. Serial No. 109,459. (No model.)



Claim.—1. A door-check, comprising a liquid-chamber, a piston in said chamber, means for operating the piston, a passage-way communicating with the chamber at opposite sides of the piston, and means, including an oscillating device movable with the piston, for automatically controlling the flow of liquid through the said passage-way.

2. A door-check, comprising a liquid-chamber, a piston in said chamber, means for operating the piston, a passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through said passage-way, and a cam movable with the piston for controlling the valve to automatically regulate the flow of the liquid through the said passage-way during the movement of the piston.

3. A door-check, comprising a liquid-chamber, a piston in said chamber, means for operating the piston, a passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through the said passage-way, and an oscillating cam movable with the piston for controlling the valve to automatically regulate the flow of the liquid through the said passage-way during the movement of the piston.

4. A door-check, comprising a liquid-chamber, a piston in said chamber provided with an aperture or passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through said passage-way, a spring-actuated spindle having a crank, and a link connecting said crank with the piston, the said link being provided with a cam for engaging with and controlling the action of the valve.

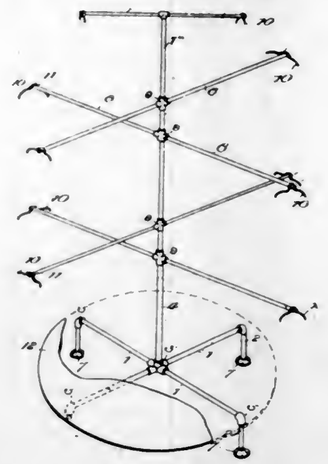
5. A door-check, comprising a liquid-chamber, a piston in said chamber provided with an aperture or passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through said passage-way, a spring-actuated spindle having a crank, and a link connecting said crank with the piston and having means for operative engagement with the valve, for the purpose set forth.

6. A door-check, comprising a liquid-chamber, a piston in said chamber provided with an aperture or passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through said passage-way, a spring-actuated spindle having a crank, and a link connecting said crank with the piston, the said link being provided with two cams for controlling the action of the valve, one of said cams being operative for a left-hand door and the other for a right-hand door.

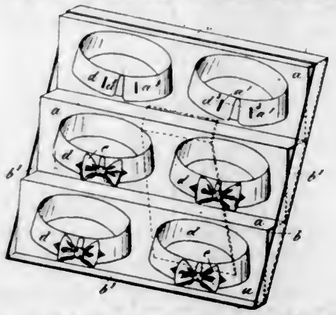
7. A door-check, comprising a liquid-chamber, a piston in said chamber, means for operating the piston, a passage-way communicating with the chamber at opposite sides of the piston, a valve for controlling the flow of the liquid through said passage-way, two oscillating cams movable with the piston for controlling the action of the valve, one of said cams being operative for a left-hand door and the other for a right-hand door, and means for operating the said cams.

750,803. DISPLAY-RACK. CURTIS BURNSIDE and JEROME E. BEDELL, Chetopa, Kans. Filed May 16, 1903. Serial No. 157,457. (No model.)

Claim.—A display-rack comprising a stand composed of a central cluster, a spindle projected vertically from said cluster, rods extended radially from the cluster and provided at their outer ends with vertical feet terminating in supporting-plates, a sectional standard having its lower end journaled to the spindle, fittings cooperating with the various sections of the standards, and arms applied to the fittings, one of said parts serving to secure the other in an adjusted position by a binding action, substantially as herein stated.

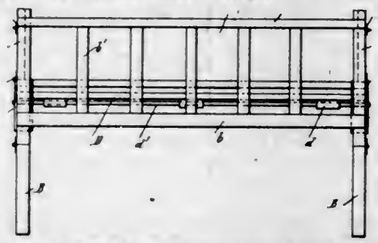


750,804. DISPLAY-STAND. HIRSCH BURNSTONE, New York, N. Y. Filed Oct. 31, 1903. Serial No. 179,289. (No model.)



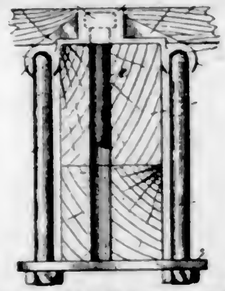
Claim.—A display-stand composed of a stepped face-plate having inclined slitted risers, collars represented on the risers, a back plate having a rim that surrounds the face-plate, and a foot hinged to the back plate, substantially as specified.

750,805. CHILD'S CRIB. JOSEPH CAMPBELL, Essex, Mass. Filed Apr. 4, 1903. Serial No. 151,164. (No model.)



Claim.—A child's crib, comprising two legs, upper bars and lower bars *b* and slats *b'* extending between the legs on one side thereof, blocks C secured to the other sides of the legs behind the lower bar *b*, a bar *d'* extending between the blocks C, a bottom panel D hinged to the bar *d'* and having hooks E at its free edge, and panels F hinged to the ends of the said bottom panel, and fastening devices for securing the end panels F to the upper ends of the said legs.

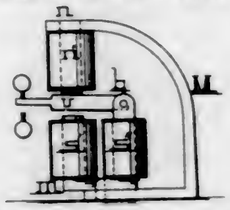
750,806. CUP-WASHER FOR USE IN THE CONSTRUCTION OF CARS. LEWIS T. CANFIELD, New York, N. Y. Filed June 9, 1903. Serial No. 160,681. (No model.)



Claim.—1. A cup-washer for use in the construction of cars, said washer being provided with laterally-directed arms having downwardly-directed heads provided with eyes or openings, bolts provided at one end with hooks which are adapted to be passed through said eyes or openings, and a cross-plate adapted to be secured to the lower ends of said bolts, substantially as shown and described.

2. The combination with one of the sills of a car and the draft-timber, of a cup-washer which is sunk into the floor of a car and which rests on the sill and is provided with laterally-directed arms having downwardly-directed heads provided with eyes or openings, bolts provided at one end with hooks adapted to be passed through said eyes or openings and a plate mounted on the lower ends of said bolts and secured thereto, substantially as shown and described.

750,807. TELEGRAPH APPARATUS. JOHN E. CARNEY, Montgomery, Ala. Filed Feb. 24, 1903. Serial No. 144,665. (No model.)



Claim.—1. In a telegraph instrument a permanent magnetic system having one of its poles divided into two pole-pieces of like polarity, an armature pivoted on one of said pole-pieces and free to play between the other pole-piece and the other pole of said magnetic system, and a winding adapted when energized to modify the action of said permanent magnetic system, substantially as described.

2. In a telegraph instrument a permanent magnet having one of its poles divided into two pole-pieces of like polarity, an armature pivoted on one of said pole-pieces and free to play between the other pole-piece and the other pole of said magnet, and a winding adapted when energized to modify the action of said permanent magnet substantially as described.

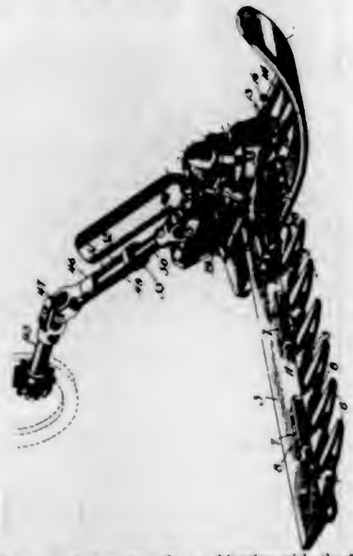
3. In a telegraph instrument a permanent magnet inducing normally a like polarity in both poles of the core of an electromagnet, an armature pivoted on one pole of said core and free to play between the other pole of said core and the pole of the permanent magnet of unlike polarity to that of said cores, and a winding on said cores adapted when energized to modify the action of said permanent magnet on said armature, substantially as described.

4. In a telegraph instrument a permanent magnet normally inducing in both poles of the core of an electromagnet a like polarity, an armature pivoted on one pole of said core and free to play between the other pole of said core and a pole-piece of said permanent magnet of unlike polarity to the induced polarity of said cores and normally attracted to said unlike pole-piece of said permanent magnet, and windings adapted when energized to move said armature in opposition to the attraction of said unlike pole-piece of said permanent magnet, substantially as described.

5. In a telegraph instrument a permanent magnetic system, a core of an electromagnet both poles of which are induced with like polarity from said permanent magnetic system, an armature pivoted on one pole of said core and normally held away from the other pole of said core by said permanent magnetic system and a winding adapted when energized to move said armature in opposition to such normal position, substantially as described.

6. In a telegraph instrument an electromagnet, an armature pivoted on one pole of said electromagnet, a permanent magnet normally attracting said armature and normally inducing like polarities in the poles of said electromagnet, the winding of said electromagnet adapted when energized in one direction electrically to cause said armature to move in opposition to the attraction of said permanent magnet.

750,808. MOWING-MACHINE. EMANUEL CHAINEY, Florence, Wis. Filed July 28, 1903. Serial No. 167,338. (No model.)



Claim.—1. In a mower, the combination with the frame, shoe and cutter-bar; of a crank-shaft, a pitman connecting the shaft and cutter-bar, and a movable member mounted on the shoe and operatively connected to the pitman to move the same out of engagement with the cutter-bar.

2. In a mower, the combination with the frame, shoe and cutter-bar; of a crank-shaft, a pitman connecting the crank-shaft and cutter-bar, and a swinging member mounted on the shoe and constituting a support and guide for the pitman.

3. In a mower, the combination with the frame, shoe and cutter-bar; of a gear case hinged to the shoe, the cutter-bar-operating mechanism including a crank-shaft and a pitman mounted in and movable with the case.

4. In a mower, the combination with the frame, shoe and cutter-bar; of a gear-case hinged to the shoe, and cutter-bar-operating mechanism including a vertical crank-shaft mounted in and movable with the case, a pitman normally connecting the crank-shaft and cutter-bar, and means for insuring the withdrawal of the pitman from the cutter-bar when the case is swung back.

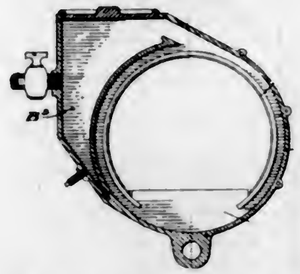
5. In a mower, the combination with the frame, shoe and cutter-bar; of a hinged gear-case on the shoe, a crank-shaft within the case, means operatively connecting the crank-shaft and cutter-bar in the normal position of the case, and driving mechanism for the crank-shaft, said mechanism including an extensible shaft accommodating the movement of the case.

6. In a mower, the combination with the frame, shoe and cutter-bar; of a hinged gear-case mounted on the shoe, a vertical crank-shaft within the case, a pitman connected to the crank-shaft and disposed to engage the cutter-bar in one position of the case, a short horizontal shaft afforded bearings in the gear-case and geared to the crank-shaft, and driving mechanism including a flexible and extensible shaft connected with the short horizontal shaft in the gear-case.

7. In a mower, the combination with the frame, a shoe and a cutter-bar provided with a vertical pin; of a vertically-movable gear-case mounted on the shoe, a crank-shaft mounted in the case, a pitman engaging said crank-shaft and the pin on the cutter-bar, said pitman being provided with a guide-flange extending in a guide-groove in the case, and means for driving the crank-shaft.

8. In a mower, the combination with the frame, shoe and cutter-bar; of a gear-case mounted on the shoe, a vertical crank-shaft within the case, a pitman connected to the crank-shaft and engaging the cutter-bar, a short, horizontal shaft afforded bearings in the gear-case and geared to the crank-shaft, and driving mechanism including a flexible and extensible shaft connected with the short horizontal shaft in the gear-case.

750,809. MACHINE FOR GRINDING TWIST-DRILLS. CLARENCE A. CHANDLER, Worcester, Mass. Original application filed June 3, 1901, Serial No. 62,868. Divided and this application filed July 5, 1902. Serial No. 114,400. (No model.)



Claim.—1. In a drill-grinder comprising a grinding-wheel and a drill-holder adapted to present a drill to the side of the grinding-wheel, a trough inclosing the lower side of the periphery of the wheel, a water-reservoir at the edge of the wheel, means for conveying water from said reservoir to a drill in said drill-holder, a circular hood inclosing an annular space around the periphery of the wheel, said space communicating with said trough and said reservoir, whereby the water raised by the wheel from the water-trough is conducted into said reservoir, substantially as described.

2. The combination with the revolving grinding-wheel of an annular hood enveloping said wheel and comprising a water-trough at the bottom of said hood, and a water-reservoir at the edge of said hood with an annular space around the periphery of the wheel communicating with said trough and with said reservoir, said annular space being wider than the periphery of the wheel, substantially as described.

3. The combination with a revolving grinding-wheel, of a hood inclosing the periphery of the wheel, a water-trough inclosing the lower edge of said wheel a water-reservoir communicating with said hood and arranged to receive water therein from the wheel by centrifugal force and a pipe for conducting water from the reservoir during the operation of grinding, substantially as described.

4. The combination with the revolving grinding-wheel of an annular hood surrounding the periphery of the wheel, and an adjustable hand held in said hood bearing against the side of the wheel, substantially as described.

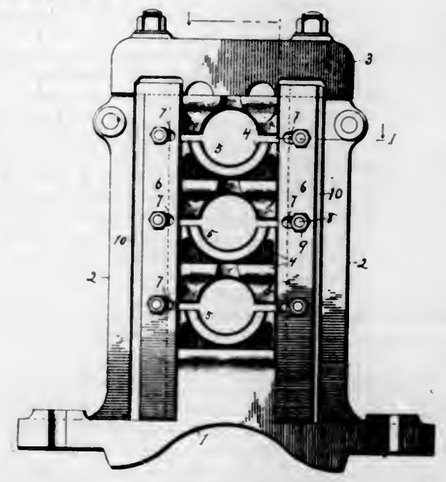
750,810. SECURING MEANS FOR REMOVABLE JOURNAL-BOXES. VICTOR CRAMTENER, Pittsburg, Pa., assignor to A. Garrison Foundry Company, a Corporation of Pennsylvania. Filed July 6, 1903. Serial No. 164,333. (No model.)

Claim.—1. A housing, a removable journal-box therein, and means secured to the exterior of the housing and overlapping the journal-box to prevent the removal of the latter, said means being mounted so as to be moved from the path of the removal of the box while still secured to the housing.

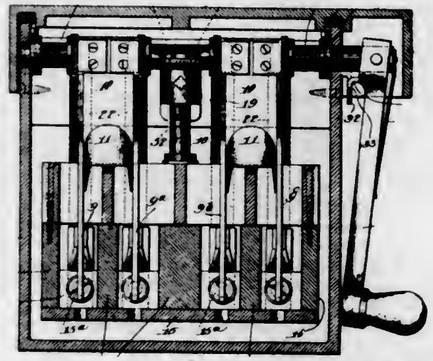
2. A housing, a removable journal-box therein, a plate secured to the housing and overlapping the journal-box to retain the latter in place; and means on the housing for releasably securing the plate to the housing, the construction being such that the plate may be removed from its overlapping position, the said securing means still remaining connected to the housing.

3. A housing, a removable journal-box therein, a projection on the housing, a plate seated on the housing with an edge against the projection and another portion overlapping the journal-box, and means securing the plate to the housing and separable from the plate to permit the latter to be raised above the shoulder and slid from its position overlapping the journal-box.

750,810



750,811. OIL-SWITCH. WILLIAM H. COLE, Watertown, Mass., assignor of one-half to Welles E. Holmes, Watertown, Mass. Filed Apr. 29, 1903. Serial No. 154,513. (No model.)



Claim.—1. In an oil-switch, an oil-containing casing, contacts therein, lead-wires extending through the casing and connected to certain of the contacts, said wires each being formed of a plurality of strands and means to prevent the oil from working its way along each wire by capillary attraction.

2. In an oil-switch, an oil-containing casing, switch-contacts therein below the normal level of the oil, said casing having openings in its side, a stranded insulated conductor passing through each opening and connected to one of the contacts, and means on the inner wall of the casing to prevent the oil from working its way along each conductor by capillary attraction.

3. In an oil-switch, an oil-containing casing, contacts in said casing below the level of the oil, openings in the side of the casing, and terminal wires extending through said openings and connected to the switch-contacts, the portion of each wire immediately inside of the casing being stripped of its insulating-covering and buried in cement or similar material, whereby the oil is prevented from working its way along the wire by capillary attraction.

4. In an oil-switch, an oil-containing casing, contacts in said casing below the level of the oil, openings through the side of the casing, and terminal wires extending through said openings and connected to the contacts, the portion of the casing through which the wires pass being formed to present a cement-receiving groove or pocket, and the portion of each wire extending through said pocket being stripped of its insulating material and cement or similar insulating material in the pocket which prevents the oil from working its way along the wire by capillary attraction.

5. In an oil-switch, an oil-containing casing having at each end an overhanging portion forming a cement-receiving pocket in the bottom of which are openings to receive terminal wires, contacts in said casing, terminal wires extending through said openings and connecting the said contacts, the portions of the wires extending through the pockets being stripped of insulating material, and cement in said pockets and in which the naked portion of the wire is embedded.

6. In an oil-switch, an oil-containing casing, a rock-shaft extending across the casing and having switch-blades depending therefrom, a contact for each blade, said contacts each having a pair of jaws between which the corresponding blade is received, an insulating-support for the contacts, rods rising from said support, and eyes secured to the casing and in which said rods are clamped.

7. In an oil-switch, an oil-containing casing, jaw or clip contacts therein, a rock-shaft extending across the casing and having switch-blades depending therefrom, a crank pivoted to the shaft on the outside of said casing, a locking-quadrant having a locking-notch, a projection on the crank to engage said notch and hold the switch open, and means tending normally to swing the projection into the notch.

8. In an oil-switch, an oil-containing casing, jaw or clip contacts therein, a rock-shaft supported by the casing and having switch-blades depending therefrom, a spring-pressed crank pivoted to the shaft on the outside of the casing, a fixed quadrant having a locking-notch and a projection on the crank to engage said notch.

9. In an oil-switch, an oil-containing casing, a framework of insulating material suspended from the upper portion thereof, a plurality of opposed pairs of jaw or clip contacts supported on said framework, a shaft extended across the upper end of the casing, a corresponding number of pairs of switch-blades depending from said shaft and cooperating with the opposed pairs of contacts, a supporting-rod rising from each end of said framework, an eye through which each rod passes and to which it is clamped, and three screws securing each eye to the casing, one screw being situated centrally of each eye, whereby by securing the eyes to the casing by the centrally-situated screws only the framework may be centered or alined by closing the switch-blades into the jaw-contacts prior to permanently securing the eyes in place.

10. An oil-containing casing, insulated conductors extending through the wall of the casing, and means to prevent the oil in the casing from working its way by capillary attraction along that portion of each conductor extending through the casing.

11. An oil-containing casing, stranded conductors extending through the casing and into the interior thereof, and a barrier of non-porous insulating material disposed to intercept any and all capillary ducts extending along each conductor through which oil might leak by capillary attraction.

12. An oil-containing casing, conductors extending through the walls and into the interior thereof, and a non-porous barrier of insulating material situated inside of the casing and arranged to intercept any and all capillary ducts extending along each conductor through which oil might leak by capillary attraction.

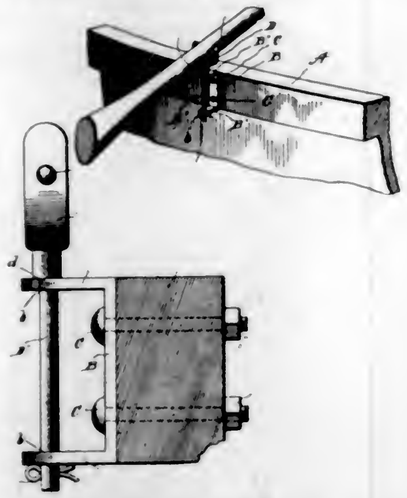
13. In an oil-switch, an oil-containing casing having at its ends overhanging portions, conductors extending vertically through the bottom of said portions into the casing, and a barrier of cement or similar insulating material on said overhanging portions and through which the conductors pass, said barrier intercepting all capillary ducts extending longitudinally of each conductor.

14. In an oil-switch, an oil-containing casing, contacts therein, lead-wires extending through the casing and connected to the contacts, said wires having a porous insulating covering and a non-porous barrier on the interior of the casing and arranged to intercept all capillary ducts in the insulating-covering through which oil might escape by leakage.

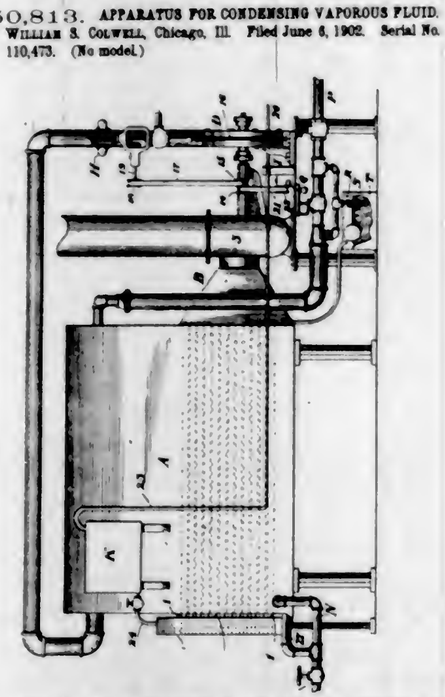
15. In an oil-switch, an oil-containing casing, stationary contacts therein, a rock-shaft extending across the casing and through the sides thereof and having switch-blades cooperating with the contacts, the end of the shaft projecting beyond the casing, a crank on said projecting end of the shaft, and a cover sealing the casing, said cover having integral therewith a hood to protect the projecting end of the shaft.

750,812. OAR-LOCK. ARCH D. COLLINS, Lawton, Va. Filed Nov. 10, 1903. Serial No. 180,606. (No model.)

Claim.—An oar-lock apparatus comprising a bracket member having right-angled ends which are apertured, the body portion of said member adapted for attachment to the side of a boat, an oar-lock having a contracted shank portion journaled in apertures in the ends of said bracket member, and a shouldered portion at the upper end of the contracted shank of the oar-lock resting upon one of the arms of said bracket member, and a key for holding the oar-lock to the bracket member, as set forth.



750,813. APPARATUS FOR CONDENSING VAPOROUS FLUID. WILLIAM S. COLWELL, Chicago, Ill. Filed June 6, 1902. Serial No. 110,473. (No model.)



Claim.—1. In an apparatus in which steam is generated for condensation to obtain pure water, and in which the steam thus generated is conducted from the boiler or generator to a condenser containing a cooling-pipe system through which currents of air saturated with water are induced by a rotary exhaust-fan; a rotator comprising a chamber formed by an expanded portion of the steam-passage between the boiler or generator and the condenser and a rotary member arranged within said chamber and actuated by the steam on its way from the boiler or generator to the condenser; and power-transmitting connection between said rotary member and the rotary exhaust-fan.

2. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; and a rotator operated by the steam flowing from the boiler or generator to the condenser, and in turn operating the rotary fan; and a governor operated by the rotator and arranged to regulate the flow of steam to the condenser and thereby control the speed of both the rotator and the rotary fan.

3. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; and a rotator operated by the steam flowing from the boiler or generator to the condenser, and comprising a casing or housing containing a rotary steam-actuated member, said rotary member and the rotary fan being mounted upon a rotary shaft common to both.

4. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; and a rotator operated by the steam flowing from the boiler or generator to the condenser, and in turn operating the rotary fan, the revoluble portion of the rotator being mounted upon a hollow shaft having its bore connected with the fan-chamber, whereby a current of air is induced through the hollow shaft when the rotator and fan are in operation.

5. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; and a rotator applied to operate the rotary fan and comprising a casing or housing containing a rotary disk wheel, said casing or housing being provided with one or more inlets and an outlet all connected with the steam-passage from the boiler or generator to the condenser and arranged whereby a portion of said steam-passage is formed through the rotator.

6. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; a rotator operated by the steam passing through said passage; a rotary shaft upon which the fan-wheel and the revoluble member of the rotator are both mounted; and a governor arranged to control the flow of steam through the passage and connected with and driven from the rotary shaft.

7. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; a passage for conducting steam from a boiler or generator to the condenser; and a rotator operated by the steam passing through such passage, and operating the rotary fan, and comprising a housing or casing having a segmental passage 10, oppositely-arranged inlets and an outlet, and a rotary wheel having faces or abutments 9; the inlets and outlet being connected up in the main passage which conducts steam from the boiler or generator to the condenser.

8. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a rotary fan for inducing air-currents through the cooling-pipe system; and a water-distributing chamber through which the inlet end portions of the cooling-pipes extend, the parts of the pipes within the water-distributing chamber being perforated to permit water to enter the cooling-pipes.

9. In an apparatus for condensing vaporous fluid, a condenser having a cooling-pipe system; a fan for inducing air-currents through the cooling-pipe system; a supply-tank and means for taking water from such tank and distributing it in the cooling-pipes; a pump for supplying the supply-tank; means for supplying steam from a boiler or generator to the condenser; and a rotator operated by the steam thus supplied to the condenser, and serving to operate the pump.

10. In an apparatus for condensing vaporous fluid, a condenser; a set of cooling-pipes extending through the condenser; a rotary fan for inducing air-currents through the cooling-pipes; a rotator D; a revoluble shaft common to both the fan and the rotator; a steam-supply passage arranged to conduct steam from a boiler or generator and also permit it to operate the rotator; a governor arranged to control the flow of steam through said supply-passage; and power-transmitting connection between the revoluble shaft and the governor.

11. In an apparatus in which steam is generated for condensation to obtain pure water, a condenser containing a set of cooling-pipes; a rotary exhaust-fan arranged for inducing air-currents through the cooling-pipes and comprising the fan-casing containing the revoluble fan and provided with a laterally-arranged bracket; a rotator comprising a shell or casing forming an expanded portion of the steam-conducting passage between a generator and the condenser and containing a revoluble member 7; and a rotary shaft carrying the revoluble member 7 and the fan and supported by the lateral bracket on the fan-casing.

12. In an apparatus in which steam is generated for condensation to obtain pure water, a condenser containing a set of cooling-pipes; a rotary fan for inducing air-currents through the cooling-pipes; means for supplying spray-water to the cooling-pipes; a rotator operated by steam passing from a generator to the condenser; a rotary shaft common to the fan and the rotator; and a governor and a supply-pump both belt-connected with said rotary shaft.

750,814. CARTON-MACHINE. CHARLES A. COOMBS, Natick, Mass. Filed Apr. 21, 1903. Serial No. 153,669. (No model.)



Claim.—1. In a carton-machine, the combination, with two opposed supporting-plates, said plates being provided with two pairs of creasing devices arranged at a right angle with each other, two pairs of tongue-cutting dies, and two pairs of punches for cutting slots, the said parts being functioned to form one-half only of a complete carton; of means for reciprocating one of the said plates together with the devices carried by it.

2. In a carton-machine, the combination, with two opposed supports, said supports being provided with two pairs of creasing devices arranged at a right angle with each other, two pairs of tongue-cutting dies arranged one pair at each end portion of one pair of the said creasing devices, and two pairs of punches for cutting slots arranged between the said pairs of tongue-cutting dies, the other said pair of creasing devices being connected with the first said pair at a point between the said dies and punches at one end portion of it; of means for reciprocating one of the said supports.

750,815. SOAP-TRAY. GEORGE C. COON, Elizabeth, N. J. Filed Sept. 24, 1903. Serial No. 174,460. (No model.)



Claim.—1. As a new and improved article of manufacture a soap-tray having a suspended supporting-surface for the soap composed of fibrous absorbent material, for holding the cake of soap out of contact with the tray, substantially as described.

2. A soap-tray, a support for the soap composed of fibrous absorbent material, and means for attaching said support to and suspending it in the soap-tray, substantially as described.

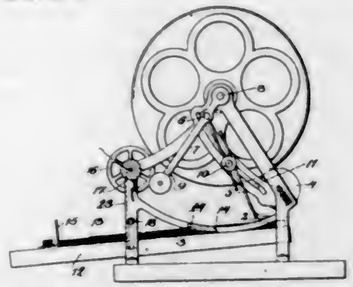
3. A soap-receptacle provided with outwardly-extending projections on the side walls combined with a support for the soap composed of fibrous absorbent material, engaging said projections, whereby it is held above the bottom of the tray, substantially as described.

4. A soap-dish having ventilating-openings in the walls thereof, in combination with a soap-supporting surface composed of absorbent material held above said openings, substantially as described.

750,816. STENCIL-PRINTING MACHINE. EDWIN A. COX, London, England, assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 25, 1902. Serial No. 124,754. (No model.)

Claim.—1. In a printing-machine, the combination with printing mechanism, of means for operating the same, a presser-bar actuated by said means to engage the top sheet of a paper pile, buckle the same transversely of the machine and release it, and a roller coacting with said printing mechanism and between which and said

mechanism said sheet is fed after being released by said bar, substantially as set forth.



2. In a printing-machine, the combination with a drum and a roller, of means for operating the same, and a presser-bar independent of said drum and actuated by said means and coacting with the forward edge of the top sheet of a paper pile to buckle the same and release it in proximity to said drum and roller, substantially as set forth.

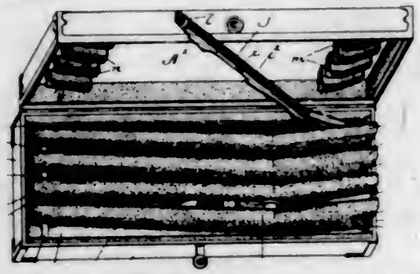
3. In paper-feeding apparatus for printing or like machines, the combination with a drum and a roller and means for operating the same, of a paper-support adapted to hold the sheets of a pile in a single and approximately horizontal plane, the ends of such sheets being in alinement, a presser-bar, and means for operating the same, said bar coacting with the top sheet of said pile to buckle the same and release it with its forward edge in proximity to said drum and roller, substantially as set forth.

4. In a rotary printing or like machine, a feeding device, a presser-bar for separating the paper, a supporting-board provided with a clamping-plate for the paper and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device substantially as hereinbefore set forth.

5. In a rotary duplicator or like machine, a feeding device, a presser-bar for separating the paper, a pivoted feeding-board provided with a clamping-plate and back stop or gage and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device, such means comprising adjustable connecting-rods carrying said bar and connected to cranks on a driving-shaft, and pivot-pins on said connecting-rods adapted to travel in cam-slots, substantially as hereinbefore set forth.

6. In a rotary duplicator or like apparatus, a feeding device, a presser-bar for separating the paper, a pivoted feeding-board provided with a clamping-plate and adjustable back stop or gage, an adjustable tensioning device for regulating the upward pressure of the board, and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device, substantially as hereinbefore set forth.

750,817. CASE FOR CARRYING FIREARMS. EDMUND M. CRESSHAW, Baltimore, Md. Filed Feb. 6, 1903. Serial No. 142,143. (No model.)



Claim.—1. A case having a bottom provided with a plurality of inclined supports arranged in pairs, one support of each pair being inclined in one direction while the other support of the same pair is inclined in a reverse direction, and a bar extending in a lengthwise direction above each pair of said reversely-inclined supports.

2. A case having a plurality of parallel vertical partitions forming a series of compartments; reversely-inclined supports in the bottom of each of said compartments between each two vertical partitions, and a movable longitudinal bar in each compartment between each two vertical partitions whereby to form an upper and lower section in each compartment.

3. A case having a plurality of reversely-inclined supports arranged in pairs; a parallel longitudinal bar above each pair of said inclined supports and spaced from the latter to form upper and lower sections, the bottom surface of each end of said bars being inclined in a direction parallel with the inclined support beneath it, and means for separating one bar from the other.

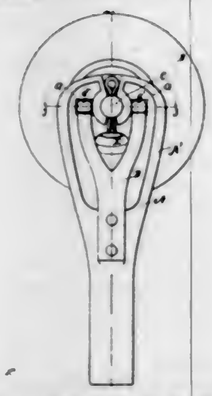
4. A case having a plurality of vertical partitions forming a series of parallel compartments; an inclined support in the bottom of each compartment at opposite ends, the support at one end of each compartment being inclined in a direction reverse to the support in the same compartment at the opposite end, and a pivoted longitudinal bar in each of said compartments above the said reversely-inclined supports.

5. A case, the bottom of which is provided with a plurality of inclined supports; a plurality of parallel bars one above each of said supports and a top having a plurality of blocks which when the top is closed will take over said supports and bars.

6. A case having a plurality of compartments; inclined bottom supports in each compartment; a longitudinal bar in each compartment and a top having a plurality of blocks each of which when the top is closed will register with one of said compartments.

7. A case having a plurality of partitions; a longitudinal bar between each two partitions and hinged at one end; inclined supports in said case beneath each of said bars; a top, and a plurality of blocks secured to said top and adapted to take between the partitions in the case when the top is closed.

750,818. TROLLEY HARP OR FORK. FRED P. CROCKETT and OSRO P. JOHNSON, Kalamazoo, Mich. Filed Apr. 4, 1903. Serial No. 151,104. (No model.)



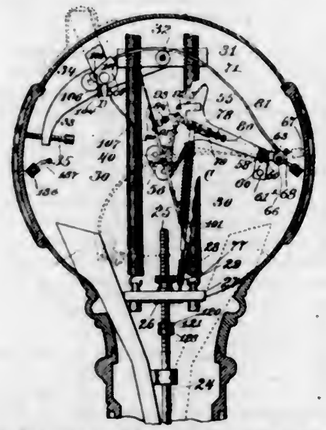
Claim.—1. The combination of a harp divided into forks above, having openings *a* therethrough; an outwardly-projecting rib A' thereon; a trolley-wheel; a journal-pin therefor; a washer on said journal-pin; and a forked spring D secured to the outside of said harp and extending upwardly between said ribs, having its forked ends formed into fingers to engage said washer through said openings, for the purpose specified.

2. The combination of a harp divided into forks above, having openings *a* therethrough; a trolley-wheel; a journal-pin therefor; a washer on said journal-pin; and a forked spring D secured to the outside of said harp, having its forked ends formed into fingers to engage said washers through said openings, for the purpose specified.

3. The combination of a harp divided into forks above, having perforations therethrough; a trolley-wheel; a journal-pin therefor; a washer on said journal-pin; and a spring secured to the outside of said harp, having fingers adapted to engage said washer through said openings, for the purpose specified.

4. The combination of a trolley-harp; a trolley-wheel; a contact-washer adapted to rest against said wheel; suitable openings in said harp and a spring secured to the outside of said harp adapted to extend through said openings to engage said contact-washer, for the purpose specified.

750,819. COIN-CONTROLLED APPARATUS. HENRY H. CUMMINGS, Malden, Mass. Filed Nov. 27, 1899. Serial No. 738,295. (No model.)



Claim.—1. In a coin-controlled apparatus testing and indicating mechanisms, a normally inoperative connection between the same, devices acting to positively hold said connection inoperative, and coin-controlled mechanism to release said devices and render said connection operative.

2. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, locking means to preserve the inoperative relation, and coin-controlled means for releasing the locking means and establishing an operative connection between said mechanisms.

3. In a coin-controlled apparatus, testing and indicating mechanisms, a normally locked connecting member operatively connected to the testing mechanism and in inoperative relation with the indicating mechanism, and coin-controlled means for releasing said connecting member and establishing an operative relation between the same and the indicating mechanism.

4. In a coin-controlled apparatus, testing mechanism, a normally locked driving member connected thereto, indicating mechanism including a driven member operable by said driving member and normally in inoperative relation therewith, and coin-controlled means for releasing the driving member and effecting the operative engagement of the driving and driven members.

5. In a coin-controlled apparatus, testing mechanism, a gear connected thereto, indicating mechanism also including a gear normally out of mesh with said first-mentioned gear, means to normally lock said first-mentioned gear against movement, and coin-controlled means for releasing said locked gear and throwing one of the gears into mesh with the other.

6. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, locking means to preserve such inoperative relation, a coin-controlled shaft having an eccentric portion, and means operated by said shaft for establishing an operative relation between said mechanisms.

7. In a coin-controlled apparatus, testing mechanism, a normally locked driving member connected thereto, indicating mechanism including a driven member normally out of engagement with said driving member, a shaft having an eccentric, a link connected respectively to the eccentric and with the driving member, and coin-controlled means for operating said shaft, whereby the driving member is released and thrown into engagement with the driven member.

8. In a coin-controlled apparatus including a driving member, indicating mechanism including a driven member, a rocker to which said driving member is connected, a shaft having an eccentric portion connected to the rocker, and a coin-operated member connected to the shaft, whereby the turning of the shaft by a coin throws the driving and driven members into engagement.

9. In a coin-controlled apparatus, testing mechanism, a gear connected thereto, indicating mechanism including an arbor, provided with a pinion normally out of mesh with said gear, a rocker to which the gear is connected, a link jointed to the rocker and provided with a hook, a rock-shaft having an eccentric portion adapted to receive said hook, and a coin-receptacle connected to said shaft.

10. In a coin-controlled apparatus, testing and indicating mechanisms, a normally inoperative connection between the same, locking means for preserving the connection in its inoperative position, and a coin-receptacle operable by the weight of a coin, devices operated thereby and serving to release the locking means and render said connection operative.

11. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, locking means to normally preserve such inoperative relation, coin-controlled means for releasing the locking means and establishing an operative relation between said mechanisms, and means acting independently of the coin-controlled means for returning the indicating mechanism to its primary position.

12. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, the indicating mechanism including a shaft provided with a gear, coin-controlled means for throwing one of said mechanisms into operative relation with the other, a gear meshing with the first-mentioned gear and provided with a projection, a stop located to be engaged by said projection and when the indicating mechanism is in its primary position, and means for operating said second-mentioned gear.

13. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, the indicating mechanism including a shaft provided with a gear, coin-controlled means for throwing one of said mechanisms into operative relation with the other, a weighted gear meshing with the first-mentioned gear and provided with a projection, and a stop disposed in the path of said projection.

14. In a coin-controlled apparatus, testing mechanism, a driving member connected thereto, indicating mechanism including a driven member operable by said driving member and normally in inoperative relation therewith, a shaft having an eccentric portion, a rocker pivotally supporting said driving member, a link connected to the pivot that unites the rocker and the driving member and having a hook at one end fitted over said eccentric portion, and a coin-receptacle having an arm connected to said shaft.

15. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, locking means to normally preserve such inoperative relation, coin-controlled means including a coin-receptacle for releasing said locking means and establishing an operative relation between said mechanisms, and means governed by one of said mechanisms for effecting the discharge of a coin from said receptacle.

16. In a coin-controlled apparatus, testing and indicating mechanisms normally in inoperative relation, one of said mechanisms having connected thereto a normally locked member, coin-controlled means for unlocking the locked member and for throwing the testing mechanism into operative relation with the indicating mechanism, and means controlled by said testing mechanism for effecting the discharge of a coin after a test.

17. In a coin-controlled apparatus, testing mechanism, two independent driving members connected thereto, indicating mechanism including a driven member operable by either of said driving members and normally in inoperative relation with each of them, and coin-controlled means for effecting the operative engagement of either of said driving members with the driven member.

18. In a coin-controlled apparatus, a testing mechanism, two independent driving members connected thereto, indicating mechanism including a driven member operable by either of said driving members, and normally in inoperative relation with each of them, locking means to normally preserve the inoperative relation between one of said driving members and the driven member, and coin-controlled means for effecting the operative engagement of either of said driving members with the driven member.

19. In a coin-controlled apparatus, testing and indicating mechanisms, a normally locked driving element connected to one of said mechanisms and normally in inoperative relation with the other, coin-controlled means for releasing said driving element and establishing an operative connection between said testing and indicating mechanisms, said coin-controlled means including a coin-receptacle and a coin-detent serving to hold a coin in said receptacle, and means to trip the detent.

20. In a coin-controlled apparatus, an actuated member normally inoperative, a movable coin-receptacle, a coin-detent serving to hold a coin in said receptacle, means controlled by the movement of said coin-receptacle for rendering said actuated member operative, a gravitative trip device normally disposed in the path of the detent and operated by the action of said coin-receptacle.

21. In a coin-controlled apparatus an actuated member normally inoperative, actuating mechanism therefor, a movable coin-receptacle, a coin-detent serving to hold a coin in said receptacle, means controlled by the movement of said coin-receptacle for rendering said actuated member inoperative, and a gravitative trip device normally disposed in the path of the detent, and controlled by the actuating mechanism.

22. In a coin-controlled apparatus, a coin-receptacle, testing mechanism, a detent serving to hold a coin in said receptacle, a gravitative trip device for and arranged in the path of the coin-detent to engage the latter, and means cooperative with the testing mechanism to hold said trip device in its normal position.

23. In a coin-controlled apparatus, testing mechanism having two shiftable elements, and a connector uniting said shiftable elements and consisting of two members each shiftable relative to the other, a spring active against both of said members, means to normally hold one of said members inactive, and coin-controlled mechanism to release said means.

24. In a coin-controlled apparatus, a connector including two members each shiftable in the direction of the length of the other, means uniting said members, a yieldable part acting against both of them, means to normally hold one of said members inactive, and coin-controlled means to render said member active.

25. In a coin-controlled apparatus, testing mechanism and indicating mechanism and a connector between the same including two members each shiftable in the direction of the length of the other, two slide-blocks engaging and connecting said members, and a coiled spring surrounding said members and acting against the blocks.

26. In a coin-controlled apparatus, a connector including two rods each shiftable in the direction of the length of the other, two blocks notched to receive said members, and a coiled spring bearing against the blocks.

27. In a coin-controlled apparatus, indicating mechanism including a driven member, testing mechanism, a driving member normally out of operative relation with the driven member and a longitudinally-yieldable connection uniting said driving member and testing mechanism, and coin-controlled means for shifting the driving member into working engagement with the driven member.

28. In a coin-controlled apparatus, indicating mechanism including a shaft carrying a driven member, beam mechanism, a platform sustained by the beam mechanism, a rod cooperative with the beam mechanism, a driving member yieldably connected to said rod, and coin-controlled means for governing the action of said driving member.

29. In a coin-controlled apparatus, indicating mechanism including a driven member, testing mechanism, a driving member yieldably connected thereto and normally in inoperative relation with said driven member, and coin-controlled means governing the action of said driving member.

30. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a normally inoperative connection between said mechanisms and yieldably connected to one of them, and coin-controlled means for rendering said connection operative.

31. In a coin-controlled apparatus, indicating mechanism, testing mechanism having a normally locked driving member yieldably connected thereto and normally in inoperative relation with the indicating mechanism, and coin-controlled means for releasing said driving member and throwing it into operative relation with the indicating mechanism.

32. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a driving member normally in inoperative relation with the indicating mechanism, a longitudinally-yieldable connection uniting said driving member and testing mechanism, said connection comprising two members, each shiftable in the direction of the length of the other, means uniting said members, and a yieldable part acting against both of them, and coin-controlled means for establishing an operative relation between the driving member and indicating mechanism.

33. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a driving member normally in inoperative relation with the indicating mechanism, a longitudinally-yieldable connector uniting said driving member and testing mechanism, said connector consisting of two members each shiftable relative to the other, and a spring acting against both of said members, and coin-controlled means to establish an operative relation between the driving member and indicating mechanism.

34. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a driving member normally in inoperative relation with the indicating mechanism, a longitudinally-yieldable connector uniting said driving member and testing mechanism, said connector comprising two members, each shiftable in the direction of the length of the other, two slide-blocks connecting said members, and a coiled spring surrounding said members and acting against the blocks, and coin-controlled means to establish an operative relation between the driving member and the indicating mechanism.

35. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a driving member normally in inoperative relation with the indicating mechanism, a longitudinally-yieldable connector uniting the driving member and the testing mechanism, said connector including two rods each shiftable in the direction of the length of the other, two blocks notched to receive said members, and a coiled spring bearing against the blocks, and coin-controlled means to establish an operative relation between the driving member and the indicating mechanism.

36. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a normally locked driving member in inoperative relation with said indicating mechanism, a longitudinally-yieldable connector uniting said driving member and testing mechanism, and coin-controlled means for shifting the driving member into working engagement with the driven member, said connector comprising two members each shiftable in the direction of the length of the other, means uniting said members and a yieldable part acting against both of them, and coin-controlled means to release said driving member and establish the operative relation between the same and the indicating mechanism.

37. In a coin-controlled apparatus, indicating mechanism, testing mechanism, a normally locked driving member normally in inoperative relation with the indicating mechanism, a longitudinally-yieldable connector uniting the testing mechanism and driving member, said connector including two members, each shiftable in the direction of the length of the other, two slide-blocks connecting said members, and a coiled spring surrounding said members and acting against the blocks, and coin-controlled means for releasing the driving member and establishing operative relation between the same and the indicating mechanism.

38. In a coin-controlled apparatus, testing mechanism, a gear yieldably connected thereto, indicating mechanism also including a gear normally out of mesh with said first-mentioned gear, and coin-controlled means for throwing one of the gears into mesh with the other.

39. In a coin-controlled apparatus, testing mechanism, a gear yieldably connected thereto, indicating mechanism also including a gear normally out of mesh with said first-mentioned gear, means to normally lock said first-mentioned gear against movement, and coin-controlled means for releasing said locked gear and throwing the same into mesh with the other gear.

40. In a coin-controlled apparatus, testing mechanism, a driving member yieldably connected thereto, indicating mechanism including a driven member normally out of engagement with the said driving member, a shaft having an eccentric, a link connected respectively to the eccentric and with the driving member, and coin-controlled means for operating said shaft, whereby the driving member is thrown into engagement with the driven member.

41. In a coin-controlled apparatus, testing mechanism, a gear yieldably connected thereto, indicating mechanism including an arbor provided with a pinion normally out of mesh with said gear, a rocker to which said gear is connected, a link jointed to the rocker and provided with a hook, a rock-shaft having an eccentric portion adapted to receive said hook, and a coin-receptacle connected to said shaft.

42. In a coin-controlled apparatus, testing mechanism, a driving member connected thereto, indicating mechanism including a driven member operable by said driving member and normally in inoperative relation therewith, a latch for holding said driving member in its ineffective position, and coin-controlled means for effecting the release of said driving member and for moving the same into working engagement with the driven member.

43. In a coin-controlled apparatus, testing mechanism including means for obtaining different kinds of tests, indicating mechanism, coin-controlled means for throwing the indicating mechanism into operative relation with the testing mechanism, including independently-active receptacles, and instrumentalities governed by the testing mechanism for effecting the discharge of the coins.

44. In a coin-controlled apparatus, indicating mechanism including a driven member, testing mechanism, a driving member connected thereto and normally out of operative relation with the driven member and movable without effecting the action of the driven member, means controlled by a coin for throwing the driving member into working relation with the driven member thereby to actuate the latter, and means controlled by the coin-controlled mechanism for preventing back motion of the indicating mechanism.

45. In a coin-controlled apparatus, indicating mechanism including a shaft provided with a driven gear, testing mechanism, a driving-gear connected thereto and movable independently of the driven gear upon a partial test, and coin-controlled means operable to throw the driving-gear into mesh with the driven gear to complete the test.

46. In a coin-controlled apparatus, indicating mechanism including a shaft provided with a driven gear, testing mechanism, a driving-gear connected thereto and movable independently of the driven gear upon a partial test, coin-controlled means operable to throw the driving-gear into mesh with the driven gear to complete the test, a ratchet cooperative with said shaft, and a pawl for the ratchet controlled by the driving-gear.

47. In a coin-controlled apparatus, beam mechanism, a platform mounted upon the beam mechanism, counterbalancing means connected with the beam mechanism, indicating means having a driven member, two driving members independently operative, means for throwing either of the driving members into operative relation with the driven member, said means being controlled by a coin, and lifting and gripping members cooperative with one of said driving members.

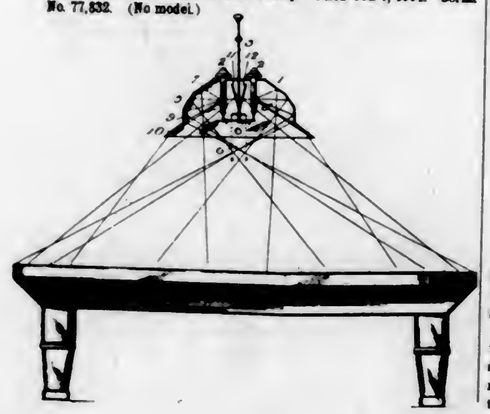
48. In a coin-controlled apparatus, indicating mechanism provided with a driven element, testing mechanism, a plurality of independent driving elements connected thereto, each of said driving elements being normally in inoperative relation with the driven element, a plurality of independent coin-controlled mechanisms for separately throwing the driving elements into engagement with the driven elements.

49. In a coin-controlled apparatus, indicating mechanism, testing mechanism, two independent driving elements connected thereto, each normally in inoperative relation with the indicating mechanism, locking means for one of said driving elements, and two independent coin-controlled mechanisms for throwing the driving elements into engagement with the indicating mechanism.

50. In a coin-controlled apparatus, beam mechanism, counterbalancing means connected with the beam mechanism, indicating means, two driving members independently operative, and each connected with the beam mechanism, one of said members having a yielding connection therewith, means to normally lock said last-mentioned driving member against movement, means for throwing either of the driving members into operative relation with the indicating mechanism, said means being controlled by a coin, and lifting and gripping members cooperative with one of said driving members.

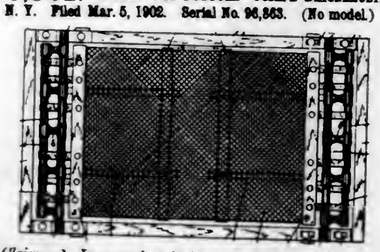
51. In a coin-controlled apparatus, indicating mechanism, beam mechanism, a driving member yieldably connected to said beam mechanism, means normally locking said driving member in inoperative relation to said indicating mechanism, and coin-controlled means for releasing said driving member, and throwing it into engagement with the indicating mechanism, whereby the yieldable connection operates to give motion to the driving member and thus operate the indicating mechanism.

750,820. LIGHT-REFLECTOR. HERBERT M. DAGGETT, Jr., Woodbury, N. J., assignor to Welsbach Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Oct. 7, 1901. Serial No. 77,832. (No model.)



Claim.—A light for oblong surfaces comprising a pair of lights, and an oblong rectangular hood having an outwardly-flaring rim and arranged over and to laterally conceal said lights and having its internal walls provided with reflecting-facets arranged horizontally at inclinations to each other such that light is reflected uniformly throughout the oblong surface, and flat reflecting-facets arranged at an inclination to each other and disposed between the lights, substantially as described.

750,821. SPRING BED-BOTTOM. JOSEPH DAIGNAULT, Buffalo, N. Y. Filed Mar. 5, 1902. Serial No. 96,863. (No model.)



Claim.—1. In a spring bed-bottom, in combination, the bed-bottom frame, bearings secured to the bed-bottom frame, the cross-bar journaled in the bearings, open bearings secured to the bed-bottom frame, a cross-bar removably journaled in the open bearings, parallel eccentric bars rigidly secured to the cross-bars, a woven-wire bed-bottom flexibly secured to the eccentric rods, and means rigidly secured to the eccentric cross-bars and extending under the bed-bottom, for exerting an upward spring-thrust against the same.

2. In a spring bed-bottom, in combination, the bed-bottom frame, bearings secured to the bed-bottom frame, a cross-bar journaled in the bearings, open adjustable bearings secured to the bed-bottom frame, a cross-bar removably journaled in the open adjustable bearings, the parallel eccentric bars rigidly secured to cross-bars, a woven-wire bed-bottom flexibly secured to the eccentric rods, and means rigidly secured to the eccentric cross-bars and extending under the bed-bottom, for exerting an upward spring-thrust against the same.

3. In a spring bed-bottom, in combination, the bed-bottom frame, bearings secured to the bed-bottom frame, the cross-bar journaled in the bearings, open bearings secured to the bed-bottom frame, a cross-bar removably journaled in the open bearings, parallel eccentric bars rigidly secured to the cross-bars, a woven-wire bed-bottom flexibly secured to the eccentric rods, the longitudinal arms rigidly secured to the eccentric bars and extending under the bed-bottom, and the cross-slats secured to the longitudinal arms for exerting an upward spring-thrust against the bed-bottom.

4. In a spring bed-bottom, in combination, the bed-bottom frame, bearings secured to the bed-bottom frame, a cross-bar journaled in the bearings, open adjustable bearings secured to the bed-bottom frame, a cross-bar removably journaled in the open adjustable bearings, the parallel eccentric bars rigidly secured to cross-bars, a woven-wire bed-bottom flexibly secured to the eccentric rods, the longitudinal arms rigidly secured to the eccentric bars and extending under the bed-bottom, and the cross-slats secured to the longitudinal arms, for exerting an upward spring-thrust against the bed-bottom.

750,822. SAFETY GAS-COCK. MICHAEL R. DALEY, Fall River, Mass. Filed May 22, 1903. Serial No. 158,314. (No model.)



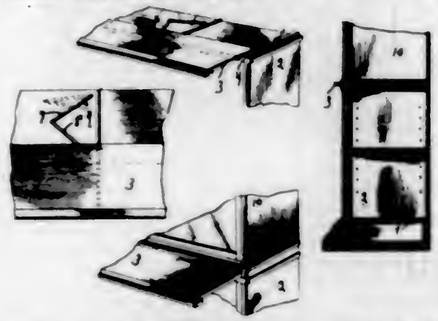
Claim.—1. In a gas-cock, the combination with a turning plug provided with a stop-pin, of a spring-catch to engage with said pin when the cock is closed, and a rock-shaft having an arm to disengage said catch.

2. In a gas-cock, the combination with a turning plug provided with a stop-pin, of a spring-catch to engage with said pin, a rock-shaft having an arm to disengage said catch, and means for automatically rocking said shaft to return the catch to operative position when the cock is open.

3. In a gas-cock, the combination with a turning plug provided with a stop-pin, of a spring-catch to engage with said pin, a rock-shaft having an arm to disengage said catch, a finger on said shaft, and a cam on the plug to actuate said finger, when the cock is opened.

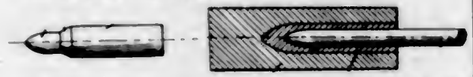
4. In a gas-cock, the combination with a turning plug provided with a stop-pin and having a recess, of a spring adapted to engage with said pin when the cock is closed, a rock-shaft having an arm to lift said spring and hold it disengaged from said pin, and a finger on said shaft adapted to enter said recess and be pushed back by the edge thereof when the cock is opened, and to serve as an abutment to limit the angular movement of the plug in opening.

750,823. BOOKCASE. JOHN DANNER, Canton, Ohio. Filed Feb. 17, 1900. Serial No. 5,564. (No model.)



Claim.—As an improved article of manufacture, a sectional bookcase, each section thereof formed of like shape, a leaf provided with a groove, said leaf located within the upper part of one or more of the sections, a rib located between the ends of the leaf and upon the top of the section, arms pivoted to the leaf and section and the arms pivoted together, a stop-pin to arrest the outward movement of the leaf, and means for connecting the various sections together, substantially as set forth.

750,824. PROCESS OF PRODUCING PIERCED INGOTS WITH SOLID ENDS. LEONARD D. DAVIS, Erie, Pa. Filed Sept. 3, 1901. Serial No. 74,158. (No specimens.)

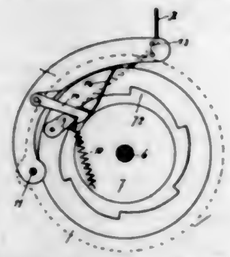


Claim.—1. The method of producing a pierced metallic ingot with a solid end, which consists in previously shaping the ingot with the portion to be closed of smaller diameter than the body of the ingot, passing the ingot through a piercing-mill arranged to apply pressure rotatively on the ingot and to feed the ingot upon the piercing-mandrel, the size of the reduced portion being such relatively to the pass of the mill as to prevent an actuating engagement of the reduced portion by the mill.

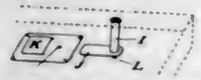
2. The method or process of forming a pierced metallic ingot with a solid end which consists in providing the ingot with a body portion to be pierced and a reduced portion to remain solid; feeding the ingot so formed into a piercing-mill, the body portion being sufficiently greater in size than the reduced portion to pass through the piercing-mill without a reduction in the size of the body portion to that of the reduced or solid portion; then passing the ingot so formed into a forming-mill similar in construction to the piercing-mill with a former-mandrel, the reduced portion of the ingot being sufficiently small relatively to the pass of each mill to prevent an actuating engagement of the reduced portion by either mill.

750,825. AUTOMATIC TROLLEY-LINE REEL. CHARLES F. DAVY, Mohawk, N. Y., assignor of one-half to H. M. & M. M. Scofield, Mohawk, N. Y. Filed Mar. 19, 1903. Serial No. 148,507. (No model.)

Claim.—The combination in an automatic trolley-catcher of a casing, a spring-actuated, reel mounted in the casing, having a ratchet-wheel portion, a spring-actuated dog pivoted to the casing, and adapted to engage the ratchet-wheel and hold the reel against operation by its actuating-spring, a tripping-lever pivoted to the casing and adapted to overhang the reel, having a line-eye for the trolley-cord, and having a catch adapted to engage with said dog to release the same and become automatically disengaged therefrom, substantially as set forth.

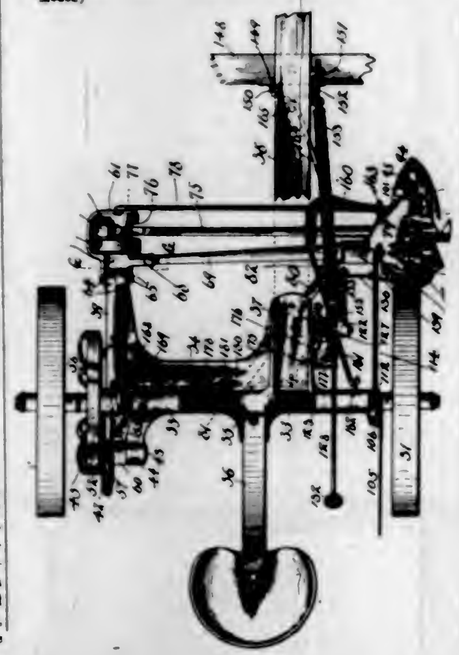


750,826. DETACHABLE COVER FOR BANK-CHECKS. EDWARD C. DEANS, Scranton, Pa. Filed May 15, 1902. Serial No. 157,284. (No model.)



Claim.—A two-leafed hinged cover; a perforated pad of bank-checks D removably attached to one leaf, A, thereof, near the hinging-line, by means of rivets I passing through the stub edge G of the pad, tongues J projecting from the under end of said rivets underneath the pad, sockets K permanently fixed to the leaf A and adapted to embrace the tongues J, projections L on the under side of said tongues J, and indentations M in the socket member, adapted to receive and retain said projections L when the tongue is sprung into place; a perforated pad of record-slips E removably attached by similar means to the other leaf, B, of the cover along the outer edge thereof; and a flange F removably attached along the stub edge of said pad E and adapted to abut against the other leaf A, below the check-pad D, when the cover is closed, said flange F and the stub edge G of the pad D serving to keep the two leaves equidistant from each other when closed, irrespective of the number of checks and record-slips contained.

750,827. MOWING-MACHINE. SAMUEL K. DEMUTH, Chicago, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed July 28, 1900. Serial No. 25,111. (No model.)



Claim.—1. In a mowing-machine, the combination with the coupling-frame, of the finger-bar secured thereto by pivotal connections, said pivotal connections comprising two bearings alined transversely to the length of the bar, one of said bearings consisting of an eccentric sleeve, and means for rotating said sleeve and securing it in any desired position.

2. In a mowing-machine, the combination with the coupling-frame, of the finger-bar secured thereto by pivotal connections, said pivotal connections comprising two bearings alined transversely to the length of the bar, one of said bearings consisting of a sleeve with an eccentric aperture therein, and means for rotating said sleeve and securing it in any desired position consisting of the flange 97 having the notches therein adapted to coöperate with the lug 103 rigid with the finger-bar.

3. In a mowing-machine, the combination with the coupling-frame, of the finger-bar pivotally secured thereto, a segmental gear secured to said finger-bar concentrically with its pivot, another gear meshing with said segmental gear and carried by said supporting member, and means for moving said last-mentioned gear comprising a pivoted arm having link connections with said last-mentioned gear, said link connections consisting of the centrally-disposed gag-lever and the links connecting it to said arm and the gear respectively.

4. In a mowing-machine, the combination with the coupling-frame, of the finger-bar pivotally secured thereto, a segmental gear secured to said finger-bar concentrically with its pivot, another segmental gear having the lug 145 thereon meshing with said first-mentioned gear and journaled on the coupling member, and means for swinging said last-mentioned segmental gear comprising a pivotal arm having link connections therewith consisting of the centrally-disposed gag-lever coöperating with said lug 145 on the gear and the links connecting it to said arm and gear respectively.

5. In a mowing-machine, the combination with the lifting-crank having the arm 133, of the pivoted lifting member, as the segmental gear 139 having the bearing-lug 145 and the arm 138 and pivoted to the coupling-frame, and the link connections between the arm 133 and the arm 138 consisting of the link 135 secured to the arm 133, the gag-lever 136 arranged to coöperate with the lug on the arm 138, and the link 137 connecting the gag-lever and said arm 138.

6. In a mowing-machine, the combination of a hand-lever, a spring coöperating therewith and constantly tending to throw said hand-lever toward the driver's seat, a segment adjacent to said lever and provided with a notch consisting of an inclined surface leading to an abrupt shoulder facing away from the driver's seat, and a plunger on said hand-lever adapted to coöperate with said notch, substantially as and for the purpose described.

7. In a mowing-machine, in combination a pivoted hand-lever having a plunger, a spring coöperating with said hand-lever and constantly tending to throw it toward the driver's seat, and a fixed segment adjacent said lever and provided with two notches, one consisting of an inclined surface leading to the abrupt shoulder facing away from the driver's seat, and the other having the abrupt shoulder opposed to the shoulder of the other notch.

8. In a mowing-machine, the combination of the frame having a slot therein, and having the axle mounted therein, with the driving-wheels clutched on said shaft, a sliding clutch member splined on the axle, a gear-wheel mounted to rotate on said axle and having the fixed clutch member secured thereto, a clutch-shifting mechanism comprising a yoke engaging the sliding clutch member, a sliding bar connected to said yoke and mounted substantially parallel to the axle, a spring coöperating with the sliding bar, and means to hold the clutch members out of engagement consisting of the cam-lever pivotally secured to the bar in a bearing-lug and coöperating with the edge of said slot in the frame through which said bearing-lug for the cam-lever reciprocates.

9 In a mowing-machine, the combination of the axle, with the driving-wheels clutched thereon, a sliding clutch member splined on the axle, a gear-wheel mounted to rotate on said axle and having the fixed clutch member secured thereto, a clutch-shifting mechanism comprising a yoke engaging the sliding clutch member, a sliding bar connected to said yoke and mounted substantially parallel to the axle, a spring coöperating with the sliding bar, a lever pivoted to the frame and having one end connected with the sliding bar, and a lifting-crank pivotally mounted on the frame and having an arm thereon adapted to contact with the free end of the lever.

10. In a mowing-machine, the combination of the axle, with the driving-wheels clutched thereon, a sliding clutch member splined on the axle, a gear-wheel mounted to rotate on said axle and having the fixed clutch member secured thereto, a clutch-shifting mechanism comprising a yoke engaging the sliding clutch member, a sliding bar connected to said yoke and mounted substantially parallel to the axle, a spring coöperating with the sliding bar, a lever pivoted to the frame and having one end connected with the sliding bar, a lifting-crank pivotally mounted on the frame and having an arm thereon adapted to contact with the free end of the lever, a hand-lever secured to said lifting-crank and a foot-lever pivotally secured thereto.

11. In a mowing-machine, the combination with the main frame having a tubular bearing 39, and the coupling-frame secured thereto, of the shaft 40 having the eccentric-disk 66 on the end thereof, the cup 61 secured to the end of the bearing 39 and having the channel 71 therein, and the sleeve 67 connected with the coupling-frame surrounding the shaft 40 and having the lug 70 coöperating with the channel 71.

12. In a mowing-machine, the combination with the main frame having an angular socket 117 therein, of a lifting-crank-supporting member comprising the angular lug 118 adapted to coöperate with the socket 117, the cylindrical bearing 120, and the notched segment 123.

13. In a mowing-machine, the combination with the main frame having an angular socket 117 therein, of a lifting-crank-supporting member comprising the angular lug 118 adapted to coöperate with the socket 117, the cylindrical bearing 120, a notched segment 123, and the lifting-crank mounted thereon comprising the bearing-sleeve 121 and the arms 127, 131 and 133, respectively.

14. In a mowing-machine, the combination with the main frame having an angular socket 117 therein, of a lifting-crank-supporting member comprising the angular lug 118 adapted to coöperate with the socket 117, the cylindrical bearing 120, the notched segment 123, the lifting-crank mounted thereon comprising the bearing-sleeve 121 and the arms 127, 131, respectively, the cap-piece 126, and the bolt 125 passing through the cylindrical bearing 120.

15. In a mowing-machine, the combination with the frame having a tongue secured thereto, of the block 146 pivotally secured to the tongue and carrying the doubletrees, the spring 153 secured thereto above the pivot, the floating lever 160 slidingly mounted at one end so as to be capable of receding from and approaching the inner shoe connection, and the links 161 and 164 pivotally connected at one end to the frame and the block 146, respectively, and at the other end to the floating lever 160,

16. In a mowing-machine, the combination with the frame having a tongue secured thereto, of the block 146 pivotally secured to the tongue and carrying the doubletrees, the spring 153 secured to said block above the pivot and having its other end connected to the frame of the machine, the pitman guard-rod 78 extending in front of the machine, the inner shoe connection suitably supported from the frame and having the rod 78 connected thereto, the floating lever 160 having one end slidingly mounted on the rod 78, and the links 161 and 164 each pivotally connected at one end thereof to the frame and the block 146, respectively, and at their other ends to the floating lever 160.

17. In a mowing-machine, the combination with the main frame, of the coupling-frame secured thereto, the finger-bar pivoted to the coupling-frame, the lifting-crank, connections between the lifting-crank and the finger-bar including the gag-lever 136, and means connecting the lever and the finger-bar, said means causing the lever to act as a lever during the first part of the upward movement of the bar, and during the continued upward movement of the bar causing it to act as a link.

18. In a mowing-machine, the combination with the main frame, of the coupling-frame secured thereto, the finger-bar pivoted to the coupling-frame, the lifting-crank, connections between said lifting-crank and finger-bar including the gag-lever 136, a fulcrum-carrying arm pivoted on the coupling-frame and connected to the finger-bar to move therewith, and a link pivotally connected to the gag-lever and to the fulcrum-carrying arm, whereby the gag-lever bears on the fulcrum during the first part of the upward movement of the bar and acts as a lever, and during the continued upward movement of the bar the lever moves out of contact with the fulcrum and acts as a link.

19. In a mowing-machine, the combination with the main frame, of the coupling-frame secured thereto, the finger-bar pivoted to the coupling-frame, the lifting-crank, and connections between said lifting-crank and finger-bar including a member pivoted on the coupling-frame and coöperating with a fixed portion of the finger-bar, so that the finger-bar is raised as said member is rocked on its pivot, and having a projection 145 thereon, the link 137 connected to said pivoted member, and the gag-lever 136 connected to said link 137 and adapted to coöperate with the projection 145 as a fulcrum as the finger-bar is raised.

20. In a mowing-machine, the combination with the main frame,

of the coupling-frame secured thereto, the finger-bar pivoted to the coupling-frame, the lifting-crank, and connections between said lifting-crank and the finger-bar including the gear-segment secured to the pivoted end of the finger-bar, the cooperating gear-segment pivoted on the coupling-frame and having the projection 145 thereon, the link 137 pivoted to said gear-segment, the gag-lever 136 pivoted to said link 137 and adapted to cooperate with the projection 145 as a fulcrum, and the link connecting the gag-lever 136 with the lifting-crank.

21. In a mowing-machine, the combination with the main frame, of the cutting apparatus pivotally secured thereto, a compensating spring, and connections between both ends of said compensating spring and the cutting apparatus whereby the cutting apparatus is connected to said compensating spring at both ends thereof so as to be yieldingly supported thereby.

22. In a mowing-machine, the combination with the main frame, of the cutting apparatus pivoted thereto, the lifting-crank pivoted on the main frame, the draft-supporting member movably connected to the tongue, the compensating spring connected at one end to the lifting-crank and at the other end to the draft-supporting member, connections between the cutting apparatus and the lifting-crank, and connections between the draft-supporting mechanism and the cutting apparatus.

23. In a mowing machine, the combination with the main frame, of the cutting apparatus pivoted thereto, the lifting-crank pivoted on the main frame, the draft-supporting member movably mounted on the tongue, the compensating spring secured to the lifting-crank at one end and to the draft-supporting mechanism at the other end, connections between the lifting-crank and the cutting apparatus, and connections between the draft-supporting mechanism and the cutting apparatus including the link 164 and the automatically-adjustable equalizing-bar 160.

24. In a mowing-machine, the combination with the main frame, of the cutting apparatus pivotally secured thereto, and draft apparatus for automatically adjusting the draft between the main frame and the cutting apparatus, said draft apparatus including the floating equalizing-bar connected at one end ultimately to the main frame and at the other to the cutting apparatus and having a connection between its ends to the doubletree.

25. In a mowing-machine, the combination with the main frame, of the cutting apparatus pivotally secured thereto, the draft-bar movably secured to the tongue, the floating equalizing-bar, a link connecting one end of said equalizing-bar and the main frame, connections between the other end of said equalizing-bar and the cutting apparatus for automatically varying the effective point at which the draft is applied, cutting apparatus, and a second link secured at one end to the draft-bar and at the other end to the equalizing-bar.

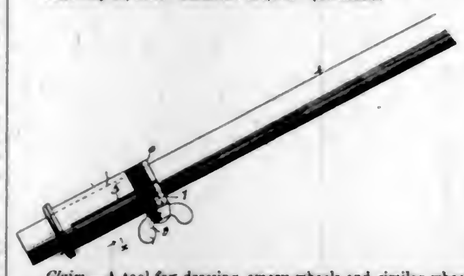
26. In a mowing-machine, the combination of a yoke, and a finger-bar having separated relatively fixed attaching parts arranged one in advance of the other and connected independently to the yoke, the connection between the yoke and one of said attaching parts comprising a pivot, and means movable relatively to the pivot for moving said one of the attaching parts laterally relatively to the other attaching part and thereby forcing the outer end of the finger-bar forwardly or backwardly.

27. In a mowing-machine, the combination of a yoke, a finger-bar having separated relatively fixed attaching parts arranged one in advance of the other, means for connecting the yoke to one of the attaching parts, and means for connecting the yoke to the other attaching part independently of the former attaching part, said latter means comprising a pivot and an adjusting member supporting the pivot and movable relatively thereto for moving said other attaching part laterally relatively to the former attaching part and thereby forcing the outer end of the finger-bar forwardly or backwardly.

28. In a mowing-machine, the combination of a yoke, a finger-bar having separated relatively fixed attaching parts arranged one in advance of the other, means for connecting the yoke to one of the attaching parts, and an adjusting member pivotally connected to the yoke and to the other attaching part for moving said other attaching part laterally relatively to the former attaching part, and thereby forcing the outer end of the finger-bar forwardly or backwardly.

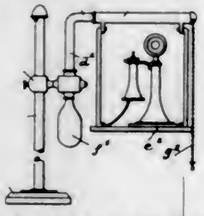
29. In a mowing-machine, the combination of a yoke, a finger-bar having separated attaching parts arranged one in advance of the other, substantially horizontal pivots for connecting said attaching parts independently to the yoke, said pivots being alined with each other, and means between one of the pivots and the corresponding attaching part for forcing the outer end of the finger-bar forwardly or backwardly without varying the alinement of said pivots.

750,828. TOOL FOR DRESSING EMERY-WHEELS. JOHN DESMOND, Urbana, Ohio, assignor to himself, Charles H. Stephan, George W. Stephan, and Henry Stephan, Urbana, Ohio, a copartnership doing business under name of Desmond-Stephan Manufacturing Company. Filed May 25, 1903. Serial No. 158,574. (No model.)



Claim.—A tool for dressing emery-wheels and similar wheels comprising a tubular casing of a substantially rigid metal of the character described, a body molded in said casing so as to fill the same, said body being composed of a binder and an abrasive distributed with substantial uniformity throughout the body, a stop-sleeve mounted on said tubular casing and movable longitudinally relatively thereto, and means for clamping said stop-sleeve in adjusted position on said tubular casing, substantially as described.

750,829. VERTICALLY-SWINGING SUPPORT OR SHELF. JACOB S. DETRICK, Baltimore, Md. Filed Sept. 9, 1903. Serial No. 172,425. (No model.)



Claim.—1. In a device of the class described, the combination of a stationary support; a frame or arm pivoted on said support and having movement up and down in an arc of a circle; a pendent shelf carried by said frame or arm, and means for automatically elevating the pivoted frame and shelf to their normally elevated position after they have been lowered.

2. In a vertically-swinging shelf, the combination of a stationary support; a frame or arm pivoted to said support; a pendent shelf carried on one end of said pivoted frame or arm and a weight on the other end, whereby the pendent shelf will be kept normally in an elevated position.

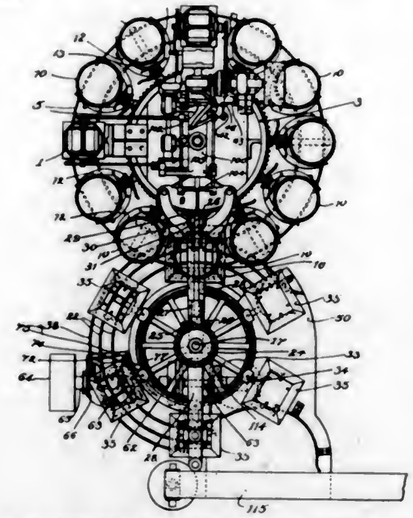
3. The combination of a vertical stationary support provided with a horizontal pivot-bar; a frame pivotally mounted on said bar and movable in a vertical plane; a shelf carried at one end of said pivoted frame and hanging pendent therefrom, and means for normally keeping the end of the pivoted frame that carries said shelf elevated above said pivot-bar.

4. The combination of a vertical stationary support provided with a horizontal pivot-bar; a frame pivotally mounted on said bar and movable in a vertical plane; a shelf carried at one end of said pivoted frame and hanging pendent therefrom; means for normally keeping the end of the pivoted frame that carries said shelf elevated above said pivot-bar, and means whereby the said pivoted frame may be pulled or tilted down to lower the said shelf.

5. In a device of the class described, the combination of a stationary support comprising two parallel rods and a cross-bar connecting the same; a frame pivotally mounted on said cross-bar and movable in a vertical plane between said parallel rods; a swinging bracket or shelf attached to said frame, and means for keeping the frame and swinging bracket or shelf normally elevated.

750,830. WEIGHING AND PACKAGING MACHINE. WILLIAM H. DOBLE, Quincy, Mass., assignor to Pneumatic Scale Corporation, Portland, Me., a Corporation of Maine. Filed June 11, 1903. Serial No. 160,969. (No model.)

Claim.—1. In a package-filling machine, a rotatable receptacle-carrier, a rotatable funnel-carrier above said receptacle-carrier on the same axis, a series of funnels fixed to and carried by said funnel-carrier and movable only in a horizontal plane, mechanism which intermittently moves both of said carriers synchronously with each other, a vertically-movable press above one of the stopping-places in the path of movement of said funnels, and mechanism which moves said press down into said funnel and out again, substantially as described.



2. In a package-filling machine, a rotatable receptacle-holder, funnels located above said holder and in alinement with the receptacles when in position on the said holder, a funnel-carrier which moves said funnels in a horizontal plane only and synchronously with said receptacles and in continued alinement therewith, mechanism for delivering material through said funnels into receptacles on the holder, a vertically-reciprocable press, mechanism which transfers the filled package and its funnel beneath the press, mechanism which raises the press and mechanism which controls the descent of the press and causes it to enter the funnel and press the material into the receptacle, substantially as described.

3. In a package-filling machine, a receptacle-carrier, a funnel-carrier above said receptacle-carrier, a series of funnels carried by said funnel-carrier, mechanism which moves both of said carriers synchronously with each other, a vertically-movable press above one of the stopping-places in the path of movement of said funnels, mechanism which raises and lowers said press, mechanism controlling the press-actuating mechanism, and mechaniam actuated by one of the moving carriers to set in motion the press-actuating mechanism, substantially as described.

4. In a package-filling machine, a receptacle-carrier, a funnel-carrier above said receptacle-carrier, a series of funnels carried by said funnel-carrier, mechanism which moves both of said carriers synchronously with each other, a vertically-movable press above one of the stopping-places in the path of movement of said funnels, a rotatable shaft and mechanism actuated thereby to raise and lower the said press, a driving-shaft and a clutch adapted to connect it with said press-actuating shaft, and mechanism actuated by one of the moving carriers to throw the clutch to operatively connect the said driving-shaft and said press-actuating shaft, substantially as described.

5. In a package-filling machine, a rotatable receptacle-carrier, a rotatable funnel-carrier above said receptacle-carrier on the same axis therewith, an intermittently-rotating shaft which drives said carriers in a horizontal plane only and synchronously with each other, a series of funnels carried by said funnel-carrier and moved in a horizontal plane only and in continued alinement with the receptacles, a vertically-movable press above one of the stopping-places in the path of movement of said funnels, a rotatable shaft, reciprocating mechanism connected with said press and actuated by said rotating shaft which raises said press and controls the descent thereof, substantially as described.

6. In a package-filling machine, a rotatable receptacle-carrier, a rotatable funnel-carrier above said receptacle-carrier on the same axis therewith, an intermittently-rotating shaft which drives said carriers synchronously with each other, a series of funnels carried by said funnel-carrier, a vertically-movable press above one of the stopping-places in the path of movement of said funnels, a rotatable press-actuating shaft, a cam carried thereby, mechanism connected with said press and actuated by said cam which raises said press and controls the descent thereof, a driving-wheel, a clutch connection between said driving-wheel and said cam-shaft, mechanism, actuated by the movement of one of the carriers to move said clutch to operatively connect said cam-shaft and driving-wheel and thereby cause the reciprocation of the press, and mechanism which disengages said clutch, substantially as described.

7. In a package-filling machine, a rotatable receptacle-carrier, an intermittently-rotating shaft which drives said carrier, a vertically-movable press above one of the stopping-places in the path of movement of the receptacles, a rotatable press-actuating shaft, a cam carried thereby, mechanism connected with said press and actuated by said cam which raises said press and controls the descent thereof, a driving-wheel loose on said cam-shaft, a ratchet-wheel fast to said driving-wheel, a dog carried by said cam-shaft, a stop-lever which normally engages said dog and holds it out of engagement with said ratchet, mechanism connected with said stop-lever which is engaged by the movement of one of said carriers to trip said stop-lever from the dog, a spring which throws said dog into engagement with said ratchet when the stop-lever is released and allows the cam-shaft to be rotated, and a spring which throws the stop-lever again into position to trip the said dog and stop the rotation of the cam-shaft at the end of each rotation.

8. In a package-filling machine, a movable receptacle-carrier, a track for the receptacles, guides which move with the carrier and push the receptacles along on the track, said guides having wings which support the receptacles at the rear and on one side, mechanism which moves the receptacle-carrier intermittently, a press which is movable vertically in alinement with one of the stopping-places of the receptacles on said carrier, a movable guard which is actuated by the descent of the press to move into position to form a guard for another side of the receptacle beneath the press, substantially as described.

9. In a package-filling machine, mechanism for delivering material into receptacles, a press, mechanism for moving the filled receptacles to a position beneath the press, mechanism for actuating the press, and a movable guard actuated by the descending press to move into engagement with the receptacle beneath the press, substantially as described.

10. In a package-filling machine, a receptacle-holder, a movable receptacle-guard, a vertically-reciprocable press, and a vertically-sliding member which carries said press, and in its descent moves said guard into position to support a receptacle on the holder beneath said press, substantially as described.

11. In a package-filling machine, a receptacle-holder, a movable receptacle-guard, a vertically-reciprocable press, a vertically-sliding member which carries said press, a cam on said sliding member which in its descent moves said guard into position to support a receptacle on the holder beneath said press, and mechanism which when the said sliding member and cam are moved upward out of engagement with the said guard will move the guard away from the receptacle, substantially as described.

12. In a package-filling machine, a receptacle-holder, a movable receptacle-guard, a vertically-reciprocable press, a vertically-sliding member which carries said press, a cam on said sliding member which in its descent moves said guard into position to support a receptacle on the holder beneath said press, said cam being movable on said sliding member, mechanism which normally holds said cam fast to said sliding member, and a stop which engages said cam and limits the extent of movement thereof less than the range of movement of the said sliding member, substantially as described.

13. In a packaging-machine, a rotatable receptacle-carrier, a track for the receptacles, mechanism which moves the said carrier intermittently, a press which is movable vertically in alinement with one of the stopping-places of the receptacles on said carrier, a vertically-reciprocable guard which moves into and out of a position in front of the advance side of the receptacle beneath the press, and mechanism for actuating said guard, substantially as described.

14. In a packaging-machine, a rotatable receptacle-carrier, a track for the receptacles, guides which move with the carrier and push the receptacles around on the track, mechanism which moves said carrier intermittently, a press which is movable vertically in alinement with one of the stopping-places of the receptacles on said carrier, a guard which moves into and out of a position in front of the advance side of the receptacle beneath the press, and mechanism

controlled by the movement of the carrier to move said guard into and out of operative position, substantially as described.

15. In a packaging-machine, a rotatable receptacle-carrier, a track for the receptacles, guides which move with the carrier and push the receptacles around on the track, mechanism which moves said carrier intermittently, a press which is movable vertically in alinement with one of the stopping-places of the receptacles on said carrier, a guard which moves into and out of a position in front of the advance side of the receptacle beneath the press, a rotatable shaft, a cam carried thereby which raises said press and allows it to drop, a second cam carried thereby which moves said guard into and out of position in front of said receptacle, driving mechanism for said cam-shaft, mechanism actuated by the movement of said carrier to operatively connect said driving mechanism with said cam-shaft and mechanism which disengages said driving mechanism from operative connection with said shaft at the end of each rotation thereof, substantially as described.

16. In a packaging-machine, a rotatable receptacle-carrier, a track for the receptacles, guides which move with said carrier and push the receptacles around on the track, mechanism which moves said carrier intermittently, a press which is movable vertically in alinement with one of the stopping-places of the receptacles on said carrier, a movable guard at one side of the said stopping-place, mechanism actuated by the moving carrier which elevates the press and then allows it to descend, mechanism actuated by the descent of the press to turn said side guard toward the receptacle, a guard which is movable into and out of a position directly in front of the receptacle beneath the press, driving mechanism common to both the press and the front guard which actuates them in such relative times that the front and side guards will both be moved into operative position before the press is applied to the material in the receptacle, and will both be moved out of operative position after the press is lifted, substantially as described.

17. In a packaging-machine, an intermittently-movable receptacle-carrier, a vertically-reciprocating press which moves in alinement with one of the stopping-places of the receptacles, a movable guard for the advance side of the receptacle in front of the line of movement of the press and a movable guard for the outer side of the receptacle, and cooperating mechanisms which control the movements of the said guards and press, substantially as described.

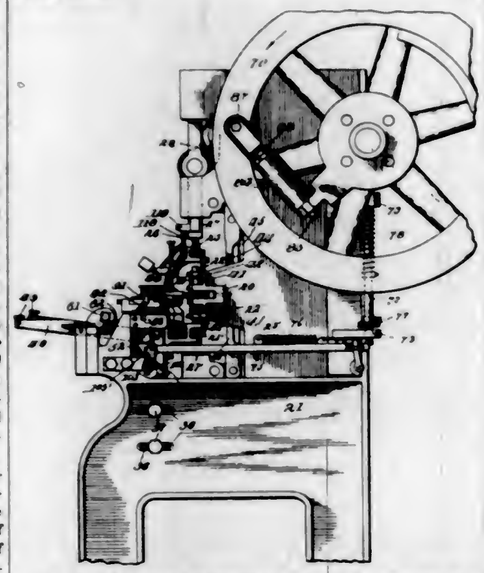
18. In a package-filling machine, a rotatable receptacle-carrier, a rotatable funnel-carrier above said receptacle-carrier on the same axis therewith, a series of funnels carried by said funnel-carrier above the path of movement of the receptacles, and guides on said funnels which engage the flaps of cartons and guide the cartons onto the lower ends of funnels, substantially as described.

19. In combination, weighing mechanism, mechanism for delivering a predetermined weight of material successively into temporary receptacles, mechanism for removing the filled receptacles from the place of filling and weighing to a place of discharge, mechanism for emptying the filled temporary receptacles, a carrier for permanent receptacles, a funnel-carrier above said second receptacle-carrier having a series of funnels, mechanism for moving said funnel-carrier and permanent-receptacle carrier, both of said carriers being so positioned that the movement will bring them both beneath the place of discharge from the temporary receptacles, driving mechanism common to both said permanent-receptacle carrier and funnel-carrier and connecting mechanism by which the temporary receptacle carrier controls the movement of the permanent-receptacle carrier and funnel-carrier, and a press which is controlled by the movement of the permanent-receptacle carrier to enter the funnels and press the material into the permanent receptacles, substantially as described;

20. In combination, weighing mechanism, mechanism for delivering a predetermined weight of material into temporary receptacles, mechanism for removing the filled receptacles from the place of filling and weighing to a place of discharge, mechanism for emptying the temporary receptacles, a carrier for permanent receptacles, a funnel-carrier above said permanent-receptacle carrier having a series of funnels, mechanism for moving said funnel-carrier so as to bring the funnels successively beneath the place of discharge from the temporary receptacles, a press, and cooperating mechanisms which control the movement of the carriers and the press and cause them to move independently and cause the press to enter the funnels and press the material into the permanent receptacles, substantially as described.

750,831. MACHINE FOR MAKING PRINTING-PLATES. JOSEPH S. DUNCAN, Chicago, Ill. Filed Dec. 17, 1902. Serial No. 135,656. (No model.)

Claim.—1. In a machine of the character described, the combination of a series of dies and punches, means for actuating said dies and punches to produce an impression in an interposed plate and comprising an upper cross-head, a carriage for supporting the plate in position to receive said impressions, feeding mechanism for the carriage, and a device connected with said feeding mechanism and adapted to be operated by said upper cross-head to actuate the feeding devices.



2. In a machine of the character described, the combination of a series of dies and punches, means for actuating said dies and punches to produce an impression in an interposed plate and comprising an upper cross-head, a carriage for supporting the plate in position to receive said impressions, feeding mechanism for the carriage, and a post connected with said feeding mechanism and adapted to be engaged and operated by said upper cross-head to actuate the feeding devices.

3. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, and means for operating the dies and punches in pairs to produce impressions in the plate and comprising a cross-head arranged above the dies and a cross-head arranged below the punches, and a toggle for operating said cross-heads and having a short arm and a long arm pivotally connected together, the short arm being connected with the upper cross-head and the long arm being fulcrumed at its end and connected back of its fulcrum with the lower cross-head.

4. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, a cross-head above the dies and a cross-head below the punches to operate said dies and punches, and means for actuating said cross-heads comprising a toggle having a short member and a long member pivotally connected together, the short member being connected at its end with one cross-head, a fulcrum-bar and means for adjusting the same, and the long toggle member being fulcrumed at its end on said bar and connected back of its fulcrum to the lower cross-head.

5. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, means for operating the dies and punches comprising a toggle having a short member and a long member connected together, and an adjustable fulcrum for the lower end of said long member.

6. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, means for operating the dies and punches comprising a toggle having a short member and a long member, and an adjustable fulcrum for the lower end of said long member comprising a laterally-adjustable cross-bar supported in the frame of the machine.

7. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, means for operating the dies and punches comprising a toggle having a short member and a long member, and an adjustable fulcrum for the lower end of said long member comprising a laterally and vertically adjustable cross-bar supported in the frame of the machine.

8. In a machine of the character described, the combination of a series of dies and punches, a carriage for supporting a plate in position to receive impressions from said dies and punches, means for operating the dies and punches comprising a toggle having a short member and a long member, and an adjustable fulcrum for the lower end of said long member comprising a cross-bar, plates supporting said cross-bar and adjustable laterally on the frame of the machine, and set-screws operating through said plates on the cross-bar to adjust the same vertically.

9. In a machine of the character described, the combination of a series of dies and punches and a series of key-bars corresponding thereto, notches in said key-bars, means for supporting a key-bar after the keys have been struck, a power-shaft, a grooved collar on said shaft, a lever pivoted on the side of the machine and having one end thereof arranged in said collar, a pin carried by the collar to engage and operate the lever, and means operated by the lever for returning the key-bar to its normal position.

10. In a machine of the class described, the combination of character-impressing devices and corresponding key-bars, a carriage for holding the plate in position to receive successive impressions, lever devices on the carriage for engaging a key-bar to lock the carriage thereon, and cam-headed screws for adjusting said locking-levers.

11. In a machine of the character described, the combination of character-impressing devices and means for operating the same, a frame for holding the plate in position to receive successive impressions and means for feeding said frame comprising a rack, a locking-pawl and a feeding-pawl engaging said rack, means for operating said feeding-pawl, a releasing-plate to operate the locking-pawl, and a detent carried with the feeding-pawl to operate said releasing-plate.

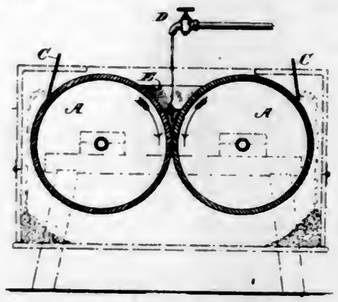
12. In a machine of the character described, the combination of character-impressing devices and means for operating the same, a frame for holding the plate in position to receive successive impressions and means for feeding said frame comprising a rack, a locking-pawl and a feeding-pawl engaging said rack, a rock-shaft, a crank on said rock-shaft carrying the feeding-pawl, means for rocking said shaft to operate the feeding-pawl, a releasing-plate connected with the locking-pawl and provided with a toe and heel, and a detent carried with the feeding-pawl and arranged to engage said toe and be disengaged therefrom by said heel when the releasing-plate swings on its pivot.

13. In a machine of the character described, the combination of character-impressing devices and means for operating the same, a frame for holding the plate in position to receive successive impressions and means for feeding said frame comprising a rack, a locking-pawl and a feeding-pawl engaging said rack, lugs on said pawls, a lever pivoted at one end, a pin on said lever arranged to engage said lugs, and a spring-pressed post connected with the free end of the lever to operate the same and simultaneously disengage the pawls from the rack.

14. In a machine of the character described, the combination of character-impressing devices and means for operating the same, a frame for holding the plate in position to receive successive impressions and means for feeding said frame comprising a rack, a locking-pawl and a feeding-pawl engaging said rack, a rock-shaft, a crank on said rock-shaft carrying the feeding-pawl, a post connected with said shaft for rocking the same and arranged to be operated by the character-impressing operating means, a lug on said post, and a handle-lever provided with a lug arranged to engage the lug on said post to operate the feeding means.

750,832. PROCESS OF PREPARING FOOD CASEIN. ANDREW A. DUNBAR, New York, N. Y., assignor to the Casein Company of America, a Corporation of New Jersey. Filed July 8, 1902. Serial No. 114,704. (No specimens.)

Claim.—The herein-described process for producing an easily-digestible casein, consisting in dissolving the casein with a suitable solvent, then treating the casein solution with a digestive agent, arresting the action of the digestive agent, before digestion is completed, by subjecting the solution, in a thin film, on the surface of a cylinder heated to a temperature of not less than 212° Fahrenheit, such subjection of the casein solution to heat continuing until the liquid of the solution is dried out and a film of dried casein is formed, and finally removing such dried casein film from the cylinder and disintegrating the same to form a fluffy comminuted product.



750,833. SOAP-RECEPTACLE. MARIE R. EDDY, St. Louis, Mo. Filed May 20, 1903. Serial No. 157,902. (No model.)



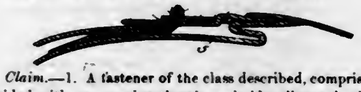
Claim.—1. A soap-receptacle in which the part which the soap touches is composed of absorbent amorphous material.

2. A soap-receptacle in which a part is found composed of absorbent amorphous material for relieving the interior of the receptacle of water.

3. A soap-receptacle formed of an absorbent amorphous material.

4. A soap-receptacle composed of non-vitrified anhydrous clay.

750,834. GLOVE-FASTENER. PETER J. ENGELS, Farwell, Nebr. Filed May 29, 1903. Serial No. 159,368. (No model.)



Claim.—1. A fastener of the class described, comprising a plate provided with an opening therein, a holder disposed adjacent the aforesaid opening in the plate, a tape passed through the aforesaid opening and looped about the holder, and a lifting-tab disposed beneath the plate and adapted for manipulation thereof.

2. In a fastener of the class described, the combination with a glove, of a tab secured thereto, a plate secured to the upper side of the tab and provided with an opening therein, the tab being provided with an opening registering the opening in the plate, a roller disposed adjacent the opening in the plate, and a tape secured to the glove and looped about the roller upon the plate.

3. In a fastener of the class described, the combination with a glove provided with a gore, a tab secured to the glove upon one side of the gore, a plate secured to the upper side of the tab, ears projected upwardly from the plate and providing an opening therein, a roller journaled between the ears, the tab being provided with an opening adjacent the opening in the plate, a tape or the like secured upon the opposite side of the gore and extending upwardly from the under side of the tab through the tab and plate and looped about the roller of the plate then extending beneath the plate and tab, said tape being adapted to adjust or tighten the wristband of the glove.

750,835. TELEPHONE-TRANSMITTER. ERNEST B. FARNSTOCK, New York, N. Y. Filed Dec. 2, 1901. Serial No. 84,408. (No model.)

Claim.—1. A telephone-transmitter comprising a case having an open sound-chamber, and a self-contained removable microphone therein capable of acting as a sound-transmitter independently of the case, said microphone embodying in its construction a supporting-body, and a sound-diaphragm which is free to vibrate at its periphery uninfluenced by tension or pressure and having its periphery located in such near relation to the supporting-body that sound-waves will only impinge upon the exterior surface of the diaphragm.

2. A telephone-transmitter comprising a transmitter-case having a sound-chamber, and a removable microphone, which in construction is entirely independent of the case, provided with a carbon-chamber and two sound-diaphragms, located in said case.



3. A telephone-transmitter comprising a transmitter-case having a sound-chamber, a removable microphone provided with a carbon-chamber, two oppositely-disposed electrodes within the carbon-chamber, carbon between said electrodes, flexible covers for said carbon-chamber, two sound-diaphragms of relatively larger size than the flexible covers located on opposite sides of the carbon-chamber, and means interposed between the electrodes and sound-diaphragms, whereby the vibrations of the sound-diaphragms will be communicated to the electrodes.

4. A telephone-transmitter, comprising a transmitter-case having a substantially oblong sound-chamber with its forward end open toward the mouthpiece of the instrument, and a microphone carrying two sound-diaphragms located in but independent of said chamber and in such manner that sound-waves may impinge on each side of the microphone.

5. A telephone-transmitter comprising a transmitter-case having a sound chamber with parallel sides and parallel top and bottom, and said top and bottom slotted, a removable microphone carrying its sound-diaphragms, adapted to be received in said slots, whereby a space is provided between the sides of the sound-chamber and the sound-diaphragms of the microphone.

6. In a telephone-transmitter, a microphone, comprising an annulus with an inwardly-projecting flange, a pair of flexible disk covers secured at their outer edges to said flange, a pair of sound-diaphragms secured at their center to said flexible disk covers, electrodes mounted on the inner side of said flexible disk covers, and means introduced between said sound-diaphragms and electrodes, whereby the motion of the sound-diaphragms will be communicated to the electrodes.

7. A telephone-transmitter comprising a case having a sound-chamber open at one end, and a microphone, which in construction is entirely self-contained and capable of acting as a sound-transmitter independently of the case, provided with two sound-diaphragms, said microphone arranged centrally of said sound-chamber and in such manner that one end of the microphone will be presented to the opening in the sound-chamber.

8. A telephone-transmitter comprising a transmitter-case having a sound-chamber, a microphone consisting of a supporting-body, a carbon-chamber within said body, flexible covers for said carbon-chamber, oppositely-disposed electrodes within the carbon-chamber, carbon between the electrodes, and oppositely-disposed diaphragms mounted at their centers upon the flexible covers, free to vibrate at their periphery and bearing at their periphery upon the supporting-body.

9. In a telephone-transmitter, a microphone, comprising an annulus having a recess on each face, a pair of sound-diaphragms located in said recesses, said annulus also provided with an inwardly-projecting flange, a pair of flexible disk covers secured at their outer edges to said flange, a pair of electrodes mounted on the inner side of said flexible disks, and means introduced between said sound-diaphragms and electrodes, whereby the motion of the sound-diaphragms will be communicated to the electrodes.

10. In a telephone-transmitter, a microphone wholly self-contained and capable of acting as a sound-transmitter, said microphone comprising in its construction a supporting-body, and a sound-diaphragm supported upon a flexible base, said diaphragm free to vibrate at its periphery uninfluenced by tension or pressure and having its periphery in such near relation to the supporting-body that sound-waves will only impinge upon the exterior surface of the diaphragm.

11. In a telephone-transmitter, a microphone wholly self-contained and capable of acting as a sound-transmitter, said microphone comprising in its construction a supporting-body, and a sound-diaphragm supported at its center upon a flexible base, said diaphragm free to vibrate at its periphery uninfluenced by tension or pressure and having its periphery in such near relation to the supporting-body that sound-waves will only impinge upon the exterior surface of the diaphragm.

12. In a telephone-transmitter, a self-contained microphone, comprising a supporting-body, a carbon-chamber, flexible covers for said carbon-chamber, electrodes connected to said covers, carbon between said electrodes, diaphragms located on opposite sides of the carbon-chamber, connected at their centers to said flexible covers, free to vibrate at their periphery and bearing such near relation to the support that sound-waves will only impinge upon their outer surface.

13. In a telephone-transmitter, the combination with a support provided with a sound-chamber and having grooves in the top and bottom of said chamber, of an independent and removable microphone adapted to be inserted into said grooves in said sound-chamber and have its position therein defined thereby.

14. In a telephone-transmitter, a transmitter-case with its sides and ends substantially parallel and provided with a sound-chamber, a mouthpiece connected to one end of said sound-chamber, and a self-contained removable microphone carrying its own sound-diaphragms, located within the sound-chamber.

15. In a telephone-transmitter, a transmitter-case with its sides and ends substantially parallel and provided with a sound-chamber, and a removable microphone which corresponds in shape with that of the sound-chamber and carrying its own diaphragms and located in such sound-chamber in such manner that the sound-waves will impinge on the outer side of each diaphragm only.

16. A telephone-transmitter comprising a transmitter-case having a sound-chamber, a microphone consisting of a supporting-body, a carbon-chamber within said body, flexible covers for said carbon-chamber, oppositely-disposed electrodes within the carbon-chamber, carbon between the electrodes, oppositely-disposed diaphragms mounted at their center and adjustable toward or from said supporting-body, free to vibrate at their periphery and bearing such near relation to the supporting-body that the sound-waves will impinge only on the outer side of such diaphragms.

17. In a telephone-transmitter, a microphone wholly self-contained and capable of acting as a sound-transmitter, said microphone comprising in its construction a supporting-body, a carbon-chamber, electrodes in said carbon-chamber, granular casbon between the electrodes, a flexible cover for said carbon-chamber, a diaphragm mounted at its center upon said flexible cover, said diaphragm free to vibrate at its periphery uninfluenced by tension or pressure and having its periphery in such near relation to the supporting-body that sound-waves will only impinge upon the outer surface of the diaphragm.

18. In a telephone-transmitter, a microphone wholly self-contained and capable of acting as a sound-transmitter, said microphone comprising in its construction a supporting-body, a carbon-chamber, electrodes in said carbon-chamber, granular carbon between the electrodes, a flexible cover for said carbon-chamber, a sound-diaphragm mounted at its center upon said flexible cover, adjustable relative to the supporting-body, free to vibrate at its periphery uninfluenced by tension or pressure, and bearing such near relation to the supporting-body that suen diaphragm will in any position receive the impact of the sound-waves only upon its exterior surface.

19. In a telephone-transmitter, the combination with a support provided with a sound-chamber open at one end, a detachable mouthpiece, and a microphone which is wholly self-contained and which will act as a sound-transmitter when removed from said case and which is provided with a diaphragm having such relation to the body of the microphone that when the microphone is out of the case sound-waves cannot pass around behind the diaphragm.

20. In a telephone-transmitter, the combination of a support having a sound-chamber open at one end, a microphone capable of acting as a sound-transmitter independently of the support, and having two oppositely-disposed sound-diaphragms, said microphone located centrally of said sound-chamber and with its diaphragms so disposed as to leave sound-spaces between the faces of said diaphragms and the sides of the sound-chamber.

21. In a telephone-transmitter, the combination with a support provided with a sound-chamber open at one end, of an independent self-contained and removable microphone having two sound-faces.

22. A telephone-transmitter comprising a supporting-case, and a structurally-independent microphone embodying in its construction a supporting-body, a sound-diaphragm carried thereby, electrodes, and granular carbon between the electrodes, which form the operative parts of the microphone, said microphone having its diaphragm arranged to be capable of free vibration at its periphery uninfluenced by tension or pressure and only to be influenced by air-waves impinging upon its outer surface.

23. A telephone-transmitter comprising a supporting-case, having a sound-chamber open at one end, and a structurally-independent microphone comprising a supporting-body, a diaphragm, and a variable-resistance medium, said diaphragm mounted at its center and carried by the supporting-body and with its periphery so disposed relative to the supporting-body and the sound-chamber that it is free to vibrate uninfluenced by tension or pressure and will only be acted upon by air-waves impinging upon its outer surface.

24. As a new article of manufacture, a wholly self-contained and reversible microphone, said microphone comprising a supporting-body, a pair of sound-diaphragms, a variable-resistance medium interposed between the diaphragms, said diaphragms so mounted upon and disposed relative to the body that they will be free to vibrate at their periphery uninfluenced by tension or pressure and having such relation to the supporting-body that they will be acted upon by air-waves impinging upon their outer surface only.

25. A telephone-transmitter comprising a wholly self-contained microphone device, which of itself is capable of transmitting sound, and a support therefor having such construction that a sound-receiving chamber will exist between it and the microphone structure.

26. In a telephone-transmitter the combination with a support provided with a sound-chamber, of a structurally-independent microphone device removable from said support and capable when so removed of serving as an efficient sound-transmitting device.

27. A telephone-transmitter formed of two members structurally independent, one a support having a sound-chamber, and the other an independent self-contained and functionally-operative sound-transmitting microphone.

750,836. PNEUMATIC HAMMER. FRANCIS K. FASSETT, St. Louis, Mo., assignor to Leo Ehrlich, St. Louis, Mo. Filed Aug. 20, 1902. Serial No. 120,332. (No model.)



Claim.—1. A pneumatic hammer comprising a cylinder, a piston, a handle-base, and a nipple-plug introduced through an opening in the handle-base and into the cylinder for locking the parts together; substantially as described.

2. A pneumatic hammer comprising a cylinder, a piston, a handle-base, a valve-block held in position by the handle-base, and a nipple-plug for securing the handle-base in position on the cylinder; substantially as described.

3. A pneumatic hammer comprising a cylinder, a piston, a handle-base, and a threaded plug for the attachment of a supply-pipe, said plug locking said handle-base in position on the cylinder; substantially as described.

4. A pneumatic hammer comprising a cylinder, a piston, a handle-base, and a plug passing through an opening in the handle-base and threaded into the cylinder, said plug being formed with an opening for the exhaust; substantially as described.

5. In a pneumatic hammer, the combination with a cylinder having a counterbore in its rear end, of a valve-block arranged in said counterbore and provided with a pocket in its inner end to receive and cushion the rear end of the piston, and means for holding said valve-block in position; substantially as described.

6. In a pneumatic hammer, the combination with a cylinder, of a piston of uniform diameter throughout its length, said cylinder having a counterbore in its rear end, and a valve-block arranged in said counterbore and provided with a pocket in its inner end having a diameter corresponding to the bore of the cylinder, whereby the piston is received in said pocket and cushioned; substantially as described.

7. In a pneumatic hammer, the combination with a cylinder and its piston, of a hollow valve for admitting pressure behind the piston, said valve being provided with an enlarged head, a groove 8 in the chamber containing said enlarged head, a passage 7 leading from said groove and terminating in a port 6 in the cylinder, which port is controlled by the piston, a groove 9 in the enlarged head of the valve, from which groove lead openings 10 to one side of said enlarged head, whereby, when port 6 is open to pressure, the valve is initially moved to shut off the admission of pressure behind the piston, such movement continuing while grooves 8 and 9 remain in registration, and a port 11 for admitting pressure to effect a continued movement of said valve, said port being opened by the valve when the grooves 8 and 9 pass out of registration; substantially as described.

8. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, a port controlled by the piston for effecting an initial movement of said valve, a port controlled by the valve for admitting pressure to effect a continued movement thereof, and an escape-port controlled by the piston, whereby the pressure which actuates the valve is permitted to blow through to relieve the valve; substantially as described.

9. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, said valve having an enlarged head, a port under control of the piston for admitting an impulse of pressure behind the enlarged head to move the valve, said valve in such initial movement opening a port for admitting live pressure behind said head, and a passage leading from the chamber behind the enlarged head of the valve to a port in the cylinder located in advance of the first-mentioned port, whereby, when the piston is in a forward position, the first-mentioned port is opened and the last-mentioned port closed, said last-mentioned port being opened by the piston when said piston is in position on its rearward stroke to relieve the pressure behind the enlarged head of the valve and render the same sensitive to action under opposing pressure; substantially as described.

10. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting and exhausting pressure to and from the space behind the piston, means controlled by said piston for effecting the movement of said valve in one direction to close the ports which admit pressure behind the piston, means controlled by the piston for relieving the valve of pressure which holds it in its closed position, and ports for conducting air under pressure developed by the momentum of the piston on its rearward movement for throwing the valve in the opposite direction to open the admission-ports; substantially as described.

11. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve-block having a live-pressure chamber and an exhaust-chamber, and a hollow valve arranged in said block for controlling ports leading to said chambers, said valve-block having a pocket formed in its forward end to receive the rear end of the piston; substantially as described.

12. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve-block having a pressure-chamber 2, and a hollow valve having ports 3 designed in certain positions of the valve to register with such pressure-chamber, said valve-block also having an annular groove 4 and openings 5, communication between the interior of the cylinder and said groove being controlled by the position of said valve; substantially as described.

13. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve-block having an exhaust-chamber formed therein, a hollow valve through which the exhaust passes, a space in said valve communicating with the exhaust-chamber in certain positions of the valve, said valve-block having passages 17 and 18 communicating with the cylinder and at all times in communication with the space inside of the hollow valve; substantially as described.

14. In a pneumatic hammer, the combination with a source of constant air-supply, a cylinder and its piston, means for admitting pressure behind the piston to drive the same forwardly, and means for exhausting the pressure behind the piston to draw the piston rearwardly; substantially as described.

15. In a pneumatic hammer, the combination with a source of constant air-supply, a cylinder and its piston, means for admitting pressure behind the piston to drive the same forwardly, and means for creating a partial vacuum behind the piston for drawing the same rearwardly; substantially as described.

16. In a pneumatic hammer, the combination with a source of constant air-supply, a cylinder and its piston, a valve for intermittently admitting pressure behind the piston, and means controlled by said valve for creating a partial vacuum behind the piston; substantially as described.

17. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve operated by the piston, said valve in one position admitting pressure behind the piston, and means controlled by the valve in its other position for creating a partial vacuum behind the piston; substantially as described.

18. In a pneumatic hammer, the combination with a cylinder and its piston, of means for admitting pressure behind the piston to drive the same forwardly, and an ejector which is operative when the piston reaches its forward limit for creating a partial vacuum in the space behind the piston; substantially as described.

19. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, an ejector-nozzle, and a port controlled by said valve for admitting pressure to said ejector-nozzle, whereby, when the valve is operated to cut off all pressure behind the piston, the blast issuing from said ejector-nozzle becomes effective to create a partial vacuum to move the piston in an opposite direction; substantially as described.

20. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, means controlled by said piston for effecting a movement of said valve, and a plurality of ejector-nozzles to which pressure is admitted by the valve when said valve is moved to a position to cut off the admission of pressure behind the piston, whereby said nozzles act to create a partial vacuum behind the piston to restore the piston; substantially as described.

21. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, a shoulder on said valve, a port for admitting pressure against said shoulder, and a throttle-valve for establishing communication between said port and live pressure upon its initial movement from its home or closed position, said throttle-valve in its open position closing said port; substantially as described.

22. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind the piston, a throttle-valve, a port controlled by said throttle-valve for moving the first-mentioned valve into operative position, and means controlled by the throttle-valve for establishing communication between said port and atmosphere after said valve has been actuated substantially as described.

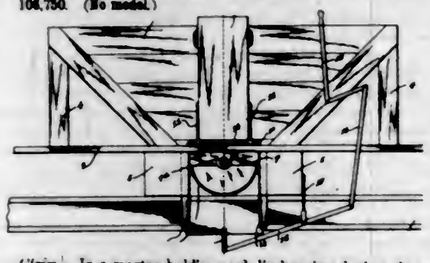
23. In a pneumatic hammer, the combination with a cylinder and its piston, of a valve for admitting pressure behind said piston, a shouler on said valve, a port for admitting pressure against said shoulder, and a throttle-valve for temporarily admitting pressure through said port and against said shoulder, said throttle-valve, by a continued movement, opening said port to atmosphere, so as to accommodate displacement of air resulting from a subsequent operation of the valve; substantially as described.

24. In a long-stroke pneumatic hammer, the combination with a cylinder, of a piston whose stroke exceeds its length, means for admitting pressure only to the rear face of the piston for forcing the piston forwardly, and means for creating the partial vacuum behind the piston only for causing the piston to move rearwardly; substantially as described.

25. In a long-stroke pneumatic hammer, the combination with a cylinder, of a piston wholly contained in the cylinder and whose stroke exceeds its length, openings in the front end of the cylinder for accommodating the displacement of air resulting from the movement of the piston, and means acting on the rear face only of the piston for operating the piston; substantially as described.

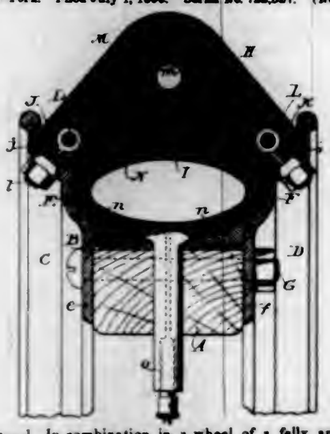
26. In a long-stroke pneumatic hammer, the combination with a cylinder, of a piston wholly contained therein and whose stroke exceeds its length, said cylinder being provided with openings to atmosphere about the point where the piston delivers its impacting-blow upon the shank of the tool, a valve for admitting pressure to drive the piston forwardly, and means controlled by said valve for creating a partial vacuum behind the piston to retract the same; substantially as described.

750,837. MORTAR HOLDING AND DISCHARGING DEVICE. FRANK C. FERER, Columbus, Ohio. Filed May 10, 1902. Serial No. 106,750. (No model.)



Claim.—In a mortar holding and discharging device, the combination with a reservoir 1 having converging sides and a central bottom channel 3 connecting said sides, said channel being open through one end of said reservoir and a rotatably-mounted screw conveyer running through said channel, of a sliding gate 14, means connected therewith for operating said gate to open and close the end of the channel and a conductor 9 having its sides hinged in connection with the framework, said conductor adapted to be swung downward to a position to receive the material discharged from the open end of the channel or to be swung upward to a position above said channel and on the outer side of the reservoir, substantially as specified.

750,838. TIRE. HENRY G. PERKS, New York, N. Y., assignor, by mesne assignments, to Morton Trust Company, trustee, a Corporation of New York. Filed July 1, 1899. Serial No. 722,537. (No model.)



Claim.—1. In combination in a wheel of a felly, an inclosing metal band, side flanges each having a flat portion standing against the side of the felly and confining the metal band, said flanges projecting outwardly and upwardly forming each a recess on its inner side for the reception of a tire edge, and a tire projecting beyond said recess, supported in a seat formed by the felly and side flanges, solid lateral portions of said tire extending laterally to a greater width than the width of the felly, endless inextensible strips embodied within said solid lateral portions, said lateral portions of the tire embodying the inextensible strips being seated in the recesses of said lateral flanges, the tire as a whole being confined within the lateral limits of said flanges whereby any contact with outside objects and abrasion is borne by the side flanges and not by the rubber of the tire.

2. In a cushion-tire for vehicle-wheels, the combination with the felly, and a metallic tire, surrounding and of the same breadth as the felly, of an elastic tire, having a pneumatic base-piece broader than the metal tire, around which it is secured, side flanges having flat bodies standing against the sides of the felly, and the edges of the metal tire, and offset outwardly therefrom, and fitting against the edges of said pneumatic base portion, and means for clamping all parts in relative position; substantially as described.

3. In a cushion-tire for vehicle-wheels, the combination with the felly, and a metallic tire surrounding and of the same breadth as the felly, of an elastic tire having a pneumatic base portion broader than the metel tire around which it is secured, side flanges having flat bodies standing against the sides of the felly and the edges of the metal tire, and offset outwardly therefrom, and fitting against the side edges of the pneumatic base-piece, filling-strips under the pneumatic base portion in the angles formed by the side flanges; substantially as described.

4. The combination with the wood felly, its metallic rim, and side flanges secured to the felly, and offset outwardly therefrom, of a tire comprising a pneumatic seat portion surrounding the rim, and an outer elastic tread portion shaped at its base to fit the said pneumatic seat, and projecting at its side edges therebeyond, and seated in the offsets of the side plates, retaining devices extending from said side edges through the said flanges, and filling-strips under the pneumatic seat portion, in the angles formed by the rim and the side flanges; substantially as described.

5. The combination with the wheel-rim, the side flanges secured thereto, and offset twice to form two annular seats and tire-sockets, and filling-strips in the angles between the rim and flanges, of a tire comprising a pneumatic seat portion elliptical in cross-section, of greater width than the rim and resting at its sides in the inner seats of the flanges, an outer elastic tread portion, encircling the said pneumatic seat projecting therebeyond at its side edges into the outer flange seats or offsets, and there provided with rings and eyebolts, the latter projecting through apertures in the said outer offsets and provided with nuts; substantially as described.

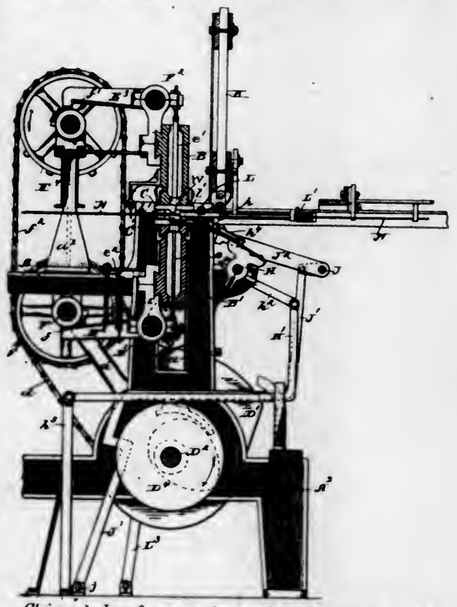
6. In a cushion-tire for vehicle-wheels, the combination with the felly and a metal tire surrounding and of the same breadth as the felly, of a tire having a pneumatic seat portion, and an elastic tread portion, the base of the tread portion being wider than the metal tire, a pair of endless rods within the corner of said base, a canvas strip enveloping the rods and attached to the material of the base, tire socket-pieces standing against the sides of the felly and the edges of the metal tire, and offsets fitting under the overhanging edges or corners of said base, and means for clamping the parts together; substantially as described.

7. The combination in a wheel of the felly, a metallic tire surrounding and inclosing the felly of the same width as the felly, side flanges standing against said felly and projecting beyond the felly, each having formed on its inner side an annular recess facing inwardly and lying beyond the felly, means for clamping said plates securely in position, an elastic tire comprising rubber and fabric seated between the portions of the lateral flanges extending beyond the felly, part of said elastic tire being of greater width than the felly and lying within said annular recesses, said portion of greater width terminating in lateral edges having fabric embodied therein, said fabric projecting along the sides of said tire to the corner forming a pocket and then inwardly, and an inextensible strip within the pocket formed by said fabric in the laterally-extending edges of said tire.

8. The combination in a wheel of an elastic tread, comprising rubber and fabric, the fabric in said tread extending the width of the base thereof, turned at the corners and extended upwardly along the sides forming a pocket in the lateral base-corners, an inextensible wire embodied in each of the two pockets in the corners, lateral flanges inclosing the base-corners of said tread and embodying inwardly-concave recesses supporting and inclosing said tread portion, said flanges extending beyond the tire whereby the tread is protected against lateral contact with outside objects and consequent abrasion, means for supporting the seat of said tread and the lateral flanges including a felly, and transverse bolts securing the whole rigidly in position.

9. The combination in a wheel of a solid elastic tire having the lateral edges of greater width than its base, fabric permanently embodied in said base extending on the base side of each lateral corner and turned upwardly forming a pocket therein, endless inextensible wires in said base corner-pockets, flexible fabric extending from side to side of the base of the tire interconnecting the corner-pockets, side flanges having recesses to relieve the extreme corners of said tire, and inextensible wires whereby said tire-corners are supported and protected, the extremities of the flanges extending beyond the widest portion of the elastic tire laterally so as to protect it against abrasion and contact with outside objects, means for supporting said tire and flanges and holding the same together in fixed relation as and for the purpose described.

750,839. WIRE-FENCE-WEAVING MACHINE. JOHN J. POSS, Glenville, Ohio, assignor, by mesne assignments, to the Boley Wire Fence Company, Sandusky, Ohio, a Corporation of Ohio. Filed Oct. 25, 1901. Serial No. 79,975. (No model.)



Claim.—1. In a fence-weaving machine, the combination of a series of die parts mounted upon a support, a second series of die parts mounted upon a second and reciprocable support, a series of plungers, and means for operating said die parts and plungers successively to effect a clamping operation.

2. In a fence-weaving machine, the combination of means for feeding line-wires, a series of clamping devices, and means for operating such devices successively in a direction transversely relatively to said line-wires.

3. In a fence-weaving machine, the combination of a series of die parts mounted upon a support, a series of complementary die parts mounted upon a second support, and means for effecting relative reciprocation of said supports, said means adapted to effect the approach to one support, during the reciprocatory stroke, of one end of the other support in advance of that of the other end.

4. In a fence-weaving machine, the combination of a series of die parts mounted upon a support, a series of complementary die parts mounted upon a second support, means for effecting relative reciprocation of said supports, said means adapted to effect the approach to one support, during the reciprocatory stroke, of one end of the other support in advance of that of the other end, a series of plungers, and means for operating them successively to effect with the dies a clamping operation.

5. In a fence-weaving machine, the combination of a series of die parts mounted upon a support, a series of complementary die parts mounted upon a second support, means for effecting relative reciprocation of said supports, a series of plungers, one such plunger passing through each die, and means for operating said plungers successively to effect a clamping operation, said means adapted to operate each plunger when its respective die part has reached the end of its upward stroke.

6. In a fence-weaving machine, the combination of means for feeding line-wires, a series of two-part dies, and means for effecting successive operation of said dies in a direction transverse relatively to said line-wires.

7. In a fence-weaving machine, the combination of means for feeding line-wires, a series of two-part dies, a series of plungers op-

erating in connection with such dies, and means for effecting successive operation of said dies and plungers in a direction transverse relatively to the said line-wires.

8. In a fence-weaving machine, the combination of means for feeding line-wires, a series of two-part dies, a series of plungers operating in connection with said dies, and means for operating said dies successively in a direction transverse relatively to the said line-wires and for operating said plungers independently.

9. In a fence-weaving machine, the combination of a series of die parts mounted upon a support, a second series of die parts mounted upon a second and reciprocable support, each support provided with a series of plungers, one such plunger passing through each die and adapted to operate in connection therewith to effect a clamping operation, and means for operating such plungers successively and independently of the dies.

10. In a fence-weaving machine, the combination of a die comprising two parts mounted so as to be reciprocable relatively to each other, a reciprocable plunger passing through each such die, means for effecting such relative reciprocation and means independent of such latter means for effecting the reciprocation of said plungers, the latter adapted to coact with said dies to effect a clamping operation.

11. In a fence-weaving machine, the combination of means for feeding line-wires, a series of die parts mounted upon a support, a second series of die parts mounted upon a second and reciprocable support, each support provided with a series of plungers, one such plunger passing through each die and adapted to operate in connection therewith to effect a clamping operation, and means for operating such dies and plungers successively in a direction transverse relatively to said line-wire to effect such clamping operation.

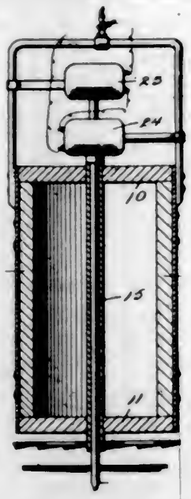
12. In a fence-weaving machine, the combination of a clamp-magazine, means for feeding a line-wire, means for feeding a stay-wire transversely of said line-wire, means for feeding a clamp from said magazine to said stay-wire, and means for holding the latter while such clamp is being fed thereto.

13. In a fence-weaving machine, the combination of a clamp-magazine, means for feeding a line-wire, means for feeding a stay-wire transversely of said line-wire, means for feeding a clamp from said magazine to said stay-wire, means for holding the latter while such clamp is being fed thereto, and a die comprising two parts mounted so as to be reciprocable relatively to each other and adapted to effect a clamping operation.

14. In a fence-weaving machine, the combination of a clamp-magazine, means for feeding a line-wire, means for feeding a stay-wire transversely of said line-wire, and means for feeding a clamp from said magazine to said stay-wire adapted to control the discharge of clamps from said magazine.

15. In a fence-weaving machine, the combination of a clamp-magazine, means for feeding a line-wire, means for feeding a stay-wire transversely of said line-wire, means for feeding a clamp from said magazine to such stay-wire adapted to control the discharge of clamps from said magazine, and means for holding said stay-wire while said clamps are being fed thereto.

750,840.



750,840. WELL-DRILL. CHRISTOPHER C. FOX, Higginsville, Mo. Filed Oct. 8, 1903. Serial No. 176,214. (No model.)

Claim.—1. A well-drill comprising an open-ended bucket, a frame fixed in the bucket, a hollow shaft journaled in the frame concentric with the bucket, a bit fixed to the lower end of the shaft below the bucket and having dirt-passages through its central portion, a second shaft passed through the hollow shaft and projecting from both ends thereof, a second bit attached to the second shaft below the first bit, said bits being formed to cut when rotated oppositely, and means for rotating the bits in opposite directions.

2. A well-drill comprising disk-shaped bits rotatably mounted one above the other, the upper bit having passages therethrough to receive material from the lower bit, said bit being formed to cut in opposite directions of rotation, means for rotating the bits in opposite directions, and a bucket disposed above and connected with the bits to receive material therefrom.

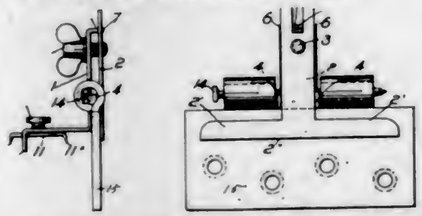
3. A well-drill comprising an open-ended cylindrical bucket having a frame fixed therein, a hollow shaft journaled in the frame longitudinally of the bucket, a bit fixed upon the shaft below the bucket and having dirt-passages therethrough, a second bit below the first bit, a shaft for the second bit passed through the hollow shaft, and separate motors for the shafts adapted to rotate them in opposite directions, said bits being formed to cut in opposite directions of rotation.

750,841. THILL-TUG. SAMUEL H. FROST, Franklin, Mass. Filed June 9, 1903. Serial No. 160,686. (No model.)



Claim.—The combination, with a buckle having a hook-shaped extension provided with a forked end portion, and a cross-bar arranged below the buckle and provided with an upwardly-projecting pin having a T-shaped head; of a tongue having a diagonally-inclined slot which is slipped over the said head into engagement with the said pin so that the other end portion of the tongue may be moved around and placed in engagement with the forked end portion of the said extension, and means for clamping the shaft between the said tongue and extension.

750,842. HINGE-GAGE. WILLIAM H. GLEADEN, Denver, Colo. Filed Aug. 27, 1903. Serial No. 170,965. (No model.)



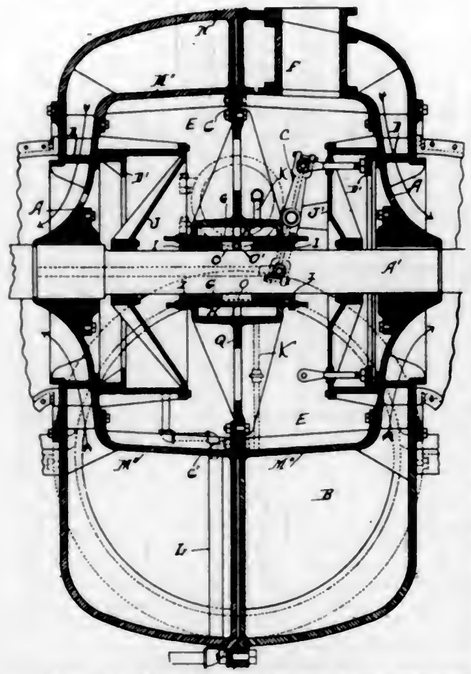
Claim.—1. In combination two gage members adjustably held together and arranged to clamp a hinge member between them, one of said gage members having a right-angular extension with a scratch-gage adjustably secured thereto, substantially as described.

2. In combination two gage members held together and adapted to clamp a hinge member between them, one of said members having an extension with a flange thereon forming with its face a straight-edge and a scratch-gage adjustably associated with the said flange extension, substantially as described.

3. In combination a member 1 of right-angular form having a flange 6 with a projection and having also an extension with a flange 12, a scratch-gage adjustably held on the said extension said scratch-gage having a point opposite the face of the flange 12, a member 2 slotted to receive the projection on the member 1 and a set-screw for adjustably holding the two members together, the said member 1 having lugs to rest against the edge of the hinge, substantially as described.

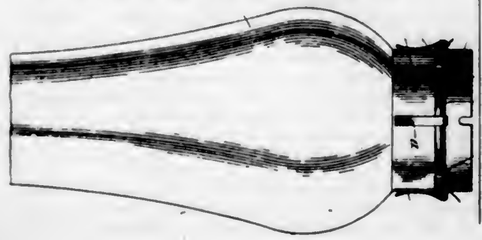
4. In combination the two gage members, one of which fits against the face of the hinge and is provided with an integral straight-edge 2× and the other member fitting against the opposite face of the hinge and having an integral straight-edge 12 with a scratch-gage associated therewith and means for holding the two members together, substantially as described.

750,843. WATER-WHEEL SETTING. ARTHUR GIESLER, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Co., Dayton, Ohio, a Corporation of New Jersey. Filed Apr. 7, 1902. Serial No. 101,724. (No model.)



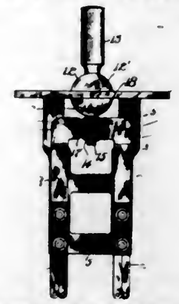
Claim.—In a turbine-wheel, the combination with chute-cases, of a scroll-casing consisting of two parts connected with said chutes, a two-part casing on the interior of said scroll-casing and rigidly united thereto, said interior casing providing an inclosed bearing-chamber, a bridge-tree attached to said interior casing and providing a bearing for the turbine-shaft within said inclosed chamber, substantially as set forth.

750,844. LAMP-CHIMNEY. WILLIAM J. GLEASON, Philadelphia, Pa. Filed Apr. 18, 1902. Serial No. 103,568. (No model.)



Claim.—A lamp-chimney having a rib on the outer surface of the collar at its lower edge, a holder comprising a ring with an outturned annular flange extending beyond the edge of the rib, and clips secured under the flange and curved up to engage the surface of the rib and the collar of the chimney.

750,845. SWITCHING APPARATUS. JOHN S. GOLDBERG, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Nov. 26, 1902. Serial No. 132,848. (No model.)



Claim.—1. In a switching device, the combination with a contact-spring, of actuating means for deflecting said spring to cause a change in the electrical connection thereof, and a second spring adapted to be deflected upon a reverse actuation of said deflecting means, said second spring being made of stiffer material than said first spring, substantially as described.

2. In a switching device, the combination with a pair of contact-springs, of actuating means for deflecting said springs to cause a change in the electrical connections thereof, and a second pair of springs adapted to be deflected upon the reverse actuation of said deflecting means, said second pair of springs being of stiffer material than said first pair of springs, substantially as described.

3. In a switching device, the combination with a pair of contact-springs, of actuating means adapted to spread said springs apart to cause a change in the electrical connections thereof, and a second pair of springs adapted to be spread apart upon a reversal of said actuating means, said second pair of springs being of stiffer material than said first pair of springs, substantially as described.

4. In a switching device, the combination with a pair of substantially parallel contact-springs having perpendicularly-projecting end portions, of mechanism adapted upon suitable actuation to engage said perpendicularly-projecting portions to spread said springs apart to change the electrical connections thereof, and a second pair of contact-springs having perpendicularly-projecting end portions adapted upon a reverse actuation of said mechanism to be spread apart, said second pair of springs being of stiffer material than said first pair of springs, substantially as described.

5. In a ringing and listening key, the combination with a pair of substantially parallel contact-springs, of lever mechanism adapted upon suitable actuation in one direction to wedge said springs apart, and a second pair of substantially parallel contact-springs adapted to be wedged apart upon a reverse actuation of said lever mechanism, said second pair of contact-springs being made of stiffer material than said first pair of contact-springs, substantially as described.

6. In a switching device, the combination with a pivoted actuating-lever thereof, of a ball of insulating material carried thereby, a pair of contact-springs adapted to be wedged apart by the interposition of said ball upon the manipulation of said lever, and a second pair of contact-springs adapted to be wedged apart by the interposition of said ball upon the reverse manipulation of said lever, said second pair of contact-springs being of stiffer material than said first pair of contact-springs, substantially as described.

7. In a switching device, the combination with a pivoted actuating-lever thereof, of a ball of insulating material carried thereby, a pair of contact-springs having outturned end portions adapted to be wedged apart by the interposition of said ball upon the manipulation of said lever, and a second pair of contact-springs having outturned end portions adapted to be wedged apart by the interposition of said ball upon the reverse manipulation of said lever, said first pair of springs serving to retain said ball in its alternated actuated position between said springs, and said second pair of contact-spring requiring a greater actuating force than said first pair of contact-springs, substantially as described.

8. In a switching device, the combination with a pivoted actuating-lever thereof, of a ball of insulating material carried thereby, a pair of contact-springs having outturned end portions adapted to be wedged apart by the interposition of said ball upon the manipulation of said lever, and a second pair of contact-springs having outturned end portions adapted to be wedged apart by the interposition of said ball upon the reverse manipulation of said lever, said second pair of contact-springs being of stiffer material than said first pair of springs, substantially as described.

9. In a telephone switching device, the combination with a pair of contact-springs provided with perpendicularly-extending projections having outturned end portions, of a second pair of contact-springs provided with perpendicularly-extending projections having outturned end portions, a ball of insulating material partially surrounded by said outturned end portions, and lever mechanism adapted to interpose said ball between the outturned end portions of either pair of said contact-springs, the second pair of said contact-springs being made of stiffer material than the said first pair of springs, substantially as described.

10. In a telephone switching device, the combination with a pair of contact-springs provided with perpendicularly-extending projections having outturned end portions, of a second pair of contact-springs provided with perpendicularly-extending projections having outturned end portions, a ball of insulating material partially surrounded by said outturned end portions, and lever mechanism adapted to interpose said ball between the outturned end portions of either pair of said contact-springs, said first pair of contact-springs being adapted to retain said ball in position when interposed between them, and said second pair of contact-springs being made of stiffer material than said first pair of springs, substantially as described.

11. In a ringing and listening key, the combination with a pair of contact-springs adapted upon suitable manipulation to connect an operator's telephone set with a cord-circuit, of a second pair of contact-springs adapted upon suitable manipulation to connect a ringing-generator with the cord-circuit, and means for actuating said contact-springs, said second pair of contact-springs being of stiffer material than said first pair of contact-springs, substantially as described.

12. In a ringing and listening key, the combination with a pair of sheet-metal contact-springs adapted upon suitable manipulation to connect an operator's telephone set with a cord-circuit, of a second pair of sheet-metal contact-springs adapted upon suitable manipulation to connect a ringing-generator with the cord-circuit, and means for actuating said contact-springs, said second pair of contact-springs being of thicker material than said first pair of contact-springs, substantially as described.

750,846. CENTRIFUGAL PUMP. THOMAS R. GOTH, San Francisco, Cal. Filed Feb. 17, 1903. Serial No. 143,841. (No model.)

Claim.—1. In a centrifugal pump, a pump-casing, a rotary runner inclosed thereby, suction and discharge pipes connecting with said casing, a water-chamber communicating with said casing, and an inclined rotary pressure device within said water-chamber, adapted to act positively against the water therein, substantially as and for the purpose set forth.

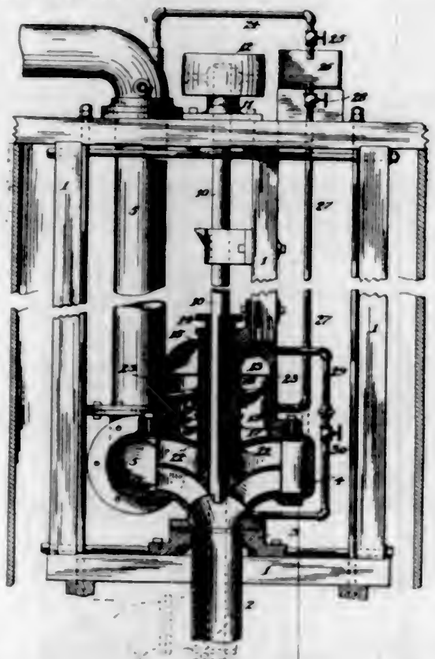
2. In a centrifugal pump, a pump-casing, a rotary runner therein, suction and discharge pipes, a water-chamber connected to said casing, and rotating blades carried by the runner-shaft within said chamber, and adapted to act positively upon the water therein.

3. In a centrifugal pump, a pump-casing, suction and discharge pipes communicating therewith, a runner in the casing, a chamber in communication with the casing and having a water-inlet, a runner-shaft passing through said chamber, and blades on said shaft within said chamber, adapted to exert a downward pressure upon the water in said chamber, and thereby tending to raise said runner and shaft.

4. In a centrifugal pump, a pump-casing having suction and discharge pipes connected thereto, an extension of the casing forming a water-chamber and having a water-inlet, a runner-shaft extending through said extension, and adjustable blades on said shaft and rotating therewith, adapted to press downwardly upon water in said extension, and thereby tending to raise said runner and its shaft.

5. In a centrifugal pump, a pump-casing, having suction and discharge pipes for water, an extension of said casing in communication therewith, means for admitting water from the main discharge-pipe to the interior of said extension, a runner-shaft passing through said extension, a disk carrying inclined blades and mounted upon said shaft within said extension, and means for regulating the supply of water to said extension.

6. In a centrifugal pump, means for counteracting the gravity of the pump and its shaft, the same comprising a chamber connected to the pump-casing, means for admitting water to the said chamber, a rotary disk having inclined blades for acting downwardly upon the water in said chamber, and means for regulating the supply of water to said chamber.



7. In a centrifugal pump, the pump-casing and the rotary pump-runner therein, an extension of said casing forming a water-chamber, rotary blades carried by the runner-shaft within said chamber, ports or passages connecting said chamber to the pump-casing, suction and discharge pipes communicating with the pump-casing, an independent reservoir, a pipe from the main discharge-pipe to said reservoir, a pipe from said reservoir to said extension adapted to supply water thereto, and a regulating-valve in said last-named pipe.

8. In a vertical centrifugal pump, a pump-casing, a rotary runner therein, a suction-pipe entering said casing from below, an extension of said casing above the same, and inclined blades mounted upon the shaft in said extension, and adapted to act downwardly upon water in said extension.

750,847. BLUING DEVICE. CHARLES R. GROFF, St. Paul, Minn., assignor, by mesne assignments, to the Laundry Blue Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 20, 1903. Serial No. 177,743. (No model.)



Claim.—1. A bluing device consisting of a body having one end thereof adapted to form a handle and a chamber in its other end to receive a load of bluing, an inclosure of reticulated material surrounding said bluing, and a perforated cover over the end of the chamber, said body being provided with transverse openings communicating with said chamber to permit a circulation of water through the chamber and around the load of bluing.

2. A bluing device consisting of a body having one end thereof adapted to form a handle and a chamber in its other end, a cover fastened to the body over said chamber, said body and cover being provided with openings communicating with the chamber to enable a circulation of water through the chamber, and a sack of reticulated material containing bluing arranged in said chamber.

3. A bluing device consisting of a body made of a single piece of material and having one end adapted to form a handle and a chamber in its other end, a sack of reticulated material containing a load of bluing and adapted to be held in said chamber, a cover fastened on the body over said chamber, said cover and side of the body being provided with openings which communicate with said chamber.

4. A bluing device consisting of a body having one end thereof adapted to form a handle and a chamber in its other end to receive a load of bluing, a perforated cover fastened to the body over the end of said chamber, and a hanger device at the chambered end of the body.

5. A bluing device consisting of a body having one end thereof adapted to form a handle and a chamber in its other end, a sack of reticulated material containing a load of bluing and adapted to be held in said chamber, a cover fastened on the body over the end of said chamber, said cover and side of the body being provided with openings which communicate with the chamber, and a loop-hanger at the chambered end of the body.

750,848. WINDOW-CURTAIN-ROLLER BRACKET. CHARLES H. GUILES, Addison, N. Y. Filed June 17, 1903. Serial No. 161,902. (No model.)

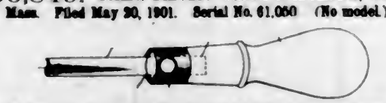


Claim.—1. A window-shade bracket having an angular recess on one side extending from the edge of the bracket through a portion of its width, and a circular aperture extending transversely through said bracket and intersecting said angular recess to provide for the use of said bracket with either end of a shade-roller.

2. A window-shade bracket having a spur extending longitudinally from one end with the other end enlarged and having an angular recess extending from one edge of said bracket through the greater portion of its width, and a circular aperture extending from said recess transversely through said bracket.

3. A window-shade bracket formed from a single piece of metal having a spur projecting from one end with the other end enlarged and terminating in a blunt point to receive the impact of a hammer and having a recess extending from one edge of said bracket through the greater portion of its width and having a circular aperture extending from said recess transversely through said bracket, said bracket having a V-shaped longitudinal aperture formed intermediately of its ends with the point thereof extending toward the spur-carrying end to provide a reliable and strong support for the spur and to lighten the bracket.

750,849. SCREW-DRIVER. JOSEPH P. A. HANLON, Somerville, Mass. Filed May 20, 1901. Serial No. 61,060. (No model.)

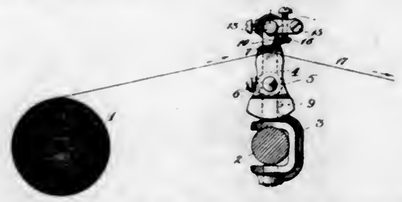


Claim.—1. As an article of manufacture, a screw-driver holder comprising in its construction a handle, a metallic casing inserted therein and constructed to receive shanks of screw-drivers of varying shapes and thickness, a thumb-screw having screw-threaded engagement with said casing and projecting laterally therefrom through said handle, pins fast to said casing and projecting laterally therefrom through said handle, and a ferrule encircling said handle outside said pins and casing.

2. As an article of manufacture, a screw-driver holder comprising in its construction a handle, a metallic casing inserted therein and constructed to receive reversible blades of screw-drivers of varying shapes, a thumb-screw having screw-threaded engagement with said casing and projecting laterally therefrom through said handle, pins fast to said casing and projecting laterally therefrom through said handle, and a ferrule encircling said handle outside said pins and casing.

750,850. KNOT-CATCHING DEVICE. PETER HARDMAN, Willimantic, Conn. Filed Sept 29, 1902. Serial No. 125,181. (No model.)

Claim.—1. In a knot-catching and thread-clearing device, a guide or base provided with a U-shaped groove through which the thread is led, a clearing or catching device in the form of a swinging gate arranged above or opposite the bottom of said groove, the end of the gate being shaped to correspond to the U-shaped groove in the guide or base to provide a broad thread-passage of the same width from one end of the thread-passage to the other end of said thread-passage, and of uniform size according to the adjustment and position of the gate, and means for holding the said end of said gate normally away from the bottom of said groove, said gate being free to swing back and close said groove when a knot or the like in the thread engages said gate.

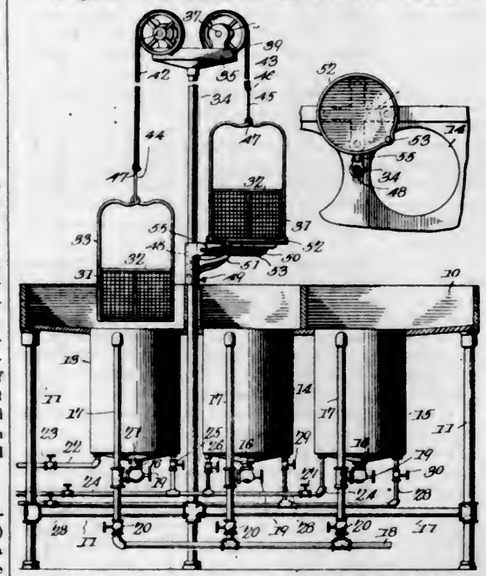


2. A knot-catching and thread-clearing device comprising in its construction a pivotally-mounted guide or base for the purpose specified having a short bearing-support for the thread, said support being provided with a U-shaped groove through which the thread is led, a pivotally-supported gate, means for normally holding the end of the gate forward of a line intersecting the axes of said guide and gate to form a passage for the thread between the end of said gate and said guide, said gate being free to swing back and close said passage when a knot or the like in the thread encounters the same.

3. In a knot-catching and thread-clearing device, a pivotally-mounted guide or base for the purpose specified provided with a U-shaped groove, a pivotally-mounted gate arranged above and opposite the bottom of said guide-groove, means for holding the free end of the gate forward of a line intersecting the axes of said base and gate and an adjusting device for varying the forward position of the end of said gate whereby the space or passage between the end of said gate and said guide-groove may be varied in size at will.

4. In a knot-catching and thread-clearing device, a guide having a U-shaped groove therein through which the thread passes, a gate arranged above and adjacent to the bottom of said groove and means for normally holding the gate free of said guide member, said gate being arranged to close the thread-passage when a knot in the thread encounters the same.

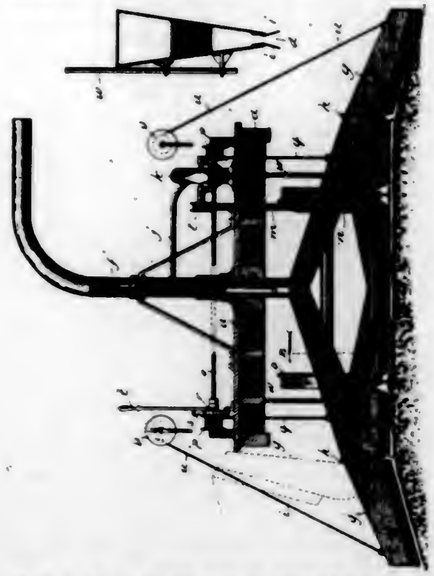
750,851. DISH-WASHING APPARATUS. LEDRA W. HARING, Chicago, Ill. Filed Oct. 21, 1903. Serial No. 177,970. (No model.)



Claim.—1. The combination in a dish-washing apparatus, of a tank for the wash-water, a dish-receptacle, a vertical standard carrying a movable suspension device for said receptacle, and a drainage-pan swinging upon said standard for supporting said dish-receptacle above or contiguous to said tank, substantially as described.

2. The combination in a dish-washing apparatus, of a tank for the wash-water, a dish-receptacle, a vertical standard carrying a movable suspension device for said receptacle, a bracket swinging horizontally upon said standard, and a drainage-pan swinging vertically upon said bracket for supporting said dish-receptacle above or contiguous to said tank, and foldable when not required.

750,852. PNEUMATIC ROAD-BED CLEANER. ELI S. HART, Chicago, Ill. Filed Apr. 2, 1902. Serial No. 101,137. (No model.)



Claim.—1. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe mounted therein and provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the track, an outlet-pipe connected with the suction-pipe and forming a continuation thereof, and means for forcing a jet of fluid under pressure into the outlet-pipe so as to create a partial vacuum therein, substantially as described.

2. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe arranged therein so as to be transported thereby and provided with an inlet-opening adjacent to the surface of the road-bed and extending across the same, an outlet-pipe connected with such suction-pipe and forming a continuation thereof, means for forcing a jet of fluid under pressure into the outlet-pipe so as to create a partial vacuum therein, and means for lowering and raising the parts into and out of position, substantially as described.

3. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe secured thereto so as to be transported thereby and provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the same, wing extensions movably secured to the ends of the suction-pipe and also provided with inlet-openings adjacent to the surface of the road-bed, an outlet-pipe secured to the suction-pipe, and means for creating a partial vacuum therein, substantially as described.

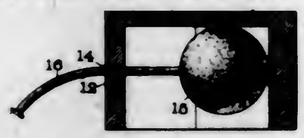
4. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe secured thereto so as to be transported thereby and provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the same, wing extensions pivotally secured to the ends of the main suction-pipe and provided with inlet-openings adjacent to the surface of the road-bed, an outlet-pipe secured to the suction-pipe and extending upwardly therefrom, means for creating a partial vacuum therein, and means for raising and lowering the parts into and out of position, substantially as described.

5. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe secured thereto so as to be transported thereby and provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the same, wing extensions pivotally secured to the ends of the main suction-pipe and provided with inlet-openings adjacent to the surface of the road-bed beyond the ties or sleepers, an outlet-pipe secured to the suction-pipe and extending upwardly therefrom, means for creating a partial vacuum therein, means for raising and lowering the main suction-pipe, and means for swinging the wing-extension parts into and out of position, substantially as described.

6. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe secured thereto and arranged below the platform thereof provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the same, flexible flaps arranged in the suction-pipe on each side of the inlet-opening, an outlet-pipe secured to the suction-pipe and extending upwardly therefrom, and means for forcing a jet of fluid under pressure into the outlet-pipe so as to create a partial vacuum therein.

7. In a pneumatic road-bed cleaner for railways, the combination of a movable car, a suction-pipe arranged underneath the same and provided with an inlet-opening arranged adjacent to the surface of the road-bed and extending across the same, extensions at each end thereof and pivotally secured thereto and provided with inlet-openings arranged adjacent to the road-bed, flexible flaps formed of rubber or similar material secured to the suction-pipe and sections thereof on each side of the inlet-opening, an outlet-pipe secured to the central portion of the suction-pipe and extending upwardly therefrom, means for creating a partial vacuum therein, and means for raising and lowering the suction-pipe and extensions thereof into and out of position, substantially as described.

750,853. SQUIRT-GUN. MORRIS A. HEIMANN, St. Louis, Mo. Filed June 22, 1903. Serial No. 162,260. (No model.)



Claim.—1. The combination with a casing provided with an opening, of a reservoir in said casing an extensible flexible conduit entering said reservoir and passing through said opening, and means for limiting the movement of said conduit.

2. The combination with a casing, of a squirt-gun in said casing, a conduit leading from said squirt-gun to the exterior of said casing, said conduit being extensible beyond the exterior of said casing, and a stop for limiting the inward movement of said conduit.

3. The combination with a casing, provided with an open-bottom chamber, of a collapsible reservoir retained in said chamber by its resiliency, a flexible tube leading from said reservoir to a discharge-orifice, and an auxiliary chamber for receiving the slack of said tube.

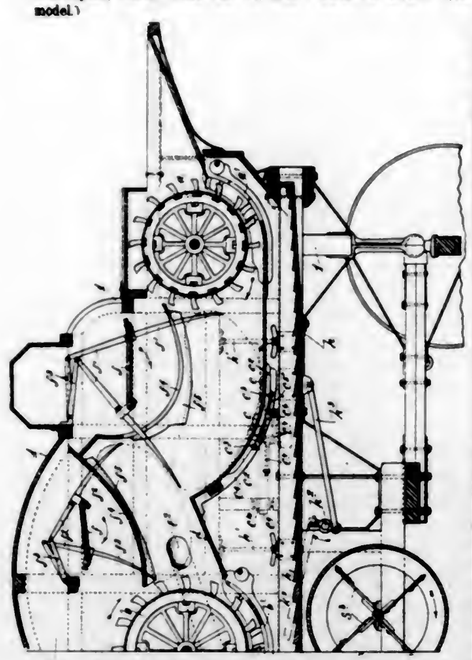
4. The combination with a block or casing provided with two intersecting cylindrical open-bottom chambers, of a collapsible reservoir held in one of said chambers by its resiliency, and a flexible tube extending from said reservoir to a discharge-orifice and adapted to have its slack coiled in the other of said chambers.

750,854. RUNNING-GEAR. HARRISON S. HOOD, Etna, Pa. Filed Mar. 17, 1903. Serial No. 148,234. (No model.)



Claim.—In a running-gear, the combination with the front axle of a plate secured thereto and having an upwardly-directed vertically-perforated boss thereon, a second plate having a central perforation therethrough disposed with its perforation upon the boss and having seats upon the upper face thereof at the opposite sides of the axle to receive springs, and having pivot-pins arranged upon opposite sides thereof between the seats, a reach-bar having a forked end, the arms of which are perforated, and disposed with their perforations upon the pivot-pins, a perforated cap-plate disposed upon the boss and projecting beyond the second plate, the perforations thereof registering with those of the boss, bolts disposed within the perforations of the boss and cap-plate and extending below the axle, and a perforated plate disposed with its perforations upon the ends of the bolts and its upper face bearing against the axle and having its ends brought upwardly, and secured to the first-named plate to brace the latter.

750,855. THRESHING-MACHINE. BENJAMIN R. HOUSINGTON, Minneapolis, Minn. Filed Jan. 13, 1902. Serial No. 89,397. (No model.)



Claim.—1. The combination with primary and secondary feed tables or supports extending in intersecting planes, of primary and secondary crank-acting forks working respectively over the said feed-tables, which primary forks when in delivery positions extend approximately in a line with the said secondary table, and which secondary forks make their working stroke in the general direction of said secondary table and while the said secondary forks are approximately alined with said secondary table, substantially as described.

2. The combination with two threshing cylinders and concaves, of a grate interposed between the two cylinders and having diverging marginal bars for spreading the stock, a feed-deck for the secondary cylinder receiving from said grate, and two sets of tedders or crank-acting forks interposed between the two cylinders which two sets of tedders are so timed and mounted that the first support the stock while the second engage and move the stock approximately in the direction of said feed-deck, substantially as described.

3. In a threshing-machine, the combination with a straw-rack made up of two sections, mounted to move in different planes, of agitating-fingers located at the drop between said rake-sections, and means for imparting to said agitating-fingers a rocking or tossing motion in a vertical plane and an endwise-propelling movement lengthwise of said straw-rack, substantially as described.

4. In a threshing-machine, the combination with a straw-rack, made up of sections, offset vertically to afford a drop between them, of oscillating supports for said rack, a fingered agitator carried by certain of said oscillating supports and receiving therefrom endwise movements in the vicinity of said drop, and means independent of said rack and its supports for vibrating said fingered agitators vertically, and at a speed which is independent of the movements of said rack.

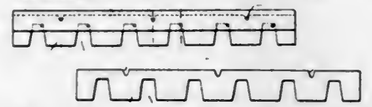
5. In a threshing-machine, the combination with the grain-shoe and its tailings-conveyer, of a pneumatic elevator for conducting the tailings from the shoe to the front of a threshing-cylinder, which pneumatic elevator is provided with a receiving-mouth external of said conveyer and open to the atmosphere, whereby said conveyer and said shoe are relieved or kept free from any suction thereon from the elevator-fan, substantially as described.

6. In a threshing-machine, a grain-shoe having a tail-board with blast-outlet and a lip-sieve extending rearward of the main sieve which delivers to the tailings-conveyer for cooperation with the blast-outlet in said tail-board to pass the chaff and to catch and hold cylinder-teeth, nuts and other foreign material, substantially as described.

7. In a threshing-machine, the grain-shoe having the adjustable tail-board with blast-outlet variable by said adjustment, at will and provided with a lip-sieve extension rearward of the main sieve delivering to the tailings-conveyer, and which lip-sieve extension is provided with an upturned guard-flange extending outward through the blast-opening of the tail-board, substantially as and for the purposes set forth.

8. In a threshing-machine, the combination with the threshing cylinder and concave, of a grating receiving therefrom and a grate-cleaner mounted to reciprocate underneath the grate and provided with teeth which work in the openings between the grate-bars, substantially as and for the purposes set forth.

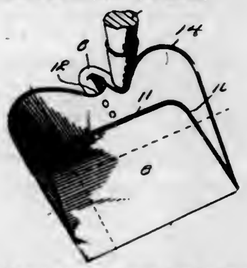
750,856. DEVICE FOR THINNING BEETS. HARVEY H. HOUSLAND, Cedar Rapids, Nebr. Filed June 19, 1903. Serial No. 162,204. (No model.)



Claim.—1. In a device of the character described, a clamp consisting of two bars arranged parallel with one another, a blade provided with notches arranged at regular intervals extending upward from the lower edge to a point near the upper edge, the upper edge of the blade and the upper end of the notches in the blade adapted to lie between the bars, bolts passing through the bars and also through one of the upper corners of each notch in the blade, nuts threaded upon the bolts adapted to clamp the blade in the clamp, sectional blades adapted to be placed in the notches to reduce the size of said notches, and means for holding said sectional blades in place, a handle and braces secured to the clamp, as and for the purpose specified.

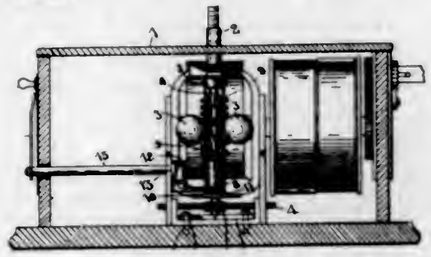
2. In a device of the character described, a clamp consisting of two bars arranged parallel with one another, a thin blade notched at regular intervals, the notches extending upward from the lower edge of the blade, to a point near the upper edge, the upper edge of the blade and a portion of the notches adapted to lie between the bars, bolts passing through the bars and blade, and nuts threaded upon the bolts adapted to clamp the blade in place, sectional blades adapted to fit within the notches of the notched blade for the purpose of reducing the size of the notches, the upper end of the sectional blades adapted to be clamped in place by the clamp, and a handle and brace-rods secured to the clamp, as specified.

750,857. HOE. ELMER E. HOXIE, Edmeston, N. Y. Filed Oct. 17, 1903. Serial No. 177,485. (No model.)



Claim.—A hoe comprising a blade and a handle, the blade having a straight continuous lower cutting edge and a flat truncated triangular body portion extending upwardly into the blade from said lower edge and the material of the blade being curved from the top and side edges of the flat portion in the direction of projection of the handle to form a flange, the projection of the metal at the sides of the flat portion increasing gradually from zero at the lower edge of the balde to maximum at the upper edge thereof, the edge of the flange being notched midway of the upper portion thereof and having a forwardly-extending lobe at each side of the notch, for the reception of the shank of the handle therebetween.

750,858. SPEED-GOVERNOR FOR MOTORS. ELDRIDGE R. JOHNSON, Philadelphia, Pa., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed June 21, 1898. Serial No. 684,052. (No model.)



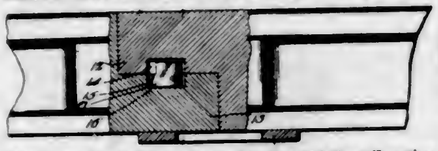
Claim.—1. In combination with a motor, a speed-governor geared thereto, a disk carried by the governor-spindle adapted to slide on said spindle by the centrifugal action of the governor-balls, a bell-crank lever pivoted adjacent to said disk and having one arm bearing against the same, a shaft mounted in the machine-casing, a disk having a cam-face, rigidly secured upon the inner end of said shaft and adapted to bear against the free arm of the bell-crank lever and an operating-handle on the outer end of the horizontal shaft.

2. In combination with a motor, a speed-governor geared thereto, a disk carried by the governor-spindle adapted to slide on said spindle by the centrifugal action of the governor-balls, a bell-crank lever pivoted adjacent to said disk having one arm bearing against the same, a horizontal shaft mounted in the machine-casing, a disk having a cam-face rigidly secured on the inner end of said shaft, the said cam-face adapted to bear against the free arm of the bell-crank lever, an arm rigidly secured to the outer end of the horizontal shaft and a handle fixed to said arm.

3. In combination with a motor, a speed-governor, a disk 10 connected to the governor mechanism, a bell-crank lever 12 pivoted to the motor-frame having an arm carrying a brake-shoe 11 adapted to bear on said disk 10, a horizontally-disposed shaft 15 mounted in the supporting-frame and casing, a cam 13 rigidly secured to the inner end of said shaft 15 and having an inclined or wedge-shaped surface 14, an arm 16 rigidly secured to the outer end of the shaft 15 and a handle 17 secured to said arm.

4. The combination of a driving-shaft, driving mechanism for said shaft, a governor-spindle geared to the driving-shaft, a base-plate in which the lower end of said governor-spindle is journaled, and set-screws for securing said base-plate to the main frame, there being enlarged openings in said base-plate for the reception of set-screws whereby said governor-spindle may be adjusted with relation to the motor mechanism.

750,859. RAILWAY-RAIL JOINT. WILLIAM R. KANARR, Marion Center, Pa., assignor of one-half to H. S. McAboy, Deckers Point, Pa. Filed Oct. 27, 1903. Serial No. 178,755. (No model.)



Claim.—1. In a rail-joint the combination with the rail-sections having their adjacent ends interlapping and provided with oppositely-disposed recesses in the adjacent faces of the interlapping portions, and a key-block detachably engaging said recesses and forming a locking means to prevent transverse movement between the rail-sections.

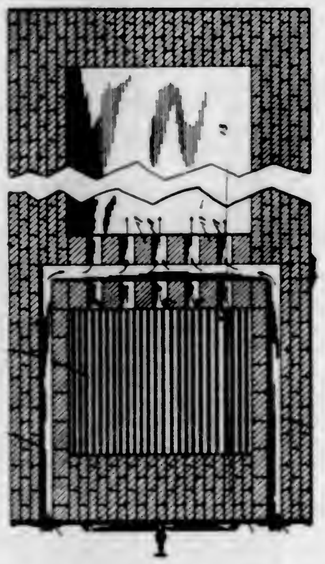
2. In a rail-joint the combination with the rail-sections having their adjacent ends interlapping and provided with oppositely-disposed recesses in the adjacent faces of the interlapping portions, and a key-block detachably engaging said recesses and of less width longitudinally than the length of the recesses, forming a locking means to prevent transverse movement while permitting longitudinal movement under the action of contraction and expansion.

3. In a rail-joint the combination with the rail-sections having their adjacent ends interlapping and laterally widened or thickened and provided with oppositely-disposed recesses in the adjacent faces of the interlapping and thickened portions, and a key-block detachably engaging said recesses.

4. In a rail-joint the combination with the rail-sections having their adjacent ends interlapping and provided with oppositely-disposed recesses in the adjacent faces of the interlapping portions, a key-block detachably engaging said recesses and forming a locking means to prevent transverse movement between the rail-sections, and a tie-plate extending beneath said interlapping rail ends and provided with integral lateral braces engaging the opposite base-flanges thereof.

5. In a rail-joint the combination with the rail-sections having their adjacent ends interlapping and provided with spaced spike-recesses in their base-flanges and with oppositely-disposed recesses in the adjacent faces of the interlapping portions, a key-block detachably engaging said recesses and preventing transverse movement between the rail-sections, and a tie-plate extending beneath said interlapping rail ends and provided with integral lateral braces engaging the opposite base-flanges of the same, said braces having spaced spike-recesses corresponding to the spike-recesses in said base-flanges of the rail ends.

750,860. SMOKE-CONSUMER. HERMAN KAPING, Chicago, Ill. Filed June 18, 1903. Serial No. 162,006. (No model.)



Claim.—In a furnace, a bridge located back of the fire-box and adjacent thereto and comprising a front wall and a back wall provided with alining transverse openings and separated by a chamber extending from end to end of the bridge and into the side walls of the furnace, and air-flues in said side walls adjacent to the fire-brick lining of the fire-box and extending from the top to the bottom of said lining and from the front of the furnace to and connected with the transverse chamber in the bridge.

750,861. BUTTON. DANIEL P. KATZ, Philadelphia, Pa. Filed Apr. 16, 1903. Serial No. 152,844. (No model.)



Claim.—In a button, a head and a shank carried thereby, said shank having a flattened portion at its end provided with a hole, a keeper comprising a solid body having a slot to conform to and receive the flattened portion of the shank, shoulders being formed at the junction of the shank and its reduced portion, the keeper having a way therein intersecting the slot in line with the hole in the flattened portion of the shank when the shoulders of the shank engage the upper edge of the keeper, a pin slidable transversely within the keeper and having a head projecting therefrom, a spring having one end attached to the periphery of the keeper and having the pin run through its opposite end, the extremity of said spring having a slight outward bend, substantially as described.

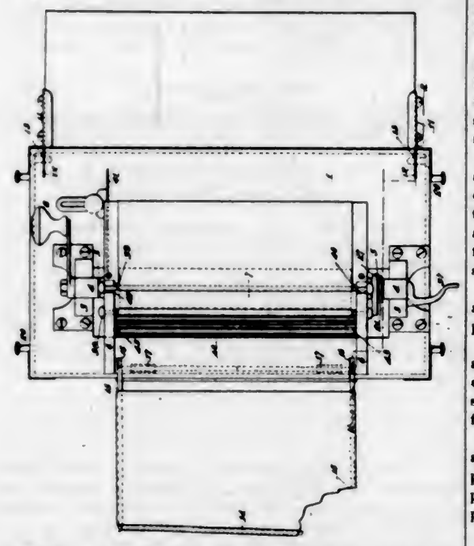
750,862. PUZZLE. HENRY KNEHLER, Atchison, Kans. Filed Sept. 3, 1903. Serial No. 171,714. (No model.)



Claim.—1. In a puzzle, the combination with a base 1, of a sectional track comprising end sections 2 2' secured to said base and a middle section 3 rotatably mounted on said base, and two series of blocks adapted to slide on said track, each of said series of blocks containing an even number of blocks and having one block in each of said series of double the length of the other blocks.

2. In a puzzle, the combination of a base, a track mounted on said base having a rotatable middle section, a shaft projecting from the bottom of said middle section, a lateral slot in said middle section, a recess opening from said slot, a pulley-block seated in said recess, a pulley mounted on the inner end of said block, a spring at the outer end of said block, and an indicator passing through said slot; all substantially as hereinbefore described.

750,863. DUPLICATING-MACHINE. AUGUSTUS D. KLARER, London, England, assignor to A. B. Dick Company, Chicago, Ill., a Corporation of Illinois. Filed July 8, 1902. Serial No. 114,749. (No model.)



Claim.—1. In a stencil-printing machine, the combination with a base and rotary stencil-carrier, of a paper-receiving tray pivotally connected to said base and adapted to swing bodily upon its pivotal point to an operative position to cooperate with said stencil-carrier and to an inoperative position adjacent to said stencil-carrier, substantially as set forth.

2. In a stencil-printing machine, the combination with a base and rotary stencil-carrier, of a paper-receiving tray pivotally connected to the base and movable to a position within the side members of the stencil-carrier, substantially as and for the purposes set forth.

3. In a stencil-printing machine, the combination with a base and rotary stencil-carrier, of a paper-receiving platform and a paper-tray, both pivotally connected to the base and adapted to swing bodily upon their pivotal points to a position adjacent to said stencil-carrier, substantially as set forth.

4. In a stencil-printing machine, the combination with a base and rotary stencil-carrier, of a paper-platform pivotally connected to the base and movable to a position adjacent to the stencil-carrier, and means carried by the pivoted end of said platform for limiting the movement of said platform in either of its positions, substantially as set forth.

5. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a rock-shaft, means comprising an arm carried by said rock-shaft and coacting with a reciprocating bar actuated by said stencil-carrier for operating said rock-shaft from the stencil-carrier, a pair of arms carried by said rock-shaft, an impression-roller mounted in said arms, and means for adjusting the position of said arms with respect to the rock-shaft, substantially as and for the purposes set forth.

6. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a rock-shaft, an arm carried thereby and actuated by a connection with the stencil-carrier, a pair of arms carried by said rock-shaft, an impression-roller mounted in said arms, a collar secured to the rock-shaft adjacent to each of said arms, and an adjusting-screw carried by each of said collars and coöperating with the adjacent arm for adjusting the position of the latter with respect to the rock-shaft, substantially as set forth.

7. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a reciprocating bar, connections between the stencil-carrier and said bar, an impression-roller, connections between said impression-roller and said bar for moving the impression-roller toward and away from the stencil-carrier, a paper-alining stop movable toward and away from position above the impression-roller, and connections between said paper-alining stop and said bar for operating the former, substantially as and for the purposes set forth.

8. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a vertically-reciprocating bar, connections between said bar and said carrier, a paper-alining stop, a lever connected with said stop, and a pin on the reciprocating bar for engaging said lever, substantially as set forth.

9. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a vertically-reciprocating bar, connections between said bar and said carrier, a paper-alining stop, a lever connected with said stop, a pin on the reciprocating bar for engaging said lever, and a spring for engaging said lever with said pin, substantially as set forth.

10. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, a reciprocating bar, an impression-roller, connections between said bar and roller, and connections between the rotary stencil-carrier and said bar, of a vertically-mounted sleeve, a cam on said sleeve engaging the bar, and a lever on said sleeve for partially rotating the same, substantially as and for the purposes set forth.

11. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a pad in the form of a continuous belt applied to said carrier, substantially as set forth.

12. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a pad, and a pair of bars or rods loosely engaging with the ends of said pad and received in recesses in the stencil-carrier for holding said pad in position, substantially as set forth.

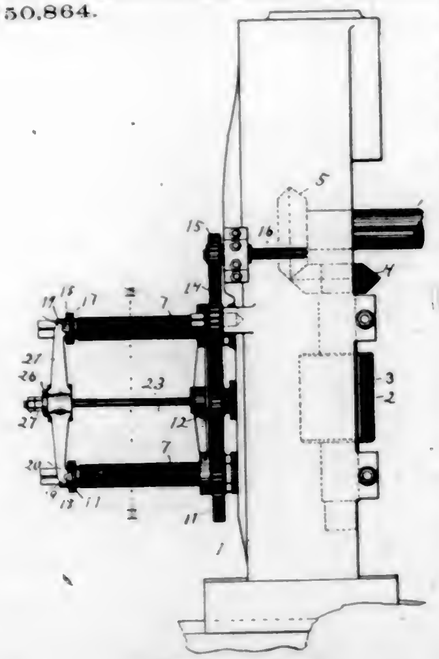
13. In a rotary stencil-printing machine, the combination with a rotary stencil-carrier, of a pad in the form of a continuous belt applied to said carrier, and a pair of bars or rods engaged within said pad and received in recesses in the stencil-carrier for holding the pad in position, substantially as set forth.

750,864. ADJUSTING MECHANISM FOR ROLLS, &c. PAUL KNECHT, Knoxville borough, Pa., assignor to A. Garrison Foundry Company, a Corporation of Pennsylvania. Filed July 6, 1903. Serial No. 164,391. (No model.)

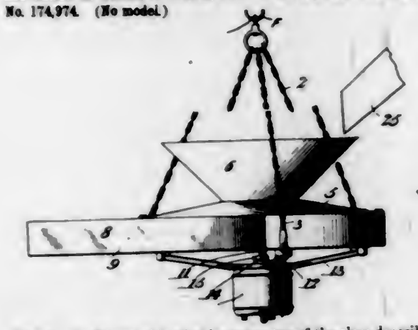
Claim.—1. In combination, a roll, a frame carrying the same, screws for adjusting the frame, a bridge connecting the screws, and means between the bridge and the frame for holding the screws and the frame in constant contact, whereby the wear between the frame and the screws will be taken up automatically and as fast as it takes place.

2. In combination, a roll, a frame carrying the same, screws for adjusting the frame, a bridge connecting the screws, and a spring-controlled connection between the bridge and the frame for holding the screws and the frame in constant contact, whereby the wear between the frame and the screws will be taken up automatically and as fast as it takes place.

750,864.



750,865. COMBINED LOADER AND TRIMMER. JOHN J. LAMB and JAMES M. ADAMS, Galveston, Tex. Filed Sept. 28, 1903. Serial No. 174,974. (No model.)



Claim.—1. The combination in apparatus of the class described, of a suspended casing, a shaft rotatably mounted within the casing and having one end extending outside of the casing, a fan rigidly mounted on the shaft within the casing, a chute for the escape of material from the casing, and a motor supported beneath the casing and directly connected with the shaft.

2. The combination in apparatus of the class described, of a casing, a shaft mounted for rotation within the casing and having one end projecting outside thereof, a fan comprising a disk rigidly attached to said shaft, and a plurality of plates mounted on said disk and having their outer ends adjacent to the casing-wall and their inner ends at some distance from the center of the casing, and means for rotating said shaft.

3. The combination with a suspended casing, of a spider-frame rigidly mounted on the exterior of said casing, a shaft rotatably mounted in said spider-frame and having one end disposed within the casing and the other disposed external thereto, a fan rigidly mounted on the end of the shaft within the casing, a chute for the discharge of material from the casing, and a motor supported beneath the casing and directly connected with the shaft.

4. The combination in apparatus of the class described, of a freely-swinging supporting-frame, a shaft journaled therein, a distributing mechanism mounted on said shaft and comprising a disk rigidly secured to the shaft, and a plurality of blades mounted on the disk, and a motor supported beneath the frame and rigidly connected with the shaft.

5. The combination in apparatus of the class described, of a freely-swinging supporting-frame, a shaft journaled therein, a distributing mechanism rigidly mounted on one end of the shaft and a motor supported beneath the frame and directly connected with the other end of the shaft.

6. The combination in apparatus of the class described, of an open-bottom casing, a shaft supported in said casing and having one end projecting outside the casing, a chute for the escape of material from the casing, a disk rigidly mounted on said shaft and having its periphery disposed so as to barely escape contact with the inner wall of said casing, blades arranged upon said disk, and means for driving said shaft.

7. The combination in apparatus of the class described, of an open-bottom casing, a shaft rotatably supported within said casing, a disk mounted on said shaft at the bottom of said casing and having its periphery so disposed as to barely escape contact with said casing-wall, blades mounted on said casing having their outer ends disposed adjacent to said casing-wall and their inner ends at a distance from the center of said disk, and means for imparting motion to said shaft.

8. The combination in apparatus of the class described, of a casing, a distributer mechanism arranged within said casing, a hopper to feed material into said casing, a motor directly connected with said distributer mechanism, motor-supporting devices mounted on said casing, and means at the periphery of said casing for suspending said casing from an overhead support.

9. The combination in apparatus of the class described, of a centrifugal distributer mechanism, means for imparting rotative movement to said distributer mechanism, and means for suspending said distributer mechanism from an overhead support for free swinging movement.

10. The combination in apparatus of the class described, of a centrifugal distributer mechanism, means for imparting rotative movement to said distributer mechanism, and swiveled means for suspending said distributer mechanism for swinging movement beneath an overhead support.

750,866. CARPENTER'S TOOL. FREDRIK LINDBLAD, New York, N. Y. Filed Oct. 31, 1903. Serial No. 179,324. (No model.)



Claim.—1. A tool of the class described, comprising two arms pivoted together at one end, the opposite ends of said arms being connected by links pivoted thereto and to each other so as to form when the said arms are extended a complete triangle, and a slide mounted on one of said arms, substantially as shown and described.

2. A tool of the class described, comprising two arms pivoted together at one end, the opposite ends of said arms being connected by links pivoted thereto and to each other so as to form when the said arms are extended a complete triangle and a slide mounted on one of said arms, and the other arm being also provided with a supplemental arm which is pivoted thereto and which is adapted to be held flush therewith and to turn thereon, substantially as shown and described.

3. A tool of the class described, comprising two arms pivoted together at one end, the opposite ends of said arms being connected by links pivoted thereto and to each other so as to form when the said arms are extended a triangle and a slide mounted on one of said arms, and the other arm being also provided with a supplemental arm which is pivoted thereto and which is adapted to be held flush therewith and to turn thereon, the inner edges of said arms and the adjacent sides of said link members being cut away longitudinally so as to permit the parts of the device to fold together, substantially as shown and described.

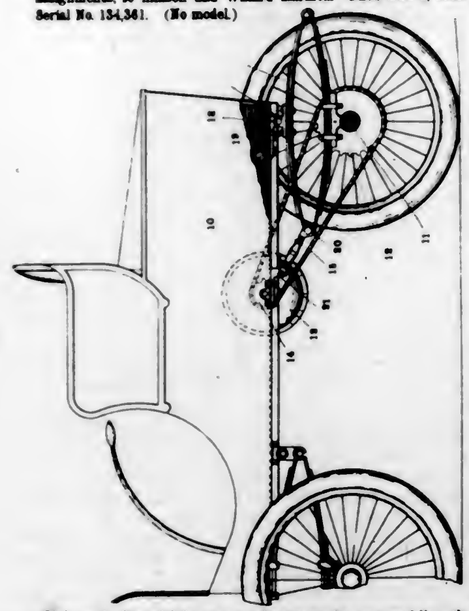
4. A tool of the class described, comprising two arms pivoted together at one end, one of said arms being provided with a raised cross-piece, a slide mounted on said last-named arm and one end of which is adapted to pass beneath said cross-piece and the other end of which is beveled or inclined, the ends of said arms opposite their hinge connection being also connected by link members pivoted thereto and to each other, substantially as shown and described.

5. A tool of the class described, comprising two arms pivoted together at one end, one of said arms being provided with a raised cross-piece, a slide mounted on said last-named arm and one end of which is adapted to pass beneath said cross-piece and the other end of which is beveled or inclined, the ends of said arms opposite their hinge connection being also connected by link members pivoted thereto and to each other, one of said arms being also provided with a spirit-level, substantially as shown and described.

6. A tool of the class described, comprising two arms pivoted together at one end, one of said arms being provided with a raised cross-piece, a slide mounted on said last-named arm and one end of which is adapted to pass beneath said cross-piece and the other end of which is beveled or inclined, the ends of said arms opposite their hinge connection being also connected by link members pivoted thereto and to each other, one of said arms being also provided with a spirit-level and the adjacent edges of said arms and the adjacent sides of said link members being cut away longitudinally so as to permit the parts to fold together, substantially as shown and described.

7. A tool of the class described, comprising two arms pivoted together at one end, the opposite ends of said arms being beveled or inclined and being also connected by links pivoted thereto and to each other so as to form when the said arms are extended a complete triangle, said parts being adapted to be folded together, substantially as shown and described.

750,867. DRIVING-AXLE ADJUSTMENT FOR AUTOMOBILES. THOMAS J. LINDSAY, Indianapolis, Ind., assignor, by direct and mesne assignments, to himself and Willard Harmon. Filed Dec. 8, 1902. Serial No. 134,361. (No model.)



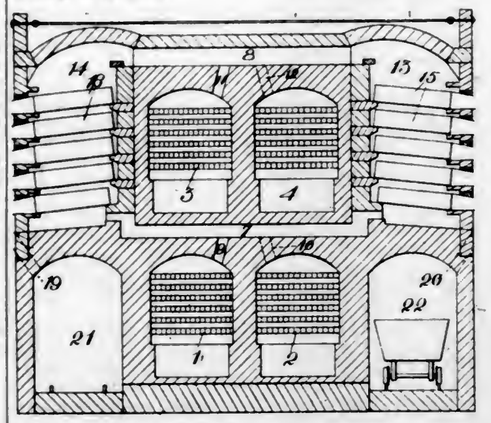
Claim.—1. In a driving-gear adjustment for automobiles, the combination, with the main body, of a spring pivoted thereto upon a single axis, a driving-axle carried by said spring, and an adjustable strut between said spring and the main body, for the purpose set forth.

2. In a driving-gear adjustment for automobiles, the combination, with the main body, of an elliptical spring pivotally attached thereto upon a single axis, a driving-axle carried by said spring, and an adjustable strut connected at one end to the body and at the other to one end of the spring, substantially as and for the purpose set forth.

750,868. FURNACE. PHILIP A. MACKAY, Wenona, and WILLIAM R. MOORE, Peru, Ill. Filed June 9, 1902. Serial No. 110,818. (No model.)

Claim.—1. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of a passage-way affording communication between the regenerators for conveying the products of combustion of either to the other to heat such other, said passage-way including a chamber adapted to contain matter to be subject to the action of heat, substantially as described.

2. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of a passage-way between the top of the upper regenerator and the lower regenerator, whereby the products of combustion of either regenerator may heat the other, said passage-way including a chamber adapted to contain matter to be subject to the action of heat, substantially as described.



3. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of a passage-way between the top of the lower regenerator and the upper regenerator, whereby the products of combustion of either regenerator may heat the other, said passage-way including a chamber adapted to contain matter to be subject to the action of heat, substantially as described.

4. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of a passage-way between the tops of the regenerators, whereby the products of combustion of either regenerator may heat the other, said passage-way including a chamber adapted to contain matter to be subject to the action of heat, substantially as described.

5. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of parallel passages for conveying the products of combustion in diverging paths from the active regenerator and converging paths toward the passive regenerator, each of the said passages including a chamber adapted for the reception of matter to be subject to the action of heat, substantially as described.

6. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of parallel passages for conveying the products of combustion in parallel paths between the top of the upper regenerator and the lower regenerator, whereby the products of combustion of either regenerator may heat the other, each of the said passages including a chamber adapted to contain matter to be subject to the action of heat, substantially as described.

7. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of parallel passages for conveying the products of combustion in parallel paths between the top of the lower regenerator and the upper regenerator, whereby the products of combustion of either regenerator may heat the other, each of the said passages including a chamber adapted for the reception of matter to be subject to the action of heat, substantially as described.

8. In a furnace construction of the class described, the combination with two regenerators, one placed above the other, of parallel passages for conveying the products of combustion in parallel paths between the tops of the regenerators, whereby the products of combustion of either regenerator may heat the other, each of the said passages including a chamber adapted for the reception of matter to be subject to the action of heat, substantially as described.

9. In a furnace construction of the class described, the combination with two regenerators, of parallel passages for conveying the products of combustion in diverging paths from the active regenerator and converging paths toward the passive regenerator, each of the said passages including a chamber adapted for the reception of matter to be subject to the action of heat, each of said chambers having but two openings, one at the top and one at the bottom there-

of, through which openings all the products of combustion passing through the chamber are adapted to pass, substantially as described

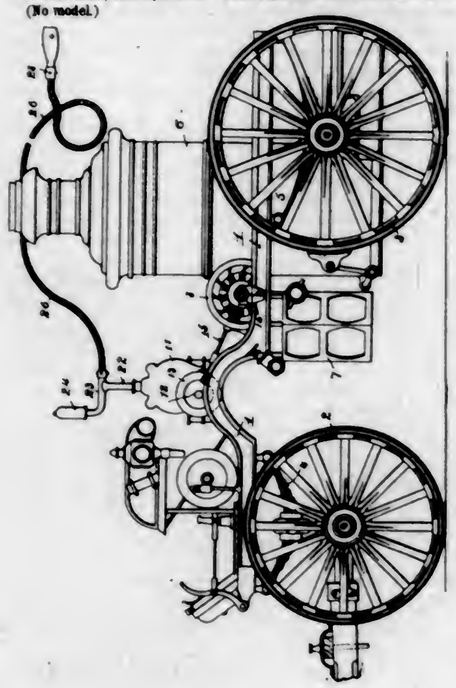
10. In a furnace construction of the class described, the combination with two regenerators, of a plurality of passage-ways extending parallelly between the regenerators, each passage-way conveying approximately an equal portion of the products of combustion passing between the regenerators, the products of combustion after leaving the active regenerator dividing and passing parallelly through said passage-ways to meet again upon entering the passive regenerator, and a chamber included in each of said passage-ways for the reception of matter to be subjected to the action of heat, substantially as described.

11. In a furnace construction of the class described, the combination with two regenerators, of a plurality of passage-ways extending parallelly between the regenerators, each passage-way conveying approximately an equal portion of the products of combustion passing between the regenerators, the products of combustion, after leaving the active regenerator, dividing and passing parallelly through said passage-ways to meet again upon entering the passive regenerator, a chamber included in each of said passage-ways for the reception of matter to be subjected to the action of heat, and two openings in each of said chambers, one at each end thereof, to allow passage of all the products of combustion passing through a chamber, substantially as described.

12. In a furnace construction of the class described, the combination with two regenerators placed one on top of the other, of a plurality of passage-ways extending parallelly between the regenerators, each passage-way conveying approximately an equal portion of the products of combustion passing between the regenerators, the products of combustion, after leaving the active regenerator, dividing and passing parallelly through said passage-ways to meet again upon entering the passive regenerator, and a chamber included in each of said passage-ways for the reception of matter to be subjected to the action of heat, substantially as described.

13. In a furnace construction of the class described, the combination with two furnaces, of means for taking products of combustion from one furnace to the other, said means affording diverging paths for products of combustion to heat a plurality of elements simultaneously and substantially equally with the initial heat of the products of combustion, substantially as described.

750,869. **METHOD OF EMPTYING ROOMS OF SMOKE.** Geo. F. Mahoney, Brooklyn, N. Y. Filed Sept. 6, 1901. Serial No. 74,589. (No model.)



Claim.—1. The method of clearing portions of rooms of smoke or noxious gases which consists in compressing a volume of air or other equivalent propelling medium and projecting the same against the smoke thereby producing a rotary motion of the smoke away from the direction of pressure of the compressed air, and forming a zone free from such smoke and noxious gases.

2. The method of clearing portions of rooms of smoke or noxious gases which consists in compressing a volume of air or other propelling medium and projecting the same obliquely against the smoke and forcing it up or down with a rotary motion and forming a zone of air free from noxious gases.

3. The method of clearing portions of rooms of smoke or other noxious gases which consists in compressing a volume of air or other propelling medium and spraying the same against the smoke and forcing it up or down with a rotary motion and forming a zone free from noxious gases and smoke.

750,870. **DEVICE FOR MEASURING HEIGHTS OF INDIVIDUALS.** John Maitland, Swampscott, Mass. Filed June 25, 1903. Serial No. 162,993. (No model.)



Claim.—1. In a device of the class described, a standard, a vertically-movable measuring-arm supported thereby, a lock to hold said arm inoperative, a coin-chute, means to positively move said coin in said chute and thus release the lock, and means to retain the coin in the chute and in position to hold the lock released until after the measuring-arm begins its movement.

2. In a device of the class described, a standard, a vertically-movable measuring-arm supported thereby, a lock to hold said arm inoperative, a coin-chute, means to positively move said coin in said chute and thus release the lock, means to retain the coin in the chute and in position to hold the lock released until after the measuring-arm has begun its downward movement, and means whereby the downward movement of the measuring-arm operates to release the coin.

3. In a device of the class described, a hollow slotted standard, a vertically-movable arm projecting outwardly from said slot, a latch normally holding said arm elevated, a coin-chute, a plunger for forcing the coin in the chute against the latch to throw the latter into inoperative position, and means whereby the coin is released from the chute by the downward movement of the arm.

4. In a device of the class described, a hollow slotted standard, a vertical measuring-arm projecting outwardly from said slot, a pivoted latch normally holding said arm elevated, a coin-chute, means for forcing the coin in the chute against the latch thereby to throw the latter out of engagement with the arm, said latch having a swell which is adapted to be engaged by the arm as the latter begins its downward movement, whereby the latch is removed entirely from the path of the coin.

750,871. **EXCITING COMPOUND FOR BATTERIES.** Adolf J. Marschall, Littlefalls, N. Y. Filed May 21, 1903. Serial No. 158,134. (No specimens.)

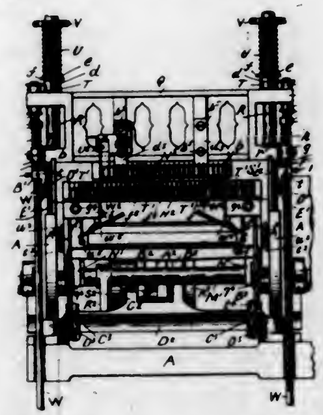
Claim.—1. An exciting compound for electrical batteries, consisting of a solution of zinc chlorid and ammonium chlorid, the zinc chlorid being in excess of the ammonium chlorid.

2. An exciting compound for electrical batteries, consisting of a solution of zinc chlorid and ammonium chlorid, the zinc chlorid being greatly in excess of the ammonium chlorid.

3. An exciting compound for electrical batteries, consisting of a strong solution of zinc chlorid with a small addition of ammonium chlorid.

4. An exciting compound for electrical batteries, consisting of a solution of about eighty parts of zinc chlorid and about six parts of ammonium chlorid in one hundred parts of water.

750,872. **FOLDING-MACHINE FOR SHOE-UPPERS, &c.** Charles S. Marshall, Brockton, Mass., assignor to H. T. Marshall Machine Company, Brockton, Mass. Filed Dec. 29, 1897. Serial No. 664,354. (No model.)



Claim.—1. In a machine for folding the edge of sheet material, a platform or table for receiving the material, gages against which the edge of the sheet is placed to determine the width of the fold, a creasing-plate connected with said platform or table and over which the material is adapted to be folded, means for suitably cutting the material, means for vertically moving said table or platform and said plate for folding the material against the edge of the latter, means for folding the material over the edge of and back upon said plate, and means for withdrawing said plate from between the folded portion of said material.

2. In a machine for folding the edge of sheet material, a platform or table for receiving the material, gages against which the edge of the material is placed to determine the width of the fold, a creasing-plate connected with said platform or table and over which the material is adapted to be folded, means for cutting the portion of the material to be folded, means for vertically moving said platform or table and said plate for folding the material against the edge of the latter, means for folding the material over the edge of and back upon said plate, means for withdrawing said plate from between the folded portion of the material, and means for pressing the folded portion of the material together when the plate is withdrawn.

3. In a machine for folding the edge of sheet material, in combination, a platform or table on which to lay the sheet material, mechanism for folding the same, gages against which the edge of the sheet is placed to determine the width of fold, a cross-bar adapted to slide up and down and to press upon the folds, suitable guideways for said cross-bar, side rods connected to the ends of said cross-bar, and a treadle connected to the rods for operation of the cross-bar.

4. In a machine for folding the edge of sheet material, a platform or table to receive the material, gages against which the edge of the sheet is placed to determine the width of the fold, a creasing-plate for the material connected with said platform, a vertically-moving plate, a knife connected thereto, operating means for said vertically-operating plate, means for folding the material over the edge of and back upon said creasing-plate, a knife carried by said means and operating in conjunction with the knife of the vertical operating-plate for cutting the material before being folded, operating means for said table or platform and plate, and operating means for said folding means.

5. In a machine for folding the edge of sheet material, a platform or table to receive the material, a creasing-plate for the material connected with said platform or table, a vertically-operating plate, guides therefor, a lever connected with said plate, a cam connected with said lever, a knife connected to said vertically-operating plate and operated thereby, means for folding the material over the edge of and back upon said creasing-plate, a knife carried by said means and operating in connection with the knife of the vertically-operating plate for cutting the material prior to the folding thereof, operating means for said table and plate, and operating means for said folding means.

6. In a machine for folding the edge of sheet material, a platform or table to receive the material, gages against which the edge of the sheet is placed to determine the width of the fold, means connected with said platform or table for creasing the material, means for operating said platform or table and said creasing means, a vertically-moving cutting means, a stationary cutting means, means for folding the material over the edge of and back upon said creasing means and for supporting said stationary cutting means, and operating means for said folding means.

7. In a machine for folding the edge of sheet material, in combination, a plate adapted to move up and down said plate having a slot therein, means for moving said plate, a knife-blade extending through the slot in said plate, a pin in the lower end of the knife-blade under the plate, a portion of said knife-blade projecting therefrom and disposed over the upper side of said plate, and a knife-blade in a suitable support for cooperation with the first knife-blade.

8. In a machine for folding the edge of sheet material, a platform or table to receive the material, a creasing-plate connected therewith, operating means for said creasing-plate, a carriage or plate arranged to move forward and backward on a suitable support, a frame on said plate, a series of fingers or arms side by side, arranged to be moved back and forth in said frame, a guideway for said fingers or arms, means for adjusting their front ends in a line, means for securing them in their adjustment, and means connected to said plate for operation thereof.

9. In a machine for folding the edge of sheet material, in combination, a carriage or plate arranged to move forward and backward on a suitable support, a frame on said plate, a series of fingers side by side arranged to be moved back and forth in said frame, means for adjusting their front ends to a line, means for securing them in their adjustment, a pivoted lever connected to the plate, a cam on a rotating shaft for operating the lever and means for operating said shaft.

10. In a machine for folding the edge of sheet material, in combination, a finger to be moved backward and forward on a suitable support, a knife-blade secured to said finger, a knife-blade adapted to move up and down in said finger, a guideway for said finger, and means for operating said movable knife-blade.

11. In a machine for folding the edge of sheet material, in combination, a finger arranged to be moved forward and backward on a suitable support, a knife-blade secured to said finger, a knife-blade adapted to move up and down in said finger, a guideway for said last-mentioned knife, a plate arranged to be moved up and down, means for operating said plate, said movable knife connected to said plate for operation thereof.

12. In a machine for folding the edge of sheet material, in combination, a plate or table adapted to move up and down in suitable guideways, on which table is laid the sheet material to be folded, a cross-bar connected by vertical rods to a treadle for operation thereof, a pivoted spring-pawl secured to said cross-bar adapted to engage with said platform-table frame when moved down therefor.

13. In a machine for folding the edge of sheet material, in combination, a platform or table on which to lay the sheet material to be folded, a creasing-plate located under said table, a support for said creasing-plate, guide-rods connected to said support arranged to slide back and forth in the supporting-frame of the table and means connected to the creasing-plate frame for operation thereof.

14. In a machine for folding the edge of sheet material, in combination, a platform or table on which to lay the sheet material to be folded, a creasing-plate located under said table, a support for said creasing-plate, guide-rods connected to said support arranged to slide back and forth in the supporting-frame of the table, a cam on a rotating shaft, a lever connected and operated by said cam, and connected to one arm of another lever, the other arm of said latter lever connected to the creasing-plate frame.

15. In a machine for folding the edge of sheet material, in combination, a table on which to lay the sheet material to be folded, a

creasing-plate located under said table, a support for the creasing-plate, guide-rods connected to said support arranged to slide back and forth in the table-supporting frame, means for operating said creasing-plate frame and a locking device connected to said platform-frame and arranged to engage with said creasing-plate.

16. In a machine for folding the edge of sheet material, in combination, a plate or carriage arranged to move back and forth, a frame carrying a series of fingers arranged side by side in said frame and arranged to be moved forward and backward in said frame, said frame having a chamber therein, and steam-pipes connected to said frame and communicating with said chamber, said pipes being arranged so as to make a yielding joint connection for the purpose specified.

17. In a machine for folding the edge of sheet material, in combination, a table on which to lay the sheet material to be folded, gages against which the edge of the sheet is placed to determine the width of the fold, a creasing-plate over which the sheet material is folded, below and projecting beyond the table, mechanism for folding said edge over the edge and alongside of the creasing-plate, means for withdrawing said creasing-plate from between the fold, mechanism for pressing the folded portion together and means for heating said pressing mechanism.

18. In a machine for folding the edge of sheet material, in combination, a cross-bar adapted to move up and down in suitable guide-ways, a rod connected to said bar for operation thereof, a shoulder on said rod, a vertical bar, two shoulders on said bar for operation thereof alternately by the rod-shoulder, a lever pivoted by one arm to said vertical bar, a gear loose on a rotating shaft arranged to engage and disengage with a pulley on said shaft and the other arm of the lever arranged to engage with said gear.

19. In a machine for folding the edge of sheet material, in combination, a platform or table on which to lay the sheet material, gages against which the edge of the sheet is placed to determine the width of fold, knives to slit or cut the edge transversely at intervals, a creasing-plate over which the sheet material is folded and projecting beyond the platform or table, mechanism for pressing upon said edge and folding it over the edge of and back upon the creasing-plate, means for withdrawing the creasing-plate, means substantially as described for pressing the folded portion together and means for suitably heating said mechanism.

20. In a machine for folding the edge of sheet material in combination, a platform or table on which to lay the sheet material, gages against which the edge of the sheet is placed to determine the width of fold, a device for marking the sheet material in a desired outline, a creasing-plate over which the sheet material is folded and projecting beyond the table-plate, mechanism for pressing upon said edge and folding it over the edge of and back upon the creasing-plate, means for withdrawing the creasing-plate from between the fold, and means for pressing the folded portion together.

21. In a machine for folding the edge of sheet material, in combination, a platform or table on which to lay the sheet material, gages against which the edge of the sheet is placed to determine the width of fold, spring-pins arranged in order to mark the sheet material, a creasing-plate over which the sheet material is folded and projecting beyond the table-plate, mechanism for folding said edge over the edge of and back upon the creasing-plate, means for withdrawing the creasing-plate from between the fold, and means for pressing the folded portion together.

22. In combination, a support, a flexible strip or bar secured to said support, one end left free to be curved at any desired curve and secured in such curve, and spring-pins secured to said strip and arranged to extend below or beyond said strip.

23. In combination, a support, a strip or bar secured to said support, one end being flexible and left free to be curved at any desired curve and secured in such curve, spring-pins secured to said strip and arranged to extend below and beyond said strip.

24. In combination, a support, a flexible strip or bar secured to said support, one end being left free to be curved at any desired curve and secured in such curve, pairs of lugs secured at intervals along said strip, pins in each pair of lugs, projecting below and beyond the strip a shoulder on each pin, between its supporting-lugs and a spring on each pin bearing on its shoulder and against one of the lugs.

25. In a machine for folding and pressing sheet material, in combination, a creasing-plate over which the material is folded, a suitable support having a guideway therein, a series of fingers or arms for folding the material over the creasing-plate, movable backward and forward in the guideway of said support, their front ends being arranged to conform to the curve or outline of the edge of said creasing-plate, and arranged to be clamped or held in place together to act as a solid bar or as one piece, means for heating said fingers or arms, one surface of which fingers or arms presses the folded margin of the material back upon itself and transmits the heat to the folded material, thus more firmly fixing and retaining the shape of the folded edge.

750,873. INSULATING-SLEEVE AND METHOD OF MAKING SAME. NORMAN MARSHALL, Newton, Mass. Filed June 6, 1902. Serial No. 110,479. (No model.)



Claim.—1. The method of forming a sleeve of insulating material having cylindrical end portions of different diameters, consisting in bending a blank into cylindrical form, covering the joint between the ends of the blank with an insulating material, and reducing the diameter of the cylinder for a portion of its length, substantially as described.

2. The method of forming a sleeve of insulating material having end portions of different diameters, consisting in forming a rectangular blank, bending said blank into cylindrical form with the ends abutting and drawing down the cylinder to a smaller diameter for a portion of its length, substantially as described.

3. The method of forming a sleeve of insulating material having end portions of different diameters, consisting in forming a rectangular blank, bending said blank into cylindrical form with the ends abutting, covering the joint with insulating material, and drawing down the cylinder to a smaller diameter for a portion of its length, substantially as described.

4. A cylindrical insulating-sleeve having end portions of different diameters, formed of insulating material and having a joint or seam running its full length with edges abutting, said abutting edges being intimately shaped to each other to form a close joint.

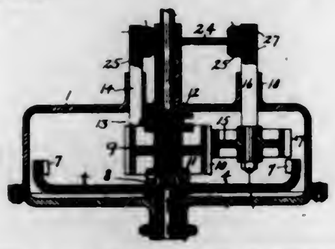
5. An insulating-sleeve formed of insulating material and having end portions of different diameters and a joint or seam running its full length with edges abutting, said abutting edges being intimately shaped to each other to form a close joint, and insulating material connecting said abutting edges.

6. The method of forming a sleeve of insulating material having end portions of different diameters, consisting in bending a resilient blank into a cylinder with edges abutting, the abutting edges being held in contact by the elastic tendency of the cylinder, and then reducing the cylinder to a smaller diameter for a portion of its length.

7. As an improved article of manufacture, an insulating-sleeve consisting of a cylinder of resilient insulating material, the cylinder being reduced to a smaller diameter for a portion of its length and having its edges held normally in close contact by the resiliency of the cylinder.

8. As an improved article of manufacture, an insulating-sleeve having end portions of different diameters constructed of resilient material, whose edges are normally held in contact by the resiliency of the material, and a connecting insulating-strip secured over said normally closed joint.

750,874. VARIABLE-SPEED MECHANISM. FRANK V. MATHEWS, Rochester, N. Y. Filed May 19, 1903. Serial No. 157,773. (No model.)



Claim.—1. In a driving mechanism the combination with a driving-shaft, of a driving-gear, revoluble with said shaft, and a driven gear adapted to be thrown in and out of engagement with each other, two engaging, intermediate, free, speed-changing gears, one of which is adapted to engage said driving-gear, and the other of which is adapted to engage said driven gear; means for interposing said intermediate gears between said driving-gear and said driven gear; and means for throwing said driving-gear and said driven gear in and out of direct engagement.

2. In a driving mechanism the combination with a driving-shaft, of a driving-gear, revoluble with said shaft, and a driven gear adapted to be thrown in and out of engagement with each other; two engaging, intermediate, free gears, one of which is adapted to be interposed between said driving-gear and said driven gear, and the other of which is adapted to engage the driven gear; means for throwing said driving-gear and said driven gear in and out of direct engagement; means for interposing said first-mentioned intermediate gear between said driving and said driven gear; and means for moving said other intermediate gear in and out of engagement with said driven gear.

3. In a driving mechanism the combination with a driving-shaft, of a driven gear having a clutch-surface, and driving-gear revoluble with said shaft and having a clutch-surface adapted to engage said clutch-surface on the driven gear, said gears being adapted to be thrown in and out of engagement with each other; an intermediate, free, reversing-gear adapted to be interposed between said driving-gear and said driven gear; means for throwing said driving-gear and said driven gear in and out of engagement with each other; and means for interposing said reversing-gear between said driving-gear and said driven gear so as to engage them both when they are not in engagement with each other.

4. In a driving mechanism the combination with a driving-shaft, of a longitudinally-movable driving spur-gear revoluble with said shaft, and having a clutch-surface; a driven gear concentric with said shaft and having a clutch-surface adapted to engage with said clutch-surface on the driving-gear; an intermediate, free, reversing spur-gear; means for moving said driving-gear in and out of engagement with said driven gear; and means for interposing said reversing-gear between said driving and said driven gears, so as to engage them both when they are out of engagement.

5. In a driving mechanism the combination with a driving-shaft, of a longitudinally-movable, driving spur-gear, revoluble with said shaft, and having a clutch-surface; a driven gear concentric with said shaft and having a clutch-surface adapted to engage with said clutch-surface on the driving-gear; two engaging intermediate, free, speed-changing spur-gears, one of which engages with the driving-gear, and the other of which is adapted to engage with the said driven gear, and means for moving said last-mentioned gear and said driving-gear in and out of engagement with said driving-gear and said driven gear respectively.

6. In a driving mechanism the combination with a driving-shaft of a longitudinally-movable driving spur-gear revoluble with said shaft and having a clutch-surface; a driven gear, concentric with said shaft and having a clutch-surface adapted to engage with said clutch-surface on the driving-gear; two engaging intermediate, free spur-gears; one of which is adapted to be interposed between said driving-gear and said driven gear, and the other of which is adapted to engage the driven gear; means for throwing said driving-gear and said driven gear in and out of engagement; means for interposing said first-mentioned intermediate gear between said driving and said driven gear; and means for moving said other intermediate gear in and out of engagement with said driven gear.

7. In a driving mechanism the combination with a driving-shaft, of a longitudinally-movable, driving spur-gear upon said shaft, revoluble therewith, and having a clutch-surface; a driven gear concentric with said shaft and having a clutch-surface adapted to engage with the clutch-surface on the driving-gear; a longitudinally-movable shaft parallel with said driving-shaft; an intermediate, free, reversing spur-gear upon said last-mentioned shaft; a lever; and connections between said lever and both said driving-gear and the shaft supporting said intermediate gear, whereby said driving-gear and said reversing-gear are respectively thrown in and out of engagement.

8. In a driving mechanism the combination with a driving-shaft, of a longitudinally-movable, driving spur-gear upon said shaft, revoluble therewith, and having a clutch-surface; a driving-gear concentric with said shaft and having a clutch-surface adapted to engage with the clutch-surface on the driving-gear; two longitudinally-movable shafts parallel with said driving-shaft; two engaging, intermediate, free, speed-changing, spur-gears upon said shafts, respectively, one of which said gears is adapted to engage said driving-gear and the other of which is adapted to engage said driven gear; a lever; and connections between said lever and both said driving-gear and the shaft of one of said speed-changing gears, whereby said driving-gear is thrown in and out of engagement with said driven gear, and said intermediate gears are interposed between said driving and said driven gears.

9. In a driving mechanism the combination with a driving-shaft, of a longitudinally-movable driving spur-gear upon said shaft, revoluble therewith, and having a clutch-surface; a driving-gear concentric with said shaft and having a clutch-surface adapted to engage with the clutch-surface on the driving-gear; two longitudinally-movable shafts parallel with said driving-shaft; two engaging, intermediate, free, spur-gears upon said shafts, respectively, one of which gears is adapted to be interposed between said driving-gear and said driven gear, and the other of which is adapted to engage the driven gear; and connections between said lever and said driving-gear and both of said shafts that separate the said intermediate gears, whereby said driving-gear is thrown in and out of engagement with said driven gear, said first-mentioned intermediate gear is interposed between said driving-gear and said driven gear, and said second-mentioned intermediate gear is thrown in and out of engagement with said driven gear, respectively.

10. In a driving mechanism the combination with a driving-shaft, of a driving-gear revolubly attached to said shaft; a driven sprocket; freely, revoluble, intermediate gears adapted to be interposed between said shaft and said gears; a movable plate having cam-like projections; longitudinally-movable shafts connected with said intermediate gears, respectively, and adapted to engage said projections, respectively; whereby said gears are thrown in and out of engagement; and means for moving said plate to cause said projections to engage said shafts, respectively.

11. In a driving mechanism the combination with a driving-shaft 3, of the driving spur-gear 9, revolubly attached to said shaft, movable longitudinally thereon, and having a clutch-surface; the driven internal gear 4 having a clutch-surface adapted to engage the clutch-surface on driving-gear 9; a longitudinally-movable shaft 16, parallel with said shaft 3; means for supporting said shaft 16; the reversing spur-gear 15 revolubly attached to said movable shaft, and adapted to engage both said driving-gear and said driven gear; means for moving said driving-gear in and out of mesh with said driven gear; and means for moving said movable shaft longitudinally to interpose said reversing-gear between said driving-gear and said driven gear.

12. In a driving mechanism the combination with casing 1, of the driving-shaft 3, driving spur-gear 9 revolubly attached to said driving-shaft movable longitudinally thereon and having a clutch-face; the driven internal gear 4 concentric with said driving-shaft, having a clutch-face adapted to engage with the clutch-face of the driving-gear; the longitudinally-movable shaft 16 parallel with said driving-shaft and supported in said casing; the reverse spur-gear 15 revolubly attached to said shaft 16 and adapted to engage both with said driving-gear 9 and said driven gear 4; and means for moving said shaft 16 to interpose said reversing-gear between said driven gear and said driving-gear.

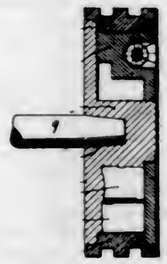
13. In a driving mechanism the combination with a driving-shaft 3, of the driving spur-gear 9 revolubly attached to said driving-shaft, movable longitudinally thereon, and having a clutch-face; the driven internal gear 4, concentric with said driving-shaft, and having a clutch-face adapted to engage said driving-gear, the longitudinally-movable shaft 16 parallel with said driving-shaft; the spur-gear 15 revolubly attached to said shaft 16 and adapted to engage with both said driving-gear and said driven gear; the longitudinally-movable shaft 20 parallel with said driving-shaft; a spur-gear 19 revolubly attached to said shaft 20, and adapted to engage both with said gear 15 and said driven gear 4; and means for moving longitudinally said driving-gear and said shafts 16 and 20, respectively, whereby said driving-gear is thrown in and out of engagement with said driven gear, said gear 15 is interposed between said driving-gear and said driven gear, and said gear 19 is interposed between said gear 15 and said driven gear.

14. In a driving mechanism the combination with the casing 1 of the driving-shaft 3; the driving-gear 9 revolubly attached to said driving-shaft, and movable longitudinally thereon, and having a clutch-surface; the driven internal gear 4 concentric with said driving-shaft, and having a clutch-surface adapted to engage the clutch-surface on the driving-gear; the longitudinally-movable shaft 16 parallel with said shaft 3, and supported by said casing; the spur-gear 15 revolubly attached to said shaft 16, and adapted to be interposed between said driving-gear and said driven gear; a longitudinally-movable shaft 20 parallel with said driving-shaft, and supported in said casing; the spur-gear 19 revolubly attached to said shaft 20 and adapted to be interposed between the gear 15 and the

driven gear; means for throwing said gear 9 in and out of engagement with said driven gear; means for interposing said gear 15 between said driving-gear and said driven gear; and means for interposing said gear 19 between said gear 15 and said driven gear.

15. In a driving mechanism the combination with the casing 1, of the driving-shaft 3; the driving-gear 9 revolubly attached to said shaft, movable longitudinally thereon, and having a clutch-surface; the driven internal gear 4, concentric with said driving-shaft, and having a clutch-surface adapted to engage the clutch-surface on the driving-gear; a longitudinally-movable shaft 16 parallel with said shaft 3, and supported by said casing; the spur-gear 15 revolubly attached to said shaft 16, and adapted to be interposed between said driving-gear and said driven gear, a longitudinally-movable shaft 20 parallel with said driving-shaft and supported in said casing; the spur-gear 19 revolubly attached to said shaft 20, and adapted to be interposed between the gear 15 and the driven gear; the cam 24 eccentrically supported upon said driving-shaft having the internal projections 28, 29 and 30; rollers 25 and 26 attached to said shafts 14, 16 and 19, respectively, on either side of said cam, and means for rotating said cam.

750,875. **PISTON.** KARL MATHEWS, Marshall, Tex., assignor of one-half to S. H. Ellis, Marshall, Tex. Filed Nov. 13, 1903. Serial No. 181,068. (No model.)



Claim.—1. In a piston, a pair of heads and interlocking members movable revolubly to engaging and disengaging positions.

2. In piston construction, a pair of heads of which one is revolubly adjustable with respect to the other, and interlocking means carried by both heads.

3. In piston construction, a pair of heads of which one is revolubly adjustable with respect to the other and undercut lugs carried by each head, the lugs interlocking to hold the heads together.

4. In piston construction, a pair of heads each provided with a plurality of undercut lugs, and means for revolubly adjusting one of the heads with respect to the other and for locking the same in adjusted position.

5. In piston construction, a pair of piston-heads having marginal flanges to support a grooved bull-ring, a plurality of undercut lugs carried by each head and adapted to interlock with each other, the outer faces of the lugs serving as supports for the bull-ring, and means for effecting revoluble movement of one of the heads with respect to the other.

6. In piston construction, a pair of heads having undercut lugs, the engaging faces of the lugs being inclined to draw the heads toward each other.

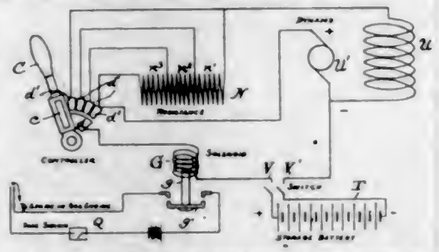
7. In piston construction, a pair of heads having undercut lugs of which the engaging walls are inclined, and means for effecting a positive revoluble movement of one of said heads.

8. In piston construction, a pair of heads of which one is provided with a central opening and the other with a hub adapted to enter the opening, undercut lugs carried by both heads and adapted to interlock, and means for effecting positive revoluble movement of one of the said heads with respect to the other.

9. In piston construction, a pair of heads having undercut and interengaging lugs, one of the lugs being recessed, a non-revoluble screw extending through the walls of the recess for engagement with a lug or lugs of the opposite head, and adjusting-nuts carried by said screw, substantially as specified.

750,876. **ELECTRIC PLANT FOR CHARGING STORAGE BATTERIES.** JOSEPH B. MERIAM and MARK B. CRIST, Cleveland, Ohio, assignors to the Meriam-Abbott Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 25, 1902. Serial No. 116,936. (No model.)

Claim.—1. In an electric plant, the combination, with an engine, of a dynamo connected with said engine, and a mechanical speed-governor for stopping the engine whenever its speed decreases below a predetermined minimum, substantially as described.



2. In an electric plant, the combination, with a gas-engine, of a dynamo connected with said engine, said dynamo being arranged to operate as a motor, and a centrifugal speed-governor for stopping the engine whenever its speed decreases below a predetermined minimum, substantially as described.

3. In an electric plant, the combination, with a gas-engine, of a dynamo adapted to be operated as a motor for starting said engine, a starting-switch for said dynamo when operated as a motor, devices in connection with said switch for cutting off the gas-supply when the engine is overloaded, and means whereby the sparking circuit may be broken when the current falls below a certain predetermined minimum, substantially as described.

4. In an electric plant, the combination, with a gas-engine, of a dynamo in connection with said engine and adapted to operate as a motor, a switch for starting said dynamo as a motor, connections between said switch and the valve of said engine, a centrifugal operating-dog in connection with said engine for shutting off said switch and said valve when the engine speed is less than a predetermined minimum, substantially as described.

5. In an electric charging plant, for storage batteries, the combination of a gas-engine, a dynamo adapted to be operated as a motor for starting said engine, a sparking circuit for said engine, an electromagnetic switch controlling said circuit, said switch having its coil in the main circuit of the dynamo and storage battery and operating to open the sparking circuit if the main circuit is broken, substantially as described.

6. In an electric plant, the combination, with a gas-engine, of a dynamo adapted to be operated as a motor, a storage battery adapted to operate said motor and start said engine and to be charged after said engine is under way, a switch for starting the dynamo as a motor, means for maintaining the sparking circuit closed while starting the engine, devices in connection with the engine-shaft and said switch, whereby said switch may be thrown and the gas for said engine cut off when said engine is operating at an overload, and means for breaking the sparking circuit when it is operating at an underload, substantially as described.

7. In an electric plant, the combination with a gas-engine of a dynamo adapted to be operated as a motor, a switch for starting the same, connections between said switch and the gas-supply for said engine, means for operating said switch to cut off the current and the gas-supply when the engine is working at an overload, means for holding the sparking circuit closed during the starting of the engine, and means for electrically retaining said sparking circuit closed after the engine is under way, substantially as described.

8. In an electric plant, the combination of a gas-engine, a dynamo adapted to be operated as a motor for starting the engine, a switch for controlling the starting of the motor, connection between said switch and the valve of the engine, a latching device tending to hold said switch in an operative position and said valve open, and a centrifugal dog operated by the engine and adapted to release said latching device, substantially as described.

9. In an electric plant, the combination, with a gas-engine, of a dynamo operating in connection therewith, said dynamo being adapted to operate as a motor, a switch adapted to control the starting of the dynamo, a shaft carrying said switch and provided with means for normally retaining the same in an off position, connections between said shaft and the gas-valve leading to said engine, a latch-cam provided upon said shaft, a latch adapted to operate in connection with said latch-cam, and a centrifugal dog rotated by the engine-shaft for disengaging said latch from said latch-cam, substantially as described.

10. In an electric plant, the combination of a gas-engine, a dynamo adapted to be operated as a motor, a switch for controlling the starting of the motor, a shaft connected with said switch, a latch-cam secured to said shaft, a spring normally retaining said switch in an off position, connections between said switch-shaft and the valve of the engine, a latch operating upon said latch-cam, a dog mounted upon the engine-shaft adapted to trip said latch and release said switch when the engine is operating at an overload, substantially as described.

11. In an electric plant, the combination with a gas-engine, of a dynamo connected therewith, a switch for controlling the starting of the dynamo, a shaft carrying said switch, a spring tending to retain said switch in an off position, a connection between said shaft and the engine-valve, a latch-cam mounted upon said shaft, a latch operating in connection with said cam and adapted to hold the switch in an extreme position, a trip-shoe upon said latch, a disk upon the engine-shaft, and a dog pivoted to said disk and adapted to engage the said trip-shoe when the engine is at low speed, substantially as described.

12. In an electric plant for charging storage batteries, the combination of a gas-engine, a dynamo adapted to be operated as a motor, a switch for controlling the starting of the motor, a connection between said switch and the valve of the engine, a latching device for holding said valve and said switch in operative positions, a centrifugal dog adapted to trip said latching device when the engine is operating at an overload, a switch for completing the sparking circuit, means for retaining said last-mentioned switch in a position to complete the circuit while the engine is starting, and a solenoid in connection therewith for retaining the circuit closed while the dynamo is charging the batteries, substantially as described.

13. In an electric plant for charging storage batteries of motor-vehicles, the combination of a dynamo, mechanism for operating said dynamo to charge said batteries, a mechanical governor for stopping said mechanism and for breaking the main circuit to said dynamo, an electrical device in the main circuit provided with means whereby it may slow down said dynamo-operating means and thereby operate said mechanical governor when the counter electromotive force of the batteries reduces the current to a predetermined minimum, substantially as described.

14. In an electric plant for charging storage batteries, the combination of an engine, a dynamo adapted to be operated by said engine, a mechanical governor for said engine adapted to stop the same and break the main circuit to said batteries when running at less than a predetermined speed, and an electrical governor arranged to slacken the speed of said engine and thereby operate said mechanical governor when the counter electromotive force of the batteries sufficiently reduces the current, substantially as described.

15. In an electric plant for charging storage batteries, the combination of a gas-engine, a dynamo adapted to be operated by said engine, a mechanical governor in connection with said engine for cutting off the fuel of said engine and breaking the main circuit to said batteries when running at less than a predetermined speed, and an electrical governor adapted to slow down the speed of said engine and thereby operate said mechanical governor when the counter electromotive force of the batteries sufficiently reduces the flow of current to said electrical device, substantially as described.

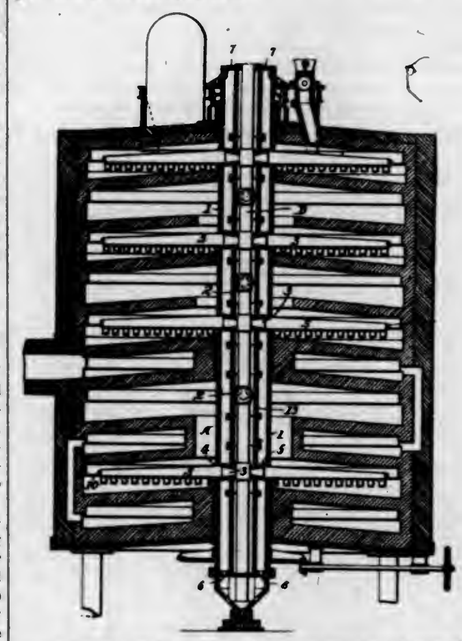
16. In an electric plant for charging storage batteries, the combination of a gas-engine, a dynamo adapted to be operated by said engine, a valve for controlling said engine, a mechanical governor connected with said valve and with the circuit to said batteries whereby when the speed of said engine drops below a predetermined point said governor will close the valve of said engine and break said circuit, a solenoid in the main circuit provided with means whereby it will drop its core and break the sparking circuit to the engine and also the main circuit when the voltage in the main line reaches a predetermined minimum caused by the counter electromotive force in the battery, substantially as described.

750,877. **ROASTING-FURNACE.** AUGUST R. MEYER, Kansas City, Mo. Filed Sept. 28, 1903. Serial No. 174,901. (No model.)

Claim.—1. A shaft having inner and outer concentric sections with coinciding sockets, combined with radial arms having stems fitting said coinciding sockets, and means for retaining the parts in connection, substantially as set forth.

2. The combination with a shaft having inner and outer concentric sections with coinciding sockets and grooves, of arms having stems adapted to said sockets and lugs adapted to said grooves, substantially as set forth.

3. The combination with a shaft having inner and outer concentric sections, with coinciding sockets, and inclined grooves, of arms having stems adapted to said sockets and lugs adapted to said grooves, substantially as set forth.



4. A shaft consisting of two concentric tubes with coinciding sockets, combined with arms having stems adapted to said sockets, and means for holding the stems in the sockets, substantially as set forth.

5. A shaft consisting of two concentric tubes with coinciding sockets combined with hollow arms having stems adapted to said sockets, and means for holding the stems in the sockets, substantially as set forth.

6. The combination with the hearths of a roasting-furnace, of a shaft having inner and outer concentric sections and coinciding sockets, radial rabble-arms having stems adapted to said sockets, and means for holding the stems in the sockets, substantially as set forth.

7. The combination with the hearths of a roasting-furnace, of a shaft having inner and outer concentric tubular sections and coinciding sockets, radial hollow rabble-arms having stems adapted to said sockets, and means for holding the stems in the sockets, with ports between the arms and inner section, substantially as set forth.

8. The combination of the outer tubular shaft-section 1, inner section consisting of a series of connected sleeves, said inner and outer sections having coinciding sockets, radial arms having stems adapted to the sockets of both sections, and means for holding the arms in position, substantially as described.

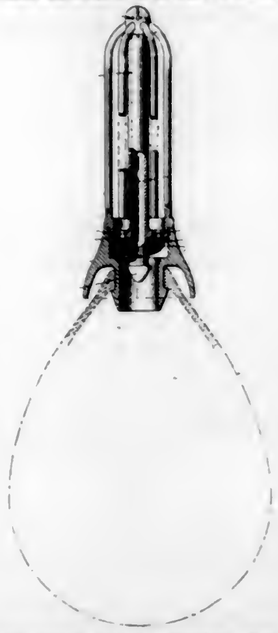
9. The combination with the shaft of a furnace, consisting of concentric socketed tubular sections, of radial arms having stems fitting the sockets of both sections, an inner air-pipe, and bolts extending longitudinally through the arms and connected to said air-pipe, substantially as set forth.

750,878. **VAGINAL SYRINGE.** ORVILLE P. MOON, Lorain, Ohio. Filed May 2, 1903. Serial No. 155,265. (No model.)

Claim.—1. In a vaginal syringe, the combination of a bulb, a neck-piece comprising a base portion and a nozzle portion, the latter portion including a distender, and forming a valve-chamber in conjunction with said base portion; said nozzle portion provided with openings affording communication between the chamber and the exterior; and said nozzle provided with an enlarged lower portion forming a valve-seat for a valve in said chamber arranged to control the flow of liquid from the bulb into the nozzle, and to control said openings.

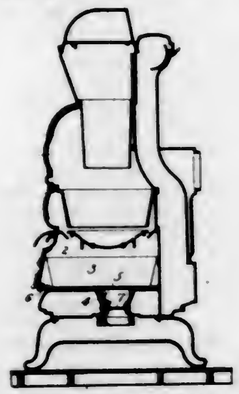
2. In a vaginal syringe, the combination of means for effecting a flow of liquid, a neck-piece including a distender and a discharging-nozzle, said neck-piece provided with apertures establishing com-

munication between the exterior and interior of said first-named means independently of said nozzle, said distender surrounding the nozzle and extending substantially the full length of the same, thereby providing between said distender and the nozzle a substantially free passage for the return to the bulb of the cleansing liquid, the interior of the nozzle having communication with the interior of said first-named means, and a valve for controlling the communication between the exterior and interior of the said first-named means.



3. In a vaginal syringe, the combination of a bulb, a neck-piece including a distender and a discharging-nozzle, said distender surrounding the nozzle and extending substantially the full length of the same, thereby providing between said distender and the nozzle a substantially free passage for the return to the bulb of the cleansing liquid, means establishing communication between said bulb and said nozzle, the latter being provided with an enlarged lower portion forming a valve-seat for a valve which controls an independent communication between the exterior and interior of the bulb.

750,879. ASH-CHUTE FOR STOVES. WILLIAM N. MOORE, Joliet, Ill., and GEORGE W. COPE, Detroit, Mich., assignors to Joliet Stove Works, Joliet, Ill., a Corporation of Illinois. Filed Oct. 26, 1903. Serial No. 178,434. (No model.)



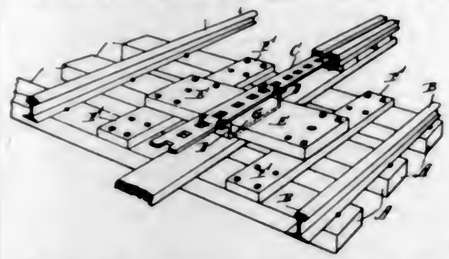
Claim.—1. A stove provided with an ash-chute extending downwardly from the bottom of its ash-pit, a movable plate normally covering the ash-chute, and a removable partition extending across and tightly sealing the chute prior to its being brought into service, substantially as described.

2. A stove provided with an ash-chute extending downwardly from the bottom of its ash-pit, a movable plate normally covering the ash-chute, and a partition of easily-cut material extending across the chute below the plate to tightly seal the chute, substantially as described.

3. A stove provided with an ash-chute extending downwardly from the bottom of the ash-pit, and a removable asbestos partition extending across the chute to tightly seal it, substantially as described.

4. A stove provided with an ash pit and pan, an ash-chute extending downwardly from the bottom of the ash-pit, means for sealing the chute when the ash-pan is in use, and a deflector-plate adapted to be secured across the front of the ash-pit when the ash-pan is removed and the ash-chute is brought into service, substantially as described.

750,880. MEANS FOR ANCHORING THE COMBINED THIRD AND TRACTION RAIL OF ELECTRIC RAILWAYS. JOHN H. MORGAN, Chicago, Ill. Filed July 6, 1903. Serial No. 164,470. (No model.)



Claim.—1. The combination with a combined third and traction rail, of an insulating anchoring device therefor to prevent movement thereof, as and for the purpose set forth.

2. The combination with a combined third and traction rail, an anchoring-bracket connected thereto, an anchor-bar engaging said bracket, and means for securing said bar to the road-bed, as and for the purpose set forth.

3. The combination with a combined third and traction rail, of a bracket connected to said rail, an insulating anchor-bar engaging the bracket, and means for bolting or otherwise securing said anchor-bar to the road-bed, as and for the purpose set forth.

4. The combination with a combined third and traction rail, an anchor-bracket secured thereto, an anchor-bar arranged to extend transversely of said rail and between said rail and bracket and engaging said bracket, and means for securing said anchor-bar to the road-bed, as and for the purpose set forth.

5. The combination with a combined third and traction rail, of an anchor-bracket secured to said rail, an anchor-bar having a seat or recess arranged to receive said bracket, and means for securing said anchor-bar to the road-bed, as and for the purpose set forth.

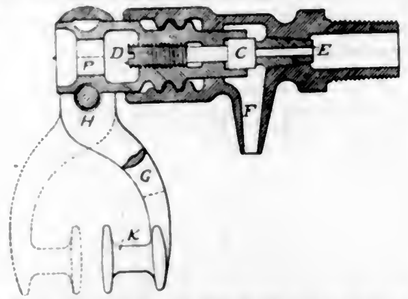
6. The combination with a combined third and traction rail, of an anchor-bracket secured thereto, an anchor-bar transversely arranged with respect to said rail and interposed between said rail and bracket, said anchor-bar having a seat or recess formed therein to receive said bracket, and means for securing said anchor-bar to the road-bed, as and for the purpose set forth.

7. The combination with a combined third and traction rail, of an anchor-bracket secured thereto, an anchor-bar engaging said bracket, anchor-timbers to which said anchor-bar is bolted or otherwise secured, and means for securing said anchor-timbers to the road-bed, as and for the purpose set forth.

8. The combination with a combined third and traction rail, of an anchor-bracket secured to the under side thereof, an anchor-bar interposed between said rail and bracket and engaging the latter, and means for securing said anchor-bar, as and for the purpose set forth.

9. The combination with a combined third and traction rail, of a U-shaped anchor-bracket secured to the under side of said rail, a transversely-extending anchor-bar recessed or grooved upon the under surface thereof, said bar extending between said bracket and said rail and receiving the bracket in said groove or recess, and means for securing said anchor-bar to the road-bed, as and for the purpose set forth.

750,881. GAGE-COCK. WILLIAM L. MORRIS, Batavia, Ill. Filed Apr. 2, 1903. Serial No. 150,681. (No model.)



Claim.—1. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, and means for effecting the movement of said plug.

2. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, means on the axis of said plug for effecting its movement, and means independent of the screw for guiding the plug toward and from said seat.

3. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, means for effecting the movement of said plug, means for securing such latter means to the plug, and means independent of the screw for guiding the plug toward and from said seat.

4. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces closely contacting said body, rotating means on the axis of said plug for effecting its movement, a separate seating-face attached to and coaxial with the axis of said plug, and means for adjusting said seating-face to its desired position.

5. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, and means for effecting the movement of said plug.

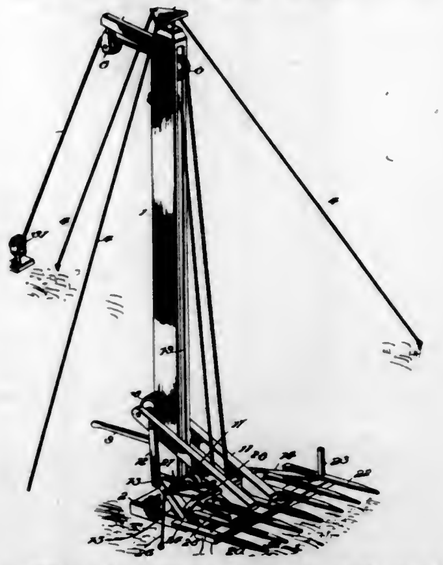
6. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, means for effecting the movement of said plug, means for securing such latter means to the plug, and means independent of the screw for guiding the plug toward and from said seat.

7. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having a plurality of guiding-faces of varying diameters closely contacting said body, rotating means on the axis of said plug for effecting its movement, a separate seating-face attached to and coaxial with the axis of said plug, and means for adjusting said seating-face to its desired position.

8. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having two guiding-faces closely contacting said body, one of said faces being slightly smaller than the smallest diameter of the screw and the other of said faces being slightly larger than the largest diameter of said screw, and means for effecting the movement of said plug.

9. In a gage-cock, the combination of a body provided with a valve-seat, a member having loose screw-threaded engagement with said body, provided with a valve-plug movable toward and from said seat, and having two guiding-faces closely contacting said body, one of said faces being slightly smaller than the smallest diameter of the screw and the other of said faces being slightly larger than the largest diameter of said screw, means on the axis of said plug for effecting its movement, and means independent of the screw for guiding the plug toward and from said seat.

750,882. HAY-STACKER. ROBERT S. MORSE, Formoso, Kans. Filed July 23, 1903. Serial No. 166,763. (No model.)



Claim.—1. In combination, a vertical post having grooves in opposite sides, a frame arranged to travel vertically upon the post, pulleys applied to said frame and arranged at different elevations and upon opposite sides of the said post to enter the grooves thereof, a carrier pivoted to said frame, and a latch mechanism normally holding the carrier in working position, substantially as set forth.

2. In combination, a turn-post, an arm projected laterally from the upper end of the turn-post, a handle similarly projected from the lower end of said post, a platform arranged to travel vertically upon the post, braces connected at one end to the platform, tie-rods connecting the braces with the platform, said braces and corresponding longitudinal bars of the platform embracing opposite sides of the post, pulleys journaled to the braces and said longitudinal bars of the platform and arranged upon opposite sides of the turn-post, hoisting-tackle for effecting vertical movement of the platform, a carrier pivoted to the platform, and comprising fingers and uprights, a latch-bar arranged in the space formed between the braces and longitudinal bars and adapted to extend over the rear ends of the aforesaid fingers, and operating means for the said latch-bar, substantially as specified.

750,883. COIN-OPERATED TOWEL-MACHINE. CHARLES O. MCCARLAND, East St. Louis, Ill. Filed July 23, 1903. Serial No. 166,699. (No model.)

Claim.—1. In a vending-machine, the combination with a casing, of a plurality of rotatable members, flexible means received upon the members, article-carriers mounted in the flexible means, the casing provided with an aperture through which access is obtained directly to the articles supported by the flexible means, means for closing and opening the access-aperture, means for operating the shaft step by step, the articles spaced apart the distance of one step, one of the articles lying opposite the access-aperture when the operating means is at rest.

2. In a vending apparatus, the combination with a casing, provided with an access-aperture, a movable shutter for the aperture, means for locking the shutter in closed position, a traveling carrier, means for actuating the carrier and means on the carrier for releasing the locking means.

3. In a vending-machine, the combination with a casing, of a

traveling carrier mounted therein, means for giving the carrier a step-by-step movement, the casing provided with a ventilating-aperture and an access-aperture, a shutter for the access-aperture and means for opening and closing the shutter.



4. In a vending apparatus, the combination with a casing provided with an access-aperture, of a traveling carrier located within the casing, means for operating the carrier, articles carried by the carrier and adapted to be withdrawn through the access-aperture, a portion of each article detained within the casing to prevent removal.

5. In a coin-controlled apparatus, the combination with a casing provided with a plurality of rotatable members, flexible means carried thereby, an operating-shaft and means for actuating the shaft, of a series of bars carried by and extending between the flexible means, rollers journaled on each bar, articles mounted on each roller, the casing provided with an access-aperture, means for opening or closing the aperture and means for locking the last-named means in open or closed position, the articles adapted to be taken directly from the rollers.

6. In a coin-controlled apparatus, the combination with a casing provided with a plurality of rotatable members, flexible means supported thereon, an operating-shaft and means for actuating the shaft, of a series of rollers extending between the flexible means and supporting the articles to be vended, a portion of each article secured to the roller upon which it is supported, the casing provided with an access-aperture, and means for opening and closing the aperture, the articles located adjacent to and adapted to be drawn out and returned through the access-aperture.

7. In a vending-machine, the combination with a traveling carrier for the articles to be vended and means for operating the carrier, of a casing provided with an access-aperture, means for permitting access through the aperture directly to the articles on the carrier and means for automatically closing the aperture and withdrawing the article into the casing.

8. In a vending-machine, the combination with a traveling carrier, and means for operating the same, of a series of bars mounted on the carrier, rollers journaled on the bars, articles wound on the rollers and means for retaining the articles in rolled position.

9. In a vending-machine, the combination with a traveling carrier and means for operating the same, of a series of bars mounted in the carrier, rollers journaled on the bars, articles wound on the rollers and curved pins mounted on the carrier and engaging the articles to retain them in rolled position.

10. In a vending-machine, the combination with a traveling carrier and means for operating the same, of a casing provided with an access-aperture, a door for opening and closing the aperture, means for automatically closing the door, the means comprising a hinged member, a pivoted hook normally retained out of engagement with the door and a flexible connection extending between the hook and hinged member, the hook adapted to engage and retain the door in raised position when weight is placed on the hinged member.

11. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of means for retaining the door in closed position and means mounted on the carrier for releasing the door-locking means.

12. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of means for locking the door in closed position, means on the carrier for releasing the locking means and means on the door for returning the lock to operative position.

13. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of means for locking the door in closed position, the means comprising a pivoted dog, the door provided with a projection engaged by the dog when the door is in closed position and means on the carrier adapted to engage and rock the dog away from the projection.

14. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of a pivoted dog adapted to engage the door to retain it in closed position, means on the carrier for engaging and retaining the dog out of engagement with the door and a spring carried by the door and engaging the dog to return it to operative position.

15. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of a pivoted dog comprising three arms, one of the arms adapted to lock the door in closed position, means on the traveling carrier adapted to engage a second arm to rock the dog out of engagement with the door, and a resilient member carried by the door for engaging the third arm to throw the first arm into locking position.

16. In a vending-machine, the combination with a casing provided with a traveling carrier, means operating the same, the casing provided with an access-aperture and a door for opening and closing the aperture, of a flexible connection secured to the door and extending without the casing to permit the manual raising of the door, and means for retaining the door in raised position.

17. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the carrier, of a hinged platform, a hooked lever connected with the platform, means for normally retaining the lever out of engagement with the door, the lever adapted to engage the door to retain it in raised position when weight is placed on the platform.

18. In a vending-machine, the combination with a casing provided with an access-aperture, of a door for opening and closing the aperture, lugs and ears on the door, means engaging the ears to retain the door in closed position, means for releasing the locking means, means for raising the door and means engaging the lugs to retain the door in raised position.

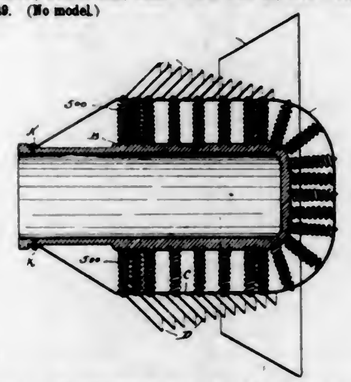
19. In a vending-machine, the combination with a casing provided with an access-aperture, a door for opening and closing the aperture, a traveling carrier and means for operating the same, of captive articles mounted on the carrier, the articles adapted to be drawn out of the access-aperture, supporting-guides for the door, means for retaining the door in raised position, the release of the last-named means permitting the automatic closing of the door and the withdrawal of the article within the casing.

750,884. ANKLE-JOINT. John A. McKinney, Duluth, Minn., assignor to William M. Kempohl and George A. Meyer, Duluth, Minn. Filed Jan. 26, 1903. Serial No. 140,683. (No model.)



Claim.—In an ankle-joint, the combination with the ankle and foot members of an artificial limb of a transverse horizontally-arranged tubular shaft having downwardly-directed ports formed in the wall thereof, and a centrally-arranged external annular rib, a bolt secured to said rib and to one of said members of said limb, outer tubular shafts, concentric with the first said shaft and loosely mounted thereon in alinement with each other and extending in opposite directions beyond the ends of the first said shaft and adapted to abut against said rib, and having downwardly-directed ports formed in their walls, bolts secured to said outer shafts and to the other of said members of said limb, and removable plugs adapted to close the outer ends of said outer shafts, whereby the inner shaft is adapted to operate as a reservoir to contain lubricating liquids and to distribute said lubricants through said ports to adjoining parts, substantially as described.

750,885. COOLING MEANS FOR EXPLOSIVE-ENGINES. Hilding Nelson, New Britain, Conn. Filed Nov. 24, 1902. Serial No. 132,549. (No model.)



Claim.—1. The combination with the cylinder of an explosive-engine, of annular sockets formed in the outer surface of said cylinder but not penetrating the walls thereof, coils extending outwardly from the surface of the cylinder, one end of said coils being located in said annular sockets and engaged by ledges projecting from the walls of the sockets.

2. In a device of the class specified, the combination with the cylinder of an explosive-engine of radiating-coils extending radially from the surface of the cylinder, means for positioning the base of the coils on the cylinder, and spacing devices for the outer ends of the coils, substantially as described and for the purposes set forth.

3. In a device of the class specified in combination the cylinder of an explosive-engine, the radially-disposed radiating-coils, the spacing device, and the funnels, all arranged to operate substantially as described and for the purposes set forth.

4. In a device of the class specified the combination with the cylinder of an explosive-engine, of a series of radiating-coils, annular grooves in the surface of the cylinder adapted to receive the bases of the coils and to retain said coils securely in place.

5. In a device of the class specified the combination with the cylinder of an explosive-engine, of two or more rows of radiating-coils arranged circumferentially about the cylinder and extending outward from the surface thereof, the coils in one row being staggered with relation to those in the next adjacent row.

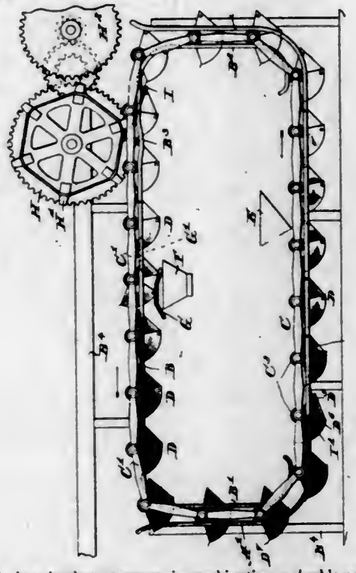
6. In a device of the class specified the combination with the cylinder of an explosive-engine, of two or more rows of annular grooves arranged circumferentially about the outer surface of the cylinder, spiral radiating-coils having their bases in said grooves, and funnel-shaped plates extending outwardly from the outer ends of said radiating-coils.

7. In a device of the class specified the combination with the cylinder of an explosive-engine and the radiating-coils arranged in a series of circumferential rows, of funnel-shaped plates resting on the ends of the coils in each row and extending outwardly therefrom.

8. In a device of the class specified the combination with the cylinder of an explosive-engine and the radiating-coils arranged in a series of circumferential rows, of funnel-shaped plates resting on the ends of the coils in each row and extending outwardly therefrom, the outside diameter of each funnel-shaped plate being smaller than that of the one immediately back of it, substantially as described and for the purposes set forth.

750,886. BUCKET CONVEYER. Charles H. Notter, Chicago, Ill. Filed Dec. 8, 1902. Serial No. 134,328. (No model.)

Claim.—1. In a bucket conveyer, in combination, an endless conveyer-chain movably supported; a driving means for said chain; a series of buckets pivotally supported on said chain, each bucket overlapping the next adjacent bucket on one side thereof; and stationary means engaged by said buckets for tilting the buckets to clear their overlapping edges at points where the conveyer-chain changes its direction of travel.



2. In a bucket conveyer, in combination, a double endless conveyer-chain movably supported; a driving means for said chain; a series of buckets pivotally supported on said chain, each bucket overlapping the next adjacent bucket on one side thereof; and a cam for tilting the buckets to clear their overlapping edges at points where the conveyer-chain changes its direction of travel.

3. In a bucket conveyer, in combination, a two-part track comprising an upper portion and a lower portion arranged in a vertical plane, the lower portion having an upwardly-extending track-arm at each end thereof, and the upper portion having two similar track-arms, each extending parallel with the corresponding arm of the lower portion; an endless conveyer-chain having supporting-wheels for rolling upon said track; a driving means for said chain; a series of conveyer-buckets pivotally supported on said chain, each bucket overlapping the next adjacent bucket on one side thereof; and a cam for tilting the buckets to clear their overlapping edges at a point where the conveyer-chain changes its direction of travel.

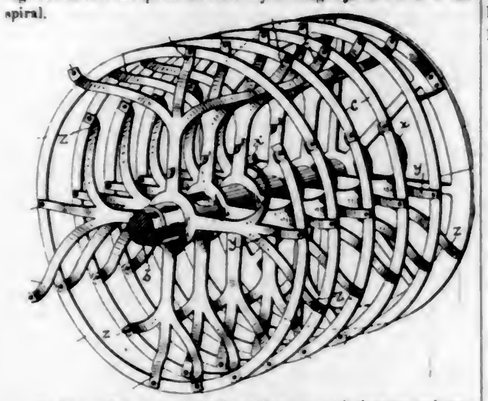
4. In a bucket conveyer, in combination, a two-part track comprising an upper portion and a lower portion arranged in a vertical plane, the lower portion having an upwardly-extending track-arm at each end thereof, and the upper portion having two similar track-arms each extending parallel with the corresponding arm of the lower portion; an endless conveyer-chain having supporting-wheels for rolling upon said track; a driving means for said chain; a series of two-part buckets pivotally supported on said chain, the parts of said bucket being pivotally connected; a projection extending from one of the parts of said buckets; and a delay-cam for engaging said stud and opening the buckets.

5. In a bucket conveyer, in combination, a supporting-track; an endless conveyer-chain having supporting-wheels for rolling upon said track; a driving means for said chain; a series of two-part buckets pivotally supported on said chain, the parts of said bucket being pivotally connected; a retaining-stud on one of the pivoted parts of said bucket; a fixed retaining-rail for said stud; a stud on the other piroted part of said bucket; and a delay-cam for engaging said last-mentioned stud to open the bucket.

750,887. ROLL FOR PAPER-MAKING OR LIKE MACHINERY. Howard Parker, Nashua, N. H., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H., a Corporation of Maine. Filed Jan. 3, 1903. Serial No. 137,641. (No model.)

Claim.—1. In a cylinder or roll a central shaft and a frame supported thereby, said frame being made up of a strip of metal bent spirally, and a series of spiders supported on the shaft, each spider supporting one turn of the spiral.

2. In a cylinder or roll a central shaft and a frame supported thereby, said frame being made up of a strip of metal bent spirally, and a series of spiders supported on the shaft, each spider supporting one turn of the spiral and laterally bracing adjacent turns of the spiral.



3. In a roll a central shaft, spiders secured thereto and supported thereby, and a strip of metal bent spirally to form the frame of the roll, each spider being secured to two or more adjacent turns of the spiral.

4. In a roll a central shaft, wrought-metal spiders secured to and supported by said shaft and having two or more arms, and a strip of metal bent spirally to form the frame of the roll, each arm of the spiders being secured to three turns of the spiral.

5. In a roll a central shaft, wrought-metal spiders secured to and supported by the shaft, arms on the spiders, fingers formed at the end of each arm, and a strip of metal of greater width than thickness bent edgewise spirally to form the frame of the roll, the fingers on each arm being secured to three different turns of the spiral, substantially as described and for the purposes set forth.

6. In a cylinder or roll a central shaft and a frame supported thereby, said frame being made up of a strip of metal bent spirally, and a series of spiders supported on the shaft, each spider supporting one turn of the spiral, and spacing-sleeves on said shaft between the spirals, substantially as described.

750,888. **POST-HOLE DIGGER.** HARRY G. PIER, Oskaloosa, Iowa. Filed Apr. 30, 1903. Serial No. 155,043. (No model.)



Claim.—In a digger of the class specified, the combination with a bowl having arms 3 and 4 and a socket 5 at their upper ends, of a tubular handle; means to secure said handle in said socket; a rod 8 passing through said handle; a bracket removably secured to the lower end of said rod; a ring-like member having a beveled lower end secured to said bracket; shoulder 15 rigidly secured to the rod 8 near its lower end, a spring 14 surrounding said rod 8 between the shoulder 15 and the socket 5, said spring being adapted to return said rod and ring-like member to their normally upward position, an auxiliary handle 16 secured to the rod 8 near its upper end, said auxiliary handle extending through a slot 17 in the tubular handle 6, said slot being provided at its upper end with a downwardly-inclined recess 18 whereby when said auxiliary handle 16 is moved into said recess, said rod 8 and ring-like member 12 are locked against downward movement, substantially as and for the purpose set forth.

750,889. **GAS OR VAPOR ELECTRIC LAMP.** HENRY N. POTTER, Pittsburg, Pa., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed May 28, 1901. Serial No. 62,181. (No model.)



Claim.—1. A gas or vapor electric lamp, the tube or chamber of which is of radio-active glass.

2. A gas or vapor electric lamp, the tube or chamber of which is of uranium glass.

3. In a gas or vapor electric lamp, a tube containing mercury as the cathode, the said tube being provided with a bulb just above the cathode, as and for the purpose set forth.

4. A mercury-vapor lamp, comprising a tube of transparent material such as glass, an anode of iron, and a cathode of mercury at or near opposite ends of the tube, the tube having a small bulb just above the cathode.

5. A gas or vapor electric lamp the tube or chamber of which is in part of radio-active glass.

6. A vapor-lamp containing mercury and means for breaking the force of impact of the said mercury against the ends of the said lamp when the same is inverted.

750,890. **GAS OR VAPOR LAMP AND APPARATUS CONNECTED THEREWITH.** MAX VON RECKLINGHAUSEN, New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company, a Corporation of New York. Filed Mar. 27, 1902. Serial No. 100,167. (No model.)

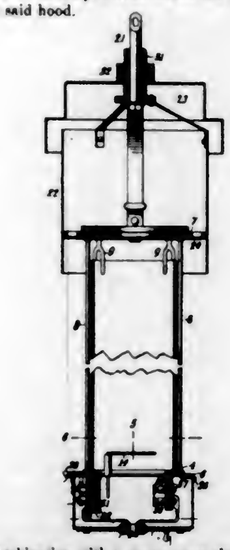
Claim.—1. The combination with a gas or vapor electric lamp, of an inclosing lantern-frame supporting a transparent tube or cylinder outside the lamp, and adjustable means for centering the lamp within the said tube or cylinder.

2. The combination with a gas or vapor electric lamp, of an inclosing lantern-frame having an opening near the top for receiving the lamp, the said frame supporting the transparent tube or cylinder outside the lamp, and means for adjusting the said tube concentrically with the said opening.

3. The combination with a gas or vapor electric lamp, of an inclosing lantern-frame having an opening near its top, a transparent tube or cylinder outside the lamp and supported by the said frame, means for adjusting the top of the said tube or cylinder concentrically with the said opening, and means for centering the opposite end of the lamp within the said tube or cylinder.

4. The combination with a gas or vapor electric lamp, of a lantern supporting and surrounding the same, and separate means for regulating the admission and exit of air to and from the said lantern.

5. The combination with a gas or vapor electric lamp, of a lantern supporting and surrounding the same, a protecting device for the upper end of the lamp, a hood above the lamp, and means for adjusting the said hood.



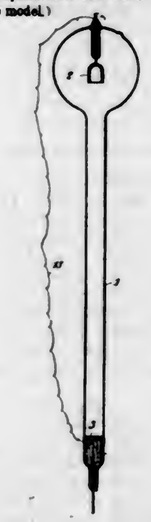
6. The combination with a gas or vapor electric lamp, of a lantern supporting and surrounding the same, a metallic box or casing at the end of the lamp containing the negative electrode, and means for regulating the admission of air into the said box or casing.

7. The combination with a gas or vapor electric lamp, of a lantern supporting and surrounding the same, and automatic means for regulating the admission of air to the lantern.

8. The combination with a gas or vapor electric lamp and a lantern supporting and surrounding the same, of adjustable devices for regulating the admission of air to the lantern, and independent adjustable devices for regulating the exit of air therefrom.

9. The combination with a gas or vapor electric lamp and a lantern supporting and surrounding the same of circuit-terminals for the lamp mounted within the lantern, an electric heater also mounted within the lantern, the circuit-terminals and the heater being inclosed within a suitable box, and means for withdrawing the box so as to gain access to the heater and the terminals.

750,891. **GAS OR VAPOR ELECTRIC APPARATUS.** MAX VON RECKLINGHAUSEN, New York, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Filed Dec. 8, 1902. Serial No. 134,366. (No model.)



Claim.—1. A gas or vapor electric apparatus having a positive electrode of any suitable material and a negative electrode of mercury, both inclosed within a suitable container, a part of the container next to the mercury being lined with a metal.

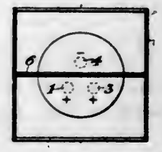
2. A gas or vapor electric apparatus consisting of a transparent container, a positive electrode of any suitable material, and a negative electrode of mercury, a part of the container adjacent to the mercury being coated inside and outside with metallic material, the outer band being electrically connected with the positive electrode.

3. A gas or vapor electric apparatus consisting of a transparent container, a positive electrode of any suitable material, and a negative electrode of mercury, the part of the container adjacent to the mercury being coated inside and outside with metallic material.

4. A gas or vapor electric apparatus consisting of a container, a gas or vapor, a positive electrode of any suitable material, and a negative electrode of some volatilizable substance, the container adjacent to the negative electrode being lined with metallic material.

5. A gas or vapor electric apparatus, consisting of a transparent container, a positive electrode of any suitable material, and a negative electrode, both the positive and negative electrodes being within the container, the part of the container adjacent to the negative electrode being coated with a metallic paint.

750,892. **GAS OR VAPOR ELECTRIC APPARATUS.** MAX VON RECKLINGHAUSEN, New York, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Filed Oct. 17, 1903. Serial No. 177,399. (No model.)



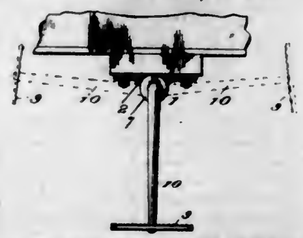
Claim.—1. The combination with a vapor apparatus having volatilizable positive and negative electrodes, of means for exposing the space above the several electrodes to different degrees of cooling corresponding to the rapidity of evaporation of the said electrodes.

2. The combination with a vapor apparatus having volatilizable positive and negative electrodes, of means for exposing the space above the respective positive and negative electrodes to different degrees of cooling.

3. The combination with a vapor apparatus having positive and negative electrodes of volatilizable material, of means whereby a current of cooling fluid may first be applied to the space above the positive electrode or electrodes and afterward to the space above the negative electrode or electrodes.

4. The combination with a vapor apparatus having positive and negative electrodes of volatilizable material, of an inclosing box, one or more partitions occupying the spaces between the box and the converter-walls, the said partition or partitions being provided with openings, as described, and being so placed as to separate the sections above the electrodes into a series of chambers or groups of chambers, and means for circulating the cooling fluid through the said chambers or groups of chambers in the order of the rapidity of evaporation of the electrodes contained therein.

750,893. **VEHICLE-STEP.** CHARLES E. RIGGS, McCrory, Ark. Filed June 13, 1903. Serial No. 161,392. (No model.)



Claim.—1. In a vehicle-step, a bracket, a step having a journal mounted to turn and slide in said bracket, a spring cooperating with said bracket and journal and adapted to normally hold the step in

a given position and to exert a longitudinal pressure upon the journal, and interlocking means between said journal and bracket normally held in engagement by the said spring, substantially as set forth.

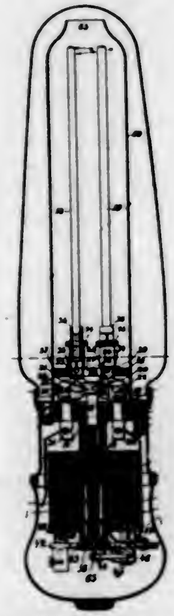
2. In a vehicle-step, the combination of a bracket, a step having a journal mounted to turn and slide in said bracket, interlocking means between the journal and bracket, a spring mounted upon the journal and connected at one end to the bracket, and means for adjustably connecting the opposite end of the spring to the journal, substantially as set forth.

3. In a vehicle-step, the combination of a bracket, a step having a journal mounted to turn and slide in said bracket, interlocking means between the journal and bracket, a spring mounted upon the journal and connected at one end to the bracket, a collar adjustably mounted upon the journal, and means for adjustably connecting the opposite end of said spring with said collar, substantially as described.

4. In combination, a bracket provided with pendent lugs, a step having a journal mounted in said lugs to turn and slide therein, interlocking means between the journal and a lug of the bracket, a spring mounted upon the journal and located between the lugs and connected at one end to one of said lugs, and means for adjustably connecting the opposite end of the spring to the journal, substantially as specified.

5. In combination, a bracket provided with pendent lugs, the outermost lug having a series of notches, a step having a journal mounted in said lugs to turn and slide therein and having a shoulder at its base to bear against the outermost lug of the bracket and having a projection extended from said shoulder to enter any one of the said notches, a coil-spring mounted upon the journal and secured at one end to a lug, and a collar adjustable upon the journal and provided with a series of openings for engagement therewith of the opposite end of the spring, substantially as described.

750,894. ELECTRIC-ARC LAMP. JOSEPH A. RICHON, Berlin, Germany. Filed Apr. 11, 1902. Serial No. 102,356. (No model.)



Claim.—1. In an electric-arc lamp, a socket portion and a globe portion and an insulating-plate forming a partition therebetween, electrode-supports pivotally mounted on said insulating-plate and extending into the globe portion, a solenoid projecting from said plate into the socket portion, and a movable core within the solenoid having a pivotal connection with both of said electrode-supports, as and for the purpose set forth.

2. In an electric-arc lamp, a socket portion and a globe portion and an insulating-plate forming a partition therebetween, a tube projecting from said partition into said socket and constituting the cylinder member of a dash-pot, a solenoid-coil supported upon said tube, a core movably mounted within said solenoid-coil and carrying a piston to cooperate with said tube or cylinder, and electrode-supports pivotally connected to said core and extending into the globe, as and for the purpose set forth.

3. The combination in an electric-arc lamp, of carbons and their holders, the latter being pivotally mounted, a solenoid having a core, said core having connection with the inner ends of said pivotally-mounted holders, and a dash-pot-regulating device for damping or cushioning the movements of said core, substantially as described.

4. In an electric-arc lamp, a socket portion and a globe portion, a partition-plate separating the socket portion from the globe portion, electrode-supports pivotally mounted upon said partition-plate and extending into the globe portion, a core pivotally connected to each of said electrode-supports and slidably projecting through said partition-plate into the socket portion, a magnet-coil for moving said core in one direction, and a counterbalancing-spring for opposing such movement, as and for the purpose set forth.

5. The combination in an electric-arc lamp, of carbons, pivoted holders therefor, said holders having inwardly-projecting extensions, a solenoid, a movable core therefor having an insulated head with pins connected to said extensions, a cylinder surrounding said core and a piston connected to said core and operating in said cylinder, and a circuit-closing switch operated by said core, substantially as described.

6. In an electric-arc lamp of the kind described an automatic switch device comprising a plate on the solenoid carrying a terminal on which is mounted an adjusting contact-lever, a spring adapted to retain said lever in its normal position in contact with a second lever also mounted upon said plate and carrying a projection pressing against the lower surface of the core of the solenoid and suitable contacts whereby on the movement of the core the latter lever will be operated to release the adjustable contact-lever to cut the lamp out of circuit and to complete a resistance-circuit, substantially as described.

7. In an electric-arc lamp, a socket portion and a globe portion, an air-tight partition separating the socket portion from the globe portion and containing a check-valve opening into the socket portion, electrode-supports within the globe portion, a core connected to said electrode-supports and slidably projecting through said partition-plate, a magnetic coil for operating said core, and a spring for normally pressing the core in opposition to said coil, as and for the purpose set forth.

8. In an electric-arc lamp, a pair of pivotally-mounted electrode-supports, a slidably-mounted core connected to each of said electrode-supports, a solenoid-coil surrounding said core and containing a dash-pot, and a circuit-closing device operated by said core, as and for the purpose set forth.

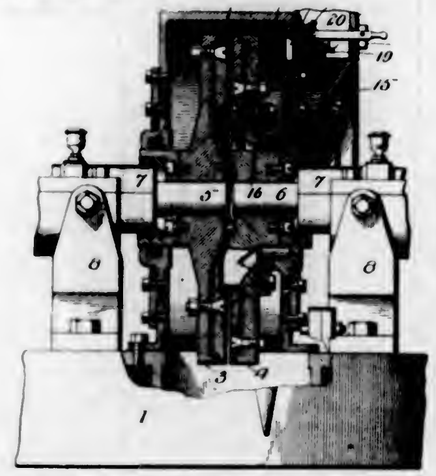
9. In an electric-arc lamp, a supporting-plate having a pair of electrode-supports pivotally mounted thereon, a tube projecting from said supporting-plate, a coil upon said tube, and a dash-pot within said tube, a core connected to said electrode-supports and extending through said tube, and a circuit-closing device operated by said core, as and for the purpose set forth.

10. In an electric-arc lamp, an insulating-plate, a pair of electrode-supports pivotally mounted thereon, a tube projecting from said plate and surrounding the electrodes, an outer globe hermetically joined to said plate, and an outwardly-opening check-valve in said plate, as and for the purpose set forth.

750,895. GRINDING-MILL. AARON J. ROBINSON, Fremont, N. H. Filed Mar. 13, 1903. Serial No. 147,638. (No model.)

Claim.—1. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, and an adjustable deflector located within the feed-spout between the hopper and opening of grinding-disk, and adapted to divert a portion of the material passing through the spout and deliver the same unground to a point beyond the action of the grinding-disks where it may be conducted to the usual screen or bolt, substantially as described.

2. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks and provided with a side port, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, and an adjustable deflector located within the feed-spout and controlling the side port of the casing for deflecting a portion of the unground material from said hopper into the casing and delivering the same from the machine without subjecting it to the action of the grinding-disks.



3. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks and provided with a side port, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, a hinged deflector located within the feed-spout and controlling said port for deflecting a portion of the unground material from the spout into the casing at one side of the grinding-disks, and means for adjusting the angle of said deflector and thereby regulating the quantity of material diverted from the feed-spout.

4. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks and provided with a side port, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, and an adjustable deflector located within the feed-spout and controlling said port for deflecting a portion of the unground material into the casing at one side of the grinding-disks, and a guard or hood within the casing covering said port and adapted to keep the diverted portion of the material away from the grinding-disks.

5. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks and provided with a side port, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, and an adjustable deflector located within the feed-spout and controlling said port for deflecting a portion of the material into the casing at one side of the grinding-disks, an operating-bar or handle extending from the deflector outward through the feed-spout, and means for fastening said operating-bar or handle.

6. A grinding-mill comprising a divided main shaft, grinding-disks thereon rotating in opposition to each other, a casing inclosing said disks, a feed-spout arranged at one side of the casing and adapted to discharge into the grinding-space between the disks, and deflecting means within the feed-spout for diverting a portion of the material from the feed-spout away from the action of the grinding-disks, and a feed-throat provided with one or more return-ports located in such manner as to admit the unfinished product to the feed-throat between the deflecting means and the grinding-space, substantially as described.

750,896. CAR-REPLACER. EMIL W. ROSENBERG, Chicago, Ill. Filed July 11, 1903. Serial No. 165,149. (No model.)

Claim.—1. A replacer-frog having both its top and bottom faces inclined longitudinally and transversely.

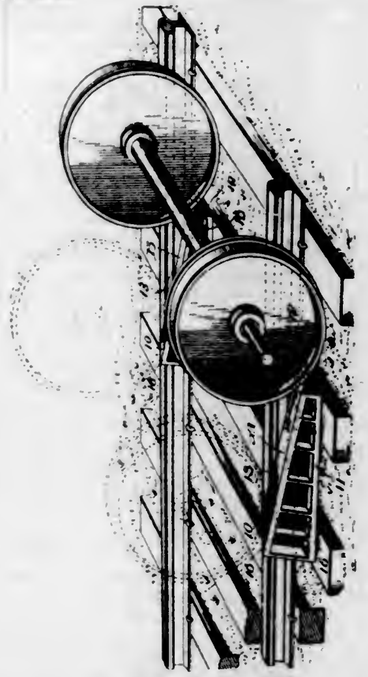
2. A replacer-frog having both its top and bottom faces inclined longitudinally in converging lines.

3. A replacer-frog having both its top and bottom faces inclined transversely in converging lines.

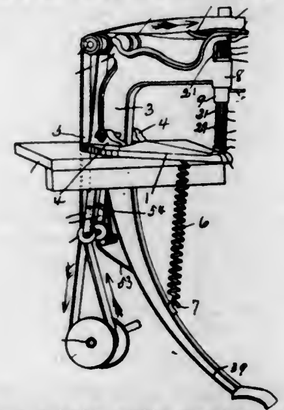
4. A replacer-frog having substantially flat and correspondingly-inclined top and bottom faces.

5. A wedge-shaped replacer-frog constructed to rest flatly on its top or bottom face and cut out on both faces at its thin end.

750,896.



750,897. BORING-MACHINE. FRANK K. RUSSELL, Dallas, Tex. Filed Oct. 9, 1902. Serial No. 126,555. (No model.)



Claim.—1. A boring-machine comprising a suitable base, a swinging frame pivotally mounted in said base, a carrier carried by said frame, suitable bits and a presser-foot carried by said carrier, and means for operating said machine.

2. A boring-machine comprising a swinging frame provided with means for boring two holes at once and means for automatically withdrawing the bits from the holes and stopping the machine.

3. A boring-machine comprising a swinging frame provided with a shaft-bearing and a carrier-bearing, a spindle-carrier mounted in said carrier-bearing, a shaft mounted in said shaft-bearing, a presser-foot and spindles having suitable bits mounted in said carrier, and means for operating said bits.

4. A boring-machine comprising a swinging frame provided with suitable bits and means for operating the same, and means for mounting said frame consisting of a suitable base having an opening through the central part thereof, hubs formed on said frame, adjustable bolts mounted on said base and having points to engage said hubs.

5. A boring-machine comprising a frame provided with pivotal

bearings, a foot-piece for rocking said frame, suitable bits, gear-wheels for driving said bits, a shaft having a suitable gear-wheel for driving said first-named gear-wheels, a pulley mounted on said shaft, a belt for driving said pulley, and a spring-pressed idler carried by said frame whereby said belt is tightened when said frame is rocked into operative position.

6. A boring-machine comprising a swinging frame provided with suitable bits and suitable gearing for driving said bits, a belt for transmitting power to said bit-driving gear, and means for tightening and loosening said belt consisting of a spring-pressed idler engaged by said belt and a spiral spring carried by said swinging frame.

7. A boring-machine comprising a swinging frame provided with a carrier capable of rotary adjustment, a presser-foot and suitable bits mounted in said carrier, and suitable gearing for driving said bits.

8. A boring-machine comprising a swinging frame having suitable bits and gearing for operating the same, a base in which said frame is pivotally and adjustably mounted, a belt for transmitting power to said gearing, a spring-pressed idler connected to said frame for tightening and releasing said belt, and a foot-piece formed on the lower part of said frame.

9. A boring-machine having a frame provided with a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles mounted in said carrier and having cog-wheels mounted on the upper part thereof and being provided with suitable bits, the cog-wheel on one spindle being above the cog-wheel on the other spindle, and a cog-wheel mounted on said shaft and adapted to drive both cog-wheels on said spindles.

10. A boring-machine comprising a swinging frame having suitable bits and gearing for driving said bits, a base in which said frame is pivotally and adjustably mounted, a belt for transmitting power to said gearing, a spring-pressed idler connected to said frame for tightening said belt, and a spring connected to said base and to said frame for bringing said frame to its normal position as soon as an operation is completed.

11. A boring-machine comprising a swinging frame having a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles provided with suitable bits mounted in said carrier and having cog-wheels mounted on the upper parts thereof, a cog-wheel mounted on said shaft for driving the spindle-gearing, and a presser-foot stem mounted in said carrier and provided with a presser-foot adjustably mounted on said stem.

12. A boring-machine comprising a swinging frame having a spindle-carrier mounted therein, spindles carrying suitable bits mounted in said carrier, a presser-foot stem mounted in said carrier and provided with a presser-foot adjustably mounted thereon, a shaft-bearing, a driving-shaft provided with suitable oil-ducts for oiling said bearing, and suitable gearing by which said shaft drives said spindles.

13. A boring-machine comprising a frame having a shaft-bearing and a bearing for a spindle-carrier, a spindle-carrier mounted in the latter bearing, a driving-shaft mounted in said shaft-bearing and in said spindle-carrier, spindles provided with suitable bits and mounted in said carrier and having cog-wheels mounted on the upper parts thereof, the cog-wheel on one spindle being above the cog-wheel on the other spindle, a cog-wheel mounted on said shaft and adapted to drive both cog-wheels on said spindles, and an absorbent material secured to the bottom of said carrier about said spindles.

750,898. SHADE OR CURTAIN HOLDER. GEORGE M. RUST and EDWARD J. FAULKNER, Dayton, Ohio. Filed Oct. 5, 1903. Serial No. 175,769. (No model.)

Claim.—1. In a shade or curtain holder, the combination, with a stick, of a gripping-lever pivotally mounted in each end of the stick, said gripping-levers normally engaging the casing at points above their pivots, operating-levers pivotally mounted in the central portion of the stick, operating-rods pivotally connected at their outer ends to the gripping-levers below the pivots thereof, and at their inner ends to the operating-levers above the pivotal axis thereof, and springs acting to retract said operating-rods, substantially as described.

2. In a shade or curtain holder, the combination, with a stick, of a housing mounted on each end thereof and adjustable longitudinally relatively thereto, a gripping-lever pivotally mounted in each housing, said gripping-levers normally engaging the casing at points above their pivots, operating-levers pivotally mounted in the central portion of the stick, operating-rods pivotally connected at their outer ends to the gripping-levers below the pivots thereof, and at their inner ends to the operating-levers above the pivots thereof, means for adjusting the length of said rods to conform to the adjustment of the end housings, and springs acting to retract said rods, substantially as described.



3. In a shade or curtain holder, the combination, with a stick having a central recess, longitudinal passages extending therefrom from the ends of the stick, and vertical shoulders at the inner ends of said passages, of gripping-levers pivotally mounted in the outer ends of the stick, operating-levers pivotally mounted in the central recess of the stick, operating-rods pivotally connected to said operating and gripping levers and extending through the longitudinal passages, said rods being provided with abutments near their inner ends, collars or washers loosely mounted on said rods and bearing against the vertical shoulders of the body, and springs coiled around said rods and bearing against said abutments and collars, substantially as described.

4. In a shade or curtain holder, the combination, with a stick, of a housing mounted on each end thereof, a gripping-lever pivotally mounted in each housing, said gripping-levers normally engaging the casing at points above their pivots, stop-pins located in housing above and below each gripping-lever, operating-levers pivotally mounted in the central portion of the stick, and spring-actuated operating-rods connected with said gripping and operating levers, substantially as described.

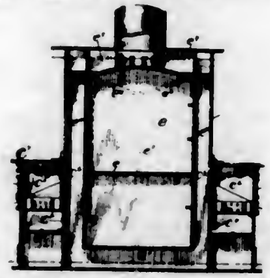
5. In a shade or curtain holder, the combination, with a stick, of a gripping-lever pivotally mounted in the end thereof, an operating-lever pivotally mounted in the central portion of the stick, a sleeve pivoted to the operating-lever and having a threaded aperture, and an operating-rod pivoted at its outer end to the gripping-lever and having its inner end threaded to fit the sleeve, substantially as described.

6. In a shade or curtain holder, a stick comprising a body portion of wood having a central recess and longitudinal passages, a divided metallic housing at the central portion of the stick, similar divided metallic housings at the ends of the stick, means for securing the members of said housings to each other and to the stick, gripping-levers mounted in the end housings, operating-levers mounted in the central housing, and connecting-rods extending from the operating-levers to the gripping-levers through the longitudinal passages of the stick, substantially as described.

7. In a shade or curtain holder, a stick comprising a wooden body and housings therefor, each composed of two similar members consisting of a plate having flanges at top and bottom to fit the upper and lower edges of the stick, sleeve-studs extending into the body of the stick in alinement with each other from opposite sides, and screws connecting the two members of each housing through said sleeve-studs, substantially as described.

8. In a shade or curtain holder, the combination, with a stick having longitudinal slots at its ends, of a housing at each end carrying a gripping-lever and divided vertically into two similar members inclosing the ends of the stick and provided with sleeve-studs extending toward each other through the slots of the stick, and screws connecting the members of the housing through said sleeve-studs and slots, substantially as described.

750,899. KILN. CHARLES SCHWEIKER, Maplewood, Mass. Filed July 9, 1901. Serial No. 67,687. (No model.)



Claim.—1. A kiln for burning fire-clay goods, comprising inner and outer walls with a space between, combustion-chambers at opposite sides, each combustion-chamber opening into a vertical flue which opens at its lower end into a horizontal flue across the bottom of the oven, which horizontal flue opens into the lower end of a vertical flue against the furnace on the opposite side, whereby additional heat is given to the products of combustion as they ascend along the sides of the oven, the vertical flues discharging at or above the top of the oven, all substantially as described.

2. A kiln for burning fire-clay goods, comprising inner and outer walls with a space between, combustion-chambers at opposite sides, each combustion-chamber opening into a vertical flue which opens at its lower end into a horizontal flue across the bottom of the oven, which horizontal flue opens into the lower end of a vertical flue against the furnace on the opposite side, whereby additional heat is given to the products of combustion as they ascend along the sides of the oven, the vertical flues discharging at or above the top of the oven, and a vertical flue at the rear with which the rear horizontal flue communicates, all substantially as described.

3. In a kiln, the combination with an oven, of combustion-chambers, vertical flues on the sides of the oven connected with the combustion-chambers and leading therefrom, horizontal flues beneath the oven to which these vertical flues lead, vertical flues opposite the vertical flues with which the combustion-chambers connect, to which the horizontal flues lead, and a vertical flue at the rear of the oven containing a deflecting-partition, the vertical flues discharging at or above the top of the oven, substantially as and for the purpose described.

4. The combination of the furnaces, the oven, the vertical flues on the sides of the oven, and the horizontal flues on its bottom, of deflectors at the upper or discharge ends of the vertical flues, directing the heat over the top of the oven, and an exit common to all the vertical flues, substantially as set forth.

5. The combination of the furnaces, the oven, vertical flues on the sides and at the rear of the oven, and the horizontal flues on its bottom, of deflectors at the upper or discharge ends of the vertical flues, directing the heat over the top of the oven, and an exit common to all the vertical flues, substantially as set forth.

6. In a kiln, the combination with the oven, of furnaces arranged at opposite sides of the casing, the furnaces being provided with movable covers and connecting with vertical flues at the sides of the oven, and horizontal flues at the bottom thereof, the vertical flues discharging over the top of the oven, whereby, after the kiln has been highly heated, it may readily be cooled down, substantially as described.

7. The combination of the furnace, the oven, vertical flues on the sides and at the rear of the oven, and horizontal flues on its bottom, deflectors at the upper or discharge ends of the vertical flues and arranged to direct the heat over the top of the oven, an exit common to all the vertical flues, and ventilators arranged above the oven at the front and rear, whereby the top of the oven may be quickly cooled, substantially as described.

750,900. LEG FOR FURNITURE. DANIEL SCHUSTEK and HERBERT L. ANDREWS, Chicago, Ill.; said Schustek assignor to said Andrews. Filed May 17, 1902. Serial No. 107,745. (No model.)

Claim.—1. In combination with a metal furniture-leg terminating in a loop, a pair of block members forming a filling-block for said loop, said block members being constructed to cover and underlie, respectively, the top and under side of said loop, and severally provided with peripheral loop-engaging recesses, and a bolt securing said members together, substantially as described.



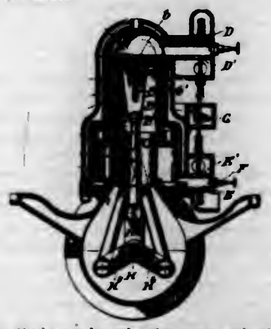
2. In combination with a metal furniture-leg terminating in a loop, a pair of block members forming a filling-block for said loop, one of said block members being constructed to cover the upper side of the loop and extend upwardly along that portion of the leg contiguous to the loop, and the opposite member being constructed to embrace the heel portion of the under side of the loop and extend upwardly a distance along the continuous lug portion and made forked at its end opposite said lug-embracing portion, whereby the principal portion of the under side of the loop is left unobstructed to receive the leg-support, for the purpose set forth.

3. In combination with a metal furniture-leg terminating in a loop, a pair of block members forming a filling for said loop, one of said block members covering the upper side of said loop and projecting therethrough, the other of said block members engaging the under side of said loop, and means whereby said block members are held in rigid engagement with the opposite sides of said loop.

4. In combination with a metal furniture-leg terminating in a loop, a filling member overlying and covering said loop and having peripheral engagement therewith, and an opposed clamping member engaging the under side of the loop and connected with said overlying member.

5. In combination with a metal furniture-leg terminating in a loop, a filling member extending within and having peripheral engagement with said loop, an underlying, marginally-grooved, clamping member secured to the heel of said loop and associated with said filling member whereby the latter is held in operative position.

750,901. INTERNAL-COMBUSTION OR EXPLOSIVE ENGINE. FREDERICK A. SEITZ, Newark, N. J. Filed Feb. 19, 1903. Serial No. 144,076. (No model.)



Claim.—1. An internal-combustion motor comprising a cylinder having bores of different diameters, connected piston-heads disposed in said bores, and a fixed bearing-cylinder upon which the larger piston-head works.

2. An internal-combustion motor comprising a cylinder having bores of different diameters, connected piston-heads disposed in said bores, a fixed bearing-cylinder upon which the larger piston-head works, an inwardly-projecting bracket carried by the smaller piston-head, and a connecting-rod pivotally attached to the bracket, extending through the bearing-cylinder and in operative relation with a crank-shaft.

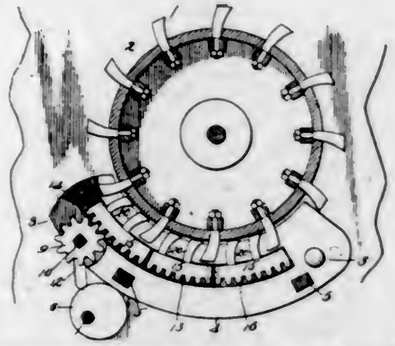
3. An internal-combustion motor comprising a crank-casing and a cylinder having bores of different diameters, the larger bore being contiguous to the crank-casing, connected piston-heads disposed in said portions, a fixed bearing-cylinder secured to the crank-casing and upon which bearing-cylinder the larger piston-head works, and a crank-rod pivotally attached to the smaller piston-head, extend-

ing through the bearing-cylinder and in operative relation with a crank-shaft in the casing.

4. An internal-combustion motor comprising a cylinder having bores of different diameters, piston-heads disposed in said bores, a trunk connecting said piston-heads and provided with ports a^3, for cushioning the larger head, and a fixed bearing-cylinder upon which the larger head works.

5. In an internal-combustion motor, the combination with a plurality of cylinders, each having bores of different diameters, a crank-casing common to and connected with the larger bores of the cylinders, a crank-shaft mounted in the casing, connected piston-heads disposed in both bores of each cylinder, bearing-cylinders upon which the larger piston-heads work, and connecting-rods pivotally connected with the smaller piston-heads, extending through the bearing-cylinders and connected with the crank-shaft.

750,902. **THRESHING-MACHINE CONCAVE.** ALBERT A. SHELTON and ROBERT A. KIRK, Salina, Kans. Filed May 12, 1903. Serial No. 156,792. (No model.)



Claim.—1. A concave, comprising a framework having in its inner sides opposite arc-shaped slots which are open at their front ends, a concave proper, consisting of sections having their ends fitting slidingly in said slots, and hinged together so as to be capable of swinging vertically as they successively emerge from the slotted framework, and a wheel geared to the lower or convex side of the concave and adapted by rotation to successively engage the sections and move the concave rearwardly or forwardly.

2. A concave comprising a framework hinged to swing vertically, a concave proper slidingly mounted in said framework, and provided with a continuous series of teeth, and a shaft journaled in said framework and provided with a cog-wheel engaging said teeth.

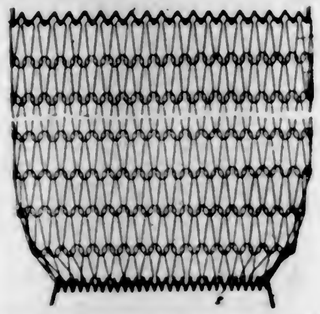
3. A concave comprising a framework hinged to swing vertically, a concave proper slidingly mounted in said framework, and provided with a continuous series of teeth, a shaft journaled in said framework and provided with a cog-wheel engaging said teeth, and eccentrics for raising said framework.

4. The combination of a threshing-machine having hinge-bolts, and a slot concentric of said bolts, a cylinder, and a concave, comprising a framework hinged to operate vertically on said bolts, below the cylinder, a shaft carried by the framework and projecting at one end through said slot, and provided with a cog-wheel, and a concave proper mounted in the framework and provided with a continuous series of rack-teeth engaging said cog-wheel.

5. The combination of a threshing-machine having hinge-bolts, and a slot concentric of said bolts, a cylinder, and a concave, comprising a framework hinged to operate vertically on said bolts below the cylinder, a shaft carried by the framework and projecting at one end through said slot and provided with a cog-wheel, a concave proper, mounted in the framework and provided with a continuous series of rack-teeth engaging said cog-wheel, and eccentrics underlying said framework to raise the concave to operative relation with the cylinder.

750,903. **WIRE ARTICLE.** PETER J. SHRUM and KEARNEY J. HENDRICKS, Pittsburg, Pa.; said Shrum assignor to said Hendricks. Filed Oct. 9, 1903. Serial No. 176,574. (No model.)

Claim.—1. A hollow woven-wire article, having at least a section of its length formed of a continuous length of wire with rows of stiff open stitches extending spirally around it, each intermediate row having its successive stitches slidingly engaging those of the adjacent rows above and below it, forming a universally yielding hollow body; substantially as described.

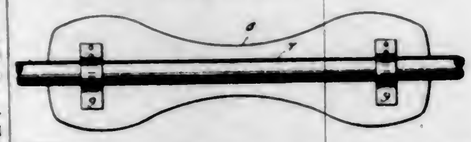


2. A hollow woven-wire article formed of a continuous length of wire, with rows of stiff open stitches extending spirally around it, each intermediate row having its successive stitches slidingly engaging those of the adjacent rows above and below it, the cross-section of the article being varied by varying the arrangement of the stitches in successive rows, forming a universally yielding hollow wire body; substantially as described.

3. A hollow wire woven article formed of a continuous length of wire, with rows of stiff open stitches extending spirally around it, each intermediate row having its successive stitches slidingly engaging those of the adjacent rows above and below it, forming a universally yielding hollow body, said body being given a varying dimension by a change in the dimensions of the stitches; substantially as described.

4. A hollow woven-wire article formed of a continuous length of wire with rows of stiff open stitches extending spirally around it, each intermediate row having its successive stitches slidingly engaging those of the adjacent rows above and below it, said article being contracted in its lower portion and having a wire closure at the bottom end, forming a universally yielding hollow wire body; substantially as described.

750,904. **FAN.** WILLIAM J. SMITH, Chicago, Ill. Filed Aug. 4, 1903. Serial No. 168,179. (No model.)



Claim.—A portable fan adapted for attachment to various shafts, comprising a blade having a groove to receive one side of a shaft, and spring-clips secured to the blade on one side the groove and having free ends extending across the same, and arranged to bear against the other side of the shaft, to detachably hold the blade on the shaft.

750,905. **ARTIFICIAL SLATE.** JAMES T. SOUTH, Brighton, England. Filed Apr. 20, 1903. Serial No. 153,570. (No specimens.)

Claim.—1. A composition for the manufacture of artificial slate consisting of a mixture of Portland cement, with red oxid of iron, blue-black and permanganate of potash, substantially as described.

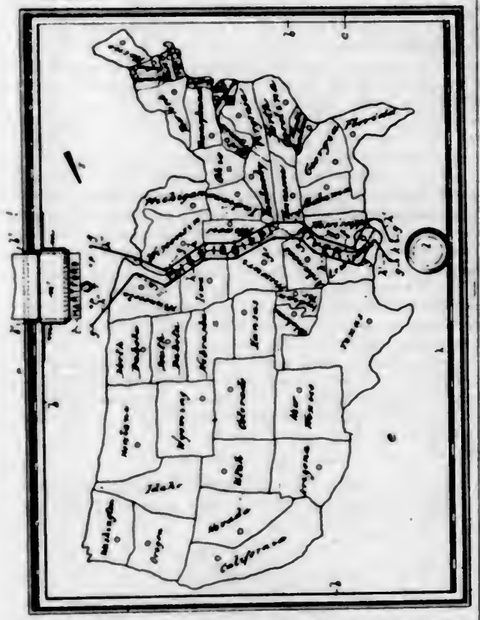
2. A composition for the manufacture of artificial slate consisting of a mixture of Portland cement, with red oxid of iron and blue-black, substantially as described.

3. A composition for the manufacture of artificial slate consisting of a mixture of Portland cement with blue-black and permanganate of potash, substantially as described.

4. A composition for the manufacture of artificial slate, consisting of a mixture of Portland cement, with red oxid of iron and permanganate of potash, substantially as described.

5. A composition for the manufacture of artificial slate, consisting of a mixture of Portland cement, red oxid of iron, blue-black, permanganate of potash and coloring-matter, substantially as described.

750,906. **EDUCATIONAL GAME APPARATUS.** ELBERT L. STEELE, Worcester, Mass. Filed Nov. 4, 1903. Serial No. 179,790. (No model.)



Claim.—1. In a game apparatus, an inclined surface provided with a map of a country having several States, the location of the capitals of said States being indicated by holes or recesses; a runway consisting of substantially parallel wires or cords supported by pins or posts and extending in an indirect or devious course over said map; and a pin or peg adapted to be inserted in a hole indicating the location of a capital, for the purpose set forth.

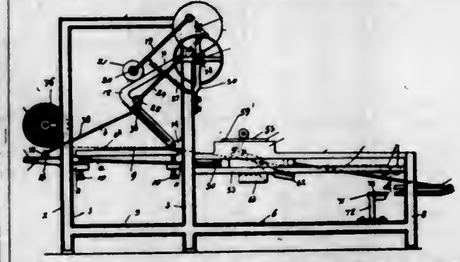
2. In a game apparatus, an inclined surface provided with a map of a country having several States, the location of the capital of each State being indicated by a hole or recess; a runway extending over said map; means for holding a ball normally at the mouth of said runway, and a structure supported by said surface and provided with a closed wall on the side next the mouth of the runway, said wall being formed with a slot at its lower end of suitable size to allow a card to be pushed through and into contact with said ball; cards inscribed at one end with the capitals of the various States; and a peg or pin adapted to be inserted into one of said holes, substantially as and for the purpose set forth.

3. The herein-described game apparatus, comprising the box-cover *c* provided with props *d* near one side; the box or tray *b* provided on its inner surface with the map of a country having several States and formed with the indentation *a'* and with holes indicating the capitals of the various States; the runway *g h* extending across the map and provided with a flared upper end *h''*; the stop-pins *p* located near the upper end of the runway; the holder *m* supported by the box or tray near the mouth of the runway and provided with the slot *m'*; the box or structure *n*, *n'*, *n''*, *n'''* set edge up within said holder, and provided with the slot *o*; a ball normally supported by said indentation; a bell at the outlet of the runway; a pin or peg adapted to fit into a hole indicating the location of a capital; and a pack of cards each bearing a name of a capital inscribed near one edge, substantially as and for the purpose set forth.

750,907. **PRINTING-PRESS.** RUFUS STERN, Chicago, Ill. Filed June 10, 1903. Serial No. 160,969. (No model.)

Claim.—1. In a printing-machine, the combination with a frame of a platen adjustably fixed upon said frame, a combination type-form and inking-table consisting of a single member, hinged to move angularly with relation to said platen, means upon a single shaft for inking and rocking said form, means for feeding a web of paper step by step automatically between said form and platen, and a cutter actuated by said type-form and inking-table for cutting off the paper between each impression.

2. In a printing-machine, the combination with a frame of a stationary platen adjustably fixed upon said frame, a reciprocating paper-feed mechanism arranged to reciprocate in a plane parallel with the plane of said bed, reciprocating cutters also parallel with said bed, a combination type-form and inking-table hinged to said bed and having its type-surface movable angularly with relation thereto, a thrust-rod connection between said type-form and said paper-feed mechanism and reciprocating cutters, a driving-shaft and cranks on said shaft arranged to throw in opposite directions, an inking-roller operatively connected with one of said cranks and said type-form being operatively connected with the other of said cranks.



3. In a printing-machine, the combination, of a stationary bed, a combination type-form and inking-table hinged to move angularly with relation to said bed, an inking-roller mounted to roll upon said type-form and inking-table, a rotatable shaft, a crank connection between the latter and said roller for reciprocating and rotating the roller upon the type-form and inking-table, means upon the type-form and said shaft for oscillating the type-form and inking-table against said roller, means for keeping said type-form and inking table and roller constantly in contact with each other, a jointed slide having an angularly-movable paper-gripping mechanism thereon, means operatively connecting said type-form and inking-table and slide for changing the oscillating movement of the former into a reciprocating movement in the latter, and means for actuating said gripping mechanism.

4. In a printing-machine, the combination, of a stationary bed, an angularly-movable combination type-form and inking-table, having a surface for inking the roller and a type or impression surface substantially at right angles to each other, an inking-roller mounted to roll upon said type-form and inking-table, a rotatable shaft, a crank-and-thrust-rod connection between the latter and said roller for reciprocating the roller over said type-form, means upon the type-form and said shaft for oscillating the type-form oppositely to said roller, a jointed slide movable parallel with said bed, a gripping-frame upon said slide, connecting-rods pivoted to said type-form and slide for actuating the latter by the former, a paper-cutter, and means for actuating the latter by said slide.

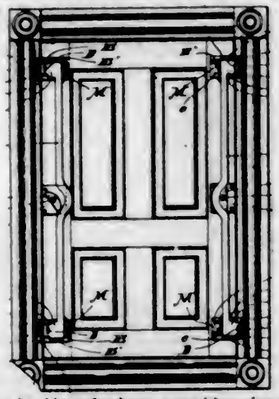
5. In a printing-machine, the combination, of a stationary bed, an angularly-movable type-form and inking-table formed into two wings occupying intersecting planes, one of said wings providing a roller-inking table and the other constituting a type or impression plate, an inking-roller movable over said table and plate, a pair of connecting-rods pivoted to said roller, a rotatable shaft, a pair of cranks on said shaft to which said rods are also pivoted, a pair of substantially similar rods pivoted to said type-form and inking-table and to a pair of cranks also on said shaft, arranged to throw oppositely to said first-mentioned cranks, a reciprocating slide arranged substantially parallel to said bed, a paper-gripping mechanism on said slide, a pair of rods pivoted to said slide and type-form and inking-table, and a paper-cutter arranged to move parallel to said bed and slide and connected with the latter to move therewith.

750,908. **RELEASE-HINGE.** ROBERT D. STRUBLE, Philadelphia, Pa., assignor of one-half to John J. Cain, Philadelphia, Pa. Filed Oct. 13, 1903. Serial No. 176,893. (No model.)

Claim.—1. A releasing-hinge for doors comprising stationary hinge members, each provided with a hollow socket member and solid portions, spaced apart therefrom, a door, spring-actuated bars carried one at each longitudinal edge thereof, and having apertured tongues adapted to have hinged relation with said socket members, and means for throwing said tongues into and out of engagement with said socket members, as set forth.

2. A releasing-hinge comprising plates, each having a socket member and adapted to be secured to the jamb of a door, bearing members upon each plate, spaced apart from said socket member, a

spring-actuated bar mounted adjacent to each longitudinal edge of the door and having apertured tongue projections adapted to have hinged relation with said socket members, a knob mounted adjacent to each longitudinal edge of the door, and a cam member rotated by said knob and adapted to bear against the edges of a bar to move the same sidewise to throw one or the other set of tongues out of engagement with said socket members, as set forth.

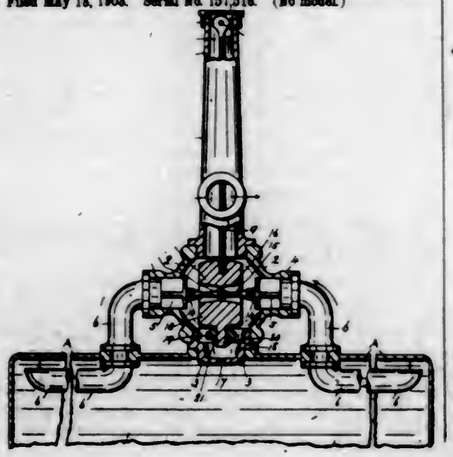


3. A releasing-hinge for doors comprising plates adapted for attachment to the jamb of a door and having a hollow socket member and solid bearing projections, spaced apart from the ends of said socket member, a spring-actuated bar mounted adjacent to each longitudinal edge of the door and having apertured tongue projections adapted to have hinged relation with said socket members, flanged guide-plates carried by the door and holding said bars thereto, a knob secured to the door adjacent to each of said bars, a cam fitted to rotate with said knob and adapted to bear against said bar for the purpose of moving the same sidewise to disengage the tongue projections from said socket members, as set forth.

4. In combination with a door, a releasing-hinge comprising a plate having a hollow socket member along one of its marginal edges, solid bearing members integral with said plates and spaced apart from said socket member, bars adapted to be mounted upon a door and having apertured tongue extensions, springs secured to the inner edges of said bars and bearing against a portion of the door and serving normally to hold said bars at their farthest outer limit, said apertured tongue extensions being adapted to be seated between said bearing extensions and have hinged connection with said socket member, a knob mounted at each longitudinal edge of the door, a cam member fitted to said knob and having a convexed edge adapted to bear against the concaved edge of a recess in said bar, and flanged plates secured to the door and adapted to engage and form guideways for the ends of the bars, as set forth

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750,909. BOILER. JAMES W. TALLMAN, Beamsville, Canada. Filed May 18, 1903. Serial No. 157,516. (No model.)



Claim.—1. In a steam-boiler, a valve-chamber, steam-pipes connected to the opposite sides of the chamber and to the upper end parts of the boiler, valves in the chamber and opposite said pipes, a hollow column secured on the chamber, a pendulum hung in the column and connected to the valves, and a steam-outlet in the column, substantially as set forth.

2. In a steam-boiler, a valve-chamber connected to the boiler, pipes connected to the opposite sides of the chamber and to the upper end parts of the boiler, valves in the chamber and opposite said pipes, a column secured on the chamber, a pendulum in the column and connected to said valves and a water-outlet from the chamber into the boiler, substantially as set forth.

3. In a steam-boiler, a valve-chamber, steam-pipes connected to the opposite sides of the chamber and to the boiler, valves in the chamber and opposite said pipes, a column secured on the chamber, a pendulum adapted to swing in the column and connected to the valves, and a pendulum-guide with stops in the chamber, substantially as set forth.

4. In a steam-boiler, a steam-valve chamber, steam-pipes connected to the opposite sides of the chamber and to the boiler, valves, a pendulum swung in the chamber and connected to the valves, substantially as set forth.

5. In a steam-boiler, a steam-valve chamber, steam-pipes communicating with the opposite sides of said chamber and with the boiler, diametrically opposite steam-valves in the chamber and means to operate said valves at the varying disposition of the boiler, substantially as set forth.

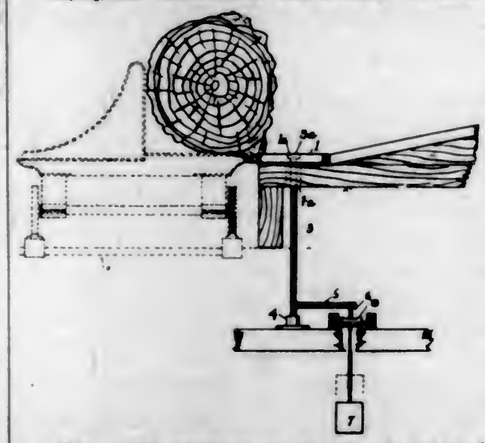
750,910. SPLIT HUB AND SPROCKET. RICHARD S. TOWNSEND, Union City, Mich. Filed Nov. 16, 1903. Serial No. 181,306. (No model.)



Claim.—1. The combination with the split hub, having two inner and two outer pieces, formed with series of longitudinal and transverse bores, of an interposed sprocket, having transverse bores in line with said longitudinal bores, and bolts in said bores for uniting the parts together.

2. The combination with the split hub, having two inner pieces and two outer pieces of an interposed split sprocket and bolts for uniting all the parts together, and clamping the same upon a shaft.

750,911. SKIDWAY FOR SAWMILLS. CHARLES L. TROMBLEY, Grayling, Mich. Filed Oct. 2, 1903. Serial No. 175,466. (No model.)

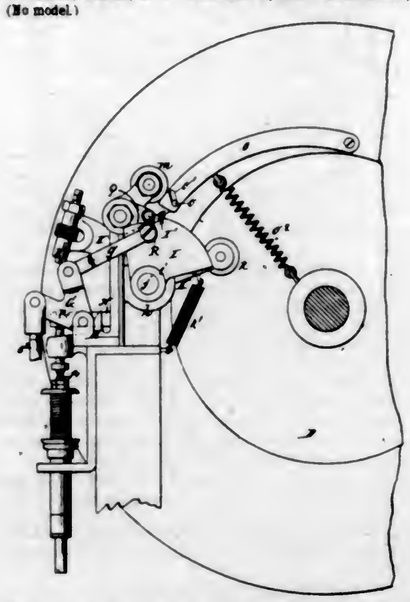


Claim.—1. The combination with the skidway having its end located below the level of the carriage-block; of a plate pivotally mounted on the skidway and having its outer end in proximity to the block; the top of said plate being substantially level with the top of the block; means for yieldingly holding the plate in its normal position, and automatically rotating the plate to its normal position when the outer end of the plate has been displaced by contact with a log.

2. The combination with the skidway having its end located below the level of the carriage-block; of an oscillating plate mounted on the skidway in proximity to the block, the top of the plate being substantially level with the top of the block; a vertical shaft rigidly fixed at one end to the said plate, and adapted to oscillate with the plate; and means attached to said shaft for yieldingly holding the plate in its normal position and for automatically returning the plate to its normal position when the plate has been oscillated, for the purpose set forth.

3. The combination with the skidway having its end located below the level of the carriage-block; of an oscillating plate mounted on the skidway in proximity to the block, the top of the plate being substantially level with the top of the block; a vertical shaft rigidly fixed at one end to said plate, and adapted to oscillate with the plate; a horizontally-projecting arm carried by said shaft; a depending cord secured to said arm, a weight secured to said cord, and rollers for guiding said cord.

750,912. FEED-CONTROLLING MECHANISM FOR HYDROCARBON-MOTORS. WILLIAM W. TUCK, Richmond Hill, and AUGUST WAHMANN, Astoria, N. Y. Filed Nov. 9, 1901. Serial No. 81,706. (No model.)



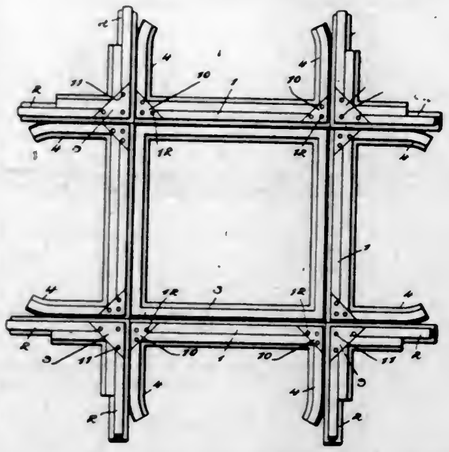
Claim.—1. In feed-controlling mechanism for hydrocarbon-motors, the combination of the fly-wheel, its segmental centrifugal governor O, having curved slot *o'*, a stop *o* working in said slot, the cam rock-lever K, and connections, the rock-lever M, and connections, the cam I, linked to the bell-crank lever G, said bell-crank lever G, being connected through the medium of the connecting-rods and rock-lever E, the controlling-lever C, the whole arranged and operating substantially in the manner and for the purpose set forth.

2. In feed-controlling mechanism for hydrocarbon-motors, the combination of the fly-wheel B, the segmental centrifugal governor O, the rock-lever M, pivotally mounted, a notched slide carried by the lower end of said lever, a roller carried by the upper end of said lever, the loose arm Q, carrying the contact-roller *q*, and the cam I, movable beneath said roller *q* to lift the same, by the operation of which the contact-roller *m*, is thrown out of the line of action of the centrifugal governor, substantially as herein set forth.

3. The combination with a pivotally-mounted segmental centrifugal governor and a spring acting thereon, of means for limiting the movement of said governor, a rock-shaft, a bell-crank lever connected with said rock-shaft, a rocker-cam connected with the bell-crank lever and having its hub journaled in an eccentric bearing, an eccentric disk carried by said hub, a stud on said disk, a cam rock-lever pivotally mounted on said stud, a contact-roller carried by said lever in the path of said cam, a rock-lever, a slide carried thereby and a roller carried by said rock-lever for contact with the cam, all substantially as shown and described.

4. The combination with a pivotally-mounted segmental centrifugal governor and a spring acting on the same near its free end, of means engaging the governor for limiting its movement, a rock-shaft, a bell-crank lever connected with said rock-shaft, a rocker-cam connected with the bell-crank lever and having its hub journaled in an eccentric bearing, an eccentric disk carried by said hub and having a stud, a cam rock-lever pivotally mounted on said stud, a rock-lever, a slide carried thereby, a contact-roller carried by the cam rock-lever in the path of said cam, a roller carried by the rock-lever for contact with the cam, a loosely-mounted arm, a roller *q* carried thereby, in the path of the cam, and a contact carried by the rock-lever, all substantially as shown and described.

750,913. RAILWAY-CROSSING. FREDRICH W. UNBEHEN, Clarion, Iowa. Filed Sept. 8, 1903. Serial No. 172,292. (No model.)



Claim.—1. In a railway-crossing, the combination with main and guard rails, provided at the corners or angles receiving the rims of the wheels with recesses located at the heads of the rails, and arranged in the upper faces or tread, thereof, of removable plates or shoes fitted in and filling the recesses and having upper faces arranged flush with the treads of the rails, said plates or shoes having outer edges arranged at an angle and disposed flush with the adjacent side edges of the heads of the rails, substantially as described.

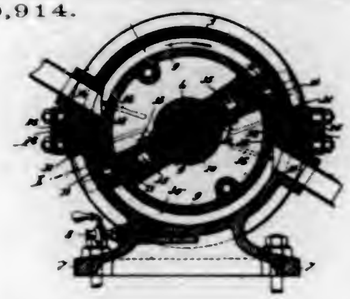
2. In a railway-crossing, the combination with main and guard rails provided at their corners or angles receiving the rims of the wheels with recesses located at the heads of the rails, and arranged in the upper faces or tread thereof, of removable plates or shoes fitted in and filling the recesses and having upper faces arranged flush with the treads of the rails, said plates or shoes having outer edges arranged at an angle and disposed flush with the adjacent side edges of the heads of the rails, and vertical fastening devices piercing the plates or shoes and the rails and detachably securing the former to the latter, substantially as described.

3. The combination of a railway-crossing, having guard-rails located at the inner and outer side of the crossing, the latter being also provided with recesses at the three outer angles of each corner formed in the upper faces of the heads of the rails, the plates or shoes removably fitted in the said recesses and located at the three outer angles of each corner of the crossing and fastening devices piercing the plates or shoes and the rails, and detachably securing the former to the latter, substantially as described.

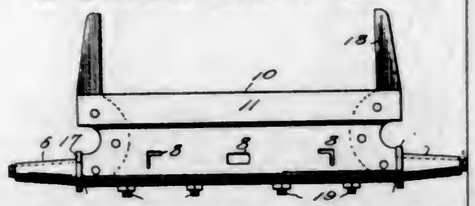
750,914. ROTARY MOTOR. HUGO VAN BERSTETH, Brussels, Belgium. Filed Apr. 6, 1903. Serial No. 151,381. (No model.)

Claim.—In a rotary motor, the combination of a cylinder having exhaust-ports therein, of a drum in the cylinder having radially-slidable pistons, and admission-ports in one end of the cylinder behind the pistons, and exhaust-grooves in the end of the cylinder, said grooves being opposite to the exhaust-ports and leading from behind the pistons to said ports, substantially as described.

750,914.



750,915. RUNNING-GEAR. DWIGHT R. VAN DORN, Cleveland, Ohio. Filed Oct. 30, 1903. Serial No. 179,167. (No model.)



Claim.—1. A sheet-metal axle bent to form tubular spindles, and having reinforcing-pieces secured to its body and extending through the spindles, and threaded at their outer ends to receive the axle-nuts.

2. An axle formed of folded sheet metal, in combination with stakes having blocks at their lower ends secured between the folds.

3. An axle formed of a sheet of metal folded into shape and to form tubular spindles, in combination with reinforcing-pieces secured between the folds and fitting within the spindles and having stakes projecting at the upper ends.

4. The combination with the metallic axle, of the stake-and-spindle reinforcement formed in one piece and secured to the axle.

5. The combination with the metallic axle having hollow spindles, of the combined stake-and-spindle reinforcement formed in one piece and extending through a spindle and threaded at the outer end to receive the axle-nut.

6. A sheet-metal axle having a tubular spindle reinforced by a separate piece fitting within the spindle and secured to the body of the axle.

7. A wagon-stake and axle-spindle formed in one piece, and connected by a neck adapted to be secured to the body of the axle.

8. A trough-shaped sheet-metal axle, in combination with an inverted trough-shaped sheet-metal bolster thereon, and springs between the axle and bolster and within the same.

9. The combination of the trough-shaped sheet-metal axle having stakes at the ends, the inverted channeled metal bolster fitting over the axle and between the stakes, and springs between the axle and bolster.

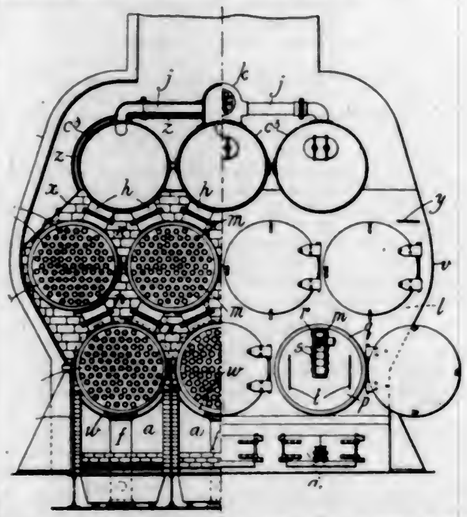
10. The combination of the trough-shaped sheet-metal axle having holes in the bottom thereof, and the inverted trough-shaped metal bolster, the flanges of which lap the flanges of the axle, bolts projecting from the bolster within the same and working through the holes, and springs coiled around the bolts.

11. The combination with an axle, of a hollow bolster inclosing the same, and springs between the axle and bolster.

12. The combination with an axle, of a hollow bolster inclosing the same and having vertical movement relative thereto, and guides and springs between the axle and bolster.

750,916. STEAM-GENERATOR. EDWARD C. VILLIERS, Windsor, England, assignor of one-half to William Haynes Smith, Queen's Acre, England. Filed Jan. 14, 1903. Serial No. 139,021. (No model.)

Claim.—1. A multicylindrical multitubular boiler composed of cylinders surmounting one another in tiers, furnaces beneath the lowest tier, all except the top cylinders traversed by numerous fire-tubes, a common combustion-chamber into one wall of which all the cylinders containing fire-tubes are built so as to leave interstices between the cylinders which are closed at the combustion-chamber end by said wall, a common baffle-chamber at the other end of the cylinders and open to the interstices between them.



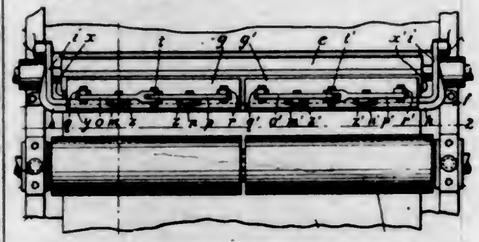
2. In a boiler of the kind described, a plate mounted in each of the door-frames of the baffle-chamber opposite to the fire-tubes, such plate having ports within it, in combination with shutters carried upon said plate for closing said ports when they are not required to remain open, also means for rotating said plate so as to bring the ports successively in line with the tubes, the whole substantially as described.

3. In multitubular boilers, means for securing the tube-plates within the cylinder ends, comprising a flange adapted to overlap the joint between the shell of the cylinder and the tube-plate, screws for securing said flange to the cylinder end and to the tube-plate, and packing between said cylinder end and said flange.

4. In multitubular boilers, means for securing the tube-plates within the cylinder ends, comprising a flange upon the tube-plate, screws for securing the flange to the tube-plate and to the cylinder-shell, packing between the flange and the tube-plate and between the flange and the cylinder-shell and a steel ring adapted to be screwed into the cylinder end tight up against said flange.

5. In multitubular boilers, means for securing the tube-plates within the cylinder ends, comprising a steel packing-ring fastened by screws to the tube-plate and to the cylinder-shell, packing between said ring and the tube-plate and shell and an additional steel ring screwed into the end of the cylinder-shell tight up against said packing-ring.

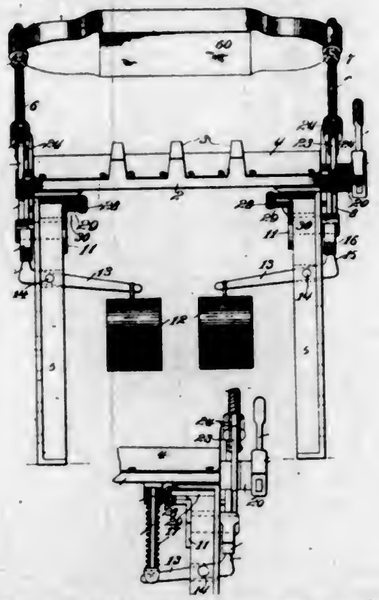
750,917. PLANING-MACHINE. WILLIAM O. VIVARTTAS, Weehawken, N. J., assignor to H. B. Smith Machine Company, Smithville, N. J., a Corporation of New Jersey. Filed Aug. 18, 1903. Serial No. 169,852. (No model.)



Claim.—1. In a woodworking-machine, in combination, a pivoted supporting-bar, a chip-breaker divided into sections each having a groove, said bar extending partially into said grooves, a spring confined between said bar and each chip-breaker section, standards on said bar extending above each chip-breaker section, levers pivoted between their ends to said standards, the inner ends of said levers being pivoted together, and links pivoted to the outer ends of said levers and extending downwardly and pivoted to the chip-breaker sections.

2. In a woodworking-machine, in combination, a cutter-head, a supporting-bar pivoted on one side of said cutter-head and extending over and beyond the same, a chip-breaker divided into sections each having a nose-piece adjacent to the cutter-head and a groove adjacent to said nose-piece, the upper portion of each chip-breaker section extending laterally, a spring seated in each groove, the free end of said bar extending into said grooves and seating against said springs, standards secured to the free end of said bar and extending upwardly through the laterally-extending portion of each chip-breaker section, levers pivoted between their ends to the standards, the inner ends of said levers being pivoted together, and links connecting the outer ends of said levers to the laterally-extending portions of the chip-breaker sections.

750,918. SAND-PRESS. HENRY G. VOIGHT, New Britain, Conn. Filed July 23, 1903. Serial No. 166,677. (No model.)



Claim.—1. The combination with a presser-head having a swinging movement toward and away from a point directly above the supported flask and a movement directly toward and away from the latter, of an operating-shaft, pivoted presser-head-supporting arms provided with arc-shaped contacting faces, said arms being depressible, and counterbalancing-levers bearing against said contacting faces.

2. The combination with a presser-head having a swinging movement toward and away from a point directly above the supported flask and a movement directly toward and away from the latter, of an operating-shaft, toggle mechanism connecting said shaft with the presser-head, presser-head-supporting arms whose outer ends are pivotally mounted for movement toward and away from the supported flask, and which arms are provided with arc-shaped contacting faces, and counterbalancing-levers bearing against said contacting faces.

3. The combination with a presser-head having a swinging movement toward and away from a point directly above the supported flask and a movement directly toward and away from the latter, of an operating-shaft, toggle mechanism connecting said shaft with the presser-head, presser-head-supporting arms whose outer ends are pivotally mounted for movement toward and away from the supported flask and which arms are provided with arc-shaped contacting faces, counterbalancing-springs connected to said arms, and counterbalancing-levers bearing against said contacting faces.

4. The combination with a presser-head having a swinging movement toward and away from a point directly above the supported flask and a movement directly toward and away from the latter, of means for exerting a forward pull on said presser-head increasing as the lateral displacement of the head from its position directly above the flask increases; tiltable counterbalancing-levers compensating the weight of said presser-head when directly above and during its direct movement toward and away from said flask; and a connection interposed between said head and said levers for confining the direction of pressure of the levers to a plane passing through the pivotal axis of the head, whereby the levers exert no opposing movement to the swinging movement of the head.

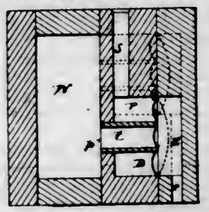
5. The combination with a platen; and supporting-legs therefor, of a presser-head having side arms; presser-head-operating mechanism for tilting the presser-head toward and away from position directly above the platen and for raising and lowering the head from and toward the platen; a counterbalance device for exerting a forward pull on said presser-head when the latter is away from its position directly above the platen; a counterbalancing-lever pivoted to each leg; and a connection interposed between said head and said lever adapted to maintain the lever stationary during the said swinging movement of the head, whereby such swinging movement causes no tilting movement of the lever.

6. The combination with a platen; and supporting-legs therefor; of a presser-head having side arms; presser-head-operating mechanism; a counterbalancing-spring secured to each side arm and to the corresponding supporting-leg; a counterbalancing-lever pivoted to each leg; and a connection interposed between said head and said lever adapted to maintain the lever stationary during the said swinging movement of the head, whereby such swinging movement causes no tilting of the lever.

7. The combination with a platen; and slotted supporting-legs; of a presser-head; toggle mechanism comprising side arms extending from the presser-head; studs extending through the slots in said legs and movable longitudinally of said slots; an operating-handle for operating the toggle mechanism; a spring secured to each said side arm and the corresponding leg; a counterbalancing-lever pivoted to each leg; and a connection interposed between said head and said levers adapted to maintain the levers stationary during the said swinging movement of the head, whereby such swinging movement causes no tilting of the levers.

8. The combination with a platen; and slotted supporting-legs; of a presser-head; rods at the ends of said presser-head to which the latter is adjustably secured; arms extending from said rods; a stud extending laterally from each arm through the slot in the leg adjacent to the arm; an operating-shaft provided with arms having a linked connection with the presser-head; a spring secured to each said arm and the corresponding leg; stops for limiting the forward and backward movement of the arms; an operating-handle secured to said operating-shaft; and a counterbalancing-lever pivoted to each leg, extending inwardly thereof and bearing at its outer end against a curved portion rigid with the corresponding arm.

750,919. WIND INSTRUMENT. CLAUDIUS WADSWORTH, Jr., Brooklyn, N. Y. Filed Aug. 15, 1901. Serial No. 72,201. (No model.)



Claim.—1. In a wind instrument, the combination of a wind-chest, a cylindrical chamber adjacent thereto divided by a flexible diaphragm, a tube leading from one to the other, with a circular mouth, arranged concentric with a wall of the adjacent chamber, an exhaust-chamber, a circular diaphragm closing one side of the exhaust-chamber and having its seat upon the mouth of the tube, an exhaust-passage from the exhaust-chamber on one side of the diaphragm and an air-supply passage from the chamber on the opposite side of said diaphragm, located between the wall of the wind-chest and the plane of the mouth of said tube, and offset from the plane of the latter.

2. In a wind instrument, the combination of a wind-chest, an adjacent chamber divided by a flexible diaphragm, a circular piece holding the edges of said diaphragm, a tube leading from the wind-chest to a point within the adjacent chamber and provided with a circular mouth concentric with the circular diaphragm-holding piece, an air-supply passage on the same side of the diaphragm as the

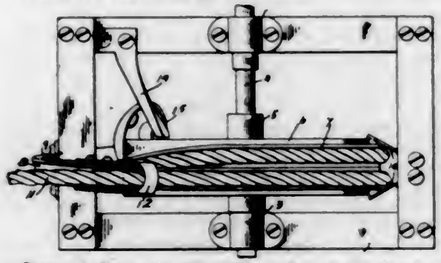
tube's mouth, but offset from the plane of the latter and an exhaust-passage leading from the chamber on the opposite side of said diaphragm.

3. In a wind instrument, the combination of a wind-chest, an adjacent chamber divided by a flexible diaphragm, a tube leading from the wind-chest to a point within the adjacent chamber and provided with a circular mouth concentric with the circular diaphragm-holding piece, an air-supply passage from the chamber on the same side of the diaphragm as the tube's mouth, extending parallel with the diaphragm but offset from the plane of the tube's mouth, and an exhaust-passage leading from the chamber on the opposite side of said diaphragm.

4. In a wind instrument the combination of a metal wind-chest, having a cover, an adjacent metal chamber divided by a diaphragm secured therein by a circular clamp, a metal tube leading through the wall of the wind-chest and provided with a circular mouth opening within the adjacent chamber concentric with the diaphragm-clamp and at a point within the limit of movement of the diaphragm, an air-supply passage leading from said chamber on the same side as the tube-mouth and an exhaust-passage leading from the chamber on the opposite side of said diaphragm.

5. In a wind instrument the combination of a metal wind-chest having a cover, an adjacent metal chamber divided by a diaphragm, an inwardly-extending flange within said chamber, an annular follower clamping said diaphragm in position, a metal tube leading through the wall of the wind-chest and provided with a circular mouth opening within the adjacent chamber, concentric with the diaphragm-clamp and at a point within the limit of movement of the diaphragm, an air-supply passage leading from said chamber on the same side as the tube-mouth, a screw-threaded cap closing the exhaust-chamber and provided with an exhaust-passage, all substantially as set forth.

750,920. PULLEY. EMIL L. WAGNER, Aberdeen, S. D. Filed Jan. 5, 1903. Serial No. 137,776. (No model.)



Claim.—1. The combination, with a pulley, of an endless band loosely wrapped around the periphery of the same, means for directing said band across the face of the pulley, and an endless rope or cable also looped around said pulley and bearing upon said band.

2. The combination, with a pulley, of an endless band having a grooved face loosely wrapped around the periphery of said pulley, means for guiding said band across the face of the pulley, and an endless rope or cable having a number of wraps around said pulley corresponding to those of said band and fitting within the groove therein.

3. The combination, with a pulley, of a leather band having a grooved face wrapped around the periphery of the pulley, a guide directing said band across the face of the pulley, and an endless rope or cable also looped around said pulley and fitting within the groove in said band.

4. The combination, with a pulley having a flat periphery, of a band looped or wrapped around the peripheral face of said pulley, a power-transmitting means wrapped around said pulley and separated therefrom by said band, and a shoe provided between the sections or runs of said power-transmitting means and over which said band travels, substantially as described.

5. The combination, with the pulley, of an endless band wrapped around the periphery of the same, means for directing said band across the face of the pulley, a rope or cable looped or wrapped around said pulley and separated therefrom by said band, means for preventing said band from passing off the edge of the pulley when driven backward, substantially as described.

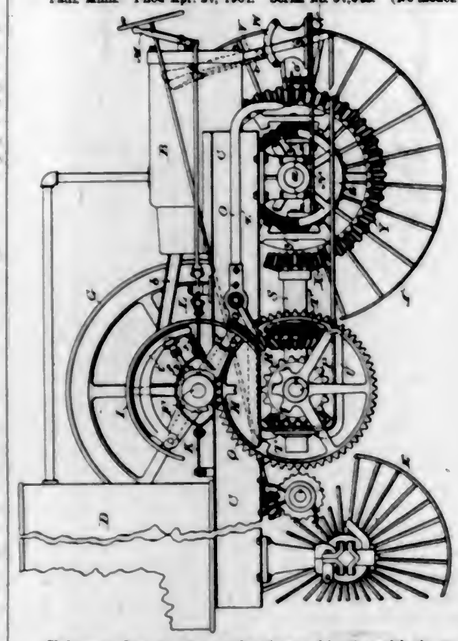
6. The combination, with a pulley, of power-transmitting means looped or wrapped around the periphery of the same, an antifriction-band interposed between said power-transmitting means and said pulley, and suitable guides for said band.

7. The combination, with the pulley 6, of a band 7 having a grooved face 8 loosely looped or wrapped around the same, suitable guides for directing said band from one side of the pulley to the other, and a rope or cable also looped around said pulley and separated therefrom by said band.

8. The combination, with a pulley having a flat face, of a band looped or wrapped around the same, a wheel 15 arranged to engage said band and direct it across the face of the pulley, a shoe 9 over which the band loosely passes to the other side of the pulley, a rope also looped around said pulley and separated therefrom by said band, belt-guides 10 provided upon each side thereof, and the guides 12 and 13 carried by said shoe.

9. The combination, with a pulley, of an antifriction-band wrapped around the periphery of the same, means for directing said band across the face of the pulley, and an endless power-transmitting means also looped around said pulley and bearing upon said band.

750,921. TRACTION-ENGINE. FREDERICK L. WATEROUS, St. Paul, Minn. Filed Apr. 27, 1901. Serial No. 57,648. (No model.)



Claim.—1. In a traction-engine the combination with the traction-wheels and a motor, of a crank-shaft connected with the motor, a cross-shaft provided with a bevel-gear, means for connecting and disconnecting said cranks and cross-shafts, a longitudinal shaft connected with the traction-wheels by compensating gears, a pair of bevel-gears movable lengthwise upon said longitudinal shaft, and means for shifting said gears so as to carry either one of the pair into engagement with the gear on said cross-shaft, substantially as described.

2. In a traction-engine the combination with the traction-wheels and a motor, of a crank-shaft connected with and driven by the motor and provided with a gear loosely mounted thereon, a clutch for locking said gear on said crank-shaft, a cross-shaft connected by gears with said crank-shaft and provided with a bevel-gear, and a longitudinal shaft connected with the traction-wheels and provided with a pair of bevel-gears movable endwise thereon into and out of engagement with the gear on said cross-shaft, substantially as described.

3. In a traction-engine the combination with the traction-wheels and a motor for propelling the same, of a crank-shaft connected with said motor and provided with a connected gear and brake-wheel loosely mounted thereon, a clutch for locking said gear and brake-wheel on said shaft, a brake-lever provided with a friction-shoe movable into and out of engagement with said brake-wheel, a cross-shaft geared with the loose gear on the crank-shaft and provided with a bevel-gear, and a longitudinal shaft connected with said traction-wheels and provided with a pair of bevel-gears movable lengthwise thereof into and out of engagement with the bevel-gear on said cross-shaft, substantially as described.

4. In a traction-engine the combination with the traction-wheels and a motor for propelling the same, of a cross-shaft having driving connections with said motor and provided with a bevel-gear, a longitudinal shaft connected with said traction-wheels and provided with a pair of bevel-gears mounted and movable lengthwise on squared portions of said shaft, a yoke connecting the hubs of said pair of gears and holding them in the proper relation to each other and to the intermediate bevel-gear on said cross-shaft, and means for shifting said yoke so as to carry one or the other of said gears into engagement with the gear on said cross-shaft, substantially as described.

5. In a traction-engine the combination of an axle, traction-wheels, one of which is fixed and the other loosely mounted on said axle, bevel-gears, one of which is fixed to the loose traction-wheel and the other fixed upon said axle, a bevel-gear loosely mounted upon said axle and carrying bevel-gears between and in mesh with the first-mentioned bevel-gears, a longitudinal shaft provided with a bevel-gear meshing with said loose intermediate gear, a pair of connected bevel-gears mounted and movable endwise upon said shaft, and a cross-shaft provided with a bevel-gear between said pair of gears, and a motor having a driving connection with said cross-shaft, substantially as described.

6. In a traction-engine the combination with the traction-wheels, propelling gearing and motor, of a driving-shaft provided with a friction brake-wheel loosely mounted thereon and attached to a gear meshing with a gear of the propelling-gearing, a brake-lever provided with a friction-shoe adapted to be moved into and out of engagement with said brake-wheel, and a clutch comprising a carrier fixed on the driving-shaft next to said brake-wheel and friction-blocks pivoted to said carrier and connected by links with a collar movable longitudinally of said driving-shaft, substantially as described.

7. In a traction-engine the combination with the traction-wheels, propelling gearing and motor, of a driving-shaft connected with the motor and provided with a friction brake-wheel which is loosely mounted on said shaft and is geared with the propelling-gearing, a brake-lever provided with a friction-shoe adapted to be moved into and out of engagement with said brake-wheel and a clutch comprising a carrier fixed on said driving-shaft and friction-blocks pivoted to said carrier and connected therewith by springs and with a longitudinally-movable collar on the driving-shaft by links, substantially as described.

8. In a traction-engine of the character described, the combination of a prime motor, a crank-shaft carried and operated thereby, a gear-wheel carried by said crank-shaft, a bevel gear-wheel driven from said crank-shaft, a reversing-shaft arranged at right angles to said crank-shaft, bevel-pinions fixed to rotate with said shaft, but longitudinally movable on the same, said pinions adapted to engage the bevel gear-wheel and transmit the movement of the same in two directions, a bevel-pinion fixed to the opposite end of said reversing-shaft, a bevel gear-wheel engaged by said pinion, a rear axle, a gear-wheel on the same, mechanism for moving the same from said bevel gear-wheel, and a clutch carried by a part of the transmitting-gearing.

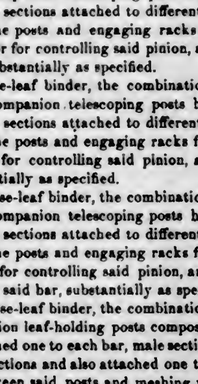
9. In a traction-engine the combination with the traction-wheels and a motor, of a crank-shaft connected with the motor and propelling-gearing connecting said crank-shaft with said traction-wheels and comprising two shafts arranged at right angles to each other, one provided with a bevel-gear and the other with a pair of bevel-gears movable lengthwise thereof into engagement one at a time with the first-mentioned gear, which is located between them, and a clutch in said gearing for connecting and disconnecting the traction-wheels and motor, substantially as described.

750,922. BINDER FOR LOOSE-LEAF BOOKS. GEORGE F. WATT, Chicago, Ill. Filed Feb. 3, 1902. Serial No. 92,271. (No model.)

Claim.—1. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, substantially as specified.

2. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the post-sections, one in each post, and attached to different bars, substantially as specified.

3. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the female sections of both posts, substantially as specified.



4. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on oppositely-moving sections in the posts, substantially as specified.

5. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, and means for controlling the rotation of the pinion, substantially as specified.

6. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, and a sliding rack-bar for controlling said pinion, substantially as specified.

7. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the post, and a sliding rack and a second pinion for controlling said pinion, substantially as specified.

8. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, a sliding rack-bar for controlling said pinion, and means for locking said rack-bar, substantially as specified.

9. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, a sliding rack-bar for controlling said pinion, and means for sliding said bar, substantially as specified.

10. In a loose-leaf binder, the combination with the clamping-bars and two companion telescoping posts having their male and also their female sections attached to different bars, of a pinion located between the posts and engaging racks formed on the posts, a sliding rack-bar for controlling said pinion, and a stationarily-held screw for sliding said bar, substantially as specified.

11. In a loose-leaf binder, the combination with the clamping-bars, of companion leaf-holding posts composed of female sections 16 and 18 attached one to each bar, male sections 17 and 19 opposed to said female sections and also attached one to each bar, and a pinion located between said posts and meshing with racks formed on the proximate faces of the posts, substantially as specified.

12. In a loose-leaf binder, the combination with the clamping-bars and pairs of companion posts composed of female sections 16 and 18 attached to different bars and male sections 17 and 19 opposed to said female sections and also attached to different bars, of pinions located between the posts of each pair and meshing with racks formed on the proximate faces of the posts, substantially as specified.

13. In a loose-leaf binder, the combination with the clamping-bars and the telescoping post-sections, part of which sections have

racks formed on them, of pinions 21 each meshing with racks upon sections attached to both bars, and means for securing uniformity in the rotation of the pinions, substantially as specified.

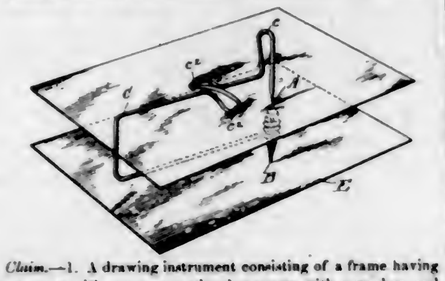
14. In a loose-leaf binder, the combination with the clamping-bars and pairs of companions posts composed of female sections 16 and 18 attached to different bars and male sections 17 and 19 opposed to said female sections and also attached to different bars, of pinions located between the posts of each pair and meshing with racks formed on the proximate faces of the posts, and a sliding rack-bar controlling said pinions and causing them to move in unison, substantially as specified.

15. In a loose-leaf binder the combination with the clamping-bars and pairs of companion posts composed of female sections 16 and 18 attached to different bars and male sections 17 and 19 opposed to said female sections and also attached to different bars, of pinions located between the posts of each pair and meshing with racks formed on the proximate faces of the posts, a sliding rack-bar controlling said pinions, and causing them to move in unison, and means for locking said rack-bar, substantially as specified.

16. In a loose-leaf binder, the combination with the clamping-bars and pairs of companion posts composed of female sections 16 and 18 attached to different bars and male sections 17 and 19 opposed to said female sections, and also attached to different bars, of pinions located between the posts of each pair and meshing with racks formed on the proximate faces of the posts, pinions on the same shafts with said post-pinions, and a sliding bar having racks meshing with said last-mentioned pinions, substantially as specified.

17. In a loose-leaf binder, the combination with the clamping-bars and pairs of companion posts composed of female sections 16 and 18 attached to different bars and male sections 17 and 19 opposed to said female sections, and also attached to different bars, of pinions located between the posts of each pair and meshing with racks formed on the proximate faces of the posts, other pinions on the same shafts with said post-pinions, a sliding rack-bar meshing with said last-mentioned pinions, and a screw imparting movement to said rack-bar, substantially as specified.

750,923. DRAWING INSTRUMENT. FAIRFAX H. WHEELAN, San Francisco, Cal., assignor of one-half to Robert W. Jessup, San Francisco, Cal. Filed Apr. 20, 1903. Serial No. 153,474. (No model.)



Claim.—1. A drawing instrument consisting of a frame having an upper arm with a tracer, and a lower arm with a marker, and having laterally-extending rests on said upper arm, to steady the frame when moving.

2. A drawing instrument consisting of a frame having an upper arm with a tracer and a lower arm with a marker in perpendicular alinement with the tracer, and having laterally-extending steadying-rests on said upper arm, and a handhold on said arm in the vicinity of the tracer.

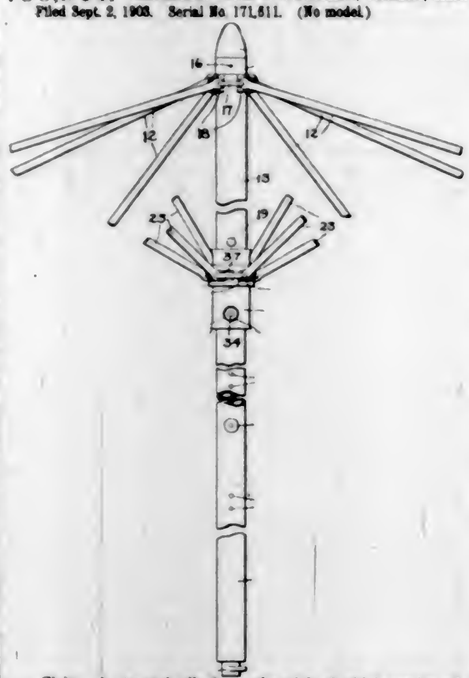
3. A drawing instrument consisting of an approximately C-shaped wire frame having a tracer at the extremity of its upper arm, and a coil at the extremity of its lower arm with a marker adjustably carried in the coil in perpendicular alinement with the tracer.

4. A drawing instrument consisting of a wire frame bent to an approximately C shape with a tracer at the extremity of its upper arm and laterally-extending steadying-rests in said arm, and a marker carried by the lower arm in perpendicular alinement with the tracer.

5. A drawing instrument consisting of a wire frame bent to an approximately C shape with a tracer at the extremity of its upper arm, a handhold near the tracer, and laterally-extending steadying-rests in said arm, and a marker carried by the lower arm in perpendicular alinement with the tracer.

6. A drawing instrument consisting of a wire frame bent to an approximately C shape with a tracer at the extremity of its upper arm and laterally-extending steadying-rests in said arm and the extremity of its lower arm formed with a coil with a marker adjustably mounted therein in perpendicular alinement with the tracer.

750,924. UMBRELLA. JOHN J. WHITTLESEY, Pittsfield, Mass. Filed Sept. 2, 1903. Serial No. 171,511. (No model.)



Claim.—1. An umbrella-frame the stick of which consists of a metallic tube having at one end a plurality of slots, parallel to each other and to the axis of the tube, of like dimensions and at even distances apart, which serve as mortises to receive the rib-joints of the frame, substantially as shown and described.

2. An umbrella-frame the stick of which consists of a metallic tube provided at one end with a plurality of attachable rib-joints formed of metallic bars fastened together at a common center within the stick or tube and projecting through slots in the wall thereof beyond and at right angles to the outer surface of the stick or tube, substantially as shown and described.

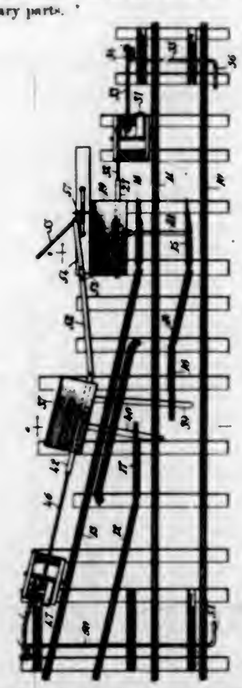
3. An umbrella-frame the stick of which is provided with a runner mounted thereon, the central portion of whose outer surface is closely enveloped by a metallic band having projecting arms or joints at even distances apart and supplied with eyes for attachment to the stretchers of the frame, all but one of said arms or joints being raised out of the band and the remaining arm or joint being formed from one of the contiguous ends thereof, substantially as shown and described.

750,925. RAILWAY-SWITCH. WILLIE L. WILLIAMS, Jeffersonville, Ga., assignor of one-half to Thomas S. Jones, Jeffersonville, Ga. Filed Mar. 25, 1903. Serial No. 149,503. (No model.)

Claim.—1. A switch mechanism comprising switch-tongues, a rotary part, connections between said rotary part and the tongues, a casing having a cam-channel, a bar movable in said channel, opposite dogs pivoted to the bar within the channel, a projection on the rotary part adapted to be engaged by either one of the dogs, and means for operating the bar.

2. In a switch mechanism, a casing arranged at one side of the track, a part mounted to swing in a horizontal plane in said casing, the said casing having a longitudinal channel, the opposite walls of the channel being provided with reverse cam-surfaces, a bar movable in said channel, dogs pivoted to said bar and having lateral projections for engaging with the cam-surfaces, switch-tongues having connection with the said swinging part, a pin on the said swinging part adapted to be engaged by either one of said dogs, a switch tappet-arm arranged at one side of the track, and a rod connection between said arm and said bar movable in said channel.

3. In a switch mechanism, the combination with main rails and switch-rails, of two switches, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the switches, and means for simultaneously operating said rotary parts.



4. In a switch mechanism, the combination with main rails and switch-rails, of two sets of switch-tongues, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the tongues, a signal, and means for simultaneously operating the rotary parts to open or close the two sets of switch-tongues to operate said signal.

5. In a switch mechanism, the combination with main rails and switch-rails, of switch-tongues, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the tongues, bars mounted to slide in the casings, devices carried by said bars for engaging with projections or pins on the rotary parts, operative connections between the two bars of the casings, and devices at opposite sides of the casings for moving said bars.

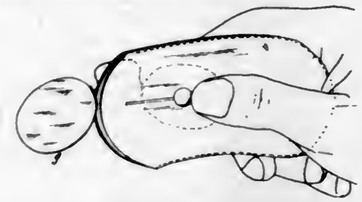
6. In a switch mechanism, the combination with main rails and switch-rails, of a pair of tongues arranged at the end of the switch-rail, a casing arranged opposite the tongues, a rotary part in said casing, a draw-rod having connection with the tongues and eccentric connection with the rotary part, the said casing having a channel provided with cam-surfaces in its opposite walls, a bar mounted to slide in said channel, dogs mounted to swing on said bar, a pin extended from the rotary part adapted to be engaged by either one of said dogs, the said dogs each having a lateral projection at one side, a signal, a connection between said signal and the slide-bar, and means operated by a part carried on a car or the like, for operating the slide-bar.

7. The combination with main rails and switch-rails, of a pair of oppositely-moving switch-tongues arranged in one of the switch-rails for engaging with one of the main rails, a casing, a rotary part in said casing, bars extended from opposite sides of the pivotal point of said rotary part and connecting with the switch-tongues, and means actuated from a moving train for operating said rotary part.

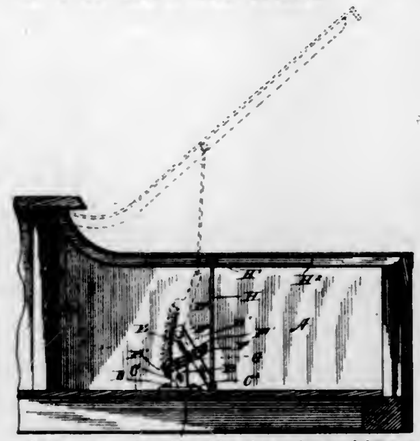
750,926. EYEGLASS-CASE. COLUMBUS J. WILSON, Pittsburg, Pa. Filed Jan. 24, 1903. Serial No. 140,436. (No model.)

Claim.—1. An eyeglass-case, having a longitudinal slit in its side and containing a stirrup, constructed and adapted to embrace the edge of one of the lenses, having a stem passing through said slit, and a thumb-piece by which the stirrup is moved.

2. The combination with the eyeglass-case, having a longitudinal slit in its side of a stirrup, consisting of a plate having one edge bent to form a flange, and slotted to receive the edge of one of the lenses, said stirrup being provided with means for moving it lengthwise, substantially as described.



750,927. SPRING FOR BUGGY-BOOTS. GEORGE T. WILSON, Moline, Ill., assignor of one-half to Edgar H. Wilson, Moline, Ill. Filed Sept. 19, 1903. Serial No. 173,909. (No model.)



Claim.—In combination with a buggy-box and boot secured thereto, a vertical standard within the boot substantially at its longitudinal center, a vertical standard secured to the bottom of the boot, said standard having an offset, a swinging arm pivoted to the standard and having an offset adapted to coöperate with a spring disposed between said offsets, a rod connecting the cover of the carriage-boot to the swinging arm, said rod being adapted to travel in a vertical plane in its upward throw, and means for limiting the upward throw, substantially as described and for the purpose specified.

750,928. COMBINED INK-WELL AND PEN-WIPER. IRVING C. WOODWARD, Chicago, Ill. Filed July 31, 1902. Serial No. 117,789. (No model.)



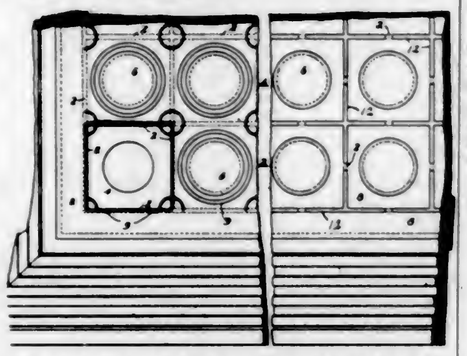
Claim.—1. As an article of manufacture, an ink-well having an opening through which a pen may be dipped and having seated inward of the opening a plurality of balls of non-corrosive material adapted to brush against opposite sides of the pen, substantially as and for the purpose specified.

2. As an article of manufacture, an ink-well having an opening through which a pen may be dipped, and a basket seated within said ink-well and below said opening, said basket having openings in its walls and containing a plurality of pieces of material adapted to clean the pen when same is dipped into the ink, substantially as described.

3. As an article of manufacture, an ink-well having an opening through which a pen may be dipped; a storage-compartment arranged for maintaining the surface of the ink at substantially con-

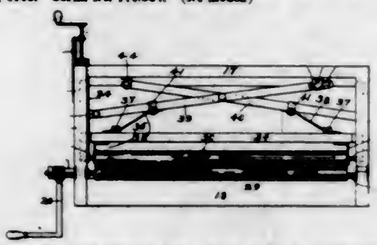
stant level below said opening; a pen-wiper located so as to be submerged in the ink and secured below said opening in such position that a pen inserted into said pen-wiper will receive ink during and after its withdrawal from the pen-wiper, substantially as described.

750,929. SIDEWALK OR OTHER LIGHT. FRANK H. WORER, Boston, Mass., assignor to the Universal Safety Tread Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 1, 1901. Serial No. 58,310. (No model.)



Claim.—In a sidewalk-light, or analogous structure the combination of a base-plate having upwardly-projecting integral walls; openings through the base-plate between said walls, and smaller in size than the spaces inclosed by said walls; light-supporting ledges around said openings; lights mounted in said openings on said ledges; the lights being severally formed with projecting shoulders above which the lights are smaller than they are below the shoulders; cement set between said walls and lights, and engaging said shoulders and surrounding the lateral surfaces of said lights; plugs of non-slipping material set in said cement between the lights; the outer surfaces of said lights, non-slipping plugs and cement forming the tread-surface of the structure; and the non-slipping plugs being interlocked with said cement, pieces of non-slipping material mounted in said cement and supported by the intersecting portions of said upwardly-projecting walls, the outer surfaces of the non-slipping material being exposed.

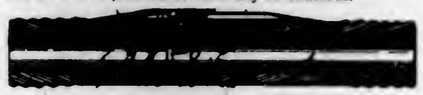
750,930. MANGLE. JOHN ZALIKOWSKI, Chicago, Ill. Filed Aug 24, 1903. Serial No. 170,537. (No model.)



Claim.—The combination with a main frame, of a compressing-roller journaled thereon, a screw mounted longitudinally on one end of the frame, a slotted sliding bar located on said end of the frame and in engagement with said screw, an adjusting-bar movably mounted on the main frame and having one of its ends extending into the slot of the sliding bar, a compressing-roller journaled on the adjusting-bar, a toggle-bar connected at one of its ends to the main frame and at its other end to the sliding bar, another toggle-bar connected at one of its ends to the main frame and pivotally secured to the first-named toggle-bar, and a spring secured to each of the toggle-bars and resting on the adjusting-bar near each of its ends, substantially as described.

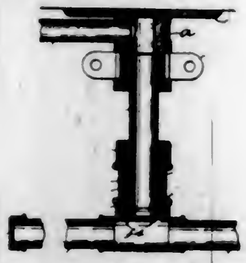
750,931. HOSE-COUPLING. HUGH R. ASHBY, Mustard, Pa. Filed May 13, 1903. Serial No. 156,936. (No model.)

Claim.—1. A hose-coupler comprising a male and a female member, a tubular projection carried by the male member and fitting into the recess carried by the female member, telescopic casings comprising a male and a female member secured to the periphery of said male and female member, said casings being triangular in form and having apertures formed in the apex of said triangular casings, locking means carried by the male casings, said locking means engaging the apertures formed in the female casing when the same are in the locked position, substantially as described.



2. A hose-coupler comprising a male and female member, a tubular extension carried by the male member and engaging in the recess carried by the female member, a gasket interposed therebetween, a plurality of telescopic casings, said casings being triangular in form and having apertures formed in the apex of said casings, locking means carried by the male casing and engaging the apertures formed in the female casing, said locking means being automatic, substantially as described.

750,932. OVERHEAD VEHICLE-WASHER. JOHN P. BAIRD, Whitestone, N. Y., assignor to William D. Johnson, Leverett E. Rhodes, Hartford, Conn., and William I. Lyman, Whitestone, N. Y. Filed May 23, 1903. Serial No. 158,407. (No model.)



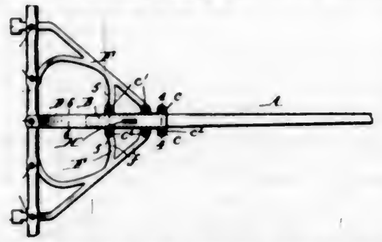
Claim.—1. In an apparatus of the class described a depending pipe, a sleeve mounted thereon and threaded at both ends, a pipe-coupling connected with the lower end of said sleeve, a cap connected with the upper end of said sleeve, a band placed in the upper end of said sleeve, a collar placed in said sleeve below said band, packing material placed between said band and said sleeve and an annular flexible packing placed below said collar and within said sleeve and enlarged outwardly and downwardly and the upper portion of which fits said pipe, said sleeve being also provided at its lower end with an inwardly-directed annular flange or rim, substantially as shown and described.

2. In an apparatus of the class described a depending pipe, a sleeve mounted thereon and threaded at both ends, a pipe-coupling connected with the lower end of said sleeve, a cap connected with the upper end of said sleeve, a band placed in the upper end of said sleeve, a collar placed in said sleeve below said band, packing material placed between said band and said sleeve and an annular flexible packing placed below said collar and within said sleeve and enlarged outwardly and downwardly and the upper portion which fits said pipe, said sleeve being also provided at its lower end with an inwardly-directed annular flange or rim, said collar being connected with said pipe, substantially as shown and described.

3. In an apparatus of the class described a depending pipe, a sleeve mounted thereon and threaded at both ends, a pipe-coupling connected with the lower end of said sleeve, a cap connected with the upper end of said sleeve, a band placed in the upper end of said sleeve, a collar placed in said sleeve below said band, packing material placed between said band and said sleeve and an annular flexible packing placed below said collar and within said sleeve and enlarged outwardly and downwardly and the upper portion which fits said pipe, said sleeve being also provided at its lower end with an inwardly-directed annular flange or rim, said collar being connected with said pipe, and said coupling being provided at one end with a closed pipe and at the opposite end with another pipe and a valve-tube connected therewith, substantially as shown and described.

750,933. VEHICLE-TONGUE. HENRY P. BALTHER, Hamburg, N. Y. Filed Sept. 5, 1903. Serial No. 172,075. (No model.)

Claim.—1. The combination of a tapering pole-socket consisting of separate oppositely-arranged U-shaped sections provided with lateral ears, bolts connecting said ears whereby said socket-sections can be adjusted toward and from each other, a pole having a tapering end seated in said socket, and a wedge-shaped key passing through alined holes in said socket and pole for drawing the latter tightly into the socket, substantially as set forth.

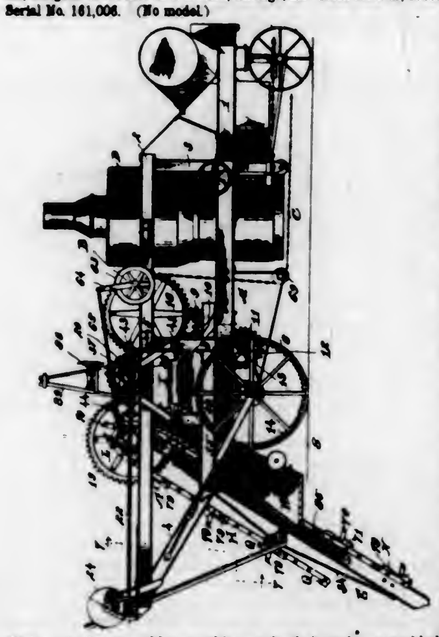


2. The combination of a pole, a cross-bar, a socket for said pole consisting of separate sections embracing said pole, and having integral rearward extensions which are connected at their rear ends to said cross-bar, and tongue-hounds connecting said cross-bar and pole-socket, substantially as set forth.

3. The combination of a pole, a cross-bar, a socket for said pole consisting of separate sections embracing said pole and having lateral ears, said socket-sections having integral rearward extensions which are connected at their rear ends to said cross-bar, tongue-hounds connected to said cross-bar and with their front ends arranged between said ears on the socket-sections, and adjusting-bolts for said socket-sections connecting said ears and hounds together, substantially as set forth.

4. The combination of a pole, a cross-bar, a socket for said pole consisting of separate sections each formed of a single piece of sheet metal and having laterally-projecting ears and rearward extensions of trough shape in cross-section, means connecting said rearward extensions to said cross-bar, and tongue-hounds connecting said cross-bar and socket, substantially as set forth.

750,934. TRENCHING-MACHINE. HANS J. BERTSON, Chicago, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed June 11, 1903. Serial No. 161,006. (No model.)



Claim.—1. In a trenching-machine, a wheeled carriage provided with an engine or motor; an excavating device adapted for forming a trench; power-actuated mechanism for operating the excavating device; a chain or cable for warping the carriage; a rotary drum for winding up the chain or cable; and power-actuated means adapted for operating the drum in a direction to wind up the chain or cable and comprising a ratchet, a reciprocating pawl-carrier provided with a pawl which engages and actuates the ratchet with a step-by-step movement, and power-actuated mechanism operated synchronously with the mechanism for operating the excavating device and applied to operate the reciprocating pawl-carrier and effect a progressive warping of the carriage proportional to the progress of the excavating device in forming a trench.

2. In a trenching-machine, a wheeled carriage provided with an engine or motor; an excavating device adapted for forming a trench and constructed with a swinging ladder-frame, an endless belt provided with devices for loosening and carrying up the soil, and trained over sprockets at opposite ends of the ladder-frame; operating mechanism connecting the engine or motor with the belt-sprocket at the forward end of the ladder-frame; a chain or cable for warping the carriage as the work of forming a trench progresses, a drum for winding up the chain or cable; means for operating the winding-drum comprising a ratchet, a reciprocating pawl-carrier provided with a pawl which engages and operates the ratchet with a step-by-step movement, and power-actuated mechanism applied for operating the reciprocating pawl-carrier and actuated synchronously with the operation of the endless belt of the excavating device.

3. In a trenching-machine, a wheeled carriage; an excavating device constructed with a swinging ladder-frame and an endless belt provided with devices for loosening and elevating the soil, and trained over sprockets at opposite ends of the swinging ladder-frame; a chain or cable for warping the carriage as the work of forming a trench progresses; a winding-drum for the chain or cable; means adapted for operating the winding-drum with a step-by-step movement and comprising a ratchet, and a reciprocating pawl-carrier provided with a pawl which engages and actuates the ratchet; a crank mounted and operated to revolve with the belt-sprocket at the upper end of the swinging ladder-frame, and power-transmitting connection between the crank and the reciprocating pawl-carrier.

4. In a trenching-machine, a wheeled carriage; an excavating device adapted for operating upon the wall at an end of a trench; a chain or cable for warping the carriage as the work of trenching progresses; a drum for winding up the chain or cable; means for actuating the drum comprising a ratchet, and a pivotally-supported reciprocating pawl-carrier provided with a pawl for engaging and operating the ratchet with a step-by-step movement, a crank which operates synchronously with the operation of the excavator in trenching, and a pitman connecting the crank with the reciprocating pawl-carrier.

5. In a trenching-machine, a wheeled carriage provided with an engine or motor; an excavating device comprising a ladder-frame hung at the rear portion of the carriage, and an endless belt provided with devices for loosening and carrying up the soil, and trained over sprockets at opposite ends of the swinging ladder-frame; a crank secured upon a rotary power-driven shaft whereon the sprocket at the forward end of the swinging ladder-frame is fixed; a winding-drum; a ratchet for operating the winding-drum; a reciprocating pawl-carrier provided with a pawl for engaging and actuating the ratchet; a pitman connecting the said crank with the reciprocating pawl-carrier; and a chain or cable connected with the winding-drum for warping the carriage.

6. In a trenching-machine, a wheeled carriage provided with an engine or motor; an excavatiug device adapted for trenching and operated from the engine or motor; a chain or cable for warping the carriage; a drum for winding up the chain or cable; and means for operating the winding-drum comprising a ratchet, a reciprocating pawl-carrier provided with a pawl which can engage the ratchet for operating the same with a step-by-step movement and which can be swung out of engagement with the ratchet; the winding-drum being provided with a sprocket whereby belt connection can be made between the engine or motor and the winding-drum when it is desired to wind up the chain or cable more rapidly than can be effected by the reciprocating pawl-carrier and pawl.

7. In a trenching-machine, a body-frame; an excavating device supported for up-and-down movement; and a raising and lowering device supported upon the body-frame and connected with the excavating device by a yielding spring connection which permits the excavating device to move upwardly to a limited extent against the resistance of the spring and independently of the raising and lowering device.

8. In a trenching-machine, a wheeled carriage; an excavating device comprising a swinging ladder-frame and an endless belt trained over sprockets at opposite ends of the swinging ladder-frame and provided with devices for loosening and carrying up the soil; a vi-

bratory and longitudinally-movable rack-bar supported upon the body-frame; a gear device for operating the rack-bar; a yielding spring connection between the rack-bar and the swinging ladder-frame comprising a slide to which the rack-bar is pivotally attached, and a spring arranged in opposition to the upward movement of the slide.

9. In a trenching-machine, a wheeled carriage provided with an engine or motor and having its body-frame extended longitudinally back of its rear supporting-wheels to form an extension which shall overhang the end portion of a trench terminating at and extending back from a point in rear of said rear wheels; an excavating device comprising a swinging ladder-frame supporting an endless belt having devices for loosening and carrying up the soil and trained over sprockets at opposite ends of the swinging ladder-frame which is pivotally hung at its forward end upon the wheeled carriage in position to permit it to dip into the trench and allow said devices for loosening the soil to operate upon the end wall of such trench at a point back of the rear carriage-wheels; a raising and lowering device applied for effecting the upward and downward swing of the swinging ladder-frame and having a shifting connection with the rear end portion of said rear extension of the body-frame of the carriage at a point back of the rear carriage-wheels, and also connected with the swinging ladder-frame at a point back of the point at which the ladder is hung and back of the rear carriage-wheels; and power-transmitting connection between the engine or motor and the said raising and lowering device.

10. In a trenching-machine, a carriage provided with front and rear wheels and having its body-frame constructed with lower and upper longitudinally-extending bars 1 and 2, and an extension A' projecting back of the rear wheels; an excavating device comprising a swinging ladder-frame hung upon the upper portion of the body-frame in rear of the rear axle, and provided with an endless belt trained over sprockets at opposite ends of the ladder-frame and carrying devices for loosening and elevating the soil; a swinging and longitudinally-movable rack-bar connected with the swinging ladder-frame; a pinion arranged at the rear end of the extension A' of the body-frame and engaging the said rack-bar; and power-actuated mechanism for operating said pinion.

11. In a trenching-machine, a body-frame; a swinging excavating device adapted for forming a trench; swinging and longitudinally-movable rack-bars connected with the swinging excavating device as a means for raising and lowering the latter; a transversely-arranged rotary shaft supported upon the body-frame and having pinions engaging said rack-bars; and a longitudinally-arranged rotary shaft supported upon the body-frame and having a worm-gear connection with the said transversely-arranged rotary shaft.

12. In a trenching-machine, a carriage provided with an engine or motor; a swinging excavating device adapted for forming a trench and comprising a swinging ladder-frame and an endless belt trained over sprockets at opposite ends of the swinging ladder-frame and having devices for loosening and carrying up the soil; a transversely-arranged rotary shaft 15 supporting the sprockets for said belt at the forward end of the swinging ladder-frame; a transversely-arranged rotary shaft 21 positioned forward of the rotary shaft 15; a train of gearing connecting these two rotary shafts with the engine or motor; a transversely-arranged endless belt or apron arranged to receive loose soil from the excavating device and positioned for side delivery; and reversible power-transmitting connection between the said transversely-arranged belt and the rotary shaft 21.

13. In a trenching-machine, a carriage; an excavating device adapted for forming a trench; a longitudinally-adjustable belt-supporting frame supported upon and arranged for longitudinal adjustment transverse to the length of the carriage whereby delivery from the belt can be effected at either side of the carriage; an endless soil-carrying belt supported upon said adjustable frame and receiving the loose soil from the excavating device; an engine or motor on the carriage; and reversible power-transmitting connection between the engine or motor and the said endless soil-carrying belt.

14. In a trenching-machine, an excavating device adapted for forming a trench; a device for raising and lowering the excavating device; an endless soil-carrying belt which receives loose soil from the excavating device and which is arranged for side delivery; a reversibly-rotative shaft connected with the raising and lowering device by suitable power-transmitting connection; a power-driven gear 37; normally loose gears 38 and 39 engaging the gear 37; a right-and-left clutch device for rocking the gears 38 and 39 to said reversibly-rotative shaft in alternation; sprockets 43 and 44 respectively operated by the gears 38 and 39; sprockets 48 and 42 secured to a belt-roll for the carrier-belt; and a chain 45 for establishing connection between sprockets 43 and 48, and in alternation therewith connection between sprockets 44 and 49.

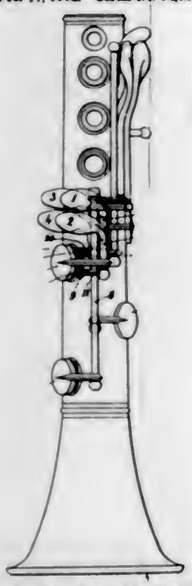
15. In a trenching-machine, an excavating device adapted for forming a trench; a raising and lowering device for elevating and depressing the excavating device; an endless soil-carrying belt positioned to receive loose soil from the excavating device and arranged for side delivery; mechanism for continuously and simultaneously actuating both the excavating device and the soil-carrying belt which receives loose soil from such excavating device; mechanism for reversing the motion of the soil-carrying belt; mechanism for operating the raising and lowering device; and a clutch device for connecting and disconnecting the mechanism which actuates the raising and lowering device with and from the continuously-operating mechanism employed to drive the soil-carrying belt, and for causing the raising and lowering device to operate for either raising or lowering the excavating device at will.

16. In a trenching-machine, an excavating device adapted for forming a trench; an endless soil-carrying belt arranged for side delivery and adapted to receive loose soil from the excavating device; an adjustable frame supporting the endless soil-carrying belt and adjustable toward opposite sides of the machine; a supporting-roll for said belt provided with a pair of sprockets; a pair of corresponding power-driven sprockets operating in different directions, and belt connection between one or the other of the latter with one or the other of the sprockets with which the belt-roll is provided.

17. In a trenching-machine, a carriage; an excavating device adapted for forming a trench; an endless soil-carrying belt positioned transversely to the length of the machine and positioned to receive loose soil from the excavating device and discharge the same; a longitudinally-adjustable frame supporting the endless soil-carrying belt and provided with a rack; and a pinion engaging said rack as a means for adjusting the belt-supporting frame in directions to permit the belt to discharge at opposite sides of the carriage in alternation.

18. In a trenching-machine, an excavating device adapted for forming a trench and comprising a swinging ladder-frame and an endless belt trained over sprockets at opposite ends of the swinging ladder-frame and constructed with two endless series of links each composed of a pair of side plates; transversely-arranged angle-plates provided with cutters, and having end plates or portions 71 attached to links of the two endless series; and rolls supported upon the end plates or portions 71 and arranged to traverse longitudinal bars of the swinging ladder-frame.

750,935. **CLARINET OR BOEHM.** EUGÈNE BERCIOUX, Paris, France. Filed Feb. 17, 1902. Serial No. 94,369. (No model.)

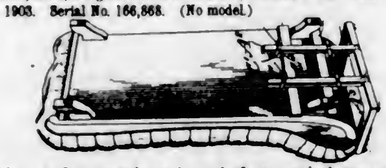


Claim.—1. In a clarinet, the combination with three rock-shafts, bearings mounted on said clarinet, wherein said rock-shafts turn laterally-extending arms carried by two of said rock-shafts and keys attached to said shafts and arranged to actuate the same, of pads arranged to close openings in said clarinet, pad-stems connecting said pads with said rock-shafts, a bar attached to said third rock-shaft, arranged to coöperate with said arms and an adjustable engagement connecting said bar with said arms.

2. In a clarinet, the combination of a rock-shaft having a laterally-extended arm, a pad-stem and pad, and a rock-shaft having a laterally-extended arm, pad-stem and pad and a rock-shaft having a pad-stem and pad, and a bar carried by said last-named rock-shaft and arranged parallel thereto said bar adapted to coöperate with said arms of the two first-named rock-shafts, and two adjusting-screws engaging the said bar and the said arms, substantially as shown and described.

3. In a clarinet, the combination of an arm soldered to the rock-shaft 6 and carrying the pad 14 corresponding to the C-key, a bar 9 secured to said arm, a rock-shaft 7 corresponding to the C-sharp key and provided with an arm 10 soldered thereto and adapted to depress the bar 9, a rock-shaft 8 corresponding to the B-key and provided with an arm 11 soldered thereto and adapted to depress the bar 9, and adjusting-screws 12 and 13 respectively carried by the arms 10 and 11, having their ends in contact with the top of the bar 9, substantially as and for the purpose set forth.

750,936. **COUCH-TRUCK.** JOHN J. BLODT and THOMAS H. DANA, Clinton, Iowa, assignors to Clair Munson, Clinton, Iowa. Filed July 24, 1903. Serial No. 166,868. (No model.)



Claim.—1. In a couch-truck, a platform, vertical supporting means at one side thereof, and parallel holding-bars disposed upon said supporting means to embrace the opposite faces of the legs at one end of a couch.

2. In a couch-truck, a platform, vertical supporting means at one side thereof, parallel holding-bars disposed upon said supporting means to embrace the opposite faces of the legs at one end of a couch, and means for adjusting the said bars toward and from each other.

3. In a couch-truck, a platform, vertical supporting means at one side thereof, parallel holding-bars disposed upon said supporting means, blocks to receive said bars, a bail pivoted to each of said blocks and embracing said supporting means, and a bearing for said bail at the opposite side of the supporting means from the block.

4. In a couch-truck, a platform, supporting means at one side thereof, a block having a straight face to engage said supporting means, a bail embracing the supporting means and pivotally connected to said block, a cross-pin carried by said bail at the opposite side of the supporting means from said block, a handle to said bail beyond said cross-pin, and a holding-bar supported by said block.

5. In a couch-truck, a platform, supporting means extending upward therefrom, a holding-bar, and a support for said bar having a pivotally-mounted means surrounding the supporting means for frictionally adjusting said bar thereon.

6. In a couch-truck, a platform, vertical supporting means thereon, parallel holding-bars on said supporting means, and means for adjusting one of said bars toward and from the other.

750,937. **NON-REFILLABLE BOTTLE.** FLETCHER O. BOSWELL and CHARLES J. DAVIS, Pittsburg, Pa. Filed Mar. 30, 1903. Serial No. 150,236. (No model.)

Claim.—1. In a non-refillable bottle, the combination with the bottle having a suitable neck, of a hollow stopper secured in said neck and provided with an interior frusto-conical member having a port in its upper end, said hollow stopper having an annular air-space, an air or vent tube communicating with said space and extending into the bottle, an air-controlling device for opening and closing said tube, a sliding valve normally engaging the upper end of the frusto-conical member to close the port in the latter, means for holding said sliding valve normally seated, and a safety-stopper secured in the bottle-neck and provided with a tortuous exit-passage, substantially as described.

2. In a non-refillable bottle, the combination with the bottle, of a hollow stopper secured in the bottle-neck and provided with a valve-seat on its upper end, a sliding valve normally engaging said valve-seat, and means for holding said valve in normally seated engagement, a safety-stopper in the bottle-neck above the hollow stopper, an air vent or tube communicating with the annular air-space in the hollow stopper and extending into the bottle, and means for controlling the admission of air through said air vent or tube, substantially as described.



3. In a non-refillable bottle, the combination with a bottle having a neck, of a stopper cemented in the bottle-neck and provided with an air-channel, an air vent or tube connected to the stopper and communicating with said air-channel means on the inner end of said air-tube for controlling the admission of air therethrough, a valve-seat on the upper end of the stopper for closing the exit-port for the liquid through said stopper, gravity means connected to said valve for normally holding the same seated, and a safety-stopper secured in the bottle-neck above the first-mentioned stopper and having an irregular or tortuous passage therethrough, substantially as described.

4. In a bottle of the character described the combination with the bottle, of a hollow stopper secured within the neck, said stopper being provided with an air-passage, a valve normally closing said hollow stopper, a bent tube communicating with said air-passage and an upper safety-cork placed above said hollow stopper and provided with a tortuous chamber therein, the opening of said passage being out of alinement with said valve closing the said first-named stopper, substantially as described.

5. The combination with a bottle-neck of a pair of corks secured therein, the upper of said corks being formed with a passage, the lower cork being formed with an opening and an annular air-space and bent tube connecting with the said air-space and a valve for closing said opening of the last-named cork.

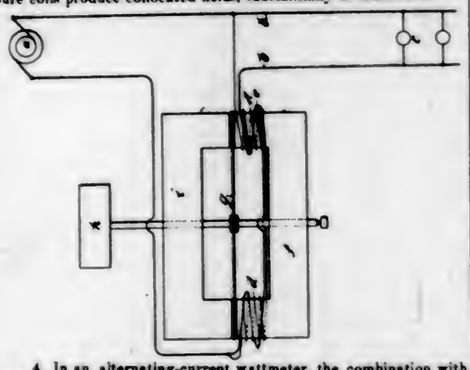
6. In a non-refillable bottle the combination with the bottle, of a safety-stopper having a tortuous passage therein, a second hollow stopper having an opening therein and formed with an annular air-space, means for normally closing said opening, and a tube connecting with said air-space, substantially as described.

750,938. **ALTERNATING-CURRENT WATTMETER.** CHARLES A. BROWN, Chicago, Ill. Filed July 24, 1900. Renewed June 24, 1903. Serial No. 162,840. (No model.)

Claim.—1. In an alternating-current wattmeter, the combination with the armature thereof, of a pressure-winding and a current-winding, the windings of the meter being one superposed upon the other, whereby the fields due to the windings are collocated, substantially as described.

2. In an alternating-current wattmeter, the combination with the armature thereof, of a pressure-winding and a current-winding, the windings of the meter being one superposed upon the other, whereby the fields due to the windings are collocated, and a core about which the windings of the meter are disposed, substantially as described.

3. In an alternating-current wattmeter, the combination with the armature thereof, of current and pressure field-windings, each subdivided into a plurality of coils, the coils of one winding being superposed upon the coils of the other, whereby the current and pressure coils produce collocated fields, substantially as described.



4. In an alternating-current wattmeter, the combination with the armature thereof, of current and pressure field-windings, each subdivided into a plurality of coils, the coils of one winding being superposed upon the coils of the other, whereby the current and pressure coils produce collocated fields, and a core for the coils of the meter, substantially as described.

5. In an alternating-current wattmeter, the combination with the armature thereof, of means for producing collocated fields that are proportional to the current and pressure in the working circuit, substantially as described.

6. In an alternating-current meter, the combination with the armature thereof, of means for producing collocated fields that exert torque upon the armature proportional to the product of the current and the pressure in the working circuit, substantially as described.

7. In a device of the class described, the combination with two energizing-circuits serving to carry currents adapted to produce magnetic fluxes following substantially the same magnetic path, of an armature in inductive relation to said circuits, substantially as described.

8. In a device of the class described, the combination with two energizing-circuits one superposed upon the other, whereby the magnetic fluxes due thereto are confined substantially to the same path, of an armature in inductive relation thereto, substantially as described.

9. In a device of the class described, the combination with an armature, of an equal number of pressure and current coils inductively related to the armature, said coils being disposed about a common path of the magnetic flux produced by each, one of said current-coils being opposed in magnetic effect to one of said pressure-coils, whereby two field-poles of unequal strength are produced and movement of the armature is secured

10. In a device of the class described, the combination with an armature, of an equal number of pressure and current coils inductively related to the armature, said coils being disposed about a common path of the magnetic flux produced by each, one of said current-coils being opposed in magnetic effect to one of said pressure-coils, the polar axes of said coils lying transversely to the plane of said armature, whereby two field-poles of unequal strength are produced and movement of the armature is secured.

11. In a device of the class described, the combination with an armature, of a pressure-winding in inductive relation thereto, a current-winding also in inductive relation to said armature, said pressure and current windings being both disposed about a common path of the magnetic flux produced by each winding, a portion of said pressure-winding being opposed in effect to a portion of said current-winding, whereby poles of unequal strength are presented to the armature.

12. In a device of the class described, the combination with an armature, of a pressure-winding in inductive relation thereto, a current-winding also in inductive relation to said armature, the polar axis of said windings lying transversely to the plane of said armature, said pressure and current windings being both disposed about a common path of the magnetic flux produced by each winding, a portion of said pressure-winding being opposed in effect to a portion of said current-winding, whereby poles of unequal strength are presented to the armature.

13. In a device of the class described, the combination with an armature, of pressure and current windings connected with the main circuit and inductively related to each other and to the armature, and means for causing the magnetic field due to their conjoint effect to act upon said armature in a common area.

14. In a device of the class described, the combination with an armature, of a pressure-energizing circuit and a current-circuit combined with said pressure-circuit to produce a magnetic field due to the conjoint effect of the said circuits and acting in a common area upon said armature, said armature being in inductive relation to both of said circuits.

15. In a device of the class described, the combination with an armature, of pressure and current windings in inductive relation thereto, said pressure and current windings being both disposed about a common path of the magnetic flux produced by the windings, substantially as described.

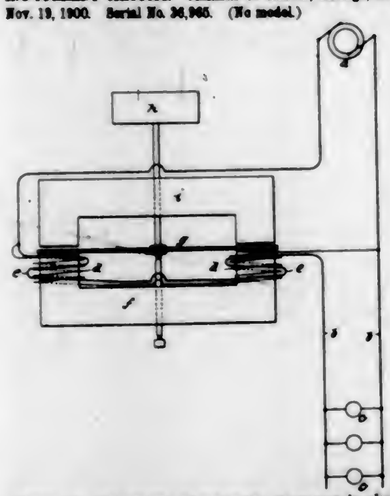
16. The combination with an armature, of a field-core associated therewith, energizing-windings on said core in inductive relation with said armature, said energizing-windings being disposed upon said core so that they cooperate at one pole and are opposed in effect at the other pole of the core substantially as described.

17. The combination with field-cores, of an armature interposed in the path of the magnetic flux between the poles of said cores, current-windings on said cores, and pressure-windings on said cores, the windings acting cumulatively at one pole and opposedly in effect at another pole, whereby the armature is caused to rotate, substantially as described.

18. The combination with field-cores, of an armature interposed in the path of the magnetic flux between the poles of said cores, a plurality of pressure-coils on said cores, a current-winding on said cores, part of said pressure-coils acting cumulatively at one pole with said current-winding and opposedly to said current-winding at an other pole, substantially as described.

19. The combination with field-cores, of an armature interposed in the path of the magnetic flux between the poles of said cores, a plurality of energizing-windings on said cores disposed about a common path of the magnetic flux produced by the windings, part of said windings acting cumulatively at one pole and opposedly in effect at another pole, substantially as described.

750,939. PROCESS OF MEASURING WATTS IN ALTERNATING-CURRENT CIRCUITS. CHARLES A. BROWN, Chicago, Ill. Filed Nov. 19, 1900. Serial No. 36,965. (No model.)

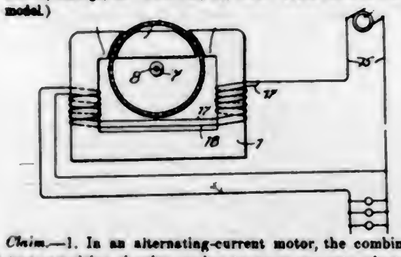


Claim.—1. The process of measuring the power in alternating-current circuits, which consists in creating a single field by the current and pressure in the system, and subjecting a measuring element to the action of the said field, substantially as described.

2. The process of measuring power in alternating-current circuits, which consists in creating component current and pressure fields, combining said fields to form a single field, and subjecting a measuring element to the action of the said resultant field, substantially as described.

3. The process of measuring power in alternating-current circuits, which consists in interposing a measuring element in the path of a magnetic flux between the poles of a magnetic circuit and causing energizing pressure and current windings to act cumulatively at one pole, and oppposedly at the other pole, substantially as described.

750,940. ALTERNATING-CURRENT MOTOR. CHARLES A. BROWN, Chicago, Ill. Filed July 13, 1903. Serial No. 165,302. (No model.)



Claim.—1. In an alternating-current motor, the combination with two energizing-circuits serving to carry currents adapted to produce magnetic flux following substantially the same magnetic path, of an armature in inductive relation to said circuits, and a short-circuited winding on said armature, substantially as described.

2. In an alternating-current motor, the combination with an armature provided with a short-circuited winding, of a field-core associated therewith, and energizing-windings on said core in inductive relation with said armature, said energizing-windings being disposed upon said core so that they cooperate at one pole and are opposed in effect at the other pole of the core, substantially as described.

3. In an alternating-current motor, the combination with a U-shaped core, of an armature in the shape of a cylindrical shell disposed between the poles of said core in the bend thereof, a short-circuited winding on said core, a continuation of said core upon the inside of said shell for completing the magnetic circuit through said core, said shell being adapted to rotate between said core parts to intercept the magnetic flux flowing therethrough, and means for creating a single magnetic field through said core parts and the part of the shell between said core parts whereby the armature is caused to rotate, substantially as described.

4. In an alternating-current motor, the combination with a U-shaped core, of an armature in the shape of a cylindrical shell disposed between the poles of said core, a continuation of said core upon the inside of said shell for completing the magnetic circuit through said core, said shell being adapted to rotate between said core parts to intercept the magnetic flux flowing therethrough, the axis of rotation of said armature being vertically displaced from the path of said magnetic field, and means for creating a single magnetic field through said core parts and the part of the shell between said core parts whereby said armature is caused to rotate, substantially as described.

5. In an alternating-current motor, the combination with a field-core, of an armature disposed in the path of the magnetic flux between the poles of said core, a short-circuited winding upon said armature, and energizing-windings for said field-core for causing a single field through said core and said armature whereby said armature is rotated, substantially as described.

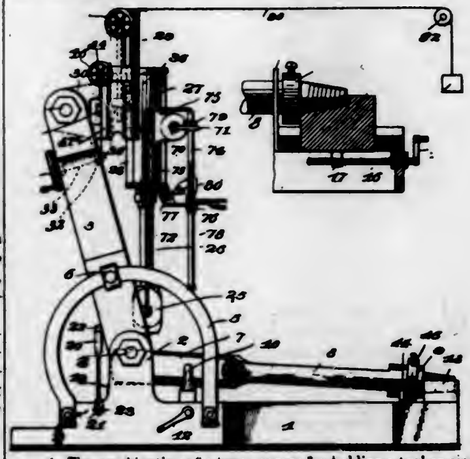
6. In an alternating-current motor, the combination with a field-core, of an armature disposed in the path of the magnetic flux between the poles of said core, a short-circuited winding for said armature, and energizing-windings for said field-core for causing a single field through said core and said armature, the axis of rotation of said armature being displaced from the path of the magnetic flux between the poles of said core, substantially as described.

750,941. TOOL-DRESSER. JACOB S. BROWN, Los Angeles, Cal., assignor to William H. Clark, Fullerton, Cal. Filed Aug. 7, 1902. Serial No. 118,330. (No model.)

Claim.—1. The combination of a base, means for holding a tool to said base embracing a clamping device connected to the base, a hammer, means for carrying the hammer embracing a yoke connected to the base and a head connected to the yoke by means allowing the head to be tilted in two planes at right angles to each other and to the yoke, and means for reciprocating the hammer.

2. The combination of a base, means for holding a tool on said base, a yoke pivoted on said base, a bracket pivoted to said yoke, a head swiveled transversely on said bracket, a hammer, and means for reciprocating the hammer, said means being carried by the head.

3. The combination of a base, means for holding a tool on said base, a yoke pivoted to said base, a segment rigidly attached to said base, a clamping device carried by the yoke and engaging said segment, a hammer, means carrying said hammer connected to the yoke, means for actuating the hammer, and means for tilting the hammer-carrying means transversely of the yoke and for moving said hammer-carrying means longitudinally of said yoke.



4. The combination of a base; means for holding a tool on said base, a yoke pivoted to said base, means for adjusting said yoke relatively to said base, a reciprocatory hammer, means slidably supporting said hammer and connected to said yoke, means for reciprocating the hammer, and means for varying the length of stroke of the hammer.

5. The combination of a base, means for holding a tool on said base, a yoke pivoted to said base, a bracket pivoted to said yoke, means for adjusting said bracket relatively to said yoke, a hammer, means for carrying said hammer connected to said bracket, and means for actuating the hammer.

6. The combination of a base, means for holding a tool on said base, a yoke pivoted to said base, a bracket pivoted to said yoke, a nut connected to said bracket, a screw rotatably mounted on said yoke and engaging said nut, a hammer, means for carrying said hammer connected to said bracket, and means for actuating said hammer.

7. The combination of a base, means for holding a tool on said base, a yoke pivoted to said base, a bracket connected to said yoke, a head mounted on said bracket, a cylinder slidably mounted on said head, means for moving said cylinder along said head, a hammer, and means cooperating with said cylinder for actuating the hammer.

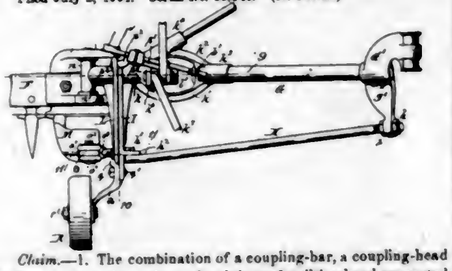
8. The combination of a base, means for adjustably holding a tool on said base, a yoke connected to the base, a head, means connecting said head and yoke, means for tilting said head in two different planes relatively to the yoke, a hammer, and means for actuating said hammer said actuating means being connected to said head.

9. The combination of a base, means for holding a tool on said base, a yoke pivoted to said base, a bracket pivoted to said yoke, a head swiveled on said bracket, a segmental gear carried by said bracket, a worm carried by said head and meshing with said segmental gear, a hammer, means for carrying said hammer connected with said head, and means for actuating said hammer.

10. The combination of a base, means for holding a tool on said base, a yoke connected to said base, a head connected with said yoke, a cylinder slidably mounted in said head, a screw rotatably mounted on said head, means on said cylinder engaging said screw, a hammer, means for rotating said screw, and means mounted in the cylinder for actuating said hammer.

11. The combination of a base, an anvil on said base, a pair of jaws slidably mounted in said base near the anvil; means for moving said jaws, a movable block slidably mounted in said base transversely of the path of movement of said jaws, said block having a semiconical recess, a guard-plate mounted on said block and beyond one end of the block, a screw revolubly mounted on said base, means connected to said block engaging said screw, a hammer, means for carrying said hammer connected to said base, and means for actuating said hammer.

750,942. MOWING-MACHINE. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Filed July 2, 1901. Serial No. 66,348. (No model.)



Claim.—1. The combination of a coupling-bar, a coupling-head rigidly secured to the grainward end thereof, a tilting head connected at its rear end to the rear end of said coupling-head by a transverse pivot, means for guiding the front end of the tilting head in its vertical movement, a shoe attached to said tilting head, and a finger-bar secured to said shoe and having its rear edge arranged adjacent to said pivot and its fingers arranged forwardly of the pivot, whereby the points of the fingers are located at a considerable distance in front of said pivot and are raised or lowered by tilting the head without materially changing the elevation of the rear edge of the finger-bar, substantially as set forth.

2. The combination of a coupling-bar, a coupling-head secured to the grainward end thereof, a brace arranged in front of the coupling-bar and secured to the front portion of said head, a tilting head arranged on the grainward side of said coupling-head and pivoted at its rear end to the same, a guide arranged on the front end of said coupling-head and engaging the front end of said tilting head, and a shoe and finger-bar carried by said tilting head, substantially as set forth.

3. The combination of a main frame, a coupling-bar, a coupling-head secured to the grainward end thereof, a push-bar arranged in rear of the coupling-bar and connecting the latter with the main frame, a brace arranged in front of the coupling-bar and secured to the front portion of said head, a tilting head arranged on the grainward side of said coupling-head and pivoted thereto, and a shoe and finger-bar carried by said tilting head, substantially as set forth.

4. The combination of a main frame, a coupling-bar provided at its inner end with an attaching-head which is pivoted to the main frame, a coupling-head secured to the grainward end of the coupling-bar, a brace arranged in front of the coupling-bar and connecting said attaching-head to said coupling-head, a tilting head pivoted to said coupling-bar, and a shoe and finger-bar carried by said tilting head, substantially as set forth.

5. The combination of a coupling-bar, a coupling-head arranged at the grainward end thereof, an open frame interposed between the coupling-bar and the coupling-head, a pivot-bearing extending through said coupling-head into said open frame, a tilting head having its pivot arranged in said bearing, a tilting post arranged in said open frame and secured to said pivot, and a shoe and finger-bar carried by said tilting head, substantially as set forth.

6. The combination of a coupling-bar, a coupling-head arranged at the grainward end thereof, a tilting head pivoted to said coupling-head, a shoe and finger-bar carried by said tilting head, a gag-lever, and a gag-lever support which is attached to said tilting head and partakes of its tilting movement, substantially as set forth.

7. The combination of a coupling-bar, a coupling-head secured to the grainward end thereof and provided with a pivot-bearing, a tilting head having its pivot extending through said bearing, a tilting post secured to said pivot on the inner side of said bearing, a support for the gag-lever secured to said post and said tilting head, a gag-lever pivoted to said support, and a shoe and finger-bar carried by said tilting head, substantially as set forth.

8. The combination of a coupling-bar, a coupling-head secured to the grainward end thereof, a tilting head pivoted to said coupling-head, a shoe connected at its rear end to said tilting head, a laterally-adjustable device connecting the front end of said shoe to said tilting head, and a finger-bar carried by said shoe, substantially as set forth.

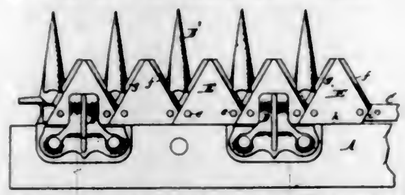
9. The combination of a coupling-bar, a coupling-head secured to the grainward end thereof, a tilting head pivoted to said coupling-head, a shoe connected at its rear end to said tilting head by a longitudinal pivotal joint, a longitudinal pivotal joint connecting the front portion of said shoe with said tilting head and consisting of a screw-eye arranged in a threaded socket on the tilting head and ears on the shoe to which said eye is pivoted, and a finger-bar carried by said shoe, substantially as set forth.

10. The combination of a coupling-bar, a coupling-head secured to the grainward end thereof and projecting forwardly therefrom, a tilting head connected at its rear end to the rear end of said coupling-head by a transverse pivot, a front extension secured to said coupling-head and provided with a guide which engages the front end of said tilting head, a leading-wheel mounted on said front extension, a shoe attached to said tilting head, and a finger-bar secured to said shoe and having its fingers arranged in front of said transverse pivot, substantially as set forth.

11. In a device of the class described, the combination of the yoke having a screw-threaded socket with a threaded stem mounted in said socket, and means for connecting said stem with the shoe.

12. A yoke having a screw-threaded socket in combination with a screw-threaded stem mounted in said socket and having a tubular cross-piece at its outer end, and a bolt connecting the same with the shoe of a mowing-machine.

750,943. HARVESTER-CUTTER. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Filed July 2, 1901. Serial No. 66,349. (No model.)



Claim.—1. A cutter-section having forwardly-converging beveled side edges, and having on one side, at the inner end of the beveled side, a straight square edge which extends from the edge of the beveled side to the butt-end of the section in a straight line parallel with the beveled side on the opposite side of the section, and on the opposite side, at the inner end of the beveled side, a square edge which is arranged parallel with the opposite beveled side of the section, and a square edge which extends from the high inner end of said square edge to the butt-end of the section in line with the high part of the beveled side on the same side of the section, substantially as set forth.

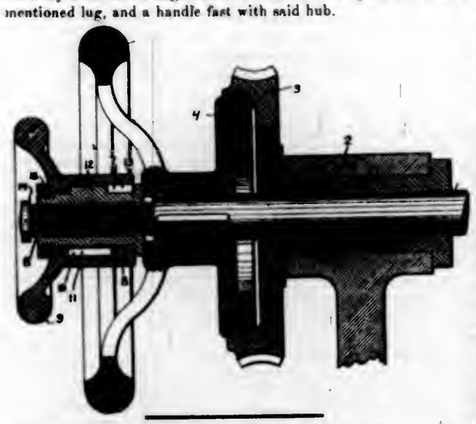
2. The combination of a cutter-bar and cutter-sections arranged side by side on the bar and having forwardly-converging beveled sides, each section having at the base end of one of its beveled sides an angular notch which has one side arranged parallel with the opposite beveled side of the section and the other side extending in a straight line to the butt of the section, and at the base end of the opposite beveled side a straight square edge which extends from the butt-end of the section to the edge of the beveled side and is arranged parallel with the corresponding side of the notch on the opposite side of the section, the straight square edge and the adjacent end of the beveled side of one section being arranged in the notch of the adjoining section, thereby forming upright angular shoulders on the upper sides of the sections in the angles at the junctions of their beveled sides, substantially as set forth.

750,944. FRICTION-CLUTCH. JOHN H. R. BRYAN, Buffalo, N. Y., assignor to Niles-Bement-Pond Company, Jersey City, N. J. Filed Nov. 27, 1903. Serial No. 183,731. (No model.)

Claim.—1. In a friction-clutch, the combination, substantially as set forth, of two rotary members to engage by friction, a nut working upon a screw and serving to force said friction members together, a handle mounted for rotation relative to said nut, and cooperative lugs upon the nut and handle to cause the handle to impart rotation to the nut after moving idly relative to the nut.

2. In a friction-clutch, the combination, substantially as set forth, of a shaft, a gear loose thereon and provided with a friction-surface, a friction-disk splined to the shaft, a handle fast with the friction-disk, a nut screwed upon the shaft and serving to force the friction-disk into frictional engagement with the gear, a handle mounted to turn upon the nut, and cooperating lugs upon the handle and nut.

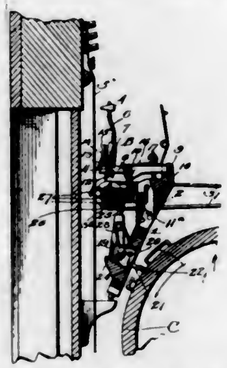
3. In a friction-clutch, the combination, substantially as set forth, of a shaft, a gear loose thereon and provided with a friction-surface, a friction-disk splined to the shaft, a handle fast with the friction-disk, a nut screwed upon the shaft and serving to clamp the friction-disk to the gear, a lug projecting outwardly from the surface of the nut, a hub mounted for rotation upon the nut and having its bore annularly enlarged to receive said lug, a lug projecting inwardly from the enlarged bore of the hub in the path of the first-mentioned lug, and a handle fast with said hub.



750,945. PROCESS OF MAKING WATER-SOLUBLE ALBUMINOUS COMPOUNDS. ALBERT BUSCH, Brunswick, Germany, assignor to The Firm of Bauer & Co., Berlin, Germany. Filed May 26, 1903. Serial No. 158,767. (No specimens.)

Claim.—The process of manufacturing water-soluble albuminous compounds which consists in combining albuminous compounds insoluble in water but soluble in alkali with alkali salts of fatty acid substituted glycerin phosphoric acids, substantially as specified.

750,946. TREMOLO-ACTION FOR MECHANICAL PIANOS. ALESSANDRO CAPRA, Philadelphia, Pa. Filed Sept. 8, 1903. Serial No. 172,318. (No model.)



Claim.—1. In an instrument of the class described, the combination of a cylinder, a driven pulley, means to simultaneously rotate them, an action, means to move the same into and out of engagement with the cylinder, a revoluble vibrator movable with the action and having a pulley, an endless cord connecting said pulley directly with the driven pulley to rotate said vibrator, and a spring-pressed movable element engaging the cord and maintaining the tension thereof in all positions of the movable vibrator.

2. In an instrument of the class described, the combination of a cylinder, a driven pulley, means to simultaneously rotate them, an action, means to move the same into and out of engagement with the cylinder, a revoluble vibrator movable with the action and having a pulley, an endless cord connecting said pulley directly with a driven pulley to rotate said vibrator, and a pivoted element having a spring to move it in one direction and provided with direction-sheaves engaging said endless cord and maintaining the tension thereof in all positions of the movable vibrator.

3. In an instrument of the class described, in combination with an action series, and a separate action series whose several members each comprise a movable carrier, a hammer pivoted thereto and having a tappet, and a pivoted finger to coact with the carrier to determine the position of the latter and the hammer, a vibrator, and a revoluble cylinder having separate means to actuate the members of the first-mentioned action series and the fingers of the several members of the last-named action series to control their relation to the vibrator.

4. In combination with a vibrator and means to impart motion thereto, a supporting element, a stop, a finger pivoted to said supporting element, a spring to normally engage the finger with the stop, a movable carrier carried by the supporting element and operated by the finger, and a hammer, pivoted to the carrier and brought by the movement thereof into and out of action with the vibrator.

5. The combination of a pivoted supporting-bar, a carrier pivoted thereto and having a cam on its under side, a hammer pivoted to the carrier and having a tappet at its lower end, a stop on the carrier, a spring acting on the hammer to normally engage it with the stop, a pivoted spring-pressed finger bearing under the cam of the carrier and normally supporting the latter and the hammer in a raised position, means to actuate the finger to raise and lower the carrier, and a vibrator coacting with the tappet of the hammer to operate the latter when the carrier and hammer are lowered.

6. The combination of a supporting-bar, a carrier pivoted thereto and having a cam on its under side and a stop on its upper side, a spring-pressed hammer pivoted to the carrier and having a tappet at its lower end, a pivoted spring-pressed finger bearing under the cam of the carrier, a stop to normally maintain the finger in position to raise the carrier and the hammer, means to actuate the finger to raise and lower the carrier, and a vibrator coacting with the tappet of the hammer to operate the latter when the carrier and hammer are lowered.

7. In an instrument of the class described, the combination of a laterally-movable hammer-bar, an action carried by the said bar, a tremolo-action distinct from the first-named action, and a revoluble vibrator to actuate the tremolo-action also carried by and movable with the hammer-bar, movable fingers carried by the hammer-bar, to control the members of the tremolo-action, means to operate the action and the said fingers, and means to actuate the vibrator.

8. In an instrument of the class described, the combination of a revoluble key-pin cylinder having relatively fixed bearings, a hammer-bar movable toward and from said cylinder, an action carried by the said bar, a tremolo-action distinct from the first-named action, and a revoluble vibrator to actuate the tremolo-action, also carried by and movable with the hammer-bar, movable fingers carried by said bar to control the members of the tremolo-action and put into and out of operation with the cylinder by the movement of the hammer-bar, and means, including a yieldable element, to actuate the vibrator and keep the same in engagement irrespective of the movement thereof by the movable hammer-bar.

9. In an instrument of the class described, the combination of a revoluble key-pin cylinder having relatively fixed bearings, a hammer-bar movable toward and from the cylinder, an action and a tremolo-action separate from the first-named action, carried by the hammer-bar, the former operated and the latter controlled by the cylinder, a revoluble vibrator carried by and movable with the hammer-bar, said vibrator operating the tremolo-action, a driving element for the cylinder and vibrator, and a yieldable connection between the said element and the vibrator to actuate the latter and keep the same in engagement irrespective of its movement with the hammer-bar.

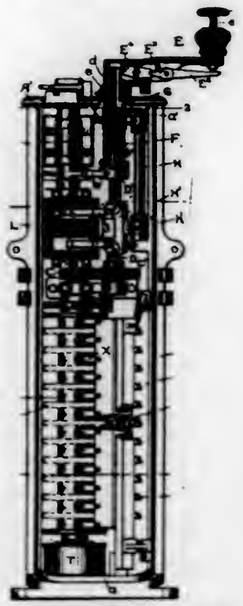
750,947. ELECTRIC CONTROLLER. FRANK E. CASE, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Sept. 16, 1901. Serial No. 75,488. (No model.)

Claim.—1. In combination, a controller for electric circuits, an operating-handle therefor, a double-break switch, a blow-out coil between the two pairs of contacts of said switch, a strip of magnetic material having its ends in line with the core of the said coil, the switch-contacts being located between the ends of said strip and the ends of said core, and means operated upon the release of said handle for opening said double-break switch.

2. The combination with a controller for an electric circuit, of a double-break switch having a flat blow-out coil between the two pairs of contacts of said switch, a piece of magnetic material opposite each end of the core of said coil, the switch-contacts being located between the ends of said core and the adjacent pieces of magnetic material, means actuated by the controller for closing the circuit at the double-break switch, and means operated independently of the controller for opening the circuit at the double-break switch.

3. The combination with a box of insulation, of a blow-out coil

in said box, a strip of magnetic metal having its ends in line with the core of said coil, and switch-contacts located between said ends and said core.



4. In combination, a controller-cylinder having contact-segments thereon, contact-fingers adapted to engage said segments, and an arc-deflector having a shallow recess adjacent to the points of contact of said fingers and segments.

5. The combination with a controller-cylinder and contact-fingers, of arc-deflectors provided with recesses on their opposite faces adjacent to the point of contact.

6. In a controller, a plurality of arc-deflectors, placed near to the contacts, and provided with recesses in their opposite faces.

7. In a controller, an arc-deflector having its edge thicker than the portion adjacent to the contacts.

8. In a controller, an arc-deflector having its edge closer to the side of the contacts than is the surface adjacent to said contacts.

9. In combination, a controller, a sleeve carrying a cam mounted on the controller-shaft, means for rotating said sleeve independent of said shaft, a rock-shaft, a double-break switch one member of which is mounted on said rock-shaft, an arm on said rock-shaft engaging said cam to hold said switch in its closed position, and means for rotating said rock-shaft to open said switch when the sleeve carrying said cam is allowed to return to the position corresponding to the "off" position of the controller.

10. In combination, a controller for an electric circuit, a handle for operating said controller, a switch independent of said controller for opening said circuit when the controller-handle is released in any operative position of the controller, a cam mounted on the controller-shaft operatively connected with said switch to operate said switch to close the circuit upon the first movement of the controller from its "off" position, also to hold said switch in its closed position so long as the cam is in any position other than that corresponding to the "off" position of the controller.

11. In combination, a controller, a handle for operating said controller, an independent switch for opening the controller-circuit at any operative position of the controller, a sleeve carrying a cam which controls the operation of said switch, a lever pivoted in said handle, a push-pin in said controller-handle operatively connected with the long arm of said lever, means for connecting the short arm of said lever to said sleeve when said push-pin is depressed in the "off" position of the controller-handle, said connecting means comprising a rocker pivoted in said handle and a bolt slidably mounted in a keyway in the controller-shaft.

12. In combination with a controller-handle, a push-pin, a lever having its long arm operatively connected with said push-pin and its short arm operatively connected through a rocker pivoted in said handle with a bolt slidably mounted in a keyway in the controller-shaft, said bolt being adapted to be connected with a sleeve on the controller-shaft when the controller-handle is in its "off" position

13. In combination with a controller-handle, a push-pin having a broad knob on which the operator's hand is adapted to rest, means for maintaining said push-pin in an elevated position, a lever having its long arm operatively connected with said push-pin, and means for connecting the short arm of said lever with a sleeve on the controller-shaft, said connecting means comprising a rocker pivoted in said handle and a bolt slidably mounted in a keyway in the controller-shaft.

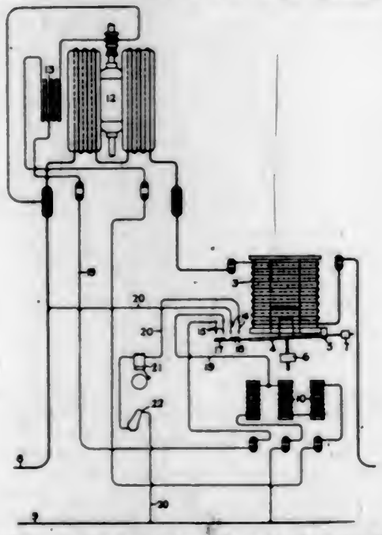
14. In combination, a controller-casing, a controlling-cylinder in the lower part of said casing, an operating-shaft for said cylinder out of alinement therewith but geared thereto and extending through the cap-plate of said casing, and a circuit-closing switch and a reversing-switch located above said cylinder and adjacent to said operating-shaft.

15. In combination, a controller-casing, a controlling-cylinder in the lower part of said casing, an operating-shaft for said cylinder out of alinement therewith but geared thereto and extending through the cap-plate of said casing, a circuit-closing switch and a reversing-switch located above said cylinder and adjacent to said operating-shaft, and an interlock between said reversing-switch and said operating-shaft.

16. In combination, a controller-casing, a controlling-cylinder therein, an operating-shaft for said cylinder out of alinement therewith and geared thereto so that the cylinder has a greater angular movement than that of the operating-shaft, and a circuit-closing switch located in said casing above said cylinder and adjacent to said operating-shaft.

17. In combination, a controller-casing, a controlling-cylinder within said casing, an operating-shaft for said cylinder out of alinement therewith but geared thereto and extending upward through the cap-plate of the controller-casing, a circuit-closing switch above said cylinder and adjacent to said operating-shaft, and means for operating said circuit-closing switch from said operating-shaft.

750,948. DEMAND-DISCOUNT METER. FRANK P. COX, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Aug. 15, 1902. Serial No. 119,689. (No model.)



Claim.—1. The combination with an electric meter, of means for changing the speed of said meter so long as the line-current exceeds a predetermined maximum.

2. The combination with an electric meter, of means for altering the resistance of one of the meter-circuits so long as the line-current exceeds a predetermined maximum.

3. The combination with an electric meter, of a shunt around one of the elements of said meter, and an electromagnet in series with the line for controlling said shunt continuously during a predetermined overload.

4. The combination with an electric meter, of a resistance in the armature-circuit, and means for shunting said resistance continuously when the line-current exceeds a predetermined maximum.

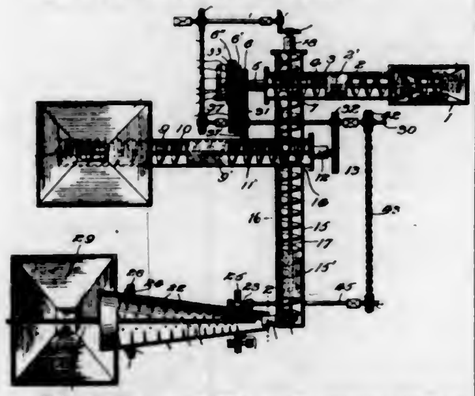
5. The combination with an electric meter, of a given resistance in the armature-circuit, and a switch responsive to an excess of line-current for cutting out a portion of said resistance continuously during a predetermined current variation.

6. The combination with an electric meter, of a given resistance in one of the meter-circuits, an electromagnet in series with the line, and a shunt around said resistance controlled continuously during a predetermined overload by the armature of said electromagnet.

7. The combination with an electric meter, of a given resistance in the armature-circuit, an electromagnet in series with the line, an armature for said magnet provided with adjustable counterbalance-weights, and a shunt around a portion of said resistance controlled by the armature of said electromagnet.

8. The combination with an electric meter, of a given resistance in the armature-circuit, an electromagnet in series with the line, an armature for said magnet provided with contacts, a shunt around said resistance, and an alarm-circuit across the line, each containing contacts adapted to be bridged by the contacts on the armature of the electromagnet.

750,949. APPARATUS FOR USE IN THE MANUFACTURE OF ARTIFICIAL STONE, &c. WILLIAM A. DARROW and ALBERT C. WOOD, Philadelphia, Pa., and JOHN R. ALLEN, Merchantville, N. J. Filed June 19, 1903. Serial No. 162,221. (No model.)



Claim.—1. The combination of a screw conveyer adapted for feeding lime at a definite rate, with a screw conveyer adapted for feeding sand at a definite rate, a screw conveyer adapted for receiving and mixing lime and sand discharged thereto by said first conveyers, and a revolving mixer having inwardly-projecting members for receiving the discharge from said last-named conveyers, substantially as specified.

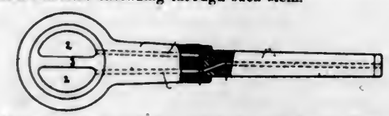
2. The combination with a mixer and steamer of a screw conveyer having a journaled shaft with a gear-wheel thereon, a second screw conveyer having a journaled shaft with one or more gear-wheels thereon, a third screw conveyer having a journaled shaft with a gear-wheel thereon, said third conveyer directly receiving from said first two conveyers, and mechanism connecting the gear-wheels on the respective shafts whereby said conveyers revolve together at definitely-related speeds, substantially as specified.

3. The combination with a mixer and steamer of a screw conveyer, a second screw conveyer, a third screw conveyer to which said first and second conveyers directly discharge, and mechanism connecting said conveyers and revolving them together at definitely-related speeds, substantially as specified.

4. The combination of a conveyer, a second conveyer, a third conveyer to which said first and second conveyers directly deliver, a mixer to which said third conveyer delivers, and mechanism connecting said conveyers and mixer and revolving them together at definitely-related speeds, substantially as specified.

750,950. TOBACCO-PIPE. WILLIAM R. DOOLEY, Grand Haven, Mich. Filed Mar. 18, 1903. Serial No. 148,305. (No model.)

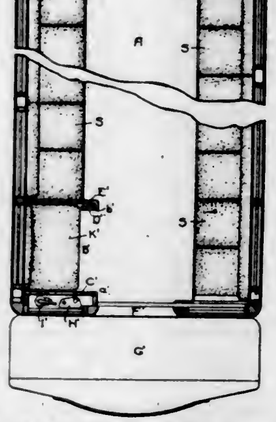
Claim.—1. As an article of manufacture, a tobacco-pipe comprising a bowl having a plurality of independent chambers placed side by side with their openings on the same side of the bowl for receiving tobacco, a stem attached to the bowl and a separate bore for each chamber extending through such stem.



2. In a tobacco-pipe, the combination of a bowl having two independent chambers for receiving tobacco, placed side by side, a partition between the same, a stem attached to the bowl having a separate bore for each chamber extending through said stem, and a mouthpiece connecting with said stem.

3. In a tobacco-pipe, the combination of a bowl having two independent chambers for receiving tobacco and a bore for each chamber, a stem on the bowl through which the bores extend, threads on the end of the stem, a mouthpiece having a bore the inner end of which is eccentric, a shoulder on the inner end of the mouthpiece, a washer between the mouthpiece and the stem, and a ferrule engaging the shoulder of the mouthpiece and screw-threaded to engage the threads on the stem.

750,951. CONVERTIBLE CAB FOR RAILWAY-CARS. JAMES S. DOYLE, New York, N. Y. Filed Sept. 24, 1902. Serial No. 124,631. (No model.)



Claim.—1. In a railway-car, controlling apparatus within the car at one or each end thereof, a passengers' seat normally occupying the space adjacent to said controlling apparatus, and partitions arranged near said controlling apparatus for inclosing the space normally occupied by the passengers' seat in such a manner as to form with the walls of the car a compartment for use by the motorman.

2. In a railway-car, controlling apparatus therefor, a convertible cab comprising a fixed partition adjacent to the end of the car and a movable partition adapted to be swung back against the end of the car when the cab is not in use to form a protection for the controlling apparatus and to be swung forward to form with said fixed partition a closed cab.

3. In a railway-car, controlling apparatus therefor, a convertible cab having fixed and movable walls or partitions, said movable walls or partitions being so constructed and arranged that when in certain positions they cooperate with the said fixed walls or partitions to form a compartment to be used by the motorman when operating the car, and when thrown into other positions to serve as a protection for the controlling apparatus and allow the greater part

of the space previously constituting said compartment to be thrown into communication with the remainder of the car and contain seats for passengers.

4. In a railway-car, a convertible cab having a fixed and a movable partition, said movable partition when in one position coöperating with the end wall of the car to form a small compartment which completely incloses the controlling apparatus when the said apparatus is not in use, and when in another position coöperates with said fixed partition and the said side and end walls of the car to form a cab for the motorman when he is operating said controlling apparatus.

5. In a railway-car provided with an entrance at one end, a stationary partition, and a movable partition inclosing with the stationary partition the side wall and end wall of the car a space at one side of said entrance, the said movable partition being adjustable to form a smaller compartment by coöperating with the said end wall.

6. In a railway-car provided with an entrance at one end, a stationary partition and a movable partition, said movable partition inclosing with the said stationary partition and the side and end walls of the car a space at one side of said entrance adapted for use by the motorman when operating the car, said movable partition being so constructed and arranged that when the controlling apparatus is not in use it will close the said apparatus within a narrow compartment and allow the remainder of the space previously used by the motorman to be used for other purposes.

7. In a railway-car, a platform and a convertible cab at each end of the car, the end walls of the car separating the cabs and their adjacent platforms, controlling devices located near the end walls, and movable partitions adapted when the space previously occupied by each cab is used by passengers to form a protection for said controlling devices, said end walls being provided with entrances which are unobstructed by the movable partitions whether or not the controlling apparatus in each of said cabs is in use by the motorman.

8. In a railway-car, a convertible cab having a movable partition, a car-seat in said cab, a support on which one end of said seat is pivoted, and means for allowing said movable partition when in a certain position to act as a support for the other end of said seat.

9. In a railway-car, a convertible cab having a movable partition, a car-seat in said cab, a supporting-frame in which one end of said seat is pivoted, and lugs or brackets carried by said partition on which one end of said car-seat is adapted to rest so that the said partition when in a certain position acts as one of the supports for said seat.

10. In combination, a convertible cab having a movable partition, with a convertible passengers' seat, the said partition being so constructed and arranged as to form a support for one end of said seat when the latter is in position for use by passengers.

11. In a railway-car, a convertible cab comprising a fixed partition adjacent to the end of the car and a movable partition adapted to be swung back against the end of the car when the cab is not in use and to be swung forward to form with said fixed partition a closed cab, and a seat arranged to occupy the space between the fixed and the movable partitions when the cab is not in use.

12. In a railway-car provided with controlling devices at one or both ends of the car, a convertible cab comprising a fixed partition adjacent to the end of the car and a movable partition adapted in one position to form with the said fixed partition a closed cab for a motorman or operator and in another position to inclose the controlling devices only.

13. In a railway-car provided with controlling devices at one or both ends of the car, a convertible cab comprising a fixed partition adjacent to the end of the car and a movable partition adapted in one position to form with the said partition a closed cab for a motorman or operator and in another position to inclose the controlling devices only, and a movable seat arranged to occupy the space between the fixed and movable partitions when the cab is not in use by the operator.

14. In a railway-car provided with controlling devices at one end, a convertible cab having a wall or partition adjacent to the end wall of the car, and another partition adapted when in one position to form with the said first-mentioned partition a closed cab for the motorman or operator and when in another position to form with the end wall of the car an inclosure for the controlling devices only.

15. In a railway-car provided with controlling devices at one end, a convertible cab having a wall or partition adjacent to the end wall of the car, and another partition adapted when in one position to form with the said first-mentioned partition a closed cab for the motorman or operator and when in another position to form with the end wall of the car an inclosure for the controlling devices only, and a seat adapted to occupy the space formerly inclosed by said partitions when the last-mentioned partition is used to inclose the controlling devices only.

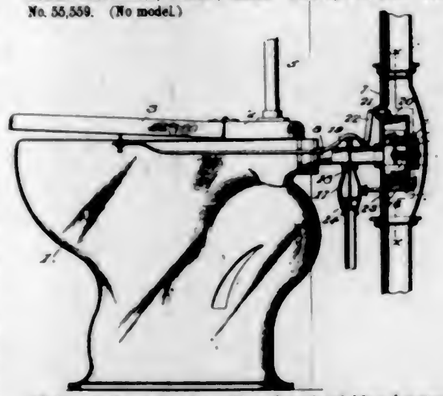
16. In a railway-car provided with controlling devices at one end, a convertible cab having a wall or partition adjacent to the end wall of the car, and another partition adapted when in one position to form with the said first-mentioned partition a closed cab for the motorman or operator, and when in another position to form with the end wall of the car an inclosure for the controlling devices only, and a pivoted convertible seat adapted to occupy the space formerly inclosed by the two partitions when the last-mentioned partition is used to inclose the controlling devices only and to be turned back out of the way when the closed cab is ready for use by the motorman.

17. In a railway-car, a convertible cab having a movable partition, in combination with a convertible seat which when the controlling apparatus on the car is not in use occupies the space inclosed by the cab when the controlling apparatus is in use by the motorman.

18. In a railway-car, a convertible cab having a movable partition, in combination with a convertible seat which when the controlling apparatus on the car is not in use occupies the space inclosed by the cab when the controlling apparatus is in use by the motorman, said movable partition acting as a support for one end of said seat when the controlling apparatus is not in use and the said seat is in position for use by passengers.

19. In a railway-car provided with controlling apparatus located against the end wall of the car, a partition extending out from the side of the car, a movable partition adapted when in one position to form with the fixed partition and the side and end walls of the car a motorman's cab, and when in another position to form with walls of the car a small compartment inclosing only the controlling apparatus, a seat arranged to fill the space between the fixed and movable partitions when the latter is in position to inclose only the controlling apparatus, the said seat being hinged to a suitable support at the end adjacent to the fixed partition, and a motorman's seat secured to the under side of the said hinged seat.

750,952. VENTILATING DEVICE FOR WATER-CLOSETS, &c. ALBERT DEGUILLARD, Windsor, Canada. Filed Apr. 12, 1901. Serial No. 55,559. (No model.)



Claim.—1. In combination with a closet-bowl, hinged seat and ventilating-pipe, a fitting adapted to form a section of said pipe, a suction-fan and actuating-motor mounted upon a common shaft inclosed within said fitting, a vent-pipe connecting said fan with the interior of the bowl, a water-supply pipe for the motor, a valve in said pipe, and a lever for actuating said valve upon the movement of the seat.

2. The combination with a closet seat and bowl, of a ventilating-pipe adjacent to the bowl, a fitting having a removable cover forming a portion of said pipe, a suction-fan and motor mounted upon a common shaft, a housing for said fan and motor formed on the cover within the pipe, a vent-pipe connecting the eye of the fan with the bowl, a water-supply pipe for the motor, a valve in said pipe, a cover controlling communication between the fan and ventilating-pipe hinged to the fan-casing, and a bell-crank lever pivotally mounted in operative relation to said valve and cover, whereby upon the depression of the seat communication will be established with the ventilating-pipe and with the source of water-supply for the motor.

3. The combination with a closet seat and bowl, of a ventilating-pipe adjacent to the bowl, a suction-fan and motor mounted upon the same common shaft within the pipe and a housing therefor, a vent-pipe connecting the fan with the bowl, a water-supply pipe for the motor, a valve in said pipe and means whereby upon the depression of the seat communication will be established with the source of water-supply and between the ventilating-pipe and bowl respectively.

4. In a ventilating device of the character described, a pipe-fitting adapted to form a section of the ventilating-pipe, a suction-fan and water-motor mounted upon the same common shaft within the fitting, a housing forming a separate chamber for said fan and having an opening therein communicating with the closet-bowl, and a valve adapted to automatically control the source of water-supply.

5. In a ventilating device of the character described, a pipe-fitting adapted to form a section of the ventilating-pipe, a suction-fan and motor mounted upon a common shaft within said fitting, and a housing therefor forming separate compartments for the fan and motor, the motor-compartment being in constant communication with the ventilating-pipe and provided with a jet connected with the source of water-supply, and the fan-compartment adapted to be normally out of communication with the ventilating-pipe, and means independent of the fitting for setting said motor in operation and establishing communication with the fan and ventilating-pipe.

6. In a ventilating device for water-closets, a suction-fan and actuating water-wheel arranged upon a common shaft, a casing formed with compartments inclosing said fan and water-wheel, a fitting forming a section of the ventilating-pipe inclosing said casing and with which the compartments are in suitable communication to receive the waste water from the wheel and the exhaust-air from the fan, a vent-pipe for admitting air to the fan, and a valve automatically controlling the admission of water to the water-wheel, said valve having its casing secured to the under side of the vent-pipe and having its stem projecting in such manner as will admit of its being actuated by the movement of the hinged seat.

7. In a ventilating device for water-closets, a rotary fan and actuating water-wheel mounted upon a shaft, a casing formed with compartments inclosing said fan and water-wheel, a fitting adapted to form a section of the ventilating-pipe inclosing said casing and with which the compartments are in suitable communication, a vent-pipe for admitting air to the fan, and a water-supply pipe for the water-wheel, a valve in said pipe, and means for actuating said valve to set the motor in operation.

8. In a ventilating device for water-closets, a pipe-fitting adapted to form a section of the ventilating-pipe, a removable cover for said fitting having a casing provided with compartments formed thereon, in suitable communication with the ventilating-pipe, a suction-fan and actuating water-wheel arranged upon a common shaft within said compartments, a vent-pipe for admitting air to the eye of the fan, and a valve for automatically controlling the admission of water to the wheel upon the movement of the seat.

750,953. PLUG-EJECTING JACK FOR TELEPHONE-SWITCHBOARDS. ROBERT G. DUNNER, Postoria, Ohio. Filed June 6, 1902. Renewed Dec. 15, 1903. Serial No. 185,315. (No model.)

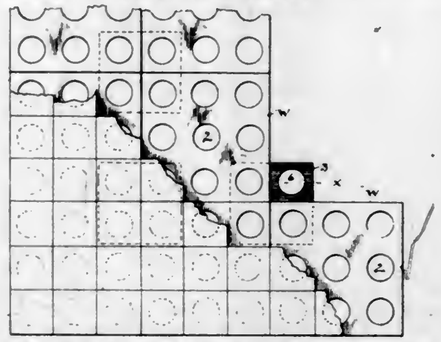


Claim.—1. The combination with the jack adapted for the reception of a plug, of a spring-pressed plunger movable to locked position by the insertion of the plug, a holding-catch for engaging with and locking said plunger, an armature carried by the plunger, and an electromagnet for attracting the armature and releasing the plunger.

2. The combination with a plug-receiving jack, of a spring-pressed plunger adapted to be moved to locking position on the insertion of the plug, an inclined head disposed on the plunger for contact with the end of the plug, a stationary holding-catch, a locking-shoulder arranged on the plunger and movable to engage said catch, an armature carried by the plunger, and an electromagnet for attracting the armature and releasing the plunger.

3. The combination with a plug-receiving jack, of a spring-pressed plunger adapted to be moved to locking position on the insertion of the plug, an inclined head disposed on the plunger for contact with the end of the plug, a vertical guiding-slot disposed at the rear end of the jack for the reception of a rectangular portion of the plunger, a stationary holding-catch on the plunger and movable into engagement with the catch by the plug, an armature carried by the plunger, and an electromagnet for attracting the armature and releasing said plunger, substantially as specified.

750,954. FLOOR-TILING. WILLIAM J. ELLIS, Akron, Ohio. Filed May 13, 1903. Serial No. 156,949. (No model.)



Claim.—1. In floor-tiling, a tiling consisting of a series of studs constructed to form a close and continuous floor-covering and provided each with a lug on its bottom, and a webbing through which said lugs are inserted and serving to unite said studs into a single section or block of floor-covering, the outer edges of said webbing being straight, substantially as described.

2. A floor-tiling consisting of a series of flat-surfaced studs matching at their edges and provided with lugs centrally on their bottom, and a flat webbing having openings through which said lugs are inserted, and the said webbing resting against the bottom of said studs about the base of said lugs, and the lugs extending through beneath the webbing, substantially as described.

3. The floor-covering, comprising studs with flat top and bottom surfaces and having lugs with flat bottoms to rest upon, a webbing supported on said lugs against the bottom of the studs having the lugs extending through the same to provide supports for the covering, substantially as described.

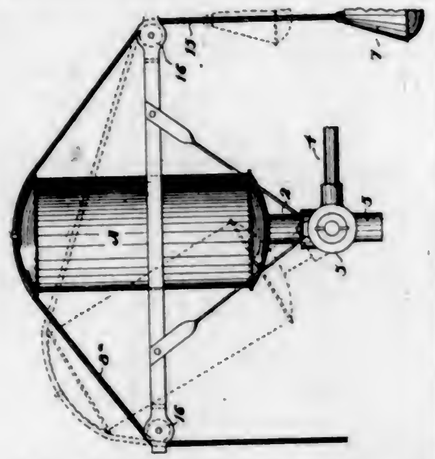
4. The floor-covering substantially as described, comprising a series of separate sections consisting of studs and webbing uniting the studs and the webbing of said sections having straight edges, in combination with removable ties binding said sections together, thereby forming a continuous and unitary covering, substantially as described.

5. In floor-coverings, a series of separate sections having separate studs and a webbing in which said studs are inserted from the top, in combination with ties uniting said sections, the said studs having lugs projecting through said webbing and ties, substantially as described.

750,955. AUTOMATIC FLUSHING-TANK. JOB E. ERICSON, San Francisco, Cal. Filed Oct. 19, 1903. Serial No. 177,690. (No model.)

Claim.—1. The combination with a closed air-tight receiver, of a source of water-supply under pressure, a discharge or flushing pipe, a single rotary valve with ports whereby the supply and discharge are alternately connected with the lower part of the receiver, and mechanism whereby the receiver may be tilted and the valve moved so that the position of said ports is changed to first connect the supply with the tank and subsequently to close the supply and connect the discharge.

2. The combination with an air-tight, tiltably-mounted tank or receiver, a pipe opening from the lower part thereof, a valve and a casing within which it is turnable, said valve actuated by the tilting movements of the receiver, a pipe of small capacity connecting the valve-casing with a source of supply under pressure, a discharge-pipe of large capacity, also connected with the casing, ports made in the valve by which the supply and discharge pipes may be alternately and separately connected with the receiver, and mechanism by which the receiver is tilted and connection with the discharge maintained until the receiver is emptied.



3. The combination of an oscillatory air-tight tank or receiver having a pipe connected with the lower part, a valve and a casing within which it is turnable, said valve connected to the receiver so as to partake of the oscillations thereof, a small pipe connecting said casing with the source of supply, a large discharge-pipe also connected with the casing, ports formed in the valve so as to separately connect the supply or discharge with the tank, mechanism by which the tank may be tilted and the valve may be fully opened to the discharge and remain open until the tank is emptied, said mechanism acting to automatically return the tank and valve whereby the valve connects the supply with the receiver.

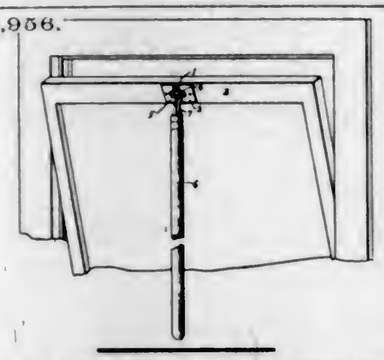
4. The combination of an oscillatory air-tight tank having a pipe connected with the lower part, a valve movable with the tank and a casing within which it is turnable, a supply and a discharge pipe connecting with the casing, ports formed in the valve whereby the normal position of the tank and valve connects the supply-pipe with the interior of the tank, a connecting-cord or the like whereby the tank is tilted and the valve is turned to close the supply and open communication between the tank and the discharge, a counterbalanced weight whereby the valve is maintained in its open position until the tank is substantially discharged, said weight acting to close the discharge and open the supply.

5. The combination of a tank or receiver having a pipe connected with the lower part, a valve turnable in a casing and connection between the receiver-pipe and the valve, a supply and a discharge pipe connected with the casing, ports in the valve adapted to alternately and independently connect the receiver with the supply and the discharge, a counterbalance-weight, a cord connecting it with the receiver, means for tilting the receiver and the valve and connecting the receiver with the discharge, said counterweight acting to automatically return the receiver and valve to their normal position when the water has been substantially discharged from the receiver.

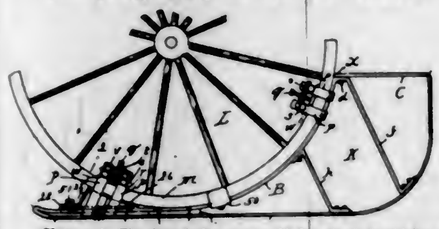
750,956. WINDOW-SASH PULL. HARRY E. ESSIG, Canton, Ohio, assignor to the Essig Pivot Window Company, Pittsburg, Pa., a Corporation. Filed Nov. 19, 1903. Serial No. 181,766. (No model.)

Claim.—A sash-pull comprising a sash-socket closed by a plate having a Greek-cross aperture therein, and a pole-head having a cross-bar on its end adapted to enter the socket through the horizontal section of the aperture and to rotate therein, the shank being adapted to operate in the vertical section of the aperture.

750,956.



750,957. RUNNER FOR VEHICLES. JULES FAUCHER, Lawrence, Mass. Filed Aug. 21, 1903. Serial No. 170,343. (No model.)

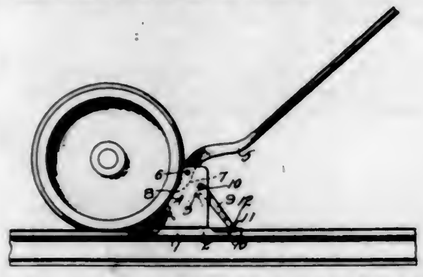


Claim.—1. The detachable runner, K, for wheeled vehicles comprising a single band of flat metal bent to form the shoe, A, the heel, y, the upwardly-curved seat, B, head, x, and brace, f, all these parts being integral and said brace being directed diagonally of and secured to the toe of said runner.

2. The runner, K, constructed of a single band of metal bent to form the integral shoe, toe, heel, seat and brace substantially as specified in combination with the wedge, H, constructed of a single band of metal bent to form seat 26 and truss, 27, substantially as shown.

3. In a device of the character described the wedge, H, having the horizontal base, 25, curved seat 26, truss, 27, and slotted horizontal portion, 28, all said parts being arranged substantially as specified.

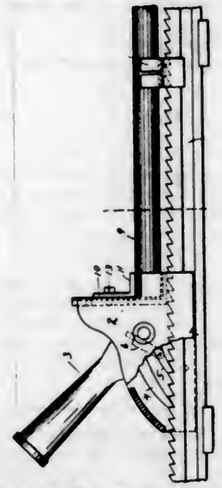
750,958. CAR-STARTER. DAVID FRASER, Hawley, Minn. Filed June 18, 1903. Serial No. 162,134. (No model.)



Claim.—1. A car-starter, comprising a shoe to slide on a rail and having flanges to retain the same thereon, a standard extending upwardly from the shoe, the latter extending also rearwardly from the standard and having an opening 11, a starting-lever fulcrumed to the standard, and a rail-engaging pawl pivoted to the standard, extending downwardly and rearwardly therefrom and having its lower free end extending through the opening 11, substantially as described.

2. A car-starter, comprising a shoe to slide on a rail, and having a standard, a starting-lever fulcrumed to the standard at a point in a vertical plane substantially midway between the ends of the shoe and a rail-engaging pawl, to prevent rearward movement of the shoe on the rail when the starting-lever is engaged with a car-wheel, said pawl being pivoted to the standard and extending downwardly and rearwardly therefrom, substantially as described.

750,959. PIPE-FORCING JACK. GEORGE F. FREED, Allegheny, Pa., assignor to the Duff Manufacturing Company, Allegheny, Pa., a Corporation of Pennsylvania. Filed June 27, 1903. Serial No. 163,318. (No model.)



Claim.—1. In mechanism for forcing pipes or rods endwise, the combination with a stationary rack-bar, of a frame arranged to move along the same, actuating mechanism in said frame or cage, and means on the forward end of said frame constructed to receive the end of the article being forced and hold the same against lateral movement.

2. In mechanism for forcing pipes or rods endwise, the combination with a stationary rack-bar, of a frame or cage arranged to move along the same, actuating mechanism in said frame or cage, and a forwardly-opening seat or socket on the forward end of said frame and serving to receive the end of the article being forced and hold the same against lateral movement.

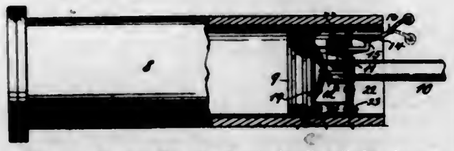
3. In forcing mechhanism, the combination with a stationary rack-bar, of a frame or cage arranged to move along the same, actuating mechanism in said frame or cage, a V-shaped seat on the forward end of said frame serving as a bearing for the end of the article being forced, and a clamp secured to the frame above said seat.

4. In forcing mechanism, the combination with a stationary rack-bar, of a frame or cage arranged to move along the same, actuating mechanism in said frame or cage, a seat on the forward end of said frame serving as a bearing for the end of the article being forced, and a bracket having a slot-and-groove connection with said frame and secured thereto so as to be vertically adjustable.

5. In forcing mechanism, the combination with a stationary rack-bar, of a frame or cage arranged to move along the same, actuating mechanism for said frame or cage, a seat or socket on the forward end of said frame serving as a bearing for the end of the article being forced, and a guiding and supporting bracket on the rack-bar.

6. In forcing mechanism, the combination with a stationary rack-bar provided with grooves in its side, a frame or cage arranged to move along the same and provided with ribs engaging said grooves, actuating mechanism in said frame, a seat or socket on the forward end of said frame, and a guiding and supporting bracket provided with arms engaging the grooves in the rack-bar.

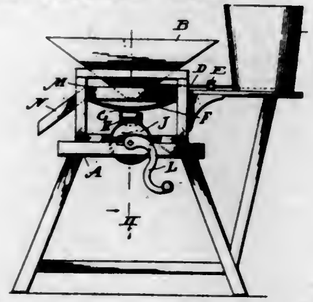
750,960. TRAVELING OILER. JOHN M. GARD, Dayton, Ky. Filed Apr. 20, 1903. Serial No. 153,396. (No model.)



Claim.—1. In a traveling oiler for a hydraulic cylinder, the combination of an oil-receptacle connected so as to travel with the moving parts, a brush and a pivoted lever at one end of which it is carried in a manner to be free to move between the oil-receptacle and the inner surface of the cylinder, the outer end of this lever being so formed that while the oiling device is traveling inside of the cylinder it comes in contact with the latter and is depressed thereby for the purpose of raising the brush against the cylinder.

2. In a traveling oiler for a hydraulic cylinder, the combination of an oil-receptacle connected so as to travel with the moving parts, a brush, a pivoted lever at one end of which it is carried in a manner to be free to move between the oil-receptacle and the inner surface of the cylinder, the outer end of this lever being so formed that while the oiling device is traveling inside of the cylinder it comes in contact with the latter and is depressed thereby, for the purpose of raising the brush against the cylinder, and an oil-distributing device also carried by the moving parts to distribute the oil applied by the brush.

750,961. APPARATUS FOR PICKLING OR TREATING GRAIN WITH LIQUIDS. DAVID R. GARDINER, Neepawa, Canada. Filed June 9, 1902. Serial No. 110,920. (No model.)



Claim.—1. In a machine for treating grain with pickling or preserving liquids, a horizontal rotary mixing-disk having a smooth continuous or unbroken concave surface, means for rotating the same, and a grain-hopper and liquid-reservoir having their discharge-openings in close proximity immediately above the axial center of the disk so as to discharge together onto said center.

2. In a machine for treating grain with pickling or preserving liquids, a vertical spindle and means for rotating the same, a horizontal mixing-disk mounted thereon having an upper plain concave surface, and a grain-hopper and liquid-reservoir having their discharge-openings in close proximity immediately above the axial center of the disk.

3. In a machine for treating grain with pickling or preserving liquids, a horizontal rotary mixing-disk having a smooth continuous or unbroken concave surface, means for rotating the same, a grain-hopper having its discharge-opening immediately above the axial center of the disk, a liquid-reservoir having a discharge-pipe with its outlet also directed immediately above the center of the disk, whereby the grain and liquid discharge together onto the center of the disk, and a valve in said pipe for controlling the discharge of liquid.

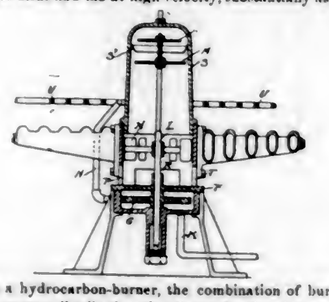
4. In a machine for dampening or impregnating grain with liquids, a horizontal rotary mixing-disk having a smooth continuous or unbroken concave surface, means for rotating the same, means for continuously feeding the grain and the liquid or solution onto said disk, a fixed circular casing fitting closely around the periphery of the disk and having a lateral discharge-opening, and a scraper located within the casing near the periphery of the disk for directing the grain through said discharge-opening.

750,962. HYDROCARBON-BURNER. WILLIAM E. GIBBS, Fanwood, N. J., assignor of one-half to Henry Berg, Newark, N. J. Filed Mar. 17, 1903. Serial No. 148,171. (No model.)

Claim.—1. In a hydrocarbon-burner, the combination of a common distributing-chamber, of burner-tubes surrounding and adapted to heat said chamber, of means for supplying air and hydrocarbon spray or vapor to said chamber, a fan located in said chamber, and means independent of the air-supply for driving said fan at high velocity, substantially as set forth.

2. In a hydrocarbon-burner, the combination of a common distributing-chamber, of burner-tubes surrounding and adapted to heat said chamber, of means for supplying air and hydrocarbon spray or vapor to said chamber, a fan located in said chamber, and means for driving said fan at high velocity, substantially as set forth.

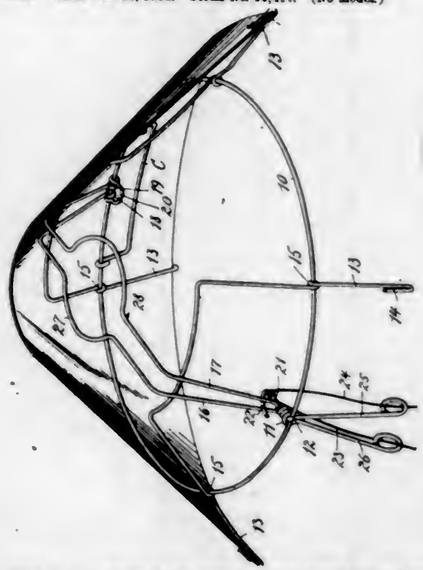
3. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, a spraying or vaporizing chamber connected thereto, spraying disk or disks in said spraying or vaporizing chamber, a fan in said distributing-chamber, air-supplying means and means independent of the air-supply for driving said disk or disks and fan at high velocity, substantially as set forth.



4. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, a fan therein, a spraying or vaporizing chamber connected to said distributing-chamber, spraying disk or disks in said spraying or vaporizing chamber, a turbine connected to said disk or disks and fan and means for leading driving fluid to said turbine, substantially as set forth.

5. In a hydrocarbon-burner, the combination of burner-arms having a common distributing-chamber, an air-propelling fan in said chamber, a spraying or vaporizing chamber connected to said distributing-chamber, spraying disk or disks in said spraying or distributing chamber, a driving-turbine having operating connection with said disk or disks and fan, a steam-heating coil arranged to be heated by said burner and means for leading steam therefrom to said turbine, substantially as set forth.

750,963. LAMP-SHADE HOLDER. MARTIN D. GOLD, Amherst, Mass. Filed Mar. 22, 1902. Serial No. 99,417. (No model.)



Claim.—1. A device of the class described, comprising a frame having arms pivoted thereon and arranged in pairs, the arms of each pair being connected at the top and having their lower end formed into a hook to engage the lower edge of the shade.

2. In a device of the class described, the combination with a frame, of a pair of chimney-engaging members pivoted to the frame and having extensions for opening the same, and means operating on the extensions to normally hold the members closed.

3. In a device of the class described, the combination with a frame for supporting the shade, of a pair of chimney-engaging members pivotally connected at each end to the frame and extending diametrically across the same, and means for holding said members closed.

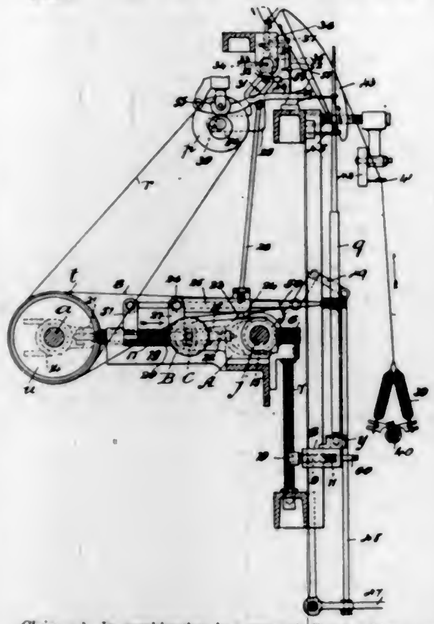
4. In a device of the class described, the combination with a shade-support, of means for supporting the same on a lamp, comprising a pair of resilient members, each member having its ends pivotally looped to the support and extending diametrically across the same, and means on the support for normally holding the members closed.

5. The combination with a frame for supporting the shade, of a pair of resilient members pivoted to the frame, each member having one end formed into an arm for opening the members, and means operating on said arms for closing the members.

6. The combination with a frame for supporting the shade, of a pair of resilient members pivoted to the frame, each member having one end formed into an arm for opening the members, means operating on said arms for closing the members, and a weight on the opposite side of the frame for counterbalancing the arms and their operating means.

7. A device of the class described comprising a frame, chimney-engaging members pivoted on the frame, means operating on said members for holding them engaged with the chimney, and means formed on the frame extending into engagement with the chimney-engaging members for maintaining the latter in central elevated position relative to the frame.

750,964. YARN-WINDING MACHINE. HENRY S. GOLLAND, Worsley, England. Filed May 13, 1902. Serial No. 107,100. (No model.)



Claim.—1. In combination in a yarn-winding machine, a vertically-movable spindle-carriage, a half-nut secured thereto, a screw-threaded spindle engaging said half-nut, means for disengaging the half-nut from the screw-spindle when desired, worm-gearing for operating said spindle and stop mechanism whereby the rotation of said screw-threaded spindle is stopped on the breakage of a thread and the spindle-carriage positively locked against movement, substantially as described.

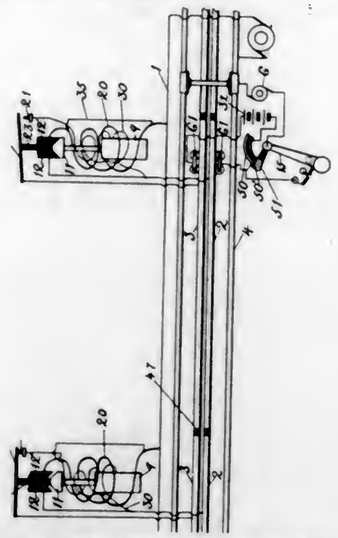
2. In a yarn-winding machine, the combination with the main driving-shaft, a double-grooved pulley loosely mounted thereon, a yarn-guide and a spindle operated from said double-grooved pulley, a counter-shaft driven from said main shaft, a vertical screw-threaded spindle, a spindle-carriage, a spring-pressed half-nut on the spindle-carriage engaging said spindle, with means for disengaging it therefrom, operating connections between said screw-threaded spindle and the counter-shaft, a clutch included in said connections, a clutch for clutching the double-grooved pulley to the main shaft, connected sliding forks having inclines for operating both said clutches, a spring tending to force said forks into position to disengage the clutches, a detent for holding said forks normally inoperative, an oscillating lever for operating said detent, and a catch-box for controlling the action of said operating-lever, substantially as described.

750,965. SHANK-STIFFENER FOR SHOES. ALONZO P. GRINNELL, Lynn, Mass. Filed Apr. 24, 1903. Serial No. 154,161. (No model.)



Claim.—A shoe-shank stiffener formed of a curved strip of sheet metal having triangular tangs partially punched out of it and arranged with their bases toward the ends of the shank-stiffener and provided with rearwardly-bent main portions and recurved points.

750,966. SURFACE-CONTACT ELECTRIC RAILWAY. JOHN H. GUEST, Brooklyn, N. Y. Filed Feb. 26, 1903. Serial No. 145,198. (No model.)



Claim.—1. In a sectional-contact electric railway, the combination substantially as described of two lines of normally insulated sections of conductor, an automatic electromagnetic switch having a power circuit-coil for holding the switch closed, an initially-acting coil whose terminals are connected respectively to insulated conductors of the said lines, a source of current on the car and a double trolley or collector for connecting said source to the said lines of conductors, and at the same time forming a connection from one of said lines of conductors to the motor on the car.

2. In a sectional-contact electric railway, an electromagnetic switch having a power-circuit coil and an initially-acting coil whose terminals are normally open-circuited at insulated conductors located respectively in two normally insulated lines of sectional conductor, a connection from the power-coil to a conductor in one of said lines of normally insulated sectional conductors, and two collecting devices bearing respectively on said lines of conductors and joined to opposite poles of a generator on the vehicle, and a motor on the car connected to a trolley or collector bearing on the conductor which is connected to the power-coil.

3. In a sectional-contact electric railway, the combination substantially as described, of a normally insulated conductor from which power-current is taken to the car, a supplemental insulated conductor or contact rail, an automatic switch having two coils one of which carries the power-current while the other carries the initially-acting current, connections from the two terminals of the latter coil to the power-conductor and a supplemental conductor respectively, a circuit-breaker in the circuit of said coil, means for acting upon the same when the switch is closed, a generator on the car and a double trolley or collector for connecting the two poles thereof to said conductors respectively to furnish current to the initially-acting coil and at the same time to furnish a power connection for the power-circuit coil when the switch is closed.

4. In a sectional-contact electric railway, a power-circuit closer comprising a number of laminated brushes beveled at their ends and a coöperating wedge-shaped contactor adapted to enter the spaces between said beveled ends in a direction parallel to the laminations and by a wedging action to separate the same so as to create a series of individual contacts.

5. In a switch for a sectional-contact electric railway, the combination substantially as described with the pair of leaf-springs and power-circuit closer engaging the same, of a circuit-breaker mounted above said leaf-springs and an actuating-rod for said circuit-breaker extending axially through the space between said leaf-springs.

6. The combination with the conductor-blocks 13, 13', of the laminated spring-contacts 12, 12', mounted between them, a circuit-closer 11 adapted to engage the end of said springs by an endwise motion parallel to the laminations, a spring 22 and coöperating contact 21 mounted upon but insulated from the blocks 13, 13', and means connected with the circuit-closer or contactor 11 for actuating the spring 22.

750,967. SUPPORTING APPARATUS FOR IMPACT-TOOLS. ELIAS GUNNELL, Chicago, Ill. Filed Apr. 23, 1902. Serial No. 104,735. (No model.)



Claim.—1. An impact tool holder comprising a movable carriage, a carrier-arm mounted at one end on the carriage and at its free end provided with a tool holding head mounted with universal angular movement on said arm, and stops to limit the angular motion in all directions.

2. An apparatus for holding impact tools, comprising a carriage, wheels supporting said carriage, a bar secured at one end on said carriage, and at the other end provided with means for supporting the impact tool, said bar having rotative movement within said carriage, substantially as described.

3. An apparatus for holding impact tools, comprising a carriage, wheels supporting said carriage, a bar secured at one end on said carriage, and at the other end provided with means for supporting the impact tool, said bar having rotative movement within said carriage, and stop mechanism for limiting the rotative movement of said bar, substantially as described.

4. An apparatus for holding impact tools, comprising a carriage, wheels supporting said carriage, a bar secured at one end on said carriage, and at the other end provided with means for supporting the impact tool, said bar having rotative movement within said carriage, the said means for supporting the hammer comprising a hinged or pivotally connected device carried on the end of the bar, substantially as described.

5. An apparatus for holding impact tools, comprising a car-

riage, wheels supporting said carriage, a bar secured at one end on said carriage, and at the other end provided with means for supporting the impact tool, said bar having rotative movement within said carriage, the said means for supporting the hammer comprising a hinged or pivotally connected device carried on the end of the bar, and projecting stops on the free end of the bar to limit the hinged movement of the hammer supporting device, substantially as described.

6. An apparatus for holding impact tools, comprising a carriage, wheels supporting said carriage, a bar secured at one end on said carriage, and at the other end provided with means for supporting the impact tool, and recoil absorbing weights carried by said bar, substantially as described.

750,968. **DUST-SPRAYING MACHINE.** JOHN R. HALDEMAN, Springfield, Mo. Filed Apr. 23, 1903. Serial No. 153,964. (No model.)



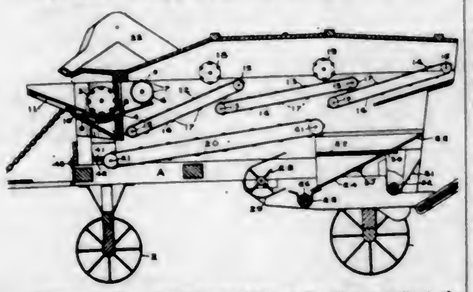
Claim.—1. In a sprayer of the character set forth, a hopper, a blower adapted to be fed from the hopper, and a discharge-nozzle applied to the blower and comprising a ring or band having curved crossed strips, the curved portions of which are bent or twisted edgewise to scatter the discharging dust, substantially as described.

2. In a sprayer of the character set forth, the combination of a discharge-tube, a blower communicating therewith, a hopper having a valved outlet to the tube, a shaft within said hopper, and an agitator mounted upon the shaft, said agitator comprising a strip intertocked at its center and ends with the shaft, and having bowed and linear blades, substantially as described.

3. In a sprayer of the character set forth, the combination of a discharge-tube, a blower communicating therewith, a hopper having a valved outlet to the tube, a shaft within said hopper, and an agitator mounted upon the shaft, said agitator comprising a strip having an opening at its center and bifurcated on opposite sides of the central opening to form sets of blades, the said central opening receiving the shaft and one blade of each set being bowed and interlocked with the shaft and the other blades extending radially from the shaft, substantially as described.

4. In a sprayer of the character set forth, the combination of a discharge-tube, a blower communicating therewith, a hopper having a discharge-passage communicating with the tube, a slide-valve governing said hopper, and a lever having a slot-and-pin connection with said valve for operating the same, substantially as described.

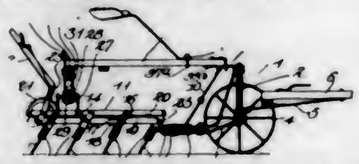
750,969. **THRESHING-MACHINE.** HILMER HANSON, Artichoke Lake, Minn. Filed Jan. 10, 1902. Serial No. 89,100. (No model.)



Claim.—1. In a threshing-machine of the class described, the combination with the framework, of a concave supported therein, a threshing-cylinder arranged above one end of the concave, a beater-cylinder arranged above the opposite end of the concave, and means for adjusting the concave by a single motion toward one cylinder and from the other.

2. In a threshing-machine of the class described, the combination with the framework, of a concave having pivotal support therein, a threshing-cylinder arranged above the front end of the concave, a beater-cylinder arranged above the opposite end of the concave, and a shaft arranged below the front end of the concave and provided with offsets for engaging and turning the front end of the concave upon its pivot toward the threshing-cylinder.

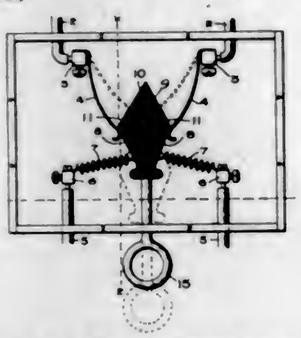
750,970. **RIDING-HARROW.** JOHN W. HARMON, Creston, Iowa. Filed Oct. 13, 1903. Serial No. 176,774. (No model.)



Claim.—1. In a device of the class described, a plurality of harrow-sections connected in couples, a superimposed connecting-bar movably connecting the several couples of harrow-sections, a draw-bar connected flexibly with the several harrow-sections, a riding-truck, means connecting the latter with the draw-bar and additional means connecting said truck with the superimposed connecting-bar of the harrow-sections.

2. In a device of the class described, a plurality of harrow-sections, a draw-bar connecting the same, flexibly-mounted supporting and connecting means superimposed upon said harrow-sections, a riding-truck, connecting means between the latter and the draw-bar, auxiliary connecting means between the truck and the superimposed connecting means of the harrow-sections, and a longitudinally-movable seat-supporting bar adjustably connected with said supporting means.

750,971. **SWITCH FOR SERIES ARC-CIRCUITS.** CARYL D. HASKINS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 22, 1902. Serial No. 120,675. (No model.)



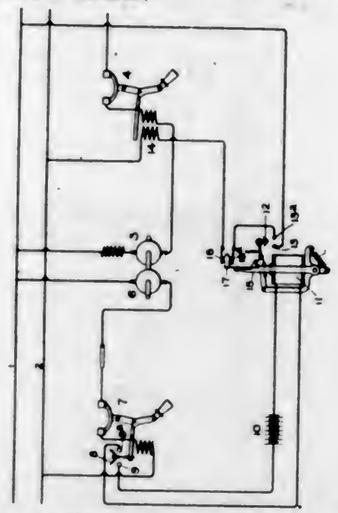
Claim.—1. In a switch, the combination with main-circuit terminals and branch-circuit terminals to be connected in series therewith, of normally closed main contacts connected with said main terminals, and a movable diamond-shaped piece carrying contacts connected with the branch terminals and adapted to enter between and separate said main contacts.

2. In a switch, the combination with normally closed spring-contacts, of a diamond-shaped piece carrying separate contacts on two adjacent sides, and a single contact covering the other two sides and intermediate point.

3. In a switch, the combination with normally closed spring-contacts, of a diamond-shaped piece carrying separate contacts on two adjacent sides, and a single contact covering the other two sides and intermediate point, the adjacent edges of said contacts being lapped past each other but not in contact.

4. In a switch, the combination with a diamond-shaped piece of insulation, of a metallic bridging contact covering one end and two sides of said piece and extending slightly beyond the widest part of the diamond, a separate contact on each of the two other sides of the diamond, said contacts extending up to the widest part of the diamood but not making connection with the bridging contact, and two spring-contacts, normally closed on each other but adapted to be separated and connected by the bridging contact, and to pass therefrom unto the separate contacts without breaking the circuit.

750,972. **MEANS FOR CONTROLLING ELECTRIC BOOSTERS.** EDWARD M. HEWLETT, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 31, 1900. Serial No. 28,652. (No model.)



Claim.—1. The combination of an electric circuit, an automatic circuit-breaker therein, an independently-operated cut-out in another circuit, each responsive to a definite load, and means for tripping in sequence the circuit-breaker after the cut-out operates.

2. The combination of an electric circuit, an automatic magnetically-tripped circuit-breaker in the same, an independent automatic circuit-breaker, each circuit-breaker being responsive to a definite load, and means controlled by one circuit-breaker to operate in sequence the tripping mechanism of the other after it is tripped.

3. The combination of a plurality of automatic circuit-breakers, each responsive to a determinate load, and separate circuits controlled thereby, with means for operating one circuit-breaker by the opening of the other when tripped.

4. The combination with an electric circuit, of a dynamic source of regulating electromotive force in series therewith, a motor for actuating said source, and means for protecting said source when the motor ceases to operate.

5. The combination with an electric circuit, of a regulable dynamic source of regulating electromotive force in series therewith, a motor for actuating said source, and means for protecting said source when the motor ceases to operate.

6. The combination with a booster, of an electric motor for driving the same, a cut-out in the booster-circuit, and means for automatically actuating the cut-out when the motor ceases to operate

7. The combination with a booster, of means for driving the same, a cut-out in the booster-circuit, and means for actuating the cut-out when the driving power for the booster is withdrawn.

8. The combination with a booster, of a source of power for driving the same, a cut-out in the booster-circuit, a controlling-circuit for the cut-out, and a current-controller in said circuit governed by the source of power.

9. The combination with a booster, an electric motor propelling the same, a cut-out in the booster-circuit, a controlling-circuit for the cut-out, a circuit-controller in said circuit, and an overload-coil in the motor-circuit governing said circuit-controller.

10. The combination of a motor-driven booster, an automatic circuit-breaker in the booster-circuit, and means for tripping the circuit-breaker when an overload exists in the motor-circuit.

11. The combination with a booster, of a propelling electric motor, automatic circuit-breakers in the booster and motor circuits respectively, and auxiliary tripping devices for the booster-circuit breaker controlled by the opening of the motor-circuit breaker.

12. The combination with a booster having its field-magnet and armature-windings in series relation, a propelling electric motor, automatic circuit-breakers in the motor and booster circuits, and means for tripping the booster-circuit breaker when the motor-circuit breaker opens.

13. The combination of a motor-driven booster having a series field and its motor and booster circuits and automatic circuit-breakers, with means interposed between the circuit-breakers and constructed to trip the circuit-breaker of the booster in response to the actuation or blowing of the circuit-breaker of the motor, substantially as described.

14. In a system of electrical distribution, the combination with a main source of current, a booster to increase the potential of said source, a propelling electric motor for the booster, means for including the motor in circuit with a source of current, an electromagnetic circuit-breaker provided with a switch for opening and closing the distribution-circuit, a coil of the circuit-breaker in a normally open circuit, and electromagnetic means in the motor-circuit for energizing said coil to release the switch.

15. In a system of electrical distribution, the combination with a source of current, of a main transmission-line receiving current therefrom, a booster for furnishing additional pressure to the main transmission-line, a motor for operating the booster, an electromagnetic circuit-breaker for opening the circuit through the booster, and electromagnetic means in the motor-circuit for closing the circuit through the electromagnetic circuit-breaker.

16. In a system of electrical distribution, the combination with a source of current, of a main transmission-line receiving current therefrom, a booster for furnishing additional pressure to the main transmission-line, a motor for operating the booster, an electromagnetic circuit-breaker for opening the booster-circuit having a winding included in the main transmission-line, and electromagnetic means in the motor-circuit for closing a circuit through a winding of the circuit-breaker.

17. In a system of electrical distribution, the combination with a source of current, of a main transmission-line receiving current therefrom, a booster for furnishing additional pressure to the main transmission-line, a motor for operating the booster, an electromagnetic circuit-breaker having two windings, one included in the main transmission-line, and electromagnetic means in the motor-circuit for including the second winding in circuit with a source of current.

750,973. **CAN-CATCHER.** HARRY P. HINCKLEY, Glenfield, Pa. Filed June 11, 1902. Serial No. 111,096. (No model.)



Claim.—1. In a lifting device, the combination with a pole, of grasping-jaws, operating mechanism extending along the pole, and levers pivoted to each other and one of them to the pole, one lever being connected to the operating mechanism and the other being loosely connected to and adapted to actuate one at least of said grasping-jaws; substantially as described.

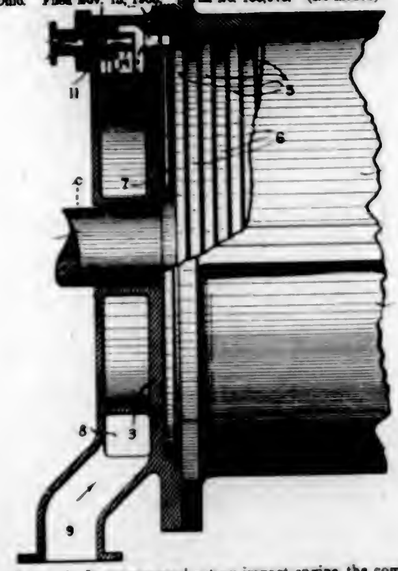
2. In a lifting device, the combination with a pole, of grasping-jaws, pins extending from said jaws, operating mechanism extending along the pole, and levers pivoted to each other, one lever being connected to the operating mechanism and the other being slotted and adapted to engage said pins; substantially as described.

3. In a lifting device, the combination with a pole, of grasping-jaws, operating mechanism extending along the pole, and levers pivoted to each other and one of them to the pole, one lever being connected to the operating mechanism and the other being adapted to actuate one at least of said grasping-jaws; and a lock for locking said operating-rod; substantially as described.

4. In a lifting device, the combination with a pole, of grasping-jaws, operating mechanism extending along the pole, and levers pivoted to each other and one of them to the pole, one lever being connected to the operating mechanism and the other being adapted to actuate one at least of said grasping-jaws; a lock for locking said operating-rod, and a trigger for releasing said lock; substantially as described.

5. In a lifting device, the combination with a pole, of grasping-jaws, a spring normally tending to hold said jaws open; operating mechanism extending along the pole, and levers pivoted to each other and one of them to the pole, one lever being connected to the operating mechanism and the other being loosely connected to and adapted to actuate one at least of said grasping-jaws; substantially as described.

750,974. IMPACT-ENGINE. HANS HOLSWARTH, Hamilton, Ohio, assignor to The Hooven, Owens, Rentschler Company of Hamilton, Ohio. Filed Nov. 13, 1903. Serial No. 180,973. (No model.)

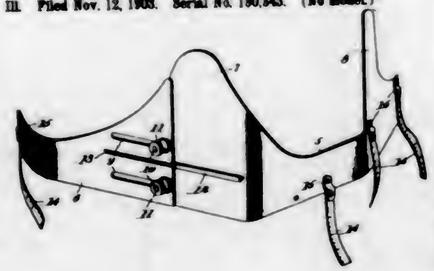


Claim.—1. In a compound rotery impact-engine, the combination, substantially as set forth, of a casing for the low-pressure turbine, stationary blade-disks and rotary bucket-disks therein, a low-pressure steam-passage at the initial end of the casing and communicating by port with the interior of the casing and having a low-pressure steam-inlet, an injection-nozzle arranged to jet through said passage and into the casing, and a high-pressure steam-inlet connected with said nozzle.

2. In a compound rotary impact-engine, the combination, substantially as set forth, of a casing for the low-pressure turbine, stationary blade-disks and rotary bucket-disks therein, a casing-head at the initial end of the casing having an annular steam-passage communicating with the interior of the casing by a segmental port, a low-pressure inlet communicating with said passage, a segmental box secured in the outer wall of said passage opposite said port, a high-pressure steam-inlet to said box, and a segmental nozzle disposed within said passage at the inner extremity of said box and arranged to jet into the casing through said segmental port.

3. In a compound rotary impact-engine, the combination, substantially as set forth, of a casing for the low-pressure turbine, stationary blade-disks and rotary bucket-disks therein, a casing-head at the initial end of the casing having an annular steam-passage communicating with the interior of the casing by segmental ports arranged in circumferential series, a low-pressure inlet communicating with said passage, a segmental opening in the outer wall of said passage opposite each of said ports, a segmental box secured in each of said openings, a high-pressure steam-inlet communicating with each of said boxes, and a segmentally-extending nozzle at the inner extremity of each box and arranged to jet into the interior of the casing through said ports.

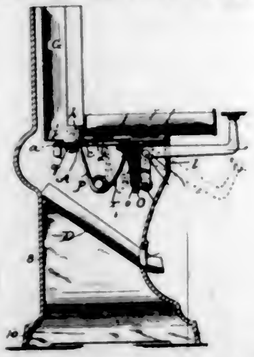
750,975. TAILOR'S MEASURE. ROWLAN G. HORNE, Chicago, Ill. Filed Nov. 12, 1903. Serial No. 180,843. (No model.)



Claim.—1. A tailor's measure comprising a rigid curved plate having a guide-rib, a plate extending horizontally therefrom and adjustably secured thereto and having a slot to receive the guide-rib, and tape-lines pivoted to both plates.

2. A tailor's measure comprising a rigid curved plate having projections on its upper edge to fit around the arm, a rigid back plate extending horizontally therefrom and adjustably secured thereto, and tape-lines on both plates.

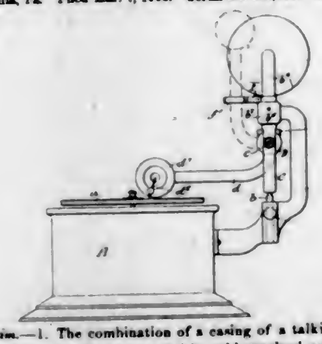
750,976. COIN-CHANGER. CHARLES C. JACKSON, Osborn, Ohio. Filed June 26, 1902. Serial No. 113,373. (No model.)



Claim.—1. In a coin-changer comprising a suitably-supported body portion having a bed or platform provided with guides, the combination of the plungers, each provided with a leg, the keys detached from the plungers and each having a lever-arm, antifriction-rollers journaled to the lever-arms and bearing against the legs of the plungers, the shaft for supporting the keys, the springs for retaining the plunger-legs in contact with the rollers and for returning the plungers, the coin-standards, and a chute for delivering coins to the operator's hand.

2. In a device of the character described, provided with a detachable repository or tray for holding coins of various sizes or values, a body portion, troughs or compartments of various sizes for receiving coins upon their edges, each trough extending from front to rear of the tray and having one end closed and the opposite end scalloped or curved to permit observation, the plungers, each having a depending leg, the keys detached from the plungers and each having a lever-arm, and antifriction-rollers journaled to the lever-arms and bearing against the plunger-legs, substantially as described.

750,977. SELF-ADJUSTING ARM FOR TALKING-MACHINES. JULIUS JETTER, Camden, N. J., assignor to Robert Law Gibson, Philadelphia, Pa. Filed Mar. 7, 1903. Serial No. 146,706. (No model.)



Claim.—1. The combination of a casing of a talking-machine, a standard, a yoke-piece supported by said standard and free to revolve on a vertical axis, a piece engaged by said yoke at two points in such manner as to be free to turn on a horizontal axis and having through it a passage, a device, for receiving sound-waves, in communication with said passage, a conduit connected to said piece, and a sound-box attached to said conduit so as to form a continuous passage therefrom to the receiving device, substantially as described.

2. The combination of the casing of a talking-machine, a standard, a pivotal supporting structure and a bearing on the standard, a yoke engaged by said structure and entering the bearing, a sound-box and a tubular arm carried by said yoke-piece so as to be free to move around a horizontal axis, and means extending through the bearing and connecting the tubular arm with a sound-transmitting device, substantially as described.

3. The combination of the casing of a talking-machine, a standard, a horn supported by the standard, a yoke-piece also carried by the standard and free to turn on a vertical axis, a substantially cylindrical piece supported so as to be free to turn on a horizontal axis in said yoke and having through it a passage normally in connection with the horn, a tubular arm also in connection with the passage and a sound-box on said arm, substantially as described.

4. The combination with the casing of a talking-machine of a standard, a sound-transmitting device supported thereby, a yoke-piece carried by said standard, a substantially cylindrical piece supported by the yoke and free to turn on a horizontal axis, said cylindrical piece having through it a passage, a tubular arm connected to said piece in continuation of said passage, a piece fitting the curved surface of the cylindrical piece, with means for yieldingly pressing said two pieces together, substantially as described.

5. The combination of a standard, the casing of a talking-machine having mechanism for operating a record, a sound-transmitting device carried by the standard, said standard having a bearing, a tubular connection extending through the bearing and connected to said sound-transmitting device, a piece carried by the standard and free to turn on a horizontal axis, said piece having fixed to it a tubular arm, a sound-box on said arm and means frictionally acting on said piece whereby the tendency of said arm to turn said supporting-piece is counteracted, substantially as described.

6. The combination of the casing of a talking-machine, a standard having a pivot and a bearing, a yoke-piece having a portion extending into said bearing and engaging said pivot, a piece having a passage through it and carried by the yoke so as to be free to turn on a horizontal axis, a saddle-piece fitted to the surface of said revoluble piece, means for pressing said two pieces together, and a tubular arm connected to said passage, with a sound-box carried on said arm, substantially as described.

7. The combination of a standard, a sound-transmitting device supported thereon, a tubular arm in connection with said device, a sound-box carried by said arm, the arm and the sound-box having means whereby they are supported so as to be free to turn on a horizontal axis, with a device carried by the standard for engaging said arm and retaining the same in a fixed position, substantially as described.

8. The combination of a standard, a vertically-adjustable pivot structure carried thereby, a yoke-piece engaging said structure and held by the standard so as to be free to turn on a vertical axis, with a tubular arm having a sound-box carried by said yoke so as to be movable on a horizontal axis, with a sound-transmitting device connected to said tubular arm, substantially as described.

9. The combination of a standard having a bearing, a tube fixed therein, a yoke-piece carried by the standard and having a portion extending into the bearing, a sound-box, a tubular arm carrying the same and movably supported by the yoke-piece, a saddle-piece bearing upon a portion of the tubular arm, and a second tube extending from the said saddle-piece to the tube fixed in said bearing, substantially as described.

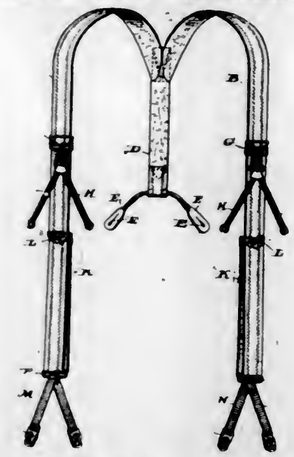
10. The combination of a standard having a bearing, a tube fixed therein, a yoke-piece carried by the standard, and having a portion extending into the bearing, a sound-box, a tubular arm carrying the same and movably supported by the yoke-piece, and a second tube having means whereby it is operatively connected to the movable arm and extended into said first tube, substantially as described.

11. The combination of a standard, a tube carried thereby for connection to a sound-transmitting device, a tubular arm having a sound-box and supported so as to be free to turn on both a horizontal and on a vertical axis, and a tubular connecting-piece extending between said arm and the tube, with means for supporting said piece out of direct contact with the tube, substantially as described.

12. The combination of a standard, a tube carried thereby for connection to a sound-transmitting device, a tubular arm having a sound-box and supported so as to be free to turn on both a horizontal and on a vertical axis, and a tubular connecting-piece extending between said arm and the tube, said tube having a tapered recess for the reception of said connecting-piece, with means for supporting said piece in movable contact with the said arm and out of direct contact with said tube, substantially as described.

13. The combination of a standard having a bearing, a yoke-piece movably carried by the standard and having a tubular portion extending into said bearing, a tubular arm having an enlarged end portion and movably supported by the yoke-piece, a saddle-piece between the said end portion of the arm and the tubular portion of the yoke-piece, and an annular spring for pressing together said saddle-piece and the end of the arm, substantially as described.

750,978. COMBINATION SUSPENDERS AND STOCKING-SUPPORTER. JAMES R. JOSEPHI and IDA O. JOSEPHI, San Francisco, Cal. Filed Feb. 20, 1903. Serial No. 144,265. (No model.)



Claim.—1. The herein-described combined trousers-suspender and stocking-supporter, comprising the suspender-strips having extensible front end portions, waistband-straps attached to the back ends, straps on the front of each strip adjustable longitudinally thereon and adapted for attachment to the front of the trousers-waistband, and a fastening device on the lower end of each strip for securing the stocking thereto, said fastening device being adjustable longitudinally by varying the length of the suspender-strip.

2. In a device of the character described, the combination of the suspender-strips having loops on the back end for attaching the same to the back of a trousers-waistband, a pair of straps on the front of each suspender-strip adjustable longitudinally thereon and adapted to attach the suspenders to the trousers-waistband at the front, said suspender-strip having a front portion in line therewith extending below the point of attachment of the front straps and fastening devices on said extending portions adjustable longitudinally thereon for securing the stocking thereto.

750,979. SOLE OR HEEL PROTECTOR. JOHN D. KARSTNER, Minneapolis, Minn. Filed July 25, 1902. Serial No. 116,911. (No model.)



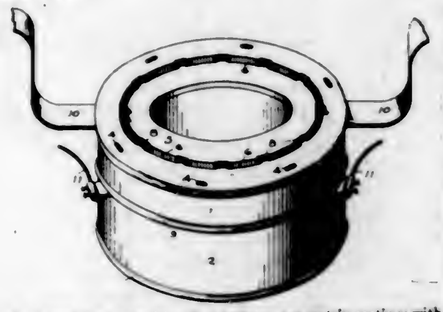
Claim.—A metallic protector for heels and soles of shoes, comprising a thin body having one or more concavo-convex retaining-lugs a^2 with sharp shoulders a^3 pressed laterally from the said body, the said body having the same amount of metal in all horizontal cross-sections, substantially as described.

750,980. FIELD-COIL STRUCTURE. CHARLES H. KALB, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 5, 1902. Serial No. 118,484. (No model.)

Claim.—1. A field-coil comprising two or more concentric sections separated by space-blocks, end plates having slots registering with the spaces between said blocks, and flexible fastenings passing through said slots and spaces and securing the parts together.

2. A field-coil comprising two or more concentric sections separated by space-blocks, end plates having slots registering with the

space between the coil-sections, and cords passing down each side of said space-blocks and around the bridges of the end plates between said slots.



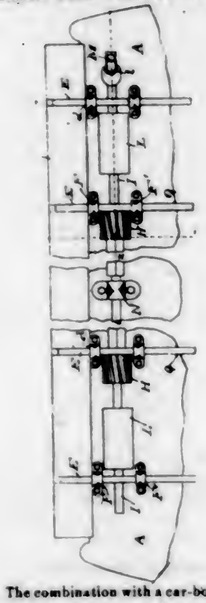
3. A field-coil comprising two or more concentric sections with an annular space between them, wooden end plates having slots registering with said annular space, longitudinal blocks in said space in line with the bridges of the end plates between said slots, cords passing through said slots and space and tied over the bridges, and other cords lying under the outer layers of the outer section and tied through holes near the edges of the end plates.

4. A field-coil having end supports held by means of longitudinal cords confined between layers of its winding.

5. A field-coil having longitudinal cords confined between layers of its winding, and wooden end plates provided with holes through which said cords are passed and tied.

6. A field-coil comprising two concentric cylindrical sections wound successively, with space-blocks between said sections, and removable shaping-keys between the space-blocks to maintain the outer section in a true cylindrical form.

750,981. MOVABLE CAR-STEP. FRANK KELLWERTH, Cincinnati, Ohio. Filed Oct. 3, 1903. Serial No. 175,630. (No model.)



Claim.—1. The combination with a car-body, of a horizontally-slidable step, racks secured thereto, a longitudinally-slidable shaft, parts thereon having teeth engaging the racks, a lever for shifting the shaft endwise and means for rocking the shaft, substantially as described.

2. In combination with a car-body, of a slidable step, a longitudinally-movable rod, a coarse-pitch screw and socket therefor between said body and shaft for rocking the shaft, and a connection between said shaft and slidable step, substantially as described.

3. In combination with a car-body, of a slidable step, a longitudinally movable rock-shaft, a rack for said step, and a part having spiral teeth thereon secured to said rock-shaft and engaging said rack, means for moving said shaft longitudinally, and means for rocking said shaft, substantially as described.

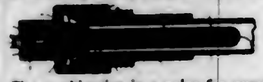
4. In combination with a car-body, of a slidable step, a longitudinally-movable rock-shaft, connection between said rock-shaft and step, a lever for moving said rock-shaft longitudinally, and a pair of catches O O' respectively having shoulders o^3 o^3 for engaging said lever at the respective limits of movement of said lever, substantially as described.

5. In combination with a car-body, of a slidable step, a longitudinally-movable shaft and connection between said shaft and step, a lever for moving said shaft longitudinally, a pair of catches O O' respectively having shoulders o^3 o^3 for engaging said lever at the respective limits of movement of said lever, with springs for normally pressing said catches toward the lever, substantially as described.

6. In a construction of the class described, the combination with a car-body, of a riser thereon, a slidable step slidable under said riser, a shaft, means for moving said shaft longitudinally, a coarse-pitch screw and socket therefor for rocking said shaft during its longitudinal movement, and a rocking connection between said shaft and slidable step, substantially as described.

7. In a construction of the class described, the combination with a car-body, of a rock-shaft, means for shifting said rock-shaft longitudinally, a coarse-pitch screw and socket therefor between said body and said shaft for rocking said shaft during its longitudinal movement, a rack on the slidable step, and a part rocking with said shaft and having teeth engaging said rack, substantially as described.

750,982. VALVE FOR PNEUMATIC TIRES. JOHN R. KELLER, Jr., Litchfield, Conn. Filed May 11, 1903. Serial No. 156,663. (No model.)



Claim.—1. The combination in a valve for pneumatic tires, of an outer tube adapted to encircle a tire-stem, an inner tube adapted for introduction within the tire-stem, said inner tube having a flange with a low or conical surface provided at the upper end thereof and adapted to clamp said tire-stem against said outer tube, a cap adapted to engage said outer tube, to draw it upward and force said inner tube downward into clamping position, a valve-seat provided on the under surface of said cap, and a valve adapted to contact with said seat.

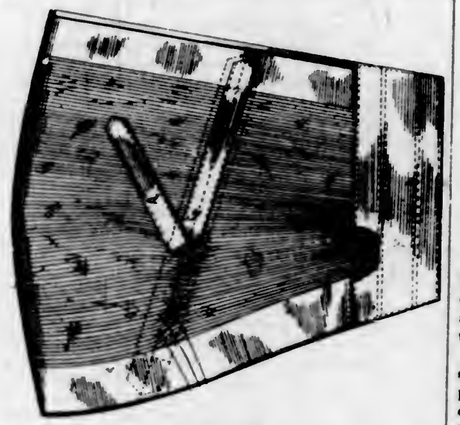
2. The combination in a valve for pneumatic tires, of an outer tube adapted to encircle a tire-stem, an inner tube adapted for insertion into the tire-stem, a flange having a conical lower surface provided at the top of said inner tube adapted to clamp said tire-stem against said outer tube, a cap adapted to engage said outer tube to draw it upward and to engage said inner tube to force it downward into clamping position, a valve-seat provided on the under surface of said cap, a valve adapted to engage with said seat, and a spring in said inner tube adapted to hold said valve normally in engagement with said seat.

3. The combination in a valve for pneumatic tires, of an outer tube adapted to encircle the tire-stem, an inner tube adapted to be introduced within the tire-stem, a flange having a conical lower surface provided at the upper end of said inner tube, a cap adapted to engage said outer tube to draw it upward, and to press said inner tube downward into clamping position, an opening in said cap for the passage of air, a screw-threaded flange projecting upward from said cap, an imperforate cover adapted to engage said screw-threaded flange and also adapted to engage the flange on said inner tube when it is desired to withdraw the inner tube from the tire-stem.

4. The combination in a valve for pneumatic tires having tubular rubber stems, of an outer tube adapted to encircle the tire-stem, an inner tube adapted to be introduced within the tire-stem and having at the top thereof a flange with a conical lower surface adapted to enter within the tire-stem and flare the same outward over the top of the outer tube, a cap adapted to engage said outer tube to draw it upward and to press said inner tube downward so that the flange at the top of the inner tube will force the upper end of the tire-stem against the side walls of the cap.

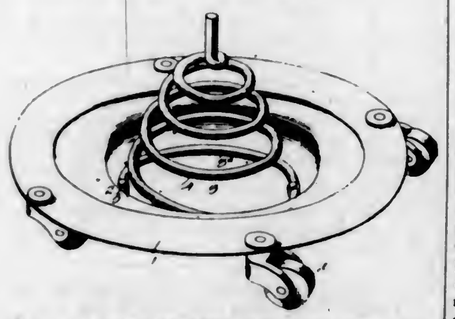
750,983. ABDOMINAL BELT. ARTHUR B. KENDRICK, Philadelphia, Pa., assignor to James B. Kendrick, Philadelphia, Pa. Filed Jan. 13, 1903. Serial No. 138,800. (No model.)

Claim.—1. A fashioned elastic abdominal belt or supporter wherein the projecting turned ends of the fashioning shirr-threads are disposed in two transverse rows, one at each side of the middle portion of the fabric, the remainder of the fabric being devoid of such projecting turned ends, substantially as and for the purpose set forth.



2. A fashioned elastic abdominal belt or supporter wherein the projecting turned ends of the fashioning shirr-threads are disposed in two rows, one at each side of the middle portion of the fabric, and the protective strips secured to the fabric and covering said rows respectively, the remainder of the fabric being devoid of such projecting turned ends, substantially as and for the purpose set forth.

750,984. FURNITURE-CASTER. JOHN W. KENNEDY, Cecil, Ga. Filed May 4, 1903. Serial No. 155,615. (No model.)



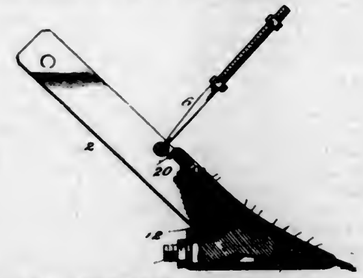
Claim.—1. A caster comprising a plate formed with a depression extending below the plane of the plate and forming a socket, supporting-rollers under the outer portion of the plate, a coiled spring having its lower coil in said socket and means for securing the lower coil to the socket.

2. A caster comprising a plate formed with a depression extending below the plane of the plate and forming a socket, the walls of said depression being concavo-convex in form, cross-sectionally, with the concave side outermost, the said plate being further formed with an inwardly-extending supporting-flange at the lower side of the said depression, supporting-rollers for the plate, a coiled spring having its lower coil in said socket and means for securing the lower coil to the socket, on said supporting-flange.

3. A caster comprising a plate formed with a depression extending below the plane of the plate and forming a socket, having an inwardly-extending supporting-flange at its lower side, provided with lugs 5, supporting-rollers for the plate, and a coiled spring having its lower coil in said socket, on said flange and engaged by said lugs, substantially as described.

750,985. PLOW. GILES A. LANE, Bronco, Ga. Filed Oct. 2, 1903. Serial No. 175,580. (No model.)

Claim.—1. In a plow, the combination with a standard, a plow-point, a clamp-plate disposed adjacent the point, and an independent draw-bar adapted for simultaneous actuation of the plate and plow-point to secure the same to the standard.



2. In a plow, the combination, with a standard, a foot disposed at the lower end of the standard, a point disposed upon the foot, a clamp-plate, and a draw-bar carried by the foot of the standard and adapted for actuating the clamp-plate and point to secure the same to the standard.

3. In a plow, the combination, with a standard comprising spaced elements, a point carried by the standard, a clamp-plate disposed adjacent the point, and a draw-bar located between the spaced elements of the standard for actuation of the point and clamp-plate to secure the same to the standard.

4. In a plow, the combination with a standard, a plow-point carried by the standard and provided with openings, a clamp-plate, a draw-bar, and lugs projected from the clamp-plate and draw-bar and received by the openings in the point, whereby adjustment of the draw-bar actuates the clamp-plate and plow-point.

5. In a plow, the combination with a standard, a point, a clamp-plate, a draw-bar for cooperation with the point and recess to secure the same to the standard, interlocking means between the point and draw-bar, and other interlocking means between the clamp-plate and the point.

6. In a plow, the combination with a standard comprising spaced elements, a plow-point, a clamp-plate disposed adjacent the plow-point, an independent draw-bar disposed between the spaced elements of the standard, engaging means between the draw-bar and point, engaging means between the clamp-plate and the plow-point whereby adjustment of the draw-bar causes simultaneous actuation of the point and clamp-plate in securing the same to the standard.

7. In a plow, the combination with a standard comprising spaced elements, a point disposed upon the foot of the standard, a clamp-plate disposed adjacent the point and provided with an undercut lug upon the under side thereof, extensions projected from the standard to engage the undercut lug of the clamp-plate, a draw-bar disposed between the spaced elements of the standard, a lug projected upwardly from the draw-bar and received in an opening in the plow-point, a lug extended from the under side of the clamp-plate and received in a second opening in the plow-point whereby adjustment of the draw-bar causes simultaneous actuation of the point and clamp-plate, extensions disposed upon the clamp-plate and point and received between the spaced elements of the standard to prevent play of the point and clamp-plate when secured in position.

750,986. PROCESS OF COATING INTERNAL WALLS OF METAL FERMENTING AND STORING VESSELS. VALENTIN LAPP, Leipsig, Germany. Filed Aug. 19, 1903. Serial No. 170,031. (No specimens.)

Claim.—1. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls, after having been treated one or preferably several times with a tannic acid, are coated with a shellac solution and after the drying thereof, are subjected to the action of a boiling solution of raw gypsum, substantially as described.

2. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, the metal walls being then coated with a shellac solution and after the drying thereof being subjected to the action of a boiling solution of raw gypsum, substantially as described.

3. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by

applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, repeating this coating two or more times, the residues of each coating being washed off before applying the second, the metal walls being then coated with a shellac solution and after the drying thereof being subjected to the action of a boiling solution of raw gypsum, substantially as described.

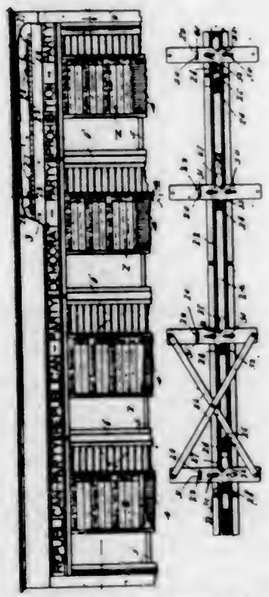
4. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, repeating this coating two or more times, and then subjecting the vessel to the action of boiling water to which the gall-apple residues are added, the metal walls being then coated with a shellac solution and after the drying thereof being subjected to the action of a boiling solution of raw gypsum, substantially as described.

5. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, subjecting the vessel to the action of boiling water to which the gall-apple residues are added, and then to a boiling decoction of hops, the metal walls being then coated with a shellac solution and after the drying thereof being subjected to the action of a boiling solution of raw gypsum, substantially as described.

6. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, the metal walls being then coated with a shellac solution and after the drying thereof being coated with a concentrated solution of raw gypsum the vessel being filled, after such coating is dry, with a boiling solution of raw gypsum, substantially as described.

7. Process for coating the internal walls of metal fermenting and storing vessels wherein the said walls are coated with tannic acid by applying thereto a solution of gall-apples and then allowing this to react for from ten to twelve hours, the metal walls being then coated with a shellac solution and after the drying thereof being coated with a concentrated solution of raw gypsum, the vessel being filled after such coating is dry, with a boiling solution of raw gypsum, a percentage of thick beer or beer-worts being added to such solution, substantially as described.

750,987. VOTING-MACHINE. SYVER LOE, Minneapolis, Minn. Filed May 4, 1903. Serial No. 155,460. (No model.)



Claim.—1. In a voting-machine, the combination, with the several series of register-actuators and stop blades or bars cooperating with each series of actuators and adapted, when in normal positions, to be moved by the cooperating actuators, of cam-slides connected to said stop-blades, and a cut-out bar upon which said slides operate to impart movements thereto, said cut-out bar in turn acting on such of said cam-slides as have not been moved by an actuator of the corresponding series, to impart movement thereto in a direction to move the connected stop-blades into position to lock the corresponding series of actuators, substantially as described.

2. In a voting-machine, the combination with several series of register-actuators and cooperating pivoted stop-blades normally standing in position to be acted upon and moved by the cooperating actuators, of cam-slides connected to said stop-blades, and a cut-out bar, said cam-slide operating on said cut-out bar to move the same endwise, and said cut-out bar in turn operating on such of said slides as have not been moved by actuators of corresponding series, to move the same endwise and throw such of said stop-blades as have been left standing in normal positions into positions to lock the corresponding series of actuators, substantially as described.

3. In a voting-machine, the combination with several series of pivoted register-actuating levers and cooperating pivoted stop-blades normally standing in position to be acted upon and moved by any of the levers of the cooperating series, of cam-slides connected to said stop-blades, and a spring-pressed cut-out bar having cam-lugs cooperating with the cam-surfaces of said slides, to center the latter and to move said bar, when one of said slides is moved, said cut-out bar further having cam-lugs cooperating with the cam-lugs on said slides, to move said slides when said cut-out bars move, and thereby to move such of said stop-blades as have been left standing in normal positions, into positions to lock the corresponding series of actuating-levers, substantially as described.

4. In a voting-machine, the combination with several series of pivoted register-actuating levers 7, having stop-shoulders 10 and cam-surfaces 11, of the pivoted stop-blades 15 cooperating as described, with the shoulders 10 and cam-surfaces 11 of said levers, the cam-slides 29 connected to said stop-blades, and the reciprocating spring-pressed cut-out bar 24, said cut-out bar having the cam-blocks 27, cooperating with cam-notches 32 of said slides 29, to normally center the latter and to move said cut-out bar when one of said slides is moved, and the said slides having cam-lugs 33 cooperating with cam-blocks 28 on said cut-out bar, whereby endwise movement of said bar under the action of one of said slides moves the other cam-slides into position to throw the connected stop-blades into positions to lock their corresponding series of actuating-levers, substantially as described.

5. In a voting-machine, the combination with several series of register-actuators and cooperating stop blades or bars, of cam-slides connected to the several series of stop-blades for movement therewith, means for connecting certain of said cam-slides for common movement, a cut-out bar upon which said cam-slides operate to impart endwise movements thereto, and which cut-out bar operates on such of said cam-slides as have not been moved by an actuator of one of the series, to move the same into position to throw the respective connected stop-blades into locking positions, substantially as described.

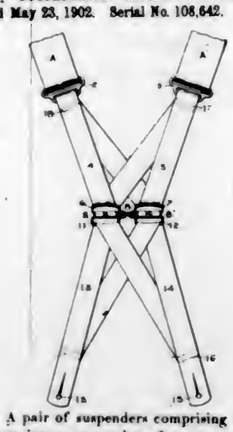
750,988. GAME DEVICE. WILLIAM LOTZ, Brooklyn, N. Y. Filed Apr. 20, 1903. Serial No. 153,366. (No model.)



Claim.—1. In a game apparatus of the class described, a ball-projecting device comprising a handle portion provided at one end with a conical or beveled member, a spring-operated rod passing therethrough, segmental jaws provided with shanks between which said rod passes, transverse members to which said jaws are pivoted and with which said rod is connected, and a contractile member mounted on the shanks of said jaws, said shanks being adapted to be separated, and said jaws pulled together by the withdrawal of the rod from the handle member, substantially as shown and described.

2. In a game apparatus of the class described, a table provided with an alley-way and a ball-projecting device transversely adjustable of one end of said alley-way, and comprising a block, an end member pivoted thereto and adapted to swing in a horizontal plane, a spring-operated rod passing through said handle member, pivotally-connected jaws between which the rod passes and with which said rod is connected, said jaws being provided with shanks which extend in the construction of the handle member and are adapted to be separated thereby and a contractile device placed on said shanks, substantially as shown and described.

750,989. SUSPENDERS. HUGH G. MACWILLIAM, New Rochelle, N. Y. Filed May 23, 1902. Serial No. 108,642. (No model.)



Claim.—1. A pair of suspenders comprising shoulder-straps, a pair of flat straps interconnected to form trousers-tabs, a pair of relatively movable links runningly supporting said straps, and a pair of flat straps connecting the rear ends of the shoulder-straps and having, intermediately, running engagement with said links.

2. A pair of suspenders comprising shoulder-straps, a pair of flat interconnected trousers-tabs, a pair of loosely-connected links slidably supporting said tabs, a pair of flat straps connecting the rear ends of the shoulder-straps, one of said connecting-straps having, intermediately, running engagement with the link supporting one trousers-tab, and the other connecting-strap having similar running engagement with the link supporting the other trousers-tab.

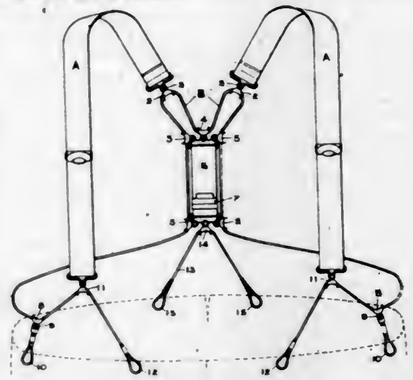
3. A pair of suspenders comprising shoulder-straps, trousers-tabs, a pair of independent relatively movable links connecting said tabs, and a pair of flat straps connecting the rear ends of the shoulder-straps and having, intermediately, running engagement with said links.

750,990. SUSPENDERS. HUGH G. MACWILLIAM, New Rochelle, N. Y. Filed June 30, 1902. Serial No. 112,420. (No model.)

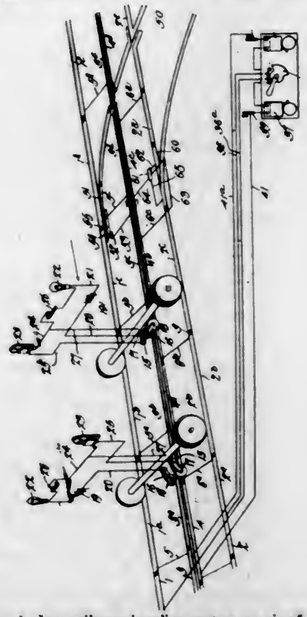
Claim.—1. In a pair of suspenders, the combination, with the shoulder-straps, of an independent band, a cord having means for connection at its ends with the front ends of the shoulder-straps and with the front of the trousers, and intermediately having sliding connection with the rear ends of the shoulder-straps and with the top and sides of said band, and independent means for detachably connecting the bottom of said band with the rear of the trousers.

2. In a pair of suspenders, in combination with separated shoulder-straps, a band, a cord having sliding connection at its ends with the front ends of the shoulder-straps and means for detachable connection with the front of the trousers, said cord centrally having sliding connection with the rear ends of the shoulder-straps and the top and sides of said band, and a cord having sliding connection with the bottom of said band, and means for detachable connection with the adjacent portion of the trousers.

3. In a pair of suspenders, in combination with separated shoulder-straps, a band, guides carried by the rear and front ends of said shoulder-straps, a guide centrally supported above said band, laterally-extending guides upon the upper and lower ends of said band, a cord running through all said guides and having means for detachable connection at its ends with the trousers, a downwardly-extending guide carried by said band, and a cord running through said guide, and having means for detachable connection with the adjacent portion of the trousers.



750,991. RAILROAD SIGNALING DEVICE. JOSEPH R. MARCHESSAULT, Meriden, Conn. Filed Nov. 13, 1902. Serial No. 131,230. (No model.)



Claim.—1. In a railway signaling system, a pair of trolley-rails and a pair of traffic-rails all divided into insulated sections, each trolley-rail section and the adjacent traffic-rail section being of equal length and terminating at the same point in the length of the road-bed, the trolley-rail section and corresponding traffic-rail section at one side of the road-bed being arranged in staggered relation with the trolley-rail section and traffic-rail section at the opposite side of the road-bed, and one end of each trolley-rail section being electrically connected to the adjacent end of an advance traffic-rail section while the adjacent trolley-rail section is connected at one end to the adjacent end of a rear traffic-rail section.

2. In a railway signaling system, a pair of traffic-rails and a pair of trolley-rails all divided into insulated sections and one end of each trolley-rail section being electrically connected to the adjacent end of an adjoining traffic-rail section to thereby couple two sections and establish a signaling limit of a length equal to two sections, each traffic-rail section and the adjacent trolley-rail section being of equal

length and terminating at the same point and the traffic-rail and trolley-rail sections of one side of the road being arranged in staggered relation with those of the opposite side of the road.

3. The combination with a pair of traffic-rails divided into insulated sections, of a pair of trolley-rails or conductors all divided into insulated sections of a length corresponding to those of the traffic-rails, each traffic-rail section and the adjacent trolley-rail section constitnting a pair and terminating at the same points and the traffic-rail and trolley-rail sections of one side of the road being arranged in staggered relation with those of the opposite side of the road, and electrical conductors each connecting one end of a trolley-rail section and the adjacent end of the next traffic-rail section, substantially as specified.

4. In a railway signaling system, the combination with a pair of traffic-rails and a pair of trolley-rails each divided into insulated sections, electrical connections between each trolley-rail section and the adjacent traffic-rail section to thereby form a signaling limit of a length equal to the combined length of both, a pair of signals and a source of electrical energy carried by each train, trolley-wheels in contact with the trolley-rails and connected in series with the source of electrical energy and the alarms, a multiple connection between the traffic-rails and the signals, and a circuit-breaker carried by each train, substantially as specified.

5. In a railway signaling system, the combination with a pair of traffic-rails and a pair of trolley-rails or conductors each divided into insulated sections, of signals and a source of electrical energy carried by each train and connected in series with the trolley-rails and in multiple with the traffic-rails, a station-switch, a pair of signals arranged at the station and each having independent connection through the switch with different portions of the track system to effect the energizing of one signal by a train traveling in one direction and the other by a train traveling in the opposite direction.

6. In a railway system, the combination with a pair of traffic-rails and a pair of trolley-rails or conductors each divided into insulated sections, electrical connections between adjacent trolley and traffic rail members, a station-switch, two independent circuits each including switch-contacts, an alarm and a circuit-breaker, the circuit-wires being each connected to one of the traffic-rail sections and one of the trolley-rail sections being energized respectively on the closing of circuits by trains traveling in opposing directions.

7. The combination in a train signaling system, of a pair of traffic-rails and a pair of trolley-rails or conductors all divided into insulated sections, electrical conductors each connecting one end of a trolley-rail section and the adjacent end of the next traffic-rail section, a pair of signals and a source of electrical energy carried by each train, conductors connecting the two alarms in multiple to the traffic-rail sections, and auxiliary conductors connecting both signals in series with the trolley-rail sections, to thereby effect the energizing of one or both signals in accordance with the closing of the circuit at different points, substantially as specified.

8. The combination in a train signaling system, of a pair of traffic-rails and a pair of trolley-rails or conductors all divided into insulated sections, electrical conductors each connecting one end of a trolley-rail section and the adjacent end of the next traffic-rail section, a pair of signals of different character and a source of electrical energy carried by each train, contact or trolley wheels insulated from each other and connected in series with the source of electrical energy and both signals, and a conductor electrically connecting the two traffic-rails in multiple with both signals.

9. In a railway signaling system, the combination with a pair of trolley-rails and a pair of traffic-rails each divided into insulated sections, electrical conductors each connecting one end of a trolley-rail section to the adjacent end of a traffic-rail section while the adjacent trolley-section is connected at one end to the adjacent end of a rear and opposite traffic-rail section, a siding or switch forming a part of the railway-line and including switch-points, circuit-controlling switches connected to and movable with said switch-points, and electrical conductors connecting said switch to the adjacent portions of the trolley and traffic rail sections to thereby effect short-circuiting between the traffic and adjacent trolley rail sections when the switch-points are moved to open the siding, a source of electrical energy and signals carried by each train, a series connection between the signals and the trolley-rail sections and a multiple connection between the signals and the traffic-rail sections.

10. The combination in a railway signaling system of a pair of traffic-rails and a pair of trolley-rails all divided into insulated sections, electrical conductors each connecting a trolley-rail section with the adjacent end of a traffic-rail section, a source of electrical energy and signals carried by each train, traveling contacts carried by the train and engaging said traffic and trolley rail sections, and a movable circuit-closing device comprising a strip of non-conducting material, a pair of signals carried thereby and adapted to be sounded respectively by the closing of circuits from trains traveling in opposite directions and contact-plates carried by the strip and adapted to engage both the traffic and trolley rail sections and thereby effect a short-circuiting of a portion of the circuits through said signals.

11. The combination in a train signaling system, of a pair of the traffic-rails and a pair of trolley-rails divided into insulated sections, electrical conductors each connecting the end of a trolley-rail section to the adjacent end of a traffic-rail section, signals and a source of electrical energy carried by each train, and a detachable circuit-closing device comprising a strip of insulating material having clips for engaging the heads of the traffic-rails, spring contact-plates carried by said strip and adapted for engagement with the traffic and trolley rail sections, independent signals carried by said strip, and current-conductors connecting the signals to the contact-plates and establishing circuits for the energizing of different signals on the approach of trains traveling in different directions.

750,992. HAT. ADOLPH MAYER, New York, N. Y. Filed Oct. 14, 1903. Serial No. 176,957. (No model.)



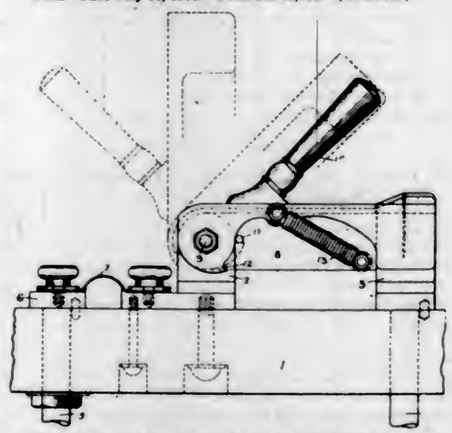
Claim.—1. A child's hat composed of a hat-frame having a rim and a crown that joins the rim at a reëntrant angle, and of a removable circular covering having a concentric hem, and a draw-string within the hem, substantially as specified.

2. A child's hat composed of a hat-frame having a rim and a flaring crown that forms an acute angle with the rim, and of a removable circular covering having a concentric hem, and a draw-string within the hem, substantially as specified.

3. A child's hat composed of a hat-frame having a reinforced rim and a flaring crown, and of a removable circular covering having a concentric hem, and a draw-string within the hem, substantially as specified.

4. A child's hat composed of a hat-frame having a rim and crown, and of a removable circular covering having an outer ruffled section, a concentric hem, and a draw-string within the hem, substantially as specified.

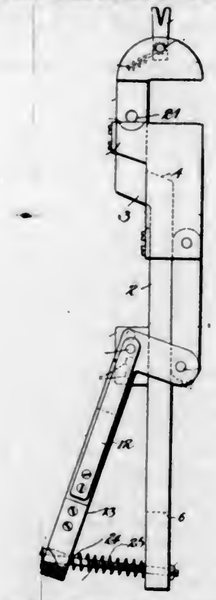
750,993. ELECTRIC SWITCH. GEORGE MOSHER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 25, 1901. Serial No. 69,660. (No model.)



Claim.—1. An electric switch, having two blades both pivoted on the same stud, one blade having overlapping integral ears at the stud and clip ends, a two-jawed stud and clip snugly embraced on the internal and external faces respectively by the two blades, a spring connection between the blades intermediate the ends, and an operating-handle on the upper blade.

2. An electric switch having two blades both pivoted on the same stud, one blade having overlapping, integral ears at the stud and clip ends, a two-jawed stud and clip snugly embraced on the internal and external faces respectively by the two blades, a spring connection between the blades, a projection on one blade to limit the tension of the spring and an operating-handle on the upper blade.

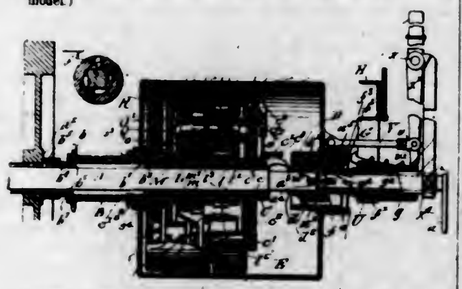
750,994. WRENCH. MARQUIS MCKINLEY, Claysville, Ky. Filed Sept. 16, 1903. Serial No. 173,463. (No model.)



Claim.—1. The combination with a bar carrying a primary jaw, of a secondary jaw slidably connected with the bar, an operating-lever adjustably and pivotally connected with the bar, operative connections between the lever and secondary jaw, a bolt extending between the lever and bar, said bolt being connected with one of the parts and engaging a longitudinal slot formed in the other, and a normally expanded spring disposed upon the bolt between the bar and lever.

2. The combination with a bar carrying a primary jaw and having a longitudinal slot, of a secondary jaw slidably connected with the bar, an operating-lever adjustably and pivotally connected with the bar, operative connections between the lever and secondary jaw, a bolt carried by the lever and engaging the slot in the bar, a normally expanded spring disposed upon the bolt between the bar and lever, and an adjustable thumb-nut tapped onto the bolt.

750,995. POWER-TRANSMISSION MECHANISM. EMIL A. NELSON, Cleveland, Ohio. Filed Sept. 2, 1902. Serial No. 121,791. (No model.)



Claim.—1. In a transmission mechanism, in combination, an inner gear, a member rotatable thereabout, a second gear carried thereby and meshing with the said inner gear, a speed-changing gear adapted to be driven through said second gear, an internal gear meshing with said second gear, means for arresting the advance of said member and means for transmitting the motion of said mechanism through said internal gear or through said speed-changing gear, substantially as set forth.

2. In a transmission mechanism, in combination, a central gear, a member rotatable about the same axis with said gear, planetary gears carried by said member and meshing with said central gear, an internal gear meshing with said planetary gear, a speed-changing gear driven through said planetary gears, a non-rotatable member, a rotable member which may transmit movement from said mechanism and means for moving said non-rotatable member and said last rotatable member so that the one may engage parts of said mechanism to arrest the movement thereof and the other may engage other parts of said mechanism to transmit the movement thereof, substantially as set forth.

3. In a transmission mechanism, in combination, a central gear, a member rotatable about the axis thereof, planetary gears carried by said member and meshing with said central gear, an internal gear surrounding said planetary gears and meshing with the same, speed-changing gears driven through said planetary gears, a non-rotatable member, a rotatable member, and a member adapted to move both simultaneously and means whereby said non-rotatable member may engage different moving parts of said mechanism whereby said last rotatable member may transmit the movement of some other part of said mechanism, substantially as set forth.

4. In a transmission mechanism, in combination, a central gear, planetary mechanism, coöperating therewith, speed-changing gears driven through said planetary mechanism, a non-rotatable member, a rotatable member and means whereby said non-rotatable member may arrest the movement of a portion of said planetary mechanism, whereby said rotatable member may transmit movement from one of the remaining said parts, substantially as set forth.

5. In a transmission mechanism, in combination, a central gear, a member rotatable about the same axis therewith, planetary gears carried thereby and meshing with said central gear, an internal gear meshing with said planetary gears, a second central gear, means for driving the same through said planetary gears, a non-rotatable member, a rotatable member, means for moving said last two members so that the first may arrest the movement of said first rotatable member or said internal gear, and means whereby the other and rotatable member may transmit the movement of said first rotatable member, said internal gear or said second central gear, substantially as set forth.

6. In a transmission mechanism, in combination, a central sleeve, a gear rigidly mounted thereupon, a rotatable member upon the same axis therewith, planetary gears carried thereby and meshing with said central gear, an internal gear with which said planetary gears mesh, a second central gear driven through said planetary gears, and loosely mounted upon said central sleeve, a member rigid with said central gear, a member rigid with said first central sleeve, means for arresting the movement of said first rotatable member or said internal gear, and means for transmitting respectively the movements of said first rotatable member said internal gear and said last two members, substantially as set forth.

7. In a transmission mechanism, in combination, a clutch, speed-changing mechanism, an arm constituting a lever and adapted to operate said clutch, a lever pivoted to said arm, means for locking said lever in a plurality of positions with respect to said arm, and mechanism connecting said lever with said speed-changing mechanism, substantially as set forth.

8. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, an arm adapted to rotate to apply said clutch, a lever pivoted thereto and adapted to move it in a plane substantially at right angles to the plane in which said arm moves, a fixed member adjacent to said lever, means whereby said lever may engage with said fixed member in a plurality of positions and mechanism connecting said lever with said speed-changing mechanism, substantially as set forth.

9. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a spindle adapted to operate said clutch, an arm adapted to rotate said spindle, a lever carried by said arm means whereby said lever may control said speed-changing mechanism, a bracket constituting a support for said spindle and means whereby said bracket may engage said lever in a plurality of positions, substantially as set forth.

10. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a rotatable arm adapted to apply said clutch, a lever carried thereby and adapted to control said speed-changing mechanism, a fixed member, said lever being adapted to

engage said fixed member in a plurality of positions when said arm is rotated, substantially as set forth.

11. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a spindle, an arm rigid therewith and adapted to control said clutch, a lever carried by said arm, a bracket constituting a support for said spindle and having a hub provided with circumferential ribs which may engage said lever, and means whereby said lever may lie normally out of engagement with said ribs, substantially as set forth.

12. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a spindle, an arm rigid therewith and adapted to apply said clutch, a lever carried by said arm, said lever being adapted to swing in a plane substantially parallel with the axis of said spindle, a bracket constituting a support for said spindle, said bracket having circumferentially-disposed projections, means whereby said lever may engage therewith when said arm rotates, and mechanism connecting said lever with said speed-changing mechanism, substantially as set forth.

13. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a spindle, a nut carried by said spindle whereby a rotation of said spindle may apply said clutch, an arm rigid with said spindle, a lever carried by said arm and adapted to control said speed-changing mechanism and means whereby the rotation of said arm may lock said lever in a fixed position with respect to the pivot thereof, substantially as set forth.

14. In a transmission mechanism, in combination, speed-changing mechanism, a clutch, a rotatable arm adapted to apply said clutch, a lever carried by said arm and adapted to swing in a plane substantially at right angles to the plane of rotation of said arm, a link through which said lever may control said speed-changing mechanism, a bracket rotatably mounted upon said link, means whereby said bracket may engage said lever, means whereby said lever may move laterally with respect to said bracket while maintaining engagement therewith, substantially as set forth.

15. In a transmission mechanism, in combination, a driving-gear, planetary mechanism driven therethrough, a clutch, a member adapted to control said clutch, a lever carried by said member, means whereby said lever may arrest the motion of different parts of said planetary mechanism, and means for transmitting the motion of different parts of said mechanism, substantially as set forth.

16. In a transmission mechanism, in combination, a driving-gear, planetary mechanism driven therethrough, a speed-changing gear also driven through said driving-gear, a clutch, a member adapted to operate said clutch, a lever carried by said member, means whereby said lever may arrest the movement of certain parts of said mechanism and means for transmitting the movement of certain parts of said mechanism, substantially as set forth.

17. In a transmission mechanism, in combination, a driving-gear, planetary mechanism driven therethrough, a speed-changing gear driven through said planetary mechanism, a rotatable member which may engage parts of said mechanism, a non-rotatable member which may engage parts of said mechanism, a lever adapted to apply said last two members, a third member carrying said lever and a clutch controlled by said third member, substantially as set forth.

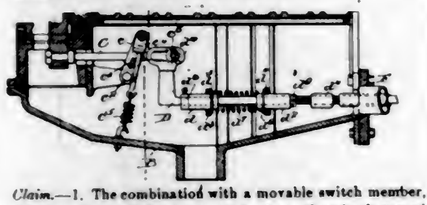
18. In a transmission mechanism, in combination, a driving-gear, planetary mechanism driven therethrough, a speed-changing gear driven through said planetary mechanism, a clutch, a rotatable arm adapted to operate said clutch, a non-rotatable member, a rotatable member which last two members may engage parts of said mechanism, and a lever adapted to control said last two members and pivoted to said arm, substantially as set forth.

19. In a transmission mechanism, in combination, a driving-gear, planetary gears driven therethrough, friction-rollers coaxial with said gears and adapted to roll upon each other, a speed-changing gear driven through said gears, means for arresting the advance of different parts of said mechanism and means for transmitting the movement of different parts of said mechanism, substantially as set forth.

20. In a transmission mechanism, in combination, a central driving-gear, planetary gears driven therethrough, an internal gear surrounding said planetary gears and meshing with the same, friction-rollers coaxial with said gears, said rollers being adapted to roll upon each other, certain of said rollers being adapted to bear against the face of said internal gear, a speed-changing gear driven through said planetary gears, means for arresting the advance of different parts of said mechanism, and means for transmitting the motion of different parts of said mechanism, substantially as set forth.

21. In a transmission mechanism, in combination, a central driving-gear, planetary gears driven therethrough, an internal gear surrounding said planetary gears and meshing with the same, friction-rollers coaxial with said gears, said rollers being adapted to roll upon each other, certain of said rollers being adapted to bear against the face of said internal gear, a third gear driven through said planetary gears, means for arresting the advance of different parts of said mechanism, means for transmitting the motion of different parts of said mechanism, and means for simultaneously operating said last two means, substantially as set forth.

750,996. **RAILWAY-SWITCH MECHANISM.** HENRY B. NICHOLS, Philadelphia, Pa. Filed July 20, 1903. Serial No. 166,381. (No model.)



Claim.—1. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod, and a lost-motion connection between said switch-rod and said extension-rod.

2. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod, a slotted enlargement upon said extension-rod, and coöperating means upon said switch-rod working within said slot.

3. The combination with a movable switch member, of a switch-rod connected thereto, an operating-lever in mechanical relation to said switch-rod, means for retaining said movable switch member in either of its operative positions, and means for maintaining said operating-lever in a predetermined position independent of the position of said switch member and switch-rod.

4. The combination with a movable switch member, of a switch-rod connected thereto, an operating-lever in mechanical relation to said switch-rod, spring-pressure means connected to said switch-rod for retaining said movable switch member in either of its operative positions, and means for maintaining said operating-lever in a predetermined position independent of the position of said switch member and switch-rod.

5. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod having a lost-motion connection with said switch-rod, an operating-lever connected to said extension-rod, and automatic means for restoring said operating-lever to a predetermined position after a switching operation.

6. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod having a lost-motion connection with said switch-rod, an operating-lever connected to said extension-rod, means for retaining said movable switch member in either of its operative positions, and means for maintaining said operating-lever in an initial predetermined position irrespective of the position of said movable switch member.

7. The combination with a movable switch member, of a switch-rod connected thereto, an operating-lever in mechanical relation to said switch-rod and capable of movement in at least two directions, and automatic means for returning said operating-lever to an intermediate position after movement in either direction.

8. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod having a lost-motion connection with said switch-rod, and a spring operatively related to said extension-rod to be compressed by the movement of said extension-rod in either direction and return the same to its initial position.

9. The combination with a movable switch member, of a switch-rod connected thereto, an extension-rod having a lost-motion connection with said switch-rod, two flanged sleeves slidingly mounted upon said extension-rod, fixed bearing-lugs for said sleeves, a spring between said sleeves in engagement with said sleeve-flanges, and a stop-collar for each sleeve secured to said extension-rod

10. The combination with a casing, of a movable switch member adjacent thereto, a switch-rod within said casing connected to said movable switch member, lever mechanism pivoted in coöperative relation to said switch-rod, and a spring connection between said lever mechanism and a lower portion of said casing arranged to pass over the dead-center of said lever mechanism pivot when the switch-rod is moved from one of its operative positions to another.

11. The combination with a casing, of a movable switch member adjacent thereto, a switch-rod within said casing connected to said movable switch member, pivoted arms mounted adjacent said switch-rod and connected therewith, a yoke for said pivoted arms, and a spring connection between said yoke and a lower portion of said casing arranged to pass over the dead-center of said pivoted arms pivot when the switch-rod is moved from one of its operative positions to another.

750,997. **NECK-YOKE.** KNUT NILSON, Duluth, Minn. Filed Mar. 30, 1903. Serial No. 150,094. (No model.)

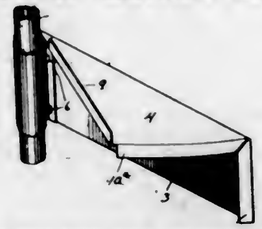


Claim.—1. In a neck-yoke and means for securing the same, the combination with a ferrule, adapted to be secured to the free end of the tongue of a vehicle, and having a stop formed thereon intermediate of its ends, of a neck-yoke journaled thereon forward of said stop, and a terminal cap mounted on said ferrule and secured thereto and adapted to retain said yoke upon said ferrule, substantially as described.

2. In a neck-yoke and means for securing the same, the combination with a ferrule, adapted to be mounted upon, and secured to the free end of the tongue of a vehicle, and having a stop formed thereon intermediate of its ends, of a neck-yoke journaled upon said ferrule forward of said stop, a terminal yoke-retaining cap mounted upon said ferrule, forward of said yoke, and means for adjustably securing said cap to said ferrule, substantially as described.

3. In a neck-yoke and means for securing the same, the combination with a ferrule, adapted to be mounted upon and secured to the tongue of a vehicle, of a neck-yoke journaled thereon, adjustable means for limiting the longitudinal movement of said yoke, and antirattling means journaled on said ferrule between said adjustable means and said yoke, substantially as described.

750,998. **STAIRWAY.** ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,222. (No model.)



Claim.—In a spiral stairway, the combination with a suitable post, pillar or column, of a step having the riser and tread formed from one piece of plate or sheet metal, said tread and riser having flanges adapted to be secured to the stringer.

750,999. **WINDOW-SASH.** ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,224. (No model.)



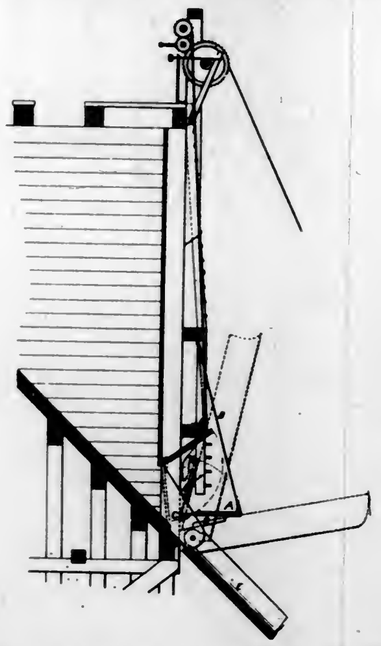
Claim.—1. A metallic window-sash, the sides and ends formed of sheet metal having inwardly-projecting flanges, one of said flanges forming a support for the window-pane, and a slitted tubular section engaging said inwardly-extending flanges.

2. A metallic window-sash, the sides and ends formed of sheet metal having inwardly-projecting flanges, a molding formed integral therewith and forming a support for the window-pane, and a slitted tubular section engaging said inwardly-extending flanges.

3. A metallic window-sash, the sides and ends being formed of sheet metal having inwardly-extending flanges, an angle having one flange inserted between said inwardly-extending flanges, means for securing said angle between said flanges, and the other flange of said angle having tongues formed thereon to engage the pane.

4. A metallic window-sash, the sides and ends being formed of sheet metal having inwardly-projecting flanges, an angle having one flange inserted between said flanges, a slitted tubular section engaging said inwardly-extending flanges, the other flange of said angle having tongues formed thereon adapted to engage the pane.

751,000. **ELEVATED STORAGE-DOCK.** CORNELIUS PALMER, Escanaba, Mich. Filed Apr. 23, 1903. Serial No. 153,937. (No model.)

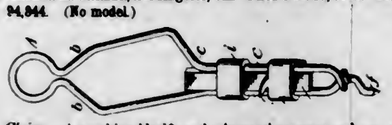


Claim.—1. In a storage structure the combination of a pivoted platform, with a swinging chute-section, and means for supporting said platform in a horizontal position.

2. A movable platform A hinged at C C to the front of a storage-pocket in combination with a hinged discharge-chute E, the operation of which also operates the platform as required, substantially as and for the purpose specified.

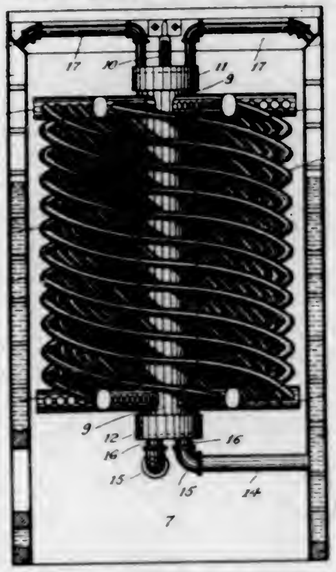
3. A movable platform, hinged at C C to a front of the storage-pocket, and supported in a horizontal position as described, in combination with a supplementary ladder F, substantially as and for the purpose specified.

751,001. **COMBINED KNIFE-SHARPENER AND CAN-OPENER.** ARTHUR M. PARKER, Los Angeles, Cal. Filed Feb. 19, 1902. Serial No. 94,844. (No model.)



Claim.—A combined knife and scissors sharpener and can-opener consisting of a frame having parallel walls terminating in a perforating-point at one end and divergent walls at the middle portion, a sharpener-plate mounted between the parallel and extending beyond the divergent walls, and adjustable clamping-bands embracing the frame and the sharpener-plate, one of said clamping-bands having a laterally-projecting blade to serve as a can-opener as set forth.

751,002. STEAM-GENERATOR. HERBERT E. PENNEY, Minneapolis, Minn., assignor to W. S. Nott Company, Minneapolis, Minn., a Corporation. Filed Sept. 3, 1903. Serial No. 171,725. (No model.)



Claim.—1. In a steam-generator, the combination with outer and inner shells providing annular water and steam spaces, of a central drum connected below to the water-space and above to the steam-space, and tube-sections comprising upper and lower headers in communication with said drum and coils connecting the upper with the lower headers, substantially as set forth.

2. In a steam-generator, the combination with outer and inner shells providing annular water and steam spaces, of a central drum connected below to the water-space and above to the steam-space, and tube-sections comprising series of upper and lower radially-arranged headers in communication with said drum and coils connecting the upper with the lower headers, substantially as set forth.

3. In a steam-generator, the combination with outer and inner shells providing annular water and steam spaces, of a central drum connected below to the water-space and above to the steam-space, and tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and series of coils extending spirally around the drum and connecting the upper and lower headers, substantially as set forth.

4. In a steam-generator, the combination with outer and inner shells providing annular water and steam spaces, of a central drum connected below to the water-space and above to the steam-space, and tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and connected in radial order to the upper and lower headers, substantially as set forth.

5. In a steam-generator, the combination with a central drum the upper and lower portions of which provide respectively steam and water spaces, and suitable water and steam connections, of tube-sections comprising upper and lower headers in communication with said drum, and coils connecting the upper with the lower headers, substantially as set forth.

6. In a steam-generator, the combination with a central drum the upper and lower portions of which provide respectively steam and water spaces, and suitable water and steam connections, of tube-sections comprising series of upper and lower radially-arranged headers in communication with said drum, and coils connecting the upper with the lower headers, substantially as set forth.

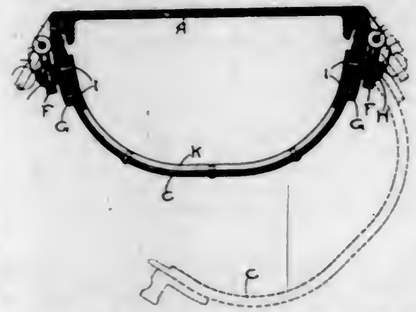
7. In a steam-generator, the combination with a central drum the upper and lower portions of which provide respectively steam and water spaces, and suitable water and steam connections, of tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum, and series of coils extending spirally around the drum and connecting the upper and lower headers, substantially as set forth.

8. In a steam-generator, the combination with a central drum the upper and lower portions of which provide respectively steam and water spaces, and suitable water and steam connections, of tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and connected in radial order to the upper and lower headers, substantially as set forth.

9. In a steam-generator, the combination with a central drum the upper and lower portions of which provide respectively steam and water spaces, and suitable water and steam connections, of tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum, and series of coils extending spirally around the drum and connecting the upper with the lower headers and treading in substantially equidistant spiral courses around the drum, substantially as set forth.

10. In a steam-generator, the combination with a drum the upper and lower portions of which provide respectively steam and water spaces, of lateral inlets for the admission of water mixed with steam into said steam-space, and a tubular separator arranged centrally within the drum adjacent to such inlets, substantially as set forth.

751,003. CONTROLLER-CASING. CHARLES L. PERRY, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Oct. 26, 1900. Serial No. 34,407. (No model.)



Claim.—1. A casing comprising fixed and movable portions, pivoted members provided with separable parts mounted along both edges of one of said portions, and means for detachably securing the other portion to said pivoted members without entirely separating said separable parts, so that said movable portion can swing in either direction relative to said fixed portion.

2. A casing comprising fixed and movable portions, pivoted clamping members mounted along both edges of one of said portions, and slotted lugs on the corresponding edges of the other portion adapted to be clamped to said pivoted members and to be removed therefrom without entirely separating the parts of said pivoted clamping members.

3. A casing comprising fixed and movable portions, sets of pivoted eyebolts mounted along both edges of one of said portions, slotted plates mounted along the corresponding edges of the other portion, and means for detachably securing the slotted plates to the eyebolts so that said movable portion can swing freely on either of said sets of eyebolts as hinges.

4. A casing comprising a back and a cover portion, sets of similar pivoted clamping members provided with separable parts on both sides of one of said portions, so constructed and arranged that either set of pivoted clamping members can be used as a fastening device for the cover, the opposite set serving as hinges, the cover being adapted to be entirely removed from the back without completely separating the separable parts of said pivoted clamping members.

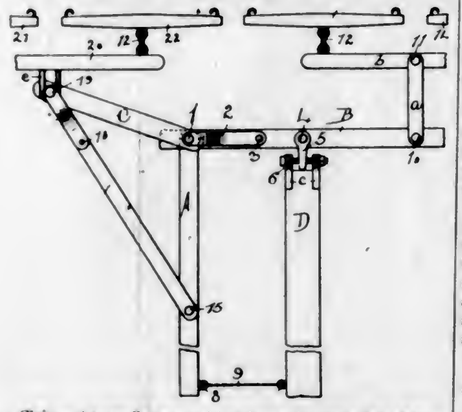
5. A casing comprising a back and a cover portion, a hinged eyebolt pivoted on one of said portions, a slotted plate mounted on the other portion, the slot in said plate being open at one side to receive the shaft of the eyebolt, and means for locking the plate to the eyebolt so that the cover portion may be swung thereon as a hinge.

6. A controller-casing comprising a back and a cover portion, hinged eyebolts pivoted along both edges of one of said portions, slotted plates mounted along both edges of the other portion, the slot in each of said plates being open at one side to receive the shaft of the eyebolt, and means for detachably securing the slotted plates to the eyebolts so that the cover portion may be securely locked in its closed position or swung open from either edge or entirely removed.

7. A controller-casing comprising a back and cover portion, eyebolts pivoted along both edges of one of said portions, nuts on said bolts, slotted plates mounted on both sides of the other portion, said eyebolts being provided with heads against which said slotted plates are adapted to be forced by means of said nuts, whereby the cover portion may be swung freely in either direction.

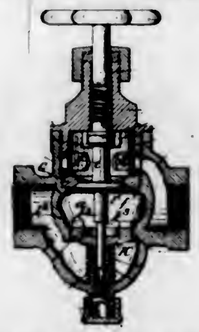
8. A controller-casing comprising a back and a cover portion, hinged eyebolts pivoted along both edges of one of said portions, nuts mounted on said bolts, slotted plates mounted along the edges of the other portion with which said eyebolts are adapted to cooperate in such a manner as to allow the cover portion to be securely locked in its closed position or swung open from either side or entirely removed without removing the nuts from said eyebolts.

751,004. FOUR-HORSE EQUALIZER. PETER N. PETERSEN, Herman, Nebr. Filed July 6, 1903. Serial No. 164,396. (No model.)



Claim.—An equalizer comprising the combination of the following instrumentalities: to wit, a main lever, a link projecting from one end of said main lever adapted to receive a doubletree, a trail-bar pivotally extending at right angles from said main lever, a stub-lever pivotally secured to said main lever and projecting slightly forward, a connecting-bar extending from the outer end of said stub-lever and secured to said trail-bar, a pliable connection extending from the end of said trail-bar and adapted to be secured to a plow-beam, and a doubletree secured to the end of said stub-lever, said main lever being adapted to be pivotally secured to a plow-beam all arranged substantially as and for the purpose set forth.

751,005. GLOBE-VALVE. FREDERICK D. PHILP, Buffalo, N. Y. Filed Aug. 1, 1903. Serial No. 167,924. (No model.)

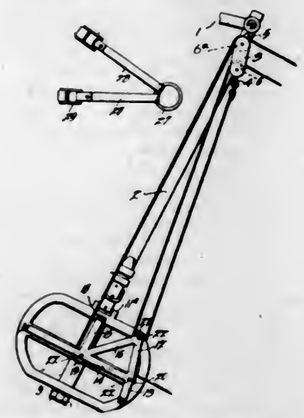


Claim.—1. In a globe-valve, the combination of a valve-casing provided with oppositely-disposed coupling portions, two valve-seats arranged parallel in said casing and having alined central openings for the passage of the fluid and valve-seats surrounding said openings, a main-valve disk cooperating with one of said seats, a screw-spindle connected to said valve-disk for positively seating the same, an auxiliary-valve disk which is mounted in the valve-casing independently of the main-valve disk and is held to its seat by the fluid-pressure, and a stem connected to said main-valve disk and which engages a part secured to said auxiliary-valve disk to unseat the latter after the main valve has been moved off of its seat, said main-valve disk being removable from the casing and said auxiliary-valve disk being held to its seat to prevent the passage of fluid when said main-valve disk is removed, substantially as set forth.

2. In a globe-valve, the combination of a valve-casing provided with oppositely-disposed coupling portions, two valve-seat rings arranged parallel in said casing and having alined central openings for the passage of the fluid and valve-seats surrounding said openings, a main-valve disk cooperating with one of said seats, a spindle connected to said main-valve disk for positively seating the same, an auxiliary-valve disk which is disconnected from said main-valve disk whereby the main-valve disk can be removed from the casing independently of said auxiliary-valve disk, a spring arranged between said auxiliary-valve disk and a part of said valve-casing and which acts together with the fluid-pressure to hold said auxiliary valve to its seat, and a stem connected to said main-valve disk and which is adapted to engage a part secured to said auxiliary-valve disk to unseat the latter after said main-valve disk has been moved off of its seat, substantially as set forth.

3. In a globe-valve, the combination of a valve-casing provided with oppositely-disposed coupling portions, two valve-seat rings arranged parallel in said casing and having alined openings for the passage of the fluid and valve-seats surrounding said openings, a main-valve disk cooperating with one of said seats, a spindle connected to said main valve for operating the same, an auxiliary-valve disk which is disconnected from said main-valve disk and is provided with a stem, a guide on said casing in which said auxiliary-valve stem works, a spring surrounding said auxiliary-valve stem between the valve and a stationary part of the casing and which acts to seat the valve, and a stem connected to said main-valve disk and having a reduced portion which works in an opening in said auxiliary-valve disk, and a shoulder which is adapted to engage said auxiliary-valve disk to unseat the latter, substantially as set forth.

751,006. BRIDLE. HENRY H. POE, Morven, Ga. Filed May 31, 1902. Serial No. 109,752. (No model.)

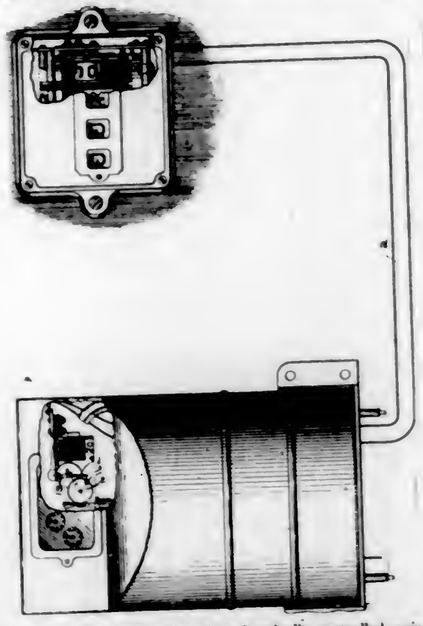


Claim.—1. The combination with a bridle carrying sheave-bearing gag-runners, and a bit carrying on each side a plurality of sheaves, of a sheave-bearing line-guide adapted for detachable connection with a harness-saddle, and lines engaging the sheaves of the different parts, one end of each of the lines being secured against retraction.

2. The combination with a bridle carrying sheave-bearing gag-runners and a bit carrying on each side a plurality of sheaves, of a flexible sheave-bearing line-guide adapted for connection with the saddle of a harness, and lines engaging the sheaves of the different parts, one end of each of the lines being secured to one of the gag-runners.

3. The combination with a bridle, of gag-runners each carrying a plurality of sheaves disposed one above the other, a bit carrying on each side a plurality of sheaves, a flexible sheave-bearing line-guide having an eye for detachable engagement with a hook on the saddle of a harness, and lines engaging the sheaves of the said parts.

751,007. **TELLTALE-REGISTER.** WILLIAM H. PRATT and ALEXANDER J. R. FISHER, Lynn, Mass., assignors to General Electric Company, a Corporation of New York. Filed June 24, 1901. Serial No. 65,360. (No model.)



Claim.—1. The combination of an electrically-controlled register comprising an operating-magnet, a retractile armature, a counter intermittently operated by said armature, an electric meter, a switch operated thereby, means whereby the switch closes circuit through the operating-magnet after a predetermined movement of the meter, and means for effecting a quick break of said circuit.

2. The combination of an electrically-operated register comprising an operating-magnet, a retractile armature, a counter for intermittently operating said armature, an electric meter, a rotary switch driven thereby, means permitting lost motion between the meter and switch, and means whereby the switch closes circuit through the operating-magnet once in each revolution.

3. An electrically-operated register comprising an operating-magnet, a retractile armature, a counter, a Geneva gear between the armature and counter, and a spring-retracting pawl acting on said gear only during forward movement.

4. An electrically-operated register comprising an operating-magnet, a retractile armature, a counter, intermittent gearing between the armature and counter, a detent for the counter acting at the end of each impulse, and a movable tooth in the intermittent gearing to permit retraction of the armature.

5. An electrically-operated register comprising an operating-magnet, a retractile armature, gear 3 having pivoted pawl 4, gear 6, counter-operated thereby, and means for holding the gear in fixed position when shifted.

6. The combination with an electrically-operated telltale-register, of a periodically-operated circuit-closer controlling the same, means permitting lost motion between the operating device and the circuit-closer, and means for utilizing said lost motion to rapidly break the circuit.

7. The combination with an electrically-operated telltale-register, of an electric circuit, a periodic circuit-closer therein, means for slowly shifting its contacts until they approximate, and a cam and an arm coöperating therewith for quickly shifting them into good conductive relation.

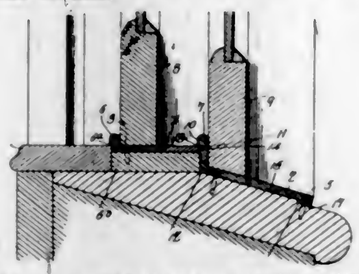
8. The combination with an electrically-operated telltale-register, of an electric circuit, a periodic circuit-closer therein, means for effecting a quick closure of the circuit, an electromagnet, and means operated thereby to effect a quick break of the circuit.

9. A telltale-register comprising an electrically-controlled counter, a circuit-controller therefor at a distant point, an electromagnet for effecting a quick break of contact in the controller, and a circuit-controller at the register for closing the circuit of said magnet after the counter has operated.

10. A repeating-register for an electric meter comprising an electrically-controlled counter, a circuit-controller at a distant point periodically operated by the meter, and means at the counter for automatically opening the circuit at the circuit-controller after the counter has operated.

11. A repeating-register for an electric meter comprising an electrically-controlled counter, a rotative circuit-controller at a distant point driven by the meter mechanism, means for shifting the contacts quickly together when they approximate, and electromagnetic means controlled by the mechanism of the repeating-counter for quickly breaking the circuit.

751,008. **PROTECTING-PLATE FOR WINDOW-SILLS.** WILLIAM A. PRATT, Marshall, Tex. Filed Mar. 31, 1903. Serial No. 150,434. (No model.)

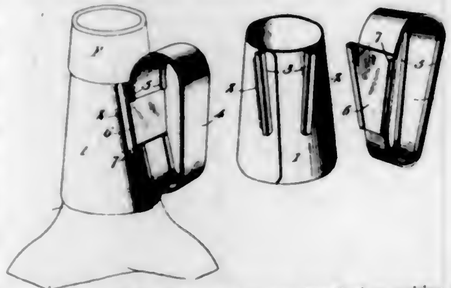


Claim.—1. A window-sill protector comprising a plate having an upwardly-extending flange along one edge thereof, a second plate provided with a vertically-disposed portion along one edge thereof, and a shoulder on said vertical portion adapted to engage the upper face of the first plate.

2. A window-sill protector, comprising a plate having an upwardly-extending flange along one edge thereof, a second plate also provided with a flange extending above the face thereof and terminating substantially flush with the top of the first flange, and a shoulder on said second flange adapted to engage the upper face of the first plate for holding the latter in position.

3. A window-sill-protecting plate having a plurality of apertures in its body portion, and an upstanding flange at its inner edge for engaging the edge of the sill and extending above the upper face thereof, said flange being reduced on its inner face at a point remote from its upper edge to form a shoulder to overhang the adjacent portion of the sill.

751,009. **HANDLE ATTACHMENT FOR DEMIJOHNS, &c.** HARRY S. PUTERBAUGH and WILLIAM H. KREMBLER, East Stroudsburg, Pa. Filed Sept. 19, 1903. Serial No. 173,907. (No model.)



Claim.—1. A device of the character described comprising a band to encircle the neck of a vessel, a handle, and means for connecting the band and the handle and drawing the ends of the band together.

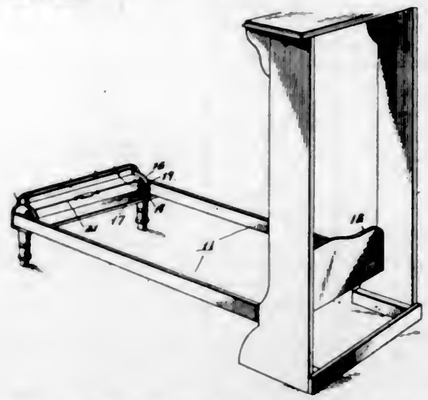
2. A device of the character described comprising a neck-encircling band, a handle, and interengaging members on the band and handle for tightening the band and holding the handle in association therewith.

3. A device of the character described comprising a neck-encircling band, a handle, and wedging devices upon the handle and the band for connecting the handle with the band and tightening the band upon the neck of a vessel.

4. A device of the character described comprising a neck-encircling band, a handle, a downwardly-tapering socket on the handle, and members on the band near the ends for engagement with said socket.

5. A device of the character described comprising a neck-encircling band, converging strips with outwardly-turned edges secured upon said band, a handle, and a plate attached to said handle and having overturned edges forming a downwardly-tapering socket for the reception of the outwardly-turned edges of said strips.

751,010. **BEDCLOTHING AND MATTRESS-CLAMP.** ABNER W. PYLE, Hopkinsville, Ky. Filed Aug. 15, 1903. Serial No. 169,633. (No model.)



Claim.—1. A bed-frame, a member separably mounted on the footboard of said bed-frame and forming an extension thereof, supporting-arms rigidly fastened at one end to said footboard member and pivotally connected at their other ends with the bed-frame at points spaced from said footboard, the footboard extension being adapted to swing out upon the outer surface of the mattress and bedclothing with one edge in angular engagement therewith, and adjustable means for locking said arms into engagement with said frame to maintain said footboard member in its outswung position, substantially as specified.

2. The combination with a bed-frame of a footboard member separably mounted on the footboard of the bed-frame and forming an extension thereto, arms rigidly connected at one end to said footboard member and pivotally connected at their other ends to the sides of the frame at points spaced from the foot thereof, said arms being extended beyond their pivotal points, spring-controlled lock-bars detachably connected to said extended ends, and means carried by said frame for releasing said lock-bars, substantially as specified.

3. The combination with a bed-frame of a footboard member separably mounted on the foot of the bed-frame and forming an extension thereto, arms rigidly connected at one end to said footboard member and pivotally connected by their other ends to the sides of the frame and spaced from the foot thereof, said arms being extended beyond their pivotal points, lock-bars having spaced notches and spring-supported in yieldable engagement with said arm extensions when the footboard member is depressed, and means carried by said bed-frame for releasing said lock-bars, substantially as specified.

4. The combination with a bed-frame of a clamping-board, a curved arm rigidly secured at one end to said board and pivotally connected near its other end with a side member of the bed-frame at a point spaced from the footboard, and means for locking said arm in outswung position to hold said clamping-board in engagement with the bed clothes.

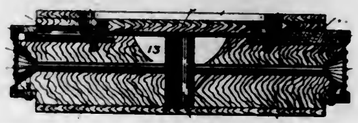
5. The combination with a bed-frame of a footboard member separably mounted on the foot of the bed-frame and forming an extension thereto, arms rigidly connected at one end to the ends of said footboard member and pivotally connected by their other ends to said frame at points spaced from the foot thereof, said arms being extended beyond their pivotal points, spring-controlled lock-bars in yieldable engagement with said extended ends, means carried by said frame for releasing said lock-bars, a catch upon the foot member of said frame, and a notched bar movably connected intermediately of said footboard member and adapted for detachable engagement with said catch, substantially as specified.

751,011. **HAME-TUG AND TRACE CONNECTOR.** CHARLES R. RAPSON, Badaxe, Mich. Filed Apr. 27, 1903. Serial No. 154,479. (No model.)



Claim.—In combination with a hame-tug plate having an opening and a cross-bar extending across the opening at a point between the ends thereof, a trace-connector comprising a stem for attachment to a trace, said stem having at its outer ends a pair of ears projecting therefrom and disconnected from each other to form a free open space between them, a longitudinal socket communicating with the space between the ears and a slot on the outer side of the stem, communicating with the socket, and a spring-pressed bolt in the socket having an operating-stud working in the slot, and a hook having an eye pivoted between the ears and provided in its rear face with a plurality of spaced openings for engagement by the bolt, the said hook having a stop 18, to engage one end of the opening in the tug-plate, when the hook is in engagement with the cross-bar thereof, said hook, stop, coengaging end of the opening and the cross-bar, coacting with the bolt, when the latter is in engagement with one of the openings in the stud, and the plate and trace are under draft stress, to lock the hook against angular movement with reference to the tug-plate, substantially as described.

751,012. **FUSE-BOX.** ROBERT H. READ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Apr. 1, 1901. Serial No. 53,879. (No model.)



Claim.—1. A fuse-box provided with a fuse-chamber communicating at a point between the fuse-terminals with a passage extending from end to end of the box, said passage being enlarged at the discharge-outlets, and a good heat-conductor in communication with each outlet.

2. A fuse-box containing an inclosed fuse, a fuse-chamber having a discharge-vent intersecting a part of the fuse, said vent being divided into a plurality of discharge-paths of small diameter relatively to their length, terminating in enlargements at the points of outlet, and metallic heat-absorbers at said points of outlet.

3. A fuse-box containing a fuse-chamber having an outlet through a bent channel and a trap for metal at or near the bend.

4. A fuse-box containing a fuse-chamber having a passage at a point between the fuse-terminals in a wall of said chamber, and a plurality of discharge-outlets communicating with the passage at a point between its ends.

5. A fuse-box containing a fuse-slot, a discharge-path for the gases when the fuse blows, and a movable cover to expose or cover the slot by turning relatively to the slot.

6. A fuse-box containing a fuse-slot and having a passage in the fuse-walls at an intermediate point of the slot, a discharge-path for the gases at an angle to the passage between its terminals, and a removable cover for the bottom of the passage.

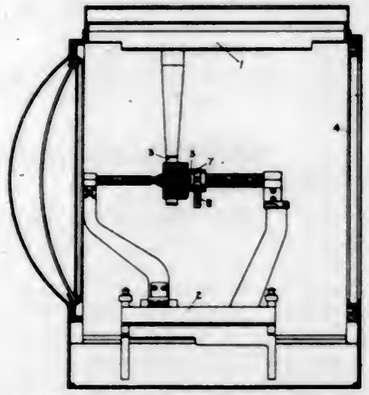
7. A fuse-box having a fuse-slot, a fuse supported in said slot, and means contiguous to the fuse for graduating the heat-radiating capacity at different parts of its length independently of change in the cross-section of the fuse.

8. A fuse-box having a fuse-chamber in the walls of the box, and a rotatable slotted cover for said chamber.

751,013. **SIGNAL DEVICE FOR SEARCH-LIGHT PROJECTORS.** ROBERT H. READ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 2, 1901. Serial No. 70,593. (No model.)

Claim.—1. A signal device for search-lights comprising a refractory shell slidingly mounted on one of the arc-light carbons; said

inclosure closely embracing the carbon at its closed end and enlarged at the open end to provide a large clearance.

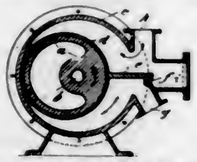


2. A signal device for search-lights comprising a refractory shell to cover the arc slidingly mounted on one carbon, an operating-handle on the outside of the drum, and means for connecting and disconnecting the shell with said operating device by shifting the handle.

3. A signal device for search-lights comprising a refractory shell having hollow walls slidingly mounted on the arc-light pencil, and an operating device extending through the projector for shifting the same so as to inclose or expose the arc.

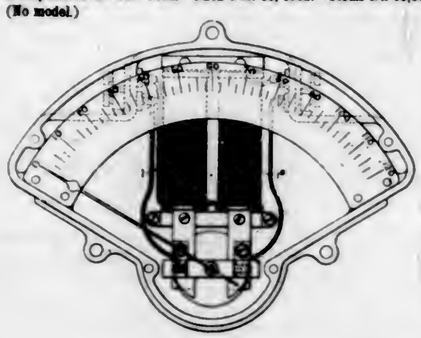
4. A signal device for search-lights comprising an inclosure of refractory material, slidingly mounted on an arc-light pencil, and means accessible from the outside of the projector for shifting the inclosure around or away from the arc, said inclosure having within its walls a strengthening metallic frame.

751,014. ROTARY PUMP, BLOWER, &c. CARL REIN, Hanover-List, Germany. Filed May 7, 1903. Serial No. 155,986. (No model.)



Claim.—In a rotary pump, a cylinder having an inlet branch, an outlet branch, and a bridge terminating in a rounded abutment intermediate said branches, combined with an eccentric rotatable piston, a surrounding strap, and a valve on the strap which is adapted to project beyond the abutment and to impinge against the same at one face, while the other face of the valve is free, substantially as specified.

751,015. ELECTRICAL MEASURING INSTRUMENT. LEWIS T. ROBERSON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Feb. 10, 1902. Serial No. 93,304. (No model.)



Claim.—1. An electrical measuring instrument having a magnetic field and a magnetically-operated counter-torqu device acting on the moving indicating system, said device being mounted in the field so that the maximum and minimum points of its torque curve cover a greater scale-angle than ninety degrees.

2. An electrical measuring instrument having a magnetic field and a return element mounted therein, the field and element being relatively adjusted to subtend more than ninety degrees between positions of maximum and minimum flux through the return element.

3. An electrical measuring instrument having a magnetic return element furnishing counter torque for the moving indicating system whose path of movement is at an angle to the direction of magnetic flux.

4. An electrical measuring instrument having a magnetic return element furnishing counter torque for the moving indicating system whose path of movement inclines to the direction of magnetic flux.

5. An electrical measuring instrument having a return element formed of a substantial thickness of magnetic material of lower specific permeability than the control-magnet.

6. An electrical measuring instrument having a magnetic return element so mounted as to have a greater magnetic density than the control-magnet and having an orbit inclined to the direction of magnetic flux.

7. An electrical measuring instrument having an electromagnet furnishing its field of force, and a magnetic return device furnishing counter torque moving over a path inclined to the direction of magnetic flux.

8. An electrical measuring instrument having a magnetic return device for furnishing counter torque formed of a metal of inferior magnetic permeability.

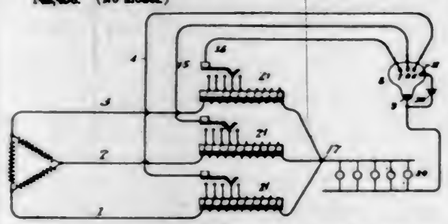
9. An electrical measuring instrument having a magnetic return device for furnishing counter torque formed of an alloy of iron.

10. An electrical measuring instrument having a magnetic return device for furnishing counter torque formed of an alloy of iron and a non-magnetic metal.

11. An electrical measuring instrument having a magnetic return device for furnishing counter torque formed of an alloy containing a percentage of magnetic metal.

12. An electrical measuring instrument having a magnetic return device for furnishing counter torque formed of an alloy composed of a magnetic and non-magnetic metal.

751,016. SYSTEM OF ELECTRICAL DISTRIBUTION. NELSON W. ROGERS, Mount Vernon, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Filed Feb. 9, 1903. Serial No. 142,458. (No model.)

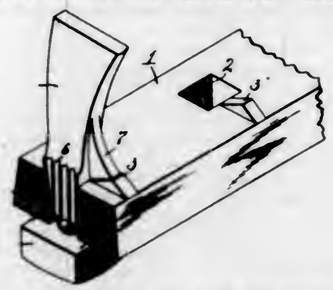


Claim.—1. In an electrical distribution system, the combination of a multiphase circuit with a work or consumption circuit containing one or more translating devices, and a gas or vapor electric apparatus having positive electrodes and a common negative electrode, each positive electrode being connected to a separate terminal of the supply-circuit, and the negative electrode being connected with one side of the work or consumption circuit, and compensating coils also connected with the said supply-circuit at one end and connected at the opposite end with the opposite side of the work or consumption circuit.

2. In a system of electrical distribution, a multiphase circuit and a work or consumption circuit, in combination with multiple connections from the supply-circuit to opposite sides of the work-circuit, the connections to one side of the said circuit passing through compensating coils or devices, and the connections to the opposite side of the said circuit being made through a gas or vapor electric apparatus having a plurality of positive electrodes to which the leads from the supply-circuit are severally connected, and also having a negative electrode connected to one side of the work or consumption circuit.

3. In a system of electrical distribution, a multiphase supply-circuit and a work or consumption circuit, in combination with multiple connections from the supply-circuit to opposite sides of the work-circuit, the connections to one side of the said circuit passing through adjustable compensating coils or devices, thereby permitting a variation in the transmitted current independently of the alternating supply, and connections to the opposite side of the said circuit being made through a gas or vapor electric apparatus having a plurality of positive electrodes to which the leads from the supply-circuit are severally connected, and also having a negative electrode connected to one side of the work or consumption circuit.

751,017. THRESHER-TOOTHING. WILLIAM N. RUNKLY, Laporte, Ind. Filed Feb. 8, 1902. Serial No. 93,127. (No model.)



Claim.—1. In thresher-toothing, the combination, substantially as set forth, of a tooth having a tapering shank with yieldable corrugated side faces adapted to present ribs to the side walls of its receiving-mortise to be upset by impingement thereagainst as driven in said mortise, and a nut screwing upon the stem of the tooth.

2. The combination of a tooth-holding bar provided with tapering rectangular mortises and a brace-receiving surface rising upwardly from the base of the mortises above the general surface of the bar, teeth with tapering shanks, yieldable corrugated side faces and rearwardly-projected braces adapted to engage the brace-receiving surface of the bar, and nuts screwing on the stems of the teeth.

3. In thresher-toothing, the combination of a tooth having a tapering shank with yieldable corrugated opposite side faces slightly in excess of the receiving-mortise adapted to present ribs to the side walls of said mortise to be upset by impinging therein, and a bar provided with a receiving-mortise.

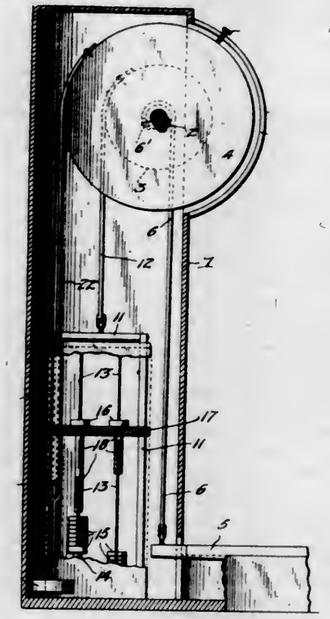
751,018. WEIGHING-SCALE. FREDERICK A. SELLEY, Lafayette, Tenn. Filed June 28, 1903. Serial No. 163,585. (No model.)

Claim.—1. In a weighing-scale, the combination of a platform, an axle having wheels, a cord connecting the platform to one wheel of the axle, a follower, a cord connecting it to one of the wheels of the axle, and a series of weights disposed at different elevations in the path of the follower and successively taken up thereby as the follower ascends, substantially as described.

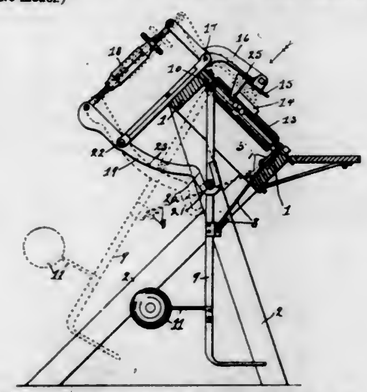
2. In a weighing-scale, the combination of a platform, an axle having wheels, a cord connecting the platform to one wheel of the axle, a follower, a cord connecting it to one of the wheels of the axle, a series of weights disposed at different elevations in the path of the follower and successively taken up thereby as the follower ascends, a weight to balance the platform, and a cord suspending said weight from a wheel of the axle, substantially as described.

3. In a weighing-scale, the combination of a follower and means to raise it, with a series of upright guides, a series of primary weights engaging the guides, supported at different elevations and successively accumulated by the upward movement of the follower, and a series of elevated secondary weights, engaging the guides, and arranged in reverse order to the primary weights and having depending devices, successively engaged by the primary weights as they are lifted by the follower.

4. In a weighing-scale, the combination of a follower and means to raise it, with a series of upright guides, a series of primary weights, traveling on said guides, supports to normally maintain the weights at different elevations, an elevated support, a series of secondary weights normally thereon and having depending tubular stems, on the guides, varying in length and arranged in reverse order with reference to the primary weights, the latter being successively accumulated and lifted by the follower as it rises, and the tubular stems of the secondary weights being successively engaged and lifted, by the said primary weights as they continue to rise with the follower.



751,019. APPARATUS FOR STRETCHING COLLARS. ALONZO SHARP, Troy, N. Y., assignor to Adams Laundry Machinery Company, a Corporation of New York. Filed June 4, 1903. Serial No. 159,992. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a pair of rollers rotatively mounted adapted to receive and be partly encircled by the opposite ends of a collar or the like: of means for imparting to said rollers rotative movements in opposite directions, whereby a collar having its ends held thereon will be wound thereupon and stretched.

2. In an apparatus of the class described, the combination with a pair of rollers rotatively mounted adapted to receive and be partly encircled by the opposite ends of a collar or the like; of a foot-lever; and connections between said foot-lever and said rollers, whereby a relative movement can be imparted to both said rollers simultaneously in opposite directions.

3. In an apparatus of the class described, the combination with a frame having a series of open journal-bearings mounted thereon; of a pair of rollers having their journals removably located in certain of said open bearings, said rollers being adapted to be partly

encircled by the opposite ends of a collar or the like; and means for imparting to said rollers rotative movements in opposite directions.

4. In an apparatus of the class described, the combination with a frame: of a pair of rollers rotatively mounted thereupon adapted to be partly encircled by the opposite ends of a coller or the like; means for rotatively moving said rollers in opposite directions to stretch an article held thereon; a bed-plate fixed upon said frame intermediately of said rollers; and means for clamping the middle part of the article upon said bed-plate during the stretching operation.

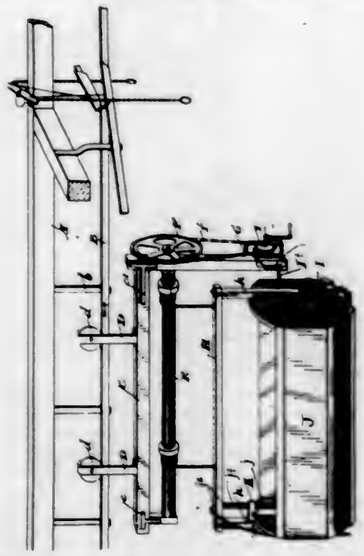
5. In an apparatus of the class described, the combination with a frame; of a pair of rollers rotatively mounted thereon adapted to be partly encircled by the opposite ends of a collar or like article; clamping mechanism adapted to engage the middle portion of the article; a foot-lever; and connections between said foot-lever and said rollers and clamping mechanism, whereby rotative movement is imparted to the rollers in opposite directions to stretch an article held thereon at the same time the clamping mechanism is operated to engage the middle portion of said article.

6. In an apparatus of the class described, the combination with a pair of rollers rotatively mounted adapted to stretch a collar or the like held thereon, each of said rollers being built up from a plurality of disks of soft wood having the cut ends of its fibers exposed on the periphery thereof; and means for imparting to said rollers rotative movements in opposite directions.

7. In an apparatus of the class described, the combination with a frame; a pair of rollers rotatively mounted thereon adapted to be partly encircled by the opposite ends of a collar or the like; of clamping mechanism mounted upon said frame intermediately of said rollers adapted to engage the middle portion of an article applied to the rollers; a foot-lever; connections between the foot-lever and respective rollers whereby the rollers are rotatively operated in opposite directions; a cam-follower on the foot-lever; and a lever for operating the clamping mechanism having thereon a cam adapted to be engaged by said follower to force the clamp members into engagement with the interposed article during the first part of the movement of the foot-lever, and a dwell adjacent to said cam adapted to be engaged by said follower during the remainder of the movement of said foot-lever to retain the clamp closed.

8. In an apparatus of the class described, the combination with a roller rotatively mounted, adapted to receive and be partly encircled by one end of a collar or like article; and means for imparting to said roller a rotative movement adapted to wind thereupon said end of the article; of means for supporting the other end of said article held thereon to resist the pull exerted by said roller.

751,020. **FEED OR LITTER CARRIER.** LYMAN C. SMITH, Oshawa, Canada. Filed Sept. 1, 1903. Serial No. 171,540. (No model.)



Claim.—1. In a feed or litter carrier, the combination with the track, of the substantially right-angular frame, the brackets carried intermediate of the length of the frame and provided with grooved wheels supported on the track, the elevating-spindle journaled in the frame, the box depending therefrom and means for turning the spindle as and for the purpose specified.

2. In a feed or litter carrier, the combination with the track, of the substantially right-angular frame, the brackets carried intermediate of the length of the frame and provided with grooved wheels supported on the track, the elevating-spindle journaled in the frame, the box depending therefrom, the sprocket-wheel on the end of the spindle, the counter-spindle and sprocket-wheel supported at the bottom of the upright portion of the right-angular frame, the sprocket-chain connecting the aforesaid sprockets, the ratchet and dog engaging the same and the crank-handle for turning the spindle as and for the purpose specified.

3. In combination the right-angular frame suitably supported and the elevating-spindle journaled therein, the sprocket-wheel on the end of the spindle, the journal-bracket secured to the lower end of the vertical portion, the spindle journaled therein, the sprocket-wheel on the spindle, the sprocket-chain, the ratchet-wheel, the crank-handle, and the V-shaped dog having the thumb-piece as and for the purpose specified.

4. In combination the right-angular frame suitably supported and the elevating-spindle journaled therein, the sprocket-wheel on the end of the spindle, the journal-bracket secured to the lower end of the vertical portion, the spindle journaled therein, the sprocket-wheel on the spindle, the sprocket-chain, the ratchet-wheel, the crank-handle, the V-shaped dog having the thumb-piece and the handle on the side of the vertical portion as and for the pupose specified.

5. The combination with the right-angular frame provided with a depending vertical portion and the elevating-spindle and means for turning the same, of a box provided with end spindles and a crank-handle, the rigid bail through depending portions of which the spindle extends and means for holding the box in the normal upright position as and for the purpose specified.

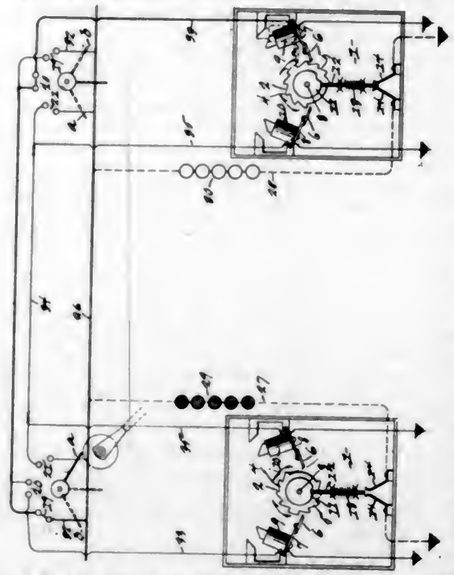
6. The combination with the right-angular frame provided with a depending vertical portion and the elevating-spindle and means for turning the same, of a box provided with end spindles and a crank-handle, the rigid bail through depending portions of which the spindle extends, a latch pivoted on the depending portion of the bail and designed to normally engage a notch in the arc-shaped upper end and means for raising the latch as and for the purpose specified.

7. The combination with the right-angular frame provided with a depending vertical portion and the elevating-spindle and means for turning the same, of a box provided with end spindles and a crank-handle, the rigid bail through depending portions of which the spindle extends, a latch pivoted on the depending portion of the bail and designed to normally engage a notch in the arc-shaped upper end, a spring for normally holding the latch down extending between such latch and the horizontal portion of the bail and the cord connected with the latch and extending through the spring and bail and depending downwardly as and for the purpose specified.

8. In a feed or litter carrier, the combination with the track, of the substantially right-angular frame, the brackets pivoted vertically and carried intermediate of the length of the frame and provided with grooved wheels supported on the track, the elevating-spindle journaled in the frame, the box depending therefrom and means for turning the spindle as and for the purpose specified.

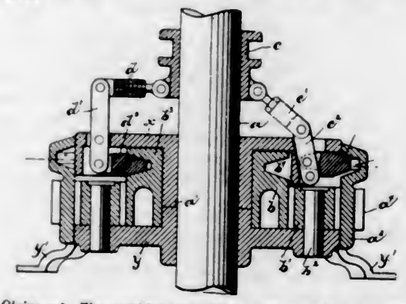
751,021. **AUTOMATIC SIGNALING SYSTEM FOR ELECTRIC RAILWAYS.** HARRY B. SNELL, Cement City, Mich., assignor to the Snell Electric Signal Company, a Corporation of Michigan. Filed Apr. 25, 1903. Serial No. 154,194. (No model.)

Claim.—1. In an automatic block-signal system, the combination with the trolley-wire carrying a current-supply, of trolley-actuated switch devices located at the ends of a block, each provided with three ways for current to pass, local signal-circuits at each end of the block, mechanisms adapted to control said local circuits, magnets 9 and 10 adapted to be independently operated to actuate the signal mechanisms, the line-wire 31, connections leading therefrom through the setting-magnets 9, the line-wire 34 and connections leading therefrom through the restoring-magnets 10, whereby when a car enters the block the connection leading through the setting-magnet 9 of the mechanism at the end at which the car enters is broken and the current from the trolley-wire is closed into the line-wire 31; and as the car leaves the block the current is closed into the line-wire 34 and the connections leading through the restoring-magnets 10 of the signal mechanisms, substantially as described.



2. In an automatic block-signal system, a trolley-wire carrying a current-supply, trolley-actuated switches at each end of the block having three current-ways 19, 20 and 21, adapted to be closed one at a time only, the current-ways 19 and 21 when closed admitting current from the trolley-wire, local signal-circuits at each end of the block, a mechanism for operating each of said circuits embodying a rotatable ratchet-wheel having two sets of oppositely-arranged teeth, pivoted armatures carrying pawls adapted to engage the teeth upon said ratchet-wheel, setting and restoring magnets 9 and 10 carried by said armatures adapted to be independently energized so as to operate the ratchet-wheel in alternate directions, a line-wire 31 connected at its ends to the current-ways 19 and 20, connections leading from the current-ways 20 through the setting-magnets 9, the line-wire 34 connected at its end to the current-way 21, and connections leading therefrom through the restoring-magnets 10, whereby the signal mechanism at the end of the block opposite to that at which the car enters will be actuated to close the local signal-circuit controlled thereby, and said mechanism will again operate to open said signal-circuit as the car leaves the block, substantially as described.

751,022. **REVERSING-GEAR.** ANDREW SONANDER, Springfield, Ohio, assignor to the Foos Gas Engine Company, Springfield, Ohio, a Corporation of Ohio. Filed Mar. 5, 1903. Serial No. 146,276. (No model.)



Claim.—1. The combination with a power-shaft and a wheel-rim, of intermediate supporting, driving and shifting devices, said rim being journaled on said supporting devices and adapted to be driven in either direction by said driving and shifting devices, substantially as specified.

2. The combination with a power-shaft and a wheel-rim, of intermediate supporting, driving and friction clutch devices, said rim being journaled on said supporting devices and adapted to be driven in either direction by said driving and friction clutch devices, substantially as specified.

3. The combination with a power-shaft, a wheel-rim and a frame on said shaft independent of but adapted to support said rim, of intermediate driving and shifting devices adapted to drive said rim in either direction, substantially as specified.

4. The combination with a power-shaft, a wheel-rim and a frame on said shaft adapted to support said rim, of means including friction-clutch devices operated by said shaft and adapted to be shifted to drive said rim in either direction, substantially as specified.

5. The combination with a power-shaft, a wheel-rim, and a frame on said shaft on which said rim is journaled, of intermediate driving and clutch mechanism to drive said rim and means to shift said clutch mechanism to drive said rim in either direction.

6. The combination with a power-shaft, a wheel-rim and a frame on said shaft on which said rim is journaled, of means including friction-clutch devices operated by said shaft to drive said rim, and means to shift said devices to drive said rim in either direction, substantially as specified.

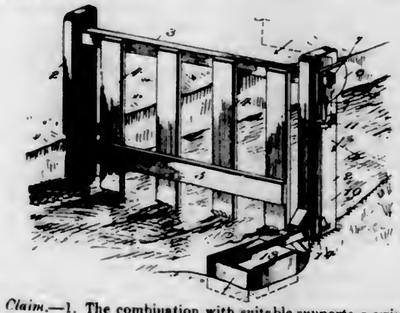
7. The combination with a power-shaft, a wheel-rim having cogs on its inner periphery, and a hub on said shaft having radial extensions adapted to support said rim, pinions on said frame adapted to mesh with said cogs of the rim, and a gear on said hub adapted to mesh with each of said pinions, of two sets of oppositely-disposed frictional clutches, one set adapted to engage said rim and the other set said gear, one set being in engagement while the other is released, and means to simultaneously shift the respective sets, for the purpose specified.

8. The combination with a power-shaft, a wheel-rim having cogs on its inner periphery, and a hub on said shaft having radial extensions adapted to support said rim, pinions on said frame adapted to mesh with said cogs of the rim, and a gear on said hub adapted to mesh with each of said pinions, of two sets of oppositely-disposed frictional clutches, one set adapted to engage said rim and the other set said gear, one set being in engagement while the other is released, a longitudinally-movable sleeve on said shaft having connections with said clutches adapted to simultaneously shift the respective sets of clutches in and out of engagement upon the longitudinal movement of said sleeve, substantially as specified.

9. The combination with a power-shaft, a wheel-rim and a divided frame on said shaft to support said rim, one part of said frame adapted to be held stationary and the other fixed to said shaft, of intermediate driving and shifting devices and means to operate said shifting devices whereby said rim is driven in either direction.

10. The combination with a power-shaft, a wheel-rim and a divided frame on said shaft on which said rim is journaled, one part of said frame adapted to be held stationary and the other fixed on said shaft, of intermediate devices, including friction-clutches, operated by said shaft, to drive said rim, and means to shift said clutches to drive said rim in either direction.

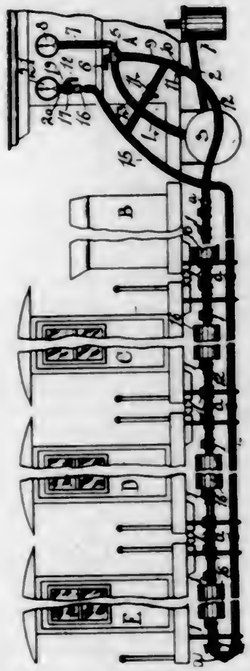
751,023. **FLOOD-GATE FOR FENCES CROSSING STREAMS.** CHARLES SPIVEY, Sutton, Nebr. Filed Oct. 6, 1903. Serial No. 176,019. (No model.)



Claim.—1. The combination with suitable supports, a swinging flood-gate mounted between the said supports and having one of its journals extending beyond one of the supports, a notched segment mounted upon the aforesaid journal and actuated thereby, and a float-actuated detent-bar for engagement with the notched portion of the segment to lock the gate closed and permitting automatic opening thereof.

2. The combination with supporting-posts, a flood-gate mounted between the said supporting-posts and having one of its journals extended beyond one of the supporting-posts and squared, a notched segment secured to the squared portion of the aforesaid journal, a detent-bar mounted upon the post adjacent the segment for cooperation with the notched portion of the segment, a float disposed adjacent the detent-bar for actuation thereof, and a pivoted arm connected at opposite ends to the float and detent-bar respectively.

751,024. AUTOMATIC AIR-BRAKE. BENJAMIN STAPLETON and JOHN AHERN, Perry, Iowa. Filed Apr. 14, 1902. Serial No. 102,907. (No model.)



Claim.—1. In an air-brake system, the combination of a pipe extending the full length of the train and recurving and provided at each end with a gage, and a leakage-groove within said pipe, adjacent to one of said gages, said pipe being in combination with a suitable air-supply.

2. In an air-brake system, the combination with a gage, a pipe extending from said gage and extending to the end of the train, thence recurving and ending in a gage placed adjacent said first-mentioned gage, a leakage-groove within one pipe end, an engineer's operating-valve in connection with said pipe system, and a suitable air-supply in connection with said pipe, arranged substantially in the manner set forth.

3. The combination in an air-brake system, of a gage, a pipe extending from said gage to the rear of the train and recurving and terminating in a second gage, an emergency-cock adjacent said last-mentioned gage, a leakage-groove within said emergency-cock, an engineer's brake-valve within said pipe system, and a suitable air-supply, all arranged substantially as and for the purpose set forth.

4. The combination in an air-brake system, of a gage, a service-pipe extending to the end of the train and recurving and terminating in a second gage, a valved cross-pipe connection extending from near one end of said pipe to the other, a leakage-groove within said service-pipe, adjacent said last-mentioned gage, an emergency exhaust-cock in said pipe adjacent said last-mentioned gage, an engineer's brake-valve within said pipe system adjacent said first-mentioned gage, and a suitable air-supply in connection with said service-pipe, all arranged substantially as and for the purpose set forth.

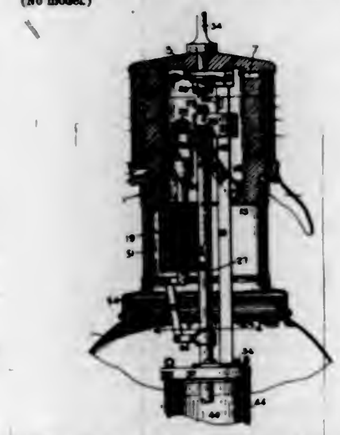
5. The combination with the air-brake mechanisms of a train, of a pipe in connection with said air-brake mechanism of each car and extending the full length of the train, a gage at the forward end of said pipe, said pipe recurving and being provided with a second gage and its remaining end, a leakage-valve adjacent said last-mentioned gage, an engineer's brake-lever within said pipe, an emergency-cock within said pipe, and a suitable air-supply, all arranged substantially as and for the purpose set forth.

6. The combination in a railroad-train, of a service-pipe having a starting end and extending a suitable distance and recurving and terminating near said starting end, a pressure-gage secured to said starting end of said service-pipe, a pressure-gage secured to said terminating end of said service-pipe, and an air-supply pipe entering said service-pipe intermediate of its ends, so arranged that the pressure within said air-supply pipe is registered at each end.

7. In an air-brake system, the combination of a pressure-gage, of a service-pipe extending from said gage rearward and recurving, a cut-out cock within said service-pipe, a second gage secured to said recurved pipe end, an air-supply pipe in connection with said service-pipe, an emergency-valve within said pipe intermediate of its ends and a cross-pipe uniting the ends of said service-pipe, as and for the purpose set forth.

8. In an air-brake system, the combination with a pressure-indicator, of a pipe extending from said indicator, and recurving and ending adjacent aforesaid indicator, a second indicator secured to the remaining end of said recurved pipe, an air-supply connected to said pipe, brake mechanisms in connection with said pipe, and a leakage-valve within said pipe intermediate of its ends, all arranged substantially as and for the purpose set forth.

751,025. ELECTRIC-ARC LAMP. GEORGE R. STEVENS and WALTER C. FISH, Lynn, Mass., assignors to General Electric Company, a Corporation of New York. Filed June 14, 1902. Serial No. 111,635. (No model.)



Claim.—1. In an arc-lamp, a tubular body of insulating material, having a closed top, a hanger secured to said top, a resistance-coil wound on said body, openings in said body, leads from the resistance-coil extending through said openings, and means for varying the resistance in circuit.

2. In an arc-lamp, a tubular body of insulating material having a closed top and upper and lower flanges, a resistance-coil wound between said flanges, a bolt running lengthwise of said body outside of said coil, with its ends in said flanges, and a slide on said bolt.

3. In an arc-lamp, the combination, with a tubular body of insulating material, of a rod suspended from said body at a point laterally displaced from its axis, and upper and lower carbon holders supported by said rod in a position to hold the carbons in alinement with the axis of said body.

4. In an arc-lamp, the combination, with a tubular body of insulating material, of a rod suspended from said body, a guide sliding on said rod and extending laterally therefrom, an upper-carbon holder carried by said guide, and a lower-carbon holder suspended by said rod.

5. In an arc-lamp, the combination, with a tubular body of insulating material, of a polygonal rod suspended from said body, an insulating-guide sliding on said rod, a carbon-holder attached to said guide, a clutch for the carbon, and a solenoid for operating the clutch.

6. In an arc-lamp, the combination, with a tubular body of insulating material, of a rod suspended from said body at a point laterally displaced from its axis, and a gas-cap of insulating material attached to said rod with its center in the axis of the tubular body.

7. In an arc-lamp, the combination, with a tubular body of insulating material, of a tubular rod suspended from said body, and a gas-cap attached to said rod and having a passage communicating with the interior of said rod.

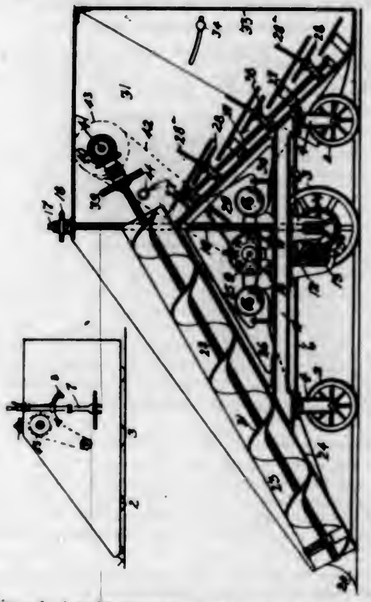
8. In an arc-lamp, the combination, with a tubular body of insulating material, of a tubular rod suspended from said body and having a hole near its upper end, and a gas-cap attached to said rod and having a narrow passage communicating with the interior of said rod.

9. In an arc-lamp, the combination, with a tubular body of insulating material, of a rod suspended from said body, a gas-cap of insulating material attached to said rod, and a lower-carbon holder depending from said gas-cap and in direct electrical connection with said rod through the gas-cap.

10. In an arc-lamp, the combination of a top, a rod suspended therefrom, a gas-cap of insulating material secured to said rod, a lower-carbon holder depending from said gas-cap, and a metallic connection through the gas-cap between the rod and carbon-holder.

11. In an arc-lamp, a top, a rod suspended therefrom, means for holding the upper carbon parallel to and laterally displaced from said rod, and a gas-cap and a lower-carbon holder supported by said rod.

751,026. MALT-MAKING MACHINE. HERMAN J. SULKEN, Sacramento, Cal. Filed Aug. 17, 1903. Serial No. 169,739. (No model.)



Claim.—1. A making apparatus comprising a movable support, a perforated incline, means proximate to the lower end of the incline for lifting and turning the malt delivered thereto, means for causing malt to traverse said incline and means for forcing a blast of air through the perforations in the incline and the incumbent malt body.

2. A malting apparatus comprising a movable support, a series of plows thereon, a conveyer, succeeding the plows, and means for forcing air through the material during transportation by said conveyers.

3. An apparatus for turning malt consisting of a series of plows, a carriage upon which said plows are mounted, a carrying mechanism approximate to the plows upon which the material is delivered, means for forcing air through the material, mechanism by which power is applied to propel the carriage and means for turning the carriage at the end of its journey.

4. An apparatus for turning malt, consisting of a series of plows, a carriage upon which they are mounted so as to move in close proximity with the floor upon which the material is spread, a carrying mechanism approximate to the plows upon which the material is delivered, means for forcing air through the material, steering-wheels mounted at the corners of the carriage, and having vertically-journaled yokes, bell-crank levers and connections by which said wheels may be turned in unison to change the direction of motion of the apparatus.

5. An apparatus for the turning and aeration of malt consisting of a plurality of turning-plows adapted to travel over the floor, carriers by which the turned material is received, said carriers extending upwardly and rearwardly, means for forcing air through the material, a carriage upon which the plows and carriers are mounted, a motor and connections by which the carriage and the carriers are propelled.

6. An apparatus for the turning and aeration of malt consisting of a carriage, plows mounted at the front adapted to turn the material upon the floor, carriers extending upwardly and rearwardly upon the front of which the turned material is delivered, a perforated surface over which the material is moved by the carriers, and an air-forcing apparatus by which air is forced through the moving material.

7. An apparatus for the turning and aeration of malt consisting of a carriage, steering and bearing wheels upon which it is mounted, plows carried at the front of the carriage and adapted to turn the material upon the floor, a series of carriers extending upwardly and backwardly adapted to receive the malt as it is turned by the plows and transmit it, a perforated surface, an air-forcing mechanism and a trunk connecting said mechanism with the said perforated surface whereby a blast of air is delivered through the passing material and means for discharging the material and again distributing it upon the floor.

8. An apparatus for turning and aerating malt consisting of a carriage, the carriage having driving and steering wheels, plows mounted upon the front of the carriage adapted to turn the material, rearwardly and upwardly traveling carriers upon which the turned material is received and by which it is transmitted, mechanism by which a blast of air is delivered through the passing material, a motor, means for transmitting motion therefrom to the carriers, and to the propelling-wheels of the carriage, and means for regulating the speed of the driving-wheels.

9. In an apparatus for turning and aerating malt, turning-plows and carriers by which the material is received and transmitted upwardly and rearwardly, means for discharging a blast of air through the passing material, a carriage upon which the apparatus is mounted, said carriage having independent steering and driving wheels, a motor from which power is transmitted to the driving-wheels, a disk carried upon the motor-shaft, a friction-wheel mounted upon a shaft radial to the motor-shaft, means for moving said wheel to or from the center of the disk whereby the speed of the supplemental shaft is varied, and a worm-gear connection by which motion is transmitted from said shaft to the driving-wheel shaft.

10. In an apparatus for turning and aerating malt, plows carried by the front end of the apparatus, carriers and air-forcing mechanism, a carriage upon which said mechanism is mounted, said carriage having independent steering and driving wheels, and a motor, means for transmitting motion from the motor to the shaft of the driving-wheels, including a gear upon the driving-wheel shaft, and an intermeshing worm upon the counter-shaft and means for raising the driving-wheels from the floor.

11. In a malting apparatus the combination of a movable carriage, a conveying apparatus at the front end thereof, said apparatus having its lower end approximately in the plane of the surface traversed by the carriage, means at the front end of the apparatus for stirring up the material in advance of the conveyer, a series of inclined successively-arranged shelves upon which material from the conveyers is delivered, and means for forcing air between said shelves and through the malt as it falls from one shelf to the other.

12. In a malting apparatus, the combination of a movable carriage, means for lifting and turning the malt and for forcing air therethrough, a series of successively-arranged inclined shelves upon which the malt is delivered and a series of shakers intermediate of said shelves, and means upon the carriage for giving motion to the latter and to the shakers.

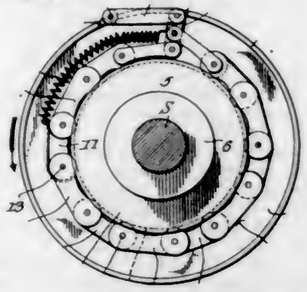
13. In a malting apparatus, the combination of a movable carriage, means thereon for lifting and turning the malt and a series of alternating inclined shelves and reciprocating shakers upon which the malt is delivered, and means for forcing air through the malt in its passage over the shelves and shakers.

14. In a malting apparatus, the combination in a movable carriage, means thereon for lifting and turning the malt, means for forcing air through the malt while being lifted, means for returning the malt to the floor behind the carriage and means for forcing air through the malt during its return passage.

15. In a malting apparatus, the combination of a movable carriage, plows carried thereby, conveyers operating contiguous to the surface traversed by the carriage, means for forcing air through material carried by said conveyers, an inclined support upon which the malt is delivered from said conveyers, means for agitating the malt in its passage over said support, and means for forcing air therethrough during said passage and an adjustable inclosure for said support whereby the discharge of the malt from said support may be regulated.

16. In a malting apparatus, the combination of a movable carriage, means thereon for lifting the malt from the surface traversed by the movable carriage, means for forcing air through material so lifted, a receiving-chamber upon the carriage into which malt may be delivered, and means for spraying the malt in said chamber.

751,027. CLUTCH MECHANISM. WILLIAM W. SWEETLAND, Edwardsburg, Mich., assignor of two-thirds to Frank Sweetland and James Sweetland, Angola, N. Y. Filed Sept. 25, 1903. Serial No. 174,622. (No model.)



Claim.—1. In a clutch mechanism, the combination with a shaft, of a circular clutch member, a driving member, said clutch member and said driving member being supported on said shaft for independent rotation, a chain disposed around the clutch member, a lever pivotally connected with both ends of said chain and connected at its outer end to said driving member.

2. In a clutch mechanism, the combination with a shaft, of a clutch member mounted on said shaft, a driving member also mounted on said shaft and rotatable independently of the clutch member, a chain encircling said clutch member, a lever pivotally connected to both ends of said chain, and link connections between the outer end of said lever and the driving member.

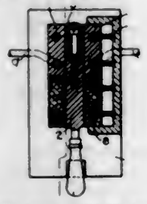
3. In a clutch mechanism, the combination with a shaft, of a clutch member mounted on the shaft, a driving member also mounted on the shaft adjacent to the clutch member and independently rotatable, a chain encircling the clutch member, a lever pivotally connected with both ends of the chain, a spring connected at one end with said chain and at the other end with said lever and keeping said chain normally tight, and connections between the outer end of said lever and the driving member.

4. In a clutch mechanism, the combination of a shaft, a clutch member mounted on the shaft, a driving member also mounted on the shaft adjacent to the clutch member, a chain encircling the clutch member, a lever pivotally connected with both ends of the chain, operative connections between the lever and the driving member, a spring connected at one end to the lever and a hook at the other end of the spring adapted to fit over a block in the chain.

5. In a clutch mechanism, the combination of a shaft, a clutch member mounted on the shaft, a driving member also mounted on the shaft and independently rotatable, said clutch member having a flange with a gap therein extending over the clutch member, a chain encircling the clutch member, a lever pivotally connected to both ends of said chain and projecting into the gap in the flange on the driving member, a spring operative upon said lever to keep the chain normally tight, and link connections between the outer end of said lever and the driving member.

751,028. MEANS FOR EXTINGUISHING ELECTRIC ARCS. ELIHU THOMSON, Swampscott, Mass., assignor to General Electric Company, a Corporation of New York. Filed Aug. 1, 1902. Serial No. 117,952. (No model.)

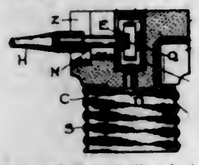
Claim.—1. A means for making and breaking an electric circuit, consisting of two conducting members adapted to be brought into contact with each other, and a mass of fused quartz arranged to be inserted in the path of an arc or arcs which tend to form as the conducting members are separated.



2. An electric switch consisting of a fixed member having contiguous portions of conducting and non-conducting materials respectively, a relatively movable member having a conducting portion adapted to make contact with the conducting portion of the fixed member, and a mass of fused quartz carried by the movable member and arranged to interrupt the path of an arc or arcs which tend to form as the conducting portion of the fixed and movable members are moved out of engagement with each other.

3. In an electric contact making and breaking device, the combination of two relatively movable contact-pieces adapted to make contact with each other and arranged so that the area of contact progressively decreases until contact is broken, and masses of fused quartz arranged to closely surround the area of contact and entirely fill the space between the contact members when contact is broken.

751,029. LAMP-SOCKET. JULIUS C. TOURNIER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Apr. 30, 1900. Serial No. 14,815. (No model.)



Claim.—1. A lamp-socket or similar device, which comprises an insulating-base formed with a lateral depression having an imperforate inner wall, a screw-threaded sleeve of conducting material secured to said base and formed with a projection which extends into said lateral depression and serves as a circuit-terminal, said lateral depression being adapted to receive a circuit-wire which may be attached to said projection, a center lamp-contact, and a switch for making and breaking the connection between said contact and line.

2. A lamp-socket or similar device, which comprises an insulating-base formed with a lateral depression having an imperforate inner wall, a screw-threaded sleeve of conducting material which is formed with a flange, a contact-piece fitting said flange and provided with a projection which extends into said lateral depression, and serves as a circuit-terminal, said depression being adapted to receive a circuit-wire, which may be attached to said projection, a center lamp-contact, and a switch for making and breaking the connection between said center contact and line.

3. A lamp-socket or similar device, which comprises an insulating-base formed with a lateral depression and with an end cavity, a circuit-terminal located in the lateral depression, a switch-contact spring connected with said terminal and extending into the end cavity, a center lamp-contact mounted in the base, a second switch-contact spring in the cavity and connected with said center contact, and a switch-piece in the end cavity cooperating with said springs.

4. A lamp-socket or similar device, which comprises an insulating-base formed with a lateral depression and an end cavity, a circuit-terminal located in said lateral depression, a switch-contact spring in the end cavity, a screw for connecting the terminal and spring together and securing them both to the base, a center lamp-contact mounted in the base, a second switch-contact spring in the cavity and connected with said center contact, and a switch-piece in the end cavity for cooperating with said switch-contact springs.

5. A lamp-socket or analogous device, which comprises an insulating-base formed with a lateral depression, with an end cavity and with a perforation extending therefrom to the opposite end of the base, a conducting-pin extending through said perforation, for engagement with a lamp-terminal, a spring in said end cavity electrically connected with said pin, a circuit-terminal located in said lateral depression, a spring electrically connected with said terminal and extending into said cavity, and a switch-piece in said end cavity for cooperating with said springs.

6. A lamp-socket, which comprises an insulating-base formed with lateral depressions, an end cavity, and a perforation extending from said cavity to the opposite end of the base, circuit-terminals located in said lateral depressions, each of which depressions is adapted to receive a circuit-wire, adapted to be connected with said terminals, a screw-threaded sleeve which is secured to the end of said base which is perforated, which sleeve is electrically connected with one of said terminals, a conducting-pin extending through said end perforation for engagement with a lamp-terminal, a spring electrically connected with the other circuit-terminal and extending into said end cavity, a second spring in said cavity electrically connected with said connecting-pin, and a switch-piece in said end cavity for cooperating with said spring.

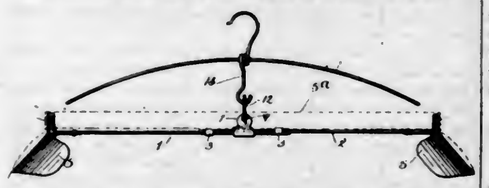
7. A lamp-socket or analogous device, which comprises an insulating-base formed with an end cavity of sufficient size to receive the entire switching device and with a perforation extending from the bottom of said cavity to the other end of the base, a switch-piece mounted in said cavity, a support in the cavity for the switch-piece, a conducting-pin serving as a center lamp-contact and extending through said perforation into the cavity to secure said support therein.

8. A lamp-socket or analogous device, which comprises an insulating-base formed with an end cavity of sufficient size to receive the entire switching device and with a perforation extending from the bottom of the cavity to the other end of the base, a switch-contact in the cavity which is adapted to be directly connected with a line-wire, a second switch-contact in the cavity, a switch-piece in the cavity for cooperating with said switch-contacts, and a conducting-pin extending through the perforation in the base, which pin is adapted to engage with a lamp-terminal and to secure said second switch-contact within the cavity.

9. In a lamp-socket or similar device, the combination with the insulating-base formed with a cavity for the switch mechanism, of a threaded shell secured to the base, a contact-piece permanently connected to the shell and adapted to receive a line-wire, a center lamp-contact extending through the base into the cavity, a binding-post to receive the other line-wire, and spring-switch contacts extending in the cavity from said center contact and binding-post.

10. In a lamp-socket or similar device, the combination with the insulating-base formed with a cavity for the switch mechanism, of a threaded shell secured to the base and permanently connected to one line-wire, a center lamp-contact extending through the base into the cavity, a support held in the cavity by the center contact, a switch-key having bearings in the support, a switch-piece loosely mounted on the switch-key, a spring-switch contact for making positive connection between the switch-piece and the center contact, and a second spring-switch piece permanently connected to the other line-wire, both of said spring-switch contacts being engaged by said switch-piece to make connection between the center contact and line.

751,030. SKIRT-HANGER. JAMES M. TRIMBLE, Chicago, Ill., assignor to the Fashion Specialty Company, Chicago, Ill., a Corporation of Illinois. Filed May 18, 1901. Serial No. 60,830. (No model.)



Claim.—1. In a device for the purpose described, the combination of a pair of relatively adjustable arms having means at their outer ends for engagement with a skirt-band or other garment, a slide embracing said arms, a pivoted clamping-lever carried by said slide and having a perforation or eye therein, and a supporting-hook engaging in said perforation or eye, substantially as set forth.

2. In a device for the purpose described, the combination of two arms having their inner ends overlapped and adjustably secured together, and their outer ends provided with upwardly-turned shoulders formed integrally therewith, and whose outer faces are rounded, said upturned ends forming shoulders or abutments for the band of a skirt; downwardly-flaring hip-supports comprising horizontally-extending lips rigidly secured to the outer ends of said arms, said hip-supports being composed of crescent-shaped plates inclined downwardly and outwardly from the ends of said arms with their extremities bent downwardly and inwardly toward the arms, the inner or under sides of said hip-supports being complementary in shape to their outer sides, so that the supports may be nested, one within the other.

751,031. MASSAGING IMPLEMENT. JULIUS B. WATTS, Chicago, Ill., assignor to Victor Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 15, 1903. Serial No. 177,136. (No model.)



Claim.—1. In a massaging implement, the combination of a rotatable shaft, a vibrator for holding the massaging attachment, a plurality of variable shaft-actuated cams for actuating said vibrator, and means for bringing the cams into operation one at a time.

2. In a massaging implement, the combination of a rotatable shaft, a vibrator for holding the massaging attachment, a plurality of variable cams upon the shaft, and cam-engaging means on the vibrator adjustable to engage the cams one at a time.

3. In a massaging implement, the combination of a rotatable shaft, a vibrator for holding the massaging attachment, a plurality of variable cams upon the shaft, a movable key upon the vibrator for engaging the cams one at a time, and an operating-lever for the key.

4. In a massaging implement, the combination of a rotatable shaft provided with a head formed with a plurality of annular cams of different pitch, and a longitudinally-adjustable vibrator comprising a cylinder surrounding said head provided with a movable key for engaging said cams one at a time, and a projecting massaging-attachment holder.

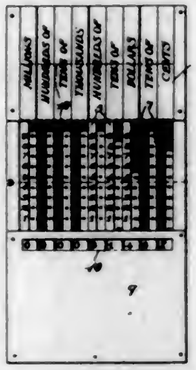
751,032. ADDING-MACHINE. ANDREW P. WATT, Baltimore, Md. Filed Oct. 3, 1903. Serial No. 175,684. (No model.)

Claim.—1. In an adding-machine, the combination with a base, of a plurality of guides mounted on said base and each consisting of a strip of sheet metal folded longitudinally to present a body portion and an overturned marginal portion, of a plurality of numbered slides mounted for reciprocatory movement upon said guides, and means for preventing the removal of the slides from the guide.

2. In an adding-machine, the combination with a base, of a plurality of guides mounted on said base and each consisting of a strip of sheet metal folded longitudinally to present a body portion and a shield portion bearing the numbers from "1" to "9" inclusive, a plurality of slides bearing the numbers from "0" to "9" inclusive arranged for reciprocation on said guides, and means for keeping said slides in position on said guide.

3. In an adding-machine, the combination with a base, of a plu-

rality of guides each comprising a body portion and a shield portion, a shield portion bearing figures from "1" to "9" inclusive in regular order, a plurality of slides arranged for reciprocation on said guide, each of said slides bearing the figures from "0" to "9" in regular order, said figures being covered by the shield portions of the guides, and a cover-plate over the lower portion of the base, said cover-plate having a transversely-disposed slot extending over all of said slides, and the figures on said slides being so placed that when the slides are at the upward limit of their movement the lowermost figure on each slide will be visible through the slot.



4. In an adding-machine, the combination with a base, of a plurality of guides arranged on said base, each of said guides comprising a body portion and a shield portion, a cover-plate extending over the upper ends of said guides and ruled in columns corresponding in position to the several guides, slides arranged for reciprocation on said guide, said slides being each provided with a series of figures from "0" to "9" and said figures being placed on the slides in position to be hidden by the shield portions of the guides, and a second cover-plate at the lower end of the apparatus which barely overlaps the lower ends of the shield portions of the guides, said cover-plate having near its upper margin a transverse slot extending across all of said slides.

5. In an adding-machine, the combination with a base, of a plurality of guides mounted on said base, a plurality of slides arranged for reciprocation on said guide, cover-plates at the ends of said base extending over said slides and guides and spaced apart to expose portions of said slides and guides to view, and a strip of felt secured on the under side of one of said cover-plates to engage frictionally with said slides.

6. In an adding-machine, the combination with a base, of a plurality of guides each comprising a body portion and an overturned shield portion, a plurality of numbered slides mounted for reciprocation on said guides, each of said slides having at its upper end an upturned lip for engagement with the under surface of the shield portion of the guide, and means for holding said slides in position on said guides.

751,083. HANDKERCHIEF. WILLIAM S. WEBB, Chicago, Ill. Filed May 29, 1903. Serial No. 159,260. (No model.)



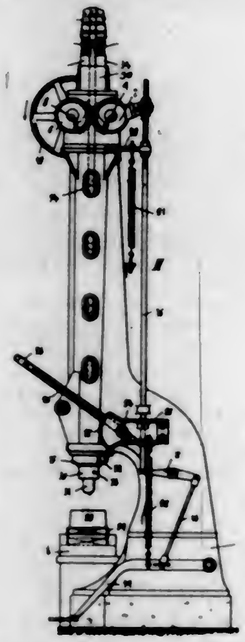
Claim.—1. As a new article of manufacture, a handkerchief provided with a pocket forming a permanent part thereof, and a face-powder holder in said pocket and removably fastened therein.

2. As a new article of manufacture, a handkerchief provided with a corner-pocket having a flap and forming a permanent part of the handkerchief, and a face-powder holder confined in said pocket.

3. As a new article of manufacture, a handkerchief provided with a corner-pocket having a flap and forming a permanent part of the handkerchief, and a piece of soft material forming a face-powder holder removably fastened in said pocket.

4. As a new article of manufacture, a handkerchief provided with a corner-pocket having a flap and forming a permanent part of the handkerchief, and a piece of soft material removably fastened in said pocket, provided with a pocket and forming a face-powder holder.

751,084. MACHINE FOR BREAKING OR SPLITTING STONE. FERDINAND J. H. WELLER, Sandvig, near Allinge, Denmark, assignor to Aktieselskabet Dorabeim Granitvaerk, Copenhagen, Denmark. Filed Jan. 2, 1902. Serial No. 88,196. (No model.)



Claim.—1. In a stone-splitting machine, the combination with a tail-bar, and a hammer thereon, of mechanism to frictionally engage the tail-bar to raise it and means actuated by the hammer to reduce the friction between the tail-bar and said mechanism to that required to maintain the tail-bar elevated, substantially as and for the purpose set forth.

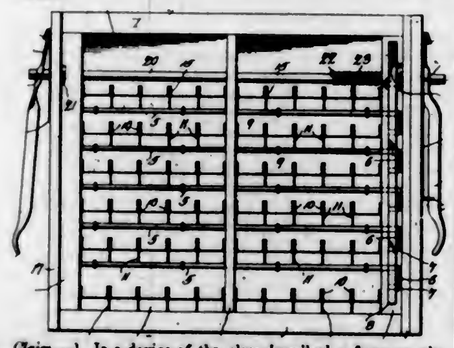
2. In a stone-splitting machine, the combination with a tail-bar, a hammer thereon, eccentrically-mounted friction-rollers to engage the tail-bar, and a lever-and-rod connection to move the rollers into and out of engagement with the tail-bar, of an arm projecting into the path of the hammer and engaged thereby to partially move the rollers to reduce the friction to maintain the tail-bar stationary, substantially as and for the purpose set forth.

3. In a stone-splitting machine, the combination with a tail-bar, and a hammer thereon; of mechanism to frictionally engage the tail-bar to raise it, and means actuated by the hammer to reduce the friction between the tail-bar and said mechanism to that required to maintain the tail-bar stationary, and interchangeable buffers to fix the lower limit of the hammer and tail-bar, substantially as described.

4. In a stone-splitting machine, the combination with a tail-bar and a hammer thereon; of mechanism to frictionally engage the tail-bar to raise it, means actuated by the hammer to reduce the friction between the tail-bar and said mechanism to that required to maintain the tail-bar stationary, and manually-operated lever connections to completely disengage said mechanism, substantially as described.

5. In a stone-splitting machine, the combination with a tail-bar and a hammer thereon; of mechanism to frictionally engage the tail-bar to raise it, and means to automatically reduce the friction between said mechanism and tail-bar to that required to maintain the tail-bar elevated, when said tail-bar reaches its upper limit, substantially as described.

751,086. SIEVE FOR THRESHING-MACHINES. BERT WHELAN, Roseland, Nebr. Filed May 22, 1903. Serial No. 158,345. (No model.)



Claim.—1. In a device of the class described, a frame, a plurality of rock-shafts in said frame, slats mounted upon said rock-shafts, said slats being provided with notches at one of their edges and with depending flanges at their opposite edges, said flanges being disposed parallel to each other, longitudinally with relation to the frame and engaging the notches of the next adjacent slat.

2. In a device of the class described, a plurality of pivotally-mounted cooperating slats, each slat being provided at one edge with a plurality of notches and at its opposite edge with a plurality of depending flanges, the latter being disposed parallel to each other.

3. In a device of the class described, slats having notches in one edge thereof and having their opposite edges inbent or doubled under themselves, said inbent portions being provided with downturned flanges disposed parallel to each other.

4. In a device of the class described, a frame, a plurality of rock-shafts in said frame, separating-slats upon said rock-shafts, cranks at the ends of the latter, wrists upon said cranks, a bar pivotally connecting said wrists, an auxiliary rock-shaft at one end of the frame, said rock-shaft having squared ends, a crank mounted slidably upon a squared portion of said rock-shaft and connecting the same with the connecting-bar, spring means for forcing said rock-shaft in one direction, a lever having pivotal connection with a squared portion of the rock-shaft and having an extended end fulcrumed in a U-shaped flange, and a notched flange disposed to engage the opposite, handle end of said lever.

5. In a device of the class described, a limited slidable spring-actuated rock-shaft, a plurality of adjustably-mounted separating-slats, connecting means between the latter and the rock-shaft, a pair of levers mounted pivotally upon squared ends of said rock-shaft, said levers having extended ends, a base-plate having bent, U-shaped portions in which the extended ends of the lever are fulcrumed, and a notched upturned flange upon one of said base-plates adapted to engage the handle end of the operating-lever associated therewith.

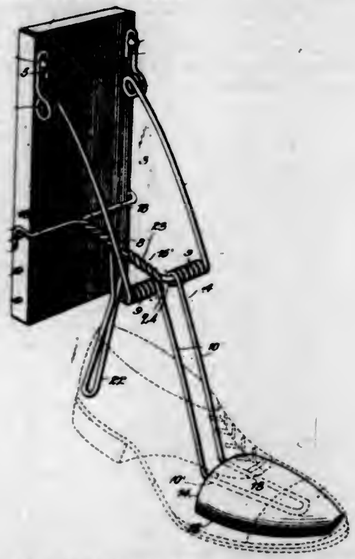
751,036. SHOE-SHINING FRAME. HENRY J. WIENMAN, Dubuque, Iowa. Filed Apr. 24, 1903. Serial No. 154,168. (No model.)

Claim.—1. A device of the class described, comprising a base or support, a yieldable arm secured thereto and forming a toe-support, and a bracket or heel support carried by said arm.

2. A device of the class described, comprising a base or support, a pair of spring-arms secured thereto, means carried by the arms for supporting a shoe, and a bracket or heel-support adjustable with relation to the spring-arms.

3. A device of the class described, comprising a base or support, a pair of spring-arms detachably secured thereto, means carried by the arms for supporting a shoe, and a bracket or heel-support pivotally connected to the spring-arms and adjustable with relation thereto.

4. A device of the class described, comprising a base or support, a pair of spring-arms secured thereto and forming a toe-support, and a bracket or heel-support carried by the spring-arms and adjustable with relation thereto.



5. A device of the class described, comprising a base or support, a pair of yielding arms secured thereto and forming a toe-support, holding pins or lugs secured to the support, and a bracket or heel-support pivotally connected to the yielding arms and adapted to engage the pins or lugs for adjusting the heel-support with relation to said arms.

6. A device of the class described comprising, a pair of spring-arms having their end portions bent to form supporting-hooks and provided with inwardly-extending alined coils, the ends of the arms extending downwardly and outwardly and terminating in an angularly-disposed shoe-support, and bracket or heel-support carried by the spring-arms and adjustable with relation thereto.

7. A device of the class described, comprising a base or support, holding pins or lugs secured to the support, a pair of spring-arms having their end portions bent to form supporting-hooks and provided with inwardly-extending alined coils, the ends of the arms extending downwardly and outwardly and terminating in a tapering angularly-disposed shoe-support, a bracket or heel-support having a pair of laterally-extending ears or lugs journaled in said coils, said heel-support being provided with a depending loop or tongue and having its opposite end provided with transversely-disposed locking-arms adapted to engage the pins or lugs for adjusting the heel-support with relation to the spring-arms.

8. A device of the class described, comprising a base or support, a pair of upper spring-arms detachably secured thereto, said arms being provided at an intermediate point with inwardly-extending alined coils defining a pair of downwardly and outwardly extending lower spring-arms terminating in an angularly-disposed extension or shoe-support, a removable last or former detachably secured to the extension, holding pins or lugs secured to the support, and a bracket or heel-support pivoted in the coils and adapted to engage the pins or lugs for adjusting the heel-support with relation to the spring-arms.

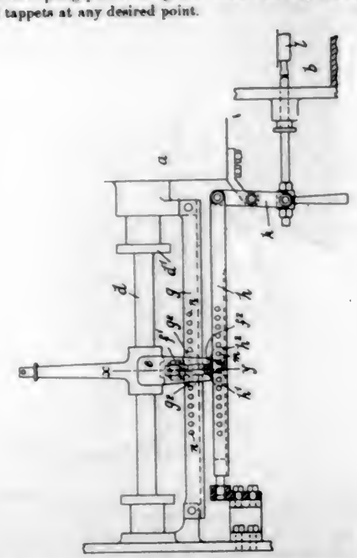
9. A device of the class described, comprising a, base or support, a pair of spring-arms detachably secured thereto and terminating in an angularly-disposed tapering extension, a last or former detachably secured to said extension, and a bracket or heel-support pivotally connected to the spring-arms and adjustable with relation thereto.

10. A device of the class described, comprising a base or support, a pair of spring-arms secured thereto, a bracket or heel-support carried by the spring-arms and a last or former detachably secured to said arms.

751,087. VALVE-GEAR FOR ENGINES. PERCY F. C. WILLCOX, Sunderland, England. Filed June 23, 1903. Serial No. 162,601. (No model.)

Claim.—1. The combination with a cross-head upon the piston-

rod of a direct-acting reciprocating motor, of a spring-pressed tongue on said cross-head; a sliding rod connected to a steam-control valve of the said motor; tappets adjustable as to position on said sliding rod adapted in one direction to slip under, and in the other direction to engage with, the said spring-pressed tongue; and means whereby the spring-pressed tongue is lifted from engagement with the said tappets at any desired point.



2. In combination, a cross-head upon the piston-rod of a direct-acting reciprocating motor; a spring-pressed forked tongue on said cross-head; two rollers, on the said fork; a stirrup cross-piece closing the fork; a sliding rod connected to a steam-control valve of the said motor; tappets adjustable as to position on the said sliding rod, adapted in one direction to slip under, and in the other direction to engage with, the cross-piece of the said spring-pressed tongue; and means whereby the spring-pressed tongue is lifted from engagement with the said tappets at any desired point.

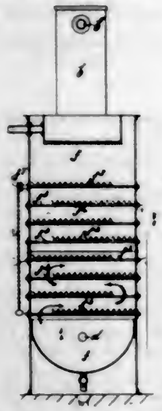
3. In combination, a cross-head upon the piston-rod of a direct-acting reciprocating motor; a spring-pressed tongue on the said cross-head; a double-troughed sliding rod connected to a steam-control valve of the said motor; cam-shaped tappets with two noses mounted on pin-axles one in each division of said trough sliding rod, one of said tappets being adapted to engage the cross-piece of the spring-pressed tongue in either direction; various holes in said sliding rod to admit alteration of the position of the said tappets; and means whereby the spring-pressed tongue is lifted from engagement with the said tappets at any desired point.

4. In combination, a cross-head upon the piston-rod of a direct-acting reciprocating motor; a spring-pressed tongue on the said cross-head; a double-troughed sliding rod connected to a steam-control valve of the said motor; cam-shaped tappets with two noses, mounted on pin-axles one in each division of said trough sliding rod; a spring fitted to each cam-tappet producing normal position with one nose down as a butt-hinge, and the other nose up above the edge of the said sliding rod, one tappet being adapted to engage the said spring-tongue in either direction; and means whereby the spring-pressed tongue is lifted from engagement with the said tappets at any desired point.

5. In combination, a cross-head upon the piston-rod of a direct-acting reciprocating motor; a spring-pressed tongue on the said cross-head; adjustable tappets upon a sliding rod connected to the steam-control valve of the said motor; rollers upon the said spring-pressed tongue; a fixed bar carrying rollers adjustable as to position and situated in the path of the said rollers upon the spring-pressed tongue, adapted so as to disengage the said spring-pressed tongue from the said tappets at any desired point.

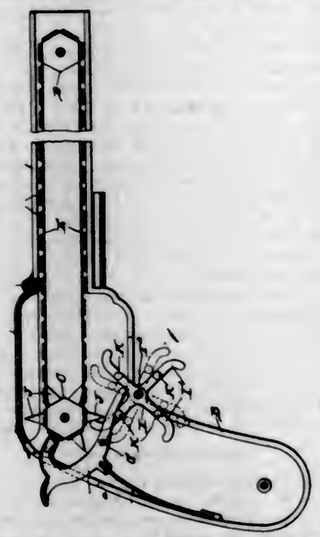
751,088. **APPARATUS FOR REMOVING SUSPENDED MATTER FROM LIQUIDS BY CONTINUOUS DECANTATION.** THOMAS R. WOLLASTON, Manchester, England. Filed Jan. 28, 1903. Serial No. 140,333. (No model.)

Claim.—1. In combination with a precipitating vessel *f*, a series of pivoted depositing-shelves having corrugations or recesses running at right angles to the path of the liquid, the said shelves being arranged parallel with openings at opposite ends and mounted on pivots, the axes of which lie transversely to the corrugations substantially as and for the purpose set forth.



2. In combination with a precipitating vessel, a series of pivoted plates, corrugated transversely to the pivots thereof and arranged within said receptacle, means for connecting together the plates of each series on both sides of their pivots, an inlet at the bottom of said receptacle and an outlet at the top thereof, the said plates having openings at their ends arranged alternately substantially as set forth.

751,039. **MAGAZINE CAP-PISTOL.** GEORGE J. ALTERMATT, Philadelphia, Pa. Filed Apr. 3, 1903. Serial No. 150,891. (No model.)



Claim.—1. In a magazine cap-pistol, a body, a drum or roller journaled upon the interior of the body near the rearward end, a drum or roller journaled upon the interior of the body near the forward end, an endless band or tape passing around said drums or rollers, means for securing caps upon the tape at regular intervals, a hammer pivoted in the body, a spring adapted to actuate the hammer in one direction to explode the cap, a trigger mechanism adapted to revolve the tape a distance equal to the distance between adjacent caps, and also throwing back the hammer and releasing the same each time the trigger mechanism is operated, as specified.

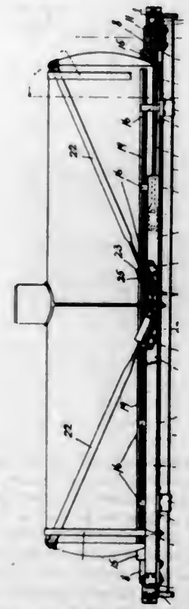
2. In a magazine cap-pistol, a body, an endless band or tape contained in said body, means for securing caps upon the tape at regular intervals and equal distances apart, rollers or drums around which said endless band or tape passes, a hammer pivoted in the body, a spring adapted to actuate the hammer to explode the cap, a trigger adapted to revolve the tape one point or space, and actuate the hammer each time the trigger is pulled rearward, as specified.

3. In a magazine-pistol, a body, a drum or roller journaled in the body near the rear end thereof, a drum or roller journaled in the body near the forward end thereof, an endless flexible band or tape passing around said rollers or drums, cap-retainers secured to said band or tape at regular intervals, a star-wheel secured to the same shaft as the rearward drum or roller, a hammer pivoted in the body, a spring for actuating said hammer, a trigger composed of four radial arms pivoted at the center to the body, one of the arms adapted to always act as a trigger and to be used successively as triggers, the arm opposite the trigger-arm adapted to come in contact with the star-wheel and revolve the tape one space, and also to throw back the hammer and release the same each time the trigger is pulled rearward, as specified.

4. In a magazine cap-pistol, a body, a polygonal drum or roller journaled in the body near the rearward end thereof, a drum or roller journaled in the body near the forward end thereof, a flexible band or tape passing around said drums or rollers, retainers adapted to contain the caps secured to the band at regular intervals, a hammer pivoted in the body and adapted to explode the cap against one of the faces of the rearward polygonal roller, a spring for actuating said hammer in one direction, a trigger mechanism consisting of a series of radial arms pivoted in the body, the arms adapted to be used successively as triggers, means whereby one of the arms not being used as a trigger will rotate the tape or band one space so as to bring a new cap into position, and will also throw the hammer back and release the same when the trigger is pulled rearward, and an opening through the body for filling the retainers, a lid or cover designed to close said opening, as specified

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751,040. **TANK-CAR.** ELECK ANDERSON, Chicago, Ill., assignor of one-half to O. C. Mann, Chicago, Ill. Filed Sept. 4, 1903. Serial No. 171,916. (No model.)



Claim.—1. In a car structure for the purpose specified, in combination with a supporting platform or frame and the tank supported thereon, head-blocks at the opposite ends of the tank having a range of longitudinal movement, and springs reacting on said head-blocks to force them yieldingly inward against the ends of the tank.

2. In a car structure for the purpose specified, in combination with the supporting-platform and the tank lodged thereupon, head-blocks at the opposite ends of the tank guided longitudinally on the platform; strain-rods connecting said head-blocks with the platform structure and springs interposed in the connection to yieldingly resist the longitudinal separation of the head-blocks.

3. In a car structure of the character specified, in combination with a supporting-platform and the tank lodged thereon; head-blocks at opposite ends of the tank supported and guided on the platform with range of movement longitudinally thereof; rods secured to the platform at a distance inward from the ends of the tank respectively, and extending thence outward through the head-blocks respectively; springs on said rods bearing on the head-blocks and adjustable stops on the rods beyond the springs.

4. In a car structure of the character specified, in combination with the platform and the tank lodged thereon; head-blocks bearing on the opposite ends of the tank supported on the platform and guided longitudinally with respect thereto, said head-blocks having in their outer sides spring-pockets; strain-rods secured to the platform structure at a distance inward from the ends of the tank respectively, and extending through the pockets; springs coiled about the rods within the pockets and stops on the rods beyond the springs.

5. In a tank-car in combination with the supporting-platform and the tank lodged thereon, saddles lodged upon the opposite ends of the tank at the upper side; rods extending from said saddles at opposite sides obliquely downward toward the middle of the length of the car; spring-pockets mounted on the platform underneath the tank at a distance back from the ends, said strain-rods extending through said pockets; springs coiled about the rods within the pockets, and adjustable stops on the rods beyond the springs.

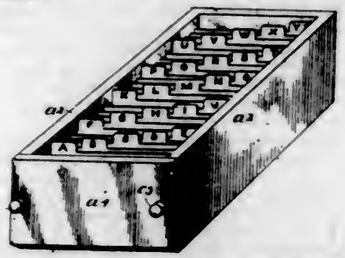
6. In a tank-car in combination with a platform and the tank lodged thereon; head-blocks supported on the platform at opposite ends of the tank; springs reacting between the head-blocks and the platform structure to hold the head-blocks yieldingly toward the opposite ends of the car and toward each other; saddles lodged upon the upper corners of the tank at opposite ends; strain-rods extending from the saddles down along the opposite sides of the car obliquely toward the middle; spring-pockets on the platform structure below the tank, the strain-rods extending through said pockets; springs lodged in such pockets and stops in the rods beyond the springs.

751,041. **DETONATING TOY.** CHARLES RACKER, Wallingford, Conn. Filed Nov. 20, 1903. Serial No. 181,981. (No model.)



Claim.—The herein-described toy cap-exploder, consisting essentially of the following elements, viz: a stick having a reduced lower end, a plunger having a socket in its upper end receiving the reduced end of the stick, and also having a flange, a washer surrounding the reduced end of the stick, and interposed between a shoulder formed by said reduced end and the upper end of the plunger, and extending laterally beyond the side of the plunger, and a cap-holder having a bore in its upper portion snugly receiving the plunger, above the flange thereof, and also having an interiorly-enlarged lower portion adapted to receive and hold a cap, and also having a shoulder between said interiorly-enlarged lower portion and the bore, adapted to normally rest against the flange of the plunger.

751,042. INVOICE INDEX AND FILING-CASE. WILLIAM H. BAMBERGER, Passaic, N. J. Filed June 15, 1903. Serial No. 161,423. (No model.)



Claim.—A filing-case comprising an oblong box having one movable end, the sides of the box being provided in their inner surface with deep longitudinal grooves arranged centrally thereof, rods provided with knobs at one end and screw-threaded at the other, and adapted to be passed through the movable end of the box through said grooves and to be secured in the stationary end of the box, and index-cards provided at their opposite ends with projections adapted to fit in said grooves and having holes through which said rods are passed, substantially as shown and described.

751,043. FLY-OUTLET FOR SCREENS. ARTHUR B. BATEMAN, Washington, D. C. Filed May 27, 1903. Serial No. 159,969. (No model.)



Claim.—1. In combination with a screen having an opening formed therein, of a screen-band encircling said opening, a cone-band adapted for removable connection with the screen-band, and formed with a flange to coact with the screen-band to embrace the screen, and a cone-guideway supported by said cone-band.

2. In combination with a screen having an opening formed therein, of a cone-guideway leading from said opening, and a guard-plate partially closing said opening, said guard-plate lying wholly within the opening and flush with the surface of the screen.

3. In combination with a screen formed with an opening, of a screen-band encircling said opening, a cone-band adapted for screw-threaded connection with the screen-band, a cone-guideway supported by the cone-band, and a trap proper surrounding the cone-guideway and removably secured to the cone-band.

4. In combination with a screen having an opening formed therein, and a screen-band encircling said opening, of a cone-guideway supported by said screen-band and a guard-plate partially closing said screen-opening, said guard-plate being removably supported by the screen-band.

5. In combination with a screen having an opening and a screen-band encircling said opening, of a cone-guideway supported by said screen-band, and a guard-plate partially closing said screen-opening, said guard-plate being of solid metal and removably supported by the screen-band flush with the surface of the screen.

6. In combination with a screen having an opening formed therein, of a screen-band encircling said opening, a cone-guideway leading from the opening, a guard-plate partially closing the opening, and spring-fingers projecting from the guard-plate to engage the screen-band.

7. A fly-outlet designed for use with a screen, comprising a screen-band to encircle an opening in the screen, a cone-band adapted for removable connection with the screen-band, a cone-guideway secured to the cone-band, and a guard-plate removably secured to and lying wholly within the screen-band.

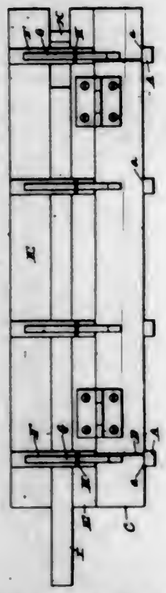
751,044. NECK-YOKE ATTACHMENT. WALTER H. BAILEY, Peacham, Vt. Filed Aug. 1, 1903. Serial No. 167,846. (No model.)

Claim.—1. A neck-yoke attachment for carriage-poles, comprising a socket member adapted to be secured to the carriage-pole and provided with a tapered projection, a packing placed on said projection a sleeve mounted on said projection and inclosing said packing, means for locking said sleeve in position while permitting it to partially turn, said sleeve being also provided with an inclined head having a transverse opening and a transverse neck-yoke sleeve provided with a jaw which is fitted in said opening, and a bolt passed through said head and said jaw, said transverse sleeve being also adapted to swing in a plane at an inclination to the carriage-pole, substantially as shown and described.



2. The herein-described neck-yoke attachment for carriage-poles, comprising a socket member adapted to be secured to the pole and provided with a reduced and tapered projection, a packing member placed on said projection, said projection being also provided at its end with a neck portion having locking devices at its opposite sides, a sleeve mounted on said projection and inclosing said packing, and the inner walls of which are provided with locking projections, said sleeve being also provided with an inclined head portion and a neck-yoke sleeve provided with a jaw which is pivoted in said head portion, substantially as shown and described.

751,045. WAGON-BODY. JOHN R. RILEY and ROBERT R. KEEFER, Skidmore, Mo. Filed Nov. 1, 1902. Serial No. 129,710. (No model.)



Claim.—1. In a wagon-body, side pieces hinged to swing between an upright and a substantially horizontal position, said side pieces consisting of fixed pieces set apart from one another and secured to cleats, a slat adapted to be inserted between said fixed pieces, arms hinged to said cleats to support said side pieces when in a substantially horizontal position, and U-shaped loops secured to said cleats and inclosing said swinging arms to limit the swing thereof and insure that they simultaneously assume a supporting position, substantially as shown and described.

2. In a wagon-body, the floor and side-boards supported by cross-pieces having extended ends, side pieces hinged to said side-boards and adapted to swing between an upright and a substantially horizontal position, said side pieces consisting of fixed pieces set apart from one another and secured to cleats, a slat adapted to be inserted between said side pieces when in a substantially horizontal position, arms hinged to said side pieces and adapted to rest upon the extended ends of said cross-pieces, and U-shaped loops secured to said cleats and inclosing said swinging arms to limit the swinging

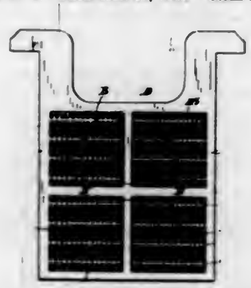
thereof and insure that they simultaneously assume a supporting position, substantially as shown and described.

3. In a wagon-body, the floor and side-boards supported by cross-pieces having extended ends, side pieces hinged to said side-boards and adapted to swing between an upright and a substantially horizontal position, a hooked rod pivotally mounted near the ends of said side-boards, loops near the ends of said side-boards opposite the hooked rod to receive the hooked end thereof, arms hinged to said side pieces and adapted to rest upon the extended ends of said cross-pieces, and U-shaped loops secured to said side pieces and inclosing said swinging arms to limit the swinging thereof and insure that they simultaneously assume a supporting position, substantially as shown and described.

4. In a wagon-body, cross-pieces having extended ends, the floor secured to said cross-pieces, the side-boards nailed to said floor and secured to said cross-pieces by loops, side pieces hinged to said side-boards and adapted to swing between an upright and a substantially horizontal position, arms hinged to cleats on the side pieces and adapted to rest upon the extended ends of said cross-pieces, said arms adapted to swing freely from said cleats, and U-shaped loops secured to said cleats and inclosing said swinging arms to limit the swinging thereof and insure that they simultaneously assume a supporting position, substantially as shown and described.

5. In a wagon-body, cross-pieces or bolsters, the floor secured to said bolsters, side-boards secured to said floor, vertical loops D inclosing said side-boards and secured to said bolsters, side pieces hinged to said side-boards consisting of boards spaced apart and secured to vertical cleats, slats removably and replaceably mounted between said boards, arms pivoted near their upper ends to said cleats and adapted to rest on the extended ends of said bolsters when the side pieces are in a lowered position, a U-shaped loop H secured to each cleat and inclosing the arm hinged thereto to limit the swinging of said arm, a hooked rod pivotally mounted near one end of each side piece, and a loop near the other end of the side piece opposite said hooked rod, and end-gates removably and replaceably mounted in each end of the body, substantially as shown and described.

751,046. PLATE FOR STORAGE BATTERIES. JOSEPH BIJUR, New York, N. Y. Filed Mar. 31, 1902. Serial No. 100,757. (No model.)



Claim.—1. A battery-plate provided with active portions having one or more grilles embodying strips extending in one general direction and cross members supporting such strips, the spaces between strips being narrower at their ends, where the strips join the cross members, whereby the junctures between strips and cross members are strengthened, and the destructive crowding effect of the layer of active material diminished.

2. A Planté battery-plate, having a frame provided with ribs, and active members in the form of unit-strips supported at a plurality of points by cross-supports secured to the ribs, said strips being free to move at their extreme ends, said frame having intervals opposite the ends to receive said ends and afford provision for the elongation of the strips, for substantially the purposes set forth.

3. A Planté battery-plate, having a frame provided with ribs, and active members in the form of long and narrow unit-strips supported at a plurality of points in their length by cross-supports secured to the ribs, said strips being free to move at their extreme ends, said frame having intervals opposite the ends of the strips to receive said ends and afford provision for the elongation of the strips in the direction of their length, for substantially the purposes set forth.

4. A Planté battery-plate, having a frame provided with ribs, and active portions provided with active members in the form of unit-strips yieldingly supported at each side from the ribs by cross-supports, and free to move longitudinally in lengthening and also free to expand in their several thicknesses, for substantially the purposes set forth.

5. A Planté battery-plate, provided with active portions having one or more grilles embodying strips extending in one general direction and free to move at each end, and transverse cross-supports uniting and supporting the strips at a plurality of points, such parts being one integral whole and permitting elongation of the said strips, and being autogenously or integrally united to the frame or supports of the plate, for substantially the purposes set forth.

6. A Planté battery-plate, provided with active portions having one or more grilles embodying strips extending in one general direction and free to move at each end, and transverse cross-supports uniting and supporting the strips at a plurality of points, such parts being one integral whole and permitting elongation of the said strips, in combination with a lead-alloy frame or support which is integrally united to the said grilles, for substantially the purposes set forth.

7. A Planté battery-plate, provided with active portions having one or more grilles embodying strips and cross-supports, said grilles being held and surrounded by the battery-plate ribs or supports in a manner leaving intervals at the ends of the strips, for permitting the elongation of the strips, and the cross-supports being of sufficient yielding design to accommodate the elongating movement, for substantially the purposes set forth.

8. A Planté plate, comprising an outer frame and ribs lying within the sides and ends of the frame, the frame and ribs forming a flat supporting structure, and active members in the form of unit-strips, having their sides supported by said structure and lying with their longest dimensions substantially within the plane of the plate, the ends of said strips being free to move with intervals between said ends and the supporting structure to afford provision for longitudinal elongation of the strips, for substantially the purposes set forth.

9. A Planté plate, comprising an outer frame and ribs lying within the sides and ends of the frame, the frame and ribs forming a flat supporting structure, and active members in the form of unit-strips autogenously or integrally united to the supporting structure at their sides, and lying with their longest dimensions substantially within the plane of the plate, the ends of said strips being free to move with intervals between said ends and the supporting structure to afford provision for the longitudinal elongation of the strips, for substantially the purposes set forth.

10. A Planté plate, comprising an outer lead-alloy frame and ribs lying within the sides and ends of the frame, the frame and ribs forming a flat supporting structure, and active portions comprising grilles embodying strips extending in one general direction and having their sides supported by said structure, and lying with their longest dimensions substantially within the plane of the plate, the ends of said strips being free to move with intervals between said ends and the supporting structure to afford provision for the longitudinal elongation of the strips, for substantially the purposes set forth.

751,047. LABEL FOR ROUND BOXES. EUGENE A. BIRCHER, Rochester, N. Y. Filed July 23, 1903. Serial No. 166,692. (No model.)



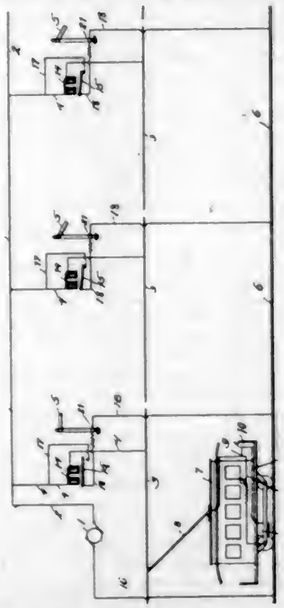
Claim.—1. A paper label for a receptacle, as a round box, having incisions adjacent to the opening-joint of the receptacle or box.

2. A label for a round box, having a series of incisions in a line adjacent to the opening-joint of the box.

3. A label for a round box having two parallel rows of incisions with a narrow imperforate band or strip of the label between, said imperforate band being adapted to cover the joint of the box where opening.

4. A label for a cylindrical box, having incisions formed alternately above and below an intermediate imperforate narrow band or strip of the label, said band or strip being placed to cover the opening-joint of the box.

751,048. **SIGNAL SYSTEM FOR ELECTRIC RAILWAYS.** CHARLES P. BRESSE, Norfolk, Va., and ADONIRAM J. WILSON, Westfield, N. J., assignors to the Hall Signal Company, a Corporation of Maine. Filed May 5, 1902. Serial No. 105,871. (No model.)



Claim.—1. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to operate the signal in one direction, and an electromagnetic means for controlling said signal and connected with the continuous-feed conductor, all so arranged that the presence or absence of a car upon a block will change the electrical condition of the said electromagnetic means of said block and thereby change the condition of the signal.

2. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block, normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to move or hold the signal at safety, and an electromagnetic means for controlling said signal and connected with the continuous-feed conductor, all so arranged that the presence or absence of a car upon a block will change the electrical condition of the said electromagnetic means of said block and thereby change the condition of the signal.

3. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to move or hold the signal at safety, and a magnet controlling said signal connected with the continuous-feed conductor and normally deënergized, whereby the presence of a car upon the block will energize said magnet and cause it to break the circuit through the signal to send it to danger.

4. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to operate the signal in one direction, and a magnet controlling said signal connected with the continuous-feed conductor, a circuit-controller in circuit with each signal and controlled by said magnet, all so arranged that the presence of a car upon the block will affect the magnet to move its circuit-controller to cause it to move the signal to danger.

5. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block, normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to move or hold the signal at safety, a circuit-controller in circuit with each signal and controlled by said magnet and operated by it to normally close the circuit through the signal and hold it at safety, all so arranged that the presence of a car upon the block will affect the magnet to open its circuit-controller and break the circuit through the signal to cause it to move the signal to danger.

6. In a signaling system for electric railways, the combination of a continuous-feed conductor connected with a source of electrical energy, an intermediate supply-conductor for each block for conveying the current from the feed-conductor to any car that may be upon the block, each supply-conductor being electrically disconnected from the supply-conductors of adjoining blocks, a return-conductor, a signal for each block normally in circuit with the continuous-feed conductor and provided with a high resistance, through which the signal-circuit passes, so adjusted that only enough current will pass through the signal-circuit when it is closed to move or hold the signal at safety, and a magnet controlling said signal connected with the continuous-feed conductor and normally deënergized, a circuit-controller in circuit with each signal and controlled by said magnet and operated by it to normally close the circuit through the signal and hold it at safety, all so arranged that the presence of a car upon the block will affect the magnet to open its circuit-controller and break the circuit through the signal to cause it to move to danger.

751,049. **WELL PUMPING APPARATUS.** BURTWIN L. BRISTOR, Bradford, Pa. Filed Apr. 14, 1903. Serial No. 152,598. (No model.)



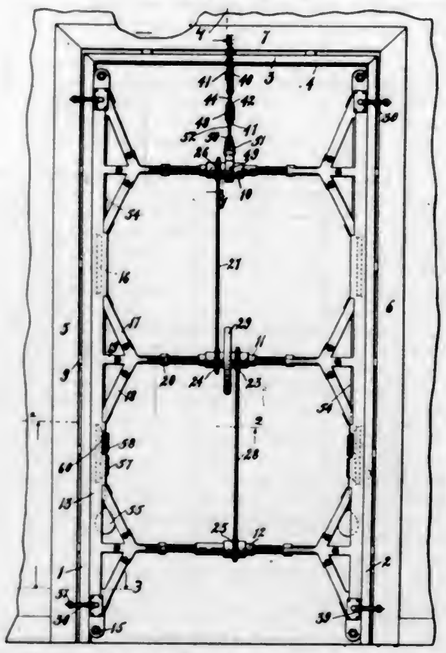
Claim.—1. In well pumping apparatus, the combination of the well-tubing, a fixed working barrel at the bottom thereof, a removable working barrel having the same internal diameter as the fixed working barrel and an external diameter less than the internal diameter of the tubing.

2. In well pumping apparatus, the combination of the well-tubing, a fixed working barrel at the bottom thereof, a removable working barrel having the same internal diameter as and bearing at its lower end against the fixed working barrel and an external diameter less than the internal diameter of the tubing.

3. In well pumping apparatus, the combination of the well-tubing, a fixed working barrel at the bottom thereof, a removable working barrel having the same internal diameter as the fixed working barrel and an external diameter less than the internal diameter of the tubing, and a packing at the lower end of said removable working barrel adapted to engage the upper end of the fixed working barrel and packing the joints between the two barrels.

4. In well pumping apparatus, the combination of the well-tubing, a fixed working barrel or tube of less internal diameter than and secured to the lower end of said tubing, a removable working barrel of an internal diameter equal to that of the said fixed working barrel or tube, and a packing in the lower portion of said removable working barrel and engaging the upper end of said fixed working barrel or tube and packing the joints between the barrels.

751,050. **DOOR-JAMB-SETTING MACHINE.** CHARLES L. BROWN, New York, N. Y. Filed May 6, 1903. Serial No. 155,837. (No model.)



Claim.—1. A door-jamb-setting machine comprising side frames, means for adjusting the side frames toward and away from each other and means for clamping the door-jamb to the side frames.

2. A door-jamb-setting machine comprising side frames, means for adjusting the side frames toward and away from each other, the means for clamping the door-jamb to the side frames and means for suspending the machine.

3. A door-jamb-setting machine comprising side frames, reverse-screw-threaded shafts connected to move together and engage with the side frames for adjusting them toward and away from each other and means for clamping the door-jamb to the side frames.

4. A door-jamb-setting machine having means for suspending it from the studding, means for clamping the door-jamb to the machine and means for adjusting the door-jamb laterally with respect to its studding.

5. A door-jamb-setting machine having means for suspending it from the studding, means for clamping the door-jamb to the machine and a gage for permitting the accurate adjustment of the door-jamb in planes at right angles to and parallel with the studding.

6. A door-jamb-setting machine including clamping devices for securing the door-jamb thereto, each clamping device comprising two clamping-jaws having screw-threaded shanks and an oppositely-screw-threaded coupling engaging the shanks for drawing the clamping-jaws into engagement with the door-jamb.

7. A door-jamb-setting machine including clamping devices for securing the door-jamb thereto and adjusting the door-jamb with respect to the studding, each clamp comprising two clamping-jaws having screw-threaded shanks, a reverse-screw-threaded coupling engaging the shanks for drawing the jaws into engagement with the door-jamb and thumb-nuts carried by the jaws for engaging the studding.

8. A door-jamb-setting machine including means for clamping the door-jamb thereto comprising a plurality of pairs of adjustable clamping-jaws arranged to be swung into and out of position to clamp the jamb.

9. A door-jamb-setting machine and means for suspending it from the studding comprising tongs, a pulley connected thereto, a pulley connected to the machine and a suspension-rope engaging the said pulleys and having one end secured to the tongs and the other end secured to the machine.

10. A door-jamb-setting machine, having means for adjusting the same into a vertical position comprising a plumb-line, a frame, a spacing-block having an indicator-line thereon and lugs projecting from the block on opposite sides of the indicator-line and an indicator-line on the inner faces of the lugs, the said plumb-line being arranged to be brought into alinement with the indicator-lines on the block and lugs when the machine is in a vertical position.

751,051. **BRAKE-BEAM.** HARRY C. BUHOUP, Chicago, Ill. Filed Jan. 28, 1903. Serial No. 140,825. (No model.)

Claim.—1. In a trussed brake-beam, the combination with the brake-heads and strut, of a tension member passing through said brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads, and a compression member having its ends socketed in said brake-heads and bent toward the back of the beam, substantially as and for the purposes specified.

2. In a trussed brake-beam, the combination with the strut, of brake-heads having a unitary compression-member socket and tension-member passage, a tension member passing through said brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads, and a compression member having its ends socketed in said brake-heads and bent at an angle equal to the angle of the tension member, substantially as and for the purposes specified.

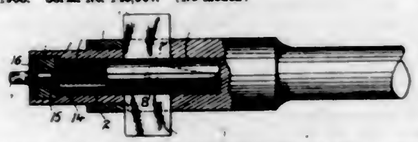
3. In a trussed brake-beam, the combination with the strut and a compression member having its ends bent toward the back of the

beam, of a tension member passing through the brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads and brake-heads having a unitary compression-member socket and tension-member passage, substantially as and for the purposes specified.

4. In a trussed brake-beam, the combination with the tension member, strut and brake-head, of a compression member having its ends bent toward the back of the beam and socketed in said brake-head, the end of said compression member being substantially parallel to the portion of said tension member which is adjacent to and outside of said brake-head, substantially as and for the purposes specified.

5. In a trussed brake-beam, the combination of a brake-head having a socket inclined to the transverse axis of the head, and a compression member having its end bent backwardly to correspond with the socket in the brake-head, substantially as and for the purposes specified.

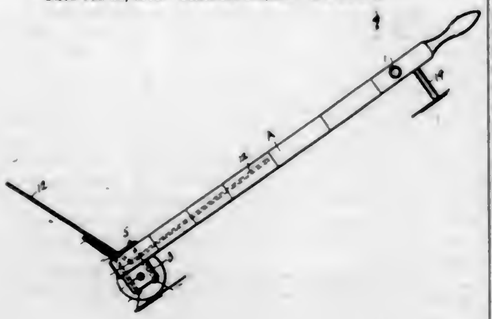
751,052. **BORING-TOOL.** JULIUS BUHLLER, St. Louis, Mo., assignor of three-fourths to Ernst Bloss, St. Louis, Mo. Filed Mar. 9, 1903. Serial No. 146,907. (No model.)



Claim.—1. A boring-tool comprising a suitable shank, a chamber formed at one end of the same, a cylindrical head having a longitudinal movement mounted in said chamber, inclined guideways formed on said head within the compass of the peripheral walls thereof, cutters extending radially outward through peripheral openings in the walls of the chamber and having their inner ends engaging and permanently confined within the limits of the guideways, a plug at the outer end of the chamber, a stem having an inner screw-threaded portion carried by said plug, a cavity having a closed bottom formed in the head for the reception of the screw-threaded end of the stem, means for rotating the stem from the outside of the tool, means for clamping the stem to the plug, and a nut passed about the shank and adapted to firmly hold the cutters in position when once adjusted, the parts operating substantially as, and for the purpose set forth.

2. A boring-tool comprising a suitable shank, a chamber formed at one end of the same, a plug provided with a recess at the outer end of the chamber, a washer supported on the shank and bearing against the inner face of the plug, a rotatable stem having a smooth and screw-threaded portion, the smooth portion being supported within the plug, a collar on said stem interposed between the washer and the plug, a lock-nut passed over the outer end of the stem and resting in the recess, a polygonal head formed on the stem and projecting beyond the lock-nut, a head confined in the chamber and reciprocated therein by the rotation of the stem, inclined rearwardly-converging ways formed on the head, cutters disposed radially through peripheral openings in the chamber and with their inner ends engaging the said ways, and a nut for clamping the cutters in position when once adjusted, the parts operating substantially as, and for the purpose set forth.

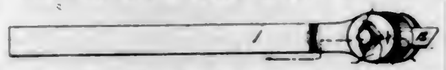
751,053. **HAND-TRUCK.** THOMAS BURROWS, Hamilton, Canada. Filed Oct. 30, 1903. Serial No. 179,198. (No model.)



Claim.—1. In a hand-truck, a bifurcated frame of one piece, and formed as a handle at the closed end thereof, a transverse axle secured to the under side of the opposite end of the frame, a rigid stop on the frame immediately over the axle-bar, an extension-stop pivoted to the frame above said axle and adapted to rest in position against the rigid stop, and to resume a non-operative position in the frame, ground-wheels at the ends of the axle-bar and means inserted in said ends to support said wheels, substantially as set forth.

2. In a hand-truck, a bifurcated frame of one piece, a handle formed at one end of the frame and the other end widened out, a rigid stop on the widened end of the frame, an axle-bar below said stop and frame, means for retaining said frame in rigid position, an extension-stop pivoted to the frame above the axle-bar to engage the upper part of said rigid stop, and adapted to resume and retain a non-operative position, ground-wheels at the ends of the axle-bar, and means to support said wheels, substantially as set forth.

751,054. **LATHE TOOL-HOLDER.** JAMES CARR, Syracuse, N. Y., assignor to Carr Brothers, Syracuse, N. Y., a Copartnership. Filed Feb. 9, 1903. Serial No. 142,483. (No model.)



Claim.—1. In a lathe tool-holder, a bar having in one end a cylindrical opening therethrough from top to bottom and inclined from a perpendicular to the bar, said bar having a central lengthwise opening extending at right angles to and intersecting the first-named opening to receive and hold the heel of the tool, and a tool-holder journaled in the first-named opening and provided with a slot movable into and out of registration with the lengthwise opening in the bar to receive the body of the tool, and means to clamp the tool-holder in place.

2. A lathe tool-holder, comprising a bar having one end deflected upwardly and provided with a circular bore therethrough from top to bottom and inclined from a perpendicular to the body of the bar, the lower and upper faces of the upwardly-deflected portion being disposed in parallel planes at an angle with the bar and at right angles to the bore, said bar having a central lengthwise opening extending rearwardly and downwardly from the bore to receive and support the heel of the tool, a revoluble tool-holder journaled in the bore and provided with a slot movable into and out of registration with the lengthwise opening to receive the body of the tool, portions of the front and side walls of the bore being cut away to form tool-engaging shoulders at the rear of the bore and at the sides of the lengthwise opening, and means to clamp the tool-holder in place.

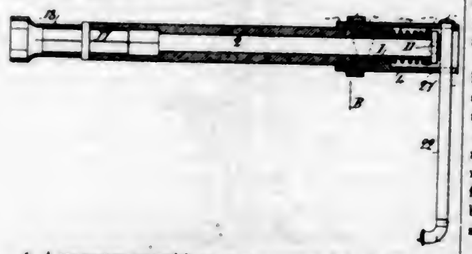
3. A lathe tool-holder comprising a shank or bar having one end deflected upwardly and provided with a circular bore inclining upwardly and rearwardly from its lower face through its upper face, said bar having a central lengthwise opening extending rearwardly and downwardly from the bore and continued through the front and sides of the head to receive the tool, the side walls of the lengthwise opening terminating at the rear of the bore to form abutments for the tool, a tool-holder rotatively mounted in the bore and having a slot movable into and out of registration with the lengthwise opening, and means to clamp the tool-holder in place.

751,055. **RATCHET SCREW-KEY.** CAMILLE COSTAL, Paris, France. Filed Oct. 15, 1903. Serial No. 177,175. (No model.)

Claim.—1. A ratchet-key for screwing, unscrewing, and the like, comprising a stem having an extension, a ratchet-disk loosely mounted on the said extension, pawls coacting respectively with the stem and with the head and engaged by the said ratchet-disk, a spiral spring mounted on the said extension to hold the ratchet-disk and the pawls in mesh, and means for rigidly connecting the ratchet-disk either with one of the pawls, or with the other pawl, or with both at the same time.

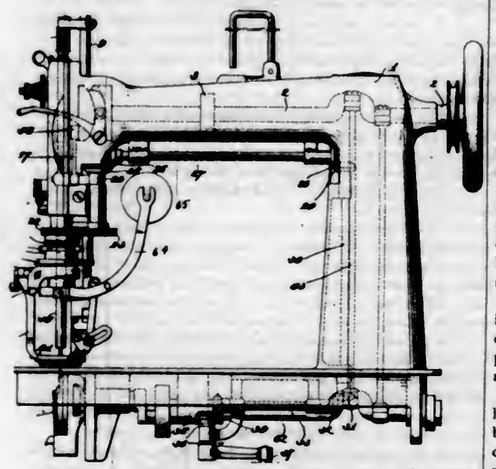
2. A ratchet-key comprising a stem having an extension, a ratchet-disk and a head loosely mounted on the said extension, pawls formed on the inner faces of the stem and of the head, a spring holding the ratchet-disk and the pawls in mesh, and a movable ring for causing the ratchet-disk to coact with either one or the other pawl or with both at the same time, the said ring having, the same as both the ratchet-disk and the pawls, angular guide-faces.

3. A ratchet-key comprising a stem, a ratchet-disk, a hollow head, pawls formed on the stem and on the head, a spring to hold the ratchet-disk and the pawls in mesh, means for connecting the ratchet-disk with either pawl, in combination with an operating-rod bent at one end, a head at each end of the said rod, a reduced part on the rod, two openings in the wall of the head and in which the rod is slidable, and a slit connecting one of the said openings with the edge of the head and through which the reduced part can be passed, in order to allow of the operating-rod being brought alongside of the screw-key.



4. A screw-key comprising a stem, a ratchet-disk, a head, pawls formed on the stem and on the head, a spring to hold the ratchet-disk and the pawls in mesh, means for connecting the ratchet-disk with either of the pawls, in combination with a fork arranged to fit on the end of the stem, another fork arranged to receive a tool, and a spider connecting the two forks in the same manner as a universal joint.

751,056. **SEWING-MACHINE.** ERNEST H. COOPER and CONRAD SCHUTZ, Philadelphia, Pa. Filed Apr. 26, 1902. Serial No. 104,807. (No model.)



Claim.—1. In a sewing-machine, a universal feeding mechanism comprising a foot having a feeder, and a support for said feeder revoluble independently thereof, in combination with foot-operating mechanism, substantially as specified.

2. In a sewing-machine, feeding mechanism comprising a reciprocating foot having a feeder, foot-operating mechanism comprising a reciprocating shank, and means for revolving said foot-operating mechanism independently of said feeder, in combination with stitching mechanism, substantially as specified.

3. In a sewing-machine, a reciprocating needle, and feeding mechanism having a motion of revolution and radial reciprocation relatively to the axis of said needle, said feeding mechanism comprising a foot having a feeder and a support for said feeder revoluble independently thereof, substantially as specified.

4. In a sewing-machine, stitching mechanism, in combination with a revoluble foot comprising a bearing-ring and a feeding-ring, complementary channels formed in said rings, and bearing-balls in said channels, substantially as specified.

5. In a sewing-machine, stitching mechanism, in combination with a revoluble foot comprising a bearing-ring and a feeding-ring, said rings having telescoping members and complementary channels formed therein, and balls in said channels for holding said rings together and providing bearings therefor, substantially as specified.

6. In a sewing-machine, a foot comprising a bearing-ring and a feeding-ring revolubly supported thereby, a revoluble shank connected with said bearing-ring, means for reciprocating said shank horizontally, and means for reciprocating said shank vertically, substantially as specified.

7. In a sewing-machine, a revoluble and vertically-reciprocating bearing, a reciprocating shank supported by said bearing, a revoluble foot supported by said shank, and mechanism for reciprocating said shank and foot horizontally with relation to said bearing, substantially as specified.

8. In a sewing-machine, a revoluble and vertically-reciprocating sleeve provided with bearings, feeding mechanism supported by said bearings, and mechanism for reciprocating said feeding mechanism in said bearings, substantially as specified.

9. In a sewing-machine, a vertically-reciprocating rod, a sleeve revolubly connected with and vertically reciprocated by said rod, means for revolving said sleeve, a bearing carried by said sleeve, feeding mechanism supported by and adapted to reciprocate in said bearing, and mechanism for reciprocating said feeding mechanism, substantially as specified.

10. In a sewing-machine, a revoluble and vertically-reciprocating bearing, feeding mechanism comprising a shank and a foot supported by and adapted to reciprocate in said bearing, and a lever for moving said feeding mechanism in said bearing, substantially as specified.

11. In a sewing-machine, a revoluble and vertically-reciprocating bearing, feeding mechanism comprising a shank and a foot supported by and adapted to reciprocate in said bearing, in combination with a lever and spring for reciprocating said feeding mechanism in said bearing, substantially as specified.

12. In a sewing-machine, a revoluble and vertically-reciprocating bearing, feeding mechanism supported by and adapted to reciprocate in said bearing, a lever adapted for moving said feeding mechanism in said bearing, and a vertically-reciprocating ring adapted for actuating said lever, substantially as specified.

13. In a sewing-machine, a revoluble and vertically-reciprocating bearing, horizontally-reciprocating feeding mechanism supported by said bearing, a lever for moving said feeding mechanism relatively to said bearing, and a vertically-reciprocating bar having means for engaging and actuating said lever, substantially as specified.

14. In a sewing-machine, a bearing, feeding mechanism adapted to reciprocate in said bearing, a fulcrumed crank-lever which engages and moves said feeding mechanism outwardly, and mechanism comprising a spring for limiting the outward movement and effecting the inward movement of said feeding mechanism, substantially as specified.

15. In a sewing-machine, a revoluble and vertically-reciprocating bearing, feeding mechanism supported by said bearing and reciprocating horizontally with relation thereto, and mechanism comprising a spring for actuating said feeding mechanism, substantially as specified.

16. In a sewing-machine, in combination with a foot, a revoluble and vertically-reciprocating sleeve, a vertically-reciprocating bar connected with said sleeve, a revoluble shaft connected with and operating said bar, a second vertically-reciprocating bar connected with and operated by said shaft, and a ring connected with and reciprocated by said second bar, substantially as specified.

17. In a sewing-machine, in combination with a foot, a revoluble sleeve, a second sleeve revolubly fixed and longitudinally movable on said first sleeve, a vertically-reciprocating bar having a revoluble connection with said second sleeve, and a gear-wheel connected with first sleeve, substantially as specified.

18. In a sewing-machine, in combination with a foot, a revoluble shaft having a gear-wheel fixed thereon, a sleeve revolubly fixed and longitudinally movable on said shaft, a reciprocating bar having a bearing in which said sleeve is revolubly mounted, a second revoluble shaft connected with and operating said bar, and a second reciprocating bar connected with and operated by said second shaft, substantially as specified.

19. In a sewing-machine, a revoluble shaft having a gear-wheel fixed thereon, a sleeve revolubly fixed and longitudinally movable on said shaft, feeding mechanism carried by and reciprocating relatively to said sleeve, a reciprocating bar having a bearing in which said sleeve is revolubly mounted, a second revoluble shaft connected with and operating said bar, a second reciprocating bar connected with and operated by said second shaft, and mechanism operated by said second bar for actuating said feeding mechanism, substantially as specified.

20. In a sewing-machine, the combination of the main shaft hav-

ing a gear-wheel thereon, with a second shaft having a gear-wheel engaging with said first gear-wheel, a cam on said second shaft, a reciprocating bar connected with and operated by said cam, a bearing carried by said bar, a sleeve revolubly mounted in said bearing and vertically reciprocated by said bar, feeding mechanism carried by said sleeve and reciprocating relatively thereto, mechanism for revolving said sleeve, and mechanism for reciprocating said feeding mechanism, substantially as specified.

21. In a sewing-machine, the combination of the main shaft having a gear-wheel thereon, with a second shaft having a gear-wheel engaging with said first gear-wheel, a cam on said second shaft, a reciprocating bar connected with and operated by said cam, and reciprocating feeding mechanism connected with and actuated by said reciprocating bar, substantially as specified.

22. In a sewing-machine, the combination of the main shaft having a gear-wheel thereon, with a second shaft having a gear-wheel engaging with said first gear-wheel, a cam on said second shaft, a reciprocating bar connected with and operated by said cam, a foot connected with and vertically reciprocated by said bar, and mechanism for horizontally reciprocating said foot comprising a cam on said second shaft and a vertically-reciprocating bar connected with and operated thereby, substantially as specified.

23. In a sewing-machine, in combination with feeding mechanism comprising a feeding-ring and a supporting-ring revoluble independently of said feeding-ring, means for vertically reciprocating said feeding mechanism, means for revolving said feeding mechanism, and means for horizontally reciprocating said feeding mechanism radially to its axis of revolution, substantially as specified.

24. In a sewing-machine, a vertically-reciprocating bar, reciprocating feeding mechanism revolubly connected with said bar, means for revolving said feeding mechanism, in combination with a vertically-reciprocating bar and means connected therewith for horizontally reciprocating said feeding mechanism.

25. In a sewing-machine, a universal braid or ribbon guide, reciprocating mechanism for engaging and feeding the braid or ribbon through said guide, in combination with revoluble mechanism for feeding the work to which said braid or ribbon is applied, substantially as specified.

26. In a sewing-machine, a revoluble braid-guide, a reciprocating finger for feeding the braid through said guide, a lever for actuating said finger, and means for oscillating said lever in combination with feeding mechanism, and stitching mechanism, substantially as specified.

27. In a sewing-machine, a revoluble hanger, a guide carried by said hanger, a lever fulcrumed on said hanger, a reciprocating finger operated by said lever, and a rod supported by said hanger for reciprocating said lever in combination with feeding mechanism, and stitching mechanism, substantially as described.

28. In a sewing-machine, a revoluble hanger, a guide carried by said hanger, a lever fulcrumed on said hanger, a finger having a flexible connection with said lever, a pitman connected with said lever, and a vertically-reciprocating rod for actuating said pitman in combination with feeding mechanism, and stitching mechanism, substantially as specified.

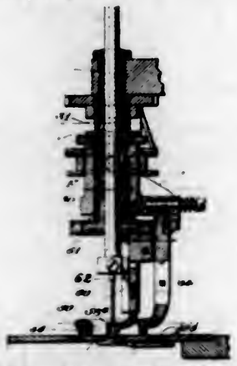
29. In a sewing-machine, a hanger, a guide carried by said hanger, a lever fulcrumed on said hanger, a finger pivoted to said hanger, a spring engaging said finger, a pitman connected with said lever, a reciprocating rod connected with said pitman, and means for reciprocating said rod in combination with feeding mechanism, and stitching mechanism, substantially as specified.

751,057. SEWING-MACHINE. ERNEST H. COOPER and CONRAD SCHUTZ, Philadelphia, Pa. Filed Nov. 13, 1902. Serial No. 131,275. (No model.)

Claim.—1. In a sewing-machine, the combination of a reciprocating and revoluble needle, with a reciprocating and revoluble shuttle, and a universally-reciprocating foot, said foot having a feeding device and a support for said feeding device revoluble in relation thereto, substantially as specified.

2. In a sewing-machine, the combination of a reciprocating and revoluble needle, with a reciprocating and revoluble shuttle, and a universal feeding mechanism having a revoluble foot, said foot comprising a work-engaging member adapted to be held stationary axially and a supporting member adapted to be revolved relatively thereto, substantially as specified.

3. In a sewing-machine, the combination of a reciprocating nipple, with a reciprocating needle, a reciprocating shuttle, and a reciprocating feeding mechanism having a revoluble foot, said foot comprising a work-engaging member adapted to be held stationary axially, and a supporting member adapted to be revolved relatively thereto, substantially as specified.



4. In a sewing-machine, the combination of a reciprocating and revoluble nipple, with a reciprocating and revoluble needle, a reciprocating and revoluble shuttle, and a reciprocating and revoluble feeding mechanism, said feeding mechanism comprising a work-engaging member adapted to be held stationary axially, substantially as specified.

5. In a sewing-machine, the combination of a reciprocating and revoluble needle, with a reciprocating and revoluble feeding mechanism, comprising a work-engaging ring adapted to be held stationary axially, and a revoluble reciprocating shuttle having a separate motion of revolution, substantially as specified.

6. In a sewing-machine, the combination of a reciprocating and revoluble needle, with universal feeding mechanism having a revoluble foot, comprising a work-engaging ring adapted to be held stationary axially and shuttle mechanism coacting therewith, substantially as specified.

7. In a sewing-machine, a revoluble shaft, a revoluble and reciprocating needle-bar, eccentric mechanism connecting said shaft and bar, mechanism for revolving said needle-bar, and a universal feeding mechanism comprising a foot having a feeding device and a support for said feeding device revoluble in relation thereto, substantially as specified.

8. In a sewing-machine, a revoluble shaft, a pitman having an eccentric connection therewith, a revoluble and reciprocating needle-bar connected with said pitman, mechanism for revolving said needle-bar, and a revoluble and universally-reciprocating foot, said foot having a feeding device and a support for said feeding device revoluble in relation thereto, substantially as specified.

9. In a sewing-machine, a revoluble shaft, a link having an eccentric pivotal connection therewith, a bearing pivotally connected to said link, a revoluble and reciprocating needle-bar pivotally connected to said bearing, and a revoluble and universally-reciprocating foot having a feeding device and a support for said feeding device revoluble in relation thereto, substantially as specified.

10. In a sewing-machine, a revoluble shaft, a shuttle adapted to be reciprocated on an axis carried by said shaft, a pinion connected with and adapted to reciprocate said shuttle, a rack connected with and adapted to reciprocate said pinion, a bearing connected with and adapted to reciprocate said rack, a second rack and pinion connected with and adapted to reciprocate said bearing, a revoluble and reciprocating needle, mechanism for synchronously revolving said needle and shuttle, and mechanism for synchronously reciprocating said needle and shuttle, substantially as specified.

11. In a sewing-machine, a revoluble shaft, a shuttle adapted to be reciprocated on an axis carried by said shaft, a pinion connected with and adapted to reciprocate said shuttle, a rack connected with and adapted to reciprocate said pinion, a reciprocating bearing on said shaft engaging and reciprocating said rack, said rack being revolubly connected to said bearing, a revoluble and reciprocating needle, mechanism for synchronously revolving said needle and shaft, and mechanism for synchronously reciprocating said needle and bearing, substantially as specified.

12. In a sewing-machine, a revoluble shaft, a reciprocating shuttle carried by said shaft, a pinion connected with and adapted to reciprocate said shuttle, a rack engaging said pinion, a bearing-ring free on said shaft, said rack being revolubly connected with said ring, and mechanism for reciprocating said ring, substantially as specified.

13. In a sewing-machine, a revoluble shaft, a reciprocating shuttle carried by said shaft, a pinion connected with and adapted to reciprocate said shuttle, a rack engaging said pinion, a bearing-ring free on said shaft, said rack being revolubly connected with said ring, a second rack connected with and adapted to reciprocate said ring, and a revoluble pinion engaging said second rack, substantially as specified.

14. In a sewing-machine, a revoluble shuttle-carrier, a shuttle adapted to reciprocate therein, a throat-plate, a needle-plate revolubly seated in said throat-plate, and an arm for connecting said needle-plate in relation to said shuttle-carrier, said needle-plate being thereby adapted to be revolved with said shuttle-carrier, substantially as specified.

15. In a sewing-machine, a needle-bar adapted to reciprocate, a nipple adapted to reciprocate, and a fulcrumed lever connected with said needle-bar and said nipple whereby the reciprocation of said needle-bar effects the reciprocation of said nipple, substantially as specified.

16. In a sewing-machine, a needle-bar adapted to reciprocate, a nipple-bar adapted to reciprocate, a spring-pressed lever pivoted upon a fixed support and adapted to be operated by said needle-bar, and mechanism connecting said nipple-bar with said lever whereby said lever operates said nipple-bar, substantially as specified.

17. In a sewing-machine, a reciprocating needle-bar, a nipple-bar adapted to reciprocate, a lever fulcrumed on a fixed support and adapted to be operated by said needle-bar, and a link pivotally connected to said lever and nipple-bar, substantially as specified.

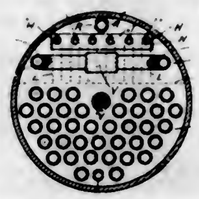
18. In a sewing-machine, a reciprocating sectional bar, a lever fulcrumed on a fixed support and having a pivotal connection with one section of said bar, a link having a pivotal connection with said lever and with the other section of said bar, said sections being adapted to move independently and feeding mechanism connected therewith, substantially as specified.

19. In a sewing-machine, a reciprocating sectional bar, a lever fulcrumed on a fixed support and having a pivotal connection with one section of said bar for reciprocating the same, a link pivotally connected to the other section of said bar and having a movable pivotal connection with said lever, whereby the throw of said second section may be varied and feeding mechanism connected therewith, substantially as specified.

20. In a sewing-machine, a reciprocating sectional rod, mechanism connecting the sections of said rod whereby the one maintains a constant throw while the other is varied, a bearing-ring carried by the rod-section of variable throw, a fulcrumed lever connected with and oscillated by said ring, and a reciprocating foot connected with and actuated by said lever, substantially as specified.

21. In a sewing-machine, a reciprocating sectional rod, mechanism connecting the sections of said rod whereby the constant throw of the one imparts a variable throw to the other, a bearing-ring carried by the rod-section of variable throw, a revoluble sleeve having guides, feeding mechanism adapted to reciprocate with relation to said guides, and a fulcrumed lever connected with said ring and feeding mechanism for reciprocating said feeding mechanism, substantially as specified.

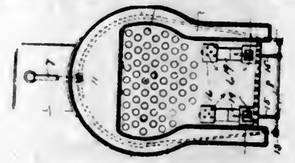
751,058. AMMONIA-STILL. RICHARD J. CRACKNELL, Streatham, England. Filed Aug. 30, 1902. Serial No. 121,662. (No model.)



Claim.—1. In ammonia-absorption refrigerating machinery of the continuous type, a generator provided with pipes for the admission of the strong liquor having perforations along their upper sides, canopies or hoods arranged above said perforations, screens of reticulated material extended above said perforations and depending below the pipes, and perforated tubes disposed below said tubes and partially closed at their inner ends for the admission of the liquid contents in the rectifier.

3. In ammonia-absorption refrigerating machinery of the continuous type, a generator provided with pipes for the admission of the strong liquor having perforations along their upper sides, canopies or hoods arranged on said pipes above said perforations, and screens or curtains of wire-gauze suspended on said pipes and depending below, and a perforated pipe disposed above said canopies, as and for the purpose specified.

751,059. SMOKE-CONSUMER. JOHN A. CRAWFORD, Allegheny, Pa. Filed Oct. 17, 1902. Serial No. 127,669. (No model.)



Claim.—1. A smoke-consumer for boiler and other furnaces, comprising a fire-chamber and grate therefor, a series of ducts positioned within said chamber and resting upon said grate, a steam-jet entering each of said ducts, the bottom of the latter being open to receive air through the grate and each having a circumferential inlet-aperture above and adjacent to the grate, and provided with perforated discharge-openings near the tops of the ducts, as set forth.

2. In a smoke-consumer for boiler or other furnaces, the combination consisting of the vertically-arranged ducts arranged at each angle of the fire-box and resting upon the grate-bars, said ducts having their bottoms open to receive air from below the grate and each having an inlet-opening in its wall above the grate, and exit-perforations near the tops of said ducts, a steam-jet entering the said ducts, pipes connecting the jets to the steam-dome, and suitably-disposed valves in the said pipes, whereby one or more of the jets may be cut off, and a means for holding the ducts in position.

3. In combination with a smoke-consumer constructed substantially as described, the sectional combined hot-air and steam ducts, consisting of a base portion 23, having an opening 24, at one side, an opening at the top having a peripheral flange 22, the hollow sections 19 connected thereto, and the hollow perforated cap-piece 16 provided with a perforated side, and means for jetting steam therein, as and for the purpose described.

751,060. SAWING-MACHINE. WILLIAM M. DAVIS, Hattiesburg, Miss., administrator of JAMES T. DAVIS, deceased, assignor to Albert A. Voss and Allison D. Bennett, Mobile, Ala. Filed July 13, 1903. Serial No. 165,289. (No model.)

Claim.—1. The combination with a pair of saws, of a carriage adapted to reciprocate between the saws, means supported by the carriage for turning a piece of timber from one side of the carriage to the other to present a timber alternately to the saws, and means for adjusting the piece of timber.

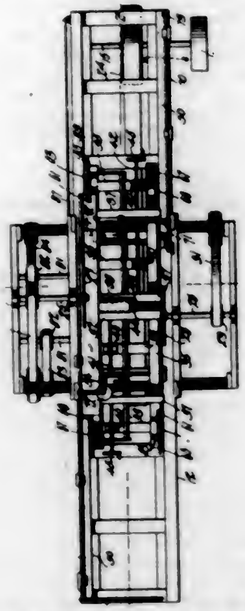
2. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and means supported by the carriage for turning a quarter-sawed section of timber to present the flat faces thereof alternately to the saws.

3. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and a timber-turning device supported by the carriage and adapted to turn a quarter-sawed piece of timber from side to side of the carriage to present the two flat faces thereof alternately to opposite saws.

4. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, and means supported by the carriage for shifting a piece of timber from side to side of the carriage, thereby to present one face of the timber to one saw while the carriage is traveling in one direction and to present the opposite face of the timber to the other saw while the carriage is traveling in the reverse direction.

5. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, guides arranged one in parallel relation with each of the saws, means supported by the carriage for turning a piece of timber from one side of the carriage to the other, and adjusting means also supported by the carriage and adapted to force the timber laterally of the carriage in

either direction to present the face of the timber to the adjacent guide.



6. In a sawing-machine, the combination with a pair of saws, of a carriage, a rock-shaft mounted on the carriage, toothed arms carried by the rock-shaft and adapted to engage a piece of timber to roll the same from side to side of the carriage, and an operating means connected to the rock-shaft.

7. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between said saws, a rock-shaft mounted on the carriage, a plurality of sets of curved arms secured to the rock-shaft and having teeth for engaging a piece of timber, and operating-levers connected to said rock-shaft.

8. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between said saws, a timber-adjusting means supported by the carriage for moving a piece of timber from side to side of the carriage, and a laterally-adjustable knee adapted to engage the timber and force the same in either direction.

9. The combination in a sawing-machine, a pair of saws, a carriage adapted to reciprocate between said saws, a timber-turning means, a laterally-guided knee adapted to engage a piece of timber, a pair of sprocket-wheels arranged on the carriage, a link belt extending around the sprocket-wheels and connected to the knee, shafts carrying the sprocket-wheels, and means for adjusting the shafts.

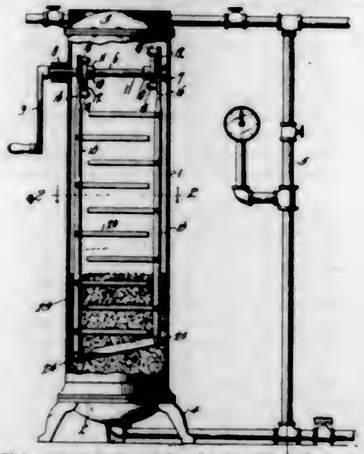
10. The combination in a sawing-machine, of a pair of saws, a carriage adapted to reciprocate between the saws, a timber-turning means mounted on the carriage, a laterally-guided knee for engaging and adjusting a piece of timber, a pair of sprocket-wheels, a link belt extending around said sprocket-wheels and connected to the knee, a pair of shafts connected one to each of the sprocket-wheels and extending respectively to opposite ends of the carriage, and hand-wheels secured to said shafts.

11. The combination in a sawing-machine, of a saw, a carriage, a timber-engaging dog, a guide for said dog, an operating-lever pivoted at a point intermediate of its length and disposed at one end of the carriage, a link connecting one end of the lever to the dog, a bell-crank lever arranged below said operating-lever, a link connecting one arm of the bell-crank lever to the operating-lever, a second operating-lever pivoted at the opposite end of the carriage, and a link connecting the second operating-lever to the second arm of the bell-crank lever.

12. The combination in a sawing-machine, of a saw, a guide, a reciprocating carriage, a rock-shaft, an arm carried by the rock-shaft, a timber-engaging roller mounted on said rock-shaft, an operating-lever connected to the rock-shaft for forcing the roller into engagement with the timber.

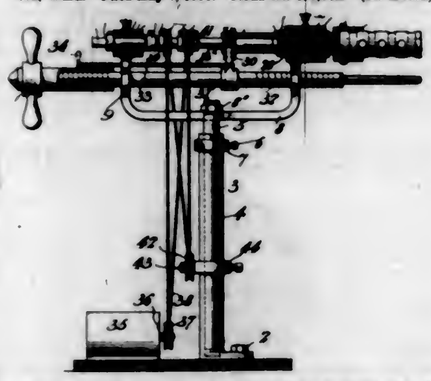
13. The combination in a sawing-machine, of a saw, a carriage, a timber-holding means, a roller for engaging and guiding a piece of timber, an arm carrying said roller, a rock-shaft supporting the arm, supporting-bearings for the shaft, and a lever secured to the shaft and serving as a means for operating the arm and roller.

751,061. **FILTER-CLEANER.** CHARLES D. DIEHLER, Allentown, Pa. Filed Sept. 30, 1902. Serial No. 124,315. (No model.)



Claim.—In a device of the class described, the combination of a cylindrical casing, a shaft journaled transversely near the upper end of said casing, depending rods provided at their upper ends with slots engaging said shaft, rollers mounted at the upper and lower ends of said slots, eccentric disks mounted upon the shaft and engaging between said rollers, a link pivotally connecting the lower ends of the depending rods, the pivotal connections of said link being at right angles to the axis of the shaft, and clusters of arms mounted upon the rods at intervals throughout their lengths, each cluster converging to a common point of connection with the depending rods and said arms being curved in conformity with the casing, the arms of one cluster being extended between the arms of the opposite cluster.

751,062. **DRILLING-MACHINE.** CHARLES ERICSON, Bremerton, Wash. Filed May 7, 1903. Serial No. 156,062. (No model.)



Claim.—1. The combination in a drilling-machine of a shaft having at one end a tubular extension provided on its inner surface with a longitudinal groove, a drill-supporting socket slidably mounted in said tubular extension and having a projection engaging said groove, a spring interposed between said shaft and said socket, means for retracting said socket against the tension of said spring, and means for rotating said shaft.

2. The combination in a drilling-machine of a shaft having a tubular extension at one end thereof, said extension being provided with an internal longitudinal groove and with openings at the inner end of said extension, a drill-supporting socket slidably mounted within said tubular extension and having a projection engaging said groove and longitudinally-disposed fingers projecting rearward through the openings in said tubular extension, a collar slidably mounted on said shaft to which said fingers are secured, means for retracting said collar, and means for rotating said shaft.

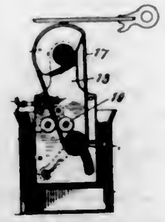
3. The combination in a drilling-machine of a supporting-standard having a transverse opening, a shaft-supporting bracket slidably mounted in said opening, means for clamping said bracket in position on said standard, a shaft rotatably mounted in said bracket, a drill-socket slidably associated with said shaft, and a spring interposed between said shaft and said socket.

4. The combination in a drilling-machine of a supporting-standard, a shaft-supporting bracket carried by said standard, a shaft rotatably mounted in said bracket, a drill-socket yieldably mounted on said shaft, and a gage-bar adjustably mounted in said bracket parallel to said shaft.

5. The combination in a drilling-machine of a suitable supporting structure, a shaft rotatably mounted in said supporting structure, a gage-bar adjustably mounted in said supporting structure adjacent and parallel to said shaft, a drill-socket slidably mounted on said shaft, a spring interposed between said shaft and said socket, a collar also slidably mounted on said shaft to which said socket is connected, a collar slidably mounted on said gage-bar and having an arm projecting laterally therefrom and engaging the collar on said shaft, and a rod slidably mounted in said supporting structure and having one end attached to said arm.

6. The combination in a drilling-machine of a base, a vertically-extensible standard secured on said base, a drill-shaft rotatably carried by said standard, a plurality of pulleys carried by said shaft, one of said pulleys being rigidly attached thereto, a motor having a driving-shaft and a pulley provided on said base, a pulley adjustably mounted on said standard, and a belt arranged to travel over all of said pulleys and impart rotation to said drill-shaft.

751,063. **OILING DEVICE FOR LOOMS.** FREDERICK FARNER, Worcester, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed May 13, 1899. Renewed July 7, 1903. Serial No. 164,603. (No model.)



Claim.—1. In a loom, the combination of the wires, a hook for catching and withdrawing the same, an endless lubricating-surface, and means independent of the wire motion for advancing the lubricating-surface.

2. In a loom, the combination of the wires, the hook for catching and withdrawing the same, an endless lubricating surface or conveyer for oiling the wires, and connections for advancing the conveyer in a constant direction, while not in engagement with the wires.

3. In a loom, the combination of the wires, the hook for catching and withdrawing the same, a source of oil-supply, an endless ribbon, and means for advancing said ribbon to convey oil to the wires.

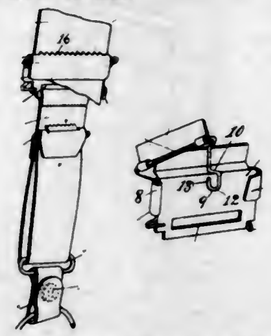
4. In a loom, the combination of the wires, the hook for catching and withdrawing the same, an endless ribbon, means for advancing said ribbon to convey oil to the wires, and means for limiting or regulating the amount of oil thus conveyed.

5. In a loom, the combination of the wires, the hook for catching and withdrawing the same, an endless ribbon for lubricating said wires, means for advancing the ribbon and means for moving said ribbon out of the path of the hook.

6. In a loom, the combination of the wires, the hook for catching and withdrawing the same, an endless ribbon, a partial wheel or cam, a spring for normally turning the partial wheel or cam in position to hold the ribbon up into engagement with the wires, and a spring-pressed tension-roller mounted in the lower bite of the ribbon.

7. In a loom, the combination of the wires, the hook for catching and withdrawing the same, an oil-can, an endless ribbon or conveyer, a partial wheel or cam having a spring for normally turning the same so as to hold the oiling-ribbon up into engagement with the wires, a spring-pressed tension-roller mounted in the lower bite of the ribbon, pressure-rollers having means of adjustment to regulate the supply of oil carried up by the ribbon, and a spear or cam for turning the partial wheel so as to clear the hook, said partial wheel being provided with a catch arranged to advance the ribbon in one direction, and leave the ribbon free when the wheel is oscillated in the opposite direction.

751,064. **DRAWERS-SUPPORTING ATTACHMENT FOR SUSPENDERS.** FERGUS FERGUSON, Santa Rosa, Cal. Filed Feb. 9, 1903. Serial No. 142,575. (No model.)



Claim.—1. In combination with a suspender for trousers, an auxiliary supporting device for drawers comprising means for holding the drawers, an attaching device for attaching said drawers-holding means to the suspender-strap, said attaching device being wholly attachable to, and detachable from, the strap while the latter is in its operative position without interfering with the adjustment of the trousers-suspenders, and being adjustable thereon while so attached, and an adjustable connection between said attaching device and the means for holding the drawers, substantially as described.

2. In combination with a suspender for trousers, an auxiliary supporting device for drawers, comprising means for holding the drawers, an attaching device for attaching said drawers-holding means to the suspender-strap, said attaching device comprising a part arranged to be clasped around the strap to form a slide along the strap, and adapted to be unclasped therefrom, and a clamping device for clamping the attaching device at any desired height on the strap without interfering with the adjustment of the trousers-suspenders, and being adjustable thereon while so attached, and an adjustable connection between said attaching device and the means for holding the drawers, substantially as described.

3. In combination with a suspender for trousers, an auxiliary supporting device for drawers, comprising means for holding the drawers, an attaching device for attaching said drawers-holding means to the suspender-strap, said attaching device comprising parts hinged together on one side and having coengaging fastening devices on the other side, thereby forming a clasp slidable along the strap, and a clamping device for clamping the attaching device at any desired height on the strap without interfering with the adjustment of the trousers-suspenders, and being adjustable thereon while so attached, and an adjustable connection between said attaching device and the means for holding the drawers, substantially as described.

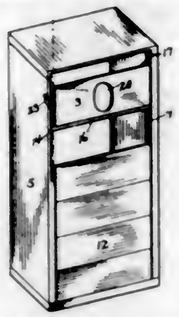
4. A suspender-buckle having a plate, a wire loop having one of its side members hinged to the side edge of the plate and opening and closing transversely to the plate, and a clamp turnable on the loop between the side members thereof, said plate having a hook in which the other side member of the loop may be engaged.

5. A suspender-buckle consisting of a plate, having a hook member at one side, a wire loop having a side member hinged to the other side of said plate and opening and closing transversely thereto, a clamp carried by the loop between the side members thereof, said loop adapted to detachably engage said hook, and a stop means upon the plate by which the loop is prevented from accidental release.

6. A suspender-buckle consisting in combination of a plate, a wire loop pivoted on one side thereof, a clamp turnable on the loop, means by which the free end of said loop may be engaged to hold the clamp in position to engage a suspender against the plate, the end of said loop adjacent to the pivot being provided with means adapted as a spring to press the clamp out of engagement with the plate when the free end of the loop is released.

7. In a suspender-buckle the combination of a plate, a loop and a clamp, said loop hinged to the side edge of the plate and said clamp carried by the loop and hinged to one end thereof, and engaging means between the opposite side of the plate and loop.

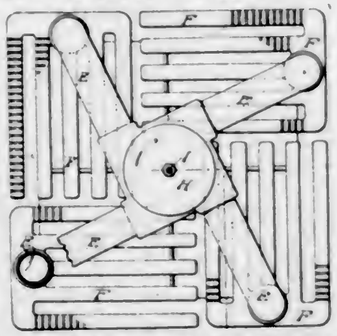
751,065. **ADJUSTABLE FLUE-COLLAR.** IRVIN R. FLEDDER, Daley, Pa. Filed Apr. 6, 1903. Serial No. 151,294. (No model.)



Claim.—1. An attachment for chimneys comprising a frame having grooves in its inner faces, a portion of the wall on one of the grooves being removable and beveled at one of its ends, the remaining portion of the wall being beveled for close connection with the bevel portion of the removable part, a collar-plate having flanges thereon adapted for engagement with the grooves of the frame to slide therein, supplemental plates having flanges adapted to lie within the grooves and also adapted to slide therein and means for preventing the accidental dislodgment of the removable portion of the wall.

2. A device of the class described comprising a frame having grooves in its faces, a collar-plate having side and end flanges mounted with its end flanges in the grooves of the frame, supplemental plates having side and end flanges and lying with their end flanges in the grooves of the frame and with their other flanges against the corresponding flanges of the adjacent plates, a portion of the wall of one of the grooves being removable to permit of the insertion and removal of the plates, and means for holding the removable portion against accidental dislodgment.

751,066. **HYDROCARBON-BURNER.** WILLIAM E. GIBBS, Fanwood, N. J., assignor of one-half to Henry Berg, Newark, N. J. Filed June 12, 1903. Serial No. 161,137. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying and vapor-driving device in said chamber and means for supplying fuel and air to said chamber, substantially as set forth.

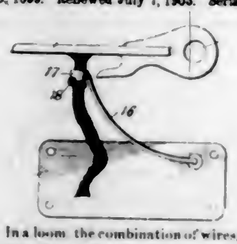
2. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying-disk and fan in said chamber, means independent of the air-supply for driving said fan at high velocity, and means for supplying air and fuel to said chamber, substantially as set forth.

3. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying-disk and fan in said chamber, means independent of the air-supply for driving said fan at high velocity, and means for supplying fuel above said disk and air below the same, substantially as set forth.

4. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes above said burner-tubes and connecting said chamber with the outer portions of said burner-tubes, a spraying and vapor-driving device in said chamber and means for supplying fuel and air to said chamber, substantially as set forth.

5. In a hydrocarbon-burner, the combination of burner-tubes having a common distributing-chamber, distributing-pipes connecting said chamber with the outer portions of said burner-tubes, a spraying-disk and fan in said chamber, in the plane of said pipes, means independent of the air-supply for driving said fan at high velocity, and means for supplying air and fuel to said chamber, substantially as set forth.

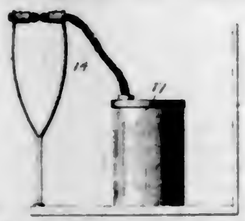
751,067. **OILING DEVICE FOR LOOMS.** JOSEPH S. GILES, Worcester, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed May 13, 1899. Renewed July 7, 1903. Serial No. 164,607. (No model.)



Claim.—1. In a loom, the combination of wires, a hook for catching and withdrawing the same, and a yieldingly-mounted holder for holding wicking or similar capillary material, the wick-holder being positioned so that the end pieces of the wires and the hook will deflect and hold the wick-holder out of their path of motion when passing over the same, substantially as described.

2. In a loom, the combination of wires, each comprising a body portion, and an end piece having an eye in line with said body portion, a hook for catching and withdrawing said wires, and an oiling device comprising a plate, and an upwardly-extending spring-wire carrying a wick-holder at its upper end, the wick-holder being positioned so that the end pieces of the wires and the hook will themselves act to deflect the wick-holder from their path when passing over the same, substantially as described.

751,068. **OILING DEVICE FOR LOOMS.** JOSEPH S. GILES, Worcester, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed May 13, 1899. Renewed July 7, 1903. Serial No. 164,608. (No model.)

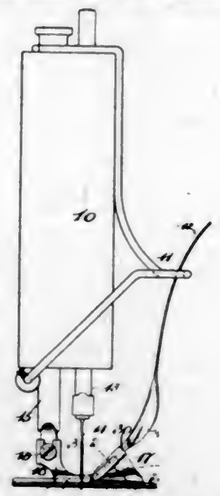


Claim.—1. In a loom, the combination of wires, a hook for catching and withdrawing the same, a pair of wick-holders, capillary material mounted in each of the wick-holders for supplying oil to the wires, and means for separating the wick-holders to permit the hook to pass between the same.

2. In a loom, the combination of wires, a hook for catching and withdrawing the same, a pair of wick-holders, a can for supplying the oil to the wicks mounted in the wick-holders, and means for separating the wick-holders to permit the hook to pass between the same.

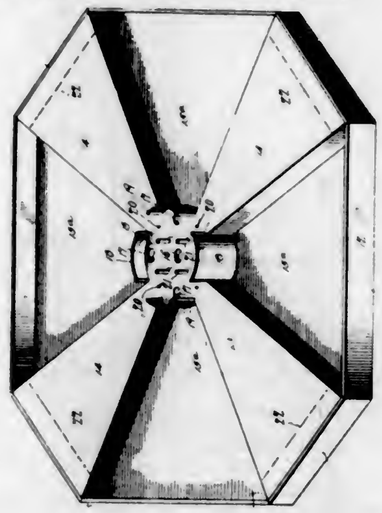
3. In a loom, the combination of the wires, the hook for catching and withdrawing the same, two spring-arms carrying wick-holders at their ends, a spear or cam for separating said spring-arms to deflect the wick-holders from the path of the hook, a wick mounted in one of said wick-holders and receiving a supply of oil from a can or other suitable receptacle, and a section of wick mounted in the other wick-holder to assist in distributing the supply of oil received from the first-named wick, and for preventing oil from dropping from said first-named wick.

751,069. **GUIDE FOR SEWING-MACHINES.** GIUSEPPE GIOIOSA, East Boston, Mass. Filed Mar. 2, 1903. Serial No. 145,675. (No model.)



Claim.—A tape folder and guide for sewing-machines, comprising a presser-foot constructed to be attached to the presser-bar of a sewing-machine and a tape-guide fast to the front end of said presser-foot extending longitudinally forward and upward therefrom, said tape-guide formed of sheet metal, two parallel sides thereof folded downwardly, toward each other and upwardly adjacent to each other, forming a longitudinal separating-partition with a folding-passage at each side thereof, together with an auxiliary folding-guide, formed of sheet metal, with two converging edges, one of said edges fastened to and between the adjacent sides forming said separating-partition, the other of said edges bent to form a horizontal semicircular passage located beneath said tape-guide.

751,070. **GAME APPARATUS.** THOMAS E. GOFF, Whitewright, Tex. Filed Feb. 9, 1903. Serial No. 142,614. (No model.)



Claim.—1. A game apparatus comprising a supporting-base having a playing-surface provided with a plurality of raised ways leading from the periphery of the supporting-base toward a raised central area over which the pieces are to be played, said ways having flat playing-surfaces arranged in a plane parallel with the playing-surface of the supporting-base and in alinement with the surface of said raised central area, and marked points to be attained by a piece.

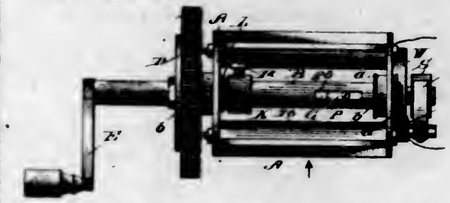
2. A game apparatus having a playing-surface provided with a plurality of raised ways leading from the outside of the surface toward a raised central area and over which the pieces are to be played, marked points to be attained by a piece, and depressions between the ways.

3. A game apparatus having a playing-surface provided with a plurality of raised ways leading from the outside of the surface toward a raised central area and over which the pieces are to be played, marked points to be attained by a piece, depressions between the ways, and a guard-surface extending about the central area between the entrance to the ways and raised above the playing-surface.

4. A game apparatus having a playing-surface provided with a plurality of raised ways leading from the periphery of said playing-surface toward a raised central area over which the pieces are to be played, said ways having flat playing-surfaces arranged in a plane parallel with the playing-surface on which the ways are disposed, and marked points to be attained by a piece.

5. A game apparatus having a playing-surface provided with a plurality of raised ways leading from the periphery of said surface and converging toward a raised central area and over which the pieces are to be played, and marked points to be attained by a piece.

751,071. **SIGNALING APPARATUS.** EDWIN L. GRAUEL, Rochester, N. Y., assignor to National Telegraphone Company, Rochester, N. Y., a Corporation of New Jersey. Filed Mar. 19, 1903. Serial No. 148,563. (No model.)



Claim.—1. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein, a spring-contact member arranged to engage said hollow axle when the latter is at rest, and means for insulating said spring-contact member and hollow axle from each other when the mechanism is in operation, substantially as and for the purposes specified.

2. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein, a core-projecting axle within said hollow axle, an insulated core contacting said core-projecting axle and located within said hollow axle, and means for causing a relative rotation of the hollow axle and core-projecting axle whereby the insulated core is projected longitudinally with respect to said hollow axle, substantially as and for the purposes specified.

3. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein, a core-projecting axle within said hollow axle said core-projecting axle having a double-inclined groove in one end, an insulated core having a reversely-inclined end contacting the double-inclined end of the core-projecting axle said insulated core located within said hollow axle, and means for causing a relative rotation of the insulated core and the core-projecting axle whereby the inclined end of said core-projecting axle acts upon the reversely-inclined end of the insulated core to cause a relative longitudinal movement of said core and the hollow axle, substantially as and for the purposes specified.

4. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein, an insulated core within said hollow axle, a core-projecting axle also within said hollow axle, a gear-wheel secured to said hollow axle, a clutch-cap secured to said core-projecting axle, and means for causing a relative rotation of said hollow axle and its gear-wheel and the core-projecting axle and its clutch-cap whereby the said insulated core is projected longitudinally with respect to said hollow axle, substantially as and for the purposes specified.

5. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein said hollow axle having a gear-wheel secured to one end, of a core-projecting axle located within said hollow axle said core-projecting axle having a clutch-cap secured to one end, means for causing a relative rotation of the hollow axle and core-projecting axle, and a spring secured to the gear-wheel and to the clutch-cap whereby said hollow axle and said core-projecting axle are relatively rotated in reverse direction, substantially as and for the purposes specified.

6. In a mechanism of the character indicated, the combination with a frame, of a hollow axle journaled therein said hollow axle having a longitudinal peripheral slot and a transverse peripheral slot, an insulated core located within said hollow axle and provided with a guide-lug which engages the longitudinal peripheral slot of said hollow axle, a core-projecting axle located within said hollow axle and having a guide-lug which engages the transverse peripheral slot of said hollow axle, and means for causing a relative rotation of said hollow axle and said core-projecting axle whereby said insulated core is projected longitudinally of said hollow axle, substantially as and for the purposes specified.

7. In a mechanism of the character indicated, the combination with a frame, of an axle journaled therein, a spring-contact member insulated from said frame and arranged to engage said axle when the latter is at rest, a commutator-brush mounted on said spring-contact member and contacting a commutator, a commutator having alternate segments insulated and uninsulated with respect to said frame, and means for insulating said spring-contact member and axle from each other and simultaneously rotating said commutator in contact with said brush, substantially as and for the purposes specified.

8. In a mechanism of the character indicated, the combination with a frame, of a spring-contact member arranged to close the circuit through said frame when the mechanism is not in operation and to be insulated from said frame when the mechanism is in operation, of a commutator-brush electrically connected to said spring-contact member and insulated from said frame said brush contacting the periphery of commutator; a commutator having segments alternately insulated and uninsulated with respect to said frame, and means for rotating said commutator when the spring-contact member is insulated from said frame, substantially as and for the purposes specified.

751,072. **PNEUMATIC HAMMER.** ELIAS GUNNELL, Chicago, Ill. Filed Aug. 5, 1901. Serial No. 70,973. (No model.)



Claim.—1. A fluid pressure impact tool, having a cylinder, a piston, means for exerting constant pressure upon said piston in the impact strokes thereof, and a tubular valve, controlled by the piston, for exerting intermittent pressure upon the forward end of said piston, to procure the reciprocation thereof, and supplemental exhaust ports checking the return stroke of the piston, substantially as described.

2. A fluid pressure impact tool, having a cylinder, a piston, means for exerting constant pressure upon said piston in the impact strokes thereof, and means for exerting intermittent pressure upon the forward end of said piston, to procure the reciprocation thereof, said means comprising a valve mounted in a chamber at the side of the piston chamber, substantially as described.

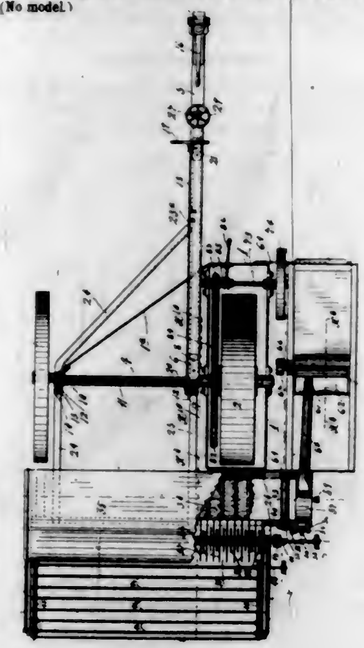
3. In a fluid pressure impact tool, the combination with a piston chamber and appropriate passages, of a valve chamber located at the side of the piston chamber, and a tubular valve in said valve chamber controlling the inlet and exhaust from in front of said piston and provided with a small central pressure area to maintain it in normal position, a larger area communicating with large pressure fluid to push the valve forward to introduce said fluid in front of the hammer, and a still larger pressure area at the front of said valve to push it backward to exhaust the front of the piston chamber, substantially as described.

4. The combination with a main piston cylinder and a casing having a passage leading from the live steam and to the front of the piston and another passage to exhaust the space in front of the piston, of a valve comprising a tubular shell open at both ends and having a large front area exposed to the exhaust passage, an intermediate area at rear to move valve to introduce live pressure, and between these two areas a smaller area communicating with the large steam passage to maintain the valve in normal position.

5. In a pneumatic tool, the combination with a valve, of a chamber surrounding the same, provided with pressure for holding the valve during the impact stroke of the piston, a chamber containing pressure acting upon an area of the valve greater than the last mentioned chamber, for shifting the valve at the end of the impact stroke, and a third chamber containing pressure acting upon an area of the valve greater than the last mentioned area, for returning the valve after the end of the return stroke, substantially as described.

6. A valve for a fluid pressure impact tool, consisting of a tubular shell mounted in a casing at the side of the piston cylinder, and provided with three differential pressure areas, substantially as described.

751,073. **TRAVELING THRESHER.** THOMAS O. HELGERSON, Minneapolis, Minn., assignor of two-thirds to Julius Rosholt and C. A. Paulson, Minneapolis, Minn. Filed Nov. 12, 1902. Serial No. 130,987 (No model.)



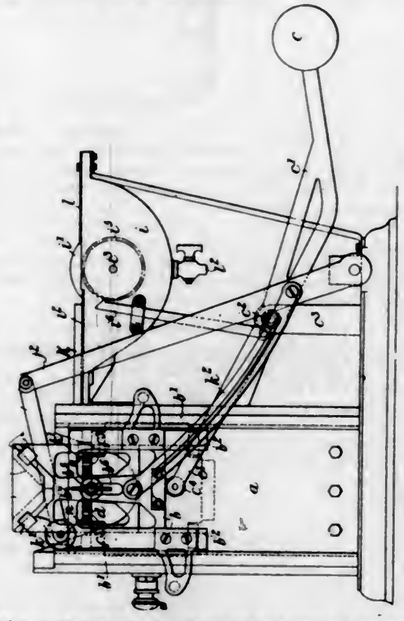
Claim.—1. In a traveling thresher, the combination with a toothless concave and a cooperating beating-brush, of a transversely-movable endless conveyer receiving the threshed grain from said concave, and a housing inclosing said concave brush and conveyer, substantially as described.

2. In a traveling thresher, the combination with the primary threshing mechanism located for direct action on the heads of the standing grain, of an endless conveyer receiving therefrom, a pneumatic elevator receiving from said conveyer, and a huller receiving from said pneumatic elevator, substantially as described.

3. In a traveling thresher, the combination with a concave and cooperating beater, of a reel for directing the heads of the standing grain, directly to said concave and beater, said reel comprising guides at three points only, an endless carrier moving in a triangular course over said guides and provided with cross-slats, the said guides being so arranged that the said slats travel a triangular course and move, first approximately vertically downward, then horizontally rearward and then abruptly forward and upward, substantially as described.

4. In a traveling thresher, the combination with primary threshing mechanism, involving a concave and rapidly-rotating beater, an endless transversely-movable conveyer receiving from said concave and beater, and a housing incasing said beater and extending over said endless conveyer to prevent the scattering of the grain and directing the same onto the said endless conveyer, substantially as described.

751,074. **MACHINE OR APPARATUS FOR AFFIXING LABELS TO BOTTLES, BOXES, OR OTHER ARTICLES.** WILLIAM HIGGINS, Roscommon, and WILLIAM G. EDMONDS, Dublin, Ireland. Filed Dec. 12, 1902. Serial No. 134,945. (No model.)



Claim.—1. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a label-table, of a frame for carrying the article to be labeled, movable toward and from the label-table, in a path perpendicular to the said label-table, whereby the article may be placed in engagement with said frame and moved with the frame into engagement with the label, substantially as described.

2. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a label-table, of a frame for carrying the article to be labeled, movable toward and from the label-table, in a path perpendicular to the said label-table, a label-pasting device and mechanism for moving said device across the label-table, substantially as described.

3. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a label-table, of a frame for carrying the article to be labeled, movable toward and from the label-table, in a path perpendicular to said label-table, a label-pasting device, mechanism for moving said device across the label-table and operative connections between said mechanism and said movable frame, substantially as described.

4. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table, of a frame for carrying the article to be labeled, movable toward and from said table in a path perpendicular to said label-table and flexible bands normally below the plane of the label-table for directly engaging the labels and forcing them to conform to the surface of the article to be labeled, substantially as described.

5. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table, of a frame for carrying the articles to be labeled, movable toward and from said table in a path perpendicular to the said label-table, flexible yielding bands normally below the plane of the label-table for directly engaging the labels and forcing them to conform to the surface of the article to be labeled, substantially as described.

6. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table, of a frame for carrying the article to be labeled, movable toward and from said table, flexible bands normally lying below the plane of the table for forcing the labels to conform to the surface of the article to be labeled and springs connected to said flexible bands, substantially as described.

7. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table, of a frame for carrying the article to be labeled, movable toward and from said table, clips pivoted to stationary parts of the apparatus and constructed to hold the labels upon said table, whereby said clips are permitted to release said labels when the table is depressed, and devices connected with the table adapted to engage said clips and restore them to normal position as the table rises, substantially as described.

8. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a label-table, of a frame for carrying the article to be labeled, movable toward and from said table in a path perpendicular to the said label-table, a counterbalance connected to said frame for restoring it to its normal position away from the table, a pasting device for said labels movable across the label-table and connections between said pasting device and said frame, substantially as described.

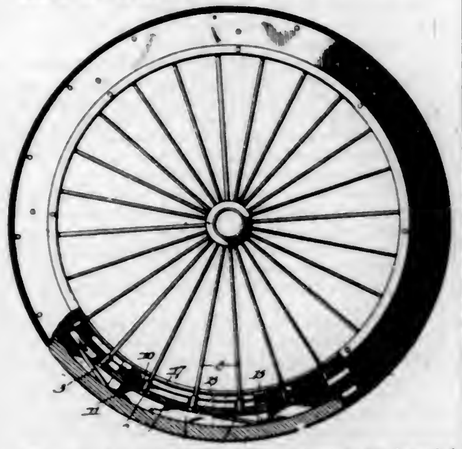
9. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table, adapted to hold a plurality of superposed labels, said table being adjustable to support labels of different sizes, supports carried by said table and adjustable laterally therewith, but mounted so as to be incapable of yielding longitudinally, clips pivoted to said supports and provided with devices for extending over the labels and holding them upon the table, whereby the clips are permitted to release the labels, when the table is depressed, and means for restoring said clips to their normal position when the table rises, substantially as described.

10. In apparatus for affixing labels to bottles, boxes and other articles, the combination with a yielding label-table adapted to hold a plurality of superposed labels, of a frame for carrying the article to be labeled movable toward and from the label-table in a path perpendicular thereto, a series of pins projecting from the face of the label-table and adapted to yield with respect to the table, non-yielding supports extending through said table, clips pivoted thereto and provided with horizontal projections engaging said labels and holding them upon the table, whereby said clips are permitted to release said labels when the table is depressed and means for restoring said clips to their normal position as the table rises, substantially as described.

11. In apparatus for affixing labels to bottles, boxes and like articles, the combination with a yielding table, of a frame for holding the article to be labeled, movable toward and from said table on a path perpendicular thereto, said label-table being formed in sections, adjusting devices for said sections to vary the size of the label-table, a series of spring-actuated pins projecting from the face of the table for engaging the lateral edges of the labels, independent devices for laterally adjusting said pins with respect to the table, vertical non-yielding pillars extending through separate sections of said table and adjustable laterally therewith, clips pivoted to said pillars, and having projections to engage the outer face of the pile of labels, to hold them in engagement with the table, whereby said clips are permitted to release the labels when the table is depressed, and means for restoring said clips to normal position as the table is returned to normal position, substantially as described.

12. In apparatus for affixing labels, the combination with a yielding label-table, of a frame movable toward and from said table and adapted to receive the article to be labeled, and laterally-arranged bearers, secured to stationary parts for pressing the edges of the labels against the article to be labeled, substantially as described.

751,075. WHEEL. WILLIAM A. HOSKINS, Charleston, Mo. Filed Oct. 21, 1903. Serial No. 177,926. (No model.)



Claim.—1. In a vehicle-wheel, the combination of a channeled tire, springs rigidly attached to said tire within the channel, a felly disposed within the channel and resting on said springs, and curved guiding-lugs fixed within said channeled tire and having their curved ends extended around said felly to retain it in position.

2. The combination in a vehicle-wheel of a channeled tire, springs rigidly secured within said channel, a felly also disposed within said channel and resting on said springs, and curved retaining-lugs disposed within said channel to prevent the removal of said felly, and guard members detachably mounted on said lugs.

751,076. NITRATED CARBOHYDRATE. ARTHUR HOUBE, Dover, N. J. Filed June 13, 1903. Serial No. 161,370. (No specimens.)

Claim.—As a new article of manufacture, a highly-nitrated carbohydrate, the same containing about sixteen and a half per cent. of nitrogen and having a constitution corresponding to the formula $C_{12}H_{13}(NO_3)_8O_{10}$, possessing great stability and high explosive power and forming an orange-colored powder when stabilized, silky to the touch and lacking crystalline structure, being insoluble in alcohol, ether and dilute ammonium-hydrate, and solnble in ether-alcohol and acetic ether, and soluble with difficulty in concentrated sulfuric acid.

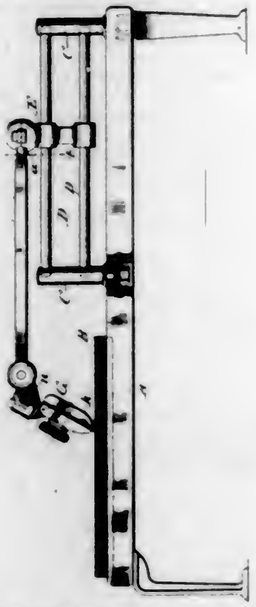
751,077. EDGE-TOOL SHARPENER. WILFRID JACQUES, Woonsocket, R. I. Filed Aug. 6, 1903. Serial No. 168,522. (No model.)

Claim.—1. An edge-tool sharpener comprising a body, a flat stone thereon, a guide-rail connected with and arranged above the body, at one end of the stone, a slide movable on said guide-rail toward and from the stone, a socket carried by the slide and having an inverted-T-shaped opening in its forward side, an arm extending forwardly through the T-shaped opening in the socket, and having a ball disposed in said socket, and tool-holding means carried by the arm.

2. An edge-tool sharpener comprising a body, a flat stone thereon, a guide-rail connected with and arranged above the body, at one end of the stone, a slide movable on said guide-rail toward and from the stone, an arm carried by the slide and overhanging the stone, and movable vertically and sidewise on the slide, and tool-holding means carried by the arm.

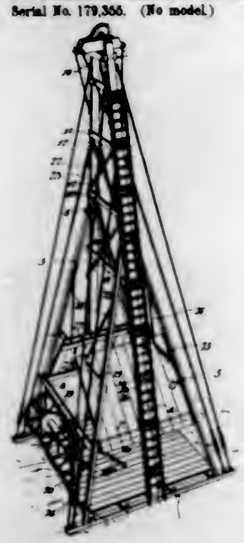
3. In an edge-tool sharpener, the combination of a stone, a movable arm overhanging the stone, and having a bifurcation and circular portions, on the walls thereof, provided with graduations, a bracket having a vertical, circular head arranged in the bifurcation of and pivotally connected to the arm, and provided with graduations, means for adjustably fixing said bracket with respect to the arm, and a tool-holder carried by the bracket.

4. In an edge-tool sharpener, a tool-holding clamp comprising a jaw having a recess in its inner side, a jaw having a lug on its inner side, adapted to rest in the recess of the first-mentioned jaw, and also having a recess in its inner side, of angular form in cross-section, and means for connecting said jaws.



5. In an edge-tool sharpener, the combination of a flat stone, a fixed guide-rail arranged at one end of the stone, a slide movable on said guide-rail toward and from the stone, an arm carried by the slide and overhanging the stone, and movable vertically and sidewise on the slide; said arm having a bifurcation in its forward end and circular portions on the walls of the bifurcation, provided with graduations, a bracket having a vertical, circular head arranged in the bifurcation of and pivotally connected to the arm, and provided with graduations, means for adjustably fixing said bracket with respect to the arm, and a tool-holder carried by the bracket.

751,078. WELL-DERRICK. JACOB C. KNUPP, Warren, Pa. Filed Oct. 31, 1903. Serial No. 179,366. (No model.)



Claim.—1. In a derrick, a base comprising sills and cross-pieces resting upon and connecting said sills, upwardly-converging uprights rising from the central cross-braces, inclined braces connecting said uprights with the sills exteriorly adjacent to the outer cross-braces, horizontal braces connecting said inclined braces at the sides and at the rear end of the derrick, an inclined brace connecting the rear horizontal brace with the proximate cross-brace upon the sills, and uprights framed and supported upon the rear cross-pieces and connected at their upper ends with the rear horizontal brace and forming supports for the shaft of the bull-wheel.

2. In a derrick, a base, upwardly-converging uprights connecting and bracing means for said uprights, brackets extending inwardly from the latter, hangers connecting the free ends of said brackets with the said uprights, and derrick-roof sections supported mainly by the said brackets.

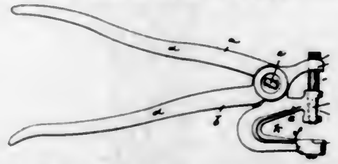
3. In a derrick, a base comprising sills and cross-pieces supported thereon, uprights supported upon and rising from the central cross-piece, said uprights converging in an upward direction, cross-braces connecting the said uprights, diagonal braces connecting the said uprights intermediate the uppermost cross-braces, and diagonal cross-braces connecting the uprights, said diagonal braces being extended across and below the lowermost cross-brace.

4. In a derrick, a pair of main uprights supported upon a base-frame and converging upwardly, tie-bars connecting the upper ends of said uprights, crown-bars connected adjustably with said tie-bars, said crown-bars and tie-bars being each provided with slots, and connecting-bolts adjustable in said slots, and a pulley mounted between the crown-blocks.

5. In a derrick, a pair of main uprights supported upon the base-frame and converging upwardly, tie-bars connecting the upper ends of said uprights, crown-blocks supported upon said tie-bars, spacing-blocks interposed between the ends of the crown-blocks, and a pulley journaled between the latter.

6. In a derrick, a base-frame, a pair of upwardly-converging uprights supported thereon, side bars connecting the upper ends of said uprights, crown-blocks connected adjustably with said tie-bars and spaced apart by means of spacing-blocks, a pulley journaled between said crown-blocks, and brace-rods connecting the latter with the uprights.

751,079. BELT-PUNCH. ARTHUR A. KRAEUTER, Newark, N. J. Filed May 8, 1902. Serial No. 106,429. (No model.)



Claim.—1. In a punch, the combination of upper and lower lever-like members crossed and pivoted together, a U-shaped part disposed in the same plane as said members with its open end forward and attached by its upper prong, midway of its length, to fulcrumal portion of the upper lever-like member, an anvil at the end of the lower prong of said U-shaped part, and a punch slidably supported in the end of the upper prong and engaged by the upper lever-like member.

2. In a punch, the combination of two lever-like members pivoted together, one of said members being beyond said pivot bent backward beneath the other in the plane of the members and having an end portion projecting forward again, and the other member projecting forwardly beyond the fulcrum, an anvil upon the first said member, and a punch connected to the other member and adapted to move therewith to engage the said anvil.

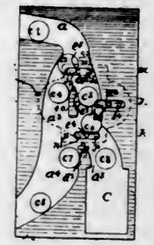
3. In a belt-punch, the combination of two pivoted members, one having a U-shaped extension the upper prong of which forms a tubular slideway apertured or open intermediate of its ends at the front side and the lower prong of which forms an anvil, a tubular punch arranged in said slideway and having its bore or internal passage curved laterally at a distance from the cutting end and opening out through the side of the punch, said opening of the punch being adapted to coincide with said aperture of the slideway and the upper wall of the latter being adapted to expel a partially-ejected punching as the punch is raised from its anvil, and the other member being connected to said punch to slide the same.

4. In a belt-punch or the like, the combination of two lever-like members crossed and pivoted together, both members being recessed at their adjacent sides each to receive the other, an integral post or stud at the center of the recess of one member and being hollow and interiorly threaded, a screw fitting said post and having a narrow transverse head longer than the diameter of the post, and the other member being apertured to receive said post and having opposite radial extensions of said aperture to admit said head when brought into alinement.

751,080. MANUFACTURE OF FIREPROOF BRICKS OR MATERIAL. FRIEDRICH KRUGER, Berlin, Germany. Filed Apr. 20, 1903. Serial No. 153,361. (No specimens.)

Claim.—A process for manufacturing fireproof stones, bricks, blocks or material consisting in adding a mixture of finely-ground waste of marienglass or other unburnt gypsum ($CaSO_4$) and a small proportion of finely-ground asbestos or soapstone to a heated liquid mass of silicate of soda or of potassium (Na_2SiO_3 or K_2SiO_3) and mixing the whole until a thoroughly homogeneous plastic mass is obtained, charging molds with them and heating them to a red heat substantially as described.

751,081. COIN-CONTROLLED TELEPHONE APPARATUS. SHERWOOD J. LARNED, Chicago, Ill., assignor to American Telephone and Telegraph Company, a Corporation of New York. Filed Dec. 3, 1903. Serial No. 183,626. (No model.)



Claim.—1. In a coin-collector, the combination with a main coin-chute whose upper part is separated by a partition into two portions, one of which leads directly to a discharge-channel or return-exit, while the second portion below the partition has an entrance into the said discharge-channel and also an entrance into the cash-box; of three stops projecting into said coin-chute one above the other, one of which is adapted to block the entrances of the said two portions respectively, the second to block the said second portion, and the third to block the divisions of the second portion, with mechanism for operating said stops, whereby the disposition of a deposited coin may be controlled.

2. In a coin-collector, the combination with a main coin-chute separated at its upper part by a partition into two portions, one of which leads from the entrance to the exit, while the second portion below the partition has an entrance into the first portion and an entrance into the cash-box, of three stops projecting into said coin-chute one above the other, one of which is adapted to divert a coin into either of the said two portions, the second stop adapted to approach to and recede from a pin to arrest, retain and release a coin and thereby close and open electrical contacts, the third stop adapted to arrest and release the coin and direct the same into the return-chute or into the cash-box, as set forth.

3. In a coin-collector, the combination with a main coin-chute whose upper part is separated by a partition into two portions, one of which leads from the entrance directly to the exit, while the second portion below the partition has an entrance into the first portion and an entrance into the cash-box; of three stops projecting into said coin-chute each in different planes; with means for operating said stops, to control and dispose of a deposited coin, whereby first a coin is diverted into either of said two portions, second, the coin is arrested and released while in the said second portion and closes and opens electrical contacts, and finally the coin is again arrested and directed into the return-chute or into the cash-box, as set forth.

4. In a coin-collector, the combination with a main coin-chute whose upper part is separated by a partition into two portions, one of which leads from the entrance to the exit, while the second portion below the partition has an entrance into the first portion and an entrance into the cash-box; of three stops projecting into said coin-chute in different planes adapted respectively to block the en-

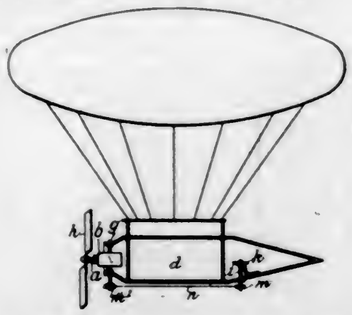
trances of the said two portions, to block the said second portion, and to block the divisions of the second portion; with mechanism for actuating said stops consisting of a pivoted lever-armature adjacent to the coin-chute, in which the stops are fixed, and a polarized electromagnet associated with said lever-armature adapted to move the same, as set forth.

5. In a coin-controlled telephone system, the combination of a main circuit extending between a substation and a central station, and normally open at said substation; a call-signal in a local circuit, a relay controlling said call-signal and a source of current in the said main circuit at the central station; with a coin-guiding electromagnet, and a resistance device in said main circuit at the substation; a switch for closing said main circuit actuated by the removal of the receiver from its hook; and means controlled by a deposited coin for shunting said resistance device and thereby increasing the strength of current in said main circuit; substantially as and for the purposes set forth.

6. In combination with a metallic telephone-circuit extending between a substation and a central station, and having one of its conductors organized as a normally open earth-return signaling-circuit; a coin-controlled telephone apparatus at said substation comprising a telephone-supporting hook, a switch actuated by the removal of the receiver from said hook to close said earth-return circuit, a coin-chute and a coin-guiding electromagnetic mechanism; of a resistance device also in said earth-return circuit, at said substation, in a normally discontinuous shunt therefor; means controlled by a deposited coin for closing said shunt and short-circuiting said resistance; a signal-lamp in a local circuit at the central station; a source of current in said earth-return signaling-circuit; and a call-signal relay also in said signaling-circuit at said central station, controlling said local circuit and signal-lamp, the said relay being irresponsive to the normal current of said source, but responsive to such current when the said resistance is shunted; substantially as set forth.

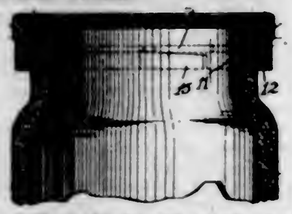
7. The combination with a metallic circuit between a substation and a central station, the same being provided with spring-jacks, a cut-off relay, a line-relay, and a line lamp-signal in a circuit controlled by the line-relay, and a cord-circuit; of a signaling-circuit formed in part of one of the main conductors of said metallic circuit normally open at the substation telephone-switch and including at the said central station the said line-relay and a source of current; and substation apparatus comprising a coin-chute, a coin-guiding polarized magnet, an armature therefor, studs fixed in said armature and projecting into said coin-chute, a resistance in said signaling-circuit, means for returning a coin directly if the circuits are not in order, and other means adapted when the circuits are in order to shunt said resistance and thereby display the central-station lamp-signal and to thereafter return the coin or deposit the same in the cash-box; as set forth.

751,082. PROPELLING AND STEERING APPARATUS FOR BALLOONS. EDWIN LAYTON, Gyula-Fehervar, Austria-Hungary. Filed June 29, 1903. Serial No. 163,633. (No model.)



Claim.—A propelling and steering device for balloons, comprising rotary propeller-blades, a motor mounted outside the car and acting directly on the propeller-shaft, vertical pivots about which the motor and propeller are mounted to turn horizontally to effect the steering, means for oscillating the motor with the said pivots, vanes pivoted on opposite sides of the car, and rods connecting the vanes with the propeller-shaft and adapted to operate the vanes to assist in steering the balloon, substantially as described.

751,083. BOTTLE. MATHIAS A. LAZARETT, New York, N. Y., assignor to the Royal Glass Jar and Bottle Company, New York, N. Y., a Corporation of the District of Columbia. Filed May 20, 1903. Serial No. 157,891. (No model.)

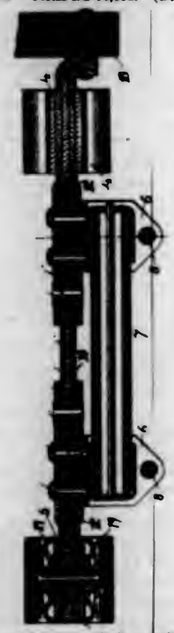


Claim.—1. The combination with a bottle, of a band or plate rigidly fastened in a circumferential groove of the neck, and provided with outwardly-extending lugs.

2. The combination with a bottle-neck having a circumferential groove therein, of a band or plate having outwardly-extending lugs, said band or plate being held in the groove and the material of the bottle being squeezed upon the said band or plate to hold it against displacement.

3. The combination of a bottle-neck having a circumferential groove therein, of a band or plate fitting the groove and having outwardly-projecting lugs, the said band or plate and the wall of the groove having engaging shoulders, and the material of the neck being squeezed snugly upon the said band or plate to prevent its displacement.

751,084. ELECTRIC SWITCH. ERNEST A. LOWE, Plainfield, N. J. Filed Jan. 17, 1902. Serial No. 90,152. (No model.)

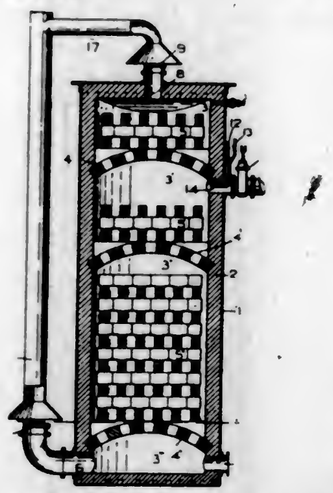


Claim.—1. In an electric switch, a switch plate or lever consisting of the two metal portions each comprising two plates of metal combined with a coupling-plate and sheets of insulating material clamped between the said plates, as and for the purpose described.

2. The improved electric insulating-joint herein described comprising a metal coupling piece or plate clamped at its ends between sheets of insulation, and exterior plates of conducting material provided with suitably-located offsets or shoulders adapted to compress the insulation around the edges of the coupling-piece, as and for the purpose described.

3. In an electric switch, the combination with the switch-lever made in sections, of the metal coupling-piece, the clamping-rivets 11 passing through said plate and through the exterior plates or pieces forming one end of the knife-blade, and rivets 13 passing through the hollow rivets 11 and securing the fuse clamp or socket to the switch-blade.

751,085. APPARATUS FOR THE MANUFACTURE OF GAS. LEWIS P. LOWE, San Francisco, Cal. Filed June 17, 1903. Serial No. 161,793. (No model.)



Claim.—1. A shell having a mediate combustion-chamber nearer to one end of said shell than the other, loosely-piled refractory material between said chamber and each end of the shell, means for feeding fluid hydrocarbonaceous material and air into said combustion-chamber, flues leading from both ends of the shell whereby the products of combustion in said chamber are led in both directions through the shell, a steam-supply pipe at the end of the shell nearer the combustion-chamber, and a gas-outlet at the other end of the shell, substantially as described.

2. A shell having a mediate combustion-chamber nearer to one end of said shell than the other, loosely-piled refractory material between said chamber and each end of the shell, means for feeding fluid hydrocarbonaceous material and air into said combustion-chamber, flues leading from both ends of the shell and uniting outside the shell whereby the products of combustion in said chamber are led in both directions through the shell, a steam-supply pipe at the end of the shell nearer the combustion-chamber, and a gas-outlet at the other end of the shell, substantially as described

3. A shell having means, located mediately thereof and nearer one end of the shell than the other, for feeding fluid hydrocarbon and air into said shell, open arches in said shell above and below the feeding means, forming a combustion-chamber thereat, and large and small heating-chambers between the combustion-chamber and the ends of the shell, loosely-piled refractory material in said chambers, flues leading from both chambers, whereby the products of combustion from the combustion-chamber pass in both directions therefrom, a steam-inlet pipe leading into the small heating-chamber, and a gas-outlet pipe leading from the large heating-chamber, substantially as described.

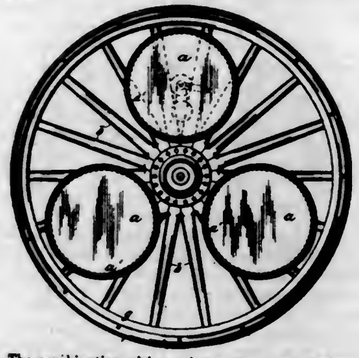
4. A shell having a mediate combustion-chamber, loosely-piled refractory material between said chamber and each end of the shell, means for feeding fluid hydrocarbonaceous material and air into said combustion-chamber, flues leading from both ends of the shell directly into the atmosphere whereby the products of combustion in said chamber are led in both directions through the shell, a steam-supply pipe at one end of the shell and a gas-outlet at the other end of the shell, substantially as described

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751,086. ADVERTISING-WHEEL. JOHN LYNN, New York, N. Y. Filed Oct. 31, 1902. Serial No. 129,537. (No model.)

Claim.—1. In an advertising device, in combination, a rotatable wheel; display-disks carried in bearings located within the felly of the wheel; means for preventing the disks rotating as they are carried around by the wheel; and series of representations of devices, as balls, rigidly secured to the wheel and surrounding the display-disks.

2. In an advertising device, the combination with a rotatable wheel of a display-disk carried around with the wheel, provided with means for causing said disk to turn in its bearings so that no actual rotation of the disk occurs as it is carried around with the wheel, and having an annular series of representations of balls around its periphery.



3. The combination with a vehicle-wheel, and display advertising devices attached to the wheel and located within the side plane of its felly; of a protecting bead or ring secured to and projecting from the side of the felly.

4. In an advertising device, the combination with a rotatable wheel of a display-disk carried around with the wheel, provided with means for causing said disk to turn in its bearings so that no actual rotation of the disk occurs as it is carried around with the wheel, and having an annular series of representations of balls around its periphery, and a bead or ring secured to and projecting from the side of the felly.

5. In an advertising device, in combination, a rotatable wheel; display-disks carried in bearings located within the felly of the wheel; means for causing said disks to turn in their bearings so that no actual rotation of the disks occurs as they are carried around by the wheel; and series of representations of devices, as balls, rigidly secured to the wheel and surrounding each of the display-disks, and a bead or ring secured to and projecting from the side of the felly.

751,087. COLORED SIGN-LAMP. WALTER LYTTON, Chicago, Ill. Filed May 4, 1903. Serial No. 155,617. (No model.)



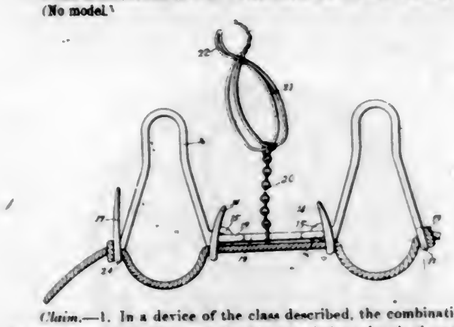
Claim.—1. In a device of the character described, the combination with a transparent light-bulb, of a transparent shell inclosing the same, a plurality of reservoirs to contain variously-colored fluids, and means for successively circulating said fluids between said reservoirs and the annular space between said bulb and its surrounding shell, substantially as described.

2. In an electric-lamp sign, the combination with a plurality of electric-lamp bulbs, of transparent shells inclosing said bulbs, respectively, a plurality of reservoirs to contain variously-colored fluids, tube connections between said reservoirs and the annular spaces between said bulbs and their inclosing shells, and a multi-way cock or valve interposed in said connections, substantially as described.

3. In an electric sign-lamp, the combination with a plurality of electric-lamp bulbs, of transparent shells inclosing said bulbs, respectively, a plurality of vertically-movable reservoirs to contain variously-colored fluids, flexible tube connections between said reservoirs and the annular spaces between said bulbs and their inclosing shells, and a multi-way cock or valve interposed in said connections at a height between the upper and lower limits of movement of the reservoirs, substantially as described.

4. In a device of the character described, the combination with an illuminant having a transparent inclosing shell, of an outer transparent shell inclosing said first-named shell, a coating of paraffin or the like on the adjacent surfaces of said shells, and means for introducing and withdrawing a colored fluid to and from the annular space between said shells to produce varied light effects, substantially as described.

751,088. SHACKLE AND TAIL-HOLDER FOR COWS. LORENZO G. MACAULEY, Malcom, Iowa. Filed June 3, 1903. Serial No. 159,871. (No model.)



Claim.—1. In a device of the class described, the combination of two substantially U-shaped shackles, a rod pivoted to both and a rope secured to one end of one of the shackles and detachably connected with the remaining ends of the shackles.

2. In a device of the class described, the combination of two substantially U-shaped shackles, one shackle having a loop at one end and a hook at the other end, the other shackle having a hook at each end, a rod pivoted to the adjacent ends of the shackles, and a rope attached to the loop and capable of entering the said hooks.

3. In a device of the class described, the combination of two substantially U-shaped shackles, a rod pivoted to each, and a rope secured to one end of one of the shackles and detachably connected with the remaining ends of the shackle, and a tail-holder attached to said rod.

4. In a device of the class described, the combination of a substantially U-shaped part 10 having a loop 11 at one end and a hook 14 and an eye 15 at its other end, a mating part having a hook 14 and an eye 15 at one end, and a hook 17 at its other end, a rigid rod 18 having loops 19 at its ends passed through the eyes 15, a rope 12 secured to the loop 11 and designed to pass through the hooks 14 and 17 and having a knot 24 to lie against the outer surface of the hook 17, a chain 20 hooked with the rod 18, and a tail-holder connected with the chain 20.

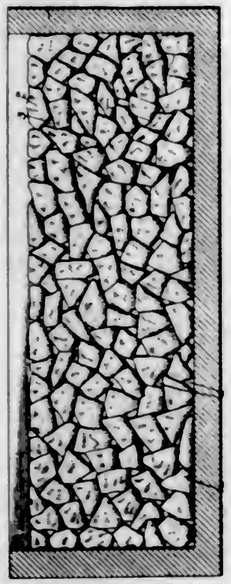
5. In a device of the class described, the combination of two shackles shaped to pass over a cow's hind legs above the knee-joint, and shaped to prevent downward movement when thus placed, means for holding the shackles away from each other, and a rope connected with both ends of each shackle and designed to be passed around in front of the animal's legs, for the purposes stated.

751,089. METHOD OF MAKING CONCRETE BUILDING-BLOCKS. FREDERICK A. MALETTE, Geneva, N. Y. Filed Apr. 17, 1903. Serial No. 153,040. (No model.)

Claim.—1. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, and afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same.

2. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same and finally applying a surface coating to one or more faces of the block thus formed.

3. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, and finally applying a surface coating of fine mortar to one or more faces of the block, before the spaces or voids between the stones at the surface have been filled.



4. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them, beneath the surface of the mass, afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, and finally applying, with pressure, a surface coating of fine mortar to one or more faces of the block, before the thin mortar introduced into the voids has set.

5. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression, and simultaneously molding said mass into proper shape, whereby the stones are bonded together independent of the action of the mortar and without filling the spaces or voids between the stones beneath the surface of the mass, pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same, subjecting another mass of the stones thus coated to compression above the mass originally treated and simultaneously molding the latter mass into proper shape, pouring a thin mortar onto the latter mass and allowing it to flow down into the voids between the stones and partially fill the same, and continuing these steps until a block of the proper size is made.

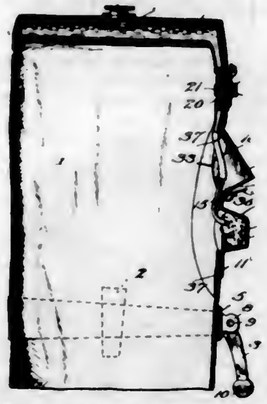
6. The method of making concrete building-blocks and the like, which consists in coating the individual stones with mortar, subjecting a mass of the stones thus coated to compression, and simultaneously molding said mass into proper shape within a band of expanded metal or the like with which the mass of stones is surrounded, whereby said stones are bonded together independent of the action of the mortar and without filling the spaces or voids between them beneath the surface of the mass, and afterward pouring a thin mortar onto the mass and allowing it to flow down into the voids between the stones and partially fill the same.

751,090. SNAP-HOOK. OSCAR S. MAROLD, Saguache, Colo. Filed May 14, 1903. Serial No. 157,163. (No model.)



Claim.— In a snap-hook, a shank having a hook-shaped eye, a spring-pressed bolt operating in conjunction with the end of the hook forming the eye, an extension formed with and projecting from one edge of said shank and the opposite edge of said shank having a recess and ears, a leaf lying parallel with the extension and having its end provided with an eye, the said end lying in the recess of the shank and a pivot run through the eye of the leaf and through the ears, and screws run through the leaf and extension.

751,091. FIRE-MASK. WILLIAM J. MORAN, Yonkers, N. Y. Filed May 20, 1903. Serial No. 158,036. (No model.)



Claim.—1. The combination with a fireproof mask; of a plate, prongs thereto engaging the mask, and a perforated extension to the plate forming a mouthpiece.

2. The combination with a fireproof mask; of a plate, prongs integral therewith and engaging the mask, a perforated extension upon the plate forming a mouthpiece, an absorbent material within the extension and closing the perforations, and means for supplying moisture to the absorbent material.

3. The combination with a fireproof mask, and straps for contracting the open end thereof; of a perforated extension secured to the mask and forming a mouthpiece, an absorbent material therein closing the perforations, means for supplying moisture to the absorbent material, a nose extension, and a valved outlet therein.

4. The combination with a fireproof mask; of a nose extension, prongs integral therewith and engaging the mask, a valve normally closing an outlet in the extension, and an elastic lining to said extension.

5. The combination with a fireproof mask; of a perforated extension secured thereto, a nose extension integral with the perforated extension and having an aperture therein, a valve normally closing the aperture, an absorbent material within the perforated extension, a reservoir, a valved connection between the reservoir and the absorbent material, and goggles within the mask.

6. The combination with a fireproof mask; of a perforated extension, absorbent material therein, a reservoir, a tubular connection between the reservoir and absorbent material, a valve within said connection comprising a stem having a passage therethrough, a lever for rotating the stem, a disk, and stops upon the disk for limiting the movement of the lever, said disk and lever being arranged outside the mask.

751,092. LIQUID-FUEL BURNER. DOMER H. MOSTELLER, San Francisco, Cal., assignor of one-half to Jacob Hooges, San Francisco, Cal. Filed May 29, 1903. Serial No. 159,302. (No model.)



Claim.—1. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporiser against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, a support for the vaporizer, the vaporizer having wings resting upon the top of the walls of the support, and a drip-pan within the support, substantially as described.

2. A liquid-fuel burner comprising a nozzle for throwing a solid stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, a support for the vaporizer, the vaporizer having wings resting upon the top of the walls of the support, and a drip-pan within the support, substantially as described.

3. A liquid-fuel burner comprising a nozzle for throwing a solid stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of the vaporizer having an oil-drip aperture, a support for the vaporizer, the vaporizer having wings resting upon the top of the walls of the support, said support being recessed in its front wall to receive the vaporizer and having a forwardly and upwardly extending lug, and the vaporizer having a neck engaged by said lug, and a drip-pan within the support, substantially as described.

4. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a fixed support for said vaporizer, and a longitudinally-slidable heating-pan below the vaporizer, substantially as described.

5. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a fixed support for said vaporizer, a longitudinally-slidable heating-pan below the vaporizer, and an air-conduit connected to said pan and sliding therewith, substantially as described.

6. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, said vaporizer having an aperture in the lower portion of its wall, a support for the vaporizer open or cut away at the back, and a drip-pan within the support slidable in a direction parallel with the nozzle, substantially as described.

7. A liquid-fuel burner comprising a nozzle adapted to throw a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, a box, an air-pipe surrounding the nozzle, support for the vaporizer and means carried by said support and box for guiding and maintaining the air-pipe and vaporizer in position thereon, substantially as described.

8. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, a support for the vaporizer, a box, an air-pipe resting on said box and surrounding the nozzle, a heating-pan within the support, and an air-conduit connected with the heating-pan and slidable longitudinally in the box, substantially as described.

9. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan to catch the oil dripping from said aperture, a fixed support for said vaporizer and heating-pan, constructed to permit the heating-pan to be removed by sliding rearwardly and the vaporizer to be raised vertically from its support, substantially as described.

10. A liquid-burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan beneath said aperture to heat the vaporizer, and a support for the vaporizer, said support and vaporizer having coengaging means preventing movement of the vaporizer relatively to the support in any direction except upward, but preventing free upward movement of the vaporizer from its support, substantially as described.

11. A liquid-fuel burner comprising a nozzle for throwing a stream of oil, a vaporizer against the rear wall of which the nozzle directs said stream, the wall of said vaporizer having an oil-drip aperture, a heating-pan for catching the oil, and suitable supporting means for said vaporizer and heating-pan, said means and heating-pan having coengaging parts which prevent movement of the latter in any direction except longitudinally rearward, substantially as described.

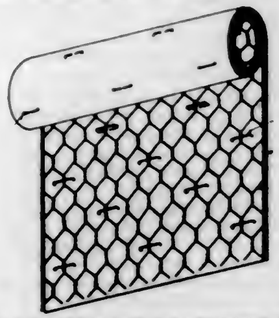
751,093. SASH-CORD HOLDER. WILLIAM MUNRO, New Britain, Conn., assignor to P. & F. Corbin, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 19, 1903. Serial No. 177,538. (No model.)

Claim.—1. A sash-cord holder comprising a spiral wire having one end turned substantially into the position of a diameter of the spiral and hooked over and secured thereto.

2. A sash-cord holder, comprising a yielding cage of cylindrical form, a cross-bar secured across one end and leaving a restricted opening and forming a yielding support, substantially as described.



751,094. RETAINING MATERIAL FOR PLASTER OR THE LIKE. JOHN H. MURPHY and REVIS M. CAMP, Chicago, Ill. Filed Apr. 9, 1903. Serial No. 151,746. (No model.)



Claim.—1. A material for receiving and retaining plaster or the like comprising the combination with reticulated material, of a backing-sheet in close relation therewith and acting to close the clench of the plaster when applied.

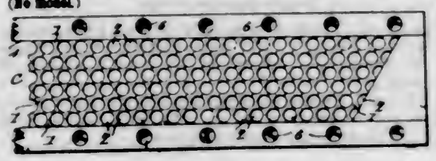
2. An article of manufacture comprising open-mesh reticulated material permanently secured against a flexible backing-sheet in such close relation therewith that the entire front surface of said backing-sheet is engaged by the rear side of the plaster when applied to the set and acting to entirely close the clench of the plastic material when applied.

3. The combination with a flexible backing-sheet, of fabric, of reticulated material having open meshes of a size too great to readily support plastic material when used alone and secured flat against said sheet, means for permanently engaging said reticulated material on the sheet and a plastic material such as plaster applied to and entirely inclosing the reticulated material, and filling the front side of said flexible sheet.

4. The combination of a backing-sheet, of furring-strips secured thereon, reticulated material connected with said furring, and plastering material spread on said reticulated material and filling against the backing-sheet, said backing-sheet acting to entirely close the clench of said plastic material around the reticulated material.

5. A supporting structure for material such as plaster, comprising a backing-sheet and reticulated material secured thereon in close contact therewith and having large open meshes of such size as not readily to support the plaster if said reticulated material is used alone.

751,095. SUCTION-BOX COVER FOR PAPER-MAKING MACHINES. THOMAS D. MCAULIFFE, EUGENE O'BRIEN, and WARREN FRENCH, Eau Claire, Wis. Filed June 29, 1903. Serial No. 163,642. (No model.)

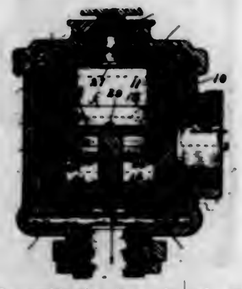


Claim.—1. A suction-box cover of wood in which the grain is disposed substantially perpendicular to the exposed surface of the suction-box cover.

2. A suction-box cover for paper-making machines composed of strips of wood in which the grain is disposed substantially perpendicular to the exposed surface.

3. A suction-box cover for paper-making machines composed of strips of wood having the grain disposed substantially perpendicular to the exposed surface and each having a plurality of grooves disposed longitudinally of the grain of the wood.

751,096. VALVE. JOSEPH W. NETHERY, Indianapolis, Ind., assignor to the Nethery Hydraulic Valve Company, Indianapolis, Ind., a Corporation of New Jersey. Filed Dec. 4, 1901. Serial No. 84,667. (No model.)



Claim.—1. The combination, in a valve, of a casing having a double wall, the inner wall and outer wall being united at or near the ends of said casing and also longitudinally along one side where a longitudinal perforation to serve as a by-pass is provided, said inner wall being nearly divided into two parts by a narrow circumferential slit through which the fluid enters the chamber therein, the cap and base of the valve-casing being also chambered to complete the above-mentioned by-pass, a starting-valve to said by-pass, and a main piston-valve suitably seated in the main-valve casing.

2. The combination, in a valve, of a suitable valve-casing, and a main piston-valve seated therein, two seats or cut-off points being provided whereby the fluid flow is shut off when the valve reaches its limit of travel in either direction, the space between the two cut-off points tapering gradually toward said cut-off points, whereby as the valve moves toward either end the available fluid-opening is decreased and the valve caused to seat slowly and easily instead of suddenly and violently, substantially as set forth.

3. The combination, in a valve, of a suitable valve-casing, a piston-valve operating therein, two seating or cut-off points situated at the limit of movement of said valve in either direction, guide-wings by which the valve in moving is kept to position, and spaces between said wings of greatest depth at a point intermediate the two seating or cut-off points and growing gradually shallower as said points are approached, substantially as and for the purposes set forth.

4. The combination, in a valve, of a suitable casing, a piston-valve therein, the piston-head whereof forms a partition dividing the interior of the valve into two chambers, a perforation through said piston-head whereby fluid is admitted slowly into the chamber above said head, and a centrally-pivoted spiral-edged cut-off gate to said orifice whereby the inflow of fluid therethrough may be accurately regulated and determined, substantially as set forth.

5. The combination, in a valve, of a suitable valve-casing, and a piston-valve mounted therein, said casing and valve being provided with three seating or cut-off points, one at each end of the travel of the valve, and the other near the termination of said travel as the valve approaches its seat, whereby a large or flushing discharge is first secured, and then a smaller or bowl-filling discharge, substantially as set forth.

751,097. METALLIC FURNITURE. ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,217. (No model.)

Claim.—1. In metallic furniture, the combination of a hollow sheet-metal stile, rail or other body portion having inwardly-projecting flanges or lips, a panel or like part fitting between said flanges, an interlocking connection between the flanges and panel, and means within the stile for holding the parts in interlocked position.

2. In metallic furniture, the combination of a hollow sheet-metal stile, rail or other body portion having inwardly-projecting flanges or lips, a panel or like part fitting between said flanges, and clamping means within the stile for holding the parts in interlocked position.



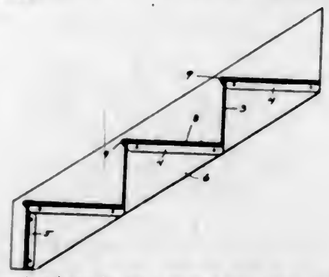
3. In metallic furniture, a stile, rail or other body portion having inwardly-projecting grooved flanges, a panel or like part inserted between said flanges and having a rib adapted to engage said grooves, and means for securing the panel between said flanges.

4. In metallic furniture, the combination of a hollow sheet-metal stile, rail or other body portion having inwardly-projecting grooved flanges, a panel or like part inserted between said flanges and having a rib adapted to engage said grooves, and a clamping device within the stile for securing the panel between said flanges.

5. In metallic furniture, a stile having inwardly-projecting flanges having recesses or grooves bent therein formed by bulged outer pieces, a panel or like part inserted between said flanges and having a rib adapted to engage said grooves, and a clamping device engaging said flanges beyond said bulged portions.

6. In metallic furniture, a stile, rail or other body portion having inwardly-projecting grooved flanges, a panel or like part inserted between said flanges and having ribs adapted to engage said grooves, and a slitted tubular section engaging said flanges beyond said grooves.

751,098. STAIRWAY. ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,218. (No model.)



Claim.—A stairway having a series of steps formed of a continuous piece of plate or sheet metal, and flanges formed integral with the risers of said steps and secured to the stringers.

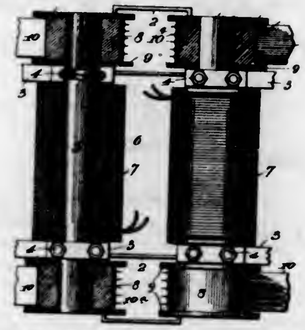
751,099. METALLIC FURNITURE. ENOCH OHNSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,219. (No model.)



Claim.—1. In metallic furniture, a stile, rail or other body portion having inwardly projecting flanges with tongues formed thereon, a panel or other part adapted to be inserted between said flanges, and a clamping device engaging said projecting portions beyond said tongues.

2. In metallic furniture, a stile, rail or other body portion having inwardly-projecting flanges with tongues formed thereon, a panel or other part being inserted between said projecting portions, and a slitted tubular section engaging said projecting portions beyond said tongues.

751,100. ELECTROMAGNETIC ORE-SEPARATOR. ELLEN M OVIATT and ALEXANDER DEAN, Denver, Colo. Filed May 3, 1901. Serial No. 58,607. (No model.)



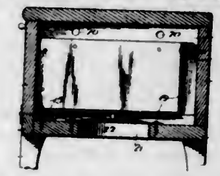
Claim.—1. A magnetic ore-separator comprising a pair of electromagnets each having a north and a south pole and a fixed coil, each pole of each magnet being arranged adjacent to the pole of opposite polarity of the other magnet, producing an induced current through both magnets, a plurality of revoluble pole members within the magnetic circuit of said magnets, and means rotating said members.

2. A magnetic separator comprising a pair of reversely-wound stationary solenoids, a core revoluble within each solenoid, providing pole members at the respective ends of each solenoid, and producing an induced current through both cores.

3. A magnetic separator comprising a pair of reversely-wound stationary solenoids, a core mounted within each solenoid and projecting from each end thereof, and revoluble pole members mounted on said projecting ends of the cores.

4. In a magnetic separator, the combination with a magnet having a revoluble pole, of a non-magnetic belt pliable in all directions and movable over the revoluble pole of the magnet and vibrating prongs projecting through said belt, and having flattened heads which contact with the pole of the magnet.

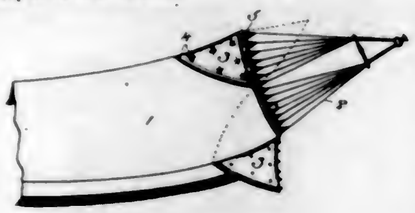
751,101. KITCHEN-TABLE. NILE J. PAINTER, Rowlesville, Ohio. Filed May 31, 1901. Serial No. 62,579. (No model.)



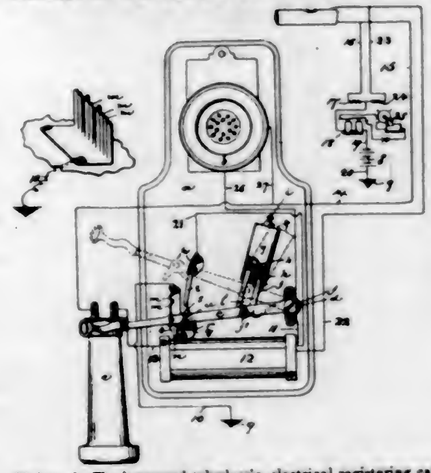
Claim.—A dough-raiser comprising a hollow body portion having an open side and an opening in its bottom, a metallic flange surrounding the opening, said flange projecting inwardly of the opening and deflected upwardly therefrom, a strip attached to the upper face of the bottom and spaced slightly inwardly from the edge thereof, a second strip attached to the front edge of the bottom and extending slightly above the upper surface thereof, strips attached to the inner faces of the ends and back of the body adjacent to their upper edges, a top disposed upon the upper edges of the back and ends, strips attached to the inner faces of the ends adjacent to their front edges, a metallic lining attached to the strips with the exception of the second-named strip and having its edges bent over the corners of said strips and a door hinged to the second-named strip and adapted to close the open side of the body and to bear against the overturned edges of the lining to hold the lining against the strip upon the upper faces of the bottom and those adjacent to the front edges of the ends and form an air-tight joint therewith.

751,102. HAMMOCK. ISAAC B. PALMER, Middletown, Conn. Filed July 1, 1902. Serial No. 113,896. (No model.)

Claim.—The combination with the hammock-body, of corner-pillows removably attached thereto along each of two adjacent edges of the pillow, whereby the pillows may be swung independently or together either over onto the suspension-cords or over the edge of the body or removed altogether.



751,103. TELEPHONIC CALL INSTRUMENT. JOHN D. PEACHEY, East Orange, N. J. Filed Jan. 6, 1903. Serial No. 137,991. (No model.)



Claim.—1. The improved telephonic electrical registering call system, comprising a registering device, battery and connections stationed at a central office, telephone set stationed distant from said central office in electrical connection with said office and its battery and registering device, having, its receiver-hook fulcrumed at one side of its case opposite that through which the hooked end extends and having intermediate of said hooked end and its fulcrum a pneumatic check comprising a cylinder and piston connected to said receiver-hook, a contact-point and a spring for raising said hook when the said hook is relieved of the weight of the receiver, and a comb having a series of contact-points stationed in the path of the contact-point of the hook whereby when the hook rises automatically under the power of the spring, a contact of points will be made and records of the contacts effected upon the register at the central office preliminary to a conversation of call being transmitted over the wires and electrical connections, said parts being combined, substantially as set forth.

2. The improved telephonic registering call system comprising a registering device, battery and electrical connections, and a telephonic set having a receiver-hook fulcrumed at one end and having at its opposite end the prongs to receive the receiver of the said set, a piston pivoted to said lever at a point intermediate of said fulcrum and prongs, a pneumatic vented cylinder in which said piston operates, spring adapted to raise said hook when the latter is relieved of the weight of its receiver, and a series of contact-points electrically connected with said register, the individual points being adapted to successively contact with the hook as it rises, and close electrical connection with the register, whereby a record will be effected on said register preliminary to the transmission of a conversation over the telephonic line of connections, substantially as set forth.

3. The improved telephonic registering call system comprising a registering device, battery and electrical connections, and a telephonic set having a receiver-hook and spring adapted to raise said hook when the latter is relieved of the weight of its receiver, and a series of contact-points electrically connected with said register, the individual points being adapted to successively contact with the hook as it rises and close electrical connection with the register, and a pneumatic check in connection with the hook to retard its movements, said check comprising a piston pivoted on said receiver and a vented and pivoted cylinder into which the said piston extends, whereby a record will be effected on said register preliminary to the transmission of a conversation over the telephonic line of connections, substantially as set forth.

4. The combination, in telephonic registering call system, with the telephonic set having a receiver and receiver-support and a spring to operate the support when relieved of the weight of the receiver, of a bell-crank contact fulcrumed on said receiver-support and a series of contacts adapted to engage with the said bell-crank contact, and stops adapted to shift said bell-crank contact and limit the movement of the support, substantially as set forth.

5. The combination, in a telephonic registering call system, with the telephonic set having a receiver, a movable receiver-support and a spring to move said support when the receiver is withdrawn therefrom, of a bell-crank contact fulcrumed on said receiver-support and having, distant from the fulcrum, projecting bearings to engage the edges of the support, the movement of bell-crank contact being limited by said bearings, and a series of cooperating contacts, and electrical connections arranged and adapted to operate, substantially as set forth.

6. In a telephonic call system, the combination with the receiver-hook fulcrumed at one end and having the prongs between which the receiver may be seated at the opposite end, of an intermediate piston connected to said hook, a vented cylinder in which the said piston works, a spring adapted to force the piston lengthwise of the cylinder, and an electrical contact-terminal arranged on said lever at a point between the piston and the prongs and adapted to engage a series of contacts stationed adjacent to said receiver-hook, substantially as set forth.

751,104. METHOD OF MANUFACTURING CLOISONNÉ WARE. THEOPHIL PFEIFER, London, England. Filed May 23, 1902. Serial No. 108,272. (No specimens.)



Claim.—1. The herein-described method of producing cloisonné ware consisting in covering a foundation-plate with a layer of adhesive material, shaping the cloisons to form the design and temporarily affixing the same upon the adhesive material on the foundation-plate, partially filling the cells of the cloisons with tesseræ, removing the cloisons, and filling the spaces left empty by the removal of the cloisons, with a suitable filling material.

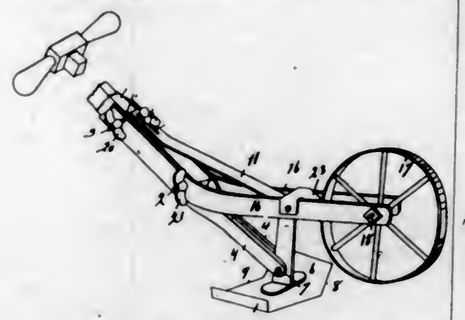
2. The herein-described method of producing cloisonné ware consisting in covering a foundation-plate with a layer of adhesive material, shaping the cloisons to form the design and temporarily affixing the same upon the adhesive material on the foundation-plate, partially filling the cells of the cloisons with tesseræ, placing cement over the tesseræ in the cells, spraying the work with hot water, heating the foundation-plate, removing the cloisons and filling the spaces between and around the configurations so formed, substantially as specified.

3. The herein-described method of producing cloisonné ware, consisting in covering a foundation-plate with wax, shaping the cloisons in parallel strips to form the design and temporarily affixing the same upon the wax on the foundation-plate, partially filling the cells of the cloisons with tesseræ, removing the cloisons and filling the spaces between the configurations left empty by the removal of the cloisons with a suitable filling material, substantially as specified.

4. The herein-described method of producing cloisonné ware consisting in covering a foundation-plate with wax, shaping the cloisons in parallel strips to form the design and temporarily affixing the same upon the wax on the foundation-plate, partially filling the cells of the cloisons with tesseræ, placing cement over the tesseræ in the cells, spraying hot water over the work, heating the foundation-plate, removing the cloisons, and filling the spaces between the configurations left empty by the removal of the cloisons, with a suitable filling material, substantially as specified.

5. The herein-described method of producing cloisonné ware consisting in covering a foundation-plate with wax, shaping the cloisons in parallel strips to form the design and temporarily affixing the same upon the wax on the foundation-plate, partially filling the cells of the cloisons with tesseræ, placing cement over the tesseræ in the cells, spraying hot water over the work, heating the foundation-plate, removing the cloisons, and filling the spaces between the configurations left empty by the removal of the cloisons, with a suitable filling material, substantially as specified.

751,105. COMBINED WHEEL AND HAND HOE. EDMUND PIGGOTT, Detroit, Mich., assignor to Piggott Manufacturing Company, Ltd., Detroit, Mich., a Partnership. Filed Oct. 13, 1902. Serial No. 127,005. (No model.)



Claim.—1. In a hoe, the combination of a handle, a blade having a vertical standard, said standard being pivotally attached to the handle, a brace-rod pivotally attached at its lower to the upper end of the standard of the blade, the upper end of said brace-rod extending ooto the handle, and being movably attached thereto.

2. In a hoe, the combination with the handle, parallel bars attached thereto and extending from the end thereof, a blade having a vertical standard, said standard of the blade being pivoted between said bars so as to swing therebetween to allow a reversal of said blade, a brace-rod pivoted to the upper end of said standard and connected to the handle so as to adjust thereon.

3. In a hoe, the combination of a handle, parallel bars attached thereto, and projecting from the end thereof, a blade having a vertical standard, the standard of the blade pivoted between the projecting ends of said bars, a brace-rod pivoted to the upper end of said standard, the upper end of said rod lying upon the handle, and having a longitudinal slot therein, and a bolt passing through the handle and through said slot.

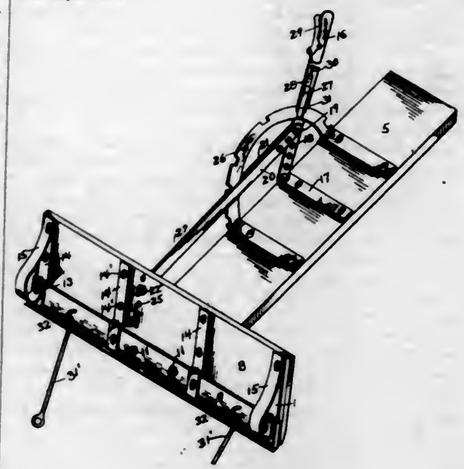
4. In a hoe, the combination with the handle, a blade pivoted thereto, means for adjusting said blade, side bars mounted upon the handle, a wheel journaled between the forward ends of said bars, and means for allowing a vertical movement of the handle between said bars at their upper ends.

5. In a hoe, the combination of the handle, a blade pivoted thereto, means for adjusting said blade, side bars mounted upon the handle and extending forward of the blade, a wheel journaled between the forward ends of said bars, a pivot-bolt passing through the bars near the lower end of the handle, transverse slots in said bars near their upper ends, and a bolt passing through the handle and through said slots.

751,106. LAND-SCRAPER. CHARLES R. REED, Sunnyside, Wash., assignor of one-half to George W. Holloway, Brawley, Cal. Filed Apr. 6, 1903. Serial No. 151,309. (No model.)

Claim.—In a land-scraper, the combination of a base-board, a scraper-board hinged transversely to the base-board, a scraper-blade at the lower edge of the scraper-board, transverse brace-plates disposed upon the front faces of the scraper-board and the scraper-blade, spring-shoes disposed with their ends upon the brace-plates, attaching-bolts passed through each shoe at one end and through a brace-plate and the scraper-board and at the opposite end through the shoe, the brace-plate, the scraper-blade and scraper-board, and means mounted upon the base-board and connected with the scraper-board for shifting the latter.

751,106.



751,107. ADJUSTABLE GAS-CHECK. VICTOR A. RETTICH, New York, N. Y., assignor of one-half to Stanton D. Bullock, Montclair, N. J. Filed June 10, 1903. Serial No. 160,901. (No model.)



Claim.—1. An adjustable gas-check having a jet-orifice formed by an iris diaphragm, substantially as described.

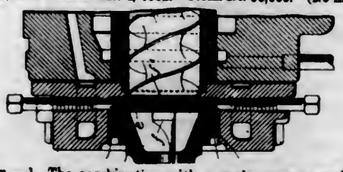
2. An adjustable gas-check comprising a set of curved leaves, each pivoted at its upper and lower ends to relatively rotatable parts to constitute an adjustable opening in the gas passage-way, substantially as described.

3. An adjustable gas-check comprising a set of curved leaves each pivoted at one end to a rotatable annulus and at the other end to the body of the gas-check, to constitute an adjustable opening in the gas passage-way, substantially as described.

4. An adjustable gas-check comprising a nipple and perforated cap constituting the body of the gas-check, and a set of curved leaves and a rotatable annulus in the space between the nipple and cap, each curved leaf being pivoted at one end to the rotatable annulus and at the other end to the body of the gas-check, substantially as described.

5. An adjustable gas-check comprising a nipple and a perforated cap, with a cut-away portion, constituting the body of the gas-check, and a set of curved leaves and a rotatable annulus in the space between the nipple and cap, the rotatable annulus being provided with a handle lying within the cut-away portion of the cap, and each curved leaf being pivoted at one end to the rotatable annulus and at the other end to the body of the gas-check, substantially as described.

751,108. TUBE-MAKING MACHINERY. VERNON ROYLE, Paterson, N. J. Filed Mar. 4, 1903. Serial No. 96,669. (No model.)



Claim.—1. The combination with a main support and a die-block, of a ring arranged to clamp the die-block to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

2. The combination with a main support, a die-block and a core,

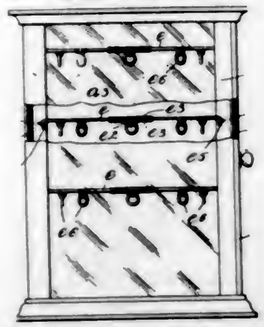
of a ring arranged to clamp the die-block and core to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

3. The combination with a main support, a die-block, a core and a core-bridge, of a ring arranged to clamp the die-block core and core-bridge to the main support, the said die-block being seated within and supported by the said ring independently of the clamping action of the ring.

4. The combination with the head of a tube-making machine, of a core-bridge and core carried by the bridge, means for holding the core-bridge and hence the core in different rotary adjustments and in different bodily adjustments with respect to the axis of the head, a die-block bearing against the core-bridge and a ring engaged with the head and serving to hold the die-block and core-bridge against longitudinal displacement.

5. The combination with the head of a tube-making machine, a core and core-bridge seated therein, of a die-block free to move toward and away from the core-bridge without engaging the head and a clamping-ring having a screw-threaded engagement with the head and forming a support for the die-block independently of its clamping action.

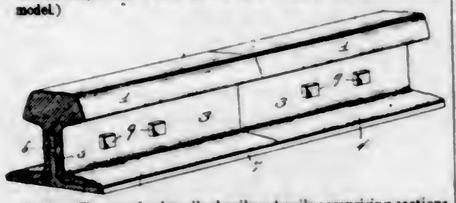
751,109. **DISPLAY DEVICE.** JULIUS ROSS, New York, N. Y. Filed Oct. 27, 1903. Serial No. 178,683. (No model.)



Claim.—1. A display-case provided with transparent sides and the corners of which are provided with attaching devices, and suspending frames connected with said attaching devices and comprising a central member and radial arms connected therewith four of which are adapted to be detachably connected with said attaching devices, substantially as shown and described.

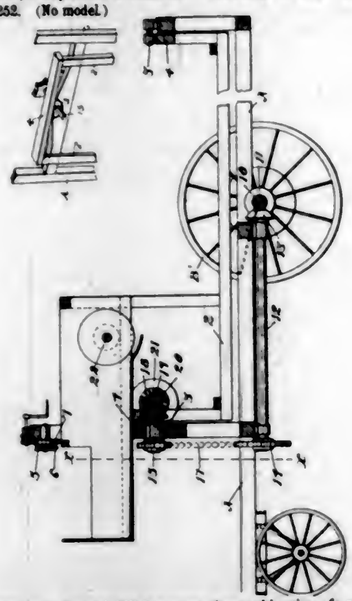
2. A display-case provided with transparent sides and the corners of which are provided with attaching devices, and suspending frames connected with said attaching devices and comprising a central member and radial arms connected therewith four of which are adapted to be detachably connected with said attaching devices, and suspending devices connected with said radial arms, substantially as shown and described.

751,110. **RAILROAD-RAIL.** JOHN O. SCHWARTS and SHERMAN NELIGH, Hope, Ind. Filed Apr. 10, 1903. Serial No. 152,094. (No model.)



Claim.—The herein-described railroad-rails comprising sections thereof having central longitudinal rectangular grooves extending through the web of the same from end to end and terminating in curved shoulders at the base-flanges of the rails, and a T-shaped rail-plate having its vertical portion constructed of the same configuration as said grooves and said curved shoulders of the base-flanges so as to be wholly inclosed within the same, the base portion of the T-plate being constructed to extend across the under surface of the base-flanges of the rails, the outer edges of the base portion of the T-plate being flush with outer edges of the base-flanges of the rails, and the slots in the webs of the rail-sections and vertical portion of the T-shaped rails and bolts secured in said slots, substantially as specified.

751,111. **SIDEHILL-HARVESTER.** ADAM W. SEVERANCE, Walla Walla, Wash., assignor to Holt Manufacturing Company, Stockton, Cal., a Corporation of California. Filed Aug. 11, 1902. Serial No. 119,252. (No model.)



Claim.—1. In a sidehill-harvester the combination of a main shaft and bearing-wheels thereon; a main-wheel frame, having a header attachment at one side; a threshing and cleaning frame; journals at diametrically opposite ends of the threshing-frame and extending longitudinally in line one with the other upon which journals the threshing-frame is suspended and about which it is tiltable; and means for transmitting motion from the main-wheel shaft to the mechanism carried upon the threshing-frame.

2. In a sidehill-harvester the combination of a main frame having bearing-wheels; a header attachment adapted to follow the contour of the ground; a supplemental frame having horizontal pivots at diametrically opposite ends and disposed one in line with the other, by which the said supplemental frame is suspended within the main frame; a threshing and cleaning mechanism carried upon the supplemental frame; and means for transmitting motion from the main wheels to the mechanism carried upon the threshing-frame.

3. The combination in a header and thresher of a main-wheel frame; a header attachment adapted to follow the contour of the ground; a supplemental frame having transverse timbers at the ends; horizontal pivots extending longitudinally in line and one supported upon each of said transverse timbers whereby the supplemental frame is capable of swinging transversely of the main frame; threshing and cleaning mechanism carried upon the supplemental frame; and mechanism including a driven shaft and intermeshing gears whose axes are in the horizontal plane of the pivots about which the supplemental frame swings transversely.

4. The combination in a header and thresher of a main-wheel frame and a header attachment adapted to follow the contour of the ground; a supplemental frame carrying a threshing and cleaning mechanism; transverse timbers at opposite ends of the supplemental frame; a horizontal pivot-shaft supported upon each of said timbers said shafts disposed longitudinally in line whereby the supplemental frame is tiltable from side to side relative to the main frame; and a device by which said tilting motion is regulated and controlled.

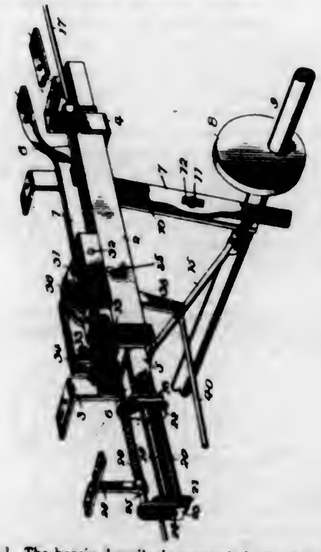
5. The combination in a header and thresher of a main-wheel frame; a header attachment adapted to follow the contour of the ground; a supplemental frame having transverse timbers at the ends; horizontal pivot-shafts centrally located relative to the timbers and lying longitudinally in line one with the other; threshing and cleaning mechanism carried by the main frame; a pulley and gearing connecting the main and supplemental frame; and means for operating said gear to maintain the swinging frame transversely level.

6. The combination of a main-wheel frame; a header attachment adapted to follow the contour of the ground; a main shaft and bearing-wheels thereon; a supplemental swinging frame; longitudinal pivots at opposite ends of the swinging frame and disposed axially in line; mechanism to turn the swinging frame with relation to the main frame; a shaft journaled longitudinally and centrally upon the main frame; bevel-gears by which motion is transmitted from the main shaft to the longitudinal shaft, a shaft journaled on the swinging frame in line with the suspending pivots thereof; sprocket-wheels carried by said longitudinal shafts; and a chain by which motion is transmitted from the main-frame shaft to the supplemental-frame shaft.

7. The combination in a header and thresher of a main frame having bearing-wheels and axle, a supplemental frame suspended by longitudinal pivots upon the main frame, and tiltable from side to side about its pivots, a longitudinal shaft centrally journaled upon the main frame, a similar shaft journaled upon the supplemental frame in line with the suspending pivots thereof, sprocket-wheels and connecting-chain for transmitting motion to the supplemental-frame shaft, a transverse shaft journaled upon the supplemental frame and bevel-gears by which motion is transmitted thereto from the longitudinal shaft.

8. The combination in a header and thresher of a main-wheel frame, a supplemental frame journaled thereto by longitudinal pivots whereby it is adapted to swing transversely, means for adjusting and limiting the swing of said supplemental frame, means for transmitting motion to the mechanism carried thereon consisting of a transverse shaft, a longitudinal shaft journaled in the line of the supports of said frame, bevel-gears connecting the two shafts, a longitudinal shaft centrally journaled upon the main frame, bevel-gears by which motion is transmitted thereto from the main-wheel shaft and mechanism whereby motion is transmitted from the longitudinal shaft on the main frame to the longitudinal shaft on the supplemental frame.

751,112. **CAR-BRAKE.** ELMER C. SHAVER, New York, N. Y. Filed Oct. 26, 1901. Serial No. 80,140. (No model.)



Claim.—1. The herein-described automatic brake for railway-cars, &c., comprising a suitable frame, a pair of coöperating levers, a cam, a rack-bar coöperating with each of said levers provided with detents, means connected with each end of the car for setting and releasing each of said detents whereby the brake coöperating with the wheel and connected with said rack-bars may be rapidly set to any desired extent and as quickly released, all combined substantially in the manner specified and for the purpose set forth.

2. The combination with a car-truck provided with an eccentric and brakes, of a depending lever and an auxiliary lever pivoted thereto and normally resting parallel therewith, devices connecting said levers with the brakes actuated by said eccentric and means for setting and retaining said brakes in operative condition as set forth.

3. The combination with a car-truck provided with brakes, of a depending lever, an auxiliary lever pivoted midway thereto, devices connecting said depending lever with the brakes and means for operating said devices, as set forth.

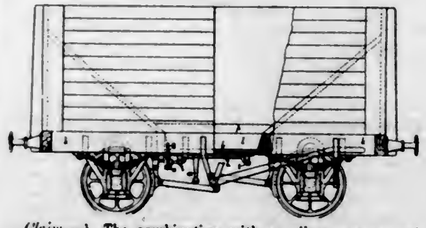
4. The combination with a vehicle provided with brakes, means for setting the brakes, a pawl-and-ratchet mechanism connected with said means for holding them set, comprising in part a horizontally-disposed shaft mounted in movable bearings, said pawl-and-ratchet mechanism being mounted upon and carried by said shaft, all combined as set forth.

5. The combination with a truck provided with brakes, means for setting the brakes, pawl-and-ratchet devices for holding them set comprising toothed bars and a sliding frame carrying said pawl-and-ratchet devices and a controller therefor, all arranged as set forth.

6. The combination with a car-truck provided with brakes, of an eccentric carried thereby, means actuated by said eccentric for setting the brakes, suitable controlling mechanism comprising in part a shaft 42 having an arm at its lower end and a handle at its upper end, an arm 41 and rod 27 adapted to move said means into engagement with said eccentric, duplicate pawl-and-ratchet mechanisms alternately coöperating with said means whereby, if desired, every revolution of the wheels may be utilized to successively actuate the brakes until the car is stopped, as set forth.

7. The combination of a car-truck provided with brakes, means for setting said brakes comprising in part a controlling rack-bar and a holding rack-bar, said bars having coöperating means for releasing the controlling-bar whereby said controlling-bar may return to its initial position independently of the holding-bar as set forth.

751,113. **RAILWAY WAGON OR TRUCK.** JOHN SHAW, Featherstone, near Pontefract, England. Filed Oct. 17, 1903. Serial No. 177,487. (No model.)



Claim.—1. The combination, with a railway-wagon, and discharging-doors hinged to the sides of its bottom portion; of handle-arms for operating the said doors, supports secured to the middle part of the bottom of the said wagon, cranked locking-bars for the said doors journaled in the said supports, and handle-bars for oscillating the said locking-bars.

2. In railway wagons or trucks in which the coal or other material is discharged through bottom doors opening outward, the mechanism for controlling and operating said doors, comprising curved arms *a*, bracket *c*, sliding bar *e*, handle *s*, pin *d*, bracket *m*, crank *o*, locking-bar *h*, bracket *i*, springs *f* and *g*, strap *n*, and door-hand *r*, all arranged and operated substantially as described.

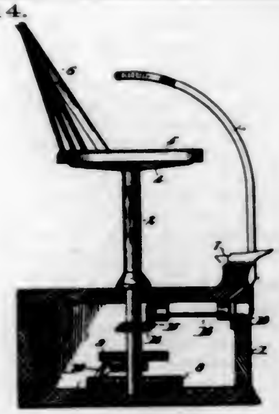
3. In railway wagons or trucks in which the coal or other material is discharged through bottom doors opening outward, the mechanism for controlling and operating said doors, comprising curved arms *a*, sliding bar *e*, handle *s*, crank *o*, locking-bar *h*, and bracket *i*, all arranged and operating substantially as described.

4. In railway wagons or trucks in which the coal or other material is discharged through bottom doors opening outward, the combination of, hinged bottom doors each opened closed and secured independently of the other by mechanism arranged and operated as described, with springs attached to the wagon or truck body and springs attached to the under side of the said doors; substantially as described.

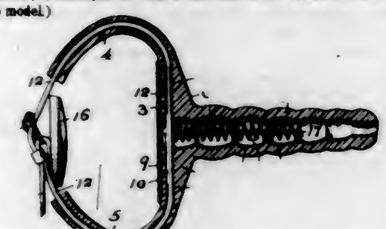
751,114. **SHOE-POLISHING CHAIR.** JOHN C. SIMMING, Baltimore, Md. Filed Oct. 15, 1903. Serial No. 177,198. (No model.)

Claim.—In combination with a rotary chair having ratchet mechanism whereby it may be rotated in one direction only, a guard coöperating with the chair to prevent the occupant of the chair leaving the same when the chair is in the position necessary to its peculiar use, and a counting apparatus whereby the number of complete revolutions of the chair is recorded, substantially as, and for the purpose specified.

751,114.



751,115. SPREADER FOR THE LEGS OF HORSES. JAMES STANLEY, Newark, N. J. Filed Nov. 11, 1902. Serial No. 130,835. (No model.)



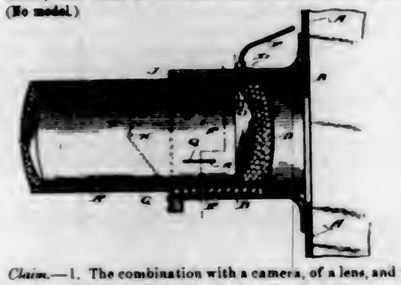
Claim.—1. A spreader for the legs of horses consisting, essentially, of a main body portion provided with a laterally-extending channel 3, a rearwardly-extending arm integrally united with said body portion, having a tubular portion 8 extending at a right angle, or approximately so, from said channel 3, oppositely-extending members 4 and 5 integrally united with said main body portion, each member having a tubular portion in communication with said laterally-extending channel 3 in the said main body portion, and a fastening-strap arranged in the tubular portions of said members 4 and 5 and in said channel 3, said strap having its respective ends projecting from the free end portions of said members 4 and 5, and means connected with the free ends of said strap for attaching said spreader with its members 4 and 5 in curved relation about the leg of the horse, substantially as and for the purposes set forth.

2. A spreader for the legs of horses consisting, essentially, of a main body portion provided with a laterally-extending channel 3, a rearwardly-extending arm integrally united with said body portion, having a tubular portion 8 extending at a right angle, or approximately so, from said channel 3, oppositely-extending members 4 and 5 integrally united with said main body portion, each member having a tubular portion in communication with said laterally-extending channel 3 in the said main body portion, a fastening-strap arranged in the tubular portions of said members 4 and 5 and in said channel 3, said strap having its respective ends projecting from the free end portions of said members 4 and 5, means connected with the free ends of said strap for attaching said spreader with its members 4 and 5 in curved relation about the leg of the horse, and a coiled spring in the tubular portion 8 of said rearwardly-extending arm, substantially as and for the purposes set forth.

3. A spreader for the legs of horses consisting, essentially, of a main body portion provided with a laterally-extending channel 3, a rearwardly-extending arm integrally united with said body portion, having a tubular portion 8 extending at a right angle, or approximately so, from said channel 3, oppositely-extending members 4 and 5 integrally united with said main body portion, each member having a tubular portion in communication with said laterally-extending channel 3 in the said main body portion, a fastening-strap arranged in the tubular portions of said members 4 and 5 and in said channel 3, said strap having its respective ends projecting from the free end portions of said members 4 and 5, means connected with the free ends of said strap for attaching said spreader with its members 4 and 5 in curved relation about the leg of the horse, a reinforcing-lining in the tubular portion 8 of said rearwardly-extending arm, and a reinforcing device within said lining, substantially as and for the purposes set forth.

4. A spreader for the legs of horses consisting, essentially, of a main body portion provided with a laterally-extending channel 3, a rearwardly-extending arm integrally united with said body portion, having a tubular portion 8 extending at a right angle, or approximately so, from said channel 3, oppositely-extending members 4 and 5 integrally united with said main body portion, each member having a tubular portion in communication with said laterally-extending channel 3 in the said main body portion, a fastening-strap arranged in the tubular portions of said members 4 and 5 and in said channel 3, said strap having its respective ends projecting from the free end portions of said members 4 and 5, means connected with the free ends of said strap for attaching said spreader with its members 4 and 5 in curved relation about the leg of the horse, a reinforcing-lining in said tubular portion 8 of said rearwardly-extending arm, and a coiled spring within said lining, substantially as and for the purposes set forth.

751,116. PHOTOGRAPHIC LENS FOR CAMERAS. FERDINAND STARK, New York, N. Y. Filed Nov. 5, 1903. Serial No. 179,880. (No model.)



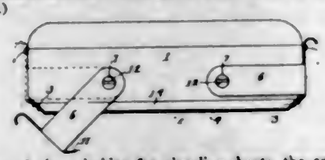
Claim.—1. The combination with a camera, of a lens, and means for changing the focus of the lens during the time of exposure, for substantially the purposes set forth.

2. The combination with a camera, of a lens, and means for changing the focus of the lens to and from the object during the time of exposure, for substantially the purposes set forth.

3. The combination with a camera, of a lens, and means for moving the lens to and from the object during the time of exposure, and means for adjusting the amount of said movement, for substantially the purposes set forth.

4. The combination with a camera, of a lens, and means for changing the focus of the lens during the time of exposure substantially upon a line extending between the object and the camera, for substantially the purposes set forth.

751,117. HOLDER FOR ABRADING-SHEETS. DOLPHUS A. SWAGERTY, Knoxville, Tenn. Filed Apr. 15, 1903. Serial No. 152,717. (No model.)



Claim.—1. In a holder for abrading-sheets, the combination with a body having at each end a locking device and having a bottom, 2, comprising offset end portions, 3, of clamping members each formed for engaging one of said locking devices, and each having a lip to bear against one of said offset portions, 3.

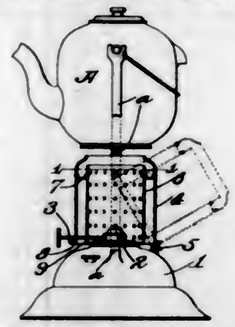
2. In a holder for abrading-sheets, the combination with a body, 1, having a bottom, 2, comprising offset portions, 3, of hinged clamping members each having a lip for bearing upon the adjacent offset portion, 3, of the bottom, 2, and a latch mechanism for securing one of said members and another latch mechanism for securing the other of said members.

3. In a holder for abrading-sheets, the combination with a body, 1, having a bottom, 2, comprising offset portions, 3, of hinged clamping members each having a lip for bearing upon the adjacent offset portion, 3, and a hasp, and means for engaging said hasp.

4. In a holder for abrading-sheets, the combination with a body, 1, having a bottom, 2, comprising offset end portions, 3, of clamping members each having a lip extending along one of said offset portions, and two arms having their ends pivotally secured to said body, and means at each end of said body for holding the adjacent clamping member with said lip bearing upon said offset portion.

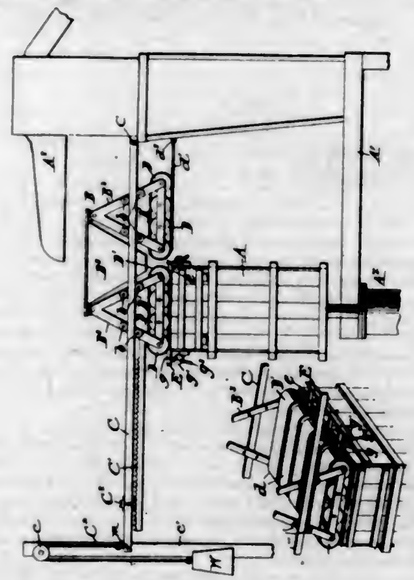
5. In a holder for abrading-sheets, the combination with a body having the countersinks, 13, a bottom, 2, with offset end portions, 3, of clamping members having lips adapted to bear against said offset portions, arms extending into said countersinks, and screws securing said arms pivotally in said countersinks.

751,118. HEATING-LAMP. CURT THIENSCH, St. Louis, Mo. Filed Oct. 22, 1903. Serial No. 178,104. (No model.)



Claim.—The combination with a heating-lamp comprising a body portion, a burner, and a wick-controlling stem for said burner, of a guard about said burner and comprising an outer tubular shell having a slot opening upon its lower edge and receiving said wick-controlling stem, hinge connection between said shell and said body portion of said lamp upon the side of said burner opposite said stem, an inner, perforated, tubular shell about said burner and having a slot opening upon its bottom edge and receiving said wick-controlling stem, one of said shells resting upon said stem, said shells being spaced from each other at their top and bottom and having their bottom edges spaced from said body portion of said lamp, and supports extending between said shells and connected thereto; substantially as described.

751,119. COTTON-PRESS. ASHER D. THOMAS, Little Rock, Ark. Filed Jan. 29, 1903. Serial No. 141,023. (No model.)



Claim.—1. In a cotton-press, the combination of a bale-forming mechanism, devices adapted for insertion between the bale-forming mechanism and top of the bale after the formation of the latter for holding the bale in its compressed condition, and means for raising the bale-forming mechanism from the bale to permit the latter to be moved from under the same.

2. In a cotton-press, the combination of bale-forming mechanism, a cut-off for insertion between the bale-forming mechanism and top of the bale after the formation of the latter, means for holding the cut-off upon the top of the bale, and devices for moving the bale-forming mechanism from contact with the top of the bale to permit the latter to be moved from under the same.

3. In a cotton-press, the combination of a preliminary bale-forming mechanism, devices for acting upon the top of the bale to hold the same in position after the formation of the bale, means for thereafter moving the preliminary bale-forming mechanism from contact with the top of the bale, and a counterweight sustaining the bale-forming mechanism.

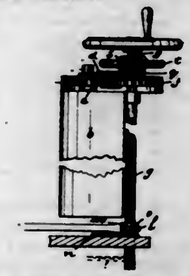
4. In a cotton-press, the combination of a folding and compressing mechanism, means for reciprocating said mechanism for laying material into the form of a bale, a cut-off adapted to be inserted between the folding and compressing mechanism and the top of the bale, means for holding the cut-off in place on top of the bale to maintain the material of the bale in compressed condition, and means for raising the folding and compressing mechanism from the bale to permit the same to be removed therefrom.

5. In a cotton-press, the combination of folding and compressing mechanism having folding and pressing surfaces, a cut-off adapted to be inserted between the said mechanism and top of the bale after the formation of the latter, means for holding the cut-off against the top layers of the bale, and means for removing the folding and pressing surfaces from the top of the bale to permit the latter to be removed therefrom.

6. In a cotton-press, the combination of folding and compressing mechanism, a track on which said mechanism is movable, means for reciprocating said mechanism, a cut-off adapted to be inserted between said mechanism and the top of the bale after the formation of the latter, devices for connecting the cut-off to the bale-box to hold the bale in compressed condition said track being pivotally mounted to permit the folding and compressing mechanism to be raised from the top of the bale, substantially as described.

7. In a cotton-press, the combination of bale-forming mechanism, devices adapted for insertion between the bale-forming mechanism and top of the bale after the formation of the latter for holding the material of the bale in its compressed condition, and means for relatively separating the bale-forming mechanism and bale in a substantially vertical direction after the insertion of said devices to permit the bale and bale-forming mechanism to be relatively moved in a substantially horizontal direction.

751,120. ELECTRICAL CONTROLLER AND BRAKE-OPERATING DEVICE. WALTER W. TICE, Rahway, N. J. Filed Apr. 7, 1903. Serial No. 151,432. (No model.)



Claim.—1. The combination with the electric controller-shaft and brake-shaft, of cog-wheels *e*, *f*, arranged respectively on said shafts and directly engaging one another, one of said cog-wheels having teeth omitted, and a hand-wheel arranged on the brake-shaft, substantially as set forth.

2. The combination with the electric controller-shaft and brake-shaft, of cog-wheels *e* and *f*, arranged respectively on said shafts, and directly engaging one another, one of said cog-wheels having teeth omitted and permitting an independent movement of the cog-wheel of the brake-shaft with reference to the cog-wheel of the controller-shaft and a finger and apertured arm or plate arranged

on said cog-wheels to bring said cog-wheels into intermeshing relation and means for turning the brake-shaft, substantially as set forth.

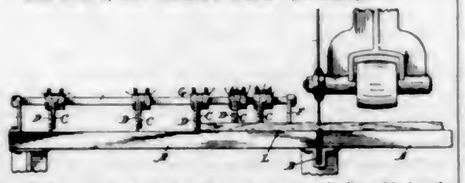
3. The combination with the controller-shaft, of a cog-wheel *c*, having at one side teeth omitted and an aperture, a cog-wheel having a finger to enter said aperture, a brake-shaft carrying the last-named cog-wheel and a hand-wheel *h*, substantially as set forth.

4. The combination with the controller-shaft, of two engaging cog-wheels, one cog-wheel being fastened upon said controller-shaft and having teeth omitted, and the other cog-wheel being fastened upon a brake-shaft and being provided with a threaded part, said brake-shaft having a handle whereby it may be rotated by the motorman and having a clutch member fixed thereon and a threaded handle arranged on said brake-shaft and engaging the threaded part of the said other cog-wheel whereby said cog-wheel may be raised or lowered to or from engagement with its cooperating cog-wheel, substantially as set forth.

5. The combination with the controller and its shaft *a*, of a cog-wheel *c*, arranged on said shaft, a second cog-wheel immediately engaging said cog-wheel *c*, and having movements both with and independent of the first said cog-wheel, the said second cog-wheel being arranged on a brake-shaft with a handle *h*, and having a threaded hub and clutch member said brake-shaft having said handle *h*, and a clutch member fixed to said shaft and means for effecting an engagement and release of the said clutch members, substantially as set forth.

6. The combination with the controller and its shaft *a*, of a cog-wheel *c*, on said shaft having teeth omitted and having an apertured plate, a second cog-wheel immediately engaging said cog-wheel *c*, and having a finger *k*, threaded hub and clutch member, a brake-shaft carrying said cog-wheel *c*, and having a handle *h*, fixed clutch member and a threaded handle engaging the said threaded hub, substantially as set forth.

751,121. AUTOMATIC GAGE. CHARLES H. TIDEY, Newark, N. J. Filed June 22, 1903. Serial No. 162,636. (No model.)



Claim.—1. In an automatic gage, a series of adjustable brackets, and a corresponding series of gages supported on said brackets and movable relative thereto, and also adjusted thereby.

2. In an automatic gage, a support, brackets adjustable longitudinally of said support and adapted to adjust lumber laterally, and gages supported on said brackets and movable thereon, and adapted to engage the end of the lumber and adjust the same longitudinally.

3. In an automatic gage, a rod, brackets adjustable longitudinally of said rod and non-rotative thereon, and gages pivoted on said brackets and adapted to swing forward of the plane of said brackets.

4. In an automatic gage, a series of adjustable brackets, a corresponding series of gages pivoted on said brackets, and means for automatically adjusting the gages about the axis of their pivots.

5. In an automatic gage, a rod, brackets non-rotative on said rod and longitudinally adjustable thereon, gages pivoted on said brackets, and means for automatically adjusting said gages on their pivots.

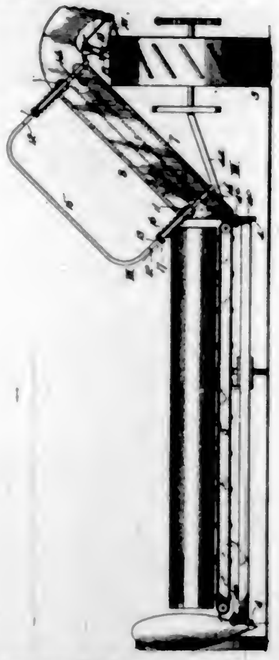
6. In an automatic gage, a rod, brackets having sleeves adjustable on said rod, gages journaled on the sleeves and means for automatically adjusting the gages about the axis of the sleeves.

7. An automatic gage comprising a square rod, brackets having sleeves provided with square openings to receive the rod, and adjustable on the rod, gages journaled on the sleeves, and means for automatically adjusting the gages about the axis of the sleeves.

8. An automatic gage comprising a square rod, brackets having sleeves provided with square openings to receive the rod and horizontally adjustable on the rod, gages journaled on the sleeves, and weights attached to the gages.

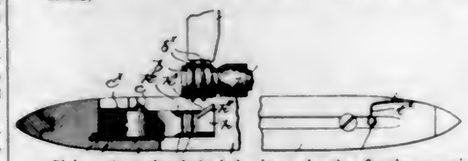
751,122. HARVESTING-MACHINE. FRANKLIN P. TIPTON, Cunningham, Kans. Filed Feb. 7, 1903. Serial No. 142,422. (No model.)

Claim.—1. In a machine of the character described, transverse bars over the elevator and suitably-supported, spring-depressed rods extending slidingly through said bars and provided with bearing-boxes at their lower ends, and the upper endless conveyer of the elevator with its shafts journaled in said boxes.



2. In a machine of the character described, transverse bars over the elevator and suitably-supported, spring-depressed rods extending slidingly through said bars and provided with bearing-boxes at their lower ends, the upper endless conveyer with its shafts journaled in said boxes, and cotter-pins secured to said rods above the transverse bars.

751,123. SELF-THREADING LOOM-SHUTTLE. WILLIAM C. TROMBLY, Lowell, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 23, 1903. Serial No. 182,343. (No model.)



Claim.—1. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the filling-carrier, and means movable with the shuttle to cooperate with an incoming filling-carrier and cause longitudinal movement of the shuttle in either direction to properly position the jaws to receive the filling-carrier.

2. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the head of a filling-carrier, and means on the holding-jaws to cooperate with an incoming filling-carrier and properly position the jaws to receive the head of such incoming filling-carrier.

3. A shuttle-body having a chamber for the reception of a filling-carrier, having its head provided with annular projections, holding-jaws located within and at one end of the chamber and provided on their inner faces with notches to receive such annular projections, and means on the jaws to cooperate with the head of an incoming filling-carrier and properly position the jaws to bring the notches thereof into the paths of the annular projections on the head of such incoming filling-carrier.

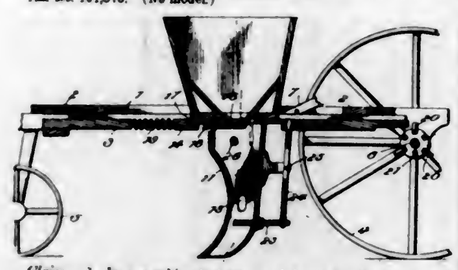
4. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber, to engage and hold the filling-carrier, and rearwardly-inclined cam-surfaces on the tops of the jaws at their free ends, to cooperate with the head of an incoming filling-carrier, substantially as and for the purpose set forth.

5. A shuttle-body having a chamber for the reception of a filling-carrier, having its head provided with annular projections, holding-jaws located within and at one end of the chamber and provided on their inner faces with notches to receive such annular projections, and oppositely-inclined cam-surfaces on the jaws in front of and behind the notched portions thereof, to cooperate with the head of an incoming filling-carrier and properly position the notched portions of the jaws with relation to the annular projections of an incoming filling-carrier.

6. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the head of a filling-carrier, the inner faces of the jaws having upright notches therein, cam-surfaces on said faces at the rear of the notches, and upturned lugs on the tops of the jaws at their free ends having their upper surfaces inclined rearwardly toward the notches.

7. An automatically self-threading loom-shuttle provided with spring-jaws provided on their inner faces with upright notches to engage annular rings on the head of a filling-carrier when inserted between the jaws, forwardly-inclined cam-surfaces on said jaws behind the notches, and rearwardly-inclined cam-surfaces on the jaws in front of the notches, one or the other of the pairs of cam-surfaces cooperating with the head of an incoming filling-carrier if the notched portions of the jaw are improperly positioned, to cause longitudinal movement of the shuttle and thereby properly position the jaws.

751,124. COMBINED PLANTER AND FERTILIZER-DISTRIBUTER. ALBERT H. WELLS, Springboro, Pa. Filed June 15, 1903. Serial No. 161,575. (No model.)

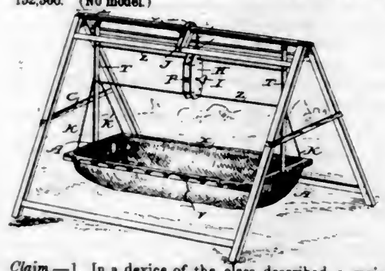


Claim.—1. In a combined planter and fertilizer-distributer, the combination of subjacent hoppers, a grain-spout in communication with the seed-hopper, a chute in communication with the hopper containing the fertilizer and opening at its lower end into the grain-spout, a valve operating in the lower portion of the grain-spout below the point of communication therewith of the fertilizer-chute, and means for controlling the delivery of the grain and fertilizer from the respective hoppers, and actuating means for said valve, substantially as set forth.

2. In a combined planter and fertilizer-distributer, the combination of subjacent hoppers, a grain-spout in communication with the seed-hopper, a chute in communication with the hopper containing the fertilizer and opening at its lower end into the grain-spout, a valve operating in the lower portion of the grain-spout below the point of communication therewith of the fertilizer-chute, means for controlling the delivery of the grain and fertilizer from the respective hoppers, actuating means for said valve, a transversely-arranged shaft, a distributing-wheel secured to said shaft and operating in the fertilizer-hopper, a slide-bar arranged to reciprocate beneath the seed-hopper, an axle provided with ground wheels, and means for transmitting motion from said axle to the slide-bar and shaft provided with the distributing-wheel, substantially as described.

3. A combined planter and fertilizer-distributer comprising subjacent hoppers adapted to receive the seed and fertilizer, a grain-spout in communication with the seed-hopper, a chute establishing communication between the fertilizer-hopper and the lower portion of the grain-spout, means for effecting a discharge of the fertilizer into the chute, a slide-bar having an opening, a cut-off for regulating the size of said opening, a spring for moving the slide-bar in one direction, a tappet-wheel and tappets for moving the slide-bar against the tension of said spring, a valve arranged to operate in the lower portion of the grain-spout below the point of communication therewith of the fertilizer-chute, and a lever connecting said valve with the slide-bar, substantially as specified.

751,125. SWINGING HAMMOCK. MERRIAN N. WERTZ and JOHN J. PARNELL, Thomasville, Ga. Filed Apr. 13, 1903. Serial No. 152,360. (No model.)

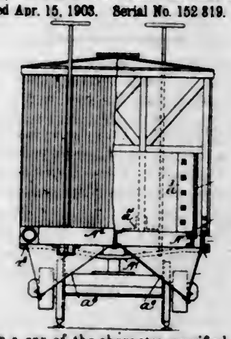


Claim.—1. In a device of the class described, a main framework composed of two parts hinged together at the top, a cross bar or beam mounted in the top of said framework and turnable therein, means for holding said cross bar or beam in a rigid position, a hammock attached to its frame and suspended from said cross bar or beam, and depending therefrom and a spring power device rigidly connected with the support of the hammock-frame and provided with an escapement, and an arm connected with the escapement and operating in connection with the rod which is suspended from the said cross bar or beam as hereinbefore described.

2. In a device of the class described a main framework composed of two parts hinged together at the top a cross-bar mounted in the top of said framework, a hammock-frame suspended from said bar and adapted to swing laterally, a canvas on said hammock-frame, a rod connected with said cross bar or beam and depending therefrom, and a spring power device connected with the supports of the hammock and provided with an escapement, and an arm connected with the escapement and operating in connection with the rod which is suspended from the said cross bar or beam as hereinbefore described

3. In a device of the class described, a main framework composed of two parts hinged together at the top, a cross-bar mounted in the top of said frame, a hammer-frame, suspended from said cross bar or beam and depending therefrom, a spring power device connected with the supports of the hammock and provided with an escapement, and operating in connection with said hammock comprising a framework composed of two hinged parts, adapted to be folded substantially as shown and described.

751,126. CONVERTIBLE CAR. HOWARD S. WILSON, Puebla, Mexico. Filed Apr. 15, 1903. Serial No. 152,819. (No model.)



Claim.—1. In a car of the character specified, a frame having double sets of side and end sills, a roofed box construction attached to the outer set of sills and convertible sides and ends attached to the inner set of sills to form when folded downward a flat flooring for the car.

2. In a car of the character specified, a frame having a set of outer side and end sills, bars running transversely beneath and connecting said set of side sills, an inner set of side and end sills supported by said transverse bars and spaced from the exterior set of sills, and cross-bars connecting said interior set of sills.

3. In a car of the character specified, a frame having double sets of side and end sills, sides and ends for the carrying-body of the car secured respectively to the interior set of side and end sills, and so that said sides and ends may be held vertically or have a horizontal position to lie over the bottom of the car, substantially as and for the purposes set forth.

4. In a car of the character specified, a frame having double sets of side and end sills spaced to lie apart from one another, and the interior set of which sills is made of less height than the exterior set of sills, sides and ends for the carrying-body of the car secured to said interior set of side and end sills, and means for securing the said sides and ends whereby they may be changed from a vertical to assume a horizontal position to lie flat over the bottom of the car and at the same time close the spacing between the double sets of sills, substantially as and for the purposes set forth.

5. In a car of the character specified, a frame having double sets of side and end sills spaced to lie apart from one another, and the interior of which set of sills extends to a lesser height than the exterior set of sills, sides *a a*, and ends *a' a'* hinged respectively to the interior set of sills so that said sides and ends may be turned from a vertical to assume a horizontal position to lie in over the bottom of the car, and simultaneously to close in the space between the double sills whereby an even surfacing coextensive with the top surfacing of the outside set of sills is obtained, substantially as described.

6. In a car of the character specified, a frame having double sets of side and end sills, sides and ends for the car-body secured to the respective interior set of side and end sills, and so that they may be changed from a vertical position to assume a horizontal position turned in over the bottom of the car, and stakes pivoted to extend up from within the spacing between the sill-bars, whereby said stakes may be turned to assume a horizontal position between the same, substantially as described.

7. A car of the character specified having one or more chutes opening through the bottom and extending laterally to the side or sides of the car, and convertible sides and ends adapted when in one position to close in over to cover the entire bottom of said car forming a floor therefor and covering the entrance to said chutes and when in another position, turned up, are adapted to form the sides and ends of said car.

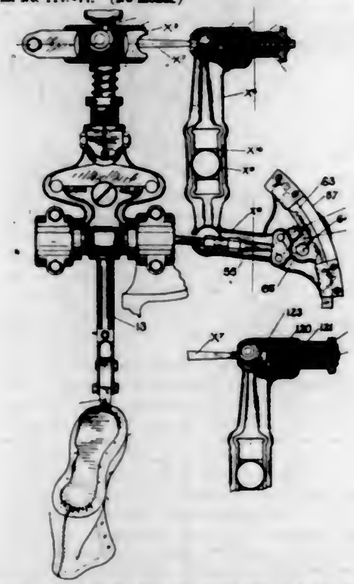
8. A car of the character specified having double sets of side sills, chutes opening through the bottom of the said car and extending laterally to the sides thereof, outwardly-opening doors to said chutes hinged to the exterior set of side sills, and sides hinged to the interior sets of sills adapted to close in over the bottom of the car closing the entrance of said chutes, substantially as described.

9. The car herein described, the same having an outer framework comprising sills and cross-bars suspended from the sills, an inner framework consisting of sills and cross-bars mounted upon the cross-bars of the outer framework, chutes and a permanent flooring upon each side thereof, supported by the inner framework, sides attached to the inner framework to form when folded downward a flat flooring for the same covering the chutes and permanent flooring and a roofed box construction attached to the outer framework.

751,127.



751,128. LASTING-MACHINE. ARTHUR L. WISE, Brockton, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., and Boston, Mass., a Corporation of New Jersey. Filed July 29, 1902. Serial No. 117,477. (No model.)



Claim.—1. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means to turn the grippers.

2. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means under the control of the operator to turn said grippers in plaiting the upper.

3. In a machine of the class described, grippers for stretching the upper, means to actuate the grippers to plait the upper, and yielding means to turn the said grippers during the plaiting movement to cause them to twist the portion of the upper being plaited.

751,127. CULM-BAR. JAMES S. WILSON, Bloomsburg, Pa. Filed Feb. 5, 1903. Serial No. 142,059. (No model.)

Claim.—1. The combination of a grate-bar, a grate-section having an opening extending therethrough, and a projection on the bar entering said opening and forming therewith a connection to hold the grate-section against displacement, said opening being of greater diameter than the projection, thereby providing a loose connection and also forming an open air-passage, substantially as described.

2. In combination, a grate-bar having an upwardly-extending projection, and a removable grate-section on the bar having an opening to receive said projection, the diameter of said opening exceeding that of the projection, whereby a limited longitudinal movement of the grate-section is permitted, substantially as described.

3. In a grate, the combination of a grate-bar, comprising longitudinal bars and cross-bars connecting them together, said cross-bars being extended upwardly and shaped to form tapered seats, said seats having upwardly-projecting pins, and grate-sections adapted to rest upon said seats and having openings to receive said pins.

4. In a grate, the combination of a grate-bar, having upwardly-projecting cross-pieces terminating in seats, said seats being tapered and each alternate seat having a pin projecting upwardly therefrom, and interlocking grate-sections resting upon said seats and each having near one end a socket, the said sockets of the grate-sections receiving said pins, substantially as described.

4. In a lasting-machine, grippers adapted to engage and stretch the upper, yielding means to move the grippers laterally while in engagement with the upper, and yielding means to turn the grippers during such lateral movement.

5. In a lasting-machine, grippers, and means to actuate them to stretch the upper, in combination with means to turn said grippers, said means comprising an actuator and mechanism connecting said actuator with said grippers, said mechanism comprising a yielding element whereby the turning movement of the grippers is yieldingly effected.

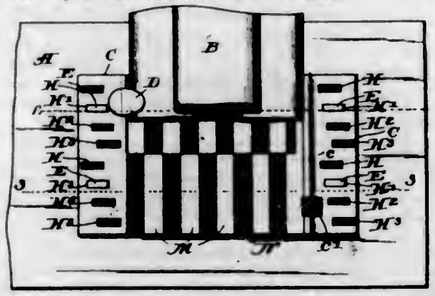
6. In a lasting-machine, grippers and means to actuate them to stretch the upper, in combination with mechanism to turn said grippers during the stretching operation, said mechanism comprising a connecting-rod, a lever, and a spring through which movement is imparted by said lever to the connecting-rod.

7. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and means for turning the grippers in either direction at the will of the operator, said means being constructed to effect the turning movement yieldingly in one direction.

8 In a lasting-machine, the combination with grippers for pulling the upper, of an actuator, yielding mechanism having permanent connection therewith and means for rendering said mechanism operative or inoperative at the will of the operator for turning the grippers.

9. A lasting-machine comprising grippers and mechanism for actuating the grippers to pull the upper in combination with a positively-operated actuator for turning the grippers, and connecting mechanism intermediate said actuator and the grippers, said connecting mechanism including a yielding element whereby the movement of the grippers is yieldingly effected.

751,129. TIE-PLATE. BENJAMIN WOLHAUPTER, Chicago, Ill. Filed Aug. 20, 1903. Serial No. 170,139. (No model.)



Claim.—1. A tie-plate provided with a plurality of bearing-surfaces which are laterally separated with respect to the rail and are adapted for engagement with the upper end of a holding-stud driven into the tie.

2. A tie-plate provided with rail-bearing shoulders and with a plurality of laterally-separated bearing-surfaces adapted for engagement with the upper end of a holding-stud driven into the tie.

3. A tie-plate provided with a plurality of laterally-facing shoulders or surfaces which are separated both laterally and longitudinally and are adapted for engagement with a holding-stud driven into the tie by shifting the tie-plate both laterally and longitudinally with respect to the rail.

4. A tie-plate provided with a set or series of slots arranged in stepped relation and either one of which is adapted for engagement with the upper end of a holding-stud driven into the tie, by the lateral and endwise shifting of the tie-plate with respect to the rail.

5. The combination with a tie-plate provided with a plurality of laterally-facing bearing-surfaces, of a holding-stud which is driven into the tie and projects above the same into position to engage said laterally-facing surfaces.

6. The combination with a tie-plate provided with a plurality of slots arranged in stepped relation, and a holding-stud adapted to be driven into the tie with its upper end projecting above the same in position to engage either one of said slots.

7. A tie-plate provided at the outer side of its rail-seat with a shoulder adapted for contact with the base of the rail and having a plurality of laterally-facing bearing-surfaces arranged at unequal distances from the said shoulder, and adapted for engagement with a holding-stud driven into the tie.

8. The tie-plate provided at the outer side of the rail-seat with a shoulder adapted for contact with the base of the rail, and having a plurality of slots arranged in stepped relation and adapted for engagement with a holding-stud driven into the tie.

9. A tie-plate provided at the outer edge of its rail-seat with a shoulder adapted to contact with the base of the rail, and having spike-holes at either side of said rail-seat, and also provided with a plurality of laterally-facing bearing-surfaces, arranged at unequal distances from the said shoulder, and adapted for engagement with a holding-stud driven into the tie.

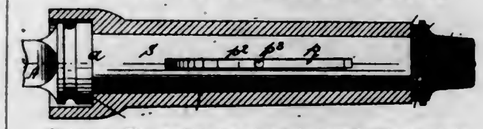
10. A tie-plate provided at one side of the rail-seat with a shoulder adapted for contact with the rail-base and having spike-holes at both sides of said rail-seat, and having also a plurality of stud-receiving slots arranged in stepped relation and adapted for engagement with a holding-stud driven into the tie.

11. A tie-plate provided in its upper surface with a plurality of sets of ridges and intervening grooves, extending transversely of the plate, the ridges in each set being arranged in line with the grooves of the adjacent set.

12. A tie-plate provided at one side of the rail-seat with a shoulder adapted for contact with the side margin of the rail-base, and provided in said rail-seat with a plurality of sets of ridges and intervening grooves arranged parallel with said shoulder, the ridges in each set being arranged in line with the grooves of an adjacent set.

13. A tie-plate provided on its rail-bearing surface with a plurality of ridges and grooves extending transversely of the tie-plate and parallel with the rail, the ridges of each set being arranged in alinement with the grooves of adjacent sets and the grooves of each set being open at the side margins of the plate to permit the escape of sand or grit from said grooves.

751,130. AXLE JOURNAL AND SKEIN. DAVID G. WOOD, Suffern, N. Y. Filed Oct. 5, 1903. Serial No. 175,748. (No model.)



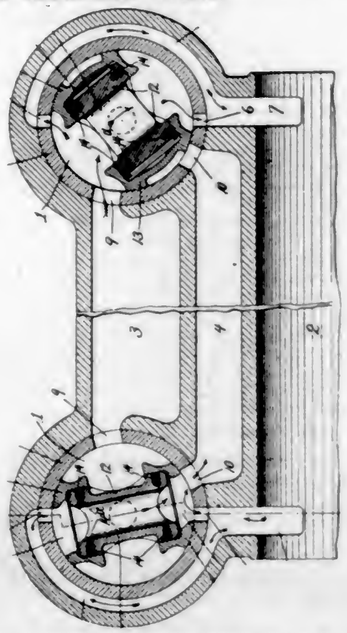
Claim.—1. The combination of an axle formed with an annular shoulder, a journal formed integral with said axle and projecting from said annular shoulder, said journal being formed with lubricant-pocket and radial passage leading therefrom also formed with an annular shoulder and with a male screw-thread at or near its outer extremity, a skein formed with radial passage coincident with that of the journal and an internal annular shoulder engaging the said annular shoulder upon the journal, the outer end of the skein being also formed with a female screw-thread engaging the male screw-thread on the outer end of said journal, together with a cap-nut also engaging the male screw-thread on the outer end of the journal.

2. The combination of an axle formed with an annular shoulder, a journal formed integral with said axle and projecting from said annular shoulder, said journal being formed with lubricant-pocket and radial passage leading therefrom also formed with an annular shoulder and with a male screw-thread at or near its outer extremity, a skein formed with radial passage coincident with that of the journal and an internal annular shoulder engaging the said annular shoulder upon the said annular shoulder on the axle, the outer end of the skein being also formed with a female screw-thread engaging the male screw-thread on the outer end of the said journal, a hub-bushing having an annular shoulder at its inner end for engagement with the annular shoulder upon the axle, the length of the said hub-bushing between its said annular bearing-shoulder and its outer end being such that its said outer end coincides with the outer end of the skein when the internal annular shoulder of the latter is in engagement with the annular shoulder of the journal, and a cap-nut engaging the said male screw-thread on the outer end of the journal and bearing against the outer ends of both the hub-bushing and the skein.

3. The combination of the axle A formed with the shoulder *a*, and journal *j*, the latter formed at its outer end with the annular shoulder j^2, and male screw-thread j', and also with the longitudinal lubricant-pocket *p*, converging sides p^2, p^3, and discharge-passage p^4, the skein S formed at its outer end with the annular shoulder *s'* and female screw-thread *s*, and also formed with the openings s^2, and s^4, the hub-bushing B, formed with the shoulder *b'*, the distance between which and its forward end is equal to the length of the

skein S, and the cap-nut N engaging the male screw-thread on the journal and bearing against the ends of both the hub-bushing B and the skein S for the purpose set forth.

751,131. **STEAM-ENGINE VALVE.** Otis W. Young, Chicago, Ill., assignor of one-half to Orville C. Mann, Oakpark, Ill. Filed Apr. 1, 1903. Serial No. 150,562. (No model.)



Claim.—1. In an engine, a valve-chamber having an exhaust-port and two cylinder-ports for communicating with the same end of the cylinder; a valve-carrier and two valves thereon similarly related to the two cylinder-ports respectively to perform the same opening and closing movements for both said ports simultaneously, one of the valves having in its face a passage for exhaust adapted to connect the cylinder-port which the valve controls with the exhaust-port, said valves and carrier having a passage opening through the valve-faces respectively and leading to said passage in the last-mentioned valve.

2. In an engine, a valve-chamber having inlet and exhaust ports and having also two ports communicating with the same end of the cylinder; a valve-carrier and two valves thereon separating the inlet and exhaust ports and similarly related to the other two ports respectively to perform the same opening and closing movements for both said ports simultaneously, one of said valves having in its face a passage for exhaust, adapted to connect the cylinder-port which the valve controls with the exhaust-port, said carrier and valves having a passage connecting the valve-faces and leading into said exhaust-passage in the last-mentioned valve.

3. In an engine, a valve-chamber having an inlet and exhaust port and having also two ports for communicating with the same end of the cylinder; a carrier and two valves thereon similarly related to the two ports respectively to perform the same opening and closing movements for both ports simultaneously and operating both as inlet and exhaust valves, the valve-faces being connected by a passage through the valve-carrier, and the carrier being constructed to permit free communication through the chamber from one side to the other thereof between the valves.

4. In an engine, in combination with the cylinder, a valve-carrier oscillating about a vertical axis transverse to the cylinder; oppositely-situated valves on such carrier; a chamber in which the carrier and valves oscillate having two oppositely-situated ports both communicating with the same end of the cylinder, the valves being apertured through their faces respectively to effect communication from one to the other of said ports across the valve-chamber, and means for admitting motive fluid to the valve-chamber at both sides of the carrier between the valves.

5. In an engine, in combination with the cylinder, a valve-chamber transverse thereto having an inlet-port and an exhaust-port, and having proximate to the latter a direct port communicating with the cylinder-port, and having at an opposite position an auxiliary port and a passage therefrom outside the valve-chamber to the cylinder-port; a valve-carrier oscillating in said chamber about an axis transverse to the cylinder; oppositely-situated valves carried thereby, each apertured through its face, the aperture being sufficient to afford communication from said direct port to the exhaust-port, the carrier having an aperture connecting the said valve-apertures and having also an aperture opening at both ends between the valves for admitting the live steam to both sides of the carrier, whereby the said oppositely-situated ports afford two paths both for the exhaust and live steam from and to the cylinder respectively.

6. In an engine, in combination with the cylinder, having at either end a single port for both inlet and exhaust; a valve-chamber transverse to the cylinder having two ports oppositely situated, both communicating with such cylinder-port, and having also an exhaust-port; a pair of valves seating radially with respect to the chamber at opposite positions, and a carrier journaled axially in the chamber, and on which the valves are telescoped, whereby they are adapted to be seated by the steam-pressure in the cylinder, the valves having exhaust-passages in their faces respectively and the carrier having an aperture which connects said exhaust-passages, and means by which the live steam is admitted to the valve-chamber at both sides of the carrier between the oppositely-situated valves.

7. In an engine, in combination with the cylinder, a cylindrical valve-chamber transverse thereto, a valve-carrier journaled at both ends in the heads of said cylinder, and valves radially telescoped on said carrier at opposite positions, the valves having exhaust-passages in their faces respectively, and the carrier having an aperture which connects such exhaust-passages; the chamber having oppositely-situated ports both communicating with the cylinder-port, and means for admitting the live steam to the chamber on both sides of the carrier between the valves.

8. In an engine, in combination with the cylinder, a cylindrical valve-chamber transverse thereto, a carrier journaled axially in such chamber at both ends thereof, and oppositely-situated valves carried by the carrier in its oscillation in the chamber, such chamber having a single inlet for live steam at one side and the valves being shorter than the chamber, whereby the steam reaches both sides of the carrier by passing around the end of the valves in the chamber.

9. In an engine, in combination with the cylinder, a cylindrical valve-chamber transverse thereto having one inlet and one exhaust port and having oppositely-situated ports both communicating with the same end of the cylinder; a carrier journaled axially in such chamber having oppositely-situated valves telescoping onto it radially with respect to the chamber, seating on the cylindrical wall of the chamber; packing in the telescoping joints between the carrier and the valves respectively at planes transverse to the radial thrust of the valves toward their seats respectively, such packing being adapted to be seated outward by the steam-pressure entering behind it, whereby it frictionally retards the radial movement of the valves toward and from their seats.

10. In an engine, in combination with the cylinder, having at either end a single port for both inlet and exhaust, a cylindrical chamber extending transverse thereto, communicating with said cylinder-port and having a groove in its cylindrical wall leading from the communication with the cylinder-port to the opposite wall of said chamber; a steam-chest and exhaust-passages leading into said chamber, bushing lining said chamber having apertures registering with the inlet and exhaust ports and having oppositely-situated apertures communicating with said groove, whereby the groove is cut off from the chamber and forms a passage exterior thereto connecting said oppositely-situated ports; a valve-carrier journaled axially in such chamber and valves carried thereby seating on the interior wall of the bushing, the valves having exhaust-apertures in their faces respectively and the carrier having a passage connecting said exhaust and apertures and having also an aperture admitting the live steam to both sides of the carrier between the valves.

11. In an engine, in combination with the cylinder, a cylindrical valve-chamber transverse thereto having ports communicating with the cylinder and with the steam supply and exhaust passages; a valve-carrier journaled axially in the heads of such chamber, the journals having each an outer and an inner shoulder to transmit the end thrust, and the bearings having corresponding shoulders to receive the thrust, the outer shoulders being of less area than the inner and adapted to be first seated.

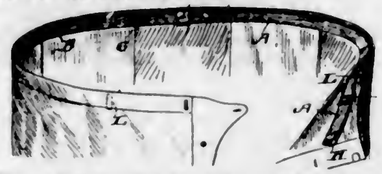
12. In an engine, a cylindrical chamber and a valve-carrier journaled axially therein, the journals of such carrier having an inner and an outer shoulder to transmit the end thrust and the journal-bearings having corresponding shoulders to receive such thrusts, said journals and bearings being tapered narrowing from the inner to the outer shoulders and the outer shoulders being of less area than the inner, said shoulders being spaced on the journals and bearings respectively, so that the outer shoulders seat steam-tight before the inner.

13. In an engine, a cylindrical valve-chamber and a valve-carrier journaled axially therein for rotary movement, the journals of such carrier having an outer and an inner shoulder, the outer being of less area than the inner and the journal-bearings having corresponding shoulders to receive the end thrust, the distance between said shoulders on the journals and the bearings being such relatively as to cause the outer shoulders to seat steam-tight before the inner, the latter being transversely grooved to admit steam and oil to the journal-bearing between the shoulders.

14. In an engine, a cylindrical valve-chamber and a valve-carrier journaled axially therein for rotary action, and the valves carried thereby, one of the journals of the carrier being provided with a sleeve feathered on it for rotation therewith and extending into the journal-bearing; packing-rings interposed between such spindle and the sleeve; shoulders on the sleeve and spindle stopped against each other for transmitting the end thrust from the carrier to the sleeve, the sleeve being stopped endwise on the journal-bearing at an annular shoulder, and the remainder of the transverse area of the sleeve and spindle being exposed to atmospheric pressure.

15. In an engine, a cylindrical valve-chamber, a valve-carrier journaled in the heads thereof and having one of its journals protruding to afford means for actuating the carrier; coöperating shoulders on such spindle and its journal-bearings to stop the outward end thrust, the opposite spindle of the carrier having a sleeve telescoped on it similarly stopped in the journal-bearing, the spindle and sleeve having coöperating shoulders for transmitting the end thrust and a packing-ring interposed between the spindle and sleeve back of the last-mentioned shoulders.

751,132. **BELT.** Simon F. Zehner, Austin, Pa. Filed Apr. 25, 1903. Serial No. 154,330. (No model.)



Claim.—A belt comprising two straps, one of which has an extension connected thereto by means of a ring, the other strap passing through said ring, the buttonhole-tabs attached to the rear ends of the straps, the hook and eye arranged at the opposite ends of the straps, and the adjustable buckles for increasing and decreasing the lengths of the straps, as specified.

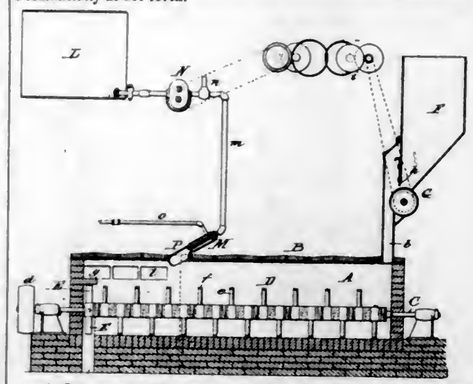
751,133. **APPARATUS FOR PREPARING PULVERULENT MATERIALS FOR MOLDING OR BRIQUETING.** Ellsworth B. A. Zwoyer and Rolland A. Zwoyer, Hoboken, N. J., assignors to the Zwoyer Fuel Company, New York, N. Y., a Corporation of New Jersey. Filed May 12, 1903. Serial No. 156,748. (No model.)

Claim.—1. In apparatus for preparing pulverulent material for molding or briqueting, the combination of means for maintaining the pulverulent material with its particles in a suspended or separated condition, and means for passing a binder in a finely-divided form through such suspended pulverulent material, substantially as set forth.

2. In apparatus for preparing pulverulent material for molding or briqueting, the combination of means for maintaining the pulverulent material with its particles in a suspended or separated condition, means for heating the pulverulent material, and means for passing a binder in a finely-divided form therethrough, substantially as set forth.

3. In apparatus for preparing pulverulent material for molding or briqueting, the combination of means for maintaining the pulverulent material with its particles in a suspended or separated condition, means for passing a binder in finely-divided form therethrough, and means for passing hot gases therethrough, substantially as set forth.

4. In apparatus for preparing pulverulent material for molding or briqueting, the combination of means for maintaining the pulverulent material with its particles in a suspended or separated condition, and an atomizer for delivering the binder in a finely-divided condition to the suspended or separated particles of pulverulent material, substantially as set forth.



5. In apparatus for preparing pulverulent material for molding or briqueting, the combination of a mixing-chamber, means for maintaining the pulverulent material therein with its particles in a suspended or separated condition, an atomizer for delivering the binder in a finely-divided condition to such chamber, and a furnace connected with such chamber for passing hot gases therethrough, substantially as set forth.

6. In apparatus for preparing pulverulent material for molding or briqueting, the combination with a horizontally-arranged mixing-chamber, of a high-speed shaft carrying within said chamber blades which feed the pulverulent material therethrough while maintaining it with its particles in a suspended or separated condition, and means for passing the binder in a finely-divided form through said chamber, substantially as set forth.

7. In apparatus for preparing pulverulent material for molding or briqueting, the combination with a horizontally-arranged mixing-chamber, of a high-speed shaft carrying within said chamber blades which feed the pulverulent material therethrough while maintaining it with its particles in a suspended or separated condition, means for passing the binder in a finely-divided form through said chamber, and means for also passing hot gases through said chamber, substantially as set forth.

8. In apparatus for preparing pulverulent material for molding or briqueting, the combination with the chamber and means for feeding the pulverulent material through said chamber and for maintaining its particles in a suspended or separated condition therein, of an atomizer for delivering the binder in finely-divided form to said chamber, and a pump driven by a variable-speed mechanism for feeding the binder to the atomizer, substantially as set forth.

9. In apparatus for preparing pulverulent material for molding or briqueting, the combination of the horizontal mixing-chamber, the high-speed conveyer and agitator therein, adjustable means for feeding the pulverulent material to one end of said chamber, an atomizer delivering the binder in finely-divided form to said chamber, adjustable means for feeding the binder to the atomizer, and a furnace and uptake for passing hot gases through said chamber, substantially as set forth.

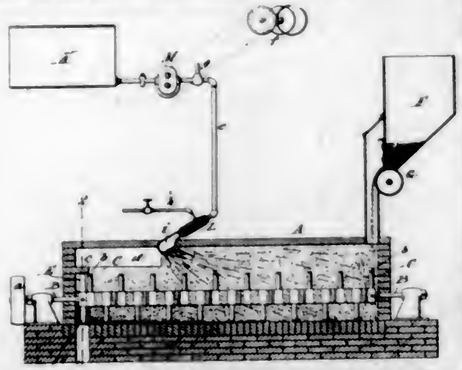
751,134. **PROCESS OF PREPARING PULVERULENT MATERIALS FOR MOLDING OR BRIQUETING.** Ellsworth B. A. Zwoyer and Rolland A. Zwoyer, Hoboken, N. J., assignors to the Zwoyer Fuel Company, New York, N. Y., a Corporation of New Jersey. Filed May 12, 1903. Serial No. 156,749. (No specimens.)

Claim.—1. The process of mixing a binder with pulverulent material, consisting in adding the binder in a finely-divided form to such material when the particles of the material are maintained in a suspended or separated condition, substantially as set forth.

2. The process of mixing a binder with pulverulent material, consisting in passing the pulverulent material through a chamber with its particles in a suspended or separated condition, and passing the binder in a finely-divided form through said chamber, substantially as set forth.

3. The process of preparing pulverulent materials for molding or briqueting, consisting in maintaining the pulverulent material with its particles in a suspended or separated condition, heating such ma-

terial while so suspended, and simultaneously adding a binder in a finely-divided form thereto, substantially as set forth.

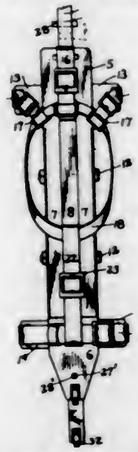


4. The process of preparing pulverulent materials for molding or briqueting, consisting in maintaining the pulverulent material with its particles in a suspended or separated condition, heating such material while so suspended, and simultaneously passing through such suspended material a stream of the binder in a finely-divided form, substantially as set forth.

5. The process of preparing pulverulent materials for molding or briqueting, consisting in maintaining the pulverulent material with its particles in a suspended or separated condition and passing therethrough hot gases and a binder in finely-divided form, substantially as set forth.

6. The method of preparing pulverulent materials for molding or briqueting, consisting in passing the pulverulent material in one direction through a chamber with its particles in a suspended or separated condition, and passing in the other direction through said chamber hot gases and a binder in finely-divided form, substantially as set forth.

751,135. **YOKE.** HENRY L. ALEXANDER, Blackland, Miss. Filed Apr. 24, 1903. Serial No. 154,038. (No model.)

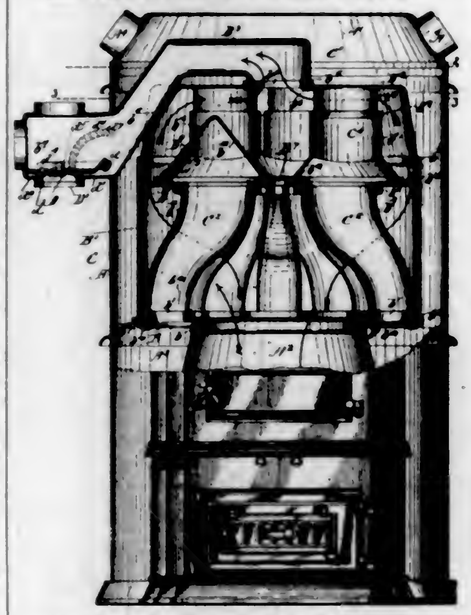


Claim.—1. A device of the class described comprising a longitudinally-adjustable face-plate having attaching-straps, a pin mounted in the plate for movement into and out of engagement with the animal and a lever disposed to operate the pin and depending below the face-plate, said lever having a roller at its lower end.

2. A yoke comprising a longitudinally-adjustable face-plate having attaching-straps, a pin slidably mounted in the face-plate, means for holding the pin normally retracted, and an operating-lever for the pin slidably mounted upon the face-plate and depending normally therebelow.

3. A yoke comprising a face-plate including sections adjustably connected and having guides thereon, attaching-straps connected to the sections, the lower section having a roller at its lower end, a pin slidably engaged in the lower section and having means for holding it normally retracted, an operating-lever for the pin mounted in the guides and movable longitudinally and rearwardly therein, an adjustable stop for limiting the longitudinal movement of the lever, a roller at the lower end of the lever and a roller at the lower end of the face-plate.

751,186. **HOT-AIR FURNACE.** EDGAR W. ANTHONY, Brookline, Mass. Filed Feb. 7, 1903. Serial No. 142,431. (No model.)



Claim.—1. In a furnace or heater of the character specified, walls disposed to form a combustion-chamber, having in combination therewith, upon the inside of said combustion-chamber, a plurality of independent, hot-air pipes B^4 carving upwardly and inwardly and arranged as specified, a plate for supporting said pipes, having holes formed therein in continuation of their hot-air passages, a dome-like casting fitting upon said plate to form an internal hot-air chamber, and pipe connections leading from said casting to connect with the upper wall of the combustion-chamber to form hot-air passages leading from said internal chamber through the upper wall of said combustion-chamber.

2. In a furnace or heater of the character specified, the combination with walls forming a combustion-chamber of a series of internal hot-air passages, a relatively flat plate B^3 for holding said pipes in place, a dome-like casting B^2 having exterior and interior inclined sides b^{13} and b^{14}, respectively, with exterior and interior bearings upon said plate when the members are joined, said casting having also integral pipe-sections forming in part hot-air passages leading from the inside of the internal hot-air chamber formed thereby, pipe connections forming a continuation of said hot-air passages through the upper wall of the combustion-chamber, a smoke-outlet and smoke-pipe leading therefrom.

3. In a furnace or heater of the character specified, the combination with walls forming a combustion-chamber of a series of independent, hot-air pipes contained therein, which pipes, placed near together, are made rounding at their lower ends and more flattened or oval-shaped as they extend upward to converge in over the fire-pot of the furnace, a flat plate of relatively large diameter for receiving and supporting the tops of said pipes, said plate having holes or openings formed therein to register with or in continuation of the hot-air passages through said pipes, a casting of dome-like character resting upon said plate with inclined edges, having exterior and interior bearing and forming an internal hot-air chamber, and pipe connections forming hot-air passages C^6 leading from said internal hot-air chamber through the top wall of the combustion-chamber.

4. In a furnace or heater of the character specified, the combination with a fire-pot of a plate fixed to extend laterally from the upper edge thereof, the tubular shell B′ surmounted by the top or crown sheet B^2 resting upon said plate and formative of a combustion-chamber having a smoke-outlet disposed centrally through its said top or crown sheet, a smoke-pipe on the outside leading laterally therefrom and upon the inside of said combustion-chamber a series of independent, hot-air pipes mounted upon the said plate and registering with holes cut therein, a relatively wide, flat plate for supporting the upper ends of said independent pipes, said plate having a removable center, a casting with inclined exterior and interior sides, resting upon said plate to form an internal hot-air chamber, and pipe connections forming passages which extend from said internal hot-air chamber through the top or crown sheet B^2 of said combustion-chamber, substantially as described.

5. In a furnace or heater of the character specified, walls disposed to form a combustion-chamber having in combination therewith the interior pipes B^4 forming air-passages, the annular pipe-supporting ring B^3, the annular interior dome-like casting B^5 mounted upon said annular ring and pipe forming connections connecting the said annular dome-like casting B^5 with the upper wall of the combustion-chamber, substantially as described.

6. In a furnace or heater of the character specified, the combination of a series of members forming a cup jointure with each other, the same comprising the annular plate B, fixed to the fire-pot of said furnace to extend laterally therefrom, the tubular shell B′ mounted upon and making cup jointure with said plate, the top or crown sheet B^2 mounted upon and making cup jointure along the top edge of said tubular shell B′, said top or crown sheet having a central smoke outlet or opening b^4, the smoke-pipe B^3 leading therefrom and making cup jointure with said top or crown sheet all around its smoke outlet or opening, the interior hot-air pipes B^4 resting upon said plate B and making cup jointure therewith around openings b' formed therein, a relatively flat, pipe-supporting plate B^3 making cup jointure with the upper ends of said pipes, the casting B^5 resting upon said plate with its inclined sides making exterior and interior cup jointure therewith, said casting having pipe-sections b^{16} making cup jointure with pipe-sections b^{17} of the top or crown sheet aforesaid, substantially as described.

7. In a furnace or heater of the character specified, a lower radiating-wall forming a portion of the inclosure for the combustion-chamber, an upper rotative dome mounted upon the same, said dome having holes or openings formed therein, a structure within the combustion-chamber forming heat-passages extending through the same, which interior structure coöperates with said dome that the heat-passages formed thereby may be extended through the said holes or openings formed therein, and means for forming the upper portion of said interior structure to be rotative with said dome.

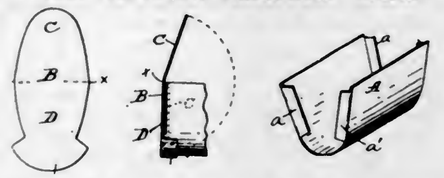
8. In a furnace or heater of the character specified, the combination of the tubular wall B′, the upper dome-like wall B^2 mounted upon the top edge of the same, the interior pipes B^4, the annular, pipe-supporting ring B^3, the annular, interior, dome-like casting B^5 mounted upon said annular ring and with interior and exterior bearings, the pipe forming sections connecting the said annular, dome-like casting B^5 with the upper dome-like wall aforesaid, a central opening through said upper dome, and a smoke or exit pipe connecting with said wall B^2 and extending laterally from said opening formed therein, and means whereby the said upper, dome-like wall B^2 and simultaneously the inner, annular, dome-like wall B^5 may be made to turn together with their interposed pipe-sections, substantially as and for the purposes set forth.

751,137. **DISPLAY-CASE.** CHARLES M. ATHEY, Baltimore, Md. Filed Nov. 26, 1900. Serial No. 37,823. (No model.)



Claim.—A display-case having a plain bottom, side walls having straight bottoms and end edges and inclined top edges, a perpendicular rear wall and an inclined top hinged to one of the walls and resting upon the said walls, said top and side walls being composed of a transparent substance, a portable case adapted to snugly fit within the first case, said portable case being of substantially the same shape as the display-case but minus a cover, and a ledge or support at the tapered end of the portable case.

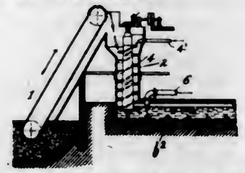
751,138. **ELEVATOR-BUCKET.** WILLIAM G. AVERY, Painesville, Ohio. Filed Feb. 9, 1903. Serial No. 142,566. (No model.)



Claim.—1. A bucket of the type set forth comprising a body portion, having inwardly-projecting flanges, at its ends, and oppositely-disposed side pieces adapted to engage said flanges, said side pieces being provided with a flange adapted to engage the bottom portion of the body.

2. In a bucket of the type set forth, a body portion, formed of an integral blank having opposite inwardly-projecting flanges at both ends said flanges extending from the upper portion of the body to a point near the bottom thereof leaving a portion of the body without said flanges, said portion being located at the bottom of the bucket; and side pieces bent upon themselves so as to include said flanges and projecting so as to include the bottom of the body, substantially as and for the purpose set forth.

751,139. **PROCESS OF CONVERTING RAW PEAT INTO PAPER-PULP.** ALFRED REDDIES, Berlin, Germany. Filed Aug. 5, 1902. Serial No. 118,442. (No specimens.)



Claim.—1. The process of converting raw peat into a homogeneous pulp product, comprising the following steps: disintegrating the raw peat, separating heavier and inorganic matter; adding wood-pulp; crushing the fibers; tearing apart and separating said fibers, and converting the resultant pulp into a sheet.

2. The process of converting raw peat into a homogeneous pulp product, comprising the following steps: disintegrating the raw peat; separating heavier and inorganic matter; adding wood-pulp; crushing the fibers; tearing apart and separating said fibers; converting the resultant pulp into a sheet; overlaying said sheet with wood-pulp, and pressing and calendering said sheet.

3. The process of converting raw peat into a homogeneous pulp product, comprising the following steps: disintegrating the raw peat; separating heavier and inorganic matter; crushing the fibers; tearing apart and separating said fibers; forming with the resultant pulp a sheet built of successive layers of peat-pulp and wood-pulp, and pressing and calendering said sheet.

4. The process of converting raw peat into a homogeneous pulp product, which consists in disintegrating the raw peat while subjecting it to treatment with water; separating heavier and inorganic matter by means of a flow of water; checking the flow and allowing fibrous matter to settle; crushing the harder and knotty portions of fibrous matter evenly throughout a body of water, and converting the same into a sheet.

5. The process of converting raw peat into a homogeneous pulp product, which consists in excavating the peat from the bog, disintegrating the same while subjecting to treatment with water, further separating the peat by means of water, separating heavier and inorganic matter by means of a flow of water, checking the flow and allowing fibrous matter to settle, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, and converting the same into a sheet.

6. The process of converting raw peat into a homogeneous pulp product, which consists in excavating the peat from the bog, disintegrating the same while subjecting to treatment with water, separating heavier and inorganic matter by means of a flow of water,

checking the flow and allowing fibrous matter to settle, distributing the fibers throughout a body of water, adding a cementing agent, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, and converting the same into a sheet.

7. The process of converting raw peat into a homogeneous pulp product, which consists in excavating the peat from the bog, disintegrating the same while subjecting to treatment with water, separating heavier and inorganic matter by means of a flow of water, checking the flow and allowing fibrous matter to settle, distributing the fibers throughout a body of water, adding a cementing agent and wood-pulp, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, and converting the same into a sheet.

8. The process of converting raw peat into a homogeneous pulp product, which consists in disintegrating the raw peat, removing heavy and inorganic matter and acid therefrom, settling the fibrous matter, suspending the fibers throughout a body of water while adding an acid-neutralizing agent, conveying the fibrous matter to crushing devices and crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, and converting the same into a sheet.

9. The process of converting raw peat into a homogeneous pulp product, which consists in excavating peat from the bog, disintegrating the same, removing heavy and inorganic matter and acid therefrom, settling the fibrous matter, suspending the fibers throughout a body of water while adding an acid-neutralizing agent, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, and converting the same into a sheet.

10. The process of converting raw peat into a homogeneous pulp product, which consists in excavating peat from the bog, disintegrating the same, removing heavy and inorganic matter and acid therefrom, settling the fibrous matter, suspending the fibers throughout a body of water while adding an acid-neutralizing agent, adding wood-pulp, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, converting the same into a sheet, overlaying said sheet with wood-pulp, and pressing and calendering said sheet.

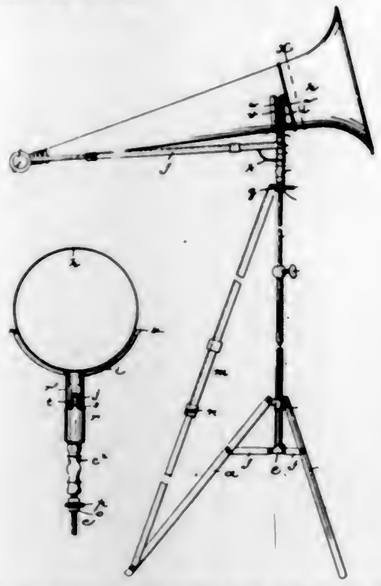
11. The process of converting raw peat into a homogeneous pulp product, which consists in excavating peat from the bog, disintegrating the same, removing heavy and inorganic matter and acid therefrom, settling the fibrous matter, suspending the fibers throughout a body of water while adding an acid-neutralizing agent, adding wood-pulp, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, forming in continuous operations a sheet built of successive layers of peat-pulp and wood-pulp, and pressing and calendering said sheet.

12. The process of converting raw peat into a pulp product, which consists in excavating the peat from the bog, disintegrating the same while subjecting it to treatment with water, separating heavier and inorganic matter by means of a flow of water, checking the flow and allowing fibrous matter to settle, adding wood-pulp, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, converting the same into a sheet, overlaying said sheet with wood-pulp, and pressing and calendering said sheet.

13. The process of converting raw peat into a pulp product, which consists in excavating the peat from the bog, disintegrating the same while subjecting to treatment with water, separating heavier and inorganic matter by means of a flow of water, checking the flow and allowing fibrous matter to settle, adding wood-pulp, crushing the harder and knotty portions of fibrous matter, separating and disintegrating the fibers, distributing the fibers evenly throughout a body of water, forming in continuous operations a sheet built of alternative layers of peat-pulp and wood-pulp, and pressing and calendering said sheet.

751,140. HORN-SUPPORT. CLEMENT BRECHOFT, Philadelphia, Pa., assignor to the Tea Tray Company of Newark, N. J., a Corporation of New Jersey. Filed Aug. 22, 1902. Serial No. 120,642. (No model.)

Claim.—1. The improved support or stand herein described comprising a collar, legs pivotally connected at their tops to said collar, another collar arranged below the first-said collar, connecting-rods pivotally attached to the lower said collar and to the said legs at points on the latter below where they are pivoted to the first-said collar, a central sectional post, the lower section of which is arranged in said collars and the upper section of which is slidably seated within the lower section, means for fixing the collars in their relation to the lower section, and a sectional brace extending from the lower end of one of said legs, below said pivotal connection with the lower collar upward to the top of the upper section of the central post and means for fastening the sections of the brace together, substantially as set forth.



2. The combination, in a folding stand, with the legs and sectional post, of a sectional brace exteading from the top of the upper section of the post downward to the lower extremity of one of said legs, and means for fastening the sections of the brace one to the other, substantially as set forth.

3. The combination with the legs, collars and connecting-rods pivoted together, of a sectional post slidable in said collars, means for setting the post in said collars, means for setting one section on the other, and a sectional brace extending from the top of the upper section to one of the legs, substantially as set forth.

4. The combination with the legs, collars and connecting-rods pivoted together, of a sectional post slidable in said collars, means for setting the post in said collars, means for setting one section on the other, and a sectional brace extending from the top of the upper section downward and at its lower end being secured at a distance from the line of the post to prevent lateral vibration of the upper end of the upper section, substantially as set forth.

5. The combination with the legs, collars and connecting-rods foldable together and providing a seat or support for a vertical post, of said post having a fork at the top adapted to receive the end of a phonograph-horn therebetween, and a brace extending from near said fork to the lower end of one of the said legs, substantially as set forth.

6. The combination with the legs, collars and connecting-rods pivoted together of a post adapted to be seated in said collars, said post comprising a tubular lower section and a rod slidable in said tubular section, means for setting the rod in said tubular section, means for supporting the horn on said sectional rod and a sectional brace, pivotally connected with the top of the post and with one of said legs, and means for setting the post-sections one on the other and for holding the legs, braces and connections in immovable relation, substantially as set forth.

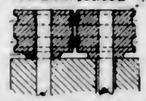
7. The combination with the folding stand having a center post, with a transverse groove or slot in its upper extremity and borings extending down from said slot, of a fork made in separable sections, the lower ends of which sections are bent to enter the borings and to lie in said transverse slot, substantially as set forth.

8. The combination with a folding stand, of a horn-supporting fork removably seated at the top of said stand, the prongs which together form a seat for the horn being separable from one another, and means for holding said prongs from turning on said stand, substantially as set forth.

9. The combination with a folding stand transversely grooved at the top and having sockets for the prongs of the fork, of a horn-supporting fork, the prongs of which are inserted in said sockets and have each a seat on the top of said stand in the transverse groove, substantially as set forth.

10. The combination with a folding stand having a socket c^3, a fork having a shank in pivoted sections, the uppermost section of which is transversely slotted and provided with holes f^3, and prongs seated in said holes and in the slot of said shank, substantially as set forth.

751,141. UPSETTING-MACHINE. RUDOLPH G. BEKER, Pittsburg, Pa., assignor of two-thirds to Frederick H. Kindl, Pittsburg, Pa. Filed June 15, 1903. Serial No. 161,614. (No model.)



Claim.—1. Feeding mechanism for upsetting and like machines comprising a pair of rollers each provided with a pair of feeding-faces, and means for driving said rollers, one of said rollers being so mounted that it can oscillate about a point intermediate its ends in order to vary its axial position with reference to the other roller.

2. Feeding mechanism for upsetting and similar machines comprising a pair of rollers each provided with two feeding-faces, and driven shafts on which said rollers are mounted, one of said rollers having an enlarged bore and an annular projection in said bore, whereby said roller bears against its shaft at one point only and can vary its axial position with reference to the other roller.

3. Feeding mechanism for upsetting and similar machines comprising a pair of rollers each provided with two feeding-faces, and driven shafts on which said rollers are mounted, one of said rollers being provided with a bore flaring toward both ends, whereby said roller bears against its shaft at its central portion only.

751,142. CORSET-BUSK. VICTOR BOVY, Herstal, Belgium. Filed Sept. 6, 1902. Serial No. 122,448. (No model.)



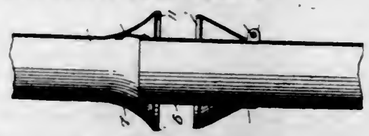
Claim.—1. In combination with a corset-busk, a member connected therewith and having an end free and unrestrained, and a fastening device mounted on the free end of said member and adapted to cooperate with an adjacent busk; whereby said fastening device is movable freely to and from the busk.

2. In combination with a corset-busk, a plate firmly secured thereto and having its end free and unrestrained, and a fastening device mounted on the free end of the plate.

3. In combination with coöperating corset-busks, plates fixed firmly to the same and having one end free and unrestrained, and fastening devices mounted on the free ends of said plates.

4. In combination with coöperating corset-busks, fastening-eyes and studs connected with said busks and movable freely to and from the same, the said eyes being formed with angular openings to receive the studs and disposed oppositely with respect to each other.

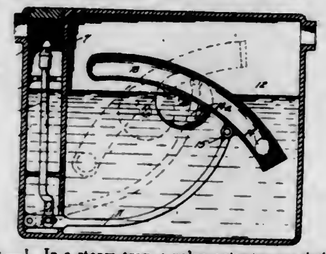
751,143. STOVEPIPE. SAMUEL T. BRANNOCK, Northview, Mo., assignor to the Brannock Stove Pipe Co., Northview, Mo. Filed May 26, 1903. Serial No. 158,819. (No model.)



Claim.—1. A pipe comprising an upper section having a flared lower end, a lower section disposed with its upper end in the flared end and spaced from the wall thereof, and a cup slidably mounted upon and encircling the lower section and having means for holding it at different distances from the flared end of the upper section.

2. A stovepipe comprising an upper section having a flared lower end having a groove at its lower edge, a lower section disposed with its upper end in the flared end and spaced from the wall thereof, and a cup mounted upon and encircling the lower section, said cup being slidable on the lower section for movement of its upper edge into and out of engagement with the groove of the flared end of the upper section and having means for holding the cup against sliding movement.

751,144. STEAM-TRAP. FREDERICK F. BRUSH, Detroit, Mich. Filed Feb. 19, 1903. Serial No. 144,094. (No model.)



Claim.—1. In a steam-trap, a valve-actuator consisting of a lever, a weight-guide pivoted to the lever and supported by the lever and a float, a weight shiftable along the guide and a float arranged to actuate the guide to shift the weight, substantially as described.

2. In a steam-trap, in combination with a valve and a lever pivotally connected therewith, a weight-guide supported by a float and the lever and pivotally connected to said lever, a weight shiftable along said guide, a floating support for said guide engaging therewith and arranged to turn the guide on its pivot, substantially as described.

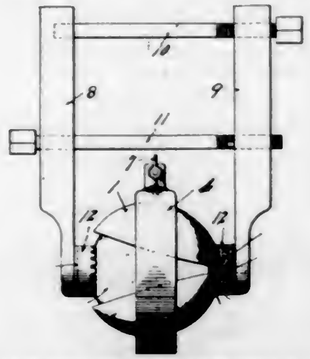
3. In a steam-trap, in combination with a valve and a lever adapted to actuate the same, a weight-guide pivoted to the lever, a float-support secured to the weight-guide and acting in conjunction with the lever to support the weight-guide, a weight shiftable along said guide and arranged to pass the connection between the weight-guide and the lever, whereby the weight is adapted to act either in opposition to or in conjunction with said float, substantially as described.

4. In combination with a tank, a valve for the same, a lever pivotally connected to the tank and to a stem of the valve, a float, a weight-guide supported by the lever, the float, a weight shiftable along said guide from a position at one side beyond the lever to a position at the other side beyond the float, substantially as described.

751,145. GAME-BALL-DYEING APPARATUS. ALONZO L. BURT, Bridgeport, Conn., assignor to the Burt Company, Hackensack, N. J., a Corporation of New Jersey. Filed Oct. 13, 1903. Serial No. 176,904. (No model.)

Claim.—1. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members connected together,

with means holding said members in liquid-tight contact with the ball.



2. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members flexibly connected together, with means holding said members in liquid-tight contact with the ball.

3. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members pivotally connected together, with means holding said members in liquid-tight contact with the ball.

4. In a ball-dyeing apparatus, the combination of a plurality of pairs of similarly-constructed protecting or dye-excluding members, means rigidly connecting the members of each pair, and pivotal connections between the pairs.

5. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members for forming the striping or other pattern, a protecting or dye-excluding member for forming the "spot," and means for holding said members in liquid-tight contact with the ball.

6. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members for forming the striping or other pattern, a plurality of protecting or dye-excluding members for forming the "spots," and means for holding said members in liquid-tight contact with the ball.

7. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members for forming the striping or other pattern, said members being pivotally connected together, a plurality of protecting or dye-excluding members for forming the spots, said last-mentioned members being flexibly connected to said first-mentioned members, and means holding all said members in fluid-tight contact with the ball.

8. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding stripe-forming members flexibly connected together, and a plurality of protecting or dye-excluding spot-forming members flexibly connected to said stripe-forming members, means holding the stripe-forming members in liquid-tight contact with the ball, and other means holding the spot-forming members also in liquid-tight contact with the ball.

9. In a ball-dyeing apparatus, the combination of a protecting or dye-excluding member, means holding the member in fluid-tight contact with the ball, and a yielding cushion interposed between said means and said member.

10. In a ball-dyeing apparatus, the combination of a plurality of oppositely-disposed protecting or dye-excluding spot-forming members, and connecting means holding said members in fluid-tight contact with the ball.

11. In a ball-dyeing apparatus, a protecting or dye-excluding member provided with plastic packing.

12. In a ball-dyeing apparatus, the combination of a plurality of protecting or dye-excluding members provided with a plastic packing material, and means clamping said members in fluid-tight contact with the ball.

13. A striping and spotting device for billiard-balls, comprising a plurality of dye-excluding members having a packing material on their inner surfaces, whereby portions of the surface of the ball are protected from the action of the dye, and a clamping device provided with centering and spot-forming dye-excluding members.

14. The combination of the stripe-forming dye-excluding members hinged together as shown, and provided with a packing on their inner faces, whereby portions of the ball are protected from the action of the dye while suspended therein, and means holding the said members in tight contact with the ball.

751,146. **BRACE OR SUPPORT FOR TENNIS-POLES.** THOMAS A. BUTT, Brooklyn, N. Y. Filed July 23, 1903. Serial No. 166,091. (No model.)

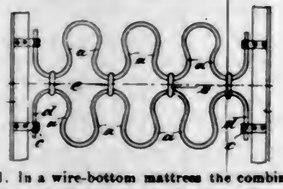


Claim.—1. In a brace or support for tennis-poles a collar movably mounted upon the pole, legs movably attached to the said collar and having pointed ends, which are adapted to engage in the earth, pointed members pivotally attached to the bottom of the said pole and adapted to engage in the earth, a downwardly-projecting rod attached to the said collar and adapted to engage in the earth when the pole is in use and means for locking the collar upon the post, substantially as shown and described.

2. In a brace or support for tennis-poles a collar movably mounted upon the pole, legs movably attached to the said collar and having pointed ends, which are adapted to engage in the earth, pointed members pivotally attached to the bottom of the said pole and adapted to engage in the earth, a lip formed integrally with the said pointed members and adapted to limit the angle of the said members to the pole, substantially as shown and described.

3. In a brace or support for tennis-poles a collar slidably mounted on the pole, legs movably attached to the said collar and having pointed ends, which are adapted to engage in the earth, plates slidably mounted on said legs, and means for limiting the movement of said plates on said legs so as to limit the distance which the pointed ends of the said legs may penetrate the earth, substantially as shown and described.

751,147. **WIRE MATTRESS.** FRITZ CASPARY, Berlin, Germany. Filed Aug. 19, 1903. Serial No. 170,052. (No model.)



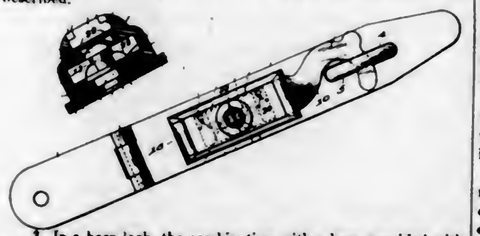
Claim.—1. In a wire-bottom mattress the combination of the frame having journaled bearings projecting inwardly and secured to said frame, bent section of springs forming curved bottoms provided integrally with free ends adapted to work freely in said journaled bearings, the said section arranged to form convex bottoms, substantially as described.

2. In a wire mattress, the combination of the mattress-frame provided with bearings fixed to the frame and serpentine-formed wire springs journaled in said bearings said springs being curved in their normal state previously to fixing the same in the frame, and links for holding the springs together, the parts being arranged to form in the unloaded state a convex bed-bottom substantially as described.

751,148. **HASP-LOCK.** WILLIAM U. COLTHAR, Springfield, Ohio, assignor to William J. Johnson, Yellowsprings, Ohio. Filed May 25, 1903. Serial No. 158,869. (No model.)

Claim.—1. In a hasp-lock, the combination, with a hasp, of a latch pivoted thereon to move in a plane parallel with the face of the hasp, a locking-piece pivoted on the latch and movable toward and from the hasp, which it is adapted to engage, and means for locking said locking-piece in such engagement, substantially as described.

2. In a hasp-lock, the combination, with a hasp, of a latch pivoted thereon to move in a plane parallel with the face of the hasp, a locking-piece pivoted on the latch on an axis parallel with its plane of movement, said locking-piece being adapted to straddle the latch and engage the hasp on each side of the latch, and means for locking the locking-piece in such engagement, substantially as described.

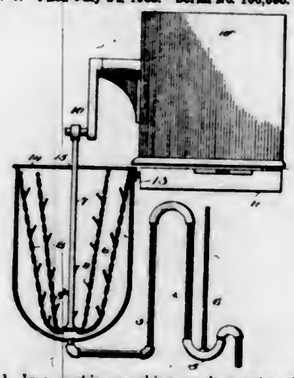


3. In a hasp-lock, the combination, with a hasp provided with longitudinal slots, of a latch pivoted thereon to move in a plane parallel with the face of the hasp, a locking-piece pivoted on the latch on an axis parallel with its plane of movement and provided with projections to enter the slots of the hasp, and means for locking the locking-piece in such engagement, substantially as described.

4. In a hasp-lock, the combination, with a hasp provided with a combined pivot and locking-stud having a locking-head, of a latch pivoted on said stud to swing in a plane parallel with the face of the hasp, and a locking-piece pivoted on the latch on an axis parallel with its plane of movement, adapted to engage the hasp, and provided with locking mechanism comprising spring-actuated locking-dogs to engage the locking-head of the stud, substantially as described.

5. In a hasp-lock, the combination, with a hasp provided with a combined pivot and locking-stud having a locking-head, of a latch pivoted on said stud to swing in a plane parallel with the face of the hasp, and a locking-piece pivoted on the latch on an axis parallel with its plane of movement, adapted to engage the hasp, and provided with locking mechanism comprising spring-actuated locking-dogs to engage the locking-head of the stud, and a rotary cam-plate adapted to be operated by a key to disengage the locking-dogs, substantially as described.

751,149. **WASHING-MACHINE.** PETER CONNERS, New Rochelle, N. Y. Filed July 24, 1903. Serial No. 166,893. (No model.)



Claim.—1. In a washing-machine, a tub, a series of annularly-disposed flexible agitators each attached at one end to the tub, and means for vertically reciprocating the other ends thereof centrally within said tub.

2. In a washing-machine, a tub, a series of annularly-disposed flexible agitators each attached at one end to the tub near its upper end and extending downwardly therein, and means for vertically reciprocating the other ends thereof centrally within said tub.

3. In a washing-machine, a tub, a series of annularly-disposed flexible agitators each attached at one end to the tub, a common central vertically-disposed rod to which the other ends of said flexible agitators are connected, and means for vertically reciprocating said rod or chain.

4. In a washing-machine, a tub, a series of annularly-disposed flexible agitators each attached at one end to the tub near its upper end and extending therefrom downwardly into said tub, a common central vertically-disposed rod to which the lower ends of said flexible agitators are connected, and means for vertically reciprocating said rod.

5. In a washing-machine, a tub, a series of annularly-disposed flexible agitators each attached at one end to the tub near its upper end and extending therefrom downwardly into said tub, a common central vertically-disposed rod to which the lower ends of said flexible agitators are connected, means for vertically reciprocating said rod, and a series of upwardly-disposed projections on said rod and flexible agitator.

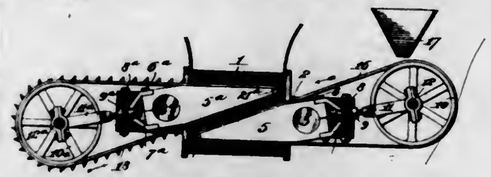
6. In a washing-machine, a tub, means for constantly agitating the contents thereof, means for affording a continuous supply of water thereto, and means for intermittently and automatically exhausting the water therefrom.

7. In a washing-machine, a tub, an agitator for said tub, a water-motor for actuating said agitator and discharging its water continuously into said tub, and a siphon connected with said tub and adapted to operate by the rise of the water-level therein to automatically and intermittently exhaust the water therefrom.

8. In a washing-machine, a tub, an agitator for said tub, a water-motor for actuating said agitator, a soap-box into which said motor discharges its water and which in turn discharges into said tub, and a siphon connected with said tub and adapted to operate by the rise of the water-level therein to automatically and intermittently exhaust the water therefrom.

9. In a washing-machine, a tub, a series of annularly-disposed flexible agitators therefor each attached at one end to the tub near its upper end and extending therefrom downwardly into said tub, a common central vertically-disposed rod to which the lower ends of said flexible agitators are attached, a water-motor for vertically reciprocating said rod, a soap-box into which said motor discharges its water and which in turn discharges into said tub, and a siphon connected with said tub and adapted to operate by the rise of the water-level therein to automatically and intermittently exhaust the water therefrom.

751,150. **ELECTROMAGNETIC ORE-SEPARATOR.** ALEXANDER DEAN, Denver, Colo. Filed Dec. 13, 1902. Serial No. 135,149. (No model.)



Claim.—1. The combination with a pair of adjustable pole members, of belts for the pole members, drums for the belts adjustable with the poles, and adjustable connections between the poles and the drums.

2. In an electromagnetic ore-separator, the combination of a magnet-coil, a core, cranks rotatively seated in said core and having outwardly-extending arms, tapering pole members mounted on said crank-arms, and means arranged to traverse one of said pole members and adapted to receive material subject to magnetic attraction passed between said pole members, substantially as set forth.

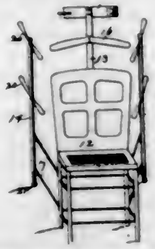
3. In an electromagnetic ore-separator, the combination of a magnet-coil, a core, cranks rotatively seated in said core and having outwardly-extending arms, tapering pole members mounted on said crank-arms, a delivery-apron arranged to traverse one of said pole members, and an apron arranged to traverse the other of said pole members, said last-named apron being provided with means whereby material conveyed by said delivery-apron and subject to magnetic attraction is attracted thereto, substantially as set forth.

751,151. **WARDROBE ATTACHMENT FOR CHAIRS.** HAROLD A. DODGE, Newark, N. J. Filed May 8, 1903. Serial No. 156,195. (No model.)

Claim.—1. A wardrobe attachment for chairs consisting of the combination with the pivoted or hinged folding bracket 13 adapted for the back of a chair and having suitable supports for articles of clothing, of the folding side frames 19 adapted to rest on the floor and having suitable cross-arms or supports for articles of clothing, said side frames thus serving, when swung to their operative positions, rearward of a chair, to brace the chair and prevent it from falling over backward under any load which may be carried by said hinged folding bracket.

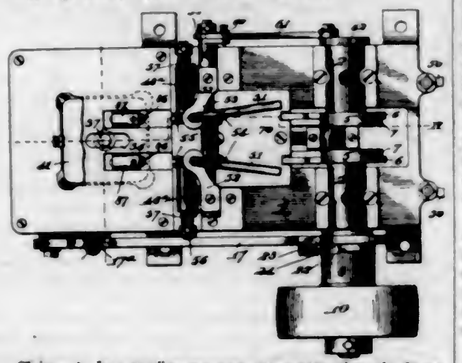
2. A wardrobe attachment for chairs consisting of the combination with the pivoted or hinged folding bracket 13 adapted for the back of a chair and provided with a trousers-clamp and a coat

and vest hanger, of the folding side frames 19 adapted to rest on the floor and having suitable cross-arms or supports for articles of clothing, said side frames thus serving, when swung to their operative positions, rearward of a chair, to brace the chair and prevent it from falling over backward under any load which may be carried by said hinged folding bracket.



3. A wardrobe attachment for chairs consisting of the combination with a bracket, as 13, adapted for attachment to the back of a chair, and having suitable supports for articles of clothing, of hinged or pivoted folding side frames, as 19, adapted to rest upon the floor and having suitable cross-arms or supports for articles of clothing, said side frames thus serving, when swung to their operative positions, rearward of a chair, to brace the chair and prevent it falling over backward under any load which may be carried by said bracket.

751,152. **STAPLING-MACHINE.** GEORGE A. EDE, Cobden, Ill. Filed Apr. 9, 1903. Serial No. 151,816. (No model.)

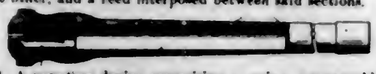


Claim.—1. In a stapling-machine, the combination of a frame, two independent pairs of staple-forming bars, a driving-bar, movably connected with each of said staple-forming bars, two independent form-fingers in alinement with and movable in opposite directions to one another, at right angles to the forming and driving bars, a cam mounted on each of said form-fingers, two independent retracting-bars for engagement with said cams to move the form-fingers in opposite directions out of the path of the driving-bars, a main shaft rotatably mounted in the frame to operate the staple-forming mechanism.

2. In a stapling-machine, the combination of a frame, two independent pairs of staple-forming bars, a driving-bar, movably connected with each of said staple-forming bars, two independent form-fingers in alinement with and movable in opposite directions to one another, at right angles to the forming and driving bars, a cam mounted on each of said form-fingers, two independent retracting-bars for engagement with said cams to move the form-fingers in opposite directions out of the path of the driving-bars, an inner rectangular guide and an outer L-shaped guide mounted on the frame, between which said retracting-bars are adapted to slide, a main shaft rotatably mounted in the frame to operate the staple-forming mechanism.

751,153. **MUSICAL CANE OR SOUNDING DEVICE.** ISRAEL ROSENSTEIN, New York, N. Y. Filed Oct. 12, 1903. Serial No. 176,771. (No model.)

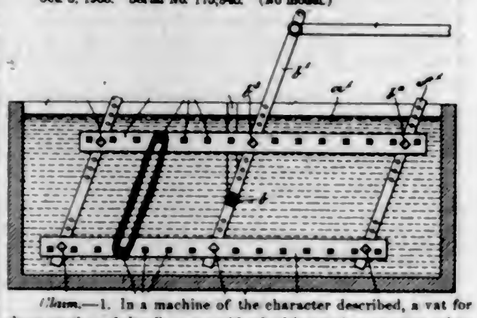
Claim.—1. A sounding device comprising two semicylindrical sections arranged in longitudinal alinement each hollowed out longitudinally for the greater portion of its length forming an open side, and an end wall, the wall of one section lying opposite the open end of the other, and a reed interposed between said sections.



2. A sounding device comprising a casing, a removable cylindrical member formed of semicylindrical hollow sections applied together forming a reed-chamber, the opposite ends of the sections being closed, a reed-plate interposed between the sections carrying one or more sounding-reeds, the casing holding the parts in proper position for producing sound when air is forced through the cylindrical member.

3. A musical cane formed with a bore extending into one end thereof and having lateral openings, a removable reed-containing device made up of semicylindrical sections having oppositely-disposed closed ends, a reed-plate clamped between the sections, and a reed carried by the plate and vibrating in the chamber formed between the sections.

751,154. **YARN-DYEING MACHINE.** ROBERT ELLIOTT, Olney, Pa., assignor of one-half to William B. Keefer, Philadelphia, Pa. Filed Oct. 5, 1903. Serial No. 175,840. (No model.)



Claim.—1. In a machine of the character described, a vat for the reception of dye liquor combined with two frames arranged to reciprocate in opposite directions in said vat, and means for maintaining said frames in parallel relationship during their reciprocatory movements.

2. In a machine of the character described, a vat for the reception of the dye liquor, a lever having a fulcrum within the vat, an upper frame provided with cross-rods pivotally connected with said lever above its fulcrum, a lower frame provided with cross-rods pivotally connected to the lever below the fulcrum, and links pivotally connecting the ends of the frames to each other to maintain said frames in parallel relationship.

3. In a machine of the character described, a vat for the reception of the dye liquor, a lever having a fulcrum within the vat, an upper frame provided with cross-rods and pivotally connected with said lever above its fulcrum, a lower frame provided with cross-rods and pivotally connected with the lever below the fulcrum, links pivotally connecting the ends of the respective frames together, and means for adjusting the frames on the lever and links toward or away from each other.

4. In a machine of the character described, a vat for the reception of dye liquor, two frames adapted to permit of the suspending of skeins of yarn in said vat and means adapted to permit of the reciprocation of said frames in opposite directions, maintained in parallel relationship to each other.

751,155. **DRAFT-RIGGING.** FRANK L. ESSLEMANDT, Kansas City, Mo. Filed Mar. 10, 1902. Serial No. 97,399. (No model.)



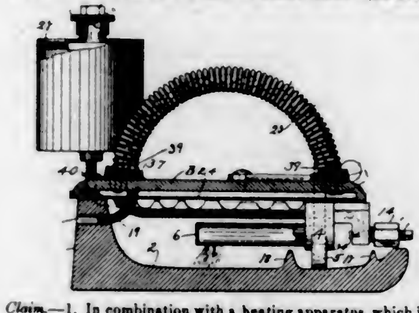
Claim.—1. The combination with a draft-rigging provided with a yoke having plates riveted to the central portion of its two longitudinal members, of a casing, pockets therein to receive the yoke, and central openings in said pockets, for the purpose described.

2. In a draft-rigging, a casing in which the draft mechanism is operatively secured, intermediate stops formed integral with the side walls of the casing, a partition secured between said stops, and upper and lower grooves formed in said partition for the purpose set forth and described.

3. A draft mechanism provided with oppositely-located subsills, a rectangular casing securely bolted to said subsills and adapted to operatively receive the draft mechanism, a bottom wall hinged to the casing, a central partition removably secured in the casing for retaining the draft mechanism, and a transverse bolt for securing the partition in the casing when the bottom wall is let down, substantially as described.

4. In a draft-rigging, a casing in which the draft mechanism is operatively secured, consisting of integral top and side walls, stops located at the inner opposite ends of the latter, ribs adjacent to and parallel with said stops, intermediate stops, longitudinal ribs extending from the latter to the first-mentioned ribs, and a wall hinged to the lower side of the casing, substantially as described.

751,156. **SELF-HEATING SAD-IRON.** HENRY A. PELTUS, Minneapolis, Minn. Filed Apr. 9, 1900. Serial No. 12,050. (No model.)



Claim.—1. In combination with a heating apparatus, which includes a burner and connected tank suitably supported, a wall supported intermediate of said burner and tank, said wall being formed with channels in its under side, and an asbestos sheet secured to the bottom of said wall and bearing against the ribs separating said channels.

2. In a heating apparatus of the class described, generating means consisting of a burner and connected tank, a generator-tube, a casting attached to receive vapor from such generator, such casting having a vapor-passage terminating in a jet-orifice, a needle threaded into said casting to control the jet-orifice and having an annular flange on its stem exterior of said casting, and a packing-nut threaded on said casting and inclosing said annular flange.

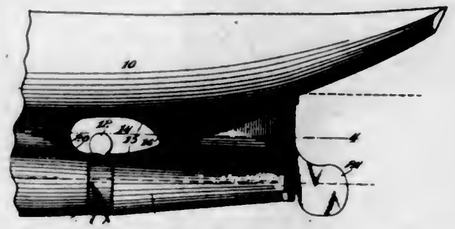
3. In a heating apparatus of the class described, a gasolene-holding tank consisting of a circular wall, an end threaded therein, the threads upon said end being formed with transverse grooves to receive solder as set forth for the purposes set forth.

751,157. **POWDER-CAN.** FRANK A. FISHER, Virden, Ill., assignor of one-half to John Hanley, Virden, Ill. Filed Jan. 19, 1903. Serial No. 139,668. (No model.)



Claim.—A powder-can comprising a body portion and a removable cover therefor, said cover being provided with a projecting, laterally-perforated, closed-ended, tapering head and having an annular bead at the junction of the head and cover, a laterally-perforated, closed-ended, tapering cap for the head, the free edge of which is provided with an annular bead in close engagement with the first-mentioned bead, and a laterally-projecting handle secured to the cap intermediate the bead and the closed end and located at such a distance from the opening in the cap that its radial position relatively to the opening in the head will indicate whether the can is opened or closed.

751,158. **PROPELLER-SHIP.** CARL J. H. FLINDT, Hoboken, N. J. Filed Sept. 15, 1903. Serial No. 173,249. (No model.)



Claim.—1. The combination in a ship having a rudder at its stern, of a hull; a propeller having blades and carried by the hull at its rear but at a distance considerably forward of the rudder; an opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls surrounding such opening having guide-faces projecting generally in the direction of flow of the water incident to the movement of the propeller-blades.

2. The combination in a ship, of a hull; a propeller having blades carried thereby; a transverse opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls thereof at the rear having a thin edge pointing forwardly to divide the stream of water incidentally formed by the action of the propeller.

3. The combination in a ship, of a hull; a propeller having blades carried thereby; a transverse opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls thereof at the rear and toward one side having a thin edge pointing forwardly to divide the stream of water incidentally formed by the action of the propeller.

4. The combination in a ship, of a hull; a propeller having blades carried thereby; a transverse opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls thereof at the rear and toward one side of the propeller having a thin edge pointed forwardly and opposite the direction of rotation to divide the stream of water incidentally formed by the action of the propeller.

5. The combination in a ship, of a hull; a propeller having blades carried thereby; a transverse opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls thereof at the rear and toward one side of the propeller having a thin edge pointing forwardly and opposite the direction of rotation to divide the stream of water incidentally formed by the action of the propeller and having at the front a thin edge pointing rearwardly to prevent the suction in front of the blades.

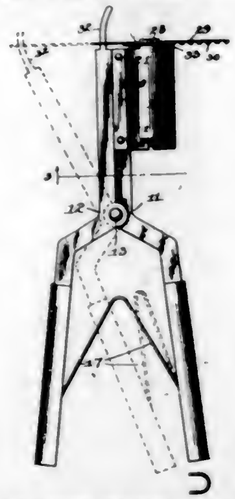
6. The combination in a ship, of a hull; a propeller having blades carried thereby; a transverse opening through the hull to admit the passage of the propeller-blades from one side thereof to the other, the walls thereof at the rear and toward one side of the propeller having a thin edge pointing forwardly and opposite the direction of rotation to divide the stream of water incidentally formed by the action of the propeller and having at the front a thin edge pointing rearwardly and toward the direction of rotation of the propeller to prevent suction in front of the blades and to direct the water through such opening with decreased resistance.

7. The combination with a ship's hull, of a propeller having blades carried thereby, a transverse propeller-blade passage-way through the hull, the walls thereof at the front having a thin edge pointing rearwardly and at the rear having a thin edge pointing forwardly.

8. The combination with a ship's hull, of a propeller having blades carried thereby; a transverse propeller-blade passage-way through the hull, the walls thereof at the front having a thin edge pointing rearwardly to prevent suction in front of the blades.

9. In a ship, the combination with a hull, of a propeller carried thereby and having a comparatively large cylindrical hub, blades carried by the hub, a passage-way through the hull to permit the rotation of the hub with its blades, the hull adjacent to such hub having a cylindrical formation and substantially circumferentially equal with the hub and the walls of such passage-way in front of and behind the blade ending in thin edges directed toward the blades.

751,159. **GRATING IMPLEMENT.** JOHN W. GAGE, Chicago, Ill., assignor of one-half to John P. Wiens, Milwaukee, Wis. Filed Jan. 31, 1903. Serial No. 141,231. (No model.)



Claim.—1. In a grating implement, a pair of levers pivoted together at a point intermediate their ends, said levers having normally separated handles at corresponding ends, a spring arranged to hold said handles normally apart, a holder for the material to be grated carried by the free end of one of the levers, and a grating member slidably mounted in operative proximity to the material-holder, and operatively connected with the free end of the opposing member, whereby relative movement of the handles imparts relative movement to the holder and grating member.

2. In a grating implement, a pair of levers pivoted together intermediate their ends, and each having at one end a handle part adapted to be grasped in the hand, an open-ended material-holder carried by the free end of one lever, a grating member operatively associated with the open end of the holder for movement relative thereto to grate the held material, and an operative connection between said grating member and the free end of the opposite lever whereby relative movement of the levers imparts relative movement to the grating member and material-holder.

3. In a grating implement, two levers pivotally connected and adapted to be opened or closed, means for normally holding said levers in closed position, a barrel carried by one lever member, a grater-plate attached to the opposite member for movement therewith, and closing one end of said barrel, and a spring-pressed follower within the barrel arranged to hold material within the barrel against the grating-plate.

4. In a grating implement, a pair of pivoted levers, provided with handles at one end thereof, an open-ended holder for the material to be grated, secured to one of said levers, and provided with a guideway at its open end, and a grater-plate slidably mounted in said guideway and loosely attached to the opposite levers.

5. In a grating implement, a pair of angular levers, pivoted together at their angles, a spring interposed between said levers to hold them separated on one side of the pivot and in close proximity on the other side, handles provided on the separated ends of the levers, and coacting holding and grating members operatively associated in movable relation and connected with the respective normally adjacent ends of the levers.

6. In a grating implement, a pair of pivoted levers, a material-holder secured to one of said levers, guides upon said holder, a grater-plate slidably arranged in said guides, and provided at one end with an aperture, and a finger carried by the opposing lever engaging in said aperture.

7. In a grating implement, a pair of pivoted levers provided with handles at one end, a spring interposed between said handles, an open-ended barrel mounted on the opposite end of one of said levers, provided with guides 28 at its upper end, means within the barrel arranged to force material toward the open end of said barrel, a grater-plate slidably mounted in said guides, said plate having an aperture in one end thereof, and a curved finger 32 carried by the opposing lever and engaging in said aperture.

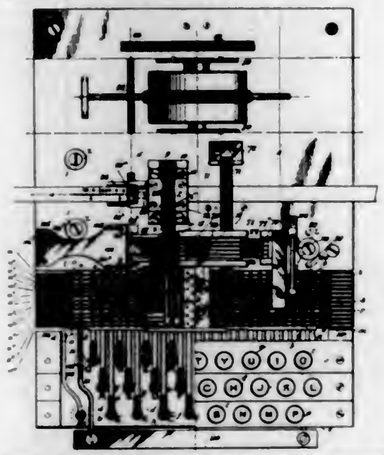
751,160. **RUBBER-AND-METAL-CAP TIP FOR CHAIRS.** SAMUEL GARRETT, Chicago, Ill., assignor to Garrett Tip Company, Chicago, Ill., a Copartnership. Filed Sept. 8, 1903. Serial No. 172,281. (No model.)



Claim.—1. As an article of manufacture, a concave unperforated metallic cap *a*, having wings *b* and *c* folded in in the plane of the upper surface of the cap and inclosing a nail or rod, the head of the rod or nail being freely movable within said cap, substantially as described.

2. As an article of manufacture, a concave circular unperforated metallic cap having a bar or plate extending across the circular edge of said cap and a nail with its head inside the concave surface of the cap and its shank extending through said plate on said cap, the head of the nail being freely movable backward and forward within the cap.

751,161. **PERFORATOR FOR USE WITH AUTOMATIC TELEGRAPH-TRANSMITTERS.** JOHN GELL, London, England. Filed Nov. 3, 1902. Serial No. 129,879. (No model.)



Claim.—1. The combination in a perforator for telegraphic and like purposes of a plurality of punches or perforating-needles selected and collectively and simultaneously operated, means whereby the corresponding symbol-feed is imparted to the perforated tape upon the depression of any member of a character-keyboard an epicyclic combination normally held out of action but driven through a main-spring by any suitable prime mover, primary and secondary countershafts geared to opposite sides of epicyclic combination carrying operative means for power escapement and arrestment punch-actuating, and feed-release and feeding mechanisms, substantially as described and illustrated in the accompanying specification and drawings.

2 In a perforator for telegraphic and like purposes the combination of punches for perforating the tape, with a keyboard, means for selecting and thereby forming signs or characters from said punches, a series of parallel bars, means for selection and producing a vertical movement in same, said bars actuating interlocking pins working in opposite directions and means for imparting the necessary feed to the perforated tape, substantially as described.

3. In a perforator for telegraphic and like purposes the combination with a keyboard, translating or selecting mechanism and interlocking pins of a punch consisting of a shell having guide and cutting-die plates, a reciprocating slider moving within said shell and having slots within which rest the interlocking pins, perforating-needles or punches passing through said slider, and actuated in the way and manner and by the means herein described.

4. In a perforator for telegraphic and like purposes the combination in a punch of a series of punches or perforating-needles for marking and feed-holes, having oblique cutting ends, said marking-hole punches having compression-springs and eyed swells for engagement with interlocking pins and bearing on shoulders formed on corresponding feed-hole punches; said punches passing through a reciprocating slider and guide-plates and arranged when selected by the interlocking pins from key to perforate a paper strip, passing over the cutting-die substantially as described.

5. In a perforator for telegraphic and like purposes the combination with a reciprocating punch-slider a series of character-punches with means for selecting and locking them to the slider, of a spacing feed-hole punch engaging with a cross-bar in said slider actuated automatically when the spacing or character keys are depressed substantially as described.

6. In a perforator for telegraphic and like purposes the combination with a keyboard of means whereby the perforated tape is advanced according to the length of symbol consisting of transverse bars engaging with vertically-rising parallel bars selected and operated as described from the key and causing on depression of said key and by means of tilting hooks toothed spacing-bars to fall upon a ratchet spacing-wheel beneath said spacing or feed bars being arranged in echelon over said ratchet-wheel and determining by their length the amount of feed substantially as described.

7. In a perforator for telegraphic and like purposes the combination of epicyclic gear driven by a prime mover and governed by a coiled spring whereby power is supplied to the intermittent demands of the shafts but differentially to the secondary shaft, with means for releasing and arresting said power controlled from keyboard and operated with every character-key depressed, substantially as described.

8. The combination in a perforator for telegraphic and like purposes of a primary and secondary counter-shaft the former carrying eccentric stagger-pin escapement-barrel cam actuating on release the feeding and punching mechanism, the latter carrying toothed ratchet spacing and feed wheel and sprocketed star feed-wheel substantially as described.

9. The combination in a perforator for telegraphic and like purposes of an escapement-lever actuated from parallel bars and engaging with stagger-pins on escapement-barrel; a hinged rocking frame having fork engaging with eccentric on primary counter-shaft, pitmen attached to said rocking frame and punch-slider; a second pivoted frame spring-hung from platform, carrying roller adapted to engage with cam and carrying pitmen-operating release-pawl on toothed ratchet-wheel; primary counter-shaft released and transverse levers raised on depression of keys; tilting hooks engaging with said transverse levers dropping suspended feed-levers; a check-plate arresting the rotation of secondary counter-shaft by engagement with fallen feed-lever, and transverse bar between limbs of feed ratchet-wheel pivoted pawl, lifting and rehanging on tilting bar said feed-lever, substantially as herein described.

10. In combination in a perforator, punches, tape-feeding mechanism including a check-plate movably supported, and means for adjusting the check-plate including a limiting-key and toggle-levers to vary the action of the tape-feeding mechanism whereby the spacing-hole may be eliminated, substantially as described.

11. In a perforator for telegraphic and like purposes the parallel bar check-plate, punch and cam rocking frame and fulcrum-blocks and means of adjustment for said parts comprising the bushes *z* and attachment-screws 1, substantially as described.

12. In combination in a perforating apparatus, a central series of feed-hole punches, a series of marking-hole punches on each side of the feed-hole punches, a slider, interlocking pins operating on opposite sides of the said slider for locking the marking-hole punches to the said slider and means for operating the slider, substantially as described.

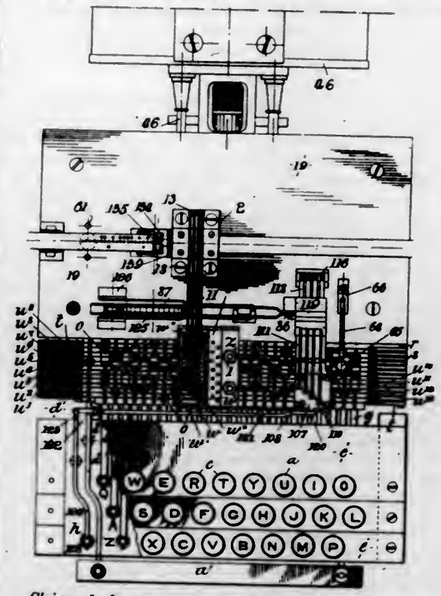
13. In combination in a perforating apparatus, a central series of feed-hole punches, a series of marking-hole punches on each side of the series of feed-holes punches, a slider for operating the punches, interlocking pins to connect the marking-hole punches with the slider, said marking-hole punches having engagement with the feed-hole punches to carry the same down therewith, substantially as described.

14. In combination, a series of punches having vertical movement, a slider movable vertically, means for connecting the punches with the said slider, a lever with means for operating the same to draw the slider down and a pitman connection between the said lever and slider, substantially as described.

15. In combination in a perforating apparatus, tape-feed mechanism comprising a ratchet-wheel, a series of feed-levers arranged in echelon to engage the ratchet-wheel, means for releasing the said feed-levers to engage the ratchet-wheel and means for arresting the ratchet-wheel, said means being located in the path of the feed-lever, substantially as described.

16. In combination in a perforating apparatus, tape-feeding mechanism and an adjustable plate controlling the variable feed of the said tape-feeding mechanism and a limiting-key connected to said plate for operating the same, substantially as described.

751,162. **PERFORATOR FOR AUTOMATIC TELEGRAPH-TRANSMITTERS.** JOHN GELL, London, England. Filed Dec. 12, 1902. Serial No. 134,997. (No model.)



Claim.—1. In a mechanical perforator for use with automatic telegraph-transmitters having a character-keyboard, translating mechanism and punch, the combination of a spring-driven shaft, operating means for releasing said shaft and perforating the tape, a feed controlling and setting device, and means for driving a separate shaft to feed said tape in accordance with the length of symbol perforated, substantially as described.

2. In a mechanical perforator for use with automatic telegraph-transmitters fitted with a character-keyboard, translating mechanism and punch; the combination of a barrel with spring attached thereto and directly to the axle operated by a motor through gearing, a spur-ring mounted on said barrel driving by a pinion an independent shaft carrying roller-faced stagger-pins, the pivoted escapement-lever engaging with said stagger-pins and thus allowing the shaft to revolve in such manner as to perforate the tape as required, a cam fast on end of said shaft actuating by vertical rods a rising and falling beam, imparting by means of a swinging pawl, the necessary feed to an independent tape-feed shaft substantially as described.

3. In combination with a mechanical perforator for use with automatic telegraph-transmitters, of a separate feed-shaft carrying a compound ratchet-wheel with reversed teeth and sprocketed star feed-wheel means for driving said shaft in accordance with the length of symbol and locking same when at rest substantially as described.

4. In combination with a mechanical perforator for use with automatic telegraph-transmitters, a rising and falling beam alined by radius-links as described, and operated by a cam-driven reciprocating rod, means for arresting the upward travel of said beam-tail consisting of stop-pins actuated by levers from the feed parallel bars whereby the requisite amount of feed is imparted to an independ-

ent shaft driven by a swinging pawl engaging with a compound ratchet-wheel fast on said shaft substantially as herein described.

5. In a perforator for use with automatic transmitters the combination of a stagger-pin barrel on main or cam shaft cooperating with a pivoted compound escapement-lever formed with a sliding tooth so that the shaft is arrested and cushioned against the effort of a spring interposed between the two elements of escapement-lever.

6. In combination in a mechanical perforator tape-feed mechanism, punching mechanism, a compound escapement-lever consisting of upper and lower parts, a series of parallel bars, a pivoted lever operated by one of the parallel bars, keys operating the parallel bars, a cam-shaft, stagger-pins thereon arranged to be engaged by the escapement-lever, the upper part of the compound lever sliding over the lower part and a contractile spring associated with the compound lever for applying a yielding pressure to the upper part of the compound lever, substantially as described.

7. In a mechanical perforator for use with automatic telegraph-transmitters, the combination with a differential tape-feeding mechanism of a limiting-key, levers connecting same with the push-rod comb-plate on operation adapted to move said comb-plate whereby the spacing-hole is eliminated, and a sequence of undivided symbols obtained substantially as described.

8. In a perforator for use with automatic telegraph-transmitters, the combination of punching mechanism, tape-feed mechanism, a cam-shaft having means for controlling the punching mechanism and the tape-feed mechanism and having a spur-pinion thereon, a spring coiled by a prime mover and adapted by means of a spur-ring attached to the other end of said spring to drive said cam-pinion substantially as described.

9. In a perforator for use with automatic telegraph-transmitters, the combination with punching and tape-feed mechanism and a sprocketed star tape-feed wheel for feeding the tape, of an adjustably-tensioned top roller or shoe, said top roller or shoe holding the tape in connection with the feed-wheel substantially as described.

10. In combination in a perforating-machine, punching means, differential tape-feeding mechanism comprising a series of stop-feed pins, a series of parallel bars, combs for operating said bars, key connections to the combs and lever connections between the said parallel bars and the stop-feed pins, substantially as described.

11. In combination in a perforating-machine, punching means, tape-feeding means, check or stop-feed pins to give a differential action to the tape-feeding means and means for shifting part of the operating connection leading to the said check or stop-feed pins whereby the spacing-hole will be eliminated, substantially as described.

12. In combination in a perforating-machine, punching means, tape-feeding means, check or stop-feed pins to give a differential action to the tape-feeding means and an adjustable plate controlling the variable feed of the said tape-feeding means, said plate carrying and shifting part of the operating connection leading to the check or stop-feed pins, and a limiting-key connected with the adjustable plate, substantially as described.

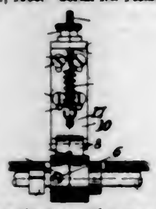
13. In a perforator for use with automatic telegraphic transmitters and the like, the combination with a feed-shaft, of a lantern ratchet feed-wheel suitably secured thereon, a beam, a variable fulcrum therefor at one end, a pawl engaging the lantern-wheel and operatively connected with the other end of said beam, and means connected with the intermediate portion of said beam for lifting the same, substantially as described.

14. In a perforator for use with automatic telegraphic transmitters and the like, the combination with a feed-shaft, of a lantern ratchet feed-wheel suitably secured thereon, a beam located over said wheel, means for permitting a variable lifting movement to one end of said beam, a pawl operatively connected to the other end and engaging the lantern-wheel, means connected with the intermediate portion of said beam for lifting the same, and a tooth carried by said beam adapted to engage between the pins of the lantern-wheel when the beam is in its lowermost position, substantially as described.

15. In combination, a feed-shaft, a lantern ratchet-wheel thereon, a beam located over the lantern-wheel, means connected to said beam intermediate of its ends for lifting it, variable stop means for limiting the upward movement of one end of the beam and forming an adjustable fulcrum, a link depending from the other end of said beam, a pawl connected with said link and engaging the pins of the lantern-wheel, and guide-arms on each side of the lantern-wheel pivotally connected with the shaft and the said link, substantially as described.

16. In combination, a feed-shaft, a ratchet-wheel mounted thereon, a beam located above the ratchet-wheel, a reciprocating member pivotally connected to said beam intermediate of its ends for moving it vertically, variable stop means at one end of said beam for limiting the vertical movement thereof, a pawl connected with the opposite end and engaging the ratchet-wheel and a pawl carried upon a stationary pivot and also engaging the ratchet-wheel, substantially as described.

751,163. FEED-WHEEL FOR AUTOMATIC TELEGRAPHIC PERFORATORS AND TRANSMITTERS. JOHN GELL, London, England. Filed Mar. 17, 1903. Serial No. 148,232. (No model.)



Claim.—1. The combination with a star sprocketed wheel comprising a center fastened to and turning with the shaft, an independent sleeve carrying the pins for drawing along the tape, and means for adjusting the sleeve circumferentially whereby the pins may be made to register accurately with the perforations in the tape, and a shaft on which the center is fastened.

2. The combination in a star sprocketed wheel of a center fastened to and turning with the shaft, an independent sleeve carrying the pins or pegs for drawing along the tape or ribbon, one or more elongated holes therein through each of which passes a set-screw threaded into said center, said parts cooperating for adjusting and fixing the pins in register with the tape, substantially as described.

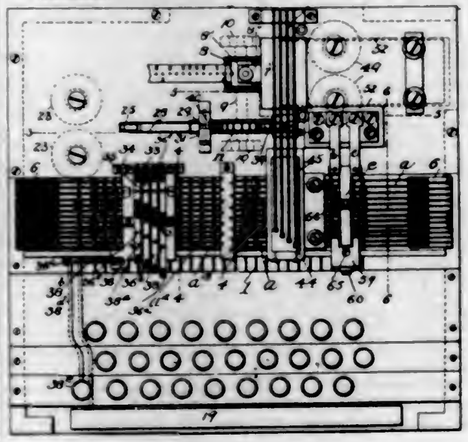
3. The combination with the star sprocket-wheel having its teeth or pins adapted to enter the perforations in a tape, of a pivoted shoe having a slotted portion corresponding to the pins of the sprocket-wheel and means for causing said shoe to press upon said tape as it passes over the star-wheel whereby the pins are caused to enter the perforations in the tape, substantially as described.

4. In combination with a star feed-wheel, a shoe having a bearing-face of segmental form to overlie a segment of the periphery of the feed-wheel and having a groove in said segmental face and means for pivotally supporting the said shoe, substantially as described.

5. In combination, a shaft, a star feed-wheel thereon having an adjustment by which the points may be set in different positions in relation to the shaft, substantially as described.

6. In combination with the star feed-wheel, a shoe, a bracket having slots, a support for the bracket, screws passing through slots in the bracket to secure it adjustably to the support, a hook passing through one of the slots in the bracket and into the support and a spring connecting the bracket with the hook, substantially as described.

751,164. APPARATUS FOR PERFORATING TAPE FOR AUTOMATIC TELEGRAPH INSTRUMENTS OR THE LIKE. JOHN GELL, Wellington, New Zealand. Filed May 9, 1903. Serial No. 156,346. (No model.)



Claim.—1. In combination in a perforating-machine, punching means, a tape-feeding roller, feeding means for operating the feed-roller, a setting-electromagnet for setting the said feeding means, stop-feed pins, a keyboard, lever connections between the said keyboard and the stop-feed pins and circuit-closing means controlled from the keyboard for controlling the setting-electromagnet, substantially as described.

2. In combination with a group of punches, a slider, interlocking pins to connect the punches with the slider in predetermined series or groups, and an electromagnet for operating the slider, substantially as described.

3. In combination with a group of punches, means for selecting said punches according to the key struck, an electromagnet, an armature-lever, connections between said lever and the punches and an adjustable stop for the punches acting on the armature-lever for limiting their movement under the pull of the electromagnet, substantially as described.

4. In combination with a group of punches, tape-feeding means, stop-feed pins, a feed-setting electromagnet for the feeding means to set the same in connection with the stop-feed pins, a perforating-electromagnet for operating the punches, circuit connections, contacts therein controlling the setting-electromagnet and the perforating-electromagnets, a circuit-closing lever, to operate the said contacts in succession, and means for actuating the tape-feed means to feed the tape when the setting-electromagnet is deenergized, substantially as described.

5. In combination, a group of punches, means for selecting said punches according to the key struck, an electromagnet for moving the punches to perforate the paper and an adjustable stop for limiting the movement of the punches under the pull of the said magnet, substantially as described.

6. In combination in a perforating-machine, a group of punches, a perforating-electromagnet for operating the said punches, tape-feeding means, a feed-setting magnet, interlocking pins for the punches, a series of parallel bars, combs with connections to the finger-keys for operating the said parallel bars selectively, means for operating the interlocking pins from the parallel bars, electric contacts controlling the circuit to the feed-setting magnet and the perforating-magnet, said contacts being controlled by one of the parallel bars, substantially as described.

7. In combination, in a perforating-machine, a group of punches, a perforating-electromagnet for operating the said punches, tape-feeding means, a feed-setting magnet, interlocking pins for the punches, a series of parallel bars, combs with connections to the finger-keys for operating the said parallel bars selectively, means for operating the interlocking pins from the parallel bars, electric contacts controlling the circuit to the feed-setting magnet and the perforating-magnet, a circuit-closing lever controlling the said contacts, said lever being operated by one of the parallel bars, substantially as described.

8. In combination in a perforating apparatus, tape-feeding means, a setting-feed electromagnet, punching means, a perforating-electromagnet for operating the said punching means, check or stop-feed pins for giving a differential action to the said tape-feed means, a keyboard, lever connections between the said keyboard and the said check or stop-feed pins whereby the same are selected and set by the manual operation of the keys, lever mechanism for mechanically selecting the punches upon the operation of the keys, an electric circuit including therein the feed-setting electromagnet and the perforating-electromagnet contacts controlling the energizing of the said electromagnets in succession and means for closing the said contacts, substantially as described.

9. In combination in a perforating apparatus, a series of punches for perforating the tape, tape-feeding means, an electromagnet for controlling the tape-feeding means, an electromagnet for operating the punches, interlocking pins for selecting the punches to be operated, check or stop-feed pins for giving a differential feed to the tape-feeding mechanism, a series of parallel selecting-bars, key connections thereto, lever connections between the selecting-bars and the check-feed pins and the interlocking pins whereby said pins are mechanically selected by the operation of keys, electric-circuit connections including the feed-controlling electromagnet and the punch-operating electromagnet contacts controlling the said circuit connections and a circuit-closing lever operated from one of the parallel bars to operate the contacts in succession, substantially as described.

10. In combination in a perforating-machine, tape-feeding mechanism, check or stop-feed pins and means for setting said pins in position, said means imparting a maximum throw to the said pins at the outset and which throw gradually decreases, substantially as described.

11. In combination in a perforating-machine, tape-feeding mechanism, check or stop-feed pins and means for setting said pins in position, said means comprising a plurality of levers, the end of the impelling-lever in each instance moving away from the pivot of the lever impelled, substantially as described.

12. In combination in a perforating-machine, tape-feeding mechanism, check or stop-feed pins and means for setting said pins in position comprising a set of levers for each pin, each set being composed of a primary, a secondary and a tertiary lever, substantially as described.

13. In combination in a perforating apparatus, tape-feeding means comprising a tape-feed wheel, a feed-girder, links supporting the same, one of which is supported axially of the tape-feed wheel, means for operating the feed-girder and check or stop-feed pins arranged to be struck by the end face of the said lever as it swings longitudinally, substantially as described.

14. In combination in a perforating-machine, a tape-feed wheel, a feed-girder, swinging links supporting the same, a lever 29 engaging the feed-girder, differential stop-pins at the end of the lever, an electromagnet and an armature-lever connected with the lever 29, substantially as described.

15. In combination in a perforating-machine, a tape-feed wheel, a feed-girder, swinging links supporting the same, a lever 29 engaging the feed-girder, differential stop-pins at the end of the lever, an electromagnet and an armature-lever connected with the lever 29, said lever 29 having a reverse check-tooth and a wheel operated by the feed-girder controlled by said check-tooth, substantially as described.

16. In combination in a perforating-machine, punching mechanism, a tape-feed wheel, a lantern-wheel connected therewith, a feed-girder, parallel links supporting the feed-girder, a pawl for turning the lantern-wheel, differential stop-pins at the end face of the feed-girder, means for setting the said pins, an electromagnet, an armature-lever, a lever 29 connected to the feed-girder and having a reverse check-tooth to engage the lantern-wheel and a connection between the said lever 29 and the armature-lever, substantially as described.

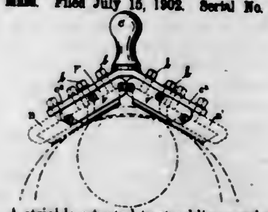
17. In a perforating-machine, tape-feed mechanism, punches and electromagnets for acting upon tape-feed mechanism, the punches, contact-springs one arranged over the other and controlling the electric circuits in which the electromagnets are included and a circuit-closing lever for closing the circuits through the said springs in succession by first engaging with the lower contact with which said lever is normally out of contact and lifting the same to engage with the upper contact, substantially as described.

18. In combination in a perforating apparatus, punches and electromagnets, an armature-lever connected with the punches, an adjustable pivot for the armature-lever and an adjustable U-shaped stop for the said lever, substantially as described.

19. In combination in a perforating apparatus, a tape-feed roller, a longitudinally-movable feed-girder, parallel links supporting the said girder, a pawl moving with the girder, and differential stop means for the said girder, substantially as described.

20. In combination with the punches, means for operating the same consisting of a slider and interlocking pins to fix the punches thereto and means for limiting the rise of the punches consisting of a perforated plate through which the shanks of the punches pass and means for adjusting the plate vertically, substantially as described.

751,165. STRICKLE FOR CARD-CLOTHING. DAVID GRISWOLD, Worcester, Mass. Filed July 15, 1902. Serial No. 115,643. (No model.)



Claim.—1. A strickle adapted to straddle a card-clothed cylinder and to be moved longitudinally along the same; said strickle containing, in combination, a plurality of grinding areas separated circumferentially by a less grinding area.

2. A strickle adapted to straddle a card-clothed cylinder and to be moved longitudinally along the same; said strickle containing, in combination, a plurality of ribbed grinding areas separated circumferentially by a ribless area.

3. A strickle for cylindrical surfaces containing a series of ridges *a* interrupted by a series of spaces G.

4. A strickle for cylindrical surfaces containing, in combination, a plurality of grinding areas separated circumferentially by a less grinding area; each grinding area containing a series of ridges *a* interrupted by a series of spaces G and said spaces G in one grinding area being in staggered position relatively to the spaces G in the other grinding area.

5. A strickle adapted to straddle a card-clothed cylinder and to be moved longitudinally along the same; said strickle containing, in combination, a plurality of grinding areas separated circumferentially by a less grinding area and means whereby said grinding areas may be adjusted relatively to each other.

6. A strickle adapted to straidle a card-clothed cylinder and to be moved longitudinally along the same; said strickle containing, in combination, the two blocks A and A' and a holder with which they are detachably connected whereby the position of said blocks may be changed to shift the position of the grinding areas thereon.

7. As an article of manufacture, a strickle-block consisting of a ribbed face and a body provided with means of attachment to a strickle-holder.

8. As an article of manufacture, a strickle-block containing a face of ribs interrupted by occasional spaces and a body provided with means of attachment to the strickle-holder.

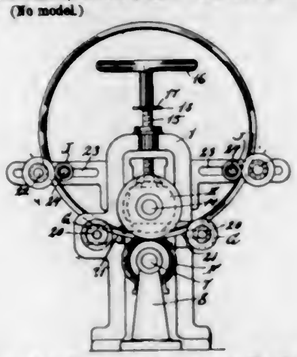
9. As an article of manufacture, a strickle-block containing a ribbed face and a body adapted for attachment to the strickle-block and the material of which is integral with that of the face.

10. As an article of manufacture, a strickle-block containing a ribbed face and a body widened beyond the width of the face.

11. A strickle adapted to straddle a card-clothed cylinder and to move longitudinally along the same; said strickle containing, in combination, a plurality of grinding areas separated circumferentially by a less grinding area and a pivotal connection between said grinding areas.

12. A strickle adapted to straddle a card-clothed cylinder and to move longitudinally along the same; said strickle containing, in combination, a plurality of grinding areas separated circumferentially by a less grinding area and a pivotal connection between said grinding areas and means whereby the same may be adjusted relatively to each other.

751,166. **MACHINE FOR MAKING METALLIC WHEEL-RIMS.** WILLIAM S. GORTON, Cleveland, Ohio. Filed Dec. 26, 1902. Serial No. 136,715. (No model.)



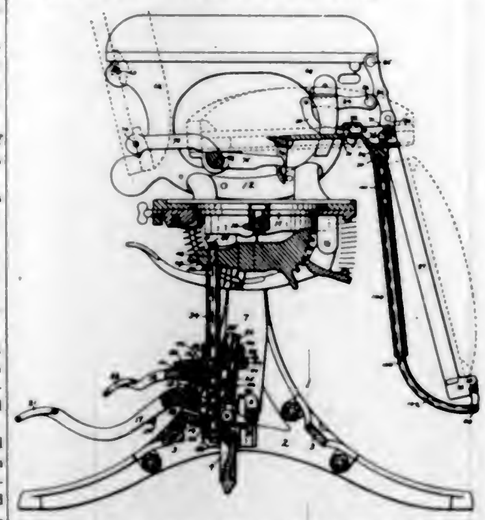
Claim.—1. In a machine for making metallic wheel-rims, the combination of a convex-faced and a concave-faced shaping-roll having means for revolving them together and the convex-faced roll having its greatest diameter equal to the smallest diameter of the concave-faced roll, and means for moving one of said rolls toward and from the other.

2. In a machine for making metallic wheel-rims, the combination with a pair of rim-shaping rolls, of a pair of rolls arranged at opposite sides of the shaping-rolls in the path of the rim and having concave faces engaging the edges of the shaped rim to keep the same from spreading.

3. In a machine for making metallic wheel-rims, the combination of a convex-faced and a concave-faced shaping-roll having means for revolving them together and the convex-faced roll having its greatest diameter equal to the smallest diameter of the concave-faced roll, means for moving one of said rolls toward and from the other, and idle guide-rolls arranged laterally to the pass between said rolls and in an arc to such pass concentric with the rim to be shaped in said pass and to bear against the outer periphery of the same.

4. In a machine for making metallic wheel-rims, the combination of the concave-faced roll E, the convex-faced roll F, means for driving said rolls, the laterally-adjustable and idle concave guide-rolls G, the laterally-adjustable and idle concave guide-rolls H, and the laterally-adjustable flat guide-rolls J opposed to said latter rolls.

751,167. **SURGICAL CHAIR.** AARON P. GOULD, Canton, Ohio. Filed July 13, 1901. Serial No. 68,162. (No model.)



Claim.—1. In a chair, a base, a sliding frame in the base, an elevating-bar supporting the frame, a horizontal plate in the base having an aperture in which the elevating-bar operates and is guided, a yoke-grip normally resting on the plate comprising a collar having an elongated aperture and a lug on one side adjacent to the elevating-bar and a yoke around the elevating-bar pivoted to the lug, and an operating-bar pivoted in the collar-aperture.

2. In a chair, a body, a back having pivotal connection with the sides of the body, a seat having movable pivotal connection with said sides of the body, a latch on said seat, a transverse rocker-shaft journaled to the rear part of said seat, said shaft having rearward-projecting arms the rear ends of which have pivotal connection with the lower part of the back, and a forward-projecting arm adapted to engage said latch.

3. In a chair, a body, a back having pivotal connection with the sides of the body, a seat having movable pivotal connection with said sides of the body, a latch on said seat, a transverse rocker-shaft journaled to the rear part of said seat, said shaft having rearward-projecting arms the rear ends of which have pivotal connection with the lower part of the back, a forward-projecting arm adapted to engage said latch, and a handled actuating-arm projecting from one end of said rocker-shaft.

4. In a chair, a seat, a leg-rest pivoted to said seat near its forward end, a foot-rest pivoted to said leg-rest at its lower end, an extensible strut pivoted at its ends to said seat and to said foot-rest respectively below and to the rear from said leg-rest and foot-rest pivotal points.

5. In a chair, a seat, a leg-rest pivoted to the seat, a foot-rest pivoted to the leg-rest, and an extensible strut having its ends pivoted to the seat and foot-rest in similar relation below the leg-rest and foot pivoted points, and being adapted when contracted to hold the foot-rest parallel with the seat and by its extension to permit the foot-rest to be folded back upon the leg-rest.

751,168. **ICE-CREAM-PACKING CABINET.** EDWARD HADLEY, Ottawa, Kans. Filed Sept. 3, 1903. Serial No. 171,754. (No model.)

Claim.—1. The combination of a cabinet, a can therein, having a detachable lid, and a hollow lid for the cabinet and hinged to the same, and having a spring-catch for engagement with the can-lid so as to lift the latter off or replace it upon the can.

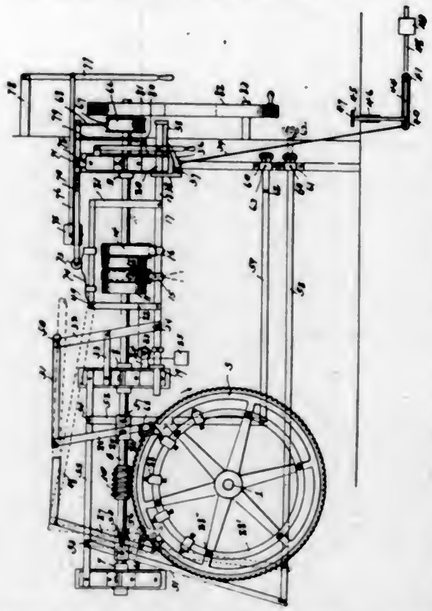
2. The combination of a cabinet, a can therein, having a detachable lid provided with a handle, and a hollow lid for the cabinet having a recess at its bottom to receive the can-lid handle, and provided with a spring-catch to engage said handle.



3. The combination of a cabinet, a can therein having a detachable lid provided with a handle, a lid for the cabinet having a recess in its bottom, and a spring-catch secured to the base of such recess and of substantially inverted-U form in cross-section.

4. The combination of a cabinet having a hinged lid, provided with a recess in its bottom, and a spring-catch in said recess, with a can within the cabinet and having a lid provided with a handle to be automatically engaged by said catch when the cabinet-lid is closed.

751,169. **REEL-OVEN.** WILLIAM W. HIGGINS, Chicago, Ill. Filed Jan. 30, 1903. Serial No. 141,184. (No model.)



Claim.—1. A mechanism for operating oven-reels, comprising an oven-reel shaft, a worm-gear mounted thereon, a main drive-shaft provided with a worm engaging said worm-gear, a series of tappets upon said gear, two oscillatory tappet-levers arranged contiguous to the gear, means for bodily shifting said levers to bring them into and out of operative relation to the tappets upon the gear, a belt-shifter frame provided with two belt-shifters, two pairs of idle and drive pulleys mounted upon the main shaft in operative relation to said respective belt-shifters, operative connections between said belt-shifter frame and each tappet-lever, adapted to be alternatively brought into use and whereby the movement of either tappet-lever under the action of the tappets upon the gear serves to shift one of the driving-belts from a drive-pulley to an idler, means for automatically engaging and holding the belt-shifter frame substantially at the limit of its throw in one direction, and means for automatically returning the belt-shifter when released.

2. A mechanism for operating oven-reels, comprising an oven-reel shaft, a worm-gear mounted thereon, a main driving-shaft provided with a worm engaging said worm-gear, a series of tappets upon said gear, two oscillatory tappet-levers arranged contiguous to the gear and fulcrumed between their ends, means for bodily shifting the fulcrum-supports of said levers to bring them into and out of operative relation to the tappets upon the gear, a belt-shifter frame provided with two belt-shifters, two pairs of idle and drive pulleys mounted upon the main shaft in operative relation to the respective belt-shifters, operative connections between said belt-shifter frame and each tappet-lever adapted to be alternatively disengaged, said tappet-levers being arranged in oppositely-disposed relation so as to be respectively operative when the worm-gear is rotated in opposite directions and the connections between one of the tappet-levers the belt-shifter frame including a change-motion device whereby the belt-shifter is shifted in the same direction by both tappet-levers, means for automatically engaging and holding the belt-shifter frame substantially at the limit of its throw in one direction and a continuously-acting return mechanism operating to automatically return the belt-shifter when released.

3. In combination with the main shaft of an oven-reel, a driving-gear mounted thereon, a tappet-ring mounted upon said driving-gear concentric with the axis thereof, and a series of tappets upon said ring, said ring being adjustably secured to the gear by means of circumferentially-disposed slot-and-bolt connections, for the purpose set forth.

4. In combination with the main shaft of an oven-reel, a driving-gear adjustably mounted thereon, a tappet-ring mounted upon said driving-gear concentric with the axis thereof, and a series of tappets upon said ring, said ring being secured to the gear by means of circumferentially-disposed slot-and-bolt connections, and the several tappets being adjustably mounted upon said ring, for the purpose set forth.

5. In a mechanism for operating oven-reels, the combination with a rotative reel, of a worm-gear connected to rotate positively with the reel, a drive-shaft provided with a worm engaging said worm-gear, driving connections for actuating said main shaft, ungearing mechanism, and a balance-wheel operatively connected with the drive-shaft and operating to effect a gradual retardation of the rotation thereof when thrown out of gear.

6. In a mechanism for operating oven-reels, the combination with a rotative reel, of a worm-gear connected to rotate positively with the reel, a drive-shaft provided with a worm engaging said worm-gear, driving connections for actuating said main shaft, ungearing mechanism, a friction-brake arranged to act upon said drive-shaft, and a balance-wheel operatively connected with the drive-shaft and operating to effect a gradual retardation of the rotation thereof when thrown out of gear.

7. In a mechanism for operating oven-reels, the combination with the reel-shaft and oven-reel thereon, of a gear upon said reel-shaft, a main drive-shaft, driving connections between said drive-shaft and gear, comprising means for driving said main shaft in opposite directions, and a friction-brake arranged to act upon said main shaft comprising a brake-wheel, a brake-band encircling said brake-wheel, and a weighted lever pivoted upon an axis extending substantially at right angles to the brake-wheel shaft and provided with two arms with which the respective ends of said brake-band are connected, whereby the application of the brake to the brake-wheel is uniform, regardless of which direction the brake-wheel is rotating.

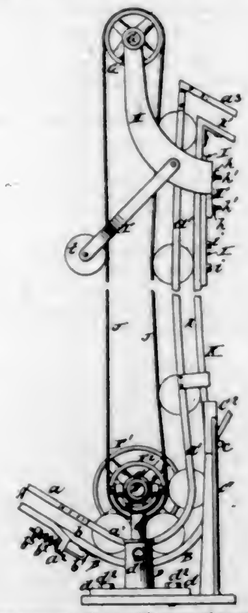
8. In combination with an oven-reel, the main shaft thereof, and a driving-gear mounted upon said shaft, a drive-shaft and driving connections between said drive-shaft and the gear of the reel-shaft, driving connections for operating the drive-shaft, means for throwing the drive-shaft out of gear, an automatically-operating friction-brake mechanism arranged to act upon said drive-shaft when the latter is thrown out of gear, comprising a weighted lever, a brake-wheel and a brake-band connected with said weighted lever engaging said brake-wheel, and means for shifting the weight along said weighted lever, comprising a hand-lever, and a rigid link connecting the hand-lever and weight, substantially as described.

9. In combination with an oven-reel, and the driving mechanism thereof, a belt-shifter frame, mechanism for automatically shifting said frame in one direction, a continuously-acting weight arranged to return said belt-shifter, and a pawl-and-ratchet mechanism arranged to automatically engage and hold said belt-shifter frame at the limit of its movements against the action of the weight.

751,170. **CAN-ELEVATOR.** ARCHIBALD E. HOPKINS and OLIN S. FELLOWS, Middletown, N. Y.; said Hopkins assignor to said Fellows. Filed Aug. 13, 1903. Serial No. 169,337. (No model.)

Claim.—1. In a can-elevator, the combination of an upright fixed convex can-guiding surface and an opposed flexible can-elevating surface, together with means for guiding the cans from the

runway to said upright convex guiding-surface, substantially as set forth.



2. In a can-elevator, the combination of an upright convex can-guiding surface, an opposed flexible can-elevating surface, means for adjusting the said upright convex guiding-surface and the flexible can-elevating surface with relation to each other for the purpose set forth, and means for guiding the cans from the runway to said upright convex guiding-surface, substantially as set forth.

3. In a can-elevator, the combination of an upright convex can-guiding surface, an opposed flexible can-elevating surface, means for adjusting the said flexible can-elevating surface with relation to the said upright convex can-guiding surface for the purpose set forth, and means for guiding the cans from the runway to said upright convex can-guiding surface, substantially as set forth.

4. In a can-elevator, the combination of an upright fixed convex can-guiding surface, an opposed flexible can-elevating surface, means for automatically maintaining the tension of said flexible can-elevating surface, and means for guiding the cans from the runway to said upright convex can-guiding surface, substantially as set forth.

5. In a can-elevator, the combination with an upright convex can-guiding surface and opposed flexible can-elevating surface, of a flexible concave can-receiving surface for guiding the cans from the runway to the said upright convex guiding-surface, substantially as set forth.

6. In a can-elevator, the combination with an upright convex can-guiding surface and opposed flexible can-elevating surface, of a flexible concave can-receiving surface for guiding the cans from the runway to the said upright convex guiding-surface, and means for automatically maintaining said flexible concave receiving-surface at a uniform tension, for the purpose set forth.

7. In a can-elevator, the combination with an upright convex can-guiding surface and opposed flexible can-elevating surface, of a flexible concave can-receiving surface for guiding the cans from the runway to the said upright convex guiding-surface, together with means for adjusting the tension of said flexible concave receiving-surface, for the purpose set forth.

8. In a can-elevator, the combination with an upright convex can-guiding surface of an opposed flexible can-elevating surface consisting of an endless belt traveling upon suitable pulleys, together with a flexible concave can-receiving surface arranged to guide the cans from the runway around the lower belt-pulley and to the said upright convex can-guiding surface, substantially as set forth.

9. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible can-elevating surface consisting of an endless belt traveling upon suitable pulleys, a flexible concave can-receiving surface substantially concentric with the lower belt-pulley, means for adjusting said lower belt-pulley with relation to the said flexible concave receiving-surface, and means for changing the curvature of said flexible concave receiving-surface to conform to the adjustment of the said lower belt-pulley, for the purpose set forth.

10. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible elevating-surface consisting of an endless belt traveling upon suitable rollers, means for adjusting said rollers both horizontally and vertically, a flexible concave can-receiving surface substantially concentric with the lower belt-pulley, and means for changing the curvature of said flexible concave can-receiving surface to conform to the adjustment of the said lower belt-pulley, for the purpose set forth.

11. In a can-elevator, the combination with an upright fixed convex can-guiding surface of an opposed can-elevating surface consisting of an endless belt traveling upon suitable rollers, and means for automatically maintaining the tension of said can-elevating belt for the purpose described.

12. In a can-elevator, the combination of an upright fixed convex can-guiding surface, an endless belt opposed to said upright convex guiding-surface and arranged to elevate the cans over the same, and a roller-weight suspended pivotally and arranged to bear against the descending side of said elevator-belt whereby the belt is held taut while free to adapt itself to any number of cans introduced between its ascending side and the said upright convex can-guiding surface, substantially as set forth.

13. In a can-elevator, the combination of an upright convex can-guiding surface, of an opposed can-elevating surface consisting of an endless belt traveling upon suitable rollers, and a flexible concave can-discharging surface arranged to guide the cans from said upright convex guiding-surface around the upper belt-pulley and onto suitable ways, for the purpose set forth.

14. In a can-elevator, the combination of an upright convex can-guiding surface, an opposed can-elevating surface consisting of an endless belt traveling upon suitable rollers, a flexible concave can-discharging surface arranged to guide the cans from said upright convex guiding-surface around the upper belt-pulley, and onto suitable ways, and means for automatically maintaining said concave can-discharging surface at a uniform tension, for the purpose set forth.

15. In a can-elevator, the combination of an upright convex can-guiding surface, an opposed can-elevating surface consisting of an endless belt traveling upon suitable rollers, a concave can-discharging surface arranged to guide the cans from said upright concave guiding-surface around the upper belt-pulley and onto suitable ways and means for adjusting the tension of the said flexible concave can-discharging surface, for the purpose set forth.

16. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible can-elevating surface consisting of an endless belt traveling upon suitable rollers, means for adjusting said rollers both horizontally and vertically, a flexible concave can-discharging surface substantially concentric with the upper belt-pulley, and means for changing the curvature of the said flexible concave can-discharging surface to conform to the adjustment of the said upper belt-pulley, for the purpose set forth.

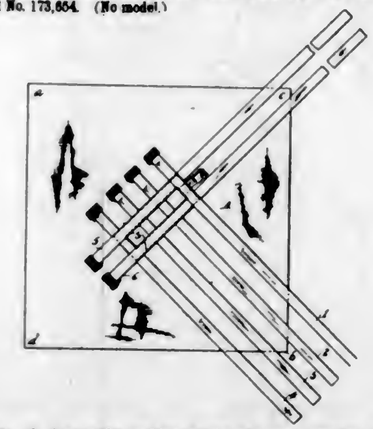
17. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible can-elevating surface consisting of an endless can-receiving surface substantially concentric with the lower belt-pulley, and a flexible concave can-discharging surface, substantially concentric with the upper belt-pulley, whereby the cans are raised to a higher level and discharged in a direction substantially the same as that in which they are received by the elevator, for the purpose set forth.

18. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible can-elevating surface consisting of an endless belt traveling upon suitable rollers, a flexible concave receiving-surface substantially concentric with the lower belt-pulley, a flexible concave can-discharging surface substantially concentric with the upper belt-pulley, and means for adjusting said lower and upper belt-pulleys both horizontally and vertically, for the purpose set forth.

19. In a can-elevator, the combination of an upright convex can-guiding surface, a flexible can-elevating surface consisting of an endless belt traveling upon suitable rollers, a flexible concave can-receiving surface substantially concentric with the lower belt-pulley, a flexible concave can-discharging surface substantially concentric with the upper belt-pulley, means for adjusting said lower and upper belt-pulleys both horizontally and vertically, and means for changing the curvature of the said flexible concave receiving and discharging surfaces to conform to the adjustment of the said lower and upper belt-pulleys respectively, for the purpose set forth.

20. In a can-elevator, the combination of an upright convex can-guiding surface, an opposed flexible can-elevating surface consisting of an endless belt traveling over suitable pulleys, a flexible concave can-receiving surface substantially concentric with the lower belt-pulley, a flexible concave can-discharging surface substantially concentric with the upper belt-pulley, and means for automatically maintaining the tension of said can-elevating belt, for the purpose set forth.

751,171. WRAPPER FOR COOKING ARTICLES OF IRREGULAR OUTLINE. LOUISE HORR, Detroit, Mich. Filed Sept. 18, 1903. Serial No. 173,854. (No model.)



Claim.—1. A cover for cooking articles of irregular outline, having in combination a rectangular cloth, a plurality of straps secured thereto parallel to a diagonal thereof and equally spaced on either side of such diagonal, a second set of straps also secured to said cloth on the same side thereof with the first set and parallel to another diagonal of said cloth and crossing the first set at right angles, the said straps being provided with buckles at their ends, substantially as described.

2. A cover for cooking articles of irregular outline, having in combination a rectangular cloth smooth on one side and provided on the other with two sets of straps which cross each other at right angles, each set of straps being parallel to a diagonal of said rectangular cloth and being secured thereto and having buckle-terminated ends which do not extend beyond the boundaries of the cloth, substantially as described.

751,172. ARTIFICIAL FUEL. GEORGE T. HOWARD, Lagrange, Ill., assignor of one-half to William J. Applegate, Chicago, Ill. Filed June 17, 1903. Serial No. 161,846. (No specimens.)

Claim.—1. A composition for artificial fuel consisting of the following ingredients in substantially the proportions stated: loam fifty-five parts, coal-screenings twenty-five parts, sawdust five parts, petroleum, three parts, oil-meal three parts, paraffin one part, milk of lime three parts, solution of glue one part and tar four parts, as set forth.

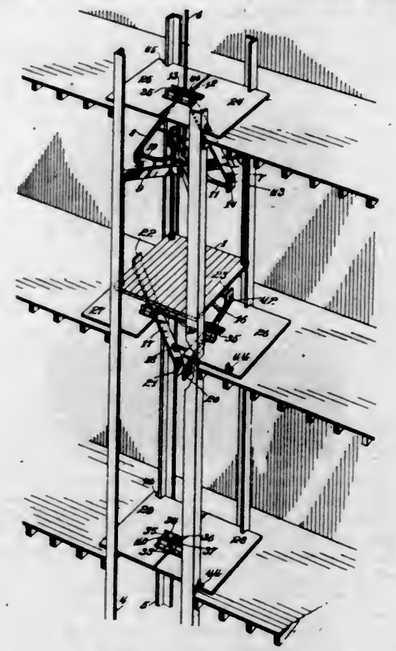
2. A composition for artificial fuel about one-half of which is loam, from one-fourth to one-third dry comminuted fuel and the remainder divided between oily material, adhesive material and hardening material, substantially as set forth.

3. The process of making briquets of fuel which consists in mixing mineral and vegatable oily matter and heating the same: then mixing this mixture with a mixture of comminuted fuel and earthy matter; then adding hardening alkaline material and binding material and finally molding the mass into briquets substantially as set forth.

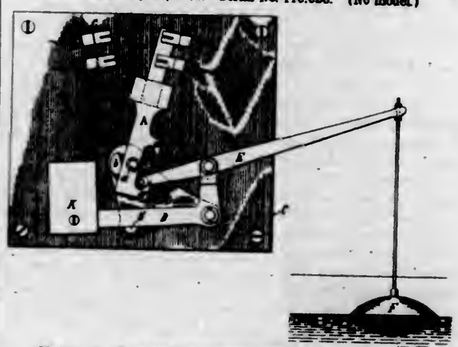
751,173. ELEVATOR-CAM. WILLIAM HUMPHREYS, New York, N. Y. Filed Oct. 3, 1903. Serial No. 175,553. (No model.)

Claim.—1. The combination with an elevator-shaft, a car, covers for the hatchway of said car, each of which is bifurcated substantially midway its width; bearings located at such bifurcations and on top of the covers; rollers in said bearings one of which is at the rear of said bifurcation and the others being at the fore part thereof; and cams extending below the car at an angle thereto which are adapted to cooperate with said rollers to gradually spread the covers apart during the movement of the car.

2. The combination with an elevator-shaft, a car, covers for the hatchways of said car, each of which is bifurcated substantially midway its width; bearings located at said bifurcations and on top of the covers; and a roller carried near the rear of each of said bifurcations; a plurality of rollers carried near the fore part of said bifurcations; and cams extending above and below said car at an angle thereto, and which are adapted to cooperate with said rollers to gradually spread the covers apart during the movement of the car.



751,174. ELECTRIC SWITCH. WILLIAM F. IRISH, East Orange, N. J. Filed July 23, 1902. Serial No. 116,628. (No model.)



Claim.—1. The combination with a switch-blade of an operating-lever adjustably applied thereto on either side of its pivotal point, a second lever carrying the operating-lever and a weight acting on the said second lever.

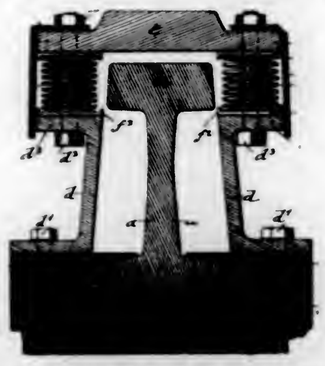
2. The combination with a switch-blade of an operating-lever therefor adjustably applied thereto on either side of its pivotal point, a weighted lever pressing said operating-lever against the switch-blade and means for shifting the point of application of the operating-lever with relation to the pivotal point of the switch-blade.

3. The combination with a switch-blade, of an operating thrust-lever, a second lever pivoted at one end to the operating-lever, a weight on the other end of the second lever and means for directing the operating-lever against either side of the pivotal point of the switch-blade.

4. The combination with a switch-blade of an operating-lever, an elbow-lever having one arm pivoted to the operating-lever and a weight applied to the other arm

5. The combination with a switch-blade, of two contacts engaged thereby alternately, an operating-lever applied to said switch-blade adjustably with respect to its pivotal point, an elbow-lever pivoted on one side to the operating-lever and provided on the other side with a weight, and a float controlling the operating-lever with respect to both the elbow-lever and the switch-blade.

751,175. THIRD RAIL FOR ELECTRIC RAILWAYS. LLOYD G. JOHNSTONE, New York, N. Y., assignor of one-half to Jacob Arens, New York, N. Y. Filed Oct. 10, 1903. Serial No. 176,510. (No model.)



Claim.—1. A third rail for electric railways, consisting of a current-conducting rail, angle-irons at either side of the same, cushioning-springs supported by said angle-irons, and a contact-plate supported by said cushioning-springs above the conducting-rail, the under side of the contact-plate being adapted to contact with the rail when depressed, substantially as set forth.

2. A third rail for electric railways, consisting of a current-conducting rail, angle-irons at either side of the same, cushioning-springs supported by said angle-irons, and a contact-plate thicker at its middle portion than at its sides supported by the cushioning-springs above the conducting-rail, the under side of the contact-plate being adapted to contact with the rail when depressed, substantially as set forth.

3. A third rail for electric railways, consisting of a current-conducting rail, a spring-actuated contact-plate supported normally at a suitable distance above the rail, and aprons extending downwardly from the sides of the contact-plate, substantially as set forth.

4. A third rail for electric railways, consisting of a current-conducting rail, angle-irons at both sides of the rail, cushioning-springs supported by the angle-irons, a contact-plate supported by the cushioning-springs, and aprons extending downwardly from the sides of the contact-plate, substantially as set forth.

5. A third rail for electric railways, consisting of a current-conducting rail, a contact-plate above the same, cushioning-springs for supporting said contact-plate at a suitable distance from the head of the current-conducting rail, angle-irons extending at both sides of the current-conducting rail for supporting said springs, means for connecting the angle-irons to the supporting-block of the third rail and the contact-rail, and aprons extending downwardly from the sides of the contact-rail over the cushioning-springs to the upper ends of the angle-irons, substantially as set forth.

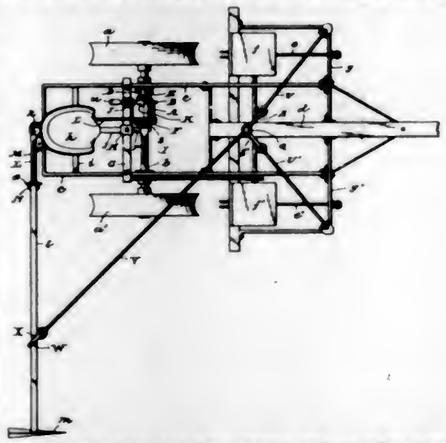
751,176. MARKER-LIFTER FOR CORN-PLANTERS. OMER W. JOHNS, Sugar Creek township, Montgomery county, Ind. Filed Sept. 28, 1903. Serial No. 174,867. (No model.)

Claim.—1. A corn-planter including a frame, a marker-pole carrying a marker swiveled to the frame, a rotative shaft, a winding-drum mounted on the rotative shaft, and a cable connected with the drum and also with the marker-pole.

2. A corn-planter marker provided with a lifting-cable, a winding-drum to which the cable is connected, a clutch for the drum, and a guide for the cable.

3. A corn-planter marker provided with a lifting-cable, a winding-drum to which the cable is connected, gearing for driving the drum, a guide for the cable, and a latch for temporarily holding the drum and preventing reverse movements thereof.

4. A corn-planter including a swiveled marker-pole, a cable-guide supported in a plane above the swivel of the pole, a cable connected to the pole and leading over the cable-guide, a winding-drum to which the cable is connected, and gearing for actuating the drum.



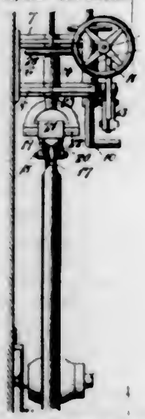
5. A corn-planter including a rotative shaft, a winding-drum rotative on the shaft, clutching devices cooperating with the drum and the shaft, a lever for actuating the clutching devices, a latch for the drum, a marker-pole provided with a lifting-cable connected to the drum, and a guide-pulley engaging the cable in a plane above the normal position of the marker-pole.

6. A corn-planter including a frame, a tongue, a reversible marker, a staff mounted on the tongue and provided with a combined draft-head and line-guide comprising wings having openings therein at opposite sides of the staff, and a draft-rope for the marker connected to the top of said head above said wings.

7. A corn-planter including a frame, a reversible marker provided with a lifting-cable, a winding-drum to which the cable is connected, a draft-head having a pair of wings having openings therein at opposite sides thereof, and a draft-rope for the marker connected to said head above said wings.

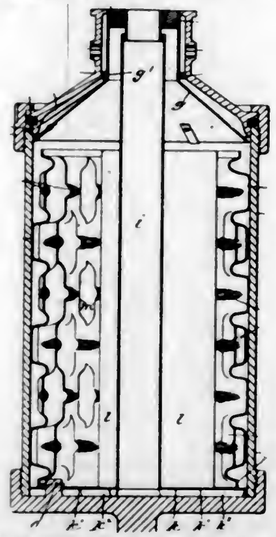
8. In a corn-planter, the combination with a rotative shaft and a marker-pole connected with the planter, of a winding-drum rotative on the shaft, a cable connected to the drum and also to the marker-pole, a guide-pulley for the cable, a guide for the cable leading the same to the drum, a clutch mechanism cooperating with the drum and the shaft, a foot-lever connected with the clutch mechanism, a latch cooperating with the drum, a draft-rope connected to the marker-pole, and a draft-head supporting the end of the draft-rope at a stationary point in a plane above the transverse center of the machine.

751,177. DEVICE FOR ATTACHING RUBBER TIRES TO VEHICLE-WHEELS. LUKE KILGALLON, Far Rockaway, N. Y. Filed Mar. 18, 1902. Serial No. 98,724. (No model.)



Claim.—In a device for attaching tires to vehicle-wheels, a support for the vehicle-wheel, a bracket, a vertically-adjustable support therein having a head and shank, a pressure-wheel and a hanger therefor, having a dovetailed engagement with the head of the adjustable support to permit the hanger and thereby the wheel to be adjusted laterally.

751,178. CENTRIFUGAL SEPARATOR. PERLEY L. KIMBALL, Bellows Falls, Vt., assignor to the Vermont Farm Machine Company, Bellows Falls, Vt., a Corporation of Vermont. Filed Apr. 22, 1901 Serial No. 56,853. (No model.)



Claim.—1. In combination the separator-drum, the drum-cover having a conical lower part and cylindrical upper part, the cream-disk held within the drum-cover and having conical lower part and cylindrical upper part, the thimble in the upper end of the cream-disk pierced by the central inlet for full milk, and a vertically-arranged adjustable outlet for the cream, substantially as described and for the purposes set forth.

2. In a separator the drum, the drum-cover having a lower conical part and upper cylindrical part, the cream-disk held within the drum-cover and having a conical lower part and a cylindrical upper part, the thimble in the upper end of the cream-disk pierced by a central inlet for milk and a vertically-arranged adjustable outlet for cream, in combination with a laterally-arranged adjustable outlet for milk through the cylindrical part of the drum-cover, substantially as described, and for the purposes set forth.

3. In combination; the separator-drum, the drum-cover, the thimble in the upper end of the cream-disk pierced by central inlet for full milk and non-central outlet for cream, the milk-tube communicating with the central inlet for full milk and extending to near the bottom of the drum and adapted to deliver milk below the plate next mentioned, the plate duly supported near the bottom of the drum, extending to contact with the interior wall of the drum, and perforated by milk-orifices, and a partition approximately cylindrical in form supported on said plate, all substantially as described and for the purposes set forth.

4. A liner having a multiplicity of slots therethrough, the walls of which are arranged angularly with respect to the wall of the liner and thus give direction to the slots across the radial lines from the axis of the liner.

5. A liner substantially cylindrical in form having a multiplicity of slots therethrough, the bounding-walls of said slots being bent at an angle to the liner-wall, thus directing the fluid moving in the passages formed by said slots across the radial lines of the liner.

6. A liner substantially cylindrical in form having a multiplicity of slots therethrough, the bounding-walls of said slots being arranged angularly with respect to the liner-wall, the outer edges of said bounding-walls being bent outwardly to form lips.

7. A liner substantially cylindrical in form having a multiplicity of vertical slots therethrough, the bounding-walls of said slots being bent out of the tangential plane of the liner-wall, thus directing the fluid moving in the passages formed by said slots across the radial lines of the liner.

8. A liner substantially cylindrical in form having a multiplicity of slots therethrough, the bounding-walls of said slots being arranged angularly with respect to the liner-wall, thus directing the fluid moving in the passages formed by said slots across the radial lines of the liner, and grooves formed in the bounding-walls of the slots.

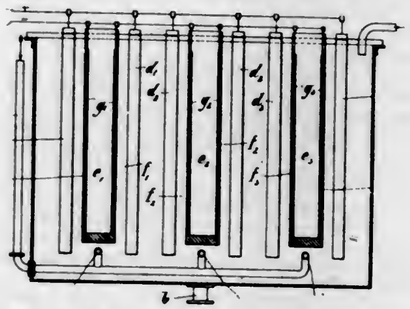
9. A liner substantially cylindrical in form having a multiplicity of slots therethrough, the bounding-walls of said slots being arranged angularly with respect to the liner-wall, thus directing the fluid moving in the passages formed by said slots across the radial lines of the liner, and lengthwise grooves formed in the bounding-walls of the slots.

10. A liner substantially cylindrical in form having a series of circumferential rows of slots therethrough, the bounding-walls of said slots being arranged angularly with respect to the liner-wall, the slots in one row being staggered with respect to those in the next adjacent row.

11. A liner substantially cylindrical in form having a series of circumferential rows of vertical slots therethrough, the bounding-walls of said slots being bent out of the tangential plane of the liner-wall, the slots in one row being staggered with respect to those in the next adjacent row.

12. A liner substantially cylindrical in form having a series of circumferential rows of vertical slots therethrough, the bounding-walls of said slots being bent out of the tangential plane of the liner-wall, the slots in one row overlapping those in the adjacent rows, and being staggered with respect thereto.

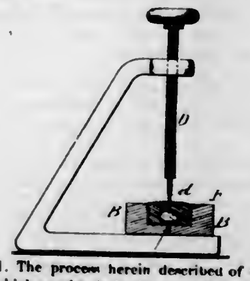
751,179. PROCESS OF ELECTROLYTICALLY PURIFYING JUICES. ALEXANDER KOLLREPP, Berlin, and ALFRED WOHL, Charlottenburg, Germany. Filed June 10, 1902. Serial No. 110,994. (No specimens.)



Claim.—1. An improved process for purifying saccharifereous solutions, consisting in the electrolysis of these solutions under addition to the same of saccharate of lead, as set forth.

2. An improved process for purifying saccharifereous solutions, consisting in the electrolysis of these solutions under addition to the same of saccharate of lead, the transformation of the deposits obtained by this process of lead by means of alkali and saccharifereous solutions, in order to again employ the same in this process.

751,180. PROCESS OF MAKING DIAMOND DRAW-PLATES. FRIEDRICH KRAUER, Jersey City, N. J. Filed Aug. 6, 1903. Serial No. 168,445. (No model.)



Claim.—1. The process herein described of making diamond draw-plates, which consists in boring a small recess in line with the central axis of the stone, then supporting it in a mold at diametrically opposite points, said points being arranged in the line connect-

ing the central axis with the recess, then casting metal around the stone with the exception of the part forming the recess, then removing the stone with the incasing metal from the mold after the metal has cooled, and then drilling a hole through the stone in line with the recess and the central axis of the stone, substantially as set forth.

2. The process herein described of making diamond draw-plates, which consists in boring a small recess in the stone, wrapping a thin layer of sheet metal around the stone, suitably supporting the so-enveloped stone in a mold, inundating the same with molten metal and melting the layer so as to form an inclosing alloy surrounding the stone, removing the stone enveloped by the incasing metal from the mold after the metal has cooled, and drilling a hole through the stone in line with the recess and the central axis of the stone, substantially as set forth.

751,181. **CENTERING-SUPPORT.** GEORGE H. KUNHEIM, New York, N. Y., assignor to the New Jersey Wire Cloth Company, Trenton, N. J., a Corporation of New Jersey. Filed May 29, 1901. Serial No. 62,308. (No model.)



Claim.—1. The combination with beams or the like and a centering, of hangers consisting of metal loops inclosing a part of the centering and extending upward and having their ends hooked over the tops of the beams and adapted to be cut for the removal of the centering, substantially as described.

2. The combination with beams or the like and a centering, of metal hangers consisting of metal loops inclosing a part of the centering and extending upward and having their ends hooked over the tops of the beams and adapted to be cut for the removal of the centering, and having their ends forced apart to draw up the centering, substantially as described.

3. The combination with beams or the like and a centering, of metal hangers consisting of metal loops inclosing a part of the centering and extending upward and having their ends hooked over the tops of the beams and adapted to be cut for the removal of the centering, said hangers having the upwardly-extending loop-arms crossed, and having their ends forced apart to draw up the centering, substantially as described.

4. The combination with beams or the like and a centering, of hangers consisting of metal loops inclosing a part of the centering below the beams and extending upward on one side of the beams and having their ends hooked over the tops of the beams, and adapted to be cut for the removal of the centering, substantially as described.

5. The combination with beams or the like and a centering, of hangers consisting of metal loops inclosing a part of the centering below the beams and extending upward on one side of the beams and crossed on the side of the beams and having their ends hooked over the tops of the beams, and adapted to be cut for the removal of the centering, substantially as described.

6. The combination with beams or the like, of temporary bars C extending below the beams and transversely thereto, metal hangers B having loops inclosing the bars to support the latter and extending upward and over the tops of the beams with their ends hooked about the beams, and centering carried by said bars, substantially as described.

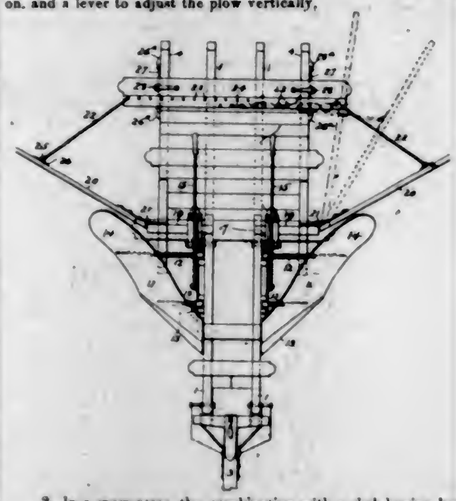
7. The combination with beams or the like and a centering, of metal hangers inclosing a part of the centering below the beams and extending upward on one side of the beams, and having their ends hooked over the tops of the beams, substantially as described.

8. A floor and ceiling construction having hangers extending over the tops of the beams and passing through the floor construction and having their lower ends bent to form ceiling-bar supports, and a suspended ceiling carried by said supports, said hangers being of such construction as to form centering-supports for temporary centering during the construction of the floor, substantially as described.

9. The combination with the beams A, of the floor H, centering-supports B hooked over the tops of the beams and cut at their lower ends to release the centering, ceiling-bars I supported by the lower ends of said centering-supports, and a plastic-material ceiling carried by said bars, substantially as described.

751,182. **SNOW-PLOW.** STEPHEN D. LAMOS, Longlake, N. Y. Filed Mar. 10, 1903. Serial No. 147,141. (No model.)

Claim.—1. In a snow-plow, the combination with a sled, of a plow at one side of the sled and supported to move vertically thereon, and a lever to adjust the plow vertically,



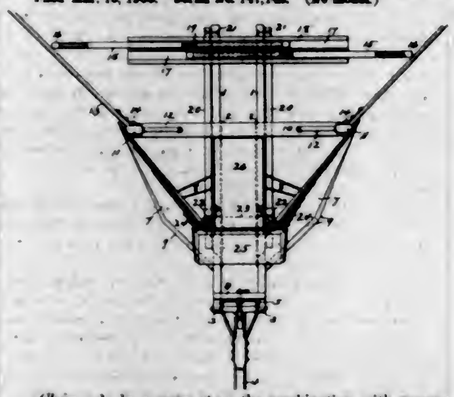
2. In a snow-plow, the combination with a sled having longitudinal runners, and plows on opposite sides thereof, of guides on the runners, vertically-movable guide-plates in said guides, and means for forcing said plates below the runners to securely hold the sled against sluing to one side.

3. In a snow-plow, the combination with a sled comprising longitudinal runners, of a scraper between the forward ends of the runners to deflect the snow to both sides, means for swinging said scraper to an inoperative position, plows on the opposite sides of the sled, wings behind the plows, and means for securing the wings at any angle.

4. In a snow-plow, the combination with a sled having dovetailed grooves in its side, of a plow, a plate secured to the inner face of the plow, dovetailed bars secured to the plate and mounted in the dovetailed grooves, and means for moving the plow and locking it in any position.

5. In a snow-plow, the combination with a sled, comprising four longitudinal runners connected by cross-bars, vertically-adjustable plows on the outside of the two central runners and adapted to extend below the runners, vertically-adjustable plates on the outer runners to guide the sled in a straight line, and hinged wings behind the plows to deflect the snow to the sides.

751,183. **SNOW-PLOW.** STEPHEN D. LAMOS, Longlake, N. Y. Filed Mar. 10, 1903. Serial No. 147,142. (No model.)



Claim.—1. In a snow-plow, the combination with runners, of plows carried by the runners and fixed thereto, auxiliary runners, and means for moving the auxiliary runners into operation to elevate the main runners and plows.

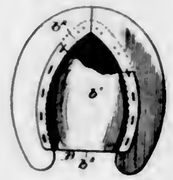
2. In a snow-plow, the combination with a sled, of plows rigidly secured to both sides of the sled, wings hinged behind the plows, movable cross-bars, pivotally connected to said wings, guides for the cross-bars, and means for locking said cross-bars in different positions in said guides.

3. In a snow-plow, the combination with a sled, of plows fixed to both sides thereof, wings hinged behind the plows, a double-grooved guide, cross-bars movable in said grooves, and means for locking the cross-bars at any position to limit the hinged movement of the wings.

4. In a snow-plow, the combination with a sled, of guide-plates depending from the runners thereof, plows fixed to both sides of the runners, and means for raising and lowering the plows and sled.

5. In a snow-plow, the combination with a sled having fixed plows at both sides, of auxiliary runners pivoted at their rear ends to the runners of the sled, and set-screws engaging the forward ends of the auxiliary runners to depress them below the main runners.

751,184. **HOOF-PAD.** ANDRU LARSEN, Chicago, Ill. Filed May 26, 1903. Serial No. 158,614. (No model.)



Claim.—1. A hoof-pad comprising a flexible rim made of the general contour of a shoe and a central metal shield attached at its outer margin to the inner margin of said rim, said rim being made of two like halves or parts which meet at the front of the pad.

2. A hoof-pad comprising a flexible rim and a central metal shield which is joined at its outer margin to the inner margin of said rim, said shield overlapping the rim on both its upper and lower sides and being attached thereto by fastening devices extending through said overlapping parts.

3. A hoof-pad comprising a flexible rim and a central shield, the latter consisting of two thicknesses of metal, one overlapping the upper side and the other the lower side of the inner margin of said rim and secured thereto.

4. A hoof-pad comprising a flexible rim and a central shield, the latter consisting of a single plate, folded to constitute two thicknesses or layers which lie one upon the other, said two layers overlapping one upon the upper side and the other upon the lower side of the rim and secured thereto.

5. A hoof-pad comprising a flexible rim and a central metal shield, the latter consisting of two thicknesses of metal one overlapping the upper side and the other the lower side of the inner margin of said rim, said rim being made of two like halves or parts which meet at the front end of the pad.

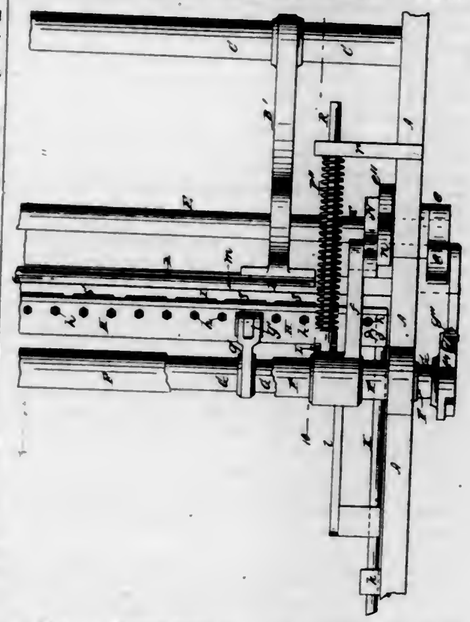
6. A hoof-pad made of a double thickness of material between which is adapted to be contained a medicament, the upper thickness of said pad being broken or interrupted to permit the escape of the medicament from the said space to the hoof of the animal when the pad is in place, and means for preventing the escape of the medicament through said broken or interrupted thickness before the pad is attached to the hoof.

7. A hoof-pad comprising a flexible rim, and a central metal shield comprising an upper and a lower thickness of metal which overlap the rim above and below the same and are attached thereto, and are constructed to provide between the same a space to receive a medicament, the upper thickness of said central metal part being broken or interrupted to permit the escape of the medicament therethrough to the foot of the animal.

8. A hoof-pad comprising a flexible rim, and a central metal shield comprising an upper and a lower thickness and constructed to provide a space to receive a medicament, the upper thickness of said central metal part being broken or interrupted to permit the escape of the medicament therefrom and packing-strips interposed between the thicknesses of the pad to prevent the escape of the medicament from the pad at the margin of said shield.

9. A hoof-pad made of a double thickness of material, the bottom thickness thereof being depressed to constitute a cup to receive a medicament and the upper thickness being broken or interrupted to permit the escape of the medicament therefrom.

751,185. **PAPER-SLITTING DEVICE FOR FOLDING-MACHINES.** WILLIAM A. LA SOR, Rahway, N. J., and CHARLES M. SMITH, New York, N. Y. Filed July 11, 1903. Serial No. 165,060. (No model.)



Claim.—1. In paper-folding apparatus, the combination with the folding-blade, and rollers, of vertically-reciprocatory slitting mechanism independent of the folding-blade, guides for said slitting mechanism, and oppositely-disposed means for operating the folding-blade and slitting mechanism at different times.

2. In paper-folding apparatus, the combination with the folding blade and rollers, of vertically-reciprocatory slitting devices, guides therefor, said slitting mechanism being independent and separated from the folding-blade and movable at a different time, a shaft and means common to said shaft for operating the folding-blade and slitter, as set forth.

3. In paper-folding apparatus, the combination with the folding blade and rollers of a series of V-shaped slitting-teeth which are elliptical in cross-section, said teeth being arranged parallel to said folding mechanism, and means for actuating the same whereby the paper is partially severed without injury to its fiber along the line of fold substantially as set forth.

4. In paper-folding apparatus, the combination with the fold ing blade and rollers, of a series of slitting-teeth arranged in severa groups parallel to the said folding mechanism, and means for actuating the same whereby the paper is partly severed along the line of fold by the formation of several series of adjoining slits, the series being divided by intervening spaces of paper of greater width than the width of paper left between the adjoining slits in each series of perforations, for the purpose set forth.

5. In paper-folding apparatus, the combination with the folding-blade and folding-rollers of a series of slitting-teeth which are elliptical in cross-section, said elliptical teeth being arranged parallel to said folding mechanism, and means for actuating the same whereby the paper is partially severed without injury to its fiber along the line of fold for the purpose set forth.

6. In paper-folding apparatus, the combination with the folding blade and rollers, of paper-slitting mechanism arranged substantially parallel to said folding mechanism and independent of the folding-blade to move in a plane parallel therewith and in advance thereof, means for actuating the same, means for supporting the paper against the action of said slitting mechanism, and means for adjusting said slitting mechanism, with relation to said means of support for the paper, whereby the length of the slits formed in the paper may be varied substantially as set forth.

7. In paper-folding apparatus, the combination with the folding blade and roller, of a series of slitting-teeth arranged substantially parallel to said folding mechanism and independent of the fold-

ing-blade to move in a plane parallel therewith and in advance thereof, means for actuating the said series of slitting-teeth, means for supporting the paper against the action of said series of slitting-teeth and means for adjusting said slitting-teeth with relation to said support for the paper, whereby the length of the slits formed in the paper may be varied, substantially as set forth.

8. In paper-folding apparatus, the combination with the folding blade and rollers, of a series of V-shaped slitting-teeth elliptical in cross-section arranged substantially parallel to said folding mechanism, means for actuating said V-shaped slitting-teeth, means for supporting the paper against the action of said V-shaped slitting-teeth and means for adjusting the said V-shaped slitting-teeth with relation to said support for the paper, whereby the length of the slits formed by said V-shaped slitting-teeth may be varied, substantially as set forth.

9. In paper-folding apparatus, the combination with the folding blade and rollers, of slitting-teeth S, cross-head H, links g', arms g, rock-lever G, flanged heads g^4, secured thereto, the set-nuts g'', g'', on said heads g^4, and the levers g^3, and bearing-rollers g^5, together with the cams e, upon the shaft E, the whole arranged and operating substantially as and for the purpose set forth.

10. In paper-folding apparatus, the combination with the folding blade and rollers, of the cross-head H and slitting-teeth S, of the presser-plate I, and springs k', together with means for operating the cross-head H, substantially as and for the purpose set forth.

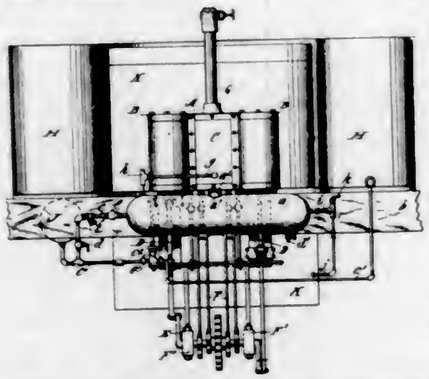
11. In paper-folding apparatus, the combination with the folding blade and rollers, of the cross-head H and slitting-teeth S, of the presser-plate I, springs k', and rest-plate J, for the purpose and substantially in the manner set forth.

12. In paper-folding apparatus, the combination with the folding blade and rollers of the cross-head H, and slitting-teeth S, of the presser-plate I, formed with the slots i, and the springs k', for the purpose set forth.

13. In paper-folding apparatus, the combination with the folding blade and rollers, of the cross-head H, slitting-teeth S, presser-plate I, formed with the slots i, the springs k', and the rest-plate J, formed with the slots j', for the purpose set forth.

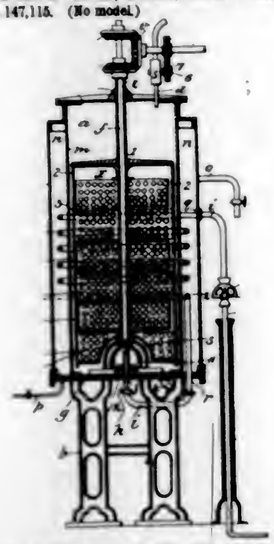
14. In paper-folding apparatus, the combination with the folding blade and rollers, of the cam-shaft E, and cams e, e', rock-shaft G, and arms g, g^3, links g', cross-head H, and slitting-teeth S, the links N and L, rock-shaft F, and arms f, links l, slide-rods K, cross-head H, slitting-teeth S, presser-plate I, rest-plate J, the whole arranged and operating substantially in the manner and for the purpose described.

751,186. LUBRICATOR. JOHN N. LEACH, Melrose, Mass., assignor, by direct and mesne assignments, to National Oil Heating Company, a Corporation of Maine. Filed Oct. 13, 1902. Serial No. 126,989. (No model.)



Claim.—In a lubricator, the combination of a lubricant-reservoir, a distributing-pipe system leading therefrom, a main feeding apparatus comprising piping connected with the feed-water pipe and discharging directly into said reservior containing in its length and in the order named relative to said feed-water pipe, a regulating-valve, a drip-cock and a check-valve and an auxiliary feeding apparatus comprising piping connected with the water-space of a boiler and discharging directly into said reservoir containing in its length a regulating-valve.

751,187. APPARATUS FOR CONDENSING AND BLEACHING OILS. STANISLAW LEWIAK, Warsaw, Russia. Filed Mar. 10, 1903. Serial No. 147,115. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a boiler composed of inner and outer shells or casings, means for admitting a heating medium to the space between said casings, an air-pipe arranged within said space and adapted to discharge the heated air into the inner casing, and an agitating device arranged within the inner casing.

2. In an apparatus of the character described, the combination of a boiler composed of inner and outer shells or casings, means for admitting a heating medium to the space between said casings, an air-pipe arranged within said space, and having the discharge end communicating with the interior of the inner casing at the bottom thereof, and an agitating device arranged within the inner casing.

3. In an apparatus of the character described, the combination of a boiler composed of inner and outer shells or casings, means for admitting a heating medium to the space between the casings, an air-pipe arranged within said space and adapted to discharge heated air within the inner casing, and an agitating device arranged within the inner casing and comprising perforated blades, and means for rotating certain of said blades in one direction and the other blades in an opposite direction.

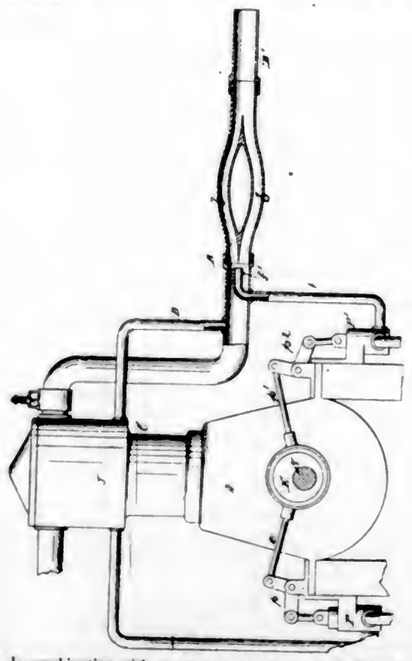
4. In an apparatus of the character described, the combination of a boiler composed of inner and outer shells or casings, means for admitting a heating medium into the space between said casings, an air-pipe arranged within the said space and adapted to discharge heated air within the inner casing, a shaft arranged vertically in the inner casing, blades carried by said shaft, a tubular shaft mounted on the first shaft, blades carried by said tubular shaft, and means for rotating the shafts and the corresponding blades in opposite directions.

5. In an apparatus of the character described, the combination of a boiler composed of inner and outer shells or casings, means for admitting a heating medium into the space between said casings, an air-pipe arranged within said space and adapted to discharge heated air within the inner casing, an agitating device within the inner casing, a pipe leading from the upper portion of the inner casing, a casing in communication with said pipe, a shaft mounted in said last-mentioned casing, blades on said shaft, and fingers pivotally attached to said blades.

6. In an apparatus of the character described, the combination with a boiler composed of inner and outer shells or casings, means for admitting a heating medium within the space between said casings, an air-pipe arranged within said space and having its discharge end extending through the bottom of the inner casing, and a perforated hood arranged over the said discharge end of the air-pipe.

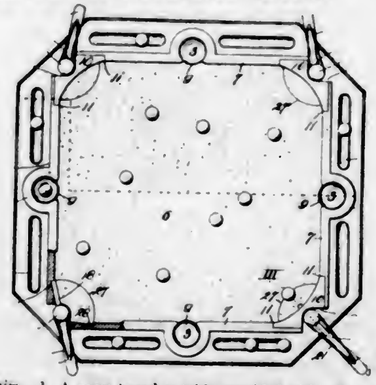
751,188. EXHAUST FOR EXPLOSIVE-ENGINES. ABBOT A. LOW, Horseshoe, N. Y. Filed May 27, 1903. Serial No. 158,913. (No model.)

Claim.—1. In combination with an explosive-engine, an exhaust pipe or conduit divided into two or more passages and means for forcibly injecting water into said exhaust-conduit in front of said plurality of passages, for the purpose and substantially in the manner set forth.



2. In combination with an explosive-engine, provided with an exhaust pipe or conduit divided in part into two or more passages, of means for forcing water from the water-jacket into said exhaust-conduit and means for forcing an auxiliary supply of water into said exhaust-conduit, said jets of water being introduced into the exhaust-conduit between the engine and the plurality of passages formed in said exhaust-conduit, substantially in the manner and for the purpose herein set forth.

751,189. GAME BOARD OR TABLE. JAMES F. MATTHEWS, Hreno, Okla., assignor of one-half to Henry S. Parker, Hreno, Okla. Filed July 20, 1903. Serial No. 166,250. (No model.)
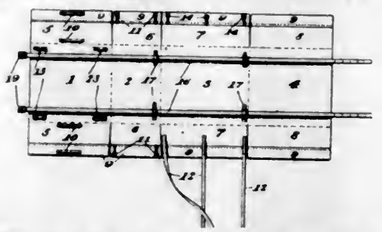


Claim.—1. A game board or table, provided with rails and one or more pockets, a swiveled post mounted on the board or table, and a cue carried reciprocally by said swiveled post; said rails being provided with recesses in which the end of the cue is seated to be out of interference with the moving cue-ball and object-balls.

2. A game board or table, provided with rails and one or more pockets, a swiveled post mounted on the board or table, a cue carried reciprocally by said swiveled post; said rails being provided with recesses in which the end of the cue is seated to be out of interference with the moving cue-ball and object-balls, and means to advance the cue with a yielding pressure.

3. A game board or table, provided with one or more pockets, and with rails which extend at an angle to and terminate short of each other, and have a gateway or gateways leading to said pocket or pockets, and recesses in their inner sides, bridge-pieces connecting the contiguous ends of the rails above said recesses, and cues having swivel as well as the usual reciprocatory movement and projecting into the field of the board between the contiguous rails under said bridge-pieces and adapted to have their front ends seated in said recesses to be out of interference with the moving cue-ball or object-balls.

4. A game board or table provided with one or more pockets, and with rails which extend at an angle to and terminate short of each other, and have a gateway or gateways leading to said pocket or pockets, and recesses in their inner sides, bridge-pieces connecting the contiguous ends of the rails above said recesses, cues having swivel as well as the usual reciprocatory movement, and projecting into the field of the board between the contiguous rails under the bridge-pieces and to have their front ends seated in said recesses out of interference with the moving cue-ball or object-balls, and means normally holding the cues advanced with a yielding pressure.

751,190. COMBINED CONVERTIBLE COT AND PACK-BAG. SAMUEL D. MARTIN, Woodlawn, Ohio. Filed July 30, 1903. Serial No. 166,331. (No model.)



Claim.—1. A convertible bag or satchel formed from an elongated piece of flexible material the lateral edges of which have oppositely-arranged slits extended across them to produce semidetached flaps adapted to be folded independently of each other, said semidetached flaps having tubular headings for the passage of supporting means.

2. A convertible bag or satchel formed from an elongated sheet of flexible material the lateral edge portions of which have a plurality of semidetached flaps or extensions each of which is provided with a tubular heading for the passage of a supporting device.

3. A convertible bag or satchel formed from an elongated piece of material flexible to produce front, bottom, back and top walls, and having along each side a plurality of semidetached flaps or extensions adapted, when the device is adjusted in bag form, to extend across the ends of the bag, said flaps or extensions being provided with tubular headings adapted, when the device is extended, to receive a supporting device and fastening means for holding said flaps or extensions in position.

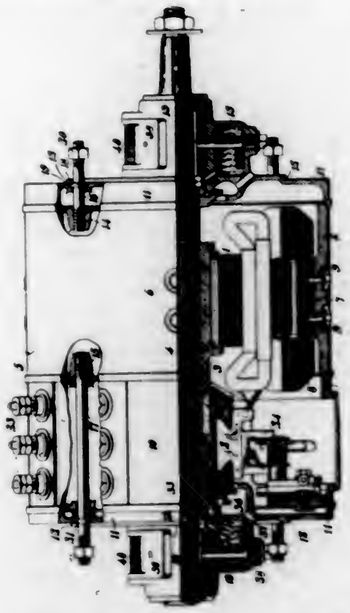
4. A convertible bag or satchel formed from an elongated piece of material flexible to produce front, bottom, back and top walls, and having its lateral edge portions provided with slits and with flaps or extensions between the slits and at the sides of said front, bottom, back and top walls, said flaps or extensions being adapted, when the device is adjusted in bag form, to extend across the ends of the bag and being provided with fastening means and being also provided with alined tubular headings for the passage of supporting devices.

751,191. ELECTRIC MOTOR. HIRAM P. MAXIM, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Mar. 12, 1903. Serial No. 147,588. (No model.)

Claim.—1. A motor-frame comprising two cylinders and two end plates clamped together and completely inclosing the armature, the field-magnet pole-pieces and coils and the commutator.

2. The combination with an armature and its commutator-drum, of a cylindrical field-magnet frame or shell provided with interior pole-pieces and coils, a cylinder bolted to one end of the field-magnet cylinder and surrounding the commutator and end plates bolted to the outer ends of said cylinders.

3. A motor-frame comprising two cylinders one of which has a plurality of internal, equidistant lugs having internal screw-threads, circular plates for the outer ends of said cylinders and bolts for engaging said end plates and lugs and projecting outward from the end plates.



4. An electric-motor frame comprising two cylinders one of which has a plurality of equally-spaced, internal lugs, end plates and bolts extending through the end plates and into the lugs and projecting outwardly from the end plates.

5. An electric-motor frame comprising a field-magnet cylinder having internal lugs at each end, a commutator-inclosing cylinder making end-to-end engagement with said field-magnet cylinder, circular plates for closing the outer ends of the cylinders and bolts extending through the end plates and the commutator-inclosing cylinder and screwed into the lugs on the field-magnet cylinder.

6. An electric-motor frame comprising two cylinders one of which has equally-spaced internal lugs, end plates, a set of bolts for clamping the cylinders and one end plate together and a set of bolts for clamping the other end plate to its cylinder, both sets of bolts projecting outwardly from the end plates for attachment to suitable hangers.

7. An electric-motor frame comprising two cylinders, two end plates having centering-shoulders and bolts which clamp said cylinders and plates together and project beyond the plates for attachment to suitable hangers.

8. An electric-motor frame comprising two end-to-end shells, two end plates having annular centering-lugs and clamping-bolts which fasten the shells and end plates together and project beyond said plates for attachment to suitable hangers.

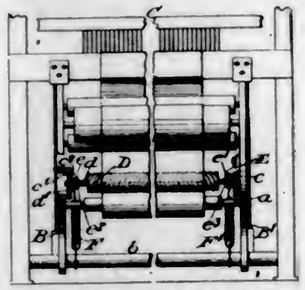
9. An electric motor having end plates provided with annular centering-shoulders and bolts for engaging suitable hangers and clamping them against said centering-shoulders.

10. An electric-motor frame comprising two shells, two end plates and means for clamping said members together to completely inclose the armature, the field-magnet pole-pieces and coils and the commutator.

11. An electric-motor frame comprising two end-to-end shells one of which surrounds the motor-armature and is provided with field-magnet pole-pieces and coils and the other of which surrounds the commutator, end plates and bolts for clamping said shells and end plates together.

12. An electric-motor frame comprising two end-to-end shells one of which surrounds the armature and is provided with pole-pieces and coils and the other of which surrounds the commutator, end plates provided with centering-shoulders and bolts for clamping said shells and end plates together and to suitable hangers.

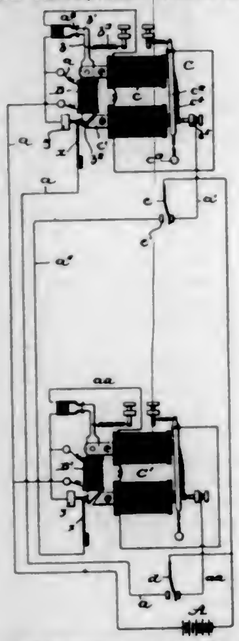
751,192. CLOTH TAKE-UP AND STRETCHING DEVICE. CHAS. R. MEDING, Paterson, N. J. Filed Aug. 30, 1899. Serial No. 728,957. (No model.)



Claim.—1. In a loom, a rotary cloth-winding roll, a swinging slay-beam, a cloth-stretching roll arranged to directly engage the cloth-winding roll, and means under the control of the swinging movement of the slay-beam for imparting a rotary movement to the cloth-stretching roll in a direction to cause the cloth to spread evenly upon the said cloth-winding roll, substantially as set forth.

2. In a loom, a cloth-winding roll, a swinging slay-beam, a cloth-stretching roll arranged to directly engage the cloth-winding roll, a movable support for the cloth-stretching roll, a ratchet carried by the cloth-stretching roll and a spring-actuated pawl carried by the slay-beam whereby a rotary movement is imparted to the cloth-stretching roll by the swinging movement of the slay-beam, substantially as set forth.

751,193. ELECTRICAL ALARM DEVICE. BURNETT MERKIN, Philadelphia, Pa. Filed July 30, 1901. Serial No. 70,367. (No model.)



Claim.—1. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an electromagnetic contact device included in and controlled by said first circuit and adapted automatically to make and break the first circuit and also to make and break the second circuit, and a translating device in the latter circuit.

2. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an electromagnetic contact device included in and controlled by said first circuit and adapted automatically to break and make the first circuit and also to make and break the second circuit, a translating device in the latter circuit, and a manually-operated device for making and breaking said second circuit.

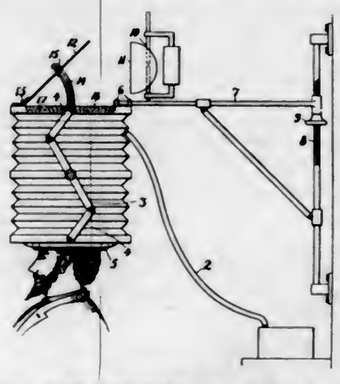
3. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an electromagnetic device in the second circuit, and an electromagnetic contact device included in and controlled by said first circuit and adapted automatically to break and make the first circuit and also to make and break the second circuit.

4. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an electromagnetic device in the second circuit, an electromagnetic contact device included in and controlled by said first circuit and adapted automatically to break and make the first circuit and also to make and break the second circuit, and a manually-operated device for making and breaking said second circuit.

5. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an oscillatory electromagnetic contact device included in and controlled by the first circuit and adapted automatically to break and make the first circuit and also to make and break the second circuit, and an electromagnet in said latter circuit having one of its poles in proximity to the contact device.

6. The combination with normally open first and second circuits, and means for making and breaking the first circuit, of an oscillatory electromagnetic contact device included in and controlled by the first circuit and adapted automatically to break and make the first circuit and also to make and break the second circuit, an electromagnet in said latter circuit having one of its poles in proximity to the said contact device, and a manually-operated device for making and breaking said second circuit.

751,194. DEVICE FOR TREATING TEGUMENTARY TISSUES. ALGERNON S. MCCUTCHAN, Oakland, Cal., assignor of one-half to John Yule, Oakland, Cal. Filed June 2, 1903. Serial No. 159,760. (No model.)



Claim.—1. An apparatus consisting of a receptacle capable of containing oxygen, a pneumatic ring cushion or the like at one end adapted to fit and form a joint with the surface or part to be treated, means for admitting light to the interior of the receptacle, and means for directing the light upon the part to be treated.

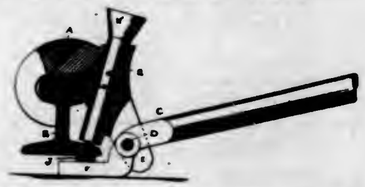
2. An apparatus consisting of a receptacle adapted to contain oxygen, a ring cushion at one end to form a joint with the part to be treated, a transparent closure at the opposite end and an adjustable mirror and means for directing light thereon and reflecting it into the receptacle.

3. An apparatus consisting of a receptacle adapted to contain oxygen having a pneumatic ring cushion at one end and a transparent closure at the opposite end and means for reflecting light into the interior of the receptacle, said receptacle being expansible and collapsible to increase or decrease its containing area.

4. An apparatus consisting of a receptacle having a pneumatic ring cushion at one end to form a tight joint with the part to be treated, said receptacle being extensible and collapsible to vary its area, and jointed braces connecting with the ends of the receptacle whereby the adjustment of size may be regulated and fixed.

5. An apparatus consisting of a receptacle having a pneumatic ring cushion at one end to form a tight joint with the part to be treated, a transparent closure at the opposite end, an adjustable mirror and means for directing light into the receptacle and an electrode permeable to the light and having discharge-points thereon.

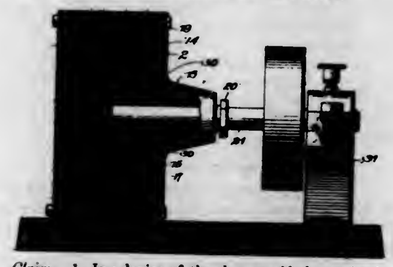
751,195. RIVETING-TOOL. JAMES W. NELSON, New York, N. Y. Filed July 2, 1903. Serial No. 164,010. (No model.)



Claim.—1. In a riveting-tool, the combination with a frame shaped to engage a railway-rail or conductor-rail, of an anvil-lever pivoted to said frame, an anvil formed on one end of said lever and a punch mounted in said frame movable toward the anvil, substantially as set forth.

2. In a riveting-machine, the combination with a frame shaped to rest on the head of a railway-rail or conductor-rail and to engage the under side of said head, a lever pivoted to said frame, with one end extending beneath said frame, an anvil on said end of the lever, the frame being provided with a punch-guide and a punch mounted in said frame to move toward and from the anvil, substantially as set forth.

751,196. ROTARY PUMP. JENS NIELSEN, Cedarfalls, Iowa. Filed May 2, 1903. Serial No. 155,405. (No model.)



Claim.—1. In a device of the class specified, a casing having an intermediate partition dividing the interior of the casing into a pair of circular intersecting chambers, a pair of revoluble intermeshing pumping members disposed one in each of said chambers, and supporting-shafts for said members, each of the shafts having a bearing in the partition.

2. In a device of the class described, a casing having an intermediate partition separating said casing into a circular chamber and an annular chamber, a revoluble piston having a toothed flange arranged in the annular chamber and the web or disk portion of said piston being provided with openings to permit equalization of the pressure on opposite sides of the piston, a toothed wheel forming the opposite piston member, said toothed wheel intermeshing with the teeth of the piston and being disposed within said circular chamber, and shafts for said members, each of said shafts having a bearing in the partition.

3. In a device of the class specified, a casing having an intermediate partition forming intersecting annular and circular chambers, a cup-shaped piston arranged on one side of the partition and having its flange portion toothed and fitting within the annular chamber, a toothed wheel forming a secondary piston member and intermeshing with the teeth of the piston, and carrying shafts for both piston members, there being bearing-openings formed in the partition for the support of said shafts.

4. In a device of the class specified, a casing having in one side a recess forming a circular chamber and in the opposite side a recess forming an annular piston-chamber, said chambers intersecting tangentially, there being between said chambers a dividing-partition, a flanged piston member fitting in one side of the casing and having its toothed flange portion disposed in the annular chamber, a toothed wheel forming a secondary piston member and fitting within the circular chamber, means for supporting the pistons, removable cylinder-heads at the opposite sides of the casing, and supporting-shafts

for said piston members, each of the shafts having a bearing in the dividing-partition as well as in the removable cylinder-head into which it extends.

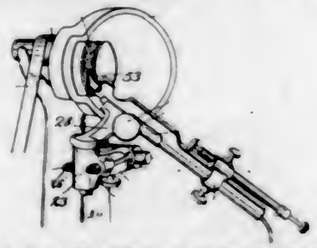
5. In a device of the class specified, the combination with a casing having a partition dividing said casing into a circular chamber and an annular chamber, a piston member having a toothed flange fitting within the annular chamber, the opposite sides of the teeth of said flange being arranged on convex lines and grooves being formed at the intersection of the convex sides and the inner surfaces of the teeth, and a wheel forming a secondary piston member and disposed within the circular chamber, said wheel having radiating teeth tapering from root to apex and the side walls of such teeth being arranged on straight lines.

751,197. **ASH-SIFTER FOR FURNACES OR THE LIKE.** Geo W. Osgood, St. Charles, Ill. Filed Nov. 5, 1903. Serial No. 179,906. (No model.)



Claim.—In a device of the class described, the combination with a suitable handle of a rear board secured thereto, a scoop of reticulated fabric of suitable mesh for sifting ashes, secured at its rear edge to said rear board, said scoop tapering sharply from the front toward said rear board, a plate secured to the upper surface of said scoop at its front edge, a strap below said plate and outside the joint between said plate and said scoop, a bead binding each edge of said scoop, and a suitable strap surrounding said rear board and inclosing the ends of said board.

751,198. **DRILL-GRINDING MACHINE.** Otto Parpart, Cleveland, Ohio, assignor to the Standard Tool Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 26, 1902. Serial No. 136,729. (No model.)



Claim.—1. In a drill-grinding machine, the combination with a drill-support and a drill-holder thereon, of means for independently longitudinally moving and adjusting and transversely rocking and adjusting the drill-holder upon the support, substantially as set forth.

2. In a drill-grinding machine, the combination with a drill-support and a drill-holder thereon, of a segmental ring fitted to transversely rock in the support and having the holder longitudinally sliding in it, substantially as set forth.

3. In a drill-grinding machine, the combination with a drill-support and a drill-holder thereon, of a segmental ring fitted to transversely rock in the support and having the holder longitudinally sliding in it, and means for securing said ring, substantially as set forth.

4. In a drill-grinding machine, the combination of a drill-support formed with a longitudinal slideway having a transverse segmental recess and formed with a circular recess at one end entering said segmental recess, a segmental ring rocking in the segmental recess, a drill-holder longitudinally movable in the slideway and ring, and a clamping-washer and screw in the circular recess and clamping against the ring, substantially as set forth.

5. In a drill-grinding machine, the combination with a grinding-disk and a drill support and holder pivoted to swing in its relation to the face of the disk and the holder being at a normal fixed angle to the pivot, of means for adjusting the pivot-axis at varying angles to the face of the disk, substantially as set forth.

6. In a drill-grinding machine, the combination with a grinding-disk and a drill-support having a pivot-pintle and a drill-holder at a normal fixed angle to the pivot, of a rigid segment and a bearing for the pintle and adjustable upon the segment at varying angles to the face of the grinding-disk, substantially as set forth.

7. In a drill-grinding machine, the combination of a drill-support formed with a slideway and axially-alined bores intersecting the bottom of the slideway, a drill-holder formed with a slide longitudinally movable in the slideway and provided with a rack-bar upon the slide, a shaft in the bores having a pinion engaging the rack and provided with a handle for turning it and a dial-disk, and an index upon the support pointing to the graduations upon the dial-disk, substantially as set forth.

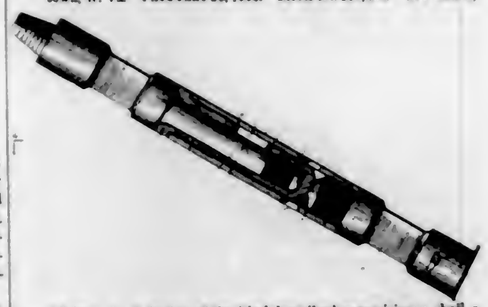
8. In a drill-grinding machine, the combination of a grinding-disk, a pintle-bearing adjustable in a line at right angles to the disk-face, a drill-support having a pivot-pintle in the bearing, and a drill-holder upon said support at a fixed angle to the face of the disk and longitudinally adjustable toward and from the face of the disk, substantially as set forth.

9. In a drill-grinding machine, the combination of a grinding-disk, a pintle-bearing adjustable in a line at right angles to the disk-face, a drill-support having a pivot-pintle in the bearing and formed with a slideway oblique to the face of the grinding-disk, a drill-holder longitudinally adjustable in said slideway, and a graduated gage device for indicating the relative positions of the end of the holder and the pintle-axis, substantially as set forth.

10. In a drill-grinding machine, the combination of a grinding-disk, a pintle-bearing adjustable in a line at right angles to the disk-face, a drill-supporting bracket having a pivot-pintle in said bearing and formed with a slideway oblique to the face of the grinding-disk, a drill-holder longitudinally slidable in said way and formed with a rack, a shaft in the bracket and having a pinion engaging said rack and a handle for turning it, a graduated dial-disk upon said pinion-shaft, and an index upon the bracket and pointing to the graduations on the disk, substantially as set forth.

11. In a drill-grinding machine, the combination of a grinding-disk, a rigid stud projecting at right angles to the face of said disk and having a rack, a sleeve sliding upon the stud and provided with means for clamping it upon the same, a pinion-shaft in said sleeve and having a pinion engaging the rack and a handle for turning it, and a drill-support pivoted upon the sleeve to swing before the grinding-disk and having a longitudinally and transversely rocking adjustable drill-holder, substantially as set forth.

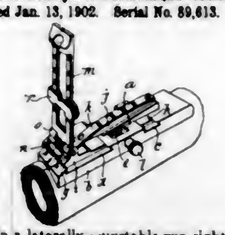
751,199. **WELL DRILL-JAR.** George R. Patton, Williamstown, W. Va. Filed June 20, 1903. Serial No. 162,424. (No model.)



Claim.—1. A device of the kind described comprising a shell, a bushing secured in one end of the shell, a screw-plug having an inner tempered end fitting in the opposite end of the shell, a plunger working in the shell through said bushing, and a removable cap secured to the inner end of the plunger.

2. A drilling-jar comprising a shell having upper and lower apertures arranged therein, a bushing fitting in one end of the shell and having a tempered striking-surface at its inner end, said surface being adjacent the upper apertures of the shell, a plug fitting in the opposite end of the shell and having a tempered striking-surface on its inner end, said end being adjacent the lower apertures, a plunger working through the bushing and a cap fitting over the inner end of the plunger and having tempered striking-surfaces adapted to engage the striking-surfaces of the bushing and plug.

751,200. **RIFLE-SIGHT.** John T. Peddie, Montreal, Canada, assignor to Edward Benjamin Ibbotson and William Peddie, Montreal Canada. Filed Jan. 13, 1902. Serial No. 89,613. (No model.)



Claim.—1. In a laterally-adjustable gun-sight, the combination with a base secured to the gun-barrel and presenting a pair of transverse dovetail guideways, of a laterally-adjustable sight-carrying member comprising a pair of slides fitting said guideways, and a longitudinal bridge-piece connecting said slides and being of a width less than that of the base, the said sight-carrying member carrying a hinged sight-leaf and the said bridge-piece being graduated and adapted to support said sight-leaf in different angular positions predetermined by the graduation upon the bridge-piece, the sight-carrying member with the parts carried thereby being collectively adjustable laterally of the gun, substantially as described and for the purpose set forth.

2. In a laterally-adjustable gun-sight the combination with a base secured to the gun-barrel and presenting a pair of transverse dovetail guideways, of a laterally-adjustable sight-carrying member comprising a pair of slides fitting said guideways, and a longitudinal bridge-piece connecting said slides and being of a width less than that of the base; an open graduated frame pivotally connected to said member, and the opening in which when the frame is in one position accommodates said bridge-piece, a slider upon said frame and movable longitudinally thereof, and means for adjusting said sight-carrying member, substantially as described and for the purpose set forth.

3. In a laterally-adjustable gun-sight, the combination with a base secured to the gun-barrel near the breech, and presenting a central transverse slot and a pair of transverse dovetail guideways, of a laterally-adjustable sight-carrying member comprising a pair of slides fitting said guideways, and a longitudinal bridge-piece connecting said slides, presenting a projection on its under side entering said slot and being of a width less than that of the base; a sight carried by said member, and means connected with said projection and with the base for adjusting the member, substantially as described.

4. In a laterally-adjustable gun-sight the combination with a base secured to the gun-barrel presenting a central transverse slot and a pair of transverse dovetail guideways and having the end nearest the breech beveled and graduated, of a laterally-adjustable sight-carrying member comprising a pair of slides fitting said guideways and a longitudinal bridge-piece connecting said slides presenting a projection on its under side entering said slot and being of a width less than that of the base, the slide nearest the breech being beveled to correspond with the bevel of the end of the base and being graduated; a sight carried by said member, and means connected with said projection and with the base, for adjusting the member, substantially as described.

5. In a laterally-adjustable gun-sight the combination with a base secured to the gun-barrel near the breech, presenting a central transverse slot and a pair of transverse dovetail guideways and having the end nearest the breech beveled and graduated, of a laterally-adjustable sight-carrying member comprising a pair of slides fitting said guideways, and a graduated longitudinal bridge-piece extending from the top of said slides across the central portion of the base, and being of a width less than that of the base, the slide nearest the breech being beveled to correspond with the bevel of the end of the base and being graduated to indicate units, a sight consisting of an open graduated frame hinged to the carrying member, a sighting projection upon the face of the frame, and a slider carried by the frame and adapted, when the frame is in one position, to ride upon said bridge-piece; and means for adjusting said sight-carrying member, substantially as described.

751,201. **RAILWAY-TIE PLATE.** Ernest F. Pierce, Beaverdam, Wis., assignor to Beaver Dam Malleable Iron Company, Beaverdam, Wis., a Corporation of Wisconsin. Filed Nov. 30, 1903. Serial No. 183,178. (No model.)



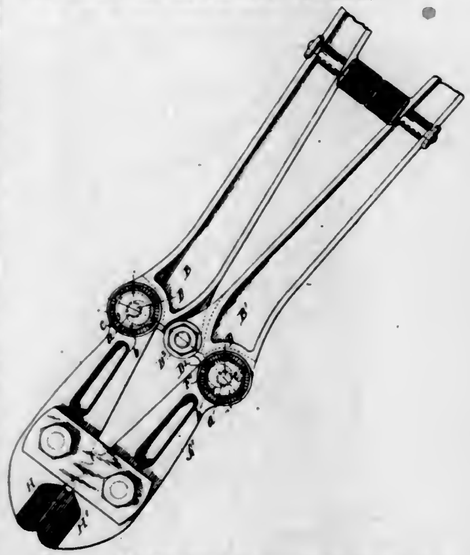
Claim.—1. A tie-plate provided with one or more pairs of depending ribs adapted to enter the material of the tie, the inner opposed faces of each pair of ribs being closer together at their intermediate portions than at their upper and lower ends, substantially as described.

2. A tie-plate provided with one or more pairs of depending ribs adapted to enter the material of the tie, the inner opposed faces of each pair of ribs having downwardly-convergent upper portions and downwardly-divergent lower portions, substantially as described.

3. A tie-plate provided with one or more pairs of depending ribs adapted to enter the material of the tie, the upper halves of the inner opposed faces of each pair of ribs being downwardly convergent and their lower halves downwardly divergent, substantially as described.

4. A tie-plate provided with one or more pairs of depending ribs adapted to enter the material of the tie, the inner opposed faces of each pair of ribs being convex throughout and downwardly convergent through substantially the upper halves of said faces and downwardly divergent through substantially the lower halves thereof, substantially as described.

751,202. **BOLT-CLIPPER.** Henry K. Porter, Chelsea, Mass. Filed June 29, 1903. Serial No. 163,451. (No model.)



Claim.—1. In a bolt-clipper, the combination of a pair of cutter-levers; a pair of handle-levers; a pair of eccentric bolts forming

adjustable joints between the two pairs of levers; the bolts being adapted to adjustably interlock with suitable teeth provided on the handles, for the purposes specified.

2. In a bolt-clipper, the combination of a pair of cutter-levers; a pair of handle-levers; a pair of eccentric bolts by which the two pairs of levers are jointed together, the bolts and handle-levers being provided with confronting teeth which adjustably interlock and prevent the turning of the bolts as specified.

751,203. CHURN. WILLIAM G. RADCLIFFE, Petersburg, Va. Filed Mar. 14, 1903. Serial No. 147,771. (No model.)

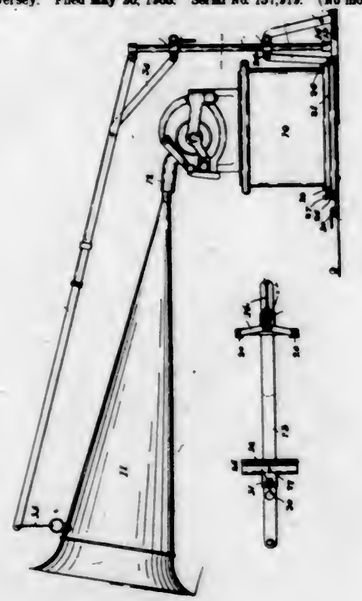


Claim.—1. In a churn, a body, a rotary shaft therein, radially-arranged abutments at the lower end of the shaft, U-shaped rods movably mounted on the sides of the body, the inner leg of each of which is provided with a radially-arranged deflector, and means for holding and guiding said rods in a vertical position.

2. In a churn, a body, a rotary dasher therein, radially-arranged abutments at the lower end of the shaft, brackets at the upper edge of the body, each of which is provided with an eye and has its upper end extending over the top of the body and is grooved, a U-shaped rod in each bracket, the legs of which enter the grooved portions and the outer leg passes through said eye, and a deflector rigidly secured to the inner leg.

3. In a churn of the kind described, a churn-body, having guiding-brackets connected thereto, rods carried by said guiding-brackets, the curved deflectors connected to said rods, the lower ends of the rods being turned as described whereby the inner members of the rods are held away from the sides of the churn-body, for the purpose set forth.

751,204. HORN-SUPPORT. VICTOR H. RAPER, New York, N. Y., assignor to the Tea Tray Company of Newark, N. J., a Corporation of New Jersey. Filed May 20, 1903. Serial No. 157,919. (No model.)



Claim.—1. The combination with the horizontal piece adapted to extend beneath the box of the talking-machine, said piece having clamps to engage the box, of a vertical rod secured to said horizontal piece and an arm held by said vertical rod and adapted to support the large end of the horn.

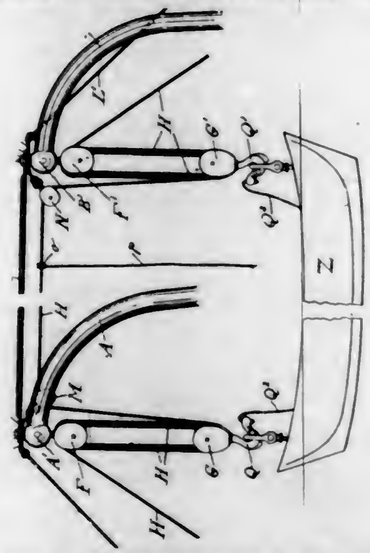
2. The combination with the horizontal piece adapted to extend beneath the under side of the box of a talking-machine, said piece having a clamp, one jaw of which is adjustable thereon, to engage the opposite sides of the box, of a horn-supporting arm carried by said piece and adapted to support the horn.

3. The combination with the horizontal piece having clamps to engage the opposite sides of the box of a talking-machine, one of said clamps being slidable on said piece and provided with a setting-eccentric, of a vertical rod, a socket on said horizontal piece and providing a seat for the lower end of said vertical rod, and a brace to hold said vertical rod firm in said socket, and a horn-supporting rod connected with the upper end of said rod, substantially as set forth.

4. The combination with the horizontal piece having clamps to engage the opposite sides of the box of a talking-machine, one of said clamps being slidable on said piece and provided with a setting-eccentric, of a vertical rod, a socket on said horizontal piece and providing a seat for the lower end of said vertical rod, a reinforcing-piece beneath said socket, and a brace to hold said vertical rod firm in said socket, and a horn-supporting rod connected with the upper end of said rod, substantially as set forth.

5. In combination with the horizontal piece adapted to be clamped to the opposite sides of the box, of a vertical rod carried at one side of said box, a brace firmly holding said rod erect on said piece, an arm in extensible sections pivotally connected to said vertical rod, and a brace pivotally connecting said bar and rod, substantially as set forth.

751,205. BOAT-DETACHING APPARATUS. JAMES R. RAYMOND, Bayonne, N. J. Filed Jan. 2, 1903. Serial No. 137,413. (No model.)



Claim.—1. In boat-detaching apparatus, the combination in the tackle-hook which engages a shackle on the boat of a body part, a weighted bill pivotally connected thereto, and a projection on said body part adapted to prevent the shackle from jumping back on said body part, substantially as described.

2. In boat-detaching apparatus, the combination of tackles and hooks, said hooks being provided with stationary fins and movable bills, boat-shackles adapted to engage said bills, and means for connecting said shackles with said boats and provided with ovoidal eyes in which said shackles are seated, substantially as described.

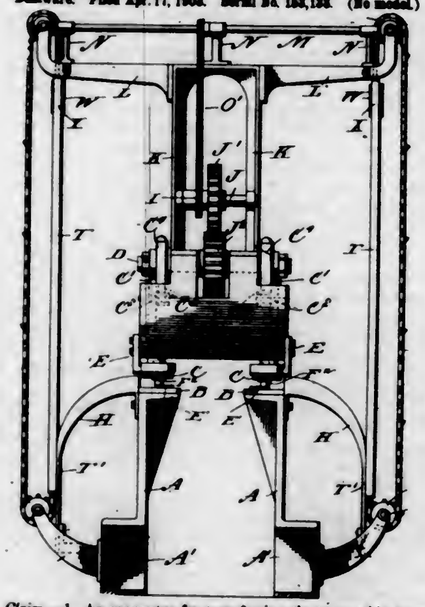
3. The combination with the tackles and hooks of boat-detaching devices, of shackles x adapted to engage said hooks and provided with bolts x', devices z for connecting said shackles x to boats and provided with eyes y which have holes for said bolts x' enlarged downwardly to greater diameter than said bolts x' and contracted upwardly to fit said bolts, substantially as described.

4. The combination in boat-detaching apparatus of revoluble davits, tackles comprising standing and running blocks and a hoisting-rope rove continuously through said blocks and adapted to pay back from the blocks on one davit to the blocks on the other davit, detaching-hooks carried by said tackles and having pivoted bills and guide-lanyards on said bills, and shackles connected with boats adapted to a bearing fit on said bills and seated in ovoidal seats is the means which connect the shackles with the boats, substantially as described.

5. The combination in boat-detaching apparatus of boats provided with shackles, detaching-hooks provided with movable weighted bills for connection to said shackles and with guide-lanyards, davits for the two ends of the boat, running and standing blocks at each davit, a hoisting-rope rove continuously through said blocks and from davit to davit and adapted to pay back from the blocks on one davit to the blocks on the other davit, and a bull's-eye running on said hoisting-rope and having a tail-rope whereby said bull's-eye is adapted to check the paying back of said hoisting-rope, substantially as described.

6. The combination in boat-detaching apparatus of davits for the two ends of the boat, detaching-hooks provided with movable bills at each davit for connecting with their respective ends of the boat, and a hoisting-rope connected with said hooks and rove continuously from one hook to the other, whereby the slack of said hoisting-rope at one hook pays back to the other hook, substantially as described.

751,206. APPARATUS FOR TRANSFERRING TOPS AND BOTTOMS OF CANS. JOHN G. RENFUE and MARTIN O. RENFUE, Philadelphia, Pa., assignors to Bureau Can and Manufacturing Company of Delaware. Filed Apr. 17, 1903. Serial No. 153,138. (No model.)



Claim.—1. An apparatus for transferring the tops and bottoms of cans, comprising chutes, means for forcing the top or bottom of the can thereinto as it is stamped from a sheet of tin, an endless conveyer, means for transferring the top or bottom to said conveyer, and means for transferring the top or bottom from the endless conveyer to and depositing the same in a chute, as set forth.

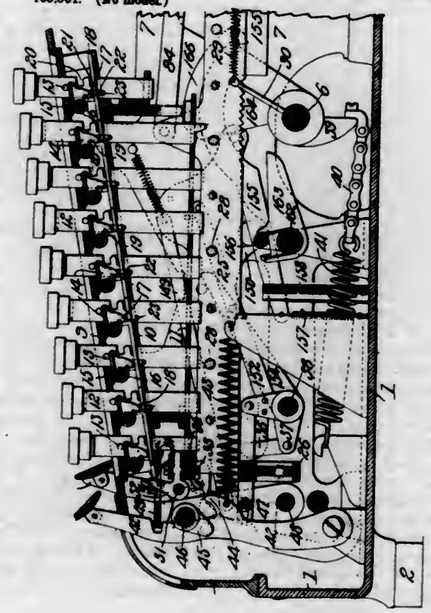
2. An apparatus for transferring the tops and bottoms of cans, comprising a chute, means for automatically feeding the top or bottom of a can as it is punched from a sheet of metal into the chute, an endless conveyer, a casing through which a portion of said conveyer travels, means for delivering a top or bottom from said chute into said casing into a position to be elevated by said endless conveyer, and means for transferring the top or bottom from the conveyer to a position to be automatically applied to the body portion of a can, as set forth.

3. An apparatus for transferring the top or bottom of a can from cutting-dies to positions to be automatically clamped upon the body portions of the cans, consisting of an inclined chute, means for feeding the top or bottom of a can into the chute, an endless conveyer, a casing through which a portion of said conveyer travels, the lower end of said chute communicating with said casing through an aperture therein, means positioned adjacent to the outlet end of said chute to automatically throw a top or bottom into a position to be caught by the endless conveyer to be elevated in said casing, a gravity-chute opening through said casing near its upper end, and means adjacent to the upper end of the casing and positioned in the path of the top or bottom being elevated and provided for the purpose of transferring a can from the conveyer into said gravity-chute, as set forth.

4. An apparatus for transferring tops and bottoms of cans from cutting-dies to positions where they are applied to the body portions of cans, comprising a chute, a spring-actuated finger, means for actuating said finger to feed the top or bottom of a can into said chute, an endless conveyer, a casing through which the elevating portion of the conveyer travels, the lower end of said casing communicating with the exit end of said chute, an inclined member adjacent to the end of said chute and adapted to throw a top or bottom of a can from the chute into a position to be engaged by said conveyer, gravity-chutes opening into the upper end of said casing, an inclined member positioned within said casing and in the path of a top or bottom being elevated and so positioned as to automatically throw the top or bottom of a can into said gravity-chute, as set forth.

5. An apparatus for transferring tops and bottoms of cans to positions where they are applied to the body portions of cans, consisting in a chute, a standard of a machine to which one end of said chute is secured, a spring-actuated finger adapted to feed the top or bottom of a can into the adjacent opening of a chute, bracket-arms upon the standards of the frame, sprocket-wheels carried by said bracket-arms, an endless conveyer traveling about said sprocket-wheels, cross-pieces on said conveyer, a casing through which the elevating portion of said conveyer travels, the lower end of said chute opening into said casing adjacent to its lower end and hinged for throwing the top or bottom of a can into said chute, gravity-chutes opening through the wall of the casing, means for transferring the top or bottom of a can from the conveyer into said gravity-chutes, and geared mechanism for driving the endless conveyer, as set forth.

751,207. CALCULATING-MACHINE. FRANK C. RISCHE, St. Louis, Mo., assignor to Universal Accountant Machine Company, St. Louis, Mo., a Corporation of Missouri. Filed May 2, 1902. Serial No. 105,581. (No model.)



Claim.—1. In a machine of the character described, the combination with a series of depressible keys having shanks, one edge of each shank having two notches, of a slidable plate designed to coöperate with said notches, a rocking lever for each key, which lever, upon the depression of its key, moves said sliding plate, whereby the sliding plate enters notches in all of the key-shanks locking the operated key in its depressed position and the remaining keys in their elevated position; substantially as described.

2. In a machine of the character described, the combination with a series of independently-operable keys, each of which has a shank provided with a lateral projection, said shank having two notches in one edge thereof, of a pivoted dog coöperating with said lateral projection, a spring coöperating with said dog to hold the same and its associate key in normal position, a heel portion on said dog, and a slidable plate coöperating with said heel portion and with the notches in the key-shank; substantially as described.

3. In a machine of the character described, the combination with a series of keys, each of which is provided with a lateral projection, of spring-pressed dogs coöperating with said lateral projections, each of said dogs having a heel portion, a notched sliding plate having projections in the paths of said heel portions, and means for yieldingly holding said sliding plate in its adjusted positions; substantially as described.

4. In a machine of the character described, the combination with a series of independently-movable keys whose shanks are provided with recesses 20 and 21, of a sliding plate normally in register with the notches 21, said sliding plate having projections, pivoted spring-pressed dogs coöperating with the key-shank and coöperating with said projections, whereby, when any key of the series is depressed, its dog is operated to drive the plate forwardly to lock said key in its depressed position and the remaining keys in their elevated positions, and a yielding medium for holding said sliding plate in its forward position; substantially as described.

5. In a machine of the character described, the combination with a series of keys, of a sliding plate common thereto, and a spring carried by said sliding plate, said spring being provided with oppositely-inclined portions for coöperating with a stationary abutment, whereby said sliding plate is yieldingly held in its adjusted positions; substantially as described.

6. In a machine of the character described, the combination with a series of keys, each of which is provided with a lateral projection 13, notches 20 and 21, and a slot 22, of rods or wires passing through said slot for holding the key against vertical displacement, spring-pressed pivoted dogs coöperating with the projections 13, a recessed sliding plate 18 which is actuated by any key in the series through the medium of its dog, and a leaf-spring 24 carried by the sliding plate for holding said sliding plate in its adjusted positions; substantially as described.

7. In a machine of the character described, the combination with a keyboard comprising series of depressible keys, of sliding plates common to their respective series of keys, a rocking frame for restoring said sliding plates, a handle for rocking said frame, and a lever carrying a cam projection for rocking said frame independently of said handle; substantially as described.

8. In a machine of the character described, the combination with a keyboard comprising series of depressible keys and their associate sliding bars, of a rocking frame for restoring said sliding plates, a cam-shaft for rocking same frame, a handle for operating said cam-shaft, and a lever for rocking said cam-shaft independently of said handle; substantially as described.

9. In a machine of the character described, the combination with a keyboard, of means for restoring the same, said means comprising a rocking frame, a cam-shaft for operating said frame, a rock-arm on said shaft, and a lever provided with a cam projection for coöperating with said rock-arm; substantially as described.

10. In a machine of the character described, the combination with a keyboard, of means for restoring the same, said means comprising a rocking frame carrying fingers 50, a cam-shaft for rocking said frame, an operating-handle for rocking said cam-shaft, a rock-arm on said cam-shaft, and a lever 42 provided with a cam projection for coöperating with said rock-arm to rock said cam-shaft independently of the operating-handle; substantially as described.

11. In a machine of the character described, the combination with a series of depressible keys, of means for holding said keys in a depressed position, whereby they act as stops, a slide-bar common to said series of keys and provided with lateral projections designed to coöperate with the stops set up by the different keys in their depressed position, a rack pivoted to said slide-bar, an adding-wheel designed to mesh with said rack, an operating-handle, a spring connection between said operating-handle and said slide-bar, whereby said slide-bar is impelled forwardly until arrested by one of the depressed keys, means for throwing the rack into engagement with the adding-wheel after the slide-bar has completed its forward movement, and means controlled by the operating-handle for restraining the forward movement of the slide-bar under the action of its spring; substantially as described.

12. In a machine of the character described, the combination with a keyboard for setting up stops, of a series of slide-bars controlled by said stops, springs for moving said slide-bars forwardly, an operating-handle for restoring the slide-bars, and means controlled by said operating-handle for increasing the tension of said springs upon the movement of said operating-handle before said operating-handle restores the slide-bars; substantially as described.

13. In a machine of the character described, the combination with a keyboard for setting up stops, of slide-bars whose position is controlled thereby, springs connected at one of their ends to said slide-bars for moving said slide-bars forwardly, an operating-handle, arms controlled by said handle, to which arms the other ends of said springs are connected, and means controlled by said handle for restraining the movement of said slide-bars under the action of their respective springs; substantially as described.

14. In a machine of the character described, the combination with a keyboard for setting up stops, of slide-bars whose position is controlled by said stops, springs connected at one of their ends to said slide-bars for moving said slide-bars against said stops, an operating-handle, arms controlled by said handle, to which arms the other ends of said springs are connected, and means controlled by said operating-handle for moving the arms forwardly and for restraining the movement of the slide-bars under the action of their impelling-springs; substantially as described.

15. In a machine of the character described, the combination with slide-bars, springs for moving said bars forwardly, of an operating handle, and means controlled by said operating-handle for increasing the tension of the springs which move the slide-bars forwardly and for restraining the movement of said slide-bars and preventing said slide-bars moving under the impelling action of their springs until said handle is operated, said restraining means also serving to restore the slide-bars to normal position; substantially as described.

16. In a machine of the character described, the combination with a series of adding-wheels, of a series of independently-movable keys for each wheel, key-stops, a slide-bar common to said series of keys and provided with lateral projections coöperating with the key-stops, a rack pivoted to said slide-bar, an operating-handle, a yielding connection between said operating-handle and said slide-bars, whereby said slide-bars are moved forwardly by said yielding connection until arresting by one of the key-stops, means controlled by the operating-handle for restraining the forward movement of the slide-bar, means operated by said handle for throwing the racks into engagement with the adding-wheels after the slide-bars have completed their forward movement, the restraining devices restoring the slide-bars and rotating the meshed adding-wheels, and means for disengaging the racks on the slide-bars from the adding-wheels when the operating-handle reaches the limit of its return movement; substantially as described.

17. In a machine of the character described, the combination with a keyboard, of means for restoring the same, said means including a tappet, a repeating-key for rendering said tappet inoperative, and a hook-lever for locking said repeating-key in position; substantially as described.

18. In a machine of the character described, the combination with a keyboard and its restoring means, said restoring means including a tappet, of a repeating-key for swinging said tappet out of operative position, a hook-lever for locking said repeating-key in its engaged position with said tappet, and means for rendering said hook-lever inoperative; substantially as described.

19. In a machine of the character described, the combination with a keyboard and its restoring means, said restoring means including a tappet, of a repeating-key for swinging said tappet out of operative position, a hook-lever for locking said repeating-key in its engaged position with said tappet, and a total-key for rendering said lever inoperative; substantially as described.

20. In a machine of the character described, the combination with a main shaft, of a handle for operating the same, a notched segment on said main shaft, a double pawl coöperating with the notches in said segment, a sliding bar operated by said shaft, and means on said sliding bar for throwing the double pawl; substantially as described.

21. In a machine of the character described, the combination with a main shaft, of a handle for operating the same, a bar reciprocated by said main shaft, a notched segment on said shaft, a double pawl coöperating with said notched segment and having a tappet, and projections on said reciprocating bar for coöperating with said tappet and throwing said double pawl; substantially as described.

22. In a machine of the character described, the combination with a positively-driven shaft, of an operating-shaft yieldingly driven therefrom, and means for locking the positively-driven shaft in one position until the yieldingly-driven shaft occupies a proper relation to the positively-driven shaft; substantially as described.

23. In a machine of the character described, the combination with a positively-driven shaft, of an operating-shaft yieldingly driven therefrom, means for locking the positively-driven shaft in one position in the event that its relation to the operating-shaft is changed, and means operated by the said operating-shaft to release the positively-driven shaft when the yieldingly-driven operating-shaft occupies proper relation to the positively-driven shaft; substantially as described.

24. In a machine of the character described, the combination with a positively-driven main shaft carrying a notched segment, of a hook-lever for engaging said notched segment and locking the same in one position, a shaft yieldingly driven from said main shaft, and means operated by said yieldingly-driven shaft for rendering said hook-lever inoperative; substantially as described.

25. In a machine of the character described, the combination with a positively-driven shaft, of a notched segment carried thereby, a spring-post on said notched segment, a spring connected to said post, a link having a bifurcated end through which said post passes, said spring being connected at its other end to said link, a sliding bar upon which said link is pivotally mounted, and a rock-shaft carrying a rock-arm which coöperates with said sliding bar; substantially as described.

26. In a machine of the character described, the combination with a positively-driven shaft, of a notched segment carried thereby, a hook-lever normally in the path of said notched segment and designed to lock the same in one position, a sliding bar, a bifurcated bar mounted on said sliding bar, and having a yielding connection with said notched segment, and means on said sliding bar for rendering said hook-lever inoperative; substantially as described.

27. In a machine of the character described, the combination with a positively-driven main shaft, of a notched segment mounted thereon, a double pawl coöperating with said notched segment to compel a complete movement being imparted to said positively-driven shaft, a sliding bar operated by said main shaft, means carried by said sliding bar for throwing said double pawl, a hook-lever normally in position to lock the main shaft in one position, and means carried by said sliding bar for rendering said hook-lever inoperative; substantially as described.

28. In a machine of the character described, the combination with an adding-wheel carrying tripping projections of a vibrating frame, a tripping-pawl mounted on said frame and extending in the path of said projections, a spring-pressed frame controlled by said tripping-pawl, a driving-pawl mounted on said spring-pressed frame for coöperating with the next adjacent wheel of higher order, and means for holding said spring-pressed frame in a retracted position until after the adding-wheels have reached their designed position of rest; substantially as described.

29. In a machine of the character described, the combination with a series of adding-wheels carrying tripping projections, of a rocking frame, tripping-pawls mounted on said rocking frame and extending in the paths of said tripping projections, spring-pressed frames controlled by said tripping-pawls, driving-pawls mounted on said spring-pressed frames for driving the next adjacent driving-wheels of higher order, and means for holding all the said spring-pressed frames in a retracted position during the operation of the adding-wheels, said means releasing said frames whereby their carried pawls become operative; substantially as described.

30. In a machine of the character described, the combination with a series of adding-wheels and means for driving the same, of tripping projections on said wheels, a rocking frame, tripping-pawls carried by said rocking frame and extending in the paths of said tripping projections, spring-pressed pawl-carrying frames normally held in a retracted position, means for releasing said frames, and a vibrating plate operated by the driving mechanism of the adding-wheels for holding said frames retracted until the driving mechanism for the wheels has completed its movement when said plate is moved out of the paths of said frames permitting those which have been tripped to move quickly forward without restraint; substantially as described.

31. In a machine of the character described, the combination with a series of adding-wheels carrying tripping projections, of a rocking frame carrying tripping-pawls coöperating with said projections, rocking pawl-carrying frame-plates controlled by said tripping-pawls, and means for restoring the pawl-carrying frame-plates and coincidentally resetting the tripping-pawls; substantially as described.

32. In a machine of the character described, the combination with a series of adding-wheels carrying tripping projections, driving-springs and of pivoted frame-plates carrying driving-pawls, a rocking frame to which are connected the driving-springs for the pawl-carrying frame-plates, and a rocking frame carrying tripping-pawls for controlling the rocking frame-plates; substantially as described.

33. In a machine of the character described, the combination with adding-wheels carrying tripping projections, of transferring devices coöperating therewith, a rocking frame to which are connected springs for placing said transferring devices under tension, a bell-crank lever connected to said rocking frame, and a cam 116 coöperating with said bell-crank lever; substantially as described.

34. In a machine of the character described, the combination with adding-wheels, of transferring devices coöperating therewith, in which transferring devices is included a rocking frame 106, a link connected to said rocking frame, a bell-crank lever connected to said link, a rock-arm 89, a flange 115 on said rock-arm, and a cam 116 on said rock-arm, said flange and cam coöperating with said bell-crank lever; substantially as described.

35. In a machine of the character described, the combination with adding-wheels, of transferring devices including a rocking frame which places the transferring devices under tension, a rocking frame carrying tripping-pawls, and means controlled by the first-mentioned frame for restoring the tripping-pawls and their carrying-frame and at the same time relieve them of tension and restoring them to normal position; substantially as described.

36. In a machine of the character described, the combination with adding-wheels, of transferring devices including a rocking frame 106 which places the transferring devices under tension, a rocking frame 118 carrying tripping-pawls, and a projection 117 on the frame 106 for restoring the frame 118 and its carried tripping-pawls; substantially as described.

37. In a machine of the character described, the combination with adding-wheels carrying tripping projections, of tripping-pawls in the paths of said projections, a rocking frame which carries said tripping-pawls, a series of frame-plates 110 coöperating with said tripping-pawls, driving-pawls 111 mounted on said frame-plates 110, springs for actuating said frame-plates 110 when released by said tripping-pawls, a rocking element 126, and means for rocking said element into and out of the paths of movement of the frame-plates 110; substantially as described.

38. In a machine of the character described, the combination with adding-wheels carrying tripping projections, of means for driving said adding-wheels, a rocking frame 106, frame-plates 110, springs connecting said frame-plates and said frame 106, driving-pawls 111 mounted upon the frame-plates, a rocking frame 118 carrying tripping-pawls whose free ends are in the paths of movement of the tripping projection on the adding-wheels, said tripping-pawls, in their normal position, holding the frame-plates 110 retracted, means on said frame-plates for locking the adding-wheels against movement after they are driven by the pawls 111, and a rocking plate 126 which is operated by the driving means for the adding-wheels, said plate during the operation of the adding-wheels lying in the paths of movement of the frame-plates 110, and means for rocking said plate upon the completion of the driving movement of the adding-wheels, whereby the frame-plates initially released by the tripping-pawls are permitted to drive the adding-wheels; substantially as described.

39. In a machine of the character described, the combination with adding-wheels, of transferring devices coöperating therewith, a rocking plate 126 for holding said transferring devices retracted until the adding-wheels have been driven in the ordinary way, means for driving said adding-wheels, and a dash-pot for cushioning said means, a lever carrying a plunger which operates in said dash-pot, said lever operating the rocking plate 126; substantially as described.

40. In a machine of the character described, the combination with adding-wheels, of a handle for driving the same, transferring devices coöperating with said adding-wheels, a dash-pot for cushioning the return movement of the handle, a lever to which the plunger of said dash-pot is connected, and means operated by said lever for releasing the transferring devices whereby they become operative at the completion of movement of the handle; substantially as described.

41. In a machine of the character described, the combination

with adding and recording mechanism, of slide-bars for operating the same, a total key or lever, and means which are effective only when the total-key is operated for simultaneously releasing all of the control-bars and for restraining unnecessary forward movement of said slide-bars; substantially as described.

42. In a machine of the character described, the combination with a total-key, of slide-bars, means for preventing unnecessary forward movement of the slide-bars, and means operated by said total-key for rendering said first-mentioned means operative; substantially as described.

43. In a machine of the character described, the combination with slide-bars, of pivoted racks carried thereby, a handle for operating said slide-bars, adding-wheels, means operated by the handle for engaging the racks with the adding-wheels, a total-key, and means operated by the handle when the total-key is in an operative position for rendering the engagement of the racks and adding-wheels inoperative during a portion of the stroke of the operating-handle; substantially as described.

44. In a machine of the character described, the combination of slide-bars, of means for operating the same, pawls coöperating with said slide-bars, means controlling the position of said pawls and a total-key for moving said pawl-controlling mechanism to an operative position; substantially as described.

45. In a machine of the character described, the combination with slide-bars, of means for preventing unnecessary forward movement thereof, a total-key for placing said means in operative position, and an operating-handle setting said means in operative position; substantially as described.

46. In a machine of the character described, the combination with slide-bars provided with recesses, of pawls coöperating with said recesses, a lever 155 controlling the position of said pawls, a total-key coöperating with said lever, and an operating-handle also coöperating with said lever; substantially as described.

47. In a machine of the character described, the combination with slide-bars, of an operating-handle coöperating therewith, pawls for preventing unnecessary forward movement of said slide-bars, means for operating said pawls and a total-key for placing said pawl-operating mechanism in position to be operated by said operating-handle; substantially as described.

48. In a machine of the character described, the combination with spring-impelled slide-bars, of an operating-handle for restraining the forward movement of said slide-bars, said slide-bars having recesses, pawls 163 coöperating with said recesses, a lever 155 for controlling the position of said pawls, and a total-key coöperating with said lever 155 to move it into position to be operated upon the operation of said handle; substantially as described.

49. In a machine of the character described, the combination with an operating-handle, of an arm connected thereto and provided with a track-plate, a total-key, a lever operated from said total-key and having a projection designed to ride over or under said track-plate, and a dog at one end of said track-plate; substantially as described.

50. In a machine of the character described, the combination with an operating-handle, of a total-key, means for preventing the operation of the total-key when the handle is in other than normal position, said means permitting the total-key to be restored when the operating-handle is in a certain position other than home position; substantially as described.

51. In a machine of the character described, the combination with an operating-handle, of a track-plate operated thereby, a yielding dog at one end of said track-plate, and a total-key coöperating with said track-plate whereby when the handle is in a forward position the total-key is permitted to return home, the dog preventing another operation of said total-key while the handle is in a forward position; substantially as described.

52. In a machine of the character described, the combination with adding and recording mechanism, a keyboard having a repeating-key, slide-bars, and an operating-handle, of a total-key for effecting the release of all of said slide-bars; releasing the keyboard and preventing the setting up of an example on said keyboard when the total-key is in other than normal position; placing in position restraining devices for preventing unnecessary forward movement of the slide-bars; setting into position an interlock between said total-key and the operating-handle; engaging the slide-bars with the adding mechanism; shifting the inking devices of the recording mechanism whereby the total is printed in a color different from that of which its items are composed; releasing the adding-wheels; and preventing the operation of the repeating-key; substantially as described.

751,208. PRISMATIC LAMP. FRANK J. RUSSELL, New York, N. Y. Filed Mar. 2, 1903. Serial No. 145,701. (No model.)



Claim.—1. A lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to both assist in releasing the frame and to lock it in its closed position and an internal lighting device, said lamp being pivotally supported, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus, substantially as and for the purpose set forth.

2. The combination of a pivotally-supported lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus and means for adjusting said lamp upon its pivotal supports, substantially as and for the purpose set forth.

3. In a lamp, the combination of a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device arranged substantially at right angles to said prismatic lens, and a reflector arranged in axial relation to the light whereby the latter is positively and permanently in focus, for the purpose set forth.

4. In a lamp the combination of a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device, and a parabolic reflector within the arc described by said lens and arranged to direct the rays of light to the prismatic lens in lines substantially at right angles thereto, as set forth.

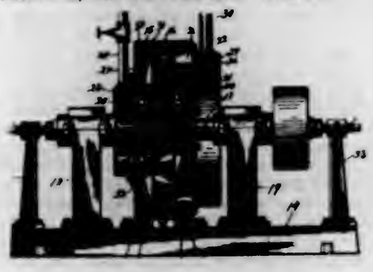
5. The combination with a pivotally-supported lamp having a prismatic lens, a frame hinged to the lamp-body and carrying said lens, means coöperating with said frame to lock it closed and to assist in releasing it, and an internal lighting device, of a pivotal support formed with a conduit through which the source of light is conducted to said internal lighting device and a parabolic reflector disposed oppositely to said lens, substantially as and for the purpose described.

6. The combination with the lamp-body, and an internal lighting device, of a prismatic lens mounted in a frame which is hinged to the lamp-body and a gasket on the lamp-body arranged to engage the lens-frame, substantially as and for the purpose set forth.

7. The combination with the lamp-body and an internal lighting device, of a prismatic lens mounted in a frame hinged to the lamp-body, a gasket on the lamp-body arranged to engage the said lens-frame, and an eccentric hook for securing the lens-frame in position, substantially as set forth.

8. The combination with the lamp-body and an internal lighting device, of a prismatic lens mounted in a frame hinged to the lamp-body, a gasket on the lamp-body arranged to engage the said lens-frame, and an eccentric hook for securing the lens-frame in position, said eccentric hook being formed with a cam-surface for positively releasing the lens, substantially as set forth.

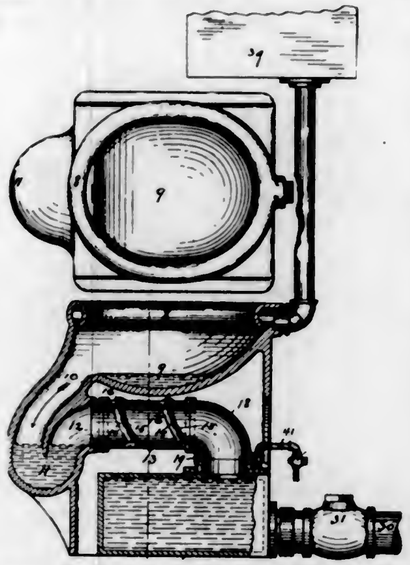
751,209. STEAM-TURBINE. HENRY C. SCHWARZE, Chicago, Ill. Filed Oct. 13, 1903. Serial No. 176,894. (No model.)



Claim.—1. In a steam-turbine, in combination, a rotative disk having a plurality of annular series of apertures each having a radially-disposed axially-oblique wall, the oblique walls of apertures of adjacent series being oppositely inclined; side casing-plates bearing against the disk-walls, each plate having ports registering with one of the series of disk-apertures, an annular cavity overlapping two other series thereof, and an annular chest on the outer face of each plate and in communication with the ports thereof.

2. In a steam-turbine, in combination, a rotative disk having a plurality of annular series of apertures each having a radially-disposed axially-oblique wall, the oblique walls of apertures of adjacent series being oppositely inclined; side casing-plates bearing against the disk-walls; an annular series of steam-induction ports in one of the side plates and registering with one series of disk-ports; an annular series of exhaust-ports in one of the side plates and registering with a different series of disk-ports, and annular chests on the outer face of the side plates, in communication, respectively, with the series of induction-ports and the series of exhaust-ports and an annular channel in the face of one of the side plates connecting two series of disk-apertures.

751,210. AUTOMATIC MARINE WATER-CLOSET. WILLIAM H. SMITH, Elizabeth, N. J., assignor of one-half to Walter F. Kelly, Elizabeth, N. J. Filed Apr. 13, 1903. Serial No. 152,379. (No model.)



Claim.—1. The combination with the bowl, a flushing-tank and connections, of a reservoir adapted to receive the flushings from the bowl, said reservoir containing a float in connection with a valve of a compressed-air pipe, and said compressed-air pipe having said valve, substantially as set forth.

2. The combination with the bowl, flushing-tank and connections, of a reservoir arranged in connection with said bowl to receive the flushing-water therefrom, a float in said reservoir, a valved compressed-air pipe, the valve of which is operated by said float to permit an inflow of compressed air into the said reservoir, substantially as set forth.

3. The combination with the bowl, flushing-tank and connections, of a reservoir arranged in connection with said bowl to receive the flushing-water therefrom, a float in said reservoir, a valve compressed-air pipe, the valve of which is operated by said float to permit an inflow of compressed air into the reservoir, and an out-passage pipe from said reservoir having a valve to prevent back-flow, substantially as set forth.

4. The combination with the bowl, flushing-tank and connecting-pipe, of a reservoir arranged below the said bowl in trapped connection with the same, the connections being provided with check-valves, a float in said reservoir in connection with a valve of a compressed-air pipe, said compressed-air pipe having said valve, a cylinder 32, in connection with said pipe, a piston in said cylinder and connections of said piston with a second valve governing the flow of the compressed air through the compressed-air pipe into the said reservoir, substantially as set forth.

5. The combination with the bowl, flushing-tank, reservoir and connections, of a cylinder and branched compressed-air pipe leading the air into said reservoir and cylinder, the branches of the pipe each being provided with valves, and a float and connections controlling said valves, substantially as set forth.

6. The combination with the bowl, flushing-tank and reservoir and connections, of a cylinder and compressed-air pipe leading the air into said reservoir and cylinder, the branches of the pipe each being provided with valves and a float arranged in said reservoir, connecting-rods 23, and 24, and lever 26, connecting with valve 27, a piston arranged in said cylinder and a lever connecting said piston with the valve 27, substantially as set forth.

7. In a water-closet, the combination with a reservoir adapted to receive the flushing-water, of a float adapted to be raised by the flushing-water to open a compressed-air valve, a compressed-air pipe having said valve and means controlling a second valve whereby said means are operated by the compressed air entering through the first said valve said operating means will open said second valve, and said second valve controlling the flow of compressed air into said reservoir, substantially as set forth.

751,211. REVERSING-GEAR. LOUIS B. SWYSER, Elizabeth, N. J., assignor, by mesne assignments, to Canda Brothers, New York, N. Y., a Copartnership. Filed Dec. 24, 1898. Renewed July 15, 1902. Serial No. 115,743. (No model.)

Claim.—1. In a reversing-gear, the combination, with driving and driven members, a connecting-casing surrounding the ends of said driving and driven members and revolubly mounted, and having outwardly-extending flanges, of supporting members within said flanges and secured to said driving and driven members, friction-bands secured to said supporting members and adapted to be pressed outwardly against said flanges, means for so pressing said friction-bands against said flanges, reversing-gearing located within the casing, and means for setting said reversing-gearing in operation at will, substantially as described.

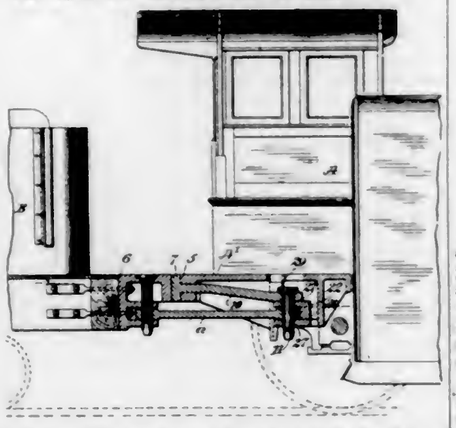
2. In a reversing-gear, the combination, with driving and driven members, a connecting-casing surrounding the ends of said driving and driven members and revolubly mounted, and having outwardly-extending flanges, of supporting members within said flanges and secured to said driving and driven members, friction-bands secured to said supporting members and adapted to be pressed outwardly against said flanges, cams located between the ends of said friction-bands, and adapted to press said bands ontward, means for operat-

ing said cams, reversing-gearing located within the casing, and means for setting said reversing-gearing in operation at will, substantially as described.

3. In a reversing-gear, the combination with driving and driven members, a third member or carrier embracing the adjacent ends thereof and provided at one end with an outwardly-extending flange, and reversing-gearing connecting said driving and driven members and carried thereby and by said third member or carrier, of a supporting member secured to one of said driving and driven members, a friction-band carried by said supporting member and located within said flange and adapted to be pressed outwardly against the same, means for so pressing said friction-band against said flange, and a friction-brake acting upon the outside of said casing.

4. In a reversing-gear, the combination with driving and driven members, a third member or carrier embracing the adjacent ends thereof and provided at one end with an outwardly-extending flange, and reversing-gearing connecting said driving and driven members and carried thereby and by said third member or carrier, of a supporting member secured to one of said driving and driven members, a friction-band carried by said supporting member and located within said flange and adapted to be pressed outwardly against the same, means for so pressing said friction-band against said flange, a friction-brake acting upon the outside of said casing, and a single operating device adapted to operate either the friction-brake or the means for pressing the friction-band against the flange of the carrier at will.

751,212. CAR-BUFFER. GEORGE F. STARBUCK, Waltham, Mass. Filed May 18, 1903. Serial No. 157,616. (No model.)



Claim.—1. The combination of a support, a buffer therefor having oppositely-disposed concave buffing-surfaces, and means carried by and movable beneath the support for taking up the wear or slack of the buffer, substantially as set forth.

2. The combination with a support, of a buffer therefor, said buffer having a concave buffing-surface, and a device for taking up the wear or slack of the buffer, said device including a block arranged beneath the support, and means adapted to engage with and move said block relative to said support, substantially as set forth.

3. The combination with a support, of a yieldable buffer carried thereby, said buffer having oppositely-disposed concave buffing-surfaces, and means for taking up the wear or slack of said buffer, substantially as set forth.

4. The combination with a support, of a buffer comprising an arm, a head portion carried by said arm, said head having a concave buffing-surface, and means for pivotally connecting the buffer to the support, substantially as set forth.

5. The combination with a support, of a buffer comprising an arm, a head portion at one end of said arm, said head having a concave buffing-surface, means for pivotally connecting the arm to the support, and resilient means interposed between the buffer and the support, substantially as set forth.

6. The combination with coupled vehicles having oppositely-disposed convex buffing-sills, of a buffer having oppositely-disposed concave buffing-surfaces interposed between said sills, the concave surfaces of the buffer being designed to seat the convex sills, and resilient means interposed between one of said vehicles and the buffer, substantially as set forth.

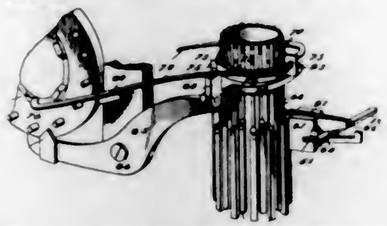
7. The combination with a support, of a buffer comprising an arm or shank portion and a head portion, said head having oppositely-concaved buffing-surfaces, and means passing through an aperture in the arm or shank for pivotally connecting the buffer with the support, substantially as set forth.

8. The combination with a support, of a buffer pivoted thereto, said buffer comprising an arm portion and a head formed at the free end of said arm portion, a web formed on said arm, studs secured to said web, lugs formed on the support, and compression-springs coiled about the studs on the web and the lugs, the construction being such that said springs will be interposed between said web and lugs, substantially as set forth.

9. The combination with coupled vehicles having oppositely-disposed convex members or sills, of a spring-resisted buffer pivoted to one of said vehicles and having oppositely-disposed concave surfaces adapted to seat the convex sills of the vehicles, substantially as set forth.

10. The combination of a plurality of vehicles, means including a bar for coupling the same, and a device for taking up the wear or slack of the bar, such device comprising a block slidable in guideways formed beneath the vehicles, and wedge-pins adapted to bear against the sliding block for moving the latter along the guideways, substantially as set forth.

751,213. KNITTING-MACHINE. BERNARD T. STEBER, Utica, N. Y. Original application filed Jan. 18, 1902, Serial No. 90,363. Divided and this application filed Apr. 14, 1902. Serial No. 102,908. (No model.)



Claim.—1. A tension device for knitting-machines, comprising a series of web-holders, weights carried by the said web-holders for pulling them downwardly, the upper ends of said web-holders being adapted to engage a knitted fabric, an oscillating ring member provided with means for engaging the web-holders, a swinging arm for moving the said ring member in one direction, and a swinging arm for moving said ring member in the other direction for lifting different sets of the web-holders, substantially as described.

2. A web-holding mechanism for knitting-machines, comprising a series of reciprocating web-holders for feeding a fabric through the knitting-machine, a ring for raising the said web-holders having a series of ribs upon its inner surface arranged to engage alternate web-holders, levers fulcrumed on each side of the said ring and engaging the opposite sides thereof, the said levers turning the ring first in one direction and then the other so that the ribs will engage first one set of web-holders and then another, and means for lifting the said ring, substantially as described.

3. In a knitting-machine, a series of reciprocating weighted gravity-actuated web-holders, a ring for engaging said holders in alternate sets for raising the said sets alternately, laterally-projecting lugs on said ring, a forked lever for engaging said lugs in order to raise and depress the ring, a lever operating in a different plane for engaging one of the lugs and oscillating it in one direction and another lever for engaging the lug and oscillating it in the other direction so that the ring is turned back and forth beneath the alternate sets of web-holders, and means for operating the said turning-levers in accordance with the operation of the knitting-machine, substantially as described.

4. A web-holding mechanism for knitting-machines, comprising a series of weighted web-holders adapted to engage a knitted fabric, a ring adapted to engage the web-holders in alternate sets, means for positively moving the ring back and forth, oppositely-projecting lugs on the said ring, and a lever engaging the same for lifting the ring when a set of web-holders is to be raised, substantially as described.

5. In a knitting-machine, a series of web-holders having projecting studs extending therefrom, one set of studs being operated for raising and lowering the web-holders, and the other set of studs being employed for limiting the movement of the same, a frame for engaging the limiting-studs, a ring for engaging the lifting-studs, and means for oscillating and lifting the said ring, substantially as described.

6. In a knitting-machine, a series of web-holders, a ring for raising them, a bifurcated lever for raising the ring, a lever engaging said bifurcated lever at one end, a wheel or disk provided with a series of studs for engaging the other end of the lever, and means for operating said disk in connection with the operation of the machine, substantially as described.

7. In a knitting-machine, a series of web-holders, a ring for operating them having diametrically opposite lugs, a bifurcated lever for supporting the said ring and lugs, a lever for lifting the bifurcated lever, a pair of levers pivoted on the frame and engaging one of said lugs on the opposite faces thereof, the other ends of said levers being operated by suitable mechanism, comprising a pair of disks, cams on the opposite faces of said disks for moving said levers, one of said disks also carrying means for operating the ring-lifting levers, substantially as described.

8. In a knitting-machine, a series of web-holders, a ring for raising them, oppositely-projecting lugs on said ring, means for lifting the ring, means for rotating the ring, comprising levers pivoted to the frame of the machine and engaging the opposite faces of one of the lugs, disks having cams arranged on their faces alternately with respect to each other for engaging the other ends of said levers, and means for rotating said disks in connection with the operation of the machine, whereby the ring will be rotated for alternately raising alternate web-holders, substantially as described.

9. In a knitting-machine, web-holders, a ring for operating them, means for lifting the ring, means for oscillating the same, disks secured to a common shaft, for actuating said lifting and oscillating means, ratchet-teeth on one of said disks, a pawl for engaging the said teeth, a bell-crank lever for operating the pawl, and a cam carried by one of the operating-shafts of the machine for engaging said bell-crank lever and moving the said pawl so as to feed the ratchet-teethed disk step by step, substantially as described.

10. In a knitting-machine, a series of web-holders, adapted to reciprocate within the needle-cylinder of the machine, a row of fixed teeth or projections extending inwardly in the cylinder and arranged near the upper edge thereof for preventing the fabric from moving upwardly after it has once been drawn down, weights secured to the lower ends of the web-holders, auxiliary weights pivoted upon the frame of the machine and adapted to rest upon the upper ends of the weights of said web-holders when certain portions of the fabric are being operated upon which require heavier web-holders than other portions do, and means for throwing said auxiliary weights into or out of operation, substantially as described.

11. In a knitting-machine, web-holders, means for reciprocating the same, weights secured to the lower ends of said holders and having their ends projecting to one side thereof, auxiliary weights pivoted to the machine and having inclined under surfaces, a lever mounted upon the machine and adapted to engage the inclined faces of said auxiliary weights, a lever constructed to hold the weights out of operation when the additional tension is not needed, and releasing the said weights when fabric or portions of fabrics are being knitted which need considerable weight upon the tension device substantially as described.

12. In a knitting-machine, the combination with a knitting mechanism, of reciprocating web-holders for drawing the web downwardly in the machine, means for raising the web-holders, wheels carrying a plurality of cams and operated by the machine for actuating the web-holder-operating mechanism, additional weights for affecting the web-holders, levers controlling the same, and gearing actuated by one of the cam-wheels for operating said levers, substantially as described.

13. In a knitting-machine, the combination with a series of web-holders for maintaining a tension on the fabric being knitted, of wheels having projecting cams, means for rotating them, and levers operated by the said cam-wheels for controlling the web-holders, substantially as described.

14. In a knitting-machine, the combination with a mechanism for driving the machine with a back-and-forth movement or a continuous movement, of means for stopping said movement at the proper time, a tension mechanism, comprising web-holders for drawing the knitted web downwardly in the machine, auxiliary tension-weights arranged to engage said web-holders at certain times, and a lever for changing the machine-driving mechanism, the said lever also engaging said auxiliary weights so that they will be actuated in correspondence with the knitting operation of the machine, substantially as described.

15. A tension device for knitting-machines comprising a series of web-holders, weights carried by the web-holders for pulling them downwardly, the upper ends of said web-holders being adapted to engage a knitted fabric, an oscillating ring provided with means for engaging the web-holders and means for oscillating the said ring member for alternately lifting different sets of the web-holders.

751,214. TWINE-HOLDER. RUDOLPH A. STEER, Roselle, N. J. Filed Aug. 4, 1903. Serial No. 168,231. (No model.)



Claim.—1. A twine-holder, comprising a casing having a fixed portion and a semicylindrical complementary portion hinged thereto, one of said portions having a circumferentially-extending slot leading inwardly from its meeting edge, and a catch secured to and overreaching the edge of the other section to lap the open end of said slot to close the same.

2. A twine-holder, comprising a casing having a fixed portion and a complementary portion hinged thereto, the fixed portion having an opening leading inwardly from its front edge, about midway thereof, for the passage of the twine, a catch for securing the two sections together, and a knife for severing the twine, said knife being held on one end of the fixed portion of the casing in approximately horizontal alinement with said opening for the twine.

3. A twine-holder comprising a fixed casing having a retainer, said casing having a hinged cover and formed with a slot, a spring-catch on the cover, for engaging the said retainer on the casing and adapted to extend over the entrance end of the slot, and a spool journaled in the sides of the casing and having its twine end extending through the uncovered portion of the said slot, as set forth.

4. A twine-holder, comprising a casing having a fixed portion, and a complementary portion hinged thereto, the fixed portion having a slot leading inwardly from one of its side edges, a rib fastened along said edge and extending downwardly into said slot embracing the side edges thereof, and a plate carried by the hinge-section and overreaching the edge thereof to engage said rib to secure the two sections together and to lap the open end of said slot to close the same, the lower end of said overlapping plate being formed into a rib.

751,215. FORM-PAD. KATHERINE L. STENHOUSE, Chicago, Ill. Filed Apr. 2, 1900. Serial No. 11,133. (No model.)



Claim.—1. The combination with a waist formed of substantially unstiffened textile fabric and comprising an inner form-fitting front, an outer contour forming bust portion made of relatively inelastic textile fabric, a waist-fitting lower portion and shoulder-supports, of a bust-pad consisting of an inflatable bag of thin rubber, seated within the bust portion of said waist and a controlled inlet for use in inflating said bag, substantially as described.

2. The combination to form a garment, of a relatively thin, unstiffened, waist-like form-pad cover comprising an inner side or lining member adapted to rest against and conform to the front side of the body, and an outer side covering member fitting closely around the waist and extending upwardly therefrom, supported from the shoulders, and provided with a bust portion having a definite form adapted to confine and give form to a contained air-bag, and an in-

dependently-constructed and removable inflatable air-bag fitting within said cover, between it and the lining member and consisting of thin, elastic sheet-rubber made of a size substantially conforming to the internal dimensions of the cavity of the cover within which it is seated and arranged loosely within the latter, or with its surface substantially unattached to the cover, whereby it is free to expand and contract independently of the cover, within the limits of the dimensions of the latter, substantially as described.

751,216. ACIDYL DERIVATIVES OF RUFIGALLIC-ACID ETHERS AND PROCESS OF MAKING SAME. KARL STEPHAN and FRIEDRICH KAISER, Berlin, Germany, assignors to Chemische Fabrik auf Actien, (vorm. E. Schering,) Berlin, Germany. Filed Nov. 9, 1903. Serial No. 180,368. (No specimens.)

Claim.—1. As new chemical products the acidyl derivatives of rufigallic-acid alkyl ethers, being insoluble in water, difficultly soluble in alcohol and ether, tasteless, having a yellow or brownish color and exercising purgative effects.

2. The process of obtaining purgatives, which consists in causing an acidyl reagent to react upon rufigallic-acid alkyl ethers and isolating the product of reaction, substantially as described.

751,217. DEVICE FOR STRETCHING AND PRESSING TROUSERS. FREDERICK STEVENS, Syracuse, N. Y. Filed Jan. 3, 1903. Serial No. 137,644. (No model.)



Claim.—1. A device of the class described, having a rigid bed affording a continuous surface on which trousers may be laid and pressed, a clamping-bar connected to and extending across said bed and cooperating therewith in holding the trousers firmly in place at one end of said bed, a two-part clamp having parallel cooperating members and connected to the other end portion of the bed and adjustable relatively to said clamping-bar for stretching trousers across the bed, means for firmly holding the members of said two-part clamp in cooperative relation, and means for locking said two-part clamp in either of a series of adjusted positions relative to the bed.

2. A device of the class described, having a rigid bed affording a pressing-surface, a clamping-bar at one end portion of said bed, an adjustable clamp having pivotal connection with the other end portion of the bed and movable to variable positions beyond the same, said clamp consisting of parallel cooperating members arranged to receive trousers between themselves, and means for locking said adjustable clamp in either of a series of adjusted positions.

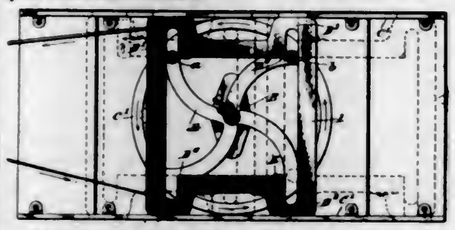
3. A device of the class described, having a curved rigid bed affording a pressing-surface, a clamping-bar arranged across said bed and having arms pivoted to said bed at a point below an end portion thereof, said clamping-bar being movable in an arcuate path eccentric to the curvature of the bed and shiftable into cooperative relation to an end portion of said bed, and an adjustable stretching device connected to the other end portion of the bed.

4. A device of the class described, having a rigid bed affording a pressing-surface, a clamping device on one end portion of said bed, adjustable arms pivoted to the opposite end portion of the bed, a stretching-clamp carried by said arms and consisting of parallel cooperating members disposed to receive trousers between themselves, means for firmly holding the parallel members of said stretching-clamp in cooperative relation and means for locking said arms and the clamp thereon in either of a series of adjusted positions relatively to said bed.

5. A device of the class described, comprising a bed having depending legs, a pair of arms pivoted to the legs of one pair at one end portion of said bed, a clamping-bar carried by said arms and adjustable into and out of cooperative relation to the bed, a two-part shiftable clamp, means connecting said shiftable clamp with the opposite end portion of the bed, and a locking device for holding the shiftable clamp in either of a series of adjusted positions relative to the bed.

751,218. MECHANICAL MOVEMENT. JOSEPH TAGLIAFERRI, New York, N. Y. Filed Sept. 15, 1903. Serial No. 173,206. (No model.)

Claim.—1. A mechanical movement comprising a crank having a plurality of wrist-pins placed a quarter-turn apart, and a cross-head having a plurality of arms adapted to be alternately engaged by the wrist-pins, as set forth.

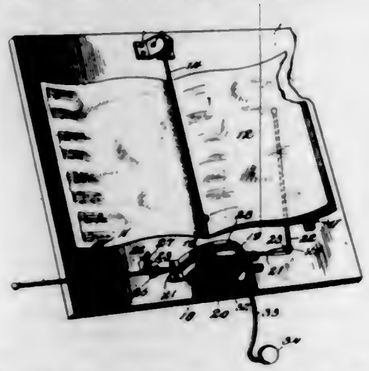


2. A mechanical movement comprising a crank having wrist-pins placed a quarter-turn apart, and a cross-head having a plurality of arms, double in number to the wrist-pins, adapted to be alternately engaged by the same, as set forth.

3. A mechanical movement comprising a crank having wrist-pins placed a quarter-turn apart, and a cross-head having a plurality of arms, double in number to the wrist-pins, adapted to be alternately engaged by the same, the said arms being disposed at right angles to the line of movement of the cross-head, as set forth.

4. A mechanical movement comprising a crank having wrist-pins placed a quarter-turn apart, a cross-head having a plurality of slotted arms, disposed at right angles to the line of movement of the cross-head, the said slotted arms being adapted to be alternately engaged by the said wrist-pins, and sliding latches at the entrance to a pair of oppositely-disposed arms, as set forth.

751,219. LEAF-TURNER. ELIAS TAYLOR, Winchester, Ill. Filed Apr. 24, 1903. Serial No. 154,125. (No model.)



Claim.—1. In a leaf-turner, the combination with swinging arms, of a star-wheel having teeth arranged to successively engage the arms, and a trip detachably engaging the teeth of the star-wheel to normally hold said wheel against movement.

2. In a leaf-turner, the combination with swinging leaf-turning arms, of a revoluble star-wheel having teeth arranged to successively engage and release the arms, and a pivoted trip detachably engaging the teeth of the star-wheel to normally hold the same against movement.

3. In a leaf-turner, the combination with a casing, of arms pivoted in the casing and projecting therefrom, a star-wheel journaled in the casing and constituting a holder for the arms, and a pivoted trip having a portion located within the casing and engaging the star-wheel.

4. In a leaf-turner, the combination with a swinging arm, having jointed sections, of means carried by one section and engaging the other to hold the outer section elevated, and means for depressing said outer section when a predetermined position of the arm is reached.

5. In a leaf-turner, the combination with a casing, of arms movably mounted in the casing and projecting therefrom, a star-wheel journaled in the casing and constituting a holder for the arms, and a trip pivoted to the casing, one end of the trip engaging the star-wheel and the other end having an actuating-knob.

6. In a leaf-turner, the combination with a swinging arm having jointed sections, of means carried by the arm for holding the outer section elevated, and means for automatically swinging said elevated section to a depressed position.

7. In a leaf-turner, the combination with a swinging arm having jointed sections, of a spring for holding the outer section elevated, and a projection located in the path of movement of said section for automatically moving the same to depressed position.

8. In a leaf-turner, the combination with a leaf-turning arm comprising sections, of a spring for holding the outer section elevated, and means acting upon said outer section, when the arm has reached a predetermined position, to depress the same against the action of the spring.

9. In a leaf-turner, the combination with a swinging arm comprising pivotally-associated sections, of a projection having an inclined edge located in the path of movement of the arm.

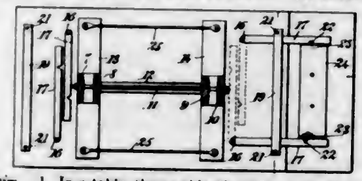
751,220. SHOE-FASTENING MEANS. FRED B. TERRY and PERL B. CROTHERS, Grand Rapids, Mich. Filed Sept. 2, 1903. Serial No. 171,643. (No model.)



Claim.—1. In a shoe-fastening means, the combination with the shoe-upper and metallic clips having enlarged apertured ears and adapted to fit over the edge of the shoe-upper and to be fastened thereto, of inner strips adapted to lap over the edge of the upper and the clips, to form closure members, for the purposes specified.

2. In a shoe-fastening means, the combination with the shoe-upper and metallic clips, having enlarged apertured ears and adapted to fit over the edge of the shoe-upper and to be fastened thereto, of inner strips adapted to lap over the edge of the upper and the clips, to form closure members, and a tongue within the shoe adapted to lap over the said inner strips for the purposes specified.

751,221. EXTENSION-TABLE. THOMAS C. THOMPSON, Haley, Tenn. Filed Apr. 20, 1903. Serial No. 153,441. (No model.)

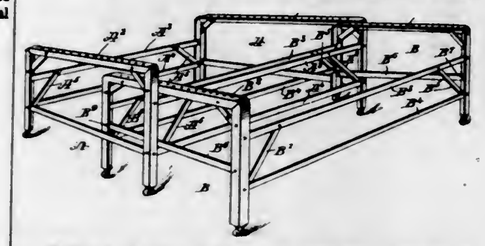


Claim.—1. In a table, the combination of a supporting-frame, a table-top resting thereon, strips pivoted to the under side of the top, and designed to be swung outward to a position of parallelism, each of said strips having notches formed therein, a supplemental leaf adapted to rest upon said strips, a block secured to the under side of said supplemental leaf, and pins extending laterally from the block and adapted to engage the notched portions of the strips for securing the supplemental leaf against movement, substantially as set forth.

2. The combination of a supporting-frame, a table-top mounted thereon, leaf-supporting strips pivoted to the under surface of said table and designed to move outward, a bracket for limiting the outward movement of the strips, said strips having notches formed on their inner longitudinal edges, a supplemental leaf designed to be supported by said strips, a block secured to said supplemental leaf, and pins carried by said block adapted to engage with the notches of the supporting-strips for holding the supplemental leaf against movement on said strips, substantially as set forth.

3. The combination of a supporting-frame, a table-top mounted thereon, leaf-supporting strips pivoted to the under surface of said table and designed to move outward, a bracket for limiting the outward movement of the strips, said strips having notches formed on their inner longitudinal edges, a supplemental leaf designed to be supported by said strips, a block secured to said supplemental leaf, pins carried by said block adapted to engage with the notches of the supporting-strips for holding the supplemental leaf against movement on said strips, and rods secured to the frame beneath the table-top designed to form a support for the supplemental leaf when the latter is not in use, substantially as set forth.

751,222. TELESCOPIC COUCH-BED. WILLIAM THOMPSON, New York, N. Y. Filed July 22, 1903. Serial No. 166,550. (No model.)



Claim.—1. A telescopic bed-couch, comprising a plurality of members, the members each having longitudinal rails connected together by angle-braces, one of said members being provided with a rail movable relatively to said member, this movable rail serving to connect said members together and extending between said angle-braces and one of said longitudinal rails.

2. A telescopic bed-couch comprising a pair of members, each provided with a pair of side rails connected together by angle-braces, said members being adapted to telescope one into the other, one of said members being provided with an end rail pivotally mounted thereupon, and normally projecting between the angle-braces and the longitudinal rails of the upper member.

3. In a telescopic bed-couch, a frame provided with a rail pivotally mounted thereupon and having a notch, said frame being further provided with a pin to be detachably engaged by said notch for the purpose of permitting said bed to be readily dismantled.

4. In a telescopic bed-couch, the combination of a plurality of separable members normally connected together, one of said separable members being provided with a frame, and with a rail pivoted thereupon and movable relatively thereto, the other of said members being provided with a portion normally locked in place by said rail for the purpose of holding said members together, but free to be removed when said rail is moved upon its pivot.

5. In a telescopic bed-couch, the combination of a frame member, a rail connected therewith for enabling said frame member to be readily dismantled, said member extending from one side of said frame to the other, and means for normally locking said rail in a predetermined position relatively to said frame member.

6. In a telescopic bed-couch, a frame made of a single rod bent twice at right angles, and a brace-rod pivotally mounted thereupon, for connecting said frame with another frame and for disengaging the same therefrom.

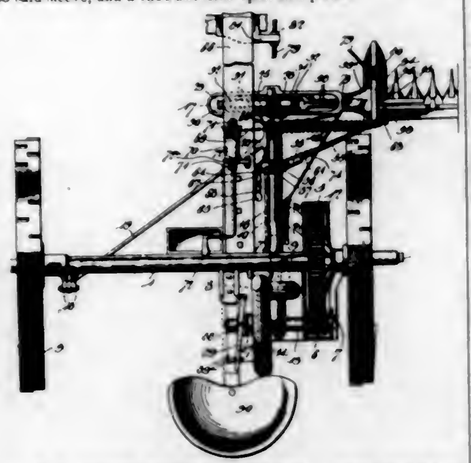
7. In a telescopic bed-couch, a frame provided with a rail pivotally mounted thereupon, said frame being further provided with a pin, to be detachably engaged by said rail, for the purpose of permitting said bed to be readily dismantled.

8. In a telescopic bed-couch, the combination of a rigid bar of metal, bent twice at right angles, the extremities of said bar serving as legs for the bed, a brace-rod pivotally mounted upon one of said legs at a point adjacent to the lower end thereof and extending across to the other leg at a point adjacent to the lower end thereof, and means for detachably connecting said brace-rod to said last-mentioned leg, so that the same is free to swing upon the other of said legs.

751,223. MOWING-MACHINE. ALVIN M. THRESHER, Centerville, Ind. Filed Sept. 25, 1901. Serial No. 76,482. (No model.)

Claim.—1. In a mowing-machine, a driven shaft, a sleeve sur-

rounding the same, a boxing having swivel connection with said sleeve and provided with a pintle extending laterally at right angles to said sleeve, and a shoe swiveled upon said pintle.



2. In a mowing-machine, a driven shaft, a sleeve surrounding the same, a boxing having swivel connection with said sleeve, a reciprocatory frame within said boxing, a cam upon the driven shaft, imparting motion to said reciprocatory frame, a pintle extending laterally from the boxing at right angles to the driven shaft, a shoe swiveled upon said pintle, cutting apparatus supported upon said shoe, and a flexible connection between the cutting apparatus and the reciprocatory frame.

3. In a mowing-machine, the combination with the shoe having a yoke, of a boxing having a swivel connection with the yoke, a frame disposed within the boxing and provided at one end with means for engagement with the cutter-bar, thrust-bearing wheels carried by the frame, and a positively-driven cam engaging the said wheels.

4. In a mowing-machine, a driven shaft, a sleeve surrounding the same, a boxing having swivel connection with said sleeve, said boxing being provided with a laterally-extending pintle and with a slot below said pintle, a reciprocatory frame within the boxing having one end extended through the slot in the same, a cam arranged upon the driven shaft engaging and transmitting motion to the reciprocatory frame, a shoe having swivel connection with the laterally-extending pintle of the boxing, cutting apparatus supported by the shoe and connected flexibly with the extended end of the reciprocatory frame.

5. In a mowing-machine, a driven shaft, a sleeve surrounding the same, a boxing having swivel connection with said sleeve and provided with a slot in one end thereof, a pintle extending laterally from said boxing above said slot, a shoe having swivel connection with said pintle, a cam, a reciprocatory frame operated by said cam and mounted in the boxing, said frame being composed of side members having ends extended through said slot and terminating in semi-spherical cups, a cutter-bar supported by the shoe and having an arm terminating in a ball, and means for tightening the semispherical cups of the driver upon said ball.

6. In a mowing-machine, a wheel-supported axle, a driven shaft, a cam upon the same, a sleeve surrounding the said shaft and having hinge connection with the axle, a boxing provided with a slot and having swivel connection with the outer end of the sleeve, a pintle extending laterally from said boxing at right angles to the driven shaft, a shoe having swivel connection with said pintle, cutting apparatus supported by the shoe, a cam-driven reciprocatory frame within the boxing having arms extending through the slot in the same, and a ball-and-socket connection between said cam-driven frame and the cutting apparatus.

7. In a mowing-machine, the combination with the shoe and the finger-bar, of a boxing having a swivel connection with the said bar, a shaft journaled in suitable bearings in the boxing, a frame connected at one end to the cutter-bar and provided with alined rectangular openings, thrust-bearing wheels carried by the said frame, and a cam carried by the shaft with which the said wheels coact.

8. In a mowing-machine, the combination with the shoe, of a bracket-frame secured to the heel end of said shoe, said bracket-frame comprising a plate having an offset portion bolted to the shoe, a plurality of perforations, an upwardly-extending bracket and a rearwardly-extending bracket, said brackets being perforated for connection with supporting means connected with the frame of the machine.

9. In a mowing-machine, the combination with a shoe, of a bracket-frame bolted to the rear end of said shoe and having an offset portion provided with a rearwardly-extending arm, and a runner connected adjustably with said bracket-frame and extending forwardly under the shoe.

10. In a mowing-machine, a sleeve constituting a shaft-casing and having hinged connection with the frame of the machine, a boxing having swivel connection with said sleeve, a shoe having swivel connection with said boxing, a collar swiveled upon the sleeve and having a threaded socket, and a brace-rod connected at one end with the heel end of the shoe and at the other end with the threaded socket of the swiveled collar.

11. In a mowing-machine, a sleeve constituting a shaft-casing having hinge connection with the frame and provided near its free end with an oblique rearwardly-extending threaded socket and a brace-rod having threaded connection with said socket and having hinge connection at its opposite end with the frame of the machine.

12. In a mowing-machine, a sleeve connected with the frame, forming a shaft-casing and provided near its front end with an upstanding arm, a boxing having swivel connection with the outer end of said sleeve, a shoe connected with said boxing, an arm connected with and projecting upwardly from said shoe, and a spring connecting said arm with the upstanding arm of the sleeve.

13. In a mowing-machine, a sleeve connected with the frame, constituting a shaft-casing and having an upstanding arm near its outer end, a boxing having swivel connection with the outer end of said sleeve, a shoe connected with said boxing, a bracket connected with and extending upwardly from the heel end of said shoe, a balancing-spring connecting said bracket with the upstanding arm of the sleeve, and means for adjusting the swiveled boxing on its axis.

14. In a mowing-machine, a sleeve connected with the frame and provided with an upstanding arm, a boxing having swivel connection with the outer end of said sleeve, a shoe having swivel connection with said boxing at right angles to the connection of the latter with the sleeve, a balancing-spring connecting the shoe with the upstanding arm of the sleeve, a chain having its ends connected with the sleeve and with the heel end of the shoe, and a hooked adjusting-lever connected with an intermediate point of the chain, said chain and lever serving to gage the expansion of said balancing-spring.

15. In a mowing-machine, the combination with a shoe carrying a bracket and a sleeve supporting the cutter-bar-actuating mechanism, an equalizing-spring secured at one end to the sleeve and having its other end adjustably connected with the bracket, a lifting-chain having one end connected with the bracket and its other end to the sleeve, and a lifting-lever in engagement with the chain.

16. In a mowing-machine, a swiveled sleeve, a boxing turning upon the sleeve and carrying the shoe and the cutting mechanism, and cutter-bar-actuating mechanism carried by the boxing and comprising a frame carrying antifriction-bearings and a shaft journaled in the sleeve and having a cam engaging said bearings.

17. In a mowing-machine, a swiveled sleeve, a shaft housed therein and carrying at one end means for imparting reciprocatory motion to the cutter-bar, a balance-spring connected with the shoe and with the sleeve, a lifting-chain also connected with the shoe and with the sleeve, a winding-drum, a hoisting-chain connected at one end to the shoe and having its other end passed around the winding-drum, a tilting lever, a rod connected at one end with a portion of the shoe and having its opposite end associated with the tilting lever, and means for supporting the said sleeve in operative position under all conditions of use.

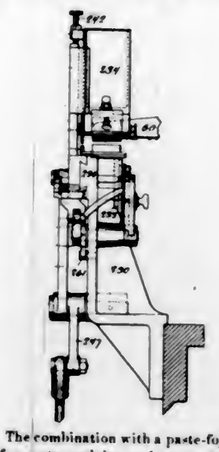
18. In a mowing-machine, the combination with a swiveled sleeve carrying the cutter-bar-actuating mechanism, a boxing turning about the sleeve and a shoe having swiveled connection with the boxing, of a brace-rod having one end connected with the shoe and the other end connected with a collar on the sleeve, the connection being such as to permit the finger-bar to be turned upward at right angles to its normal position.

19. In a mowing-machine, the combination of a swiveled sleeve constituting a shaft-casing, a boxing turning about said sleeve, a shoe having swivel connection with the boxing and supporting the cutting mechanism, a yoke upon said shoe, a bracket extending from the tongue of the machine, a brace-rod having hooked connection with the yoke of the shoe and swivel connection with the bracket extending from the tongue, and means whereby the boxing may be turned upon the sleeve to elevate the cutting apparatus.

20. In a mowing-machine, the combination of a sleeve constituting a shaft-casing, a boxing turning about the sleeve and having a laterally-extending pintle, a shoe having a yoke and a laterally-perforated extension engaging and swiveled upon said pintle, a lug extending upwardly from the shoe extension, a tilting lever fulcrumed upon the sleeve, and a rod connecting said tilting lever with the lug upon the shoe extension.

21. In a mowing-machine, a sleeve constituting a shaft-casing, a boxing having swivel connection with the sleeve and provided with a laterally-extending pintle, a shoe having swivel connection with said pintle, a bracket mounted upon and extended laterally from the tongue of the machine, brace-rods connected at their outer ends with the shoe and having their inner ends connected by swivel-joints respectively with the bracket extending from the tongue and with the sleeve, and lifting means mounted upon the tongue of the machine for turning the shoe and its related parts and the boxing with which said shoe is connected upon the axis of said boxing.

751,224. PASTING MECHANISM. OLOF TYBERG and SYDNEY I PRESCOTT, New York, N. Y., assignors to Rufus L. Patterson and George Arenta, Jr., New York, N. Y. Filed Aug. 1, 1901. Serial No. 70,470. (No model.)



Claim.—1. The combination with a paste-fountain having a distributing-roll, of a paste-applying pad, means for reciprocating the fountain, means for positioning the pad so that it will contact with the distributing-roll on one stroke only of the reciprocation of the fountain, and positive means for causing the roll to rotate while it is in contact with the pad, substantially as described.

2. The combination with a support for material to be pasted, of a fountain having a distributing device, means for reciprocating the fountain, a paste-applying pad, means for positioning the pad so that it will contact with the distributing device of the fountain on one stroke only of the reciprocation of the fountain, and means for giving the pad a movement to apply the paste to the material on the support, substantially as described.

3. The combination with a support for material to be pasted, of a fountain having a distributing-roll, a paste-applying pad, means for reciprocating the fountain, means for positioning the pad so that it will contact with the distributing-roll on one stroke only of the reciprocation of the fountain, positive means for causing the roll to rotate while it is in contact with the pad, and means for giving the pad a movement to apply the paste to the material on the support, substantially as described.

4. The combination with a reciprocating support, of a fountain having a distributing device, said fountain being mounted on the support, a paste-applying pad, a cam for moving the pad so that it will receive paste from the distributing device of the fountain and for then moving it into contact with the material to be pasted, and means controlled by the movement of the fountain-support for operating the cam, substantially as described.

5. The combination with a fountain having a distributing device, of a reciprocating support in which said fountain is mounted, a paste-applying pad, a cam for moving the pad into position to receive paste from the distributing device and for giving it a further movement to bring it into contact with the material to be pasted, a two-armed rocker for operating the cam, and a projection on the support for operating the arm, substantially as described.

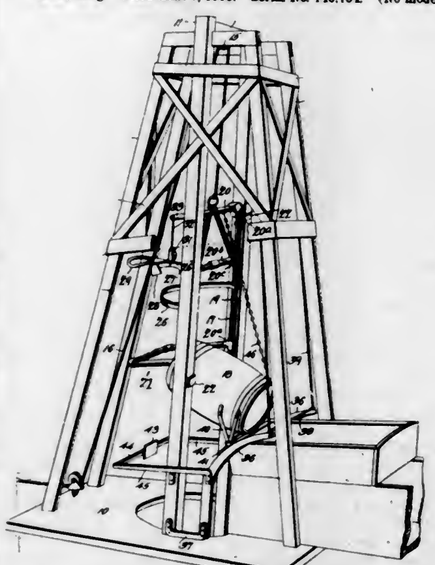
6. The combination with a fountain having a distributing-roll, of a reciprocating support in which said fountain is mounted, a paste-applying pad, a rack on said pad, a gear on the distributing-roll, means for moving the pad into position where it may contact with the roll and its rack engage the gear on the roll, and means for giving the pad a movement toward the material to be pasted, substantially as described.

7. The combination with a fountain having a distributing-roll, of a reciprocating support on which the fountain is adjustably mounted, a paste-applying pad, a rack on said pad, a gear on the distributing-roll, means for moving the pad into position where it may contact with the roll and its rack engage the gear on the roll, and means for giving the pad a movement toward the material to be pasted, substantially as described.

8. The combination with a reciprocating support, of a fountain adjustably mounted thereon, a distributing-roll in said fountain, a gear on said roll, a paste-applying pad, a rack on said pad, a cam constructed to move the pad into position where it will contact with the roll and its rack engage the gear on the roll, and also give it a movement toward the material to be pasted, and means controlled by the reciprocating support for operating said cam, substantially as described.

9. The combination with a reciprocating support, of a fountain adjustably mounted thereon, a distributing-roll in said fountain, a gear on said roll, a paste-applying pad, a rack on said pad, a cam constructed to move the pad into position where it will contact with the roll and its rack engage the gear on the roll and also give it a movement toward the material to be pasted, a rocker-arm for operating said cam, and a projection on the reciprocating support for operating the rocker-arm, substantially as described.

751,225. DUMPING-ELEVATOR. FRANKLIN B. VAN CLEAVE Echo, Oreg. Filed Mar. 7, 1903. Serial No. 146,734. (No model.)



Claim.—1. In a dumping-elevator, the combination with a supporting-frame and a tilting bucket, of locking mechanism for the bucket, tripping mechanism for the locking mechanism, guides with which the bucket coacts when it is tilted, and an actuator for the tripping mechanism having an arm secured to the guides and to the supporting-frame.

2. In a dumping-elevator, the combination with a tilting bucket, of locking mechanism for the bucket, tripping mechanism for the locking mechanism, guide-rails with which the bucket coacts when it is tilted, side bars secured to the guide-rails, a cross-bar connecting the side bars and an actuator for the tripping mechanism carried by the cross-bar.

3. In a dumping-elevator, the combination with a tilting bucket, of uprights along which the bucket moves, locking mechanism for the bucket, tripping mechanism for the locking mechanism, guides

with which the bucket coacts when it is tilted, a connector between the uprights and guides, and an actuator for the tripping mechanism carried by a portion of said connector.

4. In a dumping-elevator, the combination with a tilting bucket, of uprights along which the bucket moves, braces for the uprights, guides with which the bucket coacts when it is tilted, and stays connected with the guides, the upright and braces.

5. In a dumping-elevator, the combination with a bucket, of a supporting-frame therefor consisting of pipes, opposite fittings provided with side outlets and made integral with the pipes, and pipes connecting these outlets

6. In a dumping-elevator, the combination with a bucket provided with trunnions of a supporting-frame therefor consisting of oppositely-disposed T's at the lower ends of the pipes, and plugs extending from the lower opening of the T's and provided with openings to receive the trunnions.

751,226. **MAP.** ALPHONS VAN DER GRINTEN, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,286. (No model.)



Claim.—1. A map of the entire surface of the earth projected on a circular plane and formed by straight lines and circular arcs indicating the equator and parallels and the intersecting meridians and so arranged that the equator is intersected at intervals proportioned to the longitude or difference of time on the earth without causing any alteration of length, area or angle along the equator.

2. A map of the entire surface of the earth formed by straight lines and circular arcs indicating the equator and parallels and the intersecting meridians and so arranged that the equator is intersected at intervals proportioned to the longitude or difference of time on the earth without causing any alteration of length, area or angle along the equator, the meridinal parts between the parallels continuously increasing toward the poles in such manner that the rate of increase of area and the rate of decrease of angle formed by the intersection of parallels and meridians, are simultaneously minimized.

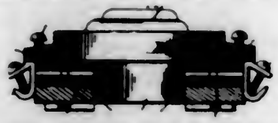
3. A map of the entire earth on a plane bounded by a circle, said plane having described thereon curved lines indicating parallels of latitude and other curved lines double the number of the parallels and intersecting the same, indicating meridians of longitude, said meridian-lines being numbered to indicate the three hundred and sixty degrees of the earth's circumference.

4. A map of the entire surface of the earth circumscribed by a circle and having intersecting curved meridians and parallels, said meridians and parallels being arranged to produce a minimal distortion of the landed parts of the earth's surface near the equator and to concentrate whatever distortion occurs at or near the poles.

751,227. **ELECTRIC CUT-OUT.** WILLIAM H. VERNER, Pittsburg, Pa. Filed Aug. 28, 1902. Serial No. 121,898. (No model.)

Claim.—1. In a fuse-block the combination with a base or block, a pair of binding-post holders secured in said block, binding-posts reversibly mounted therein, extended portions formed upon said binding-posts engaging in said post-holders, and means carried by the post-holders engaging said extended portions for securing the binding-posts within the block, said means permitting inside and outside connection of the wires with the block, substantially as described.

2. In a device of the character described the combination with the block, a pair of binding-post holders mounted in said block provided with an extending bore therethrough, securing means mounted in said post-holders and communicating with said bore, of a pair of binding-posts reversibly mounted in said holders, said securing means adapted to engage said binding-posts and permit an inside and outside connection with the wires, substantially as described.



3. The combination with the block and pair of post-holders provided with a bore therethrough secured in said block, and binding-post reversibly mounted in said holders, extended portions formed upon said binding-post for engaging in the bore of said holders and means mounted in said post-holders adapted to communicate with the bore thereof for securing said binding-post in position in the holders, said means permitting inside and outside connection of the wires with the block substantially as described.

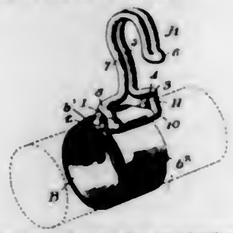
4. In a fuse-block, the combination with the base or block, a pair of binding-posts reversibly mounted therein, holders for said posts, means for securing the posts therein, said means permitting inside and outside connection of the wires with the block, substantially as described.

5. A fuse-block comprising in combination with the base of block, a pair of binding-post holders secured in said block, said binding-post holders being provided with longitudinally-extended bores therein, securing means mounted in said holders adapted to communicate with said bores, a pair of binding-posts reversibly mounted in said bores of the post-holders, said post having extended portions adapted to enter the bores of the holders at either end of the same thereby permitting connection of the wires inside and outside of the block, substantially as described.

6. A device of the character described comprising a block, binding-post holders mounted therein having openings extending therethrough, and reversible binding-posts provided with extended portions adapted to be inserted in either end of said openings of the holders, whereby the same are adapted for inside and outside moving, substantially as described.

7. A fuse-block for cord drop-lights comprising the block or base, a pair of binding-post holders mounted in said block or base and provided with openings extending therethrough, a pair of binding-posts having extensions thereon adapted to be inserted in either end of the bores or the openings, to permit of outside and inside wiring, a means for securing said holders in the block, said means comprising adjustable screws mounted in the post-holders and adapted to extend into the bores of the same to engage with the extensions of the binding-posts, substantially as described.

751,228. **CABLE-HANGER.** RICHARD H. VILLARD, New York, N. Y., and HERSCHEL P. COPELAND, Jersey City, N. J. Filed Aug. 5, 1902. Serial No. 118,543. (No model.)

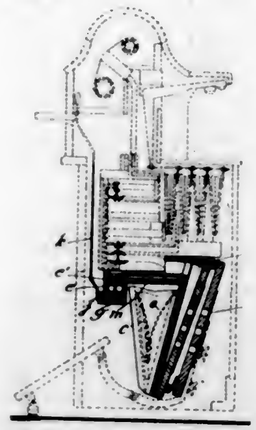


Claim.—In a cable-hanger, the combination with a hook provided with a heel portion having parallel members 3 and 10 slightly spaced apart, of a strap B having one end b' rove over and under one parallel member 10 and then between the parallel members 10 and 3, and having its other end b^3 rove under and then over the second parallel member 3 and projecting outward between the said parallel members 3 and 10, substantially as described.

751,229. **PNEUMATICALLY-OPERATED MUSICAL APPARATUS.** EDWIN S. VOTEY, Summit, N. J., assignor to the Aeolian Company, New York, N. Y., a Corporation of Connecticut. Filed Apr. 15, 1903. Serial No. 152,638. (No model.)

Claim.—1. In combination in pneumatically-operated musical apparatus, and with means for producing the required flow and effective tension or pressure of the actuating-air, means for applying

pneumatic pressure to vary and control the said effective tension or pressure, the last-said means including a passage-way independent of the first-said means.



2. In combination in pneumatically-operated musical apparatus, and with means for producing the required flow and effective tension or pressure of the actuating-air, one or more bellows-pneumatics for varying and controlling the effective tension or pressure, and means including a passage independent of the first means for admitting different pressures at will to the said bellows-pneumatics to operate them.

3. In combination in pneumatically-operated musical apparatus, and with an expansible reservoir for the actuating-air, and means for applying force to said expansible reservoir to give the normal effective pressure or tension required, and pneumatic means including a passage independent of the first means for applying pressure to vary the said effective pressure or tension in the said reservoir, for substantially the purposes set forth.

4. In combination in pneumatically-operated musical apparatus, and with an expansible reservoir for the actuating-air, and means for applying force to said expansible reservoir to give the normal effective pressure or tension required, pneumatic means for varying the said pressure or tension in said reservoir, a valve for directly controlling the said pneumatic means, a passage governed by said valve, said passage being out of communication with the expansible reservoir and connections for operating the valve, for substantially the purposes set forth.

5. In combination in pneumatically-operated musical apparatus, and with an expansible reservoir for the actuating-air, and means for applying pressure to said expansible reservoir to give the normal effective pressure or tension required therein, one or more bellows-pneumatics within the said reservoir acting against the wall thereof, a control-valve, and wind connections controlled thereby, leading to said bellows-pneumatics for admitting either of two different pneumatic pressures within said bellows-pneumatic to modify the said effective pressure or tension of the said reservoir, for substantially the purposes set forth.

6. In combination in pneumatically-operated musical apparatus, and with an expansible reservoir for the actuating-air, and means for applying pressure to said expansible reservoir to give the normal effective pressure or tension required therein, one or more bellows-pneumatics within the said reservoir acting against the wall thereof, a control-valve, and connections controlled thereby, leading to said bellows-pneumatic for admitting either of two different pneumatic pressures within said bellows-pneumatic to modify the effective pressure of the said reservoir, and pneumatic valve-controlled means for actuating the said control-valve, for substantially the purposes set forth.

7. In combination with a plurality of bellows-pneumatics for changing the effective pressure or tension in a pneumatically-actuated musical apparatus, a series of valves for controlling said bellows-pneumatics, said valves being connected to open and close in succession, and means for opening and closing them.

8. In combination with an expansible reservoir for pneumatically-actuated musical apparatus and a spring for producing its effective action in performing work, separately and successively operated internal devices within the reservoir for modifying the effect of said spring either slightly or to a greater extent at will, for substantially the purposes set forth.

751,230. **NOSE-PIECE FOR EYEGLASSES.** CHARLES F. WALL, Philadelphia, Pa. Filed June 23, 1903. Serial No. 162,705. (No model.)



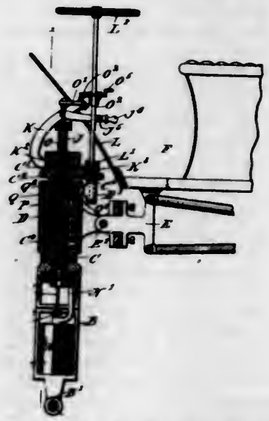
Claim.—1. In an eyeglass, a nose-blade and a spring consisting of an upper member approximately S-shaped and an auxiliary member which depends from said upper member, said upper member and the upper end of said auxiliary member being detached from, and the lower end thereof being secured to said blade.

2. In an eyeglass, a nose-blade and a spring therefor consisting of a reversely-bent upper doubled member and a single-limb lower member, the latter being secured at its bottom portion to the corresponding portion of said blade and the former being entirely disconnected from the upper portion of said blade.

3. In an eyeglass, a spring comprising downwardly, upwardly and downwardly extending members and a nose-blade secured only at its lower end to the lower end of said last-named member.

4. In an eyeglass, a spring comprising downwardly, upwardly and downwardly extending members, the last being of greater length than either of the others and a nose-blade secured only at its lower end to the lower end of said last-named member.

751,231. **MOTOR-WHEEL FOR VEHICLES.** JULIUS W. WALTERS, New York, N. Y. Filed June 9, 1903. Serial No. 160,728. (No model.)



Claim.—1. A motor-wheel for vehicles, having a hollow steering-post, a vertically-movable tube within said post to operate the stopping and starting mechanism, and a vertically-movable rod extending centrally through the said tube to connect with the motive-agent-supply valve, the said post, tube and rod having independent movement one of the other at a common axis, as set forth.

2. A motor-wheel for vehicles, having a hollow steering-post, a tube within the said post and connected at its lower end with the stopping and starting mechanism, and a rod extending centrally through the said tube and connected at its lower end with the motive-agent-supply valve, the said post, tube and rod having independent movement one of the other, and the upper ends of the said tube and rod having connection with a manually-operated mechanism held against rotation, substantially as shown and described.

3. A motor-wheel for vehicles, comprising a wheel proper, a fork in which the wheel is journaled, a motor carried by the fork, a driving-gear connecting the motor with the said wheel, the driving-gear having a stopping and starting mechanism extending through the hollow steering-post and the said fork, and a motive-agent supply carried by the fork, and having a valve for regulating the amount of motive agent passing to the said motor, the operating mechanism for the said valve extending, with that of the said stopping and starting mechanism, through the said steering-post, substantially as shown and described.

4. A motor-wheel for vehicles, comprising a wheel proper, a fork in which the wheel is journaled, a hollow steering-post for the said fork, a steering-head held from turning and in which the said steering-post is mounted to turn, means carried by said head for turning said post, a driving-gear having a stopping and starting mechanism with a tube extending through the said steering-post, and a valve for regulating the supply of motive agent to the motor and having its operating mechanism extending through said steering-post within the said tube of the stopping and starting mechanism substantially as shown and described.

5. A motor-wheel for vehicles, having a wheel proper, a fork in which the wheel is journaled, the fork having a hollow steering-post, a steering-head pivotally connected with the vehicle-body and in which the said post is mounted to turn, the said steering-head being in axial alinement with the vertical axis of the wheel, and means carried by the steering-head for turning said post; the said hollow steering-post forming a passage for the valve-operating mechanism of the motive-agent supply and for the stopping and starting mechanism for the driving-gear, substantially as shown and described.

6. A motor-wheel for vehicles, having a wheel proper and a fork in which the wheel is journaled, the fork having a hollow steering-post, a pivoted steering-head carried by the vehicle and in which the steering-post is mounted to turn, the said steering-head being in axial alinement with the vertical axis of the wheel, mechanism for operating the valve of the motive-agent supply, mechanism for stopping and starting the driving-gear, the said mechanisms having vertically-movable parts extending through the hollow steering-post, and means connected with the upper ends of said parts for actuating the same, substantially as shown and described.

7. A motor-wheel for motor-vehicles, having a steering device for the steering-post, and comprising a gear-wheel on the steering-post, a shaft journaled on the steering-head, a second gear-wheel mounted to turn with and to slide on the said shaft and in mesh with the said steering-head gear-wheel, and means for moving the said second gear-wheel bodily with the steering-post, substantially as shown and described.

8. A motor-wheel for motor-vehicles, having a steering device for the steering-post, comprising a frame carried by the post and in which the post is free to turn, a gear-wheel secured on the post, a shaft, and a second gear-wheel mounted to turn with and to slide on said shaft and in mesh with said post gear-wheel, the said shaft having a bearing in the steering-head and in the said frame, substantially as shown and described.

9. A motor-wheel for motor-vehicles, having a steering-post mounted to turn in a steering-head carried by the vehicle, a steering device for the steering-post, and comprising a gear-wheel on the steering-post, a frame having its lower end in the form of a ring mounted to turn on the upper end of the steering-post, a shaft carrying a hand-wheel at its upper end and mounted to turn in bearings carried by the steering-head and the said frame, a second gear-wheel mounted to turn with and to slide on the said shaft and in mesh with the gear-wheel on the steering-post, and a ring engaging an annular recess in the hub of the said second gear-wheel and connected by a bar with the ring of the said frame, substantially as shown and described.

10. A motor-wheel for vehicles, having an actuating device for the stopping and starting mechanism, and comprising a tube connected with the shifting-fork of the said stopping and starting mechanism, and an eccentric device under the control of the operator, and connected with the said tube, to move the latter, substantially as shown and described.

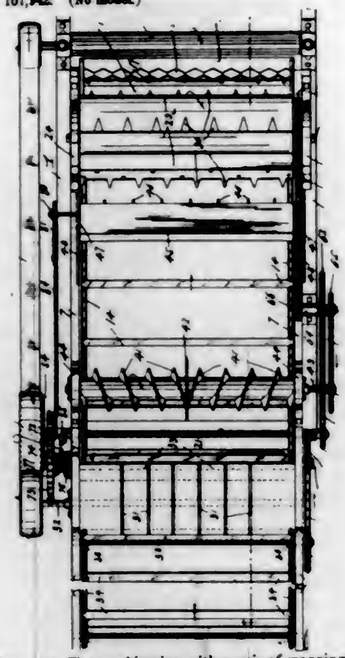
11. A motor-wheel for vehicles, having an actuating device for the stopping and starting mechanism, and comprising a tube connected with the shifting-fork of the said stopping and starting mechanism, and an eccentric device under the control of the operator, and connected with the said tube, to move the latter, the said eccentric device comprising a yoke on the tube, a disk mounted to turn in a bearing, a pin eccentric on the disk and engaging the yoke, and a handle for turning the disk, substantially as shown and described.

12. A motor-wheel for vehicles, having a hollow steering-post, a clutch mechanism for bringing the motor into and out of service, an actuating device for the clutch mechanism, and comprising a tube connected at its lower end with the shifting-fork of the said clutch mechanism, the said tube extending through the steering-post and having vertical movement, and a device under the control of the operator and connected with the upper end of said tube, to move the latter, substantially as shown and described.

13. A motor-wheel for vehicles, having an operating mechanism for the valve controlling the motive agent, the said mechanism comprising a pivoted arm connected with the valve, a rod engaging the said arm and extending centrally through the steering-post, a shaft carrying an arm engaging the said rod, a worm-wheel on the said shaft, and a worm under the control of the operator, and engaging the said worm-wheel, substantially as shown and described.

14. A motor-wheel for vehicles, having an operating mechanism for the valve controlling the motive agent, the said mechanism comprising a lever connected with the valve, an arm mounted to swing and pivotally connected with the free end of said lever, a rod having its lower end engaging the said arm, the said rod extending centrally through the steering-post, a shaft carrying an arm engaging the upper end of said rod, and means under the control of the operator, for turning said shaft, substantially as shown and described.

751,232. BAND-CUTTER AND FEEDER FOR CORN-HUSKERS. CARL G. W. WERNICKE, Mankato, Minn. Filed May 19, 1902. Serial No. 107,942. (No model.)



Claim.—1. The combination with a pair of snapping-rollers, of an endless conveyer or feed-belt for delivering the stalks thereto, and a rotary beater overlying the delivery end of said conveyer and having the backwardly-curved blades or wings 29 provided with teeth 30, substantially as described.

2. In a feeder of the character described, the combination with slotted guide-brackets having gear-teeth, of a beater-shaft provided at its ends with rigidly-secured pinions meshing with the teeth of said brackets, and a beater loosely mounted on said beater-shaft, whereby said beater is vertically adjustable always in a horizontal position, substantially as described.

3. The combination with a pair of snapping-rollers and a conveyer for delivering the stalks thereto spaced apart therefrom to form a throat through which the ears of corn may be dropped, of an inclined bearing-plate leading backward from said snapping-rollers, and a vibrating throat-clearing plate working on said bearing-plate and provided on its upper and lower portions, respectively, with upwardly and downwardly extended projections, substantially as described.

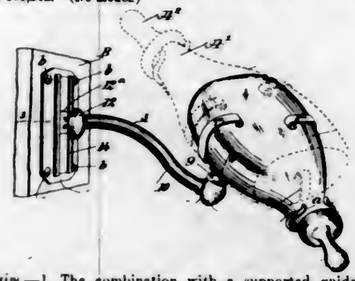
4. The combination with snapping-rollers and husking-rollers, and an endless conveyer or feed-belt delivering the stalks to the former but spaced apart therefrom to form an open throat, of the inclined reciprocating clearing-plate 15 driven by eccentrics and eccentric-straps and provided with the downturned cleats 16 and serrated upturned cleats 17, said parts operating substantially as described.

5. In a feeder of the character described, the combination with a pair of endless feed-belts or conveyers, and a band-cutter interposed between the same, of a drive for said two feed-belts involving a clutch, a pivoted tripping-blade or regulating-gate affording a governor overlying the delivery member of said feed-belts, and clutch-actuating connections subject to said tripping-plate or gate and serving to show said two feed-belts out of action without stopping the band-cutter whenever the stalks become overthickly piled on said delivery feed-belt, substantially as described.

6. The combination with snapping-rollers and husking-rollers, of an endless feed-belt or conveyer delivering to the former, a positively-driven overhead beater cooperating with said feed-belt to deliver the stalks to said snapping-rollers, a drive for said feed-belt involving a clutch, a pivoted tripping-plate or regulating-gate, affording a governor and overlying said feed-belt outward of said beater, and clutch-actuating connections subject to said tripping-plate or gate, for tripping said feed-belt out of action without stopping said beater, whenever the stalks become overthickly piled on said feed-belt, substantially as described.

7. In a feeder of the character described, the combination with an endless feed-belt or conveyer, of a drive therefor involving a clutch, a pivoted toothed tripping-comb overlying said feed-belt in position to be acted upon by the stalks and affording a governor, and clutch-actuating connections yieldingly held in one position, but subject to said tripping-comb for throwing said feed-belt out of action whenever the stalks become overthickly piled on said feed-belt, substantially as described.

751,233. SUPPORT OR HOLDER FOR NURSING-BOTTLES. JEREMIAH D. WHITE, Philadelphia, Pa. Filed Sept. 15, 1903. Serial No. 173,262. (No model.)



Claim.—1. The combination with a supported guideway, a bracket-arm, a slide-block on one end of the bracket-arm and having slidable engagement with the guideway, and a journal-box on the opposite end of the bracket-arm, of a clasping-frame having a journal-stud thereon that is held to rock in the box, said frame being adapted to clasp the neck and body of a nursing-bottle, and also bear upon the lower end of the bottle.

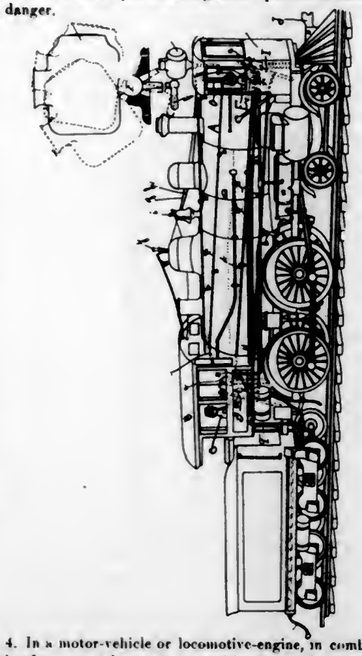
2. The combination with a supported guideway, and a bracket-arm slidably supported in the guideway, of a clasping-frame, comprising a back piece that is a resilient strip of plate metal, having a foot projected laterally at one end thereof, a resilient yoke comprising two curved and spaced arms that are held to slide on the opposite end of the back piece, a resilient clasp formed of a strip of plate metal having two spaced and curved members that are adapted to clasp the body of a nursing-bottle near its center, and a journal-stud projected from the back piece oppositely from the body-clasp thereon.

751,234. SAFETY APPLIANCE FOR LOCOMOTIVE-ENGINES OR MOTOR-VEHICLES. WILLIAM N. WHITELY, Springfield, Ohio. Filed Mar. 24, 1903. Serial No. 149,406. (No model.)

Claim.—1. In a motor-vehicle, in combination, a position for a general operator, a position for a pilot located independently of said position for the general operator of said motor-vehicle, duplicate means provided for said pilot independent of said general operator to control said motor-vehicle in emergency or otherwise.

2. In a motor-vehicle or locomotive-engine, in combination, a position for a general operator, a position for a pilot for said vehicle or drawn train independent from said position for the general operator, duplicate and superior controlling means for said pilot to control said motor-vehicle independent of said general operator.

3. In a motor-vehicle or locomotive-engine, in combination, a position for a pilot, a position for a general operator, each independent of the other, connecting means between said pilot and said general operator that either may control said motor-vehicle, and signal connection from said pilot to said general operator to advise of pending danger.



4. In a motor-vehicle or locomotive-engine, in combination, a position for a general operator, a position for a pilot independent of said general operator, an adjustable search-light under the control of said pilot and adapted to shed its rays in different directions, up, down or to either side, duplicate, superior and independent means for said pilot to control said motor-vehicle in case of emergency to stop, start or reverse its movement with entire control of said vehicle when necessary.

5. In a motor-vehicle, in combination, a position for a pilot independent of the general operator of said motor-vehicle, an adjustable search-light, means connected with said search-light and extending within reach of said pilot to direct the rays of said light in any direction desired regardless of the direction said motor-vehicle is moving, frictional means to hold said search-light in its adjusted position and provided for instantaneous adjustment by said pilot.

6. In a motor-vehicle, in combination, a position for a general operator, a position for a pilot independent of said general operator, an adjustable search-light, means extending from said pilot to said search-light to direct the rays of said light in any direction desired regardless of the direction said motor-vehicle is moving, frictional means to hold said search-light in any position of adjustment by said pilot.

7. In a motor-vehicle, in combination, duplicate means for controlling said vehicle within the control of both the general operator and pilot of said vehicle, an engaging and disengaging mechanism connecting with the reversing mechanism of the motor and extending within reach of said plot to disconnect the locking device of said reversing-gear as said general operator may do in the ordinary manner, for the purpose of giving said pilot control of the reversing movement of said motor.

8. In a railway motor-propelled vehicle or locomotive-engine, in combination, a position for a general operator, a position for a pilot located forward of said motor and driving machinery, independent of the position for said general operator on said vehicle, duplicate means provided within reach of said pilot and said general operator, that either may stop, start, reverse, or handle said motor-vehicle and machinery, said pilot acting as a lookout, and in emergency may control said motor-vehicle independently of said general operator.

9. In a motor-vehicle, in combination, a steam-boiler, a position for a general operator, a position for a pilot or lookout for said vehicle forward of the motor-generator or steam-boiler, separate and independent from the general operator, a cab for said pilot located forward of said generator or boiler, doors opening front and rear in said cab to expose said generator or boiler, means provided for said

pilot within said cab, independent from said general operator, to control said vehicle in case of emergency or otherwise.

10. In a motor-vehicle, in combination, a position for a general operator on said vehicle, a position for a pilot on said motor-vehicle independent of said motor-vehicle, a signal service that said pilot may warn the general operator of said motor-vehicle or conductor of the train attached to or drawn by said motor-vehicle of approaching trains from front, rear or crosswise of the line of track on which said motor-vehicle is moving.

11. In a motor-vehicle, in combination, a position for a general operator on said vehicle, a position for a pilot located on said vehicle, the position of said general operator especially arranged for the handling of said motor-vehicle and caring for same, the position of said pilot arranged to guard and protect said motor vehicle or train attached thereto from accident or danger, said pilot having means within his control for full manual and superior power to operate and control said motor-vehicle in emergency independently of said general operator.

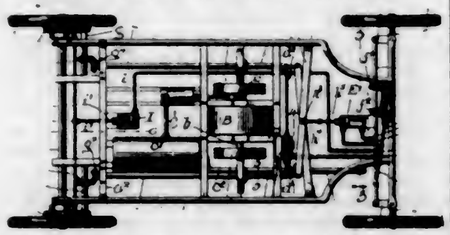
12. In a motor-vehicle or locomotive-engine, in combination, a general operator, a safety appliance for a pilot stationed for observation of approaching danger forward or rearward or to either side of said vehicle, wholly independent of said general operator, means within the control of said pilot to control said motor-vehicle or locomotive-engine independently of and against the will of said general operator.

13. In a railway propelling-vehicle or locomotive-engine, in combination, a position for a general operator, a position for a pilot of said vehicle forward of said motor and driving machinery independent of said general operator of said vehicle, an air-brake mechanism, a throttle-valve-operating mechanism, a reversing mechanism, controlling means for same located within reach of said pilot and also within reach of said general operator of said motor-vehicle, that either may handle the motor-vehicle to stop, start or change its direction.

14. In a motor-vehicle or drawn train, in combination, a position for a general operator, a position for a pilot in connection with said motor-vehicle, independent of said general operator, duplicate controlling mechanism for operating said motor-vehicle that may be used by said pilot in emergency to avoid accident, communicating means between said pilot and said general operator and occupants of said train, that any or all may be communicated with by said pilot in the event of impending danger, such as attempted train-wrecking, robbery or other difficulties.

15. In a motor-vehicle or locomotive-engine, in combination, a position for a general operator, a position for a pilot independent of the position of said general operator, duplicate means for controlling the movements of said vehicle or locomotive-engine extending within reach of said pilot and said general operator, a connecting mechanism for said controlling means so constructed as to give the pilot superior and supreme control of said motor-vehicle or locomotive-engine in emergency without notice to said general operator and without his concurrent action, that the pilot may in the event of emergency act instantly in handling the movement of the vehicle without the knowledge or consent of said general operator.

751,235. AUTOMOBILE. EDWARD W. WICKEY, East Chicago, Ind. Filed Feb. 24, 1903. Serial No. 144,562. (No model.)



Claim.—1. In an automobile, the combination with the frame and wheels, of shafts journaled in said frame and geared to the traction-wheels, a motor, fly-wheels rotated thereby, friction-pinions upon said shafts, an air-cylinder connected to the free ends of said shafts adapted when compressed air is admitted thereto to draw said friction-pinions into frictional engagement with the fly-wheels of the motor, substantially as described.

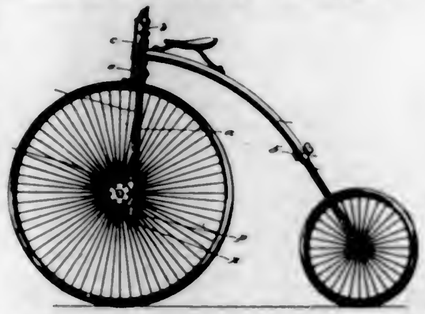
2. In an automobile, the combination with a frame and wheels, of shafts geared to the traction-wheels thereof, a motor and fly-wheels rotated thereby, friction-pinions upon said shafts in frictional engagement with the fly-wheels, a compressed-air cylinder, a piston therein and suitable means of connection between said piston and the friction-pinions, whereby the movement of the piston within the air-cylinder moves the friction-pinions across the face of the fly-wheels to regulate the speed, substantially as described.

3. In an automobile, the combination with a frame and wheels, of shafts geared to the traction-wheels thereof, a motor and fly-wheels rotated thereby, friction-pinions upon said shafts in frictional engagement with the fly-wheels, a compressed-air cylinder and piston-rod reciprocating therein, levers pivoted upon the frame of the machine and connected to said piston-rod, connecting-rods between the free ends of said levers and the friction-pinions, whereby the movement of said piston-rod within the cylinder is adapted to vary the speed of the traction-wheels, substantially as described.

4. In an automobile, the combination with a suitable frame and wheels journaled thereupon, of a shaft geared to one of the traction-wheels, a motor, a fly-wheel rotated thereby, a pinion upon said shaft, a compressed-air cylinder connected to said shaft to hold the pinion in frictional engagement with the fly-wheel, suitable brake mechanism, a compressed-air cylinder for operating said mechanism, a compressed-air reservoir, and a valve controlling the supply of air from the reservoir to the friction-cylinder and the brake-cylinder, by which air may be alternatively admitted to either of said cylinders, substantially as described.

5. In an automobile, the combination with a suitable frame and traction-wheels, of a shaft geared to one of the traction-wheels, a motor and fly-wheel rotated thereby, a pinion upon said shaft, a compressed-air cylinder connected to said shaft to hold the pinion in frictional engagement with the fly-wheel, suitable brake mechanism, a compressed-air cylinder for operating said mechanism and a suitable cock interposed between the friction-cylinder and brake-cylinder adapted, when compressed air is admitted to either of said cylinders, to establish communication between the other cylinder and the open air, substantially as described.

751,236. MEANS FOR PROPELLING BICYCLES. GEORGE E. WILEY and WILLIAM I. COLEY, Saltville, Va. Filed July 18, 1902. Renewed Nov. 13, 1903. Serial No. 181,066. (No model.)



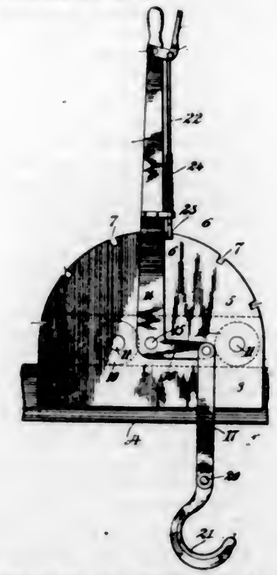
Claim.—1. In a velocipede, the combination with the hollow legs of the front fork, the head thereof, the steering-post and the transverse passages through the same, of the axle, its fast and loose pinions, the pulleys in the head, the upright pedal-racks, and the flexible band connecting said racks, and passing over said pulleys, substantially as specified.

2. In a velocipede, the combination with the hollow legs, of the fork, the head thereof, the pulley in said head, and the tangent axle-boxes, of the axle, its fast and loose pinions, the pedal-racks in said hollow legs, and the flexible band connecting said racks, substantially as specified.

3. In a velocipede, the combination with the upright pedal-racks, in the legs of the front fork, the pulley in the head of said fork, the flexible connection for said racks passing over said pulley, the axle and the fast and loose pinions, of the longitudinally-adjustable backbone or rear wheel-bow, substantially as specified.

751,237. HOISTING AND CARRYING DEVICE. MILES C. WOOD, Rockhill, S. C. Filed June 18, 1902. Serial No. 162,260. (No model.)

Claim.—1. The combination with a suitable track, of a carriage adapted to travel thereon, a lever pivotally supported on said carriage, said lever having an extension projecting at right angles to the main portion thereof, and means carried by said extension for engaging with and supporting an article to be moved from one point to another, substantially as set forth.



2. The combination with a suitable track, of a carriage movable along said track, the upper portion of the frame of the carriage being rounded or curved, said curved portion having a plurality of notches formed therein, a hanger member, means carried by the carriage and connected to the hanger for moving the latter, and means designed to engage with the notches in the frame of the carriage for locking the hanger-supporting means against movement, substantially as set forth.

3. The combination with a suitable track, of a carriage movable along said track, an angular lever carried by the carriage, a hanger connected to said angular lever, a hooked member suspended from said hanger, and a locking-detent carried by the lever and designed to engage with notches formed in the carriage, substantially as set forth.

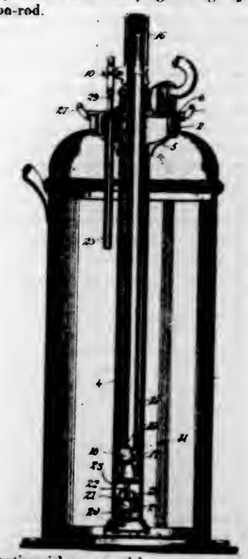
4. The combination with a movable carriage having side frame members, the top edge portions of the frame members being curved and provided with a plurality of notches, of a lever member pivoted to said carriage, suspending and supporting means carried by said lever, and a locking-detent carried by the lever and designed to engage with the notches in the carriage-frame for locking the lever and its connected parts in a desired position, substantially as set forth.

751,238. FIRE-EXTINGUISHER. FERNANDO YOST, Weehawken Heights, N. J., assignor to the Little Giant Fire Extinguisher Company, New York, N. Y. Filed Mar. 26, 1903. Serial No. 149,647. (No model.)

Claim.—1. A fire-extinguisher comprising a reservoir, a pump-cylinder passing into the reservoir, lugs on the neck portion of said reservoir, pairs of arms extended outward from the upper portion of the cylinder, pins connecting the arms of a pair, blocks having shoulder portions for resting on said pins, projections on the lower ends of said blocks for engaging with the lugs on said neck portion, and clamping-screws carried by the blocks for engaging with the pump.

2. In a fire-extinguisher, a reservoir, a pump arranged therein, a collar at the upper end of the reservoir, a flange on the upper end of the pump for engaging with said collar, arms extended outward on the flange, the arms of a pair being connected, the connection being chambered, a pin arranged in the chamber, a block extended between the arms of a pair and having a shoulder for engaging with the pin, a lug on the block, a lug on the collar for engaging with the lug on the block, and a clamping-screw carried by the block.

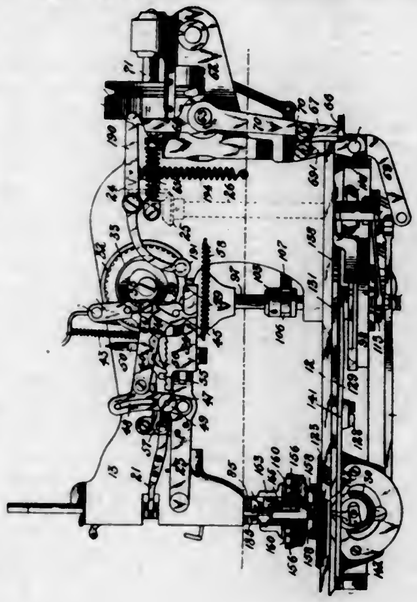
3. A fire-extinguisher comprising a reservoir, a pump-cylinder extended therein, an air-vent extended through the upper portion of the pump-cylinder and into the reservoir, a piston-rod operating in the pump-cylinder, and a vent-plug having adjustable connection with the piston-rod.



4. A fire-extinguisher comprising a reservoir, a pump-cylinder extended therein, a piston-rod for operating in the cylinder, a valve in the lower end of the cylinder, fingers extended upward in the bottom of the cylinder and having their upper ends curved inward, and a holding device for the valve, the said holding device being guided by said fingers and held downward by the piston-rod.

5. A pump-cylinder, a valve in the lower portion thereof, fingers extended upward from the lower end of the cylinder and having their upper ends curved inward, a disk adapted to bear on said valve and having notches to receive the fingers, and a disk on the upper end of the holding device, adapted to be engaged by the piston-rod.

751,239. BUTTONHOLE-STITCHING MACHINE. EDWARD B. ALLEN, Elizabeth, N. J., assignor to The Singer Manufacturing Company, a Corporation of New Jersey. Filed July 24, 1902. Serial No. 116,864. (No model.)



Claim.—1. In a buttonhole-stitching machine, the combination with a work-clamp, and a feeding mechanism for spacing the overseaming or edge-covering stitches, of a stitch-forming mechanism comprising a horizontally-movable needle-bar and needle, means for varying the horizontal throw of the said needle-bar and needle, and a barring mechanism comprising means for automatically increasing the horizontal throw of the needle-bar and needle for the barring operations and which barring mechanism is of such construction that whatever may be the normal horizontal throw of the needle-bar and needle for the overseaming-stitches the horizontal throw of the needle-bar and needle for the barring-stitches will be proportionally larger.

2. In a buttonhole-stitching machine, the combination with a work-clamp and a feeding mechanism for spacing the overseaming-stitches, of a stitch-forming mechanism comprising a needle and a cooperating loop-taking device, means for changing the relative positions of the needle, and the work for forming overseaming-stitches adjusting means for varying the lateral movements between the needle and the work to vary the width of the overseam, and a barring mechanism forming longer barring-stitches than the width of the overseam, and which barring mechanism comprises automatic means for proportionally increasing or diminishing the relative lateral movements between the needle and the work when the width of the overseam is changed; so that when the overseam is made wider or narrower the barring-stitches will be automatically made proportionally longer or shorter.

3. In a buttonhole-stitching machine, the combination with a work-clamp and a feeding mechanism for spacing the stitches about the buttonholes, of a stitch-forming mechanism comprising a needle and a cooperating loop-taking device, means for changing the relative positions of the needle and the work for forming overseaming and barring stitches and comprising two connected levers, a cam for operating said levers, automatic means for shifting a connecting device to different distances from the fulcrum of one of said levers for overseaming and barring stitches, respectively, and means for adjustably joining a connecting device to different distances from the fulcrum of the other of said levers to proportionally vary the lateral overseaming and barring movements.

4. In a buttonhole-stitching machine, the combination with a work-clamp and a feeding mechanism for spacing the overseaming or edge-covering stitches, of a stich-forming mechanism comprising a horizontally-movable needle-bar and needle, a laterally or horizontally movable frame or gate in which the needle-bar reciprocates vertically, a lever for moving the said frame or gate laterally, a cam for operating said lever, a second lever, a connecting-bar jointed at one end to the said second lever, means for operatively joining the said connecting-bar with the said first-named lever, at different distances from the fulcrum of said first-named lever, for the overseaming and the barring stitches, respectively, automatic means for shifting the point of connection of said connecting-bar with said first-named lever for forming overseaming and barring stitches, and a link jointed at one end to said needle-bar frame or gate and adjustably connected at its other end to the said second lever; whereby, by changing the connection of the said pitman with the said second lever the horizontal throw of the needle-bar and needle will be varied, both for the overseaming and barring stitches, while the barring-stitches will always be of a length proportionally longer then the width of the overseam.

5. In a buttonhole-stitching machine, the combination with stitch forming and feeding mechanisms and a work-clamp, of means for closing the said clamp from the needle-bar at the first descent of the said needle-bar for a buttonhole-stitching operation.

6. In a buttonhole cutting and stitching machine, the combination with stitch forming and feeding mechanisms and a work-clamp, of a buttonhole cutting or punching device, and means for closing the said work-clamp from the needle-bar through the said cutting or punching device at the first descent of the said needle-bar for a buttonhole-stitching operation.

7. In a buttonhole cutting and stitching machine, the combination with a stitch-forming mechanism comprising a needle-bar provided with a pin or projection, of a work-clamp, a buttonhole cutting or punching device comprising a cutter-operating bar, a coupling-lever pivoted to said operating-bar and adapted for engagement by the said pin or projection on the said needle-bar, automatic means for causing said lever to be engaged by the said pin or projection on the needle-bar at a desired descent of the latter, and means for holding the said lever out of the way of the said pin or projection during other descents of the needle-bar; whereby the cutter-operating bar may be coupled to the needle-bar without rotary movement of said cutter-operating bar.

8. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp, means for imparting a semi-rotation to said clamp in stitching about the eye of a buttonhole, a feeding mechanism for moving the said clamp longitudinally to space the stitches along the sides of a buttonhole, and automatic means for reversing the movements of the clamp-feeding and clamp-turning mechanism, when a buttonhole has been stitched, to return the clamp to its first or starting position.

9. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp, means for imparting a semi-rotation to said clamp in stitching about the eye of a buttonhole, a feeding mechanism for moving the said clamp longitudinally to space the stitches along the sides of a buttonhole, and comprising a feeding cam-wheel, and automatic means for reversing the movements of the clamp-feeding cam-wheel, when a buttonhole has been stitched, to return the clamp to its first or starting position.

10. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp mounted for partial rotation in stitching about the eyes of buttonholes, a feeding mechanism for moving the said clamp to space the stitches and comprising a feeding cam-wheel, an operating device for imparting an intermittent forward rotary movement to the said cam-wheel during a buttonhole-stitching operation, automatic mechanism for reversing the movements of the said cam-wheel when a buttonhole has been stitched, to return the clamp to its first or starting position, and means for disengaging the said operating device from said cam-wheel when the latter is to be reversed.

11. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp mounted for partial rotation in stitching about the eyes of buttonholes, a feeding mechanism for moving the said clamp to space the stitches and comprising a feeding cam-wheel, an operating clutch-dog for imparting an intermittent forward rotary movement to the said cam-wheel during a buttonhole-stitching operation, automatic mechanism for reversing the movements of the said cam-wheel when a buttonhole has been stitched, to return the clamp to its first or starting position, and means for disengaging the said operating clutch-dog from said cam-wheel when the latter is to be reversed.

12. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp, means for imparting a semi-rotation to said clamp, in stitching about the eyes of buttonholes, a feeding mechanism for moving the said clamp longitudinally to space the stitches along the sides of a buttonhole, automatic means for reversing the clamp turning and feeding mechanism to return said clamp to its first or starting position, a start and a stop motion mechanism comprising a loose pulley, a continuously-running shaft operatively connected with said pulley, and automatic means, connected with the start and stop motion mechanism, for coupling the clamp-returning mechanism with said continuously-running shaft when the driving-shaft of the machine is stopped.

13. In a buttonhole-stitching machine, the combination with stitch-forming devices, of a work-clamp mounted for partial rotation in stitching about the eyes of buttonholes, a feeding mechanism for moving the said clamp to space the stitches, automatic mechanism for returning the clamp to its first or starting position, a start and a stop motion mechanism comprising a loose pulley, a continuously-running shaft operatively connected with said pulley, automatic means, connected with the start and stop motion mechanism, for coupling the clamp-returning mechanism with said continuously-running shaft when the driving-shaft of the machine is stopped, and treadle-operated means for disconnecting the clamp-returning mechanism from the said continuously-running shaft when the machine is to be started at the next buttonhole-stitching operation.

14. In a buttonhole cutting and stitching machine, the combination with stitch-forming mechanism, of a work-clamp mounted for partial rotation in stitching about the eyes of buttonholes, a feeding mechanism for moving the said clamp to space the stitches, automatic means for returning the said clamp to its first or starting position after a buttonhole has been stitched, a buttonhole cutting or punching device, a locking device for holding the cutting device inoperative during the stitching of a buttonhole, and means, forming part of the clamp-returning mechanism, for releasing said locking device to set the cutting mechanism in readiness for operation at the first descent of the needle-bar at the commencement of the next buttonhole-stitching operation.

15. In a buttonhole-stitching machine, the combination with stitch forming and feeding mechanisms, of a work-clamp mounted for partial rotation in stitching about the eyes of buttonholes and having a guiding-slot, a guiding-button fitting closely in said slot at the position of the clamp for its turning movement, and means for moving said button laterally during the eye-stitching operations.

16. In a buttonhole-stitching machine, the combination with a stitch-forming mechanism, of a work-clamp mounted for partial rotation in stitching the eyes of buttonholes, a feeding mechanism for moving the clamp along for the side stitching of buttonholes and for turning the clamp during eye-stitching, and automatic means for locking the clamp-turning mechanism during the side-stitching operations and for releasing the locking device for the eye-stitching operations.

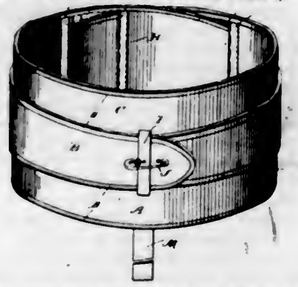
17. In a buttonhole-stitching machine, the combination with a stitch-forming mechanism comprising a laterally-movable needle-bar and needle, of a work-clamp, a feeding mechanism for said work-clamp, a stop-motion device, a tripping device for the said stop-motion device, and a controlling device for the said stop-motion device and which is independent of said tripping device; whereby the machine may be stopped at a predetermined sidewise movement of the needle-bar and needle.

18. In a buttonhole stitching and barring machine, the combination with a stitch-forming mechanism, a work-clamp and a feeding mechanism for spacing the stitches, of means for changing the relative horizontal positions of the needle and the work for forming overseaming-stitches, means for increasing the relative horizontal movements of the needle and work for barring-stitches, and means, operated from a shaft rotating independently of the driving-shaft of the machine, for setting the parts for barring operation.

19. In a buttonhole stitching and barring machine, the combination with a work-clamp and a feeding mechanism for spacing the stitches, of a stitch-forming mechanism comprising a horizontally or laterally movable needle-bar and needle, means for increasing the lateral throw of the needle-bar and needle for the barring-stitches, and means, operated by a shaft rotating independently of the driving-shaft of the machine for setting the parts for barring operation.

20. In a buttonhole stitching and barring machine, the combination with a work-clamp and a feeding mechanism for spacing the stitches, of a stitch-forming mechanism comprising a horizontally or laterally movable needle-bar and needle, a stop-motion device, means for increasing the lateral throw of the needle-bar and needle for the barring-stitches, and means, operated by a shaft rotating independently of the driving-shaft of the machine, for setting the parts for barring operation after the movement of the said driving-shaft has been arrested by the said stop-motion device

751,240. BABY-BAND. LOUISE ALMINANA, New Orleans, La. Filed Mar. 31, 1902. Serial No. 100,762. (No model.)

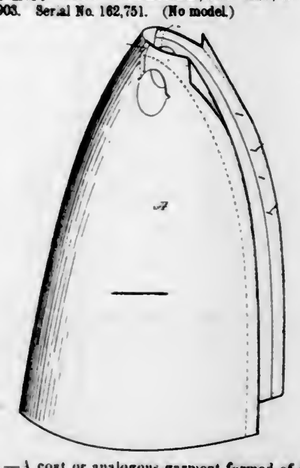


Claim.—A baby-band comprising a front portion formed on one side of its center with a transversely-extending slit and on the other side thereof with two parallel transversely-extending slits, strap portions of sufficient length to extend around the side and rear portions of the body and to be overlapped, the end of one strap adapted to be inserted through said slit and the end of the other adapted to be inserted through the two parallel slits, a tab carried by the front portion of the band, longitudinally-extending tapes secured at their respective ends to the strap portions, tabs slidable on said tapes, and a loop on the front side of the body portion of the band through which said strap portions are adapted to be passed after being inserted through the slits.

751,241. DRILL-JOINT. FRED ASH, Ada, Ohio. Filed July 3, 1903. Serial No. 164,189. (No model.)

Claim.—The combination with a rod having a tapered threaded recess in one end thereof, of a drill having a reduced end, the diameter of the reduced portion being the same as the diameter of the rod, a tapered threaded centering-pin extending from said end and adapted to engage the threaded recess, a shoulder at the inner end of the reduced portion of the drill and provided with two oppositely-opposed rectangular recesses, said recesses being equal in area to those portions of the shoulder which are arranged between the recesses, a sleeve loosely mounted upon the rod and having recesses in one end adapted to engage the shoulder on the drill and set-screws within the sleeve for securing the same within the rod and preventing the rotation thereof.

751,242. COAT. CARL AUSTERN, New York, N. Y. Filed June 23, 1903. Serial No. 162,751. (No model.)



Claim.—A coat or analogous garment formed of a single piece of material, the longitudinal edge portions of the material being cut to extend a short distance above the top portion of the main body of the coat, each of such extended edge portions having a curved cut-away part, the construction being such that said end portions may be folded inward and under upon the main body portion of the coat, whereby the edges at the front of the coat will be seamless, the curved portions of such extensions coinciding with the lapel of the main body of the coat, substantially as set forth.

751,243. MOTOR-TRUCK. WILLIAM L. AUSTIN, Philadelphia, Pa., assignor to Burnham, Williams & Company, Philadelphia, Pa., a Firm. Filed July 6, 1903. Serial No. 164,430. (No model.)

Claim.—1. The combination of a truck, axles thereon, a motor geared to each axle, a driving-wheel secured to each axle and a traction-wheel loose on each axle, substantially as described.

2. The combination of a truck, two axles thereon, two motors,

one motor geared to one axle and the other motor geared to the other axle, a wheel secured to each axle, and a wheel loose on each axle, substantially as described.

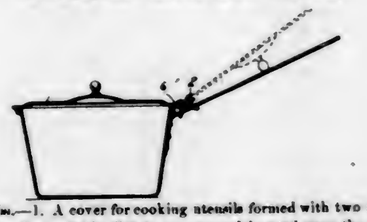


3. The combination of a motor-car having two four-wheel trucks, axles on said trucks, a motor geared to each axle, one wheel of each axle being secured thereto and the other wheel being loose thereon, substantially as described.

4. The combination of a four-wheel truck, two axles mounted thereon, two motors, one motor geared to one axle the other motor geared to the other axle, a wheel rigidly secured to each axle, and a wheel loose on each axle, the rigid wheel of one axle being on one side of the truck and the rigid wheel of the other axle being on the other side of the truck, substantially as described.

5. The combination of a motor-car, two four-wheel trucks supporting the same, two axles on each truck, two motors on each truck, one motor geared to one axle the other motor geared to the other axle, a driving-wheel rigidly secured to each axle, and a loose wheel mounted on each axle, the said wheels being alternately arranged so that there will be a driving-wheel and a loose wheel on each side of each truck, substantially as described.

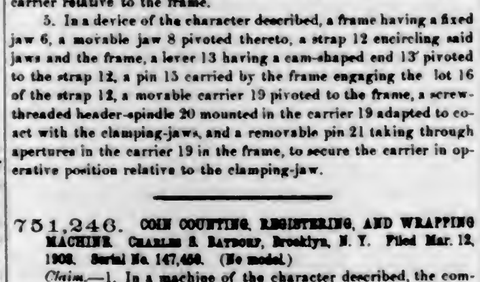
751,244. COVER FOR COOKING UTENSILS. WILLIAM H. BARNETT, New York, N. Y., assignor of one-half to Henry Bansett, Axtell, Nebr. Filed Oct. 29, 1902. Serial No. 129,313. (No model.)



Claim.—1. A cover for cooking utensils formed with two apertures spaced a suitable distance apart and located near the edge thereof, and a bail formed with two parallel end portions each of which is formed into an eye engaging one of the apertures in the cover, and a main portion connecting the end portions and extending at substantially right angles thereto and adapted to lie beyond the edge of the cover whereby said main portion may be engaged over the handle of a cooking utensil and may be used as a suspending means, and an outward-extending hook formed integral with said main portion substantially midway between the end portions, and an inturned end 8 formed on said hook portion, substantially as described and for the purpose set forth.

2. The combination of a cover, and a bail, said bail comprising two end portions, means for pivotally connecting said end portions to the cover near the edge thereof, a main portion connecting the end portions of said bail, said main portion being adapted to lie beyond the edge of the cover whereby it may be engaged over the handle of a cooking utensil and may be used as a suspending means, and an outward-extending hook formed integral with said main portion substantially midway between the end portions, substantially as described and for he purpose set forth.

751,245. DEVICE FOR SWAGING RAIL-BONDS. JOHN BASCHEN, Chicago Heights, Ill. Filed Aug. 31, 1903. Serial No. 171,384. (No model.)



Claim.—1. In a device of the character described, a frame, one member of a pair of coacting swaging instrumentalities carried by said frame, a carrier pivotally mounted on said frame, a complementary member of said swaging instrumentalities carried by the carrier and bodily movable therewith, independently of the first said member of said instrumentalities and means for positively positioning the carrier relative to the frame.

2. In a device of the character described, a frame, a clamp carried by said frame, and bodily stationary relative thereto forming one member of a coacting pair of pressure devices, a carrier pivotally mounted in the frame and bodily movable toward and from the clamping device, a complementary member of the pressure devices carried by said carrier, and means for positively positioning said carrier relative to the clamping device.

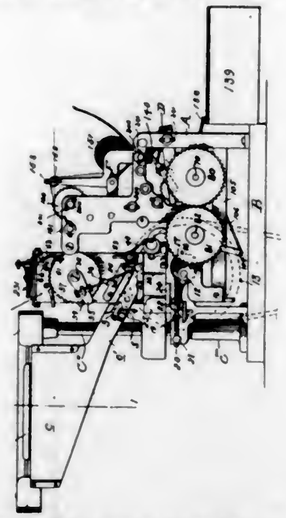
3. In a device of the character described, a frame having a vertical member and a horizontal member, a clamping device carried by the vertical member, a carrier pivotally secured to the horizontal member, a header mounted for adjustment in the carrier and arranged to be brought into alinement with the clamping devices of the vertical member of the frame when the carrier is brought to one position of movement about its pivot, and means for securing the carrier in such position, adapted when not so in use to permit the carrier to turn freely upon its pivot.

4. In a device of the character described, a frame having a vertical member and a horizontal member, the vertical member being provided with a clamping-jaw 6, a coacting clamping-jaw 8 pivotally mounted upon said vertical portion, a strap encircling said pivotal jaw and the frame, a lever pivotally secured to the strap and provided with a cam-shaped end, said lever being arranged with its cam end in constant contact with a relatively fixed portion of the frame, a carrier pivotally mounted on the frame, a supplementary member of the swaging instrumentalities carried by the carrier and bodily movable therewith, and means for positively positioning the carrier relative to the frame.

5. In a device of the character described, a frame having a fixed jaw 6, a movable jaw 8 pivoted thereto, a strap 12 encircling said jaws and the frame, a lever 13 having a cam-shaped end 13' pivoted to the strap 12, a pin 15 carried by the frame engaging the lot 16 of the strap 12, a movable carrier 19 pivoted to the frame, a screw-threaded header-spindle 20 mounted in the carrier 19 adapted to coact with the clamping-jaws, and a removable pin 21 taking through apertures in the carrier 19 in the frame, to secure the carrier in operative position relative to the clamping-jaw.

751,246. COIN COUNTING, REGISTERING, AND WRAPPING MACHINE. CHARLES R. BAYDORF, Brooklyn, N. Y. Filed Mar. 12, 1903. Serial No. 147,468. (No model.)

Claim.—1. In a machine of the character described, the combination of a table upon which the coins are deposited and inspected; a coin-conductor communicating with the table and into which the coins are delivered from the table; means for advancing the coins separately from the conductor; means for registering the advance of each coin; and a wrapping mechanism normally inoperative and set in operation by the registering devices.



2. In a machine of the character described, the combination of a table upon which the coins are deposited and inspected; a coin-conductor leading from one edge of said table and communicating with the surface of the table to receive the coins delivered therefrom; means for advancing the coins separately from the conductor; means for registering the advance of each coin; and a wrapping mechanism normally inoperative and periodically set in motion by the registering devices.

3. In a machine of the character described, the combination of a table upon which the coins are deposited and inspected, said table having a detector past which the coins move and adapted to check the passage of bent coins; a coin-conductor communicating with the table and receiving coins which pass the detector; means for advancing the coins separately from the conductor; means for registering the advance of each coin; and a wrapping mechanism normally inoperative and set in motion by the registering devices.

4. In a machine of the character described, the combination of coin-conducting means; an escapement controlling the advance of coins therefrom; and means for tripping the escapement to release a coin from the conductor and advance it to position before a succeeding coin is released.

5. In a machine of the character described, the combination of a coin-conductor; an escapement therein and against which the first coin strikes and by which the travel of said coin is arrested; means for tripping the escapement to release the first coin and allow the next succeeding coin to advance to the position last occupied by the first coin; said tripping means advancing the first coin to the end of its travel before the next succeeding coin is released.

6. In a machine of the character described, the combination of a coin-conductor; an escapement therein and against which the first coin strikes and by which the travel of said coin is arrested; a reciprocating push-bar operating to trip the escapement and release a coin and allow it to pass into the range of action of the bar, said bar advancing the released coin to the end of its travel before a succeeding coin is released; means for registering the advance of each coin by the push-bar; and a normally inoperative wrapping mechanism set in motion by the registering mechanism.

7. In a machine of the character described, the combination of an escapement-controlled coin-conductor; means operating the escapement to release coins separately; means for advancing the separate coins; and means for registering each coin advanced.

8. In a machine of the character described, the combination of an escapement-controlled coin-conductor; means operating the escapement to release the coins separately; means for advancing the separate coins and finally depositing one coin before beginning the advance of another; means for registering each coin advanced; and a wrapping mechanism normally inoperative and set in motion by the registering mechanism.

9. In a machine of the character described, the combination of a coin-conductor into which the coins are delivered; an escapement controlling the discharge end of the conductor and consisting of a pivoted member having a heel-piece to release and arrest coins successively; a reciprocating push-bar for advancing the separate coins to final position, said pivoted member having a toe-piece normally disposed in the range of action of the push-bar whereby the member is tripped to cause its heel-piece to release a supported coin; and means for registering the advance of each coin by the push-bar.

10. In a machine of the character described, the combination of a coin-conductor, a pivoted escapement in the outlet thereof, having a heel-piece for arresting successive coins; a reciprocating bar for advancing the coins separately to final position, said escapement having a toe-piece normally disposed in the range of action of the bar whereby the reciprocation of the bar in one direction to advance a coin will trip the escapement and release a succeeding coin for advancement during a succeeding reciprocation of said bar; means for registering the advance of each coin; means for assembling the coin in a bunch; and a normally inoperative wrapping mechanism set in operation by the deposit of the final coin of the bunch.

11. In a machine of the character described, the combination of a coin-conductor; an escapement controlling the outlet therefrom; means actuating the escapement and advancing the coins separately; means for registering the advance of each coin; a normally inoperative wrapping mechanism; a constantly-operating driving mechanism; and means controlled by the registering mechanism for alternately connecting and disconnecting the wrapping mechanism with the constantly-operating driving mechanism.

12. In a machine of the character described, the combination of a coin-conductor including a plate having a downwardly-curved lower end forming a curved coin-guide and beneath which coins are advanced; an escapement and means for tripping the escapement to release a coin simultaneously with the advance movement of a preceding released coin.

13. In a machine of the character described, the combination of coin-conducting means; a reciprocating push-bar; means for depositing coins separately into the range of action of the push-bar and means for operating the push-bar including a fixed and traveling rack-bar and intermediate traveling pinion.

14. In a machine of the character described, the combination of coin-conducting means; a reciprocating push-bar; means depositing coins separately into the range of action of the push-bar; and means for operating the push-bar including a fixed rack-bar, a rack on the push-bar parallel with the stationary rack-bar; a power-driven slide, and a pinion thereon and engaging both racks to accelerate the movement of the push-bar.

15. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; bundling devices including a pair of jaws in the path of the coin-advancing mechanism and separable to receive the advanced coin one of said jaws yielding laterally to admit a coin and then closing to advance said coin and those preceding it in the bunch to provide space for the next advancing coin.

16. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; a pair of jaws between which the first coin is received one of said jaws rigid and the other jaw yieldable laterally to admit the coin; a slide connected with the rigid jaw; means for holding the slide stationary until the coin is in position; and means for releasing the slide to allow the yielding jaw to move the slide and assembled coin, or coins, one step sidewise to provide accommodation for the next advancing coin.

17. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin-assembling devices including a slide-bar having a rigid jaw located at one side of the coin-discharge; a spring-actuated jaw opposing the rigid jaw and engaged and moved laterally by the advanced coin; means actuated by one movement of the coin-advancing means for locking the slide-bar against movement while the advancing coin is being positioned, said coin-advancing means releasing the slide-bar by a return movement and to allow said spring-jaw to return to normal position and simultaneously advance the slide and the assembled coin, or coins a distance sidewise substantially equal to the thickness of a coin.

18. In a machine of the character described, a coin-bunching mechanism including a laterally-guided slide-bar and opposing members between which the coins are assembled one of said members carried by the said bar; means for alternately locking and releasing the slide-bar; and means for imparting to the slide-bar and the assembled coins a step-by-step side movement.

19. In a machine of the character described, the combination

of a coin-conductor; a reciprocating push-bar for advancing coins separately; means for registering the advance of each coin; a coin-bunching mechanism including a laterally-guided slide-bar and opposing jaws between which the coins are successively assembled; a spring-plate adapted to engage the slide-bar; a roller carried by the push-bar and engaging said plate to cause it to frictionally hold the slide against movement while a coin is being placed between the jaws said roller releasing the spring-plate and thereby disengaging the slide-bar as the push-bar makes its return reciprocation, one of said jaws spring-actuated to impart a side movement to the slide and assembled coins when said bar is released; and a spring for returning the slide-bar to its normal position when the bunch is completed and removed from the jaws.

20. In a machine of the character described, a pair of opposing grippers for transferring a bunch of assembled coins, said grippers having swiveled heads engaging opposite ends of the bunch.

21. In a machine of the character described, the combination with coin-bunching devices, of means for conveying the bunch including a swinging frame and a pair of opposing grippers having swiveled heads to engage opposite ends of the bunch.

22. In a machine of the character described, the combination with coin-bunching devices, of means for conveying the bunch of coins including a swinging frame; a pair of arms carried thereby and having inwardly-extending horizontally-guided shanks slidable toward and from each other; and gripping members carried by the arms and adapted to engage opposite ends of the bunched package.

23. In a machine of the character described, the combination with coin-bunching devices, of means for conveying the bunch of coins including a swinging frame, a pair of laterally-slidable arms; stems extending inwardly from the upper ends of the arms; swiveled heads upon the stems adapted to engage opposite ends of the bunched package; a spring adapted to move the arms toward each other to engage the bunched package, and cams adapted to separate the arms to cause the gripping-heads to release said package.

24. In a machine of the character described, the combination with coin-bunching devices, of means for conveying the bunch of coins including a horizontally-swinging frame having a grooved or recessed cross-bar; a pair of arms having shanks slidable in said cross-bar; a spring connecting the arms; stems extending inwardly from the upper ends of the arms and having loose heads upon their inner ends, adapted to clamp against opposite ends of the assembled coins; and rotatable cams for spreading the arms and causing the heads to release the bunch of coins.

25. In a machine of the character described, the combination with coin-bunching devices and a wrapping mechanism; of means for transferring the bunch of coins to the wrapping mechanism, including a movable frame having means for holding the bunch of coins during the transfer to the wrapping devices; and a curved plate over which the bunch of coins is carried said plate actuated by the movable frame to close over the bunch and hold the end of the wrapper.

26. In a machine of the character described, the combination with means for advancing coins separately, and means for registering the advance of each coin, of a normally inoperative wrapping mechanism; means for transferring the bunch of coins; and means controlled by the registering mechanism for periodically setting in motion the wrapping mechanism, said wrapping mechanism including a vertically-swinging frame into the free end of which the bunch of coins is admitted, and a wrapping-roll carried by said frame; and a paper-feeding mechanism for supplying paper for the coin-wrapper.

27. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin-bunching mechanism; means for conveying the bunch of coins to the wrapping mechanism; a normally inoperative wrapping mechanism including a vertically-swinging frame into the forward end of which the bunch of coins is delivered and held by the transferring devices during the wrapping operation; a wrapping-roll carried by the frame; a swinging curved plate carried by the frame and adapted to close over the bunch of coins to tuck the interposed wrapping-sheet in position; and means for elevating the frame with its bunch of coins into operative connection with a constantly-operating part of the machine whereby the wrapping-roll is operated; and complementary paper-feeding mechanism.

28. In a machine of the character described, the combination of means for advancing coins separately, means for registering the advance of each coin; coin bunching and transferring mechanism; a normally depressed swinging frame into which the bunch of coins is transferred said frame carrying a wrapping-roll and gear-wheel; a constantly-operating gear and means for elevating the constantly-operating gear whereby the paper wrapper is applied to the bunch of coins; and means for lowering the frame to discharge the wrapped package.

29. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism and means controlled by the registering devices for setting the same in motion said mechanism including a vertically-swinging frame forming a receiver for the bunch of coins; a paper-feed mechanism, means for applying a wrapper to the bunch; means for crimping the ends of the rolled package; and means for discharging the package.

30. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism set in motion by the registering devices; a paper-feed mechanism; and means for crimping the ends of the rolled package including laterally-movable arms carrying crimpers, and a screw for causing said arms with their crimpers to progressively approach and crimp the ends of the rolled package.

31. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism and means controlled by the registering mechanism for setting the wrapping devices in operation; a paper-feed mechanism; and means for crimping the rolled package including approaching crimpers, laterally-slidable arms carrying said crimpers and provided with segmental nuts, and a right-and-left screw engaging said nuts to cause the screw to advance the grippers toward each other.

32. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism set in operation by the registering mechanism; and means for crimping the ends of the rolled package including a pair of crimpers each consisting of a curved member having an inturned end, a laterally-slidable arm having an open nut portion; a spring interposed between the pair of crimpers and normally tending to separate them; and a right-and-left screw engaging the said open nut portion to advance the crimpers and cause the inturned ends thereof to crimp the rolled package.

33. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism set in motion by the registering devices; a pair of laterally-slidable crimping devices including arms with open nut portions; a right-and-left screw normally disengaged from the nuts and means for advancing the screw into engagement with the nut to cause the crimping devices to approach each other.

34. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring devices; a normally inoperative wrapping mechanism set in motion by the registering devices; a pair of laterally-slidable crimping devices including arms with open nut portions; a right-and-left screw-shaft normally disengaged from the open nuts; and means including swinging arms and a train of gears for advancing the screw-shaft into operative connection with the open nuts, and imparting rotation to the screw-shaft.

35. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring devices; a normally inoperative wrapping mechanism set in motion by the registering devices; a pair of laterally-slidable crimping devices including arms with open nut portions; a right-and-left screw-shaft normally disengaged from the open nuts; means including swinging arms and a train of gears for advancing the screw shaft into operative connection with the open nuts; a toggle-lever connection between the screw-shaft and a fixed portion of the machine, and straightened out when the screw is advanced into the open nuts; means for automatically breaking the toggle-joint; and a spring for returning the screw-shaft to normal position.

36. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring devices; a normally inoperative wrapping mechanism set in motion by the registering devices; a laterally-slidable crimping mechanism having open nuts; a right-and-left screw-shaft normally out of engagement with the open nuts; means including swinging arms and gearing for moving the screw-shaft into engagement with said nuts; a toggle-lever connection between the arms and a fixed part and straightened out when the screw-shaft is in its advanced position; and means including a pin fixed on the screw-shaft, a sliding stop to be projected into the path of said fixed pin to hold the shaft against rotation and break the joint of the toggle connection, said slidable pin being disposed in the path of a member of the laterally-sliding crimping mechanism when the screw is advanced; and a spring for returning the screw-shaft and its adjuncts to normal position.

37. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism set in operation by the registering devices; a normally inoperative paper-feed mechanism actuated by the wrapping mechanism said feed mechanism including a laterally-movable paper-carriage and means for moving the same whereby the paper may be adjusted laterally relative to the bunch of coins to be wrapped.

38. In a machine of the character described, the combination of means for advancing coins separately; means for registering the advance of each coin; coin bunching and transferring mechanism; a normally inoperative wrapping mechanism set in motion by the registering devices; a paper-feed mechanism normally inoperative and including a feed-roll having a fixed disk provided with a pawl, a loose ratchet alongside the disk and with which said pawl locks to unite the disk thereto; a pinion on the side of the ratchet and a rack-bar controlled by the wrapping mechanism for actuating the pinion.

39. In a machine of the character described, the combination of coin-counting mechanism; coin-bunching mechanism; a coin-wrapping mechanism normally inoperative and set in motion by the coin-counting devices; a normally inoperative paper-feed mechanism controlled by said wrapping mechanism; and means for severing wrapper-blanks from a strip of paper including a cutting-blade over which the paper passes and a paper-guide comprising a back portion with side wings and a hinged front mounted to slide vertically between said wings and over the face of the paper strip.

40. In a machine having means for counting, bunching and wrapping coins, a normally inoperative paper-feeding mechanism set in operation by the wrapping mechanism and including a spring-actuated rock-shaft having a shouldered collar; a paper-feed roll and a shaft therefor having an arm to engage said collar; a rack-and-pinion mechanism on said shaft and controlled by the wrapping mechanism for releasing said arm from the collar; a cutting-blade fixed to said rock-shaft and over which the strip of paper passes; a vertical paper-guide consisting of a fixed member having side wings and a hinged front suspended from said shaft and vertically reciprocable relative to the fixed member.

41. In a machine of the character described, the combination of means for advancing the coins separately; means for registering the advance of each coin; coin-bunching mechanism; a vertically-swinging frame into which the bunch of coins is delivered for wrapping; and means for elevating said frame consisting of a normally inoperative shaft set in operation by the registering devices; a cam on said shaft; a bar extending longitudinally of the lower part of the machine; and means for vertically adjusting said bar; a lever pivoted to the bar having one end to engage said cam; a second pivoted lever on the bar and a connection from below the pivot of the first lever to a point above the pivot of the second lever said second lever connecting with the swinging frame.

42. In a machine of the character described, the combination of means for advancing coins; means for registering the advance of each coin; coin bundling and transferring devices; a normally inoperative wrapping mechanism set in operation by the registering devices; and an intermittent normally inoperative paper-feed mechanism including a normally locked spring-actuated rock-shaft having a cutter-blade fixed to it and normally horizontal; and over which the strip of paper passes; a paper-guide vertically disposed and substantially in line with which the blade is carried when the shaft is released; a collar on the shaft having a shoulder; and an arm on the feed-roll shaft normally in engagement with said shoulder and holding the rock-shaft against its spring power, said arm releasing said shoulder at the beginning of rotation of the feed-roll and again engaging the shoulder to return the parts to normal position at the completion of the revolution of the feed-roll.

43. In a machine of the character described, the combination of a coin-conductor; means for advancing coins separately; and means for registering the advance of each coin including a spring-pressed member lifted by each passing coin; a toothed register-wheel, a rod connecting the aforesaid member with the register-wheel; and an escapement on the rod adapted to enter a tooth-space of the wheel each time the spring-pressed member is lifted.

44. In a machine of the character described, the combination of coin-counting mechanism; coin-bunching mechanism; means for conveying the bunch of coins; and a wrapping mechanism normally inoperative and set in operation by the addition of a final coin to the bunch said wrapping mechanism including a pair of superposed rolls in the main frame of the machine and a vertically-swinging frame having a roll to oppose said pair of rolls and between which rolls the coins are wrapped; and a hinged flap to close over the bunch of coins and tuck in the end of the wrapper said flap having an elastic member yielding upon contact with the bunch of coins.

751,247. **IDENTIFICATION-CARD.** KARNIK L. BERENDT, New York, N. Y. Filed Mar. 25, 1903. Serial No. 149,482. (No model.)



Claim.—1. An identification-card consisting of a photographic print in the form of a sheet, and having in its film face on one portion thereof the chemically-inherent photographic imprint of the portrait of the owner of the card, on another portion of the sheet an autograph written by the owner on the film face of the print, and a transfer impression of the stamp of a forwarding post-office, as set forth.

2. An identification-card consisting of a photographic print in the form of a sheet containing in its film face on one portion thereof the chemically-inherent photographic imprint of the portrait of the owner, the autograph of the owner on another portion of the sheet, a transfer impression of the stamp of a forwarding post-office, and on the back thereof the receiving-stamp of a receiving post-office, as set forth.

3. An identification-card consisting of a photographic print in form of a sheet containing in its film face the chemically-inherent photographic imprint of the portrait of the owner of the card, the autograph of the owner, identifying statements of the owner, a carbon impression of the stamp of a forwarding post-office, and the stamp of a receiving post-office at the back of the photographic print, as set forth.

4. An identification-card consisting of a photographic print in the form of a sheet containing on its film face a photographic imprint of the portrait of the owner of the card, the autograph of the owner, identifying statements of the owner, and notarial certification, the said photographic print containing at its back the stamp of a receiving post-office, in combination with an envelop for inclosing the card and provided on its front with an opening through which the portrait is exposed to view, the envelop containing on its back an opening, through which the said stamp is applied and exposed to view, as set forth.

751,248. **COLLAR FOR LAMPS.** CHARLES F. BILBOLY, Portsmouth, Va. Filed July 3, 1903. Serial No. 164,160. (No model.)

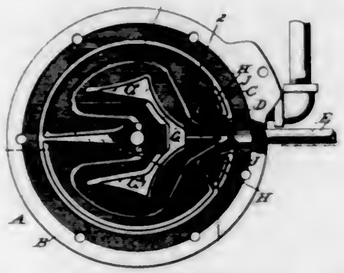


Claim.—1. The combination with a disk having a lamp-body-engaging extension integral therewith, and a circular flange upon and integral with the disk; of a spring-strip secured within the disk and below the flange, a hooked portion thereto, a second disk having a recess in one edge adapted to receive the catch, said disk having a circular flange integral with the lower edge thereof and adapt-

ed to bear on the flange of the first-mentioned disk, said flanges being inclosed by the disks, a pivot-pin extending through the disks to permit lateral movement of said second disk, and an inwardly-extending internally-screw-threaded cylindrical portion integral with the second disk and adapted to engage a burner.

2. A lamp-collar comprising an inverted frusto-conical disk adapted to be secured to the body of a lamp and a circular flange inclosed by the upper end of said disk and formed integral therewith, a spring-strip projecting through and secured to the disk and having a hooked portion, a second frusto-conical disk mounted upon the first-mentioned disk, a circular flange integral with and inclosed by the lower edge of said second disk and adapted to bear upon the first-mentioned flange, a pivot-pin extending through the disks, whereby lateral movement of the second disk is permitted, and an inwardly-extending cylindrical portion integral with the upper end of the second disk and adapted to engage a burner, said second disk having a recess for the reception of the spring-strip.

751,249. HYDROCARBON-BURNER. ALBERT B. BLACKBURN, Springfield, Ohio. Filed May 2, 1903. Serial No. 155,332. (No model.)



Claim.—1. In combination with a retort having a channel, oil and steam inlets and an outlet; diverging fingers located on opposite sides of the oil-inlet; and a dividing-finger projecting beyond the oil-inlet and serving to divide the incoming stream of oil or vapor.

2. In a vapor-burner, the combination of a retort having channels formed therein and provided with an oil-inlet; and means to divide the oil and cause it to pass equally into the channels, each of said channels communicating with a steam-inlet.

3. In a vapor-burner, the combination of a retort having a central discharge-opening and an oil-inlet located at one side thereof, said retort having likewise circuitous passages extending from said oil-inlet to the discharge-opening; means for introducing steam into said passages adjacent to the oil-inlet; and means, located in line with the oil-inlet, for dividing the incoming oil and causing it to pass equally into the circuitous passages, substantially as described.

4. In a vapor-burner, the combination of a base-plate having a central opening and provided with a wall C extending approximately around the base-plate; a rib F extending from said wall to a point adjacent to the central opening; a rib G extending upwardly from the base-plate and provided with diverging fingers; a dividing-finger G^2 in line with an oil-inlet; and steam-chambers H arranged adjacent to the oil-inlet and having openings extending therefrom in line with the circuitous passages formed by the wall, fingers and ribs, substantially as described.

5. In a vapor-burner, the combination of a retort having circuitous passages formed therein and an oil-inlet; a generating-chamber mounted upon the upper portion of the retort; a pipe extending from said chamber and communicating with openings formed in line with the circuitous passages and adjacent to the oil-inlet, substantially as described.

6. In combination with a retort provided with steam and oil inlets, and with a discharge-opening; channels formed in the retort in line with said openings; a hollow stem fitting into said retort and provided with lateral openings in line with the channels; a burner carried by said stem; and means, located in line with the oil-inlet, for causing the oil to pass equally into the channels.

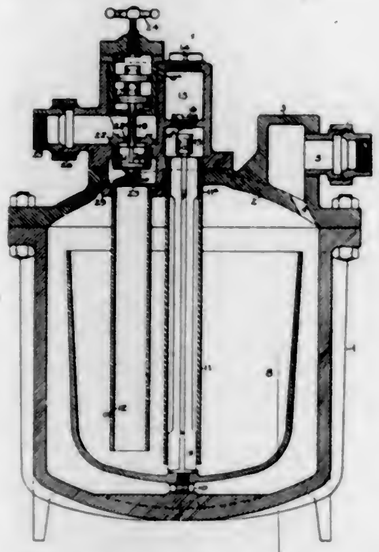
7. In combination with a retort, a burner having its stem extended upward through the retort; and a nut applied to the upper end of the stem, substantially as and for the purpose described.

8. The combination with a retort, a burner having its stem extended upwardly through the retort and shouldered beneath the same; and a nut applied to the upper end of the stem.

9. In combination with the base A, a cover-plate therefor, said parts being provided with openings in alinement with each other; a shouldered hollow stem passed through said openings and provided with a nut at its upper end and with lateral openings; and a burner carried by the lower end of said stem and communicating with openings formed therein, which openings are in turn in communication with the interior of the retort, formed by the base and the cover-plate.

10. In a vapor-burner, the combination of a suitable retort having a passage formed therein for conducting vaporized oil from the inlet to the discharge opening, said passage having a channel or groove formed in the lower wall thereof, substantially as and for the purpose described.

751,250. STEAM-TRAP. JAMES H. BLEMING, Albany, N. Y. Filed Apr. 1, 1903. Serial No. 150,867. (No model.)



Claim.—1. The combination with an outer casing, of a steam-cylinder, a piston with said cylinder mounted upon a rod smaller in diameter than the opening for said rod in the cylinder, a valve mounted on said rod, a valve-seat cooperating with said valve, and a discharge-pipe connected with said valve, substantially as shown and described.

2. The combination with an outer casing, of a bucket, a discharge-pipe extending into said bucket, a steam-actuated valve connected with said discharge-pipe, a valve-seat having a discharge-aperture, and an outlet connected therewith smaller than the aperture of the valve-seat, substantially as shown and described.

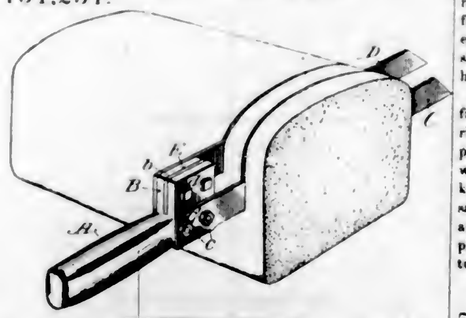
3. The combination with an outer casing, of a bucket, a discharge-pipe extending into said bucket, a steam-cylinder, a piston mounted upon a rod within said cylinder, a valve operated by said piston, a valve-seat having a discharge-aperture, and an outlet connected therewith smaller than the aperture of the valve-seat, substantially as shown and described.

4. The combination with an outer casing, of a bucket, a discharge-pipe extending into said bucket, a steam-actuated valve connected with said discharge-pipe, and a valve-bushing provided with a valve-seat having a discharge aperture, and an outlet smaller than the aperture of the valve-seat, substantially as shown and described.

751,251. KNIFE. JOHN C. BOLLINGER and GEORGE R. BOLLINGER, Olympia, Wash. Filed July 11, 1903. Serial No. 165,127. (No model.)

Claim.—A bread-slicer comprising a handle provided with a head having a plane side, and having in its back a series of slots parallel to said side; and knife-blades secured one to said plane side and the other in one of said slots, so that the edge of the latter knife is behind that of the former.

751,251.



751,252. PISTON. JOHN BOOP, Cleveland, Ohio. Filed June 15, 1903. Serial No. 161,440. (No model.)



Claim.—1. The piston-head and the expansion-ring about the same having a plurality of inclined bearing-surfaces transversely in its inside and ribs at the sides of said surfaces, in combination with a wedge for each of said surfaces and a separate screw to operate each wedge, substantially as described.

2. The piston-head having a plurality of recesses radially disposed about the same running front to rear of the piston and having parallel walls at their sides, and an expanding ring having inclined bearing-surfaces opposite said recesses, in combination with wedges engaged between said recesses and bearing-surfaces, a separate screw-bolt for controlling each wedge and a follower-plate in which said bolts are engaged to be rotated, substantially as described.

3. The piston-head having a series of recesses disposed at equal distances about its middle portion and an expanding ring having walled inclined surfaces directly opposite said recesses, in combination with wedges engaged between said recesses and inclined surfaces and having threaded bores lengthwise thereof, a separate screw-bolt for each wedge having a collar between its ends, a follower-plate and means therein to engage said collar and prevent longitudinal movement of the bolt, substantially as described.

4. In pistons, a head and an expanding ring therein having a plurality of inclined flat bearing-surfaces internally from edge to edge, means to expand said ring at any one of said bearing-surfaces and a wearing-ring about said expanding ring, substantially as described.

5. The piston-head having a series of straight recesses about its middle portion with parallel side walls and equidistant from the axis of said head, a wedge in each recess and means to actuate each wedge independently, in combination with an expanding ring about said wedges having inclined surfaces engaged thereby, a split wearing-ring about said wearing-ring and a snap-ring next to said wearing-ring, substantially as described.

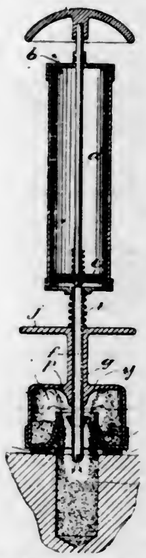
6. The combination with the piston-head having radial arms, the outer ends of which are recessed, an expanding ring surrounding said radial arms, wedge-keys arranged in the recessed ends of said arms, a follower, bolts adapted to operate the wedge-keys, means carried by the follower adapted to prevent longitudinal movement of the bolts, and the packing-rings surrounding the expanding ring, as specified.

7. The combination with a piston having radial arms, the ends of which are recessed, the beams of said recesses being longitudinally straight, the expanding ring surrounding the radial arms and provided with interior guiding-ribs, the inner face of the rings between the ribs being inclined, the wedge-keys arranged in the recesses and between the guiding-ribs, the packing-rings, the follower-plate, and bolts carried by the follower for operating the wedge-keys, as specified.

8. The combination with the piston having radial arms upon the forward faces thereof, the outer ends of said arms being recessed, the piston-ring having interior guiding-ribs, the inner face of the rings between the ribs being inclined, the wedge-keys, the wedge-faces being corrugated or grooved, packing-rings surrounding the expanding ring, the follower-plate, wedge-key bolts for moving the said wedge-keys, and means carried within the follower-plate for holding the key-bolts against longitudinal movement, as specified.

9. The combination with the piston having expansions upon the front face thereof, said expansions being recessed, the expanding rings having interior guiding-ribs, packing-rings surrounding the expanding ring, the follower-plate having threaded apertures, the wedge-keys arranged in the recesses and having threaded bores, the key-bolts passing through the follower-plate, the threaded ends of said bolts engaging the threaded bores of the wedge-keys, a collar arranged upon each bolt, and the plugs arranged in the follower-plate adapted to engage the collar and hold the bolt against longitudinal movement for the purpose specified.

751,253. TOOL FOR CLEANING DRILLED HOLES. FRANCIS W. BRADY, Englewood, N. J. Filed July 29, 1903. Serial No. 167,488. (No model.)



Claim.—1. In a tool for the purpose specified, a box with a removable base, an aperture in its bottom, an annular chamber to catch and retain the borings and particles blown out, and an upright guide-sleeve, in combination with an air-pump having its nozzle extending down through said guide-sleeve.

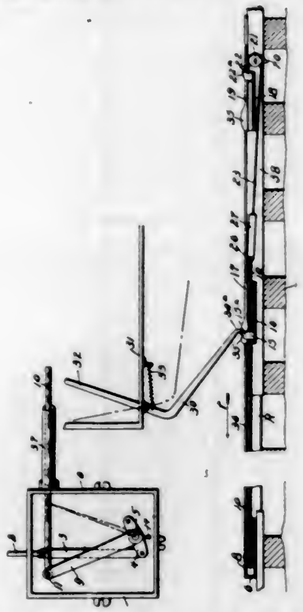
2. In a tool for the purpose specified, a box with a removable base, an aperture in its bottom, an annular chamber to catch the borings and particles blown out, and an upright guide-sleeve, in combination with an air-pump having its nozzle slidably mounted in said sleeve and provided with a stop to prevent it from being drawn out therefrom, and a spring about said nozzle and between the pump-body and said sleeve.

3. A tool for the purpose specified, comprising a box in the form of an inverted cup and provided with a guide-sleeve *g*, and the base having a retaining-flange to receive the lower margin of said inverted cup, said base having an opening in its bottom plate on which is an upright tube with curved walls, said tube forming, with the wall of the inverted cup an annular chamber to catch the particles, and an air-pump, the nozzle of which extends down through said guide-sleeve and the aperture in the bottom of the box, substantially as set forth.

751,254. RAILWAY-SWITCH. WILLIAM H. BRAIN, Vancouver, Canada. Filed May 25, 1903. Serial No. 158,753. (No model.)

Claim.—1. In a device of the class described; two guide-frames situated a short distance apart in the line of approach to the switch, blocks slidable endwise in such guides and having portions upwardly projecting through elongated slots in the upper sides of the guide-ways such upward projections being designed to be engaged by suitable members depending from the car-platform, means for connect-

ing the two slidable blocks so as to be oppositely movable in relation to each other, and means for connecting the blocks to the switch so that the forward movement of one block operates the switch for the main line and the other for the branch, substantially as described.



2. In a device of the class described having a pivotally-mounted L-lever by which the switch-blade is operated; a means to retain the mechanism in either extreme position comprising a tension-spring one end of which is connected toward the end of one of the levers of the L and the other end to a position on the opposite side of the pivot-pin of the L-lever and in the center line of the lever's oscillation.

3. In a switch-operating mechanism; a pivotally-mounted L-lever having a tension-spring to retain it in either extreme of its movement, a link connection from one arm of the L to the switch-blade, a rod connected to the other arm and extending along the track, a block adjustably secured to the rod and slidable in a guide and having a portion projecting above the road-surface through an elongated slot in the upper side of the guide, a raised portion on the upper surface of the guideway at the end of the slot toward the switch, a second slidable block and guide-frame a short distance from the foregoing toward the direction of approach, a sheave rotatably mounted in the farther end of the second guide-frame, and a flexible connection from the second guide-block round the sheave and back to an adjustable connection on the aforementioned rod.

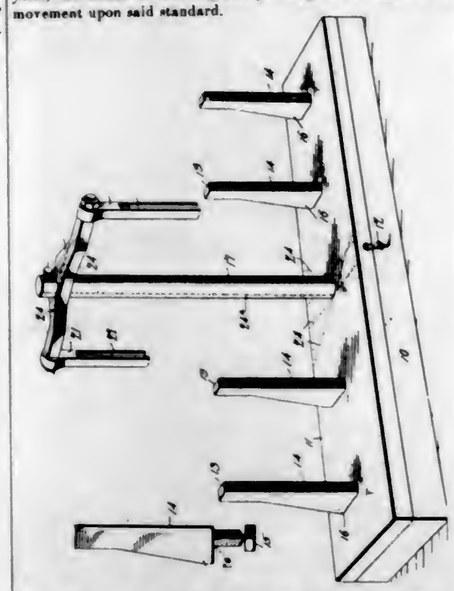
751,255. **MITER-BOX.** MILES L. BOSSER, Oklahoma, Okla. Filed Feb. 7, 1903. Serial No. 142,366. (No model.)

Claim.—1. In a miter-box, the combination with a base, of a cylindrical standard, a yoke slidably and rotatably mounted upon said standard, saw-guides carried by said yoke, work-supports on said base, and a single means for securing said yoke against sliding and rotary movement on said standard.

2. In a miter-box, the combination with a base, of a cylindrical standard, a yoke slidably and rotatably mounted on said standard, dependent saw-guides adjustably secured to the ends of said yoke, and a single means for securing said yoke against sliding and rotary movement on said standard.

3. In a miter-box, the combination with a base, of a cylindrical standard, a yoke slidably and rotatably mounted on said standard, saw-guides carried by said yoke and a set-screw mounted in said yoke and engaging said standard to lock said yoke against sliding and rotary movement on said standard.

4. In a miter-box, the combination with a base, of a cylindrical standard, a yoke slidably and rotatably mounted on said standard, a vertical index-line extending longitudinally of said standard, index-lines provided on the upper surface of said yoke for use in connection with the index-line on said standard, saw-guides carried by said yoke, and means for securing said yoke against sliding and rotary movement upon said standard.



5. In a miter-box, the combination with a box having a lid adapted to form a base, of a plurality of buttressed pins removably secured on said lid and adapted to form a work-support, a cylindrical standard removably secured on said lid in suitable relation to said pins, a removable yoke rotatably and slidably mounted on said standard, saw-guides adjustably mounted on said yoke, and means for securing said yoke in adjusted position on said standard, said box being adapted to contain all of the other elements of the miter-box structure.

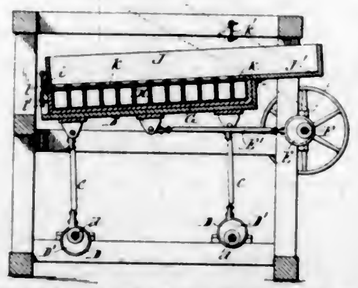
751,256. **FOUNTAIN-PEN.** WILLIAM H. CAMFIELD, Newark, N. J., assignor to the Patent Development Company of America, New York, N. Y., a Corporation of New York. Filed Sept. 22, 1903. Serial No. 174,156. (No model.)



Claim.—A fountain-pen comprising a pen-head, a handle or barrel for the head, and a separate receptacle complete in itself adapted to be attached to the head inside the handle but independent thereof.

751,257. **CAN-FILLING MACHINE.** JOHN W. CARNOCHAN, Silvercreek, N. Y., assignor to Huntley Manufacturing Company, Silver creek, N. Y. Filed Dec. 17, 1902. Serial No. 135,479. (No model.)

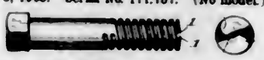
Claim.—1. In a can-filling machine, the combination of a frame, a vibratory table or support for the cans, and a feed-hopper arranged above said table and adapted to vibrate therewith, the bottom of the hopper having rows of discharge-openings arranged to register with the openings of the cans and an imperforate extension arranged beyond its perforated area and in the plane of the bottom and upon which any surplus material is adapted to be gathered, substantially as set forth.



2. In a can-filling machine, the combination of a frame, a vibratory box or table, a removable can-tray arranged in said box, and a feed-hopper pivotally mounted on said box and provided in its bottom with discharge-openings and beyond the perforated portion of its bottom with an imperforate extension, substantially as set forth.

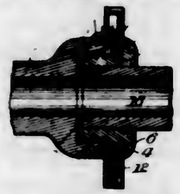
3. In a can-filling machine, the combination of a frame, a vibratory box or table, a removable can-tray arranged in said box, and a vertically-swinging feed-hopper hinged to one end of said box and extending rearwardly beyond its hinge, the portion of the hopper-bottom in rear of its hinge being imperforate and the portion thereof above the can-tray being provided with discharge-openings arranged to register with the openings of the cans, substantially as set forth.

751,258. **STEEL SCREW.** MAGNUS CARSTENS, Davenport, Iowa. Filed Sept. 3, 1903. Serial No. 171,737. (No model.)



Claim.—A screw whose body portion is of substantially the same diameter throughout and is provided with a plurality of threads said threads terminating at points equal distances apart around the end of the screw and being beveled inward at said ends to form substantially radial cutting edges which are carried inward to a point beyond the base of the threads, the axial center of the screw being cut inward at the end thereof whereby the cutting edges or lips will be in advance of the center or core of the screw.

751,259. **HOSE-COUPLING.** CHARLIE E. CHAFFEY, Pittsburg, Pa. Filed Aug. 27, 1903. Serial No. 170,993. (No model.)



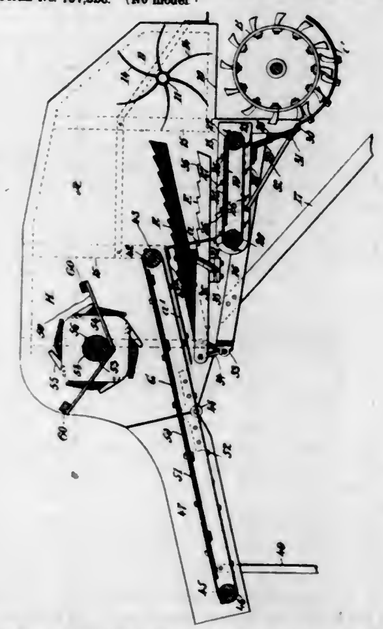
Claim.—1. In a hose-coupling, a female member comprising a recessed body portion interiorly threaded and provided with oppositely-disposed notches or cut-away portions, a sleeve threaded into said recess having a flange at its outer end and provided with oppositely-disposed slots terminating in notches or cut-away portions in said flange, a locking-ring mounted on said sleeve and provided in the wall of its inner circumference with notches, and a male member adapted to enter said sleeve and provided with lugs adapted to seat in the notches of the female member and be engaged by said locking-ring, substantially as described.

2. In a hose-coupling, a female member comprising a recessed body portion provided in the walls of said recess with oppositely-disposed notches, a sleeve fitted in said recessed body and provided with oppositely-disposed slots, said sleeve having a flange on its outer end with notches registering with said slots, a locking-ring mounted on the sleeve and provided with notches adapted to register with the slots in the sleeves and the notches in the body portion of the female member, a male member adapted to enter said sleeve, lugs carried by said male member adapted to be engaged by the locking-ring, and means for securing the locking-ring in the locked position, substantially as described.

3. In a hose-coupling, a female member comprising a recessed body portion, a sleeve fitted in the said recessed body portion and provided on its outer end with an annular flange, a locking-ring mounted for rotation on the sleeve between the flange and the body portion of the female member, a male member adapted to enter said sleeve and provided with lugs which seat in notches provided therefor in the body portion of the female member, and means for securing the locking-ring in the locked position, substantially as described.

4. In a hose-coupling, a female member comprising a recessed body portion, a slotted sleeve fitted therein, a locking-ring mounted for rotation on the sleeve, a male member adapted to extend into the said sleeve, lugs carried by said male member to engage notches provided therefor in the female member, and means for securing the locking-ring in the locked position, substantially as described.

751,260. **BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES.** CARL CHRISTIANSEN, Crookston, Minn. Filed Dec. 31, 1902. Serial No. 137,328. (No model.)



Claim.—1. In a band-cutting and feeding attachment for threshing-machines, a bundle-carrier, shaking devices mounted for rotary reciprocating movement beneath the delivery end of the bundle-carrier and extending beyond the said end, the said shaking devices each comprising parallel side members having teeth in their upper edges inclined in direction of the delivery end of the attachment, the said parallel side members being connected at their rear portions by an interposed block, shields located between the shaking devices, a conveyer located beneath the said shaking devices, said conveyer being provided with teeth on its belt inclined in direction of the receiving end of the attachment, means for pivotally supporting the receiving end of the conveyer, a device for supporting the delivery end of the conveyer, and a bearing for one end of the said supporting device, the said supporting device being constructed in hinged sections so that it may be readily disengaged from its bearing, permitting the delivery end of the conveyer to drop, as set forth.

2. In a band-cutting and feeding attachment for threshing-machines, a conveyer, a bundle-carrier, and shaking devices located between the conveyer and the bundle-carrier, and arranged side by

side, the said shaking devices each comprising parallel side members having teeth in their upper edges, and an interposed block connecting the parallel side members and extending beyond one end of said side members, a cross-bar held below the projecting ends of the said blocks and provided with bearings, links carried by said bearings and pivotally connected with the projecting ends of said blocks, shields located between the shaking devices and means for actuating the shaking devices, as set forth.

3. In a band-cutting and feeding attachment, the combination with the concave and cylinder of a threshing-machine, of a conveyer pivotally mounted at its receiving end, and a support for the delivery end of the conveyer constructed in hinged sections, the upper portion of the support being attached to the frame of the conveyer and the lower portion being adapted to rest on the receiving edge of the concave, lugs on the said support at the bottom rear portion thereof, and links pivoted at their upper rear ends to the side pieces of the conveyer-frame and removably attached at their forward ends to the said lugs, whereby the said support may be folded, thus permitting the delivery end of the conveyer to drop, as described.

4. In a band-cutting and feeding attachment for threshing-machines, the combination with the cylinder and the concave of such machine, of a conveyer, a pivotal support for the receiving end of the conveyer, a feed-board constructed in hinged sections and attached to the delivery end of the conveyer, means for supporting the lower portion of the feed-board at the upper receiving edge of the concave, and braces pivotally attached to the said conveyer and detachably connected with the said feed-board, whereby the feed-board may be folded and the delivery end of the conveyer dropped to afford ready access to the cylinder, as specified.

5. The combination with the cylinder and concave of a threshing-machine, of a bundle-carrier, a band-cutter, shaking devices mounted for rotary reciprocating movement beneath the delivery end of the bundle-carrier, angular shields located between the shaking devices and each consisting of a substantially vertical member and an upper member extending beneath the rear end of the bundle-carrier, an endless conveyer located beneath the shaking devices and arranged to deliver the material to the upper portion of the cylinder, and a retarding device mounted to revolve above the cylinder, as described.

751,261. MOTOR-OPERATED HAND-TOOL. ALFRED W. CLARK, New York, N. Y. Filed Feb. 27, 1903. Serial No. 145,321. (No model.)



Claim.—1. A motor-driven hand-tool, comprising a motor, walls forming a storage-chamber for the motive fluid, said parts being in direct association with each other, and means for controlling the passage of the motive fluid to the motor.

2. A motor-driven hand-tool, comprising a shell or barrel having two chambers therein, a reducing-valve controlling communication between the chambers, a motor, and means for controlling the passage of the fluid from the low-pressure chamber to the motor.

3. A motor-driven hand-tool, comprising a shell or barrel having a pressure-storage chamber therein, a motor mounted in the shell or barrel, means for controlling the passage of the motive fluid to the motor, and an exhaust-shell inclosing the main shell or barrel and discharging at the rear end of the tool.

4. A motor-driven hand-tool, comprising walls forming a pressure-storage reservoir, a motor, means for controlling the application of the motive fluid to the motor, and a valve controlling the inlet of the motive fluid, said valve having a part projecting beyond the walls of the tool, for the purpose specified.

5. A motor-driven hand-tool, comprising a shell or barrel having a pressure-storage chamber therein, a motor in the shell or barrel, and a valve controlling the passage of the motive fluid to the motor, said valve having a stem projected through the shell to the exterior thereof, to permit the manual operation of the valve.

6. A motor-driven hand-tool, comprising a barrel having a pressure-storage chamber therein, a motor juxtaposed to said chamber and located at the front portion of the hand-tool, means for controlling the passage of the fluid to the motor, and means communicating with the motor-exhaust and constituting a passage leading rearward to discharge the exhaust at the rear end of the hand-tool.

751,262. HARROW OR CULTIVATOR TOOTH. JOHN Y. COOPER, Nashville, Tenn. Filed Nov. 5, 1903. Serial No. 179,946. (No model.)

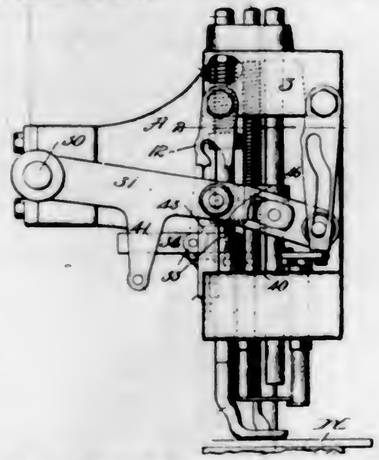


Claim.—1. A harrow-tooth rectangular in its body, and provided with spaced lugs on opposite sides thereof at a proper distance from the point of the tooth.

2. A harrow-tooth having a body rectangular in cross-section, a point at each end, and spaced lugs on opposite sides of the body between the pointed ends.

3. The combination with an angle-beam for a harrow, having spaced perforations in its upright member, of a rectangular-bodied tooth, having spaced lugs on opposite sides, and a looped clamp having threaded ends and nuts thereon, said clamp engaging the tooth-body below and in contact with one lug, and passing through the perforations in the beam, the nuts when adjusted on the clamp drawing the lower lug on the tooth against the lower horizontal surface on the angle-beam.

751,263. PRESSER-BAR-ACTUATING MECHANISM. GEORGE L. CORCORAN and GEORGE A. DOBYNE, St. Louis, Mo., assignors, by direct and mesne assignments, to Champion Shoe Machinery Company, St. Louis, Mo., a Corporation of Missouri. Filed Feb. 20, 1903. Serial No. 144,319. (No model.)



Claim.—1. In a sewing-machine, the combination with a presser-bar and its work-engaging presser-foot, of a clamp cooperating with said presser-bar, clamp-actuating means for throwing said clamp into clamping position and moving the same to elevate said presser-foot, and releasing mechanism supplementary to said clamp-actuating means for automatically throwing said clamp into releasing position while said clamp-actuating means is in position to hold said clamp in clamping position; substantially as described.

2. In a sewing-machine, the combination with a presser-bar and its work-engaging presser-foot, of a clamp cooperating with said presser-bar and including a movable clamping member, clamp-actuating means for throwing said clamp into clamping position and moving the same to elevate said presser-foot, and a releasing part supplementary to said clamp-actuating means and adapted to engage said clamping member during its said movement and thus throw the same from clamping position; substantially as described.

3. The combination with a presser-bar, of clamping members cooperating with the same, a movable element, means whereby, in the movement of said element, said clamping members are caused to clamp said presser-bar, and a releasing part supplementary to said means, said releasing part being supported directly upon and carried by said movable element and adapted in the movement of the same to engage one of said clamping members and move the latter out of clamping position; substantially as described.

4. The combination with a presser-bar, of clamping members cooperating therewith, a clamp-actuating part connected to said clamping members, a rock-arm adapted in its movement to engage and move said clamp-actuating part, whereby, in the movement of said rock-arm, said clamping members are actuated to clamp said presser-bar, and a releasing part supplementary to said clamp-actuating part, said releasing part being supported directly upon and carried by said rock-arm and adapted to engage one of said clamping members to cause the latter to release said presser-bar; substantially as described.

5. The combination with a presser-bar, of clamping members cooperating therewith, a clamp-actuating part connected to said clamping members, a rock-arm adapted in its movement to engage and move said clamp-actuating part, whereby, in the movement of said rock-arm, said clamping members are actuated to clamp said presser-bar, and a releasing part supplementary to said clamp-actuating part, said releasing part being supported directly upon and carried by said rock-arm and adapted to engage one of said clamping members to cause the latter to release said presser-bar, said rock-arm having engagement with said clamp-actuating part at a point intermediate said releasing part and the axis of oscillation of said rock-arm; substantially as described.

6. The combination with a presser-bar, of clamping members cooperating therewith, a clamp-actuating part connected to said clamping members, a rock-arm adapted in its movement to engage and move said clamp-actuating part, whereby, in the movement of said rock-arm, said clamping members are actuated to clamp said presser-bar, and a releasing-arm supplementary to said clamp-actuating part and pivotally supported directly upon said rock-arm; substantially as described.

7. The combination with a presser-bar, of clamping members cooperating therewith, a rock-arm having engagement with a part connected to said clamping members for causing them to engage said bar, and a releasing-arm pivotally supported upon said rock-arm and having its free end in engagement with said presser-bar; substantially as described.

8. The combination with a presser-bar, of a bail about said bar, a lifting-bar pivotally supported upon said bail, a clamping-block intermediate the inner end of said lifting-bar and said presser-bar, a rock-arm, a releasing device supported directly upon said rock-arm, and a part upon said rock-arm intermediate its axis of oscillation and said releasing device and adapted to engage said lifting-bar; substantially as described.

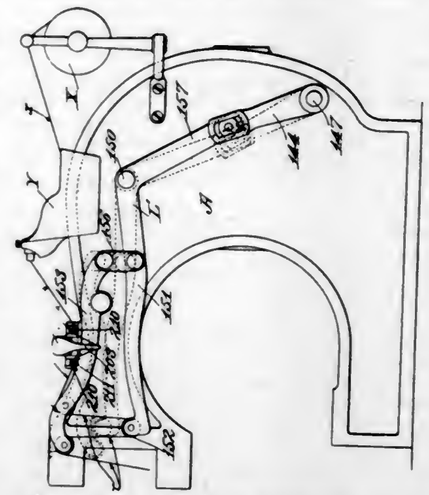
9. The combination with a presser-bar, of a bail about said bar, a lifting-bar pivotally supported upon said bail, a clamping-block intermediate the inner end of said lifting-bar and said presser-bar, a rock-arm, a releasing-arm pivotally supported directly upon said rock-arm, and a part upon said rock-arm intermediate its axis of oscillation and said releasing-arm and adapted to engage said lifting-bar; substantially as described.

10. The combination with a presser-bar, of clamping members cooperating therewith, a rock-arm having engagement with a part connected to said clamping members for causing them to engage said presser-bar, a releasing-arm pivotally supported upon said rock-arm and engaging a guide-surface, and means for holding said releasing-arm under tension against its said guide-surface; substantially as described

11. The combination with a presser-bar, of clamping members cooperating therewith, a rock-arm having engagement with a part connected to said clamping members for causing them to engage said bar, a releasing-arm pivotally supported upon said rock-arm and having its free end guided by said presser-bar, and a spring connected to said releasing-arm and said rock-arm for holding said releasing-arm against said presser-bar; substantially as described.

12. The combination with a presser-bar, of clamping members cooperating therewith, means for operating said clamping members, and a releasing member adapted to enter between said bar and a portion of one of said clamping members and to engage the latter, the engaging surface of one of said parts being inclined; substantially as described.

751,264. THREAD-MEASURING MECHANISM FOR SEWING-MACHINES. GEORGE L. CORCORAN and GEORGE A. DOBYNE, St. Louis, Mo., assignors, by direct and mesne assignments, to Champion Shoe Machinery Company, St. Louis, Mo., a Corporation of Missouri. Filed June 13, 1903. Serial No. 161,264. (No model.)



Claim.—1. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, thread-clamps upon opposite sides thereof, each of said clamps including a movable jaw, the said movable jaws being, with respect to each other, upon opposite sides of their cooperating jaws, and an actuating member connected to both of said movable jaws, whereby upon a given movement of said actuating member said movable jaws are oppositely actuated; substantially as described.

2. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, thread-clamps upon opposite sides thereof, each of said clamps including a movable jaw, and an actuating member having engagement with opposite sides of said respective jaws; substantially as described.

3. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, thread-clamps upon opposite sides thereof, each of said clamps including a movable jaw, an actuating device engaging one side of one of said movable jaws and the opposite side of the other thereof, and springs acting upon each of said movable jaws in opposition to said actuating device; substantially as described.

4. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, thread-clamps upon opposite sides thereof, each of said clamps including a movable jaw, a reciprocatory rod, and a cross-bar upon said rod and engaging opposite sides of the respective said movable jaws; substantially as described.

5. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, posts upon opposite sides thereof, a clamp-jaw upon each of said posts, a movable clamp-jaw pivoted upon each of said posts, and an actuating device engaging opposite sides of said movable clamp-jaws; substantially as described.

6. The combination with stitch-forming mechanism, of a thread-measuring mechanism including a thread-measuring device, posts upon opposite sides thereof, a clamp-jaw upon each of said posts, a lever pivoted upon each of said posts and having one of its arms cooperating with the said clamp-jaw upon said post, an actuating member engaging opposite sides of the other arms of said levers, and a spring acting upon each of said levers in opposition to said actuating device; substantially as described.

7. The combination with stitch-forming mechanism, of a thread-measuring mechanism including thread-supports, a movable thread-engaging device intermediate said supports and movable across the line of the thread between said supports, means for moving said

thread-engaging device toward and away from the thread between said supports and across the line of said thread, and an adjustable stop in the path of movement of said thread-engaging device as it moves away from said thread; substantially as described.

8. The combination with a sewing-machine including a needle, a shuttle, thread-laying devices, a shaft and mechanism for actuating said shuttle and including a clutch and a lever for throwing the same, of thread-measuring mechanism including a movable thread-engaging device and thread-holding devices, operative connection between said thread-engaging device and said lever, operative connection between said shaft and said thread-holding devices, and operative connection between said shaft and said thread-laying devices; substantially as described.

9. The combination with a sewing-machine including thread-laying devices for laying the thread about the needle, a needle, complementary stitch-forming mechanism, and a rock-shaft for actuating said thread-laying devices, of a thread-measuring mechanism including a movable thread-engaging device, and a rock-arm upon said rock-shaft and adapted to operate said thread-engaging device; substantially as described.

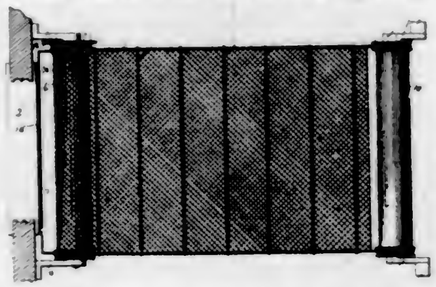
10. The combination with a sewing-machine including a shuttle, complementary stitch-forming mechanism, and shuttle-actuating mechanism including a clutch and a lever for operating the same, of a thread-measuring mechanism including thread-holding devices, and operative connection between said lever and said thread-holding devices; substantially as described.

11. The combination with a sewing-machine including a shuttle, complementary stitch-forming mechanism, and driving mechanism for said shuttle including a clutch and a lever for operating the same, of thread-measuring mechanism including thread-holding devices, an arm upon said lever, and operative connection between said arm and said thread-holding devices; substantially as described.

12. The combination with stitch-forming mechanism, of a thread-measuring mechanism including the combination with a plurality of thread-clamps, of actuating mechanism therefor, means whereby in the operation of said mechanism the thread is at all times engaged by one or the other of said clamps, and means for manually throwing said clamps into open position; substantially as described.

13. The combination with stitch-forming mechanism, of a thread-measuring mechanism including the combination with thread-clamps each of which includes a movable jaw carried by a lever, of a rock-shaft between the arms of said respective levers and adapted to be manually operated, and projections upon said rock-shaft adapted respectively to engage said respective levers; substantially as described.

751,265. CLOTHES-DRIER. CHARLES C. CROMLEY, New Britain, Conn. Filed Oct. 19, 1903. Serial No. 177,670. (No model.)

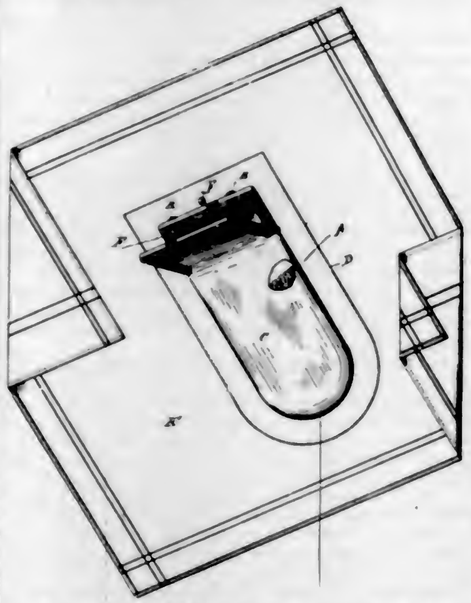


Claim.—1. In a clothes-drier, the combination with two drums, of cables running over the same, clothes-rods attached to the cables, and a wire clothes-guard also attached to the cables and extending over the clothes-rods.

2. In a clothes-drier, the combination with two drums, of grooved wheels located at the ends thereof, endless cables running over these wheels, transversely-arranged bail-like clothes-rods attached to the cables, and a wire-cloth clothes-guard attached to the cables, running over the drums and arranged to extend over the clothes-rods.

751,266. POCKET-SPITTOON. JOSEPH M. A. DEYDIER, Nyons, France. Filed May 25, 1903. Serial No. 158,748. (No model.)

Claim.—1. A handkerchief formed of suitable material, having a piece of the same material attached thereto so as to form a pocket, in combination with an india-rubber spittoon provided with an inoxidizable metallic closure, said spittoon being adapted to be normally inclosed by said pocket.



2. A handkerchief formed of suitable material having a piece of the same material attached thereto so as to form a pocket, in combination with an india-rubber spittoon provided with an inoxidizable metallic closure, and an absorbent substance partially filling said spittoon, said spittoon being adapted to be normally inclosed by said pocket.

751,267. CARPET-FASTENER. THOMPSON R. DIEHL, Allentown, Pa. Filed May 20, 1903. Serial No. 158,002. (No model.)



Claim.—1. The carpet-holding plate or arm, means for fastening the same in position, the locking arm or plate having one end adapted to bear upon the said holding arm or plate and the other adapted to bear upon the surface or surfaces to which the said holding arm or plate is secured, and means for holding the said locking arm or plate in place, substantially as set forth.

2. The carpet-holding plate or arm, fastening means for the same, the locking arm or plate having one end adapted to engage with the surface or surfaces to which the said holding arm or plate is secured and the other end pivoted to the said holding arm or plate, and means for holding the said locking arm or plate in place, substantially as set forth.

3. In a carpet-fastening device, the combination of the holding arm or plate for the carpet, the fastening device pivoted thereto, the locking arm or plate likewise pivoted to the holding arm or plate, and means for holding the locking-arm in place, substantially as set forth.

4. In a carpet-fastening device, the combination of the holding arm or plate for the carpet, the fastening device pivoted thereto, the locking arm or plate pivoted to said holding arm or plate at one end, the other end being adapted to bear upon the surface or surfaces to which the said holding arm or plate is secured, and means for holding said locking arm or plate in place, substantially as set forth.

5. In a carpet-fastening device, the combination of the holding arm or plate for the carpet, the fastening device pivoted thereto, the

locking arm or plate pivoted to the said holding arm or plate, and the thumb-screw on the said fastening device for securing said locking plate or arm in place, substantially as described.

6. In a carpet-fastening device, the combination of the carpet-holding arm or plate, the fastening device pivoted thereto, the locking arm or plate and the securing device on the fastening device for holding the said locking arm or plate in place, substantially as set forth.

7. In a carpet-fastening device, the combination of the carpet-holding arm or plate, the fastening device pivoted thereto, the locking arm or plate pivoted to the said arm or plate, and the thumb-screw in the end of the said fastening device adapted to secure the said locking arm or plate in place, substantially as described.

8. In a carpet-fastening device, the combination of the carpet-holding arm or plate, the fastening device therefor, the locking arm or plate bearing at its forward end on the said holding arm or plate and having a rear end, the under surfaces of which are disposed at an angle to each other and adapted to bear upon the surfaces to which the holding arm or plate is secured, substantially as set forth.

9. In a carpet-fastening device, a carpet-holding plate or arm having a screw pivoted thereto for fastening the said arm in position, and means for locking said arm at right angles to the screw, substantially as set forth.

10. In a carpet-holding device, the combination of a carpet-holding plate or arm, a fastening device pivoted thereto, and the plate or arm adapted to fit over the end of the said holding arm or plate to which the fastening devices is pivoted and to conceal the pivotal connection from view, substantially as set forth.

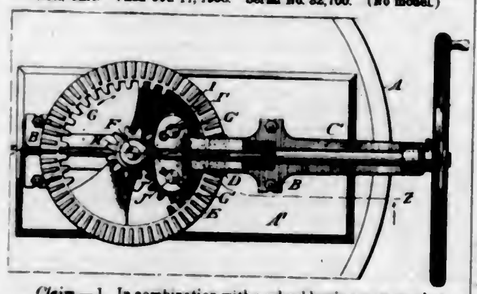
11. In a carpet-fastening device, the combination of a carpet-holding plate or arm, a fastening device therefor, and a cover adapted to inclose and conceal from view the connection between said holding plate or arm and its fastening device, substantially as set forth.

12. In a device for holding down a stair-carpet, in combination with the riser and tread of a step, a carpet-holding arm or plate having locking means adapted to bear downward upon said arm and to engage with the surfaces of the said riser and tread, substantially as set forth.

13. In a carpet-fastener, the combination of a carpet-holding arm or plate adapted to bear downward upon the carpet, a locking-arm adapted to lie above the carpet and to bear downward upon the holding-arm, means for fastening said arms to the floor, and means for positively locking said arms together, substantially as set forth.

14. In a carpet-fastener, a carpet-holding plate or arm having a fastening device pivoted thereto and means for locking said arm in working position at an angle to the fastening device, substantially as set forth.

751,268. MECHANICAL MOVEMENT. CONRAD DIETZ, Cincinnati, Ohio. Filed Oct. 11, 1900. Serial No. 32,700. (No model.)



Claim.—1. In combination with a wheel having segmental gears in different planes, an operative shaft, a driven gear on the operative shaft, and two idler-gears meshing with each other, and meshing with the respective segments in different planes and one of said transmitting-gears meshing with the driven gear.

2. In a mechanical movement, a power-driven wheel having two segmental gears in different planes, a driven gear, and two transmitting-gears meshing respectively with the segmental gears, and with each other, and one of said transmitting-gears driving the driven gear.

3. In a mechanical movement, a driving-shaft provided with a hand-wheel, a beveled gear on the opposite end of said shaft meshing with a beveled gear, said beveled gear provided with two internal segmental gears in different planes, a driven gear, two transmitting-gears meshing with each other, and the respective segmental gears, and one of said gears meshing with and driving the driven gear, whereby the driven gear is alternately revolved in opposite directions when power is applied to turn the driving-shaft continuously in one direction.

4. In a mechanical movement, a wheel having two internal segmental gears in different planes, a driven gear located concentric with said segmental gears, and two transmitting-gears, meshing with each other, and respectively with said segmental gears, and one of said transmitting-gears driving the driven gear.

5. The herein-described mechanical movement, consisting of the wheel, having the inner peripheral racks, a means for giving the said wheel a rotatable movement, the two pinions, the one meshing with the other, and adapted to separately engage the two racks, whereby a reversible rotary movement is given to one of the said pinions.

6. The combination of a driven gear, a continuously-rotated segmental gear meshing intermittingly with said driven gear to drive it in one direction and another gear intermittingly engaged by said segmental gear and meshing with the first-mentioned gear to transmit motion to drive said first-mentioned gear in the reverse direction.

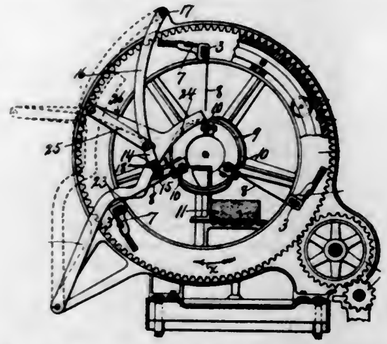
7. The combination of intermeshing gears and a segmental gear alternately engaging the said gears.

8. The combination of a wheel to be continuously revolved in either direction, a driven gear, the wheel provided with two gear-segments and means to connect the segment-wheel and driven gear to intermittingly revolve said driven gear in opposite directions.

9. The combination of a wheel to be continuously revolved in either direction, a driven gear, the wheel provided with two gear-segments, and gears alternately engaged by said segments and transmitting motion to the driven gear to intermittingly revolve it in opposite directions.

10. The combination with a wheel having a continuous toothed periphery and provided interiorly with two toothed segments, a driving-shaft, a pinion secured to said driving-shaft and engaging the toothed periphery of the wheel to rotate the latter continuously, of a driven shaft projecting into said wheel, and gearing between the segments and driven shaft and alternately propelled by said segments.

751,269. CLEANER FOR BRICK OR TILE CUTTING MACHINES. WILLIAM J. RIPP, Syracuse, N. Y. Filed June 8, 1903. Serial No. 160,585. (No model.)



Claim.—1. In a brick-cutting machine, the combination with a cutting-reel having radial cutters, of a swinging frame having a brush common to all the cutters and movable toward and from the axis of the reel along and upon the cutters to clean the same and means actuated by the reel and operatively connected to rock the brush-frame in one direction.

2. In a brick-cutting machine, the combination with a cutting-reel having radial cutting-wires disposed in substantially the same plane, of a swinging frame having a brush common to and engaged by the cutters and movable along the same and means for transmitting movement from the reel to the brush-frame.

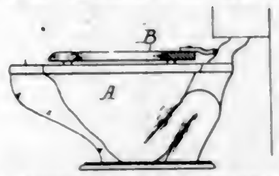
3. In a brick-cutting machine, the combination with a rotary frame and driving means therefor, of a plurality of rows of radial cutters secured to the frame, a brush supported in the path of the cutters and means actuated by the frame to move the brush along the cutters as each row is successively presented to the brush.

4. In a brick-cutting machine, a rotary frame having a plurality of rows of cutters, a swinging frame, a brush mounted on the

frame in the path of the advancing rows of cutters, and means actuated by the rotary frame and operatively connected to actuate the swinging frame in one direction to move the brush along the cutters during the movement of the rotary frame.

5. In a brick-cutting machine, a cutting-reel, in combination with a swinging frame, a brush mounted on the frame and normally disposed in the path of the cutters of the reel, a pivoted arm connected to the swinging frame, and means on the reel for engaging said arm and rocking the same upon its pivot during the rotation of the reel whereby motion is transmitted to the brush for moving the same along the cutters during the rotation of the reel.

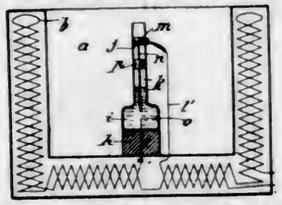
751,270. WATER-CLOSET BOWL. ARVID EK, Portland, Me. Filed Apr. 12, 1902. Renewed Oct. 19, 1903. Serial No. 177,866. (No model.)



Claim.—1. In a water-closet, the combination of a bowl having a forward projection whose mouth is in the same plane as the top of the bowl and whose body inclines inward to the lower end of the bowl and a seat extending around the periphery of the bowl and having a cut-away portion adjacent to and above the forward projection of the bowl.

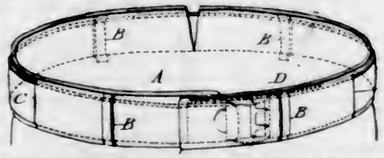
2. In a water-closet, the combination of a bowl having a flush-compartment and an inclined projection whose top is in the same plane but beyond the upper circumference of the bowl, and a seat hingedly secured to said bowl and having a cut-away portion in its forward edge adjacent to the projection of the bowl so as to present a horseshoe-shaped seat.

751,271. APPARATUS FOR HEATING AIR OR LIQUIDS TO A CONSTANT TEMPERATURE. VICTOR ELTZ, Abbazia, Austria-Hungary. Filed June 18, 1902. Serial No. 112,251. (No model.)



Claim.—In apparatus for heating air or liquids, the combination of an electric circuit, a source of electric energy connected in the circuit, a heating-coil embraced in the circuit, a column of liquid metal forming the terminal of one side of the circuit and exposed to the heat-rays, a terminal for the other side vertically thereabove, a float resting upon said column, and a contact supported by said float, normally in electric connection with said latter terminal, and constantly conductively related to the first terminal, whereby the dilation of the liquid column under the influence of excessive heat tends to break the contact with the second terminal and open the circuit.

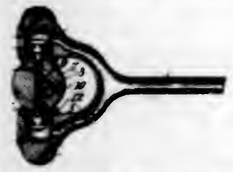
751,272. GARMENT-BELT. JULIUS EWALD, Philadelphia, Pa. Filed May 18, 1903. Serial No. 157,574. (No model.)



Claim.—1. A garment-waistband provided with belt-loops at its rear and tubular portions at each side of its front, said tubular portions opening interiorly at their front ends and exteriorly at their rear ends.

2. A garment-fastening device comprising a waistband having exterior belt-engaging means at its rear and tubular portions adjacent its front, said tubular portions opening exteriorly at their rear ends and interiorly at their front ends, and a belt adapted to engage with said exterior means, to pass through said tubular portions and to have its ends secured within said band.

751,273. PIPE-JOINT. DANIEL P. FARRNEY, GEORGE A. NEWTON, and FRANK F. SIMMONS, Springfield, Mo. Filed May 13, 1903. Serial No. 156,934. (No model.)



Claim.—1. A pipe-joint, comprising a spherical member having two ports at right angles to each other, tubular members mounted to swing on the spherical member and having branches terminating in chambers, the chambers of one tubular member connecting with the opposite ends of one of said ports while the chambers of the other tubular member communicate with the ends of the other port, nipples extending from the ports into said chambers, conical heads on the ends of the nipples within the chambers, and packing-rings movable on said heads.

2. A pipe-joint, comprising a ball member having two ports through it at right angles to each other, tubular members arranged to swing on the ball member at right angles to each other, tubular members having branches terminating in chambers, nipples providing communication between the chambers of one tubular member and one of the ball-ports, nipples providing communication between the other tubular member and the other port, and expansible packing-rings movable on portions of the nipples and extended into the chambers.

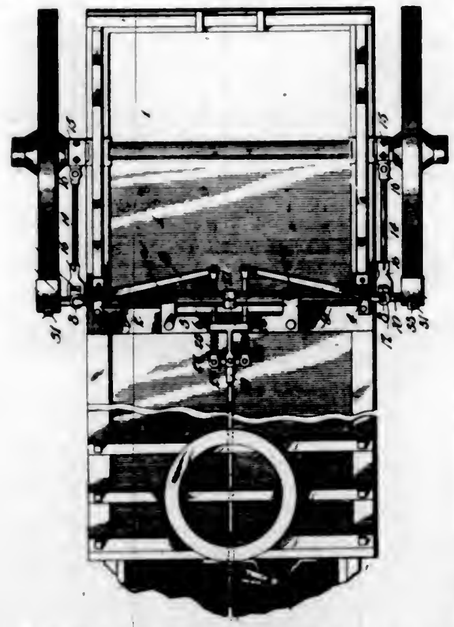
3. A pipe-joint, comprising a central tubular member having branches at its ends terminating in chambers, end tubular members having branches terminating in chambers, ball members having ports extended through them at right angles to each other, nipples extended from the chambers into the ports, washers arranged between the branches of the tubular members and the ball members, and expansible packing-rings arranged in the chambers.

4. A pipe-joint, comprising tubular members having divergent branches, the said branches terminating in chambers, a ball member having ports extended through it at right angles to each other, nipples extended from the chambers into the ports of the ball member, conical heads on said nipples within the chambers, expansible packing-rings in the chambers and engaging around said heads, means for preventing dislodgment of the rings from the heads, and removable plugs forming the outer walls of the chambers.

751,274. VEHICLE-BRAKE. JOHN FERREL, Zanesville, Ohio; John P. Reynolds administrator of said Ferrel, deceased. Filed Dec. 27, 1902. Serial No. 136,763. (No model.)

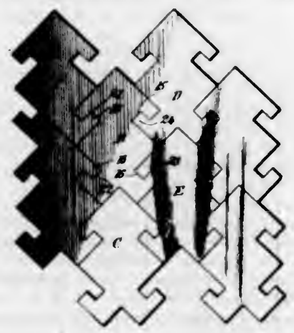
Claim.—1. In brake devices for vehicles, an equalizing device adapted to be interposed between the brakes and the power end of the brake mechanism, said device comprising a T-shaped bar having openings in its main stem and cross-bar, a socket at its end opposite the cross-bar, for connection with the power end of the brake mechanism, an equalizing-bar pivoted in the opening in the main stem of the T-shaped bar, connecting-rods pivoted at one end to the ends of the equalizing-bar and extending through the openings in the T-head and provided at their other ends with means for connection with the brake-shoes and a coiled compression-spring around each of said connecting-rods between the equalizing-bar and the said T-head, as set forth.

2. In brake devices for vehicles, an equalizing device adapted to be interposed between the brakes and the power end of the brake mechanism, said device comprising a T-shaped bar adapted to be disposed horizontally, said bar having horizontal openings in its main stem and cross-bar, a socket at its end opposite the cross-bar for connection with the power end of the brake mechanism, an equalizing-bar pivoted in the opening in the main stem of the T-shaped bar, connecting-rods pivoted at one end to the ends of the equalizing-bar and extending through the openings in the T-head and provided at their other ends with means for connection with the brake-shoes, the distance of the openings of the T-head from each other and from the main stem being the same as the distance of the pivot-points of the equalizing-bar from the main stem and from each other, whereby said T-head constitutes a central support for the connecting-rods holding them always substantially parallel with each other, and a compression-spring coiled around each of said connecting rods between the equalizing-bar and the T-head, whereby said T-head constitutes a point of purchase against which said springs act as set forth.



3. In vehicle-brakes the combination with brake-shoes of a draw-bar and mechanism connecting it with said shoes, of a rock-shaft, an upper and a lower arm both extending in the same direction from said shaft, the lower arm at its outer end engaging said draw-bar, a journal on the upper end of said rock-shaft, a bearing secured underneath the footboard of the wagon-body into which bearing said journal is received, a bracket near the lower end of said shaft and above the lower arm thereof, in which bracket the lower end of said shaft has bearing, said bracket having one end extended in the direction of said arms and about equidistant therewith, an integral standard projecting outwardly from said extended end of the bracket, said standard being forked at its outer end, a power-lever pivoted at its lower end in said forked projection and extending upwardly past said upper arm, and a link connecting said lever with said upper arm, whereby to operate said brake mechanism through said lever substantially as specified and for the purpose set forth.

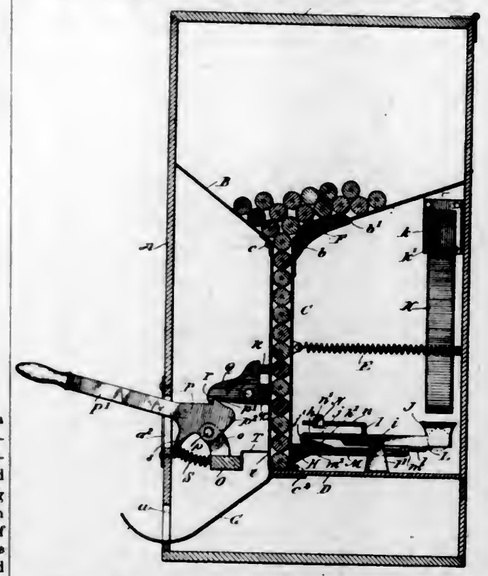
751,275. TILE. STANLEY B. FLINT, New York, N. Y. Filed May 1, 1903. Serial No. 155,137. (No model.)



Claim.—1. A tile of the class described, having at one end a projection bounded by inclined edges and at its other end a recess of corresponding form to the projection and also bounded by inclined edges; each side edge of the tile having two hooking-arms which are similarly and oppositely inclined, said arms being spaced relatively to the body of the tile to produce two oppositely-inclined recesses which are separated by an intervening projection.

2. A tile covering for floors and other surfaces, comprising a number of complemental tiles each having projections at two sides and one end thereof, each tile also having a recess at one end and two oppositely and similarly inclined side hooking-arms which are arranged relatively to the intervening side projection to produce oppositely-inclined recesses; said projections and hooking-arms of each tile fitting into the side and end recesses of edgewise abutting tiles to secure interlocking engagement of all the tiles for resisting compressive or pulling strains in any direction edgewise of said tiles.

751,276. VENDING-MACHINE. WILLIAM FORSYTHE, Tama, Iowa. Filed Apr. 11, 1903. Serial No. 152,121. (No model.)



Claim.—1. A vending-machine having a magazine, a carrier tube or chute in communication with said magazine, a locking mechanism for normally holding said carrier tube or chute from movement, means for closing said chute in the normal locked position thereof, and means for positively moving said carrier tube or chute when free from the restraint of said locking mechanism, said tube or chute being movable relative to the magazine and the closing means therefor.

2. A vending-machine having a magazine, a carrier tube or chute hinged to and depending from said magazine, a locking mechanism for said carrier tube or chute, means for closing the lower portion of said chute in the normal locked position thereof, means for operating said carrier-tube, and means for returning said carrier-tube to normal position, said chute being movable by the operating means relative to the closing means for opening an article-delivery passage through the chute.

3. A vending-machine having a magazine, a carrier tube or chute hinged thereto, an agitator device controllable by said carrier tube or chute and operable in said magazine, a locking mechanism for said tube or chute, and manually-operable means for moving the chute on the release of the locking mechanism.

4. A vending-machine having a magazine provided in its bottom with a slot, a movable carrier tube or chute normally communicating with said magazine, an agitator-plate movable with said carrier tube or chute and projecting through the slot in said magazine, a locking mechanism for said tube or chute, and manually-operable means for moving the chute on the release of the locking mechanism.

5. A vending-machine having a movable carrier-tube, a locking mechanism therefor, an operating-lever, and a latch carried by

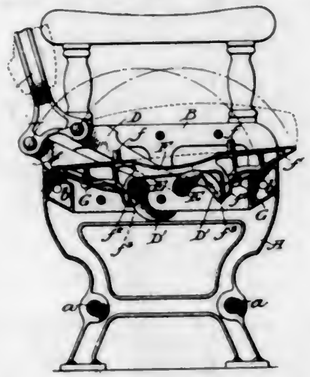
said carrier-tube and arranged for interlocking engagement with said lever.

6. A vending-machine having a movable carrier tube or chute, a locking mechanism therefor, a spring-actuated latch mounted on said carrier-chute, and a lever having a shouldered cam-shaped head in operative relation to said latch.

7. In a vending-machine, the combination with a magazine, of a movable chute, an operating-lever therefor, and a latch carried by the chute, said latch and lever having mutual interlocking relation in the normal position of the chute and adapted to be separated on the movement of the chute to its delivery position.

8. In a vending-machine, the combination with a magazine, of a movable chute, an operating-lever therefor, and a yieldable latch carried by the chute and normally interlocking with the lever, said latch and the lever being separable on the movement of the chute to its delivery position and the latch being yieldable to the return of the lever to its normal position.

751,277. **CAR-SEAT.** CHARLES W. H. FREDERICK, Melrose, Mass. Filed Apr. 21, 1903. Serial No. 153,596. (No model.)



Claim.—1. In a car-seat, the combination with side frames, a back and mechanism for supporting and reversing the same, of a pair of rockers, a cushion detachably carried thereby, and flanges carried by said rockers and coacting with lugs carried by said side frames for precluding upward and outward displacement of said rockers, substantially as set forth.

2. In a car-seat, the combination with side frames, of a reversible back, twin links pivoted thereto and to said side frames, a pair of rockers, mechanism intermediate of said twin links and said rockers for operating the latter, a removable cushion, and means carried by said side frames for preventing upward and outward displacement of said rockers, substantially as set forth.

3. In a car-seat, the combination with side frames, of a reversible back, a pair of rockers, a cushion supported thereby, mechanism intermediate of said rockers and said back for effecting the movement of the former by the reversal of the latter, and means carried by said side frames for guiding the rockers and guarding against upward displacement thereof, said means acting also as a stop for the seat-back in either of its operative positions, substantially as set forth.

4. In a car-seat, the combination with side frames, of a reversible back, a pair of rockers and a cushion sustained thereby, means carried by said side frames for guiding said rockers and preventing upward displacement thereof, and movement of said rockers from each other, and lugs carried by said rockers and coacting with the reversing mechanism for guarding against movement of said rockers toward each other.

5. In a car-seat, the combination with side frames, of a back, mechanism for supporting and reversing the same, a pair of rockers and a cushion detachably supported thereby, flanges on said rockers, lugs on said side frames for guiding said rockers and preventing upward and outward displacement thereof, depending ears on said rockers, and lugs carried thereby cooperating with the reversing mechanism to preclude displacement of said rockers toward each other, substantially as set forth.

6. In a car-seat, the combination with a back and mechanism for supporting and reversing the same, of a cushion and a pair of rockers for supporting the same, said rockers being locked when said back is in operative position but removable when said back is in inoperative position, substantially as set forth.

7. In a car-seat, the combination with a back and mechanism for supporting and reversing the same, of a cushion, a pair of suitably-mounted rockers for supporting the same, and means for guarding against accidental displacement thereof, said rockers being locked when said back is in either of its two operative positions but removable when said back is in an intermediate position, substantially as set forth.

8. In a car-seat, the combination with end frames, of sills extending between the same, a back and mechanism for supporting and reversing the same, rockers mounted on said sills and provided with flanges coacting with lugs carried by said frames, a cushion carried by said rockers, and cams operated by the back-reversing mechanism and coacting with said rockers to lock the same when said back is in either of its two operative positions and to release said rockers and permit their removal when said back is in inoperative position, substantially as set forth.

751,278. **VEHICLE-AXLE.** WILBERT T. GASTON, Hackberry, Okla. Filed Apr. 28, 1903. Serial No. 154,681. (No model.)



Claim.—1. A device of the class described comprising an axle having threads, a thimble threaded to receive the axle, a sleeve detachably interlocked with the thimble at one end and with the axle at the other end, whereby the former is held against rotation on the latter, and means for detachably connecting the thimble and the sleeve, substantially as described.

2. A device of the class described comprising an axle provided with screw-threads, an interiorly-threaded thimble arranged on the axle, said axle and thimble being provided with contiguous polygonal portions, and a sleeve conforming to the configuration of the polygonal portions of the spindle and the axle and holding the former against rotation on the latter, substantially as described.

3. A device of the class described comprising an axle having screw-threads, a thimble interiorly threaded to receive the axle and provided with exterior screw-threads, a sleeve interlocked with the axle and the thimble to hold the latter against rotation on the former, and a collar engaging the sleeve and the screw-threads of the thimble, substantially as described.

4. A device of the class described comprising an axle provided with screw-threads and having a polygonal portion, a skein having a corresponding polygonal portion and provided with interior and exterior screw-threads and engaging those of the axle, a sleeve having a polygonal opening to receive the polygonal portions of the axle and the skein, said sleeve having an annular exterior, and a collar provided with an annular opening to receive the sleeve and interiorly threaded to engage the exterior threads of the thimble, substantially as described.

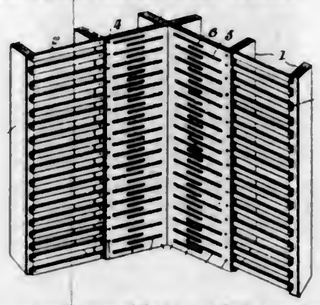
5. A device of the class described comprising an axle having a reduced threaded portion, a thimble arranged on the threaded portion of the axle and provided with an exterior annular flange having screw-threads, a sleeve interlocked with the axle and the thimble and having an annular exterior and provided with a shoulder, and a collar engaging the shoulder of the sleeve and provided with screw-threads engaging those of the flange of the thimble, substantially as described.

6. A device of the class described comprising an axle having inner and outer screw-threads, a thimble having inner and outer threads to engage those of the axle and terminating short of the end thereof, said thimble being provided at its inner end with a polygonal portion and having an exteriorly-threaded flange, a sleeve engaging the axle and the polygonal portion of the thimble, and a collar arranged on and engaging the sleeve and interiorly threaded to receive the flange of the thimble, substantially as described.

7. In a device of the class described, the combination with an axle, and an axle-clip, of a sleeve arranged on the axle and engaged by the axle-clip, a thimble receiving the axle, and means for securing the thimble to the sleeve, substantially as described.

8. In a device of the class described, the combination with an axle, and an axle-clip, of a sleeve provided with an extension interposed between the axle-clip and the axle and engaged by the former and provided at the inner side of the same with a projecting shoulder, whereby it is interlocked with the clip, a thimble arranged on the axle, and means for securing the thimble and the sleeve together, substantially as described.

751,279. **ANGLE-STRIP.** LEE GIDLEY, Morgantown, W. Va. Filed Nov. 14, 1903. Serial No. 181,160. (No model.)

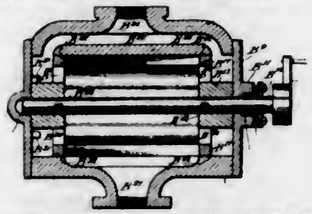


Claim.—An angle-strip of the type set forth consisting of a strip of metal bent to form two walls or plates extending at angles to each other, each of said walls being provided with slots bearing a staggered relation to each other whereby the central portions of said walls or plates are slotted to a greater degree than the portions lying on opposite sides thereof, the outer edges of said plates being formed with perforations adapted to receive suitable securing means.

751,280. **AGGLOMERATING COMPOUND FOR AGGLOMERATING PULVERULENT MATERIALS.** CALOGERO GIGLIO and BACHIR ZAOUCHE, Paris, France. Filed July 7, 1903. Serial No. 164,553. (No specimens.)

Claim.—An agglomerating compound for the agglomeration of all pulverulent material, consisting of the following ingredients mixed together in adequate proportions: torrefied potato fecula, common gas-pitch, acetic acid, tallow, common glue and Turkish glue.

751,281. **ROTARY VALVE.** RANDOLPH GILLETTE, Littlefalls, Minn., assignor of one-half to Spirit J. Vasaly, Littlefalls, Minn. Filed Oct. 29, 1902. Serial No. 129,235. (No model.)

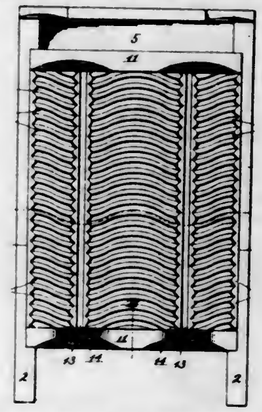


Claim.—1. In a steam-feed rotary valve, the combination of a casing provided with ports, a plug revolubly mounted within said casing and likewise provided with ports, said plug consisting of a revoluble central member provided with webs, a plug-cylinder mounted upon said central member and engaging the edges of said webs, and a plurality of pins extending entirely through said webs and said central member, the ends of said pins engaging said plug-cylinder.

2. In a steam-feed rotary valve, the combination of a casing provided with ports, a plug revolubly mounted within said casing and likewise provided with ports, said plug consisting of a revoluble central member provided with webs integral therewith, a hollow cylinder encircling said revolubie member and loosely engaging said webs, said cylinder and said webs being provided with holes registering with each other, and pins passing diametrically through said webs and said central member, and engaging said hollow cylinder.

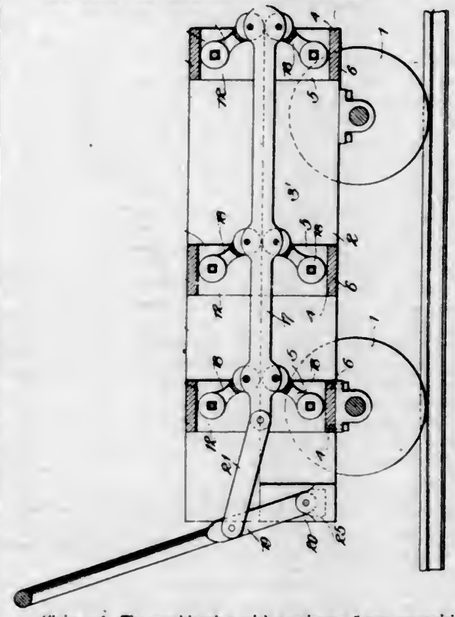
751,282. **WASHBOARD.** WILLIAM H. GLADWILL, Kansas City, Mo. Filed Feb. 17, 1903. Serial No. 143,783. (No model.)

Claim.—1. A washboard provided with a frame having two longitudinal side pieces and a back piece, a suitable covering secured to the frame and provided at its rubbing-surface with a pair of deep longitudinal grooves the bottom portions of which almost touch the back plate, while their upper portions are in a horizontal plane with the front edges of the longitudinal side pieces, said grooves being provided at their lower portions with longitudinal channels having continuous straight sides and continuous straight bottom portions, the rubbing-surface of the covering being also provided with a series of flutes which are sinuous in front elevation and slope toward the longitudinal channels whereby they are drained.



2. A washboard comprising two longitudinal side pieces, top and bottom pieces, a back piece connecting all of said pieces, a central longitudinal strip and two triangular side strips secured to the back piece, the surfaces of said strips being composed of reverse curves forming longitudinal grooves, a metal plate covering said strips, a flange depending from said plate whereby the latter is secured to the frame of the washboard, sinuous flutes arranged in the metallic plate, and longitudinal channels arranged to drain said flutes, substantially as described.

751,283. **BRICK-TRUCK.** WILLIAM L. HARBIN, Lexington, N. C. Filed July 6, 1903. Serial No. 164,459. (No model.)

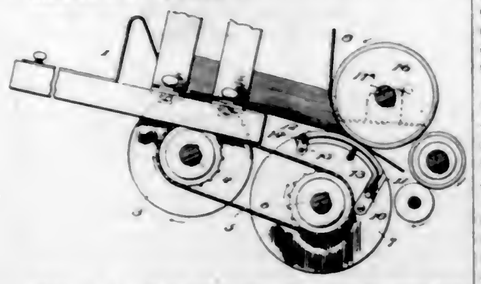


Claim.—1. The combination with a primary frame comprising a plurality of substantially U-shaped castings each having its vertical arms provided with a pair of vertically-spaced horizontal flanges and side beams or boards seated between said flanges and sustained by the castings, of a secondary vertically-movable frame comprising

a plurality of substantially U-shaped castings each having its vertical arms provided with a pair of vertically-spaced horizontal flanges and side beams or boards seated between said flanges and sustained by the castings, means for raising and lowering the secondary frame, and means for guiding said frame in its movements.

2. The combination with a primary frame comprising a plurality of substantially U-shaped castings each having its vertical arms provided with a pair of vertically-spaced horizontal flanges and side beams or boards seated between said flanges and sustained by the castings, of a secondary vertically-movable frame comprising a plurality of substantially U-shaped castings each having its vertical arms provided with a pair of vertically-spaced horizontal flanges and side beams or boards seated between said flanges and sustained by the castings, a longitudinally-reciprocatory member, upper and lower links pivotally connected at their inner ends with the member and at their outer ends respectively with the frames, means for reciprocating the member to raise and lower the secondary frame, and means for guiding said frame in its movements.

751,284. FEEDER FOR PRINTING OR OTHER MACHINES. CHARLES G. HARRIS, Niles, Ohio, assignor to the Harris Automatic Press Company, Niles, Ohio, a Corporation of Ohio. Filed Oct. 18, 1902. Serial No. 127,872. (No model.)



Claim.—1. In a feeder for printing and other machines feed-rolls having each a rubber section, means for causing such sections to normally occupy tangential positions relative to the rolls, and means for guiding and limiting the outward movements of such sections, as set forth.

2. In a feeder for printing and other machines, rotary feed-rolls having each a segment of its periphery pivotally secured thereto at one end, means for normally holding such segments tangentially to the rolls, means for guiding and limiting the outward movements of such sections, and rubber coverings for the latter, as set forth.

3. In a feeder for printing and other machines, rotary feed-rolls having each a cut-out in its periphery, segmental plates located in such cut-outs, each plate being pivoted at one end and having a rubber covering, springs tending to hold such plates tangentially to the rolls, and stops for limiting the outward movements of such plates, as set forth.

4. In a feeder for printing and other machines, a gate composed of an upper stationary member having a curved rubber-covered edge, and a gate-block having a correspondingly curved smooth edge, such block being movable in the direction of the passage of the stock.

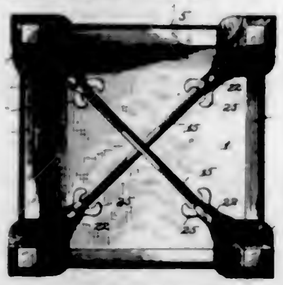
5. In a feeder for printing and other machines, a gate composed of an upper member having a curved rubber-covered edge, and a gate-block consisting of a metallic roll designed to rotate in the direction of travel of the stock, as set forth.

6. In a feeder for printing and other machines, a gate composed of an upper stationary member in the form of a roll having a rubber periphery, and a rotary metallic roll forming the gate-block, as set forth.

7. The combination with the main feeder-shaft and the feed-rolls, of the gate having an upper stationary member provided with a curved edge, and a gate-block consisting of a metallic roll mounted on such shaft intermediate said feed-rolls, said feed-rolls having each a rubber section on its periphery, as set forth.

8. The combination with the main feeder-shaft and the feed-rolls, of the gate having an upper stationary member provided with a curved edge, and a gate-block consisting of a metallic roll mounted on such shaft intermediate said feed-rolls, said feed-rolls having each a rubber section pivotally secured thereto at one end and normally extended tangentially to the rolls, and means for limiting the movements of such sections, as set forth.

751,285. TABLE. JOHN HERSOG, Saginaw, Mich. Filed Mar. 23, 1903. Serial No. 149,117. (No model.)



Claim.—1. In a table, the combination with the top, of rails having their inner faces adapted to engage the edges of the same, clamping-blocks seated within the meeting ends of the rails, and clamping-rods mounted in and extending between the blocks of opposite joints.

2. In a table, the combination with the top, of rails adapted to engage the edges of the same and provided in their ends with sockets having outwardly-flared walls, clamping-blocks fitted in said sockets and forming a connection between the adjoining rails, and clamping-rods extending between said blocks and adapted to draw the same and the rails against the top.

3. In a table, the combination with the top, of rails adapted to engage the edges of the top, clamping-blocks seated within the ends of said rails and provided with horizontal shoulders on their outer sides, nuts held by and between said shoulders, and clamping-rods extending between the clamping-blocks, passing through the same and engaging said nuts.

4. In a table, the combination with the top, of side rails having their upper portions adapted to engage the edge of the top and provided with flared sockets in their ends, clamping-blocks having wings engaging the sockets in the meeting ends of adjacent rails, and clamping-rods mounted in and extending through the said blocks whereby when the rods are turned the rails will be drawn together and against the top.

5. In a table, the combination with the top, of rails having their inner faces adapted to engage the edges of the top, clamping-blocks seated within and entirely inclosed by the meeting ends of the rails, and connections between the opposite blocks to hold the rails against the top.

6. In a table, the combination with the rails, and clamping-blocks fitted therein provided with leg-supporting projections on their inner sides, of legs fitted over said projections and against the rails, clamping-rods exteoding between said clamping-blocks and passing through the legs, and clamps mounted on said rods and adapted to bind the legs against the clamping-blocks in the rails.

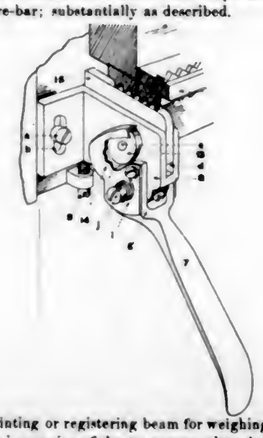
7. In a table, the combination with the rails, and clamping-blocks fitted therein provided with leg-supporting projections on their inner sides, of legs fitted against the rails and having horizontal notches engaging the said projections, rods fitted in and extending between said clamping-blocks and passing through the legs, and clamps mounted on said rods and bearing against the legs.

8. In a table, the combination with the top, the rails engaging and adapted to bind against the edges of the same, the legs fitted against the inner faces of the rails and provided with external shoulders supporting the rails, clamping-blocks fitted in the rails and engaging and supporting the legs, rods extending between said clamping-blocks and through the legs, and clamps fitted on said rods and bearing against the legs.

9. In a table, the combination of the rails, clamping-blocks seated in the meeting ends of adjoining rails and forming a connection between the same, and means between the opposite blocks for drawing the same toward the center of the table.

751,286. REGISTERING DEVICE FOR PRINTING-BEAMS. CHARLES A. HEYER, St. Johnsbury, Vt., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt., a Corporation of Vermont. Filed Apr. 18, 1903. Serial No. 153,242. (No model.)

Claim.—1. In a printing or registering beam for weighing-scales, means for causing the impression of the type-numerals to be printed on the ticket, comprising a suitable holder, a pressure-bar having a vertically-sliding pivot connection with the holder, a cam-lever for raising said pressure-bar vertically and intermediate antifriction devices interposed between the cam-lever and the pressure-bar, carried by said pressure-bar; substantially as described.



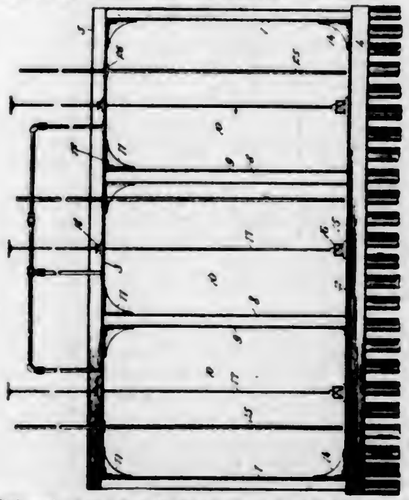
2. In a printing or registering beam for weighing-scales, means for causing the impression of the type-numerals to be printed on the ticket, comprising a suitable holder, a pressure-bar having a vertically-sliding pivot connection with the holder, antifriction-rollers carried by said pivot and a cam-lever in operative engagement with the antifriction-rollers; substantially as described.

3. In a device of the character described, a pivoted vertically-movable pressure-bar, antifriction-rollers carried thereby, cam-lever for engaging said antifriction-rollers to move the pressure-bar vertically and devices carried by the cam-lever and engaging the rollers for holding them in engagement with the operating means; substantially as described.

4. In a device of the character described a suitable holder having vertical slots therein, a pressure-bar having a shaft or pin guided in said slots, antifriction-rollers on said shaft or pin, a lever having cams engaging said rollers; substantially as described.

5. In a device of the character described, a suitable holder provided with vertical slots therein, a pressure-bar having a shaft or pin engaging said slots, antifriction rollers on said pin, a lever having cams engaging said rollers and caps secured to the lever and engaging the antifriction-rollers; substantially as described.

751,287. TUNNEL CONSTRUCTION. JESSE L. HOLMES, Butte, Mont. Filed Aug. 11, 1903. Serial No. 169,130. (No model.)



Claim.—1. A structure for forming tunnels comprising side, top and bottom walls of metal formed in sections, partitions extended lengthwise of the sections, partitions extended transversely of the sections thus forming water-tight compartments, means for controlling the admission of water to the compartments, and means for discharging water therefrom.

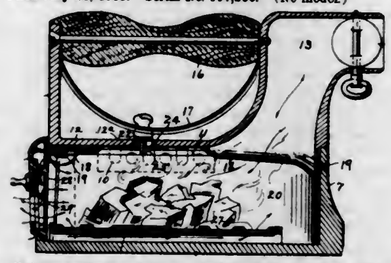
2. A structure for forming tunnels comprising metal side walls, a metal top wall and a metal bottom wall, angle beams or irons extended around the outer sides of said walls, partitions dividing the tunnel-sections into compartments, the bottom wall having an opening leading into each compartment, valves for the openings, valve-rods extended from said valves through the top wall of the tunnel-sections, water-discharge pipes, and an air-pressure pipe communicating with the compartments.

3. A structure for forming tunnels comprising top and bottom walls and side walls of sheet metal, uprights or posts arranged in the tunnel, I-beams on which the bottom wall rests, I-beams extended across the top of the structure, posts connecting the lower and upper I-beams, bracket connections between the uprights and upper wall of the tunnel, longitudinal partitions in the tunnel, transverse partitions in the tunnel thus forming water-tight compartments, each compartment having an inlet for water, valves for the inlets, an outlet-pipe leading from each compartment, a main air-pipe, and valved branches leading from said main pipe into the several compartments.

4. A structure for forming tunnels comprising top and bottom walls and side walls of sheet metal, I-beams on which the tunnel rests, spiles on which the said I-beams rest, partitions in the tunnel dividing the same into a plurality of water-tight compartments, each compartment having an inlet for water, valves for controlling the inlets, discharge-pipes leading from a point near the bottom of each compartment and through the top wall, and means for conducting air into the compartments.

5. A structure for forming tunnels comprising sheet-metal sections joined together, means for admitting water to the sections for sinking the same, water-discharge pipes leading upward from the lower portions of the sections and air-pressure pipes leading into the tops of the sections.

751,288. SAD-IRON. WILLIAM E. HOYT, New York, N. Y. Filed July 28, 1903. Serial No. 167,260. (No model.)



Claim.—1. In a sad-iron, a hollow body having side openings for the admission of air, a lining inside of the hollow body, a top covering the hollow body, damper-plates opposite the side openings and between the walls of the body and the lining, a cross-bar resting upon the lining and connecting the damper-plates and a lever outside of the iron pivoted to the top thereof at one end and connected by a rivet between the ends of the lever with said cross-bar, said rivet extending through a slot in the top of the iron.

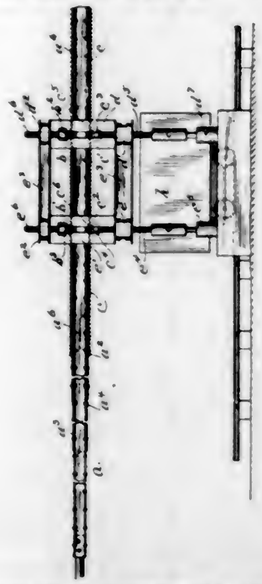
2. A hollow sad-iron in which charcoal is burned to heat it and a false bottom for said iron having a middle air-passage extending nearly the entire inside length of the iron and also having two much-shorter air-passages, one on each side of said middle one, all of said passages having top and end openings into the fire-box of the iron.

3. An end gate or door for sad-irons having a hollow interior to form an air-distributing chamber, the outside wall of said hollow interior having openings and said outside wall having an adjustable damper-plate to regulate the passage of air through said openings, said door having a plurality of holes through the inside wall of said hollow interior, said holes being uniformly distributed over all portions of said interior wall and a spring-bar having its ends seated under the inside plate in indents in the sides of the door and having its middle portion bent over and contacting with the damper-plate so as to hold it by friction against accidental displacement.

751,289. TUNNEL-BAR. GEORGE W. JACKSON, Chicago, Ill. Filed Mar. 30, 1901. Serial No. 53,688. (No model.)

Claim.—1. In a tunneling device, the combination with a frame, of a tunnel-bar, four independently-adjustable supports for said bar mounted on said frame, said supports controlling the angle of the incline of said bar, and supports for holding the frame in position, substantially as described.

2. In a tunneling device, the combination with a tunnel-bar having racks upon its upper and lower edges, of a frame, means carried by said frame upon which said bar is fulcrumed, a pinion adjustably mounted in said frame to engage upon the upper edge of said bar a second pinion adjustably mounted in said frame to engage the lower edge of said bar, and means for supporting said bar in the rear of said pinions, substantially as described.



3. In a tunneling device, the combination of a tunnel-bar having racks upon its upper and lower edges, a frame, two sets of pinions adjustably mounted in said frame in position to engage the rack upon the upper edge of said bar at different points thereon, and two pinions adjustably mounted in said frame in position to engage the lower edge of said bar at different points thereon, substantially as described.

4. In a tunneling device, the combination of a tunnel-bar having racks upon its upper and lower edges, a frame, two pinions mounted in said frame in position to engage the rack upon the upper edge of said bar at different points thereon, two pinions mounted in said frame in position to engage the lower edge of said bar at different points thereon, and means for separately adjusting said pinions, substantially as described.

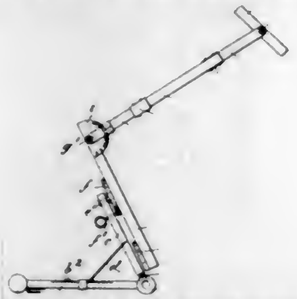
5. In a tunneling device, the combination of a frame, having cross-beams of sufficient length to span a track for a mine-car, jacks near the ends of said beams for independently adjusting the same in a vertical direction, said jacks being located at a sufficient distance apart to receive a mine-car therebetween, means cooperating with said jacks for securing said frame in the tunnel, a tunnel-bar, and a rack-and-pinion device for controlling said tunnel-bar, substantially as described.

6. In a tunneling device, the combination of a frame, having cross-beams of sufficient length to span a track for a mine-car, jacks near the ends of said beams for independently adjusting the same in a vertical direction, said jacks being located at a sufficient distance apart to receive a mine-car therebetween, means cooperating with said jacks for securing said frame in the tunnel, a tunnel-bar, racks upon the upper and lower edges of said bar, and a set of not less than four independently-adjustable pinions mounted in said frame and cooperating with said rack for controlling the position of said tunnel-bar, substantially as described.

7. In a tunneling device, the combination with a frame, of a tunnel-bar, four independently-adjustable supports which engage the upper and lower edges thereof mounted in said frame, means for clamping said bar between said supports whereby said tunnel-bar may be radially and rectilineally adjusted, and supports for holding said frame in position, substantially as described.

751,290. MIRROR. FERDINAND JAEGER, New York, N. Y. Filed June 26, 1903. Serial No. 163,181. (No model.)

Claim.—1. A mirror composed of a stand, a main reflector pivoted thereto, a pair of arms pivoted to the main reflector, and an auxiliary reflector pivoted to the arms, substantially as specified.

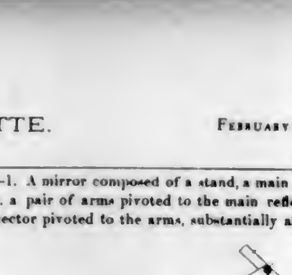


2. A mirror composed of a stand, a main reflector pivoted thereto, means for locking the main reflector in position, a pair of extensible arms pivoted to the main reflector, means for locking said arms in position, and an auxiliary reflector pivoted to the arms, substantially as specified.

3. A mirror composed of a notched base, a post pivoted thereto, a brace on the post adapted to engage the notches, a main reflector pivoted to the post, means for locking the main reflector in position, a pair of extensible arms pivoted to the main reflector, means for locking said arms in position, and an auxiliary reflector pivoted to the arms, substantially as specified.

4. A mirror composed of a base, a pivoted post, means for locking the post in position, a main reflector pivoted to the post, a perforated disk and pin for locking the main reflector in position, a pair of extensible arms pivoted to the main reflector, notched segments and slides for locking said arms in position, and an auxiliary reflector pivoted to the arms, substantially as specified.

751,291. MIRROR. FERDINAND JAEGER, New York, N. Y. Filed June 4, 1903. Serial No. 159,999. (No model.)



Claim.—1. A mirror composed of a post, a shaft carried thereby, a main reflector pivotally connected to the shaft, a bar rotatable upon the shaft, an arm secured to the bar, and an auxiliary reflector connected to the arm, substantially as specified.

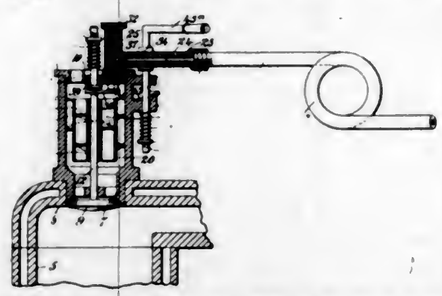
2. A mirror composed of a post, a shaft carried thereby, a main reflector pivotally connected to the shaft, a slotted bar rotatable upon the shaft, a notched disk mounted upon the shaft, a catch on the bar adapted to engage said disk, an arm secured to the bar, and an auxiliary reflector connected to the arm, substantially as specified.

3. A mirror composed of a notched segment, a forked post pivoted thereto, a catch on the post adapted to engage the segment, a shaft carried by the post, a main reflector pivotally connected to the shaft, a bar rotatable upon the shaft, an arm secured to the bar, and an auxiliary reflector connected to the arm, substantially as specified.

4. A mirror composed of a pivoted post, means for locking the post in position, a shaft carried by the post, a bar rotatable upon the shaft, means for locking the bar to the shaft, an arm secured to the bar, a main reflector connected to the shaft, and an auxiliary reflector connected to the arm, substantially as specified.

5. A mirror composed of a post, a U-shaped shaft carried thereby, a main reflector pivotally connected to the shaft, a bar rotatable upon the shaft, means for locking the bar in position, an arm removably secured to the bar, an auxiliary reflector connected to the arm, and means for securing the auxiliary reflector to the main reflector, substantially as specified.

751,292. MIXER FOR GASOLENE-ENGINES. JOHAN M. JOHANSON, Cambridge, Mass. Filed Mar. 7, 1903. Serial No. 146,604. (No model.)



Claim.—1. A carbureter having a casing, a plurality of spiral baffles therein, and means for separating the baffles and producing a plurality of spiral passages in the casing, said spiral baffles terminating above the separating means and forming a chamber in the casing, with which chamber communicate said spiral passages.

2. A carbureter having a casing, concentric bodies therein, and spiral baffles disposed relatively to the casing and the concentric bodies therein and forming a plurality of spiral passages arranged one within the other.

3. A carbureter of the class described, having a casing provided with an air-inlet, spiral passages disposed one within the other and oppositely threaded, and means for admitting hydrocarbon to the respective passages.

4. A carbureter of the class described, having a casing provided with an air-inlet, helical baffles disposed within said casing and one within the other to form independent spiral passages therein, and means for admitting hydrocarbon to said casing.

5. A carbureter of the class described, having a casing provided with an air-inlet, helical baffles threaded oppositely and disposed within said casing to form independent spiral passages therein, and means for admitting hydrocarbon to the respective spiral passages.

6. A carbureter of the class described, having a casing, a tubular body therein, helical baffles within the casing and the tubular body, said baffles being separated one from the other and forming independent spiral passages within said casing, and means for admitting hydrocarbon to the respective passages.

7. A carbureter of the class described, having a casing provided with an air-inlet, spiral baffles threaded oppositely to each other and provided with tubular bodies, said baffles being disposed within the casing to form spiral passages therein, and the baffles being separated one from the other by the tubular bodies thereof, and means for admitting hydrocarbon to the respective spiral passages.

8. A carbureter of the class described, having a casing provided with an air-inlet, a spiral baffler having a tubular body, another spiral baffler within said tubular body, and means for admitting hydrocarbon to the casing and to the tubular body, said spiral baffles terminating above the lower end of said tubular body, for the purpose described, substantially as set forth.

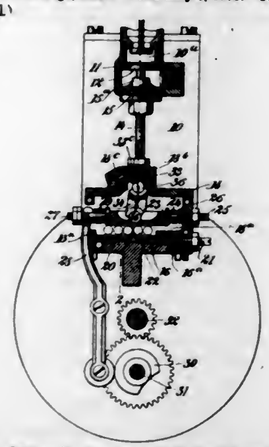
9. In a carbureter, the combination with a carbureter-casing, and an intake-valve, of a valve-casing fitted loosely to said carbureter-casing, a fuel-valve supported by the valve-casing and controllable by the intake-valve, an adjusting-spindle having pivotal connection with the valve-casing, a spring acting on the spindle for moving the valve-casing normally toward the carbureter-casing, and means for locking the spindle to maintain the valve-casing in predetermined variable positions relative to the carbureter-casing.

10. In a carbureter, the combination with a carbureter-casing, and an intake-valve, of a valve-casing fitted to said carbureter-casing, a fuel-valve mounted in the valve-casing and controllable by the intake-valve, stepped bearings on the carbureter-casing, a spindle connected to the valve-casing and having a finger adapted to engage either of the stepped bearings, and a spring acting on the spindle.

11. In a carbureter of the class described, the combination of a casing, a series of step-shaped shoulders thereon, a spring-controlled spindle having a finger arranged to rest on one of the shoulders of the series, a valve-casing connected with said spindle and fitted to the carbureter-casing, an intake-valve having a stem, and a fuel-valve fitted to the valve-casing and provided with means adapted to be controlled partly by the travel of the intake-valve.

12. In a carbureter of the class described, the combination with a carbureter-casing having separate spiral passages, of a valve-casing provided with independent fuel-ducts and with an air-chamber in communication with said fuel-passages, a cap for closing the air-chamber, and a fuel-valve having a spring-controlled stem fitted to the valve-casing and arranged to close the fuel-ducts therein.

751,293. VALVE-GEAR FOR EXPLOSIVE-ENGINES. JOHAN M. JOHANSON, Cambridge, Mass. Filed May 8, 1903. Serial No. 156,176. (No model.)



Claim.—1. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the valve and slide, said connection including a link pivoted at its ends, and means for actuating the slide.

2. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a valve-stem, a link pivotally connected to the slide and valve-stem, and means for operating the slide.

3. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the valve and slide, said connection including a link pivoted at its ends, and means for actuating the slide, said means for operating the slide including an expansive spring bearing between the slide and the operating member.

4. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a valve-stem, a link pivotally connected to the slide and valve-stem, and means for operating the slide, said means for operating the slide comprising an expansive spring bearing between the slide and the operating member.

5. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the valve and slide, said connection including a pivoted link, means for mounting the slide, such means including rolling antifriction bearing members, and means for operating the slide.

6. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the valve and slide, said connection including a pivoted link, means for mounting the slide, such means including rolling antifriction bearing members, and means for operating the slide, said means including an expansive spring acting between the slide and operating member.

7. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the slide and valve, said connection including a pivoted link, a spring pressing the slide in one direction, and means for operating the slide in the other direction.

8. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the slide and valve, said connection including a pivoted link, a spring pressing the slide in one direction, and means for operating the slide in the other direction, the means for operating the slide including an expansive spring actuated between the slide and the operating member.

9. In a valve-gear, the combination with the valve, of a slide movable across the line of movement of the valve, a connection between the valve and slide, such connection including a pivoted member, means for mounting the slide, such means including antifriction roller bearing devices, and means for operating the slide.

10. In a valve-gear, the combination with the valve, of a support, a bed adjustable thereon for the purpose specified, a slide mounted on the bed, a connection between the slide and valve, such connection including a pivoted member, and means for operating the slide.

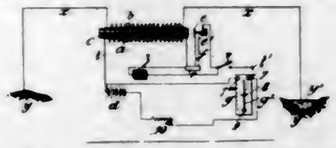
11. In a valve-gear for internal-combustion engines the combination with the outwardly-opening exhaust-valve, of a pivoted link having connection with the valve, and means for varying the inclination of the link with respect to the line of movement of the valve, whereby to operate the valve.

12. In a valve-gear for internal-combustion engines, the combination with the outwardly-opening exhaust-valve, of a pivoted link connected therewith, a slide also having connection with the link and movable across the line of movement of the valve, and means for operating the slide.

13. In a valve-gear, the combination with the valve, of a pivoted link having connection therewith, and means for varying the inclination of the link with respect to the line of movement of the valve, said link comprising a web or portion having concave ends, bearing-rollers placed in said ends, and means for holding said rollers in operative position.

14. In a valve-gear, the combination with the valve, of a slide, means for mounting and operating the slide, and a connection between the slide and valve, said connection including a link which comprises a web having concave ends, bearing-rollers placed in said ends, means for holding the rollers engaged with the link, and means for holding one roller engaged with the slide and the other roller with the valve connection.

751,294. APPARATUS FOR ELECTRICALLY TRANSMITTING AND RECEIVING MESSAGES. ARTHUR T. M. JOHNSON, Highbury, England, assignor to himself, and Edwin Joseph Richardson, London, England. Filed June 6, 1902. Serial No. 110,517. (No model.)



Claim.—1. In apparatus for electrically transmitting and receiving messages, the combination with an electrical transmitting instrument having a secondary winding and means adapted to produce electrical impulses in said secondary winding at different rates, of a number of receiving instruments each adapted to be operated by electrical impulses of two different rates, from said transmitting instrument, one rate being common to all the receiving instruments, and the other specific to the particular receiving instrument, and a connecting medium between the terminals of the said secondary winding and of the receiving instruments.

2. In apparatus for electrically transmitting and receiving messages, the combination with an electrical transmitting instrument having a secondary winding and means adapted to produce electrical impulses in said secondary winding at different rates, of a number of receiving instruments each comprising an electromagnetic device having its terminals arranged receive electrical impulses sent from said transmitting instrument, and master and secret message reeds of different pitch adapted to be respectively operated by said electromagnetic device when the same is energized by electrical impulses of corresponding pitch.

3. For electrically transmitting and receiving messages without connecting-wires between the transmitting and receiving stations the combination with an electrical transmitting instrument comprising primary and secondary windings and a magnetic core, an adjustable contact opposite said core, and a number of pairs of tuning and speaking reeds of different pitch, each pair of reeds being adapted to be brought into a position in which the speaking-reed of the pair will be between said core and adjustable contact and can be used in conjunction with said contact as a circuit maker and breaker for the primary winding, of an electric generator, a circuit-controlling device whereby said primary winding can be placed in series and shunt circuit alternately with said electric generator, a number of receiving instruments each adapted to be operated by electrical impulses of two different rates from said secondary winding, and a non-metallic connecting medium between the terminals of said secondary winding and the terminals of said receiving instrument.

4. For electrically transmitting and receiving messages without connecting-wires between the transmitting and receiving stations, the combination with an electrical transmitting instrument comprising primary and secondary windings and a magnetic core, an adjustable contact opposite said core, and a number of pairs of tuning and speaking reeds of different pitch, each pair of reeds being adapted to be brought into a position in which the speaking-reed of the pair will be between said core and adjustable contact and can be used in conjunction with said contact as a circuit maker and breaker for the primary winding, of an electric generator, a circuit-controlling device whereby said primary winding can be placed in series and shunt circuit alternately with said electric generator, a number of receiving instruments each comprising an electromagnetic device and a pair of reeds arranged to be operated by said electromagnetic device and each tuned to vibrate at a different rate to the other, and a non-metallic connecting medium between the terminals of said secondary winding and the terminals of the receiving instruments, substantially as described for the purpose specified.

5. Apparatus for electrically transmitting and receiving telegraphic or telephonic messages at will, comprising an induction-coil, means whereby electrical impulses of different but definite rates can be set up in the secondary winding of said coil for sending telegraphic messages, means whereby electrical impulses corresponding to the vibrations of vocal sounds can be set up in said secondary winding for sending telephonic messages, telegraphic and telephonic receiving instruments adapted to respectively receive the telegraphic and telephonic messages, and a connecting medium between the terminals of said secondary winding and of said receiving instruments.

6. Apparatus for electrically transmitting telegraphic or telephonic messages at will, comprising an induction-coil, means whereby electrical impulses of different but definite rates can be set up in the secondary winding of said coil for sending telegraphic messages, means whereby electrical impulses corresponding to the vibrations of vocal sounds can be set up in said secondary winding for sending telephonic messages, telegraphic receiving instruments each adapted to be operated by electrical impulses of two different rates from said transmitting instrument, telephonic receiving instruments arranged adjacent to said telegraphic receiving instruments, and a connecting medium between the terminals of said secondary winding and of the telegraphic and telephonic receiving instruments.

7. Apparatus for electrically transmitting telegraphic or telephonic messages at will, comprising an induction-coil, means whereby electrical impulses of different but definite rates can be set up in the secondary winding of said coil for sending telegraphic messages, means whereby electrical impulses corresponding to the vibrations of vocal sounds can be set up in said secondary winding for sending telephonic messages, telegraphic receiving instruments each comprising an electromagnetic device having its terminals arranged to receive electrical impulses sent from said transmitting instrument, and master and secret message reeds of different pitch adapted to be respectively operated by said electromagnetic device when the same is energized by electrical impulses of corresponding pitch, telephonic receiving instruments normally in open circuit but adapted to be connected to the terminal connections of said telegraphic instruments, and a connecting medium between the terminals of said secondary winding and of the telegraphic receiving instruments.

8. Apparatus for electrically transmitting telegraphic or telephonic messages at will, comprising an induction-coil, an electric generator, a circuit making and breaking device whereby the circuit of the primary winding of said coil can be made and broken at different but definite rates, a switch and connections for completing the circuit of said primary winding through said electric generator and circuit making and breaking device, a circuit-controller whereby said electric generator can be short-circuited without opening the circuit of said primary winding, a telephonic transmitter, a switch and connections for completing the circuit of said primary winding through said telephonic transmitter and electric generator independently of said circuit making and breaking device, telegraphic and telephonic receiving instruments adapted to respectively respond to telegraphic and telephonic impulses set up in the secondary winding of said induction-coil, and connecting means between the terminals of said secondary winding and of the receiving instruments.

9. Apparatus for electrically transmitting telegraphic or telephonic messages, at will, comprising an induction-coil having an iron core, an electric generator having one of its poles connected to one end of the primary winding, an adjustable contact arranged opposite said core, a switch and connections whereby said contact can be placed in connection with the other pole of said electric generator, a support connected to the second end of said primary winding, a number of pairs of tuning and speaking reeds carried by said support and adapted to vibrate at different pitches, each pair of reeds being adapted to be brought into a position in which the speaking-reed of the pair will form in conjunction with said adjustable contact, a contact making and breaking device for said primary winding, a microphone-transmitter, a second switch and electrical connection whereby said microphone can be included in the circuit of said primary winding and electric generator independently of the first switch and connection and circuit maker and breaker, a circuit-controller adapted to short-circuit said electric generator without affecting the circuit of said primary winding, telegraphic receiving instruments each adapted to respond to electrical impulses of two different pitches, telephonic receiving instruments, and connecting means between the terminals of said secondary winding and of said receiving instruments.

10. Apparatus for electrically transmitting telegraphic or telephonic messages at will without connecting-wires between the transmitting and receiving stations, comprising an induction-coil having an iron core, an electric generator, means for making and breaking the circuit of the primary winding, of said coil and said electric generator at different but definite rates, a telephonic transmitter and switch and electrical connections whereby said telephonic transmitter can be placed in circuit with said primary winding and electric generator independently of said circuit making and breaking means, telegraphic receiving instruments each adapted to respond to electrical impulses of two different rates, non-metallic connecting means between the terminals of the secondary winding of said coil and the terminals of said telephonic receiving instruments, telephonic receivers, each arranged adjacent to one of said telegraphic receiving instruments, and switches each of which is normally held by the corresponding telephonic receiver in a position to close the circuit of the telegraphic receiving instrument and open the circuit of the telephonic receiver and when released to open the circuit of the telegraphic receiving instrument and close that of the telephonic receiver, substantially as described.

11. In apparatus of the kind herein referred to for electrically transmitting messages, a transmitting instrument comprising an induction-coil having an iron core, two terminals one of which is connected to one end of the primary winding of said coil, an endwise-adjustable contact-screw arranged opposite one end of said core, an adjustable support carrying said contact-screw and adapted to move the same in a direction transverse to the axis of said core, a switch whereby said contact-support can be connected and disconnected from the second terminal, a tunable musical trembler or multiphone comprising a number of pairs of tuning and speaking reeds adapted to vibrate at different rates and arranged to be brought in succession between said core and contact-screw, a longitudinally-adjustable support carrying said trembler or multiphone and whereby the same can be moved in a direction toward and from said core, said longitudinally-adjustable support being connected to the second end of said primary winding, and means for rotating said trembler or multiphone, substantially as described.

12. In an instrument for electrically transmitting electrical impulses of different but definite rates, a multiphone comprising a movable carrier, and a number of pairs of tuning and speaking reeds fixed at one end to said carrier, and adapted to vibrate at different rates, the two reeds in each pair being arranged in different planes, substantially as described for the purpose set forth.

13. In an instrument for electrically transmitting electrical impulses of different but definite rates, a multiphone comprising a movable carrier, and a number of pairs of tuning and speaking reeds fixed at one end to said carrier and adapted to vibrate at different rates, the two reeds in each pair being arranged in different planes and so as to overlap one another, substantially as described for the purpose specified.

14. In an instrument for electrically transmitting electrical impulses of different but definite rates, a multiphone comprising a movable carrier, and a number of pairs of tuning and speaking reeds fixed at one end to said carrier and adapted to vibrate at different rates, the free end of each speaking-reed being provided with an enlarged portion of sheet-iron, substantially as described for the purpose specified.

15. An instrument for receiving electrical impulses of different rates and thereby producing different sounds, comprising an electromagnet the terminals of whose winding are arranged to receive the electrical impulses, two reeds tuned to vibrate at different pitches and arranged across but at a short distance from the poles of said electromagnet, and a permanent magnet arranged to magnetize the core of said electromagnet, substantially as described.

16. An instrument for receiving electrical impulses of different rates and thereby producing different sounds, comprising an electromagnet the terminals of whose winding are arranged to receive the electrical impulses, two reeds tuned to vibrate at different pitches and arranged across but at a short distance from the poles of said electromagnet, a permanent magnet arranged to magnetize the core of said electromagnet, a holder for said electromagnet, reeds, and permanent magnet, a separate support upon which said holder is adjustably mounted, a tuning-fork carried by said support extending across said reeds and adapted to vibrate at the same pitch as one of said reeds, and a resonant cylinder or casing inclosing the above-mentioned parts, substantially as described.

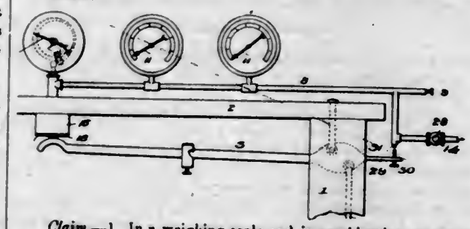
17. In apparatus for electrically transmitting messages from one place to another without connecting-wires between the said places, a transmitting instrument comprising an induction-coil and means for setting up electrical impulses of different but definite rates in the secondary winding thereof, receiving instruments each adapted to receive electrical impulses of two different rates, and earth between said transmitting and receiving instruments, the terminal connections of said secondary winding being connected one to earth and the other to an insulated capacity resting on an earthed support, substantially as described, for the purpose specified.

18. In apparatus for electrically transmitting messages from one place to another without connecting-wires between the said places, a transmitting instrument comprising an induction-coil and means for setting up electrical impulses of different but definite rates in the secondary winding thereof, receiving instruments each adapted to receive electrical impulses of two different rates, and earth between said transmitting and receiving instruments, the terminal connections of each of said receiving instruments being connected one to earth and one to an insulated capacity resting upon an earthed support, substantially as described.

19. In apparatus for electrically transmitting messages from one place to another without connecting-wires between the said places, a transmitting instrument comprising an induction-coil and means for setting up electrical impulses of different but definite rates in the secondary winding thereof, receiving instruments each adapted to receive electrical impulses of two different rates, and earth between said transmitting and receiving instruments, the terminal connections of each of said receiving instruments being connected one to earth and one to an insulated capacity resting upon an earthed support, and a condenser arranged in one of said terminal connections.

20. In apparatus for electrically transmitting messages from one place to another without connecting-wires between the said places, a transmitting instrument comprising an induction-coil and means for setting up electrical impulses of different but definite rates in the secondary winding thereof, receiving instruments, and earth between the terminal connections of said transmitting and receiving instruments, each receiving instrument comprising a loud-sounding portion adapted to respond to electrical impulses of a definite rate, a low-sounding portion also adapted to respond to electrical impulses of a definite rate, and a switch that normally closes the circuit of the loud-sounding portion and opens that of the low-sounding portion of each receiving instrument and opens the circuit of the former and closes that of the latter when the latter is moved into position for use, substantially as described.

751,295. FLUID-PRESSURE WEIGHING-SCALE. HOWARD F. JONES, Wilson, N. C. Filed May 14, 1903. Serial No. 157,118. (No model.)



Claim.—1. In a weighing-scale and in combination, means arranged to be moved by a weight, a fluid-pressure-operated gage, a bulb suspended over said means and dilatable to transmit thereto the force of such dilation, a coupling affording communication between the dilatable bulb and the gage, and a valve-controlled fluid-pressure-supply pipe connected with said coupling and controlled by the movement of that said weight-moved means.

2. In combination, a fluid-pressure-operated gage, a dilatable bulb in communication with said gage, a fluid-pressure-supply pipe in communication with the bulb and gage, said pipe having a cut-off valve, a plunger at the bulb, and an element arranged to be moved

by a weight to move the plunger against the dilated bulb and to seat said valve.

3. In combination, a fluid-pressure-operated gage, a dilatable bulb in communication with said gage, a fluid-pressure-supply pipe in communication with the bulb and gage, a normally open cut-off valve, and a normally closed hand-operated vent-valve in said pipe, a plunger at the bulb, and an element movable by a weight to move the plunger against the dilated bulb and to seat the cut-off valve.

4. In combination, a fluid-pressure-operated gage, a dilatable bulb in communication with said gage, a fluid-pressure-supply pipe in communication with the bulb and gage, a hand-valve controlling the supply of fluid-pressure to said pipe, a hand-controlled vent-valve and a normally unseated cut-off valve in said pipe, a plunger at the bulb, and a weighing-beam movable by a weight to move the plunger against the dilated bulb and to seat the cut-off valve.

5. In combination, a fluid-pressure-operated gage, a dilatable bulb in communication with said gage, a fluid-pressure-supply pipe in communication with the bulb and gage, a hand-valve controlling the supply of fluid-pressure to said pipe, a hand-controlled vent-valve and a normally unseated cut-off valve in said pipe, a plunger at the bulb, means for limiting the range of movement of the plunger, a weighing-beam movable by a weight to move the plunger against the dilated bulb and an adjustable shoulder on the beam adapted in the movement of the latter to engage and seat the cut-off valve.

6. In combination, fluid-pressure-operated gages, a fluid-pressure-supply pipe in communication with said gages, a hand-controlled vent-valve and a normally unseated cut-off valve in said pipe, a dilatable bulb in communication with said pipe and gages, a plunger at said bulb, and a weighing-beam movable at its forward end to engage and move the plunger against the dilated bulb and having a rearward extension provided with an adjustable shoulder for engaging and seating the cut-off valve.

7. In weighing-scales and in combination, a weighing-beam, a fluid-pressure-operated gage, a bulb dilatable from a fixed point of suspension over the free end of the beam, a coupling affording communication between the dilatable bulb at its point of suspension and the gage, and a controllable fluid-pressure-supply pipe connected with said coupling, the relation of the beam and the bulb being such as to cause the free end of the beam to be depressed by the dilation of the bulb.

8. In combination, a fluid-pressure-operated gage, a dilatable bulb in communication with said gage, a closure from the top of which said bulb is suspended, a plunger forming the bottom of said closure, a fluid-pressure-supply pipe in communication with said gage and dilatable bulb, and the weighing-beam, the latter receiving the pressure produced by the dilation of the bulb upon the plunger.

9. In weighing-scales and in combination, a beam arranged to be moved by a weight, a fluid-pressure-operated gage, a flexible bulb dilated from a fixed point of suspension over the free end of the beam, means affording communication between the dilatable bulb and the gage, means for dilating the bulb and means to exhaust the bulb.

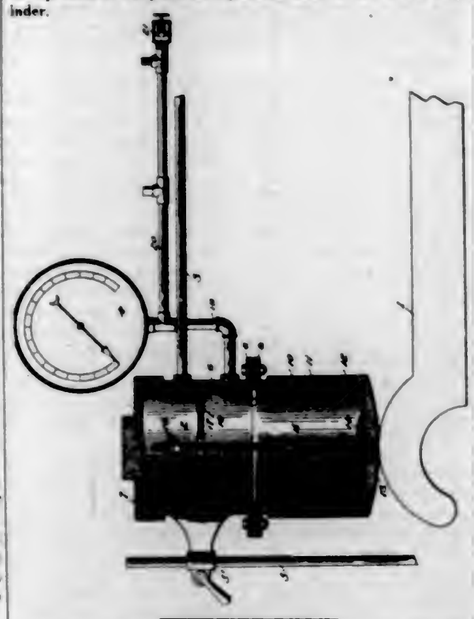
10. In a weighing-scale, weight-moved means, a dilatable bulb suspended over said means, a fluid-pressure-operated gage, a supply-pipe in communication with the bulb, the gage and the source of supply, means automatically to cut off the supply, and a normally closed hand-operated vent-valve for exhausting the bulb.

751,296. FLUID-PRESSURE WEIGHING-SCALE. HOWARD F. JOHNS, Wilson, N. C. Filed July 13, 1903. Serial No. 165,338. (No model.)

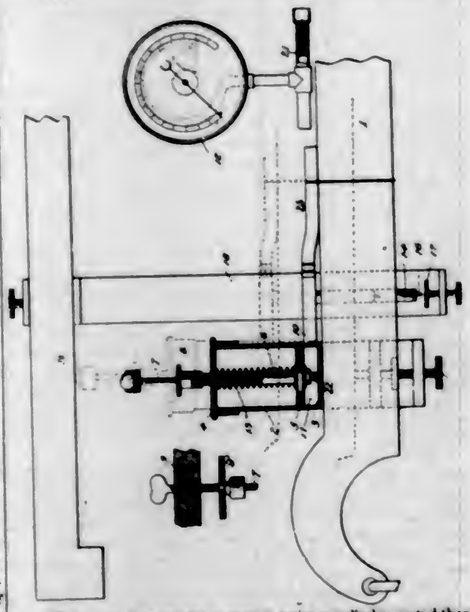
Claim.—1. In a weighing-scale, a fluid-pressure chamber connected with a fluid-pressure supply, a chamber communicating with the aforesaid chamber by an aperture, a valve at said aperture, a fluid-pressure gage connected with the second chamber, a weighing-beam, an expandible cylinder connected with the second chamber and an element connected to and movable with the expanding cylinder in the path of the weighing-beam, and a connection between the cylinder and valve.

2. In a weighing-scale, a weighing-beam, a casing adjustably mounted with reference to said beam said casing having an apertured partition providing upper and lower chambers, a fluid-pressure-supply pipe connected with the upper chamber, a pressure-gage, a pipe connecting the lower chamber and gage and having a vent-valve therein, and an expandible cylinder forming a continuation of the lower chamber and an element connected to and movable with the expanding cylinder in the path of the beam.

3. In a weighing-scale, a weighing-beam, an upper casing having a removable cover, a lower casing secured to the upper casing, a cylinder telescoping with the lower casing, an elastic cylinder secured at its upper edge portion between the casings and secured at its lower end to the telescoping cylinder, an apertured partition in the upper casing providing an upper and a lower chamber, a fluid-pressure-supply pipe connected with the upper chamber, a fluid-pressure gage connected with the lower chamber, and a valve at the aperture in the partition adjustable on a rod fixed to the cylinder.



751,297. FLUID-PRESSURE WEIGHING-SCALE. HOWARD F. JOHNS, Wilson, N. C. Filed Nov. 21, 1903. Serial No. 182,047. (No model.)



Claim.—1. In a weighing-scale, a beam, a cylinder seated thereon forming a fluid-pressure chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a pressure-gage in communication with the supply-tube, and means for venting said pressure to balance the beam in weighing.

2. In a weighing-scale, a beam, a cylinder seated thereon forming a pressure-chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a pressure-gage in communication with the supply-tube, and means for securing the cylinder in adjusted positions upon the beam to balance it.

3. In a weighing-scale, a beam, a cylinder seated thereon forming a pressure-chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a pressure-gage in communication with the supply-tube, means for securing the cylinder in adjusted positions on the beam to balance it, a vent-valve in the supply-tube, and an adjustable stop for actuating the valve by the descent of the beam.

4. In a weighing-scale, a beam, a fluid-pressure chamber carried thereon, a fluid-pressure-supply tube connected to the chamber, a pressure-gage in communication with the supply-tube, means operative within the pressure-chamber for causing the pressure therein to force the beam down, an air-venting valve having a depending stem carried by the supply-tube, and a fixed stop against which the valve-stem is carried by the descent of the beam for opening the vent.

5. In a weighing-scale, a beam, a fluid-pressure chamber carried thereon, a fluid-pressure-supply tube connected to the chamber, a pressure-gage in communication with the supply-tube, means operative within the pressure-chamber for causing the pressure therein to force the beam down, and means actuated by the descent of the beam to vent the fluid-pressure to cause the beam to balance in weighing.

6. In a weighing-scale, a beam, a cylinder carried thereon and forming a fluid-pressure chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a piston within the chamber, a stop to limit the descent of the piston within the chamber, a piston-rod, a stop acting on the piston-rod to limit the ascent of the beam, a fluid-pressure gage in communication with the supply-tube and pressure-chamber, and means for venting the pressure-chamber actuated by the descent of the beam.

7. In a weighing-scale, a beam, a cylinder fixed thereon forming a pressure-chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a piston within the cylinder, a piston-rod, a stop acting on the piston-rod to limit the ascent of the beam, a fluid-pressure gage in communication with the supply-tube and pressure-chamber, a vent-valve depending from the supply-tube, a hanger depending from a fixed support and having an adjustable stop for engaging the vent-valve by the descent of the beam, whereby the beam is caused to balance itself in weighing.

8. In a weighing-scale, a beam, a cylinder fixed thereon forming a pressure-chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a piston within the cylinder, a piston-rod, a stop acting on the piston-rod to limit the ascent of the beam, a fluid-pressure gage in communication with the supply-tube and pressure-chamber, and means for automatically venting the pressure in the chamber at a predetermined point by the descent of the beam.

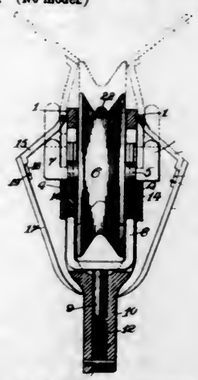
9. In a weighing-scale, a beam, a cylinder fixed thereon forming a fluid-pressure chamber, a fluid-pressure-supply tube connected to the chamber, a pressure-gage in communication with the supply-tube, means operative within the cylinder for causing the pressure therein to force the beam down, means for limiting the ascent of the beam, and means for venting the pressure-chamber rendered operative by the descending movement of the beam.

10. In a weighing-scale, a beam, a cylinder seated thereon forming a pressure-chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a pressure-gage in communication with the supply-tube, a piston and piston-rod and means operative on the piston-rod above the cylinder for causing the pressure therein to force the beam down, a pressure-venting valve, and a stop below the beam for opening the valve by the downward movement of the beam.

11. In a weighing-scale, a beam, a cylinder forming a pressure-chamber carried upon and by the beam, means for securing the cylinder in adjusted positions upon the beam, a fluid-pressure-supply tube connected to the cylinder-chamber, a pressure-gage in communication with said tube, a vent-valve for the chamber carried by the tube, an adjustable stop for automatically opening said valve by the downward movement of the beam, means for securing said stop in adjusted positions laterally in relation to said vent-valve stem, means operative within the pressure-chamber for causing the pressure therein to force the beam down, and means for limiting the ascent of the beam.

12. In a weighing-scale, a beam, a cylinder seated thereon forming a fluid-pressure chamber, a fluid-pressure-supply tube connected to the pressure-chamber, a pressure-gage in communication with the supply-tube, means for securing the cylinder in adjusted positions laterally on the beam to balance it, a vent-valve in the supply-tube having a depending stem, a vertically-adjustable stop for engaging the valve-stem, a hanging support for said stop, and means for securing said stop-support in laterally-adjusted positions with respect to the valve.

751,298. TROLLEY. JAMES KELLY, Pittsburg, Pa., assignor of one-third to James Croak, Pittsburg, Pa. Filed July 11, 1903. Serial No. 165,086. (No model.)



Claim.—1. In a trolley, the combination of a main harp having a ferrule portion provided with a bore, said main harp having slots in its cheek-pieces, of an auxiliary harp mounted in the main harp to move in said slotted cheek-pieces, a stub-shaft carried by the auxiliary harp and extending into the bore of the ferrule, a spring arranged beneath said stub-shaft within the bore, an axle or shaft mounted in the auxiliary harp with the trolley-wheel mounted thereon, annular arms or cams carried by the ends of said axle or shaft, and guards or finders hinged to the main harp and adapted to be moved to the operative position by the engagement of the angular arms or cams, substantially as described.

2. In a trolley, a main harp, an auxiliary harp operative vertically in the main harp, a shaft or axle journaled in the auxiliary harp, a trolley-wheel carried thereby, straps hinged to the main harp at the upper end thereof, arms pivoted to the said straps, means for normally holding said arms in alined position with the said straps, and means adapted on the trolley-wheel leaving the wire to elevate the auxiliary harp and move the pivoted arms to the operative position, substantially as described.

3. In a device of the character described, a main trolley-harp, an auxiliary harp mounted therein for movement independent thereof, a trolley-wheel carried by said last-named harp, straps hinged to the main harp, guards pivoted upon said straps, means carried by said auxiliary harp adapted to engage with said guards, and means for forcing said last-named means into engagement with the guards, on the trolley-wheel leaving the current-wire, substantially as described.

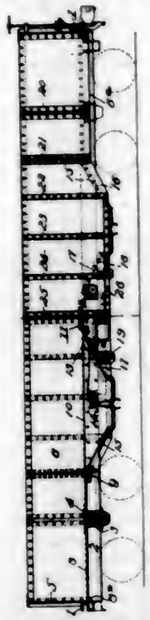
4. In a trolley, a main harp, an auxiliary harp vertically movable therein, a shaft mounted in the auxiliary harp, a trolley-wheel carried thereby, guards having hinged connections with said main harp, spring means for holding said guards in alined position with the main harp, cams carried by the said shaft adapted to engage and elevate said guards, and means adapted to elevate said auxiliary harp on the trolley leaving the wire, substantially as described.

751,299. GONDOLA CAR. GEORGE I. KING, Middletown, Pa., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed Jan. 2, 1902. Serial No. 88,163. (No model.)

Claim.—1. In a car, the combination with the body-bolsters, of side walls attached to said body-bolsters, which walls act as plate-girders, a center sill, cross-beams carried by the side walls for supporting the center sill at points near the center of the car, and a cross-ridge arranged above the cross-beams; substantially as described.

2. In a car, the combination with the body-bolsters, of side walls attached thereto, said side walls acting as plate-girders, a center sill, cross-beams supported by the side walls at points intermediate the body-bolsters, for supporting the center sill, and hopper-

sheets attached to the center sill between cross-beams and bolsters, for strengthening the same; substantially as described.



3. In a car, the combination with a side wall made deepest at its middle portion, the lower edges of the shallow ends being flanged outwardly, and floor-sheets attached to said side walls, above said outwardly-projected flanges; substantially as described.

4. In a car, the combination with a side wall made deepest at its middle portion, the lower edges of the shallow ends being flanged outwardly, and floor-sheets attached to said side walls above said outwardly-projected flanges; substantially as described.

5. In a car, the combination with a side wall made deepest at its middle portion, the lower edges of the shallow ends thereof being flanged outwardly, downwardly-flanged floor-sheets riveted to said shallow ends above said flanges, and horizontal angles riveted to the deepest portion of the side wall; substantially as described.

6. In a car, a containing side wall in the form of a plate-girder whose tension-flange is made up in part by a horizontally-arranged angle and two inclined angles at the ends of the first-mentioned angle upon the inner side of the side wall; substantially as described.

7. In a car, the combination with a side wall in the form of a plate-girder, made deepest at its middle portion, the shallow ends thereof being flanged at their lower edges, floor-sheets attached to said shallow ends, and angles 16 and 26; substantially as described.

8. In a car, the combination with side walls in the form of plate-girders, made deepest at their middle portions, of stiffening-braces 22 therefor, angles 16 and 26, whose ends overlap each other approximately in the transverse plane of said stiffening members; substantially as described.

9. In a car, the combination with a side wall flanged as at 6^a, of a floor-sheet flanged downwardly and attached to said side wall above the flange 6^a, an angle 16 for supporting an inclined sheet, and a post 21 opposite the junction of the angle 16 and the end floor-sheet; substantially as described.

10. In a car, the combination with the side walls, made deepest at their middle portions, angles along the lower edges of said side walls, cross-beams supported by said side walls, and stiffening members in the transverse planes of said cross-beams; substantially as described.

11. In a car, the combination with the side walls and center sills, of floor-supports extending from the center sills to the side walls, a ridge-sheet extending transversely the car and attached to said floor-supports, center hopper-sheets attached to the center sills, and inclined sheets 18 attached to flanges on said hopper-sheets and to said floor-supports; substantially as described.

12. In a car, the combination with side walls acting as plate-girders, of a center sill, cross-beams 19, supported by the side walls and in turn supporting the center sill, floor-supports 13 extending from the center sill to the side walls, a ridge-sheet 11, extending transversely the car and attached to said floor-supports, and cover-plates for the center sill on each side of said ridge-sheet; substantially as described.

13. In a car, the combination with an underframing, of end floor-sheets, cover-plates for the bolster, a cross ridge-sheet, and inclined sheets 15 and 18; substantially as described.

14. In a car, the combination with the underframing, of end floor-sheets, a reinforcing cover-plate for the bolster, a cross ridge-sheet riveted to the center sill, and cover-plates for the center sill forming butt-joints with the end floor-sheets and with said cross ridge-sheets; substantially as described.

15. In a car, the combination with the underframing, including the floor-supports 9, of end floor-sheets terminating at their inner edges above said floor-supports, center hopper-sheets, inclined sheets 15 and 18, a centrally-located ridge-sheet, extending transversely the car and riveted to the center sill, and cover-plates for the center sill between said ridge-sheet and the end floor-sheets; substantially as described.

16. In a car, a side wall in the form of a plate-girder, whose tension-flange is made up of an exteriorly-arranged angle 26, and interiorly-arranged angles 16 with the horizontal members of said angles oppositely disposed; substantially as described.

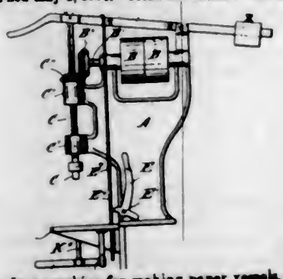
17. The combination with the side wall of a car, of a side sill formed of members located at alternate points on opposite sides of the side walls; substantially as described.

18. In a car, a side wall in the form of a plate-girder whose tension-flange is made up of an exteriorly-arranged angle along its deep middle portion, and interior angular flanges at the ends of the car with the horizontal members of said angles oppositely disposed, combined with floor-sheets supported by the interior angular flanges.

19. In a car, a side wall in the form of a plate-girder whose tension-flange is made up of exteriorly and interiorly arranged angular flanges, some of said interiorly-arranged angular flanges being inclined, and floor-sheets separately formed and supported upon said inclined flanges; substantially as described.

20. The combination with the side wall made deepest at its middle portion and flanged at the lower edges of its shallow ends, of floor-sheets riveted thereto for strengthening the same, inclined sheets 15 riveted thereto for strengthening the same, and a horizontal angle 26 attached to the lower edge of the deepest portion of the side wall, said angle 26 overlapping the inclined sheets 15 at both ends; substantially as described.

751,300. MACHINE FOR MANUFACTURING VESSELS OF PAPER OR OTHER FIBROUS MATERIAL. WILL M. KINNARD, Dayton, Ohio. Filed May 3, 1901. Serial No. 58,656. (No model.)



Claim.—1. In a machine for making paper vessels, a vessel-retaining bowl, a rotary die whose axis is coincident with the axis of said bowl, and means whereby said die is brought into contact with the retaining-bowl, their coaction forming a stiffening bead or rim on said pail, substantially as shown and in the manner described.

2. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, a second die whose axis is coincident with the axis of said bowl, and means whereby said dies are brought together, the two cooperating to form a stiffening bead or rim on said vessel, substantially as shown and in the manner specified.

3. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, a second rotary die whose axis is coincident with the axis of said bowl, and means whereby said dies are brought together, the two cooperating to form a stiffening bead or rim on said pail, substantially as shown and in the manner described.

4. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, an inner flange adapted to project beyond said die when said die is depressed, a second die whose axis is coincident with the axis of said bowl, and means whereby said dies are brought together, the two cooperating with said inner flange to form a stiffening bead or rim on said vessel, substantially as shown and in the manner described

5. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, an inner flange adapted to project beyond said die when said die is depressed, a second rotary die whose axis is coincident with the axis of said bowl, and means whereby said dies are brought together, the two cooperating with said inner flange to form a stiffening bead or rim on said vessel, substantially as shown and in the manner described.

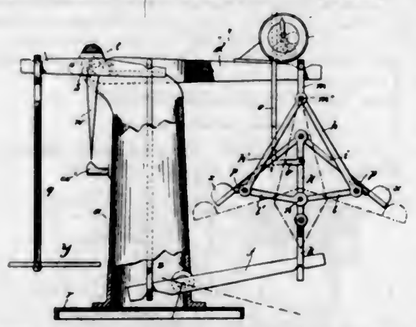
6. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, a second die whose axis is coincident with the axis of the said bowl, a pilot yieldingly mounted in advance of said second die, and means whereby said pilot is caused to enter said bowl, and whereby said dies are brought together, the two dies cooperating to form a stiffening bead or rim on said vessel, substantially as shown and in the manner described.

7. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, an inner flange adapted to project beyond said die when said die is depressed, a second die whose axis is coincident with the axis of said bowl, a pilot yieldingly mounted in advance of said second die, and means whereby said pilot is caused to enter said bowl, and whereby said dies are brought together, the two dies cooperating with said inner flange to form a stiffening bead or rim on said vessel, substantially as shown and in the manner described.

8. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, an inner flange adapted to project beyond said die when said die is depressed, a second rotary die whose axis is coincident with the axis of said bowl, a pilot yieldingly mounted in advance of said second die, and means whereby said pilot is caused to enter said bowl and whereby said dies are brought together, the two dies cooperating with said inner flange to form a stiffening bead or rim on said vessel, substantially as shown and in the manner specified.

9. In a machine for making paper vessels, a vessel-retaining bowl, a die yieldingly mounted thereon, a second rotary die whose axis is coincident with the axis of said bowl, a pilot yieldingly mounted in advance of said second die and means whereby said pilot is caused to enter said bowl and whereby said dies are brought together, the two dies cooperating to form a stiffening bead or rim on said vessel, substantially as shown and in the manner specified.

751,301. WEIGHING-MACHINE. GUSTAV KLEY, Siegburg, Germany. Filed Mar. 16, 1903. Serial No. 147,971. (No model.)



Claim.—1. The combination of a frame, a balancing-lever, a pan-carrying lever and a scale-beam fulcrumed respectively upon said balancing-lever, said scale-beam having one end bearing against a fixed point, a further lever operatively connected to said pan-carrying lever, a scale-dial pointer, means effecting connection between said scale-beam and said last-referred-to lever, and coacting means between the first-referred-to means, and the scale-dial pointer, whereby, by the conjoint action of said former and latter means the weight is indicated.

2. The combination of a balancing-lever, a pan-carrying lever and a bifurcated scale-beam fulcrumed, respectively, upon said balancing-lever, a standard having an upward extension with overhanging portions, said scale-beam having its branches or prongs bearing upon the under sides of said overhanging portions, a further lever operatively connected to said pan-carrying lever, a scale-dial pointer, means effecting connection between said scale-beam and said last-referred-to lever, and coacting means between the first-named means and the scale-dial pointer, whereby, by the conjoint action of said former and latter means the weight is indicated.

3. The combination of a frame, a balancing-lever, a pan-carrying lever and a scale-beam fulcrumed, respectively, upon said balancing-lever, said scale-beam lever having one end bearing against a fixed point, a further or additional lever operatively connected to said pan-carrying lever, a quadrilateral arrangement of links, a scale-dial pointer, means forming connection between said links and said additional lever, means carrying weights connected to the former means, and means effecting connection between said former means and the scale-dial pointer, said links, said weight-carrying means, said link and lever connecting means, and said pointer and link and lever connecting means, adapted to unitedly effect the actuation of said pointer to indicate the weight.

4. The combination of a frame, a balancing-lever, a pan-carrying lever, and a scale-beam lever fulcrumed, respectively, upon said balancing-lever, said scale-beam lever having one end bearing against a fixed point, a further or additional lever operatively connected to said pan-carrying lever, a scale-dial pointer, a quadrilateral arrangement of links, means of connection between said links, means forming connection between said links and said additional lever, arms carrying weights and connected to the means of connection between said links and said additional lever, and guided in position upon said means effecting connection between said links, and means forming connection between said link and additional lever-connecting means and the scale-dial pointer.

5. The combination of a frame, a balancing-lever, a pan-carrying lever, and a scale-beam lever fulcrumed, respectively, upon said balancing-lever, said scale-beam lever having one end bearing against a fixed point, and a further or additional lever operatively connected to said pan-carrying lever, a scale-dial pointer, a quadrilateral arrangement of links, means of connection between said links, means forming connection between said links and said additional lever, arms carrying weights and connected to the means of connection between said links and said additional lever, and guided in position upon means effecting connection between said links, and a rack connected to the means of connection between said link and said additional lever, and adapted to actuate the scale-dial pointer.

6. The combination of a frame, a balancing-lever, a pan-carrying lever, and a scale-beam fulcrumed, respectively, upon said balancing-lever, said scale-beam lever having one end bearing against a fixed point, a further or additional lever operatively connected to said pan-carrying lever, a quadrilateral arrangement of links, cross-bars effecting connection between said links, a rod forming connection between said links and said additional lever, a scale-dial pointer, means carrying weights connected to said rod and guided in position upon said cross-bars, and means forming connection between said rod and the scale-dial pointer.

7. The combination of a frame, a balancing-lever, a pan-carrying lever, and a scale-beam lever fulcrumed, respectively, upon said balancing-lever, said scale-beam lever having one end bearing against a fixed point, a further additional lever operatively connected to said pan-carrying lever, a quadrilateral arrangement of links, cross-bars connecting said links, a rod forming connection between said links and said additional lever, a scale-dial pointer, arms carrying weights connected to said rod and held in position in guides carried by said cross-bars, and a rack having right-angled connection with said rod and adapted to actuate the scale-dial pointer.

8. The combination of a scale-beam lever, a pan-carrying lever operatively connected up with said scale-beam lever, a further or additional lever operatively connected to said pan-carrying lever, and means effecting connection between said additional lever and scale-beam lever, comprising a quadrilateral arrangement of links articulated together and looped to said scale-beam lever, cross-bars connecting said links, a scale-dial pointer, a rod looped to said links and said additional lever, weight-carrying arms connected to said rod and guided by means of said cross-bars, and a rack having right-angled connection with said rod and adapted to actuate the scale-dial pointer.

9. A weighing apparatus combining a scale-beam lever, a pan-carrying lever and an additional lever, operatively connected together, and a quadrilateral arrangement or series of pivoted-together links connected to said scale-beam lever, means connecting said links and said additional lever, a scale-dial pointer, means carrying weight-provided arms, connected to said links and means for

actuating the scale-dial pointer, connected to said arm-carrying means.

751,302. APPAREL-PAD. EDWARD L. KRAFT and CHARLES P. YOUSE, York, Pa. Filed Aug. 22, 1903. Serial No. 170,452. (No model.)



Claim.—1. An apparel-pad constructed of multicellular material, the walls of the cells being formed by a thin membrane and the cells extending throughout the body of the pad.

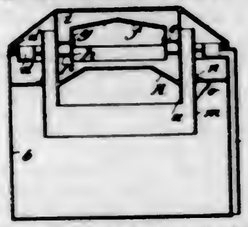
2. An apparel-pad consisting of a single piece of homogeneous multicellular elastic material so as to normally retain its shape, the walls of the cells being formed of thin elastic membrane.

3. An apparel-pad constructed of a single piece of homogeneous non-absorbent material multicellular throughout the walls of the cell being formed of a thin membrane and the cells communicating with each other and with the atmosphere, the cells being normally open or expanded to permit air to pass readily through the pad.

4. An apparel-pad constructed of multicellular elastic material, the walls of the cells being formed by a thin membrane, said pad being thicker at its center and tapering in all directions toward its edge.

5. An apparel-pad constructed of multicellular material, the walls of the cells being formed of a thin membrane, said pad being convex in its outer side and convex on its inner side and thicker at its center and tapering in all directions toward its edge.

751,303. APPARATUS FOR THE RECOVERY OF FATS OR THE LIKE. CHRISTOPH KRESSER, Frankfort-on-the-Main, Germany. Filed July 22, 1903. Serial No. 166,694. (No model.)



Claim.—1. In an apparatus for separating fat from liquids, the combination of an outer vessel having an overflow-channel, with an inner vessel open at the bottom within same, a chamber within said inner vessel, a channel for admitting the liquid to said inner vessel, and an upwardly-projecting ledge within said inner vessel for directing the liquid toward the chamber in the inner vessel, substantially as described.

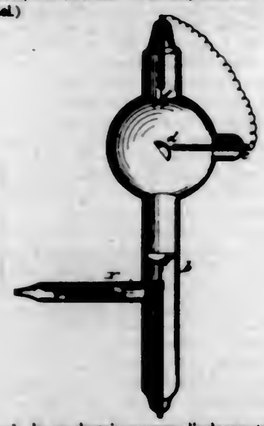
2. In an apparatus for separating fat from liquids, the combination of an outer vessel, an overflow-channel arranged within same, an inner vessel open at the bottom, a cylindrical device within said inner vessel, a cover for said cylindrical device, a channel for admitting liquid to said inner vessel and an upwardly-projecting ledge within said inner vessel for directing the liquid toward said cylindrical device, substantially as described.

3. In an apparatus for separating fat from liquids, the combination of an outer vessel, having an overflow-channel, of an inner vessel open at bottom and having a perforated cover or roof, an inner chamber within said inner vessel, a conical cover to said inner chamber, an annular upwardly-projecting ledge within said inner vessel and a channel adapted to allow the liquid to fall onto said ledge, substantially as described.

4. In an apparatus for separating fat from liquids, the combination of an outer vessel having an overflow-channel, of an inner vessel, open at bottom, an inner chamber within and supported by said inner vessel, a channel between said chamber and sides of said inner vessel, an annular upwardly-projecting ledge within said inner vessel, perforations in the support of said inner chamber, adapted to allow of an even distribution of the liquid into said upwardly-projecting ledge, substantially as described.

5. In an apparatus for separating fat from liquids the combination of an outer vessel, an inner vessel open at bottom and an overflow-channel supported between said inner and outer vessels, adapted to allow liquid to flow into it over both its sides, substantially as described.

751,304. ELECTRIC VACUUM DISCHARGE-TUBE. MICHEL KNOCHENHOLL, Paris, France. Filed May 26, 1903. Serial No. 159,043. (No model.)



Claim.—1. In an electric vacuum discharge-tube, the combination with the main tube, of capillary tubes, threads or minute fragments of glass suitably disposed within said main tube, for the purpose of regulating the degree of rarefaction therein, substantially as described.

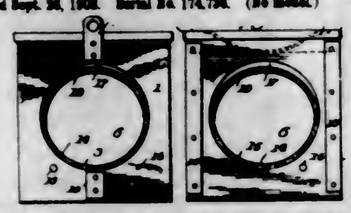
2. In an electric vacuum discharge-tube, the combination with the main tube, of an auxiliary tube or receptacle in communication therewith, and capillary tubes, threads or minute fragments of glass disposed in said auxiliary tube and adapted to regulate the degree of rarefaction in the main tube, substantially as described.

751,305. NECKTIE-BAND FASTENER. ADOLPHE R. G. M. LACOSTE, Paris, France. Filed Nov. 5, 1902. Serial No. 130,178. (No model.)



Claim.—A tie-fastener comprising an integral metal pin formed with an enlarged flattened end and tapering to a point at its other end, the body portion of said pin being straight and the ends thereof being bent on opposite sides to form hooks, the pointed end being bent toward the body portion and then extended away from said portion at an angle thereto, thereby forming a contacting point adapted to hold the tie more firmly within the fastener, and the flattened end of said body portion being first bent toward the body portion and then away therefrom, thereby forming a spring member with a contacting portion adapted to engage the collar and secure the fastener to the collar, substantially as described.

751,306. DUST-GUARD. HARRY C. LAFFERTY, Allegheny, Pa. Filed Sept. 26, 1903. Serial No. 174,736. (No model.)



Claim.—1. A dust-guard comprising side plates formed with openings, a sheet of non-combustible material mounted between the plates at the lower ends thereof and occupying the entire space therebetween and having a central opening, said material projecting into the plate-openings, a housing having a cut-away portion, with non-combustible material clamped between the sides of the housing, means for securing the non-combustible materials to the housing and to the said side plates, a cap-plate at the upper end of the side plates with a spring bearing thereagainst and against the upper end of the housing, said cap-plate having inturned side flanges for engagement with the outturned flanges at the upper end of the side plates, the ends of the cap-plate being bent downwardly to engage the side of the side plates and prevent lateral movement to the cap-plate.

2. A dust-guard comprising metal side plates each provided with an opening, a sheet of non-combustible material occupying the entire space between the said plates at the lower ends thereof and having a portion extending within the openings thereof, means for securing the material between the plates, a housing formed of sheet metal doubled over intermediate its ends and provided with a semicircular aperture at its free ends, the sides of said housing being open, a sheet of non-combustible material secured between the ends of the housing, said material projecting into the semicircular aperture of the said ends, a cap-plate mounted on the upper ends of the side plates, and having its ends bent downwardly to engage the sides of the side plates when in its normal position and a spring interposed between the end of the housing and said cap-plate.

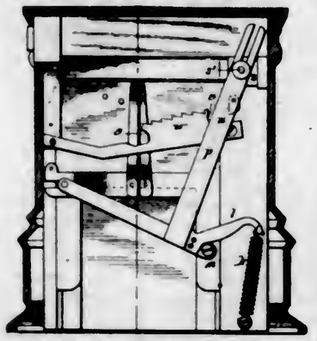
751,307. WINDOW-SHADE SIGN. ROBERT O. LAKE, Corona, N. Y. Filed Dec. 26, 1902. Serial No. 136,663. (No model.)



Claim.—1. A sign comprising a flexible body portion of substantially opaque material provided with a sign-character aperture, and a piece of translucent or transparent material of the same form as the aperture covering the same and extended beyond the edges of the aperture to provide overlapping edges, said overlapping edges being secured to the body of the sign, and the said sign being provided with a shade-border for concealing the attached edges or the effect thereof, substantially as described.

2. A sign comprising a flexible substantially opaque body portion provided with a sign-character opening, and a piece of ornamented translucent or transparent material of the same form as the opening, arranged at the rear face of the body portion of the sign and extended beyond the edges of the opening to provide marginal overlapping edges for attachment to the body portion of the sign, said body portion being provided with exterior shade-border extending around the opening and covering the overlapped marginal edges to conceal the effect thereof, substantially as described.

751,308. MATCH-SAFE. MARTIN R. LAND, Norfolk, Va. Filed June 6, 1903. Serial No. 160,394. (No model.)



Claim.—1. In a match-safe, the combination of the casing containing the match-receptacle, the vertically-reciprocatory plunger at one side of said receptacle, the match-receiving trough, the transversely-reciprocatory slide or follower working therein, means for operating said plunger and slide coincidently, and means for preventing backward movement of said slide until it has completed its forward movement, substantially as specified.

2. In a match-safe, the combination of the match-receiving trough, the transversely-reciprocatory slide working therein, means for depositing the match in said trough, means for operating said slide and match-depositing means coincidently, and means for preventing backward movement of said slide until it has completed its forward movement, substantially as specified.

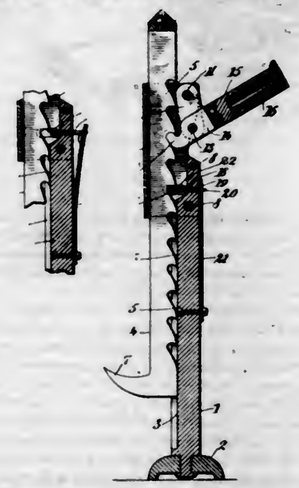
3. In a match-safe, the match-receiving trough, the transversely-reciprocatory slide working therein, means for operating said slide, and means for preventing backward movement of said slide until it has completed its forward movement, substantially as specified.

4. In a match-safe, the combination of a match-receiving trough, a transversely-reciprocatory slide working therein, a vertically-reciprocatory match-carrying plunger discharging into said trough at the limit of its upward movement, and a device for removing superfluous matches from and located in the path of said plunger as it rises, substantially as specified.

5. In a match-safe, the combination of a match-receiving trough, a transversely-reciprocatory slide working therein, a vertically-reciprocatory match-carrying plunger discharging into said trough at the limit of its upward movement, and a pivoted lip located upon the side wall of and guarding said trough to remove superfluous matches from the plunger as it rises, substantially as specified.

6. In a match-safe, the combination of the casing containing the match-receptacle, the vertically-reciprocatory plunger at one side of said receptacle, the match-receiving trough, the horizontally-reciprocatory slide working in said trough, an operating-lever connected with said plunger, and having an upward extension connected with said slide, a rack adjacent to said extension, and a pawl carried by said extension and adapted to engage said rack, substantially as specified.

751,309. LIFTING-JACK. LEROY O. LANDER, Limbucla, Wash. Filed July 25, 1903. Serial No. 166,966. (No model.)

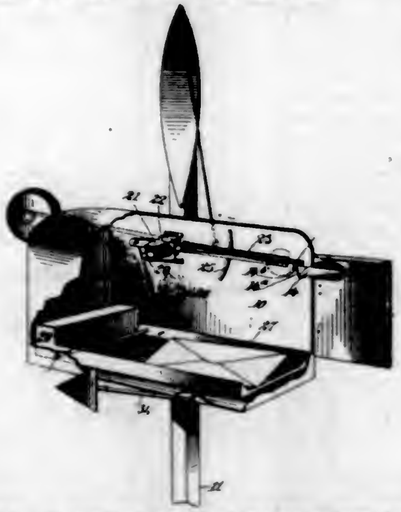


Claim.—1. A lifting-jack comprising a stock having a guide, with slots therein, a lifting-bar working through the guide and provided with a series of teeth, an operating-lever for the bar having means for engaging said teeth, a slide working through the stock, having a shoulder near its outer end, said slide having a member movable in said slots and engaging said teeth to lock the bar, and a flat spring operating at one end against said shoulder and secured at its other end to said stock, said spring operating to hold said slide normally in engagement with the teeth.

2. A lifting-jack comprising a stock, having at its upper end an upwardly-projecting guide, constructed with duplicate cheek-pieces, having straight-sided slots therein, a lifting-bar working through the guide, the same having an integral foot, and provided on its inner face with a series of teeth, an operating-lever for the bar, having means for engaging said teeth, a slide working through the stock, and having a shoulder near its outer end, said slide having a member moving in said slots, and engaging said teeth to lock the bar, a flat spring operating at one end against said shoulder, and secured at its other end to the front of the stock, and a slotted hand-lever for moving said slide outwardly.

3. A lifting-jack comprising a stock, having at its upper part an upwardly-projecting guide, constructed with duplicate cheek-pieces, having straight-sided slots therein, a lifting-bar working through the guide, the same having an integral foot, and provided on its inner face with a series of teeth, an operating-lever for the bar, having a toe for engaging the teeth, links pivoted within the cheek-pieces, and having movable connection with the lever, a slide working through the stock, and provided with a shoulder near its outer end, said slide having a member moving in said slots, and engaging said teeth to lock the bar, a flat spring operating at one end against said shoulder, and secured at its other end to the stock, and a slotted hand-lever mounted at the side of one of the cheek-pieces, for disengaging the slide from said teeth.

751,310. **MAIL-BOX.** HOWARD G. LEFFINGWELL, Severy, Kans. Filed May 15, 1903. Serial No. 157,253. (No model.)



Claim.—1. A mail-box, comprising a box proper, a closure therefor, a movable member mounted in the box and adapted to receive and be actuated by the mail, a signal, and mechanism connecting the signal and said movable member, said mechanism including a part actuated by the door to throw the signal.

2. A mail-box, comprising a box proper, a closure, a movable member mounted in the box and adapted to receive and be actuated by the mail, a signal, means for actuating the signal, said means being operated from the closure, and a connection between said actuating means and the movable member, for the purpose specified.

3. A mail-box, comprising a box proper, a closure therefor, a signal, a loaded member having connection with the signal, a retaining device for the loaded member, said device being actuated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, and a connection between the movable member and the retaining device of the loaded member.

4. A mail-box, comprising a box proper, a closure, a signal, a loaded member connected with the signal, a retaining-pin for the loaded member, a lever for actuating the pin, said lever being operated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, and a connection between said movable member and the lever, for the purpose specified.

5. A mail-box, comprising a box proper a closure, a signal, a loaded member connected with the signal, a retaining-pin for the loaded member, a lever for actuating the pin, said lever being operated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, a connection between said movable member and the lever, for the purpose specified, the closure having a hook thereon, and a locking device coacting with the hook and in connection with the said loaded member.

6. A mail-box, comprising a box proper, a closure therefor, a signal, a loaded member having connection with the signal, a retaining device for the loaded member, said device being actuated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, a connection between the movable member and the retaining device of the loaded member, a hook on the closure, and a locking device coacting with the hook and having connection with the said loaded member.

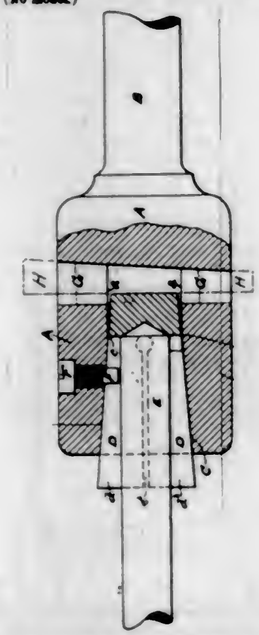
7. A mail-box, comprising a box proper, a closure, a hook on the closure, a locking device coacting with the hook, a weighted arm mounted to swing and having connection with the locking device, a signal connected with said weighted arm, a retaining-pin for the weighted arm, a lever in connection with the retaining-pin, said lever being actuated from the closure, for the purpose specified, a movable member mounted in the box and adapted to be engaged by the mail, and a connection between the movable member and the lever.

8. A mail-box, comprising a box proper, a closure therefor, a signal, a loaded member having connection with the signal, a retaining device for the loaded member, said device being actuated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, a connection between the movable member and the retaining device of the loaded member, a part capable of adjustment to limit the movement of the said movable member, and a signal in connection with said part.

9. A mail-box, comprising a box proper, a closure therefor, a signal, a loaded member having connection with the signal, a retaining device for the loaded member, said device being actuated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, a connection between the movable member and the retaining device of the loaded member, a rock-shaft mounted under the movable member, an arm attached to the rock-shaft and adapted to engage the said movable member when in one position, and a signal in connection with the rock-shaft.

10. A mail-box, comprising a box proper, a closure therefor, a signal, a loaded member having connection with the signal, a retaining device for the loaded member, said device being actuated from the closure, a movable member mounted in the box and adapted to be engaged by the mail, a connection between the movable member and the retaining device of the loaded member, and means for limiting the movement of the said movable member, for the purpose specified.

751,311. **CHUCK FOR ROCK-DRILLING MACHINES.** LEONARD LEWIS, Jr., Luipaardsvlei, Transvaal. Filed Nov. 18, 1903. Serial No. 181,693. (No model.)



Claim.—1. A rock-drill chuck comprising a head or main portion constructed with an internal longitudinally-tapered cavity and a correspondingly-tapered bush split for a portion of its length to form a plurality of compressible jaws constructed to embrace the shank of the drill between said jaws, and made solid or closed at the inner and smaller end to form a stop or abutment to be engaged by the extremity of the drill-shank so that the bush is forced into the head by the drill, and the jaws thereby compressed to grip and secure the drill, substantially as described.

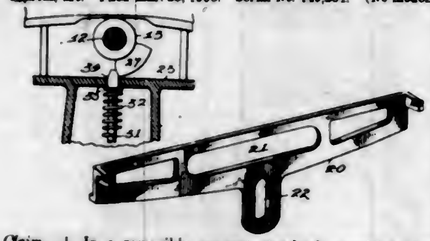
2. In combination in a rock-drill chuck, the head A formed with a longitudinally-tapered cavity C and a parallel inner recess at the bottom of said taper cavity, a correspondingly-tapered bush arranged in said tapered cavity, split to form the larger end of the bush into a plurality of compressible jaws and made solid at its smaller and inner end to form an abutment for the extremity of the drill-shank, and means for forcing the bush partially out of the head to release the drill substantially as described.

3. In combination in a rock-drill chuck, the head A, formed with a longitudinal taper cavity in the front thereof and with an inner parallel recess beyond the taper cavity, a correspondingly-tapered bush D split for a portion of its length in two directions at right angles to form four compressible jaws and closed or made solid at its inner and smaller end to form an abutment or stop for the extremity of the drill-shank when projected between the jaws, substantially as described.

4. In combination in a rock-drill chuck, the head A constructed with the longitudinal taper cavity and the inner parallel recess at the bottom of said taper cavity, the correspondingly-tapered bush D arranged in said taper cavity, split for a portion of its length in two directions at right angles so as to form the outer and larger portion of the bush into four compressible jaws and closed at its inner and smaller end to form an abutment to be engaged by the drill, by which means the bush is forced into the taper cavity in the head to close the jaws on the drill-shank to secure the drill, means for forcing the bush out of the head and means for preventing the bush being forced completely out of the head in the operation of detaching the drill, substantially as described.

5. In combination in a rock-drill chuck, the head A formed with the longitudinal taper cavity C and with the inner parallel recess *a* at the bottom of said cavity, and with a transverse drift-hole G intercepting the parallel recess at the bottom, the correspondingly-tapered bush D split at its larger and outer end for a portion of its length in two directions at right angles to form four compressible jaws d d' d^2 d^3 and closed or made solid at its inner and smaller end to form an abutment or stop to be engaged by the extremity of the drill-shank when projected between the jaws to force the bush into the head to secure the drill, the set screw stud F screwed through the head into engagement with one of the slots to act as a stop by engaging the bottom end of the slot to prevent the bush being forced out of the head in the operation of removing the drill, and the drift or cotter H arranged in the transverse taper hole G in the head to engage the end of the bush to force the same partially out of the head to free the drill, substantially as described.

751,312. **REVERSIBLE CAR-SEAT.** PAUL G. LEISTNER, St. Charles, Mo., assignor of one-fourth to Hermann H. Niemeyer, St. Charles, Mo. Filed Mar. 23, 1903. Serial No. 149,231. (No model.)



Claim.—1. In a reversible car-seat, standards provided with curved guide members, a vertically-adjustable back-section provided at its sides with channeled members, shanks adapted to fit within the channeled members, straps whereby the shanks are secured within the channeled members, two pairs of rollers mounted upon the bases of the shanks and adapted to fit within the guide members, and arms pivotally mounted within the standards in a plane without the plane of the guide members and provided at their upper ends with slots to engage with pins on the outer faces of the shanks, substantially as described.

2. In a reversible car-seat, standards provided with curved guide members, a vertically-adjustable back-section provided at its sides with channeled members, shanks adapted to fit within the channeled members, straps whereby the shanks are secured within the channeled members, two pairs of rollers mounted upon the bases of the shanks and adapted to fit within the guide members, arms pivotally mounted within the standards in a plane without the plane of the guide members and provided at their upper ends with slots to engage with pins on the outer faces of the shanks, foot-rests connected to the back-section, a locking-bar mounted in one of the standards and a foot-lever whereby the locking-bar is actuated; the back-section, seat-section and foot-rests being connected to move simultaneously, substantially as described.

3. In a reversible car-seat, standards provided with curved guide members, a vertically-adjustable back-section provided at its sides with channeled members, shanks adapted to fit within the channeled members, straps whereby the shanks are secured within the channeled members, two pairs of rollers mounted upon the bases of the shanks and adapted to fit within the guide members, arms pivotally mounted within the standards in a plane without the plane of the guide members and provided at their upper ends with slots to engage with pins on the outer faces of the shanks, foot-rests connected to the back-section, a locking-bar mounted in one of the standards and a foot-lever whereby the locking-bar is actuated; the back-section, seat-section and foot-rests being connected to move simultaneously, and adapted to be locked in position by means of the locking-bar and foot-lever, substantially as described.

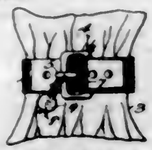
4. In a car-seat, a standard whereon the seat is supported, curved guide members mounted upon the standard, a seat-section, tilting supports whereby the seat-section is carried, parallel foot-rests, slotted arms whereby the foot-rests are slidably connected to each other and pivotally connected to the seat-supports, a vertically-adjustable back-section, shanks whereby the back-section is supported, rollers mounted upon the lower extremity of the shanks and extending into the curved guide members, and connecting-arms whereby the back-section, seat-section and foot-rests are engaged together to operate simultaneously, substantially as described.

5. In a reversible car-seat, connecting means between the back-section and the standards comprising curved guide members 2 mounted on the standards, collars 13 pivotally mounted in the standards, slotted arms extending upward from the outer ends of the collars 13, their slots engaging with pins on the outer sides of the shanks supporting the back-section, the slotted arms being disposed on the outer sides of the curved guide members; the shanks being disposed against the inner sides of the curved guide members, the bases of the shanks being provided with two pairs of rollers which fit within and against the top and bottom flanges of the guide members, substantially as described.

6. A reversible car-seat, comprising two standards, a transverse bar pivotally mounted between the tops of the standards, curved guide members mounted at the tops of the standards, collars mounted upon each end of the transverse bar and provided with depending arms terminating in lugs and at their outer sides in slotted arms, supports carrying the seat-section and slotted horizontally to admit the transverse bar and vertically to admit the lugs on the depending arms, shanks carrying the back-section and provided with pins to engage with the slots in the slotted arms, two pairs of rollers mounted upon the bases of each of the shanks, the rollers fitting within the curved guide members and engaging with the inner sides of the tops and bottoms thereof, the slotted arms being disposed upon the outer sides of the curved guide members; brackets mounted at the tops and on the inner sides of the standards, parallel transverse rods connecting the brackets, foot-rests, slotted arms 26 carrying the foot-rests, the slotted arms 26 being pivotally mounted upon the parallel transverse rods, their slots overlapping, and being penetrated by lugs upon the depending arms, substantially as described.

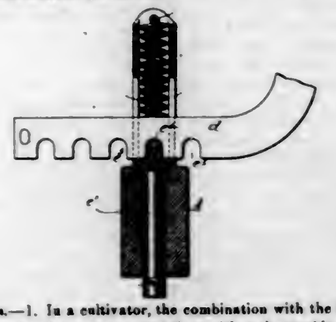
7. A reversible car-seat, comprising two standards, a transverse bar pivotally mounted between the tops of the standards, collars mounted upon each end of the transverse bar and provided with depending arms terminating in lugs and at their outer sides in slotted arms, supports carrying the seat-section and slotted horizontally to admit the transverse bar and vertically to admit the lugs on the depending arms, shanks carrying the back-section and provided with pins to engage with the slots in the slotted arms, two pairs of rollers mounted upon the bases of each of the shanks, the rollers fitting within the curved guide members and engaging with the inner sides of the tops and bottoms thereof, the slotted arms being disposed upon the outer sides of the curved guide members; brackets mounted at the tops and on the inner sides of the standards, parallel transverse rods connecting the brackets, foot-rests, slotted arms 26 carrying the foot-rests, the slotted arms 26 being pivotally mounted upon the parallel transverse rods, their slots overlapping, and being penetrated by lugs upon the depending arms; a locking-bar mounted in one of the standards and a foot-lever whereby the locking-bar is actuated to lock the back-section and seat-section and foot-rests in position, substantially as described.

751,313. SAFETY-LOCK FOR SACKS, BAGS, &c. JOHAN O. N. LINDHOLM, Stockholm, Sweden. Filed Nov. 21, 1902. Serial No. 132,239. (No model.)



Claim.—In combination with a sack, a belt encircling the same, a buckle provided on one end of said belt and having a tongue adapted to project through openings provided in the other end of said belt, said buckle having its frame provided with an opening, said tongue having an opening alining with the opening in the buckle, a wire passing through the openings of the said buckle and tongue, means for securing the ends of said wire together, substantially as described.

751,314. CULTIVATOR. AUGUST LINDGREN, Moline, Ill., assignor to Moline Plow Company, a Corporation of Illinois. Filed Oct. 13, 1903. Serial No. 176,885. (No model.)



Claim.—1. In a cultivator, the combination with the frame, of shovel-carrying beams connected therewith and movable laterally with reference to each other, a connecting member for said beams independent of the frame of the machine, to cause said beams to move in unison, and spring-actuated locking devices for securing said connecting member to the beams, substantially as described.

2. In a cultivator, the combination with the frame, of shovel-carrying beams connected therewith and movable laterally with reference to each other, a connecting member for said beams interlocked therewith, and means for holding the said member and beams yieldingly interlocked.

3. In a cultivator, the combination with the frame, of laterally-movable shovel-carrying beams connected therewith, a connecting-yoke for said beams, fastening devices between the yoke and the beams adapted to be released by the relative movements of the yoke beams, and means for holding said parts yieldingly against said relative movements.

4. In a cultivator and in combination with the frame, laterally-movable shovel-carrying beams connected therewith, a connecting-yoke for said beams, fastening devices between the yoke and beams adapted to be released by a relative movement of the yoke and beams in a vertical direction, and means for holding said parts yieldingly against vertical relative movement.

5. In a cultivator and in combination with the frame, laterally-movable shovel-carrying beams, a connecting-yoke for said beams, fastening devices carried by the beams and adapted to be interlocked with the yoke at different points to vary the distance between the beams, and means for holding said parts yieldingly interlocked.

6. In a cultivator and in combination with the frame, laterally-movable shovel-carrying beams connected therewith, a connecting-yoke for said beams having a central arched portion and horizontal lateral extensions, fastening devices carried by the beams and formed to interlock at different points in the length of the horizontal extensions, and a spring acting to hold the said parts interlocked.

7. In a cultivator the combination with the frame of laterally-movable shovel-carrying beams, a connecting-yoke for said beams having horizontal lateral extensions formed with notches, a frame or casing carried by the beam and having a lug adapted to engage in the notches, and a spring mounted in the frame or casing and bearing on the horizontal extension of said yoke and acting to hold the lug yieldingly in the notches.

8. In a cultivator and in combination with the beams, a connecting-yoke formed with horizontal lateral extensions provided in their lower edges with notches, a casing having a depending stem seated loosely in the beam and formed with a transverse slot through which the lateral extension of the yoke loosely extends, a lug on the casing adapted to be engaged in the notches, and a spring seated in the casing above the lateral extension of the yoke and bearing on the upper edge of the same.

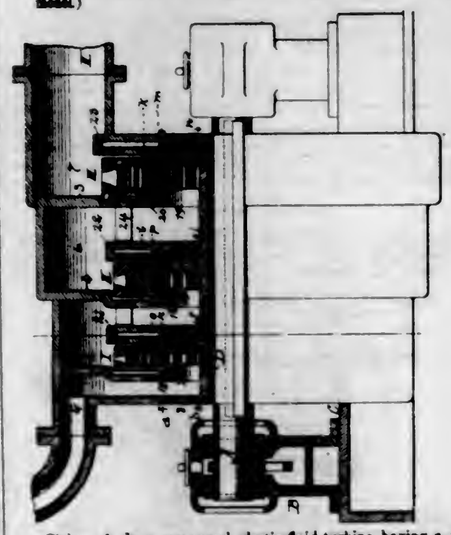
751,315. TURBINE-WHEEL. TORE G. B. LINDMARK, Stockholm, Sweden. Filed June 2, 1903. Serial No. 159,733. (No model.)



Claim.—1. In combination with a turbine-wheel having heads A B inwardly inclined at their circumferential edge to form a contracted escape-opening, a bucket adapted to fit transversely said opening and provided with flanges D at its side edges; the said flanges being secured to said heads.

2. In combination with an outward-flow turbine-wheel having heads A B inwardly inclined at their circumferential edges to form a contracted escape-opening, a plurality of buckets all bent in the same direction and adapted to fit transversely said opening and provided with flanges D at their side edges; the said flanges being secured to said heads.

751,316. COMPOUND STEAM-TURBINE. TORE G. B. LINDMARK, Stockholm, Sweden. Filed June 2, 1903. Serial No. 159,734. (No model.)

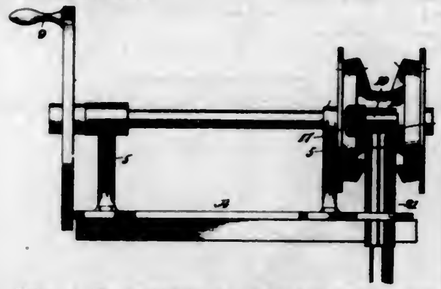


Claim.—1. In a compound elastic-fluid turbine having a plurality of wheels, a plurality of communicating steam-chambers associated with said wheels; the said chambers being constructed and arranged so that the pressure of the working medium axially exerted in one direction in one of said chambers balances the pressure of said medium exerted in the opposite direction in the remaining chambers.

2. In a compound elastic-fluid turbine having a plurality of wheels disposed in successive compartments, a steam-chamber associated with each wheel and in the compartment thereof and receiving steam from said compartment; the said steam-chambers communicating and being constructed and arranged so that the pressure of the working medium axially exerted in one direction in one of said chambers balances the pressure of said medium exerted in the opposite direction in the remaining chambers.

3. In a compound elastic-fluid turbine having a plurality of wheels provided with hubs, a plurality of communicating steam-chambers associated with said wheels and each having a part of one wall formed by a flange on a wheel-hub: the said flanges being constructed so that the pressure of the working medium axially exerted on the hub-flange in one of said chambers balances the pressure of said medium exerted in the opposite direction on the hub-flanges in the remaining chambers.

751,317. MECHANICAL MOVEMENT. ALEXANDER LINDSAY and JOHN MEINERT, Davenport, Iowa. Filed June 5, 1903. Serial No. 160,176. (No model.)



Claim.—1. The combination of a cam-wheel, splines or strips formed on said cam-wheel, the ends of said strips terminating near the center of the cam-wheel at an angle to the main body portion of the strips, a switching-pin mounted between the terminating portions of the cam-wheel, a rotating rod, and a grooved follower-head secured to said rod and adapted to travel over the splines or strips when the cam-wheel is revolved, the construction being such that a rotary reciprocating movement will be imparted to the rod, substantially as set forth.

2. The combination with a rotatable rod, of means for imparting a rotary reciprocating movement to said rod, such means comprising a cam-wheel, splines or strips mounted on said cam-wheel, and the ends of said splines or strips terminating at a point near the center of the barrel of the cam-wheel, and a grooved follower-head secured to the rod and designed to travel over said strips, the construction being such that the follower will be switched from one strip to another to and from the center of the cam, substantially as set forth.

3. The combination of a frame, a driving-shaft journaled therein, a cam-wheel at the end of said shaft, splines or strips mounted on said cam-wheel, the main portion of said strips extending partially around the periphery of the cam-wheel, the ends of said strips being bent at an angle to the main portion thereof, said ends terminating near the center of the cam-wheel, a switching-pin arranged adjacent to the ends of the strips, a rotatable rod journaled in said frame, and a grooved follower-head secured to the upper portion of said rod, the construction being such that when the first-mentioned shaft is rotated the grooved follower-head will travel over the strips and will be directed from one strip to another by the switching-pin, whereby a reversible movement will be imparted to the rod, substantially as set forth.

751,318. CAN-CLOSURE. HARVEY F. MARANVILLE, Akron, Ohio. Filed Aug. 12, 1903. Serial No. 169,166. (No model.)



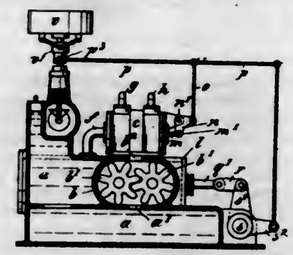
Claim.—1. The combination with a can provided at its upper portion with a slightly inwardly inclined top having a reflected downwardly-turned inner edge, a cover for said can having a depressed central portion surrounded by an upturned groove composed of inner and outer walls, the inner wall to engage said downwardly-reflected edge of said can, said outer wall to bear against the outer face of said inwardly-inclined portion of the can, said outer wall being relatively wider than the inner wall of said cover to engage the inwardly-inclined portion of said can previous to the engagement of the inner wall of said cover and the reflected downwardly-turned inner edge of the can, a washer or its equivalent placed in the concave portion of the groove in said cover to engage the upper annular edge of said can and a washer held in position at the base of the outer wall of said cover to engage the outer portion of the inwardly-inclined top of said can.

2. The combination with a can provided with an inturned shoulder slightly inclined from which projects an inwardly-inclined portion having a reflected downwardly-turned inner edge, a cover for said can having a depressed central portion surrounded by an upturned groove composed of an inner and outer wall, the inner wall to engage said downwardly-reflected edge of said can, said outer wall of said cover of approximately greater width than the inner wall and having its lower portion abruptly turned upward in substantially a horizontal plane and then reflected inwardly toward the can, a washer held within this reflected portion of said outer wall to engage and form an approximately air-tight joint both with the outer side of the inwardly-inclined portion of the can and the inclined shoulder thereof.

3. The combination with a can provided with an inturned shoulder slightly inclined from which projects an upwardly-inclined portion having a reflected downwardly-turned inner edge, a cover for said can having a depressed central portion to engage said downwardly-reflected end of said can, an outer rim to bear against the outer face of said upwardly-inclined portion and means at the bottom of said cover to retain a washer, and a washer so retained capable of frictional engagement with the outside of said upwardly-inclined portion and said inclined shoulder.

4. The combination with a can provided at its upper portion with a slightly inwardly inclined top having a reflected downwardly-turned inner edge, a cover for said can having a depressed central portion to engage said downwardly-reflected edge of said can, the greatest diameter of said depressed portion of said cover which is arranged to enter the upper end of said can being equal to or slightly exceeding the opening bounded by the downwardly-reflected inner edge of said can, an outer rim or wall on said cover to bear against the outer face of said inwardly-inclined portion of said can and means at the bottom of said outer wall of said cover to retain a washer and a washer so retained capable of frictional engagement with the outside of said inwardly-inclined portion and said inclined shoulder.

751,319. SPEED-REGULATOR. EMIL MAURER, Karolinenthal, Austria-Hungary. Filed Dec. 11, 1903. Serial No. 184,724. (No model.)



Claim.—1. In a speed-regulator, the combination of a reservoir with a pump, a communicating valve-box having inlet-channels and exit-channels, a valve having grooves adapted to connect said channels, a cylinder having a piston, means for connecting the cylinder at opposite sides of the piston to the exit-channels, and a return-pipe connecting the valve-box with the reservoir, substantially as specified.

2. In a speed-regulator, the combination of a reservoir with a pump, a communicating valve-box having inlet-channels and exit-channels, a hollow valve having grooves adapted to connect said channels and perforations adapted to register with the exit-channels, a cylinder having a piston, means for connecting the cylinder at opposite sides of the piston to the exit-channels, and a return-pipe connecting the valve-box with the reservoir, substantially as specified.

3. In a speed-regulator, the combination of a reservoir with a pump, a communicating valve-box having inlet-channels and exit-channels, a valve having grooves adapted to connect said channels, a cylinder having a piston, means for connecting the cylinder at opposite sides of the piston to the exit-channels, a return-pipe connecting the valve-box with the reservoir, a governor controlling the valve,

and a regulating-shaft operatively connected to the piston, substantially as specified.

751,320. MANUFACTURE OF RAIL-BONDS. GEORGE A. MEAD, Mansfield, Ohio, assignor to the Ohio Brass Company, Mansfield, Ohio, a Corporation of New Jersey. Filed Oct. 22, 1903. Serial No. 178,055. (No model.)

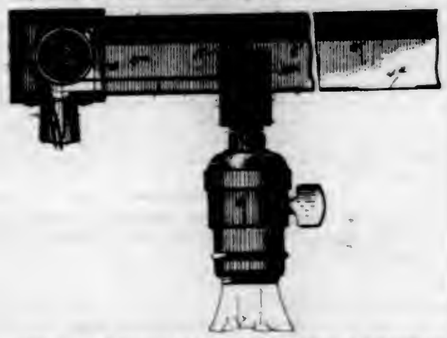


Claim.—1. The process of making rail-bonds from stranded or laminated material, which consists in pressing the component strands or laminations, in the cold, into approximately the shape of the terminal of the finished product, and finally subjecting the formed portions to a welding heat, as and for the purpose set forth.

2. The process of making rail-bonds from stranded or laminated material, which consists in first bending the ends of the strands or laminations into right-angular relation with respect to the body portion of the bond, then upsetting such bent ends in the cold to form studs or terminals of approximately the shape desired in the finished product, and finally subjecting the upset portions to a welding heat and pressure, as and for the purpose set forth.

3. The process of making rail-bonds from stranded or laminated material, which consists in upsetting, bending, or folding upon each other, the ends of the component strands or laminations in the cold state, and then subjecting the upset portions to a welding heat, and finally applying pressure, as and for the purpose set forth.

751,321. ELECTRIC-LIGHT FIXTURE. JOHN J. MILLER, Pittsburg, Pa., assignor of one-half to Henry Braun, Allegheny, Pa. Filed May 21, 1903. Serial No. 158,176. (No model.)



Claim.—1. An electric-light fixture comprising in combination with a shell or casing having a longitudinal slotway and electric conductors mounted therein, of a contact and lamp carrying block longitudinally movable within said shell or casing and having a portion projected through said slotway, for the purposes specified.

2. In an electric-light fixture, a shell or casing having a slotway its entire length, electric conductors fixedly mounted within said casing, a contact-carrying block movable within said casing and slotway, said block including contacts for normally and at all times cooperating with said conductors, for the purposes specified.

3. In an electric-light fixture, a shell or casing slotted its entire length, conductor mounted within and insulated from the shell or casing, a light-carrying block having a portion movable within said shell or casing and a projection movable within said slot, said portion movable within the casing having a pair of parallel bores therein, contact members mounted within said bores for cooperating with said conductors and said projecting portion having a threaded bore for receiving a light-socket connection, for the purposes described.

4. In an electric-light fixture, a shell or casing longitudinally slotted, parallel conductors mounted within and insulated from the shell or casing, a light-carrying block having a portion movable within said shell or casing and a projection movable in said slot, said portion movable within the casing having a pair of parallel bores therein, contact members mounted within said bores for cooperating with said conductors, said contact members consisting of a head and a tapered shank and coil-spring engaging with said head and embracing said shank for holding said contacts in tight frictional engagement with said conductors, a light-carrying socket secured to the projecting portion of said block, for the purposes specified.

5. In an electric-light fixture, a hollow shell or casing, a pair of electric conductors mounted therein and insulated therefrom, said casing including a slotway having an enlarged portion and light-socket-carrying block adapted to be inserted through said enlarged portion of the slotway and adjustable within said shell or casing, for the purposes specified.

6. In an electric-light fixture, the metallic shell or casing, longitudinally slotted, said casing including a cut-away portion, a housing at one end of the casing, a spring-operated reel mounted within and insulated from the housing, an insulated contact and light-carrying block adapted to be inserted into said casing, through said cut-away portion and movable within the casing, stationary conductors mounted within and insulated from the casing, contacts mounted upon said block and insulated from each other for cooperating with said conductors, a cord connection between said block and said reel, means for holding said reel from rotation whereby the block will remain in any desired position, for the purposes specified.

751,322. LOGGING DEVICE. GEORGE MOORE, Monroe, Wash. Filed Sept. 23, 1903. Serial No. 174,316. (No model.)



Claim.—1. A logging device provided with a pull-cable arranged for connection with a log, for pulling the latter, and a holdback-cable arranged for connection with the log and for holding the log back, and a brake mechanism for the holdback-cable, as set forth.

2. A logging device provided with a pull-cable arranged for connection with a log, for pulling the latter, a holdback-cable arranged for connection with the log for holding the log back, means for winding and unwinding the said cables, and a brake mechanism for the holdback-cable, as set forth.

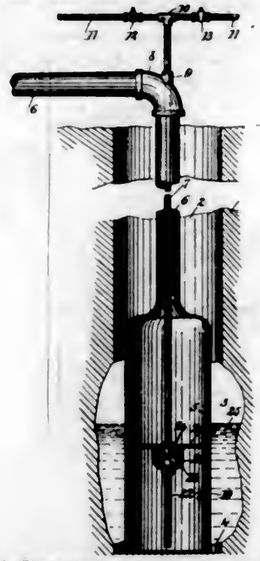
3. A logging device comprising a pull-cable for connection with a log at the forward end, a holdback-cable for connection with the log at the rear end, drums for winding up one of the cables while unwinding the other, a guide for the holdback-cable, located at the starting-point for the logs, and a brake mechanism for the said holdback-cable, as set forth.

4. A logging device for moving logs over a log-chute, comprising a pull-cable, a drum for winding up and unwinding one end of the said cable, a head-grip for connecting the other end of the cable with the forward end of the log, a holdback-cable, a drum for winding and unwinding one end of the said holdback-cable, a tail-grip connected with the other end of the holdback-cable, for connection with the rear end of the log, a guide for the said holdback-cable, located at the starting-point of the road, and a brake mechanism for the said holdback-cable, as set forth.

5. A logging device for moving logs over a log-chute, comprising a pull-cable for connection with a log at the forward end, a holdback-cable for connection with a log at the rear end, drums for winding up one of the cables while unwinding the other, the drums being located adjacent to the lower end of the chute, and a brake mechanism for the holdback-cable, including a brake-wheel on the shaft of the holdback-cable drum, and brake-blocks for engaging the brake-wheel, as set forth.

6. A logging device provided with a holdback-cable, a tail-grip carrying a clamp, for engaging the said holdback-cable, and a safety-grip connected with the terminal of the said holdback-cable, as set forth.

751,323. METHOD OF ELEVATING LIQUIDS FROM WELLS. THOMAS F. MORAN, De Young, and FRED J. MOSER, Kane, Pa. Filed Sept. 5, 1903. Serial No. 172,089. (No model.)



Claim.—1. The method of elevating liquids from wells, which consists in applying compressed air to a body of liquid separated from the main body of liquid in the well for the purpose of raising a portion of said liquid above the general level of the liquid within the well, preventing retrogression of the portion of liquid thus raised, lifting another portion of said liquid and merging the same with the first portion, preventing retrogression of the entire portion thus lifted so as to form a continuous column of comparatively great height, and finally raising the bulk of said column bodily upward to the surface of the earth by means of air at high pressure.

2. The method herein described of elevating liquids from wells, which consists in discharging into the liquid at a low point a quantity of air under pressure for the purpose of raising a portion of the liquid to a level above the general level of the liquid in the well, preventing retrogression of the portion thus raised for the purpose of virtually lengthening the depth of the liquid in a portion of the well, and applying air at high pressure for the purpose of bodily lifting the bulk of the column of liquid thus partially elevated to the surface of the earth.

3. The method herein described of elevating liquids from wells, which consists in applying a succession of air charges of comparatively short duration to the liquid for the purpose of forming the same step by step into a vertical column, and then applying a comparatively continuous charge of air at high pressure for the purpose of elevating bodily to the surface of the earth the bulk of the column thus formed.

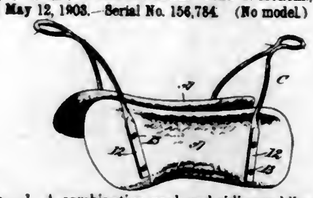
4. The method herein described of elevating liquids from wells, which consists in successively applying compressed air to the liquid for the purpose of raising, by comparatively short steps, a portion thereof, thereby causing the same to form a vertical column of comparatively great depth, and then applying compressed air beneath the column for the purpose of bodily elevating the bulk of the same to the surface of the earth.

5. The method herein described of elevating liquids from wells, which consists in causing a part of the liquid in the well to assume the form of a vertical column extending above the general level of the liquid, preventing retrogression of a portion thus raised, and liberating a gaseous medium under high pressure to said column at a point adjacent to the bottom thereof for the purpose of raising bodily the bulk thereof to the surface of the earth.

6. The method herein described of elevating liquids from wells, which consists in causing a part of said liquids to assume the form of a vertical column, the upper level of which is higher than the general level of liquid in the well, preventing retrogression of the liquid, and finally releasing compressed air within said column at a point adjacent to the bottom thereof, for the purpose of forcing the same through a contracted outlet, thereby causing said column of liquid to become elongated and form a perfect seal.

7. The method herein described of elevating liquids from wells, which consists in applying compressed air to the liquid contained in a chamber for the purpose of elevating a portion of the same above the general level of the liquid in the well, preventing retrogression of the same, causing a portion of the main body of the liquid in the well to enter the partially-vacated chamber, preventing retrogression of the same, finally elevating the same and merging it with the first portion elevated, thereby forming a column of comparatively great depth, and forcing a volume of liquid, representing the bulk of said column, bodily upward to the surface of the earth by means of air applied at high pressure.

751,324. PACK-SADDLE. JOHN T. MORGAN, Boise, Idaho. Filed May 12, 1903. Serial No. 156,784. (No model.)



Claim.—1. A combination pack and riding saddle, consisting of opposing pads, a pommel and a cantle attached respectively to the forward and rear end portions of the pads to connect the same together, said pommel and cantle each formed of a bar bent, at its center, into an approximately horizontal loop, the two sections then extending a short distance in engagement with each other to form a neck and then diverging as they extend farther downwardly, and flattened at their lower ends and provided with perforations for attachment to the pads of the saddle.

2. A combination pack and riding saddle, consisting of opposing pads, a pommel and a cantle attached respectively to the forward and rear end portions of the pads to connect the same together, said pommel and cantle each consisting of an approximately horizontal loop portion at its upper end, divergent limbs at its lower portion and an integral neck connecting said loop and limbs.

3. A combined pack and riding saddle, consisting of opposing pads, horns representing one a pommel and the other a cantle attached respectively to the forward and rear end portions of the pads, which horns consist of limbs connected near their upper ends by a neck, their lower ends being secured to the said pads, and loop-knobs at their upper ends beyond the neck, the forward horn having forward and upward curved inclination and the rear horn an upward and rearward curved inclination, the loop-knobs being substantially horizontal and extending one forward and the other rearward, as specified.

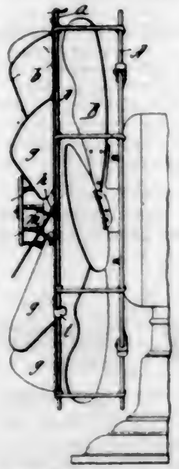
4. A combination pack and riding saddle, consisting of opposing pads, and a pommel attached to the forward end portion of the pads connecting the same together, said pommel consisting of an approximately horizontal loop portion at its upper end, divergent limbs at its lower portion and an integral neck connecting said loop and limbs.

751,325. FAN-DEFLECTOR. NEWTON MORGAN, Springfield, Mass. Filed Aug. 3, 1903. Serial No. 167,967. (No model.)

Claim.—1. In a device of the character described, the combination with the protective cage of a rotary fan, of an air-current-deflecting device consisting of a frame comprising an outer circular ring, a central member and connections extending between the latter and the ring, attachment-clips for connecting the ring to the fan-cage, deflector-blades located between the said inner member and outer ring having individual operating extensions, and a rotary part shiftable on the central member with which said operating extensions are respectively engaged, for the purposes set forth.

2. In a device of the character described, the combination with a circular frame comprising an outer ring and an inner member, of a series of blades arranged between the outer ring and the inner member, mounted for swinging movements individually and having operating extensions, and a part rotationally shiftable on the said central member with which said extensions engage, for the purposes set forth.

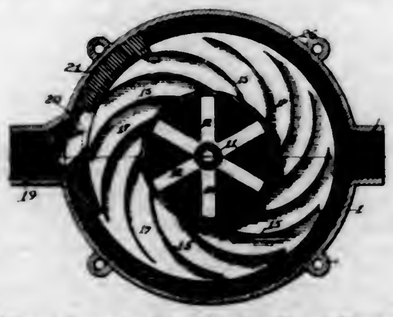
3. In a device of the character described, the combination with a circular frame comprising an outer ring, and an inner member, of a series of blades arranged between the outer ring and the inner member, mounted for swinging movements individually and having operating extensions, and a cup-shaped part rotationally shiftable on the said central member, having a plurality of slots in which said extensions engage, for the purposes set forth.



4. In a device of the character described, the combination with a circular frame, comprising an outer ring, an inner member, and the radial rods, of a series of blades arranged between the outer ring and the inner member, having tubular portions encircling the rods and adapted for swinging movements, individually, and having operating extensions, and a part rotationally shiftable on the said central member with which said extensions engage, for the purposes set forth.

5. In a device of the character described, the combination with the deflector-frame comprising the outer ring, the central cup-shaped member and the radial rods extending between the cup-shaped member and the outer ring, of the deflector-blades having the edges *f* thereof, of tubular form embracing the respective rods and having the projections *m* at their inner ends, and the cup-shaped part *j* having the series of slots *k* in which said projections *m* respectively engage, said part *j* being rotationally shiftable relatively to the said central member of the deflector-frame.

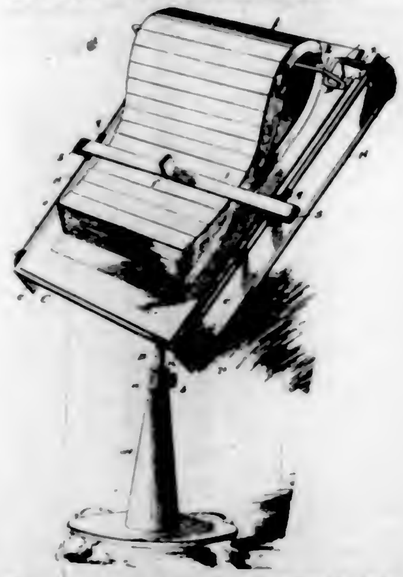
751,326. **STEAM-MOTOR.** SYLVESTER L. MCADAMS, Beaverhills, Pa. Filed May 7, 1903. Serial No. 156,067. (No model.)



Claim.—1. In a motor, the combination with a shell having an inlet and an outlet, of a rotator or piston within the shell and comprising an integral hub, spokes, annular rim and a series of curved blades or vanes connected at their one ends to the annular rim, abutments on one side of the annular shell on the inner face thereof and having an inclined passage therethrough, shoulders on said abutments, and upper and lower plates cast integral with the blades or vanes and having their projecting periphery engaging on the shoulders of the abutments, said abutments extending on each side of the air-inlet passage an equal distance slightly in excess of the distance between the ends of the curved veins, substantially as described.

2. In a motor of the type described, an annular shell having an inlet and outlet with an inclined passage communicating with the inlet and extending through a shouldered abutment on the inner surface of the shell, a rotary piston formed with side plates and vanes journaled within the annular shell concentric thereto and of less diameter than the shell, said side plates extending beyond the face of said abutment and embracing the sides thereof, substantially as described.

751,327. **COPY-HOLDER.** JOSEPH W. MCCAIN, Washington, D. C. Filed June 6, 1903. Serial No. 160,373. (No model.)



Claim.—1. In a copy-holder, the combination of a body, belts, elastic in themselves mounted at either side of the body, and a line-guide reaching transversely across the face of the body and connected to the belts so as to move therewith.

2. In a copy-holder, the combination of a body, belts, elastic in themselves mounted at either side of the body, and a line-guide of resilient material reaching transversely across the face of the body, and connected to the belts so as to move therewith.

3. In a copy-holder, the combination of a body, belts mounted at either side of the body, and a line-guide reaching transversely across the body, and having loops, extending outwardly beyond the belts, and also having its ends connected to the belts, whereby it is adapted to move with the same.

4. In a copy-holder, the combination of a body, lower and upper transverse shafts journaled in the body, pulleys fixed on said shafts, at either side of the body, wire belts mounted on the pulleys, and having coiled springs in their upper stretches, and a line-guide of resilient material connected to the upper stretches of the belts, and having loops extending beyond the same, and also having a finger-piece at an intermediate point of its length.

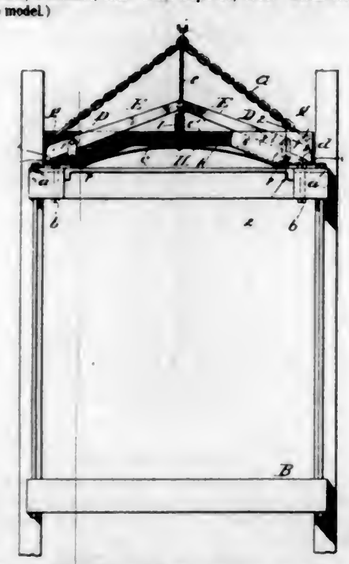
5. In a copy-holder, the combination of a body, and a clamp arranged to hold sheets of paper against the face of the body, and having a loop adapted to receive and support an open note-book.

6. In a copy-holder, the combination with a body having an impaling-pin at its upper end, and a clamp arranged to hold sheets of paper against the face of the body, and having a loop adapted to receive and support an open note-book.

7. In a copy-holder, the combination with a body having an impaling-pin at its upper end, and a loop connected to the body and adapted to receive and support an open note-book.

8. In a copy-holder, the combination of a body, a combined hanger and clamp comprising end portions or trunnions journaled in bearings on the body, portions depending from the end portions, and a loop extending outwardly from the depending portions, and one or more springs for normally pressing the depending portions of the hanger and clamp against the body.

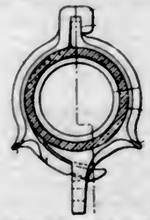
751,328. **SAFETY-CATCH FOR ELEVATORS.** HENRY F. MCDONALD, Fontanet, Ind. Filed Sept. 30, 1903. Serial No. 175,195. (No model.)



Claim.—1. In a safety-catch for elevators, the combination of an elevator-car, guides therefor, a channel-bar arranged on and fixed to the car, with its ends adjacent to the guides, and having a concavity at its under side, vertical links pivoted in the channel-bar, dogs fulcrumed on said links, and having outer arms adapted to engage the guides, a cable connected with the inner arms of the dogs, and also connected with the car, a bowed spring arranged in the concavity of the channel-bar, and connected at its ends thereto, and a coiled spring extending through an opening in the bottom of the channel-bar, and connecting the bowed spring and the inner arms of the dogs.

2. In a safety-catch for elevators, the combination of an elevator-car, guides therefor, a channel-bar arranged on the car, with its ends adjacent to the guides, and having a concavity at its under side, bolts connecting the channel-bar and the car, and having heads disposed above the bottom of the latter, vertical links pivoted in the channel-bar, dogs fulcrumed on said links, and having outer arms adapted to engage the guides; said outer arms having shoulders adapted to normally bear against the bolt-heads, a cable connected with the inner arms of the dogs, and also connected with the car, a bowed spring arranged in the concavity of the channel-bar, and connected at its ends to said bar, and a coiled spring extending through an opening in the bottom of the channel-bar, and connecting the bowed spring and the inner arms of the dogs.

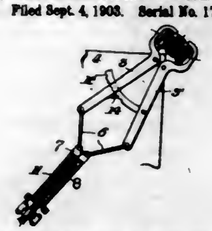
751,329. **HOSE-CLAMP.** MILTON P. MCLAUGHLIN, Wakefield, Mass. Filed July 20, 1903. Serial No. 166,220. (No model.)



Claim.—1. A hose-clamp comprising segments having at one end interlocking members one of which is a hook whose recess faces inwardly, the other being a projection adapted to enter said recess by an outward movement, said members having permanent complemental devices locking against relative axial movement by the fitting together of said members, and means for locking together the opposite ends of said segments.

2. A hose-clamp comprising segments having at one end respectively a hook whose recess faces inwardly and a projection to enter said hook, said members interlocking by a movement of the segments partly radial and partly pivotal, and adjustable positive locking means at the other end of the members having a plurality of set or predetermined locking-divisions giving different diameters of aperture to the clamp, the arrangement being such that the ends of the segments bearing said locking means are brought successively into their several predetermined locking positions by a continuation of the said interlocking movement of the segments.

751,330. **ELEVATOR SAFETY DEVICE.** JOSEPH HAMBURG, Tarentum, Pa. Filed Sept. 4, 1903. Serial No. 171,965. (No model.)



Claim.—In a device of the type set forth, the combination with the elevator-cage, the vertical rail of the elevator-well and the suspension means, of a pair of gripping members movably mounted in and extending over one corner of said cage, on each side of the rail, means carried within the said members adapted to engage the rail, spring means secured to the cage and to the gripping members and adapted to force the latter into engagement with the rail, means for retaining said members in engagement with the rail, said suspension means having connection with said gripping members whereby on the breaking thereof the gripping members will be forced into engagement with the rail.

751,331. **NECKTIE.** CARL HOLLENBERGER, Leadville, Colo. Filed June 9, 1903. Serial No. 160,719. (No model.)



Claim.—1. In neckties, a bow provided with a central transverse loop-section, and a rigid attaching-strip removably passed between the loop-section and the body of the bow at the rear of the latter, the ends of the strip being free and projecting beyond the sides of the said loop-section for the purpose set forth.

2. In neckties, a bow comprising a body and a transverse centrally-located loop-section, an attaching-strip passed between the loop-section of the bow and the body at its rear portion, the ends of the strip being free and projecting beyond the sides of the loop-section and stops located on the projecting ends of the said attaching-strip, one at each side of the central loop-section, as described.

3. In a necktie, a support, a bow detachable from the said support and reversible thereon, the said bow comprising a body-section, a central transverse loop-section, an attaching-strip passed at the rear of the bow, between the central loop-section and the body-section, the ends of the strip being free and projecting beyond the sides of the loop-section and removable loops on the projecting ends of the attaching-strip, one at each side of the said loop-section and connecting the said strip with the said support for the tie, as described.

4. In neckties, a neckband, a tie-strip secured to the neckband, a bow comprising a body-section and a centrally-located loop-section, an attaching-strip passed between the loop-section and body-section of the bow at the back, the ends of the attaching-strip being free and projecting beyond the sides of the loop-section and means substantially as described, for detachably attaching the projecting ends of the attaching-strip to the tie-strip, as specified.

751,332. **NECKTIE.** CARL HOLLENBERGER, Leadville, Colo. Filed Aug. 17, 1903. Serial No. 169,770. (No model.)

Claim.—1. A bow-tie consisting of folding body members, a loop member having fastening devices at its ends capable of ready attachment and adapted when in action to secure the loop member in confining position on the body members, transversely thereof, the said body members being arranged to fold backward and forward upon

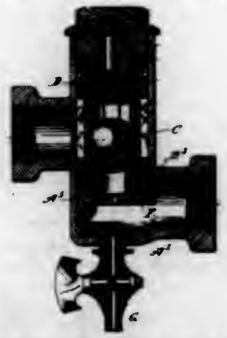
themselves, whereby to present different faces of the said body members to the front and conceal the worn faces, the said loop member being reversible, as described.



2. A bow-tie, consisting of body members attached at their central portions, a loop member for the central portion of the body members, detachable therefrom, and a fastening device for the loop member, as set forth.

3. A bow-tie consisting of front and rear body members, central loop members for the body members, the central loop members having a hinged connection, and a fastening device carried by each loop member, which fastening devices in the closed position of the tie are adapted to be connected, as and for the purpose set forth.

751,333. **VALVE.** NICHOLAS OBOLENSKY, Hermitage, N. Y., assignor of fifty-one one-hundredths to John McGarvey, Rochester, N. Y. Filed Mar. 17, 1903. Serial No. 148,193. (No model.)



Claim.—1. A check-valve having a valve-body provided with a continuous passage, a cage removably held in the said valve-body and having a valve-seat screwing in the end of the cage and extending in the said passage, the valve-seat being removable with the said cage, a valve proper movable in the said cage and adapted to be seated on the said valve-seat, and a stop adjustable in the cage, to regulate the opening of the said valve, as set forth.

2. A check-valve having a valve-body provided with a continuous passage, a cage comprising a tubular body provided with openings in its side walls between the ends thereof, the said cage being removably and reversibly held in the valve-body and provided at its inner end with a valve-seat screwing into the cage, a valve proper in the cage and adapted to engage the said seat, a valve-seat screwing in the outer end of said cage-body, a cap screwing on the valve-body and adapted to engage the outer valve-seat, and a stop extending through the outer valve-seat into the cage, to be engaged by the valve therein; the said stop being adjustable in direction of the length of the cage, as set forth.

3. A check-valve having a valve-body provided with a continuous passage, a cage removably and reversibly held in the valve-body and provided at both ends with valve-seats screwing into the ends of the cage, a valve proper in the cage between the said seats, a stop extending through one of the valve-seats into the cage, to be engaged by the valve therein, and a cap on the said valve-body, adapted to engage the cage, to hold the latter in place, the said cap having a screw-threaded recess in its inner face into which the stem of said stop screws, as set forth.

751,334. **SEWING-AWL.** THOMAS O'SHAUGHNESSY, San Jose, Cal. Filed June 26, 1903. Serial No. 163,225. (No model.)

Claim.—A sewing-awl comprising a handle, a tubular ferrule removably mounted on the handle, the walls of the outlet of the opening of said ferrule being angular, an awl having a shank corresponding in shape to the walls of said opening and having a conical end, a removable plug on the ferrule and having a recess to receive the conical end of the awl, and an angular lug extended from said plug.

751,884.



751,335. **CLOSURE FOR VESSELS.** FRANK C. B. PAGE, New York, N. Y., assignor to Air Tight Closure Company, New York, N. Y., a Corporation of New York. Filed Mar. 21, 1903. Serial No. 148,820. (No model.)



Claim.—1. A vessel having an external shoulder, a loose temporary cover therefor having a downwardly-turned circumferential flange, and a continuous circumferential band of sheet metal having its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel, said band weakened at a point in its circumference and adapted to be readily broken at such weakened point to release the cover.

2. A vessel having an external shoulder, a cover therefor, and a continuous circumferential band of sheet metal having its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel, said band being weakened at a point in its circumference, and an eye being provided to receive an opening-tool adjacent to such weakened point whereby it may be readily broken at such point.

3. A vessel having an external shoulder, a loose temporary cover therefor having a downwardly-turned flange, and a continuous circumferential band of sheet metal having its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel, said band cut partly through from opposite sides whereby it is weakened, and adapted to be readily broken at such weakened point to release the cover.

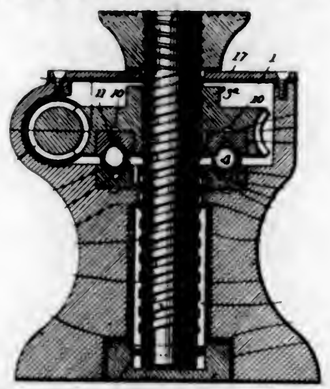
4. A vessel having an external shoulder, a cover therefor, and a continuous circumferential band of sheet metal having its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel, said band cut partly through from opposite sides whereby it is weakened, and a narrow strip is formed, and said strip bowed outward to form an eye to receive an opening-tool whereby the band may be readily broken.

5. A continuous circumferential band of sheet metal for holding the cover on a vessel, cut partly through at a point in its circumference whereby it is weakened, and shaped to provide an eye to receive an opening-tool adjacent to such weakened point whereby such weakened portion may be readily broken.

6. A continuous circumferential band of sheet metal for holding the cover on a vessel, cut partly through from opposite sides to form notches with a narrow strip between, and said strip bowed outwardly.

7. A seamless drawn band of sheet metal for holding a cover on the mouth of a vessel, so weakened at a point in its circumference that at such point it may be readily broken, and shaped to provide an eye to receive an opening-tool adjacent to such weakened point whereby it may be quickly torn to permit its removal.

751,336. **LIFTING-JACK.** MARTIN V. H. PERKINS, New York, and GEORGE Y. PATTERSON, Brooklyn, N. Y. Filed Mar. 26, 1903. Serial No. 149,662. (No model.)



Claim.—1. In a lifting-jack, a standard or casing, a worm-wheel horizontally arranged within the casing, a lifting-screw extending centrally through the worm-wheel and having a threaded engagement therewith, a worm-shaft having thereon a worm engaging said worm-wheel, a ratchet-wheel secured to said shaft, and means for operating said ratchet-wheel comprising a lever journaled upon the shaft, a slide carried by said lever, a spring normally pressing said slide toward the ratchet-wheel, and a centrally-pivoted pawl carried by said slide and having its opposite ends suitably formed to engage and move the ratchet-wheel in opposite directions.

2. In a lifting-jack, a standard or casing, a worm-wheel horizontally arranged within the casing, a lifting-screw extending centrally through the worm-wheel and having a threaded engagement therewith, a worm-shaft having a worm engaging said worm-wheel, a ratchet-wheel secured to said shaft, and means for operating said ratchet-wheel comprising a lever journaled upon the worm-shaft, said lever having intersecting slots near its inner end, a slide in one of said slots, a pawl arranged in the other slot and pivotally connected to said slide, and a spring normally pressing said slide toward the ratchet-wheel.

3. In a lifting-jack, a standard or casing, a worm-wheel horizontally arranged within the casing, a lifting-screw extending centrally through the worm-wheel and having a threaded engagement therewith, a worm-shaft having a worm thereon engaging said worm-wheel, a ratchet-wheel secured to said shaft, and means for operating said ratchet-wheel comprising a lever having forked arms journaled upon the shaft at opposite sides of the ratchet-wheel, said lever having intersecting slots near its inner end, a slide in one of said slots, a pawl in the other slot and pivotally connected to said slide, and a spring normally pressing said slide toward the ratchet-wheel.

4. In a lifting-jack, a standard or casing, a worm-wheel horizontally arranged within the casing, a lifting-screw extending centrally through the worm-wheel and having a threaded engagement therewith, a worm-shaft having a worm engaging said worm-wheel, a ratchet-wheel secured to said shaft, and means for operating said ratchet-wheel comprising a lever journaled upon the worm-shaft, said lever having intersecting slots near its inner end, a slide arranged in one of said slots and having forked arms, a shaft or pin journaled in said forked arms, a reversible pawl arranged in the other of said slots and secured to said pin, and a spring normally pressing said slide toward the ratchet-wheel.

5. In a lifting-jack, a base or standard having an opening extending therethrough, and a socket at each end of said opening, a worm-wheel arranged in the upper socket, a lifting-screw extending through and supported by said worm-wheel, and a lubricating cup or receptacle extending upwardly into said opening from the base of the standard and surrounding the lower part of the screw, said receptacle having a head at its lower end fitting into the lower socket in the standard.

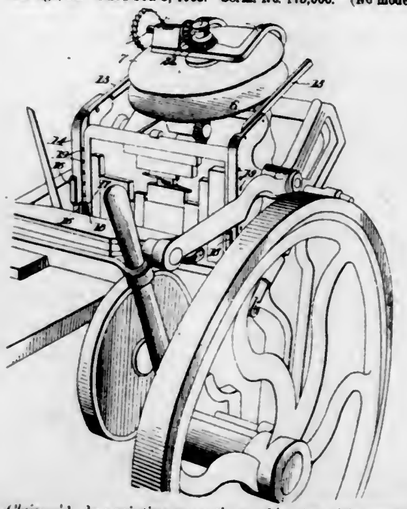
6. In a lifting-jack, a base or standard having an opening extending therethrough and a socket at each end of said opening, a worm-wheel arranged in the upper socket, a cover-plate extending over said socket, a lifting-screw extending through and supported by said worm-wheel, and a lubricating cup or receptacle extending upwardly into said opening from the base of the standard and surrounding the lower part of the screw, said receptacle having a head at its lower end fitting into the lower socket in the standard.

7. In a lifting-jack, a standard or casing having a vertical opening, a lifting-screw vertically arranged in said standard, a horizontally-arranged wheel supporting said screw and having a threaded connection therewith, said wheel being rotatable about the screw and having an annular ball-raceway on its lower side, said standard also having an opposing ball-raceway, and balls within said raceways, the walls of each of said raceways being arranged to engage the balls at two points on opposite sides of their vertical diameters.

8. In a lifting-jack, a standard or casing having a socket in its upper end, an annular groove or channel in the base of said socket and a vertical opening extending downwardly from said socket, a wheel arranged within said socket and having an annular groove in its lower face, a lifting-screw extending through the hub of said wheel, said wheel being rotatable on the screw, annular bearings arranged within the channels of the wheel and socket, said bearings having raceways, the walls of which are arranged substantially at right angles to one another, and balls arranged within said raceways.

9. In a lifting-jack, the combination with the base or standard, the lifting-screw and the worm-wheel threaded upon said screw, of a worm-shaft having a worm engaging said wheel, and ball-bearings for said worm-shaft comprising sleeves secured to the shaft at opposite ends of the worm and having annular grooves therein, balls in said grooves, ball-retainers secured to the sleeves and adapted to hold the balls in place, tapering sleeves or shells fitting into suitable openings in the standard and extending around the balls, one of said tapering sleeves being fixed in position and the other sleeve being adjustable, and a locking-nut upon said latter sleeve.

751,337. **MULTICOLOR-PRINTING PRESS.** CLAUDE L. POST, Chicago, Ill. Filed Oct. 3, 1903. Serial No. 175,660. (No model.)



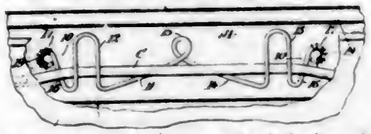
Claim.—1. In a printing-press, the combination with oppositely-presented inking-disks, and a track beside the same, of inking-rolls for different colors, movable between the disks, and rollers of different diameters carried on the different rolls and traveling upon the track, causing the rolls to respectively contact with different disks.

2. In a printing-press, the combination with upper and lower inking-disks facing each other, a bed, and a track beside the bed and disks, of inking-rolls for different colors movable over the bed and between the disks, rollers having different diameters carried on the rolls and traveling upon the track, and cams upon the track beside the bed, arranged in alternation to lift and lower the different rolls with respect to the bed.

3. The combination with the oppositely-presented inking-disks, and means to rotate, and means to vary the space between, the same, of inking-rolls traveling between the disks, and means to cause part of the rolls to contact with one disk and part with the other.

751,338. **DRAWERS-SUPPORTER.** HENRY W. POST, New York, N. Y. Filed Aug. 31, 1903. Serial No. 171,357. (No model.)

Claim.—1. A drawers-supporter, consisting of a single piece of spring material having a central body-section, bent upon itself at its center to form an eye, sustaining-loops at each side of the center of the body-section, extending in the same direction as the central eye, and terminal members extending in substantially the same direction as the said sustaining-loops, the terminal members being provided with eyes at their extremities, for the purposes set forth.



2. A drawers-supporter, consisting of a single piece of spring material having a central body-section adapted to be disposed parallel with the waistband of the trousers, vertically-disposed sustaining-loops at each side of the center of the body-section, and terminal members extending outwardly and upwardly to a point below the tops of said sustaining-loops, the terminal members being provided with eyes at their extremities, for the purposes set forth.

3. The combination with a pair of trousers of a drawers-supporter consisting of a single piece of spring material having a central body-section adapted to be disposed parallel with the waistband of the trousers, vertically-disposed sustaining-loops at each side of the center of the body-section, terminal members extending outwardly and upwardly to a point below the top of said sustaining-loops, and eyes at the extremities of said terminal members, said eyes registering with the suspender-buttons and secured to the inner side of the waistband by the same threads that secure the buttons in position.

751,339. WICK-TRIMMER. JAMES F. PRESNELL, Chicago, Ill. Filed June 2, 1903. Serial No. 159,761. (No model.)



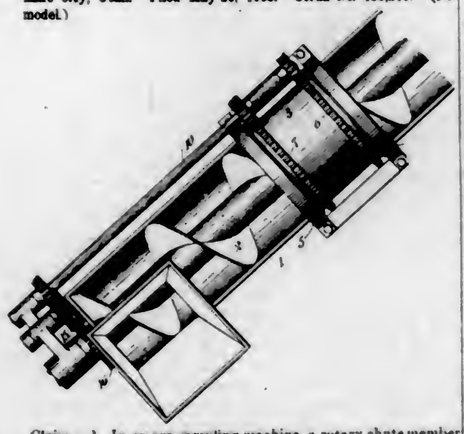
Claim.—1. A wick-trimmer comprising an inverted cupped block having scrapers extending across the cup.

2. A wick-trimmer comprising a block having cutters on one side and a cloth on the other, substantially as described.

3. A wick-trimmer comprising a cupped block and wires extending across the cup.

4. A wick-trimmer comprising a cupped block, wires extending across the cup on one side of the block, a cloth over the other side of the block, and clamping-rings fitting over the sides of the block upon the wires and cloth, substantially as described.

751,340. ORE-SAMPLING MACHINE. WILLIAM L. RAHT, Salt Lake City, Utah. Filed May 29, 1903. Serial No. 159,285. (No model.)



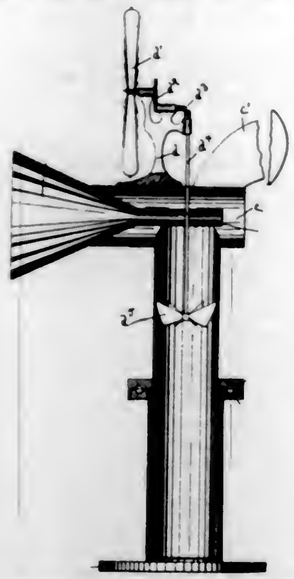
Claim.—1. In an ore-sampling machine, a rotary chute member having an opening between its ends, and means for causing the discharge of material through said opening at intervals.

2. In an ore-sampling machine, a conveyer-chute, a rotary section in said chute having an opening, and means for causing the rotary movement of said section.

3. In an ore-sampling machine, a conveyer-chute, a worm or screw operating therein, a rotary section in said chute and having an opening, and means operated from the conveyer-worm for causing rotary movement of said section.

4. In an ore-sampling machine, a conveyer-chute, a rotary section in said chute, flanges on the ends of the fixed portions of the chute adjacent to said rotary section and engaging with said section, rollers supported by said flanges and engaging with the rotary section, a worm conveyer in the chute, and gear connections between said worm conveyer and said rotary section.

751,341. FLUE-VENTILATOR. HOYT RAYMOND, Chicago, Ill. Filed Sept. 21, 1900. Serial No. 30,664. (No model.)



Claim.—1. In a ventilating device, the combination with a flue of a rotatable pipe forming a continuation of the upper end of said flue, a second pipe attached to the upper end of said first-named pipe and transversely thereof, said second pipe forming a continuation of the first-named pipe, a funnel-shaped tube having its orifice within said second pipe and adapted to pass a current of air across the mouth of said first pipe to create a suction therein, a fan in said first pipe, a wind-wheel mounted upon said second-named pipe and serving to drive said fan; the said second pipe, funnel-shaped tube and wind-wheel being all rotatable with said first pipe, and a vane carried by said rotatable parts and so arranged as to automatically hold both said funnel-tube and said wind-wheel in proper position with reference to the direction of the wind, substantially as described.

2. In a ventilating device, the combination with a flue having a bearing a^3 at its upper end, a pipe extending into the end of said flue and having intermediate of its ends the cooperating bearing b' adapted to rotatably support the said pipe upon the said flue, said bearing b' having a depending rim adapted to closely overlap the periphery of the bearing a^3 to prevent lateral displacement of the said pipe and to prevent the bearing from rusting or becoming filled with dust and dirt, the lower end of said pipe serving also to prevent the same from becoming displaced from the flue, a second pipe transverse to said first-named pipe and carried upon the upper end thereof so as to form a continuation of the first-named pipe and the flue, a funnel-shaped tube carried within said second pipe and having an enlarged end projecting beyond the end of said second pipe, the inner end of said funnel-shaped tube terminating beyond the center of the first-named pipe so as to direct a current of air over the end of the first-named pipe and thereby create a draft within the flue and pipe, a fan horizontally disposed within the first-named pipe, a vertically-disposed shaft extending upwardly through the first-named pipe and above the second-named pipe, a wind-wheel mounted upon the top of said second-named pipe and fating in the same direction as the funnel-shaped tube, said wind-wheel being geared to the upper end of said shaft to rotate the same and thereby operate said fan, and a vane carried by said second-mentioned pipe and serving to hold the wind-wheel and the funnel-shaped tube toward the wind, substantially as described.

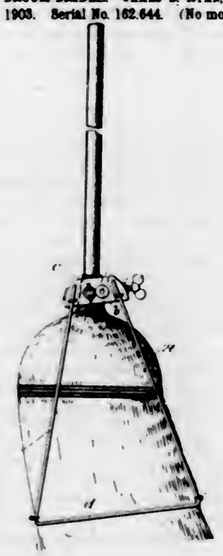
751,342. WRENCH. HARRY A. RUGGLES, Chicago, Ill., assignor to Florence M. Jones and Salmon W. Dalberg, Milwaukee, Wis. Filed Jan. 19, 1903. Serial No. 139,676. (No model.)



Claim.—1. In a wrench, the combination with a stock having a longitudinally-disposed slot provided at its ends with open-sided sockets, of a threaded shank located in the slot and having its ends fitted in the sockets, plates covering the open sides of the sockets and extending across the ends of the shank to hold said shank in place, a stirrup slidingly embracing the stock, an adjusting-nut threaded on the shank and engaging the stirrup, and coacting jaws carried respectively by the stock and stirrup.

2. In a wrench, the combination with a stock having a longitudinally-disposed slot, of a stirrup embracing the stock and slidable thereon, said stirrup having openings in its opposite faces that aline with the socket, a threaded shank arranged in the slot, an adjusting-nut threaded on the shank and engaging in the openings of the stirrup, and a jaw pivoted to and between the ends of said stirrup.

751,343. BROOM-BRIDLE. JAMES B. RYAN, Kansas City, Mo. Filed June 22, 1903. Serial No. 162,644. (No model.)



Claim.—1. A broom-bridle comprising a block having a vertically-disposed, oblong aperture, tapered or gradually reduced in length upwardly, and adapted to receive a broom-handle, a screw bearing in the wall of the aperture in the block, and adapted to engage the handle, and means fixed to and movable with the block, for receiving and reinforcing a broom-head.

2. A broom-bridle comprising a block having a vertically-disposed, oblong aperture, tapered or gradually reduced in length upwardly, and adapted to receive a broom-handle, a screw bearing in one end wall of the aperture in the block, and adapted to engage the handle and bind it against one of the inclined walls of the aperture in the block, and means fixed to and movable with the block, for receiving and reinforcing a broom-head.

3. A broom-bridle comprising a block having a vertically-disposed, oblong aperture, tapered or gradually reduced in length upwardly, and adapted to receive a broom-handle, screws bearing in one side wall and one end wall, respectively, of the aperture in the block, and adapted to engage the handle when the same is placed against one of the inclined walls of said apertnre, loop-shaped members fixed to, depending from and movable with the block, and arranged to rest at opposite sides of a broom-head, and loose connections between the said members at the lower corners thereof.

751,344. TELEPHONE-RECEIVER. LEWIS SANDS and CHARLES C. CADDEN, Cleveland, Ohio, assignors to Williams-Abbott Electric Company, Cleveland, Ohio. Filed Mar. 6, 1903. Serial No. 146,586. (No model.)



Claim.—1. In a telephone-receiver, the combination with the casing thereof, of a cord therefor passing freely through the casing, a support of insulating material carried by the receiver within the casing, the said support having apertures, terminals within the said apertures, the said support having a second set of apertures through which terminal wires of the receiver's electromagnet are passed into permanent connection with the terminals within the first aforesaid apertures, the receiver's cord being provided with end tags adapted for insertion within the said apertures and electrical connection with the terminals therein, and binding-screws passing through the supporting-block into engagement with the end tags of the cord, substantially as described.

2. In a telephone-receiver, the combination with the casing thereof, of a cord therefor passing freely through the casing, a support of insulating material carried by the receiver within the casing, the said support having apertures, of terminal sleeves within the said apertures the said support having a second set of apertures through which terminal wires of the receiver's electromagnet are passed into permanent connection with the terminals within the first aforesaid apertures, the receiver's cord being provided with end tags adapted for insertion within the said apertures and electrical connection with the terminals therein, and binding-screws passing through apertures in the supporting insulating material and the said sleeves into engagement with the end tags of the cord, substantially as described.

3. In a telephone-receiver, the combination with the casing thereof, of a follower-ring for clamping the receiver's diaphragm upon its seat, the said ring being threaded upon its interior and exterior and having threaded engagement at its exterior with the casing of the receiver, an earpiece having threaded engagement with the interior of the follower-ring, said earpiece having an outwardly-

extending flange covering the ring and adapted to engage the receiver's casing and a cup *h* supporting at its bottom the magnet of the receiver and carrying the seat *i* for the diaphragm, said cup and diaphragm being both held upon the casing of the receiver, substantially as described.

4. In a telephone-receiver, the combination with the casing thereof, of a cord therefor passing freely through the casing, a support of insulating material carried by the receiver within the casing, the said support having apertures, terminals within the said apertures, the said support having a second set of apertures through which terminal wires of the receiver's electromagnet are passed into connection with the terminals within the first aforesaid apertures, the receiver's cord being provided with end tags adapted for insertion within the said apertures and electrical connection with the terminals therein, and binding-screws passing through the supporting-block into engagement with the end tags of the cord, substantially as described.

5. In a telephone-receiver, the combination with the casing thereof, of a cord therefor passing freely through the casing, a support of insulating material carried by the receiver within the casing, the said support having apertures, of terminal sleeves within said apertures, the said support having a second set of apertures through which terminal wires of the receiver's electromagnet are passed into connection with the terminals within the first aforesaid apertures, the receiver's cord being provided with end tags adapted for insertion within the said apertures and electrical connection with the terminals therein, and binding-screws passing through apertures in the supporting insulating material and the said sleeves into engagement with the end tags of the cord, substantially as described.

6. In a telephone-receiver, the combination with the casing thereof inclosing a receiver, of a receiver-cord extending freely through the receiver-casing and attached within the casing to the terminals of the receiver's electromagnet, a ring through which the permanent magnet of the receiver is passed, and a loop through which the ring is passed, the said loop being attached to the cord to relieve the terminals of the cord within the casing of strain, substantially as described.

751,345. DRILL-CHUCK. WILLIAM H. SAUNDERS, New London, Conn. Filed Jan. 28, 1903. Serial No. 140,852. (No model.)

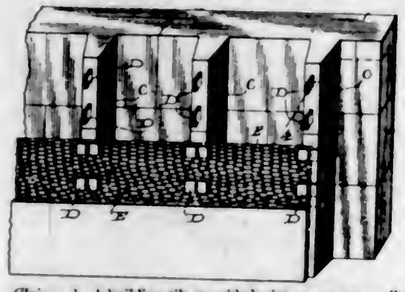


Claim.—1. A drill-chuck comprising a socket, inclined ways communicating with the interior of the socket, locking-pieces arranged in the ways and adapted to protrude into the socket and means for removing the locking-pieces from the socket comprising longitudinally-movable pins bearing against the pieces, substantially as described.

2. A drill-chuck comprising a socket, inclined ways or passages communicating with the interior of the socket, locking-pieces arranged in the ways and adapted to protrude into the socket, springs interposed between the locking-pieces and the outer ends of the ways or passages, and means for removing the locking-pieces from the interior of the socket comprising longitudinally-movable pins bearing against the pieces, substantially as described.

3. A drill-chuck comprising a socket, inclined ways communicating with the interior of the socket, locking-pieces located in the ways and having their lower ends normally projecting into the interior of the socket, a vertically-movable collar, and pins bearing at their lower ends on the collar and at their upper ends against the locking-pieces, substantially as described.

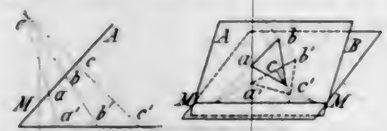
751,346. BUILDING-TILE. JOSEPH SCHALL, Evergreen Park, Ill. Filed Apr. 23, 1903. Serial No. 153,970. (No model.)



Claim.—1. A building-tile provided with one or more ribs, and metallic fastening devices embedded in said tiles and projecting from the free ends of said ribs adapted to engage and secure lath to said ribs.

2. A building-tile provided on one face with ribs or projections, and devices at the free ends of said ribs or projections for securing lath thereto, said devices being embedded in said tile when in its plastic state and being enlarged at their inner ends to prevent loosening of said devices without breaking the tile.

751,347. METHOD OF DISTORTING PLANE IMAGES BY MEANS OF LENSES OR MIRRORS. THEODOR SCHEIMPFLUG, Vienna, Austria-Hungary. Filed Mar. 31, 1903. Serial No. 150,489. (No model.)



Claim.—1. A method for the production of projective alterations of images consisting of arranging the plane containing the original and the first principal plane of the objective on the one hand, and the plane containing the image, and the second principal plane of the objective on the other hand as to intersect one another respectively in such a manner that the resulting two straight lines of intersection become optically conjugate straight lines according to the laws of optics, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal plane of the objective and the corresponding node-point of the objective.

2. A method for the production of projective alterations of image consisting in causing the planes containing the original and the image to intersect the objective plane in the same straight line, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane, and which is determined by the intersection-line of the latter, the focal plane of the objective and the optical center of the objective.

3. The hereinbefore-described method of producing projective alterations of an image which consists in causing the two planes containing the original and the image to intersect the vertex plane of the mirror in the same straight line, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal plane of the mirror and the center of curvature of the mirror.

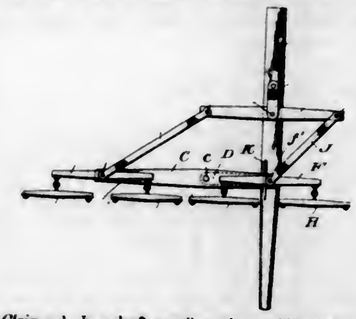
4. A method for the production of projective alterations of images consisting of arranging the plane containing the original and the first principal plane of the objective or mirror on the one hand, and the plane containing the image, and the second principal plane of the objective or mirror on the other hand as to intersect one another respectively in such a manner that the resulting two straight lines of intersection become optically conjugate straight lines according to the laws of optics, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal plane of the objective or mirror and by the corresponding node-point of the objective or by the center of curvature of the mirror, and then successively repeating the foregoing steps.

5. A method for the production of projective alterations of images consisting of arranging the plane containing the original and the first principal plane of the objective or mirror on the one hand, and the plane containing the image, and the second principal plane of the objective or mirror on the other hand as to intersect one another respectively in such a manner that the resulting two straight lines of intersection become optically conjugate straight lines according to the laws of optics, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal plane of the objective or mirror and by the corresponding node-point of the objective or by the center of curvature of the mirror, and then repeating the foregoing steps a plurality of times and so that two or more of the repetitions will be executed at the same time so that the result of the first operation is immediately ordered by the second operation without being fixed by photography.

6. A method for the production of projective alterations of image consisting of arranging the plane containing the original and the first principal plane of the objective or mirror on the one hand, and the plane containing the image, and the second principal plane of the objective or mirror on the other hand as to intersect one another respectively in such a manner that the resulting two straight lines of intersection become optically conjugate straight lines according to the laws of optics, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal line of the objective or mirror and by the corresponding node-point of the objective or by the center of curvature of the mirror, and then repeating the foregoing steps a plurality of times and so that two or more of the repetitions will be executed at the same time, so that the result of the first operation is immediately ordered by the second operation without being fixed by photography, and regulating by a block setting the two or more operations which are executed at the same time.

7. A method for the production of projective alterations of images consisting of arranging the plane containing the original and the first principal plane of the objective or mirror on the one hand, and the plane containing the image, and the second principal plane of the objective or mirror on the other hand as to intersect one another respectively in such a manner that the resulting two straight lines of intersection become optically conjugate straight lines according to the laws of optics, and then rotating the plane containing the original or the image relatively to the other plane containing the image or the original and which is kept stationary until it is parallel to the counter-plane which appertains to the said stationary plane and which is determined by the intersection-line of the latter, the focal plane of the objective or mirror and by the corresponding node-point of the objective or center of curvature of the mirror, and then repeating the foregoing steps a plurality of times and so that two of the repetitions will be executed at the same time so that the result of the first operation is immediately ordered by the second operation without being fixed by photography, and regulating the two operations which are to be carried out at the same time by causing the focal plane of two optical systems to coincide with each other and adjusting the original to any desired angle to the common focal plane and reproducing the original by the double system obtained by the collimation of the two optical systems.

751,348. DRAFT-EQUALIZER. CLAUS SCHROOR, Wichita, Kans. Filed Oct. 23, 1903. Serial No. 178,231. (No model.)



Claim.—1. In a draft-equalizer, the combination with the centrally-pivoted rear bar, of a pivoted forward bar carrying the swingletrees, and angularly-inclined bars pivotally supported by and connecting the respective ends of said forward and rear bars.

2. In a draft-equalizer, the combination with the tongue, of a centrally-pivoted rear bar, a bracket secured to the tongue forward of the rear bar, a forward bar, carrying the swingletrees, eccentrically pivoted to said bracket, means connecting the respective ends of said forward and rear bars, and a guiding-brace for the shorter end of said forward bar comprising the U-shaped inclosing member carried by the tongue.

3. In a draft-equalizer, the combination with the tongue, of a centrally-pivoted rear bar, a bracket pivotally secured to the tongue forward of the rear bar, a forward bar, carrying the swingletrees, eccentrically pivoted to said bracket, spaced bars pivotally supported by and connecting the respective ends of said forward and rear bars, and a guiding-brace for the shorter end of said forward bar comprising the U-shaped inclosing member carried by the tongue.

4. In a draft-equalizer, the combination with the tongue, of a centrally-pivoted rear bar, a bracket carried by the tongue forward of the rear bar, a forward bar pivotally supported on said bracket, doubletrees carried at each end of said forward bar, swingletrees carried by said doubletrees, angularly-disposed spaced bars pivotally connected at their rear ends to said rear bar, and at their forward ends embracing the lower face of said forward bar and the upper face of said doubletrees, and pivot-pins passing through and connecting said forward bar, doubletrees and spaced bars.

5. In a draft-equalizer, the combination with the tongue, of a centrally-pivoted rear bar, a bracket carried by the tongue forward of the rear bar, a forward bar eccentrically pivoted to said bracket, doubletrees carried at each end of said forward bar, swingletrees carried by said doubletrees, a U-shaped guiding-brace carried by the tongue and enveloping the inner short end of said eccentrically-pivoted bar, spaced bars pivotally connected at the rear ends to said rear bar, and at their forward ends embracing the lower face of said forward bar and the upper face of said doubletrees, and pivot-pins passing through and connecting said forward bar, doubletrees and spaced bars.

751,349. FLESHING AND SHAVING MACHINE. RAUL SCHRODER, New York, N. Y. Filed Oct. 27, 1903. Serial No. 178,695. (No model.)

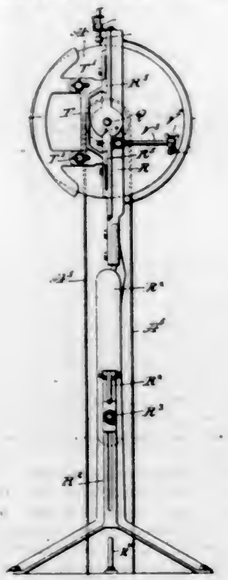
Claim.—1. A machine for fleshing and shaving raw and dressed furs, provided with a cutter having an annular curry-knife edge, and a stretcher-gage having adjustable gage members on opposite sides of the said cutter, the said members being in the form of segments of larger radius than the said cutter, to project the ends of the members beyond the curry-knife edge, as set forth.

2. A machine for fleshing and shaving raw and dressed furs, provided with a cutter having an annular curry-knife edge, and a stretcher-gage having adjustable gage members on opposite sides of the said cutter, the said members being in the form of segments of larger radius than the said cutter, to project the ends of the members beyond the curry-knife edge, and the said members being curved in a transverse direction, as set forth.

3. A machine for fleshing and shaving raw and dressed furs, provided with a rotary cutter having an annular curry-knife edge, a bearing adjacent to the said cutter, and a tool guided in the bearing, for engaging the curry-knife edge of the cutter, as set forth.

4. A machine for fleshing and shaving raw and dressed furs, provided with a rotary cutter having an annular curry-knife edge,

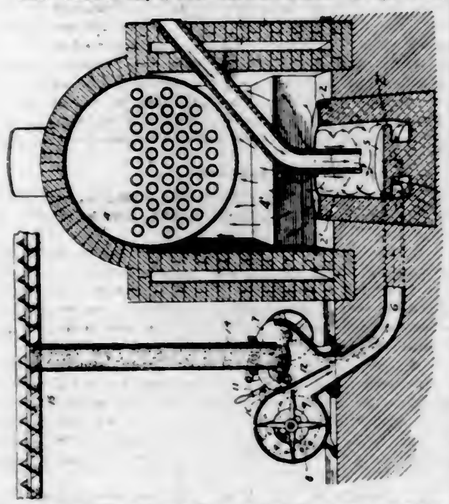
a bearing and a tool guided in the bearing, for engaging the curry-knife edge of the cutter, the bearing being held adjustable to hold the tool in an oblique direction relative to the face of the cutter and to bring the terminal of the tool against the inner turned-over portion of the curry-knife edge, as set forth.



5. A machine for fleshing and shaving raw and dressed furs, provided with a rotary cutter having an annular curry-knife edge, a bearing, and a tool guided in the bearing, for engaging the curry-knife edge of the cutter, the bearing being held to turn and to move up and down, to bring the shank of the tool against the outer turned-over surface of the curry-knife edge, as set forth.

751,350. PROCESS OF PRODUCING HEAT FROM FUEL.

Joseph M. Schutz, Minneapolis, Minn. Original application filed Dec. 26, 1899, Serial No. 741,528. Divided and this application filed Mar. 19, 1900. Renewed July 6, 1903. Serial No. 164,478. (No specimens.)



Claim.—1. The process of burning fuel, that consists in mixing the pulverized fuel with air, creating therefrom a hollow cylinder of fuel-laden air in rapid rotation, confining the same, and applying heat to the exterior thereof to liberate the gases of the fuel and to ignite the gas, substantially as described.

2. The process of burning fuel, that consists in mixing the pulverized fuel with air, creating therefrom a hollow cylinder of fuel-laden air in rapid rotation, confining the same, applying heat to the exterior thereof to liberate the gases of the fuel, and ignite the gases, and by rapidly rotating the cylindrical body of air and discharging the same longitudinally, thereby creating a vortex, for the purpose specified.

3. The process of burning fuel, that consists in mixing pulverized fuel with air, forcing forward and rotating the column of fuel-laden air, applying heat to the exterior thereof and permitting the gases to expand at a point beyond the place of application of heat, substantially as described.

4. The herein-described process that consists in forcibly mixing pulverized fuel and air, creating therefrom a rapidly moving and rotating column, confining the column to a spiral path and heating the fuel products or elements to the point of decomposition, ignition and combustion during their transit of the spiral path, substantially as described.

5. The herein-described process that consists in creating a rotating and longitudinally-moving annulus of fuel-laden air, confining the same, applying heat thereto throughout a given area, and thereby decomposing and burning the fuel products, substantially as described.

6. The herein-described process that consists in creating a rotating and longitudinally-moving annulus of fuel-laden air, confining the same and applying heat thereto throughout a given area, thereby decomposing the fuel, igniting and burning the gases and creating and maintaining a vortex within said annulus that prevents the escape of combustible products, substantially as described.

7. The process of burning fuel, that consists in forcibly creating a spirally-moving body of fuel-laden air, applying heat to a given area thereof, thereby igniting and burning the fuel products, the resulting flame being delivered from the area of heat application, substantially as described.

8. The process of burning fuel, that consists in creating a spirally-moving body of fuel-laden air or gas and therein a vortex, supplying air to said vortex, applying and storing heat to and in a given area of said fuel-laden body, thereby causing decomposition of the fuel elements, their ignition and the burning thereof, substantially as described.

9. The process of burning fuel, that consists in creating a longitudinally moving and whirling body of fuel-laden air, confining the same during part of its longitudinal movement, applying heat to the exterior of the whirling body and thereby decomposing the fuel elements and igniting and burning the same while confined, substantially as described.

10. The process of obtaining heat from pulverized fuel, that consists in forcibly mixing the fuel with air in motion, setting up rapid rotation as well as longitudinal movement of the mixture, confining the body against expansion during a part of the transit of its path of discharge, applying heat thereto during its confinement and thereby liberating the gases of the fuel and igniting the gases of combustion, substantially as described.

11. The herein-described process that consists in creating a rotating and longitudinally-moving annulus of fuel-laden air, confining the same, applying heat thereto throughout a given area, permitting the expansion of the gases beyond said area, thereby inducing a vortex and adding air, substantially as described.

12. The herein-described process that consists in creating a rotating and longitudinally-moving annulus of air, adding fuel thereto, storing heat from and applying heat to a given area of said annulus, a vortex being created, substantially as described.

13. The process of producing heat from fuel that consists in forming a rapidly-rotating annulus of air and imparting longitudinal movement thereto, forcing fuel into said annulus, confining said annulus of air against expansion during a part of its longitudinal movement, and permitting the expansion thereof thereafter, thereby setting up a return-vortex within said annulus and establishing a high temperature in said annulus, substantially as described.

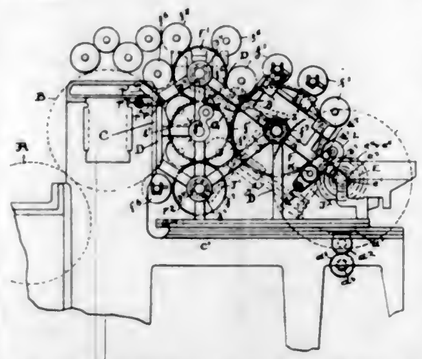
14. The process of obtaining heat from fuel that consists in creating by a tangential blast a rapidly-rotating and longitudinally-moving annulus of combustible fluid, confining said annulus during a portion of its longitudinal movement, forcing fuel into said annulus, and establishing in said annulus a high temperature and a return-vortex, substantially as described.

15. The process of producing heat from fuel that consists in establishing a high temperature in a heat-retaining annulus, forcing a combustible fluid tangentially into said annulus, thereby establishing centrifugal action and a vortex, and forcibly mixing fuel with said fluid, substantially as described.

16. The process of producing heat from fuel that consists in forming and causing the combustion of a rotating longitudinally-moving column of combustibles and by the rotation thereof producing a vortex therein, substantially as described.

751,351. INKING APPARATUS FOR PRINTING-PRESSES.

Walter Scott, Plainfield, N. J. Filed Feb. 11, 1901. Serial No. 46,925 (No model.)



Claim.—1. The combination with a plate-cylinder having a gear, and a distributing-cylinder, also having a gear, adapted to receive ink from a ductor or other roll, of a main gear located intermediate the said distributing-cylinder and the said plate-cylinder and meshing with the gears on same, two distributing-cylinders having gears located above and below the main gear and in mesh with same, and distributing-rolls located intermediate the distributing-cylinders and the plate-cylinder, substantially as described.

2. The combination with a plate-cylinder having a gear, of an inking apparatus having the following elements, viz: a main gear adapted to mesh with the gear on the plate-cylinder, three distributing-cylinders, one of which is adapted to receive ink from a ductor or other roll, all having gears adapted to mesh with the main gear, distributing-rolls located intermediate the distributing-cylinders and the plate-cylinder, and a framework, carrying the said inking apparatus and foregoing elements, adapted to be moved toward and away from the plate-cylinder to effect or prevent the transfer of ink to the said plate-cylinder, substantially as described.

3. In a printing-press, the combination of a plate-cylinder mounted in a framework, a gear making one revolution with the plate-cylinder, an inking apparatus mounted on an independent framework adapted to be moved bodily away from the plate-cylinder, a gear mounted on the independent framework adapted to mesh with the first-mentioned gear, two links on the independent framework of different lengths, a bolt on the stationary framework adapted to cooperate with either of the two links, so as to transfer ink from the inking apparatus or prevent its transfer according to the option of the operator, substantially as described.

4. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal toothed connection on the second cam concentric with same, and a means for engaging with said toothed connection located eccentrically of the two cams whereby the second cam is adjusted with relation to the first, substantially as described.

5. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal toothed connection on the second cam concentric with same, and a means for engaging with said toothed connection located eccentrically of the two cams whereby the second cam is adjusted with relation to the first, and means for maintaining the second cam in its adjusted position, substantially as described.

6. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal tooth-wheel in the second cam concentric with same, a pinion adapted to engage with the internal tooth-wheel whereby the second cam can be adjusted with relation to the first, a shaft carrying said pinion, a worm-wheel on the other end of said shaft, a worm operating said worm-wheel, and means for rotating the said worm-wheel, substantially as described.

7. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate the same, an internal tooth-wheel in the second cam concentric with same, a pinion mounted on a shaft adapted to engage with the internal tooth-wheel, a motion-transmission device on the other end of said shaft, and means for operating the said motion-transmission device whereby the second cam is adjusted with relation to the first, substantially as described.

8. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal tooth-wheel in the second cam concentric with same, a pinion mounted on a shaft adapted to engage with the internal tooth-wheel, a motion-transmission device on the other end of said shaft, means for operating the said motion-transmission device whereby the second cam is adjusted with relation to the first, and means for maintaining it in the position to which it has been adjusted, substantially as described.

9. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal tooth-wheel in the second cam concentric with same, a pinion mounted on a shaft adapted to engage with the internal tooth-wheel, a motion-transmission device on the other end of said shaft, means for operating said motion-transmission device mounted on a second shaft, and means for operating the means mounted on the said second shaft whereby the second cam is adjusted with relation to the first, substantially as described.

10. In a printing-press, the combination of a rotatable cam, a second cam adapted to rotate with same, an internal tooth-wheel in the second cam concentric with same, a pinion mounted on a shaft adapted to engage with the internal tooth-wheel, a motion-transmission device on the other end of said shaft, means for operating said motion-transmission device mounted on the second shaft, means for operating the means mounted on the second shaft whereby the second cam is adjusted with relation to the first, and means for maintaining the second cam in the position to which it has been adjusted, substantially as described

751,352. WIRE-CLAMP.

Robert L. Sexon, Taylor, Tex. Filed May 2, 1903. Serial No. 155,350. (No model.)



Claim.—1. A device of the character described comprising reversible pivoted jaws, and meshing teeth upon said jaws whereby the jaws rotate in unison from or toward each other.

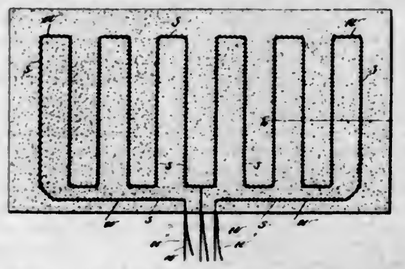
2. In a device of the character described, the combination with reversible jaws, each of which is pivoted at one end; of teeth extending from the pivoted ends of the jaws and adapted to cause simultaneous movement of the jaws from or toward each other, and means for holding the pivoted ends of the jaws in operative relation.

3. The combination with links; of reversible jaws pivoted therebetween, teeth extending from the jaws, said teeth meshing to cause the jaws to move in unison from or toward each other.

4. In a device of the character described, the combination with jaws having recesses in opposite faces, and handles extending from the jaws; of links, pins connecting the links and forming pivots for the jaws, and meshing teeth extending from the jaws adjacent to the pivots thereof.

751,353. ELECTRIC BLANKET.

Frank K. Singer, Wheeling, W. Va. Filed Sept. 8, 1903. Serial No. 172,257. (No model.)

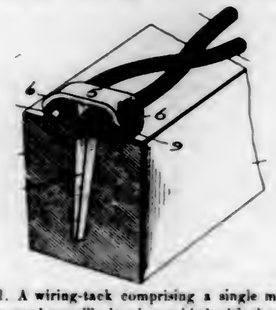


Claim.—1. An electric blanket or similar covering, composed of an intermediate basic layer of flexible material and two layers of wire laid in independent lines, rows, or windings on opposite sides

of the basic layer, with the lines, rows, or windings of the wire on one side in parallel coincidence with and exactly opposite to the corresponding lines, rows, or windings on the other side, and a set of stitchings securing both such opposite layers of wires to the intermediate flexible base substantially as and for the purpose described.

2. An electric blanket or similar covering composed of an intermediate layer of flexible material and two layers of wire laid in independent lines, rows, or windings on opposite sides of the basic layer, with the lines, rows, or windings of the wire on one side in parallel coincidence with and exactly opposite to the corresponding lines, rows, or windings on the other side, a set of stitchings securing both such opposite layers of wire to the intermediate flexible base and an outer covering for the wires substantially as and for the purpose described.

751,354. **INSULATED WIRING-TACK.** DONALD G. SHART, Grand Rapids, Wis. Filed Jan. 5, 1903. Serial No. 137,786. (No model.)



Claim.—1. A wiring-tack comprising a single metallic shank having an elongated metallic head provided with the downwardly-turned ends and a correspondingly-shaped insulating auxiliary head having a socket to receive said shank and downwardly-curved ends, the ends of said auxiliary head depending below the corresponding ends of said metallic head and the upper surfaces of said insulating ends being in contact with the under surface of said shank-head, for the purpose specified.

2. A wiring-tack having a single shank and an elongated head provided with downwardly-curved ends, and an elongated insulated head having a socket to receive said shank and downwardly-curved ends, the middle or socket portion of said insulating-head being below the depending ends of said shank-head.

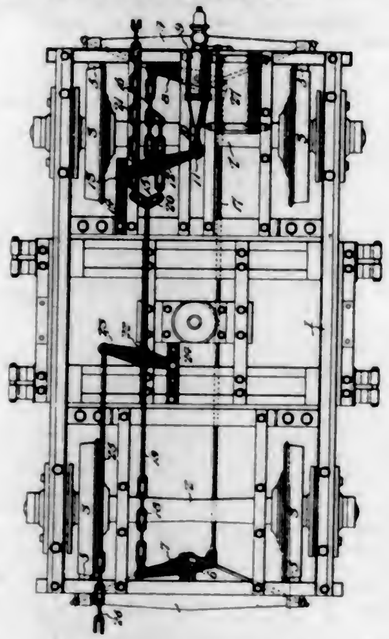
3. A wiring-tack, comprising a tapered shank having a flat elongated head provided with downwardly-turned ends, an auxiliary head composed of a flat elongated strip of insulating material having a centrally-arranged socket wherein said shank is wedged, the ends of said strip being downwardly turned and having their upper surfaces in contact with the under surface of said shank-head.

751,355. **CAR-BRAKE.** JOHN H. SMITH, Montgomery, Ala. Filed July 22, 1903. Serial No. 166,614. (No model.)

Claim.—1. The combination with a car-truck, of brake-beams arranged at the extreme ends of the truck and provided with shoes arranged at the outer sides of the wheels, brake-levers pivoted intermediate their ends to said beams, a connecting-rod interposed between the corresponding ends of said brake-levers, a second connecting-rod attached to the end of one of the brake-levers, an air-brake lever, a connection between said lever and one of the brake-levers, a flexible connection extending from the last-named connection to the second connecting-rod, and an air-cylinder having its piston connected with said air-brake lever, substantially as and for the purpose set forth.

2. The combination with a car-truck, of brake-beams arranged at the extreme ends thereof, brake-levers pivoted intermediate their ends to said beams, a connecting-rod interposed between the corresponding ends of said levers, a second connecting-rod attached to the opposite end of one of said brake-levers, a chain extending from the second connecting-rod to the opposite end of the other brake-lever, and hand-brake chains connected with the second connecting-rod and extending toward the opposite ends of the truck, substantially as and for the purpose described.

3. The combination with a car-truck, of brake-beams arranged at the extreme ends thereof, brake-levers pivoted intermediate their ends to said beams, a connecting-rod interposed between the corresponding ends of the brake-levers, a second connecting-rod attached to the opposite end of the brake-lever, a chain interposed between said brake-rod and the opposite end of the other brake-lever, a hand-brake lever pivotally connected with the second connecting-rod, and a hand-brake connection attached to said hand-brake lever, substantially as and for the purpose set forth.

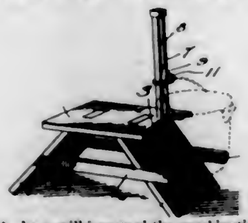


751,356. **TROWEL-HANDLE.** WILLIAM SMITH, Philadelphia, Pa., assignor to Henry Disston & Sons, Incorporated, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 16, 1903. Serial No. 143,564. (No model.)



Claim.—A trowel having a stem with rearwardly-extending tang, an integral wooden handle driven upon the latter, a sleeve of rubber let into a shallow surface groove in said handle in the rear of the tang and retaining its position therein by reason of its resiliency, the outer surface of the sleeve being flush with the surface of the wooden handle, substantially as specified.

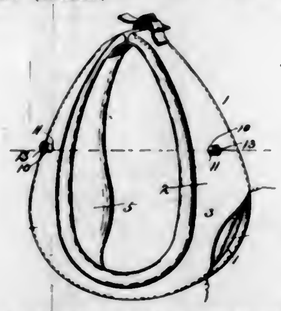
751,357. **MILKING-STOOL.** HENRY A. SPRAGUE, Birnamwood, Wis. Filed Sept. 12, 1903. Serial No. 172,949. (No model.)



Claim.—1. In a milking-stool the combination with standards having a seat thereon; of side bars secured to the standards and extending therefrom to form supports, a longitudinally-grooved standard projecting from the seat, a wedging-block slidably mounted in the groove, and a hooked ring inclosing the block and standard and adapted to engage the bail of a pail.

2. In a milking-stool the combination with upwardly and inwardly extending standards having side bars secured thereto and projecting therefrom to form supports; of a seat upon the standards and having a concaved edge, a longitudinally-grooved standard extending from the concaved edge, a longitudinally-concaved block slidably mounted in the slotted standard, an adjustable ring inclosing the standard and block, and a hook projecting from the ring.

751,358. **HORSE-COLLAR.** JOHN V. STOWE, Moorhead, Minn., assignor of eleven-sixteenths to Halvor Rasmussen, Hugo Bachenheimer, and C. A. Nye, Moorhead, Minn. Filed May 24, 1902. Serial No. 108,617. (No model.)

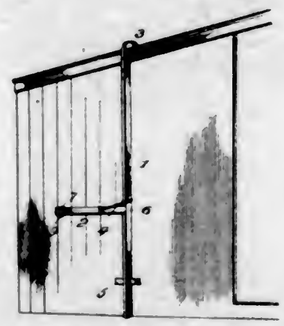


Claim.—1. A horse-collar having its hame portion constructed of an outer leather portion, an inner leather portion and a stuffing between them forming a comparatively stiff hame portion combined with a pneumatic bag arranged behind this stuffed hame portion and having a valve-nipple with cap, said nipple extending through both the inner and outer leathers of the stuffed hame portion of the collar, substantially as and for the purpose described.

2. A horse-collar having its hame portion constructed of an outer leather portion, an inner leather portion and a stuffing between them forming a comparatively stiff hame portion, combined with a pneumatic bag arranged behind this stuffed hame portion and having a valve-nipple with cap, said nipple extending through both the inner and outer leathers of the stuffed hame portion of the collar, and an inner leather lining for the pneumatic bag connected at its edges to he other portions of the collar and inclosing the pneumatic bag substantially as and for the purpose described.

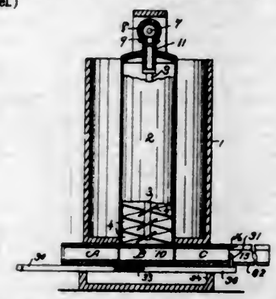
3. A horse-collar comprising a rim portion and a hame portion, the hame portion consisting of three separate leather parts forming two chambers, the forward chamber being filled with stuffing and the rear one having an air-bag, and a valve-nipple communicating with the air-bag and extending through two of the separate leather parts substantially as described.

751,359. **CAR-LOADER.** HARRY S. STRONACH and DONALD W. ROSS, Marinette, Wis. Filed July 10, 1903. Serial No. 165,025. (No model.)



Claim.—The herein-described loader comprising a bar having a series of notches along its rear side, a cross-piece let into the rear side of the bar near its lower end, a hook secured to the bar for suspending it from the car, an arm, a clevis having pivotal connection with said arm and adapted to embrace the bar and to have its closed end enter any one of the transverse notches thereof, and a rest applied to the outer end of the arm and adapted to turn therein, substantially as set forth.

751,360. **FREEZING AND BRICKING APPARATUS.** ALVA L. TENNEY, Hartland, Wis. Filed Aug. 15, 1902. Serial No. 119,706. (No model.)



Claim.—1. In a freezer of the described class, a freezing-chamber having an opening in its lower portion; a valve normally closing said opening; a receiving-receptacle movable transversely of the opening, and having walls movable upon the valve-seat, in substitution for the valve.

2. In a freezer of the described class, a freezing-chamber having an opening in its lower portion; a valve normally closing said opening; a support for receiving-receptacles adjacent to said opening; and apertured devices fitting said receptacles, and adapted to move upon the valve-seat in substitution for the valve when the receptacles are being filled.

3. In a freezer of the described class, a freezing-chamber having an opening in its lower portion; a valve normally closing said opening; a supporting-way extending transversely of said opening; and receiving-receptacles adapted to move along said way, and having walls arranged to move in sliding contact with the walls of the opening in the freezing-chamber, and arranged to fit such walls to form a closed passage from the freezing-chamber into the receiving-receptacle.

4. The combination of a freezer of the described class, provided with an opening in the lower portion of the freezing-chamber; a way for receiving and bricking receptacles, adapted to support such receptacles in registry with the aperture; a valve for closing the aperture during the freezing operation; and an apertured device, fitting the receiving-receptacles, and adapted to be substituted for the valve when the receptacles are in registry with the aperture in the freezing-chamber, said device being adapted to prevent the escape of the material over the edges of the receiving-receptacle; and means for forcing the material from the receiving-chamber.

5. The combination of a freezer of the described class, provided with an opening in the lower portion of the freezing-chamber; a way for receiving and bricking receptacles, adapted to support such receptacles in registry with the aperture; a valve for closing the aperture during the freezing operation; an apertured device, fitting the receiving-receptacles, and adapted to be substituted for the valve when the receptacles are in registry with the aperture in the freezing-chamber, said device being adapted to prevent the escape of the material over the edges of the receiving-receptacle; mechanism operatively connected with the driving mechanism of the freezer, for advancing the bricking-receptacles step by step along said way; and means for forcing the material from the receiving-chamber.

6. The combination of a freezer of the described class, provided with an aperture in the lower portion of the freezing-chamber; a way for receiving and bricking receptacles, extending past said aperture; a valve controlling the passage of material through the aperture; a follower adapted to push bricking-receptacles along said way; and mechanism connected with the driving mechanism of the freezer for reciprocating the follower.

7. The combination of a freezer of the described class, provided with an aperture in the lower portion of the freezing-chamber; a way for receiving and bricking receptacles, extending past said aperture; a valve controlling the passage of material through the aperture; a follower adapted to push bricking-receptacles along said way; and mechanism connected with the driving mechanism of the freezer for reciprocating the follower; together with an agitator located in the freezing-chamber and provided with inclined wings, adapted to force the material longitudinally.

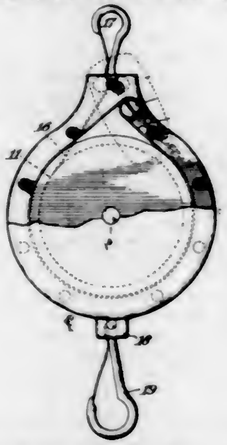
8. The combination of a freezer of the described class, provided

with an aperture in the lower portion of the freezing-chamber; a way for receiving and bricking receptacles, extending past said aperture; a valve controlling the passage of material through the aperture; a follower adapted to push bricking-receptacles along said way; and mechanism connected with the driving mechanism of the freezer for reciprocating the follower; together with an agitator located in the freezing-chamber and provided with inclined wings, adapted to force the material longitudinally; said agitator being supported by suitable bearings at the upper end of the receiving-chamber, and without bearings at its lower end.

9. The combination of a freezer of the described class, provided with an aperture in the lower portion of the freezing-chamber, and provided with side channels; a valve controlling the passage of material through said opening, adapted to slide in said channels; a set of bricking-receptacles adapted to slide in said way; and apertured covers for said receptacles, provided with side flanges adapted to engage in said channels.

10. In a freezer of the described class, a freezing-chamber having an opening in its lower portion; a valve normally closing said opening; and a traveling slide, adjustable transversely of the opening in substitution for the valve; said slide being provided with an aperture and adapted to serve as a cover for the receiving-receptacle.

751,361. FIRE-ESCAPE. MARINUS C. VAN GENT, New York, N. Y. Filed Oct. 15, 1902. Serial No. 127,336. (No model.)



Claim.—A fire-escape, comprising a frame, a reel journaled in said frame, a brake-disk also journaled in said frame, a brake-band surrounding said disk, a brake-actuating shaft mounted in said frame and provided with means for manually turning it, the ends of said brake-band being secured to said brake-shaft and arranged to wind thereon whereby when the latter is turned said ends will wind on the brake-shaft and tighten the brake-band around the disk, and means for suspending said frame.

751,362. THERMOSTAT. JOHN L. WARD, Ord, Nebr. Filed July 9, 1903. Serial No. 164,873. (No model.)

Claim.—1. The combination with a graduated standard having an adjustable contact-plate thereon; of a bell-crank lever, an expansible bar contacting with and adapted to operate the bell-crank lever, and an alarm and battery, said alarm and battery being included in an electric circuit with a contact-plate and lever.

2. The combination with a graduated standard, of an adjustable contact-plate secured thereto, a bell-crank lever, an expansible bar contacting therewith and adapted to operate the same, an alarm, a battery, said alarm and battery being included in a circuit with the bell-crank lever and contact-plate, and means for adjusting the expansible bar.

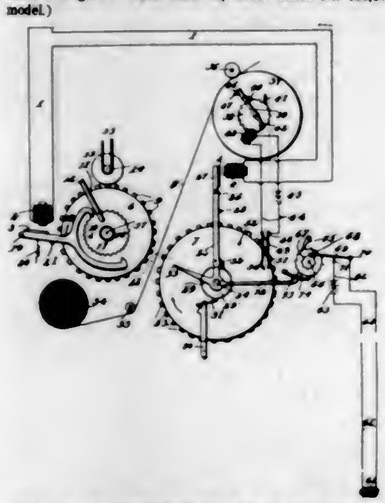
3. The combination with a base having standards thereon, of an expansible bar loosely supported in the standards, means for adjusting said bar longitudinally, a bell-crank lever pivoted upon one of the standards and contacting with the expansible bar, graduated standards, a contact-plate adjustably secured thereto in the path of the bell-crank lever, said contact-plate and lever being included in an electric circuit containing a source of electricity and an alarm.

4. The combination with a base, of standards thereon, an expansible bar loosely mounted upon the standards and cross-shaped in section, means for adjusting the bar longitudinally, a bell-crank lever pivotally mounted on one of the standards and contacting with the expansible bar, a graduated standard, a contact-plate adjustably connected thereto in the path of the bell-crank lever, an alarm and a battery, said alarm and battery being included in a circuit with the contact-plate and the bell-crank lever.



5. In a device of the character described, a bar formed of expansible material and cross-shaped in cross-section.

751,363. PRINTING-TELEGRAPH RECEIVER. JAMES D. WHITE, London, England. Filed June 19, 1903. Serial No. 162,175. (No model.)



Claim.—1. An electromagnetic printing device, comprising a type-cylinder having circularly-arranged series of characters of two kinds disposed around the cylinder with the two kinds alternating in circular series, the alternating characters of the circular series being repeated in rows parallel to the axis of the cylinder, electromagnetic devices for giving both a rotary and a longitudinal movement to said cylinder, a hammer-cylinder arranged parallel to the first-named cylinder and bearing a single row of spirally-arranged impact-faces, and electromagnetic devices for imparting to this cylinder a step-by-step rotary movement, and an integral lateral movement to deliver the printing blow substantially as and for the purpose described.

2. An electromagnetic printing device, comprising a type-cylinder having circularly-arranged series of characters of two kinds disposed around the cylinder with the two kinds alternating in circular series, the alternating characters of the circular series being repeated in rows parallel to the axis of the cylinder, electromagnetic devices for giving both a rotary and a longitudinal movement to said cylinder, a hammer-cylinder arranged parallel to the first-named cylinder and bearing a single row of spirally-arranged impact-faces, electromagnetic actuating devices for this hammer-cylinder, the electromagnetic actuating device for one cylinder being constructed and arranged to be operated by a current of one polarity and that of the other cylinder being constructed and arranged to be operated by a current of the opposite polarity, the sliding of the type-cylinders being effected by a subsidiary device and the hammer-cylinder being arranged to move laterally to deliver the printing blow, substantially as and for the purpose described.

3. An electromagnetic printing device comprising a type-cylinder having circularly-arranged series of characters of two kinds disposed around the cylinder with the two kinds alternating in circular series, the alternating characters of the circular series being repeated in rows parallel to the axis of the cylinder, electromagnetic devices for giving both a rotary and a longitudinal movement to said cylinder, a hammer-cylinder arranged parallel to the first-named cylinder and bearing a single row of spirally-arranged impact-faces, and electromagnetic actuating devices for the hammer-cylinder arranged to give it a step-by-step rotary movement and also an integral lateral movement to deliver the printing blow, substantially as and for the purpose described.

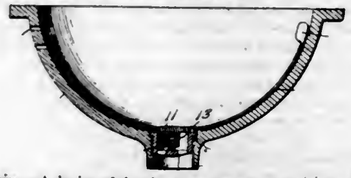
4. An electromagnetic printing device comprising a type-cylinder having circularly-arranged series of characters of two kinds disposed around the cylinder with the two kinds alternating in circular series, the alternating characters of the circular series being repeated in rows parallel to the axis of the cylinder, electromagnetic devices for actuating the cylinder with a step-by-step rotary movement and also a longitudinal character-shifting movement, a hammer-cylinder arranged in movable bearings parallel to the first-named cylinder and bearing a single row of spirally-arranged impact-faces, and electromagnetic actuating devices for both rotating this hammer-cylinder with a step-by-step movement and also projecting it bodily toward the other cylinder to deliver a printing blow substantially as described.

5. An electromagnetic printing device comprising a longitudinally-sliding type-cylinder having circularly-arranged series of characters of two kinds disposed around the cylinder with the two kinds alternating in circular series and the alternating characters of the circular series being repeated in rows parallel to the axis of the cylinder, electromagnetic devices for rotating this cylinder, a hammer-cylinder arranged in movable bearings parallel to the first-named cylinder and bearing a row of spirally-arranged impact-faces, electromagnetic actuating devices for turning the hammer-cylinder and swinging it bodily and laterally to deliver the printing blow, and an electromagnetic device acted upon by the lateral printing movement of the hammer-cylinder and in turn adjusting longitudinally the type-cylinder, substantially as described.

6. In an electromagnetic printing device, the combination of the type-cylinder bearing two kinds of characters disposed in alternating circular series, a hollow axle carrying the same and having a rigidly-attached ratchet-wheel and connected to the cylinder as described for rigid rotation therewith and a longitudinal sliding motion of the cylinder thereon, a helical spring arranged in the hollow axle and connected to the axle and the cylinder, a central pull-wire attached to the cylinder, a lever attached to the pull-wire and bearing an armature, an electromagnet, battery, circuit and circuit-breaking device, and a laterally-movable hammer-cylinder and mechanism for operating the circuit-breaking device by the lateral movement of the hammer-cylinder, substantially as described.

7. In an electromagnetic printing device, the combination of the type-cylinder bearing two kinds of characters disposed in alternating circular series, a hollow axle carrying the same and having a rigidly-attached ratchet-wheel and connected to the cylinder as described for rigid rotation therewith and also a longitudinal sliding motion of the cylinder thereon, a helical spring arranged in the hollow axle and connected to the axle and cylinder, a central pull-wire extending through the axle and attached to the cylinder, a lever attached to the pull-wire and bearing an armature, an electromagnet and battery-circuit with pivoted circuit-breaking arm, a pair of rigidly-connected ratchet-wheels, one of them having half the number of teeth of the other and working in the plane of and lifting the circuit-breaking arm, a laterally-moving hammer-cylinder having an arm and a pawl acting upon the ratchet-wheel which has the larger number of teeth so as to open and close the circuit alternately with each back-and-forth movement of the hammer-cylinder, substantially as and for the purpose described.

751,364. VALVE. GEORGE R. WILKHART, The Dalles, Oreg., assignor of one-half to Frank J. Wilehart, The Dalles, Oreg. Filed May 20, 1903. Serial No. 158,053. (No model.)



Claim.—A device of the character described, comprising a basin provided with a discharge-port having vertically-arranged recesses and a shoulder, a bushing provided with a flange adapted to rest upon the shoulder to support the bushing and form a valve-seat, vertically-arranged ribs upon the bushing to engage the recesses to prevent the bushing from turning, a frame extending across the bushing at a point adjacent its lower end and adapted to prevent the passage of foreign matter through the bushing, a screw-threaded stem centrally and vertically arranged upon the frame, a disk-shaped valve adapted to engage the flange to close the discharge-port, a sleeve depending from the under side of the valve and adapted to receive the stem, and a lever conforming to the contour of the interior of the basin and secured to the valve.

751,365. FISH-HOOK. FRANKLIN C. WOODS, Alliance, Ohio. Filed Aug. 22, 1903. Serial No. 170,451. (No model.)

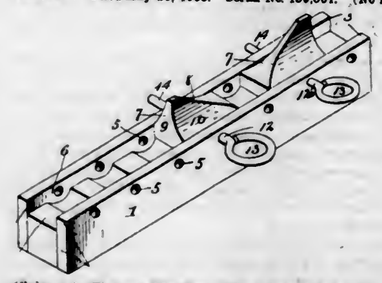


Claim.—1. A detachable treble hook having two hooked shanks continuing at their upper portions into an eye, and a third shank with a lower hooked extremity secured to one of the said two hooked shanks to permit one of the latter to have free movement in relation to the shanks of the remaining hooks for application of the entire book structure to an attaching or supporting means.

2. A detachable treble hook having one hooked shank free to move outwardly and inwardly toward the remaining shanks, two of the latter continuing into a single attaching-eye at their upper extremities and one of the same carrying the third hook.

3. The combination with a support having closed eyes projected therefrom, of a detachable treble hook movably engaging said eyes and having two of the shanks thereof continuously formed with an upper attaching-eye and a third shank secured to, and carried by, one of the said two shanks.

751,366. ADJUSTABLE CHOCK-BLOCK. JOHN P. ABERNATHY, Jonesboro, Ark., assignor of one-half to Hiett Wagon Company, Jonesboro, Ark. Filed May 29, 1903. Serial No. 159,361. (No model.)



Claim.—1. The combination with a bolster having apertured guide-flanges thereon located adjacent to the edges of the upper face of said bolster and extending at right angles to said face, of an aper-

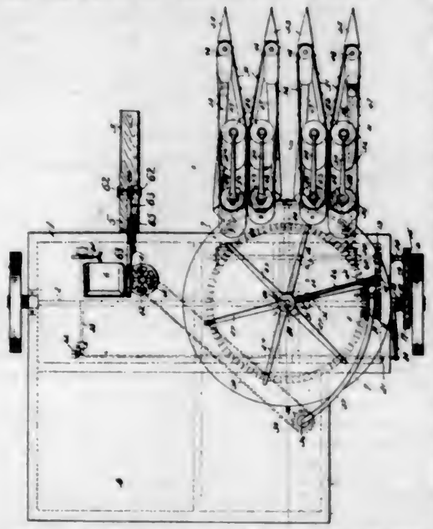
tured chock-block adjustably mounted intermediate said guide-flanges and a locking-pin passing through the apertures in said guide-flanges and through the apertnre in said chock-blocks, substantially as described.

2. The combination of a bolster-bearing guide-flanges projecting above the upper face thereof, said flanges having transverse apertures located in alinement in pairs, an apertured chock-block mounted intermediate said flanges, and a locking-pin passing through one pair of said apertures and through an aperture in said chock-block, substantially as described.

3. In a logging-car, the combination of a bolster having guide-flanges thereon projecting above the upper face thereof, said bolster having concave recesses formed in said upper face, a chock-block bearing a rounded lug adapted to fit any one of said recesses, and means for securing said block, substantially as described.

4. In a logging-car, the combination of a bolster having guide-flanges projecting beyond the upper face thereof and having apertures therein located in alinement with each other in pairs, said bolster having concave recesses formed therein and located in alinement with said apertures, a transversely-apertured chock-block, bearing a rounded lug engaging one of said recesses and a pin fitted in one pair of said apertures and passing through the aperture in said chock-block, substantially as described.

751,367. CORN-HARVESTER. SAMUEL C. ANDERSON, Xenia, Ohio. Filed Dec. 30, 1901. Serial No. 87,654. (No model.)



Claim.—1. In a corn-harvester, the combination, with cutting mechanism, of a rotary shocking-platform located in the rear thereof, a plurality of stalk-supporting arms pivotally supported above said platform, and means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and the platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, substantially as described.

2. In a corn-harvester, the combination, with cutting mechanism, of a rotary shocking-platform located in the rear thereof, a standard arising from said platform near the margin thereof and having an arm at its upper end extending to a point above the center of the platform, a plurality of stalk-supporting arms pivotally mounted on the inner end of said arm, and means for locking said arms in radially-spaced positions relatively to the platform and to each other, said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, substantially as described.

3. In a corn-harvester, the combination, with cutting mechanism, of a rotary shocking-platform located in the rear thereof, a standard arising from said platform near the margin thereof and having at its top a horizontal arm extending to a point above the center of the platform and provided at its inner end with a pivot pin or bolt, stalk-supporting arms having notched hubs pivotally mounted on said pivot pin or bolt, locking-bolts for engaging the notches of said hubs to lock said arms in radially-spaced positions relatively to the platform and to each other, and means for operating said locking-bolts to release said arms, substantially as described.

4. In a corn-harvester, the combination, with cutting mechanism, of a rotary shocking-platform located in the rear thereof, a plurality of stalk-supporting arms pivotally supported above said platform, means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and the platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, a discharge-arm pivotally mounted adjacent to the platform and adapted to sweep over the same to discharge the shock, and means for operating said discharge-arm, substantially as described.

5. In a corn-harvester, the combination, with cutting mechanism, of a rotary shocking-platform located in the rear thereof, a plurality of stalk-supporting arms pivotally supported above said platform, means for locking said arms in radially-spaced positions relatively to the platform and to each other, the space between said arms and the platform being free and unobstructed, and said arms being free, when released, to swing independently in the direction of movement of the shock as it is being discharged, a discharge-arm pivotally mounted adjacent to the platform and adapted to sweep over the same to discharge the shock, and means for operating said discharge-arm, said means comprising an operating-shaft located adjacent to the driver's seat, and connecting mechanism between said operating-shaft and the discharge-arm, substantially as described.

6. In a corn-harvester, the combination, with cutting mechanism and a rotary shocking-platform located in the rear thereof, of stalk gathering and conveying mechanism comprising rearwardly-moving endless aprons having their adjacent faces in vertical planes and adapted to grasp the stalks between them, both of said aprons extending from a point forward of the cutters upward and rearward past the cutters and over and beyond the front or receiving edge of the rotary platform, substantially as described.

7. In a corn-harvester, the combination, with cutting mechanism and a rotary shocking-platform located in the rear thereof, of stalk gathering and conveying mechanism comprising two rearwardly-traveling aprons, inclined rearward and upward, their forward working portions converging rearwardly and their rearward working portions being held toward each other by spring-pressure and extending rearward past the cutters and over the front or receiving portion of the shocking-platform, substantially as described.

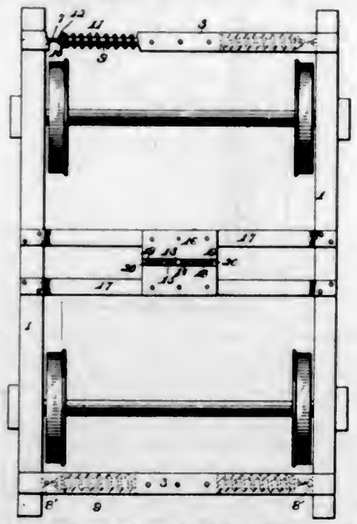
8. In a corn-harvester, the combination, with a rotary shocking-platform, of cutting mechanisms located at each side of the front thereof, and a stalk gathering and conveying mechanism for each cutting mechanism, each comprising two forwardly-extending arms having forwardly-inclined rollers mounted thereon, the rear rollers being higher than the front and being located in the rear of the cutting mechanism and above the shocking-platform, an endless apron passing around said rollers and provided with transverse slats, a spring-supported roller for pressing the central portion of each apron toward the adjacent apron, whereby the forward portions of the aprons are caused to converge, an inclined tapering guard or shield in front of each apron, and means for positively driving one of said rollers to impart a rearward motion to the opposite faces of the aprons, substantially as described.

9. In a corn-harvester, the combination, with a main platform supported on two wheels at opposite sides thereof, and provided with a rearward extension, of a rotary shocking-platform located at one side of the front of the main platform, a discharge-arm adapted to sweep across said shocking-platform to remove the shock therefrom, and means for operating said discharge-arm, whereby the shock is discharged from the rotary platform rearwardly and laterally onto the rearward extension of the main platform, which latter is adapted to be tilted thereby, substantially as described.

751,368. SHOCK-REDUCING MECHANISM FOR CARS. WILLIAM C. ANDREWS, Wheeling, W. Va. Filed Apr. 25, 1903. Serial No. 154,294. (No model.)

Claim.—1. In a device of the character described, the combination with a car-truck and car-body, of cross-pieces secured to said car-body, a plate carrying lugs secured to each of said cross-pieces, brackets secured to the side rails of said truck, a rod extending across from one bracket to the other, movable sleeves upon said rod, springs carried by said sleeves, and tension-adjusting means for said springs, substantially as described.

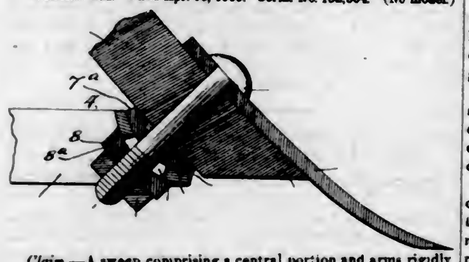
2. In a device of the character described, the combination with a car-truck and a car-body, of a cross-bar secured on the under side of the car-body at each end thereof, the ends of said cross-bars resting free upon the side rails of the car-truck, a plate with downwardly-extending lugs secured upon each cross-bar intermediate its ends, brackets secured to the side rails of the car-truck under the free ends of the cross-bars, a rod supported by said brackets and lugs, movable sleeves carried by said rod intermediate said brackets and lugs, springs carried by said sleeves, and means for adjusting the tension of the springs.



3. In a device of the character described, the combination with a car-truck and a car-body, of a cross-bar secured on the under side of the car-body at each end thereof, the ends of said cross-bars resting free upon the side rails of the car-truck, a plate with downwardly-extending lugs secured upon each cross-bar intermediate its ends, brackets secured to the said side rails of the truck under the free ends of the cross-bars, a rod transversely supported by said brackets at each end of the car and passing through said lugs, movable sleeves carried by each rod intermediate said brackets, springs carried by said sleeves, means for adjusting the tension of said springs, means for coupling the car-body to said truck, the last-mentioned means consisting of a channeled plate, a substantially T-shaped king-bolt having its head movably secured in the channel of said plate and its body standing vertical above said plate, and springs for yieldingly holding said king-bolt against movement in said channel, all substantially as and for the purposes set forth and described.

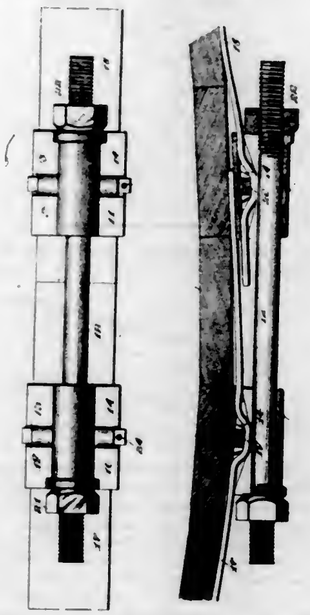
4. In a device of the character described, the combination with a car-truck and a car-body, of transverse bars secured to said truck, a channeled plate mounted on said bars, a substantially T-shaped king-bolt having its head movably secured in the channel of said plate and its body standing vertical above said plate, and springs for yieldingly holding said king-bolt against movement in said channel, substantially as described.

751,369. HEEL-SWEEP FOR PLOWS. EDWARD L. ASHLEY, Bon Wheeler, Tex. Filed Apr. 16, 1903. Serial No. 152,864. (No model.)



Claim.—A sweep comprising a central portion and arms rigidly fixed thereto and diverging rearwardly therefrom, said central portion having a substantially semispherical seat and an opening extending through the center thereof, in combination with a plow-standard, a shovel on the front side thereof, a washer on the rear side of the standard, having a convex face engaging the seat of the sweep, a bolt passing through the shovel, the standard, the washer, and the opening in the seat of the sweep, the diameter of the bolt being less than that of the opening to permit universal angular adjustment of the sweep, and clamping means on the bolt engaging the rear side of the central portion of the sweep, substantially as described.

751,370. BAND-FASTENING. HERMAN H. BECKMAN, Des Moines, Iowa, assignor to Beckman Brothers, Des Moines, Iowa, a Firm. Filed Mar. 30, 1903. Serial No. 150,187. (No model.)



Claim.—1. As an improved article of manufacture, a band-fastening comprising the heads recessed for the passage therethrough of band ends and also notched transversely intermediate of their ends, wedges mounted transversely of said heads and through said notches, said wedges located between the base-plates of the heads and the band ends, and a straining-bolt connecting said heads independent of the wedges.

2. As an improved article of manufacture, a band-fastening comprising the heads recessed for the passage therethrough of band ends, wedges separate from and mounted transversely of the heads, whereby the band ends are flexed within the heads, and a straining-bolt connecting said heads.

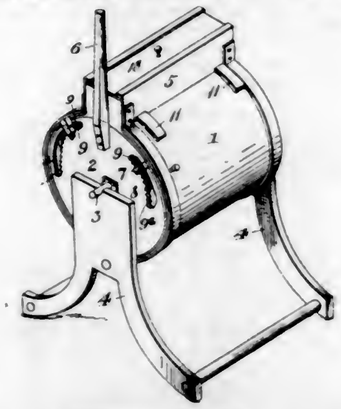
751,371. CHURN. HENRY A. BIERLEY, Portsmouth, Ohio. Filed Apr. 13, 1903. Serial No. 152,460. (No model.)

Claim.—1. In a churn, the combination of a drum for holding milk or cream and having an opening therein extending the full length of the drum, a deflector footed on the inner surface of said drum and adjacent to said opening and bearing feet engaging guide-grooves in said drum, substantially as described.

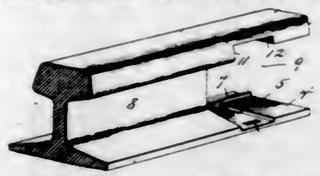
2. In a churn, the combination of a drum mounted to rotate, adjustable stops mounted to limit the movement of said drum, and deflectors adjustably mounted in guide-grooves within said drum to enable them to be set to correspond to said stops, substantially as described.

3. In a churn, the combination with a drum mounted to revolve, one of the heads of said drum having a curved guide-groove formed therein, racks mounted in said guide-groove, and a stop adjustably mounted in said groove and carrying a spring-pawl engaging said rack to enable the movement of the drum to be limited by setting said stops, substantially as described.

4. In a churn, the combination of a drum mounted to rotate, adjustable stops mounted to limit the rotation of said drum, and two concave deflectors adjustably mounted in said drum to enable them to be set to correspond to said stops substantially as described.



751,372. RAILWAY-RAIL. THOMAS BOYLAN, Elk Mountain, Wyo. Filed Sept. 12, 1903. Serial No. 172,955. (No model.)



Claim.—1. A rail-joint, comprising rail-terminals, one of which has the web removed to permit the head to overhang the base-flange, said head being shouldered and formed with a transverse slot and the base provided with a seat and a slot extending transversely over a portion thereof and terminating at a longitudinal rib, and the other rail end having its base-flange cut away at one side and formed with upper and lower slots, and reduced portions to enter the opening in the end of the other rail and interlock with the latter.

2. A rail-joint, consisting of rail ends, one of which has an opening extending therethrough between the head and fladge, and a longitudinal rib extending upwardly from the base, the other rail end having the flange cut away at one side and formed with an under transverse slot and the head reduced and transversely slotted and adapted to be inserted laterally into the end of the first-mentioned rail, and a single fastening passing through portions of both rail ends.

3. A rail-joint, consisting of rail ends, one of which has an opening cut therethrough between the base-flange and head and also provided with a longitudinal rib rising from the base-flange at one side of the center, the other rail end having upper and lower transverse slots and a portion of one side of the base-flange thereof removed and adapted to contact with the rib, and means for fastening the interlocked rail ends.

751,373. CATTLE-GUARD. PATRICK P. BRANNON, Armenia, San Salvador, assignor of one-half to Edgar Wallace Conable, Roswell, Colo. Filed Aug. 12, 1903. Serial No. 169,201. (No model.)

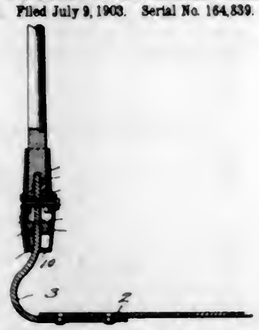


Claim.—1. The combination with a base of a double-pointed spike, with one point driven into said base, a lug located to limit the penetration of the driven point, and a lug located out of contact with said base to be engaged by a claw-bar to draw said spike, substantially as described.

2. A spike sharpened at both ends and bearing four lugs, two of said lugs being located in alinement with one another and on opposite sides of said spike, the other two lugs being located in alinement with each other and on the two unoccupied sides of said spike and nearer one of the points of said spike than the first-mentioned lugs, substantially as described.

3. A double-pointed spike bearing two oppositely-extending lugs located to limit the penetration of the driven point of said spike, and two oppositely-extending lugs located farther from the said driven point than said first-mentioned lugs and designed to be engaged by a claw-bar to draw said spike, substantially as described.

751,374. FASTENING MEANS FOR HOES. GEORGE M. BRIGHT, Abingdon, Va. Filed July 9, 1903. Serial No. 164,839. (No model.)



Claim.—1. The combination of a handle having a socket in one end thereof, an implement having a tang to fit in the socket, a ferrule embracing the end of the handle having the socket therein and projecting beyond said end, a coupling-sleeve fitted over the projecting end of the ferrule, the tang extending centrally through the sleeve, and a coupling-rivet inserted transversely through the associated portions of the ferrule and sleeve and the tang.

2. A handle, having an enlarged extremity with a socket extending longitudinally thereof, a ferrule applied to the enlarged end of the handle and having a bifurcated diverged extremity, a coupling-sleeve having the upper portion thereof embracing the lower end of the ferrule, a hoe having a tang projecting upwardly through the sleeve and ferrule into the socket of the handle, and a connecting means passing transversely through the engaged portions of the ferrule and sleeve and the tang.

3. A handle, having an enlarged extremity with a central longitudinally-extending socket, a ferrule applied over the handle and firmly engaging the enlarged socketed end of the latter, a coupling-sleeve having its upper extremity embracing the lower end of the ferrule, a centering-plug in the sleeve, a hoe having a tang projecting upwardly through the sleeve, its centering-plug, and the lower extremity of the ferrule and extending into the said socket, and a transverse connecting means inserted through the engaged portions of the ferrule and sleeve and the tang.

4. A handle, having a socket in one end, a ferrule on the end of the handle having the socket therein, a coupling-sleeve engaging the ferrule, and a hoe having a tang projecting through the sleeve into the socket and connected to said parts, whereby the tang is held in a straight line with relation to the center of the hoe.

5. A fastening device of the class set forth, consisting of a ferrule and sleeve terminally engaging each other and having a coupling-pin projecting therethrough, combined with a handle having one end held in the ferrule and provided with a socket, and a hoe having a tang projecting through the sleeve and ferrule into the socket and engaged by said means.

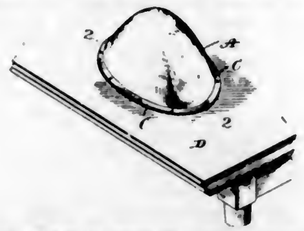
6. A fastening for implements, consisting of a ferrule, a sleeve terminally embracing one extremity of the ferrule, and a transversely-extending coupling-pin for the engaged extremities of the ferrule and sleeve, combined with a handle having one end held in the ferrule and provided with a socket, and a hoe having a shank extending upwardly through the sleeve and ferrule into the socket and engaged by the said pin.

751,375. SCREEN. ULYSSES S. BRIGGS, Plainfield, Wis. Filed Sept. 13, 1902. Serial No. 123,325. (No model.)



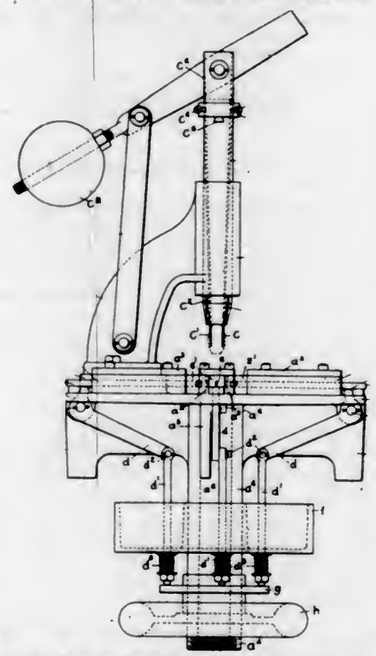
Claim.—In a screen, in combination with a frame, screening material secured on both sides thereof—on the reverse side extending from the bottom with a free edge nearly to the top and on the obverse side extending from the top to a point, with a free edge, beyond the edge of the screening material on the reverse side—transverse strips, attached to the free ends of the screening material and secured to the frame and constructed to hold the free ends of the screen material in operative position and guard edges, constructed to prevent the ingress of insects, by bending toward each other the raw edges of the screening material, substantially as described.

751,376. FORM FOR STACKING COATS. THOMAS H. CANNON, Spartanburg, S. C. Filed Jan. 3, 1903. Serial No. 137,715. (No model.)



Claim.—As a means for supporting a stack of coats in a pile, superimposed one upon the other, the combination of a form having a shape similar to a human shoulder and the adjacent portions of the human torso, a substantially horizontal support, and means for securing said form to said support, the height of such form above the support being at least equal to the corresponding dimension of a shoulder-pad, whereby the shoulder-pad can be entirely supported by said form, so that wrinkling of said pad is prevented.

751,377. NUT-SHELLING MACHINE. CHARLES CARR, Boston, Mass. Filed Jan. 24, 1903. Serial No. 140,405. (No model.)



Claim.—1. In a nut-shelling machine in combination, a bed having knife-carrier guides thereon, a plunger, a series of cutting-knives, carriers for cutting-knives operative in the guides on the bed, bell-crank levers for operating said knife-carriers, depending rods attached to the bell-cranks, and a weight attached to said rods, arranged substantially as shown and described.

2. In a nut-shelling machine in combination, the machine-bed with a hub on under side having a central hole extending through, a plunger movable in a line with said hole, horizontally-moving knives having their cutting ends approximately concentric to the said hole and in the line of travel of the plunger, means for connecting the knives to a weight, and a single weight common to all the knives, connected to them in such manner that their movement is simultaneous, substantially as shown and described.

3. In a nut-shelling machine in combination, the machine-bed with hub on under side having a central hole extending through, a plunger movable in line with said hole, horizontally-moving knife-carriers approximately radiating from said hole, a single horizontally-adjustable knife within each carrier, bell-crank levers connected to the knife-carriers and to pendent rods, springs, one on each rod below and bearing against a single weight, and the said weight, which acts through rods, bell-cranks and knife-carriers on all the knives.

4. In a nut-shelling machine in combination, the machine-bed, a plunger for forcing nuts past a series of knives, radiating knife-carrier bearings, on the machine-bed, located around a central hole, individually and independently adjustable cutting-knives secured within the carriers, the said knife-carriers, bell-crank levers and rods connecting to a single weight acting in common on all the knife-carriers, the said weight, and springs, one for each rod for supporting the weight, arranged substantially as shown and described.

5. In a nut-shelling machine, in combination, a bed-plate, having a central hole and central hub, a flat-ended plunger, with means for moving same, a series of horizontally-traveling single cutting-knives, their cutting ends approximately concentric to the central hole in the bed, means for connecting the knives to pendent rods, the pendent rods, connecting with a single weight through which the rods pass, their ends resting on a collar having vertical movement, the said weight, simultaneously controlling all of the knives, a sliding collar, for simultaneously raising and lowering the depending rods, thereby varying the horizontal relation of the cutting-knives, and a hand-wheel, for elevating and depressing the said collar, operative on a screw-thread at lower end of hub, arranged substantially as shown and described.

6. In a machine for shelling nuts, which have had their ends flattened by clipping, a bed-plate having a central hub and provided with guide-bearings for a series of cutting-knives, a flat-ended plunger, with means for moving same, a series of horizontally-moving cutting-knives, approximately radiating from a central hole in the bed, bell-cranks, rods and springs connecting the cutting-knives with a weight common to all the knives and for simultaneously forcing them inward, the said weight, through which the depending rods project and bear upon a sliding collar, a slidable collar, free to move upon the central hub of the bed and resting upon a hand-wheel and a hand-wheel free to turn upon a threaded portion of the bed-hub whereby its elevation determines the horizontal distance between the cutting ends of the knives, arranged substantially as shown and described.

7. In a machine adapted to shell nuts that have previously had their ends flattened by clipping, a bed-plate having a central hub on under side and knife-carrier bearings on upper side, a flat-ended plunger, in line with the center of the hub, for forcing the nut past the cutting-knives, which are arranged about a hole through the center of the hub, adjustable knives operative in the bearings on the bed, means for keeping these knives in their innost position while at rest, and means for simultaneously adjusting the relation of the cutting ends of the knives to each other, arranged substantially as shown and described.

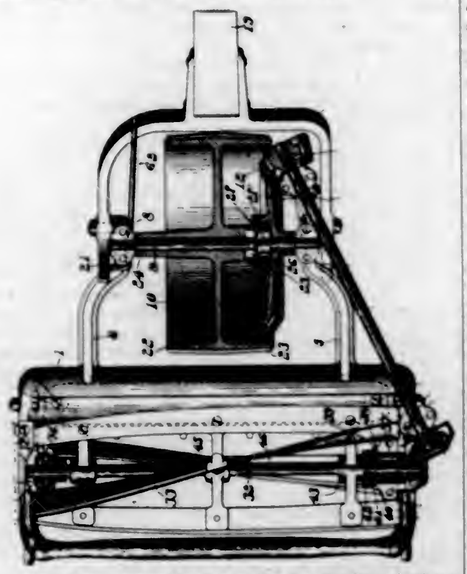
751,378. LAWN-MOWER. ORRIL R. CHAPLIN, Boston, Mass., assignor of one-third to Robert W. Howard, Boston, Mass. Filed Aug. 10, 1903. Serial No. 168,948. (No model.)

Claim.—1. In a mowing-machine the combination with a frame of a pivoted drive-wheel journaled on the rear of the frame, a driving-shaft journaled above the frame at an angle to the drive-wheel and on one side of said frame, a revolving cutter journaled in said frame, and means connecting said driving-shaft with the drive-wheel and revolving cutter substantially as shown.

2. In a mowing-machine, in combination, a handle-bar provided with a forked piece 18, a frame having a drive-wheel journaled thereon, a cutter-blade positioned forward of said drive-wheel, a rotary cutting-reel journaled on said frame and a straight drive-shaft extending from the rear portion of the main frame between the drive-wheel shaft and the fork-piece 18 and above said main frame and connecting said cutting-reel and drive-wheel for revolving said cutting-reel on the forward movement of the drive-wheel substantially as shown.

3 In a mowing-machine the combination of a frame having a drive-wheel journaled thereon, a cutter-blade positioned forward of

the same, a rotary cutting-reel journaled on said frame, a straight driving-shaft inclined diagonally and running above the main frame and connecting said cutting-reel and drive-wheel at the rear of said drive-wheel shaft and means whereby said cutting-reel is revolved by forward pressure applied to said drive-wheel, but remains stationary upon backward pressure to said drive-wheel.



4. In a mowing-machine the combination of a frame having a drive-wheel held on the rear of the same, a cutter-blade positioned on the front of the same, a rotary cutting-reel journaled on said frame and having the center of the shaft directly above the outer edge of said cutter-blade and a straight driving-shaft inclined to the horizontal and at an angle to the drive-wheel and cutting-reel above one side of said frame connecting said cutting-reel and drive-wheel substantially as shown and described.

5. In a mowing-machine the combination of a frame having a drive-wheel journaled thereon, a supporting-roller adjustably attached to said frame forward of said drive-wheel, a stationary cutter provided with a cutter-blade forward of said roller, a spirally-revolving cutter above and forward of the stationary cutter and centered above the outer edge of the cutter-blade, and a driving-shaft running diagonally across one side of said frame connecting the drive-wheel and revolving cutter, substantially as shown.

6. In a mowing-machine having a main frame, a drive-wheel and its shaft journaled in the rear of the frame, a gear-wheel on said shaft, a driving-shaft, a pinion on said driving-shaft and in mesh with the teeth of the gear-wheel, a cutter-shaft in the forward part of the machine and having a bevel-gear at one end thereof, a bevel-gear at the other end of said driving-shaft and in mesh with the gear of the cutter-shaft, the driving-shaft running from a point in the rear of the drive-wheel shaft diagonally across one side of the main frame to a point in the rear of the cutting-reel shaft, substantially as shown and described.

7. In a mowing-machine having a cutter-bar and a knife rigidly secured thereto, a driving-shaft extending diagonally from near the center of the rear of the machine to near one end of the cutter-bar, a supporting-roller between the knife and drive-wheel of the machine, two upright sliding bangers fitting between two ribs cast on the inside of the frame, and having the supporting-roller journaled thereto each hanger provided with a slot extending from the journal-hub to its top and a bolt lying therein and passing through a hole in the frame and a nut for adjusting the supporting-roller, substantially as shown and described.

8. In a mowing-machine the combination of a cutter-bar having a stationary cutter secured thereto on its under side by screws, an upright stand on each end of the cutter-bar, a flange projecting from each upright stand outward and provided with two adjusting-screws, one inserted loosely therein and extending into the frame of the machine, the other threaded into the flange and resting upon said frame, substantially as shown and for the purposes specified.

9. In a mowing-machine having a revolving cutter, a shaft journaled to the frame in the rear of the cutter and carrying a drive-wheel loose on the same, a large driving bevel-gear loose on the same shaft, a pinion meshing in said gear, a friction roller-clutch contained in said bevel-gear, and a drive-shaft extending diagonally above one upper side of said frame for connecting said pinion at the rear of the drive-wheel with said cutter's shaft substantially as shown and described.

10. In combination with a mowing-machine, a handle provided upon one side with an arm in contact with the frame on its under side and on its other side with an arm in contact with the frame on its upper side, substantially as shown and for the purposes specified.

11. In a mowing-machine, the combination with a drive-wheel shaft, of a main frame provided with an arm 6, a pressure-spring secured to the rear part of the arm near the drive-wheel shaft, and a forked handle-bar, the free end of said spring resting on one of the fork-arms of the lower end of the handle, substantially as shown and for the purposes specified.

12. In a cutting apparatus for mowing-machines, the combination with a framework of a rotary cutter, a stationary cutter consisting of a knife secured to a cutter-bar, a roller underneath said cutter-bar, means for pivoting said cutter-bar on said framework, and an upright stand on each end of the cutter-bar having a flange projecting outward and means for adjusting said flange to the main frame.

13. In a mowing-machine, a frame and ears cast on said frame in combination with a rotary cutter, an under cutter pivotally hinged to the ears on the frame, a vertical stand at each end of the under cutter and having a flange at its top projecting outwardly and each flange having two adjusting-screws passing through it for adjusting said under cutter vertically and horizontally, substantially as shown and for the purposes specified.

14. In a mowing-machine, a handle having an arm extending under the framework of the machine, a second arm extending above the framework of the machine and a pressure-spring for keeping said handle-bar in a rigid position substantially as shown and for the purposes specified.

15. In a mowing-machine the combination of a frame having a ground-wheel journaled thereon, a supporting-roller journaled on said frame forward of said ground-wheel, an under cutter pivotally attached to said frame, a rotary cutter centered above said under cutter, a driving-shaft journaled on said frame and extending diagonally across one of its sides and suitable gears at each end of said driving-shaft connecting said ground-wheel and rotary cutter, substantially as shown.

16. In a mowing-machine, a rotary cutter-shaft journaled in the forward part of the machine and carrying at one end a bevel-gear, a drive-wheel shaft in the center of the frame in the rear of the rotary cutter-shaft and having a drive-wheel loosely mounted thereon, a driving-gear mounted loosely on the drive-wheel shaft, a roller friction-clutch coonecting the drive-wheel and driving-gear, a shaft placed diagonally across one side of the machine and provided with a pinion at its rear end in mesh with the driving-gear near the center of the rear of the machine and within the framework, and having a bevel-gear at its forward end in mesh with the gear on the rotary cutter-shaft outside of the frame, substantially as shown and described.

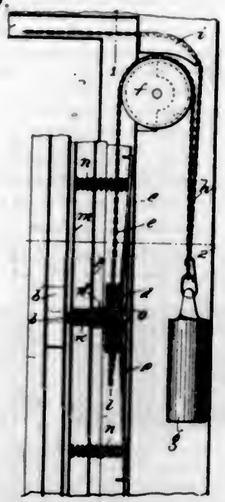
751,379. REVOLVING METALLIC WINDOW. LARS CHRISTENSON, New York, N. Y. Filed Mar. 18, 1903. Serial No. 148,390. (No model.)

Claim.—1. The combination with a rotating window-sash, of weights one at each side of the sash respectively, a chain having a fusible connecting-link and normally suspending said weights, other chains adapted for rotating and closing said sash and means for transferring said latter weights onto said sash-closing chains when the fusible link parts.

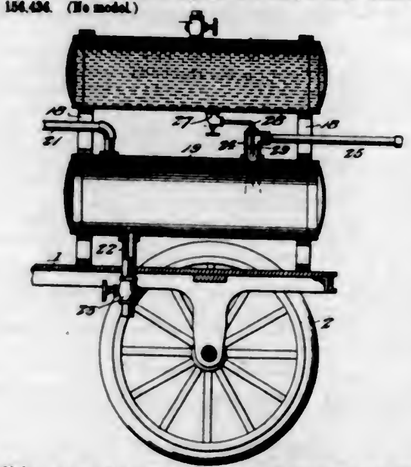
2. The combination with the upper sash mounted on pivots and adapted for rotatory opening and closing movements, pulleys fixedly attached to said pivots, chains attached to said pulleys for winding on and off, pulleys carrying said chains above the sash-pivots, weights connected to the pendent ends of said chains and other chains connected over the sash by a fusible link and normally suspending the weights respectively with slack of the chains connected to the pivot-pulleys.

3. The combination with the fusibly-connected weight-suspending chains and connecting-hooks therefor, of the slotted frame-plate adapted for the hooks to run in the slot so as to be stopped at the ends of the slot, and the guard adapted to confine the parted hooks in the slot.

751,379.



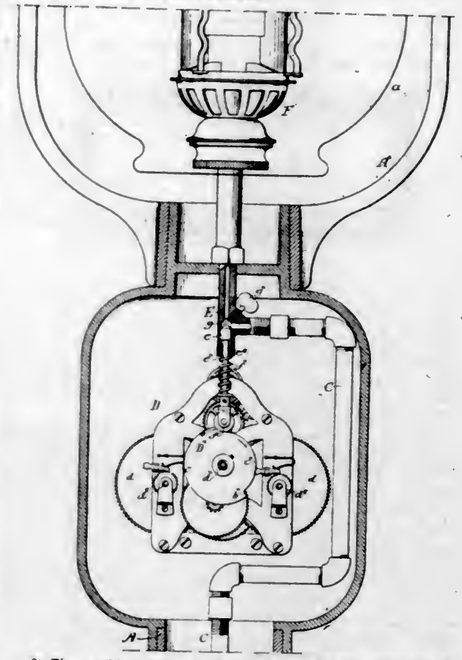
751,380. HOUSE-CLEANING APPARATUS. GEORGE CLEMENTS and JAMES M. HOUPLER, Chicago, Ill. Filed May 9, 1903. Serial No. 156,436. (No model.)



Claim.—In an apparatus of the character described, the combination with the platform of a vehicle having a motor thereon and a pump adapted to be driven by the motor; of standards secured upon the platform, cylindrical tanks supported one above the other by the standards, a water-inlet to the upper tank, a valved outlet-pipe extending therefrom, a nozzle upon said pipe, an L-shaped compartment opening into the top of the lower tank and inclosing the nozzle, said nozzle extending across the inlet to the compartment, an air-feed pipe opening into said compartment, a pipe connecting the top of the lower tank with the pump and a valved drain-pipe depending from the bottom of the lower tank and projecting through the platform.

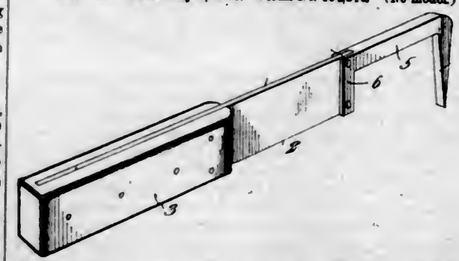
751,381. TIME GAS-LIGHTING APPARATUS. JOSEPH CONKLIN, Philadelphia, Pa. Filed Apr. 10, 1901. Serial No. 55,204. (No model.)

Claim.—1. The combination in an automatic gas-lighting apparatus, of the burner, a gas-supply pipe having passages at an angle to each other, a main valve controlling the admission of gas from said pipe to the burner, said valve having a seat within the gas-supply pipe at the junction of the passages within the same, clockwork mechanism having a cam controlling the position of the main valve, the seat of said valve having a groove forming an auxiliary gas-passage to support a reduced main flame when the main valve is closed, and a threaded member carried by the wall of the main gas-supply pipe, said pipe having an aperture in line with the groove in the valve-seat, and said threaded member having a reduced end entering said aperture and forming a valve to control said auxiliary gas-passage when the main valve is closed.



2. The combination in an automatic gas-lighting apparatus, of the burner, a gas-supply pipe having passages at an angle to each other, a main valve controlling the admission of gas from said pipe to the burner, said valve having a seat within the gas-supply pipe at the junction of the passages within the same, the seat of said valve having a groove forming an auxiliary gas-passage to support a reduced main flame when the main valve is closed, a threaded member carried by the wall of the main gas-supply pipe and arranged at a right angle to the wall of the valve-seat, said wall having an aperture in line with the groove and said threaded member having a reduced portion entering said aperture and serving as a valve to control the auxiliary gas-passage when the main valve is closed, clockwork mechanism having a cam controlling the position of the main valve, a stem carried by said valve, the lower end of which is in operative engagement with the cam, a spring for keeping the main valve normally open and the end of its stem in operative engagement with the cam, a lug carried by the end of the valve-stem, a hood for the burner, and a rod adjustably secured to said lug and supporting the hood for the burner, such construction providing for the raising of the hook to guard the reduced main flame simultaneously with the closing of the main valve.

751,382. GRAFTING-KNIFE. CHARLES O. COUTS, New Comerstown, Ohio. Filed July 3, 1903. Serial No. 164,210. (No model.)

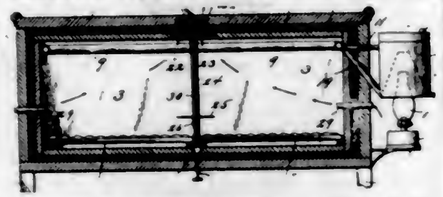


Claim.—1. A grafting-knife having a blade with a cutting edge, and a wedge attachment secured to the front extremity of the blade

and provided with a depending wedge of greater length than the width of the blade.

2. A grafting-knife, having a blade with a cutting edge and a wedge attachment secured to the front extremity of the blade.

751,383. INCUBATOR. NEPHI CRISMER and JESSE W. CLEMENT, Fairview, Utah. Filed June 3, 1903. Serial No. 159,953. (No model.)



Claim.—1. In an incubator, the combination with a casing having an opening through the upper portion thereof, and egg-trays in the bottom, a damper normally closing the opening in the upper portion of the casing and centrally fulcrumed, thermostatically-controlled means connected to the damper and extending through the bottom of the casing, the ends of the casing having air-inlet means above the plane of the egg-tray, and heating means in the upper part of the interior of the casing.

2. In an incubator, the combination with a casing having an egg-chamber therein, and a heating means for said chamber comprising a rectangular pipe disposed in the upper part of the said egg-chamber and having the ends thereof closed and spaced apart from each other and also including a longitudinal pipe extending centrally therethrough through the space between the closed ends, a water-heating tank having means in the lower portion thereof to receive a lamp-chimney or analogous device, horizontal pipes connecting the upper portion of the tank with the ends of the rectangular pipe, and an inclined return-pipe attached to the bottom of the tank and the said longitudinal pipe, the horizontal pipes and return-pipe being of smaller diameter than the rectangular and longitudinal pipes.

751,384. LOOM FOR WEAVING BORDERED FABRICS. JOSEPH H. CUNLIFFE and JOHN LAW, Rochdale, England. Filed July 23, 1900. Serial No. 24,497. (No model.)



Claim.—1. In a loom for weaving bordered fabrics, means for interposing linking-threads between the main cloth and the border to be attached thereto, means for looping the border-weft to said linking-threads for securing the border thereto, and means for looping the weft of the main cloth around said linking-threads for securing the main portion of the cloth thereto.

2. In a loom, a lay-top, two pairs of alternately-operating sliding blocks suitably connected with said lay-top, operating means for said blocks, forks carried by said blocks and adapted to alternately engage a shuttle, and means operating through the forks for operating the shuttles to cause their alternate engagement with the forks.

3. In a loom, a lay-top, two pairs of alternately-operating sliding blocks suitably connected with said lay-top, operating means for said blocks, forks carried by said blocks and adapted to alternately engage a shuttle, spindles operating through said forks for releasing the shuttle from engagement therewith, and means for operating said spindles.

4. In a loom, a lay-top, two pairs of alternately-operating sliding blocks suitably connected with said lay-top, operating means for said blocks, forks carried by said blocks and adapted to alternately engage a shuttle, spindles operating through said forks for releasing the shuttle from engagement therewith, and spring-actuated levers for alternately operating said spindles.

5. In a loom for weaving bordered fabrics, a lay-top, a pair of rods arranged in the said lay-top, a pair of blocks carried by each of the said rods, forks carried by the said blocks and adapted to engage a shuttle, spindles operating through said forks for releasing the shuttles therefrom, spring-actuated levers for operating the said spindles, and means for limiting the movement of said levers

6. In a loom for weaving bordered fabrics, a lay-top, two pairs of alternately-operating sliding blocks suitably connected with said top, operating means for said blocks, forks carried by the blocks and adapted to alternately engage the shuttles, means operating through the forks for causing the alternate engagement of the shuttles therewith, and a temple arranged in suitable relation to said forks.

7. In a loom for weaving bordered fabrics, means for interposing linking-threads between the main cloth and border, means for looping the border-weft to said linking-threads for securing the border thereto, and means for looping the weft of the main cloth around said linking-threads and below the looped weft of the border for securing the main portion of the cloth to the linking-threads.

751,385. POWDER CHARGE. CLELAND DAVIS, U. S. Navy. Filed June 6, 1901. Renewed Sept. 3, 1902. Serial No. 122,011. (No model.)



Claim.—1. A powder-grain consisting of a plurality of flat plates separated from each other by thin longitudinal ribs, thus forming a cellular structure having shallow broad perforations therethrough, substantially as described.

2. A powder-grain composed of a plurality of flat plates separated from each other by thin longitudinal ribs, the said plates and ribs forming an integral mass, thus forming a cellular structure having shallow broad perforations therethrough, substantially as described.

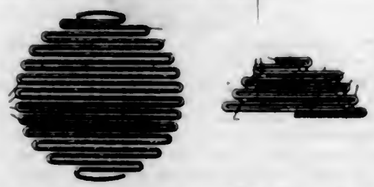
3. A powder charge composed of one or more grains each formed of a plurality of plates of colloid material separated by thin ribs of the same material, thus forming a cellular structure having shallow broad perforations therethrough, substantially as described.

4. A powder charge composed of one or more grains each consisting of a series of plates of colloid material separated by thin longitudinal ribs, the said ribs and plates forming an integral mass, thus forming a cellular structure having shallow broad perforations therethrough, substantially as described.

5. A powder charge consisting of a plurality of grains held together by longitudinal strips of similar material, said strips projecting into recesses in said grains, substantially as described.

6. In a powder charge, the combination with a plurality of grains each provided with axial passages, of a plurality of strips of the powder material projecting into recesses in the several cakes or grains and binding the same firmly together, substantially as and for the purposes described.

751,386. POWDER-GRAIN. CLELAND DAVIS, U. S. Navy. Filed Aug. 6, 1901. Serial No. 71,006. (No model.)



Claim.—1. A powder-grain composed of a single plate of colloid material bent into approximately parallel layers, having the spaces between adjacent layers open laterally and longitudinally, substantially as described.

2. A powder-grain composed of a single plate of colloid material bent into approximately parallel layers having the spaces between adjacent layers open laterally and longitudinally, with spacers interposed between said layers, substantially as described.

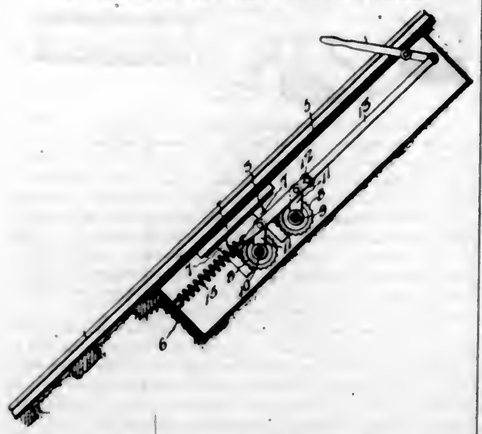
3. A powder charge consisting of a single grain composed of a single plate of colloid material bent into approximately parallel layers, having the spaces between adjacent layers open laterally and longitudinally, substantially as described.

4. A powder charge consisting of a single grain composed of a single plate of colloid material bent into approximately parallel layers, having the spaces between adjacent layers open laterally and

longitudinally, with spacers between said layers, substantially as described.

5. A powder charge consisting of a single grain composed of a single plate of colloid material bent into approximately parallel layers, having the spaces between adjacent layers open laterally and longitudinally, the said layers being separated by blocks of the same material, substantially as described.

751,387. RAILWAY-SWITCH. THEODORE ECKARD, Baltimore, Md. Filed Sept. 10, 1903. Serial No. 172,674. (No model.)



Claim.—1. In a railway-switch, the combination with a casing; of a vertically-movable switch-tongue therein, racks depending from the tongue, gears engaging the racks, means for simultaneously rotating the gears in the same direction, and mechanism for holding the tongue normally in lowered position.

2. In a railway-switch, the combination with the main and siding rails; of a vertically-movable switch-tongue, arms depending therefrom, gears engaging the arms, means for simultaneously rotating the gears, a lock for preventing rotation of the gears, and an operating-rail adjacent the first-mentioned rails for operating the lock.

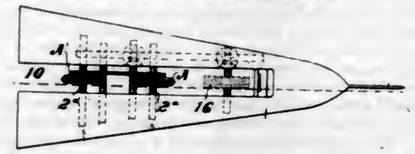
3. In a railway-switch, the combination with a main and a siding rail; of a casing thereunder, a switch-tongue vertically movable within the casing, a revoluble shaft within the casing having a recess, mechanism operated by the shaft for imparting vertical movement to the switch-tongue, an operating-rail adjacent the main and siding rails, and a spring-pressed plunger supporting said rail and adapted to engage the recess.

4. In a railway-switch, the combination with a main and a siding rail; of a casing under the switch, a vertically-movable switch-tongue within the casing, a revoluble shaft journaled within the casing and having recesses therein, mechanism operated by the shaft for imparting movement to the switch-tongue, a spring-pressed plunger slidably mounted within and extending from the casing, an operating-rail adjacent the main and siding rails and supported by the plunger, fixed brackets adjacent the rails, and link connections between the brackets and the operating-rail.

5. In a railway-switch, the combination with a main and a siding rail; of a casing below the rails, a vertically-movable switch-tongue arranged within the casing, racks depending from the tongue, gears engaging the racks, means for simultaneously rotating the gears, a shaft revoluble with one of the gears and having recesses therein, a spring-pressed plunger in vertical alinement with the recesses, and an operating-rail adjacent the main and siding rails and supported by the plunger.

6. In a railway-switch the combination with a main and a siding rail, of a casing under said rails, a switch-tongue vertically movable within the casing, racks depending from the tongue, gears engaging the racks, an operating-lever journaled within the casing, shafts revoluble within the gears, one of said shafts having recesses therein, arms extending from the shafts, rods connecting the arms with the lever, a spring-supported plunger slidably mounted within the casing and adapted to engage one of the recesses, an operating-rail adjacent the main and siding rails and supported by the plunger, fixed brackets, and links connecting the brackets and operating-wheel.

751,388. CENTRIFUGAL WASHER FOR FISH-DRESSING MACHINES. ALBERT J. FARMER, San Francisco, Cal., assignor to the Canners Machine Co., San Francisco, Cal., a Corporation of California. Filed Nov. 18, 1902. Serial No. 131,837. (No model.)



Claim.—1. In a fish-cleaning machine, the combination with means for spreading the cavity of the fish, of a rotary washer and means whereby it is axially supplied with water, said washer capable of discharging said water by centrifugal action.

2. In a fish-cleaning machine, a rotary washer having a yielding exterior surface and means whereby it is axially supplied with water, said washer having peripheral passages and discharging the water therethrough by centrifugal action.

3. In a fish-cleaning machine the combination with a water-supply pipe, of a washer rotatable thereon and having its interior communicating therewith, said washer having a yielding periphery and having peripheral passages through which the water is discharged by centrifugal action.

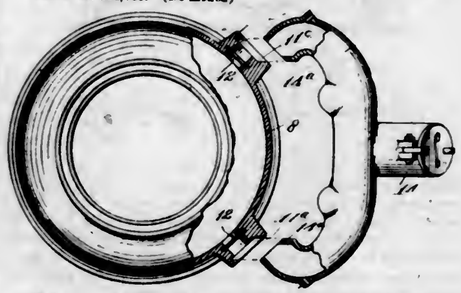
4. In a fish-cleaning machine and in combination with stationary means for spreading the cavity of the fish, a rotary washer positioned to enter and operate in the cavity said washer having peripheral discharge-passages and communications therebetween and a source of supply.

5. In a fish-cleaning machine, the combination with a spreader for opening the cavity of the fish, of a rotatable washer positioned to enter the cavity said washer including a wheel, mounted upon a hollow axle and inclosing an annular water-space, said wheel having discharge-outlets on its periphery and having passages communicating between the hollow of the axle and said water-space.

6. In a fish-cleaning machine, the combination with fish-supporting means including a slotted spreader, of a rotary hollow washer operatable in the slot of the spreader and means whereby it is axially supplied with water, said washer having peripheral openings through which the water is discharged by centrifugal action, and means for rotating said washer.

7. In a fish-cleaning machine, the combination with means for spreading the cavity of the fish, of a pair of oppositely-rotating hollow washers and means whereby they are axially supplied with water, and means for rotating the washers said washers having passages through which said water is discharged by centrifugal action.

751,389. MEANS FOR SECURING AIR-BLAST DEVICES TO FURNACES. FRANK FIREBOKE, Akron, Ohio. Filed Sept. 3, 1903. Serial No. 171,715. (No model.)



Claim.—1. A furnace-dome provided with a pair of bosses having openings communicating with the interior thereof, said bosses further provided with seats surrounding the openings, flanges surrounding the seats and the inner faces of the inner walls of the flanges substantially parallel with each other, in combination with an air-duct provided with a pair of branches having inturned ends adapted to enter said bosses, said inturned ends of said branches having portions thereof extending substantially parallel to one another, said portions adapted to engage the inner faces of the inner walls of said flanges, and means for securing the ends of the branches in the bosses.

2. A furnace-dome provided with a pair of bosses having open-

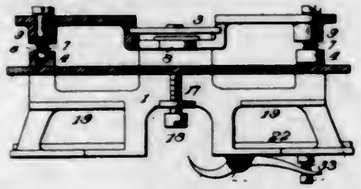
lings communicating with the interior thereof, said bosses further provided with seats surrounding the openings, flanges surrounding the seats and the inner faces of the inner walls of the flanges substantially parallel with each other, in combination with an air-duct provided with a pair of branches having inturned ends adapted to enter said bosses, said inturned ends of said branches having portions thereof extending substantially parallel to one another, said portions adapted to engage the inner faces of the inner walls of said flanges, bolts extending across the opening of the bosses and having their ends embedded in the wall surrounding the opening, and means engaging with the bolts for securing the ends of the branches in the bosses.

3. A furnace-dome provided with a pair of bosses having openings communicating with the interior thereof, said bosses further provided with seats surrounding the openings, flanges surrounding the seats and the inner faces of the inner walls of the flanges extending substantially parallel with each other and at an angle with respect to the seats, in combination with an air-duct provided with a pair of branches having inturned ends extending at an angle with respect to the other portions of said branches, said inturned ends adapted to enter said bosses and having portions thereof extending substantially parallel to one another and at an angle with respect to the edges of said ends, said portions adapted to engage that portion of the inner faces of the flanges which extends at an angle with respect to the seats of the flanges, and means for securing the inturned ends of the branches in the bosses.

4. In combination, a boss having an opening, a seat surrounding said opening and a flange surrounding said seat, the inner face of the inner wall of said flange extending at an angle with respect to said seat, a pipe having its end inturned at an angle with respect to the remaining portion of the pipe and adapted to be seated in said boss, said inturned end of said pipe having a portion thereof extending at an angle with respect to the edge of the said pipe and adapted to engage the angular inner face of said flange, and means for securing the pipe to the boss.

5. In combination, a boss having an opening, a seat surrounding said opening and a flange surrounding said seat, the inner face of the inner wall of said flange extending at an angle with respect to said seat, a pipe having its end inturned at an angle with respect to the remaining portion of the pipe and adapted to be seated in said boss, said inturned end of said pipe having a portion thereof extending at an angle with respect to the said pipe and adapted to engage the angular inner face of said flange, a bolt extending across the opening in the boss and having its ends embedded in the wall of the opening, and means engaging the bolt for removably securing the pipe to the boss.

751,390. **COMBINED JOINTER AND RAKER-GAGE FOR SAWS.** CASSIUS F. FRASER, Portland, Oreg. Filed Apr. 9, 1903. Serial No. 151,931. (No model.)

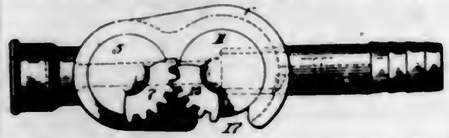


Claim.—1. In a tool of the character described, the combination with a jointer, of a fixed, slotted plate 3, a movable section 2 comprising two portions united by an intermediate integral bridge or yoke 8; lugs 4, having vertical, threaded holes, on the body; lugs 9 having vertical holes, on said movable section set-screws 5 extending through the lugs 9 and adjustable in the lugs 4; and a coil-spring on each set-screw which spring holds the movable section against the heads of the set-screws, substantially as set forth.

2. In a tool of the character described the combination with a jointer provided with projecting ribs 21, and a suitable facing for the same, for the points of the saw-teeth to bear against, of a swage-gage comprising a member vertically movable in bearings therefor provided on the jointer-body, a spring restraining said member in its normal position, and means for vertically adjusting such member, so as to gage the relative length of the raker-tooth, substantially as described.

3. In a tool of the character described the combination with a jointer provided with projecting ribs 21, and a suitable facing for the same, for the points of the saw-teeth to bear against, of a swage-gage comprising a bridge or yoke 23, on the jointer-body, perforated lugs 24 25, on such yoke, a set-screw loosely seated in said lugs; a coil-spring 28 restraining said set-screw in its normal position, and a nut on the set-screw, to vertically adjust the same, so as to gage the relative length of the raker-tooth, substantially as described.

751,391. **HOSE COUPLING AND SHUT-OFF.** LEVI D. GOUGHENOUR and JULIUS A. MARX, Braddock, Pa.; said Goughenour assignor to said Marx. Filed July 14, 1903. Serial No. 166,162. (No model.)

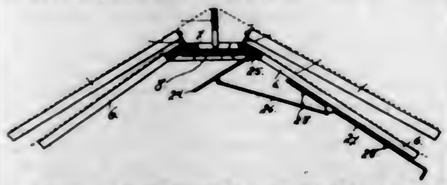


Claim.—1. A hose-coupling embodying a male and a female member, the female member having a bayonet-shaped slot in the wall thereof and a central partition provided with a port and having a tapering valve-seat at each side of said central partition, a plug-valve fitted in one of said tapering valve-seats and provided with a toothed segment, a tapering plug adapted to fit in the other of the tapering valve-seats and having a toothed segment to engage with the segment of the plug-valve, a pipe-section carried by the tapering plug and adapted to lock in the bayonet-shaped slot in the female member, and means for locking the said sections in the coupled position, substantially as described.

2. In a hose-coupling, a male and a female member, the latter comprising a valve-casing having an inlet-port and provided with a central partition having a port therethrough, said valve-casing having a pair of tapering valve-seats, a plug-valve fitted in one of said valve-seats and provided with a transverse opening, a tapering plug adapted to fit in the other of said seats, a pipe-section carried by the said tapering plug and adapted to engage in a bayonet-shaped slot in the valve-casing, and means carried by the tapering plug for actuating the tapering valve as the plug is rotated in the valve-casing, substantially as described.

3. In a hose-coupling, a female member comprising a valve-casing and having a pair of tapering valve-openings with a central partition separating said openings and provided with a port, an inlet-port to said casing, a plug-valve fitted in one of the tapering openings, a tapering plug adapted to fit in the other of said openings, means for securing said plug in the locked position, and means carried by the plug and the tapering valve whereby the operating of the plug actuates the valve to open or close the inlet, substantially as described.

751,392. **TENT.** ROBERT S. GUTHRIE, Denver, Colo. Filed Sept. 12, 1903. Serial No. 173,003. (No model.)

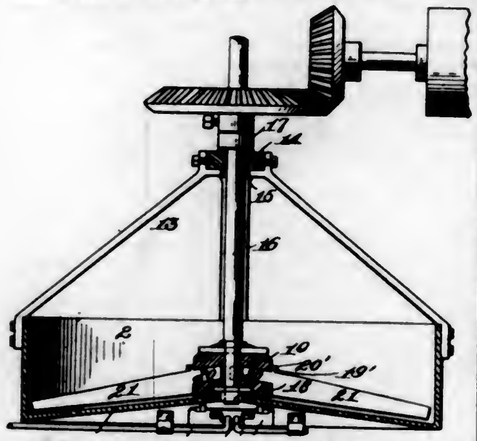


Claim.—1. The combination of a tent provided with an opening in the top surrounded by a frame, a part having its extremities connected with the frame, and raised above the opening to support the fly, rafters forming a further support for the fly, and having their upper extremities connected with the frame surrounding the ventilating-opening and raised above the same, and their lower extremities suitably supported, and a rectangular frame connected with the lower extremities of the fly-frame rafters and supported by the latter.

2. A tent structure having a main frame composed of uprights and rafters, a roof having an opening in the top part, a frame surrounding said opening, and a fly-frame supported above the main frame of the roof and forming a support for the fly-canvas which extends across the ventilating-opening above the latter, and means operated from the inside of the tent for controlling the said opening.

751,398. **FERTILIZER-MIXING APPARATUS.** WILLIAM M. HALE, Nashville, Tenn. Filed June 4, 1903. Serial No. 160,121. (No model.)

Claim.—1. A pan having an approximately conical bottom and a discharge-outlet in proximity to the outer edge of said bottom, a drop-down door for normally closing said discharge-outlet, a door-closing device, and means for engaging said door-closing device to hold the door in a closed position.



2. In an apparatus of the class described, a pan having an approximately conical bottom and a discharge-outlet in proximity to the outer edge of said bottom, a drop-down door for normally closing said discharge-outlet, a hand-lever connected with the door for closing the same, and means for engaging the hand-lever to hold the door in a closed position.

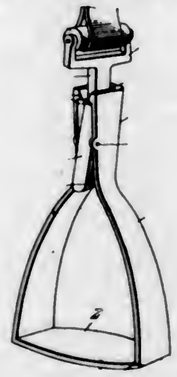
3. In an apparatus of the class described, a pan having an approximately conical bottom and a discharge-outlet in said bottom in proximity to the outer edge thereof, and a drop-down door for normally closing said bottom, combined with means for mixing materials in said pan and for feeding the mixture toward said outlet.

4. In an apparatus of the class described, a pan having an approximately conical bottom and a discharge-outlet in said bottom in proximity to the outer edge thereof, combined with a shaft provided with detachably-mounted mixing-arms located in proximity to said bottom, the pan having an opening through which said arms may be removed.

5. In an apparatus of the class described, a pan, a shaft, having a hub, in the pan, and a plurality of mixing-arms in said pan provided at their inner ends with offsets removably fitted in slots in the hub, the pan having an opening through which said arms may be withdrawn.

6. In an apparatus of the class described, a pan, a shaft having a hub situated in said pan, a plurality of mixing-arms provided with offsets fitted in seats in said hub, and with lugs, and a band surrounding the lugs for holding the arms in assembled relation.

751,394. **SAFETY-STIRRUP.** HERMAN H. HEERMANN, Stanton county, Nebr. Filed May 9, 1903. Serial No. 156,433. (No model.)

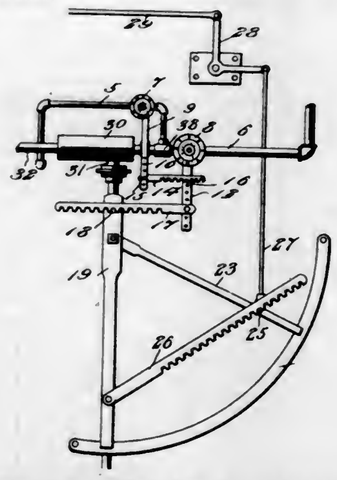


Claim.—1. A safety-stirrup comprising a foot-loop having the upper portions of its side members brought into parallel relation and connected by a wall to form a chamber open at its top and having one of its sides entirely open, shoulders arranged in the interior of the chamber, a suspending member having a shank provided with shoulders adapted to engage the first-mentioned shoulders, said foot-loop being adapted to be moved longitudinally of the shank to be disconnected therefrom, a detent pivotally mounted in the chamber, and a spring adapted to engage the lower end of the detent to retain its upper end in engagement with the shank to normally prevent the foot-loop from having a longitudinal movement upon the shank.

2. A safety-stirrup comprising a foot-loop having its upper portion provided with a chamber, shoulders arranged on the interior of the chamber, a suspending member having a shank provided with shoulders adapted to engage the first-mentioned shoulders, a rod arranged transversely across the chamber, and a spring having its lower end connected to the rod to retain its upper end in engagement with the detent.

3. A safety-stirrup comprising a foot-loop having its upper end provided with a chamber, shoulders arranged in the interior of said chamber, a suspending member having a shank provided with shoulders adapted to engage the first-mentioned shoulders, a rod extending transversely across the chamber, and a spring having its lower end coiled about the rod to retain its upper end in engagement with the shank.

751,395. **OIL-BURNER.** ALEXANDER W. HESS and ANDREW S. WILLIAMS, San Jose, Cal. Filed May 23, 1903. Serial No. 158,509. (No model.)



Claim.—1. In mechanism of the character described, the combination with an atomizer having an outlet and a superheater, and a burner connected to said superheater; of steam, air and oil inlets in the atomizer, and a valve in each of said inlets, an arm extending from each of said valves, an adjustable connection between the arms, whereby the arms may be operated in unison, a fixed quadrant adapted to engage and guide one end of one of the arms, a swinging guide-strip adapted to be connected to valve-operating means and engaging and slidably mounted upon said quadrant and an adjustable connection between said guide-strip and one of the arms of the valves.

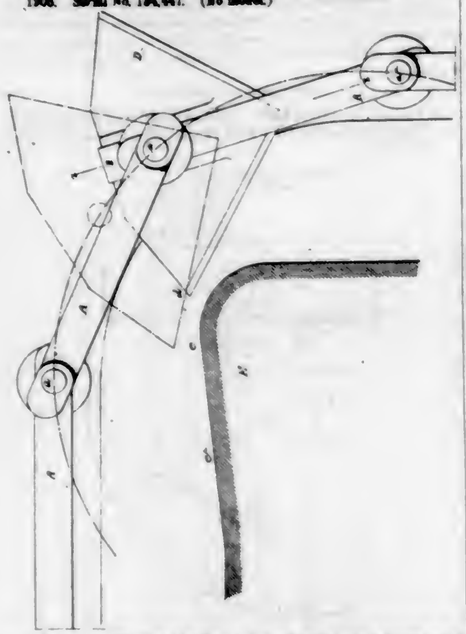
2. In mechanism of the character described, the combination with valved air, oil and steam supply pipes, and means for operating the valves in said pipes in unison; of an atomizer comprising a cylinder having an inlet connected to the oil-supply pipe and a casting opening into the cylinder, inlets within the casting for the reception of the steam and air supply pipes, respectively, a tube secured within the casting and extending longitudinally within the cylinder, said tube having spirally-arranged slots, an outlet-pipe extending from the cylinder, a superheating-cylinder connected thereto, and a burner at one end of said superheating-cylinder.

3. In mechanism of the character described, the combination with air, steam and oil supply pipes, valves therein, and means connecting the valves whereby the same may be opened or closed in

unison; of an atomizer comprising a hollow cylinder having an inlet connected to the oil-supply pipe, a casting secured to the cylinder and having inlets therein, an air-supply pipe opening into one of the inlets, and a heating-cylinder connected to said air-supply pipe, a steam-supply pipe opening into the casting, a spirally-slotted tube secured to the casting and extending longitudinally in the cylinder of the atomizer, said tube being closed at one end, an outlet-pipe extending from said cylinder, a superheating-cylinder connected thereto, and a burner communicating with the superheating-cylinder and comprising a cap having slots in one side thereof.

4. In mechanism of the character described, an atomizer comprising a hollow cylinder having an inlet for the reception of oil, a casting opening into said cylinder, having air and steam inlets, a tube secured within the casting and extending longitudinally within the cylinder, said tube having a spirally-arranged series of slots and closed at one end, and an outlet in the cylinder.

751,396. **BUCKET ELEVATOR AND CONVEYER.** FREDERIC V. HETZEL, Philadelphia, Pa., assignor to The Link Belt Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 9, 1903. Serial No. 184,447. (No model.)



Claim.—1. The combination, in a combined bucket elevator and conveyer, of a trough, a chain having links, a bucket secured to one of the links of the chain at such point that when the bucket reaches the head of the vertical runway, it will have an extended lateral movement over the trough before tipping to such a degree as to discharge some of the material carried thereby, substantially as described.

2. The combination, in a combined bucket elevator and conveyer of a chain buckets attached thereto, a horizontal trough over which the buckets push the material, the end of the trough at the vertical runway being raised, the trough being inclined at the point where the buckets discharge their contents, substantially as described.

3. The combination, in a combined bucket elevator and conveyer of a horizontal trough, two chains made up of links pivoted together, a V-shaped bucket mounted between the chains and secured thereto, the lip of the bucket being about on a line with or above the upper pivots of the chains so that when turning, it will be above the trough before the bucket tilts to such a degree as to discharge its load, substantially as described.

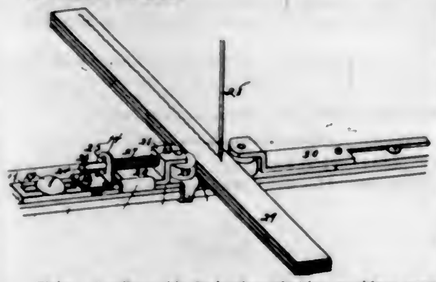
751,397. **APPARATUS FOR AERATING LIQUIDS OR CHARGING THEM WITH GAS.** WILLIAM HUGGS, Jr., Camden-Town, London, England. Filed Dec. 8, 1900. Serial No. 184,342. (No model.)

Claim.—1. An apparatus for aerating liquids, or charging them with gas; the said apparatus consisting of a casing, or casting, provided with means for connecting it to a cylinder, or container, of compressed, or liquefied, gas, and with passages one of such passages consisting of a tube for the admission of gas into the liquid in the bottle, or the like, this tube passing through another of the passages provided with means for making a joint around the mouth of the bottle, or the like, the third passage being provided with a valve weighted, or controlled, so as to open at the desired pressure, substantially as hereinbefore described.



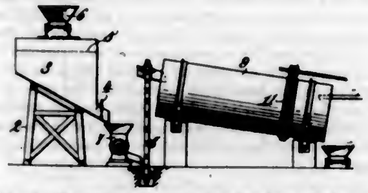
2. An apparatus for aerating liquids, or charging them with gas, the said apparatus consisting of a casing, or casting, provided with means for connecting it to a cylinder, or container, of compressed, or liquefied, gas, and with passages one of such passages consisting of a tube for the admission of gas into the liquid in the bottle, or the like; the said tube passing through another of the passages provided with means for making a joint around the mouth of the bottle, or the like; the third passage being provided with a valve upon which the desired pressure is exerted by a centered cage, or guard; substantially as hereinbefore described.

751,398. **ROLLER-GUIDE FOR LEATHER-STITCHING MACHINES.** JUDSON HUGHES, Fremont, Nebr., assignor of one-half to Frank Hooker Knowlton, Fremont, Nebr. Filed Mar. 4, 1903. Serial No. 146,109. (No model.)



Claim.—A roller-guide for leather-stitching machines, comprising a supporting-plate 10 arranged for longitudinal adjustment, an angle-plate 14 pivoted by its horizontal member to the supporting-plate and apertured in its vertical member, a guide-plate 16 fixed at one end of said angle-plate; a stop 17 on said guide-plate arranged to engage a table and limit oscillation of the guide-plate and angle-plate relative to the supporting-plate, flanges 18, 19 formed on and extending upward and inward from the side margin of said guide-plate, a guide-bracket 20 offset intermediate of its ends and having an end portion slidingly mounted on the guide-plate and confined by said flanges, the opposite end portion of the guide-bracket spaced apart from the guide-plate and apertured, a pin mounted in the aperture of the guide-bracket, a guide-roller mounted on said pin, a pin 24 fixed to the offset portion of the guide-bracket and extending through the aperture of the vertical member of the angle-plate, a key adjustably mounted in one or another of transverse apertures in said pin 24 and an expansive coil-spring mounted on said pin 24 between the offset portion of the guide-bracket and the vertical portion of the angle-plate.

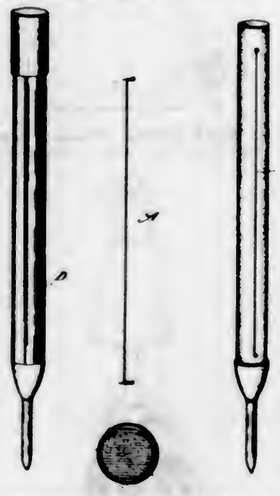
751,399. **PROCESS OF RECLAIMING FLUE-DUST.** GUY R. JOHNSON, Chicago, Ill. Filed Aug. 27, 1903. Serial No. 171,009. (No specimens.)



Claim.—1. The process of reclaiming flue-dust, which consists in mixing the same with salt, then subjecting the mixture to heat to fuse the salt and the metallic particles in the flue-dust into a compact mass, and subjecting the heated mixture to agitation to form the mass into lumps.

2. The process of reclaiming flue-dust which consists in mixing the same with salt, then subjecting the mixture to heat of approximately 1,800° to 2,000° Fahrenheit, to fuse together the salt and metallic particles in the flue-dust into a compact mass, and subjecting the mixture to agitation to form the mass into lumps.

751,400. **FUSEE.** ELI KERR, Stuttgart, Kans. Filed Oct. 13, 1902. Serial No. 127,205. (No model.)



Claim.—A fusee having three wires placed vertically at equal distances apart, on the outside thereof, but immediately under the wrapper, as substantially set forth.

751,401. **METHOD OF TREATING REFRACTORY ORES.** EDWARD H. MILLER, London, England. Filed Nov. 27, 1903. Serial No. 182,852. (No specimens.)

Claim.—1. The herein-described process for the treatment of refractory lead-zinc ores consisting in mixing the ore with silicious matter and pitch, with the addition of lime according to the silver value of the ore, forming the mixture into dry blocks, packing the blocks in a furnace with suitable air-spaces, and sprinkling the layers with lime and gradually raising the temperature, whereby substantially the whole zinc content of the ore is converted into metallic zinc which distils over, and the lead and silver contents of the ore are also converted into the metallic state in which state they are retained in the residue in the retort and recovered therefrom by melting out.

2. The herein-described process for the treatment of refractory lead-zinc ores, consisting in mixing the ore with silicious matter and pitch, forming the mixture into dry blocks, packing the blocks in a furnace, with suitable air-spaces, sprinkling the layers with lime and gradually raising the temperature, whereby substantially the whole zinc content of the ore is converted into metallic zinc which distils over, and the lead and silver contents of the ore are also converted into the metallic state, in which state they are retained in the residue in the retort and recovered therefrom by melting out.

751,402. **FOOT-BALL VALVE AND CONNECTED PARTS.** JOHN MCKAY, Cape Town, Cape Colony. Filed Sept. 28, 1903. Serial No. 174,982. (No model.)



Claim.—1. In pneumatic devices having an inflatable member and a cover therefor, the combination of a valve-casing secured to said inflatable member independently of said cover, a valve within said casing, and a cap for said valve provided with means coöperating with said casing for securing said cover firmly thereto.

2. In pneumatic devices having an inflatable member, and a cover therefor, the combination of a valve-casing provided at its upper end with an annular outwardly-extending flange, means coöperating with the under face of said annular flange for securing said casing to said inflatable member independently of said cover, a valve within said casing, and a cap for said valve provided with means coöperating with said annular flange on said casing for securing said cover firmly thereto.

3. In pneumatic devices having an inflatable member and a cover therefor, the combination of a valve-casing provided with a pair of outwardly-extending annular flanges, one of said flanges being adjustably supported on said casing and coöperating with the other said flange for securing said casing to said inflatable member independently of said cover, a valve within said casing, and a cap for said valve provided with an annular flange and adapted to coöperate with the upper flange of said casing for securing said cover firmly thereto.

4. In pneumatic devices having an inflatable member and a cover therefor, the combination of a valve-casing provided at its upper end with an annular outwardly-extending flange, a flange-ring adjustably supported externally of said casing beneath said annular flange and coöperating therewith for securing said casing to said inflatable member independently of said cover, a valve within said casing, and a cap for said valve provided with an annular curved flange adapted to coöperate with said casing annular flange for securing said cover firmly thereto.

5. In pneumatic devices having an inflatable member and a cover therefor, the combination of a valve-casing provided with a pair of outwardly-extending annular flange-rings, one of said flange-rings being non-rotatably mounted but adjustable longitudinally of said casing and coöperating with the other said flange-ring for securing said casing to the said inflatable member independently of said cover, a valve within said casing, and a cap for said valve provided with an annular flange coöperating with the upper of said flange-rings for securing said cover firmly therebetween.

6. In pneumatic devices having an inflatable member and a cover therefor, the combination of an internally-screw-threaded valve-casing provided with a pair of outwardly-projecting flange-rings, one of said rings being adjustable relatively to the other for securing said casing to said inflatable member independently of said cover, a valve within said casing, a cap for said valve comprising a hollow externally-screw-threaded shank portion, and an upper annular curved flanged portion adapted to coöperate with the upper of said flange-rings for securing said cover firmly therebetween.

7. In pneumatic devices having an inflatable member and a cover therefor, the combination of an internally and externally screw-threaded valve-casing provided at its upper end with an annular outwardly-projecting flange, a longitudinally-adjustable flange-ring on said casing below said annular flange, a nut engaging said external screw-threads for adjusting said flange-ring and securing said casing to said inflatable member independently of said cover, a valve within said casing, and a cap for said valve having a screw-threaded hollow shank and an annular curved flange coöperating with said casing-flange for securing said cover firmly therebetween.

8. In combination, a casing having within it an inflation-valve (secured on its seat by a removable nut) and having an internally and externally screw-threaded stem, and at its outer end a flange having

a convex outer surface; means for securing the outer side of the foot-ball bladder air-tight to the inner side of said flange; a cap having an externally-screw-threaded hollow shank engaging the said internal thread, and a flange convex externally and concave internally, to compress the leather foot-ball cover upon the convex surface of the flange of the aforesaid casing.

9. In pneumatic devices having an inflatable member, and a cover therefor, the combination of an internally-screw-threaded valve-casing provided with a pair of outwardly-extending flange-rings, one of said rings being adjustable longitudinally of but non-rotatable on said casing, for securing said casing to said inflatable member independently of said cover, a removable nut within said casing for securing said valve on its seat, a cap for said valve comprising an externally-screw-threaded hollow shank portion, and a curved annular flanged portion adapted to coöperate with the upper of said flange-rings for securing said cover firmly therebetween, and packing between said inner removable nut and cap-shank.

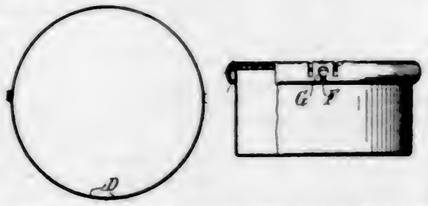
751,408. CHISEL. FRANK R. NORTON, Sidney, N. Y. Filed May 9, 1903. Serial No. 156,431. (No model.)



Claim.—1. A mortising-chisel having longitudinally-extending concave recesses in the opposite sides thereof forming side flanges which have opposite downwardly-converged sharpened pointed ends.

2. A mortising-chisel having elongated recesses in the sides thereof forming side flanges which have lower downwardly-converging sharpened pointed ends, and chip-catching means near the free extremity of the chisel.

751,404. CLOSURE FOR VESSELS. FRANK C. B. PAGE, New York, N. Y., assignor to Air Tight Closure Company, New York, N. Y., a Corporation of New York. Original application filed Mar. 21, 1903, Serial No. 148,820. Divided and this application filed Oct. 30, 1903. Serial No. 179,159. (No model.)



Claim.—1. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being weakened at a point in its circumference and adapted to be readily broken at such point to release the cover.

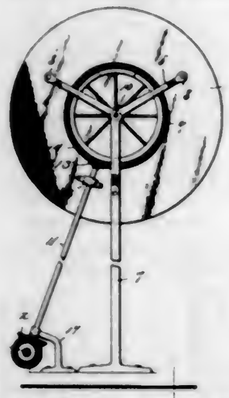
2. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being cut partly through by a pair of cuts to form an ear whereby it is weakly united across the base of said ear and whereby it may be readily broken at such point to release the cover.

3. A continuous circumferential band of sheet metal for holding the cover on a vessel and having ends joined together, whereby it may be made of a long flat strip, said band being cut partly through by a pair of cuts to form an ear and having also a cut across the base of said ear so that said base weakly unites the band, whereby it may be readily broken to release the cover.

4. A vessel having an external shoulder, a loose temporary cover therefor having a downwardly-turned circumferential flange, and a continuous circumferential band of sheet metal having ends joined together, whereby it may be made of a long flat strip, said band having its edges bent inward to form flanges overlying the cover and underlying said shoulder to hold the cover pressed tightly on the vessel and being weakened at a point in its circumference and adapted to be readily broken at such point to release the cover.

751,405. INDICATOR FOR SAWMILL SET-WORKS. GUY D. PALMER, Powell Valley, Oreg. Filed Mar. 25, 1903. Serial No. 149,577. (No model.)

Claim.—The combination with a set-shaft of a sawmill set-works, having a gear thereon, of a standard rising above the one side of the set-works and held on the latter, a vertically-disposed outwardly-facing index-disk having a spider secured to the inner side thereof and to the standard to rigidly hold said disk on the standard, a horizontally-disposed spindle extending through the center of the disk and the spider and having an annular gear secured thereon and movable within the confines of the spider against the inner side of the disk, a pointer secured to the spindle and rotatable over the outer face of the disk, bearing devices on the lower portion of the disk and the set-works adjacent to the set-shaft, and an upwardly-extending operating-shaft having pinions on the opposite extremities thereof respectively meshing with the gear on the set-shaft and the said annular gear, the pinion meshing with the annular gear being smaller than that in engagement with the gear on the set-shaft, the outer face of the disk having concentric scale-marks thereon.



751,406. TOWEL-HOLDER. WILLIAM B. PARSHALL, Philadelphia, Pa. Filed May 9, 1903. Serial No. 156,430. (No model.)



Claim.—1. In a towel-holder, a tubular jaw and an annular jaw, the latter being adapted to pass over the former and a shoulder on said tubular jaw at the inlet end thereof and arms carrying said jaws, said annular jaw being segmental and having an opening in its circumference.

2. In a towel-holder, a tubular jaw and a segmental jaw having an opening in its circumference, the latter jaw being adapted to pass over the former, resilient arms carrying said jaws and a shoulder on the exterior of the inlet end of said tubular jaw against which the towel is caused to abut by the action of said segmental jaw.

3. A towel-holder comprising jaws, supporting-arms for said jaws and a spring connecting said arms, one of said jaws being tubular and the other jaw being segmental and receiving the tubular jaw, the tubular jaw having an inturned end and the segmental jaw having an opening in its circumference.

751,407. BUCKLE. HENRY L. PERRYMAN, Springfield, Ohio. Filed Feb. 25, 1903. Renewed Jan. 9, 1904. Serial No. 188,408. (No model.)



Claim.—1. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis of the tongue, the engaging edge nearest said axis being yielding or spring-supported and the other engaging edge being rigid, substantially as described.

2. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis of the tongue and having a clearance-space between them, the engaging edge nearest said axis being yielding or spring-supported to form a locking device to hold the tongue in engaging position, and the engaging edge farthest from the pivotal axis being rigid serving to grip the belt or strap against the bearing-surface, substantially as described.

3. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis of the tongue, the engaging edge nearest said axis being yielding or spring-supported and the other engaging edge being rigid, and a belt or strap connected to the tongue on the opposite side of the pivotal axis from the engaging portion, substantially as described.

4. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges located at different distances from the pivotal axis of the tongue and having a clearance-space between them, the engaging edge nearest said axis being yielding or spring-supported to form a locking device to hold the tongue in engaging position, and the engaging edge farthest from the pivotal axis being rigid and serving to grip the belt or strap against the bearing-surface, and a belt or strap connected to the tongue on the opposite side of the pivotal axis thereof from the engaging portion, substantially as described.

5. In a buckle of the character described, the combination, with a frame or body having a flat bearing-surface on its rear face, of a tongue pivoted to said frame or body so as to swing across said bearing-surface, said tongue comprising a body portion provided with a rigid engaging edge and having end portions connected therewith to receive the pivots, and a face portion of resilient material connected to the rigid edge, and provided with an engaging edge at its opposite end free to yield relatively to the body of the tongue, substantially as described.

6. In a buckle of the character described, the combination, with a frame or body having a flat bearing-surface on its rear face, of a tongue pivoted to said frame or body so as to swing across said bearing-surface, said tongue comprising a body portion provided with a rigid engaging edge and having end portions connected therewith to receive the pivots, and a face portion of resilient material connected to the rigid edge, and provided with an engaging edge at its opposite end free to yield relatively to the body of the tongue, said face portion being curved or recessed to form a clearance-space, substantially as described.

7. In a buckle of the character described, the combination, with a frame or body having a flat bearing-surface on its rear face, of a tongue pivoted to said frame or body so as to swing across said bearing-surface, said tongue comprising a body portion provided with a rigid engaging edge and having end portions connected therewith to receive the pivots, and a face portion of resilient material connected to the rigid edge and provided with an engaging edge at its opposite end free to yield relatively to the body of the tongue, said face portion being provided with a guiding flange or extension adjacent to its engaging edge, substantially as described.

8. A buckle comprising a frame or body having a flat bearing-surface on its rear face, in combination with a tongue pivoted to said frame or body so as to swing across said bearing-surface, the engaging portion of the tongue terminating in separated engaging edges, one of which is spring-supported so as to yield relatively to the body of the tongue, the other engaging edge being rigid, substantially as described.

751,408. BOOK-HOLDER. JERRY P. PETTIT, Newcastle Mills, Ky. Filed Apr. 20, 1903. Serial No. 153,457. (No model.)



Claim.—1. In a book-holder, a support, a bar pivoted at one end to the support and provided at its opposite end with book-supporting means, a wedge slidable between the pivotal end of the bar and its support, interlocking teeth formed with the wedge and bar, a pin applied to and projected from opposite sides of the wedge, and a spring for holding the wedge to the bar in an adjusted position substantially as specified.

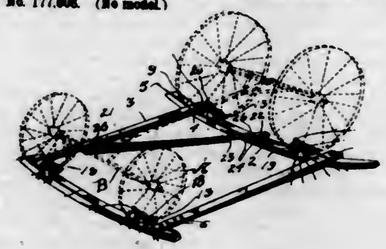
2. In a book-holder, the combination of an approximately horizontal bar provided with means at one end for supporting the lower portion of a book, a clamp for engagement with the back of the book at its upper end, and an extensible brace connection between the said clamp and the opposite end of the said horizontal bar to admit of varying the inclination of the book, substantially as described.

3. In a book-holder, the combination of a supporting-bar provided with means for supporting the lower portion of a book, a back-clamp for attachment to the back of the book at its upper end, an extensible connection having said back-clamp pivoted thereto, and means for connecting the extensible connection to the bar at an adjusted position, substantially as specified.

4. In a book-holder, the combination with an approximately horizontal bar provided with means for supporting the lower portion of a book, a back-clamp for attachment to the back of the book at its upper end, companion rods constituting parts of an extensible connection, one of said rods having the back-clamp pivoted thereto, a coupling for adjustably connecting said rods, and a clip applied to the lower end of the other rod and adapted to be adjustably connected with the aforementioned bar, substantially as set forth.

5. In a book-holder, and in combination with an approximately horizontal bar provided at one end with means for supporting the lower portion of a book, a clamp for engagement with the upper portion of the book, means for adjustably connecting the clamp with the opposite end portion of the bar, and a rest adjustable on the bar for supporting the book between its upper and lower ends, substantially as set forth.

751,409. ROCKER ATTACHMENT FOR BABY-CARRIAGES. ORLANDO M. POND, Independence, Iowa. Filed Oct. 19, 1903. Serial No. 177,606. (No model.)



Claim.—1. In a device of the character described, the combination of a pair of rockers, rods connecting said rockers, means for securing said rockers to the wheels of a vehicle, and a brace between one of said rockers and one of the axles of said vehicle, substantially as described.

2. A device of the character described comprising a pair of adjustably-connected rockers, clamps for securing said rockers transversely upon the wheels of a baby-carriage or the like, and an adjustable brace between one of said rockers and one of the axles of said baby-carriage, substantially as described.

3. The combination with the wheels and the axles of a baby-carriage or other vehicle, of a pair of adjustably-connected rockers, adjustable means upon said rockers for securing the wheels upon the same, and an adjustable brace between one of said rockers and one of the axles of said carriage, substantially as described.

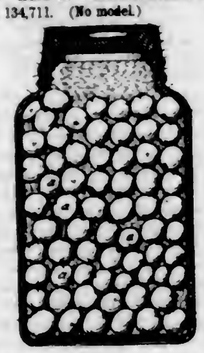
4. The combination with the wheels and the axles of a baby-carriage or other vehicle, of a pair of adjustably-connected rockers, clamps adjustably secured upon said rockers for securing the rockers upon said wheels, and a brace adjustably connected to one of said rockers and engaging one of the axles of said carriage, substantially as described.

5. A device of the character described, comprising a rocker, connecting-rods having one of their ends fixed adjacent to the ends of said rocker and having their opposite ends formed with a series of openings, a second rocker, fastening-screws passed through one of said openings in the ends of said rods and into the latter-mentioned rocker to adjustably secure it to said rods, and means for securing said rockers transversely upon the wheels of a baby-carriage or other vehicle, substantially as described.

6. In a device of the character described, the combination with a rocker, of a wheel-clamp comprising a body portion having side flanges adapted to engage the sides of the rocker and a rim-engaging socket at its end, and a latch pivoted upon said body portion adapted to close said socket, substantially as described.

7. In a device of the character described, the combination with a rocker, of a wheel-clamp comprising a body portion having side flanges adapted to be adjustably secured to said rocker and rim-engaging sockets at each end, and a latch upon said body portion adapted to coact with either socket to close the same, substantially as described.

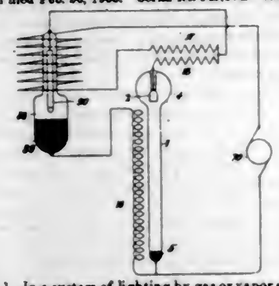
751,410. **LID OR COVERING FOR FRUIT-JARS OR ANALOGOUS VESSELS.** HUGH A. PORTEOUS, Hemet, Cal. Filed Dec. 10, 1902. Serial No. 134,711. (No model.)



Claim.—1. A lid or cover for fruit-jars and analogous vessels consisting of a metal cover having both lateral and downward projections at the interior thereof, the lower part of said cover being constructed with a coarse screw-thread, said cover containing a rotatable lid of glass or analogous material having an annular groove with which the lateral projections from the interior of the metallic cover engage, and upon the upper part of which the downward projections of the top of the metallic cover press as the lid is tightened on the jar or analogous vessel, one of the lateral projections being on a higher level than the other lateral projection, the whole operating together in the manner and for the purposes substantially as set forth.

2. The combination consisting of a fruit-jar or analogous vessel, a screw portion constituting the upper part of said jar or vessel, an elastic ring, the cover, a glass part of the cover resting on said elastic ring, the glass portion of the lid or cover being formed with an annular groove, the metallic lid with screw-thread at bottom, and two or more projections, one of which is constituted on a higher level than the other projection or projections, and projections in the top of the metallic portion bearing upon the upper part of the glass portion of the cover or lid, all operating together in the manner and for the purposes substantially as set forth.

751,411. **SYSTEM OF LIGHTING BY GAS OR VAPOR ELECTRIC LAMPS.** HENRY M. POTTER, New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Original application filed May 28, 1901, Serial No. 62,182. Divided and this application filed Feb. 26, 1903. Serial No. 145,174. (No model.)



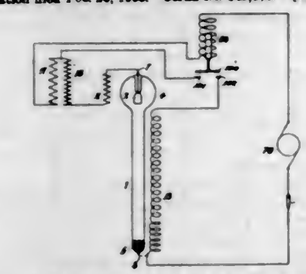
Claim.—1. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter, and the primary of the transformer in shunt to the lamp, in combination with an automatic switch for interrupting or opening the shunt circuit or circuits.

2. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter and the primary of the transformer in shunt to the lamp, in combination with a mercury switch for interrupting or opening the shunt circuit or circuits.

3. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter and the primary of the transformer in shunt to the lamp, in combination with a mercury switch for interrupting or opening the shunt circuit or circuits, the said switch being adapted to make and break contact between surfaces of mercury.

4. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, and the primary of the transformer in shunt to the lamp, and a coil in the same shunt-circuit adapted to act upon a movable core, the said core being inclosed in a chamber with mercury and hydrogen gas, and adapted to make and break contact with the mercury in the chamber.

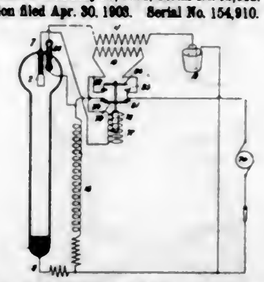
751,412. **SYSTEM OF LIGHTING BY GAS OR VAPOR ELECTRIC LAMPS.** HENRY M. POTTER, New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Original application filed May 28, 1901, Serial No. 62,182. Divided and this application filed Feb. 26, 1903. Serial No. 145,175. (No model.)



Claim.—1. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a heater in proximity thereto, a transformer having both its primary and its secondary in series with the lamp and its primary in series with the heater, an electromagnetic coil common to the lamp and heater circuits, and a combined switch and circuit-interrupter adapted to be operated by the said coil, whereby the last-named apparatus will be operated intermittently during the starting period of the lamp, and will afterward permanently open the heater-circuit when the lamp begins to operate.

2. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a heater in proximity thereto, a transformer having both its primary and its secondary in series with the lamp and its primary in series with the heater, an extra ballast in the lamp-circuit, an electromagnetic coil common to the lamp and heater circuits, and a combined switch and circuit-interrupter adapted to be operated by the said coil, whereby the combined switch and circuit-interrupter will be operated intermittently during the starting period of the lamp and will permanently open the heater-circuit while the lamp is in operation.

751,413. **SYSTEM OF LIGHTING BY GAS OR VAPOR ELECTRIC LAMPS.** HENRY M. POTTER, New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Original application filed May 28, 1901, Serial No. 62,182. Divided and this application filed Apr. 30, 1903. Serial No. 154,910. (No model.)

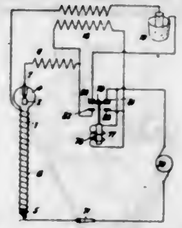


Claim.—1. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a normally open circuit including the transformer primary and a suitable interrupter, and thermostatic means for closing the said open circuit when the lamp has been heated sufficiently to become conductive.

2. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a normally open circuit including the transformer primary and a suitable automatic interrupter, thermostatic devices for closing the open circuit when the lamp has become sufficiently heated, and means for opening the said circuit, and thus cutting out the primary and the automatic interrupter.

3. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series therewith, an automatic interrupter, and the transformer primary in normally open circuit in shunt to the lamp, a heater in a normally closed circuit, thermostatic devices for closing the normally open circuit when the lamp has become sufficiently heated, and means brought into operation by the passage of current through the lamp for breaking the heater-circuit and the circuit which includes the automatic interrupter and the transformer primary.

751,414. **SYSTEM OF LIGHTING BY GAS OR VAPOR ELECTRIC LAMPS.** HENRY M. POTTER, New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company, a Corporation of New York. Original application filed May 28, 1901, Serial No. 62,182. Divided and this application filed Apr. 30, 1903. Serial No. 154,911. (No model.)

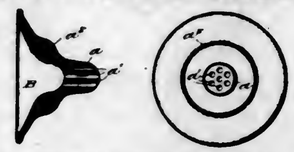


Claim.—1. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter and the primary of the transformer in shunt to the lamp, in combination with automatic means for cutting out the heater, the interrupter and the transformer primary, when the lamp begins to operate.

2. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter, and the transformer primary in shunt to the lamp, and a controlling device for the shunt circuit or circuits brought into operation automatically when the lamp begins to operate.

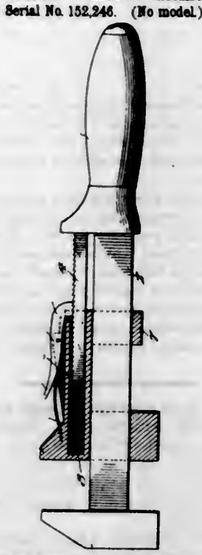
3. In a system of lighting by gas or vapor electric lamps, a lamp of the class described, a transformer whose secondary is in series with the lamp, a heater, an interrupter and the transformer primary in shunt to the lamp, and an electromagnetic device in the main lamp-circuit, adapted to break the shunt circuit or circuits when the lamp begins to operate.

751,415. **NIPPLE-SHIELD.** FRANK P. PRINDLE, Stamford, Conn. Filed Sept. 29, 1903. Serial No. 175,051. (No model.)



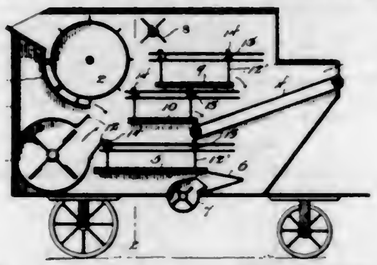
Claim.—A nipple-shield, comprising a shield having a larger cavity to receive the breast, a smaller cavity communicating therewith that is adapted to receive and to be completely filled by the natural nipple in its natural condition, whereby elongation of the natural nipple is prevented, having an artificial nipple of soft material directly over and close to said smaller nipple, said artificial nipple having a series of parallel perforations extending therethrough, whereby very free passage for milk is provided and great elasticity of the artificial nipple results, and a shoulder formed at the base of the artificial nipple and approximately in the same plane as the tip of the natural nipple, whereby the child is prevented from taking more than the artificial nipple into the mouth and from chewing upon the natural nipple, substantially as and for the purpose described.

751,416. **WRENCH.** WALTER J. RATCLIFF, Lansford, Pa. Filed Apr. 11, 1903. Serial No. 152,246. (No model.)



Claim.—A wrench comprising a shank having a rigid jaw on one end and a handle on its opposite extremity, the shank having its opposite edges smooth, a ratchet-bar rigid with the handle and projecting over one edge of the shank and parallel with the latter, the ratchet-bar being spaced apart from the shank and having forwardly-inclined teeth in its outer edge, a slidable jaw on the shank having a longitudinal socket in one side thereof to receive and inclose the ratchet-bar, and a rearwardly-projecting spring-actuated pawl having its rear terminal extending over the rear end of the slidable jaw and normally held in engagement with the teeth of the ratchet-bar, the inclosure of the ratchet-bar within the slidable jaw strengthening said bar.

751,417. **GRAIN-SEPARATOR.** FRANK L. REEVE, Fraser, Minn., assignor of one-half to Joseph Anthony Schiehr and John Hurley, Fraser, Minn. Filed June 25, 1903. Serial No. 163,087. (No model.)



Claim.—In a thresher, the combination with a separator, of an inclined straw-delivery rack, a pair of shaking-racks disposed one above the other and between the separator and delivery-rack, the lower rack being closer to the separator, means for adjusting said straw-racks with relation to the separator, means for delivering a blast of air to blow the straw as it issues from the cylinder onto said racks, and means for catching the grain dropping from the blown straw, substantially as described.

751,418. **EYEGLASS OR SPECTACLE ATTACHMENT.** FREDERICK E. ROCKENBACH, Rochester, N. Y., assignor of two-thirds to Harris Joffe and Abraham D. Joffe, Rochester, N. Y. Filed June 13, 1903. Serial No. 161,391. (No model.)



Claim.—1. In devices of the class set forth, the combination with lenses, of a hardened composition of ground glass and glue applied thereto to serve as connecting means, and attaching means for the lenses having angular terminal projections embodied within the said hardened composition.

2. The combination with spectacle or eyeglass lenses, of a hardened composition of ground glass and glue applied to the ends of the lenses, and attaching means for the lenses having terminal projections held within the said hardened composition.

3. The combination with lenses for spectacles or eyeglasses, of a hardened composition of ground glass and glue applied to the ends of the lenses to form connectors, attaching means for the lenses having terminals held within the said hardened composition, and a moisture-resisting material applied to the joints between the composition and lenses.

751,419. **WIRE FURNITURE.** JOSEPH SALOMON, Chicago, Ill. Filed Sept. 11, 1902. Serial No. 122,227. (No model.)

Claim.—1. In an article of furniture, a top, supporting-legs for the top of wire twisted together, and a spider of continuous wire having arms radiating from a central point corresponding in number to the legs and severally adapted to engage the same, substantially as shown and described.

2. In an article of furniture, a top, supporting-legs for the top of wire twisted together, eyes in the twisted portions thereof, and a spider of continuous wire having arms radiating from a central point corresponding in number to the legs and severally adapted to engage the eyes, substantially as shown and described.

3. In an article of furniture, a top, supporting-legs therefor, an integral spider comprising a plurality of double radiating arms engaging said legs, and a clamping means engaging the inner end of each of said arms.

4. In an article of furniture, a top, supporting-legs, a spider of continuous wire formed into a plurality of arms engaging said legs, said wire being doubled upon itself to form each of said arms and a clamping means engaging each of said arms.

5. In an article of furniture, a top, supporting-legs for the top of wire twisted together, eyes in the twisted portions thereof, a spider made of a continuous wire having arms corresponding in number to the legs and severally adapted to engage the same, and a clamp to secure together the central portions of the spider, substantially as shown and described.

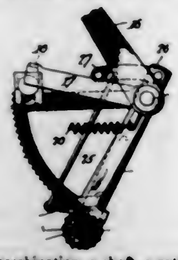


6. In an article of furniture, a top, supporting-legs of rods twisted together for a portion of their length, eyes in the twisted portion, and a spider to connect and brace the legs, said spider being made of a continuous wire with the free ends at the center, the intermediate portions forming arms radiating from the center and adapted to pass through the eyes in the legs, substantially as shown and described.

7. In an article of furniture, a top, supporting-legs of rods twisted together for a portion of their length, eyes in the twisted portion, a spider to connect and brace the legs said spider being made of a continuous wire with free ends at the center, the intermediate portions forming arms radiating from the center and adapted to pass through the eyes in the legs, and a clamp to secure together the free ends of the wire and the central portions of the spider, substantially as shown and described.

8. A brace for the legs of tables, chairs and the like comprising a wire having its ends adapted to be placed at a central point between the legs, leg-engaging arms radial from such central point formed of the intermediate portions of the wire, and means to secure together the ends of the wire and the proximate ends of the arms, substantially as set forth.

751,420. **COIN-CONTROLLED APPARATUS.** THOMAS F. SOLON, Solon Springs, Wis. Filed Sept. 1, 1903. Serial No. 171,574. (No model.)



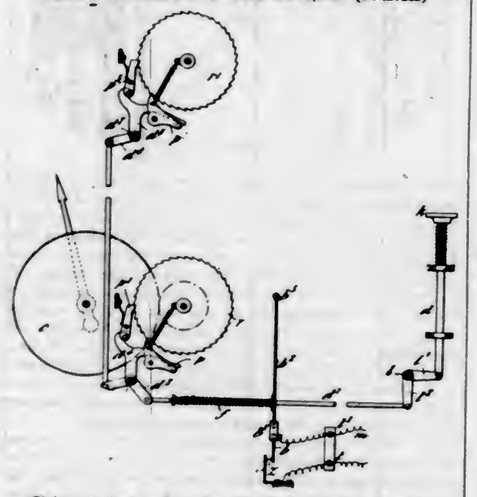
Claim.—1. In combination, a shaft, a ratchet-wheel thereon, a pawl engaging the ratchet-wheel and serving to prevent reverse movement of the shaft, a pinion carried by the shaft, a gear-segment intermeshing with the pinion, an operating-lever for revolving the gear and imparting rotative movement to the pinion, said lever and

gearing being locked through the intervention of a deposited coin, and means for releasing the pawl from engagement with the ratchet-wheel.

2. In combination, a shaft, a pinion and a ratchet-wheel carried by the shaft, a secondary shaft, a segment mounted loosely thereon and intermeshing with the pinion, an arm rigidly secured to the secondary shaft, coin-clamping devices carried partly by the segment and partly by the arm, an operating-lever for effecting rotative movement of the shaft, a spring for returning the arm and lever to initial position after each operative movement, and means operable on the return of the arm for releasing the ratchet and permitting rotative movement of the pinion-carrying shaft.

3. In combination, a shaft, a ratchet-wheel and a pinion on said shaft, a secondary shaft, a gear-segment mounted loosely on the secondary shaft and intermeshing with the pinion, a bracket-arm serving as a partial support for the secondary shaft, a pawl engaging with the teeth of the ratchet-wheel, a pair of spaced legs carried by the segment and forming a coin-receiving seat, an operating-lever and an arm carried by the secondary shaft, a tongue carried by the arm and adapted to pass between the lugs of the segment or to be interlocked with the segment through the medium of a deposited coin, means for restoring the arm and lever to initial position, a pivoted arm connected to the pawl, and a pin carried by said arm and projecting into the path of return movement of the tongue-carrying arm, substantially as specified.

751,421. **PERFORATOR MECHANISM FOR PREPARING THE COMPOSING-STRIP OF TYPE SETTING AND CASTING MACHINES.** WILLIAM T. STUTCHBURY, Northfleet, and CHARLES GORICK, Gravesend, England. Filed Feb. 8, 1902. Serial No. 93,170. (No model.)



Claim.—1. In a perforator mechanism for preparing the composing-strip of a type setting and casting machine in which a composing type-writer is used for closing the magnetic circuit of a perforator, the combination with the key that releases the counting mechanism of such type-writer to permit it to return to zero, of an electrical switch which closes a magnetic circuit of the perforator when the said key is depressed, in such manner that the circuit is closed and the counting mechanism released by one movement of the operator, substantially as described.

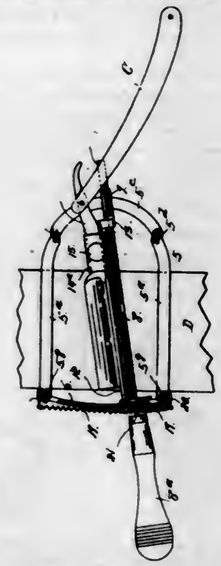
2. In a perforator mechanism for preparing the composing-strip of a type setting and casting machine in which a composing type-writer is used for closing the magnetic circuits of a perforator, the combination with the key that releases the counting mechanism of such type-writer to permit it to return to zero, of an electrical switch which closes a magnetic circuit of the perforator when the said key is depressed, and of a series of levers mechanically connecting the said key with the justification-indicator in such manner that when the operator depresses the said key the counting mechanism and justification-indicator are both released so that they return to zero and the magnetic circuit is closed, substantially as described.

3. In a perforator mechanism for preparing the composing-strip of a type setting and casting machine, having the movements of the parts controlled by electromagnets, the combination with punches or stops, of an electromagnet having one core wound with an energizing-coil, a second core mounted on the same anchor-plate as the first and adjacent to the magnetizing-coil, but itself free from the coil, an armature consisting of a two-armed lever pivoted on the second core, and a spring extending between the long arm of the lever and a projection from the anchor-plate; substantially as described.

4. In a perforator mechanism for preparing the composing-strip of a type setting and casting machine, in which the movements of parts are controlled by electromagnets, the combination with punches or stops, of electromagnets each having two cores on the same anchor-plate only one of which cores is wound to permit the magnet to be energized while the other forms the fulcrum of the armature-lever, the said anchor-plate being rounded at its interior end and a number of such plates being arranged as radii of a circular arc, substantially as described.

5. In a perforator mechanism for preparing the composing-strip of a type setting and casting machine in which the movements of parts are controlled by electromagnets, the combination with punches or stops, of electromagnets each having two cores on the same anchor-plate only one of which cores is wound to permit the magnet to be energized while the other forms the fulcrum of the armature-lever, the said anchor-plate being rounded at its interior end, a number of such plates being arranged as radii of a circular arc on a stand having insulated holes through which the wires from the magnet-bobbins pass to a contact-plate, substantially as described.

751,422. **RAZOR-STROPPER.** VIRGIL D. SWIHART, Denver, Colo. Filed Aug. 5, 1903. Serial No. 168,382. (No model.)



Claim.—1. A razor-stropper comprising a main frame, a shaft mounted to oscillate thereon but having no rotary movement, a handle made fast to the shaft, a pinion journaled on the shaft and engaging a rack formed on the frame at the extremity remote from the center of oscillation of the shaft, a crank journaled on the shaft remote from the said pinion, and a razor-holder connected at one extremity with the pinion outside of its center and at its other extremity with the crank, the lower portion of the main frame being provided with a holder and guide for the razor-strop, substantially as described.

2. The combination of a main frame consisting of two separated arms, connected at one extremity with an integral part depressed below the plane of the arms, the opposite extremities of the said arms being connected by a slotted frame having a toothed or cogged rack located above the slot, a shaft mounted to oscillate on the frame, from a point remote from the slotted frame, a lateral projection loosely mounted on said shaft, a gear or pinion loosely mounted on the shaft and meshing with the toothed rack of the slotted frame, a razor-holder whose respective extremities are connected with the pinion and the said lateral projection, and a handle applied to the

shaft whereby the latter may be oscillated and the razor-holder given alternate movements in reverse directions, substantially as described.

3. In a razor-stropping device, the combination of a main frame, a slotted frame having a rack on one side of the slot, a razor-holder, and means for turning the razor from side to side as required in the stropping operation, the frame of the device being provided with an open guideway for the strop.

4. The combination of a main frame having two separated arms, a guide for the strop connected with the frame, the arms of the main frame being connected at both extremities, the connection at one extremity of the frame consisting of a slotted part having a toothed rack, a non-revoluble shaft mounted to oscillate from a point at one end of the frame, and projecting through the opening of the slotted part at the other end of the frame, a pinion or gear journaled on the shaft and engaging the toothed rack of the frame, and a razor-holder mounted to travel with the shaft and rotate with the pinion.

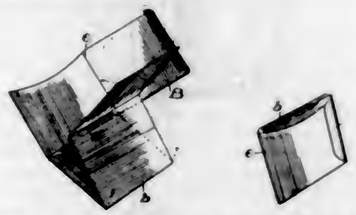
5. In a razor-stropper, the combination with a main frame, of a slotted frame located at one end of the main frame and having a cogged rack, a shaft mounted to oscillate on the main frame and projecting through the slot of the slotted frame, a pinion loose on said shaft and engaging the rack of the slotted frame, and a razor-holder mounted to turn on the shaft and connected in operative relation with the pinion.

6. In a razor-stropping device, the combination of a main frame, a slotted frame attached to the main frame and having a rack on one side of the slot, a non-revoluble shaft projecting through the slot and mounted to oscillate on the main frame, and a razor-holder mounted to rotate on the shaft, and a pinion loose on the shaft, with which pinion the razor-holder is connected beyond the axis of the pinion.

7. The combination of a frame, a razor-holder mounted thereon to oscillate and rotate, and means for adjusting the said holder vertically with reference to the frame.

8. The combination of a main frame having a set-screw at one extremity and a slotted frame at the other extremity, the slotted frame having a rack, a razor-holder mounted to oscillate from the set-screw as a center and passing through the opening of the slotted frame, a pinion engaging the rack of the slotted frame and connected with the razor-holder for rotating the same, the slotted frame being vertically adjustable on the main frame, and cooperating with the set-screw to adjust the razor-holder.

751,423. ENVELOP. CHARLES G. THROOP, River Forest, Ill., assignor to himself and Samuel Rosenthal, Chicago, Ill. Filed Dec 24, 1902. Serial No. 136,507. (No model.)

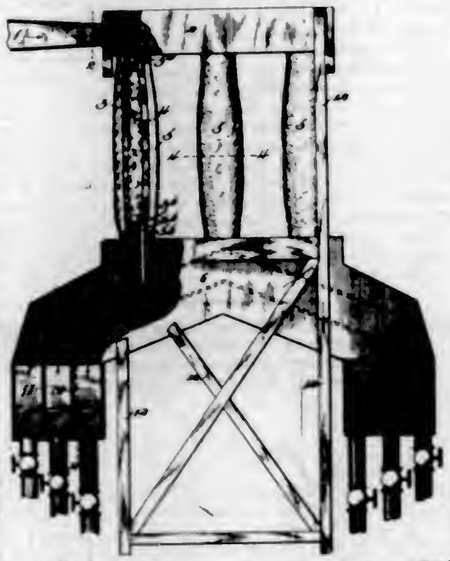


Claim.—1. An envelop comprising a strip having a side extension, said strip being folded upon itself to bring its lower edge adjacent to its upper edge, then being again folded upon itself to bring its central portion adjacent to its upper edge and form four thicknesses, and then having the side extension folded over said four thicknesses and fastened thereto, the lower edge of said strip being exposed at the upper end of the completed envelop so that said lower end can be drawn out to open the envelop.

2. An envelop comprising a strip having a side extension provided with a flap, said strip being folded upon itself to bring its lower edge adjacent to its upper edge, then being again folded upon itself to bring its central portion adjacent to its upper edge and form four thicknesses, then having the side extension folded over said four thicknesses, and having the flap thereof folded around against the opposite side of said four thicknesses and pasted to the outer layer thereof, the lower edge of said strip being exposed at the upper end of the completed envelop so that said lower end can be drawn out to open the envelop.

751,424. CONCENTRATOR. HENRY WIEMEYER, Emporia, Kans. Filed May 29, 1903. Serial No. 159,280. (No model.)

Claim.—1. The improved concentrator comprising a distributing-chamber, a separator and grader having a series of compartments and pockets, a series of conductors arranged intermediately of said distributer and grader and composed of a series of concentric tubes which are permeable to air and graded in mesh as described, the inner tube alone communicating with the distributer and the other tubes being closed at the top and communicating separately with the respective compartments of the grader, substantially as described.



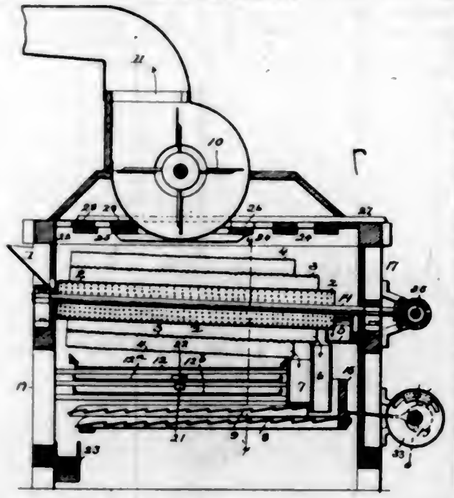
2. The improved concentrator, comprising a horizontal distributing-chamber, having a series of discharge-openings and a series of pendent couplings arranged concentrically with said openings, a series of multitubular conductors, each conductor comprising three concentric tubes which are permeable to air and graded in respect to mesh as described, the inner tube communicating directly with the distributing-chamber by means of the aforesaid openings and the two outer tubes being secured to the said concentric couplings; the separator and grader, arranged directly beneath the distributing-chamber, and having parallel partitions which are inclined downward and divide the chamber of the separator into several compartments, tubes arranged concentrically and communicating with the several compartments, the lower ends of the multitubular conductors being connected with the respective tubes, as described.

3. The improved concentrator, comprising a distributing-chamber, a series of multitubular conductors which are pendent therefrom and composed of concentric tubes that are permeable to air; the separator and grader arranged beneath the distributing-chamber and having within it parallel transverse partitions which diverge from the center downward at an obtuse angle, a series of pockets formed at the ends of the compartments produced by said partitions, and a series of concentric tubes communicating with the several compartments and the respective multitubular conductors, substantially as described.

751,425. COMBINED GOLD SEPARATOR AND AMALGAMATOR. HENRY WIEMEYER, Emporia, Kans. Filed June 3, 1903. Serial No. 159,884. (No model.)

Claim.—1. The combined gold separator and amalgamator comprising the rotary separator proper consisting of a series of graded perforated concentric cylinders, a like series of conductors into which said cylinders respectively discharge, two riffle-plates arranged in the lower portion of the machine and receiving material from two of said conductors, a series of inclined amalgamating-plates arranged at an angle to each other and interposed between the separator and riffle-plates and supported in the same reciprocable frame with the latter, and a fan located above the separator, substantially as described.

2. The combination, with the rotary separator and amalgamating-plates located below the same, of a fan placed adjacent to the separator and passages leading from the separator-chamber to the fan-chamber and having independent valves controlling admission of air, substantially as shown and described.



3. The combination with the separator comprising perforated cylinders arranged concentrically and made of different lengths, of a reciprocating frame suspended below the separator and having two conductors which communicate with the respective cylinders, and two riffle-plates arranged one above the other and arranged for receiving discharge from the respective conductors in the manner specified.

4. The combination, with a separator, of a frame suspended below the same and adapted to reciprocate endwise, and a series of plain amalgamating-plates which are successively inclined in opposite directions transversely of the said frame and whose lower edges are spaced from the side of the frame to allow discharge of material at that point, substantially as shown and described.

5. The combination, with the rotary separator comprising a series of concentric perforated cylinders, of the shaking-frame arranged below the same and having inclined plain amalgamating-plates, and inclined riffle-plates, and two conductors which communicate with different cylinders of the separator and with the respective riffle-plates substantially as shown and described.

6. The combination with the rotary separator of a shaking-frame arranged below the same, riffle-plates superposed in the lower portion of said frame, vertical conductors arranged between the riffle-plates and different cylinders of the separator, and plain amalgamating-plates also arranged in said frame between the separator and the riffle-plates and inclined in the manner described, and a water-discharge pipe arranged at the highest point of the upper amalgamating-plate, substantially as described.

751,426. SAFETY HAIR-PIN. WILLIAM F. ZWICK, Seattle, Wash. Filed Apr. 14, 1902. Serial No. 102,931. (No model.)



Claim.—1. In a hair-pin, a body comprising a head, prongs extending from the head of the pin, and means on one of said prongs for preventing its withdrawal from the hair while attached to the head of the said pin, said prong being removably secured in said head whereby the head and the prong are withdrawn in opposite directions to disengage the same from the hair, substantially as described.

2. In a hair-pin, a body comprising a head, prongs extending from the head, one of said prongs being removably secured in the head, a detent for locking said prong in the head of said pin, and means on said prong for preventing its withdrawal from the hair while attached to the head of the pin.

3. In a hair-pin, the combination of a body portion having a socket therein, a detachable prong having one end formed to fit said socket, a detent mounted in said portion and adapted to engage and normally secure the prong in the socket, and resilient means for normally holding the detent in engagement with the end of the prong.

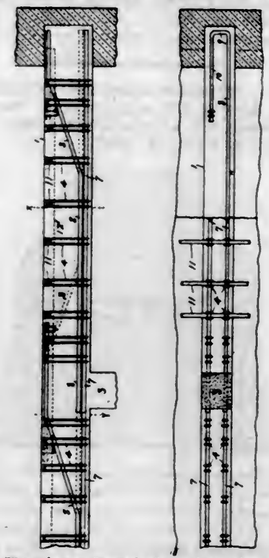
4. In a hair-pin; a body consisting of oppositely-disposed prongs and a bridge connecting said prongs; of a detachable anchoring-prong having barbs arranged thereon throughout its length, a socket for the head of said anchoring-prong arranged on the bridge of said body and means to normally secure said detachable prong in the socket.

5. In a hair-pin; a body consisting of oppositely-diaposed prongs and a bridge connecting said prongs; of a detachable anchoring-prong having barbs thereon inclined rearwardly from its point, a socket for the head of said anchoring-prong formed in the under surface of said bridge and an operative detent arranged to normally secure said detachable prong in the socket.

6. In a hair-pin; a body consisting of oppositely-disposed prongs and a bridge connecting said prongs; of a detachable anchoring-prong comprising a shank having a portion of the head end formed conical and an annular groove at the base of said portion and laterally-projecting barbs throughout its length inclined toward said end, a socket for said head end formed in the under surface of said bridge and a spring-pressed detent arranged on the bridge to engage in said groove when the anchoring-prong is inserted in said socket.

7. In a hair-pin; the combination with a body portion having a socket thereon, and a detachable prong having one end formed to fit said socket; of a detent mounted on said portion and adapted to engage and normally secure said prong and having a resilient leaf projecting into the path of movement of said end of the prong to cause the detent to engage the prong when the prong engages the leaf.

751,427. REINFORCEMENT FOR CONCRETE BEAMS. ALBERT J. BOSTWIK, Mount Washington, Md., assignor to Ferdinand Barre, Baltimore, Md. Filed Aug. 28, 1903. Serial No. 171,043. (No model.)



Claim.—1. The stirrups formed of metal, or other suitable material, having the ends bent downwardly and then upwardly and terminating on a plane with the upper bend, forming four vertical rods, the bends at the lower end being at right angles to the bend at the upper end, the upper bend and the extremities diverge to form a guide.

2. The stirrups formed of metal, or other suitable material, having the ends bent downwardly and then upwardly, and terminating on a plane with the upper bend, forming four vertical rods with two bends at the lower end and one bend at the upper end, the bends at the lower end being at right angles to the bend at the upper end, the upper bend and the extremities diverge to form a guide.

3. The combination with a beam formed of concrete or other

suitable material, of the stirrups, 4, having the ends bent downwardly and then upwardly and terminating on a plane with the upper bend, forming four vertical rods, the bends at the lower end being at right angles to the bend at the upper end, the upper bend and the extremities diverge to form a guide.

4. The combination with a beam formed of concrete or other suitable material, of the stirrups, 4, having the ends bent downwardly and then upwardly and terminating on a plane with the upper bend, forming four vertical rods, the bends at the lower end being at right angles to the bend at the upper end, the upper bend and the extremities diverge to form a guide; the rods, 7, resting in the lower ends of the stirrups; and the rods, 11, projecting through the upper ends of the stirrups at right angles to the rods, 7.

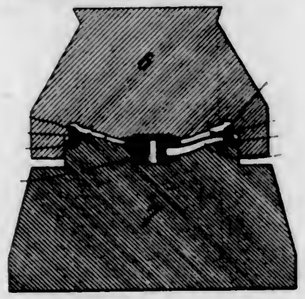
5. The combination with a beam formed of concrete or other suitable material, of the stirrups, 4; having the ends bent downwardly and then upwardly and terminating on a plane with the upper bend, the lower bends being at right angles to the upper bend; the rods, 7, resting in the lower ends of the said stirrups; and the rods, 8, resting in the stirrups and projecting upwardly at one end to near the top of the beam.

6. The combination with a beam formed of concrete or other suitable material, of the stirrups, 4; having the ends bent downwardly and then upwardly and terminating on a plane with the upper bend, the lower bends being at right angles to the upper bend; the rods, 7, resting in the lower ends of the stirrups; the rods, 8, resting in the stirrups above the rods, 7, and having one end projecting upwardly to near the upper end of the beam; and the rods, 11, projecting through the upper ends of the stirrups at right angles to the rods, 7 and 8, as and for the purpose described.

751,428. PROCESS OF MAKING WATER-SOLUBLE ALBUMINOUS COMPOUNDS. ALBERT BUSCH, Brunswick, Germany, assignor to Bauer & Cie., Berlin, S. W. Germany. Original application filed May 26, 1903, Serial No. 158,767. Divided and this application filed Sept. 17, 1903. Serial No. 173,537. (No specimens.)

Claim.—A process of manufacturing water-soluble albuminous food compounds which consists in combining albuminous compounds insoluble in water but soluble in alkali with alkali salts of hexite-substituted phosphoric acids, substantially as specified.

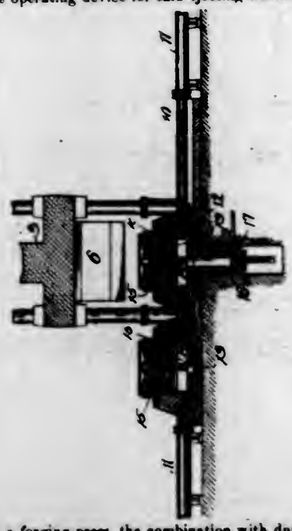
751,429. PROCESS OF MAKING METAL WHEELS. FERDINAND R. CANDA, New York, N. Y., assignor to Chrome Steel Works, Woodbridge township, N. J., a Corporation of New Jersey. Filed Dec. 14, 1901. Serial No. 85,880. (No model.)



Claim.—The herein-described process of making wheels and the like, which consists in forming a wheel with a rim having substantially the diameter of the finished wheel, but having on one side an enlargement, the greatest thickness of which is near the outer surface of the rim, and in then subjecting the rim to pressure in suitable dies, the pressure being applied first to the said enlargement near the outer surface of the rim, the metal near the outer surface of the rim being subjected to greater compression and condensation than the metal near the inner surface of the rim.

751,430. FORGING PRESS AND DIE. FERDINAND R. CANDA, New York, N. Y., assignor to Chrome Steel Works, Woodbridge township, N. J., a Corporation of New Jersey. Filed Dec. 14, 1901. Serial No. 85,881. (No model.)

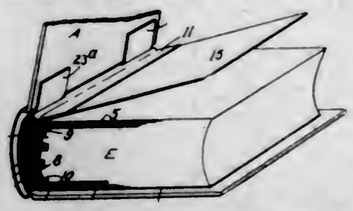
Claim.—1. In a forging-press, the combination with duplicate dies laterally movable in the same plane, a cooperating die axially movable, said duplicate dies movable from a position for operation in line with said cooperating die to separate charging positions on opposite sides of said position for operation, and die-shifting mechanism for moving said duplicate dies alternately into operative position with respect to the cooperating die, of pressing mechanism for operating the said cooperating die, ejecting devices carried by each of said duplicate dies for freeing the article pressed therefrom, and a single operating device for said ejecting devices.



2. In a forging-press, the combination with duplicate dies laterally movable in the same plane, and each provided with orifices through which ejecting-fingers may work and with a recess adapted to receive a yoke for such fingers, a cooperating die axially movable, said duplicate dies movable from a position for operation in line with said cooperating die to separate charging positions on opposite sides of said position for operation, and die-shifting mechanism for moving said duplicate dies alternately into operative position with respect to the cooperating die, of pressing mechanism for operating said cooperating die, ejecting-fingers, and yokes therefor, carried by said duplicate dies, and an ejector-ram, located in line with the cooperating die, normally out of engagement with said dies and ejecting devices, but adapted to operate either of said ejecting devices when the die thereof is in operative position, and arranged to operate the ejecting devices of whichever of the duplicate dies is in operative position with respect to the cooperating die.

3. The combination of lower and upper car-wheel-forging dies, the former having a raised boss the bottom of which is substantially the flange-diameter of the finished wheel, and the face of which is formed to correspond with the flange side of the wheel, said die adapted to support the wheel but having no portions surrounding or embracing the wheel on the outside, the upper die having a recess adapted to receive said boss, the bottom of the recess being formed to correspond with the opposite side of the wheel and the sides of the recess being formed to correspond to the tread and flange of the wheel, said sides having a shearing edge adapted to cut off surplus metal.

751,431. BOOKBINDING. ADOLPH G. HOELSCHER, Boston, Mass., assignor to Alfred T. Palmer, Boston, Mass. Filed Sept. 3, 1903. Serial No. 171,721. (No model.)

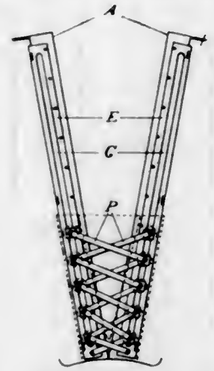


Claim.—1. In the binding of suitable material into book form, the described combination and arrangement of the book-forming material, the lining material, and the covers, the folded edge of each lining-piece being secured between an outer signature and one adjacent thereto, and its flaps extended thence in opposite directions, and respectively secured to the opposite covers, whereby said covers are effectively supported and made mutually interpendent through the reinforcing agency of the lining material, substantially as set forth.

2. The described improvement in binding embodying assembled sections or signatures and folded lining-pieces interposed along the fold between the two outer signatures and those intermediate, all permanently united by the transverse stitching of the book-back, and combined with the external cover, one flap of each lining-piece extending from its fold and seam and fastened to the adjacent cover, while the other flaps of said pieces extend directly across the book-back, overlapping and adhering to each other the outermost one being fastened terminally to the opposite cover, substantially as set forth.

3. The described improvement in binding books, embodying assembled sections or signatures and folded lining-pieces secured along the fold to the two outer signatures, and all permanently united by the transverse stitching of the book-back, and combined with a suitable cover, the outermost flap of each lining-piece being secured to the inner face of the adjacent cover, and the innermost flaps of such pieces being formed into parallel strips, extended alternately from opposite directions across the book-back, fastened thereto and to each other in superposed position, and the terminal portion of each outside strip, when so superposed and united, being fastened to the inner face of the opposite cover, substantially as set forth.

751,432. SHOE-FASTENING DEVICE. BERNARD W. HOPPER, Philadelphia, Pa. Filed May 28, 1902. Serial No. 109,395. (No model.)

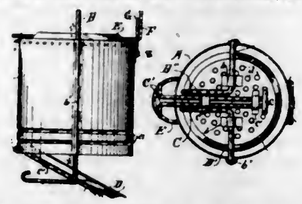


Claim.—1. In combination in a shoe-fastening device, a pair of guiding-strips, each member of said pair comprising a slotted outer strip and a solid inner strip joined thereto by the connecting members H, said outer and inner strips being arranged parallel each to each and slightly separated, a tongue having an elastic center C and a non-elastic lateral reinforcement D mounted and adapted to be raised and lowered upon said guiding-strips, by means of the studs K, and the inner flaps A adapted to protect the foot from contact with said guiding-strips, substantially as described.

2. In combination in a shoe-fastening device, a pair of guiding-strips, each member of said pair comprising a slotted outer strip and a solid inner strip joined thereto, said outer and inner strips being parallel with and slightly separated from each other, a tongue having the elastic center C and the non-elastic lateral reinforcement D mounted and adapted to be raised and lowered upon said guiding-strips by means of the studs K, a series of diagonal braces P movably connected to said studs, and the inner flaps A interposed between the foot and said guiding-strips and diagonal braces, substantially as described.

3. In combination in a shoe-fastening device, a pair of guiding-strips, each member of said pair comprising a slotted outer strip and solid inner strip joined thereto, said outer and inner strips being parallel with and slightly separated from one another, a tongue adapted to be raised and lowered upon said guiding-strips by means of the studs K, and the inner flaps A adapted to protect the foot from contact with said guiding-strips, substantially as described.

751,433. STEAM-COOKER. WALTER J. KENNEDY, Grand Rapids, Mich. Filed June 29, 1903. Serial No. 163,624. (No model.)

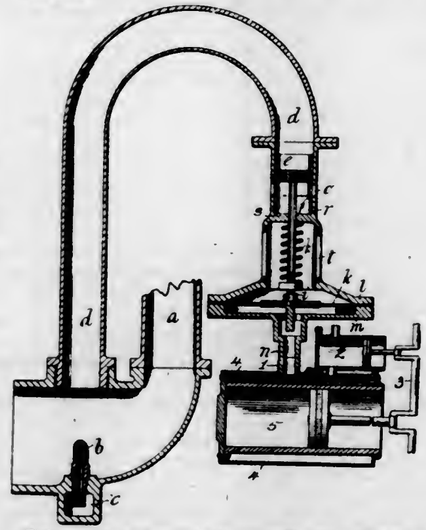


Claim.—1. In a steam-cooker, a case having longitudinally-creased receptacles, annular inwardly-depressed beads and apertures through the sides, a bail supported in the longitudinal receptacles, the lower end bent at right angles and approaching toward the center, thence bent at right angles and extending parallel toward the periphery, a perforated bottom pivotally attached to said bail, a sliding latch upon the bottom, hooks formed at the ends of said latch and arranged to pass through an aperture in the case, and a cover, substantially as and for the purpose set forth.

2. In a steam-cooker, a case having longitudinally-creased receptacles, annular inwardly-depressed beads, and apertures through the sides, a bail supported in the longitudinal receptacles, the lower ends of the bail bent at right angles approaching the center and again bent at right angles approaching the periphery of the case, a bottom pivoted to the lower end of the bail, a sliding latch attached to the bottom with hooks formed at the ends in position to extend and pass through an aperture in the side of the case or withdraw and engage the ends of the bail, holding the bottom rigid at right angles to the bail, and a cover, substantially as and for the purpose set forth.

3. In a steam-cooker, a case having longitudinally-creased receptacles, annular inwardly-depressed beads, and apertures through the sides, a bail supported in the longitudinal receptacles, the lower end thereof bent to approach the center then bent to extend parallel toward the periphery of the case, a bottom pivoted to the bail, a sliding latch connected with the bottom and having hooks at the ends, and a top having supporting-wire formed with a loop and retaining-hooks, substantially as and for the purpose set forth.

751,434. CARBURETER FOR PETROL-MOTORS. MONTAGUE S. NAPIER and ARTHUR J. ROWLEDGE, London, England; said Rowledge assignor to said Napier. Filed Sept. 26, 1903. Serial No. 174,790. (No model.)



Claim.—1. In an apparatus for controlling the admission of air to the carbureter of an internal-combustion engine, the combination of an element subjected to the pressure of the cylinder-cooling water, a valve-spindle, a spring holding the spindle in contact with the said element, a valve carried by the spindle, and air-admission ports con-

trolled by the said valve, whereby the said ports are opened when the pressure of the cooling water increases, substantially as set forth.

2. In an apparatus for controlling the admission of air to the carbureter of an internal-combustion engine, the combination of a diaphragm, a casing containing the diaphragm, a pipe connecting the casing to a point in the cylinder-cooling water-pipes, a valve-spindle, a spring pressing the valve-spindle against the diaphragm, a valve carried by the spindle, and air-admission ports controlled by the valve, whereby the said ports are opened when the pressure of the cooling water increases, substantially as described.

3. In an apparatus for controlling the admission of air to the carbureter of an internal-combustion engine, the combination of a piston, a cylinder, a pipe connecting the cylinder to a point in the cylinder-cooling water-pipes, a valve-spindle, a spring pressing the valve-spindle against the piston, a valve carried by the spindle, and air-admission ports controlled by the valve, whereby the said ports are opened when the pressure of the cooling water increases, substantially as described.

4. In an apparatus for controlling the admission of air to the carbureter of an internal-combustion engine, the combination of a casing, a pipe through which water is led to the casing, an element arranged opposite to the water-inlet, a spindle carrying the said element, a spring holding the spindle in position, a valve carried by the spindle, air-admission ports controlled by the valve, and a pipe through which the water escapes from the casing, substantially as described.

751,435. **METALLIC FURNITURE.** ENOCH OSMSTRAND, Jamestown, N. Y., assignor to Art Metal Construction Company, Jamestown, N. Y., a Corporation of New York. Filed Feb. 20, 1903. Serial No. 144,216. (No model.)



Claim.—1. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, and a panel or other part inserted between said inwardly-projecting lips, and separate connecting means within the stile for connecting the parts.

2. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips, and clamping mechanism within the stile engaging said projecting lips.

3. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having stops thereon, and clamping mechanism within the stile engaging said projecting lips beyond said stops.

4. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having a stop engaging said projecting portions, and means within the stile for connecting the parts.

5. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips, and a slitted tubular section adapted to engage said projecting lips.

6. In metallic furniture, a rail, stile or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having outwardly-extending portions engaging said inwardly-projecting lips, and separate connecting mechanism within the stile engaging said inwardly-projecting lips.

7. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part comprising panel-pieces adapted to be inserted between said inwardly-projecting lips, fireproof and sound-deadening material between said panel-pieces, and a connecting device within said stile engaging said projecting lips.

8. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part comprising panel-pieces adapted to be inserted between said inwardly-projecting lips, fireproof and sound-deadening material between said panel-pieces and a clamping device within said stile engaging said projecting lips.

9. In metallic furniture, a hollow rail, stile, post or like body portion formed of a single piece of sheet or plate metal having inwardly-projecting lips or flanges, a panel or like part adapted to be inserted between said inwardly-projecting lips and a clamping device engaging said projecting lips.

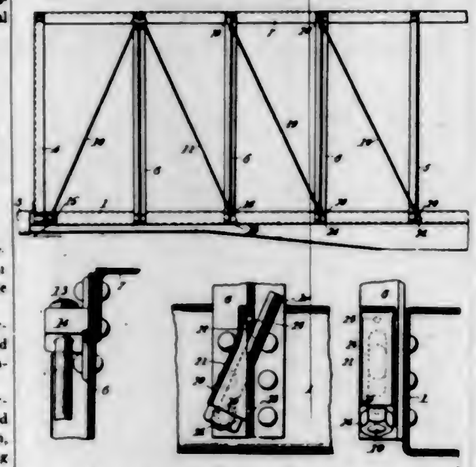
10. In metallic furniture, a hollow rail, stile, post or like portion formed of a single piece of sheet or plate metal having beveled moldings formed thereon and having inwardly-projecting lips or flanges beyond the molding, a panel or like part adapted to be inserted between said lips, and a separate connecting device within the stile engaging said projecting lips.

11. In metallic furniture, a hollow rail, stile, post or like portion formed from a single piece of sheet or plate metal having an inner lining forming an air-space therein.

12. In metallic furniture, a hollow rail, stile, post or like portion formed from a single piece of sheet or plate metal, and a wooden lining in said rail forming an air-space therein.

13. In metallic furniture, a hollow rail, stile or like portion formed from a single piece of sheet or plate metal, a wooden lining in said rail forming an air-space therein, and an interlining of fireproof material between the inner walls of said rail and said wooden lining.

751,436. **STOCK-CAR.** ARNOLD STUCKI, Allegheny, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Oct. 24, 1902. Serial No. 128,642. (No model.)



Claim.—1. A car, having a side sill and a side plate forming respectively the lower chord and upper chord of a truss, vertical connecting-posts secured to the said sill and plate, and provided with outwardly-projecting leg members, tubular brackets secured in position upon the legs of the posts and next the side sill and side plate, and diagonal tension-rods anchored in said brackets.

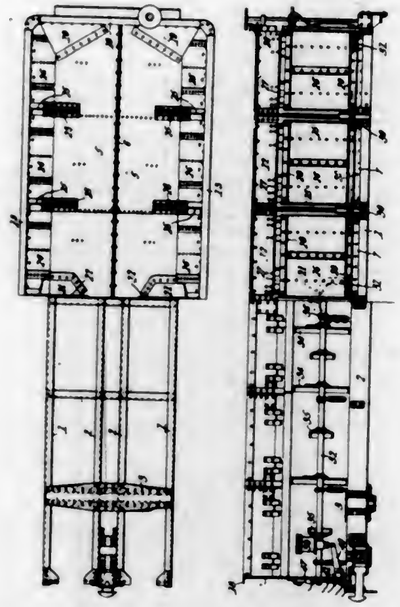
2. In a car, having truss-like sides, including side posts each provided with an outwardly-projecting leg or web member, tubular brackets applied to the leg or web members of said posts, and diagonal tension-rods fixed in said tubular brackets.

751,437. **DUMPING-CAR.** ARNOLD STUCKI, Allegheny, Pa. Filed Oct. 24, 1902. Serial No. 128,643. (No model.)

Claim.—1. A dumping-car, having an inverted-V-shaped bottom, side doors, a door-operating shaft arranged beneath said bottom, hoods erected upon said bottom, and connections between the shaft and doors extending through said hoods.

2. A dumping-car, having an underframe, a body erected thereupon and comprising essentially an inverted-V-shaped bottom extending longitudinally of the car and secured to the underframe, vertical side sheets, side posts connecting the side sheets with the underframe, transverse hoods between the side posts and bottom, and transverse wings interposed between and connecting the side sheets, side posts and hoods.

3. A dumping-car, having an underframe, a superstructure comprising an inverted-V-shaped bottom extending the length of the car and mounted upon the underframe, side and end sheets, posts connecting the side sheets with the underframe, transverse vertical hoods erected between the bottom and posts, and wings connecting the side sheets, hoods and side posts.



4. In a dumping-car having an underframe, a body having an inverted-V-shaped bottom erected upon the underframe, side sheets, posts connecting the side sheets and the underframe, vertical housings or hoods interposed between and connecting the side posts and bottom, doors hinged to the side sheets and closing next the underframe, winding-shafts mounted in bearings beneath the bottom, and connections between the said winding-shafts and doors projecting through the hoods.

5. In a dumping-car, an underframe, a body erected thereupon and having side doors and a bottom with a central longitudinal ridge, side sheets to which the doors are hinged, divided angular posts connecting the underframe and side sheets, and transverse vertical hoods connected to the bottom and to the divided posts and forming passage-ways for the door-operating connections.

6. In a dumping-car, having a body comprising a central longitudinal inverted-V-shaped bottom, vertical side sheets, and ends, an underframe upon which it is erected, side posts connecting the sides and underframe, transverse tie-pieces connected to the lower sides of the bottom, braces interposed between said bottom and the underframe, and transverse hoods connecting the bottom and side posts.

7. In a dumping-car, having an underframe, a superstructure including an inverted-V-shaped bottom, sides, posts connecting the sides with the underframe, end sheets connected with the underframe, inclined inner end plates, transverse wings connecting the posts and the bottom, doors hinged to the side sheets, and door-operating shafts mounted in bearings beneath the bottom and connected by covered passage-ways with the lower ends of the doors.

8. In a dumping-car, doors having operating mechanism, including a shaft connected with said doors and adapted to be operated to open and close said doors, dogging mechanism to hold the said shaft in a given position, and a power mechanism for actuating said dogging mechanism.

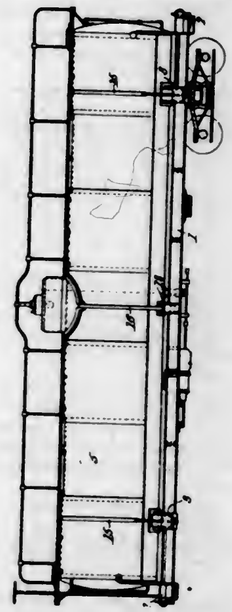
9. The combination of a winding-shaft, a ratchet thereon, a pawl for said ratchet, a dog for said pawl, a motor, and a lever connection between said motor and said pawl for displacing the pawl to permit the operation of the shaft.

10. The combination of a pair of shafts, a pawl-and-ratchet mechanism for each shaft, links having slotted ends and applied to the pawls, the slotted ends of said links being crossed, a link connected to said slotted ends, a lever upon which the last-mentioned link is mounted, a power appliance connected with said lever, and means to permit either or both of said slotted links to be moved to release either or both of the pawl-and-ratchet mechanisms.

11. In a dumping-car, the combination of a side door, a winding-shaft, a ratchet thereon, a pawl for said ratchet, a dog for said pawl, a motor, a lever vibrated by said motor, and a connection between said lever and said pawl for displacing the pawl to release the shaft and permit the operation of the door.

12. In a dumping-car, the combination of doors on opposite sides, an independent winding-shaft for opposite doors, a ratchet on each shaft, a pawl for each ratchet, a link attached to each pawl, a lever having a connection common to the two links, a motor for vibrating said lever, and independent dogs for controlling the pawls.

751,438. **TANK-CAR.** ARNOLD STUCKI, Allegheny, Pa., assignor to Pressed Steel Car Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Oct. 24, 1902. Serial No. 128,644. (No model.)



Claim.—1. In a tank-car, the combination of an underframe comprising center sills and bolsters projecting beyond them laterally, a tank, saddles upon the bolsters and upon which the tank rests, and straps passed over the tank and anchored in the bolsters.

2. In a tank-car, an underframe, comprising essentially longitudinal sills, transverse bolsters, and saddles on said bolsters, combined with a tank having filler-plates riveted to it adjacent the saddles, and transverse and longitudinal angle-bars riveted to the filler-plates and tank and engaging the saddles.

3. In a tank-car, an underframe, comprising essentially longitudinal sills, transverse bolsters, and saddles on said bolsters, combined with a tank having filler-plates riveted to it adjacent the saddles, transverse and longitudinal angle-bars riveted to the filler-plates and tank engaging the saddles, and straps engaging the tank and the bolsters.

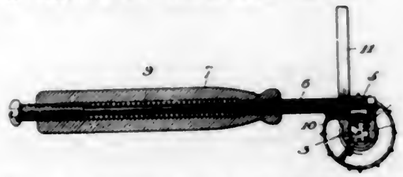
4. In a tank-car, the combination of center sills, bolsters connected therewith, saddles on said bolsters, a tank mounted upon said saddles, a saddle secured to the center sills about midway of the length of the tank, and a strap passed around the tank and anchored in the midway saddle.

5. In a tank-car, an underframe, comprising essentially longitudinal sills, and built-up bolsters, having top plates constructed with integral saddles and adapted to receive a superposed tank.

6. In a tank-car, an underframe, comprising longitudinal sills, and transverse bolsters, the tops of which bolsters are made as saddles whose curvature is concentric with the tank, combined with a tank, filler-plates riveted to said tank opposite the bolsters, trans-

verse angle-bars riveted to the filler-plates and tank, and adapted to engage opposite sides of the saddles, and longitudinal angle-bars also riveted to the filler-plates and tank, and adapted to engage the ends of the saddles, and means to hold the tank down upon the underframe, whereby the tank is readily separable from its underframe without taking out any rivets.

751,439. WATCHMAKER'S TOOL. WILLIAM D. SMITH, Denver, Colo. Filed Oct. 23, 1902. Serial No. 128,468. (No model.)



Claim.—1. A watchmaker's tool having laterally-exteeding spring-actuated clamping-jaws, said jaws having longitudinal grooves arranged to clasp the edges of the part to be held; substantially as described.

2. A watchmaker's tool having extending from the body thereof laterally spring-actuated clamping-jaws, said jaws being provided with grooves to clasp the edges of the part to be held; substantially as described.

3. A watchmaker's tool having extending from one side lateral spring-actuated clamping-jaws, said jaws being provided with grooves arranged to clasp the edges of the part to be held, one of said jaws having on the other side of the tool an extension arranged to be heated and to conduct the heat to the part held in the jaws; substantially as described.

4. In a watchmaker's tool, a handle, a stationary jaw having a sleeve rigidly secured to the handle, a movable jaw provided with a stem extending through the stationary jaw and also through the handle, and a spring within the handle arranged to actuate the stem to draw the movable jaw toward the stationary jaw; substantially as described.

5. In a watchmaker's tool, a handle, a stationary jaw having a sleeve rigidly secured to the handle, a movable jaw provided with a stem extending through the stationary jaw and through the handle, and a spring within the handle surrounding the stem and arranged to actuate it to draw the movable jaw toward the stationary jaw; substantially as described.

REISSUES.

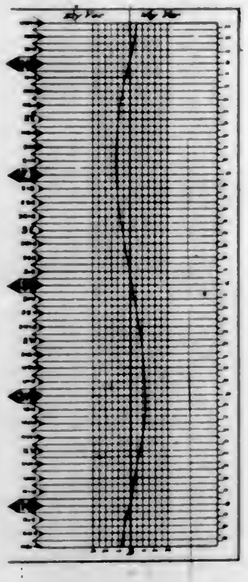
12,196. COURSE AND BEARING CORRECTING DEVICE. JOHN BAYER, Buffalo, N. Y. Filed Jan. 8, 1904. Serial No. 188,365. Original No. 745,314, dated Dec. 1, 1903.

Claim.—1. In a device for mechanically solving the mathematical problems of the conversion of angles, applying certain corrections to angles, or other mathematical problems of a like nature a card the face of which is provided with a series of vertical and horizontal lines the vertical lines representing certain units such as degrees of arc, the horizontal lines representing the same or different units, such as compass courses, in combination with a plate or pointer of a rigid material, so constructed that when it is placed on the card at the known angle, course, or bearing the plate or pointer will indicate the converted or corrected angle, course, or bearing.

2. In a device of the class described, the combination of a card having thereon vertical lines suitably spaced and labeled representing degrees of arc, horizontal lines suitably spaced and labeled representing compass courses and a device having a straight edge adapted to coincide with one of the before-mentioned lines and another straight edge extending at an angle to the first-mentioned edge and from the end of the same, for the purpose described.

3. In a device for converting or correcting courses or bearings or problems of a like nature a card the face of which is provided with a series of vertical and horizontal lines the vertical lines representing degrees of arc, the horizontal lines representing compass courses or bearings either in degrees of arc or compass-points, as commonly marked on the mariner's compass, in combination with a plate or pointer of transparent material so constructed that when it is placed on the card at the known course or bearing the corrected course or bearing will be indicated.

4. In a device for correcting courses or bearings a card of any suitable material the face of which is provided with a series of equally-spaced vertical lines and equally-spaced horizontal lines the central vertical line, called the "meridian line," representing the development of the outer edge of a mariner's-compass card marked in degrees of arc the equally-spaced vertical lines on either side representing degrees of arc for the correction of the error due to variation, the horizontal lines representing compass courses or bearings for the correction of the error due to deviations and designated near the left-hand margin of the card by the compass-points and fractions of points as commonly used on a mariner's compass and near the right-hand margin by degrees of arc in multiples of ten, in combination with a pointer or plate of transparent material the face of which is provided with a series of vertical lines scribed on its surface the vertical lines being of equal spacing with the vertical lines on the card, so constructed that the two sides and bottom form three sides of a rectangle with a portion of the fourth side parallel to its opposite side and the remainder inclined at an angle of forty-five degrees to the right of the perpendicular thereby forming a forty-five-degree point with the right side of the plate or pointer and when placed on the card compass courses or bearings, magnetic courses or bearings or true courses or bearings or other problems of a like nature may be changed into one or more of the others.



DESIGNS.

36,762. SOUVENIR CARD OR SIMILAR ARTICLE. FRANK HULD, New York, N. Y. Filed Dec. 18, 1903. Serial No. 185,751. Term of patent 3½ years.



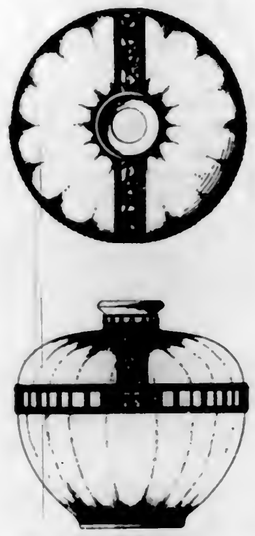
Claim.—The ornamental design for a souvenir card or similar article, as herein shown.

36,763. SOUVENIR SPOON. CHARLES J. DALE, Plattsburg, N. Y. Filed Sept. 29, 1903. Serial No. 175,097. Term of patent 7 years.



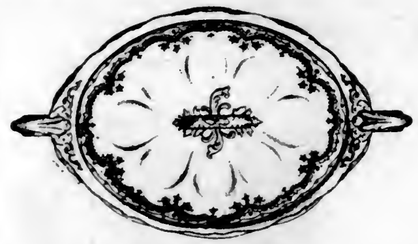
Claim.—The ornamental design for a souvenir spoon, as shown.

36,764. BOTTLE. ANDRÉ BUSTANOBY, New York, N. Y. Filed Jan. 6, 1904. Serial No. 187,966. Term of patent 3½ years.



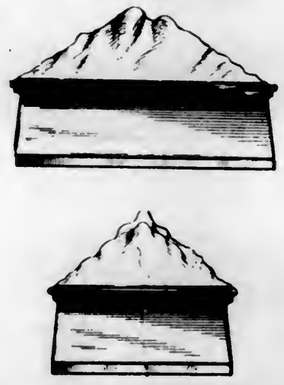
Claim.—The new, original and ornamental design for a bottle as shown.

36,765.



Claim.—The ornamental design for a cover-dish as shown.

36,766. TOY BANK. LELLA W. KNIGHTON, Portland, Oreg. Filed Dec. 29, 1903. Serial No. 187,073. Term of patent 7 years.



Claim.—The ornamental design for a toy bank, substantially as herein shown.

36,767. CASH-REGISTER CABINET OR CASING. LEOPOLD JACOBI, St. Louis, Mo., assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 14, 1903. Serial No. 177,078. Term of patent 7 years.



Claim.—The ornamental design for a cash-register cabinet or casing as shown.

36,768. COVER-DISH. ROBERT L. JOHNSON, Hanley, England. Filed Jan. 6, 1904. Serial No. 187,983. Term of patent 3½ years.



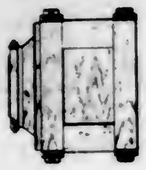
36,768. CASH-REGISTER CABINET OR CASING. ROWIN RISGOLD, Boston, Mass., assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 14, 1903. Serial No. 181,247. Term of patent 7 years.





Claim.—The ornamental design for a cash-register cabinet or casing as shown.

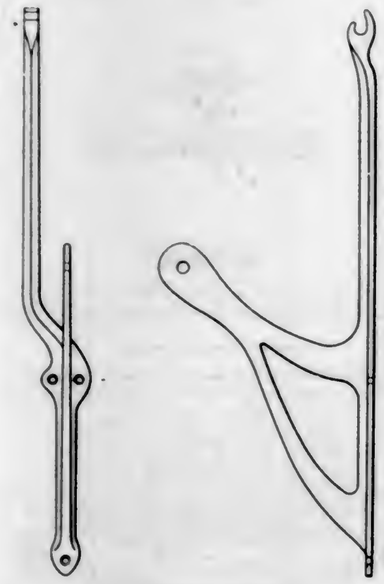
36,769. BURIAL-CASKET. JOHN MAXWELL, Oneida, N. Y. Filed Oct. 6, 1902. Serial No. 126,256. Term of patent 7 years.





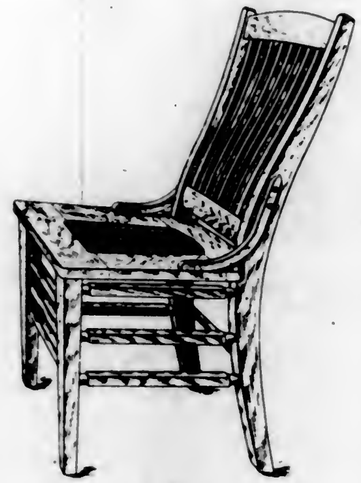
Claim.—The ornamental design for a burial-casket, as shown.

36,770. BRACKET. HORATIO B. RUGGLES, Medford, Mass., assignor to Boston Automatic Bed Company, Boston, Mass., a Corporation of Maine. Filed June 18, 1903. Serial No. 162,144. Term of patent 3½ years.



Claim.—The ornamental design for a bracket, as shown.

36,771. CHAIR. JOHN H. KELLOGG, Battlecreek, Mich. Filed Jan. 11, 1904. Serial No. 188,667. Term of patent 14 years.



Claim.—The ornamental design for a chair, substantially as shown.

36,772. ARTIFICIAL BUILDING-BLOCK. HARMON S. PALMER, Washington, D. C. Filed Dec. 21, 1903. Serial No. 186,130. Term of patent 7 years.

Claim.—The ornamental design for an artificial building-block substantially as herein shown.

36,773. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, copartners, trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 28, 1903. Serial No. 186,928. Term of patent 3½ years.



Claim.—The ornamental design for a rug, as shown.

36,774. RUG. ERNEST H. BENNETT, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, copartners, trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 28, 1903. Serial No. 186,929. Term of patent 3½ years.



Claim.—The ornamental design for a rug, as shown.

36,775. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, copartners, trading as John Bromley & Sons, Philadelphia, Pa. Filed Nov. 25, 1903. Serial No. 182,689. Term of patent 3½ years.



Claim.—The ornamental design for a rug, as shown.

36,776. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, copartners, trading as John Bromley & Sons, Philadelphia, Pa. Filed Nov. 25, 1903. Serial No. 182,690. Term of patent 3½ years.



Claim.—The ornamental design for a rug, as shown.

36,777. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, copartners, trading as John Bromley & Sons, Philadelphia, Pa. Filed Nov. 25, 1903. Serial No. 182,691. Term of patent 3½ years.



Claim.—The ornamental design for a rug, as shown.

TRADE-MARKS

REGISTERED FEBRUARY 2, 1904.

41,965. CORSETS. BIRDSEY & SOMERS, New York, N. Y. Filed Oct. 23, 1903.

CZARINA

The word "CZARINA." Used since January, 1895.

41,966. RUBBER HEELS AND SOLES FOR BOOTS AND SHOES. FOSTER RUBBER COMPANY, Boston, Mass. Filed Nov. 20, 1903.



A circular figure of relatively small spots contrasting with a darker background. Used since January 15, 1901.

41,967. LEATHER BOOTS AND SHOES. GEO. E. KEITH COMPANY, Campello, Mass. Filed July 25, 1899.

HICKORY

The word-symbol "HICKORY." Used since February 1, 1899.

41,968. GLAZED OR OTHERWISE-FINISHED KID-LEATHER. AMERICAN LEATHER CO., New York, N. Y.; Wilmington, Del.; Boston, Mass., and Cincinnati, Ohio. Filed Dec. 17, 1903.

CRISPIN



The word "CRISPIN" and a picture representing modern progress in the art of making shoes. On the left appears an old-time shoemaker, with his assistant, at work at his bench, with primitive tools and workshop accessories thereupon or near by and a vat in the foreground, while on the right is the representation of a line of sturdy industrious men working in a modern shoe-factory, with up-to-date machinery before them and a rack behind them containing the manufactured shoes when finished. Used since October 1, 1903.

41,969. CIGARS. THEODORE H. HART & CO., Philadelphia, Pa. Filed Nov. 19, 1903.

LEDA



The word "LEDA" and the representation of "Leda and the Swan." Used since March 27, 1902.

41,970. CIGARS. RODRIGUES BAUTISTA HERMANOS, Havana, Cuba, and New York, N. Y. Filed Dec. 16, 1903.

FLOR DE ESPAÑA

The words "FLOR DE ESPANA." Used since 1876.

41,971. WHISKY. JAMES HOGARTH BROWN, Glasgow, Scotland. Filed Dec. 29, 1903.

Auld Lichts

The words "AULD LICHTS." Used since October 17, 1903.

41,972. COFFEE. A. ENGELHARD & SONS CO., Louisville, Ky. Filed June 17, 1902.

PENDENNIS

The word-symbol "PENDENNIS." Used since March 1, 1902.

41,973. TEA. THOS. MARTINDALE & CO., Philadelphia, Pa. Filed Dec. 21, 1903.

41,973.

VIV



The word "VIV," associated with the representation of Hercules in the act of breaking a chain, said representation being surrounded by an oval frame. Used since January 1, 1896.

41,974. TEA. THE LIVERPOOL CHINA & INDIA TEA COMPANY, LIMITED, Liverpool, England. Filed Oct. 9, 1903.

KARDOMAH

The word "KARDOMAH." Used since September 23, 1893.

41,975. CONFECTIONS AND CHOCOLATE AND COCOA IN ALL FORMS. WILLIAM R. ADAMS, Philadelphia, Pa. Filed Nov. 14, 1903.



The representation of a shield, below and on either side of which are scrolls. Represented as standing on these scrolls and on each side of the shield are squirrels facing each other and resting their front paws against and near the top of the shield. Over the top of the shield is the representation of the fore portion of a lion rampant and resting upon a crown. Used since October 1, 1903.

41,976. FANCY FULL-CREAM CANADIAN CHEESE. A. F. MACLAREN IMPERIAL CHEESE CO., LIMITED, Toronto, Canada. Filed Dec 19, 1902.



A scroll, from the lower side of which is suspended a disk or medallion. Used since January 1, 1900.

41,977. BAKING-POWDER. INTERNATIONAL FOOD CO., Minneapolis, Minn. Filed Jan. 4, 1904.



The words "GRAPE CREAM" and the representation of a cluster of grapes at the top. At the bottom is the representation of a table at which a child is seated, represented in the act of rolling dough, with the near-by representation of a spoon, a baking-powder can, and a biscuit-cutter. In the center is the representation of a female figure dressed as a cook, in a standing position and leaning over the child. Used since April 23, 1902.

41,978. WHEAT-FLOUR. TACOMA GRAIN COMPANY, Tacoma, Wash. Filed Dec. 26, 1903.



The representation of a kirin or Japanese dragon. Used since January 17, 1903.

41,979. NUTRITIVE COMPOUND FOR INVALIDS. FREDERICK WILLIAM RUDOLPH EICHMANN, Yonkers, N. Y. Filed Dec. 17, 1903.

LECITHOIDS

The word-symbol "LECITHOIDS." Used since September 23, 1901.

41,980. HEMOSTATIC, ASTRINGENT, AND CARDIAC STIMULANTS. FREDERICK STEARNS & Co., Detroit, Mich. Filed Jan. 5, 1904.

ADNEPHRIN

The word "ADNEPHRIN." Used since December 21, 1903.

41,981. GERMICIDES AND ANTISEPTICS. FREDERICK STEARNS & Co., Detroit, Mich. Filed Jan. 5, 1904.

ALPHOZONE

The word "ALPHOZONE." Used since December 21 1903.

41,982. CERTAIN NAMED DRUGS AND CHEMICALS. BRUNNER, MOND & Co., LIMITED, Northwich, England, and New York, N. Y. Filed Nov. 6, 1903.

VOLTOID

The word or designation "VOLTOID." Used since September 1, 1903.

41,983. BLOOD MEDICINE. ELWOOD R. RICK, Dayton, Ohio. Filed Dec. 31, 1903.

KI-A-WAH

The hyphenated word "KI-A-WAH," with a heavy scroll extending from the letter "K" the full length of the word. Used since January, 1900.

41,984. POULTRY REMEDIES. EUREKA U. WILLIAMS, Los Angeles, Cal. Filed Dec. 1, 1903.

KILEROUP

The word sign or symbol "KILEROUP." Used since October 17, 1903.

41,985. PLASTER COMPOUND. PIONEER CHEMICAL COMPANY, New York, N. Y. Filed Jan. 8, 1904.

PATMOLL

The word "PATMOLL." Used since December 28, 1903.

41,986. OINTMENT. JAMES R. ALLISON, Chambersburg, Pa. Filed Dec. 1, 1903.

SA-MO

The letters "SA-MO." Used since April, 1902.

41,987. OINTMENT. THOMPSON MEDICAL COMPANY, Titusville, Pa. Filed Dec. 22, 1903.

SAN-CURA

The word-symbol "SAN-CURA." Used since February 1, 1894.

41,988. PERFUMES. SELWYN IMPORTING & TRADING Co., New York, N. Y. Filed July 30, 1903.



The words "LA FERIA," associated with the representation of a Spanish dancing woman holding a tambourine in one hand. Used since March 1, 1902.

41,989. PERFUMES. SELWYN IMPORTING & TRADING Co., New York, N. Y. Filed July 30, 1903.



The word-symbol "TINTORET" and a medallion displaying a female head and inclosed in a florentine scroll. Used since March 1, 1901.

41,990. SOAPS. RAYMOND CHEMICAL Co., New York, N. Y. Filed Dec. 23, 1903.

BENZOBALM

The word "BENZOBALM." Used since July 1, 1903.

41,991. SCOURING-SOAP. FREDERICK C. BARGAR, Columbus Ohio. Filed Dec. 21, 1903.

NE-CES-TE

The hyphenated word "NE-CES-TE." Used since July 1, 1903.

41,992. CLEANING COMPOUNDS FOR CLEANING AND SCOURING. JOHN A. BUCK, Kosciusko, Miss. Filed Dec. 11, 1903.



The words "CREOLE GIRL'S DELIGHT," together with the representation of the head and bust of a girl. Used since December 2, 1903.

41,993. COMPOSITION OF WOOD-DUST AND A CEMENTING ELEMENT. HUGO GALLISOWSKY, Toronto, Canada. Filed Mar. 21, 1903.

CORAL MARBLE.

The words "CORAL MARBLE." Used since July, 1902.

41,994. PHOTOGRAPHIC DEVELOPING, TONING, AND FIXING MATERIALS. THE ANTHONY AND SCOVILL COMPANY, New York, N. Y. Filed Dec. 26, 1903.

ANSCO

The word "ANSCO." Used since July, 1902.

41,995. PHOTOGRAPHIC CAMERAS AND TRIPODS. THE ANTHONY AND SCOVILL COMPANY, New York, N. Y. Filed Dec. 26, 1903.

41,995.

ANSCO

The word "ANSCO." Used since July, 1902.

41,996. GOLF-BALLS. I. B. KLEINERT RUBBER Co., New York, N. Y. Filed Jan. 5, 1904.



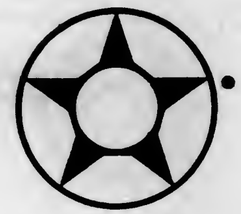
A band of distinctive color applied to or produced on a golf-ball or a representation thereof. Used since December 15, 1903.

41,997. GLASS LAMP-CHIMNEYS, LANTERN-GLOBES, AND REFLECTORS. GILL BROTHERS COMPANY, Steubenville, Ohio. Filed Jan 6, 1904.



The word "HAMMER" and the representation of a hand and arm holding a hammer. Used since September 12. 1896.

41,998. TYPE-WRITING MACHINES. L. C. SMITH & BROS. TYPEWRITER COMPANY, Syracuse, N. Y. Filed Jan. 4, 1904.



The representation of an outer ring, an inner ring, and a series of triangles in solid color arranged around the inner ring and having their apices at the outer ring, said inner ring and triangles somewhat resembling a star. Used since December 21, 1903.

41,999. BOTTLE-CORKING MACHINES. Hugo Reisinger, New York, N. Y. Filed Jan. 6, 1904.

INVINCIBLE

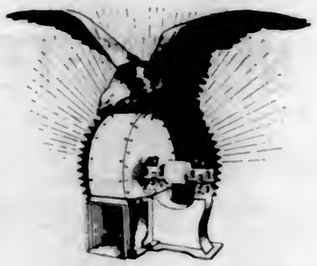
The word "INVINCIBLE." Used since July 31, 1903.

42,000. PUMPING MACHINERY, PARTS, AND ATTACHMENTS. Dean Brothers Steam Pump Works, Indianapolis, Ind. Filed Jan. 9, 1904.

UNIPLEX

The word "UNIPLEX." Used since December 1, 1903.

42,001. DUST-COLLECTORS, EXHAUST-FANS, AND BLOWERS. The Ohio Blower Company, Cleveland, Ohio. Filed Dec. 7, 1903



The representation of an exhaust-fan, perched over which, with wings outspread and looking downward, is an American eagle. The background for the representation consists of a solid black circle with saw-tooth edge wherever the same appears or can be seen. From these teeth radiate outward and upward small lines representing rays of light. Used since October 4, 1903.

42,002. STEEL IN BARS AND SHEETS. Hannacher, Delius & Co., New York, N. Y. Filed Jan. 4, 1904.



A semispherical figure bearing the word "GYSINGE" and forked arrows, which are arranged tangentially to the said figure. Used since January 15, 1903.

42,003. COAL AND COKE. Smokeless Fuel Co., Charleston, W. Va. Filed Nov. 27, 1903.

MILTRENA

The word "MILTRENA." Used since September 1, 1903.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D. C.

LABELS

REGISTERED FEBRUARY 2, 1904.

10,709.—*Title:* "DR. CONRAD'S FEMALINE." (For Medicine.) Chas. Conrad, New York, N. Y. Filed October 20, 1903.

10,710.—*Title:* "PHILLIPS' SCALP LOTION." (For Scalp-Lotion.) The Phillips Medical Co., Omaha, Nebr. Filed January 9, 1904.

10,711.—*Title:* "NOX-ALL SOOT." (For Soot-Destroyers.) Badger Chemical Company, Beaverdam, Wis. Filed January 7, 1904.

10,712.—*Title:* "DR. SHERMAN'S HOG CHOLERA PREVENTIVE." (For Hog-Cholera Preventives.) Badger Chemical Company, Beaverdam, Wis. Filed January 7, 1904.

10,713.—*Title:* "ROYAL BENGAL STOVE POLISH." (For Stove-Polish.) The Faulhaber Chemical Co., New York, N. Y. Filed January 9, 1904.

10,714.—*Title:* "TRIBE OF THE MAC-O-CHEE." (For Cigars.) La Hilda Cigar Factory, Philadelphia, Pa. Filed December 21, 1903.

10,715.—*Title:* "CUBAN'S FAVORITE." (For Cigars.) La Hilda Cigar Factory, Philadelphia, Pa. Filed December 21, 1903.

10,716.—*Title:* "FOXY TOM." (For Cigars.) W. H. Bossitt, Leon, Iowa. Filed October 12, 1903.

10,717.—*Title:* "TRUST FIGHTERS." (For Cigars, Cigarettes, and Tobacco.) Isidor Latzar, Chicago, Ill. Filed December 11, 1903.

10,718.—*Title:* "OLD CUMBERLAND." (For Whisky.) James M. Collins, Concord. N. H. Filed January 8, 1904.

10,719.—*Title:* "HIGH LIFE." (For Beer.) The Fred Miller Brewing Co., Wauwatosa, Wis Filed January 8, 1904.

10,720.—*Title:* "WAGNER'S CARBONATED C. P. SODIUM PHOSPHATE." (For Artificial Mineral Water.) W. T. Wagner's Sons, Cincinnati, Ohio. Filed January 11, 1904.

10,721.—*Title:* "WAGNER'S CARBONATED C. P. SODIUM PHOSPHATE." (For Artificial Mineral Water.) W. T. Wagner's Sons, Cincinnati, Ohio. Filed January 11, 1904.

PRINTS

REGISTERED FEBRUARY 2, 1904.

889.—*Title:* "SMOKELESS POWDERS." (For Smokeless Powder.) Laflin & Rand Powder Co., Wilmington, Del. Filed January 6, 1904.

890.—*Title:* "APPAREL FOR 1904." (For Apparel.) W. C. Both, Chicago, Ill. Filed January 9, 1904.

891.—*Title:* "FOR GOODNESS SAKE." (For Flour.) Washburn, Crosby Co., Minneapolis, Minn. Filed January 9, 1904.

892.—*Title:* "THERE ARE OTHER KINDS." (For Flour.) Washburn, Crosby Co., Minneapolis, Minn. Filed January 9, 1904.

893.—*Title:* "NO DOUBT ABOUT IT." (For Flour.) Washburn, Crosby Co., Minneapolis, Minn. Filed January 9, 1904.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE FORD.

Decided December 19, 1903.

DIVISION—TELEPHONE SYSTEM AND SWITCHBOARD.

Since telephone-switchboards are recognized by inventors and manufacturers as independent inventions from the general telephone systems in which they are used, *Held* that division was properly required between claims to a switchboard and claims to the system.

ON petition.

TELEPHONE-EXCHANGE APPARATUS.

Mr. George P. Barton for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between claim 1 and the remaining claims of the above-entitled application.

The invention relates to a telephone-exchange apparatus, and claim 1 is directed to a switchboard provided with a particular construction of keys and key-locks, while the remaining claims are directed to combinations and subcombinations of elements which make up a telephone system.

The invention covered by claim 1 is described in the specification as follows:

> My invention comprises: first, the combination with certain sets of the keys, of connecting-bars, in order that when a particular key of a set is thrown a corresponding key will also be thrown through the medium of the common connecting-bar, the other keys of the set being blocked.

The telephone-switchboards are recognized by inventors and manufacturers as independent inventions from the general telephone systems in which they are used, and this recognition has been followed by the Patent Office in its scheme of classification, in which the subclass of Telephone, switchboards, has been established.

In considering the question of independence of invention between the switchboard invention covered by claim 1 and the general telephone system covered by the remaining claims the Examiner very properly says:

> There could hardly be any question but that the inventive act by which this arrangement of keys and locking-bar was produced was totally independent of that by which the annunciator or the trunking system was called into existence.

The requirement of division between claim 1 and the remaining claims in this application was right, and the petition is therefore denied.

EX PARTE NOVOTNY.

Decided December 21, 1903.

REOPENING FINALLY-REJECTED CASES—SHOWING OF GOOD REASONS.

Final rejection of the claims is intended to close the consideration of the case upon the merits, and the applicant is not entitled to demand that it be reopened thereafter to consider amendments except upon a verified showing of good and sufficient reasons why the amendment was not sooner presented.

ON petition.

SHELL-EJECTORS FOR GUNS.

Messrs. Merwin, Lothrop & Johnson and *Messrs. Collamer & Company* for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter amendments to the above-entitled case presented July 24, 1902, February 22, 1903, June 27, 1903, and July 21, 1903, and from his holding that the case is abandoned.

It appears from the record that after five actions by the Examiner and responses by the applicant all of the claims in the case were finally rejected on July 22, 1902. The final rejection was regular and proper, and there is no dispute upon that question.

The various amendments presented thereafter were in supposed accordance with Rule 68, since those of them which contained any explanation said that they were to place the case in condition for appeal. They did not, however, merely place the claims in better form for appeal, but changed them in substance, for, as pointed out by the applicant himself in his amendment of June 27, 1903, the amended claims covered features of construction not claimed before. If they had been entered, it would have been necessary to set aside the final rejection and reëxamine the case, and under the express provisions of Rule 68 this will not be done except upon a verified showing of good and sufficient reasons. No such showing was made or attempted.

The applicant seems to labor under a misapprehension of the meaning of Rule 68 and does not realize that a final rejection closes the consideration of a case upon its merits and that the case will not be reopened thereafter except upon a showing of good reasons.

After the Examiner's letter of July 22, 1902, the case was in condition for appeal, and the actions which the applicant attempted to take were not such as the condition of the case required. (Rule 171.) The application is therefore abandoned.

The petition is denied.

REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1903.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 28, 1904.

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with section 494 of the Revised Statutes I have the honor to submit the following report of the business of the Patent Office for the year ending December 31, 1903:

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:		
Cash received		$1,439,146 00
Cash refunded		5,511 00
Net cash		1,433,635 00
Certificates of deposit		41,745 00
Total cash and certificates		1,475,380 00
Copies:		
Cash received		128,269 90
Cash refunded		8,707 05
Net cash		119,562 85
Certificates of deposit		661 75
Total cash and certificates		120,224 60
Recording assignments:		
Cash received		27,036 58
Cash refunded		1,386 02
Net cash		25,650 56
Certificates of deposit		96 00
Total cash and certificates		25,746 56
Subscriptions to Official Gazette:		
Cash received		12,602 00
Cash refunded		79 35
Net cash		12,522 65
Certificates of deposit		37 00
Total cash and certificates		12,559 65
Registration of prints and labels:		
Cash received		9,641 00
Cash refunded		1,416 00
Net cash		8,225 00
Certificates of deposit		66 00
Total cash and certificates		8,291 00
Aggregates.		
Cash received		$1,616,995 48
Cash refunded		17,099 42
Net cash		1,599,596 06
Certificates of deposit		42,605 75
Total cash and certificates		1,642,201 81

EXPENDITURES.

Approximate amounts expended and incurred under the several appropriations from January 1, 1903, to December 31, 1903.

	Expended.	Estimated liabilities.	Total.
Salaries	$831,165 50		$831,165 50
Scientific Library	1,473 45		1,473 45
Transportation of publications to foreign countries	729 25		729 25
International Union for Protection of Industrial Property	703 03		703 03
Stationery	10,847 11		10,847 11
Postage on foreign matter	2,650 00		2,650 00
Furniture	7,098 05		7,098 05
Carpets	3,530 75		3,530 75
Ice	467 96		467 96
Telephones	1,396 94		1,396 94
Washing towels	174 24		174 24
Sundries	4,912 98		4,912 98
Law library	508 85		508 85
Official Gazette, (illustrations,) paid contractor	79,787 50		79,787 50
Equipment of Scientific Library	2,218 00		2,218 00
Photolithographing, paid contractor	112,932 90		112,932 90
Printing and binding, paid Public Printer for Official Gazette, indexes, printing specifications, miscellaneous work	379,368 50	$8,699 80	388,068 30
Total	1,439,946 01	8,699 80	1,448,645 81

RECEIPTS AND EXPENDITURES.

Receipts from all sources	$1,642,201 81
Expenditures	1,448,645 81
Surplus	193,556 00

Statement of balance in the Treasury of the United States on account of the patent fund.

Amount to the credit of the fund January 1, 1903	$5,488,984 61
Amount of receipts during the year 1903	1,642,201 81
Total	7,131,186 42
Deduct expenditures for the year 1903	1,448,645 81
Balance January 1, 1904	5,682,540 61

SUMMARY OF THE BUSINESS OF THE PATENT OFFICE.

Number of applications for patents for inventions	49,289
Number of applications for patents for designs	770
Number of applications for reissues of patents	154
Total number of applications	50,213
Number of caveats filed	1,771
Number of applications for registration of trade-marks	2,504
Number of applications for registration of labels	1,234
Number of applications for registration of prints	380
Number of disclaimers filed	8
Number of appeals on the merits	1,012
Total	6,909

Total number of applications, etc., requiring investigation and action	10,423
Number of patents issued, including designs	31,582
Number of patents reissued	117
Total	31,699
Number of trade-marks registered	2,186
Number of labels registered	900
Number of prints registered	270
Total	3,446
Number of patents expired during the year	21,797
Number of patents withheld for non-payment of final fees	5,236
Number of applications allowed awaiting final fees	10,545

PATENTS ISSUED.

Patents issued to citizens of the United States, with the ratio of population to each patent granted.

States and Territories.	Patents and designs.	One to every—	States and Territories.	Patents and designs.	One to every—
Alabama	134	13,646	Nevada	13	3,256
Alaska Territory	3	21,147	New Hampshire	110	3,741
Arizona Territory	38	3,285	New Jersey	1,228	1,583
Arkansas	78	16,814	New Mexico Territory	23	8,491
California	979	1,516	New York	4,573	1,589
Colorado	404	1,335	North Carolina	125	15,150
Connecticut	912	990	North Dakota	68	4,698
Delaware	44	4,198	Ohio	2,156	1,928
District of Columbia	282	1,053	Oklahoma Territory	89	4,474
Florida	67	7,888	Oregon	125	3,308
Georgia	220	10,074	Pennsylvania	3,144	2,004
Hawaii Territory	13	11,846	Porto Rico	1	.....
Idaho	32	5,055	Rhode Island	350	1,224
Illinois	2,811	1,715	South Carolina	76	17,635
Indiana	788	3,193	South Dakota	92	4,364
Indian Territory	36	10,887	Tennessee	208	9,714
Iowa	627	3,559	Texas	434	7,024
Kansas	394	4,402	Utah	73	3,791
Kentucky	277	7,751	Vermont	63	5,454
Louisiana	143	9,661	Virginia	210	8,829
Maine	136	5,106	Washington	230	2,252
Maryland	340	3,500	West Virginia	152	6,307
Massachusetts	2,081	1,848	Wisconsin	619	3,342
Michigan	950	2,548	Wyoming	22	4,205
Minnesota	501	3,495	United States Army	8	.....
Mississippi	70	22,161	United States Marine Corps	1	.....
Missouri	979	3,173	United States Navy	15	.....
Montana	75	3,244	Total	27,819	.....
Nebraska	277	3,857			

Patents granted to citizens of foreign countries.

Algeria	2	Java	1
Argentina	10	Mexico	22
Austria-Hungary	136	Natal	1
Belgium	59	Netherlands	24
Bolivia	1	Newfoundland	1
Brazil	5	New South Wales	20
British Honduras	1	New Zealand	48
British West Indies	1	Norway	18
Canada	440	Portugal	1
Cape Colony	1	Queensland	5
Chile	1	Roumania	6
China	1	Russia	46
Costa Rica	1	Scotland	110
Cuba	9	South Africa	4
Denmark	36	South Australia	8
England	1,065	Spain	7
France	321	Sweden	76
Germany	1,053	Switzerland	78
Guatemala	2	Tasmania	2
Honduras	1	Transvaal	16
India	7	Turkey	1
Ireland	24	Victoria	50
Italy	30	Western Australia	4
Jamaica	1	Total	3,763
Japan	6		

The following tables present a comparative statement of the business of the Patent Office since the enactment of the statute of 1836 and exhibit in detail the business of the Office during the last calendar year:

Comparative statement of the business of the Office from 1837 to 1903, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837	.....	.....	435	$29,269 08	$23,506 98	.....
1838	.....	.....	590	42,122 54	37,338 92	$4,784 62
1839	.....	.....	495	36,019 97	34,543 51	3,476 46
1840	765	236	473	38,056 51	39,030 07	.....
1841	847	312	495	40,412 01	52,996 87	.....
1842	761	291	517	36,505 68	31,341 43	5,364 20
1843	819	315	519	35,315 81	30,776 96	4,586 85
1844	1,045	380	497	42,509 26	36,344 53	6,164 73

Comparative statement of the business of the Office from 1837 to 1903, inclusive—Continued.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1845	1,246	452	508	$51,076 14	$39,395 65	$11,680 49
1846	1,372	448	638	50,364 16	46,158 71	4,105 45
1847	1,531	533	569	63,111 19	41,878 35	21,232 84
1848	1,626	607	653	67,576 69	58,906 84	8,670 85
1849	1,955	595	1,077	80,752 78	77,716 44	3,036 34
1850	2,198	602	993	86,987 05	80,100 95	6,886 10
1851	2,358	760	872	95,738 61	86,916 93	8,821 68
1852	2,639	996	1,019	112,056 34	95,916 91	16,139 43
1853	2,673	901	961	121,527 45	132,869 83	----------
1854	3,324	868	1,844	163,789 84	167,146 32	----------
1855	4,435	906	2,013	216,459 35	179,540 33	36,919 02
1856	4,960	1,094	2,505	192,588 02	199,281 02	----------
1857	4,771	1,010	2,896	195,133 01	211,582 09	----------
1858	5,364	943	3,710	208,716 16	198,193 74	10,522 42
1859	6,225	1,079	4,588	245,943 15	210,278 41	35,668 74
1860	7,653	1,084	4,819	256,868 59	253,880 80	2,551 79
1861	4,643	700	3,340	187,354 44	221,491 91	----------
1862	5,088	824	3,521	215,754 99	188,810 39	22,944 06
1863	6,014	787	4,170	195,508 29	189,414 14	6,179 15
1864	6,972	1,063	5,080	240,919 98	229,866 00	11,051 98
1865	10,964	1,282	6,616	348,791 84	274,199 34	74,592 50
1866	15,209	2,738	9,450	405,885 38	361,734 28	138,941 10
1867	21,276	3,597	13,015	646,581 92	639,263 32	7,318 60
1868	30,445	3,705	13,378	681,566 86	628,679 77	52,886 09
1869	19,271	3,624	13,986	698,145 81	486,430 74	206,715 07
1870	19,171	3,573	13,321	669,456 76	557,147 19	112,309 57
1871	19,472	3,366	13,033	678,716 46	562,091 64	116,624 82
1872	18,346	3,000	13,590	699,736 39	665,595 00	34,131 39
1873	20,414	3,348	12,864	703,191 77	691,178 98	12,012 79
1874	21,902	3,161	13,599	738,278 17	679,288 41	58,989 76
1875	21,638	3,004	14,837	743,453 36	721,657 71	21,795 65
1876	21,425	2,697	15,595	757,997 65	652,542 60	105,445 05
1877	20,908	2,809	14,187	732,342 85	613,152 62	119,190 23
1878	20,260	2,755	13,444	725,375 55	593,082 89	132,292 66
1879	20,059	3,020	13,213	708,931 47	529,686 97	174,298 50
1880	22,012	2,400	13,947	749,685 32	538,805 17	210,880 15
1881	26,050	2,408	16,584	853,665 89	605,173 28	248,492 61
1882	31,522	2,553	19,267	1,009,219 45	683,867 67	325,351 78
1883	34,576	2,741	22,388	1,146,340 00	675,284 86	471,005 14
1884	35,600	2,582	20,413	1,075,798 80	970,579 76	105,219 04
1885	35,717	2,552	24,233	1,188,089 15	1,024,378 65	163,710 30
1886	35,988	2,513	22,508	1,154,551 40	992,503 45	162,047 95
1887	35,613	2,622	21,477	1,144,509 60	994,472 22	150,037 38
1888	35,797	2,251	20,506	1,118,516 10	973,108 78	145,407 32
1889	40,575	2,481	24,158	1,281,728 05	1,052,955 96	228,772 09
1890	41,048	2,311	25,292	1,340,372 66	1,099,297 74	241,074 92
1891	40,552	2,406	23,244	1,271,265 78	1,139,713 35	131,572 43
1892	40,733	2,290	23,559	1,296,331 88	1,110,739 24	175,592 59
1893	38,473	2,247	23,769	1,242,871 64	1,141,088 45	101,783 19
1894	38,439	2,296	20,857	1,187,439 58	1,100,047 12	87,392 46
1895	40,880	2,415	22,057	1,245,246 98	1,106,389 49	138,857 44
1896	43,962	2,271	23,373	1,324,059 88	1,113,418 71	210,646 12
1897	47,905	2,176	21,794	1,375,641 72	1,122,843 13	252,798 59
1898	35,842	1,659	22,267	1,187,734 48	1,136,196 20	1,538 28
1899	41,443	1,716	25,527	1,325,457 08	1,211,783 78	113,673 30
1900	41,990	1,731	26,499	1,350,828 53	1,260,019 62	90,808 91
1901	46,449	1,842	27,373	1,449,308 16	1,297,395 64	152,012 52
1902	49,641	1,851	27,886	1,552,859 08	1,393,345 54	159,513 54
1903	50,213	1,771	31,699	1,642,201 81	1,448,645 81	193,556 00

Statement showing the number of the first patent, Design patent, and reissued patent, and the number of the first certificate of registration of a Trade-Mark, Label, and Print issued in each calendar year since July 28, 1836, when the present series of numbers of Letters Patent commenced, together with the total number of each issued during the year.

[The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.]

Calendar year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1836 (July 28)	1	----------	----------	----------	----------	----------	109	----------	----------	----------	----------	----------	----------	----------
1837	110	----------	----------	----------	----------	----------	436	----------	----------	----------	----------	----------	----------	----------
1838	546	----------	1	----------	----------	----------	515	----------	6	----------	----------	----------	----------	----------
1839	1,061	----------	7	----------	----------	----------	404	----------	13	----------	----------	----------	----------	----------
1840	1,465	----------	30	----------	----------	----------	458	----------	10	----------	----------	----------	----------	----------
1841	1,923	----------	30	----------	----------	----------	490	----------	6	----------	----------	----------	----------	----------
1842	2,413	----------	36	----------	----------	----------	488	----------	13	----------	----------	----------	----------	----------
1843	2,901	1	49	----------	----------	----------	494	14	11	519	----------	----------	----------	----------
1844	3,395	15	60	----------	----------	----------	478	12	7	497	----------	----------	----------	----------
1845	3,873	27	67	----------	----------	----------	475	17	11	503	----------	----------	----------	----------
1846	4,348	44	78	----------	----------	----------	566	59	13	638	----------	----------	----------	----------
1847	4,914	103	91	----------	----------	----------	495	60	14	569	----------	----------	----------	----------
1848	5,409	163	105	----------	----------	----------	584	46	23	653	----------	----------	----------	----------
1849	6,208	209	128	----------	----------	----------	938	49	30	1,017	----------	----------	----------	----------
1850	6,981	258	158	----------	----------	----------	884	88	26	998	----------	----------	----------	----------

Statement showing the number of the first patent, Design patent, and reissued patent—Continued.

Calendar year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1851	7,865	341	184	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
1852	8,622	431	209	----------	----------	----------	757	90	25	872	----------	----------	----------	----------
1853	9,512	540	229	----------	----------	----------	890	109	20	1,019	----------	----------	----------	----------
1854	10,358	626	258	----------	----------	----------	846	86	29	961	----------	----------	----------	----------
1855	12,117	683	286	----------	----------	----------	1,759	57	28	1,844	----------	----------	----------	----------
1856	14,009	753	337	----------	----------	----------	1,892	70	51	2,013	----------	----------	----------	----------
1857	16,324	860	420	----------	----------	----------	2,315	107	83	2,505	----------	----------	----------	----------
1858	19,010	973	517	----------	----------	----------	2,686	113	97	2,896	----------	----------	----------	----------
1859	22,477	1,075	643	----------	----------	----------	3,467	102	126	3,695	----------	----------	----------	----------
1860	26,642	1,183	674	----------	----------	----------	4,165	108	231	4,504	----------	----------	----------	----------
1861	31,005	1,366	1,106	----------	----------	----------	4,363	183	232	4,778	----------	----------	----------	----------
1862	34,045	1,506	1,258	----------	----------	----------	3,040	142	147	3,329	----------	----------	----------	----------
1863	37,266	1,708	1,369	----------	----------	----------	3,221	195	116	3,532	----------	----------	----------	----------
1864	41,047	1,879	1,596	----------	----------	----------	3,781	176	227	4,184	----------	----------	----------	----------
1865	45,685	2,018	1,844	----------	----------	----------	4,638	139	248	5,025	----------	----------	----------	----------
1866	51,784	2,239	2,140	----------	----------	----------	6,099	221	296	6,616	----------	----------	----------	----------
1867	60,658	2,533	2,430	----------	----------	----------	8,874	294	290	9,458	----------	----------	----------	----------
1868	72,959	2,858	2,890	----------	----------	----------	12,801	325	400	13,026	----------	----------	----------	----------
1869	85,508	3,304	3,250	----------	----------	----------	12,544	446	420	13,410	----------	----------	----------	----------
1870	98,460	3,810	3,784	1	----------	----------	12,957	506	534	13,997	----------	----------	----------	----------
1871	110,617	4,547	4,223	122	----------	----------	12,157	737	439	13,333	121	----------	----------	121
1872	122,304	5,452	4,687	606	----------	----------	11,687	905	464	13,056	486	----------	----------	486
1873	134,504	6,236	5,216	1,099	----------	----------	12,200	884	529	13,613	491	----------	----------	491
1874	146,120	7,088	5,717	1,591	1	----------	11,616	747	501	12,864	492	----------	----------	492
1875	158,850	7,909	6,300	2,150	233	----------	12,230	866	483	13,599	559	232	----------	791
1876	171,641	8,884	6,831	3,298	465	----------	13,291	915	631	14,837	1,138	232	----------	1,370
1877	185,813	9,696	7,452	4,247	987	----------	14,172	802	621	15,595	959	472	----------	1,431
1878	198,733	10,385	8,020	5,463	1,329	----------	12,920	699	568	14,187	1,216	392	----------	1,608
1879	211,078	10,975	8,529	6,918	1,821	----------	12,345	590	509	13,444	1,455	492	----------	1,947
1880	223,211	11,567	9,017	7,790	2,176	----------	12,133	592	488	13,213	872	355	----------	1,227
1881	236,137	12,082	9,523	8,189	2,379	----------	12,926	515	506	13,947	349	203	----------	552
1882	251,685	12,647	9,994	8,973	2,581	----------	15,548	565	471	16,584	884	202	----------	1,086
1883	269,820	13,508	10,265	9,920	2,885	----------	18,135	861	271	19,267	947	304	----------	1,251
1884	291,016	14,528	10,432	10,822	3,791	----------	21,196	1,020	167	22,383	902	906	----------	1,808
1885	310,168	15,678	10,548	11,843	4,304	----------	19,147	1,150	116	20,413	1,021	513	----------	1,534
1886	333,494	16,451	10,677	12,910	4,936	----------	23,351	773	120	24,233	1,067	391	----------	1,458
1887	356,291	17,046	10,793	13,999	5,073	----------	21,797	595	116	22,508	1,029	378	----------	1,407
1888	375,720	17,995	10,892	15,072	5,453	----------	20,429	949	99	21,477	1,183	380	----------	1,513
1889	395,306	18,890	10,978	16,131	5,780	----------	19,585	835	86	20,506	1,059	327	----------	1,386
1890	418,665	19,553	11,053	17,800	6,099	----------	23,360	723	75	24,158	1,229	319	----------	1,548
1891	443,987	20,439	11,137	18,775	6,408	----------	25,322	886	84	26,292	1,415	304	----------	1,719
1892	466,315	21,275	11,217	20,537	6,540	----------	22,328	836	80	23,244	1,762	137	----------	1,899
1893	488,976	22,092	11,298	22,274	None.	1	22,661	817	81	23,559	1,737	a6	----------	1,743
1894	511,744	22,994	11,397	23,951	Do.	3	22,768	902	99	23,769	1,677	None.	2	1,679
1895	531,619	23,922	11,461	25,757	Do.	7	19,875	928	64	20,857	1,806	Do.	4	1,810
1896	552,502	25,087	11,520	27,586	6,546	10	20,883	1,115	59	22,057	1,829	Do.	3	1,832
1897	574,369	26,482	11,581	29,399	6,547	42	21,867	1,445	61	23,373	1,818	1	32	1,846
1898	596,467	28,113	11,646	31,070	6,561	58	22,098	1,631	65	23,794	1,671	14	16	1,701
1899	616,871	29,916	11,706	32,808	6,761	93	20,404	1,803	60	22,267	1,288	200	85	1,473
1900	640,167	32,055	11,768	33,957	7,272	193	23,296	2,139	92	25,527	1,619	511	100	2,260
1901	664,827	34,813	11,879	35,678	8,009	286	24,660	1,758	81	26,499	1,721	737	93	2,551
1902	690,385	35,547	11,960	37,606	8,887	445	25,558	1,784	81	27,373	1,928	876	159	2,963
1903	717,521	36,187	12,070	39,612	9,654	603	31,046	536	117	31,699	2,186	990	270	3,446

a Registration of labels practically suspended May 27, 1891, under decision of the United States Supreme Court in *Higgins et al.* v. *Keuffel et al.* (55 O. G., 1139) with the registration of No. 6,545, June 14, 1892. Resumed June 9, 1896, with the registration of No. 6,546.

Statement of prices paid for photolithographic work since 1884-85.

Fiscal year.	Contractor.	Patents issued.	Official Gazette. Per page.	Official Gazette. Number of copies.	Publishing expired patents.	Total Official Gazettes.
1884-85	Norris Peters	21,496	$7 86	6,500	----------	$39,614 40
1885-86	do	24,134	7 45	6,500	----------	44,351 00
1886-87	do	21,781	7 45	6,500	----------	41,868 40
1887-88	do	20,653	7 45	6,500	----------	41,188 60
1888-89	do	21,518	7 45	6,500	----------	43,999 70
1889-90	do	25,857	7 45	6,500	----------	58,992 40
1890-91	do	25,307	7 45	7,000	----------	65,966 10
1891-92	Norris Peters Co	23,626	7 45	7,000	----------	52,969 50
1892-93	do	23,468	7 45	7,000	----------	54,998 80
1893-94	National Lithographic Co	22,546	6 80	7,000	$4,999 70	49,997 70
1894-95	Norris Peters Co	20,745	5 25	7,000	----------	38,297 88
1895-96	A. B. Graham	22,791	5 10	7,000	----------	42,396 30
1896-97	Norris Peters Co	23,294	4 50	7,000	----------	35,712 00
1897-98	do	22,731	5 10	7,000	----------	39,749 40
1898-99	do	23,590	5 60	7,000	----------	46,065 60
1899-1900	do	26,540	5 60	7,000	----------	55,092 80
1900-1901	do	26,481	6 25	7,000	----------	62,100 00
1901-1902	do	27,387	6 25	7,000	----------	66,600 00
1902-1903	do	29,892	6 25	7,000	----------	75,112 50
1903-1904	do	a34,000	6 25	7,000	----------	a82,800 00

Statement of prices paid for photolithographic work since 1884–85—Continued.

Fiscal year.	Contractor.	Drawings of Letters Patent per sheet, current issues. Thin copies.	Thick copies.	Bond copies.	Other lithographic work.	Total.
1884–85	Norris Peters	$0 01	$0 03	$0 03	$78,671 99	$118,286 39
1885–86	do	01	03	03	84,940 19	129,391 19
1886–87	do	01	03	03	79,509 57	121,377 97
1887–88	do	01	03	03	77,907 96	119,091 56
1888–89	do	01	03	03	83,284 54	127,284 24
1889–90	do	01	03	03	101,398 67	160,285 07
1890–91	do	01	03	03	110,998 97	176,965 07
1891–92	Norris Peters Co	*b*1 48	03	03	99,992 58	152,982 08
1892–93	do	*b*1 48	02	03	99,788 92	154,787 22
1893–94	National Lithographic Co	*b*1 46	03	03	94,911 33	144,909 08
1894–95	Norris Peters Co	*b* 95	02	02	60,482 04	96,779 92
1895–96	A. B. Graham	*c* 98 / *d* 01	0175	0175	58,866 60	101,192 90
1896–97	Norris Peters Co	*c* 80	015	01	58,960 78	94,672 78
1897–98	do	*c* 84 / *d* 015	015	02	68,999 28	108,748 68
1898–99	do	*c* 90 / *d* 02	02	025	75,999 85	122,065 45
1899–1900	do	*e* 89 / *d* 02	02	025	98,999 90	154,098 70
1900–1901	do	*e* 98 / *d* 03	03	03	108,999 54	171,099 54
1901–1902	do	*e* 98 / *d* 03	03	03	108,799 55	175,599 55
1902–1903	do	*e* 98 / *d* 03	03	03	123,842 76	198,955 26
1903–1904	do	*e* 98 / *d* 03	03	03	*a*118,571 34	*a*201,371 34

a Estimated amounts for current year based upon business for first half of fiscal year 1903–1904, without provision for increase. *b* For 102 copies. *c* For 100 copies. *d* Two proof copies each. *e* For 75 copies.

Table showing the number of patents issued by the United States and foreign countries from the earliest period to December 31, 1903. (Foreign figures for 1903 estimated.)

Countries.	To 1870, inclusive.	1871 to 1903.	Total.	Countries.	To 1870, inclusive.	1871 to 1903.	Total.
Argentina	83	4,816	4,899	Mauritius	113	257	370
Austria	.....	33,969	33,969	Mexico	22	4,015	4,037
Austria-Hungary	15,350	67,583	82,933	Netherlands	4,535	.....	4,535
Bahamas	.....	2	2	Newfoundland	40	272	312
Barbados	.....	128	128	New South Wales	236	11,393	11,629
Belgium	35,044	145,597	180,641	New Zealand	109	8,826	8,935
Bolivia	42	65	107	Norway	737	13,347	14,084
Brazil	185	4,424	4,609	Peru	.....	160	160
British Guiana	32	94	126	Portugal	245	3,847	4,092
British Honduras	1	19	20	Queensland	67	6,005	6,072
Canada	4,081	83,939	88,020	Russia	1,464	13,534	14,998
Ceylon	58	539	597	St. Helena	.....	4	4
Chile	30	375	395	South African Republic	.....	1,218	1,218
Congo Free State	.....	124	124	South Australia	123	6,071	6,194
Denmark	464	13,237	13,701	Spain	.....	29,341	29,341
Fiji Islands	.....	29	29	Straits Settlements	.....	113	113
Finland	112	1,899	2,011	Sweden	1,629	18,604	20,233
France	103,934	246,560	350,494	Switzerland	.....	27,727	27,727
Germany	9,996	155,818	165,814	Tasmania	43	2,346	2,389
Great Britain	53,408	270,771	324,179	Trinidad	6	162	168
Guatemala	.....	57	57	Tunis	.....	519	519
Hawaii (prior to August 12, 1898)	.....	148	148	Turkey	.....	1,240	1,240
Hong-Kong	.....	101	101	Uruguay	.....	282	282
Hungary	.....	24,885	24,885	Venezuela	.....	175	175
India	445	7,299	7,744	Victoria	822	11,585	12,407
Italy and Sardinia	4,723	60,162	64,885	Western Australia	.....	3,310	3,310
Jamaica	22	165	187				
Japan	.....	6,221	6,221	Total foreign	238,191	1,298,791	1,536,982
Leeward Islands	.....	18	18	United States	120,573	637,950	758,523
Liberia	.....	2	2				
Luxemburg	.....	5,379	5,379	Grand total	358,764	1,936,741	2,295,505
Malta	.....	63	63				

The following comparison between the receipts, expenditures, applications filed, issues of the Office, the printed copies sold, copies of records furnished, and the number of employees for the years ending, respectively, December 31, 1899, and December 31, 1903, illustrates the growth of the business of the Patent Office.

Class.	1899.	1903.	Increase.	Percentage of increase.
Receipts	$1,325,457 03	$1,642,201 81	$316,744 78	23.8
Expenditures	$1,211,788 73	$1,448,645 81	$236,862 08	19.5
Applications and caveats filed	45,990	56,102	10,112	21.9
Letters patent, design and reissue patents granted, and trade-marks, labels, and prints registered	27,787	35,145	7,358	26.4
Printed copies of patents furnished	1,451,519	1,640,306	188,787	13.0
Price received	$50,201 11	$60,006 90	$9,805 79	19.5
Words written in copies of records furnished	13,575,650	18,613,850	5,038,200	37.1
Number of employees	663	722	59	08.8

SUMMARY OF TABLES.

In 1903 there were received 49,289 applications for mechanical patents, 770 applications for design patents, 154 applications for reissues of patents, 2,504 applications for registration of trade-marks, 1,234 applications for registration of labels, and 380 applications for registration of prints. There were 31,582 patents issued, including designs, 117 patents reissued, 2,186 trade-marks registered, 990 labels, and 270 prints. The number of patents that expired was 21,797. The number of allowed applications awaiting the payment of final fees was 10,545. The number forfeited for non-payment of the final fees was 5,236. The total expenditures were $1,448,645.81. The receipts over expenditures were $193,556.00. The total balance to the credit of the Patent Office in the Treasury of the United States on January 1, 1904, was $5,682,540.61.

In proportion to population more patents were issued to citizens of Connecticut than to those of any other State—one to every 996. Next in order are the following: District of Columbia, 1 to every 1,063; Rhode Island, 1 to every 1,224; Colorado, 1 to every 1,335; Massachusetts, 1 to every 1,348; California, 1 to every 1,516; New Jersey, 1 to every 1,533; New York, 1 to every 1,589; Illinois, 1 to every 1,715; Ohio, 1 to every 1,928; Pennsylvania, 1 to every 2,004; Washington, 1 to every 2,252; Michigan, 1 to every 2,548; Missouri, 1 to every 3,173; Indiana, 1 to every 3,193; Arizona Territory, 1 to every 3,235; Montana, 1 to every 3,244; Nevada, 1 to every 3,256; Oregon, 1 to every 3,308; Wisconsin, 1 to every 3,342; Minnesota, 1 to every 3,495; Maryland, 1 to every 3,500; Iowa, 1 to every 3,559; New Hampshire, 1 to every 3,741; Utah, 1 to every 3,791; Nebraska, 1 to every 3,857; Delaware, 1 to every 4,198; Wyoming, 1 to every 4,205; South Dakota, 1 to every 4,364; Kansas, 1 to every 4,402; Oklahoma Territory, 1 to every 4,474; North Dakota, 1 to every 4,693; Idaho, 1 to every 5,055; Maine, 1 to every 5,106; Vermont, 1 to every 5,454; West Virginia, 1 to every 6,307; Texas, 1 to every 7,024; Kentucky, 1 to every 7,751; Florida, 1 to every 7,888; New Mexico Territory, 1 to every 8,491; Virginia, 1 to every 8,829; Louisiana, 1 to every 9,661; Tennessee, 1 to every 9,714; Georgia, 1 to every 10,074. The fewest patents granted in proportion to the number of inhabitants were in the following States and Territories: Mississippi, 1 to every 22,161; Alaska Territory, 1 to every 21,147; South Carolina, 1 to every 17,635; Arkansas, 1 to every 16,814; North Carolina, 1 to every 15,150; Alabama, 1 to every 13,646; Hawaii Territory, 1 to every 11,846; Indian Territory, 1 to every 10,887.

As to foreign patents, 1,065 were granted to residents of England; 1,053 to those of Germany; 440 to those of Canada; 321 to those of France; 136 to those of Austria-Hungary; 110 to those of Scotland; 78 to those of Switzerland; 76 to those of Sweden; 59 to those of Belgium; 50 to those of Victoria; 48 to those of New Zealand; 46 to those of Russia; 36 to those of Denmark; 30 to those of Italy; 24 each to those of Ireland and the Netherlands; 22 to those of Mexico; 20 to those of New South Wales; 18 to those of Norway; 16 to those of Transvaal; 10 to those of Argentina, 9 to those of Cuba; 8 to those of South Australia; India and Spain, 7 each; Japan and Roumania, 6 each; Brazil and Queensland, 5 each; South Africa and Western Australia, 4 each; Algeria, Guatemala, and Tasmania, 2 each, and Bolivia, British Honduras, British West Indies, Cape Colony, Chile, China, Costa Rica, Honduras, Jamaica, Java, Natal, Newfoundland, Portugal, and Turkey, 1 each.

The Patent Office issued 31,699 patents during the year 1903, the largest annual issue in its entire history.

The total number of trade-marks, prints, and labels registered for the year 1903 was 3,446, the largest issue of certificates of registration in the history of the Office.

The condition of the examining divisions upon December 31 is indicated by the fact that of the 38 divisions 23 were then taking up new cases for action within one month from the date of filing, and the remaining 15 were in arrears between one and two months. The total number of cases awaiting action on the part of the Office upon December 31 was 10,423.

The business transacted by the Patent Office during the calendar year 1903 has again exceeded all previous records, as appears in the foregoing tables. The preceding statement showing the number of patents and certificates of registration issued from year to year shows that uniform growth which indicates that the business of this Office is an accurate index of general conditions of prosperity in the industrial arts of this country,

and the comparison hereinbefore made between the chief financial and work elements of this Office for the years 1899 and 1903 permits the rate of this increase to be accurately stated. From this statement it appears that in four years the average increase of business, as shown by the receipts, expenditures, applications filed, issues and copies of patents and records furnished, is 23 per cent., and this work has been accomplished with an increase of 8.8 per cent. in the number of employees. The work has been transacted as well as could be expected, in view of the force employed and the volume of the work, and has been without particular incident.

There is no reason to expect that the increase shown in the foregoing tables may not be found in the ensuing year, and it is evident that the force of employees will not be able to meet the requirements of an indefinite further increase of the work unless their number shall be correspondingly increased. Already there are delays in the transaction of our work and haste in the execution of other portions of the work which point to the imperative necessity for more employees.

The increase in work has made it necessary to organize a new division, known as the Manuscript and Photolithograph Division, and there should be added to the present force a new chief of division and assistant chief for the purposes of this new division. I have also asked for ten additional clerks of class 1, at $1,200 per annum, to meet our most urgent necessities.

The increase of the appropriation for the scientific library of this Office from $2,000 to $2,500, made by the appropriation bill of last year, was a step in the right direction, and if this sum can be further increased, so as to furnish $4,000 per annum for the purposes of this library and for the transportation of publications of patents to foreign governments, I think the library can be maintained in a condition of efficiency.

One cannot look at the progress of the Patent Office since its present system of work was inaugurated by the act of July 4, 1836, without seeing that it has followed closely the development of the industrial arts in this country during all of this period, and it should require no extended argument beyond these figures to show that the system which has accomplished these results without expense to the Government, but which has, on the contrary, furnished a net balance of $5,682,540.61, should be furnished with all necessary facilities in the way of room and employees, so as to permit its future progress in the same measure as the expected growth of the arts in this country.

It was to me a matter of great interest last summer to be shown at Berlin the plans of the German Government for an extension of their patent office, which has been the first in Europe to follow the procedure of this country in the matter of granting patents by the establishment of a system of preliminary examination. Lands have been purchased by the German Government, and plans for buildings are now in hand which are to provide accommodation for 2,000 employees, and it was stated to me that such accommodation, it was thought, would suffice for their necessities until the year 1920. It is interesting to notice that the annual issue of patents by the German Government is about six thousand, and that our issue for the year 1903 was 31,699. It is to be hoped that Americans will not be obliged to look to Germany at any time in the next decade to see the best embodiment in practice of the system of issuance of patents upon preliminary examinations. If they have concluded that this system originated by us lies so close to the national welfare that they have decided to make great expenditures to possess themselves of its benefits, funds should not be wanting in this country to keep our system up to its present position of preëminence. The stimulus given to the industrial arts by the hope of reward which the patent system presents to the inventor is conceded by the thinking men of most civilized countries to-day, and the rapid progress of Japan has been accompanied with the adoption of a patent system in which they were largely influenced by impressions derived from an examination of the patent system of the United States.

At the present time the space provided for the Patent Office is inadequate, and it is very desirable that some plan looking to an extension of working room for the Patent Office shall be adopted without delay, since the present space will be insupportably crowded at the present rate of increase before any new building could be built to contain this Office. Our necessities are growing, while there seems to be as yet no plan for our relief in this regard. The matter is of the utmost concern to all friends of the patent system, and nothing but action in the direction of larger accommodation will save the work of this Office from difficulties plainly apparent and not far ahead in point of time. This subject is of such transcendent importance to this Bureau that I respectfully urge your earnest attention to it.

Respectfully submitted,

F. I. ALLEN,
Commissioner of Patents.

Patents Nos. 751,440 to 752,018.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Trade-Marks	51	No. 42,004 to No. 42,054, inclusive.
Labels	19	No. 10,722 to No. 10,740, inclusive.
Prints	3	No. 891 to No. 896, inclusive.
Reissues	None.	
Total issue	667	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada		
Alaska Territory			New Hampshire		
Arizona Territory			New Jersey	20	1
Arkansas	2		New Mexico Ter't'y	1	
California	20	1	New York	71	18
Colorado	7		North Carolina	2	
Connecticut	14	1	North Dakota		
Delaware	1		Ohio	56	6
District of Columbia	8		Oklahoma Territ'y	3	
Florida	2		Oregon	1	
Georgia	6	1	Pennsylvania	60	4
Hawaii Territory			Porto Rico		
Idaho	1		Rhode Island	4	
Illinois	72	12	South Carolina	1	
Indian Territory			South Dakota		
Indiana	12		Tennessee	4	
Iowa	18	1	Texas	8	1
Kansas	5		Utah	3	
Kentucky	4	2	Vermont	1	1
Louisiana		1	Virginia	5	
Maine	1	1	Washington	3	
Maryland	2	2	West Virginia	4	
Massachusetts	33	6	Wisconsin	12	1
Michigan	18	3	Wyoming		1
Minnesota	9	1	U. S. Army		
Mississippi	6		U. S. Navy		
Missouri	21	3			
Montana	1		Total to citizens of the United States	529	68
Nebraska	4				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	1		Netherlands		
Austria-Hungary	2		Newfoundland		
Belgium	1		New South Wales	1	
Brazil			New Zealand	4	
British West Indies			Norway		
Canada	7		Persia		
Cape Colony			Queensland	1	
Chile			Roumania		
China			Russia		
Costa Rica			San Salvador		
Cuba			Scotland		
Denmark			South Africa		
Ecuador			Spain		
England	18		Sweden		
France	4	2	Switzerland	1	
Germany	20	3	Transvaal, South Africa		
India	1		Victoria	2	
Ireland	1		Western Australia		
Italy	1				
Japan			Total to citizens of foreign countries	65	5
Java					
Mexico					

Withdrawal After Payment of Final Fee.

RULE 165. * * * When the final fee has been paid upon an application for Letters Patent, and the case has received its date and number, it will not be withdrawn or suspended from issue on account of any mistake or change of purpose of the applicant or his attorney, nor for the purpose of enabling the inventor to procure a foreign patent. * * *

Amendments.

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

Amendments to Amendments.

RULE 74. When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 2, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 21	Jan. 21	146
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 18	Jan. 2	177
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 13	Jan. 5	315
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 12	Jan. 18	93
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 8	Nov. 23	411
321	I. Tillage, etc., and Fences	Jan. 7	Jan. 4	233
223	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 5	Dec. 22	323
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 4	Jan. 20	178
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 4	Jan. 19	209
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 4	Jan. 19	260
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Jan. 4	Jan. 18	214
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution	Jan. 4	Jan. 16	252
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 4	Jan. 11	232
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 4	Jan. 9	313
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 4	Jan. 5	243
327	XVIII. Steam-Engineering, etc	Jan. 4	Jan. 5	166
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Jan. 2	Jan. 19	232
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 2	Jan. 19	241
244	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Jan. 2	Jan. 19	191
303	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 2	Jan. 19	213
332	X. Carriages and Wagons	Jan. 2	Jan. 18	200
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 2	Jan. 18	217
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Jan. 2	Jan. 18	211
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Jan. 2	Jan. 13	280
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 2	Jan. 9	285
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Jan. 2	Jan. 5	245
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 2	Dec. 29	322
109	XVI. Telegraphy and Telephony	Jan. 2	Dec. 5	200
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 2	Nov. 7	491

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Between one and two months.			
133	XXII. Fire-Arms, Ordnance, Navigation.	Dec. 31	Dec. 1	182
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 30	Jan. 8	163
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Dec. 29	Dec. 28	398
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 28	Nov. 17	362
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 26	Dec. 14	316
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Dec. 28	Dec. 8	399
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 21	Nov. 30	353
128	II. Farm Products, etc., Lubricators, Presses, etc.	Dec. 17	Dec. 14	416
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 4	Nov. 30	456

Total number of applications awaiting action.....10,147

Under one month.			
*Designs	Jan. 26	Jan. 28	22
†Trade-Marks	Jan. 9	Feb. 1	79
‡Labels and Prints	Feb. 1	Feb. 2	10

Foreign Patents.

RULE 29. The receipt of Letters Patent from a foreign government will not prevent the inventor from obtaining a patent in the United States, unless *the application on which the foreign patent was granted was filed more than twelve months prior to the filing of the application in this country, in which case no patent shall be granted in this country.*

Errors in Letters Patent.

RULE 170. • • • Mistakes not incurred through the fault of the Office, and not affording legal grounds for reissues, will not be corrected after the delivery of the Letters Patent to the patentee or his agent. • • •

Date of Patent.

RULE 207. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

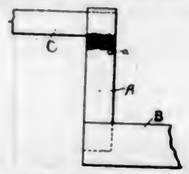
Amendments to Allowed Applications.

Hereafter all amendments proposed to allowed applications and all petitions and requests relating thereto shall be filed with the docket clerk, Mr. J. M. Fowler, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action. (Order 699 amended October 15, 1898.)

PATENTS

GRANTED FEBRUARY 9, 1904.

751,440. COMMUTATOR-LEAD AND MODE OF MAKING SAME. CHARLES F. ADAMS, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Aug. 8, 1903. Serial No. 168,735. (No model.)



Claim.—1. The process of making commutator-leads which consists in stamping out strips of sheet metal, slitting one end of said strips along the median line, and folding said strips on the median line.

2. The process of making commutator-leads which consists in stamping out of sheet metal strips slitted at one end along the median line, and folding said strips on said median line.

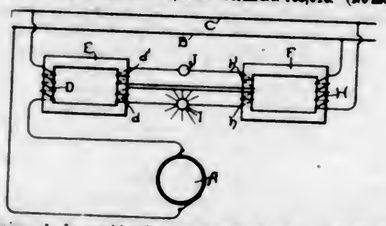
3. The process of making commutator-leads which consists in stamping out of sheet metal strips slitted part way along the median line and grooved the rest of the way along said line, and folding said strips on said groove.

4. As a new article of manufacture, a commutator-lead formed of a single strip of sheet metal folded along its median line and split at one end along said line.

5. As a new article of manufacture, a commutator-lead formed of a single strip of sheet metal folded along its median line and split at one end along said line, the ears formed by said split being bent apart to receive an armature-conductor.

6. As a new article of manufacture, a commutator-lead formed of a single strip of sheet metal folded along its median line in such manner as to form a rib along said line, said strip being split at one end along said line.

751,441. MEANS FOR PROTECTION AGAINST REVERSE CURRENTS. LEONARD ANDREWS, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 26, 1903. Serial No. 163,010. (No model.)



Claim.—1. In combination, an electric circuit, a winding in series with said circuit, a winding in shunt to said circuit, two magnetic circuits adapted to be energized by said windings respectively, two secondary windings adapted to be excited by said magnetic circuits respectively and an electroresponsive device connected in series with both of said secondaries.

2. In combination, a main circuit, a local circuit, an electroresponsive device in said local circuit, and means for producing in said local circuit two electromotive forces, one of said electromotive forces dependent in phase on the current in the main circuit and the other dependent in phase on the voltage in the main circuit.

3. In combination, an electric circuit, a transformer having its primary in series with said circuit, a transformer having its primary in shunt to said circuit, and an electroresponsive device in series with the secondaries of both of said transformers.

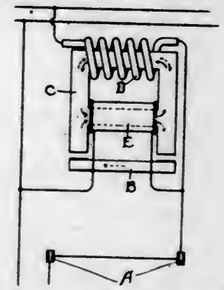
4. In combination, two transformers, a main circuit, a local circuit comprising the secondaries of said two transformers and an electroresponsive device in series, and means for producing in the cores of said two transformers fluxes varying with the current and with the voltage in the main circuit respectively.

5. In combination, an alternating-current generator, station bus-bars, leads from said generator to said bus-bars, a transformer having its primary connected in one of said leads, a transformer having its primary in shunt to said bus-bars, and an electroresponsive device in series with the secondaries of both of said transformers.

6. In combination, an alternating-current generator, station bus-bars, leads from said generator to said bus-bars, an electroresponsive device and means for impressing on said device in series two electromotive forces dependent in phase on the current in said leads and on the voltage on said bus-bars respectively.

7. In combination, an alternating-current circuit, an alternating-current generator, leads from said generator to said circuit, a winding connected in one of said leads, a winding connected to said circuit, an electroresponsive device, and means for impressing upon said device in series two electromotive forces dependent in phase on the currents in said windings respectively.

751,442. REVERSE-CURRENT CUT-OUT. LEONARD ANDREWS, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 26, 1903. Serial No. 163,011. (No model.)



Claim.—1. In combination, an electric circuit, a closed magnetic circuit, two coils wound on said magnetic circuit one in series with and the other in shunt to said electric circuit, an open magnetic circuit including a reciprocating member and shunting both parts of said closed circuit on which are wound said coils, and a switch operated by the movement of said reciprocating member.

2. In combination, a closed magnetic circuit, two coils wound thereon, an open magnetic circuit including a reciprocating member and shunting both parts of said closed circuit on which are wound said coils, and a switch operated by the movement of the reciprocating member.

3. In combination, an electric circuit, a series coil, a shunt-coil, a closed magnetic circuit adapted to be magnetized by said coils conjointly when the currents in said coils are in the same relative direction, an open magnetic circuit including a movable member and adapted to be magnetized by said coils conjointly when the currents in said coils are in relatively opposite directions, and a switch operated by the movement of said movable member.

4. In combination, an electric circuit, a series coil, a shunt-coil, magnetic cores for said coils, end pieces magnetically connecting the ends of said cores, a reciprocating armature magnetically shunt-

ing said cores, and a switch operated by the movement of said armature.

5. In combination, an electric circuit, a series coil, a shunt-coil, a core forming a closed magnetic circuit through said coils with projecting pieces between said coils, a reciprocating armature adjacent to said projecting pieces, and a switch operated by the movement of said armature.

6. In combination, an electric circuit, a closed magnetic circuit, an open magnetic circuit including a movable armature, two coils in series with and in shunt to said electric circuit respectively, said coils being arranged normally to magnetize said closed circuit and on reversal of current-flow to magnetize said open circuit, and a switch operated by the movement of the armature.

7. In combination, a closed magnetic circuit, an open magnetic circuit including a movable armature, two coils arranged to magnetize conjointly said closed circuit when the currents in said coils are in the same relative direction and to magnetize said open circuit when the currents in said coils are in relatively opposite directions, and a switch operated by the movement of the armature.

8. In combination, a magnetic circuit of low reluctance, a magnetic circuit of high reluctance including a movable armature, two coils arranged to magnetize conjointly said low-reluctance circuit and on the relative reversal of current in one coil to magnetize conjointly the high-reluctance circuit, and a switch operated by the movement of the armature.

9. In combination, a magnet-coil, an open magnetic circuit comprising the core of said coil and a reciprocating armature, a second magnet-coil, a core for said second coil shunting the core of the first coil and forming a closed magnetic circuit therewith, and a switch operated by the movement of the reciprocating armature.

10. In combination, an electric circuit, a magnet-coil in series with said circuit, an open magnetic circuit comprising the core of said coil and a reciprocating armature, a magnet-coil in shunt to said electric circuit, a core for said shunt-coil shunting the core of said series coil and forming a closed magnetic circuit therewith, and a switch operated by the movement of the reciprocating armature.

11. In combination, a closed magnetic circuit, two coils wound thereon, an open magnetic circuit including a movable member and shunting both parts of said closed circuit on which are wound said coils, said movable member being adapted to close said open circuit by its movement, and a switch adapted to be operated by the movement of said movable member.

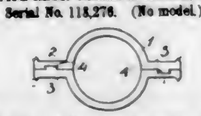
12. In combination, a closed magnetic circuit, two coils wound thereon, a second magnetic circuit shunting those parts of the first circuit on which said coils are wound and including a movable member and an air-gap, said movable member being adapted to vary said air-gap by its movement, and a switch operated by the movement of said movable member.

13. In combination, a magnetic circuit of low reluctance, coils wound thereon, a magnetic circuit of high reluctance in shunt to the first, a movable member included in the high-reluctance circuit and adapted to vary the reluctance thereof by its movement, and a switch operated by the movement of said movable member.

14. In combination, a closed magnetic circuit, two coils wound thereon, an open magnetic circuit including a movable member and shunting both parts of said closed circuit on which are wound said coils, a switch, and means operated by the movement of said movable member adapted to open said switch.

15. In combination, an electric circuit, a series coil, a shunt-coil, magnetic cores for said coils, end pieces magnetically connecting the ends of said cores, a movable armature magnetically shunting said cores, a switch in said electric circuit, and means operated by the movement of said armature for opening said switch.

751,443. PIPE-REST. ALBERT N. ANTHES, Kansas City, Mo. Filed Aug. 4, 1902. Serial No. 118,276. (No model.)



Claim.—1. A pipe-rest member comprising a semicircular body having diametrically opposite outwardly-extending arms, one of the arms on the concave side of the body being provided with a dovetail-shaped projection disposed transversely on the arm, the opposite side of the said arm having a lateral projection, and the other arm being provided on the concave side of the body with a dovetail-shaped transverse recess, the opposite side of the latter-named arm being provided with a lateral projection, substantially as described.

2. A pipe-rest member comprising a body having one portion concave on one side and convex on the opposite side and provided with two diametrically opposite arms, the arms each being provided on the convex side of the member with a lateral projection 6, and one arm being provided on the concave side of the member with a dovetail-shaped projection 4, the other arm being provided on the concave side of the member with a similarly-shaped recess 5, substantially as described.

3. A pipe-rest member comprising a body having a semicircular-shaped recess in one side and provided with two diametrically opposite arms the inner sides of which are in the same plane as the diameter of the semicircular recess, the said side of one arm being provided with a dovetail-shaped recess, the other arm having on the same side a similar-shaped projection disposed at the same distance from the center of the semicircular recess as the dovetail recess, the outer side of each arm being provided with a sharpened projection.

4. A pipe-rest comprising two members, each member comprising a body one side of which is provided with a semicircular concavity, the body having diametrically opposite outwardly-extending arms, one of the arms on the concave side of the body being provided with a dovetail-shaped projection disposed transversely on the arm, the opposite side of the said arm having a lateral projection, and the other arm being provided on the concave side of the body with a dovetail-shaped transverse recess, the opposite side of the latter-named arm being provided with a lateral projection, the said dovetail-shaped projection on each of the two members being adapted to fit into the dovetail-shaped recess of the opposite member, substantially as described.

751,444. PROCESS OF MAKING PIGMENTS. WILLIAM J. ARMBRUSTER, St. Louis, Mo. Filed Oct. 13, 1902. Serial No. 127,176. (No specimens.)

Claim.—1. In the manufacture of pigments, the process of subjecting zinc ores to the action of a suitable acid solvent, then precipitating the zinc by means of a soluble compound of barium, and finally treating the resulting solution with sulfuric acid thereby producing a subsequent precipitate of barium sulfate and restoring the composition of the original solvent, substantially as set forth.

2. In the manufacture of pigments, the process of subjecting a zinc compound to the action of a suitable solvent, then precipitating the zinc by means of barium hydrate, and finally treating the resulting solution with sulfuric acid thereby producing a subsequent precipitate of barium sulfate and restoring the composition of the original solvent, substantially as set forth.

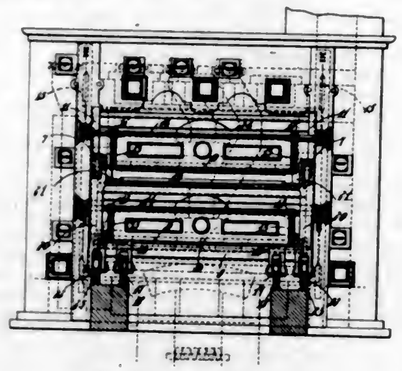
3. In the manufacture of pigments, the process of subjecting a compound of zinc to the action of a suitable acid solvent, then mixing the solution with barium hydrate, draining the solution from the precipitate thus formed, mixing said solution thus drained with sulfuric acid, washing and recovering and finally mixing the resulting precipitates, and restoring the composition of the original acid solvent, substantially as set forth.

4. In the manufacture of pigments, the process of subjecting an ore of zinc to the action of a suitable acid solvent, eliminating any impurities from the solution, precipitating the zinc from the solution thus purified by the addition of a soluble compound of barium, draining the resulting solution, mixing the latter with sulfuric acid, and washing and recovering, and mixing the resulting precipitates, substantially as set forth.

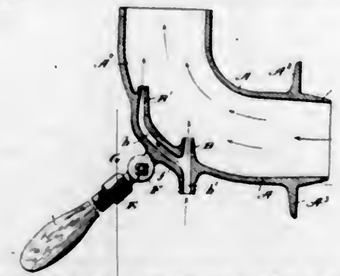
5. In the manufacture of pigments, the process of subjecting an ore of zinc to the action of a suitable acid, eliminating any iron impurities by the addition of suitable quantities of a zinc salt thereto, removing the precipitated impurities, adding a soluble compound of barium to the solution thus purified whereby the zinc is precipitated, draining the resulting solution, adding sulfuric acid thereto thereby precipitating the sulfate of barium and restoring the composition of the original acid solvent, and washing, recovering and mixing the resulting precipitates, substantially as set forth.

751,445. DRAW-PLATE OVEN. GEORGE S. BAKER, London, England. Filed Sept. 18, 1902. Serial No. 123,931. (No model.)

Claim.—In a two-decker oven and in combination, two baking-chambers of equal width one above the other, a traveling carriage and a draw-plate for each chamber, the draw-plates being of equal width, means to support the carriage within the oven, and two legs with wheels supporting each carriage outside the oven, each leg of the upper carriage being carried on a lateral offset formed on the front plate of the said carriage, each leg being straight, that is not curved athwart the oven and with a distance between the two legs at any point not less than the greatest width of a draw-plate, substantially as described.



751,446. FLUE-CLEANER. THOMAS J. BAKER and ELI ALEXANDER, Findlay, Ohio. Filed July 22, 1903. Serial No. 166,565. (No model.)



Claim.—1. A flue-cleaner comprising a hollow elbow-shaped body open at the ends, and a handle secured to said body and adjustable in a plane longitudinal of said body.

2. A flue-cleaner comprising a hollow elbow-shaped body open at the ends and a plurality of nozzles secured at different heights in the curved portion of said body.

3. A flue-cleaner comprising a hollow elbow-shaped body provided at one end with a nozzle adapted to enter the boiler-flue and at the other end with an outlet-nozzle extending substantially at right angles to said nozzle, and a plurality of steam-nozzles secured at different heights in the curved portion of the body and in alinement with said outlet-nozzle.

4. A flue-cleaner comprising a hollow elbow-shaped body provided at one end with a nozzle adapted to enter the boiler-flue and at the other end with an outlet-nozzle extending substantially at right angles to said nozzle, and a plurality of steam-nozzles secured at different heights along the curved portion of the elbow-shaped body.

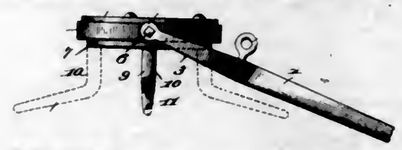
5. A flue-cleaner comprising a hollow elbow-shaped body provided at one end with a nozzle adapted to enter the boiler-flue and at the other end with an outlet-nozzle extending substantially at right angles to said nozzle, and two upwardly-extending steam-nozzles secured in the upper and lower portions of the curved portion of the body and in alinement with the outlet-nozzle.

6. A flue-cleaner comprising a hollow elbow-shaped body provided at one end with a nozzle adapted to enter the boiler-flue and at the other end with an outlet-nozzle extending substantially at right angles to said nozzle, a steam-nozzle secured in said body, an ear secured to said body, and a handle adjustably secured to said ear.

7. A flue-cleaner comprising a hollow elbow-shaped body provided at one end with a nozzle adapted to enter the boiler-flue and at the other end with an outlet-nozzle extending substantially at right angles to said nozzle, a steam-nozzle secured in said body, an ear secured to said body provided with a central aperture and having one side radially corrugated, a handle having at one end an ear provided with a central aperture and having one side radially corrugated, a bolt arranged to pass through the apertures in said ears and a nut on the end of said bolt.

8. A flue-cleaner comprising a hollow elbow-shaped body open at the ends, a plurality of nozzles secured at different heights in the curved portion of said body, a steam-inlet in said body, and a channel connecting said steam-inlet with said steam-nozzles.

751,447. OIL-WELL SWIVEL-WRENCH. JOSIAH BARRETT, Bellevue, Pa. Filed June 13, 1903. Serial No. 161,286. (No model.)

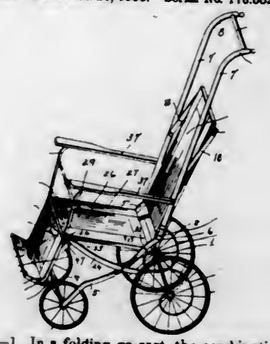


Claim.—1. The combination with a lever or frame arranged to be suspended intermediate its ends, a horizontally-arranged ring mounted on one end of said lever to swing with reference thereto, a rotary tool-holder swiveled in said ring and having a seat to receive the tool or other article to be handled, and a handle or handles secured to said tool-holder and projecting downwardly therefrom and then outwardly but without approaching the plane of the tool-holder.

2. The combination with a lever or frame arranged to be suspended intermediate its ends, a horizontally-arranged ring mounted in one end of said lever to swing with reference thereto, a rotary tool-holder swiveled in said ring and having an open portion and a seat to receive the tool to be handled, and a handle or handles connected to said tool-holder and projecting downwardly therefrom and then outwardly but without approaching the plane of the tool-holder.

3. A lever or frame arranged to be suspended intermediate its ends, a horizontally-arranged ring mounted in one end of said lever to swing with reference thereto, a rotary tool-holder swiveled in said ring and having a seat to receive the tool or other article to be handled, and a handle or handles connected to said tool-holder and having a downwardly-projecting portion, and then being bent to project outwardly and downwardly.

751,448. FOLDING GO-CART. GEORGE H. BARSCHOW, Toledo, Ohio, assignor to the American Metal Wheel and Toy Company, Toledo, Ohio. Filed Oct. 28, 1903. Serial No. 178,552. (No model.)



Claim.—1. In a folding go-cart, the combination with folding reaches pivoted together in crossed pairs and secured to the front and rear axles, of a seat pivoted to the reaches of the front axle, straps secured to the sides of the seat, slides engaging the side straps of the seat and adapted to slide back and forth thereon, pivot-pins projecting outwardly from the slides, and having pivoted thereon the upper ends of the reaches of the rear axle, disk rollers on the pivots between the slides and the reaches, clips secured to the front ends of the side straps and having end portions projecting downward, pivots projecting outward from the lower end portions of the clips, an apron for the seat, straps secured to the ends of the apron and pivoted by their upper ends on the pins of the clips and having lock portions extending beyond the pivots, adapted to lock the apron in parallel elevated position, clips secured to the apron-straps having lock portions extending at right angles from the rear of the apron-straps, and adapted to engage the upper end portions of the reaches of the rear axle, substantially as and for the purpose set forth.

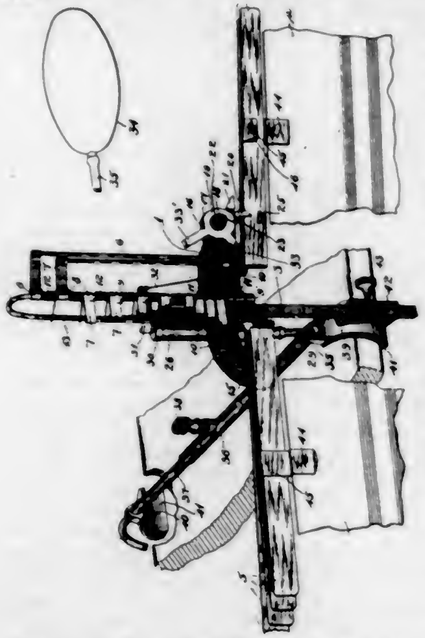
2. In a folding go-cart, the combination with the handles, of a back-frame between the handles and pivoted at its lower end thereto, the body portion of the back-frame being adapted to swing into and out of position between the handles, a strap secured lengthwise to the rear face of the frame parallel with the sides of the frame, a movable supporting-stirrup for the back comprising arms rigidly connected at their outer ends to a rod extending across the rear face of the back-frame between the strap and the back, the stirrup thus formed being pivoted by the inner ends of the arms to the handles above the pivots of the back, and means to compress the strap against the rod at any point of crossing of the rod and the strap, substantially as and for the purpose set forth.

3. In a folding go-cart, the combination with the handles, of a back-frame between the handles and pivoted at its lower end thereto, the body portion of the back-frame being adapted to swing into and out of position between the handles, a strap secured lengthwise to the rear face of the frame parallel with the sides of the frame, a movable supporting-stirrup for the back comprising arms rigidly connected at their outer ends to a rod extending across the rear face of the back-frame between the strap and the back, the stirrup thus formed being pivoted by the inner ends of the arms to the handles above the pivots of the back, means to compress the strap against the rod at any point of crossing of the rod and the strap, and ears at the outer ends of the stirrup-arms adapted to engage the handles and limit the forward movement of the back-frame, substantially as and for the purpose set forth.

4. In a go-cart, the combination with a back-frame, of a pocket formed on the rear face thereof by securing to the sides and lower end of the frame the sides and lower end of a piece of flexible fabric, the upper end of the fabric being hemmed and gathered and provided with an elastic cord.

5. In a go-cart, the combination of a rabbeted back-frame, a panel adapted to fit into the rabbet of the frame, and form a recess in the rear face of the back, and flexible fabric secured to the lower side and end portions of the frame across the recess and forming with the frame and panel a recessed pocket, for the purpose set forth.

751,449. **MUSIC-LEAF TURNER.** WALDEMAR BAUER, Chicago, Ill., assignor to Alexia Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 9, 1903. Serial No. 142,445. (No model.)



Claim.—1. In a device of the class described, the combination of a supporting-frame, an upright rod mounted thereon, a plurality of horizontally-disposed wings in hinged association with said rod and adapted to be swung about said rod from one side of the frame to the other, spring mechanism associated with and tending to retain said wings in a normal position at the left of said rod, an escapement device at the right of said rod, a body portion for said device rotatably mounted upon said frame, an escapement-tooth normally extending downward from said body portion, another escapement-tooth normally extending sideward from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge on said downwardly-extending tooth for allowing said tooth to swing backward, a spring for retaining said tooth in its normal position, said tooth being disposed before the sidewardly-extending tooth, a lever extending from said body portion, and means associated with said lever for actuating said escapement device, substantially as described.

2. In a device of the class described, the combination of a supporting-frame, an upright rod mounted thereon, a plurality of horizontally-disposed wings in hinged association with said rod and adapted to be swung about said rod from one side of the frame to the other, spring mechanism associated with and tending to retain said wings in a normal position at the left of said rod, an escapement device at the right of said rod, a body portion for said device rotatably mounted upon said frame, an escapement-tooth normally extending downward from said body portion, another escapement-tooth normally extending sideward from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge on said downwardly-extending tooth for allowing said tooth to swing backward, a spring for retaining said tooth in its normal position, said tooth being disposed before the sidewardly-extending tooth, a lever extending from said body portion, and pneumatic means associated with said lever for actuating said escapement device, substantially as described.

3. In a device of the class described, the combination of a supporting-frame 1, a plurality of horizontally-disposed wings, vertical rods 6 6 secured at their lower ends to the inner ends of said wings, horizontal arms 7 7 extending from said rods and terminating in bearings, an upright rod 9 mounted upon said frame and engaged by said bearings, coiled springs sleeved upon said upright rod 9, an additional upright rod 13, one end of each of said springs engaging said additional upright rod, the other end engaging one of said horizontal arms 7, an escapement device at the right of said frame, a body portion 19 for said device rotatably mounted upon said frame, an escapement-tooth 20 normally extending downward from said body portion, another escapement-tooth 21 normally extending sidewardly from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge 23 on said tooth 20, a lever 33 extending from said body portion, a cylinder 26 supported upon said frame, a piston-head, a piston-rod for said cylinder, means connecting the end of said piston-rod with the end of said lever, and means for introducing fluid under pressure into said cylinder, whereby said piston-rod and said lever connected therewith are actuated to oscillate said body portion carrying said escapement-tooth, substantially as described.

4. In a device of the class described, the combination of a supporting-frame 1, an upright rod 13 mounted thereon, a plurality of horizontally-disposed wings in hinged association with said rod and adapted to be swung about said rod from one side of said frame to the other, spring mechanism associated with and tending to retain said wings in a normal position at the left of said rod, an escapement device at the right of said rod, a body portion 19 for said device rotatably mounted upon said frame, an escapement-tooth 20 normally extending downward from said body portion, another escapement-tooth 21 normally extending sidewardly from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge 23 for said downwardly-extending tooth, a lever extending from said body portion, and automatic means associated with said lever for actuating said escapement device, substantially as described.

5. In a device of the class described, the combination of a supporting-frame 1, a clamp adapted for adjustable attachment to a support, a supporting-post adjustably engaged with said clamp and by said frame, an upright rod mounted upon said frame, a plurality of horizontally-disposed wings in hinged association with said rod and adapted to be swung about said rod from one side of said frame to the other, spring mechanism associated with and tending to retain said wings in a normal position at the left of said rod, an escapement device at the right of said rod, a body portion 19 for said device rotatably mounted upon said frame, an escapement-tooth 20 normally extending downward from said body portion, another escapement-tooth 21 normally extending sidewardly from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge 23 for said downwardly-extending tooth, a lever extending from said body portion, and automatic means associated with said lever for actuating said escapement device, substantially as described.

6. In a device of the class described, the combination of a supporting-frame 1, a clamp adapted for adjustable attachment to a support, a supporting-post adjustably engaged with said clamp and by said frame, an upright rod mounted upon said frame, a plurality of horizontally-disposed wings in hinged association with said rod and adapted to be swung about said rod from one side of said frame to the other, spring mechanism associated with and tending to retain said wings in a normal position at the left of said rod, an escapement device at the right of said rod, a body portion 19 for said device rotatably mounted upon said frame, an escapement-tooth 20 normally extending downward from said body portion, another escapement-tooth 21 normally extending sidewardly from said body portion, said teeth being adapted upon rotation of said body portion to engage and to successively release said wings, a hinge 23 for said downwardly-extending tooth, a lever extending from said body portion, and automatic means associated with said lever for actuating said escapement device, substantially as described.

7. In a device of the class described, the combination of a supporting-frame, a clamp adapted for adjustable attachment to a support, a supporting-post adjustably engaged with said clamp and by said frame, an upright rod on said frame, a plurality of horizontally-disposed wings adapted to be swung about said rod from one side of said frame to the other, spring mechanism associated with said rod and said wings, tending to retain said wings in a normal position at one side of said frame, escapement mechanism for successively releasing said wings from the other side of said frame to allow them to be returned to their normal position by said spring mechanism, and means for actuating said escapement mechanism, substantially as described.

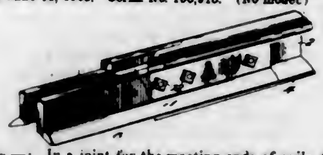
8. In a device of the class described, the combination of a supporting-frame, a clamp adapted for adjustable attachment to a support, a supporting-post adjustably engaged with said clamp and by said frame, an upright rod on said frame, a plurality of horizontally-disposed wings adapted to be swung about from one side of frame to the other, spring mechanism associated with said rod and said wings, tending to retain said wings in a normal position at one side of said frame, escapement mechanism for successively releasing said wings from the other side of said frame to allow them to be returned to their normal position by said spring mechanism, and pneumatic means for actuating said escapement mechanism, substantially as described.

751,450. **LATCH.** ANDREW P. BECK, Greenville, Mich. Filed Jan. 16, 1903. Serial No. 139,260. (No model.)



Claim.—The combination with a door, a bracket embodying two rectangular base-plates, an ear and a flange, all integral, and fastened to said door, and a curved lever pivoted between said flange and ear, and having lateral extensions, of the bowed jamb-plate having a notch in the edge thereof, and arranged so that by being engaged by said extension of the lever, said lever is enabled to clamp said door in closed position, the bowed jamb-plate and the lever being reversible for use in connection with either a right or left hand door, substantially as shown and described.

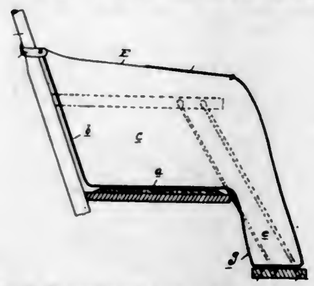
751,451. **RAIL-JOINT.** THOMAS M. BELKNAP, Adamsons, Iowa. Filed June 10, 1903. Serial No. 160,915. (No model.)



Claim.—1. In a joint for the meeting ends of rails, the combination with rail ends having the web portions thereof cut away for a short distance and the head portions also cut away adjacent the sides thereof, splice-bars disposed upon opposite sides of the rails, a web-block rigidly secured between the splice-bars and about intermediate the ends thereof, an extension projected upwardly from one of the splice-bars and adapted to rest in the cut-away portions of the heads of the rails, said extensions constituting a portion of the tread surface of the rails, the adjacent ends of the bases and heads of the rails being scarfed.

2. In a joint for the meeting ends of rails, the combination with rail ends having the web portions thereof cut away for a short distance and the heads or balls also cut away longitudinally adjacent the edges of the rails, the end portions of said cut-away portions being inclined, splice-bars disposed upon opposite sides of the rails, a web-block disposed between the splice-bars and about intermediate the end portions thereof, said web-block forming a continuation of the webs of the rails being received by the cut-away portions of the web, fastenings passing through the splice-bars and web-block securing the same rigidly together, an extension projected upwardly from one of the splice-bars and resting within the cut-away portions of the heads of the rails, the end portions of the said extensions being inclined to correspond with the inclined portions of said cut-away portions of the heads of the rails, the adjacent ends of the bases and heads of the rails being scarfed, and the webs of the rails provided with elongated openings adjacent said scarfed ends, and fastenings passing through the said elongated openings and openings provided upon the corresponding ends of the splice-bars and securing the rails thereto.

751,452. **ROBE FOR FOLDING CARTS.** LILLIAN A. W. BIRD, London, England. Filed Dec. 15, 1902. Serial No. 135,287. (No model.)



Claim.—1. In combination with a folding cart provided with seat, back and foot-rest portions, a robe secured to the back of the cart and extending therefrom over the seat to the foot-rest, the back and seat portion of said robe being folded between the back and seat of the cart and the lower portion of said robe being folded between the foot-rest and seat of said cart when the cart is folded.

2. In combination with a folding cart provided with back, seat and foot-rest portions, a robe comprising an open-ended sack conforming in shape to the shape of the back, seat and foot-rest portions of the cart, and means to secure the upper open end of said robe to the cart.

3. In combination with a folding cart provided with back, seat and foot-rest portions, a robe comprising an open-ended sack conforming in shape to the shape of the back, seat and foot-rest portions of the cart, and straps for securing the open upper end of said robe to the cart.

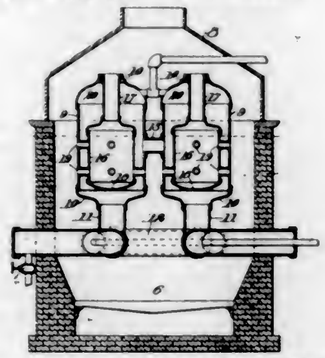
4. A robe for folding carts, comprising a bag or sack consisting of the portions *b*, *a* and *g* united to the side portions *c*, the latter being fashioned in conformity to the back, seat and foot-rest of the cart, the front portion *f* and bottom portion *h* completing the sack, a flap permanently secured at its lower end to the upper end of the front portion *f* and detachably secured along its sides to the upper edges of said side portions, the upper end of said flaps being yoke-shaped to conform to the body of the occupant, loops secured to the free corners of said flap, and straps secured to the upper corners of the sack arranged to engage the loops on the flap and to be secured to the back of the cart.

5. In combination with a folding cart, a robe secured thereto and adapted to fold therewith when the cart is folded, said robe consisting of the seat portions *b*, *a* and *g* united to the side portions *C*, the latter being fashioned in conformity to the back, seat and foot-rest of the cart, the front portion *f* and bottom portion *h* completing the sack, and a flap united to said front and detachably secured to said side portions.

751,453. **BOILER.** JOHN C. BROMLEY, Rock Island, Ill. Filed June 27, 1903. Serial No. 163,428. (No model.)

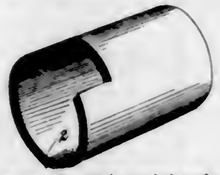
Claim.—1. The combination with a furnace, of a feeding-tube within the same, a vertical water-chamber connected at the bottom

to the tube, and a displacement-chamber depending within the water-chamber and having a reduced neck at the top, forming an enlarged steam-space at the upper end of the water-chamber.



2. The combination with a furnace, of several individual vertical water-cylinders therein, having removable heads at both ends, supply and circulation pipes connecting the cylinders, and a displacement-chamber within each cylinder, having a reduced tubular connection through the top head.

751,454. PIPE AND PROCESS OF MAKING SAME. LEWIS A. BROWN and DWIGHT TREDWAY, St. Louis, Mo. Filed Sept. 12, 1903. Serial No. 172,895. (No model.)



Claim.—1. A composite article consisting of a metallic body and an adherent coating or layer of a composition containing sand, sulfur and cement.

2. A composite structure consisting of an iron body, and an adherent coating or layer composed of sand, sulfur and cement.

3. A metallic pipe having an adherent protective covering composed of sand, sulfur and cement.

4. A metallic pipe having a galvanized interior and a protective covering composed of sand, sulfur and cement.

5. A sheet-metal pipe having an adherent coating of a composition containing sand, sulfur and cement.

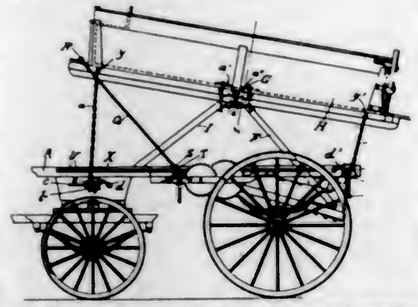
6. The process of forming a composite structure, such as a pipe, by liquefying sulfur, mixing cement and sand therewith, reducing the temperature until the mixture is in a plastic state, and applying it to a metallic surface, thereby uniting the two materials together.

7. The process of covering a metallic body, such as a pipe, by fusing sulfur, mixing cement therewith, introducing sand at a higher temperature than the fusing-point of sulfur, cooling to a plastic state and then applying to the metallic body.

751,455. DUMPING-WAGON. JOHN BULLOCK, Wilmington, Del. Filed June 19, 1903. Serial No. 162,215. (No model.)

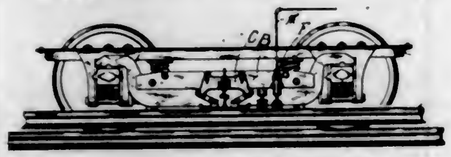
Claim.—1. In a dumping-wagon, a body, a frame and rounded gear, means for elevating the body above the frame, means for tilting the body either forward or rearward while in the elevated position, an opening formed through the floor of the body in the center thereof, a door for opening or closing said opening, an oscillating chute arranged below the body so as to receive any material falling through the opening, a chute designed to be attached to either end of the oscillating chute, as and for the purpose specified.

2. In a dumping-wagon, a body, a frame and rounded gear, means for raising the body above the frame, said means being pivotally connected to the center of the body, chains attached to the forward and rearward ends of the body, means carried by the frame of the wagon for winding up the chains so as to draw down either end of the body and cause the same to tilt either forward or backward, a removable partition arranged in the center of the body dividing the same into a forward and back compartment, the floor of the body being provided with an opening upon each side of the partition, doors adapted to open or close said openings, a chute arranged below the openings and extending laterally of the body, said chute being pivoted at the center so as to tilt toward either side of the wagon, as and for the purpose specified.



3. In a dumping-wagon, a body, a frame and rounded gear, means for lifting the body above the frame, said means being pivotally connected to the central portion of the body so that said body is balanced thereon, chains connected to the forward end of the body, chains connected to the rearward end of the body, shafts extending laterally through the frame to which the other ends of the chains are connected, cranks secured to the shafts for turning the same, a ratchet-and-pawl mechanism for preventing retrograde movement of the shafts, a removable partition arranged within the center of the body dividing the same in a forward and rearward compartment, the floor of the body being provided with an opening upon each side of the partition, doors for opening or closing said openings, a chute arranged below the opening and below the floor of the body, said chute extending laterally of the body, a toggle pivoted at one end to the body upon a lateral pivot, the other end of the toggle being pivoted to the center of the chute upon a longitudinal pivot so as to allow the chute to tilt in two directions, lugs secured to either end of the chute whereby ordinary chutes may be attached, as and for the purpose specified.

751,456. SURFACE-CLEANING DEVICE FOR THIRD RAILS OF ELECTRIC RAILWAYS. MILTON C. CANFIELD, Cleveland, Ohio, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Jan. 14, 1903. Serial No. 138,998. (No model.)



Claim.—1. The combination with an electric railway having a third rail, a vehicle making traveling contact therewith, a roller carried by said vehicle and traveling on the third rail, a source of air-pressure and means for causing such air-pressure to urge said roller against said third rail.

2. The combination with an electric railway having a third rail, a vehicle making traveling contact therewith, a roller carried by said vehicle and traveling on the third rail, a piston carrying said roller, and a cylinder for said piston adapted to be connected to a source of air-pressure.

3. The combination with an electric railway having a third rail, a vehicle making traveling contact therewith, a corrugated roller carried by said vehicle and traveling on the third rail, a source of air-pressure and means for causing such air-pressure to urge said roller against the rail.

4. As a means for removing ice or sleet from electric-railway third rails, a pneumatically-operated corrugated pressure-roller carried by the moving vehicle and traveling on the third rail.

751,457. NUT-LOCK. HENRY J. CASANOVA and HARRY C. CALDWELL, Chicago, Ill. Filed Feb. 12, 1903. Serial No. 143,046. (No model.)

Claim.—1. In combination, a spindle or analogous device provided with an externally-threaded portion, a threaded axial bore and an unthreaded counterbore, a confining-nut fitting upon the threaded portion of the spindle, a lock-bolt arranged axially within the confining-nut and threaded to engage said axial bore of the spindle, an unthreaded reduced extension connected with the threaded portion of said bolt and extending through the end of the confining-nut, a head upon the outer end of said extension, the unthreaded portion of said lock-bolt and the portion of the confining-nut through which it extends being constructed to afford lost motion between them, for the purpose set forth.

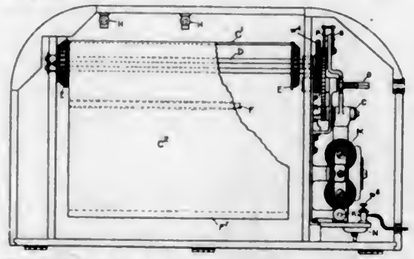


2. In combination, a spindle provided with an externally-threaded portion and an internally-threaded bore, a confining-nut fitting the externally-threaded portion of the spindle, and a lock-bolt permanently connected to and having swiveling and endwise-sliding connection with the confining-nut and provided with a threaded portion adapted to the bore of the spindle.

3. In combination, a spindle or the like provided with an externally-threaded portion, and an axial bore threaded throughout a part of its length and unthreaded and enlarged throughout a further part of its length, a confining-nut fitting the threaded portion of the spindle, and a lock-bolt having swiveling and endwise-sliding engagement with the confining-nut, the inner end of said lock-bolt adapted to the threaded portion of the bore and the outer end adapted to a rotating tool.

4. In combination, a spindle or the like provided with an externally-threaded portion and an axial bore the inner end of which is threaded reversely to that of the external threads, and the outer portion of which bore is unthreaded and enlarged, a confining-nut fitting the threaded portion of the spindle and provided with an axial aperture in its end wall, a lock-bolt having a threaded portion within the confining-nut adapted to engage the threaded bore of the spindle, a reduced extension extending through the aperture of the confining-nut and an external head, the length of the reduced extension being greater than the thickness of the wall of the cap-nut through which it extends, whereby the lock-bolt has swiveling and endwise-sliding engagement with the confining-nut, as and for the purposes set forth.

751,458. STATION-INDICATOR AND ADVERTISING DEVICE. LOUIS CASPER, Chicago, Ill. Filed May 2, 1898. Serial No. 679,455. (No model.)



Claim.—1. In a device of class described, the combination of two endless chains, curtains pivoted between said chains, means for operating the chains, each of said curtains being provided with a transverse metallic edging at bottom of same, contact-pieces G and G' for engaging same and forming electric terminals, an electric circuit and a signaling device within said circuit, as set forth.

2. In a device of the class described, a series of flexible curtains mounted on endless chains, means for driving same, each of said curtains being provided at its bottom, on the back thereof, with a transverse edging, in combination with the releasing devices or frictional contact-pieces G and G', and means for adjusting the position of said contact-pieces, as set forth.

3. In a device of the class described, a series of curtains mounted on endless chains, means for driving same, each of the said curtains being provided at its bottom with a metallic strip F' and a weight F placed intermediately between the top and bottom of the curtain, in combination with the release or contact pieces G G', the said pieces forming terminals in an electric circuit having a signaling device which is actuated by the edging F' closing the circuit, as set forth.

4. In a device of the class described, a series of curtains on endless chains, means for driving same, each of the said curtains being provided at its bottom with a metallic edging or strip F', in combination with the release or contact pieces G G', and means for adjusting the position of said contact-pieces, as set forth.

751,459. LINE-INSULATOR. CUMMINGS C. CHESNEY, Pittsfield, Mass. Filed Jan. 14, 1903. Serial No. 138,999. (No model.)



Claim.—1. An H-shaped insulating-support composed of a plurality of insulators set at an angle to each other.

2. An H-shaped insulating-support composed of a plurality of insulators set at an angle to each other and means for securing the several insulators together to form a unitary structure.

3. The combination of an insulator comprising two parallel legs and a connecting-leg supported from the middle portions of said parallel legs, a line-wire secured to the connecting-leg, and arms supporting the insulator from the ends of its parallel legs.

4. The combination of supporting-arms, rods carried between said arms, insulators mounted on said rods, and an insulator lying between and supported from the middle portions of the aforesaid insulators.

5. In combination, two tubular-shaped insulators, a rod supported between the middle portions of said insulators, and a third tubular-shaped insulator loosely mounted on said rod.

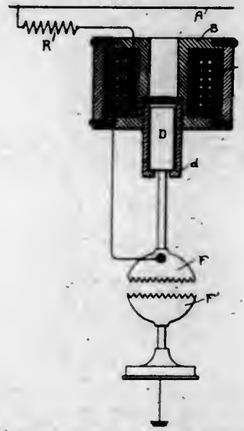
6. In combination, two rods, two tubular-shaped insulators mounted thereon, a third rod supported on the middle portions of said insulators and a third tubular-shaped insulator loosely mounted on said rod.

7. An insulating-support composed of three individual insulators lying in the same horizontal plane, one of said insulators lying between and supported from the middle portions of the others.

8. The combination of three insulators lying in the same horizontal plane, arms supporting two of said insulators from the ends thereof, and means for supporting the other insulator from the middle portions of the said two insulators.

9. The combination of three rods lying in the same horizontal plane, insulators mounted on each rod, arms engaging and supporting two of said rods, and clamps engaging the middle portions of two of the insulators and supporting the third rod therefrom.

751,460. LIGHTNING-ARRESTER. CUMMINGS C. CHESNEY, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Aug. 8, 1903. Serial No. 168,699. (No model.)



Claim.—1. In combination, a line-wire, a circuit from said line-wire to earth including a solenoid and an air-gap, a closed conduct-

ing-circuit in inductive relation to the winding of said solenoid, and a core for said solenoid adapted to vary by its movement the length of said air-gap.

2. In combination, a line-wire, a circuit from said line-wire to earth including an air-gap, an electromagnetic device in said circuit adapted to increase the length of said air-gap, and a closed conducting-circuit in inductive relation to the winding of said device.

3. In combination, a line-wire, a circuit from said line to earth including an air-gap, a solenoid in said circuit, a conducting-envelop completely inclosing the winding of said solenoid, and a core for said solenoid adapted to vary by its movement the length of said air-gap.

4. In a lightning-arrester, a solenoid-winding, a short-circuited secondary therefor, a core for said solenoid, and an air-gap in series with said solenoid having a movable electrode actuated by said core.

5. In a lightning-arrester, an air-gap, a solenoid in series therewith and adapted to vary the length thereof, and a closed conducting-circuit in inductive relation to the winding of said solenoid.

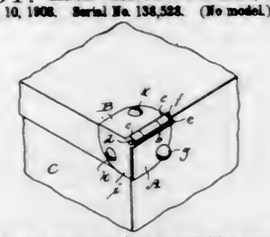
6. In a lightning-arrester, an air-gap, a solenoid adapted to vary the length thereof, and a conducting-envelop for the winding of said solenoid completely surrounding said winding.

7. In a lightning-arrester, an air-gap, an electromagnetic device adapted to vary the length of said gap upon the passage of current, and a closed conducting-circuit in inductive relation to the winding of said device.

8. In combination, a line-wire, a circuit from said line-wire to earth, including a non-inductive resistance and an air-gap, an electromagnetic device in said circuit adapted to increase the length of said air-gap, and a closed conducting-circuit in inductive relation to the winding of said device.

9. In combination, a line-wire, a circuit from said line-wire to earth, including a series resistance, a solenoid with an air-gap, a closed conducting-circuit in inductive relation to the winding of said solenoid, and a core for said solenoid adapted to vary by its movement the length of said air-gap.

751,461. **HINGE.** ATHELSTAN H. CHRISTIE, Milwaukee, Wis. Filed Jan. 10, 1903. Serial No. 138,523. (No model.)



Claim.—A suit-case corner-hinge comprising two leaves having knuckles thereof on a pintle and one of the leaves provided with an end flange at a right angle thereto, this leaf being attachable to the lid of the suit-case to have its flange parallel to an end of said lid outside the same, whereby said flange serves as a corner-protector, the other leaf being attachable to the body of the suit-case to be in the path of the aforesaid flange and at a right angle to the former leaf when said case is closed.

751,462. **REIN-HOLDER.** JOHN N. CLAPHAM, Ashhurst, New Zealand, assignor of one-half to George Spencer Clapham, Ashhurst, New Zealand. Filed Mar. 30, 1903. Serial No. 150,087. (No model.)



Claim.—For the purpose indicated in combination a strap, a spring-hook upon one end thereof, and a buckle upon the opposite end, a ring through which the end of the strap having the buckle is threaded, and a strap secured to said ring and having another ring at its outer end substantially as specified and illustrated.

751,463. **CHAIR.** GEORGE P. CLIMSHAM, Chicago, Ill., assignor to the Tobey Furniture Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 22, 1901. Serial No. 83,344. (No model.)

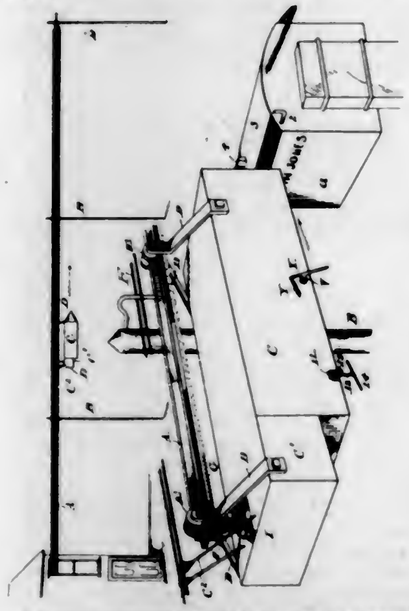


Claim.—1. In a device of the class specified, the combination with the back, of an adjustable support for supporting the back above its lower end, a slidable seat slidable relatively to said support, in a forwardly and backwardly direction, and a shiftable pivotal connection between the lower end of the back and the seat, whereby the lower end of the back can be adjusted in a forwardly and rearwardly direction with reference to the seat, substantially as described.

2. In a device of the class specified, the combination with the back, of a pair of rear upright posts one on each side of the back, each post having a series of apertures, a pair of pins one for each post, adapted to fit into said apertures, a slidable seat slidable in a forwardly and backwardly direction with reference to said posts, the seat being provided on each side with a series of notches each adapted to receive the lower end of the back, whereby the lower end of the back can be adjusted in a forward and rearward manner with reference to the seat, by placing its lower end in different notches, substantially as described.

3. In a device of the class specified, the combination with the body-frame having rear uprights or posts each provided with a series of notches and pins adapted to fit into said notches, of a sliding seat provided at its rear on opposite sides with blocks each having a series of notches, and a movable back having its lower end resting upon said blocks and fitted into the notches thereof, and resting above its lower end against the pins in said notches in the posts, substantially as described.

751,464. **AUTOMATIC MAIL-DELIVERY APPARATUS.** ISAAC F. COLE, Williamsfield, Ill. Filed Nov. 19, 1902. Serial No. 132,036. (No model.)



Claim.—1. An automatic mail-delivery apparatus comprising a car, tracks from which the car is suspended and upon which it runs, spring-held plates within the car for holding the several parcels of mail to be separately delivered, said plates adapted to be separated to release the mail and means for separating the plates by contact with the mail-boxes along the route for releasing the mail-parcels in successive order as each said mail-box is met.

2. In an automatic overhead mail-delivery apparatus, a car, an endless carrier therein for holding and distributing mail, a series of pairs of plates on said carrier one of each pair being affixed to the carrier, the other of the pair supported by the fixed plate and spring-held against the latter when in its position of rest and means for separating the plates for the purposes set forth.

3. In an automatic overhead mail-delivery apparatus, a car, an endless carrier therein adapted for delivering mail-packages, a series of pairs of plates on said carrier, one of each of the pairs being affixed to the carrier and stationary thereon, the other plate of each pair being movable to and from the fixed plate, guiding and supporting pins secured to and projecting at right angles from the said fixed plate, the movable plate being carried on said pins, and springs for normally keeping the loose plate against its neighbor, the packages of mail being held between the said plates, and means for separating the said plates automatically for dropping the mail.

4. In an automatic overhead delivery apparatus for the purposes indicated, an automatically-operated carrier comprising a pair of endless chains, a series of pairs of plates, one of each pair secured to the chains at right angles thereto, the other plate being movable to and from the fixed plate, a pair of pins rigidly secured to said fixed plate perpendicular to the plane thereof, there being apertures in the said movable plates through which the pins pass, said pins adapted to support such movable plate, springs on the pins for throwing the latter plates toward the fixed ones and serving to clamp the mail-packages between the plates, and means for separating the plates when a mail-receiving box is met.

5. In an automatic mail-delivery apparatus, a container or car, a carrier therein comprising endless chains adapted for a starting and stopping movement for the purposes set forth, means for imparting movement to the chains, a series of pairs of plates carried by the said chains substantially as shown, one plate of each pair being affixed to the said chains, the other movable to and from the fixed plate, springs for normally keeping the plates together for clamping packages of mail between them, means carried by the car for engaging each movable plate in successive order when each pair thereof is moved to the position at which the mail-packages are delivered, such means being operated to shift the movable plates by contact with each successive mail-box along the route.

6. In an automatic overhead mail-delivery apparatus, a car, a horizontal carrier adapted for stopping and starting movement, a series of pairs of fixed and movable plates on said carrier adapted to receive and retain mail and to release the mail at the receiving-boxes along the route, means for keeping pressure on the movable plate to clamp said mail, means for imparting a step-by-step movement to the carrier to bring its pairs of plates into position for releasing the mail by contact with stationary devices along the path of the car, and means within the car for engaging successively each movable plate as the pairs of plates are brought into the releasing position, such latter means also adapted to be operated by contact with the mail-boxes to separate said plate for dropping the several packages of mail into their respective receptacles.

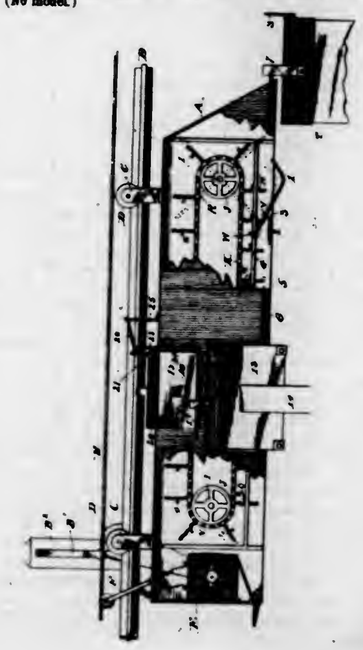
7. In an automatic mail-delivery apparatus, a mail-containing car, adapted to run upon an overhead track, means for propelling the same, a series of separately-arranged devices for carrying the several parcels of mail and endless carrier for such devices, said devices, adapted to hold the said mail-parcels by spring-pressure, a lever mechanism at the bottom of the car adapted to engage the mail-boxes along the route, said mechanism arranged to contact with the devices for releasing the mail held therein, there being an opening in the car through which the mail is delivered, wheels for the carrier and by which said carrier is moved, and a lever mechanism at the side of the car also adapted for engagement with the mail-boxes for imparting a partial turn to the wheels and carrier for placing a mail-holder above the opening in the car after the preceding holder has been relieved of its load as set forth.

8. In an apparatus for automatically delivering mail, a car for containing the mail, a track from which said car is suspended, propelling means for the car, endless chains within the car, wheels for the same, a series of plates secured to said chains, slidable spring-held plates for the said series of plates arranged substantially as shown, each pair of plates so arranged adapted to hold a parcel of mail, a rock-shaft located beneath the chains and their plates, arms on said shaft for engaging the spring-held plate of each pair for separating it from its neighbor for dropping the mail therefrom, there being an opening in the bottom of the car for the passage of said mail, a pinion-gear on the rock-shaft, a lever at the outside of the car for engaging the mail-box, a shaft for the said lever, a gear-wheel on the said shaft for engaging the pinion-gear as set forth and means for shifting the chains and the pairs of plates for bringing a pair of plates above the opening in the car to deliver the mail therefrom after that of the preceding pair has been delivered as set forth.

9. In an apparatus for automatically delivering mail, a car for containing the mail, a track from which said car is suspended, propelling means for the car, endless chains within the car, wheels for the same, a series of plates secured to said chains, slidable spring-held plates for the said series of plates arranged substantially as shown, each pair of plates so arranged adapted to hold a parcel of mail, a rock-shaft located beneath the chains and their plates, arms on the shaft for engaging the spring-held plates of each pair for separating it from its neighbor for dropping the mail therefrom, there being an opening in the bottom of the car for the passage of mail, a pinion-gear on the rock-shaft, a lever at the outside of the car for engaging the mail-box, a shaft for the lever, a gear-wheel on said shaft for engaging the pinion-gear as set forth, a ratchet-wheel on the carrier mechanism, a pawl for engaging it, a lever mechanism for operating the pawl, said lever mechanism adapted to be moved by contact with the mail-boxes along the route for shifting the chains and plates which carry the mail for placing a package of mail above the opening in the car for delivery into the mail-box after its predecessor has been delivered of its load, and a friction device for sustaining the chains wherever stopped all substantially as herein described and shown.

10. In an automatic overhead mail-delivery apparatus, a car, an endless carrier therein, wheels for driving the same, a series of pairs of plates on the carrier arranged substantially as set forth and adapted to clamp mail between them, a ratchet-wheel on one of the shafts which carry the driving-wheels, a pawl for engaging said ratchet-wheel, a device connected with the pawl for contacting with the mail-boxes along the route to turn the ratchet and the carrier to bring each pair of plates successively into position for delivering mail, there being an opening in the bottom of the car for exit of the mail, a pair of arms within the car for contacting with one of the plates to separate it from its neighbor to release the mail, and means for contacting with the mail-boxes for operating the arms substantially as set forth and described.

751,465. **AUTOMATIC MAIL-DELIVERY APPARATUS.** ISAAC F. COLE, Williamsfield, Ill. Filed Apr. 9, 1903. Serial No. 151,829. (No model.)



Claim.—1. An automatic mail-delivery apparatus comprising a car, a track for carrying the same, a mail-receiver for the car, the same having a spring-closed top in combination with mail-containing boxes situated along the mail-route, means thereon for opening the spring-controlled top of the receptacle on the car which passes beneath, a spring-closed bottom for the mail-containers and means on the car for automatically opening said bottom to drop the mail into the receptacle on the car when the two members are vertically in line with one another as described.

2. An automatic mail-collecting apparatus comprising a car A, a track B for carrying the same, a mail-receiver 13 carried by the car, spring-closed covers 18 therefor, lugs 19 for opening the covers, in combination with mail-delivery boxes 15 situated along the mail-route, the spring-closed bottoms 22 therein, the members 25 on the car, levers 23 for opening the bottoms 22 by contact with the said members 25, spreading rails 17 on the container 15 for opening the covers 18 by contact of the lugs 19 thereagainst all arranged substantially as shown and described to open the delivery-boxes and receivers simultaneously.

3. An automatic mail delivery and receiving apparatus, comprising a car for carrying the several packages of mail to be delivered, an endless carrier within the car, means for supporting and carrying said carrier, a series of pairs of plates on said carrier for receiving and holding the mail-packages, one of each of said pairs of plates being secured rigidly to the carrier, the other plate having yielding connection with such rigid plate, means for shifting the carrier in an intermittent manner for placing the pairs of plates in position for delivery of the mail held between them, and other means for engaging and holding the yielding plates of the pairs of plates during the movement of the carrier whereby such yielding plates are held while the fixed plates move away therefrom to thereby release the mail held between them.

4. An automatic mail delivery and receiving apparatus comprising a car for containing the mail to be distributed, an endless carrier within such car, a series of pairs of plates on such carrier between which the mail is held, such pairs of plates adapted to deliver their mail in successive order, means for shifting the carrier and its plates, means for separating said plates to drop the mail from between them, in combination with mail-boxes placed along the route, and means on the car for opening them to receive the mail from said car simultaneous with the separation of the plates of the carrier.

5. An automatic mail delivery and receiving apparatus comprising a car for containing the mail to be distributed, an endless carrier with the car, a series of pairs of plates on such carrier between which the mail is held, such pairs of plates adapted to deliver their mail in successive order, means for shifting the carrier and its plates, means for separating said plates to drop the mail from between them into receptacles along the route, there being a series of mail-delivery boxes along the route from which mail is received by the car, a receptacle carried by said car, means on the latter for opening the said delivery-boxes in successive order as they are met to permit the mail to pass therefrom into the said receptacle on the car, and means for opening said receptacle at the same time that the mail is released from the delivery-box.

6. An automatic mail delivery and receiving apparatus comprising a car A for containing the mail to be distributed, an endless carrier within the car consisting of the sprocket-chains K K, means for carrying said chains which comprises the sprocket-wheels J J, the shafts I I on which they are mounted, the star-wheel R on one of the shafts for use in turning said sprocket-wheels and the carrier, pairs of plates L, N carried on the chains, said plates N yieldingly connected to the plates L, projections 4 on the ends of the said plates N extending beyond the ends of the plate L, means for engaging said projections and holding the plate while the carrier moves to carry the plate L away from N for releasing the mail held between the plates said means being afterward operated to release the plates for the purposes set forth and described.

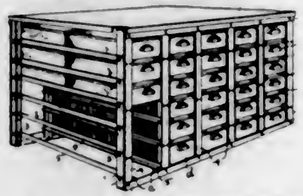
7. An automatic mail delivery and receiving apparatus comprising a car A for containing the mail to be delivered, a carrier for the mail consisting of the sprocket-chains K, the sprockets J for the chains, the star-wheel R, the shafts I on which the sprockets are mounted and one of which carries the said star-wheel, a series of plates L rigidly secured to the chains, a series of yielding plates N attached to the plates L, there being projections on the latter, a rock-shaft V journaled in the body A transversely of the said body, hooks W connected to said shaft and extending upward and rearward from such shaft, a forward and downwardly extending arm I on the shaft V, and a spring 2 for normally retaining said hooks and the said arm in the position named for the purposes set forth, in combination with a series of mail-boxes placed along the mail-route and adapted to be opened by the car in its passage over them, substantially as described.

8. An automatic mail-delivery apparatus comprising a car A, a receptacle 13 carried thereby for receiving mail, the separable covers 18 therefor, the arms 19 on said covers, means within the box for normally keeping the covers together, in combination with a receptacle at the roadside for holding mail to be collected by said car, which consists of the box 15 the lid 20 beneath which the mail is deposited, the pivotal bottom 22, the arm 23 for operating it, means for normally keeping the said bottom 22 closed to retain the mail within the box, and means on the car for depressing the said arm 23 to open the said bottom 22 to release the mail, and means on the box for contacting with the arms 19 to separate the covers 18 of the box 13 simultaneous with opening of the bottom 22 substantially as described.

9. In a mail-delivery apparatus, an overhead track, a car adapted to travel thereon, a mail-carrying member within the car adapted for delivery of mail-packages by gravity, a mail-receiver at intervals along the route of the car, said car passing over such receiver, a spring-closed covering for the receiver, the car adapted to open the same for dropping the mail into such receiver, and means for simultaneously releasing the mail-packages from the mail-carrier within the car to enter said receptacle substantially as described, the covering afterward closing the same.

10. In a mail receiving and delivering apparatus, a car, a track for the same, a mail-receiver carried by the car, a stationary mail-delivery box at the roadside, the former having two spring-closed cover-sections adapted to be separated by the passage thereof beneath the mail-box to open the receiver, means for simultaneously releasing the mail from the box to deposit it into such opened receiver, a stationary mail-receiving box also at the roadside for receiving mail from the car, a cover therefor comprising two spring-closed members adapted to be separated by the passage of the car thereover to open the box for receiving mail from the car, a mail-carrying member within the car and means for operating it to drop the mail simultaneous with the opening of said receiving-box as set forth.

751,466. RACK OR CABINET-FRAME. CHARLES J. COLLING, Glenville, Ohio, assignor to the Cleveland Wire Spring Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 25, 1903. Serial No. 163,060. (No model.)



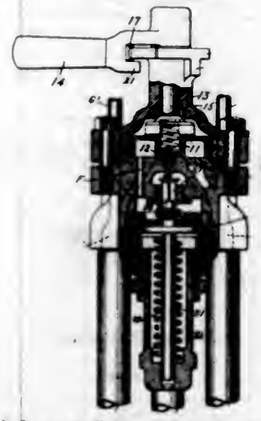
Claim.—1. A cabinet-frame consisting throughout of angle-iron and provided with posts constructed each of two pieces locked together and having opposite sides with holes at intervals from top to bottom, and angle-iron connecting-bars having projections at one of their sides engaged in said holes and the other sides horizontally disposed, substantially as described.

2. A cabinet-frame having a series of posts and each post consisting of two angle-iron members arranged edge to edge at their front and a plate overlapping the meeting edges of said members and rigidly fixed thereon, thereby binding said members together, and angle-iron cross-pieces secured to said members, substantially as described.

3. The cabinet-frame having posts formed each of a pair of angle-iron pieces arranged edge to edge at one angle and having the other angles extending inward, a plate extending across the face of both pieces of each post and past the same on each side of the post, in combination with angle-iron cross-pieces removably secured to each piece of each post and having its end covered by the overlapping edge of said face-plate, substantially as described.

4. The frame substantially as described, having a series of posts in parallel lines consisting each of two angle-iron members united on their face and having inwardly-projecting sides provided each with substantially key-shaped holes at successive elevations, and cross connecting-pieces in pairs between corresponding members of said posts and provided with studs engaged in corresponding holes in said posts, substantially as described.

751,467. MOTORMAN'S VALVE. FRED R. COREY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed June 18, 1903. Serial No. 162,023. (No model.)



Claim.—1. In a controlling-valve for air-brake systems, a valve structure comprising a valve-seat provided with suitable ports, a rotary valve mounted on the top of said seat, a chamber directly beneath the valve-seat supplied with air at main-reservoir pressure, and an automatic feed-valve for controlling the flow of air from said chamber to the train-pipe, the said valve having its operating parts inclosed in a casing located directly beneath said chamber and forming a continuation of the said valve structure.

2. In a controlling-valve for air-brake systems, a valve structure comprising a rotary valve provided with suitable ports for controlling the passage of air to and from the train-pipe, a chamber beneath said rotary valve permanently connected to the main reservoir, and an automatic feed-valve for controlling the flow of air from said chamber to the train-pipe, the said valve having its operating parts inclosed in a casing located directly beneath the rotary valve and forming a continuation of the said valve structure.

3. In a controlling-valve for air-brake systems, a valve structure comprising a rotary valve provided with suitable ports for controlling the passage of air to and from the train-pipe, a central or body portion located directly beneath said rotary valve and forming a rotary valve-seat, main reservoir, atmosphere and train-pipe connections at the lower side of said central portion, a chamber beneath said rotary valve permanently connected to the main reservoir, and an automatic feed-valve for controlling the flow of air from said chamber to the train-pipe, the said valve having its operating parts inclosed in a casing located directly beneath said chamber and forming a continuation of the said valve structure.

751,468. ARTIFICIAL-FUEL BLOCK AND PROCESS OF PRODUCING SAME. MELVIN W. COTTLE, St. Louis, Mo., assignor to Coaleo Fuel Manufacturing Company, St. Louis, Mo., a Corporation of Missouri. Filed July 31, 1903. Serial No. 167,678. (No specimens.)

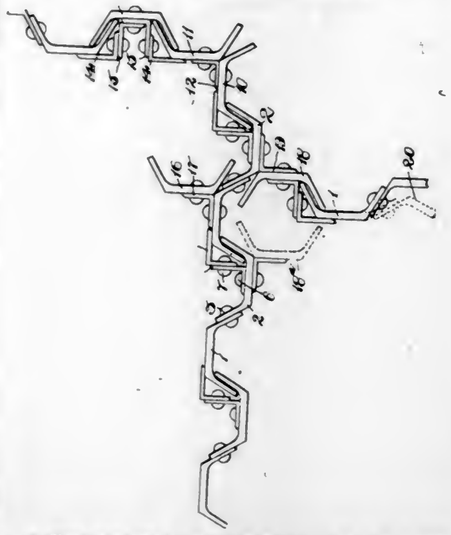
Claim.—1. An artificial-fuel block comprising comminuted coal, sawdust, rosin, and glue, intimately mixed with each other and in a solid cohesive mass; substantially as described.

2. An artificial-fuel block, comprising comminuted coal eighty-five per cent., sawdust eight per cent., rosin five per cent., and glue two per cent., intimately mixed with each other and in a solid cohesive mass; substantially as described.

3. The process of producing artificial-fuel blocks, which consists in mixing comminuted coal, sawdust, rosin, and glue, introducing steam into the mixed mass, and then molding the mixture while hot; substantially as described.

751,469. METALLIC PILING. WALTER L. COWLES and JAMES N. HATCH, Chicago, Ill. Filed Aug. 19, 1903. Serial No. 169,974. (No model.)

Claim.—1. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together, and a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange overlapping the outer leg of that section at a distance therefrom to form a guideway or space for one of the outer legs of the next unit or pile.



2. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together and two angle-irons turned in opposite directions with their contiguous flanges secured together and the outer flange of one secured to the inner face of one of said sections and the outer flange of the other projecting outwardly across and at a distance from the edge of the outer leg of that section to form therewith a guide passage or space for receiving one of the legs of the next pile or unit.

3. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs riveted together, two L-shaped angle-irons turned in opposite directions with their contiguous flanges secured together and the outer flange of one secured to the inner face of one of said sections and the outer flange of the other projecting outwardly across and at a distance from the edge of the outer leg of that section to form a triangular passage or space for receiving one of the legs of the next unit or pile.

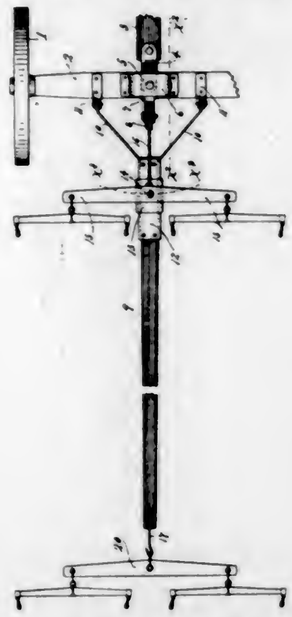
4. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs secured together and a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange projecting outwardly across and at a distance from the outer leg of that section to form a guide-passage for one of the legs of the next pile or unit, in combination with a third trough-section having its back secured to the back of one of the aforesaid trough-sections and at an angle thereto.

5. Sheet-metal piling composed of interlocking piles or units, each comprising two trough-sections having oblique or inclined legs turned in opposite directions with their contiguous legs secured together, a Z-bar having its inner flange secured to the inner face of one of said sections and its outer flange projecting across and at a distance from the outer leg of that section to form a guideway or space for one of the legs of the next pile or unit, in combination with a driving-point having a stem approximating in cross-section the cross-section of said guide-space, but distorted in some of its proportions greater than the proportions of said guide-space so as to expand the elements forming said guide-space when forced thereinto.

751,470. DRAFT-EQUALIZER. CHARLES A. DAHLEN, Farwell, Minn. Filed July 6, 1903. Serial No. 164,502. (No model.)

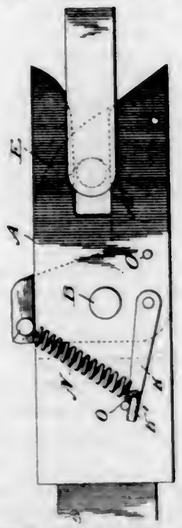
Claim.—1. The combination with a pole and a part to which it is attached, of a leverage-equalizing element attached to the same part to which said pole is attached directly at the rear of said pole, and in line therewith, an evener, mounted for a limited sliding movement on said pole, and an equalizing-draft connection attached to said evener, operating on the aforenoted draft-equalizing element, at

the rear of said pole, the forwardly-extended end of said draft connection being guided by the said pole, substantially as described.



2. The combination, with a pole and a part to which it is attached, of a bearing-bracket pivotally attached to the part to which said pole is attached, a sheave mounted in said pivoted bracket, a sliding block mounted on said pole, an evener pivoted to said block, a chain or flexible connection attached to said sliding block and passed over said sheave, and a draft-rod attached to the other end of said chain and mounted in guides on the under side of the pole, substantially as described.

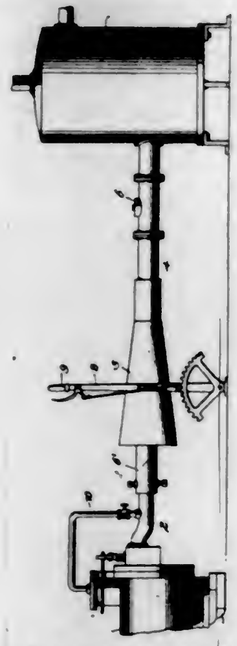
751,471. **TRACTION-COUPLING.** GOSHEN A. DECKER, Latham, Ohio. Filed Nov. 19, 1903. Serial No. 181,874. (No model.)



Claim.—1. A coupler comprising a chambered casing having a slotted end, a hook pivotally mounted within said casing, a lever pivotally mounted upon the casing, a spring connected at one end to said lever and its other end to a projection upon one end of the hook, said spring adapted to buckle and hold the free end of the hook yieldingly across said slot or at one side thereof, as set forth.

2. A coupler comprising a chambered casing having a slotted end, a hook pivotally mounted within said casing, a lug projecting from an angled end of said hook, a lever pivoted to the casing, stops upon the casing to limit the throw of the lever in opposite directions, and a spring connected at one end to said lug and its other end to said lever, as set forth.

751,472. **UTILIZING EXHAUST OF GAS-ENGINES.** ROBERT DEMPSTER, Marietta, Ohio. Filed Mar. 19, 1903. Serial No. 148,567. (No model.)



Claim.—1. A means for utilizing the exhaust of gas-engines, comprising a pipe connected to the exhaust-port, a secondary pipe for conveying the exhaust and mingled air to a point of consumption or storage, and an adjustable injector-casing mounted on the two pipes and provided with air-inlet openings at its larger end.

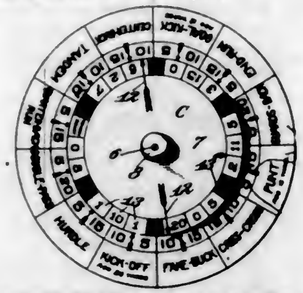
2. A means for utilizing the exhaust of gas-engines, comprising an escape-pipe connected to the exhaust-port, a secondary alining pipe leading to a point of consumption or discharge, a conical injector-casing having its smaller end slidably mounted on the second pipe, and a sleeve connected to the larger end of the injector-casing and mounted on the end portion of said escape-pipe.

3. A means for utilizing the exhaust of gas-engines, comprising a pipe connected to the exhaust-port, an alining pipe leading to a point of consumption or storage, a conical injector-casing having its smaller end mounted on the second pipe, a sleeve mounted on the end portion of the exhaust-pipe and connected to the larger end of the casing, and an operating-lever for adjusting the casing longitudinally of the two pipes.

4. A means for utilizing the exhaust of gas-engines, comprising a pipe connected to the exhaust-port, a second pipe leading to a point of consumption or storage, a check-valve in said second pipe, a conical injector-casing serving as a connecting means between the two pipes, and an auxiliary valved pipe connecting the explosion-chamber of the engine to the exhaust-pipe.

751,473. **GAME APPARATUS.** WALDO H. DENEEN and ARTHUR R. DENEEN, St. Louis, Mo. Filed May 27, 1903. Serial No. 158,965. (No model.)

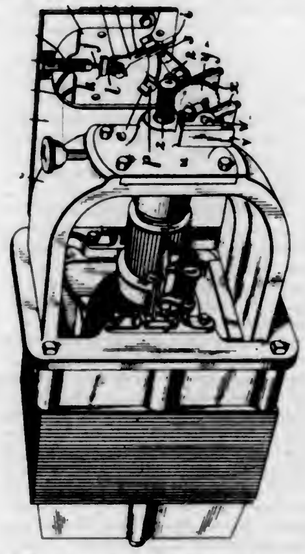
Claim.—1. A game apparatus, comprising a game-board lined to simulate a foot-ball field, a game-piece, and an indicator consisting of a base and a concentric disk, the base and disk both having divisions and numbers, one of the parts being provided with characters indicating the plays to be made, the relative positions of the spaces on one part with those on the other indicating the transverse or longitudinal movement of the game-piece.



2. A game apparatus, comprising a game-board lined to simulate a foot-ball field, a game-piece, a marker to record the movement of said game-piece, a dial to govern the movement of said game-piece, and consisting of a base and a smaller concentric rotatable disk, the disk having numbers on the outer edge and means cooperating with the numbers to govern the movements of the game-piece, division-lines on the base to provide divisions containing the instructions as to a particular play, said divisions being subdivided, said subdivisions containing numbers, indicating means between the spaces, and cooperating with the numbers on the disk to indicate the backward or forward movement of the game-piece.

3. A game apparatus comprising a game-board representing a foot-ball field, a game-piece, markers to record the movements of said game-piece, and a dial to indicate the forward, backward and lateral movements of said game-piece, said dial comprising a base and a smaller rotatable disk, said base having divisions containing the names of plays used in the game, said divisions being subdivided into smaller numbered spaces separated by arrows, the rotatable disk having an arrow cooperating with the numbered subdivisions for indicating forward and backward movement of the game-piece, and said rotatable disk also having numbered spaces on its margin, for cooperating with the first-mentioned arrows to indicate the lateral movements of the game-piece.

751,474. **POLE-CHANGER FOR DYNAMOS.** ISIDOR DEUTSCH, Montreal, Canada. Filed May 14, 1903. Serial No. 157,149. (No model.)



Claim.—1. In a pole-changer, the combination with the armature-shaft, of a dynamo, of a switch-lever having suitable contact

arms and lower extensions provided with projecting lugs, a plate having an arc-shaped slot through which the lugs extend, and means operated from the armature-shaft for altering the position of the lugs in the slot, as and for the purpose specified.

2. In a pole-changer, the combination with the armature-shaft of a dynamo, of a switch-lever having suitable contact-arms and lower extensions provided with projecting lugs, a plate having an arc-shaped slot through which the lugs extend, and a pivoted arm having its lower extremity located between the said lugs, and means operated from the armature-shaft for actuating said pivoted arm, as and for the purpose specified.

3. In a pole-changer, the combination with the armature-shaft of a dynamo, of a switch-lever having suitable contact-arms and lower extensions provided with projecting lugs, a plate having an arc-shaped slot through which the lugs extend, a pivoted arm having its lower extremity extending between the lugs, and flattened at its upper end, a spring designed to exert pressure on the flattened upper end, and means operated from the armature-shaft for actuating the pivoted arm, as and for the purpose specified.

4. In a pole-changer, the combination with the armature-shaft of a dynamo, of a switch-lever having suitable contact-arms and lower extensions provided with projecting lugs, a plate having an arc-shaped slot through which the lugs extend, a pivoted arm having its lower extremity extending between the lugs, and flattened at its upper end, a rod having an inverted cross-head spring-held against the upper end of the pivoted arm, and means operated from the armature-shaft for actuating the said pivoted arm, as and for the purpose specified.

5. In a pole-changer, the combination with the armature-shaft of a dynamo having a worm at its outer end, of a switch-lever having suitable contact-arms and lower extensions provided with projecting lugs, a pivoted arm depending between the lugs and spring-held in a definite position, a gear-wheel meshing with the aforesaid worm, a shaft journaled in suitable bearings in the dynamo-frame, and operated by the worm and gear, and a crank having a roller at the end thereof and securely attached to the extremity of the said shaft, and coacting with the arm, as and for the purpose specified

6. In a pole-changer, the combination with the armature-shaft of a dynamo, of a switch-lever having projecting lugs from lower extensions, a plate having an arc-shaped slot through which the lugs extend, a pivoted arm depending between the lugs and longitudinally slotted toward its lower end, a tongue having a limited movement in said slot, and extending downwardly therefrom, and means operated from the armature-shaft for altering the position of the lugs in the arc-shaped slot, as and for the purpose specified.

7. In a pole-changer, the combination with the armature-shaft of a dynamo having a worm at its outer end, of a switch-lever having suitable contact-arms and lower extensions provided with projecting lugs, a gear meshing with the aforesaid worm, a shaft rotated by said gear and journaled in suitable bearings in the dynamo-frame, a crank at the end of said shaft designed to engage the pivoted arm, as and for the purpose specified.

8. In device of the class described, in combination, a worm at the end of the armature-shaft, a gear, the gear-shaft having a crank at one of its ends, and bearings for said gear-shaft extending from the outer bearing member of the armature-shaft bearing and carried thereby in removal, as and for the purpose specified.

9. In a device of the class described, in combination, a plate having an arc-shaped slot extending therethrough, a switch-lever having lower extensions and projecting lugs therefrom, and supported in the said plate by a suitable spindle, an arm pivotally swinging from said spindle on the obverse side of the plate from the switch-lever, and depending between the lugs, a rod having a cross-head abutting the upper end of the pivoted arm, a spring contained in a suitable casing and designed to maintain a continuous pressure of the cross-head on the pivoted arm, a shaft having a crank at the end thereof designed to engage the pivoted arm, and a worm-and-gear mechanism operating said crank upon the revolving of the armature-shaft in either direction, as and for the purpose specified.

10. In a device of the class described, a switch-lever suitably journaled in a plate having lower extensions, and lugs therefrom extending through an arc-shaped slot in the plate, and an arm pivotally swung on the spindle and spring-held in a definite position between the projecting ends of the lugs, as and for the purpose specified.

11. In device of the class described, the combination with the armature-shaft, and a pivoted switch-lever provided with suitable contact-arms designed to coact with suitable contacts, of means attached to such lever and designed to be returned to a definite intermediate position after each operation, and means between the afore-

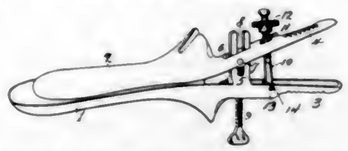
said means and the armature-shaft for changing the position of the aforesaid means, as and for the purpose specified.

12. In a device of the class described, the combination with the armature-shaft, and a pivoted switch-lever provided with suitable contact-arms designed to coact with suitable contacts, of means attached to such lever and designed to be held normally in a definite intermediate position, an arm secured to the spindle of the switch-lever, and means interposed between the armature-shaft and the switch-lever for changing the position of the switch-lever and consequently the arm, as and for the purpose specified.

13. In a device of the class described, the combination with the armature-shaft and a pivoted switch-lever having suitable projections and provided with suitable contact-arms designed to coact with suitable contacts, of a pivoted arm designed to engage the said projections, a crank engaging the said pivoted arm, means for operating said crank from the armature-shaft, and means in the pivoted arm for a limited upward movement, as and for the purpose specified

14. In a pole-changer the combination of a worm on the armature-shaft, a worm-wheel meshing therewith, a shaft upon which the gear is fixed, a crank on the said shaft to rotate therewith, switch means and a single pivoted lever operated by the said crank and in turn operating the switch means, as and for the purpose specified.

751,475. **SPECULUM.** THOMAS DE VILBISS, Toledo, Ohio. Filed Nov. 21, 1901. Serial No. 83,096. (No model.)



Claim.—1. In a speculum, a blade, a handle therefor, a slotted arm on said handle, an adjusting-screw projecting into the slot of said arm, another blade, a handle therefor, and a pivot on said latter handle which slides in said slot and which is controlled by said screw.

2. In a speculum, a pair of blades, a pair of handles therefor disposed at one side of the blades, adjustable pivotal connections between and in the same plane with said handles, and means disposed substantially in the same plane with the said two handles for regulating the distance between said handles and for securing the handles in adjusted position in relation to each other.

3. In a speculum, a blade having a handle and an arm on the handle near the mouth of the speculum, another blade, a handle therefor, a pivot on said latter handle which is mounted and movable in said arm, a screw which projects and retracts said pivot, and means for securing said latter blade in adjusted position on said pivot.

4. In a speculum, a blade, a handle therefor, a slotted arm on said handle, an adjusting-screw passing through said handle into the slot of said arm, another blade, a handle therefor, a pivot on said latter handle which slides in said slot, a screw pivoted in said first-mentioned handle, and an adjusting-nut on said screw which engages the other handle.

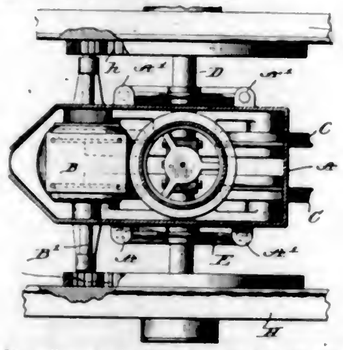
5. In a speculum, a pair of blades, a pair of handles for said blades, one of said handles having a recess therein and holes in the opposite walls of said recess which holes are out of alinement with each other, a screw having flat sides and which passes through a corresponding opening in the other of said handles, a pivot-pin on said screw which engages said holes in the walls of said recess, an adjusting-nut on said flat screw, and a laterally-movable pivotal connection between said two blades.

751,476. **SAFETY-TRUCK FOR RAILWAYS.** JOHN DEW, Chicago, Ill., assignor to L. S. M. Hood, trustee, Chicago, Ill. Filed Mar. 23, 1901. Serial No. 52,483. (No model.)

Claim.—1. A railway-truck comprising in combination with the frame and track-wheels, a pneumatically-adjustable guard-wheel supported below the axle and adapted to engage beneath a guard-rail intermediate of the track-rails.

2. In a device of the class described the combination with a truck-frame, an axle and the track-wheels thereon, of a pneumatically-adjustable guard-wheel journaled on said frame below the axle and adapted to engage a rail intermediate of the track-rail and means for augmenting the pressure of the track-wheels and the guard-wheel on the respective tracks.

3. In a device of the class described the combination with a truck-frame, an axle and the track-wheels thereon, of a plurality of pneumatically-adjustable guard-wheels journaled on said frame below the axle and adapted to engage a rail intermediate of the track-rail and means for augmenting the pressure of the track-wheels and the guard-wheels on the respective tracks.



4. In a railway-truck, the combination with the truck-frame an axle and the track-wheels thereon of a guard-wheel journaled below the axle adapted to engage beneath a guard-rail rigidly supported intermediate of and above the track-rails and pneumatic means for varying the pressure of said wheels on the respective tracks.

5. In a railway-truck the combination with the truck-frame, an axle and the track-wheels thereon of a plurality of guard-wheels journaled below the axle adapted to engage a guard-rail rigidly supported intermediate of and above the track-rails and pneumatically-operated means for varying the pressure of said wheels on the respective tracks.

6. A railway-truck comprising in combination with the truck-frame, the axle and the track-wheels, a swivel carried on the frame and a pneumatic cushion supported on said axle and adapted to sustain the weight of the car, and means operated by said cushion to increase the tension of the track-wheels.

7. A railway-truck comprising in combination with the truck-frame, the axle and the car-wheels, pneumatically-operated means adapted to increase the downward pressure of said wheels and a pneumatic cushion supported on said axle and adapted to sustain the weight of the car.

8. The combination with a truck-frame, a non-rotative axle and track-wheels rotative thereon, of a pneumatic cushion supported centrally on the axle and acting to yieldingly support the truck-frame and car and means supported below the axle adapted to engage a downwardly-turned guard-rail intermediate of and above the track-rails.

9. The combination with a truck-frame, a non-rotative axle and track-wheels rotative thereon, of a pneumatic cushion supported centrally on the axle and acting to yieldingly support the truck-frame and car and a guard-wheel rotatively supported below the axle adapted to engage a downwardly-turned guard-rail intermediate of and above the track-rails.

10. In a truck for railways the combination with a car-frame, non-rotative axle and the track-wheels journaled at the ends of the same, of guard-wheels supported on the truck-frame below the axle and acting respectively to engage downwardly-directed guard-rails located intermediate of and above the track-rails, a pneumatic cushion supported on the axle and supporting the truck-frame and means for varying the pressure on said cushion whereby the car-frame may be elevated thereby forcing the guard-wheels into positive engagement with the guard-rails.

11. In a device of the class described, the combination with a truck-frame, the axle and track-wheels of a railway-truck, of a plurality of guard-wheels supported from the axle intermediate of the track-wheels by means affording a pneumatic cushion.

12. In a device of the class described the combination with a non-rotative axle of rotative track-wheels on the ends thereof, a plurality of guard-wheels located intermediate of the track-wheels and means for yieldingly supporting the same upon the axle.

13. The combination with a non-rotative axle, of a part secured centrally thereon adapted to form one of the members of a pneumatic cushion, the other member thereof being attached to the truck-frame and guard-wheels supported on the truck-frame.

14. In a device of the class described an axle, track-wheels secured on each end thereof, pneumatic means supported on the axle, acting to yieldingly support a truck-frame and weight imposed thereon, and a saddle yieldingly engaged on each side of the center adapted to absorb vibration due to the movement of the car.

15. In a device of the class described, the combination with a non-rotative axle, and rotative track-wheels secured thereon by means affording antifriction-bearings, of a truck-frame pneumatically supported on said axle centrally thereof and guard-wheels located below the axle and adapted to positively engage a downwardly-directed guard-rail.

16. In a railway-truck, the combination with a truck-frame supported centrally of a car-axle and pneumatic means for supporting the same, of a ring secured at the top of the truck-frame, a sleeve secured therein and adapted to support the car-frame, antifriction-bearings between said ring and sleeve.

17. In a device of the class described, the combination with a truck-frame supported centrally on a car-axle by means affording a pneumatic cushion, a ring secured in the top of said frame, a sleeve secured therein, a flange on the ring and on the sleeve and a plurality of conical rollers interposed between said flanges whereby the same are adapted to have rotative movement with respect to each other.

18. In a device of the class described the combination with a truck-frame supported centrally on a car-axle by means affording a pneumatic cushion, a ring in the top of said frame, a sleeve secured on the car end and fitting therein, a plurality of conical rollers interposed between said ring and sleeve whereby the same are adapted to have rotative movement with respect to each other and interlocking means on said ring and sleeve acting to hold the same in operative relation.

19. The combination with a truck-frame and a car-axle of means comprising a member supported on the axle and a member secured on said frame together affording an air-cushion a hanger or saddle on each side of said frame adjacent to the axle and thrust-bearings secured laterally on the frame engaging therein.

20. The combination with a truck-frame and a car-axle of means affording a pneumatic spring or cushion comprising a member supported on the axle and a member secured on said frame, a saddle or hanger on each side of said frame adjacent to the axle, sockets therein and a thrust-pin or bearing on each side of the shaft engaging in said sockets in said saddle and a spring interposed in said sockets adapted to be compressed by said pins.

21. In a device of the class described, the combination with the axle of a truck-frame supported thereon, means comprising interfitting members on the axle and on the truck-frame together acting to form a pneumatic cushion, guard-wheels located below the axle and supported on said frame and adapted to be drawn upwardly into positive but yielding engagement with guard-rails.

22. In a device of the class described the combination with a pneumatically-supported truck-frame, of a downwardly-beveled ring secured axially thereof, a sleeve adapted to be secured to the car, interfitting with said ring and beveled upwardly and antifriction-bearings beveled to fit the beveled faces of the ring and sleeve, said members together forming a pivoted bearing of the truck with the car.

23. In a device of the class described, a car-axle, a car-frame supported thereon by means affording a pneumatic cushion, a pivotal bearing for said frame and the car adapted to be supported thereon comprising a ring rigidly secured in the top of said frame, a sleeve interfitting therewith, antifriction-bearings between the same, an opening leading through said members to the interior of the car-frame and a closure for said openings.

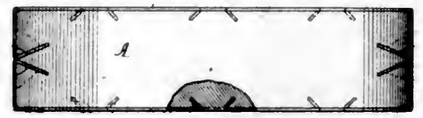
24. A railway-truck comprising in combination with the frame and track-wheels, a guard-wheel located below the axle, and adapted to engage a guard-rail intermediate of the track-rails, a motor supported on said frame and provided with means for engaging and operating the track-wheels and pneumatically-operated means for adjusting the guard-wheel opposite from the track-wheels acting to produce greater pressure of the latter upon their respective rails.

25. In a truck for railways the combination with a car-frame, non-rotative axle and the track-wheels journaled at the ends of the same, of guard-wheels supported on the truck-frame below the axle and acting respectively to engage downwardly-directed guard-rails located intermediate of and above the track-rails, a pneumatic cushion supported on the axle and supporting the truck-frame and means for varying the pressure on said cushion whereby the car-frame may be elevated thereby forcing the guard-wheels into positive engagement with the guard-rails and a motor supported on said frame and provided with means for engaging and operating the track-wheels.

26. In a device of the class described, the combination with a car-truck frame and its axle, of guard-wheels located below the axle on each side thereof and on each side of a longitudinal median line thereof and adapted to engage one or more guard-rails secured intermediate of the track-rails and above the same and pneumatic means for varying the elevation of said guard-wheels with respect to the track-wheels.

27. The combination with a car-axle of a cylindric member secured centrally thereon, a cylindric casing secured on a car-truck frame and adapted to receive the same, and therewith form a pneumatic cushion, means for introducing air under pressure therein and antifriction means for supporting a car on said frame, and guard-wheels supported from the truck-frame.

751,477. **BRAKE-SHOE.** FRANK T. DICKINSON, Chicago, Ill. Filed May 27, 1903. Serial No. 158,905. (No model.)



Claim.—1. A brake-shoe comprising a cast-metal body and a frame or band open at its top and bottom and surrounding both the sides and ends of the cast-metal body of the shoe and united thereto in the casting operation.

2. A brake-shoe comprising a cast-metal body and a frame or band surrounding both the sides and the ends of said cast-metal body of the shoe, said frame or band having inwardly-extending portions embedded in the cast-metal body of the shoe.

3. A brake-shoe comprising a cast-metal body and a frame or band surrounding the sides and ends of said cast-metal body, said frame or band having formed integral therewith inwardly-extending lips embedded in the body of the shoe in the casting operation.

4. A brake-shoe comprising a cast-metal body and a frame or band surrounding the sides and ends of said cast-metal body and having inwardly-turned ends embedded in the cast-metal end portions of the shoe-body.

5. A brake-shoe comprising a cast-metal body, a frame or band extending around the sides and ends of said cast-metal body and provided at its ends with inwardly-extending portions and at its sides with inwardly-extending portions embedded in the cast-metal body of the shoe.

6. A brake-shoe comprising a cast-metal body and a frame or band extending at the sides of said body and having intermediate between its ends inwardly-extending lips formed integral therewith and embedded in the cast-metal body in the casting operation.

7. A brake-shoe comprising a cast-metal body, a frame or band surrounding the sides and ends of the cast-metal body, said frame or band having openings in its sides and having at said openings inwardly-extending lips extended in the cast-metal body of the shoe.

751,478. **MINING-MACHINE.** HENRY B. DIERDORFF, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Dec. 10, 1896. Renewed Dec. 28, 1898. Serial No. 700,560. (No model.)

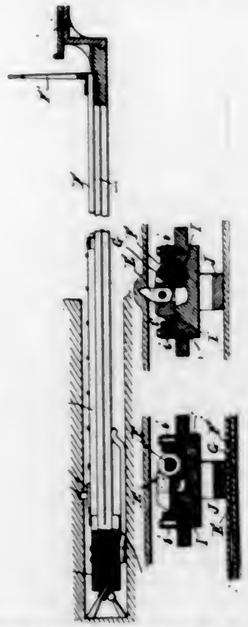
Claim.—1. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, the holding device rigidly connected with the carriage laterally and adapted to be moved toward and from the carriage, and means for moving the holder device at will into and out of engagement with the coal, substantially as set forth.

2. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, the holding device rigidly connected with the carriage laterally and adapted to be moved vertically toward and from the coal, and the bolder-operating devices extending to points outside of the kerf, and adapted to be moved to throw the holder into and out of engagement with the coal, substantially as set forth.

3. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, the holding device adapted to be moved into the kerf as it is being formed by the cutters without engaging with the coal, and means for moving the holding device into engagement with the coal after said holder has been carried sufficiently far into said kerf, substantially as set forth.

4. In a mining-machine, the combination, of the bed, the longitudinally-movable carriage, the laterally-acting cutters on the carriage, and a holding device supported by the carriage and adapted to engage with the coal and remain stationary in engagement with

the coal while the carriage is advancing longitudinally, substantially as set forth.



5. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, the holding device sliding back and forth longitudinally on the carriage, and means for causing the holding device at will to engage with the coal, substantially as set forth.

6. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, a feed mechanism the holding device on the carriage independent of the feed mechanism and adapted to be moved toward and from the carriage, and means for moving the holder device at will into and out of engagement with the coal, substantially as set forth.

7. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, a feed mechanism, the holding device on the carriage independent of the feed mechanism and adapted to be moved vertically toward and from the coal, and the holder-operating devices extending to points outside of the kerf, and adapted to be moved to throw the holder into and out of engagement with the coal, substantially as set forth.

8. In a mining-machine, the combination, of the bed, the longitudinally-movable carriage, the laterally-acting cutters on the carriage, a feed mechanism for the carriage, the holding device independent of the feed mechanism and adapted to be moved into the kerf formed by the cutters without engaging with the coal, and means for moving the holding device into engagement with the coal after said holder has been carried into said kerf, substantially as set forth.

9. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, a feed mechanism for the carriage, and a holding device independent of the feed mechanism and supported by the carriage and adapted to engage with the coal and remain stationary while the carriage is advancing, substantially as set forth.

10. In a mining-machine, the combination, of the bed, the carriage, the laterally-acting cutters on the carriage, a feed mechanism, the holding device independent of the feed mechanism sliding back and forth longitudinally on the carriage, and means for causing the holding device at will to engage with the coal, substantially as set forth.

11. In a mining-machine, the combination of a bed, a carriage, cutters on the said carriage, a holding device on the carriage and movable therewith in the kerf as it is being formed by the cutters when in its disengaged position, mechanism for operating said holding device and means for operating the cutters, said carriages being forwardly movable independent of said holding device, and independent of said operating mechanism when the holding device is in its engaged position, substantially as set forth.

751,479. WREST-PIN FOR PIANOFORTES. THOMAS DODDRELL, Slough, England. Filed Apr. 27, 1903. Serial No. 154,526. (No model.)



Claim.—The wrest-pin for pianofortes and other musical instruments having a screw-thread at least as coarse as the diameter of the wire and extending over the portion covered by the wire as well as that portion in the wrest-plank, substantially as described for the purpose specified.

751,480. CAP. WILLIAM F. DRAKE, Pueblo, Colo. Filed May 29, 1903. Serial No. 159,323. (No model.)



Claim.—1. The combination in a cap, of a top portion, a side wall secured to the top and having its ends permanently secured together at the upper margin, said side wall having at one end thereof a prolongation and at the other end thereof an opening between the plies of which the side wall is composed to receive said prolongation, and means for securing the ends of said side wall in adjusted position.

2. The combination in the cap of a top, a side wall secured to the top and having its ends permanently secured together at the upper margin, said side wall having at one end a triangular prolongation and at the other end an opening between the plies of material of which the side wall is composed to receive said prolongation, and means for fastening the ends of the side wall together.

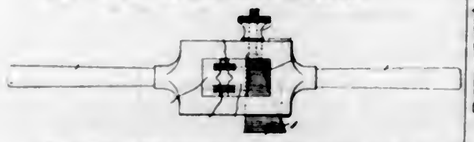
3. The combination in a cap, of a top, a side wall attached thereto, a prolongation at one end of said side wall, an opening between the plies of material of which the side wall is formed at the other end thereof to receive said prolongation, tabs having lacing-apertures secured to the inner surface of said side wall near the ends, and a lacing engaging said apertures to hold the ends of the side wall together.

4. The combination in a cap, of a top, a side wall attached thereto and having at one end a prolongation and at the other end an opening between the plies of the material of which the side wall is composed to receive said prolongation, a sweat-band attached to the lower margin of the side wall, lacing-tabs secured to the inner surface of the side wall behind the sweat-band, and a lacing-cord engaging said tabs to hold the ends of the side wall together.

5. The combination in a cap, of a top, a side wall having a stiff inner ply and a soft outer ply, a prolongation at one end of said side wall comprising both plies, an opening at the other end of the side wall between the plies thereof to receive said prolongation, and means for fastening the ends of the side wall together.

6. The combination in a cap, of a top, a side wall attached thereto, said side wall comprising a stiff inner ply and a soft outer ply and having at one end thereof a prolongation of triangular form comprising both plies and at the other end an opening between the plies for the reception of said prolongation, means for fastening the ends of the side wall together, and a strip of reinforcing material associated with the free margin of the outer ply of the side wall at the end thereof having an opening between the plies.

751,481. WRENCH. FREDERICK A. DRURY, Jersey City, N. J. Filed Jan. 15, 1903. Serial No. 139,066. (No model.)



Claim.—The within-described tool comprising a handled head with a rectangular opening, the portions forming the sides whereof extend to both parts forming the end walls of the opening, said sides having ribs within the opening extending from one end wall and abruptly terminating some distance from the other end wall, said sides being slotted between such abrupt ends and contiguous end wall, jaws for lateral introduction between the abrupt ends and proximate end wall, and grooved for longitudinal engagement with the ribs, said jaws having companion pairs of recesses at opposite sides, one pair of recesses being in a different vertical plane than that of the other pair, and longitudinally-disposed expanding-springs interposed between the jaws and having their ends seated in the recesses, a gib having its ends within the slotted sides and bearing against the adjacent wall, the ends of said gib having lips engaging the end surfaces of said wall, and a wedge-shaped key, also having its ends within the slotted sides, said key bearing against the gib and adjacent jaw, a threaded stem integral with the smaller end of the key and projecting through and beyond the contiguous slotted side, and an adjusting-nut engaging said stem and bearing against the outer surface of said side.

751,482. DEEP-WELL PUMP-VALVE. JOSEPH H. DUKE, Corry, Pa., and JOHN F. BRAY, Saltpetre, Ohio. Filed Mar. 11, 1903. Serial No. 147,318. (No model.)



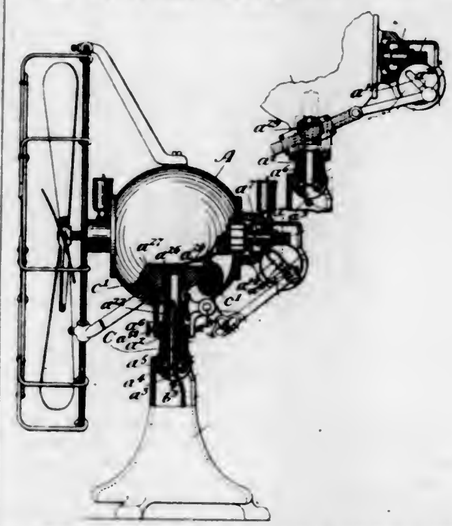
Claim.—The combination with a deep-well pump-piston or working valve, of a stem depending from the lower end thereof, a screw-threaded nipple on the lower end of said stem, a screw-threaded shoulder above the nipple on said stem, and a rotatable sleeve on said stem having internal screw-threads engaging the screw-threaded shoulder on the stem, and also having notches on its lower end, substantially as and for the purpose set forth.

751,483. RAILWAY-RAIL JOINT. THOMAS J. DYE, Gloster, Miss., assignor of one-fourth to John H. Hines, Gloster, Miss. Filed July 22, 1903. Serial No. 166,631. (No model.)



Claim.—In a rail-joint, the combination with the abutting rail ends having bolt-holes, of clamp-plates having corresponding bolt-holes, threaded clamp-bolts located in said bolt-holes and provided with nuts, spring-plates on said bolts between said nuts and the adjacent clamping-plates, a lock-plate having spaced apertures engaging said nuts, and binding-nuts on the ends of the bolts engaging the contiguous surface of the lock-plate, and means provided in the bolt ends for locking the nuts engaging the lock-plate.

751,484. FAN. CHARLES A. ECK, Belleville, N. J. Filed Apr. 2, 1903. Serial No. 150,802. (No model.)



Claim.—1. The combination with a base, of a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on said motor, a worm carried by the same, a worm-wheel engaging with said worm, a gear stationary with the base, a gear moving with the fan-motor engaging with the first-mentioned gear, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the gear moving with the motor, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

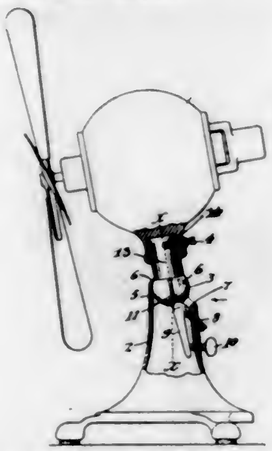
2. The combination with a base, of a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on said motor, a worm carried by the same, a worm-wheel engaging with said worm, a spiral stationary with the base, a segment moving with the fan-motor engaging with the spiral, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the segment, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

3. The combination with a base, a fan-motor, a spindle mounted to turn on the base carrying the said motor, an armature-shaft on said motor, a worm carried by the same, a worm-wheel engaging with said worm, a gear stationary with the base, a gear moving with the fan-motor engaging with the first-mentioned gear, a friction-disk moving with the worm-wheel, and a rod connecting the friction-disk with the gear moving with the motor and adjustably secured to the said friction-disk, whereby the rotation of the armature-shaft causes the spindle carrying the fan-motor to oscillate.

4. The combination with a base, of a fan-motor mounted to turn upon the said base, an armature-shaft carried by the motor, and means for oscillating the said motor with relation to the base comprising in part a worm carried by the armature-shaft, a shaft located at right angles to the armature-shaft, a friction-disk having a bushing on said shaft, a worm-wheel and two insulation-disks between which latter it is interposed on said bushing, the worm-wheel engaging with the worm aforesaid, and springs on said bushing for keeping the worm-wheel and composition disks in contact with the friction-disk whereby the said friction-disk moves with the worm-wheel.

5. The combination with a base and fan-motor having an armature-shaft and mounted to turn with relation to the base, of means for oscillating the said fan-motor from the armature-shaft of same comprising: a gear fixed with relation to the base, a segment engaging with the same mounted on the fan-motor, an arm and a pin on the segment, a rod having a slot with an aperture for the reception of the pin of the segment, and gearing connecting said rod with the armature-shaft of the motor.

751,485. FAN. CHARLES A. ECK, Newark, N. J. Filed June 20, 1903. Serial No. 162,340. (No model.)



Claim.—1. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, a loosely-pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket.

2. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, a loosely and adjustably pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket.

3. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, an adjustable screw in the said base below the said ball, a lever loosely supported at one end on the said adjustable screw, and a set-screw in the said base adapted to engage with the lower end of the said lever so as to move the upper end of the same into contact with the ball to tighten the said ball up against the socket.

4. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, a loosely-pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket, means for preventing the ball frote turning horizontally in the socket, a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

5. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, a loosely and adjustably pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket, means for preventing the ball from turning horizontally in the socket a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

6. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, an adjustable screw in the said base below the said ball, a lever loosely supported at one end on the said adjustable screw, and a set-screw in the said base adapted to engage with the lower end of the said lever so as to move the upper end of the same into contact with the ball to tighten the said ball up against the socket, means for preventing the ball from turning horizontally in the socket, a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

7. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out in the said socket, a loosely-pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket.

8. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out in the said socket, a loosely and adjustably pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket.

9. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out in the said socket, an adjustable screw in the said base below the said ball, a lever loosely supported on one end on the said adjustable screw, and a set-screw in the said base adapted to engage with the lower end of the said lever so as to move the upper end of the same into contact with the ball to tighten the said ball up against the socket.

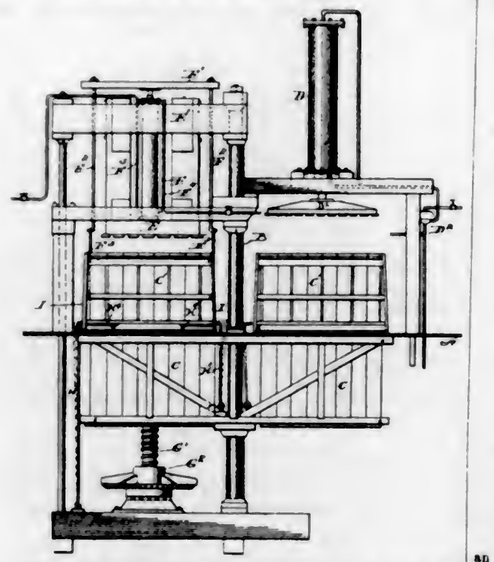
10. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out in the said socket, a loosely-pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket, means for preventing the ball from turning horizontally in the socket, a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

11. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out in the said socket, a loosely and adjustably pivoted lever in the base below the said ball, and means for moving the said lever into contact with the ball so as to tighten the said ball up against the socket, means for preventing the ball from turning horizontally in the socket, a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

12. The combination with a fan-motor and a base, of means permitting the said fan-motor to be adjusted at an angle to the said base comprising: a ball having an extension supporting the said fan-motor, a socket on the base adapted to embrace the ball, a cut-out

in the said socket, an adjustable screw in the said base below the said ball, a lever loosely supported at one end on the said adjustable screw, and a set-screw in the said base adapted to engage with the lower end of the said lever so as to move the upper end of the same into contact with the ball to tighten the said ball up against the socket, means for preventing the ball from turning horizontally in the socket, a circumferential slot extending part of the way around the extension of the ball, and a set-screw in the fan-motor extending into the said slot whereby the fan-motor can be adjusted circumferentially with relation to the base on the extension of the said ball.

751,486. BALING-PRESS. WILLIAM E. ELAM, Atlanta, Ga. Filed May 9, 1903. Serial No. 156,330. (No model.)



Claim.—1. The combination with a transversely-divided press-box, of means for compressing the material in the box and forcing it into one of the parts, and means for moving that part bodily in the line of compression to expose the compressed material.

2. The combination with a transversely-divided press-box, of means for keeping both parts stationary during compression, means for compressing the contents of the box into one of its parts, and ower-actuated devices for then moving said part from its companion to expose the compressed material.

3. In a baling-press, the combination with a platen and a plunger coacting therewith, of a press-box transversely divided at a point normally between the platen and plunger, and means for moving one part of the box in the line of compression to expose the material held between the platen and plunger.

4. The combination with a transversely-divided press-box having one part arranged for bodily movement from its companion, means for locking said part against such movement, and means for counterbalancing the weight of such part.

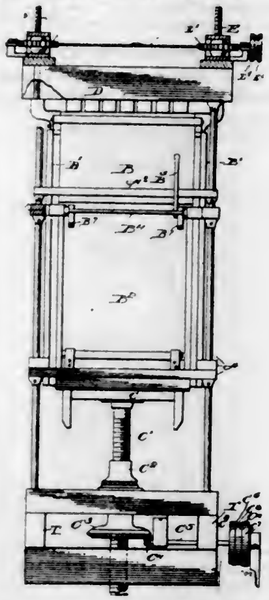
5. In a baling-press, the combination with compressing and resisting members, of a transversely-divided press-box normally inclosing the space between the two and having one part arranged to more, sleeve like, over one of said members to expose material within said part before such movement.

6. In a baling-press, the combination with a transversely-divided press-box, of a platen and a coacting plunger arranged to compress the material in the box into one part of the same and hold it, a cylinder and a fluid-operated plunger therein, and means for at will operatively connecting said plunger to said box part to move the latter bodily and thus expose the material between the platen and plunger.

7. The combination with transversely-divided twin press-boxes arranged to revolve about a common axis to bring either box in line with a reciprocating packing-plunger and the other simultaneously into line with a platen and a coacting plunger giving final compression, and devices detachably connecting the plunger first mentioned with one part of the opposite box to forcibly move it and expose the space between the platen and plunger.

8. In a baling-press, the combination with a resisting member and a coacting compressing member, of a gradually-tapered box normally inclosing the space between the two and arranged to be moved in the direction of its tapering.

751,487. BALING-PRESS. WILLIAM E. ELAM, Atlanta, Ga. Filed June 13, 1903. Serial No. 161,314. (No model.)



Claim.—1. The combination with a press-frame, of a platen and an opposing plunger of approximately the same area mounted in the frame, means for forcibly lessening the distance between the two to compress material between them, a sleeve-like press-box adapted to inclose both platen and plunger and form with them a press-chamber, and means for forcibly sliding the press-box longitudinally to expose the material while it is held under compression between the platen and plunger.

2. The combination with a press-frame, of a tubular press-box arranged for sliding longitudinally therein and provided with a lateral door in one end portion of the box, a plunger arranged to work in said end portion to force material therefrom into the opposite end portion of the box, a platen limiting the advance of material in said opposite end portion, and means for forcing the box to slide longitudinally to expose the material while the plunger still presses it against the platen.

3. The combination with a press-frame, of a press-box longitudinally movable in the frame, a platen normally in one end portion of the box and adapted to receive ordinary bale-binding devices, a plunger arranged to enter the opposite end of the box and adapted to receive bale-binding devices while pressing a bale, and power-actuating devices for sliding the box parallel to the direction of compression and exposing the bale while it is still held under compression between the platen and plunger.

4. The combination with a press-frame, of a press-box provided with a lateral door near one end and arranged to slide in said frame, a platen and plunger arranged to compress material in the box, and devices upon the frame adapted to hold the door securely closed yet permitting the box to slide.

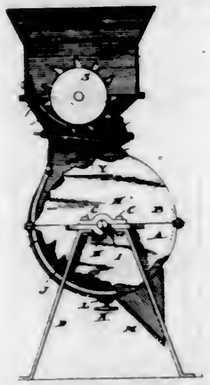
5. The combination with a press-frame and a press-box arranged for sliding longitudinally therein, of two screws connecting opposite sides of the box, respectively, with the frame, means for equally and synchronously advancing the screws to move the box with respect to the frame, a platen normally lying in one end portion of the box, and a platen arranged to move forward in the opposite end of the box and compress material against the platen.

6. The combination with a suitable frame, of a press-box ar-

ranged to slide therein and having a laterally non-openable end portion and a lateral door in the opposite end portion, a plunger arranged for pushing material from the second portion into the first portion, a platen limiting the advance of such material in the first portion, means for holding the door closed at proper times, and means for sliding the box longitudinally while the material is held between the platen and plunger.

7. The combination with a suitable frame of a press-box mounted therein and provided with a lateral door, of a toggle-joint bar mounted upon the frame and having its end pivotally and detachably engaging the door, and means for at will throwing the middle of the bar out of alinement and thereby opening the door.

751,488. **FEED-GRINDER.** JOHN A. ENGEL, Washington, Ill. Filed June 25, 1903. Serial No. 163,053. (No model.)



Claim.—1. In a grinding-mill, a grinding-cylinder provided on its periphery with parallelograms composed of parallel ribs of A-shaped cross-section, each set of ribs lying at right angles to those of a parallelogram immediately adjoining, said parallelograms lying diagonally of the direction of rotation of the cylinder substantially as described and shown in combination with a concave for assisting in the grinding operation.

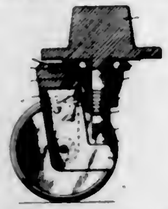
2. In a grinding-mill, a griading-cylinder having its periphery divided into squares each of which has one of its diagonals parallel with the axis of the cylinder, and a series of parallel ribs of A-shaped cross-section filling each square, the ribs of one square lying at right angles to those of a neighboring square as shown.

3. In a grinding-machine, the body of the machine, a grinding-cylinder adapted for revolution therein, a concave pivotally supported in said machine adjacent to the cylinder for assisting in the grinding and constituting one of the grinding members, a series of horizontal parallel ribs formed with the concave and occupying the lower one-half of the surface of said concave, said ribs being A-shaped in cross-section and lying close together at the lower extremity of the concave and gradually separating as they rise, a series of vertically-arranged ribs extending from near the top rib of the horizontal series to near the top of the concave, there being a depression between each pair of said vertical ribs as described, an A-shaped rib lying between the top rib of the series of horizontal ribs and the lower end of each of the vertical ribs, and a V-shaped rib between the A-shaped ribs with the depressions between the vertical ribs all as shown and described and for the purposes described.

4. In a grinding-mill, the body of the mill, a receiving-hopper at the top thereof, a cylinder therein for breaking the ear-corn fed thereto, teeth for the cylinder, a concave adjacent to the cylinder the same being in the form of a comb and having its teeth extending between the teeth of the cylinder, a second cylinder beneath the first, a cut-off between the two cylinders for regulating the flow of grain to said second cylinder and a concave pivoted adjacent to the latter cylinder and adjustable thereat and means for gaining such adjustment substantially as set forth.

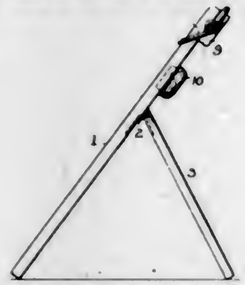
5. In a grinding-mill, the body thereof, a receiving-hopper at the top thereof, a cylinder therein for breaking the ear-corn, teeth for the cylinder, the same being arranged in a single row in a spiral manner around the said cylinder, a concave adjacent to the cylinder, the same being in the form of a comb and having its teeth extending between the teeth of the cylinder close to the body of the latter, a second cylinder beneath the first and having its grinding-surface divided into squares lying diagonally to the length of the cylinder, a series of raised ribs of A-shaped cross-section filling each square, the ends of the ribs of one square lying adjacent to the sides of the ribs of each neighboring square as shown, a concave pivoted adjacent to the latter cylinder and adjustable for the purposes described, a series of horizontal ribs on the lower half of the grinding-surface of the concave the said ribs being A-shaped in cross-section and lying close together at the lower extremity but separating toward the top, a series of vertical ribs, A shape in cross-section, for the upper half of the concave, there being depressions between them, an A-shaped rib lying between the lower end of each vertical rib and the top horizontal rib and a V-shaped rib occupying a position between the said A-shaped ribs all substantially as shown and described.

751,489. **CASTER.** JAMES EYRERIDGE, Hamilton, Ohio. Filed June 6, 1903. Serial No. 160,423. (No model.)



Claim.—In a caster, the combination with a housing having rollers journaled therein, and an integral arm extending from the housing and between the rollers; of a cap, a stem integral therewith and bearing upon the arm, a sleeve loosely and adjustably mounted upon the stem, said sleeve forming a bearing for the cap, a T-shaped arm extending laterally from the sleeve and engaging the housing, and a lug integral with the sleeve engaging the arm, said arm and the lug of the sleeve permitting independent lateral movement of the housing and stem.

751,490. **COPY-HOLDER.** FRANCIS M. FILLER, St. Joseph, Mo., assignor of one-half to Charlie K. Pering, St. Joseph, Mo. Filed Apr. 10, 1903. Serial No. 151,960. (No model.)



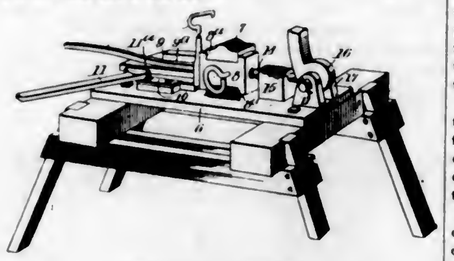
Claim.—1. A copy-holder comprising a flat plate, a flat prop hinged to the back thereof, a transverse spring-shaft carrying a retainer and mounted on the back of said plate above the prop, and a cover for said shaft of substantially the same thickness as the prop.

2. A copy-holder comprising a flat plate, a prop hinged to the back thereof, a transverse shaft near the top of said plate, a helical spring having one end secured to said shaft and the other end stationary, a recessed cover for said shaft and spring secured to the back of said plate and of substantially the same thickness as the prop, a handle on one end of said shaft, and a retainer carried by said shaft and extending over the front of the plate.

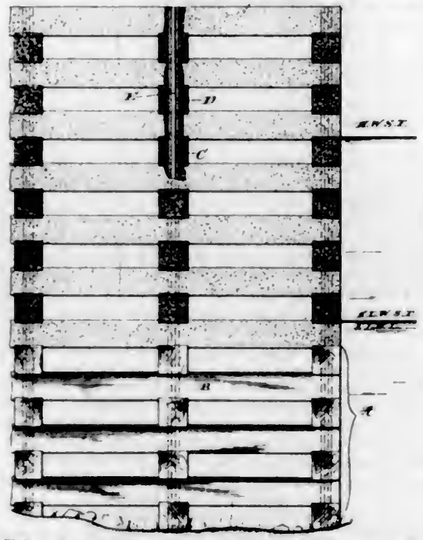
3. A copy-holder comprising a flat plate, a stout wire twisted into a handle-loop and having two parallel legs, one forming a shaft journaled across the back of the plate and the other extending over its front, and a spring coiled around said shaft with one end secured thereto and the other end held stationary.

751,491. **UPSETTING-MACHINE.** WILLIAM D. FLORANCE, Dallas, Tex. Filed Jan. 20, 1903. Serial No. 139,729. (No model.)

Claim.—The combination with a bed, and a die-stock projecting upwardly therefrom and open at one side, of a perforated die in the stock having projecting shoulders bearing against the ends of the stock, a sliding abutment opposite one end of the die having a groove lengthwise thereof to receive the work, and a plunger opposite the other end of the die.



751,492. **CRIBWORK OR THE LIKE.** JOSEPH W. FRASER, Ottawa, Canada. Filed Oct. 16, 1903. Serial No. 177,294. (No model.)



Claim.—1. In a cribwork or the like, the combination of a substructure composed of timber; and a superstructure composed of concrete members formed previously to their being put in place.

2. In a cribwork or the like, the combination of a substructure composed of timber; a superstructure composed of concrete members; and means for securing the various parts together.

3. In a cribwork or the like, the combination of a substructure composed of treated timbers; and a superstructure composed of concrete members, said members being formed previously to their being put in place.

4. In a cribwork or the like, the combination of a substructure composed of treated timbers; a superstructure composed of concrete members, said members being formed previously to their being put in place; and means for securing the various members together.

5. A cribwork having its superstructure composed of concrete members, said members being formed previously to their being put in place.

6. A cribwork having its superstructure composed of a series of interlocked concrete members.

7. A cribwork having its superstructure composed of a series of concrete members, said members being formed previously to their being put in position; and means for securing said members together.

8. A cribwork having its superstructure composed of a series of concrete members, said members being formed previously to their being put in position; and a series of rods passing down through said members at their points of intersection, substantially as described.

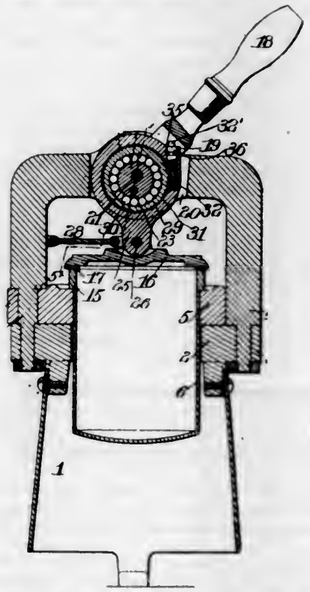
9. A cribwork having its superstructure composed of a series of interlocking concrete members, said members being formed previously to their being put in place; and a series of rods passing down through openings formed at the points of intersection of said members, substantially as described.

10. A cribwork having its superstructure composed of a series of interlocking concrete members, said members being formed previously to their being placed in position, each of said members being provided with an opening at those points where it crosses other members; iron rods passing down through the alined openings in the various members; and a filling placed in the openings, substantially as described.

11. In a cribwork or the like, the combination of a superstructure composed of a series of concrete members, said members being formed previously to their being put in position; a substructure of timbers; and a series of rods extending down through alining openings formed in the concrete members and the timbers, substantially as described.

12. A cribwork having its superstructure composed of a series of concrete members formed previously to their being put in place, combined with a sheathing secured to the outer face of the cribwork.

751,493. **VULCANIZER.** JACOB P. FUNCK, Rochester, N. Y., assignor of one-half to Philipp Funck, Rochester, N. Y. Filed Sept. 17, 1902. Serial No. 123,674. (No model.)



Claim.—1. In a vulcanizer, the combination with a frame, a retort therein and a yoke, of an eccentric journaled thereon, an eccentric-strap and an eccentric-ring arranged between the eccentric and the strap and means on the strap for revolving the ring independently thereof, a closure for the retort operated upon by the strap and connections between the closure and frame for centering the former on the retort.

2. In a vulcanizer, the combination with a frame, a retort therein and a yoke, of an eccentric, a ring having the inner and outer annular surfaces arranged eccentric to each other, and located between the strap and eccentric, the teeth on the ring, a gear-wheel on the strap engaging therewith to move the ring independently of the eccentric and a closure for the retort adapted to be engaged by the eccentric-strap.

3. In a vulcanizer, the combination with a frame, a retort therein, and a yoke extending above the latter, of an operating-handle journaled on the yoke and provided with an eccentric, an eccentric-ring mounted on the latter and a strap surrounding the ring, means for adjusting the latter in the former, a closure for the retort attached to the strap and means arranged between the frame and closure for centering the latter on the retort.

4. In a vulcanizer, the combination with a frame, a retort therein, and a yoke extending above the latter, of an operating-handle, a journal-pin securing it on the yoke, an eccentric supported by said

pin and locking connections between the eccentric and handle, a ring surrounding the eccentric having the inner and outer annular surfaces arranged eccentric to each other and antifriction-balls located between the ring and eccentric, a strap surrounding the ring, means for adjusting the latter therein and a closure for the retort operated upon by the strap when the operating-handle is moved in one direction.

5. In a vulcanizer, the combination with a frame provided with an open side, a support journaled on the frame and a retort mounted in the support, of a yoke extending over the frame, a closure for the retort and means for holding said closure and retort in operative engagement.

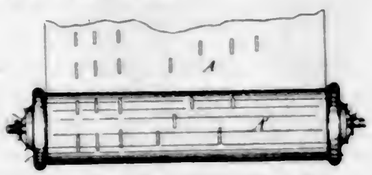
6. In a vulcanizer, the combination with a frame having an opening at one side thereof, a removable support mounted on the frame and a retort held in the support, of a yoke extending over the frame, a closure for the retort and means on the yoke for operating the closure into engagement with the retort.

7. In a vulcanizer, the combination with a frame having an opening at one side, and a yoke extending above the frame having the legs connected thereto, of a support on the frame journaled to one of the said legs, a retort mounted on the support a closure for the retort and means for holding said parts in engagement.

8. In a vulcanizer, the combination with a frame open at one side, a support normally resting on the frame and movable laterally thereof and an apron adapted to close the opening in the frame, of a retort held on the support, a closure therefor and means for holding the closure and retort in engagement.

9. In a vulcanizer, the combination with a frame, a retort therein, and a yoke extending above the latter, of an operating-handle having two arms, a journal-pin extending through the arms and an eccentric arranged between the arms and supported on the pin, of cover-plates arranged at opposite sides of the eccentric, a pin extending through the arms and eccentric, a strap surrounding the latter and arranged between the plates and a closure for the retort attached to the strap.

751,494. ADJUSTABLE AND SELF-ADJUSTING MUSIC ROLL AND SPOOL. MERRITT GALLY, Brooklyn, N. Y. Filed Aug. 29, 1903. Serial No. 171,206. (No model.)



Claim.—1. A self-adjusting or compensating music-spoot for an automatic music-sheet; the spool having a central hub on its spindle; and a screw-thread on the spindle; for adjusting the hub to the spindle.

2. A self-adjusting or compensating music-spool for an automatic music-sheet; the spool having a central hub on its spindle; a screw-thread on the spindle for adjusting the hub thereto; and means in the hub to operate in the gain of the screw-thread.

3. A self-adjusting or compensating music-spool for an automatic music-sheet; the spool having a central hub on its spindle; a screw-thread on the spindle for adjusting the hub to the spindle; and a set-screw having its point engaging with the thread on the spindle for coacting therewith.

4. A self-adjusting or compensating music-spool for an automatic music-sheet; having an expansible and contractible core, affected hygroncirically by atmospheric changes; the core having end hubs; the hubs connected together to form the body of the core by strips of expansible and contractible material.

5. A self-adjusting or compensating music-spool, for an automatic music-sheet, having an expansible and contractible core, affected hygrometrically by atmospheric changes; the core comprising end hubs and a central hub, tied together by strips of expansible and contractible material, and exposed to the atmosphere.

6. A self-adjusting or compensating music-spool for an automatic music-sheet, having an expansible and contractible core, affected hygrometrically by atmospheric changes; comprising end hubs tied together by strips of expansible and contractible material, as a skeleton placed within the chamber of the music-roll formed by the coils of the music-sheet.

7. A self-adjusting or compensating music-spool for an automatic music-sheet, having an expansible and contractible core, affected hygrometrically by atmospheric changes; comprising end hubs or flanges; a central hub; all tied together by strips of expansible material; a spindle for the core, the end hubs loose on the spindle; and the central hub fitted to a screw-thread on the spindle for adjustment.

8. A self-adjusting or compensating music-spool for an automatic music-sheet, having an expansible and contractible core; affected by hygrometric changes, having end hubs, loose on a spindle and a central hub; a screw-thread on the spindle for adjusting the hub, and a set-screw for making the hub fast in position.

751,495. CAR-DOOR FASTENER. EDWARD A. GAUCHET, Sangatuck, Conn. Filed May 4, 1903. Serial No. 155,904. (No model.)



Claim.—1. A locking device for car-doors, comprising, in combination, a rotatable bolt having a bayonet-slot in its periphery, a head for said bolt, an arm projecting from said head at right angles to said bolt, a lug projecting at right angles to said arm and having an opening therethrough, a non-rotatable support having a head, a door-check or stop-arm projecting from said head in the pathway of the car-door, a stud projecting from said head, said bolt journaled on said stud, an arm projecting from said head at right angles to said stud, said arm having an opening therethrough to register with the opening of the bolt-arm to receive a sealing-wire or lock-hasp, a socket in the side of the car at the rear of the car-door to receive said bolt when the door is closed, a stud projecting into the path of said bolt and adapted to engage the bayonet-slot therein so that, when said arms register with each other, the bolt is locked in said socket, and when said arms are separated a predetermined distance from each other, the bolt and its support is adapted to be removed out of the pathway of the car-door, for the purpose set forth.

2. In a locking device for car-doors, comprising, in combination, a locking-bolt, a base carrying a stud on which said bolt is rotatably mounted, said base and bolt having arms adapted to register with each other, means whereby said arms are locked in such registered position, a socket in the side of the car, means on said socket and bolt to prevent the withdrawal of the bolt when said arms register with each other, means whereby said bolt is released from said socket when the bolt-arm is raised to a predetermined position, a stop-arm of said base projecting in line with the car-door, a foot on the free end of said arm adapted to engage the end of said door, a right-angled flange on said foot adapted to embrace a portion of the outer surface of said door to prevent lateral movement of said door, for the purpose set forth.

751,496. ANTIFRICTION CRANK-HANDLE. ALBERT G. GODE, Amsterdam, N. Y., assignor of two-fifths to Albert H. Yund, Amsterdam, N. Y. Filed June 5, 1903. Serial No. 160,157. (No model.)

Claim.—1. A crank-handle comprising a crank-pin; a socket-grasp inclosing the pin; ball-bearing mechanism between the grasp and pin to resist end thrusts; and roller-bearing mechanism between the grasp and pin to resist side strains, substantially as described.

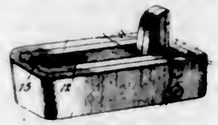
2. The combination of a crank-pin; and pin-inclosing handle-grasp; of ball-bearing mechanism between the grasp and pin to resist end thrusts; roller-bearing mechanism between the grasp and pin to resist side strains; a loose washer and a series of bearing-balls interposed between each end of the series of rollers and a resisting-flange, the washer affording a bearing on one side for the ends of the rollers and on the opposite side for the interposed balls, substantially as described.

3. The combination of a vertically-disposed crank-pin; and pin-inclosing handle-grasp; of a ball-bearing mechanism between the grasp and pin to resist downward thrust of the grasp; roller-bearing mechanism between the grasp and pin to resist side strains; a loose washer resting upon the upper ends of the rollers; a loose washer beneath the lower ends of the rollers; a series of balls bearing upon the upper side of the upper washer, and a like series of balls bearing upon the lower side of the lower washer, the sides of the balls opposite the washers bearing, those of one series, upon the grasp and those of the other series upon the crank-pin, substantially as described.



4. The combination of a crank-pin; and pin-inclosing handle-grasp; of ball-bearing mechanism between the outer ends of the grasp and pin composed of relatively large balls to resist both end thrusts and side strains, and roller-bearing mechanism composed of relatively small rollers between the inner portions of the grasp and pin to resist side strains.

751,497. LOOM-PICKER. ELIAS GOLDSMITH, Norfolk, Va., assignor of two-thirds to J. R. Whittley and J. Pearson Williams. Filed Aug. 18, 1903. Serial No. 169,910. (No model.)



Claim.—1. A loom-picker, comprising side and end walls, a partition located adjacent to one of the end walls and parallel thereto, said partition subdividing the interior into an open-ended staff-socket and an open-ended buffer-pocket of substantially the same width from top to bottom, and a buffer snugly and detachably fitted in the pocket and held against displacement therein by frictional engagement with the side walls of the pocket.

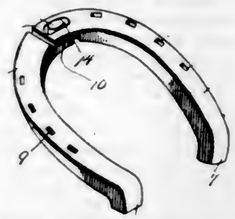
2. The combination with a wall comprising an outer surrounding casing, a lining extending about the rear portion of the picker within the casing and terminating short of the front end thereof, a partition secured between the front ends of the lining and spaced from the front end of the casing, and a detachable buffer interposed between the partition, the front ends of the lining and front wall of the casing.

3. A loom-picker comprising front, rear and side walls, a partition secured between the side walls and projecting above the same, said partition tapering from its lower to its upper end and having its front face located in a substantially vertical plane and parallel to the adjacent front wall of the picker.

4. In a loom-picker, the combination with a wall comprising an outer surrounding casing and a lining arranged within the rear portion of the casing and having its front ends terminating short of the front wall thereof, a partition-block interposed between the front ends of the lining and tapering toward its upper end, said block having its front face spaced from the front wall of the casing, and a buffer detachably and snugly fitted in the space between and abutted against the partition, the front ends of the lining and said front wall

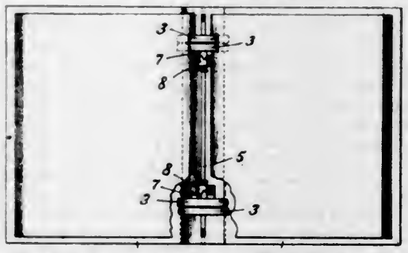
inclosing handle-grasp; of a ball-bearing mechanism between the grasp and pin to resist downward thrust of the grasp; roller-bearing mechanism between the grasp and pin to resist side strains; a loose washer resting upon the upper ends of the rollers; a loose washer beneath the lower ends of the rollers; a series of balls bearing upon the upper side of the upper washer, and a like series of balls bearing upon the lower side of the lower washer, the sides of the balls opposite the washers bearing, those of one series, upon the grasp and those of the other series upon the crank-pin, substantially as described.

751,498. HORSESHOE. ALLEN D. GOSSETT, Krum, Tex. Filed Oct. 16, 1903. Serial No. 177,319. (No model.)



Claim.—A horseshoe comprising separate members each including a side and a portion of the toe of the shoe, said toe portions being halved and overlapped, the overlapping portion of one member having a slot extending transversely of the shoe and the overlapping portion of the other member having an elliptical stud disposed transversely of the shoe and engaged in the slot, said stud having a sliding and a limited pivotal movement in the slot.

751,499. TEMPORARY BINDER. GEORGE H. GRESHAM, New York, N. Y., assignor to Boorum and Pease Company, a Corporation of New York. Filed May 23, 1903. Serial No. 158,394. (No model.)



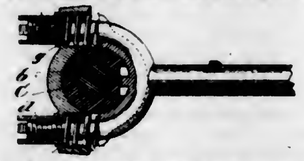
Claim.—1. In a temporary binder, the combination of the hinge-connected back-sections and a locking device therefor, comprising fixed and movable engaging members and a screw-shaft for adjusting the members.

2. In a temporary binder, the combination of the hinge-connected back-sections and a locking device therefor, comprising fixed and movable engaging members, the fixed members being mounted on one back-section, a screw-shaft carrying the movable members mounted on the other back-section, and means for rotating the shaft to adjust the movable members relatively to the fixed members.

3. In a temporary binder, the combination of the hinge-connected back-sections and a locking device therefor, comprising fixed and movable engaging members, the fixed members being mounted on one back-section and the movable members on the other back-section and a screw-shaft threaded through the movable members for adjusting the same relatively to the fixed members.

4. In a temporary binder, the combination of the hinge-connected back-sections and a locking device therefor, comprising fixed and movable engaging members, the fixed members being mounted on one back-section and the movable members on the other back-section and a shaft swiveled in fixed bearings and threaded through the movable members, the threads on the shaft being right and left to adjust the members in opposite directions.

751,500. PITMAN. ALBERT GRIEVES, Springfield, Ohio, assignor to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed May 16, 1903. Serial No. 157,372. (No model.)



Claim.—1. In a pitman connection, the combination of a crank-pin and a pitman, and means for connecting these parts, including clamp-jaws applied to said pin said jaws being of less length than a

semicircle, yielding means interposed between said jaws and normally tending to separate them, and means for drawing said jaws together, as and for the purpose set forth.

2. In a pitman connection, the combination of a crank-pin and a pitman, and means for connecting these parts, including clamp-jaws arranged to form a bearing-seat for said pin, means for yieldingly maintaining said jaws out of contacting relation with respect to each other, and means for drawing said jaws toward each other to take up wear of the bearing-surface of said jaws upon said pin, as and for the purpose set forth.

3. The combination in a pitman connection, of a pitman, a crank-pin, and jaws or clamps for connecting such pitman and crank-pin, of means for holding the jaws or clamps in bearing relation with respect to the crank-pin, and elastic means tending to force said jaws or clamps away from said crank-pin, substantially as and for the purpose set forth.

4. The combination in a pitman connection, of a pitman, a crank-pin having a spherical surface, and jaws or clamps for connecting such pitman and crank-pin, of means for holding said jaws or clamps in bearing relation with respect to the crank-pin, and elastic means tending to force said jaws or clamps away from said crank-pin; substantially as and for the purpose set forth.

5. The combination in a pitman connection, of a pitman, a crank-pin, a bushing surrounding such crank-pin, jaws or clamps bearing against the bushing, and means for holding the jaws or clamps in definite relation to said bushing, and elastic means tending to separate said jaws or clamps; substantially as and for the purpose set forth.

6. The combination in a pitman connection, of a pitman, a crank-pin, a bushing surrounding the crank-pin and having a spherical portion, jaws or clamps bearing against the bushing, means for holding the jaws or clamps in definite relation to the crank-pin and bushing, and elastic means tending to force said jaws or clamps apart; substantially as and for the purpose set forth.

7. The combination in a pitman connection, of a pitman formed at one end with two branches, a crank-pin, jaws or clamps for connecting such pitman and crank-pin, one of said jaws or clamps being formed with a seat adapted to the fork of said branched pitman, and the other jaw or clamp having perforations at its opposite ends adapted to guide it on the said branches, of means for holding the jaws or clamps in definite relation to the crank-pin, and means tending to force said jaws or clamps apart and away from said crank-pin; substantially as and for the purpose set forth.

8. The combination in a pitman connection, of a pitman, a crank-pin, and jaws or clamps for connecting such pitman and crank-pin, each of the sections of said jaws having a length slightly less than a semicircle, whereby such jaws are prevented from contacting with each other, means for positively holding the jaws or clamps in definite relation to the crank-pin, and means automatically tending to force said jaws or clamps away from said crank-pin; substantially as and for the purpose set forth.

9. The combination in a pitman connection, of a pitman formed at one end with two branches, a crank-pin, a pair of jaws or clamps connecting the pitman and crank-pin, and one of such jaws having a seat or depression for the yoke of the pitman, and the other having apertures at each end adapted to guide the same on the branches of the pitman, and said jaws each having inside seats adapted to fit its connection to the pitman, with means for positively holding the jaws or clamps in definite relation to the crank-pin, and means tending to automatically force said jaws or clamps away from said crank-pin; substantially as and for the purpose set forth.

10. The combination in a pitman connection, of a pitman provided at one end with two branches, a crank-pin, a pair of jaws or clamps for connecting such pitman and crank-pin, one of such jaws provided with sockets or seats, elastic means arranged in said sockets or seats, and the other provided with an abutment for supporting one end of such elastic means, whereby the jaws or clamps may be automatically under a pressure tending to separate them, and means for normally holding such jaws in a definite relation to each other; substantially as and for the purpose set forth.

11. The combination in a pitman connection, of a pitman formed at one end with two branches, a crank-pin, jaws or clamps for connecting such pitman and crank-pin, and adapted to be held in position by said branches, and having seats or sockets formed therein, an elastic means confined in said seats or sockets, and apertures for the passage of the branches of the pitman, and adjusting means bearing on the outer jaw or clamp and serving to positively hold it in a definite relation to the opposing jaw or clamp and to the crank-pin; substantially as and for the purpose set forth.

12. The combination in a pitman connection, of a pitman having a forked or branched end, a crank-pin, a bushing encircling the crank-pin, a pair of jaws or clamps bearing against the bushing, one of which has an exterior curved seat for the yoke, and the other of which is apertured at each end for the passage of the two branches of the yoke of said pitman, and is recessed at each end on its inner surface, springs seated in the recesses in one jaw and bearing against the end of the other jaw, thereby tending to force said jaws apart, and nuts arranged exteriorly of the outer jaw and engaging screw-threads upon the branched ends of the pitman, and bearing against the outer ends of such jaw, whereby a definite and positive adjustment is provided; substantially as and for the purpose set forth.

751,501. **ELECTRIC TELEPHONE.** ERNST GUNDLACH, Western Springs, Ill. Filed Nov. 10, 1902. Serial No. 130,747. (No model.)



Claim.—1. In an electric telephone, the combination with the vibratory diaphragm, of a device for tensioning said diaphragm by mechanical force, and a low-power permanent magnet having a pole-piece of small diameter or cross-section, substantially as described and shown.

2. In an electric telephone, the combination with the vibratory diaphragm of a device for tensioning said diaphragm by mechanical force, and a permanent magnet having a pole-piece of small diameter or cross-section, and being of smaller power than required for tensioning said diaphragm without the aid of said mechanical force substantially as specified and shown.

3. In an electric telephone, the combination, with the vibratory diaphragm, of a device for tensioning said diaphragm by mechanical force, and a permanent magnet having a smaller power than that required for tensioning said diaphragm without the aid of said mechanical force, substantially as specified.

4. In an electric telephone, the combination, with the vibratory diaphragm, of a soft-iron pole-piece centrally secured to said diaphragm and extending into the wire coil of the instrument; a device for tensioning said diaphragm by mechanical force, and a permanent magnet having a pole-piece of small diameter or cross-section and being of smaller power than required for tensioning said diaphragm without the aid of said mechanical force, substantially as specified and shown.

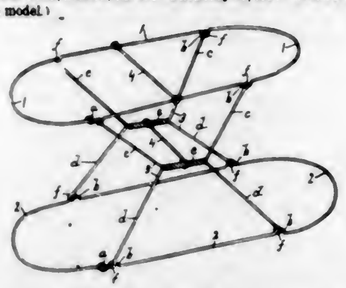
5. In an electric telephone, the combination with the diaphragm, of an annular tension-spring having oppositely-directed side projections at its outer and inner edges respectively, the inner projection being directed toward the diaphragm substantially as described.

6. In an electric telephone, the combination of the vibratory diaphragm, the permanent magnet deflecting and tensioning said diaphragm inwardly, and a circular or annular spring acting upon the outer side of said diaphragm and increasing said inward deflection and tension of the same, substantially as, and for the purpose specified.

7. In an electric telephone, the combination, with the vibratory diaphragm, of a circular or annular tension-spring mounted on one side of said diaphragm and pressed against or toward the same at its edge, and having a projection extending toward said diaphragm and being adapted to set the said diaphragm in a state of tension substantially as, and for the purpose specified.

8. In an electric telephone, the combination, with the vibratory diaphragm, of a circular or annular tension-spring mounted on one side of said diaphragm so as to be pressed against or toward the same, thereby setting the diaphragm in a state of tension, substantially as specified and shown.

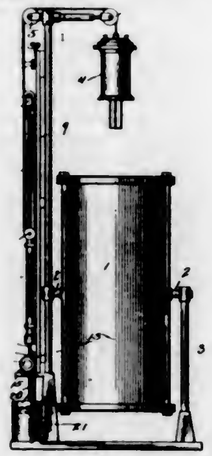
751,502. **BROOM-GIRDLE.** JOHN A. GURD, New York, N. Y., and JOHN R. GURD, London, Canada. Filed May 25, 1903. Serial No. 158,650. (No model.)



Claim.—1. In a device of the class described, two separate and independent bands extending around the brush portion of the broom, and each formed with corrugations or depressions, in combination with braces each formed of two separate and independent wires, the central portions of which are connected one with the other, and their ends provided with hooks, for engagement with said corrugations or depressions in said bands, substantially as and for the purpose set forth.

2. In a device of the class described, two separate and independent bands extending around the brush portion of the broom, and each formed with corrugations or depressions, in combination with braces each formed of two separate and independent wires, the central portions of which are connected one with the other, and their ends provided with hooks, for engagement with said corrugations or depressions in said bands, and binders extending through the brush portion of the broom and secured to the band and braces at opposite sides thereof, substantially as and for the purpose set forth.

751,503. **MECHANISM FOR CONTROLLING LAMPS IN PHOTOGRAPHIC-PRINTING DEVICES.** CARL HALLER and WILLIAM R. SINCLAIR, Chicago, Ill., assignors to Haller Machine Company, Chicago, Ill., a Corporation of Illinois. Filed July 3, 1902. Serial No. 114,211. (No model.)



Claim.—1. In a lamp-controller for electric printing apparatus, the combination of a lamp, a cylinder, a piston working in said cylinder and connected to said lamp, and a valve for the escape of operating fluid from said cylinder during the motion of said piston in lowering said lamp, said valve being open during the motion of said piston in lowering the lamp, and closed during the motion of said piston in raising the lamp.

2. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; a valve through which the operating fluid escapes from said cylinder during the motion of the piston in lowering the lamp; and means for automatically operating said valve.

3. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; automatic means for causing the piston to travel in one direction; and a valve for controlling the travel of said piston in the opposite direction.

4. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; means for causing the piston to travel in one direction; a valve for controlling the travel of said piston in the opposite direction; and means for opening said valve at the end of the piston travel in the first-mentioned direction.

5. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; means for causing the piston to travel in one direction; a valve for controlling the travel of said piston in the opposite direction; and positive-acting means for automatically closing said valve at the end of the piston travel in said last-mentioned direction.

6. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; a valve for the escape of operating fluid from said cylinder during the motion of said piston in lowering the lamp, said valve being open during the lowering of said piston and closed during the raising thereof; and a pump for raising said piston.

7. In a lamp-controller for electric printing apparatus, the combination of a lamp, a cylinder, a piston working in said cylinder and connected to said lamp; and a pump for moving said piston.

8. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; a pump for moving said piston in one direction and a valve for controlling the speed of piston travel in the opposite direction.

9. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; a pump for forcing liquid into said cylinder to move said piston; and means for locking said pump to prevent the escape of liquid therethrough.

10. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; a valve for controlling the flow of liquid to and from said cylinder; a rotary pump for liquid connecting with said cylinder; and a worm and gear for operating said pump, said worm and gear constituting a locking device for preventing the accidental escape of liquid from said cylinder through said pump.

11. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; means for supplying fluid under pressure to said cylinder; an escape-valve connected with said cylinder; and electrical apparatus for simultaneously closing said escape-valve and admitting fluid to said cylinder from the source of fluid-supply.

12. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; an electrically-operated source of supply of fluid under pressure to said cylinder; an electrically-operated escape-valve in said cylinder; an electric circuit controlling both said source of supply and said escape-valve; and means for making and breaking said circuit.

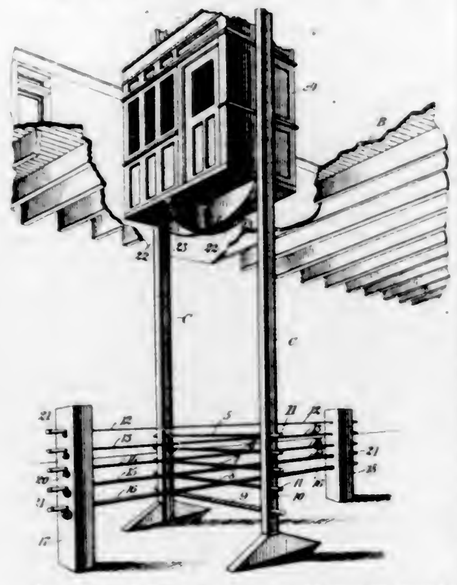
13. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; electrically-driven means for supplying fluid under pressure to said cylinder; an escape-valve in said cylinder; electromagnets for operating said valve; an electric circuit containing said supplying means and said electromagnets in series; switches for making and breaking said circuits; and means connected to said piston for operating said switches during the travel of said piston.

14. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder, and connected to said lamp; electrically-driven means for supplying fluid under pressure to said cylinder; an escape-valve connected to said cylinder; electromagnets for operating said valve; an electric circuit containing said supplying means and said electromagnets in series; switches for making and breaking said circuits; means connected to said piston for closing said circuit when the pis-

ton is at the lowest point of its travel and for breaking said circuit when the piston is at the upper extremity of its travel.

15. In a lamp-controller for electric printing apparatus, the combination of a lamp; a cylinder; a piston working in said cylinder and connected to said lamp; electrically-driven means for supplying fluid under pressure to said cylinder; an escape-valve connected to said cylinder; electromagnets for operating said valve; an electric circuit containing said supplying means and said electromagnets in series; switches for making and breaking said circuits; means connected to said piston for breaking said circuit when the piston is at the upper extremity of its travel; and other means adjustably secured to said piston-rod for closing said circuit substantially as described.

751,504. **MEANS FOR ARRESTING ELEVATOR-CARS.** PATRICK F. HALLOCK, Detroit, Mich. Filed Apr. 22, 1903. Serial No. 153,786. (No model.)



Claim.—1. A means for arresting an elevator-hoist, having a series of anchored cables with loose ends, and suitable projections on the hoist.

2. A means for arresting an elevator-hoist, having a series of anchored cables in the path of the hoist, and projections movable with the hoist for coöperation with said cables.

3. A means for arresting an elevator-hoist, consisting of a series of cables strung one above the other and in the path of a hoist, said cables increasing in size from the top toward the bottom of the series.

4. A means for arresting an elevator-hoist, consisting of two series of cables strung across the path of a hoist and disposed in crossing relation.

5. A means for arresting an elevator-hoist, consisting of two series of cables individually anchored in place and disposed in crossing relation and in the path of said hoist.

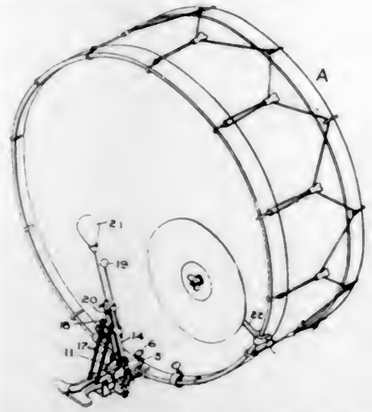
6. The combination with an elevator-cage, of a striking member attached to said cage and depending therefrom, and a series of arrester-cables strung across the path of said hoist and in the path of the striking member thereof.

7. The combination with an elevator-cage, of striking members attached to said cage and disposed in crossing relation at the bottom thereof, and two series of arrester-cables strung in crossing relation and across the path of the cage and in the path of the striking members thereon.

8. The combination with elevator-guides, of a series of arrester-cables individually anchored to said guides and disposed in the path of a cage, and a striking member carried by said cage and arranged to successively engage with the cables of the series on the rupture thereof due to the impact of a weighted cage.

9. The combination with elevator-guides, and a cage, of a series of cables individually anchored to said guides, anchor-posts disposed in a plane across that of the series of cables, and another series of cables attached to said anchor-posts and crossing the cables of the first-named series, the two series of cables being disposed in the path of an elevator-hoist.

751,505. **COMBINED DRUM AND CYMBAL BEATER.** HARRY K. HARRISON and ALBERT L. BROWN, St. Paul, Minn., assignors to W. J. Dyer & Bro., St. Paul, Minn., a Corporation of Minnesota. Filed Nov. 13, 1903. Serial No. 181,003. (No model.)



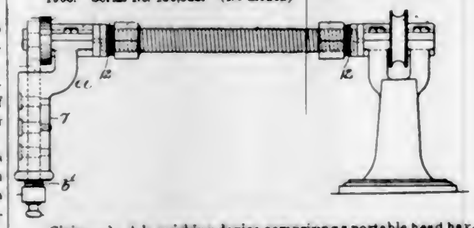
Claim.—1. In a combined drum and cymbal beater, the combination with a supporting-base, of a pair of arms pivotally supported therein, means for adjusting said arms upon their pivots, an actuating-pedal for each arm, and an elastic connection between each arm and its pedal.

2. In a combined drum and cymbal beater, the combination with a supporting-base, of a pair of arms pivotally supported therein, a pair of pivoted pedals arranged in connection with said arms, an elastic connection between each arm and its pedal, and a plate extending over both pedals, as and for the purpose set forth.

3. In a combined drum and cymbal beater, the combination with a base provided with means for attachment to the drum, of a pair of blocks fulcrumed in said base, an arm pivotally supported upon each block, and a pair of actuating-pedals arranged in connection with said blocks.

4. In a combined drum and cymbal beater, the combination with a supporting-base provided with means for attachment to the drum, of a pair of blocks fulcrumed in said base, arms pivotally supported upon said blocks, a pair of pedals pivoted at the rear of said block and having rounded ends extending underneath said blocks, a plate extending over both pedals, and means normally holding said arms in raised position.

751,506. **BURNISHING-MACHINE.** FRANK K. HATFIELD, Boston, Mass., assignor to Francis F. Hicks, Boston, Mass. Filed Apr. 1, 1903. Serial No. 150,525. (No model.)

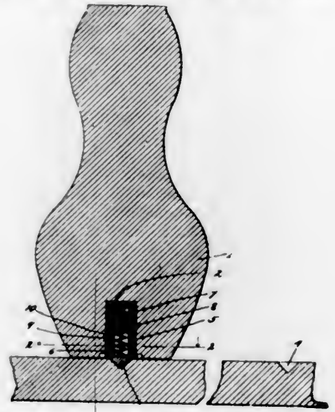


Claim.—1. A burnishing device comprising a portable head having a bearing portion and a handle portion, a lever extending through and fulcrumed in said handle portion and having a burnishing-tool at its outer end, and a driving-shaft adapted to oscillate said lever and tool, said shaft having an inner section journaled in a fixed bearing and provided with a power-receiving member, an outer section journaled in said bearing portion and connected with said lever, and an intermediate flexible section, permitting free movements of the head.

2. A burnishing device comprising a portable head having a bearing portion and a handle portion, a lever extending through and fulcrumed in said handle portion and having a burnishing-tool at its outer end, and a driving-shaft having an inner section journaled in a fixed bearing and provided with a power-receiving member, an outer section journaled in said bearing portion and provided with an eccentric wrist-pin located in a slot in the inner end of the lever, and an intermediate flexible section.

3. A burnishing device comprising a portable head having a bearing portion and a handle or arm portion, a lever extending through said arm portion, the said lever and arm portion having a plurality of sets of fulcrum-receiving orifices located at different distances from the bearing portion, a detachable fulcrum-pin adapted to engage either set of orifices, and a driving-shaft adapted to oscillate said lever and tool, said shaft having an inner section journaled in a fixed bearing and provided with a power-receiving member, an outer section journaled in said head and connected with said lever, and an intermediate flexible section, permitting free movements of the head.

751,507. **TENPIN.** HERMANN HAUSSMANN, Chicago, Ill. Filed Nov. 17, 1902. Serial No. 131,622. (No model.)



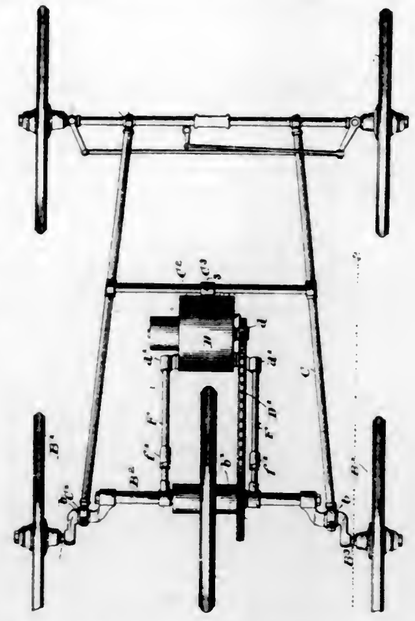
Claim.—The combination of a tenpin having a socket in the bottom thereof, a sleeve secured in said socket and having a shoulder a hollow projection protruding from said sleeve and having a shoulder resting on said first shoulder, a spring bearing in said projection and a nut threaded in said sleeve and bearing against said spring, substantially as set forth.

751,508. **MOTOR-VEHICLE.** BOHN C. HICKS, Chicago, Ill., assignor to Center Drive Automobile Company, Chicago, Ill., and Pierre, S. D., a Corporation of South Dakota. Filed June 15, 1903. Serial No. 161,459. (No model.)

Claim.—1. In a vehicle running-gear the combination with a crank-axle mounted in said gear in a manner to rock therein, a central drive or traction wheel rotatively mounted on said axle, and supporting-wheels rotatively mounted on spindles carried by the cranks of said axle, of a motor geared to said drive-wheel and supported from said axle and pivotally connected with the running-gear whereby it partakes of the rocking movement of said axle.

2. In a vehicle running-gear the combination with a crank-axle mounted in said gear in a manner to rock therein, a central drive-wheel mounted on said axle, and supporting-wheels rotatively mounted on spindles carried by the cranks of said axles, of a motor geared to said drive-wheel and pivotally suspended at its front end from the running-gear frame, and connected at its rear with said axle by rigid connecting rods or bars which are flexibly connected with said rear axle.

3. In a vehicle running-gear the combination with front and rear axles, and reaches connecting the said axles, said rear axle comprising a central part and two spindles which are connected with said central part by cranks, the rear ends of said reaches being flexibly connected with said cranks, a central drive or traction wheel rotatively mounted on said axle and supporting-wheels mounted on said spindles, of a motor geared to said central drive-wheel and pivotally supported at its front end from the running-gear, and rods or bars which are connected at their forward ends with the motor-casing and at their rear ends with the said axle on either side of said central drive-wheel.



4. In a vehicle running-gear, the combination with front and rear axles, and reaches connecting said axles, the rear axle comprising a central part and two spindles which are connected with said central part by cranks, and the reaches being connected with the cranks by flexible joints, of a motor, a cross-bar extending between said reaches from which said motor is pivotally suspended at its forward end, and supporting bars or rods connected with the motor-casing and with the central part of said rear axle.

5. In a vehicle running-gear, the combination with the side reaches and the rear axle, said rear axle embracing a central part and two spindles which are connected with the central part by cranks, the rear ends of said reaches being flexibly connected with said cranks, and a cross-bar extending between said reaches, of a motor, a hanger depending from and hinged to said cross-bar and to the lower end of which said motor is pivoted, and rigid bars or rods for supporting said motor from the rear axle.

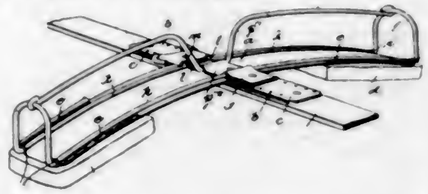
6. In a vehicle running-gear the combination with a crank-axle mounted in said gear in a manner to rock therein, a central drive or traction wheel and supporting-wheels rotatively mounted on spindles carried by the cranks of said axle, of a motor geared to said drive-wheel and supported from said axle and pivotally connected with the running-gear frame whereby it partakes of the rocking movement of said axle, and a cushioning or buffing device interposed between the motor and running-gear.

7. In a vehicle running-gear, the combination with the side reaches and the rear axle, said rear axle embracing a central part and two spindles which are connected with the central part by cranks, the reaches being flexibly connected with said cranks, and a cross-bar supported on said reaches, of a motor, a hanger depending from and hinged to said cross-bar, a part supported in said hanger and pivotally connected with the casing of the motor, a spring interposed between said part and hanger, and means for supporting said motor from the rear axle.

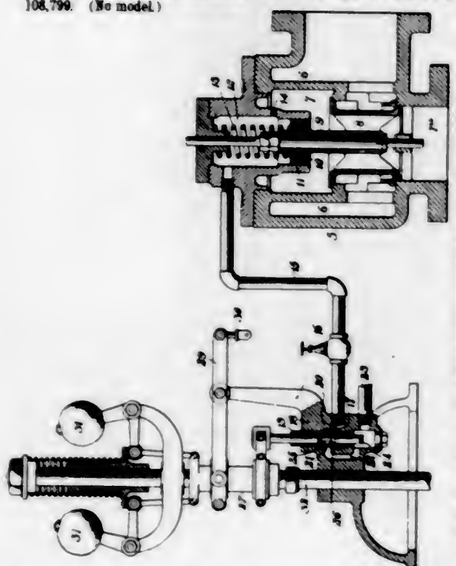
751,509. **REIN-GUARD.** JOHN B. HILL, Blackhawk, Colo., assignor of one-half to Elias W. Westervelt, Blackhawk, Colo. Filed Nov. 23, 1903. Serial No. 182,378. (No model.)

Claim.—As an improved article of manufacture, a rein-guard comprising a sheet-metal plate having lateral branches at its middle adapted to be connected to the back-strap of a harness, and also

having eyes i at its ends, upright parallel loops, of wire, resting at the ends of the plate, and having portions extending through the eyes thereof, metallic straps connecting the said portions of the loops to the plate, a bar, of wire, extending between and connected to the bights of the upright loops, and having a depending loop at its middle, connected to the plate, and pads disposed below and connected to the end portions of the metallic plate.



751,510. VALVE-CONTROLLING MECHANISM. FRANCIS HODGKINSON, Wilkinsburg, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed May 24, 1902. Serial No. 108,799. (No model.)



Claim.—1. In an engine, the combination with a main valve, a spring tending to hold it to its seat and means for subjecting it to normally balanced fluid-pressures, of a normally closed auxiliary valve and a governor connected to said auxiliary valve and actuating the same to exhaust the fluid-pressure which supplements the action of the spring upon the main valve when more steam is required by the engine.

2. The combination with a main valve having a piston and a casing having chambers at the respective ends of the piston between which is a small leakage-passage that is always open, of a spring acting upon said piston and tending to hold the valve to its seat and an automatically-acting auxiliary valve for reducing the fluid-pressure which supplements the action of the spring.

3. The combination with a main valve having a casing provided with two chambers connected by a permanently-open restricted passage and the fluid-pressures in which act in opposite directions upon the valve, of a spring acting in conjunction with the fluid-pressure in one of said chambers and an auxiliary valve for relieving the pressure which acts in conjunction with said spring.

4. The combination with a valve and a casing having two chambers connected by a restricted but always-open passage and within which fluid-pressure acts in opposite directions upon the valve, of an auxiliary valve for relieving the pressure which tends to hold the main valve to its seat and means for automatically opening the auxiliary valve when the demand for fluid-pressure from the source controlled by the main valve attains a predetermined value.

5. The combination with a valve embodying or provided with a piston, a casing having two chambers connected by a restricted but always-open passage and a cylinder for the said piston, of a spring tending to hold the valve to its seat and an auxiliary valve the opening of which relieves the fluid-pressure which acts in the cylinder and in the chamber communicating with or forming a part thereof to supplement the action of the spring.

6. In an engine, the combination with a main valve embodying or provided with a piston, a casing having two chambers connected by a restricted passage, one of which is an extension of the cylinder for said piston, and a spring tending to hold the valve to its seat, of an auxiliary valve, an engine-governor and connections between said auxiliary valve and said governor whereby the exhaust-passage from the cylinder is opened and closed in accordance with the demand of the engine.

7. The combination with a steam-turbine having an inlet-port at one end and an exhaust-port at the other and provided with a steam-conduit leading to an intermediate point, of a normally seated valve in said conduit, a casing for said valve having two chambers connected by a restricted passage and containing steam which acts in opposite directions upon the valve, of an exhaust-valve for the chamber in which the steam acts in a direction tending to close the main valve, a speed-governor and connections between said governor and the exhaust-valve.

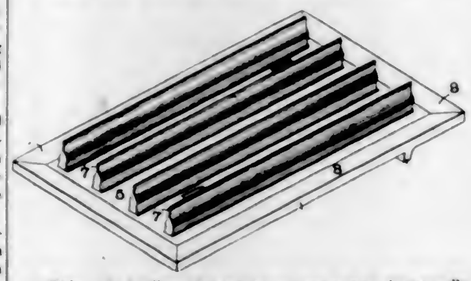
8. The combination with a steam-turbine provided with a steam-conduit leading to a point between its main inlet and exhaust ports and a normally seated valve in said conduit, of an auxiliary governing-valve for said main valve, a speed-governor and connections between said speed-governor and said governing-valve whereby the opening and closing of said main valve is dependent upon the speed of the engine.

9. The combination with a steam-turbine, a steam-conduit connected to a point between the inlet and exhaust ports of the turbine and a valve in said conduit which is normally subjected to oppositely-acting bodies of steam under pressure, of a controlling-valve for partially or wholly exhausting the body of steam which tends to hold the valve closed, a governor and connections between the same and the controlling-valve and operating to open said controlling-valve when the speed of the engine falls below a predetermined limit.

10. The combination with a steam-turbine provided with a steam-conduit leading to a point between its main inlet and exhaust ports of a valve in said conduit, a casing for said valve comprising two chambers connected by a restricted passage and normally containing steam under pressure which acts in opposite directions upon the valve, a controlling-valve for exhausting steam-pressure from the chamber in which the steam tends to close the valve and means for automatically opening the controlling-valve when the speed of the engine falls below a predetermined limit.

11. The combination with a steam-turbine provided with a steam-conduit connected to the engine at a point between the main inlet and exhaust ports and a valve in said conduit subjected to oppositely-acting bodies of steam having a limited communication each with the other, of a controlling piston-valve for exhausting the body of steam which tends to hold the main valve closed and provided with beveled operating-surfaces whereby its movement with reference to the exhaust-port tends to gradually open or close said port.

751,511. TIE-PLATE. LOUIS A. HOHER, St. Louis, Mo. Filed Sept. 30, 1903. Serial No. 175,163. (No model.)

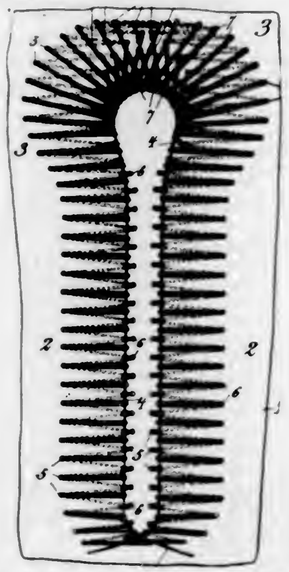


Claim.—1. A railway tie-plate having one or more downwardly-projecting sinuously-tapered ribs, said plate extending beyond said ribs to form overlapping ends for contact with the tie.

2. A railway tie-plate having two substantially parallel ribs, the opposing faces of which extend in a sinuous line from the plate downwardly, said plate extending beyond said ribs to form overlapping ends for contact with the tie.

3. A railway tie-plate having a plurality of substantially parallel ribs sinuously tapered from the plate downward, said plate extending beyond said ribs to form overlapping ends for contact with the tie.

751,512. STITCHED BUTTONHOLE. JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, Mamaroneck, N. Y., a Corporation of New York. Filed Oct. 24, 1903. Serial No. 178,332. (No model.)



Claim.—1. A fabric having a stitched eyelet-ended buttonhole, the stitch-threads whereof, around the eyelet end, are approximately parallel on one side of the fabric, and approximately radial on the other.

2. A fabric having a stitched eyelet-ended buttonhole, the side stitches of which are substantially parallel throughout, and the stitch-threads around the eyelet end of which are approximately parallel with the side stitches on one side of the fabric, and approximately radial on the other.

3. A fabric having a stitched eyelet-ended buttonhole, the stitches at the eyelet end of which are inserted through two rows of holes, the lines connecting the holes of one row, with the next succeeding holes of the other row, being approximately parallel, the thread forming the loops of the said stitches drawn to approximately radial lines upon one side of the said fabric.

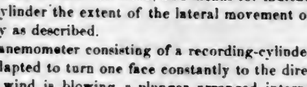
4. A fabric having a stitched eyelet-ended buttonhole, the threads forming the stitches around the eyelet end, upon one side of the said fabric, being in two series of divergent lines, lines of one series crossing lines of the other, and upon the other side of the fabric being in approximately parallel lines, and transverse of both the series of lines upon the first said side of the fabric.

5. A fabric having a stitched eyelet-ended buttonhole, the stitches at the eyelet end composed of two threads, one thread bounding the buttonhole and the other thread forming loops inclosing the first-mentioned thread, the lines of said loops being approximately radial on one side of the fabric, and the lines of the said loop-forming thread being approximately parallel on the other side of the fabric.

751,513. SURGICAL INSTRUMENT. LYMAN C. HOLBROOK, Charlotte, Mich. Filed Oct. 12, 1903. Serial No. 176,693. (No model.)

Claim.—1. An instrument of the class described, comprising an arched supporting member having ends bent to conform to the configuration of the skull and having a central aperture, a skull-engaging member mounted in said central aperture, and means for raising said skull-engaging member.

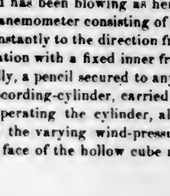
2. An instrument of the class described, comprising a supporting member having a central aperture, a screw loose in said aperture, and a nut threaded on said screw above the supporting member



3. An instrument of the class described, comprising a supporting member having a central aperture, a screw loose in said aperture and having its end shaped to present a wrench-seat, and a nut threaded on the upper portion of said screw.

4. An instrument of the class described, comprising an arched plate of resilient material having ends bent to conform to the configuration of the skull and having a central aperture, a screw loose in said aperture and provided with a squared upper end, and a nut threaded on the upper portion of said screw.

751,514. RECORDING-ANEMOMETER. HENRY A. HUNT, Marrickville, New South Wales, Australia. Filed Mar. 11, 1903. Serial No. 147,234. (No model.)



Claim.—1. An anemometer comprising a recording-cylinder, a hollow cube arranged to turn, and vanes associated with the hollow cube to turn the same with one face constantly to the direction from whence the wind is blowing, and means connected with said cube for marking the direction of the wind on the recording-cylinder, said cylinder and marking means being situated in the cube.

2. An anemometer comprising a recording-cylinder, a hollow cube adapted to turn one face constantly to the direction from whence the wind is blowing, a vertical spindle upon which the cube is mounted, said cube being susceptible of lateral movement in relation to the spindle and the extent of such lateral movement varying with the wind-pressure, and means for marking on said cylinder the extent of said lateral movement, substantially as described.

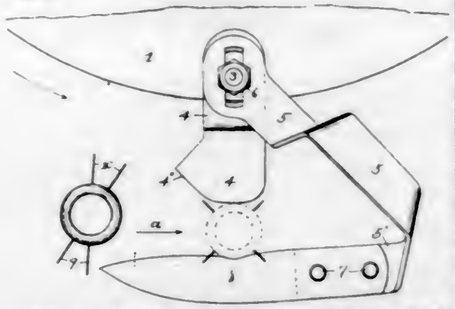
3. An anemometer consisting of a recording-cylinder, of a hollow cube adapted to turn one face constantly to the direction from whence the wind is blowing, a fixed inner frame upon which said cube may slide laterally, a vertical revolving part upon which the inner frame is rigidly fixed, means for maintaining the front face of the hollow cube toward the wind, and means for indicating on the recording-cylinder the extent of the lateral movement of the cube, substantially as described.

4. An anemometer consisting of a recording-cylinder, of a hollow cube adapted to turn one face constantly to the direction from whence the wind is blowing, a plunger arranged internally of the said cube, a fixed inner frame, a cylinder attached thereto in which the plunger works and an escape-valve for the said cylinder, said hollow cube being slidably mounted on the said fixed inner frame and being controlled by the piston, cylinder and air-valve, and means for indicating on the recording-cylinder the extent of movement of the cube on the fixed inner frame, substantially as described.

5. A registering-anemometer consisting of a hollow cube adapted to turn one face constantly to the direction from whence the wind is blowing, in combination with a fixed inner frame, upon which the cube may slide laterally, and with a pencil-carrying disk provided with arms, pencils carried thereby, lifting-cams for lifting the pencils, a cam-face against which the pencils will impinge, a recording-cylinder carried by the inner frame and clockwork for operating the cylinder, all for the purpose of graphically recording the directions from whence the wind has been blowing as herein set forth.

6. A registering-anemometer consisting of a hollow cube adapted to turn one face constantly to the direction from whence the wind is blowing, in combination with a fixed inner frame, upon which the cube may slide laterally, a pencil secured to any suitable part of the hollow cube and a recording-cylinder, carried by the inner frame and clockwork for operating the cylinder, all for the purpose of graphically recording the varying wind-pressures that have been acting upon the front face of the hollow cube as herein specified.

751,515. ATTACHMENT FOR BOTTLE CORKING, CAPPING, AND WIRING MACHINES. JOSEPH P. SCHMIDT and JOHN E. JACOBS, Kansas City, Mo. Filed May 12, 1903. Serial No. 156,857. (No model.)

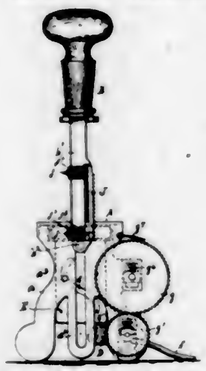


Claim.—1. In a machine for wiring bottles by means of two pairs of wires having four pairs of ends for final twisting, the combination, with the stationary plate above the carrier, of an inner guide, an outer guide-bracket, and an outer guide secured to the outer guide-bracket; said inner guide and outer guide-bracket being rigidly secured to said plate, said outer guide being held at about the same height as said inner guide, and pointing oppositely to the direction in which the bottles are carried, substantially as described.

2. In a machine for wiring bottles by means of two pairs of wires having four pairs of ends for final twisting, the combination, with the stationary plate above the carrier, of a rigid inner guide, an outer bracket, and a flexible outer guide; said inner guide and outer guide-bracket being rigidly secured to said plate, and said outer gulue being secured to the outer guide-bracket, and inclined downwardly toward its end and pointing oppositely to the direction in which the bottles are carried, substantially as describeo.

3. In a machine for wiring bottles by means of two pairs of wires having four pairs of ends for final twisting the combination, with the stationary plate above the carrier, of a rigid inner guide, an outer guide-bracket, and a flexible outer guide; said inner guide and outer guide-bracket being rigidly secured to said plate, and said outer guide being secured to the outer guide-bracket, and inclined downwardly toward its end, and pointing oppositely to the direction in which the bottles are carried, said guides being so adjusted as to arrange the pairs of wire ends ninety degrees apart, so that when the wires are finally twisted they will cross the cap of the bottle at right angles, substantially as described.

751,516. ATTACHER FOR STAMPS, &c. GEORGE W. JENNOS, Rochester, N. Y. Filed May 5, 1896. Serial No. 590,308. (No model.)



Claim.—1. In an attacher for stamps or other articles, the combination with a standard, of a pressing-surface, a moistener, and a part carrying said surface and moistener, having reciprocatory and pivotal movement to bring said moistener and pressing-surface successively into operative relation with a surface designed to receive the stamp or other article, substantially as described.

2. In an attacher for stamps or other articles, the combination of a standard, a reciprocating rocking support guided on the standard and provided at one end with a moistener and at its opposite end with a presser-piece fixed relatively to the moistener, said moistener and presser-piece being successively engaged with the surface to which the stamp or other article is to be attached as the support is moved, and a plunger for actuating the support, substantially as and for the purpose described.

3. In an attacher for stamps and other articles, the combination of a standard, a movable support connected to the standard and provided with an engaging bar, a clamping-piece having one end pivoted to the main portion of the support and its opposite end formed with a yielding shoulder arranged in proximity to the engaging bar, a moistener interposed between the engaging bar and the yielding shoulder, and a plunger for actuating the support, substantially as and for the purpose specified.

4. In an attacher for stamps and other articles, the combination of a standard, a movable support connected to the standard and provided with an engaging bar, a fixed wall at one side of the bar having its face adjacent thereto provided with a shoulder, and a clamping-piece at the opposite side of the bar having one end pivoted to the main portion of the support and its opposite end provided with a shoulder normally arranged in proximity to the former shoulder, said shoulder on the clamping-piece having one portion thereof movable in a curved plane arranged nearer to the pivot for said clamping-piece than the remaining portion of said shoulder, a moistener interposed between the engaging bar and said shoulders, and a plunger for actuating the support, substantially as and for the purpose set forth.

5. In an attacher for stamps or other articles, the combination with a standard and a reciprocating plunger, of a moistener, a presser-piece, a part carrying the presser-piece and moistener, a connection between the same and the plunger for reciprocating said part with the plunger, and means interposed between said part and the standard for turning said part in the reciprocatory movement thereof, whereby said moistener and presser-piece are successively brought into operative relation with a receiving-surface, substantially as described.

6. In an attacher for stamps or other articles, the combination of a standard, a guide for the articles to be attached, a feeding-roller for said articles, gears of unequal diameter connected to the roller, an additional gear for engaging the former gears, the axis of one of said gears being movable toward the axis of the other gear, a reciprocating plunger, and a yielding rack supported by the plunger for engaging the additional gear, substantially as and for the purpose specified.

7. In an attacher for stamps and other articles, the combination of a standard, a guide for the articles to be attached, a feeding-roller for said articles, connected gears supported by the standard for actuating the roller, a reciprocating plunger, and a yielding rack supported by the plunger for engaging one of the gears, substantially as and for the purpose specified.

8. In an attacher for stamps and other articles, the combination of a standard, a guide for the articles to be attached, a feeding-roller for said articles, connected gears supported by the standard for actuating the roller, a reciprocating plunger provided with guides, a movable rack for engaging one of the gears provided with laterally-extending arms movable in said guides, and springs encircling said arms for forcing the rack in its operative position, substantially as and for the purpose set forth.

9. In an attacher for stamps and other articles, the combination of a standard, a guide for the articles to be attached, a feeding-roller for said articles, a partially-revoluble support connected to the standard and provided with a moistener, and a plunger operatively connected to said roller and flexibly connected to the support, substantially as and for the purposes described.

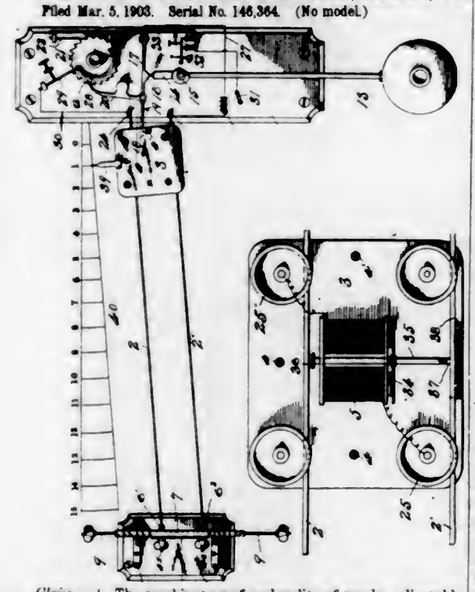
10. In an attacher for stamps or other articles, the combination of a standard, a guide for the articles to be attached, an actuating-gear, a feeding-roller for said articles, gears of unequal diameter connected to the roller, said gears being arranged side by side and movable endwise for alternately engaging the actuating-gear, a stop for holding the gears of unequal diameter in their adjusted position, and a reciprocating plunger provided with means for operating the actuating-gear by the movement of the plunger in one direction only, substantially as and for the purpose described.

11. In an attacher for stamps or other articles, the combination of a standard, a reciprocating rocking support guided on the standard and provided at one end with a moistener and at its opposite end with a knife for severing the articles to be attached, and a plunger for actuating the support to successively move the moistener and the knife into operative position, substantially as and for the purpose specified

12. In an attacher for stamps or other articles, the combination of a standard, a reciprocating rocking support guided on the standard and provided at one end with a moistener and at its opposite end with a knife for severing the articles to be attached and with a presser-piece for attaching said articles, and a plunger for actuating the support to successively move the moistener, the knife and the presser-piece into operative position, substantially as and for the purpose set forth.

13. In an attacher for stamps or other articles, the combination with a standard, of a pressing-surface, a moistener, a part carrying said surface and moistener, having reciprocatory and pivotal movement to bring said moistener and pressing-surface successively into operative relation with a receiving-surface, means independently of said part for delivering a stamp to said receiving-surface, and means for operating said delivery mechanism timed in relation to the operation of said part to deliver a stamp to said receiving-surface between the arrival of the moistener and the presser-piece thereat, substantially as described.

751,517. APPARATUS FOR ASCERTAINING THE ACCELERATION DUE TO GRAVITY. PAUL G. W. KELLER, Manitowoc, Wis. Filed Mar. 5, 1903. Serial No. 146,364. (No model.)



Claim.—1. The combination of a plurality of tracks, adjustable as to their inclination, with a traveling carriage thereon, and means for starting said carriage, and for stopping it at the end of a predetermined interval of time.

2. In an apparatus as described, a plurality of tracks, a traveling carriage thereon, a bracket at one end and a track terminal-block adjustable in said bracket as to height by means of a ratchet and wheel and a suitable support at the other end of said tracks, substantially as described.

3. An apparatus as described consisting of a plurality of tracks, a carriage traveling thereon, provided with a stop-block, and an electromagnet, said stop-block adapted to engage with said track or tracks when operated by the armature of said electromagnet.

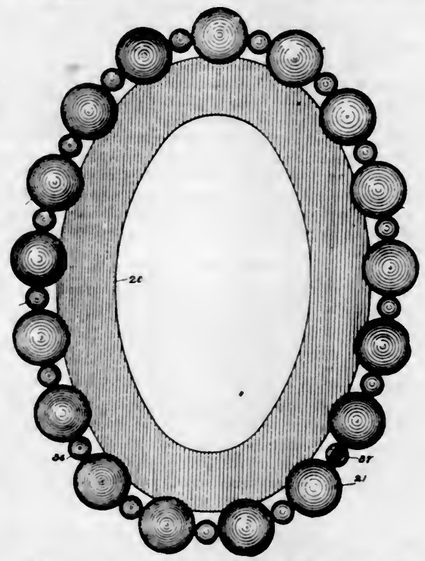
4. A traveling carriage provided with suitable wheels and axles, a trackway, an electromagnet, a stop-block operated by said electromagnet and adapted to engage the trackway to stop the travel of the carriage upon which it is located, and suitable electrical connections to said magnet, combined substantially as described.

5. A traveling carriage as described, a trackway having a milled surface, an electromagnet, a rod provided with a milled portion connected to the armature of the magnet, and electrical connections to said magnet whereby said rod is operated by the movement of said armature to make engagement between the milled portions of the stop-block and the trackway.

6. A suitable trackway, a traveling carriage thereon, held in normal position by a pivoted lever, means for releasing carriage, an electromagnet, and a stop-block on the carriage adapted to engage said trackway when operated by the armature of said electromagnet, substantially as described.

7. A traveling carriage held in normal position by a pivoted lever, and means for operating the lever to release said carriage, a ratchet, a pawl connected to said lever and engaging said ratchet, an oscillating mechanism, and electrical connections, whereby the movement of the oscillating mechanism causes a movement of the pawl and ratchet which in turn operates a sounder located within the electrical connections.

751,518. STOCK FOR FRAMING OR OTHER PURPOSES. JOHN H. KILLION, Chicago, Ill. Filed Jan. 21, 1903. Serial No. 140,002. (No model.)



Claim.—1. Stock or material for framing and other purposes, comprising a plurality of pieces each of which is reduced so as to form two heads having a groove and a connecting portion therebetween, and wires or cords located in said grooves and resting alternately on the opposite sides of the said connecting portions to secure the pieces together, substantially as described.

2. Stock or material for framing and other purposes, comprising a plurality of main pieces each of which is reduced to form two heads having a groove and a connecting portion therebetween, means located in the grooves and on the said connecting portions to secure the pieces together, and pieces of different sizes or designs interposed between the main pieces and supported by the connecting means, substantially as described.

3. Stock or material for framing and other purposes, comprising a plurality of main pieces each of which is reduced to form two heads having a groove and connecting portion therebetween, means located in the grooves and on said connecting portions to secure the pieces together, pieces interposed between the main pieces, each of said interposed pieces having a diametrical opening to receive the connecting means and a circumferential groove, and a string of beads or ornaments located in said groove, substantially as described.

4. Stock or material for framing and other purposes, comprising a plurality of pieces each formed of two detachable parts, one of said parts having a recess or opening, and the other provided with a projection or stem to fit in said opening whereby two heads with a groove therebetween are formed, and means located in said groove and on the stems for securing one piece to another, substantially as described.

5. Stock or material for framing and other purposes, comprising a plurality of pieces each formed of two detachable parts, one of said parts having a recess or opening, and the other provided with a projection or stem to fit in said opening whereby two heads with a groove therebetween are formed, and wires or cords located in said grooves and resting alternately on the opposite sides of the said stems to secure the pieces together, substantially as described.

6. Stock or material for framing and other purposes, compris-

ing a plurality of main pieces each formed of two detachable parts, one of said parts having a recess or opening, and the other provided with a projection or stem to fit in said opening whereby two heads with a groove therebetween are formed, means located in the grooves and on the said stems to secure the pieces together, and pieces of different sizes or designs interposed between the main pieces and supported by the connecting means, substantially as described.

7. Stock or material for framing and other purposes, comprising a plurality of main pieces each formed of two parts, one of said parts having a recess or opening, and the other provided with a projection or stem to fit in said opening whereby two heads with a groove therebetween are formed, means in the grooves and on the said stems to secure the pieces together, pieces interposed between the main pieces, each of said interposed pieces having a diametrical opening to receive the connecting means and a circumferential groove, and a string of ornaments located in said groove, substantially as described.

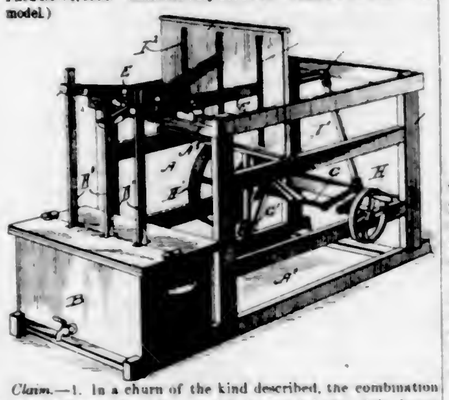
8. Stock or material for framing and other purposes, comprising a plurality of main pieces each formed of two parts, one of said parts having a screw-threaded recess or opening, and the other provided with a screw-threaded projection or stem to engage the screw-threads of said opening whereby two heads with a groove therebetween are formed, means located in said groove and on the stems for securing the pieces together, pieces interposed between the main pieces, each of said interposed pieces having a diametrical opening to receive the connecting means and a circumferential groove, and a string of ornaments located in said groove, substantially as described.

751,519. CARTRIDGE. JOHN H. KILLER, Seward, Nebr. Filed Aug. 5, 1903. Serial No. 168,338. (No model.)



Claim.—A cartridge comprising a shell having a cap at its rear end, a charge of powder in the end of the shell adjacent to the cap, a thin fusible metallic diaphragm disposed transversely within the shell against said charge of powder, said diaphragm having a central perforation, a second charge of powder in the shell against the diaphragm and a projectile in the shell against the second charge of powder.

751,520. CHURN. WILLIAM P. KIRKPATRICK, Newcastle, Pa. Filed Nov. 8, 1902. Renewed July 31, 1903. Serial No. 167,805. (No model.)

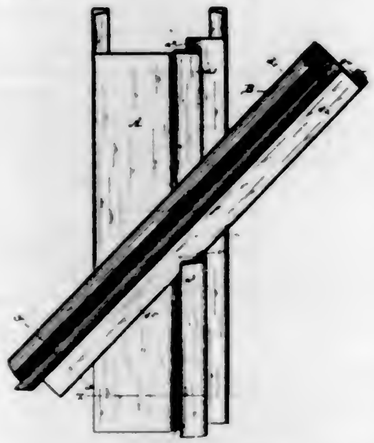


Claim.—1. In a churn of the kind described, the combination with a main frame, churn-body and dashers and shafts, of the levers pivotally mounted upon the main frame, pitmen connected to the said levers, and the crank-shaft to which the pitmen are connected, and a vertically-slotted guide-board arranged upon the main frame and through which the levers operate, as specified.

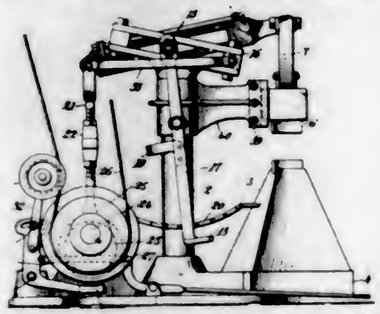
2. In a churn of the kind described the combination with a main frame, churn-body, dashers and dasher-shafts, of the operating-levers and means for operating the same, the guide-board supported by the main frame and having a plurality of vertical slots, the operating-levers working in said slots, as specified.

751,521. METAL WINDOW. JOHN A. KNISELY, Chicago, Ill. Filed Oct. 2, 1902. Serial No. 125,639. (No model.)

Claim.—A window-frame having its side members each composed of a single sheet of metal bent to rectangular form in cross-section, also bent to form a channel extending the full length of the member, also bent to form a tongue projecting in the plane of the face of the member, and bent to form a flange overhanging a portion of said tongue with a channel between said overhanging flange and the tongue.



751,522. POWER-HAMMER. ARTHUR A. KOCH, Montezuma, Iowa. Filed Feb. 27, 1903. Serial No. 145,326. (No model.)



Claim.—1. A power-hammer, comprising a standard, downwardly-inclined guides attached to the standard, a fulcrum-pin supported by said guides, a hammer-carrying lever mounted on the pin, a foot-actuated lever connecting with one end of said pin, and a member attached to the lever and connecting with the other end of said pin.

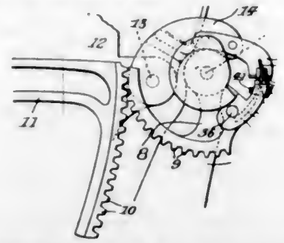
2. A power-hammer, comprising a standard, downwardly-inclined guides attached to the standard, a fulcrum-pin supported by said guides, a hammer-carrying lever mounted on the pin, a foot-actuated lever connecting with one end of said pin, a member extended from said lever to the other end of said pin, and an eccentric mechanism for operating the hammer-carrying lever.

3. A power-hammer, comprising a standard, guides on said standard, a fulcrum-pin movable along said guides, a hammer-carrying lever mounted on said pin, a connection between said lever and said guides to prevent lengthwise movement of the lever, and means for actuating the lever.

751,523. SEAM-FINISHER FOR SHOE-SEWING MACHINES. JOSEPH LAURIN, Maisonneuve, Canada. Filed Mar. 31, 1903. Serial No. 148,963. (No model.)

Claim.—1. In combination, a separator-tool having an opening therein passing through the edge thereof, and an awl mounted in said opening and projecting beyond the edge of said tool.

2. In combination, a separator-tool having an opening therethrough passing through the edge thereof, an awl carried in said opening, an awl-segment, and means for simultaneously clamping said tool, said awl, and said segment.

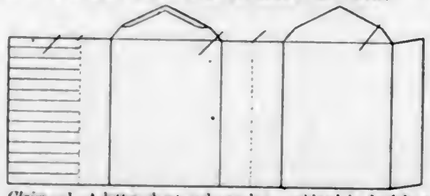


3. In combination, an awl-segment, a separator-tool, said separator-tool having an opening through the point thereof, an awl carried in said opening, a portion whereof lies between said separator-tool and said segment, and means for clamping said separator-tool to said segment.

4. In combination, a segment, a substantially V-pointed separator-tool, said tool having an opening through the point thereof, said segment and said separator-tool having coöperating faces and grooves formed therein coöperating to form a recess which constitutes a continuation of said opening, an awl mounted in said recess, and a bolt adapted to clamp said separator-tool to said segment, whereby said awl is held in place.

5. In combination, an awl-segment, a separator-tool carried thereby and having a head with an opening therethrough, said head having a shoulder, said segment having a shoulder coöperating therewith, said segment and said separator-tool having a recess formed therebetween, and an awl carried in said recess and projecting outwardly from said opening.

751,524. ENVELOP AND STATIONERY DEVICE. ROBERT R. LAWSON, New York, N. Y., assignor to Mary C. Gorman, New York, N. Y. Filed Apr. 25, 1903. Serial No. 154,276. (No model.)



Claim.—1. A letter-sheet and envelop combined, in dual form, attached together and capable of being folded one within the other.

2. A letter-sheet and envelop combined, in dual form attached together but with a perforated line between and capable of being folded one within the other.

3. A letter-sheet and envelop combined, in dual form attached together with a perforated line between and capable of being folded one within the other, the flap or closure of each envelop carrying an adhesive gum.

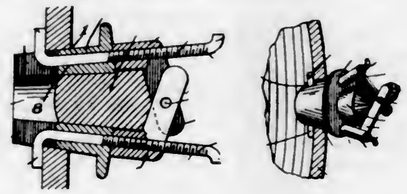
4. A letter-sheet and envelop combined, in dual form, being so attached together, with a perforated line between, that they are capable of being folded one within the other in the form of a square envelop, to present the appearance of an ordinary envelop used for transmission through the mails.

5. A letter-sheet and envelop combined, in dual form, being so attached together with a perforated line between them that they are capable of being folded one within the other to present the form of a square and ordinary envelop the flap or closure of each of said combined dual envelops and letter-sheets having upon their edges an adhesive gum.

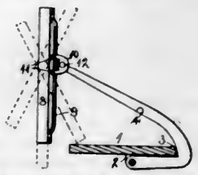
751,525. BUNG-LOCK. GEORGE F. LIEBROCK, Chicago, Ill. Filed May 25, 1903. Serial No. 158,695. (No model.)

Claim.—1. In a device for closing bung-holes, the combination of a tapered bushing formed with a central opening, slots and apertures communicating with said slots, a bung for closing said central opening, clamping members or dogs in said apertures, formed with hooks to engage said slots and to clamp the bushing in the bung-hole and binding-nuts upon said clamping members or dogs, said nuts being provided with wings or arms adapted to be swung over the bung to hold the same in the bushing, substantially as described

2. In a device for closing bung-holes, the combination of a tapered bushing formed with a central opening, slots and apertures communicating with said slots, a bung for closing said central opening, clamping members or dogs in said apertures, formed with hooks to engage said slots and to clamp the bushing in the bung-hole, binding-nuts upon said clamping members or dogs, said nuts being provided with apertured wings or arms adapted to swing together and over the bung, and means adapted to be inserted in the apertures of the wings for locking or securing the wings together, substantially as described.



751,526. MIRROR-SUPPORT. ALBERT W. MANN, Rockford, Ill., assignor to Rockford Frame & Fixture Company of Rockford, Ill., a Corporation of Illinois. Filed Oct. 22, 1903. Serial No. 178,080. (No model.)

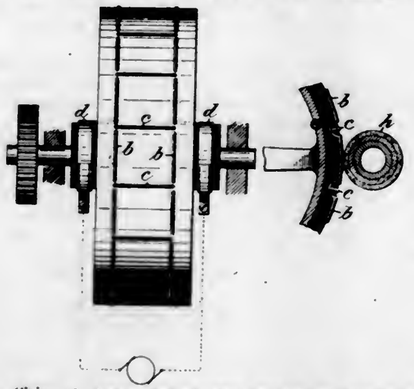


Claim.—1. A mirror-support, comprising an arm having a pivotal connection with a stationary support and having a hooked end, a mirror-frame having a rod secured to its back, and a clamp having a pivotal connection with the hook and an adjustable connection along the rod.

2. A mirror-support, comprising an arm having a pivotal connection with a stationary support and having a hooked end provided with a peripheral groove, a mirror-frame having a rod secured to its back, and a clamp having a pivotal connection with the hook and an adjustable connection along the rod.

3. A mirror-support comprising an arm pivoted to the underface of a support and having a portion of its length a segment of a circle and its free end in hook form, a pin extending from the arm and engaging the support, and a mirror-frame having an adjustable and movable connection with the hooked end of the arm.

751,527. APPARATUS FOR DIVIDING, SEVERING, AND SIMILARLY TREATING CLOTH. ALEXANDER MARR, Manchester, England. Filed June 5, 1903. Serial No. 160,172. (No model.)



Claim.—1. Apparatus for dividing, severing, and similarly treating cloth, consisting of a drum or the like, a wire or wires disposed and arranged upon the said drum or the like in a line or lines cor-

responding to that or those along which severance is to be effected, means or devices for putting parts of said wire or wires successfully into or out of an electric circuit so that they may be heated by the passage of the current, and a blanket-roller or equivalent device between which and the said drum or the like the cloth is impressed by the electrically-heated wire, substantially as hereinbefore described.

2. Apparatus for dividing, severing, and similarly treating cloth, consisting of a drum or the like, a wire or wires disposed and arranged upon the said drum or the like in a line or lines corresponding to that or those along which severance is to be effected, means or devices for including the said wire or wires in an electric circuit so that they may be heated upon the passage of a current, and a blanket-roller or equivalent device between which and the said drum or the like the cloth is impressed by the electrically-heated wire or wires, substantially as herein described.

3. In an apparatus for dividing, severing and similarly treating cloth, a drum, block or the like, provided with wire which is heated by the passage of an electric current and which is disposed and arranged in a line or lines corresponding to that or those along which severance is to be effected, substantially as herein described.

751,528. **PADLOCK.** WILLIAM A. MAYBOLE, Cumbola, Pa. Filed Oct. 29, 1903. Serial No. 179,039. (No model.)



Claim.—1. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle, a sleeve slidably mounted on said lock-bolt, and means to prevent said sleeve from sliding, substantially as shown and described.

2. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle, a sleeve slidably and revolubly mounted on said lock-bolt, and means to prevent said sleeve from sliding, substantially as shown and described.

3. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle having a screw-threaded end, a sleeve slidably and revolubly mounted on the lock-bolt, and means to prevent said sleeve from sliding, substantially as shown and described.

4. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle, a sleeve slidably mounted on said lock-bolt, and a catch adapted to engage said sleeve to prevent it from sliding, substantially as shown and described.

5. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle, a sleeve slidably and revolubly mounted on said lock-bolt, and a spring-actuated lever-catch adapted to engage said sleeve to prevent it from sliding, substantially as shown and described.

6. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle having a screw-threaded end and a pin intermediate of its ends, a sleeve slidably and revolubly mounted on said lock-bolt having a recessed and perforated shoulder to receive said pin, and means to prevent said sleeve from sliding, substantially as shown and described

7. In a padlock, a keyhole-guard, a catch to secure said guard in an operative position, means to conceal the operative portions of said catch, and means to secure said concealing means against displacement, substantially as shown and described

8. In a padlock, a keyhole-guard, a catch to secure said guard in an operative position, a hood adapted to cover the operative portions of said catch, and means to secure said hood in a closed position, substantially as shown and described.

9. In a padlock, a keyhole-guard, a spring-actuated catch to hold said guard in an operative position, means for covering the operative portions of said catch, and concealed devices for holding said covering means in position, substantially as shown and described.

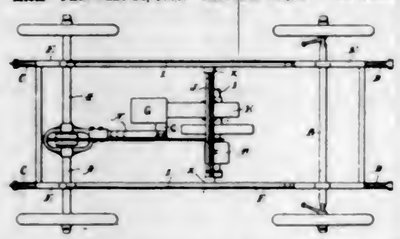
10. In a padlock, a keyhole-guard, a spring-actuated catch to hold said guard in an operative position, a hood adapted to cover the operative portions of said catch, and concealed means to hold said hood in an operative position, substantially as shown and described.

11. In a padlock, a shackle suitably mounted, a lock-bolt to engage said shackle, a sleeve slidably mounted on said lock-bolt, a catch adapted to engage said sleeve to prevent it from sliding, a pivoted dog to actuate said catch, a keyhole-guard, a catch to hold said guard in an operative position, a hood to cover the operative portions of said catch, said hood being extended to form a lever and connected with said pivoted dog, and concealed means to prevent movement of said hood and lever, substantially as shown and described.

12. In a padlock, a cylindrical casing, a shackle pivoted thereon and having a screw-threaded bore in its free end adapted to enter said casing, a lock-bolt having a threaded end, a sleeve slidably mounted on said lock-bolt, a catch adapted to engage said sleeve to prevent it from sliding, a pivoted dog to actuate said catch, a keyhole-guard, a catch to hold said guard in an operative position, a hood to cover the operative portions of said catch, said hood being extended to form a lever and connected with said pivoted dog, and concealed means contained in said shackle to prevent movement of said hood and lever, substantially as shown and described.

13. In a padlock, a cylindrical casing, a shackle pivoted thereon and having a screw-threaded bore in its free end adapted to enter said casing, a lock-bolt having a threaded end, a sleeve slidably mounted on said lock-bolt, a catch adapted to engage said sleeve to prevent it from sliding, a pivoted dog to actuate said catch, a keyhole-guard, a catch to hold said guard in an operative position, a hood to cover the operative portions of said catch, said hood being extended to form a lever and connected with said pivoted dog, a spring-actuated dog pivotally mounted in the shackle to hold said hood in a closed position, a lever to hold said dog in an operative position, and concealed means to prevent the operation of said lever, substantially as shown and described.

751,529. **MOTOR-VEHICLE.** JONATHAN D. MAXWELL, Detroit Mich. Filed June 22, 1903. Serial No. 162,460. (No model.)



Claim.—1. In a motor-vehicle having a horizontally-disposed reciprocating motor the working stroke of which produces vibrations in the vertical plane of travel around a neutral axis which is parallel with the crank-shaft and adjacent thereto, the combination with the motor-frame and traction-axle, a longitudinally-disposed spring-arm, connecting the motor-frame at one end with the traction-axle and forming a combined distance-bar and yielding support for the motor, hangers suspended from the sides of the vehicle-frame in the vertical plane of the neutral axis of vibration of the motor, and a transverse frame rigidly united with the motor-frame and provided with trunnions pivotally supported by the hangers in said neutral axis.

2. In a motor-vehicle, the combination with the vehicle-frame and traction-axle, of a horizontally-disposed reciprocating motor having its crank-shaft wholly supported by the frame of the motor in parallelism with the traction-axle and operatively connected therewith, a longitudinally-disposed arm connecting the rear end of the motor-frame with the traction-axle and forming a combined distance-bar and support for the motor and means supporting the motor-frame near its forward end from the vehicle-frame at points in the neutral axis of vibration, said neutral axis being parallel to and in rear of the crank-shaft, substantially as described.

3. In a motor-vehicle, the combination with the vehicle-frame and traction-axle, of a horizontally-disposed reciprocating motor having its crank-shaft supported by the frame of the motor independently of the vehicle-frame and operatively connected with the traction-axle in parallelism therewith, a longitudinally-disposed arm connecting the rear end of the motor-frame with the traction-axle and forming a combined distance-bar and yielding support for the motor, and means supporting the forward end of the motor-frame from the frame of the vehicle said means supporting the motor-frame at points on opposite sides of the frame and located in a transverse axis parallel with the crank-shaft and in rear thereof and forming the neutral line of vibration of the motor, substantially as described.

4. In a motor-vehicle, the combination with the vehicle-frame and traction-axle, of a horizontally-disposed reciprocating motor having its crank-shaft wholly supported by the frame of the motor in parallelism with the traction-axle and operatively connected therewith, a longitudinally-disposed spring-arm rigidly and adjustably connecting the rear end of the motor-frame with the traction-axle and forming a combined distance-bar and spring-support for the motor, and hangers pivotally supporting the motor-frame at points on opposite sides thereof and in the neutral line of vibration of the engine with the frame of the vehicle, substantially as described.

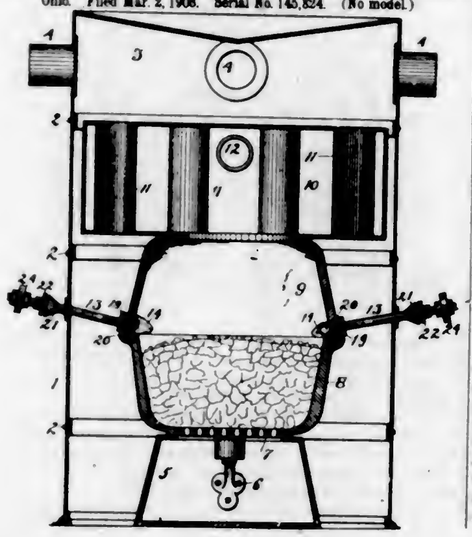
5. In a motor-vehicle, the combination with the vehicle-frame and traction-axle, of a horizontally-disposed reciprocating motor having its crank-shaft wholly supported by the frame of the motor in parallelism with the traction-axle and operatively connected therewith, a longitudinally-disposed spring-arm rigidly connecting the rear end of the motor-frame with the traction-axle and forming a combined distance-bar and support for the motor and hangers suspending the motor-frame from the frame of the vehicle, said hangers pivotally connected to the motor-frame at points located in a transverse line parallel to the crank-shaft and in rear thereof and forming the neutral axis of vibration.

6. In a motor-vehicle having a horizontally-disposed reciprocating motor the working stroke of which produces vibrations in a vertical longitudinal plane, the combination with the frame and traction-axle, of a longitudinally-disposed spring-arm supporting the rear end of the motor-frame upon the traction-axle and forming the distance-bar of the motor, a transverse frame to which the forward end of the motor-frame is rigidly secured and carrying the crank-shaft of the motor independently of the frame, trunnions on the ends of said transverse frame in the neutral axis of vibration of the motor and hangers pivotally supporting the transverse frame upon said trunnions from the frame of the vehicle.

7. In a motor-vehicle having a horizontally-disposed reciprocating motor the working stroke of which produces vibrations in a vertical longitudinal plane around a neutral axis which is parallel with the crank-shaft and adjacent thereto, means for supporting said motor comprising two pivotal points of support on the frame of the vehicle and located in the neutral axis of vibration of the motor and a yielding support at the opposite end of the motor connecting it with the traction-axle.

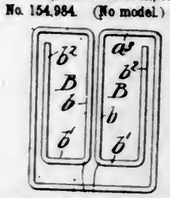
8. In a motor-vehicle, the combination with a running-gear and motor of the character described, of a longitudinally-disposed spring-arm at the rear end of the motor-frame and adapted to be connected to the traction-axle or proximate part thereof to form a combined distance-bar and support for the motor, a transverse vertical frame rigidly united with the motor-frame at the forward end and provided with trunnions at its ends and hangers adapted to pivotally suspend the motor from the sides of the vehicle-frame the parts arranged and combined with the motor to form a detachable unit as and for the purpose described.

751,530. **CONVERTIBLE FURNACE.** RUDOLPH A. MAY, Akron, Ohio. Filed Mar. 2, 1903. Serial No. 145,824. (No model.)



Claim.—The combination with the combustion-chamber of a stove or furnace normally adapted for burning a solid fuel, of a burner shaped to conform to the interior of the combustion-chamber and to be placed against its inner side walls provided on its inner face with a slot, the upper portion of said burner above said slot arranged to overhang the portion of said burner below said slot, and means for introducing a fluid fuel into the interior of said burner.

751,531. **CLIP.** JOSEPH A. MAYERS, Redbank, N. J. Filed Apr. 30, 1903. Serial No. 154,984. (No model.)



Claim.—1. The within-described clip presenting in a single piece, the outer clamping member of continuous character except at one side, and an inner clamping member integrally connected with said outer member at both of its terminals, which said terminals extend to the side aforesaid, both members normally occupying a common plane.

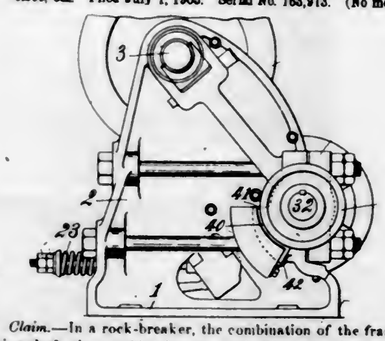
2. The within-described clip presenting in a single piece, the outer clamping member comprising a transverse bar a, and parallel side bars a', a^2, and an inner clamping member normally disposed in a common plane with the outer member, and connected to both of said side bars at portions thereof remote from the bar a, and means connecting said inner member with the bars a', a^2.

3. The within-described clip presenting in a single piece, the outer clamping member comprising a transverse bar a and parallel side bars a', a^2, horizontal lengths a^2, at the portions of the side bars remote from the bar a, and an inner member embodying closely parallel central shanks b, relatively divergent bends b', and extended terminals b^2, the latter parallel with the side bars, all of the said parts normally occupying a common plane.

4. As a new article of manufacture, a clip for retaining a plurality of superposed sheets, comprising the outer clamping member embodying the loop A, and the inner member B, embodying two parallel tongues, both members formed integral and normally occupying a single plane, substantially as shown and described.

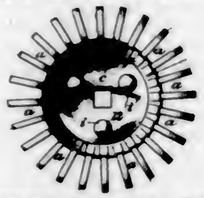
5. A clip for retaining a plurality of superposed sheets, comprising an outer clamping member embodying a loop, and an inner clamping member embodying two adjacent tongues, both members formed integral and normally occupying a common plane, substantially as shown and described.

751,532. **ROCK-BREAKER.** WILLIAM A. MERRALLS, San Francisco, Cal. Filed July 1, 1903. Serial No. 163,913. (No model.)



Claim.—In a rock-breaker, the combination of the frame, the driving-shaft, the crushing-jaw eccentrically mounted at its upper end on said shaft, the bearing-plate engaging the lower end of the crushing-jaw, the crushing-cylinder between which and said jaw the material is fed, the friction-wheel on the shaft of said cylinder, and the sliding wedge engaging said friction-wheel and received in a socket on the frame, said wedge being provided with spring means for normally pressing it in a direction opposite to the operative movement of the cylinder toward the lower end of the jaw, substantially as described.

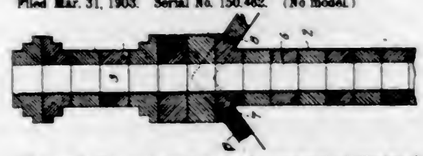
751,533. HAND-WHEEL. ERNEST H. METCALF, Bridgeport, Conn. Filed May 27, 1903. Serial No. 158,972. (No model.)



Claim.—1. A hand-wheel comprising a skeleton tubular rim, having an inwardly-projecting circular flange, a central filling-block whereon the rim is mounted, means for holding the rim from turning on the periphery of the filling-block, and two clamping-disks securable on the rim and filling-block.

2. A hand-wheel comprising a skeleton tubular rim having an inwardly-projecting circular flange, a dovetail tongue projected inward from said flange, a circularly-edged flat filling-block having a dovetail notch that receives the tongue when the rim is mounted on the filling-block, two similar clamping-plates, each having an annular peripheral flange that projects laterally and outwardly, said flange being concaved on its outer surface, and formed with spaced projections that enter between the bars on the rim for their lateral support, and means for securing the clamping-plates on the rim and filling-block, said plates and the filling-block having a central perforation.

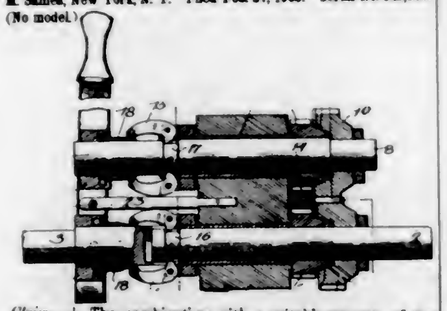
751,534. CHIMNEY-TILE. FRANKLIN MINGER, Westbend, Iowa. Filed Mar. 31, 1903. Serial No. 150,462. (No model.)



Claim.—1. The combination of a lower terminal tile for chimneys having its outer normally vertical face formed into a plurality of steps or shoulders, and a roof-socket correspondingly shouldered to provide a rest for said tile.

2. As a new article of manufacture, a lower terminal tile for chimneys having its outer normally vertical face formed into a plurality of steps or shoulders continuous throughout the circumference of the tile.

751,535. GEARING. HERMAN J. MOHLENHOFF, New York, N. Y., assignor to George K. Wallace, Charles D. Newton, and Fred M. Sames, New York, N. Y. Filed Feb. 27, 1903. Serial No. 145,359. (No model.)

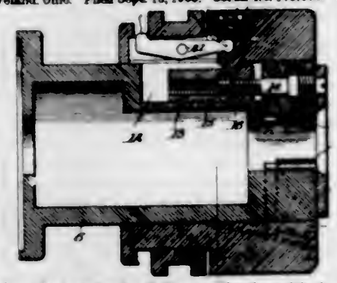


Claim.—1. The combination with a suitable support, of two sets of shafts supported thereby and arranged with parallel axes of rotation, each set comprising two shafts one arranged to rotate within the other and to have a limited longitudinal movement with respect to the other, two clutches comprising each two members, the members of one clutch secured respectively to the shafts of one set, and the members of the other clutch secured respectively to the shafts of the other set, gearing connecting the shafts of one set respectively with the shafts of the other set, bell-crank levers pivotally secured to one shaft of each set and engaging the other shaft thereof, and means for operating the bell-crank levers.

2. The combination with a suitable support, of two shafts supported thereby, one arranged to rotate within the other and to have a limited longitudinal movement with respect to each other, a gear-wheel having a concentric conical recess secured to one of said shafts, another gear-wheel having a concentric conical hub adapted for co-action with the conical recess of the first said gear-wheel, secured to the other said shaft, a train of gearing meshing with said gear-wheels, bell-crank levers pivotally connected to one of said shafts, and in engagement with the other of said shafts, an operating-cone surrounding the central shaft for engaging the bell-crank levers, and a controlling-lever controlling the movements of said operating-cone.

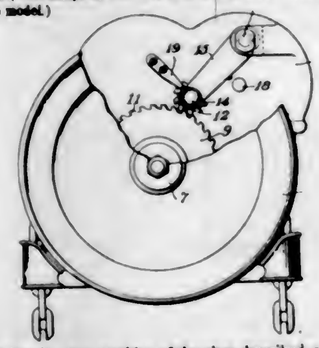
3. The combination with a suitable support, of two sets of shafts supported thereby and arranged with parallel axes of rotation, each set comprising a central shaft and a sleeve-shaft surrounding the same and permitted to have a limited longitudinal movement with respect to each other, two clutch members, one carried by each of said central shafts, two corresponding clutch members, one carried by each of said sleeve-shafts, gearing connecting the corresponding clutch members together, bell-crank levers pivoted respectively to each of said sleeve-shafts and engaging each of said central shafts, cones carried by said shafts for operating said bell-crank levers, and an operating-lever pivotally supported intermediate the two shafts and engaging both said cones.

751,536. SCREW-CUTTING DIE-HEAD. WILLIAM MORGAN, Cleveland, Ohio. Filed Sept. 18, 1903. Serial No. 173,690. (No model.)



Claim.—In a cutter-head, the combination with the barrel, the sliding sleeve thereon, the sliding collar on the sleeve, and the bevel-closing chaser-holders carried by the barrel and adapted to be actuated by the sleeve, of an adjusting-block slidable in the barrel and having a notch, a yielding locking-pin carried by the sleeve and adapted to engage in the notch, and a lever pivoted on the sleeve and engaging at one end the pin and projecting at the other end in the way of the collar, to disengage the pin when the collar is retracted.

751,537. HOISTING MECHANISM. PETER MULLEN, Philadelphia, Pa., assignor to Edwin Harrington, Son and Company, Incorporated, Philadelphia, Pa. Filed Nov. 27, 1903. Serial No. 183,754. (No model.)



Claim.—1. In a machine of the class described, a rocking arm, a wheel carried by said rocking arm, a second wheel adapted to be engaged and held by said first wheel, and mechanism for holding said first wheel, substantially as specified.

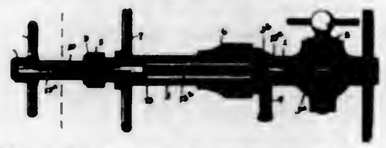
2. In a machine of the class described, a revoluble gear-wheel, a second revoluble gear-wheel engaging said first gear-wheel and having a limited motion of translation relatively thereto, and a stop against which said second gear-wheel is adapted to be thrown to lock said gear-wheels, substantially as specified.

3. In a machine of the class described, an oscillating pinion, a spur-wheel engaging and oscillating said pinion, a stop for limiting the movement of said pinion in one direction, and a stop for limiting the movement of said pinion in the opposite direction, said second stop locking said pinion and spur-wheel, substantially as specified.

4. In a machine of the class described, a pair of clutching members, mechanism for effecting the engagement and disengagement of said clutching members, an oscillating member adapted for engaging and holding one of said clutching members, and a stop against which said oscillating member is adapted to be thrown and held by said engaging clutching member, substantially as specified.

5. In a machine of the class described, an oscillating gear-wheel having inclined teeth, a gear-wheel having inclined teeth engaging said oscillating gear-wheel, and mechanism for holding said wheels, said teeth meshing freely in moving in one direction and interlocking to engage said holding mechanism in acting in the opposite direction, substantially as specified.

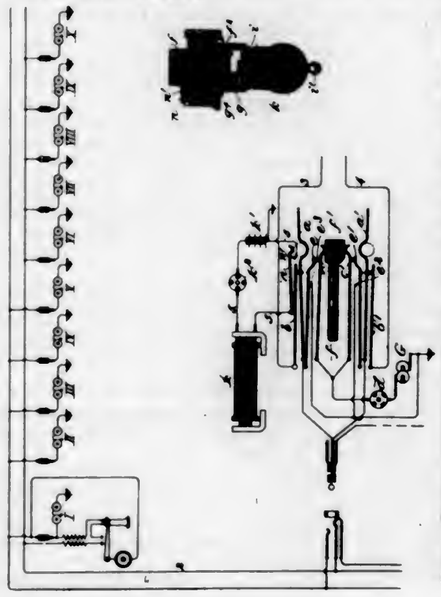
751,538. GAGE-COCK. SAMUEL N. MURDOCK, Columbus, Ohio. Filed Sept. 28, 1903. Serial No. 174,842. (No model.)



Claim.—1. In a gage-cock, the combination with a casing 1 adapted to be connected with a boiler, said casing having an outlet and a tubular valve 5 adjustably supported from said casing, and a tubular member 10 rotatably mounted in said valve 5, of a cleaner-rod having its rear portion slidably mounted in said member 10 and its forward portion threaded and engaging internal threads of said valve 5 and means connected with the valve 5 and member 10 to impart rotary motion thereto.

2. In a gage-cock, the combination with a casing 1 adapted to have one of its ends connected with a boiler, a valve 3 intersecting the central passage of said casing 1 and having a valve opening therethrough, said casing having an outlet and a valve 5 controlling said outlet, of a longitudinally-adjustable cleaner-rod passing through said valve 5 and adapted to be projected through the opening of the valve 3.

751,539. RINGING-KEY FOR TELEPHONE-SWITCHBOARDS. FRANK R. MCBERTY, Evanston, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed May 9, 1902. Serial No. 106,564. (No model.)



Claim.—1. A ringing appliance for telephone-switchboards comprising a source of periodically-interrupted ringing-current, a switch *a* for applying the same, a manual key through the agency of which said switch may be set, step-by-step mechanism set in actuating the key, means for actuating said step-by-step mechanism during the interruptions of the ringing-current, and a second switch *c* actuated by the initial movement of said step-by-step mechanism controlling the application of current by the first-mentioned switch, whereby the interrupted ringing-current is automatically applied for a definite number of full periods.

2. The combination with a ringing-key having a plunger, switching mechanism set in the depression of said plunger, and automatic step-by-step mechanism controlling the release of the switch, of a stop *o* for preventing the depression of the plunger, controlled through the agency of said step-by-step mechanism, said stop being held in engagement with the plunger during the operation of the step-by-step mechanism, whereby each signal automatically transmitted by the key must be completed before the key can be operated to transmit another signal.

3. A ringing appliance comprising a source of current, two switches *a a'* for applying the same, automatic step-by-step mechanism set in setting the key, controlling the release of said switches, switches *c c'* controlling the application of current to said first-mentioned switches, a reciprocating and rotating plunger *f*, mechanism moved in depressing the plunger for actuating the first-mentioned switches, and a cam *f'* rotated in the rotation of the plunger for alternatively actuating either of said switches *c c'*, whereby the angular position of the plunger when depressed determines which of the switches *a a'* shall be connected to the source of current.

4. A signaling appliance comprising a source of periodically-interrupted current, a switch *a* adapted to be set to apply said current, an escapement brought into operation in the setting of said switch, controlling the release thereof, a magnet and means controlled in the actuation of said switch *a* for exciting said magnet during the interruption of said ringing-current, and a switch *c* actuated in the initial response of said magnet adapted to connect said source of current with the switch *a*, whereby the current is automatically applied for a definite number of full periods.

5. In a ringing appliance for telephone-switchboards, the combination with a source of periodically-interrupted ringing-current, of a plunger *f* adapted to be manually rotated and reciprocated, switching mechanism brought into action by the return of the plunger after a depression thereof for applying the ringing-current, automatic step-by-step mechanism and a switch controlled thereby for determining the application of the current, means for periodically actuating said step-by-step mechanism during the interruptions of the ringing-current, said step-by-step mechanism being set by the depression of the plunger, a device adjusted in the rotation of the plunger preliminary to its depression for determining the extent of operation of the step-by-step mechanism, and a detent for preventing the return of the plunger, adapted to be released by said step-by-step mechanism, whereby ringing-current is always applied at the beginning of a period.

6. The combination with a source of intermittent current, of a ringing-key and a push-button for closing said key to apply the ringing-current, an electromagnet and a switch set in operating the button in engagement therewith, a circuit of said magnet and a source of intermittent current therein of like period to the ringing-current, and an escapement controlling said ringing-key also operated by the magnet, as described.

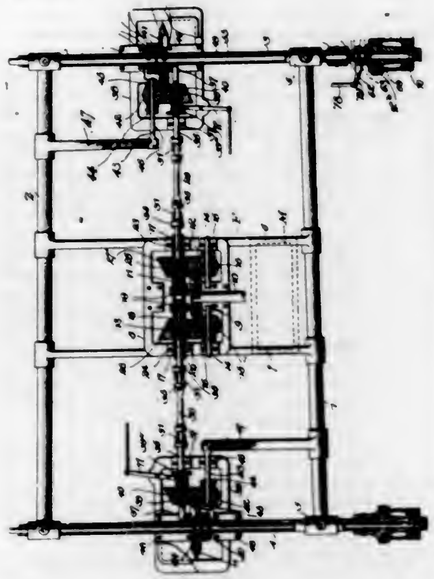
7. The combination with a manually-operated ringing-key, an escapement controlling the return of said key to its normal position, and an electromagnet actuating the said escapement, of a source of intermittent current independent of said ringing-current in a circuit including said magnet, substantially as described.

8. The combination with a source of ringing-current, and a commutator periodically interrupting said current, of a key for applying said source of current, an electromagnetic switch in the circuit with said source, an actuating-circuit for said magnet, and a commutator closing said actuating-circuit periodically, the periods coinciding with the periods of ringing-current, said switch being adapted to remain in position when operated, as described.

9. The combination with a source of periodically intermittent ringing-current, of a ringing-key for controlling the application of said source, an electromagnetic switch in the circuit for applying said periodic current, means for operating said switch during an intermission of the ringing-current, said switch being adapted to re-

main in its changed position when operated; whereby partial signals are avoided.

751,540. POWER-TRANSMITTING MECHANISM. DAVID L. MCCLINTOCK, Kansas City, Mo. Filed Apr. 27, 1903. Serial No. 154,503. (No model.)



Claim.—1. In power-transmitting mechanism for motor-vehicles the combination with a supporting-frame, of front and rear axles, wheels carried by said axles, a driving-shaft, gearing associated with said driving-shaft and said axles, a flexible shaft connecting the gearing associated with said driving-shaft and said axles, and keys consisting of a plurality of balls disposed between said flexible shaft and said gearing.

2. The combination in power-transmitting mechanism for motor-vehicles of a supporting-frame, front and rear axles, wheels carried on said axles, a driving-shaft, gearing associated with said driving-shaft and said axles, a flexible shaft connecting said gearing associated with said driving-shaft and said axles, grooves provided in said flexible shaft, balls mounted in said grooves and engaging with suitable portions of said gearing to permit sliding movement of said gearing on said shaft and preventing rotative movement of said gearing on said shaft.

3. The combination in power-transmitting mechanism for motor-vehicles of a supporting-frame, front and rear axles, wheels on said axles, a driving-shaft, gearing associated with said driving-shaft, gearing associated with said wheels, a connecting-shaft associated with said last-mentioned gearing, and means for imparting motion from the first-mentioned gearing to said connecting-shaft, said means comprising a sleeve slidably mounted on said connecting-shaft and at either end a power-transmitting member adapted to engage with the first-mentioned gearing.

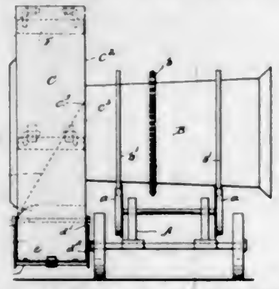
4. The combination in power-transmitting mechanism for motor-vehicles of a supporting-frame, front and rear axles, wheels carried on said axles, a driving-shaft, gearing associated with said driving-shaft, gearing associated with said wheels, a connecting-shaft associated with said last-mentioned gearing, said connecting-shaft being formed in front and rear sections spaced apart, and means for imparting motion from the gearing associated with said driving-shaft to said connecting-shaft, said means comprising a sleeve slidably mounted upon the adjacent end portions of the spaced sections of said driving-shaft and at either end a power-transmitting member adapted to engage with the gearing associated with said driving-shaft.

5. The combination in power-transmitting mechanism for motor-vehicles of a supporting-frame, front and rear axles, wheels carried on said axles, a driving-shaft, gearing associated with said driving-shaft, gearing associated with said wheels, a connecting-shaft formed in front and rear universally-jointed sections spaced apart at their adjacent ends, and a sleeve slidably mounted on the adjacent end portions of said sections and secured at either end a power-transmitting member adapted to engage with the gearing associated with said driving-shaft.

6. The combination in power-transmitting mechanism for motor-vehicles of a driving-shaft, a friction-gear mounted on said shaft and having two inclined outwardly-converging faces, a counter-shaft on one side of said friction-gear, a cone slidably mounted on said counter-shaft, a second counter-shaft on the opposite side of said friction-gear, and a double cone slidably mounted on said last-mentioned counter-shaft.

7. The combination in a driving mechanism for motor-vehicles of a driving-shaft, a friction-gear mounted on said shaft and having two inclined outwardly-converging operating-faces, a counter-shaft disposed at right angles to said driving-shaft, a pair of cones slidably mounted on said counter-shaft and adapted to engage one side of said friction-gear, a pair of alined counter-shafts parallel to the first-mentioned counter-shaft, and double cones mounted on said alined counter-shafts and adapted to engage with said gear and the cones on the first-mentioned counter-shaft.

751,541. ROTARY FEEDING DEVICE FOR CONCRETE-MIXERS. SAMUEL P. MCKELVEY, Chicago, Ill., assignor to McKelvey Concrete Machinery Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 19, 1902. Serial No. 123,982. (No model.)



Claim.—1. In combination, a revoluble drum, mixing devices in said drum, a feed-opening in one end of said drum, a discharge-opening in the other end of said drum, a substantially conically shaped discharge-chute in said drum having one end embracing the said discharge-opening in the drum and having a side opening facing the periphery of the drum, a gate pivoted along one edge of said side opening and adapted to close between said edge and the periphery of said drum, and means for swinging said gate.

2. In a feeding device for concrete-mixers, the combination of a revoluble drum, a feed-opening in one end of said drum, a discharge-opening in the other end of said drum, a discharge-chute in said drum having an outlet leading to said discharge-opening and an inlet-opening facing the periphery of said drum and extending substantially the length of the drum, a gate pivoted along one edge of said opening and adapted to alternately close said opening and close between the edge of said opening and the inner periphery of said drum, trunnions upon which said gate is pivoted having bearings in the ends of said drum, arms secured to said trunnions, a cross-rod connecting said arms beyond the periphery of said drum, and catches on said drum to engage said rod when the gate is swung to its extreme positions.

3. In combination, the revoluble drum, a discharge-chute rigidly secured in and to said drum, a plate pivoted on a shaft through said drum, adapted to intermittently deliver material from said drum into said discharge-chute, and an arm on said shaft external of said drum for swinging said plate.

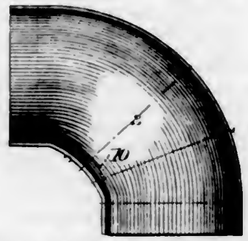
751,542. FINGER-GUIDE FOR PENHOLDERS OR THE LIKE. DONALD MCKENZIE, Dunedin, New Zealand. Filed Apr. 22, 1903. Serial No. 153,841. (No model.)

Claim.—1. A finger-guide for penholders and the like consisting of a large ring adapted to be placed round the middle joint of the forefinger, a smaller ring attached to said large ring and adapted to be placed round a penholder and the like and a strip provided with a curved end attached to said large ring substantially as and for the purposes set forth.

2. A blank for forming a finger-guide for pens, &c., comprising a strip having a main portion adapted to form the finger-grip, a second portion adapted to form the grip for the penholder and being set at an obtuse angle to the main portion and a third portion adapted to form the holder for the finger-tip, the last-mentioned portion being set at right angles to said main portion, substantially as described.



751,543. PIPE-ELBOW. LUTHER C. MCNEAL, Rochester, N. Y. Filed July 8, 1902. Serial No. 114,730. (No model.)



Claim.—1. A pipe-elbow having smooth interior and exterior surfaces composed of two similar stamped sheet-metal sections connected at their edges by seams extending longitudinally, the ends of said elbow being substantially circular in cross-section, the portion between the ends being enlarged at the sides and gradually tapering toward the ends and seams and the inner side of the elbow at the seam being formed on a curve having a different center from the center on which the outer side is struck.

2. A pipe-elbow having smooth interior and exterior surfaces composed of two similar stamped sheet-metal sections connected at their edges by seams extending longitudinally, the ends of said elbow being substantially circular in cross-section and the portion between the ends being enlarged transversely of the plane in which the elbow is bent and gradually tapering toward the ends and also toward the seams.

3. A pipe-elbow having smooth interior and exterior surfaces composed of two similar stamped sheet-metal sections connected at their edges by seams extending longitudinally, the portion between the ends being of larger interior diameter than the ends, said increase of diameter being uniform and transversely of the plane in which the elbow is bent and tapering gradually into cylindrical form toward the ends.

4. A device for connecting the flanged edges of curved pipe-elbow sections consisting of a strip of sheet metal having flanges at the sides extending toward each other, the body and flanges of the strip being corrugated transversely.

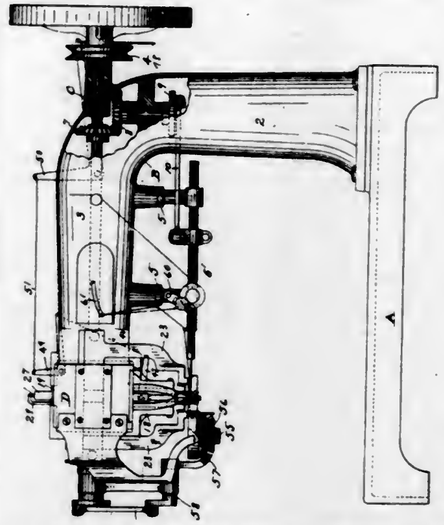
751,544. AUTOMATIC TURNING AND SEWING MACHINE. HERMAN NEDERMAN, St. Paul, Minn., assignor, by direct and mesne assignments, of three-fourths to Edwin Sloane and Theodore L. Schurmeier, St. Paul, Minn. Filed Mar. 17, 1899. Serial No. 709,404. (No model.)

Claim.—1. Means for turning inward the edges of two or more pieces of material and stitching therethrough comprising in combination with a suitably-actuated needle, means for holding said pieces in the path of the needle, and means acting alternately with said needle for inturning the edges of said material.

2. Means for turning inward the edges of two or more pieces of material and stitching therethrough comprising in combination with a suitably-actuated needle, means for holding the edges of said pieces in the path of said needle, and means acting alternately with said needle to pass between said pieces and inturn the edges thereof.

3. Means for turning inward the edges of two or more pieces of material and stitching therethrough comprising in combination with a suitably-actuated needle, means guiding and holding the pieces in the path of said needle and intermittent, or step-by-step mechanism for interning the edges of said pieces.

4. In combination with the stitching mechanism and guides for directing and holding two or more pieces of material with their edges parallel and in position to be stitched, moving means acting to successively thrust in portions of one edge of the material between the pieces to receive the stitches.



5. In a sewing-machine in combination with the needle and its actuating means, means for directing two or more plies of fabric with their edges parallel into the path of the needle and step-by-step mechanism acting alternately with the needle for thrusting the fabric edge between the plies to receive the stitching.

6. The combination of jaws or guides along the outer sides of which plies of material are adapted to be passed, slidable means for turning the edges of the plies between said jaws, feeding mechanism and sewing mechanism.

7. In a machine of the class described, the combination of means for receiving and holding independent plies of material in parallel position, an edge-turner, means for actuating said turner, and sewing mechanism.

8. In a machine of the class described, the combination of means for receiving plies of material, an edge-turner, an adjustable support therefor, means for actuating said turner, and sewing mechanism.

9. In a machine of the class described, the combination of means for receiving plies of material, a turner, a yielding support for said turner, means for imparting a step-by-step movement to said turner, and sewing mechanism.

10. In a machine of the class described, the combination with means for receiving plies of material and holding the same in parallel position, of a turner slidable between said receiving means, a tension-spring therefor, means for actuating said turner, and sewing mechanism.

11. In a machine of the class described, the combination with holding-jaws, of means for feeding plies of material into said machine outside of said jaws, means for separating said jaws and means for simultaneously turning the edges of the material inward between the same, means for closing said jaws and means for sewing through said inturned edges.

12. In a machine of the class described, the combination with mechanism for carrying plies of material through the machine, and jaws separating the same, of means for separating and closing said jaws, means for folding the edges of material over said jaws, means for carrying said edges inward between the jaws, pressure means for holding the edges of the material against the jaws and means for sewing therethrough.

13. In a machine of the class described, the combination with sewing mechanism, means for receiving plies of material, of a turner having yielding support, means normally holding said turner in inoperative position, and an actuating-cam therefor.

14. In a machine of the class described, the combination with a driving-shaft, of means actuated thereby for holding plies of material in parallel position, similarly-actuated means for turning the edges of said material inward, and sewing mechanism.

15. In a machine of the class described, the combination with

a driving-shaft, means for holding plies of material in parallel position, of step-by-step edge-turning mechanism actuated by said shaft, sewing mechanism and feeding mechanism.

16. In a machine of the class described, the combination with sewing mechanism, of a pair of jaws, means for turning the edges of adjacently-arranged plies of material lover said jaws, and forcing said edges inward between the jaws.

17. In a machine of the class described, the combination with a pair of jaws, means for turning the edges of adjacently-arranged plies of material over and between said jaws, and means for separating and closing said jaws.

18. In a machine of the class described, the combination with the driving-shaft, of means for holding plies of material in parallel position, jaws actuated from said shaft for bending the edges of the plies, a slidable plunger for turning the bent edges inward between the plies, sewing mechanism and feeding mechanism.

19. In a machine of the class described, the combination of a pair of jaws, means for guiding plies of material alongside of said jaws, reciprocating means for turning the projecting edges of said plies between said jaws, and means for sewing therethrough.

20. A machine of the class described, comprising in combination with a suitably-actuated needle, a driving-shaft, means actuated from said shaft for carrying two or more plies of material through the machine, and similarly-actuated means working alternately with the needle to inturn the edges of said plies.

21. In a machine of the class described, the combination with holding-jaws, and feeding mechanism, of means for separating and closing said jaws, a turner working between said separated jaws to turn the edges of the material inward, and sewing mechanism.

22. In a machine of the class described, the combination with holding-jaws, of means adjacent to said jaws for guiding the edges of the material as fed into the machine, means for separating said jaws and simultaneously turning the projecting edges of the material inward between the same, closing means for said jaws, and means for sewing through said inturned edges.

23. In a machine of the class described, the combination of a pair of jaws, means for separating and closing the same, attached guides for holding plies of material alongside of said jaws, means for turning inward between the jaws the projecting edges of said plies and means for sewing therethrough.

24. In a machine of the class described, means for holding two or more plies of material in parallel position, suitably-actuated jaws for bending the edges of the material and means for turning the bent edges of said material between the plies.

25. In a machine of the class described, means for holding two or more plies of material in parallel position, suitably-actuated means for bending the edges of said plies, and suitably-actuated, step-by-step mechanism for turning said bent edges inward between the plies.

26. In a machine of the class described, the combination with a pair of jaws, of means for bending the edges of adjacently-arranged independent plies of material over said jaws, and a turner for carrying said edges inward between said jaws.

27. In a machine of the class described, the combination with a pair of jaws, of means for bending the edges of adjacently-arranged plies of material over said jaws, a turner, and a yielding support for said turner.

28. In a machine of the class described, the combination with sewing mechanism, of a pair of jaws, means for bending the edges of adjacently-arranged plies of material over said jaws, a turner, and means for carrying said turner between said jaws.

29. In a machine of the class described, the combination with sewing mechanism, of a pair of jaws, means for bending the edges of adjacently-arranged plies of material over said jaws, means for separating and closing said jaws, a turner, and means for carrying said turner between said jaws.

30. In a machine of the class described, the combination with holding-jaws, of jaws arranged adjacent thereto, forming an intermediate passage for said material, means for actuating said second jaws to turn the edges of the material over the inner jaws, means for turning the edges inward between said inner jaws, and means for sewing through said edges.

31. In a machine of the class described, the combination with means for carrying plies of material through the machine, of jaws arranged in position to stand between said plies, means for separating said jaws, means for folding the edges of the material inward over said jaws, means for turning said edges between the jaws, means for closing said jaws, and sewing mechanism.

32. In a machine of the class described, means for holding two or more plies of material in parallel position, suitably-actuated jaws for bending the edges of said plies, and a suitably-actuated plunger for forcing said bent edges inward between the plies, and sewing mechanism.

33. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding devices, means for actuating said devices to fold the edges of said material over said jaws, and means for turning said folded edges between said jaws.

34. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding and turning devices, actuating means therefor, and sewing mechanism.

35. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding and turning devices, actuating means therefor, feeding mechanism, and sewing mechanism.

36. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding devices, means normally holding said devices separated, a turner, means for normally holding said turner in inoperative position, and sewing mechanism.

37. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding devices, a spring normally holding said devices separated, means for actuating said devices against the tension of said spring, a turner, actuating means therefor, and sewing mechanism.

38. In a machine of the class described, the combination of a pair of jaws, alongside of which plies of material are adapted to be passed, folding and turning devices, supporting-yokes for said folding devices, interposed springs normally holding said yokes separated, means for actuating said yokes against the tension of said springs, and sewing mechanism.

39. In a machine of the class described, the combination with means for carrying plies of material through the machine, of holding-jaws, folding-jaws arranged adjacent thereto, actuating means for said folding-jaws mounted upon the operating-shaft, whereby said jaws are actuated to fold the edges of the material over said first jaws, means for turning said edges inward between the holding-jaws, and means for sewing therethrough.

40. In a machine of the class described, the combination with feeding mechanism, of holding-jaws, folding-jaws, cams mounted upon the operating-shaft, and adapted to actuate said folding-jaws to turn the edges of the material inward, a turning device, an operating-cam therefor adapted to actuate said device to turn the edges of the material inward between said cloth-holding jaws, and means for sewing through said material.

41. In a machine of the class described, the combination with means for carrying plies of material through the machine, means for turning the adjacent edges of said plies inward, and means for sewing therethrough, of pressure-bars upon opposite sides of said material, and means for actuating both bars to carry and hold them in gripping position against the plies of material.

42. In a machine of the class described, the combination with means for carrying plies of material through the machine, means for turning their adjacent edges inward and for sewing therethrough, pressure-bars, actuating-cams for both of said bars whereby said bars are carried into gripping contact with the turned edges of said material to hold the same in position for the needle to pass through.

43. In a machine of the class described, the combination with means for carrying plies of material to be joined through the machine, means for turning inward the adjacent edges thereof, and for sewing therethrough, of pressure-bars slidably connected together, springs normally holding said bars separated, and actuating-cams therefor whereby said bars are carried into gripping contact with the edges of the material.

44. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a pair of arms, a supporting-slide therefor, actuating means for said slide, studs carried by said arms, and a cam working between said studs.

45. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a pair of arms, a supporting-slide therefor, an actuating-cam for said slide, and means for adjusting the relative positions of said slide and cam.

46. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for carrying said material through the machine, consisting of a pair of arms, a supporting-slide therefor, a controlling-spring for said slide, means for reciprocating said slide against the tension of said spring, and an adjusting-screw.

47. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a pair of arms, a supporting-slide therefor, a post carried by said slide, a cam adapted to engage said post, and an adjusting-screw connecting said post and a fixed support.

48. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a pair of arms, a supporting-slide therefor, a spring normally holding said slide in forward position, means for adjusting the position of said slide, an actuating-cam, a driving-shaft, and an operative connection between said cam and shaft.

49. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a pair of arms, a supporting-slide, means for reciprocating said slide, a cam arranged between said arms, and means for actuating said cam to separate said arms.

50. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a plate, feeder-arms slidably supported upon said plate, and means for reciprocating said plate.

51. In a machine of the class described, the combination with means for receiving plies of material and turning their adjacent edges inward, and mechanism for passing a line of sewing through said inturned edges, of means for carrying said material through the machine, consisting of a plate, feeder-arms slidably supported upon said plate, means for separating said arms, and means for reciprocating said plate.

52. In a machine of the class described, the combination with means for holding the edges of two or more plies of material in parallel position, means for turning the edges inward between the plies, and stitching mechanism, of a slidable device adapted to be carried into engagement with the edges of the material as the material is turned to form a corner, as and for the purpose set forth.

53. In a machine of the class described, the combination with means for holding the edges of two or more plies of material in parallel position, means for turning the edges inward between the plies, and stitching mechanism, of a slidable device adapted to be carried into engagement with the edges of the material as the same is turned to form a corner, and means for holding said device in withdrawn position, for the purpose set forth.

54. In a machine of the class described, the combination with means for holding a series of plies of material in parallel position, a plunger for turning the edges of said plies inward, and sewing mechanism, of a slidably-supported device, and means for securing said device in engagement with the edges of the material to hold the same in position to be engaged by the plunger as the material is turned to form a corner.

55. In a machine of the class described, the combination with a pair of jaws, alongside of which plies of material are adapted to be passed, a plunger for forcing the edges of the material between said jaws, and sewing mechanism, of a slidably-supported device, means for securing said device in contact with the edges of the material to hold the same in position to receive the plunger as the material is turned to form a corner, means actuated in the operation of the machine to release said device, and spring means for carrying said device to withdrawn position when released.

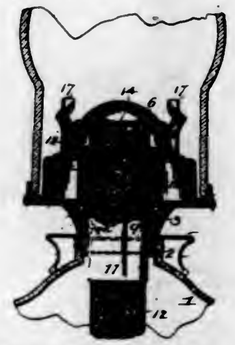
56. In a machine of the class described, means for carrying two or more plies of material through the machine in parallel position a guide arranged between said plies, step-by-step mechanism for turning the edges of said plies over said guide, and sewing mechanism arranged in position to stitch through said inturned edges.

57. In a machine of the class described, means for carrying two or more plies of material through the machine in parallel position, a guide arranged between said plies, step-by-step mechanism for bending the edge of one ply toward the opposite ply, and independent step-by-step mechanism for turning said bent edge inward between the plies.

58. In a machine of the class described, means for carrying two or more plies of material through the machine in parallel position, a guide arranged between said plies, an operating-shaft, means actuated from said shaft for bending the edge of one ply over said guide toward the opposite ply, and similarly-actuated means for turning said bent edge inward between the plies.

751,545. LAMP-BURNER. ALBERT H. NELSON, Lewiston, Me.

Filed Mar. 6, 1901. Serial No. 50,121. (No model.)



Claim.—1. In a lamp-burner, the combination with a plug and a fixed tube extending upwardly from said plug, of a series of arms projecting upwardly from said plug, a perforated disk supported by the upper ends of said arms and encircling said fixed tube a short fixed tube appreciably larger than the first-mentioned tube, and a hood inclosing the short fixed tube and the upper portion of the first-mentioned fixed tube.

2. In a lamp-burner, the combination with a plug and a fixed tube projecting upwardly from the same, of a series of arms projecting upwardly from the plug, a perforated disk supported by said arms and surrounding said fixed tube, a short tube fixed to the perforated disk and spaced from the first-mentioned fixed tube, a hood inclosing the short fixed tube and the upper portion of the first-mentioned tube, a vertically-movable tube passing the space between the fixed tubes and means for moving said movable tube.

3. In a lamp-burner, the combination with a plug, arms projecting upwardly from said plug and a perforated disk supported at the upper ends of said arms, of a fixed tube projecting upwardly from said perforated disk, a tube fixed to the plug passing upwardly through said first-mentioned fixed tube and spaced from the latter, a hood inclosing the first-mentioned tube and the upper portion of the tube fixed to the plug, and a stationary wick-casing passing through the inner fixed tube and a wick secured in said casing, said wick having an incombustible upper end.

4. In a lamp, the combination with a perforated disk, and a hood supported thereon and hinged at one side thereto, of a wick-tube supported centrally in said disk, a casing surrounding the wick-tube and inclosed in the hood, a sliding extinguisher-tube mounted on the wick-tube, and outwardly-projecting arms on the extinguisher-tube below the disk, bent at their ends to form finger-holds.

751,546. WIRE-LOOM. JOSEPH J. NERACHER, Cleveland, Ohio.

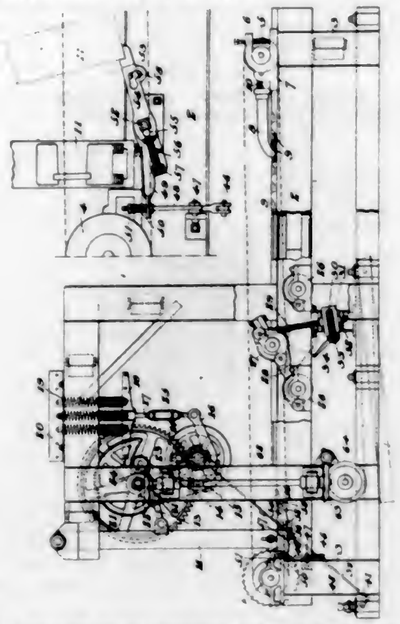
Filed Mar. 27, 1902. Serial No. 100,214. (No model.)

Claim.—1. A wire-loom having a swinging lay and having warp-wires in the form of an endless belt adapted to move under the stroke of the lay, a rock-shaft, link and lever connections between said lay and rock-shaft, cam mechanism for positively rocking the shaft in one direction to draw back the lay, and spring-actuated-lever connections arranged to be extended by the cam and to act by contraction to rock the shaft to drive the lay forward, said cam and spring mechanism being arranged above said endless belt, substantially as described.

2. A wire-loom having warp-wires forming an endless belt, a lay arranged to strike the shoot-wire and move the belt, means for adjusting the tension of the warp, and a friction device bearing upon an intermediate part of the belt, substantially as described.

3. A wire-loom having warp-wires arranged to form an endless belt, a lay arranged to strike the shoot-wire and move the warp-wire belt, a pair of friction devices on one side of the belt, and a friction device on the opposite side and between the first intermediate element, mechanism for moving the one friction device to change

the amount of frictional resistance, and means for adjusting the tension of the belt, substantially as described.

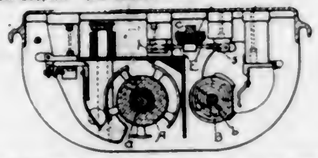


4. A wire-loom having warp-wires forming an endless belt, a lay arranged to strike the shoot-wire and move the warp-wire belt, a three-roller friction device arranged to act upon the belt, mechanism for adjusting the position of one of the rollers to change the amount of resistance, and means for adjusting the tension of said belt, substantially as described.

5. A wire-loom having warp-wires arranged in an endless belt, a lay arranged to strike the shoot-wire and move the warp-wire belt, a friction element extending across the belt, adjustable mechanism at each end of the element arranged to force it into contact with the belt and increase the frictional resistance, and means for adjusting the tension of said belt, substantially as described.

6. A wire-loom having a stop, mechanism for normally holding this stop in the path of the lay, and mechanism under the control of the operator for holding the stop out of this path during the normal operation of the loom, substantially as described.

751,547. **MOTOR-CONTROLLER.** FRANCIS V. NICHOLLS, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 13, 1903. Serial No. 161,266. (No model.)



Claim.—1. In a controller device for electric motors, a controlling-cylinder, a reverse-cylinder, and interlocking means for said cylinders, comprising disk-like members, or segments, movable with said cylinders adjacent to one another, and coöperating apertured projecting rings on said members, rotation of each member being restrained while the ring of the opposite member lies in the gates or apertures of its own ring, substantially as described.

2. In combination with the controlling and reverse cylinders of a controller for electric motors, an interlocking mechanism to prevent the movement of either cylinder except when the other cylinder is at a predetermined position, said mechanism comprising two overlapping disks, or such segments of the same as are suitable for the purpose, one mounted on the controlling-cylinder and the other on the reverse-cylinder, each disk having a peripheral guard ring or flange the arcs of which lie in a common plane so that said arcs intersect, said rings each having gates corresponding to the arc of intersection of the rings respectively, so that if one guard-ring is set with its gates registering with the arc of the other ring the latter may pass freely through these gates and the corresponding cylinder may rotate freely, but during such passage the first ring and its cylinder are locked by the second except when the second cylinder and its ring are in one of the predetermined positions when its gates register with the arc of the first ring.

3. An interlocking mechanism comprising two disks or rings rotatable in adjacent parallel planes and having projections in the form of arcs lying in a common plane, said arcs being so disposed as to permit the free rotation of one ring only when the second ring is in a fixed position and to permit the free rotation of the second ring when the first ring is in one of two fixed positions.

4. In a controller for a plurality of electric motors, the combination with controlling and reverse switches, of a cut-out switch comprising jaws and a movable connecting device to slide between said jaws, said device having contact members acting in various positions of said device to connect all the motors into circuit, and to cut out one or the other of said motors or groups of motors, the circuit being always maintained by a contact member thrown across the circuit to replace the motor or group of motors thus cut out, substantially as described.

5. The combination with two electric motors of a controlling-switch, a cut-out switch comprising two rows of fixed contacts connected one half to the motor-terminals and one half to the controlling-switch, a set of movable contacts comprising contacts adapted to connect the said fixed contacts in pairs, each pair comprising a motor-terminal contact and a controlling-switch contact and a contact out of engagement with said fixed contacts when said fixed contacts are all connected in pairs but engaging and connecting any controlling-switch contacts that are disconnected from their motor-terminal contact when said switch is moved to cut out one or the other motor.

6. In an electric controller for two motors, a controlling-switch, a switch for cutting out either of the motors having two rows of fixed contacts end contacts of each row being connected to motor-terminals and centrally-disposed contacts of each row being connected to the controlling-switch, movable contacts adapted to connect said end contacts to said centrally-disposed contacts, and a central movable contact common to both rows and arranged to connect together whichever two of the centrally-disposed contacts that are disconnected by the movement of the switch from the adjacent end contacts.

7. The combination of two electric motors, a controlling-switch therefor, a cut-out switch having two rows of fixed contacts connected to the motor-terminals and to the controlling-switch, and having a rectilinearly-moving contact member comprising two corresponding rows of contacts and one contact common to the two rows.

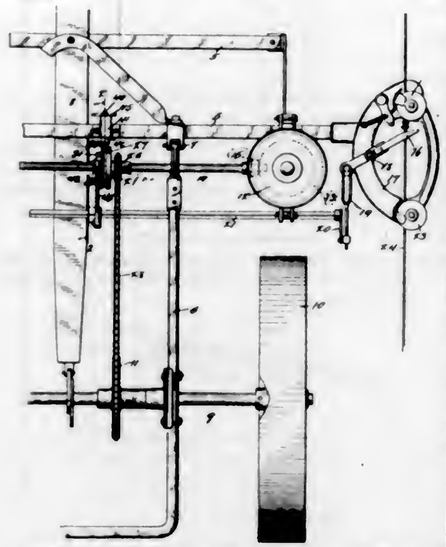
8. In combination with two electric motors and a controlling-switch therefor, a cut-out switch having two rows of contacts, the end contacts thereof being connected to motor-terminals and the corresponding end terminals of the two rows being connected to the two terminals of the same motor, connections from the central contacts of each row to the controlling-switch, and having a set of movable contacts comprising a central contact common to both rows and upper and lower contacts for each row adapted to connect the fixed contacts in pairs.

9. In a controller device for electric motors, a controlling-cylinder, a reverse-cylinder, and interlocking means for said cylinders, comprising disk-like members, or segments, movable with said cylinders adjacent to one another, and coöperating apertured projecting rings on said members so disposed as to permit free rotation of one cylinder only when the second cylinder is in one of two fixed positions and to permit the free rotation of the second cylinder only when the first cylinder is in one fixed position.

10. The combination of a controlling-switch, a disk rotatable therewith, a reversing-switch, a disk rotatable therewith, an upwardly-projecting flange on the controlling-switch disk, a downwardly-projecting flange on the reversing-switch disk, said flanges having openings, said disks being in such proximity that either of them is locked by the other except when the openings are in predetermined positions.

11. In an electric controller, the combination of a casing, a pair of rotatable shafts carried thereby and projecting through the top of the same, operating-handles therefor, a controlling-switch member carried by one shaft a reversing-switch member carried by the other shaft, a rectilinearly-movable cut-out switch carried by the back of the casing, and operating mechanism therefor extending through the side of the casing.

751,548. **CORN-PLANTER.** WILLIAM L. PAUL, Bradley, Ill., assignor to David Bradley Manufacturing Company, Bradley, Ill., a Corporation of Illinois. Filed Apr. 9, 1903. Serial No. 151,842. (No model.)



Claim.—1. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, and other mechanism for continuing the operation thereof, substantially as described.

2. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, and mechanism for varying the speed of said seed-delivering mechanism, substantially as described.

3. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, and mechanism for accelerating the speed of said seed-delivering mechanism, substantially as described.

4. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for operating said seed-delivering mechanism, and mechanism for jolting the seed-delivering mechanism, substantially as and for the purpose specified.

5. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, and mechanism for suddenly varying the speed of said seed-delivering mechanism, substantially as described.

6. In a seeding-machine, the combination of a seedbox, a seed-plate, mechanism for partly rotating said seed-plate, and other mechanism for continuing the rotation thereof, substantially as described.

7. In a seeding-machine, the combination of a seedbox, a seed-plate, mechanism for partly rotating said seed-plate, and mechanism for varying the speed of said seed-plate, substantially as described.

8. In a seeding-machine, the combination of a seedbox, a seed-plate, mechanism for partly rotating said seed-plate, and mechanism for suddenly varying the speed of said seed-plate, substantially as described.

9. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, and clutch mechanism for continuing the operation thereof, substantially as described.

10. In a seeding-machine, the combination of seed-delivering mechanism, check-row-wire-operated mechanism for partly operating said seed-delivering mechanism, and means for continuing the operation of said seed-delivering mechanism, substantially as described.

11. In a seeding-machine, the combination of seed-delivering mechanism, check-row-wire-operated mechanism for partly operating said seed-delivering mechanism, and clutch mechanism for continuing the operation thereof, substantially as described.

12. In a seeding-machine, the combination of seed-delivering mechanism, check-row-wire-operated mechanism for partly operating said seed-delivering mechanism, and means operated by the movement of the machine for continuing the operation of the seed-delivering mechanism, substantially as described.

13. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, other mechanism for continuing the operation thereof, and means for stopping said seed-delivering mechanism at regular intervals, substantially as described.

14. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for varying the speed of said seed-delivering mechanism, and means for stopping said seed-delivering mechanism at stated intervals, substantially as described.

15. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for partly operating said seed-delivering mechanism, other mechanism for continuing the operation thereof, means for stopping said seed-delivering mechanism at regular intervals, and means for temporarily locking the said seed-delivering mechanism against operation when stopped, substantially as described.

16. In a seeding-machine, the combination of seed-delivering mechanism, check-row-wire-operated mechanism for partly operating said seed-delivering mechanism, means for continuing the operation thereof, and means for stopping said seed-delivering mechanism at stated intervals, substantially as described.

17. In a seeding-machine, the combination of seed-delivering mechanism, check-row-wire-operated mechanism for partly operating said seed-delivering mechanism, means for continuing the operation thereof, means for stopping said seed-delivering mechanism at stated intervals, and means for locking said seed-delivering mechanism against further operation until the next actuation of the check-row-wire-operated mechanism, substantially as described.

18. In a seeding-machine, the combination of seed-delivering mechanism, mechanism for continuously operating said seed-delivering mechanism, and means adapted to be moved into or out of operative position for disconnecting said seed-delivering mechanism from said operating mechanism, substantially as described.

19. In a seeding-machine, the combination of a seed box, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving said latter clutch member, and means operated by the partial rotation of said first-mentioned clutch member for connecting said clutch members together so that they rotate in unison, substantially as described.

20. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving said latter clutch member, means operated by the partial rotation of said first-mentioned clutch member for connecting said clutch members together so that they rotate in unison, and means for automatically disconnecting said clutch members when they have rotated to a predetermined extent, substantially as described.

21. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, check-row-wire-operated mechanism for partly rotating said shaft, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving said latter clutch member, and means operated by the partial rotation of said first-mentioned clutch member for connecting said clutch members together so that they rotate in unison, substantially as described.

22. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, check-row-wire-operated mechanism for partly rotating said shaft, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving said latter clutch member, and a spring-actuated dog for automatically disconnecting said clutch members when they have rotated to a predetermined extent, substantially as described.

23. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving the latter clutch member, a rock-shaft, check-row-wire-operated mechanism for rocking said shaft, a pawl carried by said shaft and adapted to engage said first-mentioned clutch member for partly rotating the same, and means operated by the partial rotation of said first-mentioned clutch member for connecting said clutch members together, substantially as described.

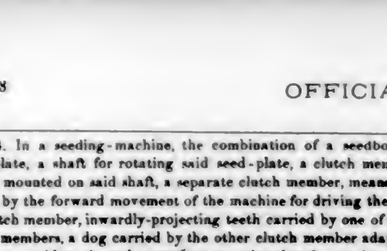
24. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving the latter clutch member, inwardly-projecting teeth carried by one of said clutch members, a dog carried by the other clutch member adapted to engage said teeth, and a stationary spring-dog for moving said first-mentioned dog out of engagement with said teeth, substantially as described.

25. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving the latter clutch member, inwardly-projecting teeth carried by one of said clutch members, a dog carried by the other clutch member adapted to engage said teeth, an arm connected with said dog and projecting beyond the periphery of said clutch member, and a spring-dog adapted to engage said arm for moving said first-mentioned dog out of engagement with said teeth, substantially as described.

26. In a seeding-machine, the combination of a seedbox, a seed-plate, a shaft for rotating said seed-plate, a clutch member fixedly mounted on said shaft, a separate clutch member, means operated by the forward movement of the machine for driving the latter clutch member, inwardly-projecting teeth carried by one of said clutch members, a dog carried by the other clutch member adapted to engage said teeth, an arm connected with said dog and projecting beyond the periphery of said clutch member, a spring-dog adapted to engage said arm for moving said first-mentioned dog out of engagement with said teeth, and means for retracting said spring-dog prior to its engagement with said arm and for suddenly releasing said dog to permit it to engage said arm abruptly, substantially as described.

27. In a seeding-machine, the combination of seed-delivering mechanism, a check-row-wire-operated mechanism for actuating said seed-delivering mechanism, and means for locking said seed-delivering mechanism against actuation when stopped, substantially as described.

751,549. SYSTEM OF ELECTRICAL DISTRIBUTION. JOHN S. PECK, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed May 1, 1903. Serial No. 156,237. (No model.)



Claim.—1. The combination with a plurality of rotary converters, of a plurality of transformers each of which has at least one secondary winding at each side of its primary winding, and means for connecting each rotary converter with a secondary winding at one side only of the primary winding of each transformer.

2. The combination with a bank of transformers each of which has a plurality of secondary windings, of a rotary converter and means for connecting the same to a secondary winding at one side only of the primary winding of each transformer.

3. The combination with a plurality of rotary converters and means for connecting their direct-current ends in parallel, of a bank of transformers each of which has a plurality of secondary windings and means for connecting each rotary converter to a secondary winding at one side only of the primary winding of each transformer.

4. The combination with a bank of transformers each of which has a plurality of secondary windings that are symmetrically disposed with reference to the primary winding, of a plurality of rotary converters each of which is arranged and adapted for connection to and disconnection from corresponding windings of said transformers at one side only of the respective primary windings.

5. The combination with a plurality of transformers having primary windings supplied with phase-differing currents and each having a plurality of secondary windings, of a plurality of rotary converters corresponding in number to the secondary windings of each transformer and severally adapted for connection to and disconnection from said windings at one side only of the respective primary windings.

6. The combination with a plurality of compound-wound rotary converters adapted for operation in parallel, of a bank of transformers each having a plurality of secondary windings so disposed that the number of rotary converters connected thereto may be varied without materially varying the compounding effect upon the direct-current circuit supplied thereby.

7. A transformer having a plurality of secondary windings adapted to carry corresponding portions of a given full load and having a ratio of inductive effects that exceeds the ratio between corresponding partial load and full load.

8. A transformer having a plurality of secondary windings adapted to carry corresponding portions of a given full load and having ratios of inductance that exceed ratios of corresponding loads.

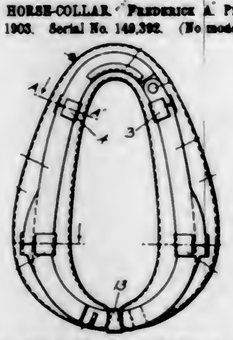
9. A transformer having a plurality of secondary windings adapted to carry corresponding portions of a given full load and having ratios of inductance that exceed the ratios between corresponding partial loads and full load.

751,550. NUT-LOCK. RICHARD R. PENNINGTON and JAMES BELLETT, Melbourne, Victoria, Australia. Filed June 22, 1903. Serial No. 162,512. (No model.)



Claim.—In a nut-lock, a series of anchored bolts; a series of nuts thereon; a lock-plate arranged in engagement with said series of nuts; and one or more clips mounted respectively upon one or more of the bolts of said series of bolts, and being held thereon by means of the corresponding nuts, the said clips being adapted to be turned upon said bolts and placed into engagement with said lock-plate and thereby hold the lock-plate in proper position.

751,551. HORSE-COLLAR. FREDERICK A. PETT, Denver, Colo. Filed Mar. 24, 1903. Serial No. 149,392. (No model.)

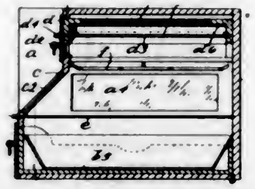


Claim.—1. In a horse-collar, the combination with an inflatable tube having an integral rib, of a hingedly-jointed, sectional frame, each section having oppositely-directed integral portions, means between the rib and aliining integral portions of each section for securing the frame to the tube, and means for fastening the free ends of the frame-sections together.

2. In a horse-collar, the combination with an inflatable tube having an integral external rib, of a hingedly-jointed, sectional frame, each section having integral portions bent upon its opposite sides, means piercing the bent portions upon one side of each section of the frame and the said rib for securing the tube to the frame, and means for fastening the free ends of the frame-sections together.

751,552. APPARATUS FOR DEVELOPING PHOTOGRAPHIC PLATES. GARDNER L. PLUMLEY, New York, N. Y. Filed May 2, 1903. Serial No. 155,268. (No model.)

Claim.—1. In an apparatus for developing photographic plates, a main case provided in the bottom thereof with a drawer, a slide placed over said drawer, a ruby glass in one side thereof over said slide, a vertically-adjustable frame or holder in the body portion of said main case over said slide, another ruby glass in the end thereof over said drawer and slide, and a transfer-case adapted to be inserted into the top portion of said main case over said last-named ruby glass, substantially as shown and described.



2. In an apparatus for developing photographic plates, a main case provided in the bottom thereof with a drawer, a slide placed over said drawer, a ruby glass in one side thereof over said slide, a vertically-adjustable frame or holder in the body portion of said main case over said slide, another ruby glass in the end thereof over said drawer and slide, and a transfer-case adapted to be inserted into the top portion of said main case over said last-named ruby glass, said transfer-case being closed at one side and at both ends and provided with a central longitudinal slide and being also adapted to receive a plate-holder, substantially as shown and described.

3. In an apparatus for developing photographic plates, a main case, a receptacle adapted to be inserted into the bottom thereof and removed therefrom, a vertically-adjustable frame or holder over said receptacle and a transfer-case adapted to be inserted into the main case over the vertically-adjustable frame or holder, substantially as shown and described.

4. In an apparatus for developing photographic plates, a main case provided with a movable rear end, a drawer mounted in the bottom thereof and adapted to be withdrawn from the front end thereof, a slide mounted in said main case over said drawer and adapted to be withdrawn from the front end thereof, a ruby glass in one side of said main case, a door for covering said glass, a ruby glass in the front end of said main case over said slide, a vertically-adjustable frame or holder in said main case over said slide, and a transfer-case adapted to be inserted into the front end of said main case over said last-named ruby glass, substantially as shown and described.

5. In an apparatus for developing photographic plates, a main case provided with a hinged rear end, a drawer mounted in the bottom thereof and adapted to be withdrawn from the front end thereof, a slide mounted in said main case over said drawer and adapted to be withdrawn from the front end thereof, a ruby glass in one side of said main case, a door for covering said glass, a ruby glass in the front end of said main case over said slide, a vertically-adjustable frame or holder in said main case over said slide, and a transfer-case adapted to be inserted into the front end of said main case over said last-named ruby glass, the rear end of said case being also hinged, substantially as shown and described.

6. In an apparatus for developing photographic plates, a main case provided with a movable rear end, a drawer in the bottom of said main case and adapted to be withdrawn from the front end thereof, a longitudinal slide in said main case over said drawer, a vertically-adjustable frame or support within said main case over said slide, a transfer-case adapted to be inserted into the main case from the front end thereof and to be removed therefrom, said main case being also provided in one side and in the front end thereof with a ruby glass, substantially as shown and described.

7. In an apparatus for developing photographic plates, a main case provided in the bottom thereof with a drawer, a ruby glass in one side thereof over said drawer, a vertically-adjustable frame or holder in the body portion of said main case over said drawer, another ruby glass in the front end of the case over said drawer and a transfer-case adapted to be inserted into the top portion of the main case over the last-named ruby glass, substantially as shown and described.

8. In an apparatus for developing photographic plates, a main case provided in the bottom thereof with a drawer, a vertically-adjustable frame or holder over said drawer, and a transfer-case adapted to be inserted into the main case over the vertically-adjustable frame or holder, substantially as shown and described.

9. In an apparatus for developing photographic plates, a main case provided in the bottom thereof with a drawer, a vertically-adjustable frame or holder over said drawer, and a transfer-case adapted to be inserted into the main case over the vertically-adjustable frame or holder, said main case being also provided with a ruby glass, substantially as shown and described.

10. In an apparatus of the class described, a main case having an opening in the bottom portion thereof, a receptacle adapted to be inserted horizontally into the bottom portion of said case and removed therefrom through said opening, a vertically-adjustable frame or holder over said receptacle within said case, and means for operating said frame or holder, substantially as shown and described.

751,553. PHOTOGRAPHIC DEVELOPING APPARATUS. GARDNER L. PLUMLEY, New York, N. Y. Filed June 29, 1903. Serial No. 163,525. (No model.)



Claim.—1. In an apparatus of the class described, a box or case divided by a partially-transverse partition into a main chamber and a supplemental chamber adapted to receive a photographic-film spool, said supplemental chamber being provided with a hinged door and one side of the box or case being provided with a transverse bar which is hinged thereto and between which and the partition when the bar is closed is a narrow space, said bar and said door being also separated when closed by a narrow space, and a developing-tank adapted to be secured in the main chamber and provided in one end with a slot or opening which registers with the narrow space between said bar and the partition, substantially as shown and described.

2. In an apparatus of the class described, a box or case divided by a partial transverse partition into a main chamber and a supplemental chamber adapted to receive a photographic-film spool, said supplemental chamber being provided with a hinged door and one side of the box or case being provided with a transverse bar which is hinged thereto and between which and the partition when the bar is closed is a narrow space, said bar and said door being also separated when closed by a narrow space, and a developing-tank adapted to be secured in the main chamber and provided in one end with a slot or opening which registers with the narrow space between said bar and the partition, said supplemental chamber being also provided with a plate which is hinged to the partition adjacent to said bar when the latter is closed and the door of said chamber being provided at its free edge with a guide-roller which is secured to the inner side thereof, substantially as shown and described.

3. In an apparatus of the class described, a main box or case provided with a main chamber and at one end thereof with a smaller supplemental chamber, said chambers being separated by a partial transverse partition, a bar hinged to one side of the box or case and adapted to complete said partition and between which and the latter when said bar is closed is a narrow space, said supplemental chamber being also provided with a hinged door between which and said bar when said bar and said door are closed is also a narrow space, substantially as shown and described.

4. In an apparatus of the class described, a main box or case provided with a main chamber and at one end thereof with a smaller supplemental chamber, said chambers being separated by a partial transverse partition, a bar hinged to one side of the box or case and adapted to complete said partition and between which and the latter when said bar is closed is a narrow space, said supplemental chamber being also provided with a hinged door between which and said bar when said bar and said door are closed is also a narrow space, the main chamber being also provided with a spring-operated bar which is adapted to close the space between the partial partition and the hinged bar when the developing-tank is not in position, substantially as shown and described.

5. In an apparatus of the class described, a main box or case provided with a main chamber and at one end thereof with a smaller supplemental chamber, said chambers being separated by a partial transverse partition, a bar hinged to one side of the box or case and adapted to complete said partition and between which and the lat-

ter when said bar is also provided with a hinged door between which and said bar when said bar and said door are closed is also a narrow space, the main chamber being also provided with a spring-operated bar which is adapted to close the space between the partial partition and the hinged bar when the developing-tank is not in position, and one side wall of the main compartment being also provided with recesses, and the developing-tank with filling and discharging tubes adapted to enter said recesses, substantially as shown and described.

6. In an apparatus of the class described, a main box or case provided with a main chamber and at one end thereof with a smaller supplemental chamber, said chambers being separated by a partial transverse partition, a bar hinged to one side of the box or case and adapted to complete said partition and between which and the latter when said bar is also provided with a hinged door between which and said bar when said bar and said door are closed is also a narrow space, the main chamber being also provided with a spring-operated bar which is adapted to close the space between the partial partition and the hinged bar when the developing-tank is not in position, and one side wall of the main compartment being also provided with recesses, and the developing-tank with filling and discharging tubes adapted to enter said recesses, said main compartment being also provided at its opposite sides with hinged doors, substantially as shown and described.

7. In an apparatus of the class described, a main box or case provided with a main chamber, at one end of which is a supplemental chamber, said chambers being separated by a partition having a narrow slot or space, said supplemental chamber being also provided with a door between which and said partition is a narrow slot or space, substantially as shown and described.

8. In an apparatus of the class described, a main box or case provided with a main chamber, at one end of which is a supplemental chamber, said chambers being separated by a partition having a narrow slot or space, said supplemental chamber being also provided with a door between which and said partition is a narrow slot or space, and a developing-tank adapted to be secured in the main chamber and provided in one end with a slot or opening which registers with the slot or space in the partition, substantially as shown and described.

751,554. EFFERVESCENT INK-TABLET. WILLIAM C. POPE, St. Louis, Mo. Filed Oct. 29, 1903. Serial No. 179,100. (No specimens.)

Claim.—1. As a new article of manufacture, an effervescent ink-tablet composed of an effervescent base, of oxalic acid, bicarbonate of soda with sodium chlorid, and acacia, and a coloring-pigment; substantially as described.

2. As a new article of manufacture, an effervescent ink-tablet composed of nutgall, copperas, acacia, bicarbonate of soda, citric acid, sugar, tartaric acid, oxalic acid, and a coloring-pigment, substantially as described.

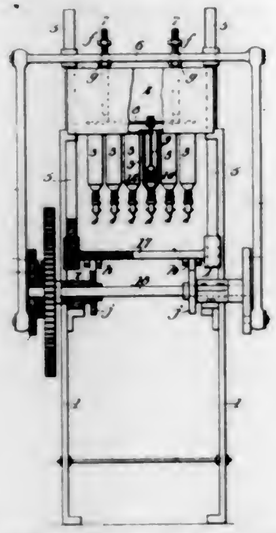
3. The herein-described method of making ink-tablets consisting of mixing one element of an effervescent base with nutgall and copperas, then separately mixing the other element of the effervescent base with a coloring-pigment and subsequently combining said elements in the form of a tablet; substantially as described.

4. An effervescent ink comprising nutgall, copperas, acacia, bicarbonate of soda, acid, and a coloring-pigment, substantially as described.

751,555. FILLING-MACHINE. JAMES E. PRESCOTT, Passaic, N. J. Filed June 12, 1903. Serial No. 161,227. (No model.)

Claim.—1. A filling-machine comprising an elevated reservoir, measuring-tubes depending from said reservoir and in communication therewith, self closing nozzles depending from said measuring-tubes and comprising slidable sleeves, pistons within said measuring-tubes, valves whereby the substance is admitted beneath said pistons, means for operating said pistons and valves and means for lifting the receptacles to slide back said sleeves and admit the substance into the receptacles, substantially as hereinbefore specified.

2. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir, a measuring-tube depending from said reservoir and in communication therewith, and a separable self-closing nozzle depending from said measuring-tube, said measuring-tube having a detachable bottom, and said nozzle comprising an inner tube attached centrally to said bottom and in communication with the interior of said measuring-tube, a detachable point assisting to form the outlet of said inner tube, a slidable sleeve embracing said inner tube above said point, a flanged nut embracing the upper end of said sleeve, and a spring compressed more or less between said nut and said bottom, substantially as hereinbefore specified.



3. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir, a measuring-tube depending from said reservoir and in communication therewith, a removable and separable valve and piston within said tube, and a separable self-closing nozzle depending from said measuring-tube, said measuring-tube having a detachable bottom, and said nozzle comprising an inner tube attached centrally to said bottom and in communication with the interior of said measuring-tube, a detachable point assisting to form the outlet of said inner tube, a slidable sleeve embracing said inner tube above said point and provided with lateral projections, a flanged nut embracing the upper end of said sleeve, and a spring compressed more or less between said nut and said bottom, substantially as hereinbefore specified.

4. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, and means for operating said pistons and valves and for opening said nozzles, including a subjacent horizontal shaft carrying a pair of crank-disks and a pair of cams, means for rotating said shaft, connections between said crank-disks and said valves and pistons, and a horizontal table raised and lowered by means of said cams, substantially as hereinbefore specified.

5. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes and means for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft carrying a pair of crank-disks and a pair of cams, means for rotating said shaft, connections between said crank-disks and said valves and pistons, and a horizontal table provided on its under side with antifriction-rollers resting upon said cams, substantially as hereinbefore specified.

6. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, and means for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft provided with crank-disks at its ends and with a pair of cams, means for rotating said shaft, a cross-head above said reservoir, connections between said crank-disks and said cross-head, a horizontal table beneath the nozzles raised and lowered by said cams, a pair of guide-rods, the respective ends of which serve as guides for said cross-head and said table, and a rigid frame within which said guide-rods are fastened at mid-length, substantially as hereinbefore specified.

7. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes and means for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft carrying a pair of crank-disks and a pair of cams, means for rotating said shaft, connections between said crank-disks and said valves and pistons, a horizontal table raised and lowered by means of said cams, and connections between said cross-head and said pistons and valves, including a lost-motion device, substantially as hereinbefore specified.

8. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, and means for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft carrying a pair of crank-disks and a pair of cams, means for rotating said shaft, connections between said crank-disks and said valves and pistons, a horizontal table raised and lowered by means of said cams, and connections between said cross-head and said pistons and valves, including a lost-motion-regulating device consisting of a pair of nuts above and below said cross-head upon the screw-threaded upper ends of rods depending from said cross-head and extending therethrough, substantially as hereinbefore specified.

9. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, mechanism for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft and a driving-shaft adjacent thereto, gearing to connect said shafts, a clutch for connecting said gearing and said driving-shaft, a stop-disk on said subjacent shaft, a starting and stopping lever having its respective ends adapted to interlock with said disk and to unclutch said gearing, a spring holding said lever in its interlocked position, and means for reversing said lever to start said mechanism.

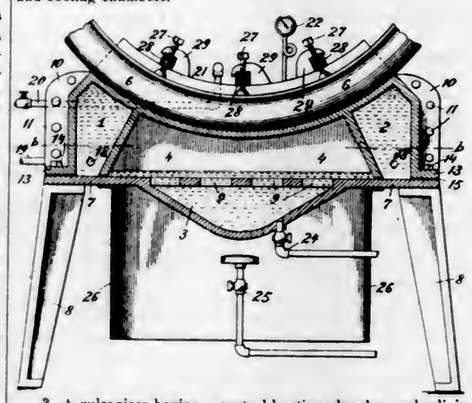
10. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, mechanism for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft and a driving-shaft parallel therewith, spur-gearing to connect said shafts, a clutch for connecting said gearing with said driving-shaft, a stop-disk on said subjacent shaft, a starting and stopping lever having its respective ends adapted to interlock with said disk and to unclutch said gearing, a spring holding said lever in its interlocked position, and means for reversing said lever to start said mechanism.

11. The combination, in a machine for filling receptacles with a fluid or semifluid substance, of an elevated reservoir for the substance, measuring-tubes depending from said reservoir and in communication therewith, pistons and valves for admitting the substance beneath the pistons within said tubes, self-closing nozzles depending from said tubes, mechanism for operating said pistons and valves and for opening said nozzles including a subjacent horizontal shaft and a driving-shaft parallel therewith, spur-gearing to connect said shafts, a clutch for connecting said gearing and said driving-shaft, a stop-disk on said subjacent shaft, a starting and stopping lever having its respective ends adapted to interlock with said disk and to unclutch said gearing, a spring holding said lever in its interlocked position, and a treadle and connections for reversing said lever to start said mechanism, substantially as hereinbefore specified.

751,556. VULCANIZER FOR REPAIRING TIRES. HARRY K. RAYMOND, Akron, Ohio, assignor to the B. F. Goodrich Company, Akron, Ohio, a Corporation of Ohio. Filed Nov. 25, 1903. Serial No. 182,619. (No model.)

Claim.—1. A vulcanizer having a central heating-chamber and adjoining opposite end cooling-chambers.

2. A vulcanizer having a central heating-chamber, adjoining opposite end cooling-chambers, and means for holding the tire or structure being treated in contact with wall portions of said heating and cooling chambers.



3. A vulcanizer having a central heating-chamber and adjoining opposite end cooling-chambers, and formed with a tire or structure receiving cavity having walls constituting portions of the walls of said heating and cooling chambers.

4. A vulcanizer having a central heating-chamber and adjoining opposite end cooling-chambers, and formed with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said heating and cooling chambers.

5. A vulcanizer having a central heating-chamber and adjoining opposite end cooling-chambers and formed with a tire or structure receiving cavity having walls constituting portions of the walls of said heating and cooling chambers, and means for holding the tire or structure being treated in contact with the walls of said cavity.

6. A vulcanizer having a central heating-chamber and adjoining opposite end cooling-chambers, and formed with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said heating and cooling chambers, and means for holding the tire or structure being treated in contact with the walls of said cavity.

7. A vulcanizer having a central steam-boiler and adjoining opposite end cooling-chambers.

8. A vulcanizer having a central steam-boiler, adjoining opposite end cooling-chambers, and means for holding a tire or structure being treated in contact with wall portions of said boiler and cooling-chambers.

9. A vulcanizer having a central steam-boiler and adjoining opposite end cooling-chambers formed with a tire or structure receiving cavity having walls constituting portions of the walls of said steam-boiler and cooling-chambers.

10. A vulcanizer having a central steam-boiler and adjoining opposite end cooling-chambers formed with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said steam-boiler and cooling-chambers.

11. A vulcanizer having a central steam-boiler and adjoining opposite end cooling-chambers formed with a tire or structure receiving cavity having walls constituting portions of the walls of said steam-boiler and cooling-chambers, and means for holding the tire or structure being treated in contact with the walls of said cavity.

12. A vulcanizer having a central steam-boiler and adjoining opposite end cooling-chambers formed with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said steam-boiler and cooling-chambers, and means for holding the tire or structure being treated in contact with the walls of said cavity.

13. A vulcanizer having a central heating curing-surface, adjoining opposite end chambers, and means for establishing circulation of cooling fluid through said chambers.

14. A vulcanizer having a central heating curing-surface, adjoining opposite end chambers, means for establishing circulation of cooling fluid through said chambers, and means for holding a tire or structure being treated in contact with wall portions of said curing-surface and fluid-circulation chambers.

15. A vulcanizer having a central heating curing-surface and adjoining opposite end chambers formed with a tire or structure re-

ceiving cavity having walls constituting portions of the walls of said curing-surface and end cooling-chambers, and means for establishing circulation of cooling fluid through said chambers.

16. A vulcanizer having a central heating curing-surface and adjoining opposite end chambers formed with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said curing-surface and end cooling-chambers, and means for establishing circulation of cooling fluid through said chambers.

17. A vulcanizer having a central steam-boiler, adjoining independent opposite end chambers, and means for establishing circulation of cooling fluid through said chambers.

18. A vulcanizer having a central steam-boiler, adjoining independent opposite end chambers, means for establishing circulation of cooling fluid through said chambers, and means for holding a tire or structure being treated in contact with wall portions of said steam-boiler and fluid-circulation chambers.

19. A vulcanizer having a central steam-boiler and adjoining independent opposite end chambers and provided with a tire or structure receiving cavity having walls constituting portions of the walls of said boiler and end chambers, and means for establishing circulation of cooling fluid through said chambers.

20. A vulcanizer having a central steam-boiler and adjoining independent opposite end chambers and provided with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said boiler and end chambers, and means for establishing circulation of cooling fluid through said chambers.

21. A vulcanizer having a central steam-boiler and adjoining independent opposite end chambers and provided with a tire or structure receiving cavity having walls constituting portions of the walls of said boiler and end chambers, means for establishing circulation of cooling fluid through said chambers, and means for holding a tire or structure to be treated in contact with the walls of said cavity.

22. A vulcanizer having a central steam-boiler and adjoining independent opposite end chambers and provided with a longitudinally-concaved or segmental tire or structure receiving cavity having walls constituting portions of the walls of said boiler and end chambers, means for establishing circulation of cooling fluid through said chambers, and means for holding a tire or structure to be treated in contact with the walls of said cavity.

23. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and curing-surface and adjoining opposite end cooling-chambers.

24. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and curing-surface and adjoining opposite end cooling-chambers, and also having means establishing circulation of cooling fluid through said end chambers.

25. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said steam and cooling chambers having wall formations providing a cavity to receive the tire or structure to be treated.

26. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said steam and cooling chambers having wall formations providing a cavity to receive the tire or structure to be treated, and also having means establishing circulation of cooling fluid through said end chambers.

27. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said steam and cooling chambers having wall formations providing a longitudinally-concaved or segmental cavity to receive the tire or structure to be treated.

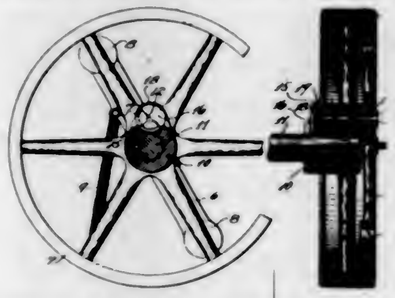
28. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said steam and cooling chambers having wall formations providing a longitudinally-concaved or segmental cavity to receive the tire or structure to be treated, and also having means establishing circulation of cooling fluid through said end chambers.

29. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said two upper side sections of the vulcanizer having means adapted to sustain devices bringing clamping pressure on the tire or structure being treated.

30. A vulcanizer having its upper body portion divided vertically into two connected sections together forming a central-boiler steam-chamber and adjoining opposite end cooling-chambers, said steam and cooling chambers having wall formations providing a cavity to receive the tire or structure to be treated, said two upper side sections of the vulcanizer also having means adapted to sustain devices bringing clamping pressure on the tire or structure in said cavity.

31. In a vulcanizer, the combination of a steam-boiler 3, 4, independent cooling-chambers 1, 2, at the ends of the boiler, said parts 1, 2, 4, having wall formations providing a tire or structure receiving cavity 5, detents 29 on the vulcanizer-body at opposite sides of said cavity, means sustained by said detents adapted to bring pressure on a tire or structure in the cavity, means supplying water to the steam-boiler, and means establishing circulation of cooling fluid through said end chambers.

751,557. **SHIFTABLE SHAFT-BEARING.** CLIFTON REEVES, Trenton, N. J. Filed Aug. 18, 1903. Serial No. 169,869. (No model.)



Claim.—1. The combination with a supporting-shaft for a governor-arm, of a rotating bushing constituting a bearing for said shaft, a ratchet-wheel carried by said bushing, a pawl-carrier carried by said shaft, and a spring-pressed pawl movable on said carrier and engaging with the teeth of said ratchet-wheel.

2. The combination with a supporting-shaft for a governor-arm, of a rotating bushing constituting a bearing for said shaft, a ratchet-wheel carried by said bushing, a pawl-carrier carried by the shaft, a spring-pressed pawl mounted on said carrier adapted to engage with the teeth of the ratchet-wheel, and a bearing in which said bushing rotates.

3. The combination with the supporting-shaft for a governor-arm, of a bushing constituting a bearing for said shaft, a ratchet-wheel rigid with said bushing, a pawl-carrier rigid with said shaft, and a spring-pressed pawl mounted on said carrier and engaging with the teeth of the ratchet-wheel.

4. The combination with the supporting-shaft for a governor-arm, of a bushing constituting a bearing for said shaft, a ratchet-wheel rigid with said bushing, a pawl-carrier rigid with said shaft, a spring-pressed pawl mounted on said carrier and engaging with the teeth of the ratchet-wheel, and a bearing in which said bushing rotates.

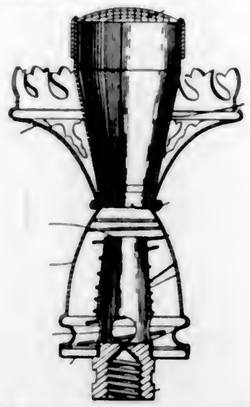
751,558. **INCANDESCENT GAS-BURNER.** VICTOR A. RETTICH, New York, N. Y., assignor of one-half to Stanton D. Bullock, Montclair, N. J. Filed May 27, 1903. Serial No. 159,004. (No model.)

Claim.—1. A Bunsen burner comprising a lower inwardly-tapered section, an upper section, separated therefrom by an air-space, a shell mounted to bridge but not inclose the air-space, and means for supporting the upper section and shell, substantially as described.

2. A Bunsen burner comprising a lower inwardly-tapered section, an upper outwardly-tapered section, separated therefrom by an air-space, an outer shell mounted to bridge but not inclose the air-space, and means for supporting the upper section and shell, substantially as described.

3. A Bunsen burner comprising a lower inwardly-tapered section, a helical spring supported thereon, and an outer shell elastically supported on the helical spring, and an upper Bunsen section secured to the shell, with an air-space between the upper and lower Bunsen sections bridged but not inclosed by the shell, substantially as described.

4. A Bunsen burner comprising a lower inwardly-tapered section, and an outer shell, an upper Bunsen section and a globe-support spun together, and means for supporting the same above the lower section so as to leave an air-space between the upper and lower Bunsen sections which is bridged but not inclosed by the shell, substantially as described.

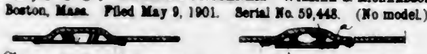


5. A Bunsen burner comprising a lower inwardly-tapered section, a helical spring supported thereon, an outer shell, a globe-support and an upper Bunsen section, spun together and supported elastically upon the helical spring so as to leave an air-space between the Bunsen sections which is bridged but not inclosed by the outer shell, substantially as described.

6. A Bunsen burner comprising a lower inwardly-tapered section, a helical spring having a central portion, and expanded upper and lower portions, the central portion resting upon the lower tapered section, and an outer shell, a globe-support, and an upper Bunsen section, spun together, and supported elastically upon the expanded portions of the helical spring so as to leave an air-space between the Bunsen sections which is bridged but not inclosed by the outer shell, substantially as described.

7. A Bunsen burner comprising a lower inwardly-tapered section, a helical spring supported thereon, an outer shell, an upper Bunsen section and a globe-support, the lower portions of the globe-support and upper Bunsen section being spun together and to the upper portion of the outer shell and all elastically supported upon the helical spring, substantially as described.

751,559. **GARMENT-FASTENER.** WILLIAM S. RICHARDSON, Boston, Mass. Filed May 9, 1901. Serial No. 59,448. (No model.)



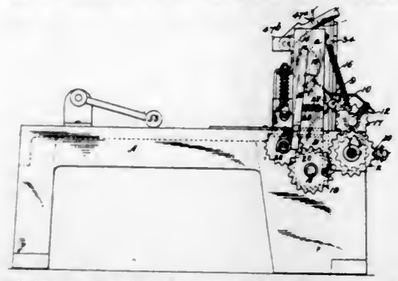
Claim.—1. A socket member of a sew-on fastener having a perforated fastening-flange surrounding a socket-entrance a^3 and forming a flat or substantially flat face from said socket-entrance outward and an integral wall extending inward from said socket-entrance, the said wall being open at its inner end and expanded outward above said socket-entrance to form a shallow ball-holding cavity and the inner edge of which wall forms a pressure-receiving bearing, the said flange being adapted to be united to the fabric or material with which the socket member is used by stitches and without perforating the material and the said wall being adapted to hold the said fabric or material from the said socket-entrance but not from the ball.

2. A socket member of a sew-on fastener having a perforated fastening-flange a surrounding the socket-entrance a^3 the outer edge of which flange is turned upward, and a wall extending inward from said socket-entrance, open at its inner end, expanded outward within said socket-entrance to form a shallow, ball-holding cavity, open at both ends as and for the purposes set forth.

3. A socket member of a sew-on fastener having a perforated fastening-flange a surrounding the socket-entrance a^3 and providing a substantially flat face from said socket-entrance, the outward-expanding, integral wall extending inward from said socket-entrance, open at its inner end and expanded outward above said socket-entrance to form a shallow ball-holding cavity, open at both ends, and a slit extending entirely across said flange and said wall to provide the socket-entrance with a yielding action as and for the purposes set forth.

4. A socket member of a sew-on fastener having a perforated fastening-flange a surrounding the socket-entrance a^3, an integral wall extending inward from said socket-entrance, open at its inner end and expanded outward above said socket-entrance to form a shallow, ball-holding cavity, open at both ends, the said wall being bent at its inner end to form a relatively wide pressure-receiving bearing as and for the purposes set forth.

751,560. **STOCKING-TOP-CUTTING MACHINE.** FRANK W. ROBINSON, Reading, Pa., assignor of one-half to Oscar B. Wetherhold, Reading, Pa. Filed June 16, 1903. Serial No. 161,740. (No model.)



Claim.—1. A machine for cutting ribbed fabrics comprising a shearing mechanism, a feed mechanism in advance of said shearing mechanism, an auxiliary feed mechanism to the rear of the same, and rib-operated means for throwing said advance feed mechanism out of action.

2. A machine for cutting ribbed fabrics comprising a shearing mechanism, a feed mechanism in advance of said shearing mechanism, an auxiliary feed mechanism to the rear of the same and rib-operated means for automatically throwing said feed mechanisms into action alternately.

3. A machine for cutting ribbed fabrics comprising a shearing mechanism, a feed mechanism in advance of said shearing mechanism, an auxiliary feed mechanism to the rear of the same, and a rib-engaging device arranged to throw said auxiliary feed mechanism intermittently into action.

4. A machine for cutting ribbed fabrics comprising a shearing mechanism, a feed mechanism in advance of said shearing mechanism, an auxiliary feed mechanism to the rear of the same, a rib-engaging device arranged to throw said auxiliary feed mechanism intermittently into action, and means for throwing said advance feed mechanism out of action at such times.

5. A machine for cutting ribbed fabrics comprising a shearing mechanism, intermittent feed mechanism, and a spring-depressed rib-engaging device having a limited movement with the fabric and serving to clamp the same during each shearing action.

6. A machine for cutting ribbed fabrics comprising a shearing mechanism, intermittent feed mechanism, and a spring-depressed rib-engaging device having a limited movement with the fabric and serving to clamp the same during each shearing action, said device being engaged and raised from the fabric by the return movement of the shearing-blade.

7. The combination with the shearing mechanism of main feed-rolls having one roll movable out of engagement with the other, and auxiliary segmental rolls.

8. A machine for cutting ribbed fabrics comprising a feed mechanism, a shearing mechanism, and a rib-engaging device located adjacent to said shearing mechanism and arranged to control the cutting action of the latter upon a portion of the fabric adjoining the engaging rib.

9. A machine for cutting ribbed fabrics comprising a shearing mechanism, a feed mechanism comprising cooperating segmental rolls, an operating-shaft intermittently in gear therewith, and a horizontally-movable rib-engaging device carrying a pawl arranged to engage one of said segmental rolls and throw the same into gear with the operating-shaft.

10. The combination with the shearing mechanism of a pair of feed-rolls one of which is carried by a swinging flexible arm, a spring for normally retracting said movable roll, and means for moving and holding the same in operative engagement with the other roll.

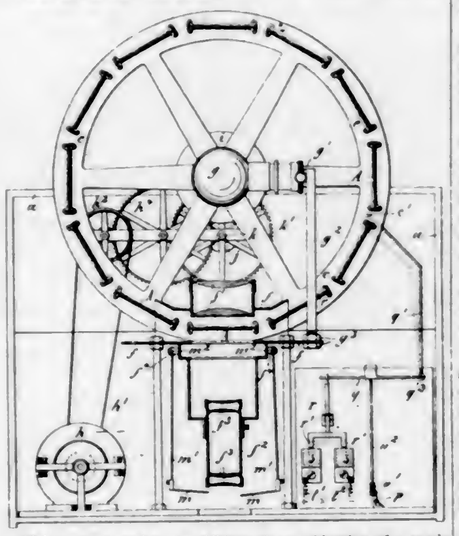
11. The combination with the shearing mechanism of a pair of feed-rolls one of which is movable relative to the other, means for moving and holding the same in operative engagement with the other roll, and means for automatically withdrawing the same preparatory to the shearing operation.

12. The combination with the shearing mechanism and feed mechanism of a vertically-movable rib-engaging device carried by a horizontally-movable slide-plate, a spring for normally pressing said device downward upon said slide-plate, and means operated by the shearing mechanism for raising said device.

13. The combination with the shearing mechanism and feed mechanism of a vertically-movable rib-engaging device carried by a horizontally-movable slide-plate, a spring for normally pressing said device downward upon said slide-plate, means operated by the shearing mechanism for raising said device, and means for moving said slide-plate rearwardly with the device in raised position and thereafter releasing the same.

14. In a machine for cutting ribbed fabrics the combination with segmental feed-rolls of a rib-engaging device carried by a horizontally-movable slide-plate arranged to control the operation of said rolls.

751,561. PICTURE-EXHIBITOR. JULIUS ROSVER, New York, N. Y., and SAMUEL S. BALDWIN, Philadelphia, Pa. Filed June 27, 1903. Serial No. 163,357. (No model.)

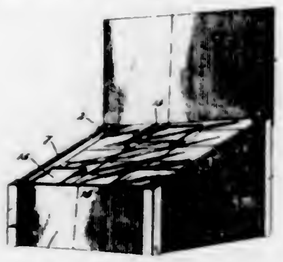


Claim.—1. In a picture-exhibitor, the combination of a magic lantern with a rotatable picture-holding wheel, means for rotating the same, posts projecting from the wheel, grooved arms pivoted to the posts, and a spring connecting the arms, substantially as specified.

2. In a picture-exhibitor, the combination of a magic lantern with a rotatable picture-holding wheel, a motor for intermittently rotating the wheel, a cam rotated by the motor, and a spring-influenced brake-shoe operated by the cam, substantially as specified.

3. In a picture-exhibitor, the combination of a casing with an inclosed wheel, means for securing pictures thereto, a brake engaging the wheel, a magic lantern, a screen at the bottom of the casing, and a shutter adapted to be interposed beneath the magic lantern and the screen, substantially as specified.

751,562. DISPLAY-CASE. WILLIAM C. ROOD, Chicago, Ill. Filed Mar. 9, 1903. Serial No. 146,937. (No model.)



Claim.—1. In a device of the kind described, a supplemental bottom or shelf pivotally supported near the front of the case and normally maintained in a position substantially parallel with the top of the case, an alarm and means for sounding the alarm when the shelf is operated.

2. In a device of the kind described, a supplemental bottom or shelf pivotally supported near the front of the case and normally maintained in a position substantially parallel to the top of the case, in combination with means for limiting the upward movement of the free end of the shelf, substantially as described.

3. In a device of the kind described, a supplemental bottom or shelf pivotally supported near the front of the case and resiliently maintained in a normal position substantially parallel with the top of the case, in combination with means for limiting the upward movement of the free end of the shelf, substantially as described.

4. A show-case in combination with a supplemental bottom or shelf pivotally supported near the front of the case and normally maintained in position substantially parallel with the top of the same, an alarm, means for sounding the alarm when the shelf is operated, and means for limiting the upward movement of the free end of the shelf, substantially as described.

5. A show-case provided with a base 1, in combination with a shelf 8 secured near its front end to the base by springs 10, and means for limiting the upward movement of the free end of the shelf, whereby when in its normal position the shelf is substantially parallel to the top of the case.

6. A show-case provided with a base 1, in combination with a shelf 8 pivotally supported near its front end, resilient means for maintaining the shelf at its upward limit, means for limiting the upward movement of the free edge of the shelf, and an alarm comprising two members one of which is secured to the base of the case, and the other to the movable shelf, whereby upon operating the shelf the two parts cooperate and an alarm will be given, substantially as described.

7. In a case of the kind described, a supplemental bottom or shelf pivotally secured near the front of the case, a spring for normally holding said bottom in a position substantially parallel with the top, and straps for limiting the upward movement of the shelf.

8. In a case of the kind described, a supplemental bottom or shelf pivotally secured near the front of the case, a spring for normally holding said bottom in a position substantially parallel with the top, and straps connecting the free end of the shelf and the bottom of the case.

9. In a device of the kind described, a pivoted shelf comprising a plurality of independently-movable pivoted shelves arranged end to end, each shelf being provided with an alarm, and means actuated by movement of any shelf to sound its alarm.

10. In a show-case, a supplemental bottom or shelf movably secured in said case, springs interposed between the shelf and the case for holding the shelf in a normal position substantially parallel with the top of the case, and straps for limiting the upward movement of the shelf.

11. In a case of the kind described, a base provided with posts provided with longitudinally-disposed grooves adapted to loosely receive the inclosing sides of the case and with transversely-disposed grooves adapted to receive the top of the case, in combination with a shelf pivotally supported near the front of the base and normally maintained in a position substantially parallel with the top of the case.

12. In a device of the kind described, a pivoted shelf comprising a plurality of independently-movable pivoted shelves arranged end to end, torsion-springs for holding each shelf normally parallel to the top of the case, and straps for limiting the upward movement of the shelves.

13. In a case of the character described, a supplemental bottom movably secured in said case, means for holding the same in a normal position substantially parallel with the top of the case, an alarm and means for sounding the alarm when the supplemental bottom is operated.

14. In a device of the kind described, a pivoted shelf comprising a plurality of independently-movable pivoted shelves, each shelf being provided with a bell, and means actuated by movement of any section for sounding its bell.

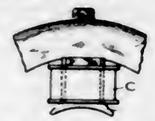
15. In a device of the kind described, a case, a pivoted shelf comprising a plurality of independently-movable pivoted shelves, torsion-springs for holding the shelves normally in raised positions, and straps for limiting the upward movement of the shelves.

16. In a device of the kind described, a supplemental pivoted bottom comprising a plurality of independently-movable pivoted shelves, each shelf being provided with an alarm, means actuated by movement of any section for sounding an alarm, and torsion-springs for holding the shelves normally in raised positions.

17. In a device of the kind described, a pivoted supplemental bottom comprising a plurality of independently-movable pivoted shelves arranged end to end, each shelf being provided with torsion-springs for holding it normally in raised position, straps for limiting the upward movement of the shelves, and bells operated by movement of the shelves, respectively.

18. In a show-case of the character described, a base provided with parts provided with longitudinally-disposed grooves adapted to loosely receive the inclosing sides of the case and with transversely-disposed grooves adapted to receive the top of the case, in combination with a shelf normally secured in the case and a spring interposed between said shelf and the bottom of the case for holding the shelf in a normal position substantially parallel with the top of the case.

751,563. DYNAMO-ELECTRIC MACHINE. DAVID B. RUSHMORE, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 26, 1903. Serial No. 163,152. (No model.)



Claim.—1. In a dynamo-electric machine, field-coils, and poles supporting said coils, said poles being cut away so as to leave spaces between said coils and said poles.

2. In a dynamo-electric machine, field-coils, and poles supporting said coils, said poles being cut away in the sides toward the ends of the armature so as to leave spaces between said coils and said poles.

3. In a dynamo-electric machine, circular field-coils, and poles supporting said coils, the sides of said poles toward the ends of the armature being cut away.

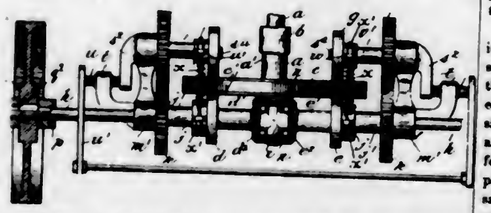
4. In a dynamo-electric machine, field-poles of approximately elliptical cross-section, and field-coils of circular form supported thereon.

5. In a dynamo-electric machine, field-coils, and field-poles supporting said coils, said poles being cut away on two sides so as to leave segmental spaces between said poles and said coils.

6. In a dynamo-electric machine, field-poles, and coils mounted thereon, said poles being shaped so as to leave segmental spaces between said poles and said coils on the sides opposite the ends of the armature.

7. In a dynamo-electric machine, field-poles having cross-sections rectangular with rounded ends, and field-coils of circular form mounted thereon.

751,564. VARIABLE-SPEED MECHANISM. CHARLES E. SARGENT, Chicago, Ill. Filed May 8, 1903. Serial No. 156,203. (No model.)



Claim.—1. In a variable-speed mechanism, the combination of a driving-disk; a pair of friction-rollers adapted to contact one surface of said disk on opposite sides of the axis thereof; and a second pair of friction-rollers adapted to contact the other surface of said disk on opposite sides of the axis thereof; connections between the rollers which lie upon the same side of the disk-axis whereby said rollers supplement each other in their power-transmitting effect; a driven member; and differential gear connections between said driven member and one of said pairs of rollers.

2. In a variable-speed mechanism, the combination of a driving-disk; a pair of friction-rollers adapted to contact one surface of said disk on opposite sides of the axis thereof; and a second pair of friction-rollers adapted to contact the other surface of said disk on opposite sides of the axis thereof, connections between the rollers which lie upon the same side of the disk-axis whereby said rollers supplement each other in their power-transmitting effect; a driven member; differential gear connections between said driven member and one of said pairs of rollers and means for shifting all of said rollers simultaneously along the surfaces of said disk to thereby vary the speed of said driven member.

3. In a variable-speed mechanism, the combination of a driving-disk; two sets of friction-rollers, the rollers of each set being located in position to contact said disk on the same side of the disk-axis but on opposite surfaces of said disk, and the rollers of each set being geared together for supplementing each other; a driven member; a differential mechanism connecting said rollers to said driven member for driving the latter; and means for moving said rollers toward and from said disk.

4. In a variable-speed mechanism, the combination of a driving-disk; two sets of friction-rollers normally held in contact with said disk, the rollers of each set being located in position to contact said disk on the same side of the disk-axis, but on opposite surfaces of said disk, and the rollers of each set being geared together to supplement each other; a driven member; a differential mechanism connecting said roller to said driven member for driving the latter; and means for releasing said rollers from said disk.

5. In a variable-speed mechanism, the combination of a driving-disk; two sets of friction-rollers normally held in contact with said disk, the rollers of each set being located in position to contact said disk on the same side of the disk-axis, but on opposite surfaces of said disk, and the rollers of each set being geared together to supplement each other; a driven member; a differential mechanism connecting said roller to said driven member for driving the latter; means for releasing said rollers from said disk, and means for shifting all of said rollers simultaneously along the surface of said disk to thereby vary the speed of said driven member.

6. In a variable-speed mechanism, the combination of a driving-disk; a shiftable carriage; a pair of friction-rollers mounted in said carriage in position to contact said disk on the same surface thereof on opposite sides of the disk-axis; a driven shaft; a differential mechanism connecting said rollers to said shaft for driving the same; a second pair of friction-rollers mounted in said carriage and adapted to contact the driving-disk on the remaining surface thereof and gear connections between said first pair and second pair of friction-rollers, whereby said second pair of rollers supplements the action of said first pair of rollers

7. In a variable-speed mechanism, the combination of a driving-disk; a shiftable carriage; a pair of friction-rollers mounted in said carriage in position to contact said disk on the same surface thereof on opposite sides of the disk-axis; a driven shaft; a differential mechanism connecting said rollers to said shaft for driving the same; a second pair of friction-rollers mounted in said carriage and adapted to contact the driving-disk on the remaining surface thereof for supplementing the action of the first pair of rollers, said second pair of rollers being pivotally mounted to swing toward and from said driving-disk; gear connections between said first and second pairs of rollers; and means for swinging said second pair of rollers toward and from said disk.

8. In a variable-speed mechanism, the combination of a driving-disk; a shiftable carriage; a pair of friction-rollers mounted in said carriage in position to contact said disk on the same surface thereof on opposite sides of the disk-axis; a driven shaft; a differential mechanism connecting said rollers to said shaft for driving the same; a second pair of friction-rollers mounted in said carriage and adapted to contact the driving-disk on the remaining surface thereof for supplementing the action of the first pair of rollers; said second pair of rollers being pivotally mounted to swing toward and from said driving-disk; gear connections between said first and second pairs of rollers; means for swinging said second pair of rollers toward and from said disk; a spring-influenced device for holding said second pair of rollers in frictional contact with the disk; and means for swinging said rollers away from said disk to thereby release the same.

9. In a variable-speed mechanism, the combination of a driving-disk; a shiftable carriage; a pair of friction-rollers mounted in said carriage in position to contact said disk on the same surface thereof on opposite sides of the disk-axis; a driven shaft; a differential mechanism connecting said rollers to said shaft for driving the same; a second pair of friction-rollers mounted in said carriage and adapted to contact the driving-disk on the remaining surface thereof for supplementing the action of the first pair of rollers;

said second pair of rollers being pivotally mounted to swing toward and from said driving-disk; gear connections between said first and second pairs of rollers; means for swinging said second pair of rollers toward and from said disk; a screw device for holding the second pair of rollers in frictional contact with the disk and means for swinging said rollers away from said disk to thereby release the same.

10. In a variable-speed mechanism, the combination of a driving-disk; a shiftable carriage; a pair of friction-rollers mounted in said carriage in position to contact said disk on the same surface thereof on opposite sides of the disk-axis, a driven shaft; a differential mechanism connecting said rollers to said shaft for driving the same; a second pair of friction-rollers mounted in said carriage and adapted to contact the driving-disk on the remaining surface thereof for supplementing the action of the first pair of rollers; said second pair of rollers being pivotally mounted to swing toward and from said driving-disk; gear connections between said first and second pairs of rollers; means for swinging said second pair of rollers toward and from said disk; a screw device for holding the second pair of rollers in frictional contact with the disk, means for swinging said rollers away from said disk to thereby release the same and a controlling-rod for operating said screw device.

751,565. COFFEE OR TEA POT. GEORGE E. SAVAGE and JAMES W. CHAPMAN, Meriden, Conn., assignors to Manning, Bowman & Co., Meriden, Conn., a Corporation of Connecticut. Filed Sept. 23, 1903. Serial No. 174,340. (No model.)



Claim.—1. In an apparatus of the character described, a water-reservoir, a receptacle for the seasoning element, means for detachably securing said parts together, a strainer separating the compartments in said reservoir and receptacle, a percolating device comprising a tube, a bell at the lower end thereof arranged to rest upon the bottom of the reservoir and means engaging the strainer and said tube and arranged to hold said bell against its seat independently of the cover for the receptacle.

2. In an apparatus of the character described, a water-reservoir, a receptacle for the seasoning element, means for detachably securing together said parts, a strainer carried by the said receptacle and separating the compartment therein from the compartment in the reservoir, a percolating device including a tube, a bell at its lower end, said bell being arranged to rest upon the bottom of the reservoir, said tube projecting through said strainer and guided thereby and a spring arranged to press against said tube and said strainer to yieldingly press the bell against its seat.

3. An apparatus of the character described comprising a water reservoir, a receptacle above the same with a strainer between the reservoir and the receptacle, a bell resting on the bottom of the reservoir, a tube connected with said bell and communicating with the receptacle, and an annular chamber in the bottom of the reservoir surrounding the bell, said bell being removable through the top of the reservoir.

751,566. RINGING-KEY FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed May 9, 1902. Serial No. 106,556. (No model.)



Claim.—1. A calling appliance for telephone-switchboards comprising a source of signaling-current, a switch for applying the same, a key for setting said switch, automatic step-by-step mechanism controlling the release of the switch, and mechanism adjusted in actuating the key for determining the operation of the step-by-step mechanism.

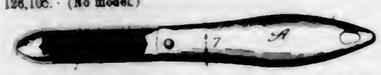
2. A signaling appliance comprising a source of periodically-interrupted signaling-current, a manually-actuated key for applying the current, an electromagnetic step-by-step device and means for operating the same to correspond with the periods of said current, mechanism controlled by said step-by-step device for cutting off the current, and means actuated in setting the key for determining the extent of operation of said step-by-step device, whereby distinctive signals may automatically be transmitted, the character of the signal being determined in setting the key.

3. A signaling appliance for telephone-switchboards comprising a source of periodic signaling-current, a manually-actuated reciprocating and rotating plunger, a switch adapted to be set by the reciprocation of the plunger, step-by-step mechanism controlling the release of the switch, and a device adjusted in rotating the plunger for determining the operation of the step-by-step mechanism.

4. A signaling appliance for telephone-switchboards comprising a source of periodically-interrupted current, a reciprocating and rotating plunger *f* adapted for manual operation, a toothed member of a step-by-step device and a switch operated thereby for applying the current, a stepped cylinder carried by the plunger *f* adapted to engage said toothed member to depress the same as the plunger *f* is depressed, the angular position of said stepped cylinder determining the extent of movement of said toothed member, an eletromagnet and means for exciting the same periodically to correspond with the periods of the ringing-current, and an armature for said magnet-carrying dogs which engage the said toothed member to move the same step by step, whereby the switch is restored after a definite number of excitations of the magnet, determined in setting the key.

5. The combination with a ringing-key, of a source of ringing-current, a switch adapted to be set to apply said current, an adjustable retarding mechanism controlling the release of the switch, and a continuously-acting commutator independent of said switch for periodically interrupting said ringing-current, whereby current is intermittently applied a given number of times, dependent upon said retarding mechanism.

751,567. KNIFE. CASPER F. SEARCH, Oakpark, Ill., assignor, by direct and mesne assignments, to Edmonds-Metzel Manufacturing Company, Chicago, Ill., a Corporation. Filed Oct. 6, 1902. Serial No. 126,105. (No model.)



Claim.—1. A paring-knife comprising a handle having a two-edged blade secured thereto, and a gage secured to said handle having a longitudinal channel open through the gage for receiving the blade and presenting two gage edges each extending along and cooperating with one of the edges of said blade, said gage having a socket toward the end opposite said handle for receiving the corresponding

end of the blade and holding said blade in proper relation to said gage edges, substantially as described.

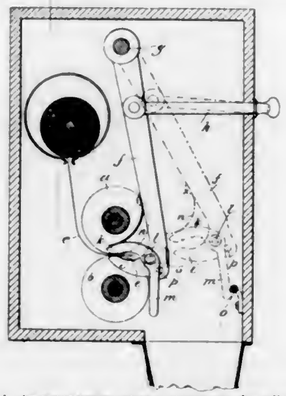
2. An implement of the character described, comprising a gage equipped at its front portion with a beveled surface, a blade having a corresponding beveled surface at its front end, a suitable handle, and means for securing the rear portion of the blade in place, for the purpose set forth.

3. An implement of the character described, comprising a gage having a longitudinal channel and equipped near its opposite ends with V-shaped grooves, the free extremity of said gage having a socket for the corresponding extremity of the blade, a suitable handle, and means for securing the rear extremity of the blade in the groove which receives it, for the purpose set forth.

4. An implement of the character described, comprising a gage having a longitudinal blade-receiving channel with two edges coacting with the blade, a V-shaped blade received by said channel and having cutting edges coacting with the corresponding edges of the gage, and a handle provided on its lower side with a central longitudinal enlargement, for the purpose set forth.

5. An implement of the character described, comprising a gage equipped at one end with a gouge-point and provided with a longitudinal blade-receiving channel with two edges coacting with the blade, a two-edged blade received by said channel, and a suitable handle, for the purpose set forth.

751,568. MECHANISM FOR DISPENSING STAMPS, TICKETS OR THE LIKE. MAX SIELAFF, Berlin, Germany. Filed Nov. 9, 1901 Serial No. 81,702. (No model.)



Claim.—1. In mechanism of the character described, the combination with oppositely-arranged surfaces between which a strip of paper is adapted to be moved, said surfaces operating to exert pressure upon the said strip, of a movable lever or bar and a gripping device carried thereby adapted to grip the paper strip and pull it through the said oppositely-arranged surfaces when the said lever is moved as and for the purpose set forth.

2. In mechanism of the character described, the combination with oppositely-arranged surfaces between which a strip of paper is adapted to be moved, said surfaces operating to exert pressure upon said strip, of a movable lever or bar, a gripping device carried thereby adapted to grip the paper strip and pull it through the said oppositely-arranged surfaces when the said lever is moved, and means for operating the gripping device to cause it to release the ticket or stamp torn from the strip.

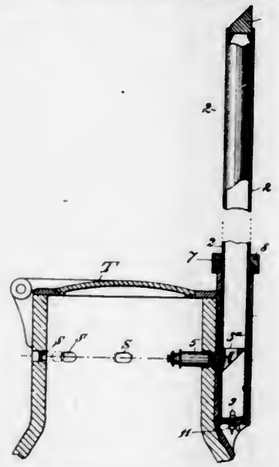
3. In mechanism of the character described, the combination with two oppositely-arranged surfaces between which a strip of paper is adapted to be moved, said surfaces operating to exert pressure upon the said strip, of a lever pivoted to one end and adapted to oscillate so as to carry its opposite or free end toward and away from the said surfaces, and a gripping device carried by the said free end of the lever and adapted to grip the paper strip and pull it through the said oppositely-arranged surfaces when the lever is oscillated in one direction, as set forth.

4. In mechanism of the character described the combination with oppositely-arranged surfaces between which a strip of papet is adapted to be moved, said surfaces operating to exert pressure upon the said strip, of a movable lever or bar, a gripping device carried thereby and comprising a lever pivoted to the first lever and having one end adapted to cooperate with a nose on the first-mentioned movable lever to grip the paper strip, and an abutment against which the opposite end of the pivoted lever is adapted to strike to cause the gripping end of the latter lever to move away from the strip and release the latter, all in the manner specified.

5. In mechanism of the character described, the combination with oppositely-arranged surfaces between which a strip of paper is adapted to be moved, said surfaces operating to exert pressure upon the paper strip, a lever or bar pivoted at one end, a gripping device carried by the free end of the said lever and comprising a second lever pivoted to the first lever, one end of the second lever coöperating with a nose on the first lever to grip the paper strip, an abutment against which the other end of the second lever is adapted to strike when the first lever is moved in one direction, a spring-actuated pin arranged to engage and hold the second lever in releasing position and means for drawing the said pin out of engagement with the second lever when the levers are moved in a direction to again engage the paper strip.

6. In mechanism of the character described, the combination with oppositely-arranged surfaces between which a strip of paper is adapted to be moved, said surfaces operating to exert pressure upon the paper strip, a lever or bar pivoted at one end, a gripping device carried by the free end of the said lever and comprising a second lever pivoted to the first lever, one end of the second lever coöperating with a nose on the first lever to grip the paper strip, an abutment against which the other end of the second lever is adapted to strike when the first lever is moved in one direction, a spring-actuated pin arranged to engage and hold the second lever in releasing position and an abutment having an inclined surface arranged so that one end of the spring-actuated pin will strike against it and be moved endwise to cause its opposite end to release the pivoted lever, when the parts are moved in a direction to again engage the paper strip.

751,569. ALTISCOPE OR THE LIKE. LAWRENCE Y. SPEAR, Greenport, N. Y., assignor to Electric Boat Company, a Corporation of New Jersey. Filed Mar. 14, 1903. Serial No. 147,735. (No model.)



Claim.—1. The combination with the turret or conning-tower, and an upright socket connected with the said tower, of an altiscope comprising an optical tube mounted removably in said socket, a telescope within the turret and extending out through a slot in the wall of said turret and sheath and connected optically with said optical tube, and means for excluding water from said socket.

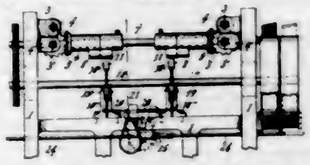
2. The combination with the turret or conning-tower, and an upright socket connected with the tower, of an altiscope mounted removably in said socket and axially rotative therein, a telescope operatively connected with said tube and turning with it, and a scale and pointer to indicate the extent to which the optical tube is rotated in either direction from the normal.

3. The combination with the turret or conning-tower, and an upright socket connected with the tower, of an optical tube mounted removably and rotatively in said socket, means for turning said tube axially in the socket, means for closing the socket against the entry of water thereto, a telescope which projects through an aperture in the wall of the tower and is connected with the said optical tube

a scale 20 which the telescope traverses, and a pointer 19 on the telescope.

4. A conning-tower, an upright socket exterior to and connected with the said tower, an altiscope mounted removably in said socket and means within the tower for observing the image deflected down to the range of vision by the altiscope.

751,570. **AUTOMATIC SAFETY STOP-MOTION FOR GILL-BOXES.** DALTON STOCKWELL, South Lawrence, Mass. Filed Apr. 30, 1902. Serial No. 106,275. (No model.)



Claim.—1. In a safety stop-motion for gill-boxes, a pair of loose gears provided with extensions forming an integral part of their hubs and having each a hole transversely through the ends, a set of rotative levers having arms slotted at their ends and corresponding in their length to said extensions and operatively alined with them, a brace of severable pins filling said holes and slots and uniting said extensions and levers during normal operation of the machine, there being recesses in said levers opening outwardly, a pair of plungers arranged to slide therein and provided with lengthwise slots, means entering said slots to limit the outward movement of said plungers from their respective recesses and means to eject them, a brace of rock-levers operated by said plungers when one or both of the pins are severed, and having horizontal rods adjacently projecting from their lower ends arranged and adapted to contact with and release the spring 21 to throw the ship-rod and carry the belt to the loose pulley, thus automatically stopping the machine.

2. In an automatic safety stop-motion, a pair of extensions pierced transversely at their ends for the reception of pins and forming integrally a part of the gear-hubs 6 6, a pair of coacting recessed rotative levers secured to the shaft, a set of pins temporarily uniting said hubs and levers during the normal operation of the gill-box, and a pair of spring-impelled plungers having transverse slots receiving said pins in a manner to temporarily retain them in the ends of the plungers, and additionally provided with lengthwise slots to receive the retaining-dowels securing the plungers movably within the rotative levers, in combination with a pair of rock-levers having arms 18' 18' arranged to lie in the rotating path of the plungers and to receive the impact of said plungers when released by the severance of the pin or pins, and a set of horizontal rods 20 20 forming a part of said rock-levers, adapted when said arms are depressed by the plungers to release the spring 21 so as to actuate the ship-rod and transfer the belt from the fast to the loose pulley substantially as specified.

3. In a gill-box, the combination with a shaft 7 and means for its rotation, a hub loosely mounted on said shaft provided with a gear and having a pierced extension, a rotating lever fast to the shaft having an arm normally alined and coacting with said extension and having a recess radially, a plunger seated in said recess and restrained therein only during the proper running of the mechanism, and means to temporarily connect the hub and lever and to retain the plunger within the recess; of a rock-lever provided with an upper arm lying in the path of the projected plunger when released and a lower arm bearing a horizontal rod, a spring contacting with said rod when in a retracted and a locked position, a plate provided with a slot to receive, and a recess in said slot to confine the retracted spring, and a ship-rod having a lug adjusted thereon to receive the impetus of the spring upon its expansion in a manner to throw the ship-rod and transfer the belt from the fast to the loose pulley to instantly arrest the motion of the gill-box.

4. In a gill-box safety stop-motion, a pair of gears 5, 5, adapted in the unimpeded motion of the machine to be rotated by the gears 6, 6, and having extensions, a pair or rotating levers keyed to the shaft 7, and means for the temporary and separable union of said extensions and levers, a pair of plungers operative within recesses in said levers and provided each with a transverse slot on the outer end, and a lengthwise slot in one side thereof, means coacting with the latter slot to limit the outward throw of said plungers, the means hereinbefore described to actuate the plungers when released from their normal positions, arms 18' 18' depressed by the release of said plungers, a pair of rods 20 20 each forming a part of the rock-levers, a spring 21 arranged to be in continuous contact with said rods so long as the machine is properly working and adapted to be released by said rods when the functions of the machine are disturbed by breakage, and the ship-rod actuated by the springs to throw the belt onto the loose pulley and to arrest the machine.

5. In a stop-motion, a set of spring-impelled plungers provided with longitudinal and transverse slots, the former adapted to receive a dowel arranged to prescribe the radial throw of said plungers, and the latter to embrace pins to support the plungers against the springs, a pair of springs, there being a set of recesses in the rotative levers adapted to receive said plungers and to retain them from total ejectment after said pins are severed, a brace of rock-levers having arms arranged to coact with the plungers when the latter are partially projected, a plate having a slot, having a recess therein, and a spring retractile in said slot and held in said recess when retracted, in combination therewith a ship-rod, and a lug adjustably confined thereon in a manner to receive the impact of the spring after its release from the recess 22' to actuate the ship-rod to shift the driving-belt over the loose pulley.

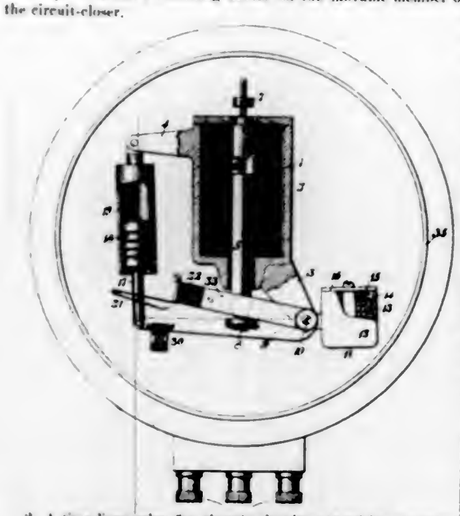
6. In combination with gill-box machines the following instrumentalities comprising a safety stop-motion automatically operated, a ship-rod having an adjustable lug, and establishing connections with the driving-belt, a spring adapted in its expanded form to actuate said rod, a plate supporting said spring and provided with a lengthwise slot having a recess therein to receive and temporarily secure the free end of the spring when retracted, horizontal rods operative to release said spring, and rock-levers carrying said rods, in combination therewith a pair of spring-actuated plungers, means to actuate and to limit their movement, a set of rotating levers provided with recesses receiving said plungers, the extensions having holes transversely in their ends forming an integral part of the bevel-gears 6 6', a shaft upholding without rotating said gears, and means to temporarily connect said levers and gears to cause them to revolve in unison while the functions of the operating gill-box are uninterrupted, and to disconnect said members when said operation is interrupted and thus bring the machine to rest.

7. In a stop-motion, a set of spring-impelled plungers provided with longitudinal and transverse slots, the former adapted to receive a dowel arranged to prescribe the radial throw of said plungers, and the latter to embrace pins to support the plungers against the impelling force of the springs, there being a set of recesses in the rotative levers adapted to receive said plungers and to retain them from total ejectment after said pins are severed, a pair of springs radially actuating the said plungers, a brace of rock-levers having arms arranged to coact with the plungers when the latter are partially projected, a plate having a slot and a recess therein, and a spring retractile in said slot and held in said recess when retracted, in combination therewith a ship-rod, and a lug adjustably confined thereon in a manner to receive the impact of the spring after its release from the recesses 22' to actuate the ship-rod to shift the driving-belt over the loose pulley

8. In combination with gill-box machines the following instrumentalities comprising a safety stop-motion automatically operated, a ship-rod having an adjustable lug, and establishing connection with the driving-belt, a spring adapted in its expanded form to actuate said rod, a plate supporting said spring and provided with a lengthwise slot having a recess therein to receive and temporarily secure the free end of the spring when retracted, a horizontal rod operative to release said spring, and rock-levers carrying said rods, in combination therewith spring-actuated plungers, means to actuate and to limit their movement, rotating levers provided with recesses receiving said plungers, extensions having holes transversely in their ends and forming an integral part of the bevel-gears 6 6, a shaft upholding without rotating said gears, and means to temporarily connect said levers and gears to cause them to revolve in unison while the functions of the operating gill-box are uninterrupted, and to disconnect said members when said operation is interrupted and thus bring the machine to rest.

751,571. **TIME-LIMIT RELAY FOR ELECTRIC CIRCUITS.** HARVE B. STUART and ARTHUR B. REYNDERS, Wilkinsburg, Pa., assignors to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 11, 1903. Serial No. 152,277. (No model.)

Claim.—1. A time-limit relay for electric circuits comprising contact-terminal members, mechanical means for moving one of said members to circuit-closing position, an electromagnet, an armature therefor the weight of which normally holds said member in open-circuit position and a retarding device for the movable member of the circuit-closer.



2. A time-limit relay for electric circuits comprising contact-terminal members, an electromagnet, an armature therefor the weight of which normally holds said members out of engagement, mechanical means for moving one of said members into engagement with the other when the magnet withdraws its armature, a retarding device for the movable member of the circuit-closer and means for adjusting the time of the circuit-closing movement.

3. A time-limit relay for electric circuits comprising two contact members, mechanical means for operating one of said members to close the relay-circuit, electromagnetic means for releasing said member, a retarding device and means for varying the length of the path through which the movable member travels.

4. A time-limit relay for electric circuits comprising two contact members, mechanical means for operating one of said members to close the relay-circuit, an electromagnetic releasing means for said member, a retarding device and means for setting the stationary member in different positions to vary the length of time of the closing movement.

5. A time-limit relay for electric circuits comprising a solenoid, a stationary switch member, a movable switch member, a retarding device therefor, a solenoid-core that normally holds said movable switch member in open-circuit position, and mechanical means for actuating the movable member when the solenoid raises its core therefrom.

6. In a time-limit relay for electric circuits, the combination with a solenoid and a core therefor, of a stationary switch member, a movable switch member that is normally held in open position by the weight of the solenoid core, means for actuating the movable member when relieved from the weight of said core, and means for retarding the movement of said member.

7. In a time-limit relay for electric circuits, the combination with a solenoid and a core therefor, of a stationary switch member, a counterweighted movable switch member that is normally held in open-circuit position by the weight of the solenoid-core and is mechanically moved to closed-circuit position when the weight of the core is removed, and means for retarding the movement of said member when relieved from the weight of the solenoid-core.

8. In a time-limit relay for electric circuits, the combination with a solenoid and a core therefor, of an adjustable stationary switch member, a counterweighted movable switch member that is normally held in open position by the weight of the solenoid-core and is mechanically moved to closed-circuit position when the weight of the core is removed and means for retarding the movement of said member when it is relieved from the weight of the solenoid-core.

9. In a time-limit relay for electric circuits, the combination with a solenoid and a core therefor, of an adjustable stationary switch member, a movable switch member having a variable counterweight and normally held in open position by the weight of the solenoid-core and means for retarding the closing movement of said member when relieved from the weight of the solenoid-core.

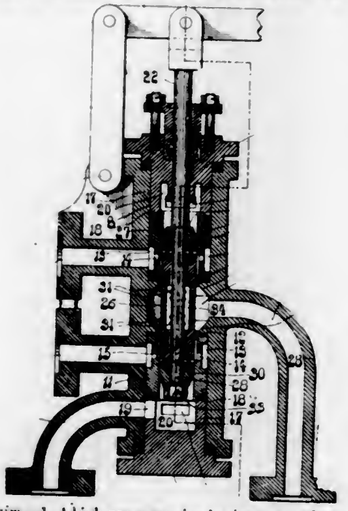
10. The combination with an adjustable stationary switch member and a cooperating movable member having a variable counterweight, of a solenoid having a core the weight of which is normally imposed upon said movable member in opposition to the counterweight and a dash-pot for retarding the closing movement of said member when the weight of the core is withdrawn by the solenoid.

11. A time-limit relay for electric circuits comprising an adjustable stationary contact member, a movable contact member, a gravity-actuated solenoid-core normally resting upon said movable member, a solenoid for withdrawing said core, a weight for actuating said movable member when released and a retarding device for said member.

12. A time-limit relay for electric circuits comprising an unattached, gravity-actuated means for maintaining a normally open relay-circuit, an independent, gravity-actuated means for closing said circuit, an electromagnet for withdrawing the circuit-opening means and a retarding device for the movable member of the circuit-closer.

13. A time-limit relay for electric circuits comprising a solenoid and a core therefor, a movable switch member that is normally held in open position by the weight of said core, a variable counterweight for moving said member when relieved from the weight of said core, a dash-pot acting in opposition to said counterweight, a stationary switch member and means for varying its position in accordance with the time limit desired.

751,572. **HIGH-PRESSURE VALVE.** JULIUS R. TANNER, Pittsburg, Pa. Filed Mar. 24, 1903. Serial No. 149,318. (No model.)



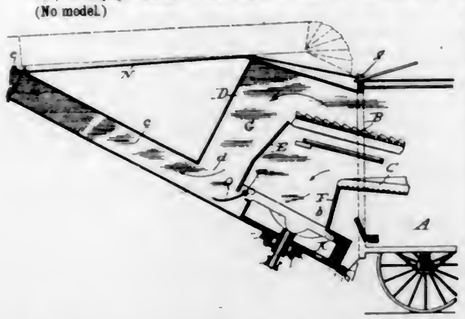
Claim.—1. A high-pressure valve, having a central supply-chamber, a distributing-chamber on each side of the supply-chamber, and an exhaust-chamber beyond each distributing-chamber, and a piston composed of a rod, a ported central shell, two end sections strung and secured on the rod, and a packing-ring between the shell and each end section, the ports of the shell being located so as to connect either distributing-chamber with the supply-chamber and the packing-rings being at the same time so located as to permit connection between the other distributing-chamber and its respective exhaust-chamber.

2. A high-pressure valve consisting of an outer casing having a longitudinal opening a pair of annular ribs centrally arranged therein and forming between the same a depressed supply-chamber, a lining beyond each rib, each lining having therein a distributing-chamber, caps for said opening, an exhaust-chamber between each cap and distributing-chamber, packing-rings between said lining and said caps and ribs, and a piston composed of a separable three-part shell, a rod for securing the parts together, and packing-rings between the said parts of the shell so located as to permit connection of the supply-chamber with either distributing-chamber and a simultaneous connection between the other distributing-chamber and an exhaust-chamber.

3. A high-pressure valve, having a central supply-chamber, a distributing-chamber on each side of the supply-chamber, and an exhaust-chamber beyond each distributing-chamber, and a piston composed of a rod, a ported central shell, two end sections strung and secured on the rod, and a packing-ring between the shell and

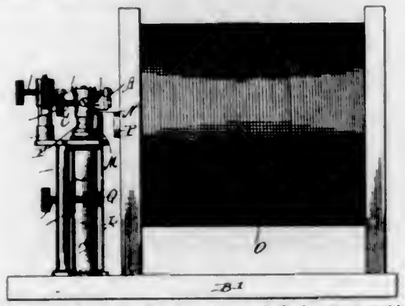
each end section, the ports of the shell being located so as to connect either distributing-chamber with the supply-chamber and the packing-rings being at the same time so located as to permit connection between the other distributing-chamber and its respective exhaust-chamber, and so as to prevent the passage of fluid between the rod and the end sections.

751,573. PNEUMATIC STRAW-STACKER. JAMES F. TEMPLETON, Winnipeg, Canada. Filed Sept. 12, 1903. Serial No. 172,953. (No model.)



Claim.—In a pneumatic straw-stacker, the combination of a fixed casing, a straw-rack and a chaffer arranged therein, an apron extending downwardly from a point adjacent to the straw-rack, and serving in conjunction with walls of the casing to form a straw-chamber, a shaft journaled in suitable bearings at the bottom of the fixed casing, a transversely-oscillating casing pivoted on said shaft, and comprising a fan-chamber arranged to receive from the chaffer, and carrying a gear, and a chute or pipe extending rearwardly from the fan-casing, and having an opening arranged to receive from the straw-chamber at a point in rear and clear of the fan-chamber, a fan fixed on the shaft, and disposed in the fan-chamber, a valve arranged in the oscillating casing between the fan-chamber and the chute thereof, and a shaft journaled in bearings on the fixed casing, and having a worm-gear intermeshed with the gear on the fan-chamber of the oscillating casing.

751,574. ELECTRIC-SPARK-PRODUCING APPARATUS. CHESTER H. THORDARSON, Chicago, Ill. Filed Mar. 10, 1902. Serial No. 147,198. (No model.)



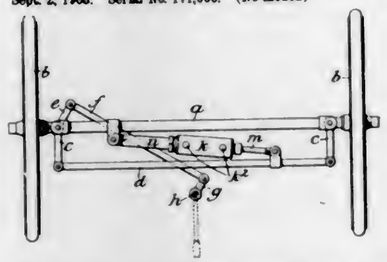
Claim.—1. In a circuit make-and-break device, the combination with separable contacts, one of said contacts being movable toward and from the other, a spring for yieldingly maintaining said contacts closed upon each other, and means for adjusting the tension of said spring, of a magnet, and a spring-supported armature therefor arranged to strike said movable contact to separate the same from its coöperating contact, said armature being weighted, whereby it delivers a hammer-blow, and an adjustable back-stop for said armature, as and for the purpose set forth.

2. In a circuit make-and-break device, the combination with separable contacts, a spring connected to one of said contacts and operating to yieldingly maintain said contacts closed upon each other, an adjusting-screw for adjusting the tension of said spring and a spring-plate carrying a weight arranged to strike said spring-actuated contact with a hammer-blow to separate the same from its coöperating contact, of a magnet arranged in the circuit of said contacts, said weight forming the armature of said magnet, as and for the purpose set forth.

3. In a circuit make-and-break device, the combination with separable contacts, of an electromagnet, a weighted armature therefor arranged to strike one of said contacts a hammer-blow to open the circuit between said contacts, and an adjustable back-stop for said weighted armature, as and for the purpose set forth.

4. In a circuit make-and-break device, the combination with an adjustable contact, a coöperating movable contact, a spring connected to said movable contact and operating to yieldingly hold the same in closed contact relation with respect to said stationary contact, and means for adjusting the tension of said spring, of an electromagnet, a spring-supported weighted armature therefor arranged when said magnet is energized to strike said movable contact a hammer-blow to separate said contacts, a back-stop for said armature, and means for adjusting said back-stop, as and for the purpose set forth.

751,575. STEERING MECHANISM FOR MOTOR-VEHICLES. CURTIS H. VEEDER, Hartford, Conn., assignor to the Veeder Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Sept. 2, 1903. Serial No. 171,660. (No model.)

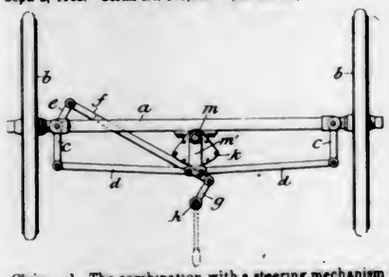


Claim.—1. The combination with a steering mechanism for motor-vehicles of a hydraulic check therefor comprising a cylinder and a piston connected to different parts of the steering mechanism, the piston-rod being extended through opposite ends of the cylinder whereby the displacement of the fluid within the cylinder is due only to the movement of the piston, said cylinder being completely closed except for the passage of the piston-rod while provision is made for the passage of liquid from one side of the piston to the other, substantially as described.

2. The combination with a steering mechanism for motor-vehicles of a hydraulic check therefor comprising a cylinder and a piston connected to different parts of the steering mechanism, the cylinder being contracted at a middle point to give less clearance between the piston and the wall of the cylinder at such point than elsewhere in the movement of the piston, substantially as described.

3. The combination with a steering mechanism for motor-vehicles of a hydraulic check therefor comprising a cylinder and a piston connected to different parts of the steering mechanism, the piston-rod being extended through opposite ends of the cylinder and inclosed within the tubular member forming the connection between the cylinder and the corresponding part of the steering mechanism, substantially as described.

751,576. STEERING MECHANISM FOR MOTOR-VEHICLES. CURTIS H. VEEDER, Hartford, Conn., assignor to the Veeder Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Sept. 2, 1903. Serial No. 171,661. (No model.)



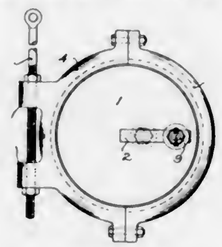
Claim.—1. The combination with a steering mechanism for motor-vehicles, of a hydraulic check therefor comprising an oscillating

wing-piston connected to the steering mechanism and a casing within which said piston is free to oscillate and having one wall substantially concentric with the oscillating piston and thickened interiorly at a middle point to reduce the clearance at that point between the piston and the wall of the casing, substantially as described.

2. The combination with a steering mechanism for motor-vehicles, of a hydraulic check therefor comprising an oscillating wing-piston and a casing within which said piston is free to oscillate, the top of said casing being conical to direct air-bubbles in the inclosed liquid toward the axis of oscillation of the piston, substantially as described.

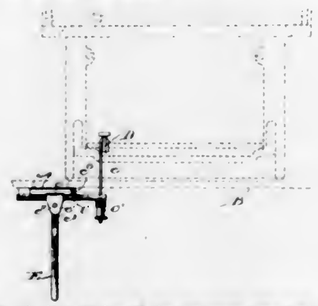
3. The combination with a steering mechanism for motor-vehicles, of a hydraulic check therefor comprising an oscillating wing-piston and a casing in which said piston is mounted for oscillation, the neck of said casing about the stem of the piston being formed with an annular chamber communicating with the top of the main piston-chamber, substantially as described.

751,577. CAM OR ECCENTRIC. ERNEST VONDERHEYDEN, Paterson, N. J., assignor to the Graef Hat-Band Mfg. Co., a Corporation of New Jersey. Filed Feb. 27, 1903. Serial No. 145,366. (No model.)



Claim.—The combination with the eccentric 1, having a slot 2 and the eccentric-shaft 7, of the detachable two-part strap 3 and 4, the part 4 having lugs 5 provided with threaded openings, and the connecting-rod 6, constructed substantially as, and for the purposes specified.

751,578. SHIFT-KEY MECHANISM FOR TYPE-WRITING MACHINES. EDWARD H. WADEWITZ, Racine, Wis. Filed Apr. 6, 1903. Serial No. 151,383. (No model.)



Claim.—1. In a device of the character described, means for attachment to a type-writer support, an operating-lever pivotally connected thereto, a rod to connect said operating-lever to the type-writer shift-key lever, a rocking lever having an adjustable sliding connection with said operating-lever, and means for securing the parts in the adjusted position.

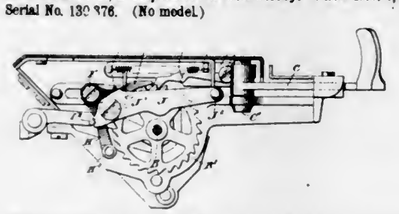
2. In a device of the character described, means for attachment to a type-writer support, an operating-lever pivotally connected thereto, a rod to connect said operating-lever to the type-writer shift-key lever, a rocking lever having an adjustable connection with said operating-lever, and means whereby said rocking lever is automatically locked upon said operating-lever when thrown into an operative position.

3. In a device of the character described, means for attachment to a type-writer support, an operating-lever pivotally connected thereto, a rod to connect said operating-lever to the type-writer shift-key lever, a saddle slidingly mounted upon said operating-lever and carrying a pivoted rocking lever, said saddle being slidable along said operating-lever when said rocking lever is in a raised position, but locked when said rocking lever is in its operative position.

4. In a device of the character described, means for attachment to a type-writer support, an operating-lever pivotally connected thereto, a rod to connect said operating-lever to the type-writer shift-key lever, a saddle slidingly mounted upon said operating-lever and carrying a pivoted rocking lever, said saddle having spring-lug extensions to engage said rocking lever in its operative position.

5. In combination with a type-writing machine and support, a shift-key mechanism comprising an operating-lever pivotally connected to said support, a rod to connect said operating-lever with the shift-key lever of the machine, a rocking lever designed to be actuated by pressure of the knee of an operator, and means adjustable along said operating-lever for locking said rocking lever in an operative position.

751,579. PLATEN-LOCKING MECHANISM FOR TYPE-WRITERS OR OTHER MACHINES. FRANZ X. WAGNER, New York, N. Y., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 7, 1902. Serial No. 130,976. (No model.)



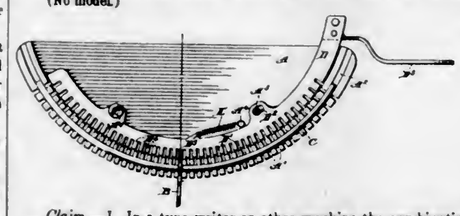
Claim.—1. In a type-writing or other machine, the combination with the platen-shaft having a ratchet-wheel, of a brake-lever and a locking-lever arranged to engage said ratchet-wheel, a spring, the ends of which engage the brake-lever and the locking-lever respectively, to throw them against the ratchet-wheel, and a controlling-lever arranged to act on the ends of the spring so as to release either the locking-lever or the brake-lever from the action of the spring.

2. In a type-writing or other machine, the combination with the platen-shaft having a ratchet-wheel, of a locking-lever arranged to engage said ratchet-wheel, a spring for throwing said locking-lever into engagement with the ratchet-wheel, and a controlling-lever arranged to exert an outward pressure directly upon the spring to release the locking-lever from the action of the spring.

3. In a type-writing or other machine, the combination of the platen-shaft having a ratchet-wheel, of a brake-lever arranged to engage said ratchet-wheel, a spring for throwing said brake-lever inward, and a controlling-lever for moving the spring away from said brake-lever.

4. In a type-writing or other machine the combination with the platen-shaft having a ratchet-wheel, of a locking-lever and a brake-lever arranged to engage said ratchet-wheel, spring members for throwing said levers inward, and a controlling-lever having two operating portions arranged to engage said spring members and to temporarily render them inactive so far as the brake-lever or locking-lever is concerned, one of said operating portions being shaped with a recess so that the spring members will also act to hold the controlling-lever in either one of its positions.

751,580. TYPE-BAR HOLDER. FRANZ X. WAGNER, New York, N. Y., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 20, 1903. Serial No. 148,669. (No model.)



Claim.—1. In a type-writer or other machine the combination with the support having a series of slots and pivoted type-bars arranged within said slots, of a movable retainer provided with notches

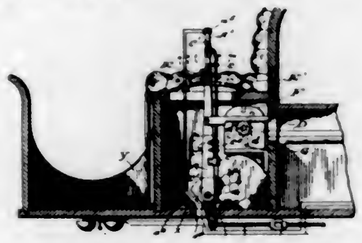
and teeth extending adjacent to the slots of the support, and stops for limiting the movement of said retainer in either direction, the notches of the retainer registering with the slots of the support when the retainer is at one limit of its movement; whereas, when the retainer is at the other limit of its movement, the teeth of the retainer register with the slots of the support.

2. In a type-writer or other machine the combination with the support having a series of slots and pivoted type-bars arranged within said slots, of a movable retainer provided with notches and teeth extending adjacent to the slots of the support, and a spring for normally holding said retainer in position to close the slots of the support.

3. In a type-writer or other machine, the combination with the support having a series of slots and pivoted type-bars arranged within said slots, of a movable retainer provided with notches and teeth extending adjacent to the slots of the support, said notches and teeth being located at the same distance from each other as the type-bars, and adapted to secure or release the type-bars, according to the position of said retainer.

4. In a type-writer or other machine, the combinatioo with the slotted segment, and the type-bars having their pivot ends within the slots of said segment, of a toothed retainer mounted to move on said segment in the arc of a circle adjacent to the slots of the segment, and adapted to open or close the said slots, and a spring for normally holding said retainer in position to close the slots of the segment.

751,581. CONTROLLING MECHANISM FOR ELECTRIC VEHICLES. FRANK S. WAHL, Buffalo, N. Y. Filed Dec. 21, 1901. Serial No. 86,819. (No model.)



Claim.—1. In an automobile vehicle, the combination of driving means, a controller for said driving means, means for reversing said driving means, and a mechanical brake; a lever common to the controller and the reversing means and adapted to operate each separately from the other by movement in opposite directions from a given, neutral or deënergizing point in the arc of movement of the lever, and means for engaging the lever with the brake mechanism and operating the latter, without actuating either the controller or the reverse, upon movement of the lever in a given direction from the said neutral or deënergizing point.

2. The combination with a motor-vehicle, of a motor-controller comprising a reversing-switch and a controller-shaft, revoluble in one direction from the neutral or open-circuit position, to supply energy, and in the other direction to operate the reverse-switch, of means connected with the controller-shaft and adapted to operate same in either direction, a mechanical brake, and mechanism connecting said means with said brake and adapted to be operated by the movement of the controller-operating means from the neutral position in the direction for actuating the reversing-switch.

3. The combination with a motor-driven vehicle, a motor-controller provided with a reverse, operated by the controller-shaft, and brake mechanism, of a single lever and connections between said lever and the controller-shaft and brake mechanism, whereby the lever may operate the controller, the reverse and the brake mechanism separately.

4. The combination with an electric vehicle, a motor-controller provided with a reverse, operated by the controller-shaft, and brake mechanism, of a lever pivotally secured to the said vehicle, means connecting the said lever with the controller-shaft so that the current is "off" when the lever is in its normal position, and the shaft is rotated so that the current is "made" when the lever is moved in one direction from its normal, while the "reverse" is actuated when the lever is moved in an opposite direction from its normal; and means connecting said lever with the brake mechanism, whereby the latter may be operated by the lever from its normal position only without closing the circuit.

5. The combination with an electric vehicle and the motor-controller, of rotating mechanism attached to the shaft of the controller, a controller-lever pivotally mounted in said vehicle, connections between the rotating mechanism and said lever, a brake-lever journaled on the controller-lever pivot, brake mechanism attached to said brake-lever, and mechanism for engaging the controller-lever with the brake-lever when the brake mechanism is to be actuated.

6. The combination with an electric vehicle and a motor-controller, constructed with a reverse operated by the controller-shaft, a disk attached to the controller-shaft and provided with notches for each forward speed, the "off" and the reverse, a spring-pressed detent engaging with said notches, a toothed pinion mounted on said controller-shaft, a controller-lever pivotally mounted on the floor of the vehicle, a rack-bar attached to said controller-lever and engaging with said pinion, brake mechanism, and a brake-lever with means for engagement with the controller-lever, when the brakes are to be applied, substantially as described.

7. The combination with an electric vehicle and a motor-controller, of rotating mechanism attached to the shaft of the controller, a pivotal lever connected with the said shaft-rotating mechanism, brake mechanism, a brake-lever, connected with said mechanism, and journaled upon the pivot of the controller-lever, sector-shaped bifurcated parts projecting from said brake-lever on each side of the controller-lever and above the pivotal point, shoulders on the periphery of said sector-shaped bifurcated parts, a spring-pressed catch mounted on the controller-lever for engagement with said shoulders.

8. The combination with an electric vehicle and a motor-controller, of rotating mechanism attached to the shaft of the controller, a pivotal lever connected with said shaft-rotating mechanism, brake mechanism, a brake-lever, connected with said mechanism, and journaled upon the pivot of the controller-lever, sector-shaped bifurcated parts projecting from said brake-lever on each side of the controller-lever and above the pivotal point, shoulders on the periphery of said sector-shaped bifurcated parts, a spring-pressed catch mounted on the controller-lever for engagement with said shoulders, adjusting means for the brake mechanism whereby to regulate the arc of movement of the brake-lever, and means for locking the controller-lever when the brakes are applied, substantially as described.

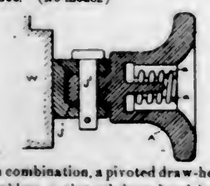
751,582. STRENGTHENER FOR VULCANITE ARTIFICIAL-TEETH BASES. ROBERT WALKER, London, England. Filed Oct. 31, 1903. Serial No. 179,272. (No model.)



Claim.—1. A strengthener for vulcanite artificial-teeth bases comprising a metallic plate perforated with openings, and having a continuous metallic edge surrounding, inclosing, and forming a part of said perforated plate, and a number of metallic tongues forming part of, and projecting outwardly from, said surrounding edge.

2. A strengthener for vulcanite artificial-teeth bases comprising a metallic plate having open perforations, the walls of which form a surrounding continuous edge concavo-convex in section, presenting its widest face to the line of least resistance through the vulcanite, and a backing-rod secured thereto.

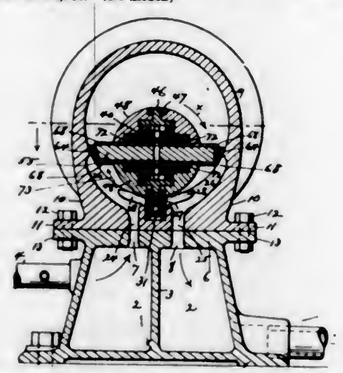
751,583. MEANS FOR COUPLING RAILWAY WAGONS, CARRIAGES, &c. THOMAS WARSOP, Coniston, England. Filed Mar. 2, 1903. Serial No. 145,866. (No model.)



Claim.—1. In combination, a pivoted draw-head having a socket provided with shoulders, a pivoted draw-head having a shouldered projection rotatably mounted therein, a weighted arm extending from the projection, and a retractable catch-bolt on the last-named draw-head normally locking the projection against rotation and movable by engagement with the first-named draw-head to release the projection.

2. The combination in couplings for railway-wagons and the like of projections *a a* and *c c*, catch-bolt L, the weight H, plunger C with the cam M, levers N and P, substantially as shown, for the purpose specified.

751,584. ROTARY ENGINE. FRANK J. WATERS, Providence, R. I., assignor of two-thirds to Willis A. Drew, Frank R. Farnham, Arthur C. Farnham, and Alfred Harrison, Providence, R. I., James Gee, Cranston, R. I., and Henry J. Page, Warwick, R. I. Filed Nov. 7, 1903. Serial No. 180,210. (No model.)



Claim.—1. In a steam-engine, the combination of a tubular cylinder having an inlet-port and an outlet-port and also having a base provided with a longitudinal groove, a bow-spring in the bottom of said groove, a packing-bar resting on said spring, a keeper having a rib with a groove therein in which said packing-bar is received, and a rotatable piston having reciprocating piston-blades mounted therein, whose outer edges are in contact with the upper surface of said keeper when passing the same, substantially as described.

2. In a steam-engine, the combination of a cylinder, a rotatable piston of less diameter than said cylinder and mounted therein eccentrically thereto, a base constituting a part of said cylinder provided with a longitudinal groove and with an inlet-port and with a series of branch ports communicating with said inlet-port and a keeper having a longitudinal rib adapted to fit loosely in said longitudinal groove and also having a series of arms projecting laterally therefrom into said branch ports, which keeper and the lateral arms thereof are concaved on their upper surfaces with a curvature of a radius greater than the radius of the curvature of said cylinder, substantially as specified.

3. In a steam-engine, the combination of a cylinder, a rotatable piston of less diameter than said cylinder and mounted therein eccentrically thereto, a base constituting a part of said cylinder provided with a longitudinal groove and with an inlet-port and with a series of branch ports communicating with said inlet-port, a keeper having a longitudinal rib grooved in its lower side and adapted to fit loosely in said longitudinal groove and also having a series of arms projecting laterally into said branch ports, which keeper and the lateral arms thereof are concaved on their upper surface with a curvature whose radius is greater than the radius of the curvature of said cylinder, a packing-bar mounted in the groove of the rib of the keeper made in two parts, a spring adapted to spread said parts lengthwise, and a spring in the first-named groove adapted to press said bar upwardly, substantially as described.

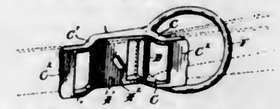
4. In a rotary steam-engine, the combination of a tubular cylinder having a base provided with inlet and outlet ports, branch ports opening laterally out of the first-mentioned ports, a keeper located in said base between the said inlet and outlet ports and having lateral arms extending into said branch ports respectively, substantially as described.

5. In a rotary steam-engine, the combination of a tubular cylinder having a base provided with inlet and outlet ports, a main shaft rotatably mounted in said cylinder but eccentrically thereto, a piston-hub upon said shaft, piston-blades slidably mounted in said piston-hub, branch ports opening laterally out of said inlet and outlet ports of which branch ports some extend up to a line in continuation of the horizontal diameter of said shaft and hub, a keeper located in said base between the said inlet and outlet ports and provided with lateral arms which extend into the branch ports respectively, substantially as specified.

6. In a steam-engine, the combination of a tubular cylinder, a main shaft extending through said cylinder but mounted eccentrically therein, a piston-hub constituting a part of said main shaft and provided with a central rectangular aperture and with two longitudinal bores and with two transverse circular apertures, a piston-case slidably mounted in the rectangular aperture of the piston-hub, two piston-blades mounted slidably in said piston-case and provided with packing-bars on their outer edges which bars are adapted to contact with the inner surface of said cylinder, two circular pistons mounted in the transverse circular apertures of the piston-hub and communicating with the longitudinal bores thereof respectively, two slotted bearing-plates or shoes inserted between said piston-hub and piston-case and adapted to be pressed against the latter by steam passing through said circular pistons respectively, a partition in said piston-case having steam-passages arranged to receive steam from said circular pistons and to conduct the same to the space between the inner ends of said piston-blades, a steam-pipe connected with a steam-supply, a stuffing-box having a radial bore through which said steam-pipe passes, a collar surrounding the main shaft and having a radial bore into which the end of said steam-pipe is inserted and also having a concentric annular steam-space, a port-sleeve adjacent to said collar and having a concentric annular steam-space continuous with the annular steam-space of said collar and also having two steam-passages which communicate with the two longitudinal bores of the piston-hub, substantially as specified.

7. In a steam-engine, the combinatioo of a main shaft, a piston-hub constituting a part of said shaft, a piston-case slidably mounted in said piston-hub having two opposite closed ends, two piston-blades slidably mounted in said piston-case and steam-passages adapted and arranged to conduct steam from a source of supply to the interior of the piston-case between the inner ends of the piston-blades, substantially as specified.

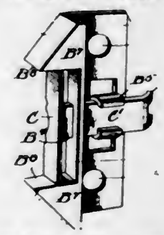
751,585. BUCKLE. MASON WELCH, Alma, Mich. Filed June 15, 1903. Serial No. 161,422. (No model.)



Claim.—1. A driving-rein buckle consisting of a body portion, a stud projecting outward from the contact-face of said body to engage openings in the main rein, a loop formed integral with and extending laterally outward from the end of said body to engage the side of the strap opposite to that engaged by the face of the body, a rod formed integral with the loop for the attachment of the short rein, and a ring-shaped member formed integral with the sides of the loop and extending longitudinally in line with the body and adjacent to the loop.

2. A driving-rein buckle consisting of a body portion, a stud projecting from the contact-face of the body to engage openings in the main rein, loops consisting of side bars connected at their outer ends by cross-bars formed integral with the ends of the body and offset to engage the side of the rein opposite that engaged by the face of the body, a rod formed integral with the side bars of one of the loops and extending across between the same at one side of the plane of the face of the body, and a ring-shaped portion consisting of a loop the ends of which are formed integral with the side bars opposite the ends of said rod and extend longitudinally outward adjacent to the loop and beyond the same between the branches of the rein.

751,586. KEY FOR INVISIBLE SASH-LOCKS. SAMUEL G. WELLMAN, Corry, Pa. Filed Aug. 5, 1903. Serial No. 168,306. (No model.)



Claim.—1. In a key for sash-locks, a casing provided with lugs upon one face, a sliding key having its shank disposed between said

lugs, and an angular portion to the casing through which the shank of the key passes.

2. In a key for sash-locks, a casing provided with lugs upon one face, a sliding key having its shank disposed between said lugs, an angular portion to the casing through which the shank of said key passes, and a laterally-disposed projection at one end of said key to prevent the removal from said casing.

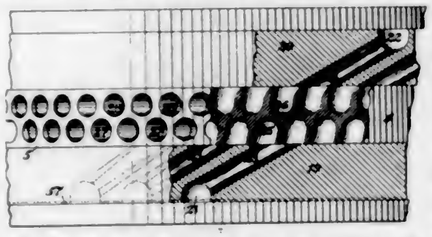
3. In a key for sash-locks, a casing provided with lugs upon one face, a sliding key having its shank disposed between said lugs, an angular portion to the casing through which the shank of the key passes, a laterally-disposed projection at one end of said key to prevent the removal thereof from the said casing, and guards at the opposite ends of the outer end of said key.

4. In a key for sash-locks, a casing formed from a single blank having integral lugs cut from the body thereof, a solid portion extending at a right angle to the body of the blank, and triangular guards at the opposite ends of the angular portion of said blank.

5. In a key for sash-locks, a casing formed from a single blank having integral lugs cut from the body thereof, a solid portion extending at a right angle to the body of the blank, triangular guards at the opposite ends of the angular portion of said blank, and a key having its shank passed through said angular portion and between said lugs and its head extended between said guards.

6. The combination with a spring-operated sash-lock dog, of a casing support at a right angle thereto and provided with supporting-lugs extending at an angle from one face of the casing, and a key slidably mounted in said supporting-lugs and adapted at its inner end to engage said dog for depressing the same under tension.

751,587. ROTARY FLUID-MOTOR. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Feb. 20, 1894. Serial No. 500,844. (No model.)



Claim.—1. In a fluid-pressure motor, the combination with a casing, of a rotary disk having a side bearing against a wall of the casing and having buckets for receiving and discharging the propelling fluid, each of said buckets consisting of two cups, one of which projects inwardly and forwardly from the periphery of the disk and the other of which projects outwardly and rearwardly from the inner end of the first cup, and delivery-nozzles located in the wall of the casing and inclined to the side of the disk.

2. In a fluid-pressure motor, the combination with a casing having two side walls, of a rotary disk fitting closely between said walls, a series of buckets formed in the disk, each of which consists of two cups, one of which projects inwardly and forwardly from the periphery of the disk and the other of which projects outwardly and rearwardly from the inner end of the first cup, and inclined nozzles located in the walls of the casing and adapted to communicate with the buckets in the disk.

3. In a fluid-pressure motor, the combination, with a rotary disk having buckets near its periphery which open at its side and at its periphery, delivery nozzles or passages for delivering fluid to the buckets in the disk, and a ring which receives the impact of the fluid discharged from the disk, and having openings through which the discharged fluid may escape, substantially as set forth.

4. The combination, with a casing, of a rotary disk in the casing the outer portion of which is adapted to receive the impact of a fluid, a ring or annular wall, surrounding the disk and having openings through it for the passage of fluid from the disk, and an exhaust-chamber surrounding the ring and disk, substantially as set forth.

5. In a fluid-pressure motor, the combination, with a rotary disk, of a casing inclosing the disk, a ring or annular wall surrounding the disk and having passages through it for the escape of fluid from the disk, an exhaust-chamber outside of the ring or annular wall, and nozzles or passages formed in the wall of the casing and inclined to the plane of the disk, substantially as set forth.

6. A fluid-pressure-operated wheel having buckets formed in the body thereof and severally comprising two substantially cylindrical cups which respectively terminate at the side and at the periphery of the wheel.

7. A fluid-pressure-operated wheel having buckets cut therein which severally consist of two angularly-disposed cups that respectively terminate at the side or sides and at the periphery of the wheel.

8. In a fluid-pressure motor, the combination with a casing having a central chamber, a rotary disk in said chamber, a ring, or annular wall, surrounding the disk and having passages through the same, an annular exhaust-chamber outside of the ring, and inclined passages or nozzles in position to deliver fluid to the side of the disk near its periphery, substantially as set forth.

9. In a fluid-pressure motor, the combination, with a rotary fluid-actuated disk having buckets severally comprising two angularly-disposed parts which respectively terminate at the side and at the periphery, of a casing having supply and discharge nozzles or passages, and a valve device for controlling the flow of fluid to said supply nozzles or passages, substantially as set forth.

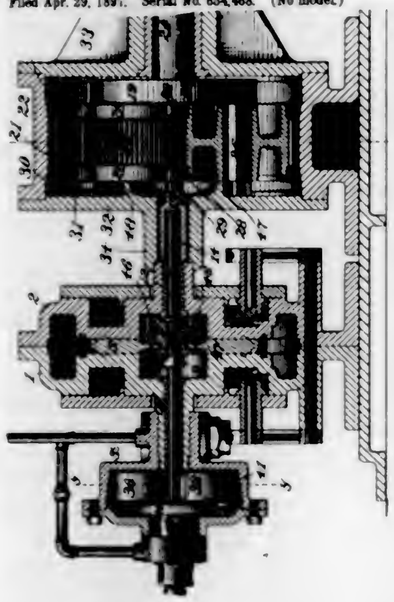
10. In a rotary motor, the combination, with a rotary disk, which is liable to be given a sudden slight movement in a direction lateral to the plane of its rotation, of restricted passages opening into passages in the lateral wall of the disk-chamber through which steam may be delivered to the opposite sides of the disk, to form a cushion and antifriction device and to laterally balance the disk, substantially as set forth.

11. In a rotary motor, the combination, with a rotary disk, subject to sudden slight lateral movement, of grooves formed in the opposite side walls of the disk-chamber and separated by the rotary disk, and restricted passages opening into passages in the lateral wall of the disk-chamber through which steam is supplied to the opposite grooves and to the sides of the disk, substantially as set forth.

12. In a fluid-pressure motor, the combination, with a disk, wheel, or other rotatable member having buckets which severally consist of two substantially cylindrical cups that respectively terminate at the side and at the periphery of the disk, of a casing having supply-passages and a member against which the fluid may react to assist in the rotation of the disk, substantially as set forth.

13. In a fluid-pressure motor, the combination with a wheel, disk, or other rotatable member having a series of buckets severally consisting of two passages which respectively extend inwardly from the side and the periphery of the disk and meet at their inner ends, of means for supplying fluid to said buckets and means for exhausting the same therefrom.

751,588. GEARING. GEORGE WESTINGHOUSE, Pittsburg, Pa. Filed Apr. 29, 1897. Serial No. 634,468. (No model.)



Claim.—1. The combination with a motor-shaft, of a combined roller-bearing and speed-changing gearing for supporting the shaft and transmitting its motion to a machine or mechanism.

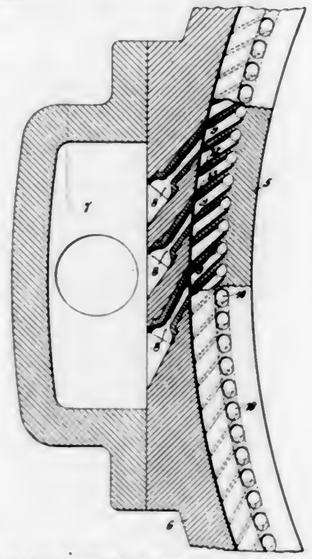
2. The combination with a motor-shaft, of a combined flexible roller-bearing and speed-changing gearing for supporting the shaft and transmitting its motion to a machine or mechanism.

3. The combination with a motor-shaft, of a driven shaft, and a combined roller-bearing and gear mechanism for transmitting motion from the driving to the driven shaft and for supporting both shafts.

4. The combination with a motor-shaft, of a driven shaft and an epicyclic gear connecting the shafts and forming a combined bearing and transmission device.

5. The combination with a motor-shaft, of a power-transmitting shaft and a combined speed-changing gearing and roller-bearing for connecting and supporting both shafts.

751,589. FLUID-PRESSURE TURBINE. GEORGE WESTINGHOUSE, Pittsburg, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed July 3, 1903. Serial No. 164,144. (No model.)



Claim.—1. An impulse-wheel having a series of fluid-receiving passages extending inwardly and forwardly from the wheel periphery and thence outwardly and rearwardly to the side surface of the wheel.

2. An impulse-wheel having fluid-receiving passages which extend forwardly at a gradually-increasing depth from the wheel periphery for a portion of their lengths and thence outwardly and rearwardly to the side of the wheel.

3. An impulse-wheel having a series of fluid-receiving passages which extend forwardly at a gradually-increasing depth from the middle of the wheel periphery for a portion of their lengths and thence outwardly and rearwardly at a substantially uniform depth.

4. An impulse-wheel having a series of fluid-receiving passages which extend forwardly into the body of the wheel from the center line of its periphery and thence outwardly and rearwardly in duplicate branches substantially at right angles to each other.

5. An impulse-wheel having a series of fluid-receiving passages which extend forwardly and inwardly substantially in the central plane of the wheel and thence rearwardly and outwardly, in duplicate branches, to the side surfaces of the wheel.

6. An impulse-wheel having a circumferential series of fluid-receiving passages having their inlet ends at the wheel periphery and extending forwardly into the wheel-body for a portion of their lengths and thence outwardly and rearwardly to both side surfaces of the wheel.

7. In a fluid-pressure turbine, the combination with a wheel having a circumferential series of fluid-receiving passages which extend forwardly and inwardly and then outwardly and rearwardly to one or both side surfaces, of a casing having an annular steam box or chamber provided with one or more nozzles leading therefrom to the inlet ends of the wheel-passages.

8. In a fluid-pressure turbine, the combination with a wheel having a circumferential series of fluid-receiving passages which extend forwardly and inwardly into the wheel-body and thence outwardly to one or both of the side surfaces and one or more circumferential sets of blades or buckets arranged to receive the impact of fluid exhausted from said passages, of a casing having an annular steam box or chamber, one or more nozzles leading therefrom to the inlet ends of the wheel-passages and one or more circumferential sets of guide-vanes adjacent to the blades or buckets on the wheel.

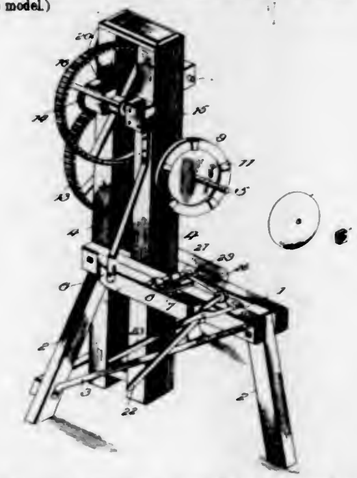
9. In a fluid-pressure turbine, the combination with a wheel having a circumferential series of fluid-receiving passages which extend forwardly and inwardly and then outwardly and rearwardly to one or both side surfaces, of a casing having a steam box or chamber provided with one or more nozzles leading therefrom to the inlet ends of the wheel-passages.

10. In a fluid-pressure turbine, the combination with a wheel having a circumferential series of fluid-receiving passages which extend forwardly and inwardly into the wheel-body and thence outwardly to one or both of the side surfaces and one or more circumferential sets of blades or buckets arranged to receive the impact of fluid exhausted from said passages, of a casing having a steam box or chamber, one or more nozzles leading therefrom to the inlet ends of the wheel-passages and one or more circumferential sets of guide-vanes adjacent to the blades or buckets on the wheel.

11. In a fluid-pressure turbine, the combination with a wheel having a circumferential series of fluid-receiving passages which extend forwardly and inwardly and then outwardly and rearwardly to one or both side surfaces, of a casing having a steam box or chamber provided with one or more nozzles leading therefrom to the inlet ends of the wheel-passages, one or more annular sets of blades adjacent to the outer ends of the wheel-passages and one or more corresponding sets of guide-vanes on the casing.

12. The combination with a wheel having a circumferential series of fluid-receiving passages which extend inwardly and forwardly into the wheel-body and thence outwardly to the side surfaces and circumferential sets of blades adjacent to the outer ends of said passages, of a casing having a steam box or chamber, one or more nozzles leading therefrom to the inlet ends of the wheel-passages and circumferential sets of guide-vanes adjacent to the blades on said wheel.

751,590. DISK-SHARPENER. HOWARD WHITE, Crawfordsville, Iowa, assignor of two-thirds to C. M. Strain, and W. P. & E. J. Davidson, Crawfordsville, Iowa. Filed June 24, 1903. Serial No. 162,935. (No model.)



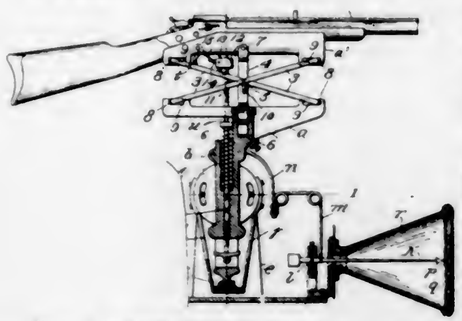
Claim.—1. In combination, pivoted members, a post projected from one of said members and out of line with the pivotal connection therebetween, a plate, and means pivotally connecting the said post with the said plate to admit of its lateral swinging, substantially as set forth.

2. In combination, pivoted members, a post projected from one of said members, a plate, and a bar forming a part of said post and

rotatably and slidably mounted upon the plate, substantially as set forth.

3. The herein-described machine comprising a mandrel, a work-clamp fitted to said mandrel, a train of gearing for transmitting motion to the mandrel, a plate having longitudinal, lateral and angular adjustment and provided with a socket constituting a bearing, a rod rotatably and slidably mounted in the bearing of said plate, a post projected from said rod, a tool-holder carried by said post and comprising pivoted members, one of the members having a socket, a tool removably fitted in said socket, and a rotary support applied to the other member of the tool-holder, substantially as set forth.

751,591. APPARATUS FOR TEACHING GUN PRACTICE. JAS. WHITESIDE, New York, N. Y. Filed Mar. 18, 1903. Serial No. 148,348. (No model.)



Claim.— 1. The combination with the universal-joint-supported gun-support which is subject to direct manipulations of the operator in firing the gun, of two linked or jointed parts of said support enabling the bearing of the weight of the gun in the hands of the operator while firing the gun and permitting one part to move toward and from, the other in parallel arrangement but prevent relative angular movement, the universal-joint-supported pointer, means connecting the gun-support and pointer whereby practical parallelism of the pointer with the deviating line of the gun-sight results from the deviations of the gun, and a substitute bull's-eye mark in close proximity to the pointer.

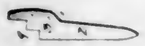
2. In gun-practice apparatus of the character herein described, the combination of a gun-support, a pointer in alinement with the line of the gun-sight, a bull's-eye mark in alinement with the pointer, and means for transmitting the deviations of the line of the gun-sight to the pointer, said gun-support comprising two parts, one of which receives the gun and is movable in relation to the other, and means connecting said parts movably and in practical parallel relation to each other.

3. In gun-practice apparatus of the character herein described, the combination of a gun-support, a pointer in alinement with the line of the gun-sight, a bull's-eye mark in alinement with the pointer and means for transmitting the deviations of the line of the gun-sight to the pointer, said gun-support comprising two parts, one of which receives the gun and is movable in relation to the other and means connecting said parts movably and in practical parallel relation to each other, said means comprising in part the crossed and pivoted links respectively connected to said parts in slidable joints.

4. In gun-practice apparatus of the character herein described, the combination of the gun-support, a pointer in alinement with the line of the gun-sight, a bull's-eye mark in alinement with the pointer, and means for transmitting the deviations of the line of the gun-sight to the pointer, said gun-support comprising two parts, one of which receives the gun and is movable in relation to the other, and means connecting said parts movably and in practical parallel relation to each other, said means comprising the crossed and pivoted links respectively connected to said parts in slidable joints, and the yoke-staff slidable in the lower part of the support and pivoted to the upper part thereof.

751,592. ARTIFICIAL-TOOTH-CROWN MOUNTING. THOMAS H. WHITESIDE, Youngstown, Ohio. Filed May 4, 1903. Serial No. 155,573. (No model.)

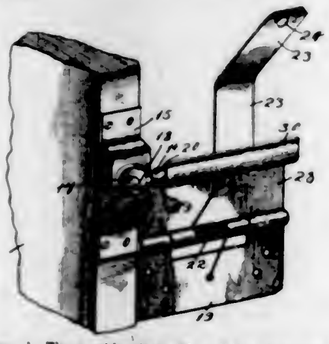
Claim.—1. In an artificial-tooth-crown mounting, the combination with the crown having a socket disposed in proximity to the labial surface of the crown, of a fastening-pin having an offset crown-engaging stem flanged at its labial edge and received within the socket of the crown.



2. In an artificial-tooth-crown mounting, the combination with the crown having a socket disposed in proximity to the labial surface thereof, of a fastening-pin comprising a body having a main anchoring-shank for engagement with the root, and a crown-supporting stem offset to one side of the longitudinal plane of the shank and provided longitudinally along the labial edge thereof with oppositely-disposed flange projections projecting beyond the faces of the stem.

3. In an artificial-tooth-crown mounting, the combination with the crown having a socket disposed in proximity to the labial surface thereof, of a fastening-pin comprising a body having a main anchoring-shank for engagement with the root, a crown-supporting stem offset to one side of the longitudinal plane of the shank and provided longitudinally along the labial edge thereof with oppositely-disposed flange projections projecting beyond the faces of the stem, and a stepped series of holding-shoulders along the outer edge of the deflecting neck portion of the pin.

751,593. SELF-CLOSING FIRE-DOOR. GUSTAVUS WIDEMAN, Aurora, Ill., assignor to Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed May 22, 1903. Serial No. 158,301. (No model.)



Claim.—1. The combination with a sliding door and a bolt attached to said door, of a holder for said bolt, means for securing said holder in a position to hold the door open, and means for forcing said holder open and releasing the bolt and, through said bolt, imparting a push to the door, substantially as specified.

2. The combination with a sliding door and a bolt attached to said door, of a holder for said bolt, means releasable by heat for securing said holder in a position to hold the door open, and means for imparting a push to the door through said bolt when said holder is so released, substantially as specified.

3. The combination with a sliding door and a bolt pivotally attached to the edge of the door, of a holder for said bolt, means releasable by heat for securing said holder in a position to hold the door open, and means for imparting a push to the door through said bolt when said holder is so released, substantially as specified.

4. The combination with a sliding door, of a bolt adapted to engage and secure the door, a holder adjacent to the door and adapted also to be engaged by the bolt, and means for moving said holder and bolt, and, through said bolt, imparting a push to the door, substantially as specified.

5. The combination with a sliding door, of a bolt adapted to engage and secure the door, a holder adjacent to the door and adapted also to be engaged by the bolt, means releasable by heat for retaining said holder in position to be engaged by the bolt, and means for forcing said holder open and at the same time imparting through said bolt a push to the door, substantially as specified.

6. The combination with a sliding door and a bolt attached thereto, of a holder for said bolt comprising a pivoted plate at one side of the door-opening, means for holding said plate in position to retain the bolt, and means for forcing said holder open upon the release of said plate-holding means and at the same time imparting through said bolt a push to the door, substantially as specified.

7. The combination with a sliding door and a pivoted bolt carried by the edge of the door, of a holder for said bolt comprising a pivoted plate at one side of the door-opening, means for holding said plate in position to retain the bolt, and means for moving said plate upon the release of said plate-holding means and at the same time imparting through said bolt a push to the door, substantially as specified.

8. The combination with a sliding door and a bolt pivotally attached to the edge of the door, of a holder therefor comprising a movable plate provided with a shelf on which said bolt is adapted to rest, means releasable by heat for retaining said plate in position to be engaged by the bolt, and means for moving said plate when it is released to cause said plate to bear against the bolt and through the bolt impart a push to the door, substantially as specified.

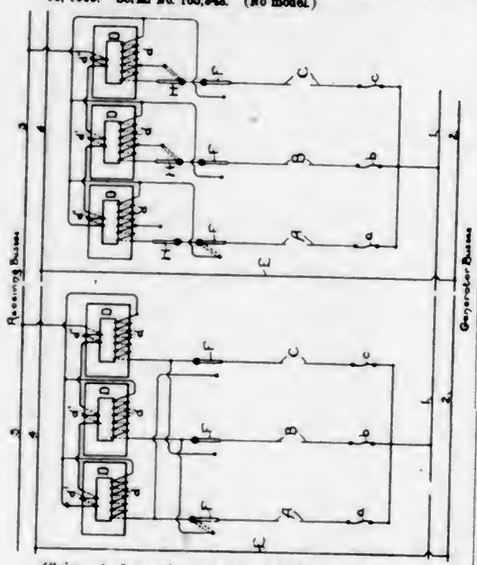
9. The combination with a sliding door and a bolt pivotally attached to the edge of the door, of a holder therefor comprising a pivoted plate and a second plate attached thereto, between which plates said bolt is adapted to rest, means releasable by heat for retaining said pivoted plate in position to be engaged by the bolt, and means for moving said pivoted plate when it is released to cause a disengagement therefrom of the bolt and at the same time to impart through the bolt a push to the door, substantially as specified.

751,594. PLIER-TYPE TOOL. WILLIAM L. WILLIAMS, Winona, Minn. Filed Aug. 26, 1903. Serial No. 170,831. (No model.)



Claim.—A tool of the plier type having a long handle provided intermediately with a recessed seat for glass tubes, and having a short handle provided at its end with a cutter-wheel said wheel entering the recess in the closed condition of the plier-jaws.

751,595. PARALLEL-FEEDER PROTECTION. LEONARD WILSON, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed July 16, 1903. Serial No. 165,848. (No model.)



Claim.—1. In combination, parallel feeders, and a choke-coil for each feeder having a number of turns in series with the feeder and a number of turns in series with all the feeders.

2. In combination, parallel feeders, and a choke-coil for each feeder having one winding in series with the feeder and a second winding in series with all the feeders, the ratio of turns of said windings being equal to the number of parallel feeders.

3. In combination, parallel feeders and a choke-coil for each feeder having two opposing windings of normally equal ampere-turns, one of said windings being energized by the current in one feeder and other by the sum of the currents in all the feeders.

4. In combination, parallel feeders, a choke-coil for each feeder having two opposing windings of equal ampere-turns, one of said windings being energized by the current in one feeder and the other by the current in all the feeders, and means for restoring the balance of the remaining choke-coils when one feeder is cut out.

5. In combination, parallel feeders, and a choke-coil for each feeder having one winding connected between its feeder and a point common to all the choke-coils and a second winding connected in series with the like windings of the other choke-coils to the common point.

6. In combination, a plurality of parallel feeders, and a choke-coil for each feeder having one winding energized by the current in its feeder and a second winding opposing the first and energized by the sum of the currents in all the feeders.

7. In combination, a plurality of parallel feeders, a choke-coil for each feeder having one winding energized by the current in its feeder and a second winding of normally equal ampere-turns opposing the first winding and energized by the sum of the currents in all the feeders, and means for restoring the balance of the windings when one feeder is cut out.

8. In combination, parallel feeders, a choke-coil for each feeder having one winding in series with its feeder and a second winding in series with all the feeders, and means for varying the relative number of turns of said windings.

751,596. PUMP. OTTO G. WORSLEY, Newark, Ill. Filed Apr. 3, 1903. Serial No. 150,863. (No model.)



Claim.—1. A pump-supporting anchor having a threaded nut and radially-movable wall-engaging toes, and an expander in threaded engagement with the nut, and detents secured to the nut and adapted to engage the well-casing to hold the nut against rotation.

2. A pump-anchor comprising a top and bottom ring, outwardly-bowing spring-bars attached to the rings and having their lower ends prolonged beyond the ring and bent inward and then outward.

3. In combination, a pump-anchor having outwardly-bowed spring-bars and outwardly-flaring toes bent inward between their ends, and a pump of less diameter than the anchor but of greater diameter than the normal diametric distance between the bends of the toes thereof.

4. In combination, a pump-anchor having an internally-threaded

ring, longitudinal outwardly-bowing spring-bars and inwardly-bent flaring toes, and a pump having its lower end threaded to engage the anchor-ring.

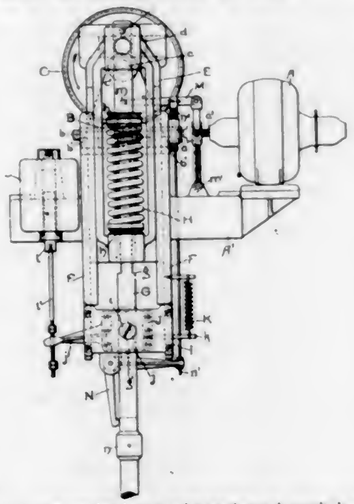
5. In combination, a cage having a threaded ring, a pump having threaded engagement with the ring and having an annular shoulder, and an expansible packing-ring located between the pump-shoulder and a portion of the cage.

6. In combination, a pump-anchor having an internally-threaded body portion, outwardly-bowing longitudinal springs, and radially-movable supporting-toes; a pump-body having a tapering portion and being in threaded engagement with the anchor-body; and an expansible packing-ring interposed between the tapering portion of the pump-body and the anchor.

7. In a pump, a barrel having a flaring upper end; an anchor-cage comprising an upper ring loose upon the barrel, a lower ring in threaded engagement with the barrel, spring-bars secured to the two rings and bowing outward therebetween and radially-projecting gripping-toes at their lower ends such toes being bent inward between their ends; a packing-ring interposed between the upper ring and the flaring portion of the barrel; and an expander at the bottom of the barrel and engaging the bent portion of the toes.

8. In a pump, in combination, an anchor-cage having radially-movable gripping-toes, a barrel in threaded engagement with the cage and having an expander coöperating with the toes; an upwardly-projecting flattened stem attached to the barrel and having lateral shoulders; and a wrench and grapple recessed to receive the stem and having internal shoulders coöperating with the shoulders of the stem.

751,597. ELECTRIC SWITCH. GILBERT WRIGHT and HAROLD C. WHITE, Pittsfield, Mass., assignors to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed June 13, 1903. Serial No. 161,231. (No model.)



Claim.—1. In combination, a reciprocating rod, a switch mechanism operated thereby, a spring adapted to engage said rod to force it in either direction, electroresponsive means adapted to compress said spring, and means for releasing said rod to permit its movement under the influence of said spring.

2. In combination, a reciprocating rod, a switch mechanism operated thereby, a spring adapted to force the rod in either direction, electroresponsive means adapted to compress said spring, and means adapted to restrain the movement of said rod during the compression of said spring and to release said rod.

3. In combination, a reciprocating rod, a switch mechanism operated thereby, a spring adapted to force the rod in either direction, electroresponsive means adapted to compress said spring, a catch adapted to engage and to restrain the movement of said rod during the compression of said spring, and electroresponsive means for disengaging said catch.

4. In combination, a spring-operated reciprocating rod, a switch mechanism operated by the movement of said rod, electroresponsive means for compressing the spring in either direction, and means for releasing said rod.

5. In combination, a spring-operated reciprocating rod, a switch member operated by the movement of said rod, electroresponsive means for compressing the spring in either direction, a catch adapted to restrain the movement of said rod during the compression of the spring, and electroresponsive means for disengaging said catch.

6. In combination, a spring, a reciprocating member adapted to compress said spring in either direction, a motor for driving said reciprocating member, a clutch between said member and said motor, means for disengaging said clutch when said spring is compressed, a rod tending to move in either direction when the spring is compressed, means for releasing said rod, and a switch mechanism operated by the movement of said rod.

7. In combination, a spring, a reciprocating member adapted to compress said spring in either direction, a motor for driving said reciprocating member, a clutch between said member and said motor, means for disengaging said clutch when said spring is compressed, a rod tending to move in either direction when said spring is compressed, a catch for restraining the movement of said rod during the compression of said spring, electroresponsive means for disengaging said catch, and a switch mechanism operated by the movement of said rod.

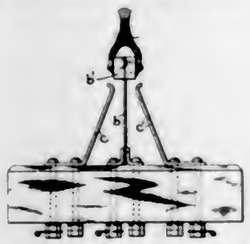
8. In combination, a spring, a switch-rod operated thereby, a member adapted to compress said spring, a motor for driving said member, a clutch between said member and said motor, means for disengaging said clutch when said spring is compressed, means for releasing said rod, and means actuated by the movement of said rod for reëngaging said clutch.

9. In combination, a reciprocating rod, a switch mechanism operated thereby, an electric motor, means driven by said motor adapted to urge said rod in either direction, a catch for restraining the movement of said rod, and electroresponsive means for disengaging said catch.

10. In combination, a rod, a switch mechanism operated thereby, a spiral spring surrounding and engaging said rod, a reciprocating member adapted to engage and compress said spring at either end, means for restraining the movement of said rod during the compression of said spring, and means for releasing said rod.

11. In combination, a rod, a switch mechanism operated thereby, a spiral spring surrounding and engaging said rod, electroresponsive means for engaging and compressing said spring at either end, a catch engaging said rod, and electroresponsive means for disengaging said catch.

751,598. MEANS FOR CONTROLLING GOVERNOR-MOTORS. GILBERT WRIGHT, Pittsfield, Mass., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass., a Corporation of New Jersey. Filed Sept. 24, 1903. Serial No. 174,451. (No model.)

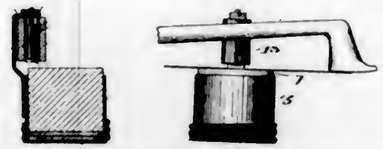


Claim.—1. In combination, an electric motor, and a starting and reversing switch therefor comprising a plurality of flat springs mechanically connected and tending to return to a given position, and two sets of contacts arranged one on each side of said springs and adapted to be engaged by said springs when said springs are moved from said given position.

2. In combination, an electric motor, and a starting and reversing switch therefor comprising two sets of stationary contacts and a set of springs mechanically connected and rigidly supported at one end between said sets, said springs being adapted to engage said contacts when moved in either direction from their central position.

3. In combination, an electric motor, a source of supply therefor, two sets of switch-contacts of three contacts each, two contacts of each set being connected to the said source of current and the third contact to one terminal of the motor-armature, and three springs mechanically connected and tending to return to a given position, said springs being arranged to engage one of said sets of stationary contacts when moved in either direction from said given position, one of said springs being connected to a terminal of said motor-armature and the other two springs being connected to each of two terminals of the motor-field.

751,599. RESIN-DISTRIBUTER FOR VIOLIN-BOWS. JOHN W. ZIMMERMAN, Chicago, Ill. Filed May 11, 1903. Serial No. 156,641 (No model.)



Claim.—1. In a resin-distributer, the combination with a guide adapted to engage the back of the bow laterally thereof, of means whereby said guide may be secured to a block of resin with its bow-engaging surface projecting over and maintained in fixed relation to the wearing-surface of the latter, substantially as described.

2. In a resin-distributer, the combination with a resin-holder, of a guide secured thereto in fixed relation to and projecting over the wearing-surface of the resin and adapted to engage the side of the back of the bow in the operation of applying the resin to the latter, substantially as described.

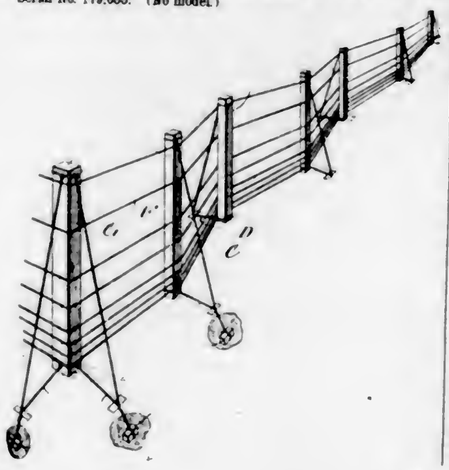
3. In a resin-distributer, the combination with a resin-holder, of a bracket secured thereto and extending thereabove, and a guide-roller rotatably supported by said bracket in fixed relation to the wearing-surface of the resin and adapted to engage the back of the bow in the operation of applying the resin to the latter, substantially as described.

4. In a resin-distributer, the combination with a resin-holder, of a bracket secured thereto and extending thereabove and having its upper end bent horizontally inwardly of the holder, a spindle secured in the said inwardly-bent end of the bracket, and a guide-roller rotatably mounted on said spindle in fixed relation to the wearing-surface of the resin, substantially as and for the purpose described.

5. In a resin-distributer, the combination with a resin-holder having a removable bottom cover to facilitate the insertion of filling-pieces as the upper wearing-surface of the resin wears down, of a guide adapted to engage the back of the bow, and means whereby said guide is supported from said holder in fixed relation to the upper wearing-surface of the resin, substantially as and for the purpose described.

6. In a resin-distributer, the combination with a resin-holder having a removable bottom cover to facilitate the insertion of filling-pieces, of a bracket secured to and extending above said holder and having an inwardly-bent upper end, a spindle secured in and depending from said inwardly-bent upper end of the bracket, and a roller rotatably mounted on said spindle, substantially as described.

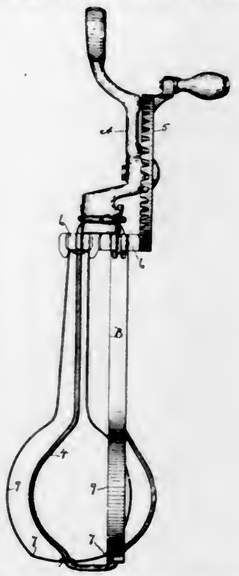
751,600. FENCE. HEBER ALLEN, Blount, Ill. Filed Nov. 3, 1903. Serial No. 179,655. (No model.)



Claim.—1. In a fence, the combination of a pair of corner-posts loosely anchored from adjacent faces thereof, a series of intermediate posts each successively and loosely anchored from opposite sides and a series of flexible links connecting said posts, said links successively engaging the sides of said posts from which they are anchored.

2. In a fence, the combination of a pair of corner-posts loosely anchored from adjacent faces thereof, a series of intermediate posts, anchors situated on the opposite sides of each successive intermediate post, connections from the top and base of each post loosely securing same to its respective anchor and a series of flexible connections or links connecting said posts, said links successively engaging the sides of said posts from which they are anchored.

751,601. EGG-BEATER. GEORGE J. ANGERBOWER, Forestville, Conn., assignor to Taplin Manufacturing Company, New Britain, Conn. Filed May 5, 1903. Serial No. 155,710. (No model.)



Claim.—1. In an egg-beater of the class described, the rotary blade consisting of a strip of metal doubled upon itself and connected to a pinion at the ends, and having on each side of its center at the lower end the sets 7, substantially as described.

2. In an egg-beater of the class described, the rotary blade consisting of a strip of metal doubled upon itself and connected to a pinion at the ends, the lower portion having the sets 7 on each side of the center, with the portion between the said sets curved on the arc of a circle of greater radius than the curve of the sides above the said sets.

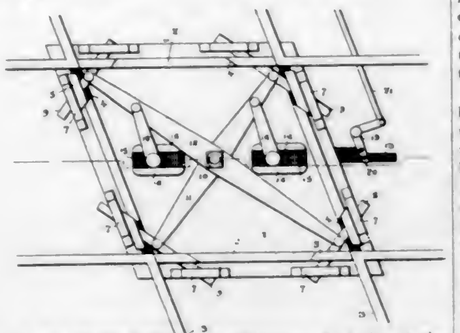
751,602. RAILWAY-CROSSING. ALLEN M. BEALL, South Bend, Ind., assignor to Beall Non-Pounding Frog and Crossing Company, Huron, S. D., and South Bend, Ind., a Corporation of South Dakota. Filed Apr. 17, 1903. Serial No. 153,131. (No model.)

Claim.—1. In a railway-crossing, the combination of two intersecting tracks, the rails of which are continuous and formed with seats at their angles of intersection, slide-bars movable diagonally through the seats and each bar having a pair of stub-rails to fit within and close the seats, and means to move the slide-bars to throw the stub-rails into and out of the seats.

2. In a railway-crossing, the combination of two intersecting tracks, the rails of which are continuous, and formed with seats at the angles of intersection thereof, pairs of stub-rails coöperating with the seats at each angle of intersection, and means for operating the pairs of stub-rails to cause them to alternately close one set of seats and open another set.

3. In a railway-crossing, the combination of intersecting tracks, the rails of which are formed with seats at the inner angles of their intersections, guides arranged on the outer sides of the track-rails close to the seats and having openings therethrough, sliding ele-

ments mounted in the openings of said guides, a pair of stub-rails secured to each sliding element, and means connecting all of the sliding elements for simultaneously actuating the latter.



4. In a railway-crossing, the combination of two intersecting tracks, the rails of which are continuous and formed with seats at the inner angles of their intersections, stub-rails to fit within and close the seats, sliding elements to which the stub-rails are secured, levers connecting the sliding elements for simultaneous operation, and a shifting bar for actuating said levers and having locking mechanism in connection therewith.

5. In a railway-crossing, the combination of intersecting tracks the rails of which are formed with seats at the inner angles of their intersections, stub-rails to fit within and close the seats, sliding elements to which the stub-rails are secured, means to move the sliding elements to throw the stub-rails into and out of the seats and having locking mechanism cooperating with a part thereof, and a releasing-bar for throwing the locking mechanism out of engagement from a part of said means.

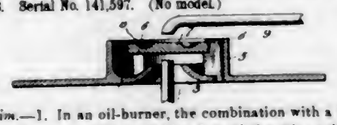
6. In a railway-crossing, the combination of intersecting tracks, the rails of which are formed with seats at the inner angles of their intersections, stub-rails to fit within and close the said seats, means for operating the stub-rails, a shifting bar connected to said means, a locking-dog adapted to engage different parts of the said shifting bar, and a releasing-bar having a cam projection to throw the dog out of engagement from the shifting bar.

7. In a railway-crossing, the combination of intersecting tracks, the rails of which are continuous and formed with seats at the inner angles of their intersections, stub-rails to fit within and close the seats, mechanism for simultaneously operating the stub-rails and including a shifting bar, a dog arranged adjacent to a part of the shifting bar to lock the latter against movement, and a releasing-bar having a projection to engage the dog and throw said dog out of contact from the shifting bar, said releasing-bar having a movement previous to that of the shifting bar.

8. In a railway-crossing, the combination of intersecting tracks, the rails of which are formed with seats at their angles of intersection, stub-rails to fit within and close the seats, mechanism connected to the stub-rails for operating the same and including a shifting bar, a locking element cooperating with the shifting bar, a releasing-bar having a projecting member to engage the locking element to throw the latter out of contact with the shifting bar, and primary actuating mechanism loosely engaging the shifting bar and having the releasing-bar pivoted thereto.

9. In a railway-crossing, the combination of intersecting tracks, the rails of which are formed with seats at their angles of intersection, guides close to the outer portions of the rails and adjacent to the seats, supports slidingly mounted in the guide and carrying pairs of stub-rails to fit within and close the seats, the guides having inwardly-projecting flanges under which the stub-rails are adapted to move, and means for simultaneously operating the stub-rails.

751,603. **CRUDE-OIL BURNER.** GEORGE W. BEDINGER, IRA KING, and SOLOMON S. BEDINGER, Weatherford, Tex. Filed Feb. 2, 1903. Serial No. 141,597. (No model.)

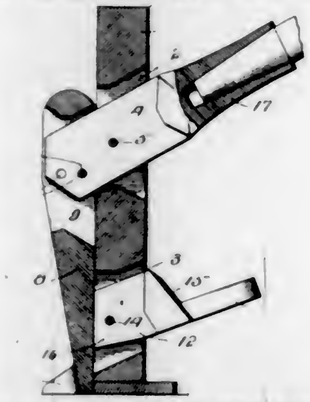


Claim.—1. In an oil-burner, the combination with a horizontal base-plate having an air-inlet orifice formed therethrough, of a vertical shield mounted on the upper face of the base-plate and surrounding the orifice, a horizontally-disposed disk lying wholly within the shield and sustained above the orifice and distant from the base, means for delivering oil to the upper face of the disk, and a pipe extending through the orifice in the base-plate for delivering steam directly beneath the disk, said pipe being of lesser diameter than the diameter of the orifice to permit free passage of air through the latter.

2. In an oil-burner, the combination with a horizontal base-plate having an air-inlet orifice formed therethrough and a groove in its upper face surrounding the orifice, a vertical shield mounted on the upper face of the base-plate and surrounding the groove, vertical lugs associated with the interior of the shield, a horizontally-disposed disk removably supported by the lugs wholly within the shield, said disk being disposed above the orifice and distant from the base-plate and wall of the shield, means for delivering oil to the upper face of the disk, and a pipe extending through the orifice in the base-plate for delivering steam directly beneath the disk, said pipe being of lesser diameter than the diameter of the orifice to permit free passage of air through the latter

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751,604. **SPIKE-PULLING DEVICE.** GEORGE H. BELL, Job, W. Va. Filed Sept. 10, 1903. Serial No. 172,624. (No model.)



Claim.—1. In an apparatus of the class described, a standard, a lever comprising two parts, a perpendicularly-disposed claw member, a plurality of claws, a foot-lever adapted to engage with the perpendicularly-disposed claw member, and means for securing the perpendicularly-disposed claw member to the lever.

2. In an apparatus of the class described, a standard, an upper lever, a lower lever, a perpendicularly-disposed claw member, a plurality of claws at its lower end, means for fulcruming the levers on the standard, means for securing the perpendicularly-disposed claw member to the end of the upper lever, and a point on the lower lever adapted to engage with the perpendicularly-disposed claw member.

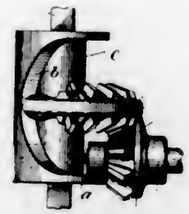
751,605. **PRIMING COMPOSITION.** MAX BIELEFELDT, Berlin, Germany. Filed Nov. 21, 1902. Serial No. 132,328. (No specimens.)

Claim.—1. A priming composition for detonators and percussion-caps composed of a mixture of trinitro-naphthalene, dinitro-naphthol-sulfonate, sulfo-cyanid of mercury and potassium chlorate, substantially as described.

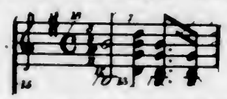
2. A priming composition for detonators and percussion-caps composed of a mixture of about twenty-five per cent. of trinitro-naphthalene, ten per cent. of dinitro-naphthol-sulfate of diamidophenol, thirty per cent. of sulfo-cyanid of mercury and thirty-five per cent. of potassium chlorate, substantially as described.

751,606. **MECHANICAL MOVEMENT.** HENRY F. BRAMMER, Davenport, Iowa. Filed Nov. 25, 1901. Serial No. 83,579. (No model.)

Claim.—The combination with a continuously-revolving shaft, a pinion thereon beyond which the contiguous end of said shaft extends and having an enlarged space between two of its teeth, a circumferential flange next the rear end of the teeth of said pinion of a diameter less than the greatest diameter of the periphery of said teeth, of a rotary reciprocal cylinder having an elliptical-shaped depressed area in its circumference, a shaft transverse to the axis of said pinion upon which said cylinder has sliding movement, a segmental rack comprising a double row of teeth or cogs projecting centrally from said depressed area in the plane of the major axis of the same having enlarged teeth connecting the ends of said double row of cogs or teeth, and a segmental tread or rim with which the flange on said pinion has rolling contact when said pinion and rack are in mesh.

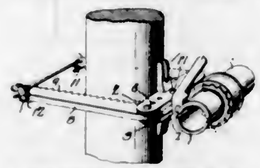


751,607. **LINOTYPE FOR PRINTING MUSIC TYPOGRAPHICALLY.** JOHN BROADHOUSE, North Finchley, England. Original application filed June 7, 1900, Serial No. 19,388. Divided and this application filed Oct. 6, 1902. Serial No. 126,192. (No model.)



Claim.—A linotype to be used with others of the same kind for printing music typographically, the printing edge of which consists of quadrated parts of the respective music characters and the corresponding portion of the staff-line cast on the body of the respective linotype from a matrix for only the respective part of the character and corresponding portion of the staff-line.

751,608. **FENCE-WIRE STRETCHER.** LUCIEN A. BUTTS, Russell, Iowa. Filed Apr. 1, 1903. Serial No. 150,633. (No model.)



Claim.—1. A wire-stretcher, comprising, a base, a pair of supporting-arms secured to the base and provided with semicircular bearing-plates extending the entire width of the arms, a revolving shaft mounted in the bearing-plates, means carried by the shaft for engaging a wire, means for adjustably supporting the stretcher, and means for locking the shaft to hold the stretched wire.

2. A wire-stretcher, comprising, a base provided with outwardly-projecting ears, a pair of horizontally-disposed supporting-arms secured to the base and provided with semicircular bearing-plates extending the entire width of the arms, a revoluble shaft mounted in the bearing-plates and having wire engaging means, a toothed collar secured to the shaft, a pawl pivoted to the supporting-arms and adapted to engage the toothed collar, means for adjustably supporting the stretcher and means for rotating the shaft.

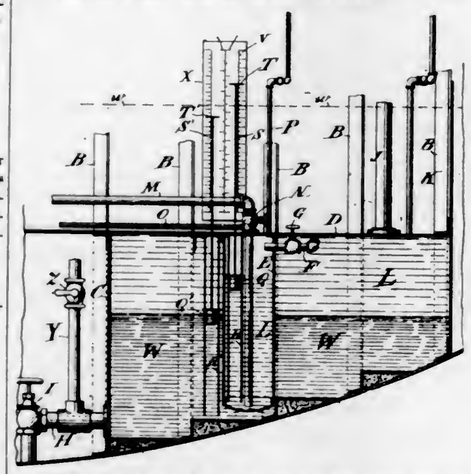
3. A wire-stretcher, comprising, a sectional base, sectional supporting-arms secured to the base and provided with semicircular bearing-plates, a revoluble shaft mounted in the bearing-plates, a pair of toothed collars secured to the shaft and adapted to abut one on each side of said bearing-plates, a pawl carried by the supporting-arms and adapted to engage one of the toothed collars, means carried by the shaft for engaging a wire, and means for securing the stretcher to a fence-post.

4. In a wire-stretcher, the combination, of a base consisting of a pair of horizontally-disposed spaced bars provided with outwardly-extending ears, sectional supporting-arms formed integral with the base and provided with semicircular bearing-plates, a shaft revolubly mounted in said bearing-plates, said shaft having slotted end portions, a pair of toothed collars secured to the shaft and abutting one on each side of the bearing-plates, a pawl pivoted to the supporting-arms and adapted to engage one of the toothed collars, means for clamping the stretcher to a post and an actuating means for engaging the second collar.

5. A wire-stretcher comprising a sectional base, sectional supporting-arms secured to the base, a shaft revolubly mounted in the supporting-arms, said shaft having slotted end portions, a pair of toothed collars on said shaft, a pivoted pawl carried by the supporting-arms and adapted to engage one of said toothed collars, a pair of toothed arms pivoted to the sectional base, and means for clamping the arms to a post.

6. A wire-stretcher comprising a sectional base, sectional supporting-arms secured to the base, a shaft revolubly mounted in the supporting-arms, said shaft having slotted end portions and provided with a pair of fixed toothed collars, a pivoted pawl adapted to engage one of said collars, a pair of adjustable toothed arms pivoted to the base, a clamping-screw passing through the ends of said toothed arms, a nut adapted to engage the screw, and means for rotating the shaft or spindle.

751,609. **TANK FOR LIQUID FUEL.** FRANK T. CABLE, New Suffolk, and LAWRENCE Y. SPEAR, Greenport, N. Y., assignors to Electric Boat Company, New York, N. Y., a Corporation of New Jersey. Filed June 6, 1903. Serial No. 160,363. (No model.)



Claim.—1. In means for the purpose specified, a main tank having an inlet for a liquid not miscible with water, and a cock-controlled inlet for water under pressure, a lesser delivery-tank inside of said main tank and having a cock-controlled connection with the latter for supplying the lesser tank, and a cock-controlled outlet-pipe from the inner tank through which the liquid is withdrawn for use.

2. In means for the purpose specified, a main tank having an inlet at its top for a liquid not miscible with water and of less specific gravity than the latter, and having a cock-controlled inlet for water under pressure, a lesser delivery-tank inside of said main tank and having a cock-controlled connection with the latter at the tops of both, whereby the larger tank supplies the lesser with said lighter liquid, and a cock-controlled outlet-pipe from said inner tank through which the liquid is withdrawn for use.

3. In means for the purpose specified, a main tank having an inlet for a liquid not miscible with water and a cock-controlled inlet for water of flotation under pressure, a lesser delivery-tank inside of said main tank and having a cock-controlled connection with the latter for supplying the lesser tank, and a cock-controlled delivery-pipe depending into said inner tank, the relative capacities of the two tanks being such that the sum of the volumes of the two tanks bears the same proportion to the volume of the main tank alone, that the specific gravity of the water of flotation bears to the specific gravity of the liquid to be expended.

4. In means for the purpose specified, a main tank having an inlet at its top for a liquid to be expended, said liquid being of less specific gravity than the water of flotation and not miscible therewith, and said tank having also a cock-controlled inlet for water of flotation under pressure, an inner and lesser delivery-tank having a cock-controlled connection with the main tank for supplying the inner tank from the main tank, a cock-controlled delivery-pipe connected with the inner tank, and automatic volumetric gages on the

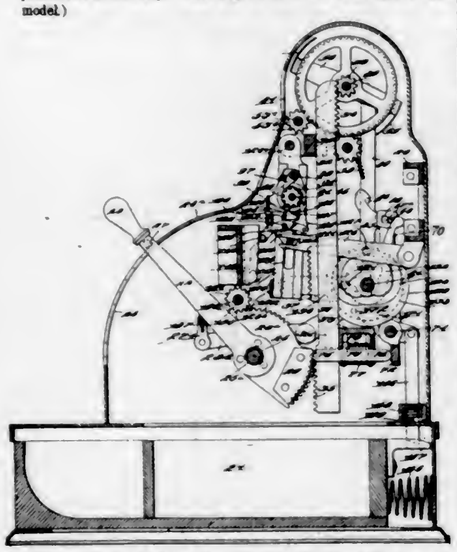
respective tanks, to show at all times the volume of the liquid remaining therein.

5. In means for the purpose specified, the combination with the main tank having a filling-inlet for a liquid not miscible with water and a cock-controlled inlet for water of flotation under pressure, and the inner delivery-tank connected with the main tank at its top for a supply of the said liquid and having an outlet for delivery of said liquid for use, of the gage devices comprising the upright plate X having on it the four scales U, U', and V V', the casing inclosing said plate, the float in the inner tank adapted to float on the liquid to be suspended, its stem, the pointer on said stem traversing the scales U and V, the float in the main tank adapted to just float on the water therein, its stem, and the pointer thereon traversing the scales U' and V', substantially as set forth.

751,610. SAFETY-PIN HOOK AND EYE. ELEANOR A. CAMPBELL, Los Angeles, Cal. Filed May 4, 1903. Serial No. 155,502. (No model.)

Claim.—In a fastener, two parts, each comprising two members separably connected at one end, one of said members of each part being straight and the other member being bent into a plane at a distance from and substantially parallel with the plane occupied by the straight member and the ends of the fastener, the bent member of one of the parts having a straight portion which is substantially parallel longitudinally with the straight member of said part, and the bent member of the other part being substantially V-shaped with its apex extending to the straight member of said part and bent out of its plane into contact with said straight member.

751,611. CASH-REGISTER. THOMAS CARROLL, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 14, 1901. Serial No. 72,013. (No model.)



Claim.—1. In a cash-register, the combination with a series of longitudinally-adjustable racks, of a movable frame carrying a register, means for giving the frame a definite movement at each operation of the machine, and devices for adjusting the racks to bring a greater or less number of teeth thereof into the path of travel of the register according to the amount to be registered.

2. In a cash-register, the combination with a series of longitudinally-adjustable racks, of a movable frame carrying a series of register-wheels, means for giving the frame a regular excursion at each operation of the machine, and means for moving the said racks longitudinally to bring a greater or less number of teeth into the path of travel of the register-wheels.

3. In a cash-register, the combination with an operating mechanism, of a series of racks, devices for setting the racks according to the values to be registered, a register arranged to be moved over the racks and thereby operated, and means connected to the operating mechanism for giving the register a regular excursion over the racks at each operation of the machine.

4. In a cash-register, the combination with an operating mechanism, of a series of racks, a register arranged to be moved over the racks and thereby operated, and means connected to the operating mechanism for moving the register into and out of operative relation with the racks.

5. In a cash-register, the combination with an operating mechanism, of a series of racks, a register arranged to be operated by being moved over the racks, means for adjusting the racks longitudinally to bring a greater or less number of teeth into the path of the register, means connected to the operating mechanism for moving the register over the racks, and devices also connected to the operating mechanism for moving the register into and out of cooperative relation with the racks.

6. In a cash-register, the combination with an operating mechanism, of a series of racks, a register comprising a series of register-wheels, pinions fast to said wheels, means for moving the register over the racks, and means connected to the operating mechanism for adjusting the pinions and racks into and out of cooperative relation.

7. In a cash-register, the combination with a series of rack-bars, devices for setting said bars according to the value to be registered, a movable register, means for moving the register over the racks for effecting the registration, transfer devices carried by the register, and rigid projections mounted independently of the register and arranged to be engaged by the transfer devices when the latter are set.

8. In a cash-register, the combination with a series of operating elements arranged to be set according to the value to be registered, a register, means for moving the register along said elements to effect the registration, transfer devices carried by the register, and stationary cam projections engaged by said transfer devices upon the movement of the register for effecting the transfer.

9. In a cash-register, the combination with a series of rack-bars, means for setting the bars according to the value to be registered, a register, means for moving the register over the rack-bars to effect the registration, transfer devices carried by the register and progressively-arranged stationary cam projections arranged to be engaged by the transfer devices upon the movement of the register to effect the transfer.

10. In a cash-register, the combination with a series of indicators, of a flash or guard for said indicators, a latch for holding said guard in position to expose the indicators, a series of setting devices, means for tripping said latch upon the movement of any one of said setting devices, an operating-handle independent of said setting devices and means for tripping said latch upon the operation of said independent handle.

11. In a cash-register, in combination with a series of pivoted setting-levers, a series of indicators, means connecting said indicators and levers, toothed rack-plates mounted on said levers, a series of spring-pressed plungers engaging said rack-plates, a guard for the indicators, a latch for said guard, and means operated by any one of said spring-pressed plungers for tripping said latch.

12. In a cash-register, the combination with a series of rack-bars, a series of pivoted levers for setting said rack-bars, a series of indicators geared to said rack-bars, a guard for said indicators, a latch for holding said guard in position to expose the indicators, and a series of locking-pawls for the levers.

13. In a cash-register, the combination with a series of operating-levers, a series of locking-pawls engaging the same, a movable member arranged to be operated by any one of said pawls, a pin mounted on said movable member, and a notched disk connected to the movable parts of the machine and arranged to cooperate with said pin.

14. In a cash-register, the combination with a series of setting-levers, an operating crank-handle, a series of indicators arranged to be set by said setting-levers, a guard for said indicators, a latch for said guard, means for tripping the latch upon the movement of any one of the setting-levers, and an independent device for tripping the latch upon the movement of the operating-handle.

15. In a cash-register, the combination with a series of setting-levers, rack-bars operated by the same, indicators geared to said bars, a register comprising a series of wheels having pinions arranged to mesh with said rack-bars, a rock-frame supporting said register, an operating-handle, gearing connected to said operating-handle for first actuating the rock-frame and then moving the register along said rack-bars.

16. In a cash-register, the combination with a series of elements arranged to be set according to the value to be registered, a register, an operating-handle for moving said register along said elements whereby it may be operated, and a locking device for said elements arranged to be operated by said handle.

17. In a cash-register, the combination with a series of elements arranged to be set according to the value to be registered, a register, an operating-handle arranged to move the register along said elements whereby it may be operated, and an alining device for said elements arranged to be operated by said handle.

18. In a cash-register, the combination with a series of racks, arranged to be set according to the value to be registered, of a rock-frame, a register mounted in the rock-frame so that it may slide therein and thus be drawn over said racks and thus be operated.

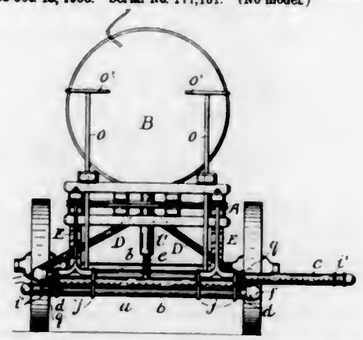
19. In a cash-register, the combination with a series of operating elements arranged to be set according to the value to be registered, a register comprising a series of wheels, means for moving the register along said elements to effect the registration, means for moving said register to reset the same to zero and a device for preventing movement of the register along the operating elements after this resetting movement has been commenced.

20. In a cash-register, the combination with a register comprising a series of wheels and a shaft for turning the same to zero, a pivoted lever arranged to guard said shaft and adapted to lock the machine when operated, and a lock and bolt for operating said lever.

21. In a cash-register, the combination with an operating mechanism, of a register, means for moving the register into and out of cooperative relation with the operating mechanism, turn-to-zero devices for the register, a stop mounted independently of the register for arresting the turn-to-zero devices, and means for moving the stop out of the path of the turn-to-zero devices when the register is operated to engage the operating elements.

22. In a cash-register, the combination with a series of operating elements arranged to be set according to the values to be registered, a register, means for moving the register along said elements to effect the registration, a device for resetting the register to zero, a movable stop for said resetting device which is disengaged from the latter when it is moved along the operating elements.

751,612. SPRINKLER. WILLIAM H. CARR, Springfield, Mass. Filed Oct. 15, 1903. Serial No. 177,181. (No model.)



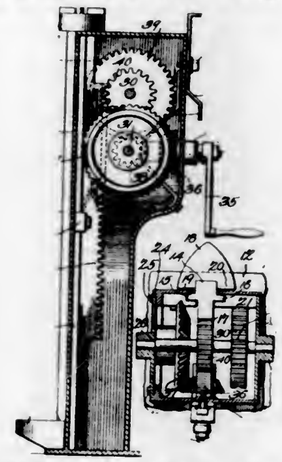
Claim.—1. The combination, in a sprinkler, with a fixed perforated main pipe, of two fixed imperforate carrier-pipes one above the other and both at one side of said main pipe, provided with perforated telescoping extensions.

2. The combination, in a sprinkler, with a group of connected and attached pipes comprising a perforated main pipe and two imperforate carrier-pipes provided with perforated extensions, the latter telescoping into the carrier-pipes, of racks fast at their outer ends to said extensions, and means on said carrier-pipes at the side to support and guide said racks.

3. The combination, in a sprinkler, with a group of pipes comprising a perforated main pipe and two imperforate carrier-pipes provided with perforated extensions, of racks fast at their outer ends to said extensions, means on said carrier-pipes to support and guide said racks, and means to bind said main and carrier pipes together.

4. The combination, in a sprinkler, with a fixed main sprinkling-pipe adapted to discharge water only between its ends, of an associated fixed imperforate carrier-pipe provided with a perforated telescoping extension, the latter being adapted to discharge water only beyond one end of said main pipe.

751,613. LIFTING-JACK. ROBERT F. COOK, San Francisco, Cal. Filed July 24, 1903. Serial No. 166,871. (No model.)



Claim.—In a device of the class described, an inclosing casing, a lifting-bar centrally disposed at one side of said casing for vertical movement therein and having an integral gear-rack at the inner side, shafts mounted transversely of the casing in the rear of said racked bar, a drive-pinion upon one of said shafts engaging said rack, interengaging gear-wheels carried by said shafts and disposed upon opposite sides of said driving-pinion, and a drive-shaft extending centrally through the rear wall of said casing in alinement with said rack and pinion and carrying a gear adapted to engage said interengaging gears, whereby motion is transmitted to said pinion by power operating centrally of said casing to eliminate lateral strains substantially as described.

751,614. LAP RING OR LINK. THOMAS COTTEN, Ruleville, Miss. Filed Jan. 31, 1903. Serial No. 141,391. (No model.)



Claim.—1. A lap ring or link comprising sections, each of the sections having hooks at its ends that project in the same direction and overlap the hooks of the other section, said sections being also provided with inwardly-extending overlapping tongues, and a pivot connecting the tongues and permitting the swinging movements of the sections, the hooks of one section sliding upon those of the other.

2. A lap ring or link comprising sections, each of the sections having hooks at its ends that project in the same direction and overlap the hooks of the other section, said sections being movable bodily toward and from each other and having inwardly-extending overlapping tongues that are slidable with relation to each other upon the bodily movements of the sections, and a pivot connecting the tongues and permitting the swinging movements of the sections and the sliding movements of the tongues.

3. A lap ring or link, comprising sections arranged to coincide and rest upon each other, said sections being movable laterally to permit the separation of their adjacent faces and remaining in substantially parallel relation during such movement, and interlocking devices carried by the sections and movable out of interlocking engagement when said adjacent faces of the sections are separated.

4. A lap ring or link, comprising swinging sections arranged to coincide and rest upon each other, said sections being movable laterally to permit the separation of their adjacent faces and remaining in substantially parallel relation during such movement, and interlocking shoulders located upon the adjacent faces of the sections and movable out of interlocking engagement when said faces are separated.

5. A lap ring or link comprising sections, each having hooks at

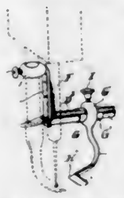
its ends that project in the same direction and overlap the hooks of the other section, said sections being also provided with inwardly-extending overlapping tongues, one of which is provided with a slot, a pivot connecting the tongues and passing through the slot, and shoulders located transversely of the tongues and arranged to detachably interlock to hold the sections against relative movement.

6. A lap ring or link comprising relatively swinging sections, a pivot connecting the sections and permitting them to move laterally to separate their adjacent faces, a spring bearing against one of the sections to hold them together, and shoulders located on the sections and being arranged to detachably interlock to hold the sections against their swinging movements.

7. A lap ring or link comprising sections, each having hooks at its ends that project in the same direction and overlap the hooks of the other section, said sections being also provided with inwardly-extending overlapping tongues, one of which is provided with a slot, a pivot connecting the tongues and passing through the slot, a coiled spring surrounding the pivot and bearing upon the adjacent tongue, a rib located upon and across the inner end of one tongue, and another rib carried by the free end of the other tongue, and detachably interlocking with the first-mentioned rib.

8. A lap ring or link, comprising sections, a pivoted connection between the sections, said sections being bodily slidable in a transverse direction with respect to each other, and locking means connecting the sections to prevent their swinging and transverse sliding movement.

751,615. **GUIDE FOR SEWING-MACHINES.** AUGUST CRAWFORT, Detroit, Mich. Filed Feb. 26, 1903. Serial No. 145,140. (No model.)



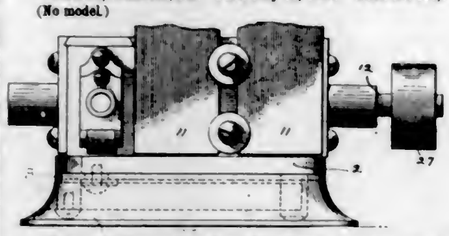
Claim.—1. A sewing-machine attachment consisting of a supporting-arm adapted to be detachably secured at one end to the presser-foot bar of a sewing-machine and to extend laterally outward at right angles thereto, a rotatable sleeve on said arm, stops to limit the movement of said sleeve, a spring exerting a force to turn the sleeve, a guide adapted to be slipped longitudinally over the sleeve and having a guide-arm extending therefrom, and means for detachably securing the guide to the sleeve.

2. A sewing-machine attachment consisting of a vertical supporting-bar provided with means for its attachment to the presser-foot bar of a sewing-machine, a supporting-arm secured at one end to said bar and extending at right angles thereto, a sleeve on said arm having projecting portions forming stops to engage the sides of said bar, a spring secured at one end to said bar and engaging said sleeve with its opposite end to exert a force to turn the sleeve in one direction, a longitudinal rib on said sleeve, and a guide longitudinally movable on said sleeve and having a slit to receive the rib and provided with an integral guide-arm.

3. A sewing-machine attachment consisting of a vertical supporting-bar provided with means for its attachment to the presser-foot bar of a sewing-machine, a supporting-arm extending at right angles to said bar and secured thereto at one end, a sleeve on said arm, stops on said sleeve, a spring to actuate the sleeve, a rib on the sleeve, a tube provided with a slit for the passage of the rib, a ring embracing and secured to said tube, an arm integral with said ring, a foot formed on the lower end of said arm, and a set-screw to secure the guide in its adjusted position on the sleeve.

4. A sewing-machine attachment consisting of a vertical supporting-bar, a ring formed integral with the upper end of said bar and extending laterally therefrom, a set-screw to secure the ring to the presser-foot bar of a sewing-machine, a supporting-arm secured at one end to said bar and extending at right angles thereto, a sleeve on said arm formed with a slot and having portions at one end forming stops to engage the edges of the bar and limit the movement of the sleeve, a spring secured to the side of said bar and engaging said slot in the sleeve, a rib extending longitudinally of said sleeve, a screw engaging an opening in the end of the arm to hold the sleeve thereon, a tube having a slit for the rib and a notch, a ring embracing and secured to the tube, a guide-arm formed integral with said ring and curved laterally downward, a foot on the lower end of said guide-arm having a projecting heel, and a set-screw to hold the tube from moving longitudinally on the sleeve.

751,616. **MAGNETO-ELECTRIC GENERATOR.** HUGH J. CREIGHTON, Anderson, Ind. Filed May 13, 1903. Serial No. 156,978 (No model.)



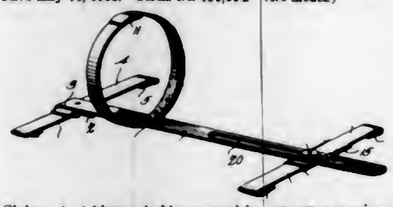
Claim.—1. The combination of the base, a yoke carrying the pole-pieces and armature-shaft, pivoted to the base, and a leaf-spring connected to the yoke and to the base and normally holding the yoke in a central position but yielding to either side to permit the yoke to swing.

2. The combination with the hollow base, of a yoke pivoted to the base and carrying pole-pieces and an armature, a stud projecting downwardly into the base, and a leaf-spring mounted in the hollow base and connected at one end to the stud and the other end to the base.

3. The combination with the base, of a yoke pivoted to the base, pole-pieces on the yoke, an armature rotating between the pole-pieces, and a leaf-spring disposed longitudinally of the axis of rotation of the armature-shaft and connected at one end to the yoke and at the other end to the base.

4. In a magneto-electric generator, the combination with the base having an elongated slot near one end thereof, and a spring-arm secured to the other end of the said base, of the pole-pieces pivoted to the base, a stud integral with and depending from the said pole-pieces through the slot in the base; said spring-arm being secured to said stud.

751,617. **BLOTTER-HOLDER.** CHARLES DAVISON, Kewanee, Ill. Filed May 11, 1903. Serial No. 156,664. (No model.)



Claim.—1. A blotter-holder comprising an arm-engaging clamp having a plurality of adjustable blotter-holding arms secured thereto.

2. A blotter-holder comprising a frame, a plurality of laterally-adjustable blotter-holding arms secured thereto, one of said arms being longitudinally adjustable on the frame and means for attaching the frame to the arm.

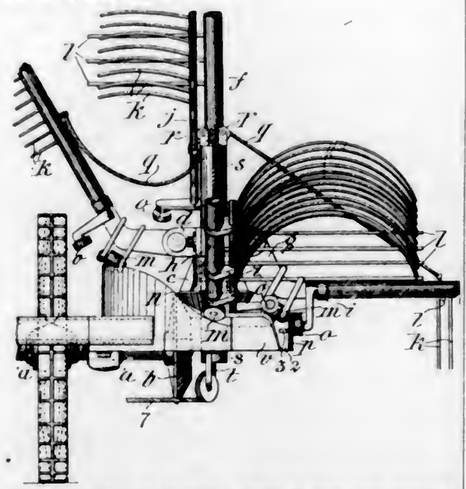
3. A blotter-holder comprising an arm-engaging clamp, a longitudinally-disposed bar secured to the clamp, a plurality of laterally-adjustable blotter-holding arms secured to the bar, one of said arms being longitudinally adjustable on the bar.

4. A blotter-holder comprising a longitudinally-disposed slotted bar, a pair of laterally-adjustable blotter holding arms secured to one end of the bar, a corresponding pair of arms secured to the opposite end of the bar and longitudinally adjustable thereon, a pin having a squared head secured to one of the arms and adapted to engage the slot in the bar and means for clamping the holder to the arm.

5. A blotter-holder comprising a curved or bowed supporting-bar having a plurality of botter-holding arms secured thereto and means for clamping the holder to the arm.

751,618. **HAY RAKE AND TEDDER.** PAUL VON DEL NEGRO, Salzburg, Austria-Hungary. Filed Apr. 10, 1903. Serial No. 152,061. (No model.)

Claim.—1. In a hay-raking machine, a series of rotary arms, means for rotating the arms, clearing-fingers mounted on the arms, rods mounted on said arms, rake-teeth carried by said rods, means for swinging the teeth independently of their movement by the arms, and a cam-track for raising and lowering the said arms during their rotation, substantially as described.



2. In a hay-raking machine, a series of rotary arms, means for rotating the arms, clearing-fingers secured to the arms, a cam for raising and lowering the arms during their rotation, rods mounted on the arms, rake-teeth secured to the rods, a cam-track comprising two stationary members upon which the rods engage during a portion of the rotation of the arms, and an intermediate member adjustable for controlling the action of the said rods, substantially as described.

3. In a hay-raking machine, a series of rotary arms, means for rotating said arms, a cam for raising and lowering the arms during their rotation, rods swingingly mounted on the arms, rake-teeth secured to the rods, a cam-track comprising two flanged members engaged by the inner ends of the rods during a portion of the rotation of the arms, and an intermediate adjustable flanged member engaged by the rods to control their action, substantially as described.

4. In a hay-raking machine, a series of rotary arms, rakes carried by the arms, a cam for elevating the arms, means for elevating the arms independently of the said cam comprising guide-pulleys, ropes secured to the arms and passing over the guide-pulleys, and means located on the machine for moving the ropes to elevate the arms, substantially as described.

751,619. **THRESHING-MACHINE.** WILLIAM W. DINGEE, Racine, Wis. Filed July 27, 1903. Serial No. 167,144. (No model.)

Claim.—1. In a threshing-machine, the combination with the straw-receptacle provided with a continuous air-inlet extending along the bottom and vertically upward at both sides, said receptacle having its side walls converging beyond said air-inlet, of air-forcing devices communicating with said air-inlet, whereby a stream of air U-shaped in cross-section is introduced into said receptacle adjacent to its bottom and sides, substantially as described.

2. In a threshing-machine, the combination with the straw-receptacle provided with a continuous air-inlet extending along the bottom and vertically upward at both sides, said receptacle having its side walls converging beyond said air-inlet, a delivery-spout for said receptacle, and a pair of separate air-forcing devices each communicating with the bottom portion and one of the side portions of said air-inlet, whereby a stream of air U-shaped in cross-section is introduced into said receptacle adjacent to its bottom and sides, substantially as described.

3. In a threshing-machine, the combination with the straw-receptacle, provided with a U-shaped air-inlet extending entirely across the bottom and up the sides of said receptacle and having a discharge-spout, the walls of said receptacle converging from said air-inlet, to the discharge-spout, fan-casings located at opposite sides of the machine each having a discharge communicating with the bottom and one side portion of the said U-shaped air-inlet, a chaff-receptacle within the machine, an inclosed chamber between said fan-casings extending transversely of the machine, and communicating with said chaff-receptacle and with the eyes of said fan-casings, whereby the chaff can be delivered through said fans into the straw-receptacle, substantially as described.



4. In a threshing-machine the combination with the straw-receptacle, provided with a U-shaped air-inlet extending entirely across the bottom and up the sides of said receptacle and having a discharge-spout, the walls of said receptacle converging from said air-inlet, to the discharge-spout, fan-casings located at opposite sides of the machine, each having a discharge communication with the bottom and one side portion of the said U-shaped air-inlet, a chaff-receptacle within the machine, an inclosed chamber between said fan-casings extending transversely of the machine, and communicating with said chaff-receptacle and with the eyes of said fan-casings, and a distributing device in said inclosed chamber for dividing the chaff and throwing part of it toward each of said fan-casings, substantially as described.

5. In a threshing-machine, the combination with the straw-receptacle, provided with a U-shaped air-inlet extending entirely across the bottom and up the sides of said receptacle and having a discharge-spout, the walls of said receptacle converging from said air-inlet, to the discharge-spout, fan-casings located at opposite sides of the machine each having a discharge communicating with the bottom and one side portion of the said U-shaped air-inlet, a chaff-receptacle within the machine, an inclosed chamber between said fan-casings extending transversely of the machine, and communicating with said chaff-receptacle and with the eyes of said fan-casings, fans in said fan-casings, a common shaft for said fans extending through said inclosed chamber, and a distributing-disk mounted in an inclined position on said shaft centrally of said chamber for throwing part of the chaff toward each of said fan-casings, substantially as described.

6. In a threshing-machine, the combination with the straw-receptacle, provided with a U-shaped air-inlet extending entirely across the bottom and up the sides of said receptacle and having a discharge-spout the walls of said receptacle converging from said air-inlet, to the discharge-spout, fan-casings located at opposite sides of the machine each having a discharge communicating with the bottom and one side portion of the said U-shaped air-inlet, a chaff-receptacle within the machine, an inclosed chamber between said fan-casings extending transversely of the machine, and communicating with said chaff-receptacle and with the eyes of said fan-casings, said chaff-receptacle having an auxiliary discharge-aperture

in its bottom, and a movable closure for said aperture, substantially as described.

7. In a threshing-machine, the combination with the straw-receptacle provided with a discharge-outlet and an air-forcing device communicating therewith, of an elbow-shaped discharge-pipe connected directly to the discharge-outlet of the straw-receptacle by a swivel-joint, having its plane of movement inclined between a vertical and horizontal position, whereby the movement of said elbow-pipe upon its swivel-joint will raise and lower the end of the pipe, substantially as described.

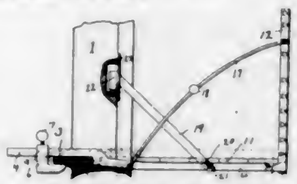
8. In a threshing-machine, the combination with the straw-receptacle provided with a discharge-outlet and an air-forcing device communicating therewith, of an elbow-shaped discharge-pipe connected directly to the discharge-outlet of the straw-receptacle by a swivel-joint, having its plane of movement inclined between a vertical and horizontal position, and a second elbow-pipe rotatably mounted upon the end of the first-mentioned elbow and adjustable with respect thereto, substantially as described.

9. In a threshing-machine, the combination with the straw-receptacle provided with a discharge-outlet and an air-forcing device communicating therewith, of an elbow-shaped discharge-pipe connected directly to the discharge-outlet of the straw-receptacle by a swivel-joint, having its plane of movement inclined between a vertical and horizontal position, and mechanism for imparting an oscillating movement to said elbow-pipe upon its swivel-joint, substantially as described.

10. In a threshing-machine, the combination with the straw-receptacle provided with a discharge-outlet and an air-forcing device communicating therewith, of an elbow-shaped discharge-pipe connected directly to the discharge-outlet of the straw-receptacle by a swivel-joint, having its plane of movement inclined between a vertical and horizontal position, mechanism for imparting an oscillating movement to said elbow-pipe upon its swivel-joint, and a second elbow-pipe rotatably mounted upon the end of the first elbow pipe and adjustable with respect thereto, substantially as described

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751,620. PORTABLE FOLDING WINDOW-SCAFFOLD. JONATHAN R. ELLIOTT and GEORGE L. KELLY, Topeka, Kans.; said Kelly assignor to Neoma R. Elliott, Topeka, Kans. Filed Apr. 25, 1903. Serial No. 154,235. (No model.)



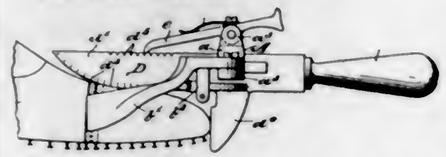
Claim.—1. In portable folding window-scaffolds, the combination of the horizontal platform having the main supporting-rods; the means for securing the same to the window-frame; the upright portion having the upright rods 12 12; said upright rods having the elbows 13, 13 pivoted to the outer ends of the main supporting-rods, whereby the upright portion may be folded over flatly against the horizontal platform; and the lugs 16, 16 for limiting the outward movement of the upright portion, substantially as set forth.

2. In portable folding window-scaffolds, the combination of the horizontal platform having the main supporting-rods; the means for securing the same to the window-frame; the upright portion having the upright rods 12, 12; said upright rods having the elbows 13, 13 pivoted to the outer ends of the main supporting-rods, whereby the upright portion may be folded over flatly against the horizontal platform; and the lugs 16, 16 on one set of said rods adapted to engage the other set of rods, to limit the outward movement of the upright portion.

3. In portable folding window-scaffolds, the combination of the horizontal platform having the main supporting-rods; the hooks adapted to engage the window-stool mounted on the supporting-rods and having openings therethrough larger than the supporting-rods in cross-section, and also having set-screws to engage the supporting-rods, and said supporting-rods having the offsets 5, 5 to engage the outer edge of the window-stool, whereby the scaffold may be adapted to windows having stools of varying widths and thicknesses; the upright portion having the upright rods 12, 12; said upright rods having the elbows 13, 13 pivoted to the outer ends of the main supporting-rods, whereby the upright portion may be folded over flatly against the horizontal platform; and the lugs 16, 16 on one set of said rods adapted to engage the other set of rods, to limit the outward movement of the upright portion; all substantially as set forth.

4. In portable folding window-scaffolds, the combination of the horizontal platform having the main supporting-rods; the hooks adapted to engage the window-stool mounted on the supporting-rods and having openings therethrough larger than the supporting-rods in cross-section, and also having set-screws to engage the supporting-rods, and said supporting-rods having the offsets 5, 5 to engage the outer edge of the window-stool, whereby the scaffold may be adapted to windows having stools of varying widths and thicknesses; and the upright portion hinged to the outer end of the horizontal platform and capable of being folded over flatly against the horizontal platform; substantially as set forth.

751,621. DEVICE FOR MEASURING AND TRUING TIPS OF SHOES. GARABED ELMASIAN, Philadelphia, Pa. Filed Oct. 2, 1903. Serial No. 175,455. (No model.)



Claim.—1. In a device of the character described, a bar provided with a handle, means fixed to said bar having cam portions, spring-controlled fingers connected with said bar and adapted to be actuated by the cam portions of said means, and means adapted to hold said fingers in operative position when actuated by the cam portions of said means, substantially as and for the purposes described.

2. A device of the character described, comprising a graduated bar or strip provided with a handle, fingers adapted to be slid on said bar or strip, and cam means connected with said bar or strip adapted to spread or contract said fingers, substantially as and for the purposes described.

3. In a device of the character described, a bar, a tongue or cam connected with said bar, a block slidably arranged on said bar, fingers pivotally supported by said block and adapted to be engaged by said cam or tongue, and said fingers adapted when shifted longitudinally on said bar to be either spread apart or contracted, substantially as and for the purposes described.

4. A device of the character described, comprising a slotted body having spring-controlled pivotal fingers, a measuring-bar with a tongue, said bar adapted to be slid back and forth in said body to permit the tongue of said measuring-bar to spread or contract said fingers, and means for locking said measuring-bar in required position, substantially as and for the purposes described.

5. A device of the character described, comprising a slotted and shouldered body having spring-controlled movable fingers, a measuring-bar with a tongue or cam and foot, and means for locking said bar in required position, substantially as and for the purposes described.

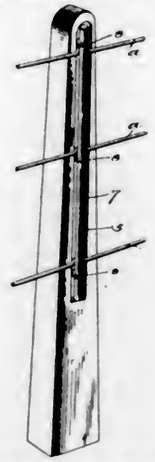
6. A device of the character described, comprising a slotted and shouldered body having side wings provided with spring-controlled movable fingers, measuring means having a rabbeted body with a tongue or cam and foot, and pawl-actuating means for locking said measuring means in required position, substantially as and for the purposes described.

7. A device of the character described, comprising a slotted body having movable spring-controlled fingers provided with lugs and a measuring means provided with a flaring tongue and foot, said means adapted to be slid in said slotted body, substantially as and for the purposes described.

8. A device of the character described, comprising a slotted body having movable fingers, a measuring means provided with a flaring tongue, foot and serrated edge and a spring-controlled pawl adapted to engage the serrated edge of said means, substantially as and for the purposes described.

9. A device of the character described, comprising a slotted and shouldered body having movable spring-controlled fingers, measuring means provided with a rabbeted body having a serrated upper edge, a flaring tongue and a projecting foot, said means adapted to be slid in said slotted and shouldered body of the device, and a pawl adapted to engage the serrated edge of said measuring means substantially as and for the purposes described.

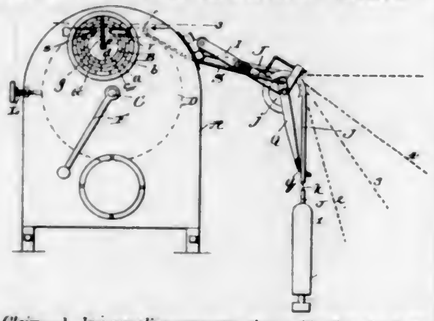
751,622. FENCE-POST. JACOB B. ENGSTROM, Manchester, Iowa. Filed Sept. 8, 1903. Serial No. 172,337. (No model.)



Claim.—1. A post made of plastic material, having a longitudinal groove in one side and transverse openings communicating with said groove, and further provided with longitudinally-disposed brace-irons embedded in the post and disposed on opposite sides of said groove and openings, in combination with runner-wires extending across the post and groove, and securing devices engaging the runner-wires and extending through the openings in the post and drawing the runner-wires into the groove.

2. A post made of plastic material having a longitudinal groove in one side and transverse openings communicating with said groove, and further provided with longitudinally-disposed brace-irons embedded in the post and disposed on opposite sides of said groove and openings, in combination with a clamping-rod in said groove, runner-wires extending across the post and groove and lying between the latter and the clamping-rod, and securing devices engaging the clamping-rod extending through the openings in the post and drawing the clamping-rod into the groove.

751,623. SOUNDING APPARATUS. CHARLES W. FARR, Chicago, Ill. Filed Nov. 9, 1903. Serial No. 180,400. (No model.)



Claim.—1. In a sounding apparatus, the combination of a drum, a cable thereon, a sinker carried by the cable, means for giving notice when the sinker strikes the bottom, a dial provided with a plurality of graduated scales, a pointer, a connection between the drum and the pointer for moving the latter by the former, and means controlled by the position of the cable for indicating the graduated scale to be read in connection with the pointer.

2. In a sounding apparatus, the combination of a drum, a cable thereon, a sinker carried by the cable, means for giving notice when the sinker strikes the bottom, a dial provided with a plurality of graduated scales, a pointer, a connection between the drum and the pointer for moving the latter by the former, a lever receiving the cable, and a pointer connected with the lever so as to be moved thereby, and arranged to indicate the graduated scale to be read in connection with the first-mentioned pointer.

3. In a sounding apparatus, the combination of a cable provided with a sinker, a dial provided with a plurality of graduated scales, a pointer, means intermediate of the cable and the pointer for moving the latter by the former, and means controlled by the position of the cable for indicating the graduated scale to be read in connection with the pointer.

4. In a sounding apparatus, the combination of a drum, a cable thereon, a sinker carried by the cable, means for giving notice when the sinker strikes the bottom, a dial provided with a plurality of concentric, circular graduated scales, a rotary pointer having its center of movement within the scales, a connection between the drum and the pointer for rotating the latter by the former, and means controlled by the position of the cable for indicating the graduated scale to be read in connection with the pointer.

5. In a sounding apparatus, the combination of a drum, a cable thereon, a sinker carried by the cable, means for giving notice when the sinker strikes the bottom, a dial provided with a plurality of concentric, circular graduated scales, a rotary pointer having its center of movement within the scales, a connection between the drum and the pointer for rotating the latter by the former, a lever receiving the cable, and a rectilinearly-movable pointer connected and movable with the lever for indicating the circular scale to be read in connection with the rotary pointer.

6. In a sounding apparatus, the combination of a cable provided with a sinker, a dial provided with a plurality of gradnated scales, a pointer, means intermediate of the cable and the pointer for moving the latter by the former, and pointers controlled by the position of the cable for indicating the graduated scale to be read in connection with the first-mentioned pointer; one of the last-mentioned pointers being for use when a ship is moving forwardly, and the other for use when the ship is moving rearwardly.

7. In a sounding apparatus, the combination of a case, a drum, a cable thereon, a sinker carried by the cable, an electric bell in the case, means for ringing said bell when the sinker strikes the bottom, a sheave on an arm of the case over which the cable passes, a lever fulcrumed on said arm, and having an eye in one of its arms receiving the cable, a dial bearing a plurality of concentric, circular graduated scales, a rotary pointer, a connection between the drum and the pointer for rotating the latter by the former, and a rectilinearly-movable bar arranged in a guide on the dial, and connected with the lever; said bar bearing a pointer for indicating the graduated scale to be read in connection with the pointer.

751,624. PUMP-OPERATING MECHANISM. SAMUEL F. FIELD, Anderson, Ind., assignor of one-half to John B. Boring, Anderson, Ind. Filed Oct. 10, 1903. Serial No. 176,537. (No model.)



Claim.—1. The combination in mechanism of the class described, of a horizontally-disposed bed-plate provided on its upper surface with a socket, said socket being closed at the bottom and provided with a central upward projection, a band-wheel having a hollow

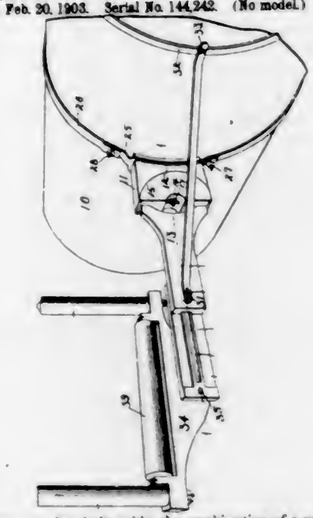
journal fitted in said socket, and an eccentric disk mounted on said band-wheel.

2. The combination in mechanism of the class described, of a horizontally-disposed bed-plate provided on its upper surface with a socket, said socket being provided near the top with a shoulder and having a central upward projection, a band-wheel having a hollow journal provided near its upper end with an external shoulder adapted to rest upon the shoulder in said socket, said journal being provided at its upper end with a counterbore, a bolt extending upward through the projection in said socket, and a washer disposed in said counterbore and secured by means of said bolt.

3. The combination in mechanism of the class described, of a bed-plate provided on its upper surface with a socket having a shoulder near the top thereof, a band-wheel having a hollow journal fitted within said socket and provided near its upper end with an external shoulder for contact with the shoulder in said socket, said journal being pierced by radially-arranged apertures about the level of the shoulder in said socket to afford passages for oil, and an eccentric mounted on said band-wheel.

4. The combination in mechanism of the class described, of a bed-plate provided on its under surface with radially-disposed downwardly-projecting ribs for engagement with the base upon which said bed-plate is supported, a band-wheel journaled in said bed-plate, and an eccentric disk carried by said band-wheel.

751,625. BELT-GUIDE. HARRY R. FREIBERG, Dexter, Iowa. Filed Feb. 20, 1903. Serial No. 144,242. (No model.)



Claim.—1. In a belt-guide, the combination of a support, a band which is capable of being passed around the boiler of an engine for holding the support in position relative to the boiler of the engine, said support having a semicircular portion thereto cut away, an arm capable of a rocking movement, having a semicircular rear end designed to fit in the semicircular opening and capable of rocking movement therein, rollers mounted on said arm for the purposes stated.

2. In a device of the class described, the combination of a supporting-block detachably connected with the boiler of an engine, said block having a semicircular portion thereof cut out of its forward end, an arm capable of a rocking movement, having a semicircular rear end designed to fit in the block, means for holding the rocking arm to the block and maintaining it in any position throughout its limited movement, belt-guiding rollers mounted on said arm for the purposes stated.

3. In a belt-guide, the combination of a supporting-block having a portion cut away to form a semicircular opening at its forward end, an arm capable of a rocking movement, having a semicircular rear end designed to fit in the portion of the block which is cut away, means for holding said arm in position with the block and sliding member attached to said arm, means for holding the sliding member and the block together, and to maintain the sliding member in any position throughout its limited movement, a roller-bearing support pivotally mounted at the outer end of said sliding member, for the purposes stated

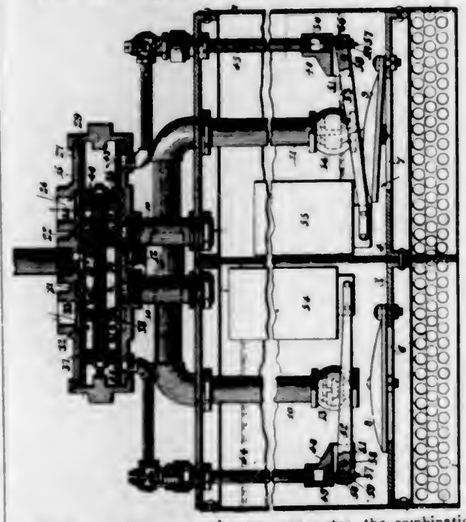
4. In a belt-guide the combination of a supporting-block having a portion cut away to form a semicircular opening at its forward end, an arm capable of a rocking movement, having a semicircular rear end designed to fit in the portion of the block which is cut away, means for holding said arm in position with the block and sliding member attached to said arm, means for holding the sliding member and the block together, and to maintain the sliding member in any position throughout its limited movement, a roller-bearing support pivotally mounted at the outer end of said sliding member, means for detachably connecting the supporting-block to the boiler of an engine, for the purposes stated.

5. In a device of the class described, the combination of a supporting-block having a portion thereof cut away to form a semicircular opening at its forward end, an arm capable of a rocking movement having a semicircular rear end to fit in the supporting-block, and sliding member adjustably mounted to the arm and roller-bearing support pivotally attached to the sliding member and a band for detachably connecting the block with the boiler of a machine for the purposes stated.

6. In a device of the class described, the combination of a supporting-block having a portion thereof cut away to form a semicircular opening at its forward end, an arm capable of a rocking movement having a semicircular rear end to fit in the supporting-block and sliding member adjustably mounted on the arm, and roller-bearing support pivotally attached to the sliding member, two vertical rollers mounted on the roller-bearing support, at each end thereof and a horizontal roller mounted between said vertical rollers, for the purposes stated.

7. In a device of the class described, the combination of a supporting-block having a portion thereof cut away to form a semicircular opening at its forward end, an arm capable of a rocking movement having a semicircular rear end to fit in the supporting-block and sliding member adjustably mounted on the arm, and roller-bearing support pivotally attached to the sliding member, two vertical rollers mounted on the roller-bearing support, at each end thereof a horizontal roller mounted between said vertical rollers, and a band for detachably connecting the block to the boiler of an engine, for the purposes stated.

751,626. WATER-ELEVATING APPARATUS. HORACE L. FROST, Bristol, Tenn. Filed Oct. 3, 1901. Serial No. 77,480. (No model.)



Claim.—1. In a water-elevating apparatus, the combination with separate water-chambers and water-passages leading therefrom, of means for leading compressed air to the chambers to force the water therefrom, a controlling-valve for the air, escape-passages leading from the chambers to permit the air escaping therefrom to shift the controlling-valve, escape-valves controlling the escape of air through said escape-passages, and valve-retaining means movable independently of the escape-valves and designed to prevent the opening of the valves by said fluid-pressure within the chambers until the water has dropped to a predetermined level.

2. In a water-elevating apparatus, the combination with a pair of tanks provided with ingress-valves, and with valve-controlled water-pipes, of air-pipes leading into the tanks, a valve-casing communicating with said air-pipes and with a source of compressed-air supply, a shiftable controlling-valve within the valve-casing to control the supply and exhaust of air from the tanks, escape-pipes leading from the interior of the tanks to the interior of the controlling valve-casing beyond the opposite ends of the controlling-valve, escape-valves controlling the escape of air through the escape-pipes and arranged to be opened by the fluid-pressure within the tanks, and means for holding said valves closed until the water-level has dropped to a predetermined point.

3. In a water-elevating apparatus, the combination with a pair of tanks, valve-controlled water-pipes, air-pipes leading to the tanks, and communicating with a source of compressed-air supply, and a controlling-valve controlling the supply and exhaust of air to and from the tanks, of escape-pipes leading from the tanks and arranged to supply air under pressure for shifting the controlling-valve, inwardly-opening escape-valves controlling the passage of air through the escape-pipes, and float-operated means for holding said escape-valves closed until the water-level has dropped to a predetermined point, at which time the valves will be released and permitted to open under pressure.

4. In a water-elevating apparatus, the combination with a pair of tanks, valve-controlled water-pipes, air-pipes leading to the tanks, a controlling-valve casing communicating with the air-pipes and with a source of compressed-air supply, and a controlling-valve within the valve-casing, of escape-pipes leading from the interior of the tanks to the opposite ends of the controlling-valve casing, inwardly-opening escape-valves located at the inner ends of the escape-pipes and designed to open under fluid-pressure, valve-retaining levers having movement independently of the escape-valves but arranged to retain said valves in their closed positions, and means for automatically moving said levers.

5. In a water-elevating apparatus, the combination with a pair of tanks, valve-controlled water-pipes, air-pipes leading to the tanks, a controlling-valve casing communicating with the air-pipes and with a source of compressed-air supply, and a controlling-valve within the valve-casing, of escape-pipes leading from the interior of the tanks to the opposite ends of the controlling-valve casing, inwardly-opening escape-valves located at the inner ends of the escape-pipes and designed to open under fluid-pressure, and float-operated levers having loose connection with the escape-valves whereby said valves will be held closed by the levers until the water-level has dropped to a predetermined point, and will thereafter be opened by the fluid-pressure within the tanks.

6. In a water-elevating apparatus, the combination with a pair of tanks provided with ingress-valves, and with valve-controlled water-pipes, of air-pipes leading into the tanks, a controlling-valve casing communicating with said air-pipes and with a source of compressed-air supply, a shiftable controlling-valve within the valve-casing to control the supply and exhaust of air through said air-pipes, escape-pipes leading from the interior of the tanks to the controlling-valve casing, escape-valves controlling the passage of air through the escape-pipes, said valves being opened by fluid-pressure, float-levers controlling the openings of said valves, and floats connected to the levers, the connection between the levers and valves permitting the closing of the latter independently of the levers when the pressure of air within the escape-pipes exceeds that in the tanks.

7. In a water-elevating apparatus, the combination with the tanks, water-pipes, air-pipes and escape-pipes, of a controlling-valve casing provided with exhaust-ports and communicating with the air-pipes and also communicating at its opposite ends with the escape-pipes, means for leading air under pressure to the valve-casing, and a shiftable controlling-valve located within the casing and controlling the supply and exhaust of air through the air-pipes, said valve also serving, when its movement in one direction is completed, to permit the escape of air through an exhaust-port of the casing from one extremity of said casing, and from the escape-pipe communicating therewith.

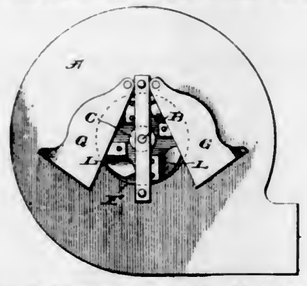
8. In a water-elevating apparatus, the combination with the tanks and water-pipes, of a valve-casing formed with annular supply-channels in its interior face, an air-supply port piercing the walls of said casing intermediate of said channels, exhaust-ports piercing the wall of the casing, annular exhaust-channels communicating with the exhaust-ports, air-pipes extending from the tanks and communicating with the supply-channels of the casing, a lining-sleeve fitted within the casing and having an annular series of openings disposed opposite each of the supply-channels and two separated annular series of openings opposite each of the exhaust-channels, a shiftable controlling-valve provided with terminal and intermediate valve-heads, fitted within the lining-sleeve, and escape-pipes communicating with the interior of the valve-casing beyond the opposite ends of the valve, said valve being movable to permit the escape of air from the ends of the casing through the exhaust-ports.

9. In a water-elevating apparatus, the combination with a water-chamber, means providing for the ingress and egress of water, means for leading air under pressure to the chamber to force the water therefrom, and a controlling-valve for the air; of an escape-passage leading from the chamber to the controlling-valve to move the same, an escape-valve preventing the return of the air from the passage when the pressure within the chamber is reduced whereby a full stroke of the controlling-valve is assured, and means normally locking the escape-valve against movement.

10. In a water-elevating apparatus, the combination with a water-chamber, means providing for the ingress and egress of the water, means for leading air under pressure to the chamber to force the water therefrom, and a controlling-valve for the air; of an escape-passage leading from the chamber to the controlling-valve to move the same, an escape-valve preventing the return of the air from the passage when the pressure within the chamber is reduced, whereby a full stroke of the controlling-valve is assured, and float-operated locking means for the escape-valve.

11. In a water-elevating apparatus, the combination with a water-chamber, means providing for the ingress and egress of water, means for leading air under pressure to the chamber to force the water therefrom, and a controlling-valve for the air; of an escape-passage for leading air from the chamber to the controlling-valve to move the same and provided with a relief-port, a relief-valve controlling the port and arranged to be closed by air passing through the passage to the controlling-valve, an escape-valve controlling the escape of air to the passage from the chamber, and means for exhausting air from the passage when the proper movement of the controlling-valve has been effected, whereby the relief-valve is permitted to open to relieve the back pressure induced by the return movement of the controlling-valve.

751,627. PNEUMATIC BLOWER. DAVID R. GARDINER, Neepawa, Canada. Filed Aug. 25, 1903. Serial No. 170,714. (No model.)



Claim.—1. In a blower, a casing having a discharge chute or opening, an opening at one side thereof for introduction of straw, and an opening at the other side for admission of air, and a rotary fan in said casing having a series of radial main blades and a central series of helically-arranged auxiliary blades at the side adjacent to the latter opening for drawing in air through said opening.

2. In a blower, a circular casing having a tangential discharge-chute, an opening at one side for introduction of straw, and a central circular air-opening at the opposite side, and a rotary fan concentrically disposed in said casing having a central series of main blades and a series of helically-arranged auxiliary blades at the side adjacent to said air-opening projecting into and revolving within said opening.

3. In a blower, a casing having a discharge-chute, an opening at one side for introduction of straw, and a central air-inlet opening at the opposite side, and a rotary fan in said casing comprising a series of main blades having their edges adjacent to the straw-inlet opening rolled or turned in the direction of rotation, a central disk or plate at the side next to said opening, and a central series of small auxiliary blades at the opposite side of the fan for drawing the current of air through the air-inlet opening into the center of the fan.

4. In a blower, a casing having a discharge-chute, an opening at one side for introduction of straw, and an air-inlet-opening at the opposite side, and a rotary fan in said casing comprising a series of main blades having their edges adjacent to the straw-inlet opening rolled or turned in the direction of rotation and tapered from the

central part of the fan toward the outer ends of the blades, a central disk or plate at the side of the fan next to said opening, and a central series of auxiliary blades at the opposite side arranged to draw a current of air through said air-inlet opening into the center of the fan.

5. In a blower, a casing having a discharge-chute and a straw-opening at one side and an air-opening at the opposite side, and a rotary fan in said casing having a series of main blades and a central series of small helically-arranged blades at the side next to said air-opening for drawing a current of air therethrough, and pivoted plates adapted to close or partially close said air-opening to control the current.

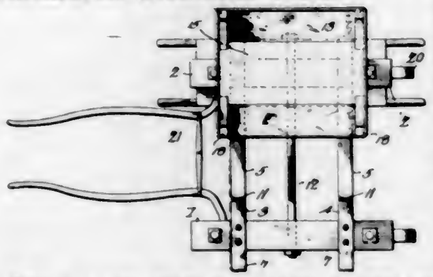
6. In a blower, a fan-casing having a peripheral discharge chute or opening, an opening at one side for introduction of straw, and a central air-inlet opening at the opposite side, a rotary fan in said casing having a series of radial main blades whose edges adjacent to said straw-inlet opening are rolled or turned in the direction of rotation, and a central series of auxiliary blades at the side of the fan adjacent to said air-opening for drawing a current of air therethrough to the center of the fan.

7. In a blower, a fan-casing having a peripheral discharge chute or opening, an opening at one side for introduction of straw, and a central opening at the other side for admission of air, a rotary fan in said casing having a series of blades, and a central series of auxiliary blades at the side adjacent to said air-opening for drawing air therethrough to the center of the fan, and protecting means at the opposite side of the fan for preventing the passage of air laterally through the fan and preventing access of straw to the center of the fan.

8. In a blower, a fan-casing having a discharge chute or opening and a side opening for introduction of straw, and a rotary fan in said casing having a series of radial blades with their edges adjacent to said straw-opening rolled or turned in the direction of rotation, and a central disk or plate to which said turned edge portions are attached.

9. A rotary fan having a series of radial main blades with their edges at one side rolled or turned forward, a central disk or plate at the same side, and a central series of helically-arranged auxiliary blades at the opposite side.

751,628. TOBACCO-TRUCK. JOHN A. GARDNER, Grifton, N. C. Filed June 29, 1903. Serial No. 163,610. (No model.)



Claim.—1. A truck, having spaced sills and an arched frame connecting them, removable receptacles, and terminally-disposed means on the arched frame for engaging opposite sides of the receptacles.

2. A truck, having an arched frame with terminal and intermediate portions, and removable receptacles carried by the frame and having their side walls oppositely engaged by the terminal and intermediate portions respectively.

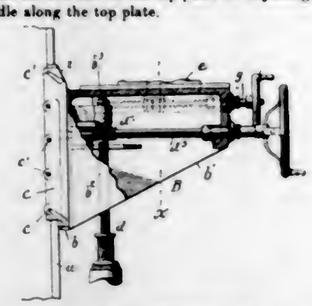
3. A truck having sills arched spacing members connecting the sills and provided with terminal receptacle-engaging flanges on the respective sides of the truck and receptacles engaged by the flanges.

4. A truck having arched frames with parallel, yielding, upstanding terminally-disposed engaging portions and receptacles engaged by said portions.

5. A truck having spaced sills, receptacle-holding means on the sills having upstanding flanges arranged on opposite sides of each sill, with transverse intermediate connecting portions terminally connected with the upstanding flanges which are arranged between the sills.

751,629. MILLING-MACHINE. GEORGE K. GARVIN, New York, N. Y. Filed Nov. 13, 1903. Serial No. 181,001. (No model.)

Claim.—In a milling-machine, the combination with a standard, of a knee having a solid closed top plate and a back plate extending above the top plate and adapted to engage with the standard at points above said top plate, a saddle supported upon said top plate and means external to the top plate for adjusting the position of the saddle along the top plate.



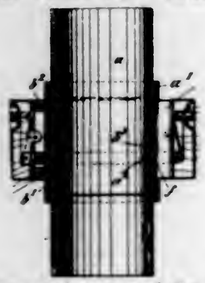
751,630. COMBINATION-PLOW. GEORGE H. GILL, Wake Forest, N. C. Filed Oct. 23, 1903. Serial No. 178,277. (No model.)



Claim.—1. In a plow, the combination of the standard consisting of a flat member having a front sloping flange projecting to its earth side, a casting set against the earth side of the standard and bearing against the under side of said flange to prevent turning thereof, a landside fitted against the opposite flat side, and side sweeps fitted against said casting and said landside, all secured together by a single fastening-bolt, together with a point and moldboard secured on said flange.

2. A convertible plow and cultivator comprising a standard having at the front thereof a lateral flange with seats thereon for a moldboard and share, each adapted to be secured thereto by a single fastening-bolt and coöperating ribs or flanges on the standard, moldboard, and share for sustaining said parts in proper position and relieving strain on said fastening-bolts; the said standard having a rearwardly-extending base with an apertured lug for attachment of a handle, and a recess on the land side thereof to receive a teat upon a detachable cultivating-blade, together with a detachable plate on its opposite side for the attachment thereto of a similar cultivating-blade and recesses in said plate adapted to receive a lug on said cultivating-blade for adjusting the latter on its pivot to change its inclination, and operative parts adapted to be secured to said standard, substantially as described.

751,631. HOSE-COUPLING. JOSEF GLOCK, New York, N. Y. Filed Nov. 20, 1903. Serial No. 181,913. (No model.)



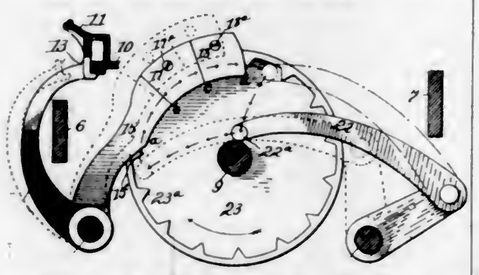
Claim.—1. A hose-coupling composed of a male member having a groove, a perforated female member, a lever pivotally connected thereto, a bolt and a push-pin pivoted to opposite ends of the lever, and a housing having a concavity around the push-pin, substantially as specified.

2. A hose-coupling composed of a female member having a perforated socket, a slotted base-plate secured thereto, a lever pivoted to the base-plate, a bolt and a push-pin pivoted to opposite ends of the lever, and a male member having a groove adapted to be engaged by the bolt, substantially as specified.

3. A hose-coupling provided with a female member having a flanged perforated socket, a base-plate supported upon the socket-flanges, a spring-influenced lever pivoted to the base-plate, a bolt and a push-pin pivoted to opposite ends of the lever, and a male member having a groove adapted to be engaged by the bolt, substantially as specified.

4. A hose-coupling provided with a female member having a flanged perforated socket, a slotted base-plate supported upon the socket-flanges, a spring-influenced lever pivoted to the base-plate, a bolt and a push-pin pivoted to opposite ends of the lever, a housing having a concavity around the push-pin, and a male member having a collar and a groove which is adapted to be engaged by the bolt, substantially as specified.

751,632. CORN-PLANTER. LEVI P. GRAHAM, Decatur, Ill. Filed Oct. 8, 1903. Serial No. 176,293. (No model.)



Claim.—1. In a planter, the combination of a seedbox, a bottom for the seedbox having a discharge-opening, a closure for the discharge-opening of the seedbox, a seed-plate in the seedbox, means for rotating the seed-plate, means for opening the seedbox-closure at intervals and a variable-length cam element for holding the closure open for a longer or shorter time.

2. In a planter, the combination of a seedbox, a seed-plate in the box having a plurality of cells, check-row mechanism, a closure for the box, gear for driving the seed-plate from the travel of the planter and box-opening gearing including a pair of contacting mechanical elements one of which moves along the other to hold the box open and one of which is variable in length to permit variation in the time the box is held open; the box-opening mechanism being actuated from the travel of the planter at times determined in a general way by the check-row mechanism.

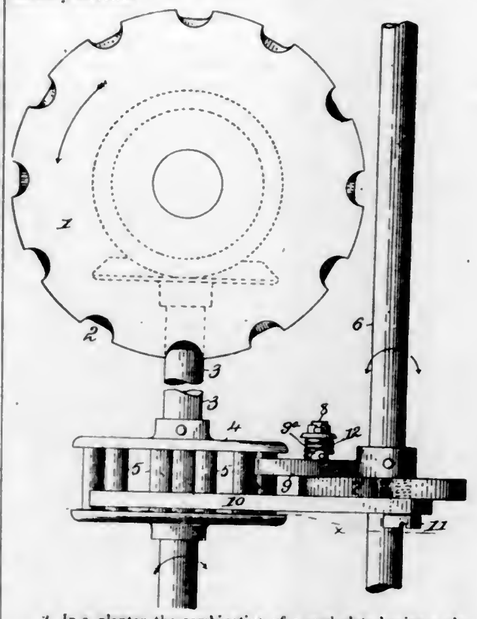
3. In a planter, the combination of a seedbox, a seed-plate in the box having a plurality of cells, check-row mechanism, a closure for the box, a ratchet-wheel having teeth corresponding in number to the cells of the seed-plate, means for driving the seed-plate and the ratchet-wheel at equal speeds from the travel of the planter, a box-opening cam of variable length, and means controlled by the check-row mechanism for opening the seedbox through action of the ratchet-wheel and the cam.

4. In a planter, the combination of a seedbox, a bottom for the seedbox having a discharge-opening, a closure for the discharge-opening of the box, a seed-plate in the seedbox, means for rotating the seed-plate, means for opening the box-closure at intervals and a variable-length cam for holding the box open.

5. In a planter, the combination of a seedbox, a bottom for the seedbox having a discharge-opening, a closure for the discharge-opening of the box, a seed-plate in the seedbox, means for rotating the seed-plate, means for opening the box-closure at intervals and a cam-element for holding the box open, said cam element being extendo lengthwise by means of detachable sections.

751,633. CORN-PLANTER. LEVI P. GRAHAM, Decatur, Ill. Filed Oct. 26, 1903. Serial No. 178,607. (No model.)

Claim.—1. In a corn-planter, the combination of a ratchet-wheel, a seed-plate partaking of the motion of the ratchet-wheel and having as many single-grain seed-cells as the ratchet-wheel has teeth, a rocking check-row shaft; means for advancing the ratchet-wheel an invariable number of teeth through the rock of the shaft in one direction and means for advancing the ratchet-wheel a variable number of teeth through the rock of the check-row shaft in the contrary direction



2. In a planter, the combination of a seed-plate having a plurality of single-grain seed-cells, a ratchet-wheel having as many teeth as the seed-plate has cells, a rocking check-row shaft, a pawl carried by the check-row shaft and adapted to advance the ratchet-wheel an invariable number of teeth as the check-row shaft is rocked in one direction, an adjustable pawl carried by the check-row shaft and adapted to advance the ratchet-wheel a variable number of teeth as the check-row shaft is rocked in the opposite direction, and means for transmitting the motion of the ratchet-wheel to the seed-plate.

751,634. RHEOSTAT. GEORGE GRAYBILL and JOHN P. ODEN, York, Pa. Filed June 8, 1903. Serial No. 160,604. (No model.)



Claim.—1. In a device for the purpose described, the combination of a socket containing two electric contacts insulated from each other, an insulated tube or cylinder of conducting material attached to said socket and electrically connected with one of the contacts thereof, an insulated sleeve surrounding and electrically connected with one of the contacts thereon, means for moving said tube longitudinally of the sleeve, two electric contacts carried by said sleeve and insulated from each other, a rod or pin electrically connected with one of said contacts on the sleeve and extending into said tube and adapted when the sliding tube is in its innermost position to bear

against the second contact in the socket, and a body of resistance material in powdered form arranged within said tube about the said rod or pin, said resistance material being insulated from the said tube within which it is arranged.

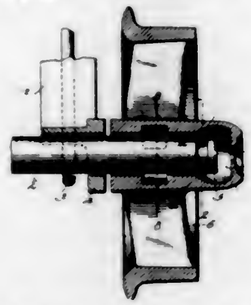
2. In a device for the purpose described, the combination of two concentrically-arranged telescopically-connected tubes which are in electrical connection in every adjusted position, a plug connected to one end of the outer tube and provided with two contacts, insulated from each other, and one of which is electrically connected with the body of said tube, a conducting rod or pin electrically connected with the other contact in said plug and extending into and longitudinally of the inner tube, a body of finely-divided resistance material arranged within said inner tube about said rod or pin therein, said resistance material being insulated from the said inner tube, a socket provided with two contacts, insulated from each other, one of which is arranged in the path of said rod or pin and the other being electrically connected with the said inner tube, and means for adjusting one of said tubes relative to the other and maintaining it in any adjusted position.

3. In a device for the purpose described, the combination of a socket, a tube electrically connected with said socket, a contact arranged within said tube and socket and insulated therefrom, a sleeve loosely surrounding and electrically connected with said tube, a plug connected with and closing the outer end of said sleeve, said plug having two contacts, insulated from each other, one electrically connected with said sleeve and the other adapted to bear against the contact within the said tube and socket, a body of resistance material arranged within said tube over the socket-contact therein, and through which the aforesaid contact on the plug is adapted to pass, as the sleeve is moved longitudinally of the tube, and means for moving said tube longitudinally of the sleeve and maintaining it in any adjusted position.

4. The herein-described rheostat consisting of two telescoping tubes, electrically connected in every adjusted position, two contacts secured to the inner tube one being electrically connected with said tube and the other insulated therefrom, two contacts carried by the outer tube and insulated from each other, one of said contacts on the outer tube being adapted to bear against one of the contacts on the inner tube when the sliding tube is retracted, and a body of resistance material arranged within and insulated from the inner tube and through which the last said contacts on the outer tube moves as said inner tube is adjusted longitudinally of the outer tube.

5. The herein-described rheostat consisting of a relatively stationary tube of conducting material, a body of resistance material arranged in and insulated from said tube, a contact arranged at one side of said resistance material and insulated from said tube, a sleeve of conducting material surrounding said tube, means for moving the tube relative to the sleeve, said sleeve having a constant electrical connection with the tube, and two contacts carried by said sleeve and insulated from each other, one of said contacts extending into the said resistance material in the tube, and the amount of such material between said contact and the aforesaid contact at one side of said material being varied as the tube is adjusted longitudinally of the sleeve.

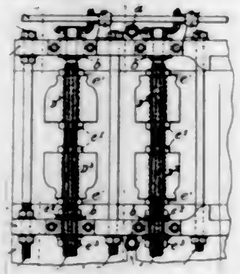
751,635. **SELF-LUBRICATING WHEEL FOR CARS, &c.** CHAS. J. GUSTAFSON, Chattanooga, Tenn. Filed May 19, 1903. Serial No. 157,362. (No model.)



Claim.—1. The combination with a car-axle having a peripheral groove formed adjacent to its outer end, of a wheel-hub mounted for rotation upon the axle and having an integral portion extended beyond the outer end of the axle and provided with an internal oil-chamber, said chamber having its side walls provided with lateral enlargements forming thickened portions and a pair of pins or bolts extended through the thickened portions of the walls of the chamber in threaded engagement therewith and engaging the axle-groove.

2. The combination with a car-axle having a peripheral groove formed adjacent to its outer end, of a wheel-hub mounted for rotation upon the axle and having an integral portion extended beyond the ends of the same and provided with an internal oil-chamber, the wall of the chamber being provided opposite the end of the axle with an oil-inlet orifice, a web formed upon the inner face of said wall and provided with a groove communicating with said orifice, and a pair of pins or bolts extended through the walls of the chamber in engagement with the axle-groove, said pins being of a size relative to the groove to permit movement of the hub longitudinally of the axle.

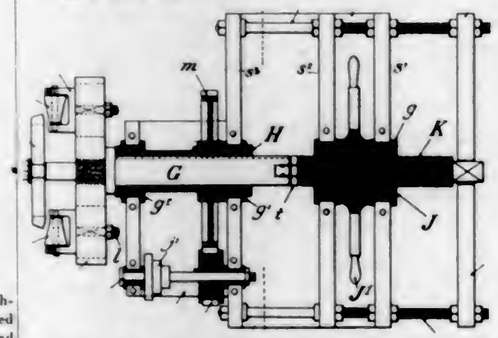
751,636. **MACHINE FOR WORKING PIPE-PLATES.** EDWIN HANCOX, Stockton-on-Tees, England. Filed Dec. 2, 1901. Serial No. 84,460. (No model.)



Claim.—1. In a machine for bending pipe-plates having upset or thickened edges, in combination, a roll having its ends gradually reduced in a curve and a circumferential groove in such reduced portion, and a coacting roll having its ends gradually enlarged in a corresponding curve and a cooperating circumferential groove in such enlarged portion, substantially as and for the purposes described.

2. In a machine for bending pipe-plates, in combination, a set of rolls for giving a preliminary bend to the plate edges, comprising a roll having its ends gradually reduced in a curve and a coacting roll having its ends gradually enlarged in a corresponding curve, said rolls having each a circumferential groove on its enlarged or reduced portion respectively to cooperate with the corresponding groove on the coacting roll, and a set of rolls for giving a further bend to the plate, comprising a roll having its end gradually reduced in a curve to a smaller diameter than the corresponding roll in the preceding set and a coacting roll having its ends enlarged in a corresponding curve, said rolls having each a circumferential groove on its enlarged or reduced portion respectively to cooperate with the corresponding groove on the coacting roll, whereby a plate in passing through the machine will gradually be given the desired degree of curvature, substantially as and for the purposes described.

751,637. **APPARATUS FOR UPSETTING PIPE ENDS.** EDWIN HANCOX, Stockton-on-Tees, England. Filed Dec. 2, 1901. Serial No. 84,461. (No model.)



Claim.—1. In an apparatus for upsetting pipe ends, the combination with means for holding the pipe, of a shaft, a head or disk on the shaft carrying upsetting-rollers, means for rotating the shaft, means for moving the shaft in line of its axis whereby the rollers on the head or disk may be made to bear on the pipe end, and a mandrel on the shaft adapted to enter the pipe end to hold the same true and to prevent distortion by the rollers, as set forth.

2. In an apparatus for upsetting pipe ends, the combination with means for holding the pipe, of a shaft, a head or disk on the shaft carrying upsetting-rollers, means for rotating the shaft, means for moving the shaft longitudinally while rotating, and a non-rotating mandrel carried by said shaft and adapted to enter the pipe end, as set forth.

3. In an apparatus for upsetting pipe ends, the combination with means for holding the pipe, of a shaft composed of sections, a head or disk carrying upsetting devices on one of the sections, means for rotating the head or disk bearing section, means for moving the shaft in line of its axis whereby the upsetting devices on the head or disk may be made to bear on the pipe end, and a mandrel on the shaft adapted to enter the pipe end to hold the same true and to prevent distortion, as set forth.

4. In an apparatus for upsetting pipe ends, the combination with means for holding the pipe, of a shaft composed of two sections, a head or disk carrying upsetting devices on one of the sections, means for rotating the head or disk bearing section, a screw device on the other section for reciprocating the entire shaft in line of its axis, and a mandrel on the shaft adapted to enter the pipe end to hold the same true and to prevent distortion, as set forth.

5. In an apparatus for upsetting pipe ends, the combination with a shaft composed of sections, one of said sections carrying an upsetting head or disk, the other section being screw-threaded, of a relatively stationary screw-threaded sleeve on the last-named section, a bearing for the sleeve, and means for rotating the sleeve in its bearings, whereby the shaft may be reciprocated through the sleeve, as set forth.

751,638. **ATTACHMENT FOR COTTON-SEED LINTERS.** JOHN W. HARRINGTON, Eastpoint, Ga. Filed May 2, 1903. Serial No. 155,410. (No model.)



Claim.—1. The combination with the feed-chute of a cotton-seed linter, of a feed-roll disposed adjacent to the lower end of the chute, a fixed magnetic separator disposed in the bottom of said chute beneath and slightly in front of said feed-roll, and a rotary cotton-seed distributer mounted above said magnetic separator in the space between the separator and the feed-roll.

2. The combination with the feed-chute of a cotton-seed linter, of a feed-roll mounted near the lower end of the chute, a fixed magnetic separator mounted at the lower end of said chute beneath and in front of said feed-roll, a feed-board disposed in front of said feed-roll and spaced above said separator, and a rotary cotton-seed distributer disposed between said separator and said feed-board.

3. An attachment for the feed-chutes of cotton-seed linters provided with fixed magnetic separators and rotary feed-rolls disposed above the separators, said attachment comprising a rotary cotton-seed distributer and means for removably supporting said distributer between the feed-roll and the separator.

4. The combination with the feed-chute of a cotton-seed linter of a fixed magnetic separator therefor provided at the terminal thereof, a rotary distributer adjustably mounted above said separator, and a feed-roll above said distributer.

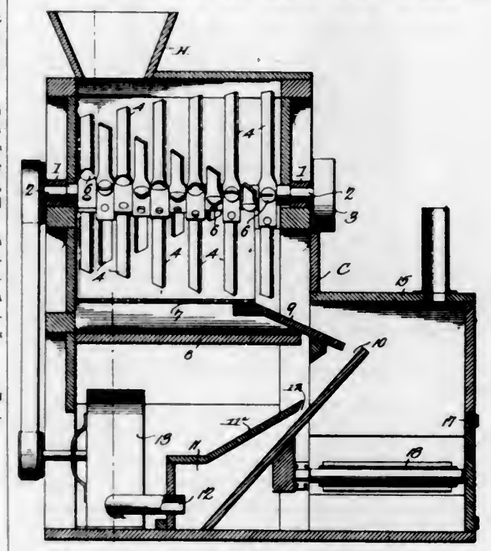
5. The combination with the feed-chute of a cotton-seed linter of a fixed magnetic separator provided at the lower terminal thereof, a rotary distributer having a plurality of projections adapted to pass in close proximity to said separator, and a feed-roll located adjacent to said distributer.

6. The combination with the feed-chute of a cotton-seed linter of a fixed magnetic separator located at the lower terminal thereof, a rotary distributer supported above said magnet and comprising a bar having a plurality of radially-disposed rows of spikes projecting therefrom, said spikes being adapted to pass in close proximity to said separator, a feed-roll mounted adjacent to said distributer, and driving connections between said feed-roll and said distributer.

7. The combination with the feed-chute of a cotton-seed linter of a fixed magnetic separator, a rotary distributer mounted above said separator and comprising a bar having a plurality of projections radially disposed thereon and adapted to pass in close proximity to said separator, and journals for said bar mounted in bearings at the sides of said feed-chute, one of said journals being detachable from said bar.

8. The combination with the feed-chute of a cotton-seed linter, of a fixed magnet disposed at the discharge end thereof in the bottom of the chute, a rotary cotton-seed-distributing device having a removable journal at one end thereof, and adjustable brackets within which said distributing device is mounted for rotary movement above the magnet.

751,639. **COTTON-SEED CLEANER.** JOHN W. HARRINGTON, Augusta, Ga. Filed June 22, 1903. Serial No. 162,680. (No model.)



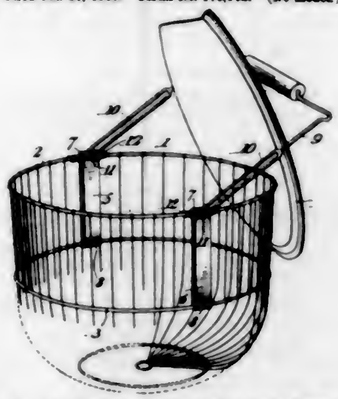
Claim.—1. The combination in a cotton-seed cleaner of a casing, a concave screen near the bottom of said casing, a shaft arranged longitudinally of said screen on the upper side thereof, a plurality of beaters secured upon said shaft, a discharge-chute sloping laterally beneath said screen to a discharge-opening in the side of the casing, an inclined surface arranged at the discharge end of said screen, a second inclined surface arranged substantially perpendicular to the first inclined surface and spaced from the lower end thereof, a trash-receiving box at the bottom of one side of the second inclined surface and spaced a short distance therefrom, a hood or receiving-chamber at the opposite side of said inclined surface and an escape-pipe for dust-laden air provided in the top of said hood out of the plane of said second inclined surface.

2. The combination in a cotton-seed cleaner, of a casing, a concave screen near the bottom of said casing, a plurality of revolving beaters above said screen, a laterally-inclined discharge-chute beneath said screen sloping to a discharge-opening in the side of the casing, an inclined surface at the end of said screen over which cotton-seed passes from the screen, a second inclined surface arranged substantially perpendicular to the first inclined surface and spaced from the lower end thereof, a trash-receiver at the bottom of said second inclined surface and having a deflecting top spaced therefrom, a blower projecting a current of air against the lower portion of said second inclined surface at an angle thereto, a hood covering the upper end of said second inclined surface and spaced a short distance therefrom, an air-escape pipe in the top of said hood and a traveling apron at the bottom of said hood to receive the cleaned cotton-seed as it drops from the top of said hood.

3. The combination in a cotton-seed cleaner, of a casing, a concave screen arranged in the bottom of said casing, a laterally-inclined discharge-chute beneath said screen sloping to a discharge-opening in the side of the casing, an inclined surface at the end of said screen, a shaft arranged longitudinally of said screen on the upper side thereof, and a plurality of beaters secured upon said shaft, said beaters being arranged in spiral lines and being secured to the shaft in pairs, of which the two members project in almost directly opposite directions from the shaft, upon which they are secured by

means of bolts arranged on opposite sides of the shaft and passing through both members of the pair of beaters.

751,640. **VEGETABLE-COOKER.** JOHN H. HAYES, East Tawas, Mich., assignor of one-half to Louis Hayden Braddock, Tawas City, Mich. Filed Oct. 28, 1903. Serial No. 178,902. (No model.)

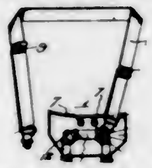


Claim.—1. A receptacle, tubular guides carried by the receptacle, a slotted handle working in the guides, means for securing the guides to the receptacle, terminally engaging the receptacle, and intermediately passing through the tubes and the slots in the handle.

2. A wire basket, having spaced rings, a handle-guide having bifurcated ends engaging the respective rings and a sliding handle in the guide.

3. A wire basket, having spaced rings, tubular braces interposed between the rings and having bifurcated terminals engaging the rings on opposite sides, and a binding-wire terminally engaging the rings and intermediately engaging the tubular brace.

751,641. **ABDOMINAL SUPPORTER.** MARTHA HASELBAKER, Kokomo, Ind. Filed Oct. 29, 1903. Serial No. 179,093. (No model.)



Claim.—1. The combination with a body-waist or the like having flaps or flies at its front and loops at its back, of an abdominal pad attached to said flaps or flies, a hip-strap passing through said loops and detachably connected to said pad, and adjustable thigh or leg straps connecting said pad and said loops, substantially as described.

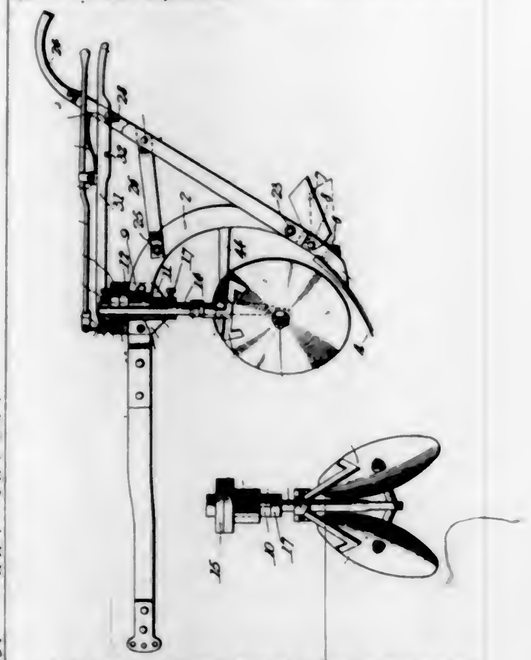
2. The combination with a body-waist or the like having attaching flaps or flies at its front and guide-loops at its back, of an abdominal pad detachably connected to said flaps or flies, an adjustable hip-strap passing through said loops and yieldably and detachably connected to said pad, and thigh or leg straps having their front ends adjustably connected to said pad and their rear ends adjustably connected to said loops, substantially as described.

751,642. **PLOW.** EDWARD G. HENRY, Carrollton, Ga., assignor of one-half to W. T. Herrin, Carrollton, Ga. Filed May 11, 1903. Serial No. 156,869. (No model.)

Claim.—1. In a plow of the class described, a beam, a standard composed of side pieces spaced by said beam and united by the point, said side pieces being bulged in rear of the beam, a sleeve mounted between the side pieces at the bulged portion thereof, and a disk-carrying shaft revoluble in said sleeve.

2. In a plow of the class described, a beam, a standard composed of side pieces spaced by said beam and having bulged portions in rear of the latter, a sleeve fitted between said bulged portions and having wings spacing the adjacent unbulged portion of the side beams apart, and a disk-carrying shaft mounted revolubly in said sleeve.

3. In a plow of the class described, a beam, a standard composed of side pieces spaced by said beam and having bulged portions in rear thereof, a sleeve supported between the bulged portions of the said side pieces, a disk-carrying shaft mounted revolubly in said sleeve, a horizontally-disposed disk at the upper end of the latter, and a companion disk mounted upon the shaft to retain the latter against downward displacement.



4. In a plow of the class described, a beam, a standard composed of side pieces spaced by said beam and having bulged portions in rear of the latter, a sleeve supported between said bulged portions and having a supporting-disk at its upper end, a disk-carrying shaft mounted revolubly in said sleeve and supporting-disk, a companion disk secured at the upper end of said shaft, and means for retaining the supporting-disk and its companion disk upon the shaft in adjusted position with relation to each other to thereby retain the disk at the lower end of the shaft in position at either side of the standard.

5. In a plow of the class described, a beam, a standard composed of side pieces spaced by said beam, a sleeve between said side pieces, a disk-carrying shaft journaled in said sleeve, means for partially rotating the shaft in its bearings and for retaining it in adjusted position, a spacing-plate interposed between the side pieces of the standard, and an arm extending forwardly from said spacing-plate and affording an auxiliary bearing for the disk-carrying shaft.

6. In a plow of the class described, a beam, a standard composed of side pieces spaced by the beam, a disk-carrying shaft approximately vertical, supported by the beam, a spacing-plate interposed between the side pieces of the standard, and an arm extending from said spacing-plate and affording an auxiliary bearing for the disk-carrying shaft.

7. In a plow of the class described, an approximately vertically disposed disk-carrying shaft, a sleeve affording a bearing for said shaft, a supporting disk at the upper end of said sleeve, a companion disk secured to the shaft, an operating-bar having an arm connected pivotally with the said companion disk and provided with a perforation, a lever connected pivotally with the operating-bar and having a pivoted member extending through the perforation of the arm of the operating-bar, and suitably-disposed perforations in the supporting-disk and the companion disk for the reception of said pivoted member.

751,643. **KEY-RING.** THEODOR HERTZER, New York, N. Y. Filed Sept. 28, 1903. Serial No. 174,962. (No model.)

Claim.—1. A key-ring having a body with an opening between its ends, a disk pivoted to one end and covering the opening, said disk having a slot or notch for the insertion and removal of the keys, and a pin or lug on said disk adapted to engage either side edge of the end to which the disk is pivoted, to limit the rotary movement of the disk in both directions, substantially as described.

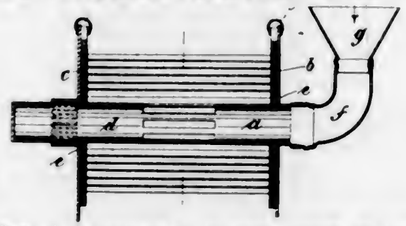


2. A key-ring having a body with an opening between its ends, a disk pivoted to one end and covering the opening, said disk having a slot or notch for the insertion and removal of the keys, and a pin or lug on said disk adapted to engage either side edge of the end to which the disk is pivoted, to limit the rotary movement of the disk in both directions, and means for preventing casual turning of the disk, substantially as described.

3. A key-ring having a body with an opening between its ends, a pair of opposite similar disks pivoted to one end of the body and covering the opening therebetween, and provided with notches or slots for the insertion and removal of the keys; and a pin or lug between the disks adapted to engage with either side edge of the end to which the disks are pivoted to limit the movements of the disks in both directions, said pin being forced through the opening by turning the disks from one extreme position to the other, substantially as described.

4. The herein-described key-ring, comprising a body bent into a loop with a slight opening between its ends, a pair of disks pivoted to one end of the body and closing the opening therebetween, said disks having coincident radial notches, a pin connecting the disks and adapted to engage either side edge of the end to which the disks are pivoted, to limit their rotary movements in both directions, and means for preventing casual turning of the disks, substantially as and for the purpose described.

751,644. **APPARATUS FOR DEVELOPING, WASHING, AND FIXING PHOTOGRAPHIC FILMS.** MAXIMILIAN HERZ, Berlin, Germany. Filed Sept. 4, 1903. Serial No. 172,018. (No model.)



Claim.—1. An apparatus for developing, washing and fixing photographic films without a dark room, comprising means for winding up a photographic film in a series of separated layers, means for introducing fluids between the convolutions of the film, means for keeping water-tight the layers of the film, and means for keeping actinic-proof the film when wound up.

2. In an apparatus of the character herein described, the combination of a cylindrical core adapted to receive the windings of the film, and two disks on said core; with means for introducing fluids between the convolutions of the film and means for separating the convolutions of the film.

3. An apparatus of the character herein described, the combination of a tube and a funnel, a hollow core furnished with holes on its circumference, two disks on said core at opposite sides of said holes, and means for separating the layers of a film wound on the core between the disks.

4. An apparatus of the character herein described, comprising a hollow core, closed at one end, open at the other end and furnished with holes on its circumference, two disks on the core at opposite sides of said holes, and means for introducing fluids in the core, and means for separating the layers of a film wound on the core between the disks.

5. An apparatus of the character herein described, comprising a core, a fixed disk thereon and a disk movable along the core, and means for separating the layers of the film wound on the core

6. An apparatus of the character herein described, the combination of a core adapted to have a film wound thereon, with two strips of flexible material, adapted to separate the layers of the film from one another, and means for introducing fluids between the convolutions of the film.

7. An apparatus of the character herein described, the combination of a core adapted to have a film wound thereon, with two strips of flexible material adapted to be wound between the convolutions of the core, and means for introducing fluid between the convolutions of the film.

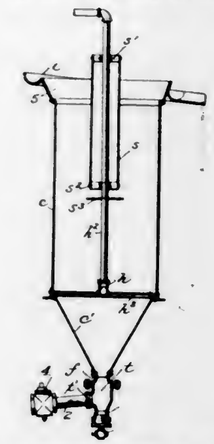
8. An apparatus of the character herein described, the combination of a hollow core, two side disks, and two strips of flexible material adapted to be wound with a film between the disk and upon the core.

9. In an apparatus of the character herein described, the combination of a hollow core, and two side disks thereon, with two strips of flexible material, and an actinic-proof paper strip adapted to be wound on the core with the film, substantially as described.

10. An apparatus for developing, washing and fixing photographic films without a dark room, comprising a cylindrical core adapted to receive the film and two narrow strips of flexible material adapted to be laid on the edges of the film as the latter is wound up, substantially as described.

11. In an apparatus of the character herein described, the combination of a core and two narrow strips of flexible material adapted to be wound on the core with a film; with a fixed side disk and a side disk movable along the core, substantially as described.

751,645. **PNEUMATIC HYDRAULIC SEPARATOR.** FRANK W. HOPKINS, Denver, Colo., assignor to the Colorado Iron Works Company Denver, Colo. Filed Apr. 2, 1903. Serial No. 150,826. (No model.)



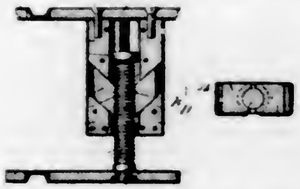
Claim.—1. In combination the casing having the upper and lower outlets, means for introducing air into the casing extending throughout the entire cross-sectional area of the casing to diffuse the air gently throughout the entire mass of material, said casing being unobstructed for the passage of the material upwardly and downwardly according to weight, an inlet for the crushed material at a point below the surface of the liquid in the casing and a deflector or spreader extending across the inlet to spread the material issuing therefrom and to prevent the escape of the air therethrough, the air-introducing means being located at a distance below the deflector with a liquid-space intervening, substantially as described.

2. In combination a casing having an upper and a lower outlet, an air-header in the form of an open grating located within the casing, an air-pipe extending centrally of the casing and extending across the casing to diffuse the air gently throughout the entire mass of material and connecting with the said header, a sleeve surrounding the said pipe and extending vertically of the casing and a deflector extending across the lower end of the sleeve and surrounding the air-inlet pipe, substantially as described.

3. In combination a casing, means for introducing the material into the same having its discharge end below the surface of the liquid in the casing a deflector extending across the said discharge end, air-introducing means at a point some distance below the said deflector with a liquid-space intervening said air-introducing means

extending across the casing to diffuse the air gently throughout the entire cross-sectional area of the casing, and the space within the casing being free for the rise of the air and the lighter particles around and above the point of introducing the material, the casing having an upper and a lower discharge and the air-introducing means permitting the downward passage of the heavier particles, substantially as described.

751,644. LOCK FOR THE ADJUSTABLE BACK-FRAMES OF ACCOUNT-BOOKS. ANDREW D. HULQUIST, Chicago, Ill., assignor to J. S. McDonald, Chicago, Ill. Filed May 28, 1903. Serial No. 159,110. (No model.)



Claim.—1. In a book the combination with clamping-plates, of a bolt secured to and projecting from one of said plates toward the other, and a suitable case secured to and projecting from the opposite plate into which said bolt extends, and two gravity-operated devices within said case separately interlocking with said bolt.

2. In a book the combination with clamping-plates, of a bolt secured to and projecting from one of said plates toward the other and a suitable case secured to and projecting from the opposite plate into which said bolt extends, and two gravity-operated devices within said case simultaneously engaging and separately interlocking with said bolt.

3. In a book the combination with clamping-plates, of a bolt secured to and projecting from one of said plates toward the other and a suitable case secured to and projecting from the opposite plate into which said bolt extends, and two gravity-operated devices within said case simultaneously engaging and separately interlocking with said bolt at points diametrically opposite each other.

4. In a book the combination with clamping-plates, of a corrugated bolt secured to and projecting from one of said plates toward the other, a suitable case having a central longitudinal opening therein, into which said bolt extends and guideways oblique to said central opening, and two gravity-operated devices that have corrugated engaging edges and located within said case and separately engaging and interlocking with said bolt.

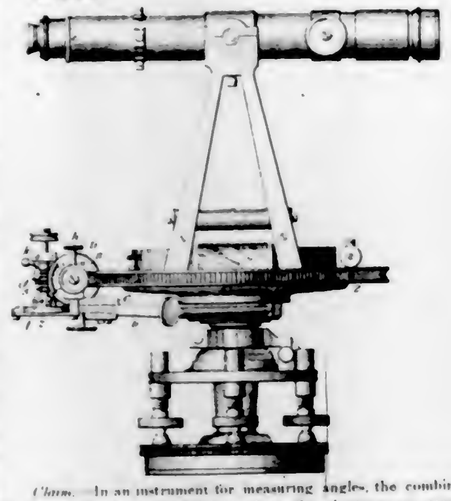
5. In a book the combination with clamping-plates, of a corrugated bolt secured to and projecting from one of said plates toward the other and having its unsecured end enlarged, a suitable case having a central longitudinal opening the mouth in the unsecured end of which through which the bolt passes into said case being restricted, and having guideways oblique to said central opening, and gravity-operated blocks in said guideways having corrugated engaging edges and separately engaging said bolt.

6. In a book, the combination with clamping-plates, one of which has a screw-threaded opening therein the outer end of which is countersunk, of a bolt having a short screw-threaded extension of reduced diameter at one end engaging said opening; a nut in said countersunk portion; a case secured to the opposite plate into the unsecured end of which said bolt extends longitudinally, and two gravity-operated blocks engaging said bolt at points diametrically opposite each other.

7. In a book the combination with clamping-plates one of which has a screw-threaded opening therein the outer end of which is countersunk, of a bolt having a short screw-threaded extension of reduced diameter at one end engaging said opening and its opposite end enlarged, a nut seated in said countersunk, a suitable case secured to the opposite plate having a central longitudinal opening the mouth in the unsecured end of which through which the bolt passes into the case being restricted, and two gravity-operated blocks engaging said bolt at points diametrically opposite each other.

8. In a book the combination with clamping plates, one of which has a screw-threaded opening therein the outer end of which is countersunk, of a bolt having a short screw-threaded extension of reduced diameter at one end engaging said opening and its opposite end enlarged, a nut seated in said countersunk, a case secured to the opposite plate having a longitudinal central opening therein the mouth in the unsecured end of which through which the bolt passes into the case being restricted; and having oppositely-located oblique guideways therein communicating with said central longitudinal opening, and gravity-operated blocks in said guideways as and for the purposes set forth.

751,647. INSTRUMENT FOR MEASURING ANGLES. FRANCIS E. HUTCHINS, Warren, Ohio. Filed Dec. 17, 1903. Serial No. 185,604. (No model.)



Claim.—In an instrument for measuring angles, the combination with the telescope and degree-plate, of a minutes-screw, means for engaging and disengaging the degree-plate and the minutes-screw, a minutes-dial having a grooved flange around its periphery, a pointer and a lever-catch, means of fastening that dial to the minutes-screw, a sector and means for fastening it to the minutes-screw, a seconds-screw having threads engaging the periphery of the sector, a seconds-dial having a pointer, a vernier and a stop-catch, the whole constituting means for micrometer movement of the telescope and for measuring and indicating in degrees, minutes, seconds, and tenths of a second the exact extent of any movement of the telescope from a given course or point and the exact course or point and the exact value of any angle, substantially as specified.

751,648. PROCESS OF TREATING COPPER ORES. NOAK V. HYBINETTE, Plainfield, N. J. Filed Apr. 23, 1903. Serial No. 154,035. (No specimens.)

Claim.—1. The method hereinbefore described of treating ores of copper and similar metals, which consists in subjecting the ore in a state of coarse division to an oxidizing roasting and converting the metallic compounds thereby into a more or less soluble condition, then roasting it with a reducing agent, thus rendering said compound insoluble, treating the mixture with water and separating the finely-divided valuable material from the coarser gangue, substantially as described.

2. The method hereinbefore described of treating ores of copper and similar metals, which consists in subjecting the ore in a state of coarse division to an oxidizing roasting and converting the metallic compounds thereby into a more or less soluble condition, then roasting it with a reducing agent, thus rendering said compound insoluble, treating the mixture with water and rubbing and separating the finely-divided valuable material from the coarser gangue, substantially as described.

3. The method hereinbefore described of treating ores of copper and similar metals, which consists in subjecting the ore in a state of coarse division to an oxidizing roasting and converting the metallic compounds thereby into a more or less soluble condition, then roasting it with a reducing agent, thus rendering said compound insoluble, treating the mixture with water and screening the finely-divided valuable material from the coarser gangue; substantially as described.

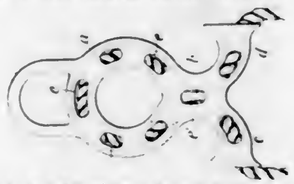
4. The method hereinbefore described of treating ores of copper and similar metals, which consists in subjecting the ore to an oxidizing roasting with a salt of an alkaline metal, then roasting it with a reducing agent, and then separating the valuable material mechanically from the coarser gangue; substantially as described.

5. The method hereinbefore described of treating ores of copper and similar metals which consists in subjecting the ore in a state of coarse division to an oxidizing roasting with sodium sulfate, then roasting it with a reducing agent, treating the mixture with water, and separating the finely-divided valuable material from the coarser gangue; substantially as described.

6. The method herein described of treating ores of copper and similar metals, which consists in loosening the copper compound by converting it partly at least into the condition of a salt soluble in water, then converting it into an insoluble compound, treating the mixture with water, and separating the finely-divided valuable material from the coarser gangue, substantially as described.

7. The method herein described of treating ores of copper and similar metals, which consists in converting the copper constituent of the ore partly at least into the condition of a soluble double salt of copper and an alkaline metal, then converting it into an insoluble compound by heating with a reducing agent, and then separating the valuable material mechanically from the coarser gangue; substantially as described.

751,649. FIRE-ESCAPE. CHARLES A. IVES, New York, N. Y. Filed Mar. 21, 1903. Serial No. 148,936. (No model.)



Claim.—1. In a fire-escape, a friction device comprising an annular tube and tubular arms divergent therefrom in reverse curves, each of said tubular parts being provided with inlets in the tubular walls thereof at suitable intervals for a cooling medium.

2. In a fire-escape, a friction device comprising an annular tubular part adapted to receive a loop of the rope and inclose the same, a larger tubular part at one end of the annular tubular part adapted to receive and inclose both ends of such loop of the rope and two diverging tubular branches extending from such larger tubular part, each of such tubular branches adapted to receive one of the ends of such loop of rope.

3. In a fire-escape, a friction device comprising an annular tubular part, a larger tubular part at one end thereof and two diverging tubular branches, such larger tubular part and diverging tubular branches being curved reversely to the annular tubular part.

4. In a fire-escape, a friction device comprising an annular tubular part having an eye at one end thereof and a larger tubular part at the other end thereof and two diverging tubular branches extending from the larger tubular part.

5. In a fire-escape, a friction device comprising the annular tubular part *a*, the larger tubular part *b* at one end thereof and the two diverging tubular branches *c* and *d*, extending from the larger tubular part, the tubular parts having openings *e*, *e'* and the larger tubular part and branches being curved reversely to the annular tubular part and each of the tubular branches having a flaring mouth.

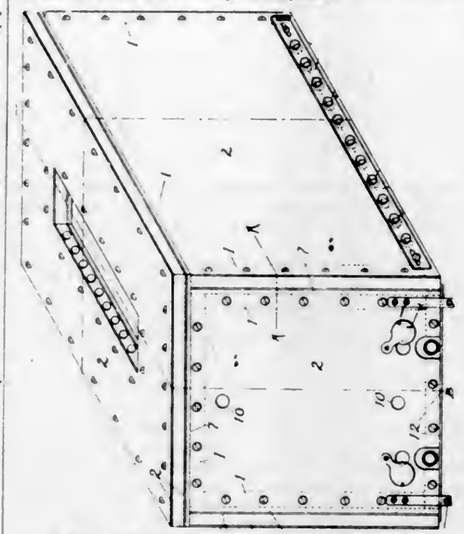
6. In a fire-escape, a friction device comprising the annular tubular part *a* and an eye *f* located thereon, the larger tubular part *b* at one end thereof and two diverging tubular branches *c* and *d*, extending from the larger tubular part, the tubular parts having openings *e*, *e'* and the larger tubular part and branches being curved reversely to the annular tubular part and each of the tubular branches having a flaring mouth.

751,650. JACKET FOR AUTOMOBILE STEAM-BOILERS. CLARENCE P. JEWETT, New York, N. Y. Filed Feb. 6, 1903. Serial No. 142,110. (No model.)

Claim.—1. The combination with an automobile steam-boiler, of a hollow jacket therefor connected on the one hand with a draft-flue and on the other with passages or openings in communication with the external atmosphere, of means for regulating the flow of air through said jacket or casing and into the draft-flue, as and for the purpose described.

2. The combination with an automobile steam-boiler, of an air-jacket communicating with the draft-flue and a damper for regulating circulation of air through said jacket.

3. The combination with the boiler and a channel-iron frame to which sheet-iron is bolted to form hollow side walls, of a channel-iron frame forming the opening for the draft-flue and having plates of metal bolted to it and to the channel-irons at the edge of the casing to form a hollow top for the jacket.



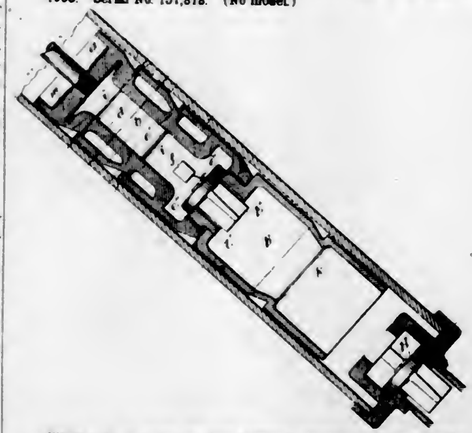
4. The combination with the boiler and a channel-iron frame surrounding the same and having plates of suitable material bolted or secured to it to form hollow side walls, of a hollow top wall or roof consisting of channel-iron to which plates are secured at their exterior edges and around a central opening coinciding with the draft-flue.

5. The combination with the boiler, of a channel-iron frame and plates of suitable material secured thereto, to form a hollow casing embracing the sides and top of the boiler, and openings through the channel-iron frame to establish communication between the hollow side walls and the hollow top, and between the top and the draft-flue.

6. The combination with a steam-boiler and the air casing or jacket having openings by which the air passing through the side walls and top may escape, of one or more dampers or valves at or near the bottom of side walls for regulating the ingress of air.

7. The combination with a boiler, of a casing or jacket therefor communicating with the draft-flue and comprising a channel-iron frame and plates secured thereto to form hollow walls, of a slide valve or valves 6 controlling the openings by which air is admitted to the side walls.

751,651. PUMP. HARRY JONES, Richmond, Ind. Filed May 19, 1903. Serial No. 157,818. (No model.)

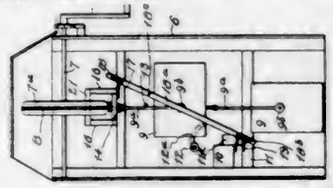


Claim.—1. A water-packed plunger composed of three hollow cylindrical portions separated by annular slots, longitudinal bars

within said cylindrical portions, connected to each of them and located near the periphery of the inclosed cylindrical space; whereby a clear space is left in the interior of the plunger for the passage of water; said bars and cylindrical portions being cast integral, substantially as described.

2. A water-packed plunger composed of three hollow cylindrical portions, separated by annular slots, longitudinal bars within said cylindrical portions, connected to each of them and located near the periphery of the inclosed cylindrical space, whereby a clear space is left in the interior of the plunger for the passage of water.

751,652. **WINDLASS WATER-ELEVATOR.** JAMES R. JONES and QUINN CALLAWAY, Highland Park, Tenn. Filed Oct. 16, 1903. Serial No. 177,298. (No model.)

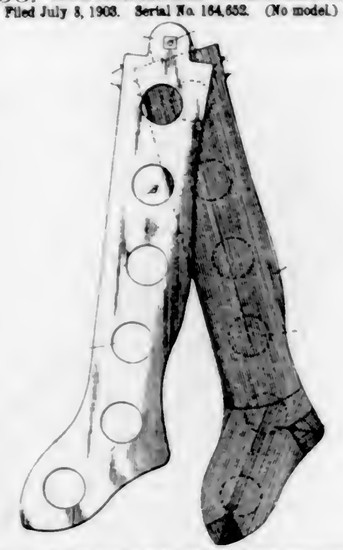


Claim.—1. A well-fixture comprising a casing, a trough therein extending to the outside, buckets, means for raising and tilting them to discharge into the trough, a vertically-movable bar extending across the casing and adapted to be raised by the buckets, a connection between the bar and trough to draw the latter toward the buckets when the bar is raised, and means for returning the parts to their normal position.

2. A well-fixture comprising a casing, a trough therein extending to the outside, buckets, means for raising and tilting the same to discharge into the trough, a vertically-movable bar extending across the casing and adapted to be raised by the buckets, a lever pivoted to the casing and having its ends connected to the bar and trough respectively to draw the latter toward the buckets when the bar is raised, and means for returning the parts to their normal position.

3. A well-fixture comprising a casing, a trough therein extending to the outside, buckets having pivoted bails, means for raising and lowering the buckets, a rod extending across the casing having fingers projecting into the path of the buckets to tilt them to discharge into the trough, and a rod across the casing in the path of the bails, and parallel to the trough, to right the buckets.

751,653. **STOCKING-STRETCHER.** OSCAR J. KATZ, Rochester, N. Y. Filed July 8, 1903. Serial No. 164,652. (No model.)



Claim.—1. A stretcher for a pair of hose consisting of two wooden forms held together by and movable on a pintle passing through both forms near the end, and having a non-oxidizable spreading-piece around said pintle between the forms.

2. A stretcher for a pair of stockings consisting of two wooden form-pieces and a pintle passing through both forms, so that both may swing edgewise on the pintle.

3. A stretcher for a pair of stockings, consisting essentially of two thin wooden form-pieces, each of the general shape of a stocking, each having a number of openings in its body for air circulation, each having at its edges near its top a number of projecting non-oxidizable metallic pins, the two form-pieces being held together by a pintle near their upper ends and free to swing thereon, a spacing-washer surrounding the pintle between the form-pieces.

751,654. **APPARATUS FOR THE REGULATION OF ELECTRICAL CIRCUITS IN HEATING DEVICES.** WILLIE D. KILROY, Uxbridge, England. Filed Oct. 6, 1902. Serial No. 126,224. (No model.)



Claim.—1. In apparatus as herein described, in combination, a prismatic plug having contact-strips on the several faces; a subdivided electrical conductor, to the terminals and point of subdivision of which the said plug contact-strips are severally connected; and a prismatic socket adapted to fit on the said plug in the several angular positions and having contact-strips on the internal faces connected to supply-terminals and adapted to make contact with various groups of the contact-strips on the plug, according to the relative angular positions of the plug and the socket; substantially as described and illustrated.

2. In apparatus as herein described, in combination, a prismatic plug having contact-strips on each of its faces; a prismatic socket adapted to fit on the said plug in the several angular positions, and having contact-strips on two opposite faces adapted to make contact with various groups of the plug contact-strips, according to its angular position thereon; and electrical connections from the plug contact-strips to the circuits to be controlled and from the socket contact-strips to the supply-terminals; substantially as described and illustrated.

3. In apparatus as herein described, in combination, a square prismatic plug having pairs of contact-strips on each of its four faces, six of which strips are connected to the terminals and point of subdivision of an electrical conductor; a square prismatic socket adapted to fit the plug in the four angular positions and having contact-strips on opposite faces connected to supply-terminals and adapted to make contact with a different particular group of the plug contact-strips for each of its four angular positions thereon; substantially as described and illustrated.

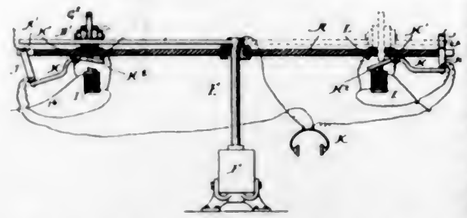
4. In combination, the prismatic plug; the plug contact-strips; the subdivided conductor connected thereto; and a prismatic socket having elastic strips connected to the supply-mains and carried from the end cap of the socket; substantially as described and illustrated.

5. In combination; the prismatic socket with contact-strips connected to the supply-mains; and the prismatic plug with contact-strips connected to the subdivided electrical conductor and having a shield carried from the end thereof and adapted to house the end of the socket when the latter is in position; substantially as described and illustrated.

6. In combination, the square prismatic plug, having contact-strips thereon connected to the subdivided conductor, and provided with a shield to house the end of the socket, and the square prismatic socket having elastic contact-pieces connected to supply-terminals and having labels on its four faces to indicate its angular position, with reference to the plug, to give the effect indicated by the labels; substantially as described and illustrated.

7. In combination, the square prismatic plug having a pair of contact-strips on each face, the four pairs being connected respectively: to the two terminals of a subdivided resistance, to the point of subdivision and one terminal, and one strip of each of the remaining pairs being connected respectively to one terminal and to the point of subdivision only; and the square prismatic socket having a double contact-strip on the one face connected to one supply-terminal and a single contact-strip on the opposite face connected to the other supply-terminal, the socket being adapted to fit the plug in the four angular positions and the socket-strips being elastically supported in the socket so as to make contact with the plug-strips; substantially as described and illustrated.

751,655. **TELEPHONY.** ISIDOR KITSEE, Philadelphia, Pa. Filed Jan. 9, 1901. Serial No. 42,642. (No model.)



Claim.—1. In telephony a device for automatically testing outlying or subscribers' circuits, said device comprising an electromagnet inserted in the circuit to be tested, a shunt around said electromagnet, and means to automatically open and close said shunt.

2. In a telephonic-call detector, a series of electromagnetic devices normally inoperative, and means to nullify said inoperativeness, means to remove said nullifying means, and means to connect each of said electromagnetic devices to a subscriber-circuit.

3. In telephony, a "call-detector" provided for each of the circuits to be tested, with an electromagnet, movable means operatively connected with a motor to automatically actuate the armatures of said electromagnets in order, means for said electromagnets to retard the movements of said movable means and means to connect the operator's phone to the circuit calling.

4. In telephony, a device consisting of a plurality of electromagnets, connected each to an outlying or subscriber circuit, a shunt around each of said electromagnets, a movable arm adapted to open the shunt of each of said magnets in order, means operatively connected to the armature of each of said electromagnets to retard the movement of the arm, and means operatively connected with said movable arm to electrically insert in the circuit calling the receiver of the operator's phone.

5. In telephony, the combination of an operator's phone and an annunciator, means to connect said operator's phone with one part of one of the subscriber-circuits, a movable contact and means to connect said annunciator and operator's phone with said movable contact, said contact adapted to automatically break the subscriber-circuit and insert the circuit including said annunciator and operator's phone in series with said subscriber-circuit.

6. In a device to test in order circuits connected to said device, electromagnetic means connected to the circuits to be tested, means to make inoperative said electromagnetic means, means to make operative said electromagnetic means, an operator's phone and traveling means adapted to automatically insert the operator's phone in the circuit to be tested.

7. In telephony, a device adapted to automatically test if a subscriber's circuit is calling, said device substantially consisting of a traveling contact, a series of electromagnets, means for each of said electromagnets to estop the progress of said traveling contact, and means to connect thereby an operator's phone in series to the subscriber's circuit.

8. In telephony, a call-detector substantially consisting of a series of electromagnets normally connected each to a subscriber's circuit, but normally inoperative, a traveling contact adapted to make said electromagnets operative in order, and means for each of said electromagnets to estop the traveling contact when made operative and simultaneously energized through the closing of the subscriber's circuit to which it is connected, in combination with means to insert in said subscriber's circuit the operator's phone.

9. A device of the class described, consisting of a series of stationary electromagnets, means to normally make inoperative said electromagnets, each of said electromagnets connected to a subscriber's circuit, traveling means adapted to automatically and in order nullify the inoperativeness of said electromagnets, and means operatively connected to each of said electromagnets and to the traveling means respectively, to break the circuit of the subscriber to which said electromagnet is connected and to insert in said circuit a second circuit containing the operator's phone.

10. In a device of the class described a series of circuits connected thereto, contacts adapted to be separated for each of said circuits, an operator's phone and a traveling contact adapted to separate said separable contacts and adapted thereby to insert in said break said operator's phone, said device also provided with means to automatically test each of the circuits in order, to ascertain if the subscriber is calling.

11. In a device of the class described a series of electromagnets normally shunted and a traveling arm adapted to automatically and in order break the shunts of said electromagnets.

12. In a device of the class described, a series of electromagnets, an armature for each of said electromagnets, said armature normally shunting said electromagnet, and traveling means adapted to break the shunt through the displacement of said armature from its normal position.

13. In a device of the class described, a series of electromagnets, an armature for each of said electromagnets, said armature provided with contacts normally contacting with each other, said contacts forming part of a subscriber's circuit to which said electromagnet is connected, and a traveling arm adapted to break the connection between said two contacts.

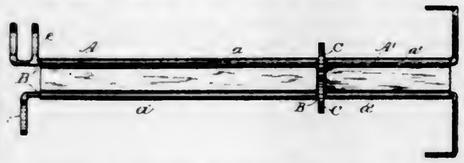
14. In a device of the class described, a series of electromagnets, each connected to a subscriber's circuit, means to make normally inoperative said electromagnet, and traveling means adapted to nullify said first means, in combination with the circuit of an operator's phone, part of which is carried by said traveling means and is adapted thereby to be inserted in said subscriber's circuit.

15. In a device of the class described, a series of electromagnets connected each to a subscriber's circuit, said electromagnets normally made inoperative through the shunting of their coils, traveling means to open said shunts in order, and means carried by the armatures of said electromagnets to obstruct the path of travel of the traveling means as soon as said electromagnets are energized through the closing of their subscriber-circuits, during the time that the shunts of said electromagnets remain open.

16. In a device of the class described, an electromagnet, an armature for said electromagnet, said armature operatively connected to a device carrying two contacts normally closed, one of said contacts electrically connected to one part of a subscriber's circuit, the second of said contacts connected to one terminal of the coil of the electromagnet and one terminal of the circuit of the operator's phone respectively, the second terminal of said coil in electrical connection with a second part of said subscriber's circuit, said armature normally shunting said coil.

17. In telephony, in combination with a circuit containing an annunciator and an operator's phone, a contacting arm adapted to automatically revolve, said contacting arm carrying one terminal of said circuit, and in further combination with an electromagnet, to the armature of which the second terminal of said circuit is connected, the armature normally shunting the coil of said electromagnet and adapted to be displaced, through said traveling contact, a contact-spring carried by said armature and electrically connected to part of the subscriber's circuit, a second contact-spring carried by said armature and electrically connected to the second terminal of the circuit containing the annunciator and operator's phone, said traveling contact adapted to connect with the first-named contact-spring when said spring is placed in its path through the operation of the armature due to the energizing of the electromagnet.

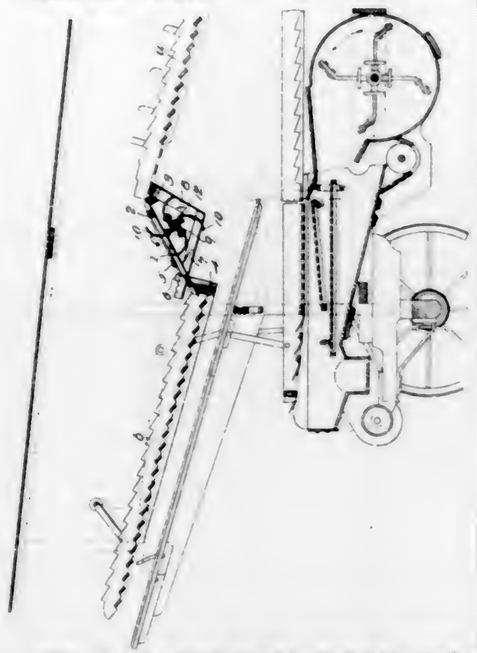
751,656. **OBSTETRICAL FORCEPS.** HENRY E. KOCH, Hartington, Nebr. Filed July 9, 1903. Serial No. 164,828. (No model.)



Claim.—1. In a forceps having a flattened body, lateral tubes on each side of the body, rods adapted to loosely occupy said tubes, operating-levers on one end of said rods, cog-wheels fixed on said rods between an end of said body and said operating-levers, and jaws on the opposite ends of said rods as herein set forth.

2. A forceps having its body in two members, lateral tubes on each member, rods adapted to loosely occupy said tubes, cog-wheels fixed on said rods between the adjacent ends of said members, handlevers on one end of said rods, a curved jaw on the opposite end of one rod and two curved jaws on the opposite end of the other rod, substantially as herein described

751,657. LEADER FOR THRESHING-MACHINE STRAW-CARRIERS. CHARLES KRUEGER, Wausau, Wis. Filed Dec. 14, 1901. Serial No. 85,947. (No model.)



Claim.—1. In a device of the class described, the combination of two straw-carrying elements, the discharge end of one being elevated above, but not overlapping, the receiving end of the other, a grate connecting the discharge end of the first with the receiving end of the second straw-carrying element, supporting means for the said grate, a shaft journaled transversely in the space between the two straw-carrying elements, and curved flexible blades mounted upon said shaft and engaging between the bars of the grate beyond which they extend.

2. In a device of the class described, the combination of two straw-carrying elements, the discharge end of one being elevated above, but not overlapping, the receiving end of the other, a grate connecting the discharge end of the first with the receiving end of the second straw-carrying element, supporting means for said grate, a shaft journaled transversely in the space between the two grates, curved flexible blades connected with the shaft and extending between and beyond the bars of the grate, and a cleaning-bar mounted transversely upon said grate and adapted to be engaged by the end of the convex sides of the flexible blades.

3. In a device of the class described, the combination of two straw-carrying elements, the discharge end of one being elevated above, but not overlapping the receiving end of the other, an inclined grate connecting the discharge of the first with the receiving end of the second straw-carrying element, supporting means for said grate, a transverse shaft disposed in the space between the straw-carrying elements, and curved flexible blades extending from said shaft between and beyond the bars of the grate.

4. In a device of the class described, a revoluble shaft provided with a plurality of curved flexible blades, the inner end of each of said blades being bent around said shaft and connected with the body of such blade by means of a bolt whereby said blades may be tightened and adjustably mounted upon said shaft.

751,658. HASP-LATCH. ISRAEL L. LANDIS, Chicago, Ill. Filed Jan. 5, 1903. Serial No. 137,932. (No model.)

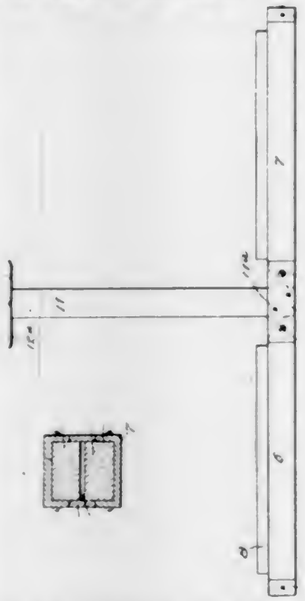
Claim.—1. In a hasp-latch, the combination with a suitable plate of a latch-hook pivotally mounted thereon and normally held substantially perpendicular to the face of said plate, said hook being removable and reversible in the same pivot-support with reference to said plate.

2. In a hasp-latch, the combination with an apertured plate of a gravity latch-hook extending through said aperture and pivotally carried by said plate for partial rotation in a vertical plane, and means upon the pivoted portion of the hook and the plate-bearing limiting the downward movement of said latch-hook.



3. In a hasp-latch, the combination with an apertured plate of a pivoted, gravity latch-hook extending through said aperture, having partial bearings in a single plane in said plate and removable and reversible with reference thereto, said hook being beveled at its free end to automatically raise a hasp or be raised thereby, according to the relative adjustment of said hook, to effect engagement with said hasp, and supporting means for said latch-hook limiting the downward movement thereof.

751,659. WHETSTONE-CASE. DENNIS F. LARKIN, San Francisco, Cal. Filed Oct. 14, 1903. Serial No. 177,005. (No model.)



Claim.—1. A whetstone-case comprising folding blocks, each having a stone secured thereto, and a leaf between the blocks inclosing the stones when the blocks are folded.

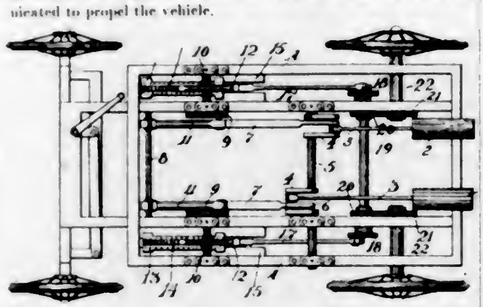
2. A whetstone-case comprising folding blocks, each having a stone secured thereto, and means for spacing the faces of the stones when the blocks are folded.

3. A whetstone-case comprising blocks, each having a stone mortised into their faces, links connecting the blocks to permit folding of the blocks, and a leaf between the blocks secured to the links inclosing the stones and spacing their faces when the blocks are folded.

751,660. MOTOR-PROPELLED VEHICLE. CHARLES E. LARRABEE, San Francisco, Cal., assignor to Larrabee Automobile and Manufacturing Company, a Corporation. Filed Feb. 2, 1903. Serial No. 141,579. (No model.)

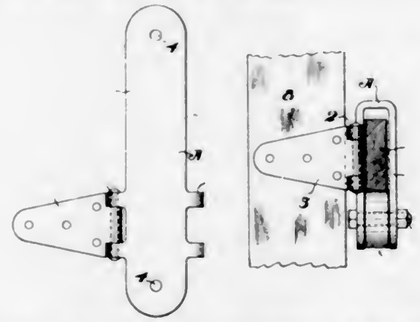
Claim.—1. The combination with a vehicle of a motor-engine and crank-shaft, bell-crank levers having long arms connected with the cranks, and rocker-arms with which the short arms are connected, toothed segments fixed to the rocker-arm shafts, reciprocating racks with which said segments engage, a crank-shaft, connecting-rods between the slidable racks and the cranks of said shaft, and gears and pinions intermediate between said crank-shaft and the bearing-wheels of the vehicle.

2. The combination in a motor-vehicle of a plurality of engines, a shaft having cranks at right angles, with which said engines are connected, bell-crank levers having long arms extending horizontally beneath, and rods connecting them therewith, rock-shafts having rocker-arms and toothed segments fixed thereto, connections between the short arms of the bell-crank levers and the rocker-arms whereby motion is transmitted alternately to said arms, slides having toothed racks fixed thereon and movable on guides, a shaft having crank-arms at right angles, rods connecting the slides with said cranks, pinions carried upon the crank-shaft, and gears fixed to independent bearing and driving wheel shafts, through which motion is communicated to propel the vehicle.



3. The combination in a motor-vehicle of independently-journaled bearing-wheel shafts, a counter-shaft having cranks at right angles, and intermediate gears through which motion is transmitted to the bearing-wheel shafts, slidably-guided reciprocating racks and rods connecting them with the counter-shaft cranks, toothed segments mounted upon independent rocker-arm shafts and engaging the racks, and a bell-crank lever having short arms connecting with the rocker-arms, and long arms through which motion is transmitted from the propelling-engine.

751,661. GATE-HINGE. JOHN LEPPLER, Lagrange, Cal. Filed Oct. 21, 1903. Serial No. 177,917. (No model.)



Claim.—1. In a gate-hinge, a leaf comprising a flexible plate with pivot-lugs upon each side of said plate and at one side of the center thereof.

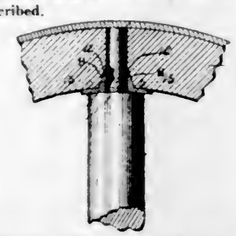
2. In a gate-hinge, a substantially U-shaped member, pivot-lugs upon opposite sides of one of the forks of said member and a roller journaled in said forks.

3. A gate-hinge comprising a member adapted to be secured rigidly to a post or like support, and a second member perforated at each end and pivoted to the first-named member, said second member having a portion above its pivots adapted to be folded over to bring the perforations at the ends of said members into line.

751,662. SPOKE-TIGHTENER. GEORGE F. LINDSAY and WILLIAM P. GUNN, Sherman, Tex. Filed July 30, 1903. Serial No. 167,649. (No model.)

Claim.—1. A spoke-tightening device, consisting of counterpart plates each having a semicircular opening formed in one edge of the same, upwardly-projecting flanges partially surrounding said openings, said flanges being adapted to enter the tenon-socket, and means for retaining said plates in position between the end of a spoke and the felly of a wheel, substantially as described.

2. A spoke-tightening device, consisting of counterpart semicircular plates, each having semicircular, concentric openings formed in their straight edges, curved wedge-shaped, upwardly-projecting flanges partially surrounding said openings, and adapted to be driven between the tenon of a spoke and walls of the tenon-opening in the felly of a wheel, and means for retaining the device in place, substantially as described.



3. The combination with the felly and spokes of a wheel, of a spoke-tightening device consisting of counterpart semicircular plates, each having a semicircular concentric opening formed in their straight edges, curved upwardly-projecting flanges partially surrounding said openings, said flanges having an inner vertical wall and an outer inclined wall, barbs formed on said inner wall to engage the tenons of said spokes and horizontally-disposed grooves formed on said outer wall to engage the walls of the spoke-tenon holes in said felly, and prongs or teeth formed on said plates to engage the inner surface of said wheel-felly, substantially as described.

751,663. CASTER-HORN. WILLIAM LIVINGSTONE, Flushing, N. Y., assignor to himself and Samuel P. Porter, Brooklyn, N. Y. Filed Nov. 29, 1902. Serial No. 133,278. (No model.)



Claim.—1. A sheet-metal caster-horn constructed from a single piece of metal and having a drawn stiffening-flange extending continuously around its entire margin.

2. A sheet-metal caster-horn having a drawn marginal flange of tapering cross-sectional contour which extends continuously around the entire margin of the horn.

3. A sheet-metal caster-horn constructed from a single piece of metal bent to form a crown-plate and a pair of shanks and having a continuous drawn flange extending from the edges of the shanks and crown-plate, and an annular flange or bushing extending from the crown-plate.

4. A sheet-metal caster-horn constructed from a single piece of metal bent to form an apertured crown-plate and a pair of apertured shanks, and having an annular bushing extending from the crown-plate, and a drawn flange of tapering cross-sectional contour extending continuously around the edges of the shanks and plate.

5. A sheet-metal caster-horn constructed from a single piece of metal and stiffened uniformly throughout the shanks and crown by a continuous marginal flange drawn up from the material of the horn-body.

751,664. ELECTRIC INSULATOR. THOMAS T. LYMAN, Montclair, N. J., assignor to H. W. Johns-Manville Company, New York, N. Y., a Corporation of New York. Filed Apr. 4, 1902. Serial No. 101,373. (No specimens.)

Claim.—1. As a new article of manufacture, an insulator to prevent the formation of electric arcs composed of asbestos, plaster-of-paris, and silicate of soda, vitrified and coated with a waterproofing solution.

2. The herein-described process of producing a material impervious to the passage of electric arcs which comprises the following steps: first, mixing plaster-of-paris with an excess of short-fibered asbestos in a solution of silicate of soda; second, drying the mass, subjecting it to a bath of silicate-of-soda solution and compressing a sufficient number of times to produce the required degree of density and rigidity of the finished product; third, vitrifying the mass by heat.

3. The herein-described process of producing a material impervious to the passage of electric arcs which comprises the following

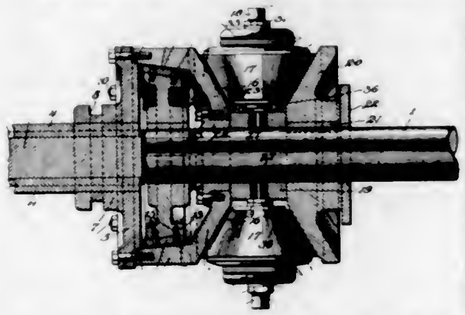
steps: first, mixing plaster-of-paris with an excess of short-fibered asbestos in a solution of silicate of soda; second, drying the mass, subjecting it to a bath of silicate-of-soda solution and compressing a sufficient number of times to produce the required degree of density and rigidity of the finished product; third, vitrifying the mass by heat; fourth, buffing the surface of the mass.

4. The herein-described process of producing a material impervious to the passage of electric arcs which comprises the following steps: first, mixing plaster-of-paris with an excess of short-fibered asbestos in a solution of silicate of soda; second, drying the mass, subjecting it to a bath of silicate-of-soda solution and compressing a sufficient number of times to produce the required degree of density and rigidity of the finished product; third, vitrifying the mass by heat; fourth, buffing the surface of the mass; fifth, painting the surface of the mass with a waterproofing substance.

5. The herein-described process of producing a material impervious to the passage of electric arcs which comprises the following steps: first, mixing plaster-of-paris with an excess of short-fibered asbestos in a solution of silicate of soda; second, drying same, and subjecting it to a bath of diluted silicate of soda; third, compressing; fourth, drying; and again submitting to a bath of the silicate-of-soda solution; fifth, again compressing; sixth, vitrifying by heat; seventh, buffing the surfaces of the article produced by the foregoing process.

6. The herein-described process of producing a material impervious to the passage of electric arcs which comprises the following steps: first, mixing plaster-of-paris with an excess of short-fibered asbestos in a solution of silicate of soda; second, drying same, and subjecting it to a bath of diluted silicate of soda; third, compressing, fourth, drying; and again submitting to a bath of the silicate-of-soda solution; fifth, again compressing, sixth, vitrifying by heat; seventh, buffing the surfaces of the article produced by the foregoing process; eighth, painting the surface of the mass with a waterproofing substance.

751,665. **REVERSING-GEAR.** RICHARD A. MAPLES, Clinton Iowa. Filed Jan. 16, 1903. Serial No. 139,335. (No model.)



Claim.—1. A device of the class described comprising an exteriorly-arranged clutch member having inner and outer engaging faces and connected with a driven shaft, an interiorly-arranged clutch member mounted on a shaft to be driven and arranged to engage the inner face of the exterior clutch member and housed within the latter, and friction-gearing connected with the shaft to be driven and having an intermediate gear arranged to engage the outer face of the exterior clutch member, substantially as described.

2. A device of the class described comprising an exterior clutch member consisting of a hollow shell or casing and having inner and outer engaging faces and connected with a drive-shaft, an interiorly-arranged clutch member housed within the hollow shell or casing and arranged to engage the inner face of the same and connected with the shaft to be driven, and friction-gearing also connected with the shaft to be driven and having an intermediate gear arranged to engage the outer face of the exterior clutch member, substantially as described.

3. A device of the class described comprising an exterior clutch member consisting of a hollow shell or casing and composed of an outer rim having an inner engaging face and a radial portion extending inward from the rim and provided with an outer engaging face, an interiorly-arranged clutch member housed within the shell or casing and arranged to engage the inner face of the exterior clutch member and mounted on the shaft to be driven, and friction-gears also connected with the shaft to be driven and having an intermediate gear arranged to engage the outer face of the exterior clutch member, substantially as described.

4. A device of the class described comprising an exterior clutch member consisting of an outer rim having an inclined or beveled engaging face and an inclined angularly-disposed radial portion extending inward from the rim and having an outer engaging face, an interior clutch member mounted on the shaft to be driven and arranged to be engaged by the clutch member, and friction-gears also connected with the shaft to be driven and arranged to engage the exterior clutch member, the latter being interposed between the friction-gears and the interior clutch member and housing the latter, substantially as described.

5. A device of the class described comprising an exterior clutch member consisting of an outer rim having an inner engaging face, and a radial portion extending inward from the rim and having an outer engaging face, a sleeve secured to and supporting the radial portion, a disk or plate secured to the rim and mounted on the drive-shaft, an interior clutch member mounted on the shaft to be driven and arranged to engage the inner face of the rim, and friction-gears also mounted on the shaft to be driven and arranged to engage the outer face of the radial portion of the exterior clutch member, the latter being interposed between the friction-gears and the interior clutch member and housing the latter, substantially as described.

6. In a device of the class described, the combination with drive and driven shafts, of a disk mounted on the drive-shaft, an exterior clutch member consisting of a shell or casing and secured to the disk and provided with inner and outer engaging faces, a bearing-sleeve loosely arranged on the driven shaft and supporting the inner edge of the exterior clutch member, an interiorly-arranged interior clutch member mounted directly on the driven shaft and housed within the exterior clutch member and arranged to be engaged by the inner face thereof, exteriorly-arranged intermediate friction-pinions carried by the driven shaft and arranged to engage the outer face of the exterior clutch member, and a friction-gear engaging the pinions and mounted on the driven shaft, substantially as described.

7. In a device of the class described, the combination with drive and driven shafts, of an exterior clutch member consisting of a hollow shell or casing and connected with the drive-shaft and provided with inner and outer engaging faces, an interiorly-arranged clutch member mounted directly on the driven shaft and arranged to engage the inner face of the shell or casing, a sleeve loosely mounted on the driven shaft, stub-shafts mounted on the sleeve, intermediate exteriorly-arranged friction-pinions mounted on the stub-shafts in position for engaging the outer face of the exterior clutch member, and a friction-wheel fixed to the driven shaft and arranged in fixed relation with the intermediate friction-pinions, substantially as described.

8. In a device of the class described the combination of a stub-shaft, a gear mounted on the stub-shaft, a series of antifriction-balls arranged at the outer end of the gear to receive the end thrust of the same, and a connecting device composed of two members or sections having oppositely-tapered openings receiving the balls, substantially as described.

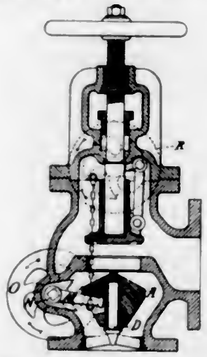
9. In a device of the class described, the combination of a disk mounted on a drive-shaft and provided with a peripheral recess, an exterior clutch member consisting of an outer rim arranged in said recess, and a radial portion, a bearing-sleeve arranged on the shaft to be driven and provided with a flange forming a seat for the reception of the radial portion of the exterior clutch member, an interior clutch member mounted on the driven shaft and arranged to engage the exterior clutch member, and friction-gearing arranged to engage the exterior clutch member for communicating motion to the driven shaft, substantially as described.

10. In a device of the class described, the combination with drive and driven shafts, of an exterior clutch member slidably connected with the drive-shaft and consisting of an outer rim having an inner engaging face, and a radial portion extending inward from the rim to the driven shaft and supported on the same and having an outer engaging face, a gear-wheel fixed to the driven shaft, an intermediate gear mounted on the driven shaft and arranged in fixed relation with the said gear-wheel and in position to be engaged by the slidable clutch member, and an interiorly-arranged clutch member housed within the exterior clutch member and fixed to the driven shaft and arranged to be engaged by the inner face of the said rim, substantially as described.

11. In a device of the class described, the combination with drive and driven shafts, of a slidable exterior clutch member interlocked with one of the shafts and consisting of an outer rim having an inner engaging face, and a radial portion extending inward from the rim to the other shaft and supported on the same end provided with an outer engaging face, an interior clutch member arranged to engage the inner faces of the exterior clutch member, and friction-gearing for engaging the outer face of the exterior clutch member, substantially as described.

12. A device of the class described comprising a hollow slidable shell or casing having inner and outer engaging faces and designed to be mounted on a drive-shaft, a friction-gear designed to be mounted on a shaft to be driven, an intermediate gear arranged in fixed relation with the said gear and in position to be engaged by the outer face of the clutch member, and an interiorly-arranged clutch member designed to be mounted on the driven shaft and located within the hollow shell or casing and adapted to be engaged by the inner face thereof, substantially as described.

751,666. **STOP AND AUTOMATIC CUT-OFF VALVE.** ISIDOR MAYER and JOSEF HÜBNER, Vienna, Austria-Hungary. Filed Dec. 22, 1902. Serial No. 136,276. (No model.)



Claim.—1. The combination with a stop-valve, a guide-spindle mounted in the valve-casing, and an isolating or cut-off valve mounted on the spindle and adapted to close automatically in case of pipe fracture, of levers mounted in the valve-casing adjacent to the valves, means for connecting the levers with the valve-cones, and a flexible coupling connecting the levers to each other, substantially as described.

2. The combination with a stop-valve, a guide-spindle mounted in the valve-casing, and an isolating or cut-off valve mounted on the spindle and adapted to close automatically in case of pipe fracture, of levers mounted in the casing and engaging the valve with their inner ends, and a slotted rod connecting the outer ends of the levers, substantially as described.

3. The combination with a stop-valve and a depending guide-spindle fixed to the stop-valve, of a cut-off valve loosely mounted on the said spindle, and a lever-arm engaging the cut-off valve and acting as a stop to limit the downward movement of the cut-off valve, substantially as described.

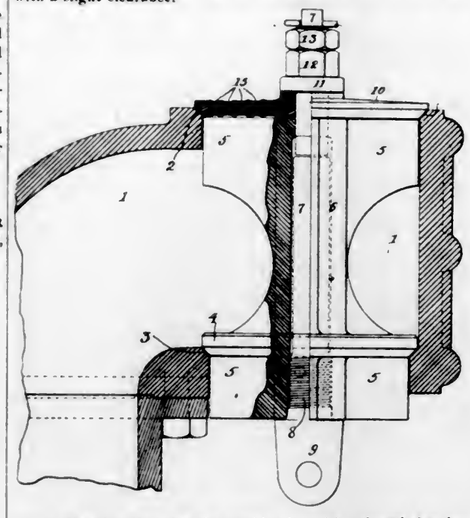
4. The combination with a stop-valve and a guide-spindle, of an automatic isolation or cut-off valve loosely mounted on said spindle and having a lateral elongated slot or opening, a lever-arm engaging in said slot but having sufficient play in the slot to enable the valve to rise toward its seat independently of the lever and means for operating said lever by hand, substantially as described.

751,667. **THROTTLE-VALVE.** JOHN B. MICHAEL, Knoxville, Tenn. Filed May 25, 1903. Serial No. 158,580. (No model.)

Claim.—1. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is flexible, and guide-wings adjacent to and normally clearing said flexible disk and extending along the wall of said box with a slight clearance.

2. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is flexible, a connection between said disks, and guide-wings located upon said connection between said disks adjacent to and normally clearing said flexible disk and extending along the wall of said box with a slight clearance.

3. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is annularly corrugated, and guide-wings adjacent to and normally clearing said flexible disk and extending along the wall of said box with a slight clearance.



4. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is annularly corrugated, a connection between said disks, and guide-wings located upon said connection between said disks adjacent to and normally clearing said flexible disks and extending along the wall of said box with a slight clearance.

5. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is flexible, a connection between said disks, and guide-wings supported by said connection adjacent to and normally clearing said flexible disk and extending along the wall of said box with a slight clearance.

6. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising two relatively fixed disks, one of which is annularly corrugated, and a connection between said disks, and guide-wings supported by said connection adjacent to and normally clearing said flexible disk and extending along the wall of said box with a slight clearance.

7. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising an integral body consisting of a disk, barrel, and radial guide-wings extending from the upper end of said barrel laterally almost to the inner face of the wall of said box, and a flexible disk secured to the end of said barrel slightly above said wings.

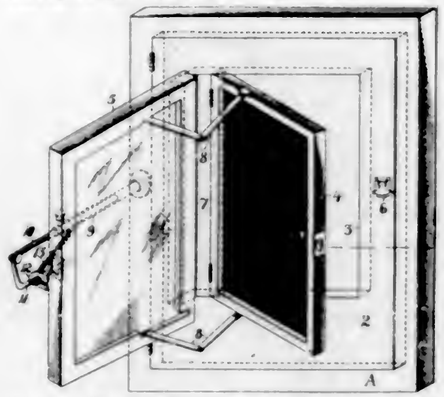
8. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising an integral body consisting of a disk, barrel, and radial guide-wings extending laterally from the upper portion of said barrel almost to the inner face of the wall of said box, a flexible disk applied to the end of said barrel slightly above said wings, and a shaft extending axially through said flexible disk into said barrel.

9. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising an integral body consisting of a disk, barrel, and radial guide-wings extending laterally from the upper portion of said barrel almost to the inner face of the wall of the box, a flexible disk applied to the end of said barrel slightly above said wings, and a shaft extending axially through said flexible disk and said barrel.

10. In a throttle-valve, the combination with a throttle-box having ports, of a valve located in said box and adapted to close said ports, said valve comprising an integral body consisting of a disk, barrel, and radial guide-wings extending laterally from the upper portion of said barrel almost to the inner face of the wall of the

box a flexible disk applied to the end of said barrel slightly above said wings, and a shaft extending axially through said flexible disk and said barrel and having a portion screw-threaded into said barrel.

751,668. COMBINED SCREEN, WINDOW, AND VENTILATOR ATTACHMENT FOR DOORS. JOSEPH H. MOSKOW, San Francisco, Cal. Filed Sept. 10, 1903. Serial No. 172,585. (No model.)



Claim.—1. The combination with a hinged door having an aperture, of a screen carried by the door and independently hinged in the aperture thereof and normally closing said aperture, and a sash hinged in said aperture and adapted to close over the screen.

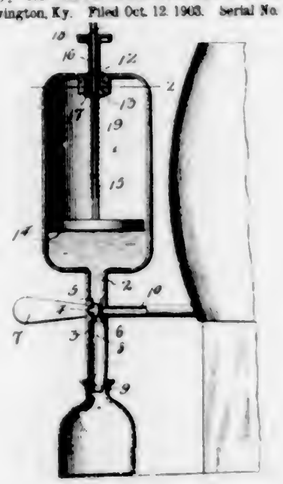
2. The combination with an apertured door, of a screen hinged to the door and normally closing the aperture, a sash hinged to the door and closable over the screen, and means cooperating with said sash to hold the door in normally closed position.

3. The combination with a door having a light-aperture, a screen-frame hinged in said opening, a glazed frame carried by the door and hinged to cover the screen-frame, a horizontal guide having a fixed point of support, and means on the glazed frame engaging said support to hold the frame open.

4. The combination with a door having a light-aperture, of a hinged screen-frame in the aperture, a hinged glazed frame carried by the door and adapted to cover the screen-frame, a horizontal stationary guide adjustably engaged by the glazed frame, and a spring-tension means cooperating with the glazed frame to cause the door normally to remain closed.

5. An attachment for light-apertures, comprising an upright bar or the like adapted to be secured to a wall of the aperture, a screen hinged to said bar and a sash also hinged to said bar and having a limited movement independent of the screen.

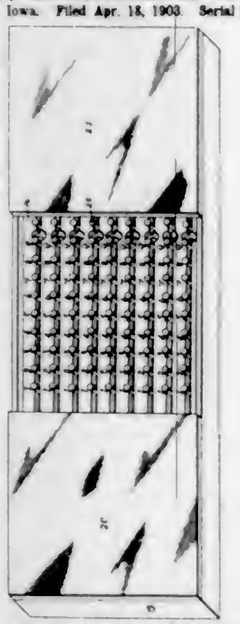
751,669. AUTOMATIC MEASURE AND FUNNEL. HENRY R. MYERS, Covington, Ky. Filed Oct. 12, 1903. Serial No. 176,706. (No model.)



Claim.—1. In a device of the character described, the combination of a measuring vessel having an inlet and outlet opening in its lower end and an air-vent in its upper end provided with a valve-seat, a float in said vessel, a screw-threaded stem carried by said float and projecting through said air-vent, an internally-screw-threaded sleeve upon said stem and extending through said air-vent, a valve formed at the lower end of said sleeve and adapted to coact with said valve-seat, and an operating-head formed upon the upper end of said sleeve, substantially as described.

2. In a device of the character described, the combination with a three-way valve and a casing therefor, of a supply-pipe leading to said valve-casing, a discharge-pipe leading from said valve-casing, a measuring vessel attached to said valve-casing and having an air-vent in its upper end formed with a valve-seat, a float in said vessel, a screw-threaded stem carried by said float and projecting through said air-vent, scale-graduations upon said stem, a sleeve adjustable upon the screw-threads of said stem and coacting with said scale-graduations, and a valve formed upon said sleeve and adapted to coact with said valve-seat, substantially as described.

751,670. CALCULATING-MACHINE. THOMAS E. MCCARTY, Parkersburg, Iowa. Filed Apr. 18, 1903. Serial No. 153,267. (No model.)

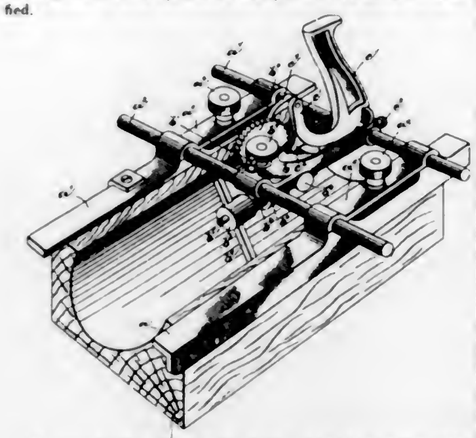


Claim.—In a calculating-machine, a frame, a guide portion having a series of slots extending longitudinally thereof, a series of semicircular openings cut in line with each other cut out of the guide portion and on the side of each of said slots, a series of sliding bars mounted beneath said slots, a series of pins in each of said bars extending through the slot nearest the bar on which the pin is mounted, a series of numerals on each of said bars, a spring extending across each end of the guide portion and engaging it and also engaging the upper portion of said frame, so arranged as to force the guide portion against the sliding bars to normally hold said bars in position relative to the guide portion, for the purposes stated.

751,671. HAND-TOOL. JOHN R. MCCAULEY, Springfield, Ohio, assignor of one-half to William D. Bayley, Springfield, Ohio. Filed June 15, 1903. Serial No. 161,468. (No model.)

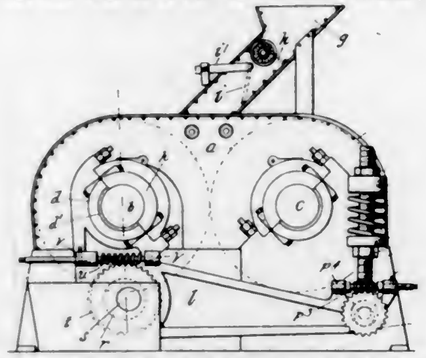
Claim.—1. In a hand-planer, a frame having laterally-movable slides adapted to elastically contact with the respective sides of the article to be planed, means to fix said slides in their relation to each other, a cutter journaled in said frame, and means to partially rotate said cutter transversely to the line of travel of said planer at each operation of the planer, substantially as specified.

2. In a hand-planer, a frame having laterally-movable slides adapted to engage the respective sides of the article to be planed, one of which has a projecting portion and the other a spring-cushion, said projection and cushion being adapted to contact with the respective sides of the article to be planed, means to fix the relative position of said slides, a laterally-movable portion of said frame and means to fix its position, a shaft journaled in said portion longitudinally in the line of travel of the planer, a cutter-bar and a head on said shaft adapted to hold said cutter at right angles to said shaft, another shaft journaled in said portion having a ratchet-wheel thereon and a gear connection with said first-named shaft, an operating-handle pivoted to rock on said portion, means to adjust and limit said rocking movement, a pawl pivoted on said handle and adapted to engage said ratchet-wheel, substantially as specified.



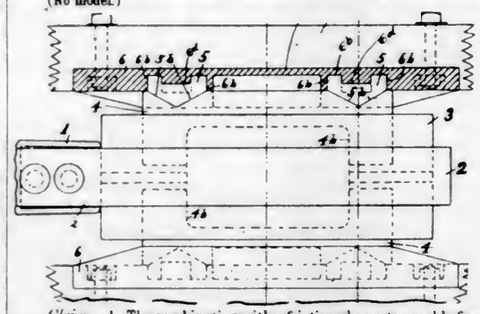
3. In a hand-planer, a frame having laterally-movable slides adapted to engage the respective sides of the article to be planed, one of which has a projection and the other a spring-cushion, said projection and cushion being adapted to contact with the respective sides of the article to be planed, means to fix the relative position of said slides, a laterally-movable portion of said frame and means to fix its position, a shaft journaled in said portion longitudinally in the line of travel of the planer, a cutter-bar and a head on said shaft adapted to hold said cutter at right angles to said shaft, another shaft journaled in said portion having a ratchet-wheel thereon and a gear connection with said first-named shaft, an operating-handle pivoted to rock on said portion, means to adjust and limit said rocking movement, a pawl pivoted on said handle and adapted to engage said ratchet-wheel, substantially as specified.

751,672. CRUSHING-MACHINE. JAMES H. MCCORMICK, Beartown, Mont. Filed Jan. 28, 1901. Serial No. 45,061. (No model.)



Claim.—In a crushing-machine, the combination with the crushing-rolls thereof, of a pair of bell-crank levers on opposite sides of the machine in similar positions, tiltable bearings on corresponding arms of said bell-crank levers adapted to carry one of said rolls, a shaft for each of said bell-cranks journaled in the framework of the machine, an eccentric on arch of said shafts rotatably mounted thereon, said bell-cranks engaging said eccentrics at their elbows, means for revolving said eccentrics independently of each other whereby either end of said roll may be given combined vertical and horizontal adjustment, eccentrics engaged by the other arms of said bell-cranks at their ends, and means for rotating said eccentrics independently of each other whereby said arms of the bell-cranks engaged thereby may be given vertical adjustment independently of each other whereby either end of said roll may be given horizontal adjustment with respect to a stationary roll, substantially as described.

751,673. DRAW-GEAR AND BUFFING APPARATUS. JOHN H. MCCORMICK, Columbus, Ohio. Filed Sept. 13, 1902. Serial No. 123,224. (No model.)



Claim.—1. The combination with a friction element movable forward and backward from normal position, and a fixed friction element, of an interposed spring, and means for exerting a pressure inward toward the central line of draft against the movable friction element.

2. The combination with a movable frictional element, a fixed frictional element, and an interposed spring, of a wedging device having one bevel for creating friction and another bevel for compensating for wear of the friction elements.

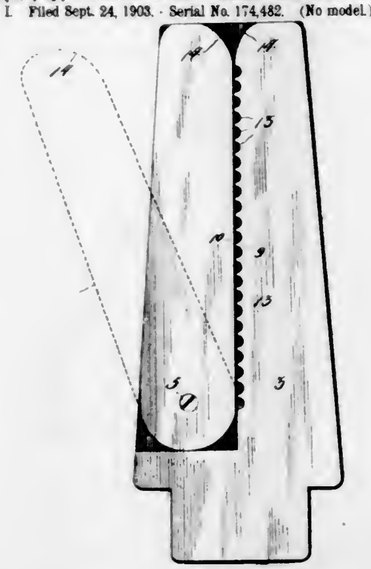
3. The combination with elements adapted to be forced together to create friction, of an interposed spring, and a wedging device having separate bevels for creating friction and compensating for wear of the friction elements.

4. In a draw-gear and buffing apparatus, the combination with a movable friction element, of a fixed friction element having beveled faces, of bearing-wedges having beveled surfaces which contact with the bevels on the fixed element, and a resisting-spring, substantially as specified.

5. In a draw-gear and buffing apparatus, the combination with a movable friction element, of a fixed friction element having wedging-faces beveled in opposite directions, fixed bearing-wedges having bevels contacting with the bevels on the fixed friction element, and a spring bearing at both ends on bearing-faces of the fixed friction element so that compression from either direction will exert a pressure on the primary friction element, substantially as specified.

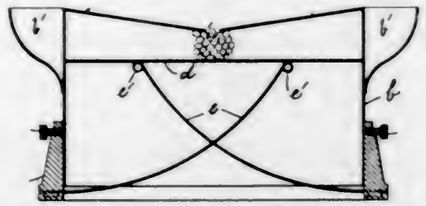
6. In a draw-gear and buffing apparatus, the combination with a primary friction element, of a secondary friction element, and a gravity wedge for taking up lost motion due to wear of the friction parts, substantially as specified.

751,674. PRESSING-BOARD. ANDREW MCKENZIE, Providence, R. I. Filed Sept. 24, 1903. Serial No. 174,482. (No model.)



Claim.—A pressing-board having on its upper side a fixed section and a movable section, pivoted at one end, said sections being rabbeted on their inner opposing edges to form a channel and provided with coengaging flanges overhanging said channel, said flange of the fixed section being provided with a plurality of recesses to clear the shanks of buttons when the pivoted section is closed against the fixed section, substantially as described.

751,675. RECEPTACLE FOR MATCHES. JACOB E. NEAHR, Melrose, Mass. Filed Jan. 19, 1903. Serial No. 139,560. (No model.)



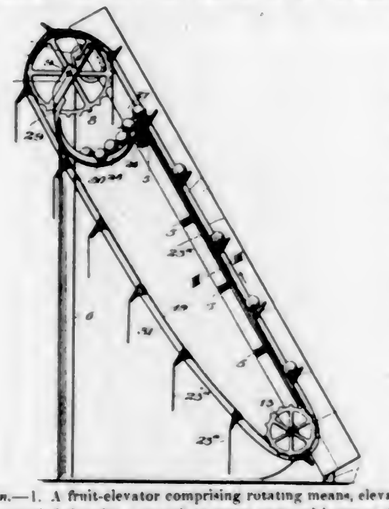
Claim.—1. A match-receptacle embracing in its construction, a base member, a box-like receptacle adjustably mounted in said base member, a false bottom, and means for pressing said false bottom upward to force the contents of the box upward, and a cover constructed and arranged to permit the removal of but a single match at a time.

2. A match-receptacle embracing in its construction, a box-like receptacle for containing matches, a false bottom for supporting the matches in said box, springs for exerting a tension against said false bottom, and means for adjusting the relative position of the parts to regulate the tension of the springs against said bottom.

3. A match-receptacle embracing in its construction, a box-like receptacle provided with a slotted cover whose middle portion is inclined downward below the level of the end portions, a false bottom arranged in said box, and means for pressing the false bottom upward so as to press the contents of said box against the cover.

4. A match-receptacle embracing in its construction, a base member, a box-like receptacle adjustably secured in said base member, a slotted cover for said receptacle, a false bottom arranged therein, and spring-metal strips whose lower ends are secured to the base member and whose upper ends are arranged to press yieldingly against the false bottom.

751,676. FRUIT-ELEVATOR. CLINTON D. NELSON, Lordsburg, Cal., assignor to H. K. Miller Manufacturing Company, Glendora, Cal., a Corporation. Filed Dec. 3, 1902. Serial No. 133,773. (No model.)



Claim.—1. A fruit-elevator comprising rotating means, elevating means carried thereby, a trough or spout arranged between the ends of said means, flexible means in connection with said rotating means, forming the bottom of the elevator, adapted to automatically discharge the fruit into said trough or spout.

2. A fruit-elevator comprising a traveler having an inclined ascending portion, pulleys for said traveler, a series of flights operating in connection with said traveler, a discharge-spout arranged adjacent to the lower side of said ascending portion, and a series of flexible sections for said traveler, said sections adapted to automatically discharge into the spout as they reach the same.

3. A fruit-elevating apparatus comprising a frame, two endless chains mounted parallel to each other on rotating means, flights carried by said chains, a series of flexible sections having one end attached to said chains and the other free, a discharge trough or spout arranged transversely with respect to said chains and between the ends thereof, and a platform or bottom extending from the lower end up to the edge of said trough.

4. A fruit-elevating apparatus comprising a frame, two endless chains mounted parallel to each other on rotating means, flights carried by said chains, a series of canvas sections having one end attached to said chains and the other free, a discharge trough or spout arranged transversely with respect to said chains and between the ends thereof, and a platform or bottom extending from the lower end up to the edge of said trough and means for adjusting the length of said chains.

5. A fruit-elevator comprising an elevator or carrier, a discharge trough or spout arranged between the ends of and below said carrier and flexible flaps adapted to automatically deliver fruit through the bottom of said carrier to said trough as the fruit arrives on said carrier above the same.

6. In a fruit-elevator the combination, with a frame, of sprockets operatively mounted thereon, endless chains arranged parallel to each other on said sprockets, flights carried by said sprockets, a platform shorter than and over which said chains pass, a series of flexible flaps or sections carried by said chains between said flights and adapted to lie flat between the ascending fruit and said platform, and a trough or spout arranged below said chains and at the end of said platform, wherein said sections are adapted to discharge fruit.

7. The combination with a frame, of sprockets rotatably mounted therein, chains mounted on said sprockets, said chains provided with wings, flights and canvas flaps carried thereby and a transverse trough arranged below said chains between the ends of said frame, said flaps adapted to discharge fruit into said trough as said chains carry the flights thereover.

8. The combination, with a frame, of sprockets rotatably mounted therein, chains mounted parallel on said sprockets, a platform shorter than and extending below said chains, said chains provided with wings, slats attached thereto, sectional carriers and flights secured on said slats, said carriers extending between respective flights and adapted to rest on said platform, a transverse spout or trough arranged at the end of said platform whereinto said sectional carriers are adapted to deliver fruit.

9. A fruit-elevator comprising a frame, pairs of pulleys mounted thereon, an inclined endless conveyer carried by said pulleys, a platform provided with a shoulder below the upper end of the conveyer, a series of flexible flaps carried by said conveyer and adapted to lie extended upon the platform and shield the ascending fruits therefrom, said flaps having free ends adapted to swing inward across the shoulder, a discharge-spout between the pulleys and adapted to receive fruits from said shoulder, and means adapted to prevent the flaps winding around the conveyer-slat.

10. A fruit-elevator comprising a frame, pairs of pulleys mounted thereon, an inclined endless conveyer carried by said pulleys, a platform provided with a shoulder below the upper end of the conveyer, a series of flexible flaps carried by said conveyer and adapted to lie extended upon the platform and shield the ascending fruits therefrom, said flaps having free ends adapted to swing inward across the shoulder, a discharge-spout between the pulleys and adapted to receive fruits from said shoulder, and curved fingers adapted to prevent the flaps winding around the conveyer-slat.

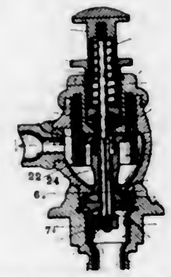
11. A fruit-elevator comprising a frame, upper and lower pulleys mounted thereon, two endless chains mounted parallel to each other on said pulleys, a series of straps connecting said chains and attached to the outer faces of the links, a platform upon which the ascending links slide, a series of flexible flaps extending from the chain above the straps, a series of flights attached to the links by fasteners which extend through the straps and flaps, and a discharge-spout between the ascending and descending portions of the chains and adjacent to the upper end of the platform.

12. In a fruit-elevator provided with an endless conveyer mounted on pulleys, a series of open-ended flights carried by said conveyer, a platform having a bottom upon which the ascending portion of said conveyer slides, side boards adjacent to the ends of said flights, and a cord fastened to the end portions of the flights, and adapted to prevent the fruit from rubbing against the inside walls of the side boards.

13. A fruit-elevator comprising an endless carrier mounted on suitable pulleys, a discharge-spout between the ascending and descending portions of said carrier, said spout having an inclined side extending up to the side of the ascending portion of the carrier, and flexible depending flaps adapted to automatically deliver fruit through the bottom of said carrier to the inclined side of said spout as the fruit arrives on said carrier above the same.

14. The combination, with a frame, of sprockets rotatably mounted therein, chains mounted parallel on said sprockets, said chains provided with wings, slats attached to said wings, flights secured to said slats, a platform adapted to sustain the ascending portion of the chains, side boards for said platform and having undercuts in which said chains move, and a spout or trough adjacent the upper end of said platform whereinto said flights are adapted to deliver fruit.

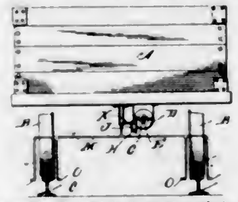
751,677. VALVE. JOSEPH W. NETHERY, Indianapolis, Ind., assignor to the Nethery Hydraulic Valve Company, Indianapolis, Ind., a Corporation of New Jersey. Filed Aug. 10, 1903. Serial No. 168,894. (No model.)



Claim.—1. The combination, in a valve, of a valve-casing comprising a working barrel, a piston-valve within said working barrel having a chamber therein, a combined cap and stuffing-box member secured to the valve-casing and extending to within the chamber in the piston-valve and also having a chamber therein, a second stuffing-box member entering the chamber in the first-named stuffing-box member and having a chamber, a push-button entering the chamber in said second stuffing-box member and also having a chamber, a starting-valve, a rod uniting said starting-valve and said push-button, and a spring contained within the chambers of the push-button and the interior stuffing-box member and surrounding said rod, said several parts being thus positioned within one another and contributing to reduce the valve structure as a whole in size and weight.

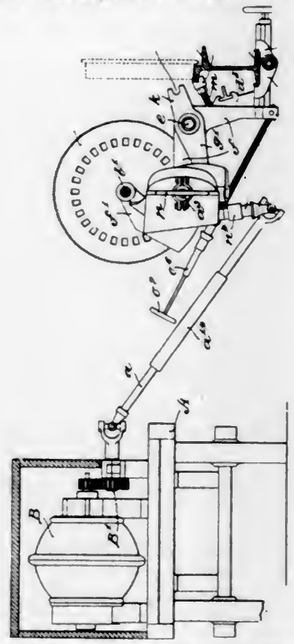
2. The combination, in a valve, of the valve-casing, a working barrel therein, a piston-valve in said working barrel having a stem or extension carrying the valve proper the sides whereof are cut away leaving a part above the cut-away portion of substantially the same diameter as the orifice through the valve-seat, a chamber above the piston-valve for the admission of fluid to operate said valve, an orifice through the stem of said main valve for the admission of fluid to said chamber, a starting-valve the rod whereof extends through said orifice (said starting-valve being seated upon the lower end of said main valve) the free travel of said starting-valve being equal to the travel of the main valve whereby when the starting-valve is pushed downwardly to the limit of its movement the main valve is adapted at the end of its movement to close the orifice through the main-valve seat and stop the flow.

751,678. AUTOMATIC WHEEL-BRAKE. HUGO NEUMER, San Rafael, Cal. Filed May 16, 1903. Serial No. 157,338. (No model.)



Claim.—In combination with the tank and air-supply pipes leading therefrom, the valves in said pipes, the links connected to said valves, the rod having the upward-extending vertical arms connected to the links and having depending arms arranged in pairs on each side of the rail adapted to strike the ground and open the valves to apply the brakes.

751,679. RAIL-SAWING MACHINE. HENRY B. NICHOLS, Philadelphia, Pa. Filed Aug. 27, 1903. Serial No. 170,910. (No model.)



Claim.—1. In a machine of the character described, a support arranged to be clamped to the under face of the work and projecting upward to one side of said work in the form of a bearing, a shaft removably secured in said bearing, a saw-frame arranged to oscillate on said shaft, and a circular saw arranged to rotate in said frame.

2. In a machine of the character described, a support arranged to be clamped to the under face of the work and projecting obliquely upward to one side of the work in the form of a bearing, a shaft removably secured in said bearing and laterally adjustable therein, a saw-frame arranged to oscillate upon said shaft, a circular saw rotating in said saw-frame above the work, and means carried by said frame for rotating said saw.

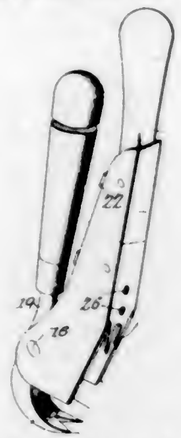
3. In a machine for sawing railway-rails, a support arranged to be detachably secured to the under face of the rail and projecting upward to one side of said rail to form a bearing, a shaft detachably supported in said bearing, a bracket rigidly connected to said shaft, a frame arranged to oscillate upon said shaft, a saw arranged to rotate in said frame, and a mechanism connecting the frame with said bracket and arranged to feed the frame and saw toward the rail.

4. In a machine for sawing railway-rails, a support arranged to be detachably secured to the rail and projecting upward to one side of said rail to form a bearing, a shaft supported in said bearing, a frame arranged to swing upon said shaft, a saw and operating mechanism for said saw carried by said frame, a mechanism adapted to feed the frame and saw toward or away from the rail, said feeding mechanism arranged to swing with the frame and saw in one direction away from the rail to clear the rail for the passage of a car or other vehicle, and a locking mechanism normally arranged to hold the frame, saw and feeding mechanism in operative position with respect to the rail and to prevent clearance movement of said frame, saw and feeding mechanism away from said rail.

751,680. NAIL-PULLER. WILLIAM T. NORCOTT, Kedron, Ark. Filed Oct. 23, 1903. Serial No. 178,288. (No model.)

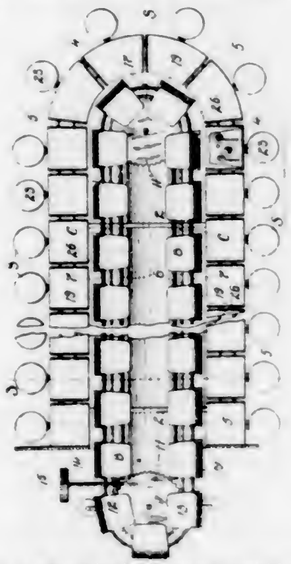
Claim.—1. In a nail-puller, a stock member formed with a bottom portion having a claw at one end for engagement with one side

of the nail to be extracted and integral spaced side portions connected by integral transverse tie-bars and extended into spaced ears, and a movable jaw member pivoted between said ears in advance of said stock-claw and terminating in a claw for coaction therewith at the opposite side of the nail, substantially as described.



2. In a nail-puller, a stock member formed with a bottom portion having a claw at one end for engagement with one side of the nail to be extracted and integral spaced side portions connected by integral transverse tie-bars and extended into spaced ears, a movable jaw member pivoted between said ears in advance of said stock-claw and terminating in a claw for coaction therewith, at the opposite side of the nail, and a handle member connected in said stock and extending rearwardly thereof, substantially as described.

751,681. **SELF-WAITING LUNCH-COUNTER.** THEODORE F. PHILIPPI, St. Louis, Mo. Filed July 24, 1903. Serial No. 166,882. (No model.)



Claim.—1. A self-waiting lunch counter comprising a series of tilting tables, a conveyer located adjacent thereto for advancing the food along the counter, and a second conveyer located below the tables, the contents of the tables being adapted to be deposited on said bottom conveyer by a tilting of the tables in proper direction substantially as set forth.

2. A self-waiting lunch counter comprising a series of tilting tables, a series of linked tray-supporting sections located contiguous thereto, means for advancing said sections, an endless conveyer located below the tables, and devices for releasing the tables and permitting them to tilt for depositing the trays onto said conveyer, substantially as set forth.

3. A self-waiting lunch-counter comprising a series of tilting tables, means for normally holding said tables locked in a horizontal position, a chain of linked tray-supporting sections adapted to be advanced along said tables, a conveyer located below the tables and disposed centrally the length of the counter, inclines leading from the tables toward the conveyer, and means for simultaneously advancing the tray-supporting sections and the conveyer, substantially as set forth.

4. A self-waiting lunch-counter comprising a series of tilting tables, a conveyer located adjacent thereto for advancing the food along the counter, and separate means for receiving the objects discharged from the tables upon a proper inclination of the latter, substantially as set forth.

5. A self-waiting lunch-counter comprising a suitable counter, a conveyer located adjacent thereto for advancing the food along the counter, a conveyer located below the counter, and means for mechanically discharging the dishes from said counter to the bottom conveyer, substantially as set forth.

751,682. **AIR-BRAKE COUPLING.** JOHN H. PHILLIPS, Pottsville, Pa. Filed July 9, 1903. Serial No. 164,880. (No model.)



Claim.—1. A coupling device for railway-cars, comprising a coupling member normally held positively against lateral movement but rendered susceptible of lateral movement by engagement with a corresponding member.

2. A coupling device for railway-cars, comprising a coupling member yieldably held against longitudinal movement and normally held positively against lateral movement, but rendered susceptible of lateral movement by operative engagement with a corresponding member.

3. In a coupling device for railway-cars, a coupling member mounted for lateral movement and means, displaceable by contact of said member with an opposing coupling member, for normally holding said member against lateral movement.

4. In a coupling device for railway-cars, a coupling member mounted for longitudinal and lateral movements and means, displaceable by longitudinal movement of the member for normally holding the member against lateral movement.

5. In a coupling device for railway-cars, a movable coupling member and means releasable by longitudinal movement of the member for normally holding said member positively in position to engage with a corresponding coupling member.

6. In a coupling device for railway-cars, a frame, a movable coupling member, and centering means normally operative to hold said coupling member in the center of said frame, said centering means being releasable by the contact of the coupling member with an opposing coupling member.

7. In a coupling device for railway-cars, a frame, a coupling member movable within said frame, and centering means rigidly associated with said coupling member, said centering means being normally operative to hold said coupling member in the center of said frame and being releasable by contact of said coupling member with an opposing coupling member.

8. In a coupling device for railway-cars, a frame, a coupling member supported within said frame and held against lateral movement at its rear end, and means releasable by contact of the coupling member with an opposing coupling member, for normally engaging with the forward end of said frame to hold the coupling member against lateral movement therein.

9. In a coupling device for railway-cars, a rigidly-supported frame having an opening in the forward end, a movable coupling member supported in said frame, a tapering centering member carried by said coupling member, and means for normally holding said centering member normally in engagement with the inner wall of the opening in the end of the frame.

10. In a coupling device for railway-cars, a rigidly-mounted frame having a circular opening in the forward end thereof, a coupling member movably supported in said frame, a conical centering member carried by said coupling member and means for forcing said conical centering member normally into engagement with the inner wall of the opening in the end of said frame.

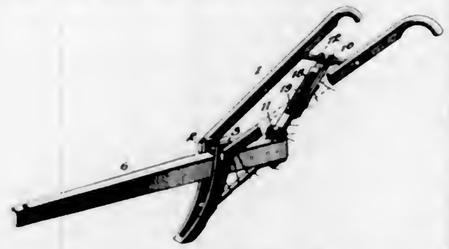
11. In a coupling device for railway-cars, a rigidly-mounted frame having a circular opening in its outer end, a coupling member movably supported in said frame, a conical centering member having longitudinal ribs on the outer surface thereof, and means releasable by the contact of said coupling member with an opposing coupling member for normally holding the ribs of the centering member in engagement with the inner wall of the opening in said frame.

12. In a coupling device for railway-cars, a rigidly-mounted frame terminating at its forward end in a ring, a coupling member movably supported in said frame and extending through said ring, a conical centering member rigidly mounted on said coupling member, and means for normally holding said centering member in engagement with the inner wall of said ring.

13. The combination in an air-brake coupling, of a frame adapted to be supported on a transverse car-beam and terminating in a ring, an air-brake pipe having a conical centering member rigidly associated therewith and adapted to contact with said ring, a spring engaging said centering member to hold it normally in engagement with said ring, a head on the forward end of said pipe normally projected beyond the position occupied thereby when the coupling device is in use, and interlocking means on said head to engage with interlocking means on a similar head to hold said heads in operative engagement.

14. The combination in an air-brake coupling of a frame adapted to be mounted on a transverse car-beam and terminating in a ring having an annular groove on its forward surface, an air-brake pipe extending through said ring and having rigidly associated therewith a conical centering device adapted to contact with the interior of said ring, a spring engaging said centering device to hold it normally in engagement with said ring, a collar mounted on said pipe in advance of said ring, a spring seated in the groove on said ring and engaging said collar to project said pipe forward, a head mounted on the forward end of said pipe and normally projected beyond the position occupied thereby when the coupling device is in use, and interlocking devices on said head to engage with interlocking devices on a similar head to hold said heads in operative engagement.

751,683. **PLOW.** JOHN REEL, French Camp, Miss., assignor of one-half to T. E. Barron, Sturgis, Miss., and J. W. Barron, Aberdeen, Miss. Filed Feb. 21, 1903. Serial No. 144,417. (No model.)

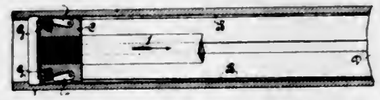


Claim.—1. In a device of the class described, the combination with a plow-beam; of standards arranged at opposite sides of the beam, plow-handles pivotally connected with the standards and provided with a rung, an adjustable brace located above the beam and extending downwardly and forwardly from the rung and hinged to the same and to the beam and composed of two sections adjustably secured together between the ends of the brace, a clamping device mounted on the adjustable brace and engaging the rung, whereby the brace and the rung are rigidly connected, a lower brace connected with the beam and with the standards, and fastening means piercing the lower brace and the beam and connected with the upper brace and securing the same to the beam, substantially as described.

2. In a device of the class described, the combination with a plow-beam, of handles pivotally connected to the beam and having a rung, a cuff mounted on the rear end of the beam and having perforated sides, an inclined adjustable connecting device or brace located in rear of the handles and composed of upper and lower bars provided at their outer ends with eyes arranged respectively on the rung and in the cuff, the inner end of one bar being slotted, a fastening device mounted on the inner portion of the other bar and member and operating in the slot, a pivot carried by the cuff and passing through the lower eye of the adjusting device or brace, and a clamping device mounted on the upper eye of the adjusting device or brace and clamping the rung, whereby the parts are rigidly connected, substantially as described.

3. In a device of the class described, the combination with a plow-beam, standards arranged at opposite sides of the beam and extending above the same and provided with fastening devices arranged above and below the said beam, and an inclined brace extending rearward from the standards and provided at its upper end with a fastening device passing through the beam, of handles pivoted to the upper ends of the standards by one of the fastening devices thereof, a cuff secured to the rear end of the beam by the fastening device of the brace, a rung connecting the handles and an adjustable brace pivoted to the cuff and hinged to the handles by the rung and provided with means for adjustably fixing it to the latter, substantially as described.

751,684. **FLUID-BRAKE FOR GUNS.** ADOLF RESOW, Essen-on-the-Ruhr, and OTTO LAUBER, Altendorf, Germany, assignors to Fried. Krupp, Essen-on-the-Ruhr, Germany. Filed Aug. 18, 1900. Serial No. 27,339. (No model.)



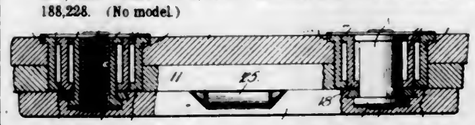
Claim.—1. In a fluid-brake in which the fluid in the cylinder passes from one side of the piston to the other through a suitable channel in the inner wall of the cylinder, means adapted to enter the channel to restrict its cross-section, throttling the fluid, moving with the piston, and inclined in the direction of movement of the piston so that it seats and unseats by the fluid-pressure within the channel.

2. In a fluid-brake in which the liquid in the cylinder passes from one side of the piston to the other through a suitable channel, the combination of a throttling device consisting of a flap hinged to the piston to swing inwardly and outwardly with respect to the same and arranged contiguous with the channel so as to be thrown inwardly to clear the channel and outwardly to restrict the cross-section of the same according to the direction of the movement of the piston, substantially as described.

3. In a fluid-brake in which the liquid in the cylinder passes from one side of the piston to the other through a suitable channel, the combination of a throttling device consisting of a flap hinged to the piston to swing inwardly and outwardly with respect to the same, and a spring acting on the flap to force the same outwardly into the channel, substantially as described.

4. In a fluid-brake in which the liquid in the cylinder passes from one side of the piston to the other through a plurality of channels, the combination of a throttling device consisting of a plurality of flaps hinged to the piston to swing inwardly and outwardly with respect to the same and arranged contiguous with the channels so as to be thrown inwardly to clear the channels and outwardly to restrict the cross-section of the same according to the direction of the movement of the piston, substantially as described.

751,685. **HANDLE FOR TRUNKS.** CHARLES L. SANFORD, Bellaire, Ohio. Filed Jan. 3, 1903. Renewed Jan. 8, 1904. Serial No. 188,228. (No model.)



Claim.—1. A handle for trunks and the like consisting of a hand grip-bar, and connecting-standards formed of a plurality of sections telescopically disposed with one of the end sections connected to the grip-bar member and the other end section connected to the body of the trunk, whereby the grip-bar may be collapsed when not in use, substantially as described.

2. A handle for trunks and the like consisting of a hand grip-bar, connecting-standards formed of a plurality of sections telescopically disposed, means for connecting one of the end sections to the grip-bar member, means for connecting the other end section to the body of the trunk, and springs connecting said grip-bar and the trunk-body and exerting their force to yieldably maintain said standards in their collapsed position, substantially as described.

3. A handle for trunks and the like consisting of a hand grip

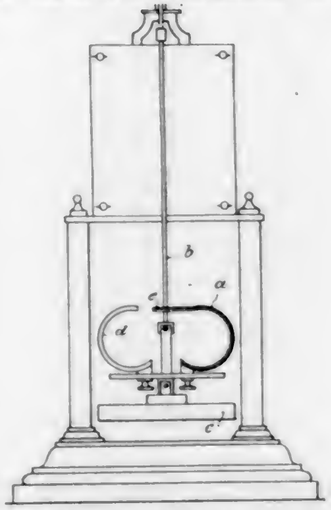
bar, connecting-standards formed of a plurality of sections telescopically disposed, means for connecting one of the end sections to said grip-bar member, means for connecting the other end section to the body of the trunk, springs disposed within said tubular sections and connected by their ends respectively to said hand grip-bar and to said trunk-body, substantially as described.

4. A handle for trunks and the like consisting of a hand grip-bar, and connecting-standards formed of a plurality of sections telescopically disposed, each section having an external rib on one end and an internal rib upon the other end, means for connecting one of the end sections to said grip-bar member, and means for connecting the other end section to the body of the trunk, substantially as described.

5 A handle for trunks and the like consisting of a hand grip-bar, connecting-standards formed of a plurality of concentric tubular sections telescopically disposed, each section having an external rib on one end and an internal rib upon the other end, means for connecting one of the end sections to said grip-bar member, means for connecting the other end section to the body of the trunk, springs disposed within said tubular sections and connected by their ends respectively to said hand grip-bar and to said trunk-body, substantially as described.

6. A handle for trunks and the like consisting of a hand grip-bar, connecting-standards formed of a plurality of sections telescopically disposed with one of the end sections connected to the grip-bar member and the other end section connected to the body of the trunk, a plate forming an inner closure to the sections, and springs connected by one end to said plate and extending through said sections and connected by their other ends to said hand grip-bar, and exerting their force to maintain said sections in their collapsed position, substantially as described.

751,686. COMPENSATION-PENDULUM. HEINRICH SATTLER, Munich, Germany, assignor to The Firm of Andreas Huber, Munich, Germany. Filed Mar. 16, 1903. Serial No. 147,960. (No model.)



Claim.—1. The combination with a pendulum suspended by a torsional spring, of a compound strip of different metals having unequal susceptibility to changes of temperature, said strip having one end fixed in a suitable manner and its other end bifurcated and embracing the torsional spring of the pendulum.

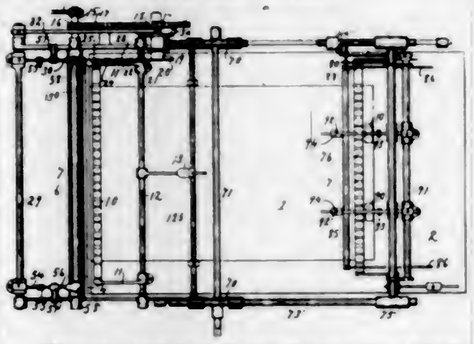
2. A device for compensation-pendulums of the class specified, consisting of a strip of metals of two different sorts joined along their length, said strip having one end forked to embrace the flat spring of the pendulum and being bent round and having its opposite end fixed to the weight of the pendulum.

3. The combination, with a pendulum adapted to oscillate about its axis, of a strip formed of two metals which are unequally susceptible to expansion and contraction under changes of temperature, said strip mounted upon a suitable support and embracing the pendulum in such manner as to control its effective length

4. The combination, with a pendulum suspended by a torsional spring and adapted to oscillate about its axis under the influence of said torsional spring, of a strip formed of two metals of unequal susceptibility to changes of temperature, said strip mounted upon the pendulum and oscillating therewith and its free end embracing the torsional spring and controlling the effective length thereof.

5. The combination, with a pendulum suspended by a torsional spring and adapted to oscillate about the axis of said spring, of a bent strip composed of longitudinally-united metals of unequal susceptibility to expansion and contraction under changes of temperature, the said strip secured at one end to the pendulum in such manner as to oscillate therewith, the other end embracing by a bifurcated portion the torsional spring in such manner as to vary its effective length under diverse temperatures, and a compensating weight upon the opposite side of the pendulum.

751,687. PAPER-FEEDING DEVICE. FRANK SCHILL, Milwaukee, Wis., assignor to Hugo Loewenbach, Milwaukee, Wis. Filed June 29, 1901. Serial No. 66,481. (No model.)



Claim.—1. In a device of the described class, the combination with a supporting platform or table; of sheet-withdrawing mechanism operative near one edge of the pile of sheets; means for intermittingly compressing the paper along a line near the opposite edge of the pile; a revolving sheet-separating roller surfaced annularly with bands of frictional material and extending across the pile, parallel with the edge of the sheets and the line of compression; and means for reciprocating the separating-roller into and out of contact with the paper, in synchronism with the compressing mechanism, and in alternation with the action of the sheet-withdrawing mechanism, said sheet-separating roller being located in such relation to the edge of the pile and the line of compression, as to draw in the edge of the top sheet and cause the same to double and pass above the roller, and be lifted with it.

2. In a device of the described class, the combination with sheet-withdrawing mechanism; of means for intermittingly compressing the paper along a line near the edge opposite the point of delivery; a revolving sheet-separating roller; and means for intermittingly bringing the same into contact with the paper between said line of compression and the adjacent edge of the sheet, said roller being actuated synchroously with the compression mechanism and in alternation with the sheet-withdrawing mechanism, and said roller being located in such proximity to the edge of the sheet and the line of compression, that the friction of the roller will cause the sheet to double and pass above the roller, prior to the removal of the compression.

3. In a device of the described class, the combination with sheet supporting and withdrawing mechanism, of a bar located near one edge of the sheets, and extending across the pile from one side to the other, parallel with the edge; a friction-roller extending across the sheets, parallel with the bar, and between it and the adjacent edge of the sheets; means for reciprocating the rollers and bar into and out of contact with the sheets; and means for rotating the roller in a direction to push the sheets toward the bar, the bar and roller being located in such relation to each other and the adjacent edge of the sheets, as to cause the sheets to be doubled between the roller and bar, and held by frictional contact when the roller and bar are lifted.

4. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them and be held by frictional contact when the roller and bar are lifted.

5. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them, and be held by frictional contact when the roller and bar are lifted; together with means for adjusting the bar and roller with reference to each other.

6. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them, and be held by frictional contact when the roller and bar are lifted, together with means for adjusting the bar and roller with reference to each other, and jointly with reference to the sheets.

7. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them and be held by frictional contact when the roller and bar are lifted; a common support for the bar and roller; and means for adjusting the same longitudinally.

8. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them and be held by frictional contact when the roller and bar are lifted; together with holding devices for engaging the under sheets when the roller and bar are lifted.

9. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper; said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them, and be held by frictional contact when the roller and bar are lifted; together with sheet-withdrawing mechanism, operative upon the pile at a side opposite that occupied by said roller and bar.

10. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; and means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them, and be held by frictional contact when the roller and bar are lifted; together with a friction feed-roller parallel to the bar, and operative at the other end of the pile.

11. In a device of the described class, the combination with sheet supporting and withdrawing mechanism; of a friction-roller and bar located near one edge of the sheets, and parallel therewith; means for reciprocating the roller and bar into and out of contact with the paper, said roller being revolved in a direction to push the sheets toward the bar, and the bar and roller being located in such relation to each other as to cause the sheet to double between them, and be held by frictional contact when the roller and bar are lifted; together with a friction feed-roller, operative to start the sheets when lifted; and sheet-withdrawing rollers arranged to positively engage the sheets between them when started by the feed-roller, and dropped by the sheet-separating roller.

12 In a device of the described class, the combination of a paper-supporting platform; a transverse paper-compressing bar connected by suitable arms with a point of pivotal oscillation; a friction-roller, parallel with the compression-bar, and also connected by supporting-arms with a point of pivotal oscillation; an actuating-shaft, and connections for rotating the roller; a cam mounted on the shaft; a projection from one of the roller-supporting arms having a bearing on the eccentric periphery of the cam, and a projection on one of the roller-supporting arms, whereby, as said cam is rotated, the bar and roller are oscillated into and out of contact with the surface of the paper.

13. In a device of the described class, the combination of a paper-supporting platform, a transverse paper-compressing bar connected by suitable arms with a point of pivotal oscillation; a friction-roller, parallel with the compression-bar, and also connected by supporting-arms with a point of pivotal oscillation; an actuating-shaft and connections for rotating the roller; a cam mounted on said shaft; a projection from one of the roller-supporting arms, having a bearing on the eccentric periphery of the cam, and a projection on one of the roller-supporting arms, whereby, as said cam is rotated, the bar and roller are oscillated into and out of contact with the surface of the paper; together with paper-holding devices, provided with similar cam-actuated connections, and arranged to engage the paper between the separating-roller and the adjacent edge of the sheet.

14. In a device of the described class, the combination of a paper-supporting platform; a compression-bar located for operation near one edge of the sheets of paper supported by the platform; a separating-roller, cooperative with the compression-bar and extending parallel thereto between the bar and one edge of the sheet; means for rotating the separating-roller; means for lifting and depressing the roller and bar in synchronism; a rotary feed-roller; and means for reciprocating the same into and out of contact with the paper, in alternation with the movement of the separating-roller, said separating-roller and feed-roller being formed with annular frictional surfaces adapted for continuous frictional operation upon the paper with which the roller contacts.

15. In a device of the described class, the combination of a paper-supporting platform; a compression-bar located for operation near one edge of the sheets of paper, supported by the platform; a separating-roller surfaced annularly with frictional material and extending parallel to the bar between the latter and the adjacent edge of the pile of sheets; continuously-acting roller-rotating mechanism, means for lifting and depressing the roller and bar in synchronism, said roller and bar being adjusted in proximity, with sufficient space between them to permit the sheet to double upwardly in the form of a loop, whereby the paper will engage resiliently with the roller and bar and be carried with them when the latter are lifted.

16. In a device of the described class, the combination of a paper-supporting platform; a compression-bar located for operation near one edge of the sheets of paper supported by the platform; a separating-roller, cooperative with the compression-bar and extending parallel thereto between the bar and one edge of the sheet; means for rotating the separating-roller; means for lifting and depressing the roller and bar in synchronism; a rotary feed-roller; and means for reciprocating the same into and out of contact with the paper in alternation with the movement of the separating-roller; together with a set of rotary delivery-rollers, adapted to receive the sheets advanced by the feed-roller; and means for separating the delivery-rollers while the sheet is being so advanced.

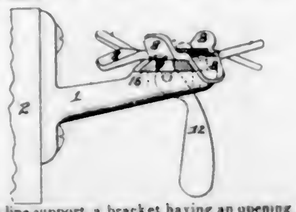
17. In a device of the described class, the combination of a paper-supporting platform; a compression-bar located for operation near one edge of the sheets of paper supported by the platform; a separating-roller, cooperative with the compression-bar, and extending parallel thereto between the bar and one edge of the sheet; means for rotating the separating-roller; means for lifting and depressing the roller and bar in synchronism; a rotary feed-roller, means for reciprocating the same into and out of contact with the paper, in alternation with the movement of the separating-roller, together with a set of delivery-rollers adapted to engage and withdraw the sheets advanced by the feed-rollers; and an oscillatory guard-wing, adapted to be adjusted in one direction to facilitate the passage of paper advanced by the feed-roller, and in another direction to hold back the remaining paper while the advanced sheet is being withdrawn by the delivery-rollers

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751,688. CLOTHES-LINE SUPPORT. EDWARD SCHWINN, Dayton, Ohio. Filed Oct. 17, 1903. Serial No. 177,405. (No model.)

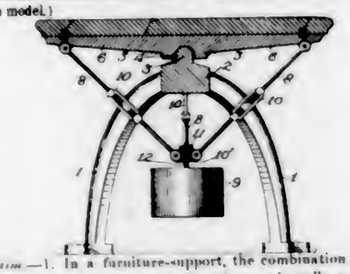
Claim.—1. In a clothes-line support, the combination with a bracket, of a wheel having a series of radial arms projecting upwardly and downwardly to provide intervening spaces for the attachment of the clothes-line, the said wheel having a series of openings adjacent to the inner terminals of the arms, and a gravity-dog pivoted in the bracket and having its engaging end projecting upwardly in a position to enter the openings in said wheel.

2. In a clothes-line support, a bracket having an opening therein, and an adjacent boss projecting from the upper side thereof, in combination with a wheel pivotally attached to said boss, the said wheel having a series of radial arms projecting therefrom, and alternately projected upwardly and downwardly to provide means for the end of the clothes-line to be secured to said wheel, a series of openings concentrically arranged in said wheel, one of such openings being adjacent to the inner terminal of each of said arms, and a gravity-dog pivoted in the opening in the bracket in a position to engage the openings in the wheel and to permit said wheel to be turned in one direction in tightening the clothes-line and to lock said wheel against opposite rotation.



3. In a clothes-line support, a bracket having an opening in one side thereof, and a boss projecting from the upper surface of said bracket adjacent to said opening, a wheel pivoted upon said boss, said wheel having a series of radiating arms projected alternately upwardly and downwardly to provide intervening spaces for the clothes-line to pass above and below said arms in securing the same, a series of circular openings extending around said wheel in line with the inner terminals of said arms, and a gravity-dog pivoted in the opening in the bracket and having its nose projected upwardly to enter said openings as the wheel is rotated, the nose of said dog being inclined on one side as at 15 to permit of the rotation of the wheel without interlocking with the dog, substantially as set forth.

751,689. **SELF-LEVELING FURNITURE-SUPPORT.** ELWOOD R. SEACRIST, Alliance, Ohio. Filed June 22, 1903. Serial No. 162,574. (No model.)



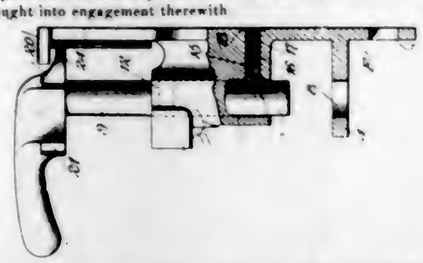
Claim.—1. In a furniture-support, the combination of a supporting-frame, a furniture-supporting frame pivotally mounted on said supporting-frame, a weight for keeping said furniture-supporting frame in a horizontal position and adjustable connections between said frame and weight, substantially as shown and described.

2. In a furniture-support, the combination of a furniture-supporting frame, a support for said frame, a pivoted connection between said frame and support, means in said connection for limiting the rotary movement of the said frame, a weight located below said pivoted connection between the outer end of the furniture-supporting frame and the weight, substantially as shown and described.

3. In a device of the character described the combination of a supporting-frame, a furniture-supporting frame pivoted connections between said frames squared portions in said pivoted connection for limiting the rotary movement of the furniture-supporting frame, a weight-support, rods connecting said support with the furniture-supporting frame, turnbuckles interposed in said rods, a weight located below said weight-support, a threaded shank on said weight and a threaded nut having its lower surface convex adapted to engage the shank of the weight when the same is in place in the weight-support thereby providing adjustability of the weight, substantially as shown and described.

751,690. **SEAL-LOCK.** WILLIAM L. SEBRING, Colorado Springs, Colo. Filed Aug. 27, 1903. Serial No. 171,013. (No model.)

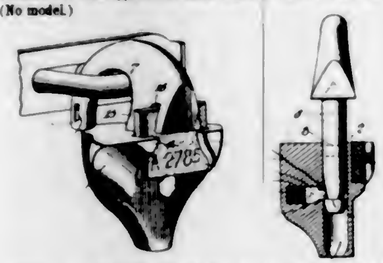
Claim.—1. The combination in a seal-lock, of a bolt-support having a seal-seat, a bolt longitudinally and rotatably movable in said support, said bolt being provided with a head having on the under side thereof a slot with open ends for the reception of the upper portion of a seal when positioned in the seal-seat, said slot being of greater width than the thickness of the seal and having at one end thereof a lateral recess to present a shoulder for engagement with the inner face of the seal, means upon the bolt-head for rotating the bolt in the bolt-support, and means provided in the bolt-support to hold said bolt against longitudinal movement in the bolt-support when a seal is positioned in the seal-seat and the bolt is brought into engagement therewith.



2. The combination in a seal-lock, of a bolt-support having an elongated bolt-receiving opening, a bolt rotatably and longitudinally movable in said opening, said bolt being provided about midway of its length with a recess, coöperating seal-retaining devices on said bolt-support and said bolt, a latch in said bolt-support adapted to engage said recess, and means provided on said bolt-support to limit the longitudinal movement of the bolt in the opening provided in the support so that the recess in the bolt will never be exposed.

3. The combination in a seal-lock, of a bolt-support having a seal-seat, a frangible seal disposed in said seal-seat, a bolt longitudinally and rotatably movable in said support and having its head provided with seal-engaging means, said bolt being provided intermediate of its ends with a transversely-disposed latch-receiving recess, and a spring-pressed latch in said bolt-support, said latch comprising a block slidably movable in the bolt-support and having a slot in the rear end thereof, and a spring lying in the slot in said block and forcing the block normally forward.

751,691. **SEAL-PADLOCK.** WILLIAM L. SEBRING, Colorado Springs, Colo. Original application filed Mar. 7, 1903, Serial No. 146,729. Divided and this application filed Aug. 27, 1903. Serial No. 171,014. (No model.)



Claim.—1. The combination in a device of the class described, of a lock-body having an opening to receive a shackle-arm and provided on one side with a seal-seat open at the top, of a shackle provided with seal-engaging means and having a shackle-arm longitudinally and rotatably movable within the opening provided in the lock-body, said arm having a latch-receiving recess intermediate of its ends and an annular shoulder near its lower end for engagement by a latch, and a spring-pressed latch mounted in the body portion of the lock and adapted for engagement with the recess on the shackle-arm and the annular shoulder thereon.

2. The combination in a seal-padlock, of a body portion having a seal-seat open at the top and provided with an opening for the reception of a shackle-arm, a shackle having a base adapted for contact with the lock-body and provided with a slot for the reception of a seal, a shackle-arm formed integral with the shackle and rotatably and longitudinally movable in the opening provided in the lock-body, said arm having a latch-receiving recess intermediate of its ends and an annular shoulder near the lower end for engagement by a latch, and a spring-pressed latch provided in the lock-body.

3. The combination in a seal-padlock, of a body portion having a seal-seat open at the top and provided with an opening to receive a shackle-arm, a shackle having seal-engaging means and provided with a shackle-arm longitudinally and rotatably movable in the opening in the lock-body, said shackle-arm having a latch-receiving recess intermediate of its ends and an annular shoulder near the lower end for engagement by a latch, and a spring-pressed latch mounted in said body portion and arranged for travel at right angles to said shackle-arm and having stops to limit its forward movement.

4. The combination in a seal-padlock, of a body portion having a seal-seat open at the top, an opening for the reception of a shackle-arm and a lateral lug to support the operator's thumb when opening the lock, and a shackle provided with seal-engaging means and having a shackle-arm longitudinally and rotatably movable in the opening provided in the lock-body, said shackle-arm having a latch-receiving recess intermediate of its ends and an annular shoulder near the lower end for engagement by the latch, and a spring-pressed latch mounted in the lock-body.

751,692. **VEHICLE-COUPLING.** CHARLES H. SENN, Carrville, Iowa, assignor of two-thirds to George W. Whitworth, Cedar Falls, Iowa. Filed Nov. 14, 1903. Serial No. 181,116. (No model.)



Claim.—1. In a coupler of the character described, the combination with a pivoted lock-dog having a lock-lug and a push-lug, of a spring tending to throw said lock-dog into an unlocking position, and a lock-pawl having a lock-shoulder engageable with said lock-lug to hold said lock-dog in a coupling position, against the tension of its spring, substantially as described.

2. In a coupler of the character described, the combination with a pivoted lock-dog having a lock-lug and a push-lug, of a guard-arm overlying said lock-dog and coöperating with said lock-lug to hold the coupled part, and a spring-pressed lock-pawl having a foot-piece at one end and having at its other end a lock-shoulder that engages said lock-lug, to hold said lock-dog in a locking position, substantially as described.

3. The combination with a draft-bar, or similar part, having the supporting-arm 6 and the overlying curved guard-arm 7 with slot 8, of the lock-dog 9 pivoted to said arm 6 and provided with the lock-lug 12 and push-lug 13, the spring 15 tending to hold said lock-dog in an unlocking position, and the spring-pressed lock-pawl 16 pivoted to said draft-bar provided at its forward end with a foot-piece, and at its rear end beveled at 19 and having the lock-shoulder 20, for coöperation with the lock-lug 12 of said lock-dog, substantially as described.

751,693. **RAIL-JOINT.** WARWICK A. SHAW, Chicago, Ill. Filed Aug. 17, 1903. Serial No. 169,836. (No model.)



Claim.—1. The combination with a rail, of means for holding the same, arranged upon opposite sides thereof and having overlapping parts, and means for operating said parts to cause said first-mentioned means to grip the rail.

2. The combination with a rail, of means for holding the same arranged upon opposite sides thereof, and having overlapping parts, and means operated by the downward pressure of the rail for separating said parts to effect a firmer holding of the rail by said first-mentioned means.

3. The combination with a rail, of means for holding the same arranged upon opposite sides thereof and having overlapping parts supports for said means and means for separating said parts to cause said first-mentioned means to grip the rail.

4. The combination with a rail, of means for holding the same arranged upon opposite sides thereof and having overlapping parts, supports arranged between said parts and means operated by downward pressure of the rail for spreading said supports whereby said holding means are drawn together to grip the rail.

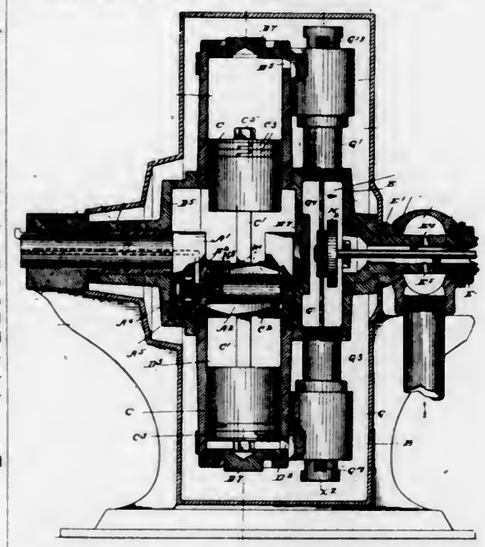
5. The combination with a rail, of fish-plates arranged upon opposite sides thereof and having parts extending beneath and supporting said rail, supports for said fish-plates and means for moving said supports whereby said fish-plates are drawn together to grip the rail.

6. The combination with a rail, of fish-plates arranged upon opposite sides thereof and having overlapping parts, supports arranged between said overlapping parts, and a wedge arranged between said parts and operated by the downward pressure of the rail to draw said fish-plates toward each other.

7. The combination with a rail, of fish-plates arranged on opposite sides thereof and having overlapping parts, supports arranged between said parts and coöperating with the same to draw said fish-plates toward each other when downward pressure is exerted upon the rail.

8. The combination with a rail, of fish-plates arranged on opposite sides thereof and having overlapping parts, supports arranged between said parts, and coöperating with the same when downward pressure is exerted upon the rail to draw said fish-plates together, and means for spreading said supports.

751,694. **ROTARY ENGINE.** JOE E. SHEARER, San Francisco, Cal., assignor to Robert J. Davis, Ross Station, Cal. Filed May 21, 1903. Serial No. 158,152. (No model.)



Claim.—1. In a rotary engine, a cylinder member comprising a plurality of cylinders, radiating from and adapted to revolve concentrically with the working axis of the engine; pistons in the cylinders revolving about a fixed crank-pin eccentric to the working axis of the engine; a hollow axle, steam-chamber, and valve-chests fixed to the revolving cylinder member; slide-valves operating within the valve-chests, and revolving about a pin adapted to swing in an orbit about the working center of the engine; an exterior control of the throttle-valves consisting of a reacting gear operating through the said hollow shaft; means for introducing steam to the cylinders through the throttle-valves, and the said hollow axle; and suitable journal-mountings for the engine including an inclosing casing.

2. In a rotary engine, a cylinder member comprising a plurality of cylinders radiating from and adapted to revolve concentrically with the working axis of the engine, pistons in the cylinders revolving about a fixed crank-pin eccentric to the working axis of the engine, slide-valves controlling admission of steam to said cylinder, rods pivoted to said valves, a plate concentric with the working axis of the engine, a block eccentrically mounted thereon and adapted to revolve in an orbit about the engine-center, said rods being pivoted to said block, and means for varying the orbit in which said block revolves.

3. In a rotary engine, a cylinder member comprising a plurality of cylinders radiating from and adapted to revolve concentrically with the working axis of the engine, pistons in the cylinders revolv-

ing about a fixed crank-pin eccentric to the working axis of the engine, a steam-chamber fixed to the revolving cylinder member, means for introducing steam to said steam-chamber, slide-valves controlling the admission of steam from said chamber to said cylinder, a block mounted in said steam-chamber and adapted to revolve in an orbit about the engine-center, rods pivoted to said block and said valves, and means for varying the orbit in which said block revolves.

4. In a rotary engine, a cylinder member comprising a plurality of cylinders radiating from and adapted to revolve concentrically with the working axis of the engine, pistons in the cylinders revolving about a fixed crank-pin eccentric to the working axis of the engine, a steam-chamber fixed to the revolving cylinder member, tubes leading from said steam-chamber and having lateral ports cut through their walls at regular intervals, slide-valves working in said tubes across said ports and adapted to revolve in a changeable orbit about the engine-center, jackets inclosing said tubes and forming annular spaces about said ports, and means for introducing steam to the steam-chamber.

5. In a rotary engine, comprising a plurality of single-acting cylinders with ports adjacent their closed outer ends; valve-chests fixed to said cylinders having annular spaces communicating with said ports; tubes extending through said valve-chests, and communicating with the steam-supply, and having lateral ports cut through their walls at regular distances communicating with the annular chests; slide-pistons operating in said tubes across the ports, to alternately fill and exhaust the said cylinders through the said valves; and connecting-links from said slide-pistons, to a pin adapted to swing in an arc about the working axis of the engine.

6. In an engine comprising a plurality of opposed cylinders, pistons in said cylinders operating on a crank-pin eccentric to the working center of the engine, connecting-arms connected to the pistons by a stud screwed through the piston-head and jammed with a lock-nut, and having a lateral pin loosely engaging the end of the connecting-arms, which seat in a bearing-block interposed between the head of the piston and the connecting-arms; a crank-pin connection for the said arms consisting of a lateral extension on either side of the arm center, nesting helixically about the crank-pin, the combined outer ends of said lateral extensions forming cones inclosed by cone-cups formed respectively in the reaches of the cranks, which are adapted to be drawn upon the said cones by a threaded pin extending through the crank-pin, and engaging a take-up nut rotatable in the crank.

7. In an engine comprising a plurality of opposed cylinders, pistons in said cylinders operating on a crank-pin eccentric to the working center of the engine; connecting-arms pivoted to the pistons; a crank-pin connection for the said arms consisting of a lateral extension on either side of the arm center, nesting helixically about the crank-pin, the combined outer ends of said lateral extensions forming cones inclosed by cone-cups formed respectively in the reaches of the cranks, which are adapted to be drawn upon the said cones by a threaded pin extending through the crank-pin and engaging a take-up nut rotatable in the crank.

8. In an engine comprising a plurality of opposed cylinders, pistons in said cylinders operating on a crank-pin eccentric to the working center of the engine; connecting-arms connected to the pistons by a stud screwed through the piston-head, and having a lateral pin loosely engaging the end of the connecting-arms which seat in a bearing-block interposed between the head of the piston and the said arms, which are suitably connected to the said crank-pin.

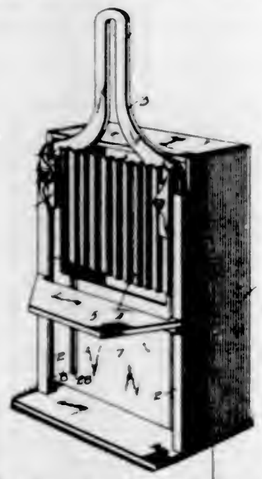
9. In a rotary engine comprising a plurality of cylinders rotating concentrically with the working center of the engine, and having pistons therein rotating about a crank-pin eccentric to the working center of the engine; a hollow axle, steam-chamber, and slide-valves fixed to the revolving cylinders; means for introducing steam to the cylinders through the hollow axle consisting of lateral perforations through the hollow axle communicating with an annular pocket "floating" between a cone fixed on the hollow axle, and a cone adjustable on the hollow axle, and suitable steam-supply to the said pocket.

10. In a rotary engine comprising a plurality of cylinders revolving about the working center of the engine, and having slide-valves fixed to each cylinder; connecting-links from the valve-slides to a pin adapted to swing in an arc about the working center of the engine; means for swinging said pin consisting of a shaft extending through the hollow shaft of the engine and engaging the pin, a pinion on the outer end of said shaft meshed with a pinion fixed on a counter-shaft journaled in a coupling fixed on the said hollow shaft; a second pinion on said counter-shaft meshed with a pinion loose on said hollow shaft; a segmental gear pivoted to the engine-frame, and meshed with said idle pinion.

11. In an engine, a crank member comprising a straight shaft a main crank, and a hollow crank-pin; and a supplemental crank connected to said main crank through the hollow crank-pin.

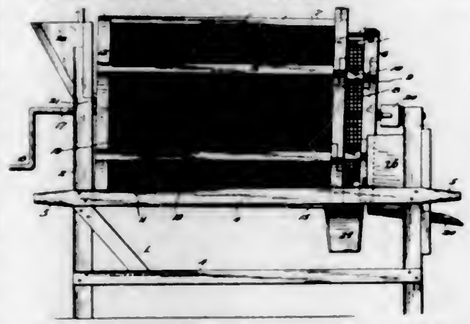
12. In an engine, a crank member comprising a straight shaft, a main crank having a hollow crank-pin extending therefrom, a supplemental crank having a pin extending through said hollow crank-pin, and means for relatively adjusting said cranks.

751,695. **FRUIT OR VEGETABLE CUTTER.** SAMUEL D. SMITHWICK, Mangum, Okla. Filed Sept. 3, 1902. Serial No. 122,005. (No model.)



Claim.—In a device of the class described, the combination with a frame, of a vegetable-support fixed thereto, a slide slidably connected with the frame and having side flanges, inwardly-projecting ears carried by the side flanges, a knife disposed between the flanges beneath the ears, spacing members arranged between the knife and slide, bearing members disposed between the ears and knife, and set-screws extending through the ears and acting on the bearing members to clamp the knife.

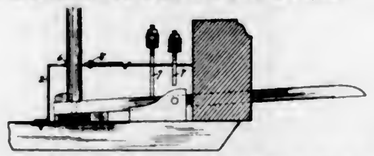
751,696. **GRAIN GRADING AND SEPARATING MACHINE.** FERDINAND S. SNAVELY and CHARLES T. SNAVELY, Marion, Va. Filed Dec. 12, 1901. Serial No. 85,541. (No model.)



Claim.—In a grain grader and separator, a frame provided with handled side bars and having a hopper at one end and a perforation at the other, a crank-shaft journaled in the frame, a cross-bar adjacent each end thereof, the ends of the one at the outer end being crank-shaped rods, two polygonal-sided screens, each provided with a head at its outer end and secured to a compound head at the inner end, said compound head being secured to one of said cross-bars and the screen being arranged one within the other with the inner one projecting beyond the outer one and secured to the cranked ends of the outer cross-bar, and the head of the outer screen forming a flange, longitudinally-arranged rod-like braces secured to the inner surface of the head of the outer screen at the outer end and to the outer surface at the head of the inner screen, and two spouts, one at the outer end of each screen, the one at the end of the outer screen

being substantially trough-shaped in cross-section with its ends secured to the handled side bars and its outer side located substantially in the plane of the flange of the outer screen, the main portion of the other spout being substantially semicylindrical and partially surrounding the outer end of the inner screen and having the spout portion projecting through said perforation in the end of the frame.

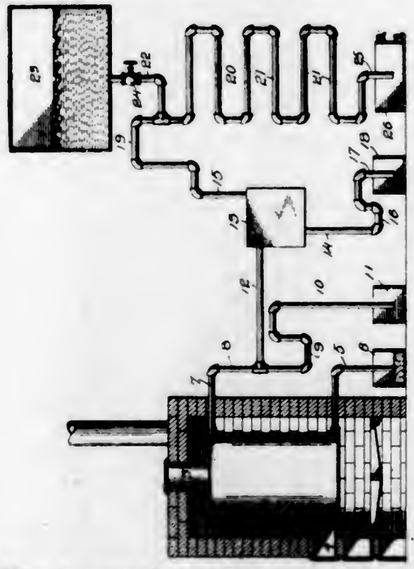
751,697. **PIANO-PEDAL GUARD.** ANDREW J. SORENSON, Chicago Heights, Ill., assignor to the Baldwin Company, Hamilton county, Ohio. Filed Nov. 9, 1903. Serial No. 180,302. (No model.)



Claim.—1. A metal pedal-guard for pianofortes made in one piece consisting of a plate having three side pieces bent at right angles to the face of the same, thus forming a box with one side open; the outer edge of said sides being provided with flanges having holes as described, said plate being also provided with two slots extending into the same from the open side and a circular opening between and to the rear of said slots, substantially as described.

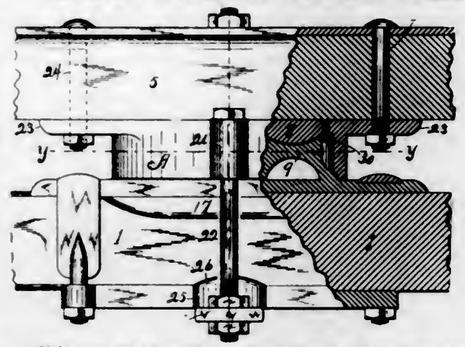
2. A metal pedal-guard for pianofortes made in one piece consisting of a plate having three side pieces bent at right angles to the face of the same, thus forming a box with one side open; the outer edge of said sides being provided with flanges having holes as described, said plate being also provided with two slots extending into the same from the open side, and a circular opening between and to the rear of said slots and means for closing said circular opening, substantially as described.

751,698. **APPARATUS FOR WOOD DISTILLATION.** JOHN W. SPURLOCK, Tyty, Ga. Filed Oct. 12, 1903. Serial No. 176,721. (No model.)



Claim.—An apparatus for distilling wood, comprising a retort, a tar-pipe leading from the lower end of said retort, a vapor-pipe leading from the upper end of said retort, a creosote-discharge pipe leading from said vapor-pipe, a separator connected to said vapor-pipe, a liquid-discharge pipe leading from the bottom of said separator, a series of condenser-pipes forming a circuitous passage, a vapor-discharge pipe leading from the upper end of said separator to said condenser-pipes, a valve-controlled water-discharge pipe tapped into said vapor-discharge pipe below its uppermost point, and a tank or container adapted to receive the discharge of said condenser-pipes, substantially as described.

751,699. **FIFTH-WHEEL.** IRA TEETER and BYRON E. SLY, Watertown, N. Y. Filed Mar. 1, 1900. Serial No. 6,893. (No model.)



Claim.—1. A fifth-wheel comprising upper and lower members having central bores, the lower member thereof having its upper face formed with a centrally-arranged annular recess and an annular cavity encircling the same, the outer edge of which merges in a rib arranged at the upper edge of said member, and having suitable spaced cut-out portions, the sides of the lower member having a groove formed therein, with its lower edge extending outwardly beyond its upper edge, the upper member at its edge having an annular depending flange carrying an annular rib having cut-out portions registering with the rib-sections of the lower member, the lower portion of the inner face of the flange of said upper member conforming to the contour of the lower edge of the lower member, the lower member having its lower side provided with downwardly-extending lips adapted to engage the axle, a headed bolt passing through the bores of the said members and having its head seated on the upper side of the axle, and engaging in an enlarged opening in the lower portion of the lower member provided therefor, a bracket having lips secured to the lower side of the axle, a headed bolt engaging the under side of the axle and seated in an enlarged recess provided therefor in the bracket, said bolt having a nut therein for securing the outer spring of the gear, and a lip having an opening therein formed integral with the upper member, with a bolt passing through said opening and rigidly secured to the center spring, substantially as described.

2. A fifth-wheel comprising two sections, the upper section being formed with an annular opening or recess, the side wall of which is provided with an inwardly-extending curved head, said head being formed with cut-out portions, the top or inner wall of said recess being formed with a centrally-arranged depending portion having inclined sides, said depending portion and side walls of the recess being connected by downwardly-curved portions, the lower member being formed in its upper face with a centrally-arranged recess having inclined walls to receive the depending portion of the upper member lying directly thereabove, and having its upper face on each side of said recess curved inwardly, the vertical walls of said lower member being formed with a groove whereby a rib is formed at the upper edge thereof, said rib being formed with cut-out portions, and a bolt passing through said members.

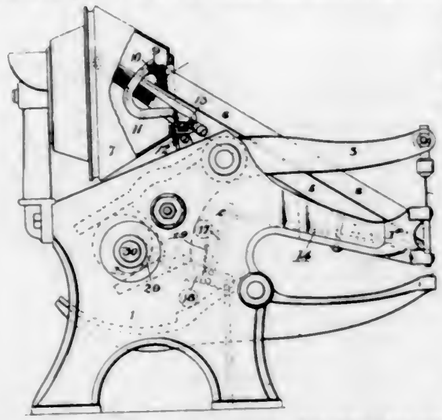
751,700. **STAPLE-SETTING MACHINE.** ALBERT D. THOMAS, Keokuk, Iowa, assignor to the Union Staple Seam Re-Enforcing Company, a Corporation of Missouri. Filed Feb. 8, 1900. Serial No. 4,573. (No model.)

Claim.—1. A staple-setting machine comprising a feed-slide, a piece pivoted above the same and having its lower edge curved to clear said slide, intermittently-acting mechanism for actuating a staple-driving plunger, and lost-motion connecting devices for operatively connecting said pivoted piece to said mechanism, whereby said piece is intermittently swung with a quick movement, substantially as described.

2. A staple-setting machine comprising a staple-driving plunger intermittently-acting mechanism for actuating said staple-driving plunger, a feed-slide, a guard-rail, a piece pivotally mounted on said guard-rail to barely clear staples properly astraddle the feed-slide near the end of said guard-rail, a lever connected to said pivoted piece and a link connecting said lever to the actuating mechanism, one of said connections being a lost-motion device, substantially as described.

3. A staple-setting machine comprising a feed-slide, a feed-gate,

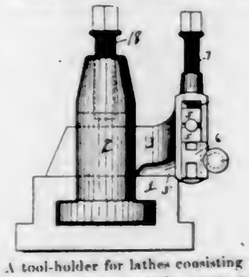
intermittently-acting mechanism for actuating the machine and a stopping device for stopping said mechanism, said stopping device having an adjunctive device for closing said gate when said stopping device is disengaged from said mechanism, substantially as described



4. A staple-setting machine comprising a feed-slide, a feed-gate, intermittently-acting mechanism for driving said machine and a stopping device for said mechanism but movable independently thereof, said stopping device having an adjunctive device for closing said gate when said stopping device is disengaged from said mechanism, substantially as described.

5. A staple-setting machine comprising a feed-slide, spring-pressed clamping-levers on each side thereof at the end, a lever having a piece wedging between the inner end of said levers, and means for operating said lever independently of the plunger-actuating mechanism, substantially as described.

751,701. TOOL-SUPPORT FOR LATHES. ALBERT R. TIFFANY, Dayton, Ohio. Filed May 9, 1903. Serial No. 156,382. (No model.)



Claim.—1. A tool-holder for lathes consisting of a box or casing adapted to be supported upon a lathe, upper and lower clamping-blocks having V-shaped grooves within said casing and adapted to hold between them the tool to be operated, means for preventing endwise dislodgment of said clamping-blocks from said casing, an adjusting-block within said casing below said clamping-blocks, an adjusting-screw supported on said casing and engaging a portion of the adjusting-block, whereby said adjusting-block is given longitudinal movements from said screw to elevate or lower the clamping-blocks, substantially as set forth.

2. In a tool-holder for lathes, the combination with a tool-post of a lathe, of a box or casing having a longitudinal opening therein extending from end to end, the lower terminal of said opening being on an incline, and a side of the box or casing having a vertical slot therein communicating with the longitudinal opening therein, two clamping-blocks arranged in parallel relation in the longitudinal opening of said box or casing, the adjacent sides of said clamping-blocks being provided with V-shaped grooves adapted to receive a tool, a wedge-shaped adjusting-block within said box or casing below the clamping-blocks and upon which one of said clamping-blocks rests, a lateral flange projecting from said adjusting wedge-block, and an adjusting-screw supported on said box or casing parallel with said adjusting wedge-block, the said screw having an annular groove adapted to engage the flange on the wedge-block to impart longitudinal movements to said wedge-block, substantially as set forth.

3. In a tool-holder for lathes, a box or casing adapted to be supported in a tool-post of a lathe, said box or casing having a longitudinal opening therein, clamping-blocks within the upper portion of said opening, said clamping-blocks adapted to hold between them the tool to be operated, means for preventing said clamping-blocks from moving endwise, an adjusting wedge-block mounted in said casing below the clamping-blocks and adapted to lower or elevate said clamping-blocks and therewith the tool held thereby, binding-screws engaging the upper clamping-block, an adjusting-screw mounted on the lower portion of the box or casing, said adjusting-screw engaging with the wedge-block and imparting longitudinal movements to said wedge-block, substantially as set forth.

4. In a tool-holder for lathes, the combination with the slide-rest of a lathe, of a box or casing adapted to be supported on said slide-rest, clamping-blocks arranged one above the other in said casing, a wedge-shaped adjusting-block having a projecting portion mounted in the lower portion of said casing and supporting the lower clamping-block, an adjusting-screw mounted on said casing parallel with the clamping-blocks, said adjusting-screw having an annular groove near its head adapted to receive said projecting portion of the wedge-block and whereby said wedge-block is actuated to raise or lower the clamping-block, and binding-screws engaging the upper one of said clamping-blocks, substantially as set forth.

5. In a tool-holder for lathes, an open end box or casing having a tapering bottom, clamping-blocks loosely mounted within said casing and adapted to hold the tool to be operated, means for preventing said clamping-blocks from falling out of the casing, a wedge-shaped adjusting-block seated on the tapering bottom of the casing and adapted to elevate or lower the position of the clamping-blocks, and means for actuating said wedge-shaped adjusting-block to change its position, substantially as set forth.

751,702. TRAVELING STAIRWAY. ISAAC H. VERR, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Aug. 21, 1901. Serial No. 72,790. (No model.)



Claim.—1. The combination in a traveling stairway of a series of steps and connecting-links with two curved bearings on each step adapted to bearing-points on the next step to preserve them parallel, substantially as set forth.

2. The combination in a traveling stairway of a series of steps and connecting-links with a roller-support at each end and two curved bearings on each step adapted to bearing-points on the next step to preserve them parallel, substantially as set forth.

3. The combination of the series of steps and connecting-links, each step with a curved riser, adapted to receive the edge of the tread of the next step, and with a bearing-point below the tread, and with a rear curved bearing part adapted to receive the bearing-point of the next step, substantially as set forth.

4. The combination of the link-connected steps, each with a curved riser, lower bearing-point below the riser, curved back bearing below the tread, and reversely-curved bearing part below the back bearing, substantially as set forth.

5. A traveling stairway provided with steps connected by links, the steps having curved risers and curved extensions insuring in connection with the links a parallel motion permitting the steps to move vertically while preserving the horizontal position of the treads, substantially as set forth.

6. The combination in a traveling stairway of the series of steps and connecting-links, each step with a single supporting-roller at each end and with a curved riser and a curved bearing contacting with bearing-points of the adjacent step to preserve the horizontal positions of the treads while permitting one step to move vertically independently of the other, substantially as set forth.

7. The combination with the link-connected steps of a traveling stairway, of upper and lower curved parts of each step adapted to bearing parts on the adjacent step, to prevent the steps from tilting, while permitting vertical movements, substantially as set forth

8. The combination with the link-connected steps of a traveling stairway, of a supporting-roller at each end of each step, and upper and lower curved parts of each step adapted to bearing parts on the adjacent step, to prevent the steps from tilting, while permitting vertical movements, substantially as set forth.

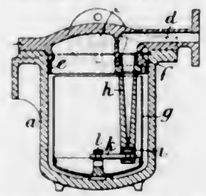
9. In a traveling stairway, supporting-rails with overhanging guards, a series of steps and connecting-links, each step with a single bearing-roller at each end, and upper and lower bearing parts on each step adapted to bearing-points on the adjacent step, substantially as set forth.

10. The combination in a traveling stairway, of link-connected steps one having curved bearing parts and the other bearing-points adapted thereto, with shoulders limiting the upward movement of one step in respect to the other, and a supporting-roller at the end of each step and guide-rails and guard-rails arranged to receive the rollers between them, substantially as set forth.

11. A traveling stairway in which each step has a curved riser affording a bearing for the edge of the tread of the adjacent step, and a bearing part below the riser adapted to a curved extension of the other step, and links connecting the steps to permit independent vertical movements without change from horizontal positions by the treads, substantially as set forth.

12. The combination of the steps, connecting-links, bearings and end rollers, lower and upper platforms D E and supporting-rails with inclines *b a*, substantially as described.

751,703. STEAM-TRAP. ROBERT WARRINER, London, England. Filed Sept. 10, 1903. Serial No. 172,643. (No model.)



Claim.—1. A steam-trap comprising a receiving-tank provided with a closed top, an annular flange depending therefrom and adjacent to the sides of said tank, an inlet-pipe in said top exterior to and in line with said flange, a discharge-pipe in said top located within said flange, a hollow float within said tank of less diameter than said flange, a depending portion of said exhaust-pipe extending into said hollow float and having its end adjacent to the bottom thereof, a valve located in the lower end of said depending portion, and operative connections between said valve and float whereby as the latter rises and falls the former respectively closes and opens substantially as and for the purpose described.

2. A steam-trap comprising a receiving-tank provided with a closed top, an annular flange depending therefrom and adjacent to the sides of said tank, an inlet-pipe in said top exterior to and in line with said flange, a discharge-pipe in said top located within said flange, a hollow float within said tank of less diameter than said flange, a depending portion of said exhaust-pipe extending into said hollow float and having its end adjacent to the bottom thereof, a valve located in the lower end of said depending portion, said valve being provided with a central passage closed at its upper end but provided with diverging outlets, recesses in said depending portion around said valve and a lever connected to said valve and having one extremity pivoted to said depending portion and its other extremity secured to said float whereby as said float is raised and lowered, said valve will be respectively closed and opened through the medium of said lever, substantially as and for the purpose described.

751,704. PROCESS OF PRODUCING PAVED TRACKS ON MACADAMIZED ROADS OR THE LIKE. RUDOLF WEBER, Burgdorf, Germany. Filed Apr. 2, 1903. Serial No. 150,853. (No specimens.)

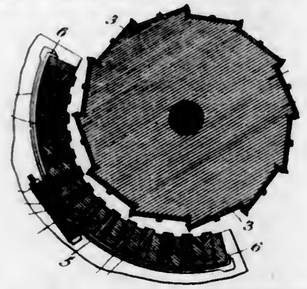


Claim.—1. The improved method of paving roads which consists in: placing an iron skeleton frame along the principal lines of traffic and below the level of the road; and filling out said frame with stones to the level of the road, substantially as set forth.

2. The improved method of paving roads which consists in: placing an iron skeleton frame along the principal lines of traffic and below the level of the road; filling out said frame with stones to the level of the road; and rolling said tracks and the intermediate portions; substantially as set forth.

3. The improved method of paving roads which consists in: placing I-pieces parallel to each other along the principal lines of traffic and below the level of the road; binding said pieces together; and filling out the spaces between said pieces with stones substantially as set forth.

751,705. SEED-HULLER. FRANK A. WELLS, Florence, Kans. Filed Dec. 9, 1902. Serial No. 134,556. (No model.)



Claim.—1. In a seed-huller, the combination with a plurality of knives, arranged in an arc and non-adjustable relatively to one another, of a clamp conforming to the arc of the knives, divided intermediate its ends to provide two members each having its outer end immovable relatively thereto and turned at an angle to the arc, and means connecting the inner ends of the two members of the clamp and movable to draw the turned ends of the members toward one another.

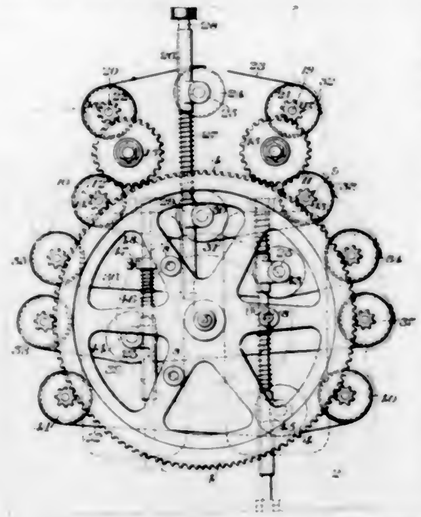
2. In a cotton-seed huller arranged in an arc, of a clamp comprising two members formed on the arc of the knives, an outwardly-extending lug integral with the adjacent ends of said members, each lug having an opening therethrough extending axially thereof, and a bolt positioned in said opening to draw the clamps toward each other, and simultaneously clamp and position the knives in the proper arc.

751,706. COMPUTING-MACHINE. FRANK S. WEYRS, Philadelphia, Pa., assignor of one-half to James B. Fleshman and Warner J. Duhring, Philadelphia, Pa. Filed Mar. 18, 1903. Serial No. 148,460. (No model.)

Claim.—1. A computing-machine comprising means for exhibiting a constant, a plurality of devices in parallel relation with each other each bearing series of characters and means for moving said devices synchronously to present to view certain of said series, said constant representing a fixed relation between the characters exhibited on two of said devices.

2. A computing-machine comprising means for exhibiting a constant, a plurality of devices in parallel relation with each other each bearing series of characters and unitary rotary means for mov-

ing said devices to synchronously present to view certain of said series, said constant representing a fixed relation between the characters exhibited on two of said devices.



3. A computing-machine comprising means for exhibiting changeable characters, means for exhibiting a constant and additional means geared to move synchronously with said first-named means in parallel relation with each other and with said first-named exhibiting means for exhibiting additional changeable characters whose relation to the first-named changeable characters is expressed by the constant.

4. A computing-machine comprising means for exhibiting a constant, a plurality of pairs of rollers bearing flexible bands and means for synchronously rotating said rollers to present to view portions of such bands, said constant representing a fixed relation between the characters exhibited on two of said bands.

5. A computing-machine comprising a wall, a plurality of apertures in said wall, a character on said wall adjacent said apertures, a flexible band and means for synchronously presenting at each of said apertures a portion of said flexible band bearing a character, said constant representing a fixed relation between the characters exhibited on two of said devices.

6. A computing-machine comprising means for exhibiting changeable characters, means for exhibiting a constant, and a plurality of additional means movable in parallel relation with each other and synchronously with said first-named means for exhibiting a plurality of additional sets of changeable characters whose relation to the first-named changeable characters is expressed by the constant.

7. A computing-machine comprising a case, a plurality of apertures in said case, a plurality of flexible bands bearing characters visible through said apertures, pairs of rollers in said case on which said bands are wound, unitary means for rotating said rollers and stationary characters adjacent said apertures expressing a relation between the characters on two of said bands.

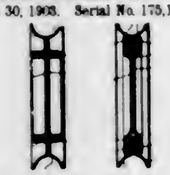
8. A computing-machine comprising a case, a plurality of apertures in said case, a figure on said case representing a wage-rate, a flexible band bearing a plurality of figures representing units of time or the like, a flexible band bearing a plurality of figures representing the products of said constant and said units, a third flexible band bearing a plurality of figures representing such products plus a definite fraction of said constant and unitary means for presenting at such apertures definitely-related portions of such bands.

9. A computing-machine, comprising a case, a character constantly exhibited on said case, apertures in said case adjacent said character, a plurality of devices in parallel relation to each other on said case each bearing series of characters and means for moving said devices synchronously to present at said apertures certain of said series, said constantly-exhibited character representing a fixed relation between the characters exhibited at two of said apertures.

10. A computing-machine, comprising a case, a numeral constantly exhibited on said case, apertures in said case adjacent said numeral, a plurality of rotary devices in parallel relation with each other, each bearing series of numerals and unitary means extending ont of said case for synchronously rotating said devices to present at each of said apertures a certain numeral of said series, said constantly-exhibited numeral representing a fixed relation between the numerals exhibited at two of said apertures.

11. A computing-machine comprising a case, a numeral constantly exhibited on said case, apertures in said case adjacent said numeral, a movable device bearing a progressive series of numerals, a plurality of other movable devices in parallel relation with each other and with said first-named movable device, one bearing a series of numerals representing the product of the numerals of said first-named series by said constantly-exhibited numeral, and another bearing a series of numerals representing the integral sum of such product and a portion of said constantly-exhibited numeral and means for synchronously moving all said devices.

751,707. **PULLEY OR WHEEL.** LAWRENCE ZAMBONI, New York, N. Y. Filed Sept. 30, 1903. Serial No. 175,113. (No model.)



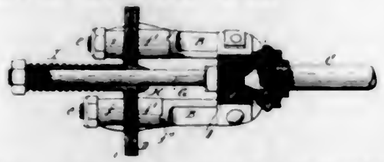
Claim.—1. As a new article of manufacture, a wheel formed of two members having outwardly-flaring flanges forming the rim of the same, and cooperating grooves formed in said members separate from the flanges, with a locking-piece in said grooves, the grooved portions and the locking-piece being bent to lock the parts together, substantially for the purposes set forth.

2. As a new article of manufacture, a wheel formed of two members having cooperating flanges forming a periphery of the same, and opposed grooves in the body portions of said members between said flanges and the center of the wheel, with a locking-strip extending into said grooves, the grooved portions and the locking-strip being bent to lock the two wheel members together, substantially for the purposes set forth.

3. As a new article of manufacture a wheel formed of two members having cooperating flanges forming the periphery of the same, and opposed grooves in the body portions of said members between said flanges and the center of the wheel, with a locking-strip extending into said grooves, the grooved portions and the locking-strip being bent outwardly against the bases of the said flanges and flat against the body portions of the wheel to lock the members together, substantially for the purposes set forth.

4. As a new article of manufacture, a wheel formed of two members having outwardly-flaring flanges forming the rim of the same, and cooperating grooves formed in said members separate from the flanges, with locking means cooperating with said grooves, the grooved portions and the locking means being bent to lock the parts together, substantially for the purposes set forth.

751,708. **FLUE-SCRAPER.** JOHN ZILLIOX, Buffalo, N. Y. Filed Mar. 5, 1903. Serial No. 146,346. (No model.)



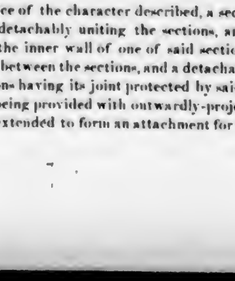
Claim.—1. The combination of a handle, a hub secured thereto, scraper-arms hinged to said hub, sector-shaped scraper-blades secured to and arranged transversely of said arms, a stem secured to said hub and extending longitudinally between said scraper-blades, a wedge mounted to slide longitudinally on said stem and having inclined faces engaging the inner edges of said scraper-blades, and a spring which forces said wedge longitudinally of said stem against said scraper-blades, substantially as set forth.

2. The combination of a handle, a hub carried thereby, arms hinged to said hub and provided with scrapers, a stem secured to said hub and extending longitudinally between said arms, a wedge mounted to slide longitudinally on said stem and having inclined faces engaging parts on said scraper-arms, a spring which forces said wedge longitudinally of said stem against said parts on the scraper-arms, and a nut screwed on said stem for regulating the pressure of said spring on said wedge, substantially as set forth.

3. The combination of a handle, a hub secured thereto, arms hinged to said hub and provided with transversely-arranged scraper-blades, a stem secured to said hub and extending longitudinally between the inner edges of said scraper-blades, a pyramidal-shaped wedge-block slidably mounted on said stem, a nut screwed on said stem, a spring surrounding said stem between said wedge-block and said nut, and a screw-collar on said hub and bearing against the hinged ends of said arms, substantially as set forth.

4. In a flue-scraper, an arm having a reduced end portion, clamping-sleeves on said reduced portion, a scraper-blade on said reduced portion of the arm between said clamping-sleeves, and a nut screwed on the reduced portion of the arm for forcing said sleeves and blades together to secure the latter firmly on the arm, substantially as set forth.

751,709. **COFFEE-POT.** HARRY ADAMS, Fostoria, Ohio. Filed June 29, 1903. Serial No. 163,535. (No model.)



Claim.—1. A coffee-pot of the class described comprising upper and lower sections with an inclined interior watershed at their junction and means for detachably connecting the same together, including trunnions on one of said sections and upon which the coffee-pot is rotatably mounted and inwardly-extending lugs and the other section provided with means cooperating with said lugs.

2. A coffee-pot of the class described comprising upper and lower sections, with an inclined interior watershed at their junction, means for detachably connecting the same together, including trunnions on one of said sections upon which the coffee-pot is rotatably mounted and inwardly-extending lugs, and the other section being provided with means cooperating with said lugs, and a detachable coffee-holder retained by said lugs.

3. A coffee-pot of the class described comprising upper and lower sections, means for detachably connecting the same together, including trunnions on one of said sections upon which the coffee-pot is rotatably mounted and inwardly-extending lugs, the other section provided with means cooperating with said lugs, a detachable coffee-holder retained by said lugs, and a depressed perforated cap for said coffee-holder.

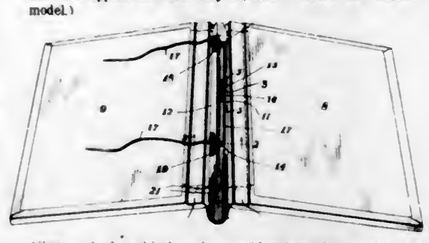
4. In a device of the character described, a sectional coffee-pot with means for detachably uniting the sections, and a watershed projecting from the one section and beyond the end of the other section and protecting the joint between the sections.

5. In a device of the character described, a sectional coffee-pot the sections of which are adapted to be detachably united, an inclined watershed carried by the inner wall of one of said sections and extended beyond the joint between the sections, and a detachable coffee-holder within the sections having its joint protected by said watershed.

6. In a device of the character described, a sectional coffee-pot, the sections of which are adapted to be detachably united, an inclined watershed carried by the inner wall of one of said sections and extended beyond the joint between the sections, and a detachable coffee-holder within the sections having its joint protected by said watershed, one of said sections being provided with outwardly-projecting trunnions, one of which is extended to form an attachment for the handle.

7. In a device of the character described, a sectional coffee-pot with means for detachably uniting the sections, an inclined watershed carried by the inner wall of one of said sections and extended beyond the joint between the sections, and a detachable coffee-holder within the sections having its joint protected by said watershed, one of said sections being provided with outwardly-projecting trunnions one of which is extended to form an attachment for the handle, combined with a base and vertical standards having a handle, and supports for said trunnions.

751,710. **TEMPORARY BINDER.** JOHN R. BARRETT, Chicago, Ill. Original application filed Jan. 17, 1899, Serial No. 702,483. Divided and this application filed May 24, 1902. Serial No. 108,851. (No model.)



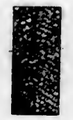
Claim.—1. In a binder, the combination with covers, of binding-strips, 11 12, one of said strips having perforations 13 14 and intermediate perforations 15 16, and a binding-cord, the intermediate portion of said cord forming a loop around that portion of the strip lying between said perforations 15 16, the ends of the cord passing through the perforations 13 14, substantially as described.

2. In a binder, the combination with covers, of binding-strips, 11 12, one of said strips having perforations 13 14 and intermediate perforations 15 16, and a binding-cord, the intermediate portion of said cord forming a loop around that portion of the strip lying between said perforations 15 16, the ends of the cord passing through the perforations 13 14, the other strip having means for securing the ends of the cord, substantially as described.

3. In a binder, the combination with covers, of binding-strips 11 12, one of said strips having perforations 13 14 and intermediate perforations 15 16, and a binding-cord, the intermediate portion of said cord forming a loop around that portion of the strip lying between said perforations 15 16, the ends of the cord passing through the perforations 13 14, the other strip having cleats 18 19, said cleats having central passages 20, substantially as described.

4. In a binder, the combination with covers, of binding-strips 11 12, one of said strips having perforations 15 16 near the center thereof, a binding-cord, the intermediate portion of said cord forming a loop around that portion of the strip lying between said perforations, and means near the ends of said strip for securing the ends of the cord, substantially as described.

751,711. **BUILDING-BLOCK.** ELWOOD O. BAYLOR, Adrian, Mich. Filed June 1, 1903. Serial No. 159,414. (No model.)



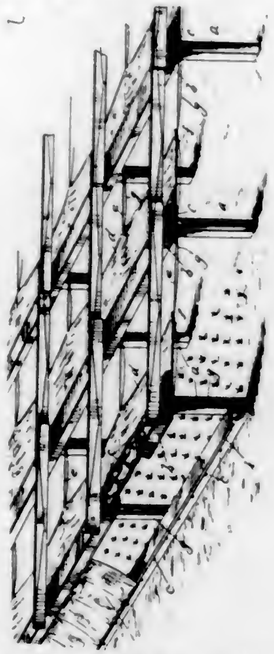
Claim.—1. An integral building-block having its exposed surface formed of a hard substantially impervious concrete, the remainder of the block being composed of a woody fibrous substance, sand and Portland cement in substantially the proportions specified.

2. In a building-block the body thereof consisting of a woody fibrous substance, sand and Portland cement in substantially the proportions specified and having its exposed portions formed of sand and cement in substantially the proportions specified.

751,712. **PROCESS OF PRODUCING HYDRATED SULFID OF ZINC.** VICTOR BERMONT, Paris, France. Filed May 6, 1902. Serial No. 106,153. (No specimens.)

Claim.—A process for the preparation of pure zinc salts from the oxygen-bearing compounds, consisting in treating by ammonia the ore previously crushed and in separating by filtration, after decantation, the solution from the solid part; purifying the ammoniacal liquor produced, consisting in precipitating the metals other than zinc in the condition of insoluble sulfids formed when soluble sulfid is gradually added to the first solution, in separating by filtration, after decantation, these precipitates from the liquid mass so as to obtain as precipitable salts only zinc salts, and in precipitating from this solution perfectly pure salts of zinc by the addition of soluble salt giving an insoluble salt of zinc; substantially as set forth.

751,718. **TENT FOR SHADING TOBACCO OR THE LIKE.** CYRUS M. BERRY and ISRAEL C. PUTNAM, Orlando, Fla. Filed Oct. 16, 1902. Serial No. 127,497. (No model.)



Claim.—The combination with the posts, of downwardly-opening troughs secured on the upper ends thereof, hooks secured to the interior of said troughs, wires extending between the posts and being secured thereto, cloth-sections slidably supported on said wires and having one of their ends connected to said hooks, a cord attached to all of said cloth-sections, a base-board secured to the outer posts and being provided on its lower face with hooks, the outer trough being also provided on its interior at a point beyond the adjacent posts with the hooks, and side cloths secured to the hooks of the said base-board and hooks of said last-named trough.

751,714. **MACHINE FOR CLOSING THE ENDS OF PAPER BOXES.** CHARLES H. BROOKS, Syracuse, N. Y., assignor to Merrell-Soule Company, Syracuse, N. Y. Filed Nov. 6, 1902. Serial No. 130,350. (No model.)

Claim.—1. The combination of a holder for a box, a paste-applying wheel, an axle on which said wheel is journaled, means for moving said axle and wheel past the box, and means for rotating said wheel on its axle to apply the paste to the box, substantially as set forth.

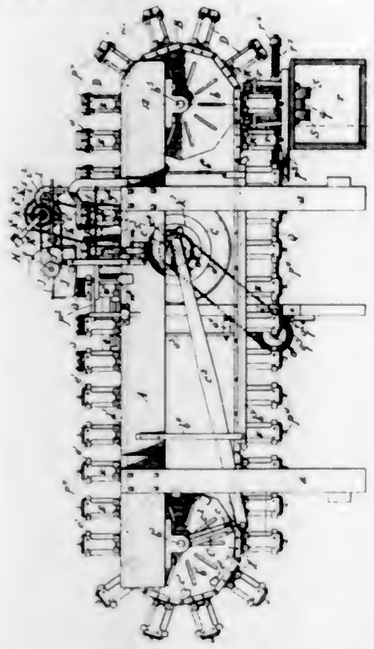
2. The combination with a holder for a box, of a rotary arm which is adapted to sweep past the box, a paste-applying wheel journaled on said arm, and means for rotating said paste-applying wheel on said arm, substantially as set forth.

3. The combination with a holder for a box, of a paste-applying wheel, means for rotating said wheel about its axis, means for carrying said wheel past the box-flaps to apply the paste to the same, and yielding arms for holding said flaps against the paste-applying wheel, substantially as set forth.

4. The combination with a holder for a box, of a rotary shaft, an arm carried by said shaft and adapted to sweep past the box, means for rotating said shaft, a paste-applying wheel secured to a spindle journaled on said arm, and gearing operatively connecting said spindle and said shaft to rotate the spindle, substantially as set forth.

5. The combination with a holder for a box, of a paste-applying wheel, means for rotating said wheel on its axis, means for carrying said wheel past the box, to apply the paste to the latter, and a paste-supplying device with which the paste-applying wheel contacts in its movement, substantially as set forth.

6. The combination with a holder for a box, of a paste-receptacle, a paste-supplying wheel dipping into the paste in said receptacle, a paste-applying wheel, means for rotating said wheel about its axis, and means for carrying said wheel past said paste-supplying wheel to receive the paste and past the box to apply the paste to the latter, substantially as set forth



7. The combination with a holder for a box, of a paste-receptacle, a paste-supplying wheel dipping into the paste in said receptacle, a paste-applying wheel, means for rotating said wheel about its axis, means for carrying said wheel past said paste-supplying wheel to receive the paste and past the box to apply the paste to the latter, and a scraping device bearing against said paste-supplying wheel to remove surplus paste, substantially as set forth.

8. The combination of a paste-applying device, an intermittently-moving holder for a box arranged to carry the box beneath said paste-applying device with its open end uppermost, means for holding down the end flaps at the opposite sides of the box, and means for moving said past-applying device between the standing front and rear end flaps of the box in a direction longitudinally relative to the direction of movement of the box-holder, substantially as set forth.

9. The combination of a paste-applying device, an intermittently-moving holder for a box arranged to carry the box beneath said paste-applying device with its open end uppermost, horizontally-swinging folding devices, means for moving said folding devices toward said box-holder in a direction transversely to the direction of movement of the box-holder, means for swinging said folding devices toward each other to turn down the end flaps at the opposite sides of the box, and means for moving said paste-applying device between the standing front and rear end flaps of the box in a direction longitudinally relative to the direction of movement of the box-holder, substantially as set forth

10. The combination of an intermittently-moving holder for a box, horizontally-swinging folding-arms, vertical rock-shafts carrying said folding-arms, means for moving said rock-shafts and folding-arms horizontally toward said box-holder in a direction transversely to the direction of movement of said box-holder, and means for oscillating said folding-arms toward each other to fold the opposite end flaps of the box, substantially as set forth.

11. The combination of an intermittently-moving holder for a box, horizontally-swinging folding-arms, vertical rock-shafts carrying said folding-arms, means for moving said rock-shafts toward the box-holder in a direction transversely of the direction of movement of said box-holder, levers secured to said rock-shafts, stationary parts which engage said levers to oscillate said rock-shafts and swing said folding-arms toward each other, and springs acting on said levers to oscillate said rock-shafts in the opposite direction, substantially as set forth.

12. The combination with an intermittently-moving box-holder, of stripping devices, means for moving the same transversely toward the box-holder, and means for moving said stripping devices in right lines in a direction parallel with the longitudinal axis of said box-holder to remove the box while said box-holder is stationary, substantially as set forth.

13. The combination with a movable box-holder, of gripping-jaws, levers carrying said jaws and pivoted to swing in planes at right angles to the plane of movement of the box-holder, means for moving said levers bodily toward said box-holder, means for moving said jaws toward each other to grasp the box, and means for moving said jaws in right lines in a direction parallel to the longitudinal axis of the box-holder to remove the box from the holder, substantially as set forth.

14. The combination with a box-holder, of gripping-jaws, pivoted levers carrying said jaws, means for swinging the said levers bodily to carry said jaws toward the box-holder, means for swinging said levers on their pivots to cause the jaws to grasp the box, and means for moving said levers in a direction at an angle to the direction of movement of the levers toward the box-holder to remove the box from the holder, substantially as set forth.

15. The combination with a box-holder, of a rotary shaft, a stationary cam, levers mounted to rotate with said shaft, gripping-jaws carried by said levers, parts connected to said levers and engaging said cam whereby said levers are moved toward the box-holder and also moved parallel with the box-holder, means for moving the jaws to grasp the box, and means for separating said jaws to release the box, substantially as set forth.

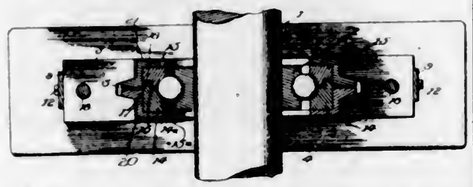
16. The combination with a box-holder, of a rotary shaft, a stationary cam, carrying-plates secured to said shaft, pivoted levers mounted on said carrying-plates and connected to parts engaging said cam, gripping-jaws carried by said levers, springs surrounding said shaft for forcing said levers toward each other, and stationary tracks adapted to be engaged by said levers to separate the latter, substantially as set forth.

17. The combination with a box-holder, of a rotary shaft, a stationary cam, carrying-plates secured to said shaft, slide-blocks on said carrying-plates provided with parts engaging said cam, levers movable with said carrying-plates and pivoted to said slide-blocks, springs coiled about said shaft for forcing said levers toward each other, gripping-jaws carried by said levers, and stationary tracks adapted to be engaged by said levers to separate the latter, substantially as set forth

18. The combination with a box-holder, of rotary levers, means for rotating said levers, means for forcing said levers toward each other, and gripping-jaws pivoted to said levers, substantially as set forth.

19. The combination with a box-holder, of rotary levers, means for rotating said levers, means for forcing said levers toward each other, and gripping-jaws universally connected to said levers, substantially as set forth.

751,715. **BEARING.** JOSEPH BUTLER, Cleveland, Ohio. Filed Mar. 17, 1903. Serial No. 148,827. (No model.)



Claim.—1. In a bearing, a suitable casing, an axle, collar and balls, in combination with a separable cone interposed between said casing and said axle; the said cone being divided radially and also at right angles to its axis; and means for holding said separable cone in position; substantially as described.

2. In a bearing; a suitable casing, an axle; collar and balls, in combination with a separable cone interposed between said casing and said axle; a ring surrounding said separable cone and arranged to hold the same in position; said ring and said casing having an angular annular portion and a similarly-shaped recess; substantially as described.

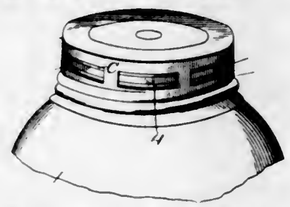
3. In a bearing; a suitable casing, an axle; collar and balls, in combination with a separable cone interposed between said casing and said axle; a divided ring coacting with said separable cone and arranged to hold the same in position, said ring having an angular annular portion fitting within a similarly-shaped recess in the casing, whereby said separable cone may be adjusted; substantially as described.

4. In a bearing; a suitable casing, an axle; collar and balls, in combination with a separable cone interposed between said casing and its axle; said cone being divided both radially and at right angles to its casing; and a divided ring for holding said divisions in place, said ring having an angular portion fitting within a similarly-shaped recess in the casing; substantially as described.

5. In a bearing; a suitable casing, an axle; collar and balls, in combination with a separable cone interposed between said casing and the axle; a divided ring; each portion of the ring having a flange coacting with the separable cone and an angular portion fitting within a similarly-shaped recess in the casing; substantially as described.

6. In a bearing; a suitable casing, an axle; collar and balls, in combination with a separable cone interposed between said casing and said axle; said cone being divided both radially and at right angles to its axis; and a divided ring, said ring having flanges projecting over and holding said separable cone in position and angular portions fitting within similarly-shaped recesses in said casing; substantially as described.

751,716. **JAR-CLOSURE.** WILBERT W. CADLE, Curwensville, Pa., assignor of one-half to J. W. Reeser, Curwensville, Pa. Filed Oct. 29, 1903. Serial No. 179,034. (No model.)



Claim.—The combination with a jar formed with a vertical screw-threaded neck, of a screw-threaded metal cap to engage the screw-threads on the jar-neck provided with openings in the flange of the cap, a porcelain liner or disk fixedly seated in the top of the metal cap and formed with an annular shoulder and the central portion of the liner extended downward into the mouth of the jar, and a yielding packing-ring on the annular shoulder of the porcelain disk and in alinement with the opening in the flange of the cap.

751,717. **DEVICE FOR COLLECTING AND REMOVING STEAM.** SIDNEY M. COCKBURN, London, England. Filed Oct. 17, 1902. Serial No. 127,667. (No model.)



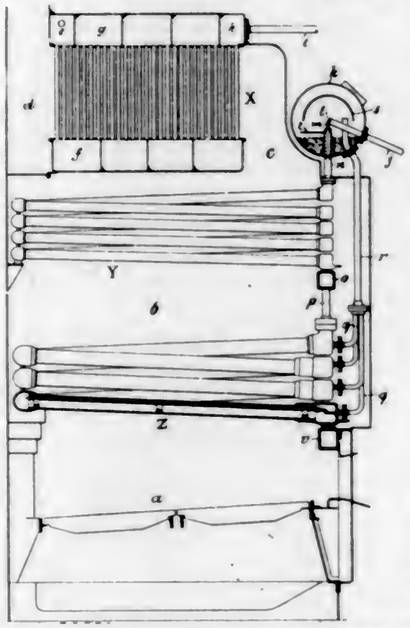
Claim.—1. In steam-generators having heating-surfaces so situated that the steam generated thereon tends to pass in contact with them in rising to the steam-space, a device for collecting the steam by simple gravity action consisting of pipes, not exposed to the source of heat, leading to the steam-space from the neighborhood of the heating-surfaces, orifices in said pipes, and protruding deflecting-plates leading to said orifices thus directing the steam to the orifices.

2. In steam-generators having heating-surfaces so situated that the steam generated thereon tends to pass in contact with them in rising to the steam-space, a device for collecting the steam by simple gravity action consisting of pipes, not exposed to the source of heat, leading to the steam-space from the neighborhood of the heating-surfaces such pipes having orifices situated underneath inverted-funnel-shaped surfaces the edges of which are placed near heating-surfaces which are situated in a nearly-vertical position.

3. A device for collecting steam, and removing it from passing

upward in contact with higher situated portions of the heating-surfaces of a boiler, consisting of an inverted trough in the upper portion of which is placed a perforation-pipe leading by an ascension-pipe to the steam-space.

751,718. STEAM-GENERATOR. SIDNEY M. COCKBURN, London, England. Filed Oct. 24, 1902. Serial No. 128,611. (No model.)



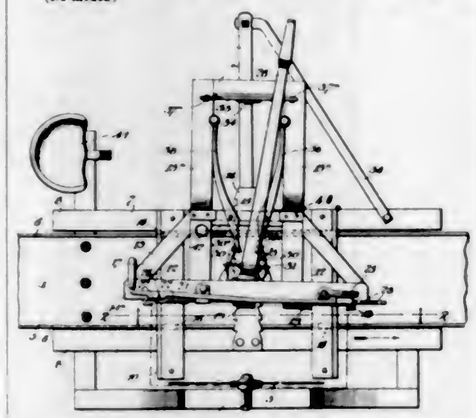
Claim.—1. A steam-generator comprising a steam-chamber and a plurality of water-containing devices arranged in series, means for causing a flow of water through the series of water-containing devices from one end to the other, means for applying heat to said water-containing devices at temperatures decreasing toward the water-inlet end of the series, means for withdrawing the steam from the heating-surface immediately it is generated so as to maintain the heat-receiving portion of the generator entirely full of water and means for returning direct to the steam-generating portion any boiling water conveyed with the steam therefrom.

2. A steam-generator comprising a steam-chamber and a plurality of water-containing devices arranged in series consisting of nearly horizontal tubes, means for causing a flow of water through the series of water-containing devices from the upper end to the lower, means for applying heat to said water-containing devices at temperatures decreasing toward the upper water-inlet end of the series, means for withdrawing the steam from the lower portion of the water-containing devices and conducting it to the steam-chamber consisting of perforated steam-extracting pipes and ascension-pipes connected therewith and down-comer pipes leading direct from the steam-chamber to the lower portions of the water-containing devices.

3. A steam-generator comprising a steam-chamber and a plurality of water-containing devices arranged in series consisting of nearly horizontal tubes, means for causing a flow of water through the series of water-containing devices from the upper end to the lower, means for applying heat to said water-containing devices at temperatures decreasing toward the upper water-inlet end of the series, means for withdrawing the steam from the lower portion of the water-containing devices and conducting it to the steam-chamber consisting of perforated steam-extracting pipes and ascension-pipes connected therewith, down-comer pipes leading direct from the steam-chamber to the lowest portion of the water-containing devices and means for keeping separate the water supplied at the upper end of the series of water-containing devices from that conveyed with the steam through the steam-extracting pipes until they meet in the steam-generating portion of the boiler.

4. In a device of the class described, a water-containing device comprising a plurality of tubes, junction-boxes connecting the ends of said tubes, the consecutive tubes lying side by side and sloping in opposite directions, a feed-pipe having a branch inserted into the upper end of said device, a steam-drum, a steam-extracting pipe inserted in the lower junction-box and also into the steam-drum, a horizontal pipe connected to the lowest junction-box and a down-comer pipe connecting the steam-drum to the horizontal pipe.

751,719. SHINGLE-SAWING MACHINE. JOSEPH M. CUSTER, Graysville, Va., assignor of three-fourths to Graham Lumber Company, Christiansburg, Va. Filed Aug. 17, 1903. Serial No. 169,781. (No model.)



Claim.—1. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely of said carriage, a block-holder slidably mounted on said ways, a rack-bar beneath said block-holder, an operating-lever pivotally mounted beneath said block-holder, a pair of spring-pressed dogs on said lever engaging said rack-bar, and means operated by said lever for swinging said block-holder laterally.

2. The combination in a shingle-machine, of a reciprocating carriage, ways arranged transversely thereof, a block-holder slidably mounted on said ways, a rack-bar mounted on said carriage beneath the block-holder, a lever pivotally mounted on the block-holder and having a head disposed obliquely thereto, and a pair of spring-pressed dogs pivotally mounted on said head and engaging said rack-bar.

3. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely thereof, a block-holder slidably mounted on said ways, a rack-bar projecting laterally from said carriage beneath said block-holder, an operating-lever pivotally mounted on the block-holder and having a head arranged obliquely thereto, a pair of spring-pressed dogs mounted on said head and engaging the opposite sides of said rack-bar, and means provided on said block-holder to throw said dogs out of engagement with said rack-bar.

4. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely of said carriage, a block-holder slidable on said ways, a rack-bar rigidly mounted on said carriage beneath the block-holder, a lever pivotally mounted on the block-holder, a pair of pivoted dogs mounted on said lever and held normally in engagement with said rack-bar, and a pair of pivoted levers mounted on said block-holder and having their ends disposed between said dogs.

5. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely of the carriage, a block-holder slidably mounted on said ways, a rack-bar rigidly mounted on said carriage beneath said block-holder, a lever pivotally mounted on said block-holder, dogs pivotally mounted on said lever and held normally in engagement with said rack-bar, and an oscillating shifter for said block-holder mounted at the rear thereof and adapted to be operated by the movements of said lever.

6. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely thereof, a block-holder slidably mounted on said ways, means on said block-holder for advancing the block-holder by a step-by-step movement, said means comprising a lever pivotally mounted on said block-holder, and means at the rear of said block-holder for shifting the rear portion thereof alternately first to one side and then to the other at each forward feed of the block-holder.

7. The combination in a shingle-sawing machine, of a reciprocating carriage, ways arranged transversely thereof, a block-holder slidably mounted on said ways, a fixed bar beneath said block-holder projecting laterally from the carriage, an oscillating member pivotally mounted at the rear of said block-holder and engaging said bar, and means provided on the block-holder for feeding it forward with a step-by-step movement, said means engaging said shifter and causing said shifter to swing once in each direction with each forward movement of the block-holder.

8. The combination in a shingle-sawing machine, of a reciprocating carriage, a block-holder mounted for movement transversely of said carriage, means for advancing said block-holder with a step-by-step movement, said means comprising a laterally-swinging lever, and a pivoted shifting device at the rear of said block-holder having a concave upper surface over which said lever swings.

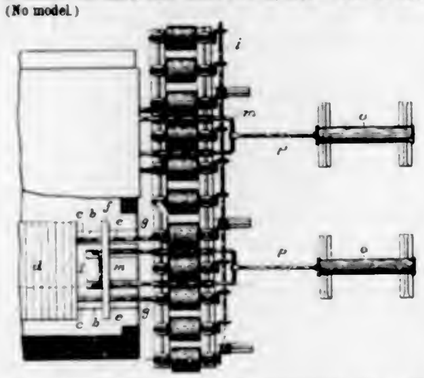
9. The combination in a shingle-sawing machine, of a reciprocating carriage, and a block-holder mounted thereon, said block-holder comprising stationary dogs to engage the bottom and one end of the block, a lever having teeth for engagement with the top of the block, and a sliding bar actuated by said lever and having teeth for engagement with one end of the block.

10. In a shingle-sawing machine, a block-holder comprising stationary dogs for engagement with the bottom and one end of a block, movable dogs for engaging the top and the other end of the block, and means for simultaneously forcing said movable dogs into engagement with the block.

11. In a shingle-sawing machine, a block-holder comprising stationary dogs for engagement with one end and the bottom of a block, a reciprocating bar having means to engage the other end of the block, a lever for reciprocating said bar having means for engaging the top of the block, and means for securing said lever in any desired position.

12. In a shingle-sawing machine, a block-holder comprising stationary dogs for engaging the bottom and one end of a block, a reciprocating bar having means for engaging the other end of the block and being provided with a series of notches for engagement by the end of an operating-lever, and an operating-lever having an arm for engagement with the notches on said bar and having means for engagement with the top of the block.

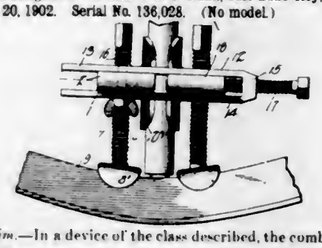
751,720. DISCHARGING DEVICE FOR FURNACES. CHARLES I. DAILEY, Cleveland, Ohio. Filed Feb. 10, 1902. Serial No. 93,342. (No model.)



Claim.—1. In a heating-furnace, the combination with a heating-chamber and means for inserting and advancing a row of billets or other articles to be heated upon a suitable track therein, of an offset in said track forming a hearth located in the hotter end of the heating-chamber for separating by gravity and holding one or more of said billets from said row, and a sliding extractor provided with a hook-shaped end adapted to draw said separated billet or billets sidewise from said hearth and discharge the same from the furnace, substantially as set forth.

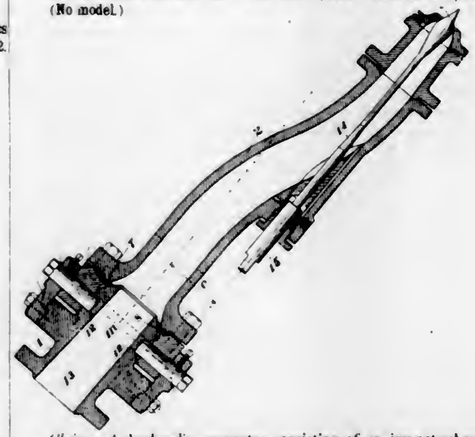
2. In a heating-furnace, the combination with a heating-chamber and means for inserting and advancing a row of billets or other articles to be heated upon a suitable track therein, of an offset in said track forming a hearth located in the hotter end of the heating-chamber for separating by gravity and holding one or more of the said billets from said row, a horizontal extension of said track passing from said hearth through the discharge-door of the furnace, and a sliding extractor comprising a frame provided with a hook-shaped end resting normally between the ways of said track under the advancing end of said row of billets and adapted to draw billets from said hearth, suitable supports and guides for said frame, and means for sliding said frame into and out of the furnace, substantially as set forth.

751,721. TIRE-TIGHTENER. THOMAS DE LA MARE, Tooele, Utah, assignor of one-half to J. B. Dunn, Salt Lake City, Utah. Filed Dec. 20, 1902. Serial No. 136,028. (No model.)



Claim.—In a device of the class described, the combination with a pair of frame members each comprising two bars spaced apart and provided near one end with a series of transverse openings and connected at the other end by an end wall, of a clamping member having lateral ears projecting between the bars of the frame members and provided with transverse openings adapted to register with the openings in the frame-bars and to receive a thumb-screw for adjustably connecting the clamping member to the frame member, a movable clamping member sustained by the frame members and having lateral ears projecting and slidable between the spaced bars thereon, set-screws tapped into the end walls of the frame members and adapted to be operated to force the movable toward the relatively fixed member, each clamping member having a cavity formed therein, a nut mounted in the cavity, a pressure-bolt threaded through the nut and provided with a head adapted to engage the felly when the pressure device is operated to apply pressure thereto.

751,722. NOZZLE FOR IMPACT WATER-WHEELS. WILLIAM A. DOBLE, San Francisco, Cal. Filed Oct. 17, 1903. Serial No. 177,448. (No model.)

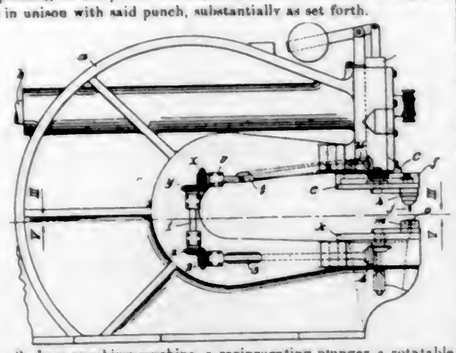


Claim.—A hydraulic apparatus consisting of an impact-wheel with buckets, a nozzle-pipe of sinuous or double curved form for directing a stream of water upon the buckets of said wheel, means for varying the amount of water discharged from said nozzle, and a supply-pipe to which said nozzle-pipe is pivoted on an axis in the plane of its sinuosity, said plane and axis being substantially parallel to the axis of the said impact-wheel, substantially as specified.

751,723. UNIVERSAL SLOTTING-PUNCH. JOHN F. DOOLITTLE, Cleveland, Ohio, assignor to the Cleveland Punch and Shear Works Company, Cleveland, Ohio, a Corporation. Filed June 15, 1903. Serial No. 161,966. (No model.)

Claim.—1. In a punching-machine, a reciprocating plunger, a punch carried thereon arranged to be revolved about or upon an axis parallel with the line of travel of said plunger, a revoluble die cor-

responding to said punch, and suitable mechanism for revolving said die in unison with said punch, substantially as set forth.



2. In a punching-machine, a reciprocating plunger, a rotatable plate mounted upon the end of said plunger, a punch carried by said plate, a die corresponding to said punch, and suitable means for revolving said die in unison with said punch, substantially as set forth.

3. In a punching-machine, a reciprocating plunger, a rotatable punch-plate mounted upon the end of said plunger, a punch carried by said plate, a rotatable die-plate mounted upon the bed of the machine, a die carried by said die-plate, and suitable means for revolving said die-plate to correspond with said punch-plate, substantially as set forth.

4. In a punching-machine, a reciprocating plunger, a punch carried thereon arranged to be revolved about or upon an axis parallel with the line of travel of said plunger, a revoluble die corresponding to said punch, suitable mechanism for revolving said die with said punch, and means adapted to take up the slack of said mechanism to secure accurate registry of said punch and die, substantially as set forth.

5. In a machine for punching plates, a reciprocating plunger, a punch carried thereon arranged to be revolved about or upon an axis parallel with the line of travel of said plunger, a revoluble die corresponding to said punch, suitable shafts and gearing for revolving said die with said punch disposed about the throat of the machine so that the latter is not obstructed thereby, substantially as set forth.

6. In a machine for punching plates, a reciprocating plunger, a punch carried thereon arranged to be revolved about or upon an axis parallel with the line of travel of said plunger, a revoluble die corresponding to said punch, suitable shafts and gearing for revolving said die with said punch disposed about the throat of the machine so that the latter is not obstructed thereby, and friction-pawls adapted to take up the slack of said gearing between said punch and die, substantially as set forth.

7. In a machine for punching plates, a reciprocating plunger, a rotatable punch-plate mounted upon the end of said plunger, a radially-adjustable punch carried by said plate, a rotatable die-plate mounted upon the bed of the machine, a radially-adjustable die upon said die-plate, suitable shafts and gearing operatively connecting said punch-plate with said die-plate, said shafts being disposed about the throat of the machine so that the latter is not obstructed thereby, substantially as set forth.

8. In a machine for punching plates, a reciprocating plunger, a rotatable punch-plate mounted upon the end of said plunger, a radially-adjustable punch carried by said plate, a rotatable die-plate mounted upon the bed of the machine, a radially-adjustable die upon said die-plate, suitable shafts and gearing operatively connecting said punch-plate with said die-plate, said shafts being disposed about the throat of the machine so that the latter is not obstructed thereby, and friction-pawls adapted to hold said punch-plate and die-plate respectively against backward revolution, substantially as set forth.

9. In a machine for punching plates, a reciprocating plunger having a rotatable punch-plate upon its lower end, a gear-wheel fixed to the axis of said punch-plate, a rotatable die-plate suitably mounted beneath and in line with said punch-plate, a gear-wheel fixed to the axis of said die-plate, a universally-jointed shaft having its forward bearing in said plunger and provided with a gear-wheel meshing with said punch-plate gear, a vertical shaft geared to said universal shaft, and a horizontal shaft geared at one end to said vertical shaft and to said die-plate gear at its forward end, substantially as set forth.

10. In a machine for punching plates, a reciprocating plunger having a rotatable punch-plate upon its lower end, a gear-wheel fixed to the axis of said punch-plate, a rotatable die-plate suitably mounted beneath and in line with said punch-plate, a gear-wheel fixed to the axis of said die-plate, a universally-jointed shaft having its forward bearing in said plunger and provided with a gear-wheel meshing with said punch-plate gear, a vertical shaft geared to said universal shaft, a horizontal shaft geared at one end to said vertical shaft and to said die-plate gear at its forward end, and friction-pawls adapted to operate upon said punch-plate and die-plate respectively to take up the slack of said gearing and prevent backward rotation of said plates, substantially as set forth.

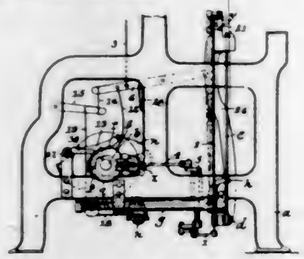
751,724. **PROCESS OF MAKING DIALKYL-BARBITURIC ACID.** MAX ENGELMANN, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Nov. 3, 1903. Serial No. 179,693. (No specimens.)

Claim.—1. The process for the production of dialkyl-barbituric acids having the above-given general formula, which process consists in first condensing thio-urea and dialkyl-cyano acetic esters by means of alcoholates of alkalies, secondly splitting off the imino group in 4-position from the resulting 5-dialkyl-2-thio-4-imino-6-oxypyrimidins by treatment with acids, and finally desulforizing the 5-dialkyl-2-thio-4-6-dioxypyrimidins thus produced, substantially as hereinbefore described.

2. The process for the production of diethyl-barbituric acid, which process consists in first condensing thio-urea and diethyl-cyano acetic ester by means of alcoholates of alkalies, secondly splitting off the imino group in 4-position from the resulting 5-diethyl-2-thio-4-imino-6-oxypyrimidin by treatment with acids, and finally desulfurizing the resulting 5-diethyl-2-thio-4-6-dioxypyrimidin by treatment with oxidizing agents, substantially as hereinbefore described.

3. The process for the production of diethyl-barbituric acid, which process consists in first condensing thio-urea and the ethylic ester of diethyl-cyano-acetic acid by means of sodium ethylate, secondly splitting off the imino group in 4-position from the resulting 5-diethyl-2-thio-4-imino-6-oxypyrimidin by treatment with hot sulfuric acid and finally desulfurizing the resulting 5-diethyl-2-thio-4-6- lioxypyrimidin by treatment with nitric acid, substantially as hereinbefore described.

751,725. **SWIVEL-LOOM.** JAMES H. FARRAL Dundee Lake, N. J., assignor to Henry Doherty, Paterson, N. J. Filed Oct. 1, 1903. Serial No. 175,288. (No model.)



Claim.—1. In a swivel-loom, the combination of the frame, a rotary shaft, an oscillatory swivel-shuttle-rack-driving rod, means for transmitting motion from the shaft to the rod comprising a part arranged to turn loosely on the shaft, a pawl carried by said part and adapted to engage in said notch to interlock said part and the collar, and a dog having a pivot remote from that of the pawl and movable into engagement therewith to disengage the same from the collar, substantially as described.

2. In a loom the combination, with the frame, of the cam-shaft a picker-stick, a vibratory part, operative connecting means between the vibratory part and the picker-stick, and another part carried by said vibratory part and pivoted in the same, said part being movable into and out of the path of movement of the cam on said cam-shaft, substantially as described.

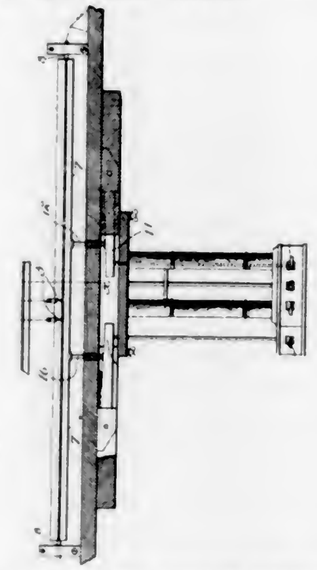
3. In a loom, the combination, with the frame, of the cam-shaft, a picker-stick, a vibratory part, operative connecting means between the vibratory part and the picker-stick, another part carried by said vibratory part and pivoted in the same, said part being movable into and out of the path of movement of the cam on said cam-shaft, and means for normally holding said last-named part in the path of said cam on said cam-shaft, substantially as described.

4. In a loom, the combination, with the frame, of the cam-shaft, a picker-stick, a vibratory part, operative connecting means between the vibratory part and the picker-stick, another part carried by said vibratory part and pivoted in the same, a spring connecting the pivoted part and the vibratory part and normally holding the former in a given position, and means for moving the pivoted part against the tension of its spring, substantially as described.

5. In a swivel-loom, the combination of the frame, a rotary shaft, an oscillatory swivel-shuttle-rack-driving rod, means for transmitting motion from the shaft to the rod comprising a part arranged to turn loosely on the shaft, a peripherally-notched collar fixed on the shaft, a pawl carried by said part, adapted to engage in said notch to interlock said part and the collar and having its free end projecting in the direction of rotation of the shaft, a dog pivoted independently of said part and adapted to project into the path of movement of the pawl to engage the same and cause the unlocking of said part and the shaft and the stopping of rotation of the former, and a check-pawl engageable with said part and acting thereon reversely to said dog, substantially as described.

6. In a swivel-loom, the combination of the frame, the main batten structure, the elevatory swivel-shuttle batten arranged in said main batten structure, an actuating means, a flexible connecting means between the swivel-shuttle batten and said actuating means, and a segment pivoted in said frame, said flexible connection being extended around the segment and having a movement with the actuating part sufficient to bring the flat side of the segment adjacent said flexible connection, substantially as described.

751,726. **PIANO.** RICHARD W. GERTZ, Cambridge, Mass. Filed Feb. 27, 1903. Serial No. 145,353. (No model.)



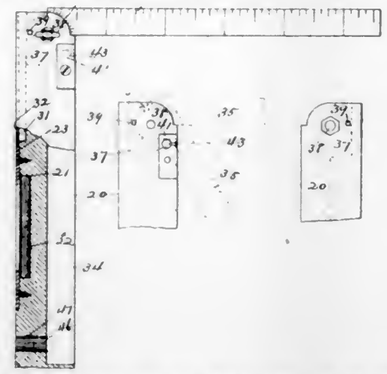
Claim.—1. In a piano, a damper-lever frame, dampers operated thereby, and two independently-operated pedals separately connected to the damper-lever frame, whereby the said frame may be operated by the pedals alternately.

2. In a piano, a damper-lever frame, dampers operated thereby, and two independent trap works for separately operating said damper-lever frame.

3. In a piano, a damper-lever frame, dampers operated thereby, two independently-operated pedals, and similar connections interposed between each pedal and the damper-lever frame whereby said frame may be independently operated and to the same extent by each pedal.

751,727. **COMBINATION-TOOL.** ERICK GRUNDEEN, Carney, Mich. Filed Nov. 12, 1903. Serial No. 180,800. (No model.)

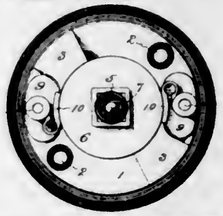
Claim.—1. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, of a blade pivotally secured in one end of said groove and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.



2. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, of a leveling-tube longitudinally mounted on the central portion of the body, a blade pivotally secured in one end of said groove and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.

3. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, the said body having a transverse opening near its other end, plumb-tubes located on the body at right angles to the transverse opening therein and at the sides of said opening, a leveling-tube longitudinally mounted on the body at its middle, a blade pivotally secured at one end of the groove of the body and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.

751,728. **ROTARY SNAP ELECTRIC SWITCH.** MONROE GUITT, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Sept. 23, 1903. Serial No. 174,282. (No model.)



Claim.—1. A rotary snap electric switch having a base, spring-terminals fixed to the base, a rotatory commutator carrying a pole-plate with its ends only exposed, movably supported by the base, and a block of insulating material extending upwardly from the base in front of each spring-terminal and having its inner wall conforming to and closely fitting the periphery of the commutator, substantially as specified.

2. A rotary snap electric switch having a base of insulating material, spring-terminals fixed to the base, a rotatory commutator of insulating material movably supported by the base, a pole-plate embedded within the commutator and having its ends only exposed and adapted to make and break contact with the terminals, and a block of insulating material extending upwardly from the base adjacent to each terminal and having its inner face conforming to and closely fitting the periphery of the commutator in such manner as to form an insulating-barrier between the terminals and an end of the movable pole-plate embedded within the commutator when the circuit is open, substantially as specified.

751,729. SHOE-LACING. MARGARET M. HEINITSH, Philadelphia, Pa., and JOSEPH T. MORIARTY, New Bedford, Mass. Filed Mar. 25, 1902. Serial No. 99,856. (No model.)



Claim.—1. A lacing-tip comprising a tubular lacing and a plate incased within a tubular end thereof, said plate and the layers of said end being crushed together transversely to form a substantially solid cylindrical lacing-tip.

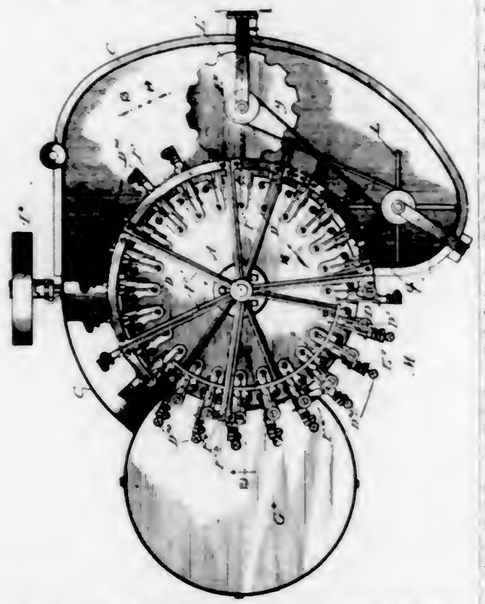
2. A lacing-tip comprising a tubular lacing and a plate incased within the tubular end thereof, said plate and layers of said end being crushed together from all directions transversely to form a substantially solid cylindrical lacing-tip irrespective of the shape of the interior cross-sections of the plate.

3. A lacing-tip comprising a tubular lacing and a plate inserted in the tubular end thereof, said plate and layers of said end being crushed together to form a substantially solid cylindrical lacing-tip, the cross-section of said plate and layers being in the form of convolutes or spirals.

4. A lacing-tip comprising a tubular lacing and a plate incased within the tubular end thereof, said plate and the layers of said end forming a substantially cylindrical, compact solid lacing-tip.

5. A tubular lacing having short metallic plates inserted in the tubular ends thereof, the layers of said plates and ends being bent longitudinally to form the lacing-tips, and hardening material permeating said ends and cementing the parts together, substantially as described.

751,730. COATING-MACHINE. SIMEON J. HICKS, Chicago, Ill., assignor to Cordelia S. Hicks, Chicago, Ill. Filed June 8, 1900. Serial No. 19,589. (No model.)



Claim.—1. In a machine of the character described, the combination of a tank or receptacle for the coating fluid, holders or dipping elements for the bodies to be coated, and mechanism for moving the holders or dipping elements in an endless path about a vertical axis and lowering them into and raising them out of said tank or receptacle.

2. In a machine of the character described, the combination of a tank or receptacle for the coating fluid, holders or dipping elements for the bodies to be coated, mechanism for moving the holders or dipping elements in an endless path about a vertical axis and for lowering the holders into and raising them ont of said tank or receptacle, and mechanism for emptying the holders, or dipping elements.

3. In a dipping-machine, the combination of a tank or receptacle for containing coating materials and a plurality of holders or dipping elements having a continuous horizontal orbital movement and an automatic depression into said tank or receptacle individually during said movement.

4. In a dipping-machine, the combination of a tank or receptacle for containing the coating material, a plurality of orbitally-carried holders or dipping elements having an automatic depression into said receptacle, and means for relieving the charges carried by the said holders or dipping elements from a surplus of the coating material.

5. In a machine of the character described, the combination of a tank or receptacle for the coating fluid, holders or dipping elements for the bodies to be coated, mechanism for moving the holders or dipping elements in an endless path about a vertical axis, and for lowering said holders or dipping elements into and raising them out of said tank or receptacle, and mechanism for inverting the holders or dipping elements to discharge their contents.

6. In a dipping-machine, the combination of a rotary hub, frame or disk, a plurality of horizontally-disposed orbitally-moving radially-arranged holders or dipping elements loosely mounted in connection therewith to have both an orbital and an automatic depressing movement, and means for operating the parts.

7. In a machine of the character described, the combination of a tank or receptacle, individual holders or dipping elements supported to move in an endless path about a vertical axis, mechanism for dipping the holders or dipping elements successively into the bath, mechanism for effecting a discharge of the holder contents in succession and a moving tray or receiver, conveyer or belt upon which the drops are deposited and properly spaced.

8. In a machine of the character described, the combination of a stationary tank or receptacle, a rotating horizontally-disposed table or support, holders or dipping elements peripherally arranged on said table or support and adapted to be lowered and immersed in a bath in said tank or receptacle, and mechanism for effecting a discharge of the holder contents.

9. In a machine of the character described, the combination of a stationary tank or receptacle, a rotating table or support, holders or dipping elements peripherally arranged on said table or support and adapted to be lowered and immersed in a bath in said tank or receptacle, mechanism for effecting a discharge of the holder contents, and a tray or receiver, conveyer or belt geared to move at a given speed relatively to the movement of said table or support.

10. In a dipping-machine, a plurality of individual orbitally-moving holders or dipping elements each having an automatic depression in the course of its orbital movement, all of said holders or dipping elements having removable charge-holders provided with seats.

11. In a dipping-machine, a plurality of individual horizontally-moving orbitally-carried holders or dipping elements each having an automatic depression in the course of its orbital movement, and each comprising a rod having an independent turning movement and terminally provided with a detachable charge-holder, and another rod with a retention device to coact with the said holder.

12. The combination of a stationary tank or receptacle, a rotating table or support having a vertical axis of rotation, holders or dipping elements carried by said table or support, mechanism for immersing the holders and a rotating stirrer located in said tank or receptacle, and having a vertical axis of rotation.

13. In a dipping-machine, the combination of a plurality of horizontally-disposed orbitally-carried holders or dipping elements, a tank or receptacle for containing coating material and into which the said holders or dipping elements have an automatic depression, and a vibrator or rack across which the holders or dipping elements individually move for relieving the coated charges of surplus coating material.

14. A dipping-machine having a plurality of horizontally-disposed continuously-moving orbitally-carried holders or dipping elements, movable around a common center and which are automatically depressed toward coating material at one point in the course of their travel.

15. A dipping-machine, having a plurality of horizontally-disposed continuously-moving orbitally-carried holders or dipping elements, each having an automatic depression in the course of its orbital movement and arranged to carry a single core to be dipped.

16. A dipping-machine having a plurality of horizontally-disposed continuously-moving orbitally-carried holders or dipping elements, each having an automatic depression in the course of its orbital movement, and each also comprising a pair of independently-movable parts for carrying a single core to be dipped.

17. A dipping-machine comprising a plurality of horizontally-moving orbitally-carried holders or dipping elements, a portion of each being revoluble, and a horizontally-disposed movable tray or receiver, conveyer or belt, over which the terminals of the holders or elements have movement to individually deposit the finished article carried thereby.

18. A dipping-machine comprising a plurality of continuously horizontally moving orbitally-carried holders or dipping elements, a portion of each being revoluble, and a movable tray or receiver conveyer or belt, having a portion of its surface moving beneath and in the same general direction as the holders at the point of discharge and serving to receive the finished articles deposited by the holders.

19. In a dipping-machine, the combination of a plurality of orbitally-carried holders or dipping elements having movement around a common axis, a freely-removable tank or receptacle for containing coating material and into which said elements automatically depress in succession, and means for operating the said parts.

20. In a machine of the character described, the combination of a tank, baskets supported to move in an endless path, mechanism for dipping and partially inverting the baskets at the bath, and mechanism for inverting the baskets at the point of discharge and then righting them, substantially as described.

21. In a machine of the character described, the combination of a tank, holders supported to move in an endless path, mechanism for moving the holders, a movable receiver for the drops, and means connected with said receiver for stopping the machine when the receiver is filled, substantially as described.

22. In a machine of the character described, the combination of a tank, holders supported to move in an endless path, mechanism for moving the holders, a movable receiver for the drops, and means connected with the receiver for automatically starting the machine when the receiver is moved by the operator to its proper position for receiving the first drop, substantially as described.

23. The combination with a tank, holders supported to move in an endless path, mechanism for immersing the holders in a bath in the tank, and mechanism for effecting a discharge of the holder contents, of a receiver comprising a scroll-gear, a tray carried thereby, and gear mechanism for revolving and giving lateral movement to the scroll-gear, substantially as described.

24. The combination of a tank, a rotating disk, peripherally-arranged holders adapted to be immersed in a bath in said tank, gear mechanism for rotating said disk, a guide, a slide mounted thereon, a scroll-gear carried by said slide, and gear mechanism connecting the scroll-gear to the disk-driving mechanism, substantially as described.

25. The combination of an immersing-tank, a rotating disk, gear mechanism for moving said disk, peripherally-arranged holders, mechanism for dipping the holders, a scroll-gear bearing a receiver and having a rotary and lateral movement, gear mechanism connecting the scroll-gear with the disk-actuating gear mechanism, and means connected with and moved by the scroll-gear for stopping the machine when the receiver is filled, substantially as described.

26. The combination of an immersing-tank, a disk, peripherally-arranged holders carried by said disk, mechanism for dipping said holders, a main driving-shaft, a device for throwing said shaft into and out of gear, a shifting rod connected with said device, a guide extending at an angle to the main shaft, a slide mounted thereon, a scroll-gear mounted on said slide, gear mechanism for imparting motion to the scroll-gear, a rod movable with said slide, and means carried by said last-named rod for moving said shifting rod, substantially as described.

27. The combination of an immersing-tank, a disk, peripherally-arranged holders carried by said disk, mechanism for dipping said holders, a main driving-shaft, a device for throwing said shaft into and out of gear, a shifting rod connected with said device, a guide extending at an angle to the main shaft, a slide mounted thereon, a scroll-gear mounted on said slide, gear mechanism for imparting motion to the scroll-gear, a rod movable with said slide, lever mechanism connected with said shifting rod, and means on the rod moving with said slide for engaging and moving said lever mechanism, substantially as described.

28. The combination of an immersing-tank, a rotating disk, plungers moving in guides carried by said disk, holders supported from said plungers, and a stationary cam arranged above the path of said plungers and serving to depress the same to dip said holders, substantially as described.

29. The combination of an immersing-tank, a rotating disk, standards carried thereby, plungers movable in guides, spindles pivotally connected with the lower ends of said plungers and projecting each at an angle to its respective plunger, means for yieldingly holding said spindles in a given position, and a stationary cam located above the path of said plungers and serving to depress the same, substantially as and for the purpose set forth.

30. The combination of an immersing-tank, a rotating disk, standards carried thereby, plungers movable in guides, spindles pivotally connected with the lower ends of said plungers and projecting each at an angle to its respective plunger, means for yieldingly holding said spindles in a given position, a stationary cam located to depress said plungers and thereby immerse and partially invert said holders, and a stationary cam for depressing said plungers at the point of discharge, substantially as and for the purpose set forth.

31. The combination of an immersing-tank, a rotating disk, standards carried thereby, plungers movable in guides, spindles pivotally connected with the lower ends of said plungers and projecting each at an angle to its respective plunger, means for yieldingly holding said spindles in a given position, a stationary cam located to depress said plungers and thereby immerse and partially invert said holders, a stationary cam for depressing said plungers at the point of discharge, pinions on said spindles, and a rack located beneath said last-named cam and coacting therewith and with said pinions in effecting an inversion of the holders, substantially as and for the purpose set forth.

32. The combination of an immersing-tank, a rotating disk, standards carried thereby, plungers movable in guides, spindles pivotally connected with the lower ends of said plungers and projecting each at an angle to its respective plunger, means for yieldingly holding said spindles in a given position, a stationary cam located to depress said plungers and thereby immerse and partially invert said holders, a stationary cam for depressing said plungers at the point of discharge, pinions on said spindles, a rack located beneath said last-named cam and coacting therewith and with said pinions in effecting an inversion of the holders, and means for insuring a slow return of the holders to their righted position, substantially as and for the purpose set forth.

33. The combination of an immersing-tank, a rotating disk, plungers moving in guides carried by said disk, pivotal heads connected with the lower ends of said plungers, spindles pivotally connected with said heads, pivotal heads carried by said disk and slidably receiving the inner ends of said spindles, springs for yieldingly holding the spindles in a given position, springs for holding the plungers in their raised position, and a cam located above the path of said plungers and serving to depress the plungers, substantially as and for the purpose set forth.

34. The combination of a stationary immersing-tank, a rotating disk, holders carried by said disk, mechanism for lowering the holders into the bath, raising them therefrom and then shaking them, and spring-held guards for closing said holders after immersion, substantially as and for the purpose set forth.

35. The combination of an immersing-tank, a rotating disk, holders carried by said disk, mechanism for immersing and shaking the holders, spring-held guards for closing said holders, and stationary cams for raising said guards from their holders preparatory to a discharge of the holder contents, substantially as and for the purpose set forth.

36. The combination of an immersing-tank, a rotating disk, holders carried by said disk and projecting from the periphery thereof, mechanism for depressing said holders into a bath, a rack arranged above and near the periphery of said disk, and spring-held plungers connected with said holders and engaging said rack and serving to shake the holders after immersion, substantially as and for the purpose set forth.

37. The combination of an immersing-tank, a rotating disk, vertically-movable plungers in guides carried by said disk, pivotal heads connected with the lower ends of said plungers, spindles pivoted in said pivotal heads, holders carried by said spindles, pivotal heads connected with the guides carried by said disk and slidably receiving the inner ends of said spindles, pinions on said spindles provided with lugs, stops on said plungers engaging said lugs, springs on said spindles serving normally to hold said lugs in contact with said stops, eccentrics carried by the spindles, cams for depressing the plungers at the desired points, a rack cooperating with one cam and with said pinions to invert the holders, a cam for engaging the lugs on said pinion to retain the holders for a time in an inverted position, and a cam for engaging said eccentrics to insure a slow movement in the righting of the holders under the action of the springs on their spindles, substantially as described.

38. The combination of an immersing-tank, a rotating disk, holders carried by said disk, mechanism for immersing the holders, a stirrer located in said tank, and a wheel for operating said stirrer located to be engaged by projections on said disk, substantially as described.

39. The combination of an immersing-tank, a rotating disk, holders peripherally arranged on said disk, mechanism for depressing the holders into a bath, a stirrer located in said tank, a wheel for operating said stirrer engaged by projections on said disk, a support for said stirrer and wheel, and pivotal connection between said support and said tank whereby the stirrer and its support may be swung out of its normal position, substantially as and for the purpose set forth.

40. The combination of an immersing-tank, a rotating disk, holders carried by said disk, mechanism for immersing the holders in a bath, mechanism for inverting the holders at the point of discharge, a guide projecting laterally, a slide mounted thereon, a scroll-gear carried by said slide, a gear connected with said disk to rotate therewith, a shaft for communicating motion to said scroll-gear and receiving its motion from the gear on said disk, a pinion on said shaft and in engagement with said scroll-gear, and movable bearings for said shaft permitting said pinion to be moved free from engagement with said scroll-gear, whereby said scroll-gear may be returned to its starting-point, substantially as and for the purpose set forth.

41. The combination of an immersing-tank, a rotating disk holders carried by said disk, mechanism for immersing the holders in a bath, mechanism for inverting the holders at the point of discharge, a guide projecting laterally, a slide mounted thereon, a scroll-gear carried by said slide, a gear connected with said disk to rotate therewith, a scroll-gear-actuating shaft, pinions on said shaft engaging respectively the gear on said disk and the scroll-gear, a pivoted bearing for the inner end of said shaft, a vertically-movable bearing for the outer end of said shaft, and means for depressing the outer end of the shaft, substantially as and for the purpose set forth.

42. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier provided with a holder-bearing which moves with the carrier, an invertible holder supported in said bearing and invertible independently of said carrier, means for shaking said holder while it is being carried by the carrier, and means for automatically inverting said holder to discharge the holder contents.

43. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier provided with a holder-bearing, an invertible holder having a shaft supported in said bearing, said holder being invertible independently of said carrier, means for shaking said holder through the medium of its shaft, and antomatic means for turning said holder in its bearing through the medium of the holder-shaft.

44. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier provided with an orbitally-moving holder-bearing, an invertible holder supported in said bearing and carried thereby in an endless path, said holder being invertible independently of said carrier, means for shaking said holder, and automatic inverting means for said holder, for the purpose set forth..

45. In a dipping-machine, the combination of a stationary fluid-receptacle, a suitably-actuated carrier provided with an orbitally-moving holder-bearing, a holder journaled in said bearing and carried thereby in an endless path, and a stationary cam imparting to said holder a movement independent of the carrying movement of said carrier.

46. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier supplied with an orbitally-moving holder-bearing, a holder journaled in said bearing and equipped with a pinion and carried by said carrier in an endless path, and a stationary rack operating to turn said pinion and invert said holder, for the purpose set forth.

47. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier supplied with an orbitally-moving holder-bearing, an independently-invertible holder journaled in said bearing and equipped with a pinion and carried by said carrier in an endless path, and a stationary cam and stationary rack controlling the holder during the dipping and inverting movements thereof, for the purpose set forth.

48. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier supplied with an orbitally-moving holder-bearing, an invertible holder journaled in said bearing and equipped with a pinion and carried by said carrier in an endless path, and a cam, holder-vibrating rack, and pinion-engaging rack operating on said holder and controlling the dipping, shaking and inverting of said holder, for the purpose set forth.

49. In a dipping-machine, the combination of a rotating carrier, longitudinally-movable orbitally-carried independently-rotatable shafts mounted on said carrier, a fluid-receptacle, holders carried by said shafts and fixed to partake of their independent turning movements, means for controlling the independent movements of said shafts during the dipping operation, means for shaking the shafts to agitate the holders, and means for turning the shafts to discharge the holder contents, for the purpose set forth.

50. In a dipping-machine, the combination of a rotating carrier, longitudinally-movable orbitally-carried independently-rotatable shafts mounted on said carrier, a fluid-receptacle, holders carried by said shafts and fixed to partake of their independent turning movements, means for controlling the independent movements of said shafts during the dipping operation, means for shaking the shafts to agitate the holders, and means for turning the shafts both to invert the holders and then restore them to their original positions, for the purposes set forth.

51. In a dipping-machine, the combination of a fluid-receptacle a rotating carrier, orbitally-carried spring-held longitudinally-movable independently-rotatable shafts mounted on said carrier, holders fixed to said shafts, means for moving said shafts to agitate the holders, and means for reversing said shafts to discharge the holder contents, for the purpose set forth.

52. In a dipping-machine, a stationary tank and a suitably-actuated carrying member, in combination with a plurality of orbitally-moving holders, or dipping elements, carried thereby, each holder having an automatic depression in the course of its orbital movement independent of the movement of said carrying member, the resultant movement causing the holder to pass through the stationary tank, for the purpose set forth.

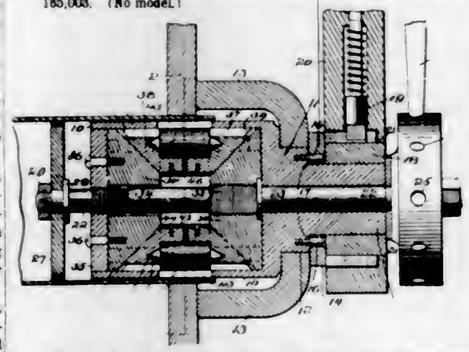
53. In a dipping-machine, the combination of a fluid-receptacle, a suitably-actuated carrier supplied with an orbitally-moving holder-bearing, an invertible holder journaled in said bearing and equipped with a pinion and carried by said carrier in an endless path, and a cam, toothed holder-vibrating member, and pinion-engaging rack operating on said holder and controlling the dipping, shaking and inverting of said holder, for purpose set forth.

54. A dipping-machine having a stationary fluid-receptacle and a plurality of orbitally-moving holders, or dipping elements, each having an automatic depression in the course of its orbital movement for immersion at the bath, in combination with automatically-actuated orbitally-moving retainers, or guards, constructed and operated to automatically close and unclose the holders so as to retain the holder contents during immersion and permit the discharge thereof after immersion, for the purpose set forth.

55. In combination, a stationary fluid-receptacle, a plurality of horizontally disposed orbitally-carried holder-shafts equipped with holders, means for depressing said shafts out of their orbital movement to immerse the holders, orbitally-carried retainer-shafts equipped with retainers and each extending substantially parallel with a holder-shaft and coacting therewith, and means for depressing said retainer-shafts in conjunction with the depression of the holder-shafts, for the purpose set forth

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751,731. TUBE-EXPANDER. JOSEPH S. HILL, Washington, D. C., assignor to Leonore C. Hill. Filed July 10, 1903. Serial No. 165,003. (No model.)



Claim.—1. In a tube-expander, a rotatable casing having openings in its wall, blocks in said casing movable relatively to each other and having opposite inclined guideways, carriers registering with said guideways, rolls journaled in said carriers, and means for moving said blocks together to force outwardly said carriers to project said rolls through the openings in the casing.

2. In a tube-expander, a rotatable casing having openings in its wall, blocks in said casing movable relatively to each other and having opposite inclined guideways, carriers registering with said guideways, rolls journaled in said carriers, a shaft having opposite screw-threads respectively engaging with opposite screw-threads in said blocks, and means for rotating said shaft in said casing to move said blocks in opposite directions.

3. In a tube-expander, a rotatable casing having openings in its wall, blocks in said casing and rotatable with the same, movable relatively to each other and having opposite inclined guideways, carriers registering with said guideways and having sliding connections with said blocks, rolls journaled in said carriers, and means for moving said blocks relatively to each other to move said carriers and said rolls relatively to the openings in said casing.

4. In a tube-expander, a rotatable casing having openings in its wall, blocks in said casing rotatable with the same and movable relatively to each other and having opposite inclined guideways, carriers registering with said guideways and consisting of two sections joined together, a roll with an end journaled in each section of a carrier, and means for moving said blocks relatively to each other to move the carriers and their rolls relatively to the openings in the casing.

5. In a tube-expander, blocks movable relatively to each other and having opposite inclined guideways, a carrier registering with each pair of opposite guideways, and a roll journaled in each carrier.

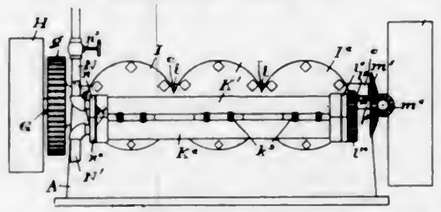
6. In a tube-expander, blocks movable relatively to each other and having opposite inclined guideways, a carrier registering with each pair of opposite guideways, a roll journaled in each carrier, and a rotatable shaft having opposite screw-threads respectively engaging with said blocks.

7. In a tube-expander, blocks movable relatively to each other and having opposite inclined guideways, a carrier registering with each pair of opposite guideways and having a sliding connection with said blocks, and a roll journaled in each carrier.

8. In a tube-expander, blocks movable relatively to each other and having opposite inclined guideways, a carrier registering with each pair of opposite guideways and having a rabbet connection with said blocks, and a roll journaled in each carrier.

9. In a tube-expander, a casing having openings in its wall, mechanism for rotating said casing, blocks relatively movable in said casing and rotatable with the same and provided with opposite inclined guideways, carriers registering with the opposite guideways, rolls journaled in the carriers, a shaft journaled at one end in said casing and having opposite screw-threads respectively engaging with said blocks, and a bearing-plate having the other end of said shaft journaled in the same.

751,732. WATER-MOTOR. JOHANN HOFMANN, West Covington, Ky., assignor of one-half to Harry F. Bittlinger, Covington, Ky. Filed July 6, 1903. Serial No. 164,406. (No model.)



Claim.—1. In a fluid-pressure motor, the combination with a plurality of cylinders, each having an inlet and an outlet port, an inlet-valve stem and an outlet-valve stem, each having a bore for the passage of the fluid and each having openings communicating with the ports of the respective cylinders, said openings on each valve-stem being arranged around the periphery of said valve-stem in advance of one another, and means for rotating said valve-stems, substantially as described.

2. In a fluid-pressure motor, the combination with a plurality of cylinders, a crank-shaft, a piston in each cylinder, and a piston-rod connecting said pistons respectively with the crank-shaft, of a pair of valve-casings each having an internal bore, a pair of valve-stems fitting said bores, each valve-stem having openings arranged successively about the periphery of the valve-stem, means for rotating said valve-stems in unison, each valve-stem having an internal bore communicating with the openings therein, and said cylinders having ports for said openings.

3. In a water-motor, the combination with a frame, of a plurality of cylinders thereon, a piston and piston-rod for each, a crank-shaft having a crank-pin for each piston, a valve-casing extending transversely of the ends of the cylinders and having an inlet and outlet port for each cylinder, a rotatable inlet-valve stem and rotatable outlet-valve stem, each having a hollow bore, each of said valve-stems having an opening for each cylinder, said openings arranged around the periphery of said valve-stems, said openings for each cylinder in said valve-stems respectively alternately registering with said inlet-port and said outlet-port for each said cylinder, substantially as described.

4. In a water-motor, the combination of a frame having three cylinders thereon, a piston for each, a crank-shaft having three crank-pins arranged at different points about the axis of said shaft, with piston-rods connecting said crank-pins with the pistons, a valve-casing extending transversely of the ends of the cylinders and having an inlet and an outlet port for each cylinder, an inlet-valve stem and an outlet-valve stem, each having hollowed bore, said inlet-valve stem having three openings projecting radially at angles approximately one hundred and twenty degrees from each other and communicating alternately with said inlet-ports for said cylinders and each extending substantially one-third the distance about the periphery of the valve-stem, said outlet-valve stem having three openings extending radially at angles of approximately one hundred and twenty degrees from each other and communicating alternately with said outlet-ports for said cylinders, and taking more than one-third the distance about the periphery of said outlet-valve stem, and means for turning said inlet and outlet valve stems, constructed and operating substantially as described.

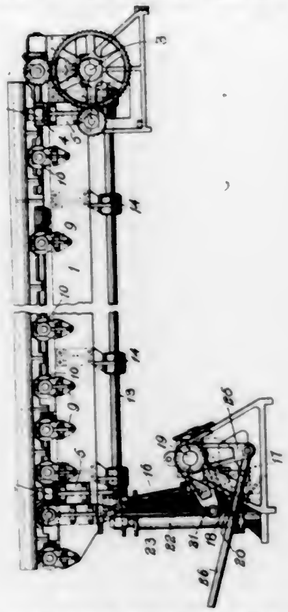
5. In a water-motor, the combination of a frame having three cylinders thereon, a piston for each, a crank-shaft having three crank-pins arranged at different points about the axis of said shaft, with piston-rods connecting said crank-pins with the pistons, a valve-casing extending transversely of the ends of the cylinders and having an inlet and an outlet port for each cylinder, an inlet-valve stem and an outlet-valve stem, each having hollowed bore, said inlet-valve stem having three openings projecting radially at angles approximately one hundred and twenty degrees from each other and each extending substantially one-third the distance about the periphery of the valve-stem, said outlet-valve stem having three openings extending radially at angles of approximately one hundred and twenty degrees from each other and taking substantially one-half the distance about the periphery of said outlet-valve stem, the openings in said inlet and outlet valve stems registering alternately with said inlet and outlet ports at said respective cylinders, and a pinion on said inlet-stem and a pinion on said outlet-valve stem geared together for rotating said valve-stems in unison.

6. In a water-motor, the combination of a frame having three cylinders thereon, a piston for each, a crank-shaft having three crank-pins arranged at different points about the axis of said shaft, with piston-rods connecting said crank-pins with the pistons, a valve-casing extending transversely of the ends of the cylinders and having an inlet and an outlet port for each cylinder, an inlet-valve stem and an outlet-valve stem, each having hollowed bore, said inlet-valve stem having three openings projecting radially at angles approximately one hundred and twenty degrees from each other and each extending substantially one-third the distance about the periphery of the valve-stem, said outlet-valve stem having three openings extending radially at angles of approximately one hundred and twenty degrees from each other and taking substantially one-half the distance about the periphery of said outlet-valve stem, the openings in said inlet and outlet valve stems registering alternately with said inlet and outlet ports at said respective cylinders, and a pinion on said inlet-valve stem and a pinion on said outlet-valve stem geared together for rotating said valve-stems in unison, a transmitting-shaft

7. In a water-motor, the combination of a frame having three cylinders thereon, a piston for each, a crank-shaft having three crank-pins arranged at different points about the axis of said shaft, with piston-rods connecting said crank-pins with the pistons, a valve-casing extending transversely of the ends of the cylinders and having an inlet and an outlet port for each cylinder, an inlet-valve stem and an outlet-valve stem, each having hollowed bore, said inlet-valve stem having three openings projecting radially at angles approximately one hundred and twenty degrees from each other and each extending substantially one-third the distance about the periphery of the valve-stem, said outlet-valve stem having three openings extending radially at angles of approximately one hundred and twenty degrees from each other and taking substantially one-half the distance about the periphery of said outlet-valve stem, the openings in said inlet and outlet valve stems registering alternately with said inlet and outlet ports at said respective cylinders, and a pinion on said inlet-valve stem and a pinion on said outlet-valve stem geared together for rotating said valve-stems in unison, a transmitting-shaft

and bevel-gears between the transmitting-shaft and crank-shaft and between the transmitting-shaft and valve-stem.

751,733. FEED-TABLE FOR ROLLING-MILLS. SIGMUND V. HUBER, Pittsburg, Pa. Filed Sept. 2, 1903. Serial No. 171,578. (No model.)

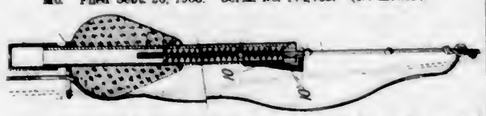


Claim.—1. A feed-table for rolling-mills having in combination means for guiding or directing an article along the table, means for raising and lowering the table, means operative by the table for shifting the guides laterally and means for varying the extent of such lateral movement, substantially as set forth.

2. A feed-table for rolling-mills having in combination means for guiding or directing an article along the table, means for raising and lowering the table and an adjustable connection between the table and guides whereby the guides may be shifted laterally by the table in its vertical movement, substantially as set forth.

3. A feed-table for rolling-mills having in combination transversely-arranged slides, guide-rails carried by said slides, a shaft having arms connected to the slides, a second shaft having an arm, a block adjustably mounted on said arm and connected to an arm on the first shaft and connections from the second shaft to the table whereby said shaft may be rotated by the vertical movement of the table, substantially as set forth.

751,734. FISHING-FLOAT. CHRISTOPHER HYMERS, St. Louis, Mo. Filed Sept. 26, 1903. Serial No. 174,735. (No model.)



Claim.—1. In a fishing-float, a suitable bob, a tube carried thereby, an actuating-spring confined within the tube, a pull-rod cooperatively connected to said spring, a trigger located on the outside of the tube, and devices carried by the pull-rod for locking with said trigger, substantially as set forth.

2. In a fishing-float, a suitable bob, a tube carried thereby, an actuating expansion-spring confined within the tube, a pull-rod adapted to compress the spring by movement in one direction, a resilient trigger carried on the outside of the tube, and devices carried by the pull-rod for engaging the trigger, substantially as set forth.

3. In a fishing-float, a suitable bob, a tube carried thereby, an actuating-spring confined within the tube, a pull-rod cooperatively connected to said spring, a friction line-holding device carried by the float at a point removed from the end of the pull-rod to which the line is attached, the friction-holding device being adapted to release the line under great tension, and thus preserve the spring, substantially as set forth.

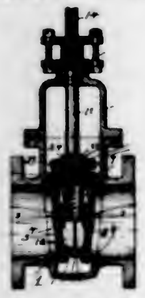
4. In a fishing-float, a suitable bob, a tube carried thereby, an actuating expansion-spring confined within the tube, a pull-rod adapted to compress the spring by a movement outwardly, a resilient tongue mounted on the outside of the tube and having a forked free end adapted to embrace the pull-rod, and a series of locking knobs or collars on the pull-rod for engaging the forked end of the trigger and holding it locked or set under the tension of the spring, substantially as set forth.

5. In a fishing-float, a suitable bob, a tube carried thereby, a spring-actuated pull-rod in said tube, a friction line-holding safety device carried by the float, a section of the line being held respectively between said safety device and the outer end of the pull-rod, substantially as set forth.

6. In a fishing-float, a suitable bob, a tube carried thereby, a spring-actuated pull-rod in said tube, a friction line-holding safety device carried by the float, a section of the line being held respectively between said safety device and the pull-rod, said safety device having a terminal eye for the free passage of the line, substantially as set forth.

7. In a fishing-float, a suitable bob, a tube carried thereby, an actuating-spring confined within the tube, a pull-rod cooperating with the spring, a trigger mounted on the tube, and devices carried by the pull-rod for setting the trigger at any one of a number of predetermined tensions of the spring, substantially as set forth.

751,735. GATE-VALVE. SOREN S. JACOBSEN, Bellevue, Pa. Filed Jan. 10, 1902. Serial No. 89,152. (No model.)



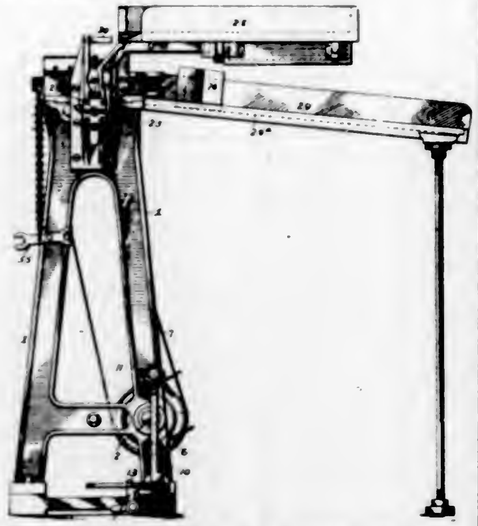
Claim.—A gate-valve having a disk composed of two separate halves having shoulders and flanges providing bearing-faces engaging one another, a valve-stem, cooperating lugs and sockets on said stem and disk halves, an attachment having an enlargement at its upper end resting on the shoulders on the disk halves, extending through the flanges and provided at its lower end with means for engaging both of said disk halves to prevent their undue separation.

751,736. MAIL-MARKING AND CANCELING DEVICE. EDWARD M. JUDD, Wallingford, Conn. Filed June 30, 1902. Serial No. 113,774. (No model.)

Claim.—1. In a mail-marking machine the combination with a table, a trough at one edge thereof, and an endless feed-belt forming the bottom of the trough, of stamp-canceling device comprising cutters mounted on a rotating support located to one side of the feed-belt, the said cutters having a longitudinal movement in said support, means for moving the cutters longitudinally, and a yielding device located in a plane with the cutters and adapted to form a support for the envelop while the cutters are cutting or abrading the stamp.

2. In a mail-marking machine the combination with a horizontal endless feed-belt, and a postmarking and canceling device in a plane above the belt, of a horizontally-moving stop over the belt in advance of the marking and canceling devices, a horizontal feed-roller in a plane above and adjacent to the discharge end of said feed-belt, and a cam moving with the postmarking and canceling devices for moving the stop laterally.

3. In a mail-marking device, the combination with an endless feed-belt, of a marking or canceling device, and envelop supporting roller, each mounted on an axis perpendicular to the feed-belt and located above the latter, a pair of stops also above the belt and in advance of the marking or canceling device, and cams moving with the canceling device and adapted to move the stops out of the path of the envelops.



4. In a mail-marking machine, the combination with a horizontal endless feed-belt, and envelop-supporting and stamp-canceling devices located in plane above said belt, of an abutment located above the belt and in advance of the canceling device for turning envelops that may be standing on end.

5. In a mail-marking machine, the combination with a device for feeding the envelops, and a marking or canceling device located in a plane above the feeding device and with its marking or canceling face at right angles to the upper face of the feeding device, of two spring-restrained stops located over the belt, one in advance of the other, and means for alternately removing the stops from the path of the envelop on the belt.

6. In a mail-marking machine, the combination with a horizontally-rotating marking or canceling device, and a device for feeding the envelops thereto, the said feeding device being in a plane below the canceling device, of two horizontally-moving stops, both located in planes above the feeding device, and means moving with the canceling device for alternately withdrawing the stops from the path of the envelops.

7. In a mail-marking machine, the combination with a stamp-canceling device and plurality of yielding rollers for supporting the envelop while the latter is engaged by the canceling device and means for feeding the envelops to said canceling device, of a stop located over the feeding device and in a position to stop the envelop adjacent to the canceling device, means moving with the canceling device for withdrawing the stop from the path of the envelop, and a roller located in rear of the canceling device for ejecting the canceled envelop onto a receiving-table.

8. In a mail-marking machine, the combination with a feeding device, a horizontally-rotating stamp-canceling device located in a plane above the feeding device, and a plurality of spring-sustained horizontal rollers located opposite the canceling device and above the feeding device for supporting the envelops while the latter are being acted upon by the canceling device, of two independent stops also located above the feeding device and in advance of the canceling device, and means for alternately withdrawing said stops from the path of the envelops.

9. In a mail-marking machine, the combination with a feeding device, of a canceling device comprising a block mounted on a revolving shaft perpendicular to the upper face of the feeding device and carrying removable postmarking stamps or type, cams on said shaft, and spring-actuated stops located over the feeding device and adapted to be retracted by the cams.

10. In a mail-marking machine, the combination with a feeding device, of a canceling device comprising a block mounted on a rotary shaft and carrying removable postmarking stamps or type, cutters slidingly mounted in said block and means carried by the frame of the machine for vertically reciprocating each cutter once at each revolution of the block.

11. In a mail-marking machine, the combination with a feeding device, of a canceling device comprising a block mounted on a rotary shaft, a cutter mounted in said block and projecting above and below the latter, and means for engaging said projecting ends once at each revolution of the block for vertically reciprocating the cutter.

12. In a mail-marking machine, the combination with a feeding device, of a canceling device comprising a block mounted on a rotary shaft, a reciprocating cutter mounted in said block and projecting above and below same, a plate located under the block and provided with a groove or recess at a point traversed by the cutter during the revolution of the block, and a roller located above said groove or recess and adapted to engage the upper projecting end of the cutter and force it downwardly into the groove.

13. In a mail-marking machine, the combination with a block mounted on a rotary shaft and provided with recesses, removable frames carrying type and cutters, located in said recesses and spring-catches for locking the frame in place.

14. In a mail-marking device, the combination with an endless feed-belt, a canceling device and movable stop, of a feed-wheel in rear of the canceling device and adjacent to the inner end of the feed-belt, and a yielding abutment located opposite the feed-wheel, the said canceling device, stop, feed-wheel and abutment being in planes above the upper surface of the feed-belt.

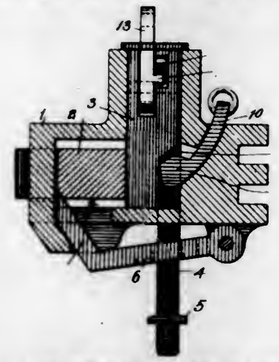
15. In a mail-marking machine, the combination with an endless feed-belt, a canceling device and cooperating yieldingly-supported rollers, of a feed-wheel in rear of the canceling device and adjacent to the inner end of the belt, and a yielding and adjustable abutment cooperating with said feed-wheel, the said canceling device, rollers, feed-wheel and abutment being in planes above the feed-belt.

16. In a mail-marking machine, the combination with a feed-belt, canceling device and feed-roller in rear of the canceling device and adjacent to the inner end of the feed-belt, the said canceling devices and roller resting in planes above the feed-belt, of an inclined table at the discharge end of the feed-belt, and a sliding block on said table.

17. In a mail-marking machine, the combination with a horizontal endless belt and horizontally-rotating block located in a plane above the belt and carrying canceling stamps or type, of an adjustable brush and an adjustable inking pad or roller located in the path traveled by the canceling stamps or type.

18. In a mail-marking machine, the combination with a feeding device and envelop-supporting and stamp-canceling devices, of a fixed abutment located in advance of the canceling device and over the feeding device for turning envelops that may be standing on end.

751,737. CAR-COUPLING. WILLIAM KELSO, Pittsburg, Pa. Filed Dec. 13, 1902. Serial No. 135,095. (No model.)

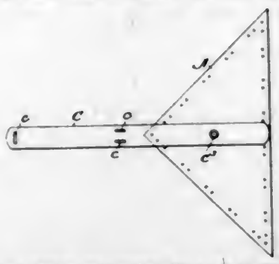


Claim.—1. A car-coupler of the Master Car-Builders' type having in combination, a swinging hook or knuckle, a locking block or pin provided with a stem, a knuckle-opener movably mounted on the under side of the coupler-head operative on the knuckle through an opening in the wall of the coupler, one of said parts or members having a beveled or inclined portion for transmitting motion from the locking-block to the knuckle, substantially as set forth.

2. A car-coupler of the Master Car-Builders' type having in combination, a swinging hook or knuckle, a locking block or pin, a knuckle-opener movably mounted on the under side of the coupler-

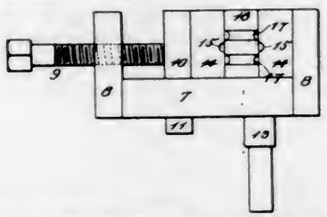
head, a connection between the knuckle and opener and a connection between the locking-block and opener, whereby the latter can be shifted by the block, substantially as set forth.

751,738. REVERSIBLE RUG-ADJUSTER. JAMES L. KINGSTON, Roxbury, Mass. Filed Mar. 8, 1902. Serial No. 97,240. (No model.)



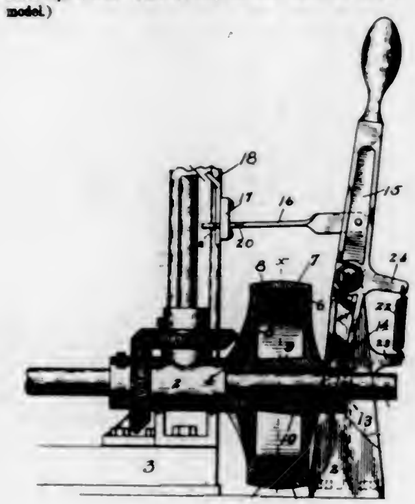
Claim.—A holder and retainer for a rug or carpet consisting of a flexible, fibrous resilient shape-retaining substance cut angular in shape and having a bottom surfacing of soft adhesive rubber, a yielding metal spring-arm of some considerable length pivoted thereto whereby the said retaining member and arm may assume relatively different positions one to the other as and for the purposes set forth.

751,739. INSULATOR. PETER S. LINDAL, Edinburg, Pa. Filed Mar. 31, 1903. Serial No. 150,380. (No model.)



Claim.—An insulator comprising a slotted plate having a downwardly-extending pin, sides and ends secured to and projecting above the edges of the plate, a clamping-screw tapped through one end, a follower against which the screw bears, slidable upon the plate and having a stem extending through the slot, and interchangeable insulating-blocks having a variety of grooves fitting between the sides upon the plate and clamped between the follower and the other end.

751,740. POWER-SHIFTER. JAKOB LUNDGREN, Philadelphia, Pa. Filed Sept. 3, 1902. Renewed July 14, 1903. Serial No. 165,526. (No model.)



Claim.—1. In a power-shifting appliance, the combination with the driving-shaft, of a member fixedly secured thereto; a member loose upon said shaft coöperating with said fixed member and means comprising a movable conical bearing adapted to dispose the loose member into or out of engagement with said fixed member whereby the power applied to the loose member will be connected with or disconnected from the fixed member, substantially as specified and for the purpose set forth.

2. The herein-described power-shifter comprising the combination with a driving-shaft, of a driving-wheel fixedly secured thereto; a pulley-wheel having one side removed and adapted to receive the fixed wheel and suitable means carried by said shaft and coöperating with the pulley-wheel adapted to center the pulley-wheel upon the shaft whereby it will be wholly out of contact with the fixed wheel or leave said pulley-wheel without a central support thereby causing its overlapping flange to engage the fixed wheel and drive the same as and for the purpose set forth.

3. In a power-shifting appliance, and friction-clutch of the character specified, the combination with a driving-shaft, of a hollow wheel fixedly secured thereto and having one side wholly removed; a pulley-wheel adapted to telescope said fixed wheel and having an inwardly-directed hub 9 provided with a conical seat; a sleeve 10 having a conical face longitudinally movable on said shaft and means to drive said sleeve within the hub of the pulley-wheel or withdraw it therefrom whereby said pulley-wheel will be truly centered upon the shaft and held out of contact with the fixed wheel or left without a central support to rest upon or frictionally engage the fixed wheel and thereby drive the same, all substantially as specified and for the purpose set forth.

4. The herein-described friction-clutch or power-shifter comprising the driving-shaft 1, the wheel 5 fixedly secured to said shaft and having a continuous radial flange or lip, in combination with a pulley-wheel 8 adapted to telescope the fixed wheel and having a hub provided with a conical seat and a sleeve adapted to fit said seat and means to move the sleeve in or out of the seat as and for the purpose set forth.

5. A friction-clutch or power-shifter comprising the fixed wheel 5 having a continuous flange and a continuous piece of frictional material seated in the face of said flange, in combination with a pulley-wheel 8 adapted to telescope said fixed wheel and suitable means to center the pulley-wheel upon the shaft whereby it will be wholly out of contact with the fixed wheel or leave said wheel wholly without a central support and thereby dispose it in frictional engagement with the fixed wheel as and for the purpose set forth.

6. In a power-shifting appliance, a driving-shaft; a pulley fixedly secured thereto, in combination with a pulley loose on said shaft and having a flange extending over the periphery of said fixed pulley and means to remove the bearing support of the loose pulley whereby the loose pulley will contact the periphery of the fixed pulley and rotate the same substantially as and for the purpose set forth.

7. The herein-described power connecting and disconnecting appliance, consisting of a driving-shaft, a fixed wheel 5 securely keyed thereto; a belt-driven wheel adapted to telescope said fixed wheel and having a hub provided with a conical seat; a sleeve 10 slidingly mounted upon said shaft and having an outwardly-extending head provided with an annular groove, and a lever operatively connected to said head through the mediation of said groove whereby an inward or outward movement of the lever will cause said sleeve to be withdrawn from or driven into its seat in said hub and means to hold said lever normally outward, all substantially as specified and for the purpose set forth.

8. In a power-shifter, a driving-shaft; a wheel secured rigidly thereto; a belt-driven wheel adapted to engage the fixed wheel and means to entirely withdraw and restore at will the central support or bearing of the belt-driven wheel whereby when said central support is withdrawn the belt-driven wheel will engage the fixed wheel and when said bearing is restored the belt-driven wheel will stand wholly out of contact with the fixed wheel and rotate freely upon its central support as and for the purpose set forth.

751,741. TROUSERS. DAVID LYONS, Chicago, Ill. Filed Dec. 5, 1902. Serial No. 133,987. (No model.)

Claim.—1. The combination with trousers, of strips of inelastic flexible material secured to the legs thereof on opposite sides of the position of the usual crease therein for preventing longitudinal stretching of the legs of said trousers, and means connecting said strips for preventing the transverse stretching of the trousers between said strips, substantially as described.

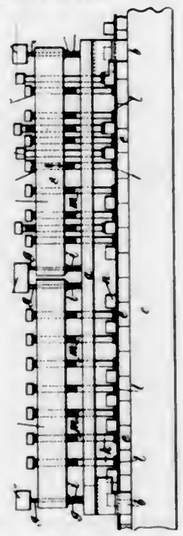
2. The combination with trousers, of a reinforcing-strip of inelastic flexible material secured on each side of the position of the usual crease in the legs of said trousers for preventing longitudinal stretching of said trousers, and a plurality of strips or bridges also of flexible inelastic material connecting said strips to prevent transverse stretching of the trousers between the longitudinal strips, substantially as described.



3. The combination with trousers, of reinforcing-strips of flexible inelastic material secured in the legs of said trousers on opposite sides of the usual crease therein for preventing longitudinal stretching of the trousers, and a plurality of strips also of inelastic flexible material connecting said longitudinal strips and formed integral therewith for preventing transverse stretching of the trousers between said longitudinal strips, substantially as described.

4. The combination with trousers, of a reinforcing-strip of inelastic flexible material secured to the legs thereof on opposite sides of the position of the usual crease therein, said strips being spaced apart, and a plurality of strips of similar material connecting said longitudinal strips and separated from one another to prevent transverse stretching of the trousers between said strips, substantially as described.

751,742. DEVICE FOR SOUNDING CHORDS ON KEYBOARD INSTRUMENTS. SIDNEY MACEY, Barnes, England. Filed Sept. 21, 1903. Serial No. 174,043. (No model.)



Claim.—1. A device for sounding chords on keyboard instruments, comprising a supporting frame or base adapted to be placed above the keys of a musical instrument, a key-bar arranged transversely of the keys of the instrument above the base, strikers attached to and projecting downwardly from said key-bar, and a striker sliding vertically also carried by said guide-bar for the purpose specified.

2. A device for sounding chords on keyboard instruments, comprising a supporting frame or base adapted to be placed over the keys of a musical instrument, a key-bar arranged transversely of the keys of the instrument above the base, strikers attached to and projecting downwardly from the key-bar, guide-rods extending upwardly from the base and through the key-bar at opposite ends thereof, springs interposed between the base and the key-bar, and two vertically-sliding strikers placed close together and adjustable for the purpose specified.

3. A device for sounding chords on keyboard instruments, comprising a supporting frame or base adapted to be placed above the keys of a musical instrument, a key-bar arranged transversely of the keys above the base, a series of strikers rigidly attached to the key-bar, and a striker sliding vertically in the key-bar provided with a spring for moving it downwardly, and with a pivoted yoke above the key-bar for holding it in an elevated position.

751,743. INSULATOR. JOSEPH M. MAHONEY, Boston, Mass. Filed Dec. 1, 1902. Serial No. 133,442. (No model.)

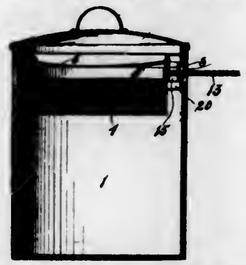


Claim.—1. An insulating-sleeve having two semitubular members provided with interlocking portions to prevent lateral displacement of one member relative to the other, a portion of larger periphery at one end of each member, and an annular channel formed partly in one member and partly in the other, as set forth.

2. An insulating-sleeve having two semitubular members each formed with an enlargement at one end to form when the members are assembled, a flange; and a locking projection formed on each member and projecting beyond the axis of the tube and substantially parallel to said axis to enter a corresponding recess in the other member, as set forth.

3. An insulating-tube comprising the semitubular members *a* and *b*, the member *a* being provided with the longitudinal recesses a^{30} and a^{31} at one end, and the longitudinal recess a^4 at the other end, and the projection a^{32} between the recesses a^{30} and a^{31}, the member *b* being provided with the longitudinal projections b^{30} and b^{31} to enter respectively the recesses a^{30} and a^{31} and the projection b^4 to enter the recess a^4 and the recess b^{32} to receive the projection a^{32}, and each member having formed therein a part of the annular channel *c* which surrounds both members.

751,744. ASH-SIFTER. THOMAS J. MARTIN, New York, N. Y. Filed July 8, 1903. Serial No. 164,647. (No model.)

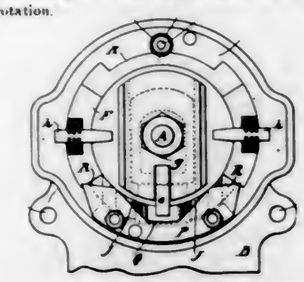


Claim.—An ash-sifter comprising a barrel or can, a removable cover for the same, guides located entirely on the inner side walls of the barrel or can and a sieve provided with elongated side lugs resting freely on the said guides whereby the sieve may have a forward and back and reciprocating rotary motion imparted thereto when resting on the said guides, the said sieve being capable of being removed from or replaced in its position through the top of the barrel or can.

751,745. AUTOMATIC SWITCH. MORRIS MOSKOWITZ, New York, N. Y., assignor to United States Light & Heating Company, of New Jersey. Filed Apr. 8, 1903. Serial No. 151,628. (No model.)

Claim.—1. In a switch, the combination of two concentric rotary members, one of which is adapted to actuate the other by engagement therewith, a guide member adapted to coact with the actuating member and thereby move it out of engagement with the other member as the direction of rotation reverses, and means for automatically retracting said actuating member at a predetermined speed of rotation.

2. In a switch, the combination of two concentric rotary members, one of which is adapted to actuate the other as the direction of rotation reverses, means for rotating the actuating member, a guide adapted to coact with said actuating member and thereby move it transversely to the axis of rotation, and means for automatically retracting said actuating member at a predetermined speed of rotation.



3. In a switch, the combination of a rotary actuating member, and another member arranged concentrically therewith and adapted to be actuated thereby as the direction of rotation of the actuating member is reversed, a guide adapted to coact with the actuating member and thereby move it transversely to the axis of rotation, and means for preventing said member from actuating the other member when a predetermined speed is exceeded.

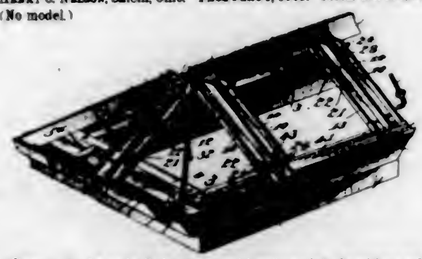
4. In a switch, the combination of a rotary part provided with a member movable transversely to the axis of rotation, another part arranged concentrically with said first-named part and adapted to be actuated by the said transversely-movable member as the direction of rotation reverses, a guide for said transversely-movable member affording provision for positively moving and guiding said member transversely to the axis of rotation at predeterminad slow speeds, and means for moving said member automatically transversely to the axis of rotation at a predetermined speed of rotation.

5. In a switch, the combination of a base-plate, a switch member revolubly mounted thereon and provided with outwardly-projecting fingers, a guide member on the base-plate, and a rotary part arranged concentrically with the switch member and provided with a transversely-movable tongue, whereby when the direction of rotation reverses said tongue is adapted to actuate the switch member by engagement with one of the fingers thereon, said tongue being guided by the guide member, and means for automatically retracting said tongue at a predetermined speed of rotation.

6. In a switch, the combination of a rotary member and a member adapted to be actuated by engagement with said rotary member, a guide member having a cam-surface for guiding and moving the actuating member out of engagement with the other member, and means for automatically retracting said actuating member at a predetermined speed of rotation.

7. In a switch, the combination of a rotary member and a member adapted to be actuated by engagement with said rotary member, a fixed guide member for guiding and moving the actuating member out of engagement with the other member, and means for automatically retracting said actuating member at a predetermined speed of rotation.

751,746. **SKYLIGHT.** WILLIAM H. MULLINS, WILL C. HARE, and HENRY C. NELSON, Salem, Ohio. Filed June 6, 1903. Serial No. 160,344. (No model.)



Claim.—1. In a skylight, the combination with the ridge or hip bar, of clips or brackets secured thereto and provided with an upwardly-projecting finger, a main or cripple bar having holes through its end adapted to receive the projecting fingers of the said clip and have the latter bent down to secure the same in place.

2. In a skylight, the combination with the ridge or hip bar, of a clip or bracket secured thereto and provided with two projecting fingers, and a bar having upper and lower members each provided with a hole at its end and adapted to receive the projecting fingers of the bracket, the upper one of said fingers being adapted to be bent down to secure the bar in place.

3. In a skylight, the combination with the ridge or hip bar, of a clip or bracket riveted thereto and having its ends bent outwardly and then upwardly, and a bar comprising top and bottom members suitably secured together and each having a hole in its end adapted to receive the projecting ends of said bracket, the upper one of said projecting ends being adapted to be bent down onto the bar to secure the same in place.

4. In a skylight, the combination with a ridge-bar, of a plate secured to the end thereof and at right angles thereto and having bent ends, and hip-bars secured to said bent ends.

5. In a skylight, the combination with a ridge-bar, of a plate secured to the end thereof at right angles thereto and having bent ends, hip-bars secured to said bent ends, clips or brackets secured to said ridge-bar, hip-bar and plate, and main and cripple bars having their upper ends secured to said clips.

6. In a skylight, the combination with a ridge-bar, of main bars attached thereto, a ridge-capping provided with flanges at its lower edges and openings in its sides above said flanges, bar-cappings having their ends inserted in said openings, and means for securing said bar-cappings in place.

7. In a skylight, the combination with a hip-bar, of cripple-bars attached thereto, a hip-capping provided with flanges at its lower edges and openings in its sides above said flanges, cripple-bar cappings having their ends inserted in said openings, and means for securing said cripple-bar cappings in place.

8. In a skylight, the combination with the ridge-bar, of main bars securely fastened thereto and providing a trough, and a ridge-cover plate separate from the ridge-bar and overlapping the same, said cover-plate providing a glass-rest and having a gutter communicating with the main bars.

9. In a skylight, the combination with a hip-bar, of cripple-bars securely fastened thereto, and a hip-cover plate separate from said hip-bar and fitting over the same, said cover-plate providing a glass-rest and provided with a gutter on each side leading to the curb.

10. In a skylight, the combination with the ridge-bar, of hip-bars secured thereto, main bars secured to the ridge-bar, a cover-plate fitting over the hip-bars and provided with a gutter on each side, and an angle cover-plate fitting over the ridge and hip bars and provided with gutters communicating with the gutters of the hip-cover plate.

11. In a skylight, the combination with the ridge-bar, of main bars secured thereto and comprising an upper and a lower member suitably secured together, the lower member being of trough form, a ridge-cover plate separate from the ridge-bar and provided with a gutter having openings or depressions opposite each main bar, cross-clips providing gutters leading to said main bars, and suitable securing means for the cappings connected to the upper members of said main bars.

12. In a skylight, the combination with the curb provided with fastening means at its inner edge and having an upwardly-projecting flange at its outer edge, of main bars having their lower ends secured to said curb, and a glass-rest secured to the lower ends of said main bars and having its edge fitting over the upwardly-projecting flange of the curb.

13. In a skylight, the combination with a curb-sheet provided with fastening means at its inner edge and an upwardly-projecting flange at its outer edge, of main bars having their lower ends resting on said curb and provided with notches or grooves in their upper edges, and a glass-rest having a downwardly-turned flange engaging the grooves of said main bars and having its outer edge bent upwardly and then downwardly and engaging the flange of the curb.

14. In a skylight, a curb comprising a metal sheet adapted to be secured to a base and provided with a longitudinal ridge or water-guard, and having a portion projecting inwardly from said ridge and serving to receive the fastening means.

15. In a skylight, a curb comprising a metal sheet adapted to be secured to the base and having an upwardly-turned flange and drip-openings at its outer edge, said curb being provided with a longitudinal ridge or water-guard and having a portion projecting inwardly from said ridge and adapted to receive the fastening means.

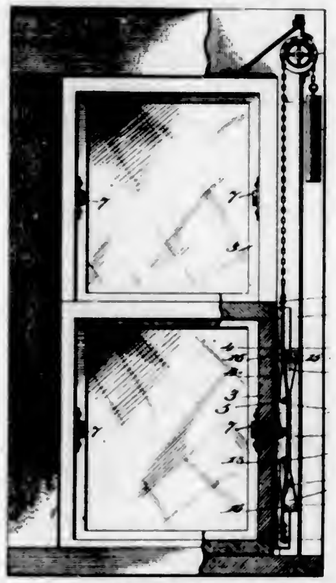
16. A curb for skylights comprising sheet-metal plates stamped into shape with inverted-V ridges at their ends extending transversely thereof, whereby by overlapping said ends a water-tight joint is provided.

17. A curb for skylights comprising sheet-metal plates provided with securing means at their inner edges and a ridge formed therein outside of said securing means and also provided with inverted-V ridges at their ends extending transversely of the plates and intersecting the ridge formed adjacent to the inner edge thereof.

18. A curb for skylights comprising a corner-section and side members, each being provided with a ridge adjacent to its inner edge and with inverted-V ridges at each end extending transversely of said sections and adapted to overlap and form water-tight joints.

19. In a skylight, the combination of a curb consisting of a sheet-metal plate provided at its inner ends with means for securing the same to a base and having a ridge or water-guard formed adjacent to said inner edge, said curb having an upwardly-extending flange at its outer end and being provided with drip-openings adjacent to said flange, of main bars having their lower ends secured to said curb and providing a trough for conducting water to said curb, and a glass-rest secured to said main bars and having its edge fitting over the upwardly-projecting flange of the curb.

751,747. **WINDOW.** HENRY C. NELSON, Salem, Ohio. Filed Mar. 25, 1903. Serial No. 149,517. (No model.)



Claim.—1. The combination with a window-casing and inclosed sash, of weather-bars interposed between said casing and sash and connected to the latter, cords or the like attached to said bars for suspending the sash, and means arranged to contact with the casing and with said cords and acting by the tension of the cords to press the bars against the sash.

2. The combination with a window-casing and inclosed sash, of weather-bars interposed between said casing and connected to the latter, cords or the like attached directly to said bars and serving to suspend the sash, and means actuated by the tension of said cords for pressing the bars against the sash.

3. The combination with a window-casing and inclosed sash, of interposed weather-bars to which the window is pivoted, cords secured to said bars for suspending the sash, and tension devices in said bars arranged to contact with the casing and with said cords, the arrangement being such that the straightening of the cords by the weight of the sash forces said devices against the casing and presses the bars against the sash.

4. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords or the like connected to said bars, guides over which said cords pass, and means mounted in said bars so as to be movable transversely thereof, said means being interposed between the cords and casing and being of greater width than the distance between said guides and the casing, whereby the straightening of the cords forces said devices against the casing and presses the bars against the sash.

5. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords connected to said bars, tension devices hinged to said bars and having their free ends interposed between the cord and casing and being of greater width than the distance between the casing and the normal position of the cords, whereby the straightening of the cords forces said devices against the casing and presses the bars against the sash.

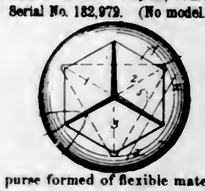
6. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords secured to said bars, guides in said bars over which said cord passes, swinging tension devices hinged to the bars and having their free ends interposed between the cords and casing and being of greater width than the distance between the cord-guides in the bars and the casing.

7. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally connected, said bars being trough-shaped in cross-section, suspending-cords secured to said weather-bars, guides in said bars over which said cords pass, and tension devices mounted in said bars so as to be movable transversely thereof, said devices being of greater width than the distance between the cord-guides in the bars and the window-sash, whereby the straightening of the cords forces said tension devices against the casing and presses the bars against the sash.

8. The combination with a window-casing and inclosed sash, of interposed hollow weather-bars to which said sash is pivotally connected, bearing-blocks in said bars on which the sash-pivots rest, suspending-cords secured directly to said sash and means for pressing said bars against the sash.

9. The combination with a window-casing and inclosed sash, of interposed hollow weather-bars to which said sash is pivotally connected, bearing-rollers in said bars on which the sash-pivots rest, suspending-cords secured to said bars, and tension devices in said bars arranged to contact with the casing and with the cords, the arrangement being such that the straightening of the cords by the weight of the sash forces said devices against the casing and presses the bars against the sash.

751,748. **PURSE.** JOHN C. O'SHEA, Washington, D. C. Filed Nov. 28, 1903. Serial No. 182,979. (No model.)



Claim.—1. A purse formed of flexible material and comprising a bottom portion, an upper portion, and a closing device, the said closing device being formed of three panels arranged in triangular form and provided with diagonal creases or folds which intersect with each other when the said purse is closed, and the said bottom portion and upper portion being extended beyond the angles of the said closing device to form a capacious coin-chamber.

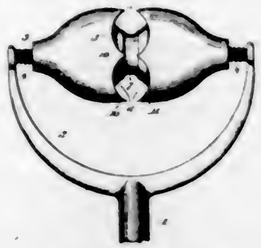
2. In a receptacle, a closing device formed of flexible material and formed of panels having diagonal folds or creases which intersect with each other when the receptacle is closed, each said panel having a V-shaped stiffening fold or crease *d* extending at an angle from the middle part of the aforesaid fold or crease to the top of the said panel at one end thereof.

3. In a receptacle, a closing device formed of flexible material and formed of panels having diagonal folds or creases which intersect with each other when the receptacle is closed, each said panel having V-shaped stiffening folds or creases *d* and *e* in its upper part which extend in opposite directions and are arranged side by side when the receptacle is closed.

4. In a receptacle, an upper part and a closing device formed of flexible material, the said closing device being formed of panels having diagonal folds or creases which intersect with each other when the receptacle is closed, each said panel having a V-shaped fold or crease *d* in its upper part and a V-shaped fold or crease *f* in its lower part which extends into the adjacent portion of the said upper part, the said folds or creases *d* and *f* being arranged to project upward and to interlock with each other when the receptacle is closed.

751,749. **TROLLEY-WHEEL.** JOHN R. PALMER, Somerville, Mass. Filed Nov. 14, 1903. Serial No. 181,169. (No model.)

Claim.—1. In a trolley-wheel, a shaft, suitable support therefor, independently-rotatable sections thereon, another independently-rotatable section between said other sections for engaging the trolley-wire, and hooks on said first-mentioned sections and overhanging said wire-engaging section for preventing the disengagement of the wire therefrom, substantially as described.



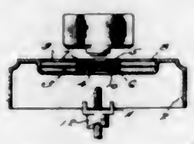
2. In a trolley-wheel, a shaft, suitable support therefor, independently-rotatable sections thereon, another independently-rotatable section between said other sections for engaging the trolley-wire, hooks on said first-mentioned sections and overhanging said wire-engaging section for preventing the disengagement of the wire therefrom, and means for keeping said hooks of one section adjacent the hooks of the other section, substantially as described.

3. In a trolley-wheel, a shaft, suitable support therefor, independently-rotatable sections thereon, another independently-rotatable section between said other sections for engaging the trolley-wire, hooks on said first-mentioned sections and overhanging said wire-engaging section for preventing the disengagement of the wire therefrom, and means for normally holding said sections together, substantially as described.

4. In a trolley-wheel, a shaft, suitable support therefor, independently-rotatable sections thereon, another independently-rotatable section between said other sections for engaging the trolley-wire, hooks on said first-mentioned sections and overhanging said wire-engaging section for preventing the disengagement of the wire therefrom, inclines on said hooks for causing the same to spread apart when downwardly pressed against by the trolley-wire, and means for normally holding said sections together, substantially as described.

5. In a trolley-wheel, a shaft, suitable support therefor, independently-rotatable sections thereon, another independently-rotatable section between said other sections for engaging the trolley-wire, hooks on said first-mentioned sections and overhanging said wire-engaging sections for preventing the disengagement of the wire therefrom, and coiled springs on said shaft for holding said sections together, substantially as described.

751,750. INDICATING MEANS FOR SNAP ELECTRIC SWITCHES. CHARLES G. PERKINS, Hartford, Conn. Filed Oct. 29, 1903. Serial No. 178,980. (No model.)



Claim.—1. A cover for a rotary snap electric switch with a dial supported by and adapted to be rotated on the outside of the cover, substantially as specified.

2. A cover for a rotary snap electric switch with a dial movably held on the outside of the cover, and a protecting-plate with an opening outside of the dial, substantially as specified.

3. A cover for a rotary snap electric switch with a dial movably held on the outside of the cover, a protecting-plate outside of the dial and insulating material separating the cover and the protecting-plate from the dial, substantially as specified.

4. In combination with a pole-sleeve of a rotary snap electric switch having outwardly-extending lugs, a cover adapted to inclose the mechanism, a dial movably held on the outside of the cover and having openings adapted to receive the pole-sleeve lugs, a protecting-plate outside of the dial, and a handle adapted to rotate the pole-sleeve and dial, substantially as specified.

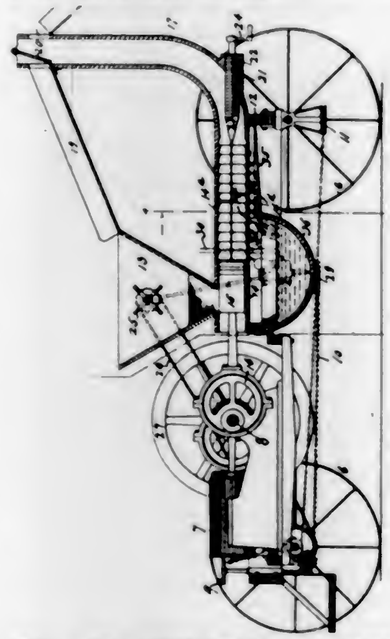
751,751. EXPLOSIVE AND PROCESS OF MAKING SAME. BOAZ D. PIKE, San Francisco, Cal. Filed Oct. 10, 1903. Serial No. 176,487. (No specimens.)

Claim.—1. An explosive compound composed of oxygen-bearing metallic salts, carbon, sulfur and china-nut oil.

2. An explosive compound composed of oxygen-bearing metallic salts, carbon and sulfur, in the form of granules covered by a coating of china-nut oil.

3. That improvement in the manufacture of explosive compounds containing oxygen-bearing metallic salts, consisting in reducing the salts to a fine powder, then adding china-nut oil in about the proportions specified and incorporating the same so as to coat the particles of the salts, and afterward adding the carbon and sulfur previously pulverized and mixing all the ingredients together.

751,752. PRESS. EUGENE PILLIOD, Wynant, Ohio. Filed Mar. 23, 1903. Serial No. 149,023. (No model.)



Claim.—1. The combination with a reciprocating plunger, of a press-box having inner ridges with inclined faces presented toward the plunger and perforations at the channels between the ridges.

2. In a press, the combination with a press-box, and a plunger therein, of a discharge-spout joined to the discharge end of the box, and a screw supported by the spout and having a tapering point projecting within the spout, lengthwise in line with and toward the discharge end of the box.

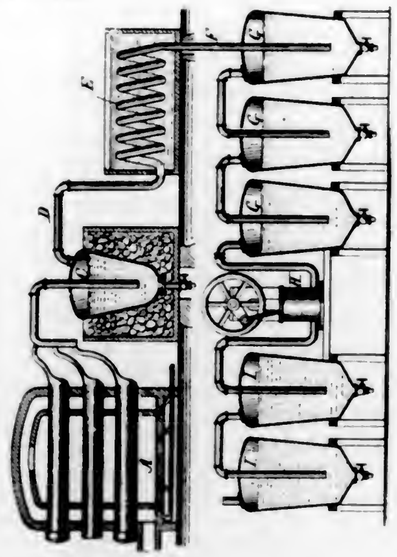
751,753. METHOD OF MAKING PHOSPHORIC ACID. NATHANIEL B. POWTER, Brooklyn, N. Y.; Edward H. Fallows executor of said Powter, deceased. Filed Oct. 6, 1897. Renewed July 14, 1903. Serial No. 165,524. (No specimens.)

Claim.—1. The herein-described process of producing phosphoric acid, which consists in heating phosphate rock within a suitable retort, applying suction to the retort, and collecting the gas evolved, substantially as described.

2. The herein-described process of producing phosphoric acid, which consists in heating aluminic or similar phosphates within a suitable retort, drawing off the fumes thereby produced, by suction, and collecting the same, substantially as described.

3. The herein-described process of producing phosphoric acid from phosphate rock, aluminic and similar phosphates, and collecting the same, which consists in heating within a suitable retort such a substance, drawing off the fumes thereby produced, by suction, cooling the same, and passing the fumes into water so as to cause them to dissolve therein, substantially as described.

751,753.



751,754. PUZZLE. DANIEL S. REESE, Mahanoy City, Pa. Filed Aug. 10, 1903. Serial No. 169,000. (No model.)



Claim.—1. A puzzle comprising a box or casing having a bottom, top and side, a cylindrical loose member, a recess in the side adapted to receive said member, and a discharge-aperture for the member in alinement with recess.

2. A puzzle comprising a box or casing having a bottom, side and a transparent top, a cylindrical loose member, a recess in the side adapted to receive said member, a cone-shaped projection extending inwardly from the side opposite to the recess, and a discharge-aperture for the member through the side and projection and in alinement with the recess.

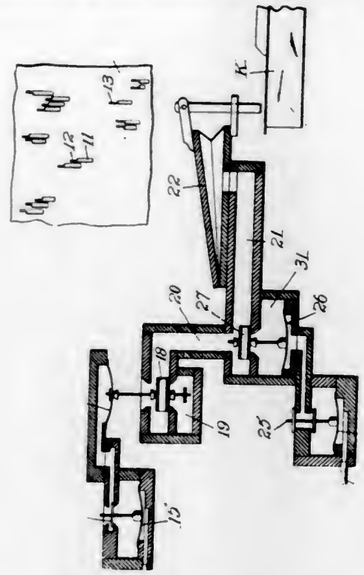
3. A puzzle comprising a box or casing having a bottom, side and a transparent top, a cylindrical loose member, a recess in the side adapted to receive said member, an inclined groove leading from the bottom to said recess, and a discharge-aperture for the member in alinement with the recess.

4. A puzzle comprising a box or casing having a bottom, side and a transparent top, a cylindrical loose member having a pointed end, a recess in the side adapted to receive said member, a groove in the bottom, an inclined groove leading from the bottom groove to the recess, a cone-shaped projection extending inwardly from the side opposite to the recess, and a discharge-aperture for the member through the side and projection and in alinement with the recess.

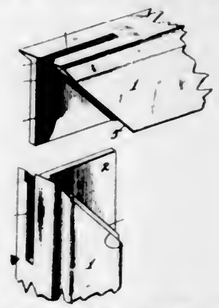
751,755. AUTOMATIC PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS. WILLIAM H. REES, Worcester, Mass. Filed Sept. 18, 1902. Serial No. 123,821. (No model.)

Claim.—1. In a construction of the class described, the combination of a main pneumatic, connections for operating the same under high tension, and for operating the same under low tension respectively, and means for controlling said connections so that the pneumatic will be operated from high tension alone when a note is to be accented, and so that the pneumatic will be acted upon by the low tension and high tension in succession when a note is to be played softer.

2. In an automatic playing attachment for musical instruments, the combination of a main pneumatic and a tracker-board having two channels for controlling said pneumatic connections whereby one of said channels effects the operation of the main pneumatic under low tension and connections whereby the other channel effects the operation of the main pneumatic under high tension.



751,756. STRETCHER-FRAME FOR PAINTINGS. WALLACE H. SHAW, Brooklyn, N. Y. Filed Apr. 30, 1903. Serial No. 154,954. (No model.)



Claim.—1. A stretcher-frame bar having a tongue and a groove on each end thereof in proper relation to interlock with a tongue and a groove on the bar connecting therewith, said groove being rabbeted, substantially as described.

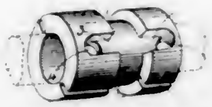
2. A stretcher-frame bar having a tongue and a groove on each end thereof in proper relation to interlock with a tongue and a groove on a similar bar, said groove being rabbeted and having its bottom incline downwardly toward the inner edge of said bar, substantially as described.

3. A stretcher-frame bar having a tongue and a groove on each end thereof in proper relation to interlock with a tongue and a groove upon a similar bar, said tongue having shoulders on each side thereof, and said groove being rabbeted and inclined downwardly to permit a wedge to be inserted therein when said bars are interlocked, substantially as described.

751,757. BUSHING. FREDERICK SIEBERT, St. Louis, Mo., assignor to American Motor and Pulley Co., St. Louis, Mo., a Corporation of Missouri. Filed July 16, 1903. Serial No. 165,825. (No model.)

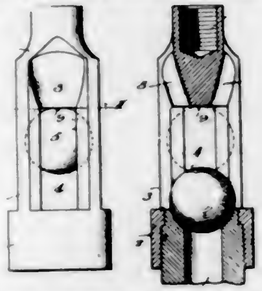
Claim.—1. A bushing comprising a cylindrical body portion having longitudinal peripheral grooves and having an annular cen-

tral groove, and recesses extending from said annular groove in opposite directions along the body portion, said recesses terminating a short distance from the opposite ends of the bushing, the latter being provided with bolt-holes at the outer ends of the recesses, the bases of the fracture-grooves extending to a depth interior to the cross-sectional circle of the base of the annular groove, substantially as set forth



2. A bushing comprising a cylindrical body portion having longitudinal peripheral fracture-grooves, and having an annular central groove, the base of said annular groove being disposed along a cylinder the circle of whose cross-section is exterior to the bases of the fracture-grooves, the bushing being provided with bolt-holes on either side of the annular groove, substantially as set forth.

751,758. **PUMP-PISTON.** RICHARD E. SMALL, Los Angeles, Cal. Filed Oct. 21, 1903. Serial No. 177,932. (No model.)



Claim.—1. In a pump-piston, a valve and a valve-seat, a cage for said valve extending above said seat and provided with a central valve-chamber, the top wall of said chamber being horizontal, the top of said cage provided with downwardly and inwardly extending concave channels, the said concave channels registering with the open ways provided at the sides of the valve-cage and being open at the periphery of the cage and being entirely free and unobstructed and opening into the chamber of the cage above the ball-valve.

2. In a pump-piston, a valve and a valve-seat, a cage for said valve extending above said seat and provided with a central valve-chamber and with open ways at its periphery, the top of said cage provided with downwardly and inwardly extending concave channels registering with the open ways provided at the sides of the valve-cage, said channels being open at the periphery of the cage and being entirely free and unobstructed and opening into the chamber of the cage above the ball-valve, the walls between the several channels being inwardly tapered and meeting at an apex against which apex the ball-valve is adapted to strike in its upward throw

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751,759. **COMBINED MOLDING-PRESS, MOLD-DRIER, AND VULCANIZER.** RICHARD H. SMITH, Springfield, Mass. Filed Sept. 15, 1903. Serial No. 173,334. (No model.)



Claim.—1. In an apparatus of the character described, the combination with the heater having at its top a plurality of upstanding lugs, of the press having at the lower portion of its base a plurality of recesses, of approximately the width of said lugs, which extend inwardly from the outer faces of the base, for the purpose set forth.

2. In an apparatus of the character described, the combination with a heater having a flat top provided with upstanding lugs j j and j^2 j^2, opposite end and side pairs thereof being arranged in respectively parallel longitudinal and transverse lines, and the press having at the lower portion of its base the depending flange constructed with downwardly-opening end and side pairs of recesses $j\,j$ and $j'\,j'$ in arrangement corresponding to the lugs on the heater, and extending from the outer to the inner surfaces of said depending base flange, as shown and for the purpose explained.

3. In an apparatus of the character described, the vulcanizing-press having, under and separated from, the intermediate portion of its base, a plate provided with members extending toward the margins of, and to contact against, the base, and means for retaining said appliance in its place beneath the base.

4. In a press for the purpose set forth, the platen provided with a mercury-containing cavity, and having an upwardly-extending contracted opening or thermometer-socket, of a metal-sheathed thermometer fitted through said opening and having its lower end submerged in the mercury in said cavity for the purpose explained.
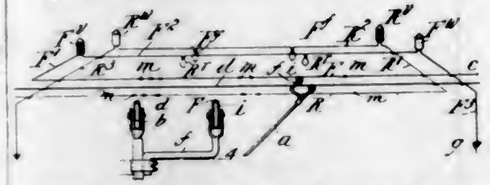
5. In a press for the purpose set forth, the platen having an upwardly-opening circular chamber therein, provided in an upper portion thereof, with a metallic closely-fitted ring whereby is produced the socket p which is diametrically smaller than the mercury-cavity constituted by the lower portion of said chamber, combined with the metal-sheathed thermometer, the lower portion of which fits down through said socket and protrudes into the mercury-cavity.

6. In an apparatus of the type set forth, a vulcanizing-press, a plate arranged beneath the base of the press, members formed thereon extending outwardly and engaging the outer edges of the base, means for retaining the plate in position, a platen arranged for movement to and from the press, and an upwardly-extended rib formed integral with the edges of the platen, providing means for the conserving of heat near the margin of the platen by the increase of the bulk of metal at the edges of the platen, substantially as described.

7. In a press for the purpose set forth, the combination with a platen and the screw-shaft provided at its lower extremity with the diametrically contracted portion and having united thereon the metallic bushing provided with the outwardly-extending flange at its lower portion, of the connection member H^3 comprising a base portion screwed to the platen, and the elevated internal flange, through the opening in which the body of said bushing rotatably fits, and beneath the inner marginal portion of the flange of which, said bushing-flange engages.

8. In a press for the purpose set forth, the combination with a platen having the centrally-located step-socket c^2, and the screw-shaft provided at its lower extremity with the diametrically contracted portion c having the step end c^3, and having shrunk thereon the metallic bushing, the body of which is of a size corresponding to the periphery of the screw, and which is provided with the outwardly-extending flange e at its lower portion, of the connection member A^3 comprising a base portion screwed to the platen, and the elevated internal flange, through the opening in which the body of said bushing rotatably fits, and beneath the inner marginal portion of the flange of which, said bushing-flange engages.

751,760. **ELECTRIC SIGNALING APPARATUS.** JOHN R. STANNARD, Springfield, Mass. Filed Feb. 2, 1903. Serial No. 141,409. (No model.)

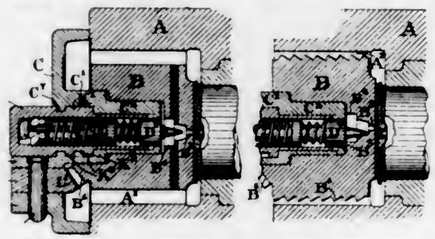


Claim.—1. In a signaling system, the combination of a feed-wire, a trolley engaging the feed-wire, an auxiliary trolley carried alongside said trolley, a signal-wire disposed on each side of the feed-wire for a block of trackway, the signal-wires being equidistant from the feed-wire and arranged to be engaged by the auxiliary trolley, the signal-wire on one side being engaged when the trolley is moving in one direction, and the signal-wire on the other side being engaged when the trolley is moving in the opposite direction, a return-wire from one end of one signal-wire extending to the other end of the block and there grounded, a signal in circuit with the return-wire at each end of the block which signals are of different character, a second wire extending from the other signal-wire at the end of the block where the other signal-wire is grounded, to the other end of the block and there grounded, and a signal in circuit with the latter return-wire at each end of the block which signals are of different character, the adjacent signals at each end of the block being of different character.

2. In a signaling system, the combination of a trolley feed-wire, a trolley engaging the feed-wire, an auxiliary trolley carried alongside the said trolley, the signal-wire F carried alongside the feed-wire for the length of a block, the return-wire F^2 extending for the length of the block, the wire F' connecting the wires F and F^2, a danger-signal lamp on said wire F', a ground connection at the other end of the return-wire F^2, a white signal-lamp on the grounded end of wire F^2, the second signal-wire R on the opposite side of the feed-wire, the return-wire R^2 connected with the wire R by wire R', a danger-signal lamp on the wire R', a ground connection at the other end of the return-wire R^2, and a white signal-lamp on the grounded end of wire R^2.

3. In a signaling system, the combination of a trackway including a number of turnouts, a trolley-wire, a signal-wire extending alongside the trolley-wire for a block, a trolley carrying an auxiliary trolley arranged to engage the signal-wire, signal-lamps connected with the signal-wire, and insulating-pieces on the signal-wire at places adjacent the turnouts, the insulating-pieces being differently arranged at the several turnouts, whereby the signal-lamps will be operated to give different signals as the trolley passes the respective turnouts corresponding to the insulated pieces.

751,761. **BREECH-LOADING ORDNANCE.** VERNON C. TASKER, Washington, D. C., assignor to United States Ordnance Company, Washington, D. C., a Corporation of Virginia. Filed Feb. 7, 1903. Serial No. 142,356. (No model.)



Claim.—1. The combination with a breech-loading gun; of a breech-block revoluble eccentrically to the axis of the gun, a carrier, and a firing-hammer constantly supported in the axis of the gun by said carrier.

2. The combination with a breech-loading gun, of a breech-block eccentric to the bore of the gun, a carrier; and a normally retracted firing-hammer concentric with the bore of the gun and supported in the carrier, independently of the breech-block.

3. The combination with a breech-loading gun; of a revoluble breech-block eccentric to the axis of the gun, a carrier, and a firing-hammer supported by said carrier, the firing-hammer having a fixed alinement with the axis of the gun.

4. The combination with a breech-loading gun, of a carrier, a firing-hammer constantly supported in the axis of the gun by the carrier; and a revoluble breech-block eccentric to said axis and adapted by its rotation to prevent forward movement of the firing-hammer when the block is not locked and to permit forward movement when said block is locked.

5. The combination with a breech-loading gun, of a carrier, a firing-hammer constantly supported in the axis of the gun by the carrier, and a revoluble breech-block eccentric to said axis, said breech-block having an aperture alined with the hammer when the block is locked.

6. The combination with a breech-loading gun, of a breech-block, a carrier supporting the breech-block, a firing device supported by the carrier independently of the breech-block; and means on the block engaging with the firing device to secure the block to the carrier in the locked position of said block.

7. The combination with a breech-loading gun, of a breech-block, a carrier supporting the breech-block, a firing device supported by the carrier independently of the breech-block; and means on the block engaging with the firing device to secure the block to the carrier in the locked position of said block, said firing device and breech-block being independently applied to and removed from said carrier.

8. The combination with a breech-loading gun, of a breech-block, a carrier supporting the breech-block, a firing device secured in the carrier independently of the breech-block; and means on the breech-block engaging with the firing device to secure the block to the carrier in the locked position of said block.

9. The combination with a breech-loading gun, of a breech-block, a carrier supporting said breech-block and interlocking therewith when the block is not locked, a firing device; and means on the block engaging with the firing device to secure the block to the carrier when the block is locked.

10. The combination with a breech-loading gun, of a carrier, a breech-block, and a firing device; said breech-block and firing device being independently supported by said carrier and interlocking with each other when the block is in its locked position.

11. The combination with a breech-loading gun, of a breech-block, a carrier for the breech-block, an inwardly-projecting stud in a recess in said carrier, a spring-actuated pawl pivoted on said stud and adapted to engage an abutment on the block to retain the latter in unlocked position, and a surface on the breech-block normally retaining said pawl on said stud.

12. The combination with a breech-loading gun, of a breech-block, a lever for operating said block; and means actuated by the movement of the gun for resisting the tendency of said lever to move, when said movement causes said tendency.

13. The combination with a recoil-mounted breech-loading gun, of a breech-block, a lever for operating said block; and an inertia-energized detent for the lever.

14. The combination with a breech-loading gun, of a breech-block, an operating-lever for the breech-block; and a detent for the operating-lever, the resistance of said detent being increased by an inertia-operated weight.

15. The combination with a breech-loading gun, of a breech-block, a lever for operating the breech-block; and inertia-operated means actuated by movement of the gun for restraining said lever when said movement causes the lever to have a tendency to open the breech.

16. The combination with a breech-loading gun, of a breech-block, a lever for operating the breech-block; and inertia-operated means actuated by movement of the gun for restraining said lever when said movement causes the lever to have a tendency to open the breech, the restraining effect of said means increasing with increased tendency of the lever to open the breech.

17. The combination with a breech-loading gun, of a carrier, a breech-block, an operating-lever for the breech-block, a latch pivoted on the operating-lever, an engaging surface on the carrier for the latch; and an inertia-operated arm for increasing the resistance of the latch and integral therewith.

18. The combination with a breech-loading gun, of a breech-block, a carrier for the breech-block, a lever for operating the breech-block, a stud on the carrier having a notch, a latch pivoted on the lever and having a surface contacting with the notch; and a heavy free arm formed integral with the latch and extending transversely to the gun.

19. The combination with a breech-loading gun, of a breech-block, a breech-block carrier having a hub, said hub having a circumferential groove merging with a longitudinal groove, a lug on the breech-block traveling in said grooves, means for rotating the breech-block; and means for obstructing the longitudinal groove to prevent egress of the lug of the breech-block.

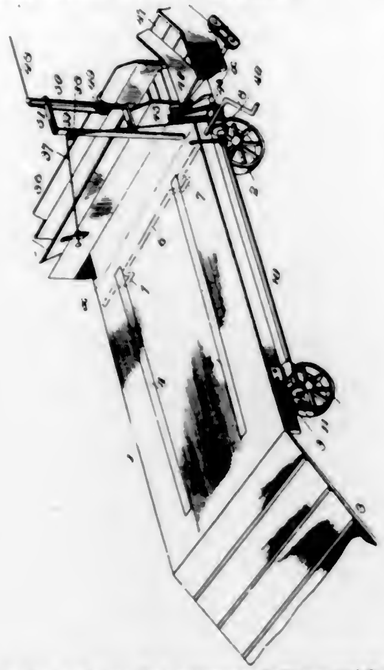
20. The combination with a breech-loading gun, of a breech-block, a carrier having a hub on which the breech-block is mounted, said hub having merging longitudinal and circumferential slots, a lug on the breech-block movable in the slots, a firing-casing inserted in the hub of the carrier, a lug on the casing for obstructing the longitudinal slot of the hub to prevent egress of the lug of the breech-block; and means for retaining the casing in the hub.

21. The combination with a breech-loading gun, of a hinged carrier having a hub; and a breech-block interlocking with said hub when the block is not locked and unlocking therefrom when said block is locked.

751,762. **GRAIN-ELEVATOR.** CHARLES S. UPHAM, Odell, Ill. Filed June 3, 1903. Serial No. 159,948. (No model.)

Claim.—1. In a grain-elevator, the combination of sills mounted for tilting movement, a power-driven shaft, a second shaft connected with the sills to effect positive tilting thereof, a third shaft connecting the first and second shafts, a gear-wheel secured to the third shaft, two gear-wheels in mesh with the gear-wheel applied to the third shaft and loose upon the power-driven shaft, a clutch for

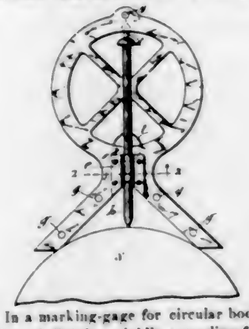
throwing either of the loose gear-wheels into clutched engagement with the power-driven shaft, and means for automatically throwing said clutch out of action when the sills reach the limit of their movement in either direction, substantially as set forth.



2. In a grain-elevator, the combination of sills mounted for tilting movement, jointed bars pivoted at one end, means for connecting the joint to the sills, a support for the free end of the movable bar, actuating mechanism including a clutch for breaking the joint of the bars in either an upward or a downward direction, and means for throwing said clutch into and out of action, the latter operation being effected automatically by means of a jointed rod, substantially as set forth.

3. In a grain-elevator, the combination of sills mounted for tilting movement, jointed bars coöperating with the sills to effect a tilting thereof, actuating mechanism for said jointed bars including a clutch, means for throwing the clutch into action by hand, and means for automatically throwing the clutch out of action by said jointed bars when the sills reach the limit of their movement in either direction, substantially as specified.

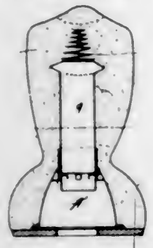
751,763. MARKING-GAGE. DAVID WAGOR, Syracuse, N. Y. Filed Aug. 21, 1903. Serial No. 170,280. (No model.)



Claim.—1. In a marking-gage for circular bodies, the combination of a graduated dial, legs rigidly extending from said dial to engage the periphery of the aforesaid body, a pintle pivoted in the center of the dial, a pendulum and a pointer both fastened to said pintle, and a marker sustained in a uniform position in relation to the dial and governed to its marking position by the movement of the pointer as set forth.

2. A marking-gage for circular bodies, consisting of a graduated dial-plate provided with straight diverging legs of equal lengths, a correspondingly-shaped frame fastened to the back of said dial-plate and legs disposed parallel therewith and with a space between them, a pintle pivoted in the center of the dial-plate and in the back frame, a pointer fastened to the pintle and traversing the dial, a pendulum fixed to the pintle between the dial-plate and back frame, a sleeve fastened to the back frame and disposed parallel to a line passing through the center of the dial and central between the diverging legs, a punch passing through the said sleeve, and a friction-bearing engaging the punch to restrain excessive free movement thereof as set forth and shown.

751,764. GARMENT-FORM. JANET WALKER, Brisbane, Queensland, Australia. Filed Oct. 31, 1903. Serial No. 179,346. (No model.)



Claim.—1. A garment-form comprising an adjustable core, spiral spring for forming the support for the neck and shoulders, a base-plate, an outer covering and a filling of soft material between said core and said outer covering, substantially as described.

2. In a garment-form, the combination with an outer covering, and a base-plate, of a hollow inner core of rigid material, surmounted by a spring, said core being formed of two telescopic oval tubes, the lower finished to approximate the shape of the human hips, while the upper tube terminates in an enlarged or dome-shaped cap, substantially as described.

3. In a core for garment-forms, the combination with the base-plate, of a hollow base portion A' secured to said base-plate, and having its upper end open and an upper portion A having one end adapted to enter said base portion and means for adjustably securing the same therein, and a spring on said core, substantially as described.

4. In a garment-form, the combination with an adjustable core, of rigid material and spiral spring supporting the neck-piece, an outer covering of flexible material and filling of soft material between said core and said outer covering, of arms secured thereto, substantially as described.

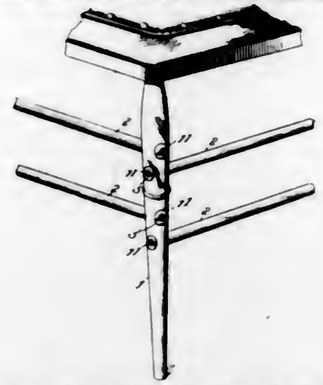
5. In a garment-form, the combination with an adjustable core of rigid material, and spiral spring supporting the neck portion, an outer covering of flexible material and filling of soft material between said core and said outer casing, of arms removably secured thereto, and an adjustable neck, subetantially as described.

6. In a core for garment-forms, the combination with the base-plate having an opening therein, of a hollow base portion secured to said base-plate and having a contracted upper end, said upper end being open, and an upper portion having a reduced lower end adapted to enter said lower base portion and means for adjustably securing the same therein, the open upper end of the base portion being in alinement with the opening in the base-plate whereby the lower part of the upper core may pass through both of said openings, substantially as described.

751,765. DEVICE FOR HOLDING CHAIR-RUNGS, &c. ARTHUR N. WEBB, Youngsville, Pa. Filed Feb. 24, 1903. Serial No. 144,723. (No model.)

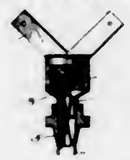
Claim.—1. The combination of one member, as a chair-leg, having an opening therethrough and a socket at its outer end communicating with said opening, of another member as a chair-rung having threaded end disposed within said opening, and a hollow screw having a head fastened in said socket with its threaded portion engaging means of the rung and having a head covering the end of the rung, and means seated within said head and engaged in said rung substantially as shown and described.

2. The combination with one member as a chair-leg having an opening entirely therethrough, and a socket at the outer end of said opening with shoulder, of another member as a chair-rung inserted in said opening and having threaded end, a hollow screw in said opening engaging the threaded end of the rung, and having a head covering the end of the rung and seated in said socket beyond the outer face of the leg and formed with a shoulder engaging the shoulder within said socket, and a screw engaged in said rung and having its head received within the head of said screw substantially flush with the outer face thereof, as shown and described.



3. In a chair, the combination with a leg and a rung, of a hollow nut seated within the leg and having interior threads to engage the end of the rung, a head with a shoulder and with a slot, and a central opening intersecting said slot and countersunk to receive the head of a screw.

751,766. GAS-BURNER. HARTWELL W. WEBB, New York, N. Y. Filed Mar. 24, 1903. Serial No. 149,293. (No model.)



Claim.—1. A burner comprising tube-sections and an unattached spring detachably securing the sections together.

2. A burner comprising tube-sections and a spring securing the sections together, but permitting them to be respectively revoluble.

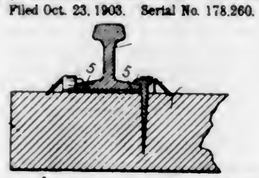
3. In a burner, comprising separable tube-sections, an axial spring inclosed by the bore of the tube-sections and securing them together.

4. In a burner, the combination of upper and lower sections of a burner-tube, of a branching spring having its head in the upper section and its feet extending on opposite sides of the end of the lower section.

5. In a burner, the combination of an upper section of the burner-tube, and a lower section of the burner-tube, with a piece of spring metal bent to form a head and feet, longer than the bore of the tube-sections.

6. In a burner comprising a burner-tube in sections, a spring twisted to form a head, branches playing in different planes, and bent outward to form feet.

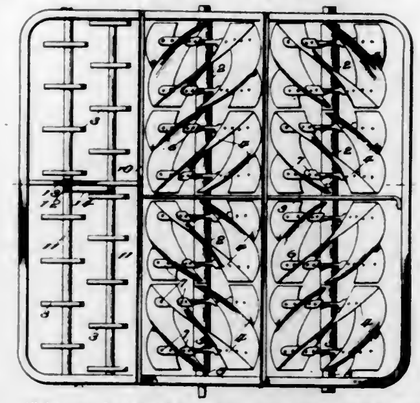
751,767. RAILWAY-SPIKE LOCK. ELHANAN C. WINTERS, Rockfalls, Ill. Filed Oct. 23, 1903. Serial No. 178,260. (No model.)



Claim.—1. In a railroad-spike lock, the combination of the arch 4, plates 5, integral with the lower edges of such arch, and plate 6, integral with the upper part of the arch 4, adapted to engage the sleeper in rear of such arch, substantially as shown.

2. In a railway-spike lock, the combination of the arch 4, plates 5, integral therewith, tongue 8, projecting forwardly from said arch, and adapted to engage the head of the spike, and the plate 6, extending from the rear of said arch to engage the head of the spike, substantially as shown and described.

751,768. HARROW. SILAS H. WOOSTER, Charlotte, Vt. Filed Oct. 9, 1902. Serial No. 126,637. (No model.)



Claim.—1. In an implement of the class described, the combination with a frame, main shafts disposed one in advance of the other and approximately at a right angle to the line of draft, cutter-shafts journaled to the aforesaid main shafts, spiders projected from the aforesaid cutter-shafts, spiral clod cutting and crushing blades secured to the arms of the aforesaid spiders and radially disposed relative to the cutter-shafts aforesaid, the spiral blades upon the respective front and rear shafts being oppositely inclined whereby the earth is cut into angularly-disposed strips by operation of the advanced cutting-blades and said strips are cut at an opposite angle by operation of the rear cutting-blades.

2. In an implement of the class described, the combination with a frame, of main shafts disposed thereon at approximately right angles to the line of draft and one in advance of the other, independent cutter-shafts journaled to the aforesaid shafts, spiders projected from the said cutter-shafts, spiral radially-disposed clod crushing and cutting blades secured to the arms of said spiders, said clod-cutting blades being oppositely inclined upon opposite sides of a medial line so as to centralize the draft, the advanced cutting-blades also being inclined oppositely to those upon the rear main shafts whereby the ground is cut into angularly-disposed strips by the forward cutting-blades and said strips cut into clods by the action of the rear oppositely-inclined cutting-blades, and cutting-teeth located in rear of the main shaft of the frame and adapted to cut the clods in the direction of the line of draft to effect a thorough pulverization of the earth after cutting thereof by the angularly-disposed cutting-blades.

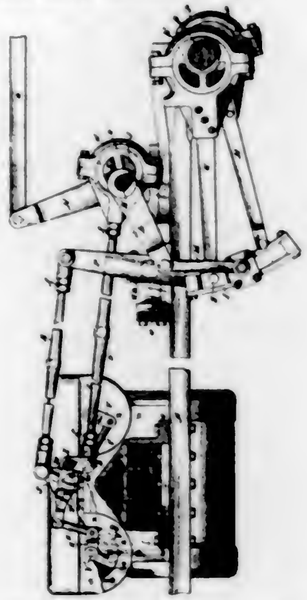
751,769. VALVE-GEARING. OTIS W. YOUNG, Rockford, Iowa. Original application filed Nov. 8, 1900, Serial No. 35,785. Divided and this application filed Aug. 1, 1901. Serial No. 70,511. (No model.)

Claim.—1. The combination with valves which control the inlet and exhaust, of an operating wrist-plate therefor; a movable bearing for the wrist-plate positioned and arranged relatively to the valves to increase the exhaust-lead by its adjustment in one direction, and means for so adjusting said bearing.

2. The combination with valves which control the inlet and exhaust, of an operating wrist-plate connected thereto; a movable bearing for the wrist-plate positioned and arranged to increase the lead by its adjustment in one direction, and means acting for so adjusting said wrist-plate bearing when the cut-off is shortened.

3. The combination with valves which control the inlet and exhaust, of an operating wrist-plate therefor; a crank-shaft on which said wrist-plate is mounted, positioned and arranged relatively to the valves to increase the exhaust-lead when the crank-shaft is rocked in one direction, and means operating said crank-shaft to so rock it, comprising an eccentric and a rod operated by the eccentric connected to the crank-shaft.

4. The combination with valves which control the inlet and exhaust, of an operating wrist-plate therefor, a movable bearing for said wrist-plate positioned and arranged relatively to the valves to increase the exhaust-lead by movement in one direction, operating means for so moving the wrist-plate bearing, a shifting link, means for shifting said link, said means connected to the operating means for the wrist-plate bearing, substantially as described.



5. The combination with valves, of an operating wrist-plate therefor, a crank-shaft upon which said wrist-plate is mounted to rock, means for operating said wrist-plate, an eccentric, a rod operated by the eccentric and connected to said crank-shaft, and means for moving the eccentric, substantially as described.

6. The combination with valves, of an operating wrist-plate therefor, means for operating said wrist-plate, a crank upon which said wrist-plate is mounted to rock, and means for shifting the crank to change the position of the wrist-plate bearing, including an eccentric, a rod operated by the eccentric and connected to the crank-shaft and means for moving the eccentric, substantially as described.

7. The combination with valves, of an operating wrist-plate therefor, a movable bearing for said wrist-plate, means for operating said wrist-plate including a shifting link, an eccentric shifting with said shifting link, a rod operated by said eccentric and connected to the wrist-plate bearing and means for operating said eccentric, substantially as described.

8. The combination with valves, of an operating wrist-plate therefor, means for operating the wrist-plate, a movable bearing for the wrist-plate, an eccentric, a rod connecting the eccentric and wrist-plate bearing and means for adjusting said rod, substantially as described.

9. The combination with valves which control the inlet and exhaust, of a wrist-plate for operating the same, a movable bearing for the wrist-plate positioned and arranged relatively to the valves to increase the exhaust-lead by movement in one direction, means for so moving the bearing, and adjusting means to determine the amount of movement of the bearing, substantially as described.

10. In valve mechanism for steam-engines the combination with valves, of mechanism for causing the valves to travel with a uniform or constant steam-lead for all points of cut-off, and an increased exhaust-lead for the shorter points of cut-off, and means for actuating said mechanism.

11. In valve mechanism for steam-engines, the combination with valves, of a link mechanism and mechanism for relatively adjusting the valves to increase the exhaust-lead and reduce the steam-lead.

12. In a valve-gearing the combination with valves each of which operates alternately for inlet and exhaust, a link mechanism, and means for shifting the link, of a valve-actuating mechanism, a connection between the link mechanism and the valve-actuating mechanism, and means actuated by the link-actuated mechanism for shifting the valve-actuating mechanism for the purposes described.

13. In a valve-gearing the combination with valves each of which operates alternately for inlet and exhaust, of a link mechanism, means for shifting the link, a valve-actuating mechanism, a connection between the link mechanism and the valve-actuating mechanism, means for changing the active position of the valve-actuating mechanism and a connection between such changing means and the link-shifting means, substantially as described.

14. The combination with a link mechanism of a rocker-arm P, a wrist-plate, valves connected with the wrist-plate, an adjustable device, a pivotal connection between the adjustable device and the wrist-plate, link-shifting mechanism and a connection between the link-shifting mechanism and the adjustable device, substantially as described.

15. The combination with link mechanism and means for shifting the link, of oscillating valves each of which operates alternately for inlet and exhaust, a wrist-plate, a pivotal connection between the wrist-plate and the valves, an adjustable support for the wrist-plate, means connecting the said support with the link-shifting mechanism and a connection between the link mechanism and the wrist-plate, substantially as described.

16. In combination valve-seats, valves thereon each of which operates alternately for inlet and exhaust, and requiring to be moved in opposite directions to cover the corresponding ports of their respective seats, a member for operating the valves, and means for varying the spread or distance between their paths of travel on their respective seats.

17. In combination with the valves each of which operates alternately for inlet and exhaust; a member for operating them; a movable support for the operating member; and means for moving the support to vary the "spread," or distance between the paths of travel, of the valves.

18. In combination with the valves each of which operates alternately for inlet and exhaust; a pivoted member for operating them, links from such pivoted member to the valves respectively; a movable support for said operating member; and means for adjusting the support to vary the spread of the valves.

19. In combination with the valves each of which operates alternately for inlet and exhaust; a member for operating them; means for varying the spread of the valves; means for regulating the cut-off, and connections from the cut-off-regulating means to the spread-varying means for adjusting the latter automatically with the cut-off.

20. In combination with the valves a member for operating them, means for varying the spread of the valves; a rocking shaft for adjusting the cut-off; an eccentric on such rocking shaft; and connections from such eccentric to the means for varying the spread of the valves; whereby said spread-varying means is operated with the adjustment of the cut-off.

21. In combination with two valves which operate alternately as inlet and exhaust valves, means for operating such valves; and means for changing their relative positions to cause the lead of the valve operating as an inlet to be reduced at the same time that the valve operating as an exhaust-valve is caused to open earlier and close later.

22. In combination with two valves which operate alternately as inlet and exhaust valves; a member by which they are operated; a movable support for the operating member positioned and arranged relative to the valves so that by its adjustment the exhaust-lead can be increased and the steam-lead reduced; and means for moving the support.

23. In combination with two valves which act alternately as inlet and exhaust valves; a member by which they are operated; links connecting said operating member with the valves respectively; a movable support for said member; and means for adjusting such support to vary the spread or distance between the paths of travel of the valves.

24. In combination with two valves which act alternately as inlet and exhaust valves, a member for operating said valves; links from the operating member to the valves respectively trending in opposite directions; a movable support for said operating member; and means for adjusting it to vary the trend of the links.

25. In combination with two valves which act alternately as inlet and exhaust valves, a pivoted member by which they are both operated; links trending in opposite directions from said pivoted member connecting it to the valves respectively; a movable support for said pivoted member; and means for adjusting it to modify the trend of the links.

26. In combination with two valves which operate alternately as inlet and exhaust valves, means for adjusting their relative positions; means for adjusting the cut-off; and connections from the cut-off-adjusting means to the means for adjusting the relative position of the valves, arranged to retard the valve operating as an inlet when the cut-off is shortened, and advance the valve operating for exhaust.

27. In combination with two valves which act alternately as inlet and exhaust valves; a pivoted member by which they are both operated; and oppositely-inclined links connecting said pivoted member to the valves respectively.

28. In combination with two valves which act alternately as inlet and exhaust valves; a pivoted member by which they are both operated; and links trending in opposite directions from said pivoted member connecting said valves respectively, to operate them.

29. The combination with valves which operate for exhaust, of an operating wrist-plate therefor, a movable bearing for the wrist-plate, and exhaust-lead-regulating means for shifting the said bearing, substantially as described.

30. The combination with valves which operate for exhaust, of an operating wrist-plate connected thereto, a movable bearing for the wrist-plate, and exhaust-lead-regulating means acting for adjusting said wrist-plate bearing to different points of cut-off, substantially as described.

31. The combination with valves, of an operating wrist-plate therefor, a crank-shaft upon which said wrist-plate is mounted, and lead-regulating means for operating said crank-shaft to change the position of the bearing for the wrist-plate, comprising an eccentric, or crank, and a rod operated by the eccentric and connected to said crank-shaft, substantially as described.

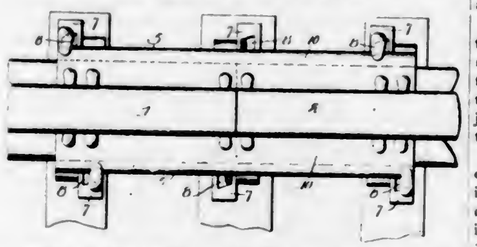
32. The combination with valves, of an operating wrist-plate therefor, means for operating said wrist-plate, a crank-shaft upon which said wrist-plate is mounted to rock, and lead-regulating means for automatically shifting the crank-shaft to change the position of the wrist-plate bearing, including an eccentric, a rod operated by the eccentric and connected to the crank-shaft, and means for moving the eccentric, substantially as described.

33. The combination with valves which operate for exhaust, of a wrist-plate for operating the same, a movable bearing for the wrist-plate, lead-regulating means for moving the bearing and adjusting means to determine the amount of movement of the bearing, substantially as described.

34. In a valve mechanism for steam-engines, the combination with valves, of mechanism for causing the valves to travel with a uniform or constant steam-lead, combined with an increased exhaust-lead for the shorter points of cut-off; substantially as described.

35. In combination with two valves which operate alternately as inlet and outlet valves, a member by which they are operated, a movable support for the operating member, and lead-regulating means for moving the support.

751,770. RAIL-JOINT CHAIR. JOHN S. ANDERSON, Gloster, Miss. Filed Nov. 6, 1903. Serial No. 180,075. (No model.)



Claim.—1. The combination with the meeting ends of two rail-sections, of a pair of splicing members having alternating transverse base-bars of a length greater than the width of the base-flange of the rail said bars having diagonal slots for the reception of fastening devices.

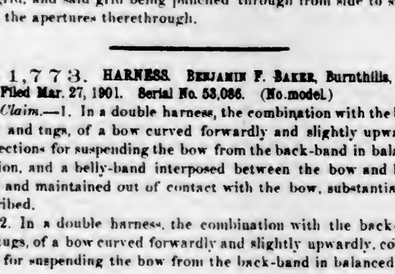
2. The combination with the meeting ends of two rail-sections, of interchangeable splicing members engaging opposite sides of the rails and each member having transverse base-bars alternating with corresponding bars on the opposite section and the bars of each member provided with slots intersected by the longitudinal edges of the other splicing members when the parts are assembled to provide for the drawing together of the two members on the insertion of a spike through said slots."

3. The combination with the meeting ends of two rail-sections, of interchangeable splicing members on the respective sides of the rails, each of which is provided with transverse base-bars having terminally-disposed diagonal slots adjacent to the outer edges of the respective splicing members.

4. The combination with the meeting ends of two rail-sections, of a pair of splicing members having alternating splicing-bars extending beneath the rails, the rails, the base-flanges and the bars of the splicing members being provided with alining openings, and fastening devices in the alining openings.

5. The combination with the meeting ends of two rail-sections, bars carried by one of the sections and overlapping the other section and having diagonally-disposed slots in the terminals of the bars.

751,771. HAT-PIN AND ATTACHMENT. FLORENCE ASHTON, Washington, Pa. Filed Mar. 6, 1902. Serial No. 96,914. (No model.)



Claim.—In combination with the hat, a plate having an outwardly-bulged apertured portion, integral end lugs 6, 6, carried by said plate, a pair of apertured lugs formed integral with the lower edge of said plate, and an elongated lug 8, formed integral with the upper edge of said plate, a pin extending through said hat and plate and having the portion thereof lying within said hat crimped, said crimped portion extending through the bulged portion of said plate.

751,772. STORAGE-BATTERY PLATE. CHARLES B. ASKEW, Chicago, Ill. Filed May 20, 1903. Serial No. 157,972. (No model.)



Claim.—1. A storage-battery grid comprising a central web, having perforations made therethrough, and straight ribs formed upon said web, each of said ribs having its upper and lower surfaces disposed at right angles to the median plane of the web.

2. A storage-battery grid comprising a central web having perforations made therethrough, and parallel ribs projecting from said web, each of said ribs having its upper and lower surfaces disposed at right angles to the median plane of the web.

3. A storage-battery grid comprising a central web, having perforations made therethrough in alining series, and projections formed on opposite sides of said web in parallel arrangement alining with the aperture series, in such relation thereto that each projection terminates at its opposite ends at such apertures, each of said projections having it upper and lower surfaces disposed at right angles to the median plane of the web.

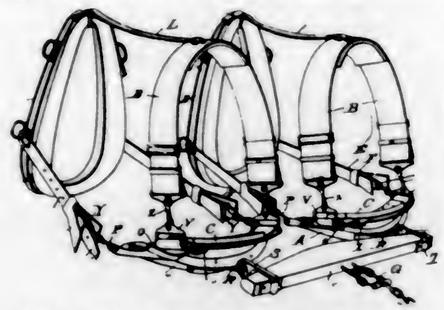
4. As an article of manufacture a storage-battery grid made of commercially-pure sheet-lead, transversely sawed from opposite sides in planes at right angles to the median plane of the sheet, to form on each side of the sheet, grooves separated by projections each having its upper and lower surfaces at right angles to the median plane of the grid, and said grid being punched through from side to side to form the apertures therethrough.

751,773. HARNESS. BENJAMIN F. BAKER, Burnthills, N. Y. Filed Mar. 27, 1901. Serial No. 53,086. (No model.)

Claim.—1. In a double harness, the combination with the back-band and tugs, of a bow curved forwardly and slightly upwardly, connections for suspending the bow from the back-band in balanced relation, and a belly-band interposed between the bow and back-band and maintained out of contact with the bow, substantially as described.

2. In a double harness, the combination with the back-band and tugs, of a bow curved forwardly and slightly upwardly, connections for suspending the bow from the back-band in balanced rela

tion, said connections including outriggers attached to said bow and a belly-band carried by the outriggers and having free-jointed connection with the back-band, substantially as described.



3. In a double harness, the combination with the back-band and tugs, of a bow curved forwardly and slightly upwardly and connections for suspending the bow from the back-band and comprising a belly-band having sliding connection with the back-band, and outriggers attached to said bow provided with loops to accommodate the belly-band, substantially as described.

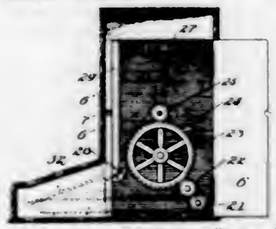
4. In a double harness, the combination with a bow having its ends bent forwardly and slightly upwardly, of a back-band for suspending the bow, and a belly-band interposed between the bow and back-band and maintained out of contact with the bow, substantially as described.

5. In a double harness, the combination with a bow having its ends bent forwardly and slightly upwardly and provided with rearwardly-extending outriggers, a belly-band carried by said outriggers, the back-band, and loops having free-jointed connection with the back-band and arranged for sliding engagement with the belly-band, substantially as described.

6. In a double harness, a bow having its ends bent forwardly and upwardly, said bow provided centrally at its rear with a loop to receive the evener, and at its ends with outriggers served forward with hooks to receive the tugs and rearward with loops to receive the belly-band and a belly-band supported by the last-named loops, substantially as described.

7. The combination with the upwardly and forwardly curved bows, of an evener connected to each of the bows midway of their ends, the ontriggers projecting rearwardly of the bows at opposite ends thereof, the belly-bands carried by the outriggers, the back-bands provided at their ends with loops having sliding engagement with the belly-bands, hames, tugs connecting the hames with the forward ends of the bows, and back-straps connecting the hames with the back-bands, substantially as described.

751,774. **VENDING-MACHINE.** CHARLES H. BAILEY, Newhaven, Pa., assignor of two-thirds to James J. Driscoll, Connellsville, Pa., and Robert S. McKee, Newhaven, Pa. Filed Mar. 10, 1903. Serial No. 147,061. (No model.)



Claim.—1. In a coin-controlled vending-machine for newspapers, magazines and the like, the combination with a box or casing to receive the articles to be vended, an endless delivery apron or belt mounted in said box or casing and supporting the articles to be vended, coin-controlled means for actuating said belt or apron, a coin-receiving cup normally locking said actuating means, a chute for delivering a coin to said cup, a rock-shaft mounted in the casing, means on said rock-shaft for temporarily retaining the coin in the cup after it is deposited therein, and fingers on said shaft to be engaged by the article being delivered to rock the shaft and permit the coin to be discharged from the cup, substantially as described.

2. In a coin-controlled vending-machine for newspapers, magazines and the like, the combination with a box or casing to receive the articles to be vended, of an endless delivery apron or belt for delivering the articles and upon which they rest while in the box or casing, actuating means for said delivery-belt, a coin-receiving cup normally locking said means against actuation, a chute for delivering a coin to said cup, and means temporarily retaining the coin in said cup and actuated by the delivered article to release the coin from the cup, substantially as described.

751,775. **CORE-BOX.** SAMUEL E. BARNES, Holyoke, Mass., assignor of one-half to J. W. Paxson Co., Philadelphia, Pa., a Corporation of Pennsylvania. Filed Oct. 21, 1903. Serial No. 177,851. (No model.)



Claim.—1. A core-making device comprising a core-box consisting of upper and lower portions and an inclosing frame adapted to support said portions in their relative position, the end of said frame being apertured to permit the passage of a vent-rod therethrough.

2. A core-making device comprising a core-box consisting of upper and lower portions and an inclosing frame adapted to support said portions in their relative position, the end of said frame being slotted to support a vent-rod within said box and to permit its lateral withdrawal therefrom.

3. A core-making device comprising a core-box consisting of upper and lower portions, an inclosing frame adapted to support said portions in their relative position and means for raising said frame and said upper portion together.

4. A core-making device comprising a core-box consisting of upper and lower portions, an inclosing frame adapted to support said portions in their relative position and means on said upper portion whereby it may be raised with said frame.

5. A core-making device comprising a core-box consisting of upper and lower portions, an inclosing frame adapted to support said portions in their relative position and transverse bars projecting laterally from said upper portion over said frame whereby said portion may be raised with said frame.

6. A core-making device comprising a horizontally-divided core-box, an inclosing frame spaced away from the sides of said boxes and guide-spots on one of said parts.

7. A core-making device comprising a horizontally-divided core-box, an inclosing frame and guide-spots on one of said parts, said guide-spots providing a transverse groove adjacent the juncture of said box.

8. A core-making device comprising a core-box adapted to contain a plurality of cores consisting of upper and lower portions and an inclosing frame adapted to support said portions in their relative position, said frame having a plurality of apertures in each of its ends and a plurality of vent-rods secured to a common transverse bar and adapted to enter said apertures.

9. A core-making device comprising a core-box consisting of upper and lower portions, of varying cross-sectional area and an inclosing frame of correspondingly-varying area adapted to support said portions in their relative position.

751,776. **COIL-PROTECTOR.** CHARLES BIEGER, Chicago, Ill. Filed Apr. 29, 1903. Serial No. 154,766. (No model.)



Claim.—1. A protector for pipe-coils consisting of a sheet-metal sleeve constructed to slip within the coil and having its upper edge

bent over and forming a flange to overhang the top of the coil, said sleeve being open at one side and having its edges overlapping.

2. A protector for pipe-coils consisting of a telescopic sleeve constructed to fit snugly within the coil, and means for securing the sections of the sleeve rigidly together in adjusted position.

3. A protector for pipe-coils consisting of a longitudinally-extensible and transversely-expansible sleeve adapted to fit snugly within the coil.

751,777. **FLEXIBLE CONDUIT.** ARCHIBALD T. BLACKLER, Malden, Mass., assignor to James S. Wilson, Chelsea, Mass. Filed Mar. 14, 1903. Serial No. 147,719. (No model.)



Claim.—1. An insulating-conduit for electric wires consisting of circumferential elements, and longitudinal, substantially flat warp-strips interwoven therewith and composed of smooth, flexible, compact, insulating material.

2. An insulating-conduit for electric wires consisting of substantially flat circumferential elements composed of smooth, flexible, compact, insulating material, and longitudinal warp-strips of a similar character interwoven therewith.

3. An insulating-condnit for electric wires consisting of a substantially flat helical weft-strip composed of smooth, flexible, compact, insulating material, and longitudinal warp-strips of a similar character interwoven with the weft-strip and abruptly bent in crossing the edges of said strip.

4. An insulating-conduit for electric wires consisting of circumferential elements composed of smooth, flexible, compact, insulating material, longitudinal strips of a similar character interwoven with said elements, and an inclosing adhesive wrapping adhering to said longitudinal strips.

5. An insulating-conduit for electric wires consisting of a helix composed of smooth, flexible, compact, insulating material, longitudinal strips of a similar character interwoven therewith, and one or more longitudinal locking-threads.

6. An insulating-conduit for electric wires having an interior exposed surface consisting of interwoven strips, composed of smooth, flexible, compact insulating material.

751,778. **RIVETING-MACHINE.** CLARENCE W. BLACKSTONE, Chicago, Ill., assignor of one-half to Fred H. Knapp, Chicago, Ill. Filed Aug. 21, 1902. Serial No. 120,492. (No model.)

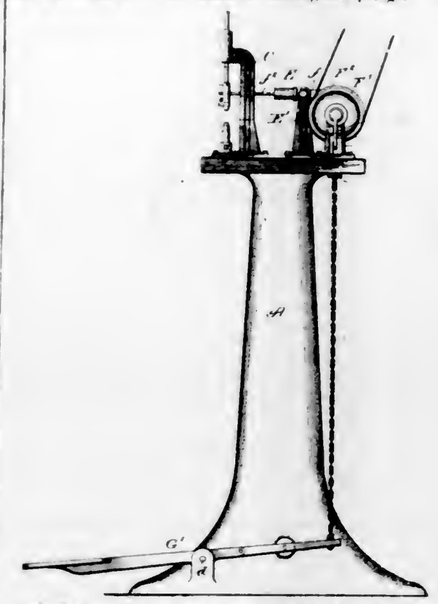
Claim.—1. In a machine of the character described, the combination of a hammer, a flexible resilient stem for said hammer, adjustable means for varying the flexibility of said stem, and means for vibrating said stem, for the purpose set forth.

2. The combination of a hammer, an actuating-lever having a substantially rigid portion and a flexible resilient portion, an adjustable device for varying the relative lengths of the two portions of the lever, and means for oscillating the rigid portion of the lever, for the purpose set forth.

3. The combination of a hammer, an actuating-lever having a substantially rigid portion and a flexible resilient portion, a sleeve adjustably connected with the rigid portion of said lever and fitting closely upon the flexible portion thereof, and means for oscillating the lever.

4. The combination of a hammer, an actuating-lever, a freely-movable eccentric for oscillating said lever, a spring holding said eccentric normally in the concentric position, and a foot-lever serving to move said eccentric against the force of the spring and vary the throw thereof.

5. The combination of a hollow rotary shaft, an eccentric connected with said shaft, an eccentric-shifting lever pivoted to said shaft, a plunger extending through said shaft and serving to move said last-named lever, and means for shifting said plunger.



6. The combination of a hollow rotary shaft, an eccentric connected with said shaft, an eccentric-shifting lever pivoted to said shaft, a plunger extending through said shaft and serving to move said last-named lever, a spring for moving said eccentric and plunger in one direction, and a lever bearing against the free end of said plunger and serving to move it against the force of said spring, for the purpose set forth.

7. The combination of a rotary hollow shaft, an eccentric movable transversely thereof and provided with a slot having a beveled surface; an eccentric-actuating lever connected with said shaft by a transverse pivot and extending into said slot, a plunger serving to move said lever, means for shifting said plunger, and mechanism operated by said eccentric, for the purpose set forth.

8. The combination of a hollow rotary shaft, an eccentric shiftably connected with said shaft, means including a plunger for shifting said eccentric, a lever for shifting said plunger, adjustable means for limiting the throw of said last-named lever, and a foot-lever serving to actuate said last-named lever.

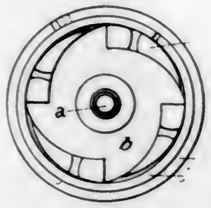
9. The combination of a suitable frame, shaft-bearings supported thereon, a hollow shaft journaled in said bearings, an eccentric shiftably connected with said shaft, a plunger extending through said shaft and serving to move said eccentric and projecting from one end of the shaft, a bell-crank lever having an upturned end bearing against the projecting end of said plunger and an inturned end projecting beneath one of the shaft-bearings, a foot-lever connected with the inturned end of said bell-crank lever, and mechanism actuated by said eccentric, for the purpose set forth.

10. The combination of a suitable frame, shaft-bearings supported thereon, a hollow shaft journaled in said bearings, an eccentric shiftably connected with said shaft, a plunger extending through said shaft and serving to move said eccentric and projecting from one end of the shaft, a bell-crank lever having an upturned end bearing against the projecting end of said plunger and an inturned end projecting beneath one of the shaft-bearings, a foot-lever connected with the inturned end of said bell-crank lever, a lever pivoted to swing in a plane substantially perpendicular to said shaft and actuated by said eccentric, and mechanism actuated by said last-named lever, for the purpose set forth.

751,779. **DEVICE FOR ADJUSTING PISTON-RINGS FROM OUTSIDE THE CYLINDERS.** PAUL BODE, Duisburg, Germany. Filed Nov. 9, 1903. Serial No. 180,376. (No model.)

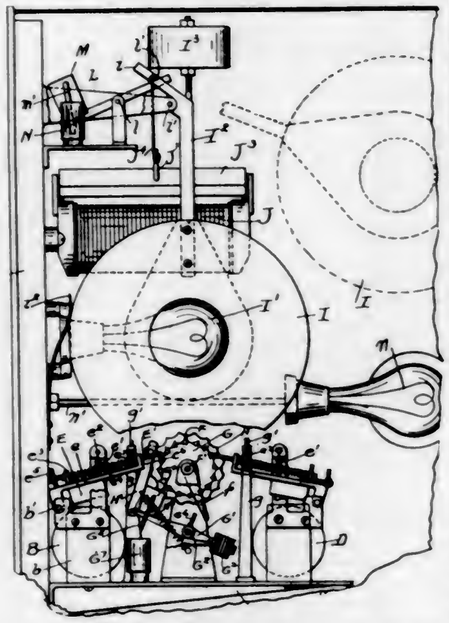
Claim.—1. In combination with the threaded piston-rod and the piston having cam-surfaces, of a series of tongues seating on the piston so as to be engaged by said cam-surfaces thereof, a pis-

ton-cover having depending lugs therein, said lugs engaging said tongues, a sleeve formed integral with the cover engaging over the piston-rod, said sleeve being adapted to be rotated, and means engaging the threaded portion of the piston and the upper end of the sleeve to lock the latter.



3. In combination with the piston and the piston-rod, cam-surfaces on the piston, tongues mounted so as to movably engage said cam-surfaces, said tongues being recessed, a piston-cover having depending lugs engaging in the recesses of the tongues, a sleeve on the cover encircling the piston-rod for rotating the cover and means for retaining the sleeve in locked position with relation to the piston-rod.

751,780. ELECTRIC SIGNAL. HAROLD E. BRADLEY, Warwick, R. I. Filed Oct. 3, 1903. Serial No. 175,572. (No model.)



Claim.—1. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, a counterbalanced circuit-breaker in circuit with said magnet, an oscillating operating-arm for said circuit-breaker normally engaged therewith, and electromagnetic means for controlling said operating-arm.

2. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in normally inoperative position, a counterbalanced circuit-breaker in circuit with said magnet, an oscillating operating-arm for said circuit-breaker, a second electromagnet, an armature pivotally mounted thereon, and means carried by said armature for moving said operating-arm out of engagement with said circuit-breaker.

3. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, a counterbalanced circuit-breaker in circuit with said magnet, an oscillating shaft, a ratchet-wheel mounted thereon, an operating-arm for said circuit-breaker mounted on said shaft, a second electromagnet, an armature pivotally mounted upon the latter, and means carried by said armature for rotating said ratchet-wheel, whereby said operating-arm is disengaged from said circuit-breaker.

4. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, a counterbalanced circuit-breaker in circuit with said magnet, an oscillating operating-arm for said circuit-breaker, electromagnetic means for moving said arm out of engagement with said circuit-breaker, and additional electromagnetic means for returning said arm to its normal position.

5. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, separated contacts in circuit with said magnet, a pivotally-mounted lever weighted at one end and provided at the other with a circuit-closing device for said contacts, and means for normally holding said lever against the action of said weights.

6. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, separated contacts in circuit with said magnet, a pivotally-mounted lever weighted at one end and provided at its other end with a circuit-closing device for said contacts, an oscillating arm, and means for controlling said arm, whereby said lever may be held against the action of said weights.

7. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, separated contacts in circuit with said magnet, a pivotally-mounted lever weighted at one end and provided at the other with a circuit-closing device for said contacts, an oscillating arm adapted to hold said lever normally against the action of said weights, and an electromagnet adapted to disengage said arm from said lever.

8. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, separated contacts in circuit with said magnet, a pivotally-mounted lever counterbalanced at one end and provided at its other with a circuit-closing device for said contacts, an oscillating arm adapted to engage said lever, electromagnets, armatures pivotally mounted thereon, and means carried by said armatures for oscillating said arm.

9. In a device of the character described, the combination of a target, an electromagnet adapted to hold the same in a normally inoperative position, separated contacts in circuit with said magnet, a pivotally-mounted lever counterbalanced at one end and provided at its other with a circuit-closing device for said contacts, an oscillating arm, a lug or finger projecting from said lever in the path of said arm, and electromagnetic means for oscillating said arm.

10. In an electric signaling device, the combination of an electric switch, a finger mounted on a shaft to control said switch, two ratchet-wheels mounted on said shaft and facing in opposite directions, a spring-actuated sliding pawl to engage each ratchet-wheel, a magnet for operating each of said pawls, said magnets having but one coil, a core extending through said coil, pole-pieces at each end of said core, and an armature pivoted near its end to swing on an axis parallel to that of said core and controlled by both of said poles.

11. In a signal, a target to indicate danger or safety according to its position, a magnet to control the target, a switch to control the activity of the magnet, a finger to control the switch, said finger being mounted on a shaft carrying a detent-wheel and two ratchet-wheels, two magnets, one on each side of the shaft and having their cores parallel with the shaft, and means to enable the magnets to move the ratchet-wheels step by step in opposite directions.

12. In a signal, a target to indicate danger or safety according to its position, a magnet to control the target, a switch to control the activity of the magnet, a finger to control the switch, said finger being mounted on a shaft carrying a detent-wheel and two ratchet-wheels, two magnets, one on each side of the shaft and having their cores parallel with the shaft, each of said magnets having but one coil, a core extending through said coil and pole-pieces at each end thereof, an armature pivoted near its ends to swing about an axis parallel to the core and controlled by both of said poles, and means to enable the magnets to move the ratchet-wheels step by step in opposite directions.

13. In an electric signaling device, an electric switch, a shaft, oppositely-arranged ratchets mounted on said shaft, a depending finger carried by said shaft and adapted to engage said switch, and magnetically-actuated pawls adapted to move said ratchets, whereby said finger is oscillated.

14. In an electric signal, an electric switch, a shaft, a ratchet-wheel mounted thereon, a detent-wheel also mounted on said shaft, a pawl therefor, a finger carried by said shaft and adapted to engage said switch, an electromagnet, an armature pivoted thereon, and means carried by said armature for operating said ratchet-wheel step by step.

15. In a signal, an electric switch, a shaft, oppositely-arranged ratchet-wheels mounted on said shaft, a depending finger carried by said shaft and adapted to engage said switch, oppositely-arranged magnets, armatures pivotally mounted thereon, and means carried by said armatures for imparting step-by-step movements to said ratchet-wheels, whereby said finger is oscillated.

16. In a device of the character described, the combination of a swinging target, a mercury-cup switch actuated by the movement of said target to automatically set a cautionary signal at another station when said target moves to the danger position, and an electromagnet having but one coil, a core extending through said coil, and pole-pieces at each end thereof, an armature pivoted near its ends to swing about an axis parallel with the core and controlled by both of said poles, said magnet being for the purpose of raising said target from the danger position when energized, means whereby said target will fall automatically to the danger position when said electromagnet is deenergized.

17. In a signal, a finger, a detent-wheel, and a ratchet-wheel, all mounted on one shaft, an electromagnet having its core parallel with the shaft, and means to enable said magnet to turn said ratchet-wheel step by step.

18. In a signal, a finger, a detent-wheel, two ratchet-wheels facing in opposite directions, all mounted on one shaft, two electromagnets mounted on opposite sides of the shaft and having their cores parallel with the shaft, and means to enable the magnet to move the ratchet-wheels alternately step by step in opposite directions.

19. A railway block-signaling system having a magnet in combination with an armature controlled by said magnet, a longitudinally-slidable spring-actuated pawl mounted on said armature, said pawl being for the purpose of controlling the signal-operating switch through the medium of a ratchet-wheel.

20. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel including a guide-frame supported by the magnet, a sliding pawl working in said frame, and means to enable the magnet to move the frame.

21. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel, including a guide-frame supported by the magnet, a pawl sliding in the frame, a spring to press the pawl outward toward the ratchet-wheel, and means to enable the magnet to move the frame.

22. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel including a frame, a pawl sliding in the frame, a spring to move the pawl outward toward the ratchet-wheel, means for limiting the movement of the pawl, and means to enable the magnet to move the frame.

23. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel including a frame, a pawl sliding in the frame, a spring to move the pawl outward toward the ratchet-wheel, means for limiting the inward and outward movement of the pawl, and means to enable the magnet to move the frame.

24. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel including a frame, a pawl sliding in the frame, a spring to move the pawl outward toward the ratchet-wheel, a stop-screw adapted to limit the inward movement of the pawl, and means to enable the magnet to move the frame.

25. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel, a frame, a sliding pawl working in the frame, and means to enable the magnet to move the frame including a magnet having but one coil, a core extending through said coil, and pole-pieces at each end thereof, an armature pivoted near its ends to swing about an axis parallel to said core and controlled by both of said poles.

26. In a signal, means for transmitting impulses from a magnet to a ratchet-wheel including a frame, a pawl sliding in the frame, a spring to press the pawl outward toward the ratchet-wheel, and means to enable the magnet to move the frame, including a magnet having but one coil, a core extending through said coil, and pole-pieces at each end thereof, an armature pivoted near its ends to swing about an axis parallel with said core and controlled by both of said poles.

27. An electric signaling device comprising an electric switch, a ratchet-wheel for operating the same, an electromagnet, an armature pivotally mounted thereon, a frame carried by said armature and a spring-pressed pawl mounted in said frame.

28. An electric signaling device, comprising an electric switch, a ratchet-wheel for operating the same, an electromagnet, an armature pivotally mounted thereon, a frame carried by said armature, a spring-pressed pawl mounted in said frame, and a stop-screw mounted in said frame to limit the inward movement of the pawl.

29. A railway block-signaling system comprising a magnet, an armature pivotally hung from and controlled in its action by said magnet and carrying a pawl, a ratchet-wheel, mercury-cups, a switch arranged to engage said mercury-cups to form a connection, a switch-controlling finger, means whereby when more than one car enters the block from the same direction said magnet is energized by each car entering the block to carry back said finger a step at a time, the first car entering allowing the switch to break the electric circuit, deënergize said second magnet and allow the target to fall to the danger position, means for returning said finger to throw the switch and raise the target when the last car leaves the block.

30. A railway block-signaling system having a single-coil magnet, an armature pivotally hung from and controlled in its action by said magnet and carrying a spring-actuated sliding pawl, a ratchet-wheel, a switch, a switch-controlling finger, means whereby when more than one car enters the block from the same direction said magnet is energized by each car entering the block to carry back the finger a step at a time, the first car entering allowing the switch to break the circuit to deënergize a second magnet and allow the target to fall to danger position, a third magnet energized by an outgoing car, said magnet actuating a ratchet through a pawl to return said finger so the last car leaving the block will cause said switch to make the electric connection necessary to energize magnet No. 2 and raise the signal out of the danger position.

31. The combination of a signal-box at each end of a block, an electric switching device arranged at each end of the block, secondary magnets, connecting-wires extending from said switching devices to said secondary magnets, whereby the latter are actuated by the electric impulses derived from said switches, armatures for the secondary magnets, a frame attached to each armature, a pawl sliding in the frame, a swinging target or signal, a magnet to raise the target from danger to safety when said magnet is active, and to allow the target to fall to danger when the magnet is inactive, a switch to control the activity of the magnet, and means to enable the sliding pawl of one of the magnets to open the switch when the first car enters the block and the other pawl to close the switch when the last car leaves the block.

32. In an electric signal, a car-actuated mechanism having a base-plate, a double-break switching device consisting of two mercury-cups supported by said base and insulated therefrom, a switch bar or plate carried by a switch-lever, said bar being insulated from the lever, and means to move the lever to remove the switch-bar from the mercury-cups when the first car enters the block and to return the switch-bar to the cups when the last car leaves the block.

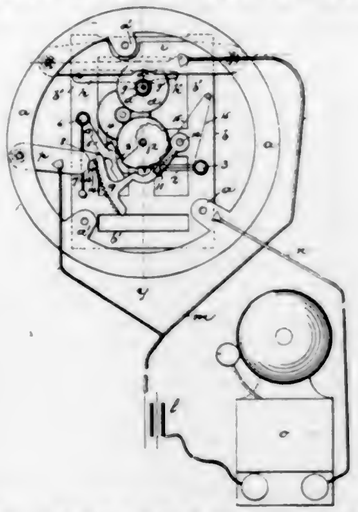
33. In an electric signal, a car-actuated mechanism having a base-plate, magnets mounted thereon and having their cores parallel with the surface of said plate, extensions from the magnet-poles, armatures hung therein, frames extending outward from the armatures toward the ratchet-wheels, and U-shaped pawls sliding in the frame to turn the ratchet-wheels step by step when the armatures are oscillated.

34. In an electric signal, means for transmitting impulses to a ratchet-wheel including the combination of an electromagnet, an armature therefor, a frame mounted on said armature, and oscillating therewith, a U-shaped pawl sliding in the frame, a washer fastened to one leg of the pawl, and a spring mounted on the pawl between one abutment of the frame and the said washer and acting to press the pawl ontward toward the ratchet-wheel.

35. In an electric signal, means for transmitting impulses to a ratchet-wheel including the combination of an electromagnet, an armature therefor, a frame mounted on said armature and oscillating therewith, a U-shaped pawl sliding in the frame, a washer fastened to one leg of the pawl, and a spring mounted on the pawl between one abutment of the frame and the said washer, and acting to press the pawl outward toward the ratchet-wheel, and a stop-screw to limit the backward movement of said pawl.

36. In an electric signal, a base-plate, an upright secured to the same and forming one support of the ratchet-wheel system, two mercury-cups attached to the base-plate, a switch-lever pivoted to the aforesaid support and carrying at one end a bifurcated switch-blade or contact-bar, said bar being adapted to enter the mercury in the cups and complete an electrical circuit from one to the other, a counterbalance at the opposite end sufficient to cause the switch-lever to tilt and break the electric current at the mercury-cup, and means to allow the counterbalance to act when a car enters the block.

751,781. ELECTRIC ALARM-CLOCK. HARRY A. CHASE, East Orange, N. J. Filed Mar. 6, 1900. Serial No. 7,454. (No model.)



Claim.—1. In an alarm-clock, the combination with a dial-frame *a*, and works *b*, provided with a rotary wheel also having a back-and-forth movement longitudinally of its axis, of a rigid strip or flat bar of conductive material inserted flatwise between the said works and dial-frame and extending across a marginal portion or segment of said wheel parallel thereto, said strip or bar lying wholly at one side of the axis or shaft of said wheel and presenting to a limited portion of the wheel a contact-surface adapted to be directly engaged by the side surface of the wheel at one limit of its back-and-forth movement and effect a scraping contact due to the rotation of said wheel which contact-point does not change position, insulated clamping means for removably securing said bar to the dial-frame, circuit-wires connected at one end to said bar or strip and at the other end to the clock-works, and an alarm and a source of electric energy in said circuit.

2. The combination of a frame, a shaft or axis mounted in said frame, a rotary wheel adapted to slide longitudinally of said axis, a leaf-spring projecting from said frame and engaging said wheel to slide the same on its axis, an insulated rigid contact strip or bar extending across a marginal portion or segment of said wheel parallel thereto, said strip or bar lying wholly at that side of the axis of the wheel at which the leaf-spring exerts pressure on the wheel and presenting to a limited portion of said wheel a contact-surface adapted to be directly engaged by the side of the wheel and provide a contact which does not change position, and circuit-wires connected to said strip or bar and to the clock-works.

751,782. PRINTING-PRESS FORM. FRANK O. CLINER, Chicago, Ill. Filed Apr. 24, 1903. Serial No. 154,074. (No model.)



Claim.—1. As a new article of manufacture, a printing-press form comprising a film of flexible material having a lined surface and provided thereon with a character or configuration in relief formed of hardened non-shedding ink.

2. As a new article of manufacture, a printing-press form comprising a film of flexible material having a lined surface and provided thereon with a character or configuration in relief formed of water-glass.

3. As a new article of manufacture, a printing-press form comprising a film of flexible transparent material having a lined surface and provided thereon with a character or configuration in relief formed of hardened non-shedding ink.

4. As a new article of manufacture, a printing-press form comprising a film of transparent flexible material having a lined surface and provided thereon with a character or configuration in relief formed of water-glass.

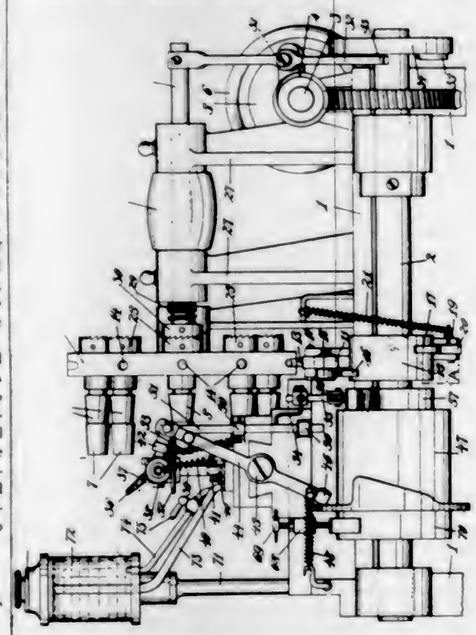
5. As a new article of manufacture, a printing-press form comprising a film of flexible material having a sheet of fabric mesh cemented to its surface and provided on said surface with a character or configuration in relief formed of hardened non-shedding ink.

6. As a new article of manufacture, a printing-press form comprising a film of transparent flexible material having a sheet of fabric mesh cemented to its surface and provided on said surface with a character or configuration in relief formed of hardened non-shedding ink.

7. As a new article of manufacture, a printing-press form comprising a film of flexible material having a sheet of fabric mesh cemented to its surface and provided on said surface with a character or configuration in relief formed of water-glass.

8. As a new article of manufacture, a printing-press form comprising a paper film having a fabric mesh cemented to its surface and provided on said surface with a character or configuration in relief formed of water-glass.

751,783. APPARATUS FOR LACQUERING BOTTLE-CAPSULES OR SIMILAR OBJECTS. CARL COLLIN, Offenbach, Germany. Filed Nov. 19, 1903. Serial No. 181,810. (No model.)



Claim.—1. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins on which are mounted the capsules with a single brush and means for moving the latter for lacquering both the top surface and the sides of the capsules substantially as described.

2. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins on which are mounted the capsules with a single brush and means for moving the latter vertically and horizontally for lacquering both the top surface and the sides of the capsules substantially as described.

3. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins on which are mounted the capsules with a single brush and means for moving the brush first in a practically vertical and upward direction for lacquering the top surface of a capsule and then in a practically horizontal position from the top of the capsule to the base of the same for lacquering the side of the capsule, the latter being rotated while in contact with the brush, substantially as described.

4. In a machine for lacquering bottle-capsules and similar objects the combination of a brush with a brush-supporting arm 37 which can be rotated horizontally by means of a lever 44 acted upon by a cam 47 and which can be rotated vertically by means of a rod 51 and horizontal projection 52 acted upon by a cam 57, substantially as described.

5. In a machine for lacquering bottle-capsules and similar objects the combination of a brush with a brush-supporting arm 37 pivotally mounted upon a stud 38 on a vertical arm 39 fitting with its lower end as a journal in a recess in a short vertical arm 40, the brush-supporting arm 37 being connected by means of ball-and-socket joint 43 and a short arm 42 with the lever 44, pivoted on the framing at 45, substantially as described.

6. In a machine for lacquering bottle-capsules and similar objects the combination of a brush with a brush-supporting arm and means for moving the latter vertically and horizontally with a spring 48 connected to the free arm of lever 44 and to a fixed point of the machine-frame which spring tends to draw the lever to its normal position, substantially as described.

7. In a machine for lacquering bottle-capsules and similar objects the combination of a brush with a brush-supporting arm and means for moving the latter vertically and horizontally with a spring 49 connected to the brush-supporting arm 37 and to a fixed part of the machine-frame, which spring tends to draw the brush-supporting arm to its normal position, substantially as described.

8. In a machine for lacquering bottle-capsules and similar objects the combination of a brush with a brush-supporting arm and means for moving the latter vertically and horizontally with a spring 53 connected to the horizontal projection 52 and to a fixed point of the machine-frame, which spring tends to draw the projection to its normal position, substantially as described.

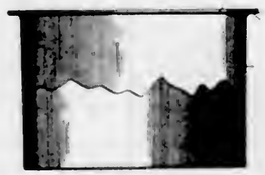
9. In a machine for lacquering bottle-capsules and similar objects the combination of a movable brush and a receptacle for the lacquer fluid with a sliding cover 61 acted upon by a spring 62 tending normally to hold open the cover of the receptacle 58, while a cam 70 serves for moving the cover toward the brush by means of a plurality of levers 64, 68, 69 for pressing out the excess of lacquer of the brush, substantially as described.

10. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins for the reception of the capsules and a movable brush for lacquering the latter with means for holding the revolving disk in the working position and afterward turning it to such an extent as to bring the next capsule into the working position substantially as described.

11. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins for the reception of the capsules with a lever 11 pivotally mounted at a fixed point 10 and pressed by means of a spring 12 against the disk 9 and engaging by means of a stud 13 one of a series of holes 14 on the periphery of the disk 9 and a second lever 20 pivotally mounted at a fixed point 19 and acted upon by a spring 21, this lever being in connection with a further lever 22, acted upon by a spring 23, the levers 11 and 20 being operated by two cams 16 and 17 respectively, substantially as described.

12. In a machine for lacquering bottle-capsules and similar objects the combination of a revolving disk provided with pins for the reception of the capsules with a hollow shaft 77 for the introduction of a medium for the purpose of drying the capsules by heat, substantially as described.

751,784. TIN CAN. CONRAD DIESEL, Chicago, Ill., assignor to Frank Diesel, Chicago, Ill. Filed Dec. 7, 1903. Serial No. 184,102. (No model.)

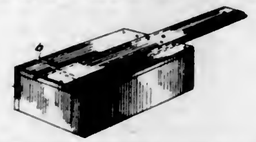


Claim.—1. A can-body having its upper edge outwardly offset and flanged outwardly from the top of the offset, the flange being returned upon itself and the return portion overhanging the outstanding portion but not projecting beyond the plane of the inner surface of the side wall of the can-body.

2. A can-body having its end flared outwardly and provided at the upper end of the flaring portion with an outstanding flange which returns upon itself, forming a cover-seat, the inner edge of the return portion of the flange projecting over the flaring portion of the can-body but not beyond the plane of the inner surface of the body-wall.

3. A can-body having its end curved outwardly and provided with an outstanding flange at the outer end of the curved portion, such flange returning upon itself to form a cover-seat and the inner edge thereof projecting beyond the outer end of the curve but not beyond its inner end.

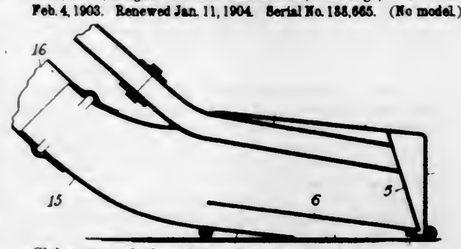
751,785. COASTER-WAGON. FRANCIS V. RAVENSON, St. Davids, Pa. Filed Oct. 23, 1903. Serial No. 178,173. (No model.)



Claim.—1. The combination with a coaster-wagon comprising a body, a tongue rigidly secured to said body, a pair of wheels supporting the rear end of said body, and a pair of front wheels pivoted to and supporting the forward end of said tongue, of a bracket secured to the front of said wagon-body, a vertical steering-bar passing through said bracket and through said tongue, an operative handle secured to the top of said bar, a cross-bar secured to the bottom of said steering-bar, and chain connections between said cross-bar and the axle of the front wheels.

2. The combination in a coaster-wagon as described, of a body grooved out on the bottom to receive the upper part of a rear axle and a tongue grooved out on the top to receive the lower part of said axle.

751,786. CLEANING DEVICE. EDMUND R. ELSTON, Jr., Norwood, Mass., assignor to William H. Emerson, Cambridge, Mass. Filed Feb. 4, 1903. Renewed Jan. 11, 1904. Serial No. 188,665. (No model.)



Claim.—1. A device of the character described, comprising a box having one of its sides open and provided with an inlet for a fluid under pressure and an outlet for the escape of dust, a partition extending over the open side of the box but spaced therefrom, a deflector arranged in close proximity to the partition to form a narrow fluid-discharge between said deflector and partition, said discharge-opening being so arranged with relation to the partition that fluid fed into the box is discharged toward and along the partition to produce a suction at the open side of the box.

2. A device of the character described, comprising a box having one of its sides open and provided with an inlet for fluid under pressure and an outlet for the escape of dust, a partition extending over the open side of the box, a deflector arranged parallel with the partition and in close proximity thereto to form a narrow fluid-discharge between said deflector and partition, said discharge-opening being so arranged with relation to the partition that fluid fed into the box is discharged toward and along the partition to produce a suction at the open side of the box.

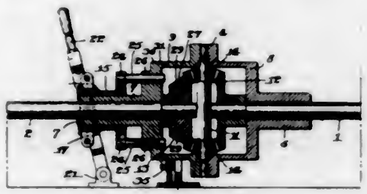
3. A device of the character described, comprising a box having one of its sides open and provided with an inlet for a fluid under pressure and an outlet for the escape of the dust, said box also having a chamber therein into which the fluid is fed from said inlet, a partition extending over the open side of the box but spaced therefrom and a deflector arranged adjacent to the open side of the box and inclined toward said partition to form a narrow fluid-discharge between said deflector and partition, said discharge being in communication with said chamber, whereby the fluid in the chamber is discharged toward and along the partition to produce a suction at the open side of the box.

4. A device of the character described, comprising a box open

at one side and having a triangular chamber formed therein and open at its lower end, an inlet-pipe entering said chamber and adapted to discharge therein a fluid under pressure, an outlet-pipe connected to the box for the escape of dust, a partition extending over the open side of the box but spaced therefrom, a deflector below the triangular chamber and so arranged with relation to the partition that a narrow discharge-opening between the partition and deflector will be formed whereby the fluid from the open end of the chamber is discharged toward and along the partition to produce a suction at the open side of the box.

5. A device of the class described, comprising a box having one of its sides open and provided with an inlet for a fluid under tension, and an outlet for the escape of the dust, a partition arranged in said box at one end thereof to form a chamber therein, a pipe leading from said inlet to said chamber for feeding the fluid to the latter, said partition being inclined, whereby one end of said chamber is contracted, a partition extending over the open side of the box but spaced therefrom, and a deflector arranged adjacent to the open side of the box and inclined toward said partition to form a narrow fluid-discharge between said deflector and said partition, said discharge being in communication with the contracted end of said chamber, whereby the fluid in said chamber is discharged toward and along the partition to produce a suction at the open side of the box.

751,787. REVERSING-GEAR. JOHN C. ENTRIKEN, Malvern, Pa., assignor to himself, George R. Walton, J. Carroll Entriken, and William S. Everett, Malvern, Pa. Filed Apr. 6, 1903. Serial No. 151,250. (No model.)



Claim.—1. In a reversing-gear, the combination of a two-part shaft, gear-wheels on the opposing ends thereof, a frame rotatably mounted on the shaft, a gear-wheel rotatably mounted on the frame and meshing with said gear-wheels, a pin carried by said frame, a tooth on one of the first-named gear-wheels, and means for engaging said pin with said tooth

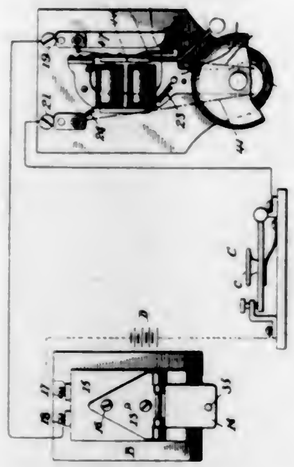
2. In a reversing-gear, the combination of a two-part shaft, gear-wheels on the opposing ends thereof, a frame rotatably mounted on the shaft, a gear-wheel rotatably mounted on the frame and meshing with the first-named gear-wheels, a movable sleeve, a pin carried by said sleeve and engaging said frame, a tooth on one of the first-named gear-wheels, and means for moving said sleeve to engage the pin with the tooth.

3. In a reversing-gear, the combination of a two-part shaft, gear-wheels on the opposing ends thereof, one of said gear-wheels being provided with an inclined friction-surface and a tooth, said friction-surface leading to said tooth, a frame rotatably mounted on the shaft, a gear-wheel rotatably mounted on the frame and meshing with said gear-wheels, a pin carried by said frame and arranged in line with said friction-surface and tooth, and means for moving said pin into engagement with said friction-surface and tooth.

4. In a reversing-gear, the combination of a two-part shaft, gear-wheels on the opposing ends thereof, one of said gear-wheels being provided with an inclined friction-surface and a tooth, said friction-surface leading to said tooth, a frame rotatably mounted on the shaft, a gear-wheel rotatably mounted on the frame and meshing with said gear-wheels; a movable sleeve, a pin carried by said sleeve and engaging said frame, and means for moving said sleeve to engage the pin with the friction-surface and tooth.

5. In a reversing-gear, the combination of a two-part shaft, gear-wheels on the opposing ends thereof, one of said gear-wheels being provided with a pair of oppositely-disposed teeth and a pair of oppositely-disposed inclined friction-surfaces, said friction-surfaces leading to said teeth, a frame rotatably mounted on the shaft, a gear-wheel rotatably mounted on the frame and meshing with the first-named gear-wheels, a pair of oppositely-disposed pins arranged in line with said friction-surfaces and teeth, and means for moving said pins into engagement with said friction-surfaces and teeth.

751,788. ELECTRICAL SIGNAL APPARATUS. JOHN M. GOLDING, Washington, D. C. Filed July 15, 1903. Serial No. 165,619. (No model.)



Claim.—1. In an electric signal apparatus, the combination with an electric circuit including a battery, a resistance, a circuit-breaker, and an electromagnet, of a shunt-circuit including a bell in parallel with said electric circuit, a circuit-closer adjacent to said magnet, and an indicator movable to operate the circuit-closer and engage the core of the magnet and which latter will attract and hold said indicator to maintain the circuit closed and ring the bell until the said circuit-breaker is operated, substantially as set forth.

2. In an electric signal apparatus, the combination with a normally open electric circuit including a battery, a signal, a circuit-breaker and an electromagnet, of a casing inclosing said magnet and through which the core of the magnet extends, a circuit-closer within the casing having a push-pin extending through the casing, and an indicating-arm hinged to the casing and movable to engage the said pin and core, substantially as and for the purpose specified.

3. The combination with a switchboard having a plurality of contacts and a switch-lever to engage either of said contacts, of signals each in circuit with its respective contact, a circuit-breaker in each of the signal-circuits, a normally open electric circuit including a battery and a magnet connected to the switch-lever and electrically connectible to all of the signals, a circuit-closer adjacent to the magnet, and an indicator movable to operate the circuit-closer and engage the core of the magnet to be held by the latter until a circuit-breaker in one of the signal-circuits is operated, substantially as set forth.

751,789. METHOD OF BUILDING CONCRETE WALLS, &c. DAVID G. GRAY, Philadelphia, Pa., assignor to McGaw and Gray, Philadelphia, Pa., a Firm. Filed June 24, 1903. Serial No. 162,859. (No model.)

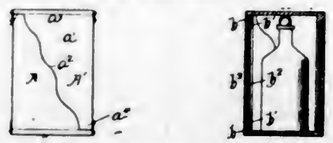


Claim.—1. A device for molding a concrete wall which comprises a plurality of mold-boards against which the concrete mass is placed and means for supporting said boards one above another, the adjacent edges of said boards being covered by a projecting molding secured to one of said parts and adapted to form a recess in the wall.

2. In a device for molding a concrete wall, a mold-board having a molding secured to its face adjacent and overhanging one of its edges, whereby said molding is adapted to overlap an adjoining mold-board.

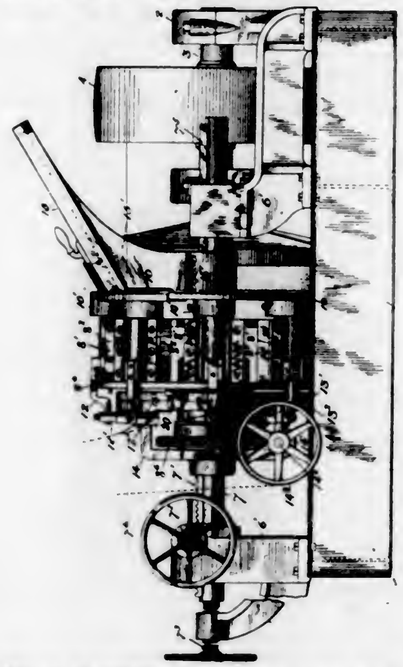
3. In a device for molding a concrete wall, a plurality of mold-boards having broken joints and molding secured to the face of each adjacent and overhanging one of its edges, whereby said molding is adapted to overlap an adjoining mold-board.

751,790. BOX. HENRY P. GUYTON, Chicago, Ill. Filed July 13, 1903. Serial No. 165,410. (No model.)



Claim.—A box or case composed of two sections each section being provided with a frame adapted to contain a mirror, a flat supporting wall or shelf secured at right angles to the frame, tapered end walls sloping down from a point back from the free edge of the flat supporting wall or shelf leaving a projected portion thereof the end walls of component sections being adapted to coincide with one another to form rectangular end walls and have the tapered end of each of the sloping end walls abut against the inner face of the projecting portion of the supporting-shelf of the companion section when the sections are fitted together to form a box or case, and means for securing the two sections together, said means being adapted to also serve to hang the sections separately on a wall when used as shelves, substantially as described.

751,791. MACHINE FOR GRINDING METAL SURFACES. JAMES H. HASKINS, San Diego, Cal., assignor of one-half to International Harvester Company, Chicago, Ill., a Corporation of New Jersey. Filed Feb. 16, 1903. Serial No. 143,602. (No model.)



Claim.—1. In a grinding-machine, the combination of a stone, a blank-carrier facing the stone and rotating so as to cause the blanks to travel across the stone, blank-holders mounted on the carrier, and means for moving the holders forward on the carrier when they reach the stone so as to present the blanks to the grinding-surface.

2. In a grinding-machine, the combination of a stone, a blank-carrier facing the stone and rotating so as to cause the blanks to travel across the stone, blank-holders mounted on the carrier, means for keeping the holders withdrawn from the plane of the stone during part of the rotation of the carrier, and means for moving the holders forward on the carrier when they reach the stone so as to present the blanks to the grinding-surface.

3. In a grinding-machine, the combination of a stone, a blank-carrier facing the stone and rotating so as to cause the blanks to travel across the stone, blank-holders mounted on the carrier, means for moving the holders backward on the carrier after they have traversed the stone and holding them withdrawn, and means for moving the holders forward on the carrier when they reach the stone so as to present the blanks to the grinding-surface.

4. In a grinding-machine, the combination of a stone, a magazine at one side thereof, projecting beyond the face of the stone, a blank-carrier facing the stone and rotating in a plane parallel therewith past the magazine, blank-holders mounted on the carrier to receive blanks from the magazine, and means for moving the holders forward after receiving the blanks, so as to present the blanks to the stone.

5. In a grinding-machine, the combination of a stone, a magazine at one side thereof projecting beyond the face of the stone, a blank-carrier facing the stone and rotating in a plane parallel therewith past the magazine, blank-holders mounted on the carrier to receive blanks from the magazine, and means for moving the holders backward on the carrier just before they reach the magazine.

6. In a grinding-machine, the combination of a stone, a magazine at one side thereof projecting beyond the face of the stone, a blank-carrier facing the stone and rotating in a plane parallel therewith past the magazine, blank-holders mounted on the carrier to receive blanks from the magazine, means for moving the holders backward on the carrier just before they reach the magazine, and means for moving the holders forward on the carrier after they pass the magazine, so as to present the blanks to the grinding-surface.

7. In a grinding-machine, the combination of a stone, a magazine at one side thereof, a blank-carrier facing the stone and rotating in a plane parallel therewith past the magazine, holders mounted on the carrier to receive blanks from the magazine, and an elastic plate located between the magazine and the stone to retain the blanks in the holders as the latter move from the magazine to the stone.

8. In a grinding-machine, the combination of a stone, a magazine at one side thereof, a blank-carrier facing the stone and rotating in a plane parallel therewith and past the magazine, holders mounted on the carrier to receive blanks from the magazine, and a yielding plate at the side of the mouth of the magazine next the stone to accommodate different thicknesses of blanks and prevent the feeding of more than one blank at a time.

9. In a grinding-machine, the combination of a stone, a blank-carrier facing the stone and revolved to cause the blanks to travel across its face, holders for blanks mounted to move bodily on the carrier toward and from the stone, means for holding the holders away from the stone except when traveling across its face, and means for moving the holders forward on the carrier to present the blanks to the grinding-surface when the holders pass across the face of the stone.

10. In a grinding-machine, the combination of a stone, a blank-carrier facing the stone and revolved to cause the blanks to travel across its face, holders for blanks mounted to slide in guides on the carrier toward and from the stone, springs reacting between the holders and the carrier to move the holders forward toward the stone, and a cam to withdraw the holders when they leave the stone and hold the springs out of action until the holders reach the stone again.

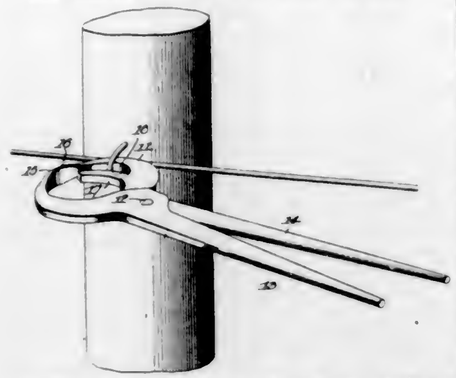
11. In a grinding-machine, the combination of a rotary carrier, blank-holders mounted to slide in guides on the carrier, springs reacting between the holders and carrier to project the holders forward, and an annular cam to engage the holders as the carrier rotates and withdraw them against the tension of the spring.

12. In a grinding-machine, the combination of a rotary carrier consisting of a hub 8 having a disk-like head $8''$ and an annular ring 8^4, blank-holders 9 having flanges 9′ to slide in guides 8^2, 8^3, extending between the head and ring, springs 11^2 inclosed in recesses 9^a and reacting against the ring 8^4 to move the holders forward on the carrier, an annular cam 13^3, and arms 12 projecting from the holders and carrying rollers 12^3 running on the cam.

13. In a grinding-machine, the combination of a rotary carrier, blank-holders 9 mounted in the carrier and provided with recesses 9^a at their rear ends inclosing springs 11^2 to project the holders, blank-ejectors 11 passing centrally through the holders, face-plates 9^2 secured to the front end of the holders, and springs to retract the ejectors reacting between the face-plates and collars on said ejectors.

14. In a grinding-machine, the combination with a blank-holder, of a recessed plate or block secured to the end of the holder to receive the blanks, and means for adjusting the plate on the holder so as to make the recess deeper or shallower to accommodate blanks varying in thickness.

751,792. STAPLE-EXTRACTOR. OZIAS C. HEALY, Mapleton, Minn. Filed Aug. 13, 1903. Serial No. 169,384. (No model.)

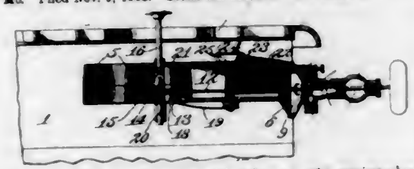


Claim.—1. A staple-extractor comprising two opposing reversely-curved jaw members pivotally united, one of said jaw members having a tongue arranged longitudinally thereof in the space between the jaw members and spaced therefrom with its free end terminating adjacent the free end of the jaw members with which it is connected.

2. A staple-extractor comprising reversely-curved opposing jaw members pivotally united at their rear ends and terminating in wedge-shaped free ends, one of said jaw members having a tongue secured to its inner face near its rear end and extending longitudinally thereof to receive and support a staple after its withdrawal.

3. The improved implement herein described comprising opposing jaw members pivotally united at their rear ends and extending into handles and oppositely curved and terminating in wedge-shaped free ends, one of said jaw members having a tongue projecting inwardly therefrom and terminating adjacent to the inner sides of said wedge-shaped free ends with the space between the tongue and jaw member increasing in area toward the root of the tongue, substantially as specified.

751,793. GAS-BURNER. CHARLES VAN DYKE HILL, St. Louis Mo. Filed Nov. 9, 1903. Serial No. 180,445. (No model.)



Claim.—1. The combination with a burner, of a mixing-chamber, a rotary valve for controlling the supply of gas to said chamber, a rod on which said valve is mounted, a spring for holding said valve to its seat, a vertically-movable post, a rock-shaft on the valve-rod and cooperating with said post for operating said valve, and a spring for holding said post in an elevated position; substantially as described.

2. The combination with a burner, of a vertically-movable post, a yoke connected to said post, a rock-shaft having an arm engaging said yoke, a valve on the opposite end of said rock-shaft for controlling the supply of gas to the burner, a spring for holding said post and yoke in an elevated position, and means for holding said valve to its seat; substantially as described.

3. The combination with a burner and its mixing-chamber, of a valve for controlling the supply of gas to the mixing-chamber, a rod on which said valve is mounted, a rock-shaft on said rod, a vertically-movable post engaging said rock-shaft for operating said valve, a valve-casing, a valve for controlling the supply of gas to said casing, a pilot-nozzle, a duct leading from said valve-casing to said pilot-nozzle, and a valve for controlling said duct, substantially as described.

4. The combination with a gas-burner, of a protecting-hood overhanging a portion thereof, a series of small leading-out openings arranged under the hood for communicating flame to the regular openings of larger size in the burner, a pilot-nozzle for directing a flame across the small leading-out openings under the hood, a source of supply for said pilot-nozzle, and means operated by a cooking vessel for controlling the admission of gas from said source of supply to the burner; substantially as described.

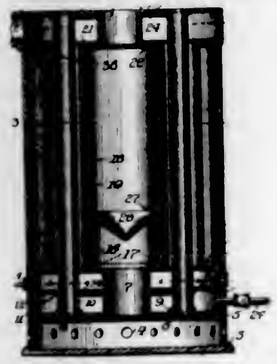
5. The combination with a burner, of a post mounted thereon, a yoke carried by said post, a rock-arm engaging said yoke, a rock-shaft upon which said arm is mounted, a rotary valve on said shaft for controlling the supply of gas to the burner, a spring for holding said valve to its seat, and a guard-plate 21 for preventing heat from affecting certain of said moving parts; substantially as described.

6. The combination with a gas-burner, of an overhanging hood, a pilot-nozzle under said hood, a series of small leading-out openings in the burner under the pilot-nozzle, and means for regulating the supply of gas to said pilot-nozzle; substantially as described.

7. In a gas-burner, the combination with a mixing-chamber provided with a threaded, hollow boss, of a valve-casing screwed onto said boss, a valve operating over the end of said boss to control an opening through which gas is admitted to the mixing-chamber, a nipple on the valve-casing designed to be received in a socket in a manifold, a needle-valve arranged in the manifold for controlling the supply of gas from the manifold to said nipple, and a duct in the gas-burner in communication with the interior of the valve-chamber, means for controlling the supply of gas to said duct, a pilot-nozzle supplied by said duct, and an overhanging hood or shelf on the burner arranged above said pilot-nozzle; substantially as described.

8. In a gas-burner, the combination with a mixing-chamber, of a port leading into said mixing-chamber, a valve for controlling said port, a rod on said valve, a rock-arm on said rod, means including a vertically-movable element operated by a cooking vessel for cooperating with said rock-arm and rod to move said valve to admit a supply of gas to the mixing-chamber and to the burner when the cooking vessel is in position over said burner, a coiled spring arranged on the rod for holding said valve to its seat, and a flat leaf-spring cooperating with said vertically-movable element for returning the same to normal position and operating said valve to shut off the supply of gas from the burner; substantially as described.

751,794. HEATER. PETER J. W. HOAGLUND, Sterritt township, Allegheny county, Pa. Filed Dec. 3, 1903. Serial No. 183,628. (No model.)

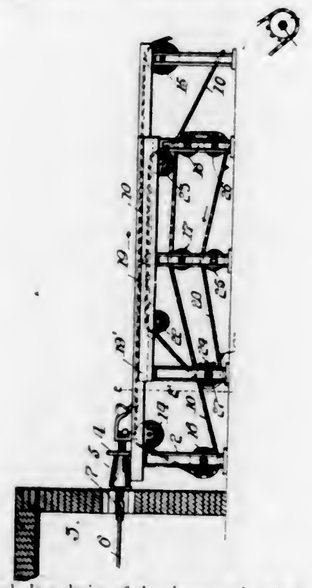


Claim.—1. In a heater of the type described, an outer casing comprising an upper and lower member mounted one on top of the other, said lower member provided with upper and lower rows of cold-air inlets, a plate member supported by the lower member of the casing and provided with an upwardly-extending pipe-section, said member having circumferentially-arranged openings, pipes supported on said plate member, registering with said openings, a burner-plate supported on said pipes, a partition-plate separating the upper and lower members of the casing and provided with circumferentially-arranged openings, pipes supported on said partition-plate and inclosing the first-mentioned pipes, and a top casing comprising an upper and lower plate having openings registering with the respective pipes, substantially as described.

2. A heater comprising an annular casing provided in its lower end with an upper and lower series of cold-air inlets, a damper controlling the upper series of said inlets, a plate member supported on the end of said casing and provided with circumferentially-arranged openings, a series of circumferentially-arranged pipes supported on said plate member and registering with the openings therein, a burner-plate supported by said pipes within the casing above the plate member, a series of pipes supported by said partition-plate and through which the first-mentioned pipes extend, and a top casing having an upper and lower plate provided with openings registering with the respective pipes, substantially as described.

3. In a heater, a casing provided near its lower end with cold-air inlets and concentrically-arranged pipes adapted to receive the air, a second series of pipes surrounding the first-mentioned pipes, an air-denector supported by the second-mentioned pipes, and a top casing comprising an upper and lower plate having openings registering with the respective pipes, substantially as described.

751,795. ENDLESS CONVEYER FOR PIPE-MILLS. CHARLES JARRETT, Dravosburg, Pa. Filed Aug. 28, 1903. Serial No. 171,096. (No model.)



Claim.—1. In a device of the character described, a bed or bench, an endless chain traveling in said bed or bench, means for driving said chain, a trough arranged at the side of the bed or bench, and an endless chain traveling in said trough in the opposite direction to the first-mentioned chain, substantially as described.

2. An endless conveyer for pipe-mills, comprising a bed or bench, an endless conveyer-chain traveling therein, a trough at the side of said bed or bench, an endless chain traveling in said trough in the opposite direction to the travel of the conveyer-chain, and means for driving said chains in unison, substantially as described.

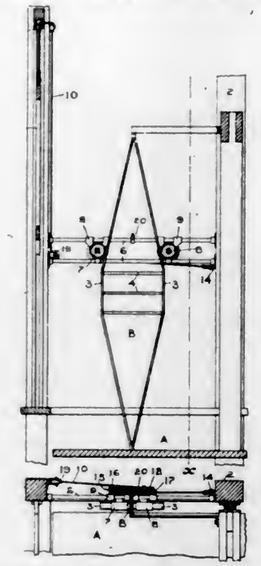
3. An endless conveyer for pipe-mills, comprising a bench having an endless conveyer-chain traveling therein, a trough at the side of said bench below the plane thereof with an endless chain traveling in said trough in the opposite direction to the travel of the conveyer-chain, and means for driving said chains.

4. In an endless conveyer for pipe-mills, a bench and a trough arranged side by side, conveyer-chains traveling in said bench and trough, means for driving the chains, the chain of the trough being mounted to the rear of the forward end thereof.

5. In a conveyer for pipe-mills, a bench and a trough, conveyer-chains traveling in each, means for driving the chains, the trough being arranged to the rear of the forward end of the bench, the chain of the trough being mounted to the rear of the front end thereof.

751,796. GATE-LIFTING DEVICE FOR ELEVATORS. JOHN O. LEE, St. Paul, Minn. Filed May 25, 1903. Serial No. 158,564. (No model.)

Claim.—1. The combination with an elevator-car and an inclosing framework, of horizontal rods carried by said framework, pulleys slidable upon said rods, a spreader carried by said car in position to separate said pulleys when the car is raised or lowered, a gate movably supported in said framework, and a cable passing from said gate around said pulleys and connected with an adjacent support, said cable being so wound around the pulleys as to be shortened intermediate of the pulleys and gate when the pulleys are separated.



2. The combination with an elevator-car and inclosing framework, of a pair of horizontal rods carried by said framework, cross-heads slidable between said rods, a pair of pulleys supported upon said cross-heads upon one side of said rods, a second pair of pulleys supported upon said cross-heads upon the opposite side of said rods, a spreader carried by said car in position to pass between and separate one pair of said pulleys when the car is raised or lowered, a movable gate arranged in connection with said framework, and a cable passing from said gate around the opposite pair of said pulleys and connected with an adjacent support, said cable being so wound around the pulleys as to be shortened intermediate of the pulleys and gate when the pulleys are separated.

751,797. CENTRAL-ENERGY TELEPHONE SYSTEM. JOHN H. LENDI, Chicago, Ill., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 19, 1900. Serial No. 40,403. (No model.)

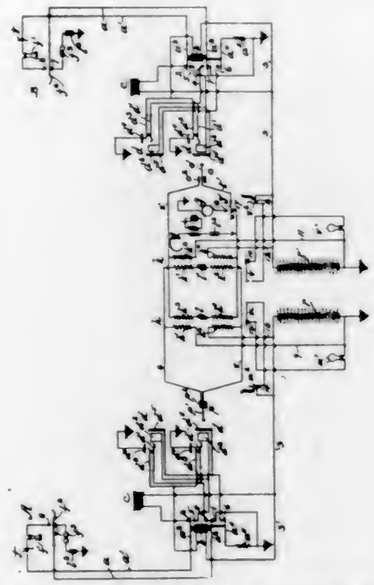
Claim.—1. The combination with a pair of telephone-lines adapted to be connected together for conversation through the windings of a repeating-coil, of a source of electricity adapted to be connected in circuit with one of said windings, a switch at the substation for controlling the circuit of said source through said winding, a signaling device controlled by said winding, means for rendering the other winding opaque to the passage of an operative continuous current, and a signal-controlling electromagnet and separate source of current in circuit with the telephone-line connected with said latter-mentioned winding, substantially as described.

2. The combination with a pair of telephone-lines adapted to be united for conversation through a pair of repeating-coils having the corresponding windings thereof connected in parallel, of means for sending continuous current through one winding of each repeating-coil, means for rendering the other winding of each repeating-coil opaque to the passage of continuous currents, one of the windings adapted to be traversed by continuous currents being in circuit with each telephone-line and switches at the substations for controlling the circuits through the respective windings connected therewith, substantially as described.

3. The combination with a connecting-plug and a plug-seat switch, of a combined relay and repeating-coil, one winding of said repeating-coil being opaque to the passage of continuous currents, the other winding constituting the relay-winding, and a signaling device controlled by said relay and plug-seat switch, substantially as described.

4. The combination with a connecting-plug and the strands of

a cord-connector, of a plug-seat switch, a combined relay and repeating-coil having one winding connected between said strands, a charging source of electricity in circuit with said windings, means for rendering the other winding of the repeating-coil opaque to the passage of continuous currents, and a signaling device controlled by the action of said relay and plug-seat switch, substantially as described.



5. The combination with a telephone-line, of a connecting-plug and strands connected therewith, a combined relay and repeating-coil having one winding connected between said strands, a charging source of electricity in circuit with said winding, means for rendering the other winding opaque to the passage of continuous currents, a switch at the substation for controlling the circuit of said source through the winding connected therewith, a plug-seat switch and a signaling device controlled by said relay and plug-seat switch, substantially as described.

6. In a telephone system, two repeating-coils having their corresponding windings connected in multiple, one winding of each being opaque to continuous currents and the other winding of each including a source of current, substantially as described.

7. In a telephone system, the combination with a pair of telephone-lines, a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line, means to prevent the passage of an operative continuous current through one winding of each coil while permitting the passage of voice-currents, the other winding of each coil permitting the passage of both voice and continuous currents, a source of current included in the circuit of each line and the said latter winding, a switch at the substation controlling the circuit of the source through said winding, and apparatus at the central office controlled by the magnetism of said coils, substantially as described.

8. In a telephone system, the combination with a pair of telephone-lines, a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line, a condenser in the circuit of one winding of each coil to prevent the flow of continuous current therethrough while permitting the passage of voice-currents, the other winding of each coil permitting the passage of both voice and continuous currents, a source of current included in the circuit of each line and the said latter winding at the central office, a switch at the substation controlling the circuit of the source through said winding, and signaling apparatus at the central office controlled by the said coils, substantially as described.

9. In a telephone system, the combination with a pair of telephone-lines, a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line, means to prevent the passage of an operative continuous current through one winding of each coil while permitting the passage of voice-currents, the other winding of each coil permitting the passage of both voice and continuous currents, a source of current included in the circuit of each line and the said latter winding, a switch at the substation controlling the circuit of the said source through said winding, and signaling apparatus at the central office controlled by each said coil, substantially as described.

10. In a telephone system, the combination with a pair of telephone-lines, of a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line and in parallel therein, one winding of each coil being opaque to the passage of continuous current but open to the passage of voice-currents, the other winding of each coil being open to both voice and continuous currents, a source of current at the central office included in the circuit of each line, a switch at the substation of each line controlling the circuit of the said source through the said winding, and signaling apparatus at the central office controlled by the magnetism of each said coil, substantially as described.

11. In a telephone system, the combination with a pair of telephone-lines, a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line and in parallel therein, a condenser in the circuit of one winding of each said coil, the other winding of each coil being open to the passage of both voice and continuous currents, a source of current at the central office included in the circuit of each line and the said latter winding, a switch at the substation in each line controlling the circuit of the said source through said winding, and signaling apparatus at the central office controlled by each said coil, substantially as described.

12. In a telephone system, the combination with a pair of telephone-lines, a pair of repeating-coils to unite said lines for conversation, one winding of each coil connected in the circuit of each line and in parallel therein, a condenser connected in the middle of one winding in each coil, a source of current connected in the middle of the other winding of each coil, a switch at the substation of each line controlling the circuit of the said source through the said winding, and signaling apparatus at the central office controlled by each coil, substantially as described.

13. In a telephone system, the combination with a pair of telephone-lines, of a cord-circuit at the central office to unite said lines for conversation, a pair of repeating-coils in said circuit to inductively unite the two ends thereof, one winding of each coil connected in the circuit of each said end, a condenser in the path of current through one winding of each coil, a source of current connected with the other winding of each coil and adapted to be included in the metallic circuit of the telephone-line when a connection is established by the cord-circuit with the lines, a switch at each substation to control the flow of current over the metallic line, and supervisory-signaling apparatus controlled during connection by the said coils, substantially as described.

14. In a telephone system, the combination with telephone-lines, of a cord-circuit at the central office to unite said lines for conversation, a pair of repeating-coils to inductively unite the ends of said cord-circuit, one winding of each coil connected with each end of the cord-circuit and in parallel therein, a condenser connected with one winding of each coil to prevent the passage therethrough of continuous currents, a source of continuous current connected in the middle of each of the other windings of said coils and adapted to be included in the metallic talking-circuit when a connection is established and to furnish current over the connected lines for conversation, and a supervisory signal for each end of the cord-circuit controlled during a connection by the corresponding coil, substantially as described.

15. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit to inductively unite but conductively separate the two ends of the same, and a separate source of current connected with each end of the cord-circuit and adapted during a connection to furnish current over the corresponding telephone-line for conversation, said repeating-coils being organized to operate as electromagnets, substantially as described.

16. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit to inductively unite but conductively separate the two ends of the same, a separate source of current connected with each end of the cord-circuit and adapted during a connection to furnish current over the corresponding telephone-line for conversation, said repeating-coils being organized to operate as electromagnets, and a supervisory signal for each end of the cord-circuit controlled by the said coils, substantially as described.

17. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit, a winding of each coil connected with each end of the cord-circuit, one winding of each relay being opaque to the passage of continuous current, a separate source of current connected with the other winding of each coil and adapted during a connection to be included in the corresponding telephone-line to furnish current thereover for conversation, said repeating-coils being organized to operate as electromagnets, and a supervisory signal for each end of the cord-circuit controlled during a connection by the corresponding coil, substantially as described.

18. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit, a winding in each coil being connected in each end of the cord-circuit and in parallel therein, a condenser in series with one winding of each coil, a separate source of current in series with the other winding of each coil and adapted to be included in the metallic talking-circuit established by the connection of the corresponding end of the cord-circuit with a telephone-line, said repeating-coils being organized to operate as electromagnets, and a supervisory signal for each end of the cord-circuit controlled by the corresponding repeating-coil, substantially as described.

19. In a telephone system, the combination with telephone-lines, of a cord-circuit to connect said lines together for conversation and having a plug at each end, a signal-controlling electromagnet for each end of the cord-circuit having its actuating-windings connected between the strands thereof, said electromagnets serving also as repeating-coils to inductively unite the two ends of the cord-circuit, a separate charging source of electricity adapted to send current through the actuating-winding of each magnet, a plug-seat switch for each plug, a switch at the substation of each line for controlling the circuit of said source through the actuating-winding of the said electromagnet associated therewith, and a supervisory signal for each end of the circuit controlled by the corresponding electromagnet and plug-seat switch, substantially as described.

20. The combination with a cord-circuit having a plug connected at each end, and the strands thereof conductively divided but inductively united, of a signal-controlling electromagnet for each end of the cord-circuit having its actuating-winding bridged between the strands thereof, said electromagnet serving also as repeating-coils to inductively unite the two ends of the cord-circuit, a separate source of current for each end of the cord-circuit adapted to send current through the actuating-winding of the corresponding electromagnet, a plug-seat switch for each plug, and a signaling device for each end of the cord-circuit controlled by the corresponding electromagnet and the plug-seat switch, substantially as described.

21. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit, a winding of each coil connected with each end of the cord-circuit, one winding of each coil being opaque to the passage of continuous current, a separate source of current connected with the other winding of each coil and adapted during a connection to be included in the corresponding telephone-line to furnish current thereover for conversation, said repeating-coils being organized to operate as electromagnets, a supervisory signal for each end of the cord-circuit, local circuits for said supervisory signals each controlled at one point by said coils and at another point by auxiliary means, substantially as described.

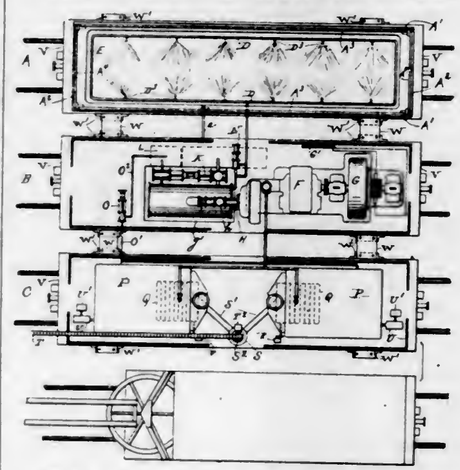
22. In a telephone system, the combination with telephone-lines, of a cord-circuit to loop said lines together for conversation, a pair of repeating-coils connected with said cord-circuit, a winding of each coil connected with each end of the cord-circuit, one winding of each coil being opaque to the passage of continuous current, a separate source of current connected with the other winding of each coil and adapted during a connection to be included in the corresponding telephone-line to furnish current thereover for conversation, said repeating-coils being organized to operate as electromagnets, a supervisory signal for each end of the cord-circuit operated over local circuits, said coils controlling the said local circuits so as to deprive said signals of operating-current during conversation to render them inert at that time, and other means for controlling said circuits to likewise deprive said signals of operating-current when the cord-circuit is not connected with the lines whereby said signals are normally inert, substantially as described.

23. In a telephone system, two line-circuits, means for supplying electric energy thereto, a primary induction-coil in each of said line-circuits, and a secondary coil connected in each line-circuit in shunt around the source of electrical supply therefor, and arranged in inductive relation to the primary coil of the opposite line-circuit.

24. In a telephone system, the combination with two line-circuits, means for supplying electric energy thereto, a pair of repeating-coils, a primary winding of said coils included in each of said line-circuits, and a secondary winding of said coils connected in each line-circuit in shunt around the source of electrical supply therefor and arranged in inductive relation to the primary coil of the opposite line-circuit, substantially as described.

25. In a telephone system, the combination with two line-circuits, a pair of repeating-coils at the central office having inductively-associated windings to unite said circuits for conversation, each said coil having a winding connected in each circuit, said windings in each circuit being connected in parallel with each other, and means for supplying current to said line-circuits for conversational purposes, substantially as described.

751,798. PORTABLE POWER PLANT. CHARLES A. LIEB, New York, N. Y. Filed July 1, 1902. Serial No. 113,942. (No model.)



Claim.—1. In a car for a boiler plant, and in a car for a steam-generating plant, the combination of side sills on the cars, brackets extending from the side sills, blocks joining the side sills of one car with the brackets of the sills of the other car.

2. In a car for a boiler plant, and a car for a steam-generating plant, the combination of side sills on the cars, bolts securing the said side sills together, other cars like the first, end sills on all the cars, bolts joining the end sills of one pair of cars with another pair of cars.

3. In cars adapted to run on railway-tracks and having apparatus thereon for generating power, the combination of screw-jacks with the said cars bearing up against the cars, to maintain the cars in operative position, and means to connect the side sills and end sills of one car, with the side sills and end sills of another car.

4. In cars carrying a power plant, the combination of bolts coupling the sides of adjacent cars together, and bolts in the end sills coupling other cars to the first lot, and screw-jacks bearing on foundations and supporting the cars.

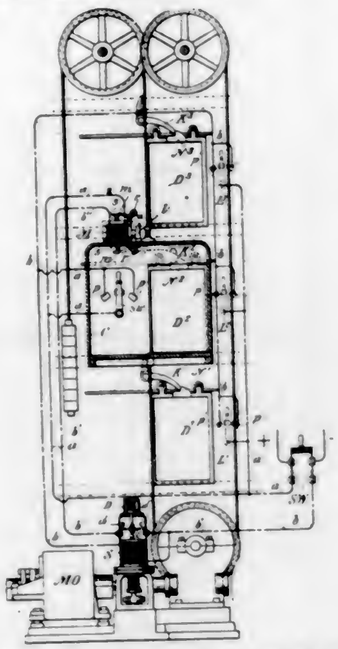
5. In cars having a power plant, the combination of a housing on each car, side and end sills for each car, bolts in the end sills for coupling the other cars, brackets in the side sills, blocks connecting the brackets of one car with the brackets of another car.

6. The combination of cars adapted to run on railway-tracks, side and end sills on the cars, bolts through the said sills to couple them together and to bolt another lot of cars thereto, and the sills and bolts so disposed that all the cars are interchangeable with one another.

751,799. MEANS FOR CONTROLLING THE OPERATION OF LOCKS OF ELEVATOR-HATCHWAY DOORS. AXEL MAGNUSON, New York, and THEODOR ESKILSON, Long Island City, N. Y. Filed Nov. 12, 1903. Serial No. 180,819. (No model.)

Claim.—1. A hatchway-door provided with means for locking it: in combination with a brake and means carried by the car for

releasing the lock and additional means operatively connected to the releasing devices and the brake, whereby the latter is always applied when the releasing means is actuated.



2. A hatchway-door having means for locking it; in combination with braking means and a car carrying electromagnetic releasing means electrically connected with braking means and so arranged that the door can only be opened after the brake is applied.

3. An elevator having a series of hatchway-doors provided each with a locking device; in combination with a car carrying an electromagnetic releasing device adapted to actuate the locking device at each door only after the car has stopped at the corresponding landing; together with circuits and circuit connections between the electromagnetic releasing device, an electromagnetic brake, the controller on the car, and a source of electrical energy, whereby any door can be opened only after the car is brought to a stop at the proper landing and the circuit to the source of electrical energy disrupted.

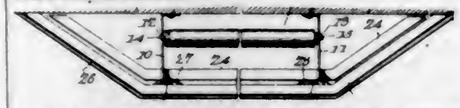
4. An elevator having a series of hatchway-doors provided each with a locking-dog and an armature carried thereby; a car carrying an electromagnet having a core adapted to retain sufficient residual magnetism to hold any dog in its open or unlocked position; in combination with a source of electrical energy and circuits and circuit connections whereby the locking-dogs remain undisturbed as the car passes them unless the electromagnet be energized.

5. A hatchway-door provided with locking means, a car provided with an electromagnet adapted to release the lock when the electromagnet is energized; the core of said magnet having sufficient residual magnetism to maintain the released condition; in combination with additional means carried also by the car and adapted to mechanically restore the locking means to locking position as the car moves in either direction.

6. In an elevator a series of hatchway-doors provided each with a locking device; a car carrying an electromagnet provided with a pole-piece adapted to be moved in close proximity to the locking device; an electrically-controlled brake connected in closed circuit when the car is moving; in combination with a circuit-closing device operatively connected with the brake and adapted to momentarily close the circuit to the electromagnet carried by the car after the brake is applied.

751,800. **COMBINED WINDOW SHADE, CURTAIN, AND CORNICE SUPPORTER.** GEORGE MALLORY, Fairbury, Ill. Filed Oct. 8, 1903. Serial No. 176,305. (No model.)

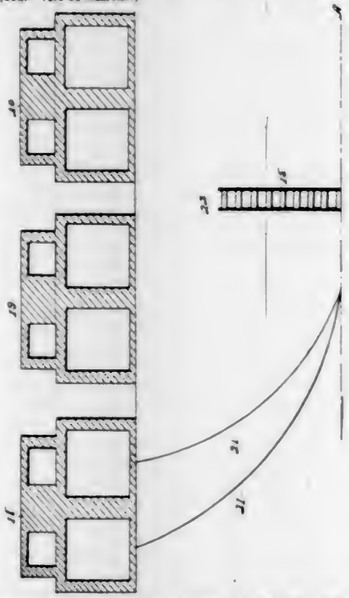
Claim.—1. A combined window shade, curtain and cornice supporter, consisting of spaced brackets having shade-roller-pivot apertures and provided with outwardly-opening sockets for the curtain-pole in their extremities and with vertical studs, a cornice, engaging said studs when the parts are assembled and suspended to support and conceal the curtain-pole and to conceal the shade-roller, substantially as described.



2. A combined window shade, curtain and cornice supporter, consisting of spaced brackets having means for supporting the shade-roller and provided with outwardly-opening sockets and vertically-extended studs at their extremities, a curtain-pole supported in said sockets and having the ends extending rearwardly beyond the brackets, and a cornice having keepers for engagement with said studs and extending over said curtain-pole and conforming longitudinally thereto, substantially as described.

3. A combined window shade, curtain and cornice support comprising spaced brackets, each formed of a single plate having one end bent transversely and perforated to form attaching means, and with an outwardly-opening socket in its other end, the end of said plate above said socket being bent at an angle thereto and provided with an upwardly-extending stud, and with roller-pivot apertures formed intermediately of its ends.

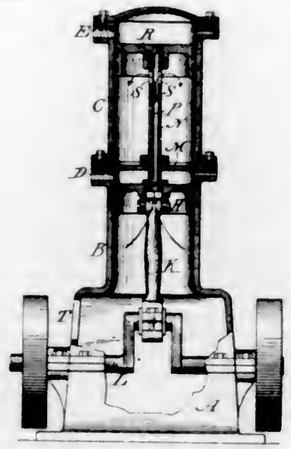
751,801. **METHOD OF ROLLING METAL PLATES.** ARTHUR J. MASKREY, Martins Ferry, Ohio. Filed Jan. 5, 1903. Serial No. 137,852. (No specimens.)



Claim.—The method of producing sheets from a bar of metal which consists in first heating the bar and passing it through a short series of reducing-rolls arranged in tandem, returning the partly-reduced product to a reheating-furnace, reheating the product, passing it through said short series of reducing-rolls a second time in a plurality of thicknesses, opening the pack, matching the sheets thereof together again in a plurality of thicknesses, doubling the pack, returning said pack to a reheating-furnace, reheating it, and finishing the sheets in packs by a series of passes through the finishing-rolls, substantially as described.

751,802. **DEVICE FOR COOLING PISTON-RODS.** TAYLOR MATSON, Philadelphia, Pa. Filed May 13, 1903. Serial No. 156,897. (No model.)

Claim.—1. In an explosion-engine, a cylinder, heads in said cylinder, a piston, means for producing an explosion in said cylinder at one side of said piston, a piston-rod secured to the other side of said piston, said piston-rod having a bore opening adjacent its ends whereby air is admitted to the end of said cylinder in which no explosion occurs.



2. In a single-acting explosion-engine, a cylinder, a piston, a crank, a tubular piston-rod by which motion is communicated from said piston to said crank, the bore of said rod being open at its free end and means forming a lateral passage from said bore within said cylinder, whereby air is admitted to the end of said cylinder in which no explosion occurs.

3. In a single-acting tandem explosion-engine, a plurality of cylinders, pistons in said cylinders, a tubular piston-rod connecting said pistons, the bore of said rod being open to the air at its free end and means forming a lateral passage communicating with said bore, whereby air is admitted to the interior of said cylinder at the end in which no explosion occurs.

4. In an engine, a cylinder, heads at each end of said cylinder, a piston, a tubular piston-rod open adjacent its outer and inner ends and means forming a lateral passage opening from the bore of said rod, whereby air is admitted to the end of said cylinder in which no explosion occurs.

5. In a tandem explosion-engine, a tubular rod connecting the pistons, the bore of said rod open to the atmosphere through one piston and to the end of the other cylinder in which no explosion occurs through an aperture adjacent the piston therein.

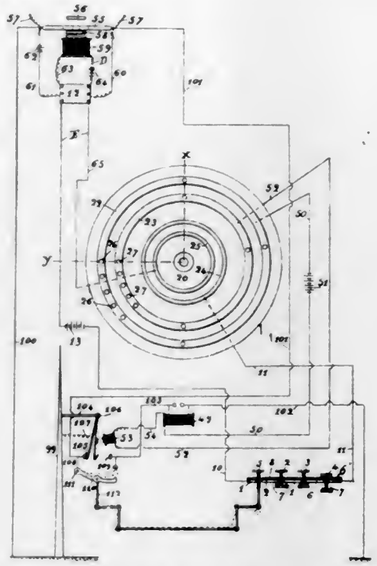
6. In a tandem explosion-engine, means for the admission of air to one of the cylinders, an aperture through the head of the piston in said cylinder, a tubular rod connecting the pistons and an aperture connected with the bore of said rod within the other of said cylinders.

751,803. **WIRELESS ELECTRIC APPARATUS ACTING ON TYPE-WRITERS.** GIUSEPPE MUSSO, S. Angelo dei Lombardi, Italy. Filed Sept. 23, 1902. Serial No. 124,511. (No model.)

Claim.—1. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, and synchronously-actuated mechanism located at each of the stations for causing the character indicated at the sending-station to be imprinted at the receiving station or stations.

2. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, rotative means for governing the signs, located at each station, means for synchronously rotating the rotative mechanism at the various stations governing the imprinting of the signs, and means for governing the synchronous movement of the rotative mechanism at the various stations and for simultaneously starting or stopping of the same.

3. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, an actuating-key at each of the stations for actuating each of the signs, rotative mechanism at each of the stations acting either as a portion of the sending or the receiving mechanism and by its position governing the actuation of the individual signs, and means for bringing about the synchronous rotation of the mechanism at the sending-station and the receiving station or stations in such manner that the same signs will be synchronously imprinted at all the stations.



4. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, moving means for governing the signs located at each station, means for synchronously moving the moving mechanism at the various stations governing the imprinting of the signs, means for governing the synchronous movement of the moving mechanism at the various stations, and means for simultaneously starting or stopping of the same.

5. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, an actuating-key at each of the stations for actuating each of the signs, moving mechanism at each of the stations acting either as a portion of the sending or the receiving mechanism and by its position governing the actuating of the individual signs, and means for bringing about the synchronous movement of the mechanism at the sending-station and the receiving station or stations in such manner that the same signs will be synchronously imprinted at all of the stations.

6. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnet mechanism for actuating each of such printing devices, and means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet.

7. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnet mechanism for actuating each of such printing devices, and means for bringing about an en-

ergizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet.

8. In a wireless-telegraph apparatus, a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with the ends of the circuit without closing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, and means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet.

9. In a wireless-telegraph apparatus, a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with the ends of the broken circuit, without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, and means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet.

10. In a wireless-telegraph apparatus, a local mechanism at each station comprising a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and electric mechanism at each of the stations for releasing and stopping the rotating wheel.

11. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and electric mechanism at each of the stations for releasing and stopping the rotating wheel.

12. In a wireless-telegraph apparatus, local mechanism at each station comprising a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with each end of the broken circuit without completing the same, mechanism for locking the key mechanism in the contacting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and electric mechanism at each of the stations for releasing and stopping the rotating wheel.

13. In a wireless-telegraph apparatus, local mechanism at each station comprising a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with each end of the broken circuit without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and electric mechanisms at each of the stations for releasing and stopping the rotating wheel.

14. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without closing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

15. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet when opposite thereto, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

16. In a wireless-telegraph apparatus, a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with the ends of the broken circuit without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

17. In a wireless-telegraph apparatus, a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for contacting with the ends of the broken circuit, without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices and means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

18. In a wireless-telegraph apparatus, local mechanism at each station comprising a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the

wheel-magnet, electrically-actuated mechanism at each of the stations for releasing and stopping the rotating wheel, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

19. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connecting with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and for releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, electrically-actuated mechanism at each of the stations for releasing and stopping the rotating wheel, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

20. In a wireless-telegraph apparatus, local mechanism at each station comprising a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for connecting with each end of the broken circuit without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the broken circuit and releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices and means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, electrically-actuated mechanism at each of the stations for releasing and stopping the rotating wheel, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

21. In a wireless-telegraph apparatus, local mechanism at each station comprising a stationary disk, a broken circuit carried by the disk, a plurality of keys, mechanism connected with each of the keys for connecting with each end of the broken circuit without completing the same, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for completing the circuit and releasing the keys, means for rotating the wheel at a predetermined rate of speed, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism actuating each of such printing devices, means for bringing about an energizing of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, electrically-actuated mechanism at each of the stations for releasing and stopping the rotating wheel, and means for selecting the stations desired to be reached and for preventing action of the mechanism at those stations desired to be cut out from the communication.

22. In a wireless-telegraph apparatus, an insulating-disk, two concentric conducting-rings provided with adjacent perforations, a circuit including a battery terminating at the ends at such rings, two conducting brush-rings arranged concentric to the first-mentioned rings, a fly-wheel axially coincident with the disk adjacent thereto, a polarized electromagnet carried by the wheel the poles of which are connected by brushes with the brush-rings, an electric keyboard having a plurality of keys each of which is adapted to break the circuit formed in part by the keyboard when moved from its normal position, a conducting-wire leading from one of the first-mentioned rings to the keyboard, a like wire leading from the other extremity of the keyboard to a relay the other pole-wire of which connects with the other first-mentioned ring, a battery included in such circuit, a polarized spring-armature having a contact-head normally in contact with the wheel-magnet, a plurality of character-printing electromagnets one pole of each of which is connected with an individual electric contact-plate adapted to contact with the head of the spring-armature of the wheel-magnet when released, an annular conducting-ring also adapted to contact with such armature-head whenever released adjacent to the wheel, a battery-circuit wire forming a connection between the other poles of the imprinting-magnets and the conducting-ring, an oscillator, a coherer, means for rotating the fly-wheel, and electromagnetic means for starting and stopping the fly-wheel.

23. In a wireless-telegraph apparatus, an insulating-disk, two concentric conducting-rings provided with adjacent perforations, a circuit including a battery terminating at the ends at such rings, two conducting brush-rings arranged concentric to the first-mentioned rings, a fly-wheel axially coincident with the disk adjacent thereto, a polarized electromagnet carried by the wheel the poles of which are connected by brushes with the brush-rings, an electric keyboard having a plurality of keys each of which is adapted to break a circuit formed in part by the keyboard when moved from its normal position, a conducting-wire leading from one of the first-mentioned rings to the keyboard, a like wire leading from the other extremity of the keyboard to a relay the other pole-wire of which connects with the other first-mentioned ring, a battery included in such circuit, a polarized spring-armature having a contact-head normally in contact with the wheel-magnet, a plurality of character-printing magnets one pole of each of which is connected with an individual electric contact-plate adapted to contact with the head of the spring-armature of the wheel-magnet when released opposite thereto, an annular conducting-ring also adapted to contact with such armature-head whenever released adjacent to the wheel, a battery-circuit wire forming a connection between the other poles of the imprinting-magnets and the conducting-ring, an oscillator, a coherer, means for rotating the fly-wheel, and means for selecting the stations to receive the messages and for cutting out stations which it is desired shall not receive the same.

24. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, an actuating-key at each of the stations for actuating each of the signs, moving mechanism at each of the stations acting either as a portion of the sending or the receiving mechanism by its position governing the actuation of the individual signs, means for bringing about the synchronous movement of the mechanism at the sending-station and the receiving station or stations in such manner that the same signs will be synchronously imprinted at all the stations, and means for selecting the stations to receive the messages and for cutting out stations which it is desired shall not receive the same.

25. In a wireless-telegraph apparatus, a plurality of stations each of which is provided with mechanism for imprinting a plurality of signs one by one, moving means for governing the signs located at each station, means for synchronously moving the moving mechanism at the various stations governing the imprinting of the signs, means for governing the synchronous movement of the moving mechanism at the various stations and for simultaneously starting or stopping the same, and means for selecting the stations to receive the messages and for cutting out stations which it is desired shall not receive the same.

26. In a wireless-telegraph apparatus, a plurality of stations each provided with a plurality of individual character-printing devices adapted to be actuated from any of the other stations, and selecting means for preventing actuation of the imprinting mechanism at any desired station or stations while permitting of the actuation of such imprinting mechanism at any other desired station or stations.

27. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, means for rotating the wheel, means carried by the wheel for completing the circuit and releasing the keys, a polarized electromagnet carried by the wheel, a polarized spring-armature having an electric contact head or plate in contact with the wheel-magnet, a plurality of character-imprinting electromagnets one pole of each of which is connected with an individual electric contact-plate adapted to contact with the head of the spring-armature of the wheel-magnet when released, an annular conducting-ring also adapted to contact with such armature-head whenever released located adjacent to the wheel, a battery circuit-wire forming a connection between the other poles of the imprinting-magnets and the conducting-ring, an oscillator, a coherer, and electromagnetic means for starting and stopping the fly-wheel.

28. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for clos-

ing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, and mechanism for intermittently rotating the wheel.

29. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, and electric magnetic mechanism for causing intermittent rotation of the wheel.

30. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, mechanism for intermittently rotating the toothed wheel, and mechanism actuated by wireless electric currents governing the action of the intermittently-rotative means.

31. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, an electric magnetic mechanism for intermittently rotating the wheel, and mechanism actuated by wireless electric currents governing the action of the electromagnetic rotating means.

32. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, a polarized electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, mechanism for intermittently rotating the toothed wheel, and mechanism actuated by wireless electric currents governing the action of the intermittently-rotative means.

33. In a wireless-telegraph apparatus, a stationary disk, a conducting-ring carried by the disk, a second conducting-ring concentric with such ring, a plurality of keys, mechanism connected with each of the keys for making a contact with each of the conducting-rings without completing the circuit, mechanism for locking the key mechanism in the connecting position, a rotating wheel located axially adjacent to the disk, mechanism carried by the wheel for closing the circuit through the key mechanism and for releasing the keys, means for rotating the wheel, an electromagnet carried by the wheel, a plurality of printing devices, an individual electromagnetic mechanism for actuating each of such printing devices, means for bringing about an energizing of each of the electromagnets of the printing mechanism by the energizing of the wheel-magnet, a stop carried by the wheel, a toothed wheel through the spaces of which the stop-head is free to pass mounted adjacent to the wheel, an electric magnetic mechanism for intermittently rotating the wheel, and a coherer controlling the movement of the electromagnetic rotating means.

34. In a device of the class described, comprising a plurality of stations, a station selecting and excluding device at each station comprising an electric conducting-ring, a wheel rotating within the ring, a main calling contact-piece adjacent to the conducting-ring at each station, like contacts similar in number to the stations also arranged adjacent to the ring at each station in the same relative position at each, an armature actuated by the wheel-magnet for bringing about contact between any one of the contact-pieces and the conducting-ring, means for rotating the wheel, means for releasing and stopping the wheel included in the calling-key contact-plate circuit, a circuit connected with the calling-key contact-plate comprising an electromagnet for closing the broken circuit to stop the wheel, and a connecting-wire leading from the magnet-circuit to a contact differing in position from the plate connected in like manner at any of the other stations.

35. In a device of the class described, comprising more than two stations selecting and excluding mechanism comprising a rotating wheel 21, a magnet 36, having an armature carrying an electric contact-plate 41, a conducting-ring 42, contact-plates 43, 117, 118, 119 and 120, arranged adjacent to the ring 42 in like position at each of the stations, a wire 121 connecting the plate 43 at each station with a wheel releasing and stopping magnet 76, a wire 122 leading from the other pole of the magnet to a contact 123, adapted to be connected with a wire 130 in connection with the ring 42 by a vibrating conducting-arm 128 by way of a contact-plate 131, a battery 48 in the last-mentioned circuit, a contact-piece 127, adjacent to a like contact-plate 133, means carried by the vibrating arm 129 for closing the circuit between the plate 127 and 133 when forced away from the plates 123 and 131, a wire 132 with the wire 130, an electromagnet 125 connected by a wire 124 with the contact-plate 43, and by a wire 126 with the contact-plate 127, mechanism actuated by the magnet 125 for vibrating the contact-lever 129, and a wire 141 connecting the wire 126 with one of the station contact-plates, the construction being the same at each station save that the wire 141 is connected to a different contact-plate at each.

36. In a wireless electric apparatus, designed to act at a distance on the respective type bars or levers of a type-writer, consisting of a fly-wheel at each station, provided with means for establishing a circuit rotating against a disk fitted with four conductor-rings two of which are in communication with the poles of an oscillator which excites simultaneously the local coherer and the coherer of the corresponding station, and the other two communicating with a polarized electromagnet the armature of which when the current flows in the coil releases said coil and closes an electric circuit varying according to the position of the fly-wheel and to the lowered key of the transmitting-station, in which circuit is inserted another electromagnet the armature of which is carried by the lever of a type-writer key corresponding to the one lowered at the transmitting-station, the movements of both fly-wheels in the two stations being synchronous.

37. In a wireless electric apparatus type-writer, an oscillator, a plurality of transmitting-keys each provided at the end of their actuating-levers with a fork having insulated conducting-prongs formed by two uprights ending with hooks and regulated by springs which uprights through the lowering of the keys penetrate into a pair of holes arranged in two conducting-rings, of the fixed disk in combination so as to electrically connect the same with a wedge-shaped contact-piece carried by the fly-wheel, such contact-piece on the rotation of the fly-wheel penetrating between the said hooks, thereby closing the circuit of the oscillator and slightly separating the hooks so as to release them from the disk and break the circuit.

38. In a wireless electric printing-telegraph, the combination with two metallic brushes fitted to the fly-wheel and connected to the poles of a polarized electromagnet which acts on the type-key bars or levers of two metal rings secured to a fixed disk, said rings being connected to the poles of an electromagnetic relay, the action of which takes place upon the excitation of the coherer.

39. In a wireless electric printing-telegraph, an oscillator, a coherer excited by the oscillator, in connection with a relay from which two circuits branch out, the one including two metal rings on which two brushes slide, which circuits are one in actuating connection with the type-key levers and the other with an electromagnet attracting the coherer, which owing to the shock will be depolarized and becomes again inactive, so bringing the relay and the relative circuits out of action, until the oscillator emits fresh exciting electric waves.

40. In a wireless electric printing-telegraph, a keyboard formed of small metal plates, kept apart from each other but connected electrically by the base of the keys, when in the normal position in such manner that the lowering of a key in the transmitting-station will break the circuit, while the similar circuit at the receiving-station remains unaltered, when no keys are lowered, except the special calling-key, the movement of which does not break the continuity of the circuit, said keyboard being supplied with an auxiliary metal plate, which when lowered so as to be brought in contact with the keyboard renders the latter electrically continuous irrespective of the position of the keys.

41. In a wireless electric printing-telegraph, a calling-key, a fly-wheel, an electromagnet mechanism which rotates a toothed wheel controlled by the calling-key so that at the first lowering of the key a tooth is caused to escape and by means of a motor mechanism the rotation of the fly-wheel is effected, while on the next subsequent lowering of such calling-key the fly-wheel is always stopped in the position of rest, both movements occurring at the same time in the two stations, they being produced by the action of the electric waves of the two coherers, the motor movements being synchronous.

42. In a wireless electric printing-telegraph, a fly-wheel, a toothed wheel for starting and stopping the fly-wheel in connection with a bolt controlled by a spring, which bolt penetrates into suitable recesses cut out in the central disk of the toothed wheel for fixing the position of said wheel, mechanism for disengaging the bolt being controlled by the same rod which starts said disk and in connection with a small pin mounted on the fly-wheel supplied with a tube, in which slides a rod intended to meet the teeth of the wheel, such rod being regulated by a spring.

43. In a wireless electric printing-telegraph, the combination with a coherer, of an oscillator, a receiving and transmitting rod connected with electric circuits and a switch so as to establish the simultaneous communication between both stations, such operation being effected by lowering a continuous electric conducting-plate on to the keyboard.

44. In a wireless electric printing-telegraph, the combination with a calling-key of an apparatus mechanically releasing the local fly-wheel, while the like wheel at the receiving-station is driven under the action of the coherer, and a metal casing preserving the local coherer from action by the local oscillator.

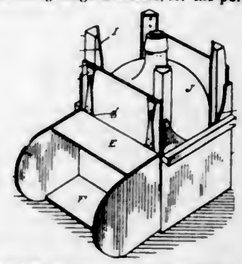
45. In a wireless electric printing-telegraph, special contact-pieces for excluding any stations with which it is not desired to correspond, such pieces being similarly arranged around the fly-wheels of each apparatus, each of them forming respectively part of a circuit wherein an auxiliary magnet is inserted, the armature of which acts on a switch intended to prevent the motion of the fly-wheel of the excluded stations, this switch being connected to toothed wheels and motor mechanism for the purpose of regulating the movement of the switch and delaying for a fixed time the return of such switch to the at-rest position.

46. In a device of the class described, a closed circuit including a battery, a plurality of keys adapted to break the circuit when moved, and means for permanently closing the circuit so that movement of the keys will not break the same.

751,804. CASE FOR CARBOYS. ANTHONY J. OOSTDYK, Detroit, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a Corporation of Michigan. Filed Nov. 14, 1903. Serial No. 181,167. (No model.)

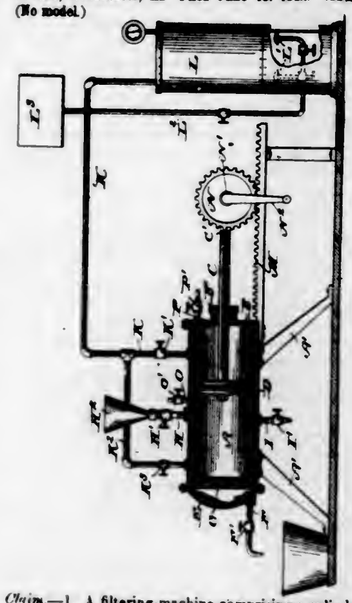
Claim.—1. The combination in a case for carboys, of a body portion, of a complementary cover hinged thereto and having curved faces formed at the lower edge of the sides, said cover being adapted to be turned upon its hinge so that the top of the cover will rest against the back of the case and the lower curved faces of the sides of the cover will form rockers upon which the case may be tilted.

2. In a case for carboys, the combination of a body portion, of a cover forming a complementary extension thereof, the sides F on the case having curved lower edges G and a hinge connection between the cover and body portion comprising the two hinge-joints *d*, *b* and connecting hinge members, for the purpose described.



3. In a casing for carboys, the combination of the body having the curved face *a* formed at the upper ends of the sides, of the cleats L secured to the sides slightly above the lower edge of said curved face *a*, the complementary cover hinged to the casing and having the sides F with curved faces G complementary to the face *a*, substantially as described.

751,805. FILTERING-MACHINE. JOHN W. OSBORNE, Winchester, Ill., assignor of three-fourths to Charles Smithson and Sol Hainsfurther, Winchester, Ill. Filed June 13, 1903. Serial No. 161,362. (No model.)



Claim.—1. A filtering-machine comprising a cylinder having a piston working therein, and a filtering-diaphragm adjacent one end of the cylinder, supply and discharge pipes connected with the cylinder, a steam-pipe connected also with the cylinder, and means for returning the piston to its normal position, substantially as described

2. A filtering-machine comprising a cylinder having a filtering-diaphragm adjacent one end, supply and discharge pipes connected to the cylinder and provided with suitable valves, the main and branch steam-pipes, the piston and its rod, and means connected to the piston-rod for returning the piston to its normal position, substantially as described.

3. In a filtering-machine, the combination with the filtering-cylinder having a filtering-diaphragm adjacent one end, the supply and discharge pipes connected to the cylinder, the drain and exhaust pipes, and the air-supply pipe, a piston working in the cylinder and having a piston-rod extending through the rear end of the cylinder, a pinion carried by the piston-rod, crank-handle for operating said pinion, and the rack-bar with which the pinion meshes, substantially as described.

751,806. PAPER BOX. ALVIN H. PLUMMER and MICHAEL HESS, Newcastle, Ind., assignors to Newcastle Paper Box and Manufacturing Company, Newcastle, Ind., a Corporation of Indiana. Filed Feb. 25, 1903. Serial No. 145,101. (No model.)



Claim.—1. A blank for a collapsible box comprising four wall-sections and a paster-section formed continuously, and a bottom section extending out from each of the wall-sections, one of said bottom sections being provided with a slit and the adjacent section with a tuck adapted to enter and remain in said slit when the box is formed, the section bearing the tuck being scored and foldable whereby the bottom thus united is adapted to be folded and unfolded in collapsing and expanding the box without disengaging the tuck, substantially as set forth.

2. A blank for a collapsible paper box formed of a continuous fabric divided into side, back and bottom sections, the side sections having extensions which are adapted to overlap each other when the box is assembled, one containing a slit and the other bearing a tuck, and the rear or arc side centrally creased and having flaps extending out therefrom, said flaps being adapted to fold up against the respective rear portions when the box is collapsed and to be folded down within and onto each other when the box is expanded and form the inner or upper portion of said bottom, that portion of the bottom bearing the tuck having a crease enabling it to be folded in collapsing the box, substantially as set forth.

3. A paper box having two pairs of non-parallel sides of unequal length the point of union being at a point where one of the shorter and one of the longer sides come together, and having also a bottom composed of two pairs of folding sections carried by the sides, one pair of said bottom sections being united by a tuck-and-slit connection, and the other pair being adapted to form reinforcing-linings for said bottom.

751,807. EXPLOSIVE. HEINRICH POSTTER, Dortmund, Germany. Filed Nov. 20, 1902. Serial No. 132,124. (No specimens.)

Claim.—1. An explosive or blasting substance consisting of the following ingredients intimately mixed in the proportions indicated, eighty-two and seven-tenths per cent. of ammonium nitrate, one per cent. of dinitrobenzol, eleven and five-eighths per cent. of turmeric, four and eight-tenths per cent. of copper oxalate.

2. An explosive or blasting substance, consisting of the intimate mixture of ammonium nitrate, dinitrobenzol, turmeric and oxalate of copper, mixed substantially in the proportions specified.

3. An explosive or blasting substance, consisting of the intimate mixture of ammonium nitrate, dinitrobenzol, turmeric and oxalate of copper.

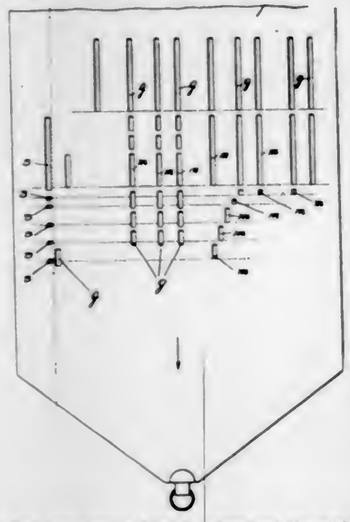
751,808. AUTOMATIC MUSICAL INSTRUMENT. WILLIAM H. REES, Boston, Mass. Filed May 22, 1903. Serial No. 158,329. (No model.)

Claim.—1. In a construction of the class described, the combination of an upper manual, a lower manual, a tracker-board channel, connections to control the speaking mechanism either in the upper manual or in the lower manual and including means for preventing a note sounded in the upper manual from being simultaneously sounded in the lower manual.

2. In a construction of the class described, the combination of upper and lower manuals, a tracker-board having channels, each one of which is connected to control a note in the upper manual and also a note in the lower manual and means for preventing the same note from being simultaneously sounded in both manuals.

3. In a construction of the class described, the combination of upper and lower manuals, a tracker-board having channels, a switch connecting each channel to control a speaking mechanism of the upper manual or a speaking mechanism of the lower manual and means for shifting all of the switches except those corresponding to the note or notes being sounded, whereby notes sounded in advance of the operation of the switches will be played in one manual and notes sounded while the switches occupy their shifted positions will be sounded in the other manual.

4. In a construction of the class described, the combination of upper and lower manuals, a tracker-board having channels, a switch connecting each of said channels to control a speaking mechanism to sound a note either in the upper manual or in the lower manual and means for shifting all the switches except those which correspond to the note or notes being sounded, the switches in normal position connecting tracker-board channels to sound notes of the base or accompaniment on the lower manual, said switches when occupying their shifted positions connecting the channels to sound notes of the melody or air in the upper manual alone.



5. In a construction of the class described, the combination of upper and lower manuals, a tracker-board, switches for connecting each of the tracker-board channels to sound a note either in the upper manual or in the lower manual, tracker-board-controlled means for shifting all the switches except those corresponding with the note or notes being sounded and a perforated music-sheet having a line of switch-controlling perforations and a plurality of rows of note-perforations, the note-perforations having edges in advance of the switch-controlling perforations sounding notes on one manual while note-perforations whose edges are in alinement with switch-perforations sound notes upon a different manual.

6. In a construction of the class described, the combination of tracker-board channels and a switch mechanism for each of said channels, said switch mechanism comprising a switch-box having two compartments, one controlling a speaking mechanism for sounding a note in one manual and the other controlling a speaking mechanism for sounding a note in a different manual.

7. In a construction of the class described, the combination of a tracker-board having channels, and a switch mechanism for each of said channels, said switch mechanism comprising a switch-box having two compartments, one of which controls a speaking mechanism to sound a note in one manual and the other compartment of which controls a speaking mechanism to sound a note in a different manual and means whereby the existence of pressure in one of said compartments will prevent pressure being admitted to the other of said compartments.

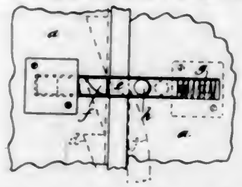
8. In a construction of the class described, the combination of a tracker-board and a switch mechanism for each channel of the tracker-board, comprising a switch-box having two compartments, one controlling a speaking mechanism to sound a note in one manual and the other controlling a speaking mechanism to sound a note in another manual, valves controlling the inlets into said compartments and two diaphragms, each one of which is acted upon by the pressure in one of said compartments to hold the inlet-valve of the other compartment closed.

9. In a construction of the class described, the combination of a tracker-board, and a switch mechanism for each channel of the tracker-board comprising a switch-box having two compartments, each one of which is independently connected to control the speaking devices for sounding a note in one manual, inlet-valves for said compartments, and connections between said inlet-valves for closing one valve when the other valve opens, means for causing the pressure in one compartment to hold the inlet-valve of the other compartment closed, pneumatic means for shifting the inlet-valves at times when there is no pressure in either of said compartments, and tracker-board connections for controlling said pneumatic means.

10. In a construction of the class described, the combination of a tracker-board and a switch mechanism for each channel of the tracker-board comprising a switch-box having two compartments, controlling speaking devices sounding a note for different manuals, a valve-stem carrying valves for said compartments, a diaphragm connected to the valve-stem and acted upon by the pressure in one compartment for holding the inlet-valve of the other compartment closed and a diaphragm of smaller power for shifting the valve-stem at times when no pressure exists in either of said compartments.

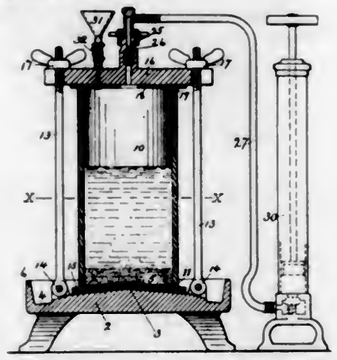
11. In a construction of the class described, the combination of a tracker-board, a switch mechanism for each channel of the tracker-board comprising two compartments, and means controlled by the pressure in one compartment for closing the inlet-valve of the other compartment, a valve-shifting pneumatically-actuated means which is powerful enough to be operated only at such times when there is no pressure in either compartment, and means controlled from a marginal tracker-board channel for admitting pressure to simultaneously operate such of the valve-shifting means as are free to be shifted.

751,809. SASH-FASTENER. ROBERT S. REID, Timaru, New Zealand. Filed Sept. 2, 1902. Serial No. 121,841. (No model.)



Claim.—In windows, a toothed rack secured to the face of the top sash and upon the edge thereof, a sliding spring-bolt secured transversely within the sash-slides of the window-frame and provided with a tooth normally engaging with the rack and with a pin projecting into the slide of the bottom sash, in combination with an inclined surface upon the edge of the bottom sash that is adapted to engage with the bolt-pin so as to free its tooth from the rack when the sash is raised, substantially as herein set forth.

751,810. APPARATUS FOR SEPARATING LIQUIDS FROM SOLIDS. GEORGE M. RICE, Worcester, Mass. Filed June 22, 1903. Serial No. 162,472. (No model.)



Claim.—1. The combination as described, of the filter-supporting bed, a removable tubular container having an open bottom adapted for support upon said bed, a filter pack or medium disposed between the container and bed, and projecting beyond the rim thereof, a close-fitting cover or top, and means for attaching an air-pipe thereto, means for confining said container in position, substantially as set forth.

2. The combination, of the supporting-bed having the filter-seating surface and drainage-way, the removable open-bottom cylinder supported thereon, the filter-pack between said cylinder and bed, detachable clamping means connecting said cylinder and bed, a tight-closing cap for the top of said cylinder, an inlet-opening therethrough, and an air-pressure connection having a check-valve therefor, and means for supplying air under pressure through said inlet-opening.

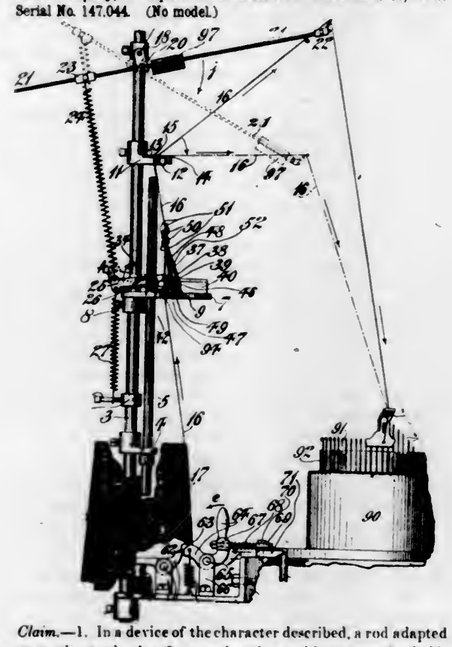
3. In a separator apparatus of the character described, in combination with the supporting-bed and removable open-bottomed container-cylinder; the filter-pack consisting of a foraminous metal base and superposed sheets of fibrous material, said filter-pack having a diameter of greater dimension than the cylinder, and extending across and beyond the outside of the cylinder-rim, substantially as set forth.

4. A separator mechanism comprising the non-perforated supporting bed or platform provided with a conically-raised center surface, a circumferential drainage-channel and rim-flange; in combination with the removable container-cylinder, a filter-pack resting upon said bed and extending beyond the periphery of the container, means for securing the container in position, and means for inducing air-pressure within said container.

5. The combination, with the supporting bed or platform having the filter-seating surface and drainage-channel, and the filtering medium resting upon said surface; of a removable open-bottom container of the character described, disposed with its lower end rim seated upon said filter medium, and means in connection with the bed and container for temporarily retaining the container in position thereon.

6. An apparatus for the purpose specified, comprising a supporting-bed having an approximately flat filter-seating surface with a surrounding channel and guard-rim, the removable open-bottomed container, a filter-pack disposed between the end of the container and bed-surface, means for closing the top of said container, means for detachably securing the container to the bed, an air-compressor mechanism, an air-conducting conduit connecting said air-compressor and container, a valve for the connecting air-passage, an inlet-way for introduction of liquid at the upper part of the container, and a shut-off valve in said inlet-way.

751,811. STOP-MOTION FOR KNITTING-MACHINES. GEORGE W. RUTH, Norristown, Pa., assignor to Ruth Automatic Knitting Machine Company, a Corporation of Delaware. Filed Mar. 10, 1903. Serial No. 147,044. (No model.)



Claim.—1. In a device of the character described, a rod adapted to actuate the mechanism for stopping the machine, means for holding said rod in elevated position, a lever supported adjacent said means, one end of which is adapted to contact with said means, a spring secured to said lever and adapted to hold the same normally out of contact with said means, a rod pivotally supported and adapted to support the thread and a spring connected with said pivoted rod and with said lever.

2. In a device of the character described, a rod adapted to actuate the mechanism for stopping the machine, means for holding said rod in elevated position, a lever supported adjacent said means, one end of which is adapted to contact with said means, a spring secured to said lever and adapted to hold the same normally out of contact with said means, a rod pivotally supported and adapted to support the thread, a spring connected with said pivoted rod and with said lever, and means for adjusting the tension of said springs.

3. In a device of the character described, a rod adapted to actuate the mechanism for stopping the machine, means for holding said rod in elevated position, a lever supported adjacent said means, one end of which is adapted to contact with said means, a spring secured to said lever and adapted to hold the same normally out of contact with said means, a rod pivotally supported and adapted to support the yarn and a spring connected with said pivoted rod and with said lever, in combination with a finger separately supported adjacent said means and adapted to be supported in upright position by the yarn, said finger being adapted to operate said means to release said rod when not supported by said yarn.

4. In a device of the character described, a rod adapted to actuate the mechanism for stopping the machine, means for holding said rod in elevated position, a lever supported adjacent said means, one end of which is adapted to contact with said means, a spring secured to said lever and adapted to hold the same normally out of contact with said means, a rod pivotally supported and adapted to support the yarn and a spring connected with said pivoted rod and with said lever, in combination with a finger movably supported adjacent said means and adapted to be supported in upright position, by the yarn, a lever situated between said finger and said supporting means and adapted to be actuated by said finger in order to actuate said means to release said rod.

5. In a stop-motion, a stopping device, a drop-rod adapted to trip said device, a detent adapted to normally maintain said rod in elevated position, a lever adapted to operate said detent, a yarn-supporting rod, a spring operatively connecting said rod and said lever, and a second spring connected with said lever and opposing said first-named spring.

6. In a stop-motion, a stopping device, a drop-rod adapted to trip said device, a detent adapted to normally maintain said rod in elevated position, a lever adapted to operate said detent, a yarn-supporting rod, a spring operatively connecting said rod and said lever, a second spring connected with said lever and opposing said first-named spring, and means for adjusting the tension of one of said springs.

7. In a stop-motion, a stopping device, a drop-rod adapted to trip said device, a detent adapted to normally maintain said rod in elevated position, a lever adapted to operate said detent, a yarn-supporting rod, a spring operatively connecting said rod and said lever, a second spring connected with said lever and opposing said first-named spring, and means for adjusting the tension of said opposing spring.

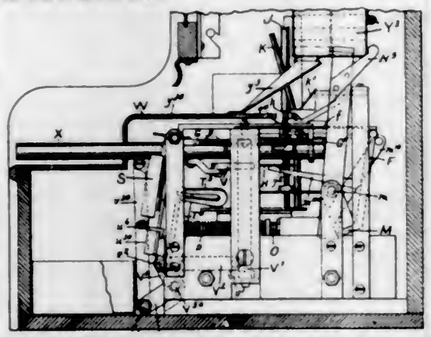
8. In a stop-motion, a stopping device, a drop-rod adapted to trip said device, a detent normally engaging with said rod to maintain it in its elevated position, a lever adapted to operate said detent, a yarn-supporting rod, a spring operatively connecting said rod to said lever and means on said rod for equalizing the tension of said spring.

9. In a stop-motion, a stopping device, a drop-rod adapted to trip said device, a detent normally engaging with said rod to maintain it in its elevated position, a lever adapted to operate said detent, a yarn-supporting rod, a spring operatively connecting said rod to said lever, and a weight movable on said rod and operative to adjustably resist the pull of said spring.

751,812. COIN-CONTROLLED VENDING APPARATUS. ADOLPH RYDQUIST, Rochester, N. Y., assignor to Case Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Apr. 5, 1902. Serial No. 101,545. (No model.)

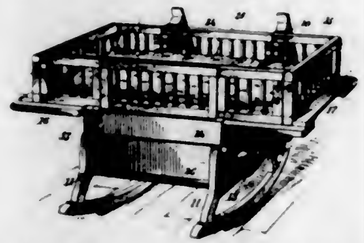
Claim.—1. In a coin-controlled vending device, a plunger, a coin-plate having flanges for guiding coin, a movable cover for said coin-plate having flanges corresponding with the said flanges on the coin-plate to form chutes for the coin, clamping devices for receiving from said chutes and retaining coins of proper thickness and diameter, means for releasing said clamping devices when the plunger is approaching the limit of its motion, and spring-pressed devices actuated upon operation of said plunger for forcing the coin from said chute.

2. In a coin-controlled vending device, a plunger, a tilting coin-plate having flanges for guiding coin operated by said plunger, a tilting cover for said coin-plate having flanges corresponding with the said flanges on the coin-plate to form chutes for the coin, operated by said plunger, to release objects from said chute, clamping devices for receiving from said chutes and retaining coins of proper thickness and diameter, means for releasing said clamping devices when the plunger is approaching the limit of its motion, and spring-pressed devices actuated upon operation of said plunger for forcing the coin from said chute.



3. In a coin-controlled vending device, a plunger, a complete stroke mechanism cooperating therewith, a coin-operated plate actuated by said plunger said plate having chutes and perforations entering said chutes and clamping devices for holding a coin of the selected diameter and thickness opposite said perforations, a plunger opposite each perforation having a central pin and a relatively movable head surrounding said pin, means for swinging said plate, a coin-plate cover adapted to swing away from said coin-plate when the latter swings, means for releasing said clamping devices when the plate approaches the limit of its motion, a magnet-frame having magnets entering slots leading into said coin-plate, means for withdrawing said magnet therefrom as the plunger approaches the limit of its motion, magazines equal in number to the plungers entering the perforation into the chutes and discharge-levers entering said magazines and operated by said last-mentioned plungers, substantially as described.

751,813. CONVERTIBLE CHAIR AND CRADLE. BARNET SMITH, New York, N. Y. Filed Dec. 5, 1903. Serial No. 183,859. (No model.)



Claim.—1. The convertible chair and bed comprising the seat, legs, side arms and receptacle, said seat being in sections hinged at their outer side edges to the seat-framing and having the side arms secured upon them, combined with the head and foot boards applied to the said seat-sections and the side rails applied to said seat-framing and having end portions to pass upon the seat-sections and engage said head and foot boards; substantially as set forth.

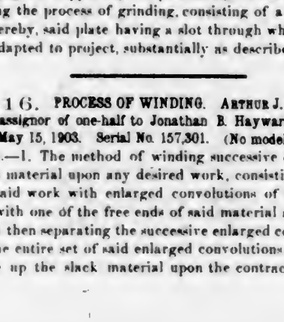
2. The convertible chair and bed comprising the seat, legs, side arms, receptacle and hinged back, said chair above its seat having the recessed extensions to which said back is hinged and said back having the tongues to enter said recesses and also engage the rear edges of said arms, and said seat being in sections hinged at their outer side edges to the seat-framing and having the side arms secured upon them, combined with the head and foot boards applied to the said seat-sections and the side rails applied to said seat-framing and having end portions to pass upon the seat-sections and engage said head and foot boards; substantially as set forth.

3. The convertible rocking-chair and cradle-bed comprising the seat, legs, rockers, side arms, and hinged back, said seat being in sections hinged at their outer side edges to the seat-framing and having the side arms secured upon them, combined with the head and foot boards applied to the said seat-sections and the side rails applied to said seat-framing and having end portions to pass upon the seat-sections and engage said head and foot boards; substantially as set forth.

4. The convertible chair and bed comprising the seat, legs, side arms and back, said seat being in sections hinged at their outer side edges to the seat-framing and having the side arms secured upon them, combined with the head and foot boards hinged to the lower side of said seat-sections, and the side rails hinged to said framing and having the hinged end portions to be extended out upon the seat-sections and engage said head and foot boards; substantially as set forth

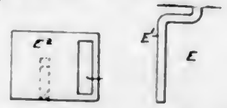
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751,814. BALL-RACK. GEORGE W. SPECHT and WILLIAM P. WETZLER, Allegheny, Pa. Filed Apr. 14, 1903. Serial No. 152,513. (No model.)



Claim.—The combination in a ball-rack with a back, top and base boards, inclined shelves and side strips at each end of the rack having openings coinciding with the spaces between the shelves, the top and base boards being extended beyond the side strip at one end of the rack and formed with openings in said extended portions, of a movable retaining-bar having a handle at its end and fitting and slidable in the openings in the top and base boards and beyond the extreme ends of the shelves, said bar being adapted to fall of its own weight and when in its lowest position having its openings out of alinement with the openings in the adjacent side strip, and a stop on top of the bar for maintaining said retaining-bar in lowered position whereby an unobstructed view of all the balls on said racks will be had and provision made for allowing the balls to roll out of the racks simultaneously by raising said bar substantially as described.

751,815. COMPOUND GRINDING ATTACHMENT. THOMAS B. STEPHENSON, Bristol, Conn. Filed May 20, 1903. Serial No. 157,967. (No model.)

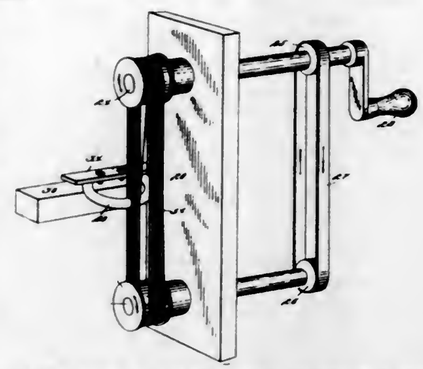


Claim.—1. A grinding mechanism having in combination, a grinding-wheel, a gage for positioning and supporting edged tools, said gage being provided with means for preventing the wheel from cutting too deeply during the grinding operation and means for adjusting the gage in order to diminish the depth of cut below the maximum, substantially as described.

2. A gage for supporting and positioning knives or similar edged tools during the process of grinding, consisting of a stem and plate carried thereby, said plate having a slot through which a grinding-wheel is adapted to project, substantially as described.

751,816. PROCESS OF WINDING. ARTHUR J. STRONG, Dayton, Ohio, assignor of one-half to Jonathan B. Hayward, Dayton, Ohio. Filed May 15, 1903. Serial No. 157,301. (No model.)

Claim.—1. The method of winding successive convolutions of continuous material upon any desired work, consisting of first surrounding said work with enlarged convolutions of the continuous material, with one of the free ends of said material attached to the work; and then separating the successive enlarged convolutions and rotating the entire set of said enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the work.



2. The method of winding successive convolutions of continuous material upon any desired work, consisting in first surrounding said work with enlarged convolutions of the continuous material with one of the free ends of said material attached to the work and the other end attached to its adjacent convolution; and then separating the successive enlarged convolutions and rotating the entire set of enlarged convolutions in such a manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the work.

3. The method of winding successive convolutions of continuous material upon any desired work consisting in first winding upon suitable supports successive enlarged convolutions of the continuous material comprising two sets of strands which pass upon opposite sides of said work; and then attaching one of the free ends of said material to the work; and then separating the successive enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the work.

4. The method of winding successive convolutions of continuous material upon any desired work consisting in first winding upon suitable supports successive enlarged convolutions of the continuous material comprising two sets of strands which pass on opposite sides of said work; and then attaching one of the free ends of said material to the work; and the other end attached to its adjacent convolution; and then separating the successive enlarged convolutions and rotating the entire set of said enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the work.

5. The method of winding successive convolutions of continuous material upon any desired work; consisting in first surrounding said work with a continuous band of said material, said band being led over suitable supports, and to one portion of which band is attached one of the ends of the remaining material; and then rotating said band in such manner as to wind upon said supports successive convolutions of said material; and then attaching the other end of the remaining portion of the material to the work; and then separating the successive enlarged convolutions and continuing the rotation of the entire set of said enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the work.

6. The method of winding successive convolutions of continuous material upon a ring-shaped body, consisting in first forming enlarged convolutions of said material which are all interlinked with the ring with one of the free ends of said material attached to the ring; and then separating the successive enlarged convolutions and rotating the entire set thereof in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the ring.

7. The method of winding material upon a ring, consisting in first forming a continuous band of the material led over suitable supports, one strand of said band being led through the ring and the other strand being led outside the ring; and then rotating said band with one end of the remaining portion of material attached thereto in such manner as to wind upon the said supports successive enlarged convolutions, one set of strands of which extend through the ring and the other set of strands of which extend outside the ring; and then attaching to the ring the other end of the remaining portion

of the material; and then separating the successive enlarged convolutions from the supports and rotating the entire set of said enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the ring.

8. The method of winding material upon a ring, consisting in first forming a continuous band of the material led over suitable supports, one strand of said band being led through the ring and the other strand being led outside the ring; and then rotating said band with one end of the remaining portion of material attached thereto in such manner as to wind upon the said supports successive enlarged convolutions, one set of strands of which extends through the ring and the other set of strands of which extends outside the ring; and then attaching to the ring the other end of the remaining portion of the material; and then separating the successive enlarged convolutions from the supports and rotating the entire set of said enlarged convolutions in such manner as to take up the slack material upon the contracting of the enlarged convolutions into the smaller convolutions wound upon the ring; and simultaneously feeding the ring in such manner as to bring into position the new portions to be wound.

751,817. **ELASTIC HEEL.** FRIEDRICH H. STUBNER, East Rutherford, N. J. Filed July 23, 1903. Serial No. 166,630. (No model.)



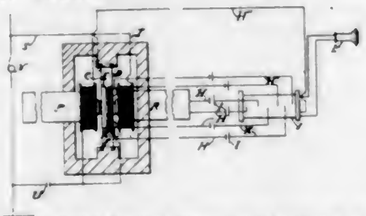
Claim.—1. The improved heel herein described comprising a body of rubber or similarly elastic material or composition, which body is hollow on the upper side, provided with an inwardly-extending lip or tongue and with an upwardly-extending rib, and a plate adapted to be fastened to the sole of the shoe and having a rib with an outwardly-extending shoulder over which the lip is secured, the upwardly-extending rib of the rubber body extending against the inner side of the rib of the said plate, substantially as set forth.

2. The improved heel herein described comprising a body of rubber or similarly elastic material or composition, which body is hollow on the upper side, provided with an inwardly-extending lip or tongue and with an upwardly-extending rib, and a retaining-plate adapted to be fastened to the sole of the shoe and having around its edges a depending rib with an outwardly-extending shoulder over which the lip is secured, the upwardly-extending rib of the rubber body extending against the inner side of the rib of the said plate, substantially as set forth.

3. The combination of the heel-plate 12, having a rib 13, at its outer edge which is V-shaped on its under side to form a biting lower edge, and having a shoulder at its upper surface, and an elastic block centrally concavous and grooved to receive the rib, and having an inwardly-extending lip adapted to overlie the outer shoulder of the plate, whereby the said rubber block is adapted to be withdrawn from the said plate, substantially as set forth.

4. The combination of a metallic plate having a flat upper side on which the heel portion of the sole of the shoe rests, and at the lower side at the edges having a depending rib with a V-shaped under side and an outwardly-extending shoulder, and an elastic heel centrally recessed and having a groove in which the V-shaped rib lies snugly and having an inwardly-extending lip overlying said shoulder.

751,818. **ELECTRICALLY-PRODUCED-SOUND INTENSIFIER.** GUSTAF T. SWENSON, San Pedro, Cal. Filed Dec. 17, 1902. Serial No. 135,596. (No model.)



Claim.—1. In an electrically-operated sound-receiving apparatus means to intensify the sound comprising a plurality of separated microphone-contacts insulated from each other on one side and all being adapted to be actuated by the vibration of a single telephone-diaphragm.

2. In an electrically-operated sound-receiving apparatus means to intensify the sound comprising a plurality of independent microphonic circuits adapted to actuate a common magnetic field at the same time in the same direction.

3. In an electrically-operated sound-receiving apparatus means to intensify the sound comprising an induction-coil having a plurality of primary coils connected in independent microphone-circuits, said coils being wound in the same direction.

4. In an electrically-operated sound-receiving apparatus a plurality of independent microphonic circuits adapted to be actuated by a common means and to actuate a common field at the same time.

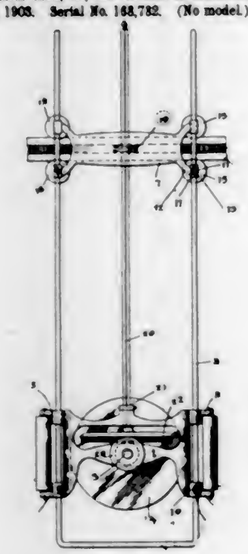
5. In an electrically-operated sound-receiving apparatus means to intensify sound, comprising oppositely-disposed telephone-receiver diaphragms having affixed to the opposing surfaces of each a disk; one of said disks being of conducting material and the other of non-conducting material; a plurality of opposed sockets in the opposing surfaces of said disks, the sockets of the non-conducting disk having a lining of conducting material, each of said linings being connected to a battery; a wire connecting each of said batteries with a primary winding of an induction-coil; an induction-coil having the secondary winding electrically connected with a telephone-receiver; a telephone-receiver and means to actuate the oppositely-disposed diaphragms.

751,819. **LUG-STRAP CONNECTION FOR LOOMS.** JAMES THOMPSON, Boston, Mass. Filed Mar. 9, 1903. Serial No. 146,828. (No model.)



Claim.—The combination of a picker-stick, a loop-strap secured thereto, a wooden block having an open groove in one of its faces and embraced by said loop-strap, a metallic finger or rod bent at its end to engage and rest in the open groove of the block with its free end extending partially around the picker-stick, the loop-strap where it embraces the block serving to confine the bent end of the finger in the groove of the block.

751,820. **SURFACE SMOOTHING AND SANDPAPERING MACHINE.** GEORGE TOMS, Jr., and ROBERT E. SHERIDAN, St. Louis, Mo. Filed Aug. 8, 1903. Serial No. 168,782. (No model.)



Claim.—1. A surface smoothing and sandpapering machine, comprising a power-driven abrasive wheel or disk, a supporting-frame, and devices for moving the said parts laterally whenever the abrasive wheel is rotated, substantially as set forth.

2. A surface smoothing and sandpapering machine, comprising a track supported adjacent to the surface to be operated upon, a frame mounted on said track, an abrasive mechanism suspended therefrom, and means for moving the said frame and abrasive mechanism laterally when the latter is set in motion, substantially as specified.

3. A surface smoothing and sandpapering machine comprising a rotary abrasive wheel or disk, a frame supporting the same, a track for the frame, and connections for moving the frame along the track when the wheel or disk is rotated, substantially as specified.

4. A surface smoothing and sandpapering machine comprising a frame, a power-driven shaft journaled therein, an abrasive wheel or disk attached to said shaft, a movable frame and devices for suspending the first-mentioned frame therefrom, a track for said movable frame, and connections for moving the movable frame along the track when the power-driven shaft is rotated, substantially as specified.

5. A surface smoothing and sandpapering machine, comprising a frame, a power-driven shaft journaled therein, an abrasive member attached to said shaft, a track, a frame mounted thereon, connections between the first and second mentioned frames whereby the former will be upheld, and gear and shaft connections for propelling the second-mentioned frame along the track, whenever the power-driven shaft is operated, substantially as specified.

6. An apparatus of the class mentioned, comprising a track, a traveling frame thereon, in combination with a power-driven rotary shaft, an abrasive member attached thereto, supports depending upon the traveling frame for upholding said parts, and shaft and gear connections for propelling the traveling frame along the track when the rotary shaft is driven, substantially as specified.

7. An apparatus of the class mentioned comprising, a track, a traveling frame mounted thereon, a second frame, adjustable connections supporting the same from the traveling frame, rollers for balancing the second frame, a power-driven rotary shaft journaled in said second frame, an abrading member attached to said shaft, and shaft and gear connections between the power-driven shaft and the track whereby the entire mechanism will be moved laterally when in operation, substantially as specified.

8. A surface smoothing and sandpapering machine, comprising a track adapted to be supported adjacent to the surface to be operated upon, a frame mounted by means of rollers upon said track, a second frame adjustably suspended from the first-mentioned frame, balancing-rollers on the suspended frame, a power-driven shaft journaled also in said frame, an abrading member attached to said power-driven shaft, and a shaft and gear-wheels communicating between the power-driven shaft and the track whereby the entire machine will be propelled laterally when in use, substantially as herein set forth.

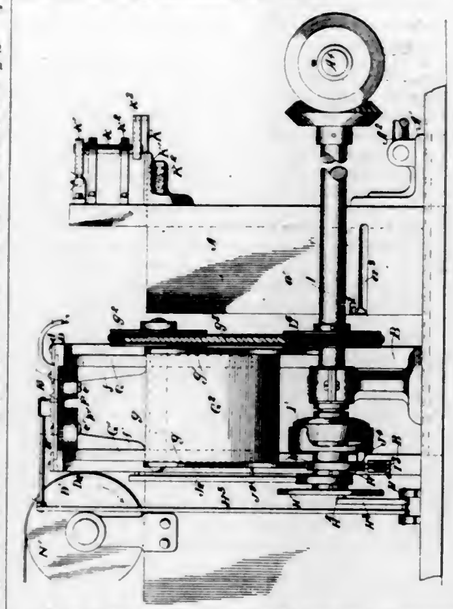
751,821. **WRENCH.** PATRICK TOOHEY, Darragh, Pa. Filed Jan. 20, 1903. Serial No. 139,746. (No model.)



Claim.—In combination with the shank provided on one of its faces with ratchet-teeth, and the fixed jaw on the shank, of a movable jaw comprising a block provided with teeth, throughout its entire face, said block on its sides being cut away to substantially the width of said shank, shoulders formed by said cut-away portions, a casing of U shape having its sides embracing the shank sides and having its lower edges abutting against said shoulders, means for securing said sides of the casing to the sides of the movable jaw formed by said cut-away portions, and a bow-shaped spring arranged in said casing and bearing against the rear face of the shank, the ends of said spring extending within said casing, said movable jaw being depressed evenly throughout the length thereof, to bring all of the teeth thereof out of engagement with the shank-teeth.

751,822. **CARTON-SEALING MACHINE.** JOSEPH H. WEEKS, Battlecreek, Mich. Filed May 18, 1903. Serial No. 157,636. (No model.)

Claim.—1. In a carton folding and pasting machine, a reciprocating slide, a pair of gyratory wings attached to said slide, and adapted to fold one end flap of the carton and apply paste to the front and rear flaps, substantially as described.



2. In a carton folding and pasting machine, a reciprocating slide, means for presenting a carton thereunder, a pair of gyratory wing-pasters attached to said slide, and means for moving said wing-pasters as the slide reciprocates, and a pair of disk pasters attached to the slide adapted to apply paste to the top edges of the front and rear flaps, substantially as described.

3. In a carton folding and pasting machine, a reciprocating slide, a pair of gyratory wing-pasters attached to said slide, and adapted to fold one end flap of the carton and apply paste to the front and rear flaps, and a pair of disk pasters attached to the slide adapted to apply paste to the edges of the front and rear flaps, substantially as described.

4. In a carton folding and pasting machine, the combination of a slide carrying pasting and folding mechanism, with a reciprocating carton-holder adapted to present a carton to such mechanism, a folding-blade on said holder, and means for operating said folding-blade from and by the movement of the slide.

5. In a carton-folding machine, the combination of opposite folding devices, a reciprocating carton-holder, means for moving said holder to first present the carton to the action of said folding devices, and then to eject the carton therefrom after the flaps are folded.

6. In a carton folding and pasting machine, the combination of opposed folding devices, a pasting mechanism coacting therewith, a reciprocating carton-holder, a folding-blade carried thereby, means for moving said holder so as to present the carton to the action of pasting and folding mechanisms, and for further moving said holder to eject the folded carton, and means for actuating the folding-blade on the holder at the proper time, substantially as described.

7. In a carton-folding machine, the combination of a reciprocating carton-holder, opposite folding devices, means for moving said holder to first present the carton to the action of said folding devices, and then eject it therefrom after the flaps are folded a folding-blade carried by said holder, and means for operating said latter folding-blade when the holder is in position between the folding devices.

8. In a carton-folding machine the combination of folding and pasting devices, a continuously-rotating shaft, means operated by said shaft for actuating said folding and pasting devices, mechanism for locking said means after each cycle of folding and pasting operation, and means for tripping said locking mechanism when a carton comes into position for folding and pasting.

9. In a carton-folding machine, the combination of folding mechanism, a continuously-driven shaft, a sleeve thereon and driven therefrom, means operated by said sleeve for actuating the folding mechanism at the proper time, devices for locking said sleeve after

each cycle of folding operations is completed, and means for tripping said locking device when a carton comes into position for folding, substantially as described.

10. In a carton-folding machine, the combination of pasting and folding mechanism, a continuously-driven shaft, a frictionally-driven sleeve thereon, means operated by said sleeve for actuating the folding and pasting mechanism at the proper time, devices for locking said sleeve after each cycle of folding and pasting operation is completed, and means for tripping said locking device when a carton comes into position for folding, substantially as described.

11. In a carton-folding machine, the combination of a reciprocating slide, pasting devices carried by said slide, folding devices, a continuously-driven shaft, means operated by said shaft for actuating said pasting and folding devices, means for locking said operative means after each cycle of folding operations, and means for tripping said locking device when a carton comes in position for folding.

12. In a carton-folding machine, the combination of a reciprocating slide, pasting devices carried by said slide, and an opposite folding-blade, with a continuously-driven shaft, means operated by said shaft actuating said pasting and folding devices, means for locking said operative means after each cycle of folding operations, and means for tripping said locking devices when a carton comes in position for folding.

13. In a carton-folding machine, the combination of a movable carton-holder, adapted to present the carton to pasting devices, and subsequently discharge the same therefrom; with a folding-blade attached to said holder, a reciprocating slide actuating the pasting devices, and means whereby said slide actuates the folding-blade on the holder after the pasting operation, substantially as described.

14. In a carton-folding machine, the combination of the movable carton-holder, the folding-blade thereon, the rock-shaft and connections for operating said blade in one direction, mechanism adapted to actuate said shaft when the holder has moved the carton to folding position, substantially as described.

15. In a carton-folding machine, the combination of folding devices, a driven shaft, a means operated by said shaft for actuating said folding devices at the proper time, and devices for locking said means after each cycle of folding operations is completed, with a carton-holder adapted to present cartons to said folding devices, and means operated by said holder for tripping the said locking devices, substantially as described.

16. In a carton-folding machine, the combination of a movable carton-holder, adapted to present the carton to pasting and folding devices, and subsequently discharge the same therefrom, with a folding-blade attached to said holder, a reciprocating slide carrying pasting and folding devices, and means whereby said slide actuates the folding-blade on the holder after the pasting operation, substantially as described.

17. In a carton-folding machine, the combination of a movable carton-holder, the folding-blade thereon, a rock-shaft and connections for operating said blade in one direction, and a spring for retracting the blade, with mechanism independent of the holder adapted to actuate said shaft when the holder has moved the carton to folding position, substantially as described.

18. In a carton-folding machine, the combination of a reciprocating slide, pasting and folding devices carried by said slide, an opposite folding-blade, a driven shaft, a frictionally-driven sleeve, and means operated by said sleeve for actuating said pasting and folding devices at the proper time, means for locking said sleeve after each cycle of folding and pasting operations is completed, a carton-holder adapted to present cartons to said folding devices, and means operated by said holder for tripping the said locking devices, substantially as described.

19. In combination a carton-holder, a folding-blade, a sliding bar, a vertical rock-shaft, connections between the opposite ends of said rock-shaft and said bar and blade, and means for moving said bar so as to actuate the blade when the carton is in folding position, substantially as described.

20. The combination of the carton-holder, a folding-blade mounted thereon, a spring for retracting said blade, a sliding bar, a vertical rock-shaft, connections between the opposite ends of said rock-shaft and said bar and blade, said connections comprising segments and straps, and means for moving said bar so as to actuate the blade when the carton is in folding position, substantially as described.

21. In a carton-folding machine, the combination of a reciprocating slide, folders attached to said slide, an opposite folding-blade, a continuously-driven shaft, a sleeve thereon driven thereby, mechanism actuated by said sleeve for operating the said slide and folder at the proper times, and a locking device for arresting the said sleeve after it has made one rotation; with a reciprocating carton-holder, adapted to present cartons to said folding mechanisms, and a trip on said holder adapted to release the locking device when the holder presents the carton in position for folding, substantially as described.

22. In a carton-folding machine the combination of a reciprocating slide, disk and wing pasters attached to said slide, adapted to apply paste to the top and side edges of the front and rear flaps of a carton and to fold one side flap; a folding-blade opposite the said pasting mechanism, a continuously-driven shaft, a sleeve thereon driven thereby, mechanism actuated by said sleeve for operating the said slide and folder at the proper times, and a locking device for arresting the said sleeve after it has made one rotation; with a reciprocating carton-holder, adapted to present cartons to said pasting and folding mechanisms, and a trip on said holder adapted to release the locking device when the holder presents the carton in position for folding, substantially as described.

23. In a carton-folding machine, the combination of a reciprocating slide, folders attached to said slide, an opposite folding-blade, a continuously-driven shaft, a sleeve thereon driven thereby, mechanism actuated by said sleeve for operating the said slide and folder at the proper times, and a locking device for arresting the said sleeve after it has made one rotation; with a reciprocating carton-holder, adapted to present cartons to said folding mechanisms, and a trip on said holder adapted to release the locking device when the holder presents the carton in position for folding, a folding-blade on said holder, means for operating said blade from and by the movement of the slide, a receiver into which the carton is discharged by the holder, and a fixed bar by which the last flap is folded as the carton enters the receivers, substantially as described.

24. In a carton-folding machine, the combination of a reciprocating slide, disk and wing pasters attached to said slide, adapted to apply paste to the top and side edes of the front and rear flaps of a carton and to fold one side flap; a folding-blade opposite the said pasting mechanism, a continuously-driven shaft, a sleeve thereon driven thereby, mechanism actuated by said sleeve for operating the said slide and folder at the proper times, and a locking device for arresting the said sleeve after it has made one rotation; with a reciprocating carton-holder, adapted to present cartons to said pasting and folding mechanism, a trip on said holder adapted to release the locking device when the holder presents the carton in position for folding, a folding-blade on said holder, means for operating said blade from and by the movement of the slide, a receiver into which the carton is discharged by the holder, and a fixed bar by which the last flap is folded as the carton enters the receivers, substantially as described.

25. In a carton-folding machine, the combination of a carton feeder and bolder, with a reciprocating pasting and folding mechanism, comprising means for folding one flap and pasting two opposite flaps of the carton, and a folding-blade on and moving with said holder; and means to operate said folding-blade at the proper time.

26. In a carton-folding machine, the combination of mechanism for feeding and holding cartons, and flap-folding devices arranged to operate on the carton-flaps while in the holder; with a rotating shaft; means operated by said shaft for actuating said folding devices, mechanism for locking said means after the folding operation is completed; and means for tripping said locking mechanism when a carton is fed into position for folding.

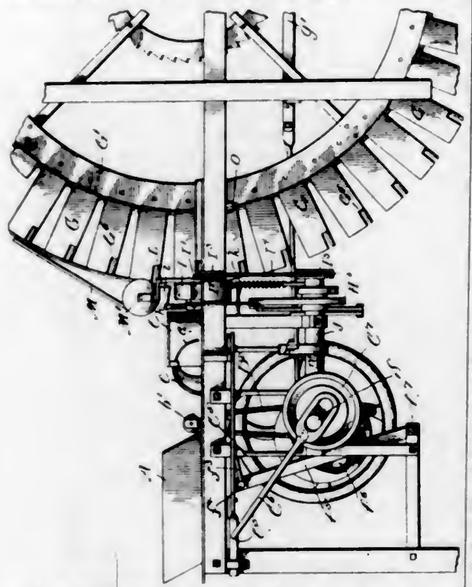
751,823. CARTON-MACHINE. JOSEPH H. WEEKS, Battlecreek, Mich. Filed May 18, 1903. Serial No. 157,637. (No model.)

Claim.—1. A hollow prismatic collapsible expander adapted to receive the carton-tube within it in a collapsed state and then expand to open the cartons by external pressure thereon, substantially as described.

2. In combination with mechanism for feeding carton tubes or shucks, a hollow prismatic reciprocating collapsible expander adapted to receive the carton-tube in a collapsed state and then expand thereby opening the contained carton by external pressure thereon, substantially as described.

3. In combination means for feeding flat carton tubes or shucks, mechanism for folding the end flaps of a carton, and a hollow prismatic collapsible expander adapted to receive the carton-tubes within it and then expand thereby opening the cartons by external pressure thereon, and deliver them when opened to the folding mechanism, substantially as described.

4. In combination, mechanism for feeding flat carton-tubes, mechanism for folding and pasting the end flaps of a carton, a reciprocating collapsible prismatic expander adapted to receive the flat carton-tubes, open them up, and means for taking the cartons from the expander and delivering them while opened to the folding and pasting mechanism, substantially as described



5. In combination, mechanism for feeding flat carton tubes or shucks, a form or holder for expanded cartons, a hollow prismatic collapsible expander adapted to receive carton-tubes from the feeder, open them up by external pressure thereon, and means for taking the cartons from the expander and delivering them to the forms, substantially as described.

6. In combination, mechanism for feeding flat carton tubes or shucks, a form or holder, for expanded cartons, mechanism for pasting and folding the flaps of a carton on the form or holder, a movable prismatic expander adapted to receive carton-tubes from the feeder and open them up and means for taking the cartons from the expander and delivering them to the form, substantially as described.

7. In combination, mechanism for feeding carton tubes or shucks, a collapsible hollow prismatic carton-expander having hinged sides adapted when collapsed to receive cartons from the feeder and then expand and open the cartons, a movable form or holder, mechanism for transferring the open carton from the expander to the form, and mechanism for closing the projecting flaps of the carton on the form, substantially as described.

8. In combination, mechanism for feeding carton tubes or shucks, a hollow prismatic collapsible carton-expander having hinged sides, adapted while collapsed to receive cartons from the feeder and open them up and to transfer them from the feeding to the folding mechanism, a movable form or holder, mechanism for transferring the open carton from the expander to the form, and pasting and folding mechanism for sealing the projecting flaps of the carton on the form, substantially as described.

9 In combination, means for feeding carton-tubes, a form, a reciprocating prismatic carton-expander adapted to carry cartons from the feeder to the form, mechanism adapted to remove expanded cartons from the expander to the form and place them thereon, and mechanism for closing the end flaps of the carton while on the form, substantially as described.

10. In combination, means for feeding carton-tubes, a form, a reciprocating prismatic collapsible carton-expander, having hinged sides and adapted to carry cartons from the feeding mechanism to the form, gripper mechanism adapted to draw expanded cartons from the expander onto the form, and mechanism for pasting and folding the projecting end flaps of the carton while on the form, substantially as described.

11. In combination, means for feeding carton-tubes, a form, a collapsible prismatic expander adapted while in a collapsed state to receive cartons from the feeder and then expand to open the carton, and carry them to the form, mechanism for removing cartons from the expander and placing them upon the form, and mechanism for closing the projecting end flaps of cartons while on the form.

12. In combination, means for feeding carton-tubes, a reciprocating collapsible prismatic expander having hinged sides and adapted while collapsed to receive cartons from the feeder and then expand and open the cartons, a movable form, gripper mechanism for removing cartons from the expander and placing them upon the form, and mechanism for pasting and folding the projecting end flaps of cartons while on the form.

13. In combination, a hollow expansible carton-expander, and an opener adapted to enter the carton in the expander before the latter expands and assist it in opening the carton, substantially as described.

14. In combination, a reciprocating collapsible carton-expander, an opener connected thereto adapted to enter the carton within the expander and assist it in opening the carton, substantially as described.

15. In combination, a reciprocating carton-expander, a movable opener operating therewith adapted to move out of the way as the expander advances, and to move between the carton-flaps in the expander as the latter retreats, and assist the expander in opening the carton.

16. In combination, a reciprocating collapsible carton-expander a movable opener pivoted to the expander and adapted to move out of the way as the expander advances, and to move between the carton-flaps as the expander retreats, and assist in opening the carton.

17. In combination, a reciprocating expander, a bar hinged thereto, an opener hinged to said bar, means for vibrating said bar as the expander reciprocates, and a connection between the opener and expander, substantially as described.

18. In combination, the collapsible reciprocating expander, the bar hinged to the inner end thereof, the opener hinged to said bar, the pin and guide-slot for operating said bar, as the expander reciprocates, and the connecting-wire between the opener and expander, substantially as described.

19. In combination, carton-tube-feeding mechanisms, a reciprocating expander, and a vibrating opener beside and moving with the expander, substantially as described.

20. In combination, carton-tube-feeding mechanisms, a reciprocating collapsible carton-expander, and a vibrating opener connected to and moving with the expander, substantially as described.

21. In combination, a collapsible expander, having its top, bottom and sides, hinged together, and adapted to collapse sidewise, a slide and connections for reciprocating said expander, a lever having a sliding connection with the one side of the box, and means for rocking said lever, substantially as described.

22. In combination, a collapsible expander having top, bottom and side pieces hinged together, at the corners, a slide and connections for reciprocating said expander, a rod on one side of the expander, a stationarily-located bell-crank lever having a sliding connection with the rod, and means for rocking said lever, substantially as described.

23. In a carton-machine; means for feeding carton-blanks, a series of forms adapted to successively receive expanded cartons, a reciprocating prismatic expander adapted to take cartons from the feeder and carry them to the forms, a reciprocating gripper mechanism adapted to take the expanded cartons from the expander and place them on the forms, and means for opening and closing said grippers at the proper times, substantially as described.

24. In a carton-machine, the combination of means for feeding carton-blanks, a series of forms, a reciprocating collapsible prismatic expander for opening up the blanks and transferring them from the feeder to the forms, reciprocating grippers adapted to take the expanded cartons from the expander and place them on the forms and mechanism for pasting and folding the projecting end flaps of the cartons while on the forms.

25. In a carton-machine, the combination of mechanism for feeding carton-blanks, a collapsible carton-expander, a carton-form, mechanism adapted to take a carton from the expander and place it on the form, a transversely-movable set of pasters adapted to apply paste to the carton-flaps, and a movable plate for holding the upper flap in position for pasting, substantially as described.

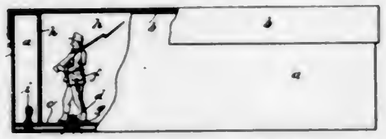
26. In a carton-machine, the combination of mechanism for feeding carton-blanks, a reciprocating collapsible carton-expander, an endless rotary series of carton-forms, gripper mechanism adapted to take cartons from the expander and place them on the forms, a transversely-movable set of pasters adapted to apply paste to the carton-flaps, a movable plate for folding the upper flap in position for pasting, and stationary movable devices for folding the flaps, substantially as described.

27. In combination, means for feeding flat carton blanks or shucks, a reciprocating carton-expander, a wheel carrying a series

of carton forms or holders on its periphery, a reciprocating gripper mechanism adapted to take cartons from the expander and place them on the forms, mechanism for closing the projecting end flaps of the cartons on the forms, and an endless belt extending around part of the peripheral series of forms on the wheel, substantially as described.

28. In combination, means for feeding flat carton blanks or shucks, a reciprocating collapsible carton-expander, an opener connected to and moving with the expander, a wheel carrying a series of radially-disposed forms on its periphery, means for moving the wheel intermittently, a reciprocating gripper mechanism adapted to take cartons from the expander and place them on the forms, mechanism for pasting and folding the projecting end flaps of the cartons on the forms, and an endless belt extending around part of the peripheral series of forms on the wheel, substantially as described.

751,824. **MEANS FOR MOUNTING AND EXHIBITING TOY FIGURES.** ANDREAS ZOLLER, Fürth, Germany, assignor to Zoller Brothers, Fürth, Germany, a Firm. Filed Apr. 11, 1903. Serial No. 152,207. (No model.)



Claim.—1. In means for mounting and exhibiting toy figures, the combination of a supporting-plate, lugs projecting therefrom and provided with eyes, and locking pins or wires passing through the eyes, said eyes and locking-pins being adapted to support and hold the toy figures, substantially for the purposes set forth.

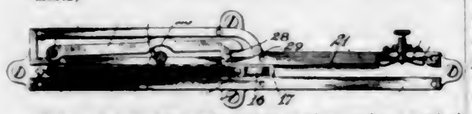
2. In means for mounting and exhibiting toy figures, the combination of a supporting-plate provided with a lug having an eye, a toy figure provided with a base supported on the plate and having a slot to receive the lug, and a locking pin or wire passing through the eye and engaged over the base, substantially for the purposes set forth.

3. In means for mounting and exhibiting toy figures, the combination of a supporting-plate provided with slits, lugs projecting through said slits and provided with eyes, toy figures provided with bases resting on the plate and having slots for receiving the lugs, and locking pins or wires passing through the eyes over the bases, substantially for the purposes set forth.

4. In means for mounting and exhibiting toy figures, the combination of a box provided with a lid, a supporting-plate, locking pins or wires connected with and supported by the plate, said pins or wires being adapted to engage and hold the toy figures, and a removable retaining-frame placed around the figures and upon the ends of the locking pins or wires, said frame being held in position by the lid, substantially for the purposes set forth.

5. In means for mounting and exhibiting toy figures, the combination of a box provided with a lid, a supporting-plate placed at the bottom of the box and provided with means for supporting and holding the toy figures, and a removable retaining-frame having a height approximately corresponding with the inside of the box above the supporting-plate, and being placed within the box around the figures and held by and between the lid and the supporting-plate, substantially for the purposes set forth.

751,825. **COMBINED DOOR STOP AND SPRING.** JACOB K. ADAMS, Hoopeston, Ill. Filed Aug. 26, 1903. Serial No. 170,797. (No model.)



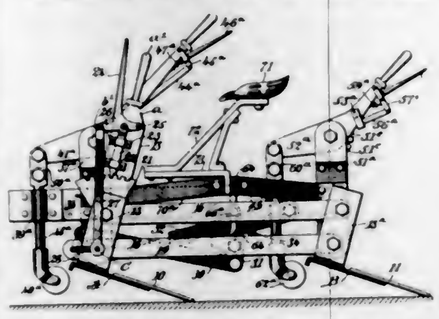
Claim.—1. A door stop and spring comprising a casing, a notched spring-pressed slide-bar held to move therein, a connecting-bar pivoted to the slide-bar and having means for connecting with the door-frame, a swinging latch-bar arranged above the slide-bar and having a finger to engage the notches of the slide-bar, and means for raising the latch-bar from either side of the door.

2. A door stop and spring comprising a casing having means for securing it to a door, a spring-pressed slide-bar movable in the casing and provided with notches on its upper edge, a connecting bar or rod pivoted to the slide-bar and having means for attachment to a door-frame, a latch-bar pivoted above the slide-bar and provided with a finger to engage the notches of the slide-bar, and a manually-operated cross-shaft pivoted in the door and casing and extending through both said cross-shaft having a cam or nose-piece to engage and raise the latch-bar.

3. In a device of the kind described, the combination of the spring-pressed slide-bar having means for supporting and guiding it on a door, the connecting rod or bar pivoted to the slide-bar and having means for attachment to a door frame or support, and a presser-plate arranged to engage the slide-bar and retard its movement as it nears the end of its stroke.

4. A door stop and spring comprising a casing, a slide-bar arranged in the casing having notches in one of its edges, a pivoted bar adapted to be held away from the notches in the slide-bar, means for releasing the locking-bar to engage the notches in the slide-bar, a bar pivotally connected to the slide-bar and to the door-frame, means for drawing the slide-bar within the casing to close the door when the notch-engaging means are withdrawn, and a presser-bar arranged on the end of the casing to engage the slide-bar at its most outward point of travel to retard its movement.

751,826. **LAND-EVENER.** FREDERICK W. ARNDT, Platte Center, Nebr. Filed Oct. 17, 1903. Serial No. 177,409. (No model.)



Claim.—1. In a land-evener, a wheel-supported frame comprising a series of pivotally-connected members, front and rear leveling-bars carried by the frame, fingers extending from the leveling-bars, and independent adjusting devices connected with the leveling-bars, to raise and lower them and to carry the fingers into and out of engagement with the ground, as described.

2. In land-eveners, a wheel-supported frame, means for raising and lowering the wheels of the frame, locking devices for said means, parallel leveling-bars at the front and rear lower portions of the frame, fingers extending rearwardly from the rear longitudinal edges of the leveling-bars, parallel connecting-bars arranged in series and pivotally connecting the leveling-bars, adjusting devices for the connecting-bars, and locking devices for the adjusting devices, as described.

3. In a land-evener, parallel leveling-bars, fingers extending rearwardly from the rear longitudinal edges of the said bars, parallel connecting-bars, arranged in series and pivotally connecting the leveling-bars, an adjusting device for the leveling-bars, a locking device for the connecting-bars, and mechanism connecting the adjusting device with the said locking device, whereby to automatically release the locking device from locking position prior to the operation of the adjusting device, as described.

4. In a land-evener, parallel leveling-bars, parallel connecting-bars in series pivotally uniting the leveling-bars, supporting-bars pivotally connected with the leveling-bars, forward and rear wheels adjustably carried by the supporting-bars, adjusting and locking devices for the said wheels, and an adjusting and a locking device for the leveling-bars, as set forth.

5. In a land-evener, parallel leveling-bars, parallel connecting-bars pivotally connecting the leveling-bars, a locking device for the connecting-bars, a shifting device for the leveling-bars, a connection between the locking device and the adjusting device, whereby the two are simultaneously operated, wheels adjustably carried by both of the said leveling-bars, independent adjusting-levers for the said wheels, and locking devices for the wheels carried by each adjusting-lever, as set forth.

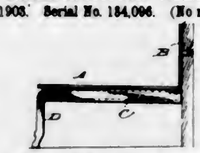
751,827. **NEEDLE-THREADING ATTACHMENT FOR SEWING-MACHINES.** LEOPOLD BERNARD, New York, N. Y. Filed Oct. 22, 1903. Serial No. 178,114. (No model.)



Claim.—1. The combination with a presser-foot having a longitudinal slot and adapted for reciprocation on a sewing-machine head, a needle-bar, and a needle pendent from the bar, of a guide-arm adjustably secured in a horizontal plane on the hub of the presser-foot, said guide-arm being disposed at one side of and parallel with the slot in the presser-foot and having a transverse groove which guides a thread to pass through the eye of the needle when said needle is depressed to aline its eye with the groove, and a resilient gage-finger carried by the guide-arm, that when pressed upon laterally contacts with the needle-bar and arrests descent of the needle at a point that will aline the eye of the needle with the groove in the guide-arm.

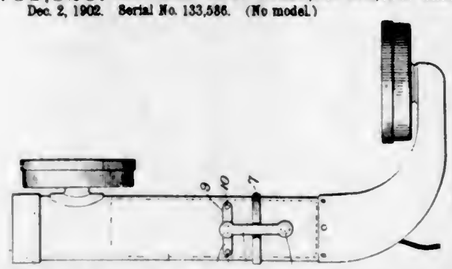
2. The combination with a sewing-machine head, a needle-bar, a needle depending from said bar, a slide-bar, and a presser-foot on the lower end of the slide-bar, said presser-foot having a longitudinal slot therein through which the needle may reciprocate, of a needle-threading device, comprising an angular bracket-frame securable on the presser-foot, a guide-arm extended from the bracket-frame along one side edge of the presser-foot and having a transverse groove therein, and a resilient gage-finger projected upward from the bracket-frame, and adapted by laterally bending its upper portion to contact with the lower end of the needle-bar and arrest its descent, for alinement of the needle-eye with the groove in the arm, so as to adapt said groove to guide the thread into the needle-eye.

751,828. **RADIATOR-SUPPORT.** JULIA A. BEURY, Beury, W. Va. Filed Dec. 7, 1903. Serial No. 184,096. (No model.)



Claim.—As a new article of manufacture, a radiator-support consisting of the platform or horizontal portion A provided with leg recesses or pockets C, legs D, provided with arms adapted to enter the pockets or recesses C, and the vertical portion B provided with screw-holes *a* and adapted to be secured in position against the base-board by screws *b*; substantially as and for the purposes set forth.

751,829. **TELEPHONE.** ERNEST T. BILLIG, New York, N. Y. Filed Dec. 2, 1902. Serial No. 133,586. (No model.)



Claim.—1. In a telephone, the combination with a battery-carrying handle for supporting the receiver and transmitter, of means for making a call or signal consisting essentially in an electromagnet, a spring-arm fastened to the core of said magnet at one end and carrying a plate that is attracted toward and away from the core, and a screw that is normally in contact with the spring-supported plate, said signaling means being arranged in proximity to the receiver-diaphragm.

2. In a telephone, the combination with a battery-carrying handle, of a receiver and also a transmitter supported by said handle, a switch on a handle controlling the signaling-circuit and a talking-circuit, a signaling means consisting essentially of an electromagnet situated in proximity to the receiver-diaphragm, a spring-arm fastened to the core of said electromagnet and carrying a plate, and adjustable means bearing on the spring-supported plate, substantially as described.

751,830. **ARC-PREVENTER.** CHARLES E. BLOOD, Fitchburg, Mass. Filed Oct. 14, 1903. Serial No. 177,088. (No model.)

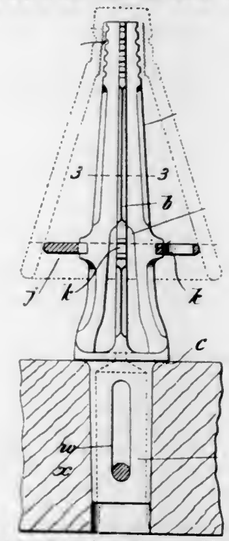


Claim.—1. In combination with the rotary cylinder and the fixed and movable contacts, pipes having their outlet ends in line with and between the fixed and movable contacts, and means actuated and controlled by said cylinder for automatically controlling the current of air through said pipes.

2. The combination with the rotary cylinder and the fixed and movable contacts, of pipes in line with and disposed between the fixed and movable contacts, an air-supply pipe for said pipes, a cut-off valve in said supply-pipe, a spring normally holding said cut-off closed, a lever, a roller carried by said lever and a notched disk carried by said cylinder for coöperation with said roller.

3. The combination with the rotary cylinder and the fixed and movable contacts, of pipes for delivering compressed air between the fixed and movable contacts, an air-supply pipe for said pipes, a cut-off valve in said pipe, a lever, a roller carried by the other arm of said lever, a spring normally holding the valve closed, a notched disk carried by the cylinder for coöperation with said roller, and a spring holding said roller in engagement with the disk.

751,831. **INSULATOR-PIN.** JAMES H. BULLARD, Springfield, Mass. Filed Aug. 8, 1903. Serial No. 168,766. (No model.)



Claim.—1. A metal insulator-pin comprising a series of webs disposed at an angle one to the other and united near one end thereof along their meeting lines, the opposite ends of said webs being separated and merging in a base, together with a stem portion of smaller diameter than said base, extending beyond the latter in axial alinement with the pin, and means to secure said stem in a cross-bar.

2. A metal insulator-pin comprising a series of flat webs disposed at an angle one to the other, and united along their meeting lines, together with a brace extending laterally beyond said web and

adapted to bear on the inner surface of an insulator secured on the pin.

3. A metal insulator-pin comprising a series of webs disposed at an angle one to the other and united near one end thereof along their meeting lines, the opposite ends of said webs being separated and merging in a base, together with a stem portion of smaller diameter than said base, extending beyond the latter in axial alinement with the pin, said stem being perforated transversely thereof.

4. A metal insulator-pin consisting of a body having one or more channels therein extending longitudinally thereof, a cylindrical stem-piece integral with said body, together with a brace extending laterally beyond said webs and adapted to bear on the inner surface of an insulator secured on the pin.

5. A metal insulator-pin having one or more channels extending longitudinally thereof, a cylindrical stem integral with said body, and an annular brace fitting over the pin and removably secured thereto.

6. A metal insulator-pin having one or more channels extending longitudinally thereof, a cylindrical stem integral with said body, an annular brace loosely supported thereon, and means to adjust said brace vertically.

751,832. **SIGN-DISPLAY DEVICE.** ARTHUR CAHN, JACOB CAHN, and ARTHUR R. MOSLER, New York, N. Y.; said Mosler assignor to said Arthur Cahn and Jacob Cahn. Filed Oct. 13, 1903. Serial No. 176,822. (No model.)



Claim.—1. A sign-display device comprising two brackets fitted to engage a show-case or other support, a sign-holder carried by each bracket and means for connecting the brackets.

2. A sign-display device comprising two brackets fitted to engage a show-case or other support, a sign-holder carried by each of the brackets and means connecting the brackets for drawing them into clamping engagement with their support

3. A sign-display device comprising two brackets fitted to engage a show-case or other support, means for connecting the brackets, a sign-holder carried by each of the brackets and means for adjusting one of the sign-holders on its bracket toward and away from the other sign-holder.

4. A sign-display device comprising two brackets fitted to engage a show-case or other support, a sign-holder carried by each of the brackets and a connecting-rod engaging one bracket and having a screw-threaded engagement with the other bracket for drawing the brackets into clamping engagement with their support.

5. A sign-display device comprising two brackets each consisting of a horizontal portion, a plate and clips carried by the plate for engaging the support, means engaging the horizontal portions for drawing the brackets into clamping engagement with the support and a sign-holder carried by the horizontal portion of each of the brackets.

6. A sign-display device comprising two brackets, means for connecting them and sign-holders carried thereby, each bracket comprising a horizontal portion and a spring-plate having clips at its opposite ends arranged to engage a support.

7. A sign-display device comprising two brackets, each of the brackets having a spring-plate arranged to engage a show-case or other support, means connecting the brackets for drawing them into clamping engagement with the support and a sign-holder carried by each of the brackets.

751,833. **JOURNAL-BEARING FOR TRUCK WHEELS AND CASTERS.** GEORGE P. CLARK, Windsor Locks, Conn. Filed May 12, 1903. Serial No. 156,763. (No model.)

Claim.—1. A journal-bearing comprising depending standards, having bearings for the axle to run in, said standards having slots in their sides leading into the bearings, and lubricating-blocks vertically slidable in the said bearings and engaging the axle at the under side, and having flanges fitting the faces of the standards, as set forth.

2. A journal-bearing comprising depending standards having bearings for the axle to run in, said standards having slots in their sides, leading to the lower portions of the bearings, and lubricating-blocks vertically slidable in the said bearings and engaging the axle at the under side, and having flanges fitting the faces of the standards, each block having a recess filled with a lubricating matter, in contact with the axle, as set forth.



3. A journal-bearing comprising depending standards having bearings for the axle to run in, said standards having slots in their sides, leading to the lower portions of the bearings, lubricating-blocks vertically slidable in the said bearings and engaging the axle at the under side, and having flanges fitting the faces of the standards, and means for adjusting the said blocks vertically and holding the same in engagement with the axle, as set forth.

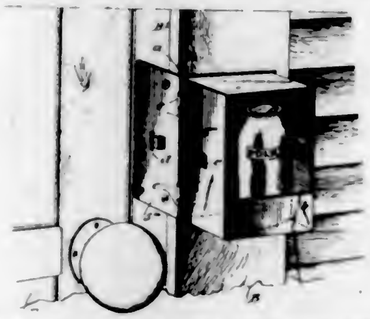
4. In a journal-bearing, an axle-supporting block having a lubricating-recess in the face on which the axle bears, flanges on the ends of the block for holding the block against transverse movement on the bearing, and a feeding-groove on one of the flanges leading to the said recess, as set forth.

5. A journal-bearing comprising depending standards having bearings for the axle to run in, and having slots in the sides of the standards, leading to the lower portions of the bearings, lubricating-blocks vertically slidable in the said bearings and engaging the axle at the under side, and having flanges fitting the faces of the standards, each block having a recess filled with a lubricating matter, in contact with the axle, and one of said flanges having a groove on its inner face, leading to the said recess, as set forth.

6. A journal-bearing provided with a block having a lubricating-recess in the face on which the axle bears, and flanges on the ends of the block, for holding the block against transverse movement on the bearing, the inner flange being forked in its upper portion, as set forth.

7. A journal-bearing provided with a block having a lubricating-recess in the face on which the axle bears, and flanges on the ends of the block, for holding the block against transverse movement on the bearing, the inner flange being forked in its upper portion, and the outer flange having a feed-groove at its inner face, extending from the top downward to the said recess, as set forth.

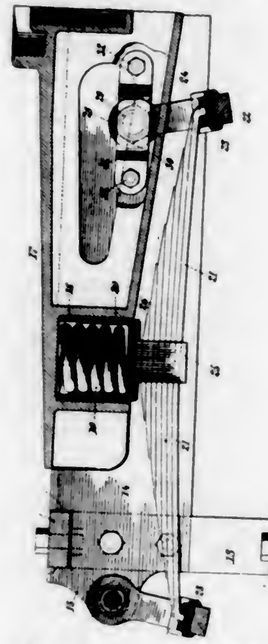
751,834. **RECEIVER FOR MAIL, &c.** NELSON D. CLEARWATER, Binghamton, N. Y. Filed Sept. 9, 1903. Serial No. 172,461. (No model.)



Claim.—1. A receiver for mail and other matter, comprising a right-angular bracket-plate securable upon the jamb of a door-casement, a catch on the bracket-plate, a rectangular box open at one side, a hinged connection between a corner of the box and the angle of the bracket-plate, so that the box may be swung to contact with one side on the portion of the bracket-plate having the catch thereon, a corresponding catch on the side wall of the box that is swung toward the bracket-plate, and which will interlock with the catch on the bracket-plate.

2. The combination with a door, the casement for the door, and a right-angular bent bracket-plate securable on the jamb-wall and adjacent front wall of the door-casement, of a rectangular receiver or box having one open side, a catch on one side of the box that is at a right angle to the open side, a hinged connection between the angular corner of the bracket-plate and the corner of the box formed by the junction of the wall opposite the opening in the box with the wall provided with the catch, and a coacting catch on the part of the bracket-plate secured on the jamb-wall of the casement, the adjustment of the box to dispose the open side thereof opposite and near the door, adapting the mating catches to interlock with each other.

751,835. **ELECTRIC-CAR TRUCK.** EDWARD CLIFF, East Orange, N. J. Filed Nov. 21, 1903. Serial No. 182,074. (No model.)



Claim.—1. In a car-truck, a bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character and a coiled spring at the center thereof: substantially as set forth.

2. In a car-truck, a bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character and a coiled spring at the center thereof, said leaf-spring extending transversely of the truck: substantially as set forth.

3. In a car-truck, a bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character and a coiled spring in operative connection therewith, said leaf-spring extending transversely of the truck, combined with means supporting the ends of said leaf-spring and permitting said spring to have an endwise movement with said bolster: substantially as set forth.

4. In a car-truck, a bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character and a coiled spring in operative connection therewith, said leaf-spring extending transversely of the truck, combined with the pivoted saddles receiving the ends of said leaf-spring: substantially as set forth.

5. In a car-truck, the bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character and a coiled spring mounted thereupon, said coiled spring receiving the bolster, and the bolster being provided with a chamber to pass upon said coiled spring: substantially as set forth.

6. In a car-truck, a bolster, and spring-supports for the ends thereof, said spring-supports each comprising a leaf-spring of elliptic character, an inverted cap mounted upon said leaf-spring, and a coiled spring within said cap and engaging said bolster, said bolster having a chamber to receive said coiled spring and the sides of said cap: substantially as set forth.

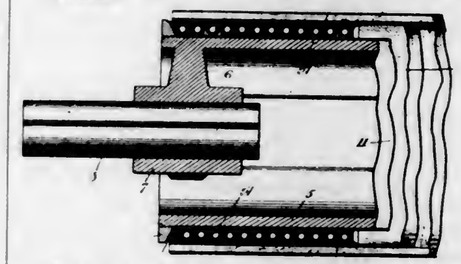
7. In a car-truck, the bolster formed at its ends with the spring-chambers, and spring-supports for the ends of said bolster, said spring-supports each comprising a leaf-spring of elliptic character, an inverted cap mounted thereupon and adapted to said spring-chamber, and a coiled spring mounted in said cap and receiving said bolster: substantially as set forth.

8. In a car-truck, a bolster having the elongated spring-chamber formed in its ends, and spring-supports for the ends of said bolster, said spring-supports each comprising a plurality of leaf-springs of elliptic character, and coiled springs corresponding in number with said leaf-springs, and housed in the chamber of said bolster; substantially as set forth.

9. In a car-truck, a bolster having spring-chambers formed in its ends, spring-supports for the ends of said bolster and each comprising a plurality of leaf-springs of elliptic character, a cap mounted upon said leaf-springs and opening upwardly, and coiled springs corresponding in number with said leaf-springs and held within said cap, said cap being adapted to the chamber formed in said bolster, and said coiled springs receiving the weight of said bolster; substantially as set forth.

10. In a car-truck, a bolster, and spring-supports for the ends thereof, said supports each comprising a semi-elliptic leaf-spring combined with the pivoted saddles for the ends of said springs, the transoms to which said saddles are pivoted, and the bolts having the straps for the inner saddles, said bolts passing through said transoms and said straps at their ends being secured to said transoms: substantially as set forth.

751,836. **ROLLER FOR LAUNDRY-MACHINES.** WILLIAM E. CUMBACK, San Francisco, Cal. Filed Feb. 4, 1903. Serial No. 141,793. (No model.)



Claim.—1. A roller of the class described, comprising a core, a yieldable jacket applied spirally to the core, a supplemental strip applied spirally to said jacket, and filling the spaces between the coils thereof, and devices for individually fastening the end portions of the spiral jacket and the supplemental strip.

2. A roller of the class described, having a core, a yieldable jacket of circular cross-section applied spirally to the core, and a supplemental strip of tapering cross-section wound spirally on the jacket and filling the spaces between the coils of said jacket, the exposed faces of the strip and the spiral jacket lying substantially flush and making the jacketed roller present an external cylindrical contour.

3. A roller of the class described, comprising a core, slotted heads fastened to the end portions of said core, each head being tapered to increase in thickness from one side of the slot to the other and produce a beveled surface on the inner side of the head, and a yieldable covering applied spirally to the core between the heads thereof, the end coils of said spiral covering having firm bearing against the beveled inner surfaces of the heads.

4. A roller of the class described, comprising a core, heads fastened to the end portions of the core and provided with transverse openings, a hollow enveloping jacket applied spirally to the core and having an end portion thereof extended through an opening in the head, and a hollow coupling attached to the end portion of the enveloping jacket and to the head.

5. A roller of the class described, comprising a core, heads fastened to the end portions thereof, a hollow enveloping jacket applied spirally to the core, and hollow couplings supported on the heads and attached to the end portions of the hollow jacket, said couplings affording vents to said hollow jacket.

6. A roller of the class described, comprising a metallic core, a

heat-resisting layer applied externally thereto, heads on the end portions of the core, a yieldable inflatable jacket spirally enveloping the heat-resisting layer, another heat-resisting layer applied externally to the yieldable jacket, and a cushioned fabric layer enveloping the last-mentioned heat-resisting layer.

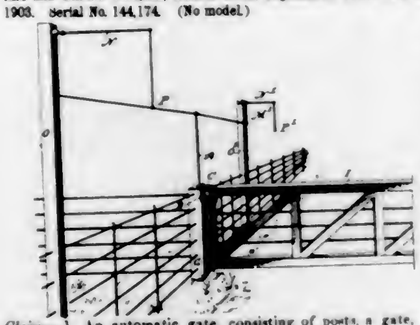
7. A roller of the class described, comprising a core, a head thereon provided with an opening, a hollow jacket spirally enveloping the core, a coupling-sleeve secured to the end of the jacket, an adjusting-tube screwed in the coupling-sleeve and attached to the head, a supplemental strip applied spirally to the jacket, and means for clamping the end of the supplemental strip to the head.

8. A roller of the class described, comprising a core, a hollow elastic strip applied spirally thereto, and a supplemental strip filling the spaces between the coils of said hollow strip.

9. A roller of the class described, comprising a core, a collar attached thereto, a hollow elastic strip or tube coiled spirally on the core, a supplemental strip filling the spaces between the coils of the hollow strip, and means for separately fastening the end portions of the hollow strip and the supplemental strip to said core.

10. A roller of the class described, comprising a core, slotted heads fast with said core, a spiral hollow strip on the core, a hollow coupling inserted in each end portion of the strip and forming a passage for the ingress of a cushion or inflating medium into a chamber formed by said hollow strip, and means for fastening the couplings to the respective heads of the core, said couplings affording means for the attachment of inflating-valves.

751,837. **AUTOMATIC OR SELF-ACTING GATE.** JUAN DELAUNAY and RAMON VASQUEZ, Buenos Aires, Argentina. Filed Feb. 19, 1903. Serial No. 144,174. (No model.)



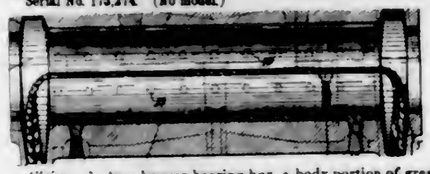
Claim.—1. An automatic gate, consisting of posts, a gate, a hinge connecting the lower portion of the gate with one of the posts, a plate pivoted to the upper end of the hinge-post and to one end of which the upper end of the gate is hinged, said plate being provided with an aperture in one end, a lever pivoted to the hinge-post and extending loosely through the aperture of the said plate, posts arranged at the side of the driveway, elbow-levers pivoted to said posts, said elbow-levers having their members of unequal length and provided with an opening in the ends of their shorter members, operating-levers pivoted to the said posts and passing through the openings of the elbow-levers, and wires or rods connecting the longer members of the elbow-levers with the lever pivoted to the hinge-post, as set forth.

2. An automatic gate, comprising posts, a gate, a hinge connecting the lower portion of the gate with the lower portion of one of said posts, a plate pivoted to the upper end of the hinge-post and to one end of which the upper end of the gate is hinged, said plate being provided with an aperture in its outer end, a vertical lever pivoted at its lower end to the hinge-post and extending loosely through the aperture of the said plate, posts arranged at the side of the driveway, elbow-levers pivoted to said posts, a connection between one member of each elbow-lever and the upper end of said vertical lever, and additional levers pivoted to said posts and engaging the other members of the elbow-levers, as set forth.

3. In an automatic gate, the combination with a post and a gate, of a plate secured to the post and provided with a pin projecting from its upper edge, a plate mounted on the pin of the first-named plate, said second plate being pivoted at one end to the gate and provided in its other end with an opening, a lever having its lower end pivoted to the post and extending through the opening of the second plate, and means for operating said lever, as set forth.

4. In an automatic gate, the combination with a gate, a hinge-post, and posts arranged at the side of the driveway, of a plate pivoted to the hinge-post and having one end pivoted to the gate, a lever pivoted to the hinge-post and loosely connected with the said plate, elbow-levers pivoted to the posts arranged at the side of the driveway and having openings in one of their members, levers pivoted to the said posts and passing through the openings of the elbow-levers, and connections between the other members of the elbow-levers and the lever pivoted to the hinge-post, as set forth.

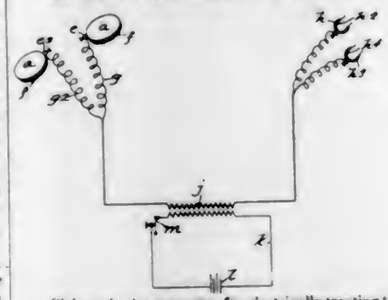
751,838. **HANGER-BOX.** MAX H. DETTE, New York, N. Y., assignor to estate of P. Pryibil, New York, N. Y. Filed Sept. 15, 1903. Serial No. 173,274. (No model.)



Claim.—1. In a hanger bearing-box, a body portion of greater thickness at its center than at the side edges thereof a longitudinally-extended strengthening-beam formed on the thickened central portion of the body, a cap designed to be secured to the body portion, apertures being formed in the cap and body portion through which bearing metal may be introduced, said cap and body portion also having recesses into which the metal may flow and be locked against displacement when hardened, and oil-chambers formed in the ends of the cap and body portion.

2. In a hanger-box, a body portion increasing in thickness from the longitudinal edges thereof toward the center, a cap for said body portion also increasing in thickness from the longitudinal edge portions toward the center, said body portion and cap having apertures therein through which bearing metal may be introduced, recesses being formed in the body portion of the cap into which recesses a portion of metal is designed to flow, a longitudinal strengthening-rib formed centrally of the cap portion, ribs extending along the longitudinal edge portions of the body and cap, said body also having longitudinal grooves therein to receive a lubricant, and oil-chambers formed circumferentially in the ends of the body portion and communicating with said grooves.

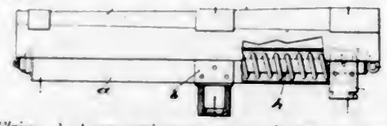
751,839. **ELECTRIC HAIR-BRUSH.** HENRY C. DORRBH, Nyack, N. Y., assignor of one-half to William S. Pickard, Brooklyn, N. Y. Filed June 1, 1903. Serial No. 159,417. (No model.)



Claim.—1. An apparatus for electrically treating the hair, comprising a plurality of brushes, conductive fingers or teeth mounted in said brush, an electrical conductor in operative connection with the teeth of each of said brushes, a battery, an open circuit in connection therewith, a rheotome in said circuit and an induction-coil one of the windings of which is composed of said first-named electrical conductors, and the other winding of which consists of the electrical conductor of said open circuit substantially as shown and described.

2. An apparatus of the class described comprising a plurality of brushes, conductive fingers or teeth mounted in said brushes, a plurality of curved spring-plates and sponges secured therein, a wire connecting one of said brushes with one of said spring-plates, a supplemental wire connecting the other of said brushes with the other of said spring-plates, said wires comprising one of the windings of an induction-coil the other of said windings consisting of an open circuit through a battery and a rheotome in said circuit substantially as shown and described.

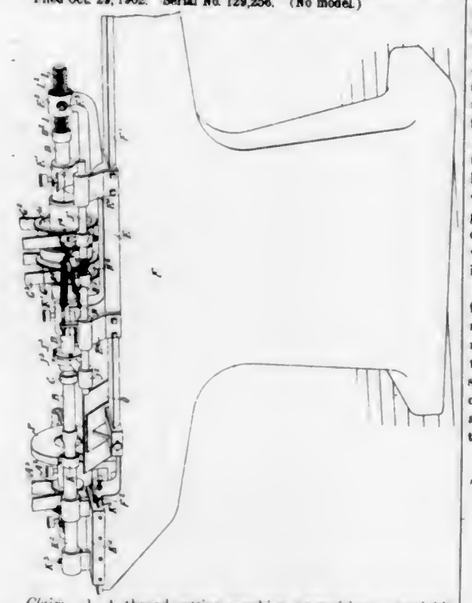
751,840. **GUN CARRIAGE OR MOUNTING.** GUSTAV EHRHARDT, Eisenach, Germany. Filed Apr. 4, 1903. Serial No. 151,107. (No model.)



Claim.—1. A gun carriage or mounting having a pivoted tube adapted to contain part of the recoil mechanism, said tube being provided with surrounding rings above the pivot and elevator-slide said rings being provided with guides in which the movable gun is guided by means of corresponding guide-plates on lateral plates secured to the sides of the gun or reinforcements thereon, substantially as described.

2. The combination of a gun, armor-plates on said gun, said armor-plates having internal protected guide-rails, and a gun-carriage having members cooperating with said protected guide-rails, said members being covered always and protected by said guide-rails.

751,841. **THREAD-CUTTING MACHINE.** GEORGE A. ENSIGN, Defiance, Ohio, assignor to Defiance Machine Works, Defiance, Ohio. Filed Oct. 29, 1902. Serial No. 129,256. (No model.)



Claim.—1. A thread-cutting machine, comprising a revoluble work-holder, means for feeding the work-holder longitudinally according to the threads per inch to be cut on the work, a circular cutter for cutting the threads on the work, means for imparting a forward and backward revolving motion to the work-holder, and a spring-pressed stock mounted to slide longitudinally and having a center engaged by the end of the work to be threaded, the said center being formed with a receiving-cup having a portion of its side cut out for the entrance of the said cutter, as set forth.

2. A thread-cutting machine having a tail-center mounted in a sliding tail-stock and provided with a cup to receive one end of the work, and having a cut-out portion in its side to receive a cutting-tool, said cut-out portion leading out through the end of the cup, as and for the purpose set forth.

3. A thread-cutting machine, having a revoluble spindle for carrying one end of the work, means for feeding the spindle lengthwise in a forward and backward direction, means for revolving the spindle forward and backward, and means for varying the length of the forward-and-backward feed of the spindle, and consisting of a stop movable lengthwise with the spindle and a shifting-lever for the said means to rotate the spindle, the shifting-lever having a movable bar adapted to be moved in or out of the path of said stop, as set forth.

4. A thread-cutting machine, having a revoluble spindle for carrying the work, means for feeding the spindle lengthwise, forward or backward, a sleeve for the spindle to slide in and to turn with, pulleys rotated in opposite directions and mounted to turn loosely on the sleeve, each pulley being provided with a clutch member, a double-clutch member slidable on and turning with the said sleeve, a shifting-lever for the said double-clutch member, to throw said member in or out of engagement with the clutch member on either pulley, a spring for holding the shifting-fork in an intermediate position, and stops moving lengthwise with the spindle for engagement with and shifting of the shifting-fork as set forth.

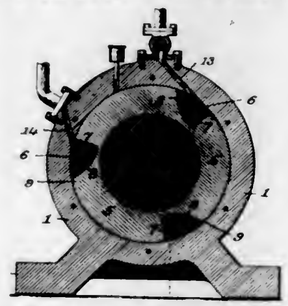
5. A thread-cutting machine, having a revoluble spindle for carrying the work, means for feeding the spindle lengthwise, forward or backward, a sleeve for the spindle to slide in and to turn with, pulleys rotated in opposite directions and mounted to turn loosely on the sleeve, each pulley being provided with a clutch member, a double-clutch member slidable on and turning with the said sleeve, a shifting-lever for the said double-clutch member to throw said member in or out of engagement with the clutch member on either pulley, a spring for holding the shifting-fork in an intermediate position, and stops moving lengthwise with the spindle for engagement with and shifting of the shifting-fork, and a bar slidable on the shifting-fork for engagement by one of the stops, as set forth.

6. In a thread-cutting mechanism, the combination of a spindle, mechanism for revolving the spindle in either direction, a spring-pressed shifting-lever for said mechanism, means for moving the spindle backward and forward according to the direction it is revolved, a sliding rod connected with the spindle to move therewith and provided with spaced stops for engaging opposite sides of the shifting-lever, and means carried by the shifting-lever whereby its movement in one direction may be increased or decreased, as set forth.

7. A thread-cutting machine, comprising a work-holder, means for revolving it in either direction, means for feeding the work-holder forward or backward according to the direction it is revolved, a slidable and spring-pressed tail-center adapted to be engaged by the outer end of the work, a pattern carried by the tail-center, a transversely-sliding carriage engaging the pattern, a transversely-adjustable slide mounted in the carriage, and a saw mounted in the slide, as set forth.

8. A thread-cutting machine, comprising a work-holder, means for revolving the work-holder in either direction, means for automatically controlling the direction of movement of the work-holder, means for feeding the work-holder forward or backward according to the direction in which the holder is revolved, a slidable and spring-pressed tail-center carrying a pattern, a transversely-sliding carriage adapted to engage the pattern carried by the tail-center, a slide adjustably mounted on the carriage, and a saw mounted in the slide, as set forth.

751,842. **ROTARY ENGINE.** VICTOR ERICSON, Chicago, Ill. Filed Nov. 30, 1903. Serial No. 183,148. (No model.)



Claim.—1. In a rotary engine of the class herein described the combination of a stationary casing having a cylindrical bore and provided with the usual tangential inlet and outlet passages for the motive fluid, end heads closing said bore and provided with centrally-arranged tapering sockets, a cylindrical piston arranged in said bore and having a less length than the distance between said end heads and provided with peripheral chambers of an angular form in cross-section and with one face of each chamber in radial alinement with the axis of rotation, the length of the piston being in excess of the length of said chambers to provide unbroken cylindrical ends on the piston adapted to fit the piston-chamber and prevent leakage of mo-

tive fluid, an engine-shaft carrying said piston, and conical bushings fitting the conical bores of the end heads to constitute bearings for the engine-shaft, substantially as set forth.

2. In a rotary engine of the class herein described, the combination of a stationary casing having a cylindrical bore and provided with the usual tangential inlet and outlet passages for the motive fluid, end heads closing said cylindrical bore, a cylindrical piston arranged in said bore and having a less length than the distance between said end heads and provided with peripheral chambers of an angular form in cross-section, each pocket having a face radial to the axis of rotation and a curved face connecting said radial face with the periphery of the piston and merged into said periphery by a small reverse curve, the length of the piston being in excess of the length of the chamber to provide unbroken cylindrical ends on the piston adapted to fit the piston-chamber and prevent lateral leakage of the motive fluid, and an engine-shaft carrying such piston and having bearings in the end heads aforesaid, substantially as set forth.

3. In a rotary engine of the class herein described the combination of a stationary casing having a cylindrical bore and provided with the usual tangential inlet and outlet passages for the motive fluid, end heads closing said bore and provided with cylindrically-arranged tapering sockets, a cylindrical piston arranged in said bore and having a less length than the distance between said end heads and provided with peripheral chambers of an angular form in cross-section each pocket having a face radial to the axis of rotation and a curved face connecting said radial face with the periphery of the piston and merging into said periphery by a small reverse curve, the length of the piston being in excess of the length of said chambers to provide unbroken cylindrical ends on the piston adapted to fit the piston-chamber and prevent leakage of motive fluid, an engine-shaft carrying said piston, and conical bushings fitting the conical bores of the end heads to constitute bearings for the engine-shaft, substantially as set forth.

751,843. FOLDING VEHICLE. CHARLES E. FANNING, Davenport, Iowa, assignor to Folding Baby Carriage Company, Davenport, Iowa. Filed Jan. 28, 1903. Serial No. 140,869. (No model.)



Claim.—1. A folding vehicle comprising a front seat-supporting frame having side bars, a rear seat-supporting frame, a reach pivotally connecting the said frames with each other, front and rear axle-carriers mounted to swing on the said frames and controlled by the said reach, wheels journaled on the said axle-carriers, a seat supported on the said frames, a cross-bar held on the reach and a locking device under the control of the operator, comprising an arm fulcrumed on the cross-bar of the reach and a cross-bar held on the side bars of the front seat-supporting frame, and adapted to be engaged by the said arm, as set forth.

2. A folding vehicle comprising a front seat-supporting frame having side bars, a rear seat-supporting frame, a reach pivotally connecting the said frames with each other, front and rear axle-carriers mounted to swing on the said frames and controlled by the said reach, wheels journaled on the said axle-carriers, a seat supported on the said frames, a cross-bar connecting the members of the reach and a locking device under the control of the operator, comprising an arm fulcrumed at its rear end on the said cross-bar of the reach, to swing up and down, the free forward end of the said arm having a hook, and a cross-bar connecting the side bars of the front seat-supporting frame, and adapted to be engaged by the said hook, as set forth.

3. A folding vehicle having a locking device for a reach and a front seat-supporting frame, comprising a hook-arm fulcrumed on the reach, and a cross-bar on the said front supporting-frame, adapted to be engaged by the hook end of the said hook-arm, as set forth.

4. A folding vehicle having a locking device for a reach, and a front seat-supporting frame, comprising a hook-arm fulcrumed on the reach, and a cross-bar on the said front supporting-frame, adapted to be engaged by the hook end of the said hook-arm, the latter being arranged to swing up and down and the hook end of the hook-arm being provided with a handle, as set forth.

5. A folding vehicle comprising a froot seat-supporting frame, a rear seat-supporting frame, a reach pivotally connecting the frames with each other, front and rear axle-carriers mounted to swing on the said frames and controlled by the said reach, a seat-frame mounted to swing on the said seat-supporting frames, a seat provided on its sides near the front end with guideways, lugs extending upward from the sides of the said seat-frame and engaging said guideways, and springs interposed between the rear portion of the seat and the rear portion of the said seat-frame, as set forth.

6. A folding vehicle comprising a front seat-supporting frame, a rear seat-supporting frame, a reach pivotally connecting the frames with each other, front and rear axle-carriers mounted to swing on the said frames and controlled by the said reach, a seat-frame mounted to swing on the said seat-supporting frames, a seat having guideways at its sides near the front end resting on the seat-frame, lugs on the seat-frame engaging the guideways, springs interposed between the rear portion of the seat and the rear portion of the said seat-frame, and retaining-lugs on the front portion of the said seat, extending forwardly under the front cross-bar of the said seat-frame, to prevent the seat from disengaging the seat-frame, as set forth.

7. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame, a seat-frame pivotally connected at its front end with the said front seat-supporting frame, a seat held in the seat-frame, springs connected with the rear portion of the seat and supported by the seat-frame and movable therewith, and connected slides vertically movable on the rear seat-supporting frame and to which the rear end of the seat-frame is pivotally connected, whereby when the said slides are moved upward, in folding the vehicle, they will carry with them the rear portion of the seat-frame and the said springs, for the purpose set forth.

8. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame, a seat-frame fulcrumed on the said front seat-supporting frame, a seat supported at its front portion by the said seat-frame, and longitudinally-extending springs connected at one end with the rear portion of the seat and engaging with their free ends a cross-bar on the seat-frame, as set forth.

9. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame provided with a slide, a seat-frame fulcrumed on the said front seat-supporting frame and on the slide of the said rear supporting-frame, lugs depending from the rear ends of the sides of the seat-frame, a cross-bar supported in said lugs, a seat arranged to swing with its front portion in the said seat-frame, and springs connected at one end with the rear portion of the seat and engaging with their other ends the rear cross-bar of the seat-frame, as set forth.

10. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame provided with side bars, slides mounted to move up and down on the said side bars and connected by a cross bar, a seat-frame fulcrumed at its front end on the front seat-supporting frame and provided at its rear ends with upwardly-extending lugs fulcrumed on the cross-bar of the slides, a seat free to swing in the said seat-frame, the front portion of the seat being hung on the seat-frame, and springs interposed between the rear of the seat and the rear of the seat-frame, as set forth.

11. A folding vehicle having a seat-frame provided with rising lugs on the sides near the front thereof, a seat free to swing within the said seat-frame and having guideways projecting laterally from the sides of the seat and engaging the said lugs, a cross-bar supported in lugs on the rear of the seat-frame, and springs secured at one end on the rear of the seat and resting with their free ends on the rear cross-bar of the seat-frame, as set forth.

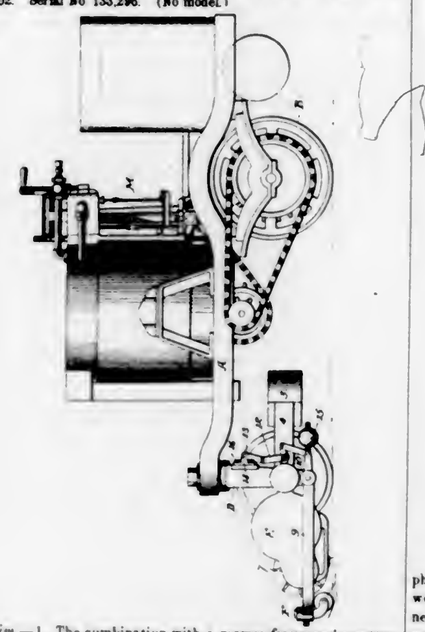
12. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame provided with side bars, slides mounted to move up and down on the said side bars and connected by a cross bar, a seat-frame fulcrumed at its front end on the front seat-supporting frame and at its rear end on the cross-bar of the slides, a seat supported at its front portion by the said seat-frame, and springs connected at one end with the rear portion of the seat the other ends of the springs being supported by the rear portion of the seat-frame, whereby the said slides when moved upward in folding the vehicle will carry with them the rear portion of the seat-frame and the said springs, as set forth.

13. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame provided with side bars, a seat supported on the said frames, a back fulcrumed on the said seat, seat sides pivoted on the said seat and provided at their rear ends with stops for the said back to rest on when in its rearmost inclined position, and lugs fulcrumed on the side bars of said rear seat-supporting frame, to hold the said back in a nearly vertical position, as set forth.

14. A folding vehicle having a front seat-supporting frame, a rear seat-supporting frame provided with upwardly-extending side bars, a seat supported on the said frames, a back fulcrumed on the said seat, seat sides pivoted on the said seat and provided at their ends with stops for the said back to rest on when the back is in its rearmost inclined position, and adjustable stops on the upwardly-extending side bars of said rear seat-supporting frame, to hold the said back in a nearly vertical position, the said adjustable stops being fulcrumed on the said side bars of the rear seat-supporting frame and being adapted to rest on the top edges of the said sides, as set forth.

15. A folding vehicle having a handle made in sections, the sections being provided with lugs projecting at the front and rear of the same and hinged together at one end the lugs being adapted to abut against each other when the handle is extended and a lock for the other end of said lugs to hold the sections in an extended position, the lock consisting of a bolt pivoted on the free end of one lug and engaging a slot in the free end of the other lug, as set forth.

751,844. LAWN-MOWER. CHARLES E. FOSTER, Washington, D. C., assignor to William P. Simpson, Overbrook, Pa. Filed Nov. 29, 1902. Serial No. 133,296. (No model.)



Claim.—1. The combination with a mower-frame and a cutter-frame supported movably by the mower-frame, of means for shifting the position of the cutter-frame vertically, and a controller-bearing on the ground and connected to operate the shifting means, substantially as set forth.

2. The combination with a mower-frame and a counterbalanced cutter-frame movably supported by the mower-frame, of means for shifting the position of the cutter-frame, to carry the cutters to and from the ground, and a controller-bearing on the ground and connected to operate the shifting means, substantially as set forth.

3. The combination with a mower-frame and a cutter-frame supported by the mower-frame, of adjustable means for shifting the vertical position of the cutter-frame, and a controller-bearing on the ground and connected to operate the shifting means, substantially as set forth.

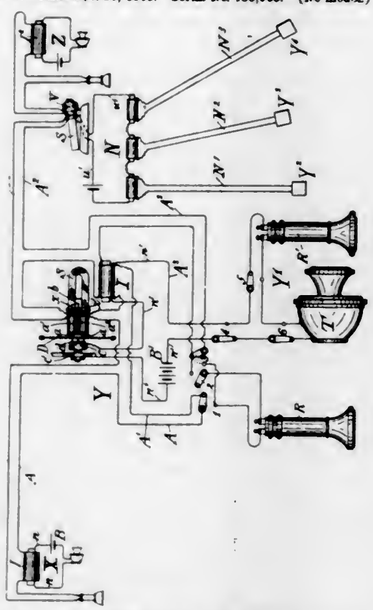
4. The combination with a mower-frame and a cutter-frame movably supported by the mower-frame, of means for shifting the vertical position of the cutter-frame, a controller consisting of a bearing traversing the ground in advance of the cutter and supported to follow the contour of the ground, and connections between the controller and shifting means, substantially as set forth.

5. The combination with a mower-frame and a cutter-frame supported by the mower-frame, of means for shifting the vertical position of the cutter-frame, a controller consisting of a bearing traversing the ground in advance of the cutter and supported to follow the contour of the ground, connections between the controller and shifting means, and means for varying the extent of movement imparted to the cutter-frame from the controller, substantially as set forth.

6. The combination with the mower-frame and cutter-frame supported by the mower-frame, of a controller-bearing on the ground, and supported independently of the cutter-frame, and connections for shifting the cutter-frame vertically on the vertical movement of the controller, substantially as set forth.

7. The combination of the traction-frame of a mower, of a roller-frame pivoted thereto, a cutter-frame hung to the roller-frame, a controller-bearing on the ground and supported independently of the cutter-frame, and connections for shifting the cutter-frame vertically on the vertical movement of the controller, substantially as set forth.

751,845. TELEPHONIC REPEATER. MERRITT GALLY, Brooklyn, N. Y. Filed Apr. 23, 1903. Serial No. 153,965. (No model.)



Claim.—1. In a telephone system; the primary circuit of a telephonic repeating device; an induction-coil having its secondary coil wound doubly two wires being wound together, one of its wires connected to one main line, and the other wire connected to another main line.

2. In a telephone system; a telephonic repeating device, placed between two telephone-lines; said device comprising a permanent magnet, combined with one or more electromagnet-cores; each core being doubly wound, one of its two wires connected to one of the telephone-lines and the other wire connected to the other telephone-line

3. In a telephone system; a telephonic repeating device; com

prising a bipolar magnet, with two doubly-wound coils, one for each magnet-pole; one of the wires of each of said coils connected with one telephone-line, and the other wire for connection with another telephone-line.

4. In a telephone system; a telephonic repeating device; comprising a magnet having two permanently-magnetized bars with pole-pieces, each pole-piece with coils of two wires wound together thereon, one of the wires connected with one telephone-line and the other wire for connection with another telephone-line.

5. In a telephone system; a repeater between two telephone-lines; a local circuit in connection with the repeater; switching means for converting the repeater into a local relay, and a local transmitter therefor.

6. In a telephone system; a repeater between two telephone-lines; a local circuit in connection with the repeater; switching means for converting the repeater into a local relay; and a local receiver therefor.

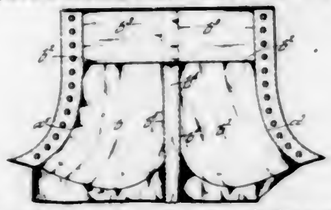
7. In a telephone system; a telephonic repeating device, for connection with two telephone-lines; said device comprising a magnet having one or more cores; each core wound with a plurality of wires, a part of the wires connected with one telephone-line and a part for connecting with another telephone-line.

8. In a telephone system; a telephonic repeating device, for connection with two telephone-lines; said device comprising connections for a primary circuit; a primary induction-coil, comprising a plurality of secondary wires wound together, a part of them for connection with one telephone-line and a part of them for connection with another telephone-line.

9. In a telephonic repeating device; combined receiving and retransmitting means, comprising a plurality of doubly-wound magnet-cores; one of the wires of each, connected with one telephone-line, and the other wire connected with another telephone-line.

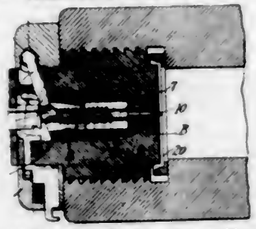
10. In a telephonic repeater; a diaphragm for receiving pulsations from one main line, and transmitting the same to another main line; and a bipolar magnet; the two pole-pieces doubly wound, both pieces with wire connected with both of the main lines.

751,846. **PROTECTOR FOR SHOE-UPPERS.** GEORGE H. GARDINER, New York, N. Y., assignor to Wichert & Gardiner, Brooklyn N. Y., a Firm. Filed May 5, 1903. Serial No. 155,736. (No model.)



Claim.—The combination, with an upper having a vertical slit at its front portion, of a temporary protector located at the inside of said upper, rows of stitches, one at each side, connecting said protector at its forward edges to the upper adjacent to and parallel with the edges of the upper at said slit, stitches connecting said protector at its rear portion to the upper, and a row of stitches connecting the protector at its top with the upper adjacent to and parallel with the top edge of the upper, substantially as set forth.

751,847. **RETRACTING ATTACHMENT FOR FIRING-PINS FOR ORDNANCE.** GREGORY GERDOM, Watervliet, N. Y., assignor to Ordnance Improvement Company, a Corporation of New York. Filed Sept. 16, 1903. Serial No. 173,364. (No model.)



Claim.—1. In a breech-loading gun, the combination with a rotatable breech-block and its firing-pin, of a support for said pin fitted to said block and means for automatically retracting said support when the block is rotated from "closed" toward "release" position.

2. In a breech-loading gun, the combination with its rotatable breech-block and the firing-pin carried thereby, of a stop engaging said pin near its point and limiting its forward movement, said stop having axial movement in said block controlled by the rotative movement of said block.

3. In a breech-loading gun, the combination with its rotatable breech-block and firing-pin of a support for said firing-pin and means for automatically shifting the position of said support axially with relation to said block, as and for the purposes set forth.

4. In a breech-loading gun, the combination with its rotatable breech-block, of a firing-pin having a shoulder or lateral projection near its point, a seat or stop adapted to be engaged by said shoulder and to limit the forward travel of the pin, said stop having axial movement in said block determined by the rotative movement of the block.

5. In a breech-loading gun, the combination with its rotatable breech-block and firing-pin, of a bushing threaded concentrically in said block and carrying said pin and means preventing the rotation of said bushing with relation to said gun, for the purposes specified.

6. In a breech-loading gun, the combination with its rotatable breech-block, of a firing-pin having a tapered or shouldered point, and a seat for the tapered portion, said seat being moved axially in said block by the latter's rotative movement, whereby said pin-point is restrained from protrusion while the block is in "release" position, but permitted to protrude a predetermined distance when the block is in "closed" position.

7. In a breech-loading gun, the combination with its rotatable breech-block, of a firing-pin working therethrough, and a support for the point of said pin limiting its forward movement, and having axial movement in said block controlled by the rotative movement of the block.

8. In a breech-loading gun, the combination with its rotatable breech-block, of a firing-pin working therein and having a conical shoulder near its point and a non-rotatable seat for said shoulder having screw-thread connection with the block, whereby it is moved axially therein as the block is rotated.

9. In a breech-loading gun, the combination with its rotatable breech-block, and firing-pin working in said block, of a stop engaged by the pin-point whereby its forward movement is limited, and means for axially shifting the position of said stop when the block is rotated from "closed" to "release" position, and vice versa.

751,848. **PLUG-TOBACCO PULLER.** JULIUS GOLDSMITH, Eugene Oreg. Filed Mar. 31, 1903. Serial No. 150,373. (No model.)



Claim.—1. A plug-tobacco puller, consisting of a handle having a longitudinal slit throughout its length, a steel blade movable in said slit and provided at one end with a hook-shaped part located at some distance interiorly from the end of the blade and bent up integrally from the same, and means for locking the blade to the handle, substantially as set forth.

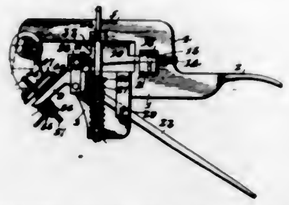
2. A plug-tobacco puller, consisting of a handle provided with a hole and having a longitudinal slit throughout its length, a steel blade movable in said slit and provided with a longitudinal slot having circular enlargements, a bent-up V-shaped point at one end of said blade, and a thumb-screw passing through the hole adapted to engage with the circular enlargements of the blade for locking the blade to the handle, substantially as set forth.

751,849. **SAW-SET.** SAMUEL HALTOM, Henderson, Tex. Filed June 30, 1902. Serial No. 113,787. (No model.)

Claim.—1. In a saw-setting apparatus, a combined tooth-setting and saw-feeding device, and means for moving the same to feed a saw and set the teeth thereof, substantially as described.

2. In a saw-setting apparatus, a combined tooth-setting and saw feeding device, and means for moving said device longitudinally of a saw to feed the same and transversely thereof to set the teeth, substantially as described.

3. In a saw-setting apparatus, a combined tooth-setting and saw-feeding device, and means for moving said device inward and outward to engage and release a saw, and longitudinally of the cutting edge to feed the saw, and transversely of the same to set the teeth, substantially as described.



4. In a saw-setting apparatus, the combination with a saw holding and guiding means, of a saw-setting punch having a tooth-engaging feed projection and a saw-setting point projecting laterally beyond the feed projection, and means for moving the punch to engage the feeding projection between a pair of saw-teeth, then moving the punch laterally to feed the saw and then moving the punch in direction substantially at right angles to the feeding movement thereof for engaging the setting-point with a tooth to set the same.

5. In a saw-setting apparatus, the combination with an anvil having a seat, of saw holding and guiding means in coöperative relation with the anvil, a combined tooth-setting and saw-feeding device normally at one side of the seat, and means for moving the device into engagement with the teeth of a saw, then moving the same laterally to the seat to feed the saw and finally moving a portion of the device into the seat to bend a tooth against the anvil.

6. In a saw setting apparatus, the combination with a frame having saw holding and guiding means, of an endwise-reciprocatory and laterally-movable tooth-setting and saw-feeding device, an operating-lever fulcrumed upon the frame, and connecting means between the lever and the device to impart to the latter endwise movement to engage the same with a saw and also lateral movements at substantially right angles to each other to feed the saw and set the teeth.

7. In a saw-setting apparatus, the combination of a tooth-setting and saw-feeding device, and an operating-slide in coöperative relation with the device, the latter and the slide having mutually-engaging cams for moving the device to feed the saw and set the teeth thereof.

8. In a saw-setting apparatus, the combination with a frame, having saw holding and guiding means, of a tooth-setting and saw-feeding device, an operating-slide in coöperative relation with the device, the latter and the slide having mutually-engaging cams for moving the device forwardly and then laterally in two successive directions at substantially right angles to each other, operating means for the slide, and a spring to automatically return the slide to its original position.

9. In a saw-setting apparatus, the combination with saw holding and guiding means, of an endwise-reciprocatory and laterally-movable tooth-setting and saw-feeding device having a cam inclined transversely thereof, and another cam inclined longitudinally of the device, and an operating-slide having a cam in coöperative relation with the first-mentioned cam of the device, and another cam in coöperative relation with the other cam of the device.

10. In a saw-setting apparatus, the combination with saw holding and guiding means, of a slide, an endwise-reciprocatory and laterally-movable tooth-setting and saw-feeding device, the latter and the slide having mutually-coöperating cams for imparting endwise movement to the device, and other mutually-coöperative cams for moving the device laterally, the first-mentioned cams being disposed for engagement prior to the engagement with the other cam.

11. In a saw-setting apparatus, the combination with saw holding and guiding means, of an endwise-reciprocatory and laterally-movable tooth-setting and saw-feeding device having a cam-surface which is inclined transversely thereof, and another cam projected laterally from the device and having its cam-face inclined longitudinally of the device, and a reciprocatory operating-slide having a longitudinal slot receiving the device, one end wall of the slot being inclined to form a cam-surface in coöperative relation with the first-mentioned cam of the device, the slide also being provided with a laterally-projected cam lying substantially parallel with the device and in coöperative relation with the laterally-projected cam thereof.

12. In a saw-setting apparatus, the combination with a frame having a saw holding and guiding device, of an endwise-reciprocatory and laterally-movable tooth-setting and saw-feeding device having a transversely-inclined cam and a lateral projection having a cam-face inclined longitudinally of the device, a reciprocatory slide working at substantially right angles to the device and having cams in coöperative relation with the respective cams of the device, a manipulating-lever connected to the slide, and a spring to automatically return the slide and the device to their original positions.

13. In a saw-setting apparatus, the combination with a frame, having a saw holding and guiding device, of a reciprocatory and laterally-movable tooth-setting and saw-feeding device provided with an intermediate transversely-inclined cam, and a laterally-projected cam having its inclined face disposed longitudinally of the device, a reciprocatory operating slide working at substantially right angles to the device and having a longitudinal slot receiving the same, one end wall of the slot being inclined to form a cam for coöperation with the first-mentioned cam of the device, another cam carried by the slide and in coöperative relation with the other cam of the device, a guide-stem projected from the slide, a guide carried by the frame and receiving the stem, a helical spring embracing the stem and bearing in opposite directions against the guide and the slide and a manipulating-lever fulcrumed upon the frame and connected to the slide.

14. In a saw-setting apparatus, the combination with a frame having saw holding and guiding means, of a laterally-projected pivotal seat carried by the frame, an endwise-reciprocatory tooth-setting and saw-feeding device having its rear end longitudinally slotted and slidably fitted in the seat, a pivot-pin extending through the slot and into the seat, and means for imparting to the device endwise-reciprocating movements and swinging movements at substantially right angles to each other upon the pin and the seat as centers.

15. In a saw-setting apparatus, the combination with a frame having saw holding and guiding means, of a pivotal seat projected laterally from the frame, a tooth-setting and saw-feeding device having a longitudinally-slotted rear portion fitted in the seat and also provided with a transverse shoulder at its rear end, a spring interposed between the shoulder and the seat, a pivot-pin passed through the slot and entering the seat, means for imparting to the device endwise-reciprocatory movement and also laterally-swinging movements at substantially right angles to each other upon the pin and the seat as centers.

16. In a saw-setting apparatus, the combination with a frame, having saw holding and guiding means at one end and a handle at the opposite end, of a laterally-projected pivotal seat between the saw-holding means and the handle, a punch having its rear end longitudinally slotted and fitted in the seat, a pivot-pin extending through the slot and into the seat, a transverse shoulder at the rear end of the punch, a spring interposed between the shoulder and the seat, a pendent feed projection at the forward end of the punch, said forward end being formed into a tooth-swaging point, a longitudinally-disposed cam rising from the intermediate portion of the punch with its cam-surface inclined transversely toward the frame, a cam projected transversely from the inner side of the punch with its rear face inclined downwardly and rearwardly, a reciprocatory slide mounted in guides upon the frame and having an intermediate slot receiving the punch, the upper wall of the slot being inclined to correspond with and also for engagement with the transversely-inclined cam of the punch, a lever fulcrumed upon the frame and connected to the slide, and a spring to automatically return the slide to its original position.

17. In a saw-setting apparatus, the combination of a laterally-movable tooth-setting and saw-feeding device, and means for limiting the lateral movement thereof.

18. In a saw-setting apparatus, the combination of a laterally-movable tooth-setting and saw-feeding device, and an adjustable stop to limit the lateral movement of the device.

19. In a saw-setting apparatus, the combination of a laterally-movable tooth-setting and saw-feeding device, and a set-screw located in the path of the lateral movement of the device to adjustably limit the same.

20. In a saw-setting apparatus, the combination with a frame having an anvil, of a laterally-movable tooth-setting and saw-feeding device in coöperative relation with the anvil, a post rising above the anvil, and a set-screw carried by the post and disposed in the path of the device to adjustably limit the movement of the device.

21. In a saw-setting apparatus, the combination of an anvil, a combined tooth-setting and saw-feeding device mounted for lateral movement to feed a saw-blade, gages located at opposite sides of the device, and an adjustable stop extending inward from one of the gages and arranged in the path of the device to limit the movement of the same, substantially as described.

22. In a saw-setting apparatus, the combination with an anvil, and a laterally-movable tooth-setting and saw-feeding device, a stop to limit the lateral movement of the device, and a gage carried by the stop.

23. In a saw-setting apparatus, the combination with an anvil, and a laterally-movable tooth-setting and saw-feeding device, of a post rising from one side of the anvil, a set-screw piercing the post and disposed in the path of the device to limit the movement thereof, a saw-gage having a slot receiving the set-screw, and a nut carried by the set-screw to adjustably bend the gage against the post.

24. In a saw-setting apparatus, the combination with a frame, of a saw-holder and guide at one end of the frame, a handle at the opposite end of the frame, an endwise-reciprocatory and laterally-movable combined tooth-setting and saw-feeding device mounted upon the frame between the saw-guide and the handle, and a lever fulcrumed upon the frame and in operative relation with the device with its free end portion in coöperative relation with the handle of the frame.

25. In a saw-setting apparatus, the combination with a frame embodying upper and lower members, a handle at one end thereof, a saw support and guide carried by the opposite end of the lower member, a saw-holder hung from the upper member in coöperative relation with the guide, an endwise-reciprocatory and laterally-movable combined tooth-setting and saw-feeding device mounted upon the frame between the guide and the handle, and a lever fulcrumed upon the frame in coöperative relation with the device, with its outer end in coöperative relation with the handle.

26. In a saw-setting apparatus, the combination with a frame, of a handle at one end, an anvil at the opposite end, a saw-holder inclined downwardly and forwardly from the anvil, a combined punching and feeding device in coöperative relation with the anvil, and a lever fulcrumed upon the frame in coöperative relation with the combined punching and feeding device and having its rear free end in coöperative relation with the handle.

27. In a saw-setting apparatus, the combination with a frame, of an anvil, a saw-support inclined downwardly and forwardly from the anvil, a saw-holder pivotally hung from the upper portion of the frame in coöperative relation with the support, and a tooth-setting punch mounted upon the frame in coöperative relation with the anvil.

28. In a saw-setting apparatus, the combination with a frame, of an anvil, a saw-support inclined downwardly and forwardly from the anvil, a saw-holder pivotally hung from the frame and in coöperative relation and adjustable with respect to the saw-support, and a tooth-setting punch in coöperative relation with the anvil.

29. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a saw-support, and a saw-holder having a spring to hold the saw in engagement with the support.

30. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a saw-support, and a saw-holder having a leaf-spring provided with a lateral finger to bear against a saw and hold it in engagement with the support.

31. In a saw-setting apparatus, the combination with a frame having a handle at one end, of an anvil at the opposite end, a tooth-setting punch, an operating-lever fulcrumed upon the frame in coöperative relation with the punch and having its free rear end in coöperative relation with the handle, a saw-support inclined downwardly and forwardly from the anvil, and a saw-holder in coöperative relation with the support and having an adjustable pivotal connection with the frame, and a spring to hold a saw in engagement with the support.

32. In a saw-setting apparatus, the combination with a frame, of an anvil, a punch in coöperative relation therewith, a saw-support, and a saw-guide carried by the support and located beyond and spaced from the anvil and adjustable toward and away from the same.

33. In a saw-setting apparatus, the combination with a frame of an anvil, a punch in coöperative relation therewith, a saw-support, and a saw-guide carried by the support in front of the anvil and spaced from the latter and adjustable toward and away from the same.

34. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a slotted saw-support, and a saw-guide carried by the support at a point beyond the anvil and having a stem adjustably slidable in the slot of the support.

35. In a saw-setting apparatus, the combination with a frame, of an anvil thereon, a tooth-setting punch, a longitudinally-slotted saw-support, the opposite edges of the slot having guideways thereon, a saw-guide mounted upon the support and having a head slidably mounted in the guideways of the slot, a threaded stem projected from the head, and a binding-nut carried by the same.

36. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a slotted saw-support, a saw-guide adjustably mounted upon the support and movable toward and from the anvil, and means carried by the guide for adjustably tilting a saw-blade.

37. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a slotted saw-support, a saw-guide adjustably carried by the support and movable toward and from the anvil, and a saw-tilting set-screw piercing the saw-guide and projected through the slot of the support.

38. In a saw-setting apparatus, the combination with a frame, of an anvil, a tooth-setting punch, a slotted saw-support, a saw-guide adjustably mounted upon the support and having a threaded stem projected through the slot thereof, said saw-guide being movable toward and from the anvil, an adjusting-nut carried by the stem, and a saw-tilting set-screw piercing the stem and the saw-guide.

39. In a saw-setting apparatus, the combination with a frame of an anvil, a tooth-setting punch, a saw-support, an adjustable saw-guide carried by the support, and a saw-holder pivotally mounted on and carried by the frame in coöperative relation with the support.

40. In a saw-setting apparatus, the combination with a frame of an anvil, a tooth-setting punch, a slotted saw-support, an adjustable saw-guide having a head mounted in the slot of the support and provided with a screw-threaded stem, an adjusting-nut mounted upon the stem, and a pivotal saw-holder hung from the frame in coöperative relation with the saw-support.

41. In a saw-setting apparatus, the combination with a frame having a handle at one end, of an anvil at the opposite end, a tooth-setting punch in coöperative relation with the anvil, a lever fulcrumed upon the frame in operative relation with the punch and having its rear free end in coöperative relation with the handle, a longitudinally-slotted saw-support inclined downwardly and forwardly from the anvil, an adjustable saw-guide disposed transversely across the support and having a head working in the slot thereof, a screw-threaded stem projected from the head and extending through the slot, an adjusting-nut carried by the stem to bind against the support, a pivotal saw-holder hung from the frame and having a lateral presser-foot in coöperative relation with the support, and a spring carried by the presser-foot to hold a saw-blade in engagement with the support.

42. In a saw-setting apparatus, the combination with an anvil, a saw-support, and a saw-guide, of supplemental guide means for application to a saw-blade and for coöperation with the main guide.

43. In a saw-setting apparatus, the combination with an anvil, a saw-support, and a saw-guide, of a supplemental guide-rail having means for connection with the saw-blade and for coöperation with the main saw-guide.

44. In a saw-setting apparatus, the combination with an anvil, a saw-support, and a saw-guide, of supplemental guide means for application to a saw-blade and coöperation with the main guide, consisting of a bar having a longitudinal flange and a longitudinal slot at one end, a clamp-screw adjustable in the slot, another clamp-screw piercing the opposite end of the bar, and clamp members carried by the screws.

45. In a saw-setting apparatus, the combination with a frame, of an anvil, a saw-support inclined downwardly and forwardly from the anvil, a combined tooth-setting and saw-feeding device in coöperative relation with the anvil, means for moving the device forwardly, then laterally and finally downward into coöperative relation with the anvil, a spring to return the device to its original position, an adjustable stop carried by the anvil to limit the return movement of the device, a saw-guide carried by the support and adjustable toward and away from the anvil, and a saw-holder carried by the frame and adjustable with respect to the support.

46. In a saw-setting apparatus, the combination with a frame, of an anvil at one end thereof, a handle at the opposite end of the frame; a saw-support inclined downwardly and forwardly from the anvil, a combined tooth-setting and saw-feeding device mounted between the anvil and the handle, operating means for moving the device forwardly, then laterally and finally downward in coöperative relation with the anvil, a lever fulcrumed upon the frame in coöperative relation with the handle and also connected to the operating means, a saw-guide disposed transversely across the support and adjustable toward and away from the anvil, and a saw-holder carried by the frame and adjustable with respect to the saw-support.

751,850. LOCOMOTIVE-SPRING. JAMES W. HARTY, Chicago, Ill. Filed July 13, 1903. Serial No. 165,239. (No model.)

Claim.—1. The combination with a semi-elliptical spring, of a bearing-plate mounted upon an end thereof, and studs projecting upwardly from the top surface of the spring engaging recesses in the plate.



2. The combination with a locomotive-spring, of bearing-plates mounted upon the ends thereof, said plates having hanger-slots registering with similar slots in the ends of the spring, and studs on the ends of the spring located adjacent to the hanger-slots, and adapted to be received in recesses in the bearing-plates.

3. The combination with a locomotive-spring, of bearing-plates mounted upon the ends of the spring to sustain the load said plates and spring having registering slots through which the hangers extend, and alined studs located on the upper surface of the ends of the spring at each end of each hanger-slot adapted to engage recesses formed in the under surface of the plates.

751,851. QUICK-ACTING MONKEY-WRENCH. JOHN HEIL, Mount Oliver, Pa. Filed Oct. 2, 1903. Serial No. 175,470. (No model.)



Claim.—In a wrench, a shank and jaw, teeth formed on the shank having inclined surfaces, a wheel having similarly-inclined ridges engaging the teeth, a spindle for the wheel, a slidable jaw having bearings for the spindle, a concaved disk interposed between the wheel and bearing, and acting as a spring, the slidable jaw having a cam-slot, and a spring-pressed pin carried by the wheel adapted to enter the slot.

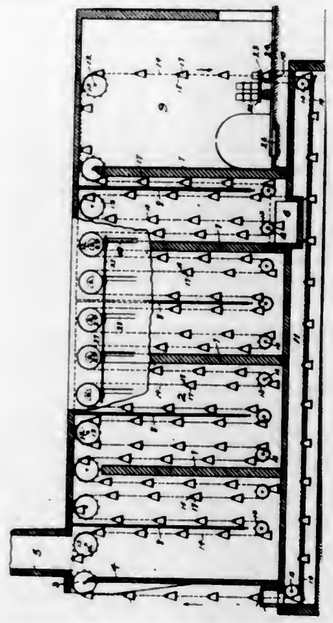
751,852. APPARATUS FOR DRYING TILE. DAVID F. HENRY, Jr., Port Murry, N. J. Filed Apr. 28, 1903. Serial No. 154,648. (No model.)

Claim.—1. In drying apparatus, a drying-chamber, a succession of open vertical partitions forming a circuitous conveyer course therein, and a conveyer movable through said course.

2. In drying apparatus, a drying-chamber, a succession of open vertical partitions therein forming a circuitous conveyer-course, a conveyer movable through said course, and means for causing air to flow through the circuitous conveyer course in direction reverse to that traveled by the conveyer.

3. In drying apparatus, a drying-chamber, vertical mantels or partitions dividing the same into a series of compartments, each alternate partition being open at its upper end and the intervening partitions open at their lower ends, a conveyer, and guides for passing the conveyer through the partition-openings and upward and downward in the compartments.

4. Conveying means for drying apparatus comprising a carrier, opposite supports pivoted thereto to hang constantly perpendicular, and disconnected lifts projecting laterally from the opposite supports.



5. Conveying means for drying apparatus comprising a carrier, supports pivoted thereto to hang constantly perpendicular, and laterally-projecting lifts hinged to the supports and adapted to swing vertically thereon.

6. Conveying means for drying apparatus comprising two parallel carrier members, supports pivoted thereto to hang constantly perpendicular, and laterally-projecting lifts hinged to swing vertically on the supports.

7. Conveying means for drying apparatus comprising two parallel conveyer members, supports pivoted thereto to hang constantly perpendicular, and inwardly-projecting lifts hinged to the supports and adapted to swing vertically thereon.

8. Conveying means for drying apparatus comprising an endless carrier, opposite supports pivoted thereto to hang constantly perpendicular, and disconnected upwardly-swinging lifts projecting inward from and hinged to the supports.

9. Improved drying apparatus comprising a drying-chamber, an endless conveyer movable therethrough, supports pivoted to hang perpendicular on the conveyer regardless of the position of the latter, and lifts hinged to swing vertically on the supports.

10. Improved drying apparatus comprising a drying-chamber, an endless conveyer movable therethrough consisting of parallel members having an upward course at the chamber-inlet, opposite supports pivoted to the conveyer members to hang vertically thereon regardless of the position of said members, and a support at the chamber-inlet.

11. Improved drying apparatus comprising a drying-chamber, an endless conveyer movable therethrough consisting of parallel members having a downward course at the chamber-discharge, opposite supports pivoted to the conveyer members to hang vertically thereon regardless of the position of said members, and a support at the chamber-discharge.

12. In drying apparatus, a drying-chamber, mantels or partitions therein, some of which extend from the top of the chamber nearly to the bottom and others from the bottom nearly to the top, thus forming a series of communicating compartments which constitute a circuitous passage, and a conveyer having a circuitous passage around the mantels and through the chamber.

13. In drying apparatus, a drying-chamber, mantels depending from the top thereof, mantels extending upward from the floor thereof, sprocket-wheels operatively mounted in the upper and lower portions of the chamber with some of said wheels beyond and in axial

line with the mantels, and ware-carrying conveyer-chains extending through the chamber and around the sprockets.

14. In drying apparatus, a drying-chamber, vertical mantels therein extending alternately from the chamber top and bottom, a ware-conveyer movable through the chamber around the mantels, and guides for the conveyer at the ends of the mantels.

15. In drying apparatus, a drying-chamber, vertical mantels therein extending alternately from the chamber top and bottom, a ware-conveyer movable through the chamber around the mantels, and means for causing air to flow through the chamber around the mantels in direction reverse to that traveled by the conveyer.

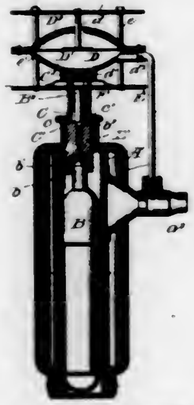
16. Improved drying apparatus comprising a drying-chamber, an endless conveyer movable therethrough consisting of parallel chains having an upward course at the chamber-inlet opposite pallet-lifts pivoted to the chains, and a pallet-support at the chamber-inlet between the chains.

17. In drying apparatus, a drying-chamber, an endless conveyer movable therethrough consisting of parallel chains having a downward course at the chamber-discharge, opposite pallet-lifts pivoted to the chains, and a pallet-support at the chamber-discharge between the chains.

18. In drying apparatus a drying-chamber, an endless conveyer movable therethrough consisting of parallel chains having a downward course at the chamber-discharge, opposite pallet-lifts pivoted to the chains and hinged to turn upward, and a pallet-support at the chamber-discharge between the chains.

19. In drying apparatus, a drying-chamber having a circuitous passage, an endless conveyer consisting of parallel chains movable therethrough having an upward course at the chamber-inlet and a downward course at the chamber-discharge, opposite pallet-lifts pivoted to the chains and hinged to turn upward thereon, and pallet-supports between the chains at the chamber-inlet and discharge.

751,853. **VALVE FOR STEAM-HEATING SYSTEMS.** GEORGE D. HOFFMAN, Chicago, Ill., assignor to Norwall Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 14, 1903. Serial No. 143,299. (No model.)



Claim.—1. A steam-heating system having a port leading therefrom to the atmosphere, a valve controlling said port, means actuated by steam in the system for unseating said valve, means for automatically seating said valve upon the discontinuance of steam, and automatic mechanism for closing communication between the system and said port upon the generation of steam in the system and for opening communication between the system and said port upon the discontinuance of steam in the system.

2. In a steam-heating system, the combination with a radiator having a port leading therefrom to the atmosphere, a valve controlling said port, means actuated by steam from the radiator for unseating said valve, means for automatically seating said valve upon the discontinuance of steam in the radiator, and automatic mechanism for closing communication between the radiator and said port when steam is present in the radiator and for opening communication between the radiator and said port upon the discontinuance of steam in the radiator.

3. In a steam-heating system, the combination with a radiator having a port leading therefrom to the atmosphere, a valve controlling said port, a spring normally retaining said valve seated when there is no steam in the system, means actuated by steam-pressure in the sytem for unseating said valve against the tension of said spring, and automatic mechanism for closing communication between the radiator and said port when steam is present in the radiator and for opening communication between the radiator and said port upon the discontinuance of steam in the radiator.

4. In a steam-heating system, the combination with a radiator having a port leading therefrom to the atmosphere, a valve controlling said port, a chamber supported adjacent to said valve, a diaphragm located in said chamber, operative connections between said valve and diaphragm, a conduit leading to said chamber from the heating system whereby said valve is unseated by pressure exerted upon said diaphragm, means for automatically seating the valve upon the discontinuance of steam in the system, and automatic mechanism for closing communication between the radiator and said port when steam is present in the radiator and for opening communication between the radiator and said port upon the discontinuance of steam in the radiator.

5. In a steam-heating system, the combination with a radiator having a port leading therefrom to the atmosphere, a valve controlling said port, a chamber supported adjacent to said valve, a diaphragm located in said chamber, a conduit leading to said chamber from the system, a bodily-movable frame surrounding said chamber, connecting means interposed between said diaphragm and said frame for supporting the latter, and means for operatively connecting said frame to said valve.

6. A steam-heating system having a port leading therefrom to the atmosphere, a valve controlling said port, a chamber rigidly supported adjacent to said port, a diaphragm in said chamber, a conduit leading to said chamber from the system, plates on either side of said chamber rigidly connected together, a rigid connection between said diaphragm and one of said plates, a rigid connection between said valve and the other plate, and a spring interposed between the adjacent wall of the chamber and said latter plate for seating the valve upon the discontinuance of steam-pressure.

7. A steam-heating system having a port leading therefrom to the atmosphere, a valve controlling said port, a chamber rigidly supported adjacent to said port, a diaphragm in said chamber, a conduit leading to said chamber from the system, plates on either side of said chamber, rods connecting said plates and extending adjacent to the side walls of said chamber, stops upon said rods to limit the movement of said plates relatively to said chamber, a rigid connection between said diaphragm and one of said plates, a rigid connection between said valve and the other plate, and a spring interposed between the adjacent wall of the chamber and said latter plate for seating the valve upon the discontinuance of steam-pressure.

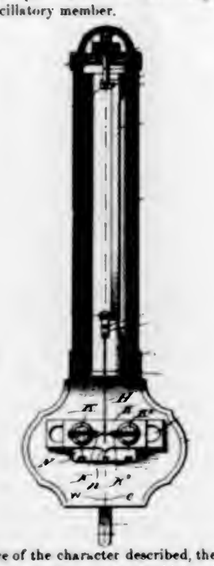
8. In a steam-heating system, the combination with a radiator having a port leading therefrom to the atmosphere, a valve-seat surrounding said port, a tube having longitudinal slots supported around said valve-seat, a chamber supported by said tube, a diaphragm in said chamber, a conduit leading from the system to said chamber beneath the diaphragm, a post connected to the top of said diaphragm and extending through said chamber, a movable frame surrounding said chamber and connected to said post, a valve depending from said frame and surrounded by said tube, and a spring interposed between said frame and the bottom wall of said chamber for automatically seating said valve upon the discontinuance of steam-pressure in the system.

9. In a steam-heating system, the combination with a radiator, of a valve-casing communicating with the interior of the radiator and having a port leading to the atmosphere, a vent-valve within said casing automatically closing said atmospheric port upon the generation of steam in the system and automatically opening said port upon the discontinuance of steam in the system, a second valve located outside of said casing and adapted to control said atmospheric port, means for unseating said second valve by the pressure of steam in the heating system, and means for automatically seating said second valve upon the discontinuance of steam-pressure in the heating system.

751,854. **THERMOSTAT.** GEORGE D. HOFFMAN, Chicago, Ill., assignor to Norwall Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed May 25, 1903. Serial No. 158,746. (No model.)

Claim.—1. In a device of the character described, the combination with an expansible member, of a base upon which one end of said member is mounted, an oscillatory member pivotally mounted upon said base, a bell-crank lever having a short arm connected to said expansible member and a long arm pivotally connected to said oscillatory member, and a fulcrum for said bell-crank lever rigidly mounted upon said base.

2. In a device of the character described, the combination with an expansible member, of a base upon which one end of said member is mounted, a non-expansible supporting-frame also rigidly secured to said base, an oscillatory member pivoted to said frame, and a bell-crank lever pivoted to said frame and having a short arm connected to said expansible member and a long arm pivotally connected to said oscillatory member.



3. In a device of the character described, the combination with an expansible member, of a base upon which said member is supported, an oscillatory member pivotally mounted upon said base, and connections interposed between said expansible member and said oscillatory member whereby a slight expansion or contraction of the expansible member produces a relatively great movement of said oscillatory member.

4. In a device of the character described, the combination with a tubular expansible member, of a base to which the lower end of said member is rigidly fixed, an oscillatory member pivotally mounted upon said base and located within the lower end of said tubular member, and connections surrounded by said tubular member interposed between the free end of said tubular member and said oscillatory member whereby a slight expansion or contraction of the expansible member produces a relatively great movement of said oscillatory member.

5. In a device of the character described, the combination with a tubular expansible member, of a base to which the lower end of said member is rigidly fixed, a non-expansible supporting-frame rigidly secured to said base and extending upwardly within said tubular member, an oscillatory member pivoted to said frame near the lower end thereof, and a bell-crank lever located within said tubular member and pivoted to said frame near the upper end thereof, said bell-crank lever having a short arm connected to the free end of the expansible member and a long arm pivotally connected to the upper end of said oscillatory member.

6. In a thermostatic circuit-controller, the combination with an expansible member, of a base to which said member is rigidly fixed at one end, a movable contact pivotally mounted upon said base, connections interposed between the free end of said expansible member and said movable contact whereby a slight expansion or contraction of the expansible member produces a relatively great movement of said contact, and fixed contacts mounted upon said base and located in the path of movement of said movable contact.

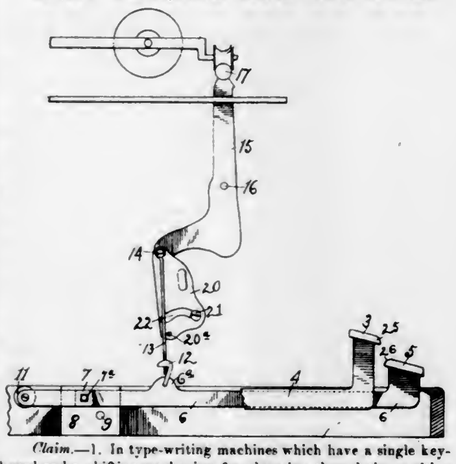
7. In a thermostatic circuit-controller, the combination with a tubular expansible member, of a base to which said member is rigidly fixed at one end, a non-expansible support rigidly secured to said base and extending upwardly within said tubular member, a movable contact pivoted to said frame near the lower end thereof, a bell-crank lever pivoted to said frame near the upper end thereof and having a short arm connected to the free end of said expansible member and a long arm pivotally connected to said movable contact, and fixed contacts mounted upon said base and located in the path of movement of said movable contact.

8. In a thermostatic circuit-controller, the combination with an expansible member, of a base upon which said member is mounted, a movable contact, connections interposed between said expansible member and said movable contact, fixed contacts located in the path of movement of said movable contact, a plate upon which said fixed contacts are supported, studs fixed to said plate and extending through a slot in said base, and a lever pivotally mounted upon said base and operatively connected to said plate at one end and depending at its other end below said base whereby oscillation of said lever reciprocates said plate relatively to the base thereby adjusting the position of the fixed contacts with respect to the movable contact.

9. In a thermostatic circuit-controller, the combination with an expansible member, of a base to which said member is fixed at its lower end, a movable contact mounted upon said base, a cap fixed upon the upper end of said expansible member, an exteriorly-screw-threaded boss on said cap, a screw-threaded rod extending through said boss, a nut engaging the end of said rod and having a flange resting upon said boss, a lock-nut engaging the screw-threads on said boss and adapted to clamp said flange against said boss, a connecting mechanism interposed between said movable contact and said rod.

10. In a thermostatic circuit-controller, the combination with an expansible member, of a base to which said member is fixed, a movable contact mounted upon said base, mechanism operatively connected to said movable contact and adjustably connected to the free end of said expansible member, fixed contacts located in the path of movement of said movable contact, and means for adjusting said fixed contacts upon said base whereby their positions relatively to said movable contact may be varied.

751,855. **TYPE-WRITING MACHINE.** JOHN H. HOTSON, New York, N. Y. Filed Aug. 8, 1903. Serial No. 168,756. (No model.)



Claim.—1. In type-writing machines which have a single key-board and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard; and a depressible shift-key connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key, and inclined downward toward the front, so that the thumb, after striking the space-key and effecting the space, passes directly forward to the shift-key and depresses the same, effecting both spacing and shifting with substantially one unbroken movement.

2. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard, and inclined downward toward the front; and a depressible shift-key, connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key, and inclined downward toward the front, so that the thumb, after striking the space-key and effecting the space, passes directly

downward and forward to the shift-key and depresses the same, effecting both spacing and shifting with substantially one unbroken movement.

3. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard; and a depressible shift-key, connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key and having its upper surface lower than the upper surface of the space-key; said shift-key so located with respect to the space-key as to height, that when the space-key is depressed down to its full or normal depression, the top surface of the space-key shall form substantially a continuous plane with the top surface of the shift-key.

4. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard, and inclined downward toward the front; and a depressible shift-key, connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key, and inclined downward toward the front; said shift-key so located with respect to the space-key as to height, that when the space-key is depressed down to its full or normal depression, the top surface of the space-key shall form substantially a continuous plane with the top surface of the shift-key.

5. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard; and a depressible thumb shift-key, connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper side lower than the upper side of the space-key; the said space-key having its upper front edge trimmed off, substantially as described, so as to facilitate the thumb in gliding off the space-key onto the shift-key when a capital letter or other selected character is to be written immediately following a space.

6. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard; and a depressible thumb shift-key connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper side lower than the upper side of the space-key; the shift-key having its upper rear edge trimmed off substantially as described, so as to facilitate the transition of the thumb from the space-key onto the shift-key when a capital letter is to be written immediately following a space.

7. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard; and a depressible thumb shift-key connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key; the space-key having its upper front edge trimmed off substantially as described, and the shift-key having its upper rear edge rounded, so as to facilitate the transition of the thumb from the space-key to the shift-key when a capital letter or other selected character is to be written immediately following a space.

8. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point; the combination of a depressible space-key lying in front of the keyboard, and inclined downward toward the front; and a depressible shift-key connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key, and inclined downward toward the front, so that the thumb, after striking the space-key and effecting the space, passes directly downward and forward to the shift-key and depresses the same, effecting both spacing and shifting with substantially one unbroken movement; the space-key having its upper front edge trimmed off substantially as described, and the shift-key having its upper rear edge trimmed off substantially as described, so as to facilitate the transition of the thumb from the space-key onto the shift-key when a capital letter or other selected character is to be written immediately following a space.

9. In type-writing machines which have a single keyboard and a shifting mechanism for changing the relative position of the platen and the type in order to allow a selected character to strike the printing-point, the combination of a depressible space-key lying in front of the keyboard, and inclined downward toward the front, and a depressible shift-key, connected to the shifting mechanism for actuating the same, located conveniently close in front of the space-key, and having its upper surface lower than the upper surface of the space-key, and inclined downward toward the front, said shift-key so located with respect to the space-key as to height, that when the space-key is depressed down to its full or normal depression, the top surface of the space-key shall form substantially a continuous plane with the top surface of the shift-key; the space-key having its upper front edge trimmed off substantially as described, and the shift-key having its upper rear edge trimmed off substantially as described, so as to facilitate the transition of the thumb from the space-key to the shift-key when a capital letter or other selected character is to be written immediately following a space.

10. In type-writing machines which have a single keyboard and a platen which is shifted in a substantially horizontal direction for the purpose of enabling a capital letter or other selected character to strike the printing-point; in combination with a depressible space-key located in front of the keyboard; a downwardly-depressible thumb shift-key, connected with the platen for shifting the same, centrally located conveniently close and entirely in front of the space-key, and within convenient range of, and adapted to be operated by downward pressure of, the thumbs in such a way that the thumb after depressing the space-key can pass directly forward to the shift-key and depress the same, while the fingers retain their normal position over the keyboard, such as is customary in touch operating.

11. In type-writing machines having a single keyboard and a platen which is shifted in a substantially horizontal direction for the purpose of enabling a capital letter or other selected character to strike the printing-point; in combination with a depressible space-key lying in front of the keyboard; a depressible shift-key connected with the platen for shifting the same, located conveniently close in front of the space-key and having its upper side lower than the upper side of the space-key, so as to hinder striking one for the other, and so that the thumb or finger of the operator, after striking the space-key and effecting the space, passes directly downward and forward to the shift-key and depresses the same, effecting both spacing and shifting with substantially one unbroken movement.

12. In type-writing machines which shift the platen in a substantially horizontal direction in order to print a capital letter or other selected character; the combination of a depressible space-key lying in front of the keyboard, and a downwardly-depressible shift-key connected to the platen, the downward depression of which shift-key effects the shifting of the platen, and lying conveniently close in front of the space-key, so that the thumb or finger of the operator, after striking the space-key and effecting the space, passes directly forward to the shift-key and depresses the same, with a substantially uninterrupted movement.

13. In type-writing machines which shift the platen in order to print a selected character; in combination with a depressible space-key located in front of the keyboard, a downwardly-depressible shift-key located centrally, and conveniently close and entirely in front of the space-key, and constituting the front side of a rigid frame pivotally connected to the frame of the machine and connected to the platen in such a way that the depression of the shift-key causes the shifting of the platen, for the purpose of printing a selected character, and lying within convenient range of, and adapted to be operated by downward pressure of, the thumbs, in such a way that the thumb after depressing the space-key can pass directly forward to the shift-key and depress the same while the fingers retain their normal position over the keyboard customary in touch operating.

14. In type-writing machines which shift the platen in order to print a selected character; the combination of a depressible space-key located in front of the keyboard; and a depressible shift-key constituting the front side of a rigid frame pivotally connected to the frame of the machine and connected to the platen in such a way that the depression of the shift-key causes the shifting of the platen for the purpose of writing a selected character, and located in front of the space-key and having its upper side lower than the upper side of the space-key, so as to hinder striking the one for the other, and so that the thumb or finger of the operator, after striking the space-key and effecting the space, passes directly

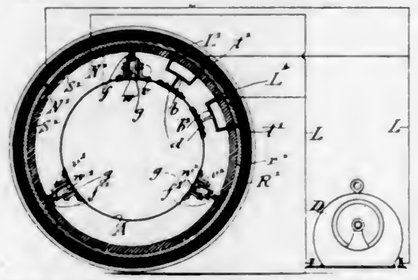
forward to the shift-key and depresses the same, effecting both spacing and shifting with substantially one unbroke movement.

751,856. MANTLE AND SUPPORT. WILLIAM G. HUGHES, Pittsburg, Pa. Filed May 2, 1903. Serial No. 155,284. (No model.)



Claim.—In combination with the burner, a socket, gauze interposed between the burner and socket, a mantle-support having its upper end enlarged and provided with lugs projecting beyond its sides, and a mantle having its upper edge crimped over said lugs.

751,857. SYSTEM OF ELECTRICAL PROPULSION. ERICH KRAUSE, Hoboken, N. J., assignor of one-fifth to Hans Kürten and Rosa Kürten, Hoboken, N. J. Filed Oct. 22, 1903. Serial No. 178,052. (No model.)



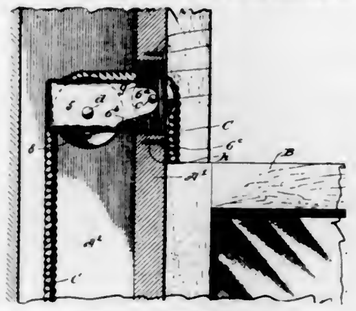
Claim.—1. A system of electrical propulsion of bodies, comprising a plurality of cores, wires wound on said cores forming coils, rods arranged in the interior of said coils and cores, the end of said coils being connected with the rods, a source of electricity, main conductors connected therewith, auxiliary conductors in proximity to said rods connected with the main conductors, and a movable armature adapted to electrically connect one set of rods with the movable conductors adjacent thereto, for energizing successively one coil after another for attracting the armature and causing the same to pass through the coils, substantially as set forth.

2. A system of electrical propulsion of bodies, comprising a plurality of cores, wires wound on said cores forming coils and insulated from the same, arranged one next to the other, rods arranged in the interior of said coils and cores, the ends of said coils being connected with the rods, a source of electricity, main conductors connected therewith, auxiliary conductors in proximity to said rods connected with said main conductors, rails passing through said coils, an armature, contact-makers on said armature for connecting successively one set of rods with the auxiliary conductors adjacent thereto, for energizing successively one coil after another for attracting the armature and causing the same to pass through the coils, substantially as set forth.

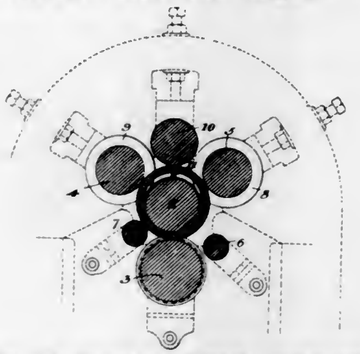
751,858. SASH-CORD SUPPORT. JOSEPH KREINER, Piqua, Kans. Filed May 25, 1903. Serial No. 158,653. (No model.)

Claim.—1. In a sash-cord support, the bracket-frame, comprising two parallel-spaced flanges projected from one end of a hollow head-block, said block being circular on its periphery, threaded thereon, and having two recesses formed oppositely therein, producing abrupt cutting-shoulders on the thread, which cut a corresponding thread in the wall of the orifice wherein the head-block is screwed

2. In a device of the character described, the bracket-frame, comprising two parallel-spaced flanges projected from one end of a hollow head, that is circular on its periphery, recessed oppositely therein, provided with cutting edges at the shoulders of the recesses, and having extensions of the cutting edges on the flanges, the circular portion of the periphery of the head having a screw-thread thereon that terminates in cutting edges at the shoulders of the recesses.

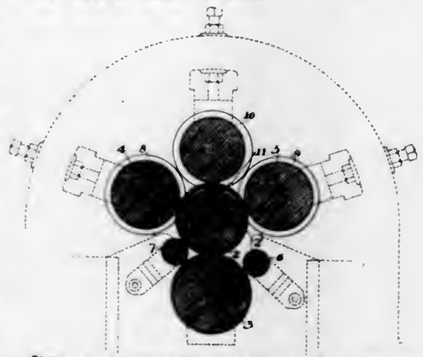


751,859. METHOD OF SCREW-THREADING AND WELDING THREAD-PROTECTORS, &c. GEORGE W. LA VOO, Steubenville, Ohio. Filed Sept. 24, 1902. Serial No. 124,613. (No model.)



Claim.—The method of forming internally-threaded rings, consisting in rolling a heated blank into ring form around an externally-threaded mandrel and forming a ring of larger diameter than said mandrel; substantially as described.

751,860. APPARATUS FOR SCREW-THREADING AND WELDING RINGS. GEORGE W. LA VOO, Steubenville, Ohio. Filed Dec. 20, 1902. Serial No. 135,999. (No model.)



Claim.—1. A cluster-mill having shaping-rolls, at least a part of which are adjustable, and a screw-threaded mandrel around which the said rolls are arranged; substantially as described.

2. In a cluster-mill, a series of shaping-rollers having end collars, and a mandrel having plain portions engaged by the collars, and an intermediate threaded portion; substantially as described.

3. A cluster-mill having a screw-threaded mandrel, and shaping-rolls arranged around the mandrel and having collars, at least one of the rolls having a body of reduced diameter arranged to be out of contact with the blank; substantially as described.

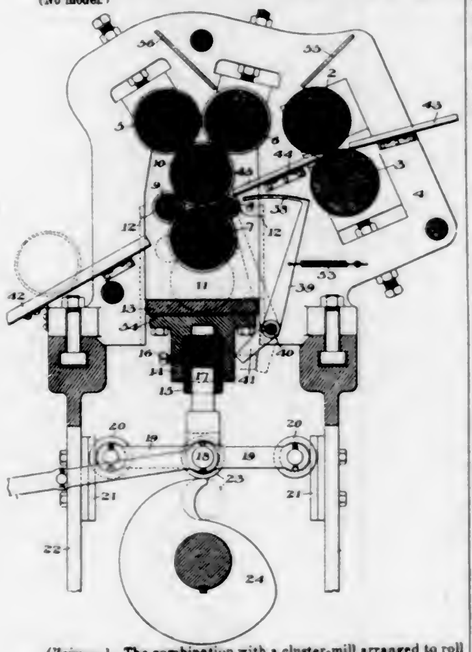
4. A cluster-mill having a screw-threaded mandrel, and a series of shaping-rollers, at least two of said rollers having collars and bodies arranged to contact with and size the article, and mechanism for adjusting said rolls; substantially as described.

5. A cluster-mill having a screw-threaded mandrel, oppositely-located rolls, one of which has a body reduced in diameter and out of contact with the blank, and two sizing-rolls arranged on opposite sides and contacting with the blank, said sizing-rolls being adjustable; substantially as described.

6. A cluster-mill having a central screw-threaded mandrel, a series of shaping-rolls arranged around it and arranged to form a ring of larger diameter than said mandrel, and a pipe having its end adjacent to the mandrel-threads and arranged to feed a current of cooling fluid in contact with said threads; substantially as described.

7. A cluster-mill having a screw-threaded mandrel and shaping-rolls arranged to feed a blank around the mandrel and screw-thread it, said rolls being arranged to form a ring of larger diameter than the mandrel; substantially as described.

751,861. **APPARATUS FOR ROLLING RINGS.** GEORGE W. LA VOO, Steubenville, Ohio. Filed Mar. 23, 1903. Serial No. 149,072. (No model.)



Claim.—1. The combination with a cluster-mill arranged to roll blanks into rings, of a pair of preliminary rolls in front of said mill, at least one of said preliminary rolls being provided with external screw-threads arranged to form screw-threads upon one side of the blank as it passes to the cluster-mill; substantially as described.

2. The combination with a cluster-mill arranged to roll blanks into rings, of a pair of preliminary rolls in front of the mill, at least one of said preliminary rolls having external screw-threads arranged to screw-thread one face of the blank, and mechanism for positively driving at least one of said preliminary rolls; substantially as described.

3. The combination with a cluster-mill arranged to roll blanks into rings, of a pair of preliminary rolls in front of the entrance-pass of said mill, the upper of said preliminary rolls having external screw-threads arranged to screw-thread the upper face of the blank, and means for driving at least one of said feed-rollers; substantially as described.

4. A cluster-mill having a pair of feed-rolls, one of which is screw-threaded, the rolls being so arranged that the blank will enter the bending-pass before it leaves the feed-rolls; substantially as described.

5. The combination with a cluster-roll arranged to roll a blank into a ring, of a pair of preliminary rolls in front of the entrance-pass of said mill, at least one of the preliminary rolls being externally screw-threaded to form screw-threads on one face of the blank, said cluster-mill having a mandrel, and mechanism for automatically moving the mandrel endwise to strip the ring; substantially as described.

6. A cluster-mill having the rolls below the mandrel carried in vertically-movable slides, mechanism for raising and lowering the slides, and mechanism for moving the mandrel endwise in a predetermined relationship to the movement of the slides; substantially as described.

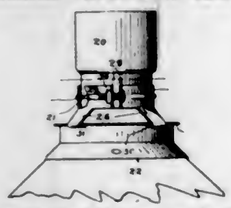
7. A cluster-mill having the rolls below the mandrel carried in vertically-movable slides, automatic mechanism for raising and lowering the slides, and automatic mechanism for moving the mandrel endwise in a predetermined relation to the movement of the slides; substantially as described.

8. A cluster-mill having vertically-movable lower rolls, a cover arranged to prevent the ring from dropping on the lower roll, mechanism for moving the cover over these rolls when lowered, and mechanism for moving the mandrel endwise to strip the ring; substantially as described.

9. A cluster-mill having mechanism for raising and lowering the lower rolls, mechanism for moving the mandrel in both directions, and driving connections arranged to operate both of said mechanisms automatically; substantially as described.

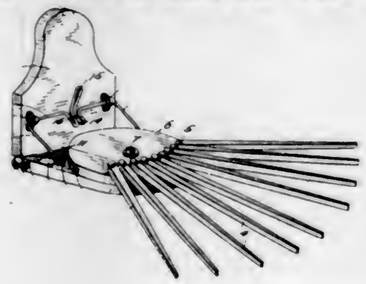
10. The combination with a cluster-mill arranged to roll a blank to ring form, of a pair of preliminary shaping-rolls in front of the entrance-pass, one of the preliminary rolls being externally screw-threaded, and the other being eccentric; substantially as described.

751,862. **SHADE-HOLDER.** ASHER S. LYNES, Bridgeport, Conn., assignor to the Bridgeport Brass Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Nov. 2, 1903. Serial No. 179,450. (No model.)



Claim.—A shade-holder of the character described comprising a strip and a plurality of integral uniform arms extending therefrom, said strip forming the attaching-band of a holder and provided with a groove and its ends being turned outward to form ears, and the arms being provided at their ends with hooks to engage the attaching-flange of a shade, and a screw engaging the ears of the band, whereby the band is caused to grip a socket-shell and the hooks are simultaneously closed upon the attaching-flange of a shade.

751,863. **CLOTHES-DRIER.** FREDERICK S. MACDOUGALL, Seattle, Wash. Filed Dec. 19, 1902. Serial No. 135,880. (No model.)

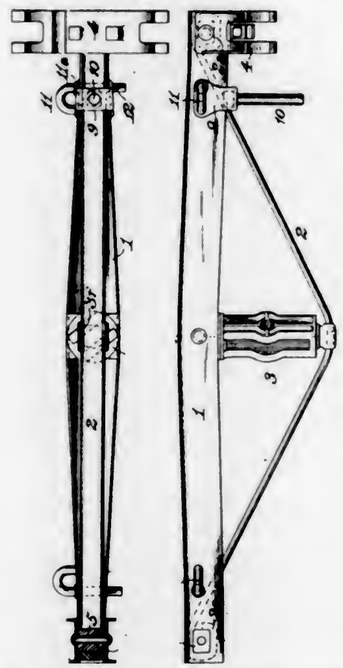


Claim.—1. In a device of the class described, the combination with a hinged leaf, a carrier provided with peripheral recesses mounted thereon, and a pivot passing through said leaf and carrier, of a latch pivotally connected to the leaf and adapted to engage said recesses, wings extending transversely of the latch across the leaf, a finger-piece on the end of one of the said wings and a latch-spring.

2. A clothes-drier comprising a backboard, a leaf hinged thereto and adapted to fold downwardly, a carrier mounted on the leaf having recesses in the periphery thereof, clothes-suspension arms pivotally mounted on the carrier, a hanger adapted to engage the leaf to support the same, and spring means mounted in the backboard adapted to hold said hanger in position, substantially as described.

3. In a clothes-drier of the type set forth, a backboard, a leaf hinged thereto adapted to fold downwardly, a carrier, arms pivotally secured thereto, a latch pivotally mounted on the leaf adapted to engage the carrier, lateral wings secured to said latch, and spring means for engaging said wings, substantially as described.

751,864. **BRAKE-BEAM.** GEORGE B. MALTBY, Cleveland, Ohio, assignor to Cleveland Car Specialty Company, Cleveland, Ohio, a Corporation of West Virginia. Filed Nov. 11, 1903. Serial No. 180,662. (No model.)



Claim.—1. In a brake-beam, the combination of a compression member of channel section, having rectangular openings in its side flanges adjacent to its ends, tension-bar fastening-blocks fitting in said openings, a tension member having rectangular eyes at its ends which engage said fastening-blocks, and a strut interposed between the middle portions of the compression and tension members.

2. In a brake-beam, the combination of a compression member of channel section, having rectangular openings in its side flanges adjacent to its ends, tension-bar fastening-blocks fitting in said openings, a tension member having rectangular eyes at its ends which engage said fastening-blocks, brake-heads fitting over the ends of said fastening-blocks and the adjacent portions of the compression member, transverse connections passing through the fastening-blocks and the brake-heads, and a strut interposed between the middle portions of the compression and tension members.

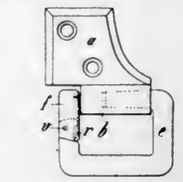
3. In a brake-beam, the combination of a compression member, a tension member, a reversible strut interposed between the middle portions of the compression and tension members and having end trunnions fitting bearings thereon, and a transverse connection passing through the compression member and through elongated openings in the trunnion fitting therein.

4. A compression member for a brake-beam, composed of sheet or plate metal bent into channel section which gradually increases in width from each end of the compression member to the central portion thereof, and having rectangular slots in its side flanges adjacent to its ends, for the reception of tension-bar fastening-blocks.

5. A reversible strut for a brake-beam, having end trunnions for connection with a compression member and a tension member, respectively, and elongated transverse slots in the compression-member trunnion for the passage of a connecting-rivet.

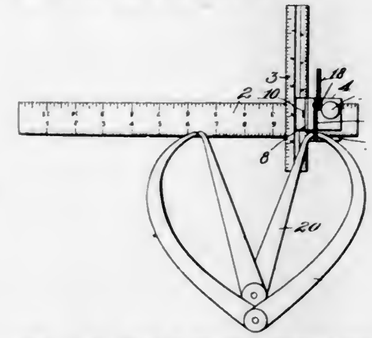
6. A safety-chain and finger-guard casting for a brake-beam, having tapering jaws to fit over a compression member and a front opening for the reception of a finger-guard.

751,865. **MEANS FOR ATTACHING STIRRUP-LEATHERS TO RIDING-SADDLES.** JEAN MARTIN, Grasse, France, assignor to Jean Honoré Edouard Cresp, Grasse, France. Filed July 9, 1903. Serial No. 164,803. (No model.)



Claim.—A device of the class described, comprising a plate having a conical socket formed thereon, a strap-supporting member formed with a conical shank portion designed to seat in said socket, and a spring tension locking-bar pivoted to the strap-supporting member, said locking-bar being adapted to open away from the strap-supporting member to permit the disengagement of said member from the socket, substantially as set forth.

751,866. **GAGE.** JOSIAH W. MELVIN, Houston, Tex. Filed Dec. 1, 1903. Serial No. 183,366. (No model.)



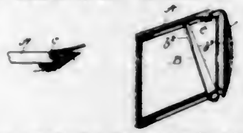
Claim.—1. In a device of the class described, a block, and a pair of blades adjustably and slidably connected with the block and located at right angles to each other, the block having a thickness-plate-receiving slot, and means for pressing the thickness-plate against one of the walls of the slot.

2. In a device of the class described, a blade, a block slidingly connected with the blade, having a slot to receive a thickness-plate, and means for pressing said thickness-plate against one of the walls of the slot, a binding-screw tapped into the block and arranged to engage said blade, a second blade extending across the first blade and having a groove in its upper side, and an angular plate connected by a screw with the block and having a lip to enter the groove of the second blade.

3. In a device of the class described, a block having a slot to receive a thickness-plate, and means for forcing said thickness-plate against one of the walls of the slot, a rule slidably connected with the block, a binding-screw tapped into the block to engage the rule and having an enlarged shoulder below its head, a second rule sup-

ported against the other rule and having a longitudinal groove, an angular plate, the horizontal portion of which is provided with a depending lip fitted into said groove, and a screw passing through the vertical portion of the plate and tapped into the block.

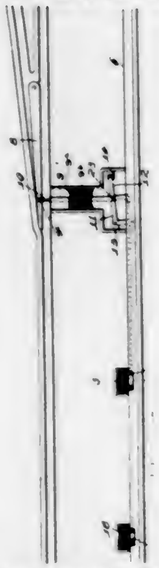
751,867. BUCKLE. JAMES E. MITCHELL, Lowell, Mass., assignor to Mitchell Tongueless Buckle Company, New York, N. Y. Filed Aug. 30, 1902. Serial No. 121,627. (No model.)



Claim.—1. In a buckle, the combination with the front frame bar thereof, of the thin spring clamp-plate of plane character throughout and hinged at one end portion thereof to one of the side bars of the buckle-frame, and having a path of movement in a plane parallel to that of the buckle, the other side bar of which has a shoulder provided with a cam approach, said plate having at the other end portion thereof, a detachable spring engagement with said shoulder, substantially as specified.

2. In a buckle, the combination with the frame, having the front bar provided with a rabbeted rear edge, a face-pivot on one side bar in rear of said front bar, and a face-depression catch having a cam approach on the other side bar in rear of said front bar, of the spring-clamp plate engaging said face-pivot, and adapted for engagement with said catch, substantially as specified.

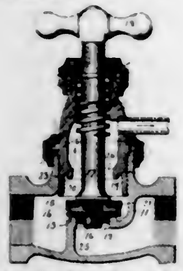
751,868. AUTOMATIC RAILWAY-SWITCH. WILLIAM R. MURPHY, St. Louis, Mo. Filed June 23, 1903. Serial No. 162,736. (No model.)



Claim.—1. An improved automatic railway-switch, comprising the combination with a movable switch-rail, of a connecting-bar pivoted at one end to said movable switch-rail, a bell-crank lever pivoted to said connecting-bar, a tripping-shoe mounted at the side of one of the rails of the track some distance from bell-crank lever, a tripping-shoe lever pivotally mounted beneath said shoe and connected to the same, a rod connecting said shoe-lever to said bell-crank lever, a second tripping-shoe mounted in alinement with the first-mentioned shoe, a second bell-crank lever pivotally connected to the said connecting-bar, and suitable connections whereby when one of said tripping-shoes is moved said movable switch-rail will be moved in one direction, and when the other shoe is moved said movable switch-rail will be moved in the opposite direction, and said first-mentioned shoe will be returned to its original position, substantially as specified.

2. In an automatic railway-switch, the combination with a movable switch-rail, a connecting-bar attached to said movable switch-rail, two bell-crank levers pivotally connected to said connecting-bar by a single bolt, two tripping-shoes mounted to move adjacent one of the track-rails, and connections between said shoes and said bell-crank levers, whereby movement of one of said shoes will move both of said bell-crank levers and throw the said movable switch in one direction, and movement of the other shoe will move both of said bell-crank levers and throw said movable switch-rail in an opposite direction, substantially as specified.

751,869. UNIVERSAL COMPRESSION STOP AND WASTE COCK. WILLIAM G. NEWTON, New Haven, Conn., assignor to the Peck Bros. & Co., New Haven, Conn., a Corporation. Filed June 11, 1903. Serial No. 160,986. (No model.)



Claim.—In a compression stop and waste cock, the combination with a body containing a valve-seat and furnished with an externally-threaded neck having its inner edge beveled to form an annular bearing-surface, of a chambered head having a circumferential shoulder formed with a beveled bearing-surface coacting with the bearing-surface before mentioned to form a ground-joint, and the said head being formed at its extreme inner end with a shut-off chamber, with a valve-seat located at the bottom of the said shut-off chamber, with a waste-chamber, and with a passage leading from the said valve-seat to the said waste-chamber, a waste-pipe leading out of the said waste-chamber, a spindle mounted in the outer end of the said chambered head, a stop-valve packing carried by the spindle and coacting with the valve-seat in the said body, a waste-valve packing carried by the spindle and coacting with the side walls of the shut-off chamber and with the valve-seat at the bottom thereof, and a union-nut applied to the neck of the body and coacting with the shoulder of the chambered head for drawing the said two beveled bearing-surfaces into contact, whereby when the cock is open the packings are located within and protected by the shut-off chamber.

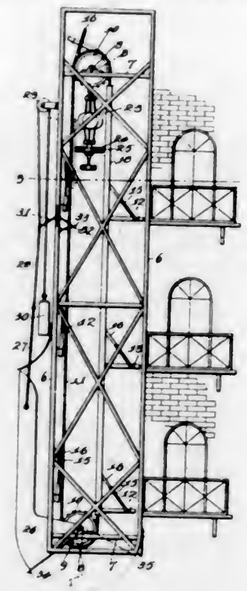
751,870. FIRE-ESCAPE. JOHN C. OTTER, St. Louis, Mo. Filed July 20, 1903. Serial No. 167,329. (No model.)

Claim.—1. A fire-escape, comprising a frame, endless chains located within said frame, a plurality of folding carriers carried by said chains and having front and rear sections hinged together, and a governor mechanism whereby the speed of the chains is regulated, substantially as specified.

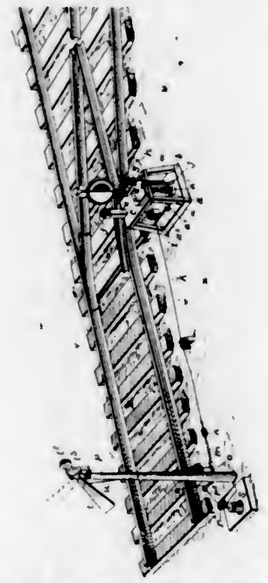
2. A fire-escape of the class described, comprising a frame, sprocket-wheels located within said frame, endless chains operated by said sprocket-wheels, a plurality of folding carriers carried by said chains and having front and rear sections hinged together, a governor mechanism mounted in said frame for regulating the rotation of the sprocket-chains, and an automatically-released chute carried by said frame, whereby objects are conveyed to the ground from the escape, substantially as specified.

3. A fire-escape of the class described, comprising a plurality of folding carriers mounted upon endless chains, sprocket-wheels carrying said endless chains, a governor operated by the movement of the endless chains to regulate the movement caused by an object being placed upon the carrier to be conveyed to the bottom of the escape, a chute located beneath the endless chains, and a trigger mechanism operated by the movement of said chains releasing the chute, substantially as specified.

4. A fire-escape, comprising a frame located on the side of a building near the windows, sprocket-wheels located in said frame, endless chains carried by said sprocket-wheels, a plurality of folding carriers carried by the chains and having front and rear sections hinged together, a plurality of cross-bars carried by said chains; the said carriers automatically assuming a folded position during their ascent; a guide-wheel located upon an upper shaft, said guide-wheel unfolding the carriers as they come in contact; and a governor located in said frame and operated by a gear-wheel mounted upon the upper shaft, said governor equalizing the speed of the carriers during their rotation, substantially as specified.



751,871. AUTOMATIC SWITCH DANGER-SIGNAL. CHARLES H. REMINGTON, Roswell, N. Mex. Filed May 25, 1903. Serial No. 158,707. (No model.)



Claim.—1. A switch danger-signal mechanism comprising in combination with a signal or semaphore including a shiftable signal member, a switch-setting mechanism including a rotary shaft, a lever for actuating said shaft, said lever having an initial movement independent of its shaft-actuating motion, a flexible connection joining the lever with the signaling mechanism, and a counterpoise cooperatively joined with the said connection and the shiftable signaling mechanism, adapted, when the lever is moved to its initial position to shift the signal to a danger position, substantially as shown and described.

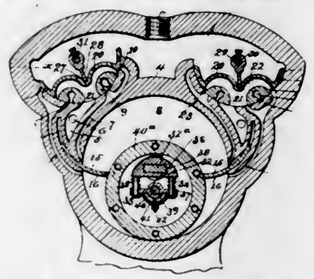
2. In a switch and signal setting mechanism as described; a shiftable signaling member, a crank for actuating the said signal member, a counterpoise for moving the crank in one direction, a switch-setting means including a rotary shaft connected with the switch-points, a lever for turning said shaft, said lever having an independent movement with respect to the shaft, a flexible connection joining said lever and the counterpoise and a guide for said connection movable with the shaft and its operating-lever when the said lever is turned to actuate the shaft, as set forth.

3. In a switch and signal actuating means as described; in combination with a signal mechanism including a swinging semaphore-blade, a crank and pitman for cooperating with the blade and a counterpoise for moving the crank in one direction; of a frame, a rotary switch-actuating shaft mounted thereon, a platform horizontally rotatable therewith, guide-pulleys mounted thereon, a lever pivotally connected to the platform and adapted under one position to interlock with the said platform and movable therewith in a horizontal plane, and a cable attached to the said lever engaging the guide-pulleys and connected to the signal-blade-actuating crank, as set forth.

4. In a switch and signal actuating mechanism, in combination with a distant signal including a shiftable blade or member; of a switch-setting means comprising a rotary shaft, a switch-shifting member connected thereto, a platform mounted on the shaft and rotatable therewith, a guide-pulley mounted on the platform, an arm projected from the shaft, a guide-pulley journaled thereon, a lever pivotally connected to the platform, and a cable joined with the lever passed over the guide-pulleys and connected with the shiftable blade member of the signal devices, as set forth.

5. The combination with the switch-points, the reciprocable shifting-bar connected therewith, and the supporting-frame for the switch-actuating devices; of a rotary shaft *d*, the platform *h*, the arm *e* connected to the shaft to move therewith, the pulley *f* mounted on the arm *e* and the pulley *h* mounted on the platform, the lever *j* pivotally connected to the platform and adapted to be swung up in the horizontal plane thereof, a cable connected to the said lever, passed over the guide-pulleys another guide-pulley at the base of the frame on which the switch-setting devices are mounted, a distant swinging signal-arm, a crank means for actuating the said arm, a counterpoise connected with one end of the crank, a yielding and adjustable connection joined with the other end of the crank, said adjustable and yielding connection being joined with the operating-cable, all being arranged as shown and described.

751,872. ROTARY ENGINE. WILLIAM P. ROACH, Lindsey, Pa. Filed May 15, 1903. Serial No. 157,205. (No model.)



Claim.—1. The combination, with the cylinder, the steam-chest, the main shaft, and the piston revoluble and rotatable in the cylinder, of the two-part hanger one part thereof carrying the shaft and the other part the piston, and the gates slidable under the steam-chest and in the cylinder and operated by the piston and with the latter separating the cylinder into two compartments.

2. In a rotary engine, a compartment-cylinder, a steam-chest provided with inlet and outlet ports, and passages to and from the compartments, a shaft centrally journaled in the cylinder, an ex-

pansible hanger fixed to the shaft, a revolving and rotating piston journaled on the hanger, and the curved or arc-shaped gates working in the steam-chest against the piston and with the latter separating the said compartments.

3. The combination, with the shaft, the cylinder having gates, the piston, the two-part flexible hanger in which the piston is journaled and the shaft is secured eccentric to the piston, and the valves, of means to convert the rotary motion of the shaft to a slidable motion of the valves comprising the crank-shafts, collars or sleeves on the crank-shafts having a tongue engaging the valves, and the eccentric connections from the crank-shafts to the said shaft.

4. The combination, with the shaft, and the piston, of means for flexibly and expansively connecting the shaft and piston eccentric to each other, comprising a two-part hanger, one part thereof being fixed to the shaft and the other part thereof having the piston-spindle journaled therein, rods loosely connecting said hanger parts, and springs to control the movement of the parts relative to each other.

5. The combination, with the cylinder, the steam-chest having steam-passages leading into the cylinder and gateways between said passages, valves slidable over said passages to open and close the latter, and a shaft having eccentric connections with the valves, of the piston, the hanger secured to the shaft and in which the piston is journaled eccentric to the shaft, and the slidable gates operated by the piston and with the latter dividing the piston into two compartments, and permitting the piston to close the said passages at their entrance to the cylinder.

6. In a rotary engine, a casing formed with a steam-cylinder, a steam-chest above the cylinder, gateways between the steam-chest and the cylinder, and the steam-ports in the steam-chest connected by passages to the cylinder, slide-valves to open and close the ports, sliding gates in said ways, a shaft journaled centrally in the cylinder, an expansible hanger on the shaft within the cylinder, a rotatable piston journaled in the hanger eccentric to the shaft, eccentries on the shaft, and operative mechanism between the eccentrics and the valves to effect a reversal of the engine.

7. In a rotary engine, a cylinder having steam-ports to admit and discharge the steam, oppositely arranged and extending shafts journaled in the cylinder, duplicate expansible hangers on the ends of the said shafts within the cylinder, a rotatable and revoluble piston eccentrically journaled in the hangers and disposed between them, and slidable gates bearing on the piston at different points.

8. In a rotary engine, the combination, with a cylinder and a flexibly-hung revolving rotating piston therein having a central web, of the two-part hanger having springs therebetween and in which the piston is journaled, a two-part shaft journaled in the cylinder and having ends fitting and terminating in the hanger with a space between the hanger parts to permit the passage of the piston-web.

9. The combination, with the cylinder, the steam-chest at the top thereof, and the shaft centrally journaled in the cylinder, of the revolving and rotating piston, two-part hanger for flexibly hanging the piston from and eccentric to the shaft, and the gates working under the steam-chest in the cylinder upon each side of the vertical center thereof and against the piston.

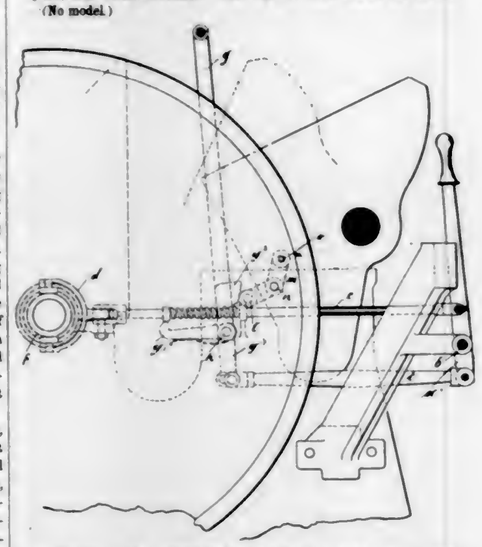
10. In a rotary engine, the combination, with the cylinder having a steam-chest, the piston, and the shaft centrally journaled in the cylinder, of the hanger for expansively and eccentrically hanging the piston from the shaft to revolve with the latter and rotate during such revolution, the gates with the piston dividing the cylinder into two compartments, each compartment having independent induction and exhaust passages from and to the said steam-chest.

11. The combination, with a rotary engine, a main shaft, a revoluble piston eccentrically connected to the shaft, and curved valve-seats in the engine steam-chest, of the slide-valves connected to the said shaft and having the same curvature as the said seats and in which are formed transverse induction-openings to take steam from the chest and having ports 25, a central pocket to exhaust steam from the cylinder, passages from the pocket terminating in ports to carry steam to the exhaust-chambers of the engine, and a port 26 through each end of the valves.

12. In a rotary engine, the combination, with the cylinder and the flexible hanger, of the piston having apertures therethrough the rings contained in the piston, and the springs working in the apertures and against the rings, to form side cushions for the piston.

13. In a rotary engine, the combination, with the cylinder, the face-plate, the shaft, and the flexible hanger secured to the shaft, of the piston hung from the hanger and having holes therethrough, the rings contained in the piston and bearing against the face-plate, and the springs loose in the holes and working against the rings.

751,873. ENGAGING AND DISENGAGING DEVICE FOR PLATEN PRINTING-PRESSES. WILHELM M. ROCKSTROH, Klein Sedlitz, near Pirna, Germany. Filed Apr. 16, 1902. Serial No. 103,215. (No model.)



Claim.—1. In a platen printing-press, the combination with a friction-clutch, and a hand-lever for engaging and disengaging the friction-clutch, of a cross-bar arranged at a certain distance from the base or bearing plate for preventing the workman's hand from getting too near same, and means for so connecting said cross-bar with said hand-lever, that on the hand moving too far, the friction-clutch is automatically disengaged, substantially as set forth.

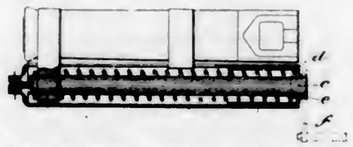
2. In a platen printing-press, the combination with a friction-clutch, of a lever engaging in the movable member of said clutch, a hand-lever, a rod linked at the one end to said lever and at the other end to said hand-lever, said rod being longitudinally pressed by a spring for disengaging said friction-clutch, an auxiliary lever mounted on a pin to rock and carrying a cross-bar at a certain distance from the base or bearing plate to prevent the workman's hand from getting too near same, a rod connecting said auxiliary lever with said hand-lever, a detent rigidly connected to said auxiliary lever and pressed by a spring to snap behind a collar on said rod for locking said friction-clutch in its engaged position and to release said collar in case of danger, substantially as set forth.

3. In a platen printing-press, the combination with a friction-clutch, of a lever engaging in the movable member of said clutch, a hand-lever, a rod linked at the one end to said lever and at the other end to said hand-lever, said rod being longitudinally pressed by a spring for disengaging said friction-clutch, a detent pressed by a spring to snap behind a collar on said rod for locking said friction-clutch in its engaged position, an arm affixed to the swinging platen and carrying a roller which is adapted to strike against a projection on said detent for disengaging said friction-clutch after each printing operation, substantially as set forth.

4. In a platen printing-press, the combination with a friction-clutch, of a lever engaging in the movable member of said clutch, a hand-lever, a rod linked at the one end to said lever and at the other end to said hand-lever, said rod being longitudinally pressed by a spring for disengaging said friction-clutch, a detent pressed by a spring to snap behind a collar on said rod for locking said friction-clutch in its engaged position, a two-armed lever mounted to rock on the swinging platen and carrying a roller, a spring-pressed bolt for securing said two-armed lever in either of two positions, said roller being adapted in the one position to strike against a projection on said detent for disengaging said friction-clutch after each printing operation, substantially as set forth.

751,874. RECOIL-SPRING APPARATUS FOR GUNS. HEINRICH SCHRÖDER, Eisenach, Germany, assignor to Fahrzeugfabrik Eisenach, Eisenach, Germany. Filed May 29, 1903. Serial No. 159,386. (No model.)

Claim.—1. A recoil apparatus for guns comprising in combination with a gun-barrel, a brake-cylinder, a casing surrounding said cylinder and having a portion of its inner face at one end screw-threaded, a spring surrounding the cylinder, a bracket attached at the forward end of the gun-barrel and extending in said casing, said bracket constituting an abutment for one end of the spring, and means extending in the casing, engaging the screw-threads thereof and inclosing the other end of the spring for forming an abutment for the spring, said means projecting from the casing and forming a guide for the brake-cylinder.

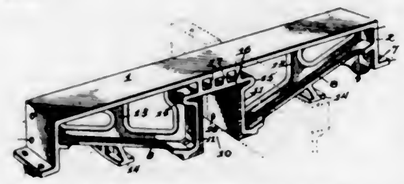


2. A recoil apparatus for guns comprising in combination with a gun-barrel, a brake-cylinder, a casing surrounding said cylinder and having a portion of its inner face at one end screw-threaded, a spring surrounding the cylinder, a bracket attached at the forward end of the gun-barrel and extending in said casing, said bracket constituting an abutment for one end of the spring, and adjustable means extending in the casing, engaging the screw-threads thereof and inclosing the other end of the spring, said means projecting from the casing and forming a guide for the brake-cylinder.

3. A recoil apparatus for guns comprising in combination with a gun-barrel a brake-cylinder, a spring surrounding the cylinder, a bracket attached to the forward end of the gun-barrel and connected with a brake-cylinder, said bracket constituting an abutment for one end of the spring, a casing surrounding the spring and having one end thereof internally screw-threaded, a cup-shaped hollow screw-plug at the rear end of said casing, said plug engaging the screw-threads of the casing, a guide for the cylinder arranged at the rear end of the casing, and means for adjusting the screw-plug for controlling the tension of the spring.

4. A recoil apparatus for guns comprising in combination with a gun-barrel, a brake-cylinder, a spring surrounding the cylinder, a bracket attached to the forward end of the gun-barrel and connected with the brake-cylinder, said bracket constituting an abutment for the spring, a casing inclosing the brake-cylinder and spring, said casing having its rear end internally screw-threaded, an externally-screw-threaded hollow plug extending in the rear end of the casing and engaging the screw-threads thereof, said plug having its rear end substantially cup-shaped, said plug partly surrounding one end of the spring and the cup-shaped end of said plug adapted to receive the end of the spring forming an abutment therefor, and a collar connected with the screw-plug and forming a guide for the brake-cylinder, said collar projecting from said plug.

751,875. BODY-BOLSTER FOR RAILWAY-CARS. CHARLES S. SHALLENBERGER, Milwaukee, Wis., assignor of one-half to R. S. Marshall, St. Louis, Mo. Filed Nov. 14, 1901. Serial No. 82,314. (No model.)



Claim.—1. A body-bolster, composed of a casting having a recess formed in its under side adapted to receive the draft members, and a combined center plate and compression-block adapted to be located within said recess between the draft members, substantially as specified.

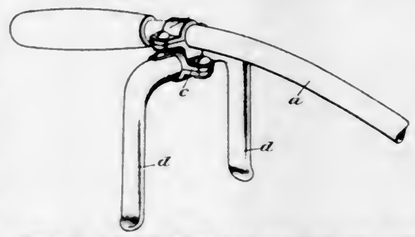
2. A body-bolster for railway-cars, consisting of a casting having a recess in its under side adapted to receive the draft members, a combined center plate and compression-block located in said recess between the draft members, and means for holding the said center bearing and compression-block permanently in position within said recess, substantially as specified.

3. A body-bolster for railway-cars consisting of a casting having downward and outward extensions at its ends, and provided with a recess in its under side adapted to receive the draft members, a combined center bearing and compression-block located in said recess between the draft members, and means for holding the said center bearing and compression-block in position thereon.

4. A car-bolster for railway-cars, comprising a casting consisting of a top having downward and outward extensions integral with its ends, lower members having their outer ends formed integral with the said extensions, integral connections 11 connecting the inner ends of the lower members with the top, there being a recess or space between the said members adapted to receive the draft members, a combined center bearing and compression-block located within said recess or space and between the draft members, and means for holding the said center bearing and compression-block in position, substantially as specified.

5. A body-bolster for railway-cars, consisting of a casting having a recess in its under side adapted to receive the draft members, a combined center plate and compression-block located in said recess, and means for holding the said center bearing and compression-block permanently in position within said recess, substantially as specified.

751,876. ATTACHMENT FOR VEHICLE STEERING-GEAR. GROVER D. SMITH, Montclair, N. J. Filed July 24, 1903. Serial No. 166,835. (No model.)



Claim.—1. A vehicle steering means, comprising the combination with the steering means proper, of an attachment thereto positioned to engage the knee of the driver whereby to permit steering the vehicle from the knee of the driver.

2. The combination of a vehicle steering-arm and a fork attached to the free portion of the arm and capable of embracing the knee of the driver for the purpose specified.

3. The combination of a vehicle steering-arm, a fork capable of embracing the knee of the driver, and means for mounting the fork of the arm to move in and out of active position.

4. The combination of a vehicle steering-arm, a fork adapted to engage the knee of the driver, and means for mounting the fork of the arm to move in and out of active position, said means comprising a clip in which the fork is mounted friction-tight.

5. The combination with the steering devices of a vehicle, of a member adapted to engage the driver's knee for the purpose specified, and means for mounting said member on the steering devices to permit said member to move in and out of active position.

6. The combination with the steering devices of a vehicle, of a fork comprising two sections adjustable toward and from each other, and means for mounting said fork on the steering devices.

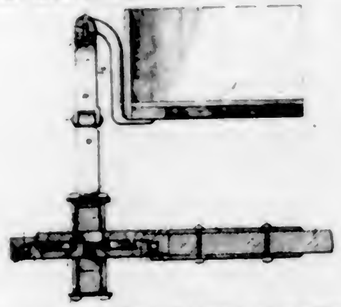
7. The combination with vehicle steering devices, of a fork, comprising two limbs and a body part connected to each limb, means for slidably connecting the body parts for the purpose specified, and means for mounting the fork on the steering devices.

8. The combination with vehicle steering devices, of a fork, comprising two limbs and a body part connected to each limb, means for slidably connecting the body parts for the purpose specified, and means for mounting the fork on the steering devices, said means for mounting the fork comprising two connected clips engaged respectively with the fork and steering devices, the fork-engaging clip holding the clip friction-tight to permit the movement of the fork in and out of active position.

9. The combination with vehicle steering devices, of a fork, comprising two limbs and a body part connected to each limb, means for slidably connecting the body parts for the purpose specified, and means for mounting the fork on the steering devices, said means for mounting the fork comprising two connected clips engaged respectively with the fork and steering devices, the fork-engaging clip holding the clip friction-tight to permit the movement of the fork in and out of active position, and the fork-engaging clip having a slot therein receiving a part of the fork to limit the movements of the fork in the clip.

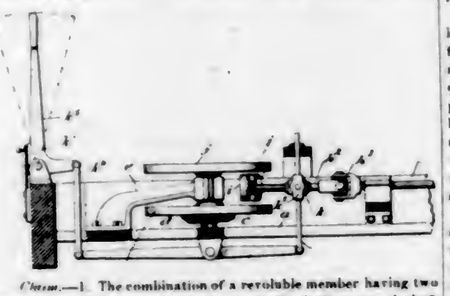
10. A vehicle steering means, comprising the combination with the steering means proper, of a fork attached thereto and positioned to engage the knee of the driver, whereby to permit steering the vehicle from the knee of the driver.

751,877. FIFTH-WHEEL. JACOB SOMMER, Kearney, Nebr., assignor of one-half to Horace F. Carson, Fremont, Nebr. Filed July 16, 1902. Serial No. 115,317. (No model.)



Claim.—In a fifth-wheel, the combination of a pair of flat plates of general circular form adapted to mate each other, one of said plates being provided with an annular bearing-groove and with an annular collar detachably secured to said plate and bounding said groove, the other of said plates being provided upon its opposite faces with annular bearing-grooves in alinement with each other, one of said last-mentioned grooves being mated by a portion of said annular collar, the other of said last-mentioned grooves being disposed opposite the groove of the other plate, and a plurality of rolling bodies disposed between said plates and engaged by the respective last-mentioned grooves of said pair of flat plates.

751,878. FRICTION-GEAR. SAMUEL C. SPANGLER, Clyde, Okla., assignor of one-half to Oloff P. Swenson and John A. Swenson, Medford, Okla. Original application filed Oct. 29, 1901, Serial No. 80,410. Divided and this application filed Mar. 11, 1903. Serial No. 147,270. (No model.)



Claim.—1. The combination of a revoluble member having two surfaces spaced from each other, a revoluble shaft, a second shaft having universal connection with the first-named shaft, a gear attached to the second shaft and introduced between the two surfaces of the said revoluble member, a box in which the second-named shaft is revoluble, a rod attached to the box, a guide in which the rod is reciprocal, and means for actuating the rod, said means comprising a lever connected to one end of the rod, a link connected to the other end of the lever, a hand-lever connected to the link, said hand-lever being bent and having a plane portion adjacent to its elbow, and a spring member engaging said plane portion, for the purpose specified.

2. The combination with a framing, of an overhanging arm mounted thereon, connected friction-disks spaced from each other and between which the arm projects, whereby revolubly to mount the disks, means for driving said disks as a unit, a shaft, a second shaft having universal connection therewith, a friction-wheel attached to the second shaft and located between the friction-disks, a box revolubly connected with the second shaft, a rod mounted to reciprocate in the frame and having connection with the box, and means for operating the rod.

3. The combination with a framing, of an overhanging arm mounted thereon, connected friction-disks spaced apart from each other and between which the arm projects, said arm mounting the axles of the disks to permit the rotation thereof, means for driving said disks as a unit, a friction-wheel seated between the disks, and means for adjustably mounting the friction-wheel and transmitting the movement thereof, said wheel being capable by its adjustment, of engaging either disk.

4. In a friction-gear, the combination of two disks spaced apart and mounted to turn as a unit, means for driving the disks, a revoluble shaft, a shaft-section having universal connection with one end of the revoluble shaft and projected essentially longitudinally beyond the shaft, said shaft being capable of swinging around the center of said connection and being projected between the said disks, a friction-wheel attached to the shaft between the disks, for the purpose specified, a collar mounted loosely on the shaft-section, a box having pivotal connection with the collar, a rod attached to the box, a guide for the rod permitting the same to move longitudinally, and means for so moving the rod.

751,879. SEED-PLANTER. FREDERICK W. STANLEY, McComb, Miss. Filed July 15, 1903. Serial No. 165,645. (No model.)



Claim.—1. The combination with a frame, a traction-wheel thereon, and a main hopper having a discharge-orifice for seed, of a device in the hopper for discharging seed, that periodically takes a few seeds from a supplemental hopper above the main hopper, and conveys said seeds toward the orifice in the hopper for their discharge.

2. The combination with a frame, a traction-wheel thereon, and a main hopper having a discharge-orifice for seed, of a seed-hopper placed in the main hopper, having two independent supplemental hoppers, and means connected with the traction-wheel for causing seed from one or both of said supplemental hoppers to pass periodically out of said discharge-orifice.

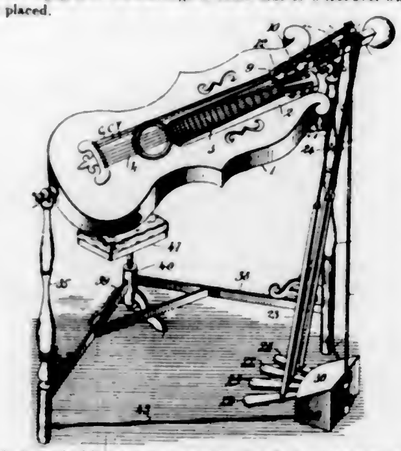
3. The combination with a frame, a main hopper thereon having a seed-discharge orifice in its bottom, a traction-wheel on the frame, a stirring device carried by the hopper, and means for transmitting rocking movement from the traction-wheel to the stirring device, of a feeding device for depositing a plurality of seed in hills, placed in the hopper, and comprising two independent hoppers, a block having a seed-holding pocket and held to slide in a wall of a respective hopper, and means for connecting said slidable blocks with the stirring device which adapts the slide-blocks to slide upward from the lower part of an adjacent hopper and discharge the seed received therefrom.

4. A seed-planting device, comprising a main hopper having a seed-discharging orifice, stirring-arms held to rock in the lower portion of the main hopper, two independent hoppers held in the upper portion of the main hopper, a slide-block reciprocal in a wall of each upper hopper and having a seed receiving and discharging pocket in its upper portion, and means connecting the lower portions of the slide-blocks with the stirring-arms, said means comprising a flexible band which directly engages a two-part block clamped on the stirring-arms, and adapted to alternately slide the slide-blocks, so as to dispose the seed-pockets alternately at the bottoms of the hoppers and elevate them therefrom, in unison with the rocking movement of the two-part block.

5. A seed-planting device, comprising a supported, main hopper having a discharge-orifice in its bottom, independent hoppers in the upper portion of the main hopper, elongated blocks held to slide in the walls of the upper hoppers, each slide-block having an open-ended seed-pocket at its upper end, a seed-conducting trough leading from the upper end of each independent hopper down into the main hopper near the orifice therein, and means for alternately reciprocating the slide-blocks for successive elevation and depression of the pockets therein.

751,880. MUSICAL INSTRUMENT. EDWARD S. STEVENSON, Eldorado, Kans. Filed May 9, 1903. Serial No. 156,475. (No model.)

Claim.—1. A musical instrument having a main set of strings, an auxiliary set of strings, a plurality of frets for said auxiliary strings, and rocking stops for moving the auxiliary strings into engagement with any one of the frets, each of said stops having portions extended from opposite sides of its pivotal point whereby it may be engaged with the strings at either side of a fret over which it is placed.



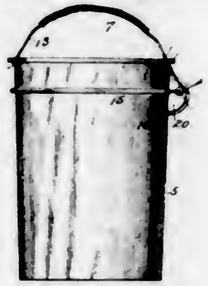
2. A musical instrument comprising a body portion, a main set of strings thereon, an auxiliary set of strings extended along one side of the main strings, frets underneath the auxiliary strings near the upper portion of the body, a pair of rocking stops mounted on the body for moving the strings into engagement with the frets, each stop being adapted for engaging with the strings at either one of two points and foot-actuated mechanism for rocking the said stops.

3. A musical instrument comprising a body having a main set of guitar-strings, a set of three auxiliary strings arranged along the main strings, frets arranged underneath the auxiliary strings near the upper portion of the body, rocking stops for pressing the strings into engagement with the frets, each of said stops having divergent portions for engaging with strings at opposite sides of frets, rocking blocks, connections between the stops and blocks, foot-pedals, and connections between the opposite ends of said rocking blocks and the pedals.

4. A musical instrument comprising a body having an opening through it at one end, a guitar-arm extended along said opening, guitar-strings thereon, auxiliary strings, frets arranged underneath said auxiliary strings near the upper portion of the body, stops mounted to rock on the body, each of said stops having portions extended from opposite sides of its pivotal point, an arm extended from the body, rocking blocks on said body, spring-pressed rod connections between said blocks and stops, foot-pedals, and connections between said pedals and the blocks, whereby they may be rocked in either direction.

5. The combination with a musical instrument, substantially such as described, of posts on which the instrument is adjustably mounted, a seat or stool, and bar connections between said posts and the seat or stool.

751,881. COVER ATTACHMENT FOR RECEPTACLES. OSCAR S. SWITZER, Chicago, Ill. Filed Aug. 19, 1903. Serial No. 169,976. (No model.)



Claim.—1. A cover attachment for open-ended receptacles comprising a spring-clip adapted to be clasped about the receptacle intermediate its ends, a cover proper for the receptacle, and a carrier, separable from the cover, attached thereto, and extending down the side of the receptacle into pivotal engagement with the clip.

2. A cover attachment for open-ended receptacles comprising a spring-clip adapted to be clasped about the receptacle, and having a portion constituting one member of a hinge, a cover proper for the receptacle, and a carrier, separable from and attached to the cover, having a portion closely encircling the clip to form the other member of a hinge.

3. In a cover attachment for receptacles, an attaching member provided with one element of a hinge, a carrier provided with the coacting element of the hinge, and a cover detachably mounted in said carrier.

4. In a device of the character described, an attaching member provided with one element of a hinge, and a carrier member provided with the coacting element of the hinge, said carrier element being provided with a plurality of inwardly-opening loops arranged in a single plane.

5. In a cover attachment for receptacles, an attaching member designed to be detachably secured to said receptacle, and provided with one element of a hinge, a carrier provided with the coacting element of the hinge, said carrier comprising a plurality of divergent spring-fingers, provided with inwardly-opening loops arranged in a common plane.

6. In a cover attachment for receptacles, an attaching-clip, a cover-carrier pivotally mounted on said clip, and a bearing member adapted to contact with the receptacle carried by the clip, and arranged adjacent the pivotal point of the carrier.

7. In combination with an open-ended receptacle, a cover attachment therefor comprising a spring-attaching clip, a cover-carrier hinged thereto, and a bearing-block having a friction-face carried by the clip and arranged to extend below the point where the carrier is hinged, in contact with the receptacle.

751,882. PHOTOGRAPHIC PLATE AND PROCESS OF MAKING SAME. CHARLES D. THOMSON, Grand Rapids, Mich.; Helen Thomson executrix of said Charles D. Thomson, deceased. Filed Sept. 22, 1902. Serial No. 124,478. (No specimens.)



Claim.—1. The herein-described process for preparing photographic plates or films, which consists in sensitizing the plate or film, photographically printing a background effect thereon, developing the plate or film, and finally resensitizing the plate or film.

2. As a new article of manufacture, a photographic plate or film having a background effect photographically printed and developed thereon and having a sensitized coating superimposed upon the background impression.

3. The herein-described process for preparing photographic plates or films which consists in sensitizing the plate or film, photographically printing a background effect thereon and finally resensitizing the plate or film.

4. As a new article of manufacture, a photographic plate or film having a background effect photographically printed thereon and having a sensitized coating superimposed upon the background impression.

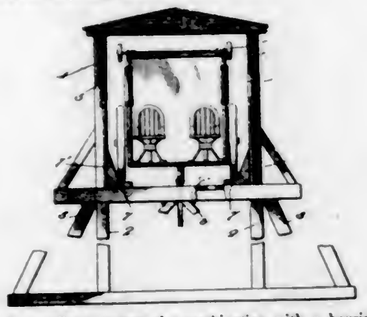
751,883. RAILWAY SYSTEM. HENRY B. WALBRIDGE, Washington, D. C. Filed Oct. 30, 1903. Serial No. 177,766. (No model.)

Claim.—1. In a railway system, the combination of a housing and air-admission means in the floor thereof.

2. In a railway system the combination with a housing, means for releasing pressure from within the housing, and doors hinged to the bottom thereof and free to swing inwardly.

3. In a railway system, the combination with a housing, of

cushion-rails arranged therein, a vehicle within said housing, rubber-tired wheels carrying said vehicle and supported on said rails, and means for propelling said vehicle.

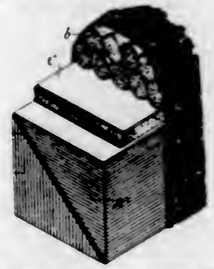


4. In a railway system, the combination with a housing of wooden rails arranged therein, a vehicle within said housing, cushion-tired wheels supporting said vehicle and engaging said wooden rails, and means for propelling said vehicle.

5. In a railway system, the combination with a housing, of rails arranged at each side of the bottom thereof, and inclined guideways extending from the side walls of the housing to the respective rails.

6. In a railway system, the combination with an inclosing housing, of a vehicle within the same formed with a downwardly and rearwardly inclined front end, and means for propelling said vehicle.

751,884. **PACKING.** WILLIAM J. M. WEAVER, Philadelphia, Pa. Filed July 27, 1903. Serial No. 167,222. (No model.)



Claim.—1. In a packing, the combination of a plurality of bodies of material extending longitudinally of the same, certain of said bodies being composed of sheets of fabric and another body consisting of a relatively loose fibrous material, with a containing device extending between the said bodies of material, and lubricant in said containing device, substantially as described.

2. The combination of a packing including wedges and a cushion, with a container for lubricant extending longitudinally of the packing between the cushion and said wedges, and a body of lubricating material held by said container, substantially as described.

3. The combination in a packing, of wedges and a cushion, with a containing device extending longitudinally of the packing and placed between the cushion and the top surface of one of the wedges, and a body of lubricating material held by the containing device, said device having an opening for permitting said lubricating material to pass out at the side of the packing substantially as described.

4. The combination in a packing, of a cushion, and a pair of wedges, with a containing device extending between the cushion and the wedges and between the wedges, and a body of lubricating material held by said containing device, substantially as described.

5. The combination in a packing, including a cushion and two substantially wedge-shaped sections, of a receptacle consisting of substantially parallel sheets of material having between them a body of lubricant and placed between the cushions and the wedge-shaped sections, substantially as described.

6. The combination in a packing, of a cushion, with a body of relatively solid material containing fabric, extending parallel to the body of the cushion, a receptacle consisting of substantially parallel sheets of material placed between the cushion and said body of fabric-containing material, and a lubricant between said sheets of material, said receptacle being constructed so that the said lubricant is free to pass out of it at the side of the packing, substantially as specified.

7. The combination in a packing, of a cushion, and two substantially wedge-shaped sections, with a plurality of sheets of material extending substantially parallel to each other between the wedge-shaped sections, and between one of the sections and the cushion, with a body of lubricating material contained between said sheets, substantially as described.

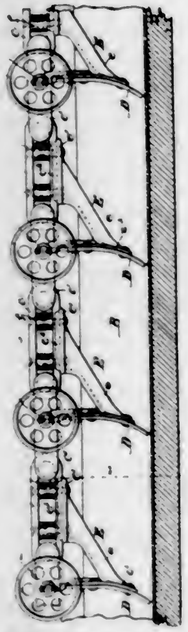
8. The combination in a packing, of a cushion-section, and a pair of wedge-shaped sections, with a body of lubricant between said wedge-sections and the cushion, and a container for said lubricant, said container having openings in its sides, substantially as described.

9. The combination in a packing, of a cushion, a relatively solid body of material containing fabric, and a plurality of sheets of material between said body and the cushion, said sheets being some distance apart and containing between them a body of lubricating material, the sheets being of a width greater than the width of the packing, substantially as described.

10. The combination in a packing, of a cushion, and a pair of wedge-shaped sections, with a sheet of lead between the cushion and the wedge-sections, said sheet being bent to form a receptacle and a body of lubricating material contained in said receptacle, substantially as specified.

11. The combination of a cushion-section with two wedge-sections and a piece of material between said cushion-section and the wedge-sections, said piece of material being folded upon itself in such manner as to form a receptacle, and a body of lubricating material held in said receptacle, substantially as described.

751,885. **CONVEYER.** ALFRED J. WEBSTER, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Sept. 18, 1897. Serial No. 652,173. (No model.)



Claim.—1. In a conveyer, the combination of the flights, a chain secured to the flights, the wheels supporting the flights independently of the chain, and the pushing-arms connected to the flights, substantially as set forth.

2. In a conveyer the combination of the flights, the chain secured to the flights, the wheels supporting the flights independently of the chain, and the push-bars extending backwardly from the flights and secured to the chain, substantially as set forth.

3. In a conveyer, the combination of the series of flights, the chain, the supporting-wheels for the flights, and the pushing-arms each connected to a chain-link in rear of the link next adjacent to its flight, substantially as set forth.

4. In a conveyer, the combination with a chain of a flight, a supporting-wheel in the plane of the flight transverse of the chain, a pushing-bar connected to the flight and extending backward to points in rear of the wheel, and secured to the chain, substantially as set forth.

5. In a conveyer, the combination of a flight, a chain comprising a series of link-sections, each section having a link, *c*, and a link *c'*, a supporting-wheel for the flight transversely opposite to the link *c'*, said link being disconnected from the wheel, and a pushing-bar extending backward from the flight to the link *c*, substantially as set forth.

6. In a conveyer, the combination with the flights, of a chain having the links *c*, *c'*, the link *c'* being formed of separable side bars and the link *c* being a continuous loop, the pintle connecting the links, and the bushing concentric with the pintle and detachably locked to the link, *c'*, substantially as set forth.

7. In a conveyer, the combination with the flights, of a chain having the links *c*, *c'*, the link *c* being a loop, and the link *c'* being formed of two separable side bars, the bushing, in the curved end of the loop-link, *c*, the pintle at the axis of the bushing, and means for locking the side bars of the link *c'* to the bushing against rotation, substantially as set forth.

8. In a conveyer, the combination of a chain, a series of flights or scrapers each lying in the transverse planes of a chain-link, but disconnected therefrom and a push-bar connected to the flight and to a link in rear of that adjacent to the flight, whereby the chain-links immediately adjacent to the flights are free to rise and fall independently thereof, substantially as set forth.

9. The combination with the chain of the series of flights, and a push-bar for each flight connected to the chain at points in rear of the link adjacent to its flight and means for supporting each flight independently of the chain, substantially as set forth.

10. The combination of a chain, a series of flights secured thereto, a trough, and means connected to the flights independent of the chain and arranged outside of the trough for centering the flights in the trough, substantially as set forth.

11. The combination of the strap-metal loop-links, the intermediate links each formed of two parallel side bars, one of the side bars being formed with a non-circular opening in its end, a pintle formed with a web or fin fitted to the said non-circular opening in the side bar, a spacing and wearing piece also fitted to and locked on the pintle, and the material-transporting devices connected with and moved by the chain formed of the said links, substantially as set forth.

12. In a conveyer, the combination, with the material-transporting devices, of a chain adapted to move the said transporting devices comprising a link formed of two parallel side bars, one of the side bars being formed with a non-circular opening near its end, a pintle for uniting said side bars and having a projection arranged to fit the said non-circular opening in one of such side bars, a detachable wearing piece or journal adapted to fit upon the pintle and locked thereon against rotation, and an adjacent strap-metal loop-link having a bearing in which the said journal or wearing piece fits and articulates, substantially as set forth.

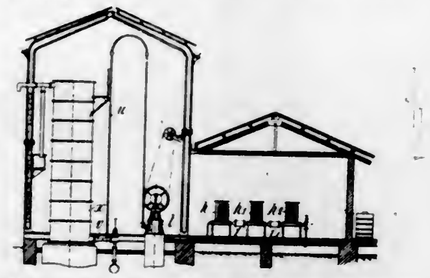
13. In a conveyer the combination of a chain, a series of flights secured to the chain and arranged transversely thereof and extending beyond the edges of the chain in opposite directions, a trough in which the flights travel, and the means for supporting and steadying the flights, carried by the latter independently of the chain and extending beyond the outer edges thereof and of the trough, substantially as set forth.

14. In a conveyer, the combination of a chain, a series of flights secured thereto, a trough in which the flights move, ways or tracks arranged outside the trough, flanges separating the said ways from the trough, and supports for the flights traveling upon the said ways, substantially as set forth.

15. In a conveyer the combination of a chain, a series of flights secured thereto and extending laterally to each side of the chain, a trough in which the flights move, ways or tracks arranged outside the trough and parallel therewith, supports for the flights arranged to travel upon the said ways or tracks, and guiding-flanges arranged along the edges of the tracks to center the flights in the trough, substantially as set forth.

16. In a conveyer the combination of a chain, a series of flights secured thereto and extending laterally to each side of the chain, a trough in which the flights move, supporting and guiding wheels carried by the flights independently of the chain, ways or tracks arranged outside of the trough and parallel therewith upon which the said wheels travel, and the flanges arranged between the ways and the trough, substantially as set forth.

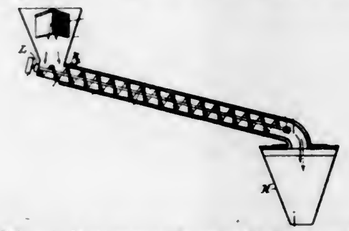
751,886. **APPARATUS FOR STERILIZING WATER.** HENRY J. WESSELS, Paris, France. Filed June 22, 1903. Serial No. 162,627. (No model.)



Claim.—1. In combination, a sterilizing-tank, a series of ozonizers, a conduit for connecting the same with the tank, cooling means intermediate the ozonizers and connected therewith, electrodes in said ozonizers comprising a metal trough and semicircular disks provided with a series of projecting points, suitable current leads for the electrodes, and a cooling-jacket for each ozonizer.

2. In combination, a series of ozonizers, cooling means intermediate the ozonizers and connected therewith, each ozonizer comprising a semicylindrical trough of metal constituting one electrode, a semicircular disk provided with projecting points constituting the other electrode, suitable leads for the electrodes, and an enamel jacket located below said trough.

751,887. **APPARATUS FOR TREATING FODDER PREPARATORY TO COMPRESSING SAME.** MARK K. WESTCOTT, Camberwell, Victoria, Australia. Filed Apr. 20, 1903. Serial No. 153,531. (No model.)

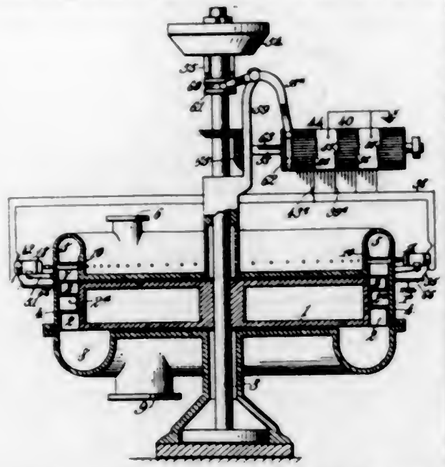


Claim.—1. In an apparatus for treating fodder, the combination of an inclined steam-jacketed pipe, a feed-hopper for delivering material into the entering end of the pipe, an angular spreader on a side wall of said hopper onto which material is initially delivered, which serves to form the material into a thin stream prior to its entrance into the pipe, a feed device in the pipe for advancing the material along the same in a thin stream, and a steam-jacketed hopper for receiving the material from the delivery end of the pipe, the steam-jacket of the last-mentioned hopper being a continuation of the jacket around said pipe.

2. In an apparatus for treating fodder, the combination of an inclined steam-jacketed pipe, a feed-hopper at the entering end of the pipe arranged to deliver material into the upper end of said pipe, an angular spreader supported by a side wall of the hopper within the same and onto which the material is initially delivered, said spreader serving to form the material in the hopper into a thin stream prior to its entrance into said pipe, a rotative screw extending the complete length of the pipe and adapted to advance the material along said pipe in a thin stream, and a two-part steam-jacketed hopper for receiving the material for the delivery end of the pipe, the steam-jacket of the last-mentioned hopper being a continuation of the jacket around said pipe.

751,888. **GOVERNING MECHANISM FOR TURBINES.** JAMES WILKINSON, Birmingham, Ala., assignor, by direct and mesne assignments, to the Wilkinson Steam Turbine Company, a Corporation of Alabama. Filed Apr. 7, 1903. Serial No. 151,504. (No model.)

Claim.—1. In a turbine, the combination of a number of nozzles, valves for said nozzles, rotary motors transmitting motion to said valves to actuate them, and a governor for controlling the operation of said motors to throw said valves into and out of service.



2. In an elastic-fluid turbine, a rotating element, a fluid-supply passage, a series of partitions therein which direct the fluid in streams against said rotating element, a rotary valve controlling the admission of fluid to each passage formed by said partitions, and a governor controlling the operation of said valves.

3. In an elastic-fluid turbine having a nozzle, a rotary valve having only open and closed positions controlling the admission of fluid-pressure to said nozzle, and governor-controlled means to operate said valve.

4. In an elastic-fluid turbine having one or more nozzles, a governor-controlled electrically-operated rotary valve for each nozzle controlling the admission of fluid-pressure thereto.

5. In an elastic-fluid turbine, a plurality of nozzles, a rotary valve for each nozzle located in the throat thereof, and electromagnetic means suitably governed for rotating each valve.

6. In an elastic-fluid turbine, an expansion-passage and a valve in the throat thereof that forms when open a symmetrically-curved intermediate part of each side of the contracted portion of said passage.

7. In an elastic-fluid turbine, a series of nozzles, governor-controlled rotary valves controlling the admission of fluid-pressure thereto and substantially radially disposed about said turbine.

8. In an elastic-fluid turbine, a circular series of nozzles, rotary valves controlling the admission of fluid-pressure thereto and having stems disposed substantially radially about said turbine, and governor-controlled operating means connected to said stems.

9. In an elastic-fluid turbine, a nozzle, a valve which has only open and closed positions to control the admission of fluid-pressure thereto and which is balanced when open, and means sensitive to the speed of the turbine for operating said valve.

10. In an elastic-fluid turbine, an expansion-nozzle, a valve having only open and closed positions which controls the admission of fluid-pressure thereto and when open is balanced and when closed is held firmly to its seat by the unbalanced pressure, and means sensitive to the speed of the turbine for operating said valve.

11. In an elastic-fluid turbine, a governing or regulating mechanism for a pulsatory feed whereby impulses or blasts of uniform volume but varying in duration are admitted by a rotary valve, suitably controlled, to a nozzle-passage.

12. In an elastic-fluid turbine, a nozzle, a governing or regulating mechanism for controlling the admission of fluid-pressure to said nozzle by oscillating a rotary valve having the periods of rest at each end of its travel governed sensitive to the turbine's load.

13. In an elastic-fluid turbine a governing mechanism comprising electric magnetic means for controlling the admission of fluid-pressure to said turbine and governor-actuated tapered controller devices governing the action of said means.

14. In an elastic-fluid turbine, a rotating element, a series of nozzles, valves therefor, electromagnetic means controlling said valves a governing mechanism sensitive to the speed of the turbine, which moves a plurality of tapered controller devices.

15. A governing mechanism for elastic-fluid turbines, comprising a plurality of valves controlling the flow of motive fluid, electric means actuating said valves, and governor-actuated spirally-tapered controller devices for said means suitably spaced apart.

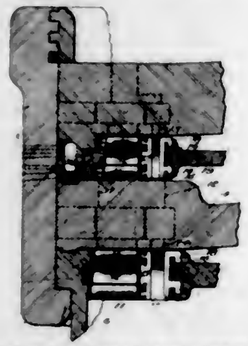
16. In an elastic-fluid turbine, a rotating element, nozzles delivering fluid-pressure thereto, rotary valves therefor and electromagnetic means for operating said valves in combination with a governing mechanism comprising a generator having its terminals suitably grounded, brushes controlling the circuits to said operating means, and a controller device which is engaged by one or more of said brushes and serves to close their circuit to said generator.

17. In an elastic-fluid turbine, a rotating element, a supply-passage delivering the fluid directly to said rotating element, and a number of slanting transverse partitions disposed only in the delivery portion of said passage and acting to divide the fluid into a plurality of expanding streams, and means disposed within the delivery portion of said passage to control said streams independently.

18. In an elastic-fluid turbine, a plurality of nozzles, valves therefor, and mechanism sensitive to the speed of the turbine for controlling said valves independently in groups and synchronously pulsating the corresponding valves in each group.

19. In an elastic-fluid turbine, a plurality of nozzles, valves therefor, operating means for said valves arranged in groups, and a tapering governor-controller device for each group.

751,889. **ELASTIC-FLUID TURBINE.** JAMES WILKINSON, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company, a Corporation of Alabama. Filed Nov. 21, 1903. Serial No. 182,113. (No model.)



Claim.—1. In a turbine, a bucket-bearing element having shoulders undercut from the same side, a bucket having shoulders undercut from the opposite side to that of said element's shoulders with which they are adapted to interlock, and means interposed between a shoulder of each of said parts to lock them in engagement.

2. In a turbine, a bucket-bearing element having a plurality of integral shoulders undercut to overhang toward the same side, a bucket having a portion adapted to interlock with said shoulders by a sidewise movement, and a locking means engaging a portion of said bucket and a shoulder of said element to block their disengaging movement.

3. In a turbine, a bucket-bearing element having a pair of shoulders undercut from one side and a bucket having a pair of shoulders undercut from the opposite side, said pairs of shoulders being adapted to interlock when the bucket is shifted sidewise on said element, and means inserted between a shoulder of each pair to block the disengaging movement of said bucket.

4. In a turbine, a bucket-bearing element and a bucket each provided with an integral undercut shoulder which interlock, a projection on said element and a locking-piece disposed between the shoulder and projection of the element and engaging said projection and the shoulder of said bucket when in its locked position to lock said shoulders in engagement.

5. In a turbine, a bucket-bearing element and a plurality of buckets, said element and buckets being provided each with undercut shoulders which interlock to hold said parts together, and means introduced between a shoulder of said element and a shoulder of said bucket to lock the latter against a disengaging movement.

6. In a turbine, a bucket-wheel, a row of buckets having head-

blocks disposed around said wheel, undercut shoulders on said head-blocks, buckets mounted on said head-blocks and having undercut shoulders which interlock with the shoulders of said head-blocks, and means inserted between the pairs of interlocked shoulders to lock them in engagement.

7. In an elastic-fluid turbine, a bucket-wheel having two annular undercut shoulders around its periphery disposed in substantially the same circumferential plane, undercut shoulders integral with the bucket-base and adapted to engage the shoulders of said wheel, and means interposed between said pairs of shoulders to lock them in engagement.

8. In a turbine, a bucket-wheel provided with two superimposed circumferential rows of buckets, head-blocks on the outer row of buckets, central shoulders on said head-blocks undercut on both sides, undercut shoulders to each side of said central shoulders, and two rows of buckets shouldered to engage said side shoulders and a side of said central shoulders, and means inserted between the pairs of interlocked shoulders to lock them in engagement.

9. In a turbine, a bucket-wheel having a shouldered rim, a row of buckets having shouldered base portions adapted to interlock with a shoulder of said rim, a block or blocks inserted between a portion of the rim and the shoulders of said buckets in their interlocked position, and means to secure the last bucket of said row in place by introducing molten metal to form a locking-block.

10. In a turbine, a bucket-bearing element provided with a shouldered portion, a bucket having a shouldered base engaging and interlocking with a shoulder of said element and leaving a cavity between its shoulder when interlocked and a part of the shouldered portion of said element, said cavity being filled with molten metal to form a block to prevent the disengagement of said shoulders.

11. In a turbine, a rotating element having a shouldered rim portion, a bucket engaging said portion, and means to introduce molten metal to lock said bucket to said rim portion.

12. In a turbine, a wheel having a shouldered rim, a bucket engaging said rim, and an opening through said rim for the introduction of molten metal to lock said bucket to said rim.

13. In a turbine, a rotor-wheel having two peripheral shoulders, buckets having shoulders engaging said wheel-shoulders and locked thereto by interposed blocks, head-blocks on said buckets, and buckets, forming two parallel rows mounted on said head-blocks.

14. In a turbine, a casing, two or more rows of revolving buckets, a stationary row of intermediates mounted within the casing, an annular channel formed in said casing and disposed opposite to said row of intermediates, and means to form a passage-way of said channel and circulate a heating medium therethrough.

15. In a turbine, a casing, an intermediate bucket element mounted therein and provided with inwardly-disposed heat-radiating projections, and means to superheat said projections.

16. In a turbine, two or more rows of revolving buckets, a stationary row or rows of intermediates mounted in a cut-away portion of the casing, an annular channel formed in the casing opposite to a row of said intermediates, and means to form a passage-way of said channel and circulate a heating medium therethrough.

17. In a turbine, a bucket-bearing element with shouldered projections, buckets with shouldered projections interlocking with the shoulders of said elements, means inserted between said interlocked shoulders to block their disengaging movement, and a projection on said element adapted to be calked against a portion of said bucket.

18. In an elastic-fluid turbine, a vane-bearing element, a row of full-speed vane elements peripherally mounted thereon, and two or more rows of fractional-speed vanes mounted in head-blocks carried by said first-mentioned row of elements.

19. In an elastic-fluid turbine, a vane-bearing element provided with peripheral rows of oppositely-disposed vanes, and rows of vanes of different dimensions from said first-mentioned rows, said latter rows being arranged successively in the line of the flow of the fluid.

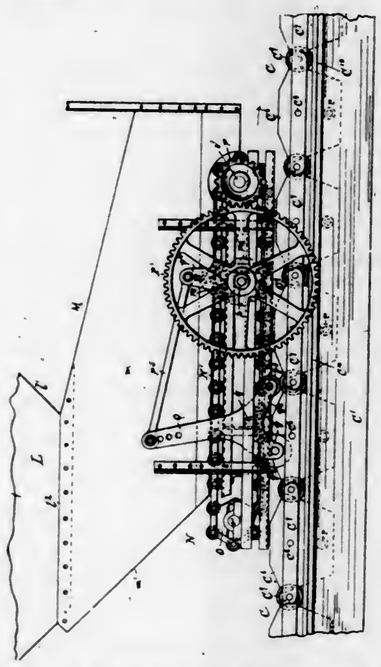
20. In an elastic-fluid turbine, a vane-bearing element, a plurality of rows of peripheral vanes carried thereby, the vanes of part of said rows being oppositely disposed relatively to each other, and the vanes of the other part of said rows being of different dimensions from the vanes in said other rows and arranged in parallelism and at equal distances from the axis of rotation of said element.

21. In an elastic-fluid turbine, a vane-bearing element having a plurality of superimposed rows of peripheral vanes, the vanes in two rows being reversely disposed, and the vanes in the other rows being of different dimensions from the vanes in either of said reversely-disposed rows, and arranged successively in the line of the flow of the fluid.

22. In an elastic-fluid turbine, a vane-bearing element having a circumferential row of compound vanes, and circumferential rows of vanes, said latter rows being superimposed upon and connected to said row of compound vanes.

23. In a turbine, a rotating element provided with three independent sets of vanes disposed in rows at different radial distances from the center, one of said sets being subdivided into a plurality of parallel rows of vanes at substantially the same radial distance from the center.

751,890. **CONVEYER-LOADING DEVICE.** FREEMAN R. WILLSON, Jr., Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Nov. 23, 1901. Renewed Dec. 17, 1903. Serial No. 185,592. (No model.)



Claim.—1 The combination with the hopper or chute, and the series of conveyer buckets or receptacles of the endless carrier interposed between the buckets and the chute and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, and means actuated by the bucket conveyer for imparting a step-by-step movement to said carrier, its said movement being continuously in one direction, substantially as set forth.

2. The combination with the hopper or chute, and the series of conveyer buckets or receptacles, of the endless carrier between the chute and the buckets and arranged to have its plates form a cut-off floor for the chute upon which rests the material therein, said cut-off floor of the carrier constituting the upper "run" thereof, and means for advancing the upper run of said carrier with step-by-step movement in the direction of travel of the buckets which receive the material therefrom, substantially as set forth.

3. The combination with the hopper or chute, and the series of conveyer buckets or receptacles, of the endless carrier constructed with a tight or continuous carrying-floor upon which rests the material in the chute and having a forward traveling part and a rearward traveling part, both below the chute, and means for imparting a step-by-step movement to the said carrier, substantially as set forth.

4. The combination with the hopper or chute and the series of conveyer buckets or receptacles below the chute, of the endless carrier having both its advancing and returning portions between the buckets and the material in the chute and arranged to have its end in advance of the transverse line to which the material in the chute or hopper normally advances under the pressure of gravity from the material in the hopper or chute, and means for imparting a step-by-step movement to said carrier corresponding to the advances of the buckets or receptacles of said conveyer, substantially as set forth.

5. The combination with the hopper or chute and the series of conveyer buckets or receptacles, of an endless sectional cut-off floor for the chute above the buckets arranged to directly sustain at all times the main mass of material in the hopper or chute, and means for intermittingly advancing the said sectional floor and causing it to deliver small portions of the said material to the said buckets successively, substantially as set forth.

6. The combination with the hopper or chute and the series of conveyer buckets or receptacles, of the endless sectional floor for the chute upon which rests the material therein and extending from a transverse vertical plane in rear to a transverse vertical plane in front of those transverse lines which are at the rear and at the front of the space covered by the bottom of the mass of material in the hopper or chute when it is normally at rest, and means for advancing the said endless sectional floor by movements which are continuously in one direction, substantially as set forth.

7. The combination with the hopper or chute, and the series of conveyer buckets or receptacles, of the endless sectional floor for the chute upon which rests the material therein and situated above the buckets and extending from a transverse vertical plane in rear of the rear wall *m'* of the chute or hopper to a transverse vertical plane in front of the lower end of the line M' to which the material normally comes at rest under the pressure of gravity of the superincumbent mass, and means for advancing the said endless sectional floor with movements which are continuously in one direction, substantially as set forth.

8. The combination with the endless conveyer of the take-up device consisting of the vertically-adjustable sprocket-wheel and the vertically-adjustable track-sections adjacent to the said sprocket-wheels, substantially as set forth.

9. The combination with the track or guideway having an upper horizontal section, the vertical end section, the lower horizontal section and the vertically-adjustable section at the bottom, of the endless conveyer fitted to and traveling on the said track, substantially as set forth.

10. The combination with the endless conveyer having the upper horizontal "run," the vertical legs where the conveyer travels upward and downward respectively, and the lower horizontal "run" of the guideway or track for the said conveyer having all of its parts stationary at the upper ends of the conveyer-legs and along its upper run, and having the adjustable or take-up section adjacent to the lower run of the conveyer, substantially as set forth.

11. The combination with the receptacle adapted to contain the material to be fed and the receiving-conveyer, of a feeding or delivering conveyer arranged to have its plates form a cut-off floor for the receptacle to limit the flow of material therefrom, and means actuated by the receiving-conveyer for causing the feeder-conveyer to intermittently deliver a predetermined quantity of material to it, substantially as set forth.

12. The combination with the hopper or receptacle adapted to contain the material to be fed, and the receiving-conveyer, of a feeding or delivering conveyer arranged to have its plates form a cut-off floor for the hopper to limit the flow of material therefrom, means for actuating the feeding-conveyer intermittently and always in one direction, and means for varying the quantity of material in the charges which it delivers to the receiving-conveyer, substantially as set forth.

13. The combination with the hopper or chute and the receiving-conveyer, of a feeding-conveyer arranged to have its plates form a cut-off floor for the hopper to limit the flow of material therefrom, means for imparting a step-by-step movement to the said feeding-conveyer and means for varying the travel of said feeding-conveyer during each step-by-step movement thereof, whereby the quantity of material delivered to the receiving-conveyer in each charge may be regulated, substantially as set forth.

14. The combination with the hopper or chute, and the receiving-conveyer, of a feeding or delivering conveyer interposed between the hopper and the receiving-conveyer and having its sections arranged to form a cut-off floor for the hopper to limit the flow of material therefrom, means actuated by the receiving-conveyer for imparting a step-by-step movement to the said feeding-conveyer and means for varying the distance of travel of the feeding-conveyer during its step-by-step movements, whereby the quantity of material which it delivers to the receiving-conveyer in each charge may be varied, substantially as set forth.

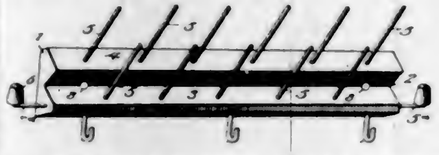
15. In a conveyer-loading device, the combination with the hopper or chute and the conveyer buckets or receptacles to be loaded, and arranged to travel always in one direction, of a feeding-conveyer interposed between said hopper and conveyer-buckets having its sections arranged to form a cut-off floor for the hopper to limit the flow of material therefrom, and means for actuating the feeder-conveyer so that its sections, which, at a given time form the cut-off floor for the hopper, travel in a direction opposite to the direction of travel of said conveyer-buckets, substantially as set forth.

16. In a conveyer-loading device the combination with the hopper, and the series of buckets or receptacles adapted to receive material therefrom and arranged to travel always in one direction, of an endless feeder-conveyer interposed between the hopper and the bucket conveyer and arranged to have the sections of its upper flight form a cut-off floor for the hopper to limit the flow of material therefrom and means for actuating the feeder-conveyer so that its upper flight travels always in a direction opposite to the direction of travel of the receiving-conveyer, substantially as set forth.

17. In a conveyer-loading device, the combination with the hopper or chute and the series of conveyer buckets or receptacles, of the endless feeder interposed between the buckets and the chute and arranged to have the sections of its upper flight form a cut-off floor for the chute to limit the flow of material therefrom, and means for imparting a step-by-step movement to the feeder and for causing the sections in its upper flight to travel in a direction opposite to the direction of travel of the conveyer-buckets, substantially as set forth.

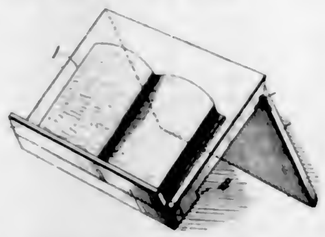
18. In a conveyer-loading device, the combination with the hopper or chute and the series of conveyer buckets or receptacles, of the endless feeder-conveyer interposed between the conveyer-buckets and the chute and arranged to have the sections of its upper flight form a cut-off floor for the chute to limit the flow of material therefrom and means actuated by the bucket conveyer for imparting a step-by-step movement to the feeder-conveyer and for causing the sections of its upper flight to travel in a direction opposite to the direction of travel of the conveyer-buckets, substantially as set forth.

751,891. **SPOOL-HOLDER.** FRANK E. ANDERSON, near Marathon, Iowa. Filed Feb. 21, 1903. Serial No. 144,515. (No model.)



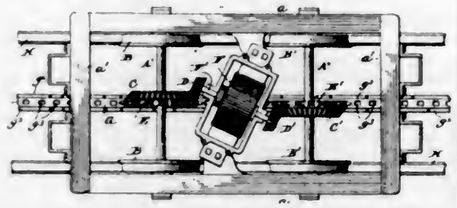
Claim.—A spool-holder comprising a base-strip of suitable material having a central longitudinal V-shaped channel therein, provided with a ledge or platform on the lower wall thereof, the upper edge of the strip being chamfered to form a corresponding ledge or platform, spindles secured to said platforms, hooks secured to and depending from the lower edge of the strip, and thimble-holders secured to the opposite end edges of said strip, substantially as specified.

751,892. **BOOK-REST.** HENRY ANDRÉ, Cincinnati, Ohio. Filed Sept. 8, 1903. Serial No. 172,303. (No model.)



Claim.—A book-rest comprising a supporting-board having a recess in its rear side, a stop-strip hinged to the lower edge of the supporting-board on the front side thereof and adapted to fold against the same, and a prop-board hinged to the rear side of the supporting-board, adapted to fold into the recess thereof and lie flush with its rear side, the coengaging edges of the supporting-board and prop-board being mitered to enable the prop-board to lie at right angles with reference to the supporting-board when opened therefrom, substantially as described.

751,893. **LOCOMOTIVE SYSTEM.** THOMAS G. AULTMAN and JAMES C. GASKILL, Fairmont, W. Va.; said Aultman assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed May 20, 1903. Serial No. 157,979. (No model.)



Claim.—1. In a traction apparatus, the combination of the main-track rails, the intermediate U-shaped thin metal rack-rail, having a row of perforations in its tread-wall and a chamber between said tread-walls and the plane of its foot-flanges, the locomotive having the sprocket-wheels secured to the axles and adapted to have their teeth mesh with the rack-apertures in the tread-wall, and the motor having its armature geared directly to both of the said sprocket-wheels, substantially as set forth.

2. In a haulage apparatus, the combination of the locomotive having a front axle with two track-wheels and a central sprocket-wheel with a bevel-gear, all rigidly secured to the said axle, a rear axle having two track-wheels, the centrally-arranged sprocket-wheel and the bevel-gear all rigidly secured thereto, the pitch-circles of the sprocket-wheels being substantially equal to the tread-circles of the track-wheels, the diagonally-arranged motor secured to said locomotive with its armature-shaft directly geared to opposite sides of the said sprocket-wheel and the track having the main rails for the track-wheels and the central U-shaped rack-rail having apertures formed in the tread portion thereof, substantially as set forth.

3. In a haulage system, the combination of a car having a front axle with two track-wheels and a sprocket-wheel rigid therewith, a rear axle with two track-wheels and a sprocket-wheel rigid therewith, a motor on the car geared directly to both of said sprocket-wheels, and a rack-rail on the track having sprocket-apertures for the said sprocket-wheels, substantially as set forth.

4. In a haulage system, the combination of the main and branch track-rails, having the permanently open passage-ways R R' therethrough at the junction of the switches, the rack-rail and the locomotive having a power-driven sprocket-wheel adapted to engage with the rack-rail and arranged to normally project below the tread-lines of the track-rails, substantially as set forth.

5. In an electric haulage system, the combination with the main-track rails and the branch-track rails provided at the junction of the switches with passages between adjacent fixed ends of the track-rails, and a rack-rail extending along the track-rails, of a locomotive, power apparatus thereon, and power-driven sprocket-wheels thereon adapted to engage with the stationary rack-rail and arranged to normally project below the tread-lines of the track-rails, substantially as set forth.

6 In a haulage system, in combination with the locomotive adapted to be propelled by two power-driven sprocket-wheels engaging with a rack-rail, the main-track rails and branch rails, and the rack-rail system comprising the relatively long sections arranged between the main rails and the branch rails, and the relatively short sections between the said main-track rails at the switch-junctions, substantially as set forth.

7. In a haulage system, the combination of a main track, a branch track, an adjustable switch-track, a rack-section in alinement for operation along the lines of the main track, and located on one side of the switch-junction, a second rack-section in alinement for operation along the main track on the other side of the switch-junction, a rack-section in alinement for operation along the branch track, and a switching rack-section interposed between the first aforesaid rack-section and the rack-section for the branch track, all of said rack-sections being fixed normally in working position and adapted to engage with the driving sprocket-wheel of a vehicle moving over the said tracks, substantially as set forth.

8. In a haulage system, the combination of a main track, a branch track, an adjustable switch-track, a rack-section in alinement for operation along the line of the main track and located on one side of the switch-junction, a second rack-section in alinement for operation along the main track on the other side of the switch-junction, a rack-section in alinement for operation along the branch track, a switching rack-section interposed between the first and the third aforesaid sections, and a supplemental rack-section at the switch interposed between the first and the second aforesaid rack-sections, all of the said track-sections being normally fixed in operative position and adapted to be engaged by a driving sprocket-wheel on a vehicle moving upon the said tracks, substantially as set forth.

9. In an electric haulage system, the combination of a locomotive having a front axle with two track-wheels and a sprocket-wheel rigidly connected directly to the axle, gearing for driving said sprocket-wheel, a rear axle with two track-wheels and a sprocket-wheel rigidly connected directly to the axle, gearing for driving said rear sprocket-wheel, a motor on the car connected to the gearing for the front sprocket-wheel and to the gearing for the rear sprocket-wheel, and a rack-rail on the track having sprocket-apertures for the said sprocket-wheel, substantially as set forth.

10. In an electric haulage system, the combination of the locomotive having a front axle with two track-wheels a sprocket-wheel and a gear-wheel between the track-wheels, all rigidly secured directly to the axle, a rear axle having two track-wheels a sprocket-wheel and a gear-wheel between the track-wheels, all rigidly secured directly therewith, of an electric motor having its armature-shaft arranged to extend at one end toward one axle and at the other end toward the other axle, and geared to both said gear-wheels on the front axle and the rear axle, substantially as set forth.

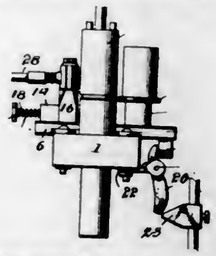
11. In a haulage system, the combination with the track-rails and a rack-rail along the track having sprocket-apertures for a driving sprocket-wheel, of a locomotive having a front axle provided with two track-wheels and a sprocket-wheel rigid therewith, a rear axle provided with two track-wheels and a sprocket-wheel rigid therewith, said sprocket-wheels both arranged to engage with the said rack-rail and having their pitch-circles tangent to the tread planes of the track-rails, and power mechanism for driving both of the said sprocket-wheels synchronously relatively to the rack-sprockets, substantially as set forth.

12. In a haulage system, the combination with the track-rails and the rack-rails along the track having sprocket-apertures for the driving sprocket-wheel, of a locomotive having a front axle provided with two track-wheels and a sprocket-wheel, a rear axle having two track-wheels and a sprocket-wheel, the sprocket-wheels being arranged substantially as set forth, to have their pitch-circles rotate along the planes of the treads of the track-rails, and power mechanism for driving the sprocket-wheels synchronously, substantially as set forth.

13. In a locomotive traction system, the combination of the main-track rails, a parallel rack-rail, a front pair of wheels for the main track, a rear pair of wheels for the main track, a front sprocket or toothed wheel adapted to engage the rack-rail, a rear sprocket or toothed wheel adapted to engage the rack-rail at a point behind the front wheel, the said wheels being arranged to have the contacting or rack-engaging points of their pitch-circles in the same horizontal plane with the rail-contacting points of the track-wheels, and means for simultaneously and synchronously driving the said sprocket or toothed wheels, substantially as set forth.

14. In a railway traction system having a locomotive provided with a rack-engaging toothed wheel or sprocket-wheel, a traction rack-rail having a series of sprocket-apertures in a relatively elevated plane, side webs or supporting-walls for the elevated plate, and bottom flanges, the apertured plate the side walls and the bottom flanges being an integral bent metallic sheet, substantially as set forth.

751,894. **BELT-SHIFTER FOR SPINNING-MACHINES.** MANTON T. BENTLEY, York, Pa., assignor of one-half to York Silk Manufacturing Company, York, Pa. Filed Aug. 12, 1903. Serial No. 169,269. (No model.)



Claim.—1. A belt-shifter for spinning-machines comprising a slide, means controlled by the stop mechanism of the spinning-ma-

chine for actuating the slide in one direction, means for holding said slide with a yielding pressure in the opposite direction, and a guide-pulley on the slide for engaging the driving-belt and shifting the same out of contact with the spindles.

2. A belt-shifter for spinning-machines comprising a slide, means carried thereby and adapted to shift the driving-belt out of contact with the spindle, means controlled by the stop mechanism of the spinning-machine for reciprocating said slide, and a yielding brake-shoe carried by the slide, and arranged to come in contact with the spindle as the belt is shifted away from the spindle.

3. A belt-shifter for spinning-machines comprising a slide, means controlled by the stop mechanism of the spinning-machine for actuating said slide in one direction, means for holding said slide with a yielding pressure in the opposite direction, and guide-pulleys carried by the slide between which the driving-belt passes.

4. A belt-shifter for spinning-machines comprising a holder mounted on the machine-frame, a reciprocatory slide movable in the holder, belt-guide pulleys carried by the slide, a spring for urging the slide in a direction which will hold the driving-belt in engagement with the spindles, a lever controlled by the stop mechanism of the spinning-machine for throwing the slide in an opposite direction, and belt-guide pulleys carried by said slide and between which the driving-belt passes.

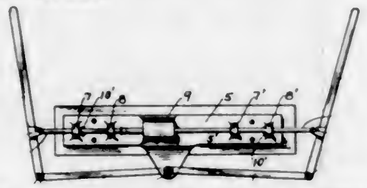
5. A belt-shifter for spinning-machines comprising a holder, a reciprocatory slide mounted therein, a stop-mechanism-actuated lever for throwing said slide in one direction, a spring device for throwing the slide in an opposite direction, and belt-pulleys carried by the slide and arranged adjacent to one of the spindles of the machine.

6. A combined belt-shifter and brake for spinning-machine spindles comprising a reciprocatory slide, guide-pulleys thereon, means for holding the slide in one direction with a yielding pressure so as to force the driving-belt against the spindles, stop-mechanism-controlled means for moving the slide in an opposite direction for throwing the belt off, and a brake carried by the slide and comprising a yielding brake-shoe adapted to be moved into and out of contact with one of the spindles.

7. A belt-shifter for spinning-machines comprising a reciprocatory slide provided with guide-pulleys between which the driving-belt runs, spindles arranged at opposite sides of the slide, and a pivotally-mounted brake-arm provided with a plurality of yielding brake-shoes movable into and out of engagement with the spindles, substantially as described.

8. A belt-shifter for spinning-machines comprising a holder, belt-guide pulleys carried thereby, means for automatically shifting the slide back and forth, a double brake-arm pivotally mounted on the slide, brake-shoes having stems slidingly related to the double brake-arm, springs for urging the brake-shoes toward the machine-spindles, and means for limiting such movement whereby the brake-shoes are adapted to bear with a yielding pressure against the spindles, substantially as described.

751,895. SHELL RESIZING AND DECAPPING MACHINE. EDWARD E. BLASCHKE, Jr., Clifton, Wis. Filed Aug. 11, 1903. Serial No. 169,114. (No model.)



Claim.—1. A shell resizing and decapping tool comprising a base, a member mounted upon the base and having a cylindrical passage therethrough, said passage being reduced at one of its ends, a resizing-die removably disposed within the passage, guides mounted upon the base at either end of the member, plungers slidably mounted within the guides, one of said plungers being adapted to enter the cylindrical passage at its reduced end and carrying a decapping-pin, the remaining plunger being adapted to force a shell into the resizing-die, links pivoted at one end to the base and having hand-levers pivoted to their free ends, said hand-levers being also pivotally connected with the plungers to move them in the guides, the first-named plunger being adapted to remove a cap from a shell and force the shell from the resizing-die.

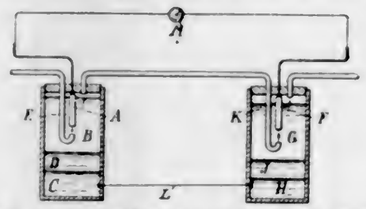
2. A device of the class described, comprising a base, a hollow cylinder mounted upon the base, a resizing-die within the cylinder, guides disposed at either side of the cylinder, plungers disposed within the guides, one of said plungers being provided with decapping mechanism, means for operating one of the plungers to force a shell within the die, and means for operating the other plunger to remove the cap from the shell and to force the shell from the cylinder.

751,896. WATCH-BARREL. MAURICE BLUM, La Chaux-de-Fonds, Switzerland. Filed Oct. 2, 1903. Serial No. 175,507. (No model.)



Claim.—In combination with a watch, a main plate having a recess formed on its under face, a circular edge *r* on the bottom of said recess, a ratchet-wheel fitting in said recess and resting on said edge *r*, a watch-barrel, and an arbor and screw securing the barrel and ratchet-wheel to the main plate, substantially as described.

751,897. METHOD OF DETERMINING THE QUANTITY OF CARBONIC ACID IN GASES. GUIDO BODLÄNDER, Brunswick, Germany. Filed Jan. 3, 1903. Serial No. 137,713. (No model.)



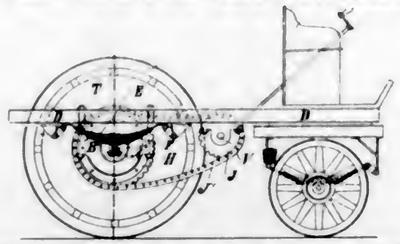
Claim.—1. A method of measuring by electric potential the amount of carbonic acid contained in gases consisting in passing the gases through a pair of galvanic batteries, one of which is included in the circuit of and opposed to the other, resulting in an electromotive force, and then measuring said force to determine the amount of carbonic acid.

2. A method of measuring by electric potential the amount of carbonic acid contained in gases consisting in passing the gases through a primary and a secondary galvanic battery resulting in an electromotive force, and then measuring said force to determine the amount of carbonic acid, said secondary battery included in the circuit of and reversed to the primary battery, and said secondary battery adapted to neutralize that part of the electromotive force of the primary battery which owes its existence to the amount of hydrogen or oxygen contained in the gas.

3. A method of measuring by electric potential the amount of carbonic acid contained in gases consisting in passing the gases through a primary and a secondary galvanic battery resulting in an electromotive force, and then measuring said force to determine the amount of carbonic acid, said primary galvanic battery comprising an electrode of non-attackable metal and another of suitably-selected metal, and with suitable electrolytes of a carbonate and a compound of the last-named metal, and said secondary galvanic battery included in the circuit opposed to said primary galvanic battery, the electrodes of said secondary galvanic battery formed of a non-attackable and a suitably-selected metal, and the corresponding electrolytes of which are formed of a substance acting like an acid and a salt of the second-named metal, said secondary galvanic battery adapted to neutralize that part of the electromotive force of the primary galvanic battery which owes its existence to the amount of hydrogen or oxygen contained in the gas.

4. A method of measuring the amount of carbonic acid contained in gases, consisting in passing the gases through a pair of galvanic batteries resulting in an electromotive force, and then measuring said force to determine the amount of carbonic acid, one of which is provided with an electrode of non-attackable metal and another of suitably-selected metal and with suitable electrolytes of a carbonate and a compound of the last-named metal, and the other of which is provided with electrodes of a non-attackable and a suitably-selected metal and the corresponding electrolytes of which are formed of a substance acting like an acid and a salt of the second-named metal, said last-mentioned battery connected with or included in the circuit of and opposed to the first-mentioned cell.

751,898. MORTAR-MIXER. RICHARD BODLÄNDER, Breslau Germany. Filed May 28, 1903. Serial No. 159,219. (No model.)



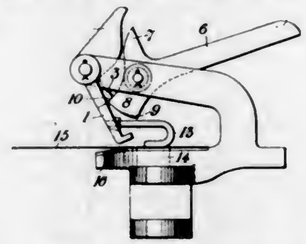
Claim.—1. In a mortar-mixer, the combination with the hollow axle having a drum supported thereon, and journal-bearings secured thereto, of resilient means for yieldingly supporting the bearings, a solid axle supported upon truck-wheels and passing through the hollow axle for supporting the resilient means, and a reducing-gearing interposed between the drum and the truck-wheels, substantially as described.

2. In a mortar-mixer, a frame, a revolving mixing-drum, means for yieldingly suspending said drum from the frame, comprising a central hollow axle, bearings secured to the frame for supporting the axle, a solid axle supported on truck-wheels and passing through the hollow axle, springs secured to the truck-frame and resting upon the said solid axle, a gearing connecting one of the truck-wheels with the mixing-drum, and means connected to the gearing for throwing the drum in and out of operation, substantially as described.

3. In a mortar-mixer, a truck-frame, a revolving drum, a hollow axle passing through the drum, a solid axle passing through the hollow axle, truck-wheels revolving on the ends of the solid axle, means for yieldingly securing said drum to the truck-frame so that the solid axle normally lies concentrically to the hollow axle, and means for revolving said drum at a different speed from the truck-wheels, substantially as described.

4. In a mortar-mixer, a truck-frame, a revolving mixing-drum, a hollow axle passing through said drum, bearings supporting said hollow axle and secured to the frame, a solid axle passing through the hollow axle, truck-wheels revolving on the ends of said solid axle, springs yieldingly supporting the frame on the said solid axle, a sprocket-wheel secured to one of the truck-wheels, a sprocket-wheel secured to the mixing-drum, and means for connecting the sprocket-wheels for revolving the said drum at a ratio less than the revolution of the truck-wheels, substantially as described.

751,899. CLIP FOR STENTERING OR LIKE MACHINES. JAMES CHAMBERS and SAMUEL COOK, Bury, England, assignors to Mather and Platt, Limited, Manchester, England, a Corporation of Great Britain. Filed Sept. 11, 1903. Serial No. 172,787. (No model.)



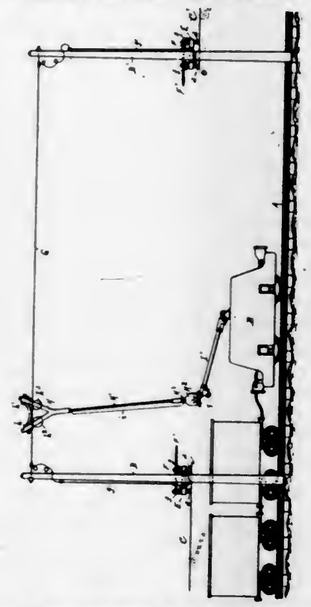
Claim.—1. In clips for stentering-machines and in combination a fixed jaw, a movable jaw, an upper spur on same, a pivoted lever the inner lower end of which is adapted to bear against the movable jaw, and an upper lug on said lever adapted when lifted to bear upon the spur of the movable jaw and open same substantially as and for the purposes described.

2. In clips for stentering-machines and in combination, a fixed jaw, a movable jaw, a projection on the inner face thereof, an upper spur also carried thereby, a pivoted lever the lower inner end of which is adapted to bear against the movable jaw and engage with the projection thereon, and an upper lug on said lever adapted when lifted to bear upon the spur of the movable jaw, substantially as and for the purposes described.

3. In clips for stentering-machines and in combination a fixed jaw, a movable jaw, an upper spur on same, a temporary holder or friction-clip also carried by said movable jaw, a pivoted lever the inner lower end of which is adapted to bear against the movable jaw, and an upper lug on said lever adapted when lifted to bear upon the spur of the movable jaw, substantially as and for the purposes set forth.

4. In clips for stentering-machines and in combination a fixed jaw, a movable jaw, a projection on the inner face thereof, a temporary holder or friction-clip attached to the jaw, an upper spur also carried thereby, a pivoted lever the lower inner end of which is adapted to bear against the movable jaw and engage with the projection thereon and an upper lug on said lever adapted when lifted to bear upon the spur of the movable jaw, substantially as and for the purposes set forth.

751,900. TROLLEY ROAD-CROSSING. JAMES M. COLLINS, Byesville, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Feb. 2, 1901. Renewed Sept. 9, 1903. Serial No. 172,530. (No model.)



Claim.—1. The combination of a main trolley-line having a break or open space therein, a bridging connection for such space in electric connection with the main line on each side of the space, a conductor movable along said bridging connection and having a contact member with which the trolley that moves along the main line is adapted to engage, and a stop for limiting the movement of the contact portion of the said conductor, substantially as set forth.

2. The combination of a main trolley-line having a break therein, a bridging connection for such break arranged out of alinement with the main line and having electric connection with the main line on each side of the break, and a conductor movable along the said bridging connection and provided with a contact member with which the trolley that moves along the main line is adapted to engage, the said contact member being arranged to come into alinement with the main line at the ends of the break, substantially as set forth.

3. The combination of a main trolley-line having a break or open space therein, an underrunning trolley arranged to engage with the said line, a bridging connection for the break in the main line, and a conductor movable along the said bridging connection and having a contact member with which the underrunning trolley is adapted to engage, the said contact member being arranged to occupy a position adjacent to the end of the line at the break therein, and constructed to maintain the trolley in engagement therewith, substantially as set forth.

4. The combination of a main trolley-line having a break or open space therein, a bridging connection for the break in the main line arranged at a higher level than the main line, a trolley arranged to move along the said connection and provided with a depending

arm, a contact member with which the trolley that moves along the main line is adapted to engage and means for holding the said arm with the contact member in position adjacent to the end of the main line to receive the trolley as it leaves the main line, substantially as set forth.

5. The combination of a main trolley-line having a break or open space therein, a connection bridging the said space, arranged out of alinement with the main line, a trolley arranged to travel along the said bridging connection, having a member with which the main-line trolley engages, and means for directing the said member to the end of the main line on the far side of the break, whereby the trolley may automatically pass from the said member directly to the main line, substantially as set forth.

6. In an electric railway having trolley-wires of relatively low altitude and with open spaces at intervals in its trolley conductor-line, bridging conductor-sections across said open spaces and in constant electrical connection with the main-line trolley-conductors sufficiently above the road-bed of said railway to permit the passage of vehicles, contacts movable upon said bridging sections and with depending means substantially in horizontal alinement with the main-line trolley and with which the contact means of the locomotive on said railway will engage while passing said open space, substantially as set forth.

7. In an electric railway having open spaces at intervals in the trolley conductor-line, sections of conductor-wire bridging said open spaces and in electrical communication with the main-line conductor, a contact movable along said bridging section and having a depending means with which the contact means of the locomotive will engage while passing said open space, said depending means being in substantial horizontal alinement with the trolley-conductor, and means whereby said depending means will be retained yieldably in position adjacent to the sides of said open space when not in use, substantially as set forth.

8. In an electric railway having open spaces at intervals in the trolley conductor-line, an electric locomotive having an underrunning trolley-contact engaging said conductor-wire, bridging sections connected across said open spaces, a contact movable along said bridging section, a rigid pole depending from said movable contact and having an electric contact at its lower end in substantial alinement with said trolley conductor-line and in electrical connection with said movable contact, and with which said trolley-contact of said locomotive engages while passing said open space, and arranged to maintain the said trolley-contact substantially in the horizontal plane of the main line as it passes the open space, substantially as set forth.

9. The combination in an electric railway having open spaces at intervals in the trolley-line thereof, of bridging conductor-sections across said open spaces, movable contacts upon said bridging-sections, contact means depending from said movable contacts and in substantial alinement with the trolley line-conductor, and guide-bars adapted to support said depending contacts yieldably in position at the sides of said open spaces, substantially as set forth.

10. The combination in an electric railway having open spaces at intervals in the trolley-line thereof, of bridging conductor-sections across said open spaces, movable contacts upon said bridging sections, a pole depending from said movable contact, an inverted-cup-shaped contact attached to the lower end of said pole and in constant electrical communication with said movable contact, guide-bars adapted to support said cup-shaped contact when at rest substantially registering with the ends of said trolley wire conductor, whereby means are provided for causing the trolley-contact on the locomotive on said railway to engage said contacts when passing said open spaces, substantially as set forth.

11. In an electric railway having open spaces at intervals in the trolley-conductors thereof, sections of conductor-wire bridging said open spaces, a carriage having trolley-rollers mounted to travel upon said bridging section, a pole depending from said carriage, a contact upon the lower end of said pole and in constant electrical connection with said carriage, and means whereby the contact means on the locomotive on said railway will automatically come into engagement with the said contact and be held in engagement therewith while passing said open space, substantially as set forth.

12. In an electric railway having open spaces at intervals in the trolley-conductors thereof, sections of conductor-wire bridging said open spaces, a carriage having trolley-rollers mounted to travel upon said bridging section, a pole depending from said carriage, a contact upon the lower end of said pole and in constant electrical connection with said carriage, means whereby said depending contact will be supported in alinement with the main conductor-line, so that the conductor-contact of the locomotive on the said railway is caused to engage said depending contact when it leaves the ends of the conductor-wires at the sides of said open spaces, substantially as set forth.

13. In an electric railway having open spaces at intervals in the trolley conductor-line, sections of conductor-wire bridging said open spaces and in electrical communication with the main-line conductor, a contact movable along said bridging section, and means whereby said movable contact may be engaged by the contact means of the locomotive on the electric railway while passing said open space, and insulated handle upon said movable contact, whereby it may be caused to traverse said bridging section independent of the locomotive, substantially as set forth.

14. In an electric railway, vertical masts adjacent to the trolley conductor-wire at the sides of roads or other lines crossing said railway, open spaces in said trolley-wire between said masts, conductor-sections bridging said open spaces and connected by their ends to said masts at a sufficient distance above the said railway to permit the passage of vehicles, a contact movable along said bridging section, brackets connected to said masts and adapted to support the ends of said divided trolley-wires, guard-bars connected to said brackets and adapted to yieldably support said movable contact in alinement with said trolley-line conductor when at rest at the sides of the open space, and means whereby the contact means on the locomotives on said railway engage said movable contact when passing from said severed main-line conductor, substantially as set forth.

15. The combination of an electric conductor, having a portion out of line with the main line of the conductor, a traveling conductor, an auxiliary conductor movable along said portion, and means whereby said traveling conductor automatically engages with said auxiliary conductor to cause its travel with said traveling conductor.

16. The combination of an electric conductor, a traveling conductor, an auxiliary conductor movable along said electric conductor, and means whereby one of said conductors is yieldingly held in engagement with the other to cause said traveling conductor and auxiliary conductor to move together.

17. The combination of an electric conductor, a traveling conductor, an auxiliary conductor movable along said electric conductor, and means for pressing said traveling conductor yieldingly into engagement with said auxiliary conductor, said means comprising a spring the degree of tension of which maintains said engagement.

18. The combination of an electric conductor, having a portion out of line with the main line of the conductor, a traveling conductor, an auxiliary conductor suspended from and movable along said portion, means for pressing said traveling conductor yieldingly into engagement with said auxiliary conductor, and stops for said auxiliary conductor.

19. The combination of an electric conductor, a traveling conductor, an auxiliary conductor movable along said electric conductor and having a housing open at its under side, and means for pressing said traveling conductor yieldingly into engagement with said housing.

20. The combination of an electric-conductor line having a portion situated out of the main course of said line, a movable conductor adapted to engage said line in its main course, an auxiliary movable conductor traveling along said portion of the line which is out of said main course, and means whereby said movable conductor automatically engages with and disengages from said auxiliary conductor.

21. The combination of an electric conductor, a traveling conductor an auxiliary conductor suspended from and movable along said electric conductor, means whereby said traveling conductor automatically engages with said auxiliary conductor to cause its travel with said traveling conductor, and means for holding the lower end of the auxiliary conductor from lateral displacement.

22. The combination of an electric conductor, a traveling conductor, an auxiliary conductor movable along said electric conductor, means whereby said traveling conductor automatically engages in either direction of its travel with said auxiliary conductor to cause its travel with said traveling conductor, the auxiliary conductor having its portion which is engaged by said traveling conductor substantially in the line of the main portion of said electric conductor, and means for holding the auxiliary conductor at the end of its operative travel till returned by a reverse movement of the traveling conductor.

23. The combination of an electric conductor, having a portion elevated above the main line of the conductor, a traveling conductor, an auxiliary conductor suspended from and movable along said elevated portion, means whereby said traveling conductor engages with said auxiliary conductor to cause its travel with said traveling conductor, and guiding devices which limit the swinging of the

auxiliary conductor in the direction of the movement of the traveling conductor.

24. The combination of an electric conductor, a traveling conductor, an auxiliary suspended conductor movable along said electric conductor, means whereby said traveling conductor engages with said auxiliary conductor to cause its travel with said traveling conductor, and an insulated handle on the suspended conductor for shifting the latter.

25. The combination of a line conductor, a traveling conductor, an auxiliary conductor movable along said line, a socket on the auxiliary conductor open to receive the contact portion of the traveling conductor in either direction of movement of the latter, and means for maintaining the yielding engagement of the traveling conductor and socket and permitting their separation by excess of pressure.

26. In an electric railway, the combination of a traveling conductor, an auxiliary conductor connected with the source of electrical power and movable with and separable from the traveling conductor, and a contact device for uniting said conductors electrically movable under excess of pressure to permit the separation of said conductors and acting under less pressure to maintain the connection of said conductors during their travel, substantially as set forth.

27. In an electric railway, the combination of an electric conductor, a traveling conductor, an auxilliary conductor separable from and movable with the traveling conductor, and a yielding contact device movable under pressure between said traveling conductor and said auxiliary conductor, and acting to connect and to permit the separation of said traveling and auxiliary conductors, substantially as set forth.

28. In an electric railway, the combination of a traveling conductor, an auxiliary conductor separable from and movable with the traveling conductor, and adapted to receive and transmit electric power, an electrical contact device movable under excess of pressure between said conductors and acting to connect and to permit the separation of the same, and a spring controlling said contact device yieldingly.

29. In an electric railway, the combination of a traveling conductor, an auxiliary conductor, and an electrical contact device carried by one of said conductors, normally held in place to cause the engagement of said conductors in either direction of movement of the traveling conductor, and movable under an excess of pressure in either direction to permit the separation of said conductors, substantially as set forth.

30. In an electric railway, the combination of the car, the stiff pole thereon having an electrical contact device at its upper end, a second pole having an electrical contact device at its upper end, and means for detachably connecting the said poles directly together, substantially as set forth.

31. In an electric railway, the combination of the line conductor having relatively low sections and a relatively high section, the car, the vertically-swinging trolley-pole thereon, a second pole permanently supported by and suspended from the elevated conductor-section, and means for detachably connecting said suspended pole directly to the upper end of the trolley-pole, substantially as set forth.

32. In an electric railway, the combination of the line conductor, the car, the trolley-pole on the car having an electrical contact device at its upper end, a supplemental contact device having a conductor depending therefrom, and means for connecting the lower end of said conductor to the upper end of the pole on the car, substantially as set forth.

33. In an electric railway, the combination of the car, the trolley-pole thereon, the electrical contact device on said pole, the trolley or carriage having two or more wheels forming a supporting-base, these wheels being on an elevated conductor-line, the conductor extending downward from said wheel-base and rigid in relation thereto, and means for connecting the lower end of the conductor detachably to the upper end of the car-pole, substantially as set forth.

34. In an electric railway, the combination of the car, the car-pole, the electric contact device on the pole, the movable dependent conductor permanently suspended from the current-supply conductor, and a receiver at the bottom of the depending conductor adapted to electrically engage directly with the contact device at the upper end of the car-pole, substantially as set forth.

35. In an electric railway, the combination of the car, the car-pole, a stationary conductor having one or more relatively low sections and one or more relatively high sections, an electrical contact device supported directly on the car-pole, a trolley or carriage on the relatively high conductor-sections, having a downwardly-depending conductor, and means at the lower end of said depending conductor for detachably connecting it electrically directly to the contact device on the car-pole, substantially as set forth.

36. In an electric railway, the combination of a current-supply conductor having one or more relatively low sections and a relatively high section, a conductor-section depending from the relatively high current-supply section, the car, a pole on the car, and an upwardly-pressed contact device on the pole adapted to engage with the under side of the relatively low conductor-section, and means for detachably connecting the depending conductor-section directly with the said trolley-pole, substantially as set forth.

37. In an electric railway, the combination of a current-supply conductor having one or more relatively low sections and a relatively high section, a conductor-section depending from the relatively high current-supply section, and movable longitudinally thereof, the car, the vertically-swinging contact device on the car adapted to move in engagement with the under side of the relatively low conductor-sections, and means for connecting the depending conductor-section directly to the said contact device, substantially as set forth.

38. In an electric railway, the combination of the current-supply conductor having one or more relatively low sections and a relatively high section, a conductor-section depending from the relatively high current-supply section, and movable longitudinally thereof, the car, the electrical contact device on the car, and means for maintaining said contact device in engagement with the under side of the relatively low conductor-sections, when the car is traveling beneath them, and in engagement with the said depending conductor-section when the car is traveling beneath the relatively elevated conductor-sections, substantially as set forth.

39. In an electric railway, the combination of the current-supply conductor having relatively low and relatively elevated sections, the conductors depending from said elevated sections and movable longitudinally thereof, the car, the electric contact device on the car adapted to move in engagement with the relatively low sections of said current-conductor, means for detachably connecting said contact device with the depending conductor-sections, and means for preventing the lateral disengagement of said contact device on the depending section, substantially as set forth.

40. In an electric railway, the combination of the current-supply conductor having relatively low sections and one or more relatively high sections, supplemental conductors adapted to move along said relatively high sections, each having a frame or casing adapted to receive the engaging devices of a traveling conductor on a car, substantially as set forth.

41. In an electric railway, the combination of the current-supply conductor having relatively low sections and one or more relatively high sections, supplemental conductors adapted to move along said relatively high sections and to maintain electrical connection between said sections and the traveling conductor on the car, and means for holding said supplemental conductors adjacent to the ends of the low sections to insure their engagement with the traveling conductors, substantially as set forth.

42. An auxiliary conductor adapted to move along a current-supply conductor, and having an engaging device adapted to engage with the electrical contact device of a traveling conductor, and an insulated handle for shifting said auxiliary conductor, substantially as set forth.

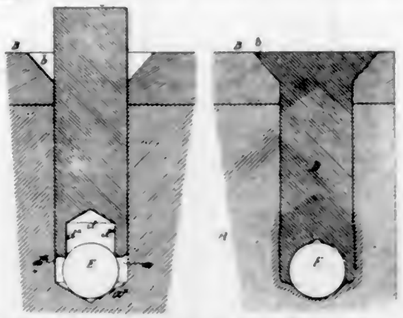
751,901. BRIDLE-BIT. HARRY A. CUMMINGS, Del Paso, Cal. Filed June 25, 1903. Serial No. 163,027. (No model.)



Claim.—A bit having a bar provided at its outer end with a transverse opening, and a ring in said opening, the latter being countersunk at its ends, and enlarged inwardly from said countersinks to its center and having its sides curved on a radius equal to that of the ring.

751,902. EXPANSION RIVET, BOLT, &c. JAMES M. DODGE, Philadelphia, Pa. Filed Apr. 10, 1903. Serial No. 151,990. (No model.)

Claim.—1. The combination of a rivet or bolt having a recess in one end thereof forming an annular flange, an undercut expander larger at its greatest diameter than the recess in the rivet, so that when the rivet is driven its flange will be expanded and will pass over the expander and become attached thereto, substantially as described



2. The combination of a rivet or bolt having a recess in one end thereof forming an annular flange, a ball larger than the recess in the end of the rivet, so that when the rivet is driven its flange will be expanded and will pass over the ball and become attached thereto, substantially as described.

3. The combination of a rivet or bolt having a recess in one end thereof forming an annular flange, the edge of said flange being beveled, an undercut expander having a greater diameter than the recess, so that when the rivet is driven its flange will be expanded and the beveled edge of the flange will strike the bottom of the hole into which the rivet is driven and will be forced under the expander, substantially as described.

4. The combination of a rivet or bolt having a recess in one end forming an annular flange, an undercut expander circular in section, larger at its greatest diameter than the recess, the recess being of such depth that when the rivet is driven the expander will entirely fill it, causing the rivet to expand above the line of the recess and to become attached to the expander, substantially as described.

5. The combination of a rivet or bolt, having a recess in the end thereof forming an annular flange, a ball slightly larger than the recess, and means for securing the ball in the recess, substantially as described.

6. The combination of a bolt or rivet having in the end of the same a recess surrounded by a substantially continuous split annular flange, and an undercut expander, substantially circular in section, engaged by said flange when the bolt or rivet is driven, substantially as described.

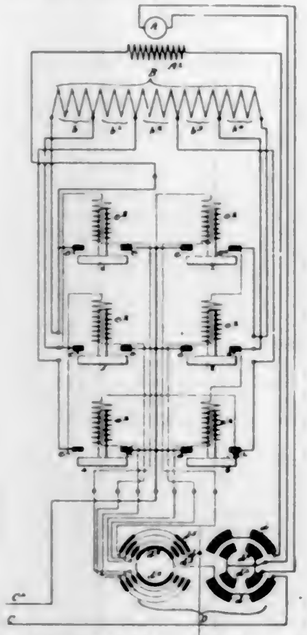
7. The combination of a rivet or bolt having a recess in the end thereof forming a flange, an expansible ferrule surrounding the flanged portion of the rivet or bolt, and an undercut expander which will be firmly attached to the recessed end of the rivet or bolt when the latter is driven over the same, substantially as described.

751,903. SYSTEM FOR THE OPERATION OF ELECTRIC MOTORS. ARTHUR C. EASTWOOD, Cleveland, Ohio. Filed Sept. 25, 1903. Serial No. 174,647. (No model.)

Claim.—1. The combination of an electric motor with a body of resistance divided into sections, switches for said sections, solenoids for the switches, and a controller having independent connections from itself to each solenoid for governing the action of the same, certain of the solenoids having one terminal connected to the controller and the other connected to a resistance-controlling switch other than the one upon which it operates, substantially as described.

2. In a system for the control of electric motors, the combination with a motor of a body of resistance composed of a number of sections, switches for cutting out the various ones of said sections, a solenoid for controlling the action of each switch, a controller having on one face a series of relatively heavy contact-pieces connected to the motor so as to serve as a portion of the reversing-switch, a series of relatively light contacts on the second face of the controller connected to the various solenoids, with a handle carrying independent contacts for engaging respectively said two sets of controller-contacts, substantially as described.

3. The combination of a motor with a body of resistance divided into a number of sections, a switch for each section, each having two contacts of which one is connected to its particular section of the resistance and the other is connected to one of the supply-mains, a solenoid for each switch, a controller governing the action of the solenoids, certain of said solenoids having one terminal connected to said controller and the other connected to the resistance side of a switch other than the one it controls, substantially as described.



4. The combination of a motor with a body of resistance divided into a number of sections, a switch for each section, each having two contacts of which one is connected to its particular section and the other is connected to one of the supply-mains, a solenoid for each switch, a controller constructed to successively energize the solenoids, said solenoids after the first each having one terminal connected to the controller and the other connected to the resistance side of a switch whose solenoid in operation is actuated before it, substantially as described.

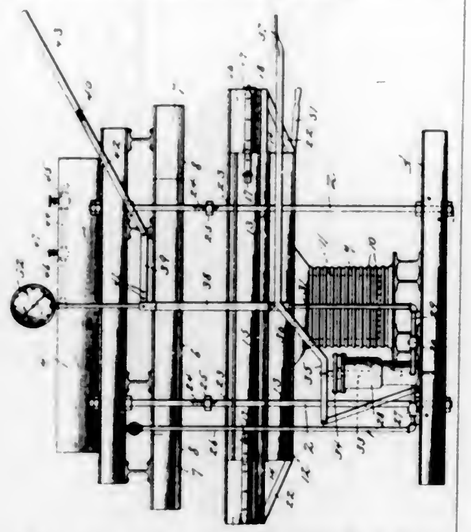
5. The combination of a motor with a body of resistance divided into a number of sections, a switch for each section each having two contacts of which one is connected to its particular section and the other is connected to one of the supply-mains, a series of solenoids, a controller for energizing said solenoids one after the other, connections from the controller to one terminal of each solenoid, a connection from the second terminal of the first solenoid to be actuated to a current-supply main and connections from the second terminals of each of the remaining solenoids to the resistance side of the switches whose solenoids in operation are respectively energized before it, substantially as described.

751,904. HYDRAULIC PRESS FOR MOLDING ARTIFICIAL STONE OR THE LIKE. WILLIS H. FISHER, Oklahoma, Okla. Filed July 19, 1902. Serial No. 116,256. (No model.)

Claim.—1. In a press of the class set forth, the combination of a pressure-cylinder having a plunger with a bed disposed thereon, the cylinder and plunger being located under the center of the bed, a pump operatively connected to the lower end of the cylinder, a foot-treadle for operating the piston of the pump, a mold movably mounted on the bed, an upper pressure-plate, a hand-lever connected to the upper part of the press and having portions depending downwardly and secured to the bed for lowering the latter and the mold thereon, and means for supplying the pump with a pressure medium.

2. A press of the class set forth, comprising a bed, a mold movably mounted on the bed, a pressure-plate, means for raising and lowering the bed, and means elevatable through the bed to engage the mold to facilitate the application and removal of the latter.

3. In a press of the class set forth, the combination of a vertically-movable bed having hydraulic operating devices in connection therewith, a pressure-plate disposed at an elevation above the bed, a mold removably mounted on the bed, rollers elevatable through the bed to engage the bottom of the mold to facilitate application and removal of the latter, and means for controlling the operation of the hydraulic devices and for lowering the bed.



4. In a press of the class set forth, the combination of uprights having adjustable stop devices thereon, a vertically-movable bed between said uprights, hydraulic mechanism for elevating said bed, a mold on the bed having the upper edges thereof freely movable between the uprights, means elevatable through the bed to engage the bottom of the mold to facilitate the application and removal of the latter, and means for controlling the raising and lowering movements of the bed.

5. A press of the class set forth, comprising a bed, a mold movably mounted on the bed, a pressure-plate, means for raising and lowering the bed, rollers elevatable through the bed to engage the mold to facilitate the application and removal of the latter.

6. A press of the class set forth, comprising a bed, a mold movably mounted on the bed, a pressure-plate, means for raising and lowering the bed, yokes pivoted to the bed, rollers carried by the yokes, and means for operating the yokes to throw the rollers into engagement with the mold to facilitate the application and removal of the mold.

7. A press of the class set forth, comprising a bed, a mold movably mounted upon the bed, a pressure-plate, means for raising and lowering the bed, yokes pivoted to the bed, rollers carried by the yokes, means for operating the yokes to throw the rollers into engagement with the mold, and means for automatically throwing the rollers out of engagement with the mold.

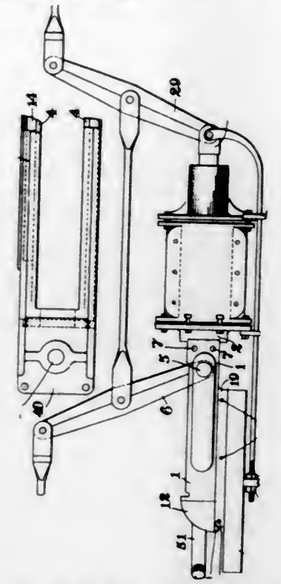
8. A press of the class set forth, comprising a bed, a mold movably mounted upon the bed, a pressure-plate, means for raising and lowering the bed, yokes pivoted to the bed, rollers carried by the yokes, a lever for operating the yokes to throw the rollers into engagement with the mold, and a spring for automatically throwing the rollers out of engagement with the mold.

9. A press of the class set forth, comprising an adjustable bed, a mold movably mounted on the bed, an adjustable pressure-plate, means for raising and lowering the bed, and means elevatable through the bed to engage the mold to facilitate the application and removal of the mold.

10. A press of the class set forth, comprising a bed, a mold movably mounted on the bed, a pressure-plate, means for raising and lowering the bed, a yoke fulcrumed upon the frame of the press, arms secured to the press and having their upper ends adjustably connected to the yoke, and means elevatable through the bed to engage the mold to facilitate the application and removal of the mold.

751,905. PISTON-TRAVEL REGULATOR. JEREMIAH T. FITE, Childress, Tex. Filed Apr. 30, 1903. Serial No. 155,044. (No model.)

Claim.—1. A piston-travel regulator comprising a movable fulcrum-block, an adjusting-screw connected to said block, piston-actuated gearing for driving said screw backward or forward, and suitable supporting mechanism.



2. A piston-travel regulator comprising a movable fulcrum-block, an adjusting-screw attached to said block, a nut having beveled cogs for operating said screw and held against forward or backward movement, a suitable casing for said nut and block, and a beveled gear-wheel for driving said nut.

3. In a piston-travel regulator for air-brakes, a movable fulcrum-block, an adjusting-screw attached thereto, and gravity-controlled gearing for moving said screw either backward or forward whereby the piston-stroke may be shortened or lengthened.

4. In a piston-travel regulator, a movable fulcrum-block, an adjusting-screw attached thereto, beveled gearing for moving said screw forward or backward, and means actuated by said piston for driving said gearing.

5. In an air-brake cylinder provided with a suitable piston; means for regulating the travel of said piston consisting of a fulcrum-block, an adjusting-screw attached thereto, beveled gear for operating said screw, and operating means connected to said piston for driving said gear.

6. In an air-brake cylinder provided with a suitable piston; means for regulating the travel of said piston consisting of a fulcrum-block and means operatively connected to said piston and to said fulcrum-block for moving said block from or toward said cylinder for shortening or lengthening the stroke of said piston.

7. In an air-brake cylinder provided with a suitable piston; means for regulating the travel of said piston consisting of a movable fulcrum-block, a casing for said block, an adjusting-screw connected to said block, a beveled gear-wheel threaded interiorly to engage said screw and held against forward or backward movement in said casing, and means operatively connected to said piston for driving said gear-wheel.

8. In an air-brake cylinder provided with a suitable piston; a fulcrum-block, a casing for said block connected to said cylinder, an adjusting-screw attached to said block, a beveled gear-wheel interiorly threaded to engage said screw and held against forward or backward movement in said casing, a cross-head guide attached to said casing, a cross-head mounted for reciprocatory motion in said guide, ratchet-gearing mounted in said cross-head, a shaft journaled in said guide and said casing; a beveled gear-wheel mounted rigidly on said shaft and meshing with said first-named gear-wheel, and means carried by said cross-head for driving said ratchet-gearing.

9. In an air-brake cylinder provided with a suitable piston; means for regulating the travel of said piston comprising a movable fulcrum-block, an adjusting-screw attached to said block, a beveled

gear-wheel interiorly threaded to engage said screw, a casing for said screw and fulcrum-block, a cross-head guide attached to said casing, a cross-head movable in said guide, a shaft journaled in said casing and in said guide, a beveled gear-wheel mounted on said shaft and meshing with said first-named gear-wheel, ratchet-wheels mounted on said shaft within said cross-head, dogs pivotally mounted in said cross-head, and means carried by said cross-head for actuating said dogs.

10. In an air-brake cylinder provided with a piston and a movable fulcrum-block attached to said piston; ratchet-gearing operatively connected to said fulcrum-block, a reciprocating cross-head carrying dogs for actuating said ratchet-gearing, and means for controlling the operation of said dogs.

11. In an air-brake cylinder provided with a piston and a movable fulcrum-block attached to said piston; ratchet-gearing operatively connected to said fulcrum-block for moving said fulcrum-block backward or forward, a reciprocating cross-head connected to said piston and carrying means for operating said ratchet-gearing.

12. In an air-brake cylinder provided with a piston and a movable fulcrum-block connected to said piston; a screw connected to said fulcrum-block, beveled gearing for moving said screw forward or backward, ratchet-gearing for driving said beveled gearing, and a reciprocating cross-head connected to said piston and carrying means for operating said ratchet-gearing.

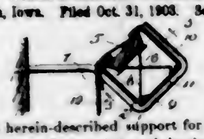
13. In an air-brake cylinder provided with a piston and a movable fulcrum-block connected to said piston; means for lengthening or shortening the stroke of said piston in said cylinder operatively connected to said piston and to said fulcrum-block.

14. In an air-brake cylinder provided with a piston and a movable fulcrum-block connected to said piston; gearing for moving said fulcrum forward or backward, a reciprocating cross-head carrying dogs for operating said gearing and carrying means for operating said dogs, and suitable guides for said fulcrum-block and said cross-head.

15. In an air-brake cylinder provided with a piston and a movable fulcrum-block connected to said piston; gearing for moving said fulcrum-block forward or backward as the stroke of said piston needs taking up or letting out, and a reciprocating cross-head carrying means for operating said gearing and also carrying means for determining which way said fulcrum-block must be moved.

16. In an air-brake cylinder provided with a piston and a movable fulcrum-block connected to said piston; gearing for moving said fulcrum-block forward or backward as the stroke of said piston needs shortening or lengthening, a cross-head carrying dogs for operating said gearing, a casing for said cross-head, sliding blocks mounted in grooves in said cross-head for causing said dogs to engage said gearing, and pins mounted in said casing and projecting in the path of said blocks.

751,906. **WINDOW-CURTAIN FIXTURE.** CHARLES G. FOSTER, North English, Iowa. Filed Oct. 31, 1903. Serial No. 179,302. (No model.)



Claim.—The herein-described support for curtains, comprising the telescoping sections 2, 3, and 4, each having a longitudinal slot, all of which are adapted to be brought into registration with each other; a curtain-engaging rod proper 5 designed to be received by said longitudinal slot, a plurality of spring members carried by the telescoping sections adapted to hold the rod 5 against the edges of said slotted openings whereby the end of the curtain may be wrapped around the rod 5 and left to extend through the slotted openings and suitable supporting-brackets for said telescoping sections, all combined substantially as specified and for the purpose set forth.

751,907. **HAMMOCK.** RICHARD C. FURST, Burlington, N. J. Filed Aug. 8, 1903. Serial No. 168,772. (No model.)

Claim.—1. The combination in a hammock of the body portion, forming one element, and a series of clues connected to said body at the opposite ends thereof and forming the other element, one of said elements being shortened a certain distance in respect to the other on a line extending across the hammock, whereby said hammock when in use provides support for the back.

2. In a hammock, the combination of the body, and a series of cords or clues connected thereto and arranged in graduated lengths for a certain distance on a line extending across the body of the hammock, such arrangement serving to shorten one side of said body.

3. In a hammock, the combination of a body, and a series of cords or clues of different lengths secured thereto, the cords or clues being shortened from one side to the other of said body in different ratio, on a line extending across the body of the hammock.



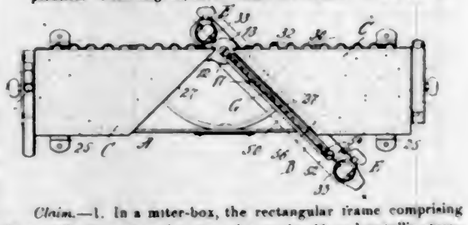
4. The combination in a hammock, of the body portion, a series of clues connected thereto, and means for shortening one portion of the body of said hammock in a definite ratio on a line extending across the hammock to form a back-support.

5. The combination in a hammock, of the body portion, a series of clues connected thereto, and means for shortening portions of the body of said hammock in definite ratio on lines extending from the sides or edges of the same, to form a support for the back and brace for the knees.

6. The combination in a hammock, of the body, a series of clues connected to the opposite ends of same, said clues being arranged in sections, a section on one side being graduated in length from a point at the edge to a point near the center of the body to form a back-support, and another section being of uniform length and forming a seat-support.

7. The combination in a hammock, of the body, a series of clues connected to the opposite ends of same, said clues being arranged in sections, a section on one side being graduated in length from a point at the edge to a point near the center of the body to form a back-support, a central section of uniform length forming a seat portion, and another section having two or more clues shortened in regular order to form a brace to rest under the knees of the occupant.

751,908. **MITER-BOX.** HENRY R. GOODELL, Greenfield, Mass., assignor to Goodell Manufacturing Company, Greenfield, Mass., a Corporation. Filed Aug. 10, 1903. Serial No. 168,925. (No model.)



Claim.—1. In a miter-box, the rectangular frame comprising the metallic strap-formed rectangular-portion 10, and metallic strap-formed portions comprising transverse sections 19 19 extending between the front and rear sections of the frame 10, angularly-turned lugs 20 and opposite sections 21 secured to rear and front sections of said rectangular portion 10, the obliquely-crossing sections 22 22 and end-uniting lugs 23 23, combined with top board-sections, the swinging radius-bar and the saw-guides mounted thereon.

2. In a miter-box, the frame comprising the bar 12; the metallic strap-formed rectangular portion 10, having the approached and rearwardly-arranged extremities connected to the end portions of said bar; the semicircular member 14 having rear end lugs 15 secured to the back member of said portion 10 and centrally secured to the front member thereof, and having graduation-notches within its lower edge combined with the top board-sections, the radius-bar pivotally mounted on the bar 12 and having the front and rear saw-guides thereon, a catch carried by the radius-bar and detachably engaged in the said graduation-notches, and means for locking the radius-bar to the frame.

3. In a miter-box, a frame comprising the bar 12 having the vertical pivot-hole, the rectangular portion 10 of strap metal bent to form and having end portions thereof united to the said bar, the pair of intermediately-disposed strap-metal sections comprising the two transversely-extended portions 19 and 22, uniting portion 21, adjacent and secured to portion 10, and the end lugs 20 and 23 secured to the opposite frame member, and the semicircular member 14, having portions thereof secured at front and rear to said frame portion 10, and having graduation-notches in its lower edge, combined with the radius-bar having the pivot therefor engaged through the pivot-hole in the frame-bar 12, and having the saw-guides mounted thereon, and a stop-catch pivotally mounted on the radius-bar and detachably engaging in the notches in the semicircular member.

4. In a miter-box, the combination with the metallic skeleton frame and elevating-supports therefor, of the radius-bar pivotally connected at the back portion of the frame, having the saw-guides and having the pillars 65 65, the bar G ranging over the radius-bar connected to the upper ends of said pillars, and having its under surface adjoining the top of the frame, the member 66 secured to and depending below the intermediate portion of the bar G, having a screw-threaded axial hole in its lower end, the small shaft 68 having an enlargement which is in bearing against the under surface of the radius-bar, the shaft thereabove extending loosely through the perforation therefor in the radius-bar, and having its upper extremity threaded and screw-engaging in said axial hole, and said shaft having means for turning it, for the purposes set forth.

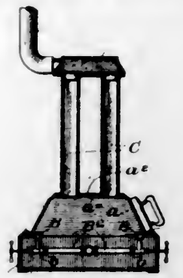
5. In a miter-box, the combination with the frame having the arc-shaped member provided with stop-notches, within its depending edge, the top board-sections, and the back, of the radius-bar comprising sections 50 and 52, slidably engaged one with the other, said section 50 being pivotally connected at the back of the frame, and extending forwardly thereunder, and both sections having an upstanding saw-guide, means for clamping the two bar-sections together, a catch-lever pivotally connected to the bar-section 50, and arranged to be swung to engage in said stop-notches, and provided with a forward extension member slidably engaged on the lever proper and so engaged with the forward section of the radius-bar as to partake of distending and contracting sliding movements in conjunction therewith.

6. In a miter-box, the combination with the frame having the notched member and the saw-guide-supporting radius-bar consisting of the pivotally-connected section 50, and the slidably-engaged extension-section 52, and means for confining the sections one to the other and the extension-section having a vertical aperture in a forward portion thereof, of the catch-lever 59, pivoted to the under side of the bar-section 52 and arranged to engage in the stop-notches and the lever extension 58 having a dovetail connection with the lever proper and longitudinally slidable relatively thereto and provided with the upwardly-extending pin 62 engaging through the aperture in a radius-bar section 52, as shown, for the purpose set forth.

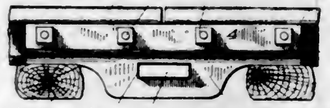
7. In a miter-box, the combination with the metallic supporting-frame, and the top board-sections and back, of grooved members transversely arranged and connected at the ends of the frame having at the bases of the grooves, the apertures 72, the slide-bars fitted in said grooved members, and reversible therein, and having the upstanding posts J, and the horizontally applied and engaging thumb-screws 73, coöperating with the apertured base portions of the said grooved members, as and for the purposes set forth.

751,909. **COMBINED SAD-IRON AND RADIATING STOVE.** HARY GREEN, Chicago, Ill. Filed Apr. 4, 1903. Serial No. 151,196. (No model.)

Claim.—A combined sad-iron-heating and radiating stove, comprising a lower heating and combustion chamber having upper, surrounding, inclined walls provided at their bases with ledges or shoulders adapted to support sad-irons resting against said inclined walls, burners in said chamber and a radiating device located above said chamber comprising a plurality of vertical tubes communicating at their lower ends with said chamber, a second chamber communicating with the upper ends of said tubes, and a pipe leading from said second chamber through which is discharged the products of combustion.



751,910. **COMBINED RAIL JOINT AND BOND.** ROBERT T. GUNN and EDWIN C. HATHAWAY, Norfolk, Va. Filed Dec. 23, 1903. Serial No. 186,367. (No model.)



Claim.—1. A combined rail joint and bond consisting of two abutting rail ends, fish-plates having upper and lower flanges normally in contact with the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the abutting rail-bases and between the supporting-ties for the rails and provided with an opening or slot, a key supported in said slots, and a layer of electric-current-conducting paste situated between the upper side of the key and under side of the rail-bases, substantially as set forth.

2. A combined rail joint and bond consisting of the abutting rail ends, fish-plates having upper and lower flanges resting against the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the abutting rail-bases and between the supporting-ties for the rails and provided with an opening or slot, a key supported in said slots, and a layer of amalgam paste situated between the upper side of the key and the under side of the rail-bases, substantially as set forth.

3. A bond for electric railways and the like, consisting of a rail, plates fastened on each side of rail and having upper and lower flanges, fastening means passing through said upper flanges and web of the rail, a downwardly-extending section on each of the lower flanges passing below the rail-base and provided with an opening or slot, a key supported in said slots, and a layer of electric-current-conducting paste situated between and in intimate contact with the upper side of the key and under side of the rail-base, substantially as set forth.

4. A combined rail joint and bond consisting of two abutting rail ends, fish-plates having upper and lower flanges normally in contact with the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the rail-bases and between the supporting-ties for the rails and provided with an opening or slot, a key having a depression on its upper side and supported in said slots, and a layer of electric-current-conducting paste in said depression and in contact with the under side of the rail-bases, substantially as set forth.

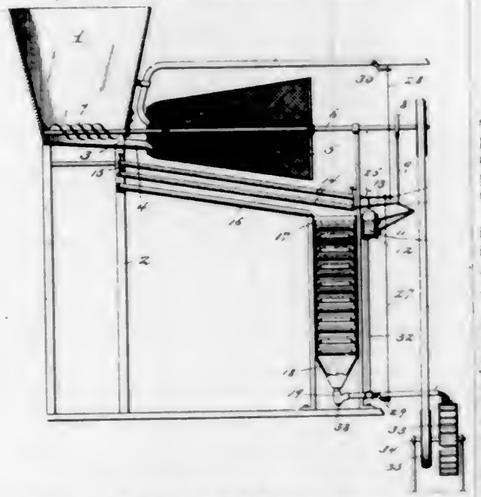
5. A combined rail joint and bond consisting of two abutting rail ends, fish-plates having upper and lower flanges normally in contact with the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the abutting rail-bases and between the supporting-ties for the rails and provided with an opening or slot, a copper-plated key supported in said slots and a layer of amalgam paste in contact with

the upper side of the key and under side of the abutting rail-bases substantially as set forth.

6. A combined rail joint and bond consisting of two abutting rail ends having the under side of their bases copper-plated, fish-plates having upper and lower flanges normally in contact with the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the abutting rail-bases and between the supporting-ties for the rails and provided with an opening or slot, a copper-plated key supported in said slots, and in contact with the under side of the abutting rail-bases, substantially as set forth.

7. A combined rail joint and bond consisting of two abutting rail ends, fish-plates having upper and lower flanges normally in contact with the head and base of the rail ends, fastening means passing through the said fish-plates and webs of the rail ends, a downwardly-extending section on each of the lower flanges passing below the abutting rail-bases and between the supporting-ties for the rails, an opening or slot in each of the said downwardly-extending sections, a key or cross-bar supported in said openings or slots and in contact with the under side of the abutting rail-bases, and means between the upper side of the key or cross-bar and the under side of the abutting rail-bases to prevent oxidation of the contacting surfaces of said key and rail-bases, substantially as set forth.

751,911. **AMALGAMATOR.** ROBERT P. HALL, Gem, Idaho. Filed July 18, 1903. Serial No. 166,124. (No model.)



Claim.—1. In mechanism of the character described, the combination with separating-screens; of a receptacle thereunder, a series of amalgamating-trays within the receptacle and arranged one above the other, said trays having alternately-arranged outlets in the bottoms thereof, an outlet-pipe extending from the bottom of the receptacle, a water-inlet to the screens, valves within the inlet and outlet, a float for operating the valves, and mechanism for rotating the shaft.

2. In an apparatus of the character described, the combination with a hopper having a shaft journaled therein and extending therefrom; of feed mechanism within the hopper and upon the shaft, a revoluble screen upon the shaft and adapted to receive material from the hopper, reciprocating screens thereunder, an inclined board below the screens, a receptacle adapted to receive material from the board, a series of trays within the receptacle and arranged one above the other, said trays having apertures in the bottom thereof arranged out of alinement, a trap communicating with the bottom of the receptacle, an outlet-pipe extending from the trap, a float, a valve within the outlet-pipe, a pipe for supplying water to the screens and receptacle, a valve therein, mechanism connecting the valves and float, and means for rotating the shaft.

3. In an apparatus of the character described, the combination with a hopper having an outlet, a shaft journaled within the hopper and extending therefrom, and a feed-worm upon the shaft and within the hopper; of a revoluble screen upon the shaft and adjacent the outlet, an inclined board, oscillating screens suspended between the board and reciprocating screen, an eccentric upon the shaft, a bracket, a rod extending from the eccentric, a link connecting the rod and bracket, a rigid connection between the oscillating screen and the link, and means for rotating the shaft.

4. In an apparatus of the character described, the combination with a hopper, of a revoluble screen adapted to receive material from the hopper, screens below said revoluble screen, an inclined board below the screens, a receptacle adapted to receive material therefrom, trays within the receptacle and arranged one above the other, an outlet-pipe extending from the receptacle, a pipe for supplying water to the screens and receptacle, a valve therein, and means for automatically operating the valve to prevent overflowing of the receptacle.

751,912. **CHIMNEY-TOP.** FRANK HAYDEN, Danville, Ill. Filed Sept. 22, 1903. Serial No. 174,179. (No model.)



Claim.—1. In a chimney-top, the combination with the extension or pipe A closed at its upper end and provided below said upper end with holes or openings, of a support below said openings, and a laterally-movable cap of slightly greater diameter than the pipe fitting over the upper end thereof and resting on said support, the said cap being provided with openings in its upper end.

2. In a chimney-top, the combination, of the pipe A closed at its upper end and provided below said upper end with holes or openings, an annular support below said openings, and a laterally-movable cap fitting the upper end of the pipe and seated on said support and provided with openings in its upper end.

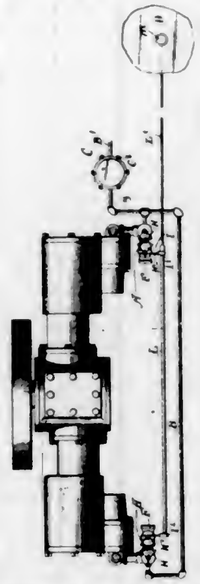
3. In a chimney-top, the combination, of the pipe A closed at its upper end and provided below said upper end with openings *a*, an annular support below said openings having an upwardly-projecting flange at its outer edge, and a rotatable and laterally-movable cap of greater diameter than the upper end of the pipe A over which latter it is placed to cover the openings *a* and rest upon the aforesaid support, the upper end of said cap being conical and provided with openings.

4. In a chimney-top, the combination, of the pipe A closed at its upper end and provided below said upper end with openings *a*, an annular support below said openings, a rotatable and laterally-movable cap of greater diameter than the upper end of the pipe A over which it is placed to rest upon the aforesaid annular support, said cap having openings in its upper end, and a vertical fan in the upper part of the cap.

5. In a chimney-top, the combination, of the pipe A closed at its upper end and provided below said upper end with openings *a*, an annular support below said openings, a laterally-movable cap of greater diameter than the upper part of the pipe A over which it is placed to rest upon the aforesaid annular support, the upper part of the cap being conical and provided with openings, and a vertical fan bearing at its upper end in the apex of the cap and at its lower end in a socket on the closed end of the pipe A, substantially as shown and for the purpose set forth.

751,913. **CARBURETING DEVICE FOR EXPLOSIVE-ENGINES.** ELWOOD HAYNES and ELMER APPERSON, Kokomo, Ind. Filed Jan. 26, 1901. Serial No. 44,819. (No model.)

Claim.—1. The combination with the power-cylinder of an explosive-engine, of a vaporizer connected with said cylinder and provided with an air-inlet opening, said vaporizer comprising a hollow casing having a central mixing-chamber, a compartment at one side of said mixing-chamber to which fuel is delivered, and a compartment at the opposite side of said mixing-chamber which is connected with the said inlet-port of the power-cylinder, a rotative plug-valve constituting an air-valve controlling the inflow of air through said air-inlet passage to said mixing-chamber, a fuel-valve comprising a valve-seat in the wall separating the mixing-chamber from the fuel-chamber, and a valve-closure acting on said seat, said valve-closure having a stem which has screw-threaded engagement with the valve-casing and is arranged parallel with the stem of the air-valve, and intermeshing gears on the stems of the said air and fuel valves, whereby the same are simultaneously moved.

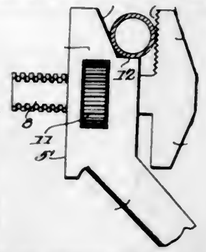


2. The combination with the power-cylinder of an explosive-engine, of a vaporizer connected with said cylinder and provided with an air-inlet opening, said vaporizer comprising a hollow casing having a central mixing-chamber, a compartment at one side of said mixing-chamber to which fuel is delivered, and a compartment at the opposite side of said mixing-chamber which is connected with the said inlet-port of the power-cylinder a rotative plug-valve constituting an air-valve controlling the inflow of air through said air-inlet passage to the mixing-chamber, said plug-valve having a rotative stem, a fuel-valve comprising an aperture in the wall separating the mixing-chamber from the fuel-chamber, and a valve-seat surrounding said aperture at the side of the partition adjacent to the fuel-chamber, a valve-closure acting on said seat, and having a stem which has screw-threaded engagement with said valve-casing, intermeshing gears on the stems of said air and fuel valves, and rigidly-connecting check-valves acting to close the passage from the mixing-chamber to the power-cylinder, and also the aperture in said partition between the fuel-chamber and the mixing-chamber.

3. The combination with the power-cylinder of an explosive-engine, of a vaporizer comprising a mixing-chamber, a fuel-receiving chamber, and a discharge-chamber connected with the inlet-port of the engine, said vaporizer being provided with an air-inlet passage communicating with said mixing-chamber, an air-valve controlling said air-inlet passage, consisting of a rotative valve-plug provided with a stem, a fuel-valve embracing a valve-seat in the wall between the mixing and discharge chambers and a valve-closure acting on said seat, said valve-closure being provided with a rotative stem having screw-threaded engagement with the casing, a check-valve between the mixing-chamber and the cylinder inlet-port, embracing a port in the wall between the mixing and discharge chambers, and a valve-closure fitting said seat, and a check-valve between the fuel-supply passage in the mixing-chamber, consisting of a valve-seat at the outlet of said fuel-supply passage, and a valve-closure which is connected and moves with the closure of the first-mentioned check-valve, and intermeshing gears on the valve-stems of said fuel and air valves.

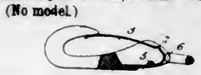
751,914. **WRENCH.** JOHN H. HOBSON, Mattoon, Ill. Filed Oct 31, 1903. Serial No. 179,321. (No model.)

Claim.—1. In a wrench, the combination with a handle, of a head carried thereby and having oppositely-extending and reversely-disposed front and rear gripping-faces, and a shank carrying a jaw having an inner gripping-face, said shank being removably engaged with the head and adapted for reversal to bring its gripping-face into coöperative position with either face of the head.



2. In a wrench, the combination with a handle, of a head carried thereby and provided with a shank-receiving opening, said head having oppositely-extending and reversely-disposed front and rear gripping-faces projecting upon opposite sides of the opening, an adjusting-nut disposed within the opening, and a shank carrying a jaw having an inner gripping-face, said shank being in removable threaded engagement with the nut and adapted for reversal to bring its gripping-face into coöperative position with either face of the head.

751,915. **SNAP-HOOK.** FRANK HOOPER, Philadelphia, Pa., assignor to William M. Ayres and Louis H. Ayres, Philadelphia, Pa., trading as William Ayres & Sons, a Firm. Filed Oct. 7, 1903. Serial No. 176,114. (No model.)



Claim.—1. A snap-hook having a stop for retaining the spring in position on the hook, and a spring provided with a portion intermediate its ends for temporarily engaging said stop during the insertion of the spring, substantially as specified.

2. A snap-hook having a bearing for the lower or short leaf of the spring, and a stop for retaining the spring longitudinally in position on the hook, in combination with a spring having a portion intermediate its ends for engaging said stop when the short leaf of the same is in contact with the bearing of the hook and the long leaf is being bent down so as to pass beneath the hook, substantially as specified.

3. A snap-hook having a bearing for the short leaf of the spring, and a stop for preventing rearward movement of the spring in the hook, in combination with a spring having a projection on its upper leaf for engaging with said stop when the short leaf is in contact with its bearing and temporarily retaining the spring while its long leaf is being bent down into position for engagement with the end of the hook, substantially as specified.

4. A snap-hook spring having a portion intermediate its ends for engaging with a stop on the hook to temporarily retain the spring in position while it is being inserted in the hook, substantially as specified.

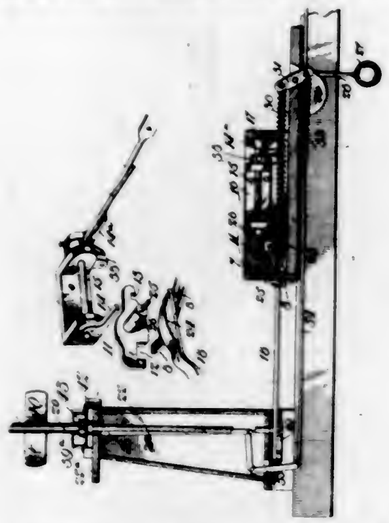
5. A snap-hook spring having a crimp or projection intermediate its ends for engagement with a stop on the hook to temporarily retain the spring in position while it is being inserted in the hook, substantially as specified.

751,916. **RAILWAY-SWITCH.** JOHN J. HOOPER, Chillicothe Ohio, assignor of one-third to Thomas King Wilson, Chillicothe, Ohio. Filed July 9, 1903. Serial No. 164,825. (No model.)

Claim.—1. The combination, with the main-line, siding, and switch rails, manual means for throwing the latter, and an automatic lock for holding the switch temporarily open, of automatic means for releasing the lock and closing the switch, consisting of a weight and rope, and pivoted links with counterbalance-weights connected therewith, substantially as described.

2. The combination, with a main-line, siding, and switch rails, of means for opening the switch, a locking device consisting of a pivoted latch adapted to engage one of the members employed for opening the switch, a device for raising said latch for the purpose of releasing the switch-lock, and devices arranged alongside the track and operatively connected with said device, whereby a passing train causes the automatic release of the lock, and means for closing the switch automatically, substantially as described.

3. The combination, with the main-line, siding, and switch rails, of devices for opening and locking open the switch, curved levers pivoted alongside the main line on either side of the switch, and a device for automatically closing the switch and rods-connecting device with the levers, the mechanism being actuated by a train passing over the curved levers, substantially as described.



4. The combination, with the main-line, siding, and switch rails, means for opening the switch, and means for automatically locking and closing it, of curved or C-shaped levers pivoted alongside the main line on opposite sides of the switch, a pull-rod and a push-rod connected with the respective levers, the latter being curved in the same direction, an intermediate lever arranged horizontally opposite the switch proper, the adjacent ends of the aforesaid rods being connected therewith and slotted as described, a lock-releasing device, and means connecting the aforesaid intermediate lever with said device, substantially as described, whereby a train approaching the open switch from either direction will automatically close it.

5. The combination, with the main-line, siding, and switch rails, means for opening the switch, means for automatically closing it, and a latch pivoted and adapted to engage a portion of the mechanism by which the switch is opened, a rock-shaft arranged adjacent to said latch and provided with a lever-arm adapted to engage the latter for raising it, of a device arranged alongside the main line and adapted to be acted upon by a passing train, and means connecting such device with the aforesaid rock-shaft for rotating the latter and thereby releasing the lock, substantially as described.

6. The combination, with the main-line, siding, and switch rails, means for opening the switch and means for automatically closing it, of a locking device comprising a pivoted latch adapted to engage a member of the mechanism by which the switch is opened and thereby holding the switch in the open position, a rock-shaft arranged adjacent to the latch and having a lever-arm engaging its free end, and a second lever-arm arranged parallel to the first, a spring bearing upon the second lever-arm, depressible levers pivoted alongside the main line, rods extending therefrom parallel to the main line and toward each other, a lever pivoted horizontally and connected with the meeting ends of the said rods, and a pull-rod connecting the inner end of said lever with a lever-arm on the rock-shaft, whereby a passing train depressing one of the levers alongside the track causes rotation of the rock-shaft, whereby the parallel lever-arms are raised against the tension of the spring and the lock automatically released in the manner described.

7. The combination, with the main-line, the siding, and switch rails, of a switch-lever, a pull-rod connected therewith and levers arranged between such pull-rod and the switch-rails and serving as the intermediate means for operating the latter, a pivoted latch adapted to engage the member to which the pull-rod is attached, a cam applied to the pull-rod and adapted to engage the latch and raise the same, for releasing the lock, substantially as described.

8. The combination, with the main-line, the siding, and switch rails, of a switch-lever and pull-rod, a compound lever interposed between the pull-rod and the switch-rails, the said pull-rod being slidably connected with one of the lever members so that it has a short movement independently of the same, a cam fixed on the pull-rod, a pivoted latch adapted to engage the lever member with which the pull-rod is connected and having a lateral projection adapted to engage the cam substantially as described, whereby the switch-lock may be released by moving the pull-rod to carry the cam beneath said projection of the latch, substantially as described.

9. The combination, with the main-line, the siding, and the switch rails, of lever mechanism connected therewith, means for locking such mechanism when the switch is opened, means for automatically closing the switch, a switch-lever and a device connecting it with the aforesaid lever mechanism and provided with an attachment adapted for releasing the switch-lock when the switch-lever is manually operated, substantially as described.

10. The combination, with the main-line, the siding, and switch rails, of a switch lever and rod, a pull-rod connected with the latter, a compound lever arranged intermediate of the said pull-rod and switch-rails and operatively connected therewith, a device for locking the switch in the open position, means for automatically releasing the lock comprising a depressible device arranged alongside the main line, a rod connected therewith, a lever to which said rod is also connected, means for connecting said lever with the lock-releasing mechanism proper, and an intermediate lever pivoted horizontally and bearing at its respective ends upon the aforesaid lever and the compound lever, and means connected with the compound lever for closing the switch automatically when the lock is released, substantially as shown and described.

11. The combination, with the main-line, siding, and switch rails, means for opening the switch consisting of a compound lever and pull rod and a switch lever and rod, of a coil-spring connected with the compound lever, a second coil-spring of less tension, and an intermediate rocking lever with whose respective ends the springs are connected, and a stop for such rocking lever whereby it is held in fixed position when the switch is opened, substantially as described.

12. The combination, with the main-line, the siding, and switch rails, a compound lever, a pull-rod connected therewith, and means for actuating it, of means for automatically closing the switch consisting of two coiled springs one weaker than the other, an intermediate rocking lever to whose respective ends the springs are connected, the spring of greater tension being also connected with compound lever, and a weight, and rope connecting it with the compound lever, substantially as described.

13. The combination, with the main-line, siding, and switch rails, of means for opening the switch, and means for automatically closing the same consisting of a rope and weight, and a spring which serves to give the closing mechanism its initial movement, substantially as described.

14. The combination, with the main-line, the siding, and switch rails, a vertical switch-rod, and switch-lever connected therewith, and means which operatively connect such rod with the switch-rails, of a target and target-lever which are rigidly connected and adapted to rotate on the switch-rod, the target-lever being constructed with pendent portions serving as stops, two of which are on opposite sides of the switch-lever and located a greater distance apart than the width of said lever, whereby the latter may be moved through a greater arc than the target-lever, substantially as shown and described.

15. The combination, with the main-line, the siding, and switch rails, a compound lever the switch-stand rod, the switch-lever and the pull-rod connecting the switch-rod with the compound lever, of a target, and a target-lever which is constructed substantially in triangular form and provided with three pendent portions, two of which are adapted to engage the lever and the third to engage the switch-stand, the target-lever and target being mounted upon the rod and adapted to rotate independently thereon, the arrangement being otherwise substantially as described.

16. The combination, with the switch-stand, the vertical switch-rod and a switch-lever attached to the latter, of the target and target-lever rigidly connected and adapted to rotate independently upon the switch-cod, the target-lever having pendent portions adapted to engage the switch-stand and the switch-lever for operating in the manner shown and described.

17. The combination, with the main-line and siding, and switch rails, the switch-stand, the switch-rod rotatable therein, a switch-lever attached thereto, and means arranged intermediately of the switch-rod and the switch-rails for operatively connecting the two, of a depressible bar arranged alongside the siding and adjacent main-line rail, means for supporting it normally in position to be acted upon by the wheels of a passing train, a locking-bar arranged vertically in the switch-stand, and means operatively connecting it with the bar arranged alongside the track as before described, whereby a train passing into the siding locks the switch-lever and holds it temporarily locked, substantially as shown and described.

18. The combination, with the main-line, the siding, and switch rails, a switch-stand, a vertical rotatable rod arranged therein, a switch-lever attached to the rod and a vertically-slidable bar adapted for locking the said lever, of mechanism arranged intermediate of the rod and the switch-rails for throwing the latter, and a bar arranged alongside the siding and adjacent main-line rail, pivoted links for supporting the bar, counterbalance-weights connected therewith and serving to normally support it in the elevated position, and rods and lever connecting the said bar with the locking-bar of the switch-stand, substantially as shown and described.

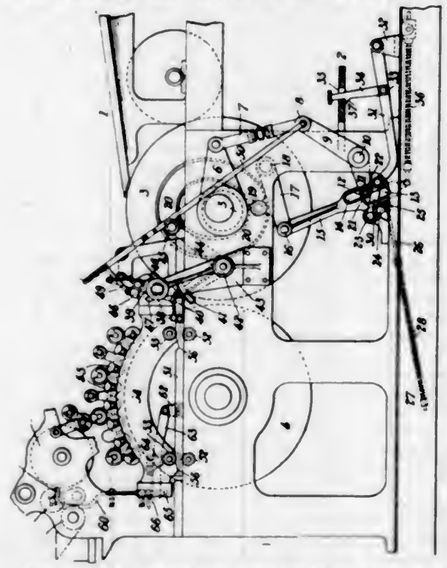
19. The combination with the main-line, siding, and switch rails and means for throwing the latter, of a locking device in the switch-stand connected to a detector-bar arranged alongside of the side-track rail, the mechanism being actuated by a train passing to the siding substantially as described.

20. The combination, with a main-line, the siding, and switch rails, and means for throwing the switch and means for locking it, of a depressible bar arranged alongside the siding and adjacent main-line rail, means for holding it normally elevated so that it may be acted upon by a passing train, and supports for said bar comprising pivoted links, horizontal bars to which the links are attached, means for supporting such horizontal bars beneath the rails and wherein they are adapted to slide lengthwise, one of the switch-rails being connected with such slidable bars, whereby, when the switch is opened the depressible bar arranged alongside is drawn up close to the adjacent rail, substantially as described.

21. The combination, with the main-line, siding, and switch rails, and means for throwing the switch and a slidable bar for locking the same, of a depressible bar arranged alongside the track, and means for connecting it with the locking-bar, and counterbalance-levers, the same being angular in form and pivoted at their apex and provided with weighted arms, whereby they normally hold the depressible bar elevated substantially as described.

22. The combination with the main-line, siding, and switch rails and means for throwing the switch, of a locking-bar arranged alongside of the side track consisting of bars supported beneath the rails and links having counterbalance-weights and devices for connecting it with the locking-bar substantially as described.

751,917. **PRINTING-MACHINE.** THOMAS G. HYDE, London, England, assignor to Gilbert Hinds Whitehead, New Eltham, England. Filed Oct. 9, 1903. Serial No. 176,425. (No model.)



Claim.—1. A printing-machine, comprising an ink-duct, a form-roller, form-inking rollers, and means for throwing said inking-rollers clear of the form-roller, in combination with a roller between said inking-rollers and the ink-duct, and means for operating said roller to cause an interruption of ink-supply to the inking-rollers at the same time that they are clear of the form-roller, substantially as described.

2. A printing-machine, comprising an ink-duct, a form-roller, inking-rollers and slides adapted to lift said inking-rollers clear of the form-roller in combination with a vibrator-roller between the ink-duct and inking-rollers, said vibrator having bearings adapted to allow it to be shifted and connection between said slides and said roller adapted to lift said roller to interrupt the ink-supply to the inking-rollers upon their being lifted clear of the form-roller, substantially as described.

751,918. **STRAINER ATTACHMENT FOR SPRAYING-PUMPS.** HUBERT A. JAGGER, Southampton, N. Y. Filed Sept. 16, 1903. Serial No. 173,470. (No model.)

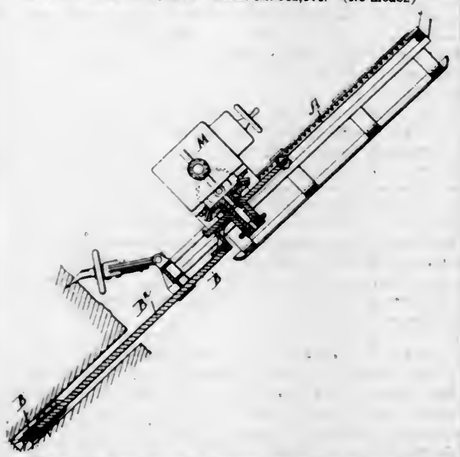


Claim.—1. The herein-described removable strainer comprising the combination with a pipe-union or the abutting end of conveyer pipe or tube, of a body portion 1 having an offset or flange at one end of larger extent than the diameter of said tube or union, said flange being provided with a strainer-terminal substantially as described, while at the opposite end of the body suitable spring-actuated retaining devices are provided adapted to hold it in its operative seat as and for the purpose set forth.

2. The herein-described strainer comprising the combination with a pipe-union or the abutting ends of the conveying pipe or tube, of a body portion 1 having an offset or flange at one end of larger extent than the diameter of said tube or union, a conical strainer-terminal secured to the enlarged end of said body portion, and suitable retaining devices at the opposite end of said body portion adapted to hold it in its operative seat, as and for the purpose set forth.

3. As an article of manufacture, the herein-described removable strainer, comprising a body portion having an offset or flange at one end, a strainer attachment secured thereto, and curved spring-actuated retaining devices at the opposite end thereof, as and for the purpose set forth.

751,919. **MINING-MACHINE.** JOSEPH A. JEFFREY, Columbus, Ohio. Filed Nov. 20, 1896. Serial No. 612,876. (No model.)



Claim.—1. In a mining-machine, the combination of the cutter-chain, the carriage supporting said chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, and a holding device for the carriage consisting of an endless chain supported on the carriage and adapted to engage with one of the horizontal walls of the main kerf and to have its active portion moved backward on lines substantially parallel to the path of the carriage while moving bodily forward therewith, substantially as set forth.

2. In a mining-machine, the combination of the cutter-chain,

the carriage supporting said chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, and a holding device consisting of an endless chain mounted on the carriage and adapted to engage with the coal in the wall of the main kerf and to remain intermittingly stationary relatively to the coal while the carriage is advancing, and to advance bodily with the carriage, substantially as set forth.

3. In a mining-machine, the combination of the cutter-chain, the carriage supporting the chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, and a holding device consisting of an endless chain mounted on the carriage and having links provided with spurs adapted to engage with one of the walls of main kerf, which spurs intermittingly are stationary relative to the coal, while the holder-chain is bodily advancing with the carriage, substantially as set forth.

4. In a mining-machine, the combination of the cutter-chain, the carriage supporting the chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, and a holding device consisting of an endless chain on the carriage adapted to have its links engage with the stationary coal-wall and while so engaging to remain intermittingly stationary while the carriage is advancing, and means for adjusting toward and from the coal the active part of the chain, substantially as set forth.

5. In a mining-machine, the combination of the cutter-chain, the carriage supporting the chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, and the holding device consisting of an endless chain and two rollers or wheels for said chain, the said chain being adapted to have an active part between the said wheels engage with the coal and to move from the forward wheel to the rear wheel while the carriage is advancing whereby relatively prolonged lines of engagement can be provided, substantially as set forth.

6. In a mining-machine, the combination of the cutter-chain, the carriage supporting the chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, a holding device having an active part adapted to engage with a horizontal wall of the main chain-kerf and to be held in a relatively lower position out of such engagement, and in a relatively higher position when in such engagement, and means for positively supporting it in such positions, substantially as set forth.

7. In a mining-machine, the combination of a cutter-chain, a carriage supporting the chain, the bed for supporting and guiding the carriage, the power devices for actuating the cutter-chain and moving the carriage, a holding and steadying device, consisting of an endless chain supported upon wheels or rollers on the carriage, and having an active part adapted to engage with a wall of the main chain-kerf, and an adjusting plate or bar, G, adapted to hold said active part of the chain in either of two positions; substantially as set forth.

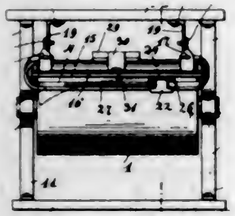
8. In a mining-machine, the combination of the bed, a carriage mounted on the bed, a cutter-chain supported by the carriage, power devices for actuating the cutter-chain and moving the carriage on the bed, a holding device, consisting of an endless chain mounted on the carriage and having an active portion adapted to engage with the upper horizontal wall of the main chain-kerf, a plate, G, mounted below the active portion of said holding device, and means adjustably connecting said plate with the carriage, whereby said active portion of the holding device may be held in a relatively high position to engage with the top horizontal wall of the main kerf or in a relatively lower position and out of engagement with said wall of the kerf; substantially as set forth.

9. In a mining-machine, the combination of a bed, a carriage mounted thereon and adapted to move relatively thereto, a cutter-chain supported on the carriage, power devices for actuating the chain and for moving the carriage to force the chain into engagement with the material to be cut, a holding device mounted on the carriage and arranged to engage with one of the walls of the kerf formed by the cutter-chain to prevent lateral swaying of the carriage as it advances, means for supporting the holder in a position to engage with a wall of the kerf, and means for adjusting the position of the said support to permit the disengagement of the holder from the kerf-wall, substantially as set forth.

10. In a mining-machine, the combination of a fixed bed, a carriage movable thereon, laterally-acting cutters on the carriage, and a holding device mounted thereon and having a series of projections adapted to engage with one wall of the kerf, the projections being arranged to come successively into action as carriage advances relative to the said fixed bed, and each to remain stationary relative to the kerf-wall during its engagement therewith, the said projections being arranged in a line parallel with the direction of advance of the carriage and adapted to prevent lateral swaying of the same, substantially as set forth.

11. In a mining-machine, the combination of the bed, the carriage, the laterally-acting cutters on the carriage, and the holding device mounted on the carriage and consisting of a chain adapted to travel with the carriage into the kerf and to have both its inner and outer links engage with the coal on one side of the carriage, substantially as set forth.

751,920. PAPER-ROLL HOLDER AND CUTTER. RICHARD T. JONES, Baltimore, Md. Filed Dec. 3, 1903. Serial No. 183,606. (No model.)



Claim.—1. In a cutting device for paper or the like, the combination of a cutter-bar, a paper-supporting element coacting with said cutter-bar, and means for adjusting said element longitudinally with respect to said cutter-bar, substantially as described.

2. In a cutting device for paper or the like, the combination of a cutter-bar, and a coacting slidably-mounted paper-support adapted to be moved longitudinally with respect to said cutter-bar to support either corner of one end of said paper and to permit the other corner of the same to hang down in a position to be readily grasped, substantially as described.

3. In a cutting device for paper or the like, the combination of a cutter-bar, means for supporting the same, and a paper-support mounted to slide longitudinally upon said means and coacting with said cutter-bar, substantially as described.

4. In a serving apparatus of the character described, the combination with a roll-holder, of a frame, a cutter-bar carried by said frame, and a movable paper-support mounted upon said frame and to coact with said cutter-bar to hold a portion of the free end of the paper against said cutter-bar, substantially as described.

5. In a serving apparatus of the character described, the combination with a roll-holder, of a swinging frame, a cutter-bar carried by said frame, and a longitudinally-movable paper-support adapted to hold either corner of the free end of the paper in contact with said cutter-bar, substantially as described.

6. In a serving apparatus of the character described, the combination with a roll-holder, of a swinging frame, a cutter-bar carried by said frame, a cutter-bar support upon said frame adapted to hold said cutter-bar away from the roll upon said roll-holder, and a longitudinally-slidable paper-holder upon said cutter-bar support adapted to hold either corner of the free end of said paper against said cutter-bar, substantially as described.

7. In a serving apparatus of the character described, the combination with a roll-holdec, of a swinging frame, a cutter-bar carried by said frame, a slotted supporting-bar upon said frame adapted to hold said cutter-bar away from the roll in said roll-holder, and a paper-support slidably mounted in the slot in said supporting-bar and adapted to hold a portion of the paper against said cutter-bar, substantially as described.

8. In a serving apparatus of the character described, the combination with a roll-holder, of arms pivotally mounted upon said roll-holder, a cutter-bar carried by the free ends of said arms, a cutter-bar support connecting said arms and engaging the periphery of the roll upon said roll-holder, a slidably-mounted paper-support upon said cutter-bar support adapted to hold either corner of the free end of the paper against said cutter-bar, substantially as described.

9. In a serving apparatus of the character described, the combination with a roll-holder, of arms pivotally mounted upon said roll-holder, a cutter-bar carried by the free ends of said arms, a supporting-bar connecting said arms and bearing upon the roll in said roll-holder, a paper-support mounted to slide longitudinally upon said supporting-bar, and a swinging weight or follower adapted to bear upon the roll of paper to check its feed, substantially as described.

751,921. COMPOSITE BUILDING CONSTRUCTION. JULIUS KAHN, Detroit, Mich. Filed Aug. 14, 1903. Serial No. 169,550. (No model.)



Claim.—1. In a composite building construction, the combination with one or more metallic part-trusses consisting of a main portion and rigidly attached, laterally-extending arms, of a cementitious body material embedding said part-truss, of a plurality of blocks of terra-cotta or similar material supported and retained by the metallic member and the body material surrounding it, substantially as described.

2. In a composite building construction, the combination with one or more metallic part-trusses consisting of a main portion having rigidly secured thereto one or more laterally-extending arms, said part-trusses embedded in a cementitious body material forming a trussed beam, of a plurality of blocks of terra-cotta or similar material supported and retained by the trussed beams, of projecting flanges upon one face of the blocks to form a continuous fireproof ceiling, substantially as described.

3. In a composite building construction, the combination with metallic part-trusses longitudinally disposed in parallel series, of blocks of terra-cotta or similar material placed between the metallic part-trusses, of flanges upon the lower surfaces of said blocks to make a continuous fireproof ceiling and to constitute a form or mold around the metallic members, of a cementitious material placed around the metallic members and against the adjacent walls of the blocks which are retained thereby, substantially as described.

4. A metallic reinforcing member consisting of a main longitudinal portion, and laterally-extending arms, formed by striking up portions of the web running along the two opposite sides of the main bar, substantially as described.

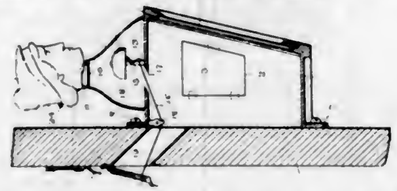
5. A metallic reinforcement consisting of a main longitudinal portion, having pairs of laterally-extending arms rigidly attached to the main portion at points intermediate its ends, substantially as described.

6. In composite building construction, blocks of terra-cotta or similar material, said blocks having flanges extending outward from the two opposite faces to form continuous fireproof walls, of metallic reinforcing members consisting of a main portion and laterally-extending arms rigidly attached thereto placed in the space included between the blocks and the flanges thereof, of concrete or similar substance uniting the blocks and the metallic members, substantially as described.

7. In a composite building construction, metallic reinforcing members vertically disposed in a circular position, said members consisting of a main portion and laterally-extending arms, of a plurality of blocks of terra-cotta or similar material having flanges projecting from two opposite faces and forming continuous fireproof walls when the blocks are placed adjacent, said blocks placed between the metallic reinforcing members; of a cementitious material surrounding the metallic members and holding the blocks in position, of horizontal supporting members placed around the circular retaining-wall, substantially as described.

8. A metallic reinforcement for hollow tile and floor construction consisting of complementary metal part-trusses oppositely disposed, one of which has a single row of laterally-extending arms placed between a double row of arms of the other part-truss, substantially as described.

751,922. MAIL-BOX. JOSEPHINE V. KEENER, St. Joseph, Mo. Filed Apr. 22, 1903. Serial No. 153,865. (No model.)



Claim.—The combination with a suitable structure, having a slot therethrough, and provided at one side with a closure for the slot, of a box secured to the other side of the structure, and provided with a top having a slot therein, said box having communication with the slot first named, a guide-pulley supported in the box adjacent to this slot, an alarm supported on said top adjacent to the slot therein, a device on the top for inclosing the alarm, a clapper for the alarm, and an operating-strip for the clapper, said strip extending through both of said slots and over the guide-pulley and connected to said closure.

751,923. TOBACCO-PIPE AND CIGAR OR CIGARETTE HOLDER. JAMES J. KELLY, Dublin, Ireland. Filed Mar. 10, 1903. Serial No. 147,139. (No model.)

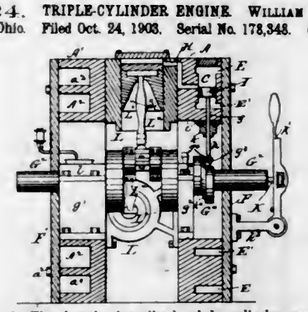


Claim.—1. The combination of a stem having a bore and formed integrally with a wedge dividing the bore into branches, and a stud secured to the base of the wedge between the outer ends of the branches and arranged to divert laterally the course of the smoke issuing from said branches.

2. The combination of a stem having a bore and formed integrally with a wedge dividing the bore of the stem into branches, and a stud secured to the base of the wedge between the outer ends of the branches held away from the outer ends of the branch passages and forming with the end of the stem lateral passages for the smoke.

3. The combination of a stem formed with a Y-shaped bore, and an integral wedge-shaped piece between the branches of the bore at the end of the stem; and a stud consisting of a head, having a flat inner face resting against the outer end of the wedge, and having a screw-shank attached to the wedge, said stud being held away from the outer ends of the branches of the bore and from the end of the stem surrounding the wedge whereby lateral passages are provided for the smoke.

751,924. TRIPLE-CYLINDER ENGINE. WILLIAM W. KELLY, Lorain, Ohio. Filed Oct. 24, 1903. Serial No. 178,348. (No model.)



Claim.—1. The herein-described triple-cylinder engine, comprising the cast ring-shaped sections A A′, the radially-arranged cylinders L L L, bolted to and between said sections, the pistons L′ and piston-rods L², the power-shaft G² formed with a crank to which said piston-rods are connected, the radially-arranged piston-shaped valves I having radial stems h and the valve-operating eccentric G⁴ mounted on said power-shaft; the frame-section A being formed with the annular concentric channels E E′ communicating with the steam supply and exhaust ports and with the valve-chambers C C C, substantially as described.

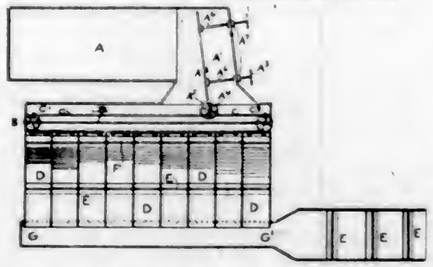
2. In a triple-cylinder engine of the type described, the combination with the steam-cylinders, pistons, valves situated all in the same plane, valve-stems having free outer ends, and power-shaft, of the adjustable double eccentric G⁴ having cylindrical peripheries and mounted on the power-shaft and means for adjusting said eccentric substantially as described.

3. In a triple-cylinder engine of the type described, the combination with the ring-shaped frame comprising the annular cast sections A, A′ and cranked power-shaft, of the cylinders and their pistons and piston-rods, the latter being independently connected to the power-shaft and the engine-cylinders staggered in the frame, and bolted to and between the sections A, A′ and the supporting-base B, by which the engine is supported in an upright position, substantially as described.

751,925. GRADING, CLASSIFYING, AND DISTRIBUTING AURIFEROUS WASH IN GOLD-SAVING. ARCHIBALD G. KIDSTON-HUNTER, Dunedin, New Zealand. Filed Feb. 17, 1903. Serial No. 143,849. (No model.)

Claim.—1. An apparatus of the class described, comprising an inclined table, a grading-chute disposed at the lower end thereof, a

vertically and laterally adjustable grading-board arranged within the chute, a table provided with wells, and means for controlling the passage of the material from the grading-chute to the wells.

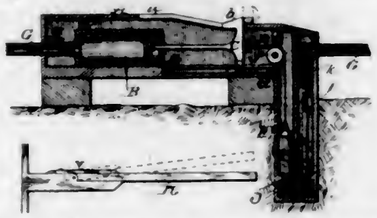


2. An apparatus of the class described, comprising an inclined table, a grading-chute disposed near the lower end thereof, a vertically and laterally adjustable grading-board arranged in the chute, a table provided with a plurality of wells, means for controlling the passage of the material from the chute to the wells, adjustable classifying-boards arranged between the table and the wells, and a tailings-chute also provided with wells.

3. In an apparatus of the class described, an inclined table, a grading-chute arranged near its lower end, a vertically and laterally adjustable grading-board coacting with the chute, a table provided with a plurality of wells, means for controlling the passage of the material from the first-named table to the wells, a tailings-chute, and means for controlling the passage of material from the wells to the tailings-chute.

4. In an apparatus of the class described, an inclined table, a grading-chute arranged near its lower end, a vertically and laterally adjustable grading-board coacting with the chute, a table provided with a plurality of wells, means for controlling the passage of the material from the first-named table to the wells, a tailings-chute, and adjustable boards for controlling the passage of material from the wells to the tailings-chute.

751,926. AUTOMATIC LOCOMOTIVE-ALARM. CHARLES D. KING, Olympia, Wash. Filed June 19, 1902. Serial No. 112,370. (No model.)



Claim.—1. An automatic railway signaling apparatus comprising an air-pump arranged alongside the track, the piston thereof having a rod provided with a projection adapted for contact with a device attached to a locomotive, an air-cylinder with piston and a vertical support for said cylinder, a pivoted arm connected with the rod of said piston and adapted to be thrown up so as to trip an alarm on the locomotive, an air-pipe extending along the track and having branches extending to the said air-pump and cylinder, check-valves arranged in one of the terminals of said air-pipe, a vertically-movable device adapted to raise and thereby open such valves, means for supporting said device and means connected with the piston of the aforesaid air-pump for holding the valve-lifting device normally depressed, substantially as described.

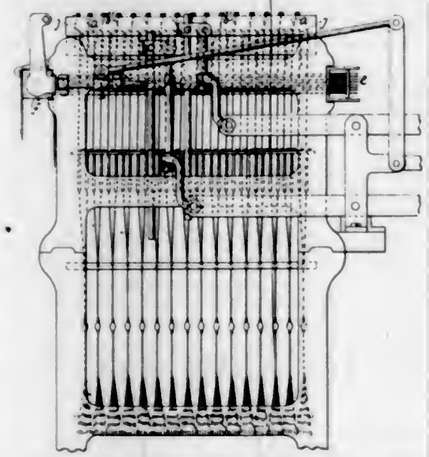
2. An automatic railway signaling apparatus comprising an air-pump arranged alongside the track, the piston thereof having a rod provided with a projection adapted for contact with a device attached to a locomotive, an air-cylinder with piston located at a point removed from said air-pump and a vertical support therefor, a pivoted arm connected with the rod of said piston and adapted to be thrown up so as to trip an alarm on the locomotive, an air-pipe extending along the track and having branches connecting with the said air-pump and cylinder, check-valves arranged in a vertical terminal of said air-pipe, a bent rod working in suitable guides and one end thereof arranged for contact with the said check-valves, a spring normally supporting the rod, and a vertically-slidable weight connected with the piston of the air-pump and adapted to rest upon one arm of the bent rod, whereby when the piston of the air-pump is retracted the weight depresses the said rod and this leaves the check-valve seated so as to maintain pressure in the air-pipe as and for the purpose specified.

3. In an automatic railway signaling apparatus the combination with an air-pipe extending along the track and a vertically-movable device adapted to be operated by air-pressure for tripping an alarm on the locomotive, of an air-pump connected with said pipe, a box arranged for connection with said pump and having an inclined top portion as described, the piston of said air-pump having a portion which projects above the box at the lower portion of the incline and passes within the box upon reaching the railway portion of the incline when operated by a projecting device on a locomotive substantially as shown and described.

4. In an automatic railway signaling apparatus of the class described the combination with an air-pipe extending along the track, an air-cylinder located at a point adjacent to the track and connected with said pipe, a vertically-movable device operatively connected with the piston of said cylinder, vertically-movable check-valves located in the vertical terminal of the air-pipe, a bent rod adapted to engage the valves, a spring supporting the same, a slotted box having an incline on its upper side and an air-pump arranged within it and its piston provided with a portion adapted to traverse said slot and to project from the lower portion only thereof, a vertically-slidable weight and a cord connecting it with the piston-rod, the weight resting normally upon the rod when the piston is retracted whereby the valves are left seated as and for the purpose specified.

5. In an automatic railway signaling apparatus the combination with a valved air-pipe and an air-pump having a piston adapted to be operated by a device attached to a locomotive, of an air-cylinder and piston working therein and located at a point removed from the said air-pump, a vertical tower having a vertical guide-slot, and an arm pivoted within the tower and adapted to swing vertically in the aforesaid slot, a piston working in the said cylinder and connected with said arm, whereby the latter may be thrown up and held in vertical position for tripping an alarm on another locomotive substantially as shown and described.

751,927. JACQUARD MECHANISM FOR LOOMS. GEORGE W. KUEBRETH, New York, N. Y. Filed May 6, 1903. Serial No. 155,894. (No model.)



Claim.—1. A jacquard mechanism comprising a needle, consecutive or adjacent hooks controlled by said needle, and succeeding leashes connected to said hooks, each leash having its hooks facing in the same direction.

2. A jacquard mechanism comprising a needle, consecutive or adjacent hook pairs controlled by said needle, and adjacent leashes, each hook pair being connected to one leash and free from the other leashes.

3. A jacquard mechanism comprising a needle, two pairs of alternately-acting hooks controlled by such needle, a griff comprising a fixed blade for one set of hooks and a loose blade made to face in the opposite or reverse direction from the fixed blade for the other set of hooks.

4. A jacquard mechanism comprising an oppositely-facing or bifurcated knife, and hooks independent or separate from one another and adapted to engage said oppositely-facing knife.

5. A jacquard mechanism comprising an oppositely-facing or bifurcated knife provided with a fixed and a loose blade.

6. A jacquard mechanism comprising reverse hooks and a knife having a loose removable blade for one set of hooks and a fixed blade for the other set.

7. A jacquard mechanism comprising a griff with a loose blade or knife adapted to swing to prevent wear of the hook and needle, a fixed blade, hooks adapted to be engaged by the fixed blade, and a second set of hooks separate from the first-named hooks and adapted to be engaged by the loose blade.

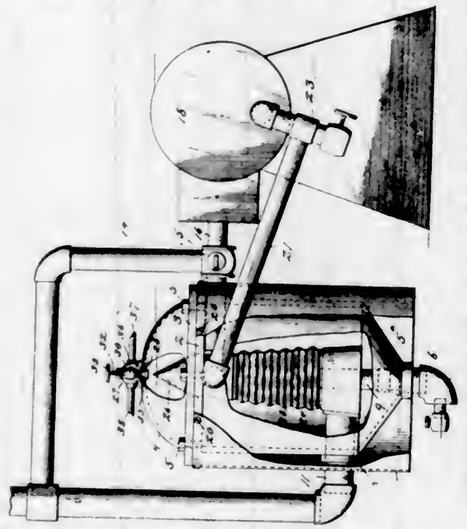
8. A jacquard mechanism comprising a griff mechanism with a loose blade or knife, a four-eyed needle and two pairs of oppositely-facing hooks adapted to be alternately actuated by the griff mechanism, one pair of said hooks adapted to be engaged by the loose blade.

9. A jacquard mechanism or loom comprising a needle, two alternately-acting heddles or leashes controlled by such needles, a griff comprising a fixed blade for one set of heddles, and a loose removable blade for the other set of heddles, so that on the removal of said loose blade one set of heddles becomes inactive while leaving the other set to continue in action.

10. A jacquard mechanism or loom comprising a needle, reverse hooks engaged by the needle, a griff or knife for one set of hooks and a loose blade carried by the knife and made to engage the reverse hooks, said blade being removable and replaceable to bring one set of hooks out of and into action while leaving the other set of hooks to be actuated by its knife.

11. A jacquard mechanism or loom comprising a needle, hooks engaged by the needle, and a griff for the hooks comprising a fast and a loose blade.

751,928. OIL-GAS GENERATOR FOR EXPLOSIVE-ENGINES. JAMES L. LAWRENCE and GEORGE W. STEWART, El Paso, Tex. Filed July 25, 1903. Serial No. 167,013. (No model.)



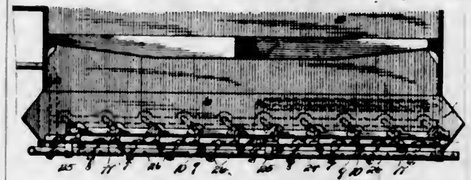
Claim.—1. An oil-gas generator, comprising a jacket surmounted by a dome, and provided with a conical bottom having a valve, said dome connecting with an oil-supply, a vaporizer closed at its lower end, and surmounted by a closed conical oil-spreader, an exhaust-pipe from an engine communicating with the upper part of the vaporizer, and provided with a three-way valve, an exhaust-escape pipe leading from the lower part of the vaporizer, a pipe connecting said escape-pipe with the casing of said valve, and a gas-supply pipe leading from said jacket to a suitable point of delivery.

2. An oil-gas generator, comprising a jacket surmounted by a dome, and provided with a conical bottom having a valve, said dome connecting with an oil-supply, a vaporizer closed at its lower end, and surmounted by a closed conical oil-spreader, an exhaust-pipe from an engine communicating with the upper part of the vaporizer, and provided with a three-way valve, an exhaust-escape pipe leading from the lower part of the vaporizer, a pipe connecting said escape-pipe with the casing of said valve, a gas-supply pipe leading from said jacket to a suitable point of delivery, and an air-supply pipe extending into the jacket.

3. An oil-gas generator, comprising a jacket surmounted by a dome, and provided with a conical bottom having a valved outlet for oil residue, said dome having an oil-inlet opening and a valve controlling the latter, a casing for the valve, and an oil-supply pipe and an overflow-pipe connecting with said casing, a vaporizer closed at its lower end, and surmounted by a closed conical spreader having the apex thereof in line with said inlet-opening, an exhaust-pipe from an engine communicating with the upper part of the vaporizer, and provided with a three-way valve, an exhaust-escape pipe leading from the lower part of the vaporizer, a pipe connecting said escape-pipe with the casing of said three-way valve, and a gas-supply pipe leading from said jacket to a suitable point of delivery.

4. An oil-gas generator, comprising a jacket surmounted by a dome, and provided with a conical bottom having a valved outlet for oil residue, said dome having an oil-inlet opening and a valve controlling the latter, a casing for the valve, and an oil-supply pipe and an overflow-pipe connecting with said casing, a vaporizer closed at its lower end, and surmounted by a closed conical spreader having the apex thereof in line with said inlet-opening, an exhaust-pipe from an engine communicating with the upper part of the vaporizer, and provided with a three-way valve, an exhaust-escape pipe leading from the lower part of the vaporizer, a pipe connecting said escape-pipe with the casing of said three-way valve, and a gas-supply pipe leading from said jacket to a suitable point of delivery, the walls of said vaporizer being cone-shaped and constructed with annular corrugations.

751,929. ASH-PAN. OLIVER LINK and AUGUST SCHNEIDLER, St. Charles, Mo. Filed July 9, 1903. Serial No. 164,874. (No model.)



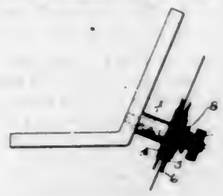
Claim.—1. The herein-described receptacle for ashes, cinders, &c., comprising suitable side and end walls and having a plurality of floor-sections, each floor-section having a trough on one edge and a depending flange upon the other edge, whereby, the flange of one section will be received by the trough of the next contiguous section, and suitable means to dispose all of said sections in a horizontal or vertical position as desired, substantially as specified and for the purpose set forth.

2. In an ash-receptacle for locomotives or the like, the combination with the fire-box of an ash-receptacle proper comprising side and end walls and a plurality of pivoted floor-sections, each section having a trough upon one edge and a depending section upon its opposite edge and extending substantially at right angles to the plane of said floor-section, each of said floor-sections being provided with an arm 11 having an extension or crank 12; a connecting-bar provided with openings to receive said crank, and a controlling-lever and means to operatively connect said controlling-lever with the journal or shaft of one of said floor-sections, whereby, when the controlling-lever is moved, all of the sections will be simultaneously moved, substantially as specified and for the purpose set forth.

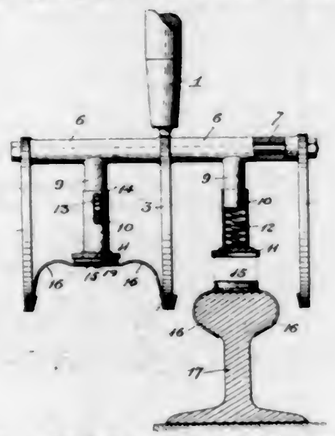
751,930. TENSION DEVICE. JACOB LUNDGREN, Philadelphia, Pa. Filed Mar. 6, 1902. Renewed July 14, 1903. Serial No. 165,525. (No model.)

Claim.—1. A tension device for threads, comprising a supporting-stud having a reduced screw-threaded portion at each end and a shoulder, a pair of disks mounted upon the unthreaded portion with one disk bearing against one of said shoulders, said disks having in their outer edges inwardly-directed shoulders and outer inclined lips, a movable bed interposed between said disks for rotation with or independent of the same and yielding means on the reduced portion of said stud bearing against one of said disks, substantially as and for the purpose specified.

2. A tension device for threads comprising a supporting-stud having slitted, threaded, reduced portion, and unthreaded portion with shoulder, disks on said unthreaded portion and having inturned shoulders and outwardly-flared lips, a movable bed between said disks and loosely sleeved upon the unthreaded portion of the stud and held between said shoulder, a nut adjustably mounted on said screw-threaded portion and a spring loosely embracing said threaded portion and bearing at one end against the adjacent disk and its other end passed through the slit in the threaded portion and compressible by said nut, substantially as described.



751,931. TORPEDO-PLACER. WILLIAM R. MATTHEW, Bucyrus, Ohio. Filed Nov. 13, 1903. Serial No. 181,067. (No model.)



Claim.—1. The herein-described torpedo-holder comprising a plurality of members 3, 4 and 5; suitable means to connect said holders to the handle portion; downwardly-extending lugs or fingers 9; suitable sockets receiving said fingers; means to normally hold said sockets outward; a cup-shaped head carried by said sockets and a pair of pockets inclined toward each other for each of said heads whereby the free ends of the torpedo spring-arms will be secured by said pockets and readily released when the tension of said spring is overcome, all combined substantially as specified and for the purpose set forth.

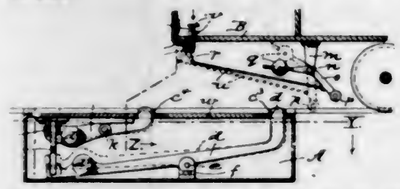
2. A torpedo holder and placer comprising a suitable handle, a plurality of ring-like members as 3, 4 and 5 properly spaced or separated to receive a torpedo and a contiguous part of the track-rail and means located intermediate a pair of said ring-like members designed to hold the torpedo in position to be released substantially as specified and for the purpose set forth.

3. The herein-described torpedo holder and releaser comprising a suitable handle having a plurality of ring or disk like members properly separated to receive a contiguous part of the track-rail; recesses provided near the peripheral edges of said ring members designed to receive the ends of the torpedo-clamping spring and means adapted to yieldingly hold the torpedo in discharging position whereby when the lower side of the torpedo is forced against the track-rail the ends of the springs will be withdrawn to instantly engage the rail as and for the purpose set forth.

4. A torpedo holder and placer comprising a suitable handle and also having a plurality of ring or disk like members 3, 4 and 5 properly separated; pockets or recesses provided in the approximating faces of said ring members adapted to receive the free ends of the torpedo-clamping springs; a spring-cushion between said ring-like members adapted to hold the ends of the clamping-springs downward in said recesses whereby when the lower side of the torpedo is forced against the track-rail the ends of the clamping-springs will be released to engage the track-rail substantially as specified and for the purpose set forth.

5. The herein-described torpedo holding and releasing device comprising a suitable controlling-handle having a plurality of ring or disk like members 3, 4 and 5; suitable means to hold said members properly separated and in union with the handle; a finger 9 carried between each pair of ring-members; a telescoping member cooperating with said finger and means to hold said cooperating member normally extended whereby when the torpedo-body is placed against the lower end of said telescoping member and the anchoring-springs entered in suitable recesses in a contiguous part of the ring or disk like members said telescoping member will move upward against its spring sufficiently to release the ends of the torpedo-clamping members, all substantially as specified and for the purpose set forth.

751,932. AUTOMATIC SWITCH FOR TRAMWAYS. GEORGE A. MEIGHAN, Providence, R. I. Filed July 29, 1903. Serial No. 167,463. (No model.)

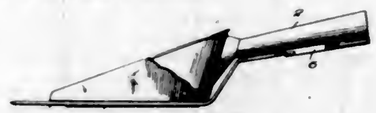


Claim.—1. In a tramway-switch for trolley-cars, the combination, of a casing having rails upon its upper surface arranged to meet the ends of the rails of the road-bed, which lead in different directions: two tongues pivotally mounted on said casing, and said tongues having integral extensions projecting through slotted openings formed in the same; a lever pivotally mounted centrally of the casing, and having one end projecting through a slotted opening formed in the same and a bifurcation at its opposite end; two arms having one of their ends connected to the bifurcation of the said lever and having their opposite ends arranged to bear against the extensions of said tongues; two levers pivotally mounted in the casing, on each side thereof and having one of their ends projecting through slotted openings formed in the casing and their opposite ends exposing inclined surfaces to engage the extensions of said tongues; and means mounted on the car-platform for forcing down either projecting end of the aforesaid levers to throw either of said tongues to the position desired upon the rails, substantially as set forth.

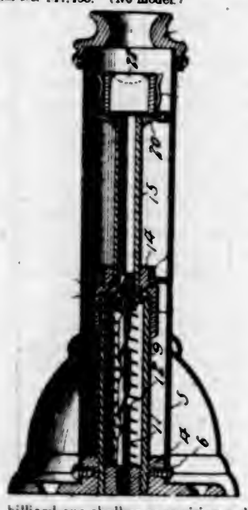
2. In a tramway-switch for trolley-cars, the combination, of a casing adapted to be embedded between the rails of a road-bed, at a point where the tracks lead in a straightaway course and right and left turnaway courses; two tongues pivotally mounted on said casing and having their pivotal centers in a plane with the rails of a straightaway course and said tongues having integral extensions movable in slotted openings formed in said casing; a lever pivotally mounted and extending longitudinally in the casing, and said lever having one end projecting through a slotted opening in the same; two arms connected to the opposite end of said lever, extending transverse of the same and adapted to engage with the inner faces of the extensions of said tongues; two side levers pivotally mounted and extending longitudinally in the casing, and said arms having one of their ends projecting through slotted openings in the same and their opposite end portions inclined to the outer faces of the extensions of said tongues; three presser-feet mounted and movable in the platform of the car, and each of said presser-feet adapted to operate a roller, and so arranged that a downward movement upon the center the presser-foot will carry its roller in contact with the projecting end of the aforesaid center lever whereby its arms force the said tongues outwardly for a straightaway course, and a downward movement upon either of the other presser-feet will carry their roller in contact with either projecting end of the aforesaid side levers whereby their inclined surfaces force inwardly either of the said tongues for a turnaway course, substantially as set forth.

751,933. SCOOP. HENRY C. METZGER and WILLIAM O. GUICE, Meridian, Miss. Filed Mar. 16, 1903. Serial No. 148,113. (No model.)

Claim.—In a device of the character described, the combination with a scoop provided with a handle, of a digger provided with a handle extending to the rear of and in a parallel position with the handle of said scoop, the digging portion of said digger extending along beneath the bottom of said scoop and made of greater length than said bottom portion so that its digging portion may be extended beyond the front edge of the scoop

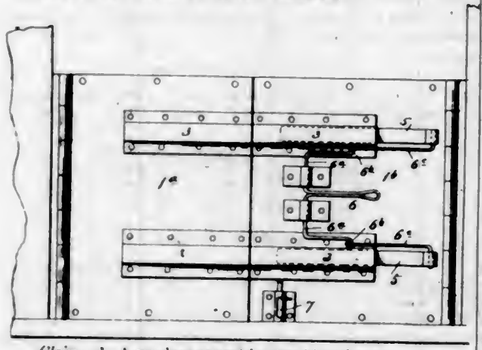


751,934. BILLIARD-CUE CHALK-HOLDER. EDWARD J. MILLIGAN and CHARLES DUNCAN, Salt Lake City, Utah, assignors to Frank Lettieri and Frank Sebastian, Salt Lake City, Utah. Filed Mar. 12, 1903. Serial No. 147,485. (No model.)



Claim.—A billiard-cue chalker comprising a disk, an elongated tube, secured thereto and having a flared open end, a second tube within the first-named tube carried by the disk, a sleeve threaded on the end of the second-named tube and provided with a restricted end having a central opening, the diameter of which is slightly less than the diameter of the second tube, a guide-rod within the second tube, a hollow piston-rod into which the guide-rod projects, a collar on the end of the piston-rod to abut against the restricted portion of the sleeve to limit its movement, a chalk-carrying device on the opposite end of the piston-rod and a spring interposed between the end of the piston-rod and the opposite end of the tube.

751,935. CAR-DOOR. MARTIN W. NELSON, Kent, Minn. Filed Sept. 8, 1903. Serial No. 172,406. (No model.)



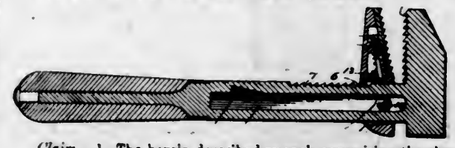
Claim.—1. A car-door comprising two hinged parts or sections, having upper and lower alining series of keepers, upper and lower bolts housed in one of said series of keepers and, when projected, engaging the other of said series of keepers, and a common crank-lever for actuating said bolts, having two arms arranged parallel with itself and means connecting said arms to said bolts.

2. A car-door embracing two hinged parts or sections having upper and lower alining series of keepers and the forward edge of one underlapping that of the other, upper and lower bolts housed in one of said series of keepers and, when projected, engaging the other of said series of keepers, a common crank-lever for actuating said bolts, having two arms arranged parallel with itself and means connecting said arms to said bolts, and an additional bolt for initially holding said door-sections.

3. A car-door embracing two hinged sections or parts having upper and lower alining series of keepers, upper and lower bolts arranged in one of said series of keepers and, when projected, engaging the other of said series of keepers, and a T-shaped lever pivoted upon one door-section and having crank-arms extending parallel with itself and links connected to said arms and to said bolts.

4. A car-door embracing two hinged sections or parts and provided with upper and lower alining series of keepers, upper and lower bolts arranged in one of said series of keepers and, when projected, engaging the other of said series of keepers, and a T-shaped lever having its cross-head fulcrumed upon one door-section, and said cross-head provided with right-angled terminals arranged parallel with the stem or handle of said lever, and links connecting said terminals and said bolts.

751,936. WRENCH. WINFIELD S. OSBORN, Remington, Ind. Filed Sept. 28, 1903. Serial No. 174,939. (No model.)



Claim.—1. The herein-described wrench comprising the shank having a stationary jaw and a handle-section, a plurality of notches upon one edge thereof, a jaw 4 having a slot adapted to receive said shank, a detent upon said jaw 4 designed to engage said notches, means carried by said jaw adapted to keep said detent normally in engagement with said notches, a plate having depending sections 12 and 13 adapted to move longitudinally in elongated slots 14 and 15 in said jaw 4, a bolt adapted to pass through an opening in the section 13, said bolt being anchored at each end in the end walls of the slot 15, and a spring surrounding said bolt between said section 13 and one wall of the slot 15, whereby said plate will be held yieldingly in place, as set forth.

2. The herein-described wrench comprising the shank having a stationary jaw at one end and a handle-section at the opposite end, a plurality of notches upon one edge thereof, a jaw 4 slidingly mounted upon said shank, a detent carried by said jaw, a spring 8 carried by said jaw and adapted to keep said detent normally in engagement with said notches, said spring traveling in a groove 9 and bearing against one face thereof, said groove being provided with a notch near its lower end, whereby the downward movement of said jaw 4 will be limited, as and for the purpose set forth.

3. The herein-described wrench comprising the shank having a stationary jaw and a handle-section, the jaw 4 having a slot in one end adapted to receive said shank, the opposite end of said jaw being tapered and provided with elongated slots 14 and 15 in one side thereof, a plate having depending sections 12 and 13 adapted to enter said slots and move longitudinally therein, a bolt adapted to retain said plate in position upon said jaw by passing through the opening in the depending section 13 and a spring surrounding said bolt between said section 13 and the end wall of the slot 15, whereby said plate will be held normally inward, as set forth.

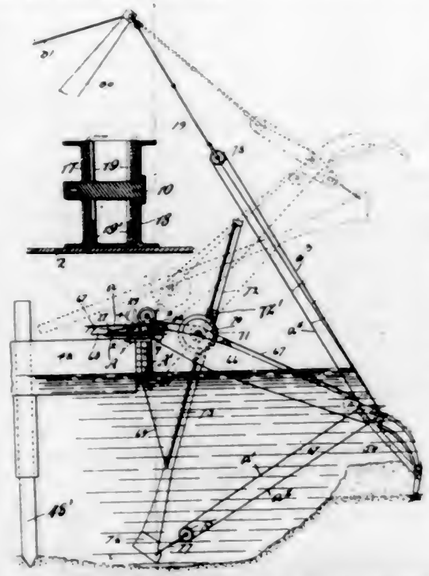
751,937. DREDGE. RALPH R. OSGOOD, Troy, N. Y. Filed July 23, 1903. Serial No. 166,738. (No model.)

Claim.—1. In a dredge or excavator, a hinged boom, a dipper sustained thereon upon a handle arranged to travel back and forth within the bearings on the boom, a hoisting-chain connected with said dipper below the boom and extending above the boom, for operation substantially as described, and a bank-engaging anchor upon the extremity of the boom.

2. In a dredge or excavator, a boom provided with an anchor

3. In a dredge or excavator, a boom provided with an anchor to engage the bank in advance of the plane of movement of the dipper.

4. In a dredge or excavator, a boom provided with a downturned end terminating in an anchor.



5. In a dredge or excavator, a dipper, a boom provided with an anchor to engage the bank in advance of the dipper, and means for preliminarily operating the dipper to take its load and then releasing the boom and moving the dipper and boom together to discharge the load, substantially as described.

6. In a dredge or excavator, a boom provided with a removable anchor.

7. In a dredge or excavator, a boom provided with spaced bank-engaging anchoring devices.

8. In a dredge or excavator, a boom comprising movable spaced anchors, and compensating adjusting means for the anchors adapting them to automatically adjust themselves to irregularities in the bank, substantially as described.

9. In a dredge or excavator, a boom provided with an anchor at its outer end, comprising hydraulic cylinders, pistons in said cylinders provided with anchoring means, and connections for the passage of fluid from one cylinder to the other, substantially as described.

10. In a dredge or excavator, a turn-table having an angle-iron guide for the swinging chain or cable, and arms supporting said guide from the turn-table, substantially as described.

11. A dredge or excavator having a boom-pivoting member formed of elements of angle-iron, substantially as described.

12. A dredge or excavator having a boom-pivoting member formed of elements of angle-iron, a sheave-stand similarly formed, and a bracing connection between the said pivoting member and stand, substantially as described.

13. A dredge having a turn-table provided with an angle-iron rim, angle-iron members inside the rim, and braces between the rim and angle-iron members forming pivoting-sockets for the boom, substantially as described.

14. A dredge or excavator having a turn-table provided with sheave-stands built up of angle-iron, substantially as described.

15. A dredge turn-table having inwardly-projecting members, a bolt or like connection connected to said members, and a hacking-chain guide connected to the bolt.

16. A dredge turn-table having a bed-plate, an angle-iron extending partially around said plate, a plate secured to the angle-iron, and a second plate secured to the bed-plate and forming with the aforesaid plate a pivot-socket for the boom, substantially as described.

17. A dredge turn-table having a bed-plate, an angle-iron extending partially around said plate, a plate secured to the angle-iron, a second plate secured to the bed-plate and forming with the aforesaid plate a pivot-socket for the boom, and a Z-brace between said plates and forming the rear wall of said socket, substantially as described.

18. A dredge turn-table having a bed-plate, an angle-iron extending partially around said plate, a plate secured to the angle iron, a second plate secured to the bed-plate and forming with the aforesaid plate a pivot-socket for the boom, a Z-brace between said plates and forming the rear wall of said socket, and knee-braces connecting the plates to the bed-plate, substantially as described.

19. A dredge turn-table having boom-pivot members and sheave-stands formed of angle metal, and braces between the pivot members and sheave-stands, substantially as described.

20. In a dredge turn-table, the combination with a rotary bed-plate, of an angle-iron disposed outside the same and forming a guide for the turn-table-swinging cables, a second angle-iron secured to the bed-plate, and radial arms between said angle-irons, substantially as described.

21. In a dredge turn-table, the combination with a rotary bed-plate, of an angle-iron disposed outside the same and forming a guide for the turn-table-swinging cables, a second angle-iron secured to the bed-plate, upper bracing-arms connecting the angle-irons, and lower Z-braces connecting the angle-irons, substantially as described.

22. In a dredge turn-table, the combination with a rotary bed-plate, of an angle-iron secured thereto, a second angle-iron disposed beyond and concentric with the bed-plate and aforesaid angle-iron, radial arms connecting the angle-irons, sheave-stands mounted on the bed-plate, pivot members for the boom also mounted on the bed plate, braces between the sheave-stands and pivot members, and braces between the pivot members and outer angle-iron, the latter forming a guide for the chains or cable for swinging the turn-table.

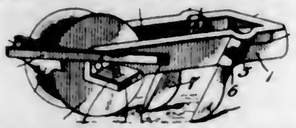
23. In a dredge turn-table, the combination with a bed-plate, of a sheave-stand formed of angle-iron, a pivot-socket formed of angle-iron, tie-bolts between the outer side of each socket and the sheave-stand, and a brace between the inner side of each socket and the sheave-stand, substantially as described.

24. In a dredge turn-table, the combination with a rotary bed-plate, of an angle-iron disposed outside of and concentric with said bed-plate and forming a guide for the swinging cables, a second angle-iron mounted upon the bed-plate, radial braces between said angle-irons, sheave-stands mounted upon the bed-plate and composed of angle-irons, boom-pivot sockets also mounted upon the bed-plate and composed of angle-irons, one side of each socket being connected by one of the aforesaid radial arms to the outer angle-iron, Z-braces mounted upon the outer sides of the sockets and connected to the outer angle-iron, bolts between said Z-braces and sheave-stands, and braces between the inner sides of the sockets and the sheave-stands, substantially as described.

25. In a dredge turn-table, the combination with a rotary bed-plate, of angle-iron sheave-stands, an inner angle-iron partially surrounding the turn-table, an outer angle-iron connected by radial arms to said inner angle-iron, a horizontal shaft mounted in the sheave-stands, a sheave upon said shaft, a second horizontal sheave-shaft, arms projecting from the first-named sheave-shaft and supporting the second-named sheave-shaft, a sheave upon the second sheave-shaft, vertical sheave-shafts carrying horizontal sheaves and mounted at their lower ends in said nearly circular angle-iron, and a superposed frame forming a support for the upper ends of said vertical shafts, said frames being tied and braced to the sheave-stands and to the outer angle-iron.

26. In a dredge, a turn-table comprising a step having an overhanging lip or flange, a rotary member, and a retaining element carried by said rotary member and projecting beneath said lip or flange, and connecting the rotary member to the step, substantially as described.

751,938. PLANTER ATTACHMENT. ROBERT A. PATTERSON, Boonville, Ark. Filed Oct. 24, 1903. Serial No. 178,385. (No model.)



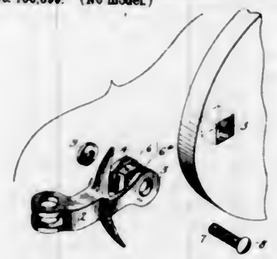
Claim.—1. A cotton-planter attachment, comprising a frame having means for securing the same to a planter, a wheel journaled in said frame, and a pair of oppositely-located blades connected with said frame, each of said blades being adjustable up and down and also axially for the purpose of regulating the depth of penetration and pitch or angle of presentation of the same, substantially as described.

2. An attachment for cotton-planters comprising a three-sided frame, obliquely-disposed attaching-lugs projecting laterally from opposite sides of the frame, a wheel journaled in the frame between said lugs, and oppositely-located adjustable blades connected with the frame in advance of the wheel, said blades being variable as to their depth of penetration and angle of presentation, substantially as described.

3. An attachment for cotton-planters consisting of a three-sided frame, obliquely-disposed attaching-lugs projecting laterally from the terminal portions of the frame, a wheel journaled in the frame between said lugs, a convex scraper connected with the frame and adapted to be moved into and out of engagement with said roller, means for fastening said scraper in either position, and oppositely-located blades located in advance of the wheel, the frame and blades being slotted and bolted together to permit the blades to be adjusted for the purpose of obtaining the desired depth of penetration and angle of presentation of the said blades, substantially as described.

4. An attachment for cotton-planters comprising a frame, the side bars of which are provided with obliquely-disposed attaching-lugs projecting laterally therefrom, said side bars being also provided with obliquely-disposed semicircular offsets having slots extending lengthwise of the frame, oppositely-located blades having half-round shanks fitting within said offsets and provided with longitudinal slots, clamping-bolts passing through the slots in said shanks and also through the slots in the frame to render the blades adjustable vertically and axially, and a wheel journaled in the frame and operating in rear of said blades, substantially as described.

751,939. LENS-FASTENING FOR SPECTACLES OR EYE-GLASSES. CHARLES M. PORTER, Philadelphia, Pa. Filed July 24, 1903. Serial No. 166,899. (No model.)



Claim.—1. The combination of a lens, a lens-mount, a nut held against rotation, a bolt engaging said nut and retaining the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon a wing or clip of the mount, substantially as specified.

2. The combination of a lens, a lens-mount, a nut held against rotation by engagement with the lens, a bolt engaging said nut and retaining the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon a wing or clip of the mount, substantially as specified.

3. The combination of a lens, a lens-mount, a nut held against rotation, a bolt engaging said nut and retaining same in proper lateral relation to the lens, and a beveled lock-nut engaging said bolt and bearing upon a countersunk portion of a wing or clip of the mount, substantially as specified.

4. The combination of a lens, a lens-mount, a nut held against rotation by engagement with the lens, a bolt engaging said nut and retaining same in proper lateral relation to the lens, and a beveled lock-nut engaging said bolt and bearing upon a countersunk portion of a wing or clip of the mount, substantially as specified.

5. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation, a bolt bearing upon one of said clips and engaging the nut so as to retain the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon the other clip, substantially as specified.

6. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation by engagement with the lens, a bolt bearing upon one of said clips, and engaging the nut so as to retain the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon the other clip, substantially as specified.

7. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation, a bolt having a beveled head bearing upon a countersunk portion of one of said clips, said nut engaging the bolt and retaining the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon the other clip, substantially as specified.

8. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation by engagement with the lens, a bolt having a beveled head bearing upon a countersunk portion of one of said clips, said nut engaging the bolt and retaining the same in proper lateral relation to the lens, and a lock-nut engaging said bolt and bearing upon the other clip, substantially as specified.

9. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation, a bolt engaging said nut and retaining same in proper lateral relation to the lens, said bolt having a head bearing upon one of said clips, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

10. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation by engagement with the lens, a bolt engaging said nut and retaining the same in proper lateral relation to the lens, said bolt having a head bearing upon one of said clips, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

11. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation, a bolt engaging said nut and retaining same in proper lateral relation to the lens, said bolt having a beveled head bearing upon a countersunk portion of one of said clips, and a beveled lock-nut engaging said bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

12. The combination of a lens, a lens-mount having clips disposed one on each side of said lens, a nut held against rotation by engagement with the lens, a bolt engaging said nut and retaining same in proper lateral relation to the lens, said bolt having a beveled head bearing upon a countersunk portion of one of said clips, and a beveled lock-nut engaging said bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

13. The combination of a lens having an opening therein, a lens-mount having a clip with nut thereon which enters said opening, a bolt engaging said nut and retaining same in proper lateral relation to the lens, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the clip, substantially as specified.

14. The combination of a lens having an opening therein, a lens-mount having a clip with nut thereon which enters said opening and is held against rotation by engagement with the lens, a bolt engaging said nut and retaining same in proper lateral relation to the lens, and a lock-nut engaging the bolt and bearing upon the clip, substantially as specified.

15. The combination of a lens having an opening therein, a lens-mount having a clip with nut thereon which enters said opening and is held against rotation by engagement with the lens, a bolt engaging said nut and retaining same in proper lateral relation to the lens, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the clip, substantially as specified.

16. The combination of a lens having an opening therein, a lens-mount having clips on opposite sides of the lens, one of said clips having a boss projecting into the opening in the lens, a nut also contained in said opening and held against rotation by engagement with the lens, a bolt engaging said nut and having a beveled head bearing upon a countersunk portion of the clip which carries the boss, and a lock-nut also engaging the bolt and bearing upon the opposite clip, substantially as specified.

17. The combination of a lens having an opening therein, a lens-mount having clips on opposite sides of the lens, one of said clips having a boss entering the opening in the lens, a nut also contained in said opening and held against rotation by engagement with the lens, a bolt engaging said nut and having a beveled head bearing upon a countersunk portion of the clip which carries the boss, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the opposite clip, substantially as specified.

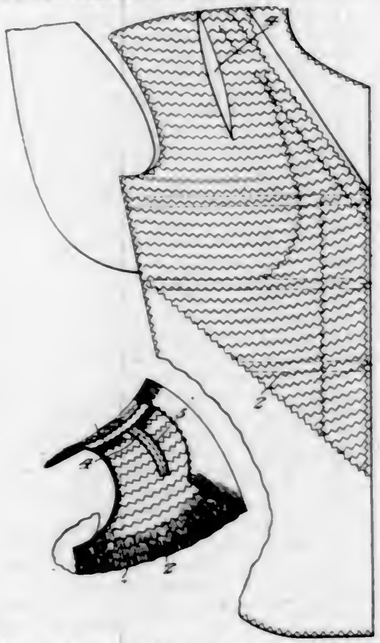
18. The combination of a lens having an opening therein, a lens-mount having clips on opposite sides of the lens, one of said clips having a boss which enters the opening in the lens, and the other clip having a nut which also enters said opening, a bolt engaging said nut and having a beveled head which bears upon the countersunk portion of the clip carrying the boss, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

19. The combination of a lens having an opening therein, a lens-mount having clips on opposite sides of the lens, one of said clips having a boss entering the opening in the lens, and the other clip

having a nut also entering said opening and held against rotation by engagement with the lens, a bolt engaging said nut and having a beveled head bearing upon a countersunk portion of the clip which carries the boss, and a beveled lock-nut engaging the bolt and bearing upon a countersunk portion of the other clip, substantially as specified.

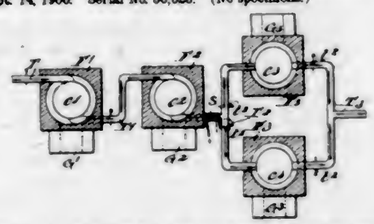
20. A lens for spectacles or eyeglasses having therein an opening for the reception of a nut, said opening being shaped to prevent the turning of the nut therein about its axis, substantially as specified.

751,940. COAT. HENRY QUARNSHER, Baltimore, Md. Filed July 1, 1903. Serial No. 163,932. (No model.)



Claim.—A shoulder-pad for coats concave in one direction and convex along a line extending at right angles through the concaved portion, said pad having a slot therein provided with reversely-curved edges intersecting each other at the ends and extending longitudinally of the convexed portion, a stay extending longitudinally of the convexed portion and securing the edges of the slot whereby the transversely-extending concaved surface is produced, and a second stay secured longitudinally upon the concaved face of the pad and at right angles to the first-mentioned stay.

751,941. PROCESS OF MAKING SULFURIC ANHYDRID. EMILE RAYNAUD, Spy, and LÉON PIERRON, Jette St. Pierre, Belgium. Filed Sept. 14, 1900. Serial No. 30,023. (No specimens.)



Claim.—1. A process for the manufacture of sulfuric anhydrid by means of vehicles of contact of uniform catalytic action consisting in causing the gaseous mixture of sulfurous acid and oxygen at a temperature below the reaction temperature to come in contact, at first with a set of vehicles of contact at a comparatively low temperature, then with another set of vehicles of contact at a higher temperature and lastly with a further set of vehicles of contact again at a lower temperature.

2. A process for the manufacture of sulfuric anhydrid by means of vehicles of contact of uniform catalytic action consisting in causing the gaseous mixture of sulfurous acid and oxygen to come in contact with a first set of the said vehicles of contact at a comparatively low temperature for promoting partial combination of the said gases, then causing the partially-combined gases to come in contact with a further set of the said vehicles of contact at a higher temperature sufficient to complete the said combination and even to cause partial dissociation of the anhydrid formed and lastly causing the gases to come in contact with a still further set of the said vehicles of contact again at a lower temperature for causing recombination of the gases that may have become dissociated by the action of the second set of vehicles of contact.

751,942. CRUTCH. JOHN A. REEDO, Sumter, S. C. Filed Nov. 30, 1903. Serial No. 183,206. (No model.)



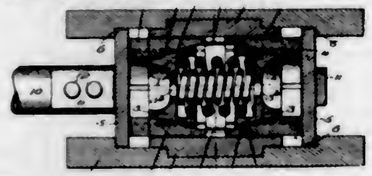
Claim.—1. The combination with a crutch-frame having apertures therein, and apertured plates secured to the frame; of a handle adjustably connected to the frame, a shelf adjustably connected to the frame, and a supporting-arm depending from the shelf and secured to the frame.

2. The combination with a crutch-frame having apertures therein; of a handle extending laterally from the frame and adjustably secured to the apertured portion thereof, a shelf arranged between and adjustably secured to the apertured portion of the frame, an arm depending therefrom, and means for adjustably connecting the arm to the frame.

3. The combination with a crutch-frame having an apertured portion, and plates secured to the frame having apertures registering with the apertures in the frame; of a block within the frame, a securing device extending therethrough and through the apertures, shoulders integral with the block and bearing upon the frame, arms extending from the block, a grip secured thereto, and a shelf adjustably connected to the frame.

4. The combination with a crutch-frame having apertures therein, and plates secured to the frame and having apertures registering with the apertures in the frame; of a handle adjustably secured to the frame, a shelf extending from the frame, a securing device extending through the shelf and apertures, a cross-strip pivotally mounted within the frame, an arm depending from the shelf and adjustably mounted in the cross-strip, and means for securing the arm in the cross-strip.

751,943. FRICTION DRAFT-GEAR. GILBERT P. RITTER, Chicago, Ill. Filed July 11, 1902. Serial No. 115,179. (No model.)



Claim.—1. In a friction draft-gear, the combination with a centrally-disposed spring, of relatively movable spring-abutments adapted to transmit pressure to coacting friction elements said abutments constantly and immovably seated upon friction elements external thereto, a plurality of friction elements, and means for inducing relative movement of said friction elements, substantially as and for the purposes specified.

2. In a friction draft-gear, the combination with an interposed resilient medium arranged to induce pressure between coacting friction elements, of relatively movable spring-abutments having inclined faces constantly and immovably seated upon correspondingly-inclined faces of friction elements external to said abutments, a plurality of friction elements, and means for inducing a relative movement of said friction elements, substantially as and for the purposes specified.

3. In a friction draft-gear, the combination with an interposed resilient medium arranged to induce pressure between coacting friction elements, of abutments for said resilient medium said abutments having inclined faces constantly and immovably seated upon corresponding faces of relatively movable friction elements, a load-transmission element, and relatively movable friction elements having friction-faces parallel to the line of draft, substantially as and for the purposes specified.

4. In a friction draft-gear, the combination with a coacting friction element, of a plurality of yieldingly-supported spring-abutments having inclined faces, a plurality of friction elements movable toward and from each other and having inclined faces upon which the said spring-abutments are constantly and immovably seated, and an interposed spring acting upon said spring-abutments, substantially as and for the purposes specified.

5. In a friction draft-gear, the combination with a coacting friction element, of yieldingly-supported spring-abutments capable of transmitting pressure to the coacting friction elements, a plurality of friction elements movable toward and from each other and having seats upon which the said spring-abutments are constantly and immovably seated, and an interposed spring acting upon said spring-abutments, substantially as and for the purposes specified.

6. In a friction draft-gear, the combination with a coacting friction element, of yieldingly-supported spring-abutments having inclined faces, a plurality of relatively movable friction elements having friction-faces parallel to the line of draft and inclined faces upon which the said spring-abutments are constantly and immovably seated, and a spring arranged to induce pressure between the coacting friction elements and interposed between said spring-abutments, substantially as and for the purposes specified.

7. In a friction draft-gear, the combination with an interposed spring arranged to induce pressure between coacting friction elements, of a plurality of spring-abutments having inclined faces, a plurality of friction elements having correspondingly-inclined faces upon which the said spring-abutments are constantly and immovably seated, a coacting friction element, and means for actuating said spring, substantially as and for the purposes specified.

8. In a friction draft-gear, the combination with an interposed spring arranged to induce pressure between coacting friction elements, of a plurality of oppositely-disposed spring-blocks having inclined faces, a plurality of friction elements having friction-faces parallel to the line of applied force and inclined faces upon which the said spring-blocks are constantly and immovably seated, a coacting friction element, and means for causing relative movement of the coacting friction elements, substantially as and for the purposes specified.

9. In a friction draft-gear, the combination with a coacting friction element, of a plurality of yieldingly-supported blocks having inclined faces, a plurality of relatively movable friction elements having correspondingly-inclined faces upon which the said blocks are constantly and immovably seated, and a yielding resistance element interposed between said blocks and compressible by the movement of the relatively movable friction elements, substantially as and for the purposes specified.

10. In a friction draft-gear, the combination with coacting friction elements, some of said elements being relatively movable and having a plurality of oppositely-disposed inclined seats, of a plurality of blocks having correspondingly-inclined seats constantly and immovably seated thereon, and means for inducing pressure between said inclined seats, substantially as and for the purposes specified.

11. In a friction draft-gear, the combination with a centrally-located spring, of oppositely-disposed inclined spring-abutments constantly and immovably seated upon correspondingly-inclined faces of relatively movable friction elements, relatively movable friction elements having inclined faces, a friction element coacting with said friction elements having inclined faces, and means for causing relative movement of the coacting friction elements, substantially as and for the purposes specified.

12. In a friction draft-gear, the combination with a centrally-located spring, of oppositely-disposed spring-abutments adapted to transmit pressure to the coacting friction elements said abutments constantly and immovably seated upon corresponding faces of relatively movable friction elements, relatively movable friction elements having friction-faces parallel to the line of applied force, a friction element coacting with said relatively movable friction elements, and means for causing a relative movement of the coacting friction elements, substantially as and for the purposes specified.

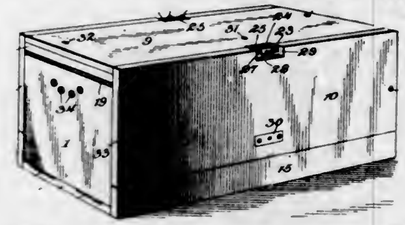
13. In a friction draft-gear, the combination with a load-transmission element, of including and included friction elements having contacting friction-faces parallel with each other and with the line of movement of said elements, said including and included elements being relatively movable with a displacement equal to the travel of the transmission element, and a spring-supported inclined seat for the included elements whereby a variable frictional resistance proportionate to the load on the transmission element is developed, substantially as and for the purposes specified.

14. In a friction draft-gear, the combination with a centrally-located spring and an external coacting friction element, of the orderly arrangement in alinement from both ends toward the center of the following members, to wit; a follower, a plurality of friction elements having friction-faces parallel to the line of draft and faces inclined thereto to form seats for correspondingly-inclined spring-abutments, and a spring-abutment for the centrally-located spring said abutment having inclined faces, substantially as and for the purposes specified.

15. In a friction draft-gear, the combination with a casing, of an included yoke, and friction elements which coact with the casing, substantially as and for the purposes specified.

16. In a friction draft-gear, the combination with an interposed spring, of friction-followers comprised of a plurality of parts having inclined contacting faces relatively at rest with respect to each other some of said parts of said friction-followers having friction-faces parallel to their line of motion and acting as friction elements, and coacting friction elements also having friction-faces parallel to the line of motion of said friction-followers, substantially as and for the purposes specified.

751,944. FOLDING BOX OR CRATE. CHARLES H. RUSSELL, Manistee, Mich. Filed Dec. 17, 1902. Serial No. 135,607. (No model.)



Claim.—1. A box or crate comprising a bottom, ends hinged to the bottom and arranged to fold downwardly upon the same to form end spaces or recesses, a removable lid or cover provided with cleats arranged to fit in the said recesses to permit the cover to fit against the ends when the latter are folded, and folding sides extending above the ends to provide spaces for the cleats of the lid when the box or crate is set up, substantially as described.

2. A box or crate comprising a bottom, foldable ends connected with the bottom and spaced from the end edges of the same when folded to form end recesses, a lid or cover provided with depending cleats arranged to fit directly upon the bottom in the end recesses when the box or crate is folded, and folding sides extending above the ends to embrace the lid and to provide spaces for the cleats thereof when the box or crate is set up, substantially as described.

3. A box or crate comprising a bottom, ends hinged to the bottom at points offset from the end edges of the same, whereby end spaces or recesses are formed when the hinged ends are swung downwardly, a lid provided with depending cleats arranged to fit against the bottom in the end recesses when the box or crate is folded, and hinged sides arranged to fold upon the lid, substantially as described.

4. A box or crate comprising a bottom, hinged ends connected with the bottom, the pintles of the hinges being offset from the end edges of the bottom to form end spaces, a lid or cover provided with cleats projecting from the lower faces of the lid or cover and arranged to fit directly upon the bottom in the end recesses when the box or crate is folded, longitudinal bars secured to the bottom and projecting upwardly therefrom, and sides hinged to the longitudinal bars and arranged to fold, said sides being extended above the ends to provide spaces for the cleats of the lid or cover when the box or crate is set up, substantially as described.

5. A box or crate comprising a bottom, ends hinged to the bottom and having the pintles of their hinges offset from the end edges of the bottom to form end recesses when the parts are folded, a lid provided with depending cleats to fit directly upon the bottom in the end recesses when the box or crate is folded, hinged sides extending above the ends to embrace the lid and to provide spaces to receive the cleats thereof when the box or crate is set up, and means for detachably engaging the sides, ends and lid with one another, substantially as described.

6. A box or crate comprising a bottom, ends hinged to the bottom and spaced from the end edges thereof when folded and provided at their upper edges with lugs or projections, a lid having cleats to fit directly upon the bottom in the spaces at the ends thereof when the box or crate is folded, said cleats being also provided

with sockets to receive the said projections or lugs when the box or crate is set up, and foldable sides extending above the ends to provide spaces to receive the cleats of the lid when the box or crate is set up, substantially as described.

7. A box or crate comprising a bottom, ends hinged to the bottom and spaced from the end edges thereof when folded, a lid provided with depending cleats to fit directly upon the bottom in the spaces at the ends thereof when the box or crate is folded, hinged sides extending above the ends to provide spaces to receive the cleats of the lid when the crate or box is set up and provided with studs arranged to engage the ends at the interior of the box or crate, and means for securing the sides to the lid, substantially as described.

8. A box or crate comprising a bottom provided with recesses, foldable ends, hinges connecting the foldable ends to the bottom and having their leaves fitted in the recesses of the bottom, the pintles of the hinges being located at the inner faces of the ends to form end spaces when the parts are folded, a lid provided with cleats arranged to fit directly upon the bottom in the end spaces and provided with recesses to receive the adjacent leaves of the hinges, and foldable sides extending above the ends to provide spaces to receive the cleats of the lid when the box or crate is set up, substantially as described.

9. A box or crate comprising a bottom, foldable ends hinged to the bottom and spaced from the end edges thereof when folded to form end recesses, said ends being provided at their inner faces with recesses, hinged sides provided with projecting studs to fit in the said recesses, one of the sides being provided with depressions or sockets to receive the studs or projections of the other side when the parts are folded, and a lid having depending cleats and provided with depressions or sockets to receive the lugs of the adjacent side, substantially as described.

10. A box or crate comprising a bottom, ends hinged to the bottom, a removable lid detachably engaged with the ends and preventing the latter from swinging, hinged sides extending above the ends and embracing the side edges of the lid when the box or crate is set up and receiving the said lid between them, and fastening means detachably securing the sides to the lid, substantially as described.

11. A box or crate comprising a bottom, foldable ends, a removable lid detachably engaged with the ends and preventing the same from swinging, foldable sides extending above the ends and embracing the side edges of the lid and receiving the same between them when the box or crate is set up, said sides being provided with exterior recesses, and fastening devices arranged within the exterior recesses and detachably securing the sides of the lid, substantially as described.

12. A box or crate comprising a bottom, foldable ends, a removable lid detachably connected to the ends and preventing the same from swinging, foldable sides extending above the ends and embracing the side edges of the lid and receiving the same between them when the box or crate is set up, said sides being provided with exterior recesses, and screws detachably securing the sides to the lid and having heads arranged in the said recesses, substantially as described.

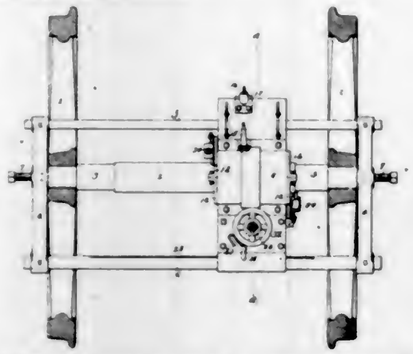
13. A box or crate comprising a bottom, foldable ends, a lid, foldable sides extending above the ends to embrace the lid and provided with screws detachably engaging the lid, and means carried by one of the sides for engagement with the screw of the other side, whereby the parts are locked when folded, substantially as described

14. A box or crate comprising a bottom, foldable ends spaced from the end edges of the bottom when folded, a lid having depending cleats to fit in the end spaces, foldable sides provided with fastening devices for engaging the lid, and means mounted on one of the sides for engagement with the locking device of the other side for securing the parts in their folded position, substantially as described.

751,945. DEVICE FOR TRUING JOURNALS OF LOCOMOTIVE DRIVING-WHEELS. HERBERT F. SCATCHARD and MICHAEL B. WATERS, Roanoke, Va. Filed Oct. 19, 1903. Serial No. 177,682. (No model.)

Claim.—1. The combination in a device for truing the journals of locomotive driving-wheels, of a frame, a cross-head mounted upon transverse rods of said frame, a separable tool-carrying sleeve rotatably mounted in said cross-head, and mechanism carried by the cross-head for rotating said sleeve, said mechanism having a projecting power-receiving spindle and an opposed support for a motor-casing, substantially as specified.

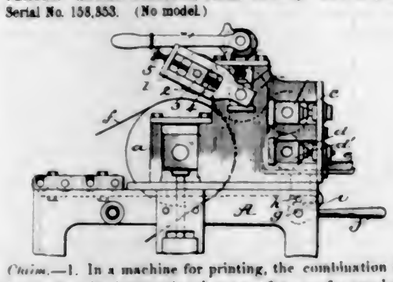
2. The combination in a device for truing the journals of locomotive driving-wheels, of a frame, a cross-head mounted upon transverse rods of said frame, a separable tool-carrying sleeve rotatably mounted in said cross-head, and mechanism for simultaneously rotating said sleeve and traversing the cross-head upon its supporting-rods, said mechanism comprising a combined worm and bevel wheel mounted on the sleeve, a power-receiving shaft with pinion engaging said bevel-wheel, a rack on one of the supporting-rods of the frame, and gearing interposed between the worm-wheel and said rack, substantially as specified.



3. The combination in a device for truing the journals of locomotive driving-wheels, of a frame, a cross-head mounted upon transverse rods of said frame, a separable tool-carrying sleeve rotatably mounted in said cross-head, and mechanism for simultaneously rotating said sleeve and traversing the cross-head upon its supporting-rods, said mechanism comprising a combined worm and bevel wheel mounted on the sleeve, a power-receiving shaft with pinion engaging said bevel-wheel, a rack on one of the supporting-rods, and gearing interposed between the worm-wheel and said rack, said gearing having as an element, a swinging frame carrying two spur-wheels either of which may, by movement of the frame, be caused to engage with the rack, substantially as specified.

4. The combination in a device for truing the journals of locomotive driving-wheels, of the supporting-frame, the cross-head, the tool-carrying sleeve, rotatably mounted therein, and having a worm thereon, a worm-wheel meshing with said worm, gearing driven by said worm-wheel, and a rack on one of the supporting-rods for the cross-head in mesh with said gearing, substantially as specified.

751,946. PRINTING BY MEANS OF ELASTIC ROLLERS OR PLATES. EDUARD SCHOENING, Berlin, Germany. Filed May 26, 1903. Serial No. 158,853. (No model.)



Claim.—1. In a machine for printing, the combination with a printing-surface having a color thereon, of means for producing a pattern in the color on said printing-surface, as set forth.

2. In a machine for printing, the combination with a printing-surface having a color thereon, of means for wholly or partially removing the color from portions of the printing-surface to produce a pattern in the color on said printing-surface, as set forth.

3. In a machine for printing, the combination with a printing-surface having a color thereon, of a pattern-surface contacting with the printing-surface and producing a pattern in the color on said printing-surface, as set forth.

4. In a machine for printing, the combination with a printing-roller having a color thereon, of a pattern-roller revolving in contact with the printing-roller, as set forth.

5. In a machine for printing, the combination with an elastic printing-roller having a color thereon, of a pattern-roller contacting with the printing-roller and driven thereby, as set forth.

6. In a machine for printing, the combination with a web-carrying roller, of an elastic printing-roller, means for applying color to the printing-roller, and a pattern-roller contacting with the printing-roller and producing a pattern in the color on the printing-roller, as set forth.

7. In a machine for printing, the combination with a printing-surface having a color thereon, of a pattern-surface contacting with the printing-surface and producing a pattern in the color on said printing-surface, and means for keeping the pattern-surface clean, as set forth.

8. In a machine for printing, the combination with a printing-surface having ink thereon, of a pattern-surface contacting with the printing-surface to produce a pattern on the printing-surface and to ink the pattern-surface, and means for printing by the aid of the printing and pattern surfaces, upon separate surfaces, as set forth.

9. In a machine for printing, the combination with a printing surface having a color thereon, of a pattern-surface contacting with the printing-surface and producing a pattern in the color on said printing-surface to be transferred to a web, and a surface between which and the pattern-surface a second web is adapted to be passed to receive the pattern from the pattern-surface, as set forth.

10. In a machine for printing, the combination with a printing-roller, having a color thereon, of a pattern-roller contacting with the printing-roller and producing a pattern thereon to be transferred to a web, and a roller between which and the pattern-roller a second web is adapted to be passed to receive the pattern from the pattern-roller, as set forth.

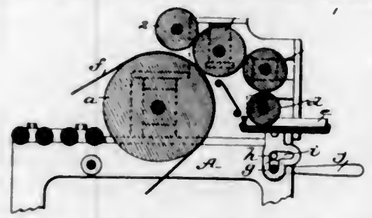
11. In a machine for printing, the combination with a paper-bearing roller, an elastic printing-roller, and means for applying color thereto, of a pattern-roller revolving in contact with the printing-roller, and driven therefrom, said pattern-roller producing a pattern in the color on the printing-roller to be transferred to a web, and a roller, between which and the pattern-roller a second web is adapted to be passed to receive the pattern from the pattern-roller, as set forth.

12. In a machine for printing, the combination with two web-bearing rollers, a printing-roller adjacent to one web-carrying roller, and means for applying color to the printing-roller, of a revoluble and yieldingly-mounted pattern-roller adjacent to the web-bearing rollers, and contacting with the printing-roller, as set forth.

13. In a machine for printing, the combination with a printing-roller, and means for applying color thereto, of a yieldingly and adjustably mounted pattern-roller contacting with the printing-roller as set forth.

14. In a machine for printing, the combination with a printing-roller, and means for applying color thereto, of a support adjacent to the printing-roller, a yieldingly-mounted pattern-roller in the support and contacting with the printing-roller and means for regulating the pressure of the pattern-roller on the printing-roller, as set forth.

751,947. METHOD OF PRINTING. EDUARD SCHOENING, Berlin, Germany. Filed Aug. 28, 1903. Serial No. 171,030. (No model.)



Claim.—1. The method herein described of printing, consisting in applying a color to a printing-surface, producing a pattern in the color on the printing-surface, and transferring the pattern thus produced to a sheet or other surface, as set forth.

2. The method herein described of printing, consisting in applying a color to a printing-surface, wholly or partially removing the color from portions of the printing-surface to produce a pattern in the color, and transferring the pattern thus produced to a sheet or other surface, as set forth.

3. The method herein described of printing, consisting in distributing a color over a printing-surface, redistributing the color thereon to produce in the color a pattern by contacting same with a corresponding pattern-surface, and transferring the pattern thus produced directly to a sheet or other surface, as set forth.

4. The method herein described of printing, consisting in applying a color to a printing-surface, producing a pattern in the color on the printing-surface and simultaneously therewith removing a portion of the color of the pattern produced, and transferring the pattern thus produced to a sheet or other surface, as set forth.

5. The method herein described of printing, consisting in applying a color to a printing-surface, subjecting the colored surface of the printing-surface to impressions of a pattern-surface to produce a pattern in the color on the printing-surface, and transferring the pattern thus produced to a sheet, web or the like, as set forth.

6. The method herein described of printing, consisting in applying a color to a printing-roller, producing in the color on the printing-roller a pattern, and transferring the pattern thus produced to another surface, as set forth.

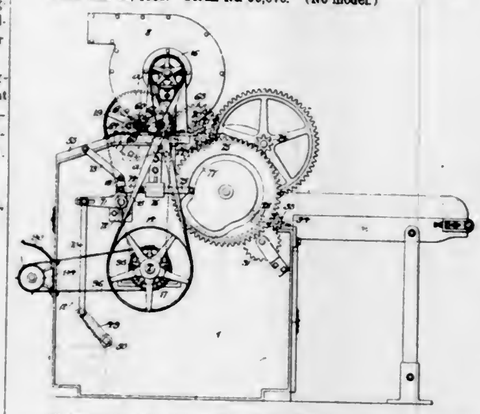
7. The method herein described of printing, consisting in applying a color to an elastic printing-roller, subjecting the colored surface of the printing-roller to impressions of a pattern-roller to partially remove the color from portions of the printing-roller to produce a pattern upon the same, and transferring the pattern thus produced on the printing-roller to a sheet, web or the like, as set forth.

8. The method herein described of printing, consisting in inking a printing-surface, applying a pattern-surface to the inked surface of the printing-surface to produce a pattern thereon and to ink the pattern-surface, and transferring the patterns upon the printing and pattern surfaces to separate surfaces, as set forth.

9. The method herein described of printing, consisting in applying a color to a printing-surface, applying a pattern-surface to said colored surface, whereby to ink the pattern-surface, and produce a pattern upon the printing-surface, and printing by the aid of the printing-surface and pattern-surface upon separate sheets, as set forth.

10. The method herein described of printing, consisting in applying ink to an elastic printing-roller, subjecting the inked surface of the printing-roller to impressions of a pattern-roller, whereby to ink the pattern-roller and produce a pattern on the printing-roller, and printing by the printing-roller and pattern-roller upon separate sheets or webs, as set forth.

751,948. WILLOW. CHARLES SCHOFIELD, Philadelphia, Pa. Filed Jan. 16, 1902. Serial No. 90,076. (No model.)



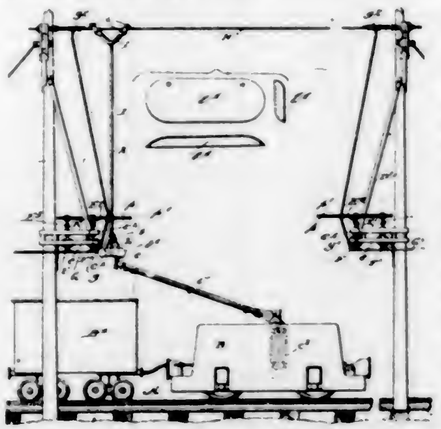
Claim.—1. The combination of the delivery valve or gate and the air-relief valve, with a bell-crank lever having arms connected to said valves, a bar connected to one of the arms of said bell-crank lever, and a grooved cam for reciprocating said bar, substantially as specified.

2. The combination of the delivery valve or gate of a willow, means for positively operating said gate to close the same, and an external fan for directing a current of air onto the upper edge of said gate as the same is being closed, substantially as specified.

751,949. ROAD-CROSSING DEVICE. FRANK L. SESSIONS, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Aug. 8, 1902. Serial No. 118,932. (No model.)

Claim.—1. In an electric railway, the combination of a traveling conductor, an auxiliary conductor connected with a source of electric power and movable with and separable from the traveling conductor, and an engaging device carried by said auxiliary con-

ductor for uniting said conductors, movable under excess of pressure relative to said auxiliary conductor to permit the separation of said conductors, and acting under less pressure to maintain the connection of said conductors during their travel, substantially as set forth.



2. In an electric railway, the combination of a car having a traveling conductor, an auxiliary conductor suspended from a point above the car, connected with a source of electric power and movable with and separable from the traveling conductor, and an engaging device carried by said auxiliary conductor for electrically uniting said conductors, said device being movable under excess of pressure relative to said auxiliary conductor to permit the separation of said conductors, and acting under less pressure to maintain their connection, substantially as set forth.

3. In an electric railway, the combination of an electric line conductor, a traveling conductor, an auxiliary conductor separable from and movable with the traveling conductor, and a yielding engaging device supported by said auxiliary conductor and adapted to maintain connection between said conductors until the pressure between them exceeds a fixed amount, substantially as set forth.

4. In an electric railway, the combination of a traveling conductor, an auxiliary conductor separable from and movable with the traveling conductor and adapted to receive and transmit electric power, and having an engaging device movable under excess of pressure between said conductors, and acting to connect and permit the separation of the same, and a spring controlling said engaging device yieldingly, substantially as set forth.

5. The combination of a traveling conductor, an auxiliary conductor, an engaging device carried by said auxiliary conductor normally held in place to cause the engagement of said conductors in either direction of movement of the traveling conductor, and movable relative to said auxiliary conductor under excess of pressure in either direction to permit the separation of said conductors, substantially as set forth.

6. In an electric railway, an auxiliary conductor suspended from and adapted to move along a current-supply conductor, and having a frame or casing adapted to receive the electric contact device of a traveling conductor on the car, and a spring-controlled engaging device in said casing adapted to engage with said electric contact device on the car, substantially as set forth.

7. In an electric railway, an auxiliary conductor adapted to move along a line conductor, and having a frame or casing adapted to receive the trolley-wheel of a traveling conductor, and a spring-controlled engaging device in said casing adapted to be engaged by such wheel.

8. In an electric railway, the combination of a line conductor having an elevated portion, an auxiliary conductor suspended from and movable along said elevated portion and a yielding device carried by said auxiliary conductor adapted to engage the trolley-wheel of a traveling conductor, substantially as set forth.

9. In an electric railway, an auxiliary conductor adapted to move along a current-supply conductor, said auxiliary conductor having an engaging device adapted to engage with the electrical contact device of a traveling conductor on a car, and a casing la, open at its ends for receiving and guiding said contact device into engagement with said engaging device on the auxiliary conductor, substantially as set forth.

10. In an electric railway, an auxiliary conductor adapted to move along the line conductor and having a spring-controlled engaging device adapted to engage with the contact device of the traveling conductor, and a flexible conductor 0 electrically connecting the engaging device with the auxiliary conductor.

11. In an electric railway, the combination of the current-supply conductor having relatively low sections and a relatively high section, a supplemental conductor adapted to move in electrical engagement with said elevated section, the car, the vertically-swinging electrical contact device on the car adapted to move in engagement with the relatively low sections of the current-conductor, means for maintaining said engagement, and a yielding engaging device on the supplemental conductor adapted to maintain electrical contact between the supplemental conductor and the contact device on the car until the pressure between them exceeds a predetermined amount substantially as set forth.

12. In an electric railway, the combination of the car, the electrical contact device on the car, the supplemental conductor adapted to move longitudinally of the electrical-supply conductor, and the pivoted spring-controlled engaging device adapted to electrically connect said supplemental conductor with the contact device on the car and to permit their separation under excess of pressure between them, substantially as set forth.

13. In an electric railway, the combination of the current-supply conductor having relatively low sections and a relatively high section, the car, the yielding contact device thereon, an auxiliary conductor movable along the current-supply conductor, and a yielding engaging device carried by said auxiliary conductor, and adapted to engage with the contact device on the car, substantially as set forth.

751,950. DENTAL MOUTH-MIRROR. WARREN M. SHARP, Binghamton, N. Y. Filed May 2, 1902. Renewed July 17, 1903. Serial No. 166,048. (No model.)



Claim.—1. The combination with a silvered mirror of a thin sheet of gutta-percha adhering positively to the silvered surface, substantially as described.

2. The combination with a silvered mirror, of a thin sheet of gutta-percha adhering positively to the edges and silvered surface of said mirror to keep moisture from gaining access to said silvered surface, substantially as described.

3. In a dental mirror, the combination with a frame, of a mirror, a covering for the silvered back and sides of said mirror which cover is impervious to moisture and positively adheres to the said silvered back and sides of said mirror, substantially as described.

4. In a dental mirror, the combination with a frame, of an elastic disk impervious to moisture mounted in said frame, a silvered mirror mounted in said frame with the edges of said elastic disk intervening between the edges of the disk and the frame to prevent the access of moisture to the silvered surface of said mirror, substantially as described.

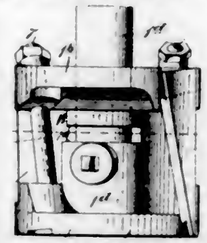
751,951. RAIL-JOINT. WILLARD S. SHILLING, New Concord, Ohio. Filed Aug. 31, 1903. Serial No. 171,391. (No model.)



Claim.—1. The herein-described securing device for the abutted ends of track-rails comprising the combination with the track-rails having suitable apertures in the webs thereof, of complementary fish-plates each provided with an inwardly-directed extension adapted to pass through said apertures and engage or interlock with each other and suitable means comprising a hook-like member carried by one plate and a threaded bolt extension carried by the other plate to hold them in operative combination substantially as specified and for the purpose set forth.

2. The herein-described securing device for the abutted ends of track-rails comprising the combination with the track-rails having suitable apertures in the webs thereof, of complementary fish-plates, one of which is provided with an angular arm and its opposite end with a hook-like extension, while the other plate is provided at one end with an angular arm and at its opposite end with a threaded bolt extension adapted to enter an orifice in the first-mentioned plate and receive a nut, whereby said plates and rails will be locked together when assembled, as set forth.

751,952. ROTARY CUTTER-HEAD. ELMER S. SHIMER, Milton, Pa. Filed July 20, 1903. Serial No. 166,342. (No model.)



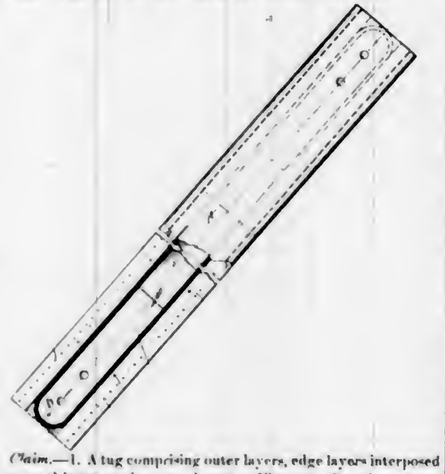
Claim.—1. A cutter-head knife having upon its back portion, near the ends, segmental shoulders or offsets, said shoulders or offsets being arranged in diagonal planes, and engaging corresponding shoulders upon the cutter-head, and adapted to allow said knife to extend the full length of said head, and means to hold said knife in operative position.

2. A cutter-head having segmental seats opening therethrough and having shoulders arranged in diagonal planes around said seats, and a segmental cutter having upon its back portion, near the ends, corresponding shoulders, also arranged in diagonal planes and engaging the aforesaid shoulders, said cutter being arranged in said seats, permitting it to extend the full length of said cutter-head, and means to retain said cutter in said head for effective action.

3. A cutter-head having its flanges provided with semicircular openings or seats and with shoulders around said seats or openings, and a knife or bit having its inner semicylindrical surface forming the cutting edge, and its exterior convex surface provided near the ends thereof with shoulders engaging the aforesaid openings and shoulders of said flanges, respectively.

4. A cutter-head having its flanges provided with semicircular openings or seats, and with shoulders around said seats or openings, and a semicylindrical cutter or bit having its plain inner surface adapted to serve as the cutting edge, and whose end portions are of less cross-sectional area or thinner than its central body portion thus forming shoulders, said thin end portions and shoulders interlocking with the shoulders and seats of said flanges.

751,953. HARNESS-TUG. SAMUEL B. SHUSTER, New Concord, Ohio. Filed Nov. 12, 1903. Serial No. 180,863. (No model.)



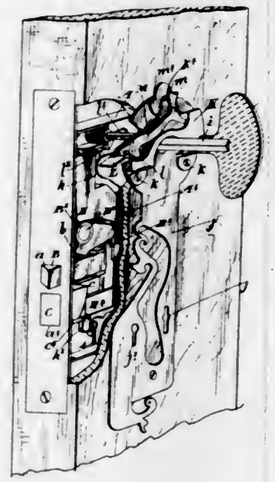
Claim.—1. A tug comprising outer layers, edge layers interposed and secured between the outer layers, a filler extending throughout the length of the tug and having end portions secured between the end portions of said outer layers, and a loop secured between the outer layers, and having longitudinal stretches disposed between the adjoining longitudinal edges of the edge layers and the filler, and also having bights extending around the end portions of the filler.

2. A tug comprising outer layers, a filler having end portions secured between the end portions of the outer layers; said filler being formed of scraps of leather, and a loop secured between the outer layers, and having bights surrounding the end portions of the filler.

3. A tug comprising outer layers, a filler having end portions secured between the end portions of the outer layers; said filler being made up of portions, having beveled meeting ends, and a loop, secured between the outer layers and surrounding the filler and having bights extending around the ends of the filler.

4. A tug comprising outer layers, edge layers, interposed and secured between the outer layers, a filler having end portions secured between the end portions of the outer layers; said filler being made up of portions, having beveled meeting ends, and a loop, having longitudinal stretches disposed between the adjoining edges of the edge layers and the filler, and also having bights extending around the end portions of the filler.

751,954. GRAVITY-LOCK. PERCY V. SIMMONDS, Toronto, Canada, assignor of one-half to John O'Connor, Toronto, Canada. Filed Mar. 30, 1903. Serial No. 150,330. (No model.)



Claim.—1. In a door-lock the combination with the casing of a gravity-weight, a latch-bolt having connections with the weight whereby vertical movement of the weight reciprocates the latch, an inner vertically-sliding case having a projection adapted to lift said weight, a knob-spindle having a follower adapted to lift said inner case and operate the weight and latch-bolt, means for locking said inner case against movement, and key-operated means for lifting the gravity-weight independent of the inner case.

2. In a door-lock, the combination with the casing, of a gravity-weight provided with a shank, a latch-bolt extending through the orifice in the edge plate provided with a recess, the bell-crank having one end extending into the recess in the latch-bolt and the other end pivotally connected to the shank, an inner case provided with an upper projection and a lower projection designed to come in contact with the bottom of the shank of the latch gravity-weight, the door handle or knob, the shank thereof and the knob-follower designed to come in contact with the projection at the top of the inner case as and for the purpose specified.

3. In a door-lock, the combination with the casing, of a gravity-weight provided with a shank, a latch-bolt extending through the orifice in the edge plate provided with a recess, the bell-crank having one end extending into the recess in the latch-bolt and the other end pivotally connected to the shank, an inner case provided with an upper projection and a lower projection designed to come in contact with the bottom of the shank of the latch gravity-weight, a depending projection from such latter projection, which the key is so formed as to pass, and a depending projection from the bottom of the gravity-weight shank designed to be engaged by the latch-key, so as to raise the gravity-weight and withdraw the latch as and for the purpose specified.

4. In a door-lock, the combination with the casing, of a grav-

ity-weight provided with a shank, a latch-bolt extending through the orifice in the edge plate provided with a recess, the bell-crank having one end extending into the recess in the latch-bolt and the other end pivotally connected to the shank, an inner case provided with an upper projection and a lower projection designed to come in contact with the bottom of the shank of the latch gravity-weight, the door handle or knob, the shank thereof and the knob-follower designed to come in contact with the projection at the top of the inner case, a thumb-lever provided with a shank, a follower secured to the inner end of the shank within the casing and designed to be brought over the projection at the top of the inner case as and for the purpose specified.

5. In a door-lock, the combination with the casing, of a gravity-weight provided with a shank, a latch-bolt extending through the orifice in the edge plate provided with a recess, the bell-crank having one end extending into the recess in the latch-bolt and the other end pivotally connected to the shank, an inner case provided with an upper projection and a lower projection designed to come in contact with the bottom of the shank of the latch gravity-weight, the door handle or knob, the shank thereof and the knob-follower designed to come in contact with the projection at the top of the inner case, a thumb-lever provided with a shank, a follower secured to the inner end of the shank within the casing and designed to be brought over the projection at the top of the inner case, a pin extending outwardly from the inner door-plate of the lock, and a pawl pivotally connected to the thumb-lever at one end and provided with a recess and tongue at the other end as and for the purpose specified.

6. In a door-lock, the combination with the case and inner case, of the bolt extending through an orifice on the edge plate and provided with a thin inner end extending underneath the shank of the latch gravity-weight, the inner case, the lever pivoted on the inner case and provided with a notched lower end, the pin connecting the lever to the thin inner end of the bolt, the bolt gravity or slide weight provided with an intermediate recess with two notches into one or the other of which the pin on the lower end of the bolt extends, and the bottom recess having arc-shaped sides and an arc-shaped top designed to be engaged by the web of the key to raise the bolt gravity or sliding weight and engage with the notched bottom end of the lever to move the bolt and transfer the pin on the inner end of the bolt from one notch in the intermediate recess to the other, as and for the purpose specified.

7. In a door-lock, the combination with the case and inner case, of the bolt extending through an orifice on the edge plate and provided with a thin inner end extending underneath the shank of the latch gravity-weight, the inner case, the lever pivoted on the inner case and provided with a notched lower end, the pin connecting the lever to the thin inner end of the bolt, the bolt gravity or slide weight provided with an intermediate recess with two notches into one or the other of which the pin on the inner end of the bolt extends, and means operated by the key for raising the bolt gravity or slide weight as and for the purpose specified.

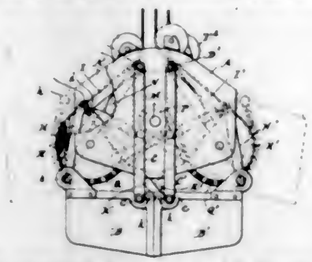
8. In a door-lock, the combination with the casing of a gravity-weight, a latch-bolt connected therewith so as to be operated by movement of the weight, a knob-spindle, means whereby the rotation of said knob-spindle raises said weight to operate the bolt, and a thumb-lever having means for preventing the rotation of the knob-spindle, means being also provided whereby said thumb-lever may be operated to open the latch-bolt without releasing the knob.

9. In a door-lock, the combination with the latch and latch gravity-weight suitably connected thereto, and the projection formed at the upper end of the latch gravity-weight, of the thumb-lever, the shank thereof, the thumb-lever follower, and the coacting pawl and pin with which the same is designed to engage all arranged as shown and for the purpose specified.

751,955. CLAM-SHELL BUCKET. JOHN C. SLOCUM, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed July 13, 1903. Serial No. 165,381. (No model.)

Claim.—1. The combination of the frame, the two oppositely-arranged scoops or buckets, the principal link or arm for the front of each bucket, the secondary link for each bucket, the heel-link pivoted to the frame and to the secondary link, and the link or bar pivotally connected to the secondary link of one bucket and pivoted to the body of the opposite bucket independently of the principal links, substantially as set forth.

2. The combination of the frame, the two oppositely-arranged scoops or buckets, the principal links for the front ends of the buckets, the secondary links pivoted to the frame, the heel-links connecting the buckets respectively to the secondary links, and the thrust links respectively connected to the secondary link of one bucket and pivotally connected to the opposite bucket independently of the principal links and of the heel-links, substantially as set forth.



3. The combination of the frame, the two oppositely-arranged scoops or buckets, the principal links for the front ends of the buckets, respectively, the links suspending the heels of the buckets, the stationary pivots connecting the heel-suspending links to the frame, and the thrust-links each pivotally connected to a bucket independently of the principal links and each pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth.

4. The combination of the frame, the two oppositely-arranged scoops or buckets, the two principal links or suspending-bars for the front ends of the buckets, respectively, pivotally connected to the frame independently of each other, the secondary links pivoted to the frame by stationary hinges at the axes of the principal links, the heel-links respectively connected to the secondary links, and the thrust-links each pivoted to a bucket independently of the principal links and pivotally connected to the secondary link and heel-link of the opposite bucket and adapted to thrust the last said links outward as the heel of their bucket moves down, substantially as set forth.

5. The combination of the frame the two oppositely-arranged scoops or buckets, the power mechanism, the winding chains or ropes each connected to the heel of a bucket, the guide-wheels for the chains or ropes, the principal links or arms for the front ends of the buckets, the heel-suspending links pivotally connected to the frame by stationary hinges, and the thrust links each pivotally connected to a bucket and pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth.

6. The combination of the frame, the power mechanism in the frame, the winding ropes or chains actuated by the power mechanism, the guide-wheels for the winding-chains, the two oppositely-arranged scoops or buckets supported independently of the said guide-wheels, the principal links or arms pivoted to the frame and suspending the front ends of the buckets, the heel-suspending links, and the thrust-links one for each bucket and adapted to thrust the heel-suspending links outward as the bucket is moved inward, substantially as set forth.

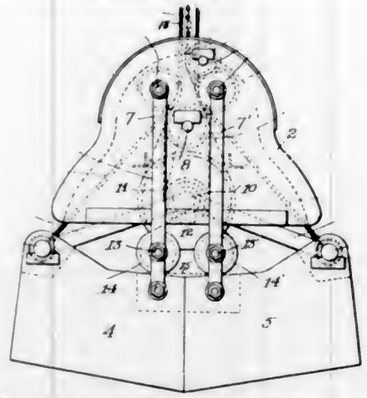
7. The combination of the frame, the power mechanism mounted in the frame, the winding ropes or chains actuated by the power mechanism, the guide-wheels for said winding-chains mounted on stationary axes in the frame, the two oppositely-arranged scoops or buckets supported independently of the said guide-wheels, the principal links or arms for the front ends of the buckets, the heel-suspending links supported at the axes of the principal arms, respectively, and the thrust-links each connected to a bucket and pivotally connected to the heel-suspending links of the opposite bucket, substantially as set forth.

751,956. CLAM-SHELL BUCKET. JOHN C. SLOCUM, Columbus, Ohio, assignor to Joseph A. Jeffrey, Columbus, Ohio. Filed Dec. 19, 1903. Serial No. 185,788. (No model.)

Claim.—1. The combination of the frame, two oppositely-arranged scoops or buckets, the links connecting the buckets with the frame, the shaft adapted to move up and down relative to the frame and means connecting said shaft with both the heel and front ends of each bucket and adapted to impart a thrust upon the heel ends and a pull upon the front ends as the shaft is raised relative to the frame to close the buckets, substantially as set forth.

2. The combination of the frame, two oppositely-arranged buckets supported therefrom, the shaft for controlling the closing of the buckets, adapted to move up and down relative to the frame, and means connecting said shaft both with the heel and front ends of each bucket and adapted to impart a thrust upon the heel ends and a pull upon the front ends of the buckets as said shaft is drawn upward relative to the frame, substantially as set forth.

3. The combination of the frame, two oppositely-arranged buckets supported therefrom, the shaft for controlling the closing of said buckets and adapted to move up and down relative to said frame, the links connecting the said shaft with the heel end of each bucket, and winding chains or ropes connecting said shaft with the front end of each bucket, substantially as set forth.



4. The combination of the frame, the oppositely-arranged scoops or buckets, the shaft for controlling the closing of said buckets adapted to move up and down relative to the frame and to rotate about its axis during said movement, means connecting said shaft with the heel end of each bucket to impart a thrust thereto as the shaft is drawn upward relative to the frame, and means connecting said shaft with the front end of each bucket adapted to pull them together as the shaft is drawn upward relative to the frame, substantially as set forth

5. The combination of the frame, the two oppositely-arranged buckets supported therefrom, the shaft for controlling the closing movements of the buckets arranged to move up and down relative to the frame and to rotate about its axis during such movement, means connecting said shaft with the heel end of each bucket adapted to impart a thrust thereto as the shaft is moved upward relative to the frame, winding chains or ropes connecting said shaft with the front end of each bucket and adapted to be wound up on the shaft and to pull the front ends of the bucket together as said shaft is moved upward relative to the frame, substantially as set forth.

6. The combination of the frame, the two oppositely-arranged scoops or buckets, the supporting-links for each bucket, the shaft for controlling the closing movement of the buckets adapted to move up and down relative to the said frame, the supporting-shaft for the said bucket-closing shaft, means connecting said bucket-closing shaft with the heel end of each bucket, and means connecting said shaft with the front end of each bucket, substantially as set forth.

7. The combination of the frame, the two oppositely-arranged buckets or scoops, the principal links for supporting said scoops or buckets from the frame, the shaft for controlling the closing movements of the buckets adapted to move up and down relative to the frame, means connecting said shaft with the heel end of each bucket and means connecting said shaft with said bucket-supporting links at points near the front ends of the buckets, substantially as set forth.

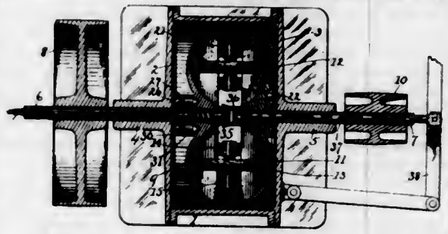
8. The combination of the frame, the two oppositely-arranged scoops or buckets, the links supporting said scoops or buckets from the frame, the shaft for controlling the closing movements of the buckets arranged to move up and down relative to the frame, the shaft mounted in said frame and adapted to support said bucket-closing shaft, the thrust-links connecting said bucket-closing shaft with the heel end of each bucket, and the winding chains or ropes connecting the said bucket-closing shaft with the said supporting-links for the buckets at points near the front ends of the said buckets, substantially as set forth.

751,957. CATTLE-GUARD. JOSEPH SNEIDER, Buckley, Wash. Filed Oct. 31, 1903. Serial No. 179,342. (No model.)

Claim.—The herein-described cattle-guard comprising a plurality of bars 3 arranged in sections and normally resting in an oblique plane relative to the plane of the trackway, the ends of said bars being attached to suitable plates, one end of each outer section of bars having downwardly-directed and obliquely-disposed extensions 13 attached to one of said plates, in combination with an anchoring member 9 having suitable end and side flanges and a rib-section 8 upon its upper surface, to which two of said plates may be removably attached, as set forth.



751,958. VARIABLE-SPEED DEVICE. IRA H. SPENCER, Hartford, Conn. Filed Sept. 12, 1902. Serial No. 123,160. (No model.)



Claim.—1. A driving-disk, a driven disk, an intermediate friction drive member, means for tilting the axis of said friction drive member, said means reacting through self-induced action of the driving parts to retain the friction drive member in predetermined positions.

2. A driving-disk, a driven disk, an intermediate friction drive member, a tilting frame supporting said friction drive member and means for tilting the frame, said means including mechanism which cooperating with the self-induced action of the driving members will move said friction drive member to and retain it in predetermined positions.

3. A driving-disk, a driven disk, an intermediate friction drive member and means for tilting the axis of said intermediate drive member while the parts are in motion, said means including mechanism cooperating with the self-induced action of the driving member whereby said driving member assumes and retains predetermined positions with reference to the driving and driven disks.

4. A driving-disk, a driven disk, a friction drive member supported between said disks, means for tilting the axis of said disk, and means for causing said disk to assume and retain a predetermined position with its plane of rotation tangent to a circle described by the point of contact of the disk with the drive member in the rotation of the latter.

5. A driving-disk, a driven disk, a friction drive member supported between said disks, means for tilting the axis of the drive member and self-actuated means for positioning said drive member, means for controlling the movement of said drive member whereby it will assume a predetermined position tangent to a circle described by the point of contact of the driving member with the disk in the rotation of the latter.

6. A driving-disk, a driven disk, a tilting frame located between said disks, an intermediate friction drive member supported on said tilting frame, means for tilting the frame, and means for holding the frame in position with the plane of rotation of the friction drive member tangent to the circle described by the point of contact of said member with the driving-disk in the rotation of the latter, said means coacting with the driving action of the members to return the frame to a normal position.

7. A driving-disk, a driven disk, a tilting frame located between said disks, means for tilting the frame and self-actuated means for controlling the movements of the frame whereby it will assume a position with the plane of rotation of the drive member tangent to a circle described by the point of contact of said drive member with the driving-disk in the rotation of the latter.

8. A driving-disk, a driven disk, a shaft supporting a tilting bar, the bar mounted on said shaft and intermediate friction drive member supported by said bar and means for tilting said bar, said means including mechanism which coöperates with the self-induced action of the intermediate drive member and controls the movement of the tilting bar whereby it will assume a predetermined position with the plane of rotation of the friction drive member tangent to the circle described by the point of contact of the said friction member with the driving-disk in the rotation of the latter.

9. A driving-disk, a driven disk, a friction drive member supported between said disks, and a cam arranged to tilt the axis of the friction drive member.

10. A driving-disk, a driven disk, a friction drive member supported between said disks, and a cam for tilting the axis of said friction drive member and for causing it to assume a position with its plane of rotation tangent to the circle described by its point of contact with the driving-disk in the rotation of the latter.

11. A driving-disk, a driven disk, a tilting frame supported between said disks, a friction drive member supported on the tilting frame, and a cam for tilting said frame and for controlling the movement of the frame whereby it will through self-induced action assume a position with the plane of rotation of the friction drive member tangent to a circle described by the point of contact of the drive member with the driving-disk in the rotation of the latter

12. A driving-disk, a driven disk, a tilting bar supported between said disks, a friction drive member supported by said tilting bar and a cam engaging said bar on the opposite sides of its pivotal support.

13. A driving-disk, a driven disk, a tilting bar, a friction drive member supported by the tilting bar between said disks, and a cam engaging said bar on opposite sides of its pivotal support and arranged to control its movement whereby it will through self-induced action assume a position with the plane of rotation of the drive member tangent to a circle described by the point of contact of said drive member with the driving-disk in the rotation of the latter.

14. In a change-speed mechanism in combination, a driving-disk, a driven disk, a shaft supporting a tilting bar, a bar mounted on said shaft, an intermediate friction drive member mounted on the bar, a cam in contact with said bar and means for rotating the said shaft.

15. In combination in a change-speed mechanism, a driving-shaft, a disk on said shaft, an independent driven shaft and a disk thereon, an intermediate friction drive member, and mechanism located between a disk and its shaft whereby the grasping pressure of the disks upon the intermediate friction drive member is automatically changed.

16. In combination in a change-speed mechanism, a driving-shaft, a disk on said shaft and having a ring-shaped recess in its face, a driven disk having a corresponding recess in its face, an intermediate friction drive-wheel, and automatic stress devices located between a disk and its supporting-shaft.

17. In combination in a change-speed mechanism, a driving-shaft, a disk on said shaft, a driven disk and its supporting-shaft, an intermediate friction drive-wheel, a clutch device back of one of the disks and comprising conical-headed pins borne on a disk fast to the shaft and corresponding recesses formed in the back of the disk, and means for tilting the axis of the intermediate drive member.

18. In combination in a change-speed mechanism, a tubular driving-shaft, a disk mounted on said shaft and having a ring-shaped recess of circular cross-section on a radial line, a driven shaft supporting a corresponding disk located in opposition to the first-named disk and having a like ring-shaped recess, the corresponding disk, two intermediate friction drive-wheels located between said disks on opposite sides of the axis of the shafts supporting said disks, jointed supports for each drive-wheel supported on a tilting bar pivoted to a spindle, the tilting bar, the spindle, sleeves surrounding the spindles and having on their inner ends cams in contact with the tilting bars, coupling devices uniting the cam-sleeves, and means whereby a rotary movement imparted to one cam-sleeve is communicated to a like degree to the other cam-sleeve appurtenant to the other drive-wheel whereby the movement and position of the drive-wheels is determined and controlled by a positive and self-induced action.

19. A driving-disk, a driven disk, friction driving members supported between said disks, means for imparting simultaneous tipping movement to the axes of said friction drive members, and means whereby a self-induced action will control the tipping movement of the axes whereby they will assume and retain various predetermined driving positions.

20. A driving-disk, a driven disk, friction drive members supported between said disks, means for imparting simultaneous tiking movement to the axes of said friction drive members, and means for controlling said members whereby they will through self-induced action assume a position with their planes of rotation tangent to a point described by the contact of said members with the driving-disk in the rotation of the latter.

21. A driving-disk, a driven disk, friction drive members supported between said disks, means for simultaneously tipping the axes of said members, and means for controlling said members whereby they will through self-induced action assume a position with their planes of rotation tangent to a circle described by the points of contact of the members with the driving-disk in the rotation of the latter.

22. A driving-disk, a driven disk, friction drive members supported between said disks, means for tilting the axes of said drive members, and connections between said tilting members for causing them to act simultaneously.

23. A driving-disk, a driven disk, friction drive members supported between said disks, a tilting bar supporting each of the friction drive members, means for tilting the bars, and connections between said tilting means for causing their simultaneous action.

24. A driving-disk, a driven disk, friction drive members supported between said disks, cams for tilting the axes of said disks, and connections between said cams for causing their simultaneous action.

25. A driving-disk, a driven disk, friction drive members supported between said disks, tilting bars supporting said friction drive members, cams for tilting said bars, and connections between said cams for causing their simultaneous action.

26. In combination in a change-speed mechanism, a driving-shaft, a driving-disk on said shaft, a driven disk, an intermediate friction drive-wheel, and automatic stress devices located between a disk and its supporting-shaft.

27. In combination in a change-speed mechanism, a driving-shaft, a driving-disk on said shaft, a driven disk and its supporting-shaft, an intermediate friction drive-wheel, a clutch device upon one of said disks and its shaft and comprising conical-beaded pins borne on one part engaging corresponding recesses formed in the opposite part.

28. In combination in a change-speed mechanism, a driving-shaft, a driving-disk mounted on said shaft, a driven shaft, a driven disk supported on said shaft, friction drive-wheels supported between said disks, a yielding support located back of one of said disks, and a coupling device appurtenant to the opposite disk for coupling said disks together

29. In combination in a change-speed mechanism, a driving-shaft, a disk mounted on said shaft, a driven shaft, a disk mounted on the driven shaft, a friction drive-wheel supported between said disks, a yielding support mounted back of one of said disks, reversing mechanism also mounted upon the disks, and means for operating the reversing mechanism.

30. In combination in a change-speed mechanism, a driving-shaft, a driving-disk on said shaft, a driven disk, an intermediate friction drive-wheel, means for tipping the axis of said drive-wheel, and automatic stress devices located between a disk and its supporting-shaft.

31. In combination in a change-speed mechanism, a driving-shaft, a driving-disk on said shaft, a driven disk and its supporting-shaft, an intermediate friction drive-wheel, means for tipping the axis of said drive-wheel, a clutch device upon one of said disks and its shaft and comprising conical-headed pins borne on one part engaging corresponding recesses formed in the opposite part.

32. In combination in a change-speed mechanism, a driving-shaft, a driving-disk mounted on said shaft, a driven shaft, a driven disk supported on said shaft, a friction drive-wheel supported between said disks, means for tipping the axis of said drive-wheel, a yielding support located back of one of said disks, and a coupling device appurtenant to the opposite disk for coupling said disks together

33. In combination in a change-speed mechanism, a driving-shaft, a disk mounted on said shaft, a driven shaft, a disk mounted on the driven shaft, a friction drive-wheel supported between said disks, means for tipping the axis of said drive-wheel, a yielding support mounted back of one of said disks, reversing mechanism also mounted between the disks, and means for operating the reversing mechanism.

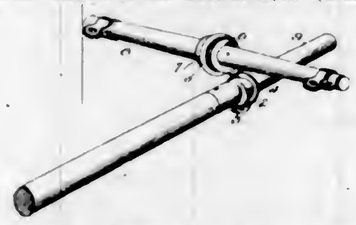
34. A driving-disk, a driven disk, a friction drive member supported between said disks, means for tilting the axis of the friction drive member, and self-induced means for controlling the tilting action of said disk.

35. A driving-disk, a driven disk, a friction drive member supported between said disks, means for tilting and controlling the tilting movement of the axis of the friction drive member, and a stress device adapted to increase the pressure between the driving and driven disks dependent upon the resistance of the driven disk.

36. A driving-disk, a driven disk, a friction drive member supported between said disks, means for tilting the axis of the friction drive member, and a coupling for uniting the driving and driven disks whereby their direction of rotation may be changed.

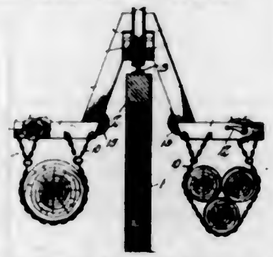
37. A driving-disk, a driven disk, a friction drive member supported between said disks, means for varying the position of the drive member with reference to the disks at, means intermediate said disks adapted for clutching and releasing action with relation thereto whereby the same or opposite directions of rotation may be maintained between the driving and driven disks.

751,959. NECK-YOKE CENTER. EDWIN C. STILLWELL, Bethany, Mo. Filed Nov 28, 1903. Serial No. 183,006. (No model.)



Claim.—The herein-described neck-yoke center comprising the combination with the tongue having an end cap or terminal 9 provided with a rib 2 upon its under side, of a neck-yoke having a fixed central collar 6 provided with an annular groove in its middle portion, a ring loosely fitting in said groove; an auxiliary ring 4 adapted to receive the end of the tongue and rigidly connected to said ring 5, said ring 4 having a hook-terminal 3 upon its lower end adapted to coöperate with said rib upon the tongue-terminal whereby the ring 4 cannot casually slip off the tongue and the wear incident to use will be limited to the frictionally-engaged parts, and the neck-yoke truly centered, all combined substantially as specified and for the purpose set forth.

751,910. SINGLE-TRACK ELEVATED RAILROAD FOR LOGS, &c. ROBERT E. TERRY, Mobile, Ala. Filed Jan. 29, 1903. Renewed Jan. 16, 1904. Serial No. 189,376. (No model.)



Claim.—1. In single-track elevated railways, a truck provided with wheels adapted to run on the track, an arm on each side of the truck connected at its upper end with the latter, and extended down and outward at an inclined angle with respect to the vertical sides of the wheels, an arm connected at its inner end to each of the inclined arms and extended out at a right angle to the vertical sides of the wheels and parallel with the axes of the wheels, and flexible means connected at different points with the horizontal arms along the length thereof and adapted to support the freight to be carried.

2. A truck for single-track elevated railways, consisting of the truck-frame proper and its wheels, arms connected at their upper ends with the truck-frame and extended down therefrom, one on each side of the truck, an arm connected at its inner end to the lower end of each of the first-mentioned arms and extended out horizontally and parallel with the axes of the wheels, and flexible load-supporting means connected with the horizontal arms at different points along the length thereof.

3. The combination with the truck-frame proper and its wheels, of horizontal arms on each side of the truck extended parallel to the axes of the wheels, flexible freight-supporting means connected at different points along the length of said arms, and means for connecting the said horizontal arms with the frame.

4. In single-track elevated railways, a truck provided with two wheels, one in advance of the other, to run upon the track, an arm on each side of the truck connected at its upper end with the truck on a line extending between the wheels, and extended down and outward at an inclined angle with respect to the vertical sides of the wheels, an arm connected with each inclined arm and extended out at a right angle to the vertical sides of the wheels and parallel with the axes of the wheels, and flexible means connected at different points with the horizontal arms along the length thereof and adapted to support the freight thereof.

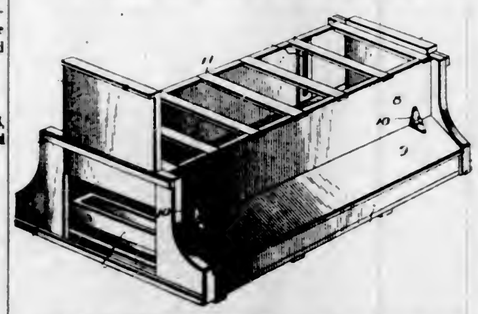
5. In single-track elevated railways, the combination with the trucks and carrying-arms on each side of the same, of coupling-poles to connect different trucks carrying the same load, and coupling-poles for connecting trucks carrying the same loads with others carrying other loads and forming trains.

6. In single-track elevated railways, the combination, with the trucks and freight-carrying arms on each side of the trucks, of weight-equalizing means for connecting the freight to be carried with the arms.

7. A truck for single-track railways, comprising the supporting-wheels, angularly-disposed arms carried by the wheels, horizontal arms connected to the angular arms, and tension and compression members connecting the horizontal arms to upper portions of the truck structure.

8. A truck for single-track railways, comprising the upper truck members, a supporting-wheel having bearings therein, angularly-disposed arms depending from the upper members, horizontal arms connected to the angular arms and extending inwardly beyond said angular arms, compression members disposed between the inner portions of the horizontal arms and the upper truck members, and tension members connecting the angular and horizontal arms.

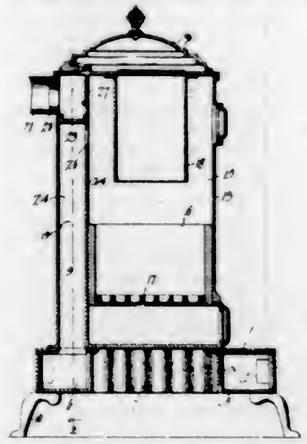
751,961. FARROWING-HOUSE. GEORGE W. TRONE, Rushville, Ill. Filed Sept. 16, 1903. Serial No. 173,475. (No model.)



Claim.—The herein-described farrowing-house comprising a main central chamber and auxiliary chambers having a less upward extent than the main chamber, main wall-sections 8, inclined wall-sections 9 hinged to the main wall-sections 8 and affording a closure for said auxiliary sections, a feeding-trough 12 located at one end of said main chamber, a suitable door designed to give free access to said feeding-trough, a corresponding door-section at the opposite end of said main chamber adapted to give ingress or egress to said chamber, a removable partition-wall 14 adapted to enter guideways 13 upon opposite sides of the wall-sections 8 whereby the mother animal may be temporarily confined in one end of said main cham-

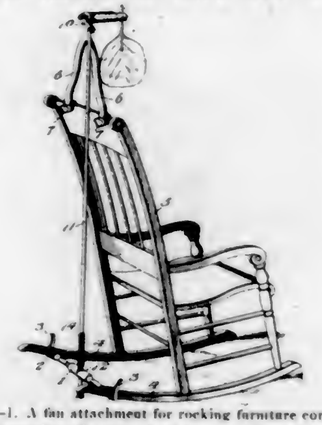
ber while the floors thereof are being cleaned, all combined substantially as specified and for the purpose set forth.

751,962. HEATING-STOVE. WILLIAM S. VAN DEUSEN, South Sodus, N. Y. Filed Sept. 12, 1902. Serial No. 123,177. (No model.)



Claim.—In a stove, an annular flue-chamber having an opening in the upper side thereof, and provided with a transverse partition disposed below said opening, about centrally between the ends thereof, supports whereby said flue-chamber is elevated above the floor, and a stove-body having a transverse partition located in rear of the fire-pot and dividing said stove-body into a fire-space and a flue-space, the latter being open at its lower end, while the former is closed by the bottom of the ash-pit, a vertical partition in the flue-space extending from the lower end nearly to the upper end thereof, a valved opening in the transverse partition above the flue-space partition, a closure connecting the upper end of the latter with one of the side walls of the flue-space, and an opening in the transverse partition below said closure, said stove-body being mounted upon the annular flue-chamber with the lower end of the flue-space partition alining and in contact with the transverse partition in the flue-chamber, and the lower ends of the flue-spaces communicating with the annular flue-chamber on opposite sides of the partition therein.

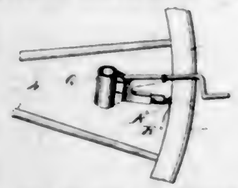
751,963. FAN ATTACHMENT. EDWARD B. VERONEE, St. Augustine, Fla. Filed May 20, 1903. Serial No. 158,019. (No model.)



Claim.—1. A fan attachment for rocking furniture comprising a cross-bar, extensions thereto adapted to receive rockers, means for clamping the rockers within the extensions, a bracket, a shaft journaled therein, a crank at one end of the shaft, a fan at the opposite end, a rod connected to the crank and slidably mounted in the cross-bar, and a spring connecting the rod and bar.

2. A fan attachment for rocking furniture comprising a cross-bar, extensions at the ends thereof adapted to receive rockers, spring-arms to the extensions for clamping the rockers therein, a bracket, a shaft journaled therein, a fan adjustably connected to the shaft, a crank connected to the shaft, a rod pivoted to the crank and slidably mounted within the cross-bar, a roller at the lower end of the rod, and a spring upon the rod and connected at opposite ends thereto and to the bar, respectively.

751,964. TIRE-BOLT WRENCH. CHARLES P. WING, Hinsdale, Ill. Filed May 26, 1903. Serial No. 158,803. (No model.)



Claim.—1. In a tire-bolt wrench, the combination with a supporting-frame, of a shaft journaled in said supporting-frame, means for rotating said shaft, a second shaft also journaled in said frame, meshed gear-wheels fixed upon corresponding ends of said shafts, means upon said second shaft adapted to non-rotatively engage a nut, and a shield surrounding said gear-wheels and fixed upon the supporting-frame, said shield serving as a handle upon which pressure toward the user is exerted for retaining the wrench in operative position.

2. In a tire-bolt wrench, the combination with a supporting-frame, of a crank-shaft journaled in said supporting-frame, a second shaft also journaled in said frame in an inclined position relatively to the crank-shaft, meshed gear-wheels fixed upon the converging ends of said shafts which project beyond the supporting-frame, means fixed upon the second shaft to non-rotatively engage a nut, and a sheet-metal shield surrounding the gear-wheels and fixed upon the supporting-frame, said shield serving as a handle upon which pressure toward the user is exerted for retaining the wrench in operative position.

751,965. COMBINED KEY-RING AND TOOL. CHARLES P. WING, Chicago, Ill. Filed Sept. 26, 1903. Serial No. 174,775. (No model.)



Claim.—1. In a combined key-ring and tool, the combination with a tool, of a key-ring, and means for rigidly detachably connecting the ring to the tool to serve as a handle therefor, said tool having a hole through which the ring when detached from the tool may be passed.

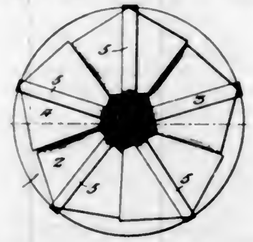
2. The combination with an open-spring ring having a radial slot therethrough near one end thereof, of a tool the upper end of which is adapted to extend through said slot and be retained therein through engagement with the opposite end of said ring.

3. In a combined key-ring and tool, the combination with an open-spring ring having overlapping ends, said ring having a radial slot therethrough near one end thereof, of a tool the upper end of which is adapted to extend through said slot and to be engaged by the opposite end of said ring, said tool having a hole through which the ring when detached from the tool is adapted to be passed.

4. In a combined key-ring and screw-driver, the combination with an open-spring ring having a radial slot therethrough near one end thereof, of a screw-driver blade of a width at its upper end to pass through said slot, said blade having a notch in one edge to receive the edge of the ring at one end of said slot and a shoulder at its opposite end to engage the exterior of the ring adjacent to the opposite end of the slot, said blade also having a notch above said shoulder to receive the opposite end of the ring.

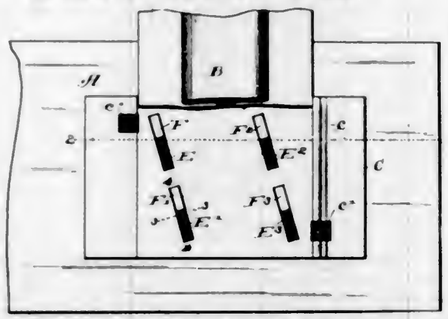
5. In a combined key-ring and screw-driver, the combination with an open-spring ring having a radial slot therethrough near one end thereof, flanges on the exterior of the ring on either side of said slot, a screw-driver blade the upper end of which is adapted to pass between said flanges and through said slot, said blade having a notch in one edge to receive the edge of the ring at one end of the slot and a second notch in its opposite edge to receive the opposite end of the ring.

751,966. PAPER CUSPIDOR. ELLEN E. WINPENNY, Indianapolis, Ind. Filed May 9, 1903. Serial No. 156,418. (No model.)



Claim.—A sanitary cuspidor, comprising a comparatively stiff bottom, a body secured to said bottom having a bellows fold, the upper part of the body being extended inwardly beyond the fold and then outwardly to provide a top flat guard-flange, the said flange having its perimeter projected outwardly beyond the body of the cuspidor when the parts are arranged for use, said body and guard-flange being provided with radially-disposed reinforce-strips at regular intervals, the said strips being collapsible with the body.

751,967. TIE-PLATE. BENJAMIN WOLHAUPTER, Chicago, Ill. Filed June 22, 1903. Serial No. 162,504. (No model.)



Claim.—1. A tie-plate which is movable on the tie endwise of the rail and is provided with an oblique bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, said oblique bearing-surface being adapted for engagement with the upper end of a holding-stud driven into the tie.

2. A tie-plate which is movable on the tie endwise of the rail and is provided with a shoulder adapted for engagement with the outer edge of the rail-base, and with an oblique bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, said oblique bearing-surface being adapted for engagement with a holding-stud driven into the tie.

3. A tie-plate provided with an oblique slot, one margin of which forms a bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, said slot being adapted for engagement with the upper end of a stud driven into the tie.

4. A tie-plate provided with a shoulder adapted for engagement with the outer edge of the rail-base, and having an oblique slot, one margin of which forms a bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, said slot being adapted for engagement with the upper end of a stud driven into the tie.

5. The combination with a tie-plate provided with an oblique bearing-surface which faces laterally with respect to the rail and which is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, and a holding-stud adapted to be driven into the tie and to be engaged at its upper end with said laterally-facing oblique surface.

6. The combination with a tie-plate provided with a shoulder adapted for engagement with the outer edge of the rail-base and having an oblique bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, of a holding-stud adapted to be driven into the tie, with its upper end in engagement with the said laterally-facing oblique bearing-surface.

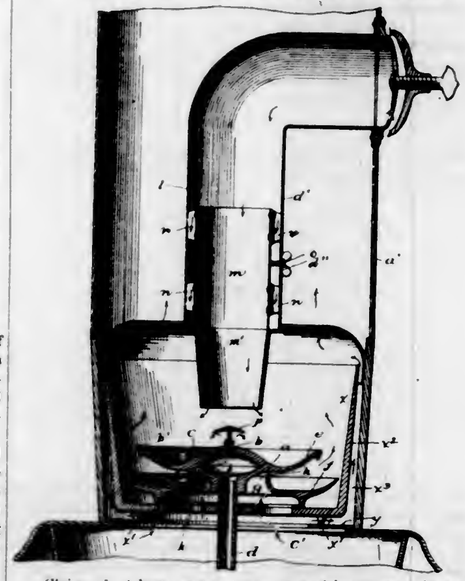
7. A tie-plate which is movable on the tie endwise of the rail and is provided in its rail-seat with a plurality of oblique slots, one side margin of each of which constitutes a bearing-surface which faces laterally with respect to the rail and is separate from any bearing-surface of the plate which is engaged by a rail-holding spike, said oblique slots being adapted for engagement with the upper ends of holding-studs driven into the tie.

8. A tie-plate provided at the outer margin of its rail-seat with a shoulder adapted for engagement with the outer margin of the rail-base and with a plurality of oblique slots located at opposite sides of the transverse center line of the plate and adapted for engagement with the upper ends of studs driven into the tie.

9. A tie-plate provided with two oblique slots arranged in alinement with each other and adapted for engagement with studs driven into the tie.

10. The combination with a tie-plate provided with a shoulder adapted for engagement with the outer edge of the rail-base and with a bearing-surface which faces laterally with respect to the rail, of one or more flat, thin studs adapted to be driven into the tie in contact with said bearing-surface of the plate, to hold the plate against lateral movement on the tie.

751,968. HYDROCARBON-BURNER. GEORGE N. WOLF, Anderson, Ind. Filed Jan. 20, 1903. Serial No. 139,868. (No model.)



Claim.—1. A hydrocarbon-burner comprising a convex burner-plate having an oil-chamber, a jet-opening and a concave flange, an oil-supply pipe connected with the oil-chamber and a concave skirt-plate of larger diameter than the burner-plate, surrounding the oil-supply pipe and spaced from the burner-plate and providing air-passages between the burner-plate and the skirt-plate.

2. A hydrocarbon-burner comprising a convex burner-plate having an oil-chamber, a jet-opening, and a concave flange, a spreader supported above the jet-opening, an oil-supply pipe connected with the oil-chamber, and a concave skirt-plate surrounding the oil-supply pipe and spaced from the burner and providing air-passages between the burner-plate and the skirt-plate.

3. A hydrocarbon-burner comprising a convex burner-plate having an oil-chamber, a jet-opening, and a concave flange, an oil-sup-

ply pipe connected with the oil-chamber, a concave skirt-plate surrounding the oil-supply pipe and spaced from the burner-plate and providing air-passages between the burner-plate and the skirt-plate, and the fire-pot having a central opening and within which the burner-plate and skirt-plate are located.

4. A hydrocarbon-burner comprising a convex burner-plate having an oil-chamber, a jet-opening, and a concave flange, a concave skirt-plate surrounding the oil-supply pipe and spaced from the burner-plate, the fire-pot having a central opening and within which the burner-plate and skirt-plate are located, and the register seated on the fire-pot beneath the skirt-plate.

5. A hydrocarbon-burner comprising a burner-plate having an oil-chamber and a jet-opening from the oil-chamber through the burner-plate, a central downdraft-pipe, a sleeve adjustable in the central downdraft-pipe, over the jet-opening and an oil-supply pipe connected with the oil-chamber beneath the jet-opening.

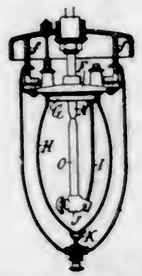
6. A hydrocarbon-burner comprising a burner-plate having an oil-chamber and a jet-opening from the oil-chamber through the burner-plate, a central downdraft-pipe, a sleeve having a converging end and adjustable in the central downdraft-pipe over the jet-opening, and an oil-supply pipe connected with the oil-chamber beneath the jet-opening.

7. A hydrocarbon-burner comprising a burner-plate having an oil-chamber, and a jet-opening from the oil-chamber through the burner-plate, a central downdraft-pipe, a sleeve provided with guides whereby it is spaced from the central downdraft-pipe and adjustable in the latter over the jet-opening, means for retaining the sleeve to its adjustment and an oil-supply pipe connected with the oil-chamber beneath the jet-opening.

8. A hydrocarbon-burner comprising a burner-plate having an oil-chamber, and a jet-opening from the oil-chamber through the burner-plate, a central downdraft-pipe, a sleeve adjustable in the central downdraft-pipe, over the jet-opening, an oil-supply pipe connected with the oil-chamber beneath the jet-opening, and a skirt-plate surrounding the oil-supply-pipe and spaced from the burner-plate and providing air-passages between the burner-plate and the skirt-plate.

9. A hydrocarbon-burner comprising a burner-plate having a concave flange, an oil-chamber and a jet-opening, a concave skirt-plate, spaced from the burner-plate and providing air-passages between the burner-plate and the skirt-plate, and an adjustable downdraft-pipe above the jet-opening.

751,969. GLOBE-HOLDER FOR ARC-LAMPS. JAMES J. WOOD, Fort Wayne, Ind. Filed Mar. 9, 1903. Serial No. 146,944. (No model.)



Claim.— 1. In an inclosed-arc lamp, the combination with a gas-cap of a globe-holder adapted to press the globe up against said cap, having separated fingers adapted to touch the closed lower part of the globe, and a spring remote from the globe for pressing said fingers up, whereby the minimum of heat is conducted from the globe to the spring.

2. In an inclosed-arc lamp, a globe-holder having fingers touching the globe near its lower end at small points, and a spring remote from the globe for pressing said fingers up, whereby the minimum of heat is abstracted from the globe and the heating of the spring is avoided.

3. In an inclosed-arc lamp, the combination with a gas-cap of a globe-holder adapted to press the globe up against said cap, having three separated spring-pressed fingers touching the conical or tapering closed lower part of the globe near its lower end, whereby they center the lower part of the globe and equalize the pressure against it.

4. In an inclosed-arc lamp, the combination with a gas-cap of a globe-holder adapted to press the globe up against said cap, having three rigidly-connected fingers touching the tapering closed lower portion of the globe, and a spring remote from the globe for pressing said fingers up, whereby they center the lower part of the globe and equalize the pressure against it.

5. In an inclosed-arc lamp, a globe-holder having spring-pressed fingers touching the globe near its lower end at small points, and a handle remote from the globe for drawing the fingers down.

6. A globe-holder for an inclosed-arc lamp, comprising a spring-pressed plunger, its upper end adapted to engage the lower part of the globe, a socket-piece through which said plunger passes, and a handle at its lower end beneath said socket-piece by which to grasp it.

7. In an arc-lamp, a holder for the inner globe, comprising a plunger *y* having fingers at its upper end for engaging the globe, and having a head at its lower end, combined with a socket-piece L' in which it is guided, and a spring seated in said socket-piece and pressing upwardly upon said plunger.

8. In an arc-lamp, a holder for the inner globe comprising a spring-pressed plunger, its upper end adapted to engage the globe, and a socket-piece in which it is guided, having a socket receiving the spring for the plunger, and openings into such socket for escape of dirt from around the spring.

751,970. FLY-CATCHER. JOHANN ZIEGL, Hechingen, Germany. Filed Aug. 18, 1903. Serial No. 169,892. (No model.)



Claim.—1. The improved fly-catcher comprising an elongated body, and interchangeable end receptacles, the same being adapted for suitable attachment and detachment in the manner described.

2. The improved fly-catcher comprising a body, end portions which are attached thereto, and interchangeable receptacles for the tacky fluid employed, said receptacles being adapted for convenient attachment to and detachment from such end portions, substantially as described.

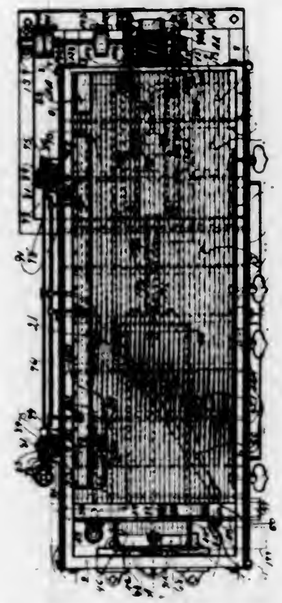
3. The improved fly-catcher, comprising an elongated body, a reservoir for a tacky fluid, and a fly-holder applied to the respective ends of the body, and detachable and interchangeable receptacles for the tacky fluid, the same being applied as the terminals of the device, substantially as shown and described.

4. The improved fly-catcher, comprising a cylindrical metal tube constituting the body of the device, the same having a closed top and an extended perforated flange, a reservoir for a tacky fluid which incloses said flange and is provided with openings for escape of the fluid, substantially as described.

5. In a fly-catcher of the class indicated, the combination, with the central elongated body having its end portions provided with similar locking or engaging parts, of a cap which is adapted for ready attachment to and detachment from each of such end parts, as and for the purpose specified.

751,971. ORE-CONCENTRATOR. HOWARD S. BAILEY and WILLIAM B. WILD, Denver, Colo., assignors to the Mining, Milling, and Machinery Manufacturing Company, Denver, Colo., a Corporation of Colorado. Filed Feb. 14, 1901. Serial No. 47,315. (No model.)

Claim.—1. In an ore-concentrator, a reciprocating table containing a plurality of ore-pulp-receiving recesses of predetermined length, width and depth, a plurality of ridges or dams extending across said ore-pulp-receiving recesses, a plurality of concentrates washing and classifying portions below said dams, means for feeding ore-pulp into and across said recesses, and means for flowing a supply of clear water over the concentrates below said ridges, or dams, and means for tilting and for reciprocating said table, substantially as described.



2. In an ore-concentrator, a reciprocating table containing a plurality of ore-pulp-receiving reservoirs in the head end portion of the table of predetermined lengths, breadths and depths, a plurality of ridges or dams extending across said ore-pulp-receiving reservoirs, an independent concentrating washing and classifying portion below each of said ridges or dams, means for conveying the concentrates from each of said reservoirs to each concentrates washing and classifying portion below said ridges and dams, means for feeding ore-pulp into and over said reservoirs, means for flowing a supply of clear water over the concentrates after passing said ridges or dams, means for reciprocating said table and means for tilting said table, substantially as described.

3. In an ore concentrator and separator, a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising inclined surfaces intersecting at points intermediate of the ends of the steps.

4. In a reciprocating ore concentrator and separator a table having a concentrating-surface comprising a plurality of concentrating-surfaces in stepped form, each stepped surface comprising warped or twisted inclined surfaces intersecting each other at a point intermediate of the length of the step and each step being provided with a pocket in its vertical wall, substantially as described.

5. In an ore-concentrator, a reciprocating table comprising a plurality of separating portions in stepped relation, each separating-step comprising inclined warped surfaces intersecting each other at a point intermediate of the length of the step, the portion of the surface near the discharge end being horizontal, substantially as described.

6. In an ore-concentrator, a reciprocating concentrating-table, comprising a plurality of separating-sections in stepped relations, having their ends on which the ore or pulp first feeds inclined to form an upward slope to the direction in which the ore or pulp is moving over the table and twisting from this incline to a substantially horizontal plane at their discharge ends, substantially as described.

7. In an ore-concentrator, a reciprocating table composed of a succession of separating portions in stepped relation, each portion comprising surfaces of different pitches intersecting each other in a line diagonal to the length of the table.

8. In an ore-concentrator, a reciprocating, concentrating-table comprising a plurality of separating portions in stepped relation, each portion comprising surfaces intersecting each other on a line diagonal to the length of the table and forming a dam on said line, and a pocket extending into each wall between two separating portions and extending along the lower edge of each portion, substantially as described.

9. In an ore-concentrator, a reciprocating, concentrating-table comprising a group of independent separating portions, each portion comprising two curved inclined sections intersecting each other on a line oblique to the length of the table, the feed-section being inclined to form an uphill surface for the pulp or ore to travel over, a vertically-disposed wall between the highest edge of each portion and the lowest edge of the succeeding portion, each wall being provided with a pocket tapering toward the discharge-section and merging into the substantially horizontal surface with which the discharge-section is provided near the discharge end, substantially as described.

10. In an ore-concentrator, a reciprocating, concentrating-table comprising a plurality of independent, concentrating portions, each consisting of concentrating and discharging sections, the discharging-sections being approximately horizontal at the discharge ends, the concentrating-sections being substantially straight at the feed end, and each section being upwardly curved to form ridges intermediate of the length of the table, the concentrating portions being transversely inclined, and being arranged in step relation, a wall between each portion and tapering pockets at each corner formed by said separating portions and walls, said pockets entering the face of each wall; the ridges above mentioned extending obliquely across each portion and being adapted to retain a bed of ore or pulp in each concentrating-section and to guide the mineral of said ore into said pockets, substantially as described.

11. In a reciprocating, ore-concentrating table over which ore-pulp flows, a plurality of reservoirs in the head end portion of said table adapted to receive said ore-pulp, a plurality of ridges arranged at the discharge end portion of said table and arranged to intersect said reservoir portions, a pocket or channel in each of said reservoirs arranged to receive the concentrates from said ore-pulp of said reservoirs and arranged and adapted to convey said concentrates from said reservoirs past said ridges, and means for flowing a supply of clear water over the concentrates after passing said ridges, substantially as described.

12. In an ore-concentrator, a reciprocating concentrating-table embodying on its concentrating-surface a plurality of ore-pulp-receiving recesses extending from the head end of said table toward its discharge end, a plurality of ridges adjacent to the discharge end of said table each arranged to intersect said ore-pulp-holding recesses in a diagonal line in such a manner as to form dams across them and arranged to make of said recesses, ore-pulp-holding reservoirs, and a pocket or channel in said recesses or reservoirs extending past said dam and arranged to blend into portions of said table beyond the dams formed by said ridges, substantially as described.

13. In an ore-concentrator, a reciprocating table containing a plurality of ore-pulp-receiving recesses of uniform depth for a portion of their length from the head end of the table and of decreasing depth the rest of their length, the bottoms sloping upwardly to form diagonal ridges with the upwardly-sloping surfaces of discharge-sections which extend from said ridges to the discharge end of the table, and means for feeding pulp transversely over said series of recesses, substantially as described.

14. In an ore-concentrator, a reciprocating table containing a plurality of recesses extending longitudinally of said table, of uniform depth for a predetermined portion of their lengths, and gradually decreasing in depth by an upward slope on diagonal lines of their bottoms the rest of their length, the intersection of said upwardly-sloping bottoms with the upwardly-sloping bottoms of discharging-sections extending from said recesses to the discharge end of said table forming diagonal ridges or dams extending across said recesses, and a pocket in each channel arranged to convey the concentrates to or beyond the ridges that form said dams, substantially as described.

15. In an ore-concentrator, a reciprocating table having in its concentrating-surface a plurality of ore-pulp-receiving reservoirs extending longitudinally from the head of said table, a plurality of discharging-sections extending from the discharge end of the table to said reservoirs, the surface of said discharging-sections sloping upwardly to form diagonal intercepting dams across the ends of said reservoirs, a pocket in the side of each of said reservoirs extending beyond said dams, said reservoirs being of predetermined lengths, substantially as described.

16. In an ore-concentrator, a reciprocating table comprising a plurality of inclined intersecting surfaces forming reservoir-sections at the head of the table, extending longitudinally of said table, and discharge-sections extending from the discharge end of the table to the reservoir-sections, the surfaces of the discharge-sections being higher than those of the respective reservoir-sections, the surfaces of the reservoirs and discharge-sections being curved to different pitches to form dams at their intersections across the ends of the reservoirs, and a passage in the side of each reservoir extending by the dam to the discharging-section, each reservoir and its dam being independent in its concentrating action of those reservoirs and dams above and below it and each reservoir and its dam being of a predetermined length, substantially as described.

17. In an ore-concentrator, the combination of a reciprocating table composed of a plurality of narrow concentrating-sections, each section comprising portions inclined at different pitches, the inclined surfaces of each portion intersecting to form a diagonal ridge or dam, the portion between said ridge and the head end constituting a receptacle or reservoir for the retention of a bed of ore-pulp, a feed-box at the corner formed by the junction of the head end and the feed side, a discharge-opening through the tailing side, means for reciprocating said table and means for tilting the same, substantially as described.

18. In an ore-concentrator, the combination of a reciprocating table composed of a plurality of longitudinal concentrating-sections, each section comprising an ore-pulp-receiving portion and a concentrates washing and discharging portion, the respective portions intersecting each other to form a ridge or dam across the section at a point intermediate of its length, a channel or pocket connecting the respective portions past said ridge or dam, an ore-pulp feed-box, a water-distributing box, a tailings-outlet, and means for tilting said table, substantially as described.

19. In an ore-concentrator, the combination of a reciprocating table composed of a plurality of concentrating-sections, each section being composed of two portions, the portion at the head end of the table being so inclined as to form a deep recess, and the other portion being inclined at a less depth to form a slight step; the intersection of the two inclined portions forming a diagonal ridge, a tapering pocket extending along the side of the head portions of each section merging into the surface of the portion beyond the ridge; an ore-feed and water-distributing box at one side of said table, a tailings-discharge at the opposite side of said table, means for reciprocating said table, including a crank-lever, knife-edge bearings at each end of the table and means including a spring-rod adjustably secured to one side of said table, for adjustably securing the same, substantially as described.

20. In an ore-concentrator, the combination of a reciprocating table composed of a plurality of concentrating-sections, each section composed of a pair of warped surfaces intersecting each other intermediate of the length of the section to form a diagonal ridge or dam across the section; each section having a channel connecting the portions on each side of the ridge or dam; an inverted-V-shaped bearing-box secured to the central portion of each end of the table, a box containing a V-shaped bearing secured to a suitable foundation in vertical alinement with each of said inverted-V-shaped bearing-boxes, and knife-edge standards working in said bearing-boxes and reciprocately supporting said table, substantially as described.

21. In an ore-concentrator, a reciprocating frame provided with a surface composed of a plurality of concentrating-sections, each section comprising portions inclined at different pitches and intersecting each other, presenting upwardly-inclined, transverse and longitudinal surfaces to the passage of ore-pulp, and forming a reservoir on one side of the intersecting line, and an ore washing and classifying surface at the discharge end of the portion on the other side of the line of intersection, and a pocket or channel at the lower edge of the reservoir, extending from the head end past the line of intersection and merging into the surface beyond said line of intersection, substantially as described.

22. In an ore-concentrator, the combination of a reciprocating frame, and a table provided with a plurality of concentrating-surfaces, each provided with an inclined ore-pulp-receiving recess, an inclined portion beyond said recess substantially flat near the discharge end of the table and inclined to intersect the inclined surface of the recess on a diagonal line to form a ridge at the end of the recess, and a channel in the recess, extending past the ridge and merging into the portion beyond the same, substantially as described.

23. In an ore-concentrator, a reciprocating table having centrally at the under side of its head end a bearing-block, a vertical arm having at its upper end a spear-head terminal end pivotally journaled in said bearing-block, having the lower end of said vertical arm pivotally journaled in suitable supporting-boxes, a vertical arm at the opposite or discharge end of said table, and a threaded rod extending centrally through said vertical portion of said vertical arm, a hand-wheel threaded to said threaded rod and resting on a portion of said arm, a spear-head at the end of said threaded rod and a suitable bearing in the under side of the adjacent end of said table pivotally journaled on said spear-head, substantially as described.

24. In an ore-concentrator, the combination of a table having suitable pivotal supports, means for vertically adjusting one end of said table and means for tilting the sides of said table, with a reciprocating mechanism comprising a coiled expansive spring arranged to bear at one end against one end of said table and at its opposite end against an abutment having its lower end pivoted to a suitable supporting-base, pedestals secured to a suitable foundation-base under said table, a rock-arm pivotally secured to said pedestals, an arm secured to said table in alinement with the expansive thrust of said spring, and having a vertical plate at its end in resilient engagement with the adjacent end of said rock-arm by means of the expansive power of said spring, a connecting-rod suitably secured to the opposite end of said rock-arm at one end, and a crank-lever pivotally supported in suitable bearings intermediate of its arms, a slidable box secured in one arm of said crank-lever and pivotally attached to the opposite end of said connecting-rod, means including a threaded rod for adjusting the position of said box in the arm of said crank-lever, a slidiug box in the opposite arm of said crank-lever, a crank-shaft journaled in said box and supported in suitable bearings, and means including pulleys for rotating said crank-shaft, and tension-rods adjustably secured between said pedestals and said pivotal abutment, substantially as described.

25. In an ore-concentrator, the combination with a concentrating-table of the adjustable abutment at the end of said table, the spring operatively supported between said adjustable abutment and said table, the pedestals secured under said table and the tension-rods extending between said pedestals and said adjustable abutment, with a rock-arm pivotally mounted in said pedestals, a pivotal connection between one end of said rock-arm and the end of said table adjacent to said spring, a power-driven crank-shaft mounted in suitable bearings under said table, a wrist-pin on said crank-shaft, a box pivotally mounted on the said wrist-pin of said crank-shaft and slidably mounted in one arm of said crank-lever, and means connected with the opposite arm of said crank-lever and with the lower end of said rock-arm and including a connecting-rod for adjustably varying the reciprocal stroke of said rock-arm and of said concentrating-table, substantially as described.

26. In an ore-concentrator, the combination with a concentrating-table of a variable reciprocating mechanism comprising an adjustable abutment, an oscillating, two-armed crank-lever pivotally mounted on a suitable bearing, a crank-shaft operatively journaled and connected to one arm of said crank-lever to oscillate the same and means including a rock-arm operatively connected at one end to the opposite arm of said crank-lever and at its opposite end with said table and spring for imparting an adjustable and variable reciprocative movement to said table, substantially as described.

27. In an ore-concentrating machine, the combination with the table of a bed-frame under said table, pivotal shoes secured to said bed-plate, an abutment pivotally connected at its lower end to said pivotal shoes and having its upper end free to swing toward or from one end of said table an expansive spring secured between the upper end of said abutment and the adjacent end of said table and adapted to move said table in one direction of its reciprocal movement, with the pedestals secured to said bed-plate, the adjustable tension-rods adjustably connecting said abutment to said pedestals, the rock-arm pivotally connected to said pedestal, the connecting-rod adjustably connected at one end to the lower end of said rock-arm, the two-arm crank-lever pivotally mounted on said bed-plate the slot in one arm of said crank-arm, the box slidably mounted in the slot in said crank-arm, a crank-shaft journaled to said bed-plate having a wrist-pin pivotally journaled to said sliding box in the arm of said crank-lever, a threaded rod extending into the opposite arm of said crank-lever, means including a pivotal connection between said rod and the opposite end of said connecting-rod, substantially as described.

28. In an ore-concentrating table, a reciprocating table containing a plurality of ore-pulp-receiving passages at and adjacent to the head end, and a concentrates washing and classifying portion at and adjacent to its discharge end and having a plurality of ridges on said table positioned between said ore-pulp-receiving passages and said concentrates washing and classifying portions of said table and arranged to intersect said ore-pulp-receiving passages in such a manner as to form dams across them, means for feeding ore-pulp into and across said ore-pulp-receiving passages, means for conveying concentrates from said ore-pulp-receiving passages past said ridges or dams, means for reciprocating said table, means for flowing a supply of clear water on said concentrates after they pass said ridges or dams and means for tilting said table, substantially as described.

29. In an ore-concentrator, the combination of a reciprocating, concentrating table vertically adjustable longitudinally above and below a horizontal plane and also vertically adjustable at its side above and below a horizontal plane and consisting of a plurality of ore-pulp-receiving recesses at the head end portion of said table, each recess having an inclined bottom which inclines at an angle upward away from the side of the table the ore-pulp is fed to the table on, and from the direction the ore-pulp flows or moves across the table in, the discharge end portion of said table being composed of a plurality of ore washing and classifying sections arranged to extend from said ore-pulp-receiving recesses to the end of said table, and arranged to intersect said ore-pulp-receiving recess in such a manner as to form ridges or dams across their discharge ends, thereby forming of said recesses ore-pulp-holding reservoirs, and having said ridges or dams arranged in any order across said table, means for conveying said concentrates from said reservoir-recesses, means for imparting a reciprocating movement to said tabe in a direction that will cause the concentrates to follow the angle of the dams and move from said recesses past said dams onto the ore washing and classifying portions below said dams, means for feeding ore-pulp to said recesses, and means for flowing a supply of clear water on the concentrates washing and classifying surfaces below said ridges or dams, substantially as described.

30. In an ore-concentrator, the combination of a series of longitudinal, transversely-inclined concentrating-surfaces, in two end-to-end intersecting sections of different, transversely-inclined pitches or inclinations, the upper surfaces of which are at a predetermined portion of their lengths, inclined upward from their bottoms and arranged to form a substantially central, diagonal ridge or dam across each concentrating-surface at their points of intersection, the section of each concentrating-surface between said ridge or dam and the feed end of the table being adapted by the ridge and the higher edge of the inclined, concentrating-surface to form a reservoir and detain the ore-pulp; longitudinal pockets along the lower edge of the head end sections of said concentrating-sections extending to said ridges or dams; means for feeding water to the sections of the concentrating-surfaces between the ridges or dams and the discharge end of the table, means for feeding ore-pulp to the table, and reciprocating mechanism consisting of a rock-arm, a spring and adjustable abutment, and a crank-lever cooperatively connected to said rock-arm and spring and arranged and adapted to move the ore-pulp toward the discharge end of the table, substantially as described.

31. In an ore-concentrator, the combination of a main table comprising a plurality of intersecting concentrating-surfaces, the vertical knife-edge arms at the ends of said table, one of which is adjustable, the tilting mechanism and the reciprocating mechanism, with a supplementary table comprising a plurality of intersecting concentrating-surfaces pivotally supported to the under side of said table, means for vertically adjusting one end of said supplementary table independently of said main table, means for tilting the sides of said supplementary table independent of said main table, means for feeding a predetermined portion of the ore-pulp of said main table onto said supplementary table and above the feed side of said concentrating-surfaces, and means for discharging clear water on said supplementary table at its ore-pulp-feeding side, substantially as described.

32. In an ore-concentrator the combination of a table comprising a plurality of intersecting concentrating-surfaces having a head or feed end portion and a concentrated-ore-washing portion, provided with a ridge or dam portion intersecting said head or feed end portion, means including vertical-arm bearings for vertically adjusting said table longitudinally, means including a resilient device adjustably secured to a side of said table for vertically tilting said table, and means including an expansive spring having an adjustable abutment, a rock-arm and a power-driven shaft for reciprocating said table, means for discharging ore-pulp onto said table at a point at which it will flow across the head end portion of said concentrating-surfaces, means for discharging clear water on the tail or ore-washing end portion of said concentrating-surfaces, substantially as described.

33. In an ore-concentrator, the combination of a main concentrating-table comprising a plurality of intersecting inclined concentrating-surfaces arranged in order, having a head or feed end reservoir portion and an inclined ore washing and classifying portion at its discharge end, a series of dams between said reservoir and classifying portions, means including vertical-arm bearings for vertically adjusting said table longitudinally, means including a resilient device adjustably secured to a side of said table for vertically tilting said table, and means including an expansive spring having an adjustable abutment, a rock-arm and a power-driven shaft for reciprocating said table, means for discharging ore-pulp onto said table at a point at which it will flow across the head end portion of said concentrating-surfaces, means for discharging clear water on the ore washing and classifying portions of said concentrating-surfaces and a middlings-concentrating table operatively arranged below said main table, and means for conveying the middlings of the main table to the said middlings-table, substantially as described.

34. In an ore-concentrator, the combination of the main and middlings table, the adjustable, vertical-arm, knife-edge bearing at the discharge end of said main table arranged to pivotally support said end of said table in a combined, vertically adjustable and reciprocal condition, the vertical pivotal knife-edge bearing at the opposite end of said table supporting said table in a reciprocal condition, the curved, terminal edges of the upper knife-blade edges of said vertical ends of said vertical-arm bearings, the transverse vertically-adjusting resilient supports at one side of said table comprising the spring-steel rods adjustably secured to the sides of said tables, the toothed rack, the gearing and their cooperating elements operatively connected to said spring-steel rods, reciprocating mechanism comprising the power-driven crank-shaft, the crank-lever, the rock-arm, the expansive spring, the adjustable abutment for said spring, the tension-rods and the connecting-rods between said rock-arm and said crank-lever and table, and means for discharging ore on said tables, substantially as described.

35. In an ore-concentrator, a reciprocating, concentrating-table, comprising a plurality of ore-receiving recesses at its head or feed end portion, a plurality of slightly-inclined portions at the discharge end of said table extending across the discharge ends of said ore-pulp-receiving recesses and adapted to form a dam across the ends of said ore-pulp-receiving recesses, a pocket in the lowest side edge of said ore-pulp-receiving recesses extending between said dams and the adjacent side wall of said ore-pulp-receiving recesses a predetermined distance adapted to convey the concentrates from said pockets and recesses to a predetermined point in the length of said concentrating-surface, means for reciprocating said table, means for feeding ore-pulp to and over said recesses, means for supplying water to the concentrates below said dams and means for tilting said table, substantially as described.

36. In an ore-concentrator, a reciprocating concentrating-table having a concentrating-surface formed at its head end portion comprising a plurality of stepped ore-pulp catching and holding reservoirs, a plurality of inclined, stepped concentrates washing and classifying surfaces at the discharge end portion of said table extending to said reservoir portions, a dam at the end of each of said concentrates washing and classifying portions adjacent to said reservoirs projecting above the lowest portions of said concentrates washing and classifying portions and above the lowest portions of said reservoirs and arranged and adapted to project diagonally across the discharge ends of said reservoir portions toward the head end of said table, said reservoir and dams operating to momentarily and temporarily confine the ore-pulp as it flows across the table, thereby giving the mineral particles thereon a chance to stratify and settle to the bottoms of their reservoirs, a concentrates-passage adapted to receive the concentrates from the reservoirs and to convey them a predetermined distance along the concentrating-surface, means for reciprocating said table, means for feeding ore-pulp to and across said ore-pulp-receiving reservoirs, means for flowing a supply of water to the concentrates washing and classifying surfaces below said dams and means for tilting said table, substantially as described.

37. In an ore-concentrator, the combination of a reciprocating, concentrating-table with a crank-arm pivotally journaled below said table intermediate of the ends of its arms, a slot in one arm, a box reciprocatingly mounted in the slot of said arm, a crank-shaft operatively connected to said box to oscillate said crank-lever, a box slidably secured to the opposite arm of said crank-lever, a threaded rod secured at one end to said box and supported by said crank-arm and means for turning said threaded rod to move said box to or from the pivotal center of said crank-arm, an abutment-plate on said table and means including a spring and a rock-arm cooperatively connected with said box of said crank-arm for reciprocating said table, substantially as described.

38. In a reciprocating ore-concentrator a rock-arm pivotally supported below said table, a flat abutment portion at one end of said rock-arm, an abutment-arm secured to the under side of said

table having a flat abutment end in engagement with the abutment end of said rock-arm, a spring in expansive engagement with said table, an adjustable abutment at the opposite end of said spring operatively arranged relative to said rock-arm to adjust the tension of said spring and the bearing contact between the abutment-bearing of said rock-arm and the abutment-arm of said table, and means for reciprocating the opposite end of said rock-arm, substantially as described.

39. In an ore-concentrator, the combination of a reciprocating, concentrating-table, a rock-arm pivotally supported below said table, a substantially flat abutment portion at one end of said rock-arm, an abutment-arm secured to the under side of said table having a substantially flat abutment end in engagement with the abutment end of said rock-arm, a spring in expansive engagement with said table, an adjustable abutment at the opposite end of said spring operatively arranged relative to said rock-arm to adjust the tension of said spring and the bearing contact between the abutment-bearing of said rock-arm and the abutment-arm of said table, and a connecting-rod adjustably secured at one end to the opposite end of said rock-arm, with a two-armed crank-lever pivotally supported intermediate of the ends of its arms, a slot in one arm, a box reciprocatively mounted in the slot of said arm, a power-driven crank-shaft operatively connected to said box to oscillate said crank-lever, a box slidingly connected to the opposite arm of said crank-lever to move toward and from its opposite center; means for adjustably moving and for securing in an adjusted position said box relative to the pivotal center of said crank-lever and for operatively connecting said box to the opposite end of said connecting-rod, substantially as described.

40. In an ore-concentrator, the combination with a reciprocating, concentrating-table having a fixed abutment-arm, of a rock-arm pivotally secured in suitable supports below said table having one end in engagement with said abutment-arm of said table, the connecting-rod adjustably secured to said rock-arm at one end, the expansive spring arranged to bear at one end against said table, the adjustable abutment arranged to adjustably support said spring, the adjusting-rods extending from said adjustable abutment to suitable supports, the crank-lever pivotally supported intermediate of its ends and operatively connected with one arm to a power-driven shaft to be oscillated thereby, a box slidably mounted on the opposite arm of said crank-lever in engagement with the opposite end of said connecting-rod and means for adjustably moving said box toward and away from the pivotal center of said crank-lever, substantially as described.

41. In an ore concentrator and separator, a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step composing inclined sections intersecting at points intermediate of the opposite ends of the sections of said concentrating-surfaces, and a ridge or dam portion at the point of intersection of said sections, the several dams being arranged in order across the table, substantially as described.

42. In an ore concentrator and separator, a reciprocating, concentrating-table provided with a plurality of inclined concentrating-surfaces in step form, each comprising a reservoir-section and an ore washing and classifying section, the surfaces of the reservoir and classifying sections intersecting at points intermediate of the ends of the steps, a ridge or dam portion at the point of intersection of said inclined surfaces of predetermined form, and a concentrates-passage connecting the reservoir-sections of said concentrating-surfaces with the ore washing and classifying section, substantially as described.

43. In an ore concentrator and separator, a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each stepped concentrating-surface comprising an inclined reservoir-section and an inclined ore washing and classifying section, the said sections being arranged to intersect one another at points intermediate the ends of the stepped concentrating-surfaces, a raised ridge or dam at the point of intersection, a concentrates-passage past the dam arranged to connect the lowest portions of the inclined surfaces with one another, and a pocket in the lowest side of the inclined surface at and adjacent to the head end of the table blending into said concentrates-passage, each dam being arranged in position to guide the concentrates from the reservoir-section away from the dam below it and in a substantially opposite or different direction from that in which the ore-pulp flows, the several dams being arranged in order across the table, substantially as described.

44. In an ore concentrator and separator a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising concentrating-surfaces, a dam intermediate of the opposite ends of each of said concentrating-surfaces arranged at an angle that will guide the concentrates away from the dam of the concentrating-surface below it, and a channel at the side of the dam nearest the feed side of the table arranged to connect said concentrating-surfaces on each side of the said dam, substantially as described.

45. In an ore concentrator and separator a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising inclined surfaces intersecting at points intermediate of the ends of the steps, a raised ridge or dam at the point of intersection, a pocket in the lowest side of the inclined surface at and adjacent to the head end of the table extending to opposite the ridge or dam, and having the said intersecting ridges and dams arranged in suitable, operative order across the surface of the table, and having said inclined concentrating-surfaces at the discharge end of said table arranged and adapted to wash and classify ores of different specific gravities, substantially as described.

46. In an ore concentrator and separator, a reciprocating, concentrating-table comprising a plurality of concentrating-surfaces, each concentrating-surface having an upward step or wall at one side and a downward step or wall at its opposite side, each concentrating-surface comprising an independent concentrating-surface consisting of two cooperating sections, a head end section comprising an ore-pulp-holding reservoir which extends from the head end of the table a predetermined distance toward the discharge end of the table, an inclined concentrates washing and classifying portion positioned above the bottom of said reservoir portion and extending from the discharge end of said table to said reservoir portion, a dam arranged to intersect and extend across said reservoir portion, and an upwardly-sloping inclined portion in said reservoir extending upward from its bottom adjacent to said dam to its top edge, a concentrates-passage from said reservoir past said dam, means for reciprocating said table, means for feeding ore-pulp to said table, means for flowing a supply of clear water to the concentrates washing and classifying surface below said dam, and means for tilting said table, substantially as described.

47. An ore-concentrator, comprising a concentrating-table, medium supports on which said table is pivoted so that it can tilt transversely, means for holding the table when tilted to the required position, and means for reciprocating said supports and thereby the table, substantially as described.

48. An ore-concentrator, comprising a concentrating-table, medium supports on which said table is pivoted so that it can tilt transversely, one of said supports being vertically adjustable, means for holding the table when tilted to the required position, and means for reciprocating said supports and thereby the table, substantially as described.

49. An ore-concentrator, comprising a concentrating-table, medium supports on which said table is pivoted so that it can tilt transversely, a flexible strip for holding the table when tilted to the required position, and means for reciprocating said supports and thereby the table, substantially as described.

50. In an ore-concentrator, a reciprocating table provided with a plurality of concentrating-surfaces extending a predetermined distance on a table, a dam across each concentrating-surface arranged at a predetermined part of said concentrating-surface and arranged in a diagonal line that starts at the head end and tailings side of said concentrating-surfaces and extends to the feed side and discharge end side of said concentrating-surfaces and having the series of dams arranged in order across the table, substantially as described.

51. In an ore-concentrator, a reciprocating table, comprising a plurality of operative concentrating-surfaces provided with dams arranged intermediate of the ends of said concentrating-surfaces, the said dams each commencing at predetermined distances from the head end of the table and at the tailings-discharge side of said concentrating-surfaces and extending a predetermined distance in a diagonal line toward and to the feed side of said concentrating-surfaces and having said dams arranged in any operative predetermined order across the table from the feed side of the table to its tailings-discharge side, substantially as described.

52. In an ore-concentrator a reciprocating table comprising a plurality of riffles, a plurality of dams arranged across said riffles in such a manner as to close them at predetermined points and form of them ore-pulp-holding reservoirs, said dams being positioned at a predetermined distance from the head end of said table and each commencing at the tailings-discharge side of said riffles and extending in a diagonal line toward the feed side of said riffles a predetermined distance, said dams being arranged in any desired successive order across said table from the feed side toward the tailings-discharge side, and a plurality of inclined ore-washing portions below said dams, substantially as described.

53. In an ore-concentrator a reciprocating table comprising a plurality of stepped concentrating-surfaces provided with a plurality of dams arranged intermediate of the ends of said stepped concentrating-surfaces, said dams each commencing at a predetermined distance from the head end of the table and extending in a diagonal line toward the feed side of the table a predetermined distance and having said dams arranged in any desired direction from the feed side to the tailings-discharge side of the table.

54. In an ore-concentrator, a reciprocating table comprising a plurality of concentrating-surfaces and a plurality of dams one across each concentrating-surface each of said dams extending from the head end and tailings-discharge side of said concentrating-surfaces toward the feed side and discharge end of said concentrating-surfaces and an inclined concentrates-washing surface below said dams, substantially as described.

55. In an ore-concentrator, a reciprocating table comprising a plurality of inclined stepped concentrating-surfaces extending from end to end of said table, a dam across each inclined concentrating-surface intermediate of their ends, extending at an oblique angle to each of the said inclined stepped concentrating-surfaces from one side to the other and commencing toward the head end and tailings-discharge side of each inclined stepped concentrating-surface and extending diagonally to the feed side of said inclined stepped concentrating-surfaces and having said dams arranged in series across said table from the feed side to the tailings-discharge side of the table, substantially as described.

56. In an ore concentrator and separator, a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising inclined surfaces intersecting at points intermediate of the end of the steps, the line of intersection commencing at the head end and tailings-discharge side of said concentrating-surfaces and extending diagonally toward the feed side of said inclined concentrating-surfaces the said lines of intersection being arranged in any suitable order across said table, substantially as described.

57. In a reciprocating concentrator and separator a table having a concentrating-surface comprising a plurality of concentrating-surfaces in stepped form, each stepped surface comprising inclined surfaces intersecting each other at a point intermediate of the length of the step and each step being provided with a pocket in its vertical wall, the said points of intersection being arranged to form a series of dams, each commencing toward the head end tailings-discharge side of said concentrating-surfaces and extending in a diagonal line to the feed side and discharge end of the table and to the feed side of the concentrating-surfaces, the said points of intersection being arranged in order across said table.

58. In an ore concentrator and separator a reciprocating table comprising a plurality of stepped inclined concentrating-surfaces, each concentrating-surface being composed of two end-to-end sections of differently-inclined pitches arranged to intersect each other intermediate of their ends diagonally and having the diagonal line of intersection extending from the head end and tailings-discharge side of each concentrating-surface toward the feed side of each inclined concentrating-surface and having said diagonal lines of intersection arranged in order across said table, substantially as described.

59. In an ore concentrator and separator a reciprocating table composed of a succession of separating-surfaces of equal length in stepped relation extending along the table from end to end, each concentrating-surface comprising end-to-end sections, one of which is a head and reservoir section and the other ore washing and classifying and discharge section, the said sections being of different pitches and arranged to intersect each other diagonally in such a manner that the ore-washing section forms a dam across the head end section, a passage by the feed side of each dam from one section to the other and having said intersecting dams arranged to commence at the head end and tailings-discharge side of said separating-surfaces and extend diagonally toward their feed side discharge end and having said dams arranged in a path across the table from the feed side to the discharge side of the table.

60. In an ore concentrator and separator a reciprocating table composed of a plurality of concentrating-surfaces of equal lengths extending across the table from one end to the other, each surface being composed of sections of different pitches and arranged in end-to-end order and to form diagonally-arranged ridges or dams across one another, a pocket in one wall of the ore-receiving section of each concentrating-surface, each dam being arranged from the head end and tailings side toward the feed side of each concentrating-surface and the series of dams being arranged in any suitable path across the table, substantially as described.

61. In an ore-concentrator, a reciprocating table, containing a plurality of ore-pulp-receiving reservoirs, a plurality of dams extending across the ends of said reservoirs, a plurality of ore washing and classifying portions extending from said dams to the discharge end of said table, a plurality of pockets arranged to convey concentrates from said reservoirs below said dams onto said ore washing and classifying portions, the said dams being each arranged diagonally from the head end and tailings side toward the feed side and discharge end of said table and arranged across the plurality of ore-pulp reservoirs and ore-washing sections.

62. In an ore-concentrator, a reciprocating concentrating-table, comprising a plurality of separating-sections in stepped relations, having the portions of which the ore or pulp first feeds inclined to form an upward slope to the direction in which the ore or pulp is moving over the table and twisting from this incline to a substantially horizontal plane at their discharge ends, substantially as described.

63. In a reciprocating concentrator and separator, a table having a concentrating-surface comprising a plurality of concentrating-surfaces in stepped form, each stepped surface comprising warped surfaces intersecting each other at a point intermediate of the length of the step and each step being provided with a pocket in its vertical wall, the said point of intersection being arranged to form a dam commencing at the head end and tailings-discharge side of said concentrating-surfaces and extending in a diagonal line toward the feed side and discharge end of the table and toward the feed side of the concentrating-surfaces, the series of intersections being arranged across said table.

64. In an ore concentrator and separator a reciprocating, concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising inclined surfaces intersecting at points intermediate of the ends of the steps, a raised ridge or dam at the points of intersection and connecting the lowest portions of the inclined surfaces, and a pocket in the lowest side of the inclined surface at and adjacent to the head end of the table, extending to opposite the ridge or dam, the said intersecting ridges and dams arranged in order across the surface of the table, and said inclined concentrating-surfaces at the discharge end of said table arranged and adapted to wash and classify ores of different specific gravities, substantially as described.

65. In an ore-concentrator a reciprocating table comprising a plurality of the concentrating-surfaces and a plurality of dams one across each of said concentrating-surfaces, said dams each extending from the head end and tailings-discharge side of said concentrating-surfaces toward the feed side and discharge end of said concentrating-surfaces, and an inclined concentrating washing-surface below each of said dams, substantially as described.

66. In an ore-concentrator, a reciprocating table comprising a plurality of inclined stepped concentrating-surfaces, extending from end to end of said table, a dam across each inclined concentrating-surface intermediate of its ends, extending at an oblique angle to the said inclined stepped concentrating-surface from one side to the other and from the head end and tailings-discharge side of each inclined stepped concentrating-surface diagonally toward the feed side of said surface, said dams arranged in order across said table from the feed side to the tailings-discharge side of the table, substantially as described.

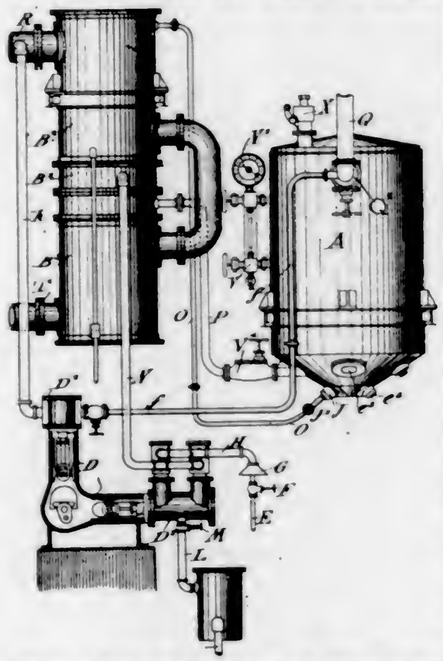
67. In an ore concentrator and separator, a reciprocating concentrating-table provided with a plurality of concentrating-surfaces in step form, each step comprising inclined surfaces intersecting at a point intermediate of the end of the steps, the line of intersection of each dam commencing at the head end and tailings-discharge side of said concentrating-surfaces, and extending diagonally toward the feed side of said inclined concentrating-surfaces, the said lines of intersection being arranged in order across said table, substantially as described.

68. In a concentrator a reciprocating table having a concentrating-surface comprising two intersecting inclined stepped surfaces of different pitches intersecting each other so as to form a dam across the concentrating-surface, onesection of which is formed into a reservoir by said dam and is the head end section of the concentrating-surface, the bottom of which reservoir inclines upward to the dam, the other section of which forms an inclined ore washing and classifying section that is arranged at a higher level than the reservoir-section, the said dam being arranged to direct the concentrates to the feed side of the concentrating-surface, and thus prevent the concentrates formed in the reservoir being washed too near the discharge end of the concentrating-surface, a pocket in the wall of the

reservoir-section, means for reciprocating said concentrating-surface, means for tilting said concentrating-surface transversely and longitudinally, means for feeding ore-pulp to said concentrating-surface, and means for flowing a supply of clear water onto said concentrating surface, substantially as described.

69. In a concentrator, a reciprocating table comprising two sections having inclined surfaces of different pitch, arranged end to end and intersecting each other, a dam forming the line of intersection between said surfaces, and a pocket in the wall of one of the sections, substantially as described.

751,972. PROCESS OF GENERATING MOTOR FLUIDS. RUDOLF BERG, Pittsburg, Pa., assignor of one-half to Ferdinand Wenig, Pittsburg, Pa. Filed Mar. 16, 1903. Serial No. 148,006. (No specimens.)



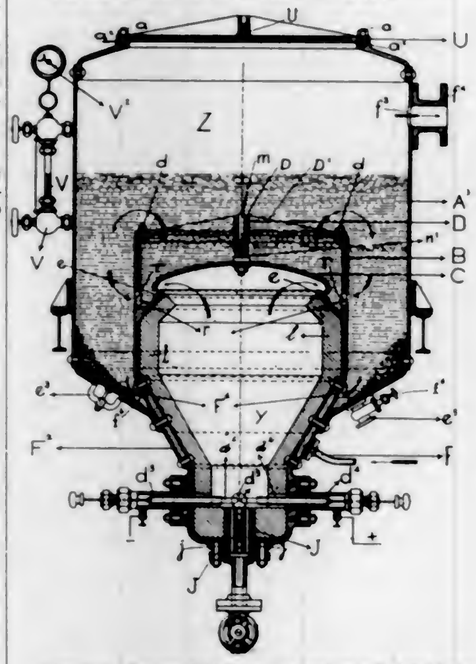
Claim.—1. The process herein described of generating motor fluid, which consists in mixing a combustible gas with air, compressing the mixture in presence of water, separating the water from the mixture, igniting the mixture, and bringing the ignited mixture in direct contact with the liquid to be evaporated, substantially as set forth.

2. The process herein described of generating motor fluid, which consists in mixing a combustible gas with air, compressing the mixture in presence of water, heating the compressed mixture and water, separating the water from the mixture, supplying the heated water to a closed vessel, supplying the heated combustible gas and air mixture under pressure to the closed vessel, igniting the mixture of combustible gas and air in the same, and bringing the ignited mixture in direct contact with the heated water in the vessel, substantially as set forth.

3. The process herein described of generating motor fluid, which consists in mixing a combustible gas with air, subjecting the mixture to an isothermal compression with water, separating the water from the mixture, igniting the mixture, and bringing the ignited mixture in direct contact with the liquid to be evaporated, substantially as set forth

4. The process herein described of generating motor fluid, which consists in mixing a combustible gas with air, subjecting the mixture to an isothermal compression with water, heating the compressed mixture and water, separating the water from the mixture, supplying the water to a suitable closed vessel, supplying the heated combustible gas and air to the closed vessel, igniting the mixture of combustible gas and air in the same, and bringing the ignited mixture in direct contact with the heated water in the vessel, substantially as set forth.

751,973. MOTOR-FLUID GENERATOR. RUDOLF BERG, Pittsburg, Pa., assignor of one-half to Ferdinand Wenig, Pittsburg, Pa. Filed Mar. 16, 1903. Serial No. 148,007. (No model.)



Claim.—1. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber open at its upper end and located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, and a valve tor the open upper end of the combustion-chamber, both combustion-chamber and valve being submerged in the water of the boiler, substantially as set forth.

2. In a motor-fluid generator, the combination with a closed boiler, of a combustion-chamber open at its upper end, and a valve for said open upper end, substantially as set forth.

3. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber, open at its upper end and located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve for closing the open upper end of said combustion-chamber, and means for guiding the valve so as to be raised or lowered by the internal pressure of the products of combustion in the combustion-chamber, substantially as set forth.

4. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber open at its upper end and located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve for closing the open upper end of said combustion-chamber, a valve-seat for said valve at the circumference of the combustion-chamber, and means for guiding the valve so as to be raised or lowered by the internal pressure of the products of combustion in the combustion-chamber, substantially as set forth.

5. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber open at its upper end in the lower part or water-space of said boiler, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, means for igniting the mixture in said combustion-chamber, a dome-shaped valve extending over the open upper end of the combustion-chamber, and means for guiding said valve in response to the internal pressure of the gases in the combustion-chamber when producing a direct contact of the hot products of combustion with the water at the circumference of the valve, substantially as set forth.

6. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located at the lower part or water-space of the boiler, a water-jacket at the lower part of said combustion-chamber with openings in its upper part, means for supplying water to said water-jacket, means for supplying a combustible gas and air mixture under pressure to the interior of the combustion-chamber, means for igniting said mixture, and a valve in the upper part of the combustion-chamber, substantially as set forth.

7. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same, a twyer in the bottom of the combustion-chamber provided with a plurality of passages, means for supplying a combustible gas and air mixture to said twyer and combustion-chamber, and a valve for opening or closing the combustion-chamber by the variation of the internal pressure of the gases in the combustion-chamber, substantially as set forth.

8. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in the lower part or water-space of the same, a twyer in the bottom of the combustion-chamber provided with a plurality of passages, means for supplying a combustible gas and air mixture to said twyer and combustion-chamber, an ignition device at the lower part of the combustion-chamber in proximity to the entrance of the gas and air mixture passing through the twyer, and a valve for the combustion-chamber, substantially as set forth.

9. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same and open at its upper end, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, an annular flange at the upper part of the combustion-chamber provided with a valve-seat, and a dome-shaped valve for the open upper end of the combustion-chamber and resting on the valve-seat when closed, substantially as set forth.

10. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same means for supplying a combustible gas and air mixture under pressure to the bottom of the combustion-chamber, means for igniting said combustible gas and air mixture in the combustion-chamber, and a valve for the combustion-chamber actuated by the varying internal pressure of the gases in the combustion-chamber, substantially as set forth.

11. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve for the upper part of the combustion-chamber, and means for causing the circulation of the water in the water-space of the boiler, substantially as set forth.

12. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve for the combustion-chamber, and an extension at the upper part of the combustion-chamber, both combustion-chamber with extension and valve being submerged in the water, substantially as set forth.

13. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve having a spindle, for the combustion-chamber, a cylindrical extension provided with openings at the upper part of the combustion-chamber, and means attached to said extension for guiding the spindle of the valve, substantially as set forth.

14. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a dome-shaped valve having an upright spindle for the combustion-chamber, a cylindrical extension at the upper part of the combustion-chamber and provided with openings, and means for guiding the spindle of the dome-shaped valve, substantially as set forth.

15. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, a valve for the combustion-chamber, a cylindrical extension at the upper part of the combustion-chamber provided with a plurality of circumferentially-arranged openings in proximity to the circumference of the valve, and means attached to the upper part of said extension for guiding the spindle of the valve, substantially as set forth.

16. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same and open at its upper end, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, an annular flange at the upper part of the combustion-chamber provided with a valve-seat, a valve for the open upper end of the combustion-chamber and resting on the valve-seat when closed, a cylindrical extension at the upper part of the combustion-chamber having a plurality of openings at its upper part, and means attached to the upper part of said extension for guiding the valve, substantially as set forth.

17. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber located in the lower part or water-space of the same, a double-walled jacket extending around the lower part of the combustion-chamber for preheating the water supplied to the boiler, means for supplying a combustible gas and air mixture under pressure to the combustion-chamber, means for igniting said combustible gas and air mixture in the combustion-chamber, a valve for the combustion-chamber, and means for causing the circulation of the water in the water-space of the boiler, substantially as set forth.

18. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in the lower part or water-space of the same, a fire-brick lining in said combustion-chamber, means for supplying a combustible gas and air mixture under pressure to said combustion-chamber, and a valve for opening or closing the upper end of the combustion-chamber by the varying internal pressure of the gases in the combustion-chamber, both said combustion-chamber and valve being submerged in the water, substantially as set forth.

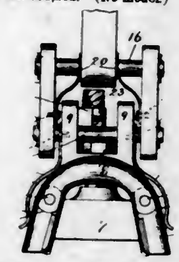
19. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in the lower part or water-space of the same and provided with a fire-brick lining, a twyer in the lower part of the combustion-chamber provided with a plurality of air passages or channels, means for supplying a combustible gas and air mixture under pressure to said twyer and combustion-chamber, and a valve for opening or closing the upper part of the combustion-chamber by the varying internal pressure of the gases in the combustion-chamber, both said combustion-chamber and valve being submerged in the water, substantially as set forth.

20. A motor-fluid generator, consisting of a closed boiler, a combustion-chamber in said boiler and open at its upper end, means for supplying a combustible gas and air mixture to the bottom of said combustion-chamber, an electric ignition device in proximity to the entrance of the combustible gas and air mixture, and a valve for the open upper end of the combustion-chamber, substantially as set forth.

21. The combination, with a motor-fluid generator having a combustion-chamber located in the lower part or water-space of the same, an opening at its upper end, and a valve for the upper end, of means for mixing a combustible gas with air, means for compressing the same with water, means for heating the compressed mixture means for separating the combustible gas and air from the water, means for supplying the water to the generator and gas and air mixture to the combustion-chamber, and means for igniting the combustible gas and air mixture in said combustion-chamber, substantially as set forth.

22. The combination, with a motor-fluid generator having a combustion-chamber located in the lower part or water-space of the same, an opening at its upper end, and a valve for the upper end, of means for mixing a combustible gas with air, means for subjecting the mixture with water to an isothermal compression, means for heating the compressed mixture, means for separating the combustible gas and air from the water, means for supplying the water to the generator and gas and air mixture to the combustion-chamber, and means for igniting the combustible gas and air mixture in said combustion-chamber, substantially as set forth.

751,974. RAIL CONTACT-SHOE AND SUPPORT THEREFOR. GEORGE W. BRADY and LAWRENCE R. JONES, Wheaton, Ill. Filed Apr. 13, 1903. Serial No. 152,292. (No model.)



Claim.—1. In a rail contact-shoe, a horizontally-arranged body portion, depending sides pivoted to the lateral edges of said body, and a contact-block having divergent side faces arranged below the said body portion with its side faces disposed to limit the inward movement of the pivoted sides of the shoe.

2. In a rail contact-shoe, a horizontally-arranged body portion, depending sides pivoted thereto, springs arranged to press said sides inward, and a contact-block carried by said body portion disposed between the pivoted sides and arranged to limit their inward movement.

3. In combination, a rail contact-shoe, parallel pairs of links pivoted to the opposite ends thereof, pivot-rods connecting the upper extremities of said links in pairs, suspension-links wherein said rods are slidably mounted, and springs normally holding said parts in predetermined relative positions under yielding tension.

4. In combination, a rail contact-shoe, parallel pairs of links pivoted to the opposite ends thereof, pivot-rods connecting the upper extremities of said links in pairs, suspension-links wherein said rods are slidably mounted, and springs interposed between said pivoted links and said suspension-links, yieldingly holding said parts in definite relation.

751,975. JAR-CLOSURE. WILLIAM R. BROWN, Los Angeles, Cal., assignor of one-half to Frank A. Parker, W. T. Bishop, R. P. Bishop, and J. O. Koepfli, Los Angeles, Cal. Filed May 21, 1903. Serial No. 158,199. (No model.)



Claim.—1. A jar or vessel closure comprising a stopper and a retainer therefor consisting of a ring encircling the vessel's neck, and a bail of strong spring-wire extending at one end upwardly from the ring and transversely over the stopper, and having its free end designed to be forced into engagement with the ring at a point diametrically opposite its other end, as set forth.

2. A jar or vessel closure comprising a stopper having a transverse groove of gradually-increasing depth from its center to its ends, a retainer consisting of a ring encircling the vessel's neck, and a bail of strong spring-wire extending at one end upwardly from the ring and transversely over the stopper fitting within said groove, and having its free end designed to be forced into engagement with the ring at a point diametrically opposite its other end, as set forth.

3. The combination with the vessel having an exterior shoulder, and the stopper, of the retainer comprising a ring encircling the vessel below said shoulder and bent outwardly to form an extension, and a bail extended upwardly from the ring and carried transversely over the stopper, the free end of the bail being bent back upon itself to form a shoulder, which is designed to engage with an extension of the ring, as set forth.

4. The combination with the vessel having an exterior shoulder, and the stopper, of the retainer comprising a ring and a bail formed from a single piece of wire encircling the neck of the vessel beneath the shoulder thereof and bent upwardly and extended over the stopper and down at its other end to form the bail, the free end of the wire being bent back upon itself to form a shoulder to engage said ring, as set forth.

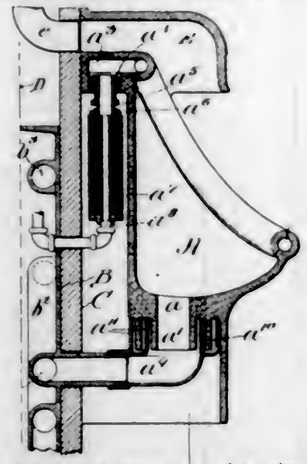
751,976. URINAL. DAVID CRAIG, Melrose, Mass. Filed Mar. 19, 1903. Serial No. 148,515. (No model.)

Claim.—1. In a urinal, a bowl, a support therefor, a flushing-pipe and a discharge-pipe each made in two sections, one section of each pipe being fixed to the support and the other section of each pipe being fixed to the bowl; two vertical couplings, one for each pair of pipe-sections, the upper member of each coupling being fixed to the pipe-section on the bowl and the lower member of each coupling being fixed to the pipe-section of the support.

2. In a urinal, in combination, a support, a bowl; a flushing-pipe and a discharge-pipe each comprising two vertical telescoping sections, with the upper section of each fixed to the bowl and the lower section of each fixed to the support.

3. In a urinal, in combination, a support, a bowl; a flushing-pipe and a discharge-pipe each comprising two vertical telescoping sections with the upper section of each fixed to the bowl and the lower section of each fixed to the support, the lower section of one pipe being arranged to support the weight of the bowl.

4. In a urinal, in combination, a wall-plate; a bowl, a flushing-pipe and a discharge-pipe, each of said pipes made in two telescoping sections, with one section of each pipe fixed to the bowl and the other section fastened to the wall-plate, and also having one of the sections on the wall-plate arranged to support the bowl.



5. In a urinal, in combination, a wall-plate; a bowl; a flushing-pipe and a discharge-pipe each made in two sections, one section of each pipe being fixed to the support and the other section of each pipe being fixed to the bowl; two vertical couplings one for each pair of pipe-sections, each coupling comprising an upper series of concentric rims fixed to the pipe-section on the bowl, and a lower series of concentric rims fixed to the pipe-section on the support, and telescoping with the upper series.

6. In a urinal, in combination, a bowl; a flushing-pipe; a discharge-pipe, each of said pipes made in two telescoping sections with one section of each pipe fixed to the bowl; a wall-plate having one of the sections of the discharge-pipe fixed thereto and arranged to support the bowl, and a siphon or trap cast in said plate and communicating with the fixed discharge-pipe section.

7. In a urinal, in combination, a bowl; a flushing-pipe; a discharge-pipe, each of said pipes made in two telescoping sections with one section of each pipe fixed to the bowl; a wall-plate having one of the sections of the discharge-pipe fixed thereto and arranged to support the bowl, a conduit comprising a trap cast in the wall-plate and communicating with the fixed discharge-pipe section, and a ventilating-conduit cast in said plate and communicating with the first conduit below the trap.

8. The above-described wall-plate casting made with a trap or siphon-shaped conduit on one side of said plate and integral therewith, the inlet end of said conduit passing through said plate to the other side thereof and terminating in a projection adapted to be coupled to a bowl.

9. The above-described wall-plate casting made with a trap or siphon-shaped conduit on one side of said plate and integral therewith, the inlet end of said conduit passing through said plate to the other side thereof and terminating in a projection adapted to be coupled to a bowl, and a ventilating-conduit integral with said plate and communicating at one end with the first conduit below the trap or siphon.

10. The above-described wall-plate casting made with an integral projecting pipe-section adapted to support a bowl; and also to serve as one of the pipe connections for such bowl.

11. The above-described wall-plate casting made with an integral projecting pipe-section on one side thereof adapted to support a bowl and also to serve as one of the pipe connections for such bowl; and a siphon-shaped conduit upon the opposite side of said plate and communicating at one end with said pipe-section.

12. The above-described wall-plate casting made with an integral projecting pipe-section on one side thereof adapted to support a bowl; a siphon-shaped conduit communicating at one end with said pipe-section, and a ventilating-conduit upon the opposite side of said plate and communicating at one end with the first conduit below the siphon.

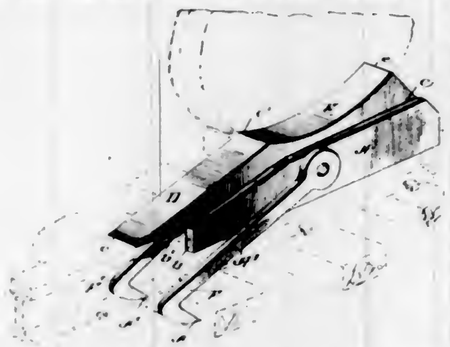
751,977. TAG-CLASP. SIMON DANCYGER, Dayton, Ohio. Filed Feb. 7, 1902. Serial No. 93,030. (No model.)

Claim.—1. As an improved article of manufacture the clasp consisting of a wire bent in a circular arc intermediate its ends having arms extending therefrom in the same plane, one of said arms having a hook with an outward bend with the point inclining inwardly, the other terminating in a loop formed at a right angle to the plane of said arms and free from engagement with the former arm, and adapted to engage said point by springing it to one side, substantially as described.



2. As an improved article of manufacture, the clasp consisting of a wire bent in a circular arc intermediate its ends, having parallel arms extending therefrom in the same plane, and having a hook with an outward bend formed on one of said arms and a circular loop formed on the other at a right angle to the plane of said arms, said loop having a central depression on its outer surface adapted to engage the end of said hook and adapted by springing it to one side to engage said hook, and thus securely hold the material within said hook, substantially as described.

751,978. CAR-RAISER. ROBERT W. DAVIDSON, Salt Lake City, Utah. Filed June 22, 1903. Serial No. 162,579. (No model.)



Claim.—1. A car-raiser, comprising a block having a longitudinal groove in its lower face adapted to receive the tread of the rail, the upper face of the block reduced equal to the tread of the rail and beveled upwardly and having a depression adjacent its upper end and hooks pivoted to the sides of said block and adapted to hold the block thereon.

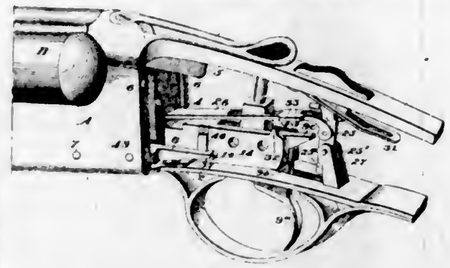
2. A car-raiser, comprising a block made of a single piece of metal and having a longitudinal groove in its lower face adapted to receive the tread of the rail, the upper face of the block reduced equal to the tread of the rail and beveled upward and having a depression adjacent its upper end, and means for preventing the block from sliding on the rail.

3. A car-raiser comprising a block cast of a single piece of metal with a reduced upper edge equal to the width of the rail, and said reduced portion being beveled upward and having a depression adjacent its rear end and said depression having a higher rear wall than the forward wall, said reduced portion having downwardly-extending flanges which extend partially along the sides thereon and forming a groove in its lower face, and means for preventing the block from sliding on the rail.

751,979. SINGLE TRIGGER FOR FIREARMS. ELIJAH D. FULFORD, Utica, N. Y., assignor of one-half to J. H. Webster and Paul North, Cleveland, Ohio. Filed Dec. 11, 1901. Serial No. 85,420. (No model.)

Claim.—1. The combination in a single-trigger mechanism of the trigger and sears, a movable trigger part mounted on the trigger and movable toward the rear having catches for alternately engaging the sears, a spring for moving the said trigger part toward the rear, the spring and weight of said movable trigger part being arranged or adjusted to utilize the inertia, and a catch for securing said trigger part in its forward position, substantially as set forth.

2. In a single-trigger mechanism, the combination of two sears and a trigger, a trigger part mounted on the trigger, movable from the front toward the rear having catch-shoulders for alternately engaging said sears, a spring for moving said trigger part toward the rear, a catch for securing said trigger part in its forward position when the trigger is in its normal or not-pulled position, a stop-shoulder for stopping the rearward movement of said trigger part when the trigger is in its pulled or up position and means for resetting said movable trigger part, substantially as set forth.



3. In a single-trigger mechanism, the combination of the trigger and sears of a rearwardly-movable trigger part weighted to utilize the inertia and having catch-shoulders for alternately engaging said sears, a catch for securing said trigger part in its primary or starting position when the trigger is unoperated, a spring for moving the said trigger part toward the rear when released, and adjusted to be affected by the inertia thereof and means for limiting the rearward movement of said trigger part with the second shoulder in position to engage with the sear, substantially as set forth.

4. The combination in a single-trigger mechanism of the sears and trigger catches for alternately engaging the sears mounted on a rearwardly-movable part, a catch arranged to secure said rearwardly-movable part in its forward position with one of said catch projections in position to engage the sear, said catch being releasable upon the manipulation of the trigger, a spring for impelling said movable part toward the rear when released and adjusted to be effected by the inertia and recoil, and means for resetting said movable part, substantially as set forth.

5. In a single-trigger mechanism for firearms, the combination of the trigger and sears, a trigger part mounted on the trigger movable lengthwise of the arm, transversely-movable catch-pins mounted in said movable trigger part having catch-shoulders to engage the sears upon their ends, and mechanism connecting and for shifting said catch-pins whereby the ends are alternately presented at opposite sides of the movable trigger part, substantially as set forth.

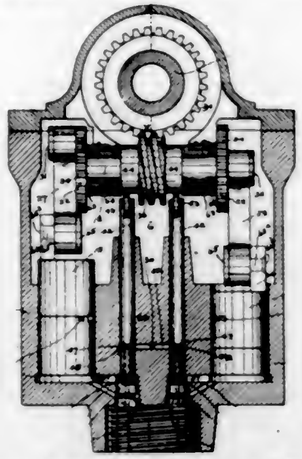
6. In a single-trigger mechanism for firearms, the combination of the trigger, a trigger part mounted on the trigger and movable lengthwise of the firearm, a pin transversely movable through said movable trigger part having a catch-shoulder on its ends adapted to engage one or the other of the sears and means for shifting the position of said catch-pin, substantially as set forth.

7. The combination in a single-trigger mechanism of the sears and trigger, catches for alternately engaging the sears mounted on and rearwardly movable on the trigger, a catch arranged to secure said rearwardly-movable part in its forward position with one of said sear-catches in position to engage one of the sears, the said catch being releasable upon the manipulation of the trigger, a spring for impelling the said movable part toward the rear when released and means for resetting said movable part, and manually-operative means for shifting the position of said sear-catches, substantially as set forth.

8. The combination in a single-trigger mechanism of the trigger and sears, a trigger part mounted on the trigger and movable toward the rear having sear-catches for alternately engaging the sears, a spring for moving the said trigger toward the rear, tensioned and proportioned with reference to the weight of the movable trigger part to utilize the inertia, as set forth, and a catch for securing said trigger part in its forward position, substantially as set forth.

9. The combination in a single-trigger mechanism of the trigger and sears, a catch for engaging the first-operated sear, a trigger part mounted on the trigger movably toward the rear having a catch for engaging the secondly-operated sear, a spring for moving said movable trigger part toward the rear, tensioned and proportioned with reference to the weight of the movable trigger part to utilize the inertia of the part to retard the movement substantially as set forth, a catch for securing said trigger part in its forward position and mechanism for resetting the same, substantially as set forth.

751,980. MOTOR. RICHARD W. FUNK, New York, N. Y., assignor to Hudson Machine and Pneumatic Tool Co., Jersey City, N. J., a Corporation of New Jersey. Filed May 10, 1902. Renewed July 14, 1903. Serial No. 165,527. (No model.)



Claim.—1. In an improved motor, a driven shaft, a plurality of drive-shafts geared to the driven shaft and geared one to the other, a plurality of cylinders, pistons in the cylinders and operatively connected with the drive-shafts, feed-ports and exhaust-ports for the cylinders, valves for the feed-ports, and means controlled by said valves for releasing the pressure in said cylinders after exhaust.

2. In an improved motor, a frame, a cylinder mounted in the frame, a piston operating in the cylinder, a feed-port and an exhaust-port for said cylinder, a cut-off valve and rod mounted in said frame and controlling said feed-port, a supplemental passage communicating with said cylinder, a duct formed in said frame and communicating with the outer air, and a duct in said cut-off rod arranged for communication with said duct in said frame and said supplemental passage when said valve is in position to close said feed-port.

3. In an improved motor, a cylinder, a piston operating in said cylinder, a feed-port and an exhaust-port for said cylinder, a supplemental passage communicating with said cylinder, and a conical valve for said feed-port provided with an annular groove and with an interior duct communicating with said annular groove at one end and opening outwardly at the other end, the relative arrangement and construction of parts being such that when said conical valve is in seated position to close said feed-port said annular groove is in communication with said supplemental passage and said interior duct is in communication with the outer air.

751,981. PROCESS OF PRESERVING WOOD. GEORGE W. GORDON, Philadelphia, Pa., assignor of two-fifths to Henry Arst and Julius Sostman, Philadelphia, Pa. Filed June 20, 1903. Serial No. 162,388. (No specimens.)

Claim.—1. The process of preserving wood, the same consisting in soaking it in a solution of calcium hydroxid and glycerin, substantially as described.

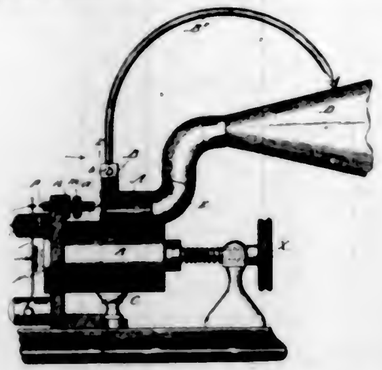
2. The process of preserving wood, the same consisting in impregnating the same with a solution containing calcium hydroxid, sugar and glycerin, substantially as described.

751,982. SOUND-MAGNIFIER FOR RELAYS. MATT A. HACKER, Irvine, Ky., assignor, by direct and mesne assignments, to himself, Joe S. Gardner, and Leonard A. West, Irvine, Ky., and Courtland P. Chenault, Frankfort, Ky. Filed Apr. 28, 1902. Serial No. 104,994. (No model.)

Claim.—1. The combination with a relay and its armature; of a sounding-surface, and a loose and freely-sliding pin interposed between the armature and the sounding-surface and transmitting the blow of the armature to the same substantially as described.

2. The combination with a relay and its armature; of a sounding-surface and a loose and freely-sliding pin arranged between the sounding-surface and the armature and means for adjusting the pin in relation to the armature substantially as described.

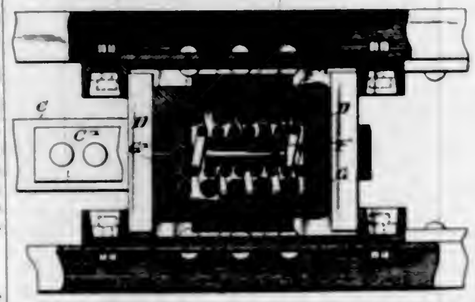
3. The combination with the relay and its armature; of a sounding-surface having an amplifying-horn, an intermediate sliding pin arranged between the sounding-surface and the armature, a tube inclosing said pin and having a screw-threaded outer surface, a screw-threaded standard supporting the same and a check-nut substantially as described.



4. The combination with the relay and its armature; of a headed sleeve having a glass disk attached to the head, and a horn attached to the other end, and a tappet-pin arranged between the glass disk and the armature substantially as described.

5. The combination with the relay and its armature; of a sound-amplifying device arranged above the relay, a cross-bar supporting said sound-amplifying device and having slotted ends, and two pillars supporting the ends of the cross-bar and having screws on top to fix the adjustment of the cross-bar and sound-magnifying device.

751,983. DRAFT-RIGGING FOR RAILWAY-CARS. JAMES A. HINSON, Chicago, Ill. Filed Apr. 13, 1903. Serial No. 152,354. (No model.)



Claim.—1. In a draft-rigging, the combination with the draw-bar, of wedge members which are closed together by the draft and buffing thrusts of the draw-bar and a spring or springs inclosing and pressing together the coacting parts of said wedge members and resisting the closing movement of the wedge members.

2. In a draft-rigging, the combination with the draw-bar, of friction wedge elements which are closed together by the draft and buffing thrusts of the draw-bar and a single spring which acts inwardly and oppositely against said wedge elements for pressing together said wedge elements and resisting their closing movement, said spring acting frictionally to resist the draft and buffing strains of the spring and the closing movements of the wedge elements.

3. In a draft-rigging, the combination with the draw-bar, of friction-wedges which are closed together by the draft and buffing thrusts of the draw-bar, and a spring or springs for pressing said wedges together and resisting their closing movement, said spring or springs embracing parts which are frictionally engaged and relatively movable during the draft and buffing strains brought thereon.

4. In a draft-rigging, the combination with a draw-bar, of wedge members which are closed together by the draft and buffing thrusts of the draw-bar and a spring or springs inclosing and pressing together the coacting parts of said wedge members and resisting their closing movement, the members of said spring or springs having frictional contact in such manner that the friction between said members resists the draft and buffing strains of the spring or springs.

5. In a draft-rigging, the combination with a draw-bar, of wedge members having coacting friction-surfaces and one of which is hollow to receive the other, the outer wedge member being separable so as to be spread or expanded by the inner member and a spring or springs surrounding the outer member and resisting the expansion of said separable member, said spring or springs having members which overlap one on the other in frictional engagement, whereby the friction between said members resists the draft and buffing strains of the spring or springs.

6. In a draft-rigging, the combination with the draw-bar, of friction wedge elements which are closed together by the draft and buffing thrusts of the draw-bar, spring elements for pressing together the wedge elements and resisting their closing movement, said spring elements embracing friction elements which resist the draft and buffing strains of the spring elements and means for separating said wedge elements when the draft and buffing stress is released.

7. In a draft-rigging, the combination with a draw-bar, of hollow wedge elements contained one within the other and having friction contact-faces, the outer wedge member being made separable to be spread by the inner wedge member, a spring or springs surrounding the outer member to resist the expansion thereof and a coiled spring acting against said wedge members in a manner to force the same apart.

8. In a draft-rigging, the combination with a draw-bar, of hollow friction-wedges, one contained within the other and provided with friction contact-faces, the outer wedge member being made separable so as to be expanded by the inner member, a spring or springs surrounding the outer member and comprising parts or members which frictionally move one on the other during the draft and buffing strains and a coiled spring acting against said wedge members in a manner to force the same apart.

9. In a draft-rigging, the combination with a draw-bar and its yoke, draft-plates attached to the draft-sills and follower-bars extending through said yoke and engaging pockets in said draft-plates, of hollow friction-wedges contained one within the other and provided with friction contact-faces and bearing at their ends against said follower-bars, the outer friction member being made separable so as to be expanded by the inner member, a spring or springs surrounding the outer wedge member and resisting the expansion of said outer wedge member, and a spring acting against said wedge members to force the same apart.

10. In a draft-rigging, the combination with a draw-bar and its yoke, draft-plates attached to the draft-sills and follower-bars extending through said yoke and engaging pockets in said draft-plates, of hollow friction-wedges contained one within the other and provided with friction contact-faces and bearing at their ends against said follower-bars, the outer friction member being made separable so as to be expanded by the inner member, a spring or springs surrounding the outer wedge member and resisting the expansion of said outer wedge member, said spring or springs comprising members which have frictional engagement whereby the friction between said parts resists the draft and buffing strains of said spring or springs, and a spring acting against said members to force the same apart.

11. In a draft-rigging, the combination with the draw-bar and its yoke, draft-plates attached to the draft-sills and follower-bars extending through the yoke and engaging pockets in said draft-sills, of hollow friction-wedges one contained within the other and provided with friction contact-faces, and bearing at their ends against said follower-bars, the outer wedge member being made separable so as to be expanded by the inner wedge member, a spring or springs surrounding the outer wedge member and resisting the expansion thereof, a coiled spring acting against said wedge members to force the same apart and a plate interposed between one end of said spring and the end of the separable wedge member.

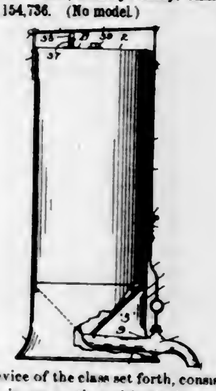
12. In a draft-rigging, the combination with the draw-bar, of wedge members which are closed together by the draft and buffing thrusts of the draw-bar and two curved leaf-springs surrounding the coacting parts of said wedge members, one spring surrounding the other, the ends of said springs being separated, and the space between the ends of one spring being located on the side of the wedge members remote from the space between the ends of the other spring.

13. In a draft-rigging, the combination with the draw-bar and its yoke, draft-plates attached to the draft-sills and follower-bars extending through said yoke and engaging pockets in said draft-plate, of hollow wedge members contained one within the other and provided with friction contact-faces, the outer wedge member being made separable so as to be expanded by the inner wedge member, two curved leaf-springs surrounding the outer wedge member, one spring surrounding the other, the ends of said springs being separated, and the space between the ends of one of said springs being located opposite to the space between the ends of the other spring and a spring interposed between said wedge members and acting to force the same apart.

14. In a draft-rigging, the combination with the draw-bar and its yoke, draft-plates attached to the draft-sills and follower-bars extending through said yoke and engaging pockets in said draft-plates, of hollow wedge members contained one within the other being made separable so as to be expanded by the inner wedge member, two curved leaf-springs surrounding the outer wedge member, the ends of said springs being separated and the space between the ends of one of said springs being located opposite to the space between the ends of the other spring, a coiled spring interposed between said wedge members and acting to force the same apart, and stops located in the spaces between the ends of said springs for preventing rotation of the springs.

15. In a draft-rigging, the combination with the draw-bar and its yoke, draft-plates attached to the draft-sills, and follower-bars extending through the draw-bar and engaging pockets in said draft-plates; of hollow wedge members one contained within the other and provided with friction contact-faces, the outer wedge member being made separable so as to be expanded by the inner wedge member, a spring or springs surrounding the outer wedge member and acting to resist the expansion thereof and flanges on the draft-plates provided with notches adapted to receive the said surrounding springs at the sides of the draft-rigging.

751,984. OIL-CAN. PAUL HOON, St. Paul, Minn., assignor of one-half to Edward A. Ritt, Ramsey county, Minn. Filed Apr. 27, 1903. Serial No. 154,736. (No model.)



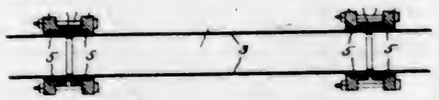
Claim.—1. A device of the class set forth, consisting of a receptacle, an outlet-valve in connection with the lower end of said receptacle, a stem projecting above said outlet-valve, guides on the side of said receptacle for said stem, a spring for raising said stem and closing said valve, a lever pivotally connected with the upper end of said stem and above said receptacle, an air-inlet near the upper end of said receptacle, a valve in said inlet, a projection above said air-inlet valve, which projection terminates below said lever when said outlet-valve is open, and a spring for closing said air-inlet valve automatically.

2. A device of the class set forth, consisting of a receptacle having a closed upper end, a base below the lower end of said receptacle, a faucet in connection with the lower end of said receptacle, a vertical valve-stem projecting from said faucet, a lever above the receptacle and pivotally connected with said valve-stem, a spring in connection with the valve-stem for closing said faucet, an arm carried by the receptacle, a slot in said arm for receiving said lever, an air-inlet valve in the upper end of said receptacle, a vertical stem projecting from said air-inlet valve and terminating below said lever and between its pivot connections, and an expansion-spring on the air-inlet-valve stem, for the purposes specified.

3. A device of the class set forth, consisting of a receptacle A, terminating in a tapering lower end, an outlet-valve in connection with the extremity of said lower end, a base for supporting said receptacle, a stem projecting from the outlet-valve, above said receptacle, guides on the side of said receptacle for said stem, an adjustable clip on said stem, an expansion-spring between said clip and one of said guides, adapted to close said outlet-valve automatically, a

lever pivotally connected with said stem, above said receptacle, a handle on said stem for opening said valve, an air-inlet near the upper end of said receptacle, a valve in said inlet, a projection above said air-inlet valve, which projection terminates below said lever, when said outlet-valve is opened by means of said handle, and a spring for closing said air-inlet valve automatically.

751,985. **UNDERGROUND-CONDUIT INSULATION.** JOHN M. HUMISTON, Berwyn, Ill. Filed Apr. 27, 1903. Serial No. 154,554. (No model.)



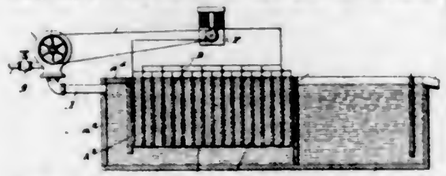
Claim.—1. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together substantially as set forth.

2. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together, said insulating-section consisting of an inner initial shell and an outer coating of insulating material, substantially as set forth.

3. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together, and consisting of annular compression members having gland-cavities in their exposed faces, elastic packing-rings in said cavities, a central compression member, and bolts for drawing the annular compression members together, substantially as set forth.

4. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length and consisting of an inner metal shell and an outer coating of insulating material, and couplings connecting the ends of the respective sections together, and consisting of annular compression members having gland-cavities in their opposed faces, elastic packing-rings in said cavities, a central compression member, and bolts for drawing the annular compression members together, substantially as set forth.

751,986. **APPARATUS FOR PURIFYING LIQUIDS.** OTTO KARTHAUS, Brooklyn, N. Y., assignor of one-half to William Davis, Jersey City, N. J. Filed Dec. 26, 1900. Serial No. 41,128. (No model.)



Claim.—1. In liquid-purifying apparatus, a receptacle open at its upper portion to the air, a series of detachable electrodes located therein and energized from a suitable source of power, and means for passing the whole of a liquid in a continuous stream simultaneously upwardly between said electrodes and over the edges of said receptacle, substantially as described.

2. In liquid-purifying apparatus, an overflow-tank, a receptacle located therein and the upper portion whereof is open to the air, a series of detachable electrodes supported within the said receptacle upon strips located above the bottom thereof, and means for passing the whole of a liquid in a continuous stream simultaneously upwardly between said electrodes over the edges of said receptacle and into said overflow-tank, substantially as described.

751,987. **PAPER-FILING CASE.** GEORGE MILLER, Lancaster, Pa. Filed Apr. 19, 1902. Serial No. 103,715. (No model.)

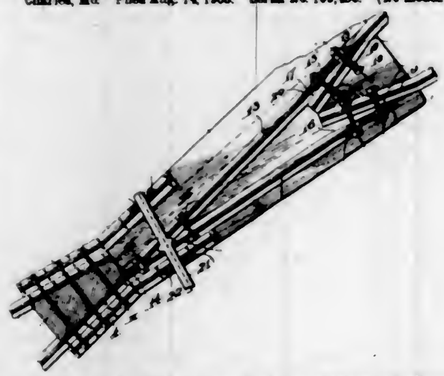
Claim.—1. In a paper-filing case, a casing, socket-strips secured to the bottom of the case, an apertured dome formed in each of the said strips, spring holding-strips each having a bifurcated end, an inverted dome formed in each of the said holding-strips and communicating with the bifurcations, and a plurality of headed filing-pins, one end of each pin entering the dome of the socket-strip and the other end carrying the head entering the holding-strip through the bifurcation and held in the dome thereof through the resiliency of said spring holding-strip, substantially as described.



2. In a paper-filing case of the character described, in combination, pairs of filing-pin-retaining strips secured to said case, one of each pair having on one side a dome with a depression thereunder and a central orifice therethrough, and the other one of each pair having a like dome, a like depression, and a central orifice, with a slot from said orifice through the forward end of said strip, and having a tongue on each side of said slot, said tongues having their forward ends curving outwardly on the side having the dome, and a filing-pin having a rounded end engaging through the orifice of said first-mentioned strip and seated in the depression thereof, said pin having at its opposite end a head movable over the curving tongues of said last-mentioned strip and by reason of the slot between said tongues and of its central orifice securely seated in the depression thereof, all substantially as described and for the purpose hereinbefore set forth.

3. In a paper-filing case, a casing having a back, top and bottom, socket-strips secured to the back and lying flush with the bottom of said case, upwardly-projecting semispherical domes provided with central apertures and formed integral with the said strips, spring holding-strips secured to the back against the top of the case and formed with downwardly and outwardly curved ends provided with a bifurcation, downwardly-projecting semispherical domes communicating with the bifurcations, and a plurality of filing-pins having their points inserted in the apertures of the domes of the socket-strips and having their heads entered through the bifurcations and resting in the domes of the spring holding-strips, substantially as described.

751,988. **RAILWAY-SWITCH.** JOHN J. MURPHY, Wellston, Mo., assignor of forty-nine one-hundredths to James D. Houseman, St. Charles, Mo. Filed Aug. 14, 1903. Serial No. 169,436. (No model.)



Claim.—1. In a railway-switch, the combination of adjacent main and side track rails, a frog having tapering rear ends fitted to said rails, and means whereby said frog is yieldingly connected to said rails, substantially as set forth.

2. In a railway-switch, the combination of adjacent main and side track rails, a frog having its rear ends fitted to said rails for longitudinal movement thereagainst, and bolts passing through said frog and rails to connect said parts, substantially as set forth.

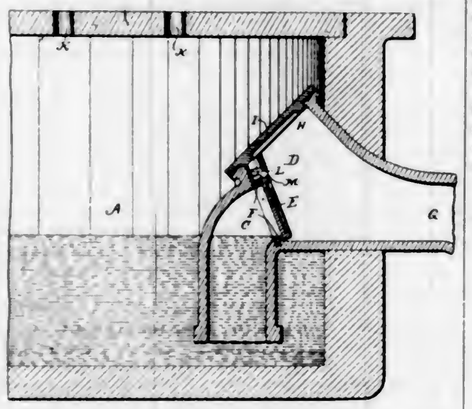
3. In a railway-switch, the combination of adjacent main and side track rails, a frog having its rear ends fitted to said rails for longitudinal movement thereagainst, bolts passing through said frog and rails to connect said parts, and springs applied to said bolts to hold the rear ends of said frog yieldingly to said rails, substantially as set forth.

4. In a railway-switch, the combination of adjacent main and side track rails, a frog having slotted rear ends fitted to said rails for longitudinal movement thereagainst, and bolts passing through the slots in said frog and through said rails to connect said members, substantially as set forth.

5. In a railway-switch, the combination of main and side track rails, a frog having its rear ends fitted to said rails, bolts connecting the rear ends of said frog to said rails, and wedge-blocks fitted to the rear ends of said frog to receive the bearing of said bolts, substantially as set forth.

6. In a railway-switch, the combination of main and side track rails, a movable frog connected to said rails, a throw-rod passing through said frog, and bosses on said throw-rod between the sections of said frog, substantially as set forth.

751,989. **TRAP FOR CATCH-BASINS.** PETER F. MURPHY, Milwaukee, Wis. Filed Mar. 9, 1903. Serial No. 147,023. (No model.)



Claim.—1. A trap for catch-basins comprising a vertical inlet bend or portion; a horizontal outlet bend or portion terminating with an inward, upward curve above the inlet bend or portion, provided with a hand hole or opening formed at an oblique angle to the horizontal bend or portion and a removable cover for closing said hand hole or opening.

2. A trap for catch-basins comprising a vertical inlet bend or portion; a horizontal outlet bend or portion enlarged laterally and upwardly to form a receiving-chamber above and at the junction of said horizontal and vertical bends or portions; a hand-opening provided with a suitable cover located above the junction of said horizontal and vertical bends or portions and a valve located in said receiving-chamber at the junction of said vertical bends or portions, substantially as set forth.

3. A trap for catch-basins comprising a vertical inlet bend or portion; a horizontal outlet bend or portion enlarged laterally to form a receiving-chamber at the junction of said bends or portions, said chambers being extended upwardly at an oblique angle to said horizontal bend or portion; a hand-opening formed at an oblique angle to the vertical bend or portion; a cover for closing said hand-opening and a valve located in said chamber, substantially as, and for the purpose specified.

4. The combination with a catch-basin provided with a cover, having a grated central portion and a solid marginal portion, of a trap comprising a vertical inlet bend or portion, a horizontal outlet bend or portion terminating with an inward, upward curve above said vertical portion, and a hand-opening formed at an oblique angle to and located at the junction of said inlet and outlet bends or portions beneath the solid marginal portion of the cover, as set forth.

5. The combination with a catch-basin provided with a cover, having a grated central portion and a solid marginal portion, of a trap comprising a vertical inlet bend or portion, a horizontal outlet bend or portion terminating with an inward, upward curve or bend above said vertical portion, a valve located at the junction of said horizontal and vertical bends or portions and a hand-opening provided with a suitable cover located at an oblique angle to the horizontal bend or portion at the mouth of said inward, upward curve or bend beneath the ungrated or solid part of the cover of the catch-basin above, as set forth.

751,990. **PROCESS OF MAKING SUGAR.** JOHN MCGLASHAN, Cawnpore, India. Filed Feb. 16, 1903. Serial No. 143,655. (No specimens.)

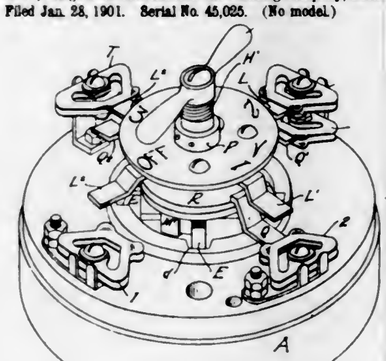
Claim.—1. As an improvement in the process of making sugar, "pitching" a sugar-containing solution in which is both cane-sugar and invert sugar, with a yeast-like organism which has substantially no power of inverting saccharose, but has the power of decomposing the invert sugar into alcohol and carbonic acid, substantially as herein set forth.

2. As an improvement in the process of making sugar, "pitching" a sugar-containing solution in which is cane-sugar and not more than six per cent. of invert sugar, with a yeast-like organism which has substantially no power of inverting saccharose, but has the power of decomposing the invert sugar into alcohol and carbonic acid, substantially as herein set forth.

3. As an improvement in the process of making sugar, "pitching" a sugar-containing solution in which is both cane-sugar and invert sugar, with a yeast-like organism which has substantially no power of inverting saccharose, but has the power of decomposing the invert sugar into alcohol and carbonic acid, before the final concentration to crystals and molasses, fermenting the solution containing the mixed sugars and driving off the alcohol produced, substantially as described.

4. As an improvement in the process of making sugar, "pitching" a sugar-containing solution in which is both sugar and invert sugar, with an organism which is of the non-inverting saccharomycetes type, fermenting the solution containing the mixed sugars, and driving off the alcohol produced, substantially as described.

751,991. **CURRENT-DIRECTOR.** JAMES F. MCELROY, Albany, N. Y., assignor to Consolidated Car-Heating Company, Albany, N. Y. Filed Jan. 28, 1901. Serial No. 45,025. (No model.)



Claim.—1. In a current-director, a block; a fitting placed therein; latch-bars arranged in pairs adapted to be moved in and out of openings in said fitting; spring-actuated cam-arms arranged to be held by one of said latch-bars during the operation of the switch until the maximum tension of the spring attached to the latch-bars is obtained, the other of said cam-arms arranged to move said latch-bars out of engagement with the first-mentioned cam-arm, thus releasing the spring and causing the switch to be turned with force; fingers connected with the movable part of said switch; a series of said fingers placed in a horizontal plane, the second series of said fingers placed in a horizontal plane above the first-mentioned series; contact-brushes adapted to engage said fingers, substantially as described.

2. In a current-director, a block; a fitting placed therein; latch-bars arranged in pairs; a spring connected with each pair of latch-bars by the operation of which each pair of latch-bars will be returned to its normal position, extending slightly within the fitting, after they have been operated on by the cam-arms; spring-actuated cam-arms adapted to engage said latch-bars; contact-fingers secured to the movable part of the switch; brushes attached to said block, all substantially as described.

3. In a current-director, a block; a fitting placed therein; latch-bars adapted to move in and out within openings cut in the exterior rim of said fitting; spring-actuated cam-arms adapted to engage said latch-bars; an arm adapted to move one of said cam-arms, depending upon the direction in which it is turned; contact-fingers arranged in different planes, those in one plane insulated from those in the

other plane; contact-brushes adapted to engage said fingers, substantially as described.

4. In a current-director, a block; a fitting placed therein; latch-bars arranged in pairs adapted to be moved in and out of openings in the exterior rim of said fitting; a spring attached to each pair of latch-bars adapted to return each pair to its normal position after a movement of the switch; spring-actuated cam-arms adapted to engage said latch-bars; an arm adapted to move one of said cam-arms while the other is held by one of the latch-bars; a series of fingers arranged in one plane with a series of fingers arranged in a different plane and insulated from the first-mentioned series; brushes adapted to engage the fingers of each series, substantially as described.

5. In a current-director, a block; a fitting placed therein; latch-bars arranged in pairs placed within said fitting; a spring connected with said latch-bars by the operation of which each pair will be returned to its normal position after the operation of the switch, substantially as described.

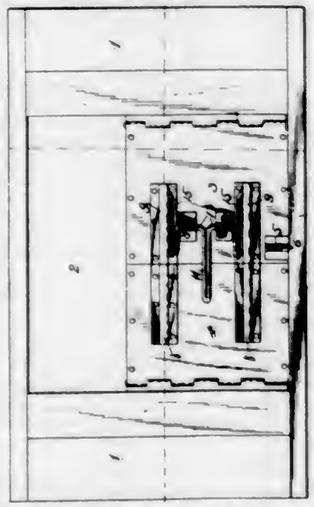
6. In a current-director, a block; a fitting placed therein; latch-bars adapted to be moved in and out of openings arranged in the external ring of said fitting; spring-actuated cam-arms adapted to engage said latch-bars; contact-fingers arranged in different planes, those in one plane insulated from those in the other; brushes adapted to engage said contact-fingers, so arranged that current entering at T engaging with a finger in one of the planes will pass to the double brush W through the finger engaging with the one portion of said brush and be connected to the lower brush, thence it may go to either of the fingers in the other plane, depending upon the position of the switch.

7. In a current-director having four or more positions, mechanism for causing a quick snap-like motion from one position to another in either direction combined with a rotary portion consisting of two sets of contact-fingers, the contact-fingers of one set being placed in series with the contact-fingers of the other set.

8. In a current-director suitable mechanism for producing a quick snap-like motion in either direction combined with contact-fingers in two sets, one set used for making and breaking circuit while the other set is used for distributing current in two, or more prearranged circuits.

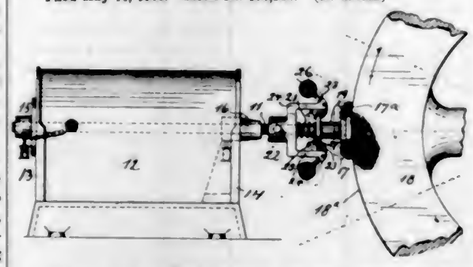
9. A current-director consisting of a base containing a stationary post on which is mounted a tube capable of a rotary motion and having on its side a projecting lug, a moving carrying-plate on which is mounted two sets of contact-fingers, these sets being supported in insulating material, said contact-carrying plate being provided with a lug by which a quick snap action may be communicated to the two sets of contact-fingers.

751,992. **GRAIN-DOOR FOR CARS.** MARTIN W. NELSON, Kent, Minn. Filed May 19, 1903. Serial No. 157,871. (No model.)



Claim.—The combination, with a sectional or two-part car-door, of duplicate series of keepers, arranged upon the car-door sections, respectively, sliding bolts arranged or housed in one of said series of keepers and, in their projected position, adapted to engage the other of said series of keepers, a T-shaped lever having its cross head fulcrumed upon one of said door-sections, said cross-head having right-angled or rebent terminals extending parallel with the stem or handle of said lever, and links connecting together said bolts and said terminals.

751,993. **SPEED-REGULATOR FOR GENERATORS.** GEORGE J. PELSTRING, Cincinnati, Ohio, and HENRY G. PELSTRING, Covington, Ky. Filed May 11, 1903. Serial No. 156,527. (No model.)



Claim.—1. In a speed-regulator, the combination of a driven shaft, a friction-disk mounted thereon and operatively connected thereto for rotation but free to move longitudinally, a driving-wheel, a shaft on which it is mounted and to which the driven shaft is arranged at right angles, a spring to normally maintain a part of the side of the disk near the edge thereof in operative but yielding frictional contact with the face of said driving-wheel, and mechanism susceptible to the action of centrifugal force also mounted on the driven shaft and operatively connected to the sliding disk thereon and in a manner that when under the influence of such a force it may oppose the action of the spring.

2. In a speed-regulator, the combination of a driven shaft, a friction-disk mounted thereon and operatively connected thereto for rotation but free to move longitudinally, a driving-wheel, the driven shaft being arranged so as to be parallel to the side thereof, a spring to normally maintain a part of the side of the disk near the edge thereof, in operative but yielding frictional contact with the face of said driving-wheel, and mechanism susceptible to the action of centrifugal force also mounted on the driven shaft and operatively connected to the sliding disk thereon and in a manner that when under the influence of such a force it may oppose the action of the spring.

751,994. **GARMENT-SUPPORTER.** REBECCA A. PERLIE, Washington, D. C. Filed May 23, 1903. Serial No. 158,459. (No model.)



Claim.—1. A garment-supporter consisting of a plate; and a compound hook comprising a shank and two oppositely-disposed points both standing parallel with the shank, the latter being passed through bends struck up in and also soldered to the face of the plate and the front hook pointing downward while the rear hook passes around the lower end of the plate and points upward.

2. A garment-supporter consisting of a plate, a compound hook comprising a shank and two oppositely-disposed points both standing parallel with the shank, the latter being secured to the face of the plate and the front hook pointing downward while the rear hook passes around the lower end of the plate and points upward, and means independent of the hook for holding the plate in place upon the wearer.

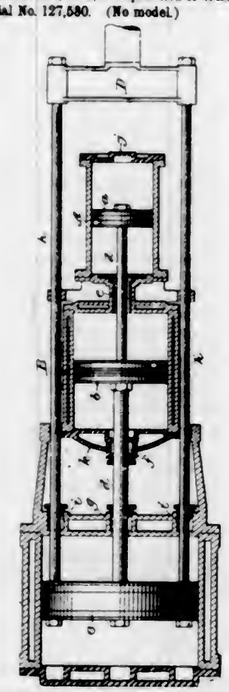
3. A garment-supporter consisting of a plate, and means for detachably securing thereto the gathered folds of the waist; combined with a compound hook comprising a shank and two oppositely-disposed points both standing parallel with the shank, the latter being secured to the face of the plate and the front hook pointing downward while the rear hook passes around the lower end of the plate and points upward.

4. A garment-supporter consisting of a plate, and means for detachably securing thereto the gathered folds of the waist; combined with a compound hook secured in an upright position to the plate with its outer point projecting downward and its inner point projecting upward, and additional means for holding the plate in place upon the wearer.

5. A garment-supporter consisting of a plate, a transverse pin on its upper portion, and an upright compound hook beneath said pin, the forward point projecting downward and the rearward point projecting upward.

6. A garment-supporter consisting of a plate, and an upright compound hook at its lower portion with the forward point projecting downward and the rearward point projecting upward; combined with a pin whose shank is soldered to the rear of the plate, one extremity passing through the plate and forming an engaging hook and the other extremity passing through the plate and forming a spring-pin whose tip is adapted to extend across the front of the plate and engage said hook.

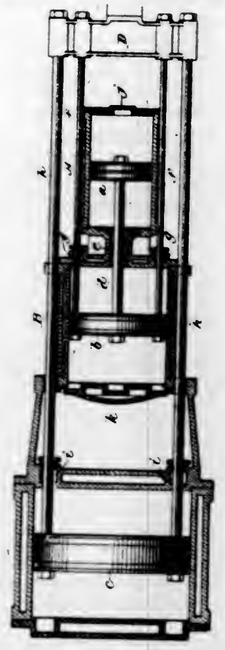
751,995. **MULTIPLE-EXPANSION ENGINE.** FREDERICK M. PRESCOTT, Milwaukee, Wis., assignor to Fred M. Prescott Steam Pump Company, West Allis, Wis., a Corporation of Wisconsin. Filed Oct. 16, 1902. Serial No. 127,580. (No model.)



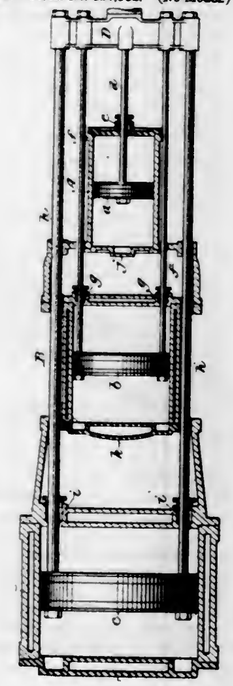
Claim.—In a multiple-expansion engine the combination of high, intermediate and low pressure cylinders arranged end to end in line with each other, a space being left between the intermediate and low pressure cylinders, pistons fitted in said cylinders, a rod connecting the several pistons with each other, a cross-head and side rods passing outside of the high pressure and intermediate cylinders and connecting the low-pressure piston with said cross-head, the front head of the high-pressure cylinder and the rear heads of the intermediate and low pressure cylinders being removable, substantially as described.

751,996. **MULTIPLE-EXPANSION ENGINE.** FREDERICK M. PRESCOTT, Milwaukee, Wis., assignor to Fred M. Prescott Steam Pump Company, West Allis, Wis., a Corporation of Wisconsin. Filed Oct. 16, 1902. Serial No. 127,581. (No model.)

Claim.—In a multiple-expansion engine the combination of high, intermediate and low pressure cylinders arranged end to end in line with each other, a space being left between the intermediate and low pressure cylinders, pistons fitted in said cylinders, a rod connecting the intermediate piston with the high-pressure piston, a cross-head, side rods passing outside of the high-pressure cylinder and connecting the intermediate piston with said cross-head, and side rods passing outside of the intermediate and high pressure cylinders and connecting the low-pressure piston with said cross-head, the front head of the high-pressure cylinder and the rear heads of the intermediate and low pressure cylinders being removable, substantially as described.

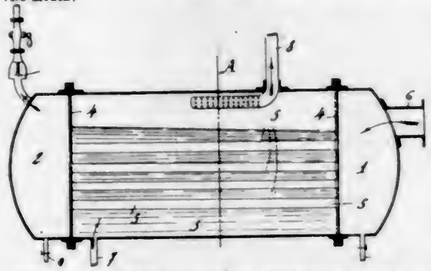


751,997. **MULTIPLE-EXPANSION ENGINE.** FREDERICK M. PRESCOTT, Milwaukee, Wis., assignor to Fred. M. Prescott Steam Pump Company, West Allis, Wis., a Corporation of Wisconsin. Filed Oct. 16, 1902. Serial No. 127,582. (No model.)



Claim.—In a multiple-expansion engine the combination of high, intermediate and low pressure cylinders arranged end to end in line with each other, spaces being left between the several cylinders, pistons fitted in said cylinders, a cross-head, a piston-rod passing through the front head of the high-pressure cylinder and connecting the high-pressure piston with said cross-head, side rods passing outside of the high-pressure cylinder and connecting the intermediate piston with said cross-head, and side rods passing outside of the intermediate and high-pressure cylinders and connecting the low-pressure piston with said cross-heads, the rear heads of the several cylinders being removable, substantially as described.

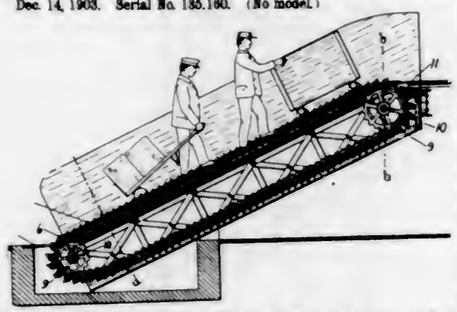
751,998. **VAPOR-GENERATOR.** AUGUSTE C. E. RATEAU, Paris, France. Original application filed Mar. 25, 1902, Serial No. 99,923. Divided and this application filed May 21, 1903. Serial No. 158,131. (No model.)



Claim.—1. In a steam regenerative accumulator a boiler, two walls dividing the boiler into three compartments, a group of tubes placed in the central compartment and putting the end compartments in communication with each other, an inlet-pipe for the current of steam, an outlet-pipe for the generated vapor, and longitudinal plates on each side of the group of tubes, substantially as described and for the purpose set forth.

2. A steam regenerative accumulator, comprising a boiler the longitudinal axis of which is slightly inclined, two walls dividing the boiler into a central and two end compartments, a group of tubes placed in the central compartment and putting the end compartments in communication with each other, an inlet-pipe for the introduction of an intermittent current of steam into the group of tubes, an outlet-pipe for the vapor generated in the central compartment, longitudinal plates on each side of the group of tubes the said plates forming a central shaft in the central compartment so as to cause the circulation of a heat-carrier liquid around the tubular group and an outflow-pipe for the water condensed in the group of tubes substantially as described and for the purpose set forth.

751,999. **ELEVATOR.** JESSE W. RENO, New York, N. Y. Filed Dec. 14, 1903. Serial No. 185,160. (No model.)



Claim.—1. In an elevator, the combination with a tread-belt adapted to carry passengers, of truck-engaging lugs secured to said tread-belt.

2. In an elevator, the combination with a tread-belt adapted to carry passengers, of truck-engaging lugs secured to the sides of said tread-belt.

3. In an inclined elevator, the combination with a tread-belt adapted to carry passengers, means for automatically depositing the passengers on landings, and truck-engaging lugs secured to and projecting above said tread-surface.

4. In an inclined elevator, the combination with a longitudinally-ribbed tread-belt adapted to carry passengers, truck-engaging lugs secured to the sides of said tread-belt and projecting above the ribs thereof, a comb-landing adapted to register with said ribbed tread-surface and said truck-engaging lugs.

5. In an inclined elevator, the combination with a longitudinally ribbed tread-belt adapted to carry passengers, truck-engaging lugs secured to the sides of said tread-belt and projecting above the ribs thereof, a comb-landing adapted to register with said ribbed tread-surface and elongated slots at the sides of said comb-landing adapted to register with said truck-engaging lugs.

6. In an inclined elevator, the combination with a series of slats joined together in the form of an endless chain, tread-pieces secured to said slats so as to form a tread-surface having longitudinal grooves therein, a comb-landing adapted to register with said longitudinal grooves and lugs secured to the ends of said slats and projecting up above the surface of said tread-pieces.

7. In an inclined elevator, the combination with the movable tread-surface, of stationary tracks arranged along the sides of said movable tread-surface, and truck-engaging lugs secured to said movable tread-surface.

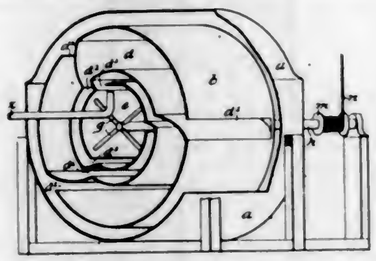
8. In an elevator, the combination with a series of slats secured to the links of an endless chain at their middle points, friction-rollers mounted on the ends of said slats, inclined tracks for said friction-rollers, tread-pieces secured to the operative sides of said slats, intermediate the ends, lugs adapted to project above the tops of said treads secured to the ends of said slats and stationary inclines arranged at the sides of said tread-surface.

9. In an inclined elevator, the combination with a tread-surface composed of transverse slats linked together in the form of an endless chain, of friction-wheels secured near the ends and on the inner sides of said slats, lugs secured to the outside of said tread-belt projecting above the surface thereof, stationary inclines arranged along the sides of said tread-belts, laterally-projecting lugs secured to the inner side of said tread-belt, rails adapted to be engaged by said friction-rollers during the operative portion of the traveling of said tread-belt, and rails adapted to be engaged by said laterally-projecting lugs on the return portion of said tread-belt.

10. In an inclined elevator, the combination with a tread-surface adapted to carry passengers, of truck-engaging lugs having driving-faces substantially normal to the general direction of the incline of the tread-surface and a rear surface inclined thereto.

11. In an elevator, the combination with a supporting structure, of a tread-belt adapted to convey passengers, trackways upon said supporting structure adapted to guide and support said tread-belt and independent trackways upon said supporting structure adapted to guide and support trucks.

752,000. **BLOWER FOR GAS-MACHINES.** CHARLES E. SAYRE, Waterloo, and JAMES W. SAYRE, Hartley, Iowa. Filed June 6, 1902. Serial No. 110,424. (No model.)



Claim.—1. A blower consisting of a fixed water-tank, a rotary drum therein comprising outer and inner concentric cylinders and an interposed concentric wall dividing the space between the cylinders into outer and inner portions, substantially radial diaphragm-plates of equal number in both portions but non-alined, openings through the wall between adjacent plates connecting the rear end of each outer portion with the forward end of one inner portion, air-inlets through the outer cylinder at the forward end of each outer portion, air-outlets through the inner cylinder at the rear end of each inner portion, and an air-exhaust from the interior of said inner cylinder.

2. A blower consisting of a fixed water-tank, a rotary drum

therein comprising outer and inner concentric cylinders and an interposed concentric wall dividing the space between the cylinders into outer and inner portions, substantially radial diaphragm-plates of equal number in both portions but non-alined, openings through the wall between adjacent plates connecting the rear end of each outer portion with the forward end of one inner portion, air-inlets through the outer cylinder at the forward end of each outer portion, air-outlets through the inner cylinder at the rear end of each inner portion, a series of additional air-outlets at the front end of each inner portion, and an air-exhaust from the interior of said inner cylinder.

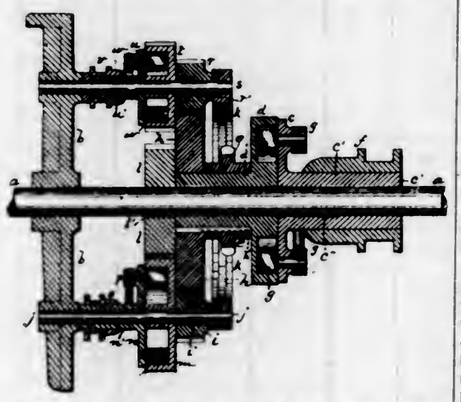
3. A blower consisting of a fixed water-tank, a rotary drum therein comprising outer and inner concentric cylinders and an interposed concentric wall dividing the space between the cylinders into outer and inner portions, substantially radial diaphragm-plates of equal number in both portions but non-alined, openings through the wall between adjacent plates connecting the rear end of each outer portion with the forward end of one inner portion, air-inlets through the outer cylinder opening into each outer portion, two sets of air-outlets opening from each inner portion through the inner cylinder, and an air-exhaust from within the latter.

4. A blower consisting of a fixed water-tank, a rotary drum therein comprising outer and inner concentric cylinders and an interposed concentric wall dividing the space between the cylinders into larger outer and smaller inner portions, diaphragm-plates of equal number in both portions but non-alined, openings through the wall between adjacent plates connecting the rear end of each larger outer portion with the forward end of one smaller inner portion, air-inlets into the larger portions, air-outlets from the smaller, and an air-exhaust from the interior of the inner cylinder.

5. A blower consisting of a fixed water-tank, a rotary drum therein comprising outer and inner concentric cylinders and an interposed concentric wall dividing the space between the cylinders into larger outer and smaller inner portions, diaphragm-plates of equal number in both portions but non-alined, openings through the wall between adjacent plates connecting the rear end of each larger outer portion with the forward end of one smaller inner portion, air-inlets into the larger portions, air-outlets from the smaller, including a series of openings, through the inner cylinder for each portion, and an air-exhaust from the interior of the inner cylinder.

6. A blower consisting of a rotary drum comprising concentric cylinders and radial diaphragms, and a circular wall therein dividing the drum into compression-chambers, each having a larger outer portion extending one-third around the axis and then communicating with a smaller inner portion extending a second third around it; combined with air-inlets into the larger portions and air-outlets from the smaller, and a liquid seal in which the drum is submerged for substantially two-thirds its upright diameter, the whole operating as set forth.

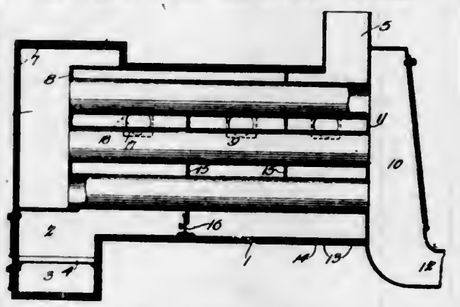
752,001. **TRANSMISSION-GEAR FOR POWER-DRIVEN VEHICLES.** RUFUS D. SCOTT, Beverly, Mass., assignor to Albert G. Ropes, Morristown, N. J. Filed July 20, 1903. Serial No. 166,279. (No model.)



Claim.—1. In a transmission-gear of the character described, an intermediate shaft adapted to be driven by the engine; a clutch having one of its members keyed to said shaft; mechanism within the control of the operator for moving said clutch members into engagement; mechanism rigid with the loose member of said clutch whereby motion can be communicated to the rear axle or wheels; an additional shaft *j* supported by the carriage; a clutch having one of its members keyed to said shaft *j;* mechanism within the control of the operator for moving said clutch members into engagement; a gear-wheel rigid on the intermediate shaft and in engagement with the clutch on the shaft *j;* and intermeshing gear-wheels rigid respectively with the shaft *j* and the loose member of the clutch on the intermediate shaft, whereby a plurality of speeds may be communicated from the intermediate shaft to the mechanism connecting with the driving axle or wheels.

2. In a transmission-gear of the character described, an intermediate shaft adapted to be driven by the engine, a clutch having one of its members keyed to said shaft; mechanism within the control of the operator for moving said clutch members into engagement; mechanism rigid with the loose member of said clutch whereby motion can be communicated to the rear axle or wheels; an additional shaft *s* supported by the carriage; a clutch mechanism having one of its members keyed to said shaft *s;* mechanism within the control of the operator for moving said clutch members into engagement; a gear-wheel rigid on the intermediate shaft; a gear-wheel intermediate of and in engagement with said gear-wheel and the loose member of the clutch on the shaft *s;* and intermeshing gear-wheels rigid respectively with the shaft *s* and loose members of the clutch on the intermediate shaft, whereby reverse motion may be communicated from the intermediate shaft to the mechanism communicating with the driving axle or wheels.

752,002. **HEATING APPARATUS.** SAMUEL F. SHAFER, Findlay, Ohio. Filed Nov. 24, 1902. Serial No. 132,607. (No model.)



Claim.—1. In a heating apparatus, a furnace-casing having compartments disposed contiguous to each other, a combustion-chamber at the front end of one of said compartments, an exit-flue at the front end of the other compartment, flue connection between the combustion-chamber and the exit-flue, an air-inlet below said exit-flue, a hot-air chamber contiguous to the combustion-chamber, and a connecting-passage between the air-inlet and the hot-air chamber.

2. In a heating apparatus, a furnace-casing having compartments disposed contiguous to each other, a combustion-chamber at the front end of one of said compartments, an exit-flue at the front end of the other compartment, a flue-sheet disposed transversely across the compartments of the furnace-casing, a partition connecting the ends of said flue-sheet at a distance from the back wall of the furnace-casing, flues extending through the compartments of the casing and connecting the flue-sheet with the back wall of the combustion-chamber and with the exit-flue, air-inlets below the exit-flue and a hot-air chamber contiguous to the combustion-chamber.

3. In a heating apparatus, a furnace-casing having compartments disposed contiguous to each other, a combustion-chamber at the front end of one of said compartments, an exit-flue at the front end of the other compartment, a flue-sheet disposed transversely across the compartments of the furnace-casing, a partition connecting the ends of said flue-sheet at a distance from the side and back walls of the furnace-casing, flues extending through the compartments of the casing and connecting the flue-sheet with the back wall of the combustion-chamber and with the exit-flue, an air-inlet below the exit-flue, a hot-air chamber contiguous to the combustion-chamber and baffle-plates in the compartments of the casing.

4. In a heating apparatus, a furnace-casing, a combustion-chamber and an exit-flue spaced apart by extended flue-passages, and an air-intake and a hot-air chamber likewise spaced apart by the extent of the flue-passages, said air-intake being disposed contiguous

to the exit-flue and said hot-air chamber contiguous to the combustion-chamber, the back wall or flue-sheet of the combustion-chamber being provided with a deflector to direct the products of combustion toward the lower flues.

752,003. PROCESS OF FORMING CONCRETE PILES. FRANK SHUMAN, Philadelphia, Pa. Original application filed Apr. 23, 1903, Serial No. 153,974. Divided and application filed June 5, 1903, Serial No. 160,190. Divided and this application filed June 25, 1903. Serial No. 163,113. (No specimens.)



Claim.—The method of making concrete piles which consists in providing a pile with a detachable point, driving said pile to displace the earth, withdrawing the pile, without the point, and after the withdrawal of the pile filling the opening, above said point, with concrete or other plastic material and permitting the same to set, substantially as specified.

752,004. LUGGAGE-CARRIER FOR VEHICLES. FRANK SIMONS, Buffalo, N. Y. Filed Dec. 17, 1902. Serial No. 135,502. (No model.)



Claim.—1. A luggage-carrier comprising two vertical open-loop straps, an upper and a lower horizontal loop-strap secured to the said vertical open-loop straps, and attaching-loops secured to the upper horizontal loop-straps.

2. A luggage-carrier comprising two vertical open-loop straps, means for adjusting the same to conveniently support an article, two horizontal closed loop-straps secured to said vertical open-loop straps and means for supporting the carrier.

3. A luggage-carrier comprising two vertical open-loop straps, means for adjusting the loops in size to fit the article to be carried, two horizontal closed loop-straps secured to said vertical loop-straps, and means for adjusting said horizontal loop-straps to any size.

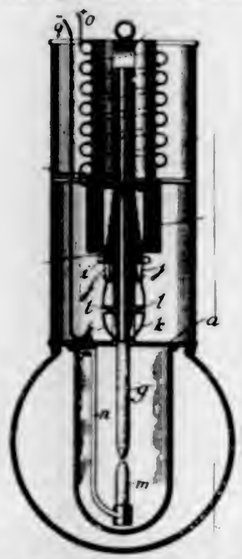
4. A luggage-carrier comprising two vertical loop-straps open at the top, a closed horizontal loop-strap secured to the ends of said vertical loop-straps, a second closed horizontal loop-strap secured to said vertical loop-straps between the lower ends thereof and the first-mentioned horizontal loop-strap, a buckle secured to each of said loop-straps whereby the article to be carried may be conveniently placed in the carrier and securely held.

5. A luggage-carrier comprising two vertical loop-straps open at the top, a closed horizontal loop-strap secured to the ends of said vertical loop-straps, a second closed horizontal loop-strap secured to said vertical loop-straps between the lower ends thereof and the first-mentioned horizontal loop-strap, two buckles secured to opposite points of each loop-strap, whereby the carrier may be adjusted in size in two directions to fit the article to be carried.

6. A luggage-carrier comprising two vertical loop-straps open at the top, a closed horizontal loop-strap secured to the ends of said vertical loop-straps a second closed horizontal loop-strap secured to said vertical loop-straps between the lower ends thereof and the first-mentioned horizontal loop-strap, and a clip secured to the rear of the first-mentioned horizontal loop-strap and adapted to embrace the steering-head of a bicycle to prevent lateral movement of the carrier thereof.

7. A luggage-carrier comprising two vertical loop-straps open at the top, a closed horizontal loop-strap secured to the ends of said vertical loop-straps, a second closed horizontal loop-strap secured to said vertical loop-straps between the lower ends thereof and the first-mentioned horizontal loop-strap, means to permit of enlarging or lessening the size of the horizontal loop-straps to the same or different sizes, whereby small articles may be held by the second-mentioned horizontal loop-strap and larger articles may be held by the first-mentioned horizontal loop-strap.

752,005. ELECTRIC-ARC LAMP. FREDERICK SIEDINGCRISTENSEN, Brooklyn, N. Y., assignor of one-half to Francis F. Storm, Maywood, N. J. Filed Aug. 29, 1902. Serial No. 121,444. (No model.)



Claim.—1. In an electric-arc lamp, the combination with a frame and an electromagnet supported thereby, of an armature for said electromagnet, and a magnetic clutch for the movable carbon of said lamp, comprising a moving member in magnetic connection with said armature but located at a point outside of the direct influence of attraction of said magnet and operated by the repulsive force exerted between the armature and moving member, due to their similar polarity.

2. In an electric-arc lamp, the combination with a frame and an electromagnet supported thereby, of an armature for said electromagnet, and a magnetic clutch for the movable carbon of said lamp comprising a plurality of moving members in magnetic connection with said armature but located at a point outside of the direct influence of attraction of said magnet and operated by the repulsive force exerted between the armature and moving members, due to the similar polarity of the armature and the moving members.

3. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of a core or armature for said solenoid, and a magnetic clutch for the movable carbon of the said lamp comprising a movable member in magnetic connection with said core or armature but located at a point outside of the direct influence of attraction of said magnet and operated by the repulsive force exerted between the armature and moving member, due to their similar polarity.

4. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of an armature or core for said solenoid, and a carbon-clutch-operating lever of magnetic material, pivoted to the said core at a point beneath the said solenoid, and arranged entirely outside thereof, said lever in magnetic contact with said core, whereby said lever constitutes a relatively movable portion of the said core but has the same polarity.

5. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of an armature or core for said solenoid, and two oppositely-disposed carbon-clutch-operating levers of magnetic material, pivoted to the said core and in magnetic contact therewith, whereby said levers constitute relatively movable portions of the said core but have the same polarity.

6. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of a core or armature for said solenoid, a plurality of levers of magnetic material, pivoted in magnetic contact with the said core, whereby said levers constitute relatively movable portions of the said core but have the same polarity, and clamping-fingers engaging said levers, but magnetically insulated therefrom, and adapted to engage the sides of the movable lamp-carbon.

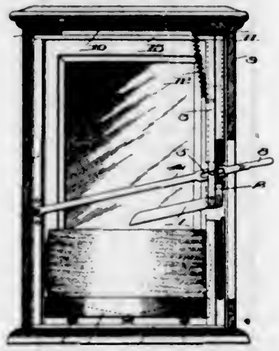
7. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of an armature or core for said solenoid, a plurality of levers of magnetic material, pivoted in magnetic contact with the said core, whereby said levers constitute relatively movable portions of the said core but have the same polarity, and spring clamping-fingers engaging said levers, and adapted to engage the sides of one of the lamp-carbons.

8. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of an armature or core for said solenoid, a plurality of levers of magnetic material, pivoted in magnetic contact with the said core, whereby said levers constitute relatively movable portions of the said core but have the same polarity, and spring clamping-fingers of non-magnetic material engaging said levers, and adapted to engage the sides of one of the lamp-carbons.

9. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of a carbon shield or holder arranged to pass through the said solenoid, a core or armature surrounding the said shield or holder within, and in proximity to, the said solenoid, levers e of magnetic material and pivoted in magnetic connection with said core, and spring clamping-fingers of non-magnetic material pivoted to said shield or holder, and at their upper ends engaging the said levers, and at their lower ends adapted to engage the sides of the upper lamp-carbon.

10. In an electric-arc lamp, the combination with a frame and a solenoid supported thereby, of a carbon shield or holder arranged to pass through the said solenoid, a tapered core of magnetic material surrounding the said shield or holder at a point within, and in proximity to, the solenoid, a plurality of levers e pivotally mounted in magnetic connection with said core, and a plurality of spring clamping-fingers f of non-magnetic material, pivoted to said shield or holder, the upper ends of which bear against the levers e and tend to press them inwardly toward the core, and whose lower ends bear against that carbon of the lamp adapted to be received within the shield or holder, the said solenoid and carbon adapted to be connected electrically in series in a line-circuit.

752,006. CHEESE-CUTTER. ORSON W. SMITH, Charlevoix, Mich., assignor to himself and John J. Fagan, Charlevoix, Mich. Filed May 1, 1903. Serial No. 155,103. (No model.)



Claim.—1. In a cheese-cutter, the combination with a case having a door adapted to be raised to give access to the cheese, of a knife, means for vertically reciprocating the knife and a spring connecting said door and knife and adapted to raise the knife.

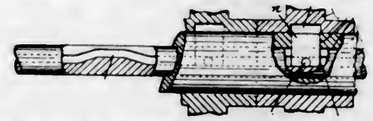
2. In a cheese-cutter in combination, a casing having a door adapted to slide upward and turn into a horizontal position, a cutter and means for reciprocating it in a fixed path and a spring connecting said door and cutter.

3. In a cheese-cutter, a casing therefor provided with a door, a knife within the casing, and a connection between the door and knife whereby the opening of the former will effect the raising of the latter into operative position.

4. A cheese-cutter, comprising a support for the cheese, a post rising above said support and provided with a plurality of holes, a lever pivotally connected to the post in any one of said holes whereby it may be vertically adjusted, a vertically-reciprocable knife, and an operative connection between said lever and knife.

5. A cheese-cutter, comprising a support for the cheese, a post and a guide rising above said support at diametrically opposite points, a diagonal brace connecting the upper ends of the post and guide, a slidable bar mounted in said guide and carrying a knife, and a lever pivotally connected to said post and operatively connected to said bar.

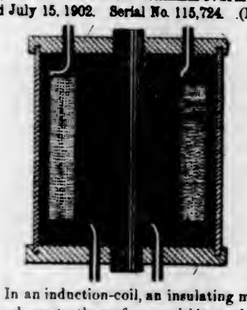
752,007. SPEED-CHANGE MECHANISM FOR LATHES. WALTER D. SNIDER, Paterson, N. J., assignor of one-half to Wilbur Dunn, Paterson, N. J. Filed Mar. 9, 1903. Serial No. 146,868. (No model.)



Claim.—1. The combination, with a plurality of sets of gearing of different capacities, of a hollow shaft carrying one member of each of said sets of gearing, keys arranged in the shaft and adapted to engage each of said members to interlock the same and the shaft and each having a lateral projection, and a rod movable longitudinally in said shaft and having a longitudinal slot receiving the keys and a longitudinal camway opening into said slot and receiving the projections of said keys, substantially as described.

2. The combination, with a plurality of sets of gearing of different capacities, of a hollow shaft carrying one member of each of said sets of gearing, keys arranged in the shaft and adapted to engage each of said members to interlock the same and the shaft, each key being sectionally T-shaped, and a rod movable longitudinally in said shaft and having a T-shaped camway engaged by said keys, substantially as described.

752,008. INDUCTION-COIL. CHARLES F. SPLITDORF, New York, N. Y. Filed July 15, 1902. Serial No. 115,724. (No model.)



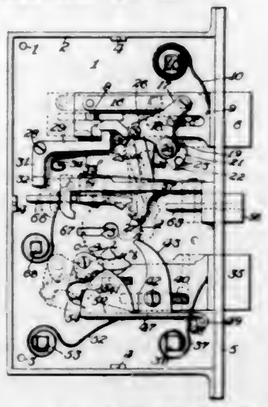
Claim.—1. In an induction-coil, an insulating medium intermediate the active elements thereof, comprising a sheet of non-conducting resilient material produced in convolute form, and adapted to contract about and inclose the inner element.

2. In an induction-coil, an insulating medium intermediate the primary and secondary windings thereof, comprising a sheet of non-conducting resilient material rolled upon itself in form of a multiply cylinder, and adapted to contract about and inclose the primary winding.

3. In an induction-coil, in combination, a core, an insulated wire wound thereupon, a sheet of non-conducting resilient material produced in roll form and adapted to contract about and inclose said wire, and another wire wound directly upon said roll of non-conducting material.

4. In an induction-coil, a convolute roll of hard rubber contracted about the primary winding and forming an insulating-seat for the secondary winding.

752,009. LOCK. PAUL STEIN, Homestead, Pa. Filed Sept. 29, 1903. Serial No. 175,047. (No model.)



Claim.—1. In a lock of the type described, the combination with a casing, of a lock-bolt, a spring engaging said lock-bolt for normally holding same in the locked position, a throwing-lever pivotally connected to the lock-bolt for moving the same to the unlocked position, spring-pressed means for holding said bolt in the unlocked position, a latch-bolt having a slot in its shank to receive the throwing-lever of the lock-bolt, a pivoted dog or pawl carried by the shank of said latch-bolt to be engaged by the key-bit for retracting said latch-bolt, and a spring for normally holding said latch bolt in the locked position.

2. In a lock of the type described, the combination with a casing, of a slidably-mounted lock-bolt, a slidably-mounted latch-bolt, a throwing-lever pivoted to the lock-bolt and a pawl or dog pivoted to the latch-bolt, means for holding the lock-bolt in the unlocked position, said latch-bolt acting as a releasing means for said holding means, substantially as described.

3. In a lock of the type described, two slidably-mounted lock-bolts, in combination with a slidably-mounted latch-bolt, and means carried by the latch-bolt and lock-bolts whereby they may be operated from the same point by reverse movements of the key-bit.

4. In a lock of the type described, two slidably-mounted lock-bolts, and separate means for holding each lock-bolt in the retracted or unlocked position, in combination with a slidably-mounted latch-bolt adapted when moved to the unlocked position to release the holding means for one of the lock-bolts, and means carried by the lock-bolts and latch-bolt whereby they may be operated by the same key at a common point through reverse movements of the key-bit.

5. In a lock of the type described, a slidably-mounted lock-bolt, and means for holding said bolt in the retracted or unlocked position, in combination with a slidably-mounted latch-bolt, and means carried by said lock-bolt and separate means on the latch-bolt whereby they may be operated by the same key at a common point by reverse movements of the key-bit.

6. In a lock of the type described, a slidably-mounted lock-bolt, and means for holding said bolt in the retracted or unlocked position, in combination with a slidably-mounted latch-bolt adapted when actuated by the key to release the holding, means for the lock-bolt upon reversal of the movement of the key, substantially as described.

752,010. COIN-MAILER. CARL H. STEMPEL, Burlington, Iowa. Filed Apr. 30, 1903. Serial No. 154,991. (No model.)

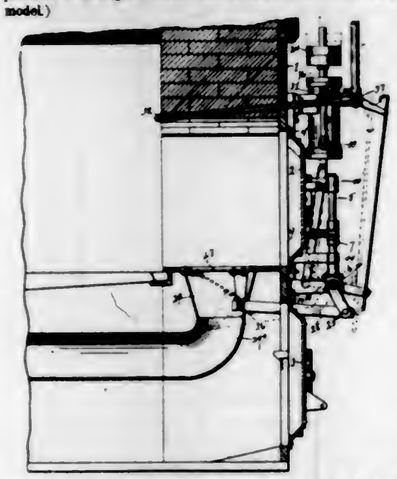
Claim.—1. A coin-mailer comprising a fabric having a slit and an embossed pocket on one side of the slit, raised from one side of the fabric and open on the opposite side thereof, the slit forming one edge of the pocket and also forming an opening for the insertion of a coin in the pocket.

2. A coin-mailer comprising a fabric having a slit, and a segmental embossed pocket on one side of the slit, raised from one side of the fabric and open on the opposite side thereof, the slit forming one edge of the pocket and also forming an opening for the insertion of a coin therein.

3. A coin-mailing card having a flap provided with a slit and an embossed pocket on one side of the slit, raised from one side of the card and open on the opposite side thereof, the slit forming one edge of the pocket and also forming an opening for the insertion of a coin therein, the said card being further provided with a flap to fold on that side of the first-named flap on which the embossed pocket projects, substantially as described.



752,011. AUTOMATIC DRAFT-REGULATOR AND SMOKE-PREVENTER FOR FURNACES. ADELBERT H. THAYER, Jackson, Mich., assignor to Jackson Cushion Spring Company, Jackson, Mich., a Corporation of Michigan. Filed Jan. 22, 1903. Serial No. 140,126. (No model.)



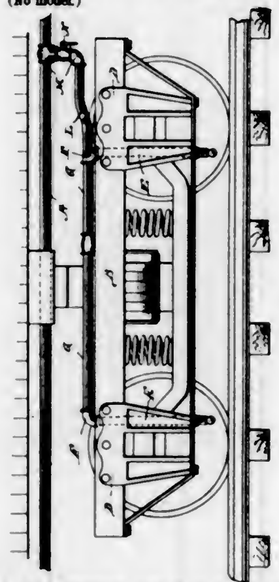
Claim.—1. In combination with a furnace, a steam-supply pipe, means in communication with the steam-supply pipe for injecting steam into the combustion-chamber of the furnace, a valve disposed in the line of the steam-supply pipe, a dead-plate having dampers arranged therein, air-conductors leading from the dead-plate, to the rear of the ash-pit, means for operating said valve and dampers to admit steam and air to the combustion-chamber simultaneously, and means constructed and arranged to regulate the closing of the dampers and shutting off of the injection of steam to the combustion-chamber simultaneously.

2. In a device of the class described, the combination with openings in the dead-plate, of dampers arranged in said openings; air-pipes leading from said openings to the rear of the ash-pit; means actuated by the fire-box door for opening said dampers whenever the fire-box door is opened; an actuating device for closing said dampers; and a retarding mechanism for regulating the duration of the time required by said actuating mechanism to close said dampers.

3. In combination with a furnace having a dead-plate, of dampers arranged in the dead-plate, air-conductors leading from the rear of the ash-pit to the dead-plate, means for injecting steam into the combustion-chamber of the furnace, means for admitting air and steam to the combustion-chamber simultaneously, and means for shutting off the admission of steam and air to the combustion-chamber simultaneously.

4. As a new article of manufacture, an injector comprising a tube provided with an external contracted end, a slot in said end of the tube, and the internal bore of the tube having a cone-shaped opening leading into said slot.

752,012. AUTOMATIC DEVICE FOR SETTING AIR-BRAKES ON STEAM-RAILWAY CARS. JOHN M. VANCE and THOMAS LANAHAN, Louisville, Ky., assignors of two-thirds to William T. Van Brunt and D. S. Harding, New York, N. Y. Filed May 26, 1903. Serial No. 158,801. (No model.)



Claim.—1. In combination with an air-brake system, of a device for automatically setting the brakes, comprising a framework of pipes mounted upon the truck and communicating with said air-brake system, a series of downwardly-projecting pipes connected to and in communication with said framework having their lower ends outside the road of travel, and a plug of fragile material secured upon the ends of said downwardly-projecting pipes adapted to control the escape of air therethrough, said plug consisting of a single casting having a shouldered portion intermediate of its length and a globular knob upon its extremities.

2. In combination with an air-brake system, of a device for automatically setting the brakes, comprising a framework of pipes mounted upon the truck and communicating with said air-brake system, and a series of downwardly-projecting pipes adjacent to each wheel of the truck upon the outside thereof connected to and in communication with said framework, and a plug of fragile material connected to the extremities of said downwardly-projecting pipes each of said plugs being cast so as to have a centrally-arranged shouldered portion and a globular knob upon the extreme end thereof.

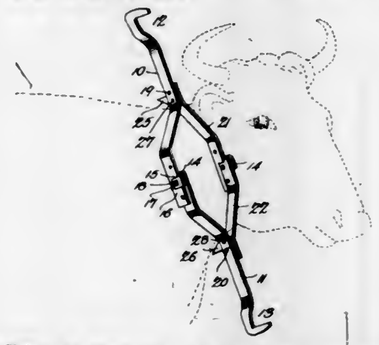
3. In combination with an air-brake system, and a car-truck, of a device for automatically setting the brakes comprising a frame of pipes mounted upon the car-truck and having a series of downwardly-projecting extremities a valve controlling the conduit connecting said frame with the air-brake system, and means connected to the extremities of the frame and carrying the valve adapted to be broken when contacted so as to operate the air-brake system, the valve being operated when the means is not broken.

4. In combination with an air-brake system and car-truck, of a device for automatically setting the brakes, comprising a frame of pipes mounted upon the car-truck, a flexible connection between said frame of pipes and the air-brake system, a series of downwardly-projecting pipes connected to the frame of pipes, a fragile plug connected to the extremities of said downwardly-projecting pipes, and a valve mounted in said plug for the purpose set forth.

5. In combination with an air-brake system and a car-truck, of a device for automatically setting the air-brakes, comprising a transverse pipe, a flexible pipe connecting said transverse pipe with the air-brake system, a pair of pipes connected to the extremities of the transverse pipe extending in opposite directions, a downwardly-projecting pipe connected to each one of said opposite-extending pipes, and a fragile plug for sealing the ends of said downwardly-projecting pipes.

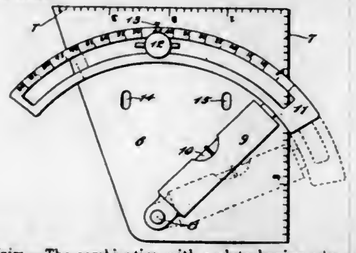
6. In combination with an air-brake system and a car-truck, of a device for automatically setting the air-brakes, comprising a transverse pipe, a flexible pipe connecting said transverse pipe with the air-brake system, a pair of pipes connected to the extremities of the transverse pipe extending in opposite directions, a downwardly-projecting pipe connected to each one of said oppositely-extending pipes, a fragile plug for sealing the ends of said downwardly-projecting pipes, and a valve mounted in each of said plugs.

752,013. ANIMAL-POKE. SAMUEL F. WEBB, Wichita, Kans., assignor to C. W. Dunaway, Wichita, Kans. Filed July 14, 1903. Serial No. 165,468. (No model.)



Claim.—An animal-poke comprising primary bars having lateral hooks at the outer ends and bowed to fit one side of the neck of the animal, secondary bars connected by their outer ends to said primary bars and bowed to fit the opposite side of the neck of the animal, the inner ends of one of said primary bars and of one of said secondary bars being turned over at an angle to the body of the bars and provided with transverse apertures and with recesses extending partially through the bars at their bends to form sockets to receive the apertured free ends of the other primary and secondary bars, and clamp-bolts passing through said apertures and having nuts adapted to compress said folded portions and be locked from reverse movement by the resiliency thereof, substantially as specified.

752,014. COMBINED LEVEL AND SQUARE. LESTER A. WIEMAN, Cleveland, Ohio, assignor of two-thirds to Edward Kohl and Alfred Fox, Cleveland, Ohio. Filed Sept. 18, 1903. Serial No. 173,649. (No model.)

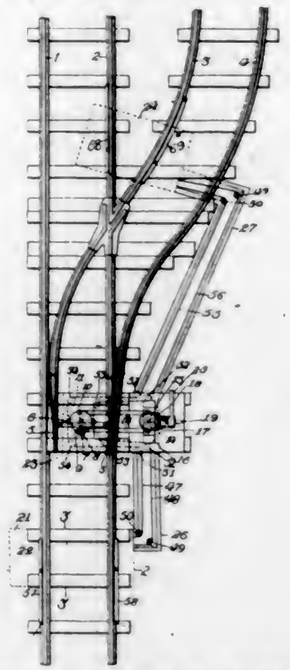


Claim.—The combination with a plate having edges at a right angle, forming a square corner, of a spirit-level pivoted at one end thereof adjacent said corner and constructed to swing over the face of the plate, a quadrant fixed to the other end of the level and swinging concentrically therewith over the face of the plate, and an index on the plate, for the quadrant.

752,015. SWITCH. GEORGE ZIMMERMANN, Pittsburg, Pa., and OTTO LARSON, Alliance, Ohio, assignors of one-third to A. L. Gvatsovsky, Allegheny, Pa. Filed Oct. 5, 1903. Serial No. 175,772. (No model.)

Claim.—1. In a switch, the combination with the pivoted switch-

tongue, of hand-actuated mechanism connected to the switch-tongue for actuating the latter, mechanism located in the bed of the track at one side of the switch adapted to be engaged by a projection on an engine and connected to the hand-actuated mechanism for actuating said switch-tongue, and like mechanism at the opposite side of the switch adapted to be engaged by the wheel of an engine and also connected to the hand-operating mechanism for actuating said switch, substantially as described.



2. In a switch, the combination with the pivoted switch-tongue, of means for actuating said switch-tongue manually, separate means located on one side of the rail for actuating said switch-tongue from the engine or car, and further separate means located on the other side of the switch and opposite side of the rail for actuating the switch-tongue by the passing of an engine or car over said last-named means, substantially as described.

3. In combination with a pivoted switch-tongue, an actuating mechanism connected thereto and adapted to be operated by hand, mechanism located in the bed of the track in advance of the switch and on one side of the rail, and flexible connections between the last-named mechanism and the first-named mechanism, means carried by the car or engine for actuating the last-named mechanism to operate the switch-tongue, and automatic mechanism located in the bed of the track at the opposite side of the switch and other side of the rail to the second-named mechanism and adapted to be actuated by the passing thereover of the wheel of a train or engine, and flexible connections between said last-named mechanism and the first-named mechanism, substantially as described.

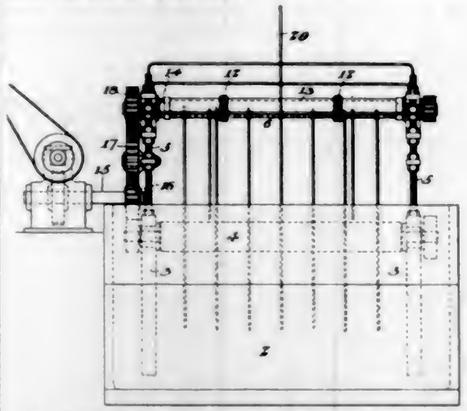
752,016. **TIN-PLATE CATCHER.** ERNEST L. CRONEMEYER, McKeesport, Pa., assignor to American Tin Plate Company, Orange, N. J., a Corporation of New Jersey. Filed Sept. 21, 1903. Serial No. 173,941. (No model.)

Claim.—1. A catcher for tinning-machines comprising a pair of positively-driven rollers having gripping portions provided with soft material to prevent marking of the plates; substantially as described.

2. A tinning-machine having upper rollers, and a plate-catcher comprising a pair of rollers and means for driving the rollers at a slightly greater peripheral speed than that of the upper rollers of the tinning-machine; substantially as described.

3. A plate-catcher having positively-driven catcher-rolls, said rolls having separated registering gripping portions of soft material; substantially as described.

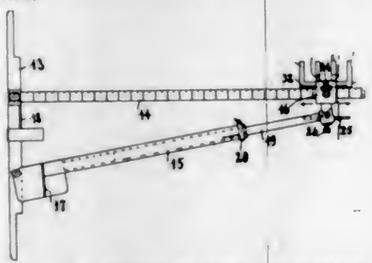
4. A plate-catcher having a pair of driven rolls with soft gripping portions, a deflector above them, a raised support below the deflector and an inclined chute for the sheets as they leave the deflector; substantially as described.



5. A double tinning-machine having two sets of upper tinning-rolls, driven catcher-rolls at different levels above said sets of upper tinning-rolls, and deflectors arranged to deflect the plates at two different levels; substantially as described.

6. In a plate-catcher a pair of driven feed-rollers above the tinning-machine and having soft gripping portions, and means for yieldingly pressing at least one of said rollers toward the other; substantially as described.

752,017. **APPARATUS FOR CUTTING GLASS.** WILHELM PANNKOKE, Berlin, Germany. Filed Sept. 18, 1902. Serial No. 123,837. (No model.)



Claim.—1. An apparatus for cutting glass comprising in combination a surface board, straight-edges secured to said board, a rail pivoted to said board and adapted to be moved parallel to the surface thereof, a strut pivoted to said rail, stops provided in said board, and a cutting device consisting of the combination of a straight-edge, a scaled ruler adapted to be secured to said straight-edge, a slide on said ruler, and an extensible strut adapted to be connected to said straight-edge and said ruler, substantially as set forth.

2. In an apparatus for cutting glass the combination of a surface board, straight-edges secured on said board, slots in said board, stops pivoted in said slots adapted to project above the surface of said board in the vertical position and to be turned down below the surface of said board, substantially as set forth.

3. In an apparatus for cutting glass the combination with a surface board of a cutting apparatus comprising in combination a straight-edge, a scaled ruler, an extensible strut adapted to be secured to said straight-edge and said ruler, a slide on said scaled ruler an angle-piece adapted to slide in said slide, and a stop 25 in said slide, substantially as set forth.

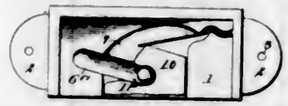
4. In an apparatus for cutting glass the combination of a ruler, a slide mounted on said ruler and provided with a hole, an angle-piece provided with a scale slidable in said slide, a surface board, substantially as set forth.

5. An apparatus for cutting glass comprising in combination a surface board, straight-edged guides secured on said board, slots in said board, stops pivoted in said slots, and adapted to project above the surface of said board in the vertical position and to be turned down below the surface of said board, and a cutting apparatus consisting of the combination of a straight-edge, a scaled ruler, an extensible strut adapted to be secured to said straight-edge and said ruler, and a slide on said ruler, an angle-piece adapted to slide in said slide, and a stop 25 in said slide, substantially as set forth.

6. In an apparatus for cutting glass the combination of a surface board having an opening near one side thereof and a rail forming the outer edge of said opening and adapted to be moved toward and away from said board, substantially as set forth.

7. In an apparatus for cutting glass the combination of a surface board having slots therein, shafts, in said slots, eccentric disks fixed on said shafts, and means to facilitate the rotation of said shafts, substantially as set forth.

752,018. **CHECK-LOCK.** SCOTT STEWART, Rivesville, W. Va. Filed Mar. 3, 1903. Serial No. 145,899. (No model.)



Claim.—1. A check-holder comprising a case having a slot for the insertion of the stem of a check and having an inclined passage intersecting said slot, and a locking device mounted to move in said inclined passage and acted upon by gravitative force for positive movement in each direction either to engage with or release said check, substantially as described.

2. In a lock for a miner's car-check, a ball, a casing having a recess therein and provided with an inclined aperture in which the ball can travel, a face-plate for the casing, a check locked in the casing by the ball and means for securing the casing to the body of a mine-car.

3. In a lock of the character described, a casing having a recess therein and provided with an inclined aperture, lugs in the casing, a ball adapted to travel in the inclined aperture of the casing, a check having shoulders and provided with means to permit the ball to support the check, a spring having one end secured by the lugs and its opposite end bearing against the inserted edge of the check whereby the ball is prevented from accidental displacement by the vibrations of the car and means for securing the lock to the body of the car as and for the purpose specified.

4. In a lock for a miner's check, a casing having a recess and provided with an inclined aperture, a ball adapted to travel in the inclined aperture of the casing, a face-plate having a recess registering with the inclined aperture of the casing whereby the ball is permitted to engage the check, lugs formed integral with the casing, a spring having one end secured by the lugs and its opposite end bearing against the inserted edge of the check whereby the check is prevented from accidental displacement substantially as described.

5. In a check-holder, a case provided with a slot for reception of the stem of the check, and having an inclined passage intersecting with an edge portion of the slot and of greater width, and a locking device movable in the inclined passage by gravitative action and having its end portions extended beyond opposite sides of said slot to make positive engagement with the case, substantially as described.

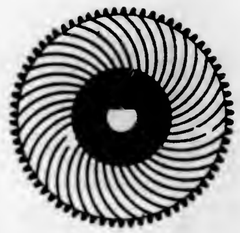
6. In a check-holder, a case provided with an intersecting slot and inclined passage, a locking device movable in said inclined passage in each direction by gravitative force, a check having a stem to enter said slot and provided with a notch for reception of the locking device, and a spring for exerting an outward or downward pressure upon the lock, substantially as described.

7. In combination, a case provided with a slot and intersecting inclined passage, a locking device movable in said inclined passage in each direction by gravitative force, and a check having a stem adapted to be inserted into the aforesaid slot and having a notch provided at its upper edge with a pendent portion to overhang the locking device and prevent casual disengagement thereof from the stem, substantially as described.

DESIGNS.

36,778. **WATCH-WHEEL.** FRANK J. REAVIS, Rockford, Ill., assignor to the Rockford Watch Company, Limited, a Corporation of Illinois. Filed Nov. 20, 1903. Serial No. 182,094. Term of patent 7 years.

36,778.



Claim.—The ornamental design for a watch-wheel, as herein shown.

36,779. **SPOON.** FREDERICK J. KNORR and ALICE S. KUHN, Bloomington, Ill. Filed Nov. 10, 1903. Serial No. 180,624. Term of patent 14 years.



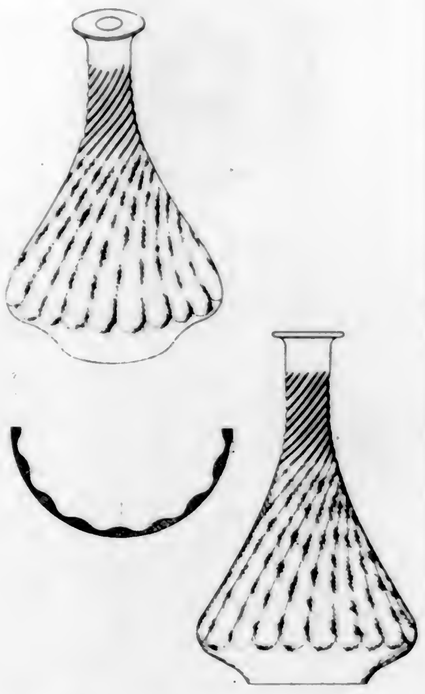
Claim.—The ornamental design for a spoon as herein shown.

36,780. **CUP.** ANDREW C. BOSSELMAN, New York, N. Y. Filed Dec. 31, 1902. Serial No. 137,375. Term of patent 7 years.



Claim.—The ornamental design for a cup as herein shown.

36,781. DECANTER. LEON BLOWER, New York, N. Y. Filed Dec. 21, 1903. Serial No. 186,129. Term of patent 7 years.



Claim.—The ornamental design for a decanter as shown.

36,782. DINNER-PLATE OR SIMILAR ARTICLE. CHARLES W. ROBINSON, San Diego, Cal. Filed Jan. 7, 1904. Serial No. 188,149. Term of patent 7 years.



Claim.—The ornamental design for a plate or similar article, as shown.

36,783. MATCH-BOX. MARK O. ANTHONY, New York, N. Y., assignor to himself, Samuel Robert, and Henry C. Traute, New York, N. Y., doing business as A. R. T. Manufacturing Company. Filed Nov. 5, 1903. Serial No. 179,996. Term of patent 14 years.



Claim.—The ornamental design for a match-box, as herein shown.

36,784. CLOCK CASE AND SUPPORT. CHARLES A. WARNER, New York, N. Y. Filed June 30, 1902. Serial No. 113,883. Term of patent 7 years.



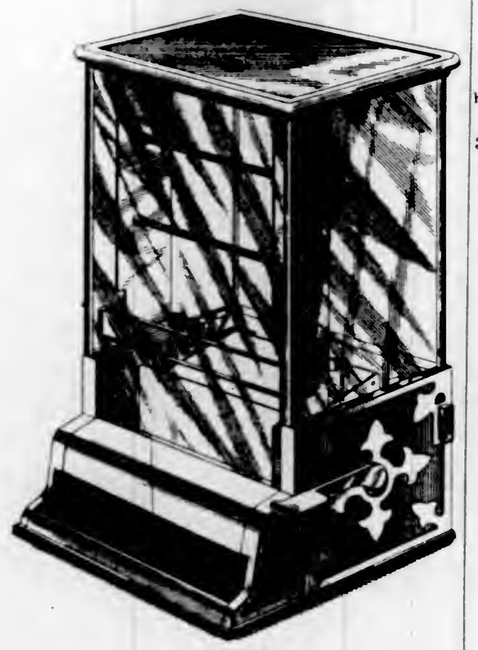
Claim.—The ornamental design for a clock case and support, as shown.

36,785. BOX. WILLIAM G. BOOTH, West Somerville, Mass., assignor to William Underwood Company, Boston, Mass., a Corporation. Filed Dec. 20, 1902. Serial No. 136,068. Term of patent 7 years.



Claim.—The ornamental design for a box herein shown.

36,786. CASING FOR VENDING-MACHINES. FRANK L. NICHOLS, Washington, D. C., assignor to Elk Manufacturing and Vending Company, Washington, D. C., a Corporation of Delaware. Filed Jan. 19, 1904. Serial No. 189,762. Term of patent 3½ years.



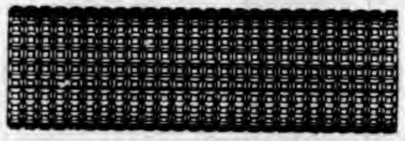
Claim.—The ornamental design for a casing for a vending-machine as herein shown.

36,787. RACK FOR UMBRELLAS AND CANES. JOHN H. PETROSKEY, Detroit, Mich. Filed Jan. 18, 1904. Serial No. 189,637. Term of patent 7 years.



Claim.—The ornamental design for rack for umbrellas and canes, as shown.

36,788. CEMENT-PAVING ROLLER. MANUEL ALVES, West Berkeley, Cal. Filed Oct. 3, 1903. Serial No. 175,703. Term of patent 14 years.



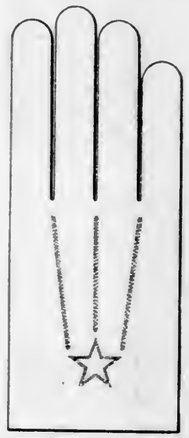
Claim.—The ornamental design for a cement-paving roller as herein shown.

36,789. LEATHER ROPE FOR BAG-HANDLES. ALBERT CHARLES FRITSCHE, Philadelphia, Pa., assignor to Harry M. Rosenblatt, Philadelphia, Pa. Filed Dec. 22, 1903. Serial No. 186,259. Term of patent 7 years.



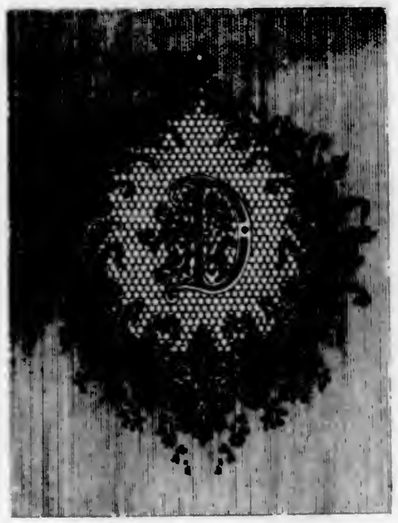
Claim.—The ornamental design for a leather rope for bag-handles, as shown.

36,790. GLOVE. GABRIEL HOSTACHY, Plainfield, N. J. Filed July 28, 1903. Serial No. 167,359. Term of patent 14 years.



Claim.—The ornamental design for a glove, as herein shown.

36,791. FABRIC. JOHN W. HEMSON, New York, N. Y. Filed Jan. 13, 1904. Serial No. 188,928. Term of patent 3½ years.



Claim.—The ornamental design for a fabric, herein shown.

36,792. HAMMOCK-CLOTH. DANIEL W. SNOYER, New York, N. Y. Filed Jan. 14, 1904. Serial No. 189,071. Term of patent 7 years.



Claim.—The ornamental design for hammock-cloth, as shown

TRADE-MARKS

REGISTERED FEBRUARY 9, 1904.

42,004. WOOLEN PIECE GOODS. Crosby Mfg. Co., East Glastonbury, Conn. Filed Dec. 23, 1903.



The representation of the battle-ship *Connecticut*. Used since June, 1903.

42,005. SILKS. Slatington Textile Manufacturing Co., Slatington, Pa. Filed Jan. 13, 1904.

Uncle Sam

The words "Uncle Sam." Used since January 1, 1903.

42,006. SILKS. Slatington Textile Manufacturing Co., Slatington, Pa. Filed Jan. 13, 1904.

Corona

The word "Corona." Used since December 1, 1903.

42,007. CORSETS AND CORSET-COVERS. Birdsey & Somers New York, N. Y. Filed Jan. 6, 1904

JUST RIGHT

The words "Just Right." Used since 1887.

42,008. CHILDREN'S KNITTED WAISTS. Birdsey & Somers, New York, N. Y. Filed Jan. 18, 1904.

F.P.

The letters "F. P." Used since 1886.

42,009. LEATHER BOOTS AND SHOES. William F. Mayo, Boston, Mass. Filed Jan. 9, 1904.

BEACON HILL

The words "Beacon Hill." Used since June, 1903.

42,010. BOOTS AND SHOES MADE OF LEATHER, KID, VICI, OR OTHER SKINS. Isidore Keiffer & Co., New Orleans, La. Filed Jan. 14, 1904.

Cosmo

The word-symbol "Cosmo." Used since December 15, 1903.

42,011. RUBBER GLOVES. The Pure Gum Specialty Company, Barberton, Ohio. Filed Jan. 16, 1904.

MITZEL

The word "Mitzel." Used since September 1, 1901.

42,012. DECORATIVE GLASSWARE. Tiffany Furnaces, Hoboken, N. J., and Corona, N. Y. Filed May 29, 1903.



The letters "L C T" in the form of a monogram, and outside of the monogram is the word "Favrile." Used since October, 1902.

42,013. TRADING-STAMPS. John B. Morgan, New York, N. Y. Filed Jan. 11, 1904.

BOND

The word "Bond." Used since October 24, 1903.

42,014. WATCHES. ELGIN NATIONAL WATCH COMPANY, Chicago, Ill. Filed Jan. 9, 1904.



The conventional figure or representation of "Time," said figure being represented as an old man having a bald head and a long beard and provided with wings, said figure standing upon a representation of a portion of a globe. Said figure is represented with a scythe upon one shoulder and holding in his upwardly-raised left hand the representation of a watch. Said figure is shown as draped, and resting upon the globe near the feet of said figure is an hour-glass. Used since December 31, 1871.

42,015. KEYED STRINGED MUSICAL INSTRUMENTS. THE AMERICAN MUSIC COMPANY, Chicago, Ill. Filed Jan. 19, 1904.

PIANOTINA

The word "PIANOTINA." Used since January 1, 1904.

42,016. RAZOR-STROPS. WEIFFENBACH MFG. CO., Chicago, Ill. Filed Jan. 19, 1904.

ZULU

The word "ZULU." Used since September, 1901.

42,017. RAZOR-STROPS. WEIFFENBACH MFG. CO., Chicago, Ill. Filed Jan. 19, 1904.

REX

The word "REX." Used since September, 1901.

42,018. SYRINGES. FREDERICK STEARNS & CO., Detroit, Mich. Filed Jan. 18, 1904.

SIMPLEX

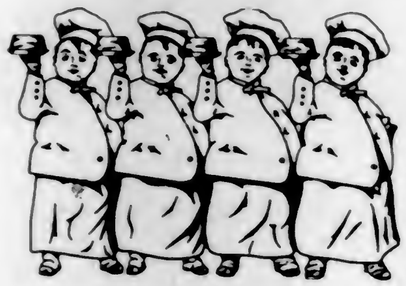
The word "SIMPLEX." Used since January 6, 1904.

42,019. WITHDRAWN.

42,020. GELATIN AND A POWDER FOR USE IN MAKING GELATINE. THE H. J. BLODGETT CO., Inc., Boston, Mass. Filed Jan. 18, 1904.

42,020.

CLARTÉ



The word "CLARTÉ," associated with the representation of several diminutive rotund men attired as French chefs standing in a line and each holding up in one hand a plate bearing thereon molded gelatin. Used since December 1, 1903.

42,021. CERTAIN NAMED FRUITS AND VEGETABLES. MARTIN L. HALL & CO., Boston, Mass. Filed Dec. 5, 1903.



The words "RED LILY," together with the representation of a red lily. Used since June 1, 1902.

42,022. CANNED FRUITS. ACKER, MERRALL & CONDIT CO., New York, N. Y. Filed Nov. 2, 1903.

ORION

The word "ORION." Used since October 5, 1903.

42,023. COOKING FATS AND OILS. JOHN GUITAR, Jr., Abilene, Tex. Filed Dec. 18, 1903.

PURETTA

The word "PURETTA." Used since October 15, 1903.

42,024. BUTTER. HANFORD PRODUCE COMPANY, Sioux City, Iowa. Filed Jan. 14, 1904.

42,024.

Hanfords

The facsimile signature of the surname of A. S. Hanford, written with a final letter "s," with a paraph beneath the word, formed as a continuation of the final letter of the word and extending in the form of a similar brought back from the letter "s" thereof, underneath and approximately parallel thereto, as far as the letter "H" thereof. Used since 1904.

42,025. MILK, CONDENSED MILK, CREAM, AND EVAPORATED CREAM. MICHIGAN CONDENSED MILK CO., New York, N. Y. Filed Jan. 16, 1904.



The representation or map of three lakes and a peninsula formed by the lakes and across the upper portion thereof the word "PENINSULAR." Used since December 14, 1895.

42,026. MILK, CONDENSED MILK, CREAM, AND EVAPORATED CREAM. MICHIGAN CONDENSED MILK CO., New York, N. Y. Filed Jan. 16, 1904.



The representation of a rural scene showing a woman, child, cow, and shrubs, with a house in the background, above the whole of which is the word "RUSTIC." Used since January 2, 1896.

42,027. MILK, CONDENSED MILK, CREAM, AND EVAPORATED CREAM. MICHIGAN CONDENSED MILK CO., New York, N. Y. Filed Jan. 16, 1904.



The representation of a wreath of leaves and flowers, within which wreath is a picture or representation of the head of a child and above the whole the word "DARLING." Used since May 22, 1897.

42,028. WINE. F. CHAUVENET, Nuits, France. Filed Jan. 5, 1904.

RED CAP

The words "RED CAP." Used since December 1, 1901.

42,029. WINE. F. CHAUVENET, Nuits, France. Filed Jan. 5, 1904.

WHITE CAP

The words "WHITE CAP." Used since April 1, 1903.

42,030. OATMEAL-COCOA PREPARATIONS. OATMEAL COCOA COMPANY, Minneapolis, Minn. Filed Jan. 14, 1904.

ZENDA

The word "ZENDA." Used since August 15, 1903.

42,031. CERTAIN NAMED BEVERAGES. ALBERT LUDORFF, New York, N. Y. Filed Nov. 11, 1903.



The representation of a dragon surrounded by circular lines, the dragon being mounted upon a roll, which in turn rests upon a crescent. Used since June 1, 1903.

42,032. COFFEES. A. ENGELHARD & SONS CO., Louisville, Ky. Filed June 17, 1902.



The representation of an Indian standing on the bank of a river, holding a bow and arrow in one hand and having the other stretched out. In the background there appear a range of hills and the sun half risen. Used since March 1, 1902.

42,033. ROASTED COFFEE. LEVERING COFFEE CO., Baltimore, Md. Filed Dec. 4, 1903.

AA NO. 1 COMBINATION

The combination of the letters, abbreviation, figure, and word "A A No. 1 COMBINATION." Used since December 1, 1900.

42,034. ROASTED COFFEE. LEVERING COFFEE CO., Baltimore, Md. Filed Dec. 4, 1903.

RICO

The word "RICO." Used since December 1, 1900.

42,035. LIQUID CURE FOR RHEUMATISM. WILLIAM CHARLES HOLWAY, Chicago, Ill. Filed Oct. 24, 1903.



The words "ST. ANTHONY," together with the representation of a monk (St. Anthony) holding an olive branch in one hand and an infant in the other. Used since August 1, 1903.

42,036. SYRUP FOR COUGHS, COLDS, AND LA GRIPPE. THE HARTS MEDICINE CO., Lincoln, Ill. Filed Dec. 31, 1903.



The representation of a heart printed in red. Used since December 26, 1900.

42,037. TONIC AND LAXATIVE MEDICINES. THE HARTS MEDICINE CO., Lincoln, Ill. Filed Dec. 31, 1903.

RE-GO

The hyphenated word "RE-GO." Used since December 26, 1900.

42,038. PREPARATIONS FOR THE SKIN, HAIR, AND NAILS. CASKEDEN PHARMACAL CO., New York, N. Y. Filed Dec. 31, 1903.

ELCAYA

The word "ELCAYA." Used since June 1, 1901.

42,039. FACE CREAM. ALPHA MANUFACTURING CO., New York, N. Y. Filed Jan. 7, 1904.

ALPHA

The word "ALPHA." Used since December 1, 1903.

42,040. TOOTH-POWDER. HERMAN C. G. LUYTIES, St. Louis, Mo. Filed Jan. 13, 1904.

FOR GOOD-NESS SAKE

The words "FOR GOODNESS SAKE." Used since January 1, 1904.

42,041. BATH AND TALCUM POWDER. HERMAN C. G. LUYTIES, St. Louis, Mo. Filed Jan. 13, 1904.

SANITOL

The word "SANITOL." Used since January 1, 1904.

42,042. CLEANSING COMPOUND. DAVID G. HOLMES, New York, N. Y. Filed Sept. 22, 1903.

Fre Solvent

The word-symbol "FRE-SOLVENT." Used since February 12, 1903.

42,043. DYESTUFFS DERIVED FROM COAL-TAR PRODUCTS. F. R. ATTEAUX & COMPANY, Boston, Mass. Filed Dec. 31, 1903.

EMPIRE

The word "EMPIRE." Used since May, 1901.

42,044. PAINT, PAINT PIGMENTS, AND LAMPBLACK. NATURAL CARBON BY-PRODUCTS COMPANY, Freeport, Ill. Filed Jan. 14, 1904.

MINDURA

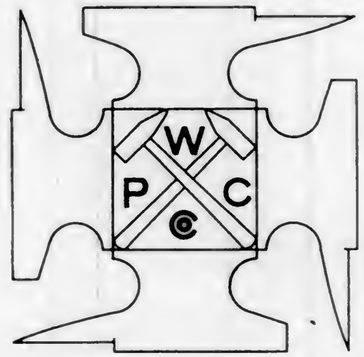
The word-symbol "MINDURA." Used since June 1, 1903.

42,045. SPIRIT VARNISH. BERRY BROTHERS, LIMITED, Detroit, Mich. Filed Jan. 16, 1904.

SIAMLAC

The word "SIAMLAC." Used since December 15, 1903.

42,046. WELDING COMPOUNDS TO BE USED IN WELDING IRON, STEEL, AND OTHER METALS. PERFECTION WELDING COMPOUND CO., Scranton, Pa. Filed Dec. 22, 1902.



The representation of four anvils, with their bases overlying each other and bounded by a square figure, within which square are crossed hammers and the letters "P," "W," "C," and "Co." Used since August 1, 1902.

42,047. BLASTING COMPOUNDS AND INGREDIENTS THEREOF. RENDROCK POWDER COMPANY, New York, N. Y. Filed Jan. 16, 1904.

RACKAROCK

The word "RACKAROCK." Used since 1876.

42,048. BITUMINOUS COAL. THE 20TH CENTURY COAL CO., Columbus, Ohio. Filed Jan. 2, 1904.

42,048.

20TH CENTURY

The figures, abbreviation, and word "20TH CENTURY." Used since December 1, 1902.

42,049. HARNESS-COLLARS. COTTON COLLAR CO., Atlanta, Ga. Filed Jan. 8, 1904.

GEE HAW

The words "GEE HAW." Used since January, 1901.

42,050. AXES, HATCHETS, AND ADZES. SUPPLEE HARDWARE COMPANY, Philadelphia, Pa. Filed Oct. 22, 1903.



The words "OLD HICKORY," a bust portrait of Andrew Jackson, former President of the United States, a medallion inclosing said portrait, the words "INFLEXIBLE, INVINCIBLE, LIKE MAN, LIKE AXE," and the representation of a scroll-shaped figure. Used since February 1, 1902.

42,051. CERTAIN NAMED METAL PRODUCTIONS. CHROME STEEL WORKS, New York, N. Y. Filed Oct. 8, 1903.



The representation of a triangular figure, within which is the letter "C" and outside of which, on opposite sides, are the letters "C" and "S." Used since 1886.

42,052. PANELS MADE FROM FIREPROOF MATERIAL. JOSEPH M. WADE, New York, N. Y. Filed Jan. 14, 1904.

SALAMANDERITE

The word "SALAMANDERITE." Used since May 1, 1902.

42,033. CHIMNEY-TOPS. SCHORNSTEIN-AUFSATZ UND BLECHWAREN-FABRIK J. A. JOHN, AKTIEN-GESELLSCHAFT, Ilversgehofen, Germany. Filed Aug. 20, 1903.



Squirrel

The representation of a squirrel perched upon a branch of a tree surrounded by two circumferential lines, with the word "SQUIRREL" written underneath. Used since December 13, 1902.

42,034. STEAM WASHING-MACHINES. SCHORNSTEIN-AUFSATZ UND BLECHWAREN-FABRIK J. A. JOHN, AKTIEN-GESELLSCHAFT, Ilversgehofen, Germany. Filed Aug. 22, 1903.

FULL-STEAM

The hyphenated word "FULL-STEAM." Used since December 13, 1902.

THE NORRIS PETERS CO. PHOTO-LITHO WASHINGTON D.C.

LABELS

REGISTERED FEBRUARY 9, 1904.

10,722.—*Title:* "WYOMING." (For Cotton Piece Goods.) JOHN W. HANNA, New York, N. Y. Filed November 27, 1903.

10,723.—*Title:* "'WHITCHER' MENDERS." (For Menders FRANK W. WHITCHER, Boston, Mass. Filed January 16, 1904.

10,724.—*Title:* "THE FIANCE." (For Mantles.) THE LIBERTY INCANDESCENT LIGHT CO., New York, N. Y. Filed January 6, 1904.

10,725.—*Title:* "MEDICATED CHARCOAL OLD RYE WHISKEY." (For Whisky.) LOUIS STERN & Co., Chicago, Ill. Filed January 14, 1904.

10,726.—*Title:* "WHITE LABEL." (For Wine.) MICHAEL COHEN, New York, N. Y. Filed January 13, 1904.

10,727.—*Title:* "LIQUID SUNSHINE." (For Beverages.) LESTER D. GARDNER, New York, N. Y. Filed January 19, 1904.

10,728.—*Title:* "ECKERT." (For Coffee.) T. A. ECKERT, Newport, Ky. Filed January 8, 1904.

10,729.—*Title:* "FARM BRAND STERILIZED CREAM." (For Sterilized Cream.) M. A. NEWMARK & Co., Los Angeles, Cal. Filed January 19, 1904.

10,730.—*Title:* "VERIBEST OX TONGUE." (For Ox-Tongue.) ARMOUR AND COMPANY, Chicago, Ill. Filed January 16, 1904.

10,731.—*Title:* "VERIBEST CORNED BEEF." (For Corned Beef.) ARMOUR AND COMPANY, Chicago, Ill. Filed January 16, 1904.

10,732.—*Title:* "QUALITY OUR MOTTO." (For Seed-Potatoes.) THE JOHNSON SEED POTATO CO., Richmond, Me. Filed January 14, 1904.

10,733.—*Title:* "ARTEE GENUINE GERMAN DISTILLED PEPPERMINT." (For Peppermint.) GOLD SPRING DISTILLING COMPANY, St. Louis, Mo. Filed January 14, 1904.

10,734.—*Title:* "DR. FARRELL'S ABSOLUTE CURE FOR CATARRH." (For Medicine.) DR. FARRELL'S CATARRH CURE CO., Sheridan, Wyo. Filed January 15, 1904.

10,735.—*Title:* "TOWER'S GENUINE ORIGINAL CANCER AND SCROFULA SYRUP." (For Medicine.) CHARLES MORTIMER TOWER, Battlecreek, Mich. Filed January 13, 1904.

10,736.—*Title:* "ROYALLE." (For Massage-Cream.) ROYALLE CHEMICAL CO., Massillon, Ohio. Filed January 16, 1904.

10,737.—*Title:* "VIVEDERMIS." (For Cosmetic.) ROYALLE CHEMICAL CO., Massillon, Ohio. Filed January 16, 1904.

10,738.—*Title:* "HAIR HEALTH." (For Shampoo.) ROYALLE CHEMICAL CO., Massillon, Ohio. Filed January 16, 1904.

10,739.—*Title:* "HERPIKILL." (For Dandruff Cure.) ROYALLE CHEMICAL CO., Massillon, Ohio. Filed January 16, 1904.

10,740.—*Title:* "HILL'S POPULAR PINK PENETRATING HAND SOAP." (For Soap.) ROYAL C. HICKS, Worcester, Mass. Filed January 12, 1904.

PRINTS

REGISTERED FEBRUARY 9, 1904.

894.—*Title:* "ADLER'S GARMENTS FOR SPRING AND SUMMER." (For Men's Apparel.) DAVID ADLER & SONS CLOTHING CO., Milwaukee, Wis. Filed January 18, 1904.

895.—*Title:* "PORCELAIN INLAYS MADE BY THE DR. R. M. CHASE IMPRESSION AND MATRIX SYSTEM." (For Dental Fillings.) ROLLA MINER CHASE, Bethel, Vt. Filed January 19, 1904.

896.—*Title:* "MINDURA." (For Paint-Pigments and Paint Materials.) NATURAL CARBON BY-PRODUCTS CO., Freeport, Ill. Filed January 14, 1904.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE JENNENS.

Decided January 15, 1904.

DIVISION—METHOD OF MAKING A MATRIX—ARTICLE CAST IN THE MATRIX—INDEPENDENT INVENTIONS—DIVISION REQUIRED.

Held that division is properly required between claims for the method of making a matrix and a claim for an article cast in the matrix, as these claims cover independent inventions.

ON petition.

ART OF MAKING MATRICES FOR CASTING RELIEF-WORK.

Mr. Richard H. Manning for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division in the above-entitled application.

This application as filed contained eight claims. The Examiner required division between claims 1 to 6, inclusive, which cover the method of making a matrix, and claim 7, which covers a mold for casting, and claim 8, which covers the cement casting.

An amendment has been filed canceling claim 7. This petition, therefore, is taken from the Examiner's requirement of division between claims 1 to 6, inclusive, and claim 8. It is very clear that claims 1 to 6, inclusive, are for the process of making a matrix and claim 8 is drawn to cover the completed cast article.

These two inventions are independent, and therefore the requirement of division is a proper one and in accordance with the provisions of Rule 41, which states that—

two or more independent inventions cannot be claimed in one application.

The petition is denied.

EX PARTE PAIGE.

Decided January 26, 1904.

FINAL REJECTION—FORMAL OBJECTIONS—AMENDMENTS.

Where certain formal objections are made and the claims are finally rejected, *Held* that the applicant may amend to avoid the formal objections, but cannot make amendments presenting new claims or affecting the merits.

ON petition.

STREET-SWEEPERS.

Mr. Edward Dummer for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter an amendment presented October 29, 1903, on the ground that the consideration of the case upon its merits had been closed by a final rejection. The claims were finally rejected on August 25, 1903, and after an amendment and argument as to formal matters, which was replied to by the Examiner, the applicant presented the amendment of October 29, 1903, canceling two of the finally-rejected claims and substituting two new claims which were substantially different from those rejected. The application was not in condition for that amendment, and the Examiner properly refused to admit it. The applicant had the right to correct the formal defects in the specification noted; but it was not proper to include in that amendment a change in the claims without showing good and sufficient reasons why the amendment was not made earlier. The fact that there were formal objections not finally disposed of did not give to the applicant the right to reopen the merits of the claims.

The petition is denied.

EX PARTE BUTCHER.

Decided January 26, 1904.

1. DIVISION—TWO SPECIES OF INVENTION.

Held that the claims cover two species of the invention and that division was properly required.

2. SAME—PRACTICE—ELECTION BY APPLICANT.

Where division is required between two or more sets of claims covering two independent inventions, *Held* that the applicant should be permitted to elect which invention he desires to prosecute and that he should not be required to eliminate from his application any one set of claims.

3. ILLUSTRATION OF INVENTION—NEW MATTER—SPECIES NOT DISCLOSED.

An applicant will not be permitted to illustrate a specific form of the invention not originally disclosed although it illustrates the generic invention disclosed.

ON petition.

SASH-LOCK.

Messrs. Carr & Carr for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between claims 1 to 4 inclusive, and claims 5 and 6 of the above-entitled application and from his refusal to admit two new figures to the drawing.

When the application was originally filed there were two specific constructions of sash-locks dis-

closed therein. It is apparent that claims 1 to 4, inclusive, were drawn to specifically cover one of these forms of sash-locks and that claims 5 and 6 specifically cover the other form. Clearly, therefore, applicant cannot prosecute these two sets of specific claims in the same application. (*Ex parte R. N. Eagle*, C. D. 1870, p. 137.) The two new figures which applicant desires to incorporate in this application disclose another form of the same generic invention which is not described in the application as originally filed. The Examiner was right in refusing to admit these two new figures.

It appears that in requiring division the Examiner has required applicant to cancel claims 5 and 6, thereby not permitting the applicant to elect which form of the invention he will prosecute in his application. The Examiner states in his letter of October 27, 1903:

> Present claims 5 and 6 are for the alternate device shown in Figures 4 and 5.
>
> The claims, figures of drawing and description in specification of this alternate device must be eliminated from the present application.

In regard to this requirement the applicant makes the following statement in his brief:

> In this case applicant has not been accorded an option by the Examiner for a reason which does not appear in the official letters. As only generic claims were in the case prior to the amendment by which the present claims 5 and 6 were inserted, applicant should apparently be permitted to elect if the requirement of division should be sustained.

While the Examiner's requirement of division is right, the applicant should be permitted to elect which one of the specific inventions he desires to prosecute in this application.

With this exception the petition is denied.

EX PARTE DUBERN.

Decided January 27, 1904.

1. AMENDMENT—DIVISION—REFUSAL TO ENTER AMENDMENT.
   An amendment should not be entered if its entry would necessitate a requirement for division, and this applies before action by the Office as well as afterward.
2. SAME—SAME—SAME—PRACTICE.
   The refusal to enter an amendment including two inventions instead of entering it and requiring its elimination keeps the Office records in better shape and affects no substantial rights on the part of the applicant.
3. SAME—SAME—CONTINUOUS APPLICATION.
   The entry or refusal to enter an amendment including two inventions does not affect the question whether a later application including one of those inventions is to be considered a division and continuation of the first case, entitling the applicant to the benefit of the original date.

ON petition.

ICE-MAKING.

Messrs. Whitaker & Prevost for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter an amendment presented September 2, 1903, on the ground that its entry would require division of the application.

The application as filed included only claims to the apparatus, and the amendment of September 2, filed before any action by the Office, canceled the original claims and inserted seven claims to the apparatus and seven to the process performed by it. On October 6 the Examiner refused to enter the amendment and gave an action upon the merits of the original claims.

It is the settled rule of the Office that process and apparatus claims cannot be included in one application, and therefore the Examiner was right in refusing to enter the amendment. If it had been entered, the only action which the Examiner could have taken would have been to require the applicant to cancel one set of claims. The applicant apparently recognizes the fact that both sets could not be retained in the case; but he wishes them entered and considered for the purpose of preserving his rights, notwithstanding the grant of a foreign patent to him more than one year ago. It is said that the foreign patent was granted one year before November 1 last and that the present application was filed within the period of one year fixed by the International Convention.

The admission or refusal to admit the amendment can in no way affect the applicant's rights under the International Convention. If it was admitted, one set of claims would have to be removed thereafter and a new application filed if the applicant was to secure the claims, and that application would necessarily be filed more than one year after the foreign application. The applicant might claim the benefit of the earlier filing date for his second case on the ground that the two applications constituted one continuous proceeding; but his rights in that matter are not affected by the entry or refusal to enter the amendment. Proper divisional cases are continuations of the originals, although both sets of claims could not be included in the same application because of the rule against including two inventions in one application.

In the present case the refusal to enter the amendment does not affect the fact that it was presented, and the record will show that fact. It is merely considered better practice to refuse to enter an amendment covering two inventions than to enter it and immediately require that a part of it be canceled. This saves trouble and keeps the Office records in better shape, and it does not affect any substantial rights of the applicant.

The suggestion that the amendment should be entered because presented before action by the Office is not well founded. The objection made acts without regard to the time when the amendment was presented. This case is different from one where the applicant wishes to shift his ground from one invention to another, (*ex parte Zabel*, 43 O. G., 627,) since the amendment includes both inventions.

It is not necessary upon this petition to decide whether the subject-matter of the amendment would be admissible in the absence of a rule forbidding the inclusion of two inventions in one application.

The petition is denied.

EX PARTE BENKE.

Decided January 27, 1904.

1. DIVISION—VOTING-MACHINE—KEY-LOCKING MECHANISM—INDEPENDENT-VOTING MECHANISM.
   Held that the general combination in a voting-machine, key-locking mechanism which may be used in such machine, and mechanism for independent voting constitute three independent inventions and should be claimed in separate applications.
2. SAME—SAME—INDEPENDENT SUBJECTS OF INVENTION.
   Key-locking mechanism and independent-voting mechanism have been made subjects of invention independent of the general improvements in voting-machines and are useful in other relations. They therefore constitute independent inventions.
3. SAME—SEPARATE CLASSIFICATION NOT THE TEST.
   The fact that patents covering several inventions would be placed in one class is no reason for overruling a requirement for division where the inventions are independent.
4. SAME—REQUIREMENT MADE LATE IN PROSECUTION—PRACTICE.
   A requirement for division will not be overruled because made for the first time late in the prosecution of the case.

ON petition.

VOTING-MACHINE.

Mr. Edward N. Pagelsen for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division between claims 20 to 31, inclusive, relating to key-locking mechanism in a voting-machine, and claims 32 to 34, inclusive, relating to an independent-voting mechanism, and the remaining claims of the above application.

One of the grounds urged by the petitioner is that this requirement for division was not made seasonably by the Primary Examiner. His contention is that as the application was filed in 1900 and on March 23, 1901, a former requirement for division was made and complied with it is now too late to insist upon further division, particularly as the claims required to be divided out have been held to be allowable.

Considering first the ground taken by the petitioner as to the time within which requirement of division may be made, his position is untenable. This question was passed upon in *ex parte Lewis*, (108 O. G., 559,) in which it was held:

> The third paragraph of the petition does not raise the question whether or not the application should be divided. It merely objects to the time when the requirement for division is made. Good practice requires that a requirement for division be made at the earliest date upon which it appears that division is necessary. All objections to the application, whether relating to form or merits, should be made as soon as possible, and it should be only in exceptional cases that an objection is made for the first time late in the prosecution of the case. The first action should be careful and complete, and new requirements or references should not be necessary except where rendered so by the applicant's amendments. It cannot be held, however, that because an objection or a pertinent reference was overlooked in the first action it becomes the Examiner's duty to ignore it thereafter. The Office must correct an error whenever it is discovered and will not issue informal or invalid patents merely because it failed to discover the defect or informality as soon as desirable. The Examiner's requirement for division will not be set aside on account of the time when it was made.

Furthermore, Rule 42 provides:

> If the independence of the inventions be clear, such limitation will be made before any action upon the merits; otherwise it may be made at any time before final action thereon, in the discretion of the Examiner.

It is held, therefore, that this requirement though late was made within the proper time, so that the merits of the question will now be considered.

The invention covered by claims 20 to 31, inclusive, relating to key-locking mechanism, is held by the Primary Examiner to be a separate subject of invention from that covered by the other claims. As to these claims it is merely necessary to state that this question of division of key locking and arrester mechanism in voting-machines has been previously passed upon in *ex parte Myers*, (76 MS. Dec., 232.) In discussing the requirement of division as to claims covering such mechanism it was held:

> In the class of registering-machines the key locking or arrester mechanism has become a separate subject-matter of invention from the general structure of the registering-machines in which the key-locking or registering mechanism is used. While this key-arrester or key-locking mechanism may properly be included as one of the elements of a combination covering the general structure of the machine, nevertheless the key-arrester mechanism itself forms a distinct and independent invention from the combination in which it is used.

The petition as to claims 20 to 31, inclusive, is therefore denied.

This leaves merely claims 32, 33, and 34, which cover a mechanism intended to permit voting for a person not nominated by any of the political parties. Mechanism to accomplish this purpose has now become a separate subject of invention, shown by the United States patent to Myers, No. 494,588, where such a device is illustrated in Figures 20 and 21 and described in lines 120 to 126, as follows:

> Though this irregular-voting device is especially desirable in connection with a machine embodying mechanical counters, it is obvious that, if desired, it could be utilized in other connections, or by itself and the release or resetting could be caused by other means than that shown, viz: the connections with the booth-door;

and by the United States Patents to Bardwell, No. 742,277, and St. Louis and Jackson, No. 740,059.

The position assumed by the petitioner that division should not be insisted upon because if three patents were issued to cover the three separate sets of claims in this application they would all be now classified in the same class as this application is not well taken, for, as was said in *ex parte Davison*, (101 O. G., 1371:)

> The two specific sets of mechanism are clearly independent in structure and operation; but the petitioner contends that they should be allowed to remain in the same application because they belong in the same class of invention in the present scheme of Office classification. The question of Office classification is not and has never been the absolute test upon the question of division. A difference in Office classification is merely evidence tending to show that the devices are independent. Separate classification follows from separate invention by patentees, and it is only after the lines have been drawn by the practical workers in the art that this Office places the patents in separate classes.

The petition must be denied as to claims 32, 33, and 34.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

IN RE BUTTERFIELD.

Decided January 5, 1904.

1. INVENTION—ANTICIPATION—RUBBER-SOLED SHOE.
   Where it was old to vulcanize a rubber sole to the outer leather sole of a shoe and was old to vulcanize a rubber sole to the inner sole, *Held* that there was no invention to vulcanize a rubber sole directly to an inner sole of a particular kind provided with a welt.
2. SAME—SAME—MECHANICAL SKILL.
   Where a prior patent shows a rubber sole vulcanized to the inner sole with an interposed layer of rubber-coated cloth, *Held* that the omission of the cloth does not involve invention, but mere mechanical skill.
3. PROCESS CLAIM—NECESSARY MODE OF CONSTRUCTING ARTICLES.
   Quære, whether a statement of the mode of construction of a shoe having a rubber sole vulcanized to it can be considered a process at all.

Mr. W. H. Doolittle and *Mr. Frank A. Spencer* for the appellant.

Mr. John M. Coit for the Commissioner of Patents.

Mr. Justice MORRIS delivered the opinion of the court.

This is an appeal from the refusal of the Commissioner of Patents to issue Letters Patent of the United States for a certain alleged invention in the manufacture of boots and shoes by a combination of leather and rubber, as described in the three following counts:

1. As an improved article of manufacture, a leather boot or shoe provided with a rubber outer sole secured by vulcanization directly to the under surface of the inner sole and welt, whereby the usual leather outer sole is dispensed with, and the rubber sole takes firm hold of and conforms to every inequality of the lasted shoe-bottom, the seam being embedded in and covered by the rubber during vulcanization, substantially as set forth.

2. The improved boot or shoe described, having a rubber outer sole vulcanized directly upon the under surface of the leather insole and welt, covering and adhering to the fastenings which unite them to the upper, and filling the interstices thereof, substantially as set forth.

3. The described method of making rubber-soled leather boots and shoes, consisting in first lasting the boot or shoe body in the usual way, whereby the inner sole and welt are firmly secured to the upper and lining; then applying to the bottom of such lasted shoe-body an outer sole of vulcanizable rubber compound and holding the shoe firmly thereon, and afterward vulcanizing the rubber while its plastic surface is so pressed against and caused to conform to the irregularities of the unfinished bottom, its fastening-seam being thereby embedded in and covered by the rubber, substantially as set forth.

The application was rejected on account of anticipation of the invention by five other persons to whom patents had been issued, one in England, and four in the United States, among the latter of whom was the applicant himself. The patents cited as references were these:

1. One to Elliott of October 9, 1866, No. 58,623.
2. One to Flynn of November 2, 1869, No. 96,412.
3. One to West of April 14, 1885, No. 315,869.
4. One to Butterfield of March 5, 1889, No. 399,130.
5. One to Douglas (British) No. 7,631 of 1886.

We find no good reason for refusal to concur in the conclusion reached by the Commissioner of Patents and the other tribunals of the Patent Office. The process claimed in the third count, if it can be regarded as a process at all, and not as a statement of the mode of construction of the article described in the first and second counts, has plainly been anticipated in all the patents cited, and especially in the patent of March 5, 1889, to the applicant himself, and in the British patent to Douglas. We do not think that the claim of this count can be seriously insisted on. Certainly it is not tenable.

The first and second counts do not substantially differ: they describe the same article of manufacture; and we do not think that there is any patentable novelty in the article. The feature which distinguishes it from the invention for which a patent was granted to the applicant himself in 1889, is the absence of an outer leather sole from the shoe and the application of the rubber directly to the inner sole; but this was done by Douglas in his British patent of 1886. It is true that in this British patent a cloth is interposed between the inner sole of leather and the outer sole of rubber; but this interposed cloth is itself rubber-coated and adapted to adhere to the inner sole in the process of vulcanization. From the method of Douglas to that of the applicant there would seem to be occasion merely for the ingenuity of the skilled mechanic, and not for the inventive faculty of the inventor.

Reference is made to the existence of a welt as part of the applicant's invention; but we fail to see any patentable novelty in the use of the welt, which was already a common feature in the manufacture of boots and shoes.

We think that the Commissioner of Patents was right in his judgment, and that the judgment should be affirmed.

The clerk of the court will certify this opinion and the proceedings in this court in the premises to the Commissioner of Patents according to law.

Court of Appeals of the District of Columbia.

WATSON *v.* THOMAS.

Decided January 5, 1904.

1. INTERFERENCE—PRIORITY OF INVENTION.

Held that Watson was the first to conceive the invention and the last to reduce to practice and that he has not shown that he was exercising diligence. The decision of the Commissioner of Patents awarding priority of invention to Thomas affirmed.

2. SAME—SAME—LACK OF DILIGENCE.

Where the inventor who was first to conceive the invention produces no evidence whatever of any action on his part to reduce the invention to practice beyond the making of some working drawings and a blue-print from them, *Held* that these acts cannot be held to be a manifestation of due diligence.

3. SAME—SAME—SAME—UNCERTAINTY AS TO DATES.

Where the burden is upon a party to show diligence between his conception and reduction to practice and his proofs leave it in doubt whether the alleged steps taken by him were before or after his opponent entered the field, *Held* that he has not proved diligence, and the decision must be against him.

Mr. A. P. Greeley and *Mr. J. L. Stackpole, Jr.*, for the appellant.

Mr. Benjamin Phillips, *Mr. Philip Mauro*, and *Mr. L. S. Bacon* for the appellee.

Mr. Justice MORRIS delivered the opinion of the court.

This is an appeal from the decision of the Commissioner of Patents in an interference cause. The subject-matter of dispute between the parties is an improvement in package-filling and weighing machines, stated in the following three counts as formulated in the Patent Office:

1. In a package-filling machine, the combination of two feed-chutes which discharge successively into the same package and which discharge simultaneously into different packages, means which cut off the flow from one chute after a predetermined period of time, and a cut-off for the second chute controlled by the weight of the filled package, substantially as described.

2. In a weighing and package-filling machine, the combination of two hoppers, mechanism which carries the packages first to a position where one hopper discharges directly into the packages and partially fills the same, mechanism which closes the outlet from the first hopper after a predetermined open period irrespective of the weight or quantity of goods, mechanism which then transfers the packages to the scales, mechanism which then opens the flow from the second hopper directly into the package while on the scales, and mechanism which is actuated by the tipping of the scales to cut off the flow, substantially as described.

3. In a weighing and package-filling machine, the combination of two hoppers, mechanism which carries the package first to a position where one hopper discharges directly into the package, mechanism which cuts off the flow from the first hopper when the package is partially filled, mechanism which then transfers the package to the scales, mechanism which opens the flow from the second hopper directly into the package while on the scales, and mechanism which is actuated by the tipping of the scales to cut off the flow, substantially as described.

The invention in issue seems to have consisted mainly in the substitution of two hoppers for one in well-known weighing and package filling machines. The appellee Thomas is the senior party. He was the first to file his application for Letters

Patent, which came into the Patent Office on December 17, 1896; and he made no attempt in his testimony to establish any prior date either of conception of the invention or of its reduction to practice, being, as it seems, content to stand by his filing date as that of constructive reduction to practice. Watson, the appellant and the junior party in the interference, filed his application on March 11, 1898, nearly fifteen months after Thomas; and apparently through some inadvertence the application was permitted to go to patent on September 26, 1899. The interference between the parties was declared on April 24, 1901.

The Examiner of Interferences adjudged priority of invention in favor of Thomas. His decision was reversed by the Board of Examiners, whose judgment was in favor of Watson. The judgment of the Board of Examiners in turn was reversed by the Commissioner of Patents, who concurred with the Examiner of Interferences in awarding judgment of priority to Thomas. From his decision Watson has appealed to this court.

The appellee Thomas, as already stated, stands by the date of his application, December 17, 1896, as that of his conception and constructive reduction to practice. The appellant Watson, whose patent of course will not avail him in the present controversy, is abundantly shown by the testimony, and is in fact conceded by the appellee to have conceived the invention as far back as January 10, 1896, upwards of eleven months before the date of Thomas's application. And it is also shown and conceded on the part of Watson that he did not reduce his conception to practice before January, 1897. He then permitted more than another year to elapse before he filed his application for patent, on March 11, 1898. Watson then was confessedly the first to conceive the invention and the second to reduce it to practice; and the question to be determined is whether he was in the exercise of due diligence when Thomas entered upon the field of invention on December 17, 1896. The determination of the question depends upon the action or inaction of Watson during the period intermediate between the date of his conception of the invention, January 10, 1896, and the filing date of Thomas's application, December 17, 1896. But during all this period we find no evidence whatever of action on the part of Watson to reduce his conception to practice, beyond the making of some working drawings and a blue-print taken from them, if indeed these were made during that interval: for their date is left in extreme doubt by the testimony, and it is not at all certain that they were made before January of 1897. Even if they had been made before the filing of Thomas's application, they could scarcely be held to have been a manifestation of due diligence on the part of Watson. During the whole of the year 1896 he was busy with the single-hopper machine; and during the year he took out a patent for that machine. If he had the device of the double hopper perfected in his own mind, no reason is shown why it could not have been reduced to practice; nor is there any reason shown why he could not have applied for a patent.

We are entirely satisfied that the Commissioner was right in his decision, and that his award of priority to Thomas should be affirmed.

The clerk of the court will certify this opinion, and the proceedings of this court in the premises, to the Commissioner of Patents, according to law.

Court of Appeals of the District of Columbia.

COBB *v.* GOEBEL.

Decided January 5, 1904.

1. INTERFERENCE—PRIORITY OF INVENTION.

Held that the evidence on behalf of Cobb does not establish a possession of the invention by him before Goebel filed his application, and therefore the decision of the Commissioner of Patents awarding priority of invention to Goebel affirmed.

2. SAME—EVIDENCE OF DISCLOSURE—MEANS NOT DISCLOSED.

Where the witnesses called to corroborate Cobb as to a disclosure of the invention make it appear that he had in mind the result to be accomplished, but not the means by which it was to be done, *Held* that a conception and disclosure of the invention is not established.

Mr. William B. Baird for the appellant.

Mr. L. S. Bacon and *Mr. R. A. Parker* for the appellee.

Mr. Justice MORRIS delivered the opinion of the court.

This is an appeal from the decision of the Commissioner of Patents in an interference case. The subject-matter of controversy is a bottle-washing machine, set forth in seven several counts, when, in our opinion, one or two would have been sufficient. These counts are:

1. In combination with an endless band, means thereon for holding bottles substantially as described, traveling wheels over which said band travels and carries the bottles, a roller operated on the interior of said band and so adjusted in relation thereto as to eject the bottles from said holders.

2. In a bottle-washing machine, the combination with two tanks of an endless carrying-band provided with means for holding the bottles to be washed, means for maintaining a portion of said band submerged in one of said tanks with the mouths of the carried bottles uppermost, means for guiding said carrier over and in close proximity to said other tank, an idler-wheel over which said band passes so positioned as to cause the carrying-band to turn the bottles with their mouths downward over the first-mentioned tank and to direct the carrying-band from the first tank over the second-mentioned tank, and means for ejecting the bottles mouth uppermost directly into the second tank.

3. In a bottle-cleansing apparatus, a liquid-tank and an endless bottle-carrier supported in said tank, and a roller over which said carrier passes constructed to press on the heads of the bottles and forcibly release them from the carrier.

4. In a bottle-cleansing apparatus, the primary and the secondary tanks, the endless bottle-carrier and the wheels supporting said carrier in said tanks, and an intermediate wheel around which the carrier passes and the bottles are inverted, and means on said carrier to grip and suspend the bottles by their necks.

5. In a bottle-cleansing apparatus, the primary and secondary cleansing-tanks, the endless chains having bottle-carrying sections thereon supported to travel within and over said tanks, and a discharge-roller over said secondary tank to eject the bottles from their carrying-sections.

6. In a bottle-cleansing apparatus, the liquid-tanks and the endless chains having bottle-carrying sections therein supported to travel within and over said tanks, sprocket-wheels for said chains arranged to carry the sections and bottles thereon through one tank and back over the same in inverted position and thence to the other tank, and a discharge-roller over said last tank to eject the bottles from said carrier.

7. In a bottle-cleansing apparatus, a primary cleansing-tank and a bottle-carrier supported to travel within and above said tank, and a discharge-roller for said carrier constructed to eject the bottles and discharge them outside said tank.

Goebel, the appellee, is the senior applicant. His application for a patent was filed in the Patent Office on August 9, 1900: that of Cobb was filed on September 26, 1900, about one month and a half

later. Goebel claims in his preliminary statement that he conceived the invention about August 1, 1899, and reduced it to practice about October 1, 1899; but reliance seems to be placed rather upon his record date of application as a constructive reduction to practice before there was any conception of the invention by Cobb. The latter claims conception of the invention about April 1, 1900, and reduction to practice about October 1, 1900. In the testimony on his behalf there was an effort to show that Goebel derived his idea of the invention from him, and therefore that Goebel was not an original inventor at all.

All three of the tribunals of the Patent Office decided in favor of Goebel, and awarded to him judgment of priority of invention. From the Commissioner's decision to that effect Cobb has appealed to this court.

The appellant comes here with the burden upon him of being the junior applicant, and the burden also of the unanimous concurrence of all the tribunals of the Patent Office against him. We have repeatedly held that under such circumstances it behooves an appellant to make out a very clear case on his behalf. We do not find that he has done so in the voluminous briefs, almost as extensive as the record, which he has filed; and we find no reason whatever to disturb the decision of the Commissioner of Patents in the case. All the decisions of the tribunals of the Patent Office have proceeded upon the same lines; and the only question is one of fact.

Assuming the date of the application of the appellee Goebel, August 9, 1900, as that both of his conception and reduction to practice of the invention, the Commissioner finds that there was no reduction to practice by the appellant before that date, and consequently awards judgment of priority of invention to Goebel. The three witnesses, to whom Cobb, the appellant, claims to have made disclosure of his invention about the latter part of March, 1900, do not support his statement. One of them, Frank B. Anderson, testifies that at that time Cobb "had not worked out the technical part" of his invention. This means, of course, that, while he knew what he desired to do, as numerous other parties interested knew, he had not devised the mode of its accomplishment. Another of the witnesses says that Cobb did not state at the time of the alleged disclosure "how he was going to carry and discharge the bottles." This was evidently no disclosure of any invention. A third witness, who testifies that Cobb explained the invention verbally to him, and also made pencil sketches for him, and who was the person most desirous to have the machine constructed, yet says that he was not favorably impressed with the idea at the time, and that the sketches were thrown away as valueless.

The Commissioner finds, and we fully agree with him, that there is no sufficient evidence that the appellant was possessed of the invention before August 24, 1900; and that, inasmuch as this was two weeks after the record date of the filing of Goebel's application, it can be of no service to the appellant.

It is evident that in any event the record date of Goebel's application for a patent, and consequently his constructive reduction of the invention to practice, preceded Cobb's reduction to practice; and the latter can only succeed, if he succeeds at all, by showing conception of the invention prior to Goebel's conception of it. But the testimony on his part would not carry his conception back before the early part of April, 1900, while testimony, at least equally convincing on the part of Goebel, tends to prove that he had an adequate conception of it in the latter part of March of the same year,—perhaps within a few days after March 12, according to the testimony of one or two of his witnesses. The testimony on both sides is somewhat vague. It is evident, of course, that both men were working from and after March, 1900, to remedy an acknowledged defect in the machines then and previously in use. But, apart even from the prior redu tion to practice by Goebel on August 9, 1900, by the filing of his application for a patent, the preponderance of testimony, so far as there is any, inclines in favor of Goebel, and tends to prove conception by him in March of 1900, some short time before the earliest date of conception that can reasonably be claimed upon the record for Cobb.

We think that the decision of the Commissioner of Patents was right, and that it should be affirmed.

Judgment of priority of invention is awarded in favor of the appellee Goebel.

The clerk of the court will certify this opinion, and the proceedings in this court in the premises to the Commissioner of Patents according to law.

Affirmed.

Patents Nos. 752,019 to 752,637.

THE

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OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	8	....	Nevada	....	....
Alaska Territory	....	....	New Hampshire	....	....
Arizona Territory	2	....	New Jersey	26	1
Arkansas	2	1	New Mexico Ter't'y	....	....
California	21	1	New York	95	10
Colorado	9	....	North Carolina	2	....
Connecticut	17	....	North Dakota	....	....
Delaware	....	....	Ohio	56	....
District of Columbia	6	1	Oklahoma Territ'y	2	....
Florida	2	....	Oregon	3	....
Georgia	7	....	Pennsylvania	55	8
Hawaii Territory	....	....	Porto Rico	....	....
Idaho	1	....	Rhode Island	4	1
Illinois	56	13	South Carolina	1	1
Indian Territory	3	....	South Dakota	1	1
Indiana	20	....	Tennessee	7	....
Iowa	9	....	Texas	8	....
Kansas	8	1	Utah	1	....
Kentucky	6	2	Vermont	5	....
Louisiana	6	....	Virginia	7	2
Maine	2	1	Washington	10	....
Maryland	10	....	West Virginia	....	....
Massachusetts	40	9	Wisconsin	10	1
Michigan	17	4	Wyoming	....	....
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Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Argentina	....	....	Netherlands	1	....
Austria-Hungary	3	....	Newfoundland	....	....
Belgium	2	....	New South Wales	....	....
Brazil	....	....	New Zealand	3	....
British West Indies	....	....	Norway	2	....
Canada	6	1	Persia	....	....
Cape Colony	....	....	Queensland	....	....
Chile	....	....	Roumania	....	....
China	....	....	Russia	....	....
Costa Rica	....	....	San Salvador	....	....
Cuba	....	....	Scotland	2	....
Denmark	....	....	South Africa	....	....
Ecuador	....	....	Spain	....	....
England	15	3	Sweden	2	....
France	7	....	Switzerland	....	....
Germany	15	....	Transvaal, South Africa	....	....
India	....	....	Victoria	....	....
Ireland	1	....	Western Australia	....	....
Italy	....	....			
Japan	....	....	Total to citizens of foreign countries	60	4
Java	....	....			
Mexico	1	....			

Notice of Interference.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 16, 1904.

To the next of kin and legal representatives of Samuel B. Locklin, deceased, late of Boston, Mass.:

Notice is hereby given that on October 14, 1903, an interference was declared between the patent to Samuel B. Locklin, No. 706,574, August 12, 1902, and a pending application, the issue of the said interference being claims 1 to 4 of the patent.

Notice is further given that the time within which the statements demanded by Rule 110 must be filed has been extended to April 5, 1904.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

F. I. ALLEN,
Commissioner.

Patents to Assignees.

RULE 200. In every case where it is desired that the patent shall issue to an assignee, the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

Notice.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 9, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 28	Jan. 28	143
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 18	Jan. 2	186
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 16	Jan. 5	309
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 15	Nov. 24	415
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 12	Jan. 27	114
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 11	Jan. 26	186
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 11	Jan. 26	247
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Jan. 11	Jan. 26	249
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 11	Jan. 23	195
332	X. Carriages and Wagons	Jan. 11	Jan. 22	205
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Jan. 11	Jan. 21	216
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Jan. 11	Jan. 19	207
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 11	Jan. 18	202
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 11	Jan. 12	305
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 11	Jan. 12	230
232	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 11	Jan. 7	306
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Jan. 11	Dec. 21	404
109	XVI. Telegraphy and Telephony	Jan. 11	Dec. 18	185
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 9	Jan. 27	220
344	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Jan. 9	Jan. 27	187
308	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 9	Jan. 26	207
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Jan. 9	Jan. 26	230
327	XVIII. Steam-Engineering, etc	Jan. 9	Jan. 20	143
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Jan. 9	Jan. 20	264
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 9	Jan. 18	273
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Jan. 9	Jan. 12	252
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Jan. 9	Jan. 6	356
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 9	Nov. 19	346
	Between one and two months.			
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 8	Jan. 12	120
321	I. Tillage, etc., and Fences	Jan. 7	Jan. 9	219
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 6	Dec. 18	359
183	XXII. Fire-Arms, Ordnance, Navigation.	Jan. 6	Dec. 1	192
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 5	Nov. 7	502
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 2	Jan. 21	220
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 2	Jan. 2	327
128	II. Farm Products, etc., Lubricators, Presses, etc.	Dec. 23	Dec. 22	410
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 21	Dec. 1	328
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 9	Dec. 2	463
	Total number of applications awaiting action			10,051
	Under one month.			
	*Designs	Jan. 28	Feb. 8	30
	†Trade-Marks	Jan. 23	Feb. 6	63
	‡Labels and Prints	Feb. 9	Feb. 9	----

Changes in Classification.

(ORDER No. 1,573.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 9, 1904.

The following changes in classification are hereby directed:

In Division XXXVII, class 173, Electricity, Conductors, abolish subclasses—

Conductors—
94. Lead-covered,
Connectors—
260. Car and hose,
261. Cords and terminals,

and in lieu thereof establish the following subclasses:

Conductors—
264. Insulated—
265. Air,
266. Armored—
267. Spiral strip,
Joints—
268. Insulated.
Connectors—
269. Cord-terminals,
270. Couplers—
271. Air-pipe contacts,
272. Water-pipe contacts,
273. Line-tappers,
Plugs—
274. Multiple contact,
Connectors—
Socket and plug—
275. Multiple contact,
276. Single contact.
Rail-bonds—
Surface-connected—
277. Bolt or clamp,
278. Soldered,
279. Spring-pressed.
Socket-connected—
280. Riveted,
281. Rivet or wedge,
282. Wedge.

F. I. ALLEN,
Commissioner.

Changes in Classification.

(ORDER No. 1,574.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 12, 1904.

It is hereby directed that class 184, Lubricators, be transferred from Division II to Division XII.

F. I. ALLEN,
Commissioner.

PATENTS

GRANTED FEBRUARY 16, 1904.

752,019. **DEVICE FOR STRAINING LIQUIDS.** JOSEPH H. ADWEN, Rochester, N. Y. Filed May 13, 1903. Serial No. 156,995. (No model.)



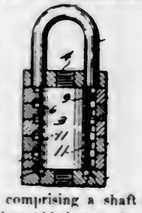
Claim.—1. A device such as described, consisting of a sheet of straining material, as cloth, held between body-sheets, as of paper, placed one upon the other, the body-sheets each having a central opening and a series of openings around the central opening, said central openings and the openings of the two series being alike in both body-sheets, the sheet of straining material covering all of the openings of both body-sheets, the whole being bent to form an inclosure for the liquid.

2. A device for straining liquids, the same being a truncated conical hollow body formed of two thicknesses or sheets of paper, and a sheet of straining material between the paper sheets, the conical body having openings through its sides and an opening at its truncated end, the straining-sheet covering all said openings and serving to retard the flow of the liquid through them.

3. A device such as described, consisting of a hollow conical body made of two thicknesses and having openings through its sides, and a sheet of cloth between the two thicknesses of the body, and a cup or holder for the conical body having an opening through the bottom to clear the adjacent part of the conical body, and catches on the cup for engaging the conical body.

4. A device such as described, consisting of a hollow conical body in two overlying parts having openings through its sides, and a sheet of straining material between said outer and inner parts of the body, and a holder for the conical body having an opening at the bottom, and catches on said holder for engaging the upper edge of the conical body, said catches being equally spaced around the conical body, one being elastic and having spring action.

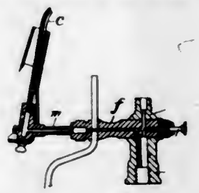
752,020. **PERMUTATION-PADLOCK.** FRANK T. ANDERSON, Chicago, Ill. Filed Mar. 12, 1903. Serial No. 147,428. (No model.)



Claim.—A padlock comprising a shaft formed with opposite longitudinal grooves and provided at each end with threaded projections, and end pieces formed with threaded openings to receive the projections of said shaft, the upper being also formed with a pair of spaced-apart openings, a shackle having its shank extending through the last-named openings, and the grooves of the shaft, and terminating in recesses provided in the inner face of the bottom end piece forming substantial locking means for the same, one of said shanks being formed with teeth, and rings rotatable on said shaft and provided with flanges on their interior for engaging the teeth of the said shank, and locking the same, said rings being apertured to permit the shanks to pass through.

752,021. **GAS-LIGHTING ATTACHMENT.** PIERRE BARDOT, Lyons, France. Filed Oct. 19, 1901. Serial No. 79,270. (No model.)

Claim.—The combination with an incandescent burner, its supply-cock, and the key thereof having a longitudinal opening communicating with the gas-passage of the cock, of a screw-valve to control the opening at the crossing of the passages in the key, a casing attached to the end of the hollow key, having an open side, a lighting-pipe in said open casing communicating with the longitudinal key-passage, and burner-jets extending upward from the lighting-pipe out of the casing to the burner, substantially as described.



752,022. **VEGETABLE PULP OR COMPOUND.** DANA BICKFORD, West Medford, Mass. Filed Nov. 9, 1903. Serial No. 180,489. (No specimens.)

Claim.—1. The process of producing a fibrous pulp or compound from waste vegetable material which consists in crushing such material, under pressure sufficient to crush or break down any stems, knots or other hard pieces therein and to squeeze out any particles of air or water adhering to the fiber, then kneading the resultant product, substantially as described.

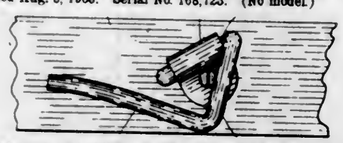
2. The process of producing a fibrous pulp or compound from waste vegetable material which consists in crushing such material, under pressure sufficient to crush or break down any stems, knots or other hard pieces therein and to squeeze out any particles of air or water adhering to the fiber, then kneading the resultant product and finally molding the pulp or compound under pressure, substantially as described.

3. The process of producing a fibrous pulp or compound from waste vegetable material which consists in partially or completely rotting such material, then crushing such material, under pressure sufficient to crush or break down any stems, knots or other hard pieces therein and to squeeze out any particles of air or water adhering to the fiber, then kneading the resultant product, substantially as described.

4. The process of producing a fibrous pulp or compound from waste vegetable material which consists in partially or completely rotting such material, then crushing such material, under pressure sufficient to crush or break down any stems, knots or other hard pieces therein and to squeeze out any particles of air or water adhering to the fiber, then kneading the resultant product, and finally molding the pulp or compound under pressure, substantially as described.

5. The material which consists of vegetable fiber, crushed and kneaded but not torn or broken, substantially as described.

752,023. **HOLDBACK-HOOK.** HENRY BREIDING, Sterling, Ill. Filed Aug. 8, 1903. Serial No. 168,723. (No model.)



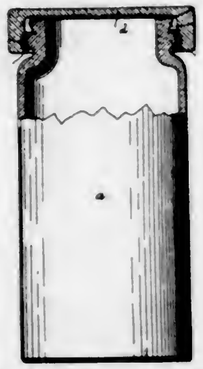
Claim.—1. A holdback-hook, adapted to be secured to the shaft of a vehicle, comprising a seat member disposed diagonally of the

shaft, and in a plane parallel therewith, and a forwardly-projected arm, curved upwardly into proximity to the face of the shaft, such arm being integral with said seat member, and adapted to automatically receive and release the holdback-strap, substantially as set forth.

2. In a holdback-hook, the combination of a support; a seat for the holdback-strap; a forwardly-extended arm, curved upwardly into proximity to the face of the shaft; such seat being integral with said support at one end and with said arm at the other end; and means for rigidly securing said support to the shaft, substantially as described.

3. The combination, in a holdback-hook, of the support 1, provided with a stud 4; the seat 2, integral with the support 1; arm 3, integral with the seat 2; and clip 6, secured to the shaft, and engaging the support 1, substantially as shown and set forth.

752,024. JAR-CLOSURE. HENRY S. BREWINGTON, Baltimore, Md., assignor of one-half to William F. Seim, Baltimore, Md. Filed May 5, 1903. Serial No. 155,771. (No model.)



Claim.—1. The combination with a jar formed on its upper edge with an external annular shoulder and a rounded peripheral bead forming a recess between the shoulder and the bead, of a closure comprising a cover having an annular recess placed within the depending flange of same, and an elastic gasket surrounding the annular bead on the jar and spread within the recess of the closure substantially as hereinbefore described.

2. The combination with a jar formed with an external annular peripheral bead and an annular shoulder forming a recess between said shoulder and bead, in which recess the gasket is laid, said recess having a rounded surface in the formation of the bead on the jar, of a closure or cover having an annular recess within its depending flange and an elastic gasket spread downward on the bead on the jar and in the recess in the closure or cover whereby the gasket holds the cover firmly on the jar and acts as an air-tight packing substantially as hereinbefore described.

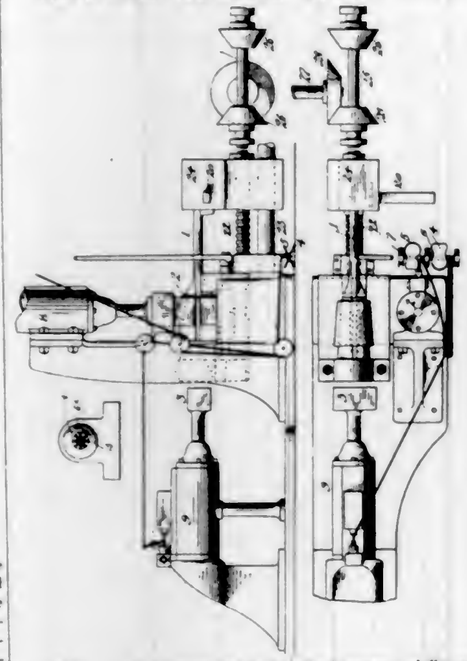
752,025. NUT-LOCK. PHILIP S. BRINDLE, Columbus, Ohio, assignor, by direct and mesne assignments, to Frank N. Hammond, Fred M. Hammond, Charles P. Mosher, Jr., Clarence R. Woolman, and Charles J. Pretzman, Columbus, Ohio. Filed July 16, 1903. Serial No. 165,902. (No model.)



Claim.—1. The combination of a bolt having a longitudinal groove intersecting the screw-threaded part thereof and an opening intersecting the groove, a nut having a groove intersecting the threads of the bore thereof for alinement with the groove of the bolt, a key to be fitted in the alined grooves and provided with an opening to register with the opening of the bolt, and a pin to be inserted in the opening of the bolt to prevent displacement of the key.

2. The combination of a bolt having a longitudinal groove intersecting the screw-threaded part thereof, and a diametric opening intersecting the outer end portion of the groove, a nut having a groove in the bolt-opening thereof for alinement with the groove in the bolt, a split cotter-pin to be inserted in the alined grooves of the bolt and nut with its open head registered with the opening of the bolt, and a split cotter-pin to be inserted through the open head of the first-mentioned pin and through the opening in the bolt to interlock the nut and bolt.

752,026. DRILL-SHARPENER. JAMES L. BRYSON, San Francisco, Cal., assignor of one-half to Dew R. Oliver, San Francisco, Cal. Filed Feb. 14, 1903. Serial No. 143,428. (No model.)



Claim.—1. In a machine for the described purpose, a dolly comprising an anvil, separated arms extending therefrom and having grooved ends, a support for drill-bits in line with the free ends of said arms, means for adjusting said support relatively to said arms, means for closing and releasing the free ends of said arms, and a hammer.

2. In a machine for the described purpose, an anvil, spring-arms forming a part thereof and adapted to be closed together and to open, grooves in the ends of said arms to receive the bit, and means for clamping said arms together and for releasing said arms.

3. A dolly for drill-sharpeners having separated spring-arms with grooved free ends, and means for closing said arms.

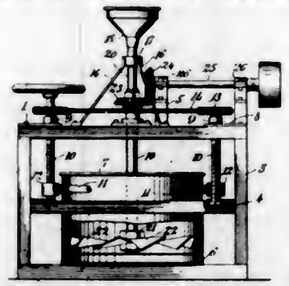
4. In a machine for the described purpose, a cone-shaped dolly having separated spring-arms with grooved free ends, in combination with an adjustable cone-shaped sleeve inclosing said arms and adapted to clamp said arms together and to release said arms.

5. In a machine for making and sharpening drill-bits, a hammer, a movable dolly adapted to receive the impact of said hammer, separated arms forming a part of said dolly and shaped at their open ends to receive the bit, a sleeve adapted to fit said arms, and a screw provided with means for adjusting said sleeve so as to clamp said arms and release said arms.

752,027. ORE-SEPARATOR. HENRY J. BURROUGHS, Los Angeles, Cal. Filed Jan. 28, 1903. Serial No. 140,861. (No model.)

Claim.—1. A separator comprising a main frame, a two-part separating-tank therefor, means for adjusting one portion of said separating-tank vertically relative to the other, a feeder for said tank, and means for revolving the feeder, substantially as set forth.

2. A separator comprising a main frame, a tank formed of two portions, an upper open portion and a lower pan-like portion, means for adjusting the upper portion vertically relative to the other pan portion, such means comprising bearing-brackets secured to said upper portion, bearings mounted on the main frame, screw-rods extending through the said bearings on the main frame and engaging with the brackets on the upper portion of the tank, sprocket-gears carried by said screw-rods, and an endless chain extending around said gears, the construction being such that when the chain is in motion, the gears and the screw-rods will be revolved and the upper portion of the tank adjusted vertically, substantially as set forth.



3. A sectional separator comprising a main frame, a separating-tank, means for moving one section of the tank relative to another, and means for feeding and distributing precious-metal-bearing material in said tank, such means comprising braces on the main frame, carrying a collar, a funnel supported by said collar, a tubular shaft revolubly supported in the main frame and communicating with said funnel, a fan carried by the part of the tubular shaft in said tank, and means for revolving said tubular shaft, substantially as set forth.

4. A separator comprising a two-part tank, means for adjusting one of said parts vertically relative to the other, a revoluble feeder carrying a fan extending into said tank, and means for revolving said feeder, substantially as set forth.

5. A separator comprising a two-part tank, means for adjusting one of said parts vertically relative to the other, a revoluble feeder carrying a fan extending into said tank, means for revolving said feeder, said means comprising a bevel-gear carried by said feeder, a second gear intermeshing with the bevel-gear of the feeder, and means for revolving the second gear, substantially as set forth.

6. In a separator, a tank formed of sections, and screw-rods connected with one section of the tank for adjusting said section relative to another section of the tank, substantially as set forth.

7. In a separator, a main frame, a separating-tank formed of two sections, and means mounted on the main frame and connected with one of the sections of the tank for adjusting said tank-sections vertically relative to the unconnected tank-section, substantially as set forth.

8. In a separator, a tank formed of two sections, and mechanism including a plurality of sprocket gear-wheels, and an endless drive-chain extending around said sprocket-wheels, for adjusting one section of the tank relative to the other, substantially as set forth.

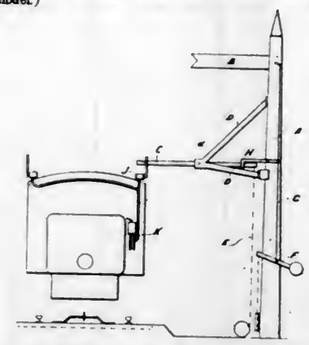
9. A separator comprising a main frame, a separating-tank formed of two portions, a pan-like portion and a cylindrical portion mounted above the pan-like portion, and mechanism mounted on the main frame and connected with the cylindrical portion of said tank, for adjusting said cylindrical portion vertically relative to the pan-like portion, substantially as set forth.

10. A separator comprising a main frame, and a two-part separating-tank, means for adjusting one part of said tank vertically relative to the other, each means comprising screw-rods mounted in bearings on the main frame, and connected with a portion of said tank, horizontally-disposed sprocket-gears on the screw-rods, a chain extending aronnd said gears, and a hand-wheel for turning one of said screw-rods in its bearing to actuate the aforesaid chain, substantially as set forth.

11. A separator comprising a main frame, a tank therefor, a feeding device for supplying ore to the tank, such feeder comprising a revoluble, tubular shaft, beater-blades mounted on said shaft at an inclination to the axis of rotation of the shaft, and a stationary funnel connected with the shaft, substantially as set forth.

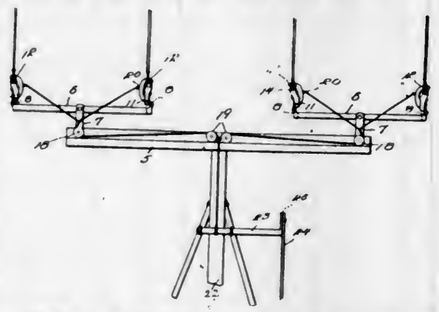
12. A separator comprising a tank adapted to contain mercury, a cylindrical section adapted to be brought into abutment with said mercury-tank, means for adjusting said cylindrical section vertically, relative to the mercury-tank, a feeding device for supplying precious bearing material to the tank, such feeding devices comprising a vertically-arranged tubular shaft carrying a fan at its lower end, a stationary funnel connected with said tubular shaft, and means for revolving the tubular shaft and its fan in the tank, substantially as set forth.

752,028. APPARATUS FOR PREVENTING ENGINE-DRIVERS RUNNING PAST HOME OR DISTANT SIGNALS. THOMAS CAIRNS, Auckland, New Zealand. Filed July 14, 1903. Serial No. 165,538 (No model.)



Claim.—In combination with brake-applying mechanism carried by the train, means for actuating said mechanism consisting of an arm C with means for throwing said arm into position to actuate the brake mechanism, said means comprising the usual mechanism for operating the signal and means between the track to the arm C actuated by the train for throwing the arm C out of position.

752,029. RELEASING TRACE-HOOK. WILLIAM CARTER, Foster, Ind. Ter. Filed May 26, 1903. Serial No. 158,813. (No model.)



Claim.—1. A releasing trace-hook comprising a body portion having a pair of slots in one end at right angles to each other, one of said slots being of lesser depth than the other, said body portion also having a perforation through its remaining end, an angular member pivoted at one end in the perforation and having a nose projecting through said perforation, a spring-plate secured to the body portion at one end and being adapted at the other for connection to a whiffletree, said plate bearing against the nose of the angular member, said angular member lying normally with its free end in the lesser slot and being movable upon its pivot to withdraw the end from the slot and against the action of the spring-plate.

2. A releasing trace-hook comprising a body portion having a pair of slots in one end at right angles to each other, one of said slots being of greater depth than the other and having a recess in one face and an opening leading from the recess through the body, a second member pivoted at one end in the recess and having a lug passed through said opening and a bill at its free end disposed to engage the slot of lesser depth, and a spring-plate attached at one end to the body over the opening and against the lug of the second member and adapted for attachment at its remaining end to a whiffletree.

3. The combination with a doubletree and swingletrees connected thereto, of a trace-attaching device connected to each end of each swingletree, each of said trace-attaching devices comprising a body portion having transverse slots in its forward end at right angles to each other and a recess in its upper face, and a second member pivoted at one end in said recess and having a bill at its opposite end disposed to engage one of said slots, means for holding said members normally and yieldably with their bills engaged in the slots, pulleys upon the doubletree, cords passed through said pulleys and connected to said pivoted members for raising them with their bills from

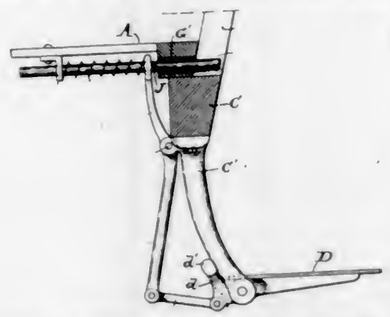
the slots, and a lever with which the cords are connected for operating them.

752,030. EYEGLASS-MOUNTING. HARRY CASWELL, Chicago, Ill. Filed Apr. 25, 1903. Serial No. 154,357. (No model.)



Claim.—In the mountings for eyeglasses described, the combination of a pair of clamps C forming an integral part of a bar A, joining said clamps with a pair of levers G pivotally attached to said clamps by the stud-screws F, the long arm H of each lever having a circular slot I through which the bar A extends, and a coiled spring K encircling the bar A between the lever-arms H, substantially as described and for the purposes specified.

752,031. FOLDING STEP FOR VEHICLES. LEE S. CHADWICK, Ridley Park, Pa. Filed Apr. 23, 1903. Serial No. 153,954. (No model.)



Claim.—1. In combination with a vehicle, of a hinged or pivoted step, a lever connected to said step, a horizontally-movable rod, a pin upon said rod in line with said lever.

2. In combination with a vehicle, of a hinged or pivoted step, a lever connected to said step, a horizontally-movable rod, a pin upon said rod in line with said lever, and a spring surrounding said rod and resting against said lever on the side opposite the pin.

3. In combination with a vehicle, of a door, a horizontally-movable rod, a spring tending to move said rod in one direction, said rod being in line of movement of said door, a lever, connection between said lever and the rod, a pivoted step, said lever being connected with said step.

4. In combination with a vehicle, of a door, a horizontally-movable rod in line with said door, a pin upon said rod, a lever surrounding said rod in line with said pin, a spring surrounding said rod on the side of said lever opposite to the pin, a pivoted step, said lever being connected to said step.

5. In combination with a vehicle, of a bracket secured thereto, a step pivoted to said bracket, a lever connected to said step, a horizontally-moving rod, a pin on said rod resting against one side of said lever and a spring acting on the opposite side of said lever.

6. In combination with a vehicle having a door, of a bracket secured thereto, a step pivoted to said bracket, a lever connected to said step, a horizontally-moving rod, connection between said rod and lever, a spring tending to move said lever in one direction, said lever being moved by said rod against the action of said spring, said rod being in line of movement of said door.

7. In combination with a vehicle having a door, of a bracket secured thereto, a step pivoted to said bracket, said step having a rearwardly-projecting portion in line with said bracket, a lever connected to said step, a horizontally-moving rod, connection between said rod and lever, a spring tending to move said lever in one direction, said lever being moved by said rod against the action of said spring, said rod being in line of movement of said door.

8. In combination with a vehicle, having a door, of a bracket secured thereto, a step pivoted to said bracket, a lever connected to said step, a horizontally-moving rod, a pin on said rod resting against one side of said lever and a spring acting on the opposite side of said lever, said rod being in line of movement of said door.

9. In combination with a vehicle, of a bracket secured thereto, a step pivoted to said bracket, said step having a rearwardly-projecting portion in line with said bracket, a lever connected to said step, a horizontally-moving rod, a pin on said rod resting against one side of said lever and a spring acting on the opposite side of said lever, connection between said rod and lever.

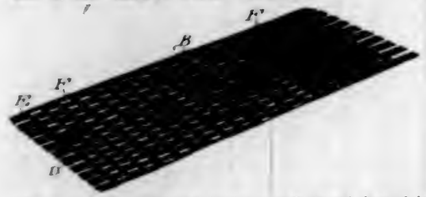
10. In combination with a vehicle having a door, of a bracket secured thereto, a step pivoted to said bracket, said step having a rearwardly-projecting portion in line with said bracket, a lever connected to said step, a horizontally-moving rod, a pin on said rod resting against one side of said lever and a spring acting on the opposite side of said lever, connection between said rod and lever, said rod being in line of movement of said door.

752,032. UMBRELLA. CHRISTEN N. CHRISTENSEN, Meriden, Conn. Filed June 17, 1903. Serial No. 161,870. (No model.)



Claim.—In an umbrella, the combination with an umbrella-rod consisting of telescoping sections; of a head secured to said rod; tubular ribs pivotally secured to said head and having a slot in the under side thereof and another slot in the top thereof shorter than the first-mentioned slot and near the outer ends of said ribs; extension-ribs movable within said tubular ribs and having rigid lugs upon the top side and near the inner ends thereof; a runner upon said rod; stretchers pivotally secured to said umbrella-runner at one end, passing through said under slot and pivotally secured to the aforesaid extension-ribs at the other end, said stretchers being so arranged that the engagement thereof with the outer end of said under slots will cant said extension-rods so that said lugs will be thrown into said top slots and there hold said extension-ribs against withdrawal while said stretchers are held in their open position; and a rubber cover connected with said rod and ribs.

752,033. TOWEL. FRANK CLEWLEY, Philadelphia, Pa. Filed Nov. 12, 1902. Serial No. 130,937. (No model.)



Claim.—1. A knitted towel having a weft-thread formed into continuous chains of knitted loops and a warp consisting of a plurality of series of filling-threads, each series uniting groups of the weft-chains to produce alternate closed blocks and open spaces.

2. A knitted towel having a weft consisting of continuous chains of knitted loops united into groups by a series of warp or filler threads, the chains being alternately deflected to the right and left by the shogging of the filler-threads, whereby alternate closed blocks and open spaces are produced.

752,034. SEMI-ELLIPTIC SPRING. EDWARD CLIFF, East Orange, N. J. Filed Nov. 10, 1903. Serial No. 180,503. (No model.)



Claim.—1. The spring formed of leaves, the main or outer one of which contains vertical openings in its ends, the walls of said openings being undercut or diverging; combined with end bearing-plates applied to the ends of said spring and having flanges to enter the said openings, said flanges being adapted to be moved outwardly against said diverging walls for locking said plates upon the spring; substantially as set forth.

2. The spring formed of leaves, the outer one of which has undercut or diverging surfaces at its end portions, combined with end bearing-plates applied to the ends of the spring and having integral flanges adapted to be pressed against said diverging surfaces for firmly locking said plates in position, said flanges being of wedge

shape or thicker at their outer than at their inner end adjacent to said plates, thereby providing an increased thickness of metal to engage said undercut surfaces; substantially as set forth.

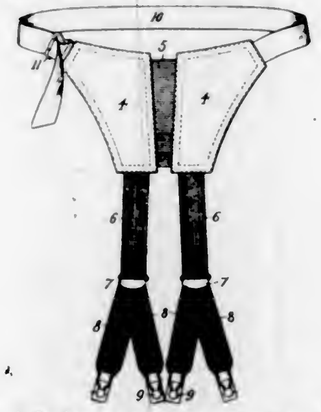
3. The spring formed of leaves, the longer ones of which contain the vertical openings at their ends, the openings in the outer leaf being larger than the openings in the leaves adjoining it, combined with the end bearing-plates applied to the ends of said spring and having flanges to enter the said openings in the said outer leaf, said bearing-plates having the openings through them and the inner walls of said flanges, when said bearing-plates are in position, being in line with the walls of said openings in the leaves below the outer leaf; substantially as set forth.

4. The spring formed of leaves, the outer ones of which contain the vertical openings in their ends, the openings in the outer leaf being larger than the openings in the adjoining leaves and having walls which are undercut or diverging, combined with end bearing-plates applied to the ends of said spring and having flanges to enter the said openings in the outer leaf, said flanges being adapted to be moved outwardly against said diverging walls for locking said plates upon the spring, and the inner walls of said flanges, when said plates are locked in position, being in line with the openings in the leaves adjacent to the outer leaf; substantially as set forth.

5. The spring formed of leaves, the outer one of which contains the vertical openings in its ends, the walls of said openings being undercut or diverging, combined with end bearing-plates applied to the ends of said spring and having flanges to enter the said openings formed therein, said flanges having a wedge shape and being thicker at their outer entering end than at their inner end adapted to move outwardly against said diverging walls for locking said plates upon the spring; substantially as set forth.

6. The spring formed of leaves, the outer one of which has undercut or diverging surfaces at its end portions, combined with end bearing-plates applied to the ends of the spring and having integral flanges adapted to be pressed against said diverging surfaces for firmly locking said plates in position; substantially as set forth.

752,035. HOSE-SUPPORTER. ADOLPH H. COHN, New York, N. Y. Filed Mar. 27, 1903. Serial No. 149,779. (No model.)



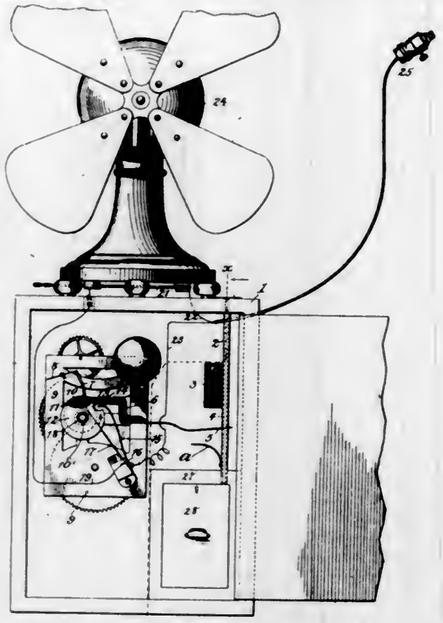
Claim.—1. In a hose-supporter, the combination with a belt and stocking-supporting tapes of a pad made of a plurality of inelastic sections and an elastic element intervening between said sections.

2. In a hose-supporter, the combination with a belt and stocking-supporting tapes of a pad made of a plurality of inelastic sections and an elastic element intervening between and uniting said sections.

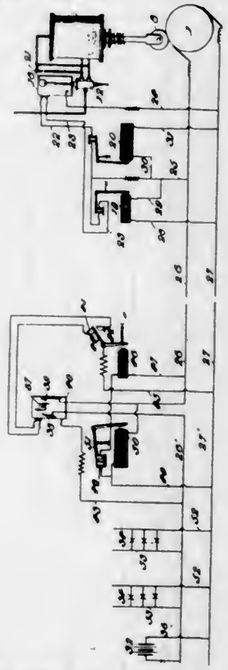
3. In a hose-supporter the combination with suitable means of support and stocking-supporting tapes, of a pad composed of a plurality of sections secured together by elastic means.

752,036. PREPAYMENT APPARATUS. MELVIN D. COMPTON, New York, N. Y. Filed Oct. 22, 1901. Serial No. 79,503. (No model.)

Claim.—In a prepayment apparatus, the combination of an electric translating device and its circuit, a circuit maker and breaker, a motor for the circuit maker and breaker, a convolute-shaped cam having a notch and operatively connected with the motor, a coin-chute having a slot and a lateral coin-opening, a pivotal coin-lever adapted to cooperate with said cam and having a tail which works in said slot, and a movable back-stop for said lever mounted in relation to said lateral coin-opening to eject undersized coins, substantially as described.



752,037. ELECTRIC TRAIN-SERVICE. MELVIN D. COMPTON, New York, N. Y. Filed Dec. 2, 1901. Renewed Sept. 12, 1903. Serial No. 173,015. (No model.)



Claim.—1. In a train-service system the combination of a generator, an axle, sets of differential gearing interposed between the axle and the generator and adapted respectively to be thrown into

and out of action, means for throwing one set or sets of differential gearing out of action and another set into action, and devices responding to changes in the circuit of the generator and operating to control said means, whereby different differential gearing is brought into action to maintain the speed of the generator substantially constant.

2. In a train-service system the combination of a locomotive, a generator arranged at or near the front of the locomotive and provided with driving-disks of different diameters, a front axle provided with disks of different diameters, and rollers arranged for frictional contact with said disks, whereby the speed relation of axle and generator may be varied, substantially as described.

3. In a train-service system the combination of a locomotive having its axle fitted with disks of different diameters, a generator having disks of different diameters for driving it, intermediate rolls for said disks, pistons and cylinders for bringing one of said rollers into contact with its disks and for bringing the other roller or rollers out of action, connections and an actuating medium for actuating said pistons and cylinders, and electromechanical devices arranged in the circuit of the generator and adapted to control the connections to the cylinders, whereby a change in current automatically effects a change in speed relation between the axle and the generator, substantially as described.

4. In a train-service system the combination of a generator, a storage battery, conductors for connecting the two in multiple-arc relation and whereof one conductor is interrupted, a motor-driven switch substantially as described for making and breaking the continuity of the last-mentioned conductor, a switch and circuit connections for causing the motor-driven switch to alternately and at each movement make and break the continuity of said conductor, an electromagnet and its conductor arranged to respond to changes in potential between the continuous conductor and the part of the interrupted conductor which is on the generator side of its interruption and adapted to position said switch, a safety-switch for the last-mentioned circuit, an electromagnet arranged in a branch of said circuit and adapted to actuate the last-mentioned switch, and translating devices and their circuits on the battery side of said interruption, substantially as described.

5. A system of train-service comprising the combination of a generator arranged at the front of the train and provided with disks of different sizes for driving it and with a circuit, an axle provided with disks of different sizes operatively arranged in respect to the first-mentioned disks, intermediate rolls adapted to be thrown into into and out of contact with said disks to vary the speed relation of the axle and generator, devices for shifting said rolls, electromechanical connections responding to changes in the generator-circuit and adapted to antomatically control said devices, storage batteries mounted on the cars and each provided with conductors by which they are placed in multiple-arc relation in respect to the generator-circuit and of which conductors one is interrupted, translating devices and their circuits mounted on the cars and connected on the battery side of said interruption, a motor-driven switch and its connections substantially as described for making and breaking the continuity of said conductor at such interruption, and circuits and their electromechanical devices responding to changes in potential between said uninterrupted conductor and the generator side of the interrupted conductor and adapted to control said motor-driven switch, substantially as described.

6. In a system of train-service the combination with the generator-circuit which extends from end to end of the train, of a car-circuit arranged in multiple-arc relation thereto and consisting of a storage battery and a continuous and an interrupted conductor, translating devices and their circuits on the battery side of the interruption, a motor-driven switch and its connections substantially as described for making and breaking the continuity of said interrupted conductor, and electromechanical devices and their connections adapted to operate the motor-driven switch and arranged to respond to changes in potential between the continuous conductor and the part of the interrupted conductor nearest the generator-circuit, substantially as described.

7. In a system of train-service the combination of a storage battery, a generator, means for driving the generator from the axle at different speed relations, conductors for connecting the battery and the generator in multiple-arc relation and whereof one is interrupted, translating devices on the battery side of the interruption, electromechanical devices and their circuits adapted to control the means which determine the speed relation and arranged on the generator side of the interruption, a motor-driven switch substantially as described for making and breaking the continuity of said interruption, and electromechanical devices and their circuits adapted to control the motor-driven switch and arranged to respond to changes in potential between the continuous conductor and the part of the interrupted conductor which lies on the generator side of the interruption, substantially as described.

752,038. COMBINATION CHECK, SPREADER, AND PILOT-LIGHT DEVICE. MELVIN D. COMPTON, New York, N. Y. Filed Nov. 20, 1902. Serial No. 132,135. (No model.)



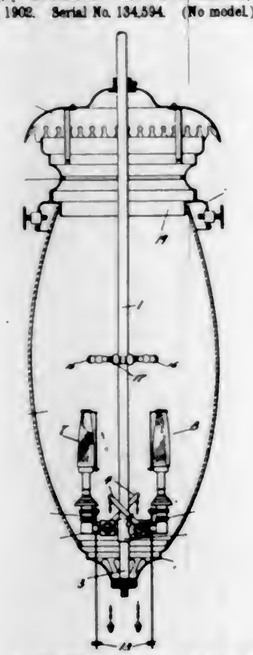
Claim.—1 A levice of the class specified comprising two elements whereof one is provided with a seat and the other with a valve member and both elements movable in respect to each other to adjust the escape past the valve and said seat provided with notches for supporting a pilot-light, substantially as described.

2. The combination in a device of the class specified of a notched seat and a fixed valve member, substantially as described.

3. In combination a Bunsen or air-mixing tube, and a gas-check at the base thereof which comprises a fixed valve member and a notched seat whereby a blue pilot-flame is provided, substantially as described.

4. In combination a fixed generally spheroidal valve member and a notched seat, substantially as described.

752,039. GAS-LAMP. MELVIN D. COMPTON, New York, N. Y. Filed Dec. 9, 1902. Serial No. 134,594. (No model.)



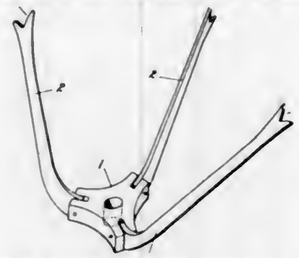
Claim.—1. A gas-lamp comprising the combination of a gas-pipe, a fitting secured to the lower end thereof and provided with burners and with a depending stem, a spider-like globe-holder detachably applied to said stem, a globe seated on the globe-holder, a sleeve arranged at the top of the globe, a collar movably fitted to the gas-pipe and connected with the sleeve and means for clamping and unclamping the collar and pipe in respect to each other, substantially as described.

2. The combination in a gas-lamp of a gas-pipe, a fitting at the end of said pipe, incandescent burners on the fitting, and Bunsen burners projecting from said pipe above the incandescent burners and arranged out of alinement therewith, substantially as described.

3. The combination in a gas-lamp of a gas-pipe carrying incandescent burners and their gas-checks, a globe-holder carried by said pipe, a globe, a spindle extending through the globe-holder and connections between the spindle and gas-check whereby the latter may be adjusted without disturbing the globe, substantially as described.

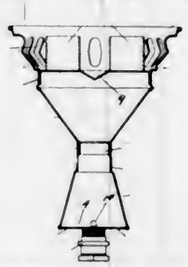
4. A gas-lamp consisting of the combination of a gas-pipe, a fitting provided with incandescent burners and arranged at the end of the gas-pipe, a housing surrounding said pipe and provided with shade-holding means and with independent globe-guiding means, and a collar and set-screws for adjustably connecting the housing and pipe, substantially as described.

752,040. SHADE-HOLDER. MELVIN D. COMPTON, New York, N. Y. Filed Apr. 28, 1903. Serial No. 154,723. (No model.)



Claim.—A shade-holder comprising a support having notches provided with beveled end walls, and pivotal arms having notched free upwardly-projecting ends and having their inner ends beveled to a slightly different angle from the angle of bevel of the support-walls to permit the arms to move within fixed limits, substantially as described.

752,041. BURNER FOR INCANDESCENT LIGHTS. MELVIN D. COMPTON, New York, N. Y. Filed May 1, 1903. Serial No. 155,125. (No model.)



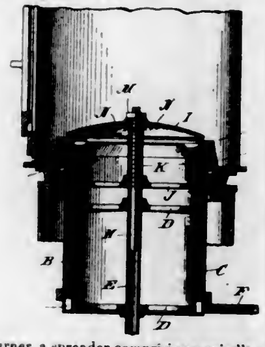
Claim.—1. In combination a burner consisting of a conic frustum, an inverted conic frustum of larger diameter, said frustums being connected by necks which fit each other movably, a cylindrical cap mounted on the inverted conic frustum and provided with burner-tubes, and a gas-check having its movable member connected with the upright conic frustum so that the latter may be turned to adjust the check without turning the inverted conic frustum, substantially as described.

2. In combination a casing consisting of two conic frustums connected by a neck and whereof one is inverted and the other is provided at its base with gas and air inlets, a cap mounted on the inverted conic frustum and provided with burner-tubes, and a shade-holder fitted to said cap and provided with air-inlets the tops of which are substantially in line with the burner-tubes, substantially as described.

752,042. OIL-BURNER. DOMINICK CORADINO, Jersey City, N. J. Filed Aug. 20, 1903. Serial No. 170,113. (No model.)

Claim.—1. In a burner, the combination of a draft-tube, a feed-band immediately without said draft-tube, a guide-tube mounted concentrically with said draft-tube, the outside diameter of said guide-tube being of a lesser diameter than the inner diameter of said draft-tube, thus forming an annular chamber about said guide-tube, and a deflector-ring mounted upon a spider having a central spindle adapted to fit loosely in said guide-tube, said deflector-ring dividing the upper portion of said annular chamber into inner and outer annular passages.

2. In a burner, the combination of a draft-tube, a feed-band immediately without said draft-tube, a guide-tube supported concentrically within said draft-tube by means of a spider frictionally engaging the inner walls of said draft-tube thus forming an annular chamber about said guide-tube, a spindle adapted to fit loosely in said guide-tube, a deflector-ring of lesser diameter than said draft-tube and greater diameter than said guide-tube mounted concentrically upon said spindle by means of a spider fast upon said spindle, and a cap of greater diameter than said feed-band concentrically mounted on said spindle above said deflector-ring to project over said feed-band, said cap provided with apertures about its central portion affording communication between said annular chamber to the space above said cap, said spindle adapted to be lifted by the raising of said feed-band and to gravitate to its normal position when said feed-band is again lowered.



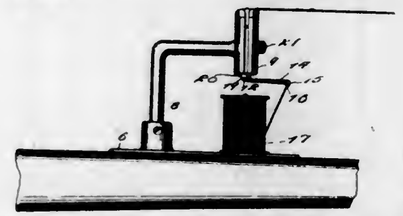
3. In a burner, a spreader comprising a spindle, a spider mounted upon said spindle, a deflector-ring mounted upon the periphery of said spider, a section of tubing fitting over said spindle and resting on said spider, a cap having a central aperture fitting on said spindle and resting on said section of tubing, said cap provided with a series of apertures arranged about its central aperture, and a nut threaded upon said spindle and retaining said cap and section of tubing thereon.

4. In a burner, a spreader comprising a spindle, a deflector-ring mounted upon said spindle, a cap mounted on said spindle, one of said elements adjustably mounted upon said spindle to permit of the varying of the distance between them.

5. In a burner, a spreader comprising a spindle threaded throughout a portion of its length, a deflector-ring having a spider-support threaded and screwed down against the end of said thread upon said spindle, a cap threaded on said spindle and a lock-nut for fixing the position of said cap on said spindle.

6. In a burner, a spreader comprising a spindle threaded throughout a portion of its length, a deflector-ring having a spider-support threaded and screwed down against the end of said thread upon said spindle, a cap threaded on said spindle, a section of tube abont said spindle determining the distance between said deflector-ring and said cap, and a lock-nut for fixing the position of said cap when screwed into place.

752,043. SPOOL-HOLDER FOR SEWING-MACHINES. GEORGE W. COUGHENOUR, Norfolk, Va. Filed Oct. 18, 1902. Serial No. 127,875. (No model.)

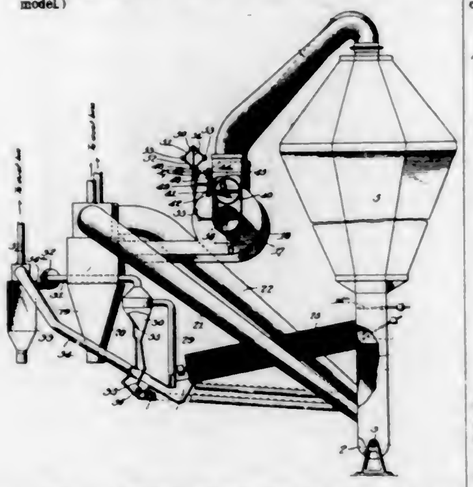


Claim.—1. A device of the class described comprising a sleeve, provided with supporting means and a tubular core rotatably mounted in the sleeve and having a radiating arm having thread-receiving means at its outer end disposed for movement with the arm about a spool when held in axial alinement with the core, and a bushing in the sleeve beyond the core, said bushing and core being adapted to receive the thread from the arm: the sleeve, the core

and the bushing being slotted longitudinally for registration of the slots of the core and bushing with the slot of the sleeve at times.

2. A device of the class described comprising a sleeve, provided with supporting means and a tubular core rotatably mounted in the sleeve and having a radiating arm beyond the sleeve having thread-receiving means at its outer end and disposed for movement with the arm about a spool when held in axial alinement with the core, a bushing in the sleeve beyond the core, said bushing and core being adapted to receive the thread from the arm; the sleeve, the core and the bushing being slotted longitudinally for registration of the slots of the core and bushing with the slot of the sleeve at times, and a split ring sprung onto the outer end of the core and adapted for rotation thereon to open and close the slot of the core.

752,044. REDUCING AND SEPARATING MACHINE. ENOCH B. CRAVEN, Asbestos, Ga. Filed Nov. 6, 1903. Serial No. 180,079. (No model.)



Claim.—1. A device of the class described, comprising a pair of reduction-mills, a separator having compartments connected with the said mills and subcompartments provided with discharge-valves, partitions within the compartments, movable deflectors at the upper ends of said partitions, stationary deflectors in the upper part of the separator-chambers, means for inducing air-currents through the separator-chambers and through fan-casings, dust-collectors receiving the air-currents and the particles suspended therein from the fan-casings, and means for returning the air-currents from the upper ends of the dust-collectors to the reduction-mills.

2. In a device of the class described, a large and a small reduction-mill, a separator having two compartments, partitions in said compartments dividing the same into subcompartments, pipes connecting the lower ends of the outer subcompartments with the large and small mills respectively, discharge-valves at the lower ends of the inner subcompartments, movable deflectors at the upper ends of the partitions, stationary deflectors in the upper ends of the compartments of the casing, a pair of fan-casings and a pair of dust-collectors, means for setting up air-currents in said fan-casings, suction-pipes connecting the latter with the respective compartments of the separator, discharge-pipes connecting said fan-casings with the dust-collectors, pipes for returning the air from the latter to the reduction-mills, and automatically-operated means for regulating the speed and intensity of the air-currents.

3. In a device of the class described, a large and a small reduction-mill, a separator having compartments communicating with said mills and other compartments having discharge-valves at their lower ends, means for setting up currents of air upwardly in the compartments connected with the mills, deflectors disposed to convey portions of the material suspended in said air-currents into the compartments having the discharge-valves, a rotary screen disposed to receive the discharge from said valves, a conveyer disposed below said screen to convey the screenings to the small mill, a hopper disposed to receive the discharge from the screen, a gravity-separator, means for setting up an air-current through said gravity-separator from the hopper receiving the discharge from the screen, a dust-collector receiving the said air-current and the particles suspended therein, a return-pipe leading from the upper part of said dust-collector to the lower end of the gravity-separator, a hopper disposed beneath the latter to receive the products separated by gravitation, and means for conveying said products from said hopper to the casing of the large mill.

4. In a device of the class described, a separator, octagonal in cross-section, a central partition within said separator, partition-walls within each of the compartments thus formed, the sides of said partition-walls being parallel with the walls of the outer octagon, deflectors hingedly connected with the upper ends of each of the sides of the inner octagon, operating-rods connected with said deflectors, nipples in the outer casing for the passage of said operating-rods, and means for securing the latter in adjusted position.

5. In a device of the class described, a separator-casing, a central vertical partition within the same, a concentric partition-wall bisecting each of the compartments formed by the central partition, and collapsible deflectors mounted in the spaces between said concentric wall and the outer casing.

752,045. BRAKE-BEAM. SETH A. CROSS, New York, N. Y. Filed Sept. 23, 1903. Serial No. 174,257. (No model.)



Claim.—1. In a brake-beam, the body-beam and the wheel-guard secured thereto, said wheel-guard comprising in one integral piece of forged metal, the flanges 17, 16 and projecting arm 14, the latter being of concavo-convex form; substantially as set forth.

2. In a brake-beam, the flanged body-beam and the combined wheel-guard and chain-clip secured thereto and being in one integral bar of forged metal greater in width than in thickness, said wheel-guard and chain-clip comprising the flanges 18, 17, 16 and 15 and projecting arm 14, said flanges 17, 16 and 15 closely fitting the body-beam and said arm 14 extending outwardly from the lower end of said flange 15, and said flange 18 extending upwardly from the web of the body-beam with its flat faces in line with the length of the wheel-guard and containing the aperture 21 extending transversely through it; substantially as shown and described.

3. In a brake-beam, the body-beam and the wheel-guard secured thereto, said wheel-guard comprising in one integral piece of metal the flanges 17, 16 and 15 and projecting arm 14, the latter being of concavo-convex form; substantially as set forth.

4. In a brake-beam, a body-beam and the combined wheel-guard and chain-clip secured thereto and being in one integral piece of metal, said wheel-guard and chain-clip comprising the flanges 18, 17 and 16 and projecting arm 14, the whole being of forged metal and said arm 14 being concavo-convex in cross-section; substantially as set forth.

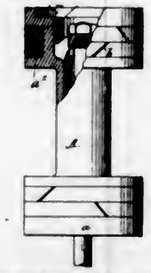
5. In a brake-beam, a body-beam and the combined wheel-guard and chain-clip secured thereto and being in one integral piece of metal, said wheel-guard and chain-clip comprising the flanges 18, 17 and 16 and projecting arm 14, the said flange 18 having the aperture 21 and being split outwardly therefrom so as to form the section 22, and the whole being of forged metal; substantially as set forth.

6. In a brake-beam, the body-beam and the combined wheel-guard and chain-clip secured thereto and being in one piece of forged metal, said chain-clip comprising an apertured flange 18 split outwardly from the aperture therein; substantially as set forth.

7. In a brake-beam, the body-beam and the chain-clip secured thereto, said chain-clip comprising the flange 17 and apertured flange 18, the latter being split outwardly from the aperture therein; substantially as set forth.

8. In a brake-beam, the body-beam and the chain-clip secured thereto, said chain-clip comprising the flange 18 having the aperture therein and being split outwardly from said aperture; substantially as set forth.

752,046. PISTON-PACKING. CHARLES E. DAWSON, Cleveland, Ohio. Filed July 31, 1902. Serial No. 117,816. (No model.)



Claim.—1. The combination with a piston having a circumferential groove, and an expansible packing-ring, of a coiled spring in the groove and a wrapping around said spring confining the same and within the packing-ring.

2. The combination with a piston having a circumferential groove, and an expansible packing-ring, of a coiled spring in the groove and a fibrous strand wrapped around said coiled flat spring confining the same and within the packing-ring.

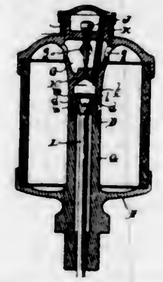
3. The combination with a piston having a circumferential groove, and an expansible packing-ring, of a coiled flat spring in the groove and a wrapping around said spring confining the same and within the packing-ring.

4. The combination with a piston having a circumferential groove, and an expansible packing-ring, of a coiled flat spring in the groove and a fibrous strand wrapped around said coiled flat spring to form a wrapping confining the same and within the packing-ring.

5. The combination with a piston having a circumferential groove, and a sectional packing-ring, of a coiled flat spring in the groove, and a wrapping around said spring consisting of a fibrous strand wrapped around the spring to confine the same and to fit within the sectional packing-ring.

6. The combination of a piston having a circumferential groove, a coiled flat spring in the bottom of said groove, a wrapping consisting of a strand of fibrous substance wrapped around said spring to confine the same, and a sectional metallic packing-ring fitting around said wrapping and in the outer portion of the groove.

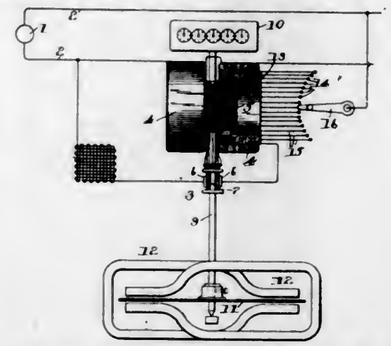
752,047. CRANK-PIN OILER. JOSEPH H. DRAKE, Detroit, Mich., assignor to American Lubricator Company, Detroit, Mich. Filed Jan. 2, 1903. Serial No. 137,428. (No model.)



Claim.—1. In a lubricator, the combination with the cylindrical glass body and an upper and a lower head; of a tubular axial portion integral with the lower head and provided with an upper reduced and threaded end, a tubular axial portion integral with the upper head and cored out to form a chamber having lateral openings and a feed-opening, said tubular portion being internally screw-threaded at its lower end to receive the screw threaded end of the other portion, a screw-valve within said chamber, a shoulder within the feed-tube formed by the uniting of said tubular portions, and a rod free to move within said tube and having a head to engage said shoulder.

2. In a lubricator, the combination with the cylindrical glass body; of an upper head having a fill-opening, a lower head, a central feed-tube formed of a tubular portion integral with the upper head and a tubular portion integral with the lower head, said portions being formed with an external and an internal screw-thread for uniting the same, a chamber formed in the upper end of said feed-tube and having lateral openings and a contracted feed-opening, a flange extending upward around the fill-opening, a screw-cap on said flange, a bridge-bar extending across said fill-opening, a screw-valve extending through said bar with its lower end projecting into the feed-opening, a vent-tube extending with its upper end adjacent to said cap, downward through the chamber and opening at its lower end into the bore of the feed-tube below the feed-opening, a shoulder formed in the interior of the feed-tube, a rod within said feed-tube and a head on said rod to engage the said shoulder.

752,048. ELECTRIC METER. THOMAS DUNCAN, Lafayette, Ind. Filed Oct. 23, 1903. Serial No. 178,249. (No model.)



Claim.—1. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having an armature and a current field-winding, a friction compensating coil subject to the pressure of the circuit and provided to furnish a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil and a switch-arm adapted to engage said buttons and thereby render more or less of said coil subject to the pressure of the circuit, substantially as described.

2. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having a current field-winding and a wound armature with its commutator and brushes, said armature being subject to the pressure of the circuit, a friction compensating coil subject to the pressure of the circuit and provided to furnish a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil and a switch-arm adapted to engage said buttons and thereby render more or less of said coil subject to the pressure of the circuit, substantially as described.

3. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having an armature and a current field-winding, a friction compensating coil subject to the pressure of the circuit and provided to furnish a field for the armature and switching mechanism for rendering more or less of said coil subject to the pressure of the circuit, substantially as described.

4. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having a current field-winding and a wound armature with its commutator and brushes, said armature being subject to the pressure of the circuit, a friction compensating coil subject to the pressure of the circuit and provided to furnish a field for the armature and switching mechanism for rendering more or less of said coil subject to the pressure of the circuit, substantially as described.

5. In a meter, the combination with the motor element thereof, including armature and field portions, of a friction compensating coil for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit, substantially as described.

6. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of a friction compensating coil for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit, substantially as described.

7. In a meter, the combination with the motor element thereof, including armatnre and field portions, of a friction compensating coil for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit, substantially as described.

8. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of a friction compensating coil for producing a field for the armature and switching mechanism for including more or less of said coil in circuit, substantially as described.

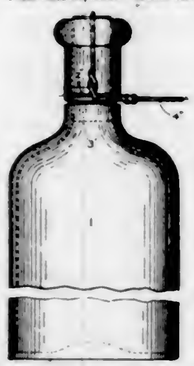
9. In a meter, the combination with the motor element thereof, including armature and field portions, of a friction compensating coil adapted to be located between the mains of the system containing the meter for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit, substantially as described.

10. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of a friction compensating coil adapted to be located between the mains of the system containing the meter for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit, substantially as described.

11. In a meter, the combination with the motor element thereof, including armature and field portions, of a friction compensating coil adapted to be located between the mains of the system containing the meter for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit, substantially as described.

12. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of a friction compensating coil adapted to be located between the mains of the system containing the meter for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit, substantially as described.

752,049. BOTTLE, STOPPER, AND OPENER. MARY A. DUNN, New York, N. Y. Filed Jan. 26, 1903. Serial No. 140,518. (No model.)

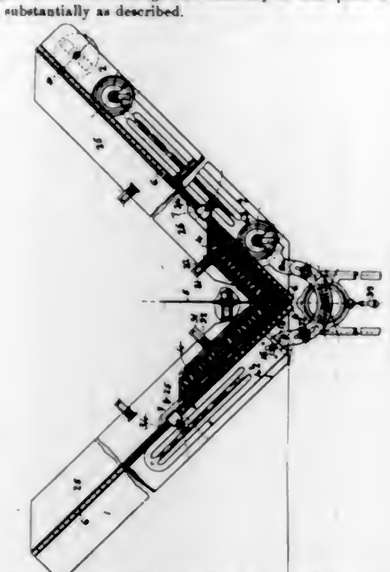


Claim.—1. The combination with a bottle whose neck is provided with a peripheral recess, and a stopper within said neck, of a band encircling said neck within said recess and having an angular edge formed on its perimeter adjacent to the bottle-neck and also having finger-loops, and a fastener securing the stopper in the bottle-neck.

2. The combination with a bottle whose neck is provided with a peripheral recess, and a stopper within said neck, of a band encircling said neck within said recess and provided with finger-loops, said band and finger-loops being composed of wire having an angular edge on its perimeter, and the said edge being inward on the band and outward on the finger-loops, whereby it will sever the neck at the recess and will preclude injury to a person's fingers inserted in the finger-loops, and means for securing the stopper in the bottle-neck.

752,050. MITER-CUTTING MACHINE. RALPH DUNNE, Dunedin, New Zealand. Filed July 22, 1902. Serial No. 116,545. (No model.)

Claim.—1. In a miter-cutter, a support for one molding having a supporting-surface to hold the molding in one plane, a second support having its supporting-surface at all times in another plane parallel to the first and with the second molding crossing the first, said supports being arranged at an angle to each other and a cutter arranged to cut the moldings simultaneously at their point of crossing, substantially as described.



2. In a miter-cutter, a support for one molding having a supporting-surface to hold the molding in one plane, a second support having its supporting-surface at all times in another plane parallel to the first and with the second molding crossing the first, said supports being arranged at an angle to each other and a cutter arranged to cut the moldings simultaneously at their point of crossing, said second molding being adjustable to alter its distance from the plane of the first support while maintaining its parallel relation thereto, substantially as described.

3. A miter-cutter comprising two supports having their supporting-surfaces in different but parallel planes and adapted to hold the moldings with their corresponding faces parallel, said supports being arranged at an angle to each other, and a saw, substantially as described.

4. In combination in a miter-cutting machine, a pair of supports arranged at an angle to each other and in different but parallel planes, said supports having rests upon their inner or adjacent sides and cutting means, substantially as described.

5. In combination in a miter-cutting machine, two supports arranged at an angle to each other and in different but parallel planes, said supports having rests to insure holding the molding in similar positions and crossing, whereby when cut they will match, and means for altering the angular relation between the supports, substantially as described.

6. In a miter-cutter a support for one molding, a second vertically-adjustable support in a higher parallel plane at an angle with said first support for another molding and cutting means, the said supports maintaining at all times positions in different planes, substantially as described.

7. In combination in a machine for cutting miters, a support for one molding, a support for another molding arranged at an angle to the first, said supports having their supporting-surfaces arranged in parallel planes whereby one molding may be made to overlap the other and a saw operating at the plane where the two supports converge, said supports having an adjustable connection between them whereby they may be set in different angular positions, substantially as described.

8. In combination in a miter-cutter arms against which the work is to rest, an adjustable connection between said arms by which they may be set in different angular positions, adjustable supporting means whereby one of the arms may be moved into a position parallel to its former position, substantially as described.

9. In combination a pair of arms, adjustable segmental arms connecting them and supporting means for said adjustable segmental arms with means for parallel adjustment of said support, substantially as described.

10. In combination a pair of arms, an adjustable connection between them by which they may be set in different angular positions, a support adjustable in parallel for one of the said arms, and a base carrying said adjustable support, said base being adjustable toward and from the saw, substantially as described.

11. In combination a pair of arms, adjustable segmental arms connecting them, a rack-and-gear connection between said segmental arms and means for supporting said arms substantially as described.

12. In combination a pair of arms, adjustable segmental arms connecting them, a bracket for supporting the segmental arms having a ring-shaped base, an outer ring-shaped main base, an adjusting-cam for the supporting-bracket arranged between the same and the outer base and means for operating the cam substantially as described.

13. In combination a pair of arms, adjustable segmental arms connecting them, a bracket for supporting the segmental arms having a ring-shaped base, an outer ring-shaped main base, an adjusting-cam for the supporting-bracket arranged between the same and the outer base and means for operating the cam the said cam having inclined slots receiving projections from the adjustable bracket said projections being guided to move vertically in the ring-shaped outer base, substantially as described.

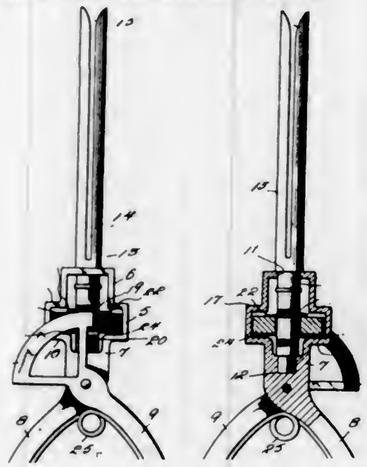
14. In combination the two arms provided with plates for affording rests for the moldings to be cut and an adjustable connection between the said arms, said arms being in different horizontal planes whereby the moldings may be placed one over the other and cut substantially as described.

15. In combination the two arms provided with plates for affording rests for the moldings to be cut, an adjustable connection between the said arms, said arms being in different horizontal planes whereby the moldings may be placed one over the other and means for giving one of said arms a forward and backward parallel movement when at any angle to enable the edges of the upper and lower moldings to meet and be cut by a circular saw simultaneously, substantially as described.

16. In combination the two arms provided with plates for affording rests for the molding to be cut, an adjustable connection between the said arms, said arms being in different planes whereby the moldings may be placed parallel to each nther, slotted graduated disks adapted to give one arm a forward parallel movement at any angle and means for supporting the outer end of same arm substantially as described.

17. In combination the two arms provided with plates for affording rests for the moldings to be cut and an adjustable connection between said arms, said arms being in different planes whereby the moldings may be placed parallel to each other and cut simultaneously and portable stops adapted to support moldings of a particular desired shape, substantially as described.

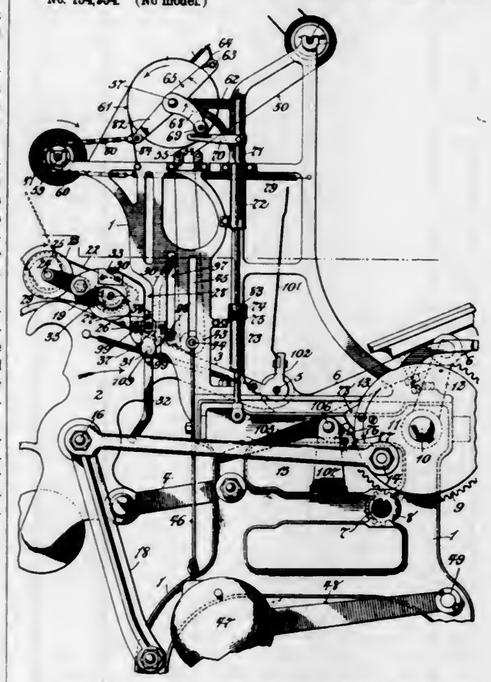
752,051. CURLING-IRON. WARREN C. DYER, St. Louis, Mo. Filed June 22, 1903. Serial No. 162,547. (No model.)



Claim.—1. A curling-iron comprising a frame provided with a handle, a mandrel rotatably and slidably mounted in the frame, a pinion loosely mounted upon the mandrel within the frame and held against sliding movement with the mandrel, reversely-disposed pawl-and-ratchet mechanisms carried by the pinion and mandrel disposed for alternate operative engagement as the mandrel is reciprocated through the pinion, a second handle pivoted to the first handle, and a gear carried by the second handle and engaged with the pinion.

2. A curling-iron comprising a frame provided with a handle, a mandrel rotatably and slidably mounted in the frame, a pinion mounted loosely upon the mandrel within the frame and held against sliding movement with the mandrel, reversely-disposed spring-pressed pawls mounted upon the upper and lower faces respectively of the pinion, ratchet-teeth reversibly disposed upon the mandrel above and below the pinion for engagement of the corresponding pawls alternately as the mandrel is reciprocated, a second handle pivoted to the first handle, and a gear carried by the second handle and engaged with the pinion.

752,052. PLATE-PRINTING AND EMBOSSING MACHINE. WILLIAM S. EATON, Sag Harbor, N. Y. Filed Apr. 30, 1903. Serial No. 154,934. (No model.)



Claim.—1. In a plate-printing machine, a frame, a bed bearing a die-plate, and a table supporting a sheet to be impressed, together with curved arms or ways extending rearwardly from the bed-surface, an inking-roller, vertical, curved ways or guides in said frame for said roller, an ink-supply at the rear of the machine, and means, when the inking-roller is elevated with the forward movement of the bed, whereby said inking-roller is carried rearwardly to said ink-supply.

2. In a plate-printing machine, the combination with a frame, a bed and a table connected by a common shaft, and actuating mechanism for relatively closing and parting said bed and table with a rocking, oscillatory movement, of curved arms or ways extending rearwardly from the bed-surface, an inking-roller, vertical, curved ways or guides in said frame for said roller, a pair of pivotal, carrier-fingers at each side of the frame, an ink-supply, and means whereby the actuating mechanism causes said fingers to move the inking-roller from its ways or guides to the ink-supply with the forward movement of the bed, and to return it to said ways or guides with the return movement.

3. In a plate-printing machine, the combination with a frame, a bed, a pivotal shaft supporting said bed, a table, a shaft connect-

ing the adjacent ends of said bed and table, and actuating mechanism for relatively closing and parting said bed and table with a rocking, oscillatory movement; of curved arms or ways forming rearward extensions of the bed-surface, an ink-supply, an inking-roller, vertical curved ways or guides in said frame for said roller, a pair of pivotal, carrier-fingers at each side of the frame, a tensional connection between said carrier-fingers and the frame, and opposite extensions for said carrier-fingers located in the forward path of said bed-support shaft, to be moved thereby and rock the carrier-fingers to move the inking-roller to and from the ink-supply.

4. In a plate-printing machine, the combination with a frame, a bed bearing a die-plate, a table supporting a sheet to be impressed, and means for relatively closing and parting said bed and table, of an ink-supply, an inking-roller, guides and carriers upon said frame for said inking-roller, to, respectively, direct and move the latter between the die-plate and ink-supply, and independent means for rapidly rotating said inking-roller while upon the die-plate.

5. In a plate-printing machine, the combination with a frame, a bed bearing a die-plate, a table supporting a sheet to be impressed, and means for relatively closing and parting said bed and table, of an ink-reservoir, a feed-roller journaled therein, and means for rotating said feed-roller; together with an inking-roller, means for automatically moving the latter to and from the feed-roller, bearings to support said inking-roller while upon the feed-roller, a gear upon said feed-roller, and a pinion upon said inking-roller adapted to mesh with said gear, to rotate the former positively.

6. In a plate-printing machine, the combination with a frame and a bed bearing a die-plate, of an inking-roller, vertical guideways in the frame for said roller, means causing said bed to pass beneath said roller with a rising movement, studs upon said bed at the sides of, and in advance of the die-plate, said studs having a greater elevation than said die-plate, and extensions on the roller adapted to be met by said studs and to raise the inking-roller over the advancing edge of and onto the surface of the die-plate.

7. In a plate-printing machine, the combination with an oscillating bed bearing a die-plate, and means for inking the latter, of a wiping-roller, means for passing said die-plate, under pressure, across the surface of said roller, a strip of wiping-paper intermediate said roller and die-plate; and means, regulated with the transit of the die-plate across the roller, for sharply drawing a quota of said paper about said roller during such transit.

8. In a plate-printing machine, the combination with a frame, an oscillating bed bearing a die-plate, and means for inking the latter, of a wiping-roller comprising a shaft and a soft, concentric pad, rotatable thereon, vertical ways in said frame for said shaft, and means for tensionally depressing said shaft; together with a strip of wiping-paper passed about said pad, and independent means for intermittently sharply changing the paper wiping-surface.

9. In a plate-printing machine, the combination with a frame, an oscillating bed bearing a die-plate, and means for inking the latter, of a wiping-roller comprising a shaft having a soft, concentric pad rotatable thereon, vertical ways in said frame for said shaft, weights pendent at each end of said shaft, pivotal connections between the frame and said weights, to steady the latter, a paper-supply roll, a paper-receiving roll, a paper strip extending from one roll to the other and passed about the wiping-roller, and means for sharply drawing the paper strip intermittently about said wiping-roller.

10. In a plate-printing machine, the combination with a frame and a movable bed bearing a die-plate, of a wiping-roller, vertical ways in the frame therefor, a paper-supply roll, a paper-receiving roll, a strip of wiping-paper passed from one roll to the other, and including the wiping-roller in its course, a feed-drum between said wiping-roller and receiving-roller, a frictional hold and release for the paper upon said drum, and means for quickly moving said drum a partial revolution to draw a quota of paper about said wiping-roller.

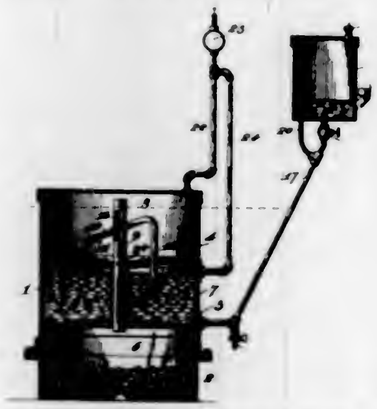
11. In a plate-printing machine, an intermittent feed mechanism for wiping-paper to clean a die-plate, a paper-supply roll, a wiping-roller, means for directing the paper thereto, a drum having transverse corrugations, means for directing the paper to said drum a receiving-roll, a yoke rigid upon the drum-shaft, a pawl upon said yoke engaging with the paper and the drum, a spur extending from the drum-shaft, and mechanism for moving said spur to turn the drum a partial revolution and draw a quota of paper about the wiping-roller.

12. In a plate-printing machine, an intermittent feed mechanism for wiping-paper to clean a die-plate, a paper-supply roll, a wiping-roller, means for directing the paper thereto, a drum having transverse corrugations, means for directing the paper to said drum, a receiving-roll, a yoke rigid upon the drum-shaft, a pawl upon said yoke engaging with the paper and the drum, a spur extending from the drum-shaft, and mechanism for moving said spur to turn the drum a partial revolution and draw a quota of paper about the wiping-roller; together with a receiving-roll, a sprocket-wheel upon the shaft thereof, means to frictionally engage said sprocket-wheel and roll in one direction, an arm extending from said drum-shaft, and a sprocket-chain about said sprocket-wheel, said chain being connected at one end to said arm and at its other end to a tensional retractile support.

13. In a plate-printing machine, the combination with a frame, die-plate bed, and mechanism, including a rotating member, for operating the bed, of a wiping-roller, a strip of paper passed thereabout, a supply-roll, a receiving-roll, and an intermediate rock member to feed the paper intermittently; together with a vertical rod, an actuating connection between said rock member and said rod, guides upon the frame for said rod, means for adjusting the elevation of said rod, a lever fulcrumed in the frame, a cam upon the rotating member arranged to depress one end of said lever in its rotation, and said lever being arranged to carry upwardly the said vertical rod.

14. In a plate-printing machine, the combination with a frame, a die-plate bed and mechanism for moving the latter, of opposite, vertical, curved slots in the frame to receive an inking-roller, opposite, vertical slots in the frame to receive a wiping-roller, a strip of paper passed about said latter member, said rollers being movable in their respective slots with the bed movement; together with opposite slots in the frame intermediate the aforesaid inking-roller and wiping-roller slots, and an idle rod or roller located in said intermediate slots to separate the paper from the inking-roller.

752,053. ACETYLENE-GAS GENERATOR. ALFRED C. EISTEIN, St. Louis, Mo. Filed June 4, 1902. Serial No. 110,131. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a generating-chamber, a water-chamber, a gas-chamber, a tube providing communication between said generating-chamber and said gas-chamber, a feed-pipe having a leg arranged in said water-chamber and seated in said pipe, an outlet-nozzle on said feed-pipe in said tube, a supply-tank, a supply-pipe leading from said supply-tank to said water-chamber, a gas-conveying pipe leading from said gas-chamber, and a return-pipe leading from said gas-conveying pipe to said water-chamber, substantially as and for the purpose set forth.

2. In an acetylene-gas generator, the combination of a generating-chamber, a water-chamber, a gas-chamber, means for delivering water from said water-chamber to said generating-chamber, a water-conveying pipe leading from said gas-chamber, a return-pipe leading from said gas-pipe to said water-chamber, a supply-tank, a supply-pipe leading from said supply-tank to said water-chamber, and a relief-pipe leading from said supply-pipe into said supply-tank, substantially as described.

3. In an acetylene-gas generator, the combination of a generating-chamber, a water-chamber, a gas-chamber, a tube providing communication between said generating and gas chambers, and provided at the bottom of said gas-chamber with an orifice, a water-feed pipe leading from said water-chamber to said tube and having an outlet arranged in said tube, substantially as described.

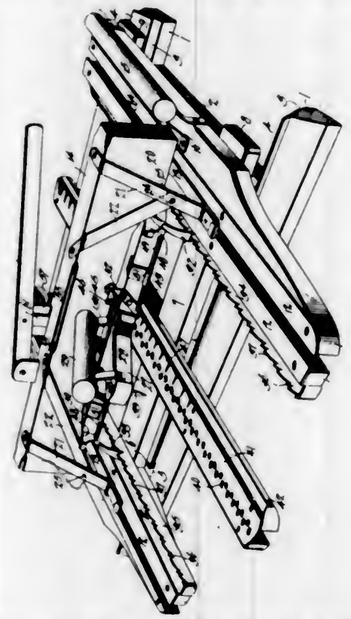
752,054. PROCESS OF TREATING IRON AND STEEL. EWALD ENGELS, Dusseldorf, Germany. Filed Dec. 10, 1902. Serial No. 134,645. (No specimens.)

Claim.—1. The process that consists in treating iron or steel in a solid state with solid carbid and an agent that decomposes such carbid, and causing a reaction by means of heat, for substantially the purposes set forth.

2. The process that consists in treating iron or steel in a solid state with carbid of silicon and a decomposable alkali salt, and causing a reaction by means of heat, for substantially the purposes set forth.

3. The process for treating iron and steel, which consists in treating iron or steel in the solid state with carbid of silicon and sulfate of sodium, and causing a reaction by means of heat, for substantially the purposes set forth.

752,055. SHINGLE-MACHINE. ALFRED P. FINGER, Jacobs Fork, N. C. Filed Feb. 24, 1902. Serial No. 95,573. (No model.)



Claim.—1. In a machine of the class described, the combination with a carriage having transversely-disposed and spaced guide-bars, of a transversely-movable shingle-block-carrying frame, slides secured to said frame and adapted to the guide-bars, said slides being yieldable to permit angular adjustment of the frame and serving to assist in returning the frame to a central position when said frame is released.

2. In a machine of the class described, the combination of a carriage provided at opposite sides with ratchet-bars, a laterally-movable frame mounted on the carriage and provided with pawls engaging the ratchet-bars, means for simultaneously operating the pawls for successively advancing the same into engagement with the ratchet-teeth in advance of the movement of the frame, the teeth of the ratchet-bars being so disposed as to cause the frame to alternately assume positions at opposite angles with respect to the carriage, and means for locking the frame in either position, substantially as specified.

3. In a machine of the class described, the combination of a carriage provided at opposite sides with ratchet-bars provided with teeth, the teeth of one ratchet-bar being disposed opposite the intervals between the teeth of the other ratchet-bar, a laterally-movable frame mounted on the carriage, pawls or dogs carried by the frame and engaging the ratchet-bars, means for operating said pawls or dogs to move the same into engagement with successive teeth in advance of the movement of the frame and for subsequently advancing the frame and set the same at an angle to the direction of movement of the carriage, means for operating the pawls or dogs, and a locking device for holding the frame rigid with the carriage in either position, substantially as described.

4. In a machine of the class described, the combination of a carriage provided with opposite ratchet-bars, a laterally-movable frame mounted on the carriage and capable of horizontal movement for setting it at an angle to the direction of movement of the carriage, an oscillatory actuating device provided with pawls or dogs arranged to engage successive teeth of the ratchet-bars in advance of the movement of the frame and for subsequently advancing the frame, and means mounted on the actuating device for engaging the carriage to lock the frame rigid with the carriage, substantially as described.

5. In a machine of the class described, the combination of a carriage provided with opposite ratchet-bars, a laterally-movable frame mounted on the carriage, an oscillatory actuating device hinged to the frame and provided with pawls or dogs for engaging the ratchet-bars, a locking device carried by the oscillatory actuating device, and a bar or member mounted on the carriage and provided with staggered sockets for the reception of the locking device, substantially as described.

6. In a machine of the class described, the combination of a carriage, a laterally-movable shingle-block-carrying frame capable of horizontal movement for setting it at an angle to the direction of movement of the carriage, and an oscillatory actuating device provided with means for engaging the carriage for advancing the frame and coöperative means on the carriage for alternately setting the frame at opposite angles to the direction of movement of the carriage, said actuating device being also provided with means for locking the frame rigid with the carriage, the frame-advancing and frame-locking means being successively operated by the movement of said actuating device, substantially as described.

7. In a machine of the class described, the combination of a carriage provided with opposite ratchet-bars, a laterally-movable shingle-block-carrying frame, a vertically-movable oscillatory actuating device mounted on the said frame and provided with means for engaging the ratchet-bars and having a locking pin or projection, and a bar or member mounted on the carriage and located beneath the oscillatory actuating device and provided with staggered apertures, substantially as described.

8. In a machine of the class described, the combination of a carriage, a laterally-movable shingle-block-carrying frame mounted on the carriage, a movable actuating device mounted on the frame and provided with means for engaging the carriage for advancing the frame and coöperative means on the carriage for setting the same at an angle, said actuating device being provided with opposite locking devices, one of the locking devices being arranged to hold the frame rigid with the carriage and the other locking device being arranged to limit the forward movement of the frame and being adapted to lock the same against forward movement, the frame-advancing and frame-locking means being successively operated by the movement of said actuating device, substantially as and for the purpose described.

9. In a machine of the class described, the combination of a carriage, a laterally-movable frame, ratchet-bars mounted on the carriage, a bar or member having staggered apertures or sockets and having a ratchet, an oscillatory actuating device mounted on the frame and provided with a locking pin or projection for engaging the apertures or sockets, oppositely-disposed pawls mounted on the actuating device and arranged to engage the ratchet-bars for advancing the frame, and a reversely-arranged pawl or dog mounted on the actuating device and arranged to engage the ratchet of the said bar or member, substantially as described.

10. In a machine of the class described, the combination of a carriage having ratchet-bars, a shingle-block-carrying frame, an oscillatory actuating device provided with means for engaging the teeth of the ratchet-bars for feeding the frame forward and for setting the same at an angle, a locking device carried by the actuating device for holding the frame rigid with the carriage, and a pawl or dog carried by the actuating device and arranged to lock the frame against forward movement when the actuating device is swung backward or outward for setting or arranging the parts for feeding the frame forward, substantially as described.

11. In a machine of the class described, the combination of a carriage, a laterally-movable shingle-block-carrying frame, ratchet-bars located at opposite sides of the carriage, a hinged actuating device provided with pivoted dogs engaging the ratchet-bars, and arms fixed to the hinged device and arranged to engage the pawls for locking the same in engagement with the ratchet-bars, substantially as described.

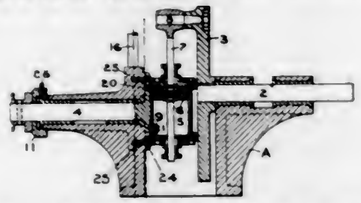
12. In a machine of the class described, the combination of a

carriage, a laterally-movable shingle-block-carrying frame, ratchet-bars mounted on the carriage, pivoted pawls for engaging the ratchet-bars, an oscillatory actuating device carrying the pivoted pawls, reciprocating locking-bars mounted on the actuating device and arranged to engage the pawls, and a lever connected with the rods for operating the same, substantially as described.

13. In a machine of the class described, the combination of a carriage provided with opposite ratchet-bars, an intermediate bar or member having a ratchet and provided with staggered apertures or sockets, a hinged actuating device provided with an arm having a locking-pin for engaging the apertures or sockets, pivoted pawls mounted on the actuating device and engaging the ratchet-bars, rigid arms located above the pawls and carried by the said actuating device for locking the pawls in engagement with the ratchet-bars, means for engaging the pawls to hold the same out of engagement with the ratchet-bars when the actuating device is swung upward, and a resilient dog extending forward from the actuating device and engaging the ratchet of the bar or member when the actuating device is swung upward, substantially as described.

14. In a machine of the class described, the combination with a single-block-carrying frame, of a pair of spaced guide bars or plates mounted on the frame and provided at their lower ends with fixed dogs for engaging a shingle-block, a slide adapted to said guide-plates, a movable jaw secured to said slide and projecting beyond the outer faces of the guide-plates, and an operating-lever connected to said slide.

752,056. **ENGINE.** CHARLES FISHER, Stillwater, Minn., assignor of one-half to Verne L. Swain, Stillwater, Minn. Filed Mar. 23, 1903. Serial No. 149,105. (No model.)



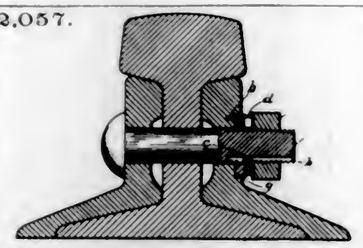
Claim.—1. In an engine of the class described, the combination of a pair of separated shafts arranged parallel and out of alinement, a crank-disk supported upon the inner end of one shaft, a cylinder supported upon the inner end of the other shaft, said cylinder being provided with ports in its opposite ends, a piston slidable in said cylinder, a connection between said piston and the edge of said crank-disk, a pair of curved ports in the adjacent wall of the engine in line with said cylinder-ports, a cut-off valve in one of said curved ports, conduits connecting said ports with a source of steam-supply and with an exhaust-port, and a throttle-valve arranged in connection with said conduits and exhaust-port.

2. In an engine of the class described, the combination of a pair of separated shafts arranged parallel and out of alinement, a crank-disk supported upon the inner end of one shaft, a disk 9 constituting the inner end of the other shaft, a cylinder supported upon the face of said disk 9, said cylinder being provided with ports in its opposite ends registering with ports through the disk 9, a piston slidable in said cylinder, a piston-rod connecting said piston with the edge of said crank-disk, a pair of curved ports in the adjacent wall of the engine in line with the ports extending from the cylinder through the disk 9, conduits connecting said curved ports with a source of steam-supply and with an exhaust-port, and valves arranged in connection with said conduits and ports.

752,057. **SAFETY NUT-LOCK.** LOUIS D. FERNOT, Newark, N. J. Filed Apr. 25, 1903. Serial No. 154,285. (No model.)

Claim.—The combination with a bolt having longitudinal groove, and a fish-plate, a washer seated in a recess in the outer face of said fish-plate and provided with a pin engaging an opening in the fish-plate, the outer face of said washer being corrugated, a nut on said bolt having its inner face corrugated and a split ring surrounding the bolt and interposed between the nut and washer, said ring being provided with an inwardly-extending tooth diametrically opposite the opening therein and engaging the groove in the bolt, the meeting ends of said ring being normally bent out of the plane of the ring itself and provided with oppositely-disposed enlargements adapted to engage the corrugations of the nut and washer, all substantially as and for the purpose specified.

752,057.



752,058. **SHEPHERD'S CROOK.** HENRY FRISELL, Grassrange, Mont. Filed Sept. 22, 1903. Serial No. 174,197. (No model.)



Claim.—1. A shepherd's crook comprising a shank having a seat at its outer end provided with means for connecting it to a pole or handle, a resilient hook connected with the shank at one side thereof and forming a loop at the outer end of the same, and a fixed guard-arm extending from the other side of the shank and forming a continuation of the seat, substantially as described.

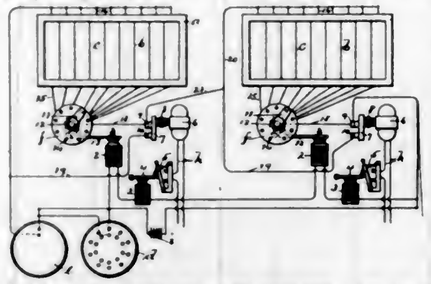
2. A shepherd's crook comprising a shank provided at its outer end with a concave seat, a resilient hook extending from the shank at one side thereof, and forming a curved loop at the outer end of the same, and a curved guard-arm extending from the opposite side of the shank and presenting an outer concave face to form a continuation of the said seat and having a straight outer face, substantially as described.

3. A shepherd's crook comprising a shank provided at its outer end with a concave seat, a resilient hook extending from the shank at one side thereof and forming a curved loop at the outer end of the same, and a curved guard-arm extending from the opposite side of the shank and presenting an outer concave face to form a continuation of the said seat, said arm and shank being enlarged and presenting a straight angularly-disposed face adapted to guide the leg of an animal into the loop, substantially as described.

752,059. **SYSTEM FOR OPERATING STOCK-BOARDS.** GEORGE S. GALLAGHER, New York, N. Y., assignor to himself, Rupert L. Joseph, and Frank E. Burrows, New York, N. Y. Filed Apr. 29, 1903. Serial No. 154,783. (No model.)

Claim.—1. A stock-board-operating system, comprising a series of movable paper strips for quotations of different stocks, an electrical printing instrument for each paper strip, a circuit-maker for successively completing the electric circuit through the several printing instruments, a circuit-selector for controlling said circuit-maker and an operating device for controlling the printing instrument.

2. A stock-board-operating system, comprising a plurality of stock-boards each consisting in a frame, a number of electrical printing instruments and a movable paper strip for each printing instrument, a circuit-maker for successively completing the electric circuit through the several printing instruments, a circuit-selector for controlling the said circuit-maker and an operating device for controlling the printing instrument.



3. A stock-board-operating system, comprising a plurality of stock-boards, each consisting in a frame, a number of electrical printing instruments and a movable paper strip for each printing instrument, a circuit-maker for successively completing the circuit through the several printing instruments and having a contact for each printing instrument employed, means for actuating said circuit-maker to successively complete the electric circuit through each printing instrument, a selector for controlling the said circuit-maker to determine which printing instrument is to be employed, and an operating device for determining which characters the printing instrument selected is to print.

4. A stock-board-operating system, comprising a plurality of stock-boards, each consisting in a frame, a number of electrical printing instruments, a movable paper strip for each printing instrument, a circuit-maker for successively completing the circuit through the several printing instruments and having a contact for each printing instrument employed, an escapement mechanism and an electromagnet for actuating said circuit-maker to successively complete the circuit through each printing instrument, a selector for controlling the said circuit-maker to determine which printing instrument is to be employed, and an operating device for determining which character the printing instrument selected is to print.

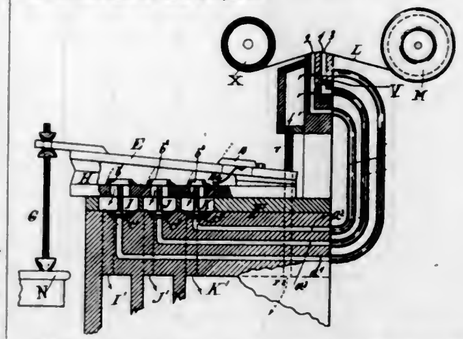
5. A stock-board-operating system, comprising a plurality of stock-boards each consisting in a frame, a number of electrical printing instruments and a movable paper strip for each printing instrument, a circuit-maker for successively completing the electric circuit through the several printing instruments, a circuit-selector for controlling the said circuit-maker, an operating device for controlling the printing instruments, and means for short-circuiting any stock-board in the system.

6. A stock-board-operating system, comprising a plurality of stock-boards, each consisting in a frame, a number of electrical printing instruments and a movable paper strip for each instrument, a circuit-maker for successively completing the electric circuit through the several printing instruments and having a contact for each printing instrument employed, a contact-arm adapted to bear on said contacts, an escapement mechanism for rotating said contact-arm, a selector for controlling said circuit-maker to determine which instrument is to be employed, a magnet in the circuit of said selector and adapted to actuate said escapement mechanism, and an operating device for determining which characters the printing instrument is to print.

7. A stock-board-operating system, comprising a plurality of stock-boards, each consisting in a frame, a number of electrical printing instruments and a movable paper strip for each printing instrument, a circuit-maker for successively closing the electric circuit through each printing instrument and having a contact for each printing instrument employed, a contact-arm adapted to bear on said contacts, an escapement mechanism for rotating said contact-arm, a selector for controlling said circuit-maker to determine which printing instrument is to be employed, a magnet in the circuit of said selector adapted to actuate said escapement mechanism, an operating device for determining which character the printing instrument is to print, and means for short-circuiting any of the stock-boards in the system.

752,060. **PNEUMATIC ACTION FOR MECHANICAL MUSICAL INSTRUMENTS AND PLAYERS.** MERRITT GALLY, Brooklyn, N. Y. Filed Feb. 27, 1903. Serial No. 145,406. (No model.)

Claim.—1. In a pneumatic action for an automatic or mechanical musical instrument or player; a pneumatic motor for each of a series of the sound-producing devices of a musical instrument; a tracker having a plurality of apertures, comprising a separate group for each sound-producing device; the pneumatic motor having a plurality of outlets with exhausting-valves; an inlet to reinflate the motor, having a valve normally closed, and means for closing all of the outlets when the inlet is opened.



2. In a pneumatic action for an automatic or mechanical musical instrument or player; a pneumatic motor for each of a series of the sound-producing devices of the instrument; a tracker having a plurality of apertures, comprising a separate group for each sound-producing device, and a perforated music-sheet therefor, the pneumatic motor for any one of the sound-producing devices, having a plurality of exhausting-outlets with valves therefor; an inlet-valve normally closed; and means controlled by the tracker and a perforated music-sheet for operating the exhaust-valve singly and in varying combinations of two or more valves.

3. A pneumatic key-motor, having a plurality of exhaust outlet-valves; inlet means for inflating the motor; and means for cutting off the inflating supply of air when any one or more of the inlet-valves are open.

4. A pneumatic key-motor, having a plurality of exhaust-valves; an inlet inflating-valve; said inflating-valve being held closed by the exhaust when any one or more of the exhaust-valves are open.

5. A pneumatic key-motor, having a plurality of exhaust-valves; an inflating-valve, normally closed; said inflating-valve being held closed by the exhaust when any one or more of the exhaust-valves are open, and a spring to open the inflating-valve when the exhaust is cut off.

6. A pneumatic key-motor having a plurality of exhaust outlet-valves; an inlet inflating-valve, normally closed; means for opening the inflating-valve when the exhaust is cut off.

7. A pneumatic tracker; a collapsible pneumatic key-motor, having a plurality of exhaust outlet-valves controlled by a corresponding number of apertures in a pneumatic tracker; the motor normally inflated and closed to the outside air and the exhaust-valve closed; a reinflating-valve; said motor to be collapsed by the opening of any one or combined number of the exhaust-valves; and reinflated by the reinflating-valve when the exhaust-valves are closed.

8. A pneumatic tracker; a pneumatic key-motor having a plurality of exhaust outlet-valves controlled by a plurality of apertures in the pneumatic tracker; and an inflating-valve, to act in combination with any one, or combined number of the exhaust outlet-valves.

9. A pneumatic tracker; a pneumatic key-motor, having a plurality of exhaust-outlets for collapsing the motor, controlled by a plurality of tracker means; and an inflating-valve acting in common with one and all of the exhaust-valves.

10. In a pneumatic motor for an automatic or mechanical musical instrument or player; a plurality of exhausting-outlets, separate controlling-valves for the outlets from said motor; a separate exhaust-chamber for each outlet, the several exhaust-chambers having different air tensions; and means for operating said valves in varying combinations.

11. In a pneumatic action for an automatic or mechanical musical instrument or player; a pneumatic motor having a plurality of exhausting-outlets; separate controlling-valves for said outlets; an inlet for reinflating the motor, the inlet having a valve normally closed, and operative for ingress of air only when the outlets are all closed; a separate air-chamber for each outlet, the several air-chambers having different air tensions; and means operated by a pneumatic tracker and perforated music-sheet, for operating the outlet-valves singly or in different combinations.

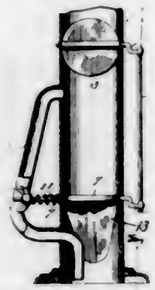
12. A pneumatic motor for operating a single note-key of an automatic or mechanical musical instrument or player; exhausting-outlets for the motor; a separate air-chamber for each outlet, the several air-chambers having different air tensions.

13. A pneumatic motor for operating a single note-key of an automatic or mechanical musical instrument or player; two or more exhausting-outlets for the motor; a separate air-chamber for each outlet, the several chambers having air of different tensions; valves for all the outlets; and means for operating the valves, singly and in different combinations of two or more valves.

14. In an automatic or mechanical musical instrument or player, a pneumatic motor; a tracker having a group of apertures for controlling a motor for operating a single sound-producing device; each of the apertures having an independent air-channel, with means for operating the motor; the means controlled by one of the group of apertures, operating the motor with air-exhaust of one tension; and the means controlled by another of the group of apertures, for operating the motor with air-exhaust of a different tension.

15. In a pneumatic action for automatic or mechanical musical instruments or players; a pneumatic motor; a tracker having a group of air-duct apertures for controlling a single pneumatic motor for operating a single note-key of a musical instrument; a plurality of air-duct outlets for the motor; and an automatic inlet-valve for reinflating the motor, the valve operated by the movement of the motor-bellows board.

752,061. **HEAT-REGULATOR.** HARRY W. GANDER, Rudy, Pa. Filed June 24, 1903. Serial No. 162,947. (No model.)



Claim.—1. In a draft-regulator, the combination of a pipe, complemental dampers located within the pipe and arranged so that when one is closed the other is opened, means connecting the dampers for simultaneous movement in opposite directions, and a draft-pipe having connection with the pipe containing the dampers at a point between the latter, substantially as specified.

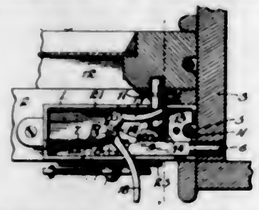
2. In a draft-regulator, the combination of a pipe, complemental dampers located within the pipe and arranged so that when one is closed the other is opened, means connecting the dampers for simultaneous movement in opposite directions, and a draft-pipe connected at its upper end with the first-mentioned pipe at a point between the dampers and having its lower end connected with said pipe at a point below the lowermost damper, substantially as set forth.

3. In a heat-regulator, the combination of a smoke-pipe, upper and lower dampers connected for simultaneous movement and arranged so that when one damper is opened the other is closed, a spring mounted upon the rod of one of the dampers and connected at one end with the smoke-pipe, and a thumb-nut threaded upon said rod and having the outer end of the spring connected thereto, substantially as set forth.

4. In a heat-regulator, the combination of a smoke-pipe, upper and lower dampers connected for simultaneous movement and arranged so that when one damper is opened the other is closed, a spring mounted upon the rod of one of the dampers and connected at one end with the smoke-pipe, a thumb-nut threaded upon said rod and having the outer end of the spring connected thereto, and a draft-pipe spanning the lowermost damper and having its upper end connected to the smoke-pipe at a point between the dampers and having its lower end passed through a side of the smoke-pipe and extended downward therein, substantially as described.

752,062. **SASH-FASTENER.** JAMES E. GIBBS, Bridgewater, Va. Filed Aug. 24, 1902. Serial No. 121,362. (No model.)

Claim.—1. A lock comprising a casing having angularly-related guides, a pair of bolts arranged in the guides and extending through one wall and terminating short of the other, one of the bolts being reduced and provided with a stud arranged at the reduced portion and forming a seat, and the other bolt being provided with a lateral enlargement having a cam edge to engage the stud and forming a guard and arranged over the bolt having the stud, an approximately L-shaped lever disposed horizontally and having one arm arranged in the said seat and having its other arm engaging the bolt having the cam, and extended beyond the casing, and a bell-crank lever disposed externally of the casing and operating in a plane parallel with the front face of the sash and arranged at substantially right angles to the L-shaped lever and directly engaging the same.



2. A lock embodying a casing, a bolt therein, an interiorly-arranged lever connected with the bolt and projected externally of the casing, and a lever disposed externally of the casing and operating in a plane parallel with the front face of the sash and arranged at substantially right angles to the first-mentioned lever and directly engaging the same, substantially as described.

752,063. **LOCK.** EDWARD F. GILLON, Wakefield, Mass., assignor to Miller Lock Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 31, 1902. Serial No. 137,245. (No model.)

Claim.—1. In a lock, the combination of a spring-projected bolt, a manual retractor therefor, a locking member for holding the bolt in projected position, a device retracted with the bolt by the action of said manual retractor for retracting said locking member from bolt-locking position and movable independently of the bolt and of the retractor, and mechanism automatically released by closing of the door for holding the bolt in retracted position.

2. In a lock, the combination of a spring-projected bolt, a detent for locking the bolt in projected position, a cam device carried by and slidable on the bolt for retracting said detent, a manual retractor for operating said cam device and retracting the bolt, and mechanism automatically released by closing of the door for holding the bolt in retracted position.

3. In a lock, the combination of a bolt having guide-rods, a detent for locking said bolt in projected position, a cam-rod slidingly mounted on said guide-rods and having a cam for retracting said detent, and manual operating means for simultaneously operating on said guide-rods and cam-rod.

4. In a lock, the combination of a bolt having guide-rods, a detent held in position by said rods for locking the bolt in projected position, and means for manually retracting the bolt.

5. In a lock, the combination of a bolt having guide-rods, a detent stationed by said rods for locking the bolt in projected position, springs surrounding said rods and acting oppositely on said bolt and detent, and means for manually retracting said bolt.

6. In a lock, the combination of a keeper, a lock-casing having an end face transverse to the plane of the door, a spring-projected bolt mounted to project from said end face, a latch pivoted to said lock-casing for locking said bolt in retracted position and mounted to project from said end face, the outer portion of the latch extending from the pivot in a direction toward the outer wall of the lock-casing and having an inclined edge to ride over the edge of the keeper, whereby said latch will be displaced by a cam action of the keeper thereon to a fully-retracted position, and means for manually retracting said bolt.

752,064. **ART AND PROCESS OF CONSOLIDATING PEAT.** JAMES O. GREEN and HARRY T. MARTIN, Whitewater, Wis. Filed Oct. 11, 1902. Serial No. 126,931. (No specimens.)

Claim.—The art or process of consolidating peat fuel by grinding dry peat into a fine powder until the fiber is destroyed, and then reducing the dry peat-powder to a solid mass by hammering or pounding with sufficient rapidity to produce heat enough by the impact to release the tar in the peat for the purpose of binding the whole together.

752,065. **TIE-ROD CONNECTION.** GEORGE G. GUY, Batavia, Ill., assignor to United States Wind Engine & Pump Company, Batavia, Ill., a Corporation of Illinois. Filed Mar. 16, 1903. Serial No. 147,896. (No model.)



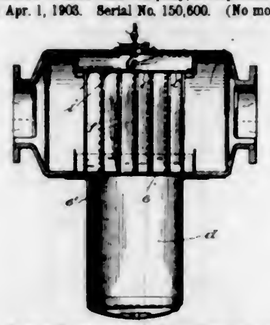
Claim.—1. In a device of the class described, a tie-rod, a clip or bracket having a passage to freely receive said rod, a washer on the clip having a rounded seat, and a shoe having a complementary rounded face seated on the washer, and means to hold the shoe on the end of the rod.

2. In a device of the class described, a girder or column having a tread, an angular clip or bracket secured to the tread and having a suitable passage, a tie-rod whose end passes freely through said passage, a washer within the bracket and loosely surrounding the end of the rod, and a shoe on the end of the rod, the washer and shoe having coacting seating portions.

3. A tie-rod connection consisting of a rod having a threaded end, a clip or bracket having a flaring passage, a washer loosely surrounding the end of the rod and having a cup-shaped seat, a shoe having a curved portion adapted to said seat, and a nut threaded upon the end of the rod.

4. In a device of the class described, a girder or column, an angular clip secured at its ends to the girder and provided with an aperture, a washer on the clip having a coinciding aperture and a concave seat surrounding such aperture, a tie-rod passing freely through the coinciding apertures, a shoe on the rod and having a convex face resting on the washer-seat, and a nut engaging the end of the rod and holding the shoe in place.

752,066. **OIL-SEPARATOR.** JOHN F. HALK, Chicago, Ill., assignor to Warren Webster and Company, a Corporation of New Jersey. Filed Apr. 1, 1903. Serial No. 150,600. (No model.)



Claim.—1. In an oil-separator, the combination with the body having an inlet and an outlet and baffles arranged transversely between said inlet and outlet, of a baffle located at the inlet and consisting of a plate within the inner walls of the inlet and having its inner edge extending in a transverse lip about the inlet.

2. In an oil-separator, the combination with the body having an inlet and an outlet and baffles arranged transversely between said inlet and outlet, of a baffle located at the inlet and consisting of a plate fitted within the inner walls of the inlet and having its inner edge extending in a transverse lip about the inlet but open at the bottom to allow the oil and water caught thereby to escape.

3. In an oil-separator, the combination with the body having an inlet and an outlet and baffles arranged transversely between said inlet and outlet, of a baffle located at the inlet and consisting of a plate fitted within the inner walls of the inlet and having its inner edge extending in a transverse lip about the inlet curved forwardly toward said inlet.

4. In an oil-separator, the combination of a body provided with an inlet and an outlet and having a perforated plate at the top, baffles within said body between said inlet and outlet adjacent to the perforations in said plate, and means to supply water to the surfaces of said baffles through said perforated plate.

5. In an oil-separator, the combination of a body provided with an inlet and an outlet and having perforations in the top and bottom, a receiver communicating with the interior of said body through the perforations in the bottom, baffles between said inlet and outlet arranged adjacent to the perforations in the top and bottom, and means to supply water to the surface of said baffles through the perforations in the top.

6. In an oil-separator, the combination of a body having an inlet and an outlet and provided at the top with a closed water-chamber communicating with the interior of the body through perforations, and at the bottom with a receiver also communicating with the interior of body through perforations, baffles within the body extending from the perforations in the top to those in the bottom, and means to supply water to said water-chamber.

7. In an oil-separator, the combination of a body having an inlet and an outlet and provided at the top with a closed water-chamber communicating with the interior of the body through perforations, and at the bottom with a receiver also communicating with the interior of body through perforations, baffles within the body extending from the perforations in the top to those in the bottom, and a water-sprinkler within said water-chamber to supply water thereto.

8. In an oil-separator, the combination of a body having an inlet and an outlet and provided with a closed water-chamber communicating with the interior of the body through perforations, and at the bottom with a receiver also communicating with the interior of body through perforations, baffles within the body extending from the perforations in the top, a removable plug in said water-chamber, and a water-sprinkler carried by said removable plug and adapted to supply water to said water-chamber.

9. In an oil-separator, the combination of a body having an inlet and an outlet and provided at the top with a closed water-chamber having a perforated base, baffles within the body arranged adjacent to the perforations in said base, a baffle arranged at the inlet, and means to supply water from said water-chamber to said baffle at the inlet.

10. In an oil-separator, the combination of a body having an inlet and an outlet, and provided at the top with a closed water-chamber, a baffle adjacent to the inlet, and a water-tube leading from said chamber and terminating in a spray-pipe adjacent to the upper portion of said baffle.

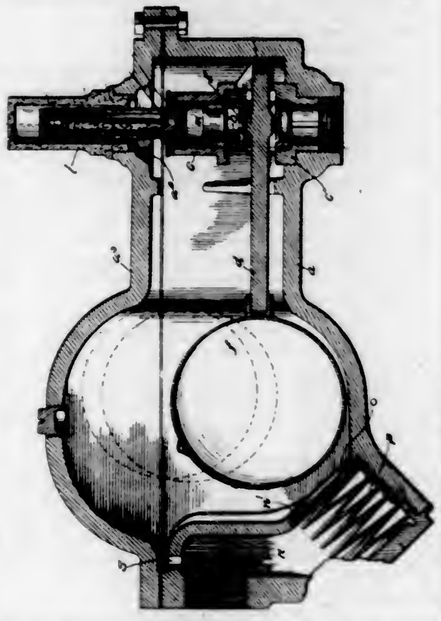
752,067. **STEAM-TRAP.** JOHN F. HALK, Chicago, Ill., assignor to Warren Webster and Company, a Corporation of New Jersey. Filed June 18, 1903. Serial No. 162,005. (No model.)

Claim.—1. In a steam-trap of the character described, the combination of the trap-body having an inlet and an outlet, a float-controlled valve for controlling said outlet, said trap being further provided with an air by-pass about said valve between the outlet and the upper portion of the interior of the trap-body, the trap-body being provided adjacent to the inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof.

2. In a steam-trap of the character described, the combination of the trap-body having an inlet and an outlet, a float-controlled valve for controlling said outlet, said trap being further provided with an air by-pass about said valve between the outlet and the upper portion of the interior of the trap-body, the trap-body being provided adjacent to the inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof, said chamber being further provided with an opening for the discharge of sediment, and a removable cap for said opening.

3. In a steam-trap of the character described, the combination of the trap-body having an inlet and an outlet, a float-controlled valve for controlling said outlet, said trap being further provided with an air by-pass about said valve between the outlet and the upper portion of the interior of the trap-body, the trap-body being provided

ajacent to the inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof, and a screen located in said water-opening.



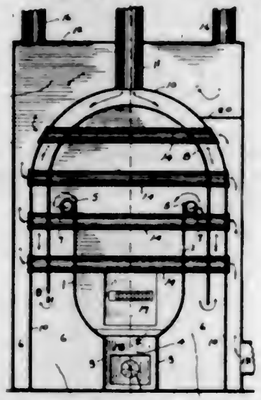
4. In a steam-trap of the character described, the combination of the trap-body having an inlet and an outlet, a float-controlled valve for controlling said outlet, said trap being further provided with an air by-pass about said valve between the outlet and the upper portion of the interior of the trap-body, the trap-body being provided adjacent to the inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof, said chamber being further provided with an opening for the discharge of sediment, a removable cap for said opening for the discharge of sedimen, a removable screen in said water-opening, and a spring between said removable cap and screen for retaining the screw in place.

5. In a steam-trap for the purpose described, the trap-body having an inlet and an outlet and provided adjacent to its inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof, the body of said partition between said air-vent and water-opening being closed.

6. In a steam-trap for the purpose described, the trap-body having an inlet and an outlet and provided adjacent to its inlet end with an internal partition forming a chamber communicating with the inlet and having at its upper portion an air-vent into the upper portion of the interior of the trap-body and at its lower portion a water-opening into the lower portion thereof, the body of said partition between the air-vent and water-opening being closed and a discharge-opening for sediment adjacent to said water-opening, and a removable cap for said discharge-opening.

752,068. **FURNACE.** WELLESLEY R. HAMPDEN, Omaha, Nebr. Filed May 15, 1903. Serial No. 157,329. (No model.)

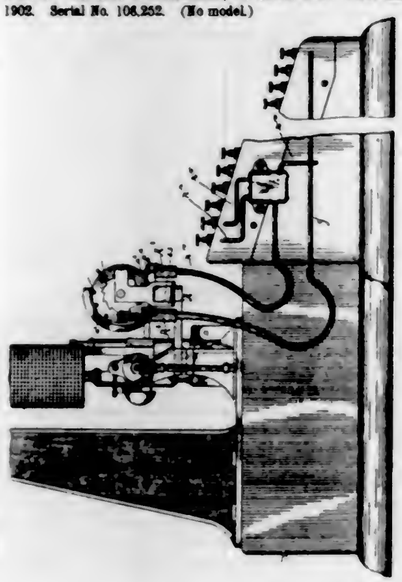
Claim.—1. In a furnace, a fuel-receptacle, a combustion-chamber immediately surrounding said receptacle, means for supplying a limited quantity of air to the fuel-receptacle, means for supplying air to and mixing the same with the gaseous products distilled from the fuel whereby said gaseous products will be burned in the combustion-chamber and continue the distillation of fuel in the receptacle therefor, and air-pipes traversing the fuel-receptacle and combustion-chamber and lying in the path of the heated gases and combustion products, substantially as shown and described.



2. In a furnace, a fuel-receptacle, a curved baffle-plate above the said receptacle and extending downward around the same, said baffle-plate being adapted to direct gaseous products into the space immediately surrounding the fuel-receptacle, means for supplying a limited quantity of air to the fuel-receptacle, and tubes along the upper edges of the said receptacle for supplying air to the gaseous products distilled from the fuel therein, whereby said gaseous products will be burned in the space immediately surrounding the receptacle and furnish heat to continue the distillation of fuel, substantially as described.

3. In a furnace, a fuel-receptacle, a combustion-chamber immediately surrounding the same, a baffle-plate over the fuel-receptacle and extending downward around the same for directing gaseous products therefrom into the combustion-chamber, means for supplying a limited quantity of air to the fuel-receptacle, pipes for supplying air to the products distilled from the fuel whereby said products will be burned in the combustion-chamber around the fuel-receptacle and continue the distillation of fuel therein, a radiating-chamber surrounding the combustion-chamber and passages for combustion products, and pipes connecting with the radiating-chamber and traversing the path of the heated gases and combustion products, substantially as described.

752,069. **ATTACHMENT FOR MACHINES FOR PERFORATING STRIPS.** CHARLES J. HANFRAUER, Cleveland, Ohio. Filed May 20, 1902. Serial No. 108,252. (No model.)



Claim.—1. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, means for variably determining the extent of such movement, and means for actuating said determining means.

2. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, means for variably determining the extent of such movement, means for actuating such determining means, and manually-controlled means for controlling such actuating means.

3. In a machine for perforating strips, the combination of line indicating means embodying a movable part adapted to have a retrograde movement, means for determining the extent of such movement and means for simultaneously actuating said indicating means to retrogress and for actuating said determining means.

4. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, means for variably determining the extent of such movement and means for simultaneously actuating said indicating means to retrogress and for actuating said determining means.

5. In a machine for perforating strips, the combination with line-indicating means embodying a movable part adapted to have a retrograde movement, of mechanism for interposing in the path of such part at successive points, means for limiting the extent of such retrograde movement.

6. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, mechanism for interposing in the path of such part at successive points, means for limiting the extent of such retrograde movement, and manually-controlled means for controlling such mechanism.

7. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, mechanism for interposing in the path of such part at successive points means for limiting the extent of such retrograde movement, and means for effectjng the operation of said mechanism and the retrogression of such movable part simultaneously.

8. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, means for effecting such movement including a key, and means for variably determining the extent of such movement and controlled by said key.

9. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, restoring means for effecting such movement including a key, and means for variably determining the extent of such movement and controlled by said key, the latter being adapted to effect the inauguration of the operation of the determining means prior to the inauguration of the operation of the restoring means.

10. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, restoring means for effecting such movement including a key, means controlled by said key for variably determining the extent of such movement, and means for returning such determining means to a constant initial position.

11. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, restoring means for effecting such movement, means for variably determining the extent of such movement and operable in connection with said restoring means, a key for controlling the mechanism for designating the perforation adapted to inaugurate the movement of the galley mechanism, and means for returning such determining means to a constant initial position and controlled by said designating-mechanism key.

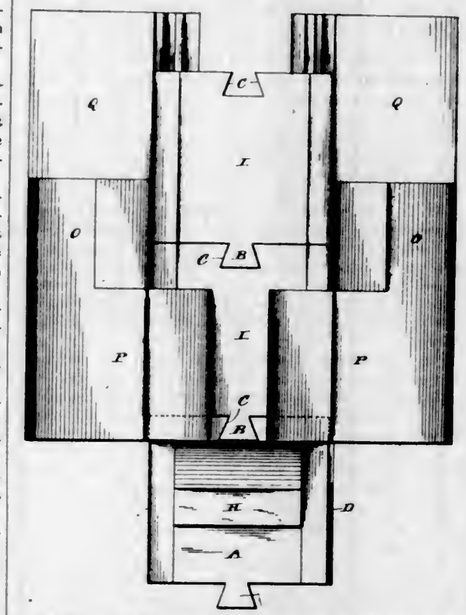
12. In a machine for perforating strips, the combination of line-indicating means embodying a movable part adapted to have a retrograde movement, restoring means for effecting such movement including a key, means controlled by said key for variably determining the extent of such movement, means for returning such determining means to a constant initial position, and means for controlling said returning means, such latter means adapted to control the mechanism for designating the perforations adapted to inaugurate the movement of the galley mechanism.

13. In a machine for perforating strips and embodying movable line-indicating means adapted to have a retrograde movement, the combination with a rotatable cylinder provided with projections extending radially with reference to the cylinder-axis, of means for imparting to said cylinder an intermittent rotating movement, whereby said projections may be successively interposed in the path of retrogression of said indicating means.

14. In a machine for perforating strips and embodying movable line-indicating means adapted to have a retrograde movement, the combination with a rotatable cylinder provided with longitudinally-adjustable projections extending radially with reference to the cylinder-axis, of means for imparting to said cylinder an intermittent rotating movement whereby said projections may be successively interposed in the path of retrogression of said indicating means.

15. In a machine for perforating strips and embodying movable line-indicating means adapted to have a retrograde movement and restoring means including a key adapted to effect such movement, the combination with a rotatable cylinder provided with projections extending radially with reference to the cylinder-axis, of means for imparting to said cylinder an intermittent rotating movement whereby said projections may be successively interposed in the path of retrogression of said indicating means, said rotating means being controlled by the restoring-key of such machine.

752,070. **BUILDING OR PAVING BLOCKS.** FRANK B. HENRY, Philadelphia, Pa. Filed June 24, 1903. Serial No. 162,948. (No model.)



Claim.—1. In a binding-block, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one side, and a correspondingly-shaped grove on the opposite side, substantially as shown and described.

2. In a building-block, a dovetail on one side, a correspondingly-shaped groove on the other side, the surface of the block abutting said dovetail channeled, and beads on said other side abutting said groove to fit into said channels, substantially as shown and described.

3. In a binding-block, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one side, the surface of said side abutting said dovetail channeled, the walls of said channels being perpendicular to the surface of said side, a groove in the opposite side corresponding to the shape of said dovetail, and beads abutting said groove having perpendicular sides, substantially as shown and described.

4. In a building-block, a dovetail on one side, a correspondingly-shaped groove on the opposite side, the surface of the block abutting said dovetail channeled, the walls of said channels being perpendicular to the surface of said side, and beads on the opposite side of the block abutting said groove having perpendicular sides, substantially as shown and described.

5. In a binding-block, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one side and channels in the surface of said side abutting said dovetail, a groove in the opposite side corresponding to the shape of said dovetail, and beads

abutting said groove to fit the channels aforesaid, substantially as shown and described.

6. A building-block for curved structures having curved sides, a dovetail on one edge, a correspondingly-shaped groove on the other edge, the surface of the block abutting said dovetail channeled, and beads on the grooved edge abutting said groove to fit said channels, substantially as shown and described.

7. A building-block for curved structures having curved sides, a dovetail on one edge, a correspondingly-shaped groove on the opposite edge, the surface of the block abutting said dovetail having channels therein with walls perpendicular to the surface of said edge, and beads on the opposite edge abutting said groove having perpendicular sides, substantially as shown and described.

8. A binding-block for curved structures having curved sides, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one edge, and a correspondingly-shaped groove on the other, substantially as shown and described.

9. A binding-block for curved structures having curved sides, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one edge and channels in the surface of said edge abutting said dovetail, a groove in the opposite edge corresponding to the shape of the dovetail on the other edge, and beads abutting said groove to fit the channels aforesaid, substantially as shown and described.

10. A binding-block for curved structures having curved sides, a dovetail on one end, a correspondingly-shaped groove on the other end, a dovetail on one edge and channels in the surface of said edge abutting said dovetail, said channels having walls perpendicular to the surface of said edge, a groove in the opposite edge corresponding to the shape of the dovetail on the other edge, and beads abutting said groove having perpendicular sides, substantially as shown and described.

11. In a building, series of blocks having a dovetail at one end, a correspondingly-shaped groove in the other end, a dovetail on one side, a correspondingly-shaped groove on the other, a spur or projection on individual blocks in said series, intermediate blocks between said series having a dovetail on one side, a correspondingly-shaped groove on the other, and offsets on individual intermediate blocks to rest on said spurs or projections, substantially as shown and described.

12. In a building, series of blocks having a dovetail at one end, a correspondingly-shaped groove in the other end, a dovetail on one side, the surface of said edge abutting said dovetail channeled, a groove in the opposite side corresponding to the shape of said dovetail, beads abutting said groove to fit the channels on the other side, a spur or projection on individual blocks in said series, intermediate blocks between said series having a dovetail on one side and channels abutting said dovetail, a groove in the other side corresponding in shape to the shape of the dovetail on the other side, beads abutting said groove corresponding to the shape of the channels aforesaid, and offsets on individual intermediate blocks to rest on said spurs or projections, substantially as shown and described.

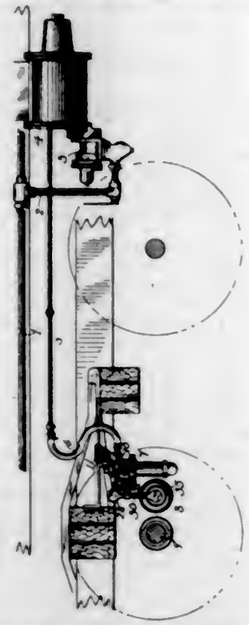
13. In a curved structure, blocks having their sides forming an arc of said structure, vertical series of said blocks having a dovetail at one end, a correspondingly-shaped groove in the other end, a dovetail on one edge, a correspondingly-shaped groove on the other, and intermediate blocks between said series having a dovetail on one edge, and a correspondingly-shaped groove on the other, substantially as shown and described.

14. In a well-casing, blocks having their sides forming an arc of a circle, vertical series of said blocks having a dovetail at one end, a correspondingly-shaped groove in the other end, a dovetail on one edge, a correspondingly-shaped groove in the other, and individual blocks in said series having a spur or projection on their outer sides and intermediate blocks between said series having a dovetail on one edge, a correspondingly-shaped groove in the other edge, and individual intermediate blocks having an offset thereon with projections to rest upon said spur or projection, substantially as shown and described.

752,071. FLUID-PRESSURE BRAKE. EDWIN M. HERR, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 12, 1902. Serial No. 106,892. (No model.)

Claim.—1. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet-passage and a pressure-reducing valve controlling said passage, of a separate speed-controlled valve device for governing the outlet from the brake-cylinder through the reducing-valve and adapted to normally hold said passage open at ordinary speeds.

2. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet port or passage, of a pressure-reducing valve controlling said port, and a separate speed-controlled device for normally opening the outlet from the reducing-valve at ordinary speeds and for closing said outlet when the speed of the train is excessive.



3. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet port or passage, of a valve actuated by the brake-cylinder pressure for controlling said passage, and an independent speed-controlled valve device for governing said outlet-passage and normally holding the same open at ordinary speeds.

4. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet-passage, of a valve actuated by the brake-cylinder pressure for controlling said passage, a normally open governor-valve also controlling said passage, and speed-controlled means driven from the car-axle for closing the governor-valve at high rates of speed.

5. In a fluid-pressure brake, the combination of a brake-cylinder having an outlet-passage, a valve actuated by the brake-cylinder pressure for controlling said outlet-passage, a normally open governor-valve also controlling said passage, and a centrifugal speed-governor driven from the car-axle for closing the governor-valve at high rates of speed.

6. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet-passage, of a valve actuated by the brake-cylinder pressure for controlling said passage, a speed-controlled valve device for also governing said passage, and means actuated by the brake-cylinder pressure for throwing the speed-controlled device into operation when the pressure rises to predetermined amount.

7. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet-passage, of a valve actuated by an excessive degree of cylinder-pressure to open said passage, a governor-valve, a speed-controlled mechanism therefor driven from the car-axle but normally out of engagement therewith, and means actuated by an excessive degree of cylinder-pressure for forcing said mechanism into engagement with the car-axle.

8. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet, of a governor-valve for controlling said outlet, a speed-controlled mechanism for said valve, and means for throwing said mechanism into operation only when the cylinder-pressure is excessive, or rises above a predetermined degree.

9. In a fluid-pressure brake, the combination with a brake-cylinder having an outlet, of a governor-valve controlling said outlet, a speed-controlled mechanism therefor adapted to be driven from the car-axle, and means actuated only by an excessive degree of brake-cylinder pressure for forcing said mechanism into engagement with the car-axle.

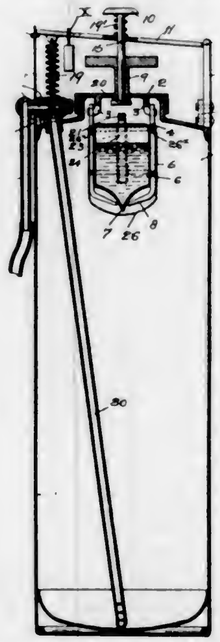
10. In a fluid-pressure brake, the combination of a brake-cylinder having an outlet-passage, a speed-controlled valve device for governing said passage, a piston for throwing said device into operation, a valve for supplying fluid under pressure to said piston, and a movable abutment actuated by the brake-cylinder pressure for opening said valve.

11. In a fluid-pressure brake, the combination of a brake-cylinder having an outlet or escape passage, a governor-valve for controlling said passage, a speed-controlled device for continuously acting upon said valve, and means for suddenly varying the effect of the speed-controlled device upon the valve when the speed passes a predetermined rate.

12. In a fluid-pressure brake, the combination of a brake-cylinder having an outlet or escape passage, a governor-valve for controlling said passage, centrifugal governor-weights for operating said valve and adapted to be driven from the car-axle, and pivoted arms having double fulcrums whereby the valve may be positively closed when the speed exceeds a predetermined rate.

13. In a fluid-pressure brake, the combination of a brake-cylinder having an outlet-passage, a valve actuated by the brake-cylinder pressure for controlling said passage, a governor-valve for also controlling said passage, a speed-controlled device driven from the car-axle for continuously acting upon said governor-valve, and means for suddenly varying the effect of said device upon the governor-valve when the speed passes a predetermined rate.

752,072. CHEMICAL FIRE-EXTINGUISHER. WILLIAM G. HICKOX, Sayre, Pa. Filed Feb. 17, 1903. Serial No. 143,845. (No model.)



Claim.—1. In combination in a chemical fire-extinguisher, a tank, an acid-bottle therein having supports or ledges at or near its lower end and a breaking device arranged to contact therewith, substantially as described.

2. In combination in a chemical fire-extinguisher, a tank, an acid-bottle, means for supporting the same within the tank, a movable breaking device engaging the lower part of the bottle, the said supporting means comprising a series of points to aid in breaking the lower part of the bottle and means for operating the breaking device, substantially as described.

3. In combination in a chemical fire-extinguisher, a tank, an acid-bottle supported therein and means for breaking the said acid-bottle extending downwardly along the side thereof to contact with a portion of the said bottle below its top and means for operating the said breaking device, substantially as described.

4. In combination, a tank, an acid-bottle supported therein and a U-shaped breaking device having its arms extending down along the side of the acid-bottle and engaging the lower part thereof, substantially as described.

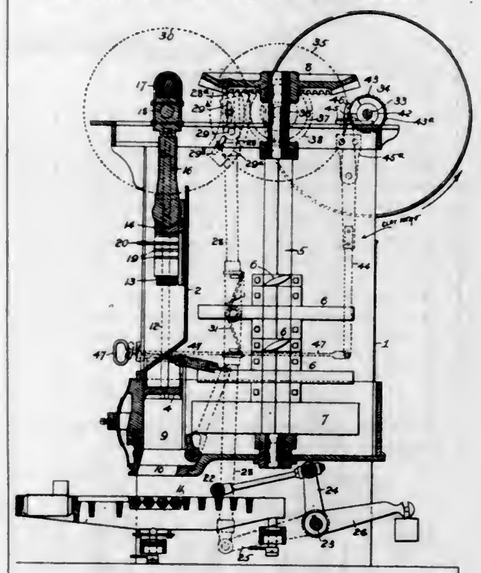
5. In combination with a tank, an acid-bottle having grooved sides with ledges or projections at the lower ends of the said grooves and a breaking device arranged in the said grooves, substantially as described.

6. In combination a tank, an acid-bottle supported therein having a grooved side and a breaking device arranged in the said groove and contacting with the lower part of the bottle to break the same, substantially as described.

7. In combination a tank, an acid-bottle supported therein having a conical lower end, a cage having inwardly-extending points to engage the conical lower end and a breaking device extending down along the side of the bottle and engaging a portion thereof below its top, substantially as described.

8. In combination with a tank, an acid-bottle, a cage for supporting the said acid-bottle and a screen inclosing the cage with clasps to fasten on upper edge of cage to hold the screen removably in place, substantially as described.

752,073. BRICK-MACHINE. CHARLES H. HORTON, Painesville, Ohio. Filed Jan. 12, 1903. Serial No. 138,671. (No model.)



Claim.—1. In a brick-machine, the combination with a casing having a recessed front portion, of a vertical shaft in the casing carrying stirrers and wipers, a plunger located within the front portion of the pug-mill casing and inclosed thereby, a crank-shaft at the top of the casing, a yoke carrying the plunger and having a guide located in the recess in the casing, a box mounted to slide in the guide, a pitman connecting the box and crank-shaft, and a plate to be inserted in any of a series of grooves in the guide to limit the sliding movement of the box.

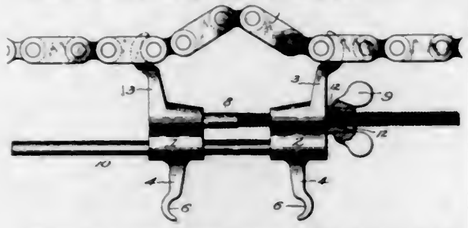
2. In a brick-machine, the combination with a pug-mill casing, of a plunger located within and inclosed by the front portion thereof to force the clay through the bottom of the pug-mill casing and a die in said bottom, a yoke carrying the plunger and having a central slotted guide movable in a recess in the front of the casing, a box or slide movable vertically in said guide, a crank-shaft, a pitman connecting the box and crank-shaft, a removable plate adapted to be inserted in any of a series of alined grooves in the guide to limit the sliding movement of the box and thereby regulate the stroke of the plunger.

3. In a brick-machine, the combination with a pug-mill casing, a plunger therein, and a die in the bottom of said casing through which the plunger forces the clay, of a mold-table below the die, a mold-pusher, a shaft, crank-arms thereon connected with said mold-

pusher, a counterweighted arm on said shaft, a drive-wheel, a plate adjustably secured thereto and carrying a pin, a rod slotted to receive the pin and secured at its other end to a crank-arm on the shaft, and said rod hinged between its ends, and a spring normally holding said hinge against bending.

4. In a brick-machine, the combination with a pug-mill casing, a die in said casing and a plunger for forcing clay through said die, of a drive-shaft for operating the pug-mill and plunger, a drive-pulley loose on said shaft and carrying a tubular clutch member to interlock with another clutch member keyed to slide on the shaft, an annular flange around the first-mentioned clutch member, a spiral flange on the other member, a pivoted lever carrying a curved enlargement which when moved between the straight and spiral flanges will, owing to the shape of the spiral flange, compel the clutch members to separate, and a hook operated by the lever, when the said curved enlargement is moved from between the clutch members, to force them together, substantially as and for the purpose set forth.

752,074. CHAIN-TIGHTENER. FRANK JACKSON, Denver, Colo. Filed Mar. 4, 1903. Serial No. 146,088. (No model.)



Claim.—In a chain-tightener the combination of a pair of similarly-constructed jaw-heads, having jaws extending from their opposite side, each head having a pair of longitudinally-disposed holes which are parallel with each other; a threaded rod rigidly secured within one of the holes of one of said heads, and passing loosely through the corresponding hole in the other head; an unthreaded rod secured within the remaining hole of the latter head and passing loosely through the corresponding hole in the first-mentioned head; with a thumb-nut upon the threaded rod, having a smooth bore of greater diameter than its threaded bore, and which intersects the threaded bore at an acute angle, the point of intersection being unthreaded, substantially as described.

752,075. COFFIN-CASE. EDWARD KAPPER, Manhattan, Ill. Filed June 15, 1903. Serial No. 161,482. (No model.)

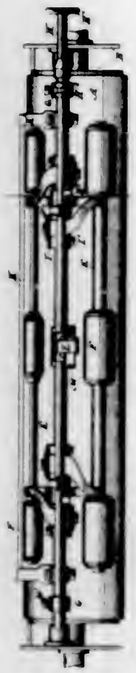


Claim.—In a coffin-case, a frame having its bottom, sides and ends formed of sheet metal having openings therethrough, metal bars arranged transversely and longitudinally of the frame and embracing its bottom, ends and sides, the ends of said bars projecting above the edges of the frame and adapted to be bent; a lid formed of sheet metal and provided with openings to receive the ends of the said bars; said frame and lid coated externally and internally with a plastic material, and the outer face of the lid coating having an annular groove therein to receive the bent ends of the said metal bars.

752,076. PAPER-GUIDE FOR TYPE-WRITERS. OSCAR C. KAYLE, Hartford, Conn., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 31, 1902. Serial No. 91,992. (No model.)

Claim.—1. The combination with the platen, of a stationary rod located adjacent thereto, arms pivoted on said rod and extending in opposite directions, collars secured adjustably to said rod at each side of the arms, springs extending from the collars and engaging the arms and an operating-shaft arranged adjacent to the arms, the said shaft having irregular portions engaging members projected from the arms to govern the position thereof.

2. The combination with the platen, of a rod secured adjacent thereto, pivoted arms extending in opposite directions from said rod, collars adjustably secured to the rod on each side of the said arms and provided with eccentric surfaces, springs secured to the said eccentric surfaces of the collars and engaging the arms, and pressure-exerting devices carried by the arms.



3. The combination with the platen, of a support adjacent thereto, an arm pivoted upon said support, a pressure-exerting device carried by said arm, and a normally stationary spring having a sliding engagement with said arm and secured to said support adjustably so that it may be turned on said support.

4. The combination with the platen, of a support adjacent thereto, an arm pivoted on said support, a pressure-exerting device carried by said arm, a collar normally stationary relatively to the support, but capable of being turned thereon for adjustment, said collar being provided with a surface eccentric to the support, and a spring secured to the collar and engaging the arm and the eccentric surface of the collar.

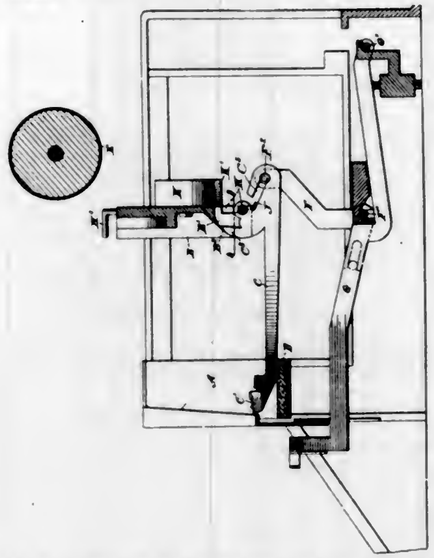
5. The combination with the platen, of a support adjacent thereto, an arm pivoted on said support, a pressure-exerting device carried by said arm, a collar eccentrically mounted to turn on the support for adjustment, means for locking the collar to the support and a spring secured to the adjustable collar and engaging the arm.

6. The combination with the platen, of pressure-exerting devices, tension devices for pressing said pressure-exerting devices toward the platen and independent eccentrically-mounted collars for adjusting the tension devices belonging to different pressure-exerting devices.

752,077. TYPE-BAR CONSTRUCTION FOR TYPE-WRITERS OR THE LIKE. EDWARD P. KUHATH, Jersey City, N. J., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Apr. 4, 1903. Serial No. 151,026. (No model.)

Claim.—1. In a type-writer or like machine, a support, type-bars pivotally mounted thereon, the said support being provided with slots in which the type-bars move and with ledges between the said slots, the outer surfaces of said ledges being curved with the pivot as a center, and the type-bars being provided with toes similarly curved and arranged to lie flush with the outer surfaces of the said ledges.

2. In a type-writer or like machine, type-bars, a support on which said type-bars are pivotally mounted, said support being provided with slots in which the type-bars move and being also provided with an extension projecting from the side of the pivot opposite to that on which said slots are arranged, and the type-bars being provided with toes arranged to work in said slots and below said extension.



3. In a type-writer or like machine, type-bars, a support to which said type-bars are pivoted, said support being provided with slots on one side of the pivot and with an extension on the other side of the pivot, said extension being notched in line with the said slots, and the type-bars having toes arranged to move in said slots and notches.

4. In a type-writer or like machine, type-bars, a support having vertical slots in which said type-bars are pivoted, a removable pivot for connecting the type-bars with said support and an auxiliary support arranged across the lower ends of said slots for holding the type-bars in their normal position even when the pivot is removed.

5. In a type-writer or like machine, a support, a type-bar pivoted to the support, said type-bar being provided with a laterally-open slot, and an auxiliary support extending into said slot for holding the type-bar when the pivot is removed.

6. In a type-writer or like machine, a support provided with slots and with ledges between them, the said ledges being provided with a guideway, a pivot arranged to lie in said guideway, and type-bars adapted to be received in the slots of the support and to swing on the said pivot, the end of the pivot being pointed so that it will readily enter the openings of the type-bars and bring them to their proper position, in combination with an auxiliary support adapted to retain the type-bars when the pivot is removed.

752,078. MARKING-BRUSH. JOHN LA BURT and DAVID M. P. CAMPBELL, New York, N. Y.; said La Burt assignor to himself and Carl D. Bradley and Albert L. Eliel, Parlin, N. J. Filed Mar. 19, 1903. Serial No. 148,577. (No model.)

Claim.—1. A marking-brush comprising a casing forming a reservoir, an outlet portion on one end of the reservoir, a brush arranged in said outlet portion, means for closing the receiving end of the outlet portion, means for admitting air to the reservoir below the surface of the ink, and means for closing or opening the ink-outlet and air-inlet simultaneously.

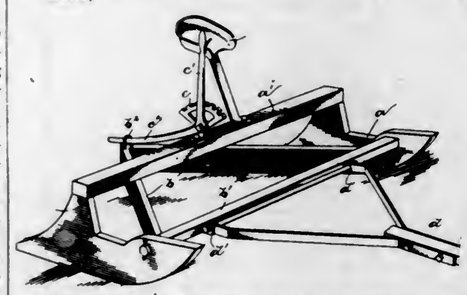
2. A marking-brush comprising a casing forming a reservoir an outlet portion on the end of the reservoir, a brush arranged in the said outlet portion, a valve adapted to close the receiving end of the outlet portion, a tube passing through said valve and adapted to actuate it, the other end of the said tube emerging from the casing on the opposed end, an air-inlet near the projecting end of the tube, and means whereby the ink-outlet and air-inlet can be operated simultaneously.

3. A marking-brush comprising a casing forming a reservoir, an outlet portion on one end thereof, a brush arranged in said outlet portion, a valve adapted to close the receiving end of the outlet portion, a tube actuating and passing through said valve, the other end of said tube emerging from the opposed end of the reservoir, and arranged to be partially withdrawn from the reservoir, and an air-inlet in the said tube near its projecting end, said air-inlet being adapted to be opened by the partial withdrawal of the tube, said withdrawal also operating to open the receiving end of the outlet portion.



4. A marking-brush comprising a reservoir, an outlet portion on one end thereof, means for closing the receiving end of the outlet portion, means for admitting air to the reservoir beneath the surface of the ink, a closure for the air-inlet, and means operating to open and close the air-inlet and ink-outlet simultaneously.

752,079. FIELD-LEVELER. JACOB W. LAFFERTY, near Mechanicsburg, Ohio. Filed Aug. 12, 1903. Serial No. 169,169. (No model.)



Claim.—1. In a machine such as described, the combination with the supporting-frame, of runners and a triangle leveler with one side open pivotally connected to said runners, the apex of said triangle at or near the rear of said runners, and its open side at the front thereof, and adapted to level the dirt to the longitudinal center of the machine.

2. In a machine such as described, the combination with a supporting-frame having movable journal-boxes therein and means to adjust the same, of a V-shaped leveler having its open ends pivoted in said boxes with its closed ends extending rearwardly, substantially as specified.

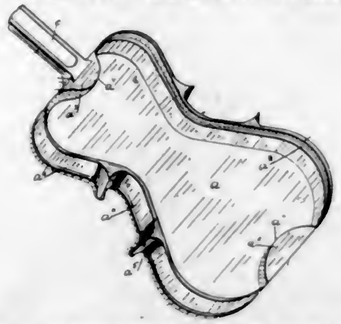
3. In a machine such as described, the combination with a supporting-frame having movable journal-boxes therein and means to adjust the same, of a V-shaped leveler having its open ends pivoted in said boxes with its closed ends extending rearwardly, and means to raise and lower the rear end of said leveler to adjust it in its relation to the surface of the ground, substantially as specified.

4. In a machine such as described, the combination with a pair of runners and a cross-beam forming with said runners a supporting-frame, of a cross-bar pivoted to said runners and a V-shaped leveler having its open ends rigidly secured to said bar and with its closed ends extending rearwardly.

5. In a machine such as described, the combination with a pair of runners and a cross-beam forming with said runners a supporting-

frame, movable journal-boxes in said runners and means to adjust the same, of a cross-bar journaled in said boxes and a V-shaped leveler having its open ends rigidly secured to said bar with its closed ends extending rearwardly, and a lever pivoted on said cross-beam and adapted to engage said leveler to depress and raise its rear end to adjust said leveler in its relation to the surface of the ground, substantially as specified.

752,080. MUSICAL INSTRUMENT. EMILE LAMBOTTE, Salina, Kans. Filed July 14, 1902. Serial No. 115,580. (No model.)



Claim.—1. In a musical instrument, a hollow body and a sounding-board therefor, and a tongue-and-groove joint connecting said parts together.

2. In a stringed musical instrument, the combination with a hollow body, and the upwardly-extended sides of said body, of a front having a groove in its inner surface registering with and adapted to receive the edge portion of said sides of the instrument.

3. In a stringed instrument, a hollow body having upwardly-extended sides and ends, and blocks on the inner surface of the ends of said body, a sounding-board having thickened edges, and a groove varying in width on the inner surface of said thickened edges registering with and adapted to receive the upper edge of said sides and ends and the upper surface of said blocks.

4. In a stringed instrument, a hollow body having sides and ends, and a rabbet in the inner surface of said sides and ends, and a sounding-board having a groove registering with and adapted to receive the upper edge of said rabbeted sides and ends of the body.

5. In a stringed musical instrument, the combination with a hollow body, the sides and ends thereof having a rabbet in their inner surfaces, the blocks upon the inner surfaces of the ends of said instrument having their upper surfaces in the plane of the upper edges of said ends, of a sounding-board having thickened edges, and a groove varying in width at the sides and ends of said board registering with and adapted to receive the upper edge of said sides and ends and the said blocks, substantially as described.

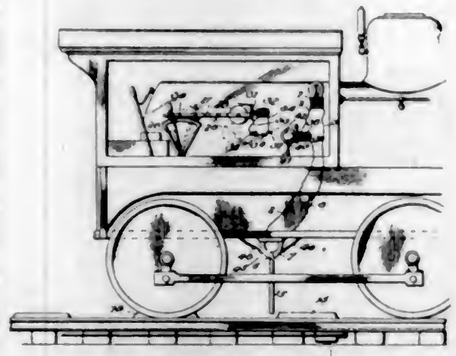
6. A violin-body top having a straight bass bar extending longitudinally parallel to and on one side of the middle line of the top, the bass bar being formed integrally with the top from a single piece of wood, as set forth.

7. A violin-body top having a straight bass bar extending longitudinally parallel to and on one side of the middle line of the top, the bass bar being formed integrally with the top from a single piece of wood and terminating at a distance from each end of the top as set forth

752,081. CAR-SIGNAL. GEORGE M. LANE, Brooklyn, N. Y. Filed May 14, 1903. Serial No. 157,188. (No model.)

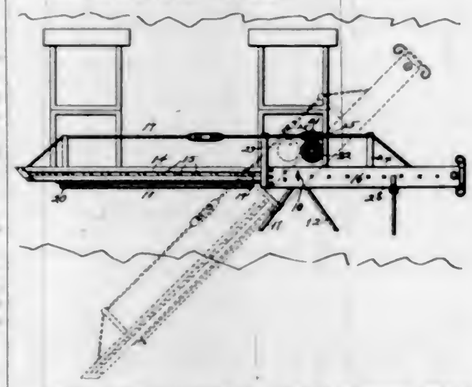
Claim.—1. In combination, means for checking the speed of a moving train, automatic actuating means therefor, a restraining device for normally holding the said automatic actuating means out of action, a local circuit applied to the train and including an electromagnet for liberating the said restraining device, means for controlling the said local circuit to liberate the aforementioned restraining device, and operating means for imparting a step-by-step motion to the said local-circuit-controlling means, substantially as specified.

2. In combination, means for checking the speed of a moving train, automatic actuating means therefor, a restraining device for normally holding the said automatic actuating means out of action, a local circuit applied to the train and including an electromagnet for liberating the said restraining device, means for controlling the said local circuit to liberate the aforementioned restraining device, an electric circuit including an electromagnet arranged to operate the said local-circuit-controlling means, and circuit-governing means along the track for effecting successive makes and breaks of the said electric circuit to cause the local-circuit-closing means to receive a step-by-step motion, substantially as specified.



3. In combination, means for checking the speed of a moving train, automatic actuating means therefor, a restraining device for normally holding the said automatic actuating means out of action, a local circuit applied to the train and including an electromagnet for liberating the said restraining device, a spring-actuated arm for controlling the said local circuit to liberate the aforementioned restraining device, a notched plate and catch for retarding the forward movement of the spring-actuated arm, an electric circuit including a signal and an electromagnet, the latter arranged to effect operation of the catch, and means along the track for effecting successive makes and breaks of the electric circuit to simultaneously operate the signal and the catch in consonance with the makes and breaks of the circuit, substantially as and for the purpose specified.

752,082. COUNTERBALANCING STAIR OR LADDER FOR FIRE-ESCAPES. PETER L. LARSON, Des Moines, Iowa. Filed Mar. 5, 1902. Serial No. 96,759. (No model.)



Claim.—1. The counterbalancing-stair for fire-escapes, comprising the stair pivoted to a suitable support, an extension-arm on said stair, a truss-rod connecting said extension-arm and stair and a counterbalancing-weight suspended on said truss-rod and arranged to swing across the axis of pivoting of the stair.

2. The combination of the stair, the twisted spring-rod 18 longitudinally of and below the central portion of said stair and fixed at its ends thereto, the extension-arm on said stair, the truss-rod connecting the extremities of the stair and extension-rod, the pivot-rod on which said stair is pivotally mounted and the counterbalancing-weight suspended on said truss-rod and arranged to swing across the axis of the pivot-rod in an angular adjustment of said stair.

3. The combination of the stair pivotally mounted and arranged for angular adjustment, a truss-rod on said stair and a counterbalancing-weight suspended from said truss-rod and arranged to swing across the axis of pivoting of the stair.

752,083. YOKE. PHILLIP N. LEAR, Whitecloud, Kans. Filed Apr. 21, 1903. Serial No. 153,604. (No model.)



Claim.—1. A device of the character described comprising a yoke, an elongated bar pivoted to said yoke and extending forwardly, an adjustable sleeve carried by said bar and means carried by said sleeve for securing it to the head of the animal, substantially as described.

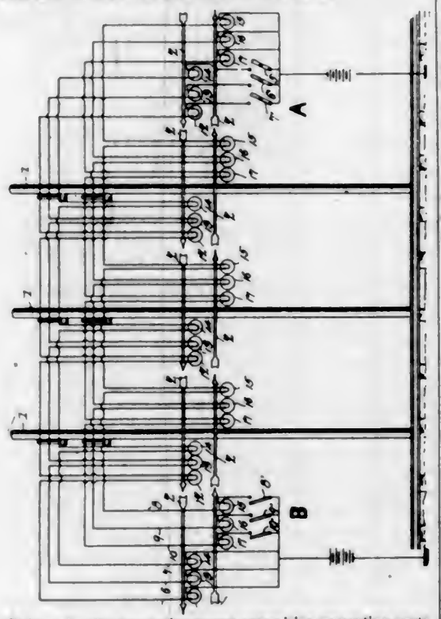
2. A device of the character described comprising a yoke, an elongated bar pivoted to the lower end of said yoke, an adjustable sleeve carried by the said bar intermediate its ends and means carried by the said sleeve for securing it to the nose of the animal, substantially as described.

3. A device of the character described, comprising a yoke, an elongated bar having one end pivoted to the lower end of the yoke, the opposite end of said bar being first curved slightly downwardly and then upwardly and means carried by said bar for securing it to the head of the animal, substantially as described.

4. A device of the character described comprising a yoke, an elongated bar pivoted to the lower end of said yoke, a sleeve loosely carried by said bar intermediate its end, a downwardly-extending member rigidly carried by said sleeve and means carried by said sleeve for securing it to the nose of the animal, substantially as described.

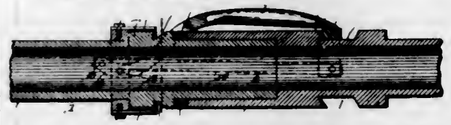
5. A device of the character described, comprising a yoke, an L-shaped pivoted lever carried by the upper end of said yoke, a pointed member carried by the lever and extending through the yoke, a coil-spring surrounding the pointed member above the yoke, a stop limiting the upward movement of said lever, an elongated bar pivoted at the lower end of said yoke, a sleeve loosely carried by said bar, a downwardly-extending rigid member carried by said sleeve and means carried by the upper portion of said sleeve for securing it to the head of the animal, substantially as described.

752,084. RAILROAD-SIGNAL. JOHN K. LEEDY, Roanoke, Va. Filed Nov. 10, 1902. Serial No. 130,751. (No model.)



Claim.—A railway signaling system comprising supporting-posts, a plurality of superposed arrows secured at an intermediate point to the posts and pointing respectively in opposite directions, a plurality of signaling-lamps secured to the arrows between the points thereof and the point of attachment of the arrows to the posts, the signaling-lamps carried by one arrow being of a color different from the lamps carried by an adjacent arrow, current-conducting wires connecting corresponding signals in series and extending between two separated terminal points or stations, a source of electrical energy disposed at each station and having multiple connection with all of the current-conductors, a plurality of independent switches disposed at one station for closing the circuit through the signals carried by one set of arrows, and corresponding switches disposed at the opposite terminal or station for closing the circuits through the signals carried by the second set of arrows.

752,085. HOSE-COUPLING. LINVILLE V. LONG, Bowerston, Ohio, assignor of one-half to James A. McKean, Bowerston, Ohio. Filed June 17, 1903. Serial No. 161,946. (No model.)



Claim.—1. A coupling comprising two sections, one of the sections being provided with an annular shoulder, and the other having an annular enlargement, a collar arranged on the section having the enlargement and capable of rotation, said collar being provided with means for interlocking it with the said enlargement, a lever carried by the collar, and a yoke connected with the lever and engaging the shoulder, substantially as described.

2. A coupling comprising two sections, one of the sections being provided with a shoulder and the other section having an annular enlargement, a collar arranged on the latter section and provided with arms interlocked with the said enlargement, a lever fulcrumed on the collar, and a yoke connected with the lever and engaging the shoulder, substantially as described,

3. A coupling comprising a section provided with an intermediate annular enlargement having an annular groove, a collar fitted on the said section at the outer side of the enlargement and provided with L-shaped arms engaging the groove, a lever fulcrumed on the collar, a yoke connected with the lever, and a section having a shoulder for engaging the yoke, substantially as described.

4. A coupling comprising the section 1 having an exterior annular enlargement provided with an annular groove, the section 2 enlarged to receive the section 1 and to form a shoulder, a collar arranged on the section 1 and provided with means for engaging the said groove, a lever fulcrumed on the collar, a yoke connected with the lever and engaging the said shoulder, and a packing-ring or washer interposed between the section 2 and the enlargement of the section 1, substantially as described.

5. A coupling comprising two sections, one of which is provided with a shoulder and the other having an annular enlargement, a rotatable collar arranged on the latter section and provided with arms interlocked with the said enlargement, a yoke engaging the shoulder on the other section, and means connecting the yoke to the collar, substantially as described

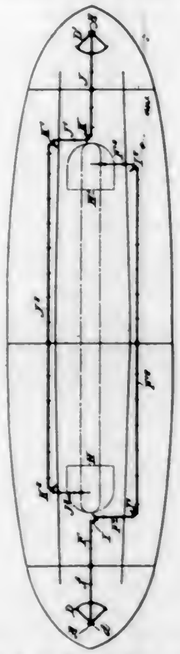
752,086. MEANS FOR LOCKING OR UNLOCKING RUDDERS. ALEXANDER J. MACLEAN, New York, N. Y. Filed Nov. 13, 1903. Serial No. 181,006. (No model.)

Claim.—1. In rudder locking and unlocking means, the combination with a rudder and a horizontally-movable frame connected therewith and embodying a curved plate containing an opening, of a bolt repressed by said plate at either side of the opening, but adapted to enter the latter and lock the frame when the rudder is in a central position.

2. The combination with a boat and its rudder, of a horizontally-movable part connected with the rudder, a bolt repressed by said part when the rudder occupies a central position, said horizontally-movable part adapted to become engaged and locked by the bolt when the rudder is in a central position, and connections extending to a relatively remote point on the boat for operating the bolt.

3. The combination with a boat and its rudder, of a horizontally-movable frame connected with the rudder and embodying a curved plate containing an opening, of a bolt repressed by said plate at either side of said opening, but adapted to enter the latter and lock the frame when the rudder is in a central position, and connec-

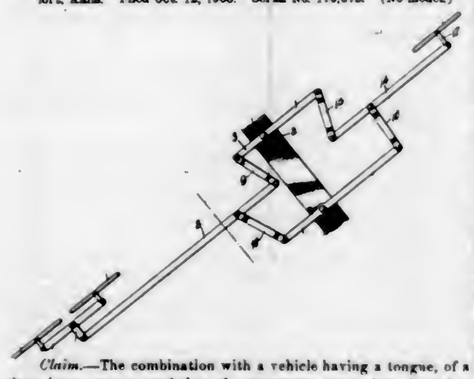
tions extending to a relatively remote point on the boat for operating the bolt.



4. In rudder locking and unlocking means, the combination with a rudder and a horizontally-movable frame connected therewith and embodying a curved plate containing an opening with an outer flaring mouth, of a part suitably supported in juxtaposition to said plate and containing an opening, and a bolt movably bearing in the opening of said part and repressed by the frame-plate at either side of its opening, said bolt having a conical free end adapted to enter the plate-opening when the latter alines therewith.

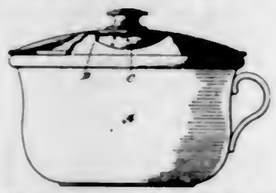
5. The combination with a boat having a rudder at each end, of a horizontally-movable part connected with said rudder, a bolt in apposition to and repressed by each part when the rudder thereof is at either side of a central position but engage and lock said part when said rudder is central, and connections each operable independently of the other, and each extending from one of the bolts to a relatively distant point permitting the operation of its particular bolt.

752,087. THREE-HORSE EVENER. SAMUEL A. MAMEY, Frankfort, Kans. Filed Oct. 12, 1903. Serial No. 176,672. (No model.)



Claim.—The combination with a vehicle having a tongue, of a three-horse evener consisting of a transverse evener-bar pivoted at unequaled distances from its ends, to the toegue; a second transverse evener-bar pivoted at unequaled distances from its ends, to the tongue, and having its long arm at the same side of the tongue as the corresponding arm of the first-named evener-bar; a transverse beam equipped with a doubletree and accessories at its outer end, and disposed at the same side of the tongue as the short arms of said evener-bars, and connected at its inner end to the front one thereof; a link pivotally uniting the short arm of the rear evener-bar to the said beam outward of the latter's point of connection with the front evener-bar; a transverse beam equipped with a swingletree at its outer end and connected at its inner end to the long arm of the front evener-bar; and a link pivotally uniting the long arm of the rear evener-bar to the last-named beam at the same distance from its inner end as lies between the corresponding points of the first-named beam; said beams being so proportioned that outward of the said links, the first-named beam is twice the length of the other beam.

752,088. COVER FOR EARTHEN CHAMBER VESSELS. WILLIS C. MILLS, Jersey City, N. J. Filed June 26, 1902. Serial No. 113,301. (No model.)



Claim.—1. The combination, with an ordinary earthen cover for a bedroom-chamber, of a small open-mouth pocket connected integral upon the under side of said cover, as and for the purpose specified.

2. The combination, with an ordinary earthen cover for a bedroom-chamber, of a small open-mouth pocket to contain disinfectant, attached integral upon the under side of said cover, and means set within the pocket to prevent the contents from working out of the opening.

3. In combination with an ordinary cover for a bedroom-chamber, of a small receptacle to hold disinfectant attached upon the under side of said cover, an opening by which the same may be filled, and means connected thereto by which the contents are prevented from falling out the pocket, as set forth.

752,089. SHADE-ROLLER BRACKET. JOHN C. MILLER, Philadelphia, Pa., assignor of one-half to Edgar S. Eldridge, Philadelphia, Pa. Filed Apr. 11, 1903. Serial No. 152,236. (No model.)



Claim.—1. A device of the kind described comprising a depending arm, spring supporting side legs, a central depending leg in the rear of the arm extending below the arm and a projecting foot carried by said leg.

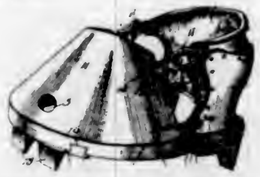
2. A shade-roller bracket comprising a flat top portion, an arm depending from said top portion, said arm having an aperture therein, legs depending from said top portion on each side of the arm, said legs being divergent and of spring metal, and means extending below said legs and adapted to limit upward movement of a lower sash.

3. A shade-roller bracket comprising a depending bracket-arm, the spring supporting-legs provided with barbs, and the central depending leg having an inwardly-projecting foot-piece, substantially as described.

4. A shade-roller bracket formed of a single piece of sheet metal and comprising the depending bracket-arm, the spring supporting-legs provided with triangular-shaped barbs, the outer edges of said barbs being straight, and their inner edges inclined, and the central depending leg having an inwardly-projecting foot-piece at its lower end, said foot-piece being arranged below the lower ends of the supporting-legs, for the purpose set forth.

752,090. HORSESHOE. NICHOLAS C. MILLER, Dodgeville, Wis. Filed Mar. 27, 1902. Serial No. 100,261. (No model.)

Claim.—1. A horseshoe having a toe-cap, a heel-piece extending transversely between the heel portions of the shoe and shaped to conform to the rear of the hoof of an animal, said heel-piece being movably connected with the shoe and arranged to engage the same, whereby its inward or forward movement is limited, and fastenings carried by one of the members and having adjustable connections with the other member.



2. A horseshoe having a toe-cap, a hinged heel-piece extending between the heel portions of the shoe and arranged to engage the latter, whereby its inward or forward movement is limited, and a detachable connection between the heel-piece and toe-cap.

3. A horseshoe having a toe-cap, a heel-piece shaped to conform to the rear of a hoof, and an adjustable connection between these members, one of the members being hinged to the shoe and having its inward movement limited by the same.

4. A horseshoe having a toe-cap, a heel-piece shaped to conform to the rear of a hoof, and an adjustable connection between these members, one of the members being adjustably connected to the shoe and having its inward movement limited by the same.

5. A horseshoe having a toe-cap, a heel-piece shaped to conform to the back of a hoof and movably connected with the shoe and arranged to engage the upper face thereof, whereby its inward movement is limited, buckles carried by one of these members, and straps carried by the other member and disposed for adjustable engagement with the respective buckles.

6. A horseshoe having a toe-cap, a heel-piece hinged to the shoe and shaped to conform to the back of a hoof, said heel-piece being arranged to engage the upper face of the shoe, whereby its inward movement is limited, buckles carried by the opposite forward portions of the heel-piece, and straps carried by the toe-cap and disposed for engagement with the respective buckles.

7. A horseshoe having a toe-cap, a heel-piece shaped to conform to the back of a hoof, one of these members being rigidly connected to the shoe and the other having a hinged connection therewith and arranged to engage the same, whereby its inward movement is limited, and means for fastening the hinged member in snug engagement with a hoof.

8. A horseshoe having a toe-cap, a heel-piece shaped to conform to the back of a hoof, one of these members being hinged to the shoe and overlapping the other member upon the inner side thereof so as to be braced thereby, and means for fastening the hinged member in snug engagement with a hoof.

9. A horseshoe having a rigid toe-cap, a hinged heel-piece shaped to conform to the back of a hoof and having its forward portion extended to overlap the toe-cap upon the inner side thereof so as to brace the heel-piece, and means for fastening the heel-piece in snug engagement with a hoof.

10. A horseshoe having a rigid toe-cap, a hinged heel-piece shaped to conform to the back of a hoof and having opposite forwardly-directed extensions overlapping the toe-cap upon the inner side thereof to brace the heel-piece, and adjustable fastening means between the toe-cap and the heel-piece.

11. A horseshoe having a toe-cap, a heel-piece shaped to conform to the back of a hoof, one of these members being hinged to the shoe, opposite upstanding lips or flanges carried by the shoe and overlapping opposite sides of the hinged member to brace the latter, and means for fastening the hinged member in snug engagement with a hoof.

12. A horseshoe having a rigid toe-cap, a hinged heel-piece shaped to conform to the back of a hoof, and provided with forward extensions overlapping the inner side of the rigid toe-cap, upstanding lips or flanges rising from the shoe and embracing opposite sides of the heel-piece, and means for fastening said heel-piece in snug engagement with the back of a hoof.

13. A horseshoe having a rigid toe-cap, a hinged heel-piece shaped to conform to the back of a hoof and having lower forwardly projected portions to overlap the inner side of the toe-cap, upstanding lips or flanges carried by the opposite rear portions of the shoe and embracing opposite sides of the heel-piece to brace the same, buckles carried by opposite sides of the heel-piece, and straps carried by opposite sides of the toe-cap and disposed for adjustable engagement with the respective buckles.

14. A horseshoe having a toe-cap, and a heel-piece, one of these members being hingedly mounted and extensible to accommodate the shoe to hoofs of different sizes.

15. A horseshoe having a heel-piece hingedly mounted and extensible longitudinally of the shoe to accommodate the same to hoofs of different sizes.

16. A horseshoe having longitudinally-extensible heel members, and a heel-piece hingedly connected to and movable with the heel members and shaped to conform to the back of the hoof.

17. A horseshoe having extensible heel members, and a heel-piece hinged to the extensible heel members and movable therewith and shaped to conform to the back of the hoof.

18. A horseshoe having extensible heel members, said extensible members having tongue-and-groove connections with the shoe, and a hingedly-mounted heel-piece carried by the extensible heel members.

19. A horseshoe having extensible heel members with tongue-and-groove connections between the heel members and the shoe, each heel portion of the shoe having an opening, and each extensible member having a plurality of openings for alinement with the opening in the shoe, fastenings to engage the openings of the extensible members and the shoe, and a heel-piece carried by the extensible members.

20. A horseshoe having the thickness of its heel portions reduced, with longitudinal dovetailed ribs formed upon the reduced portions, extensible heel members provided with longitudinal dovetailed grooves for the reception of the respective ribs, and a heel-piece carried by the extensible members.

21. A horseshoe having extensible heel members, a heel-piece carried by the heel members, removable heel-calks, and fastenings common to the extensible heel members and calks.

22. A horseshoe having extensible heel members applied to the tops of the heel portions of the shoe, a heel-piece carried by the heel members, heel-calks applied to the under side of the heel portions of the shoe, and fastenings piercing the extensible members, the respective heel portions and the heel-calks.

23. A horseshoe having extensible heel members applied to the tops of the heel portions of the shoe, a heel-piece carried by the extensible members, heel-calks applied to the under sides of the heel portions of the shoe, and fastenings piercing the heel members, the heel portions of the shoe and the heel-calks.

24. A horseshoe having extensible heel members applied to the tops of the heel portions thereof, a heel-piece hinged to the extensible heel members and shaped to conform to the back of a hoof, heel-calks applied to the under sides of the heel portions of the shoe, fastenings piercing the extensible members, the heel portions of the shoe and the heel-calks, and means for fastening the hinged heel-piece in snug engagement with the back of a hoof.

25. A horseshoe having longitudinal ribs upon the tops and bottoms of the heel portions thereof, extensible heel members having grooves receiving the upper ribs, a heel-piece carried by the extensible heel members, heel-calks having longitudinal grooves receiving the ribs upon the under side of the shoe, and fastenings piercing the extensible members, the heel portions of the shoe and the heel-calks.

26. A horseshoe having the tops and bottoms of its heel portions reduced to form transverse shoulders at the inner ends of the reduced portions, longitudinal ribs upon the tops of the reduced portions, extensible heel members having grooves receiving the respective ribs, and limited in their inward movements by the upper transverse shoulders, a heel-piece carried by the extensible members, heel-calks applied to the reduced under sides of the heel portions of the shoe and abutted against the lower transverse shoulders, and fastenings piercing the extensible members, the reduced heel portions of the shoe and the heel-calks.

27. A horseshoe provided with a rigid metallic toe-cap, a metallic heel-piece movable toward and from the toe-cap and shaped to conform to the back of a hoof, and a flexible lining projected above the heel-piece and arranged to engage the back of the hoof to prevent the same from being chafed by the inward movement of the heel-piece, substantially as described.

28. A horseshoe provided with a metallic toe-cap, a hinged metallic heel-piece mounted on the shoe and movable toward and from the toe-cap, a flexible lining projected above the upper edge of the heel-piece and arranged to engage the back of a hoof to prevent the same from being chafed by the inward movement of the said heel-piece, buckles carried by the projected portions of the lining, and straps secured to the toe-cap and arranged to engage the buckles, substantially as described.

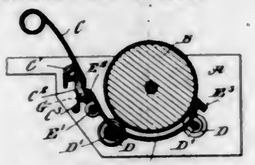
752,091. FISHING-TACKLE. OTTO MILLER and PHILIP KUNSINGER, New York, N. Y. Filed Apr. 28, 1903. Serial No. 154,662. (No model.)



Claim.—1. The combination with the snell and line of a fishing-tackle, each of which has loops formed therein, of a double S-shaped hook, the ends of which are in contact with the intermediate portion of the hook in different parallel planes whereby to close the hooks and prevent accidental unhooking.

2. The combination with the snell and line of a fishing-tackle, each of which has loops formed therein, of a double S-shaped hook, the ends of which are in contact with the intermediate portion of the hook in different parallel planes, whereby to close the hooks and prevent accidental unhooking, said ends terminating in eyes.

752,092. PAPER-RELEASE DEVICE FOR TYPE-WRITERS. LOUIS MYERS, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed May 14, 1903. Serial No. 157,064. (No model.)



Claim.—1. In a type-writer or like machine, the combination with the platen of a carrier pivoted adjacent to said platen, pressure-exerting devices mounted upon said carrier, and a pivoted paper-shelf engaging said carrier to shift the same.

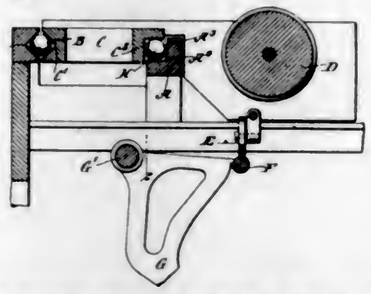
2. In a type-writer or like machine, a platen, a carrier movably mounted adjacent thereto, pressure-exerting devices mounted on said carrier, and an independently-mounted paper-shelf movable relatively to said carrier and engaging the same to shift it relatively to the platen.

3. In a type-writer or like machine, a platen, a carrier pivoted in the rear of the platen and provided with an upward extension adjacent to its pivot, pressure-exerting devices mounted on said carrier, and a paper-shelf pivoted in the rear of the platen, above the said carrier, and provided with a downward extension arranged in the rear of and in engagement with the upward extension of the carrier.

752,093. CARRIAGE-SHIFTING MECHANISM. LOUIS MYERS, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed June 6, 1903. Serial No. 160,371. (No model.)

Claim.—1. In a type-writer or other machine, a frame, a carriage, a ball-bearing interposed between the frame and the carriage, and a support for the front portion of the carriage, said support being movable to cause the carriage to swing about the balls as a fulcrum.

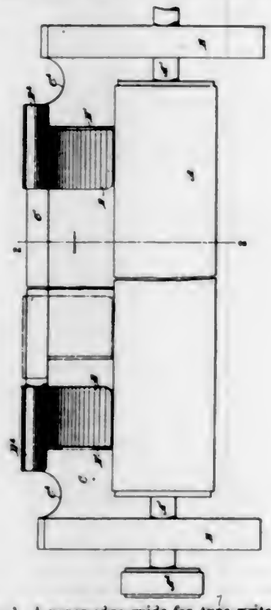
2. In a type-writer or other machine, a frame, a carriage, a ball-bearing interposed between the frame and the carriage, a support for the front portion of the carriage, said support being movable to cause the carriage to swing about the balls as a fulcrum and another ball-bearing interposed between the frame and the carriage and located between the first-named ball-bearing and the said front support.



3. In a type-writer or other machine, a frame, a carriage, a ball-bearing interposed between the frame and the carriage, a support for the front portion of the carriage, said support being movable to cause the carriage to swing about the balls as a fulcrum, another ball-bearing interposed between the frame and the carriage and located between the first-named ball-bearing and the said front support, and a support or lifter for the balls of the last-named bearing, arranged to follow the shifting movement of the carriage.

4. In a type-writer or other machine, a frame, a carriage, a ball-bearing interposed between the frame and the rear portion of the carriage, another ball-bearing located in front of said first-named ball-bearing, the guideway or space in which the front balls travel being wider at the top than at the bottom, and means for swinging the carriage about the rear ball-bearing as a fulcrum and simultaneously lifting the front balls into the wider portion of their guideway.

752,094. PAPER-EDGE GUIDE FOR TYPE-WRITING MACHINES. JOHN C. MCLAUGHLIN, New York, N. Y., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 5, 1903. Serial No. 141,964. (No model.)



Claim.—1. A paper-edge guide for type-writers and the like, comprising a curved member adapted to fit the curved free edge of a paper-shelf, a body member, and a flange extending at about a right angle to said body member and to the axis of the curved member.

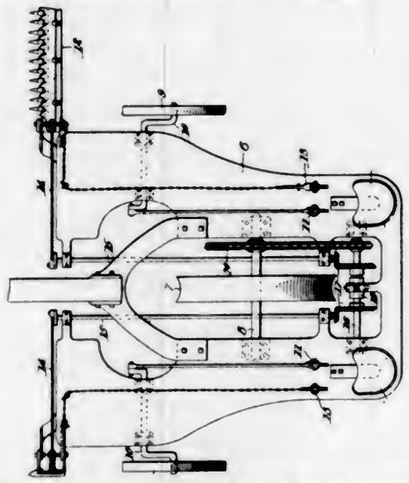
2. In a type-writing machine or the like, a carriage having a platen, a paper-shelf with a rounded upper edge, and a paper-guide provided with a rounded portion arranged to fit the upper portion of the paper-shelf slidably and pivotally, the lower portion of said guide being freely movable toward and from the platen and terminating adjacent thereto.

3. In a type-writing machine or the like, a carriage having a platen, a paper-shelf, and a paper-guide the upper end of which is connected with said shelf pivotally and slidably, the lower portion of said guide being freely movable toward and from the platen and terminating adjacent thereto.

4. In a type-writing machine or the like, a carriage having a paper-shelf, and two paper-guides each provided with a body member parallel with said paper-shelf and arranged to cover a portion thereof, while leaving the portion of the shelf between said body members uncovered or exposed, the upper ends of said body members being connected with the paper-shelf pivotally and slidably, while the lower portions of said body members are freely movable toward and from said shelf, and each paper-guide being provided with a flange extending at about a right angle to the body member and to the pivot-axis thereof.

5. In a type-writing machine or the like, a carriage having a paper-shelf and two paper-guides extending downwardly in front of said shelf from the upper edge thereof, said guides having a sliding engagement with the upper edge of the shelf and each of them comprising a body member parallel with the shelf, and a flange extending at about a right angle to the body member and to the upper edge of the shelf.

752,095. MOWING-MACHINE. GEORGE W. NEWTON, Cambria, Cal. Filed Sept. 30, 1903. Serial No. 175,171. (No model.)



Claim.—1. In a mowing-machine, in combination, a wheeled main frame having independent vertical adjustment at each side, to level it, and cutters on opposite sides thereof.

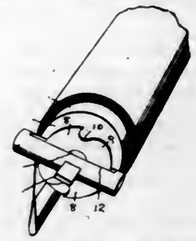
2. In a mowing-machine, in combination, a wheeled main frame having independent vertical adjustment at each side to level it, cutters on opposite sides thereof, and independent driving connections between the cutters and a wheel.

3. In a mowing-machine, in combination, a main frame, supporting-wheels on opposite sides thereof, an independent vertically-adjustable connection between each wheel and the frame, to level the latter, and cutters on opposite sides of the frame.

4. In a mowing-machine, in combination, a main frame, and means to independently vertically adjust the opposite sides thereof to level the same, and an independently-operated cutter-bar on each side of the frame.

5. In a mowing-machine, in combination, a main frame, a main driving-wheel at the middle thereof, independently vertically adjustable leveling-wheels at opposite sides thereof, a cutter-bar at each side of the frame, and means to transmit motion from the driving-wheel to either cutter-bar.

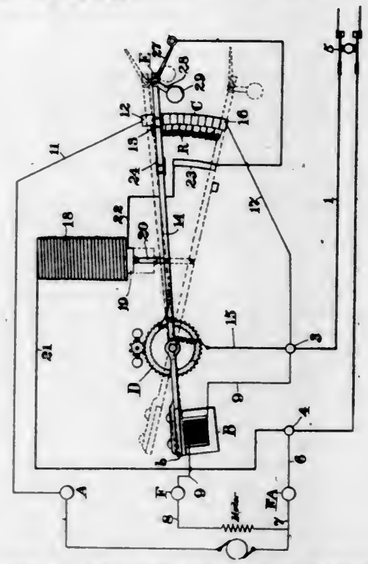
752,096. WINDOW-SHADE ROLLER. RUDOLPH Z. NOLAN, Alton, Ill. Filed June 24, 1903. Serial No. 162,946. (No model.)



Claim.—1. The combination with a shade-roller and its spindle, of a cap-piece provided with a ratchet-disk, having a central aperture through which the spindle extends, a locking member on the spindle, formed with a slot within which the disk rotates and means to engage the disk to prevent its rotation.

2. The combination with a shade-roller and its spindle, of a cap-piece provided with a ratchet-disk having a central aperture through which the spindle extends, a locking member on the spindle formed with a slot within which the disk rotates, a raceway in the locking member and a ball in the raceway adapted to engage the ratchet-disk to prevent rotation of the roller.

752,097. AUTOMATIC STARTER FOR ELECTRIC MOTORS. WILLIAM C. O'BRIEN, Baltimore, Md. Filed May 4, 1903. Serial No. 155,589. (No model.)



Claim.—1. In an automatic starting device for electric motors, a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected therewith, a contact device movable over said surfaces to increase and decrease the resistance in the armature-circuit, an electromagnetic controlling device arranged to move said contact device to cut the resistance out of the armature-circuit, an independent circuit including the coils of said controlling device, means for automatically interrupting said latter circuit when the resistance has been cut out of the armature-circuit, and electromagnetic means arranged permanently in series with the field-circuit of the motor, for holding said contact device in position with the resistance out of the armature-circuit.

2. In an automatic starting device for electric motors, a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected therewith, a contact device movable over said surfaces to increase and decrease the resistance in the armature-circuit, a solenoid having a core operatively connected to said contact device and adapted, when the solenoid is energized, to

move said contact device to cut the resistance out of the armature-circuit, an independent circuit including the coils of said solenoid, means for automatically interrupting said latter circuit when the resistance has been cut out of the armature-circuit, and an electromagnet having its coils included permanently in series with the field-circuit of the motor and arranged to hold said contact device in position with the resistance out of the armature-circuit.

3. In an automatic starting device for electric motors, the combination with a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected with said resistance, a contact device movable over said surfaces, an electromagnetic controlling device adapted to move said contact device into position to cut the resistance out of the armature-circuit and a circuit for said electromagnetic device, of means for interrupting said latter circuit comprising an arm connected with the contact device and movable relatively thereto, and a stop arranged in the path of said arm and adapted to trip the arm, said arm and stop being electrically connected to opposite sides of the circuit of said electromagnetic controlling device.

4. In an automatic starting device for electric motors, the combination with a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected with said resistance, a contact device movable over said surfaces, an electromagnetic controlling device adapted to move said contact device into position to cut the resistance out of the armature-circuit and a circuit for said electromagnetic device, of means for interrupting said latter circuit comprising a balanced arm pivotally connected to the contact device and movable therewith, and a stop arranged in the path of said arm, said arm and stop being connected to opposite sides of the circuit of the electromagnetic controlling device.

5. In an automatic starting device for electric motors, the combination with a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected with said resistance, a contact device movable over said surfaces, an electromagnetic controlling device adapted to move said contact device into position to cut the resistance out of the armature-circuit and a circuit for said electromagnetic device, of means for interrupting said latter circuit comprising a bell-crank lever pivotally connected to the contact device, said lever having a weight upon one arm, and a stop arranged in the path of the other arm of the lever, said stop and lever being connected to opposite sides of the circuit of the electromagnetic controlling device.

6. In an automatic starter for electric motors, a resistance arranged in the armature-circuit and a series of contact-surfaces connected therewith, an electromagnetic controlling device, a contact bar or lever movable by said controlling device when the latter is energized to cut resistance out of the armature-circuit, a circuit for said controlling device including a part upon said bar and a fixed contact-strip arranged to be engaged by said bar during the first part of its movement and to be disconnected therefrom near the end of its movement, and an electromagnet in the field-circuit of the motor for holding said bar or lever with the resistance cut out of circuit.

7. In an automatic starter for electric motors, a resistance arranged in the armature-circuit and a series of contact-surfaces connected therewith, an electromagnetic controlling device, a contact bar or lever movable by said controlling device when the latter is energized to cut resistance out of the armature-circuit, a circuit for said controlling device including a fixed contact-strip and a stop connected to one side of said circuit, a part upon said bar at the other side of said circuit arranged to engage said strip during the first part of the movement of the bar and to be disengaged therefrom near the end of said movement, a balanced contact-arm upon said bar arranged to engage said stop before the bar and contact-strip are disengaged, and to be tripped and released by said stop after said parts have become disengaged, and an electromagnet in the field-circuit of the motor for holding said bar or lever with the resistance cut out of circuit.

8. In an automatic starting device for electric motors, the combination with a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected with said resistance, a contact device movable over said surfaces, an electromagnetic controlling device adapted to move said contact device into position to cut the resistance out of the armature-circuit and a circuit for said electromagnetic device, of means for interrupting said latter circuit comprising a balanced contact-arm arranged to be tripped by the movement of the contact device, said arm and tripping means being electrically connected to opposite sides of the circuit of said electromagnetic controlling device.

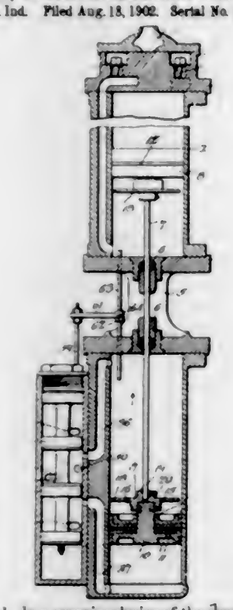
9. In an automatic starter for electric motors, a resistance arranged in the armature-circuit and a series of contact-surfaces connected therewith, an electromagnetic controlling device a contact bar or lever movable by said controlling device when the latter is energized to cut resistance out of the armature-circuit, a circuit for said controlling device including a part upon said bar and a fixed contact-strip arranged to be engaged by said bar during the first part of its movement and to be disconnected therefrom near the end of its movement, and electromagnetic means for holding said bar or lever with the resistance cut out of circuit.

10. In an automatic starting device for electric motors, the combination with a resistance arranged in the armature-circuit of the motor, a series of contact-surfaces connected with said resistance, a contact device movable over said surfaces, an electromagnetic controlling device adapted to move said contact device into position to cut the resistance out of the armature-circuit and a circuit for said electromagnetic device, of means for interrupting said latter circuit comprising a yielding contact-arm arranged to be moved from its normal position and tripped by the operation of said controlling device, said contact-arm and tripping means being electrically connected to opposite sides of the circuit of said electromagnetic controlling device.

11. In an automatic starter for electric motors, a resistance arranged in the armature-circuit, an electromagnetic controlling device and means operated thereby for cutting resistance out of the armature-circuit, a circuit for said controlling device including a part movable by said controlling device and a fixed contact-strip arranged to be engaged by said movable part during the first portion of its movement and to be disconnected therefrom near the end of its movement, means for maintaining the continuity of said controlling-device circuit after said parts have become disengaged, and means for automatically interrupting said latter circuit when the resistance has been cut out of the armature-circuit.

12. In an automatic starter for electric motors, a resistance arranged in the armature-circuit, an electromagnetic controlling device and means operated thereby for cutting resistance out of the armature-circuit, a circuit for said controlling device including a part movable by said controlling device and a fixed contact-strip arranged to be engaged by said movable part during the first portion of its movement and to be disconnected therefrom near the end of its movement, means for maintaining the continuity of said controlling-device circuit after said parts have become disengaged, means for automatically interrupting said latter circuit when the resistance has been cut out of the armature-circuit, and means for holding said contact device in position with the resistance out of the armature-circuit.

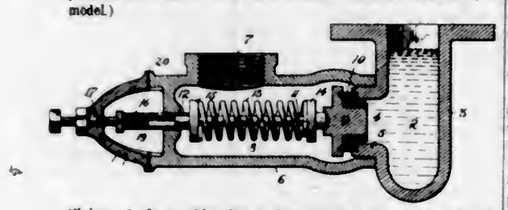
752,098. HYDRAULIC ENGINE AND PUMP. CHARLES H. PAGETT, Lafayette, Ind. Filed Aug. 18, 1902. Serial No. 120,091. (No model.)



Claim.—1. In a pumping device of the class described, the combination of the pump-cylinder and the motor-cylinder, a reciprocating piston-rod, pistons disposed in the two cylinders and each comprising a pair of plates of which one is provided with a grooved and threaded stem and the other with a threaded opening and screwing on said stem, a tappet-plate interlocking with the grooved portion of each of the stems and serving to prevent the separation of the plates, means for securing the piston-rod to the tappet-plates, a valve, and a tappet-rod connected to the valve and adapted to be engaged by the tappet-plates.

2. The combination in a pumping mechanism of the class described, of a piston-rod, a piston comprising a plate having a threaded stem provided with transverse grooves at its upper end, cup-leathers and a spacing-disk mounted upon said stem, a second plate having a threaded opening mounted upon the stem and forming a nut for holding the cup-leathers and disk in place, a tappet-disk having flanges engaging the grooves in the stem, and means for securing said tappet-plate to the piston-rod.

752,099. SAFETY-VALVE. CASSIUS C. PALMER, New York, N. Y., assignor to Railway and Stationary Refrigerating Company, a Corporation of Delaware. Filed Nov. 3, 1902. Serial No. 129,806. (No model.)

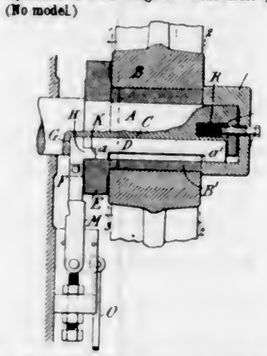


Claim.—1. In combination, a downwardly-extending pocket 3 adapted for attachment to a passage for finid under pressure, a liquid seal in said pocket, a passage 4 leading from one side of said pocket, a valve normally closing said passage and a fusible member and sleeve coöperating with said valve to close said passage.

2. In combination, a downwardly-extending pocket 3 adapted for attachment to a passage for fluid under pressure, a passage 4 leading from one side of said pocket, a valve normally closing said passage and a fusible member and sleeve coöperating with said valve to close said passage.

3. In combination with the valve-cage 6, the valve 9, the spring 13, the guiding-sleeve 12 and the fusible member 16, substantially as described.

752,100. CLUTCH FOR POWER-PRESSES. CHARLES E. POLLARD, Brooklyn, N. Y., assignor to E. W. Bliss Company, Brooklyn, N. Y., a Corporation of West Virginia. Filed Mar. 7, 1902. Serial No. 97,123. (No model.)



Claim.—1. In a clutch, the combination with driving and driven parts comprising a shaft and a hub surrounding the same, of an oscillating clutch-key seated in one of said parts, and an arm in engagement with said key for turning the same to clutch or unclutch said parts, said arm being formed separately from said key.

2. In a clutch, the combination with driving and driven parts comprising a shaft and a hub surrounding the same, of an oscillating clutch-key seated in one of said parts, and an arm for turning said key to clutch or unclutch said parts, said arm being formed separately from said key and said arm and key having coacting longitudinal bearing-faces.

3. In a clutch, the combination with driving and driven parts comprising a shaft and a hub surrounding the same, of an oscillating clutch-key seated in one of said parts, and an arm for turning said key to clutch or unclutch said parts, said arm being formed separately from said key and said arm and key having coacting longitudinal bearing-faces bearing against each other with a slight play so as to lessen the transmission of shock from one part to the other.

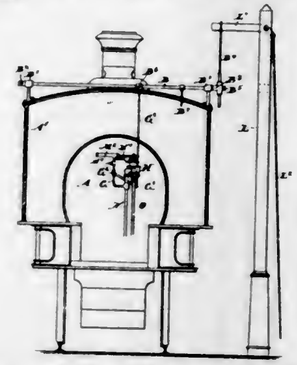
4. In a clutch, the combination with driving and driven parts comprising a shaft and a hub surrounding the same, of an oscillating clutch-key seated in one of said parts, and an arm in engagement with said key for turning the same to clutch or unclutch said parts, said key being of hard metal and said arm being formed separate from said key and of softer metal.

5. In a clutch, the combination with a shaft of a hub surrounding the same, said shaft having a recess, an oscillating clutch-key seated in said recess, an arm in engagement with said key for turning the same to clutch or unclutch said hub and shaft, said arm being separate from said key and held against longitudinal separation by the end wall of said recess, and a collar on said shaft holding said arm against lateral separation.

6. In a clutch, the combination with a shaft of a hub surrounding the same, an oscillating clutch-key seated in said shaft and an arm for turning said key to clutch or unclutch said hub and shaft, said arm being separate from said key and having a projection H with a longitudinal bearing-face J, and said key having a recess K and a similar bearing-face L.

7. The combination with a shaft, of a hub surrounding the same, an oscillating key seated in said shaft, means for turning said key to clutch or unclutch said shaft and hub whereby one may be driven by the other, a pawl passing through said shaft and extending outward thereof at both ends, means for pressing the same against a face of said hub, and coacting ratchet-teeth on said face, said pawl being arranged to act simultaneously with said clutch to hold back the driven part and prevent its moving forward relatively to the driving part.

752,101. SAFETY DEVICE FOR RAILWAY SERVICE. EDMUND B. POWERS, New York, N. Y., assignor of one-half to John J. Hayes, New York, N. Y. Filed June 5, 1903. Serial No. 160,141. (No model.)



Claim.—1. The combination with a locomotive-cab of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, an air-brake valve located in said cab, mechanism actuated by air-pressure for moving said valve to apply the brakes, a cock controlling the admission of air-pressure to said mechanism, and connections from said shaft to said cock, whereby the partial rotation of said shaft automatically applies the brakes.

2. The combination with a locomotive-cab of a shaft mounted therein, an arm secured to said shaft and adapted to partially rotate the latter by the deflection of said arm in contacting with an obstruction in its path, an engineer's air-brake valve located in said cab and having a hand-lever for operating it, mechanism actuated by air-pressure for engaging said hand-lever and moving it to apply the brakes, a cock controlling the admission of air-pressure to said mechanism, and connections from said shaft to said cock, whereby the partial rotation of said shaft automatically applies the brakes.

3. In an apparatus of the character set forth, a vane mounted adjacent to the track and extending transversely of the line of said track, in combination with a shaft mounted in the cab of a locomo-

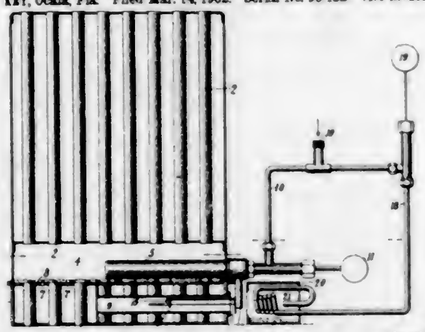
tive, an arm on said shaft arranged to strike said vane and be deflected thereby and partially rotate said shaft, an air-brake valve located in said cab, mechanism actuated by air-pressure for moving said valve to apply the brakes, a cock controlling the admission of air to said mechanism, and connections from said shaft to said cock, whereby the contact of said arm and vane automatically applies the brakes.

4. In an apparatus of the character set forth, an engineer's brake-valve located in the locomotive-cab and having an operating hand-lever and spindle, a pin on said lever, a disk mounted on said spindle and free to rotate thereon and having a stop adapted to engage said pin when said disk is moved in one direction, a cylinder having a piston connected to said disk to partially rotate the latter by the admission of pressure to said cylinder, a cock controlling such admission, a shaft carried by said cab and having an arm adapted to be deflected by striking an obstruction in its path and partially rotate said shaft, and connections from said shaft to said cock, whereby the deflection of said arm automatically moves said hand-lever to apply the brakes.

5. An engineer's brake-valve having an operating hand-lever and spindle, a main-reservoir pipe bringing air under pressure to said valve, a pin on said lever, a disk mounted on said spindle and free to rotate thereon, separated peripheral stops on said disk adapted to engage said pin while permitting said lever to swing unobstructedly through its arc, a cylinder having a piston, a flexible connection from said piston to and partially around said disk, a branch pipe connecting said main-reservoir pipe and cylinder, a cock controlling said branch pipe, and mechanism connected to said cock and actuated by contact with a track-signal, whereby such contact induces the admission of air under pressure to said cylinder and moves said lever to apply the brakes.

6. An engineer's brake-valve having an operating hand-lever and spindle, a main-reservoir pipe bringing air under pressure to said valve, a pin on said lever, a disk mounted on said spindle and free to rotate thereon, separated peripheral stops on said disk adapted to engage said pin while permitting said lever to swing unobstructedly through its arc, a cylinder having a piston, a flexible connection from said piston to and partially around said disk, a branch pipe connecting said main-reservoir pipe and cylinder, a cock controlling said branch pipe, in combination with a locomotive-cab, a vane mounted adjacent to the track, a shaft extending transversely of said cab, an arm on said shaft arranged to contact with said vane and be deflected thereby and partially rotate said shaft, a finger on said shaft, and a connection from said finger to an operating-lever for said cock, whereby such contact induces the admission of air under pressure to said cylinder and applies the brakes.

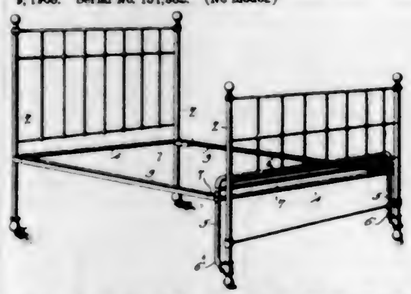
752,102. HYDROCARBON-VAPOR BURNER. WINFIELD S. PROSSER, Ocala, Fla. Filed Mar. 14, 1902. Serial No. 98,152. (No model.)



Claim.—1. In a hydrocarbon-vapor burner, the combination with a vaporizer having a vent-opening or discharge-orifice, and means for supplying liquid hydrocarbon to the vaporizer, of a needle rotatably mounted outside the vaporizer in line with the discharge-orifice having one end extending into said orifice, and a vane on the needle in line with the discharge-orifice, whereby the vapor issuing from the vaporizer will rotate the needle to keep the discharge-orifice free from obstructions, as set forth.

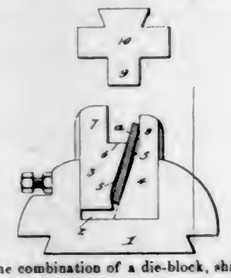
2. In a device of the character described, the combination of a boiler, a firing-chamber operatively connected therewith, a hydrocarbon-oil vaporizer inserted in said firing-chamber and having a vent-opening beneath said firing-chamber and communicating therewith, and means operated by the vapor issuing from said vent for keeping the said vent free from obstruction, comprising a needle rotatably mounted outside the vaporizer in line with the vent-opening therein and having one end extending into said vent-opening, and a vane on the needle, in line with the vent, whereby the vapor issuing from the vaporizer will rotate the needle to keep the vent-opening free from obstructions, as set forth.

752,103. BED. REBA C. W. REINERT, Keota, Iowa. Filed Apr. 9, 1903. Serial No. 151,882. (No model.)



Claim.—In a bedstead, the combination of the headboard, footboard and side rails, upwardly-extending brackets secured to the lower portion of the footboard and spaced therefrom, and a foot-rail forming a part of the bed-frame carried by the brackets and extended above the side rails to thereby prevent longitudinal movement of the mattress.

752,104. MEANS FOR FORMING PLOW-IRONS. MATTHEW M. RENN, Louisville, Ky. Filed Mar. 9, 1903. Serial No. 146,986. (No model.)



Claim.—The combination of a die-block, shaping-dies therein, one of said dies being stationary and the other vertically movable in relation thereto, said shaping-dies having a mold-cavity in their opposing sides, and a mold-cavity, open on one side, communicating therewith; and a hammer-die coacting with the shaping-dies to forge and shape the body of the work in the first-mentioned cavity thereof, and shaped to enter, fit and close the open cavity and to downwardly move the movable die to forge and shape an offset or lateral portion of the work therein, substantially as described.

752,105. PRINTER'S BLANKET. JOSEPH E. RHODES, New York, N. Y. Filed Mar. 4, 1903. Serial No. 146,214. (No model.)

Claim.—1. A printer's blanket comprising a comparatively hard flexible face having on its back a series of rearwardly-extending separated elastic cushions substantially rigid against lateral flexure and adapted to offer a continuously-increasing resistance to pressure exerted against said face, for substantially the purposes set forth.

2. A printer's blanket having a face of comparatively hard material, a cloth or fabric layer, and a series of independent supports yielding in endwise direction and being substantially rigid against lateral flexure, for substantially the purposes set forth.

3. A printer's blanket comprising a comparatively hard flexible face, a fabric layer applied to the back of the same and a series of normally separated elastic cushions applied to the back of the fabric, said cushions being of greater breadth than height, and substantially rigid against lateral flexure and adapted under pressure to spread laterally, without overturning and affecting the adjacent cushions, for substantially the purposes set forth.

4. A printer's blanket comprising a comparatively hard impression-surface having an elastic back furnished with open air-pockets, the open sides of the pockets being presented toward the side remote from the impression-surface, for substantially the purposes set forth.

5. A printer's blanket comprising a face of hard vulcanized rubber having a back of backwardly-presented pyramidal projections of elastic rubber, whereby said projections may spread laterally under pressure with an increasing resistance until approximately at their limit of compression they may meet to form a solid base, having independent areas of retraction, for substantially the purposes set forth.

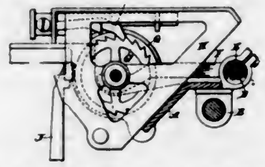
6. A printer's blanket comprising a comparatively hard impression-surface furnished on its back with a series of compressible extensions forming compartments, open only at the side remote from the impression-surface, for substantially the purposes set forth.

7. A printer's blanket comprising a comparatively hard impression-surface having on its back elastic material shaped to form a series of open pockets or compartments, which decrease in area as they extend toward the impression-surface, for substantially the purposes set forth.

8. A printer's blanket having an impression-face of comparatively hard and non-stretchable material, an elastic backing consisting of alternate projections and recesses, and also embodying a cloth or fabric layer, substantially as set forth.

9. A printer's blanket comprising an impression-face of comparatively hard and non-stretchable material, and a backing having recesses and projections extending rearwardly from the blanket, for substantially the purposes set forth.

752,106. TYPE-WRITER CARRIAGE. CHARLES DE LOS RICE, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 13, 1903. Serial No. 147,578. (No model.)



Claim.—1. In a type-writer the combination of the carriage, arms at the ends of the carriage, a platen-carrier engaged by said arms, an independent movable eccentric for connecting each of the arms adjustably with the carriage to permit of separately changing the distance between the carriage ends and that portion of the platen-carrier which is engaged by the respective arms, whereby the platen may be brought into parallelism with the path of the carriage.

2. In a type-writer, the combination of the frame having a track, the carriage-body movable on said track, a platen-carrier held to move with said body, and an independent adjusting device for each end of the platen-carrier to move the corresponding platen end toward or from the carriage-track, whereby the platen may be brought into parallelism with the path of the carriage.

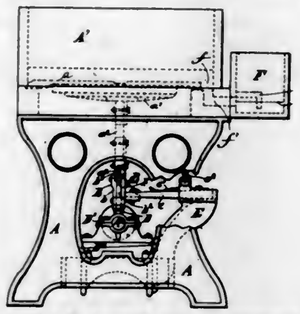
3. In a type-writer, the combination of the carriage, arms having an eccentric adjustable connection with the carriage, and a platen-carrier engaged by said arms.

4. In a type-writer, a carriage provided with sockets, lugs mounted to turn in said sockets, pins arrange eccentrically of said lugs, arms connected with said pins, and a platen-carrier engaged by said arms.

5. In a type-writer, a carriage having clamping-sockets, means for compressing said sockets, lugs mounted to turn in said sockets, and provided with eccentric portions, arms connected with said eccentric portions, and a platen-carrier engaged by said arms.

752,107. PULP-SCREENING MACHINE. NAPOLEON RICHARD, Sherbrooke, Canada. Filed Mar. 14, 1903. Serial No. 147,860. (No model.)

Claim.—1. In a machine of the type set forth, the combination of the frame of a pulp-box, a diaphragm arranged beneath said box provided with a slot therein, a diaphragm-supporting standard, a casing mounted thereon adapted to receive a bearing-block, means carried by the casing to adjustably feed the bearing-block, a flow-box in communication with the slot of the diaphragm, a partition formed within said box, and a cover mounted within the box having at one end a portion thereof projecting below the top of said partition to be immersed in the pulp to form a liquid seal, substantially as set forth.



2. In a machine for screening pulp, the combination with a suitable frame, of the diaphragm-supporting standard, a casing mounted thereon having an opening in its lower portion adapted to receive a bearing-block, and means carried by said casing for adjustably feeding said bearing-block, substantially as set forth.

3. In a machine for screening pulp, the combination with a suitable frame, of the diaphragm-supporting standard, a casing mounted thereon having an opening in its lower portion adapted to receive a bearing-block, a removable face for said casing, a plate mounted within said casing and adapted to contact with the said bearing-block, and adjusting-screws threaded through said casing and connecting with said plate, substantially as set forth.

4. In a machine for screening pulp, the combination with the operating-shaft journaled in suitable bearings, of a removable pillow-block supporting said bearing and having an inclined face, whereby its removal is facilitated, substantially as set forth.

5. In a machine for screening pulp, the combination with the operating-shaft journaled in suitable bearings having an inclined or beveled face upon its lower side, of a removable pillow-block having its supporting-face beveled or inclined to correspond with the beveled face of said bearing, whereby the removal of the said pillow-block is facilitated, substantially as set forth.

752,108. MOWER-BAR. ALFRED C. RIOUX, Toronto, Canada. Filed Dec. 16, 1902. Serial No. 135,445. (No model.)



Claim.—1. In a mowing-machine, the combination of a finger-bar, having its forward portion reduced in thickness upon its under face and its upper face in the same plane from edge to edge, rider-plates on said upper face having upwardly-extending flanges at their forward ends, a cutter-bar inclined with relation to the upper face of the finger-bar and bearing against said flanges and knives secured to the cutter-bar and also engaging the said flanges.

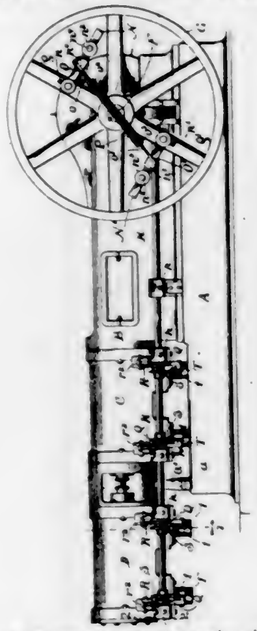
2. In a mowing-machine, the combination of a finger-bar, having its forward portion reduced in thickness upon its under face and its upper face of a continuous plane from edge to edge, rider-plates on said upper face and having upwardly-extending flanges at their forward ends, a cutter-bar inclined with relation to said upper face and bearing against said flanges and knives secured to the cutter-bar and also engaging said flanges, said cutter-bar being at all times out of contact with the guard-shanks.

3. In a mowing-machine, the combination of a finger-bar having its forward portion reduced in thickness upon its under face and its upper face in a continuous plane from edge to edge, rider-plates on said upper face and having upwardly-projecting flanges at their forward ends, a cutter-bar inclined with relation to said upper face and bearing against said flanges, knives of uniform thickness throughout secured to the cutter-bar and also engaging said flanges, said cutter-bar being at all times out of contact with the shanks of the guard-fingers.

4. In a mowing-machine, the combination with a finger-bar having its under face reduced in thickness at its forward end, rider-plates having upwardly-projecting flanges, a cutter-bar inclined with relation to the upper face of said first-mentioned bar, and bearing against said flanges, guards secured to the reduced portion of said bar, clips extended over the rider-plates and having forward extensions lying over the rear of the knives, said extensions having re-

cesses on their lower faces, and knives secured to the cutter-bar of uniform thickness and at all times out of contact with the guard-finger shanks.

752,109. **GOVERNOR FOR INTERNAL-COMBUSTION ENGINES.** CHARLES R. SARGENT, Chicago, Ill., assignor of three-fourths to Oliver S. Lyford, New York, N. Y., and Charles W. Hillard, trustee, Chicago, Ill. Filed Apr. 27, 1900. Serial No. 14,556. (No model.)



Claim.—1. In an internal-combustion engine, the combination with an exhaust-valve and an igniter, of devices connected with the crank-shaft for opening and closing said valve and actuating said igniter, and a governor controlled by the speed of the crank-shaft, connected with the valve opening and closing and igniting devices and operating to advance their movement relatively to that of the engine.

2. In an internal-combustion engine, the combination with an exhaust-valve and an igniter, of devices connected with the crank-shaft for closing said valve and actuating said igniter, and a governor, controlled by the speed of the crank-shaft, and operating through said valve and igniter to check the exhaust and advance the time of ignition as the speed increases.

3. The combination with the cylinder, piston, crank and crank-shaft of an internal-combustion engine, of an admission-valve, an exhaust-valve, devices for closing said valves and igniting the charge at predetermined points in the movement of the piston and crank-shaft, and a governor, controlled by the speed of the crank-shaft, operating to automatically advance the closing of the inlet-valve, the closing of the exhaust-valve and the ignition of the charge with respect to the movement of the piston, substantially as described.

4. The combination with the cylinder, piston, crank and crank-shaft of an internal-combustion engine, of an admission-valve, and exhaust-valve, devices for closing the admission-valve, for opening and closing the exhaust-valve and for igniting the charge at predetermined points in the movement of the piston, connections between said devices and the crank-shaft, and a governor, controlled by the speed of said crank-shaft, operating to automatically advance the closing of the admission-valve, the opening and closing of the exhaust-valve and the ignition of the charge, with respect to the movement of the piston, substantially as described.

5. In an internal-combustion engine, the combination with the cylinder, piston and crank-shaft, of an igniter, valve mechanism, actuated from the crank-shaft, for opening and closing the admission and exhaust passages, means for holding the passage from the admission-valve mechanism to the cylinder closed when the pressure in the cylinder exceeds the pressure of the entering fuel-gases, and a governor operated from the crank-shaft and arranged to vary with respect to the piston's movements, the times of operation of the igniter and said valve mechanism.

6. In an internal-combustion engine, the combination with a cylinder having inlet and exhaust passages, a piston, and a crank-shaft driven by the piston, of an igniter, crank-shaft-actuated valve mechanism for opening and closing said passages, means operated by pressure from within the cylinder to hold the passage from the admission-valve mechanism to the cylinder closed when the pressure in the cylinder exceeds that of the entering fuel-gases, and a governor operated from the crank-shaft and arranged to advance, with respect to the movement of the piston, the times of operation of said igniter and valve mechanism.

7 In an internal-combustion engine, the combination with a cylinder, piston, and crank-shaft, of a cam-shaft driven by the latter, valves controlling the admission and exhaust, cams upon the cam-shaft actuating the admission and exhaust valves, a governor controlled by variations of the speed of the crank-shaft, and means operated by the governor to vary the time of the cam-shaft with respect to the crank-shaft, thereby varying the time of beginning and end of both admission and exhaust, in accordance with the engine's speed.

8. In an engine of the class described, the combination with the crank-shaft, of the cam-shaft provided with a gear, a second gear mounted upon and rotating with the crank-shaft and engaging the cam-shaft gear, a governor, and means whereby the movements of the governor rotate said second gear relatively to the shaft upon which it is mounted.

9. In an internal-combustion engine, the combination with the cylinder, piston, crank and crank-shaft, of a valve-chamber having inlet and exhaust passages, a valve working in said chamber and having inlet and outlet ports adapted to register with said passages, means for keeping the passage between the cylinder and admission-valve closed while the pressure in the cylinder exceeds that of the entering fuel-gases, a shaft bearing a cam to operate said valve, a governor controlled by variations of speed of the crank-shaft, and means whereby the governor advances the rotation of the cam-shaft with reference to the crank-shaft, substantially as set forth.

10. In an internal-combustion engine, the combination with the cylinder, piston, crank and crank-shaft, of a valve controlling both admission and exhaust, a cam adapted to impart to said valve proper admission and exhaust movements, with reference to the position of the crank-shaft, when the speed of the latter exceeds a certain rate, and means operated by pressure from within the cylinder to close the passage from the latter to the admission-valve, substantially as set forth.

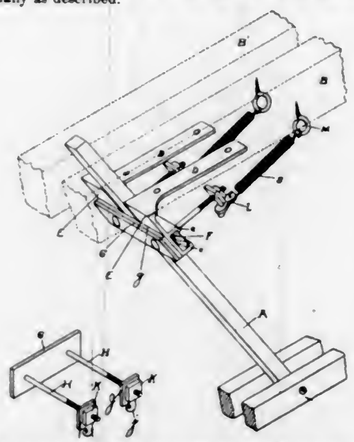
11. In an internal-combustion engine, the combination with the cylinder, piston and crank-shaft, of an air and gas inlet passage leading to the interior of the cylinder, a valve interposed in said passage, means for closing said passage between said valve and interior whenever pressure within the cylinder exceeds the pressure of the entering fuel-gases, devices for actuating both said valve and means in time relation with the engine-stroke, a governor, and means whereby the governor may advance the time of operation of said devices.

12. In an internal-combustion engine, the combination with a cylinder, piston and crank-shaft, of a valve-casing having inlet and exhaust passages, a valve working in said casing and having inlet and exhaust ports adapted to register with said passages, respectively, an auxiliary closure operated by variation of pressure in the cylinder to open and close the passage from said inlet-port to the cylinder, a cam operating said valve, and a governor controlled by variation in the speed of the crank-shaft and operating to vary the time of said cam's action, substantially as set forth.

13. In a governor, the combination with a rotary support, of two rock-shafts mounted in said support on opposite sides of the axis of rotation and each provided with an arm adapted to be connected with devices to be governed, oppositely-extending bars, provided with adjustable weights, mounted upon the rock-shafts, respectively, and arranged for unlimited angular adjustment upon their shafts, means for locking each in any desired position, a spring connection between corresponding points of the two bars, and means for adjusting the length of said connection.

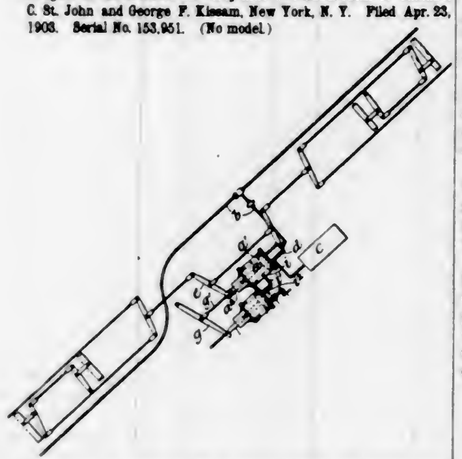
752,110. **PICKER-STICK CHECK FOR LOOMS.** WILLIAM E. SARTWELL, North Troy, Vt. Filed Sept. 5, 1903. Serial No. 172,062. (No model.)

Claim.—1. In a picker-stick check for looms, the combination of a batten, a picker-stick pivoted at one end; a stop-plate; a shank secured to said stop-plate or formed integral therewith; said shank secured to the under surface of said batten; said plate formed at such angle to said batten as the picker-stick makes with said batten when in its normal position, before being acted upon by the shuttle; a block of fibrous material secured to said stop-plate; said stop-plate and said block provided with openings, the opening in the stop-plate being larger than the opening in the block; with an end plate; a cushion secured to said end plate; a plunger connected with said end plate; and passing through said stop-plate; a spring; means for adjustably securing one end of said spring to said plunger; means for securing the other end of said spring in such position that the last-mentioned end of said spring shall be nearer the under surface of said batten than the end of said spring adjacent to said plunger, substantially as described.



2. In a picker-stick check for looms the combination of a batten; a picker-stick pivoted at one end; a stop-plate secured to said batten and adjusted to make the same angle to said batten that the picker-stick makes with said batten when in its rearward position; a block of resilient material removably secured to said stop-plate; an end plate; a cushion on said end plate; a plunger passing through said stop-plate and said block thereon; a spring suitably supported; a means for securing said spring to said plunger, all substantially as described.

752,111. **AIR-BRAKE.** WILLIAM H. SAUVAGE, New York, N. Y., assignor of one-hundred-and-forty-nine two-hundredths to Gamaliel C. St. John and George F. Kissam, New York, N. Y. Filed Apr. 23, 1903. Serial No. 153,951. (No model.)



Claim.—1. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder and means controlled by the movement of the main-cylinder piston to admit air under pressure to the auxiliary cylinder to reinforce the main cylinder after the action of the main cylinder has begun, substantially as described

2. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder having a port in its side wall arranged to be uncovered by the piston in its forward movement and an auxiliary brake-cylinder connected to said port, substantially as described.

3. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, directly connected to the brake-lever system, an auxiliary brake-cylinder, lever connections, affording increased leverage, between the auxiliary-cylinder piston and the main brake-lever system, and means controlled by the movement of the main-cylinder piston to admit air under pressure to the auxiliary cylinder to reinforce the main cylinder after its action has begun, substantially as described.

4. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder directly connected to the brake-lever system, an auxiliary brake-cylinder, an auxiliary-cylinder lever connected to the main brake-lever system and means whereby the auxiliary-cylinder piston-rod is moved transversely into the path of said lever during the forward movement of the piston-rod, substantially as described

5. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder directly connected with the brake-lever system, an auxiliary cylinder, an auxiliary-cylinder piston-rod having in its free end a cam-slot, a fixed pin to engage said cam-slot and an auxiliary-cylinder lever connected to the main brake-lever system, whereby the said piston-rod is moved into the path of said lever in its forward movement and out of the path of said lever in its rearward movement, substantially as described.

6. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, means whereby the auxiliary cylinder is brought into action to reinforce the main cylinder through the forward movement of the main-cylinder piston, and means to antomatically and gradually reduce the pressure in said cylinders, substantially as described

7. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, means whereby the auxiliary cylinder is brought into action to reinforce the main cylinder through the forward movement of the main-cylinder piston, and a retaining-valve connected to one of said cylinders, substantially as described.

8. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, means controlled by the forward movement of the main-cylinder piston to admit air under pressure to the auxiliary piston, and means to automatically and gradually reduce the pressure in said cylinders, substantially as described.

9. In a fluid-pressure brake system, the combnation with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, means controlled by the forward movement of the main-cylinder piston to admit air under pressure to the auxiliary cylinder and a retaining-valve connected to one of said cylinders, substantially as described.

10. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder having a port in its side wall, an auxiliary brake-cylinder connected to said port, and means to antomatically reduce the pressure in said cylinders, substantially as described.

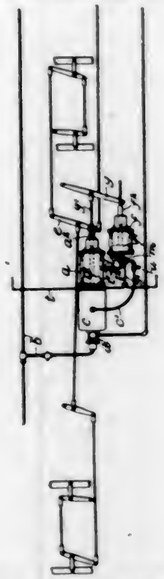
11. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder having a port in its side wall, an auxiliary brake-cylinder connected to said port and a retaining-valve connected to one of said cylinders, substantially as described.

12. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, means controlled by the movement of the main-cylinder piston to admit air under pressure to the auxiliary cylinder, a safety-valve connected to one of said cylinders, and means for gradually reducing the pressure in the cylinders after the safety-valve has closed to a predetermined amount, substantially as described.

752,112. **AIR-BRAKE.** WILLIAM H. SAUVAGE, New York, N. Y., assignor of one-hundred-and-forty-nine two-hundredths to Gamaliel C. St. John and George F. Kissam, New York, N. Y. Filed May 1, 1903. Serial No. 155,099. (No model.)

Claim.—1. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary reservoir, means to reinforce the action of the brake-cylinder, a valve to control the action of the reinforcing means, a plunger to open said valve, manually-operated devices to impart initial movement to the

plunger, and means to admit air under pressure from the auxiliary reservoir behind the plunger through a port opened by the initial movement of the plunger, substantially as described.



2. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary reservoir, means to reinforce the action of the brake-cylinder, a valve arranged to control the action of the reinforcing means, a plunger to open said valve, manually-operated devices to impart an initial movement to the plunger, means to admit air under pressure from the auxiliary reservoir behind the plunger through a port opened by the initial movement of the plunger, and means to relieve the pressure behind said plunger, substantially as described.

3. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary reservoir, means to reinforce the action of the brake-cylinder, a valve to control the action of the reinforcing means, a plunger to open said valve, means to admit air under pressure from the auxiliary reservoir behind the plunger, a check-valve included in said means and operated by an initial movement of the plunger, and manually-operated devices to impart the initial movement to the plunger, substantially as described.

4. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, an auxiliary reservoir, a valve arranged to control the action of the auxiliary cylinder, and devices actuated by the pressure in the auxiliary reservoir to hold said valve open, whereby said auxiliary cylinder is cut out of operation when the pressure in the auxiliary reservoir is reduced, substantially as described.

5. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder, an auxiliary reservoir, a valve to control the action of the auxiliary cylinder, a plunger to open said valve, manually-operated devices to impart an initial movement to the plunger, and means to admit air under pressure from the auxiliary reservoir behind the plunger through a port opened by the initial movement of the plunger, substantially as described.

6. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary brake-cylinder, an auxiliary reservoir, a connection between the main brake-cylinder and the auxiliary cylinder, a check-valve included in said connection, and means operated by the pressure in the auxiliary reservoir to hold said check-valve open, substantially as described.

7. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary brake-cylinder, an auxiliary reservoir, a connection between the main brake-cylinder and the auxiliary cylinder, a plunger to open said valve, and means to admit air under pressure from the auxiliary reservoir behind the plunger, substantially as described.

8. In a fluid-pressure brake system, the combination with a brake-lever system, of a brake-cylinder, an auxiliary brake-cylinder, an auxiliary reservoir, a connection between the main brake-cylinder and the auxiliary cylinder, a plunger to open said valve, means to admit air under pressure from the auxiliary reservoir behind the plunger through a port opened by an initial movement of the plunger, and manually-operated means to impart the initial movement to the plunger, substantially as described.

9. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder brought into operation by the forward movement of the main-cylinder piston, and independent devices actuated by the pressure in the brake system to control the action of the auxiliary cylinder, substantially as described.

10. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder connected to a port in the side wall of the main cylinder to be brought into operation through the forward movement of the main-cylinder piston, and independent devices actuated by the pressure in the brake system to control the action of the auxiliary cylinder, substantially as described.

11. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder brought into operation by the forward movement of the main-cylinder piston, an independent valve to control the action of the auxiliary cylinder, devices actuated by the pressure in the brake system to hold said valve open, and means to relieve the pressure upon said devices and permit said valve to close, substantially as described.

12. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder connected to a port in the side wall of the main cylinder, a valve to control the action of the auxiliary cylinder, devices actuated by the pressure in the brake system to hold said valve open, and means to relieve the pressure upon said devices to permit said valve to close, substantially as described.

13. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder connected to a port in the side wall of the main cylinder, an independent valve to control the action of the auxiliary cylinder, a plunger to open said valve, manually-operated devices to impart an initial movement to the plunger, and means to admit air under pressure from the brake system behind the plunger after its forward movement has commenced, substantially as described.

14. In a fluid-pressure brake system, the combination with a brake-lever system, of a main brake-cylinder, an auxiliary brake-cylinder connected to a port in the side wall of the main cylinder, an independent check-valve in the connection between the main cylinder and the auxiliary cylinder, a plunger to open said check-valve, manually-operated devices to impart an initial movement to the plunger, and means to admit air under pressure from the brake system behind the plunger after its forward movement has commenced, substantially as described.

15. In a fluid-pressure brake system, the combination with a brake-cylinder, of a valve adapted to admit air under pressure to the brake-cylinder and comprising a check-valve, a plunger to hold the said check-valve open, manually-operated devices to impart an initial movement to the plunger, and a connection from the brake system to the plunger-chamber through a port opened by the forward movement of the plunger, substantially as described.

16. In a fluid-pressure brake system, the combination with a brake-cylinder, of a valve adapted to admit air under pressure to the brake-cylinder and comprising a check-valve in the connection to the brake-cylinder, a second check-valve in a separate connection to the brake system, a plunger to hold both of said check-valves open, manually-operated devices to impart an initial movement to the plunger, and a connection from the second check-valve to the plunger-chamber through a port opened by the forward movement of the plunger, substantially as described.

17. In a fluid-pressure brake system, the combination with a brake-cylinder, of a valve adapted to admit air under pressure to the brake-cylinder, and comprising a check-valve in the connection to the brake-cylinder, a second check valve in a separate connection to the brake system, a plunger to hold both of said check-valves open, manually-operated devices to impart an initial movement to the plunger, a connection from the second check-valve to the plunger-chamber through a port opened by the forward movement of the plunger, and a bleed-valve in the connection to the second check-valve to relieve the pressure behind the plunger, substantially as described.

752,118. COFFEE OR TEA POT. GEORGE E. SAVAGE and GEORGE W. HOPE, Meriden, Conn., assignors to Manning, Bowman & Co., Meriden, Conn., a Corporation of Connecticut. Filed Sept. 23, 1903. Serial No. 174,341. (No model.)



Claim.—1. In an apparatus of the character described, a liquid-reservoir, a detachable receptacle for the seasoning element provided with a perforated strainer separating the chambers within said reservoir and receptacle, a support for said strainer in said receptacle, and clips connected to said strainer and engaging the lower edge of said receptacle projecting outside of the same, the projecting ends of said clips serving to retain the receptacle thereon in said reservoir.

2. In an apparatus of the character described, a liquid-reservoir, a detachable receptacle for the seasoning element provided with a perforated strainer separating the chambers within said reservoir and receptacle, a supporting-ledge within said receptacle upon which said strainer rests, spring-clips connected to said strainer and projecting around the lower edge of said receptacle and upwardly outside of said lower edge, the free ends of said clips being yielding and arranged to frictionally engage with the liquid-reservoir when the parts are assembled.

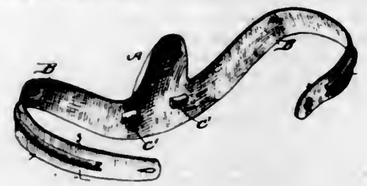
3. In an apparatus of the character described, a liqnid-reservoir, a detachable receptacle for the seasoning element provided with a perforated strainer separating the chambers within said reservoir and receptacle, means for holding said strainer in place in said receptacle and means carried by said strainer to engage with the reservoir, and means carried by the reservoir and arranged to engage with said receptacle, the two latter means cooperating to hold said parts against accidental disengagement when the same are assembled.

4. In an apparatus of the character described, a liquid-reservoir, a detachable receptacle for containing the seasoning element provided with a perforated strainer dividing the chambers within said receptacle and reservoir, and means carried by the receptacle for frictionally holding the same to the reservoir, and means carried by the reservoir for frictionally holding the same to the receptacle, said means cooperating to prevent accidental disengagement of said parts when the same are assembled.

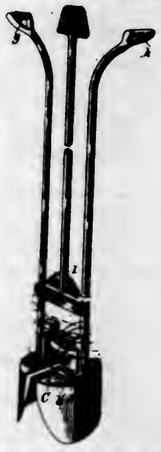
5. In an apparatus of the character described, a liquid-reservoir, a detachable receptacle for holding the seasoning element, means arranged to frictionally hold said parts against disengagement when the same are assembled, said receptacle having grooves or channels adjacent to the line of junction and between said parts, and vent-passages to permit the escape of surplus steam or gases generated within said reservoir.

752,114. BREATH-GUARD. LEONIDAS SENNETT and ABRAHAM L. MOORE, Russell, Ky. Filed Mar. 14, 1903. Serial No. 147,780. (No model.)

Claim.—A guard of the kind described comprising a hood formed of rubber and adapted to envelop the mouth and nostrils, straps or bands connected to the opposite sides of said hood and provided with fastening means at their rear ends, and the air-tubes arranged upon the exterior of said straps or bands, the rear ends of said air-tubes being arranged adjacent the rear ends of the straps or bands and the forward ends extending into the hood at opposite sides thereof and adjacent to the lower end, said air-tubes and straps being integral as set forth.



752,115. POST-HOLE DIGGER. ALBERT D. SMITH, Lancaster, Pa. Filed Nov. 27, 1903. Serial No. 182,824. (No model.)



Claim.—1. In a digging device, a pair of digging-jaws, pivoted together and provided with handle-rods as well as with shoulders, in combination with a tamper, arranged to strike on the said shoulders and having parts which engage the said rods, to be guided thereby in their up-and-down movement, substantially as set forth.

2. In a digging device, a pair of shovels, pivoted together and provided with handle-rods as well as with shoulders, in combination with a tamper, arranged to strike on the said shoulders and having a plate J provided with horns *j*, which overlap the said shoulders and also fit against the said rods to be guided thereby, substantially as set forth.

3. In a digging device, a pair of shovels, connected together by parts having, respectively, a button and a slot, the said button having a cylindrical stem to serve as a pivot and a broader head for preventing the detachment of the shovels while in operative position, and the said slot consisting of a central opening, fitting said stem, and two opposite radial parts fitting said head, the slot and button-head being also arranged at different angles, substantially as set forth.

4. In a digging device, a pair of shovels, having a pair of plates rigid with them, respectively, said plates being detachably pivoted together and provided with a pair of shoulders, raised above the tops of the digging-jaws or shovel-blades, substantially as set forth.

5. In a digging device, a pair of shovels, provided with a pair of raised L-shaped plates, which are pivoted together, the said plates being provided with a pair of shoulders on their tops and with a pair of handle-arms, the said arms being diametrically opposite to each other and the said shoulders being diametrically opposite each other, substantially as set forth.

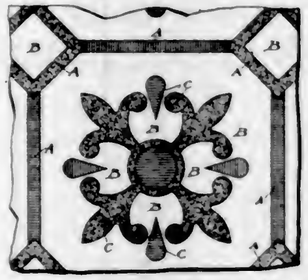
6. In a digging device, a pair of shovels, provided with a pair of raised L-shaped plates, which are pivoted together, and provided with diametrically opposite handle-rods and diametrically opposite shoulders, in combination with a tamper having vertical, independent motion and provided with a tamping-plate which has horns overlapping the said shoulders and fitting the said rods to be guided thereby, substantially as set forth.

7. In a digging device, a pair of shovels, provided with handle-rods, also with shoulders raised above the shovel-blades and con-

nected thereto by intervening parts, in combination with a tamper, provided with a tamping-plate, which overlaps said shoulders, fits said rods, to be guided thereby, and has on its under side a facing of wood, substantially as and for the purpose set forth.

8. In a digging device, a pair of shovels provided with overlapping raised plates, having handle-rods rigid therewith and shoulders formed on their tops, in combination with a tamper, adapted to strike said shoulders as it descends, and provided with parts which fit and guide the said rods, substantially as set forth.

752,116. FLOORING OR WALL-COVERING MATERIAL. JOHN J. C. SMITH and MICHAEL SMITH, Passaic, N. J. Filed Jan. 23, 1903. Serial No. 140,250. (No specimens.)



Claim.—1. The herein-described material for flooring, panels, &c., consisting of porous material thoroughly impregnated throughout all portions thereof with a waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

2. The herein-described material for flooring, panels, &c., consisting of porous material thoroughly impregnated throughout all portions thereof with a solution of waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

3. The herein-described material for flooring, panels, &c., consisting of porous material thoroughly impregnated throughout all portions thereof with shellac, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

4. The herein-described material for flooring, panels, &c., consisting of an absorbent paper sheet thoroughly impregnated throughout all portions thereof with a waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

5. The herein-described foundation or base sheet for inlaid flooring or panel material, consisting of fibrous mineral material thoroughly impregnated throughout all portions thereof with a waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

6. The herein-described foundation or base sheet for inlaid flooring or panel material, consisting mainly of asbestos thoroughly impregnated throughout all portions thereof with a waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

7. The herein-described foundation or base sheet for inlaid flooring or panel material, consisting of an asbestos sheet thoroughly impregnated throughout all portions thereof with a solution of resin in gasolene, and having a dense, hard and compact texture, and resistant to water and atmospheric influences.

8. The herein-described floor and panel material, consisting of a surface of fibrous material thoroughly impregnated with a waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric changes, and a base consisting of a fibrous mineral material thoroughly impregnated with a waterproof gum or resin and having a dense hard and compact texture.

9. The herein-described floor and panel material, consisting of a surface of fibrous material thoroughly impregnated with a solution of waterproof gum or resin, and having a dense, hard and compact texture, and resistant to water and atmospheric changes, and a base consisting of a fibrous mineral material thoroughly impregnated with a waterproof gum or resin and having a dense hard and compact texture.

10. The herein-described floor and panel material, consisting of a surface of fibrous material thoroughly impregnated with shellac varnish, and having a dense, hard and compact texture, and resistant to water and atmospheric changes, and a base consisting of a fibrous mineral material thoroughly impregnated with a waterproof gum or resin and having a dense hard and compact texture.

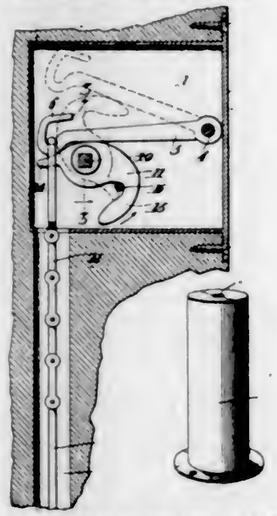
11. The herein-described floor and panel material, consisting of stamped plaques, figures or tesseræ of fibrous material impregnated with a waterproof gum or resin and having a dense, hard and compact texture, and a base on which said plaques, &c., are secured, said base consisting of a sheet of fibrous material impregnated with a waterproof gum or resin and compressed to a dense hard and compact texture.

12. The herein-described floor and panel material, consisting of stamped plaques, figures or tesseræ, of fibrous material impregnated with a waterproof gum or resin and having a dense, hard and compact texture, and a base on which said plaques, &c., are secured, said base consisting of a sheet of asbestos material impregnated with a waterproof gum or resin and compressed to a dense hard and compact texture.

13. The herein-described floor and panel material, consisting of stamped plaques, figures or tesseræ, of fibrous material impregnated with a waterproof gum or resin and having a dense, hard and compact texture, and a base on which said plaques, &c., are secured, said base consisting of a sheet of fibrous mineral material impregnated with a solution of waterproof gum or resin and compressed to a dense hard and compact texture.

14. The herein-described floor and panel material, consisting of stamped plaques, figures or tesseræ, of fibrous material impregnated with a waterproof gum or resin and having a dense, hard and compact texture, and a base on which said plaques, &c., are secured, said base consisting of a sheet of asbestos material impregnated with a waterproof gum or resin and compressed to a dense hard and compact texture.

752,117. DOOR-CHECK. ROBERT R. SMITH, Philadelphia, Pa. Filed Oct. 29, 1903. Serial No. 179,051. (No model.)



Claim.—1. In a device of the class described, a door having a vertical bore enlarged at its lower end and terminating in a mortise at its upper end, a casing in said mortise, a lever in said casing having a hooked end extending over the bore, means for manipulating said lever to raise and support the inner end thereof, a downwardly-spring-actuated bolt in the enlarged lower end of the bore, and connecting means between said bolt and the hooked end of the lever, said connecting means including two adjustably-connected rods and a chain connecting the upper rod with the hooked end of the lever.

2. In a device of the class described, a door having a vertical bore enlarged at its lower end and terminating in a mortise at its upper end, a casing in said mortise, a lever in said casing having a hooked inner end extending over the bore, a two-part casing in the enlarged lower end of said bore, a downwardly-spring-actuated bolt seated in said casing, a rod having screw-threaded connection with the upper end of the bolt provided with a flange abutting upon the upper end of said bolt, said rod extending upwardly into the bore, a second rod having screw-threaded connection with the first or lower rod, and a chain connecting the upper rod with the inner hooked end of the operating-lever.

3. In a device of the class described, a door having a vertical bore enlarged at its lower end and terminating in a mortise at its upper end, a two-part vertically-divided casing seated in the enlarged lower end of the bore, a downwardly-spring-actuated bolt movable in said casing and having an elastic cushion of a diameter not exceeding that of the bolt, and means for withdrawing said bolt and cushion into the casing against the tension of the spring and for retaining the same in such withdrawn position.

4. In a device of the class described, a bolt consisting of a wooden cylinder having an annular groove, and a cap engaging said groove and thereby connected with the cylinder, said elastic cap being of an extreme diameter not exceeding the diameter of the bolt.

5. In a device of the class described, the combination with a downwardly-spring-actuated bolt, of operating means comprising a hooked lever and a cam adapted to raise said lever and to sustain it in a raised position, and connecting means including a rod connected with the bolt and having a screw-threaded upper end, a rod provided with a yoke having screw-threaded connection with the upper end of the lower rod, and a chain comprising a plurality of links, the lower one of which is connected with the upper connecting-rod and the upper one of which is connected with the hooked end of the lever.

6. In a device of the class described, the combination with a connecting-rod having a pointed screw-threaded lower end and an annular flange, a bolt comprising a wooden plug having screw-threaded connection with said rod below the flange and provided with an annular flange, and an elastic cap engaging said flange and of an extreme diameter not exceeding that of the wooden plug constituting the bolt.

7. In a door-checking device, a lever mounted in a suitable casing and having a hooked inner end and a bolt adapted to be operated by said lever, in combination with connecting means including links adapted to be inserted into the mortise provided for the reception of the lever-carrying casing and to be drawn forwardly through said mortise for engagement with the hooked end of the lever.

752,118. HAND FISH-DRESSING IMPLEMENT. FRED M. STEARNS, Starlake, Wis. Filed Mar. 20, 1903. Serial No. 148,709. (No model.)



Claim.—1. In a fish-dressing implement, and in combination, a handle, a triangular flat body, a channeled strip, having serrated edges, secured to one face thereof and projecting therefrom, a cutting-blade pivoted adjacent to one angle of the same, and a cleaning-blade pivoted adjacent to the other angle thereof, substantially as described.

2. In a fish-dressing implement, and in combination, a body portion comprising two flat counterpart triangular plates, a handle rigidly secured thereto arranged at the apex thereof, a cutting-blade pivoted between the plates adjacent to one of the angles of the same mounted to be swung into housed positions between said plates, a cleaning-blade similarly mounted adjacent to the other angle of the body and a channel-shaped strip having serrated longitudinal edges, said strip extending transversely of the plates and being secured to the face of one of the same adjacent to the base of the triangle, substantially as described.

3. In a fish-dressing implement and in combination, a body portion, comprising two counterpart plates, a handle rigidly secured thereto, cutting and cleaning blades mounted between the plates to be housed therebetween and to be thrown into extended positions, a scraper arranged upon the face of one of the plates and projecting therefrom, and pivot pins for said blades extending through the plates and through the scraper for securing the latter rigidly in place, substantially as described.

4. In a fish-dressing implement, the combination with the body portion, slitting and cleaning knives associated therewith, a scaler also associated with said body portion, a handle and a gripping device partly housed within the latter having jaws projecting from the butt-end thereof in axial alinement therewith, substantially as described.

5. In a fish-dressing implement and in combination, a handle, a flat body portion projecting from one end thereof, cutting and scraping blades pivoted in the body, a scraper-strip rigidly secured to one side of the latter, and a gripping device comprising legs housed in said handle, and gripping-jaws projecting from the butt-end thereof in axial alinement therewith, substantially as described.

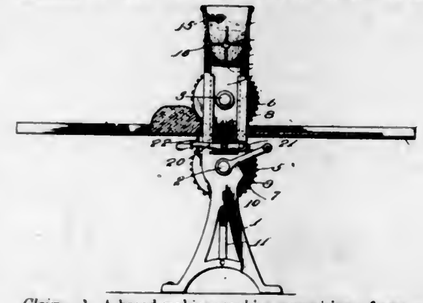
6. In a fish-dressing implement and in combination, a recessed handle having a socket at one end of said recess and a pair of pincers having their jaws projecting beyond the end of the handle and their legs housed in said recess with the extremities thereof extending into said socket and coacting with the wall of the same, and means interposed between the legs for forcing them apart, substantially as described.

7. In a fish-dressing implement, and in combination, a bifurcated handle, stops arranged at one end of said bifurcation, a pair of pincers having the jaws thereof projecting beyond the butt-end of the handle and the legs thereof arranged in said bifurcation with the extremities of the same coacting with said stops and a pin for pivotally connecting the two members of the pincers and for securing the latter to the handle, substantially as described.

8. In a fish-dressing implement and in combination, a flat body portion, slitting and cleaning blades pivotally mounted therein, a scraper rigidly secured thereto, a bifurcated handle carrying the body portion, a gripping device comprising two members each including a leg and a jaw portion, and a pin passing through the handle and said members for pivotally connecting the latter to each other and for retaining the gripping device within the bifurcation in said handle with the jaw portions projecting beyond the butt-end thereof, substantially as described.

9. In a fish-dressing implement and in combination, a flat body portion, slitting and cleaning blades pivotally mounted therein, a scraper rigidly secured thereto, a bifurcated handle carrying the body portion having a socket in one end thereof, and a gripping device comprising two members each including a leg and a jaw portion, and a pin passing through the handle and said members for pivotally connecting the latter to each other and for retaining the gripping device within the bifurcation in said handle with the jaw portions projecting beyond the butt-end thereof, and the ends of the leg portion projecting into said socket, substantially as described.

752,119. BREAD-MAKING MACHINE. SARAH R. STEARNS, Redlands, Cal. Filed May 25, 1903. Serial No. 158,738. (No model.)



Claim.—1. A bread-making machine comprising a frame, a roll journaled thereon, a roll and a discharge mechanism mounted upon the said frame and simultaneously adjustable.

2. In a device of the character described, the combination of a frame, rolls journaled thereon, one of said rolls journaled in vertical sliding plates carried upon the said frame, a hopper secured to said plates above the rolls, said hopper provided with a slide for limiting the discharge of the material therefrom, an agitator mounted within the said hopper and means carried by said agitator and assembled with said rolls for simultaneously actuating said rolls and agitator.

3. In a device of the character described, the combination with a frame, of an adjustable roll and a fixed roll journaled upon the said frame in a vertical position, a flanged material-support removably secured between said rolls, a discharge mechanism carried above said rolls and provide with a solid slide for gaging the amount of material to be discharged therefrom, said adjustable roll journaled in a slide carried upon the frame, a ratchet formed upon said frame, a lever pivotally secured to said slide and adapted to engage said ratchet when said slide is in a locked position.

4. In a device of the character described, the combination with a frame, of a bifurcated brace secured to said frame near the bottom thereof, slides mounted upon said frame, a roller positively

mounted upon the frame, a roller and a discharge mechanism secured to the slides and adjustable simultaneously into a relative position upon the frame and a material-support adapted to be passed through the said rollers.

5. In a bread-making machine, the combination with a frame, of a roller rotatably mounted upon said frame, slides removably mounted upon the frame, a roller journaled upon said slides, a hopper carried by said slides, means for adjusting the said slides simultaneously, and means for actuating the rolls.

6. In a bread-making mechanism, the combination with an upright frame, of a bifurcated brace secured near the base thereof, a pair of slides detachably secured to said frame, a roll fixed to the frame, a roll and a hopper secured to said slides, levers pivotally secured to the frame and engaging the slides, means for locking said lever in a fixed position upon the frame, and means for imparting motion to the rolls.

7. In a bread-making mechanism, the combination with a frame, of a roll fixed to said frame, a roll journaled upon slides, mounted upon said frame, a bracket secured to the slides, a hopper mounted upon said bracket, levers and ratchet-bars connected with said slides and the frame for retaining the roll carried by the slides and the hopper in a relative position to the roll carried by the frame.

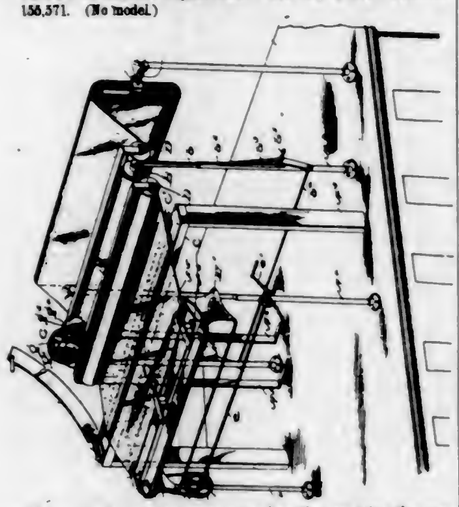
8. In a bread-making mechanism, the combination with a frame, of a brace secured near the bottom thereof, grooves formed upon said frame, slides mounted within said grooves, a bracket secured upon each slide, a roll journaled upon the frame, a roll and a hopper secured to the slides, a solid gage carried by the hopper, an agitator journaled upon the hopper and provided with horizontal-extending members, and means connected with the casing and the slides for simultaneously adjusting the roll carried by the slide and the hopper in respect to the position of the roll journaled upon the casing.

9. In a bread-making mechanism, the combination with a casing, of a roll journaled upon said casing, slides detachably secured to the casing, a roll and a discharge mechanism carried by the slides, and means for vertically adjusting the last-mentioned roll and the discharge mechanism independently of the roll journaled upon the casing.

10. A bread-making machine comprising a frame, rolls rotatably mounted upon said frame, one of said rolls and a discharge mechanism slidably mounted thereon, said roll and discharge mechanism provided with means for simultaneously adjusting the same in a vertical position, said discharge mechanism comprising a hopper having a perforated bottom and a slide arranged upon said hopper, an agitator mounted within said hopper comprising a shaft and a series of parallel members fixed to said shaft and means carried by said rolls and said agitator for imparting motion to said members.

752,120. CLOTH MEASURING AND CUTTING MACHINE.

FRANK I. STILES, Sauk Rapids, Minn. Filed May 4, 1903. Serial No. 156,571. (No model.)



Claim.—1. In a cloth measuring and cutting machine, the combination of supports in which the bolt may be rotated, brake-rolls, a roll over which the cloth passes intermediate the brake-rolls, means for lowering and elevating said intermediate roll, registering mechanism coacting with said intermediate roll, shearing apparatus, and a winding-reel, substantially as described.

2. In a cloth measuring and cutting machine, the combination of supports in which the bolt may be rotated, brake-rolls, a vertically-adjustable roll intermediate the brake-rolls over which the cloth passes, registering mechanism coacting with said intermediate roll, shearing apparatus, a winding-reel, and means substantially as described for connecting the cloth with the winding-reel.

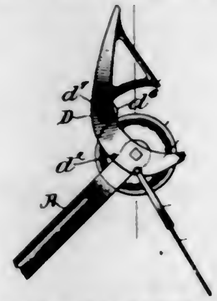
3. In a cloth measuring and cutting machine, the combination of forked standards, a cylindrical but grooved rod adapted to be passed through a bolt of cloth and to rotate in said standards, said rod having a collar adjacent to one of said standards, and a toothed lug a^3 provided with a spine, said lug effecting a rigid connection between the bolt and rod substantially as described.

4. The combination in a cloth measuring and cutting machine of a bolt-carrying frame, a winding-reel and means for attaching the cloth to the reel consisting of a plate having hooks to engage the reel and clasps to engage the cloth, with means for simultaneously locking or releasing the clasps, substantially as described.

5. The combination in a cloth measuring and cutting machine, of a frame in which the bolt may rotate, a pair of guide-rolls, tubular standards, rods telescoping said standards, means for adjusting both rods simultaneously in respect to the standards, a roll over which the cloth travels intermediate the guide-rolls and journaled in said rods, a spur-wheel adapted to engage and be rotated by the traveling cloth when said intermediate roll is in its elevated position, registering mechanism cooperating with said spur-wheel, shearing apparatus, and a winding-reel, substantially as described.

752,121. TROLLEY-FINDER.

ELISHA S. SWIFT, Newton, Mass. Filed Oct. 17, 1902. Serial No. 127,753. (No model.)



Claim.—1. A trolley-pole provided with a guide-fork pivotally connected therewith and arranged to swing over its pivot; a cord or the like connected with the fork for swinging the latter from its inoperative position forward beyond its pivot into operative position; a stop for holding the fork in its forward operative position independently of the cord; and means to cause the engagement of said fork with the trolley-wire to swing it back beyond its pivot into inoperative position.

2. A trolley-pole provided with a guide-fork pivotally connected therewith and arranged to swing over its pivot; a rearward extension on the fork; a cord or the like connected with the fork for swinging the latter forward beyond its pivot into operative position, a stop for holding the fork in its forward operative position independently of the cord; and means to cause the engagement of the trolley-wire with the rearward extension of the fork, to swing it back beyond its pivot into inoperative position.

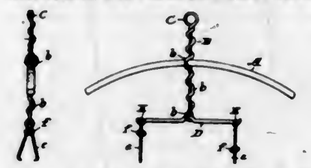
3. A trolley-pole provided with a guide-fork pivotally connected therewith and arranged to swing over its pivot; a cord or the like connected with the fork for swinging the latter from its inoperative position forward beyond its pivot into operative position; a stop, for holding the fork in its forward operative position independently of the cord; means to cause the engagement of said fork with the trolley-wire to swing it back beyond its pivot into inoperative position, and a stop for holding the fork in its inoperative position.

4. A trolley-pole provided with a guide-fork pivotally connected therewith; means connected with the fork for operating the latter; stops, and a weight acting on said fork and cooperating with said stops to hold the fork in either one of its two positions independently of said fork-operating means.

5. A trolley-pole provided with a guide-fork pivotally mounted thereon, and adapted to swing over its pivot; a cord or the like for swinging the fork forward beyond its pivot into operative position; an extension on the fork adapted, when the fork is in its operative position, to occupy a position back of the pivot and in the path of the wire, and two stops for holding the fork in either one of its two positions independently of the cord.

752,122. GARMENT-HANGER.

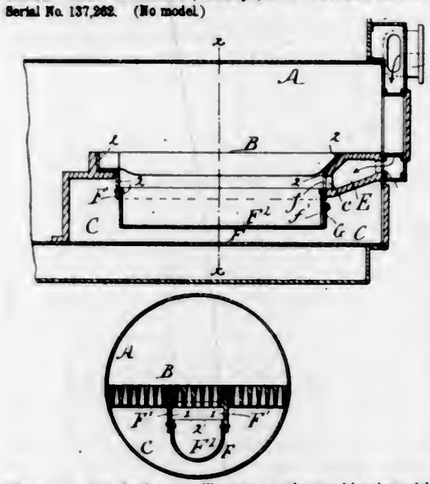
MORRIS M. STONE, New York, N. Y. Filed Sept. 21, 1903. Serial No. 174,100. (No model.)



Claim.—A garment-hanger comprising the combination of a curved bar, a second bar consisting of a strand of wire twisted upon itself and having eyes formed therein through which the curved bar may pass, a cross-piece suspended from the lower part of said second bar, and a clasp depending from each end of said cross-piece, substantially as described.

752,123. FIRE-BOX FOR STEAM-BOILER OR OTHER FURNACES.

JAMES M. STRATTON, Brooklyn, N. Y. Filed Dec. 31, 1902. Serial No. 137,262. (No model.)



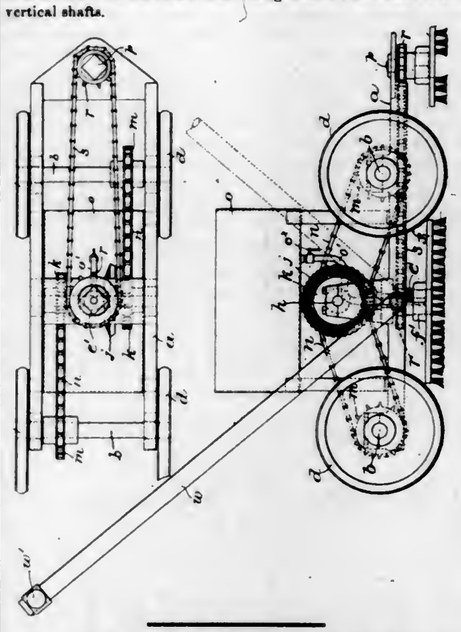
Claim.—1. In a draft-controlling means, the combination with a fire-box comprising side walls, a grate, an ash-pit and an air-box; of an air-channel having end walls, side walls and a bottom, located in said fire-box directly under the middle of said grate and opening thereinto, a conduit communicating with said air-box and having an inlet leading into said channel, a damper in said inlet, and a damper-door in the end of said channel opening into said fire-box.

2. In a draft-controlling means, the combination with a fire-box comprising side walls, grate-bars, an ash-pit and an air-box, of an air-channel comprising adjustable side walls, a bottom, and end walls, located in said ash-pit directly under the middle of the said grate and opening from below thereinto, means for connecting said air-box with a source of supply, means for conducting media for increasing combustion from said air-box to said air-channel and said grate, and dampers arranged to control the flow of such media into said channel and to said grate.

752,124. APPLIANCE FOR SCRUBBING.

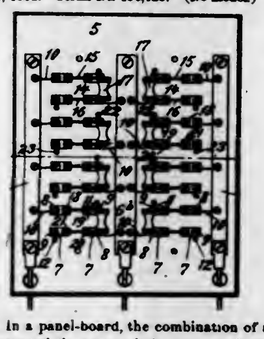
ORIN F. SWIFT, Quincy, Mass. Filed May 27, 1903. Serial No. 158,998. (No model.)

Claim.—An appliance of the character specified comprising a frame, rotary axles journaled therein, traction-wheels fixed to said axles, a main drive-shaft, means whereby said shaft is rotated by said traction-wheels, a vertical shaft centrally mounted in said frame and geared with said drive-shaft, a second rotary shaft vertically mounted in a forwardly-projecting portion of said frame and geared to said former vertical shaft, and acting members mounted on said vertical shafts.



752,125. PANEL-BOARD.

HANS O. SWOBODA, East Orange, N. J. Filed Dec. 22, 1902. Serial No. 136,123. (No model.)



Claim.—1. In a panel-board, the combination of a supporting-base, bus-bars mounted thereon, switches arranged on the supporting-base between said bus-bars, said switches consisting of two switch-blades connected but insulated from each other, and two contacts, and said switches connected through one blade to one bus-bar and through one contact to the opposite bus-bar.

2. In a panel-board, the combination of a supporting-base, bus-bars thereon, distributing-conductors leading therefrom, switches arranged on said supporting-base between said bus-bars, said switches consisting of two switch-blades, and two contacts, said switches connected through one blade to one bus-bar, and through the opposite blade to one distributing-conductor, and through one contact to the opposite distributing-conductor, and through the opposite contact to the opposite bus-bar.

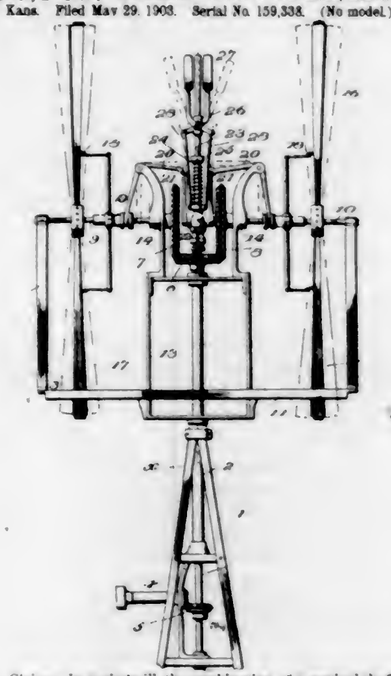
3. In a panel-board, the combination of parallel bus-bars, distributing-conductors, and switches interposed between said bus-bars and arranged on said panel-board, said switches composed of two pivoted contact-blades and two contact-clips insulated from each other, the connection being such that a contact-blade and its coacting contact-clip are respectively connected to one bus-bar and one distributing-conductor.

4. In a distribution panel-board, the combination with bus-bars secured to said panel-board, of a double-pivoted knife-switch, and contacts for engagement thereby secured on the panel-board between the bus-bars, an electrical connection between one switch-blade ter-

minal and the adjacent bus-bar and between one contact and the bus-bar adjacent thereto, and distributing-conductors connected to the other switch-blade and to the other contact, respectively, whereby the terminals of the distributing-conductors are, respectively, far removed from the bus-bar to which they are electrically connected.

5. In a distribution panel-board, the combination with bus-bars secured to said panel-board, of a double-pivoted knife-switch, and contacts for engagement thereby secured on the panel-board between the bus-bars, a fuse connection between one switch-blade terminal and the adjacent bus-bar and between one contact and the bus-bar adjacent thereto, and distributing-conductors connected to the other switch-blade and to the other contact, respectively, whereby the terminals of the distributing-conductors are, respectively, far removed from the bus-bar to which they are electrically connected.

752,126. WINDMILL. CYRUS O. SYLVESTER, Leavenworth, Kans. Filed May 29, 1903. Serial No. 159,338. (No model.)

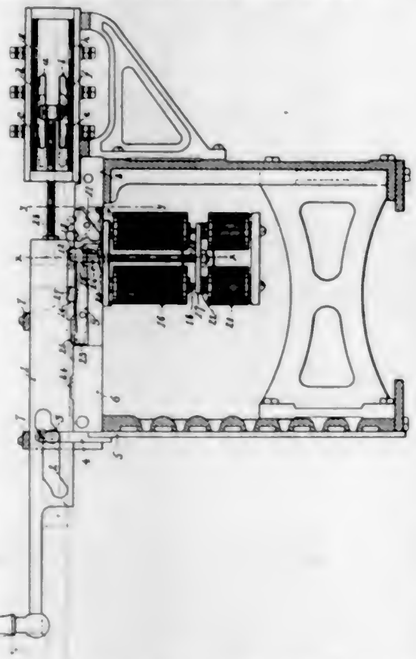


Claim.—In a windmill, the combination of a vertical shaft, horizontal shafts in transverse alinement, gearing connecting the horizontal and vertical shafts, wind-wheels secured to the respective horizontal shafts and provided with feathering-blades arranged to cause rotation of the wheels in opposite directions, a sleeve slidably mounted upon the said vertical shaft, connections between said vertically-movable sleeve and the blades of the wheels, a spring for exerting a downward pressure upon said vertically-movable sleeve to hold the blades in the wind, and weighted arms pivoted between their ends upon the vertical shaft and having their short members connected with said vertically-movable sleeve to effect upward movement thereof in opposition to the cooperating spring to throw the blades out of the wind more or less, the weighted arms having their long members normally projected vertically, substantially as described.

752,127. RAILWAY SWITCHING AND SIGNALING APPARATUS. JOHN D. TAYLOR, Buffalo, N. Y., assignor to the Taylor Signal Company, Buffalo, N. Y., a Corporation of New York. Filed Jan. 12, 1901. Serial No. 42,994. (No model.)

Claim.—1. The combination of an interlocking mechanism of a bar actuating the same, a detent for holding said bar against final movement, a wiper actuated by said bar for locking said detent, a motor, an operating-circuit, an indication-circuit, and means for shifting the motor from the operating to the indication circuit, and a magnet included in said indication-circuit for unlocking said detent, substantially as and for the purposes set forth.

2. The combination of an interlocking mechanism of a bar actuating the same, a detent for holding said bar against final movement, a lug on said detent capable of engagement with said bar to move said detent, a latch for locking said detent, a wiper actuated by said bar for rendering positive the engagement of said latch in lock with said detent, and electrically-operated means for unlocking said mechanism which locks said detent capable of acting upon said latch, substantially as and for the purposes set forth.



3. In combination with an interlocking mechanism, a bar for actuating the same, a detent for holding said bar against final movement, means for throwing said detent in position for engagement by the initial movement of the bar, a latch, a wiper actuated by said bar for rendering positive the engagement of said latch in lock with said detent by the further movement of said bar, and electrically-operated means for unlocking said detent to permit final movement at the proper time, comprising a magnet, an armature, and a rod on said armature capable of engaging said latch, substantially as and for the purposes set forth.

4. The combination with an interlocking mechanism of a bar actuating the same, a detent for holding the bar against final movement, mechanical means for locking said detent in engagement with said bar, consisting of a pawl and a wiper which is actuated by said bar and which forces said pawl into engagement with said detent, and means for releasing said detent comprising a magnet, an armature, and a rod on said armature capable of actuating said pawl, substantially as and for the purposes set forth.

5. The combination with a mechanical interlocker of a bar actuating the same, a detent for holding said bar against final movement, a pawl, and a wiper actuated by said bar for forcing said pawl to lock said detent, and a magnet and armature for forcing said pawl out of lock with said detent, substantially as and for the purposes set forth.

6. In combination with a mechanical interlocker, a bar actuating the same, a detent for holding said bar against final movement, a pawl, and a wiper for forcing said pawl into lock with said detent, a magnet, armature and rod for forcing said pawl out of lock with said detent, a tongue actuated by said magnet engaging said first-mentioned bar and holding the same against reversed movement after said detent is unlocked and until said magnet is deenergized, substantially as and for the purposes set forth.

7. In combination with a mechanical interlocker, a bar actuating the same, a detent for holding said bar against final movement, a pawl, a wiper for forcing said pawl into lock with said detent, a magnet, armature and rod for forcing said pawl out of lock with said detent, said wiper having jaws engaging said bar whereby it is actuated and an arm which throws said pawl into engagement, and at the same time forces said armature out of contact with said magnet, substantially as and for the purposes set forth.

8. In combination with a mechanical interlocker, a bar for actuating the same, a detent thrown into engagement with said bar by the movement of said bar, a pawl locking said detent and actuated by a further movement of said bar, electrically-actuated mechanism for releasing said pawl, and means for holding said bar against a reverse movement until the electrically-actuated mechanism has ceased to be energized, substantially as and for the purposes set forth.

9. In combination with a mechanical interlocker, a bar actuating the same, a detent for holding said bar against final movement, mechanical means for locking said detent, a magnet, an armature and rod for unlocking said detent, and a second magnet in series with said first magnet acting upon said armature in the event of improper energizing of said first-mentioned magnet to prevent the movement of said armature, substantially as and for the purposes set forth.

10. In a railway switching and signaling system, in combination with a battery and a mechanical interlocker, a bar actuating said mechanical interlocker, a detent for holding said bar against final movement, a lug on said detent, and a projection on said bar for engagement with said lug to replace said detent, an electric switch, a motor, mechanism for actuating said switch, a circuit including said motor and said battery, a pole-changing electric switch, a magnet for unlocking said detent, a circuit including said motor and said magnet for energizing said magnet to cause the unlocking of said detent, substantially as and for the purposes set forth.

11. In a railway switching and signaling system, in combination with a battery and a mechanical interlocker, of a bar actuating said mechanical interlocker, a detent for holding said bar against final movement, an electric switch, a motor, mechanism for actuating said switch, a circuit including said motor and said battery, a pole-changing electric switch, a magnet for unlocking said detent, a circuit including said motor and said magnet for energizing said magnet to cause the unlocking of said detent, and a tongue actuated by said magnet and a notch in said bar to receive said tongue and hold said bar against a reverse movement while said magnet is energized, substantially as and for the purposes set forth.

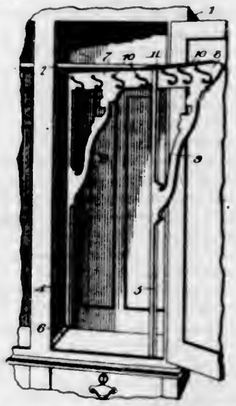
12. In a railway switching and signaling apparatus, a mechanical interlocker governing the action of the switch-lever and the signal-lever, an electric switch, a switch-bar actuating said mechanical interlocker and said switch, and a track-switch-operating circuit and switch-operating motor; an electric switch, a signal-bar actuating said interlocking mechanism and said electric switch, a signal-operating circuit and a signal-operating motor, detents for holding said bars against final movement and mechanical means for locking said detents, magnets for unlocking said detents and circuits capable of being closed to include said magnets with their respective motors and acting as generators to energize said magnets, substantially as and for the purposes set forth.

13. In a railway switching and signaling apparatus, in combination with a mechanical interlocker, an electric switch, a circuit including a battery, a track-switch-operating motor and motor mechanism for actuating said track-switch, a bar actuating said mechanical interlocker and said electric switch, a detent governing said bar, means for locking said detent operated by the movement of said bar, and mechanism for unlocking said detent consisting of a circuit, a pole-changing switch and a magnet, said circuit including said magnet and said track-switch-operating motor, said magnet being energized to unlock said detent by said motor acting as a generator after the pole-changing switch is thrown, substantially as and for the purposes set forth.

14. A railway switching and signaling apparatus consisting of a mechanical interlocker, a battery, a track-switch-operating motor, a circuit including said battery and said motor, an electric switch for closing said circuit, a bar actuating said mechanical interlocker and said electric switch, a detent for holding said bar against final movement, means for locking said detent, electrically-operated means for unlocking said detent consisting of an indication-circuit, a magnet, a pole-changing switch for closing said magnet in said indication-circuit with said motor; and a signal mechanism comprising a signal, a signal-operating motor, a circuit including said signal-operating motor and said battery, a switch for closing the same, a bar for actuating said switch and said interlocker, a detent for holding said bar against final movement, mechanical means for locking said detent, and electrically-operated means for unlocking said detent consisting of a magnet, a switch and said signal-operating motor and indication-circuit including the same, substantially as and for the purposes set forth.

15. A railway switching and signaling apparatus, consisting of a mechanical interlocker, a battery, a track-switch-operating motor, a circuit including said battery and said motor, an electric switch for closing said circuit, a bar actuating said interlocker and said electric switch, a detent for holding said bar against final movement, means for locking said detent, electrically-operated means for unlocking said detent consisting of an indication-circuit, a magnet, a pole-changing switch for closing said magnet in said indication-circuit with said motor; and a plurality of signals and signal-operating circuits, each including the signal-operating motor, a switch, a shunt-circuit and a magnet for holding the signal at safety, and having separate circuits including said motor, said switch, said magnet and said battery, and a corresponding plurality of selector-magnets for throwing their respective signals, and indication-circuits and magnets energized by said signal-motor, a plurality of bars actuating said interlocking mechanism and the switch belonging to its respective circuit, detents for holding said bars against final movement, mechanical means for locking said detents, and means for unlocking said detents when their respective magnets are energized, substantially as and for the purposes set forth.

752,128. WARDROBE-BRACKET. JOSEPH TERNES, Henderson, Ky. Filed Aug. 26, 1903. Serial No. 170,848. (No model.)



Claim.—1. In a storage-closet, a pair of diagonally opposite pivoted uprights having laterally-extending arms provided with garment-supporting hooks, a link pivotally connecting the free ends of said arms, a door mounted hingedly adjacent to the outer upright, and means supported by said door and having sliding connection with the arm of said outer upright.

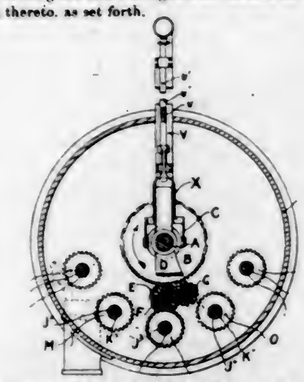
2. The combination with a storage-closet, of a pair of diagonally opposite pivoted uprights, one of said uprights being disposed adjacent to the hinged edge of the door constituting the closure of such closet, said uprights having laterally-extending garment-supporting arms, a link connecting said arms, a keeper upon the arm adjacent to the door, and a hook member upon said door slidably engaging said keeper.

3. In a storage-closet, a pair of garment-supporting arms disposed opposite to each other and pivoted to the closet to swing upon diagonally opposite vertical axes, a link connecting said arms, and a slidable connection between one of said arms and a door, the latter having hinged connection with the closet.

752,129. INTERCHANGEABLY-LOCKED GEARING. WILLIAM H. THOMPSON and ROBERT THOMPSON, London, England. Filed Dec. 22, 1902. Serial No. 136,228. (No model.)

Claim.—1. In a motor-driven vehicle, a multiple speed-gear comprising an axle to be driven, a spur-wheel loosely mounted on said axle, a clutch for coupling said wheel to said axle, a carriage pivoted on said axle, a pinion mounted on said carriage and gearing with spur-wheel on said axle, two pinions of equal size mounted on said carriage so that they gear with one another one of said pinions being connected to the pinion gearing with spur-wheel on driven axle, a group of axles arranged radially with respect to driven axle and at equal distances therefrom, spur-pinions on said axles with

which the two pinions in gear with one another and mounted on said carriage can be engaged by rocking said carriage on said axle, a train of gearing connecting the group of radially-arranged axles with one another so that the speed of each succeeding one after the first—which is the driving-axle—is reduced a predetermined degree, and means for rocking the said carriage on driven axle and locking same in respect thereto, as set forth.



2. In a motor-driven vehicle a multiple speed-gear comprising an axle to be driven, a spur-wheel loosely mounted on said axle, a clutch for coupling said wheel to said axle, a carriage pivoted on said axle, a pinion mounted on said carriage and gearing with spur-wheel on said axle, two pinions of equal size mounted on said carriage so that they gear with one another one of said pinions being connected to the pinion gearing with spur-wheel on driven axle, a group of axles arranged radially with respect to driven axle and at equal distances therefrom, spur-pinions on said axles with which the two pinions in gear with one another and mounted on said carriage can be engaged by rocking said carriage on said axle, a train of gearing connecting the group of radially-arranged axles with one another so that the speed of each succeeding one after the first—which is the driving-axle—is reduced a predetermined degree, of a case inclosing said gear, a lever for operating rocking carriage, a quadrant over which said lever travels and means for rocking said carriage on the driven axle and for locking the same thereto, as set forth.

3. In a motor-driven vehicle a multiple speed-gear comprising an axle to be driven, a spur-wheel loosely mounted on said axle, a clutch for coupling said wheel to said axle, a carriage pivoted on said axle, a pinion mounted on said carriage and gearing with spur-wheel on said axle, two pinions of equal size mounted on said carriage so that they gear with one another one of said pinions being connected to the pinion gearing with spur-wheel on driven axle, a group of axles arranged radially with respect to driven axle and at equal distances therefrom, spur-pinions on said axles with which the two pinions in gear with one another and mounted on said carriage can be engaged by rocking said carriage on said axle, a train of gearing connecting the group of radially-arranged axles with one another so that the speed of each succeeding one after the first—which is the driving-axle—is reduced a predetermined degree, a case inclosing said gear, a lever for operating rocking carriage, a quadrant over which said lever travels, a trigger-rod for locking said lever to said quadrant, and a connection for operating the clutch locking the spur-wheel on driven axle to said axle, as set forth.

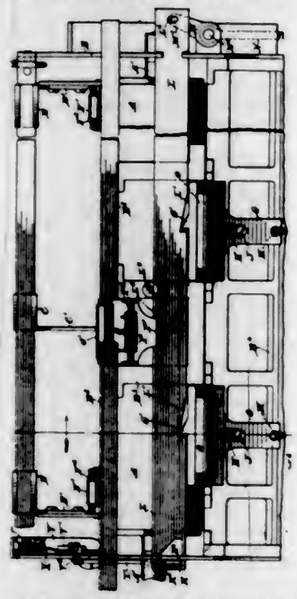
752,130. COMBINED MATCH-BOX AND CIGAR-CUTTER. FRANK H. VIEH, Jr., New York, N. Y. Filed Feb. 5, 1903. Serial No. 142,058. (No model.)



Claim.—1. The combination with a match-receptacle having a cutting member formed on the edge of one of its walls and a recess in the opposite wall, of a hinged cover having a cutting edge on one of its walls and a recess in its opposite wall, said cutting edge cooperating with said cutting member to sever an article resting in said recesses and lying across said walls of said receptacle.

2. The combination with a match-receptacle having a curved cutting member on one of its walls and a recess in the opposite wall, of a hinged cover having a curved cutting edge on one of its walls and a recess in its opposite wall, said cutting edge cooperating with said cutting member to sever an article resting in said recesses and lying across said walls of said receptacle.

752,131. PAPER-GUIDE FOR TYPE-WRITING MACHINES. FRANK X. WAGNER, New York, N. Y., assignor to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Feb. 11, 1903. Serial No. 142,850. (No model.)



Claim.—1. The combination, with the platen and pressure-exerting devices adapted to engage the same, of a longitudinally-movable bar for throwing the said pressure-exerting devices off the platen, a lever arranged to be swung transversely by the longitudinal movement of the said bar, and a paper-guide arranged adjacent to the platen and adapted to be swung away therefrom when the said lever is operated by the movement of the said bar.

2. The combination, with the platen and pressure-exerting devices adapted to engage the same, of means for throwing said pressure-exerting devices off the platen, a paper-guide movable toward and from the platen, and means for operating said paper-guide, said means being in loose engagement with the means for throwing the pressure-exerting device off the platen, so that the paper-guide may be operated independently of the said pressure-exerting devices.

3. The combination, with the platen, of a lever fulcrumed thereon, a paper-guide carried by said lever, and another lever fulcrumed upon the first-named lever and in locking engagement with the platen-frame, said second lever being capable of an initial independent movement to disengage it from the platen-frame.

4. The combination, with the platen and its frame, of a lever fulcrumed on said frame, a front bar carried by said lever, a paper-guide supported by said front bar, and an auxiliary locking lever fulcrumed upon the first-named lever and normally in locking engagement with the platen-frame.

5. The combination, with the platen and its frame of a plurality of roller-carriers arranged adjacent to the platen and having their rollers in longitudinal alinement with each other, each roller-carrier being capable of an independent movement toward and from said platen, said carriers being further capable of an independent oscillating motion so as to bring one end or the other of each roller nearer to the platen-surface, and means for throwing all of said carriers away from the platen.

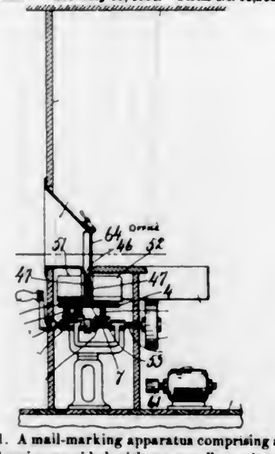
6. The combination, with the platen and its frame, of a plurality of carriers loosely mounted on said frame so as to be independently movable toward and from the platen, a plurality of alining rollers journaled on said carriers and extending parallel with the

platen, said carriers being capable of independently swinging in such a manner as to bring one end or the other of each roller nearer to the platen-surface and means for throwing said carriers away from the platen.

7. The combination, with the platen and its frame, of pressure-exerting devices movable toward and from the platen, a sliding bar for throwing said pressure-exerting devices off the platen, said bar being provided with an inclined surface, a transversely-movable lever arranged to be operated by engagement with said inclined surface of the sliding bar, and a paper-guide movable toward and from the platen and arranged to be swung away from the platen by the movement of said lever.

8. The combination, with the platen and its frame, of a rigid carrier, a roller having both of its ends journaled on said carrier, the carrier and roller being capable of moving toward and from the platen and being further capable of an oscillating motion so as to bring one end or the other nearer to the platen-surface, the axis of the roller being always in the same relation to the carrier during all of its motions, and means for throwing said carrier and roller away from the platen.

752,132. MAIL-MARKING APPARATUS. HENRY E. WAITE, Newton, Mass. Filed July 15, 1901. Serial No. 68,285. (No model.)



Claim.—1. A mail-marking apparatus comprising an office having a wall or barrier provided with a normally unobstructed letter-opening, letter-advancing means within the office for moving letters deposited through said opening out of alinement with said opening, and means to mark the letters received from said letter-advancing means.

2. The combination of a wall or barrier, a letter-marking machine on one side of said barrier, a letter-opening in said barrier out of alinement with the marking-machine, and means for moving the letter from said opening to the marking-machine as it is deposited, whereby the opening is maintained unobstructed for the passage of letters

3. A mail-marking apparatus comprising an office having a wall or barrier provided with a letter-opening, mechanism within the office for marking letters deposited in said opening, said mechanism being out of alinement with said letter-opening, and means accessible from the outer side of said barrier and non-obstructive of said opening for operating said mechanism.

4. A mail-marking apparatus comprising an office having a wall or barrier provided with a letter-opening, mechanism within the office for marking letters deposited in said opening, said mechanism being out of alinement with said letter-opening, a motor for operating said mechanism, and means accessible from the outer side of said barrier for operating said mechanism, said means having provisions for detachment from operative position.

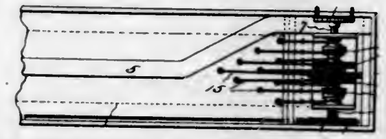
5. A mail-marking apparatus comprising an office having a wall or barrier provided with a letter-opening, mechanism within the office for marking the letters deposited in said opening, said mechanism being out of alinement with said letter-opening, and means controllable from within the office for obstructing or exposing said opening.

6. A mail-marking apparatus comprising an office having a wall or barrier, a mailing-chute accessible from both the outer and inner sides of said barrier, mechanism within the office for marking letters deposited in said chute, said mechanism being out of alinement with said chute, and means movable into or out of a position obstructing said chute from the outside.

7. A mail-marking apparatus comprising an office having a wall or barrier, a mailing-chute accessible from both the outer and inner sides of said barrier, mechanism within the office for marking letters deposited in said chute, said mechanism being out of alinement with said chute, and a chute-controlling device movable into position to obstruct the chute either from the outer side or the inner side of said partition, leaving it exposed from the opposite side.

8. The combination of a wall or barrier having a letter-opening, mail-marking mechanism located on one side of said barrier, means for moving the deposited letters to said mechanism, and means for varying the relative positions of said barrier and opening to permit of the opening receiving letters from one side or the other of the barrier.

752,133. BOWLING-ALLEY. JAMES R. WALSH, Jacksonville, Fla., assignor of one-half to Rhoderick G. Ross, Jacksonville, Fla. Filed July 14, 1903. Serial No. 165,421. (No model.)



Claim.—1. A bowling-alley having movable pins, sheaves of different diameters, cords of different lengths connecting the sheaves and the pins the longer cords being attached to the larger sheaves, and means terminating at the head of the alley for rotating the sheaves and winding up the cords, substantially as specified.

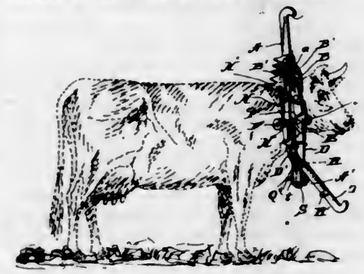
2. A bowling-alley having movable pins, sheaves of different diameters, a shaft supporting the sheaves, a spring connection between the sheaves and the shaft, flexible cords of different lengths connecting the sheaves and the pins the longer cords being attached to the larger sheaves, and means terminating at the head of the alley for rotating the shaft and winding up the cords, subtantially as specified.

3. A bowling-alley having movable pins, sheaves of different diameters, cords of different lengths connecting the sheaves and the pins the longer cords being attached to the larger sheaves, loops and buttons connecting sections of the cords, and means terminating at the head of the alley for rotating the sheaves and winding up the cords, substantially as specified.

4. A bowling-alley having perforations through the bowling-floor at the pin-spots, movable pins, sheaves of different diameter, cords of different lengths leading from the pins through the perforations to the sheaves, the longer cords being attached to the larger sheaves, mechanism for rotating the sheaves and drawing the cords tant and means terminating at the head of the alley for operating the sheave mechanism, substantially as specified.

5. A bowling-alley having movable pins, a shaft extending transversely at the pit end of the alley, sheaves of different diameters connected with the shaft, flexible cords of different lengths connected with the sheaves and leading through the perforations in the alley to the pins the longer cords being attached to the larger sheaves, means terminating at the head of the alley for rotating the shaft in one direction and winding up the cords, and a spring for rotating the shaft in the opposite direction, subtantially as specified.

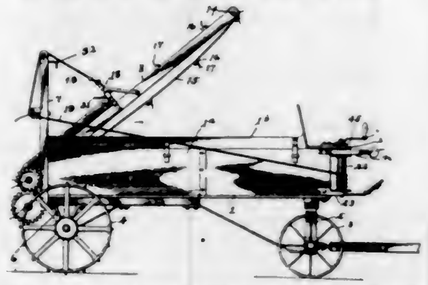
752,134. ANIMAL-POKE. JOSEPH S. WRATHERS, Windsor, Mo. Filed Nov. 24, 1903. Serial No. 182,512. (No model.)



Claim.—1. An animal-poke comprising a poke-bar hooked at one end, a bar B secured thereto, pricking-plates secured to said bars, pivot-pins carried by said bars, strips pivotally mounted upon said pins, one of said strips being bent upon itself at its upper end to form a hook designed to engage over the shank portion of said poke-bar, springs adapted to hold said poke-bar at its forward throw, as set forth.

2. An animal-poke comprising a poke-bar hooked at one end, a bar B secured thereto, headed pivot-pins carried by said bars, strips pivotally mounted upon said pins, the upper end of one of said strips being bent to form a hook adapted to engage over the rear edge of the shank portion of said poke-bar, a spring coiled about each of said pivot-pins, the upper ends of said springs being bent to form hooks to engage over the edges of said bar to hold the poke-bar in its normal position, the lower ends of said springs being bent to form hooks surrounding said strips, a pivot-pin carried by said strips, a hooked bar pivotally mounted upon said pivot-pin carried by the strip, and a spring having a hook for yieldingly supporting said hooked bar, as set forth.

752,135. **FERTILIZER-SPREADER.** CHARLES H. WEBER, Alton, Ohio. Filed Oct. 12, 1903. Serial No. 176,689. (No model.)



Claim.—1. In a fertilizer-spreader, the combination with a wagon-bed, its ground-wheels and an upright frame at the rear end of said bed, of a conveyer-frame pivoted at one end, a toothed conveyer carried in said frame, a rope running over said upright bed-frame and a windlass journaled at the forward end of the bed on which said rope is adapted to be wound and means for imparting a traveling motion to said conveyer.

2. In a fertilizer-spreader, the combination with a wagon-bed, its ground-wheels, an upright frame at the rear of the bed, and pulleys mounted thereon, of a conveyer-frame pivoted at the rear of the bed, a conveyer mounted in said frame comprising parallel endless belts and connecting toothed crossed bars, a rope running from said conveyer-frame over said upright frame pulleys, a windlass rotatably mounted at the forward end of the bed on which said rope is adapted to be wound and a toothed distributing-roll journaled beneath the rear end of said conveyer and means for imparting rotary motion to said roll and a traveling motion to said conveyer.

3. In a fertilizer-spreader, the combination with a wagon-bed, its ground-wheels, an upright frame at the rear of the wagon-bed, a swinging frame pivoted at the rear end of the bed, and an endless conveyer carried by the swinging frame, of a windlass at the forward end of the bed, a cable connected to the swinging frame and the windlass and also running over the upright frame, a friction brake-bar hinged to the bed and adapted to engage the windlass, a knee-operated lever connected with the brake-bar, and means for imparting a traveling motion to said conveyer.

752,136. **WRENCH.** MILTON WENGER, New Holland, Pa. Filed Nov. 22, 1902. Serial No. 132,355. (No model.)

Claim.—1. A wrench, comprising a shank, a rack thereon, a fixed jaw, a slidable jaw, a conical recess in said slidable jaw, a threaded nut rotatable on said rack, and a conical bearing on said nut adapted to engage the recess in the slidable jaw, substantially as described.

2. A wrench comprising a shank, a rack thereon, a fixed jaw, a slidable jaw, a conical recess in said slidable jaw, a threaded nut rotatable on said rack, a conical bearing on said nut adapted to engage the recess in the slidable jaw, and a spring-actuated device for normally pressing said bearing into engagement with its recess, substantially as described.

3. A wrench, comprising a shank, a rack thereon, a fixed jaw, a slidable jaw, a conical recess in said slidable jaw, a threaded nut rotatable on said rack, a conical bearing on said nut adapted to engage the recess in the slidable jaw, and a pivoted spring-actuated device for normally pressing said bearing into engagement with its recess, substantially as described.

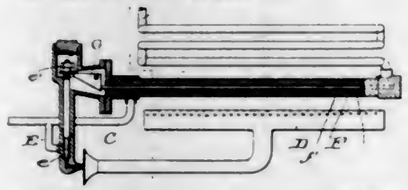


4. A wrench, comprising a shank, a rack thereon, a fixed jaw, a slidable jaw, a conical recess in said slidable jaw, a threaded nut rotatable on said rack, a conical bearing on said nut adapted to engage the recess in the slidable jaw, and a pivoted spring-actuated lever for engaging said rotatable nut and normally pressing the bearing thereon into engagement with its recess.

5. In a wrench having sliding jaws, the combination with a screw and rack adjusting mechanism for said jaws, of a friction-clutch device normally acting to prevent rotation of the screw and a lever adapted to be engaged by the hand to free said friction-clutch device when desired.

6. In a wrench having sliding jaws, the combination with a screw and rack adjusting mechanism for said jaws, of a friction-clutch device, a spring acting to normally hold the friction-surfaces in contact and a lever adapted to be engaged by the hand to free said friction-surfaces when desired.

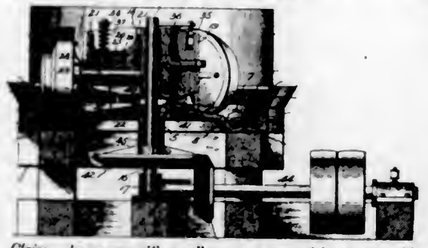
752,137. **APPARATUS FOR GENERATING KEROSENE-VAPOR.** ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 28, 1902. Serial No. 104,907. (No model.)



Claim.—1. The combination of a generator containing oil at all times, a gas-burner for heating the same to vaporize said oil, a valve for controlling the flow of gas to said burner, and a thermostat for controlling said valve and arranged to cause the valve to move in the closing direction to reduce the gas-supply of said burner when the heat of the generated oil-vapor reaches a predetermined maximum and to move in the opening direction as the temperature of said vapor is reduced, thereby preventing the disruption of the oil-vapor, substantially as described.

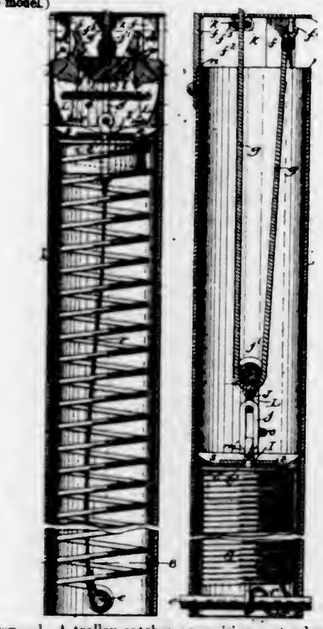
2. The combination of a generator containing at all times oil to be vaporized, and having an outlet-pipe, a gas-burner arranged beneath the generator for heating the same, a branch pipe connected with said outlet-pipe and discharging into the burner, a valve controlling the flow of gas to said burner, a thermostat in the generator, and operative connections between said thermostat and valve whereby the latter will be opened when the temperature within the generator falls below a predetermined minimum and will be allowed to close when said temperature goes above a predetermined maximum, substantially as specified.

752,138. **ORE-MILL.** WILLIAM E. WILD, Denver, Colo. Filed Nov. 24, 1902. Serial No. 132,652. (No model.)



Claim.—In an ore-mill; a roll-support, comprising a central hub having wings which extend tangentially therefrom; and which are recessed to form guideways, the bottoms of which incline downwardly toward the hubs, and are apertured adjacent thereto, while their sides have vertical grooves formed therein; bearing-blocks located in the guideways, each having a horizontal bore, tongues which fit in the vertical grooves, and oil-holes, one of which extends through the top of the block into the bore, while the other extends from the bore through the bottom of the block and communicates with the guideway of the support; rolls having shafts which are journaled in the bore of the block, the said rolls having shoes with two grinding-faces at an angle to each other, in combination with a chamber having a central bore which is surrounded by an oil-cup, an annular die having faces which coincide with the faces of the rolls, and a shaft extending through the said bore, to which the support is keyed, and means for revolving the shaft and support, substantially as shown.

752,139. **TROLLEY-CATCHER.** WILLIAM C. YOUNG and JOHNSTON MCMAHON, Buffalo, N. Y. Filed June 1, 1903. Serial No. 159,463. (No model.)



Claim.—1. A trolley-catcher comprising a standard having a shoulder, a spring for retracting the trolley secured at its fixed end to the standard, a detent device connected with the movable end of the spring and constructed to engage said shoulder for holding the spring in a strained condition, and means operating to disengage the detent from said shoulder independently of the pull which is exerted by the trolley, substantially as set forth.

2. A trolley-catcher comprising a standard provided with a shoulder, a main spring for pulling the trolley downwardly secured at one end to said standard, a latch connected with the other end of said spring and constructed to engage said shoulder in the normal operation of the trolley, and a retracting-spring which constantly tends to withdraw said latch from said shoulder independently of the pull of the trolley, substantially as set forth.

3. A trolley-catcher comprising a standard provided at its upper end with a shoulder, a main spring for pulling the trolley downwardly secured at its lower end to the lower end of said standard a yoke secured to the upper end of the main spring and receiving the pull of the trolley, a latch pivoted on the yoke and constructed to engage said shoulder, and a retracting-spring for disengaging the latch from said shoulder operating independently of the pull of the trolley, substantially as set forth.

4. A trolley-catcher comprising a standard provided at its upper end with a shoulder, a main spring for pulling the trolley downwardly secured at its lower end to the lower end of said standard, a yoke secured to the upper end of the main spring and receiving the pull of the trolley, a latch pivoted on said yoke and provided with a shoulder adapted to engage with the shoulder of said standard, said latch being free to swing inwardly but its outward movement being limited by coöperating stop-faces on the latch and yoke, and a spring for retracting said latch into an inoperative position, substantially as set forth.

5. A trolley-catcher comprising a standard provided at its upper end with a shoulder, a main spring for pulling the trolley downwardly secured at its lower end to the lower end of said standard, a yoke secured to the upper end of the main spring and receiving the pull of the trolley, a latch pivoted on the yoke and provided with a shoulder coöperating with the shoulder of the standard and with a finger-piece, and a spring for retracting said latch, substantially as set forth.

6. A trolley-catcher comprising a standard provided at its upper end with a shoulder, a main spring for pulling the trolley downwardly secured at its lower end to the lower end of said standard, a yoke secured to the upper end of the main spring and receiving the pull of the trolley, a latch pivoted on the yoke and provided with a shoulder coöperating with the shoulder of the standard, a downwardly-projecting guide-tail and an upwardly-projecting finger-piece, and a spring for retracting the latch, substantially as set forth.

7. A trolley-catcher comprising a standard provided at its upper end with a shoulder, a main spring for pulling the trolley downwardly secured at its lower end to the lower end of said standard, a yoke secured to the upper end of the main spring and receiving the pull of the trolley, a latch pivoted on the yoke and provided with a shoulder coöperating with the shoulder of the standard, a downwardly-projecting tail having a curved guide-face on its outer side and an upwardly-projecting finger-piece, and a spring for retracting the latch, substantially as set forth.

8. A trolley-catcher comprising a standard having a shoulder at its upper end, a main spring for retracting the trolley secured at its lower end to the lower end of the standard, a yoke receiving the pull of the trolley and connected centrally with the upper end of the main spring, latches pivoted at opposite ends of the yoke and each constructed to engage said shoulder, and means operating to disengage the detent from said shoulder independently of the pull of the trolley, substantially as set forth.

9. A trolley-catcher comprising a standard having a shoulder at its upper end, a main spring for retracting the trolley secured at its lower end to the lower end of the standard, a yoke receiving the pull of the trolley and connected centrally with the upper end of the main spring, latches pivoted at opposite ends of the yoke and each constructed to engage said shoulder, and a spring for disengaging said latches from said shoulder operating independently of the pull of the trolley, substantially as set forth.

10. A trolley-catcher comprising a standard having a shoulder at its upper end, a main spring for retracting the trolley secured at its lower end to the lower end of the standard, a yoke which receives the pull of the trolley connected centrally to the upper end of the main spring, latches pivoted at opposite ends of the yoke and each provided with a shoulder constructed to engage the shoulder of the standard, a downwardly-projecting guide-tail and an upwardly-projecting finger-piece, and a spring connecting the tails of both latches and operating to disengage the latches from the shoulder of the standard, substantially as set forth.

11. A trolley-catcher comprising a tubular standard having a shoulder and side openings at its upper end, a main spring for retracting the trolley arranged in the standard and connected thereto at its lower end, a yoke receiving the pull of the trolley secured to

the upper end of the main spring, latches for engaging a shoulder on the upper end of the standard mounted on the yoke and provided with finger-pieces normally arranged opposite the openings in the standard, and a spring for retracting said latches into an inoperative position, and operating independently of the pull of the trolley, substantially as set forth.

12. A trolley-catcher comprising a standard, a main spring for retracting the trolley secured at its lower end to the standard and operatively connected at its upper end with the trolley-rope, a latch for holding the main spring in a distended condition, and a stop device for limiting the distending movement of said spring, substantially as set forth.

13. A trolley-catcher comprising a standard, a main spring for retracting the trolley secured at its lower end to the standard and operatively connected at its upper end with the trolley-rope, a latch for holding the main spring in a distended condition, and a slack stop-rope connecting the upper end of the spring with the lower end of the standard for limiting the distention of the spring, substantially as set forth.

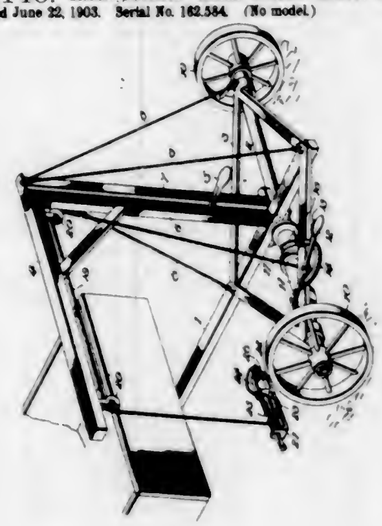
14. A trolley-catcher comprising a standard, a pin secured diametrically to the lower end of the standard and having its ends projecting from opposite sides thereof, and a socket receiving the lower end of the standard and provided in its side with bayonet or undercut slots which receive the ends of said pin, substantially as set forth.

15. A trolley-catcher comprising a tubular standard, a main spring for retracting the trolley arranged within the standard and secured thereto at its lower end while its upper end is operatively connected with the trolley, a latch connected with the upper end of said spring and constructed to engage with the standard for holding the spring in a distended condition, and a device for retarding the distending movement of the spring, substantially as set forth.

16. A trolley-catcher, comprising a tubular standard, a main spring for retracting the trolley arranged within the standard and secured thereto at its lower end while its upper end is operatively connected with the trolley, a latch connected with the upper end of said spring and constructed to engage with the standard for holding the spring in a distended condition, and a retarding device connected with the upper end of the spring and frictionally engaging with the inner side of said standard, substantially as set forth.

17. A trolley-catcher, comprising a tubular standard, a main spring for retracting the trolley arranged within the standard and secured thereto at its lower end while its upper end is operatively connected with the trolley, a latch connected with the upper end of said spring and constructed to engage with the standard for holding the spring in a distended condition, and means for retarding the distending movement of the spring consisting of an upwardly-dished cup of flexible material secured to the upper end of the spring and engaging its periphery with the interior of the standard, substantially as set forth.

752,140. SHOCK-LOADER. ELLERY CARROLL, Morrow, Ohio. Filed June 22, 1903. Serial No. 162,584. (No model.)



Claim.—1. In a loader of the character described, the combination of an axle adapted to be rotated by traction of its wheels with the ground, a swinging crane, a hoisting-rope, a drum having the hoisting-rope connected thereto so as to wind thereon, coöperating means between the axle and drum to cause simultaneous rotation thereof to effect a lifting of the load by movement of the apparatus over the field, coöperating means between the frame of the loader and the drum to hold the load in suspension, and means for moving the drum to any one of its three positions, substantially as described.

2. In a shock-loader, the combination of an axle adapted to be rotated through traction of its wheels with the ground, a drum loosely mounted upon the axle, means coöperating with the drum, the frame and the axle for connecting said drum to either the axle or the frame, a hoisting-rope having one end secured to the drum and adapted to wind thereon, a swinging crane supporting said hoisting-rope, and securing means at the outer end of the hoisting-rope consisting of a ring at the extremity of the hoisting-rope, a frame having a sheave-pulley loosely mounted upon the hoisting-rope, and a rigid hook, a pivoted hook and a spring-actuated lock-lever applied to said frame and coöperating substantially in the manner set forth for the purpose specified.

752,141. TROUSERS-CREASER. ROCKIE C. CHANDLER, Sycamore, Ill., assignor of one-half to Walter R. Hecht, Chicago, Ill. Filed Nov. 14, 1901. Serial No. 82,272. (No model.)



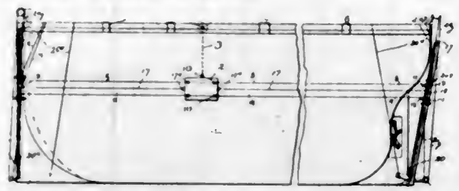
Claim.—1. A trousers-creaser comprising a pair of arms pivoted together intermediate their ends tong fashion, a pair of rollers with plain, cylindrical, parallel, engaging faces mounted upon the ends of said arms and projecting substantially at right angles therefrom, and a guard-arm projecting from the end of one of said arms to the other, adjacent the inner ends of said rollers, and having operative connection with said latter arm, for the purposes shown and described.

2. In a trousers-creaser the combination of the flat metal arms pivoted together between their ends tong fashion, and also bowed between their ends, the cylindric rolls journaled upon the ends of the respective arms upon parallel axes, said rolls being of substantially equal length and the guard upon one of said arms arranged to overlap the end of the opposite arm, and provided with a slot engaging the stud upon said opposite arm and formed concentric with the axis of bodily movement of the rolls, substantially as described.

3. In a trousers-creaser the combination of the flat metal arms pivoted together between their ends tong fashion, and also bowed between their ends, the cylindric rolls journaled upon the ends of the respective arms upon parallel axes, said rolls being of substantially equal length and having their corners remote from the arms rounded, and the guard upon one of said arms arranged to overlap the end of the opposite arm, and provided with the slot engaging the stud upon said opposite arm and formed concentric with the axis of bodily movement of the rolls, substantially as described.

752,142. SHIP-CLEANING DEVICE. EDWARD COLE, New York, N. Y. Filed June 13, 1900. Renewed July 21, 1903. Serial No. 166,497. (No model.)

Claim.—1. In a ship-cleaning device, the combination of a scraping mechanism, a vertically-adjustable and longitudinally-extending suspending means adapted to remain stationary while the scraping mechanism travels over the same, and an adjustable, vertical suspending means adapted to travel longitudinally with the scraping mechanism, substantially as described.



2. In a ship-cleaning device, the combination of a scraping mechanism, a vertically-adjustable and longitudinally-extending suspending means adapted to remain stationary while the scraping mechanism travels over the same, an adjustable, vertical suspending means adapted to travel longitudinally with the scraping mechanism, and means for effecting a back-and-forth movement of the scraping mechanism, substantially as described.

3. In a ship-cleaning mechanism, the combination of a rail adapted to be suspended from the bulwark and provided with bearing portions of different heights, with a plurality of guiding-wheels of a number equal to the number of different bearing portions of the rail, and corresponding in size to said bearing portions and adapted to travel freely over same, substantially as described.

4. In a ship-cleaning device, the combination of a scraping mechanism of the character set forth, with a vertically-suspending means adapted to travel longitudinally with the scraper, a plurality of horizontal guiding ropes or cables over which the scraping mechanism is adapted to travel, and means for effecting such movement, substantially as described.

5. In a ship-cleaning device, the combination of a scraping mechanism of the character set forth, with a graduated and vertically-adjustable suspending means adapted to travel longitudinally with the scraper, a plurality of horizontal guiding-ropes vertically adjustable, over which the scraping mechanism is adapted to travel, and means for effecting such movement, substantially as described.

6. In a ship-cleaning device, the combination of two detachable guide-supporters one each at the bow and stern of a vessel and adapted to be fastened there in a suitable manner, a scraping device, a longitudinally-extending suspending means adapted normally to remain stationary and to form a support over which the scraper travels, means for causing the scraper to travel longitudinally over the suspending means, and means vertically adjustable on the guide-supporters for adjusting the vertical position of the suspending means and of the means for operating the scraper, substantially as described.

7. In a ship-cleaning device, a scraping mechanism comprising a plate adapted to travel longitudinally over the hull of the vessel, two outer, pivoted scraping-knives adapted to yield to an excessive pressure, and a plurality of radially disposed and fixed scraping-knives located intermediate between the outer yielding knives, the knives being so arranged that the scraper will perform its function when moved in either direction, substantially as described.

8. In a ship-cleaning device, a scraping mechanism comprising a plate adapted to travel longitudinally over the hull of the vessel, two outer, oppositely-located and pivoted scraping-knives adapted to yield to an excessive pressure, and a plurality of radially-disposed and fixed scraping-knives located intermediate between the outer yielding knives, the knives being so arranged that the scraper will perform its function when moved in either direction, substantially as described.

9. In a ship-cleaning device, a scraping mechanism comprising a plate adapted to travel longitudinally over the hull of the vessel, two outer, oppositely-located and pivoted scraping-knives adapted to yield to an excessive pressure and placed at right angles to the line of motion of the plate, and a plurality of radially-disposed and fixed scraping-knives located intermediate between the outer yielding knives and placed at an obtuse angle to the line of travel of the plate, the knives being so arranged that the scraping mechanism will perform its function when moved in either direction, substantially as described.

10. In a ship-cleaning device, a scraping mechanism comprising a plate adapted to travel longitudinally over the hull of the vessel, two outer oppositely-located and pivoted scraping-knives adapted to yield to an excessive pressure and placed at right angles to the line of motion of the plate, and a plurality of radially-disposed and fixed scraping-knives located intermediate between the outer yielding knives and placed at an obtuse angle to the line of travel of the plate, one half of said fixed knives having their outer edges turned in one direction, while the other half have their outer edges turned in the opposite direction, whereby the scraping mechanism will perform its function when moved in either direction, substantially as described.

11. In a ship-cleaning device, the combination with the hull of the vessel of a detachable guide-supporter, two arms extending from said supporter adapted to be attached to either the bow or the stern of the vessel and to fit snugly over the same, a vertical guiding-slot in said supporter, a guide adapted to slide in said slot, and means for effecting the up-and-down movement of the gnide, substantially as described.

752,143. SHOE-POLISHER. GEORGE B. COLEMAN, Memphis, Tenn. Filed Mar. 3, 1903. Serial No. 145,910. (No model.)



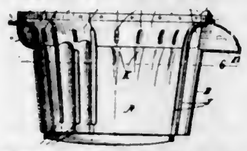
Claim.—1. In a shoe-polisher, the combination with an arch spring-back having one end extended to form a handle, said back being notched at one end and having holes through the opposite end where the handle begins, of detachable hooks engaging said back and resting in said notches and holes, said hooks being extended below said back and formed into loops and a strip of polishing fabric carried by said loops.

2. In a shoe-polisher, the combination with an arch spring-back having notches near its opposite ends, of similar hooks engaging said back at said notches, said hooks being extended below said back and formed into loops and a belt of polishing-cloth carried by said loops.

3. In a shoe-polishing device, the combination with an arch spring-back, oppositely-disposed hooks attached to said back, said hooks being extended below said back and formed into loops, of a polishing-belt stretched on said loops, said belt being made of two pieces of cloth of different texture.

4. A shoe-polishing device, comprising an arched back, oppositely-disposed hooks attached to and extending beneath said back and a polishing-belt stretched on said hooks made of two pieces of cloth of different texture.

752,144. STOVE. PETER J. COPPENS, Grand Rapids, Mich. Filed June 3, 1903. Serial No. 159,896. (No model.)



Claim.—1. In a stove, a fire-pot having an outwardly-projecting flange and an upwardly-projecting flange at the top, a sheet-metal body surrounding the upwardly-projecting flange and having an outwardly-projecting flange resting on the corresponding flange of the fire-pot, a ring surrounding the body and extending horizontally and vertically opposite the flanges on the fire-pot, and bolts extending through the ring, the flanges, and the body.

2. In a stove, a fire-pot having its walls composed of a number of segmental portions spaced apart and extended outward and upward at the top, the intervening portions being recessed outward to form air-heating flues, detachable sections interposed between the said segmental portions to complete the circuit of the fire-pot and extended upward and outward to form a portion of the inner side of the air-chamber, and segments interposed between the upper part of the detachable sections to complete the inner portion of the air-chamber.

3. In a stove, the combination of a fire-pot consisting of a truncated conical portion comprising a number of segments spaced apart and extended outward and upward at the top, the intervening portions being recessed outward and extended upward to the plane of the top of the segments, detachable portions between the segments to complete the circuit of the fire-pot and extended upward and outward, and also provided with vertical slots to admit air, segments between the upper parts of the detachable portions,

and flanges on the upper edge of the detachable portions and the last-named segments to attach the same to the body of the stove.

4. In a stove, the combination of a fire-pot having a truncated conical portion, and an outwardly and upwardly extended portion forming the outer part of an air-chamber, a flange surrounding the upper part of the said extended portion for attaching the sheet-metal body of the stove, segments forming the inner portion of the air-chamber and resting on the top of the truncated conical portion of the fire-pot, a flange on the upper edge of the segments, and means for attaching the flange to the body of the stove.

5. The combination of a fire-pot having grooves to permit the escape of ashes from the air-chamber, and an outward and upward extension forming the outer part of the air-chamber, a flange on the extension to attach the sheet-metal body, segments forming the inner part of the air-chamber and provided with air-openings, flanges on the upper part of the segments and means for attaching the flanges to the sheet-metal body.

6. The combination of a fire-pot having segmental portions spaced apart and extended outward and upward at the top, the intervening portions being recessed outward to form flues, detachable portions between the said segments and provided with slots to admit air and also extended upward and outward to portions of the inner side of the air-chamber and attached to the body at their upper ends, an outwardly-projecting flange surrounding the upper edge of the fire-pot, segments forming the remaining portions of the inner side of the air-chamber and attached to the body, a cold-air inlet opening into the air-chamber, and a movable door to close the same.

7. In a stove, the combination of a fire-pot having an outwardly-projecting flange, a sheet-metal body having an outwardly-turned flange resting on the flange of the fire-pot, an air-chamber in the upper part of the fire-pot and having a vertical flange engaging the inner surface of the sheet-metal body, a ring surrounding the sheet-metal body and having a vertical flange opposite the flange on the air-chamber, bolts extending through said flanges, and bolts extending through the ring and through the flange on the fire-pot.

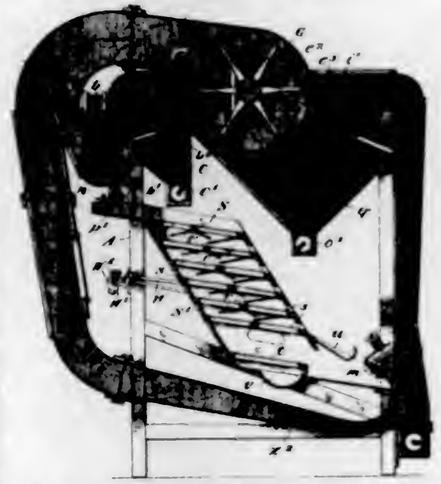
8. In a stove, the combination of a fire-pot having an outwardly-projecting flange, a stove-body having a flange resting on the flange of the fire-pot, an air-chamber in the fire-pot and having a vertical flange engaging the inner surface of the stove-body, an outwardly-projecting ring above the flange on the fire-pot, and having a vertical flange engaging the outside of the body and opposite the flange on the air-chamber, an outwardly-projecting air-inlet to the air-chamber, and a door to open and close the inlet and forming a portion of the ring.

9. In a stove, the combination of a fire-pot, an outwardly-projecting flange at the top of the fire-pot, a vertical flange on the fire-pot, a sheet-metal body surrounding the vertical flange, a flange on the body engaging the horizontal flange, a ring surrounding the body and extending vertically and horizontally opposite the flanges on the fire-pot, a bead on the ring and engaging the angle of the body, and bolts extending through the ring, flanges and body.

10. In a stove, the combination of a fire-pot, an outwardly and upwardly extended portion to the same forming the outer side of the air-chamber, a horizontal flange at the top of the extended portion, a sheet-metal body having an outwardly-extended horizontal flange resting on the flange of the fire-pot, detachable sections forming portions of the inner side of the air-chamber, and extending downward to form portions of the fire-pot, detachable segments forming the remainder of the inner side of the air-chamber, vertical flanges on the said segments and detachable portions and engaging the inner surface of the sheet-metal body, and a ring surrounding the body and extending vertically and horizontally, and opposite the flanges on the fire-pot, segments and sections, and fastenings extending through the ring, the flanges and the body.

752,145. GRAIN-SEPARATOR. JOHN B. CORNWALL, Moline, Ill., assignor to the Barnard and Leas Manufacturing Company, Moline, Ill. Filed Mar. 3, 1903. Serial No. 145,981. (No model.)

Claim.—1. In a grain-separator, the combination of a pair of air-trunks suitably separated, a pair of settling-chambers respectively communicating with the upper ends of said air-trunks, a fan-chamber communicating at its inlet with both said settling-chambers; means for feeding grain into the first trunk, a screen-shoe arranged to receive grain from the first trunk, screen it, and discharge it into the second trunk, a branched air-passage communicating with the outlet of the fan-chamber, one of the branches leading into the first air-trunk below the point of discharge of grain thereinto, the other branch leading into the second air-trunk below the point of discharge of grain thereinto, all arranged to form two closed air-circuits formed in the machine independent of the screen-shoe through the respective air-trunks, and said screen-shoe operating outside of both said closed air-circuits, substantially as specified.



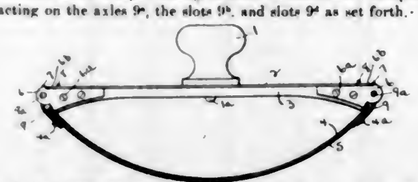
2. In a grain-separator, the combination of two air-separating trunks, two dust-settling chambers, respectively communicating with the upper end of said trunks, a fan-chamber, passages connecting the suction side of the fan-chamber with the said dust-settling chambers, an air-passage leading from the blast side of said fan-chamber, said passage dividing into two branches, said branches respectively leading into the lower ends of the respective air-trunks thereby forming two closed air-circuits in the machine, a relief device in said air-passage to keep the pressure at the blast side of the fan below the suction-pressure at the inlet side thereof, means for delivering grain into the first air-trunk, and a screen-shoe onto which the grain is discharged from the first air-trunk, and by which the grain is delivered into the second air-trunk, all substantially as and for the purpose described.

3. In a grain-separator, the combination of an air-trunk, a settling-chamber, a fan-chamber, passages connecting the settling-chamber with the inlet of the fan-chamber, an air-passage connecting the outlet of the fan-chamber with the lower end of the air-trunk, and forming a closed air-circuit, means for preventing an excess pressure of air in the outlet-passage of the fan, and means for feeding the grain through the lower end of said trunk, substantially as described; with a screen-shoe outside the air-circuit onto which the grain is discharged from said trunk, a second air-trunk through which the grain is discharged from said shoe, a settling-chamber communicating with the upper end of said second trunk and with the inlet of the fan-chamber, and an air-passage independent of the screen connecting the outlet of said fan-chamber with the lower end of said air-trunk and forming a second closed air-circuit, substantially as described.

4. In a grain-separator, the combination of a pair of air-trunks suitably separated, a pair of settling-chambers respectively communicating with the upper ends of said air-trunks, a fan-chamber, communicating at its inlet with both said settling-chambers; means for feeding grain into the first trunk; a screen-shoe arranged to receive grain from the first trunk, screen it, and discharge it into the second trunk, a branched air-passage communicating with the outlet of the fan-chamber, one of the branches leading into the first air-trunk below the point of discharge of grain thereinto, the other branch leading into the second air-trunk below the point of discharge of grain thereinto; means in said passage for regulating the currents of air through its branches, and an air-pressure relief device in the branch leading to the second air-trunk, all arranged to form two closed air-currents in the machine independent of the screen-shoe through the respective air-trunks, and said screen-shoe operating outside of both said closed air-circuits, substantially as specified.

752,146. BLOTTING-PAD. ISTVAN ČHIK, Stockton, Cal. Filed Aug. 10, 1903. Serial No. 168,887. (No model.)

Claim.—1. In a blotting-pad the combination of the handle 1, the screw 1^a, the plate 2, the bridge 3, the plate 4, the lugs 4^a and projections 4^b, the blotting-paper 5, the plate 6, the screws 6^a, the angle-grooves 6^b, the spring-catches 7, the screws 7^a, the slots 7^b, the buttons 8, the clasps 9 acting on axles 9^a, the axles 9^a, the springs 9^c acting on the axles 9^a, the slots 9^b, and slots 9^d as set forth.



2. In a blotting-pad the combination of the suitable handle 1, the plate 2, the bridge 3, the screw 1^a adapted to connect the handle 1 and the plate 2 to the bridge 3, the slots 7^b centrally located in the ends of the bridge 3, the spring-catches 7 suitably fastened in the slots 7^b by means of screws 7^a, the buttons 8 acting in the plate 2 and adapted to regulate the spring-catches 7, the plates 6 suitably attached to the bridge 3 by screws 6^a, the angle-grooves 6^b in said plates, the axles 9^a seated in the plates 6, the springs 9^c acting on said axles and regulating the clasps 9, the slots 9^b in said clasps adapted to engage with spring-catches 7, the slots 9^d in said clasps, the plate 4 attached to the bridge 3 and provided with lugs 4^a adapted to holding the blotting-paper 5 and engaging with the slots 9^d, all substantially as set forth.

3. A blotting-pad comprising the combination with a suitable handle, of the plate 2, the bridge 3, the screw 1^a adapted to connect said plate and handle to said bridge, the plate 4 curved downward from said bridge and means for securing said plate to said bridge, the lugs 4^a located at the ends of the plate 4, and means for securing the blotting-paper to the plate 4 all substantially as set forth.

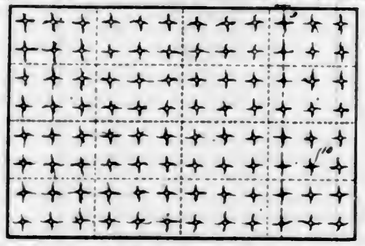
4. In a blotting-pad the bridge 3, the slots 7^b suitably located in the ends of said bridge, the spring-catches 7 secured in the slots 7^b by means of the screws 7^a, the plate 2 suitably attached to the top of the bridge 3, the buttons 8 located in said plate and adapted to regulate the spring-catches 7, all in combination with a suitable means for securing the blotting-paper on said pad.

5. In a blotting-pad of the kind described the combination of the bridge 3, the plates 6 suitably attached to the sides of the bridge 3 at the ends thereof, the axles 9^a seated in said plates, the clasps 9 acting on said axles, the springs 9^c acting on the axles 9^a and regulating the clasps 9, the slots 9^d suitably located in the clasps 9 and adapted to engage with any suitable spring-catches, means for disengaging said catches, and a suitable plate attached to the bridge 3 all as set forth.

6. In a blotting-pad the bridge 3, the plates 6 attached to the sides of said bridge at the ends thereof by means of screws 6^a, angle-grooves 6^b in said plates, in combination with the handle 1, the plate 2 suitably attached to the top of the bridge 3, the curved plate 4 suitably attached to the bridge 3, and means for securely holding the blotting-paper on the plate 4, all as set forth.

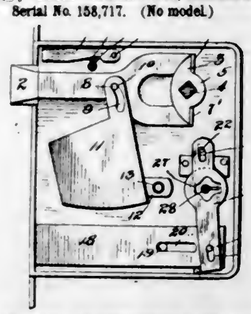
7. The bridge 3, the plate 4 suitably attached to the bridge 3, and curving downward therefrom, the lugs 4^a located near the ends of the plate 4, in combination with the plate 2, the handle 1, the screw 1^a, and means for holding the blotting-paper on said plate 4 all as set forth.

752,147. SPONGE-RUBBER MATTRESS. MYRON L. DERICK, Chicago, Ill. Filed Oct. 27, 1902. Serial No. 128,956. (No model.)



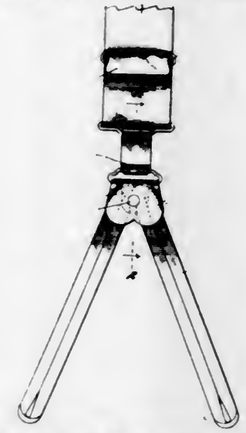
Claim.—As an article of manufacture, a mattress comprising a plurality of layers of sponge-rubber surrounded by a covering of textile fabric, each of said layers consisting of a plurality of slabs with abutting joints, the slabs of one layer being arranged so as to break joints with those of the next succeeding layer, substantially as described.

752,148. LOCK. CASPER FAUST, Rhinelander, Wis. Filed May 25, 1903. Serial No. 158,717. (No model.)



Claim.—In a lock, the combination with a casing, of a sliding bolt, a key-lever having a pivotal slip-joint connection at one end with the bolt and a sliding slip-joint connection at its opposite end with the casing, said bolt being thus mounted to swing and to slide or reciprocate at an angle to the bolt, and provided between said connections with a key-engaging portion, and a stop device co-acting with the bolt-connecting end of the lever, the latter being adapted to move in front or in rear of said stop device when retracted to lock the bolt in projected or retracted position.

752,149. ATTACHMENT FOR SUSPENDERS. HARVEY G. GEER, Rockford, Ill. Filed Dec. 7, 1903. Serial No. 184,118. (No model.)



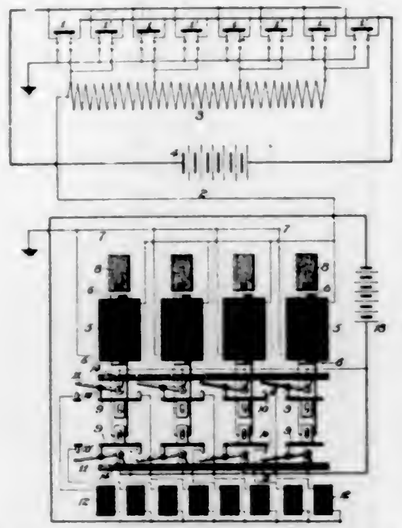
Claim.—In an attachment for suspenders, in combination, a pair of laterally-elongated loops arranged parallel to each other, a clasp connecting such loops together, a leaf hinge-jointed to the lower one of said loops, a clip passed through and depending from said lower loop, a rivet passed transversely through the clip and leaf and a garment-supporting strap suspended by its central portion from such rivet, substantially as and for the purpose specified.

752,150. ELECTRIC SELECTIVE SYSTEM. JULIEN A. GERRUDE, St. Louis, Mo. Filed Feb. 8, 1902. Serial No. 93,111. (No model.)

Claim.—1. In an electrical selective system of the character herein described, the combination of a main line, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selected electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, substantially as set forth.

2. In an electrical selective system of the character herein described, the combination of a main line, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and each comprising an electromagnet, an armature and a constant magnet, and two groups of interdepending circuit-closers arranged parallel with opposing

pairs operatively connected to a single selective electromagnet, substantially as set forth.



3. In an electrical selective system of the character herein described, the combination of a main line, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, substantially as set forth.

4. In an electrical selective system of the character herein described, the combination of a main line, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged in parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, the final contact-point of the series having a fixed position, substantially as set forth.

5. In an electrical selective system of the character herein described, the combination of a main line, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, the said contact-fingers comprising bars fulcrumed at one end to stationary brackets and pivotally connected at their middle with individual yokes obtaining movement from the selective electromagnets, substantially as set forth.

6. In an electrical selective system of the character herein described, the combination of a main line, a source of electromotive force, an electrical resistance divided into sections connected in series, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, substantially as set forth.

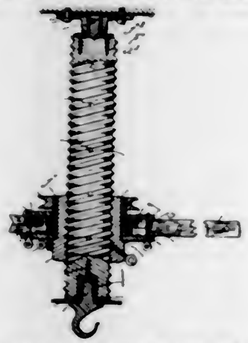
7. In an electrical selective system of the character herein described, the combination of a main line, a source of electromotive force, an electrical resistance divided into sections connected in series, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and each comprising an electromagnet, an armature and a constant magnet, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to a single selective electromagnet, substantially as set forth.

8. In an electrical selective system of the character herein described, the combination of a main line, a source of electromotive force, an electrical resistance divided into sections connected in series, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, substantially as set forth.

9. In an electrical selective system of the character herein described, the combination of a main line, a source of electromotive force, an electrical resistance divided into sections connected in series, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged in parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, the final contact-point of the series having a fixed position, substantially as set forth.

10. In an electrical selective system of the character herein described, the combination of a main line, a source of electromotive force, an electrical resistance divided into sections connected in series, a series of sending-keys adapted to send varied or diverse electrical impulses of different polarities along the main line, a series of selective electromagnets having correspondingly-graded electromotive forces, and two groups of interdepending circuit-closers arranged parallel with opposing pairs operatively connected to single selective electromagnets, one contact-finger of each local-circuit closer being controlled by one selective electromagnet and the companion contact-point by the next adjacent selective electromagnet, the said contact-fingers comprising bars fulcrumed at one end to stationary brackets and pivotally connected at their middle with individual yokes obtaining movement from the selective electromagnets, substantially as set forth.

732,151. CLOTHES-DRIER. CHARLES W. GEE, Seattle, Wash. Filed Aug. 10, 1903. Serial No. 168,912. (No model.)

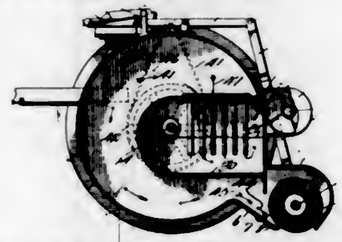


Claim.—1. In a device of the class described, the combination with an exteriorly-screw-threaded standard, and a nut registering with the said screw-thread, of a nave rotatably mounted upon the nut, the said nave being formed of two disk parts one of which being integrally connected with a sleeve and the other having a plurality of pendent lugs to provide sockets for a number of radiating arms, means to integrally connect the said nave-disks to each other, and means to fixedly secure the said nave to the nut, substantially as set forth.

2. In a device of the type set forth, a standard provided with exterior screw-threads throughout its length, a nut mounted thereon, having a shoulder, a boss projecting above said shoulder, a nave mounted on said boss and seating on said shoulder, a disk on the lower end of said standard of greater diameter than said standard, means for securing said disk to the standard, arms on the nave, and means for engaging the nut to prevent downward movement of the same when the nut is out of engagement with said disk.

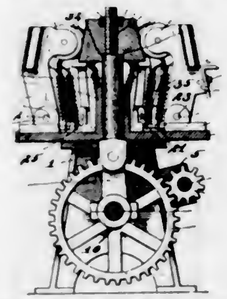
3. In a device of the type set forth, a standard screw-threaded throughout its length, and having a disk on its lower end of greater diameter than said standard, a nut operating on the standard, arms connected to the nut, said standard having a series of perforations therein, and means to be inserted in said perforations to engage the nut and limit the movement thereof.

732,152. SWEEPING-MACHINE. CARL A. GREEN, Katrineholm, and HANS E. LARSSON, Stockholm, Sweden. Filed July 31, 1902. Serial No. 117,798. (No model.)



Claim.—A device of the type set forth comprising a casing having a water-tank therein, means on the casing communicating with the tank for exhausting air from the latter, a series of tubes having their upper ends open and extending through the top of said tank and secured thereto, said tubes having closed foraminous lower ends, in combination with a brush and means for simultaneously operating the brush with said exhausting means, said tank being located intermediate the top and bottom of the casing and secured to the forward end thereof, whereby an arc-shaped passage is formed leading from the brush to the upper ends of said tubes.

732,153. HOOP FLARING AND SIZING MACHINE. CHARLES GROTNES, Chicago, Ill. Filed Nov. 9, 1903. Serial No. 180,431. (No model.)



Claim.—1. In a hoop flaring and sizing machine, in combination, a supporting-frame; a plurality of expanding members, each having an expanding-face and a roller at the rear of said expanding-face; a base-block for each of said expanding members; means for adjustably securing said base-blocks to said supporting-frame; a reciprocatory head having a conical face against which said rollers are adapted to bear; and a spring for each of said expanding members for holding said roller in contact with said head, said spring extending between said base-block and the upper end of said expanding member.

2. In a hoop flaring and sizing machine, in combination, a supporting-frame having a central, upwardly-extending, tubular stem; a circular series of expanding members, each having an expanding-face and a roller at the rear of said expanding-face; a base-block for each of said expanding members; means for adjustably securing said base-block to said supporting-frame; a plunger slidably mounted in said tubular stem; a head secured to the upper end of said plunger, said head having a conical face against which said rollers are adapted to bear; means for reciprocating said plunger; and a spring for each of said members, for holding said roller in contact with said head, said spring extending between said base-block and the upper end of said expanding member.

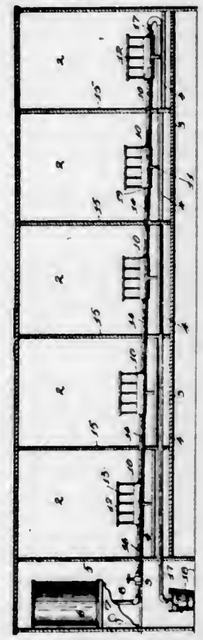
3. In a hoop flaring and sizing machine, in combination, a supporting-frame; a series of base-blocks upon said frame; an expanding member pivotally mounted upon each of said base-blocks; clamping-plates overlying said base-blocks; means for securing said clamping-plates to the supporting-frame; and means for pivotally moving said expanding members.

4. In a hoop flaring and sizing machine, in combination, a supporting-frame; a circular series of base-blocks upon said frame; an expanding membe. pivotally mounted upon each of said base-blocks; clamping-plates of triangular outline, each provided on two of its sides with a rabbet adapted to receive one edge of the adjacent base-block; means for securing said clamping-plates to the supporting-frame; and means for pivotally moving said expanding members.

5. In a hoop flaring and sizing machine, in combination, a supporting-frame; a series of base-blocks upon said frame; means for adjustably securing said base-blocks to said frame; an expanding member pivotally mounted upon each of said base-blocks, one of said members having a guide-support alined with the face of said expanding member; a hoop-guide adjustably mounted upon said guide-support; and means for pivotally moving said expanding members.

6. In a hoop flaring and sizing machine, in combination, a supporting-frame; a series of base-blocks upon said frame; an expanding member pivotally mounted upon each of said base-blocks; means for adjustably securing said base-blocks to said frame; means for pivotally moving said expanding members in one direction; and a coil-spring for each of said members, extending between said base-block and the upper end of said expanding member for moving said member in the opposite direction.

732,154. WATERING APPARATUS FOR POULTRY-HOUSES. GEORGE HACKER, St. Louis, Mo. Filed Jan. 15, 1903. Renewed Dec. 26, 1903. Serial No. 186,706. (No model.)



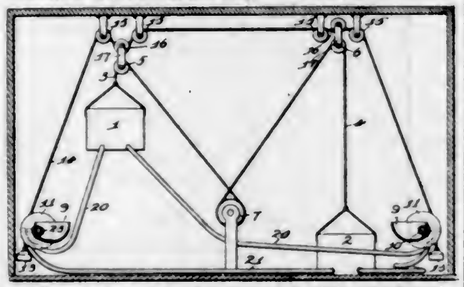
Claim.—1. A system of water-supply for poultry-houses, consisting of a supply-tank, a pipe extending from the bottom of the tank, a valve mounted on the end of the pipe, a series of drinking-fountains, a pipe-section leading from the valve to the first of such fountains, and other pipe-sections connecting the series of fountains to each other, the fountains being arranged successively lower as they are distant, in the series, from the source of supply, and a pipe-section leading from the fountain farthest from the source of supply and adapted to receive the discharge from the series of fountains, substantially as and for the purposes specified.

2. A system of water-supply for poultry-houses, consisting of a supply-tank, a pipe extending from the bottom of the tank, a valve mounted on the end of the pipe adjacent to the tank, a series of

drinking-fountains, a pipe-section leading from the valve to the first of such fountains, and other pipe-sections connecting the series of fountains to each other, in such manner that the fountains will be filled by opening the valve, and a pipe-section leading from the fountain farthest from the source of supply to a position adjacent to the source of supply and adapted to receive the discharge from the series of fountains, substantially as and for the purposes specified.

3. A drinking-fountain for fowls comprising a water-receptacle 10, supply and discharge pipe connections for such receptacle about which the latter is arranged to swing to empty the same, a supporting-leg for the receptacle, a pivoted cover 12 arranged above the receptacle, and a series of slats depending from the cover, substantially as set forth.

752,155. **WATER-SUPPLY APPARATUS FOR CATTLE, POULTRY, &c.** GEORGE HACKER, St. Louis, Mo. Filed May 25, 1903. Renewed Dec. 26, 1903. Serial No. 186,707. (No model.)



Claim.—1. A water-supply apparatus, consisting of a fountain, a pipe whereon the fountain is mounted, two tanks flexibly connected to the pipe, and means whereby said tanks are alternately raised and lowered to supply the fountain with water and to receive the water discharged from the fountain, substantially as described.

2. In a water-supply apparatus, the combination of a plurality of fountains, a supply-tank flexibly connected to the series of fountains, means whereby the contents of the fountain is emptied as the supply-tank becomes empty, a receiving-tank flexibly connected to the fountain, means whereby the receiving-tank may be elevated above the level of the fountains to become a source of supply, and means whereby the supply-tank may be lowered beneath the level of the fountains to receive the discharge therefrom, substantially as described.

3. A device of the class named, consisting of a series of drinking-fountains, two tanks flexibly connected to the drinking-fountains, and means whereby the tanks may be alternately raised and lowered with reference to the fountains and to each other, so that each becomes successively a supply and a receiving tank, substantially as described.

4. A device of the class named, consisting of a series of drinking-fountains, two tanks flexibly connected to the drinking-fountains, means whereby the tanks may be alternately raised and lowered with reference to the fountains and to each other, so that each becomes successively a supply and a receiving tank, means whereby the weight of the supply-tank is adapted to hold the fountains in position and to release the fountains as the water is discharged from the supply-tank, and means whereby the fountains are revolved to discharge their contents when released by the discharge of the water from the supply-tank, substantially as described.

752,156. **CLAMPING DEVICE.** GEORGE HACKER, St. Louis, Mo., assignor of one-half to Henry J. Vollmer, St. Louis, Mo. Filed June 2, 1903. Serial No. 159,808. (No model.)

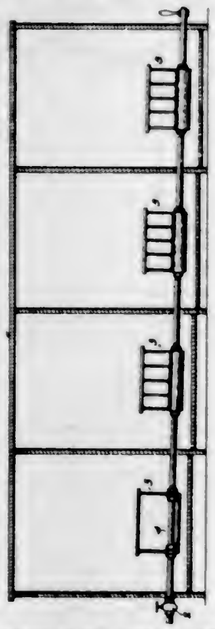
Claim.—1. A clamping device comprising a threaded rod, two oppositely-threaded nuts split longitudinally in halves, washers recessed to receive the bases of the nuts, the nuts being adapted to be screwed toward each other upon the rod to hold an intervening object in place upon the rod, the halves of the nuts being held together by the recesses in the washers, substantially as described.

2. A device of the class described, comprising a washer, a pipe, recesses formed in said washer, packing material placed in one of said recesses, a split nut adapted to be placed upon a threaded portion of said pipe and to lodge within the other recess of the washer when brought in contact therewith and held in locked position upon said pipe by the walls of the recess of said washer, substantially as specified.

3. A device of the class described, comprising a split nut, a pipe, threads formed on a portion of said pipe, washers having recesses, one of said recesses retaining packing, the other recess receiving the square end of the split nut, the several parts when placed together forming a complete clamping device when brought in contact with the object to be supported upon the pipe, substantially as specified.



752,157. **STOCK-WATERING APPARATUS.** GEORGE HACKER, St. Louis, Mo. Filed Sept. 25, 1903. Serial No. 174,613. (No model.)

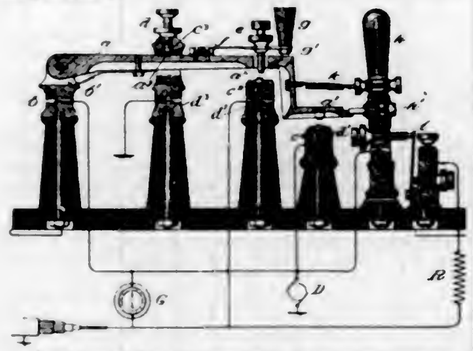


Claim.—A stock-watering apparatus consisting of a supply-pipe inclined downward from the source of supply, a series of drinking-fountains rigidly mounted on the pipe, the pipe being perforated within the fountains, and means whereby the pipe may be revolved to empty the contents of the fountains through the perforations in the pipe, substantially as described.

752,158. **KEY FOR CABLE-TESTING.** WILLIAM R. HALE, Chicago, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 29, 1901. Serial No. 57,952. (No model.)

Claim.—1. In a testing-key, the combination with a main switch-lever, two switch-contacts operated in sequence in the movement of said switch-lever in one direction, a detent adapted to hold said switch-lever in its operative position, a switch-contact operated in the movement of the detent, and a contact operated in the return of the switch-lever to its normal position.

2. In a testing apparatus, the combination with a source of current, a galvanometer and a shunt of the galvanometer including a resistance, of a main switch-lever, two switch-contacts operated in sequence through the agency of said lever when moved in one direction, one of said contacts controlling the connection of the source of current with the galvanometer and the device to be tested, and the other of said contacts controlling a short circuit of the galvanometer, a detent adapted to hold the switch-lever in its operative position, a switch-contact operated in the movement of the detent, said switch-contact controlling the said shunt of the galvanometer, and a contact actuated in returning the switch-lever to its normal position, adapted to discharge the device being tested, through the galvanometer.

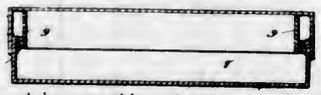


3. In a switch-key, the combination with the switch-arm *a* and a contact adapted to be closed thereby, of a supplemental spring-mounted key *f* carried by said arm, an independent contact c^3 controlled by said supplemental key, the main switch-arm being adapted to be operated by operating the supplemental key, a detent or catch adapted to hold the switch-arm in one of its positions of adjustment, and a switch-contact controlled by said catch and operated in releasing the switch-arm *a*, substantially as set forth.

4. In a switch-key, the combination with a switch-arm *a* and a contact adapted to be closed thereby, of a supplemental spring-key *f* carried by said arm, and an independent contact c^3 adapted to be closed by said supplemental key, a knob *g* for said supplemental key, whereby both the supplemental key and the main switch-arm may be depressed, said supplemental key when released being adapted to break its contact c^3 independently of the switch-arm, a detent-lever *h* having a catch adapted to hold the arm *a* in its depressed position, and a switch-contact closed in releasing said arm.

5. In a testing apparatus, the combination with a source of current, a galvanometer and a resistance, of a key comprising a pivoted switch-arm and contacts closed in the alternate positions of said arm, one of said contacts controlling a connection of the source of current with the galvanometer and the cable to be tested, and the alternate contact controlling a connection of the cable through the galvanometer to a return-circuit to discharge the cable through said galvanometer, a supplemental switch-key carried by said switch-arm whereby the switch-arm and the supplemental key may be depressed together, a contact controlled by the supplemental key for closing a short circuit of said galvanometer, the supplemental key being adapted to open said short circuit when released, a detent-lever for holding the switch-arm depressed, and a contact controlling a shunt of the galvanometer including the aforesaid resistance, closed by said detent-lever in releasing the switch-arm.

752,159. **BOX.** EDWARD D. HAMILTON, Vancouver, Wash. Filed Sept. 23, 1902. Serial No. 124,559. (No model.)

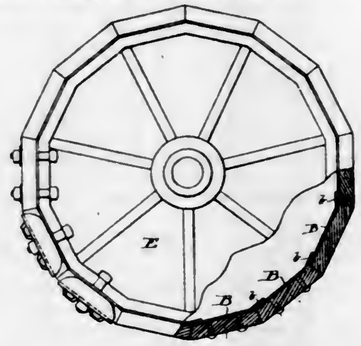


Claim.—A box comprising a bottom section having hooked flanges at the top edge of the sides thereof, a telescoping middle section inside the bottom section, formed of sides having hooked flanges at the bottom edge thereof, engaging the flanges of the bottom section when the box is extended, and a removable top section or cover having depending sides inclosing the other sections when the box is closed.

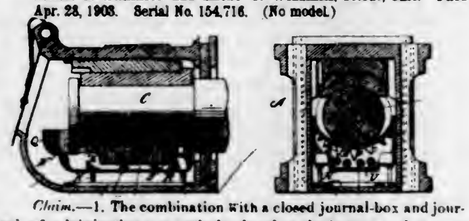
752,160. **TUMBLING-BARREL.** WALTER H. HART, New Britain, Conn. Filed Nov. 27, 1903. Serial No. 182,717. (No model.)

Claim.—1. In a tumbling-barrel, a lining comprising adjacent sheet-metal plates, one edge of one plate overlapping one edge of the next adjacent plate.

2. In a tumbling-barrel, staves arranged edge to edge, interior lining and reinforcing plates secured thereto, one edge of each plate overlapping and resting upon the surface of the next adjacent plate, said plates covering the joints between said staves.



752,161. **LUBRICATING DEVICE FOR CAR-AXLE JOURNALS.** FRANK B. HARRISON and LACEY Y. WILLIAMS, Toledo, Ohio. Filed Apr. 28, 1903. Serial No. 154,716. (No model.)



Claim.—1. The combination with a closed journal-box and journal, of a lubricating-pan entirely closed at the bottom and open at the top to receive waste and a journal; four housings detachably secured to the four corners of the pan; a spring in each housing; and posts each having an end located in the housing and bearing against a spring.

2. The combination with a lubricating-pan having holes, of housings each made in two parts and detachably secured together, springs in the housings, posts bearing against the springs, and a base to which the posts are secured.

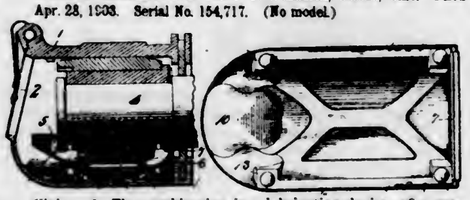
3. The combination with a lubricating-pan having holes, of a base, posts, springs, and housings for the springs; each housing comprising a lower threaded portion and an upper threaded portion between which the metal of the pan is clamped, and the ends of said posts located within the lower portions of housings and engaging the springs.

4. The combination with a journal-box, journal and spring-supported lubricating-pan, of waste-retaining means located adjacent the rear wall of the pan and said means having prongs.

5. The combination with a spring-supported lubricating-pan, of waste-retaining means consisting of a sheet-metal plate having its edge slit and portions of the metal bent alternately in opposite directions and at angles to the plate for the purpose set forth.

6. A lubricating-pan having a waste-retainer adjacent its rear wall with openings therein to allow the lubricant to pass from the rear of the retainer to the front portion of the pan.

752,162. **LUBRICATING DEVICE FOR CAR-AXLE JOURNALS.** FRANK B. HARRISON and LACEY Y. WILLIAMS, Toledo, Ohio. Filed Apr. 28, 1903. Serial No. 154,717. (No model.)



Claim.—1. The combination in a lubricating device, of a pan, a base, posts uniting the base and pan, and a spring independent of the posts and located between the base and the bottom of the pan.

2. The combination in a lubricating device, of a pan provided with recesses in its sides and bottom, a skeleton base, and a spring, said recesses adapted to receive the spring and base when the base is pressed to the bottom of the pan.

3. The combination in a lubricating device, of a pan, a base, posts uniting the pan and base and secured to the corners of the base, housings for the ends of the posts, and a spring located between the central portion of the base and the bottom surface of the pan.

4. The combination in a lubricating device, of a pan with recesses in its bottom, a skeleton base, a spring adapted to be compressed into the recesses of the pan, and means for guiding the base relative to the pan.

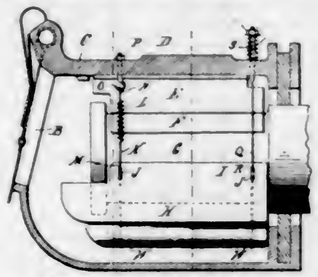
5. A lubricating device comprising the pan 5, base 18, spring 25, and posts 22, the said spring being independent of the posts and located between the bottom surface of the pan and the top surface of the base.

6. The combination with a lubricating-pan of a ⊓-shaped guard embracing the rear wall of the pan, and a spring, for the purpose set forth.

7. The combination with a lubricating-pan, of a spring for pressing the same to the journal; a waste-retainer at the rear wall of the pan, and a spring in connection with said waste-retainer and forcing the retainer against the journal.

8. The combination with a journal and concave journal-box, of a pan having a recessed concavo-convex bottom; a base concavo-convex in cross-section; means for holding the base in line with the pan, and a spring mechanism for forcing the pan to the journal, said base being adapted to be pressed into the recesses within the bottom of the pan so that the pan and base may be withdrawn from the box through the opening in the end thereof.

752,163. LUBRICATING DEVICE FOR CAR-AXLE JOURNALS. FRANK B. HARRISON and LACEY Y. WILLIAMS, Toledo, Ohio. Filed Apr. 28, 1903. Serial No. 154,718. (No model.)



Claim.—1. The combination with a journal-box and journal, of a pan open at the top and closed at the bottom to contain a liquid lubricant and waste; and suspensory rods and springs secured at their lower ends to the pan and at their upper ends to the top of the box.

2. The combination with a journal and journal-box, of a lubricating-pan; a brass and wedge, there being open spaces between the edges of the brass and wedge and the sides of the journal-box; and spring suspensory means for holding the pan against the journal; said spring suspensory means being secured at their lower ends to the pan and passed upwardly through the open spaces between the brass and wedge and the sides of the box, and secured at their upper ends to the top of the box.

752,164. DUST-GUARD. FRANK B. HARRISON, Toledo, Ohio. Filed June 25, 1903. Serial No. 163,032. (No model.)



Claim.—1. The combination with a journal and a journal-box having a dust-guard chamber, of a frame with a circular opening therein, and a ring U-shaped in cross-section with its edges loosely lapping over the circular edge of the frame and frictionally engaging the dust-guard bearing of the axle so as to revolve with the journal.

2. The combination with a journal, and a journal-box having a dust-guard chamber, of a frame with a circular opening therein, and a spring-ring U-shaped in cross-section with its ends breaking joints when in position within the circular opening of the frame and its edges lapping over the circular edge of the frame and loosely engaging the same.

3. The combination with a journal and journal-box having a dust-guard chamber, of a frame made in sections with a circular opening, and a ring U-shaped in cross-section with its edges lapping over the edges of the sections of the frame and loosely engaging the same so that the ring may revolve with the journal.

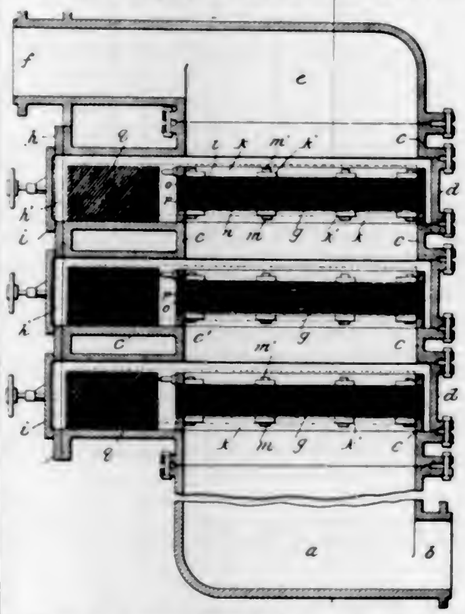
4. The combination with a journal and a journal-box having a dust-guard chamber, of a frame provided with a circular opening with a tongue, and a ring U-shaped in cross-section and loosely engaging the tongue and frictionally engaging the dust-guard bearing of the axle so as to revolve with the journal.

5. The combination with a journal and a journal-box having a dust-guard chamber, of a frame having a circular opening with a tongue and a spring-ring U-shaped in cross-section with free ends which overlap, said ring frictionally engaging the dust-guard bearing of the axle and loosely engaging the tongue of the frame.

6. A sectional dust-guard frame having a substantially circular opening and a ring U-shaped in cross-section loosely overlapping the edges of the opening and fixed upon the dust-guard bearing of the axle so as to revolve with the journal.

7. A dust-guard frame having a substantially circular opening, a ring U-shaped in cross-section surrounding the opening, and a second ring U-shaped in cross-section overlapping the first-mentioned ring U-shaped in cross-section and adapted to revolve in frictional contact therewith.

752,165. CONTACT APPARATUS FOR THE PRODUCTION OF SULFURIC ANHYDRID. WILHELM HASENBACH, Mannheim, Germany, assignor to Verein Chemischer Fabriken in Mannheim, Mannheim, Germany. Filed Apr. 28, 1902. Serial No. 106,070. (No model.)



Claim.—1. A contact element for the production of anhydrous sulfuric acid, consisting of a pair of supporting-frames, a plurality of sheets of platinized fabric, and wire-netting arranged between adjacent sheets of platinized fabric, said fabric and netting being clamped between and supported by said frames, substantially as set forth.

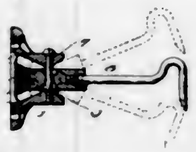
2. A contact element for the production of anhydrous sulfuric acid, consisting of upper and lower supporting-frames, a plurality of sheets of platinized fabric between said frames, spacing-frames between adjacent sheets of fabric, wire-netting also between adjacent sheets, and means for clamping the supporting-frames together, substantially as set forth.

3. A contact element for the production of anhydrous sulfuric acid, consisting of upper and lower supporting-frames, a plurality of sheets of platinized fabric between said frames, spacing-frames between adjacent sheets of fabric, wire-netting also between adjacent

sheets, asbestos packing interposed between adjacent spacing-frames and also between the supporting-frames and the adjacent spacing-frames, and means for clamping the supporting-frames together, substantially as set forth.

4. In an apparatus for the production of anhydrous sulfuric acid, the combination with a casing having gas inlet and outlet passages, a series of inwardly-projecting ledges forming supports, and a series of openings in one side, of contact elements slidably supported by said ledges and the contacting surfaces of the ledges and elements forming gas-tight joints, and each element being separately removable through one of said openings in the casing, and detachable means for closing said openings, substantially as set forth.

752,166. FASTENER FOR DOORS OR THE LIKE. JAMES B. HAWKINS, Slater, Mo. Filed Nov. 17, 1903. Serial No. 181,542. (No model.)



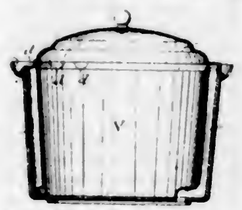
Claim.—1. In a fastener, the combination of a frame, a hook pivotally connected thereto, and a flat spring cooperating with the hook to hold the same either open or closed, the parts being constructed to admit of tilting movement of the hook at its outer end when extended, the said spring maintaining the hook when extended in a predetermined position, substantially as set forth.

2. In a fastener, the combination of a frame, a hook pivoted thereto and having its butt-end straight, a spring for holding the hook either open or closed, and a stop applied to the butt-end of the hook to prevent closing of said hook away from the frame, substantially as set forth.

3. In combination, a frame, a hook having an elongated opening, a pin pivotally connecting the hook with the frame and passed through said elongated opening, and a spring exerting a pressure upon the butt-end of the hook to maintain the same in the required position, substantially as set forth.

4. In combination, a frame having its side bars flared rearwardly and outwardly, a hook mounted between said side bars about in line with the juncture of the oppositely-flared portions both for pivotal and tilting movement, and a spring for holding the hook in a given position, substantially as specified.

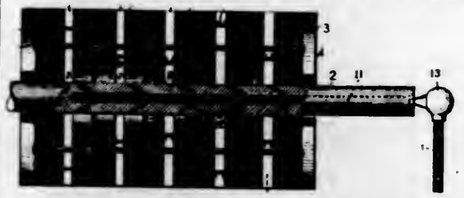
752,167. CULINARY VESSEL. FREDERICK H. HILL, Somerville, Mass. Filed Jan. 5, 1903. Serial No. 137,980. (No model.)



Claim.—1. In combination with a culinary vessel, provided with a straight tube or passage with open ends and a steam-outlet from the passage through the side of the vessel near its top, the lower end of which passage opens into and terminates within the vessel near its bottom and the upper end thereof near the top of the vessel within the circle bounding the rim of the cover, and a cover provided with means to fit over and close the upper end of the passage when the cover is in proper position upon the vessel.

2. In a culinary vessel provided with an annular channel around its upper edge adapted to retain liquid, a straight tube or passage with open ends and a steam-outlet therefrom through the side of the vessel near its top, the lower end of which passage opens within the vessel near its bottom and the upper end above and within the inner wall of the annular channel, and a cover provided with a downwardly-projecting flange to fit within the channel and with means to close the upper end of said passage when the cover is in proper position upon the vessel.

752,168. DYNAMO-ELECTRIC MACHINE. HANS HOLZWARTH, Hamilton, Ohio, assignor to the Hooven, Owens, Rentschler Company, Hamilton, Ohio. Filed Nov. 21, 1903. Serial No. 182,057. (No model.)



Claim.—1. In a dynamo-electric machine, the combination, substantially as set forth, of an armature having a series of ventilating-spaces leading from the shaft outwardly and having an independent inner chamber for each of said ventilating-spaces, and an armature-shaft having an axial conduit and having independent branch conduits placing said axial conduit in communication with said inner chambers.

2. In a dynamo-electric machine, the combination, substantially as set forth, of an armature having a series of ventilating-spaces leading from the shaft outwardly and having an independent inner chamber for each of said ventilating-spaces, an armature-shaft having an axial conduit and having independent branch conduits placing said axial conduit in communication with said inner chambers, and means for forcibly delivering a cooling medium to the axial bore of the shaft.

3. In a dynamo-electric machine, the combination, substantially as set forth, of an armature having a series of ventilating-spaces leading from the shaft outwardly and having an independent inner chamber for each of said ventilating-spaces, an armature-shaft having an axial conduit and having independent branch conduits placing said axial conduit in communication with said inner chambers, said branch conduits being arranged at an angle to the axis of the shaft.

4. In a dynamo-electric machine, the combination, substantially as set forth, of an armature-shaft having an axial conduit and having branch conduits leading outwardly therefrom, a series of laminations carried by the shaft and forming the general body of the armature and separated at intervals to form ventilating air-spaces leading from the shaft outwardly, and separators disposed within said air-spaces and formed of separated wall-disks with vanes between them and having shell-hubs engaging within enlarged ports of the laminations.

5. In a dynamo-electric machine, the combination, substantially as set forth, of an armature provided with a series of ventilating air-spaces leading from the shaft outwardly, an armature-shaft having an axial conduit and having branch conduits placing the same in communication with said ventilating-spaces, and a field-core having air-passages extending from its polar face outwardly.

752,169. TOP CLAMP FOR UPHOLSTERY-SPRINGS. PHINEAS F. KING, Cleveland, Ohio, assignor of one-half to Charles H. Tucker, Cleveland, Ohio. Filed Apr. 11, 1903. Serial No. 152,117. (No model.)

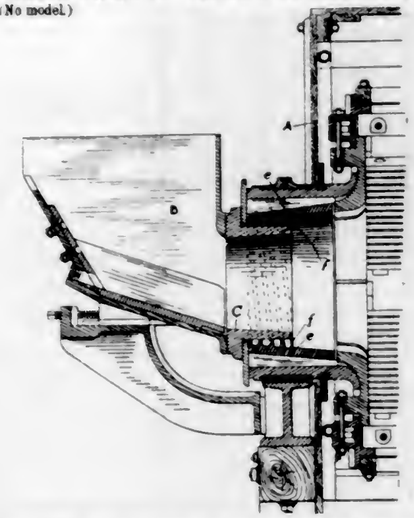
Claim.—1. A top clamp for upholstering-springs consisting of a plate portion, having clamping-fingers bent down from opposite ends thereof, and a separating-finger bent down from one side thereof along a line substantially at right angles to the lines over which the clamping-fingers are bent down.

2. A top clamp for upholstering-springs consisting of a plate having two clamping-fingers bent down from each end thereof, and a separating-finger bent down from each side thereof, the lines in which these separating-fingers are bent down being substantially at right angles to the lines in which the clamping-fingers are bent down.

3. A top clamp for upholstering-springs consisting of a plate having clamping-fingers bent downward from opposite ends thereof, and having an integral downwardly-bent separating-finger, combined with two diverging wires lying on opposite sides of said separating-finger, and around which the clamping-fingers are bent to hold them together and in contact with said separating-finger.

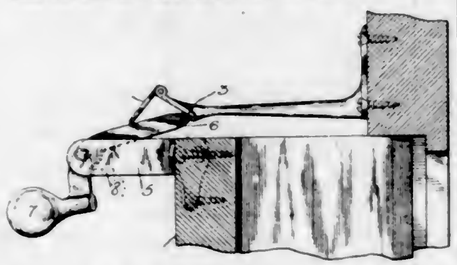
4. A top clamp for upholstering-springs consisting of a plate having clamping-fingers turned down from opposite ends thereof, and having a separating-finger turned down from one side thereof and adapted to lie between two diverging wires when said wires are embraced by said clamping-fingers.

752,170. DEVICE FOR PROTECTING THE JOINTS BETWEEN STATIONARY AND MOVABLE MACHINERY. FERDINAND W. KROGH, San Francisco, Cal. Filed Aug. 4, 1903. Serial No. 168,234. (No model.)



Claim.—The improvement in protecting joints between stationary and moving machinery of the class described, consisting in securing to the moving surface of the joint a spiral flange or flanges whereby the ore and sand are prevented from entering between the surfaces of the joint, substantially as described.

752,171. DOOR-STOP. OSWALD LOCKETT, MICHEAL J. KENNY, JOHN P. STIMEBACH, and THEODORE H. UDELL, Chicago, Ill., assignors to Orr & Lockett Hardware Co., Chicago, Ill., a Corporation of Illinois. Filed Dec. 22, 1902. Serial No. 136,156. (No model.)



Claim.—1. In a door-stop the combination with the door and the door-jamb or part fixed with relation to the door, of a pivoted pawl attached to one of said parts, a member with which said pawl engages attached to the other of said parts and a deflectable shield hanging normally in the line of movement of the end of said pawl and shielding said member from engagement by said pawl, substantially as set forth.

2. In a door-stop the combination with the door and the door-jamb or part fixed with relation to the door, of a pivoted pawl secured to one of said members and a pawl-arresting member secured to the other and adapted to be engaged by said pawl, and a swinging lip arranged in the line of movement of said pawl and adapted to cover said pawl-arresting member, substantially as set forth.

3. In a door-stop the combination with the door or door-jamb or part fixed with relation to the door, of a pawl pivoted to one of said parts and an arm secured to the other and projecting horizontally, the outer end of said arm having a notch for the engagement of said pawl and an upwardly-inclined flange projecting away from said arm, and a shield or lip hinged to said flange and depending in the line of movement of said pawl, substantially as set forth.

4. In a door-stop the combination with the door and the door-jamb or part fixed with relation to the door, of a pivoted pawl secured to one of said parts, means for holding the point of said pawl elevated, a stop for limiting the movement of said pawl, a notched member secured to the other one of said parts and arranged to be engaged by said pawl, and means for shielding said notch from engagement by said pawl, substantially as set forth.

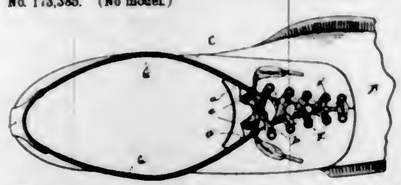
752,172. SHOE. JOHN A. MANN, Cincinnati, Ohio, assignor to Urlit Company, Cincinnati, Ohio, a Firm. Filed Sept. 16, 1903. Serial No. 173,384. (No model.)



Claim.—1. A lace-shoe provided with the usual lacing and engaging devices therefor, an inclosed way around the ankle, the lacing-string engaging said devices, also passing through said ankle-way, and having tying ends engaging the top pair of said engaging devices, whereby tension applied to said tying ends uniformly contracts the upper at the front and around the ankle, substantially as described.

2. A lace-shoe provided with the usual lacing and engaging devices therefor, an inclosed way around the ankle, transversely slitted upon the inside, the lacing-string engaging said devices also passing through said way, and having tying ends engaging the top pair of said devices, whereby tension applied to said tying ends uniformly contracts the upper at the front and around the ankle, substantially as described.

752,173. SHOE. JOHN A. MANN, Cincinnati, Ohio, assignor to Urlit Company, Cincinnati, Ohio, a Firm. Filed Sept. 16, 1903. Serial No. 173,385. (No model.)



Claim.—1. In a lace-shoe, in combination with the lacing and engaging means therefor, a draw-strip around the ankle, having looped front ends inside of the upper, through which the lacing passes, whereby tension on the lacing ends contracts the shoe-upper to the contour of the ankle, substantially as described.

2. In a lace-shoe, in combination with the lacing, and engaging means therefor, a draw-strip at the ankle, under the lining, having looped front ends exposed inside of the upper in juxtaposition to the laceway, the lacing-string on each side engaging the looped end of the draw-strip on the opposite side of the upper, whereby tension on the lacing uniformly contracts the shoe-upper to fit the contour of the ankle, substantially as described.

3. In a lace-shoe, the combination with the lacing, and engaging means therefor, a substantially non-elastic draw-strip around the ankle, having looped front ends through which the lacing passes, whereby the tension imparted to the lacing in tying simultaneously contracts the upper to the contour of the ankle, substantially as described.

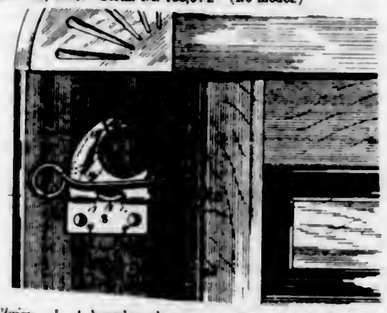
4. In a lace-shoe, in combination with a lacing and engaging means therefor, an inclosed way around the ankle, a draw-strip therein, having looped front ends, each end of the lacing-string passing through the engaging device on one side of the shoe, through the looped end of the draw-strip on the opposite side of the shoe and back through the top-engaging device on the first-named side of the shoe, whereby each end of the lacing-string has a direct pull on the opposite end of the draw-strip, substantially as described.

5. In a lace-shoe having a laceway, engaging devices therefor, an inclosed way around the ankle, laceway and ankle contraction means engaging said engaging devices and said inclosed way, said means having tying ends adapted to simultaneously contract said lace and ankle ways, substantially as described.

6. In a lace-shoe, in combination with the front lacing and engaging means therefor, ankle-contracting means attached to the inside of the shoe-upper having looped ends upon opposite sides of the lace-engaging means in juxtaposition thereto, the lacing engaging through the loops of the said ankle-contracting means for the purposes substantially shown and described.

7. In a lace-shoe, in combination the lacing and engaging means therefor, ankle-contracting means having ends attached to the inside of the shoe-upper upon opposite sides of the laceway in position to be directly engaged by the ends of the lacing-string, whereby the act of tightening the tying ends of said string contracts both the laceway and the ankle-way, substantially as described.

752,174. BURGLAR-ALARM. JOSEPH A. MINTURN, Indianapolis, Ind., assignor of one-half to Frank W. Noble, Indianapolis, Ind. Filed Nov. 12, 1903. Serial No. 180,874. (No model.)

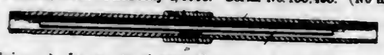


Claim.—1. A burglar-alarm, consisting of a body adapted for attachment to a support and formed from sheet metal, an integral arm extending from the body, having its end turned back to form a holder to receive a cartridge-shell, said body having a side ear which is bent to the front to form a catch, and having a pair of parallel slits, the metal of said sheet between the slits and adjacent side edges of the sheet being corrugated toward the front of the sheet, and the metal between the slits being rearwardly corrugated, and a spring-lever secured at one end to the body by insertion into said corrugations and secured, the opposite end of said spring extending loosely in front of the holder-section of said arm to form a hammer which is caught before each detonation under said catch.

2. A burglar-alarm, consisting of a body adapted for attachment to a support and formed from sheet metal, an integral arm extending from the body, having its end turned back to form a holder to receive a cartridge-shell, said body having a side ear which is bent to the front to form a catch, and having a pair of parallel slits, the metal of said sheet between the slits and adjacent side edges of the sheet being corrugated toward the front of the sheet, and the metal between the slits being rearwardly corrugated, and a spring-lever secured at one end to the body by insertion into said corrugations after which the metal is pressed to the spring and the spring crimped, the opposite end of said spring extending loosely in front of the holder-section of said arm to form a hammer which is caught before each detonation under said catch.

3. A burglar-alarm, consisting of a body adapted for attachment to a support and formed from sheet metal, an integral arm extension from said body having its end turned back to form a holder to receive a cartridge-shell, said body having a side ear which is bent outwardly to form a catch, said body also having a pair of parallel slits the metal of said sheet or body between the slits and their respective side edges of the sheet being corrugated toward the front of the sheet, and the metal between the slits being rearwardly corrugated, said rearwardly-corrugated portion having a slot, and a spring-lever secured at one end to the body by insertion into said corrugations, after which the metal is pressed to the spring and the spring crimped, the crimped portion extending into the said slot of the rear corrugation, the opposite end of said spring extending loosely in front of the holder-section of said arm to form a hammer which is caught under said catch to set the alarm.

752,175. MUTE FOR WATER-PIPES. ALFRED P. MONNIER, Greenfield, Mich. Filed May 4, 1903. Serial No. 155,493. (No model.)



Claim.—1. In an attachment for water-tanks, in combination with a section of the inlet-pipe, a pipe inserted therein and having a bore of less diameter, means to compel the passage of all water through the pipe of small diameter, an expansion-chamber at the upper end of the attachment between the terminal of the pipe of small diameter and the end of the outer pipe, substantially as described.

2. In a mute for water-pipes, in combination with an external pipe, a smaller pipe located within the external pipe, a diaphragm closing the annular passage between the two pipes, substantially as described.

3. In a mute for water-pipes, in combination with an external pipe, a pipe of small diameter located within the external pipe, a diaphragm closing the annular passage between the two pipes, there being a chamber within the external pipe beyond the end of the small pipe and between the end of the small pipe and the end of the external pipe, substantially as described.

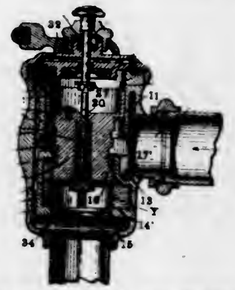
4. In a mute for water-pipes, in combination with the main water-pipe, a pipe of small diameter inserted therein with the axes of the two pipes coincident, a diaphragm closing the annular passage between the two pipes, and with an annular chamber on the upper side of the diaphragm between the two pipes, substantially as described.

5. In a mute for water-pipes, in combination with the main water-pipe, a pipe of small diameter inserted therein with the axes of the two pipes coincident, a diaphragm closing the annular passage between the two pipes, and with an annular chamber on the under side of the diaphragm between the two pipes, substantially as described.

6. In a mute for water-pipes, in combination with the main water-pipe, a pipe of small diameter inserted therein with the axes of the two pipes coincident, a diaphragm closing the annular passage between the two pipes, and with an annular chamber between the two pipes on each side of the diaphragm, substantially as described.

7. In a mute for water-pipes, in combination with a main pipe, a pipe of smaller diameter inserted therein and leaving a chamber within the main pipe between the end thereof and the end of the inserted pipe, and means for compelling the entire flow of water through the bore of the inserted pipe, substantially as described.

752,176. VALVE. JOSEPH W. NETHERY, Indianapolis, Ind., assignor to the Nethery Hydraulic Valve Company, Indianapolis, Ind., a Corporation of New Jersey. Filed Oct. 11, 1902. Serial No. 126,831. (No model.)



Claim.—1. The combination, in a valve structure, of the valve-casing, the main piston-valve therein the piston-head whereof divides the interior of the piston-chamber into upper and lower chambers and which is of larger area than the valve proper, means for supplying fluid slowly to the chamber above the piston-head, means for discharging the fluid from said chamber consisting of a by-pass leading therefrom and an auxiliary valve therein adapted to be opened from without and to be automatically closed by the main valve after it has moved from its initial seat, said main valve being fixedly connected with the piston-head whereby it is controlled by pressure on said piston-head, a valve-seat upon which said valve is adapted to rest when in closed position, a secondary shut-off structure with which a portion of the main valve may coöperate to substantially shut off the flow of fluid near the open position of the main valve, said secondary shut-off structure being located that distance from the normally closed position of the coöperating portion of the valve substantially equal to the travel of said main valve less the possible movement thereof by the auxiliary valve, whereby, when the automatically-closed auxiliary valve shall be held open and the main valve engaged thereby, the flow through the valve structure will be stopped, and when said auxiliary valve is released, the main valve will automatically close the auxiliary valve and thereafter return to the valve-seat, substantially as set forth.

2. In a valve structure of the class described, the combination with the main casing consisting of a pair of chambers separated by

an annulus, of a main valve having a body fitting within said annulus and carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position for said valve to rest thereon, a piston-head of greater area than the main body carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, and a pair of separated peripheral grooves formed in the main body of the valve intermediate its ends whereby two distinct and separated flows of fluid are produced through the annulus during the automatic closing action of the main valve.

3. In a valve structure of the class described, the combination of the main casing consisting of a pair of chambers separated by an annulus, of a main valve having a body fitting within said annulus and carrying a valve at its lower end, a valve-seat arranged at the discharge end of said lower chamber in position for said valve to rest thereon, a piston-head of greater diameter than the main valve carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, and a buffer-pin carried by the main valve and yieldingly held into projected position, said buffer-pin serving to engage the release-valve and return it to closed position when the main valve is automatically forced from its seat.

4. In a valve structure of the class described, the combination of the main casing consisting of a pair of chambers separated by an annulus, of a main valve having a body fitting within said annulus and carrying a valve at its lower end, a valve-seat arranged at the discharge end of the said lower chamber in position for said valve to rest thereon, a piston-head of greater diameter than the main valve carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a buffer-pin carried by the main valve and yieldingly held into projected position, said buffer-pin serving to engage the release-valve and return it to closed position when the main valve is automatically forced from its seat, and said buffer-pin having a possible movement within the main valve such that, when the main valve is in its upper position, the release-valve cannot be operated so as to exert a displacing pressure upon the main valve, and means for cutting off the flow at the limit of the upward travel of the main valve.

5. In a valve structure of the class described, the combination, with a main casing consisting of a pair of chambers separated by an annulus, of a main valve having a body passing through said annulus and carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position to receive said valve, a piston-head of greater area than the main valve carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a secondary shut-off structure carried by the body of the main valve in position to fill the annulus when the main valve is in its upper position, and a yielding buffer-pin carried by said main valve and arranged to engage the release-valve and return it to closed position when the main valve rises to open position, said buffer-pin having a possible movement relative to the main valve such that when the main valve is in its upper position an opening movement of the release-valve may not serve through the buffer-pin to withdraw the secondary shut-off structure of the main valve from the annulus, for the purpose set forth.

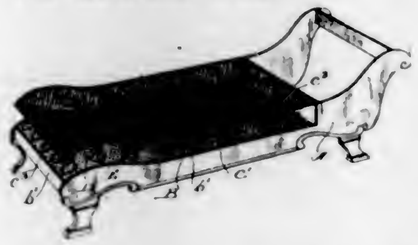
6. In a valve structure of the class described, the combination, with the main casing, consisting of a pair of chambers separated by an annulus, of a main valve having a body fitting within said annulus and carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position for said valve to rest thereon, a piston-head of greater diameter than the main valve carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a pair of separated peripheral grooves formed in the main body of the valve intermediate its ends whereby two distinct and separated flows of fluid are produced through the annulus during the automatic closing action of the main valve, and a yielding buffer-pin carried by said main valve and arranged to engage the release-valve and return it to closed position when the main valve rises to open position, said buffer-pin having a possible movement relative to the main valve such that when the main valve is in its upper position an opening movement of the release-valve may not serve through the buffer-pin to withdraw the secondary shut-off structure of the main valve from the annulus, for the purpose set forth.

7. In a valve structure of the class described, the combination, with the main casing consisting of a pair of chambers separated by an annulus, of a main-valve body carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position to receive said valve, a piston-head of greater diameter than the main-valve body carried thereby and fitting within the upper chamber, said piston having a greater effective area upon that face farthest from the valve, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a passage forming a restricted communication from one side of the piston to the other, and a shut-off structure carried by the main-valve body immediately beneath the piston to enter the annulus before the main valve reaches its seat, whereby, before the main valve has reached its seat, the secondary shut-off structure will have entered the annulus and the piston will lie so close to said annulus as to form a cushion of fluid between itself and the annulus, for the purpose set forth.

8. In a valve structure of the class described, the combination, with the main casing consisting of a pair of chambers separated by an annulus, of a main-valve body carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position to receive said valve, a piston-head of greater diameter than the main-valve body carried thereby and fitting within the upper chamber, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a passage forming a restricted communication from one side of the piston to the other, and a shut-off structure carried by the main-valve body immediately beneath the piston to enter the annulus before the main valve reaches its seat whereby, before the main valve has reached its seat, the secondary shut-off structure will have entered the annulus and the piston will lie so close to said annulus that a quantity of fluid is momentarily caught between the annulus and the piston before the main valve reaches its seat, for the purpose set forth.

9. In a valve structure of the class described, the combination, with the main casing consisting of a pair of chambers separated by an annulus, of a main-valve body carrying a valve at its lower end, a valve-seat arranged at the discharge end of the lower chamber in position to receive said valve, a piston-head of greater diameter than the main-valve body carried thereby and fitting within the upper chamber, said piston having a greater effective area upon the face farthest from the valve, a by-pass leading from said upper chamber, a release-valve controlling said by-pass, a passage forming a restricted communication from one side of the piston to the other and a shut-off structure carried by the main-valve body immediately beneath the piston to enter the annulus before the main valve reaches its seat whereby, before the main valve has reached its seat, the secondary shut-off structure will have entered the annulus and the piston will lie so close to said annulus that a quantity of fluid is momentarily caught between the annulus and the piston before the main valve reaches its seat, for the purpose set forth.

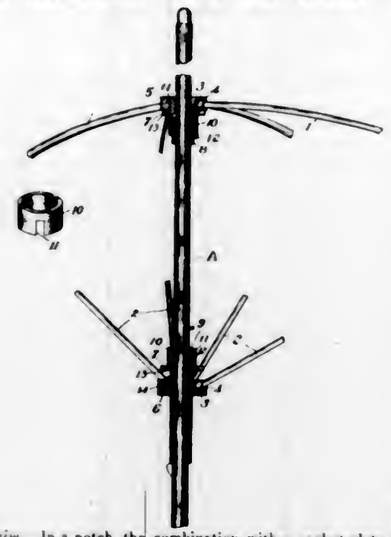
752,177. COUCH. THOMAS R. O'BRIEN, Chicago, Ill. Filed Feb. 9, 1903. Serial No. 142,534. (No model.)



Claim.—1. In an article of the class described the combination with coiled springs and a bottom support therefor of a top consisting of a frame provided with a flexible front rail adapted to yield horizontally and vertically in use and a fabric of coiled wire within said frame and having its borders attached thereto, the fabric and frame being relatively arranged so that the coils of said fabric run at right angles to said flexible front rail and have one end attached thereto, as specified.

2. In an article of the class described the combination with coiled springs and a bottom support therefor, of a top consisting of a frame provided with flexible front and rear rails adapted to yield horizontally and vertically in use and a fabric of coiled wire within said frame and having its border attached thereto, the fabric and frame being relatively arranged so that the coils of the fabric run at right angles to said flexible front and rear rails and have their ends attached thereto, as specified.

752,178. UMBRELLA-NOTCH. ALFRED M. PEATE, Baltimore, Md. Filed Sept. 24, 1903. Serial No. 174,495. (No model.)



Claim.—In a notch, the combination with a socket-plate provided with a sleeve, of ball-ended ribs received in the socket-plate, a disk and a collar loosely mounted on the sleeve, the disk removably retained in engagement with the socket-plate, the collar provided with a longitudinally-extending slot and a pin on the sleeve with which the slot registers when the collar and disk are unlocked, the pin normally adapted to engage the end of the collar to retain the collar and disk against the socket-plates to retain the ends of the ribs in position.

752,179. LINOTYPE-MATRIX. HANS PETERSEN, Minneapolis, Minn., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Aug. 20, 1903. Serial No. 170,111. (No model.)



Claim.—1. A matrix-bar having thereon supplemental sections of the same character.

2. A matrix-bar having on the one face the two supplemental sections of the matrix of the same character, substantially as described.

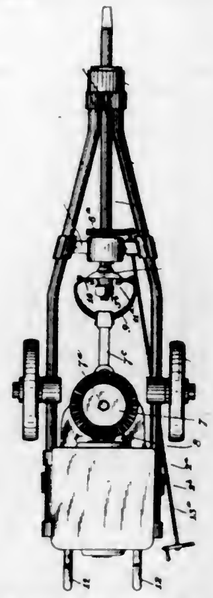
3. A matrix for a linotype or analogous machine, containing two dissociated complementary parts of one character, whereby it is adapted to produce, on successive slugs, character members which will register and jointly form a large character when the slugs are brought together.

4. A matrix for a linntype-machine, containing unconnected complementary parts of one character, said parts alined lengthwise of the matrix, whereby two slugs may be produced, with their character members in exact registration.

5. A linotype-matrix having two separately-usable cavities so related that the characters cast in respective cavities on successive slugs will join and form a composite character.

752,180. MINING-MACHINE. EDWARD P. RAUSCHER, Columbus, Ohio. Filed June 20, 1903. Serial No. 162,441. (No model.)

Claim.—1. In a mining-machine of the pick type, the combination of a frame, a socket-bearing supported in the frame, a ball universally movable in the socket-bearing, a pick-stock passing through and reciprocable in said ball, and means for mechanically rotating the pick-stock.



2. In a mining-machine of the pick type, the combination of a frame, a reciprocating pick-stock supported therein, and universal bearings in the frame for the rear and forward portions of the pick-stock.

3. In a mining-machine of the pick type, the combination of a frame, a reciprocating and rotatable pick-stock, a universal bearing in the frame supporting said pick-stock, said bearing connected with said pick-stock to rotate therewith and having a gear thereon, a rearwardly-extending shaft supported in the frame having thereon a pinion to engage the aforesaid gear.

4. In a mining-machine of the pick type, the combination of a frame, a reciprocating and rotatable pick-stock, a universal bearing in the frame supporting said pick-stock, a gear connected with said pick-stock, a rearwardly-extending shaft supported in the frame having a pinion thereon to engage the aforesaid gear.

5. In a mining-machine of the pick type, the combination of a motor-casing 2, a bearing-piece for the pick-stock, a ball supported in said bearing-piece and universally movable therein, frame-bars 1 and 1^a connecting said motor-casing and bearing-piece, a pick-stock supported in the ball and reciprocable therein and means for reciprocating the pick-stock

6. In a mining-machine of the pick type, the combination of a motor-casing 2, a bearing-piece 3, frame-bars 1 and 1^a, connecting said motor-casing and bearing-piece, a bearing-bracket 4, and a reciprocable pick-stock supported in the bracket 4 and bearing-piece 3, and means for reciprocating the pick-stock.

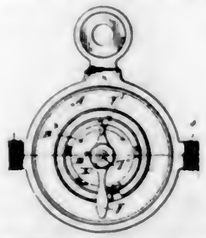
7. In a mining-machine, the combination of frame-bars 1 and 1^a, a trunnion for a carrying-wheel thereof comprising a base portion adapted to engage said bars 1 and 1^a, and a spindle projecting from said base to receive the wheel.

8. In a mining-machine of the pick type, the combination of a frame, a bearing-support in the frame, a bearing universally movable in the bearing-support, a pick-stock passing through and reciprocable in said bearing, and means for mechanically rotating the pick-stock.

752,181. RAW-LIQUID-FUEL MEASURER FOR EXPLOSIVE-ENGINES. ARSON G. ROMAN, Toronto, Canada. Filed July 22, 1902. Serial No. 116,559. (No model.)

Claim.—1. The combination with the explosion-chamber, of a gas-engine, provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel and connected to said explosion-cham-

ber by means of its fuel-opening; a valve-stem held in said conduit; a valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem; the said valve-stem and valve-heads being operated by a portion of the suction-stroke of said piston-head to permit same to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head, and the other valve-head being operated by the compression-stroke of said piston-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel from out of said conduit.



2. The combination with the explosion-chamber, of a gas-engine, provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel and connected to said explosion-chamber by means of its fuel-opening; a valve-stem held in said conduit, a valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, the said valve-stem and valve-heads being operated by a portion of the suction-stroke of said piston-head to permit same to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head, and the other valve-head being operated by the compression-stroke of said piston-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said conduit, and a spring combined with said valve-stem.

3. The combination with the explosion-chamber, of a gas-engine, provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel and connected to said explosion-chamber by means of its fuel-opening; a valve-stem held in said conduit; an adjustable valve-head on one end of said valve-stem; a valve-head on the other end of said valve-stem, the said valve-stem and valve-heads being operated by a portion of the suction-stroke of said piston-head to permit same to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head, and the other valve-head being operated by the compression-stroke of said piston-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said conduit.

4. The combination with the explosion-chamber, of a gas-engine, provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel and connected to said explosion-chamber by means of its fuel-opening; a valve-stem held in said conduit; an adjustable valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, the said valve-stem and valve-heads being operated by a portion of the suction-stroke of said piston-head to permit same to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head, and the other valve-head being operated by the compression-stroke of said piston-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said conduit, and a spring combined with said valve-stem.

5. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with a central passage-way and two ducts, two cups each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said pistoo-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing, a spring combined with said valve-stem, and the fuel-reservoir open to the pressure of the atmosphere.

6. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with a central passage-way and two ducts, two cups each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing, a spring combined with said valve-stem, and the fuel-reservoir open to the pressure of the atmosphere.

7. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with a central passage-way and two ducts, two cups each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a key secured in said casing and held so as to permit only longitudinal movement of said valve-stem and the fuel-reservoir open to the pressure of the atmosphere.

8. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with a central passage-way and two ducts, two cups each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a fixed valve-head, provided with a pocket, on one end of said valve-stem, operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a spring combined with said valve-stem, and the fuel-reservoir open to the pressure of the atmosphere.

9. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid-fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a spring combined with said valve stem, and the fuel-reservoir open to the pressure of the atmosphere.

10. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a spring combined with said valve-stem, and the fuel-reservoir open to the pressure of the atmosphere.

11. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a spring combined with said valve-stem; a key secured in said casing and held so as to permit only longitudinal movement of same; and the fuel-reservoir open to the pressure of the atmosphere

12. The combination with the explosion-chamber of a gas-engine provided with a distinct air passage-way, and a distinct fuel-opening, and piston-head operating in said explosion-chamber, of a fuel-measurer comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, constructed so as to permit flow of fuel from one chamber to another, provided with a threaded end, operating in said passage-way; a fixed valve-head on one end of said valve-stem, operating in one of said chambers, a key secured in said casing and combined with said valve-stem to permit only longitudinal movement of same; an adjustable valve-head, on the threaded end of said valve-stem, operating in said other chamber, said valve-stem being operated by a portion of the suction-stroke of said piston-head so as to permit said piston-head to draw a charge of raw liquid fuel into said explosion-chamber, one of said valve-heads automatically cutting off the further supply of liquid fuel into said explosion-chamber notwithstanding the continued suction-stroke of said piston-head; the said valve-stem being operated by the compression-stroke of said piston-head so as to seat said other valve-head to prevent the pressure within the explosion-chamber from forcing the raw liquid fuel out of said casing; a spring combined with said valve-stem; a pin held in one side of said casing and being associated with said adjustable valve-head so as to move same; a pointer secured to the outer end of said pin and being intended to indicate, by means of any suitable dial, with which said casing is provided, the distance of movement of said adjustable valve-head, and the fuel-reservoir open to the pressure of the atmosphere.

13. A raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel; a valve-stem held in said conduit; a valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, said liquid fuel being subjected to different pressures to operate said valve-stem and valve-heads to control passage of said liquid through said conduit.

14. A raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel; a valve-stem held in said conduit; a valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, said liquid fuel being subjected to different pressures to operate said valve-stem and valve-heads to control passage of said liquid through said conduit, and a spring combined with said valve-stem.

15. A raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel; a valve-stem held in said conduit; an adjustable valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, said liquid fuel being subjected to different pressures to operate said valve-stem and valve-heads to control passage of said liquid through said conduit.

16. A raw-liquid-fuel-measuring device comprising a conduit designed to be filled with liquid fuel; a valve-stem held in said conduit; an adjustable valve-head on one end of said valve-stem, and a valve-head on the other end of said valve-stem, said liquid fuel being subjected to different pressures to operate said valve-stem and valve-heads to control passage of said liquid through said conduit, and a spring combined with said valve-stem.

17. A raw-liquid-fuel-measuring device comprising a casing provided with two chambers connected together by a passage-way; a valve-stem held in said passage-way; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing.

18. A raw-liquid-fuel-measuring device comprising a casing provided with two chambers connected together by a passage-way; a valve-stem held in said passage-way; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing, and a spring combined with said valve-stem.

19. A raw-liquid-fuel-measuring device comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid through said casing.

20. A raw-liquid-fuel-measuring device comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid through said casing, and a spring combined with said valve-stem.

21. A raw-liquid-fuel-measuring device comprising a casing provided with two duct-provided chambers connected together by a passage-way, a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid through said casing, and a spring combined with said valve-stem.

22. A raw-liquid-fuel-measuring device comprising a casing provided with two duct-provided chambers connected together by a passage-way, a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid through said casing; a spring combined with said valve-stem, and a key secured in said casing and held so as to only permit longitudinal movement of said valve-stem.

23. A raw-liquid-fuel-measuring device comprising a casing provided with two duct-provided chambers connected together by a passage-way; a valve-stem, held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers, an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid fuel through said casing; a spring combined with said valve-stem; a key secured in said casing and held so as to only permit longitudinal movement of said valve-stem; a pin held in one side of said casing and being associated with said adjustable valve-head so as to move same, and a pointer secured to the outer end of said pin being intended to indicate, by means of any suitable dial, with which said casing is provided, the distance of movement of said adjustable valve-head.

24. A raw-liquid-fuel-measuring device comprising a casing provided with a central passage-way and two ducts; two cups, each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing, and a spring combined with said valve-stem.

25. A raw-liquid-fuel-measuring device comprising a casing provided with a central passage-way and two ducts; two cups, each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers, a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing, and a spring combined with valve-stem.

26. A raw-liquid-fuel-measuring device comprising a casing provided with a central passage-way and two ducts; two cups, each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another, a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing; a key secured in said casing and held so as to permit only longitudinal movement of said valve-stem, and a spring combined with said valve-stem.

27. A raw-liquid-fuel-measuring device comprising a casing provided with a central passage-way and two ducts, two cups, each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers; a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another, a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said liquid through said casing; a key secured in said casing and held so as to only permit longitudinal movement of said valve-stem; a pin held in one side of said casing and being associated with said adjustable valve-head so as to move same, and a pointer secured to the outer end of said pin being intended to indicate, by means of any suitable dial, with which said casing is provided, the distance of movement of said adjustable valve-head.

28. The combination with a casing provided with two duct-provided chambers connected together by a passage-way; of a valve-stem held in said passage-way and constructed so as to permit flow of fuel from one chamber to another, a valve-head on one end of said valve-stem operating in one of said chambers; a valve-head on the other end of said valve-stem operating in said other chamber; the said valve-heads being seated alternately by the varying pressure of the liquid within said casing to control passage of said liquid through said chambers and ducts, and a spring combined with said valve-stem.

29. The combination with a casing provided with two duct-provided chambers connected together by a passage-way, of a valve-stem held in said passage-way and constructed so as to permit flow of fuel from one chamber to another, a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber; the said valve-heads being seated alternately by the varying pressure of the liquid within said casing to control passage of said liquid through said chambers and ducts, and a spring combined with said valve-stem.

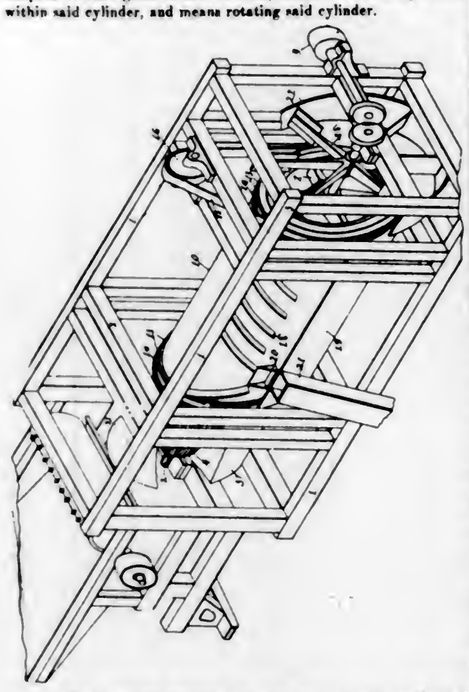
30. The combination with a casing provided with two duct-provided chambers connected together by a passage-way; of a valve-stem held in said passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber; the said valve-heads being seated alternately by the varying pressure of the liquid within said casing to control passage of said liquid through said chambers and ducts; a spring combined with said valve-stem; a key combined with said valve-stem so as to permit only longitudinal movement of same, and means for adjusting said adjustable valve-head.

31. A raw-liquid-fuel-measuring device comprising a casing provided with a central passage-way and two ducts; two cups, each screwing into a side of said casing thus forming two chambers which are connected together by said central passage-way, the said ducts opening into said chambers, a valve-stem held in said central passage-way and constructed so as to permit flow of fuel from one chamber to another; a valve-head on one end of said valve-stem operating in one of said chambers; an adjustable valve-head on the other end of said valve-stem operating in said other chamber, the said liquid fuel being subjected to different pressures to operate said valve-heads to control passage of said fuel through said casing; a hollow screw held in one side of said casing in line with said valve-stem; a spring supported in said hollow screw and in the pocket in said fixed valve-head; a key secured in said casing and held so as to permit only longitudinal movement of said valve-stem; a pin held in one side of said casing and being associated with said adjustable valve-head so as to move same, and a pointer secured to the outer end of said pin and being intended to indicate, by means of any suitable dial, with which said casing is provided, the distance of movement of said adjustable valve-head.

752,182. THRESHING-MACHINE. NOBLE G. ROSS, Kansas City, Mo., and THOMAS D. ROSS and JOSEPH M. ROSS, Kansas City, Kans. Filed June 3, 1901. Serial No. 62,992. (No model.)

Claim.—1. In a threshing-machine, the combination with a trough, of a perforated cylinder rotating in said trough and adapted to deliver grain to said trough, of buckets carried by said cylinder for removing grain from said trough, of spirally-arranged blades carried by said cylinder for conveying grain through said trough to said buckets, means delivering wheat to the interior of said cylinder, means within said cylinder for threshing said wheat, and means creating a current of air through said cylinder to remove the straw and chaff.

2. In a threshing-machine having a suitable frame and casing, the combination with a cylinder rotatably mounted upon said frame, and having rows of peripheral discharge-openings, longitudinal flanged winnowing-strips mounted on the inner face of said cylinder between and adjacent to said rows of openings, exterior buckets mounted upon said cylinder, exterior spiral blades on said cylinder adapted to lead grain to said buckets, means for threshing wheat within said cylinder, and means rotating said cylinder.



3. In a threshing-machine, the combination with a perforated cylinder having flanged winnowing-strips wedge-shaped in cross-section on its inner face, and means delivering threshed wheat onto said strips.

4. In a threshing-machine, the combination with a perforated cylinder having flanged winnowing-strips adjacent said perforations, a trough to catch grain from said cylinder, and means within said cylinder adapted to thresh wheat.

5. In a threshing-machine, a cylinder having on its inner face flanged winnowing-strips wedge-shaped in cross-section, in combination with an inner concentric cylinder coöperating with said strips to thresh wheat between the two cylinders.

6. In a threshing-machine, a winnowing-cylinder rotatably mounted upon a suitable frame and having rows of peripheral perforations or discharge-openings, lips on the inner side of said cylinder adjacent to the forward edge of said openings for preventing the passage of straw and chaff therethrough, longitudinal flanged winnowing-strips mounted on the inner face of said cylinder in the spaces between said openings, buckets upon the exterior of said cylinder, spiral blades also upon the exterior of said cylinder and leading to said buckets, in combination with means for threshing wheat within the cylinder, and means rotating the cylinder.

7. In a threshing-machine the combination with a trough, of an exterior perforated cylinder rotating in said trough and adapted to deliver grain thereto, of buckets carried exteriorly by said cylinder and adapted to remove grain from said trough, of spirally-arranged blades also carried exteriorly by said cylinder and adapted to deliver grain to said buckets, of an interior concentric cylinder, spiral blades on the exterior of said interior cylinder, means rotating said interior cylinder at a higher rate of speed than said exterior cylinder, means depositing wheat onto said interior cylinder, and fans creating a current of air through the exterior cylinder to carry off the straw and chaff.

8. In a threshing-machine having a suitable frame and casing, a perforated cylinder rotatably mounted in said casing, a cone-shaped forward end on said cylinder, external spirally-arranged blades upon said cylinder and its cone-shaped forward end, and a centrifugal fan mounted immediately at the discharge end of said cylinder and arranged to generate a suction through said cylinder and its cone-shaped forward end.

9. In a threshing-machine having a suitable frame and casing, concentric perforated cylinders rotatably mounted in said casing, a cone-shaped perforated forward end on the inner of said cylinders, external spirally-arranged beater-blades upon said inner cylinder and its cone-shaped forward end, a centrifugal fan mounted immediately at the discharge end of said cylinders to generate a suction through said cylinders, and means rotating said cylinders independently and in the same direction.

10. A threshing-machine comprising a suitable frame and casing, concentric cylinders rotatably mounted upon said frame, and between which the wheat is threshed, means for independently rotating said cylinders, means for discharging the grain therefrom, and a centrifugal fan mounted upon said frame and arranged to create a suction through said cylinders to draw the straw and chaff into the fan-chest of said fan.

11. A threshing-machine of the character described having a suitable frame and casing, concentric perforated cylinders rotatably mounted upon said frame, a cone-shaped perforated forward end on the inner of said cylinders, and external spirally-arranged beater-blades mounted upon the inner of said cylinders for threshing the wheat.

12. In a threshing-machine of the character described, having a suitable frame and casing, concentric cylinders rotatably mounted longitudinally upon said frame, external spirally-arranged beater-blades mounted upon the inner of said cylinders, means for rotating said cylinders at different speed, and means for delivering the wheat to be threshed between said cylinders.

13. In a threshing-machine the combination with a separating-cylinder, means for rotating said cylinder, of an interior concentric threshing-cylinder, means rotating said threshing-cylinder at a greater rate of speed than said separating-cylinder, means removing the straw and chaff from between said cylinders, and means for catching the grain from said separating-cylinder.

14. In a threshing-machine, the combination with a perforated separating-cylinder, means rotating said cylinder, of a perforated threshing-cylinder within said separating-cylinder, means rotating said threshing-cylinder, a fan immediately at the discharge end of the cylinders to create a suction therethrough, and a fan mounted upon the casing over the cylinders for the purpose described.

15. In a threshing-machine, the combination with a rotating separating-cylinder, of a fan suitably mounted above said cylinder and adapted to deliver an air-current thereon, and a screen located between the fan and cylinder.

16. A threshing-machine of the character described comprising an inner and an outer perforated cylinder rotatably mounted in a suitable casing, said inner cylinder having a cone-shaped perforated forward end and provided with external spirally-arranged beater-blades, a centrifugal fan mounted immediately at the discharge end of said cylinders and a fan mounted upon the casing over said cylinders, substantially as set forth.

17. In a threshing-machine of the character described comprising an inner and an outer perforated cylinder rotatably mounted in a suitable casing and a centrifugal fan located immediately at the discharge end of said cylinders; a cone-shaped perforated forward end on said inner cylinder, and external spirally-arranged beater-blades mounted upon said inner cylinder and its cone-shaped end; substantially as set forth.

18. In a threshing-machine of the character described comprising concentric cylinders rotatably mounted in a suitable casing and between which the grain is threshed, the outer of said cylinders having peripheral discharge-openings; internal rearwardly-inclined lips mounted forward of and extending over said openings to prevent the straw and chaff entering and clogging said openings; substantially as set forth.

19. In a threshing-machine of the character described comprising concentric cylinders rotatably mounted in a suitable casing, and between which the grain is threshed, the outer of said cylinders having peripheral discharge-openings; internal longitudinally-extending strips mounted between said openings; to prevent the grain being carried over by the centrifugal action due to the rotation of said cylinder; substantially as set forth.

752,183. POCKET SOUVENIR. ELLIS SCOTT, Richmond, Ind. Filed Nov. 16, 1903. Serial No. 181,277. (No model.)

Claim.—As an article of manufacture, a pocket souvenir, the combination, a pair of covers united by a fabric hinge at one of their shorter ends, a plurality of leaves secured between the covers

by a relatively long shank-staple passing therethrough and through said hinge and with its ends bent down parallel with its shank, a strip secured to the inner face of one of said covers with ⊓-shaped spaces formed between their secured portions forming pockets for carrying matches and picks, a strip of fabric secured at one end to the inner face of said cover at a point between said pockets, a strip of abradant permanently attached across the inner face of said cover between said pockets and the hinge, one or more stamp-pockets mounted to the inner face of the other of said covers, and blank spaces where advertising matter may be printed, all substantially as shown and described.



752,184. HANGER FOR TELEPHONE-TRANSMITTERS. MICHEAL SETTER, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed May 8, 1902. Serial No. 106,448. (No model.)



Claim.—1. A hanger for telephone-transmitters, constructed from a single piece of sheet metal bent or folded into the proper shape and provided with openings for the attachment of the hanger to the front and rear portions of a transmitter.

2. A hanger for telephone-transmitters consisting of a circular front portion adapted to encircle the transmitter-mouthpiece, a flattened rear portion adapted for attachment to the back of the transmitter, a transverse upper portion provided at each end with openings for the attachment of the cords or flexible conductors, and shank portions for connecting the said front and rear portions with the said transverse portion.

3. The combination of a transmitter having a removable threaded mouthpiece and a flattened back portion, and a hanger having a ring-like portion adapted to be clamped in place by said mouthpiece, and having also a flattened portion adapted to be clamped in place upon the said back portion of the transmitter.

4. The combination of a transmitter having a removable mouthpiece, a hanger having a front portion clamped in place by said mouthpiece, and having also a rear portion secured to the back of the transmitter, and flexible conductors passed through openings in a transverse upper portion of said hanger and connected with the terminals of said transmitter.

5. A sheet-metal hanger having front and rear portions adapted for attachment to the front and rear portions of a telephone-transmitter.

6. A hanger for telephone-transmitters consisting of a single piece of sheet metal folded into proper form and provided with a portion adapted to encircle the mouthpiece of the transmitter, and also with a flat portion adapted to be secured flatwise to the back of the transmitter.

752,185. PAPER-CLIP. EDWARD L. SIBLEY, Bennington, Vt. Filed Apr. 13, 1903. Serial No. 152,377. (No model.)



Claim.—1. A paper-clip, composed of arms and a transverse connecting member arranged obliquely with relation to said arms.

2. A paper-clip, having offset arms and a transverse connecting member.

3. A paper-clip, having offset arms and a transverse connecting member arranged obliquely to said arms.

4. A paper-clip, having offset arms and a transverse connecting member arranged obliquely to said arms, said arms folded over and in contact at their gripping plane.

5. A paper-clip, composed of a piece of metal folded upon itself, and having a number of arms arranged to come in opposition and offset from and connected by a transverse member to form a spring, to grasp an object or objects placed between said arms.

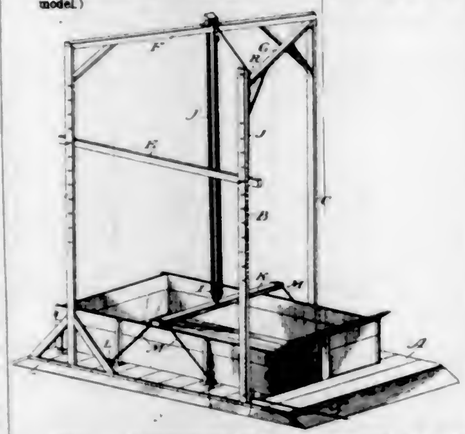
6. A paper-clip, having offset arms and a transverse connecting member, the arms being folded over and overlapping.

752,186. APPARATUS FOR INSERTING PAPER-FASTENERS. EDWARD L. SIBLEY, Bennington, Vt. Filed Aug. 12, 1903. Serial No. 169,286. (No model.)



Claim.—In an apparatus for inserting paper-fasteners, a hollow rest or punch-block, a swinging guide or gage applied thereto, and a stop for alining said guide or gage over the hollow or hole in the rest or block for positioning a punch over the hollow or hole in the block, said guide or gage being adapted to be swung away from the punch after the punch is so positioned, to permit the forcing of the punch through the article to be punched.

752,187. COMBINATION DERRICK AND DUMP. CHARLES F. SMITH, Shobonier, Ill. Filed Aug. 22, 1902. Serial No. 120,689. (No model.)



Claim.—1. In combination the foundation provided with three posts connected, and located relatively thereto and to the centrally-suspended wagon-body to be lifted in such a manner as to permit said body to be elevated and horizontally turned and a stop-bar to engage the end of said body when lowered, to dump the same, as set forth.

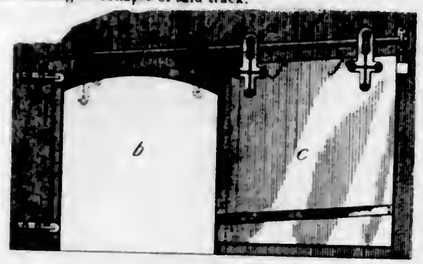
2. The combination with bar K suspended at a single point of seat-bars L and ropes M adapted to be overlaid upon the ends of bar K and readily removed therefrom, as set forth.

3. The combination with the three posts arranged upon the foundation as described two thereof being connected by bar F of a single hoisting device adapted to centrally suspend the wagon-body from said bar, and a stop or dumping bar adjustable vertically upon two of said posts as set forth.

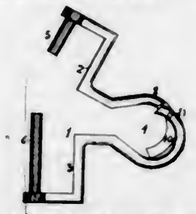
752,188. SUPPORT FOR FIRE-DOORS. HENRY C. SMITH, Chicago, Ill. Filed Oct. 15, 1903. Serial No. 177,135. (No model.)

Claim.—1. A device of the class described, in which is combined a fire-door supported by means of wheeled hangers, a slotted tubular track, and brackets having heads inserted within said tubular track opposite said respective hangers, said head being so shaped as to form supports for the hanger-wheels upon the collapse of the track.

2. The combination with a sliding fire-door and slotted tubular track, of wheeled hangers for suspending said door from the track and supporting-brackets having arms projected into the rear of the track, each of said arms being provided with an enlargement upon the end adapted to fit the interior contour of the track and a depression for receiving and supporting a hanger-wheel in the event of the bending or collapse of said track.



752,189. COCKEYE. HENRY P. SMITH, Canaan, Ohio. Filed Mar. 5, 1903. Serial No. 146,272. (No model.)



Claim.—1. A cockeye having eye and cross-bar portions and comprising two members pivotally connected at one side of the eye portion, said members being formed with a neck between the eye and cross-bar portions shaped to complete the eye when the members are closed, said members being provided with inwardly-extending ends to constitute the cross-bar portion, and a tailpiece extension upon one member formed to aline with the bowl of the eye portion when said members are closed and to project within the eye when said members are open.

2. A cockeye having eye and cross-bar portions and comprising two members pivotally connected at one side of the eye portion, said members being formed with a neck between the eye and cross-bar portions shaped to complete the eye when the members are closed, said members being provided with inwardly-extending ends to constitute the cross-bar portion, one member having a recess in the bowl of the eye portion adjacent the pivot, and a tailpiece extension upon the other member formed to lie within said recess when said members are closed and to project within the eye when said members are open.

752,190. WHEELBARROW. GEORGE G. TIEMAN, Chicago, Ill. Filed July 16, 1903. Serial No. 165,777. (No model.)



Claim.—1. A wheelbarrow consisting of a pair of angle-iron shafts bent into, respectively, integral tubular handles and cylindrical journal boxes or bearings, and a second pair of angle-irons secured to said shafts, said second pair being bent into a box or scoop frame and extending below said handles, and the box or scoop serving substantially as legs for said barrow.

2. A wheelbarrow-frame supporting the wheel and bed or scoop, consisting of two pairs of angle-irons, one of said pairs being bent to form, respectively, tubular handles and cylindrical journal-boxes, the other pair being bent to form front and rear bed-braces, bed-frame and legs, said legs constituting the bottom frame of the bed which extends below said handles.

3. A wheelbarrow-frame consisting of two angle-irons curved at one end into substantially cylindrical handles and at the opposite end into eyes constituting bearings for the wheel-spindle, said frame, together with a suitable bed or box and wheel constituting substantially a complete barrow supported on said wheel and bed or box, the latter extending substantially to the plane of the wheel-base.

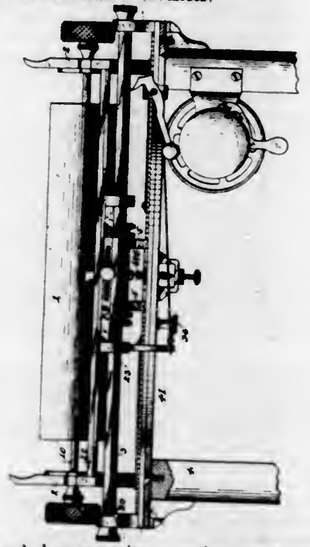
4. In a wheelbarrow, a bed or box supporting frame consisting of a pair of angle-irons arranged non-parallel, said angle-irons having their diverging ends curved into tubular form and their converging ends curved into loops or cylindrical bearings for the axle of the wheel, said loops being formed out of one wing of each said angle-iron and the bed supported on the plane of the wheel-base.

5. In a wheelbarrow, a frame for the bed and wheel comprising a pair of angle-iron shafts curved at their opposite ends into, respectively, journal-boxes and handles and a pair of angle-irons secured to said first-mentioned pair formed into, respectively, legs, front and rear bed braces and frame, and the bed extending below said shafts.

6. In a wheelbarrow, a frame for the box and wheel comprising a pair of angle-iron shafts curved at their opposite ends into, respectively, journal-boxes and handles and a second pair of angle-irons bent at right angles whereby is provided a frame for a hopper-shaped body or box extending below said shafts as well as front and rear braces supporting said body upon said shafts, and suitable means for securing together above-mentioned parts.

7. In a wheelbarrow, a pair of non-parallel shafts and handles consisting of a pair of angle-irons having the respective wings of each curved toward each other at one end into handles of tubular cross-section, the opposite ends of said angle-irons being split between the wings thereof and one of said wings on each angle-iron curved into an axle or wheel-spindle bearing, a scoop or box for said wheelbarrow having a frame consisting of a pair of angle-irons bent into substantially five angles, whereby is provided legs for said wheelbarrow, a body and body-supporting frame, and suitable bolts and apertures therefor for securing said parts together.

752,191. TYPE-WRITER CARRIAGE CONSTRUCTION. JESSE ALEXANDER, Brooklyn, N. Y., assignor of one-half to Eric Nilson, New York, N. Y., and Julius August Lafrentz, Brooklyn, N. Y. Filed Dec. 1, 1902. Serial No. 133,430. (No model.)



Claim.—1. In a type-writer, a carriage construction including a supporting-plate, a connecting-plate extending from one side of the machine to the other, a screw for holding the connecting-plate against the supporting-plate, a bracket carried at each end of said connecting-plate, a guide-rod mounted between said brackets, side frames, a rod for connecting said side frames, means for slidably mounting said connecting-rod on said guide-rod, and a platen revolubly carried by said side frames.

2. In a type-writer, a carriage construction including a supporting-plate, a connecting-plate, pins projecting from said connecting-plate coacting with recesses in said supporting-plate, a screw for holding the connecting-plate against the supporting-plate said sup-

porting-plate being cut away to form a passage for parts of a feed mechanism, brackets carried at both ends of said connecting-plate, a guide-rod mounted between said brackets, side frames, a rod for connecting said side frames, means for slidably mounting said connecting-rod on said guide-rod, and a platen revolubly carried by said side frames.

3. In a type-writer, a carriage construction including a supporting-plate, a connecting-plate, pins projecting from said connecting plate coacting with recesses in said supporting-plate, a screw for holding the connecting-plate against the supporting-plate, said connecting-plate being continuous from side to side of the machine and cut away to form an opening through which parts of a feed mechanism may project, brackets carried at both ends of said connecting-plate, a guide-rod mounted between said brackets, side frames, a rod for connecting said side frames, means for slidably mounting said connecting-rod on said guide-rod, and a platen revolubly carried by said side frames.

4. A type-writer carriage construction including a supporting-plate, means for securing said plate against the frame of a machine, an escapement-dog mounted above said plate a connecting-plate cut away at its central portion to allow for the said escapement-dog, side brackets mounted on said connecting-plate, a main guide-rod for the carriage structure mounted in said side brackets.

5. In a type-writer, a carriage construction including a supporting-plate, an escapement-dog mounted above the same said supporting-plate being cut away near its central portion, a helical spring connected to said escapement-dog said plate being cut away to allow for said spring, a supporting-plate resting on said connecting-plate and cut away to allow for said escapement-dog and attached parts, side brackets secured to the ends of said connecting-plate, a guide-rod carried by said side brackets, a platen and means for guiding said platen on said guide-rod.

6. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, side brackets carried by said connecting-plate, a main guide-rod carried by said brackets and means independent of the pins for drawing the two plates together.

7. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, side brackets carried by said connecting-plate, a main guide-rod removably carried by said brackets and means independent of the pins for drawing the two plates together.

8. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, side brackets carried by said connecting-plate, a main guide-rod removably carried by said brackets, one of said brackets being cut away to form a holding-recess for one end of said rod.

9. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, a fastening-screw for holding said connecting-plate against said supporting-plate, side brackets carried by said connecting-plate, and a main guide-rod removably carried by said brackets, one of said brackets being cut away to form a holding-recess for one end of said rod.

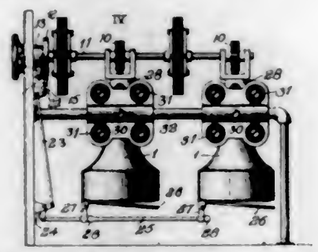
10. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, side brackets carried by said connecting-plate, a main guide-rod carried by said brackets, and a fastening-screw for holding said connecting-plate against said supporting-plate.

11. A type-writer carriage construction including a supporting-plate having recesses therein, a connecting-plate, pins projecting from the under side of said connecting-plate adapted to fit into said recesses, side brackets carried by said connecting-plate, a main guide-rod removably carried by said brackets, and a fastening-screw for holding said connecting-plate against said supporting-plate.

752,192. ELECTRIC SWITCH. CHARLES C. BADEAU, Swissvale, Pa. Filed Aug. 12, 1903. Serial No. 169,274. (No model.)

Claim.—1. A switch having in combination an oil-chamber, two contacts arranged in said chamber, means for shifting one of said contacts away from the other, an electromagnet forming the base of the oil-chamber and an armature controlling the movement of the contact, substantially as set forth.

2. A switch having in combination an oil-chamber, two contacts arranged in said chamber, an electromagnet forming the base of the oil-chamber and having one terminal of its coil connected to one of the contacts, an armature for said magnet and automatic means for shifting one of the contacts and controlled by the armature, substantially as set forth.



3. A switch having in combination an oil-chamber provided in its base with an annular recess, a coil arranged in said recess, the ends of the walls of said recess for the poles of an electromagnet, a control contact-socket connected to one end of the coil, a contact-rod, a motor for shifting said rod and an armature controlling said motor, substantially as set forth.

4. A switch having in combination an oil-chamber, two contacts arranged in said chamber, an electromagnet forming the base of the chamber and having one end of its coil connected to one of the contacts, a spring-motor having a normal bias to shift one contact away from the other, a lock holding the motor as against movement, and an armature controlling the said lock, substantially as set forth.

5. A switch having in combination an oil-chamber, an electromagnet forming the base of the oil-chamber, a central contact-socket connected to one end of the coil of the electromagnet, a rod provided with teeth and adapted to contact with the socket, a pinion engaging the teeth of the rod, a spring-motor rotating said pinion and having a normal bias to raise the rod, a lock for holding the motor against movement and an armature controlling said lock, substantially as set forth.

6. A switch having in combination a series of two or more oil-chambers, electromagnets forming the bases of said chambers, two contacts arranged within said chambers, one contact in each chamber being connected to one end of the coils of the electromagnets, automatic means for shifting the other contacts, a lock for preventing the movement of the contacts, and armatures independently controlling said lock, substantially as set forth.

7. A switch having in combination an oil-chamber, electromagnet forming the base of the oil-chamber, a central contact-socket connected to one end of the coil of the electromagnet a contact-rod provided with teeth, a top plate forming a guide for said rod, arms projecting from the oil-chamber and top plate and connected to the supporting-slides but insulated therefrom, an insulating-tube extending down from the top plate into the oil-chamber and surrounding the contact-rod, substantially as set forth.

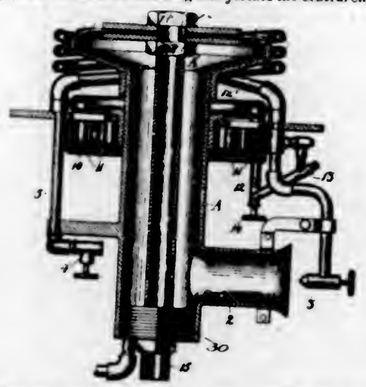
8. A switch having in combination an oil-chamber, a contact carried by said chamber, a cap-piece, a contact-rod carried by said cap-piece, arms projecting from the oil-chamber and cap-piece and carrying-plates secured to said arms but insulated therefrom, substantially as set forth.

9. A switch having in combination an open-topped oil-chamber, contacts arranged in said chamber, and a foraminous material arranged in said chamber above the level of the oil, substantially as set forth.

752,193. HYDROCARBON-BURNER. EDGAR B. BADLAM, San Francisco, Cal. Filed Apr. 7, 1903. Serial No. 151,533. (No model.)

Claim.—1. A hydrocarbon-burner consisting of a central combining-chamber, a coil surrounding the upper part thereof, means for admitting the hydrocarbon into the lower part of the coil, means for delivering the gas through a jet into the said chamber, and a device including a disk having radial peripheral vanes whereby the gas ignited at the upper part of the chamber is directed against the upper part of the coil.

2. An apparatus for vaporizing and burning liquid hydrocarbon consisting of a central vertically-disposed chamber having an expanded upper portion, a coil of pipe, the lower portion of which surrounds the chamber and the upper portion is exposed above the top of the chamber, a device including a disk having radial peripheral vanes by which the combustible gases escaping from the top of the chamber are directed against the upper portion of the coil, a valve-controlled pipe connecting the source of supply with the lower part of the coil around the chamber by which the temperature of the hydrocarbon fluid is gradually raised, the heating being completed during the passage through the upper and directly-exposed part of the coil, a pipe leading from said upper part of the coil down to the delivery-jet, and means for directing said jet into the central chamber.



3. The combination in a hydrocarbon vaporizer and burner of a vertically-disposed central mixing-chamber having an inlet and jet located at the lower part, and an expanded upper portion, a coil surrounding said chamber having its upper portion exposed above the expanded top, means including a disk having radial peripheral means for directing the heat against the upper portion of the coil, connections between said upper portion of the coil and the inlet, and an annular pan located below the coil having air-pipes extending through its bottom, said pan serving as a preliminary heater.

4. The combination in a hydrocarbon-burner of a vertical mixing-chamber having an inlet-jet at the lower part, an expanded upper portion, a coil surrounding said chamber, having its upper portion exposed above the top, means for admitting the hydrocarbon to the lower part of the coil, means for conducting the resultant gas from the upper part of the coil to the inlet, a distributer consisting of a disk having radial peripheral vanes through which the combustible gas escapes and by which it is directed against the upper part of the coil.

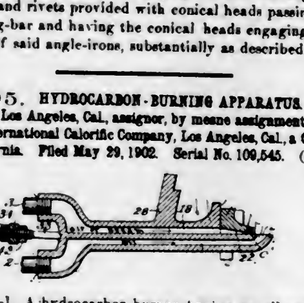
5. The combination in a hydrocarbon-burner of a vertical mixing-chamber having an inlet-jet at the lower part, and discharge at the top, a coil surrounding said chamber, having its upper portion exposed above the top, means for admitting the hydrocarbon to the lower part of the coil, means for conducting the resultant gas from the upper part of the coil to the mixing-chamber, a distributer consisting of a disk having radial peripheral vanes through which the gas from the chamber escapes and by which it is directed against the upper part of the coil, and a gauze screen contignous to the disk through which the gas passes and is burned.

6. The combination in a hydrocarbon-burner of a vertical chamber having an inlet and jet at the lower part, and discharge at the top, a coil surrounding said chamber having its upper portion exposed above the top, means for admitting the hydrocarbon to the lower part of the coil, means for conducting the resultant gas from the upper part of the coil to the burner, a disk having vanes around its periphery through which the combustible gas escapes and by which it is directed against the coil, a branch conductor through which a portion of the gas is transmitted and a circular heater located below the coil into which said gas is admitted and by which the heat of the coil is maintained when the main burner is out of service.

7. The combination in a hydrocarbon-burner of a central mixing-chamber, means for admitting vapor and air into the lower part, a heating-coil surrounding the mixing-chamber, means for supplying hydrocarbon liquid to be vaporized in the coil and conducting it to the mixing-chamber, a vertically-adjustable distributer, and a central tubular support therefor.

752,194. APPARATUS FOR SEPARATING GREASE OR WATER FROM STEAM. WILLIAM J. BAKER, Scarborough, England. Filed Aug. 24, 1903. Serial No. 170,643. (No model.)

Claim.—1. In a grease-separator, the combination with a chamber having a steam-inlet adjacent to the top thereof, and a steam-outlet, of a deflector adjacent to the steam-inlet, extending from the top to the bottom of said chamber having its upper part imperforate and its lower part provided with a plurality of small apertures, and a plurality of vertically-disposed baffles located in said chamber and interposed between said deflector and the steam-outlet, substantially as described.



2. In a grease-separator, the combination with a chamber having a steam-inlet adjacent to the top thereof, and a steam-outlet, of a deflector adjacent to the steam-inlet, extending from the top to the bottom of said chamber having its upper part imperforate and its lower part provided with a plurality of small apertures, for the passage of steam and provided at its bottom edge with apertures for the passage of water and oil and a plurality of vertically-disposed baffles within said chamber and interposed between said deflector and steam-outlet, substantially as described.

3. In a grease-separator, the combination with a horizontally-disposed chamber provided with a steam-inlet and a steam-outlet, of a vertically-disposed deflector adjacent to said inlet extending longitudinally through the entire length of said chamber said deflector having its upper part imperforate and being provided adjacent to its lower edge with a plurality of small apertures and a plurality of vertically-disposed baffles extending longitudinally throughout the entire length of said chamber and interposed between said deflector and the steam-outlet, substantially as described.

4. In a grease-separator, the combination with a horizontally-disposed chamber provided with a steam-inlet and a steam-outlet, of a vertically-disposed deflector adjacent to said inlet extending longitudinally through the entire length of said chamber, said deflector having its upper part imperforate and being provided adjacent to its lower edge with a plurality of small apertures, a plurality of vertically-disposed baffles extending longitudinally throughout the entire length of said chamber and interposed between said deflector and the steam-outlet and a vertically-disposed deflector interposed between said baffles and the steam-outlet and extending longitudinally of said chamber, substantially as described.

5. In a grease-separator, a baffling-screen comprising a plurality of angle-irons, a securing-bar engaging the exterior edges of said angle-irons and rivets provided with conical heads passing through said securing-bar and having the conical heads engaging the adjacent edges of said angle-irons, substantially as described.

752,195. HYDROCARBON-BURNING APPARATUS. WILLIAM H. BEST, Los Angeles, Cal., assignor, by mesne assignments, to W. H. Best International Calorific Company, Los Angeles, Cal., a Corporation of California. Filed May 29, 1902. Serial No. 109,545. (No model.)

Claim.—1. A hydrocarbon-burner having an oil-outlet and a steam or air nozzle behind said oil-outlet and arranged to discharge across said outlet, the mouth of which nozzle is reduced in cross-sectional area at the middle.

2. A hydrocarbon-burner having an oil-outlet and a steam or air nozzle behind said oil-outlet and arranged to discharge across said outlet, the side walls of said outlet being flared outwardly and forming an open-topped recess beyond the nozzle, the said steam or air nozzle being reduced in cross-sectional area at the middle.

3. A hydrocarbon-burner having an open-topped oil-outlet opening in a determined plane, and a nozzle for an expansive fluid behind

said oil-outlet and arranged in nearly the same plane to discharge across said outlet; and raised guards at the side of said outlet to limit the lateral flow of the liquid and fluid mingled therewith.

4. A hydrocarbon-burner furnished with a passage having an oil-outlet in one plane and a nozzle behind said outlet and arranged in nearly the same plane to discharge across said oil-outlet, and guards at the edges of the oil-outlet, forming an open-topped recess, flaring toward the discharge end.

5. An atomizer having an outlet, a tablet, the face of which is recessed to form the discharge portion of said outlet, and a passage, one wall of which is formed by the tablet; and a nozzle-piece slidably mounted on a guideway at substantially right angles to said passage and arranged to move toward and from the tablet to form therewith an adjustable extension of the passage, the mouth of which can be opened.

6. An atomizer having a steam-outlet, and an oil-outlet, a tablet forming one end of the atomizer, said tablet having a passage which is a continuation of the oil-outlet and terminates in an open-topped recess in the tablet, a guideway at substantially right angles to said steam-passage, a nozzle-piece slidably mounted on said guideway and movable toward and away from the tablet and forming an adjustable wall forming part of the steam-passage.

7. An atomizer having a steam-outlet, and an oil-outlet, a tablet forming one end of the atomizer, said tablet having a passage which is a continuation of the oil-outlet and terminates in an open-topped recess in the tablet, a guideway at substantially right angles to said steam-passage, a nozzle-piece slidably mounted on said guideway and movable toward and away from the tablet and forming an adjustable wall forming part of the steam-passage, the inner face of said nozzle-piece converging toward the end of the tablet.

8. An atomizer having a passage, one wall of which extends beyond the other wall and is provided with an outlet which opens therethrough and into an open-topped recess to one end of said wall; a movable nozzle-piece covering part of said passage and covering a part of the space above the extended portion of said wall; and means for holding said nozzle-piece toward the wall extension and for moving it away from the same.

9. An atomizer having a passage, one wall of which extends beyond the other wall and is provided with an outlet which opens therethrough and extends in a recess to one end of said wall; a movable nozzle-piece for closing over a part of the space above the extended portion of said wall; and a wedge device for holding said nozzle-piece toward the wall extension and for moving it away from the same.

10. An atomizer having a passage, one wall of which extends beyond the other wall and is provided with an outlet which opens therethrough and extends in a recess to one end of said wall; a movable nozzle-piece for closing over a part of the space above the extended portion of said wall; a wedge device for holding said nozzle-piece toward the wall extension and for moving it away from the same, and a lever for moving said wedge device.

11. An atomizer having an outlet for a fluid, an outlet for an expansible fluid arranged to discharge across said first-named outlet, guideways perpendicular to the second outlet, a nozzle-piece sliding in said ways and forming a part of the second outlet, and means for moving the nozzle-piece laterally of the outlet of which it forms a part, and means for securing it in a determined position.

12. An atomizer having an oil-outlet and a steam or air nozzle arranged to discharge across said outlet, guideways perpendicular to the steam-outlet, a nozzle-piece sliding in said ways and forming an adjustable extension of the steam-outlet, and means for moving said nozzle-piece, laterally of the steam-outlet.

13. The combination of an atomizer having two passages terminating in outlets, one of which discharges across the other, slideways at the sides of said atomizer, shoulders at the sides of said atomizer, a nozzle-piece sliding in said ways and furnished with arms embracing the sides of said atomizer, and means for moving said nozzle-piece in said ways and for holding the same in a determined position.

14. The combination of an atomizer having two passages terminating in outlets, one of which discharges across the other, slideways at the sides of said atomizer, shoulders at the sides of said atomizer, a nozzle-piece sliding in said ways and furnished with arms embracing the sides of said body, and means engaging said arms for moving said nozzle-piece in said ways and for holding the same in a determined position.

15. The combination of an atomizer having two passages terminating in outlets, one of which discharges across the other; a movable nozzle-piece forming a part of one of said passages and over said outlet which discharges across the other; and a wedge device outside of said passages for operating said nozzle-piece.

16. An atomizer having a passage, the floor of which is extended to form a tablet, a nozzle-piece above said tablet and movable laterally thereof, arms on the nozzle-piece provided with ways, and wedge members on each side of the tablet and mounted in said ways for operating the nozzle-piece.

17. An atomizer having a passage, the floor of which is extended to form a tablet, a nozzle-piece above said tablet and movable laterally thereof, arms on its nozzle-piece provided with ways, wedge members on each side of the tablet and mounted on said ways, and a lever for actuating said wedge members.

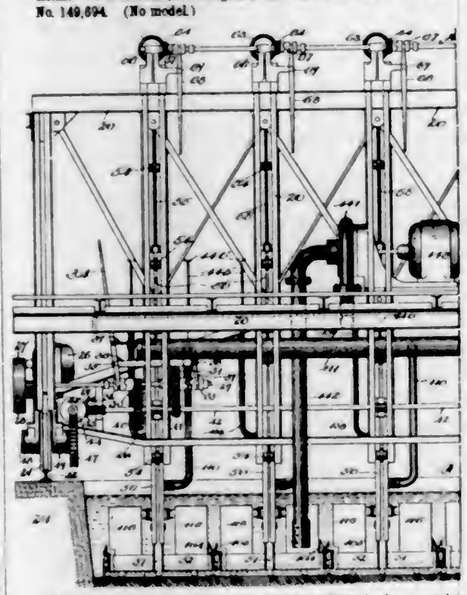
18. An atomizer having a passage, the floor of which is extended to form a tablet, a nozzle-piece above said tablet and movable laterally thereof, arms on the nozzle-piece provided with ways, wedge members on each side of the tablet and mounted on said ways, and a lever adjustably connected with said wedge members for operating the same.

19. An atomizer having ways, a passage, the floor of which is extended beyond the passage, and shoulders at the sides of said atomizer; a nozzle-piece moving in said ways and having ways, and wedge devices sliding in the ways of the nozzle-piece and engaging said shoulders and provided with inclined faces for engaging the walls of said ways, respectively, to move the nozzle-piece toward the tablet and allow it to move therefrom.

20. An atomizer having a passage, a floor extending beyond the open end of the passage, a nozzle-piece mounted above the floor extension and movable laterally of the floor extension, and provided with a lip on its discharge end which converges toward the floor extension, arms on the nozzle-piece, said arms having ways, and wedge members mounted in said ways for adjusting said nozzle-piece.

21. The combination of an atomizer; a nozzle-piece movable thereon; movable members on opposite sides of the atomizer provided with oblique faces for operating the nozzle-piece; a bar through which said members extend; nuts adjustably fastening the members on the bar; and an operating device connected with the bar.

752,196. APPARATUS FOR CLEANING SAND FILTER-BEDS. HIRAM W. BLANDELL, Los Angeles, Cal. Filed Mar. 26, 1903. Serial No. 149,694. (No model.)



Claim.—1. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a tilting frame pivoted to said carrier-frame, and a skid pivoted to said tilting frame the pivots of said tilting frame and of said skid located in vertical planes at right angles to each other.

2. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, and a suction-pipe connected to said mixing-chamber.

3. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, a suction-pipe connected to said mixing-chamber, and mechanism to propel said carriage over the surface of said filter-beds.

4. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, a suction-pipe connected to said mixing-chamber, and a suction-pump located upon said carriage and operatively connected to said suction-pipe.

5. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, and a rotary rake located in said mixing-chamber.

6. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, a rotary rake located in said mixing-chamber, and mechanism to rotate said rake.

7. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, a rotary rake located in said mixing-chamber, and a motor supported upon said carrier-frame and operatively connected to rotate said rake.

8. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, and a rotary rake surrounded by said mixing-chamber, said rake provided with hollow teeth arranged to project downwardly and provided with outlets to discharge water below the surface of said filter-beds.

9. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber fast to said carrier-frame, a suction-pipe and a pressure-pipe connected to said mixing-chamber, and a suction-pump and a pressure-pump located upon said carriage and operatively connected, respectively, to said suction and pressure pipes.

10. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of mixing-chambers fast to said carrier-frames, a suction-main supported upon said carriage, a series of suction-pipes connecting said mixing-chambers and suction-main, and a suction-pump connected to said suction-main.

11. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, and an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame.

12. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and mechanism to raise and lower said carrier-frame.

13. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and a mixing-chamber fast to said auxiliary carrier-frame.

14. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, and a vertical rotary screw journaled upon said carriage to raise and lower said carrier-frame.

15. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and a skid fast to said auxiliary carrier-frame.

16. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and a skid pivotally supported upon said auxiliary carrier-frame.

17. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a tilting frame pivoted to said auxiliary carrier-frame, and a skid pivoted to said tilting frame, the pivots of said tilting frame and of said skid located in vertical planes at right angles to each other.

18. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, and a suction-pipe connected to said mixing-chamber.

19. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a suction-pipe connected to said mixing-chamber, and a suction-pump located upon said carriage and operatively connected to said suction-pipe.

20. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, and a rotary rake located in said mixing-chamber.

21. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a rotary rake located in said mixing-chamber, and mechanism to rotate said rake.

22. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a rotary rake located in said mixing-chamber, and a motor supported upon said auxiliary carrier-frame and operatively connected to rotate said rake.

23. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, and a rotary rake surrounded by said mixing-chamber, said rake provided with hollow teeth arranged to project downwardly and provided with outlets to discharge water below the surface of said filter-beds.

24. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a skid pivotally supported upon said auxiliary carrier-frame, springs fast to opposite ends of said skid, packing-strips fast to the free ends of said springs and bearing against the ends of said mixing-chamber, and aprons extending from said packing-strips to said skid.

25. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a mixing-chamber supported upon said carrier-frame, a skid pivotally supported upon said carrier-frame, springs fast to the opposite ends of said skid, packing-strips fast to the free ends of said springs and bearing against the ends of said mixing-chamber, and aprons extending from said packing-strips to said skid.

26. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a skid pivotally supported upon said auxiliary carrier-frame, springs fast to opposite ends of said skid, packing-strips fast to the free ends of said springs and bearing against the ends of said mixing-chamber, aprons extending from said packing-strips to said skid, and shoes fast to opposite ends of said skid.

27. In an apparatus of the character described, a mixing-chamber, one side thereof pivotally supported thereon.

28. In an apparatus of the character described, a mixing-cham-

ber, one side thereof pivotally supported thereon, and springs acting to hold said pivoted side normally in a vertical position.

29. In an apparatus of the character described, a mixing-chamber and deflectors fast to the sides thereof, said deflectors consisting of brackets, each of said brackets provided with an upwardly and inwardly extending face for the purpose specified.

30. In an apparatus of the character described, a mixing-chamber comprising a girder, a framework fast to said girder, plates extending across the top and ends thereof, and plates exteading across the sides thereof, one of said side plates pivotally supported upon said framework.

31. In an apparatus of the character described, a mixing-chamber comprising a girder, a framework fast to said girder, plates extending across the top, sides, and ends of said chamber, said girder provided with a vertical central journal-bearing, and a suction-chamber, extending therethrough.

32. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, a mixing-chamber fast to said auxiliary carrier-frame, a suction-pipe and a pressure-pipe coanected to said mixing-chamber, and a suction-pump and a pressure-pump located apon said carriage and operatively connected, respectively, to said suction and pressure pipes.

33. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and mechanism supported upon said carriage to raise and lower said carrier-frames.

34. In an apparatus foe cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, mechanism to raise and lower said carrier-frame, and means connecting said carrier-frames, whereby when said carrier-frame is raised, said auxiliary carrier-frame will also be raised thereby.

35. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, an auxiliary carrier-frame arranged to slide vertically upon said carrier-frame, and mechanism to raise and lower said carrier-frame, said auxiliary carrier-frame provided with projections arranged to engage said carrier-frame during the upward motion of said carrier-frame for the purpose specified.

36. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically with relation to said carriage, a mixing-chamber fast to said carrier-frame, a hollow rotary rake provided with outlets and surrounded by said mixing-chamber, a vertical rotary pipe fast to said rake journaled upon said carrier-frame, a stuffing-box fast to said carrier-frame and encircling said rotary pipe, said rotary pipe provided with orifices connecting the interiors of said stuffing-box and pipe.

37. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically with relation to said carriage, a mixing-chamber fast to said carriage, a hollow rotary rake provided with outlets and surrounded by said mixing-chamber, a vertical rotary pipe fast to said rake journaled upon said carrier-frame, a stuffing-box provided with an inlet fast to said carrier-frame, a pressure-pump supported upon said carriage, and a flexible pipe connecting said pump to said stuffing-box inlet.

38. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically with relation to said carriage, a mixing-chamber fast to said carriage, a hollow rotary rake provided with outlets and surrounded by said mixing-chamber, a vertical rotary pipe fast to said rake journaled upon said carrier-frame, a stuffing-box provided with an inlet fast to said carrier-frame, a pressure-pump supported upon said carriage, a flexible pipe connecting said pump to said stuffing-box inlet, and an intake-pipe connecting said pressure-pump to a water-supply.

39. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically with relation to said carriage, a mixing-chamber fast to said carrier-frame, a hollow rotary rake provided with outlets and surrounded by said mixing-chamber, a vertical rotary pipe fast to said rake journaled upon said carrier-frame, a stuffing-box fast to said carrier-frame and encircling said rotary pipe, said rotary pipe provided with orifices connecting the interiors of said stuffing-box and pipe, a motor supported upon said carrier-frame, and worm-gearing connecting said motor to said rotary pipe.

40. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of auxiliary carrier-frames arranged to slide vertically upon said carrier-frames, a series of mixing-chambers fast to said auxiliary carrier-frames, a suction-main supported upon said carriage, a series of suction-pipes connecting said mixing-chambers and suction-main, and a suction-pump connected to said suction-main.

41. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of auxiliary carrier-frames arranged to slide vertically upon said carrier-frames, a series of mixing-chambers fast to said auxiliary carrier-frames, a hollow rotary rake provided with outlets located in each of said mixing-chambers, a series of vertical rotary pipes fast to said rakes, each of said pipes journaled upon its respective carrier-frame, a pressure-main supported upon said carriage, a series of flexible pressure-pipes connecting said rotary pipes and pressure-main, and a pressure-pump connected to said pressure-main.

42. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of auxiliary carrier-frames arranged to slide vertically upon said carrier-frames, vertical rotary screws journaled upon said carriage to raise and lower said carrier-frames, a rotary shaft journaled on said carriage extending transversely of said carrier-frames, gearing connecting said screws and rotary shaft, and a motor operatively connected to said rotary shaft.

43. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of mixing-chambers fast to said carrier-frames, a pressure-main supported upon said carriage, a series of pressure-pipes connecting said mixing-chambers and pressure-main, and a pressure-pump connected to said pressure-main.

44. In an apparatus for cleaning filter-beds, a carriage arranged to travel over the surface of said filter-beds, a series of carrier-frames arranged to slide vertically upon said carriage, a series of auxiliary carrier-frames arranged to slide vertically upon said carrier-frames, a series of mixing-chambers fast to said auxiliary carrier-frames, a pressure-main supported upon said carriage, a series of pressure-pipes connecting said mixing-chambers and pressure-main, and a pressure-pump connected to said pressure-main.

45. In an apparatus of the character described, two mixing-chambers having their interiors connected one to the other.

46. In an apparatus of the character described, two mixing-chambers having their interiors connected one to the other, and mechanism to independently raise and lower said mixing-chambers.

47. In an apparatus of the character described, two mixing-chambers having their interiors connected one to the other, mechanism to independently raise and lower said mixing-chambers, and means to make a substantially tight joint between said chambers.

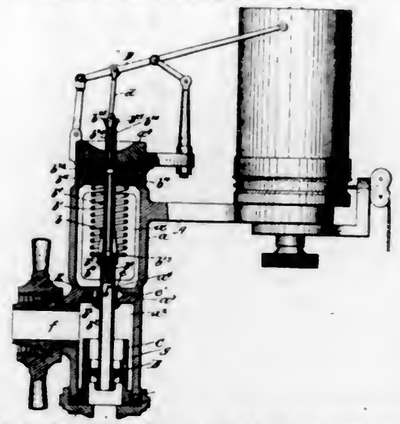
48. In an apparatus of the character described, two mixing-chambers having their interiors connected one to the other, one side of one of said chambers pivoted thereto and constructed to bear against the adjacent side of the other of said chambers.

49. In an apparatus of the character described, two mixing-chambers having their interiors connected one to the other, one side of one of said chambers pivoted thereto, and springs constructed to hold said pivoted side in contact with the adjacent side of the other of said chambers.

50. In an apparatus for removing material from the surface of filter-beds, a carriage arranged to travel over the surface of said filter-beds, a carrier-frame arranged to slide vertically upon said carriage, a scraper supported upon said carrier-frame, mechanism to lower said carrier-frame until said scraper rests upon the surface of said filter-bed, and means to subsequently disconnect said lowering mechanism from said carrier-frame.

752,197. STEAM-ENGINE INDICATOR. CHARLES B. BOSWORTH, Boston, Mass., assignor to Star Brass Manufacturing Company of Boston, Mass., a Corporation of Massachusetts. Filed Feb. 14, 1903. Serial No. 143,366. (No model.)

Claim.—1. In a steam-engine indicator, in combination with a pencil movement and an open cylinder, a piston contained in said cylinder, a steam-supply chamber and a spring-holding chamber between the cylinder and piston and the pencil movement, the said chambers being separated from each other by a diaphragm, the spring-chamber being open to the surrounding air, the piston-rod in two parts connecting the piston with the pencil movement and extending through both chambers, a spring contained in the spring-holding chamber, and a coupling connecting the two parts of the piston-rod together and also the spring to the piston-rod.



2. In a steam-engine indicator, a casing forming a steam-chamber and a spring-chamber open to the outer air, a diaphragm separating said chambers from each other, a piston contained in said steam chamber, a spring contained in said spring-chamber, a pencil movement, a piston-rod extending to pass through said diaphragm and spring-chamber to connect with said pencil movement, and means for detachably combining said spring with said piston-rod and casing.

3. In a steam-engine indicator, a piston-rod in two parts connecting the piston with the pencil movement, a spring, and a coupling connecting the two parts of the piston-rod together, comprising a head having on one side a threaded stem screwing into one part of the piston-rod and upon the other a threaded, tubular extension screwing onto the end of the other part of the piston-rod, the said last-named part also having an integral sleeve which laps upon the extension.

4. In a steam-engine indicator, a piston-rod in two parts connecting the piston with the pencil movement, a coupling connecting the two parts, a spring the foot of which is held between the two parts and prevented from turning by the coupling, and a clamping-screw to clamp the foot against one of the parts, the head of which is accessible through the open end of one of the parts of the piston-rod.

5. In a steam-engine indicator, the combination of a cylinder-chamber, a spring-chamber, a diaphragm interposed between said cylinder and spring chambers, a bushing carried by said diaphragm having an interior annular channel provided with outlets entering into a surrounding chamber formed in said diaphragm, which chamber has one or more outlets to the outer air, a piston contained in said cylinder-chamber and a piston-rod secured thereto and extending through the bushing carried by said diaphragm, substantially as and for the purposes set forth.

6. In a steam-engine indicator, a casing having a spring-chamber open to the atmosphere, a spring contained therein, a steam-chamber having a steam-inlet in its upper end and open at its lower end, a diaphragm separating said steam and spring chambers, a detachable cylinder contained in said steam-chamber, a piston carried by said cylinder, a pencil movement, a piston-rod in two parts connecting with the pencil movement, one part of which rod is removable with said piston, and means for combining the two parts of the pistoo-rod together within said spring-chamber and for detachably securing one end of the aforesaid spring to the same.

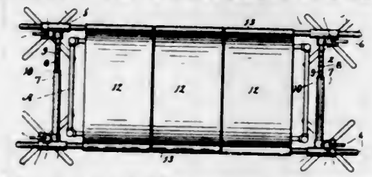
7. In a steam-engine indicator, a casing having a spring-chamber open to the atmosphere, a steam-chamber, a diaphragm separating said steam and spring chambers, a detachable cylinder contained in said steam-chamber of somewhat lesser diameter, a piston carried by said cylinder, a pencil movement, a piston-rod extending from said piston to pass through said diaphragm and spring-chamber to connect with said pencil movement, a draft-spring one end of which is adjustably combined with said casing, and means for securing the two parts of the piston-rod together and the other end of said spring thereto.

8. In a steam-engine indicator, a case having a steam-chamber open at its lower end and having a steam-inlet at its upper end, a cylinder open at both ends contained in the lower part of said chamber, a piston-rod in two parts, a coupling between the two parts, having a threaded stem into which the end of one part of the piston-rod screws, and a part having a head to bear against the piston and a threaded end to engage said coupling.

9. In a steam-engine indicator having a cylinder, a piston contained in the cylinder, a piston-rod in two parts connecting the piston with the pencil movement, a spring secured to the piston-rod between its two parts, a coupling connecting the two parts having a threaded stem, and a spring combining-screw, the part of the piston-rod connecting the piston with the coupling having an outer end and the combining-screw having a head, both in exposed positions.

10. In a steam-engine indicator, the piston-rod having formed in its outer end a hole the wall of which is threaded, a threaded sleeve to screw in said hole, having means at its outer end for turning it, and a rod attached to said sleeve in a manner to hold it from endwise movement, but to permit its turning therein, the pencil-lever, and a link connecting the rod with the pencil-lever.

752,198. INVALID-LIFTING APPARATUS. BIRGIT BRATLIE, Brooklyn, N. Y. Filed July 9, 1903. Serial No. 164,762. (No model.)



Claim.—1. An invalid-lifting apparatus, comprising four vertical posts, blocks slidable on the posts, means for locking the blocks to the posts releasably, means independent of a bedstead for securing the posts to each other adjustably in sets of two, side rails insertible in the blocks in pairs, and a flexible bottom having means adapted to be engaged and held by the side rails.

2. In an invalid-lifting apparatus, a set of vertical head-posts and a set of vertical foot-posts, blocks slidable and adjustable on the posts, telescoping rails fixed to the blocks adapted to secure the head-posts and the foot-posts respectively to each other in pairs adjustably, side rails severally insertible in and removable from a block on a head-post and a block on a foot-post, and a bottom supported on the side rails.

3. In an invalid-lifting apparatus, means for supporting bottom-carrying side rails, comprising vertical posts provided with spreading feet, ratchet-teeth on the posts, blocks slidable on the posts and provided with pawls adapted to engage the teeth on the posts, partial rails fixed in the blocks in sets the rail in one block of each set being adapted to telescope with the partial rail fixed in the other block of the set, and means for locking the telescoping rails to each other releasably.

4. In an invalid-lifting apparatus, four upright posts, means securing the posts to each other in two pairs the posts of each pair being separated from and adjustable toward and from each other, side rails detachable from but adapted to be supported removably from the pairs of posts, and a bottom consisting of a plurality of wide sections of flexible material provided with terminal loops extending across the sections and adapted to receive said rails therein, and therethrough endwise.

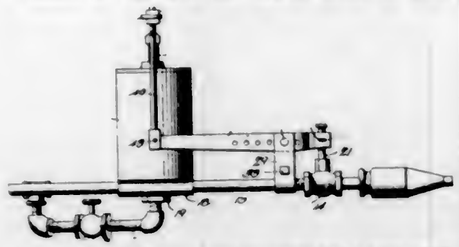
752,199. SPINDLE-BRAKE. DANIEL G. BRENNEN, New York Mills, N. Y. Filed Nov. 14, 1903. Serial No. 181,220. (No model.)



Claim.—A brake for spindles comprising in combination with a spindle and support therefor, a hanger mounted upon the spindle-support having an inwardly-bent portion which is shouldered on its outer face, a pin projecting from said hanger near the lower end thereof and underneath said shoulder, an angled brake-lever pivotally mounted upon said pin with the portion of said lever underneath

the shoulder flattened, and a brake-shoe upon the upper end of the lever and at the rear of the spindle, as set forth.

752,200. OIL-BURNER REGULATOR. WILLIAM CHAMBERLAIN, Jennings, La. Filed Apr. 22, 1903. Serial No. 153,818. (No model.)

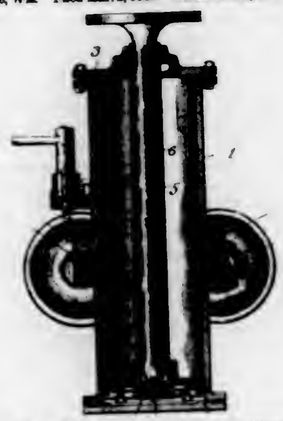


Claim.—1. An oil-burner regulator comprising a steam-supply pipe, an oil-supply pipe, a burner to which both pipes are connected, a cylinder, a branch pipe leading from the steam-pipe to the cylinder, a plunger in the cylinder, a plunger-rod, a spring tending to retard movement of the plunger under the pressure of the steam, valves in the two pipes, standards carried by the pipes, levers, pivotally mounted on said standards and connected each at one end to one of the valves, and an adjustable connecting means between the opposite ends of the levers and the plunger-rod.

2. An oil-burner regulator comprising a steam-supply pipe, an oil-supply pipe, a burner to which both pipes are connected, valves disposed in the pipes, a cylinder carried by the pipes, a branch steam-pipe connecting the main steam-pipe to the cylinder, a plunger-rod, an adjustable perforated plug carried by the head of the cylinder and encircling the rod, a spring disposed between said plug and the plunger, a cross-bar carried by the plunger-rod and adjustable thereon, standards carried by the pipes and adjustable thereon, levers pivoted to the standards and connected at one end to the valves, and adjustable rods connecting the opposite ends of said levers to the cross-bar.

3. In a device of the character described, a steam-supply pipe and a liquid-fuel-supply pipe spaced apart and provided with independent feed-valves, a bracket having an aperture and connecting said pipes, a cylinder supported upon said bracket and connected to said steam-supply pipe by a branch leading through said aperture and connected to said cylinder, a plunger in said cylinder, and connecting means between said plunger and valves whereby the movements of said plunger control said valves, substantially as specified.

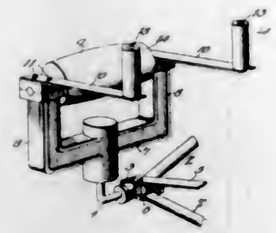
752,201. FLUID-PRESSURE JACK. NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Mar. 3, 1901. Serial No. 49,630. (No model.)



Claim.—1. In a fluid-pressure jack, the combination of a cylinder, a piston therein, means for admitting pressure to and releasing it from the cylinder, a pipe connected to the piston, and a removable piston-rod received by such pipe.

2. In a fluid-pressure jack, the combination of a cylinder, a piston therein, means for admitting pressure to and releasing it from the cylinder, a pipe connected to the piston, a removable piston-rod received within such pipe, and a saddle for the piston-rod.

752,202. BELT-GUIDE. ISAIAH D. CHRITTON, Graves, Kans. Filed Aug. 5, 1903. Serial No. 168,367. (No model.)



Claim.—1. A belt-guide comprising a pulley-frame mounted for pivotal movement in the plane of the axis of the pulley, a pulley mounted in said frame and adapted to accommodate a flat belt, and devices rigidly mounted on said frame to engage the edges of the belt passing over the pulley.

2. A belt-guide comprising a pulley-frame mounted for pivotal movement in the plane of the axis of the pulley, a pulley mounted in said frame, spring-arms rigidly secured upon said frame at right angles to the axis of said pulley, and rolls mounted on said arms for engagement with the edges of a belt traveling over said pulley.

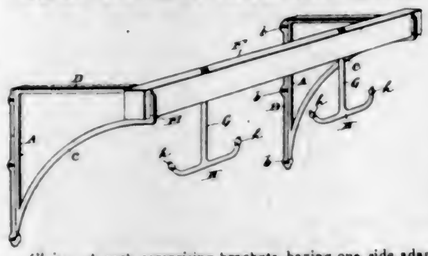
3. A belt-guide comprising a suitable bracket, a pulley-frame pivotally mounted on said bracket, a pulley mounted in said frame and adapted to accommodate a flat belt, and members carried by said frame for engagement with the edges of the belt traveling over said pulley, said members being arranged to engage the belt at a distance from the line of contact with the pulley.

4. A belt-guide comprising a suitable bracket, an angular arm adjustably supported in said bracket, a pulley-supporting frame pivotally mounted on said angular arm, a pulley provided in said frame, and members carried by said frame for engagement with the sides of a belt traveling over said pulley.

5. A belt-guide comprising a bracket, an angular arm mounted in said bracket and susceptible of rotation therein, set-screws for clamping said arm in adjusted position, a pulley-frame pivotally mounted on the free end of said arm, a pulley carried by said frame, and members provided on said arm for engagement with the edges of a belt traveling over said pulley.

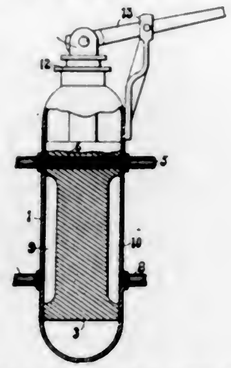
6. A belt-guide comprising a pulley-frame pivotally supported for movement in the plane of the axis of the pulley, a pulley supported in said frame, a pair of parallel spring-arms mounted on said frame and disposed substantially at right angles to the axis of the pulley, and a pair of rolls mounted on said arms and adapted for contact with the edges of the belt traveling over said pulley.

752,203. RACK FOR HORSE-COLLARS. FRANK M. COOK, Goshen, Ind. Filed Oct. 3, 1903. Serial No. 175,610. (No model.)



Claim.—A rack comprising brackets having one side adapted to be secured to a suitable support, another side extending upwardly and outwardly from the first-named side and having its outer end bent vertically upward, and a third side extending outwardly on a horizontal plane and then bent downwardly at a right angle thereto and secured to the upwardly-extending side inside of the end thereof, said construction forming a rectangular hook having a horizontal base and two vertical sides, a bar rectangular in cross-section and adapted to be removably and replaceably seated in the hooks on the brackets, inverted-T-shaped hooks secured to said bar, and knobs on the ends of the cross-arms of said hooks, substantially as shown and described.

752,204. EMERGENCY-VALVE. WILLIAM COOPER, Denver, Colo. Filed Nov 8 1902. Serial No. 130,480. (No model.)



Claim.—1. In a valve for power-lines, a valve-casing interposed between two sections of said line, a longitudinal plug in said casing, a transverse port in said plug, said port adapted to communicate with said power-line sections, exhaust-ports in said casing and longitudinal ports in said plug respectively communicating with the said sections of said power-line for the purpose described when said valve is closed.

2. In a valve for power-lines, a valve-casing, said casing interposed between two sections of the power-line, a longitudinally-movable plug in said casing, a transverse port through said plug adapted to connect said power-line sections, and a longitudinal passage in said plug adapted to register with said power-line and said exhaust-port when said valve is closed.

752,205. LOCK AND LATCH. NATHAN W. CRANDALL, Meriden, Conn., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed May 11, 1903. Serial No. 156,559. (No model.)



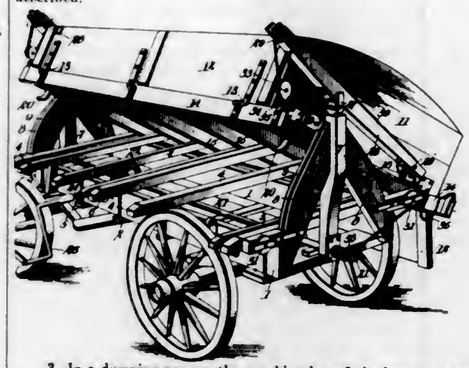
Claim.—1. In a lock, a latch-slide, a latch-bolt in connection therewith but having a retractire movement independently thereof, a separate locking-bolt, a tumbler therefor, a spring connecting said tumbler and said latch-slide, and a second spring connecting said tumbler and said latch-bolt.

2. In a lock and latch mechanism, the combination of a locking-bolt, a tumbler therefor, a latch-bolt, a latch-slide therefor, a spiral spring having one end engaging said tumbler and the other end engaging said bolt, and a second spring having one end engaging said tumbler and the other end engaging said slide.

752,206. DUMPING-WAGON. JAMES S. DANLEY, Greeley, Colo., assignor of one-half to Richard Patterson, Greeley, Colo. Filed June 17, 1903. Serial No. 161,864. (No model.)

Claim.—1. In a dumping-wagon, the combination of the body capable of being raised and moved sidewise, the walking-beam or lever, and the winding-cable connected with the body and with said beam, substantially as described.

2. In a dumping-wagon, the combination of the body capable of being raised and moved sidewise, the walking-beam or lever, the winding-cable connected with the body and said beam, and a flexible connection between the beam and a fixed support on the side opposite to the connection of the cable with the body, substantially as described.



3. In a dumping-wagon, the combination of the body capable of being raised and moved sidewise, the swiveled walking-beam or lever, and the winding-cable connected with the body and with said beam, substantially as described.

4. In a dumping-wagon, the combination of the wagon-body capable of being raised and moved sidewise, the inclined track-rail for guiding said body while being raised and moved sidewise, the walking-beam or lever, the winding-cable connected with the body and with said beam, and the flexible connection between the beam and a fixed support, substantially as described.

5. In a dumping-wagon, the combination of the body capable of being raised and moved sidewise, an inclined track-rail for guiding the body while being raised and moved sidewise, a winding-cable connected with said body and said beam, a rotatable shaft for winding the cable, and means for rotating said shaft, substantially as described.

6. In a dumping-wagon, the combination of the body capable of being raised and moved sidewise, a double inclined track-rail for guiding said body while being raised and moved sidewise to either side of the wagon, a walking-beam or lever, a winding-cable connected with said body and said beam, and a flexible connection between the beam and a fixed support on the side opposite to the connection of the cable with the body, substantially as described.

7. The combination, of the body capable of being raised and moved sidewise, the walking-beam or lever, the double inclined track-rail for guiding the said body while being raised or moved sidewise to either side of the wagon, the winding-cable connected with the body and said beam, a rotary shaft having the cable connected thereto and provided with a gear-wheel, and a crank-shaft carrying a pinion meshing with said gear for winding the cable, substantially as described.

8. In a dumping-wagon, the combination with the frame having cross-bars supporting rollers, the wagon-body provided across its bottom with rails adapted to rest on said rollers and provided with hooks adapted to be brought into engagement with said rollers, a double inclined track-rail for guiding the body while being raised and moved sidewise, walking-beams or levers, a winding-cable connected with the body and with said beams, and a flexible connection between said beam and a fixed support on the side opposite to the connection of the cable with the body, substantially as described.

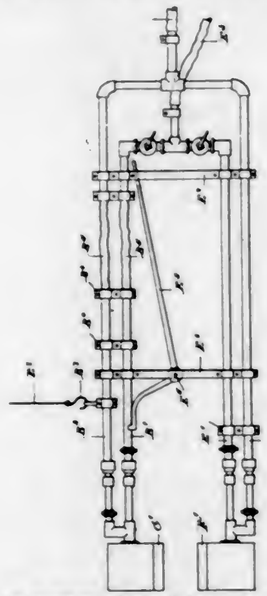
752,207. NUT-LOCK. JONATHAN DICKASON, Larue, Ohio, assignor of one-half to James Crowley, Larue, Ohio. Filed Dec. 22, 1903. Serial No. 186,156. (No model.)



Claim.—A nut-lock comprising two washers extending under the nut to prevent it from turning, one of said washers having means for

holding it stationary and provided with a spring-pawl, and the other washer which comes in direct contact with the nut having a plurality of concavo-convex shoulders to prevent the nut from turning independently thereof, said shoulders coming in contact with the sides of the nut and the concaved or recessed portion of the shoulders serving as cams by which the pawl is released as the nut and washer is turned and locked when the pawl engages the recessed portion of the shoulders, substantially as and for the purpose set forth.

752,208. **WELDING APPARATUS.** Hugo Dicke, Frankfort-on-the-Main, Germany, assignor to Jacob Eduard Goldschmid, Frankfort-on-the-Main, Germany. Filed Sept. 14, 1901. Serial No. 75,372. (No model.)



Claim.—1. In an apparatus for locally heating metals for welding purposes, the combination of an upper burner, a lower burner, air and gas pipes forming a portable forked structure or yoke connected to and supporting each of said burners, means for adjusting the burners with respect to each other, and means for freely suspending said yoke.

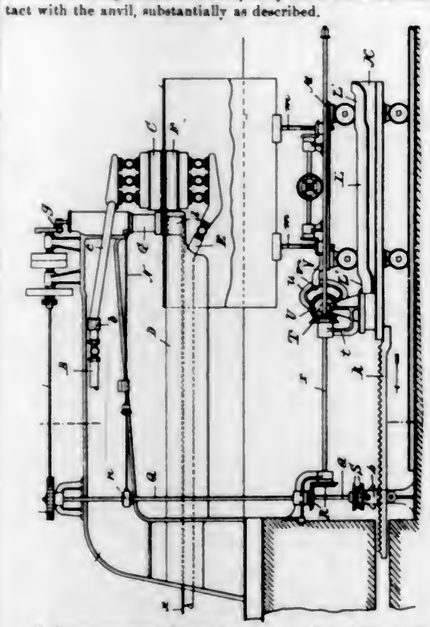
2. In an apparatus for locally heating metals for welding purposes, the combination of an upper burner, a lower burner, air and gas pipes connected to and supporting each of said burners, said pipes being united at their rear ends to form a forked structure, and a flexible connection in one side of said forked structure, whereby the burners are adjustable with respect to each other.

3. In an apparatus for locally heating metals for welding purposes, the combination of an upper burner, a lower burner, air and gas pipes connected to each burner, said pipes being united at their rear ends to form a forked structure, cross-braces connecting the pipes of each burner, and a flexible connection in one side of said forked structure, whereby the burners are adjustable with respect to each other.

4. In an apparatus for locally heating metal for welding purposes, the combination of an upper burner, a lower burner, air and gas pipes connected to each burner, said pipes being united at their rear ends to form a forked structure, cross-braces connecting the pipes of each burner, a flexible connection in one side of said forked structure, means for suspending said apparatus from an overhead support, and means for adjusting the flexible burner toward and from the other burner.

752,209. **WELDING APPARATUS.** Hugo Dicke, Frankfort-on-the-Main, Germany, assignor to Jacob Eduard Goldschmid, Frankfort-on-the-Main, Germany. Filed Sept. 14, 1901. Serial No. 75,373. (No model.)

Claim.—1. In an apparatus for welding tubes and the like, the combination with a heating device, of an anvil and an automatic hammer located adjacent to said heating device, means to automatically feed successive portions of the work to the heating device and between the anvil and hammer and mechanism coöperating with said feeding means to subsequently move the work into contact with the anvil, substantially as described.



2. In an apparatus for welding tubes and the like, the combination with a heating device, of an anvil and an automatic hammer located adjacent to said heating device, a feed mechanism for presenting successive portions of the work to the heating device and between the hammer and anvil, and means for imparting a positive forward movement and a subsequent smaller backward movement to said feed mechanism, whereby the successive portions of the work are reheated; substantially as described.

3. In an apparatus for welding tubes and the like, the combination of two gas-burners, an anvil and an automatic hammer located adjacent to the burners, a machine-frame having an upper arm supporting one burner, the hammer and the parts driving the hammer, a stationary lower arm, the front end of which serves as an anvil and supports the lower burner, mechanism for feeding successive portions of the work to the burners and between the hammer and anvil and means coöperating with said feeding mechanism for subsequently moving the work into contact with the anvil.

4. In an apparatus for welding metal tubes and the like, the combination of two gas-burners, an anvil and an automatic hammer adjacent to the burners, mechanism comprising a work-carriage to automatically feed the work between the two burners and the anvil and hammer, and means coöperating with said work-carriage for imparting to the latter a positive forward feeding movement terminating in a lowering movement and a subsequent small backward and rising movement whereby the work is fed from the burners to the anvil and lowered upon the latter and subsequently returned in part to the burners.

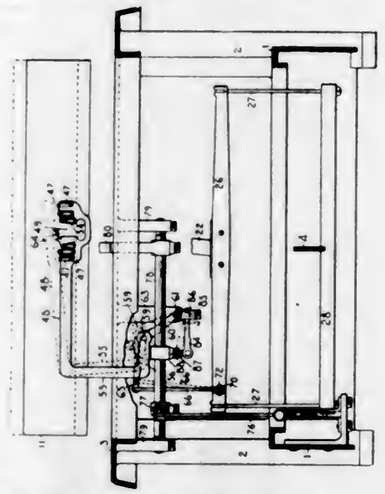
5. In an apparatus for welding metal tubes and the like, the combination of two gas-burners, an anvil, an automatic hammer located adjacent to the burners, two tube-supports, the one supported and movable on the other one, and to automatically and intermittently move the lower support forward and to move the upper support to and fro on the lower support, and whereby means to successively lower and raise the upper support on the lower support.

6. In an apparatus for welding metal tubes and the like, the combination of two gas-burners, an anvil, an automatic hammer located adjacent to the burners, two tube-supports, the one supported and movable on the other one, and means to automatically and intermittently move the lower support forward and to move the upper support to and fro on the lower support, and to raise the upper support when moving backward.

7. In an apparatus for welding metal tubes and the like, the

combination of two gas-burners, an anvil, an automatic hammer located adjacent to the burners, and mechanism for feeding successive portions of the work to the burners and between the hammer and anvil, said mechanism comprising a lower table and means for intermittently advancing the same, an upper table movably mounted on the lower table and partaking of the intermittent advance thereof, a track on the lower table provided with inclines for raising and lowering the upper table and means connected with the upper table to reciprocate the latter upon the lower table.

752,210. **TYPE-WRITING MACHINE.** Louis P. Diss, Ilion, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Aug. 2, 1901. Serial No. 70,617. (No model.)



Claim.—1. In a front-strike writing-machine, the combination with a platen and a system of types, of a pair of spools arranged at opposite sides of the type system and having horizontal parallel axes, means at the printing-point for guiding the ribbon on edge or vertically and moving it vertically to cover and uncover the printing-point, means for automatically moving the vibrator during the printing operation, and guiding-plates 50 arranged between said ribbon-guiding means and said spools, said plates being shaped substantially in conformity with the twist of the ribbon.

2. In a front-strike writing-machine, the combination with a platen and a system of types, of a pair of spools arranged at opposite sides of the type system and having horizontal parallel axes, means at the printing-point for guiding the ribbon on edge or vertically and moving it vertically to cover and uncover the printing-point, means for vibrating the ribbon during the operation of printing, and ribbon-guiding fingers 51 arranged between said guiding means and said spools, said fingers extending obliquely in such a direction as to produce a compound twist of the ribbon between the spools and the guiding means at the printing-point.

3. In a front-strike writing-machine, the combination with a series of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with ribbon-guiding fingers and also with downwardly and forwardly inclined bearing-surfaces for the ribbon and which extend beyond the plane of the fingers, the relation of said fingers to said bearing-surfaces being such as to cause the ribbon to pursue a tortuous course through the vibrator and to take up the slack on one side or edge of the ribbon.

4. In a front-strike writing-machine, the combination with a series of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with ribbon-guiding fingers and also with downwardly and forwardly inclined bearing-surfaces for the ribbon, the relation of said fingers to said bearing-surfaces being such as to cause the ribbon to pursue a tortuous course through the vibrator, said bearing-surfaces being arranged between said fingers, and a type-opening being provided upon the vibrator between said bearing-surfaces.

5. In a front-strike writing-machine, the combination with a system of types and a platen, of a ribbon-vibrator arranged forwardly thereof and provided with a type-opening and also having on each side of the type-opening oppositely-directed guiding-fingers, and cones 54 projecting forwardly from the face of the vibrator and arranged one upon each side of the type-opening.

6. In a front-strike writing-machine, the combination with a system of types and a platen, of a ribbon-vibrator arranged forwardly thereof and provided with a type-opening and also having on each side of the type-opening both upwardly and downwardly directed vertical guiding-fingers, and cones projecting forwardly from the face of the vibrator, said upwardly-directed fingers being arranged at the outer sides of said cones, and said downwardly-directed fingers being arranged at the outer sides of said upwardly-directed fingers.

7. In a front-strike writing-machine, the combination with a series of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with ribbon-guiding fingers, and coöperative offset ribbon-guiding devices so arranged with relation to said fingers that the ribbon is caused to pursue a tortuous course, whereby the slack on one side or edge of the ribbon is taken up.

8. In a front-strike writing-machine, the combination with a series of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with ribbon-guiding fingers, and coöperative angularly-offset ribbon-guiding devices placed between said fingers and so arranged with relation to said fingers that the ribbon is caused to pursue a tortuous course, whereby the slack on one side or edge of the ribbon is taken up.

9. In a front-strike writing-machine, the combination with a series of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with devices for guiding the ribbon on edge past the printing-point, and cones 54 arranged upon the vibrator between said guiding devices, said cones forming downwardly and forwardly extending bearing-surfaces for the ribbon, and causing the latter to pursue a tortuous path as it is fed through the vibrator.

10. In a front-strike writing-machine, the combination with a system of types and a platen of a ribbon-vibrator arranged forwardly of the platen and provided upon its front face with upwardly-directed ribbon-guiding fingers and forwardly-protruding conical ribbon-guiding surfaces between said guiding-fingers.

11. In a front-strike writing-machine, the combination with a system of types and a platen, of a ribbon-vibrator arranged forwardly of the platen and provided with outer downwardly-directed guiding-fingers, inner upwardly-directed guiding-fingers, downwardly and forwardly inclined bearing-surfaces arranged between said inner guiding-fingers, and a type-opening between said inclined bearing-surfaces.

12. In a front-strike writing-machine, the combination with a system of types and a platen, of a ribbon-vibrator having an index standing contiguous to and normally indicating the printing-point and arranged forwardly of the platen and means for moving said vibrator at each type impression diagonally upward and side wise in a substantially vertical plane.

13. In a front-strike type-writing machine, the combination with a system of types and a platen, of a ribbon-vibrator mounted to move diagonally and sidewise in a substantially vertical plane and having a type-opening, and a printing-point indicator arranged to one side of the type-opening, the said indicator standing normally at the printing-point and the type-opening to one side of and below the printing-point, and means for moving said vibrator and causing the type-opening and ribbon to register with the printing-point.

14. In a front-strike writing-machine, the combination with a system of types and a platen, of a ribbon-vibrator having an index and a type-opening at the right thereof, and also having ribbon-guiding devices upon each side of said type-opening, said vibrator being pivoted at the left of and below the printing-point and vibrating diagonally in a substantially vertical plane.

15. In a front-strike writing-machine, the combination with a system of keys, a system of types and a platen, of a ribbon-vibrator 48 having type-opening 49, cones 54 on the sides of said type-opening, both upwardly and downwardly directed ribbon-guiding fingers 47 on the outer sides of said cones, an index 64 at the left of said opening, a pivot 59 for said vibrator at the left of and below the printing-point, and means connected to the keys for operating said vibrator.

16. In a front-strike writing-machine, the combination with a platen and means for shifting the same, of a system of types, a vibrator for causing the ribbon to cover and uncover the printing-point, a pivoted support for said vibrator, a link connecting said pivoted support to the platen-shifting means, and a link connecting said vibrator to a part which moves at each type-stroke.

17. In a front-strike writing-machine, the combination with a platen and means for shifting the same, of a system of types, a vi-

brator for causing the ribbon to cover and uncover the printing-point, shaft 59 for said vibrator, arms 60 in which said shaft is journaled, shaft 61 upon which said arms are carried, adjustable arm 84 mounted upon said shaft 61 and connected to said platen-shifting means, arm 65 connected to said vibrator, and link 66 connecting the arm 65 to a part which moves at each type-stroke.

18. In a front-strike writing-machine, the combination with a platen and means for shifting the same, of a system of types, a vibrator for causing the ribbon to cover and uncover the printing-point, said vibrator carrying an index 64 and being pivoted below and to one side of the printing-point, a pivoted support upon which said vibrator is pivoted, said pivoted support being connected to said platen-shifting means, and a connection from said vibrator to a part which moves at each type-stroke, said connection moving idly at the shifting movement of the platen and ribbon-vibrator.

19. In a front-strike writing-machine, the combination with a system of types, a platen, and means for shifting the platen, of a vibrator for causing the ribbon to cover and uncover the printing-point, said vibrator being pivoted below and to the left of the printing-point and carrying an index 64, a swinging support 60 for said vibrator, said support extending upwardly and to the left of its pivot and being connected to said platen-shifting means, and a link 66 connecting an arm 65 of said vibrator to a part which moves at each type-stroke.

20. In a front-strike writing-machine, the combination with a system of types and a platen, of a vibrator 48 having a type-opening 49 and devices for holding the ribbon, shaft 59 upon which said vibrator is mounted, arms 60 upon which said shaft is carried, shaft 61 upon which said arms 60 are mounted, arm 84 secured to the shaft 61, link 83 connecting said arm 84 to arm 82 secured upon a platen-shifting shaft 78, arm 65 provided upon shaft 59, and link 66 connecting the arm 65 to a part that moves at each type-stroke.

21. In a type-writing machine, the combination with a system of types and a platen, of means for shifting the platen, a ribbon-vibrator provided with an index, means for shifting said vibrator and index together with said platen, and means for moving said vibrator and index upwardly and laterally to cause the ribbon to cover and the printing-point at either shift position of the platen.

22. In a front-strike writing-machine, the combination with a system of keys, a system of types and a platen, of means for shifting the platen, a ribbon-vibrator arranged forwardly thereof and provided with an index arranged normally contiguous to and registering with the printing-point, a movable device upon which said vibrator is pivoted, means connected to said movable device for causing the vibrator and index to shift with the platen, and means connected with the keys for causing the vibrator to cover the printing-point with the ribbon.

23. In a front-strike writing-machine, the combination with a system of types and a platen, of means for shifting the platen, and a ribbon-vibrator connected to the keys, said ribbon-vibrator being supported upon pivoted arms, as 60 and 66, and being connected to the platen-shifting means, the construction and arrangement being such that at the platen-shifting operation said vibrator is moved bodily upon said pivoted arms in accordance with the movement of the platen.

24. In a ribbon-spool for type-writing machines, the combination with a core and flanges, of a spring 31 fixed at one end to the core and serrated at its free end, a notch in the core for cooperation with said serrations to clamp the ribbon, and a finger-piece integral with said spring and projecting through and adapted to move toward and away from the core of the spool in an aperture formed in one of said flanges.

25. In a ribbon-spool for type-writing machines the combination with a core and flanges, of spring 31 fixed at one end and curving thence around the core and serrated at its free end, and a finger-piece carried by said spring and projecting through an apertnre formed in one of said flanges, and adapted to move in unison with said spring, so that it may be employed to move the free end of the spring toward and away from the core of the spool.

26. In a type-writing machine, the combination of means for vibrating a ribbon laterally and means for taking up the slack in one edge or side of the ribbon in order to prevent the ribbon from creasing during its lateral vibration by the vibrating means.

27. In a type-writing machine, the combination of means for vibrating the ribbon laterally and means for taking up the slack in the ribbon to different extents from one edge or side thereof to the other in order to take up any objectionable slack when the ribbon is vibrated laterally by the vibrating means.

28. In a type-writing machine, the combination of ribbon-spools, a vibrator which vibrates the ribbon laterally and means for providing a substantial uniform tension upon said ribbon from edge to edge thereof during the vibration of said ribbon-vibrator.

29. In a type-writing machine, the combination of ribbon-spools, a vibrator which vibrates the ribbon laterally and means for assuring substantially uniform amount of slack in said ribbon from edge to edge thereof during the vibration of said ribbon-vibrator.

30. In a type-writing machine, the combination of a ribbon-vibrator, means for operating said vibrator and means carried by said vibrator for taking up an objectionable slack on one side of the ribbon in order to prevent a widthwise creasing of said ribbon.

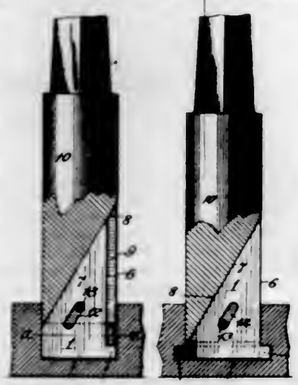
31. In a type-writing machine, the combination of a ribbon-vibrator, means for operating said vibrator and means carried by said vibrator for taking up an objectionable slack to a gradually-increasing extent from one side to the other of the ribbon in order to prevent a widthwise creasing of said ribbon.

32. In a type-writing machine, the combination of a ribbon-vibrator, means for operating said vibrator and conoidal ribbon-bearing projections carried by said vibrator for taking up an objectionable slack to a gradually-increasing extent from one side to the other of the ribbon in order to prevent a widthwise creasing of said ribbon.

33. In a type-writing machine, the combination of ribbon-spools, a ribbon, means for maintaining said ribbon twisted in the movement thereof from spool to spool, and means for taking up the slack produced by said twist in one edge portion of the ribbon.

34. In a type-writing machine, the combination of ribbon-spools, a ribbon, means for maintaining said ribbon twisted in the movement thereof from spool to spool and means for taking up the slack to a gradually-increasing extent from one edge to the other of the ribbon.

752,211. CUTTING-TOOL. ROBERT E. DUVALL, Washington, D. C. Filed Nov. 12, 1903. Serial No. 180,933. (No model.)



Claim.—1. In a tool for underentting previously-bored holes, the combination with a cutting member adapted to rest on the bottom of the hole and movable horizontally thereon, of an operating-stock adapted to be engaged loosely with said cutting member, said parts being formed with cooperating actuating-surfaces arranged to have a sliding engagement with each other, and adapted by pressure of the stock against the said cutting member to force the latter radially and in a truly horizontal direction outward.

2. In a cutting-tool the combination with a plate adapted to rest on the bottom of the hole and provided with an inclined surface and with a cutting-tooth, of an operating-stock formed to loosely engage the said plate and having an inclined surface adapted to cooperate with that on the plate, the relation of said surfaces being such that pressure of the stock against the plate will automatically force the same radially outward.

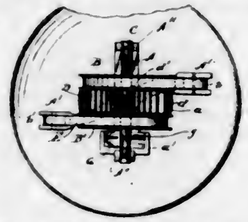
3. In a cutting-tool the combination with a plate having a horizontal lower edge, a projecting cutting-tooth and an inclined surface, of an operating-stock formed with an open slot to receive the plate, said slot having an inclined bottom adapted to cooperate with the inclined surface of the plate.

4. In a cutting-tool the combination with a radially-movable cutting member having a rounded horizontal lower inactive edge adapted to rest on the bottom of the hole, of an operating-stock adapted to be loosely engaged with said cutting member, said parts being formed with cooperating surfaces adapted by pressure of the stock on the cutting member, to urge the same radially outward.

5. In a cutting-tool the combination with an operating-stock, of a cutting member mounted therein and movable radially outward by the pressure of the stock against the same, and operative connections between the stock and the plate acting automatically to retract the plate when the stock is withdrawn.

6. In a cutting-tool the combination with an operating-stock, of a cutting member mounted therein and movable radially outward by pressure of the stock against the same, said cutting member formed with an inclined slot, and a pin carried by the stock and engaging loosely in said slot.

752,212. SPRING-EXTENSION SUPPORT. BLAIR A. ESTEP, Chicago, Ill., assignor to Search Light Manufacturing Company, a Corporation of Illinois. Filed Apr. 2, 1900. Serial No. 11,039. (No model.)



Claim.—1. The combination with the shaft, the spring-casing, and spring mounted therein, of sheaves arranged in said shaft on opposite sides of said casing, and a braking means for sliding one of said sheaves into engagement with said casing.

2. In combination with the shaft and casing having a spring mounted therein, sheaves arranged on opposite sides of said casing, one being slidably mounted, a ball arranged adjacent said movable sheave, and means whereby said ball will force said sheave into engagement with said casing.

3. In combination with the casing, the spring-actuated shaft, and the sheaves, one of which is slidably mounted, a case arranged on one side of said slidable sheave, a ball arranged in said case, and means whereby said ball normally for said sheave into engagement with casing.

752,213. SELF-THREADING SEWING-MACHINE NEEDLE. JULIUS M. FARMER, Milwaukee, Wis., assignor of part to John Vierthaler, Joseph Derfus, Jesse R. Matteson, Emery L. Terrell, V. A. Gudex, D. P. Redd, Clark S. Matteson, and Charles T. H. Clifford, Milwaukee, Wis. Filed Dec. 15, 1902. Serial No. 135,279. (No model.)

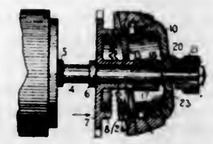


Claim.—A sewing-machine needle provided with a thread-receiving aperture, communicating from its exterior surface with the eye, the lower side of said aperture being beveled inwardly and downwardly toward the point of the needle, and one side of its central portion flattened for the reception of an elastic bearing-plate in combination with an elastic bearing-plate rigidly affixed at one end to the flattened side of the needle; the lower end of said bearing-plate being provided with an inwardly-projecting shoulder tapered downwardly and inwardly at its lower end to conform to the opposing surface of the needle, and having its interior lower end beveled upwardly and inwardly, away from the opposing surface of the needle, while the exterior upper end of the opposing bearing-surface of the needle, is tapered outwardly and downwardly, forming a notch for engagement with the thread when entering the eye of the needle, all substantially as, and for the purpose specified.

752,214. TYPE-WRITING MACHINE. WILLIAM C. FARNUM, Arlington, Vt., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 20, 1901. Serial No. 83,010. (No model.)

Claim.—1. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a gear-wheel connected to said ratchet-wheel, a regulating-gear positively connected to rotate the platen, and means for effecting a differential movement of said regulating-gear.

2. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a gear-wheel connected to said ratchet-wheel, a regulating-gear positively connected to rotate the platen, and means for effecting a differential movement of said regulating-gear, said differential movement being independent of the movement of the regulating-gear with the ratchet-wheel.



3. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, which is movable independently of said platen, a gear-wheel connected to said ratchet-wheel, a regulating-gear positively connected to rotate the platen and adapted to move independently thereof, and to effect a relative movement between the line-spacing ratchet-wheel and platen, and means for effecting the said independent movement of said regulating-gear.

4. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, and a regulating-wheel which meshes with said gear-wheel and is movable therewith and has a movement independently thereof.

5. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel and a regulating-wheel which has a movement of nutation as well as rotation.

6. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which meshes with said gear-wheel, and a universal joint between said regulating-wheel and the platen-shaft.

7. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a gear-wheel which is operatively connected to the line-spacing ratchet-wheel, a regulating-gear which meshes with said gear-wheel and is movable therewith and has a movement independently thereof, and a finger-wheel which constitutes a part of said regulating-gear.

8. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which has a movement of nutation as well as rotation, and a hand-operated eccentric for transmitting movement to said regulating-wheel.

9 In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which has a movement of nutation as well as rotation, a hand-operated eccentric for transmitting movement to said regulating-wheel, and a universal joint between said regulating-wheel and the platen-shaft.

10. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which has a movement of nutation as well as rotation, a hand-operated eccentric for transmitting movement to said regulating-wheel, a universal joint between said regulating-wheel and the platen-shaft, and a finger-wheel which constitutes a part of said regulating-gear.

11. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a toothed gear connected to said ratchet-wheel, a regulating toothed gear which meshes with the gear on the ratchet-wheel, a connection between said regulating-gear and the platen-shaft, whereby said gears, ratchet-wheel and platen are adapted to rotate together, and means for causing the regulating-gear to receive a differential movement with relation to the ratchet-wheel.

12. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a toothed gear connected to said ratchet-wheel, a regulating toothed gear which meshes with the gear on the ratchet-wheel and which is operatively connected to the platen-shaft, whereby said gears, ratchet-wheel and platen are adapted to rotate together, a universal joint which constitutes the operative connection between said regulating-gear and the platen-shaft, and independent hand-operated means for causing the regulating-gear to receive a differential movement with relation to the ratchet-wheel.

13. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a toothed gear connected to said ratchet-wheel, a regulatlag toothed gear which meshes with the gear on the ratchet-wheel and which is operatively connected to the platen-shaft, whereby the said gears, ratchet-wheel and platen are adapted to be rotated together, a universal joint which constitutes the operative connection between the regulating-gear and the platen-shaft,

and means for transmitting a movement of nutation to said regulating-gear to effect a displacement of the ratchet-wheel and platen one with relation to the other.

14. In a type-writing machine, the combination of a platen, a platen-shaft secured thereto, a line-spacing ratchet-wheel loosely mounted upon said shaft, a toothed gear upon said ratchet-wheel, a finger-wheel for rotating the platen, a toothed regulating-gear on said finger-wheel and which meshes with the toothed gear on the ratchet-wheel to cause said platen, ratchet and hand wheel to rotate together, a universal joint between said finger-wheel and the platen-shaft, and means for moving said finger-wheel on the universal joint to displace the platen and ratchet-wheel one with relation to the other.

15. In a type-writing machine, the combination of a platen, line-spacing mechanism, a finger-wheel adapted to rotate said platen, said finger-wheel being operatively connected to the platen and to the line-spacing mechanism, and means for producing a separate movement of said finger-wheel to displace the platen and line-spacing mechanism one with relation to the other.

16. In a type-writing machine, the combination of a platen, a finger-wheel connected to move said platen and to have a separate displacing movement with relation thereto, and means for effecting the said displacing movement of the finger-wheel.

17. In a type-writing machine, the combination of a platen, line-spacing mechanism, a finger-wheel connected to move said platen and to have a separate displacing movement with relation thereto, and means for effecting the said displacing movement of the finger-wheel, whereby the platen and line-spacing mechanism will be displaced one with relation to the other.

18. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel positively connected to the platen so as to turn the same, differential gear connections between said finger and ratchet wheels, and means for actuating the finger-wheel to effect the differential movement of the parts to displace the platen with relation to the ratchet-wheel.

19. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel operatively connected to the platen and adapted to rotate with the platen and ratchet-wheel and to have a differential movement with relation to the ratchet-wheel, differential gear connections between said finger and ratchet wheels, and means independent of the finger-wheel for actuating it to effect the differential movement of the parts, to displace the platen with relation to the ratchet-wheel.

20. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel which is positively connected to rotate the platen, a differential positive connection between the ratchet-wheel and finger-wheel, and means for moving the finger-wheel relatively to the platen to effect a differential movement of the parts, to displace the platen and ratchet-wheel one with relation to the other.

21. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a gear thereon, a finger-wheel which is positively connected to rotate with the platen, a gear on said finger-wheel and which meshes with the gear on the ratchet-wheel, so as to form a differential connection between the ratchet-wheel and finger-wheel, and means for moving the finger-wheel relatively to the platen, to effect a differential movement of the parts to displace the platen and ratchet-wheel one with relation to the other.

22. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel which is connected to the platen by a gimbal-joint, a differential connection between the ratchet-wheel and finger-wheel and an eccentric for moving the finger-wheel relatively to the platen, to effect a differential movement of the parts, to displace the platen and ratchet-wheel one with relation to the other.

23. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel and its actuating means, a gear thereon, a finger-wheel which is connected to the platen by a gimbal-joint, a gear on said finger-wheel which meshes with the gear on the ratchet-wheel, so as to form a differential connection between the ratchet-wheel and finger-wheel, and an eccentric which is movable independently of the platen for moving the finger-wheel relatively to the platen, to effect a differential movement of the parts, to displace the platen and ratchet-wheel one with relation to the other.

24. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel movable with relation to said platen, a finger-wheel which is operatively connected by a universal joint to rotate with the platen, and means which cooperate with the finger-wheel to effect a displacement of the platen and ratchet-wheel, one with relation to the other when the finger-wheel is moved on its universal joint.

25. In a type-writing machine, the combination of a platen, a ratchet-wheel, a gear-wheel connected thereto, a regulating-gear which is operatively connected to the platen and is mounted in a plane that intersects the plane of the gear on the ratchet-wheel, and means for turning the regulating-gear to produce a differential movement of the platen and ratchet-wheel, one with relation to the other.

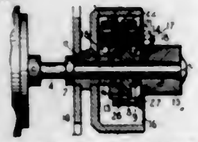
26. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel having a gear-wheel connected thereto, and a cup-shaped finger-wheel having a crown-gear on the edge thereof that is adapted to coöperate with the gear on the ratchet-wheel and to effect a differential movement of the platen and ratchet-wheel one with relation to the other.

27. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which has a movement of nutation as well as rotation, a hand-operated eccentric for transmitting movement to said regulating-wheel and spring-pressed means for maintaining said wheels in close engagement.

28. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which has a movement of nutation as well as rotation, a hand-operated eccentric for transmitting movement to said regulating-wheel, and a universal joint between said regulating-wheel and platen, one member of said joint being flexible.

29. In a type-writing machine, the combination of a platen, a line-spacing wheel therefor, a gear-wheel which is operatively connected to the line-spacing wheel, a regulating-wheel which meshes with said gear-wheel, and a universal joint between said regulating-wheel and the platen, one member of said universal joint being resilient to effect a spring-pressure on the gears.

752,215. TYPE-WRITING MACHINE. William C. Parmun, Arlington, Vt., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 20, 1901. Serial No. 83,011. (No model.)



Claim.—1. In a type-writing machine, the combination of a line-spacing wheel, a platen-shaft, a platen secured thereto and adapted to be turned independently of the line-spacing wheel, a train of gears coöperating with the line-spacing wheel and the platen-shaft, and hand-operated means for moving said train of gears to effect a movement of the platen and platen-shaft independently of the line-spacing wheel, the said train of gears, line-spacing wheel and hand-operated means being located at the same end of the platen.

2. In a type-writing machine, the combination of a line-spacing wheel, a finger-wheel rigidly connected thereto, a platen-shaft, a platen secured thereto and adapted to be turned independently of the line-spacing wheel, a train of gears coöperating with the line-spacing wheel and the platen and adapted to rotate bodily therewith when the line-spacing wheel is rotated for regular line-spacing or when said finger-wheel is turned, and hand-operated means for moving said train of gears to effect a movement of the platen and platen-shaft independently of the line-spacing wheel for fractional spacing.

3. In a type-writing machine, the combination of a line-spacing wheel, a platen-shaft, a platen secured thereto and adapted to be turned independently of the line-spacing wheel, a train of gears coöperating with the line-spacing wheel and the platen and adapted to rotate bodily therewith when the line-spacing wheel is rotated for regular line-spacing, hand-operated means for moving said train of gears to effect a movement of the platen and platen-shaft relatively to the line-spacing wheel, and a finger-wheel rigidly connected to the line-spacing wheel for rotating the line-spacing wheel, the gears, the platen-shaft and the platen all together for regular line-spacing.

4. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, planet-gears coöperating with the line-spacing wheel and platen, and means for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel, said line-spacing wheel, planet-gears and the means for turning the planet-gears being located at one end of the platen.

5. In a type-writing machine, the combination of a platen-frame, a line-spacing wheel, a platen adapted to move independently thereof, planet-gears coöperating with the line-spacing wheel and platen, means for rotating the platen line-spacing wheel and planet-gears together as a whole, and means for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel said line-spacing wheel, planet-gears and the means for turning the planet-gears for differential spacing being located at the end of the platen and outside of the platen-frame.

6. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, planet-gears coöperating with the line-spacing wheel and platen, a finger-wheel rigidly connected to the line-spacing wheel and operatively connected to the planet-gears and platen, for rotating them together as a whole, and a finger-wheel for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel.

7. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, planet-gears coöperating with the line-spacing wheel and platen, means for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel, and spring-pressed means for maintaining a close engagement between various of said planet-gears.

8. In a type-writing machine, the combination of a platen, a line-spacing wheel, a finger-wheel operatively connected thereto, planet-gears contained within said finger-wheel and coöperating with the platen and the line-spacing wheel, and means independent of said finger-wheel for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel.

9. In a type-writing machine, the combination of a platen, a line-spacing wheel, differential planet-gears coöperating with the platen and the line-spacing wheel, means for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel, and line-spacing mechanism coöperating with the line-spacing wheel to effect a movement thereof together with the platen, said line-spacing wheel, planet-gears and line-spacing mechanism being located at one end of the platen.

10. In a type-writing machine, the combination of a platen, a line-spacing wheel, a finger-wheel operatively connected thereto, planet-gears contained within said finger-wheel and coöperating with the platen and the line-spacing wheel, means independent of said finger wheel for turning the planet-gears to effect a movement of the platen independently of the line-spacing wheel, and line-spacing mechanism coöperating with the line-spacing wheel to effect a movement thereof together with the platen, and means for locking said line-spacing wheel against rotation.

11. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, a finger-wheel adapted to rotate the platen and line-spacing wheel together, toothed planet-gears coöperating with the line-spacing wheel and platen, said planet-gears being effective to afford a rotation of said finger-wheel, line-spacing wheel and platen together, a second finger-wheel carrying certain of said toothed planet-gears and adapted to rotate the same to effect a movement of the platen independently of the line-spacing wheel, and means for retaining the line-spacing wheel against movement while said second finger-wheel is being rotated.

12. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, a finger-wheel adapted to rotate the platen and line-spacing wheel together, toothed planet-gears coöperating with the line-spacing wheel and platen, a finger-wheel carrying certain of said toothed planet-gears and adapted to rotate the same to effect a movement of the platen independently of the line-spacing wheel, movable means for retaining the line-spacing wheel against movement and spring-pressed means for maintaining said toothed gears in close mesh to prevent lost motion or backlash.

13. In a type-writing machine, the combination of a line-spacing-wheel, a platen adapted to move independently thereof, a finger-wheel adapted to rotate the platen and line-spacing wheel together, toothed planet-gears coöperating with the line-spacing wheel and platen and surrounded by said finger-wheel, a regulating finger-wheel, a carrier connected to said regulating finger-wheel and carrying certain of said toothed planet-gears and adapted to effect a movement of the platen independently of the line-spacing wheel.

14. In a type-writing machine, the combination of a line-spacing wheel, a platen adapted to move independently thereof, a hollow open-ended finger-wheel, planet-gears contained within said finger-wheel and adapted to coöperate with the platen and line-spacing wheel, and hand-operated means for actuating said planet-gears to rotate the platen independently of the line-spacing wheel, said hand-operated means including a disk which closes the open end of the hollow finger-wheel.

15. In a type-writing machine, the combination of a platen, a line-spacing wheel adapted to move independently thereof, a train of gears coöperating with the line-spacing wheel and the platen, and hand-operated means for moving said train of gears to effect a movement of the platen independently of the line-spacing wheel, said hand-operated means including a pivoted spring-pressed carrier for certain of said planet-gears.

16. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a finger-wheel rigidly connected to said ratchet-wheel, a gear-wheel which is connected to the ratchet-wheel, and gear connections for operatively connecting the ratchet-wheel to rotate with the platen when said finger-wheel is turned or for effecting a movement of the platen with relation to the line-spacing wheel.

17. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a finger-wheel rigidly connected to the ratchet-wheel, intermediate differential gearing between said ratchet-wheel and the platen which enables the line-spacing ratchet-wheel and platen to be turned together through said finger-wheel, and means independent of the finger-wheel for transmitting movement to said differential gearing and thereby effecting a movement of the platen relatively to the ratchet-wheel.

18. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel rigidly connected to the line-spacing ratchet-wheel for rotating said platen and ratchet-wheel together, a regulating finger-wheel, and a train of intermediate differential gearing between said regulating finger-wheel and the platen, and between the regulating finger and ratchet wheels, whereby a movement of the regulating-wheel is effective to move the platen relatively to the ratchet-wheel, said regulating finger-wheel, line-spacing wheel and differential gearing being located at one end of the platen.

19. In a type writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel rigidly connected to said ratchet-wheel for rotating said platen and ratchet-wheel together, a regulating finger-wheel movable independently of the platen, and a train of intermediate differential gearing between said regulating finger-wheel and the platen and between the regulating finger and ratchet wheels, certain of said gears being carried by the regulating finger-wheel, whereby a movement of the regulating finger-wheel is effective to move the platen relatively to the ratchet-wheel, said gearing forming an operative connection from the first-mentioned finger-wheel to the platen so that said finger-wheel is effective to turn the line-spacing wheel and platen together.

20. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel, a finger-wheel for rotating said platen and ratchet-wheel, a regulating finger-wheel, a gear connected to said ratchet-wheel, a gear connected to the platen, and a gear which is carried by the regulating finger-wheel and coöperates with the other gears to effect a movement of the platen with relation to the ratchet-wheel when said regulating-wheel is rotated, said line-spacing wheel, regulating finger-wheel and gears being located at one end of the platen.

21. In a type-writing machine, the combination of a platen, a platen-shaft to which said platen is secured, a ratchet-wheel loosely mounted on the platen-shaft, a finger-wheel connected to said ratchet-wheel for rotating it and the platen, a gear rigidly connected to the platen-shaft, a gear connected to the ratchet-wheel, a regulating finger-wheel adapted to turn on said shaft, and a gear carried by and adapted to revolve with and to turn relatively to the regulating finger-wheel and which coöperates with the other gears to effect a movement of the platen with relation to the ratchet-wheel when the regulating-wheel is turned.

22. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a train of differential gears coöperating with the platen and ratchet-wheel, and hand-operated means for operating said gears to effect a movement of the platen with relation to the ratchet-wheel, said line-spacing wheel, gears and hand-operated means for actuating the gears being located outside of the platen and at one end thereof.

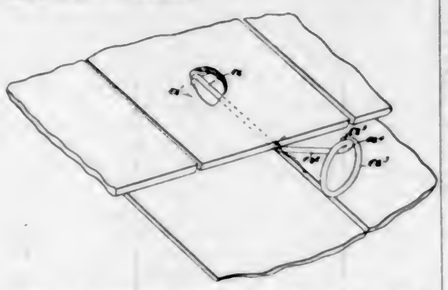
23. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a train of differential gears co-

operating with the platen and ratchet-wheel, hand-operated means for operating said gears to effect a movement of the platen with relation to the ratchet-wheel, and independent hand-operated means for turning the ratchet-wheel, platen and gears together to effect the line-spacing movement of the platen.

24. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a train of toothed differential gears cooperating with the platen and ratchet-wheel, hand-operated means for operating said toothed gears to effect a movement of the platen with relation to the ratchet-wheel, and a spring for maintaining the gears in close mesh and to avoid lost motion.

25. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel therefor, a train of differential gears cooperating with the platen and ratchet-wheel, hand-operated means for operating said gears to effect a movement of the platen with relation to the ratchet-wheel, and a finger-wheel which is connected to the ratchet-wheel and surrounds said gears, for turning the ratchet-wheel, platen and gears together to effect a turning of the platen for ordinary line-spacing.

752,216. **SNOW-GUARD.** GEORGE F. FOLSOM, Roslindale, Mass., assignor to Henry M. Bascles, Boston, Mass. Filed June 6, 1902. Serial No. 110,433. (No model.)



Claim.—1. A wire snow-guard comprising a snow-stop and a supporting-shank therefor connected thereto at a point above its base.

2. A wire snow-guard comprising a snow-stop and a supporting-shank therefor connected thereto at or near the top thereof.

3. A snow-guard comprising a snow-stop and a wire supporting-shank therefor connected thereto at a point above the base thereof.

4. A snow-guard having an individual snow-stop provided at its upper side with a substantially centrally located deflector.

5. A snow-guard comprising a snow-stop and a supporting-shank therefor connected thereto at a point above its base, the whole formed from a single piece of wire.

6. A wire snow-guard comprising a shank having a spur at one end and at its opposite end bent outwardly and then inwardly to form a snow-stop supported at or near its top.

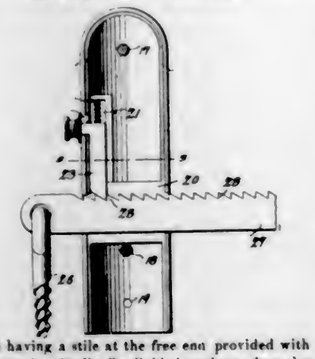
7. A wire snow-guard comprising a shank bent outwardly at its lower end and then inwardly to form a snow-stop, the free end of said wire being carried for support behind an intermediate portion thereof.

752,217. **GATE-FASTENER.** GEORGE S. FRANCIS and BERNARD R. RYAN, Havre, Mont. Filed May 20, 1903. Serial No. 158,015. (No model.)

Claim.—1. A flexible gate formed with a rigid stile having a cap at one end, said cap having a transverse aperture extending therethrough, a longitudinally-disposed latch-bolt carried by said cap, in combination with a ratchet-bar movably connected to an adjacent fence-post and adapted to pass through said cap-aperture with its teeth engaged by said latch-bolt.

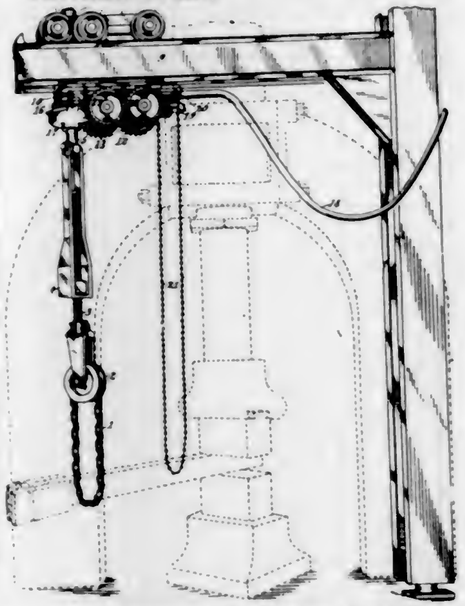
2. A gate formed with a vertical stile at its free end, a cap upon said stile provided with a transverse aperture, and a spring-controlled latch projecting into said aperture, in combination with an adjacent fence-post having an eyebolt extending therefrom, a lock-bar movably connected to said eyebolt and provided with spaced notches and adapted to be passed through the aperture in said cap with its notches in engagement with said latch, substantially as described.

3. A gate formed with a vertical stile at its free end, a cap formed in two parts longitudinally divided and secured upon opposite sides of said stile at one end thereof and provided with a transverse aperture between the parts, a lock-bar having spaced notches and movably connected to the adjacent post of the fence and adapted to slide in said aperture, and a spring-actuated latch within said cap adapted to engage said notches, substantially as described.



4. A gate having a stile at the free end provided with an end cap formed in two longitudinally-divided sections adapted to be detachably connected and having a half-socket and one portion of a transverse aperture in each section, and provided with one-half of a latch-cavity in each section intersecting said transverse aperture, a latch slidably disposed in said latch-cavity and yieldably maintained with its operative end extending into said transverse aperture and operable from the exterior of the cap, in combination with a lock-bar having spaced notches and means for connection to the fence-post adjacent to the gateway-opening, said bar being adapted to be inserted through said aperture with its notches in engagement with said latch, substantially as described.

752,218. **FORGING-SUSPENDER.** EDWIN F. GALLOWAY, Jr., Newark, N. J., assignor to Empire Engine and Motor Company, Orangeburg, N. Y., a Corporation of New York. Filed Nov. 21, 1903. Serial No. 182,162. (No model.)



Claim.—The combination of a forging-suspender, a turnbuckle connected in the suspender, a motor and geared connections between the motor and the turnbuckle, substantially as described.

752,219. **EXPANSION-TRAP.** ROBERT H. GOLD, Chicago, Ill. Filed Apr. 6, 1903. Serial No. 151,320. (No model.)

Claim.—1. A trap comprising a valve, an expansion device, operative connections between said valve and said expansion device, a housing for said expansion device, openings into said housing, and projections arranged externally of said housing so as to direct a flow of air into said housing through said openings.

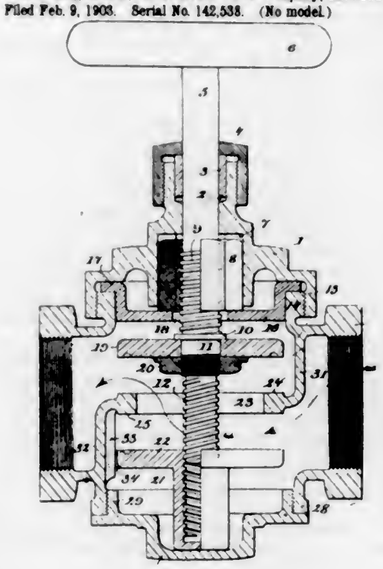


2. In an expansion-trap, the combination with the expansion device, of a housing, openings through the bottom of said housing, and ribs arranged externally upon the bottom of said housing so as to catch the air and direct its flow into some of said openings.

3. In an expansion-trap, the combination with the expansion device, of a housing, provided with openings through its bottom, of projections arranged externally of said housing and radially of the bottom thereof to direct the flow of air into said housing.

4. In an expansion-trap, the combination with the expansion device, of a housing provided with openings leading to the atmosphere, of means for wholly or partially closing said openings.

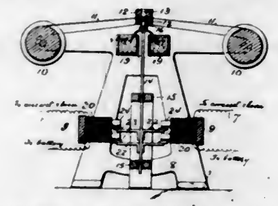
752,220. **VALVE.** EDWARD HALLEY, Montague, Mich., and RICHARD F. DOWNEY, Milwaukee, Wis., assignors, by direct and mesne assignments, to National Valve Company, Milwaukee, Wis. Filed Feb. 9, 1903. Serial No. 142,538. (No model.)



Claim.—1. In a valve, the combination with the valve-body having a central two-faced valve-seat, of a valve-rod having an upper and lower series of screw-threads passing therethrough and carrying a valve on each side of said valve-seat, a vertically-movable non-rotatable nut in engagement with the upper series of screw-threads on said valve-rod, and means for closing said valves against said seat, and for withdrawing them therefrom.

2. In a valve, the combination with the valve-body having a central two-faced valve-seat, of a valve-rod passing therethrough, and having an upper and lower series of screw-threads formed externally thereon, the pitch of the lower threads being practically double that of the upper threads; a nut in engagement with the upper threads, said nut being vertically movable within limits, but held against rotation; an upper valve held fast to said rod between said two series of screw-threads thereon, and a lower valve having a nut integral therewith, said lower nut being in engagement with said lower series of screw-threads on said rod, and said lower valve being held against rotation, in its vertical movement.

752,221. **APPARATUS FOR PERFORATING MUSIC-SHEETS.** ALVIN L. HART, Burlington, Iowa. Filed Aug. 5, 1902. Serial No. 118,522. (No model.)



Claim.—1. A music-sheet perforator comprising a sustaining device for a music-sheet, a perforator to enter said device and engage the music-sheet, and means for heating said perforator.

2. The combination with a perforated guide constructed to permit the passage of a sheet through it, of a perforator to enter said perforated guide and engage the sheet passing through it and means for heating said perforator.

3. The combination with a perforated guide and means for passing a sheet through said guide, of a perforator to enter said guide and engage the sheet and electrical means for heating said perforator.

4. The combination with a perforated guide and means for passing a sheet through the same, of electrical devices for heating said perforator and for reciprocating it.

5. A music-sheet-perforating device comprising a sheet-sustaining device, a series of thermocauters to penetrate the sheet as it passes said sustaining device and means for operating said thermocauters.

6. In a music-sheet-perforating device, the combination with the actions of a musical instrument, of a sheet-sustaining device, a series of thermocauters to penetrate said sheet as it passes the sustaining device, and devices controlled by the actions of the piano for operating said thermocauters.

7. A music-sheet perforator comprising a plunger, a platinum tip thereon heated by a current of electricity and electrically-controlled mechanism to govern the operation of the plunger.

8. A music-sheet perforator, comprising a series of heated plungers to correspond with the keys of a piano, and electromagnets controlled by the piano-action and adapted to operate the plungers to burn holes in the music-sheet.

9. A music-sheet perforator, comprising a series of electrically-heated plungers, means for continuously moving a music-sheet across the path of said plungers but out of engagement therewith, and electromagnets controlled by piano-actions, to move said plungers against the music-sheet.

10. A music-sheet perforator, comprising a series of plungers, platinum tips thereon maintained highly heated by an electric current, means for continuously moving a music-sheet across the path of said plungers but out of engagement therewith, and electromagnets controlled by piano-actions, to move said plungers in their proper order, into contact with the music-sheet.

11. A music-sheet perforator, comprising a series of plungers, platinum tips thereon maintained highly heated, means for continuously moving a music-sheet across the path of said plungers but out of engagement therewith, arms on said plungers carrying soft-iron armatures, and electromagnets controlled by piano-actions to at-

tract said armatures and move the plungers in their proper order into engagement with the music-sheet to burn openings in the latter.

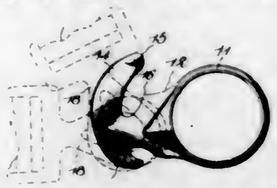
12. A music-sheet perforator, comprising a series of plungers, platinum tips thereon, cups containing mercury, prongs or arms in circuit with said tips projecting into the mercury, an electric circuit including said prongs, tips and mercury, a music-sheet, means for moving the same across the path of the plungers, and means controlled by a piano-action, for moving the plungers in their regular order into engagement with the moving music-sheet.

13. In a music-sheet perforator, the combination with a frame, of parallel bars, having alined perforations, rollers on opposite sides of said bars to continuously move a music-sheet between them, and thermocanters controlled by piano-actions to perforate said sheet.

14. In a music-sheet perforator, the combination with a piano-action, and contact-points thereon to close and break electric circuit, of mechanism for continuously moving a music-sheet, and electrically-controlled thermocanters moved into engagement with the music-sheet to perforate the same in accordance with the performance upon the piano-action.

15. A music-sheet perforator comprising parallel bars of non-conducting material having alined holes and adapted to lightly engage a sheet passing between them, and means for burning the sheet as it passes over the holes.

752,222. WHIFFLETREE-HOOK. GEORGE DE BERTON HAYES, Chetek, Wis. Filed Oct. 13, 1903. Serial No. 176,921. (No model.)



Claim.—1. A whiffletree-hook comprising a supporting member having a laterally-curved shank projecting therefrom, said shank being provided at its free end with a T-shaped head having arms of unequal length extending at right angles therefrom, both of said arms curving rearwardly toward the supporting member.

2. A whiffletree-hook comprising a supporting member having a laterally-curved shank projecting therefrom, said shank being provided at its free end with a T-shaped head having arms of unequal length each curving rearwardly toward the supporting member, and with the longer of said arms laterally inclined toward said curved shank.

3. An improved whiffletree-hook formed with a T-shaped head and laterally-curved shank, the arms of said head portion curving rearwardly and of unequal length and with the longer of said arms laterally inclined toward said curved shank and terminating in a stop-lug extending transversely of the arm, substantially as described.

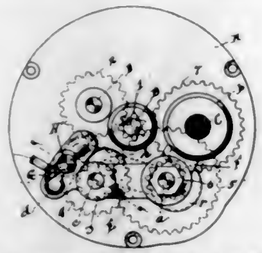
4. An improved whiffletree-hook formed with a T-shaped head and laterally-curved shank having a depending stop-lug, the arms of said head portion curving rearwardly and of unequal length with the longer of said arms inclined toward said curved shank and the stop-lug depending therefrom, substantially as described.

5. An improved whiffletree-hook consisting of a ferrule for attachment to the whiffletree and having a laterally-curving shank extending therefrom and terminating in a T-shaped head, the arms of which are of unequal length and curving rearwardly toward the ferrule, substantially as described.

752,223. VARIABLE-SPEED MECHANISM. CHARLES S. HISEY, Dayton, Ky., assignor to the Hisey-Wolf Machine Company, Cincinnati, Ohio, a Corporation. Filed Oct. 22, 1903. Serial No. 178,106. (No model.)

Claim.—1. In an electric-driven drill, the casing, an armature feed-shaft and drill-spindle, supported in parallel position in the casing, a driving and a driven gear thereon respectively, an intermediate gear-wheel journaled on the casing and intermeshed with the gear on the feed-shaft, a tumbler, gearing thereon and means for swinging the tumbler in opposite directions whereby varied trains of gears alternately engage the said driving and intermediate gear-wheels, substantially as described.

2. In a drill, a feed-shaft and spindle in parallel planes, a driving and a driven gear-wheel thereon respectively, an intermediate gear-wheel journaled on the casing and intermeshed with the gear on the feed-shaft, a tumbler fulcrumed on one of said shafts, a train of gear-wheels thereon, in mesh with the gear-wheel on the fulcrum-shaft of the tumbler, and means for shifting said tumbler in opposite directions, whereby two different trains of gear-wheels are alternately engaged between the feed-shaft and spindle, substantially as described.



3. In a drill, a casing, a feed-shaft and spindle disposed therein in parallel planes, a driving and a driven gear-wheel thereon respectively, an intermediate gear-wheel journaled on the casing and intermeshed with the first-named gear-wheel, a tumbler fulcrumed on one of said shafts, a train of gear-wheels thereon in mesh with the gear-wheel on the fulcrum-shaft, and means for swinging said tumbler in opposite direction whereby different members of the gearing are alternately intermeshed with the gear-wheel on the other of said shafts or with said intermediate gear-wheel, substantially as described.

4. In a drill, a casing, a first and second shaft parallel therein, gear-wheels thereon, an intermediate gear-wheel journaled on the casing and intermeshed with the outside of said gear-wheel on the first shaft, a tumbler-lever fulcrumed on the second shaft, gearing on the tumbler intermeshed with the gear on the second shaft, and means for swinging said tumbler in opposite directions whereby different members of the tumbler-gearing are alternately intermeshed with the intermediate gear-wheel or with said gear-wheel on the first shaft, substantially as described.

5. In a drill, a casing, a first and second shaft parallel therein, gear-wheels on said shaft, an intermediate gear-wheel journaled on the casing and in intermesh with the gearing on the first shaft, a compound tumbler-lever, one end of which is fulcrumed on the second shaft, compound gears on the middle joint and on the end of the tumbler-lever in train with one another and with the gear-wheel on the second shaft, and means for shifting said compound tumbler-lever whereby in one direction of movement the compound gearing on the end of the tumbler-lever is intermeshed with the intermediate gear, and in the other direction of movement the compound gearing on the middle joint of the tumbler-lever is intermeshed with the gear on the first shaft, substantially as described.

6. In a drill, a casing, a first and second shaft parallel therein, gear-wheels thereon, an intermediate gear-wheel journaled on the casing and intermeshed with the gear on the first shaft, a compound tumbler-lever one end of which is fulcrumed on the second shaft, compound gears on the end of the tumbler-lever and on the middle joint thereof, in train with one another and the gear-wheel on the second shaft, the swinging end of said tumbler compound lever being provided with a cam-slot, and a clamping-post on the casing engaging through said slot, whereby when the lever is moved to one extremity of the slot, the gearing on the end of the lever is moved toward the intermediate gear-wheel, the gearing on the middle joint of the lever being moved from the gear-wheel on the first shaft, and when the lever is moved to the other extremity of the slot the middle joint is moved toward the first shaft, and the end of the tumbler-lever away from the intermediate gear, substantially as described.

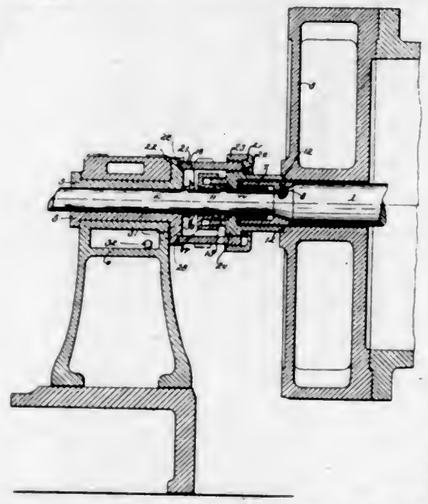
7. In a drill, a casing, a first and second shaft parallel therein, gear-wheels thereon, an intermediate gear-wheel journaled on the casing and intermeshed with the gear on the first shaft, a compound tumbler-lever one end of which is fulcrumed on the second shaft, the middle joint and the outer end of said tumbler-lever having stud-pins, the head of the casing having slots through which project the said stud-pins, compound gears on said stud-pins in train with one another, and with the gear on the second shaft, the outer end of said lever having a cam engagement with the casing adapted to move the end of said lever in opposite direction from the direction of movement of the middle joint, when said lever is swung in either direction on its fulcrum, whereby the gear on the first shaft and its intermediate gear are alternately brought into train with different members of the gears on the tumbler-lever, substantially as described.

8. In a drill, a casing, a first and second shaft parallel therein, the casing having a cap forming a seat for variable-speed mechanism, and having orifices for the passage of said first and second shafts, gear-wheels on said shafts within the cap, an intermediate gear-wheel journaled on the inside of the cap, intermeshed with the gear-wheel on the first shaft, a compound tumbler-lever one end of which is fulcrumed on the second shaft, outside of the cap, the middle joint of the lever, and the outer end having stud-pins internally projecting through slots in the cap, compound gears on said stud-pins within the cap, in train with one another, and the gear-wheel on the second shaft, and means for manipulating the tumbler-lever to throw different members of the compound gears into mesh with the intermediate gear and the gear on the first shaft, when said lever is swung in opposite directions, substantially as described.

9. In a drill, a casing, an armature-shaft and a spindle parallel therein, a tumbler, and seven gear-wheels arranged on the casing, shafts and tumbler adapted to be thrown into two trains as the tumbler is swung in opposite directions to give two changes of speed in the same direction of rotation of the driven shaft, substantially as described.

10. In a drill, an armature-shaft and a spindle arranged close together in parallel planes, a gear-wheel arranged on each to pass each other without engagement, an intermediate gear-wheel intermeshed with one of said gear-wheels, a tumbler, a train of gearing thereon, meshing with one of the first-named gear-wheels and means for swinging said tumbler and connecting said shafts and spindle in varied trains alternately, substantially as described.

752,224. TURBINE-BEARING. HANS HOLZWARTH, Hamilton, Ohio, assignor to the Hooven-Owens-Rentschler Company, Hamilton, Ohio, a Corporation of Ohio. Filed Oct. 22, 1903. Serial No. 178,064. (No model.)



Claim.—1. In a turbine, the combination with a turbine-shaft, and stationary member; of a sleeve secured to the shaft and projecting outwardly from the stationary member; a collar projecting outwardly from the stationary member beyond the sleeve and provided with a flange projecting inwardly along the shaft within the sleeve; and suitable packing arranged to check the escape of motive fluid from between the collar and shaft, whereby condensation between the interacting members is permitted.

2. The combination with a turbine-shaft having a reduced end portion mounted in a suitable bearing; of a sleeve connected with said shaft and projecting over said reduced portion, with a space between it and said reduced portion; a collar covering the outer end of said sleeve and having a flange extending between the sleeve and the reduced portion of the shaft; a nut secured to the outer end of said collar; suitable packing interposed between the nut, collar and shaft; a ring secured to the outer surface of said collar and engaging the shaft-bearings; and a nut engaging the inner end of said ring, with packing interposed between the nut and collar, said ring being adapted to bind the collar forcibly against the turbine-head.

3. In a turbine, the combination with the shaft, and the head of the stationary member; of a set of interacting annular bearing members connected with the shaft and with the stationary portions of the turbine respectively and adapted to deflect and reverse the movement of the motive fluid passing outwardly along the shaft; packing interposed between the stationary bearing members and said shaft in the path of said motive fluid and the stationary bearing-block formed with a steam-tight joint between it and the stationary bearing members.

4. The combination with a turbine-shaft and the head of the stationary member; of a sleeve secured to the shaft adjacent to the head and projecting outwardly at a distance from the shaft; a stationary collar projecting outwardly from the head over said sleeve and having a flange projecting inwardly between the sleeve and shaft; a nut connected with said collar; packing interposed between the nut, collar and shaft, a bearing-block, and a ring projecting inwardly from the bearing-block and engaging said collar.

5. The combination with a turbine-shaft and the head of the stationary member; of a sleeve secured to the shaft adjacent to the head and projecting outwardly at a distance from the shaft; a stationary collar projecting outwardly from the head over said sleeve and having a flange projecting inwardly between the sleeve and shaft; a nut connected with said collar; packing interposed between the nut, collar and shaft; a bearing-block, and a ring projecting inwardly from the bearing-block and engaging said collar, said bearing-block being provided with drip-flanges inclosed by said ring and a duct for the escape of oil from the spaces adjacent to said drip-flanges.

6. In a turbine, the combination with a turbine-shaft, and stationary member; of a set of interacting bearing members connected with the shaft and stationary member respectively and arranged to reverse the flow of motive fluid escaping through the bearing; and packing located in the path of the escaping fluid beyond the interacting portions of said members, whereby the escaping motive fluid is permitted to condense between the interacting members before reaching the packing.

752,225. SHADE AND GLOBE HOLDER. WILLIAM C. HOMAN, Meriden, Conn., assignor to Edward Miller & Company, Meriden, Conn., a Corporation of Connecticut. Filed Oct. 29, 1903. Serial No. 178,985. (No model.)



Claim.—1. A globe and shade holder comprising an annular ring, a series of arms secured thereto and projecting upward and outward for holding a shade, a series of lugs secured to said ring and alternating with the arms for centering a globe or bobasche, the base of said arms being adapted to support the globe.

2. A globe and shade holder comprising a ring, a series of arms secured thereto for supporting the lower outer edge of a shade, a series of centering-lugs alternating with the arms and formed integral with said ring and projecting ears formed integral with said lugs for supporting a globe or bobasche.

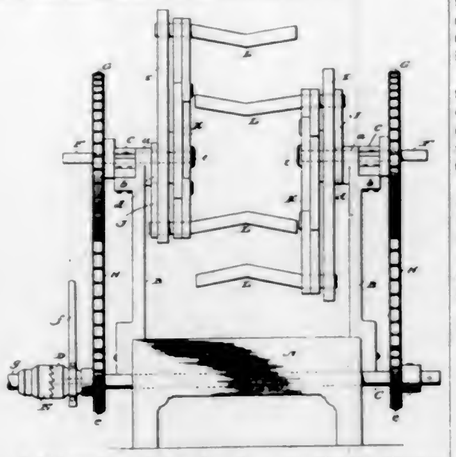
3. A globe and shade holder comprising a ring, a series of arms projecting upwardly and outwardly therefrom for supporting a shade, a series of lugs alternating with said arms whereby a globe or bobasche may be supported by the said lugs and by the base of said arms.

4. A globe and shade holder comprising a ring, a series of arms secured thereto for supporting a shade, lugs integral with said ring and bent upward, ears integral with said lugs bent outwardly, said lugs serving to center a globe or bobasche and to support the same by means of the ears.

752,226. CANDY-WORKING MACHINE. WILLIAM T. HUDSON, Atlanta, Ga. Filed July 18, 1903. Serial No. 166,126. (No model.)

Claim.—1. In a candy-working machine, grabs revoluble about a common center; one of the said grabs being also movable toward and from the said center during the revolution of the grabs.

2. In a candy-working machine, the combination of pairs of grabs; one grab of each pair being arranged between the grabs of the other pair, means for revolving the pairs of grabs, and means for moving the grabs of each pair away from and toward each other, alternately, incident to the revolution thereof.



3. In a candy-working machine, the combination of grabs revoluble about a common center; one of the said grabs being also movable toward and from the said center during the revolution of the grabs, means for revolving the grabs, and means for moving the one grab toward and from the said center during the revolution of the grabs.

4. In a candy-working machine, grabs revoluble about a common center, and movable toward and from said center incident to their revolution about the same.

5. In a candy-working machine, the combination of pairs of grabs; one grab of each pair being arranged between the grabs of the other pair, means for revolving the pairs of grabs, and means for moving one grab of each pair away from and toward the other grab of the pair incident to the revolution thereof.

6. In a candy-working machine, the combination of grabs revoluble about a common center, and movable toward and from said center during their revolution about the same, means for revolving the grabs, and means for moving the same toward and from the center.

7. In a machine for working candy, the combination of a frame, a shaft journaled therein, a grab connected with the shaft and adapted to revolve about the same, and means for moving said grab out and in incident to the revolution thereof.

8. In a machine for working candy, the combination of a frame, an eccentric and an eccentric-strap, one of which is fixed with respect to the frame, a shaft journaled in the frame, a grab connected with and adapted to revolve with the shaft, and means whereby the eccentric is enabled to move the grab out and in incident to the revolution thereof.

9. In a machine for working candy, the combination of a frame, an eccentric fixed with respect to the frame, a shaft journaled in the frame, a grab connected and adapted to revolve with the shaft, and an eccentric-strap connected with the grab and receiving the eccentric.

10. In a machine for working candy, the combination of a frame, a shaft journaled in the frame, a bar on the shaft, grabs carried by and movable out and in with respect to the bar, lazy-tongs mounted on the shaft and connected with the grabs, and means for moving one grab out and in.

11. In a machine for working candy, the combination of a frame, an eccentric fixed with respect thereto, a shaft journaled in the frame, a bar on the shaft, grabs carried by and movable out and in with respect to the bar, lazy-tongs mounted on the shaft and connected with the grabs, and an eccentric-strap connected with one grab, and arranged on the eccentric.

12. In a machine for working candy, the combination of a frame, eccentrics fixed with respect thereto, shafts journaled in the frame, a drive-shaft, connections between the said shafts and the drive-shaft for driving the latter by the former, bars on the first-mentioned shafts, grabs on each bar, movable out and in; one grab on each bar being arranged between the grabs on the other bar, lazy-tongs mounted on the shafts and connected with the grabs, and eccentric-straps arranged on the eccentrics, and each connected with one grab of one bar.

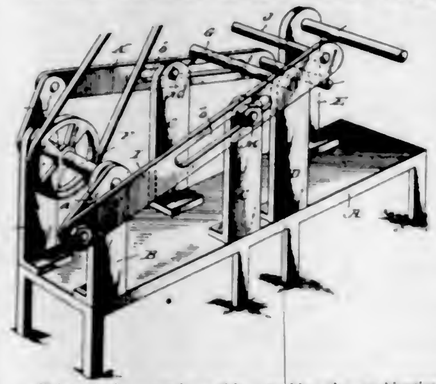
13. In a machine for working candy, the combination of a frame, a shaft journaled therein, grabs connected with the shaft, and revoluble about and movable toward and from the same incident to the revolution, means for revolving the grabs, and means for moving the same toward and from the shaft.

14. In a machine for working candy, the combination of a frame, shafts journaled in the frame, bars fixed on the shafts, pairs of grabs carried by the bars, and movable toward and from the shafts; one grab of each pair being arranged between the grabs of the other pair, and means for moving the grabs toward and from the shafts during the revolutions of the grabs.

15. In a candy-working machine, the combination of two grabs, one of which is revoluble about and movable toward and from a center, means for revolving the latter grab, and means for moving it toward and from the center incident to the revolution.

16. In a candy-working machine, the combination of two grabs; one of the said grabs being revoluble about and movable toward and from a center.

752,227. **CANDY-WORKING MACHINE.** WILLIAM T. HUDSON, Atlanta, Ga. Filed Nov. 20, 1903. Serial No. 181,992. (No model.)



Claim.—1. In a candy-working machine, the combination of two grabs, one of which is revoluble about and movable toward and from a center, a shaft having a crank, and a bar connecting the movable grab, and the crank of the shaft, and mounted to rock and move endwise.

2. In a candy-working machine, the combination of a frame, a stationary grab carried by said frame, a grab revoluble about the stationary grab and movable toward and from the center about which it revolves, a shaft having a crank, and a bar connecting the movable grab and the crank, and mounted to rock and move endwise.

3. In a candy-working machine, the combination of a stationary grab, a grab revoluble about the stationary grab and movable toward and from a center, and means for actuating the revoluble grab.

4. In a candy-working machine, the combination of two stationary grabs, grabs revoluble about the stationary grabs and movable toward and from centers, and means for actuating said revoluble grabs.

5. In a candy-working machine, the combination of a frame, stationary grabs carried thereby, grabs, each of which is revoluble about one of the stationary grabs and movable toward and from a center, and means for actuating the revoluble grabs.

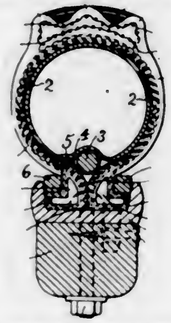
6. In a candy-working machine, the combination of a frame, a stationary grab carried thereby, a grab revoluble about the stationary grab and movable toward and from a center, a bar carrying the revoluble grab, and mounted to rock and move endwise, and means for actuating said bar.

7. In a candy-working machine, the combination of a frame, stationary grabs carried by the frame and arranged one in advance of the other, grabs, each of which is revoluble about one of the stationary grabs, and is movable toward a center, and bars carrying the revoluble grab, and mounted to rock and move endwise, and means for actuating said bars.

8. In a candy-working machine, the combination of a frame, a shaft journaled therein and having oppositely-disposed cranks, stationary grabs carried by the frame, and arranged one in advance of the other, grabs, each of which is revoluble about one of the stationary grabs, and is movable toward and from a center, and bars carrying the revoluble grabs, and mounted to rock and move lengthwise; said bars being connected to the cranks of the shaft.

9. In a candy-working machine, the combination of a stationary grab, and a grab revoluble about the stationary grab and movable toward and from a center.

752,228. **PNEUMATIC TIRE.** HERBERT E. IRWIN, Galesburg, Ill., assignor to Irwin Rubber Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 16, 1903. Serial No. 173,374. (No model.)



Claim.—1. The combination with a channeled wheel-rim, of a tire-casing rifted on its inner periphery and having adjacent to said rift flanges with projections or beads thereon adapted to lie under broken metallic securing-rings, one end of said rings being bent so that when they are engaged with holes in the metallic rim and the rings inserted in the channel of the wheel-rim, the said ends will remain in engagement therein, the other ends of the said rings being provided with inwardly-extending ends or tongues arranged to enter holes in the rim and to be secured therein by means passing through perforations in said ends or tongues, substantially as described.

2. The combination with a channeled wheel-rim consisting of a wood felly having a channeled metallic tire thereon, of a tire-casing adapted to be secured in said channeled tire by means of broken securing-rings, one end of said rings being bent and arranged to engage holes in the metallic tire, the other ends of the rings being provided with inwardly-extending ends or tongues adapted to enter holes in the metallic tire and wood felly, said ends or tongues having perforations therein, and means passing through said perforations and into the wood felly for locking the rings in engagement with the wheel-rim, substantially as described.

3. The combination with a channeled wheel-rim fitted on a wood felly, of a tire-casing rifted on its inner periphery and having adjacent to said rift flanges adapted to be secured in the channeled rim by means of metallic securing-rings, and means passing through the wheel-rim and into notches in said flanges to prevent the tire from creeping, substantially as described.

4. The combination with a channeled wheel-rim, of a tire-casing rifted on its inner periphery and having adjacent to said rift flanges adapted to be secured in the channeled rim by means of metallic securing-rings, means arranged to pass through the wheel-rim and engage the flanges to prevent the tire from creeping, and a hinged ring secured to the inner side of the tire-casing and lying above the junction of said flanges, substantially as described.

5. A pneumatic tire having a series of longitudinally-extending ribs or projections on its tread, said series consisting of an annular central rib and side or outer ribs with openings therein at intervals to allow for the expulsion of foreign matter having accumulated between the ribs, and means for securing said tire to a wheel-rim, substantially as described.

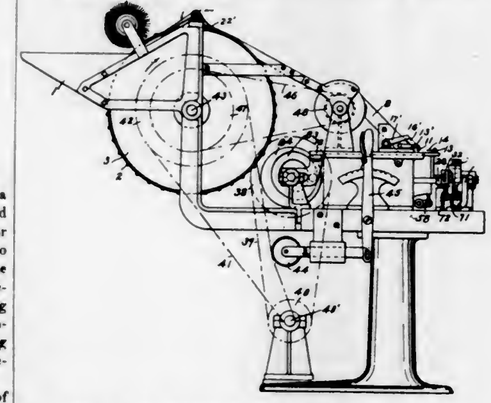
6. A pneumatic tire having a series of longitudinally-extending ribs or projections on its tread, said series consisting of an annular central rib and a rib on each side thereof parallel to the said central rib having openings therein at intervals to allow for the expulsion of foreign matter having accumulated between the ribs, and means for securing said tire to a wheel-rim, substantially as described.

7. A pneumatic tire having a series of longitudinally-extending ribs or projections on its tread, said series consisting of a central rib and side or outer ribs connected thereto by branch ribs, said outer ribs having openings therein at intervals to allow for the expulsion of foreign matter having accumulated between the ribs, and means for securing the tire to a wheel-rim, substantially as described.

8. A pneumatic tire having a series of longitudinally-extending ribs or projections on its tread, said series consisting of an annular central rib and side or outer ribs with openings therein at intervals, woven-wire fabric embedded within the tread portion, and means for securing said tire to a wheel-rim, substantially as described.

9. The combination with a channeled wheel-rim, of a tire-casing rifted on its inner periphery and having adjacent to said rift flanges adapted to be secured in the channeled rim said casing having a tread portion with woven-wire fabric embedded therein and having thereon a series of ribs or projections, the outer or side ribs of said series being connected to the central rib by means of branch ribs, substantially as described.

752,229. **MACHINE FOR STICKING SAFETY-PINS.** FRANK M. JOHNSON, Waterbury, Conn., assignor to the Oakville Company, Waterbury, Conn., a Corporation of Connecticut. Filed Feb. 17, 1898. Serial No. 670,625. (No model.)



Claim.—1. In a machine for sticking safety-pins the combination of means for thrusting a pin through the material and means for closing the pin.

2. In a machine for sticking safety-pins, the combination of means for thrusting a plurality of pins through the material and means for closing the pins.

3. In a machine for sticking safety-pins, the combination of means for opening a pin, and means for thrusting the pin through the material.

4. In a machine for sticking safety-pins, the combination of means for opening a plurality of pins, and means for thrusting the pins through the material.

5. In a machine for sticking safety-pins, the combination of means for opening a pin, means for thrusting the pin through the material, and means for closing the pin.

6. In a machine for sticking safety-pins, the combination of means for opening a plurality of pins, means for thrusting the pins through the material, and means for closing the pins.

7. In a machine for sticking safety-pins, the combination of means for crimping the material, means for thrusting a pin through the material, and means for closing the pin.

8. In a machine for sticking safety-pins, the combination of means for crimping the material, means for thrusting a plurality of pins through the material, and means for closing the pins.

9. In a machine for sticking safety-pins, the combination of means for crimping the material, means for opening a pin, means for thrusting the pin through the material, and means for closing the pin.

10. In a machine for sticking safety-pins, the combination of means for crimping the material, means for opening a plurality of pins, means for thrusting the pins through the paper, and means for closing the pins.

11. In a machine for sticking safety-pins, the combination with means for feeding the pins, of means for opening the pins, thrusting the pins through the material, and closing the pins.

12. In a machine for sticking safety-pins, the combination of means for crimping the material, means for feeding safety-pins, and means for sticking said pins on the material.

13. In a machine for sticking safety-pins, the combination with sticking mechanism and means for separating individual safety-pins from a mass of safety-pins, and feeding said pins to the sticking mechanism.

14. In a machine for sticking safety-pins, the combination of sticking mechanism, and means for separating individual safety-pins from a mass of safety-pins, and presenting successive pins to said sticking mechanism in the same relative position.

15. In a machine for sticking safety-pins, the combination of sticking mechanism, means for selecting the safety-pins, and means for presenting the safety-pins to said sticking mechanism.

16. In a machine for sticking safety-pins, the combination of sticking mechanism, means for separating the safety-pins, means for selecting the safety-pins, and means for presenting said pins to the sticking mechanism.

17. In a machine for sticking safety-pins, the combination of means for separating individual safety-pins, means for arranging said pins with their points extending in the same direction, selecting means, sticking mechanism, and means for delivering the safety-pins from the selecting means to the sticking mechanism.

18. The combination with a hopper, of a traveling surface forming one side of said hopper and provided with one or more series of pins or projections traveling therethrough, said pins or projections being constructed to catch up and carry forward safety-pins, and means for stripping the safety-pins from said pins or projections.

19. The combination with a rotary drum having pins projecting from its surface, constructed to catch up and carry forward safety-pins, of a hopper for directing the safety-pins against the surface of said drum, said drum forming one side of the hopper, and guides for stripping the safety-pins from said pins

20. The combination with a drum provided with projections constructed to carry forward individual safety-pins and means for delivering said pins from said drum and turning said pins on edge.

21. The combination with means for delivering safety-pins thereto, of one or more guide-grooves having divergent walls at the entrance end which gradually becomes parallel, thereby serving to turn said pins on edge.

22. The combination with a rotary drum provided with slots which will not allow the passage of both ends of the pins, guides for directing the pins longitudinally against said drum, and guides to which the pins are delivered by said drum.

23. The combination of means for separating individual safety-pins from a mass of pins, and means for presenting said pins in the same relative position.

24. The combination with means for separating individual safety pins from a mass of pins, of means for arranging said pins with their points extending in the same direction.

25. The combination with means for separating individual safety-pins from a mass of pins, of means for arranging said pins with their points extending in the same direction, and means for selecting the pins having their points in the same relative position.

26. The combination with means for separating individual safety-pins from a mass of pins, of means for arranging said pins with their points extending in the same direction, means for selecting the pins having their points in the same relative position, and means for delivering said pins from the selecting means.

27. The combination with guides for the pins, of a stop for the rear end of the pins, a stop at the ends of said guides for the front end of the pins, the space between the ends of the guides and said front stop being such that only those pins will be arrested that come to the stop in a predetermined position.

28. The combination with guides for the pins, of a stop for the rear end of the pins, a stop at the ends of said guides for the front end of the pins, the space between the ends of the guides and the front stop being such that only those pins will be arrested that hit the stop with the point side in front.

29. The combination with guides for the pins, of a stop for the rear ends of said pins, and means for vibrating said stop.

30. The combination with guides for the pins, of a plate on which the rear end of the pins rest, means for vibrating said plate, and an agitator at the front of the pins.

31. The combination with guides for the pins, of a vibrating rear stop, a yielding front stop and an agitator at the rear of the front stop.

32. The combination with guides for safety-pins, of means for retaining said pins in said guides, and a reciprocating hook for withdrawing said pins.

33. The combination with a series of guides for safety-pins arranged side by side, a yielding stop-bar at the ends of said guides, a reciprocating bar provided with a series of hooks for withdrawing the pins from said guides.

34. The combination with mechanism for sticking safety-pins, of guide-plates above said mechanism, and means for delivering safety-pins between said guide-plates.

35. The combination with mechanism for sticking safety-pins, of guide-plates above said mechanism, ribs projecting from said plates.

36. The combination with sticking mechanism, of guide-plates above said mechanism, ribs on said plates, and means for delivering pins between said plates with the rear end on one side of said ribs, and the catch end on the other side of said ribs.

37. The combination with inclined guides for safety-pins, a stop in front of said guides, vertical guide-plates in line with said inclined guides, and means for transferring safety-pins from the bottom of said inclined guides to the vertical guides.

38. The combination of one or more grooves for guiding the pins, one or more pushers for advancing the pins, and means for opening the pins.

39. The combination of one or more grooves for guiding the pins, one or more pushers, means for crimping the paper, and means for opening the pins.

40. The combination of one or more grooves for guiding the pins, one or more pushers, means for crimping the paper, means for opening and means for closing the pins.

41. The combination of one or more grooves for guiding the pins, one or more pushers, means for crimping the paper, means for opening the pins, and a reciprocating closing-bar for closing the pins.

42. The combination of means for holding a pin, of means for moving the point of the pin away from the catch and laterally.

43. The combination of means for holding a pin, of an inclined surface for moving the point of the pin away from the catch and laterally.

44. The combination of means for holding a safety-pin, of a reciprocating pin having a beveled end for engaging the point of the safety-pin.

45. The combination of a groove for guiding a pin, of a pusher provided with a recessed end to overlie the end of the pin, and means for opening the pin.

46. The combination of a groove for guiding a pin, of a pusher having a recessed end to overlie the end of the pin, means for engaging the other end of the pin, and an opener for engaging the point of the pin.

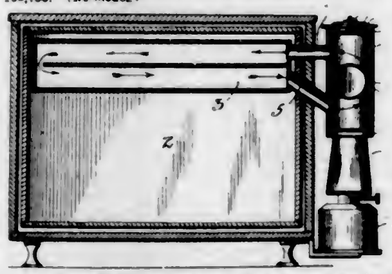
47. The combination of means for thrusting a pin through the crimped material, a closer-bar for engaging the catch end of the pin and means for giving said bar a vertical and lateral reciprocation.

48. The combination of means for thrusting the pin-points through the crimped material, a closing-bar provided with one or more fingers for engaging the catch of the pins, and means for reciprocating said bar vertically and laterally.

49. A closer-bar provided with one or more fingers for engaging the catch of the pins, guides for said bar, a cam-slot in one of said guides, a pin on said bar engaging said slot, and means for reciprocating said bar.

50. The combination of one or more grooves for guiding the safety-pins, one or more pushers, one or more opening-pins, crimpers for holding the material and a closing-bar for closing the pins.

752,230. **HEATING APPARATUS FOR INCUBATORS.** MANANDER M. JOHNSON, Clay Center, Nebr. Filed Aug. 17, 1903. Serial No. 169,755. (No model.)



Claim.—1. The combination with an incubator, of a hot-water conduit located therein, a boiler having a vertical flue at one end and a horizontal flue communicating with said vertical flue, extending longitudinally of the boiler and spaced from the sides thereof, flow and return pipes connecting the conduit with the side of the boiler and respectively communicating with the latter above and below the horizontal flue, and a damper for the vertical flue, substantially as described.

2. A hot-water boiler for incubators and the like, comprising a shell, a vertical flue at one end of the same, a horizontal flue communicating with said vertical flue, extending longitudinally from the boiler and spaced from the sides thereof, flow and return pipes respectively communicating with the side of the boiler above and below the horizontal flue, and a damper for the vertical flue, substantially as described.

3. In combination with an incubator and a hot-water conduit therein, a boiler located without the incubator and having a horizontal flue extending therethrough, and a casing on the boiler, into which the horizontal flue discharges, the casing forming return hot-air passages at the sides of the boiler, substantially as described.

4. The combination with an incubator having a hot-water conduit and a temperature-regulating device located therein, of a boiler having a vertical flue at one end and a longitudinal flue in communication with said vertical flue and discharging at the opposite end of said boiler, flow and return connections between said boiler and said cooduit, a spaced casing or jacket upon that end of the boiler at which said longitudinal flue discharges, and a regulating-damper upon the upper end of said vertical flue adapted to be raised by said temperature-regulating device when the temperature in the incubator is above normal to permit of the escape of the heat through the upper end of said flue and to thereby cause a draft of cold air to be brought in contact with the sides and end of the boiler surrounded by said casing, substantially as described.

752,231. **UNDERFRAME FOR RAILWAY-CARS.** HERBERT R. KEITHLEY, Chicago, Ill. Filed Oct. 12, 1903. Serial No. 176,654. (No model.)



Claim.—1. In an underframe, a plate-girder side sill, comprising a web-plate, and a Z-bar arranged with its web horizontal and projecting laterally inward from the web-plate of said side sill, one flange depending and riveted to said web-plate of the side sill, and the other flange projecting upwardly, substantially as set forth.

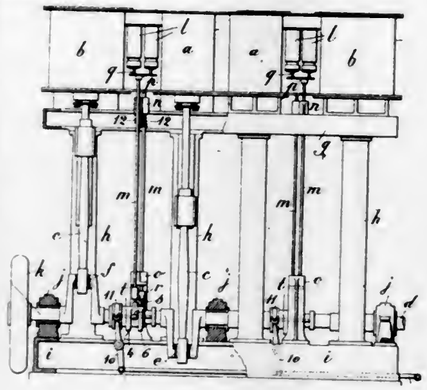
2. In an underframe, a plate-girder side sill comprising a vertical web-plate, a Z-bar arranged with its web horizontal and projecting laterally inward from the web-plate of said side sill, one flange depending and riveted to the inner side of said vertical web-plate, and the other flange projecting upwardly, and a horizontal plate arranged beneath and riveted to the web of said Z-bar, substantially as set forth.

3. In an underframe, the combination of side sills, each comprising a vertical web-plate, and a Z-bar arranged with its web horizontal and projecting laterally inward from said vertical web-plate, one flange depending and riveted to said vertical web-plate, and the other flange projecting upwardly, and bolsters connecting said side sills, the ends of said bolsters extending beneath and being secured to the webs of said Z-bars of the side sills, substantially as set forth.

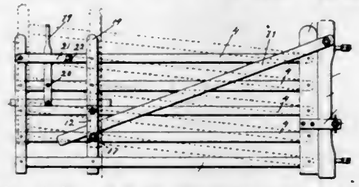
4. The combination of center sills having vertical web-plates, a channel-beam arranged between said center sills with its web horizontal and its flanges depending and riveted to said center-sill web-plates, draft-beams arranged beside the ends of said center sills, and rivets or the like connecting said draft-sills to said center-sill web-plates and said channel-beam flanges, substantially as set forth.

752,232. **FLUID-PRESSURE MOTOR.** JULES P. LAJOIE, Paris, France. Filed Mar. 23, 1903. Serial No. 149,071. (No model.)

Claim.—A fluid-pressure motor of four cylinders arranged two and two and of which the cranks are crossed at right angles, comprising: six valves in each group of two cylinders, the said six valves being divided into two groups of three each, a triangular plate for each group of three valves arranged opposite the lower extremities of said valves and fixed to one of the extremities of a rod maintained axially by a guide in which it moves and the other end of said rod being provided with a roller, a spring located between the lower face of the axial guide for the rod and a support for the same, a cam provided with three projections for contacting with the rollers of the lower extremities of the rods of the two plates arranged opposite the lower extremities of the two groups of three valves for each group of two cylinders, the two extreme projections of the said cam being similar to the middle projection but keyed at an angle of one hundred and eighty degrees from the latter, the said cam with three projections being mounted upon the motor-shaft but movable axially thereon, an oscillating lever for each cam of which one of the extremities engages in an annular groove in said cam, a rod jointed at one of its extremities and within its length jointed with the other extremity of the oscillating levers of which the first extremity is engaged with the annular groove of the cam with the three corresponding projections.



752,233. **GATE.** ISRAEL L. LANDIS, Chicago, Ill. Filed May 31 1902. Renewed July 17, 1903. Serial No. 166,047. (No model.)

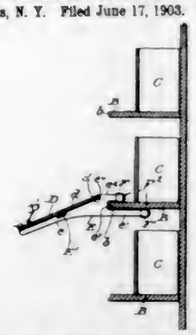


Claim.—1. In a gate, the combination, with the gate-frame proper, of a solid swinging subpost, a pair of straps secured to the supporting-battens of said frame and embracing said subpost for either slidable or fixed engagement therewith, said subpost being slidable with relation to said battens and within said straps, means at the extremities of said straps for clamping said subpost, and a solid diagonal tie-bar pivoted at one extremity to the top of said subpost, the other extremity being slidable between a suitable clamping plate and the lower horizontal members of said frame whereby said frame may be clamped in any desired position of vertical adjustment with reference to said subpost.

2. In a gate, the combination with the gate-frame proper, the members of which are pivotally connected with each other to permit of an oblique as well as a rectangular configuration of said frame, of a solid swinging subpost, a pair of straps secured to the supporting-battens of said frame and embracing said subpost for either slidable or fixed engagement therewith, said subpost being slidable with relation to said battens and within said straps, means at the extremity of said straps for clamping them against said subpost, a solid diagonal tie-bar pivoted at one extremity to the top of said subpost, the other extremity being slidable between a suitable clamping-plate and the lower horizontal members of said frame whereby said frame may be clamped in either an oblique or a rectangular configuration and in any desired position of vertical adjustment with reference to said subpost.

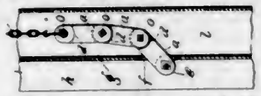
3. In a gate, in combination, the frame, the solid recessed swinging subpost carrying said frame, the guide and clamping plates embracing said subpost for either slidable or fixed engagement therewith, the clamping means at the extremities of said plates, the roller carried by said clamping means and operating within said recess, the solid diagonal tie-bar pivoted at one extremity to the top of said subpost, the plates secured to said frame to guide and clamp the free extremity of said tie-bar, and the sliding, lever-operated latch-bolt, substantially as shown and described.

752,234. REFERENCE-BOOK SHELF-DESK. JOSEPH A. LAWSON, Menands, N. Y. Filed June 17, 1903. Serial No. 161,819. (No model.)



Claim.—In a book-support, the combination with panel D provided in its forward edge margin with notches d' d' and in its rear edge margin with notches d^3 d^3 in alinement with the forward-edge-margin notches, and bar D' secured parallel to the front edge margin of said panel, of brackets E E secured to the lower side of said panel, and each having integral with its body e short upper arm F, for bearing on the front upper margin of a book-shelf, and long arm F' for bearing against the lower side of same shelf, and with fingers e^4 holding with notches d' d' and bearing on a portion of material of said panel adjoining said notches and projections e^4 e^4 holding with notches d^3 d^3 and having each flange E', perforated and projecting from a side of the body portion of each bracket and secured by a screw to the lower side of said panel.

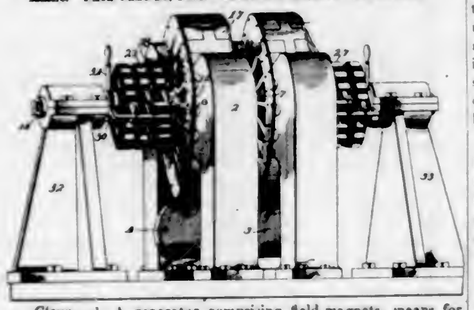
752,235. SASH-WEIGHT. JOHN T. LEONARD, New York, N. Y. Filed May 25, 1903. Serial No. 158,697. (No model.)



Claim.—1. The improvement in sectional sash-weights consisting of such weights constructed in series of sections having overlapping end prolongations of opposite sides respectively, said prolongations axially perforated and pivot-bolted in a flexible chain adapted to be inserted into the weight-space through a slot of no greater length than the length of a weight-section.

2. The improvement in sectional sash-weights consisting of such weights constructed in series of sections having overlapping end prolongations of opposite sides respectively, with rounded terminals and concave shoulders, said prolongations axially perforated and pivot-bolted in a flexible chain, adapted to be inserted into the weight-space through a slot of no greater length than the length of a weight-section

752,236. ELECTRIC GENERATOR. HANS LIEBERICH, Boston, Mass., assignor to International Electric Company, a Corporation of Maine. Filed June 29, 1903. Serial No. 163,556. (No model.)



Claim.—1. A generator comprising field-magnets, means for passing conductors through the magnetic field and means for demagnetizing the field at a proper time to prevent the retarding effect of a continued cutting of the lines of force in the magnetic field.

2. A generator provided with field-magnets having an annular space between them, armatures rotating in said space carrying conductors, means for exciting the field until the conductors have cut through a portion of the field, and means for deënergizing the field-magnets for the remainder of the movement.

3. A generator provided with a plurality of field-magnets, means for exciting the said field-magnets to produce a strong magnetic flux, and armatures carrying conductors, the said conductors being rotated through the magnetic lines of force of the magnetic fields and means for collecting the current first from one armature and then from the other.

4. A generator comprising outer field-magnets and an inner magnet between its poles, an armature rotating through the space between the poles of the outer and inner magnets, said armature carrying coils, means for energizing the magnets until one side of the winding of each coil cuts through lines of force in the field, and means for deënergizing the field before the other side of each winding enters the field.

5. A generator comprising field-magnets having a series of pole-points, an inner magnet having corresponding pole-points, an armature rotating between the pole-points and carrying coiled conductors, means for energizing the field-magnets while the conductors are cutting the lines of force of each set of magnet-poles, and means for deënergizing the field when the coils are leaving the lines of force between said pole-points.

6. A generator comprising outer field-magnets having a series of pole-points projecting inwardly, an inner stationary magnet arranged between the pole-points and having corresponding pole-points, an armature passing between the sets of pole-points, said armature carrying coiled conductors, means for energizing the magnets when one side of each coil is cutting into the lines of force of a set of pole-points, means for deënergizing the magnets when the other side of each coil approaches the lines of force between the sets of pole-points.

7. An electric generator comprising a plurality of outer field-magnets and a plurality of inner field-magnets, a plurality of armatures rotatably mounted between the poles of the said magnets and commutator-rings causing the alternate magnetizing and demagnetizing of the several fields in accordance with the movement of the armatures.

8. A generator comprising outer field-magnets and inner magnets located between their poles, means for exciting the said magnets, rotating armatures mounted between said poles, collector-rings for collecting the current generated in the said conductors, and commutators for energizing and deënergizing the magnets in accordance with the movement of the armatures.

9. A generator comprising laminated field-magnets, laminated magnets mounted between them, a shaft passing through the center of the inner magnets, armatures mounted on said shaft and carrying conductors, the said conductors moving between the poles of the field-magnets and the inner magnets, collecting-rings for collecting the currents generated in the conductors and commutator-rings for controlling the magnetizing and demagnetizing of the field-magnets and inner magnets.

10. A generator comprising a pair of field-magnets, stationary field-magnets mounted between the poles of each magnet, a hollow shaft running through the inner field-magnets and mounted upon suitable bearings, frames extending from said hollow shaft forming an armature, conducting-coils carried by said armature so as to cut the magnetic fields established through the field-magnets, collecting-rings connected with the said conducting-coils, commutator-rings and means passing through the hollow shaft for electrically connecting the commutators with the fields, a pulley secured to the hollow shaft and receiving motion from any suitable source of power, the coils of the field-magnets together with the coils of the armatures being connected in series with the line conductors.

11. A generator comprising field-magnets and inner magnets located between the poles thereof, an armature revolving through the space between the poles of the magnets, the said armature carrying metallic pieces at intervals for forming bridging material for the magnetic flux, coils of conducting material lying between the said metallic pieces for cutting the magnetic field and generating currents of electricity.

12. A generator comprising field-magnets, a shaft mounted so as to pass between the poles of said magnets, inner magnets secured to said shaft and held in a stationary position between said poles, armatures movably mounted on said shaft, the peripheral portions of said armatures traveling between the poles of the magnets, commutators traveling with the said moving members, brushes for collecting the current generator by the movement of said members and other commutators for alternately energizing and deënergizing first one field and then another.

13. A generator comprising a shaft mounted on suitable framing, a pair of field-magnets arranged in places at right angles to the shaft with their poles diametrically opposite the same, magnets mounted upon the shaft and arranged between the poles of said field-magnets, a shell surrounding the shaft and movable thereon, the said shell carrying coiled conductors, the said conductors moving between the poles of the outer and inner magnets so as to cut the lines of force passing through the same, commutators for collecting the currents generated by the said coils in their movement through the magnetic field and commutators for controlling the energizing and deënergizing of the field-magnets.

14. A generator comprising outer and inner field-magnets, armatures traveling between the poles of the said magnets, and an exciting mechanism capable of being connected with the field-coils and means for switching the said exciting mechanism into and out of circuit with the said coils for supplying the initial exciting-current to said fields.

15. A generator comprising field-magnets of the horseshoe type, and inner magnets arranged between the poles of said magnets, and an armature traveling between the poles of the magnetic fields and the poles of the inner magnets, the magnetic field being established from the negative poles of the magnets through the positive and then the negative poles, carried by the armature, to the positive poles of the magnets and in a similar manner from the magnets to the positive poles of the outer magnets again.

16. A generator comprising field-magnets, a rotating armature operating in connection therewith, means for collecting a current from the armature while it is cutting lines of force in the field so as to send the current through its conductors in one direction, means for cutting off the said armature from the line conductors when the conductors of the armature begin to cut the lines of force so as to produce a retarding effect.

17. A generator comprising a pair of field-magnets, a pair of inner magnets arranged between the poles of each of the field-magnets, a pair of armatures rotating within the two fields, means for energizing the magnets of one field during a portion of the revolution of its armature, means for cutting out said field and at the same time energizing the field of the other magnet and vice versa.

18. A generator comprising two sets of field-magnets, each set being made up of an outer and inner magnet, a series of pole-points upon each outer and inner magnet arranged opposite each other, armatures rotating in the spaces between each outer and inner field-magnet, conductors carried by the armatures, means for deënergizing each field-magnet, alternately during the time that a portion of each armature-conductor is passing between a set of pole-points, and means for deënergizing the magnets alternately during the remainder of the movement of each coil through said set of pole-points.

19. A generator comprising field-magnets having an annular space between their pole-points, a series of pole-points projecting from the poles of the said magnets of a suitable width, an armature rotating in the annular space between the magnets, carrying a series of soft-iron blocks of the same width as the width of the pole-points to assist in forming and maintaining the magnetic field, conductors wound about said blocks, and means for energizing the field-magnets while a portion of each conductor is passing between a set of pole-points, and means for deënergizing the field during the remainder of the movement of such conductor between that set of pole-points.

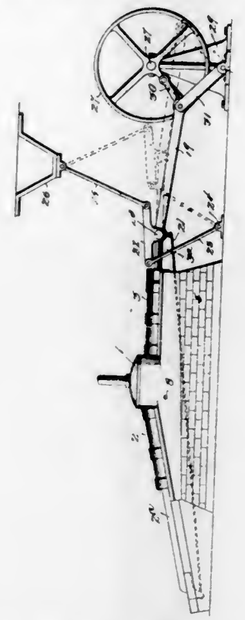
752,237. STEAM-ENGINE. ALFRED S. LINEBACK, Ophir, Utah. Filed Oct. 17, 1902. Serial No. 127,736. (No model.)

Claim.—1. A steam-engine, comprising a cylinder, a piston, a piston-rod, a pitman connected to said piston-rod, a crank-shaft, a link pivoted to the crank-shaft and to the pitman, and a lever pivoted to the pitman and to a stationary support, whereby two revolutions are imparted to the crank-shaft by the in and out stroke of the piston.

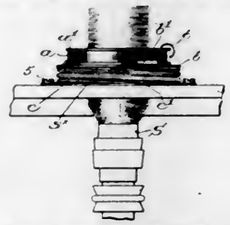
2. A steam-engine comprising a cylinder, a piston, a pitman, a crank-shaft, a link pivoted to the pitman and to the crank-shaft, a lever pivoted to the pitman and to a stationary support, an oscillating stay pivoted to said piston and pitman, and upper and lower levers pivotally connecting said oscillated stay with fixed supports.

3. A steam-engine comprising a cylinder, a piston, a pitman, a crank-shaft, a link pivoted to the outer end of said pitman, said link being pivoted eccentrically to the crank-shaft, a lever pivoted to the pitman and link and to a stationary support whereby two revolutions are imparted to the crank-shaft by the in and out strokes of the piston.

4. A steam-engine comprising a cylinder, a piston, a pitman pivoted to said piston, a crank-shaft, a link having one end eccentrically pivoted to said crank-shaft, a lever pivoted to said pitman and link, an oscillating stay pivoted to the piston and pitman, and upper and lower levers pivoted to said oscillating stay and to fixed supports, whereby perfect alinement is obtained for the piston



752,238. RING-SPINNING APPARATUS. ALFRED LOVEJOY, Lowell, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 26, 1903. Serial No. 178,532. (No model.)



Claim.—1. A non-rotatable spinning-ring, a holder therefor, and a spiral spring connecting said ring and holder, preventing rotation of the ring and also yieldingly supporting it.

2. A ring-holder having an upturned annular web, a spring surrounding said web and secured at one end, and a spinning-ring connected with the other end of and yieldingly supported by the spring.

3. A spinning-ring, holding means therefor comprising two annular members one of which is adapted to be fixedly connected to the ring and the other to the ring-rail, and an elastic connection between and permanently attached to said members.

4. A non-rotatable spinning-ring, an annular member adapted to be secured to the ring-rail, and a spiral spring permanently attached at one end to the said annular member and at its other end connected with the ring to prevent rotation thereof.

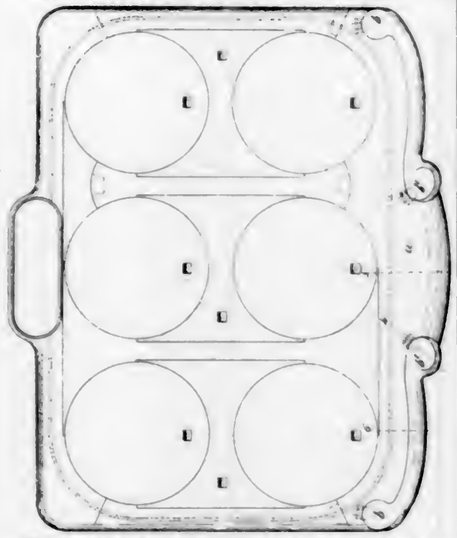
5. A spinning-ring, an annular plate detachably connected with the base thereof, a second annular plate adapted to be attached to the ring-rail and having an upturned annular web, and a spring coiled around said web, and permanently secured at its ends to the two annular plates.

6. An annular plate adapted to be attached to the ring-rail and having an upturned annular web, a spring coiled about said web and secured at its lower end to the plate, a second annular plate overhanging the web and permanently secured to the upper end of

the spring, engaging devices on said second plate, and a spinning-ring held in position by said devices.

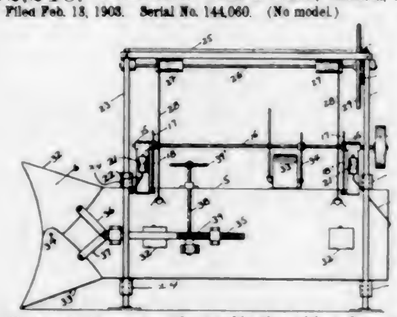
7 In a non-rotatable spinning-frame, a ring-rail, a spinning-ring, and a spiral spring interposed between and operatively connected with the ring and rail, to yieldingly support and prevent rotation of the ring.

752,239. PLATE FOR RANGES OR STOVES. JOHN MAGEE, Malden, Mass., assignor to Magee Furnace Company, Boston, Mass., a Corporation of Massachusetts. Filed May 22, 1903. Serial No. 158,235. (No model.)



Claim.—A plate for stoves and ranges having on one or more edges an outward-extending, central portion provided with an integral rim, the said plate having on each side of said central portion the curved edge a^3 deepened at the end of said central portion and also at the end of the plate and adapted to receive therein the enlargements of a removable rim-scroll, and rim-scrolls having said enlargements shaped upon their inner edge to fit the edge of the plate and rounded upon their outer surfaces to correspond with the integral rim of the central portion as and for the purposes set forth.

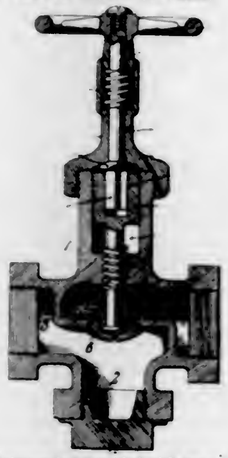
752,240. FLUID-MOTOR. JOHN A. MAREK, Lewiston, Idaho. Filed Feb. 13, 1903. Serial No. 144,060. (No model.)



Claim.—1. In a motor, the combination with a frame, and a casing horizontally disposed in the said frame, of means for regulating the flow of the motive fluid through the casing, said means consisting of a two-part gate having wings disposed upon the end of the casing and adapted to be opened and closed by means of a rack-bar slidably mounted on the casing, links pivoted to the bar and to corresponding wings of the gate, a vertical shaft having a pinion at its lower end adapted to engage the rack-bar, and a hand-wheel mounted upon the upper end of the said vertical shaft to rotate it to thereby operate the rack-bar and therefore the gate.

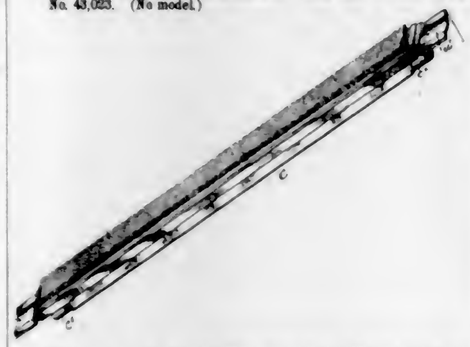
2. The combination with a frame, a casing horizontally disposed in the said frame, means for raising the said casing, a motor within the casing, a shaft carrying a pulley-wheel mounted upon the casing, and sprocket-chains engaging the motor and the said shaft, of means for regulating the flow of motive fluid through the casing, said means consisting of a two-part gate having wings disposed upon the end of the casing and adapted to be opened and closed by means of a rack-bar slidably mounted on the casing, links pivoted to the bar and to corresponding wings of the gate, a vertical shaft having a pinion at its lower end adapted to engage the rack-bar, and a hand-wheel mounted upon the upper end of the said vertical shaft to rotate it to thereby operate the rack-bar and therefore the gate.

752,241. VALVE. JAMES W. MASTER, Los Angeles, Cal. Filed Oct. 29, 1903. Serial No. 179,040. (No model.)



Claim.—A valve-casing provided with three openings angularly disposed, a plug common to all three openings and adapted to be interchangeably moved from one to the other of the openings within the casing.

752,242. FLAT FOR CARDING-ENGINES. CHARLES MILLS, Newton, Mass., assignor to the Saco & Pettee Machine Shops, Newton, Mass., a Corporation of Massachusetts. Filed Jan. 12, 1901. Serial No. 43,023. (No model.)



Claim.—1. A flat for a carding-engine made of sheet metal comprising a flat metal plate, a hollow sheet-metal rib to reinforce said plate and attached continuously throughout its edges to the edges of said flat plate, and a strip of card-clothing attached by its edges to said flat plate.

2. A flat for a carding-engine made of sheet metal comprising a flat metal plate for the support of the clothing, a hollow sheet-metal rib reinforcing said plate and having flat edges or extensions bearing against the under surface thereof, a strip of card-clothing imposed upon the flat plate and means for fastening the edges of the clothing and edges of the two plates together, which also serve to bind the edges of all.

3. A sheet-metal flat for a carding-engine comprising a flat sheet-metal plate which bears a strip of card-clothing, a sheet-metal reinforcement to said plate, means for fastening the clothing and plates together, the said flat also having end extensions integral with one of the plates and having offset shoulders at the ends to provide bearings for the flat upon the bends.

4. A sheet-metal flat for carding-engines having its ends offset to form the bend-bearings.

5. A flat for carding-engines having a sheet-metal plate for supporting the card-clothing having offset integral extensions in the shape of shoulders, an independent reinforcing-section contained between said shoulders and attached to said plate, and a strip of card-clothing upon said plate and means for uniting the two sections of the flat together and the card-clothing to them.

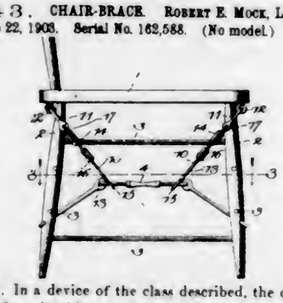
6. A metal flat for carding-engines having a flat sheet-metal plate upon which the card-clothing is mounted and a reinforcement for said sheet-metal plate comprising a hollow rib a portion of which has angular relation to the plate and an additional reinforcement to said plate also bearing an angular relation thereto.

7. A sheet-metal flat comprising a sheet-metal plate, card-clothing mounted thereon, and a sheet-metal reinforcement comprising an additional plate upon which the first-named plate bears, and a reinforcement of both plates integral with the last named.

8. A sheet-metal flat comprising a plate having a surface to support the card-clothing mounted upon it and integral ends which are shaped by pressure to form shoulders and bearings, and a sheet-metal hollow reinforcement having flat portions to bear against the plate between the shoulders, the ends of said reinforcing-sections being shaped by pressure to provide means for holding the devices connecting the flat with its driving mechanism.

9. A sheet-metal flat comprising a flat plate upon which the card-clothing is mounted and having integral ends pressed to shape to form bend-bearings, and an independent reinforcement formed from a single piece of metal shaped to fit said first-named plate and fastened thereto and also shaped at its ends to provide means for holding the connections with the flat-moving mechanism.

752,243. CHAIR-BRACE. ROBERT E. MOCK, Lahoma, Okla. Filed June 22, 1903. Serial No. 162,588. (No model.)



Claim.—1. In a device of the class described, the combination with a chair, of a pair of hangers attached to the chair-bottom and each comprising a rod provided at its lower end with an eye, a hook, a chain adjustably connecting the hook and rod, a horizontally-disposed tension member sustained by the hangers, and connecting elements attached to the tension member and engaging the chair-legs each at a point below the tension member.

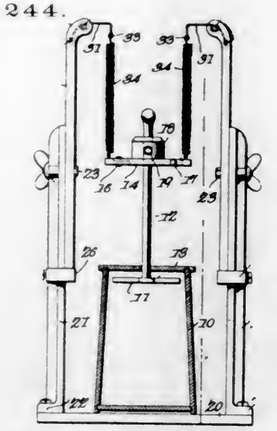
2. In a device of the class described, the combination with a chair, of a pair of hangers attached to the chair-bottom adjacent to its opposite edges and each comprising a rod provided at its lower end with an eye, a hook and a chain adjustably connecting the hook, rod, a horizontally-disposed turnbuckle sustained by the hangers and having opposite screws extended through the eyes of the hangers, and connecting elements attached to the turnbuckle and engaging the chair-legs each at a point below the turnbuckle.

752,244. CHURN-POWER. CORNELIUS MORRISON, Cleveland, Tenn. Filed Aug. 28, 1903. Serial No. 171,125. (No model.)

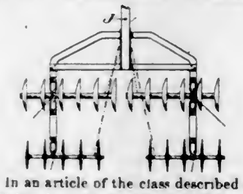
Claim.—1. In a churn-power, oppositely-disposed standards having bifurcated ends, a transverse journal in the bifurcated end of each standard, a spring wound around the journal and having a standard-contacting end and a dasher-supporting end carried by each arm and means for connecting the dasher to the arm.

2. In a churn-power, a standard having a bifurcated end, a journal carried by the end, a spring-arm intermediately engaged by the journal and terminally bearing against the standard, and dasher-engaging coils terminally connected to the end of the spring-arm.

752,244.



752,245. DISK HARROW. PHILIP H. MCVICAR, Livermore, Cal. Filed Apr. 11, 1903. Serial No. 152,284. (No model.)



Claim.—1. In an article of the class described the combination with a series of disks adapted to turn the soil, of a series of colters arranged behind said disks and adapted to travel in said upturned soil and guide said disks substantially as and for the purpose set forth.

2. An article of the class described consisting of a series of disks mounted in a suitable frame, a series of colters behind said disks and mounted in said frame, and means for adjusting the positions of said disks and said colters relative to said frame, said colters being adapted to enter the ground upturned by said disks for the purpose set forth.

3. An article of the class described consisting of a series of disks all facing in the same direction, a series of colters behind said disks, a suitable frame, and independent means for adjusting said disks relative to said frame, and said colters relative to said frame for the purpose set forth.

4. In an article of the class described the combination with a plurality of series of disks adapted to upturn the soil, a plurality of series of colters behind said disks and adapted to enter said upturned soil, and means for adjusting each of said series of disks and colters independent of the other series for the purpose set forth.

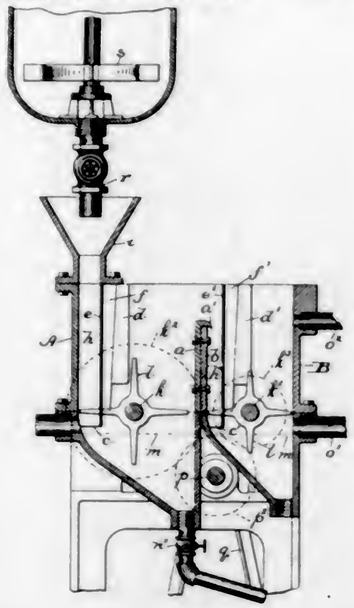
752,246. AMALGAMATOR. PETER J. NELSON, Baltimore, Md., assignor to the Baltimore Amalgamator Company of Baltimore City, a Corporation of Maryland. Filed Oct. 7, 1902. Renewed July 22, 1903. Serial No. 166,634. (No model.)

Claim.—1. An amalgamator, comprising a tank provided with a mercury-chamber; a partition secured in said tank and forming therein a feed-passage for the slime and the like to the mercury-chamber, said partition being provided in its lower edge with recesses; and revoluble beaters arranged to sweep through said recesses into both the feed-passage and the mercury-chamber, as and for the purpose set forth.

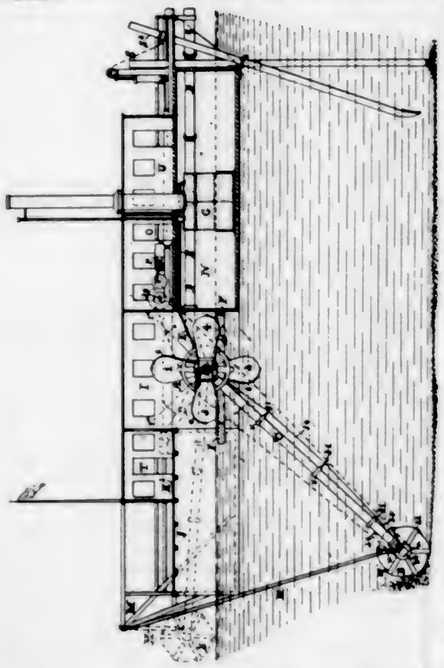
2. An amalgamator, comprising a tank provided with a mercury-chamber; a vertical partition in said tank and forming therein a feed-passage for the slime and the like to the mercury-chamber, said partition being provided in its lower edge with recesses; and revoluble beaters arranged to sweep through said recesses into both the feed-passage and the mercury-chamber, and concave transversely on their advancing faces, as and for the purpose set forth.

3. An amalgamating-machine, comprising two tanks arranged with side walls abutting whereby to form an overflow from one tank to the other; and the bottom of each tank sloping from the rear wall to the front wall, where it is provided with a discharge; a partition in each tank and said partitions provided in their lower edges

with recesses; shafts extending through said tanks; beaters concave transversely on their advance faces and mounted on said shafts and arranged to sweep through said recesses; and a driving-shaft arranged to rotate said other shafts, as set forth.



752,247. FLOATING PULSOMETER-DREDGE. EDWIN A. NEWMAN, Washington, D. C. Filed Jan. 3, 1898. Serial No. 666,102. (No model.)



Claim.—1. A floating pulsometer-dredge comprising a hull constructed with a central well and an opening extending forward through the bow, both of which are open at bottom, one or more pulsometers mounted within said well and having working chambers which are periodically immersed in the water filling the bottom of said well, to condense the steam, a rotary ingathering-head, and a connecting pipe or pipes hinged within said well and lowered from within said opening to its working position.

2. A floating pulsometer-dredge comprising a hull constructed with a central water-well, one or more pulsometers mounted within said well and having working chambers which are periodically immersed in the water to condense the steam, and a suction pipe or pipes communicating with said pulsometers.

3. A floating pulsometer-dredge comprising a hull constructed with a central water-well, one or more pulsometers mounted within said well and having working chambers which are periodically immersed in the water to condense the steam, and a suction pipe or pipes hinged directly to the pulsometer at the center of motion.

4. A floating pulsometer-dredge comprising a hull constructed with a central water-well, one or more pulsometers mounted within said well and having working chambers which are immersed in the water to condense the steam, and a suction pipe or pipes hinged directly to the pulsometer.

5. A floating pulsometer-dredge comprising a hull constructed with a central well open at bottom, and one or more pulsometers mounted within said well and having working chambers which are immersed in the water filling the bottom of said well, to condense the steam.

6. A floating pulsometer-dredge comprising a hull constructed with a central water-well, and one or more pulsometers mounted within said well and having working chambers which are periodically immersed in the water to condense the steam.

7. A pulsometer having its working chamber or chambers chilled by immersion in water, to condense the steam, in combination with suction and discharge pipes in communication successively with said chamber or chambers.

8. A pulsometer carried by a floating dredge or the like and having its working chamber or chambers chilled by immersion in the water in which the dredge or vessel floats, in combination with suction and discharge pipes in communication successively with said chamber or chambers.

9. A pulsometer having a working chamber periodically immersed to condense the steam, in combination with means external to said chamber for immersing the latter.

10. A pulsometer having two or more working chambers which are successively immersed to condense the steam within each, in combination with means external to said chambers for so immersing them.

11. A pulsometer having a working chamber periodically immersed to condense the steam, and provided with a steam-inlet pipe located on the outside of the chamber to quicken condensation.

12. A pulsometer having a working chamber periodically immersed to condense the steam, and an external steam-inlet pipe located on that side of said chamber which is first immersed.

13. A pulsometer having an invertible working-chamber with its spoil inlet and outlet at one and the same end and a steam-inlet at the opposite end, whereby said chamber is adapted to receive the spoil at top and to be inverted to discharge the spoil and receive the next charge of steam.

14. In a pulsometer having one or more working chambers, an obstruction-preventing guard for each steam-inlet of said chambers.

15. In a pulsometer having a working chamber which receives the spoil at top and is inverted to facilitate the discharge, and receive the next charge of steam, an obstruction-preventing guard for the steam-inlet.

16. In a pulsometer having a working chamber which receives the spoil at top and is inverted to facilitate the discharge, an obstruction-preventing guard for the steam-inlet, consisting of a flat disk and a play-restricting spider.

17. A revolving pulsometer for dredging purposes having two or more working chambers which are successively filled with steam, chilled by immersed to condense the steam, filled with spoil by suction, inverted to facilitate discharge, emptied by admission of steam, and so on.

18. A pair of revolving pulsometers for dredging purposes, each having two or more working chambers with interspaces alternating in the respective pulsometers and working in series to produce a practically continuous suction.

19. In combination with suction and discharge pipes a pulsometer having a working chamber which receives the spoil in one position and is shifted to facilitate the discharge and a steam-inlet valve operated by the movement of the pulsometers.

20. In combination with suction and discharge pipes a pulsometer having a working chamber which is periodically immersed to condense the steam and a steam-inlet valve operated by the movement of the pulsometer.

21. In a pulsometer having one or more working chambers movable about a center of motion, a ring-shaped valve concentric with said center for controlling the admission of steam.

22. In a pulsometer having one or more working chambers movable about a center of motion, a ring-shaped steam-inlet valve held against movement and provided with a steam-chest, in combination with a valve-seat movable with the working chambers and in communication therewith.

23. In a pulsometer having one or more working chambers movable about a center of motion, a ring-shaped steam-inlet valve held against movement and provided with a steam-chest, in combination with a valve-seat movable with the working chambers and in communication therewith, a fixed support behind said valve, and interposed springs pressing the valve against the seat.

24. The combination, substantially as hereinbefore specified, of a superheating steam-boiler and a dredging-pulsometer in communication therewith.

25. The combination, substantially as hereinbefore specified, of a superheating steam-boiler and a pulsometer having a working chamber in communication therewith that is chilled by immersion in water to condense the steam.

26. The combination, substantially as hereinbefore specified, of a superheating steam-boiler and a pulsometer having a working chamber in communication therewith that is periodically immersed in water to condense the steam.

27. In combination with an alternating suction device, a pair of connecting-pipes in communication therewith, and an excavating device having openings in opposite sides thereof in communication with said pipes.

28. In combination with an alternating suction device, a pair of connecting-pipes in communication therewith, and a rotary ingathering-head having a central chamber in communication with said pipes.

29. The combination with a dredging pulsometer and a connecting pipe or pipes of an ingathering-head having centripetal passages on all sides and making a complete or nearly complete rotation between successive pulsations.

30. In combination with an alternating suction device and a connecting pipe or pipes, a rotating head having a central chamber and centripetal passages on all sides which gradually approach and empty into said chamber, and operating connections between the rotating head and the suction device whereby said head is caused to make a complete or nearly complete rotation between successive pulsations.

31. In combination with a suction device and a connecting pipe or pipes, a rotating head having a pair of hubs, a central chamber between said hubs, centripetal passages open on all sides which empty into said chamber, and curved cutting-lips which extend from hub to hub and embrace and reinforce the passage-forming portion of the head.

32. In combination with a suction device and a pair of connecting-pipes, an ingathering-head comprising a pair of hubs between which a central chamber is formed in communication with said pipes, a circumferential portion surrounding said chamber containing centripetal passages open on all sides, and curved cutting-lips which embrace and reinforce said passage-forming portion and are attached together therewith to said hubs.

33. In combination with a suction device and a connecting pipe or pipes, an ingathering-head comprising a pair of hubs, each having helical flanges on its peirphery, a passage-forming portion composed of recurved plates attached at their lateral edges to said flanges, and curved cutting-lips which embrace and reinforce said passage-forming portion.

34. In combination with an alternating suction device, a pair of connecting-pipes, in communication therewith, terminating at their lower ends in horizontal spigots in line with each other, and an ingathering-head having a pair of hubs rotating on said spigots and a central chamber between said hubs and spigots, in communication with the latter.

35. In combination with a pair of dredging-pulsometers movable on a horizontal axis, common to both, a pair of suction-pipes terminating at their upper ends in horizontal spigots, in line with each other, by which they are hinged directly to said pulsometers at said axis.

36. In combination with a dredging-pulsometer and an ingathering-head revolving on parallel axes, one or more connecting-pipes, in communication with both, hinged directly and axially to each.

37. In combination with a suction device and an ingathering-head, a pair of sectional connecting-pipes having transverse joints provided with coupling-plates common to both pipes, whereby the two are rigidly united with each other.

38. In combination with a dredging-pulsometer, a discharge-pipe provided with a foot-valve to prevent the reflux of spoil upon the discharge-valve of said pulsometer.

39. In combination with a suitable motor, a revolving pulsometer driven by said motor, one or more non-rotary suction-pipes in communication with said pulsometer, a rotary ingathering-head in communication with said suction-pipes, and speed-increasing gearing transmitting motion from the pulsometer to said ingathering-head, substantially as hereinbefore specified.

40. In combination with a revolving pulsometer or pulsometers provided with sprocket-wheels, sprocket-chains driven by the latter, and a connecting pipe or pipes, an ingathering-head provided with sprocket-pinions and rotated by said sprocket-chains.

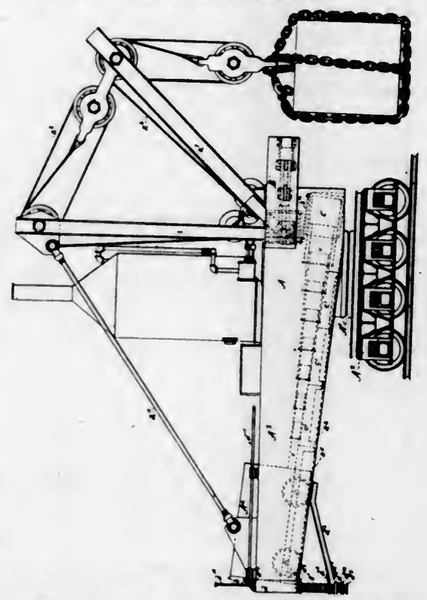
41. A floating pulsometer-dredge having a central well, an angle-beam frame within said well, and one or more pulsometers having their supports within said frame, substantially as hereinbefore specified.

42. The combination in a floating pulsometer-dredge of a hull having a central well, an angle-beam-reinforcing frame secured within said well, and one or more revolving pulsometers having their bearings in said frame.

43. In a floating dredge for placer-mining, the combination, substantially as hereinbefore specified, of one or more pulsometers discharging toward the sides of the dredge, laterally-extending screening-chutes for carrying off the larger stones with the lighter spoil and the bulk of the water, and sluices at right angles to said screens receiving the grains of gold and smaller gold-bearing particles through said screens.

44. A floating pulsometer-dredge having a central well, a longitudinal opening in the hull extending forward from said well, one or more pulsometers within said well, an ingathering-head, a pipe or pipes connecting said head and said pulsometer, and hinged within said well, means for raising said pipes within said opening, and a deck extending across said opening above the level of said pipes in their elevated position.

752,248. CRANE. ERNEST NICKERSON, Newton, Mass. Filed May 8, 1903. Serial No. 156,217. (No model.)



Claim.—1. A crane having a boom for supporting the load carried thereby, the foot of which boom is adapted to have movement when draft is imparted to the boom by the weight of the load, a

counterbalancing-weight and means whereby the weight of the load through the instrumentality of said boom-foot, thus movable, may move the counterbalancing-weight.

2. A crane having a boom for supporting the load carried thereby, which boom is adapted to have a thrust movement when draft is imparted thereto by the weight of the load, a counterbalancing-weight, and means whereby the said load acting through the instrumentality of the boom thus movable may move the counterbalancing-weight to a proper counterbalancing position.

3. A crane having a boom for supporting a load carried thereby, the foot of which boom is adapted to have movement when draft is imparted to the boom by the weight of the load, a counterbalancing means and means adapted to be acted upon by said boom-foot, when moved by the draft of said load, whereby the movement thereof may be utilized to move the counterbalancing-weight to a proper counterbalancing position.

4. A crane having a boom, the lower end of which boom is supported to be movable, a movable counterbalancing-weight and means adapted to be acted upon by the movable end of the boom to move the counterbalancing-weight.

5. A crane having a boom for supporting the load carried by the crane, the lower end of which boom is supported to be movable a support for said movable end of the boom, a movable counterbalancing-weight, means adapted to be acted upon by said movable end of the boom to move the counterbalancing-weight and hold the same at a distance commensurate with the weight of the load.

6. A crane having a boom the lower end of which boom is supported to have a limited degree of movement, a horizontal support therefor, a movable counterbalancing-weight, and means adapted to be acted upon by the said movable end of the boom for increasing its relative degree of movement and for imparting the force of the same to move the counterbalancing-weight.

7. A crane having a boom the lower end of which boom is supported to have a thrust movement when actuated by the weight of the load, a movable counterbalancing-weight supported to hold a normal position, and means adapted to be acted upon by said boom end to move said counterbalancing-weight, and reversely to be moved thereby to return said boom end and hold the same at a normal position.

8. A crane having a boom, the lower end of which boom is supported to have movement when actuated by the weight of the load, a movable counterbalancing-weight, an inclined way therefor, and means adapted to be acted upon by said boom end to move said counterbalancing-weight along said inclined way, and hold the same at a distance variable with the weight of the load, and reversely to be acted upon by said counterbalancing-weight moving along said inclined way to return and hold the boom end in a normal retracted position.

9. A crane having a boom, the lower end of which boom is supported to have a horizontal thrust movement, guides, and a horizontal support therefor to confine said movement to a direction in line with the boom, substantially as and for the purposes set forth

10. A crane having a boom, the lower end of which boom is supported to have a thrust movement, means for obtaining such movement and a support comprising a foot or feet secured to the said lower end of the boom, guides for said foot or feet, rollers carried on the bottom side of the same and a table or support therefor formed within the body of the crane, substantially as and for the purposes set forth.

11. A crane having a boom, the lower end of which boom is supported to have movement when actuated by the weight of the load, a movable counterbalancing-weight, an inclined way therefor along which said weight is movable, and hydraulic means adapted to be acted upon by said movable end of the boom to move said counterbalancing-weight along said inclined way, a distance commensurate with the weight of the load.

12. A crane having a boom, the lower end of which boom is supported to have a limited degree of movement, a movable counterbalancing-weight, one or more cylinders the pistons of which are connected to be actuated by the said movable end of the boom, a fluid within said cylinders adapted to be acted upon by said pistons, and means adapted to be acted upon by said fluid to move the counterbalancing-weight a distance relatively commensurate with the degree of the movement of the boom end, substantially as and for the purposes set forth.

13. A crane having a boom, the lower end of which boom is supported to have a thrust movement, a movable counterbalancing-weight, and an inclined way or support therefor, one or more cylinders the pistons of which are connected to be actuated by the said moving end of the boom, a fluid within said cylinders adapted to be acted upon by said pistons and a hydraulic ram comprising a series of telescoping tubes or sections adapted to be acted upon by said fluid, substantially as and for the purposes set forth.

14. A crane having a boom, the lower end of which boom is supported to be movable, a movable counterbalancing-weight and an inclined way or support therefor, one or more cylinders formed within the body of the crane the piston or pistons of which are connected to be actuated by said movable end of the boom, a fluid contained in said cylinder or cylinders to be compressed by the piston or pistons thereof, and a hydraulic ram comprising a series of telescoping tubes or sections adapted to be acted upon by said fluid to move said counterbalancing-weight upward along its inclined way or support, and reversely to be acted upon by said counterbalancing-weight moving downward along its inclined way whereby the tubes of the said ram are telescoped back, substantially as and for the purposes set forth.

15. A crane having a boom, the lower end of which boom is supported to be movable, a movable counterbalancing-weight, an inclined way or support therefor, one or more cylinders formed within the body of the crane the piston or pistons of which are connected to be actuated by said movable end of the boom, a fluid contained in said cylinder or cylinders to be compressed by the piston or pistons thereof, a secondary chamber making connection with the primary cylinder or cylinders aforesaid, a hydraulic ram contained therein, the same comprising a series of telescoping tubes or sections adapted to be acted upon by said fluid to move said counterbalancing-weight upward along its inclined way or support, a series of concave steps for said tubes or sections of the ram and for limiting the extent of movement thereof, substantially as and for the purposes set forth.

16. A crane having a boom, the lower end of which boom is made cleft and supported to be movable, a movable counterbalancing-weight and an inclined way or support therefor, a plurality of cylinders formed within the body of the crane between the cleft ends of the boom, the piston or pistons of which are connected to be actuated by said movable end of the boom, means for equalizing the motion of said pistons, a fluid contained in said cylinders to be compressed by the piston or pistons thereof, passages admitting of the flow of the said fluid between the said chambers, and a hydraulic ram comprising a series of telescoping tubes or sections adapted to be acted upon by said fluid to move said counterbalancing-weight variable distances along said inclined way dependent upon the weight of the load.

17. A crane having a boom, the lower end of which boom is supported to have a thrust movement when actuated by the weight of the load, a movable counterbalancing-weight, and means adapted to be acted upon by said boom end whereby the said counterbalancing-weight may be moved before the load has been lifted from the ground.

18. A crane having a counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor extending from the body of the crane, and an adjustable brace or braces secured and extending from said overhanging support to connect with some stable base, substantially as and for the purposes set forth.

19. A rotatable crane having a counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor extending from the body of the crane, and a brace or braces therefor, comprising a series of adjustable screws, substantially as described.

20. A rotatable crane having counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor extending from the body of the crane, and a brace for the end of said overhanging support, the same comprising the case d, screws d', d^2, means for turning the screws d', and means for holding the screws d^2, against rotation, substantially as and for the purposes set forth.

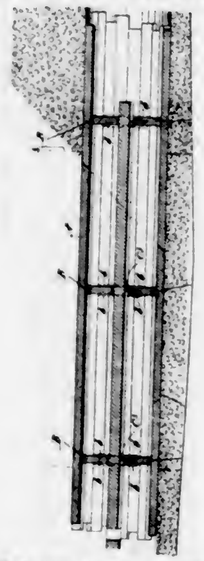
21. A rotatable crane having a counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor, extending from the body of the crane, and a brace for the end of said support, the same comprising a series of screws combined to be vertically extended or retracted, means for obtaining such extension or retraction of the screws, and means for bracing the same during such movement.

22. A crane having a counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor extending from the main body of the crane, a brace for the end of said overhanging support, the same comprising a case d, secured to the end of said support, the screws d', d^2, braces secured to be movable with the screw d', means for securing the screw d^2, against rotation, and means for turning the screw d'.

23. A crane having a counterbalancing-weight for offsetting the weight of the load, an overhanging support therefor extending from the body of the crane, and a brace or braces extending from said overhanging support, each comprising a case secured to the end of the said support, a screw fitting into said case to extend therefrom, a shaft contained within said case and secured to the head of said screw for turning the same, and means for rotating said shaft, substantially as described.

24. A crane having a counterbalancing-weight, an overhanging support therefor extending from the body of the crane, a brace or braces for the end of the overhanging support, the same comprising a case d, screws d', d^2, means for turning the screw d', means for securing the screw d^2, against rotation and a hand-turned screw d^3 substantially as and for the purposes set forth.

752,249. FORM FOR MAKING HOLES OR CONDUITS IN CONCRETE OR OTHER STRUCTURES. ERNEST NICKERSON, Newton, Mass. Filed Oct. 17, 1903. Serial No. 177,440. (No model.)



Claim.—1. A form of the character specified, comprising strips of lagging or sheathing, inside pieces for supporting the same, said pieces interposed between the separated edges of said inside pieces, means of retention for holding said side pieces in place against else than a lateral movement except when said side pieces are moved laterally to a certain position when they may be moved longitudinally, a wedge-shaped member and means for combining said wedge-shaped member with said side pieces that the same may be drawn in laterally by the inclined sides of the wedge-shaped member as said member is drawn out longitudinally, and when said side pieces are drawn in to a certain lateral position then they may be drawn out longitudinally with said wedge-shaped member.

2. A form of the character specified, comprising strips of lagging or sheathing, inside pieces for supporting the same, side members interposed to extend longitudinally between the separated edges of said inside pieces, means of retention for holding said side members in place against else than a lateral movement except when said side members are moved laterally to a certain position when they may be moved longitudinally, a wedge-shaped member and means for combining said wedge-shaped member with said side members that the same may be drawn in laterally by the inclined sides of the wedge-shaped member as said member is drawn out longitudinally, and when said side members are drawn in to a certain lateral position they may then be drawn out longitudinally with said wedge-shaped member.

3. A form of the character specified, comprising strips of lagging or sheathing, inside pieces for supporting the same, members with inclined sides extending longitudinally between the separated edges of said inside pieces, means of holding said members in place against else than a lateral movement except when said members have been moved in laterally to a certain position, a central member having inclined sides adapted to be placed between and with its inclined sides contiguous with the inclined sides of the aforesaid members, and means for combining said members along their inclined edges permitting, however, of the central member having longitudinal movement relatively to its side members when they are held fixed.

4. A form of the character specified, comprising strips of lagging or sheathing, inside pieces for supporting the same, members with inclined sides extending along and interposed between the separated edges of said inside pieces, means for holding said members in place against else than a lateral movement except when said members are moved laterally to a certain position, a wedge-shaped member interposed between and longitudinally extending with inclined sides contiguous with the inclined sides of said members aforesaid, and plates with turned edges for combining said members along their inclined sides, substantially as described.

5. A form of the character specified comprising strips of lagging or sheathing, inside pieces for supporting the same, side members interposed to extend longitudinally between the separated edges of said inside pieces, means of retention for holding said side members in place against else than a lateral movement except when said side members are moved laterally to a certain position, when they may be moved longitudinally, a central wedge-shaped member having inclined sides adapted to be placed between and with its inclined sides contiguous with the sides of the aforesaid side members, means for combining said members along their inclined sides, permitting, however, of the central member having longitudinal movement relatively to its side members when they are held fixed, and means for guiding said central member that it may be drawn out upon the same line of longitudinal movement.

6. In a form of the character specified, the combination of strips of lagging or sheathing, inside pieces B for supporting the same, a wedge-shaped member C interposed to extend longitudinally between the separated edges, longitudinally-extending side members C', C', means for holding said side members in place against else than a lateral movement except when said members have been moved in laterally to a certain position, and plates c for combining said members along their inclined edges, substantially as and for the purposes set forth.

7. In a form of the character specified, the combination of strips of lagging or sheathing, inside segmental pieces for supporting the same, side pieces B', flanges secured to said inside segmental pieces for holding said side pieces in place against else than a lateral movement except when said members have been moved in laterally to a certain position, a series of members C, C', C', longitudinally extending and interposed between said side pieces to which said members C', C' are secured, means for combining said members along their inclined edges, permitting, however, of the central member C having longitudinal movement relatively to its side members when they are held fixed, and a pin secured to the under segmental piece B adapted to run in a groove formed in the central wedge-shaped member C, substantially as and for the purposes set forth.

752,250. PIE-PAN. WILLIAM C. NORMAN, Smithton, Ark. Filed May 29, 1903. Serial No. 159,288. (No model.)



Claim.—1. A baking-pan consisting of a plate, provided with a perforation in its center; a handle having on its outer end, a loop and through its inner end, a perforation; arms extending from its inner end and feet secured to the lower face of said handle and arms, substantially as shown and described and for the purposes set forth.

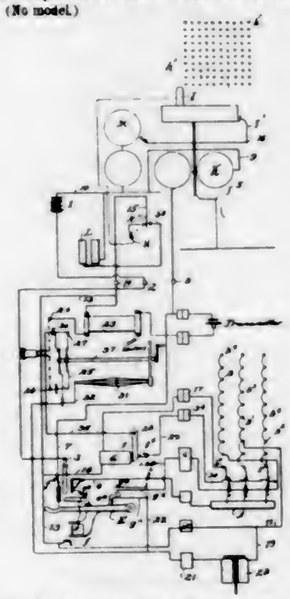
2. A baking-pan consisting of a plate, having in its center a depression, and through said depression a perforation and extending from said perforation a slot; a handle having through its inner end, a perforation concentric with the perforation in said depression; a pin provided with a head fitting said depression; a feather extending from said pin and fitting said slot, said pin and feather passing through said perforations and slot and secured in place, substantially as shown and described and for the purposes set forth.

3. A baking-pan consisting of a plate having in its center a depression and through said depression a perforation and extending from said perforation a slot; a handle having at its inner end a downward projection, receiving the depression of the pan and through said projection a perforation concentric with the perforation through said depression; a pin provided with a head fitting said depression; a feather extending from said pin and fitting said slot; said pin and feather passing through the perforation and slot, through said depression and through the perforation in said downward projection

and secured in place, substantially as shown and described and for the purposes set forth.

4. A baking-pan consisting of a plate having in its center a depression and through said depression a perforation and extending from said perforation a slot; a handle having at its inner end a downward projection receiving said depression and a perforation through said downward projection concentric with the perforation in the depression of the pan; arms extending from the inner ends of said handle; feet secured to the lower face of the handle and to the extreme ends and lower faces of said arms; a pin provided with a head fitting in said depression; and a feather fitting said slot; said pins and feather passing through the perforation and slot in said depression and through the perforation in said handle and secured in place, substantially as shown and described and for the purposes set forth.

752,251. **AUTOMATIC TELEPHONE SYSTEM.** JOHN K. NORSTROM and JOHN J. BROWNRIGG, Chicago, Ill., assignors, by direct and mesne assignments, to the Globe Automatic Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed June 23, 1901. Serial No. 66,356. (No model.)



Claim.—1. In an automatic telephone system, a series of adjustable slides, a series of contact-points for each slide, mechanism for holding said slides in adjusted positions, a battery normally cut out of circuit, means for closing the battery-circuit and releasing said slides one after the other and restoring them to normal, making electric connection with the contact-points comprised within their adjustment, as they are thus restored, a switchboard with contact-points corresponding to the number of subscribers, a wiper to make contact with said points, electromagnets and their armatures operating step by step according to the pulsations transmitted from the slides, to feed said wiper over the points of the switchboard, and a releasing-magnet to restore the entire switchboard mechanism to normal.

2. In an automatic telephone system, a series of electromagnets with armatures actuating switch mechanism, a series of adjustable slides, with mechanism to retain said slides in adjusted position and out of electrical contact, a graduated board or table along which said slides are moved, keys and contacts whereby said slides in their return to normal are forced to cause a number of electrical pulsations corresponding to the number of the telephone called for, and mechanism whereby said telephone is put in circuit upon the completion of said pulsations.

3. In an automatic telephone system, a series of electromagnets with armatures actuating switch mechanism, a series of adjustable slides, a series of contact-points for each slide, a battery, means whereby the battery-circuit is retained open while said slides are being adjusted, means for holding said slides in adjusted position, and means whereby the battery is put in circuit and the slides released, one after the other, and returned to normal position, engaging the electrical contacts serially on the way and transmitting an electrical pulsation to said magnets for each contact.

4. In an automatic telephone system, a series of adjustable slides, a series of contact-points past which said slides are adjusted, mechanism for holding said slides in adjusted position out of electrical contact with the adjacent contact-point last passed, a battery, a circuit therefor including said contact-points, said circuit being normally broken, means for causing said slides to be restored one after the other to normal, wipers on said slides which make and break the battery-circuit as they pass said contact-points, a switchboard with contacts corresponding in number to the subscribers served by the system, a wiper to close circuit with said latter contacts, electromagnets and armatures to feed said last-named wiper over the switchboard step by step with the pulsations induced by the closing and opening of the battery-circuit as the slides return to normal, and a releasing-magnet for restoring the switchboard mechanism to normal position.

5. In an automatic telephone system, the combination of a series of toothed bars swinging on longitudinal pivots, a series of contact-points, arranged in conjunction with said bars, a series of slides carrying wipers and adapted to be adjusted to any definite point along said bars and retained thereby, a source of electric energy, means whereby the circuit of said source is closed with the series of the contact-points, means for releasing said slides and causing them to return to zero with their wipers making and breaking circuit with said contact-points in such return, switching mechanism included in the circuit, actuated step by step for each electric pulsation induced by such make and break, and releasing mechanism whereby all parts of said switching mechanism are returned to normal when the talking-circuit is to be broken.

6. In an automatic telephone system, the combination of a series of toothed bars swinging on longitudinal axes, a series of contact-points, arranged in conjunction with said bars, a series of slides provided with wipers to make connection with said contact-points and temporarily locked in adjusted position by said toothed bars, a switch-hook normally depressed by the weight of the receiver, a cam on one of the said toothed bars, an arm on the switch-hook acting on said cam as the hook is released by the removal of the receiver to swing said bar out of engagement with its corresponding slide, cams on the remaining bars, arms or projections on each slide acting on the cam of the next adjacent bar as said slide approaches zero to disengage it from its appurtenant slide, a battery-circuit closed by the switch-hook as it rises and including the aforementioned contact-points and a switchboard mechanism included in the circuits of said contacts and operating automatically under the influence of electric pulsations traversing such circuits caused by said wipers operating over said contacts.

7. The combination with the switch-hook, of the electromagnet G, its armature, the catch for said armature, a finger carried by an arm of said switch-hook and operating to release the catch, and insulating material interposed between said finger and catch, and an electrical circuit arranged to be closed by the armature of said magnet when said armature is released.

8. The combination of the switch-hook, the electromagnet G, its armature, the catch for said armature, the upper contact-springs g^8, g^9, the lower contact-spring g^{11}, the insulated pin g^{10}, between them, the finger on the switch-hook arranged adjacent to said armature-catch and to extend above the same and operating to lift the upper contact-springs as the hook rises and depress the lower contact-spring and release the catch as the hook falls, and insulating material between the said finger and catch.

9. In an automatic telephone system, the combination with the switching mechanism at each station, of an electromagnet adapted to be operated by the same electrical current that operates the telephone system, and normally lying in a shunt-circuit therefrom, and electrical circuits operating as a test to determine whether the station called is busy, and a cut-out operated by said magnet whereby said station is put out of communication with the calling-station if it is busy.

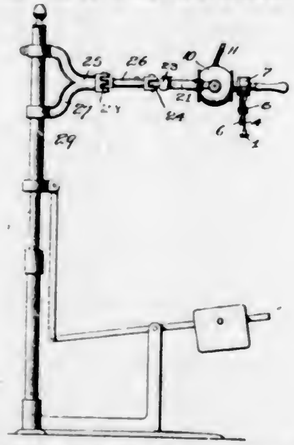
10. In an automatic telephone system, a calling mechanism including a series of movable contacts adapted to be set to a position corresponding to the number of any particular subscriber in the system, means for holding said contacts in adjusted position, a cooperating series of contact-points for each movable contact, a main battery, a circuit therefor, said circuit being normally broken, means for closing said battery-circuit, said means operating coincidently to release one of said movable contacts from adjusted position to permit the return of same, means actuated by the return of said movable contact for releasing the next succeeding movable contact, in combination with circuit-completing devices, electromagnets for operating the same, the circuits of said magnets including said series of contact-points, and a releasing-magnet for restoring the said circuit-completing apparatus to initial position, as and for the purpose set forth.

11. In an automatic telephone system, a calling mechanism for each subscriber's station including a series of movable contacts arranged to be displaced to positions corresponding to the various subscribers to the system, means for sustaining said contacts in displaced position, means normally operating to return said contacts to initial position, a series of cooperating contact-points for each of said contacts whereby upon the return of each contact to initial position it successively makes and breaks the circuit of said contact-points, a receiver-hook, a main battery, a circuit therefor, said circuit being normally broken, a contact device actuated by the movement of said hook when the receiver is removed therefrom for closing the contacts included in said battery-circuit, means also actuated by the movement of said hook for releasing one of said contacts, means actuated by the return of each of said contacts to initial position for releasing the next succeeding contact, electrical devices for completing circuit connections between the subscribers' lines and the lines of other subscribers to the system, the circuits of said electrical devices including said contact-points; all combined and arranged as and for the purpose set forth.

12. In an automatic telephone system, a calling mechanism including a series of movable contacts, a series of cooperating contact-points for each of said series of contacts, means normally operating to maintain said contacts in initial or retracted position, means for supporting said contacts in displaced position, a receiver-hook, a main battery, a circuit therefor, said circuit including said contact-points, electrical devices arranged in said circuit for completing connection with the line of any other subscriber to the system, means operated by the movement of said hook when the receiver is removed therefrom for completing said battery-circuit and for releasing one of said contacts, and means actuated by the return of each of said contacts to initial position for releasing the next succeeding contact, as and for the purpose set forth.

13. In an automatic telephone system, the combination with a series of movable contacts, a cooperating series of contact-points for each of said series of contacts, supporting devices for said contacts whereby said contacts are sustained in displaced position, a receiver-hook, means carried thereby for engaging the support for one of said contacts to shift the same out of supporting relation with respect to said contact, whereby said contact is permitted to return to initial position, and an extension associated with each of said contacts and operating to displace the support of each succeeding contact, a circuit for said series of contact-points, and electrical devices arranged in said circuit for completing connection with the line-wire of any other subscriber to the system, as and for the purpose set forth.

752,252. **MOVEMENT-CURE APPARATUS.** CHARLES OWENS, Chattanooga, Tenn., assignor of one-half to D. P. Montague, Chattanooga, Tenn. Filed Apr. 18, 1903. Serial No. 153,291. (No model.)



Claim.—1. In combination with a vibrator-head, a vibrator-arm, means for vibrating the arm, a link connected with the head and a pin connecting the link with the said vibrator-arm, substantially as described.

2. In combination with a vibrator-arm, means for vibrating the same, a vibrator-head, a link, a pin connection between the said plate and head, and a pin connection between the link and vibrator-arm, substantially as described.

3. In combination, a vibrator-head, a vibrating instrument carried thereby, horizontally-disposed pivots about which the said head may be turned, said pivots being arranged at right angles to each other, substantially as described.

4. In combination with a flexible arm, a vibrator-head and a universal-joint connection between the said vibrator-head and the end of the flexible arm, substantially as described.

5. In combination, a vibrator-head, a vibrator-arm depending therefrom, a horizontally-disposed pivot about which the head may turn and supporting means, substantially as described.

6. In combination, a vibrator-head, a vibrator-arm depending therefrom, horizontally-disposed pivots at right angles to each other by which the vibrator-head may be turned to set the depending arm in different positions and supporting means, substantially as described.

7. In combination with a vibrator-head, a motor-head, a pivotal support for the motor-head, a vibrator-arm and rigid shafting between the said motor and vibrating arm, said motor and vibrator-head moving as one body about the pivotal point, substantially as described.

8. In combination, a vibrator-head, a depending arm, carried thereby, a pivot about which the head may turn located to one side of the said vibrator-arm whereby the vibrator-arm may be swung into a position below the pivot or may depend vertically at a point out beyond the pivot, substantially as described.

9. In combination with supporting means, a horizontally-extending arm, a vibrator-head, a connection between the said head and horizontally-extending arm including a pivot located at a point to one side of the depending vibrator-arm carried by the vibrator-head, substantially as described.

10. In combination, a vibrator-head, a vibrating instrument carried thereby, a motor-head, a pivotal support for said motor-head, the said vibrator-head being connected with the motor-head at a point out beyond the pivotal point, and means for driving the vibrator-arm from the motor, substantially as described.

11. In combination a vibrator-head carrying a vibrating instrument, a motor connected with the vibrating instrument, a motor-head connected with the vibrator-head, a pivotal support for the said motor-head and a swiveled connection for the said pivotal support, substantially as described.

12. In combination, a support extending horizontally and having a swiveled connection allowing it to be turned about its longitudinal axis, a vibrator-head pivotally supported at the end of the said swiveled support, a vibrating instrument carried by the said head and means for driving said instrument, substantially as described.

13. In combination, a horizontally-extending support having a swiveled connection allowing it to be turned about its longitudinal axis, a motor-head pivotally supported in the end of the said swiveled support, a vibrator-head connected with the motor-head, a vibrating instrument on the said vibrator-head and means for driving the same from the motor, substantially as described.

14. In combination, a vibrator-head, a vibrating arm depending therefrom, a motor-head connected with the vibrator-head, a fork pivotally connected with the motor-head, a swiveled connection for the said fork at its shank and means for supporting the said swiveled connection, substantially as described.

15. In combination with a flexible arm extending horizontally, a horizontally-extending fork swiveled in the end of the said arm, a vibrator-head pivotally connected with the said fork, a vibrating instrument carried by the vibrator-head and means for driving the said instrument, substantially as described.

16. In combination with a horizontal flexible arm, a horizontally-extending fork swiveled at the end of said arm, a motor-head pivoted in the said fork, a vibrator-head connected with the motor-head, a vibrating instrument and connections between the same and the motor carried by the motor-head, substantially as described.

17. In combination with the motor-head, a fork in which the said motor-head is pivotally supported, supporting means for the fork, a coupling pivoted to the said supporting means, the said fork having its shank swiveled in the coupling, a vibrator-head, and a vibrating instrument carried thereby, substantially as described.

18. In combination with a vibrator-head, horizontally-disposed pivots arranged at right angles to each other for the universal adjustment of the said head, and locking means at the said pivots where-

by the said head may be set in fixed relation to either of said pivots, substantially as described.

19. In combination with a horizontally-disposed support, a pivoted or swiveled connection for the said support by which it may be turned around its longitudinal axis, a vibrator-head, a pivotal connection between the same and the said swiveled support by which the head may be turned in a direction at right angles to that permitted by the swiveling action of the said support and locking means for the pivotal and swiveling action, substantially as described.

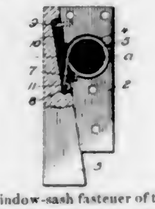
20. In combination, a vibrator-arm, a head, a link connection between the arm and head, an instrument on the said arm and means for vibrating the arm, substantially as described.

21. In combination a motor-head, a vibrator-head rigidly connected with the motor-head and means for supporting one of the said heads, substantially as described.

22. In combination motor and vibrator heads rigidly connected together and an adjustable arm carrying the said motor-head, substantially as described.

23. In combination a motor-head, a vibrator-head, a rigid shaft between the motor and the vibrator and means for supporting the motor-head adjustably, substantially as described.

752,253. **WINDOW-SASH FASTENER.** PHILLIP H. PAGE, Surrey Centre, Canada. Filed Nov. 23, 1903. Serial No. 182,293. (No model.)



Claim.—1. In a window-sash fastener of the character described, the combination with the sash-casing, and the sash: of a wedge-piece fixedly secured to the sash with its tapering or wedge edge facing the casing, and a second wedge-piece having its tapering or wedge face opposing the tapering or wedge face of the fixedly-held wedge-piece, and provided with a longitudinal groove in its wedge-face, the said fixedly-held wedge-face having a socket that opens at one side into the groove in the opposing wedge member, and a coiled spring mounted in the said socket having one end secured to the fixed wedge-piece and its other end projected into the groove of the opposing wedge-piece and secured thereto substantially as shown and described.

2. As a window-sash fastener; the fixed wedge portion 2 secured to the stile of the window and provided with the spring 4 in the recess 5, the loose wedge 3 endwise slidable against the wedge-face of 2 and prevented from lateral displacement by the pin 9 in the groove 10, the pin 8 to receive the hook 11 of the spring, and the opposing finger and thumb engagements 12 and 13 on 2 and 3 respectively

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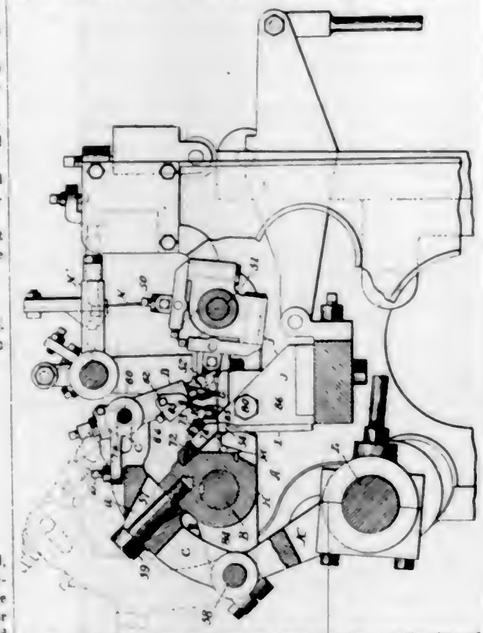
752,254. **BOOT OR SHOE VENTILATOR.** GEORGE J. PATTON, Nokeville, Va. Filed Apr. 30, 1902. Serial No. 105,332. (No model.)



Claim.—A ventilating device for boots and shoes, comprising a cylindrical tubular member extending through and connected with the upper, a base-plate adjacent to the outer side of the upper and having upturned ends, flanges upon the tubular member whereby the latter and the base-plate are connected with the upper, a cap forming a closure for the outer end of said tubular member, a rectangular frame connected hingedly with one upturned end of the base-plate, pivotal connecting means between the sides of said rectangular frame and the cap, and means for connecting the free end of the rectangular frame with the opposite upturned end of the base-plate.

752,255. **MACHINE FOR THE MANUFACTURE OF HORSE-SHOE-NAILS.** ERASTUS B. PIERCE and LEWIS W. NEWTON, New Brighton, Pa., assignors to Standard Horse Nail Company, New Brighton, Pa., a Corporation of Pennsylvania. Filed Sept. 16, 1902. Serial No. 123,647. (No model.)

Claim.—1. In a horseshoe-nail-finishing machine, the combination of nail-blank-indenting devices, an anvil, means for conveying an indented nail-blank from said devices and laying it on the anvil with the indentation upward, and a setting-die movable to engage the upper surface of the nail-blank and impart the proper set to the head relative to the blade, substantially as set forth.



2. In a horseshoe-nail-finishing machine, the combination of nail-blank-indenting devices, an anvil, means for conveying an indented nail-blank from said devices and laying it on the anvil with the indentation upward, and a setting-die movable to engage the upper surface of the nail-blank and having two surfaces at an angle to each other to engage the head and blade respectively, substantially as set forth.

3. In a horseshoe-nail-finishing machine, the combination of nail-blank-indenting devices, an anvil, fingers to carry an indented nail-blank from said devices and lay it upon the anvil with the indentation upward, and a setting-die movable to engage the upper surface of the nail-blank, said die having two surfaces at an angle to each other to engage the head and blade of the blank respectively, and having also a nose to enter between said fingers and open them, substantially as set forth.

4. In a horseshoe-nail-finishing machine, the combination of an anvil, a setting-die movable to engage a nail-blank supported upon the anvil and impart the proper set to the head relative to the blade of said blank, and a branding-die carried by said setting-die to simultaneously brand the nail, substantially as set forth.

5. In a horseshoe-nail-finishing machine, the combination of an anvil and a shearing-punch for supporting a nail-blank, movable guides for centering said blank upon the punch, movable cutters cooperating with the punch for shearing of the surplus metal from said blank, and means for clearing away the scrap sheared off, substantially as set forth.

6. In a horseshoe-nail-finishing machine, the combination of an anvil and a shearing-punch for supporting a nail-blank, movable guides for centering said blank upon the punch, movable cutters cooperating with the punch for shearing of the surplus metal from said blank, means for clearing away the scrap sheared off, and a nail-ejector for moving the finished nail from the anvil, substantially as set forth.

7. In a horseshoe-nail-finishing machine, the combination of an anvil for supporting a nail-blank, means for removing surplus metal from the blank to form the nail-point, a movable setting-die to engage the nail-blank and hold it in place while being sheared and cooperate with the anvil to correctly set the head and blade relatively to each other, subsequent to forming the nail-point, and an ejector to remove the nail from the anvil, substantially as set forth.

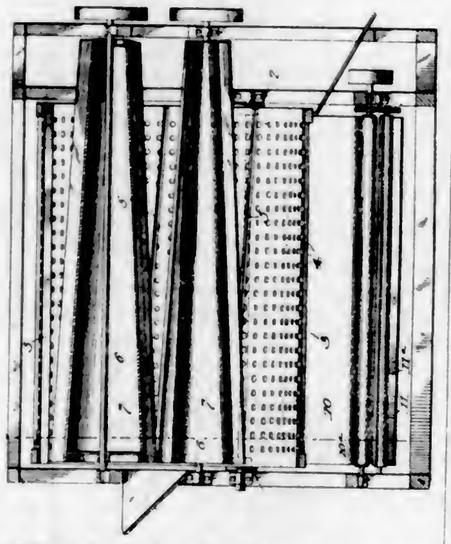
8. In a horseshoe-nail-finishing machine, the combination of an anvil for supporting a nail-blank, means for removing surplus metal from the blank to form the nail-point, a movable setting-die to engage the nail-blank, hold it while being sheared, and cooperate with the anvil to correctly set the head and blade relatively to each other, and means for ejecting the finished nail from the anvil, substantially as set forth.

9. In a horseshoe-nail-finishing machine, the combination of an anvil for supporting a nail-blank, means for removing surplus metal from the blank to form the nail-point, a movable setting-die to engage the nail-blank, hold it while being sheared, and cooperate with the anvil to correctly set the head and blade relatively to each other, means for removing the surplus metal sheared off away from the cutters, and means for ejecting the finished nail from the anvil, substantially as described.

10. In a horseshoe-nail-finishing machine, the combination of an anvil for supporting a nail-blank, a cutter-head having cutters to operate on the nail-blank, a setting-die having a hinged connection to the cutter-head, and means for detachably locking the setting-die to the cutter-head, substantially as described.

11. In a horseshoe-nail-finishing machine, the combination of an anvil for supporting a nail-blank, an oscillating cutter-head, guides on the head for centering said blank, cutters on said head for shearing said blank, a setting-die having a hinged connection to the said head and extending over the anvil above the guides and cutters, and means for detachably locking the setting-die to the cutter-head, substantially as set forth.

752,256. **PEA-HULLING MACHINE.** WILLIAM F. PILLMORE and DAVID ANDEREGG, Westernville, N. Y. Filed Sept. 30, 1903. Serial No. 175,213. (No model.)

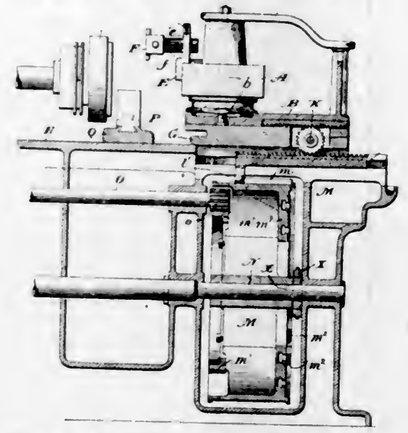


Claim.—1. In a machine of the class described, a separating-drum supported revolubly and presenting an unobstructed interior, a plurality of frustum-shaped beater-drums disposed longitudinally within and rotated in the same direction as the separating-drum and distributed about its central or axial space, said beater-drums being provided with beater-ribs and said beater-drums being disposed with their large ends at the feed end of the machine and decreasing in diameter toward the discharge end of the machine, vine-lifting ribs disposed obliquely upon the inside of the separating-drum, and means for feeding the vines into the central space between the beater-drums, which constitutes a conveyer-channel through which the vines mainly travel during their passage through the machine.

2. In a machine of the class described, the combination of an external drum adapted to revolve and provided with interiorly-disposed oblique vine-lifting ribs, and a plurality of interior beating and conducting drums arranged inside thereof, equidistantly from each other and equidistant from the axis of the external drum, said beater-drums being frustum-shaped and disposed with their large ends at the receiving end of the machine

3. In a machine of the class described, the combination of a perforated separating-drum, a plurality of frustum-shaped beater-drums disposed within the same, equidistantly from each other and equidistant from the axis of the separating-drum, oppositely-inclined endless carrying-aprons disposed underneath the separating-drum, one of said aprons terminating slightly above the lower end of the other, and an auxiliary cleaning-apron disposed beneath the discharge ends of the above carriers.

752,257. **METAL-WORKING MACHINE.** JAMES C. POTTER and JOHN JOHNSTON, Pawtucket, R. I., assignors to Potter and Johnston Machine Company, Pawtucket, R. I., a Corporation of Rhode Island. Filed May 8, 1902. Serial No. 106,488. (No model.)



Claim.—1. The combination of a tool-slide, a shiftable block on which the slide is mounted, and means for reciprocating the slide, the connection between the slide and its reciprocating means being detachable, whereby the position of the block may be shifted independently of, and without disturbing, the reciprocating means.

2. The combination of a tool-slide, a shiftable block on which the slide is mounted, and means for reciprocating the slide comprising a cam, a part to cooperate therewith, the connection between the slide and its reciprocating means being detachable, whereby the position of the block may be shifted without affecting the relation of the cam and its cooperating parts.

3. The combination of a tool-slide, a shiftable block on which the same is mounted, and means for reciprocating the slide, comprising a cam-actuated bar, the connection between the slide and the bar being detachable.

4. The combination of a tool-slide, a shiftable block on which the same is mounted, a reciprocable bar, and a detachable rack and pinion gearing between the bar and the slide, the block being shiftable independently of the bar.

5. The combination of a tool-slide, a block on which the same is mounted, a rack on the slide, an axially-movable pinion meshing with the rack, a bar having a rack meshing with the pinion, and means to reciprocate said bar, the block being shiftable independently of the bar.

6. The combination of a tool-slide having a rack, a reciprocating bar having a rack, and an axially-movable pinion meshing with both racks, one of said racks having a width greater than the face of the pinion.

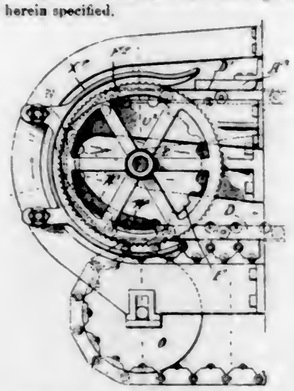
7. The combination of a tool-slide, a rock-shaft, gearing between said shaft and the slide, comprising a segment adjustable along the shaft, and means for reciprocating the shaft.

8. The combination of a tool-slide, a lever, connections between the lever and the tool-slide, a cam-actuated bar, and an adjustable connection between the bar and the lever.

752,258. **MACHINE FOR CLEANING FIBERS.** MANUEL PRIETO, Mexico, Mexico. Filed Sept. 8, 1903. Serial No. 172,253. (No model.)

Claim.—1. In a machine for treating fibrous plants having a slowly-moved carrying-chain D with provisions for holding the leaves transversely therein, and two beaters acting in succession on the material which is allowed to extend on opposite sides of such chain, a polygonal wheel F carrying such chain, the combination therewith

of a circular wheel F^2 alongside said wheel F, provisions for holding and carrying a leaf thereby, and a deflector W acting on the leaf to bend it in the space between said wheel F^2 and the chain D, provisions for relaxing the hold of the chain at one period, and provisions for tightening it again at a later stage and subjecting the leaf to the action of the second beater, all arranged to serve substantially as herein specified.



2. In a machine for treating fibrous plant shaving a slowly moved carrying-chain D with provisions for receiving the leaves transversely, two sets of beaters acting in succession on the material which is allowed to extend on opposite sides of such chain, and a polygonal wheel F carrying such chain, the combination therewith, one on each side of said wheel F, of two circular wheels F' F^2 and provisions for holding and carrying the leaf by each, and a deflector W acting on the leaf to bend it in the space between one of said wheels F' F^2 and the chain D, provisions for relaxing the hold by the chain and also provisions for releasing the hold by one wheel while retaining the hold by the other wheel, and provisions for again taking hold by the chain and subjecting the leaf to the action of the second set of beaters, all substantially as herein specified.

3. In a machine for treating fibrous plants having a slowly-moved carrying-chain D with provisions for receiving the leaves transversely, two sets of beaters acting in succession on the material which is allowed to extend on opposite sides of such chain, and a polygonal wheel F carrying such chain, the combination therewith, one on each side of said wheel F, of two circular wheels F' F^2 and provisions for holding the leaf by each, and a deflector W acting on the leaf to bend it in the space between one of said wheels F' or F^2 and the chain D, provisions for relaxing the hold by one wheel while retaining the hold by the other wheel, a liberator U' for detaching the leaf from the chain, and provisions for again taking hold by the chain and subjecting the leaf to the action of the second set of beaters, all substantially as herein specified.

4. In a machine for treating fibrous plants having a slowly-moved carrying-chain D with provisions for receiving the leaves transversely, two sets of beaters acting in succession on the material which is allowed to extend on opposite sides of such chain, and a polygonal wheel F carrying such chain, the combination therewith, one on each side of said wheel F, of two circular wheels F' F^2 and provisions for holding the leaf by each, and a deflector W acting on the leaf to bend it in the space between one of said wheels F' and F^2 and the chain D, provisions for relaxing the hold by one wheel while retaining the hold by the other wheel, a liberator U' for detaching the leaf from the chain on one side and a liberator U^2 for both detaching the leaf and holding it up clear of the chain during the shifting movement, and provisions for again taking hold by the chain and subjecting the leaf to the action of the second set of beaters, all substantially as herein specified.

752,259. TELEGRAPH-POLE. JOHN H. PURDY, New London, Ohio. Filed June 15, 1903. Serial No. 161,568. (No model.)

Claim.—1. A pole or like support composed of sections, each section comprising corresponding wings, splice-bars fitted in the angles formed between adjacent wings, and ties connecting diagonally-disposed splice-bars to each other and to the sections of the pole, substantially as set forth.

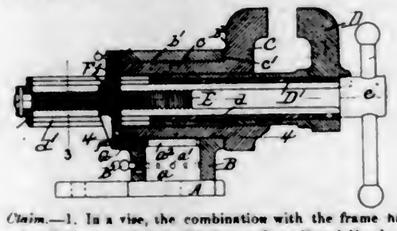
2. A pole or like support composed of sections, each section comprising corresponding wings, splice-bars fitted in the angles formed between adjacent wings, each comprising corresponding wings conforming to and fitting snugly against the wings of the pole-sections, and ties passed through the angles formed between the wings of the splice-bars and connecting diagonally-disposed splice-bars to each other and to the pole-sections, substantially as set forth.



3. A pole or post for electric light, telegraph or telephone wire support to be made of earthenware, glass, concrete, cement, metal or any durable substance, composed of sections, each section comprising corresponding wings or flanges, and ties connecting diagonally-disposed splice-bars to each other and also securely connecting the sections forming them into a pole or post for the purposes before mentioned, its shape being cruciform, as set forth, with notches in its sides to be used as steps going to and from wire and cross-arms, substantially as set forth.

4. A post or pole support composed of sections snugly fitted together and secured by ties passed through the angles formed between the wings, and splice-bars firmly connecting the sections forming the post or pole, substantially as specified.

752,260. VISE. HIRAM E. REED, Erie, Pa. Filed June 27, 1903. Serial No. 163,419. (No model.)



Claim.—1. In a vise, the combination with the frame having the socket b' thereon with the friction-surfaces b^3 and b^4; the vise-jaw C having the relatively fixed shank c swiveled in the socket b'; the friction-surface c' thereon; the movable jaw D having a shank d operating in the shank c, said shank d having the slot d' therein; the screw E arranged to operate against the movable jaw; the nut F; the friction-ring f' connected with the nut F through the slot d' and arranged to operate against the surface b^3 to exert pressure thereon and to clamp the shank c in the socket b' as the vise-jaws are set.

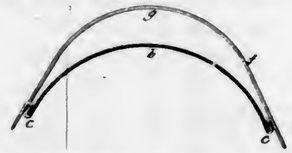
2. In a vise the combination with the swivel-post; a frame journaled on the swivel-post having an opening adjacent to the post; a block arranged in said opening, said block being subjected to the pressure exerted on the jaws; and exerting pressure upon the post in the same direction as the pressure is exerted upon the block and means for actuating one of said jaws to exert pressure on the jaws.

3. In a vise the combination with the swivel-post a; the vise-frame B journaled on said post having an opening b^4 therein; the block G arranged in said opening; the fixed jaw and the nut of the vise, said jaw and nut being arranged to clamp the frame B; and the block G; the block G exerting pressure on the post in the same direction as the clamping action exerts pressure upon the block, the movable jaw, and a screw for operating it.

4. In a vise the combination with the swivel-post A having a groove a^3 therein; the frame B swiveled thereon, said frame having an opening b' thereon; the block G arranged in said opening, and having a curved surface to conform with the shape of the groove a^3; the fixed jaw and the nut of the vise, said jaw and nut being arranged to clamp the frame B and block G; the movable jaw; and a screw for operating it.

5. In a vise the combination of a swivel-post a; the frame B arranged to swivel thereon, having the swivel-socket b' therein, friction-surfaces b^3 and b^4 thereon and the opening b^4 thereon; the block G in the opening b^4, said block extending beyond the surface b^3, a fixed jaw C having the shank c; a friction-surface c'; the shank c being swiveled in the socket b'; the surface c' arranged to contact with the surface b^3; the movable jaw D having the shank d with the slot d' therein; the screw E arranged against the movable jaw; the nut F in which said screw operates; and the friction-ring f' connected with said nut.

752,261. POMPADOUR-COMB. JESSE I. RICH, New York, N. Y. Filed Sept. 4, 1903. Serial No. 171,902. (No model.)



Claim.—1. A hair-dressing device comprising a body portion having comb-teeth throughout its length and a bridge-piece both being formed of one piece of material, said bridge-piece extending above the body portion in the form of an arch with its ends which connect with the ends of the body portion arranged behind the rear edge of the body portion and offset so that the central part of the bridge-piece is directly over the body portion.

2. A hair-dressing device comprising a body portion having comb-teeth throughout its length and a bridge-piece both being formed of one piece of material, said bridge-piece having its central part wider than its ends and extending above the body portion in the form of an arch with its ends which connect with the ends of the body portion arranged behind the rear edge of the body portion and offset so that the central part of the bridge-piece is directly over the body portion.

3. A hair-dressing device, comprising a body portion having comb-teeth and a bridge-piece both being formed of one piece of material, said bridge-piece extending from the ends of and above the body portion in the form of an arch with double reverse connections between the ends of the bridge-piece and the ends of the body portion.

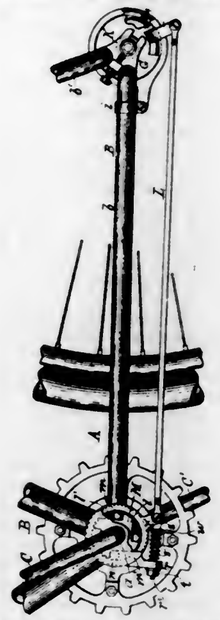
4. A hair-dressing device, comprising a body portion having comb-teeth and a bridge-piece both being formed of one piece of material, said bridge-piece having its greatest width at its central part and connected at its ends to the ends of the body portion by double reverse curves.

5. A hair-dressing device, consisting of a body portion comprising comb-teeth extending from a back piece, and a bridge-piece both being connected to end extensions of the back piece, said end extensions being folded over toward the back piece so as to cause the bridge-piece to project in an arch form above and partly over the body portion.

6. A hair-dressing device, comprising a body portion having comb-teeth and a bridge-piece both being formed of one piece of material, said bridge-piece extending above the body portion in the form of an arch with its ends which connect with the ends of the body portion projecting downwardly, as free extensions below the ends of the body portion.

7. A hair-dressing device, comprising a body portion having comb-teeth and a bridge-piece both being formed of one piece of material, said bridge-piece extending from the ends of and above the body portion in the form of an arch with double reverse connections between the ends of the bridge-piece and the ends of the body portion, the ends of the bridge-piece and connections projecting below the body portion.

752,262. BRAKING AND CLUTCHING MECHANISM. WILLIAM ROBINSON, Boston, Mass. Filed May 5, 1898. Serial No. 679,811. (No model.)



Claim.—1. A coasting-brake mechanism comprising a rotatable wheel-hub having a braking-surface, a stationary brake member supported at one point by the axle and provided with a radial extension connected to the frame of the vehicle, a plurality of non-rotatable movable brake members supported by said stationary member, driving means, means actuated by said driving means on back pedaling for forcing said movable brake members against said braking-surface of the hub, and means for connecting said hub and said driving means on forward pedaling.

2. In a hub-brake, a coasting wheel-hub provided on its inner periphery with a braking-surface, a non-rotatable fixture supported at one point by the axle and provided with a radial extension connected to the frame of the vehicle, a plurality of movable braking elements held in non-rotatable position by said fixture, and means for forcing the outer surfaces of said movable elements against said braking-surface of the hub by back pedaling.

3. In a hub-brake mechanism, the combination with a wheel-hub provided with a braking-surface, of a stationary fixture supported by the axle at one point and provided with a radial extension and a strap for engaging the vehicle-frame at another point, a plurality of braking elements connected non-rotatably to said stationary fixture but having limited movement relatively thereto, and means for bringing said braking elements into frictional braking contact with said braking-surface of the hub by the backward rotation of the crank-shaft.

4. In a coaster-brake mechanism, the combination of a wheel-hub provided with a braking-surface at one side of its center, a driver at the opposite side of said center, a brake mechanism embodying a stationary fixture supported by the axle at one point and provided with an extension projecting radially therefrom for connection with the vehicle-frame at another point, a plurality of braking elements connected non-rotatably to said stationary fixture but having limited movement relatively thereto, and means for forcing said braking elements bodily into braking contact with said braking-surface of the hub by back pedaling.

5. In combination with a coasting-hub provided with a braking-surface, a stationary brake element supported by the wheel-axle at one point and provided with a radial extension arranged to engage the frame of the vehicle at another point, a plurality of movable braking elements held in non-rotatable position by said stationary brake element, but having limited movement relatively thereto, and means for moving said movable braking elements into braking contact with said braking-surface of the hub by back pedaling, said hub overlapping said braking elements.

6. The combination of a stationary supporting-shaft, a driving and coasting wheel-hub rotatably supported thereon and provided with a driver, and on its interior with a braking-surface, means for automatically clutching together said driver and hub for driving and releasing the same for coasting, a stationary fixture supported at one point by said supporting-shaft and having a radial extension engaging the vehicle-frame, a plurality of non-rotatable movable braking elements held in position by said stationary fixture, said braking elements cooperating with said braking-surface to apply a brake thereto, and means for actuating said brake by back pedaling.

7. The combination of a stationary supporting-shaft, a revoluble hub provided with an inner braking-surface, driving means arranged on said hub and braking means supported on said shaft, means for automatically clutching together said driver and hub for driving and unclutching the same for coasting, and means for producing contact between said braking means and said braking-surface of the hub for braking the latter upon back pedaling, said braking means embodying a plurality of non-rotatable braking elements movable bodily against said braking-surface of the hub and held in position by a stationary fixture supported at one point by said supporting-shaft and having a radial extension engaging the vehicle-frame.

8. The combination of a stationary supporting-shaft, a coasting wheel-hub revolubly supported thereon and provided with an inner braking-surface, a braking device embodying a plurality of independent radially-extensible braking elements applicable thereto, and held in non-rotatable position by a stationary brake element, and means for moving said braking elements bodily into contact with said braking-surface of the hub by back pedaling.

9. The combination, with a coasting wheel-hub provided with an inner braking-surface, of a brake mechanism comprising a stationary fixture, a plurality of independent non-rotatable braking elements supported thereby and slightly movable relatively thereto, and means for forcing said movable elements outwardly in a radial direction against said extensible braking-surface of the hub by back pedaling, said stationary fixture being arranged to be supported by the axle at one point and having a radial extension for engaging the vehicle-frame at another point.

10. The combination with a supporting-shaft, of a revoluble wheel-hub provided with an inner braking-surface, a brake mechanism comprising a stationary brake member supported at one point by the axle and having an extension projected radially therefrom for connection with the frame of the vehicle, a plurality of independent non-rotatable, oppositely-disposed, movable brake members connected to said stationary member, and means for forcing said movable members outwardly, by back pedaling, against said braking-surface of the hub for braking the latter.

11. The combination with a coaster wheel-hub provided with an inner braking-surface, of a brake mechanism comprising a stationary fixture, a pair of independent oppositely-disposed, radially-extensible, braking elements connected non-rotatably to said fixture, and means for forcing said elements outwardly into braking contact with said braking-surface of the hub by the backward rotation of the crank-shaft, said stationary fixture being arranged to engage the axle and having a radial extension for connection with the frame of the vehicle.

12. A clutching and braking mechanism comprising two axially-coinciding adjacent members, one of said members having an inner clutching or braking surface and the other provided with oppositely-disposed interlocked members, movable on eccentric bases, and means for forcing said interlocked members outwardly into braking or clutching contact with said inner clutching-surface of said first-named member.

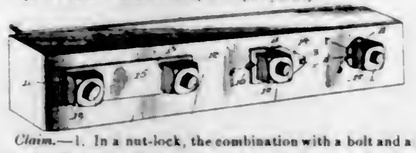
13. The combination, with a wheel-hub provided with an inner braking-surface, of a brake mechanism comprising a stationary fixture provided with eccentric projections, oppositely-disposed interlocking elements mounted on said eccentrics, and means for forcing said interlocking elements outwardly against said braking-surface of the hub.

14. A bicycle brake mechanism consisting, essentially, of a drum secured to the hub and provided with a braking-surface, a non-rotatable base-plate concentric with the supporting-shaft of said hub and provided with two annular eccentric supports surrounding the central supporting-shaft and extending in opposite directions therefrom, two segmental brake-shoes provided with annular orifices fitting around said annular eccentric supports and having their peripheral surfaces described from the center of said supporting-shaft and arranged to make braking contact at opposite surfaces of said drum, portions of said segmental brake-shoes overlapping each other, and one of said shoes engaging and controlling the movement of the other, one of said shoes also being provided with means for engaging the device controlling the operation of said brake mechanism, and means for actuating said brake mechanism.

15. A brake mechanism consisting, essentially, of two elements concentric to the same axis, one of said elements being rotatable and the other fixed relatively thereto, one of said elements having a drum provided with a flange supporting a split or elastic ring forming a slightly-yielding braking-surface and the other with movable brake-shoes or devices arranged to be brought into braking contact with said split or elastic ring, and means for actuating said brake mechanism.

16. In a bicycle-brake, the combination of the following elements: the plate or base G provided with the eccentrics e e' surrounding the axial center g of said base and described from centers at opposite sides of said axial center, segments f, f' mounted revolubly on said eccentrics e, e', the orifices of said segments being described from centers coinciding with the centers of said eccentrics e, e', and their peripheries from said axial center g, the drum or shell F having an axis coinciding with the axis of the said plate G, and provided with an annular flange extending over and in proximity to the peripheries of said segments f, f' and forming a braking-surface for contact with said segments, one of said segments being provided with the projection or lug h engaging an orifice or recess h' in the other, one of said segments also having a lug or device H arranged to engage the device controlling the operation of said brake mechanism, and means for securing said elements operatively together.

752,263. **NUT-LOCK.** WILLIAM R. ROSE, Auberry, Cal. Filed Apr. 16, 1903. Serial No. 152,970. (No model.)



Claim.—1. In a nut-lock, the combination with a bolt and a nut, of a movable tension device pivoted to swing between the head of the bolt and the adjacent surface and having the upper edge thereof beveled to facilitate its insertion.

2. In a nut-lock, the combination with a bolt having an angular portion adjacent the head thereof, and a nut, of opposite laterally-movable independent devices detachably interposed between the head of the bolt and the adjacent surface and engaging one of the flat faces of said bolt to lock it against turning, and means for holding said devices in locked position.

3. In a nut-lock, the combination with a bolt having an angular portion adjacent its head, and a nut, of a pair of levers pivoted at opposite sides of the bolt and movable inwardly between the head of the bolt and the adjacent surface into position to engage one of the flat faces of said bolt, and means for holding said levers in locked position.

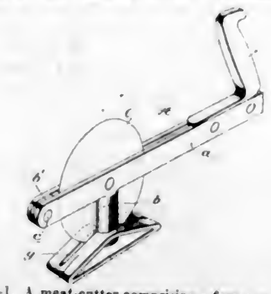
4. In a nut-lock, the combination with a bolt having a flat face adjacent the head thereof, and a nut, of a pair of levers pivoted at opposite sides of the bolt and movable inwardly between the head of the bolt and the adjacent surface, each lever having a lateral lug for engaging and automatically releasing the other lever on the outward movement of one of said levers, and means for holding said levers in locked position.

5. In a nut-lock, the combination with a bolt having a flat face adjacent the head thereof, and a nut, of a pair of levers located at opposite sides of the bolt and pivoted adjacent to the head thereof, the adjacent portion of said head being cut away or flattened, said levers being movable inwardly to engage said bolt, and means for holding said levers in locked position.

6. In a nut-lock, the combination with a plurality of bolts having flat faces adjacent the heads thereof, and nuts therefor, having a locking engagement with the adjacent surface through which said bolts pass, of a pair of levers pivoted on opposite sides of the bolts adjacent to the respective opposite end bolts and movable inwardly between the heads of the bolts and the adjacent surface into position to engage the flat faces of said bolts, the end bolts having their heads cut away or flattened adjacent to the respective levers, and means for holding said levers in locked position.

7. In a nut-lock, the combination with a bolt, and a nut and washer having interengaging projections and depressions, of a movable tension device pivoted to swing between the head of the bolt and the adjacent surface for maintaining the interengagement.

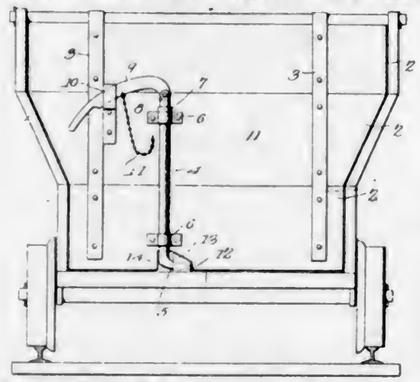
752,264. **MEAT-CUTTER.** JESSE W. SIMMONS, Oak, Tex. Filed Apr. 21, 1903. Serial No. 153,634. (No model.)



Claim.—1. A meat-cutter comprising a frame or body made up of longitudinal bars, connected together with a space between them, and having depending arms, at an intermediate point of their length, a handle connected to said bars, a runner connected to the lower ends of the arms of the bars, and having its upper side inclined downwardly toward one of its ends, and also having a longitudinal slot in said upper side, and a rotary, circular knife carried by the body, and arranged between the longitudinal bars and also between the arms on said bars, and extending down into and adapted to turn in the slot of the runner.

2. A meat-cutter, comprising a frame or body made up of longitudinal bars, connected together with a space between them, and having depending arms, at an intermediate point of their length, a handle connected to said bars at one end thereof, a runner connected to the lower ends of the arms of the bars, and having a longitudinal slot in its upper side, and a rotary, circular knife carried by the body, and arranged between the longitudinal bars and also between the arms on said bars, and in the slot of the runner.

752,265. **LATCH FOR MINE-CAR DOORS.** CHRISTIAN H. SMITH, Traugers, Pa. Filed Nov. 2, 1903. Serial No. 179,617. (No model.)



Claim.—1. The combination with a door, of a latch-bar arranged for rotation on said door and having a lateral projection, a keeper adapted for engagement by said lateral projection, a lever on said latch-bar, and means mounted on the door for engagement by said lever to hold the latch in operative position.

2. The combination with a horizontally-pivoted mine-car door, of a rotatable latch-bar vertically arranged thereon and having a lateral projection, a keeper on the car adapted for engagement with said lateral projection, a lever attached to the latch-bar, and means on the car-door to engage with said lever and hold the latch in operative position.

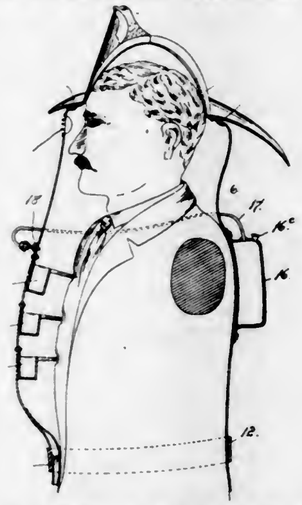
3. The combination in a device of the class described, of a rotatable latch-bar having a lateral projection on one side thereof and a lever arranged at the opposite side, a keeper for engagement with said lateral projection when the latch is in operative position, and means for engagement with the lever to hold the latch in operative position.

4. The combination with a horizontally-pivoted mine-car door, of a rotatable latch-bar vertically arranged thereon and having a lateral projection at its lower end, a keeper mounted on the bottom of the car and adapted to be engaged by said lateral projection when the latch is in operative position, a lever attached to said latch-bar and extending therefrom on the side opposite said lateral projection, and a keeper on the door to secure said lever when the latch is in operative position.

5. The combination with a horizontally-pivoted mine-car door, of a rotatable latch-bar vertically mounted thereon, said latch-bar having a lateral projection at the lower end adapted to swing under the door, a keeper on the bottom of the car for engagement with said lateral projection when the latch is in operative position, a lever attached to said latch-bar, and means for engagement with said lever to hold the latch in operative position.

6. The combination with a horizontally-pivoted mine-car door, of a rotatable latch-bar vertically disposed thereon and having a lateral projection, a keeper mounted on the car for engagement with said lateral projection when the latch is in operative position, a pivoted lever mounted in the upper end of said latch-bar, and a keeper on the car-door for engagement with said lever to hold the latch in operative position.

752,266. **FIREMAN'S HELMET.** CROZIER T. THOMPSON, Cripplecreek, Colo. Filed Dec. 6, 1902. Serial No. 134,096. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a helmet, of a smoke-excluding jacket attached to the helmet and arranged to be fastened around the body of the wearer and provided with a receptacle on the inside, substantially as described.

2. The combination with a helmet, of a jacket whose upper extremity is attached to the helmet and whose lower extremity is provided with a fastening-belt, and receptacles attached to the jacket between the helmet and the belt and located on the inside of the garment for the purpose set forth.

3. The combination with a helmet, of a smoke-excluding jacket attached thereto, and a receptacle attached to the jacket on the inside.

4. The combination with a helmet, of a smoke-excluding jacket attached thereto at its upper extremity, a belt connected with its lower extremity, and yielding means applied to the jacket in the zone of the belt, substantially as described.

5. The combination with a helmet, of a smoke-excluding garment attached to the helmet above, a belt attached to the garment below, and yielding means located in a pocket formed in the zone of the belt, substantially as described.

6. The combination with a helmet, of a smoke-excluding jacket attached to the helmet, a belt attached to the lower part of the garment, and coil-springs located in a pocket formed in the zone of the belt.

7. The combination with a covering for the head, of a smoke-excluding garment attached thereto and adapted to be fastened to the body of the wearer below, and a number of receptacles attached to the front part of the garment on the inside and arranged one above another.

8. The combination with a covering for the head, of a smoke-excluding garment attached thereto and adapted to be fastened to the body of the wearer below, a number of receptacles attached to the front part of the garment on the inside and arranged one above another, each receptacle having a brace adapted to bear against the body of the wearer, there being an opening through the brace to permit circulation within the garment.

9. A smoke and gas excluding apparatus adapted to cover the head and body of the wearer and provided with an interiorly-located open receptacle, substantially as described.

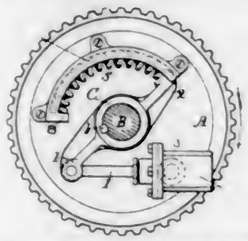
10. A smoke and gas excluding apparatus adapted to cover the head and body as described, in combination with an exteriorly-located receptacle communicating with the space inclosed by the apparatus, the apparatus being also provided with an interior open receptacle for the purpose set forth.

11. A smoke and gas excluding apparatus adapted to cover the head and a portion of the body of the wearer as described, in combination with a receptacle attached to the back of the apparatus exteriorly and provided with a conduit leading to the space inclosed by the jacket or garment, the apparatus being also provided with an interiorly-located open receptacle.

12. A helmet and smoke-excluder comprising a covering for the head, and a jacket to be tightly fastened around the body of the wearer, the device having a window in front, a closed interior receptacle attached to the jacket on the ontside, and in communication with the space within the jacket, the device being also provided with an interiorly-located open receptacle for the purpose set forth.

13. The combination with a helmet, of a smoke-excluding jacket attached to the helmet, a belt attached to the jacket, interior and exterior receptacles attached to the jacket which is provided with a transparent portion to enable the user to view surrounding objects, and an illuminating device mounted on the jacket, substantially as described.

752,267. **RELIEF MECHANISM FOR GEARING OF MACHINERY.** CARL G. TIDEMAN, Worcester, Mass. Filed Nov. 13, 1903. Serial No. 181,017. (No model.)



Claim.—1. A relief mechanism for gearing, comprising a wheel, a shaft whereon said wheel is loose mounted, a cross-head member mounted tight upon said shaft, an oil-resistance cylinder carried by said wheel, a piston within said cylinder and connected with said cross-head member, a spring arranged between the wheel and cross-head member and exerting tension for normally returning the parts to their primal position with the piston at the end of the cylinder.

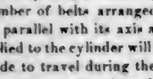
2. A relief mechanism for gearing, comprising a shaft, a gear or wheel loose mounted thereon, a cross-head keyed to said shaft, a liquid-resistance cylinder pivotally attached to said gear-wheel and having a piston-chamber and supplementary chamber, a piston-rod connected with said cross-head and carrying a piston having openings therethrough that works in said cylinder, tapered obstruction-pins fixed in said cylinder in alinement with the openings in the piston, and a reacting-spring for returning the piston to its primal position.

3. In a relief mechanism of the character described, the resistance-cylinder comprising a piston-chamber, and a supplementary chamber, with a by-pass uniting said chambers, tapered projecting pins within the piston-chamber, in combination with a piston provided with openings in alinement with said pins and through which the said pins are projected as the piston advances, for the purpose set forth.

4. In a relief mechanism of the character described, the segmental spring-supporting guard having a spring-seating end abutment and a circular spring-supporting face along its inner curve; in combination with the wheel, the cross-head having an arm, an axial shaft for said wheel and cross-head, and a coiled-wire spring disposed between said abutment and cross-head arm within said guard.

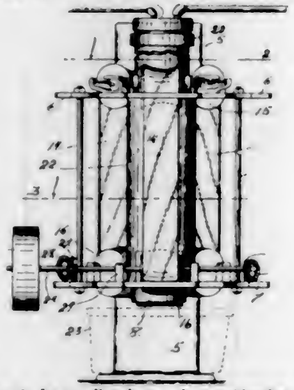
5. The combination, of a shaft, a gear or wheel mounted loose thereon, a spring-resistance device carried on said wheel, an oil-resistance device carried on said wheel, the pressure-piston for said oil-resistance provided with ports, an escapement-chamber at the back of the piston, means for increasing the closure of the piston-ports as the piston advances, and a cross-head carried and fixed on said shaft, and having arms that respectively engage with said oil-resistance piston and said spring-resistance spring, for the purposes set forth.

752,268. **SHOE-FASTENING DEVICE.** GEORGE A. TURNBULL, Chicago, Ill. Filed Apr. 23, 1902. Serial No. 104,400. (No model.)



Claim.—In a device of the class described the combinatinn with an eyelet, of a hook thereon comprising a strip integral with the eyelet and extending transversely thereof to a point beyond the same and the free end of said strip turned inwardly and upwardly, with the bend formed thereby closely engaging the shoe-upper thereby forming a closed hook through which the lace must pass while being fastened or unfastened, and having a retaining-recess therein between the upturned end and said hook for the lace when seated.

752,269. **COLLAR-SHAPER.** HENRY A. TWIGG, Denver, Colo. Filed Apr. 18, 1903. Serial No. 153,333. (No model.)



Claim.—1. In a collar-shaper, the combination of a cylinder adapted to be heated, and a number of endless traveling belts or aprons arranged around the cylinder and in such proximity thereto that collars applied to the cylinder are held in position and made to travel thereon during the shaping operation.

2. A collar-shaper comprising a hollow cylinder adapted to be heated from the inside, and endless traveling belts arranged around the cylinder and coöperating therewith, whereby collars applied thereto are held in place and made to travel thereon during the shaping operation.

3. A collar-shaper comprising a hollow cylinder supported in a vertical position, a number of belts arranged around the cylinder and traveling in planes parallel with its axis and in such proximity thereto that collars applied to the cylinder will be held in place thereon by the belts and made to travel during the shaping operation.

4. In a collar-shaper, the combination of a cylinder adapted to be heated, an open-ended jacket surrounding the cylinder a portion of its length, and a number of endless belts suitably mounted and passing through the jacket in such proximity to the cylinder that collars applied thereto at one end of the jacket are made to travel along the cylinder during the shaping operation.

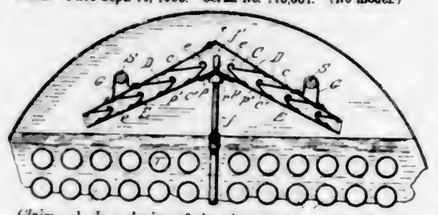
5. In a collar-shaper, the combination of a hollow cylinder, a steam-pipe connected with the interior of the cylinder for heating purposes, a conduit for drawing off the water of condensation, a jacket surrounding the cylinder, and traveling devices passing between the jacket and the cylinder for causing the collars applied thereto to travel along the same during the shaping operation.

6. In a collar-shaper, the combination of a hollow cylinder, means for heating the same from the inside, a jacket surrounding the cylinder and open at both ends, pulleys or rollers mounted at each end of the cylinder, the upper pulleys projecting above the jacket and having their faces curved to conform to the curve of the cylinder, and endless belts mounted on the pulleys or rollers and passing between the jacket and the cylinder and in such proximity to the latter that collars applied to the cylinder are made to travel thereon during the shaping operation.

7. In a collar-shaper, the combination of a hollow cylinder, a steam-pipe connected with the interior for heating purposes, a conduit for drawing off the water of condensation, and means arranged around the cylinder and traveling lengthwise thereof for causing the collars applied thereto to travel along the same in the direction of its axis during the shaping operation.

8. In a collar-shaper, the combination of a hollow cylinder, means for heating the cylinder, and means arranged around the cylinder and traveling lengthwise thereof for causing the collars applied thereto, to travel along the same in the direction of its axis.

752,270. **FEED-WATER HEATER.** JOHN P. URBANEK, Seattle, Wash. Filed Sept. 16, 1903. Serial No. 173,381. (No model.)

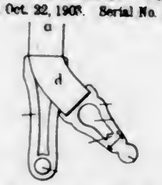


Claim.—1. In a device of the character described, the combination with the feed-water pipe provided with an orifice extending interiorly of a case, said case comprising inclined top and bottom plates, of a series of inclined shelves and a series of partitions having one edge of each overlapping the adjacent shelf.

2. In a device of the character described the combination of a casing having oppositely-arranged discharge-openings and formed with an inclined top and an inclined bottom, series of inclined shelves, and inclined partitions interiorly of the case and arranged in pairs, and means for feeding water into the casing above the upper shelves or partitions.

3. The herein-described apparatus, comprising, in combination, a case of an inverted-V-shaped transverse section with closed ends and open along its longitudinal edges, a series of inclined shelves and a series of partitions respectively secured to the top and bottom of the said case and extending from end to end of its interior length and alternately overlapping one another, and a feed-pipe provided with branches terminating in orifices extending within the case and above the uppermost of the said partitions or shelves, substantially as and for the purposes set forth.

752,271. **STOCKING-SUPPORTER.** WASHINGTON M. VARS, Norwich, Conn. Filed Oct. 22, 1903. Serial No. 178,049. (No model.)



Claim.—1. In a stocking-supporter, in combination, a lower plate with rigid stud, an upper, slotted, plate having yielding connection at its upper end and adapted to coöperate with the said stud, said yielding connection adapted for attachment to some fixed part of the device, and an extension hinged to the free end of said upper plate.

2. In combination, a lower plate with a fixed stud having depression upon its lower face, an upper, slotted, plate having a tongue adapted to coöperate with the depression of the said stud, and a yielding connection between the said lower and upper plates.

3. In combination, a lower plate, a notched stud fixedly secured to said lower plate, and a slotted upper plate formed with a tongue adapted to coact with the said notched stud, substantially as specified.

4. In combination, a lower plate, a notched stud fixed thereon, a slotted upper plate with a tongue adapted to coact with said notched stud, and a flexible connection between the said lower and upper plates.

752,272. **COTTON-PICKER.** EDWARD B. VAUGHAN, Selma, Ala. Filed Sept. 23, 1903. Serial No. 174,354. (No model.)



Claim.—1. In a hand-operated cotton-picker, the combination with a frame, of a belt movable longitudinally thereof, cotton-picking means carried by said belt, and a fixed boll-engaging member projecting from the end of said frame beyond said belt.

2. In a cotton-picker, the combination with a frame and cotton engaging and conveying mechanism carried thereby, of a boll-engaging hook projecting from the end of said frame.

3. In a cotton-picker, the combination with a frame, a belt carried thereby, and cotton-picking means carried by said belt, of a boll-engaging member projecting from said frame at one side of the belt and inclined toward the other.

4. In a cotton-picker, the combination with a frame, an endless belt carried thereby, and tapering approximately to a point, and cotton-picking means carried by said belt of a hook projecting beyond said point.

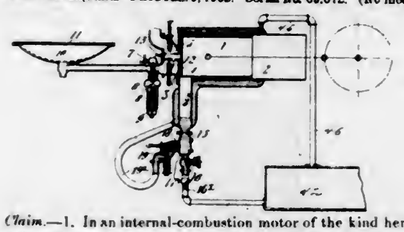
5. In a cotton-picker, the combination of tubular casings, means securing the same together and forming a frame, an endless belt extending through said casing, cotton-picking means carried by said belt, and means for driving the belt.

6. In a cotton-picker, the combination of tubular casings connected at one end and flaring rearwardly therefrom, an endless belt extending through said casing, cotton-carrying means on said belt, and means for driving said belt.

7. In a cotton-picker, the combination of tubular casings connected at one end and flaring rearwardly therefrom, a bracket carried by said casings at their front end, a pulley journaled in said bracket, an endless belt extending through said casings and passed about said pulley, and means for driving said belt.

8. In a cotton-picker, the combination of casings connected at their front end, a bracket carried by said casings at their front end cotton-conveying means extending through said casings, and a boll-engaging finger projecting from said bracket.

752,273. **INTERNAL-COMBUSTION MOTOR.** ADOLF VOGT, West Norwood, England. Filed Jan. 9, 1902. Serial No. 89,072. (No model.)



Claim.—1. In an internal-combustion motor of the kind herein referred to, the combination with the working cylinder of a space containing the compressed combustible charges and means for varying the capacity of said space in proportion to the varying volume of the charges by the introduction of liquid into it, substantially as described.

2. In an internal-combustion motor of the kind herein referred to, the combination with the working cylinder of a space for containing the compressed combustible charge, a supply of liquid to such space, and means for allowing the discharge of liquid from such space so as to increase its capacity when the pressure of the compressed charge exceeds a predetermined limit, substantially as described.

3. In an internal-combustion motor of the kind herein referred to, the combination with the compression-space of the working cylinder of a supply of liquid to said space, a piston in said space interposed between the liquid and the combustible charge and means for allowing the discharge of liquid from said space when the pres-

sure of the compressed charge exceeds a certain limit, substantially as described.

4. In an internal-combustion motor of the kind herein referred to, the combination with the compression-space of the working cylinder of means for supplying liquid to said space, and a discharge-valve communicating with said space loaded so as to open and allow of the discharge of liquid therefrom when the pressure of the compressed charge exceeds the load on the valve, substantially as and for the purpose described.

5. In an internal-combustion motor of the kind herein referred to, the combination with the compression-space of the working cylinder of an adjustable inlet-valve for admitting a regulated supply of liquid to said space, a discharge-valve communicating with said space, loaded so as to open and allow of the discharge of liquid therefrom when the pressure of the compressed charge exceeds the load on the valve, a shut-off valve interposed between the compression-space and the loaded valve, and means for opening said shut-off valve during the compression-stroke of the working piston and for keeping it closed at all other times, substantially as and for the purposes set forth.

6. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a chamber constituting the compression-space for the combustible charges, the capacity of such chamber being varied by the admission of liquid thereto or discharge of liquid therefrom so as to be proportionate to the varying loads of the motor, substantially as and for the purpose set forth.

7. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-space the capacity of which can be varied in proportion to variations in the load of the motor, means for supplying liquid to such compression-space during the suction-stroke of the motor for varying its capacity, means for allowing a certain portion of such liquid to escape from said space when the compression of the combustion-charge therein exceeds a certain limit, and means for preventing such escape after the completion of the compression-stroke, substantially as and for the purpose set forth.

8. In a internal-combustion motor, the combination with the motor-cylinder of a chamber constituting the compression-space for the combustible charges, a valve-chamber with a check-valve connecting the said compression-chamber with a supply of liquid, a valve communicating with said valve-chamber loaded to withstand any desired pressure and connecting said chamber with a discharge for such liquid, and a valve to close the communication between the valve-chamber and the said loaded valve except during the compression-period, substantially as and for the purposes set forth.

9. In an internal-combustion motor of the kind herein referred to, the combination with the working cylinder, of a space containing the compressed combustible charges, means to vary the capacity of said space in proportion to the varying volume of the charge by the introduction of liquid into it, and a loaded valve through which a portion of such liquid is expelled during the compression-stroke, substantially as described

10. In an internal-combustion motor, the combination with the working cylinder, of means to supply combustible thereto, means to supply practically a constant quantity of liquid at each suction-stroke of the piston to said cylinder and means to vent liquid from the chamber at each compression-stroke, the quantity of liquid vented from the cylinder being dependent upon the quantity of charge compressed, substantially as described.

11. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a chamber constituting the compression-space, a piston fitting such chamber, means for supplying liquid behind said piston so as to move it for varying the compression-space of the chamber, and means for allowing a portion of the liquid behind said piston to be forced out by the latter when the pressure in the compression-space exceeds a predetermined limit, substantially as described.

12. In an internal-combustion motor such as herein referred to, a chamber such as $2^{\times}$ constituting the compression-chamber of the cylinder, a valve-chamber such as 15 in communication on the one hand with chamber $2^{\times}$, and on the other hand with a supply of liquid, a check-valve such as 17 controlling the supply of liquid to the valve-chamber and compression-chamber, an outlet for liquid communicating with the valve-chamber through a loaded valve such as 19 adapted to allow the escape of liquid from the compression-chamber $2^{\times}$ when the pressure therein exceeds a predetermined limit and a valve such as 18 actuated by the motor valve-gear so as only to open the communication between the compression-chamber $2^{\times}$ and the loaded escape-valve 19 during the compression-stroke, substantially as and for the purpose set forth.

13. In an internal-combustion motor such as herein referred to, the combination with the motor-cylinder, of a compression-chamber whose capacity is rendered variable by the introduction of liquid therein, a valve-chamber containing an inlet-valve for combustible mixture and means adapted to hold said inlet-valve open during part of the compression-stroke, as well as during the suction-stroke when the load on the motor is reduced below the normal, substantially as and for the purposes described.

14. In an internal-combustion motor such as herein referred to, the combination with the motor-cylinder of a compression-chamber whose capacity is rendered variable by the introduction of liquid therein, a valve-chamber containing an inlet-valve for combustible mixture and a double cam device such as 23, 24, actuating the inlet-valve and adapted to hold it open during part of the compression-stroke as well as during the suction-stroke, when the load on the motor is reduced below the normal, substantially as described.

15. In an internal-combustion motor such as herein referred to, the combination with the motor-cylinder of a compression-chamber whose capacity is rendered variable by the introduction of liquid therein, a valve-chamber containing an inlet-valve for combustible mixture and a discharge-valve for the products of combustion, an expansible chamber communicating with said valve-chamber, and a cam device actuating the inlet-valve which cam device has a movable part that is shifted by a governor when the load on the engine is reduced below the normal, in order to hold the inlet-valve open during part of the compression-stroke as well as during the suction-stroke, substantially as and for the purposes described.

16. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-chamber such as $2^{\times}$, whose capacity is rendered variable by the introduction of liquid therein, a valve-chamber such as 12 containing an inlet-valve such as 4 for combustible mixture and a device in such valve-chamber for introducing water-spray therein for cooling the combustible mixture during compression, substantially as described.

17. In a double-acting internal-combustion motor of the kind herein referred to, the combination with each end of the motor-cylinder of a compression-chamber, and a single-valve apparatus communicating with both compression-chambers for the introduction of liquid therein which valve apparatus comprises a check-valve for controlling the admission of liquid to the valve-chamber and to the compression-chambers, a loaded valve for allowing the escape of such liquid from the valve-chamber and compression-chambers when the pressure therein exceeds a definite amount, and a valve actuated by the motor valve-gear for controlling the communication between the valve-chamber and compression-chambers, and the said loaded valve, substantially as and for the purposes described.

18. In a double-acting internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-chamber at each end thereof whose capacity is capable of being varied, means to control the admission of liquid thereto, an inlet-valve for combustible mixture at each end of the cylinder adapted to be kept open by a governor during part of the compression-stroke when the load on the motor is reduced, a single gas and air mixing valve communicating with both the said inlet-valves, and an expansible chamber communicating with the mixing and inlet valves, serving to receive a portion of the combustible charges admitted to the cylinder when the said inlet-valve is kept open during part of the compression-stroke, substantially as and for the purpose set forth.

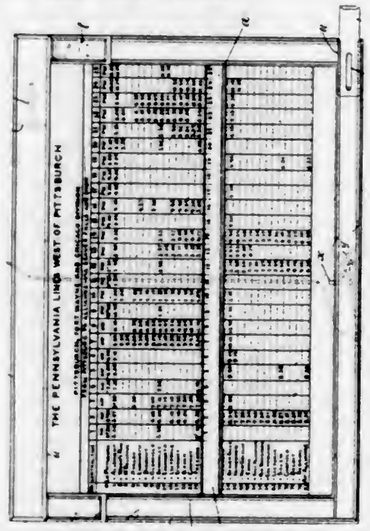
19. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-chamber communicating with a valve apparatus, whereby a quantity of liquid can be admitted to the compression-chamber for varying its capacity, a loaded valve in such apparatus adapted to allow liquid to escape therefrom when a predetermined pressure in the said pressure-chamber is exceeded, a valve actuated by the valve-gear of the motor for controlling the communication of said loaded valve with the valve apparatus and compression-chamber, and means for supplying the valve apparatus with liquid under a head of pressure, substantially as and for the purposes set forth.

20. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-chamber communicating with a valve apparatus adapted to admit a quantity of liquid to the compression-chamber for varying its capacity and a reservoir containing liquid under a head of pressure serving both for supplying the said valve apparatus with water and for supplying the cooling-water to the motor, substantially as described.

21. In an internal-combustion motor of the kind herein referred to, the combination with the motor-cylinder of a compression-chamber communicating with a valve apparatus adapted to admit a quantity of liquid to the compression-chamber for varying its capacity, a reservoir containing cool water under a head of pressure and means for causing the said water to circulate from the reservoir through the said valve apparatus and through those parts of the motor that require to be cooled and finally to pass back to the reservoir, substantially as described.

22. In an internal-combustion motor such as herein referred to, the combination with the motor-cylinder of a compression-chamber whose capacity is rendered variable by the introduction of liquid therein, a valve-chamber containing an inlet-valve for combustible mixture, adapted to be held open during part of the compression-stroke as well as during the suction-stroke, and an expansible reservoir communicating with said inlet-valve chamber and adapted to receive that portion of the combustible charge which is expelled from the motor-cylinder through the open inlet-valve during part of the compression-stroke, substantially as described.

752,274. TIME-TABLE APPLIANCE AND ADVERTISING DEVICE. HERMANN L. WARREN, East Croydon, England. Filed Feb. 5, 1903. Serial No. 142,060. (No model.)



Claim.—1. A device for facilitating a reference to a mounted time-table consisting of the time-table, a frame, a spindle to which sprocket-wheels are secured at the two ends thereof, two endless chains each embracing a sprocket-wheel and a pulley and extending along and within one of the sides of the frame and a strip which at each end is secured to the chain and is moved therewith in such a way as to remain always parallel to one line.

2. A device for facilitating a reference to a mounted time-table consisting of the time-table, a frame which is adapted to clamp the edge of the time-table and secure it in position, a spindle to which sprocket-wheels are secured at the two ends thereof, two endless chains each embracing a sprocket-wheel and a pulley and extending along and within one of the sides of the frame and a strip which at each end is secured to the chain and is moved therewith in such a way as to remain always parallel to one line.

3. A device for facilitating a reference to a mounted time-table, consisting of the time-table, a frame, a horizontal spindle mounted within the upper edge of the frame to which sprocket-wheels are secured at the two ends thereof, two endless chains each embracing a sprocket-wheel and a pulley and extending along and within the vertical sides of the frame, a horizontal strip which at each end is secured to a chain and a band carrying advertisements which travels with the chain and exposes changing portions bearing information relating to the locality the name of which is at the instant adjacent to the strip.

4. A device for facilitating a reference to a mounted time-table consisting of the time-table, a frame and a strip which is adapted to be moved within the limits of the frame in such a way as to remain always parallel to one line, and an electric switch which is adapted to be spring-pressed to close the circuit of an adjacent electric lamp and when pressed by the otherwise unsupported weight of the strip to cause the circuit to be broken.

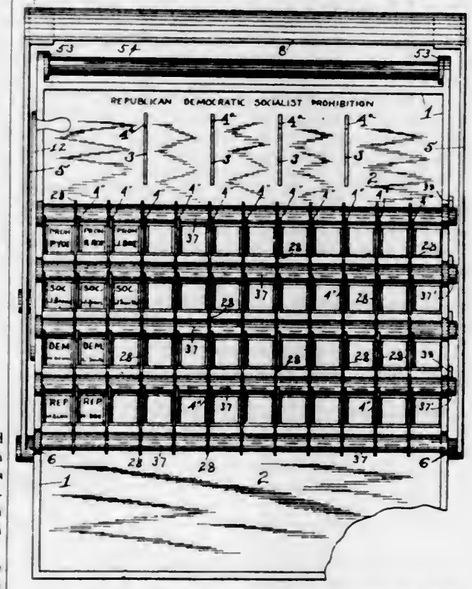
752,275. FAN-BLADE. WILLIAM O. WEBBER, Boston, Mass., assignor to the Bell Pure Air & Cooling Co., New York, N. Y. Filed Feb. 27, 1902. Serial No. 95,880. (No model.)



Claim.—1. A curved fan-blade for centrifugal blowers, said blade having its working face composed of a series of flat surfaces arranged successively on the blade toward its outer end, and said surfaces forming tangents to the curve of the blade.

2. A curved fan-blade for centrifugal blowers, said blade having a working face that is narrower toward the outer end of the blade than toward its inner end, said working face comprising a series of flat surfaces arranged successively on the blade toward its outer end.

752,276. VOTING-MACHINE. PHILIP YOE, Dayton, Ohio, assignor to himself, E. W. Hanley, and Kerien Fitzpatrick, Dayton, Ohio. Filed May 18, 1903. Serial No. 157,701. (No model.)



Claim.—1. In a voting-machine, the combination of an interlocking device, an actuating-frame adapted to operate the interlocking device, a setting-key connected with said actuating-frame, said key being movable into and out of a setting position, and means on said key for locking the actuating-frame.

2. In a voting-machine, the combination with a main actuating-frame, a series of pawls mounted thereon, a series of actuating-frames adapted to operate said pawls, and a series of setting-keys to set said actuating frames and pawls, and means coöperating with said keys whereby the actuating frames and pawls are locked in their set positions by the final movement of the setting-keys.

3. In a voting-machine, the combination of an actuating-frame, an interlocking device and connections actuated by said frame, setting-keys more than one of which is prevented from being operated at a time, by said interlocking device, each of said keys being capable of moving into and out of a setting position, and means on each of said keys for locking the actuating-frame and the interlocking device, in each set position.

4. In a voting-machine, the combination of an actuating-frame, an interlocking device and connections actuated by said frame, set-

ting-keys more than one of which is prevented from being operated at a time by said interlocking device, each of said keys being capable of moving into and out of a setting position, means on each of said keys for locking the actuating-frame and interlocking device in each set position, and means on said keys for returning the actuated parts to their normal positions.

5. In a voting-machine, an actuating-frame, interlocking mechanism connected with said frame, and a setting-key adapted to actuate said frame to set the mechanism in the initial movement of the key, and means actuated in the final or subsequent movement of said key whereby the actuating-frame is locked directly by the key.

6. In a voting-machine, the combination with an oscillating actuating-frame, a candidate-label holder secured thereto, and a setting-key to actuate said actuating-frame and to positively lock the actuating-frame in its oscillated position.

7. In a voting-machine, the combination with an oscillating actuating-frame, a candidate-label holder thereon, a setting-key movable into and out of position and adapted to oscillate and positively lock said actuating-frame, said key also being capable of positively returning said actuating-frame and label-holder to their normal positions.

8. In a voting-machine, the combination with an actuating-frame, of a setting-key adapted to actuate said frame and to lock it after the limit of the movement of said key which actuates said frame.

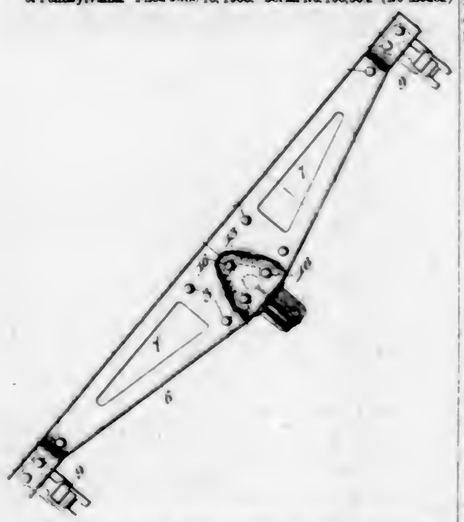
9. In a voting-machine, a main actuating-frame, a series of pawls mounted thereon, a series of actuating-frames one of which operates with each pawl, a series of setting-keys, a series of counters operative by said pawls, means for actuating the main actuating-frame from the exterior of the machine, and means for restoring the pawls to their normal positions when the main actuating-frame is at the limit of its downward stroke.

10. In a voting-machine, a series of interlocking devices, a series of actuating-frames, a series of setting-keys, connections between said actuating-frames and said interlocking devices, a straight-ticket operating-key, a cam-shaft actuated thereby and adapted to set the setting-keys of an entire series simultaneously.

11. In a voting-machine, a series of counters in combination with an oscillating concealing-bar arranged in the front thereof, and means for locking said bar in a position to conceal the counters.

12. In a voting-machine, the combination with a main frame-work, division-plates secured thereto, counters and actuating-frames mounted between said division-plates, a shaft extending through said division-plates, and a series of antifriction-plates mounted on said shaft to prevent the counter mechanism from binding.

752,277. **BRAKE-BEAM.** HARRY T. ANDERSON, Avalon, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 10, 1903. Serial No. 160,884. (No model.)



Claim.—1. A brake-beam composed of two channel-shaped members placed back to back with their webs in contact, means for securing said members together, and a brake-lever fulcrum and brake-shoe heads secured to said members.

2. A brake-beam composed of two channel-shaped members of varying width placed back to back with their webs in contact and secured together, and a brake-lever fulcrum and brake-shoe heads secured to said members.

3. A brake-beam composed of two channel-shaped members having one edge straight and the other edge tapered from the middle toward both ends, said members being placed back to back with their webs in contact, means for securing said members together, and a brake-lever fulcrum and brake-shoe heads secured to said members.

4. A brake-beam composed of two channel-shaped members of varying width having portions of their webs cut away, said members being placed back to back with their webs in contact, means for securing said members together, and a brake-lever fulcrum and brake-shoe heads secured to said members.

5. A brake-beam composed of two channel-shaped members provided with flanges of varying depth, and means for securing said members together.

6. A brake-beam composed of two channel-shaped members of varying width and provided with flanges of varying depth, said members being placed back to back, and means for securing the same together.

7. A brake-beam composed of two channel-shaped members secured together and having their ends separated or spread apart, and brake-shoe heads secured between the ends of said members.

8. A brake-beam composed of two channel-shaped members placed back to back, brake-shoe heads provided with parallel-faced projections placed between said members, and rivets or the like extending through said channel-shaped members and openings in the brake-shoe heads.

9. A brake-beam composed of two channel-shaped members placed back to back and spread apart at their middle portions, and a brake-lever fulcrum having a projection secured between said members at the spread-apart portions.

10. A brake-beam composed of two channel-shaped members placed back to back, a brake-lever fulcrum provided with a projection having parallel faces and inserted between the channel-shaped members, and rivets or the like passing through the webs of said channel-shaped members and openings in the brake-lever fulcrum.

11. A brake-beam composed of two channel-shaped members placed with their backs toward each other, brake-shoe heads and a brake-lever fulcrum provided with projections having parallel faces, said projections being placed between said channel-shaped members, and rivets or the like passing through the webs of said channel-shaped members and through openings in said projections.

12. A brake-beam composed of two channel-shaped members placed back to back, said members being spread apart at their ends and also at their middle portions, brake-shoe heads and a lever-fulcrum provided with projections having parallel faces and inserted between the spread-apart portions of said members, and rivets or the like passing through the webs of said members and openings in said projections.

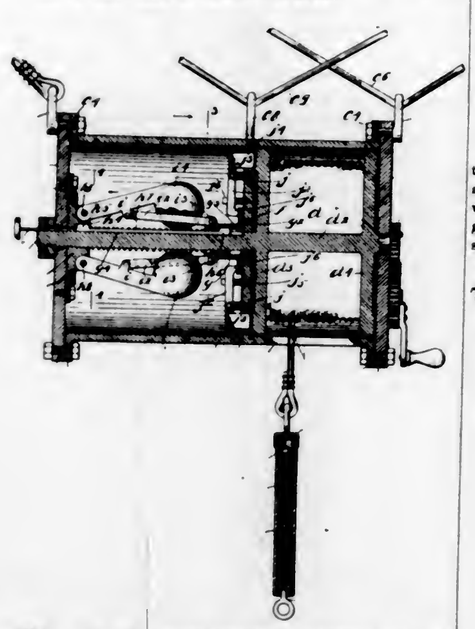
752,278. **BRIDLE.** CHARLOTTE ARNESEN, Larvik, Norway. Filed Aug. 19, 1903. Serial No. 170,079. (No model.)



Claim.—1. In a bitless bridle, the combination with the upper bands, a nose-band, metal cheek-bands extending longitudinally along each side of the face of the horse and connecting the nose-band with the upper bands, a metal loop connected to the lower ends of the cheek-bands, and rings carried thereby substantially as described.

2. In a bitless bridle, the combination with the head-bands, a strap G extending therefrom, metal cheek-bands extending longitudinally along each side of the horse's face, buckles thereon engaging with said strap and a nose-band connected to the lower end of said metal bands, substantially as described.

752,279. **FIRE-ESCAPE.** ARTHUR S. BACON, Gonzales, Tex. Filed July 18, 1903. Serial No. 166,154. (No model.)



Claim.—1. In a fire-escape apparatus, a cylindrical casing divided by a transverse partition into separate compartments, a reel mounted in one of said compartments and the shaft of which extends through the other compartment, brake-levers connected with said partition and provided with shoes which operate through openings formed in said partition and adapted to bear on the end of the reel, and centrifugal brake devices mounted on the said shaft and adapted to operate said brake-levers, and means for locking said brake devices to said shaft, substantially as shown and described.

2. In a fire-escape apparatus, a cylindrical casing divided by a transverse partition into separate compartments, a reel mounted in one of said compartments and the shaft of which extends through the other compartment, brake-levers connected with said partition and provided with shoes which operate through openings formed in said partition and adapted to bear on the end of the reel, and centrifugal brake devices mounted on the said shaft and adapted to operate said brake-levers, and means for locking said brake devices to said shaft, said casing being also provided in one side with a slot or opening and said reel with a cord which passes therethrough, substantially as shown and described.

3. In a fire-escape apparatus, a cylindrical casing, cords connected therewith and adapted to support said casing in a horizontal position, hooks connected with said cords and adapted to engage the sides of a window-frame, said casing being also provided with a transverse partition forming two separate compartments, a reel mounted in one of said compartments and the shaft of which passes through the other compartment and through both ends of said casing, a cord wound on said reel and passing through a slot in said casing, brake-levers secured to the side of said partition opposite the reel and provided with shoes which operate through said partition and in connection with said reel, and centrifugal brake devices mounted on said shaft and adapted to operate said levers, substantially as shown and described.

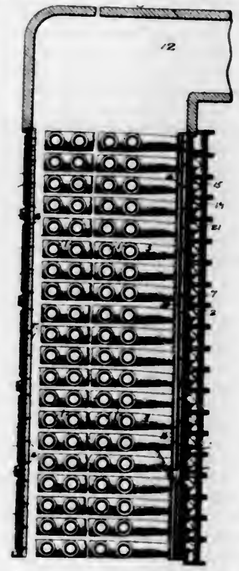
4. In a fire-escape apparatus, a cylindrical casing, cords connected therewith and adapted to support said casing in a horizontal position, hooks connected with said cords and adapted to engage the sides of the window-frame, said casing being also provided with a transverse partition forming two separate compartments, a reel mounted in one of said compartments and the shaft of which passes through the other compartment and through both ends of said casing, a cord wound on said reel and passing through a slot in said casing, brake-levers secured to the side of said partition opposite the reel and provided with shoes which operate through said partition and in connection with said reel, centrifugal brake devices mounted on said shaft and adapted to operate said levers, and means for locking said brake devices to said shaft, substantially as shown and described.

752,280. **EYEGLASSES.** EDWIN BECKWITH, New York, N. Y. Filed July 2, 1902. Serial No. 114,156. (No model.)



Claim.—In eyeglasses the combination of a pair of lenses attached to clamping-posts, provided with nose-guards and an elastic angular spring made narrow and thin in the center with gradually widened and thickened walls toward the ends, whereby the eyeglasses may move angularly in every direction, substantially as described.

752,281. **CASING FOR ECONOMIZERS OR THE LIKE.** FRED E. CALDWELL, Brooklyn, N. Y., assignor to Westinghouse, Church, Kerr and Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 10, 1902. Serial No. 114,991. (No model.)



Claim.—1. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of superposed layers of non-heat-conducting material inclosed by a suitable frame, said body portion being covered with plastic non-heat-conducting material, substantially as described.

2. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of superposed layers of non-heat-conducting material inclosed by a suitable frame, said body portion being covered on opposite sides with plastic non-heat-conducting material, substantially as described.

3. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of superposed layers of non-heat-conducting material and covered with plastic non-heat-conducting material, said body portion being inclosed by a frame having recessed portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, substantially as described.

4. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of superposed layers of non-heat-conducting material and covered on opposite sides with plastic non-heat-conducting material, said body portion being inclosed by a frame having recessed portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, substantially as described.

5. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of layers of non-heat-conducting material and covered with plastic non-heat-conducting material, said body portion being inclosed by a frame hav-

ing recessed side portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, said frame having also top and bottom portions secured to the side portions and reinforcing members at its corners secured to said top, bottom and side portions, substantially as described.

6. As a new article of manufacture, a panel for economizer and like casings comprising a body portion built up of layers of non-heat-conducting material and covered on opposite sides with plastic non-heat-conducting material, said body portion being inclosed by a frame having recessed side portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, said frame having also top and bottom portions secured to the side portions and reinforcing members at its corners secured to said top, bottom and side portions, substantially as described.

7. As a new article of manufacture, a panel for economizer and like casings comprising a suitable body portion of non-heat-conducting material inclosed by a frame having side recessed portions, with the recesses therein facing each other, top and bottom portions secured to said side portions, and reinforcing members at its corners secured to said top, bottom and side portions, substantially as described.

8. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion built up of superposed layers of non-heat-conducting material inclosed by a suitable frame, the several panels being suitably spaced apart to allow for expansion and the space between each two being closed or sealed with suitable non-heat-conducting material, substantially as described.

9. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion built up of superposed layers of non-heat-conducting matarial inclosed by a suitable frame, said body portion being covered with plastic non-heat-conducting material, the several panels being suitably spaced apart to allow for expansion and the space between each two being closed or sealed with suitable non-heat-conducting material, substantially as described.

10. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion built up of superposed layers of non-heat-conducting material and covered with plastic non-heat-conducting material, said body portion being inclosed by a frame having recessed portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, substantially as described.

11. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion built up of layers of non-heat-conducting material and covered with plastic non-heat-conducting material, said body portion being inclosed by a frame having recessed side portions facing each other and containing a filling of such plastic material in which the edges of said layers are embedded, said frame having also top and bottom portions secured to the side portions and reinforcing members at its corners secured to said top, bottom and side portions, substantially as described.

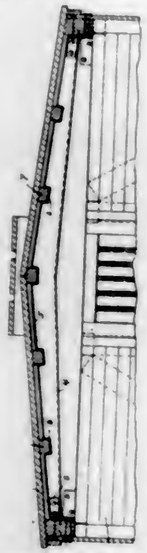
12. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion of non-heat-conducting material inclosed by a frame having recessed portions, with the recesses therein facing each other, the several panels being suitably spaced apart to allow for expansion and the space between each two being closed or sealed with suitable non-heat-conducting material, substantially as described.

13. An economizer or like casing made up of a plurality of panels suitably secured together and each consisting of a body portion of non-heat-conducting material inclosed by a frame having side recessed portions, with the recesses therein facing each other, top and bottom portions secured to said side portions, and reinforcing members at its corners secured to said top, bottom and side portions, the several panels being suitably spaced apart to allow for expansion and the space between each two being closed or sealed with suitable non-heat-conducting material, substantially as described.

752,282. CARLINE. EDWARD G. CAUGHEY, Bellaire, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 3, 1902. Serial No. 114,204. (No model.)

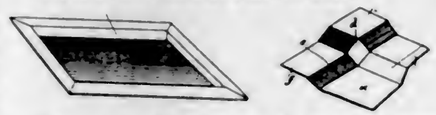
Claim.—1. A metallic carline of varying Z-shaped cross-section having one of its flanges and a portion of its web indented or depressed to receive the purlins and having its lower flange projecting beyond the web at the ends of the carline.

2. A metallic carline consisting of a flanged shape, and metallic brackets each having a vertical portion secured to the webs of said carline at its ends and provided with a flat horizontal flange projecting outwardly in the direction of the length of the carline.



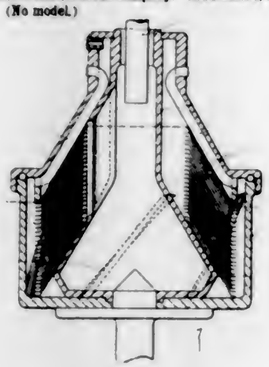
3. A metallic carline consisting of a metallic member Z-shaped in cross-section, and metallic brackets secured to said carline at its ends, said brackets having a vertical portion secured to the web of the carline, a vertical portion at right angles thereto adapted to bear against the car side, and a flat horizontal portion at right angles to said last-named vertical portion and projecting outwardly in the direction of the length of the carline.

752,283. PICTURE-FRAME. GEORG COHN, Breslau, Germany. Filed Jan. 2, 1902. Serial No. 88,232. (No model.)



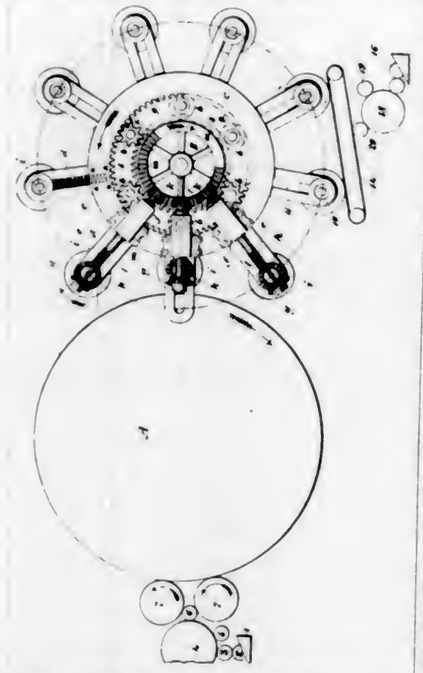
Claim.—A picture-frame composed of a back *a* of substantially rectangular form, having integral side strips around the margin thereof extending up at an angle thereto and with outwardly-extending front strips bordering and integrally connected with the side strips, the said front strips being connected with each other by integral portions at the corners.

752,284. CENTRIFUGAL LIQUID-SEPARATOR. JOHN A. DAHLQVIST, Stockholm, Sweden, assignor to Nya Aktiebolaget Radiator, Stockholm, Sweden, a Stock Company. Filed Mar. 6, 1903. Serial No. 146,533. (No model.)



Claim.—A centrifugal separator-drum having a liner consisting of conical plates which radially divide the contents of the drum into thin layers, of inclined wings between the outer edges of the said mantles and the inside of the drum, substantially as and for the purpose set forth.

752,285. INKING DEVICE. HORACE A. DAVIS, New York, N. Y. Filed Apr. 30, 1902. Serial No. 106,375. (No model.)



Claim.—1. A cylinder printing-press in which the type on the form-cylinders is inked by one set of inking-rollers revolving about their own axes in a direction the same as the direction in which the form-cylinders revolve and by another set of inking-rollers revolving about their own axes in a direction opposite thereto.

2. In a cylinder printing-press, a set of inking-rollers inking the type on the form-cylinder while revolving about their own axes in a direction opposite to the direction in which the form-cylinder revolves.

3. A cylinder printing-press in which the type on the form-cylinders is continuously inked in the direction in which the form-cylinders revolve to print and also in the direction opposite thereto.

4. Means for continuously inking the type on the form-cylinders of a printing-press in both directions, consisting of one set of inking-rollers revolving about their own axes in the same direction and at the same speed as the form-cylinder and another set of inking-rollers carried on a wheel revolving in the same direction as the form-cylinder and at a greater speed, such rollers revolving about their own axes in a direction opposite to the direction in which the form-cylinders revolve.

5. In a cylinder printing-press, a series of inking-rollers adapted to be brought successively into contact with the form-cylinders and to ride over a portion of the circumference thereof while revolving about their own axes in a direction opposite to the direction in which the form-cylinders revolve.

6. In a cylinder printing-press, inking-rollers adapted to ride over a portion of the circumference of the form-cylinder in the direction in which the form-cylinder is revolving, while revolving upon their own axes in the direction opposite thereto.

7. In a cylinder printing-press, a series of inking-rollers carried on arms moving in the same direction as that in which the form-cylinder revolves, said inking-rollers at the same time revolving about their own axes in a direction opposite to the direction of the form-cylinder.

8. In a cylinder printing-press, a series of inking-rollers carried on arms and adapted to be brought successively into contact with the form-cylinder and to pass over a portion of its circumference, in the same direction as that in which the form-cylinder revolves, and at a greater rate of speed, while revolving about their own axes in a direction opposite thereto.

9. A device for inking the type on form-cylinders of a printing-press consisting of a series of inking-rollers adapted to be brought successively into contact with the form-cylinders and to ride over a portion of the circumference thereof while revolving in a direction opposite to the direction in which the form-cylinder revolves, with means for inking said rollers and for actuating the same.

10. A device for inking the type on the form-cylinders of a printing-press consisting of a wheel provided with arms carrying inking-rollers adapted to be brought successively into contact with the form-cylinder and to revolve in a direction opposite to the direction in which the form-cylinder revolves, with means for inking said rollers, and for actuating the same.

11. In a cylinder printing-press, a wheel provided with slotted arms carrying inking-rollers adapted to revolve about their own axes in a direction opposite to the direction in which the form-cylinder revolves, a spring adapted to press said rollers out to the ends of said slotted arms except when said rollers are passing over the circumference of the form-cylinder, and means for inking said rollers and for actuating the same.

12. In an inking device for cylinder printing-presses, a gear-wheel adapted to actuate a wheel provided with arms carrying inking-rollers and at the same time to actuate said inking-rollers about their own axes in a direction opposite to the direction in which the form-cylinder revolves.

13. In an inking device for cylinder printing-presses, a gear-wheel provided with one set of teeth adapted to actuate at a greater rate of speed than that of the form-cylinder a wheel provided with arms carrying inking-rollers, and another set of teeth adapted by suitable gear to rotate said rollers in a direction opposite to the direction in which the form-cylinder revolves and at a rate of speed equal to the difference between the speed of such armed wheel and the form-cylinder.

14. In an inking device for cylinder printing-presses, a gear-wheel adapted to actuate a wheel provided with slotted arms carrying inking-rollers and at the same time to actuate said inking-rollers about their own axes in a direction opposite to the direction in which the form-cylinder revolves, with means for allowing said inking-rollers to ride over a portion of the circumference of said form-cylinder, and for inking said rollers.

15. In a cylinder printing-press, the combination of a form-cylinder, a set of inking-rollers adapted to ink the type thereon in the same direction as that in which the form-cylinder revolves and revolving about their own axes at the same speed as the form-cylinder, a second set of inking-rollers adapted to ink said type while revolving about their own axes in the direction opposite to that in which the form-cylinder revolves, slotted arms carrying said second set of inking-rollers, springs within the slots thereof, and means for inking each of said sets of inking-rollers and for actuating the same.

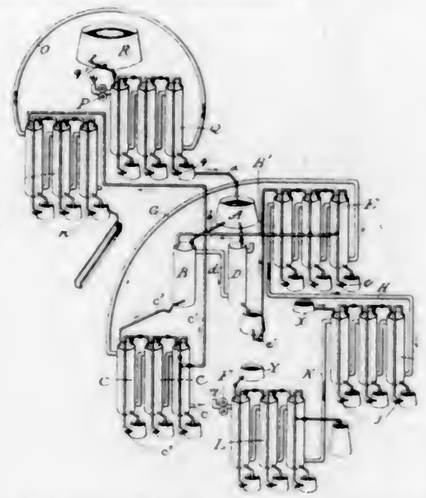
16. In a cylinder printing-press, the form-cylinder A, the inking-roller 7, the slotted arms *d* on the wheel *c*, carrying the inking-rollers *i*, the springs *e*, with means for inking said rollers and for actuating the revoluble parts, the rollers 7 and the wheel *c* being adapted to revolve about their own axes in the same direction as the form-cylinder A, and the rollers *i* being adapted to revolve about their own axes in a direction opposite thereto, substantially as shown and described.

17. In a cylinder printing-press, the form-cylinder A, the inking-rollers 7, the gear-wheel B, provided with the teeth 9, the intermediate gear-wheels *b* actuating the wheel *c* provided with the slotted arms *d* carrying the inking-rollers *i*, the springs *e*, the teeth *a* on the gear-wheel B, the bevel-gear *k*, the sleeves *m*, the splined arms *l*, the miter-gear *g*, *k*, and the inking-belt 14, the rollers 7 and the wheel *c* being adapted to revolve about their own axes in the same direction as the form-cylinder A, and the rollers *i* being adapted to revolve about their own axes in a direction opposite thereto, substantially as shown and described.

752,286. PROCESS OF FRACTIONING BROMIN APART FROM CHLORIN. HERBERT H. DOW, Midland, Mich., assignor to the Dow Chemical Company, Midland, Mich., a Corporation of Michigan. Filed Sept. 16, 1903. Serial No. 173,363. (No specimens.)

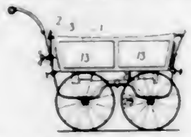
Claim.—1. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine, in

blowing out the purest bromin thus set free by a limited amount of air, then blowing out the remainder of the bromin without further oxidation by a large amount of air, and recovering both portions of bromin thus blown out by suitable absorbents.



2. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine, in blowing out the purest bromin thus set free by a limited amount of air, recovering the same by means of sodium carbonate, blowing out the remainder of the bromin without further oxidation by a large amount of air, and then recovering this bromin by means of absorbing it in a natural brine.

752,287. PERAMBULATOR. JOSEPH FORD, Cromwell, New Zealand. Filed Jan. 6, 1903. Serial No. 138,035. (No model.)



Claim.—1. In a perambulator in combination a body portion headed central supporting-bolts in the ends thereof, frame-supported brackets bent to receive said bolts, a frame-supported rail provided with a prong-ended thumb-screw, and a corrugated plate on one end of said body adapted to receive the pronged end of said screw substantially as and for the purposes set forth.

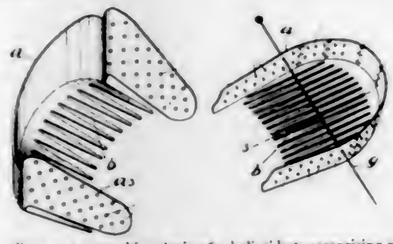
2. In a perambulator in combination a detachable body portion one side of said body being provided with movable portions, bent back-supporting bars fitted within said body and grooves therein adapted to slidably receive said movable portions substantially as and for the purposes set forth.

3. In a perambulator comprising a detachable swinging body a corrugated plate on either end of said body, horizontal rails on the springs supporting said body, thumb-screws adapted to press against said body through said rails, a pair of bent back-supporting bars fitted within said body provided with grooves and movable portions in one side of said body adapted to slide in said grooves substantially as described.

4. In a perambulator comprising a detachable swinging body a corrugated plate on either end of said body, horizontal rails on the springs supporting said body, thumb-screws adapted to press against said body through said rails, a pair of bent back-supporting bars fitted within said body provided with grooves movable portions in one side of said body adapted to slide in said grooves and a pair of rockers provided with pivot-hinges at either end substantially as and for the purposes set forth.

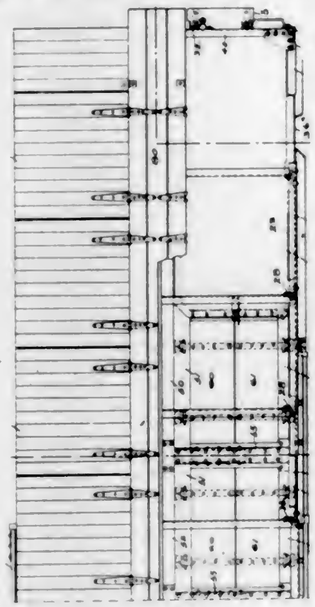
5. In a perambulator comprising a detachable swinging body a corrugated plate on either end of said body, horizontal rails on the springs supporting said body thumb-screws adapted to press against said body through said rails, a pair of bent back-supporting bars fitted within said body provided with grooves, movable portions in one side of said body adapted to slide in said grooves, a pair of rockers provided with pivot-hinges at either end and legs secured to the body-base substantially as described.

752,288. HAT-FASTENER. MILLICENT GORDON, West Kensington, London, England. Filed July 3, 1903. Serial No. 164,218. (No model.)



Claim.—An attaching device for ladies' hats comprising a comb provided with a corona or rim at right angles thereto, and consisting of front and side portions, the side portions being finely perforated so as to permit a hat-pin to pass therethrough at any point, substantially as shown and described.

752,289. SIDE AND CENTER DUMP COKE-CAR. JOHN M. HANSEN, Pittsburg, Pa. Filed Aug. 13, 1903. Serial No. 169,379. (No model.)



Claim.—1. The combination of a center sill and car sides, a pair of longitudinally-arranged doors on each side of the center sill arranged to open in opposite directions, mechanism common to the inner doors on the two sides of the car for opening and closing the same, and independent mechanism for opening and closing the outer doors on the two sides of the car.

2. In a railway-car, the combination of a center sill and car sides, a pair of longitudinally-arranged doors on each side of the center sill, a longitudinally-arranged operating-shaft on each side of the car, connections between each of such longitudinal shafts and the outer door on that side of the car, a transversely-arranged operating-shaft, and connections between the same and the inner doors on both sides of the car.

3. In a railway-car, the combination of a center sill and car sides, a plurality of pairs of longitudinally-arranged doors on each side of the center sill, a longitudinal winding-shaft on each side of the car, connections between each of such shafts and all of the outer doors on that side of the car, a transversely-arranged winding shaft or shafts, and connections between the same and a pair of inner doors on both sides of the car.

4. In a railway-car, the combination of a center sill and car sides, a plurality of pairs of longitudinally-arranged doors between the center sill and car sides, beams connecting adjacent outer doors on each side of the car to form, in effect, a single door, beams connecting two adjacent inner doors in pairs on each side of the car, a longitudinally-arranged winding-shaft on each side of the car, connections between the same and the outer doors on the same side of the car, transversely-arranged winding-shafts, and connections between the same and a connected pair of doors on both sides of the car.

5. In a railway-car, the combination of a center sill and car sides, a pair of longitudinally-arranged doors between the center sill and car sides, a hollow transverse support extending from the center sill to the car sides and having a pair of guide-sheaves secured therein, a longitudinally-arranged winding-shaft at each side of the car, chains connected thereto and passing over one of the guide-sheaves in the transverse support and connected to the outside door on that side of the car, a winding-shaft extending through the transverse support, and chains wound thereon and passing over the other guide-sheave in the transverse support and connected to the inner doors on both sides of the car.

6. In a railway-car, the combination of the center sill and car sides, a hopper extending below the center sills, transverse hollow diaphragms dividing said hopper into sections, said diaphragms extending from the center sills to the car sides, a pair of guide-sheaves journaled in said diaphragms, a pair of longitudinally-arranged oppositely-opening doors for each hopper-section, a longitudinal winding-shaft, chains connected thereto and passing over one of the guide-sheaves in the hollow diaphragm and connected to the outer doors, transverse winding-shafts extending through the hollow diaphragm, a chain wound thereon and passing over the other guide-sheave in the hollow diaphragm and connected to an inner door.

7. In a railway-car, the combination with a center sill and car sides, body-bolsters on which the same are supported, and hollow box-like diaphragms connecting said sills and car sides and lying mainly below the top of said center sill.

8. In a railway-car, the combination with the body-bolsters, of center sills and car sides supported thereon, box-like diaphragms connecting the center sills with the car sides, and a transverse connecting member secured to said diaphragms and extending continuously across the car-sills.

9. In a railway-car, the combination with the body-bolsters, of center sills and car sides supported thereon, inverted-trough-like diaphragms connecting the center sill and car sides, and a transverse connecting-plate extending underneath the center sills and being secured between the side walls of said diaphragm.

10. In a railway-car, the combination with the body-bolsters, of a center sill and car sides supported thereon, inverted-trough-like diaphragms connecting the center sills and car sides, a cross connecting-plate extending underneath the center sills and having its side edges flanged and riveted between the sides of said trough-diaphragms.

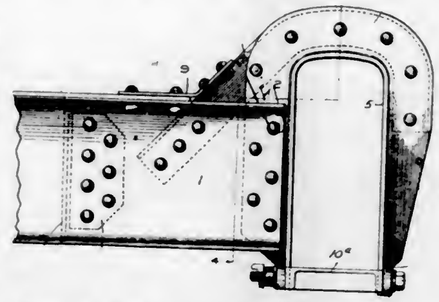
11. In a railway-car, the combination with a body-bolster, of center sills and car sides supported thereon, hollow box-like diaphragms connected to the center sills and car sides, the top and bottom member of said diaphragms extending continuously above and beneath the center sills.

12. In a railway-car, the combination of a center sill and car sides, of transverse hollow connecting means between the center sill and car sides, and dividing the bottom into a series of hoppers, doors for closing said hoppers, a winding-shaft and chains connected thereto and extending through said hollow connecting means and secured to said doors.

13. In a railway-car, the combination of a center sill and car sides, hoppers arranged on each side of the center sill, hollow diaphragms connecting the center sill and car sides, and dividing the hopper into sections, a pair of doors for each section, longitudinal beams for connecting said doors, winding-shafts, and chains connected thereto and extending through said hollow diaphragms and connected to said beam.

752,290. PEDESTAL-TRUCK. JOHN M. HANSEN, Pittsburg, Pa. Filed Nov. 2, 1903. Serial No. 179,543. (No model.)

Claim.—1. A side frame for railway-trucks, comprising a rolled flanged beam cut off or fashioned square at its end, and a wrought-metal pedestal of substantially U shape having one leg thereof riveted to the end of said beam and provided with a laterally-projecting flange surrounding the axle-box opening.



2. A side frame for railway-trucks, comprising a rolled flanged beam cut off or fashioned square at its ends, and a pedestal comprising a flanged bar bent into U shape and having one leg thereof riveted to the end of said beam and provided with a laterally-projecting flange surrounding the axle-box opening.

3. A side frame for railway-trucks, comprising a rolled flanged beam having its ends cut off or fashioned square, and a pedestal comprising a rolled flanged bar bent into U shape and having an outwardly-projecting flange or leg riveted to the end of said beam, and having a laterally-projecting flange surrounding the axle-box opening.

4. A side frame for railway-trucks comprising a rolled flanged beam cut off or fashioned square at its ends, and a pedestal comprising a T-bar bent into U shape with its leg projecting outwardly, said leg having one jaw riveted to the end of said beam.

5. A side frame for railway-trucks, comprising a rolled flanged beam cut off or fashioned square at its ends, a wrought-metal pedestal of U shape having one leg secured to the end of said beam, and a reinforcing member secured to the upper portion of said pedestal and to said beam.

6. A side frame for railway-trucks, comprising a rolled flanged beam cut off or fashioned square at its ends, a U-shaped forged-steel pedestal having an outwardly-projecting flange riveted to said beam, and a reinforcing-bar riveted to the top of said pedestal and to the side of said beam.

7. A side frame for railway-trucks comprising a rolled flanged beam having its ends cut off or fashioned square, a pedestal comprising a flanged bar bent into U shape secured to the end of said beam, and a reinforcing member comprising a flanged bar riveted to the top of said pedestal and thence extending down diagonally and riveted to the web of said beam.

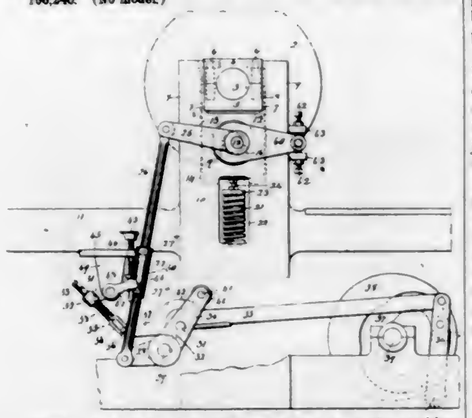
8. A side frame for railway-trucks, comprising a rolled flanged beam cut off or fashioned square at its ends, a pedestal comprising a flanged bar bent into U shape and having a flange or web projecting outwardly and riveted to the end of said beam, and a reinforcing member comprising a flanged bar having one flange arranged vertically and riveted to the outwardly-projecting flange of said pedestal and to the web of said beam and the other flange projecting laterally.

9. A side frame for railway-trucks, comprising a rolled channel-beam having its ends cut off or fashioned square, a pedestal comprising a flanged bar bent into U shape and having a flange or leg projecting outwardly and riveted to the flat face of said channel-beam, and a reinforcing member comprising a flanged beam having a vertical flange riveted to the outwardly-projecting flange at the top of the pedestal and to the flat face of the channel-beam.

10. A side frame for railway-trucks, comprising a flanged beam having its ends cut off or fashioned square, a U-shaped wrought-steel pedestal having one leg riveted to the end of said beam, a reinforcing-bar secured to the top of said pedestal and extending diagonally downwardly and secured to the web of said beam, and a reinforcing-plate riveted to said reinforcing-bar and the top flange of said beam.

11. A pedestal for railway-trucks comprising a U-shaped member having an outwardly-projecting flange, the lower ends of which are diagonal, a pedestal-bolt extending through the lower ends of the jaws of said U-shaped member, and washers for said bolt provided with slots arranged to receive the lower ends of the outwardly-projecting flange.

752,291. FLAT-BED CYLINDER PRINTING-PRESS. WINFIELD S. HUSON, Derby, Conn., assignor to the Whitlock Printing Press Mfg. Co., Derby, Conn., a Corporation. Filed July 20, 1903. Serial No. 166,240. (No model.)



Claim.—1. In a flat-bed cylinder printing-press, the combination with the frame thereof, of a two-part journal-box mounted therein, a cylinder having a journal which bears in the said two-part box, and an eccentric mounted in the said frame close to the said journal and acting thereupon through the lower member of the said box to move the cylinder to the printing-line of the press.

2. In a flat-bed cylinder printing-press, the combination with the frame thereof, of a two-part journal-box mounted therein, a cylinder having a journal which bears in the said two-part box, an eccentric mounted in the said frame close to the said journal and acting thereupon through the lower member of the said box for moving the cylinder to the printing-line of the press, and a counterbalance-spring mounted in the frame and acting through the lower member of the said box to move the cylinder away from the said printing-line.

3. In a flat-bed cylinder printing-press, the combination with the frame thereof, of a two-part journal-box mounted in the said frame and having its lower member formed with an integral depending bearing-plate, a cylinder having a journal which bears in the said two-part box, an eccentric mounted in the said frame close to the said plate and coacting therewith to move the cylinder to the printing-line, and a counterbalance-spring mounted in the said frame and coacting with the said plate to lift the cylinder from the printing-line.

4. In a flat-bed cylinder printing-press, the combination with the frame thereof, of a two-part journal-box mounted therein, an impression-cylinder having a journal which bears in the said two-part box, an eccentric mounted in the said frame close to the said journal and coacting with the lower member of the said two-part box to move the cylinder to the printing-line of the press, means for adjusting the said eccentric to shift the position of the cylinder with respect to the said printing-line, and a counterbalance-spring mounted in the said frame and coacting with the lower member of the said two-part box to lift the cylinder from the said printing-line.

5. In a flat-bed cylinder printing-press, the combination with the frame thereof, of a two-part journal-box mounted therein, a cylinder having a journal which bears in the said two-part box, an eccentric mounted in the said frame close to the said journal and coacting with the lower member of the said two-part box to move the cylinder to the printing-line of the press, eccentric bushings for the said eccentric, means for adjusting the said bushings for changing the position of the eccentric and hence the cylinder with respect to the said printing-line, and means for oscillating the eccentric for the operation of the cylinder.

6. In a flat-bed cylinder printing-press, the combination with the cylinder thereof, of an eccentric, eccentric bushings for the journals of the said eccentric, arms attached to the said bushings, and set-screws coacting with the said arms to shift them for changing the positions of the bushings with respect to the journals of the eccentric.

7. In a flat-bed cylinder printing-press, the combination with a frame having cylinder-box jaws, of a two-part journal-box mounted in the said jaws, a cylinder having a journal which bears in the said two-part box, an integral bearing-plate depending from the lower member of the said two-part box, an eccentric journaled in the frame below but close to the said jaws and acting directly upon the said plate to move the cylinder to the printing-line of the press, power connections for operating the said eccentric, and a counterbalance-spring mounted in the frame and coacting with the said plate to lift the cylinder from the said printing-line.

8. In a flat-bed printing-press, the combination with a frame having a pair of journal-box jaws and a chamber, of an impression-cylinder, a journal-box therefor provided with a bearing-plate entering the said chamber, an eccentric coacting with the said plate, bushings located in the walls of the said chamber and receiving the journals of the eccentric, and power connections for oscillating the said eccentric.

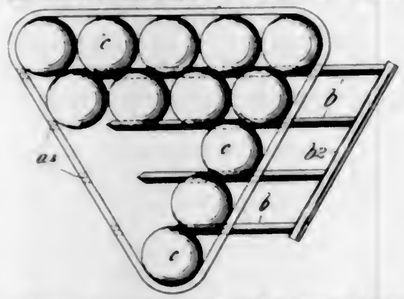
9. In a flat-bed cylinder printing-press, the combination with a frame having a pair of cylinder-box jaws, of a two-part journal-box mounted therein, a cylinder having a journal which bears in the said two-part box, an integral bearing-plate depending from the lower member of the said two-part box, an eccentric mounted in the frame, located below the said jaws and entering the said bearing-plate through which it acts to move the cylinder to the printing-line of the press, and a counterbalance-spring mounted in the frame, located below and close to the said plate and acting thereupon to lift the cylinder from the said printing-line.

10. In a flat-bed cylinder printing-press, the combination with the impression-cylinder thereof, of impression mechanism for raising and lowering the cylinder, tripping mechanism coacting with the said impression mechanism for temporarily suspending the operation thereof, including a yielding foot-tread, and safety means for preventing the effective operation of the tripping mechanism except when the cylinder is in its raised or clearance position, the said foot-tread yielding if operated when the safety mechanism is in action.

11. In a flat-bed cylinder printing-press, the combination with the cylinder thereof, of impression mechanism for raising and lowering the cylinder including a gab-hook and gab-hook rock-arm, tripping mechanism for temporarily suspending the action of the impression mechanism, a roll mounted in the gab-hook rock-arm, and a guard located upon the gab-hook and coacting with the said roll to prevent the untimely action of the tripping mechanism.

12. In a flat-bed cylinder printing-press, the combination with the cylinder thereof, of impression mechanism for raising and lowering the same, and tripping mechanism for temporarily suspending the operation of the impression mechanism, the said tripping mechanism including a foot-tread and stem, a link connected with a member of the impression mechanism, and a spring interposed between the foot-tread and the said link, and yielding on the untimely operation of the said tripping mechanism.

752,292. POOL-BALL PLACER AND HOLDER. PAUL JUSCHKE, New York, N. Y. Filed Oct. 23, 1903. Serial No. 178,192. (No model.)



Claim.—A device of the class described, comprising a triangular frame provided in two sides thereof with four openings and a corresponding number of fingers or rods adapted to be passed through said openings in the sides of said frame and to be removed therefrom, substantially as shown and described.

752,293. BUTTON-FASTENER. GEORGE KRENNETT, Newark, N. J. Filed Sept. 28, 1903. Serial No. 174,869. (No model.)

Claim.—1. In button-fasteners, a button having a shank and a fastener having arms of resilient material detachably secured to said shank, there being an enlarged piercing-head formed with a hole, screwed upon the front ends of said arms, said arms forming a shank-retaining notch adjacent the middle of the fastener and a forwardly tapering shank-receiving loop at the rear of the fastener, there being stops on said arms adjacent the front of said notch said stops cooperating with recesses formed in said arms to prevent the passage of said shank between said arms ahead of said notch.



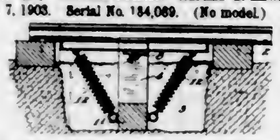
2. In button-fasteners, a button having a shank and a fastener having arms of resilient material detachably secured to said shank, said arms forming a shank-retaining notch adjacent the middle of said fastener and being detachably connected at their forward ends by an enlarged piercing-head.

3. In button-fasteners, a button having a shank and a fastener having resilient arms detachably connected with said shank and means to detachably connect the forward ends of said arms to form a piercing end at the front of said fastener.

4. In button-fasteners, a fastener having arms of resilient wire and having an enlarged piercing-head secured to the front of said arms, said arms being bent to form a forwardly-tapering loop at the rear of said fastener and a retaining-notch near the middle of the same, and a stop on said arms adjacent said notch to prevent the entrance of a button-shank between said arms ahead of said notch.

5. In button-fasteners, a fastener having resilient wire arms and having an enlarged piercing-head secured to the front of said arms, said arms forming a shank-retaining notch adjacent the middle of the fastener and formed with means adjacent said notch to prevent the passage of a button-shank between said arms ahead of said notch.

752,294. CATTLE-GUARD. ALFRED B. LAWSON, Irene, Va. Filed Dec. 7, 1903. Serial No. 184,089. (No model.)



Claim.—1. A cattle-guard for railroads, comprising a centrally-pivoted plate provided with upwardly-extending flanges at its outer ends and means to normally maintain said plate horizontal.

2. A cattle-guard for railroads, comprising plates pivotally supported at their centers between and outside of the rails and provided with upwardly-extending flanges at their outer ends, and yielding means to normally maintain said plates horizontal.

3. A cattle-guard for railroads, comprising a plate extending between the rails and pivotally supported at its center, a plate at the outside of each rail pivotally supported at its center, upwardly-extending flanges on the ends of said plates, and springs to normally maintain said plates horizontal.

4. A cattle-guard for railroads, comprising a post beneath each rail taking the place of an ordinary tie, a shaft passing transversely through said posts, plates centrally mounted to swing around the axis of said shaft as a center, and springs to normally maintain said plates horizontal.

5. A cattle-guard for railroads, comprising two posts oppositely located in a trench extending transversely of the road-bed, the tops of said posts being constructed to fit on the flanges of the rails, a shaft passing transversely through said posts a short distance beneath the rails, plates centrally mounted to swing about the axis of said shaft as a center and springs to normally maintain said plates horizontal.

6. A cattle-guard for railroads, comprising two posts oppositely located in a trench extending transversely of the road-bed, the tops of said posts being constructed to fit on the flange of the rails, a shaft passing transversely through said posts a short distance beneath the rails, plates centrally mounted to swing about the axis of said shaft as a center, said plates being provided with upwardly-extending flanges at their outer ends and springs to normally maintain said plates horizontal.

7. A cattle-guard for railroads, comprising two posts securely held in the center of a trench extending transversely of the road-bed, said posts acting to support the rails in the place of a tie, a shaft journaled transversely in said posts a short distance below the rails, a plate centrally secured to said shaft between the rails, a plate centrally secured to said shaft on the outer side of each rail, and yielding means to normally maintain said plates horizontal.

8. A cattle-guard for railroads, comprising two posts securely held in the center of a trench extending transversely of the road-bed, said posts being shaped to fit the flanges of the rails and to support the rails in the place of a tie, a shaft journaled in said posts and carrying centrally mounted thereon a plate between the rails and a plate on the ontside of each rail, each of said plates being provided on its opposite ends with upwardly-extending flanges, and yielding means to normally maintain said plates horizontal.

752,295. MOUTH-HARMONICA. MATTHIAS MESSNER, Trossingen, Germany. Filed Sept. 2, 1903. Serial No. 171,583. (No model.)



Claim.—A mouth-harmonica comprising a reed-board and a cover over the reeds, the rear portion of the cover being bent in substantially trumpet-like shape extending longitudinally of the reed-board and smaller at one end than at the other end providing a sound-chamber having wide open end, substantially as described.

752,296. UNALTERABLE DUPLEX TICKET. JOSEPH J. MCGUIRK, Albany, N. Y. Filed Jan. 26, 1903. Serial No. 140,462. (No model.)



Claim.—1. An unalterable duplex ticket having matter thereon arranged in two portions, each portion containing in one column the names of the stations, and in another column, at right angles to the first-mentioned column, characters indicating values; a space intervening between said columns; with the number corresponding to the number indicated by the car-register on the payment of the fare, substantially as described.

2. An unalterable duplex ticket having matter thereon arranged in two portions, each portion containing in one column the names of the stations, and in another column at right angles to the first-mentioned column characters indicating values; a space intervening between said columns, with a means for indicating the number of the fare paid by the passenger, as indicated by the car-register, substantially as described.

3. An unalterable duplex ticket consisting of four columns placed along the sides and ends thereof respectively; a space intervening between said columns; the names of the stations placed in the columns along the sides of said ticket, respectively; characters indicating values placed in the columns along the ends of said ticket, respectively, substantially as described.

4. An unalterable duplex ticket of rectangular configuration; the names of the stations placed in duplicate along opposites sides thereof; characters indicating values placed along the other two opposite sides thereof; space intervening between the columns containing the values and the name columns; a means for indicating at both the upper and lower portions of said ticket the number of the fare paid by each passenger, as indicated by the car-register, substantially as described.

5. An unalterable duplex ticket having matter thereon arranged in two portions; like parts placed opposite each other; space intervening between like portions thereof; each portion containing in a single column the names of the stations, the date of issuance, direction of movement of the car and number of the fare paid by the passenger, as indicated by the car-register, and in another column at

right angles thereto, and spaced therefrom characters indicating values, substantially as described.

752,297. CORSET-STAY. NORA PARKER, Oxford, Mich. Filed Mar. 6, 1903. Serial No. 146,469. (No model.)



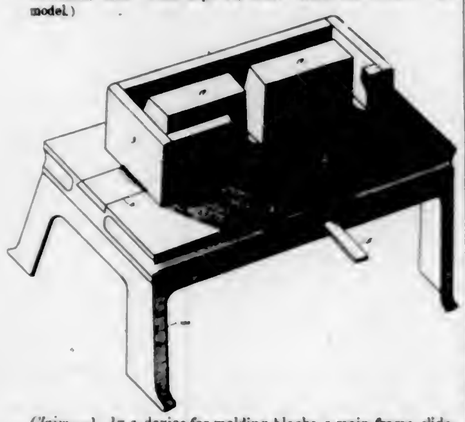
Claim.—1. A stay for wearing-apparel comprising a plurality of members having telescopic engagement with each other, means on one of said members having inturned ends for embracing the other member, and means passed through said means and its member for securing said means and member together, the securing means being confined between said member and the said means with inturned ends.

2. A stay for wearing-apparel comprising a plurality of members having telescopic engagement with each other, means on one of said members having inturned ends for embracing the other member and means integral with said means passed through its member and upset upon the opposite side thereof.

3. A stay for wearing-apparel comprising a plurality of members having telescopic engagement with each other, means on one of said members having inturned ends for embracing the other member, and means integral with said means passed through its member and upset upon the opposite side thereof, the upset portion being between said member and the guiding means.

4. A stay for wearing-apparel comprising a plurality of members having telescopic engagement with each other and a clip having inturned ends embracing the edges of one member and adapted to receive the other member, said clip having a portion punched out and passed through an aperture in its member and riveted upon the side of said member through which the punched-out portion passes, opposite that against which said clip bears, substantially as and for the purpose specified.

752,298. PRESS FOR MOLDING BUILDING-BLOCKS. JAMES H. PERRIN, Columbus, Ohio, assignor of one-half to Colonel E. Bright, Columbus, Ohio. Filed Sept. 24, 1903. Serial No. 174,477. (No model.)

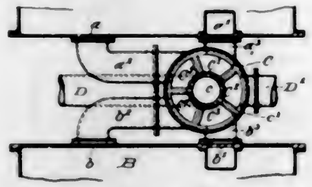


Claim.—1. In a device for molding blocks, a main frame, slideways formed in said frame, laterally-movable pieces guided in said slideways, said pieces forming a mold for the blocks, a main lever pivoted to said frame, links jointedly connected to said lever on opposite sides of its pivotal point, connections between said links and the end pieces of the mold, and toggle-levers connecting the said links with the side pieces of the mold, whereby when the main lever is operated the side and end pieces will be separated from each other, for the purpose specified.

2. In a device for molding blocks, a main frame, slideways formed in said frame, laterally-movable pieces guided in said slideways, said pieces forming a mold for the blocks, a main lever pivoted to said frame, links jointedly connected to said lever on opposite sides of its pivotal point, connections between said links and the end pieces of the mold, toggle-levers connecting the said links with the side pieces of the mold, a lifting-frame in the bottom of the mold upon which the blocks are formed, and means for lifting said frame so that it and the block thereon may be removed from the mold.

3. In a device for molding blocks, a main frame, slideways formed in said frame, laterally-movable pieces guided in said slideways, said pieces forming a mold for the blocks, a main lever pivoted to said frame, links jointedly connected to said lever on opposite sides of its pivotal point, connections between said links and the end pieces of the mold, toggle-levers connecting the said links with the side pieces of the mold, a lifting-frame within the mold upon which the blocks are formed, levers pivoted on the main frame beneath the mold, lifting-bars pivoted to said levers and projecting below the said lifting-frame, and a movable link connecting the said pivoted levers.

752,299. MEANS FOR CONTROLLING THE FLOW OF GASES. PIERRE PLANTINGA, Cleveland, Ohio. Filed May 2, 1903. Serial No. 156,240. (No model.)



Claim.—1. The combination of a purifying-compartment, a center valve including a distributing-section, supply and discharge ducts connected with said section, and inlet and outlet ducts connecting said compartments with said section, and means embodied in said valve arranged to connect said supply-duct with either the inlet or outlet ducts, whereby the direction of flow of fluid through said compartment may be reversed, said means arranged to connect said supply and discharge ducts and simultaneously cut off communication between said inlet and outlet ducts.

2. The combination of two purifying-compartments, a center valve including a distributing-section, a supply and a discharge duct connected with said section, inlet and outlet ducts connecting each of said compartments with said section, and means embodied in said valve arranged to connect said supply-duct with either the inlet or outlet duct of one of said compartments, and at the same time cut off communication between the other compartment and said supply-duct, said means arranged to connect said supply and discharge ducts and simultaneously cut off communication between said inlet and outlet ducts.

3. The combination of two purifying-compartments, a center valve including a distributing-section, a supply and a discharge duct connected with said section, inlet and outlet ducts connecting each of said compartments with said section, and means embodied in said valve arranged to connect said supply-duct with either the inlet or outlet duct of either of said compartments, said means arranged to connect said supply and discharge ducts and simultaneously cut off communication between said inlet and outlet ducts.

4. The combination of two purifying-compartments, a center valve including a distributing-section, a supply and a discharge duct connected with said section, inlet and outlet ducts connecting each of said compartments with said section, and means embodied in said valve arranged to connect said supply-duct with the inlet-duct of one compartment and such compartment, the outlet-duct of the latter with the inlet-duct of the other compartment, and the outlet-duct of the latter with the discharge-duct, said means arranged to connect said supply and discharge ducts and simultaneously cut off communication between said inlet and outlet ducts.

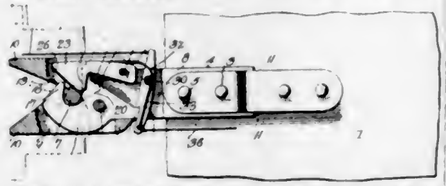
5. In means for controlling the flow of gases, the combination of a supply-duct, a discharge-duct and four auxiliary ducts, the extremities of all said ducts being juxtaposed, means for connecting said supply-duct to any one of the remaining five to the exclusion of the remaining four, and means for connecting two or more of such remaining four with each other.

6. In means for controlling the flow of gases, the combination of a supply-duct, a discharge-duct and four auxiliary ducts, the extremities of all such ducts being juxtaposed, a movable member arranged to establish direct communication between any one of such auxiliary ducts and said supply-duct, to the exclusion of the remainder thereof, and a second movable member arranged to establish direct communication between any one of said auxiliary ducts and said discharge-duct to the exclusion of a portion of the remainder thereof.

7. In means for controlling the flow of gases, the combination of a supply-duct, a discharge-duct and four auxiliary ducts, the extremities of such ducts being juxtaposed, a movable member arranged to establish direct communication between any one of such auxiliary ducts and said supply-duct, and a second movable member arranged to establish direct communication between any one of said auxiliary ducts and said discharge-duct, said movable members being superimposed.

8. In means for controlling the flow of gases, the combination of a centrally-located supply-duct, a discharge-duct and four auxiliary ducts, the extremities of such ducts being juxtaposed, and terminating in substantially the same plane, a rotatable member divided into five compartments, four of which are open at top and bottom and the fifth of which is closed at the top, and a rotatable covered cap surmounting said member and divided into two independent compartments the length of one of which is to the length of the other as two is to five.

752,300. COUPLING FOR THRESHING-MACHINES, &c. WILLIAM J. RANDOLPH, Jr., Newton, Iowa. Filed May 12, 1903. Serial No. 156,839. (No model.)



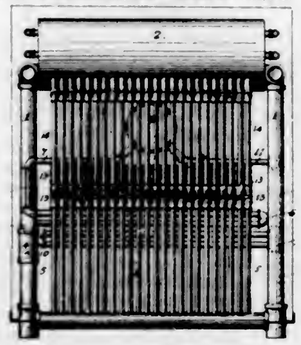
Claim.—1. A coupler comprising a draw-head recessed to form a guide, said guide terminating in a pin-receiving opening, a pivoted jaw having a coupling-finger for closing the guide in advance of the opening, the walls of the recess cooperating with the finger for maintaining the pin, a finger extending in rear of the opening, a pivoted lever shouldered for engagement with the pivoted jaw, means for moving the lever automatically to engaging position, and means for operating the lever to release the jaw.

2. A coupler comprising a draw-head, a pivoted primary jaw, a pivoted secondary jaw coacting with the primary jaw to maintain the latter in uncoupled position, a pivoted lever shouldered for engagement with the primary jaw to maintain the same in coupling position, means for automatically moving the lever to engaging position, and means for operating the lever to release the jaw.

3. A coupler comprising a draw-head, a pivoted primary jaw provided with a coupling-finger, a pivoted secondary cooperating jaw provided with a stop, a finger associated with the primary jaw and engaging said stop to prevent accidental coupling of the jaws, a pivoted lever shouldered for engagement with the primary jaw, means for moving the lever automatically to engaging position, and means for operating the lever to release the jaw.

4. A coupler comprising a draw-head, a pivoted primary jaw, a pivoted secondary cooperating jaw, a pivoted lever shouldered for engagement with the primary jaw to maintain the same in coupling position, a spring for moving the lever automatically to engaging position, and a pair of operating members connected one with each end of the lever and extending therefrom in opposite directions and either operable for actuating the lever to release the jaw.

752,301. STEAM-GENERATOR. ELBRIDGE G. ROBERTS, Redbank, N. J. Filed June 22, 1903. Serial No. 162,473. (No model.)



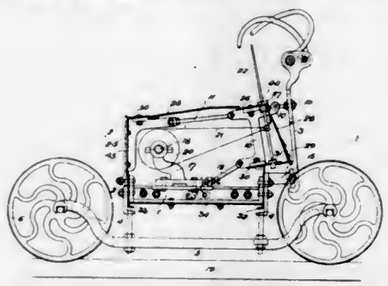
Claim.—1. The combination in a water-tube steam-generator of base distributing-pipes, a water-drum centrally located below the normal water-level and a series of intermediate communicating pipe loops composed of a single return-bend and arranged above the furnace-chamber, as set forth.

2. In a water-tube generator a fire-box having an end wall and side walls formed of closely-set vertical water-tubes supplied from horizontal base distributing-pipes, each vertical tube being combined with a single pipe-loop arranged in two series across and above the furnace-chamber; a water-drum located below the normal water-level communicating with one series of said single loops, and an elevated steam and water drum communicating with the other series of said single loops, as shown and described.

3. The combination, in a water-tube steam-generator of a transverse distributing-pipe located at the front of the furnace; a water-drum located below the normal water-level, and a series of intermediate communicating pipe-loops composed of a single return-bend and located above the furnace-chamber, as set forth.

4. A water-tube steam-generator, comprising the following elements; horizontal base distributing-pipe 3; vertical side distributing-pipes 1 communicating therewith and with an elevated steam and water drum 2, a transverse distributing-pipe 4 communicating with the vertical side distributing-pipes 1 and located above and at the front of the furnace-chamber 5; a series of vertical circulating-pipes 12 rising from the longitudinal base distributing-pipes 3, a double series of single pipe-loops 13, connected with said risers 12 and arranged horizontally and transversely in the path of the rising furnace-gases, and communicating with the elevated steam and water drum 2; a series of vertical circulating-pipes 9 rising from the rear transverse base distributing-pipe; a series of single pipe-loops 10 connected with said risers and arranged horizontally and longitudinally directly above the furnace-chamber and communicating with a water-drum 8 located below the water-level of the generator, and a series of single pipe-loops 6 rising from the transverse distributing-pipe 4, and arranged in line with and above the series of such pipe-loops 10 in the furnace-chamber which also communicate with said water-drum.

752,302. SELF-ACTING MULE AND TWINER. GEORGE E. ROSS, Manchester, England, assignor to John Hetherington and Sons, Limited, Ancoats, Manchester, England. Filed Sept. 11, 1903. Serial No. 172,804. (No model.)

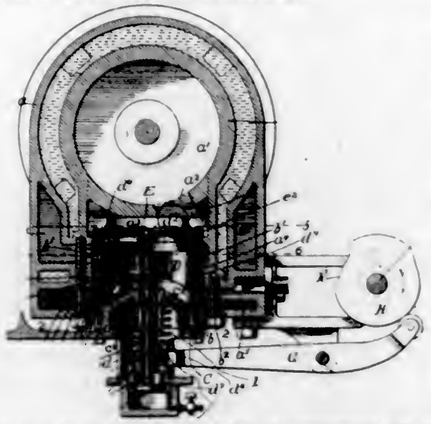


Claim.—A self-acting mule-carriage formed entirely of metal and having in combination frames for the wheels of the carriage, principal stretchers located at the base of the carriage and being secured to said frames, intermediate stretchers between the principal stretchers, cross stay-rods connecting the principal and intermediate stretchers, back brackets extending upwardly from and being bolted to the feet of the stretchers, adjustable front brackets, a spindle-bolster carried thereby, longitudinal stay-rods extending from the back brackets and principal stretchers, foot-step bearings carried thereby, faller-brackets carried by brackets extending forwardly from the carriage secured to the feet of the principal and intermediate stretchers and sheet-metal plates secured to the stretchers and back and front brackets for covering in the top, bottom and sides of the carriage.

752,303. VALVE FOR INTERNAL-COMBUSTION ENGINES. CHARLES E. SARGENT, Chicago, Ill., assignor of three-fourths to Oliver S. Lyford, New York, N. Y., and Charles W. Hillard, trustee, Chicago, Ill. Filed Apr. 27, 1900. Serial No. 14,555. (No model.)

Claim.—1. The combination with a combustion-cylinder and inlet and discharge ports therefor, of a reciprocating piston-valve

provided with channels adapted to connect said ports, respectively, with the cylinder as the valve reciprocates, and a valve arranged to close one of said channels while the other is open.



2. In a device of the class described, the combination with a valve-chamber provided with inlet and exhaust ports, of a piston-valve therein provided with an outside channel adapted in a given position of the valve to connect the exhaust-port with the cylinder and with an inside channel adapted in a given position of the valve to connect the inlet-ports with the cylinder, and having portions adapted in either of said positions to cut off the other port, and a puppet-valve adapted to close the inner channel when the outside channel is open substantially as set forth.

3. In a device of the class described, the combination with a piston-valve provided with channels adapted respectively to govern the inlet and exhaust ports, of a puppet-valve adapted to close one of these channels when the other is open; substantially as described.

4. The combination with the combustion-cylinder, of a reciprocating valve arranged to open and close the inlet-port as it moves transversely with reference thereto to different positions, a second independently-movable valve carried by the first, arranged to cut off communication between the first valve and the cylinder and means for closing the second valve during the combustion of the charge.

5. In a device of the class described, the combination with a cylinder having a suitable valve-chamber, an exhaust-port and inlet-ports for air and combustible material respectively, of a valve having channels adapted to alternately connect the exhaust-port and the inlet-ports with the cylinder, said valve being capable of reciprocating movement in one direction to open and close the ports and in another direction to vary the relative size of the inlet-ports; substantially as described.

6. In a device of the class described, the combination with a cylinder provided with a cylindrical valve-chamber having a suitable exhaust-port and inlet-ports for the air and gas respectively, of a piston-valve fitted to said chamber having passages adapted to alternately connect the exhaust and inlet ports with the cylinder, means for moving said piston longitudinally to open and close the respective ports and means for moving it angularly to vary the relative size of the inlet-ports; substantially as described.

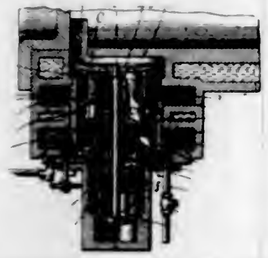
7. The combination with a hollow piston-valve, of a poppet-valve seating upon one end thereof, and provided with a groove adapted to receive said end and provide an air-cushion; substantially as described.

8. In a device of the class described, the combination with a piston-valve and a puppet-valve of a stem for the puppet-valve and a piston upon the valve-stem within the chamber provided with means for varying its capacity by the movement of the piston-valve; substantially as described.

9. In a device of the class described, the combination with a suitable valve-opening and valve-seat, of a puppet-valve fitted to said seat and means for closing the opening prior to the seating of the valve, whereby the movements of the valve toward its seat are checked and chattering upon the seat is avoided; substantially as described.

752,304. VALVE FOR INTERNAL-COMBUSTION ENGINES. CHARLES E. SARGENT, Chicago, Ill. Filed Nov. 14, 1902. Serial No. 131,309. (No model.)

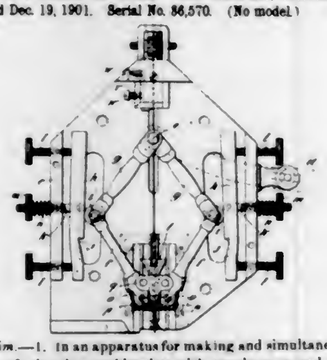
Claim.—1. In an internal-combustion engine, the combination with a cylindrical valve-casing, of a hollow piston-valve reciprocating vertically therein, a puppet-valve closing the top of the piston-valve, an oil-chamber in the bottom of the valve-chamber into which the piston-valve descends and from which it forces the oil, an inlet-passage through which the oil may enter said chamber by suction from within, passages directed from said chamber toward the interior of the piston-valve and suitable blind air-receptacles adapted when the piston comes down, to provide air-cushions to take up the shock when said valve strikes the oil and to lengthen the time of flow of the latter into the interior of the piston-valve, substantially as described.



2. In an internal-combustion engine, the combination with a cylinder, of a valve-chamber, a reciprocating valve therein, an oil-receptacle in the bottom of the chamber, into which the valve descends, and from which it crowds the oil, an inlet through which the oil may be drawn by suction, a check-valve in said inlet to prevent outward flow of oil, an overflow-opening in the wall of the oil-chamber and suitable means for regulating the height of said overflow-opening, substantially as described.

3. In an internal-combustion engine, the combination with a valve-chamber having a port through which oil may be drawn into the same by suction and a check-valve to prevent outward flow, of an adjustable overflow to regulate the amount of oil in the chamber, comprising substantially an overflow-opening, a plug seated upon said opening and having a beveled top communicating therewith and adapted by its rotation to regulate the height of said opening, substantially as described.

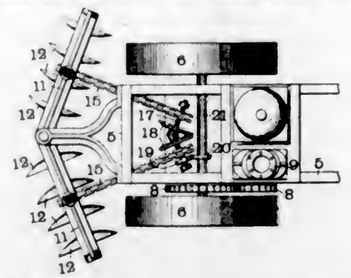
752,305. APPARATUS FOR MAKING AND SIMULTANEOUSLY DRIVING NAILS OF WIRE. MAX SCHUBERT, Cottbus, Germany. Filed Dec. 19, 1901. Serial No. 86,570. (No model.)



Claim.—1. In an apparatus for making and simultaneously driving nails of wire the combination with toggle-arms and the nippers for seizing, driving and cutting off the wire, of adjustable guide-rails *k* for the toggle-arms of the nipper-jaws pivoted to bolts *k* being under the action of springs and adjustably mounted on the framework and of stops *l* being adjustably attached to the framework for the purpose of adjusting the movement of the nippers for wire of different thickness and for nails of different length.

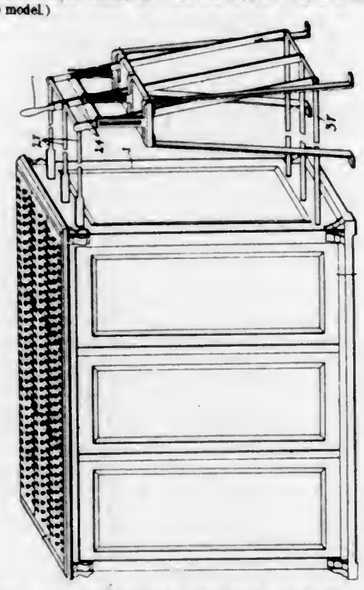
2. In combination, a movable block *q*, means for moving the same, nippers for cutting and driving the wire carried by said block and guide means below the nippers and block, said guide means consisting of curved levers *r* one on each side of the wire, said levers being pivotally supported to be separated from each other as the block *q* moves downwardly and to be moved toward each other as the block moves upwardly, the said block engaging with the arms of said guides below and above the pivots, substantially as described

752,306. DISK PLOW OR HARROW. WILLIAM SOMERVILLE, St. Louis, Mo. Filed Mar. 23, 1901. Serial No. 52,626. (No model.)



Claim.—In a disk plow or harrow, the combination with a vehicle-body, of a motor carried thereby, a pair of shafts carried by said vehicle-body and set at an angle to each other, a plurality of cutting-disks fixed to said shafts and capable of movement to and from the ground, a second pair of shafts journaled on the frame and also set at an angle to each other and provided with bevel-gears meshing with each other, a sprocket-chain running from one set of shafts to the other; and means for driving said bevel-gears from said motor, substantially as described.

752,307. VOTING-MACHINE. FRANCIS X. ST. LOUIS and ALFRED M. JACKSON, Colusa, Cal. Filed Oct. 24, 1902. Serial No. 128,676. (No model.)



Claim.—1. A voting-machine comprising voting-keys, a plate having the names of nominated candidates opposite said keys, rollers carrying numbered tapes, means on the opposite side carrying bands for the names of unnominated candidates, shutters covering the said bands, stems for the keys, means actuated thereby to operate the shutters, fingers adapted to engage said rollers and means for shifting the keys to operate said fingers to move the said rollers, substantially as described.

2. A voting-machine comprising a row of voting-keys having stems, rollers arranged on either side of said keys, means carried by one set of rollers for writing the names of unnominated candidates, means carried by the keys adapted to actuate the said rollers, and means whereby numbers of a group of candidates may be voted for, said means being actuated by said stems, substantially as described.

3. A voting-machine comprising in combination voting-keys having stems thereon, a plate bearing the names of nominated candidates opposite said keys, rotatable means supporting numbered bands on one side of the keys, rotatable means carrying bands having names of unnominated candidates mounted at the other side of the keys, means carried by the stems for actuating both of said means, and means mounted at each side of the keys for returning the same to position, substantially as described.

4. A voting-machine comprising a row of voting-keys, names of nominated candidates on one side of said keys and opposite thereto, rollers on the same side carrying numbered tapes, rollers on the opposite side carrying tapes or bands for writing the names of unnominated candidates, pins on said rollers on both sides, fingers on the keys adapted to engage pins on the rollers on one side or the other, and means for shifting said keys to cause said fingers to advance said rollers, substantially as described.

5. In a voting-machine the combination with a row of voting-keys, a corresponding row of registering devices, rotatable means carrying bands on the opposite side of the keys for names of scattering candidates, means carried by the keys for actuating the registering devices and the said bands when the keys are turned in one direction or the other, and means for returning the keys to normal position after voting, substantially as described

6. A voting-machine comprising a row of voting-keys, a plate having a row of names of nominated candidates opposite to said keys, a row of tapes or bands on the opposite side of said keys, a row of shutters for exposing portions of said tapes or bands to write the names of scattering candidates thereon, stems for the keys, means carried by said stems for actuating said registering devices when the keys are shifted in one direction and for actuating the tapes or bands when the keys are shifted in the other direction, and means operated by said stems when the keys are shifted in the latter direction to withdraw said shutters, substantially as described.

7. A voting-machine comprising a row of voting-stems, a slide having slots, a finger on each stem arranged to be dropped into a slot in the slide in the act of voting, a registering mechanism engaged by said finger when so dropped, means for shifting the slide, said slots being so shaped that the movement of the slide actuates the fingers to operate the registering mechanism, tapes for the reception of names of scattering candidates mounted at the opposite side of the keys from the registering mechanism, and means carried by the keys to actuate the same, substantially as described.

8. A voting-machine comprising a series of voting-stems, fingers thereon, slides having slots therein mounted at each side of the stems adapted to receive the said fingers, series of rollers mounted at each side of the stems carrying pins thereon and corresponding with the slots in the said slides, bands mounted on the rollers for registering nominated candidates, bands mounted on the opposite series for the names of unnominated candidates, and means to actuate the same whereby the rollers are rotated, substantially as described.

9. A voting-machine comprising rows of voting-stems, slides corresponding thereto mounted on each side of the stems, a lever for shifting all of said slides, registering mechanisms corresponding to the keys, means carried on the opposite side of the stems to said mechanisms for the names of scattering candidates, fingers arranged to be moved in the operation of voting into slots in the slides, and means whereby the shifting of said slides by said levers actuates said fingers which have been so moved to advance the registering mechanisms, when the keys are turned in one direction and to operate the last-named means when the said keys are turned in the opposite direction, substantially as described.

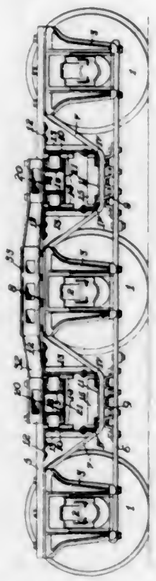
10. In a voting-machine, the combination with sections, voting-stems mounted therein, registering mechanisms mounted at one side of the stems, mechanisms for voting for unnominated candidates carried at the opposite side, slides for operating both of said mechanisms, and means for voting for groups comprising sprocket-wheel, chains running thereover, means carried by the voting-stems to actuate the wheels and means to limit the advance of the said chain, substantially as described.

11. In a voting-machine, the combination with series of voting-stems, registering devices carried upon one side thereof, means for voting unnominated candidates arranged at the opposite side thereof, slides mounted at each side of the stems adapted to be engaged by the same, means for voting a group adapted to be actuated by the stems, and means to limit the movement of said means, substantially as described.

12. In a voting-machine, a series of voting-keys, stems thereon, registering mechanisms carried at one side of the stems, independent mechanisms at the opposite sides of the said stems, for voting for nominated candidates, fingers carried by the stems adapted upon turning of the same to engage either of the said mechanisms to actuate the same, slides for returning said stems to normal position, means to actuate the slides, and means for group-voting adapted to be actuated by the stems, comprising sprocket-wheels, chains carried

thereby, means adapted to be engaged by the stems to actuate said wheels, means for limiting the movement of the chains, and means for returning said chains to normal position, substantially as described.

752,308. **RAILWAY-TRUCK.** ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 13, 1903. Serial No. 169,357. (No model.)



Claim.—1. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames and being depressed between their ends, a bridge connecting the depressed portions of said bolsters, and a center bearing-plate carried by said bridge.

2. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frame and being depressed between their ends, a bridge connecting the depressed portions of said bolsters and comprising a truss having its top chord substantially straight, and a center bearing-plate carried by said bridge.

3. In a car-truck, the combination with side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters and comprising a pair of longitudinal members supported on said bolsters, and a transverse member connecting said longitudinal members and having its upper surface depressed between its ends, and a center bearing-plate supported by said depressed portion.

4. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters and comprising two trusses supported on said bolsters, transverse members connecting said trusses and having their upper surfaces depressed between their ends, and a center bearing-plate supported by said depressed portions.

5. In a car-truck, the combination with side frames, of two bolsters or transoms supported by said side frames and being depressed between their ends, a bridge connecting the depressed portions of said bolsters and comprising two longitudinal members supported on said bolsters, and a transverse member connected to said longitudinal members and being depressed between its ends, and a center bearing-plate supported by said depressed portion.

6. In a car-truck, the combination with side frames, of two bolsters or transoms supported by said side frames and being depressed between their ends, a bridge connecting the depressed portions of said bolsters and comprising a pair of trusses supported on said bolsters, said trusses comprising tension, diagonal and compression members, struts for said trusses comprising a pair of spacing-pieces having their ends interposed between the tension and compression members, said spacing-pieces connecting the two trusses and having their upper surfaces depressed between their ends, and a center bearing-plate supported by said depressed portions.

7. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters consisting of a top member, a bottom member, and diagonal members connecting said top and bottom members.

8. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters and comprising a top or compression member, a bottom or tension member, a diagonal member having its ends secured to the top member and being then bent downwardly therefrom, struts interposed between said top and diagonal members, and a center bearing-plate carried by said bridge.

9. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, and a bridge connecting said bolsters, said bridge comprising a top or compression member, a bottom or tension member and a diagonal member having its ends secured to the top bar, and having its middle portions separated therefrom, cross pieces or bars interposed between said top and diagonal members and forming struts therefor, and a center bearing-plate supported on said cross-pieces.

10. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters consisting of a pair of top or compression members, a pair of bottom bars or tension members, and a pair of diagonal members having their ends secured to the top members and their middle portions separated therefrom, a pair of cross pieces or bars interposed between said compression, diagonal and tension members and forming struts therefor, and a center bearing-plate supported on said cross-bars.

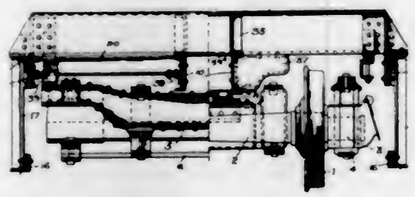
11. In a car-truck, the combination with side frames, of two bolsters or transoms supported by said side frames, a bridge connecting said bolsters comprising a pair of trusses supported on said bolsters, said trusses comprising tension diagonal and compression members, struts for said trusses comprising a pair of spacing-pieces having their ends interposed between the tension and compression members, and having their upper surfaces depressed between the ends, and a center bearing-plate supported by said depressed portions.

12. In a car-truck, the combination with side frames, of two bolsters or transoms supported by said side frames, a trussed bridge connecting said bolsters, said bridge comprising a top or compression member, a diagonal member, said members having their ends secured to the top of the bolster and being separated between their ends, and a bottom member connected to the bottom of the bolster and to the depressed portion of the tension member, and a center plate carried by said bridge.

13. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a trussed bridge connecting said bolsters and comprising a top or compression member, a diagonal member, said members having their ends secured to the top of the bolster and being separated between their ends, brackets secured to the lower side of the bolsters, and a tension member secured to said brackets and the depressed portion of the diagonal member.

14. In a car-truck, the combination with the side frames, of two bolsters or transoms supported by said side frames, a trussed bridge connecting said bolsters, said bridge comprising a top or compression member, a diagonal member, said members having their ends secured to the top of the bolsters and separated between their ends, spacing-pieces interposed between said members and forming struts therefor, a center bearing-plate supported by said spacing-pieces, and a tension member secured to the lower sides of the bolster and the depressed portion of the diagonal member.

752,309. **METALLIC RAILWAY-CAR.** ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 13, 1903. Serial No. 169,358. (No model.)



Claim.—1. In a railway-car, the combination with bogie-trucks having journal-boxes outside the wheels, of an underframe comprising suitable cross members and deep side sills connected thereto and projecting downwardly below the level of the truck journal-boxes and having openings therethrough opposite said boxes of larger size than said boxes.

2. In railway-cars, the combination with bogie-trucks having journal-boxes outside the wheels, of an underframe comprising cross members and trussed-girder side sills secured thereto and projecting downwardly below the level of the truck journal-boxes and having vertical and diagonal members so arranged as to leave open spaces opposite the journal-boxes of larger size than said boxes.

3. In railway-cars, the combination of bogie-trucks having journal-boxes outside the wheels, of an underframe comprising center sills of moderate depth, side sills of greater depth and having their upper edges substantially level with the upper edges of the center sills and provided with openings opposite the truck journal-boxes of larger size than said boxes, and cross members connecting said center and side sills.

4. A car-underframe comprising suitable cross members and trussed side sills connected thereto, said side sills comprising top and bottom members, the top member being formed of a plate and a flanged bar arranged substantially at the level of the floor, a flanged bar forming the bottom member, and vertical and diagonal bars connecting said top and bottom members.

5. A car-underframe comprising center sills of moderate depth, side sills of greater depth, filling-pieces between the center and side sills of substantially the depth of the center sills, and a cross connecting member secured to the downwardly-projecting parts of the side sills and to the filling-pieces.

6. In a car-underframe, the combination of body-bolsters, center sills of moderate depth extending from body-bolster to body-bolster, side sills of greater depth than the center sills and placed with their upper edges on substantially the same level as the upper edges of the center sills, and cross tie members connecting the downwardly-projecting portions of the side sills.

7. A car-underframe comprising center sills of moderate depth, side sills of much greater depth, said side and center sills being placed with their upper edges in substantially the same plane, suitable cross connecting members between said sills, and diagonally-arranged rods secured to the downwardly-projecting portions of the side sills and to the underframe at substantially the level of the lower edges of the center sills.

8. In a car-underframe, the combination with the center sills of moderate depth, side sills of greater depth and projecting below the former, bolsters located above said sills and secured thereto, and brace-pieces secured to the center sills and to the bolsters.

9. An end sill for railway-cars comprising a flanged beam provided with an opening for the passage of the draw-bar shank and having an embossment integral therewith and lying above the draw-bar opening and projecting above the body of the sill.

752,310. **DOOR-OPERATING DEVICE FOR HOPPER-CARS.** ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 21, 1903. Serial No. 170,330. (No model.)

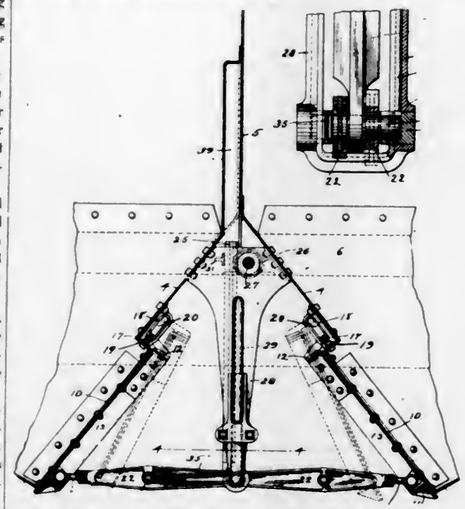
Claim.—1. In a door for cars and the like, the combination with a door, of hinges therefor arranged to permit movement of the door transversely to its axis, and guiding-links connected to said door and arranged to cause the same to move in a somewhat parallel plane.

2. In door-operating mechanism, the combination of a hinged door, of hinges therefor arranged to permit movement of the door transversely of its axis, a link pivotally connected at one end to said door, a guide in which the opposite end of said link moves, and means for moving said last-named end in said guide.

3. In door-operating mechanism, the combination of a hinged door, hinges therefor comprising coöperating slots and pins whereby the door may move transversely of its axis, a link pivoted at one end to said door, a guide in which the opposite end of said link moves, and means for moving said last-named end in said guide.

4. In door-operating mechanism, the combination of a hinged door, hinges therefor arranged to permit movement of the door transversely of its axis, an operating-link pivotally connected at one end to said door, a guide in which the opposite end of said link moves, means for moving said last-named end in said guide, a supplemental link having one end pivotally connected to said operating-link, and a suitable support to which the opposite end of said supplemental link is pivotally connected.

5. In door-operating mechanism, the combination of a hinged door, hinges therefor comprising coöperating pins and slots whereby the door is permitted to move transversely of its axis, an operating-link pivotally connected at one end to said door, a guide in which the opposite end of said link moves, means for moving said last-named end in said guide, and a supplemental link having one end pivotally connected to said operating-link and having its opposite end pivotally connected to said guide.



6. In door-operating means, the combination with oppositely-swinging doors, of hinges therefor arranged to permit movement of said doors transversely of their axes, and guiding-links connected to said doors and arranged to cause said doors to move transversely of their axes in opening and closing.

7. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor arranged to permit movement of the doors transversely of their axes, toggle-links pivotally connected to said doors, and means for moving the knuckle of said links to open and close the doors.

8. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor comprising coöperating slots and pins whereby said doors can move transversely of their axes, toggle-links pivotally connected to said doors, and means for moving the knuckle of said toggle-links to open and close the doors.

9. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor arranged to permit movement of the doors transversely of their axes, toggle-links pivotally connected to said doors, means for moving the knuckle of said toggle-links to open and close the doors, supplemental links each having one end pivotally connected to one of the toggle-links, and a suitable support to which the opposite end of each of said links is pivotally connected.

10. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor comprising coöperating slots and pins whereby the doors are permitted to move transversely of their axes, toggle-links pivotally connected to said doors, means for moving the knuckle of said toggle-links to open and close the doors, supplemental links each having one end pivotally connected to one of the toggle-links, and a suitable support to which the opposite end of each of said supplemental links is pivotally connected.

11. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor arranged to permit movement of the doors transversely of their axes, toggle-links pivotally connected to said doors, a guide in which the knuckle-joint of said links moves, and means for moving said knuckle-joint in said guide to open and close the doors.

12. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor arranged to permit movement of the doors laterally of the axes thereof, toggle-links pivotally connected to said doors, a guide in which the knuckle of said toggle-links moves, means for moving said knuckle to open and close the doors, supplemental links each having one end pivotally connected to one of said toggle-links, and a suitable support to which

the opposite end of each of said supplemental links is pivotally connected.

13. In door-operating mechanism, the combination with oppositely-swinging doors, of hinges therefor comprising cooperating slots and pins whereby the doors are permitted to move transversely of their axes, toggle-links pivotally connected to said doors, a guide in which the knuckle of said toggle-links moves, means for moving said knuckle in said guide, and a pair of supplemental links each having one end pivotally connected to a toggle-link and having its opposite end pivotally connected to said guide.

14. In a hopper-car, the combination with the ridge-plates, of oppositely-swinging doors hinged to the lower edges of said plates, a pair of toggle-links connected to said doors, a guide for the knuckle of said links, means for raising and lowering said knuckle, and a lateral brace secured to the car-body and to said guide.

15. In a hopper-car, the combination with the ridge-plates, of oppositely-swinging doors hinged to said plates, a pair of toggle-links connected to said doors, a guide for the knuckle of said links, said guide being secured to the ridge-plates, a rack connected to the knuckle of said links, and a pinion journaled in said guide and engaging said rack.

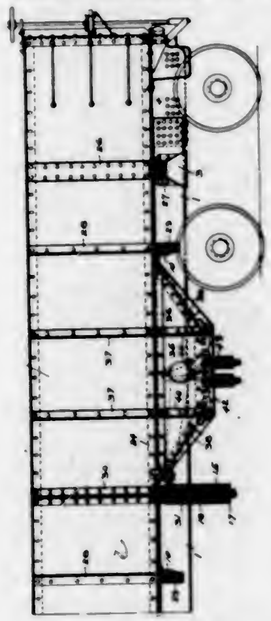
16. In a hopper-car, the combination with the cross-ridge, of oppositely-swinging doors, toggle-links connected to said doors, a rack connected to the knuckle of said toggle, a pinion engaging said rack, and a guide-channel for said rack projecting in the body of the car.

17. In a hopper-car, the combination with the cross-ridge, of a strengthening gusset-plate therefor, oppositely-swinging doors, toggle-links connected to said doors, a rack connected to said toggles for operating the same, and a guide-channel for said rack connected to the gusset-plate.

18. In a hopper-car, the combination of a hinged door, operating means therefor, and brackets secured at the upper corners of said door, said brackets being provided with one member of the hinges and being of angle shape and serving as corner-braces.

19. In a hopper-car, the combination of a hinged door, flanges on the edges of said door, and brackets secured to the door-flanges at the upper corners and being provided with one member of the hinges.

752,311. METALLIC CAR. ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Co., Pittsburg, Pa., a Corporation of Pennsylvania. Filed Sept. 10, 1903. Serial No. 172,597. (No model.)



Claim.—1. In a railway-car, the combination of the body provided with plate-girder combined sides and side sills, a floor, transverse floor-supports, and vertical stiffening members secured to the car sides and provided with a portion extending outwardly from the car sides and having their lower ends bent inwardly and secured to the floor-supports.

2. In a railway-car, the combination of a center sill, body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, a floor, transverse floor-supports, and vertical stiffening members secured to the car sides and provided with a portion extending outwardly from the car sides and having their lower ends bent inwardly and secured to the floor-supports.

3. In a railway-car, the combination of the body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, a floor, transverse floor-supports formed of flanged bars, and vertical stiffening members secured to the car sides and provided with a portion extending outwardly from the car sides and having their lower ends bent inwardly and secured to the webs of the floor-supports.

4. In a railway-car, the combination of body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, cross-bearers or transoms, and vertical stiffening members secured to the car sides and provided with a portion extending outwardly from the car sides and having their lower ends bent inwardly and secured to the ends of said cross-bearers.

5. In a railway-car, the combination of a center sill, body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, transverse bearers or transoms extending across the car and connecting the center sill and car sides, and vertical stiffening members secured to the car sides and provided with a portion extending outwardly from the car sides and having their ends bent inwardly and secured to the ends of said cross-bearers.

6. In a railway-car, the combination of body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, cross-bearers or transoms extending from side to side of the car, said cross-bearers being composed of tension and compression members and an interposed strut, and vertical stiffening members secured to the car sides and having their ends bent inwardly and secured to the ends of said cross-bearers.

7. In a railway-car, the combination of the body-bolsters, plate-girder combined sides and side sills supported by said body-bolsters, and vertical stiffening members secured to said car sides and having their lower ends bent inwardly and secured to said body-bolsters.

8. In a railway-car, the combination of body-bolsters provided with bottom flanges, of combined sides and side sills supported by said body-bolsters, and vertical stakes having their lower ends bent inwardly and secured to the lower flanges of said body-bolsters.

9. In a railway-car, the combination of the body-bolsters, a floor, transverse floor-supports therefor, vertical stakes opposite the ends of said floor-supports and having their lower ends bent inwardly and secured to said floor-supports, and other vertical stakes opposite the body-bolsters and having their lower ends bent inwardly and secured to the body-bolsters.

10. In a railway-car, the combination of the body-bolsters, of combined sides and side sills supported by said body-bolsters, a floor, transverse floor-supports, vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to the transverse floor-supports, cross-bearers or transoms extending from side to side of the car, and vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to said cross-bearers.

11. In a railway-car, the combination of body-bolsters, combined sides and side sills supported by said body-bolsters, a floor, transverse floor-supports, cross-bearers or diaphragms extending from side to side of the car, and vertical stiffening members opposite said bolsters, floor-supports and cross-bearers, said vertical stiffening members being secured to the car sides and having their lower ends bent inwardly and secured to the outer ends of the body-bolsters, floor-supports and cross-bearers.

12. In a railway-car, the combination of the body-bolsters, plate-girder combined sides and side sills secured thereto and having top and bottom chords, hopper-sheets extending downwardly from said car sides, a floor secured to said hopper-sheets, and vertical stiffening members secured to the car sides and extending downwardly and secured to the hopper-sheets.

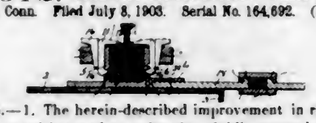
13. In a railway-car, the combination of the body-bolsters, combined sides and side sills secured to said body-bolsters, a flanged bar riveted to the lower edge of said car sides, hopper-sheets riveted to the depending member of said flanged bar, floor-plates secured to said hopper-sheets, and vertical stiffening members secured to the car sides and having their lower ends extended downwardly and bent inwardly and secured to said hopper-sheets.

14. In a railway-car, the combination of the body-bolsters, combined sides and side sills supported by said body bolsters, hopper-sheets extending downwardly from said car sides, a floor, transverse floor-supports, vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to said floor-supports, and other vertical stiffening members secured to the car sides and having their lower ends extending downwardly and riveted to the hopper-sheets.

15. In a railway-car, the combination of the body-bolsters, combined sides and side sills supported by said body-bolsters, vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to said body-bolsters, hopper-sheets extending downwardly from the car sides, floor-plates secured to said hopper-sheets, and vertical stiffening members secured to the car sides and having their lower ends extending downwardly and secured to the hopper-sheets.

16. In a railway-car, the combination of the body-bolsters, combined sides and side sills supported by said body-bolsters, a floor, transverse floor-supports, vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to the floor-supports; cross-bearers or transoms extending from side to side of the car, vertical stiffening members secured to the car sides and having their lower ends bent inwardly and secured to said cross-bearers; hopper-sheets extending downwardly from the car sides, floor-plates secured to said hopper-sheets, and vertical stiffening members secured to the car sides and having their lower ends extending downwardly and secured to said hopper-sheets.

752,312. RAILWAY CONSTRUCTION. WALES TERRELL, Ansonia, Conn. Filed July 8, 1903. Serial No. 164,692. (No model.)



Claim.—1. The herein-described improvement in railway construction comprising a plate, a housing rigidly secured thereto and including two longitudinal walls, a wood block located between said walls to form a support for the rails, lugs projecting outwardly from said side walls and openings through the lugs for the passage of clamps by which the rails are held upon the wooden blocks, tie-rods secured to said plates, and means for coupling the adjacent ends of the tie-rods, substantially as described.

2. The herein-described railway construction comprising a plate, a housing rigidly secured thereto, said housing comprising longitudinal walls, a wood block located between said walls and forming a support for rails, means for securing said rails on said blocks, tie-rods provided with upturned ends, means for interlocking one end with the housing, and a coupling consisting of a lower member and an upper member formed with a recess to receive the upturned ends of the tie-rods, substantially as described.

3. The herein-described improvement in railway construction comprising a plate, a housing secured thereto, tie-rods provided with upturned ends, means for interlocking one end with the housing, and a coupling consisting of a lower member and an upper member formed with a recess to receive the upturned ends of the tie-rods, substantially as described.

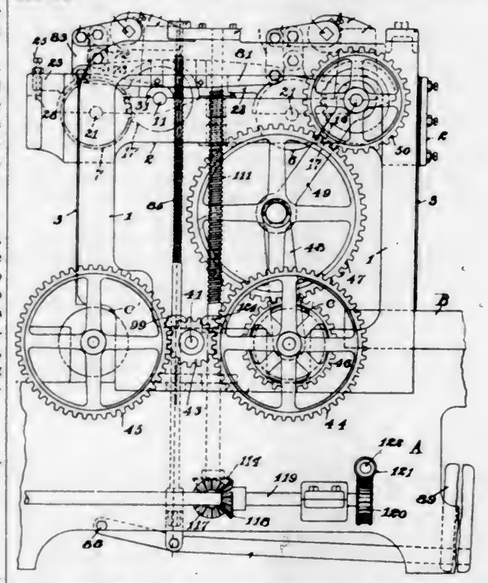
752,313. FEEDING DEVICE FOR WOODWORKING-MACHINES. JOHN R. THOMAS, Cincinnati, and HARRY S. SPENCER, Norwood, Ohio, assignors to J. A. Fay & Egan Company, Cincinnati, Ohio, a Corporation of West Virginia. Filed Dec. 4, 1903. Serial No. 183,745. (No model.)

Claim.—1. In combination, in a planing-machine, the upper feeding-rolls, a saddle, means for adjusting same, equalizers, and threaded rods for retaining the equalizers in same relative position to the rolls in all their adjustments.

2. In combination, in a planing-machine, the upper feeding-rolls, a saddle, means for adjusting same, equalizers, and threaded rods for retaining the equalizers in same relative position to the rolls in all their adjustments and pressure device having connection with the threaded rods.

3. In a feeding device for woodworking-machine, the combination of upper feed-rolls, a saddle for the same, means for adjusting the saddle, equalizers for the feed-rolls, threaded rods maintaining pressure connection with the equalizers at various saddle elevations, connections permitting adjustment of equalizers with the saddle, and pressure device having connection with the threaded rods, substantially as described.

4. In a feeding device for woodworking-machines, the combination of a frame, upper feed-rolls, a saddle for same, means for adjusting the saddle with relation to the frame, equalizer for the feed-rolls, rod having transverse ridges and follower connection therefor with the equalizer, and pressure device having connection with said rod.



5. In a feed device for woodworking-machine, the combination of a frame, an upper feed-roll, a saddle for the same, a yielding roll-housing on the saddle, means for adjusting the saddle with relation to the frame, rod having transverse ridges and follower connection therefor with the roll-housing, and pressure device having connection with said rod.

6. In a feeding device for woodworking-machine, the combination of a frame, an upper feed-roll, a saddle, a roll-housing for the latter, screws for adjusting the saddle with relation to the frame, a pressure device, a threaded rod having longitudinal movement with relation to said screws, and connection therefor with said roll-housing, connection between said rod and the pressure device, and gearing between one of said screws and threaded rod.

7. In a feeding device for woodworking-machines, the combination of a frame, a saddle, upper roll-housing on the saddle, pressure device, and parallel screws and connections therefor respectively with the frame and saddle for adjusting the saddle with relation to the frame and with the roll-housing and pressure device for exerting pressure on the roll at various saddle adjustments, and driving connection between said screws.

8. In combination, in feeding mechanism for a woodworking-machine, a saddle, a feeding device yieldingly mounted thereon, a pressure device, a pair of screws at each side of the machine, gearing between the screws of each pair, one of the screws of each pair having threaded connection with the saddle and the other having threaded connection with said yieldable feeding device and the pressure device, substantially as described.

9. In a feeding device for woodworking-machines, the combination with the frame, saddle, roll-housing and pressure device, of screws and threaded rod rotated together, said screws connecting with said saddle for adjusting the same with relation to the frame, and said threaded rod having connection with said roll-housing and pressure device, the threaded rod movable longitudinally with relation to the screws, substantially as described.

10. In a feeding device for woodworking-machines, the combination of the frame, a saddle, an upper feeding device thereon, a pressure device, means permitting yielding of said upper feeding device on said saddle, a threaded rod connecting said latter means with said pressure device, screws for raising and lowering said saddle with relation to the frame, and means causing simultaneous rotation of said screws and threaded rod, substantially as described.

11. In a feeding device for woodworking-machines, the combination with the frame and upper roll-stand, a saddle, a plurality of roll-housings pivoted with relation thereto, an equalizer connecting said housings, a weight-lever, screws for adjusting said saddle, a

threaded rod connecting said equalizer and weight-lever, and means for simultaneously rotating said screws and threaded rod, substantially as described.

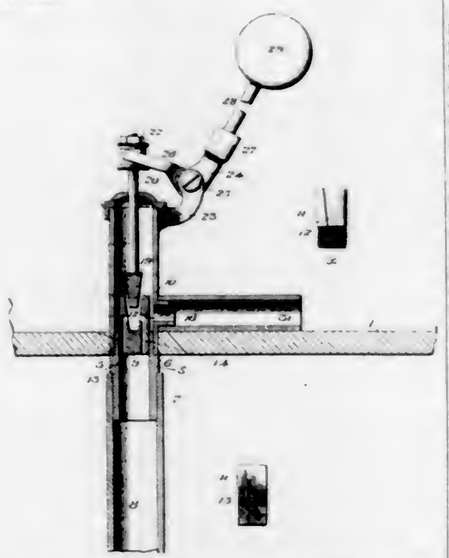
12. In a feeding device for woodworking-machines, the combination with the frame, lower feed-rolls, upper roll-saddle, yielding roll-housings mounted thereon, equalizer connecting the housings, pressure device below the lower feed-rolls, and plurality of screw-rods, having connection respectively with the saddle and with the equalizer and pressure device below the lower feed-rolls, substantially as described.

13. In a feeding device for woodworking-machines, the combination of a frame, a roll-stand thereon, a saddle, screws journaled in the upper end of the roll-stand for adjusting the saddle on the roll-stand, upper feed-roll, a housing therefor on the saddle, a longitudinally-movable threaded rod journaled in the upper end of the roll-stand and having threaded connection with the upper roll-housing for retaining pressure connection therewith throughout the various saddle adjustments, and a pressure device connecting with said rod, substantially as described.

14. In a feeding device for woodworking-machines, the combination of a frame, a roll-stand thereon, a saddle, screws journaled in the upper end of the roll-stand for adjusting the saddle on the roll-stand, upper roll-housings on the saddle, an equalizer having connection therewith, a longitudinally-movable threaded rod journaled in the upper end of the roll-stand and having threaded connection with the equalizer for retaining pressure connection therewith throughout the various saddle adjustments, and a pressure device connecting with said rod, substantially as described.

15. In a feeding mechanism for wood-planing machinery, the combination of a frame, a saddle, means for adjusting the saddle with relation to the frame, upper feed-rolls, housings therefor on the saddle, an equalizer having connection with the housings, a pivoted nut on the equalizer, a pressure device, a threaded rod in said nut having connection with the pressure device and connections permitting adjustment of the equalizer with the saddle, substantially as described.

752,314. BALL-COCK VALVE. CHARLES C. TOZIER, Skowhegan, Me., assignor, by direct and mesne assignments, to Maine Valve Company, a Corporation of Maine. Filed Nov. 14, 1903. Serial No. 181,153. (No model.)



Claim.—1. In a device of the character described, a member having vertical and lateral passages disposed to cause the water flowing therethrough to intersect, of a member controlled by the float and adapted to open and close the lateral passages, as set forth.

2. In a device of the character described, the combination with a member having vertical and lateral passages and a tapered chamber into which the lateral passages discharge, of a wedge-shaped member controlled by the float and fitted to said chamber.

3. In a device of the character described, the combination with a member having vertical and lateral passages and a tapered chamber into which the lateral passages discharge, of a pipe supporting said member and having lateral discharge, a stem movable in said pipe, a wedge-shaped member carried by said stem and fitted to said chamber, and a connection between said stem and the float.

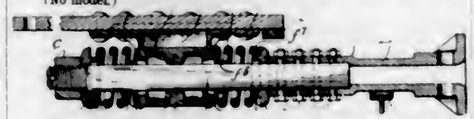
4. In a device of the character described, the combination with a pipe and a coupling, of a member detachably connected with the coupling and having vertical and lateral passages the latter being oppositely disposed, said member having a tapered chamber into which the lateral passages discharge, and a wedge-shaped member fitted to said chamber and controlled by the float.

5. In a device of the character described, the combination with a service or supply pipe and a member detachably connected therewith and having vertical passages and lateral passages disposed to break the force of the current flowing through said member, said member having a tapered chamber into which the lateral passages discharge, and a wedge-shaped member fitted to said chamber and controlled by the float.

6. In a device of the character described, the combination with the member with its vertical and lateral passages, of a movable plug adapted to control the flow of water through such passages, a stem carrying said plug, a grooved wheel on said stem, a pivoted bell-crank lever having bifurcated end loosely embracing said wheel, and a float connected with said lever, as and for the purpose set forth.

7. In a device of the character described, a member having screw-threaded end, tapered forks with a chamber therebetween, and vertical passages through the body portion of said member and lateral passages leading therefrom and communicating with said chamber.

752,315. DRAFT-RIGGING FOR RAILWAY-CARS. WILLIAM T. VAN DORN, Chicago, Ill. Filed Oct. 1, 1903. Serial No. 175,260. (No model.)



Claim.—1. The combination with an extension-bar adapted to be pivoted in close proximity with the center sills of a car or the like, of a casing rigidly secured thereto, a draft-iron extending through said casing and fitting closely therein laterally and pivoted centrally therein to oscillate vertically with respect thereto, washers carried on said draft-iron and fitting against the ends of the casing and strong coiled springs carried on the draft-iron and bearing against said washers and a rigid part on the draft-iron.

2. The combination with an extension-bar adapted to be pivoted above the motor or the like of a car, of a buffer-sleeve rigidly secured thereon below the same and having a longitudinal central aperture therethrough, a draft-iron rectangular in cross-section fitting closely in said aperture laterally and held by said casing in rigid alinement with the extension-bar under lateral stress and a central rounded rib extending transversely within the casing and on which said draft-iron pivots for vertical movement and springs bearing against a rigid part on said draft-iron and against the ends of the casing and acting to receive buffing and pulling stress.

3. The combination with an extension-bar adapted to be pivoted at its rear end below the center sills of the car or the like, of a carrying-iron adapted to support the outer end of said extension-bar and permit lateral swing thereof, a buffer-sleeve extending longitudinally of and below said extension-bar and rigidly secured thereto by riveting or the like, and having a rectangular central aperture extending longitudinally therethrough, a central pivot-bearing in said sleeve a draft-iron fitting closely in said casing and pivoted for vertical movement therein on said pivot-bearing, springs bearing against a fixed part on said draft-iron and the ends of the sleeve and adapted to absorb pulling and buffing stress and antifriction-washers between the ends of the sleeve and the springs and slidable on the ends of the sleeve.

4. As an article of manufacture a buffer-sleeve for the purpose specified comprising a metal casing shaped at its top for attachment with a car or the like and having an aperture extending longitudinally therethrough adapted to receive a draft-iron therein, and adapted to fit closely to the draft-iron laterally and central transverse pivot-bearings having convex adjacent faces adapted to engage said draft-iron between the same and afford a pivot-bearing therefor admitting of vertical movement only with respect thereto.

5. The combination with an extension-bar or tail-strap and a draft-iron, of a buffer-sleeve rigidly secured at the outer end of the extension-bar by riveting or the like and through which said draft-iron extends and which acts to hold said draft-iron and extension-bar substantially in alinement under lateral stress, a central transverse pivot-bearing within the buffer-sleeve adapted to engage above and below the extension-bar and admitting of free vertical movement of the ends of the draft-iron with respect to said extension-bar.

6. A buffer-sleeve for the purpose specified comprising a metal casing substantially cylindric and provided in its upper side with integral, upwardly and longitudinally extending flanges at the ends and sides thereof and affording a broad flat seat to receive and rigidly engage an extension-bar or the like, said sleeve having a longitudinal aperture extending therethrough having less lateral than vertical width, a central transverse rounded rib in the top and in the bottom of said sleeve and adapted to engage above and below a draft-iron and afford a pivot for vertical movement of the same in said sleeve, the ends of said sleeve being shaped for engagement with an antifriction-washer.

7. The combination with an extension-bar or tail-strap and a draft-iron, of a buffer-sleeve rigidly secured at the outer end of the extension-bar by riveting or the like and through which said draft-iron extends and which acts to hold said draft-iron and extension-bar substantially in alinement under lateral stress, a central transverse pivot-bearing within the buffer-sleeve adapted to engage above and below the extension-bar and admitting of free vertical movement of the ends of the draft-iron with respect to said extension-bar, fixed washers on the draft-iron, antifriction-washers slidably engaged against the ends of the sleeve, springs engaging between said washers and projections on said washers which engage in the ends of the springs.

8. The combination with a buffer-sleeve of the class described, of a central pivot-bearing therein, a draft-iron extending through said sleeve and pivoted on said bearing, vertically-convex ends on said sleeve, a complementally-concave washer bearing against the same and carried on the draft-iron and spring on said draft-iron at each end of the sleeve holding said washers in positive engagement against the sleeve.

9. In a device of the class described the combination with an extension-bar adapted to be pivoted to a car and a draft-iron, of an open-ended casing rigidly secured upon one of the same and through which the other extends and is pivoted therein, a central transverse pivot-bearing in said casing, washers yieldingly engaged on said pivoted member and slidingly engaged on each end of said casing.

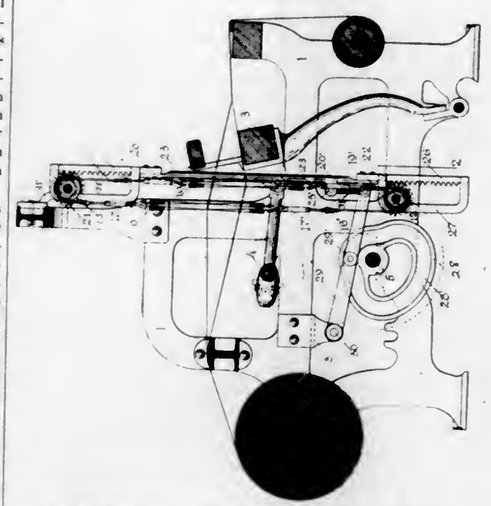
10. In a draft-rigging, an extension-bar and a draft-iron, a casing secured on one of the same and in which the other is pivotally engaged, washers on said pivoted member at each end of the casing, springs also engaged on said pivoted member and bearing against the washers, said washers and casing ends having complemental bearing-faces and a transverse pivot-bearing within the casing.

752,316. SHED-FORMING MECHANISM FOR LOOMS. WILLIAM WATTIE, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Dec. 17, 1903. Serial No. 185,479. (No model.)

Claim.—1. In the shedding motion of a loom, the combination with two harnesses, a rock-shaft above, and a rock-shaft below the harnesses, two pairs of pulleys on each rock-shaft, connections between said harnesses and said pulleys, of means for simultaneously rotating both shafts, first in one direction and then in the other, said means consisting of a vertically-moving bar having rack-teeth thereon to engage a pinion on each shaft, and said pinions, and means for operating said bar, substantially as shown and described.

2. In the shedding motion of a loom, the combination with two harnesses, a rock-shaft above, and a rock-shaft below the harnesses, two pairs of pulleys on each rock-shaft, one pair of greater diameter than the other, flexible connections attached to said pulleys, and adjustable connections intermediate said flexible connections and the harnesses, of means for simultaneously rotating both shafts, first in one direction and then in the other, to raise and lower the harnesses, said means consisting of a vertically-moving bar having rack-teeth to engage a pinion fast on each rock-shaft, and said pinions, and means for holding the racks in contact therewith, and means for operating said bar, substantially as shown and described.

3. In the shedding motion of a loom, the combination with two harnesses, a rock-shaft above, and a rock-shaft below the harnesses, two pairs of pulleys on each rock-shaft, one pair of greater diameter than the other, flexible connections attached to said pulleys, and adjustable connections intermediate said flexible connections and the harnesses, of means for simultaneously rotating both shafts, first in one direction and then in the other, to raise and lower the harnesses, said means consisting of a vertically-moving bar having rack-teeth to engage a pinion fast on each rock-shaft, and said pinions, and means for holding the racks in contact therewith, and means for intermittently operating said bar, to cause a dwell of the harnesses in their two extreme positions, substantially as shown and described.



4. In the shedding motion of a loom, the combination with two harnesses, a rock-shaft above, and a rock-shaft below the harnesses, two pairs of pulleys on each rock-shaft, connections between said pulleys and the harnesses, of means for communicating a simultaneous intermittent rotary motion to both rock-shafts, first in one direction and then in the other, to raise and lower the harnesses, said means consisting of a vertically-moving bar having rack-teeth thereon to engage a pinion or gear on each rock-shaft, and said pinions or gears, and means for operating said bar, substantially as shown and described.

752,317. LAST. WILLIAM J. WEIR, New York, N. Y., assignor of one-half to George E. Belcher, Stoughton, Mass. Filed Oct. 12, 1901. Serial No. 78,406. (No model.)



Claim.—1. The hollow divided last above described, made up of a hollow toe part; a hollow heel part having a wall across its forward end and a projecting hinge member, integral with and projecting forward from the front wall of the heel part within the rear of the hollow toe part and connected therewith by a pin.

2. The hollow divided last above described, made up of a hollow toe part having opposed bosses upon its interior rear walls; a hollow heel part having a wall across its forward end and a projecting hinge member integral with and projecting forward from the front wall of the heel part between the opposed bosses and a pin passing through the bosses and the forward end of the hinge member.

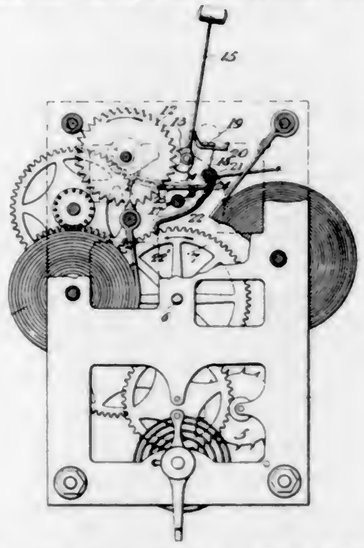
3. The hollow divided last above described, made up of a hollow toe part having opposed bosses near the upper edge of its interior rear walls; a hollow heel part; a wall across its forward end and a projecting hinge member integral with and projecting forward from the upper edge of the front wall of the heel part between the opposed bosses and a pin passing through the bosses and the forward end of the hinge member.

752,318. CURTAIN-SHADE ADJUSTER. THOMAS WHITT, Lexington, Ky. Filed Oct. 12, 1903. Serial No. 176,735. (No model.)



Claim.—In an adjustable curtain-fixture, a bracket suspended by one end and free to swing at the other end, the free end having a laterally-extended hub provided with a rectangular aperture arranged at an oblique angle to the longitudinal plane of the bracket, for supporting the flattened pintle of a curtain-roller, and a set-screw operating longitudinally through said hub to engage the edge of said pintle and maintain the roller immovably in position.

752,319. REPEATING ALARM-CLOCK. WILLIAM F. WINSLOW, Winsted, Conn. Filed Aug. 29, 1903. Serial No. 171,235. (No model.)



Claim.—The combination with the supporting-frame, of a time-train, an alarm-train including an escapement-wheel, a verge-arbor, a verge carried thereby, a clapper-rod secured to the arbor, a releasing-arm secured to the verge-arbor and controlled by the timing-cam of the clock, an auxiliary rock-shaft independent of and disposed parallel with the verge-arbor, a spring-pressed arm secured to the rock-shaft and having a tongue engaging with a toothed wheel receiving motion from the time-train and independent of the alarm-train, a pin or lug projecting from one face of the escapement-wheel, and a second arm carried by the rock-shaft and adapted to engage said pin or lug, the free end of the arm being movable in the direction of the center of rotation of the escapement-wheel during releasing movement, and an intermediate portion of the arm being bent outward to permit the passage of a pin or lug when the escapement-wheel is revolving.

752,320. EXTRACTION OF METALS FROM COMPLEX ORES. JOSÉ BAXERES DE ALUGARAY, Bromley, England. Filed July 14, 1903. Serial No. 165,501. (No specimens.)

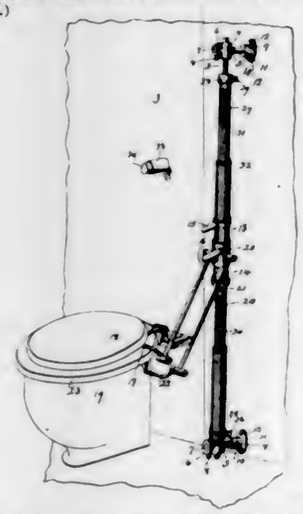
Claim.—1. In the treatment of complex ores, such for instance, as contain copper, lead, silver and zinc in comparatively large quantities, the process of extracting the said metals selectively which consists in leaching the ore with a solution composed of a mixture of a chlorid of an alkali or earth-alkali metal with a chlorid of a metal other than those of the alkali or earth-alkali series and an acid before calcination or roasting whereby the copper is obtained in solution, then washing and drying the ore, roasting the partially-disintegrated ore at a low temperature, extracting the metals from the roasted ore in form of salts by means of a second and weaker leaching solution having a character consonant with the nature of the salt it is desired to obtain, and recovering the metals in the usual way as herein described.

2. In the treatment of complex ores, such for instance as contain copper, lead, silver and zinc in comparatively large quantities, the process of extracting the said metals selectively which consists in leaching the ore with an acidulated chlorid solution, before roasting or calcination whereby the copper is obtained in solution, then washing and drying the ore, roasting the partially-disintegrated ore at a low temperature, and finally leaching the roasted ore with a weaker acidulated chlorid solution, whereby the zinc is obtained in solution, while the lead precipitates, and recovering from the solutions the copper with iron and the zinc with an earthy or alkali-earthy oxid, as herein described, and the silver by means of copper or of any suitable metal or reagent.

3. The process for extracting copper from complex ores containing copper, lead, silver and zinc in comparatively large quantities, which consists in leaching the crushed ore with a solution composed of a mixture of an alkaline chlorid, a metallic chlorid and an acid without calcination or roasting, and drawing off the solution and separating the copper in any well-known manner as herein described.

4. The process for extracting zinc and lead from complex ores containing copper, lead and zinc in comparatively large quantities, which consists in first leaching the ore in an acidulated chlorid solution whereby it is partially disintegrated and the copper is obtained therefrom in solution, then washing, drying and roasting the so partially-disintegrated ore, and finally leaching the roasted ore in a weak acidulated chlorid solution, whereby the lead precipitates as a chlorid, and the zinc enters into solution and is precipitated by means of an alkali-earthy oxid and is finally recovered by distillation in the usual way, all as herein described.

752,321. WATER-CLOSET ATTACHMENT. PAUL H. BACON, New Haven, Conn. Filed Dec. 7, 1903. Serial No. 184,039. (No model.)



Claim.—1. The combination with the seat and seat-cover of a water-closet, of a vertical rod, two sliding sleeves mounted thereupon and adapted to be manually operated, means for connecting the said sleeves with the seat and seat-cover respectively, and balance-springs coacting with the said sleeves.

2. The combination with the seat and seat-cover of a water-closet, of a vertical rod, two sliding sleeves mounted thereupon and furnished with handles for their manual operation, means for connecting the said sleeves with the seat and seat-cover respectively, and balance-springs coacting with the said sleeves.

3. The combination with the seat and seat-cover of a water-closet, of a vertical rod, means for supporting the upper and lower ends of the said rod and adjusting it vertically and laterally, two sliding sleeves mounted thereupon and adapted to be manually operated, means for connecting the said sleeves with the seat and seat-cover respectively, and balance-springs coacting with the said sleeves.

4. The combination with the seat and seat-cover of a water-

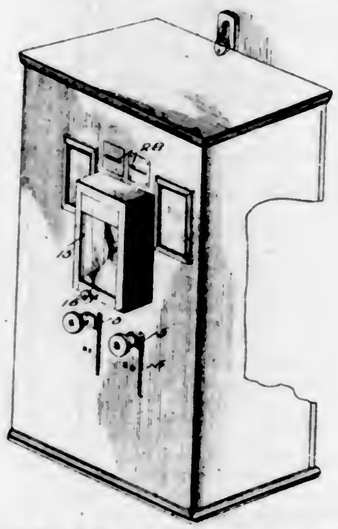
closet, of a vertical rod, two sliding sleeves mounted thereupon and adapted to be manually operated, means for connecting the said sleeves with the seat and seat-cover respectively, balance-springs coacting with the said sleeves and encircling the said rod, and means for inclosing the said springs.

5. The combination with the seat and seat-cover of a water-closet, of a vertical rod, two sliding sleeves mounted thereupon and adapted to be manually operated, the adjacent ends of the said sleeves being oppositely cut in half to permit them to fit together, means for connecting the said sleeves with the seat and seat-cover respectively, and balance-springs coacting with the said sleeves.

6. The combination with the seat and seat-cover of a water-closet, of a vertical rod, two sliding sleeves mounted thereupon and adapted to be manually operated, means for connecting the said sleeves with the seat and seat-cover respectively, balance-springs coacting with the said springs, and telescoping tubes for inclosing the said springs.

7. The combination with the seat and seat-cover of a water closet, of a vertical rod, two sliding sleeves mounted thereupon and adapted to be manually operated, means for connecting the said sleeves with the seat and seat-cover respectively, a spring applied to the upper end of the rod and connected with the upper sleeve which, by its contraction it assists to lift, and a spring encircling the lower end of the rod and connected with the upper sleeve which by its expansion it assists to lift.

752,322. VENDING-MACHINE. JOHN P. BEARDSLEE, Tama, Iowa, assignor of one-half to J. M. Wright, Tama, Iowa. Filed Sept. 22, 1903. Serial No. 174,224. (No model.)



Claim.—1. In a vending-machine, the combination of a bin having a portion separated therefrom by means of a partition to form a chamber for containing a small proportion of the goods, a measure adapted to operate in the chamber or separated portion of said hopper and open at the top for receiving a supply of the goods and having an opening in the side for automatic delivery, and actuating means for said measure, substantially as set forth.

2. In a vending-machine, the combination of a bin having a portion separated therefrom by means of a partition to form a chamber for containing a small proportion of the goods, a measure adapted to operate in the chamber or separated portion of said hopper and open at the top for receiving a supply of the goods and having an opening in the side for automatic delivery, a delivery-compartment adapted to receive the goods from the measure, and a cut-off for controlling the discharge of the goods from said delivery-compartment, substantially as specified.

3. In a vending-machine, the combination of a casing, a hopper arranged within the casing and subdivided by a partition to form a chamber for reception of a small proportion of the goods to be vended, a measure mounted for reciprocal movement within the said chamber and adapted to receive the goods at its upper end and to discharge the same laterally, a delivery-compartment having a portion located within the said casing and a portion exterior thereto and adapted to receive the goods from said measure, and a cut-off for closing the discharge of said delivery-compartment, substantially as set forth.

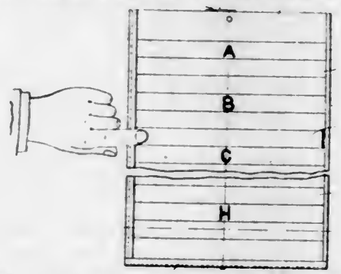
4. In combination, a casing, a hopper within the casing and subdivided by a partition to form a chamber adapted to receive a small proportion of the goods to be vended, a measure mounted for vertical movement within said chamber and having its upper end and one side open, a delivery-compartment having a portion located within said casing and a portion exterior thereto, the parts of the delivery-compartment being in communication through an opening in a side of the casing, the inner portion of said delivery-compartment being in communication with the chamber of partition portion of the aforementioned hopper so as to receive the goods from the measure, and a cut-off for closing the discharge-opening of the delivery-compartment, substantially as specified.

752,323. SENSITIZING DYESTUFF. RUDOLF BERENDS, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Aug. 19, 1903. Serial No. 170,051. (Specimens.)

Claim.—1. The herein-described new dyestuffs, being derivatives of quinaldin, which are dark crystals of a metallic luster, soluble in chloroform, acetone and water with a violet color, being insoluble in ligroin and ether, and possessing the remarkable property of imparting greater sensibility to photographic emulsions for distinct colors of the spectrum substantially as hereinbefre described.

2. The herein-described new dyestuff obtainable by treating with caustic alkalies the ammonium compound prepared by the action of diethyl sulfate on quinaldin, which dyestuff forms dark-red crystals having a metallic luster, soluble in water, chloroform and alcohol with a violet color, being insoluble in ether, benzene and ligroin and possessing the remarkable property of imparting greater sensibility to photographic emulsions for distinct colors of the spectrum, substantially as hereinbefore described.

752,324. CHANGEABLE SIGN. JAMES L. BLACKNER, Medford, Mass. Filed Mar. 9, 1903. Serial No. 146,802. (No model.)



Claim.—1. A changeable sign comprising a body portion having a recess in its front side, and a series of parallel name-stripe assembled loosely in said recess and held against endwise displacement by the vertical edges of the recess, said edges bearing against the ends of the strips, the back of the recess having a depression formed and arranged to permit one end of either strip to be pressed inwardly and its opposite end outwardly, to facilitate the removal of the strips.

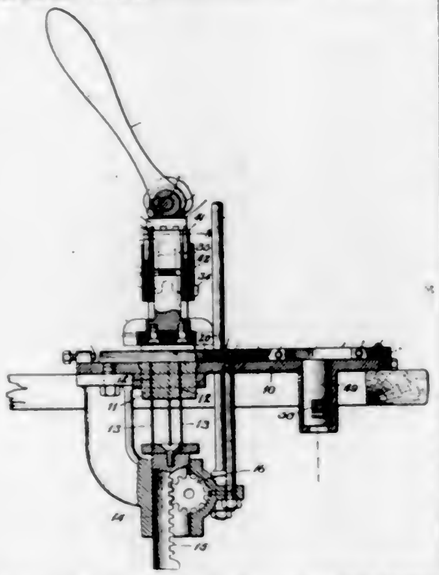
2. A changeable sign comprising a body portion having a recess in its front side, one of the vertical edges of the recess having a flange projecting over the adjacent portion of the back of the recess, and a series of parallel name-strips assembled loosely in said recess and held against endwise displacement by said vertical edges and partially held against outward displacement by said flange which projects over the adjacent ends of the strips, the back of the recess having a depression adjacent to the said flanged edge, said depression being formed and arranged to permit the flange-confined end of either strip to be pressed inwardly and its opposite end outwardly, to facilitate the removal of the strips.

3. In a changeable sign, the combination of a frame or body having a flat outer face 6, and a series of elongated name-strips assembled in said frame, the latter having suitable means for detachably securing the strips, each strip being composed of a single piece of sheet metal bent longitudinally along two parallel lines to form a

central field, and edge flanges projecting backwardly from the field and stiffening the same, said flanges bearing against the face 6.

4. A changeable sign comprising a body portion having a recess in its front side, one of the vertical edges of the recess being fixed and having a flange projecting over the adjacent portion of the back of the recess, while the opposite vertical edge is hinged to the body portion and has a corresponding flange, and a series of parallel name-strips assembled loosely in said recess and held against endwise displacement by said vertical edges and also held against outward displacement by said flanges, the back of the recess having a depression adjacent to the fixed vertical edge, said depression being formed and arranged to permit one end of each strip to be forced inwardly and the opposite end outwardly when the hinged end is displaced.

752,325. HEEL-BUILDING MACHINE. WENDELL P. BOSWORTH and THOMAS BOSTOCK, Brockton, Mass. Filed Nov. 15, 1902. Serial No. 131,514. (No model.)



Claim.—1. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, and a nail-carrying templet and a heel-assembling mold movable alternately into register with said nail-receiving templet.

2. In a heel-building machine, a nail-receiving templet, nail driving means operating therethrough and having an upward driving stroke, a nail-clenching abatment mounted above said nail-receiving templet, and a slide movable between said templet and abutment and having a nail-carrying templet and a heel-assembling mold.

3. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, a nail-carrying templet and a heel-assembling mold movable alternately into register with said nail-receiving templet, a presser mounted opposite said nail-receiving templet, and means to move said presser toward and away from said nail-receiving templet.

4. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, a reciprocating slide having a nail-carrying templet and operative to move the same into and out of register with said means, said slide having limiting positions on either side of said position of register relating to different operations connected with the heel, and provided with means to carry the heel and retractile means to stop said slide in said position of register.

5. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, a slide having a nail-carrying templet and a heel-assembling mold, and operative to position these successively in register with the nail-receiving templet, retractile means to arrest said slide with the nail-carrying templet in register with the nail-receiving templet, and means to stop said slide with the mold in register with said nail-receiving templet.

6. In a heel-building machine, nail-driving means and a mold-contracting mechanism adapted to operate on the heel in the same position thereof, and a contractile mold mounted for movement into and out of alinement with said nail-driving means, and into and out of cooperative relation with said mold-contracting means.

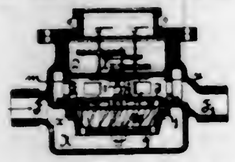
7. In a heel-building machine, a heel-presser and a mold-contracting mechanism connected for simultaneous operation, and a contractile mold movable laterally into and out of register with said presser and mechanism.

8. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, a heel-presser opposed to said means, a mold-contracting mechanism connected for simultaneous operation with said presser, and a slide movable between said presser and nail-receiving templet and having a nail-carrying templet and a contractile mold, the latter carried by movement of said slide into and out of cooperative relation with said mechanism.

9. In a heel-building machine, a nail-receiving templet, nail-driving means operating therethrough, a heel-ejector, a slide having a nail-carrying templet and a heel-assembling mold and having three positions, in the first of which said mold registers with said ejector, in the second of which said templets register with each other, and in the third of which said mold registers with said nail-receiving templet, and devices to arrest said slide in said three positions.

10. In a heel-building machine, a sectional heel-assembling mold, a wedge for contracting said mold, a heel-presser, and a pivotal lever provided with cams for operating said wedge and presser.

752,326. WATER-METER. OTTO BRAUN, Cologne, Germany. Filed Oct. 13, 1902. Serial No. 127,099. (No model.)



Claim.—1. In a turbine water-meter, having a conical turbine and a turbine-casing having a water inlet and an outlet and a row of guide-channels, the combination of a turbine-casing having in the bottom a row of guide-channels of an aggregate sectional area substantially greater than the area of the said water inlet or outlet, a conical turbine having in its circumference inclined grooves of an aggregate sectional area substantially greater than that of the guide-channels, and partitions gradually reduced in width from the top to the bottom, and a device for automatically regulating the speed of the turbine according to the pressure of the water, substantially as described.

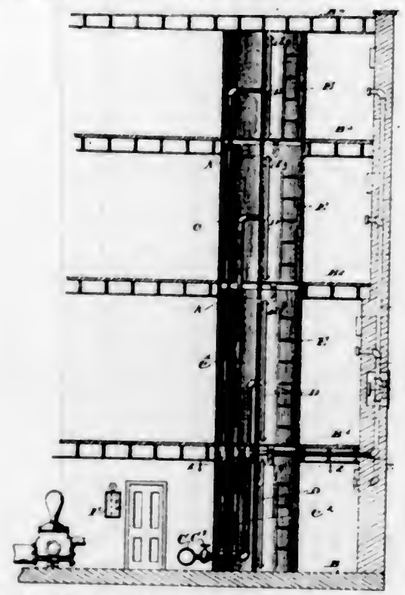
2. In a turbine water-meter, the combination of a turbine having inclined circumferential grooves, with a turbine-casing having in the bottom a row of guide-channels, an elastic regulating-ring, secured to the top of the turbine so that the outside of the ring forms the continuation of the bottom of the grooves of the turbine, the said ring being divided into elastic segments, each of which is fixed to the turbine so as to form two unequal wings, a stopping device adjustable by hand, so as to vary the free length of the said wings and consequently their flexibility, and a top ring surrounding and covering the regulating-ring, so as to conduct the water from the turbine to the outside of the regulating-ring, and to allow the segments to bend both inward and outward, substantially as described.

3. In a turbine water-meter, the combination of a turbine W having inclined circumferential grooves *k*, with a turbine-casing K having in the bottom a row of guide-channels *y*, an elastic regulating-ring composed of elastic segments *f*, a regulating device *d* adapted to vary the free length of the said wings *f*, and a top ring J surrounding and covering the regulating-ring, substantially as described and for the purpose specified.

752,327. FIRE-EXTINGUISHING DEVICE. CHARLES BROWN, Chicago, Ill. Filed July 24, 1901. Serial No. 69,501. (No model.)

Claim.—1. A plurality of service-pipes adapted to permit fluid to be conducted therethrough and terminating respectively one on each floor of a building or the like, a fireproof compartment on each floor of the building adapted to contain said end of a pipe and leads of hose connected with said end and adapted to convey the fluid to a desired point.

2. In a device of the class described, a fireproof compartment located on each floor of a building, and adapted to contain the upper end of a fluid-conducting pipe, the other end of which communicates with a source of fluid-pressure, a lead of hose connected with said pipe within said compartment and supported on a wall thereof, thermostats located about the building on each floor, an annunciator connected therewith designed to indicate the location of a fire or the like and means operated from the thermostat acting to open a door in the compartment to permit access to the hose.



3. In a device of the class described, the combination with a main service-pipe of valved pipes connected therein and terminating one above each floor of a building, a fireproof casing surrounding each of said delivery ends of pipe, leads of hose therein connected with said pipes and means in the engine-room for automatically indicating the location of a fire for opening the door of the compartment and illuminating said compartment.

4. In a building a plurality of valved service-pipes terminating one at each floor of the building, means under the control of the engineer for directing fluid through any or all of said pipes, a plurality of pipes extending inwardly from the side wall of the building and connected with the first-named pipes thereby permitting connection to be made from without the building and annunciators located in the outer wall and in the engine-room and acting automatically to indicate the pipe to be connected.

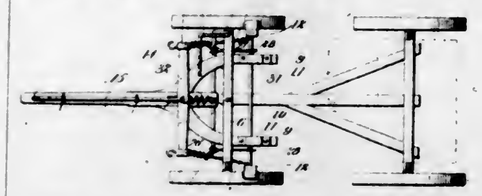
5. A building provided with a fireproof compartment on each floor, valved service-pipes, one of which terminates in a hose fitting in each compartment, a pressure-main with which said pipes are connected at their lower ends, a plurality of lengths of hose suspended in the compartment and connected in the hose-fitting, pipes extending through the outer wall of the building and communicating each with the service-pipes, other pipes extending through the wall and provided with independent hose-fittings within the building and automatic means for indicating the pipe in which pressure is desired both at the outer ends of said outwardly-extending pipes and in the engine-room of the building.

6. In a device of the class described, a fireproof compartment designed to inclose the end of a service-pipe for water or the like, a plurality of supporting-hooks arranged transversely of the compartment near the top thereof and adapted to yieldingly support a plurality of folds or coils of hose connected with the service-pipe, a door for the compartment, and automatically-operated means for opening the door.

7. In a building, a fireproof compartment on each floor adapted to receive and inclose the end of a service-pipe, hose-fittings on said end adapted to permit a plurality of leads of hose to be secured thereon and a transverse partition in the compartment having adjustable spring-hooks secured thereon near the top thereof and adapted to support successive layers or folds of hose, a door in said compartment adapted to be normally locked and means operated by a thermostat for opening the door.

8. In a building, a metallic tubular casing extending through the floors thereof and provided at each floor with a grating separating the same into individual compartments for each floor, a plurality of service-pipes in said casing terminating one above each floor in a hose-fitting, a pump connected with the lower ends of said service-pipes, pipes extending through the outer wall of the building and having hose-fittings on their outer ends and connecting at their inner ends with said service-pipes, an annunciator adjacent to the pumps and one on the outer wall and means operated by a thermostat for indicating simultaneously on each of said annunciators the floor at which pressure is desirable.

752,328. VEHICLE-BRAKE. WILLIAM D. BROWN, Blackwater, Miss. Filed Oct. 7, 1903. Serial No. 176,053. (No model.)



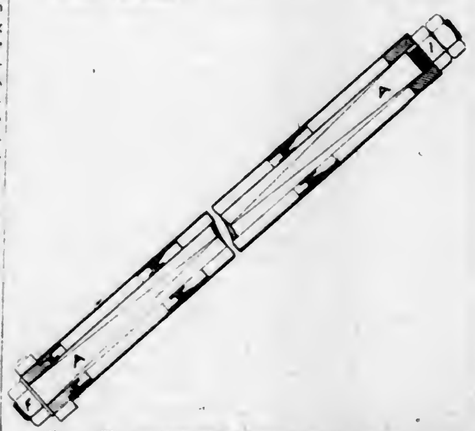
Claim.—1. In a vehicle-brake, the combination with the front running-gear and the whiffletree slidable back and forth on the tongue, of the bar extending across the hounds, the upright brake-levers fulcrumed on the bar and having brake-shoes at their upper ends, and connections between the whiffletree and the lower ends of the levers.

2. In a vehicle-brake, the combination with the front running-gear and the whiffletree, of brake-levers connected to the whiffletree and actuated by pull or holdback thereon to release or set the brakes, and a hand-lever connected to the brake-levers to vary the location of the fulcrums thereof.

3. In a vehicle-brake, the combination with the front running-gear, of a pivot-bar slidable forwardly and backwardly on the hounds, brake-levers, having shoes on the end thereof, pivoted to said bar, a hand-lever connected to said bar, to slide the same, and draft devices connected to the levers and constructed to automatically release or set the brakes according to pull or holdback on said devices.

4. In a vehicle-brake, the combination with the front running-gear, of brake-levers, a bar slidably supported on the hounds, on which the levers are fulcrumed, a whiffletree having limited forward-and-backward movement on the tongue and a rigid connection to the neck-yoke, rods connecting the whiffletree and the brake-levers, and a hand-lever connected to said bar, to vary the location thereof.

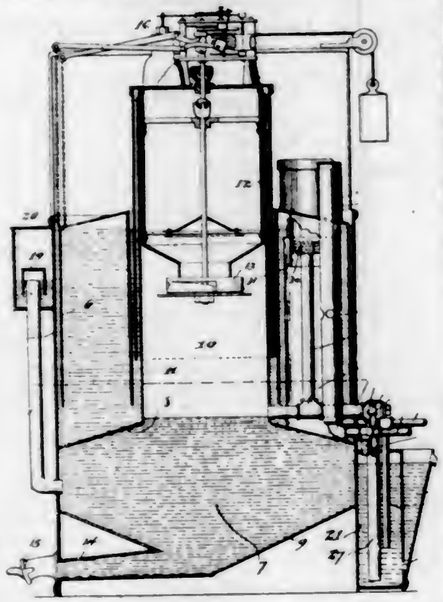
752,329. PAPER-REELER BAR. GEORGE E. CLEGG, Irlams o' th Height, near Manchester, England. Filed July 7, 1902. Serial No. 114,635. (No model.)



Claim.—The combination in a reeler-bar of a shaft of square cross-section throughout except at its extreme ends which are round and screw-threaded, a series of thin metal sleeves thereon arranged

end to end, a tightly-fitting bush in the opposite ends of each sleeve and one bush of each sleeve having a conical depression and the other a conical projection, a washer with like projection and a gear-wheel and nut also on the shaft at one end, and a set of nuts at the opposite end which on being tightened up cause the several bushes to be held tightly against each other and the end bush against the washer, as set forth

752,330. ACETYLENE-GAS GENERATOR. AUGUSTINE DAVIS, Chicago, Ill., and JAMES H. BIRCH, Elkhart, Ind. Filed Apr. 29, 1903. Serial No. 154,756. (No model.)



Claim.—1. In an acetylene-generator, the combination with a generation-chamber, of a drainage-chamber located wholly externally thereof, and a valveless water-sealed overflow connection between said generation and drainage chambers, said connection comprising a substantially horizontal pipe tapping said generation-chamber and leading outwardly to a point above said drainage-chamber and containing a removable plug in its outer end, and a depending pipe from said outer end of the horizontal pipe extending into the drainage-chamber and terminating below the water-level therein, substantially as and for the purpose described.

2. In an acetylene-generator, the combination with the generation-chamber, of a drainage-chamber closed at its upper end located wholly externally thereof, an overflow-chamber in free communication with the lower portion of said drainage-chamber, and an overflow-pipe communicating with the upper end of the generation-chamber and extending through the cover of the drainage-chamber below the level of the liquid therein, substantially as described.

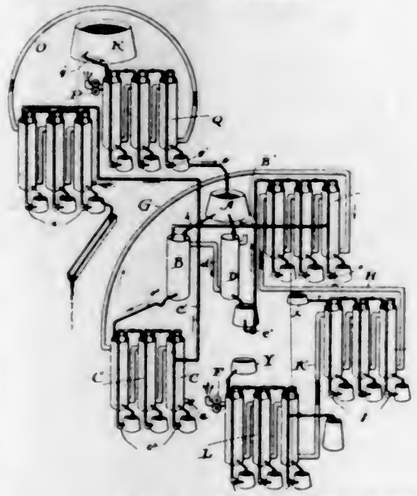
3. In an acetylene-generator, the combination with the generation-chamber and a superposed water-sealed bell, of a drainage-chamber located wholly externally of said generation-chamber, an overflow-pipe communicating with the upper end of the generation-chamber and extending into said drainage-chamber, and a pipe tapping said overflow-pipe and serving to conduct the gas from said generation-chamber into the upper sealed portion of the bell, substantially as described.

4. In an acetylene-generator, the combination with an outer shell or casing having a generation-chamber in its lower end and a superposed water-sealed bell telescoping its upper end, of a drainage-chamber located wholly externally of said outer shell, a gas-conducting pipe connecting the space above said generation-chamber with the sealed upper portion of the bell, and a gas-discharge conduit connecting the latter with a service-pipe, and a water-sealed service-pipe drain-tube entering said drainage-chamber, substantially as described.

5. In an acetylene-generator, the combination with an outer shell or casing having a generation-chamber in the lower end thereof and a superposed water-sealed bell in its upper portion, of a water-sealed water-inlet pipe communicating with said generation-chamber, a drainage-chamber located wholly externally of said outer shell, an overflow-pipe connecting the upper end of said generation-chamber with said drainage-chamber and terminating in a water-sealed pipe in the latter, and a valved vent-pipe also in communication with the upper portion of said generation-chamber and serving to vent the latter of air when refilled with water, substantially as described.

6. In an acetylene-generator, the combination with an outer shell or casing having a generation-chamber in its lower end and a superposed water-sealed bell in its upper end, of a drainage-chamber closed at its upper end located wholly externally of said outer shell, an overflow-chamber in free communication with the lower portion of said drainage-chamber, an overflow-pipe connecting said generation and drainage chambers, a blow-off pipe leading from the gas-space of the bell out through the outer shell above said drainage-chamber and having a branch pipe entering said drainage-chamber above the level of the liquid therein, a valved vent-pipe establishing communication between the space above the generation-chamber and the water-sealed upper end of the drainage-chamber, and a service-pipe having a drain-tube attachment also entering said drainage-chamber and extending below the level of the liquid therein, substantially as described.

752,331. PROCESS OF FRACTIONING BROMIN FROM CHLORIN. HERBERT H. Dow, Midland, Mich., assignor to the Dow Chemical Company, Midland, Mich., a Corporation of Michigan. Filed May 21, 1903. Serial No. 158,077. (No specimens.)



Claim.—1. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine to excess of its bromin content before removing any of the bromin, obtaining substantially pure bromin by passing through the oxidized brine a limited amount of air, and then recovering the bromin from the bromin-laden air in a suitable absorbent.

2. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine to excess of its bromin content before removing any of the bromin, and then obtaining bromin and chlorin in the form of gaseous mixtures of varying proportions by passing through the oxidized brine, first, a limited amount of air, and, then, a large amount of air.

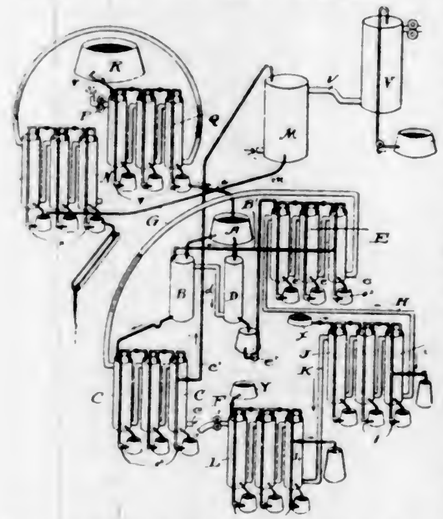
3. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine to excess of its bromin content before removing any of the bromin, and then obtaining bromin of a graduated degree of purity, by passing through the oxidized brine a limited amount of air, thereby carrying off the bromin most pure, taking up this pure bromin in a suitable absorbent, passing a large amount of air through the brine, and then taking up the impure bromin, thus blown out, in a natural brine.

4. The steps in the process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine to excess of its bromin content before removing any of the bromin, and then

obtaining bromin of a graduated degree of purity, by passing through the oxidized brine a limited amount of air, thereby carrying off the bromin most pure, taking up this pure bromin in sodium carbonate, passing a large amount of air through the brine, and then taking up the impure bromin, thus blown out, in a natural brine.

5. The steps in process of fractioning bromin apart from chlorin which consist, in oxidizing bromid-containing brine to excess of its bromin content before removing any of the bromin, and then obtaining bromin of a graduated degree of purity, by passing through the oxidized brine a limited amount of air, thereby carrying off the bromin most pure, taking up this pure bromin in a suitable absorbent, passing a large amount of air through the brine without further oxidation, and then taking up the impure bromin, thus blown out, in a natural brine.

752,332. PROCESS OF MANUFACTURING BROMIN FROM NATURAL BRINES. HERBERT H. Dow, Midland, Mich., assignor to the Dow Chemical Company, Midland, Mich., a Corporation of Michigan. Filed May 21, 1903. Serial No. 158,080. (No specimens.)



Claim.—1. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, then obtaining bromin of a graduated degree of purity by successively passing through the oxidized brine limited amounts of air, and successively recovering in suitable absorbents from the bromin-laden air the different grades of bromin thus carried off.

2. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, then obtaining bromin of a graduated degree of purity, by successively passing through the oxidized brine limited amounts of air, successively recovering in suitable absorbents from the bromin-laden air the purer grades of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of absorbing it in a natural brine.

3. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine to excess of its bromin content before removing any of the bromin, then obtaining bromin of a graduated degree of purity, by successively passing through the oxidized brine limited amounts of air, successively recovering in suitable absorbents from the bromin-laden air the purer grades of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin, most impure, thus carried off, by means of absorbing it in a natural brine.

4. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in a suitable absorbent the purest bromin thus carried off, then recovering impure bromin of a graduated degree of purity by successively passing through the brine limited amounts of air, and successively recovering from the bromin-laden air in suitable absorbents the different grades of impure bromin thus carried off.

5. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in a suitable absorbent the purest bromin thus carried off, then recovering impure bromin of a graduated degree of purity by successively passing through the brine limited amounts of air, successively recovering from the bromin-laden air in suitable absorbents the different grades of impure bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of absorbing it in a natural brine.

6. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine to excess of its bromin content before removing any of the bromin, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in a suitable absorbent the purest bromin thus carried off, then recovering impure bromin of a graduated degree of purity by successively passing through the brine limited amounts of air, successively recovering from the bromin-laden air in suitable absorbents the different grades of impure bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of absorbing it in a natural brine.

7. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in a suitable absorbent the purest bromin thus carried off, again passing through the brine a limited amount of air, recovering from the bromin-laden air in a suitable absorbent the more impure grade of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of passing the bromin-laden air through a natural brine, in which latter the bromin is absorbed.

8. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine to excess of its bromin content before removing any of the bromin, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in a suitable absorbent the purest bromin thus carried off, again passing through the brine a limited amount of air, recovering from the bromin-laden air in a suitable absorbent the more impure grade of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of passing the bromin-laden air through a natural brine, in which latter the bromin is absorbed.

9. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in caustic soda the purest bromin thus carried off, again passing through the brine a limited amount of air, recovering from the bromin-laden air in caustic soda the more impure grade of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure thus carried off, by means of passing the bromin-laden air through a natural brine, in which latter the bromin is absorbed.

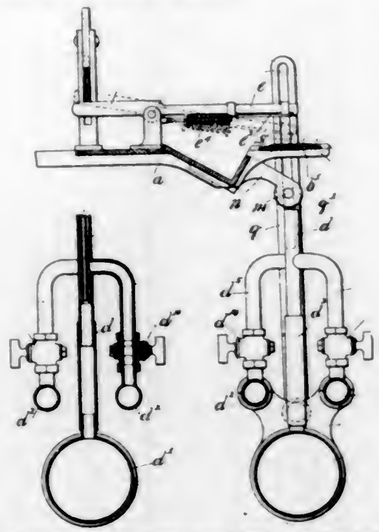
10. The steps in the process of manufacturing bromin from natural brines which consist, in oxidizing the brine to excess of its bromin content before removing any of the bromin, passing a limited amount of air through the oxidized brine, recovering from the bromin-laden air in caustic soda the purest bromin thus carried off, again passing through the brine a limited amount of air, recovering from the bromin-laden air in caustic soda the more impure grade of bromin thus carried off, passing through the brine a large amount of air, and recovering the remainder of the bromin most impure, thus carried off, by means of passing the bromin-laden air through a natural brine, in which latter the bromin is absorbed.

752,333. GANG SOLDERING-MACHINE. JOSEPH DUBE, Cambridge, Mass. Filed July 18, 1903. Serial No. 166,115. (No model.)

Claim.—1. A soldering-machine comprising a head-supporting bed having an aperture formed to expose the under side of the central portion of a button-head, a pin-clamp having opposed jaws adapted to yieldingly grasp a pin, and a fixed support for the clamp adjacent to the bed, the clamp being movable relatively to its support toward and from the bed, and yieldingly held in position to press a pin against a head supported by the bed.

2. A soldering-machine comprising a head-supporting bed having an aperture formed to expose the under side of the central portion of a button-head, a pin-clamp having opposed jaws adapted to yieldingly grasp a pin, the clamp being movable toward and from the bed and yieldingly held in position to press a pin against a head

supported by the bed, and a burner located below the bed, in position to direct its flame into said aperture.

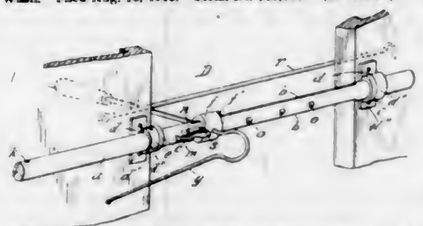


3. A soldering-machine comprising a head-supporting bed having an aperture formed to expose the under side of the central portion of a button-head, a pin-clamp having opposed jaws adapted to yieldingly grasp a pin, the clamp being movable toward and from the bed and yieldingly held in position to press a pin against a head supported by the bed, a vertically-adjustable burner located below the bed in position to direct its flame into said aperture, and means for securing the burner at different distances from the bed.

4. A soldering-machine comprising a head-supporting bed having an aperture formed to expose the under side of the central portion of a button, a pin-clamp comprising a lever pivoted to swing toward and from the bed, a jaw affixed to said lever, a spring-pressed sliding jaw, and means operated by an upward movement of the lever for retracting the sliding jaw, said means having provisions for permitting the sliding jaw to approach the opposed jaw when the lever is moved downwardly.

5. A gang soldering-machine comprising a supporting-frame having beds or holders arranged to support a series of heads, a series of burners below the holders arranged to simultaneously heat the heads, a series of pin-grasping clamps above the holders, each clamp consisting of a pivoted lever with a jaw affixed to it, and a spring-pressed jaw slidingly engaged with the lever, a clamp-operating bar engaged with the series of levers, and means for raising and depressing said bar to depress and raise the clamps.

752,334. MAIL-BAG CATCHER. OTTO P. W. EHRHARDT, Seattle, Wash. Filed Aug. 13, 1903. Serial No. 169,963. (No model.)



Claim.—1. In a mail-bag catcher, the combination with a hollow shaft, provided with an air-chamber at one end and oppositely-disposed longitudinal slots, a sleeve carrying a hook and mounted upon said shaft, a cross-bar integral with the sleeve passing through said slots, and a spring-latch pivoted to said sleeve and adapted to engage with any one of a series of notches provided upon the exterior surface of the shaft; of a spring positioned interiorly of the shaft between the said cross-bar and one of the ends of the shaft, and a piston integrally connected by a rod with the cross-bar and positioned in an air-chamber provided in the opposite end of the said shaft.

2. In a mail-bag catcher, the combination of a hollow shaft provided with an air-chamber at one end, and having longitudinal slots extending from a short distance of the said chamber toward the other end of the shaft, a sleeve carrying a receiving-hook mounted upon said shaft, and a piston positioned in said air-chamber and integrally connected with the said piston.

3. In a mail-bag catcher, the combination with a hollow shaft, and its supports, of a sleeve carrying a receiving-hook slidably mounted upon the said shaft and provided with a cross-bar extending through longitudinal slots of the shaft, a spring interposed between the said cross-bar and a plug inserted in the end of the shaft, and a spring-actuated latch pivotally connected with the said sleeve and adapted to engage with a series of notches provided on the said shaft.

752,335. BOTTLE. JAMES A. FOSTER, Binghamton, N. Y. Filed Mar. 14, 1903. Serial No. 147,815. (No model.)



Claim.—1. A device of the class described comprising a receptacle having inner and outer necks of unequal length forming an intervening space closed at the bottom, the outer neck being extended beyond the inner one to receive a stopper, a superimposed cap fitted over the inner neck and spaced from the same, said cap being extended above the inner neck and terminating short of the bottom of the intervening space between the necks to provide a tortuous passage around the body portion of the cap, and locking mechanism located within the cap for holding the same in place, substantially as described.

2. A device of the class described comprising a receptacle having inner and outer necks of unequal length forming an intervening space, the outer neck being extended beyond the inner neck to receive a stopper, a superimposed cap fitted over the inner neck and spaced from the same and from the outer neck, and locking means located within the cap and engaging the same and the inner neck and supporting the said cap in its superimposed position, substantially as described.

3. A device of the class described comprising a receptacle having inner and outer necks of unequal length, the outer neck being extended beyond the inner neck to receive a stopper, a cap arranged over the inner neck and spaced from the same and the outer neck, and a locking device located between the inner neck and the cap and consisting of an approximately V-shaped spring applied to one of the parts and engaging the other, substantially as described.

4. A device of the class described comprising a receptacle having inner and outer necks of unequal length, the outer neck being extended beyond the inner one to receive a stopper, a cap arranged over the inner neck and spaced from the same and from the outer neck and provided with an interior shoulder, and a locking device located within the cap and consisting of a series of springs applied to the inner neck and extending above the same to form a support for the cap and engaging the shoulder of the latter, substantially as described.

5. A device of the class described comprising a receptacle having inner and outer necks of unequal length, the outer neck being extended beyond the inner neck to receive a stopper, a cap arranged over the inner neck and spaced from the same and from the outer neck, and a locking device interposed between the inner neck and the cap and composed of a collar or band interlocked with the inner neck, and a series of approximately inverted-V-shaped springs fixed to the collar or band and engaging the cap, substantially as described.

6. A device of the class described comprising a receptacle having inner and outer necks of unequal length, the outer neck being

extended beyond the inner neck to receive a stopper, a cap fitted over the inner neck and spaced from the same and from the outer neck to provide a tortuous passage, and means for automatically locking the cap when the same is placed in position, substantially as described.

752,336. LOCKET. THEODORE W. FOSTER, Providence, R. I. Filed Oct. 27, 1903. Serial No. 178,721. (No model.)

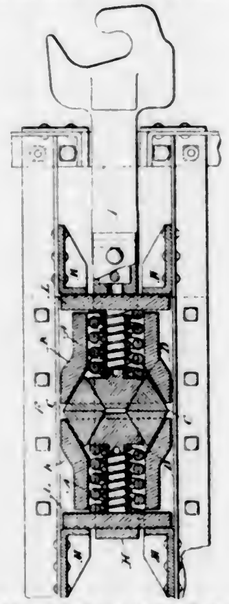


Claim.—1. In a circular locket, the combination of the front frame *c* having the knuckle c^2 formed integral therewith, the back frame *d* having the knuckles d^2 d^2 formed integral with it, and the pintle *g* having the straight central portion *g'* and the straight ends g^2 g^2 bent at an angle to the central portion to form a semiconcealed hinge, the knuckles of which are set at right angles to lines drawn from the centers of the frames *c* and *d* through the centers of the knuckles, as described.

2. In a locket, the combination with the back frame *d*, of the ring d^4 formed integral with the back frame, and a tubular ring inclosing the interior ring d^4, as described.

3. In a locket, the combination of the front cover *a* having the cut-away portion *a'*, the back cover *b* having the cut-away portion *b'*, the front frame *c* having the depressed portions *c'*, the knuckle c^2, and the aperture c^3, the back frame *d* having the depressed portion *d'*, the knuckles d^2 d^2, the stamped-up tent d^3, and the ring d^4, the wire pintle *g* having the straight central portion *g'*, and the straight ends g^2 g^2 bent at angle to the central portion, and the cup-shaped blank *h* with the cut-away portion *h'* adapted to form a tubular ring inclosing the ring d^4, all for the purpose as described.

752,337. DRAFT-RIGGING. RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, New York, N. Y., a Corporation of New Jersey. Filed Oct. 19, 1903. Serial No. 177,630. (No model.)



Claim.—1. In a rigging such as described, the combination of two units all of the members of which are movable longitudinally of the line of strain, each of said units embodying resilient members and friction elements at one end of said resilient members, said units being assembled in alinement in the line of strain with their friction elements in proximity; substantially as described.

2. In a rigging such as described, the combination with oppositely-disposed springs arranged in the line of strain to be resisted and friction elements interposed between the proximate ends of said spring, of casings movable toward and from each other and having friction-surfaces for rendering the friction elements operative during the relative movement of the casings; substantially as described.

3. In a rigging such as described, the combination of two units movable toward and from each other and each embodying the following instrumentalities, to wit; a casing, a spring arranged longitudinally of said casing, a follower having inclined faces and supported by said spring and wedge-blocks interposed between said follower and casing so as to be moved transversely of the line of strain by the relative movement of the casing and follower, the said units being assembled with their inclined-faced followers and wedge-blocks in proximity; substantially as described.

4. In a rigging such as described, the combination of the following instrumentalities, to wit; wedge-blocks movable transversely of the line of strain, oppositely-disposed followers interposed between said wedge-blocks, oppositely-disposed casings inclosing said wedge-blocks and movable toward and from each other in the line of strain, and oppositely-disposed springs arranged outside of the followers in the line of strain, with means for moving said casings in the line of strain to effect the transverse movement of the wedge-blocks and longitudinal compression of the springs from their proximate ends; substantially as described.

5. In a rigging such as described, the combination with the oppositely-arranged casings closed at their outer ends and open at their proximate ends, springs in said casings, followers interposed between the proximate ends of said springs and friction elements interposed between said followers and the proximate faces of the casings; substantially as described.

6. In a rigging such as described, the combination with the oppositely-disposed casings movable toward and from each other and closed at their outer and open at their inner ends, springs mounted in said casings, wedge-shaped followers interposed between proximate ends of the springs and wedge-shaped friction elements interposed between the proximate ends of the casings and followers whereby said friction elements are made active by an inward movement of either casing; substantially as described.

7. In a rigging such as described, the combination with oppositely-disposed casings having their proximate ends open, springs mounted in said casings and friction elements interposed between the proximate ends of the springs and confined by the casings, of stops for limiting the movement of said casings away from each other but permitting of a relative movement of the casings toward each other; substantially as described.

8. In a rigging such as described, the combination with the oppositely-disposed casings movable toward and from each other and having their proximate ends open, springs mounted in said casings, followers interposed between the proximate ends of said springs, friction elements between the followers and casings respectively and a traveler interposed between the friction elements of the respective casings; substantially as described.

9. In a rigging such as described, the combination with the oppositely-disposed casings movable toward and from each other and having their proximate ends open, springs mounted in said casings, wedge-shaped followers interposed between the proximate ends of said springs, wedge-shaped friction elements interposed between the followers and casings respectively, and a traveler interposed between the friction elements of the respective casings; substantially as described.

10. In a draft-rigging and buffing-rigging, the combination with stops, of oppositely-disposed casings having their proximate ends open and their distant ends extending in line of strain beyond the stops, shoulders on the proximate ends of said casings cooperating with the stops to limit the movement of the casings away from each other, the springs mounted in the casings and friction elements interposed between the proximate ends of the springs and casing; substantially as described.

752,338. FIRE-STARTING DEVICE. JOSEPH A. GEORGE and FRANK C. DOHRMANN, Brooklyn Hills, N. Y. Filed Oct. 20, 1903. Serial No. 177,816. (No model.)

Claim.—1. The combination, in a fire-igniting device of the character described, of a barrel portion, a firing-bolt operatively located therein, said bolt carrying an automatical locking-pin to engage said barrel, a trigger operatively supported on said barrel to release said locking-pin, a cartridge-holder longitudinally movable on said barrel, a spring for said firing-bolt, a push-pin projecting

from said bolt and extending through longitudinal openings in the barrel, said cartridge-holder adapted to engage said push-pin to carry back and lock the firing-bolt, said cartridge-holder having spring-fingers, adapted to hold a glass or other like breakable cartridge, means on said fingers to retain the cartridge in place and also serve as a kicking-post against the blow of the firing-bolt, for the purpose set forth.



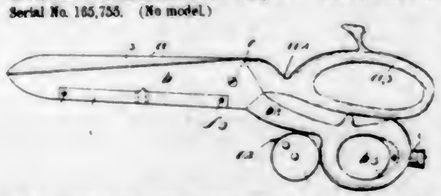
2. The combination, in a fire-igniting device of the character described, of a barrel, a firing-bolt therein, a spring to actuate said bolt, said barrel having longitudinal openings, a push-pin projecting from said firing-bolt through said openings, an automatical locking pin in said firing-bolt, a trigger therefor, a cartridge-holder comprising a head portion adapted to slide on said barrel to engage said push-pin and lock the firing-bolt, means to prevent said cartridge-holder slipping off from the barrel when in its forward position, cartridge-holding spring-fingers projecting from said head, means therein to retain a cartridge in operative position and also to serve as a kicking-post against the blow of the firing-pin, for the purpose set forth.

3. The combination, with a firing-bolt and a cartridge-holder, of a glass or other like breakable cartridge adapted to hold an inflammable substance, a stopper therefor, a cap holding a low-grade primary firing or igniting material projecting beyond the mouth of said cartridge, a fulminate or other like explosive cap projecting within the primary igniting material, for the purpose set forth.

4. The combination, with a firing-bolt and a cartridge-holder, of a glass or other like breakable cartridge adapted to hold an inflammable substance, a receptacle for holding a low-grade primary igniting material projecting beyond the mouth of said cartridge, said receptacle carrying an explosive cap for first igniting said primary igniting material, and means for attaching said receptacle to the cartridge, for the purpose set forth.

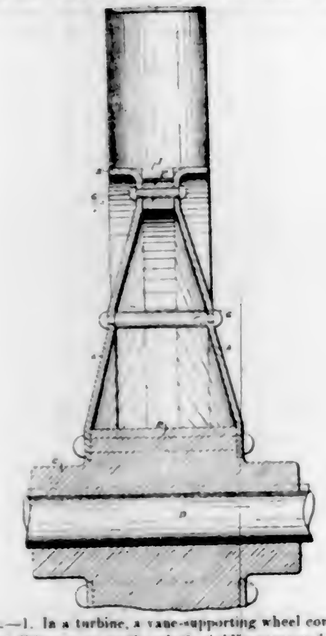
5. The herein-described cartridge comprising a glass or other like breakable body adapted to contain an inflammable material, a two-part receptacle for holding a low-grade primary igniting material, said base carrying an explosive cap adapted to first ignite the contents of said receptacle, for the purpose set forth.

752,339. SHEARS. ADOLF GUTSTEIN, New York, N. Y., assignor of one-half to Heinrich Licht, New York, N. Y. Filed July 16, 1903. Serial No. 165,755. (No model.)



Claim.—A pair of tailors' shears, one of the blades of which is provided with a chalk-sharpening device comprising a longitudinal recess in the back part thereof, a spring-plate secured to said blade and forming a cover for said recess, and a cutting device detachably secured transversely of said recess, and provided with edges at its opposite sides, substantially as shown and described.

752,340. TURBINE. HANS HOLLWARTH, Hamilton, Ohio, assignor to the Hooven-Owens-Rentschler Company, Hamilton, Ohio, a Corporation of Ohio. Filed Oct. 22, 1903. Serial No. 178,062. (No model.)



Claim.—1. In a turbine, a vane-supporting wheel comprising a plurality of disks; a supporting-shaft rigidly connected with the disks; and a ring located between the outer portions of the disks; a series of vanes, each having a plurality of lips extending at different angles into cross-channels in said ring from the inner and outer sides of the vane respectively; said disks being arranged to cover the ends of the cross-channels to hold the vanes in position laterally.

2. In a turbine, a movable member having a vane-supporting ring provided with channels in its periphery substantially parallel at the surface of the ring, but extending inwardly at different angles, and a series of vanes each having a plurality of lips engaged in said channels.

3. In a turbine, a movable member having a vane-supporting ring, and a series of vanes mounted on the ring; each of said vanes and the ring being formed to interact in different planes cutting the surface of the ring along substantially parallel lines, but extending at different angles to such surface; together with means for holding the interacting portions of the vanes in position against lateral movement.

4. In the running-wheel of a turbine, a vane-supporting block provided with channels extending at different angles in the outer surface of the block, and a vane having lips entering said channels.

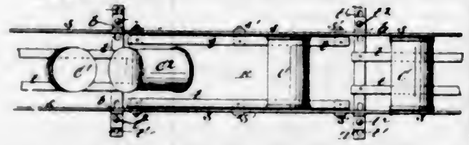
5. In the running-wheel of a turbine, a vane-supporting block having channels extending into the outer portion of the block at different angles but parallel at the surface, and a vane having lips engaged in said channels.

6. In the running-wheel of a turbine, a vane-supporting block having channels extending into the outer portion of the block at different angles but parallel at the surface; and a vane having lips engaged in said channels, said lips having enlarged portions fitting enlarged portions of the channels.

7. In a turbine, a movable member having a shaft, radially-converging disks rigidly connected with the shaft, a ring interposed between the outer portions of the disks and rigidly secured thereto, a series of vanes having lips engaging in channels in the ring; and a ring encircling the outer ends of the vanes, whereby the latter are held in the inner ring.

8. In a turbine, a movable member having a vane-supporting ring; and a series of vanes mounted on the ring; each of said vanes being arranged to interact with the ring at the central end portions of inner and outer surfaces of the vane, and at different angles.

752,341. CAN-RUNWAY. ARCHIBALD R. HOPKINS and OLIN S. FELLOWS, Middletown, N. Y. Filed Oct. 9, 1903. Serial No. 176,360. (No model.)



Claim.—1. A runway for cylindrical cans which are of greater length than diameter, formed with a relief-opening in the can-supporting floor of greater width than the diameter of the can to be conducted but of less width than the length of the said can, whereby cans traveling on the runway obliquely to the length thereof will automatically fall through said opening.

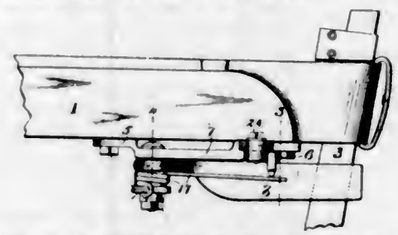
2. A runway for cylindrical cans which are of greater length than diameter, formed with a relief-opening in the can-supporting floor of greater width than the diameter of the can to be conducted but of less width than the length of the said can, whereby cans traveling on the runway obliquely to the length thereof will fall automatically through said opening, together with means for adjusting the width of said relief-opening, for the purpose set forth.

3. In a runway for cylindrical cans which are of greater length than diameter, the combination with the can-supporting floor formed with a relief-opening of greater width than the diameter of the can to be conducted, but of less width than the length of the said can, whereby cans traveling on the runway obliquely to the length thereof will fall automatically through said opening, of side rails arranged parallel to said relief-opening, for the purpose set forth.

4. In a runway for cylindrical cans which are of greater length than diameter, the combination of a can-supporting floor formed with a relief-opening of greater width than the diameter of the can to be conducted, but of less width than the length of the said can, whereby cans traveling on the runway obliquely to the length thereof will fall automatically through said opening, means for adjusting the width of said relief-opening, parallel side rails for guiding the ends of the cans passing over said relief-opening, and means for adjusting the said parallel rails with relation to each other.

5. A runway for cylindrical cans which are of greater length than diameter, having a bottomless relief-opening of greater width than the diameter of the can to be conducted but of less width than the length of such can, and guides for the ends of the cans as they travel on the runway, the construction and arrangement being such as to allow a can moving with its length otherwise than transversely of said runway to drop through said opening.

752,342. PICKER-STICK CHECK. HENRY J. JARRY, Fall River, Mass., assignor of one-half to James A. McLane, Fall River, Mass. Filed Oct. 24, 1903. Serial No. 178,430. (No model.)



Claim.—1. A picker-stick check for looms, comprising a check-blade pivotally supported adjacent to the picker-stick slot in the lay-beam, means to adjust the pivot of said blade toward and away from said slot, a spring arranged to normally hold said blade projecting over said slot, a stop to limit the movement of said blade under the influence of said spring and means to adjust said stop toward and away from said slot.

2. A picker-stick check for looms, comprising a check-blade pivotally supported adjacent to the picker-stick slot in the lay-beam, a spring attached to the pivot of said blade and extending back thereof, a stop on the back of said blade and a coöperating stop on the lay-beam, said pivot and said coöperating stop being both adjustable toward and from the slot in the lay-beam.

3. A picker-stick check for looms comprising a plate adapted to be mounted on the lay-beam at one side of the slot therein, a check-blade pivotally supported on said plate, the pivot of said blade being adjustable transversely of said plate so as to bring it nearer to or farther from said slot when the plate is in position on the lay-beam, a spring attached to said pivot and arranged to press said blade outwardly in a direction to project over said slot, when said plate is in position on the lay-beam, and a stop to limit the outward movement of said blade, said stop also being adjustable transversely of said plate.

4. A picker-stick check for looms, comprising a plate adapted to be mounted adjacent to the picker-stick slot, a bushing pivotally held on said plate and having a flange extending partially around its periphery, a check-blade pivotally mounted on said bushing, a spring coiled around said bushing between said blade and said flange and having one end engaging one end of said flange, or the other according to whether the check is right or left hand, the other end of said spring extending back of said blade, and an adjustable stop on said plate to limit the movement of said blade under the influence of said spring.

5. A picker-stick check for looms, comprising a plate having an offset portion adapted to be mounted adjacent to the slot in the lay-beam, a bolt passing through a transverse slot in said offset portion, a bushing surrounding said bolt and adapted to be clamped between said offset portion and the nut of the bolt, a flange extending around a portion of the periphery of said bushing, a check-blade pivotally mounted on said bushing, a spring surrounding said bushing adjacent to said blade, one end thereof engaging one end of said flange and the other end extending back of said blade, a bracket on the back of said blade carrying a lug, a block slidable transversely on said offset portion and carrying a stop to coöperate with the lug on the blade to limit the movement of said blade under the influence of said spring, and means to clamp said block to said offset portion.

6. A picker-stick check for looms, comprising a plate having an offset portion adapted to be mounted adjacent to the picker-stick slot in the lay-beam, a bolt passing through a transverse slot in said offset portion, a bushing surrounding said bolt and adapted to be clamped between said offset portion and the nut of said bolt, said bushing having a reduced circular portion adjacent to the offset portion of said plate, a larger circular portion adjacent to said reduced portion, an angular portion adjacent to said larger portion and flanges on said larger portion adjacent to said angular portion, each of said flanges extending only partially around the periphery of said bushing and one of said flanges having recesses formed in its ends, a check-blade pivoted on said reduced portion, a spring coiled around said larger portion and having one end engaging one of said recesses and the other end extending back of said blade, a hook-shaped stop on the back of said blade and a coöperating adjustable stop on said plate to limit the movement of said blade under the influence of said spring.

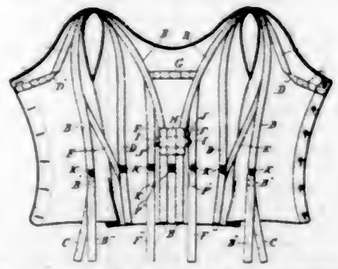
7. A picker-stick check for looms, comprising a blade adapted to be pivotally mounted adjacent to the picker-stick slot in the lay-beam, the face of said blade being concaved so as to offer a gradually-increasing resistance to the picker-stick, a stop-bracket attached to the back of said blade at approximately the longitudinal and vertical center thereof, a coöperating stop-lug mounted on the lay-beam, and a spring attached to the pivot of said blade and extending to a point adjacent to said stop-bracket, the attaching means of said spring being reversible according to which side of the picker-stick slot the blade is mounted.

8. A picker-stick check for looms, comprising a check-blade adapted to be pivotally mounted adjacent to the picker-stick slot in the lay-beam, the face of said blade being constructed to offer an increasing resistance to the picker-stick, coöperating stops on said blade and on the lay-beam to limit the movement of said blade toward the picker-stick slot, a spring reversibly attached to the pivot of said blade and extending back thereof to a point adjacent to said stops, the pivot of said blade and the stop on the lay-beam being adjustable toward and away from the picker-stick slot.

752,343. COMBINED UNDERWAIST AND GARMENT SUPPORTER. LOIS M. JOHNS, Grand Rapids, Mich. Filed June 1, 1903. Serial No. 159,437. (No model.)

Claim.—1. The combination of an elastic underwaist, longitudinally unyielding tapes attached thereto, two of said tapes extending vertically and close together upon the lower middle portion of the back and thence diverging outward and extending over the shoulders and thence downward on the front; two other tapes extending vertically along the outer portions of the back and thence over the shoulders, and thence downward and converging on the front, and

thence extending horizontally across the front, and garment-supporting means attached to said tapes near the waist-line.



2. The combination of an elastic underwaist, longitudinally unyielding tapes attached thereto and extending vertically and near each other at the lower back portion of the waist, thence diverging outward and extending over the shoulders, and thence downward on the front, garment-supporting means attached to said tapes, a plate detachably secured to the middle back portion of said tapes, and outwardly projecting studs on the respective ends of said plate.

3. The combination of an elastic underwaist, longitudinally unyielding tapes attached thereto and extending in diverging curved lines from the middle of the back and over the shoulders and thence downward on the front side, garment-supporting means attached to said tapes, a pocket attached to said tapes near the middle back portion of the garment, a plate detachably inserted in the pocket and oppositely projecting therefrom, and rearwardly-projecting studs mounted on the respective ends of said plate.

4. The combination of an elastic underwaist, longitudinally unyielding tapes secured thereto and extending in diverging lines from the middle back portion over the shoulders and thence downward on the front side thereof, and extended below the waist at the front, tapes attached to the diverging rear portions of said first-named tapes and thence extending downward below the waist at the rear, garment-supporting means attached to said tapes near the waist-line, a pocket attached to said first-named tapes near the middle back portion of the waist, a plate inserted in the pocket and projecting therefrom at each end, and studs on the respective ends of said plate and projecting rearward therefrom.

5. The combination of an elastic underwaist, longitudinally unyielding tapes secured thereto, and extending upward at the middle of the back and thence diverging and extending over the shoulders, and thence downward, and prolonged below the waist at the front, like tapes attached to the diverging back portions of the same and extending below the waist at the rear, like tapes extending upward on the side portion of the back, and thence over the shoulders and in downward converging lines on the front and thence turned at obtuse angles and extending horizontally across the front, a horizontal tape connecting the diverging rear portions of the first-named tapes, said horizontal tapes all being longitudinally slack or full, to permit limited expansion of the waist, and garment-supporting means attached to the vertical tapes near the waist-line.

6. The combination of an elastic underwaist, longitudinally unyielding tapes attached thereto, and extending in curved diverging lines from the middle back portion over the shoulders, thence downward on the front, other like tapes extending upward and outward in curved lines along the side portions of the back and over the shoulders, and thence downward and horizontally across the front, tapes extending diagonally beneath the armholes and connecting the front and rear tapes, and garment-supporting means attached to the tapes near the waist-line.

7. In combination with an elastic underwaist, tapes attached thereto, and extending over the shoulder and downwardly at the front and rear thereof, garment-supporting means attached to said tapes near the waist-line, a pocket attached to said tapes near the middle back portion thereof, a plate detachably inserted in said pocket and projecting therefrom at each side and studs on the respective ends of said plate and projecting rearwardly therefrom.

8. The combination of an elastic underwaist, tapes attached thereto as follows: a pair extending vertically and close together on the lower back portion and thence diverging outward and over the shoulders and thence downward along the front and extending below the same, a second pair extending along the outer sides of the back in diverging lines and over the shoulders and thence downward and inward on the front and thence turned at an obtuse angle and extended loosely across the front, two other tapes attached to the diverging back portions of the first-named tapes and thence extending downward below the waist, two tapes extending diagonally beneath the armholes and connecting the front and rear tapes, garment-supporting means attached to the tapes near the waist-line, a pocket attached to the middle back portion of the first-named tapes, a plate detachably inserted in the pocket and projecting therefrom at each end, and studs on the ends of said plate and projecting rearward therefrom.

752,344. **CREAM-CAN.** SAMUEL A. JONES and FLETCHER W. DOWNHAM, Deshler, Ohio. Filed July 17, 1903. Serial No. 166,002. (No model.)



Claim.—1. In an apparatus of the class described, the combination with inner and outer receptacles having pipes or tubes detachably fitted together and forming a separable joint, and an exteriorly-arranged adjustable device comprising a member extending outwardly from the inner receptacle, an upright member mounted on the outer receptacle, and means for adjustably securing the two members together and for creating a pressure on the said joint whereby the pipes or tubes are held firmly together, substantially as described.

2. In an apparatus of the class described, the combination with inner and outer receptacles having pipes or tubes fitted together and forming an upright separable joint, an approximately L-shaped plate secured to the inner receptacle and interposed between the same and the outer receptacle and projecting outward over the latter, and an upright rod or member mounted on the outer receptacle and piercing the outwardly-extending portion of the L-shaped plate and provided with means for adjustably engaging the same, substantially as described.

3. In an apparatus of the class described, the combination with inner and outer receptacles having pipes or tubes fitted together and forming an upright joint or connection, and an adjustable device comprising a member mounted on the inner receptacle and projecting outward over the outer receptacle, a rod mounted on the outer receptacle and having an upwardly-extending offset portion piercing the projecting member of the inner receptacle and provided with threads, and a nut mounted on the threaded portion of the rod and engaging the said member, substantially as described.

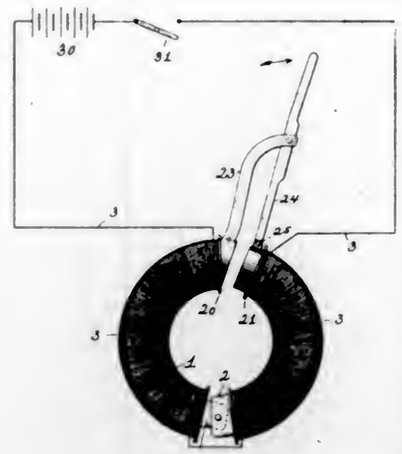
4. In an apparatus of the class described, the combination of an outer receptacle, a spigot or faucet having an arm piercing the outer receptacle and provided with an upright tapering socket, an inner receptacle having a depending tapering nipple fitted in the same socket and forming a water-tight joint, an approximately L-shaped plate secured to the inner receptacle and interposed between the same and the outer receptacle and provided with a projecting outer portion extending over the outer receptacle and arranged out of contact with the same, a rod secured to the outer receptacle and bent between its ends to offset the upper portion from the said outer receptacle, the upper portion of the rod being threaded and piercing the projecting portion of the L-shaped plate, and a nut arranged on the threaded portion of the rod and engaging the projecting portion of the plate, substantially as described.

752,345. **ELECTROMAGNET.** JAMES C. KELLER and OTTO F. KADOW, Cleveland, Ohio. Filed May 23, 1903. Serial No. 158,413. (No model.)

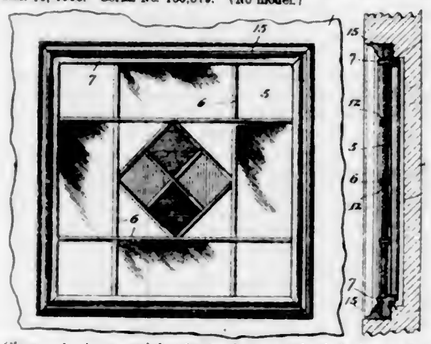
Claim.—1. An electromagnet provided with a core consisting of two members, one fixed and provided with a bracket and the other movable on a hinge and provided with a rod connected to the bracket.

2. An electromagnet provided with a core consisting of two members one fixed and provided with a bracket and the other movable on a hinge, and a rod pivotally connected with the movable member and the bracket.

752,345.



752,346. **LEADED GLASS MOSAIC.** FRANK L. LINDEN, Chicago, Ill., assignor to Linden Glass Company, Chicago, Ill., a Firm. Filed Dec. 19, 1903. Serial No. 185,879. (No model.)



Claim.—1. As an article of manufacture, a leaded glass mosaic having applied to the back side thereof a dust and moisture proof covering, substantially as described.

2. As an article of manufacture, a leaded glass mosaic having applied to the back surface thereof a protective covering of pliable sheet metal, substantially as described.

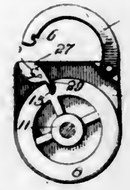
3. As an article of manufacture, a leaded glass mosaic having applied to the back surface thereof a protective covering of sheet material with an intermediate layer of adhesive material, substantially as described.

4. As an article of manufacture, a leaded glass mosaic having applied to the back surface thereof a protective covering of pliable sheet metal bent to fit the plane and raised surfaces of the panels and ribs, respectively, and an intermediate layer of waterproof adhesive material, substantially as described.

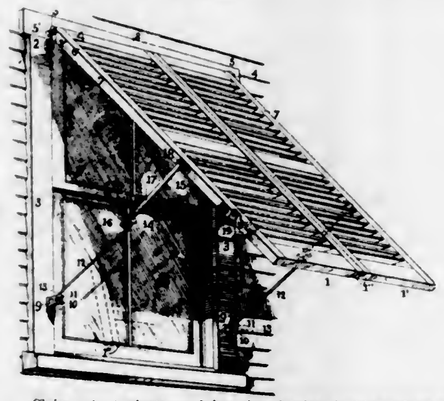
5. As an article of manufacture, a dust and moisture proof leaded glass mosaic comprising a bounding-frame containing component panels and grooved connecting-ribs in which said panels are set, a layer of waterproof cement applied to the back of the composite structure, and an outer protective covering of pliable sheet metal applied to the back of the structure and adhered thereto by said cement and by solder connecting it to the bounding-frame and ribs of the mosaic, substantially as described.

752,347. **PERMUTATION-PADLOCK.** DAVID F. LLEWELLYN, Hazleton, Pa. Filed May 28, 1903. Serial No. 159,168. (No model.)

Claim.—In a permutation-padlock, the casing having its parts secured together by means of dovetail lugs, and rivets, a hasp hinged at one end to the casing and between the plates thereof, and a notch formed in its opposite end, a pivot-pin 4, rotatable tumblers 17, and 22, having peripheral notches therein, one edge each of which being curved, mounted upon said pin, driving-tumbler having a peripheral notch similar to tumblers 17 and 22, the circular boss formed upon the outer face of said driving-tumbler, and having a threaded opening engaging the threaded stem of the finger-piece, the graduation-plate 15, mounted on the boss; in combination with the pivotally-mounted locking-dog consisting of the curved tailpiece 29, lug 30, and extending lip 31, all constructed, arranged, and operated as herein described



752,348. **HINGE AND AUTOMATIC CATCH FOR AWNING-BLINDS.** FRANK W. LUTTS, Natick, Mass. Filed July 10, 1902. Serial No. 115,045. (No model.)



Claim.—1. A pintle-receiving plate having double sockets and adapted to be attached to the upper and outer portion of the window-stiles, a staple provided with a curved pintle coacting with said sockets and adapted to be secured near the tops of the window-casings contiguous to said stiles, and additionally adapted to form a bearing for the empty sockets, when the bottoms of said blinds are moved horizontally outward or inward, to prevent by the contact of said sockets with the casement-head the displacement of the shutter as specified, said devices constructed to be interchangeable and adapted to suspend the blinds in a perpendicular and a horizontal position, as specified.

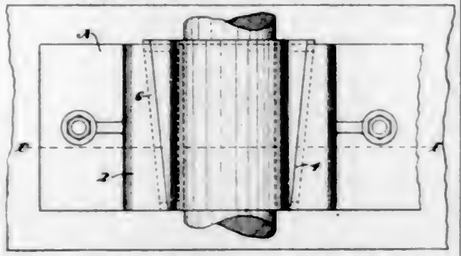
2. In combination with a window-blind, a staple having a bearing and a socket superimposed above said bearing, a sustaining-rod having a sinuous lower end adapted to be temporarily retained in said socket and resting upon said bearing, and provided with a slotted plate at its upper end, means slidingly embraced by said plate and pivoted to the stile to automatically support in an adjustable manner the blinds in predetermined positions horizontally to form an awning as hereinbefore specified.

3. In a window-blind adapted as an awning, the locking-plate provided with the catch 20, adapted to automatically receive and secure the adjustable extensions 12 and 15 in their closed positions, and having lips 23 and 24, the former as a stop to the rod 12 and the latter to prevent unshipment of the closed blinds, the attached spring 21 having a nose arranged to lie in the path of, and contiguous to said rod, and the finger-piece 25 actuating the spring to release the assembled extensions when the blind is to be extended substantially in the manner described.

4. In a blind convertible from a single to a double awning-shutter, a locking-plate having a catch automatically securing the closed extensions, a supporting-bar coacting with said locking-plate when the shutter is closed, and a sustaining-rod adjustably united to the supporting-bar in a manner to regulate the distance of the shutter from the casement; in combination therewith a staple form-

ing the lower hinge provided with a bearing upholding said sustaining-rod, and a superimposed socket movably supporting the rod either in extended or closed position of the shutter as specified.

752,349. BATTERY STEM-GUIDE. WILLIAM H. MARTIN, Nevada City, and ALEXANDER MCCOMBIE, Grass Valley, Cal. Filed July 22, 1903. Serial No. 166,574. (No model.)



Claim.—1. A battery-guide, comprising a metallic block having upon opposite sides of its stem-space the downwardly-converging guides, and a cap having lateral flanges the edges of which converge downwardly and are adapted to engage said guides.

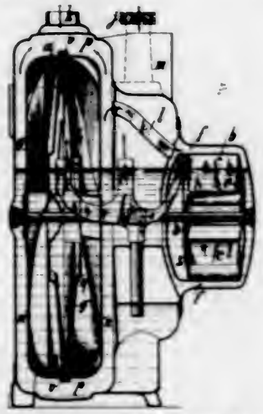
2. A battery-guide, comprising a metallic block having opposed, downwardly-converging guides upon opposite sides of the stem-space, and a cap having its side edges converging downwardly and fitting said guides and being secured thereby independent of other fastenings.

3. A battery-guide, comprising a metallic block having downwardly-converging guides, a cap having converging side edges to interlock with said guides, and removable liners interposed in said guides.

4. A battery-guide, comprising a block having converging guides; a cap having converging side edges fitting said guides, the surface of the block adjacent the cap on each side of the stem-space being channeled, and removable bushings seated in said channels.

5. A battery-guide comprising a block having downwardly-converging channels forming guides; a cap having tapering side edges to interlock with said guides; and a tapered non-metallic bushing fitting each channel and having a thickness relatively greater than the depth thereof.

752,350. GAS-METER. LAURENT MILLET, Paris, France, assignor to La Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz, Paris, France. Filed Aug. 26, 1901. Serial No. 73,395. (No model.)



Claim.—1. In a gas-metec, a casing, an inlet for gas to the casing, an outlet for gas from the casing, and a rotary measuring-wheel comprising a double series of compartments radiating from the center, said compartments being narrower at the center than at the periphery, substantially as described.

2. In a gas-meter, a casing, an inlet for gas to the casing, an outlet for gas from the casing, and a rotary measuring-wheel comprising a double series of compartments radiating from the center, said compartments being narrower at the center than at the periphery, said wheel being provided with a contraction *g* toward its center.

3. In a gas-meter, the combination with a casing, an inlet for gas to the casing, an outlet for gas from the casing, and a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center.

4. In a gas-meter, the combination with a casing, an inlet for gas to the casing, an outlet for gas from the casing, a rotary measuring-wheel comprising a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center, and means for leading the gas at the entrance-pressure into the center of the measuring-wheel.

5. In a gas-meter, the combination with a casing, an inlet for gas to the casing, an outlet for gas from the casing, and a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center, means for leading the gas at the entrance-pressure into the center of the measuring-wheel and means for causing the pressure of the gas within the measuring-wheel to fall from the pressure of entry to the pressure of outlet.

6. In a gas-meter for invariable supply the combination with a casing containing a mass of water, an inlet for gas to the casing an outlet for gas from the casing, a rotary measuring-wheel comprising a double series of compartments radiating from the center, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber and of a measuring-wheel.

7. In a gas-meter for invariable supply the combination with a casing containing a mass of water, an inlet for gas to the casing an outlet for gas from the casing a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber of the measuring-wheel.

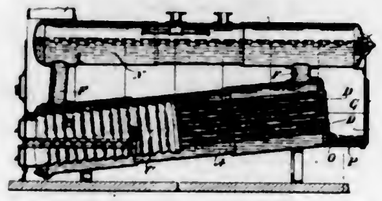
8. In a gas-meter for invariable supply the combination with a casing containing a mass of water, an inlet for gas to the casing an outlet for gas from the casing a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center and means for leading the gas at the entrance-pressure into the center of the measuring-wheel, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber of the measuring-wheel.

9. In a gas-meter for invariable supply the combination with a casing containing a mass of water, an inlet for gas to the casing an outlet for gas from the casing a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center means for leading the gas at the entrance-pressure into the center of the measuring-wheel, and means for causing the pressure of the gas within the measuring-wheel to fall from the pressure of entry to the pressure of outlet, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber of the measuring-wheel.

10. In a gas-meter for invariable supply the combination with a casing containing a mass of water an inlet for gas to the casing an outlet for gas from the casing a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center means for leading the gas at the entrance-pressure into the center of the measuring-wheel means for causing the pressure of the gas within the measuring-wheel to fall from the pressure of entry to the pressure of outlet, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber of the measuring-wheel and means for causing the pressure of the gas in the compensator to rise from the pressure of outlet to the pressure of inlet to prevent the disturbance of the water.

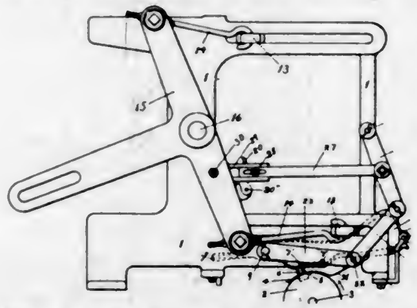
11. In a gas-meter for invariable supply the combination with a casing containing a mass of water an inlet for gas to the casing an outlet for gas from the casing a rotary measuring-wheel consisting of a plurality of symmetrical plates soldered together round the circumference to constitute a double series of compartments radiating from the center means for leading the gas at the entrance-pressure into the center of the measuring-wheel means for causing the pressure of the gas within the measuring-wheel to fall from the pressure of entry to the pressure of outlet, a compensating paddle-wheel on the same spindle as the measuring-wheel arranged to take up the excess of gas caused by the variation of the water-level so as to bring the excess of gas back again into the distributing-chamber of the measuring-wheel and means for supporting the casing against a wall or on a floor.

752,351. STEAM-BOILER. JOSEPH A. MUMFORD, Roslyn, N. Y. Filed Apr. 9, 1903. Serial No. 151,769. (No model.)



Claim.—The combination with a boiler having an internal fire-box and fire-tubes of a superposed water-drum, water-legs connecting the drum and the jacket of the boiler, a casing, a return flue or passage within the casing and between the boiler and drum connecting at one end with the stack, a chamber at the rear end of the boiler projecting downwardly below the lowermost fire-tube and protective material within the chamber upon which the deposited products of combustion fall.

752,352. SHEDDING MECHANISM FOR LOOMS. BENJAMIN P. MCGUINNESS, Grafton, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed May 29, 1903. Serial No. 159,292. (No model.)



Claim.—1. In a dobby, the combination with the pattern-chain cylinder, and pattern-indicators, and the indicator levers or fingers extending over the pattern-indicators, of means for automatically raising all said indicator levers or fingers at every pick, and holding them above the pattern-indicators, during a partial rotation of the pattern-cylinder, substantially as shown and described.

2. In a dobby, the combination with the pattern-chain cylinder and pattern-indicators, and the indicator levers or fingers extending over the pattern-indicators, of means to automatically raise all of said indicator levers or fingers at desired intervals during the operation of the loom and hold them above and out of engagement with the pattern-indicators during a partial rotation of the pattern-cylinder, substantially as shown and described.

3. In a dobby, the combination with the pattern-chain cylinder and pattern-indicators, and the indicator levers or fingers extending over the pattern-indicators, of means to automatically raise all of said indicator levers or fingers at every pick and hold them above and out of engagement with the pattern-indicators during a partial rotation of the pattern-cylinder, and allow all of them to drop to engage the pattern-indicators, or the stop-bar, substantially as shown and described.

4. In a dobby mechanism, the combination with a rotatable pattern-chain, and pattern-pins thereon, and indicator levers or fingers extending over the chain, of a rod or bar extending under the free ends of said indicator levers or fingers, and means for automatically raising and lowering said bar at every pick, to raise and hold the indicator-levers above and out of engagement with the pattern-pins during a partial rotation of the pattern-chain, and allow all of them to drop into engagement with the pattern-pins, or the supporting-bar, substantially as shown and described.

5. In a dobby mechanism, the combination with the pattern-chain, and pattern-pins thereon, and indicator levers or fingers pivotally mounted over said chain, of a transverse rod or bar extending under the free ends of said levers, and means for automatically raising and lowering said bar at regular intervals during the operation of the loom, to raise all the indicator-levers, and hold them in raised position, and allow them to drop, and a spring moving with said bar and adapted to engage and bear on the bars of the pattern-chain, substantially as shown and described.

6. In a dobby mechanism, the combination with indicator levers or fingers provided with hooks or extensions on their free ends, of a transverse removable rod or bar to extend under said extensions or hooks, and support the indicator levers or fingers in an inoperative position, substantially as shown and described.

7. In a dobby mechanism, the combination with the pattern-chain, the indicator levers or fingers, and the lower hook-latches, of a grate through which the ends of the indicator levers or fingers and the free ends of the hook-latches extend, said grate made in two parts, one part pivotally attached to the other part and having projections thereon, and adapted to have a swinging motion, and some of the bars of said grate having side extensions to support the hook-latches in inoperative position, substantially as shown and described.

8. In a dobby, hook-latches, a grate through which the free ends of the hook-latches extend, said grate made in two parts, one part pivotally attached to the other, and adapted to swing thereon, and provided with projections to engage some of the vertical divisions or bars of said grate, and the other bars of said grate provided with side extensions to support the hook-latches, substantially as shown and described.

9. In a shedding mechanism for looms, the combination of a pattern-surface, indicator fingers or levers disposed in operative relation thereto, and means for automatically moving all said indicator fingers or levers at desired intervals during the continued operation of the loom from operative engagement with the pattern-surface, and holding them in such position during a part of the indicating movement of the pattern-surface and thereafter permitting all of said fingers or levers to resume operative engagement with relation to the pattern-surface.

10. In a dobby mechanism, the combination with the pattern-surface, the indicating fingers or levers, and hook-latches, of a grate through which the ends of said fingers or levers extend, some of the bars of said grate having projections for supporting hook-latches engaged thereby out of operative position.

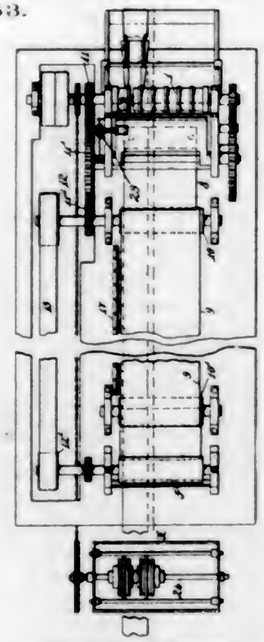
752,353. MACHINE FOR MAKING PACKING BANDS OR RINGS. EDGAR G. NEWELL, Glenridge, N. J. Filed Nov. 20, 1901. Serial No 82,982. (No model.)

Claim.—1. In a machine for making paper packing-bands, the combination of a pair of forming feed-rollers, a pair of calender finishing-rollers, means for cutting bands and a carrier located between said forming feed-rollers and said calender finishing-rollers, whereby the paper packing-band is delivered to said carrier after passing between said forming feed-rollers, and is carried and delivered to the said calender finishing-rollers by said carrier, substantially as shown and described.

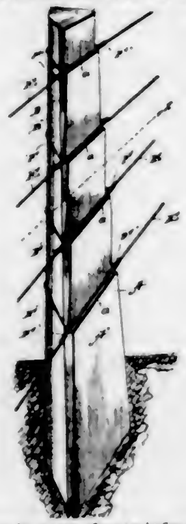
2. In a machine for making paper packing-bands the combination of a pair of forming feed-rollers, a rotatable knife, having means for rotating the same; a pivoted cutting-block coacting with said knife; a pair of calender finishing-rollers; and a carrier for delivering the packing-bands as cut, from said knife to said calender finishing-rollers, substantially as shown and described.

3. In a machine for making paper packing-bands, a pair of forming feed-rollers comprising a plain roller and a grooved roller, each provided with a shaft, said grooved roller consisting of two parts, one of said parts being adjustable laterally on said grooved-roller shaft toward or from the other part, endwise, and means for securing the movable part of said roller in its adjusted position, substantially as shown and described.

752,353.



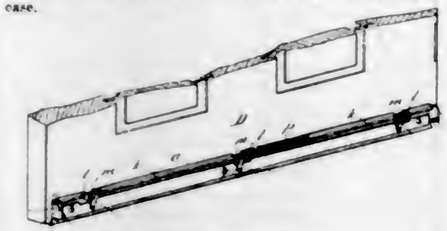
752,354. COMPOSITION POST. WESLEY W. NORTHRUP, Belleville, Mich. Filed Nov. 27, 1903. Serial No. 182,845. (No model.)



Claim.—A composition post of general triangular shape in cross-section tapering toward its upper end, one of the edges of the post being rounded, and the face of the post opposite said rounded edge having formed therein a series of steps, upon which line-wires are adapted to rest, means for holding the line-wires upon said steps, the portions of the face of the post intermediate said steps inclining from the outer edge of the step above to the rear of the adjacent step beneath, and the portions of the post at the ends of each step being flattened, as set forth.

752,355. WEATHER-STRIP. GEORGE L. PARKER, Bremerton, Wash., assignor of one-half to Charles H. Gaffner, Seattle, Wash. Filed Sept. 30, 1903. Serial No. 175,147. (No model.)

Claim.—In a device of the character described, in combination, a containing-case, a rod extending lengthwise of the casing and rotatably mounted in supports integral of the casing, arms fixedly secured to the said rod and connected by hangers with a movable plate, said movable plate provided along its lower edge with an elastic gasket, a spring adapted to raise the said plate, and another arm integrally secured to the end of the said rod and exteriorly of the case.



752,356. CURETTE. CHARLES J. PILLING, Lansdowne, Pa. Filed Aug. 14, 1903. Serial No. 169,439. (No model.)



Claim.—1. A surgical curetting instrument having an operating-handle and an operating-blade mounted thereon, the blade being concaved on its inner face and having a curvature which is that of a double curve the central line of which is concentric with the axis of the handle.

2. A surgical curetting instrument having an operating-blade, mounted upon a handle, said blade being concaved on its inner face, the wall of the concavity being fenestrated at one or more places in the line of the length.

3. A surgical curetting instrument having an operating-blade, mounted upon a handle, said blade being in the form of a double curve the central line of which is concentric with the axis of the handle, and is concaved on its inner face and provided with an undulating edge.

752,357. PROCESS OF ELECTRICALLY HEATING ARTICLES. EDGAR F. PRICE, Niagara Falls, N. Y., assignor to Union Carbide Company, Niagara Falls, N. Y., a Corporation of Virginia. Filed Nov. 5, 1902. Serial No. 130,182. (No model.)



Claim.—1. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated in proximity both to said conductor and layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

2. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated around said conductor and in proximity to said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

3. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated around said conductor and within said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

4. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and separate layers of a material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated around said conductor and between said layers, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layers of poorly-conducting material, converting said layers into a better conductor, and causing electric current to pass directly through the layers of material which have been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

5. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated end to end and in proximity both to said conductor and layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

6. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated end to end and around said conductor and in proximity to said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

7. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated end to end and around said conductor and within said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

8. The process of electrically heating articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and separate layers of a material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated end to end and around said conductor and between said layers, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layers of poorly-conducting material, converting said layers into a better conductor, and causing electric current to pass directly through the layers of material which have been converted into a better conductor and thereby supplying further heat to the articles, as set forth.

9. The process of electrically baking carbon articles, which consists in interposing between different portions of the electrodes of terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated in proximity both to said conductor and layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor, thereby supplying sufficient heat to bake the articles, as set forth.

10. The process of electrically baking carbon articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated around said conductor and in proximity to said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor, thereby supplying sufficient heat to bake the articles, as set forth.

11. The process of electrically baking carbon articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated around said conductor and within said layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor, thereby supplying sufficient heat to bake the articles, as set forth.

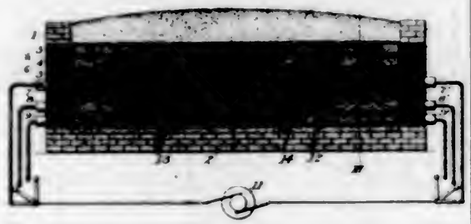
12. The process of electrically baking carbon articles, which consists in interposing between different portions of the electrodes or terminals of a source of electric current direct-current paths comprising a resistance-conductor and a separate layer of material which is normally a poor conductor of electricity but is converted into a better conductor by heat, arranging the articles to be heated end to end and in proximity both to said conductor and layer, and passing an electric current directly through the resistance-conductor, thereby initially heating the articles and layer of poorly-conducting material, converting said layer into a better conductor, and causing electric current to pass directly through the layer of material which has been converted into a better conductor, thereby supplying sufficient heat to bake the articles, as set forth.

752,358. PROCESS OF HEATING ARTICLES BY ELECTRICITY. EDGAR F. PRICE, Niagara Falls, N. Y., assignor to Union Carbide Company, Niagara Falls, N. Y., a Corporation of Virginia. Filed Nov. 5, 1902. Serial No. 130,183. (No model.)

Claim.—1. The process of electrically heating articles, which consists in arranging the articles in proximity to a resistance-conductor, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.

2. The process of electrically heating articles, which consists in

arranging the articles around a resistance-conductor, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.



3. The process of electrically heating articles, which consists in arranging the articles in proximity to a resistance-conductor and in a plurality of layers, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.

4. The process of electrically heating articles, which consists in arranging the articles end to end in proximity to a resistance-conductor, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.

5. The process of electrically heating articles, which consists in arranging the articles end to end around a resistance-conductor, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.

6. The process of electrically heating articles, which consists in arranging the articles end to end around a resistance-conductor and in a plurality of superposed or concentric layers, passing an electric current through the conductor and thereby partially heating the articles, and then mechanically directing electric current through the articles and thus heating them to the desired temperature, as set forth.

7. The process of electrically baking carbon electrodes, which consists in arranging the electrodes in proximity to a resistance-conductor, passing an electric current through the conductor and thereby partially heating the electrodes, and then mechanically directing electric current through the electrodes and thus heating them to the desired temperature, as set forth.

8. The process of electrically baking carbon electrodes, which consists in arranging the electrodes around a resistance-conductor passing an electric current through the conductor and thereby partially heating the electrodes, and then mechanically directing electric current through the electrodes and thus heating them to the desired temperature, as set forth.

9. The process of electrically baking carbon electrodes, which consists in arranging the electrodes end to end in proximity to a resistance-conductor, passing an electric current through the conductor and thereby partially heating the electrodes, and then mechanically directing electric current through the electrodes and thus heating them to the desired temperature, as set forth.

10. The process of electrically baking carbon electrodes, which consists in arranging the electrodes end to end in proximity to a resistance-conductor and in a plurality of superposed or concentric layers, passing an electric current through the conductor and thereby partially heating the electrodes, and then mechanically directing electric current through the electrodes and thus heating them to the desired temperature, as set forth.

752,359. SYRUP. JOHN J. REED, Labelle, Mo. Filed May 13, 1903. Serial No. 156,992. (No specimens.)

Claim.—1. The herein-described table-syrup consisting of granulated sugar, brown sugar, soft water, pure bee honey (strained), cream of tartar, and rose-water, substantially as described.

2. The herein-described table-syrup, consisting of granulated sugar, brown sugar, water, strained honey and cream of tartar.

3. The herein-described table-syrup consisting of granulated sugar, brown sugar, glucose, soft water, pure bee honey (strained), cream of tartar and rose-water.

752,360. CARPET-FASTENER. ROBERT C. RUSSELL and ANDREW W. STROEL, Williamsport, Pa. Filed Oct. 29, 1903. Serial No. 179,059. (No model.)



Claim.—1. In a carpet-fastener, the combination with a base-plate adapted for attachment to a stair, of a clamping-plate adapted for cooperation with the base-plate to hold a carpet disposed between them, and an arm provided on one of said plates to engage the outer face of the other.

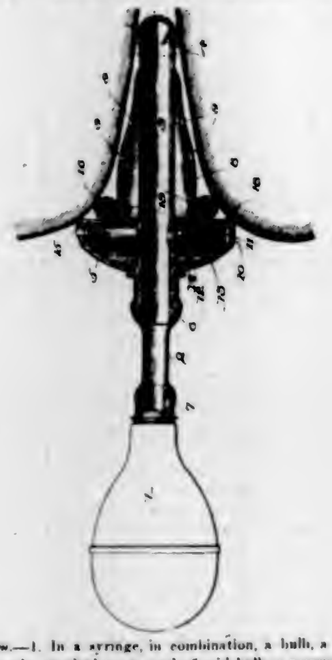
2. In a carpet-fastener, the combination with a base-plate adapted for attachment to a stair, of a clamping-plate adapted for cooperation with the base-plate to hold a carpet disposed between them, one of said plates being provided with a recess and the other with an engaging arm designed to enter the recess.

3. In a carpet-fastener, the combination with a base-plate adapted for attachment to a stair and having a rear recess, of a clamping member adapted for cooperation with the base-plate to hold a carpet disposed between them, said member having an engaging element adapted for entering the rear recess to hold the parts in clamping position.

4. In a carpet-fastener, the combination with a base-plate adapted for attachment to a stair and having a longitudinal rib disposed between its transverse edges, of a clamping member adapted for engagement with the base-plate for holding a carpet disposed between them, said member having engaging elements adapted to lie upon opposite sides of the rib.

5. In a carpet-fastener, the combination with a base-plate adapted for attachment to a stair and having a longitudinal rib disposed between its transverse edges, of carpet-engaging teeth or prongs provided upon the edges of the base-plate, and a carpet-engaging member cooperating with the base-plate to hold a carpet disposed between them, said member comprising an outer plate and a pair of inner spaced arms adapted to engage in rear of the base-plate and receive the rib between them.

752,361. VAGINAL DOUCHE. NICOLAUS C. E. SCHWARTA, New York, N. Y. Filed Apr. 18, 1903. Serial No. 153,181. (No model.)



Claim.—1. In a syringe, in combination, a bulb, a discharge pipe or nozzle attached to one end of said bulb, a reservoir receiving the backflow having as a part thereof a distender extending into the vaginal and having inlet-openings, and a suction-pipe extending from the discharge-pipe to the lower part of the reservoir.

2. In a syringe, in combination, a bulb, a discharge-pipe, a reservoir having as a part thereof a distender surrounding said discharge-pipe and extending into the vaginal and having inlet-openings and a valved suction-pipe leading from said discharge-pipe to the lower part of the space within said distender.

3. In a syringe, in combination, a bulb, a discharge pipe or nozzle attached to said bulb, a reservoir to receive the backflow having as a part thereof a distender extending into the vaginal and having inlet-openings, a suction-pipe extending from the discharge-pipe to the lower part of the reservoir, and a strainer for said suction-pipe.

4. In a syringe, in combination, a bulb, a discharge-pipe, a distender surrounding said discharge-pipe, a valved suction-pipe leading from said discharge-pipe to the lower part of the space within said distender, and a strainer for said suction-pipe.

5. In a vaginal douche or syringe, in combination, a bulb or equivalent water-circulating device, a discharge-pipe leading therefrom, a reservoir receiving the outflow, a suction-pipe and strainer therefor connecting the bulb and said reservoir.

6. In a vaginal douche or syringe, in combination, a bulb, a discharge-pipe leading therefrom, a reservoir receiving the outflow and provided with an air-discharge opening and having as a part thereof a distender extending into the vaginal and having inlet-openings, and a suction-pipe connecting said bulb and reservoir.

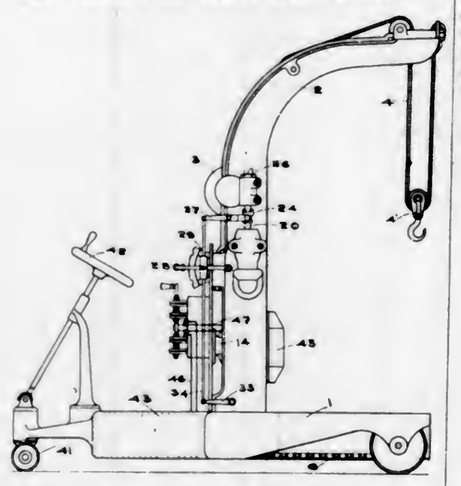
7. In a vaginal douche or syringe, in combination, a bulb, a discharge-pipe leading therefrom, a reservoir receiving the outflow and provided with an air-discharge opening, and a suction-pipe connecting said bulb and reservoir and provided with a strainer.

8. In a vaginal douche or syringe, in combination, a bulb, a discharge-pipe leading therefrom, a flange surrounding said pipe, and a conical distender having its smaller end closely surrounding said pipe and its larger end secured upon said flange and inlet-holes in its side.

9. In a vaginal douche or syringe, in combination, a bulb, a discharge-pipe leading therefrom, a flange surrounding said pipe, and a conical distender having its smaller end closely surrounding said pipe and at its larger end having an enlargement adapted to be secured to the said flange, and a packing-ring surrounding the distender in advance of said enlargement.

10. In a vaginal douche or syringe, in combination, a hollow conical distender having openings in its side, a bulb and a discharge-pipe connected with the bulb and extending entirely through said distender and having jet-orifices in its inner or discharge end, and a flange extending from the discharge-pipe and adapted to screw upon the large end of said distender to close it.

752,362. PORTABLE TRACTION-CRANE. FREDERIC R. SMITH and EDWARD R. INMAN, Franklin, Pa.; said Inman assignor to said Smith. Filed Nov. 6, 1902. Serial No. 130,266. (No model.)



Claim.—1. In an improved portable traction-crane, a bed with bifurcate forward end adapted to the reception of traction-wheels and driving-chains, two standards mounted upon and projecting upwardly from said bed and terminating in a horizontal jib, adapted to the reception of hoisting-tackle, a hoisting-drum mounted between said standards, a vertical sole-plate attached to the rear of said standards, an electric motor mounted upon said sole-plate with its shaft in a vertical position, a train of gearing connecting the upper end of said motor-shaft and said drum, and adapted to transmit motion from said motor to said drum, a worm mounted upon the lower end of said motor-shaft, a traction-shaft mounted in the bed of said crane, a worm-geared compensating gear mounted upon said traction-shaft adapted to be driven by said last-mentioned worm, sprockets mounted upon said driving-shaft, traction-wheels mounted in the bifurcate ends of said bed, sprockets attached to said driving-wheels, a chain adapted to transmit motion thereto from the sprockets on the driving-shaft, means of throwing the traction-gearing in and out of engagement with the motor, means of throwing the hoisting-gearing in and out of engagement with the motor, a crate in said bed adapted to the reception of a storage battery, a storage battery located therein, suitable connections between said battery and said motor, a steering-gear, all combined and operating as shown and described.

2. In an improved portable traction-crane, a bed with a bifurcate forward end, traction-wheels located in the forward end of said bifurcations, jib-standards mounted upon the main body of said bed, hoisting-gearing mounted upon said standards, traction-gearing mounted in said bed, in combination with one motor, adapted to drive said traction-gear and said hoisting-gear.

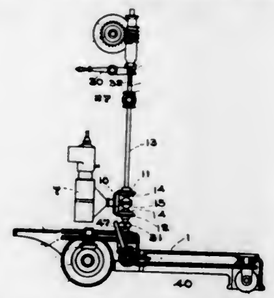
3. In an improved portable traction-crane, a base having traction-gearing mounted therein, jib-standards mounted upon said base, hoisting mechanism mounted upon said jib-standards, a sole-plate attached to said standards, a motor attached to said sole-plate, with its shaft in a vertical position, and adapted to operate said hoisting and traction gearing.

4. In an improved traction-crane, a Y-shaped bed, traction-wheels mounted in the forward end of said bifurcations, a traction-shaft mounted in the main body of the bed, a differential gear mounted upon the center of said shaft, driving sprocket-wheels mounted at or near each end of said traction-shaft, driving-chains adapted to transmit motion from said driving sprocket-wheels, to the traction-wheels, said differential gear having a worm-gear upon its periphery, adapted to mesh with and be operated by a worm upon a mortor-shaft, one motor suitably mounted upon said crane, adapted to operate the gearing aforesaid.

5. In an improved portable traction-crane, a bed, jib-standards mounted thereon, one electric motor mounted between the jib-standards, traction-gearing, a hoisting-drum, gearing adapted to transmit motion from the motor-shaft to traction-gearing and to said hoisting-drum, means for disengaging said gearing from the operation of the motor, substantially as and for the purpose specified.

6. In an improved portable traction-crane, a base or bed having traction-gearing mounted therein, jib-standards mounted upon said bed, hoisting-gearing mounted upon said standards, a motor suitably mounted upon said crane and adapted to actuate said hoisting and traction mechanism, a crate in said bed, adapted to the reception of a storage battery, a storage battery in said crate, a controller interposed between said battery and said motor, all substantially as and for the purpose specified.

752,363. PORTABLE TRACTION-CRANE. FREDERIC R. SMITH, Franklin, Pa. Filed Aug. 13, 1903. Serial No. 169,321. (No model.)



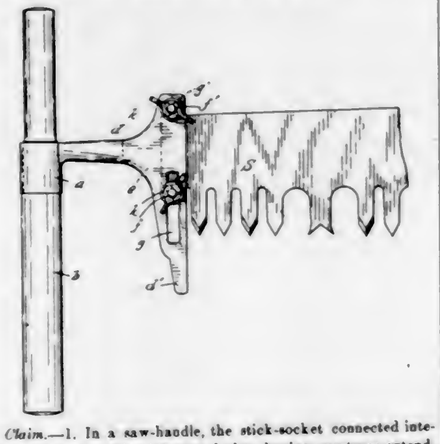
Claim.—1. In a portable traction-crane, a bed of general Y-shaped conformation, steering-wheels mounted in each of the bifur-

cations thereof, and means of actuating said steering-wheels from the operator's platform.

2. In a portable traction-crane, a bed, traction mechanism mounted thereon, vertical jib-standards mounted upon said bed, hoisting mechanism mounted upon said standards, a motor mounted upon said standards, a bevel-gear mounted upon the shaft of said motor, meshing with and adapted to drive two diametrically-opposed bevel-gears, revolubly mounted upon a shaft which communicates with the hoisting and traction mechanism, and means of placing said shaft into operable engagement with either of said last-mentioned gears, substantially as and for the purpose set forth.

3. In a portable traction-crane a bed of general Y-shaped conformation, traction-wheels mounted beneath the body of said bed, a steering-wheel mounted in the extremity of each of the bifurcations; jib-standards mounted upon said bed, hoisting mechanism mounted upon said standards, in combination with a motor adapted to operate said traction and hoisting mechanism.

752,364. **SAW-HANDLE.** DAVID W. SOLOMON, Arlington, Wash. Filed June 2, 1903. Serial No. 159,726. (No model.)



Claim.—1. In a saw-handle, the stick-socket connected integrally by a shank with a bifurcated plate having apertures extending therethrough for the reception of clamping-bolts, whereby the divided part may be drawn together to embrace a saw-blade, one of said apertures being elongated, whereby the said bolts may be relatively positioned so as to accommodate saw-blades of varying widths therebetween and the said clamping-bolts, substantially as specified.

2. In a saw-handle, the combination with a stick-socket *a*, shank *c*, plate *d* having a slot *e* and apertures *g* and *g'* and provided with a hand-guard *d'* in combination with clamp-bolts *f* and *f'* and the nuts *k*, substantially as and for the purposes described.

752,365. **SPOKESHAVE.** JOHN H. SPEAR, Springfield, Mass. Filed Aug. 21, 1903. Serial No. 170,298. (No model.)

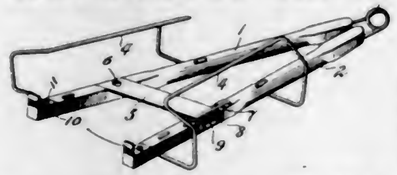
Claim.—1. In a spokeshave, the combination with the stock having a throat-recess and having step-formed supports endwise outside thereof, of the knife having end lugs adjacent the innermost steps, the clamping-plates adjacent the outermost steps and overlapping the lugs of the knife, the screws *h h* for confining the clamping-plates and the adjusting-screws engaging through the aforesaid innermost steps and contacting against the inner faces of the knife-lugs, for the purposes set forth.

2. In a spokeshave, the combination with the stock having the throat-recess and the metallic throat-plate constructed with the stepped portions *s* and *u*, let into the body of the stock and having the screw-holes *t* and *r*, of the knife *a* having the end lugs *b b* the inner faces of which are arranged adjacent the faces of the steps *s s*, the adjusting-screws *f f* penetrating said stepped portions *s s* from the front of the stock and having their inner ends in engagement against the inner faces of the lugs, the clamping-plates *g g* facewise adjacent the steps *u u* and overlapping the outer faces of the lugs, and the clamping-screws *h h*, substantially as described.

3. In a spokeshave, in combination, the stock having the throat-recess and having the inset throat-plate provided with the end portions constructed with the steps *s* and *u*, the knife having the end lugs, the adjusting-screws and the bushings *m*, arranged relatively to the headed portions of said screws in sockets in the top of the stock, the clamping-plates *g g* and the confining-screws *h h* therefor, arranged as shown.

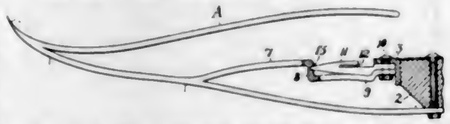


752,366. **PLATE-LIFTER.** SAMUEL STITT, Homer City, Pa. Filed Mar. 9, 1903. Serial No. 146,987. (No model.)



Claim.—A plate-lifter, comprising a pair of handles, a spring connecting them together for angular movement, said spring normally spreading said handles apart, stops at the free ends of said handles, projecting from one side thereof, holders 4 near the free ends of said handles, projecting from the said side thereof, and a combined guide and stop comprising a plate 5, disposed about midway between the ends of the holders, secured at one end to one of the handles and slidably connected to the other handle, and having a stop 9 to engage the same, said plate lying on the under sides of said handles for the purpose set forth, substantially as described.

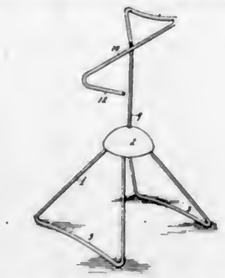
752,367. **GRAIN-LIFTER.** HERBERT R. TITAMORE, Agenda, Cal. Filed June 11, 1903. Serial No. 161,056. (No model.)



Claim.—1. The combination with the sickle or finger-bar of a harvester and the sickle-guards projecting therefrom, of lifting-fingers each consisting of an upper and lower part united at the front and curved and diverging rearwardly therefrom, and having a central portion connecting with the lower part and extending rearwardly intermediate of the two, said central portion extending beneath the sickle-guard and having a vertical offset intermediate of its ends provided with an opening in the rear, said sickle-guard having a point to enter said opening, a bolt passing through the finger-bar, the guard and the underlying part of the central portion of the lifter whereby these parts are secured together, and an independent attachment for securing the lower part of the lifter to the finger-bar in a plane below the attachment of the guard.

2. The combination with the sickle or finger-bar of a harvester, and the sickle-guards projecting therefrom, of lifting-fingers each consisting of an upper and lower part united at the front and diverging rearwardly, means for attaching the lower part of the lifter to the finger-bar, said lifter having an intermediate part connecting with said lower part substantially midway between the front and rear and said intermediate part extending below the sickle-guard and having an offset with an opening in the rear wall to receive the point of a coincident guard, said guard sickle-bar and rear end of said central portion of the lifter being perforated coincidently, and a single bolt passing through said perforation and securing the parts.

752,368. **SHOE-RACK.** CLARK A. WHITCOMB, Ypsilanti, Mich., assignor to Horner Brothers, a Firm, and Ernest D. Rhodes, Ypsilanti, Mich. Filed Apr. 6, 1901. Serial No. 54,641. (No model.)



Claim.—1. In a display rack, or stand, the combination of a metal base having a tapered concavity in its under face, the conical boss depending centrally within said cavity and a socket passing centrally through said base and through said boss into said concavity the lower portion of said socket being threaded, supporting legs whose upper ends extend into the concavity in the base, a loose locking-cone adapted to lie in said tapered concavity and to lock the legs between its outer face and the tapered wall of said concavity, a screw passing freely through said locking-cone and screwing into the threaded portion of said socket whereby the cone is securely locked in position to hold the legs in place and the lower end of said socket is closed.

2. In a display rack, or stand, the combination of the legs, a metal base having a tapered concavity adapted to receive the upper ends of said legs, said concavity having channels in the wall thereof in which said legs lie, a detachable locking-cone adapted to enter said concavity and lock the legs in the channels therein, said cone having a large central opening therethrough and a screw of smaller diameter than said opening passing loosely through it and screwing into said base.

3. In a display rack or stand, the combination of the legs, a metal base having a tapered concavity in its under face adapted to receive the upper ends of said legs, said concavity having channels in the wall thereof in which said legs lie, and having a centrally-depending conical boss, a detachable laterally-movable locking-cone adapted to enter said concavity, and lock the legs in the channels therein, said cone having a tapered recess which receives the conical boss of the base, and a screw passing loosely through said cone and into said boss.

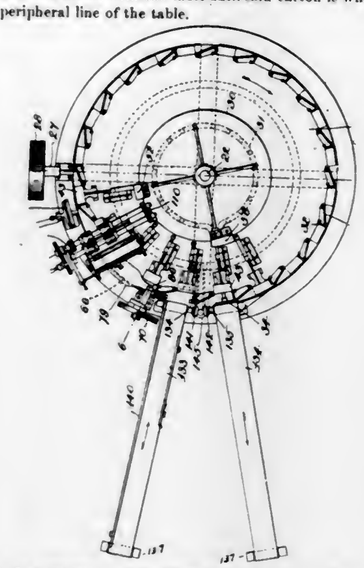
752,369. **MACHINE FOR CLOSING AND SEALING CARTONS.** GEORGE R. WYMAN, East Walpole, Mass., assignor to F. W. Bird & Son, East Walpole, Mass., a Firm. Filed Sept. 11, 1903. Serial No. 172,754. (No model.)

Claim.—1. A carton-closing machine comprising a table rotatably mounted means for continuously rotating said table, means for continuously moving cartons toward the periphery of the table, and means for periodically moving cartons from said table.

2. A carton-closing machine comprising a table rotatably mounted, a pair of belt-rolls journaled on bearings, adjacent to the periphery of the table, driving connections between such rolls and the table for driving said rolls in opposite directions, tucker-arms pivotally mounted at the sides of one of said belts and connected to be swung in opposite directions and means included in said roll-driving mechanism for causing the swinging of one of said arms.

3. A carton-carrier, for a machine of the character described, comprising a circular table rotatably mounted, means for feeding a carton to the surface of said table, and means for resisting the movement of the carton in the direction in which the table travels until the carton is wholly on the table.

4. In combination a rotatable table, a wall fixed thereon at an angle to its course of travel, means for feeding a carton to the surface of the table before said wall, and means for resisting the movement of the carton with the table until said carton is wholly within the peripheral line of the table.



5. In combination a rotatable carton-carrier table, a series of radially-extending walls mounted on the surface of the table, means for feeding cartons to the surface of the table at the distance from said walls, and means for resisting the movement of the cartons with the table until said cartons are engaged by said walls.

6. In a carton-closing machine a carton-carrier having a wall inclined to the path of movement of the carton in being fed thereto, a wall positioned at a distance from such inclined wall and approximately parallel to said path of movement of the carton a movable element adjacent to said last-mentioned wall, means for feeding a carton toward such inclined wall, and means for positioning the carton against the parallel wall.

7. In a carton-closing machine, a circular rotatable table having a series of pockets each of which has a radial wall and an inclined wall, and a movable wall located between the radial wall and the inclined wall.

8. In a carton-closing machine, a circular rotatable table having a series of pockets on its upper surface each of said pockets comprising a pair of rectangularly-extending walls, one of which is movable, and an inclined wall leading toward the movable wall.

9. In a carton-closing machine, a circular rotatable table having a series of pockets on its upper surface, each of said pockets comprising a radially-extending wall, a wall inclined to the periphery of the table, and a wall forming the back of the pocket and movable toward and from the periphery of the table.

10. In a carton-closing machine, the combination with a movable carrier having a pocket larger than the carton intended to be received thereby, of a yielding pressure device adapted to work in said pocket at times and adapted to be swung out of said pocket.

11. In a carton-closing machine, the combination with a rotatable table provided with a series of pockets, of a wall fixed on a support independent of said table, and a pressure device yieldingly mounted on said wall and adapted to work in said pockets at times.

12. In a carton-closing machine, the combination with a movable carton-carrier provided with a series of pockets each having a contracted forward portion and a fixed rear wall, of a plate independent of said carrier and adapted to close the front portion of said pockets at times and a spring-actuated pressure device mounted on said wall and working in the pocket opposite thereto.

13. In a carton-closing machine, the combination with a circular rotatable table provided with a series of radial pocket-plates extending approximately to the periphery of said table, of a pressure-arm yieldingly mounted outside the path in which said plates move and adapted to work in said path at times and to be swung out of such path under pressure.

14. In a carton-closing machine the combination with a circular rotatable table having a series of pockets on its upper surface, of a curved plate mounted adjacent to the periphery of said table

but on a support independent thereof, and an arm pivotally mounted, on said table and working through an opening therein, and spring means for resisting the swinging of said arm.

15. In a carton-closing machine the combination with a circular rotatable carrier-table having a series of pockets larger than the cartons to be received, each of said pockets having a contracted forward portion, of means for continuously feeding cartons to said pockets, whereby the cartons are fed into the contracted portions of the pockets, fixed means for preventing the movement of the cartons with the table until the wider parts of the pockets are brought opposite the cartons, and means for exerting a yielding pressure on the cartons after they are wholly received by the pockets.

16. In a carton-closing machine the combination with a carton-carrier, of flap-spreading means mounted above the carrier, and means other than said spreading means for supporting the flaps when spread.

17. In a carton-closing machine, the combination with a carton-carrier, of flap-spreading means mounted above the carrier, and means for supporting one of said flaps being movable with the carrier.

18. In a carton-closing machine, the combination with carrier provided with a series of pockets, and a flap-support located adjacent to each pocket, of means for turning outward one of the carton-flaps onto said support.

19. In a carton-closing machine the combination with carton-carrying means, flap-spreading means, and flap-supporting means, of glue-applying means, adapted to work toward and from the flap-supporting means, and means for controlling the movement of the glue-applying means.

20. In a carton-closing machine, the combination with carton-carrying means, flap-spreading means and flap-supporting means, of a detector mounted above the carton-carrying means, glue-applying means, and means connected with said detector for controlling the glue-applying means.

21. In a carton-closing machine, the combination with carton-carrying means, flap-spreading means, and flap-supporting means adapted to work toward and from said supports, a detector positioned to be acted upon by a carton in said carrier, and controlling connections between the detector and the glue-applying means.

22. In a carton-closing machine, the combination with carton-carrying means, flap-spreading means, and flap-supporting means, of glue-applying means mounted to work toward and from said supports, a detector movably mounted on the spreader, and controlling connections between the detector and the glue-applying means.

23. In a carton-closing machine, the combination with carton-carrying means, flap-spreading means, and flap-supporting means, of glue-applying means, a frame, movably mounted, in which said glue-applying means is carried, a lever on said frame, a detector movably mounted in the path of the cartons, and a releasable connection between the detector and said lever.

24. In a carton-closing machine the combination with carton-carrying means, flap-spreading means, and flap-supporting means, of a frame mounted to swing above said flap-supports and having a controlling-lever, glue-applying devices in said frame, a detector-plate pivotally mounted in the path of the cartons, and an arm connected with said detector-plate and adapted to reasonably engage the lever of the glue-applying frame.

25. In a carton-closing machine, the combination with carton-carrying means, of a glue-reservoir mounted above such means, a glue-roll journaled in the reservoir, frames mounted to swing and carrying glue transmitting and applying rolls, a lever on said frame, and a detector mounted in the path of the cartons and having an arm releasably engaged with said lever.

26. In a carton-closing machine, a glue-applying mechanism comprising a main glue-roll and its shaft, a cam on said shaft, means for driving such shaft, a frame pivotally mounted on the shaft and carrying glue-applying devices, a lever extending from said frame and provided with a bearing against which the cam on the glue-roll shaft works, an arm pivotally mounted and adapted to engage said lever, and a detector for causing the swinging of said arm out of engaging position when a carton is present under such detector.

27. In a carton-closing machine, glue-applying mechanism comprising a frame mounted to swing and carrying glue-applying devices, a lever fixed to said frame and provided with a roller-bearing, a cam rotatably mounted and working against said bearing, an arm pivotally mounted and adapted to engage said lever to prevent the lifting of one end thereof, and means adapted to be acted upon by a carton for releasing said arm from the lever, whereby the swinging of the lever is prevented during such disengagement.

28. In a carton-closing machine, the combination with a carton-carrier of a pair of flap-supports one of which is fixed, the other of said supports being movable with relation to the flap supported thereby.

29. In a carton-closing machine, means for supporting a pair of carton-flaps during the application of glue, one of such supports being mounted on a movable arm.

30. In a carton-closing machine, means for swinging inward the fourth flap to a position to hold the first and second flaps in position.

31. In a carton-closing machine, means for folding inward the end flaps, and means for turning inward one of the side flaps to hold said end flaps in position, during the folding inward of the remaining flap, and for then continuing the folding inward of the first-mentioned side flap.

32. In a carton-closing machine, the combination with carton-carrying means, of a flap-support mounted to travel with such means.

33. In a carton-closing machine, the combination with carton-carrying means provided with a pocket, of a flap-support mounted on said carrying means adjacent to said pocket.

34. In a carton-closing machine, the combination with carton-carrying means, a flap-support movably mounted thereon, and means for moving said support, of flap-closing means movably mounted outside the path of said carrier, and means for moving said flap-closer over the carrier.

35. In a carton-closing machine, the combination with carton-carrying means having a pocket, of a flap-support movably mounted at one side of said pocket, and means for raising said support at times.

36. In a carton-closing machine, the combination with a fixed wall, of a carton-carrier movable with relation to said wall, and a flap-closing device movably mounted on said carrier, and means for moving the flap-closing device toward said wall.

37. In a carton-closing machine, a movable flap-closing device constructed and normally positioned to act as a flap-support, and means for elevating said device and projecting the same over the carton.

38. In a carton-closing machine, the combination with a carton-carrier having a pocket, of a flap-closing plate movably mounted on the carrier and adapted, in its retracted position, to act as a flap-support, of operating means for said plate adapted to elevate said plate and project the same over the pocket.

39. In a carton-closing machine, the combination with means for holding the carton, of a flap-closing plate movably mounted, and means for elevating said plate and partially projecting the same forward, and means for holding said plate in this partially-projected position for a time.

40. In a carton-closing machine, the combination with a carton-carrier furnished with a carton-holder one wall of which is lower than the carton designed to be operated upon, of a flap-closing plate adapted, in its retracted position to extend to the inner surface of said wall, and means for elevating and projecting said plate over said carton-holder.

41. In a carton-closing machine, the combination with a carton-holder in the nature of a pocket, of a combined flap-support and closing-plate, mounted to move with the carton-carrier, and means for projecting the said plate over said holder at times.

42. In a carton-closing machine, the combination with a movable carton-carrier, and a flap-closing device operatively mounted thereon, and including a lever, of fixed means for intercepting said lever and adapted to give the lever a two-step movement in a single general direction, whereby a dwell in the movement of the lever is effected.

43. The combination with the table 23, rotatably mounted on the spindle 22 fixed in a support, and having the rack 24, and the shaft 27 journaled in bearings and having the gear 29 meshing with the rack 24, of means for continuously feeding cartons to such table.

44. The combination with the spindle 22, a support therefor, the table 23 journaled on the spindle, and means for driving the table, of the plates 32 having the inclined members 33, and means for closing the space between the end of one member 33 and the succeeding plate 32.

45. The combination with the table 23, and the series of plates 32 having the inclined member 33, mounted thereon, of a series of plates movably mounted and working between the rear ends of the respective members 33 and the surfaces of the succeeding plates 32.

46. The combination with the spindle 22, a support therefor, the table 23 journaled on the spindle, and the cam-plate 30 fixed on said spindle and having the cam 31, of a series of plates movably mounted on the table 23 and having arms furnished with bearings working in the cam 31.

47. The combination with the spindle 22, a support therefor, the table 23 journaled on the spindle, means for driving the table, and the plate 30 fixed on said spindle and having the cam 31, of the plates 32 fixed on said table, and having the inclined members 33, and the plates 34 mounted on the arms 35 which are mounted in guides on the table and have bearings working in the cam 30.

48. The combination with the spindle 22, a support therefor, the table 23 journaled on said spindle, means for driving the table, the plate 30 fixed on the spindle, and the cams 52 and 56 fixed on the plate 30, of a flap-closing mechanism mounted on the table and having an operable part adapted to work through said cams and to be actuated thereby.

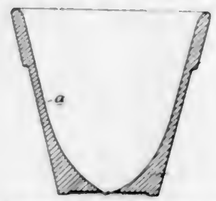
49. In a machine of this nature, and in combination with a flap-closing mechanism having an engageable arm, the cam 52 having the entrance 53, the dwell 54, and the exit 55, as and for the purpose described.

50. In a machine of this nature, and in combination with a mechanism having an engageable arm, the cam 56 having the guard 57 and the cam-groove 58, as and for the purpose described.

51. The combination with the table 23, a central support on which the table is journaled, and the plate 30 fixed on said support, of the block 37 mounted on said table, the link 39 pivotally mounted on said block, the arm 40 pivoted to said link and having the plate 43 and the bearing 41, the cam in which said bearing works, the arm 47 pivoted to the cam-block and having the lever 50, the rod 51 pivoted to the lever 50 and to the arm 40, the retracting-spring connected to the link 39 and to a fixed part of the machine, and means mounted on the plate 30 for causing the swinging of the arm 47 as and for the purpose described.

52. The combination with the spindle 22 and its support, the table 23 journaled on said spindle, the plates 32 having the inclined members 33 secured to the table, and means for closing the spaces between the rear ends of the members 33 and the forward ends of the next succeeding plates 32, of the plate 60 mounted on supports independent of said table and adapted to close the front portions of the pockets thus formed, as and for the purpose described.

752,370. FLOWER-POT. PHILIP H. A. BALSLEY, Detroit, Mich. Filed Sept. 6, 1902. Serial No. 122,375. (No model.)

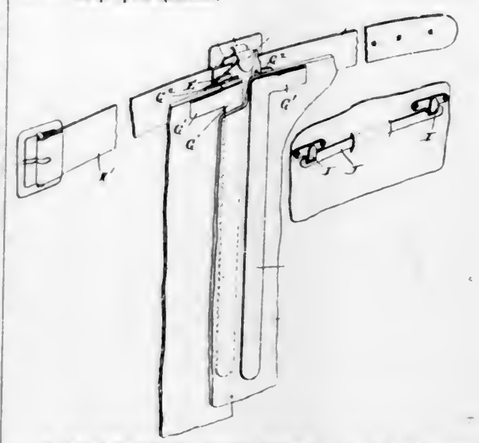


Claim.—1. A flower-pot integrally formed of clay and having a substantially flat bottom with a central drainage-hole and a conically-tapering side wall the inner face of which near the bottom has a greater taper than that of the corresponding outer face and forms a direct junction with the drainage-hole by the inner and outer face intersecting with each other.

2. As a new article of manufacture, a flower-pot for propagating purposes made integrally of clay with a flat bottom and a conically-tapering side wall of substantially uniform thickness in the upper portion and progressively increasing in thickness in the lower portion toward the bottom whereby the inner face of the side wall has a correspondingly-increasing taper toward the bottom, said inner face and the outer face of the bottom intersecting with each other and forming a central drainage-hole.

752,371. COMBINED PLACKET AND SHIRT-WAIST HOLDER. CHARLES J. BENDER, Philadelphia, Pa. Filed July 6, 1903. Serial No. 164,366. (No model.)

Claim.—1. In a device of the character described, a belt divided at the rear in two portions, an attachment located at the rear of the wearer, one portion of the belt secured permanently to the attachment, the other portion of the belt sliding through the attachment, an eye secured to the rearward end of the slidable portion of the belt, hooks secured to the skirt upon each side of the placket-opening, one of the hooks adapted to be hooked in the attachment, and the other hook hooked in the eye of the slidable portion of the belt, a downward and inwardly projecting hook formed with the attachment adapted to hook in an eye carried by the shirt-waist, as and for the purpose specified.



2. In a device of the character described, a belt divided at the rear into two portions, an attachment to which the rear end of one portion of the belt is secured permanently, the other portion of the belt sliding through the attachment, an eye secured to the rearward end of the slidable portion of the belt, hooks secured to the skirt upon each side of the placket-opening, one of the hooks adapted to be hooked to the attachment and the other hook adapted to pass through the eye of the slidable portion of the belt, stiffening-pieces secured to the skirt upon each side of the placket-opening, a hook extending inwardly and downwardly from the attachment adapted to hook in an eye carried by the shirt-waist, a plate carried by the attachment and adapted to hide and protect said attachment, as and for the purpose specified.

3. In a combined belt, placket-closure and shirt-waist holder, a belt divided at the rear into two portions, an attachment consisting of a plate, a frame arranged upon the inner surface of the plate and at a slight distance therefrom, the rear end of one portion of the belt being secured permanently to one side of the frame, the other portion of the belt adapted to slide through the opening of the frame and behind the other side, an eye secured permanently to the rear end of the slidable portion of the belt, hooks secured to the skirt upon each side of the placket-opening and bent in opposite directions to one another, one of the hooks adapted to be hooked into the attachment, the other hook hooked through the eye of the slidable portion of the belt, stiffening-strips secured to the inside of the skirt upon each side of the placket-opening, a hook extending inward and downward from the frame, hooks extending upward and secured to the inside of the rear of the shirt-waist, a removable bar provided with eyes in each end adapted to hook over said hooks, the central portion of said bar extending to the outside of the shirt-waist through slits, the hook formed with the attachment adapted to hook over this outside portion of the bar, as and for the purpose specified.

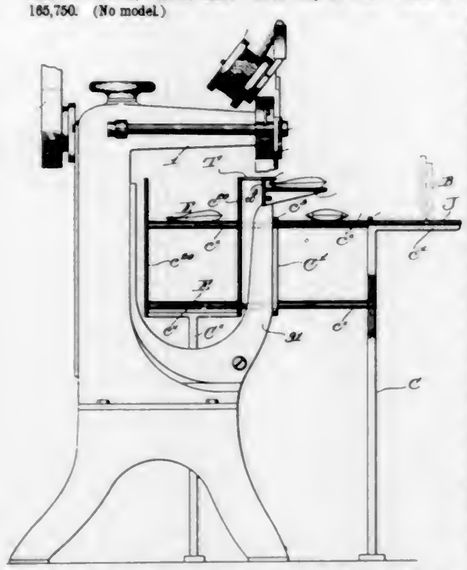
752,372. FASTENING DEVICE. HARVEY E. BERKEY, Monongahela, Pa. Filed May 11, 1903. Serial No. 156,588. (No model.)



Claim.—A fastening device of the character described comprising two interlocking members, one of said members being provided with a head extending upwardly therefrom, provided in its upper face with a depression, said head having integral necks connecting the same with said member, said member being further provided with segmental slots formed therein, and the other of said members comprising a plate having a loop formed with a depression in its under face, an extended portion having slots therein formed integral with the loop, a tongue formed by the material between said slots, said material being bent upwardly from the said extended portion

and being provided with a depression forming a lug on the under face thereof adapted to seat in the depression of the said stud, of the first-named member, said extended portion being further provided with a concave surface adapted to receive the head of the said stud, substantially as described.

752,373. APPARATUS FOR FASTENING FILLED BAGS. BENJAMIN F. BROWN, Boston, Mass. Filed July 16, 1903. Serial No. 165,750. (No model.)



Claim.—1. In apparatus of the class described, a bag-fastening mechanism, a shelf-like work-support in coöperative relation thereto and having at its back a downhold for the bag-lips, and a conveyer to deliver filled bags into position for transfer to the work-support, the mouths of the bags with their lips folded over being inserted beneath the downhold when the bags are placed upon the work-support, said downhold retaining the lips in position to be fastened when the bags are fed to the fastening mechanism.

2. In apparatus of the class described, a bag-fastening mechanism, a shelf-like work-support in coöperative relation thereto and having at its back a downhold for the bag-lips, and an endless conveyer below and in front of the work-support, to deliver filled bags into position for transfer thereto, the mouths of the bags with their lips folded over being inserted beneath the downhold when the bags are placed upon the work-support, said downhold retaining the lips in position to be fastened when the bags are fed to the fastening mechanism.

3. In apparatus of the class described, a bag-fastening mechanism, an endless conveyer to deliver filled bags into position to be transferred to the said mechanism, an intermediate, elongated shelf above said conveyer and constituting a work-support for the fastening mechanism, and means located at the back of the shelf to hold the lips of the bags folded over in readiness to be fed to said mechanism, the bags being manually removed from the conveyer and their lips folded over before placing them upon the shelf.

4. In apparatus of the class described, a bag-fastening mechanism, a shelf-like work-support in coöperative relation thereto and having at its back a downhold for the bag-lips, a conveyer in front of said work-support to deliver filled bags into position to be transferred thereto, the mouths of the bags with their lips folded over being inserted beneath the downhold when the bags are placed upon the work-support, and a second conveyer movable behind the work-support, to receive upon it and carry away the bags after having been fastened by said fastening mechanism.

5. In apparatus of the class described, two endless conveyers placed side by side and near each other, a work-supporting and feed shelf fixedly mounted above and extended partly over one of said conveyers, a downhold for the bag-lips extended along the back of said shelf, a mechanism to act upon and fasten the mouths of bags when fed thereto along the shelf, and a jogging-shelf in front of the bag-delivering conveyer, the filled bags presented by the conveyer being manually upturned and their contents shaken down upon the jogging-shelf and the end lips folded over to close the bag-mouths.

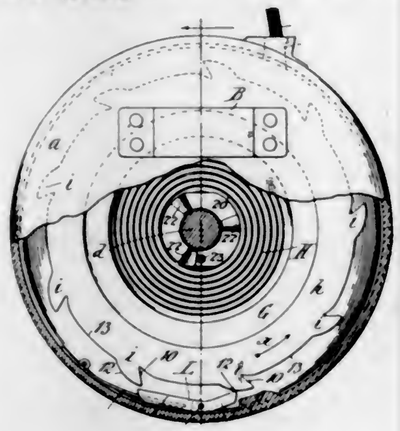
6. In apparatus for fastening filled bags, a plurality of bag-fastening mechanisms, a shelf-like work-support extended in front of said mechanisms in coöperative relation thereto, and having at its back a longitudinally-extended downhold for the bag-lips, and a conveyer extending the length of and adjacent said work-support, to deliver filled bags into position for manual transfer to the work-support adjacent the several fastening mechanisms, the mouths of the bags with their lips folded over being inserted beneath the downhold and being held by it in position to be fastened as the bags are fed along the work-support to a fastening mechanism.

7. In apparatus for fastening filled bags, a plurality of bag-fastening mechanisms, a shelf-like work-support extended in front of said mechanisms in coöperative relation thereto, and having at its back a longitudinally-extended downhold for the bag-lips, a conveyer extending the length of and adjacent said work-support, to deliver filled bags into position for manual transfer to the work-support adjacent the several fastening mechanisms, the mouths of the bags with their lips folded over being inserted beneath the downhold and being held by it in position to be fastened as the bags are fed along the work-support to a fastening mechanism, and a second conveyer back of the delivering conveyer to receive and remove the bags after their mouths have been fastened by the fastening mechanisms.

8. In apparatus for fastening filled bags, a series of laterally-separated bag-fastening mechanisms, a shelf-like work-support common to all of said mechanisms and extended from one to the other end of the series, an overhanging, forwardly-projecting downhold arranged at the back of the work-support to retain folded the lips of the bags when inserted thereunder preparatory to feeding to the fastening mechanisms, and an endless conveyer having its upper run located below the work-support and adjacent thereto, said conveyer moving filled bags into position to be conveniently transferred manually to the work-support after their lips have been folded over, the bags being fed one by one to the fastening mechanisms while their lips are held down in position for fastening by the downhold.

9. In apparatus for fastening filled bags, a plurality of bag-fastening mechanisms, a shelf-like work-support extended in front of said mechanisms in coöperative relation thereto, and having at its back a longitudinally-extended downhold for the bag-lips, a conveyer extending the length of and adjacent said work-support, to deliver filled bags into position for manual transfer to the work-support adjacent the several fastening mechanisms, the mouths of the bags with thei: lips folded over being inserted beneath the downhold and being held by it in position to be fastened as the bags are fed along the work-support to a fastening mechanism, a second conveyer back of the delivering-conveyer, to receive and remove the bags the mouths whereof have been closed by the fastening mechanisms and upturned, parallel and stationary sides between which said conveyer travels, to form therewith a trough having a traveling bottom.

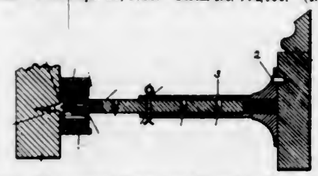
752,374. AUTOMATIC CHECK DEVICE FOR TROLLEY-CORDS. SETH J. BUCKLAND, Springfield, Mass. Filed Apr. 22, 1903. Serial No. 153,769. (No model.)



Claim.—1. In a trolley-cord-restraining device, the combination with the casing having the trolley-cord-winding spring-reel, rotatable therewithin, said reel having a flange provided with a series of regularly-spaced ratchet-like teeth, of a pawl pivotally mounted at an intermediate portion thereof on a suitable part of the casing comprising the actuating-arm *n* and the checking-arm *m*, the distance between the extremities of which are less than the distance between the engagement edges of two of the teeth, said casing having the abutment-shoulder *u* adjacent the free end of the pawl-actuating arm, and against which said end may contact, and a spring of low reactive power operative on the pawl to normally maintain the checking-arm thereof outside of the path of revolution of the reel-teeth.

2. In a trolley-cord-restraining device, the combination with the casing having an axial stud and having a spring-stud penetrating the back of the casing adjacent the junction therewith of said axial stud, of the winding-reel, a sleeve surrounding said axial stud and having in its end face adjacent the back of the casing, the plurality of ratchet-teeth in which said spring-pressed stud engages, and the winding-spring H disposed within the reel and having one end connected thereto and its other end engaged with said sleeve, substantially as and for the purpose explained.

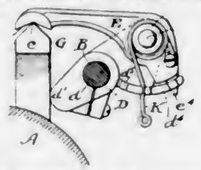
752,375. DOOR STOP AND HOLDER. CHARLES H. COLE, Baltimore, Md. Filed Sept. 21, 1903. Serial No. 174,106. (No model.)



Claim.—1. A door-stop comprising a base and telescoping parts provided with a perforation adapted to receive a pin for securing the telescoping parts together, substantially as described.

2. In a catch, a disk having a central orifice with radial slots and adapted to engage a knob, substantially as described.

752,376. ELECTRIC-BRUSH HOLDER. DE WITT C. COOKINGHAM, Cleveland, Ohio, assignor of one-half to John H. Hertner, Cleveland, Ohio. Filed Oct. 15, 1903. Serial No. 177,169. (No model.)



Claim.—1. The combination, with a commutator, of a brush-holder provided with means for exerting a pressure on the upper end of the brush upon substantially the longitudinal axis thereof, and means for engaging said brush laterally at substantially a single point in the length thereof for resisting the thrust caused by the movement of said commntator.

2. The combination, with a commutator, of a brush-holder, an arm carried by said holder for engaging the brush and exerting a pressure upon the same in the direction of its longitudinal axis, and means engaging said brush laterally at substantially a single point for resisting the thrust caused by the movement of the commutator, and means for exerting a pressure upon said arm.

3. The combination, with a commutator, of a brush-holder, an arm carried by said holder for engaging the brush and exerting a pressure upon the same along its medial plane, and means engaging said brush laterally at substantially a single point for resisting the thrust caused by the movement of the commutator, and a spring for exerting a pressure upon said arm.

4. The combination, with a commutator, of a brush-holder, means in connection with said holder for exerting a pressure on the upper end of the brush upon substantially its longitudinal axis, and a rigid arm engaging said brush laterally at substantially a single point and thereby resisting the thrust caused by the movement of the commutator.

5. The combination, with a commutator, of a brush-holder, means in connection with said holder for exerting a pressure on the upper end of the brush upon substantially its longitudinal axis, and a rigid arm tapering toward said brush and engaging the same laterally at substantially a single point and thereby resisting the thrust caused by the movement of the commutator.

6. The combination with a commutator, and an electric brush, of a fixed brush-holder member having a finger for engaging the front side of said brush, and a spring-actuated pressure member engaging with the top of the brush, said brush and pressure member having, respectively, at their point of engagement, a projection and a recess which receives the same.

7. The combination with a commutator, and an electric brush, of a fixed brush-holder member having a finger for engaging the front side of said brush, and a spring-actuated arm pivoted to said member and engaging with the upper end of the brush, said brush and arm having, respectively, at their point of engagement, a recess and a projection which enters the same.

8. The combination of a commutator, and a carbon brush, said brush having upon its opposite end an angular metal cap, with a brush-holder having a fixed member which is provided with a finger against which the front surface of the brush engages, a spring-actuated arm pivoted to said member and having in the under side of its front end an angular recess which receives the angular cap on the brush.

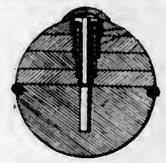
9. In an electric-brush holder, the combination of a fixed member with which the brush engages, which member has an overhanging flange, with a spring-arm pivoted to said member and having a rearwardly-extended finger which swings beneath said flange.

10. In an electric-brush holder, the combination of a fixed member with which the electric brush is adapted to contact, with a pressure-arm removably pivoted to said member, a spring secured to said arm and engaging with said fixed member to put the spring under the required tension.

11. In an electric-brush holder, the combination of a fixed member having a finger for contact with the electric brush and having a pivot-stud, an arm having a sleeve which embraces said pivot-stud, thereby pivoting the arm to said member, a spring coiled about said sleeve and secured to the arm, there being an adjustable connection between the other end of said spring and the fixed member.

12. In an electric brush, the combination of a fixed member having a finger for contact with the electric brush, and having an overhanging flange whose upper end is notched, a pressure-arm pivoted to said member, a spring secured to said arm and adapted to engage in any of the notches referred to to vary the tension of the spring, said arm also having a rearwardly-extended finger which passes beneath the overhanging part of said flange.

752,377. PUZZLE. ORLANDO CRITTENDEN, Akron, Ohio. Filed June 10, 1903. Serial No. 160,917. (No model.)

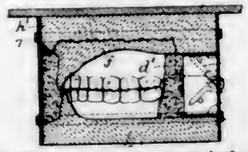


Claim.—1. A puzzle consisting of sections, one of said sections being solid and the other comprising a plurality of adjacent rings, a cap secured to the outermost ring, concentric sleeves secured to respective rings and provided with longitudinal slots therein, the innermost portions of the said sleeves being received by the cap aforesaid, and means for securing the said sleeves to the cap, a lock-shaft projected from the solid section and provided with a spur thereon, said spur being adapted to engage the concentric sleeves aforesaid to secure the sections together, indicating means provided upon the adjacent rings of the sections aforesaid whereby the longitudinal slots may be alined to permit passage of the lock-shaft and separation of the sections, an annular recess disposed upon the solid section, and a ring adapted to be seated in the recess and to be held in such position when the sections are locked together.

2. A puzzle consisting of sections, one of said sections being solid and the other comprising a plurality of adjacent rings, concentric sleeves secured to respective rings and provided with slots therein a lock-shaft extended from the solid section and provided with a projection or spur thereon, said spur being adapted to engage with the concentric sleeves aforesaid to secure the sections together, indicating data provided upon the adjacent rings of the sections aforesaid whereby the slotted portions of the concentric sleeves carried thereby may be arranged in alinement so as to permit passage of the

projection or spur of the lock-shaft and separation of the sections, and a ring secured intermediate the sections and adapted to be removed by separation thereof

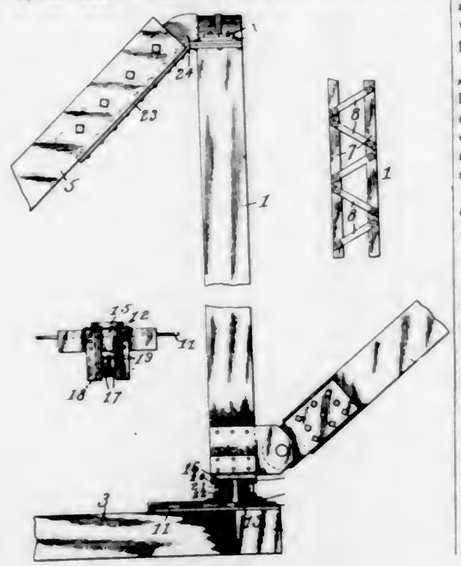
752,378. METHOD OF CASTING IMPRESSIONS OF THE TEETH AND MOUTH. WILBER M. DAILEY, New York, N. Y. Filed Aug. 8, 1903. Serial No. 168,707. (No model.)



Claim.—1. The method herein specified of casting impressions of the teeth and mouth, which consists in first taking an impression or matrix in suitable material of teeth of the lower jaw, placing the same within a suitable frame or receptacle, filling the space within said receptacle or frame and between the same and the device holding the impression or matrix of the teeth of the lower jaw with a suitable material forming a bed, pouring plaster within the matrix and frame to the top of the frame and allowing the same to set, become level and hard, removing the frame and the composition filling, taking an impression or matrix in suitable material of teeth of the upper jaw and roof of the mouth and making a casting therefrom in the usual manner, superimposing this casting upon the casting previously made of teeth of the lower jaw and placing the same in a suitable frame or receptacle, filling the space between the said receptacle and the outer surface of said castings and also the back of the casting adjacent to said frame with a composition material, and then pouring plaster over the same to the top of the frame so as to join with the casting of teeth of the upper jaw and roof of the mouth and form a second cast body, and simultaneously with the making of the said cast bodies casting therewith devices forming hinge connections between them.

2. As a new article, cast impressions of the teeth and mouth comprising a lower cast body having a flat base, a projecting edge, impressions of the teeth of the lower jaw well within the said edge, substantial rear corner portions and a recessed center, an upper cast body having a flat top, a projecting edge, impressions of the teeth of the upper jaw well within the said edge, and an impression of the roof of the mouth, substantial rear corner portions and an open center, and interlocking hook devices at the corner portions forming hinge-joints, and connecting the respective lower and upper cast bodies.

752,379. DERRICK. OSCAR DANIELS, Chicago, Ill. Filed Mar. 23, 1903. Serial No. 149,100. (No model.)



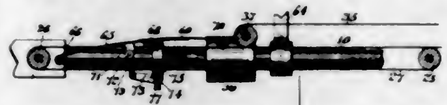
Claim.—1. A boom-derrick comprising a fixed sleeper and a movable sleeper, means to detachably secure said movable sleeper to opposite sides of said fixed sleeper, and a mast provided with a bearing supported wholly on said fixed sleeper, substantially as described.

2. A boom-derrick comprising a fixed sleeper and a movable sleeper, means to detachably secure said movable sleeper to opposite sides of said fixed sleeper, a mast provided with a bearing supported wholly on said fixed sleeper, and sheer-legs which connect said mast with said sleepers, the gooseneck on the sheer-leg connected to the movable sleeper being above the gooseneck on the sheer-leg connected to the fixed sleeper, substantially as described.

3. A boom-derrick comprising a fixed sleeper and a movable sleeper, means to detachably secure said movable sleeper to opposite sides of said fixed sleeper, a mast provided with a bearing supported on said fixed sleeper and comprising a bearing-plate, and an angle-bar bent into circular form and secured to said bearing-plate forming a circular socket adapted to receive the lower end of the mast, and sheer-legs which connect said mast with said sleepers, the gooseneck on the sheer-legs connected to the movable sleeper being above the gooseneck connected to the fixed sleeper, substantially as described.

4. A boom-derrick comprising a fixed sleeper and a movable sleeper, means to detachably secure said movable sleeper to opposite sides of said fixed sleeper, a mast provided with a bearing supported wholly on said fixed sleeper and comprising a bearing-plate which rests upon and is secured to said fixed sleeper, and an angle-bar bent into circular form and secured to said bearing-plate forming a circular socket adapted to receive the lower end of the mast, and sheer-legs which connect said mast with said sleepers, the gooseneck on the sheer-legs connected to the movable sleeper being above the gooseneck connected to the fixed sleeper, said goosenecks comprising flange members, the flanges of which are continuous over the bent portions of said goosenecks, substantially as described.

752,380. SHEET-CONVEYING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 25, 1902. Serial No. 128,711. (No model.)



Claim.—1. In a sheet-conveyer, the combination of a set of delivery sheet-carrying tapes, with a second set of sheet-carrying tapes adapted to convey sheets to the delivery-tapes and arranged with its delivery end above the carrying portion of said delivery-tapes to afford a drop from said second set of tapes to the delivery-tapes, and means for adjusting said second set of tapes in the plane of feed with relation to the delivery-tapes, substantially as and for the purpose set forth.

2. In a sheet-conveyer, the combination of a delivery set of sheet-carrying tapes, and gages for registering sheets upon said delivery-tapes, with a second set of sheet-carrying tapes adapted to convey sheets to the delivery-tapes and arranged with its delivery end above the carrying portion of the delivery-tapes, and means for adjusting said second set of tapes toward and away from said gages, substantially as set forth.

3. The combination of the receiving sheet-carrying tapes, the delivery sheet-carrying tapes, the intermediate sheet-carrying tapes arranged to take sheets from the receiving-tapes and deposit them upon the delivery-tapes, said delivery-tapes being arranged in a lower feeding plane than the receiving and intermediate tapes for the purpose of affording a drop from the intermediate tapes to the delivery-tapes, and means for adjusting said intermediate tapes in the plane of feed with relation to the delivery-tapes for exposing more or less of the carrying portion of the latter, substantially as set forth.

4. The combination of the delivery sheet-carrying tapes, and their supporting-rollers, the receiving sheet-carrying tapes, and their supporting-rollers, the intermediate sheet-carrying tapes, and their supporting-rollers, the delivery-roller of the intermediate tapes being arranged above the carrying portion of the delivery-tapes to afford a drop from the intermediate tapes to the delivery-tapes, and means for adjusting said intermediate tapes in the plane of feed with relation to the delivery-tapes for exposing more or less of the carrying portion of the latter, substantially as and for the purpose set forth.

5. The combination of the delivery sheet-carrying tapes, the receiving sheet-carrying tapes, and intermediate sheet-carrying tapes, said receiving and intermediate tapes being interlapped with each other, and said delivery-tapes being in a lower feeding plane than the receiving and intermediate tapes, and overlapped by the intermediate tapes, and means for adjusting the intermediate tapes in the plane of feed with relation to the delivery-tapes, substantially as set forth.

6. The combination, with a machine designed to operate upon sheets of paper, and gages for registering the sheets fed to said machine, of a delivery set of sheet-carrying tapes arranged to convey sheets to said gages, a receiving set of sheet-carrying tapes, an intermediate set of sheet-carrying tapes interlapped with the receiving set of tapes and having its delivery end arranged above and overlapping the carrying portion of said delivery-tapes, and means for adjusting said intermediate tapes in the plane of feed toward and away from said gages for exposing more or less of the carrying portion of the delivery-tapes, substantially as and for the purpose set forth.

7. In a sheet-conveyer, the combination of the delivery-tapes and their supporting-rollers, the receiving-tapes and their supporting-rollers, the supporting frame-bars 10, the adjustable brackets or carriages 15, 20, mounted upon said bars 10, and supporting the inner tape-rollers of the delivery or receiving tapes, connecting-rods 30 adjustably connecting the carriages 15 and 20, means for clamping carriages 15 upon bars 10, and means for moving the carriages 20 upon said bars 10, substantially as set forth.

8. In a sheet-conveyer, the combination of the delivery-tapes 27 supported by stationary tape-roller 26 and adjustable tape-roller 25, the receiving-tapes 18 supported by stationary roller 6 and adjustable roller 17, the supporting-bars 10, the brackets or carriages 20 adjustably mounted upon bars 10 and supporting the tape-roller 25, pinions 21 mounted in carriages 20 and engaging rack-teeth 22 upon bars 10, connecting-rods 30, set-screws 31 upon carriages 20 engaging connecting-bars 30, brackets or carriages 15 adjustably mounted upon the bars 10 and supporting the tape-roller 17, set-screws 16 securing carriages 15 in the desired adjusted position, and set-screws 33 upon carriages 15 engaging the connecting-rods 30, substantially as set forth.

9. In a sheet-conveyer, the combination of a set of sheet-carrying tapes, with extensible friction plates or bars arranged between said tapes and adapted to project above the carrying portion of said tapes, with adjustable carriages to which said extensible friction-plates are connected and by which they are adjusted, substantially as set forth.

10. In a sheet-conveyer, the combination of a set of sheet-carrying tapes, with extensible friction plates or bars arranged between said tapes, each friction plate or bar comprising a section 65 connected to a stationary part of the machine and formed with a longitudinal slot 67, and a section 69 carrying a screw 68 which operates in said slot 67, and an adjustable carriage to which said sections 69 are connected, substantially as set forth.

11. In a sheet conveyer, the combination of a set of sheet-carrying tapes with extensible friction plates or bars formed of springy sheet metal and supported at their ends between the said tapes, and adjustable means connected with said friction plates or bars and adapted to project them more or less above the carrying portion of said tapes, substantially as set forth.

12. In a sheet-conveyer, the combination of a delivery set of sheet-carrying tapes, a second set of sheet-carrying tapes overlapping said delivery-tapes, and means for adjusting said second set of tapes in the plane of feed with relation to the delivery-tapes for exposing more or less of the carrying portion of said delivery-tapes, with friction plates or bars arranged between the delivery-tapes and projecting above the carrying portion of said tapes, substantially as set forth.

13. In a sheet-conveyer, the combination of a set of sheet-carrying tapes, with elastic friction plates or bars supported at their ends and adapted to be bowed upwardly between said tapes to project above the carrying portion of the tapes, substantially as set forth.

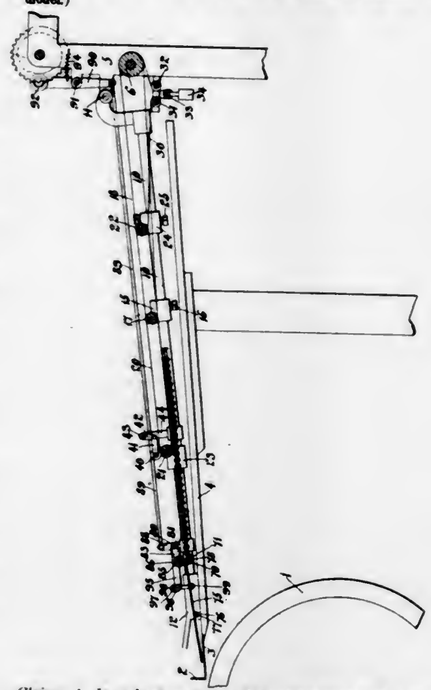
14. In a sheet-conveyer, the combination of a set of sheet-carrying tapes, with a series of elastic friction plates or bars arranged between the tapes and supported at their ends, and adjustable means engaging said friction-plates from beneath at points between their ends and adapted to bow said plates upwardly to cause them to project more or less above the carrying portion of said plates, substantially as set forth.

15. In a sheet-conveyer, the combination of a set of sheet-carrying tapes, with a series of friction plates or bars supported between said tapes at their ends, an adjustable shaft, means for securing said shaft in the desired adjusted position, and connections between said shaft and said friction plates or bars, whereby said plates or bars may be projected more or less above the carrying portion of said tapes, substantially as set forth.

16. The combination of a delivery set of sheet-carrying tapes and a second set of sheet-carrying tapes arranged to convey sheets to the delivery-tapes, with extensible friction plates or bars arranged between the delivery-tapes and adapted to project above the carrying portion of said tapes, with means for simultaneously adjusting said second set of tapes and extending or contracting said friction plates or bars, substantially as set forth.

17. The combination of a delivery set of carrying-tapes and their supporting tape-rollers, a second set of sheet-carrying tapes adapted to convey sheets to the delivery-tapes, tape-rollers supporting said second set of tapes, adjustable brackets or carriages supporting the tape-rollers of said second set of tapes whereby said second set of tapes may be adjusted with relation to the delivery-tapes for exposing more or less of the carrying portion of said delivery-tapes, and extensible friction plates or bars arranged between the delivery-tapes and connected at one end with a stationary part of the machine and at the opposite end with one of the adjustable carriages of said second set of tapes, substantially as and for the purpose set forth.

752,381. SHEET-CONVEYING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 25, 1902. Serial No. 128,712. (No model.)



Claim.—1. In a sheet-conveyer, the combination with a series of freely-journaled rollers over which sheets may be passed, of sheet-carrying tapes arranged in a higher plane than and overlapping said series of rollers and adapted to feed sheets over said rollers, substantially as set forth.

2. In a sheet-conveyer, the combination with a series of freely-journaled rollers over which sheets may be passed, of sheet-carrying tapes arranged to feed sheets over said rollers, and sheet-registering gages, substantially as set forth.

3. In a sheet-conveyer, the combination with a series of freely-journaled rollers over which sheets may be passed, of sheet-carrying tapes adjustable in the plane of feed with relation to said series of rollers, substantially as set forth.

4. In a sheet-conveyer, the combination with a series of freely-journaled rollers over which sheets may be passed, of sheet-registering gages, and sheet-carrying tapes adjustable with relation to said series of rollers toward and away from said gages, substantially as set forth.

5. In a sheet-conveyer, the combination with a series of freely-

journaled rollers over which sheets may be passed, of sheet-carrying tapes arranged to feed sheets over said rollers, and means for securing some of said rollers against rotation, substantially as set forth.

6. In a sheet-conveyer, the combination with a series of freely-journaled rollers, of sheet-carrying tapes arranged in a higher plane than and overlapping said series of rollers and adapted to feed sheets thereto, and means for adjusting said tapes in the plane of feed with relation to said rollers, substantially as set forth.

7. In a sheet-conveyer, the combination with a plurality of parallel series of freely-journaled rollers over which sheets may be passed, of sheet-carrying tapes arranged to feed sheets over said parallel series of rollers, substantially as set forth.

8. In a sheet-conveyer, the combination with a plurality of parallel series of freely-journaled rollers over which sheets may be passed, of suitable sheet-registering gages, sheet-carrying tapes arranged to feed sheets over said parallel series of rollers, and means for adjusting said tapes toward and away from the gages, substantially as set forth.

9. In a sheet-conveyer, the combination of a pair of plates or bars, rollers freely journaled between said plates or bars and arranged in a longitudinal series, and means for feeding sheets over said rollers, substantially as set forth.

10. In a sheet-conveyer, the combination of a plurality of pairs of plates or bars, rollers freely journaled between said plates or bars and arranged in parallel longitudinal series, and means for feeding sheets over said series of rollers, substantially as set forth.

11. In a conveyer, the combination of a pair of parallel plates or bars, rollers freely journaled betwen said plates or bars, means for clamping said slots or bars against the rollers to hold them against rotation, and means for feeding sheets over said rollers, substantially as and for the purpose set forth.

12. In a conveyer, the combination of a series of pairs of parallel plates or bars, rollers freely journaled between said plates or bars, means for clamping the plates or bars of each pair against the rollers to hold them against rotation, sheet-registering gages, sheet-carrying tapes for feeding sheets over said rollers, and means for adjusting said tapes toward and away from the gages, substantially as set forth.

13. In a conveyer, the combination of a pair of parallel plates or bars, rollers freely journaled between said plates or bars, threaded bolts extending through the said plates or bars between said anti-friction-rollers, and nuts threaded upon said bolts, substantially as and for the purpose set forth.

14. In a conveyer, the combination of a supporting-frame, sheet-carrying tapes, tape-supporting rollers, a series of parallel plates or bars, rollers freely journaled in said plates or bars, and rods mounted in said supporting-frame upon which said plates or bars are secured, substantially as set forth.

15. In a conveyer, the combination of a supporting-frame, sheet-carrying tapes, tape-supporting rollers, parallel series of rollers freely journaled in said supporting-frame and arranged to receive sheets from said tapes, and drop-roller delivery mechanism, substantially as set forth.

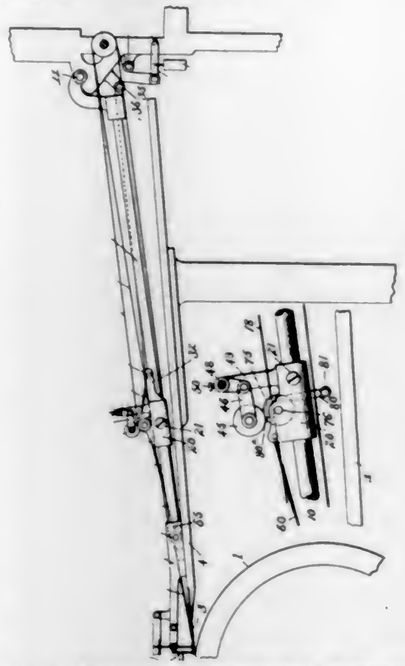
16. In a conveyer, the combination of a supporting-frame, sheet-carrying tapes, tape-supporting rollers, parallel series of rollers freely journaled in said supporting-frame and arranged to receive sheets from said tapes, sheet-registering gages, and means for adjusting said tapes toward and away from said gages, and drop-roller delivery mechanism, substantially as set forth.

752,382. **SHEET-CONVEYING MACHINE.** TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 25, 1902. Serial No. 128,713. (No model.)

Claim.—1. In a sheet-conveyer, the combination of the sheet-carrying tapes, the tape-rollers, a transversely-extending feed-roller supported adjacent to the tapes between the tape-rollers, with its periphery above the carrying portion of said tapes, suitable registering-gages, and means for adjusting the feed-roller parallel with the plane of feed toward and away from the gages, substantially as set forth.

2. In a sheet-conveyer, the combination of a supporting-frame, tape-rollers journaled in said frame, sheet-carrying tapes mounted upon said tape-rollers, a carriage adjustably mounted upon said frame between the tape-rollers, and a feed-roller journaled upon said carriage with its periphery above the carrying portion of the tapes, substantially as set forth.

3. In a sheet-conveyer, the combination of a supporting-frame, tape-rollers journaled in said supporting-frame, the sheet-carrying tapes mounted upon said tape-rollers, an adjustable carriage mounted upon said supporting-frame between the tape-rollers, a feed-roller journaled upon said carriage with its periphery above the carrying portion of said tapes, extensible friction-plates supported between one of the tape-rollers and said adjustable carriage, and sheet-registering gages, substantially as set forth.



4. In a sheet-conveyer, the combination of the sheet-carrying tapes, with a feed-roller extending transversely of the tapes and supported between the receiving and delivery ends of the tapes with its periphery above the carrying portion thereof, inclined sheet-deflecting plates or fingers intersecting the path of the carrying portion of said tapes and adapted to deflect sheets from the tapes to the feed-roller, and frictional plates or bars also intersecting the path of the carrying portion of said tapes and adapted to lead sheets from the feed-roller to the delivery portion of the tapes, substantially as set forth.

5. In a sheet-conveyer, the combination of a supporting-frame, the tape-rollers, the sheet-carrying tapes mounted upon said tape-rollers, an adjustable carriage mounted upon said frame between the tape-rollers, a feed-roller journaled in said carriage and supported above the carrying portion of the tapes, a series of sheet-deflecting fingers supported upon said carriage and intersecting the path of the carrying portion of said tapes, and registering-gages, substantially as set forth.

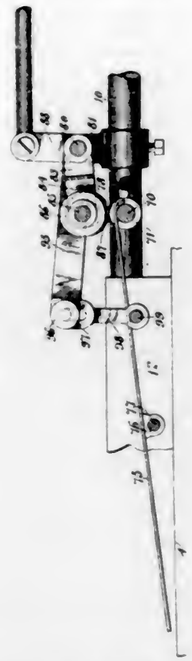
752,383. **SHEET-CONVEYING MACHINE.** TALBOT C. DEXTER, Pearl River, N. Y. Filed Oct. 25, 1902. Serial No. 128,715. (No model.)

Claim.—1. In a sheet-conveyer, the combination of a series of sheet-supporting rods or bars, with sheet-carrying tapes overlapping said supporting rods or bars and adjustable with relation thereto, and transfer-fingers adjustable with said tapes and arranged to lead sheets from the tapes to the supporting rods or bars, substantially as set forth.

2. In a sheet-conveyer, the combination of a series of sheet-supporting rods or bars, with sheet-carrying tapes overlapping said rods or bars and adjustable with relation thereto in the plane of feed, and transfer-fingers resting upon and movable longitudinally on said rods or bars, substantially as set forth.

3. In a sheet-conveyer, the combination of a series of sheet-supporting rods or bars, with sheet-carrying tapes, an adjustable carriage supporting one of the tape-rollers, and transfer-fingers pivotally mounted upon said adjustable carriage and resting upon said supporting rods or bars, substantially as set forth.

4. In a sheet-conveyer, the combination of a series of sheet-supporting rods or bars, with sheet-carrying tapes, an adjustable carriage supporting one of the tape-rollers, and transfer-fingers pivotally mounted upon said adjustable carriage and resting upon said supporting rods or bars, said transfer-fingers being grooved to fit snugly upon said rods or bars, substantially as set forth.



5. In a sheet-conveyer, the combination of a series of sheet supporting rods or bars, formed with angular upper faces, and sheet carrying tapes overlapping said rods or bars and adjustable with relation thereto, and transfer-fingers pivotally mounted upon the adjustable carriage of the tapes and formed with angular grooves in their lower faces which rest snugly upon the angular upper faces of the supporting rods or bars, substantially as set forth.

6. A drop-roller feed mechanism comprising an under feed-roller, a pair of drop-rollers, and suitable operating devices, the drop-rollers and their operating devices being constructed and arranged to permit the simultaneous lowering of said drop-rollers and the successive elevation of said drop-rollers, substantially as set forth.

7. A drop-roller feed mechanism comprising an under feed-roller, a pair of drop-rollers, and means for raising and lowering said drop-rollers with relation to the under feed-roller, one of said drop-rollers being snugly journaled upon its shaft, and the other of said drop-rollers being loosely journaled and eccentrically movable upon its shaft, substantially as set forth.

8. A drop-roller feed mechanism comprising an under feed-roller, a pair of drop-rollers, and means for raising and lowering said drop-rollers with relation to the under feed-roller, one of said drop-rollers being a relatively heavy roller snugly journaled upon its shaft, and the other of said drop-rollers being a relatively light roller loosely journaled and eccentrically movable upon its shaft, substantially as set forth.

9. A drop-roller feed mechanism comprising an under feed-roller, a pair of drop-rollers, and means for raising and lowering said drop-rollers with relation to the under feed-roller adapted to impart a double lifting movement and a single lowering movement to the drop-rollers, one of said drop-rollers being snugly journaled upon its shaft and the other of said drop-rollers being loosely journaled and eccentrically movable upon its shaft, substantially as set forth.

10. In a sheet-conveyer, the combination of an under feed-roller, and means for feeding sheets to said under feed-roller, with a pair of drop-rollers, a rock-arm supporting said drop-rollers, and means for operating said rock-arm, one of said drop-rollers being snugly journaled upon its supporting-shaft, and the other of said drop-rollers being loosely journaled and eccentrically movable upon its supporting-shaft, substantially as set forth.

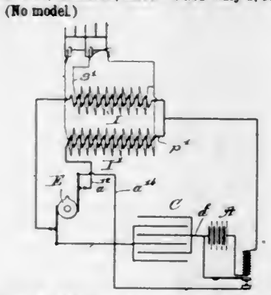
11. In a sheet-conveyer, the combination of a grooved feed-roller, and means for feeding sheets to said feed-roller, with a series of pivotally-mounted plates or bars supported in front of said under feed-roller and formed with downwardly-curved rear ends which rest in the grooves of said feed-roller, and means for intermittently raising the curved rear ends of said plates or bars, substantially as set forth.

12. In a sheet-conveyer, the combination of a grooved under feed-roller, drop-roller coöperating therewith, and means for feeding sheets to said under feed-roller, with a series of pivotally-mounted plates or bars supported in front of said under feed-roller and having their rear ends resting in the grooves of said under feed-roller, and means for intermittently raising the rear ends of said plates or bars, substantially as set forth.

13. In a sheet-conveyer, the combination of an under feed-roller formed with peripheral grooves, coöperating drop-rollers mounted upon suitable rock-arms, means for operating said drop-roller, and means for feeding sheets to said under feed-roller, with a series of plates or bars pivotally mounted in front of said under feed-roller, with their rear ends resting in the grooves of the same, and means connecting the drop-roller-operating mechanism with said pivotally-mounted plates or bars, substantially as set forth.

14. In a sheet-conveyer, the combination of a peripherally-grooved under feed-roller, drop-rollers coöperating therewith, a rock-shaft upon which said drop-rollers are supported, cam mechanism for operating said rock-shaft, a series of pivotally-mounted plates or bars having their rear ends resting in the grooves of said under feed-roller, a rod resting beneath the rear portions of said plates or bars, slotted arms secured to said rod, and rock-arms extending from said rock-shaft and engaging the slotted ends of said arms, substantially as set forth.

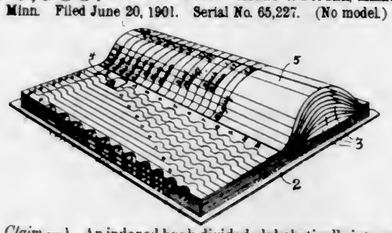
752,384. **ELECTRICAL IGNITER FOR EXPLOSIVE-ENGINES.** WILLARD E. DOW, Braintree, Mass. Filed July 2, 1903. Serial No. 163,993. (No model.)



Claim.—1. In an electrical ignition apparatus for explosive-engines, a plurality of induction-coils, a sparking device for each coil, a source of electrical energy, a single vibrator, a separate circuit for each of said coils, an interrupter for each circuit, means for operating said interrupters dissimultaneously, and means for impressing on each circuit a condenser-discharge.

2. In an electrical igniter for explosive-engines, a plurality of induction-coils, a sparking device for each coil, a source of energy, a single vibrator and condenser, and means for discharging said single condenser successively in connection with said respective induction-coils.

752,385. **INDEXED BOOK.** HENRY C. DUNBAR, Minneapolis, Minn. Filed June 20, 1901. Serial No. 65,227. (No model.)

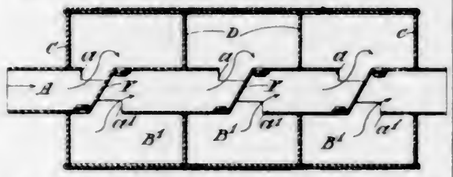


Claim.—1. An indexed book divided alphabetically into sections for the primary index, each section having an index-page provided with a lettered tab corresponding to the alphabet-letter for which

that section is appropriated and on which page the name of the account and the page where found are entered, each section being divided into groups of numerically-arranged leaves for the subordinate index each leaf having individual nicks or notches designated by units, each notch beginning with the first leaf of its group and terminating with the leaf bearing its corresponding number, and each group having a notch designated by a ten or a multiple thereof and terminating with its last leaf and extending through all the leaves of the preceding groups of that section, substantially as described.

2. An indexed book divided alphabetically into sections for the primary index, each section having an index-page provided with a lettered tab corresponding to the alphabet-letter for which that section is appropriated and on which page the name of the account and the page where found are entered, each section being divided into groups of ten leaves each numerically arranged for a subordinate index and having individual nicks or notches designated by units, each notch beginning with the first leaf of its group and terminating with the leaf bearing its corresponding number, the first group having a notch beginning with the index-leaf and extending through all the leaves of that group and terminating with the tenth leaf of the group and the succeeding groups each having a notch beginning with the index-leaf and extending through the leaves preceding such groups respectively, and designated by a ten or multiple thereof and terminating with the leaf whose number is a multiple of the number of leaves in the first group, substantially as described.

752,386. EXHAUST-SILENCER FOR INTERNAL-COMBUSTION ENGINES. JOHN B. DUNLOP and JOHN B. DUNLOP, Jr., Dublin, Ireland. Filed Apr. 30, 1903. Serial No. 155,043. (No model.)



Claim.—1. In an exhaust-silencer, the combination with a casing, of a partition, forming compartments within the casing, a tube extending through the partition and having openings in its side walls on opposite sides of the partition, and a baffle arranged transversely across the interior of the tube between openings therein.

2. In an exhaust-silencer, the combination with a casing, of partitions dividing the casing into a series of compartments, a tube extending through all of the compartments and having within each a plurality of openings in its side walls, and baffles arranged within said tube and dividing it into sections each having two or more of said openings in its side walls.

3. In an exhaust-silencer, the combination with a casing, of partitions dividing the casing into compartments, sleeves within said compartments holding the partitions in position, a tube extending through the casing and establishing communication between the compartment by openings in its side walls, and a baffle disposed between the openings in the tube in each compartment substantially as described.

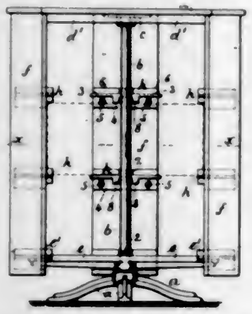
4. In an exhaust-silencer, the combination with a casing, of partitions dividing the casing into compartments, a tube extending through the casing and having within each compartment openings diametrically opposed to each other, and a baffle disposed between the openings in the tube in each compartment, substantially as described.

5. In an exhaust-silencer, the combination with a casing provided with an interior transverse partition, a tube extending through the casing and the said partition, and having openings in its side walls communicating with the compartments on both sides of the partition, a baffle dividing the tube into two sections, and a second tube closed at its ends, extending through the partition and provided with a series of openings in each compartment between which the partition is arranged.

6. In an exhaust-silencer, the combination with a casing divided into two compartments by a central partition, sleeves holding the partition in position, a tube extending through the casing and having openings communicating with each compartment, a baffle dividing the tube into two parts, and a second tube having closed ends and two series of openings communicating with the respective compartments substantially as described.

7. In an exhaust-silencer, the combination with a casing divided into two compartments by a central partition, sleeves holding the partition in position, a tube extending through the casing and having openings communicating with each compartment, a baffle dividing the tube into two parts, and a second tube having closed ends and two series of openings communicating with the respective compartments, the openings in the two tubes being turned away from each other, substantially as described or illustrated in the accompanying drawings.

752,387. DISPLAY-RACK. EUGENE W. DURKEE, East Patchogue, N. Y. Filed Oct. 19, 1903. Serial No. 177,595. (No model.)



Claim.—1. A display-rack, comprising a base and standard, frame parts revolubly mounted thereon, uprights connecting said frame parts, and means secured to said uprights for receiving and holding boxes of packages to be displayed that extend across between said uprights.

2. A display-rack comprising a base, a standard secured thereon, frame parts revolubly mounted on said base and standard, uprights connecting said frame parts, and brackets secured to the said uprights and adapted to receive and hold boxes of packages to be displayed.

3. A display-rack comprising a base and standard, frame parts revolubly mounted thereon, uprights connecting said frame parts, means secured to the said uprights for receiving and holding boxes of packages to be displayed that extend across between said uprights, and means for maintaining said boxes in position in the rack.

4. A display-rack, comprising a base, a standard secured thereon, frame parts revolubly mounted on said base and standard, uprights connecting said frame parts, brackets secured to the said uprights and adapted to receive and hold boxes of packages to be displayed, and means for maintaining said boxes in position in the rack.

5. A display-rack comprising a base and standard secured thereon, frame parts revolubly mounted on said base and standard, uprights connecting said frame parts, triangular brackets secured to the said uprights, a rib and lug on the upper face of each bracket so arranged that a box holding packages to be displayed fits between the ribs on correspondingly-opposite brackets and against their said lugs, and means for maintaining said boxes in position in the rack.

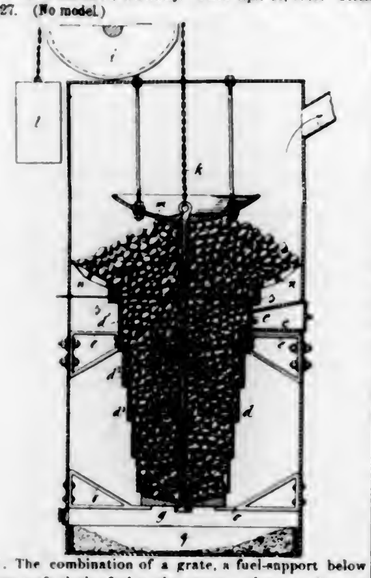
6. A display-rack comprising a base and standard secured thereon, frame parts revolubly mounted on said base and standard, uprights connecting said frame parts, triangular brackets secured to the said uprights, a rib and lug on the upper face of each bracket, so arranged that a box holding packages to be displayed fits between the ribs on correspondingly-opposite brackets and against their said lugs, and a lug on the under side of each of said brackets adapted to bear against the upper part of the boxes to keep them in place in the rack.

7. In a display-rack, the combination with a base and standard, of a spider and rack-top mounted revolubly on said standard, brackets integral with and at the ends of the legs of said spider, uprights extending between and connected to the ends of said spider-legs and to the rack-top, brackets secured at corresponding heights on the inner sides of said uprights and adapted to receive and hold boxes of packages to be displayed, and means for maintaining said boxes in position in the rack.

752,388. SENSITIVE PHOTOGRAPHIC EMULSION. ARTHUR EICHENGRÜN, Elberfeld, and ADOLF BRAUN, Mülhausen, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Apr. 14, 1903. Serial No. 152,503. (No specimens.)

Claim.—In a photographic sensitive emulsion the new composition of matter being a combination of a photographically-sensitive substance with alcohol-soluble acetylized derivatives of cellulose substantially as hereinbefore described.

752,389. SYSTEM OF FEEDING SLOW-BURNING STOVES. EWALD ENGELS, Dusseldorf, Germany. Filed Apr. 16, 1903. Serial No. 152,927. (No model.)



Claim.—1. The combination of a grate, a fuel-support below the grate, means to feed the fuel to the grate, and means for preventing excessive frictional interference by the lateral pressure of the fuel, for substantially the purposes set forth.

2. The combination of a grate, a fuel-support below the grate, means to feed the fuel to the grate as it is consumed, and longitudinally collapsing or yielding lateral walls for preventing excessive frictional or jamming action of the fuel, for substantially the purposes set forth.

3. The combination of a grate, a fuel-support below the grate, means constantly applying pressure to feed the fuel onto the grate as it is consumed, and means for preventing excessive frictional interference by the lateral pressure of the fuel, for substantially the purposes set forth.

4. The combination of a grate, a fuel-support below the grate, an abutment-plate, means constantly applying pressure to feed the fuel between the abutment-plate and the grate as it is consumed, and means for preventing excessive frictional interference by the lateral pressure of the fuel, for substantially the purposes set forth.

5. The combination of a grate, a fuel-support below the grate, means constantly applying pressure to feed the fuel onto the grate as it is consumed, and longitudinally collapsible or yielding lateral walls for preventing an excessive frictional or jamming action of the fuel, for substantially the purposes set forth.

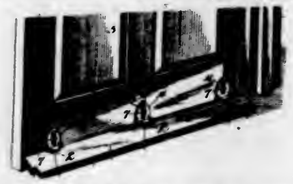
6. The combination of a grate, a fuel-support below the grate, an abutment-plate or stopping device, means constantly applying pressure to feed the fuel between the abutment-plate and the grate as it is consumed, and longitudinally collapsible or yielding lateral walls for preventing an excessive frictional or jamming action of the fuel, for substantially the purposes set forth.

7. The combination of a stove-mantle, provided with openings for admitting the air and for letting out the gases, a grate inside of the mantle, a feeding-shaft underneath the grate consisting of rings, each ring sliding inside of the adjoining upper one, a fuel-support for closing the lower mouth of the feeding-shaft, and means for moving one of said two parts, that is to say, the grate and the fuel-support, toward the other, for substantially the purposes set forth.

8. The combination of a stove-mantle, provided with openings for admitting the air and for letting out the gases, a grate immovably fixed inside of the mantle, a feeding-shaft underneath the grate, consisting of rings, each ring sliding inside of the adjoining upper one and a movable fuel-support for closing the lower mouth of the feeding-shaft, for substantially the purposes set forth.

9. The combination of a stove-mantle, provided with openings for admitting the air and for letting out the gases, a grate immovably fixed inside of the mantle, a feeding-shaft underneath the grate, consisting of rings, each ring sliding inside of the adjoining upper one, a movable fuel-support for closing the lower mouth of the feeding-shaft, and a stopping device above the said grate and feeding-shaft, for substantially the purposes set forth.

752,390. WEATHER-STRIP. WILLIAM H. ETTER, Marietta, Ohio. Filed May 4, 1903. Serial No. 155,608. (No model.)



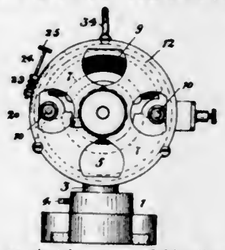
Claim.—1. A device of the class described comprising a strip, means for hinging the same to a door, and a spring interposed between the door and the strip to support the latter in an elevated position when the former is open, said spring being adjustable to vary the angle or inclination of the weather-strip, substantially as described.

2. A device of the class described comprising a hinged weather-strip and means for yieldably engaging the strip to support the same at an elevated position when a door is open, said means being adjustable to vary the angle or inclination of the strip, substantially as described.

3. A device of the class described comprising a strip, a leaf or plate hinged to the strip, a spring engaging the strip and provided with a shank or stem arranged adjacent to the leaf or plate, and means for securing the leaf or plate and the spring to a door and for adjusting them either simultaneously or independently, substantially as described.

4. A device of the class described comprising a strip, a leaf or plate hinged to the strip and provided with a slot, a curved spring engaging the strip and provided with a shank or stem having a slot registering with that of the leaf or plate, and a fastening device for securing the leaf or plate and the spring to a door, substantially as described.

752,391. ELECTRIC MOTOR. CHRISTIAN FLEISCHMANN, Bloomfield, N. J. Filed June 24, 1903. Serial No. 162,895. (No model.)



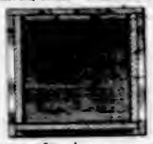
Claim.—1. In an electric motor, a field-coil carrier comprising annular end frames having a cylindric portion of smaller diameter extending between with radial studs thereon to receive coils, and means for turning said carrier.

2. In an electric motor, a field-coil carrier composed of duplicate members each comprising an annular end frame having at one side a semicylindric projection with a radial stud thereon, clamping-bolts holding said members rigidly together, and means for rotating said carrier.

3. The combination of a casing providing interior annular ways and being slotted through the bottom of one of said ways, of a rotary field-coil carrier having opposite annular end frames adapted to be seated in said ways, and means for engaging one of said end frames through said slot to turn the carrier.

4. The combination of the cylindrical casing 2, an armature centrally mounted in said casing, a commutator at one end of said armature, stationary brushes engaging said commutator, a cylindrical field-coil carrier inclosing the armature and being mounted at its ends upon frames rotatable in said casing, one of said frames providing at its edge rack-teeth, and a worm mounted upon the exterior of the casing in engagement with said rack-teeth.

752,392. PROCESS OF CURING MEATS. FRANK J. GARDNER, Chicago, Ill. Filed Mar. 14, 1902. Serial No. 98,179. (No specimens.)



Claim.—1. The process of curing meat, which consists in placing the meat in layers in a water-tight receptacle, applying thereto a solid preservative soluble in the meat-juices, pressing the meat so as to cause juices thereof to exude, and allowing the meat to remain submerged in a solution of the preservative in its own juices until cured, substantially as described.

2. The process of curing meat, which consists in placing the meat in layers in a receptacle adapted to retain the juices, spreading a preservative soluble in the meat-juices between layers of the meat, and applying and maintaining pressure at the top of the mass of meat whereby the meat is cured by a solution of the preservative in its own juices free from extraneous water, substantially as described.

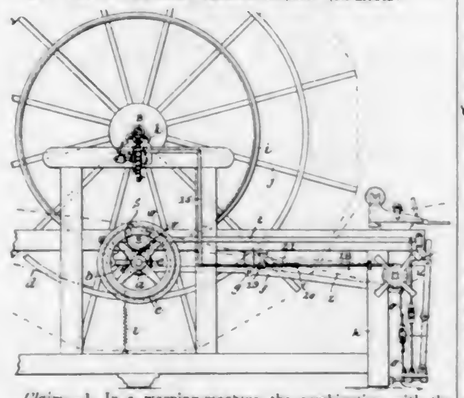
3. The method of curing meat, which consists in placing the meat in a suitable receptacle having a lining impervious to moisture, applying thereto a solid preservative soluble in the meat-juices, pressing the meat so as to cause juices thereof to exude, and allowing the meat to remain submerged in a solution of the preservative in its own juices until cured, substantially as described.

4. The method of curing meat, which consists in placing the meat in layers in a suitable water-tight box, applying thereto a solid preservative soluble in the meat-juices, pressing the meat so as to cause juices thereof to exude and completely submerge the meat, closing the box, and allowing the meat to stand submerged in a solution of the preservative in its own juices until cured, substantially as described.

5. The method of curing meat, which consists in placing the meat in layers in a suitable water-tight box, applying thereto a solid preservative soluble in the meat-juices, placing a cover upon the box so as to close the same and press the meat between said cover and the bottom of the box, thereby closing the box and at the same time maintaining pressure upon the meat so as to cause juices thereof to exude and submerge the meat in the box, and allowing the meat to stand submerged in a solution of the preservative in its own juices until cured, substantially as described.

6. The process of packing meat in water-tight boxes, by laying the meat in courses or layers with intervening layers of a suitable solid preservative sprinkled over each course as it is packed in the box, the layers being extended up above the lower face of the lid when the same is applied to the box, applying the lid to the box and pressing it down upon the meat sufficiently to cause meat-juices to exude, and then securing the lid in place to maintain such pressure, substantially as described.

752,393. WARPING-MACHINE. WALTER J. GARLICK, Paterson, N. J., assignor, by mesne assignments, to Bertha Garlick, Paterson, N. J. Filed Nov. 24, 1902. Serial No. 132,539. (No model.)



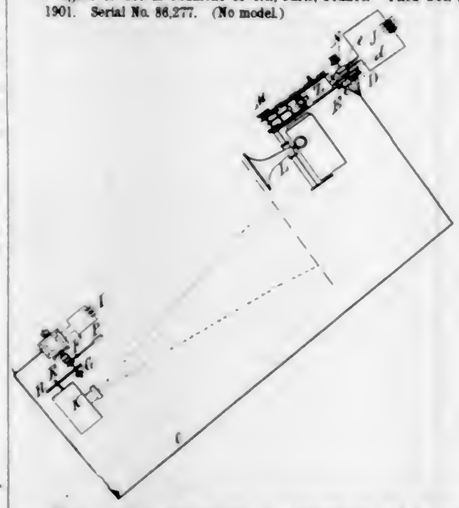
Claim.—1. In a warping-machine, the combination, with the frame and the reel journaled therein, of a revoluble driving device adapted to bear against said reel to rotate the same, a controlling member for said driving device, mechanism operatively connecting said controlling member and the driving device, means for maintaining said controlling member where it holds said driving device engaged with the reel, mechanism adapted to actuate said means to effect the release of said controlling member and comprising a rotary part engageable with said driving device, and other mechanism operatively connecting said rotary part and the controlling member, substantially as described.

2. In a warping-machine, the combination, with the frame, of a rotary part, mechanism adapted to be kept in motion by said rotary part and comprising another rotary part movable into engagement with said first-named rotary part, a movable member adapted to move said last-named rotary part into operative engagement with said first-named rotary part, means for maintaining said movable member where it holds said rotary parts in engagement with each other, other mechanism operatively disposed between said first-named mechanism and the means controlling said member, said mechanism being actuative upon the stopping of said first-named mechanism, and means for stopping said first-named mechanism, substantially as described.

3. The combination, with the frame, of the reel journaled therein, a rotary part adapted to actuate said reel, mechanism adapted to be kept in motion by said rotary part and comprising another rotary part movable into engagement with said first-named rotary part, a lever carrying said last-named rotary part and movable to effect the operative engagement between said rotary parts, toggle-levers, a movable part operatively connected to the frame by said toggle-levers, and means for connecting said lever with said movable part, substantially as described.

4. In a warping-machine or the like, the combination, with the part to be actuated to stop said machine, of means for maintaining said part in a retracted position, a rotary part of said machine, another rotary part operatively engaging said first-named rotary part and comprising two sections concentrically disposed and spaced from each other to form an endless slot and bridge-pieces securing said sections together, and pins adjustably arranged in said slot, said pins being adapted to engage said means to actuate the same, substantially as described.

752,394. MEANS FOR OPERATING SYNCHRONOUSLY PHONOGRAPHS AND KINEMATOGRAPHS. LÉON GAUMONT, Paris, France, assignor to Sté L. Gaumont et Cie., Paris, France. Filed Dec. 17, 1901. Serial No. 86,277. (No model.)

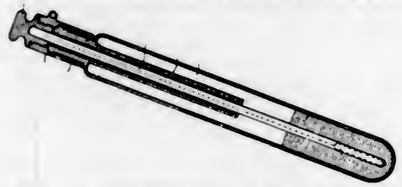


Claim.—1. The combination with a phonograph and its motor, of a kinematograph, an electric motor which drives the latter, a source of electricity, and means controlled by the motor of the phonograph for distributing the current supplied to the field-magnet of said electric motor in constant angular relation to the phonograph, whereby synchronous relations are maintained between the movements of the phonograph and kinematograph.

2. The combination with a kinematograph, an electric motor for driving the latter, a phonograph, a suitable motor for driving it, a collector having its segments connected successively with the respective sections of the field-magnet of said electric motor, a generator which supplies the armature of said electric motor, and means whereby the phonograph-motor drives the brushes of the collector as specified, of a generator having its terminals coupled to the brushes of said collector.

3. The combination with a kinematograph, an electric motor for driving the latter, a phonograph, a suitable motor for driving it, a collector having its segments connected successively with the respective sections of the field-magnet of said electric motor, and a generator J having its terminals coupled to the respective brushes of said collector, of means whereby the phonograph-motor controls the supply of current from said generator J to the field-magnet of the electric motor operating the kinematograph, whereby the latter motor is compelled to run synchronously with the motor of the phonograph, and means for uncoupling the kinematograph from its motor.

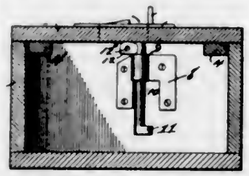
752,395. ANTISEPTIC THERMOMETER-CASE. PHILIP C. HAY, Chicago, Ill. Filed Oct. 13, 1902. Serial No. 127,142. (No model.)



Claim.—1. A thermometer-holder of the character described comprising an elongated cylindrical vessel having a contracted neck portion, a metallic neck portion internally screw-threaded and adapted to receive a cap, a tube concentric with respect to the body of said cylindrical vessel and extending from the neck to the middle of the body forming an annular space between the body and said tube whereby the liquid is prevented from escaping, substantially as described.

2. In a device of the character described, the combination with an elongated cylindrical vessel provided with a contracted neck portion at the open end of said vessel, and a tube extending centrally and longitudinally into said vessel secured at the base of said neck portion, of a second neck portion internally threaded surrounding said contracted neck portion, and a cap provided with a thermometer-receiving recess at the lower end thereof and adapted to be removably secured in the threads of the second neck portion, substantially as described.

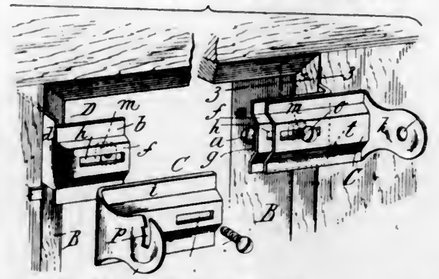
752,396. BOTTLE-CASE FASTENER. CAROL E. JOHNSON, Toledo, Ohio, assignor of one-half to Mary Helen Brennan, Toledo, Ohio. Filed Dec. 11, 1901. Serial No. 85,477. (No model.)



Claim.—1. In a bottle-case fastener, a plate secured to one of the vertical inner sides of the case, an axially-movable bolt mounted upon said plate and having a vertical movement which permits the bolt to be retracted wholly within the box, a lid for the case having therethrough a vertical opening which coincides with said bolt, a stop for limiting the upward movement of the bolt, a hook on the top of the bolt, a notched plate on the top of said lid which by the axial movement of the bolt engages said hook.

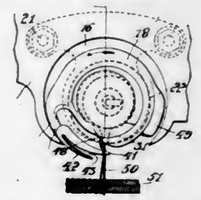
2. A bottle-case fastener comprising a plate secured to one of the vertical inner sides of the case, a vertically and axially movable bolt mounted upon said plate, said bolt being capable of vertical movement wholly within the box, a lid for the case having therethrough a vertical opening which coincides with said bolt, a stop for limiting the upward movement of the bolt, a hook on the top of the bolt, a notched plate on the top of said lid which by the axial movement of the bolt engages said hook, an upwardly-projecting lug on said plate, and coincident holes through said lug and through said hook adapted to receive a sealing-wire.

752,397. CURTAIN-ROLL SUPPORT. NEWTON C. JONES, Springfield, Mass., assignor of one-half to Martin B. Carpenter, Springfield, Mass. Filed June 8, 1903. Serial No. 160,532. (No model.)



Claim.—The combination with the window-casing having the strip B, of the base member D comprising right-angularly arranged portions *b* and *d* and having the lip extending in a plane right angularly to the face of the portion *d*, for coaction relatively to the window-casing and its said strip as explained, and a bracket member supported on the base member.

752,398. STITCH-FORMING MECHANISM FOR SHOE-SEWING MACHINES. JOSEPH L. KIEFFER, Montreal, Canada. Filed July 14, 1902. Serial No. 115,589. (No model.)



Claim.—1. In a stitch-forming mechanism for shoe-sewing machines, a thread-hook comprising a forked nose, one limb of which is adapted to enter and deliver the thread-loop from the needle, and the other to guide the rear lap of the loop into the bight of the hook.

2. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring up a thread-loop therethrough, and a continuously-rotating thread-hook having a forwardly-directed forked nose, the inner limb of which is longer than the outer and is adapted to enter the thread-loop and deliver it from the needle, and the outer limb of which is adapted to push forward both laps of the thread-loop and cause the rear lap to fall into the bight of the hook.

3. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring up a thread-loop therethrough, and a continuously-rotating thread-hook having a forwardly-directed forked nose, the inner limb of which is longer than the outer and is adapted to enter the thread-loop and deliver it from the needle, and the outer limb of which is adapted to push forward both laps of the thread-loop and cause the rear lap to fall into the bight of the hook, said upper limb of the hook having a groove in its inner face into which the needle is adapted to pass.

4. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring up a thread-loop therethrough, a continuously-rotating thread-hook having a forwardly-directed forked nose, the inner limb of which is longer than the outer and is adapted to enter the thread-loop and deliver it from the needle, and the outer limb of which is adapted to push forward both laps of the thread-loop and cause the rear lap to fall into the bight of the hook, said inner limb of the hook having a groove in its rear face into which the needle is adapted to pass, means for rotating the hook and stopping the same at a point where the groove is opposite the needle, means for thereafter causing the needle to enter the groove while the hook is stationary and leave the thread on the hook, and means for thereafter continuing the rotation of the hook, substantially as described.

5. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring a thread-loop therethrough, a rotating disk forming the rear of a bobbin-box, a bobbin-bracket closing the front of said box, a bobbin loosely

mounted in said box, a thread-hook having a forwardly-directed forked nose extending from the periphery of said disk, the upper limb of said nose being adapted to enter the thread-loop and deliver it from the needle, and the lower limb being adapted to push back the rear lap of the loop, and a shield adapted to cover the point of the needle subsequent to the casting off of the thread-loop and during its drawing up by the take-up motion.

6. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring a thread-loop therethrough, a rotating disk forming the rear of a bobbin-box, a bobbin-bracket closing the front of said box, a bobbin loosely mounted in said box, a thread-hook having a forwardly-directed forked nose extending from the periphery of said disk, the upper limb of said nose being adapted to enter the thread-loop and deliver it from the needle, and the lower limb being adapted to push back the rear lap of the loop, and a shield adapted to cover the point of the needle subsequent to the casting off of the thread-loop and during its drawing up by the take-up motion, the upper limb of said thread-hook having a groove in its rear face into which the needle is adapted to enter and to leave the thread-loop on the hook.

7. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring up a thread-loop therethrough, a rotating disk forming the rear of a bobbin-box, a bobbin-bracket closing the front of said box, a bobbin loosely mounted in said box, a thread-hook having a forwardly-directed forked nose extending from the periphery of said disk, the upper limb of said nose being adapted to enter the thread-loop and deliver it from the needle, and the lower limb being adapted to push back the rear lap of the loop, a shield adapted to cover the point of the needle subsequent to the casting off of the thread-loop and during its drawing up by the take-up motion, the upper limb of said thread-hook having a groove in its rear face into which the needle is adapted to enter and to leave the thread-loop on the hook, means for rotating the hook continuously in one direction, means for instantaneously stopping the hook at a point where the groove is opposite the point of the needle, means for advancing the needle into the groove during the rest period of the hook so as to leave the thread-loop upon the hook, means for subsequently advancing the hook to carry the loop over the bobbin, and means for temporarily stopping or retarding the motion of the hook during the casting off of the thread-loop.

8. In a stitch-forming mechanism, in combination, a bobbin-case, a circularly-moving member adapted to carry a thread thereover and a bobbin-bracket supporting the case, the adjacent surfaces of the bobbin case and bracket being so conformed to each other as to touch in only three possible points, so situated with respect to each other that each point lies on the opposite side of a diameter from the other two.

9. In a stitch-forming mechanism for shoe-sewing machines, in combination with a bobbin-case, a bobbin-box, and the hook, of a bobbin-bracket having a ring forming the cover of the bobbin-box, said ring being cut away on its inner surface to form three bosses on the lower one of which the bobbin-case is adapted to rest, and against the upper two of which the bobbin-case is adapted to rest alternately.

10. In a stitch-forming mechanism, the combination of a bobbin-box, a bobbin-case loosely mounted therein, the hook and a bobbin-bracket forming the cover of said box and having three raised points around its periphery, upon one of which the bobbin-case is adapted to be supported, and against one of the other two of which the bobbin-case is adapted to alternately rest.

11. In a stitch-forming mechanism, the combination of a bobbin-box, a bobbin-case loosely mounted therein, a bobbin-bracket forming the cover of said box and having three raised points around its periphery, upon one of which the bobbin-case is adapted to be supported, and against one of the other two of which the bobbin-case is adapted to alternately rest, and means for throwing the bobbin-case first to one side and then to the other in advance of the passage of the thread between said raised points and the bobbin-case.

12. A stitch-forming mechanism for shoe-sewing machines comprising a barbed needle adapted to enter the work and bring a thread-loop therethrough, a thread-hook block having a shallow cylindrical groove therein forming the bobbin-box, a thread-hook adapted to move around the periphery of said box, a bracket forming the cover of said box, a circular bobbin-case loosely mounted in said box, a series of raised points around the inner margin of said bracket upon which said bobbin-case rests, and means carried by said thread-hook for throwing the bobbin-case over from one side to the other in advance of the passage of the thread around the same, substantially as described.

13. A stitch-forming mechanism for shoe and leather sewing machinery comprising a thread-hook block having a shallow cylindrical recess therein forming a bobbin-box, a spindle passing through the rear of said block in the center of said recess, means for unevenly rotating said spindle, a disk mounted on the forward end of said spindle within said recess and forming the rear face of said bobbin-box, an arcuate thread-hook mounted on said disk and having a forwardly-directed forked nose, the inner limb of said nose being longer than the outer, a bobbin-bracket having a ring closing the front of said bobbin-box, a bobbin-case loosely mounted in said box, means for preventing said bobbin-case from rotation, and a shield adapted to cover the barbed needle during the drawing up of the thread-loop.

14. A stitch-forming mechanism for shoe and leather sewing machinery comprising a thread-hook block having a shallow cylindrical recess therein forming a bobbin-box, a spindle passing through the rear of said block in the center of said recess, means for unevenly rotating said spindle, a disk mounted on the forward end of said spindle within said recess and forming the rear face of said bobbin-box, an arcuate thread-hook mounted on said disk and having a forwardly-directed forked nose, the inner limb of said nose being longer than the outer, a bobbin-bracket having a ring closing the front of said bobbin-box, a bobbin-case loosely mounted in said box, means for preventing said bobbin-case from rotation, said bobbin-bracket having a series of three raised points or bosses on its inner periphery, which serve as supports and stops for said bobbin-case, and means carried by said thread-hook in advance of the nose thereof for throwing the bobbin-case over to the side farthest from the nose, whereby the thread is permitted to pass over the bobbin-case without friction between it and its supports, substantially as described.

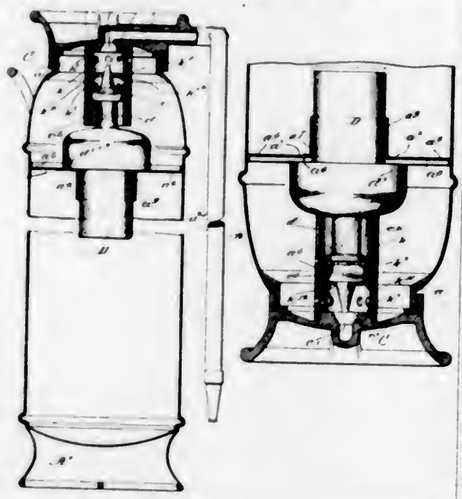
15. A stitch-forming mechanism for shoe and leather sewing machinery comprising a thread-hook block having a shallow cylindrical recess therein forming a bobbin-box, a spindle passing through the rear of said block in the center of said recess, means for unevenly rotating said spindle, a disk mounted on the forward end of said spindle within said recess and forming the rear face of said bobbin-box, an arcuate thread-hook mounted on said disk and having a forwardly-directed forked nose, the inner limb of said nose being longer than the outer, a bobbin-bracket having a ring closing the front of said bobbin-box, a bobbin-case loosely mounted in said box, means for preventing said bobbin-case from rotation, said bobbin-bracket having a series of three raised points or bosses on its inner periphery which serve as supports and stops for said bobbin-case, and an eccentric heel or hump carried by said thread-hook and adapted to strike against the side of the bobbin-case for throwing the bobbin-case over to the side farthest from the nose, whereby the thread is permitted to pass over the bobbin-case without friction between it and its supports, substantially as described.

16. A stitch-forming mechanism for shoe-sewing machines comprising a thread-hook block having a shallow cylindrical recess therein, a shaft passing through the rear of the block in the center of the recess, means for unevenly rotating said shaft continuously in one direction, a thread-hook disk secured on the forward end of said shaft within said recess and having a dished front face adapted to conform with the shape of the bobbin-case and to form the back of the bobbin-box, a bracket coacting with said disk to form the cover of said bobbin-box and having a ring adapted to surround the bobbin-case, a bobbin-case loosely mounted between said disk and ring, a series of three raised points respectively at the bottom and on opposite sides of the inner periphery of said ring on the first of which the bobbin-case is supported and against one of the other two of which the bobbin-case rests alternately, a thread-hook having a forwardly-directed forked nose adapted to enter the thread-loop and deliver it from the needle, a barbed needle coacting with said thread-hook, and an eccentric heel or hump in advance of said thread-hook, whereby the bobbin-case is thrown over in advance of the passage of the thread thereover to cause it to pass between it and its supports frictionlessly.

17. A stitch-forming mechanism for shoe-sewing machines comprising a thread-hook block having a shallow cylindrical recess therein, a shaft passing through the rear of the block in the center of the recess, means for unevenly rotating said shaft continuously in one direction, a thread-hook disk secured on the forward end of said shaft within said recess and having a dished front face adapted to conform with the shape of the bobbin-case and to form the back of the bobbin-box, a bracket coacting with said disk to form the cover of said bobbin-box and having a ring adapted to surround the bobbin-case, a bobbin-case loosely mounted between said disk and ring, a series of three raised points respectively at the bottom and on opposite sides of the inner periphery of said ring on the first of which the bobbin-case is supported and against one of the other two of which the bobbin-case rests alternately, a thread-hook having a forked forwardly-directed nose, the inner limb of which is longer than the upper and provided with a groove in its rear face, a barbed needle adapted to enter the work and bring a thread-loop therethrough and to coact with said hook, means for advancing said hook to a point opposite said needle and then momentarily stopping said hook, means for subsequently advancing the needle into said groove a sufficient distance to clear the loop from the barb thereof and leave it on the hook, means for thereafter advancing the thread-hook and carrying the loop over the bobbin, and an eccentric heel or hump adapted to strike against said bobbin-case slightly in advance of the hook and throw it over so as to permit the thread-loop to pass between the bobbin-case and its supports frictionlessly.

752,399. CHEMICAL FIRE-EXTINGUISHER. ALFRED J. KNIGHT, Melrose, Mass., assignor of one-half to Jesse B. Thomas, Boston, Mass.

Filed Oct. 12, 1903. Serial No. 176,602. (No model.)



Claim.—1. A portable fire-extinguisher comprising a main receiver having an outlet, a filling-opening at one end, and a perforated diaphragm below it, an auxiliary receiver removably supported by said diaphragm, a cap to close the filling-opening, provided with a depending tubular and perforated holder to retain the auxiliary receiver in place, a gravity-closure for the latter, movable within and guided by said holder, and a stop to limit the opening movement of the closure.

2. A portable fire-extinguisher comprising a main receiver having an outlet, a filling-opening at one end, and a perforated diaphragm below it, provided with a central opening, an auxiliary receiver removably supported within the opening, a gravity-closure for such receiver, a cap to close the filling-opening, and means to guide the movements of the closure and also to prevent displacement of the auxiliary receiver when the extinguisher is in use.

3. A portable fire-extinguisher comprising a main receiver having a filling-opening at one end and a perforated, centrally-open diaphragm below it, an auxiliary receiver extended through the opening of and removably supported by the diaphragm, a gravity-closure for the auxiliary receiver, a cap to close the filling-opening, having an outlet and provided with a depending perforated holder to engage the auxiliary receiver and prevent its displacement when the extinguisher is in use, said holder also guiding the closure in its opening and closing movements, and an annular stop within the holder to limit opening movement of said closure.

4. A fire-extinguisher comprising a normally upright main receiver having a filling-opening and an outlet at its upper end, a transverse, perforated diaphragm below said filling-opening and having a central opening, an auxiliary receiver removably supported by the diaphragm and seated within the opening thereof, a cap to close the filling-opening, having a depending perforated holder communicating with the outlet and adapted to limit movement of the auxiliary receiver from its seat on the diaphragm, a gravity-closure for such receiver, guided by said holder, and means on the latter to limit opening movement of the closure.

5. A fire-extinguisher comprising a normally upright main receiver having a filling-opening and an outlet, a cap to close said opening, an auxiliary receiver supported within the main receiver, a gravity-closure for the auxiliary receiver, separate means to protect the discharge-opening of the latter from splashing of the contents of the main receiver when not in use, said means also constituting a support for the auxiliary receiver, and a device to limit movement of the same relatively to said means when the extinguisher is in use.

6. A fire-extinguisher comprising a main receiver, a normally upright acid-receptacle contained therein, a closure for the discharge-opening of said receptacle, separate means to prevent the contents of the main receiver from splashing or being thrown upon the discharge-opening of the acid-receptacle when the extinguisher is not in use, said means also constituting a support for and relatively to which the acid-receptacle is movable, and a device to limit such movement and prevent displacement of said receptacle when the extinguisher is in use.

7. A fire-extinguisher comprising a canister having a filling-opening at one end, and an outlet for the contents of the extinguisher when in use, a perforated diaphragm below the filling-opening, having a central annular seat, an acid-receptacle supported on the seat and having a normally upturned discharge-opening, a gravity-closure therefor, a cap to close the filling-opening, a tubular perforated holder depending from the cap, to coöperate with and limit movement of the acid-receptacle, and also to guide the closure therefor, and an annular stop within the holder to limit opening movement of the said closure.

8. A fire-extinguisher comprising a normally upright canister having an outlet, and a filling-opening at its upper end, a closing-cap for the opening, an annular seat in and secured to the canister below the filling-opening, an acid-receptacle adapted to project through the seat and having an overhanging shoulder to rest thereupon, a depending tubular holder sustained by the cap and adapted to engage the acid-receptacle and limit its movement when the extinguisher is inverted for use, and a gravity-closure for the discharge-opening of the acid-receptacle.

9. A fire-extinguisher comprising a normally upright canister having an outlet, and a filling-opening at its upper end, a transverse, perforated diaphragm secured within the canister below said opening and having a central annular seat, and adjacent feed-apertures, an acid-receptacle extending partly through said seat and having an annular shoulder to rest thereupon, and normally close the feed-apertures, a gravity-closure for said receptacle, a cap to close the filling-opening, and a holder depending therefrom to engage and limit movement of the acid-receptacle when the extinguisher is in use and also to guide the gravity-closure in its movements.

10. A portable fire-extinguisher comprising a main receiver having an outlet, a filling-opening at one end, a diaphragm below it provided with a central opening and feed-apertures, an auxiliary receiver removably supported within the opening, a gravity-closure for such receiver, a cap to close the filling-opening, means to normally close the feed-apertures, and means to retain the auxiliary receiver in position on the diaphragm and also to guide the movements of the closure.

11. A fire-extinguisher comprising a canister having a filling opening at one end, a cap to close the same, provided with an outlet for the contents of the extinguisher, a perforated diaphragm below the filling-opening, having a central annular seat and adjacent feed-apertures, an acid-receptacle supported on the seat and having a normally upturned discharge-opening, a gravity-closure therefor, a tubular perforated holder depending from the cap, to limit movement of the acid-receptacle when the canister is inverted and also to guide the closure therefor, means to normally close the feed-apertures in the diaphragm, and a stop within the holder to limit opening movement of the closure.

12. A fire-extinguisher comprising a canister having a filling-opening at one end, a cap to close the same, provided with an outlet for the contents of the extinguisher, a perforated diaphragm below the filling-opening, having a central annular seat and adjacent feed-apertures, an acid-receptacle adapted to project through the seat and having an overhanging shoulder to rest thereon and close the feed-apertures, a depending tubular holder sustained by the cap and adapted to limit movement of the shoulder from the diaphragm, and a gravity-closure for the discharge-opening of the acid-receptacle, guided in its movement by the holder.

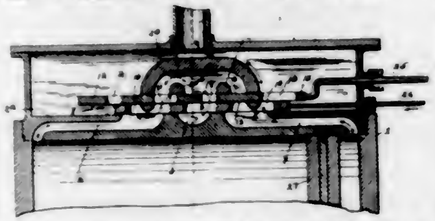
13. A fire-extinguisher comprising a canister having an outlet, and a filling-opening, an annular seat fixedly mounted within the can-

ister below its upper end, an acid-receptacle adapted to extend part way through the seat and having an overhanging portion to rest thereupon, a gravity-closure for the discharge-opening of the acid-receptacle, and means to guide the opening and closing movement of said closure, and also prevent displacement of the acid-receptacle when the extinguisher is inverted for use.

14. In a fire-extinguisher, a normally upright canister having an outlet, an annular seat fixedly mounted within the main body portion of the canister below its upper end, a removable acid-receptacle having an overhanging portion to rest upon the seat, the body portion of said receptacle entering and depending below the seat, and means to engage the enlarged and overhanging portion of and prevent displacement of the acid-receptacle when the extinguisher is inverted for use.

15. In a fire-extinguisher, a normally upright canister having an outlet, a cap to close the upper end of the canister, a centrally-open diaphragm secured within the main body portion of the canister below its upper end and having a series of feed-apertures arranged adjacent to its central opening, a removable acid-receptacle to extend part way through the central opening and having an annular overhanging shoulder to rest upon the diaphragm and close the feed-apertures, a gravity-closure for the discharge-opening of the acid-receptacle, and means connected with the cap and depending therefrom to limit movement of the acid-receptacle relative to the diaphragm when the extinguisher is inverted, such movement of the acid-receptacle causing the shoulder to uncover the feed-apertures.

752,400. **VALVE MECHANISM.** EMANUEL KROMER, Newark, Ohio. Filed Mar. 16, 1903. Serial No. 147,934. (No model.)



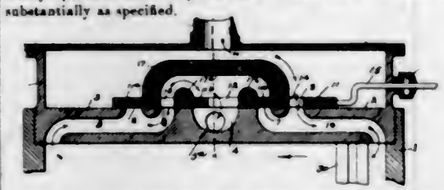
Claim.—1. In a valve mechanism for engine-cylinders, the combination with a steam-cylinder and steam-chest, the wall between said cylinder and chest having passages leading to opposite ends of the cylinder and communicating with the chest through ports, of a valve-seat mounted to slide against said wall and having a plurality of ports therein, a cap 20 rising from and having its sides connected with said valve-seat and a sliding valve arranged to move in contact with said valve-seat and through said cap as described and having ports adapted in conjunction with the ports of said valve-seat and the ports and passages of said wall to alternately permit the passage of steam to opposite ends of said cylinder, substantially as specified.

2. In a valve mechanism for steam-cylinders, the combination with a steam-cylinder and steam-chest, the wall between the same having an exhaust-port and passages 6 and 7 on opposite sides thereof leading to opposite ends of the cylinder, said passages having enlarged mouth portions, of a sliding valve having port 17 and a comparatively small port on each side thereof and a slidable valve-seat having a port 9 and pairs of ports on opposite sides thereof adapted to communicate simultaneously with the enlarged mouths of the passages 6 and 7, substantially as specified.

3. In a valve mechanism for engine-cylinders, the combination with a steam-cylinder and steam-chest, the wall between said cylinder and chest having passages leading to opposite ends of the cylinder and communicating with the steam-chest, of a valve-seat mounted to slide against said wall, and having a plurality of ports as described, a sliding valve on said valve-seat having a plurality of ports as described, and a cap-body 20 connected with and rising from the said valve-seat and springs adapted to exert a downward pressure on said cap and hold the sliding valve in contact with the sliding valve-seat when the parts are not subjected to steam-pressure, substantially as specified.

752,401. **REVERSING-VALVE FOR STEAM-ENGINES.** EMANUEL KROMER, Newark, Ohio. Filed Mar. 16, 1903. Serial No. 147,935. (No model.)

Claim.—1. In a valve mechanism for steam-cylinders, the combination with a cylinder and steam-chest, the wall between said parts having passages leading to opposite ends of the cylinder and each of said passages communicating with the steam-chest through two ports as 8 and 7 and 5 and 6, and said wall or partition having a central exhaust-port, of a valve-plate 11 slidably mounted on said wall or partition, said slide-valve having three ports formed therein, a fixed cap over said slide-valve and of such length as to embrace the ports 5 and 7, said valve adapted when reciprocated to alternately open and close the ports 7 and 8 and 5 and 6 as described, substantially as specified.



2. In a valve construction for steam-engine cylinders, the combination with a cylinder and steam-chest, the wall between said cylinder and chest having a central exhaust-port and passages on opposite sides of the exhaust-port leading to opposite ends of the cylinder and each of said passages having a pair of inlet-ports as 7 8 and 5 6, of a slidable valve having ports 12, 13 and 14, the solid inner end portion of said valve having a width equal to three times the width of either of the ports 5, 6, 7 or 8, its solid portion between ports 13 and 12 equal to two times the width of either of said ports 5, 6, 7 or 8 and its solid portion between ports 12 and 14 equal in width to said inner end solid portion, a fixed cap over said valve and embracing the ports 5 and 7 and means for imparting a sliding movement to said valve by hand, substantially as and for the purpose specified.

752,402. **ENVELOP-FASTENER.** ROBERT R. LAWSON, New York, N. Y., assignor to Mary C. Gorman, New York, N. Y. Filed Mar. 18, 1903. Serial No. 148,343. (No model.)



Claim.—1. An envelop-fastening device comprising a metallic member of a T shape, the stem of which consists of two prongs which may be bent laterally in an inverse direction, the head of said member being confined between two disks, the upper surface of said disks being covered with an adhesive gum, substantially as described and for the purposes mentioned.

2. An envelop-fastening device comprising a metal member of a T shape having for its stem duplicate prongs, each of said prongs being in excess substantially of one-half the length of the body member, base or head thereof, the said base or head being placed between two paper disks, the upper surface of said disks being covered with adhesive gum for the purposes mentioned and as described.

752,403. **PERMANENT WAY.** RAFAEL V. MEIDOSE, Innsbruck, Austria-Hungary, assignor of two-thirds to The Firm of Oesterreichische Asphalt Actiengesellschaft and Otto Freiherr von Czedik, Vienna, Austria-Hungary. Filed Apr. 7, 1903. Serial No. 151,536. (No model.)



Claim.—1. A permanent way comprising stamped concrete, rails lying in the concrete, and strengthening members embedded in the concrete and extending parallel with, and beneath the level of the rails, substantially as described.

2. A permanent way comprising stamped concrete, rails lying in the concrete, and strengthening members embedded in the concrete and extending parallel with, and under the rails, substantially as described.

3. A permanent way comprising stamped concrete, rails lying in the concrete, and strengthening members embedded in the concrete below the level of the rails and extending transversely thereof, substantially as described.

4. A permanent way comprising stamped concrete, rails lying in the concrete, and strengthening members embedded in the concrete and each extending transversely of the rails and under both of them, substantially as described.

5. A permanent way comprising stamped concrete, rails lying in the concrete, and strengthening members embedded in the concrete below the level of the rails, some of said members extending parallel with the rails and the others transversely thereof, substantially as described.

6. A permanent way, comprising stamped concrete lying upon a suitable bed and provided with channels, and rails lying in said channels and held therein by a quickly-hardening filling mass, substantially as described.

752,404. **HARNESS-SADDLE.** CHARLES W. MILLER, Canton, Ohio, assignor to the Gilliam Manufacturing Company, Canton, Ohio, a Corporation of West Virginia. Filed Dec. 12, 1903. Serial No. 184,903. (No model.)



Claim.—1. In a harness-saddle, the combination of a continuous skirt having a strap-recess in its middle part, a continuous back-strap which lies upon the skirt and in said recess, and a jockey secured upon the skirt over said strap, with a plate lying against the under side of the middle part of the skirt and secured thereto, two wire tree-sections secured to said plate and extending laterally therefrom and clamped to the under side of said skirt.

2. In a harness-saddle, the combination of a continuous skirt having a strap-recess in its middle part, a continuous back-strap which lies upon the skirt and in said recess, and a jockey secured upon the skirt over said strap, with a plate lying against the under side of the middle part of the skirt, there being through this plate, the skirt, and the jockey two holes which lie respectively in front of and behind said strap-recess, bolts passing through said holes, a seat, and a hook secured to the saddle by said bolts.

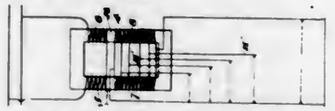
3. In a harness-saddle, the combination of a continuous skirt having a strap-recess in its middle part, a continuous back-strap which lies upon the skirt and in said recess, and a jockey secured upon the skirt over said strap, with a plate lying against the under side of the middle part of the skirt, there being registering holes through this plate, the skirt and the jockey, but not through the back-strap, and a fastening device passing through said holes and engaging with the plate to hold it against the skirt.

4. In a harness-saddle, a tree consisting of a center plate having near each side edge two holes, and two U-shaped wire tree-sections which pass through said holes and extend laterally from said center plate in opposite directions, the loops of said tree-sections being in contact with said plate.

5. In a harness-saddle, a tree consisting of a center plate having near each side edge two holes and a curved groove connecting said holes, and two U-shaped wire tree-sections each of which passes through two of said holes and extends laterally from said plate in opposite directions and has its loop lying in said connecting-groove.

6. In a harness-saddle, a tree consisting of a center plate having near its middle two holes which are surrounded by depressions in the under side of the plate, and having on each side of said holes two other holes, and two U-shaped wire tree-sections which pass through said holes and extend laterally from said center plate and have their loops in contact with said plate.

752,405. **TRANSFORMER.** CHARLES B. MCCURDY, Warren, Ohio, assignor, by direct and mesne assignments, to the Peerless Electric Company, Warren, Ohio, a Corporation of Ohio, and Frederick C. Sutter and Robert V. Bingay, Pittsburg, Pa. Filed Apr. 24, 1902. Serial No. 104,426. (No model.)



Claim.—1. In a transformer, the combination of a core having a single magnetic circuit; a primary winding consisting of two coils, one coil on each leg of said core; a secondary winding upon said core, consisting of two coils, one upon each leg, one secondary coil being wound reverse or opposite to the other; each secondary coil having a tap from its center, said taps being connected between said coils to form the neutral wire for a three-wire system, substantially as described.

2. The combination, in a transformer, of a core having a single magnetic circuit, a primary winding mounted thereon, a secondary winding mounted thereon, consisting of two coils, one coil being wound reverse or opposite to the other, said coils having a tap brought from the center of each, said taps being connected directly between said coils to form the central or neutral wire necessary for a three-wire system, thus forming a balanced winding for an unbalanced load, which will show practically normal regulation under any condition of unbalanced load.

3. In a transformer, the combination of a core having a single magnetic circuit, a primary and secondary winding mounted thereon, consisting of two or more sets of two coils each, one coil of each set being located on each leg of said circuit, one secondary coil being wound reverse or opposite and having taps brought out at convenient parts of said coil, said taps to be used as means of changing or varying the voltage of the secondary circuit by cutting in or out any given number of turns in the secondary coil, thus changing the ratio of the windings.

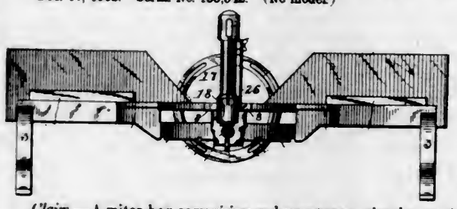
4. The combination in a transformer, of a core having a single magnetic circuit, a primary winding mounted thereon, and a secondary winding mounted on said core consisting of two or more groups of coils connected to a three-wire system, there being an equal number of groups connected across each branch of the three-wire system, each of said groups consisting of two or more coils located on different parts of the core, and connected in multiple across the branch of the three-wire system to which said group pertains.

5. The combination in a transformer, of a core having a single magnetic circuit, a primary winding mounted thereon, and a secondary winding consisting of two sets of coils connected to a three-wire circuit, one set being connected across one branch and the other set across the other branch of the three-wire circuit, each of said sets being composed of two coils connected in multiple, one of said coils being located on one leg of the core and the other coil located upon the other leg of said core.

6. In a transformer, the combination with a core constituting a single magnetic circuit, of a winding disposed at different parts of the core, a portion of the winding on one part of the core being connected in multiple with a portion of the winding on another part of the core, across one side of a multicircuit system, other parts of the winding on different parts of the core being connected in multiple with each other across another side of a multicircuit system, and another winding in inductive relation with respect to the first winding.

7. The combination in a transformer, of a core having a single magnetic circuit, a primary winding mounted thereon, and a secondary winding consisting of two portions, one portion being connected across one branch of a three-wire circuit and the other portion being connected across the other branch of said three-wire circuit, each of which portions is composed of two parts connected in multiple one part being located upon one leg of the core and the other part being located upon the opposite leg of the core.

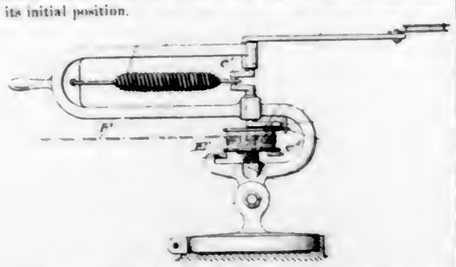
752,406. **MITER-BOX.** LEWIS P. NICHOLS, Pittsburg, Pa. Filed Dec. 17, 1902. Serial No. 135,542. (No model.)



Claim.—A miter-box comprising end members, a circular track having a central hub formed with a seat, a rotatable member spaced from the track and formed with a front projection, a rear projection having protruding arms and a central boss fitting in the seat, depending front and rear grooved brackets secured to the rotatable member, the front saw-guide having a slotted tubular post and a horizontal rod formed with a radial lug, the rear saw-guide having a slotted tubular post and a tube receiving the rod, and formed with a slot and transverse notches receiving the radial lug on the rod, the slotted tubes having heads and fitting in the posts, the slotted adjustable bars on which the tubes are supported by their heads, and the slotted circle carried by the rear tubular post and adjustably secured by clamp-screws to the protruding arms.

757,407. **TARGET-TRAP.** PAUL NORTH, Lakewood, Ohio, assignor to the Chamberlin Cartridge and Target Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 2, 1903. Serial No. 150,632. (No model.)

Claim.—1. In a target-trap, the combination with the throwing-arm, of means tending to normally throw said arm into the discharge position, a drum provided with means for engaging said arm to draw it back against its normal tendency, means for automatically setting said arm free from said drum, and a spring for returning said drum to its initial position.



2. In a target-trap, the combination with a throwing-arm, of a spring for normally holding said arm in the discharge position, a drum provided with a spring tending to rotate it in one direction, connections between said drum and said throwing-arm, means for rotating said drum in the opposite direction and thereby operating said throwing-arm against the tendency of its spring, and means for automatically actuating the connections between said drum and said throwing-arm whereby to set said arm free.

3. In a target-trap, the combination with a pivoted throwing-arm, of means for normally holding said arm in the discharged position, a rock-arm for operating said throwing-arm against such tendency, an operating-drum, means whereby said drum may operate said rock-arm and draw back said throwing-arm against its normal tendency, and means for automatically setting said rock-arm free from said drum.

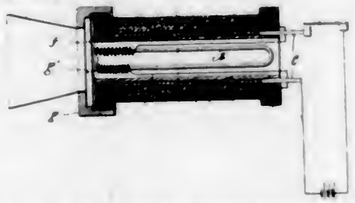
4. In a target-trap, the combination of a pivoted throwing-arm, a spring for retaining said arm in the discharged position, a rock-arm for operating said throwing-arm against the tendency of its spring, an operating-drum provided with means whereby it may rock said rock-arm, and means for automatically disconnecting said drum from said rock-arm and setting free said throwing-arm to the action of its spring.

5. In a target-trap, the combination with a throwing-arm, of a shaft for operating said arm, means for holding said arm in the discharged position, a rock-arm rigid with said shaft, an operating-drum, a trigger carried by said drum for engaging said rock-arm, and means for withdrawing said trigger.

6. In a target-trap the combination with a throwing-arm, of a shaft for operating said arm, means for holding said arm in the discharged position, a rock-arm rigid with said shaft, an operating-drum, a trigger carried by said drum for engaging said rock-arm, and a cam for withdrawing said trigger.

7. In a target-trap the combination with a throwing-arm, of a shaft carrying said arm, a spring normally holding said arm in the discharged position, a rock-arm keyed to said shaft, an operating-drum rotatably mounted, a trigger carried by said drum for engaging said rock-arm, means for rotating said drum and operating said throwing-arm against the tendency of its spring, and a cam for engaging said trigger and setting free said throwing-arm to the action of its spring.

752,408. **ELECTRICAL APPARATUS FOR PRODUCING SOUND-SIGNALS.** CHARLES H. O'BRIEN, Augusta, Me. Filed Nov. 1, 1902. Serial No. 129,667. (No model.)



Claim.—1. In an electrically-operated device for producing sound-signals, the combination of a hollow iron core, a primary winding surrounding said core, a secondary winding surrounding the primary winding, a permanent magnet mounted within the iron core and having its ends terminating in line with one end of the core, wires wrapped around the ends of the primary magnet and connected to the secondary winding, a battery-circuit in connection with the primary winding, disks mounted upon each end of the iron core for holding the parts together, a metal diaphragm placed over one end of the metal core, and the ends of the permanent magnet, a removable cap secured to the metal core for holding said diaphragm in its proper relation hollowed out upon the inner side to provide a resonating-chamber, and a megaphone mounted in said cap and in communication with the resonating-chamber.

2. In an electrical device for producing sound-signals, the combination of a hollow iron core, a primary winding surrounding said core, a secondary winding surrounding the primary winding, a permanent magnet mounted within the iron core and having its ends terminating in line with one end of the core, wires connecting the secondary winding and the ends of the permanent magnet, a battery-circuit in connection with the primary winding, means to hold the parts together, a metal diaphragm placed over the ends of the metal core and permanent magnet, a cap holding said diaphragm in its proper relation and providing a resonating-chamber, and a megaphone mounted in said cap for the purpose set forth.

752,409. **SHOE-TREE.** MILES W. O'BRIEN, Ottawa, Ill. Filed Dec. 20, 1902. Serial No. 135,973. (No model.)



Claim.—1. A shoe-tree consisting of a toe portion, a heel-block and an intermediate adjustable toggle connected thereto for spreading said parts comprising a link forming one member of said toggle, a nut swiveled to said link and a screw forming the other member of said toggle threaded through said nut.

2. A shoe-tree consisting of a toe portion, a heel-block and an intermediate adjustable toggle connected thereto for spreading said parts comprising a link forming one member of said toggle and an adjusting-screw and nut therefor forming the other member of said toggle pivotally connected to said link, one of said toggle members having an extended end portion adapted to engage the other and thereby limit the extent of depression of said members.

3. A shoe-tree consisting of a toe portion, a heel-block and an intermediate adjustable toggle connected thereto for spreading said parts comprising a link forming one member of the toggle and an adjusting-screw and nut therefor forming the other member thereof and having a single pivotal point of connection with said link, said toggle members being adapted to be extended substantially in line and hold the toe portion and heel-block snugly in position within the shoe.

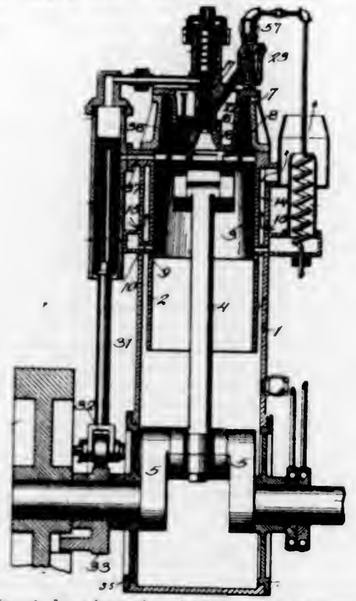
4. A shoe-tree comprising a toe portion, a link pivoted thereto at one end and provided at its opposite end with a swivel-nut and an adjusting-screw passing through said swivel-nut and provided with a heel form or part adapted to bear against the heel of the shoe.

5. A shoe-tree comprising a toe portion formed of a curved metal plate, a link pivoted to the under side of said plate and provided at its opposite end with a swivel-nut, an adjusting-screw passing through said swivel-nut and provided at one end with a heel-form and at its opposite end with a thumb-nut or wheel whereby the screw may be turned.

6. A shoe-tree comprising a toe portion, a link pivoted thereto and extending rearwardly therefrom, an adjusting-screw pivotally connected with the rear end of said link and having a part extending forwardly of its pivotal connection with said link, said part being adapted to limit the movement of the link after it has passed below a horizontal line, and a heel-form swiveled to the rear end of said screw whereby when the parts are in position for use the forward end of said screw will limit the depression of the link and whereby the screw may be turned without revolving the heel-form.

7. In a shoe-tree, the combination with a toe portion, of a link pivotally connected to said toe portion, said link being formed of a transversely-curved metal plate, an adjusting-screw provided with a swivel-nut that is pivotally connected to said link and a heel-form connected to the outer end of said adjusting-screw.

752,410. **INTERNAL-COMBUSTION ENGINE.** OSCAR P. OSTERGREN, New York, N. Y., assignor, by mesne assignments, to Fuel Oil Power Company, a Corporation of District of Columbia. Filed Sept. 11, 1902. Serial No. 122,911. (No model.)



Claim.—1. In an internal-combustion engine, the combination with a working cylinder and a piston, of an engine-driven air-pump and a fuel-valve including means for opening the same, directly exposed to and actuated by the pressure from the pump, whereby the operation of the valve is pneumatically timed in relation to the engine speed.

2. In an internal-combustion engine, the combination with a working cylinder and a piston therein, of a fuel-admission valve, pressure-operated means connected thereto and adapted, when operated, to open said valve, and an air-pump operated by the engine for supplying pneumatic pressure to the pressure-operated means for operating same, the connection from the pump to the pressure-operated means being direct and open in a direction toward the pressure-operated means at all times.

3. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a passage leading from within the cylinder at its working end, to behind the valve, pressure-operated means for operating the valve in one direction, and means operated by the engine in its movement for closing the said passage and for compressing fluid to operate the said fluid-pressure-operated means.

4. In an internal-combustion engine, the combination with a cylinder and piston therein, of a fuel-admission valve, a passage leading from within the cylinder to the rear of the said valve, pressure-operated means connecting with said passage, for operating said valve in one direction, an auxiliary compressor adapted in its movement to close the said passage and compress the fluid remaining therein on the rear side of the valve, and means for operating the auxiliary compressor.

5. In an internal-combustion engine, the combination with a cylinder and piston therein, of a fuel-admission valve, a passage leading from within the cylinder to the rear of the said valve, pressure-operated means for operating said valve in one direction, an auxiliary compressor adapted in its movement to close the said passage and compress the fluid remaining therein on the rear side of the valve and to actuate the pressure-operated means, and means connected with a moving part of the engine to operate the auxiliary compressor, said means adjustable with respect to the movement of the engine.

6. In an internal-combustion engine, the combination with a cylinder and piston therein, of a fuel-admission valve, a passage leading from within the cylinder to the rear of the said valve, pressure-operated means for operating said valve in one direction an auxiliary compressor adapted in its movement to close the said passage and compress the fluid remaining therein on the rear side of the valve and to actuate the pressure-operated means, a cam connected with the engine for operating the auxiliary compressor and means for adjusting the position of the cam with relation to the movement of the engine.

7. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a passage leading from within the cylinder to behind the valve, means for operating the valve, and means for producing a preponderance of pressure behind the valve when same is opened whereby fuel may be fed thereto at low pressure.

8. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a passage leading from within the cylinder to behind the valve, means for operating the valve and means for closing the said passage and raising the pressure behind the valve when the same is opened.

9. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, means for admitting fluid under pressure from within the working end of the cylinder to behind the valve-face, while said valve is closed, and means for operating the valve, to admit fuel to the working end of the cylinder.

10. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, means for admitting fluid under pressure from within the cylinder to behind the valve-face, while said valve is closed, and means for increasing the pressure behind the valve-face as the valve opens, in order to feed fuel into the cylinder, against the pressure of the fluid therein.

11. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a check-valve, means for admitting fluid under pressure from within the working end of the cylinder to between the admission-valve and the check-valve while the admission-valve is closed, and means for operating the admission-valve, to admit fuel to the working end of the cylinder.

12. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a check-valve, means for admitting the fluid under pressure within the cylinder to between the admission-valve and the check-valve while the admission-valve is closed, and means for increasing the pressure between the two valves as the admission-valve opens, in order to feed fuel into the cylinder, against the pressure of the fluid therein.

13. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-admission valve communicating with the interior of the cylinder, a source of fuel-supply, a check-valve therein, a passage leading from the interior of the cylinder to a point in the fuel-supply between the check-valve and the admission-valve, and means for closing the passage to the cylinder, and for raising the pressure in that portion of the passage connecting between the said valves.

14. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-feed pump, and means for admitting fuel, and fluid under pressure from the working end of the cylinder, to the feed-pump.

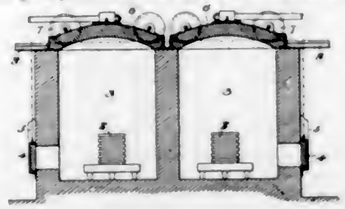
15. In an internal-combustion engine, the combination with a cylinder and a piston therein, of a fuel-feed pump, and means for admitting fuel, and fluid under pressure from the working end of the cylinder, to the feed-pump once for each working stroke of the engine.

16. In an internal-combustion engine, the combination with a cylinder and a piston therein, said piston in its operation arranged to compress air within said cylinder, of a fuel-feed pump arranged to admit fuel into the volume of air so compressed, and contained within the said cylinder, and means for admitting air, so compressed, from the cylinder to the feed-pump, prior to its said fuel-admitting operation.

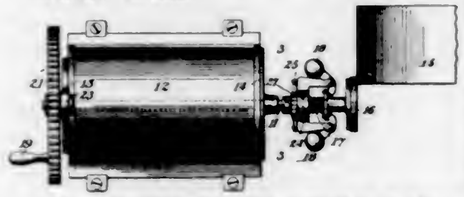
752,411. **MANUFACTURE OF SHEET METAL.** ALEXANDER PATERSON, Wilkinsburg, Pa. Filed May 14, 1902. Serial No. 107,274. (No model.)

Claim.—1. The method of making sheet metal, consisting in heating a pack of sheets in a heating-furnace to a rolling temperature, transferring the pack while hot to a second heating-furnace, in which the pack is maintained at a rolling temperature, and removing the same therefrom for rolling.

2. The method of making sheet metal, consisting in heating a pile of packs of sheet metal in a suitable furnace to a rolling temperature, transferring said pile while hot to a heating and storage furnace in which the packs are maintained at a rolling temperature, and removing the packs therefrom separately as required for rolling.



752,412. STARTING DEVICE FOR EXPLOSIVE-ENGINES. GEORGE J. PELSTRING, Cincinnati, Ohio. Filed June 18, 1903. Serial No. 161,981. (No model.)



Claim.—In means for starting explosive-engines having electrically-operated igniting devices, the current for which is furnished by a dynamo, a friction-pulley mounted for rotation on the dynamo-shaft but freely movable longitudinally thereon, a governor mechanism also mounted on the dynamo-shaft and controlling automatically the contact of the friction-pulley with an engine-driven member, pawls carried by this governor mechanism, a member having complementary ratchet-teeth fixedly mounted on this dynamo-shaft and means for rotating this latter manually and independent of the other parts transmitting rotation thereto.

752,413. DOOR, GATE, &c. WILLIAM R. PITT and RAYFORD PITT, New Rochelle, N. Y. Filed July 22, 1903. Serial No. 166,546. (No model.)



Claim.—1. A swinging door pivotally suspended at a point between its vertical edges to a suspension device depending from the door-frame or other elevated structure; the said suspension device and a wheeled carriage supporting the same; an elevated track for said carriage extending transverse the doorway, and spring mechanism acting upon said carriage and tending to draw it back to the position which it normally occupies when the door is closed, in combination with a suitable horizontally-reciprocating device suitably mounted and engaging with a carrier pivoted to the inner edge of the door, and spring mechanism acting upon said reciprocating device and tending to restore it to a position which normally holds the door closed, substantially as and for the purpose set forth.

2. A swinging door pivotally suspended at a point in its upper edge and between its vertical edges to a suspension device depending from the door-frame or other elevated structure; the said suspension device, and, supporting the same, a carriage having vertical and horizontal antifriction-rollers; an elevated track for said carriage extending transverse the doorway, and spring mechanism acting upon said carriage and tending to draw it back to the position which it normally occupies when the door is closed; in combination with suitably-mounted horizontally-reciprocating slides engaging with a carrier pivoted to the inner edge of the door, and springs acting upon the said slides in opposite directions and tending to restore them to a position which normally holds the door closed, substantially as and for the purpose set forth.

3. A swinging door pivotally suspended on a vertical axis at a point in its upper edge and between its vertical edges to a suspension-spindle depending from and rigidly attached to a carriage supported in the door-frame or other elevated structure, the said door being adapted to swing in either direction upon such vertical axis, the carriage having vertical and horizontal antifriction-rollers and the spindle depending therefrom; an overhead track in the door frame or other elevated structure for said carriage extending transverse the doorway, and spring mechanism acting upon said carriage and tending to draw the same into the position which it normally occupies when the door is closed; in combination with an upper and lower horizontally-reciprocating slide provided with a suitable guide and pivoted to the inner edge of the door, and a spring acting upon each slide and tending to restore the door when opened to a closed position, substantially as and for the purpose set forth.

4. A swinging door pivotally suspended on a vertical axis at a point in its upper edge and between its vertical edges to a suspension-spindle depending from and rigidly attached to a carriage supported in the door-frame or other elevated structure, the said door being adapted to swing in either direction upon such vertical axis the carriage having vertical and horizontal antifriction-rollers and the spindle depending therefrom; an overhead track in the door-frame or other elevated structure for said carriage extending transverse the doorway, and a spring acting upon said carriage and tending to draw the same into the position which it normally occupies when the door is closed; in combination with an upper and lower horizontally-reciprocating slide each provided with a suitable guide and pivoted to the inner edge of the door, a spring acting upon each slide and tending to restore the door when opened to a closed position, an antifriction-roller pivoted on a spindle depending from the lower edge of the door, and a guide-channel in the floor through which such friction-roller moves, the axis of said spindle being in the same vertical line with the axis of the suspension-spindle which supports the door, substantially as and for the purposes set forth.

5. A swinging door, comprising one or more substantially solid panels practically closing the doorway, pivotally suspended at a point in its upper edge and approximately midway between its vertical edges to a suspension-spindle depending from and rigidly attached to a carriage supported by the door-frame or other overhead structure, whereby the wind-pressure on the said door tends to balance itself when the door is closed, the carriage having vertical and horizontal antifriction-rollers and the spindle depending therefrom; an overhead track in the door-frame or other elevated structure for said carriage extending transverse the doorway; and a spring acting upon said carriage and tending to draw the same into the position which it normally occupies when the door is closed; in combination with an upper and lower horizontally-reciprocating slide each provided with a suitable guide and pivoted to the inner edge of the door, a spring acting upon each slide and tending to restore the door when opened to a closed position, a friction-roller pivoted on a spindle depending from the lower edge of the door, and a guide-channel in the floor through which such friction-roller moves, the axis of said spindle being in the same vertical line with the axis of the suspension-spindle which supports the door, substantially as and for the purposes set forth.

6. A swinging door pivotally suspended on a vertical axis at a point in its upper edge and between its vertical edges to a suspension-spindle depending from and rigidly attached to a carriage supported in the door-frame or other elevated structure, the said door being adapted to swing in either direction upon such vertical axis; the carriage having vertical and horizontal antifriction-rollers and the spindle depending therefrom; an overhead track in the door-frame or other elevated structure for said carriage extending transverse the doorway, and a spring acting upon said carriage and tending to draw the same into the position which it normally occupies when the door is closed; in combination with reciprocating slides provided with suitable fixed guides and with suitable devices for engaging with a carrier pivoted in a recess in the vertical inner edge of the door, the said carrier provided with means for engaging with the slides and carrying horizontal antifriction-rollers, a spring acting upon each slide and tending to restore the door when opened to a closed position, an antifriction-roller pivoted on a spindle depending from the lower edge of the door, and a guide-channel in the floor through which such friction-roller moves, the axis of said spindle being in the same vertical line with the axis of the suspension-spindle which supports the door, substantially as and for the purposes set forth.

752,414. COVERED ELASTIC CORD. RAYMOND B. PRICE, Chicago, Ill. Filed Mar. 16, 1903. Serial No. 148,115. (No model.)

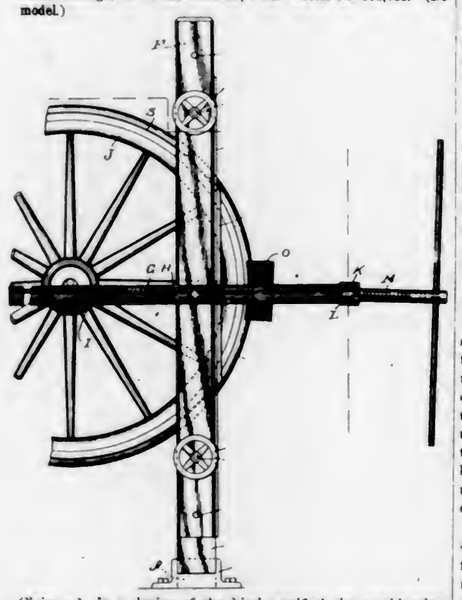


Claim.—1. As a new article of manufacture, a rubber cord having a roughened surface, and a covering on said cord

2. As a new article of manufacture, a rubber cord having depressions in its surface, and a covering on said cord, said depressions being adapted to provide room for the lateral contraction of the covering when said cord is stretched.

3. As a new article of manufacture, a corrugated rubber cord, and a covering on said cord.

752,415. APPARATUS FOR MOUNTING TIRES. RAYMOND B. PRICE, Chicago, Ill. Filed June 23, 1903. Serial No. 162,711. (No model.)



Claim.—1. In a device of the kind specified the combination with two members adjustable toward and away from each other and adapted to receive part of a wheel between the same, and engage the bands to be sprung on, of devices engaging said wheel to force same bodily from said members against the action of said bands, whereby said bands will be sprung into place, simultaneously with the ejection of said wheel, substantially as described.

2. In a device of the kind specified, the combination with two members adjustable toward and away from each other and adapted to receive part of a wheel between the same, and engage the bands to be sprung on, of devices for imparting relative movement to said wheel and said first-named members to force said wheel and said members apart against the action of said bands, whereby said bands are sprung over and said wheel is simultaneously ejected, substantially as described.

3. In a device of the kind specified, the combination with two practically parallel bars adjustable toward and away from each other and adapted to receive part of the rim of a wheel between the same and engaging the free portions of the retaining-bands to be sprung over said rim, of devices carried by said bars and engaging said wheel for forcing same out of the passage between said bars against the action of said bands, whereby the latter will be sprung over said rim, substantially as described.

4. In a device of the kind specified, the combination with two practically parallel bars adjustable toward and away from each other and adapted to receive part of the rim of a wheel between the same and engaging the free portions of the retaining-bands to be sprung over said rim, of members secured between their ends to said bars and adapted to support said wheel on one side of said bars, and a jack-screw carried by said members at their other ends, said jack-screw being adapted to bear against said wheel on the other side of said bars and force same through the passage between the latter, whereby said bands will be sprung over said rim, substantially as described.

5. In a device of the kind specified, the combination with two practically parallel bars adapted to be adjusted toward and away from each other to receive part of the rim of the wheel between the same, and engaging the overhanging portions of the retaining-bands to be sprung over said rim, of tension members rigidly secured to each of said bars, a member carried by said tension members and movable toward or away from said bars, said last-named member being adapted to engage said wheel and force same through the passage between said bars against the action of said retaining-bands, substantially as and for the purpose set forth.

6. In a device of the kind specified, the combination with two practically parallel bars adapted to be adjusted toward and away from each other to receive part of the rim of the wheel between the same and engaging the overhanging portions of the retaining-bands to be sprung over said rim, of tension members rigidly secured to each of said bars, a revoluble block mounted between said members at their ends, and a jack-screw carried by said block adapted to be brought to bear upon the portion of said wheel projecting through between said bars and force the same back against the action of said retaining-bands, substantially as and for the purpose set forth.

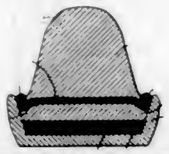
7. In a device of the kind specified, the combination with two practically parallel bars adapted to be adjusted toward and away from each other to receive part of the rim of the wheel between the same and engaging the overhanging portions of the retaining-bands, to be sprung over said rim, of tension members rigidly secured to each of said bars, a revoluble block mounted between said members at their free ends, a jack-screw carried by said block, and interchangeable shoes adapted to be interposed between the end of said jack-screw and the tire of said wheel, said jack-screw being adapted to force said wheel through the passage between said bars, substantially as and for the purpose set forth.

8. In a device of the kind specified, the combination with a standard, and a practically parallel beam movable toward and away from said standard, said members being adapted to receive part of the rim of a wheel between them and engage the overhanging portions of retaining-bands carried by said wheel, of devices carried by said members for supporting said wheel, a jack-screw supported on said members, and interchangeable shoes adapted to be interposed between said jack-screw and the tire of said wheel, said jack-screw being adapted to force said wheel out of the passage between said members against the action of said retaining-bands, substantially as described.

9. In a device of the kind specified, the combination with a standard, and a practically parallel beam movable toward and away from said standard, said members being adapted to receive part of the rim of a wheel between them and engage the overhanging portions of retaining-bands carried by said wheel, angle-irons secured to adjacent corners of said members, and reinforcing devices carried by said members to stiffen same, of a jack-screw supported on said members, and interchangeable shoes adapted to be interposed between said jack-screw and the tire of said wheel, said jack-screw being adapted to force said wheel through the passage between said first-named members, substantially as and for the purpose described.

752,416. RUBBER VEHICLE-TIRE. RAYMOND B. PRICE, Chicago, Ill. Filed June 23, 1903. Serial No. 162,712. (No model.)

Claim.—1. A vehicle-tire comprising a rubber tread portion adapted to project above the side flanges of the wheel-rim, lateral offsets or shoulders arranged to extend opposite the upper portions of said rim-flanges and constituting at such point the widest part of the tire, soft, yielding fabric extending into said offsets or shoulders, and a cushion of rubber at the base of said tire and beneath said fabric.



2. The combination with the rim or channel of a vehicle-wheel, of a tire having its base formed to fit the same, flanges above the base of said tire, fabric intermolded in the upper portion of the base of said tire and extending into the said flanges, a cushioning layer of rubber below said fabric, said fabric being of a soft, yielding nature and adapted to yield to the strains on the tread portion, and retaining means adapted to bear upon the flanges of said tire, said fabric being so located relatively to said flanges as to receive the strains exerted by said retaining means and prevent the latter from cutting the rubber.

3. The combination with the rim or channel of a vehicle-wheel, of a tire having its base formed to fit the same, flanges above the base of said tire, fabric intermolded in said base of said tire and extending into the said flanges, said fabric being of a soft, yielding, open-mesh nature adapted to permit the permeation of rubber therethrough and adapted to yield to pressure on the tread portion, and retaining means adapted to bear upon the flanges of said tire, said fabric being so located relatively to said flanges as to receive the strains exerted by said retaining means and prevent the latter from cutting into said flanges.

4. The combination with a vehicle-wheel and a rim or channel thereon, of a tire provided at its base portion with flanges and having such base portion conforming in shape with said rim or channel, a layer of frictioned fabric intermolded in the upper portion of the base portion of said tire and extending into the flanges thereof, a plurality of plies of frictioned fabric intermolded in the bottom of the base of said tire, a layer of rubber between said layer and said plies, and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon said flanges of said tire, said layer of fabric being so located as to receive the strain exerted by said retaining-bands, substantially as and for the purpose set forth.

5. The combination with a vehicle-wheel and a rim or channel thereon, of a tire provided at its base portion with flanges and having such base portion conforming in shape with said rim or channel, a layer of frictioned fabric intermolded in the upper portion of the base portion of said tire and extending beyond the flanges thereof, a stiff bottom on said base, a layer of soft, resilient rubber interposed between said stiff base and said layer of frictioned fabric, and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon said flanges of said tire and pinch the projecting edges of said fabric against the flanges of said rim or channel, said frictioned fabric being so located in said tire as to be directly subjected to the pressure of said bands to relieve the rubber of strain, substantially as and for the purpose set forth.

6. The combination with the rim or channel of a vehicle-wheel, of a tire having its base portion formed to fit the same, flanges above the base of said tire, a plurality of plies of frictioned fabric intermolded in the upper portion of the base of said tire and extending into the said flanges, a cushioning layer of rubber below said plies of fabric, said fabric being of a yielding nature and adapted to yield to strains on the tread portion, and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon the flanges of said tire, said fabric being so located relatively to said flanges as to receive the strain exerted by said retaining-bands and prevent the latter from cutting the rubber.

7. The combination with the rim or channel of a vehicle-wheel, of a tire having its base portion formed to fit the same, flanges above the base of said tire, a plurality of plies of frictioned fabric intermolded in the upper portion of the base of said tire and extending beyond the flanges thereof, a cushioning layer of rubber below said plies of fabric, said fabric being of a soft yielding nature and adapted to yield to pressure on the tread portion, and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon the flanges of said tire and pinch the projecting edges of said fabric against the flanges of said rim or channel, said fabric being so located relatively to said flanges of said tire as to directly receive the strains exerted by said bands and relieve the rubber, substantially as and for the purpose described.

8. The combination with the rim or channel of a vehicle-wheel, of a tire having its base portion formed to fit the same, flanges above the base of said tire, a plurality of plies of frictioned fabric intermolded in the upper portion of the base of said tire and extending into the said flanges, a cushioning layer of rubber below said plies of fabric, said fabric being of a yielding nature and adapted to yield to strains on the tread portion, and retaining-bands of heavy-gage wire adapted to be sprung over the flanges of said rim and bear upon the flanges of said tire inwardly from the edges thereof, said fabric being so located relatively to said flanges as to receive the strain exerted by said retaining-bands and preventing the latter from cutting the rubber.

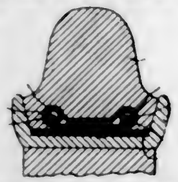
9. The combination with the rim or channel of a vehicle-wheel, of a rubber tire adapted to fit said rim or channel, flanges on said tire, a plurality of plies of frictioned fabric intermolded in said tire and extending into said flanges, a cushioning layer of rubber below said plies of fabric and retaining-bands of heavy-gage wire adapted to be sprung over the flanges of said rim or channel and bear upon said flanges of said tire inwardly from the edges thereof, said fabric being of a soft, open character to render same yielding, and so located relatively to the flanges as to receive the strain exerted by said bands, said bands being adapted to partially embed themselves in said flanges and pinch the edges of the same against the flanges of the rim or channel.

10. The combination with the rim or channel of a vehicle-wheel, of a rubber tire adapted to fit said rim or channel, a plurality of plies of stiff frictioned fabric in the base of said tire, a layer of rubber above said base, flanges on said tire, a plurality of plies of an open-mesh frictioned fabric intermolded in said tire above said layer of rubber and extending into the flanges thereof, and retaining-bands of heavy-gage wire adapted to be sprung over the flanges of said rim or channel and bear upon the flanges of said tire, said uppermost plies of fabric being so located relatively to said flanges as to receive the strain exerted by said retaining-bands and being adapted to yield to such strains, whereby the edges of said fabric become pinched between said bands and the flanges of the rim.

11. The combination with the rim or channel of a vehicle-wheel of a rubber tire having a base of greater width than the tread portion and formed to fit said rim or channel, a layer of frictioned fabric intermolded in said base portion of said tire and extending over the greatest width of same, a cushioning layer of rubber below said fabric, a stiff bottom on said cushioning layer of rubber and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon the widest portion of said tire, said layer of fabric being relatively so located as to receive the strain exerted by said retaining-bands and prevent the latter from cutting the rubber.

12. The combination with the rim or channel of a vehicle-wheel of a rubber tire having a base of greater width than the tread portion and formed to fit said rim or channel, a layer of soft, open-work frictioned fabric intermolded in said base portion of said tire and extending over the greatest width of same, a cushioning layer of rubber below said fabric, stiffening means below the said cushioning layer of rubber, and retaining-bands adapted to be sprung over the flanges of said rim or channel and bear upon the widest portion of said tire, said layer of fabric being relatively so located as to receive the strain exerted by said retaining-bands and prevent the latter from cutting the rubber.

752,417. RUBBER VEHICLE-TIRE. RAYMOND B. PRICE, Chicago, Ill. Filed June 23, 1903. Serial No. 162,713. (No model.)



Claim.—1. The combination with a vehicle-wheel, a rim or channel thereon, and a rubber tire adapted to fit said rim or channel, of a flexible metallic tube passing longitudinally through said tire, frictioned fabric surrounding said tube and a retaining-band passing through said tube.

2. The combination with a vehicle-wheel, a rim or channel thereon, and a rubber tire adapted to fit said rim or channel, of a flexible metallic tube passing longitudinally through said tire, frictioned fabric surrounding said tube and a retaining-band passing through said tube, said tube being of larger diameter than said retaining-band.

3. The combination with a vehicle-wheel and a rim or channel thereon, of a rubber tire adapted to fit said rim or channel, a flexible metallic tube passing longitudinally through said tire, a plurality of plies of frictioned fabric inclosing said tube, and a retaining-band passing through said tube.

4. In a device of the kind specified, the combination with a rim or channel, of a rubber tire adapted to fit within the same, flexible metallic tubes intermolded in the base portion of said tire, and retaining-bands passing through said tubes and secured at their ends, to hold said tire in said rim or channel.

5. In a device of the kind specified, the combination with a rim or channel, of a rubber tire adapted to fit within the same, flexible metallic tubes intermolded in the base portion of said tire, and retaining-bands passing through said tubes and secured at their ends, said tubes being of larger diameter than said retaining-bands.

6. In a device of the kind specified, the combination with a rim or channel and a rubber tire adapted to be mounted thereon, of devices for securing said tire in said rim or channel comprising a plurality of flexible metallic tubes and a layer of frictioned fabric surrounding and connecting said tubes, said tube-inclosing fabric being intermolded in the base portion of said tire, and retaining-bands passing through said tubes and secured at their ends to secure said tire in place.

7. In a device of the kind specified, the combination with a rim or channel and a rubber tire adapted to be mounted thereon, of devices for securing said tire in said rim or channel comprising a plurality of flexible metallic tubes and a layer of frictioned fabric surrounding and connecting said tubes, said tubes and inclosing fabric being intermolded in the base portion of said tire, and retaining-bands passing through said tubes, said tubes being of larger diameter than said retaining-bands.

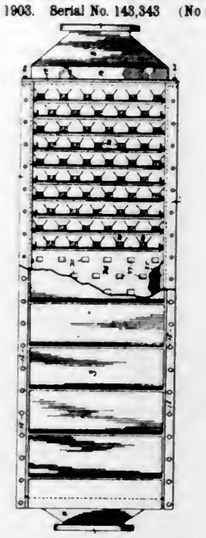
8. The combination with a vehicle-wheel, and a rim or channel thereon, of a rubber tire adapted to fit said rim or channel, a plurality of parallel flexible metallic tubes passing longitudinally through said tire, a plurality of plies of frictioned fabric surrounding and connecting said tubes and intermolded therewith in the base portion of said tire, and retaining-bands passing through said tubes.

9. The combination with a vehicle-wheel, and a rim or channel thereon, of a rubber tire adapted to fit said rim or channel, a plurality of parallel flexible metallic tubes passing longitudinally through said tire, a plurality of layers of frictioned fabric passing around and inclosing said tubes, said fabric and tubes being intermolded in the base portion of said tire, and retaining-bands passing through said tubes and projecting beyond the ends of said tire and joined at their ends in the aperture between the ends of the tire, a tire-section adapted to fill said aperture and recesses in the base of said section adapted to receive said bands.

10. The combination with a vehicle-wheel, and a rim or channel thereon, of a rubber tire adapted to fit said rim or channel, a plurality of parallel flexible metallic tubes passing longitudinally through said tire, a plurality of layers of frictioned fabric passing around and inclosing said tubes, said fabric and tubes being intermolded in the base portion of said tire, and retaining-bands passing through said tubes and projecting beyond the ends of said tire and secured at their ends in the aperture between the ends of the tire, a tire-section adapted to fill said aperture, recesses in the base of said section spaced differently than said bands and adapted to receive the same and having their upper ends deflected to accord with the spacing of said bands, whereby when said section is in place it will be held by said bands.

11. The combination with a vehicle-wheel, and a rim or channel thereon, of a rubber tire adapted to fit said rim or channel, a plurality of parallel flexible metallic tubes passing longitudinally through said tire, a plurality of layers of frictioned fabric passing around and inclosing said tubes and having their edges overlapped, said fabric and tubes being intermolded in the base portion of said tire, and retaining-bands passing through said tubes and projecting beyond the ends of said tire and joined at their ends in the aperture between the ends of the tire, a tire-section adapted to fill said aperture, recesses in the base of said section spaced differently than said bands and adapted to receive the same and having their upper ends deflected to accord with the spacing of said bands, and lateral stiffening devices intermolded in the base of said section for preventing variation in width, whereby when said section is sprung in place over said bands the latter will securely hold said section against removal.

752,418. SEPARATOR. WILLIAM J. REILLY, Cleveland, Ohio. Filed Feb. 14, 1903. Serial No. 143,343. (No model.)



Claim.—1. In a steam-separator, a case, a relatively small inlet-aperture at one end a diaphragm adjacent to the inlet-aperture, and radial slots in the diaphragm.

2. In a steam-separator, a series of intercepter-conduits having wings diverging rearward from the sides of the conduits, tongues cut in the rear walls of the conduits with their lower free ends bent forward to join the forward walls, and vent-holes in the side walls of the conduits.

3. In a steam-separator, a series of intercepter-conduits having wings diverging rearward from the sides of the conduits, tapered tongues cut in the rear walls of the conduits with their lower free and narrow ends bent forward to join the forward walls, and vent-holes in the side walls of the conduits.

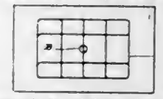
4. In a steam-separator, a series of intercepter-conduits having wings diverging rearward from the side of the conduits, and openings in the rear wall and vent-holes in the side walls of the conduit.

5. A steam-separator comprising a case, a division-plate in the case forming a chamber above and a reservoir below, intercepter-conduits in the chamber leading through the division-plate into the reservoir, and tongues cut in the rear walls of the conduits having their lower free ends bent forward to join the forward walls.

6. In a steam-separator, a series of intercepter-conduits having tapered tongues cut in the rear walls of the conduits with their lower free and narrow ends bent forward to join the forward walls.

7. In a steam-separator, a series of intercepter-conduits having openings in the rear walls and vent-holes in the side walls of the conduits.

752,419. HIGH-TENSION THERAPEUTIC ELECTRODE. MANUEL R. RODRIGUES, Brooklyn, N. Y. Filed June 3, 1901. Renewed July 9, 1903. Serial No. 164,921. (No model.)



Claim.—1. An electrode for high-tension currents consisting of a body of insulating material provided with a contact-surface composed of insulating material, and having a conductor of electricity embedded therein adjacent to said contact-surface.

2. An electrode consisting of a body of insulating material, provided with a conductor of electricity embedded therein adjacent to the contact-surface of the electrode, and constructed and arranged to conform to the contour of the body of the user.

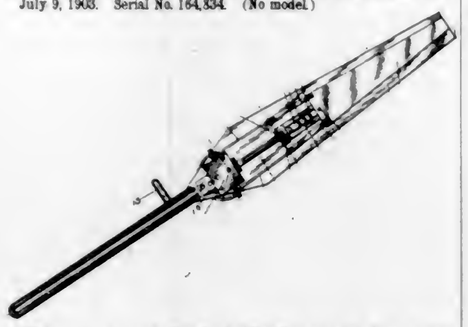
3. An electrode for high-tension currents consisting of a body of insulating material provided with an insulating-surface, and having an anode and cathode contained therein, the said anode and cathode being isolated by the insulating material.

4. An electrode for high-tension currents consisting of a body of insulating material provided with an insulating-surface, and hav-

ing a conductor of electricity contained therein and located adjacent to said contact-surface of the electrode, in combination with a handle therefor.

5. An electrode for high-tension currents consisting of a body of insulating material provided with an insulating-surface, and having a series of anode and cathode terminals, alternately disposed, contained therein.

752,420. SAW-HOLDER. DAVIS ROWE, Indianapolis, Ind. Filed July 9, 1903. Serial No. 164,334. (No model.)



Claim.—1. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie, a pin extending upward from said board adapted to pass through a hole in the saw for holding it from longitudinal movement, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, and a clamping-bar to press upon the saw on each side of said pin for holding it down on said board.

2. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie with a recess or groove in its upper surface, a bar fitting in said recess or groove flush with the upper surface of the board and having a pin extending therefrom adapted to pass through a hole in the saw for holding it from longitudinal movement, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, and a clamping-bar to press upon the saw on each side of said pin for holding it down on said board.

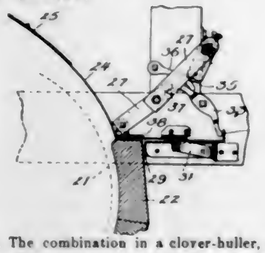
3. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie with a recess or groove in its upper surface, a bar longitudinally adjustable in said recess or groove and flush with the upper surface of the board and having a pin extending therefrom adapted to pass through a hole in the saw, means for mounting said bar so as to be longitudinally adjustable, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, and a clamping-bar to press upon the saw on each side of said pin for holding it on said board.

4. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie, a pin extending upward from said board adapted to pass through a hole in the saw for holding it from longitudinal movement, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, a clamping-bar to press down upon the saw on each side of said pin for holding it down on the board, and means for mounting said bars that bear down upon the saw so as to be longitudinally adjustable.

5. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie, a pin extending upward from said board adapted to pass through a hole in the saw for holding it from longitudinal movement, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, a clamping-bar to press down upon the saw on each side of said pin for holding it down on the board, a shank connected with said board whereby the same may be held, and means mounted on said shank and extending to said clamping-bars for operating them.

6. A saw-holder for holding flat saws in place against a grindstone including a board upon which the saw may lie, a pin extending upward from said board adapted to pass through a hole in the saw for holding it from longitudinal movement, a bar on each side of said pin that abuts against the end of the saw for preventing oscillatory movement of the saw, a clamping-bar to press down upon the saw on each side of said pin for holding it down on the board, a shank secured to said board whereby the same may be held, a plate near the union of said board and shank having opposite transversely-extending pins, a rod pivoted on each pin and at one end connected with said clamping-bars and at the other end extending along said shank, a hand-lever pivoted on said shank convenient for operation by the hand that is connected with said rods so that the operation of the hand-lever will oscillate said rod to press said clamping-bars down upon the saw or release the same.

752,421. CLOVER-HULLER. WILLIAM N. RUMELY and WILLIAM C. ROBBY, Laporte, Ind.; said Robby assignor to M. Rumely Company, Laporte, Ind., a Corporation of Indiana. Filed Sept. 14, 1903. Serial No. 173,091. (No model.)



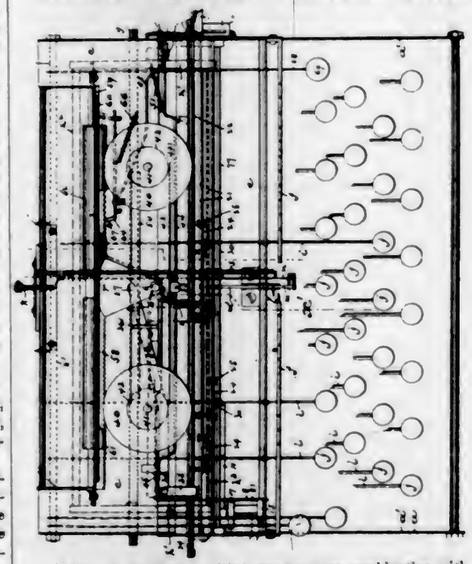
Claim.—1. The combination in a clover-huller, of a movable casing-section and a stone-intercepting device, of a hand-lever and connecting mechanism controlling the section and withdrawing the intercepting device.

2. The combination in a clover-huller, of a movable casing-section, a stone-intercepting device movable into acting position by springs on the opening of said section, a hand-lever, and connecting mechanism whereby the lever may not only open and close the casing-section but also withdraw the intercepting device.

3. The combination with the hulling-cylinder of a clover-huller, of a movable section in the casing of the cylinder, a stone-intercepting plate positioned by springs, and a single hand-lever by which the section is operated and the plate withdrawn, and by which the plate is held in its normal position against the power of its springs.

4. The combination with the movable casing-section and the stone-intercepting plate, of the hand-lever, the cross-shaft rocked by the lever, the arm 34 on the shaft, the swinging arm 36 and the lever 33 engaging the plate.

752,422. TYPE-WRITING MACHINE. JACOBS W. SCHUCKERS, Newark, N. J. Filed Mar. 9, 1901. Serial No. 50,489. (No model.)



Claim.—1. In a type-writing machine, the combination with a type-wheel and a reciprocating bar in connection therewith, of a

deflector having a tangential finger adapted to operate said bar when said deflector is turned pivotally and a finger-key connected with said deflector, substantially as set forth.

2. In a type-writing machine, the combination with a type-wheel and a reciprocating bar connected with said type-wheel and having a series of pins or projections, of a deflector-supporting plate having a series of deflectors mounted thereon, each deflector being connected to a finger-key, and engaging said reciprocating bar, substantially as set forth.

3. In a type-writing machine, the combination with a type-wheel and hammer, of a reciprocating bar connected to said type-wheel and having engaging means for deflectors, a deflector-plate arranged parallel with said bar and having a series of deflectors pivoted thereon, and key-levers, each connected with one of said deflectors and adapted to turn said deflectors and effect a movement of the reciprocating bar and type-wheel, substantially as set forth.

4. In a type-writing machine, the combination with a type-wheel and hammer, of a reciprocating bar connected to said type-wheel and having abutments to be engaged by the deflectors, a deflector-plate having a series of adjustable deflectors mounted thereon and key-levers for operating said deflectors, substantially as set forth.

5. In a type-writing machine, the combination with a type-wheel, of a carrying-plate, a series of deflectors adjustably mounted upon said carrying-plate, a bar connected to the type-wheel, and adapted to be engaged by said deflectors to effect differential movements of said type-wheel and a series of key-levers connected to said deflectors, substantially as set forth.

6. In a type-writing machine, the combination with a type-wheel, of a carrying-plate, a series of deflectors adjustably mounted upon said carrying-plate, a bar connected to the type-wheel and adapted to be engaged by said deflectors, some of the deflectors moving said bar from a normal center in one direction and others of said deflectors moving said bar in the opposite direction, and means for returning said bar to the normal central position and keys for operating the deflectors, substantially as set forth.

7. In a type-writing machine, the combination with the type-wheel and finger-keys, of connecting means including carrying-plates, and a series of deflectors mounted on said plates, some of which deflectors move the type-wheel in one direction and others of which move the type-wheel in the opposite direction from a normal position, and means for returning said type-wheel to a normal central position, substantially as set forth.

8. In a type-writing machine the combination with the type-wheel and finger-keys, of connecting means including a series of tangential deflectors and a reciprocating bar having projections engaged by the tangential parts of said deflectors, and a wedge-shaped device for returning said bar and with it the type-wheel to a normal position, substantially as set forth.

9. In a type-writing machine, the combination with the type-wheel and finger-keys, of connecting means including a series of pivotal deflectors each having a tangential finger at a distance from its pivot, and another pivot intermediate of said finger and pivot to receive pivotally other parts of the said connecting means, substantially as set forth.

10. In a type-writing machine, the combination with the type-wheel and finger-keys, of connecting means including a series of pivotal deflectors, each deflector being provided with a deflecting-finger and at the base of said finger having a locking-notch to receive a pin or projection of the coöperating connections, substantially as set forth.

11. In a type-writing machine, the combination with the type-wheel and finger-keys, of connecting means including a reciprocating bar having a series of pins or projections, a plate having a series of deflectors having tangential fingers, said deflectors being each connected to its individual finger-key by means of a connecting-rod, substantially as set forth.

12. In a type-writing machine, the combination with the oscillating type-wheel and finger-keys, of intermediate connections including a series of deflectors mounted adjustably on a common carrier and connected, each to its individual finger-key by a connecting-rod and means for clamping and securing said deflectors in operative position upon said carrier when adjusted thereon, substantially as set forth.

13. In a type-writing machine, the combination with the oscillating type-wheel, reciprocating bar having a series of pins, and means for transmitting motion from said bar to said wheel, of a deflector-carrying plate having a series of deflectors pivoted thereon, a series of finger-keys and connecting-rods pivoted upon said deflectors and keys, substantially as set forth.

14. In a type-writing machine, the combination with the type-wheel and finger-key levers, of connections of said parts including pivotal deflectors having tangential fingers and between said fingers and the pivots of said deflectors having a pivotal connection with rods connecting with the finger-key levers, substantially as set forth

15. In a type-writing machine, the combination with the type-wheel and finger-key levers, of connections of said parts, including a reciprocating bar supported at opposite ends on oscillating rods 34, and having pins or projections extending perpendicular thereto, and a plate having a series of pivotal deflectors, having tangential fingers to engage said pins or projections and move said reciprocating bar and the type-wheel, substantially as set forth.

16. In a type-writing machine, the combination with the type-wheel and finger-key levers, of connections of said parts including a reciprocating bar, supported at opposite ends on oscillating rods arranged at the opposite sides or ends of the machine, said reciprocating bar having studs or pins extending perpendicular thereto, and being engaged by deflectors stationed in a series adjacent to said pins or projections, said deflectors being operated individually by the said key-levers, substantially as set forth.

17. In a type-writing machine, the combination with the slotted frame, type-wheel and finger-key levers, of connections of said levers and wheel, including a reciprocating bar arranged at its opposite ends in the slots of said frame and movable longitudinally therein, said reciprocating bar having studs or pins, and deflectors connected to the keys and operated individually, each by its key, to engage one of the pins or projections and give longitudinal movement to the reciprocating bar, substantially as set forth.

18. In a type-writing machine, the combination with the slotted frame and finger-key levers, of connections of said levers and wheel, including a reciprocating bar supported at opposite ends in suitable bearings and permitted a longitudinal movement therein, and a series of deflectors pivotally arranged adjacent to said reciprocating bar and adapted to impart each a different longitudinal movement to said bar, substantially as set forth.

19. In a type-writing machine with the bed-frame, a universal lever-frame and supplemental type-wheel-elevating lever pivoted on the fulcrum-shaft of the universal frame, a series of finger-key levers, a part of which engages the type-wheel-elevating lever, a lever engaged by said type-wheel-elevating lever and engaging the notched type-wheel shaft, said notched type-wheel shaft and its type-wheel, and a spring for holding the last said lever normally away from said type-wheel shaft and for causing the last said lever to hold the supplemental type-wheel-elevating lever in engagement with the key-levers, substantially as set forth.

20. In a type-writing machine, the combination with the bed-frame, a universal lever fulcrumed on said frame, a supplemental type-wheel-elevating lever, movable with said universal lever when the latter is depressed, a lever w, spring 7, notched type-wheel shaft, and its type-wheel and means for elevating said shaft to enable said lever w, to engage the shoulder of a lower notch in the said shaft, substantially as set forth.

21 In a type-writing machine, the combination with the bed-frame, of a series of deflector-plates arranged upon said bed-frame but removable therefrom, each plate being provided with a series of deflectors, each in operative connection with its key-lever, a series of key-levers, for operating said deflectors, a reciprocating plate operated by said deflectors and connected by a rod with the type-wheel, substantially as set forth.

22. In a type-writing machine, the combination with the bed-frame of the machine, of a series of deflector-plates fixed removably upon said bed-frame, each plate being provided with a series of deflectors, each in operative connection with its key-lever, a series of key-levers in connection with said deflectors, as described, a movable plate engaged by said deflectors and moved thereby, said plate being linked or connected to the type-wheel at its opposite ends being supported by pivoted rods, substantially as set forth.

23. In a type-writing machine, the combination with the bed-frame of the machine, of a series of deflector-plates fixed upon said bed-frame, each plate having a series of pivoted deflectors each pivotally connected with its key-lever, a series of key-levers in such connection with the deflectors, a movable plate having pins or projections engaged by the deflectors, said plate being slotted at one end to receive a centering-wedge and said wedge, substantially as set forth.

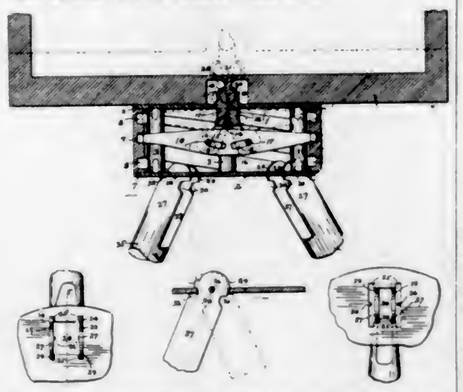
24. In a type-writing machine, the combination with the bed-frame, and universal frame having a centering-device-operating pin or projection, of a reciprocating bar having a series of pins or projections and having a connection with the type-wheel to oscillate the same said type-wheel, fixed deflector-plates each having a series of deflectors in connection with the keys, and said reciprocating bar

having a slot at one end, and a centering device engaged by the pin of the universal frame and having a wedge to enter the slot of the reciprocating bar, substantially as set forth.

25. In a type-writing machine, the combination with the deflector-carrying plate, finger-key levers and deflectors connected with said levers and plate, of a reciprocating bar engaged by the deflectors, a wedge for centering said bar, a spring for effecting a centering movement of the wedge, and means for withdrawing the wedge from the reciprocating bar when the key-levers are depressed, substantially as set forth.

26. In a type-writing machine, the combination with the deflector-carrying plate, finger-key levers, and deflectors connected with said levers and plate, of a reciprocating bar engaged by the deflectors, and connected with the type-wheel to oscillate the same, and a lever 70, having at one end a wedge to engage the reciprocating bar and at the opposite end having a fulcrum, and intermediate of said wedge and fulcrum engaged by a universal lever to throw the wedge out of engagement with the reciprocating bar, and said universal lever operated by the finger-keys, substantially as set forth.

752,423. TRIPOD. GUSTAVA F. SMITH, New Berlin, Ohio. Filed Nov. 19, 1903. Serial No. 181,859. (No model.)



Claim.—1. In combination a camera or the like, having a recess in its bottom with a ball depending on a shank in the recess, and a tripod-head having an aperture in its top plate and a pair of grip-bars adapted to operate upward and apart and downward and together through the aperture, there being jaws on the upper ends of the bars adapted to grip the ball.

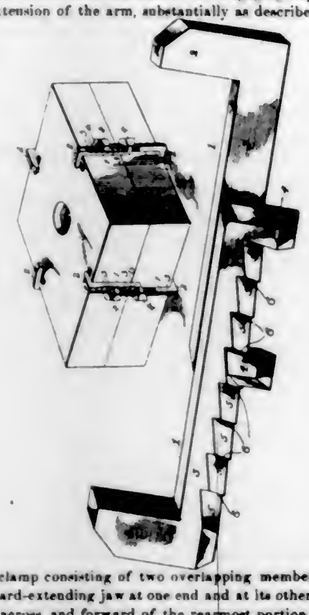
2. A tripod-head comprising a top plate having a central aperture therein, a rotatable peripheral collar having opposite internal spiral grooves, a non-rotatable vertically-movable diametrical bar with its ends entered in the collar-grooves and having laterally-extending slots in the middle, and a pair of fulcrumed grip-bars neatly fitting in the plate-aperture, the grip-bars being bent at the fulcrum-point and having wrist-pins on their lower ends adapted to operate in the lateral slots of the diametrical bar.

3. In a tripod, a head-plate having a rectangular aperture with notches extending endwise from the corners and pivot-pins extending inward from the sides of the apertures; and a bifurcated leg formed with elastic side plates adapted to be entered in the aperture and having pivot-apertures adapted to be engaged on the pivot-pins; the inner part of the end edges of the side plates being curved concentric with the pivot and there being notches in the inner side edges below the pivot-point, and the outer side edges being curved centric with the pivot with stop-shoulders below the pivot-point, and the outer part of the end edges being curved eccentric to the pivot with square shoulders opposite the pivot-point.

4. A tripod-leg comprising telescoping tubular sections, the large section having an internal rim-flange on its lower end and the smaller section having an external rim-flange on its upper end, there being longitudinal slits and an external annular cam-groove in the lower end of the larger section, and a cam-collar adapted to be rotated in the cam-groove to tighten or loosen the larger section on the smaller one.

752,424. CLAMP. GEORGE W. SOULE, Merxman, Miss. Filed July 27, 1903. Serial No. 167,237. (No model.)

Claim.—1. A clamp consisting of two overlapping members each having a forward-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced arm-engaging means on one of said members of less engaging depth than the forward extension of the arm, substantially as described.



2. A clamp consisting of two overlapping members each having a forward-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced arm-engaging means on each of said members of less engaging depth than the forward extension of the arm, substantially as described.

3. A clamp consisting of two overlapping members each having a forward-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced arm-engaging notches on the back of one of said members of less engaging depth than the forward extension of the arm, substantially as described.

4. A clamp consisting of two overlapping members each having a forward-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced arm-engaging notches on the backs of said members of less engaging depth than the forward extension of the arm, substantially as described.

5. A clamp consisting of two overlapping members each having an oblique or beveled back, one of said backs having suitably-spaced arm-engaging means, and each of said members having a forward-extending jaw at one end and at its other end an arm extending across and conforming approximately to the back of the other of said members, substantially as described.

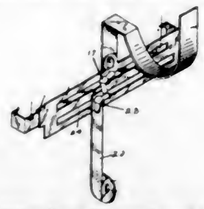
6. A clamp consisting of two overlapping members each having an oblique or beveled back, one of said backs having suitably-spaced notches, and each of said members having a forward-extending jaw at one end and at its other end an arm extending across and conforming approximately to the back of the other of said members, substantially as described

7. A clamp consisting of two overlapping members each having a forwardly-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced ratchet-teeth on one of said members, substantially as described.

8. A clamp consisting of two overlapping members each having a forwardly-extending jaw at one end and at its other end an arm extending across and forward of the rearmost portion of the back of the other of said members, and suitably-spaced ratchet-teeth on each of said members, substantially as described.

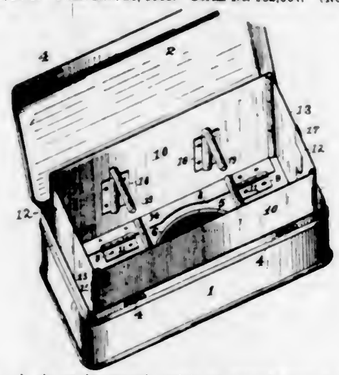
9. A clamp consisting of two overlapping members each having an oblique or beveled back, one of said backs having ratchet-teeth, and each of said members having a forwardly-extending jaw at one end and at its other end an arm extending across and conforming approximately to the back of the other of said members, substantially as described.

752,425. CURTAIN-POLE AND SHADE HANGER. SIRAMRION S. SPANGLER, Terre Haute, Ind. Filed Nov. 16, 1903. Serial No. 181,393. (No model.)



Claim.—A hanger for curtain-poles and window-shades comprising two members mounted in connection with each other, one of said members having two longitudinal slots in it one above the other, a guideway at one end thereof, and inwardly-extending claws at the other end, the other member fitting in said guideway and having claws on its outer end, a set-screw secured to said last-mentioned member and extending through the upper slot in the other member whereby the two are held together so as to be longitudinally slidable with reference to each other and whereby said members may be clamped on the side of the window-casing, a bracket secured to one of said members and extending upward therefrom and then outward for supporting a curtain-pole, a shade-supporting bracket extending down from said slotted member and having a perforated ear on its lower end for receiving the end of the shade-roller, and a clamping-screw extending through the upper end of said bracket and the lower slot in said slotted member whereby said lower bracket may be laterally adjusted and secured in place to accommodate shade-rollers of varying lengths substantially as described.

752,426. HEATER. WALLACE STEWART and WILLIAM J. WILES, Buffalo, N. Y. Filed Nov. 20, 1903. Serial No. 182,007. (No model.)



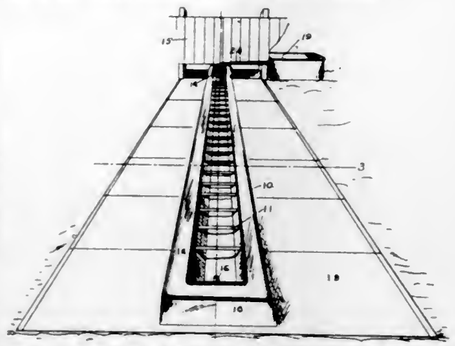
Claim.—1. As an improved article of manufacture, a pocket-heater consisting, essentially, of an oblong metallic box having a hinged cover, two longitudinal plates hinged to the bottom of said box and adapted to be raised into a vertical position to form longitudinal supports, wings hinged to said plates at their ends and adapted to form transverse supports, cleats on said longitudinal plates, L-shaped rods swiveled in said cleats and adapted to lie close to said plates and when extended to form a griddle, and a circular burner centrally in said box and adapted to burn liquid fuel, the said supports and rods when folded up being all within the box so that the cover may be closed, as specified.

2. A pocket-heater, consisting of a metallic box having a hinged cover, longitudinal supports hinged to said box and adapted to be raised into a vertical position, wings hinged to said longitudinal supports and adapted to be raised into a vertical position to form transverse supports, and a receptacle centrally in said box suitable to receive liquid fuel for consumption, as set forth.

752,427. ANIMAL-TROUGH. LEWIS H. STONER, Albany, Ind. Filed Oct. 1, 1902. Serial No. 125,486. (No model.)

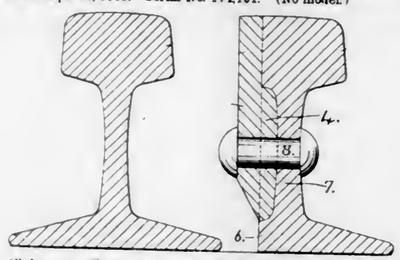
Claim.—1. An animal-trough formed of a concrete foundation, a cement trough built upon said foundation, and a cement floor built on said foundation on each side of said trough, said trough extending above the floor.

2. An animal-trough formed of cement with one end wall and the side walls adjacent to said end wall made high for the introduction of material into the trough, metal rods molded in the lower portion of the trough that extend from one side to the other thereof at suitable distances apart, and a cross-bar molded in the elevated portion of said trough adjacent the lower portion thereof.



3. An animal-trough formed of cement with one end wall and the adjacent side walls thereof made high for the introduction of material into the trough, metal rods molded in the trough that extend from one side to the other thereof at intervals, and a transversely-placed partition located over the elevated portion of said trough at a point removed from the extreme end thereof so that material may be introduced into the trough behind said partition without the interference of animals.

752,428. GUARD-RAIL. DAVID F. VAUGHAN, Haddonfield, N. J. Filed Sept. 22, 1903. Serial No. 174,161. (No model.)



Claim.—1. The combination with the guard-rail having the side of its head cut away of the hard-metal plate secured to the web of the rail with its upper portion bearing against said cut-away part of the rail, substantially as and for the purpose set forth.

2. The combination with the guard-rail, having the side of its head cut away, of the hard-metal plate having the side enlargement, the part of said plate above the latter being fitted against the cut-away side of the head of the rail, and said enlargement fitted in the space between the latter and the top of the foot-flange of the rail, together with means for securing said plate to the web of the rail, substantially as and for the purpose set forth.

3. The hard-metal plate substantially rectangular in cross-section and having the side enlargement adapted to fit against the web of a rail, substantially as and for the purpose set forth.

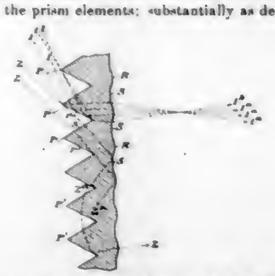
752,429. PRISMATIC ILLUMINATING STRUCTURE. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor, by mesne assignments, to Pressed Prism Plate Glass Company, a Corporation of West Virginia. Filed Oct. 28, 1898. Serial No. 694,819. (No model.)

Claim.—1. An illuminating prism structure having prism surfaces on the light-receiving side, and a series of symmetrically-arranged curved surfaces with an equal number of intermediate plane surfaces on the light-discharging side; substantially as described.

2. An illuminating prism structure having prism surfaces on the light-receiving side, and a series of curved surfaces with an equal number of intermediate plane surfaces on the light-discharging side; substantially as described.

3. An illuminating structure having on one side a series of prisms, and on the other an equal number of series of curved dis-

persing-surfaces arranged symmetrically opposite one side of the prism element, intermediate a series of flat surfaces opposite the other sides of the prism elements; substantially as described.



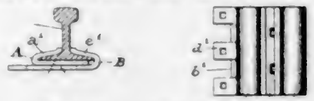
4. An illuminating structure having on one side a series of prisms and on the other a discharging-face consisting of an equal number of series of symmetrically-arranged curved dispersing-surfaces separated by a series of plane surfaces substantially parallel to the general plane of the structure; substantially as described.

5. An illuminating structure having on one side a series of prisms and on the other a discharging-surface made up of an equal number of series of curved dispersing-surfaces symmetrically arranged opposite the deflecting sides *r*, *r* of the prism elements and acting to diffuse the rays deflected by the latter, and a second set of intermediate plane surfaces substantially parallel to the general plane of the structure and acting to reflect the rays deflected by the receiving sides *s*, *s* of the prism elements; substantially as described.

6. An illuminating structure having on the receiving side a series of prisms, and on the discharging side a series of flat surfaces substantially parallel to the general plane of the structure, intermediate a symmetrically-arranged series of curved dispersing-surfaces depressed below the general surface of the plate, substantially as described

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752,430. CHAIR FOR RAILROAD-RAILS. JACOB B. WEAVER, Baltimore, Md. Filed Dec. 7, 1903. Serial No. 184,072. (No model.)



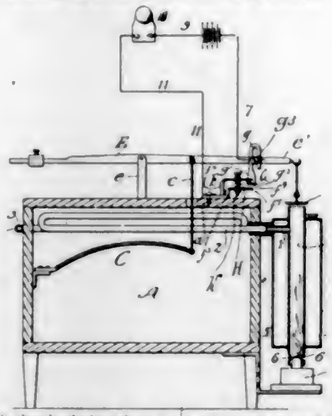
Claim.—1. The herein-described chair for rails comprising two separable parts, one part, A, having a base on which the rail is to be seated and along one side of said base an upward-curved hook or flange, a', and said base provided on its under side with one or more cross-bars or feet and the other part, B, having a plurality of lateral prongs separated by spaces—said prongs being below the base of the first-named part and the spaces occupied by the cross-bars or feet thereof, and an upwardly-curved hook or flange, c', attached to said prongs—and said prongs being longer than the width of the base of said first-named part and adapted to be secured to a cross-tie by spikes.

2. A chair for railroad-rails comprising two separable parts, one part having a base provided with spike-holes, *c*, which are covered by the rail when the latter is in position, and said base also provided along one side with an upward-curved hook or flange, a', and the other part having a base which takes below and projects beyond the base of the first-named part and said projecting portion having spike-holes, and an upward-curved hook or flange, c', attached to said lowermost base.

3. A chair for railroad-rails comprising two separable parts, one part, A, having a base on which the rails is to be seated and an upward-curved hook extending along one side of said base and said hook provided with a vertical flange, a^2, and said base provided on its under side with one or more cross-bars or feet, *b*, each having an end, b', for engaging a spike, and the other part, B, having a plurality of prongs below the base of the first-named part and the extremities, d', of said prongs projecting beyond said base and an upwardly-curved hook attached to said prongs and provided with a vertical flange, c^2, as set forth.

752,431. AUTOMATIC SIGNALING APPARATUS FOR INCUBATORS OR HOTHOUSES. HORACE B. AULT, Newmarket, Tenn. Filed July 20, 1903. Serial No. 166,413. (No model.)

Claim.—1. A circuit-closing device comprising the parallel contact-plates f^4 and f^3, and means connecting them, and the adjusting-screw, and the plate *g*, and means integral therewith for connection with a movable object, the latter plate adapted to move between the first-named plates and contact alternately with them for making a circuit, substantially as shown and described.



2. A circuit-closing device, comprising the parallel longitudinally-extended contact-plates having the looped extension, and the adjusting-screw engaging said plates, and the intermediate plate having the loop for attachment to a swinging beam, substantially as shown and described.

3. As a circuit-closing device for attachment to an incubator, the combination with the longitudinally-extended contact-plates having the looped extension and the adjusting-screw, and the intermediate plate adapted to alternately contact with the said plates, said plate having a vertical looped extension, whereby the same may be placed vertically adjustable on a pivoted beam, substantially as shown and described.

4. As an alarm for heated compartments, the combination with a balanced beam, of the longitudinally-extended contact-plates having the looped horizontal extension forming a base for connection to a fixed point, and the adjusting-screw engaging said plates, and the intermediate plate located between the said plates and having a vertical looped extension engaging the said beam, and means fastening the same to the beam, and the normally opened circuit, comprising a source of electricity, signaling device and conductors, substantially as shown and described.

752,432. PENHOLDER-GUIDE. SAMUEL BACHARACH, Brooklyn, N. Y. Filed Aug. 29, 1903. Serial No. 171,290. (No model.)



Claim.—1. A device of the kind described comprising a ring having a projection adapted to engage the second finger and a second projection upon which the pen-stock or pencil is adapted to rest, said projections being fixedly held at less than a half-circle from each other around the under side of the ring, as set forth.

2. A penholder-guide comprising a ring having a projection fixed thereto, and a second flat projection pivotally connected thereto, said second projectioo comprising a pivotal shank, and diverging members bent toward each other, as shown.

3. A penholder-guide comprising a ring and two radially-arranged projections upon opposite sides thereof but fixedly held at less than a half-circle from each other, one of the projections being flat and arranged to normally stand at an angle to the plane of the ring to support the pen-stock when in use and the other one being in position to engage with the under side of the finger adjacent the ring-finger as set forth.

752,433. SHOE-LACE TIP. FRANK A. BAGLEY, Chicago, Ill., assignor of one-half to Arthur B. Adair, Chicago, Ill. Filed Nov. 19, 1903. Serial No. 181,807. (No model.)



Claim.—1. As a new article of manufacture a shoe-lace tip having a lace-engaging shank and a hook portion adapted to engage the upper edge portion of a shoe and having its free end portion wholly within an imaginary surface formed by an extension of the shank, substantially as and for the purpose set forth.

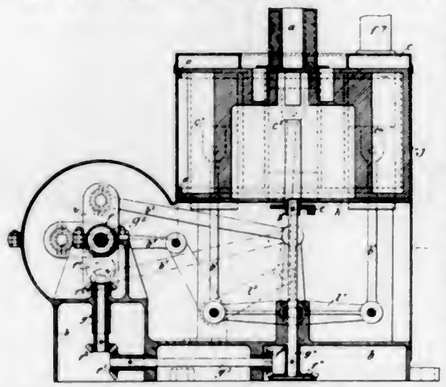
2. As a new article of manufacture a shoe-lace tip of springy metal having a lace-engaging shank and a hook portion adapted to engage the upper edge portion of a shoe and having its free end portion wholly within an imaginary surface formed by an extension of the shank, substantially as and for the purpose set forth.

3. As a new article of manufacture a shoe-lace tip having a lace-engaging shank and a hook portion adapted to engage the upper edge portion of a shoe provided at its free end portion with a shoulder *e* and lip *f* within an imaginary surface formed by an extension of the shank, substantially as and for the purpose set forth.

4. As a new article of manufacture a shoe-lace tip having a lace-engaging shank and a hook portion adapted to engage the upper edge portion of a shoe formed with the parallel stem *c* and tongue *d*, the free end portion of the tongue having the shoulder *e* and lip *f*, substantially as and for the purpose set forth.

5. As a new article of manufacture a shoe-lace tip formed with a tubular shank *a*, inclined neck portion *h*, socket *g*, parallel part *c*, *d*, shoulder *e* and lip *f* all constructed and arranged to operate, substantially as and for the purpose set forth.

752,434. EXPLOSION-MOTOR. FREDERIC BALTZINGER, Montbéliard, France. Filed Apr. 27, 1901. Serial No. 57,710. (No model.)



Claim.—1. An explosion-engine comprising a cylinder and frame of two different kinds of metal, the cylinder being cast into the metal of the frame, whereby intimate contact for cooling purposes and a light construction are obtained.

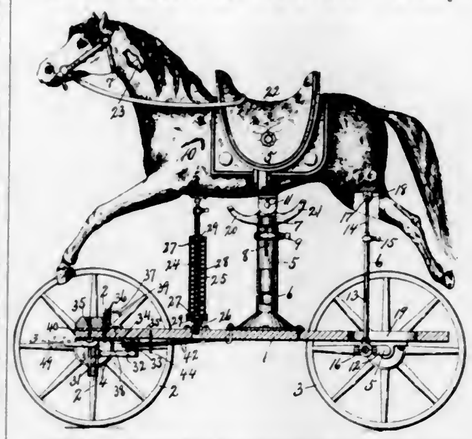
2. An explosion-engine comprising a plurality of cylinders cast into a single frame of aluminium, substantially as described.

3. In an explosion-motor the combination of several cylinders, three-armed levers fulcrumed below said cylinders, piston-rods connecting the pistons of said cylinders with two arms of said levers, connecting-rods connecting the third arms of said levers to different cranks of a common crank-shaft, substantially as, and for the purpose, set forth.

4. In an explosion-motor the combination of several cylinders, three-armed levers fulcrumed underneath said cylinders, piston-rods connecting the pistons of several of said cylinders to two arms of said levers, connecting-rods connecting the third arms of said levers to different cranks of a common crank-shaft, bell-cranked levers likewise fulcrumed underneath said cylinders, connecting-rods connecting the pistons of several such cylinders to one arm of said bell-crank levers, connecting rods connecting the other arms of said levers to different cranks of said common crank-shaft, substantially as, and for the purpose, set forth.

5. In an explosion-motor the combination of several cylinders, a single casting uniting said cylinders in a single block, gas-inlet and exhaust valves arranged in said block, means for operating said exhaust-valves from a single rotating shaft, and means for putting one or more of said exhaust-valves into the exhaust position by hand, substantially as, and for the purpose, set forth.

752,435. VEHICLE. CHARLES O. BARNES, Fruit Valley, N. Y., assignor to Karl Kellogg, Oswego, N. Y., and M. I. Barnes, Fruit Valley, N. Y. Filed Mar. 6, 1903. Serial No. 146,458. (No model.)



Claim.—1. In a rocking-horse-propelled vehicle, the combination with a platform and supporting-wheels, of a standard consisting of a fixed section secured to the platform and a vertically-adjustable section secured directly to the fixed section, a rocking-horse pivotally secured between its front and rear legs to the adjustable section, a crank-shaft operatively connected to rotate one of the wheels, an extensible connection between the rear end of the rocking-horse and crank-shaft whereby the rocking of the horse transmits rotary motion to the crank-shaft and the rocking-horse is adjustable vertically with reference to the crank-shaft.

2. In a rocking-horse-propelled vehicle, the combination with a platform and supporting-wheels, of a standard rising from the central portion of the platform and consisting of a fixed section and a vertically-adjustable section, means for holding the adjustable section in its adjusted position, a rocking-horse pivotally secured directly to the adjustable section, a rotary crank-shaft operatively connected to rotate one of the wheels, a rod composed of sections, one being adjustable lengthwise of the other, the adjustable section being pivotally connected to the rocking-horse and the other section being connected to the crank-shaft, and means to hold the rod-sections in their adjusted position.

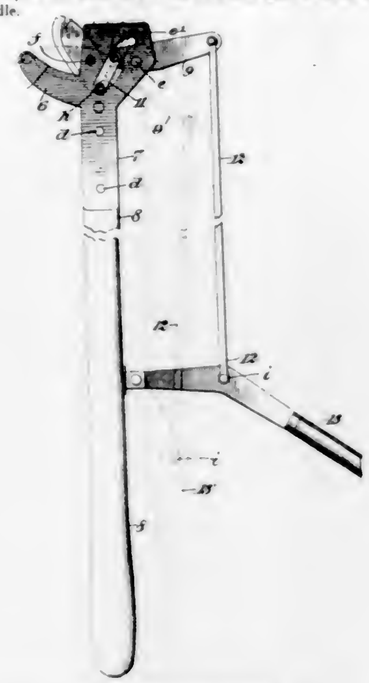
752,436. PRUNING-SHEARS. ALFRED S. BOYD, Rockville, Ind. Filed Oct. 21, 1903. Serial No. 177,885. (No model.)

Claim.—1. A pruning implement, comprising a cutter-head having spaced frame members, integral jaw members extended laterally from the frame members and having concave upper edges, a cutting-blade having a convex cutting edge and pivoted to work between the frame members above and near the concave edges of the jaws, a rock-arm pivoted between the frame members, a loose connection between an end of the rock-arm and an end of the cutting-blade, and means to rock the arm from its other end.

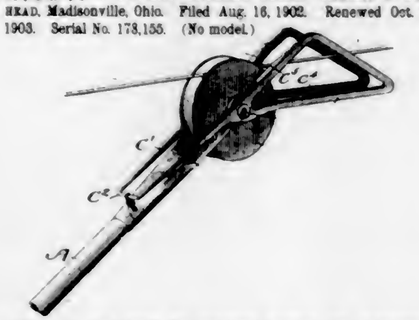
2. A pruning implement comprising a cutter-head having spaced frame members, oppositely and sinuously slotted, jaw members projected from the frame members and having concaved upper edges, limbs extended from the jaws and frame members, a convex-edged cutting-blade pivoted between the frame members above and near the concave edges of the jaws, so as to work between them, a rock-arm pivoted near one end thereof between the frame members, link-plates loosely connected to the inner end of the rock-arm and likewise to the inner end of the cutter-blade, and means for rocking the arm.

3. The combination with a handle, and a lever pivoted laterally on the handle near one end of said handle, of a cutter-head, comprising two spaced frame members, oppositely and sinuously slotted, two jaw members projected from the like side edges of the frame members and having concaved upper edges, limbs extended from the jaws and frame members for connection with the handle, a convex-edged

cutting-blade pivoted near one end between the frame members opposite the S-shaped slots therein and above the jaws so as to be adapted to work between them, a rock-arm pivoted near one of its ends between the frame members, link-plates lapped on opposite sides of the frame members and pivoted near their ends respectively upon an end of the rock-arm and the inner end of the cutter-blade, the pivots passing through the slot, and a link-rod pivoted at its ends respectively to the outer end of the rock-arm and to the lever near the handle.



752,437. OVERHEAD-TROLLEY GUIDE. CHARLES W. BURKHEAD, Madisonville, Ohio. Filed Aug. 16, 1902. Renewed Oct. 22, 1903. Serial No. 178,155. (No model.)



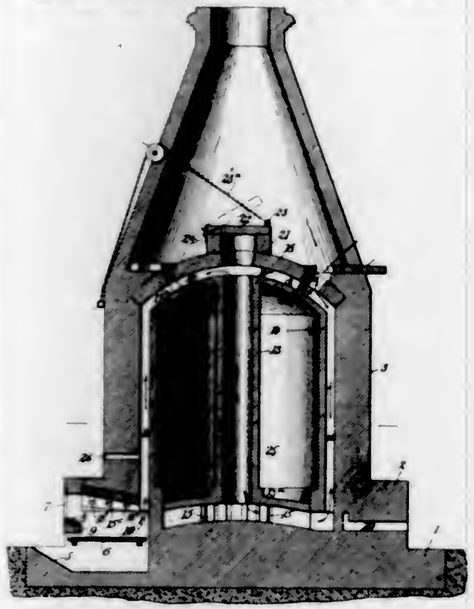
Claim.—1. In a guide for overhead trolleys, the combination with a trolley-pole, of a trolley-wheel thereon, a pair of parallel, rearwardly-extending arms connected together at their forward ends and adapted to inclose a trolley-wheel between them, said arms being pivoted adjacent the wheel, and being shaped rearward of the wheel to form triangular-shaped frames, the upper members of said frames extending upwardly and beyond the wheel and means for connecting the forward portion of the arms to the pole.

2. A guide for overhead trolleys, comprising a pair of arms pivoted as described and yieldingly connected at their forward ends to the trolley pole or harp, the rear portion of said arms being bent downwardly and rearwardly, and the brace or connecting member extending from the pivot-point of the arm to their extreme rear ends, as specified.

3. A guide for overhead trolleys, comprising a pair of arms united at their forward ends, the rear portions of said arms having therewith angular-shaped frames, the apexes of which project above the upper edge of the trolley-wheel and means for connecting the forward ends of the arms to the trolley pole or harp, as specified.

4. The combination with the trolley pole and wheel of the arms pivoted upon opposite sides of the said pole and wheel, said arms being united at their forward ends, a spring connecting the forward ends of the arms to the trolley pole or harp, and said arms projecting upwardly beyond the trolley-wheel and then bent downwardly and rearwardly and a connecting member or brace connecting the ends of said downwardly-extending portions and the central portions of the arms, as specified.

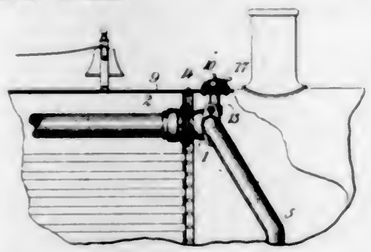
752,438. MUFFLE. JOHN CARTER and ALFRED G. CARTER, Malden, Mass. Filed July 28, 1903. Serial No. 167,291. (No model.)



Claim.—1. In a muffle, the combination of a hollow member, a cylinder mounted therein and connected thereto, a central flue connected with said cylinder and passing through the same, a dome covering said cylinder and said flue, said dome being provided with an aperture, a member for closing said aperture, and mechanism connected with said member and extending without said hollow member for the purpose of enabling the same to be operated from a point external to the muffle.

2. In a muffle, the combination of a hollow member, a revoluble pulley mounted therein, a central flue disposed within said hollow member, a cylinder encircling said flue, a dome covering said cylinder and said central flue, said dome being provided with an aperture, a closure member for closing said apertnre, and a chain connected with said closure member and passing over said pulley for the purpose of enabling said closure member to be operated from a point external to the muffle.

752,439. LOCOMOTIVE-VALVE. HOWARD G. CORYELL and JOSEPH E. STEPHENS, Marietta, Ga. Filed June 17, 1903. Serial No. 161,816. (No model.)



Claim.—1. In a locomotive-valve, a valve-casing with which the dry-pipe branches connect, a valve mounted to swing in said casing, and means operated from the outer side of the locomotive for operating said valve to close either one of the branches.

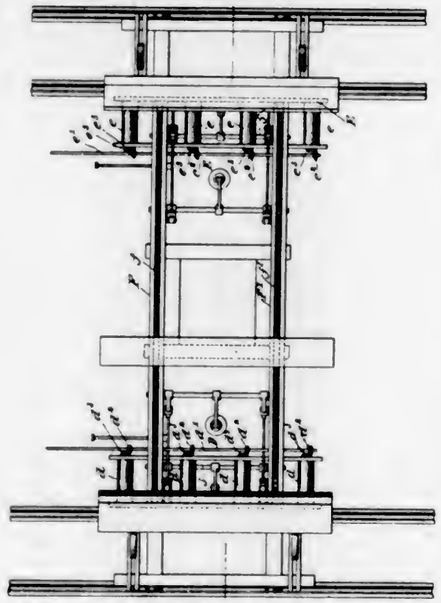
2. In a locomotive-valve, a valve-casing with which the dry pipe and branch pipes connect, a valve mounted to swing in the valve-casing, a rod extended upward from said valve to the outer side of the locomotive, and means for locking said rod to hold the valve out of connection with both the branches.

3. In a locomotive-valve, a valve-casing with which the dry pipe and branch pipes connect, a valve mounted to swing in the casing and designed to cut off either one of the branch pipes, a rod for swinging the valve and having vertical movement with relation thereto, a cap on the outer side of the locomotive-jacket through which the said rod passes, the portion of the rod extended through said opening being screw-threaded to engage with a thread of the opening, means for rotating the rod, and means for locking the rod.

4. In a locomotive-valve, a valve-casing having connection with a dry pipe, ports on opposite sides for communicating with the pipes leading to the opposite steam-chests, a valve mounted to swing in the casing and having rounded peripheral portions for engaging in correspondingly-shaped seats at the inner ends of the ports, and means operated from the outer side of the locomotive for swinging said valve.

5. In a locomotive-valve, a valve-casing adapted for connection with a dry pipe and having ports for communicating with steam-chest connections, a valve mounted to swing in the casing and having an angular opening in its stem, a rod having an angular portion for engaging in said opening, said rod passing upward through the jacket of the locomotive, means for causing a vertical movement of said rod, the said means also serving as a lock for holding the valve in closing position, the said rod having a channel in its upper portion, and a spring-pressed locking-bar for engaging in said channel to hold the valve in intermediate position.

752,440. OFF-BEARING MECHANISM FOR SAWMILLS. EVAN T. DAVIES, Portland, Oreg. Filed Sept. 14, 1903. Serial No. 173,099. (No model.)



Claim.—1. In an off-bearing device for sawmills, the combination of a pivoted arm, means for imparting lateral and vertical movements to the arm, and a device for piling material cut in the mill, said device comprising a pusher pivoted at the upper portion of said arm and designed to be moved into engagement with material coming from the mill, and manually-operated means mounted on the frame for actuating the pusher.

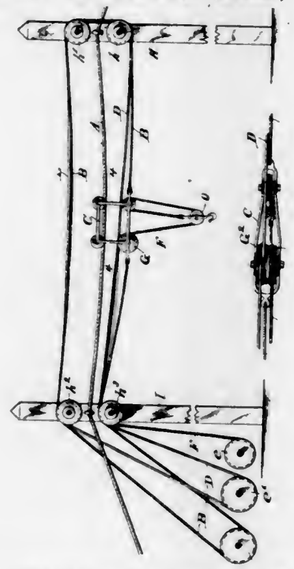
2. A device of the class described comprising a main frame, a lever pivoted thereto, an arm pivotally connected with said lever, a cylinder and piston-rod for moving said lever to impart vertical movement to the arm, a rock-shaft journaled in the frame, a second arm pivoted to the rock-shaft, connections between the second arm and the first-mentioned arm, means for moving the rock-shaft and its arm to cause the first-mentioned arm to swing laterally relatively to the frame, a pusher-arm pivotally connected to the first-named arm, and means connected to the pusher-arm and under the control of the operator, for moving said pusher-arm into engagement with planks or the like.

3. The combination of an off-bearing device including a vertical and laterally-movable tapered arm, a device for piling material cut by the saw of a sawmill, said device including a curved arm pivoted to the tapered arm near the free end thereof, a lever pivoted to the frame of the mill, and a movable connection between the curved pusher-arm and the lever, the construction being such that when the lever is moved, motion will be imparted to the pusher-arm.

4. The combination of an off-bearing device comprising an arm, means including a cylinder, piston-rod and connections between the piston-rod and the arm for imparting vertical movement to the arm, means including a cylinder, piston-rod and bell-crank lever and connections between the lever and arm for moving said arm laterally, a pusher-arm secured to the first-mentioned arm, and means connected with the pusher-arm for moving said pusher-arm into engagement with planks or the like.

5. The combination with a sawmill mechanism, of an off-bearing device carried thereby, said off-bearing device including a vertically-movable arm pivotally secured to the frame of the sawmill mechanism, said arm being formed of a plurality of bars, and means for piling the planks or lumber cut in the mill, said means comprising a pusher-arm pivoted to the vertical movable arm, a lever connected to the frame of the mechanism, a second lever pivoted to the vertically-movable arm, a link connecting the two levers, and a connection between the second-mentioned lever and the pusher arm, substantially as set forth.

752,441. CONVEYER. JAMES G. DELANEY, New York, N. Y. Filed Feb. 16, 1901. Serial No. 47,545. (No model.)



Claim.—1. In a conveyer the combination with a trackway, a carriage adapted to travel on said trackway, a traction-rope connected with the carriage, an overhauling-rope, and a hoisting-rope extending between the carriage and one end of the trackway, of a two-part sheave on the carriage adapted to receive wraps of both overhauling and hoisting ropes, one on each part.

2. In a conveyer the combination with a trackway, a carriage adapted to travel thereon, and means for controlling the position of the carriage on the trackway, of a hoisting-rope extending between the carriage and one end of the trackway, an overhauling-rope, and a pulley on the carriage adapted to receive wraps of both overhauling and hoisting ropes.

3. In a conveyer the combination with a trackway, a carriage adapted to travel on the trackway, an endless traction-rope connected with the carriage, a hoisting-rope extending between the carriage and one end of the trackway, of an endless overhauling-rope and a sheave on the carriage adapted to receive wraps of both overhauling and hoisting ropes.

4. In a conveyer in combination a trackway, an endless traction-rope, an endless overhauling-rope, supporting-sheaves for said traction and overhauling ropes at each end of the span, a hoisting-rope extending between the carriage and one end of the trackway means for actuating said ropes and a sheave on the carriage adapted to receive wraps of the overhauling-rope and of the hoisting-rope.

5. In a conveyer the combination with an endless traction-rope, a hoisting-rope extending between the carriage and one end of the trackway, and a carriage, of an endless overhauling-rope and a sheave on the carriage adapted to receive wraps of both hoisting and overhauling ropes.

6. In combination a stationary fall-rope drum, a fall-rope engaging said drum, a rope extending across the span and back, independent means for actuating said ropes in substantial unison, and mechanism whereby the travel of said looped or endless rope is communicated to the fall-rope at points along the span.

7. In combination a stationary fall-rope drum, a fall-rope engaging said drum and extending to the carriage, a rope extending across the span and back, means for actuating said last-mentioned rope in unison with said fall-rope, a carriage and mechanism carried by the carriage whereby the travel of said looped or endless rope is communicated to the fall-rope.

8. In a conveyer the combination with a hoisting-rope, an overhauling-rope extending across the span and back again, a carriage and means for actuating both of said ropes located at a common point, of means carried by the carriage and actuated by the overhauling-rope for applying tension to the hoisting-rope to pull out and lower the same.

9. In a conveying apparatus, a trackway, a load-carriage thereon, a hoisting-rope extending from an end of the trackway to the load-carriage, operative mechanism on the load-carriage adapted by its engagement with said hoisting-rope to outhaul the same, an additional rope operatively connected with said mechanism and extending side by side with said hoisting-rope to the same end of the trackway and means whereby said additional rope is caused to actuate said mechanism in a direction to outhaul said hoisting-rope.

10. In a conveying apparatus, in combination, a trackway, a load-carriage thereon, a hoisting-rope extending from the carriage to an end of the trackway, an additional rope extending from the carriage side by side with said hoisting-rope to the same end of the trackway, a connection between said ropes whereby said hoisting-rope is compelled to travel outwardly with the outward travel of said additional rope and means whereby said additional rope is outhauled.

11. In a conveyer the combination with a trackway, a carriage adapted to travel thereon, means for moving said carriage, a hoisting-rope and a hoisting-drum therefor at one end of the trackway, of an overhauling-rope extending past the carriage and means carried by the carriage for causing the overhauling-rope to positively pull out and lower the hoisting-rope.

12. In a conveyer the combination with a hoisting-rope, an overhauling-rope extending across the span and back again, and a carriage, of means for actuating both of said ropes in unison, and means actuated by the overhauling-rope for applying tension to the hoisting-rope at the carriage to pull out and lower the hoisting-rope.

13. In a conveying apparatus in combination, the load-carriage, a fall-rope drum located off of the carriage, a fall-rope extending from said drum to said carriage, an overhauling-rope extending across the span and back, means for actuating said last-mentioned rope in substantial unison with said fall-rope drum and mechanism whereby the travel of said overhauling-rope is communicated to said fall-rope.

14. In a conveying apparatus, in combination, a trackway, a load-carriage, a hoist on said carriage containing operatively-connected rotating members, two runs of rope engaging said members respectively and extending thence to the same end of the trackway and means whereby said ropes are actuated.

15. In a hoisting device, in combination with a hoisting-rope, a hoist-lowering rope, a rope-bearing member for each of said ropes, a traction connection between said members and means independent thereof for raising the hoisting-rope.

16. In a hoisting and conveying device, the combination with a trackway, a carriage adapted to travel on the trackway, a hauling-rope connected with the carriage, a hoisting-rope extending from the carriage to one end of the trackway, of an overhauling-rope and two connected rotating parts upon the carriage adapted one to receive the hoisting-rope and the other to receive the overhauling-rope; said ropes and rotating parts having driving engagement with each other.

17. In a hoisting and conveying device, in combination, a trackway, a carriage thereon, a fixedly-located hoisting-drum, a hoist-rope engaging said drum and extending to the carriage, an overhauling-rope extending along the trackway, means for actuating the overhauling-rope in unison with the hoist-rope and mechanism on the carriage whereby the movement of the overhauling-rope may be communicated to the hoisting-rope.

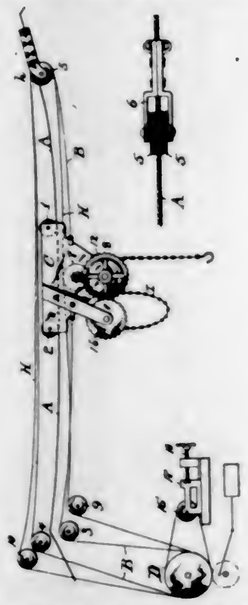
18. In a conveying apparatus, in combination a trackway, a carriage, a hoist on said carriage, a rope-drum apparatus containing a hoisting-rope drum and a separate overhauling-rope drum, a hoisting-rope and an overhauling-rope connecting said rope-drums, respectively, with said hoist.

19. In a conveying apparatus, in combination, a trackway, a carriage, a hoist on said carriage, a hoisting-run of rope, and an overhauling-run of rope both connected with said hoist and extending side by side to the same end of said trackway and means whereby said ropes are operated.

20. In a hoisting and conveying device, in combination, a carriage, a trackway therefor, a hoisting-rope having a supporting-sheave on said carriage, actuating means for said hoisting-rope removed from said carriage, an overhauling-rope having a sheave-support on the carriage, means for actuating said overhauling-rope, and means for communicating motion at the carriage between the hoisting-rope and the overhauling-rope.

21. In a hoisting device, in combination, a hoisting-rope, a sheave dividing said rope into substantially horizontal and vertical runs, means for actuating the hoisting-rope at the end removed from the fall, an overhauling-rope, means for independently actuating said overhauling-rope and means for communicating power from one rope to the other at the fall.

752,442. HOISTING AND CONVEYING DEVICE. JAMES G. DELANEY, New York, N. Y. Filed Dec. 28, 1901. Serial No. 87,564. (No model.)



Claim.—1. A hoisting device comprising a chain hoist-wheel, a chain storage-wheel driven in unison therewith, and driving means for said chain-wheels adapted to be operated by a passing rope.

2. A cableway-carriage having thereon supporting or track-way-engaging wheels, a chain hoist-wheel and a chain storage-wheel adapted to be turned in unison, all of said wheels being located in a common plane.

3. A cableway-carriage having thereon supporting or track-way-engaging wheels, a chain hoist-wheel and a chain storage-wheel adapted to be turned in unison, all of said wheels being located in a common plane, and means for operating said chain-wheels by a rope from a distance.

4. A cableway-carriage having a load-suspender, supporting and hoisting means adapted to preserve the point of suspension of the load in a substantially constant position relative to the vertical plane through the trackway, a distinct suspender storage means carried by the carriage and means for actuating the hoisting and storing mechanism from a distance.

5. In a cableway-carriage in combination, a chain hoist-wheel, a chain storage-wheel, and a driving-wheel adapted to receive wraps of an endless rope and turned thereby, and means for connecting the other wheels to be driven from the said driving-wheel.

6. In a cableway in combination a carriage, a traction-rope therefor, a hoist-chain, separate chain hoisting and storing wheels, a driving-pulley having driving connection with the chain-wheels, a hoist-operating rope having wraps passing about said driving-pulley, and means for operating the hoist-operating and traction ropes separately.

7. In a conveying apparatus, in combination, a trackway, a rope-actuating engine, a load-carriage, a hoist on said carriage, a combined hoisting and slack-pulling endless rope connecting said hoist with the engine and a tension-sheave in a loop of said endless rope.

8. In a conveying apparatus, in combination, a single trackway, a load-carriage, a two-part hoist, mounted on said carriage, a fall consisting of two suspenders each pendent from one of said hoist parts and a hoisting-rope whereby said hoist is operated.

9. In a conveying apparatus, in combination, a single trackway, a load-carriage, a two-part hoist mounted on said carriage, a fall consisting of two suspenders each pendent from one of said hoist parts, a hoisting-rope whereby said hoist is operated and a slack-pulling rope whereby sag of said hoisting-rope is prevented.

10. In a conveying apparatus, in combination, a single trackway a load-carriage, a wheel by which said carriage is supported on said trackway, a two-part hoist the parts of which are mounted on said carriage on opposite sides of the normally central vertical plane thereof, a fall consisting of two suspenders each pendent from one of said hoist parts and a hoist-operating rope.

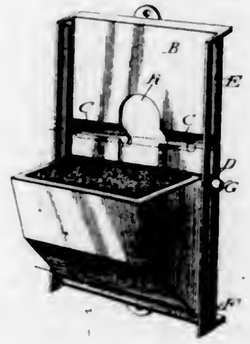
11. In a conveying apparatus, in combination, a single trackway, a load-carriage, a two-part hoist mounted thereon, a sheave connected with the two parts of said hoist between the same, a hoisting-rope and a slack-pulling rope engaging said sheave and a two-part fall pendent from said two-part hoist.

12. In a hoisting and conveying apparatus, in combination, a trackway, a load-carriage traveling thereon, a motor, outward and inward runs of rope actuated by said motor, a load-suspender, a clutching hoist member mounted on said carriage and progressively clutching and releasing said load-suspender within each cycle of movement.

13. In a hoisting and conveying apparatus, in combination, a trackway, a load-carriage traveling thereon, a motor, outward and inward rope runs actuated by said motor, a load-suspender, a clutching hoist member mounted on said carriage and progressively clutching and releasing said load-suspender within each cycle of movement and power-multiplying mechanism mounted on said carriage and interposed between said runs of rope and said clutching hoist member

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752,443. MATCH-HOLDER. LEON EBNER, Philadelphia, Pa. Filed Nov. 18, 1903. Serial No. 181,586. (No model.)



Claim.—1. A match-holder consisting of a box, a plate on which said box is slidable in the direction of the length of said plate and outwardly rotatable, means for retaining said box on said plate, said box having an open side and a chamber on said plate having its walls integral with said plate, said chamber being adapted to be placed in communication with the box at the open side thereof.

2. A match-holder consisting of a box, a plate on which said box is slidable in the direction of the length of said plate and outwardly rotatable and means for retaining said box on said plate, said box having an open side and said plate having a depressed chamber with which the open side of the box may be placed in communication.

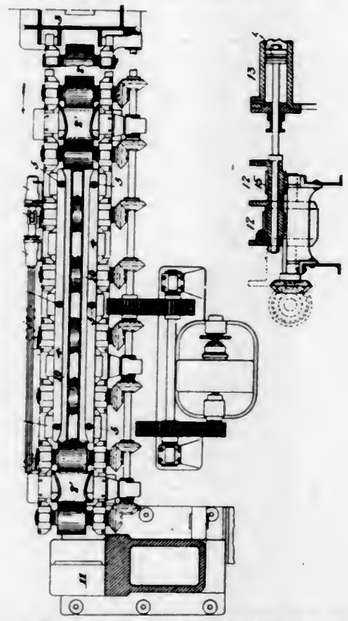
3. A match-holder consisting of a box, a plate on which said box is slidable, means for retaining said box on said plate and means for axially connecting said box with said plate permitting the box to be moved radially from the latter.

4. A match-holder consisting of a plate, a box rotatable and slidable thereon, a chamber on said plate with which said box may be placed in communication and removable means for connecting said box with said plate to prevent opening of the box, said box being journaled on said plate.

5. In a match-holder, a slidable box having journals, a plate on which said journals are mounted and in which they may slide, a chamber on said plate back of said box and means for connecting the box with said plate to prevent opening of the former while permitting the sliding motions of the same.

6. In a match-holder, a box, a plate on which the same is slidable, a chamber on said plate back of said box, a removable pin arranged to connect said box with said plate and a bit on said pin, said box having a slot of wide and narrow portions adapted to receive said pin and bit for locking the box with said plate.

752,444. SHIFTING MECHANISM FOR CONVEYING TABLES. ERIC ESSELIUS, Steubenville, Ohio. Filed July 27, 1903. Serial No. 167,065. (No model.)



Claim.—1. In combination with a direct-feed table for metal bars, a shifter adapted to shift temporarily from the line of feed a section of the metal to permit the uninterrupted feed of the section or sections in the rear; substantially as described.

2. In combination with a continuous-feed-conveying table for metal bars, a shifter intermediate thereof adapted to shift temporarily a section of the metal to permit the uninterrupted feed of the section or sections in the rear to a set of shears in advance of said shifter; substantially as described.

3. In combination with a conveying-table for metal bars, a shifter, whose supporting portions are normally below the conveying

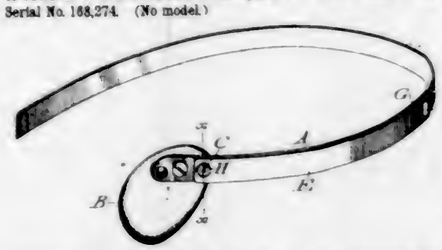
mechanism of the table and are adapted to be raised vertically above the same; substantially as described.

4. In combination with a conveying-table for metal bars, a shifter whose supporting portions are normally below the conveying mechanism of the table and are adapted to be raised above the same, said shifter having guiding-surfaces at the sides of the table above and below the supporting portions for guiding the metal on the table in both positions of the shifter; substantially as described.

5. In combination with a conveying-table for metal bars, a shifter adapted to shift temporarily a section of the metal to permit the passage of the section or sections in the rear, said shifter having supporting portions extending longitudinally of the table; substantially as described.

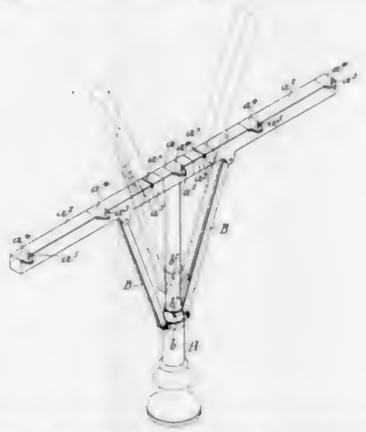
6. In combination with a direct-feed table for metal bars, a shifting mechanism at an intermediate point thereof adapted to remove a section of metal out of the line of feed, whereby succeeding sections may follow the direct feed; substantially as described.

752,445. **TRUSS.** DANIEL T. FOLEY, Philadelphia, Pa., assignor of one-half to Wm. McNiece, Philadelphia, Pa. Filed Aug. 5, 1903. Serial No. 168,274. (No model.)



Claim.—A truss comprising a body-spring, a pad secured thereto at the end thereof, a screw and a stud on said spring, a removable auxiliary spring and slots on said auxiliary spring adjacent to its ends to receive said screw and stud, the head of the latter extending at an angle to the slot it occupies whereby said auxiliary spring may be retained on said body-spring and have limited longitudinal movement.

752,446. **MEASURING DEVICE.** VALENTINE B. FRANGART, Boundbrook, N. J. Filed Nov. 3, 1903. Serial No. 179,733. (No model.)



Claim.—1. A measuring device consisting of a standard, a cross-bar thereon and pins projecting from said cross-bar at definite distances from one another, substantially as described.

2. A measuring device consisting of a standard, a cross-bar thereon, an arm or arms hinged to said cross-bar and projections from said parts carried by the standard, said projections being at definite distances from one another, substantially as described.

3. A measuring device consisting of a standard, a cross-bar thereon, an arm or arms hinged to said cross-bar and means for engaging fabric on said parts carried by the standard, said means being at definite distances from one another, substantially as described.

4. A measuring device consisting of a standard, arms movably carried by the standard, means for holding said arms in a straight line and a series of projections from said arms placed at definite distances from each other, substantially as described.

5. The combination of a standard, arms carried thereby and movable in a vertical plane or planes, said arms having means for indicating lengths of material to be measured, means for holding the arms in a substantially straight line and other means for retaining said arms in a position out of the straight line, substantially as described.

6. The combination in a measuring device of a standard, a cross-piece thereon, an arm hinged to each end of said cross-piece, a runner movable on the standard and a rib connecting each of said arms with the runner, said arms and cross-pieces having upon them means for determining the length of material to be measured, substantially as described.

7. The combination of a standard, a measuring bar or bars carried thereon and having projections at definite distances from each other, said measuring-bar being in a plurality of sections movably connected together, substantially as described.

8. The combination of a standard, a measuring bar or bars carried thereon, and projections from said bar or bars overhanging a side of the same, substantially as described.

9. The combination in a measuring device of a standard, a bar or bars movably carried thereon and having means for measuring lengths of material, a runner on the standard, a rod or rods extending from the runner to the movable arm or arms, with means for retaining the runner in an elevated position on the standard, substantially as described.

10. The combination in a measuring device of a standard, a bar movably carried thereon having means for measuring lengths of material, a runner on the standard, a rod extending from the runner to the movable arm, with means for limiting the motion of the runner upon the standard in one direction and means retaining it in a fixed position distant from said limiting means, substantially as described.

11. The combination in a measuring device, of a standard, a cross-bar thereon, arms hinged to said cross-bar, a runner having in it a slot and movable on the standard, rods connecting the runner and the hinged arms and a projection on the standard for engaging the slot in the runner, with means on the cross-bar and on said arms for determining the length of material to be measured, substantially as described.

752,447. **HORN.** WILLIAM GEBERT, Trenton, N. J. Filed Aug. 17, 1903. Serial No. 169,746. (No model.)



Claim.—1. A horn, having an orifice in the side thereof, and a reed located in the horn and juxtaposed to the orifice, said orifice exposing the reed so that it may be controlled by the tongue of the operator to vary the note of the horn.

2. A horn, comprising a tube, a reed-box or mouthpiece having an orifice therein, and a reed lying in the reed-box and normally covering the opening.

3. A horn having a tube, a reed-box or mouthpiece having an open end and a longitudinally-elongated opening in its side, and a reed lying in the reed-box and normally extending over the opening in the side thereof.

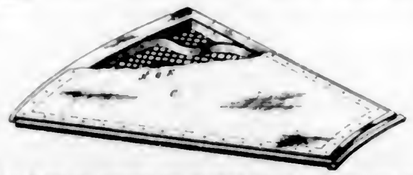
4. A reed for horns, comprising a reed proper, an elongated shank, the reed and shank being longitudinally alined and a resilient connection between the two.

5. A reed for horns, comprising a reed proper, an elongated shank, the reed and shank being longitudinally alined and a crimped neck connecting the two, the reed proper, the shank and neck being formed of an integral piece of sheet metal.

6. A reed for horns comprising a reed proper, a shank and a neck connecting the two, all of said parts being formed of sheet metal and the neck having an arched crimp therein resiliently to mount the reed.

752,448. **SHAKING-SIEVE AND CLEANER THEREFOR.** WILLIAM D. GRAY, Milwaukee, Wis., assignor, by mesne assignments, to Allis-Chalmers Company, a Corporation of New Jersey. Filed Nov. 19, 1900. Serial No. 37,006. (No model.)

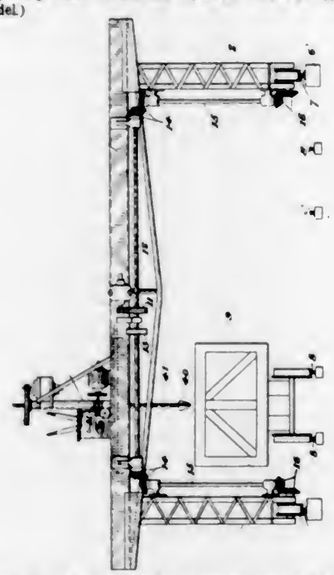
Claim.—1. A brush for cleaning the sieves of sifting-machines and the like, comprising a main body portion carrying bristles, and a cup-shaped back having a rounded projection formed thereon to one side of its center, the edge of the back being turned over on the face of the body portion after said body portion is seated within said back.



2. A brush for cleaning the sieves of sifting-machines and the like, comprising a main body portion carrying bristles, and a rounded projection on the back of the brush, said projection being located to one side of the axial center thereof.

3. A brush for cleaning the sieves of sifting-machines and the like, comprising a main body portion of circular contour, a series of distinct and separated tufts of bristles extending up therefrom, and a rounded projection extending from the back of the brush, said projection being located to one side of the center.

752,449. **CAR-UNLOADING APPARATUS.** JOHN C. GREENWAY, Ishpeming, Mich. Filed Jan. 14, 1903. Serial No. 138,993. (No model.)



Claim.—1. An unloading device comprising a bridge, a trolley movable thereon, a loosening-head mounted on the trolley and mechanism for moving the head vertically to loosen the material in the receptacle beneath; substantially as described.

2. An unloading device comprising a depending loosening-tool, mechanism for rotating the loosening-tool, and mechanism for positively moving it vertically upwardly and downwardly; substantially as described.

3. An unloading device comprising a trolley, a vertically-movable loosening-tool depending therefrom, mechanism on the trolley for positively moving the tool vertically upwardly and downwardly, and mechanism for rotating the tool; substantially as described.

4. An unloading device comprising a hollow depending stem provided with a head and having perforations at or near its lower end, a connection leading from the stem to a source of fluid, and mechanism for moving the stem; substantially as described.

5. An unloading device comprising a depending hollow stem having a lower head and provided with perforations, a connection leading from the stem to a source of heated fluid, and mechanism for moving the stem in a vertical direction; substantially as described.

6. An unloading apparatus comprising a traveling bridge, a trolley movable along the bridge, and carrying a depending loosening-tool, and mechanism on the trolley for actuating the tool to punch or loosen the material in the receptacle beneath; substantially as described.

7. An unloading device comprising a depending stem having a head, mechanism for adjusting the stem-support to different angles, and mechanism for giving the stem a positive upward or downward movement at any adjusted angle; substantially as described.

8. An unloading device comprising a traveling bridge and trolley movable thereon supporting a depending stem having a loosening-head affixed to its lower end; mechanism for adjusting the stem to different angles; and mechanism for positively actuating the stem at any adjusted angle to loosen the material beneath, substantially as described.

9. An unloading device comprising a depending loosening-rod, extending through a support, mechanism for adjusting the support in any direction, and mechanism for rotating the rod and moving the same in a vertical direction; substantially as described.

10. A support mounted on a universal-joint device, mechanism for clamping the support at the desired angle, a loosening-bar extending downwardly from the support, and mechanism for positively actuating the bar to loosen the material beneath it; substantially as described.

11. In unloading apparatus, a traveling bridge, a trolley mounted thereon, mechanism for preventing lifting of the trolley from its track, a punching-bar mounted on the trolley and depending therefrom, and mechanism for reciprocating said bar; substantially as described.

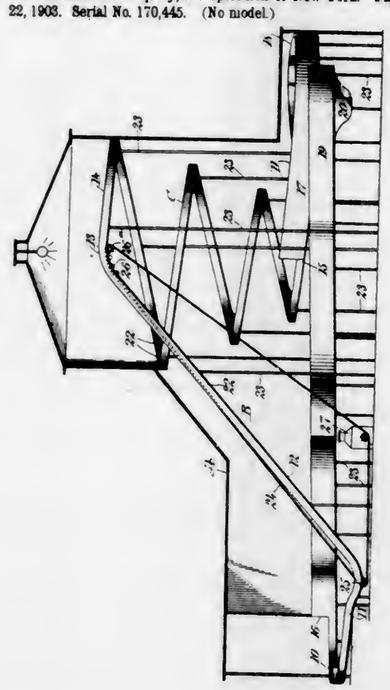
12. In unloading apparatus, a traveling bridge arranged to straddle a car-track and car, a trolley movable along the bridge and having a depending punching-bar, and mechanism for actuating said bar to loosen the material in the car; substantially as described.

13. A traveling bridge, a trolley movable thereon, a depending loosening-bar carried on the trolley and mechanism on the trolley for rotating and moving the bar vertically to loosen the material beneath; substantially as described.

14. An unloading device comprising a depending loosening-stem, mechanism for moving the same vertically into the material, and a head arranged to expand automatically when lifted; substantially as described.

15. A trolley having a depending loosening-stem, mechanism for moving the stem vertically into the material, and an expanding-head carried on the stem; substantially as described.

752,450. **AMUSEMENT DEVICE.** ALVIN G. HAMMELL, New York, N. Y., assignor, by direct and mesne assignments, to A. G. Hammell Amusement Company, a Corporation of New York. Filed Aug 22, 1903. Serial No. 170,445. (No model.)



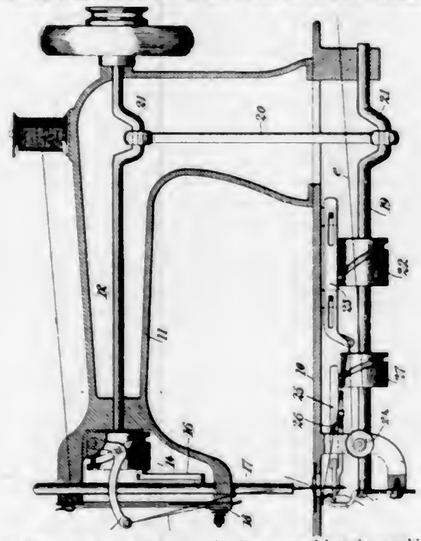
Claim.—1. In an amusement device, a spirally-formed, vertically-disposed track, the diameter of which spiral decreases in direction of the bottom.

2. In an amusement device, a spirally-formed, vertically-disposed track, the diameter of which spiral gradually decreases in direction of the bottom of the track-section, and an inclined track leading to and connecting with the upper end of the said spiral section, as described.

3. In an amusement device, an inclined track-section, an elevating device for the said inclined track-section, a spiral track-section connected at its upper end with the upper portion of the inclined track-section, the diameter of the spiral track-section gradually diminishing in direction of the bottom, and a tunnel connected with the lower end of the spiral track-section, as described.

4. In an amusement device, an inclined track-section, an elevating device for the said inclined track-section, a spiral track-section connected at its upper end with the upper portion of the inclined track-section, the diameter of the spiral track-section gradually diminishing in direction of the bottom, a serpentine tunnel connected with the lower end of the spiral track-section, and a station track-section connecting the outlet end of the tunnel with the bottom portion of the inclined track-section, as described.

752,451. STITCH-FORMING MECHANISM. EWEN C. HENDERSON, Pictou, Canada, assignor of three-fourths to John Monroe, Edward Carson, Alvan J. Craig, and John Smith Grant, Pictou, Nova Scotia, Canada. Filed Dec. 23, 1902. Serial No. 136,319. (No model.)



Claim.—A stitch-forming mechanism, comprising the combination with a framing or support, of a needle adapted to carry the needle-thread, means for reciprocally driving the needle, a thread-guide adapted to carry a lock-thread, a looper-hook, means for moving the thread-guide toward and from the path of the looper-hook, and means for operating the looper-hook, the said operating means of the needle, thread-guide and looper-hook being in connection with each other so as to operate in unison and to cause the hook to draw a loop of the lock-thread through a loop in the needle-thread and subsequently to release said loop of the lock-thread and draw a second loop of the lock-thread through a second loop in the needle-thread and through the first loop of the lock-thread.

752,452. MEANS FOR SECURING MEASURING INSTRUMENTS CENTRALLY IN BOTTLES, &c. AUGUST B. HOHMANN, Richmond Hill, N. Y., assignor to Charles J. Tagliabue, Brooklyn, N. Y. Filed Apr. 22, 1903. Serial No. 153,364. (No model.)

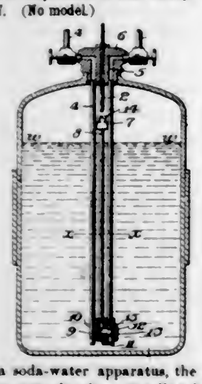
Claim.—1. A holder for measuring instruments for securing the same in central position within a vessel, comprising a perforated, internally flanged and screw-threaded block, an externally-screw-threaded collar, a packing-ring set in the block between the collar and the internal flange of the block, a perforated compressible packing secured to the base of the block, a perforated cap, having radially-projecting lugs, set on the block; a holder for the vessel having screw-threaded members set in position to engage with the lugs of the cap, and screw-nuts set thereon.



2. A device for securing measuring instruments in central position within a bottle or similar vessel, comprising a perforated, internally flanged and screw-threaded block, an externally and internally screw-threaded collar, a packing-ring set in the block between the collar and the internal flange of the block, and a perforated cap, having radially-projecting lugs, set on the block; a ring composed of separably-connected segments, screw-threaded members joined to the ring in position to engage with the lugs of the cap and screw-nuts set thereon.

3. A device for securing measuring instruments in central position within a bottle or similar vessel, comprising a perforated, internally flanged and screw-threaded block, an externally and internally screw-threaded collar, a packing-ring set in the block between the collar and the internal flange of the block, and a perforated compressible packing secured to the base of the block; a perforated cap having three radially-projecting lugs, set on the block; a ring composed of three separably-connected segments, screw-threaded members pivoted, one to each of the segments of the ring in position to engage with the lugs of the cap and thumb-nuts set thereon.

752,453. SODA-WATER APPARATUS. HEBER A. HOPKINS, Cambridge, Mass., assignor to American Soda Fountain Company, Jersey City, N. J., a Corporation of New Jersey. Filed Feb. 25, 1903. Serial No. 145,017. (No model.)



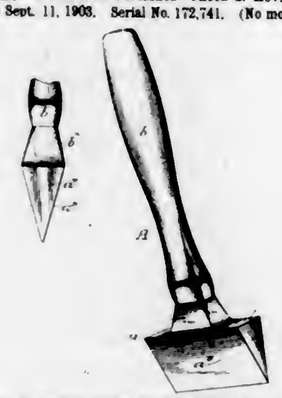
Claim.—1. In a soda-water apparatus, the combination with the tank, of the water-supply pipe exteeding below and opening above the water-level in said tank, there being an opening in said pipe below said water level, and a valve adapted to normally open said opening, and to close the same by the pressure of water when flowing through said pipe, substantially as and for the purpose set forth.

2. In a soda-water apparatus, the combination with the tank, of the water-supply pipe extending below and opening above the water-level therein, a chamber communicating with said pipe, and having an opening below said water-level, and a suitable ball-valve within said chamber adapted to normally open said opening and to close the same by the pressure of water flowing through said pipe, substantially as and for the purpose set forth.

3. In an apparatus of the character described, the combination with the tank, of the water-supply pipe extending downwardly adjacent to the bottom of the tank, the pipe extending upwardly from a point adjacent to the lower end of said first-mentioned pipe to a point above said water-level, the chamber with which the lower ends of said pipes communicate, there being an opening through said chamber, and a ball-valve within said chamber adapted to normally open said opening and to close the same by the pressure of water when flowing through said pipe, substantially as and for the purpose set forth.

4. In an apparatus of the character described, the combination with the tank, of the water-supply pipe extending below the water-level in said tank, a chamber with which said pipe communicates, a pipe leading from said chamber and extending above the water-level within said tank, there being an opening in said chamber into the tank, and a valve adapted to close said opening by the pressure of water flowing through said water-supply pipe into said chamber; and to open said opening and also to close the end of said water-supply pipe and arrest the exit of water therefrom in case of a leak in said pipe, substantially as and for the purpose set forth.

752,454. GLAZIER'S HAMMER. JACOB S. HOVLAND, Chicago, Ill. Filed Sept. 11, 1903. Serial No. 172,741. (No model.)



Claim.—1. A glazier's hammer, the driving-head of which has driving-faces at its ends and outwardly-converging flat, side bearing-faces which extend the entire length of the head, said faces being adapted to rest in contact with a flat surface when the handle of the hammer is held at an angle to said surface.

2. A glazier's hammer comprising a handle or grip, and a head provided with a socketed shank to receive the handle end, said head having driving-faces at its ends and outwardly-converging, flat, side bearing-faces which extend the entire length of the head.

3. A glazier's hammer, comprising a handle proper and a head, the latter having a socketed shank for engagement with the handle end, two equally-beveled bearing-faces, as a^3 a^3, and two equally-extending driving ends, as a^2 a^2, each of the latter beng proivided with a suitable driving-face, as a^4, the bearing-faces forming an edge a^5, substantially as shown and described.

752,455. RAILWAY-TIE. FREDERICK H. KINDL, Pittsburg Pa. Filed June 1, 1900. Serial No. 18,725. (No model.)



Claim.—1. A metal railway-tie formed of rolled metal bent into trough shape, said tie having thickened lower edges with the thickened portions tapering downwardly, and top thickened portions beneath the rail-seats; substantially as described.

2. A metal railway-tie formed of rolled metal bent into trough shape of the same width throughout, said tie having thickened lower edges with the thickened portions tapering downwardly; substantially as described.

3. A metal railway-tie formed of a rolled section bent into trough shape and having on the under side of the top thickened portions extending longitudinally of the tie and beneath the rail-bases; substantially as described.

752,456. RECEPTACLE AND ATTACHMENT-PLUG. HUBERT KRANTZ, New York, N. Y. Filed Oct. 24, 1903. Serial No. 178,411. (No model.)



Claim.—1. A receptacle for an attachment-plug, having a main recess and an additional recess, a contact-post and an attached disk, the disk being in the main recess, and the post in the additional recess, and a binding-screw carried by the disk, and a cover-plate provided with an opening in line with the additional recess, substantially as described.

2. A receptacle for an attachment-plug, having a main recess open at the top and an opening 14 through the receptacle from the bottom to the side of said recess, with a disk in said recess, carrying a contact-post and a binding-screw, substantially as described.

3. A receptacle for an attachment-plug, having a circular main recess open at the top, a circular opening through the plug having one end opening to the main recess and a disk in said recess with a contact-post and binding-screw carried by said disk, substantially as described.

4. A receptacle for an attachment-plug, having a block with a circular main recess, a circular opening through the block for a wire, and a circular additional recess open at the top for a binding-post, both the circular opening and the additional recess, being opened into the circular side of the main recess, a disk and binding-screw within the main recess and a binding-post attached to the disk and within said additional recess, substantially as described.

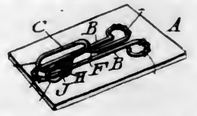
5. An attachment-plug, having a main recess and an additional recess parallel thereto, a disk secured on the bottom of the main recess, and clips secured to said disk, but extending into said additional recess, substantially as described.

6. An attachment-receptacle, comprising an insulating-body part carrying the contacts, a metallic box therefor open at both ends, to which it is secured, said box adapted to be secured to the wall, a cover for the receptacle adapted to be secured to the box, and insulated openings in the cover for the plug, substantially as described.

7. The combination of a circular box having an outwardly-turned flange at the top and an inwardly-turned flange at the bottom, and a circular receptacle secured therein, said receptacle having contact-posts at its upper part, a cover attached to the outturned flange of the box and having insulated openings in line with said contact-posts, substantially as described.

8. The combination of a circular open-ended box having an outwardly-turned flange at the top and an inwardly-turned flange at the bottom, and a circular receptacle secured therein, said receptacle having contact-posts at its upper part, a cover with insulated openings attached to the outturned flange of the box in line with said contact-posts, and openings through the receptacle communicating between the open lower end of the box and the contact-posts at the upper part of the receptacle, substantially as described.

752,457. GARMENT-HOOK. EMMA V. LAKE, Philadelphia, Pa. Filed Sept. 11, 1903. Serial No. 172,723. (No model.)

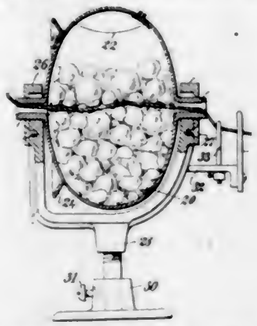


Claim.—1. In a hook of the character stated, a bill, a back member or shank, attaching-eyes on the ends of the latter, and a front eye projecting longitudinally beyond the outer bends of said bill, the several attaching-eyes being substantially in the same plane, said front eye being continuous of one of said outer bends of the bill and one member of said shank.

2. In a hook of the character stated, a bill, a back member or shank, attaching-eyes on the ends of the latter, and an attaching-eye at said bill projecting longitudinally beyond the outer bends thereof, the several attaching-eyes being substantially in the same plane, the eye at the bill interlocking at one side with an adjacent member of said shank and being continuous at the other side of one of the outer bends of the bill.

3. A hook of the character stated having at the bill end thereof a front attaching-eye located between the side members of the bill and interlocking with an adjacent member of the shank of the hook, a hump member and a loop on the end of the latter, said loop being interlocked with the rear of said front eye.

752,458. LUBRICATOR FOR YARNS OR THREADS. CHARLES J. LEHMAN, New York, N. Y.; Pauline Lehman administratrix of said Charles J. Lehman, deceased. Filed Sept. 10, 1903. Serial No. 172,607. (No model.)



Claim.—1. A thread-lubricating device comprising a receptacle having means for the passage of a thread through the chamber thereof, said receptacle being adapted to contain a charge of solid lubricant which is agitated around the thread by motion given to the receptacle, and means for imparting motion to the receptacle.

2. A thread-lubricating device having a receptacle provided with hollow trunnions and adapted to contain a charge of solid lubricant, and means for rotating said receptacle.

3. A thread-lubricating device having a receptacle adapted to contain solid lubricant in the form of lumps or balls, means whereby a thread is conducted through the receptacle in position for access by the lubricant charge therein, and means whereby the lubricant charge may be agitated during the passage of the thread through the receptacle.

4. A thread-lubricating device having a suitable frame, a receptacle provided with hollow trunnions and mounted in said frame for rotation therein, and means for rotating the receptacle on a horizontal axis.

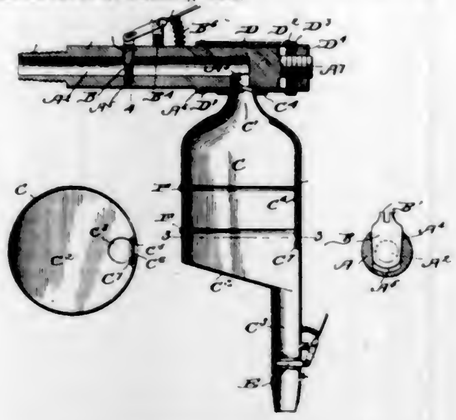
5. A thread-lubricating device, consisting of a suitable frame, a drum provided with hollow trunnions and mounted in said frame for rotation on a horizontal axis, a pulley fast with the drum, and a belt engaging with said pulley for rotating the drum.

6. A thread-lubricating device, consisting of a yoke-shaped frame, a lubricant-drum having hollow trunnions which are mounted in said frame, cap-plates engaging with the trunnions and fastened to the frame, and means for rotating said drum.

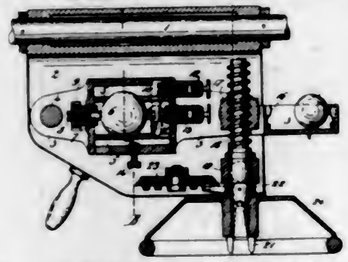
7. A thread-lubricating device, comprising a yoke-shaped frame, a foot-piece, a stem attached to said frame and clamped to the foot-piece, a revoluble drum having means for the passage of a thread therethrough, and means for rotating said drum.

752,459. COMBINED FAUCET AND MEASURE. EDGAR K. MATTHEWS, Hampton, Tex. Filed Jan. 19, 1903. Serial No. 139,597. (No model.)

Claim.—A device of the kind described comprising a faucet having a longitudinal bore opening rearwardly, and an intersecting downwardly-open bore said faucet having a solid, reduced, exteriorly-threaded front portion an exterior shoulder formed on said faucet, a valve adapted to close the longitudinal bore, a spring-actuated arm carried by the faucet for actuating said valve, a measuring vessel having a horizontal sleeve adapted to fit over the faucet, a packing-ring between the rear end of the sleeve and the shoulder, packing-rings bearing against the forward end of the sleeve, a nut secured on the reduced portion of the faucet and adapted to hold the rings and sleeve in place, a discharge-spout having a valve, and a sight-glass secured to the measuring vessel.



752,460. FIRING MECHANISM FOR SHIPS' GUNS. LUDWIG J. MAUTNER, Vienna, Austria-Hungary. Filed June 4, 1903. Serial No. 160,116. (No model.)



Claim.—1. In an electric firing mechanism for guns, the combination of the gun, a structure rigidly secured to the gun, a frame adapted to turn loosely in said structure around an axis parallel to the axis of the bore of the gun, guides carried by such frame, a sphere adapted to move along such guide, a contact device adapted to be operated by said sphere when this latter moves in one direction along the guide, to close the firing-circuit and means for adjusting the inclination of the said guide vertically relatively to the axis of the gun, substantially as described.

2. In an electric firing mechanism for guns, the combination of the gun, a structure rigidly secured to the gun, a frame adapted to turn loosely in said structure around an axis parallel to the axis of the bore of the gun, guides carried by such frame, a sphere adapted to move along such guides, an adjustable spring bearing against one side of the said sphere, a contact device on the opposite side of and adapted to be operated by such sphere when this latter moves in one direction along the guide, to close the firing-circuit and means for adjusting the inclination of the said guide relatively to the gun's axis, substantially as described.

3. In an electric firing mechanism for guns, the combination of the gun, a structure rigidly secured to the gun, a frame adapted to turn loosely in said structure around an axis parallel to the axis of the bore of the gun, guides carried by said frame, a sphere adapted to move along said guides, a contact device adapted to be operated by said sphere when this latter moves in one direction along the guide to close the firing-circuit, a second guide parallel to the first guides and a second sphere visible from outside and adapted to move freely in the said second guide, and means for adjusting the inclination of the said guide relatively to the horizontal, substantially as described.

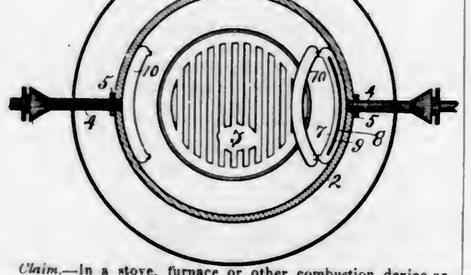
4. In an electric firing mechanism for guns, the combination of the gun, a structure rigidly secured to the gun, a frame adapted to turn loosely in said structure around an axis parallel to the axis of the bore of the gun, guides carried by said frame, a sphere adapted to move along said guides, a contact device adapted to be operated by said sphere when it moves in one direction along the guides to close the firing-circuit, and means for adjusting the inclination of the said guide relatively to the horizontal, in combination with a sighting-bar, a contact apparatus in the firing-circuit in series with the said contact device operated by the sphere, and means carried by such sighting-bar for closing the said contact apparatus at the will of the marksman, substantially as described.

5. In an electric firing mechanism for guns, the combination of the gun, a structure rigidly secured to the gun, a frame adapted to turn loosely in said structure around an axis parallel to the axis of the bore of the gun, guides carried by such frame, a sphere adapted to move along such guides, a contact device adapted to be operated by such sphere when this latter moves in one direction along the guide to close the firing-circuit, and means for adjusting the inclination of the said guide relatively to the horizontal, in combination with a sighting-bar, a firing-switch in the firing-circuit in series with the aforesaid contact device operated by the sphere, and means carried by such sighting-bar for closing the firing-switch at the will of the marksman, an electromagnet adapted to be thrown into circuit by the contact device operated by the sphere, and means controlled by such electromagnet for locking the firing-switch in its open position, substantially as described.

6. In an electric firing mechanism for guns, a firing-circuit, means for closing the same, a contact device in such circuit, an electromagnet 41 adapted to be energized by closing such circuit, and an armature adapted to be moved by such electromagnet when energized, said armature in its movement adapted to open the firing-circuit, substantially as and for the purpose described.

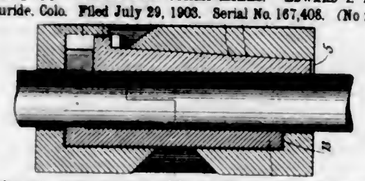
7. In an electric firing mechanism for guns, a firing-circuit, a lever for closing the same, a contact device in such circuit, an electromagnet 41 adapted to be energized by closing such circuit and an armature adapted to be moved by such electromagnet when energized and to open then the said contact device, an inclined projection on such armature, a pin on the said lever adapted to engage with such inclined projection whereby the contact is closed as the lever is moved in its open position, as and for the purpose described.

752,461. GAS OR SOLID FUEL FURNACE. RUDOLPH A. MAY, Akron, Ohio. Filed Aug. 13, 1903. Serial No. 169,409. (No model.)



Claim.—In a stove, furnace or other combustion device arranged to burn a solid or fluid fuel the combination of a burner arranged to lie along the inner face of a fire-pot or combustion-chamber provided with an outlet for a fluid fuel pointing substantially backward arranged to throw the flame of said fluid fuel against the inner face of said fire-pot or combustion-chamber and a cover to protect the outlet of said fluid fuel when not in use.

752,462. TAPPET FOR STAMP-MILLS. EDWARD I. MORRY, Telluride, Colo. Filed July 29, 1903. Serial No. 167,408. (No model.)



Claim.—1. A tappet comprising a sleeve adapted to receive a stem or shaft, and tapered locking-gibs movable in and longitudinally of the sleeve, the tapers being in opposite directions, and the said gibs being spaced apart circumferentially of the sleeve.

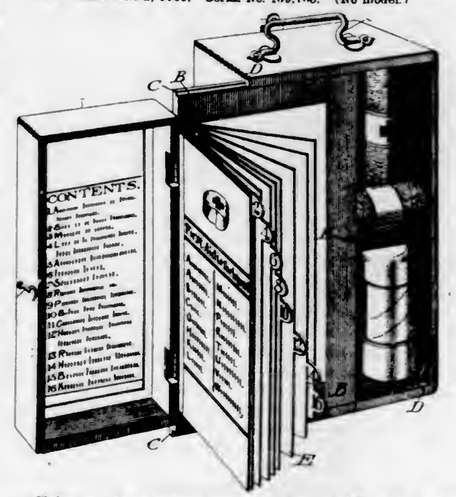
2. A tappet comprising a sleeve adapted to receive a stem or shaft, a plurality of channels formed in the inner side of said sleeve, said channels being spaced apart circumferentially of the sleeve, tapered gibs in certain of said channels, the tapers being extended in opposite directions, and a straight gib in another of said channels.

3. A tappet for a stamp-mill stem, comprising a sleeve, longitudinal ribs on the outer surfaces of said sleeve and spaced apart, the said sleeve at its inner side having recesses in alinement with said ribs, transverse openings in certain of said ribs, wedge-shaped gibs movable in the recesses in alinement with the ribs having said transverse openings, the said gibs having head portions extended into the transverse openings, and a straight gib in another of said recesses.

4. A tappet for a stamp-mill stem, comprising a sleeve, longitudinal ribs on the outer surface of said sleeve, the inner side of the sleeve being provided with recesses in alinement with the ribs, each of said ribs having an outward or lateral opening from its recess, tapered gibs movable in certain of said recesses and having outwardly-extended head portions, the tapers being extended in opposite directions, the ribs in which said tapered gibs operate also having transverse openings into which said head portions extend, a straight gib in another of said recesses, and a shim arranged in said other recess.

5. A tappet for a stamp-mill stem, comprising a sleeve having an interior diameter slightly larger than the diameter of the stem, the said sleeve having spaced longitudinally-disposed recesses in its inner side, and locking-gibs arranged in said recesses and engaging with the stem.

752,463. EMERGENCY-CASE. JOHN R. MORRIS, Philadelphia, Pa. Filed June 2, 1903. Serial No. 159,765. (No model.)



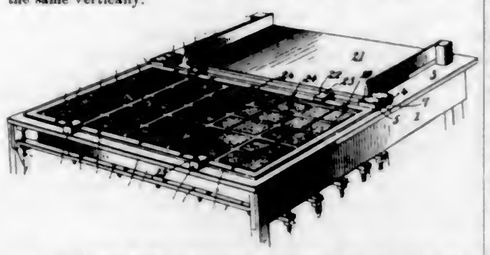
Claim.—1. In an emergency-case, a box, a sliding lid thereon and a swinging cover, the latter being connected with said lid by hinges on the outer edge of said lid, the hinged side of said cover in its open condition being adapted to abut against said edge and the cover and lid form lateral continuities of each other in the plane of the open face of said box.

2. An emergency-case consisting of a box, a sliding lid therefor, a tongue within the box connected with the outer side thereof and projecting outwardly therefrom, the under face of said lid having therein a groove into which the end of said tongue freely projects and a swinging cover hinged to said lid and adapted, when open, to abut against the outer edge of the latter.

752,464. BUTTER-PRESS. FRANK MURPHY, Lisbon Center, N. Y. Filed May 26, 1903. Serial No. 158,808. (No model.)

Claim.—1. A butter-press, comprising a supporting-frame having a cover for a portion of its top, forming a bed or table, a movable frame fitting in the uncovered portion of the supporting-frame and constructed with a plurality of cells, each having a movable bottom, said table and frame being provided with corresponding blocks at their adjacent edges, hinges secured to said blocks and movably connecting the frame with the bed, and upstanding blocks near the other edge of the bed, these blocks being substantially equal in height to the combined height of each pair of the blocks first named, when the frame is turned over the top of the table.

2. A butter-press, comprising a stationary bed or table, a frame movably connected thereto and adapted to be folded over the top of the same, said frame being constructed with a plurality of cells, vertically-movable bottoms for the cells, each having a projection and a screw-pin, a member to which the pins of the bottoms of each row are adjustably connected, and rods upon which said members have slidable movement, these members having means for adjusting the same vertically.



3. A butter-press comprising a stationary bed or table, and a frame movably connected thereto, and adapted to be folded over the top of the same, said frame being constructed with cells having vertically-movable bottoms, and a supplementary frame laid upon the first and provided with devices for severing the butter prints as they are forced from the cells.

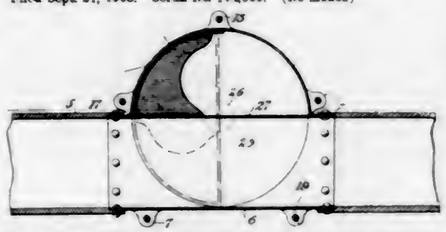
4. A butter-press comprising a stationary bed or table, and a frame movably connected thereto, and adapted to be folded over the top of the same, said frame being constructed with cells having vertically-movable bottoms, and a supplementary frame laid upon the first, having wires extending across the cells, and connecting opposite portions of this frame, and means for detachably connecting said supplementary frame to the cell-frame.

5. In a butter-press, a frame provided with a series of cells arranged in rows, bars, one for each row of cells, said bars being loosely connected at their ends with the frame so as to slide toward and from said frame, and adjustable bottoms for the cells, carried by the said bars.

6. In a butter-press a frame provided with a series of cells arranged in rows, bars, one for each row of cells, screws depending from the frame and provided with nuts, said screws passing loosely through the ends of the bars, whereby said bars can slide toward and from the frame, movable bottoms for the cells, and means for adjustably securing the bottoms to the said bars.

7. A butter-press, comprising a table having an opening in its top, a frame provided with rows of cells and hinged to the table to lie within the opening thereof or to fold over on the table, movable bottoms for the cells, bars one for each row of cells, screws depending from the frame and provided with nuts, said screws passing loosely through the ends of the bars, whereby said bars can slide toward and from the frame, and an adjustable connection for each bottom of a row of cells with a bar.

752,465. GRAIN-VALVE. GEORGE J. NOTH, Davenport, Iowa. Filed Sept. 21, 1903. Serial No. 174,009. (No model.)



Claim.—1. A valve of the character described, consisting of a valve-body having a semicircular extension at the top, the sides of the body being formed with outwardly-projecting circular offsets, said offsets being apertured, a valve in said body and consisting of two disks, one in each offset and each provided with a hub projecting into the opening of the offset, a diametrically-disposed plate connecting the disks, a curved plate extending between the disks from the diameter-plate, and a plate secured to the center of the diameter and curved plate, an arm on the hub of one disk, and means for locking the arm in position, as set forth.

2. A valve of the character described, consisting of a valve-body having a semicircular extension at the top, the sides of the body being formed with outwardly-projecting circular offsets, the offsets being provided with openings, a valve in said body and comprising two disks one in each offset and each provided with a hub projecting into the opening of the offset, a diametrically-disposed plate connecting the disks, and a curved plate extending between the disks from the diameter-plate, and means connected with the hub of one disk for operating the valve, as set forth.

3. In a valve, a body having offsets in its sides and a passage therethrough, and a gate comprising a pair of disks one in each offset, a cylindrical plate joining the disks for a portion of their periphery, and means for supporting the gate, so as to rotate and close the said passage-way.

4. In a valve, a body having a passage-way therethrough and an opening at one side, closed by a semicylindrical casing, the body and casing having offset sides and a gate comprising a pair of disks one in each offset connected by a cylindrical plate, the gate being supported so as to rotate in the passage-way and casing and close the same by its cylindrical plate.

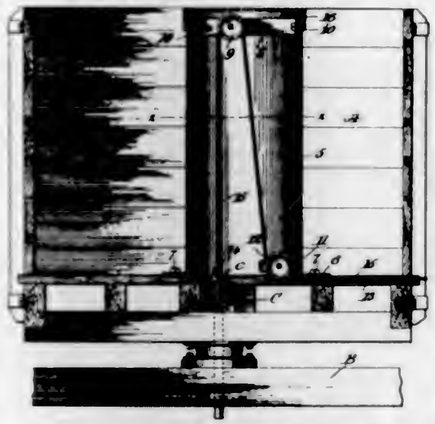
5. In a valve, a body having a passage-way therethrough, a gate comprising a pair of disks connected by a cylindrical plate, a diametrically-disposed plate connecting the disks and one end of said plate, and a sector-shaped plate disposed between the said plates at their middle portions, the gate being supported so as to rotate in the passage-way and close the same by its cylindrical plate.

752,466. BOILER-BRACE. JOSEPH A. PENNEY, Chicago, Ill. Filed Aug. 30, 1902. Serial No. 121,607. (No model.)



Claim.—A boiler-brace comprising a shank, an attaching-plate integrally and centrally connected with one end of the shank and standing at angles to the same, the said plate being formed with a plurality of holes to receive fastening devices, for attaching the plate to the boiler-head, and a flattened flange for engagement with the boiler-shell, integral with the other end of the shank, the flange standing at angles to the shank and the face of the flange lying in a plane approximately at right angles to the plane in which lies the outer face of the attaching-plate, the shank at its junction with the attaching-plate being circular and the connecting portion of the shank swelling in all directions toward the attaching-plate, as set forth.

752,467. DEVICE FOR RELEASING TRUCKS FROM CARS. ROBERT L. RILEY, Newburgh, N. Y. Filed July 17, 1903. Serial No. 165,951. (No model.)



Claim.—1. A device of the class described comprising a shield or casing, a support arranged therein, a pulley mounted on said support, and means extending over said pulley and connected with a king-pin for elevating and lowering the latter.

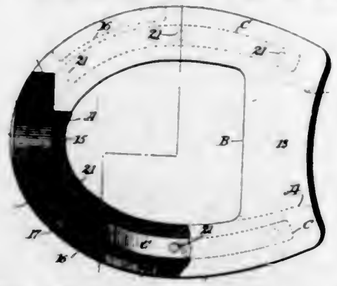
2. The combination with a car-body, a car-truck and a king pin connecting the body and the truck, of means for elevating and lowering the king-pin, such means comprising a support, and a cable extending over said support and connected with said king-pin.

3. The combination with a car-body, a truck and a king-pin connecting the body and the truck, of means for elevating and lowering the king-pin, such means comprising a shield or casing, a support arranged therein, and a flexible connection secured to the pin and extending over said support and running to a point outside the car.

4. The combination with a car-body, a truck therefor, and a pin seated in a socket formed in the car and connecting the body and the truck, of means for elevating and lowering said pin in the socket, such means comprising a shield or casing surrounding the socket, a supporting-bar secured within said casing, a pulley mounted upon said bar, a supporting-bracket also secured to the casing at a point beneath the aforesaid bar, a second pulley secured to said bracket, and a cable passing over said pulleys and connected to the pin, substantially as set forth.

5. The combination with a car-body, a truck, and a pin connecting the body and the truck, of means for elevating and lowering the pin, comprising a cable connected to the pin and passing over pulleys, and through a groove or channel in the car to a point outside the latter, a casing or shield surrounding the cable and the pulleys, and a covering for said shield or casing, substantially as set forth.

752,468. HORSESHOE-PAD. JOHN F. ROBINSON, Rockaway N. J. Filed July 29, 1903. Serial No. 167,412. (No model.)



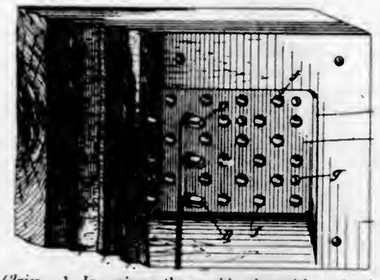
Claim.—1. The combination with a horseshoe having a toe-calk, of a pad comprising side limbs fitting the sides of the shoe and united at their rear ends by an integral transverse section, said limbs being spaced from each other at their forward ends and provided at said forward ends with rabbets adapted to fit snugly around the corners of the toe-calk and extend along the rear face of the calk in direction of each other, each of said limbs having a longitudinal curved chamber extending from within the heel portion of the limb to the forward end thereof and opening in that part of the pad abutting against the rear portion of the toe-calk, and stay-plates fitting said longitudinal chambers and formed with diagonal forward ends to abut against the toe-calk, and means for securing the shoe, the pad and the stay-plates together.

2. The combination with a horseshoe having a toe-calk, of a pad comprising side limbs fitting the sides of the shoe and united at their rear ends by an integral transverse section, said limbs fitting the toe-calk at their forward ends and each having an internal longitudinal curved chamber extending forwardly from within the heel portion of the limb and opening at the front end thereof, stay-plates removably fitting said longitudinal chambers, the forward ends of the stay-plates being flush with the forward ends of their respective limbs, and means for securing the shoe, the pad and the stay-plates together.

3. A pad for horseshoes, comprising side limbs united at their rear ends by an integral transverse section, and coming short of meeting each other at their forward ends, said forward ends being adapted to fit the toe-calk of a horseshoe, said limbs each having a longitudinal internal chamber, extending forwardly from near the heel of the limb and opening at the front end thereof, and plates removably fitting said longitudinal chambers.

4. A pad for horseshoes, comprising side limbs united at their rear ends by an integral transverse section and coming short of meeting each other at their forward ends, said forward ends being adapted to fit the toe-calk of a horseshoe, said limbs each having an upwardly and outwardly inclined recess at its outer face and a longitudinal internal chamber extending forwardly from near the heel of the limb and opening at the front end thereof, and plates removably fitting said longitudinal chambers.

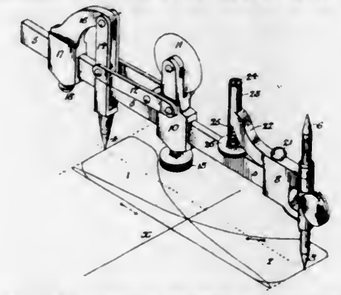
752,469. MEANS FOR HOLDING PIANO TUNING-PINS. GEO. RUCKSTUHL, Rutherford, N. J. Filed Nov. 19, 1903. Serial No. 181,790. (No model.)



Claim.—1. In a piano, the combination with a pin-block, of a metallic frame having an opening or slot, a thin metal plate within said opening or slot of the frame, and tuning-pins embedded in the pin-block and engaging tightly with said metallic plate.

2. In a piano, the combination of a metallic frame having an opening or slot, a pin-block, a stationary thin metal plate within said opening or slot of the frame and having transverse inclined openings, and tuning-pins embedded in the pin-block and fitting tightly in said openings of the metallic plate.

752,470. MEASURING INSTRUMENT. RUDOLF SCHIRRBECK, Philadelphia, Pa. Filed Jan. 15, 1903. Serial No. 139,133. (No model.)



Claim.—1. In a measuring instrument, the combination of a bar, adjustable measuring means carried by said bar and having its points disposed on one side of the same, tracing means disposed on the opposite side of said bar, said tracing element being in line with one of the measuring-points, and a marking-point bearing a definite relation to the tracing means.

2. In a measuring instrument, the combination of the bar, adjustable measuring means carried by said bar and having the measuring-points disposed on one side of the same, a tracing-point disposed on the opposite side of said bar in line with one of the measuring-points, a marking-point having a fixed relation to the tracing-point, and a follower-wheel disposed on the same side of the bar as the tracing-point and having a fixed relation to the other measuring-point.

3. In a measuring instrument, the combination of a bar, adjustable measuring-points carried thereby and projecting from one side of the same, a tracing-point and a follower-wheel projecting from the opposite side of the same, and a marking-point for indicating the mean height of the diagrams after the boundaries of the latter have been covered by said tracing-point, said marking-point having a fixed relation with respect to the tracing-point, and said follower-wheel having a fixed relation with respect to the measuring-point at the opposite end of the bar.

4. In a measuring instrument, the combination of a bar, measuring means comprising a fixed point carried by said bar and forming one element of the same, and an adjustable point carried by the opposite end of said bar and forming the other element of the measuring means, and a supplementary member carried by the bar and connected to the adjustable point and serving to give the latter a fine adjustment, said supplementary member carrying a follower-wheel.

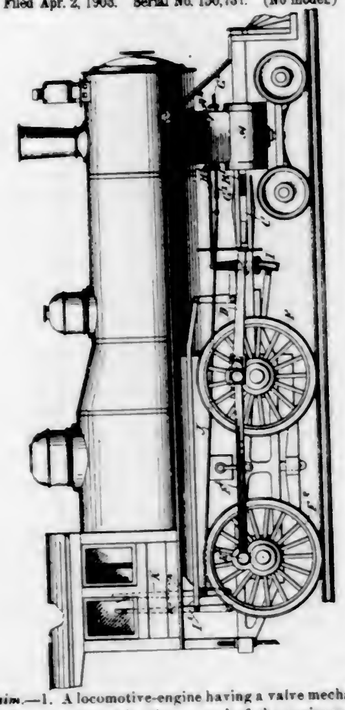
5. The combination in a measuring instrument, of the bar, a tracing-point carried thereby, a fixed measuring-point on the opposite side of the bar, an adjustable measuring-point at the opposite end of the bar, a follower-wheel, a movable bracket carrying the

same; means for securing said bracket to the oar, and connections between said bracket and the adjustable measuring-point whereby the position of the latter always effects the position of the follower-wheel with respect to the tracing-point.

6. In a measuring instrument, the combination of the tracing-point, a bar to which said point is connected, a follower-wheel also carried by said bar, and a pin disposed between said point and wheel for the purpose of marking a card after the tracing-point has passed around the boundary of the diagram.

7. In a measuring instrument, the combination of the bar, the measuring-points carried thereby, one of which is fixed, a fixed tracing-point in line therewith, and a movable thumb-piece interposed between said points and serving as a pivot for the instrument whereby the latter may be moved, the bracket carrying the tracing-point and fixed measuring-point having a space for the reception of the thumb-piece.

752,471. VALVE MECHANISM. MARTIN SCHILDE, New Orleans, La. Filed Apr. 2, 1903. Serial No. 150,731. (No model.)



Claim.—1. A locomotive-engine having a valve mechanism provided with a member under the control of the engineer and shiftable from a main to two auxiliary positions; the said member having ports adapted to register with the cylinder-ports when in the main or auxiliary positions, to admit the motive agent either to both ends of each cylinder alternately or to either end only, as set forth.

2. In a locomotive-engine, the combination of the following instrumentalities: the drivers, the engine-cylinders, the pistons therein, the connections between the pistons and the drivers, the steam-chest, the slide-valves therein, mechanisms for actuating the slide-valves, shiftable valve-seats interposed between the slide-valves and the cylinder-port faces, each shiftable valve-seat having a central exhaust-port, admission-ports at the sides of the central exhaust-port and L-shaped auxiliary end exhaust-ports, and means under the control of the engineer for shifting the said valve-seats from central positions into end positions, for admitting the live motive agent either to both ends of the cylinders or to either end only, as set forth.

3. A locomotive-engine having a manually-controlled valve-seat interposed between a slide-valve and a face for cylinder-ports, the said valve-seat having three sets of ports adapted to register with the cylinder-ports, to admit the live motive agent either to both ends of the cylinder or to either end only, as set forth.

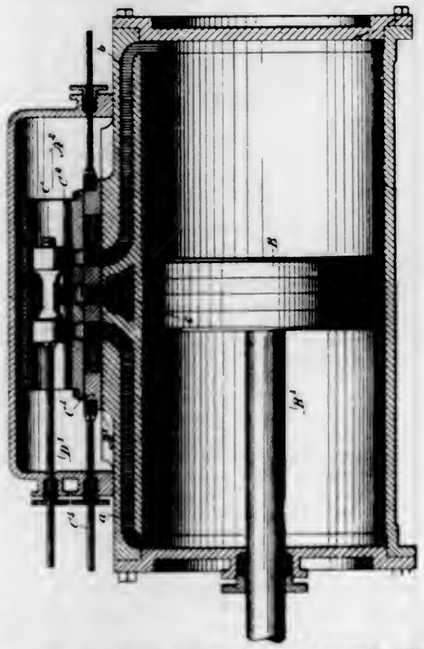
4. A locomotive-engine having a manually-controlled valve-seat interposed between a slide-valve and the face of cylinder-ports, the said valve-seat having a central exhaust-port for register with a cylinder exhaust-port, live-steam-admission ports on the sides of the said central exhaust-port, and auxiliary end exhaust-ports, of which one is adapted to connect one cylinder admission-port with the cylinder exhaust-port, and the other auxiliary end exhaust-port is adapted to connect the other cylinder admission-port with the cylinder exhaust-port, as set forth.

5. A locomotive-engine having its cylinder provided with cylinder-ports, a manually-controlled valve-seat interposed between a slide-valve and the face to which the cylinder-ports lead, the said valve-seat having a central exhaust-port for register with a cylinder exhaust-port, live-steam-admission ports at the sides of the central exhaust-port, and L-shaped auxiliary end exhaust-ports, and means under the control of the engineer for shifting the said valve-seat from central position into end positions, to admit the live motive agent either to both ends of the cylinder or to either end only, as set forth.

6. In a locomotive-engine the combination with a cylinder provided with an exhaust-port and two admission-ports, a steam-chest and a slide-valve, of a valve-seat interposed between the slide-valve and the face to which the cylinder-ports lead, the said valve-seat having an exhaust-port and live-steam-admission ports registering with the corresponding ports of the cylinder when the valve-seat is in the middle or normal position, to allow of using the motive agent in both ends of the cylinder alternately, the said valve-seat being further provided with auxiliary end exhaust-ports, and adapted to be shifted to cause either one of said auxiliary exhaust-ports to connect one of the cylinder admission-ports with the cylinder exhaust-port, the other cylinder admission-port being connected at the same time with one of the valve-seat admission-ports, whereby the motive agent may be admitted to either end of the cylinder only, as set forth

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752,472. VALVE MECHANISM. MARTIN SCHILDE, New Orleans, La. Filed July 11, 1903. Serial No. 165,041. (No model.)



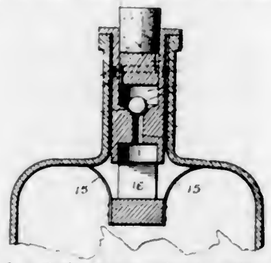
Claim.—1. A locomotive-engine having a manually-controlled cylindrical valve-seat, provided with a flat outer face, mounted to slide on a face for the cylinder-ports, the said valve-seat having ports adapted to register with the cylinder-ports, to admit live motive agent either to both ends of the cylinder or to either end only, and a piston-valve coacting with the said cylinder valve-seat, as set forth.

2. A locomotive-engine having a manually-controlled cylindrical valve-seat, provided with a flat outer face, mounted to slide on a face for the cylinder-ports, the said valve-seat having ports adapted to register with the cylinder-ports, to admit the motive agent either to both ends of the cylinder or to either end only, and a balanced piston-valve mounted to slide in the cylindrical portion of the said valve-seat, as set forth.

3. A locomotive-engine having a manually-controlled valve-seat comprising a flat base-plate and a cylindrical piston valve-seat portion moving with the base-plate, the latter having a central port and elongated end ports, and the said cylindrical piston valve-seat having a central port in register with the said central port in the base, the said cylindrical piston valve-seat portion also having end ports in register with the inner ends of the said base-plate end ports, to form with the latter L-shaped ports, as set forth.

4. A locomotive-engine having a piston slide-valve, and a manually-controlled seat for the said piston slide-valve, the said seat being provided with a central bore and L-shaped admission-ports on opposite sides of the said central bore, the horizontal members of the admission-ports being elongated in a lengthwise direction, for engagement with the cylinder admission-ports and the cylinder exhaust-port, and the vertical members of the said admission-ports and the said central port opening into the cylindrical portion of the said seat containing the said piston slide-valve, as set forth.

752,473. BOTTLE-CLOSURE. HARRY L. SHANNON, Findlay, Ohio. Filed Apr. 18, 1903. Serial No. 153,323. (No model.)



Claim.—1. A device for preventing the refilling of bottles, comprising a plug to fit in the neck of the bottle and of greater length than the latter so that a portion thereof will depend below the inner terminal of the bottle-neck when applied, the said plug having a valve-chamber, a liquid-passage communicating with said chamber and the interior of the bottle, and circuitous outlet-passages also communicating with the valve-chamber, a gravitating valve in the valve-chamber, means carried by the plug for preventing inward displacement thereof, and resilient means carried by the lower end of the plug for preventing its removal from the bottle.

2. A device for preventing the refilling of bottles comprising a plug adapted to fit in the neck of the bottle having a cavity opening through its outer end, a plug positioned in said cavity intermediately of the ends thereof to form a valve-chamber therebeneath and a cork-receiving space thereabove, a liquid-passage communicating with said valve-chamber and the interior of the bottle, a valve in said chamber controlling said passage, circuitous passages formed in said inner plug communicating with the valve-chamber and the exterior of said plug, and means carried by the device for preventing its removal from the bottle.

3. A device for preventing the refilling of bottles comprising a plug adapted to fit in the neck of the bottle and project into the body of the bottle and formed with a valve-chamber, a liquid-passage communicating with the valve-chamber and interior of the bottle, a valve in said chamber controlling said passage, an outlet from said valve-chamber, and spring-arms carried by that portion of the plug projecting into the bottle-body adapted to engage the upper wall of the bottle-body and prevent withdrawal of the plug.

752,474. PIPE. EUGENE SEMPLE, Seattle, Wash. Filed Apr. 21, 1903. Serial No. 153,633. (No model.)

Claim.—1. The improvement in pipes herein described comprising a casing consisting of longitudinal strips, the binding wire or rod wound spirally around the casing, the inner blocks arranged in circular series with the grain extending in practically a radial direction, said blocks being arranged in a plurality of circular series and the hoops passed around the circular series of blocks whereby the blocks and hoops form series of rings fitting against each other within the casing substantially as set forth.

2. A pipe comprising a casing, lining-blocks arranged in circular series and hoops encircling the blocks and forming therewith a series of rings adapted to fit within the casing substantially as set forth.



3. A pipe having a lining composed of a series of blocks of wood, presenting the grain of the wood endwise at the inner faces of the blocks, and a casing substantially as set forth.

4. A pipe having a lining consisting of blocks arranged with the grain extending in practically a radial direction whereby the end of the grain will be presented at the inner faces of the blocks substantially as set forth.

5. A pipe consisting of the casing, the wire or rod wound spirally on the casing, the blocks arranged within the casing and the hoops encircling the series of blocks and arranged between the same and the casing substantially as set forth.

6. A pipe comprising a casing, blocks arranged in circular series with the grain extending practically in a radial direction, and the hoops encircling the circular series of blocks substantially as set forth.

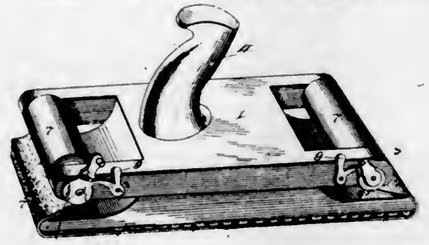
7. A pipe consisting of the blocks arranged in circular series, the hoops encircling the circular series, and the casing receiving the blocks and consisting of the longitudinal strips and the binder substantially as set forth.

8. A pipe for use in carrying sand, gravel, and other material from dredgers, hydraulic, or other excavating devices, having its interior composed of blocks of wood arranged in circular series, and presenting the grain of the wood endwise at the inner faces of the blocks.

9. A pipe having a lining consisting of blocks arranged in circular series with the grain extending in practically a radial direction, and a casing consisting of a circular series of longitudinal strips encircling the lining of blocks and extending over the joints between the adjacent circular series of said blocks substantially as set forth.

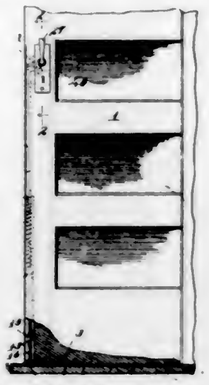
10. A pipe having a lining composed of a plurality of circular series of blocks, the adjacent series abutting each other and the blocks having the grain extending in practically a radial direction substantially as set forth.

752,475. ABRADING-TOOL. JOHN C. SMITH, Perrysville, Ohio. Filed Sept. 8, 1903. Serial No. 172,310. (No model.)



Claim.—An abrading hand-tool comprising a base having a handle on its upper sides and longitudinally-projecting arms at its ends, rollers revolubly mounted in said arms, means to rotate and means to lock the rollers, and a sheet of abrading material extended under the base from end to end thereof and having its end portions reversely wound on the rollers.

752,476. **STOP-LOCK FOR SLIDING DOORS.** ROBERT B. STEARNS, Chicago, Ill. Filed Nov. 21, 1903. Serial No. 182,110. (No model.)



Claim.—1. In a sliding-door structure, in combination, a member provided with a plurality of locking-notches; a slidable door; a locking-rod slidably mounted with relation to said door and adapted to engage with one of said locking-notches to lock the door from movement in either direction; a spring tending to hold said locking-rod in position to engage with one of said locking-notches; and means for locking said locking-rod in or out of engagement with any of said locking-notches.

2. In a door-lock, in combination, a locking-rod; a lifting-lever; an operating-handle; and an operating-cam and a rocker-arm, each adapted to engage said lifting-lever.

3. In a door-lock, in combination, a locking-rod; a lifting-lever and an operating-cam pivotally mounted upon the same axis, said cam being adapted to move said lifting-lever; a rocker-arm adapted to be moved by said cam and adapted to move said lifting-lever; and means for pivotally moving said operating-cam.

4. In a door-lock, in combination, a locking-rod; a pivotally-mounted lifting-lever having a pivotal connection with said locking-rod; said lever having a locking-notch therein; a slidable bolt adapted to engage said locking-notch; a guard-tumbler pivotally mounted with relation to said bolt; and a fixed stop for said guard-tumbler.

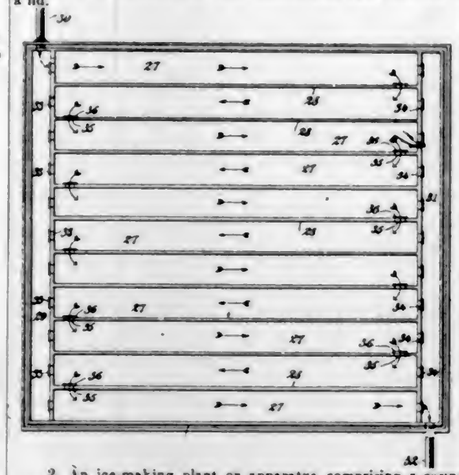
5. In a door-lock, in combination, a pivotally-mounted lifting-lever having two locking-notches in one of its ends; a locking-rod pivotally connected with the other end of said lever; means for pivotally moving said lifting-lever; and a slidable bolt adapted to engage either of the locking-notches in said lever.

6. In a door-lock, in combination, a pivotally-mounted lifting-lever having a locking-notch in one of its ends; a locking-rod pivotally connected with the other end of said lever; an operating-cam and a rocker-arm, each adapted to pivotally move said lifting-lever; and a slidable bolt adapted to engage the locking-notch in said lifting-lever.

7. In a sliding-door structure in combination, a threshold provided with a plurality of locking-notches; a slidable door; a locking-rod slidably mounted with relation to said door and adapted to engage with any of said locking-notches to lock the door from movement in either direction; a spring tending to hold said locking-rod in position to engage with any of said locking-notches; a lifting-lever for withdrawing said locking-rod from engagement with one of said locking-notches; and an operating-cam and a rocker-arm, each adapted to move said lifting-lever.

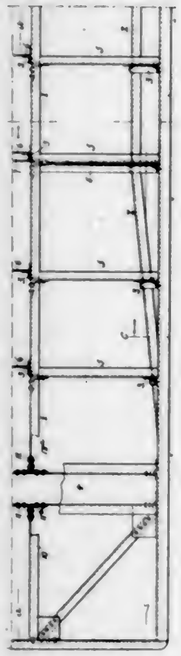
752,477. **ICE-MAKING APPARATUS.** HIRAM STOUT, Kingman, Kans. Filed Mar. 27, 1903. Serial No. 149,846. (No model.)

Claim.—1. An ice-making plant or apparatus, comprising a plurality of partitions forming compartments adapted each to receive one or more pans for containing a liquid to be frozen, an air-inlet chamber having valved communication with each compartment, and an air-outlet chamber having similar communication with said compartments, said partitions being provided with valve-controlled openings, alternating with each other from one end to the other of the compartments, each valve having an upwardly and outwardly projecting operating-handle and each compartment being provided with a lid.



2. An ice-making plant or apparatus, comprising a casing, a plurality of partitions forming compartments adapted each to receive one or more pans or tanks for containing a liquid to be frozen, an air-inlet chamber having valved communication with each compartment, and an air-outlet chamber having similar communication with said compartments; said partitions being provided with valve-controlled openings alternating with each other from one end to the other of the compartments.

752,478. **METALLIC UNDERFRAME FOR RAILWAY-CARS.** ARNOLD STUCKI, Allegheny, Pa., assignor to Standard Steel Car Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 18, 1903. Serial No. 157,654. (No model.)



Claim.—1. A metallic underframe for railway-cars comprising trussed center and side sills and transverse body-bolsters, the upper members of the sills being in the same horizontal plane as the bolsters, the upper members of the center sill abutting against said bolsters, the bottom member of each truss extending continuously from one bolster to the other, and the bottom member of the center sill being in the same vertical plane as the top member, both the upper and lower members of each truss being secured to the bolsters and both members of each truss being constructed to resist longitudinal compression strains, substantially as specified.

2. The combination in a metallic underframe for railway-cars, of the trussed center and side sills, the floor-beams connecting the same and vertical lattice-trusses interposed between the side and the center sills, substantially as specified.

3. The combination in a metallic underframe for railway-cars, of the trussed center and side sills, the lower members of the side-sill trusses being carried inwardly so as to reduce the width of the lower portion of the frame, substantially as specified.

4. The combination in a metallic underframe for railway-cars, of the body-bolsters, the trussed center and side sills, both having their upper members in the same horizontal plane as the body-bolsters, and the upper members of the center sills being in the same vertical plane as the bottom members and abutting against said body-bolsters, short draft-sills extending from the bolsters to the end sills of the frame, and means for connecting said draft-sills and both the upper and lower members of the trussed center and side sills to the body-bolsters, substantially as specified.

5. The combination in a metallic underframe for railway-cars, of the transverse body-bolsters, the trussed center and side sills and the draft-sills, the upper members of said center sills abutting against the body-bolsters but their under members being carried beyond the bolsters and secured to the draft-sills, substantially as specified.

6. The combination in a metallic underframe for railway-cars, of the transverse body-bolsters, the trussed center and side sills, and the draft-sills, the top members of the center sills abutting against the body-bolster, but the bottom members of both center and side sills being carried beyond said bolster and said bottom members of the center sills being secured to the draft-sills, substantially as specified.

7. The combination in a metallic underframe for railway-cars, of a transverse body-bolster, a sill abutting against the same, and a U-shaped plate whereby the opposite side members of said sill are secured to the bolster, substantially as specified.

8. The combination in a metallic underframe for railway-cars, of a transverse body-bolster with a trussed sill, and a connecting-plate having portions secured to the bolster, and to both the top and bottom members of the trussed sill substantially as specified.

9. The combination in a metallic underframe for railway-cars, of a transverse bolster, a trussed center sill, and a U-shaped plate whereby the opposite side members of the sill are secured to the bolster, the side members of said plate being continued downwardly so as to be secured to the bottom member of the trusses comprising said center sill, substantially as specified.

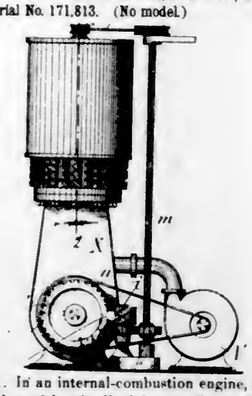
10. The combination in a metallic underframe for railway-cars, of a transverse bolster, a side sill, and a plate interposed between the end of the bolster and the sill and secured to both, said plate having portions projecting longitudinally in front and rear of the bolster so as to distribute the strain upon the sill, substantially as specified.

11. The combination in a metallic underframe for railway-cars, of a transverse bolster, a trussed side sill, and a plate interposed between the sill and the end of the bolster, and secured to both, said plate having a portion projecting longitudinally in rear of the bolster and depending so as to be secured to the bottom member of the truss constituting the sill, substantially as specified.

12. The combination in a metallic underframe for railway-cars, of a transverse bolster, a trussed side sill, and a plate interposed between the sill and the end of the bolster, and secured to both, said plate having a portion projecting longitudinally in front and rear of the bolster, said rear portion depending so as to be secured to the bottom member of the truss constituting the sill, substantially as specified.

13. The combination in a metallic underframe for railway-cars, of the trussed center and side sills, and cross-bearers each consisting of a bar extending across the car and secured to the bottom members of the trusses, beams connecting the top members of said trusses, and vertical lattice-trusses interposed between the center and side sills, substantially as specified.

752,479. **COOLING ATTACHMENT FOR INTERNAL-COMBUSTION ENGINES.** JOHN W. SUTTON, New York, N. Y. Filed Sept. 3, 1903. Serial No. 171,813. (No model.)



Claim.—1. In an internal-combustion engine, the combination, with the cylinder, of longitudinal heat-radiating strips, and means for attaching the same to the exterior surface of the cylinder, said heat-radiating strips being provided with slits or incisions and vanes twisted obliquely to the length of the strips, substantially as set forth.

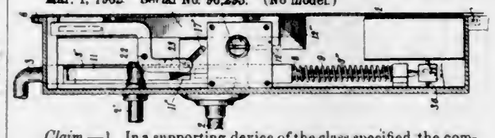
2. In an internal-combustion engine, the combination, with the cylinder provided with exterior longitudinal grooves, of longitudinal heat-radiating strips inserted in said grooves, and means for attaching said strips to the cylinder, said strips being provided with inward slits or incisions and intermediate vanes twisted obliquely to the length of the strips, substantially as set forth.

3. In an internal-combustion engine, the combination, with the head of the cylinder provided with radial grooves, of heat-radiating strips inserted in said grooves, and means for retaining said strips on said head, said strips being provided with inward slits or incisions and intermediate vanes twisted obliquely to the length of the strips, substantially as set forth.

4. In an internal-combustion engine, the combination, with the cylinder and head, said cylinder being provided with longitudinal grooves and said head with radial grooves, of longitudinal and radial strips inserted in the grooves of said cylinder and head, and means for retaining said strips in position thereon, said heat-radiating strips being provided with inward slits or incisions and intermediate vanes twisted obliquely to the length of the strips, substantially as set forth.

5. The combination, with the cylinder and head of an internal-combustion engine provided with grooves and strips in said grooves provided with inward slits or incisions and intermediate vanes twisted obliquely to the length of the strips, of a hood surrounding said cylinder some distance from the top of the vanes, and means exterior to the head of the cylinder within said hood for forcing air between the vanes and between the vanes and the hood, substantially as set forth.

752,480. **SUPPORTING DEVICE FOR COATS, HATS, UMBRELLAS, &c.** LEOPOLD TABAK, New York, and CHARLES S. CHAMPION, Brooklyn, N. Y., assignors to Joseph Mahl, New York, N. Y. Filed Mar. 1, 1902. Serial No. 96,293. (No model.)

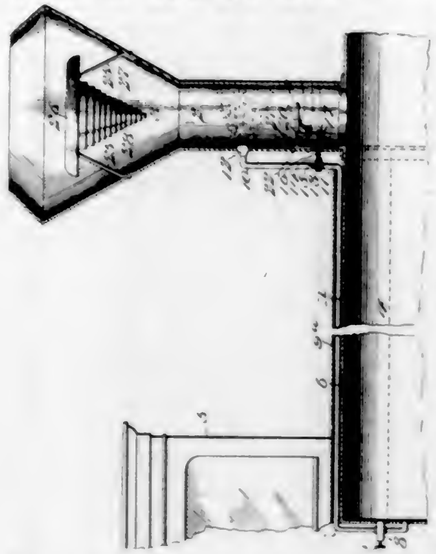


Claim.—1. In a supporting device of the class specified, the combination with a pair of coöperative holding and locking members one of which is movable toward and from the other, of a casing through which said movable member projects, a coin-slot in said casing, a key-controlled slot-closing guard, and coin-controlled means for releasing said movable member.

2. In a supporting device of the class specified, the combination with a pair of coöperative holding and locking members one of which is movable toward and from the other, of a casing through which said movable member projects, a coin-slot in said casing, a key-operated guard-plate normally closing said slot and shiftable away from the same, and coin-controlled means for releasing said movable member.

3. In a supporting device of the class specified, the combination with a pair of cooperative holding and locking members one of which is movable toward and from the other, of a casing through which said movable member projects, a coin-slot in said casing, a key-controlled slot-closing guard, and key-controlled and coin-controlled means for releasing said movable member.

752,481. SPARK-ARRESTER. MARTIN H. THODE, Riparia, Wash. Filed Nov. 21, 1903. Serial No. 182,158. (No model.)



Claim.—1. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, and means operated by the exhaust from the engine for opening said conduit to admit water to the stack under pressure.

2. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, and a valve operated by the exhaust from the engine for opening said conduit to admit water to the stack under pressure.

3. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, a slide-valve working in said conduit, and means operated by the exhaust from the engine for moving the valve to admit water to the stack under pressure.

4. A spark-arrester for locomotive and other similar engines comprising a conduit connecting the water-space of the boiler with the smoke-stack, a valve normally closing said conduit, means for limiting the movement of said valve, and means for operating the valve by the exhaust from the engines for opening the conduit to admit water to the stack under pressure.

5. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit provided at one end with a spray-nozzle entering the smoke-stack, and connecting at its other end with the water-space of the boiler, a valve located in said conduit, and means operated by the exhaust from the engine for actuating said valve to open the conduit to admit water to the stack under pressure.

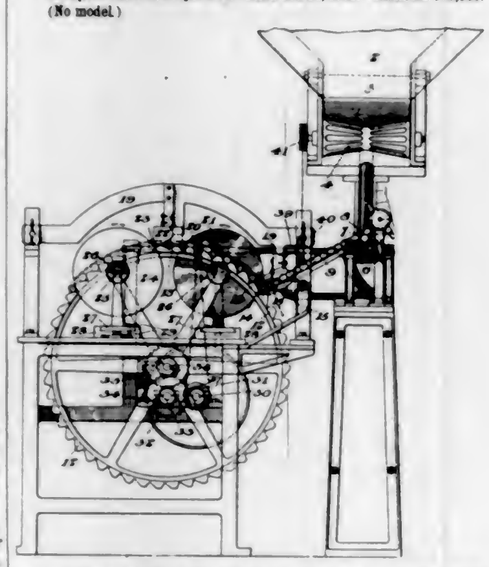
6. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, means operated by the exhaust from the engine for opening said conduit to admit water to the stack under pressure, and a controlling-valve located in said conduit and adapted to be operated from the cab of the engine.

7. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, a slide-valve operated by the exhaust from the engine for opening said conduit to admit water to the stack under pressure, and a controlling-valve located in said conduit and adapted to be operated from the cab of the engine.

8. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, means operated by the exhaust from the engine for opening said conduit to admit water to the stack under pressure, and a deflector located in the upper part of the smoke-stack.

9. A spark-arrester for locomotive and other similar engines, comprising a normally closed conduit connecting the water-space of the boiler with the smoke-stack, a valve working in said conduit, and means operated by the exhaust from the engine to actuate said valve to open the conduit, said means comprising a link, a rigid rod and plate, the former being connected to the link, and a rigid bracket by which said rod and plate are movably supported within the stack.

752,482. CORK-FINISHING MACHINE. THOMAS S. THOMPSON, Pittsburg, Pa., assignor to Armstrong Cork Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Oct. 31, 1903. Serial No. 179,310. (No model.)



Claim.—1. In cork-finishing machines an endless carrier having peripheral recesses to receive the corks, means for holding the corks in said recesses and polishing-disks on opposite sides of the carrier and arranged to act successively upon both ends of the cork while held in said pockets; substantially as described.

2. In cork-finishing machines an endless carrier having peripheral recesses, mechanism for pushing the corks endwise in opposite directions in said recesses, gages to stop the end movement of the corks and polishing-disks arranged to act upon the corks successively after the endwise movement; substantially as described.

3. In cork-feeding mechanism an endless belt and a wheel having blades arranged to push the cork sidewise from said belt; substantially as described.

4. In cork-feeding apparatus an inclined chute, a belt extending past its upper end and a wheel having arms arranged to push the corks endwise from the belt into the chute; substantially as described.

5. In cork-finishing machines a wheel having peripheral recesses, a leaf-spring covering a part of its periphery and arranged to hold the corks therein and means for adjusting said spring; substantially as described.

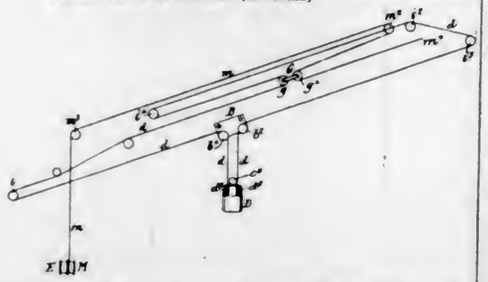
6. In cork-finishing machinery a rotatory wheel having peripheral recesses of greater length than the corks, mechanism for pushing the cork endwise, a peripheral spring arranged to hold the corks in adjusted position and a grinding-disk arranged to finish its end; substantially as described.

7. In cork-finishing machines a wheel having peripheral recesses, means for holding the corks in the recesses and a grinding-disk set at a slightly-oblique angle to the plane of the carrier-wheel; substantially as described.

8. In cork-finishing machines a wheel having peripheral recesses, means for holding the corks in the recesses, a grinding-disk set at a slightly-oblique angle to the plane of the carrier-wheel and means for adjusting the angular position of said wheel; substantially as described.

9. In cork-finishing machines a wheel having peripheral recesses, means for holding the corks in the recesses, a grinding-disk set at a slightly-oblique angle to the plane of the carrier-wheel, means for adjusting the bearings of said wheel, and means for adjusting the angle of said wheel relative to the carrier; substantially as described.

752,483. ROPE SYSTEM FOR COAL-BRIDGE HOISTS. GEORGE R. TYRRELL, Philadelphia, Pa., assignor to the Dodge Coal Storage Company, Philadelphia, Pa., a Corporation of Connecticut. Filed Oct. 16, 1902. Serial No. 127,563. (No model.)



Claim.—1. The combination in a supporting structure, of a trolley carried thereby, a bucket, a cable having both its ends attached to the bucket and passing around sheaves on the trolley and supporting structure, and having a looped portion, a hoisting-sheave in the loop of the said cable, and a hoisting-rope for operating the sheave so as to raise and lower the bucket, substantially as described.

2. The combination in a supporting structure, of a movable trolley carried thereby, means for traversing said trolley, a bucket hung to the trolley, a cable having its ends attached to the bucket, one at each side passing around sheaves on the trolley and supporting structure, a hoisting-sheave in a loop of the said cable, a hoisting-cable, a sheave in the loop of said hoisting-cable, the two sheaves being attached so that on the movement of the hoisting-cable the bucket will be raised or lowered, substantially as described.

3. The combination of a supporting structure, a trolley arranged to travel thereon, means for traversing the trolley, a looped cable passing around sheaves on the trolley and on the supporting structure and having both its ends attached to the bucket, a hoisting-rope having one end attached to a fixed point on the structure and the other end attached to a drum, a loop formed in the said hoisting-rope, sheaves in the looped cable and in the loop of the hoisting-rope, so that on the operation of the hoisting-rope the bucket will be raised or lowered, substantially as described.

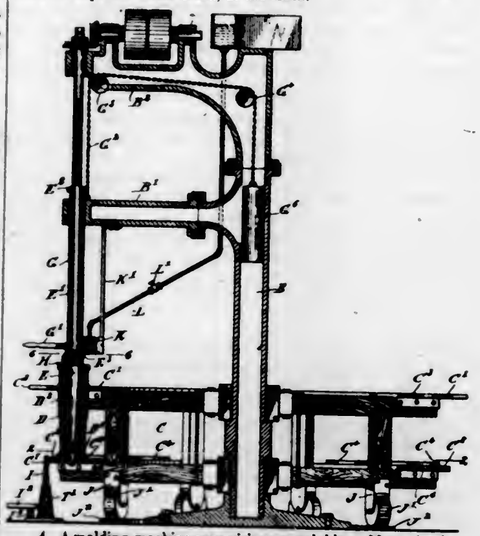
4. The combination in a supporting structure, of a trolley mounted thereon, means for traversing the trolley, a looped cable passing around sheaves on the trolley and on the supporting structure and having its ends attached to the bucket, a sheave in the loop of the cable, hoisting mechanism for traversing the sheave to raise or lower the bucket, a holding-rope having one end attached to the structure and the other end extending to the drum, the bucket being suspended in the loop of the holding-rope, substantially as described.

752,484. MOLDING-MACHINE. JOHN J. TURNER and JAMES A. DOWLER, Lakarpe, Kans. Filed July 15, 1903. Serial No. 165,646. (No model.)

Claim.—1. A molding-machine comprising a revoluble mold-carrier, having supports arranged in a circle and each supporting molds, a core mounted to turn and to move in the direction of its length, to pass in and out of the mold in register at the time with the core, and a knife on the said core, operating over the end of the mold, to cut off the surplus material, to form articles of uniform length, as set forth.

2. A molding-machine comprising a revoluble mold-carrier, having supports arranged in a circle and each supporting molds, a core mounted to turn and to move in the direction of its length, to pass in and out of the mold in register at the time with the core, and a wiping device for the said core, as set forth.

3. A molding-machine comprising a revoluble mold-carrier, having supports arranged in a circle and each supporting molds, a core mounted to turn and to move in the direction of its length, to pass in and out of the mold in register at the time with the core, and a fixed brush having its bristles in engagement with the side of the core, to wipe the latter clean, as set forth.



4. A molding-machine comprising a revoluble mold-carrier, having supports arranged in a circle and each supporting molds, a core mounted to turn and to move in the direction of its length, to pass in and out of the mold in register at the time with the core, a fixed brush having its bristles in engagement with the side of the core, to wipe the latter clean, and an overhead oil-supply tank and pipe, for feeding oil onto the said bristles, as set forth.

5. A molding-machine comprising molds, open at the top and bottom, a revoluble mold-carrier having apertured top and bottom plates for supporting the molds and of which each bottom plate is provided with a retaining-flange for the lower ends of the molds, and a core, mounted to turn and adapted to slide in the direction of its length, to pass into and out of the mold at the time in axial alinement with the core, the bottom end of the core engaging an opening in the bottom plate of the carrier, as set forth.

6. A molding-machine comprising molds, open at the top and bottom, a revoluble mold-carrier having apertured top and bottom plates for supporting the molds and of which each bottom plate is provided with a retaining-flange for the lower ends of the molds, a core, mounted to turn and adapted to slide in the direction of its length, to pass into and out of the mold at the time in axial alinement with the core, the bottom end of the core engaging an opening in the bottom plate of the carrier, and handles on the carrier, for periodically turning the carrier, as set forth.

7. A molding-machine comprising molds, open at the top and bottom, a revoluble mold-carrier having apertured top and bottom plates for supporting the molds and of which each bottom plate is provided with a retaining-flange for the lower ends of the molds, a core, mounted to turn and adapted to slide in the direction of its length, to pass into and out of the mold at the time in axial alinement with the core, the bottom end of the core engaging an opening in the bottom plate of the carrier, handles on the carrier, for periodically turning the carrier, and a manually-controlled locking device, for locking the carrier temporarily against rotation at the time a mold is in register with the core, as set forth.

8. A molding-machine having a mold-carrier provided with circular plates, and molds, each made in sections hinged together and having lugs and engaging recesses in the said plates, to hold the molds against rotation in the plates, as set forth.

9. In a molding-machine, a mold-carrier, a core, the carrier and core having movement relatively one to the other to cause the core to enter the mold on the carrier, and a wiping device for wiping the core when it is withdrawn from the mold, as set forth.

10. In a molding-machine, a mold-carrier, a core, the carrier and core having movement relative one to the other to cause the core to enter the mold on the carrier, a wiping device for wiping the core when it is withdrawn from the mold, and means for supplying a liquid to the wiping device, as set forth.

11. A molding-machine, comprising a base having a hollowed standard, provided with lateral arms, a mold-carrier mounted to turn on the standard and to travel on the base, a core for entering the molds carried by the said carrier, said core having a stem mounted to slide and turn in the arms of the standard, means geared with the stem of the core for rotating it, a handle secured to the stem for sliding it, a weight in the hollow standard, and a flexible connection between the weight and stem of the core, as set forth.

752,485. METHOD OF SPRINKLING STREETS, &c. LEONARD S. VAN WESTRUM, Berlin, Germany. Filed Aug. 1, 1903. Serial No. 167,942. (No specimens.)

Claim.—1. A method of laying the dust and keeping in good condition the surface of streets, railway-surfaces such as tracks, yards, rooms and the like, consisting in soaking the street-surface and the like with a solution of a salt soluble in water, and sprinkling said street and the like with an oily substance soluble in water, substantially as set forth.

2. A method of laying the dust and keeping in good condition the surface of streets, railways, streets, yards, rooms and the like consisting in soaking the street-surface and the like with a solution of a salt soluble in water, and sprinkling said street-surface and the like with a not volatile oily substance, substantially as set forth.

752,486. METHOD OF MAKING ROADS OR LIKE SURFACES. LEONARD S. VAN WESTRUM, Berlin, Germany. Filed Oct. 28, 1903. Serial No. 178,934. (No specimens.)

Claim.—1. A method of making roads and like surfaces, consisting in broken stones, sand, dust, earthy materials and the like for forming the street-body and the like mixing the same with a solution consisting of water and oily substances rendered soluble in water forming a gummy and adhesive mixture by which the said materials are bound together, substantially as described and for the purpose specified.

2. A method of making roads and like surfaces, consisting in binding together the materials such as broken stones, sand, dust, earthy materials and the like used for forming the street-body and the like with a solution consisting of water and oily substances emulsionized with water substantially as described and for the purpose specified.

3. The method herein described of maintaining and preserving streets, and road-beds, by first saturating the street-body during construction with a solution of water and oil in proportions of about ninety parts water and ten parts oil, in such manner that dust particles on the surface caused by the abrasion of travel are made to adhere to the surface of said road-beds or streets as they are ground off, whereby the diffusion of dust is prevented and the dust utilized substantially as described.

752,487. METHOD OF SPRINKLING STREETS. LEONARD S. VAN WESTRUM, Berlin, Germany. Filed Dec. 10, 1903. Serial No. 184,674. (No specimens.)

Claim.—1. The method of utilizing the granulated portions of road-beds or streets by forming them into a top dressing or coating, by first mechanically or chemically mixing in predetermined proportions oil and water, then sprinkling or spreading the said mixture over the said loose granulated substance or dust and permeating the same, thereby unifying them and forming a concrete mass which adheres to the solid surface of the street or road-bed, thus preventing the diffusion of dust and forming the said top dressing.

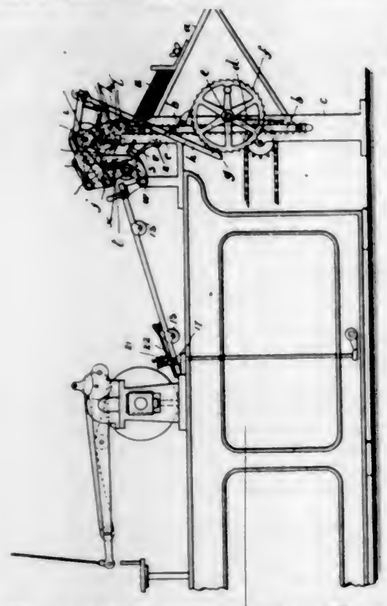
2. The method herein described of first taking say ten parts of oil, then ninety parts of water, then mixing the same in a solution, then distributing the mixture over a surface of granulated substance by which the granules are united in a thin stratum, whereby their diffusion or scattering is prevented.

3. The method herein described of improving the surface of road-beds and utilizing the loose granulated particles thereon, by sprinkling or coating them with a mixture of oily substances composed of predetermined proportions of oil and water, whereby the said substances are caked or mixed to form a coating for the purpose specified.

4. The method of utilizing the granulated portions of road-beds or streets known as dust and forming it into a top dressing by permeating it with an oily substance consisting of oil and water previously and intimately mixed, whereby the said granulated particles are unified with oil and water and form a concrete mass in the manner and for the purposes specified.

5. The method herein described of saturating scattered dust and mixing the same with a mixture of oil and water in the proportions specified in such a manner that said dust is made to adhere to its bed, substantially as described.

752,488. FEED MECHANISM FOR PRINTING OR LIKE MACHINES. WILLIAM VICKERY, London, England. Filed Nov. 23, 1901. Serial No. 83,442. (No model.)



Claim.—1. In feed mechanism for printing and like machines, a table adapted to receive a pile of paper, a shaft, a ratchet-wheel fixed to said shaft, a chain depending from the shaft and connected with the lower end of the table, a ratchet-wheel secured to said shaft, an oscillatory lever, a shaft fixedly carrying said lever, fingers fixed to said shaft for engaging the top sheet of a pile on said table, a cam for operating said oscillatory lever and thereby said shaft, a rod connected with one end of said lever and having a pawl for operating said ratchet-wheel in combination with a spring-controlled knuckle-jointed lever, provided with a roller at its free end for engaging the paper upon said table and moving the upper sheet of the pile therefrom, and means for actuating said lever.

2. In feed mechanism for printing and like machines, a table adapted to receive a pile of paper, a shaft, a ratchet-wheel fixed to said shaft, a chain depending from the shaft and connected with the lower end of the table, a ratchet-wheel secured to said shaft, an oscillatory lever, a shaft fixedly carrying said lever, fingers fixed to said shaft for engaging the top sheet of a pile on said table, a cam for operating said oscillatory lever and thereby said shaft, a rod connected with one end of said lever and having a pawl for operating said ratchet-wheel in combination with a spring-controlled knuckle-jointed lever, provided with a roller at its free end for engaging the paper upon said table and moving the upper sheet of the pile therefrom, means for actuating said lever, tilting fingers arranged to replace the lower of a plurality of sheets accidentally withdrawn from the pile, and means for actuating said fingers.

3. In feed mechanism for printing and like machines, a feed-table, a cam, a sliding bar arranged in cooperative relation with the feed-table and reciprocatory by said cam, a weighted lever carried by the sliding bar and adapted with the said sliding bar to grip a sheet, and stops supported by said table for putting said weighted lever alternately into its effective and ineffective position.

4. In feed mechanism for printing and like machines, a plurality of sheet-engaging fingers, an oscillatory shaft to which said fingers are secured, an arm carried by said shaft and provided with an adjusting-screw, a pivoted plate adapted to engage said screw, a lever operatively connected with the pivoted plate, and means for intermittently actuating said lever whereby said pivoted plate is carried out of engagement with said screw.

752,489. COMBINATION-LOCK FOR UMBRELLAS. RALPH B. WAITE, Springville, N. Y. Filed May 9, 1903. Serial No. 156,494. (No model.)



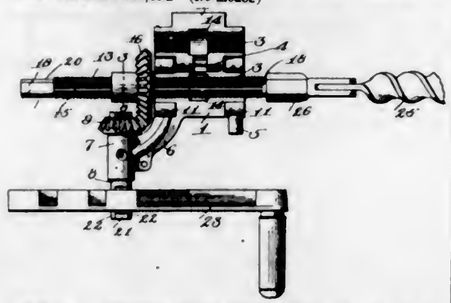
Claim.—1. The combination with a rod having a spring-latch, and a runner-sleeve having a projecting key thereon, of a casing rotatably mounted on the runner-sleeve, said casing inclosing the latch when the umbrella is in its closed position, and a plurality of rotatable annular disks mounted within the casing, said disks having recesses therein, which when brought into vertical alinement permit the passage of the key on the sleeve, whereby the umbrella may be raised by a portion of the casing depressing the spring-latch, substantially as set forth.

2. The combination with an umbrella, and a runner-sleeve therefor, said sleeve having a key thereon, of a lock comprising a casing, a plurality of movable annular disks within said casing, said disks having recesses adapted to be brought into alinement to form a passage for the key on the sleeve, whereby the casing may be moved upward on the sleeve to permit the raising of the umbrella, substantially as set forth.

3. The combination with an umbrella, and a runner-sleeve, said sleeve having a key thereon, of means adapted to depress a spring in the rod of the umbrella and permit the raising of the latter, said means comprising a casing, a plurality of superposed recessed disks therein, the recesses of the disks being adapted to be brought into alinement, the uppermost of said disks having a series of notches in its periphery, and a spring-arm on the casing adapted to engage the notches in the disk as the casing is revolved, substantially as set forth.

4. The combination with an umbrella, and a runner-sleeve having a projecting key thereon, of means adapted to depress a spring in the umbrella-rod and permit the umbrella to be raised, said lock comprising a revoluble casing surrounding the spring on the rod when the umbrella is closed, said casing having a tapered curved end portion designed to bear upon the spring in the umbrella-rod, a plurality of superposed recessed locking-disks in said casing, the lowermost disk having a groove in the upper surface thereof, a retaining-spring secured to the under side of the disk, a pin in the superposed contacting disk, projecting into the groove, a ring on the second-mentioned disk, and an upper notched disk mounted on said ring, the construction being such that when the recesses of the disks are in alinement for the passage of the key on the runner, the casing may be moved upward to depress the spring on the rod, substantially as set forth.

752,490. MINING DRILL FOR COAL OR ROCK. ALEXANDER WALKER, Whatcheer, Iowa, assignor to What Cheer Drill & Miners Tool Co., Whatcheer, Iowa, a Corporation of Iowa. Filed Oct. 13, 1902. Serial No. 127,134. (No model.)



Claim.—1. A multipart boxing internally threaded, at least one section of the boxing having a recess intersecting the threaded surface thereof to receive a lubricant.

2. A multipart boxing internally threaded, each section of the boxing having a recess intersecting the threaded surface thereof, the recesses mating to form a lubricant-receiving chamber.

3. In a drilling-machine, the combination with a threaded drill-rod, of a boxing for the drill comprising two semicylindrical sections hinged together along one edge and each provided centrally upon its interior with a semi-annular recess, said sections being internally threaded on both sides of said recesses, the two recesses, when the boxing is closed, registering and forming a continuous annular recess for the reception of lubricant, and the threads on the two sections also registering to form continuous threads for engaging the threaded drill-rod.

4. In a drilling-machine, the combination with a threaded drill-rod, of a boxing for the drill comprising two imperforate semicylindrical sections hinged together along one edge and each provided centrally upon its interior with a semi-annular recess, said sections being internally threaded on both sides of said recesses, the two recesses, when the boxing is closed, registering and forming a continuous annular recess for the reception of lubricant, and the threads on the two sections also registering to form continuous threads for engaging the threaded drill-rod.

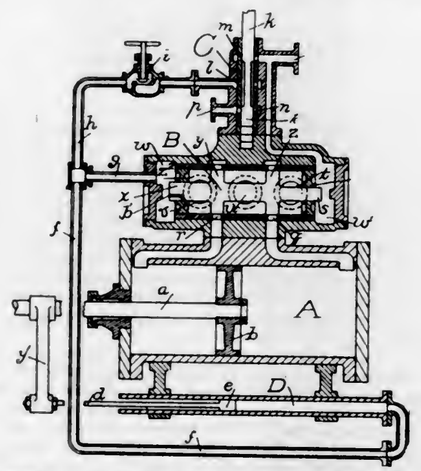
5. In a drilling-machine, the combination with a threaded drill-rod, of a boxing for the drill comprising two imperforate semicylindrical sections hinged together along one edge and each provided centrally upon its interior with a semi-annular recess, said sections being internally threaded on both sides of the said recess, the recesses being deeper than the threads, the two recesses, when the boxing is closed, registering and forming a continuous annular recess for the reception of lubricant and the threads on the two sections also registering to form continuous threads for engaging a threaded drill-rod.

6. In a drilling-machine, the combination with a threaded drill-rod, of a sectional boxing consisting of two hinged sections each threaded internally at its opposite ends and provided intermediate such threaded ends with an enlarged semi-annular recess, the two recesses, when the boxing is closed, registering and forming a continuous annular recess for the reception of lubricant, a threaded drill-rod fitted in said boxing, and means for rotating the drill-rod in the boxing to feed said rod forward, substantially as described.

7. In a drilling-machine, the combination with a sectional boxing consisting of two hinged sections, each threaded internally at its opposite ends and provided intermediate such threaded ends with a semi-annular recess, the two recesses, when the boxing is closed, registering and forming a continuous annular recess for the reception of grease, a threaded drill-rod longitudinally grooved and fitted in said boxing, and means for rotating the drill-rod in the boxing, substantially as described.

8. In a drilling-machine the combination with a sectional boxing consisting of two hinged sections each threaded internally at its opposite ends and provided intermediate said threaded ends with a semi-annular recess, the two recesses when the boxing is closed registering and forming a continuous annular recess for the reception of grease, a threaded drill-rod provided with a longitudinal groove V-shaped in cross-section and fitted in said boxing, and means for rotating the drill-rod in the boxing, substantially as described.

752,491. MECHANISM FOR OPERATING VALVES OR EQUIVALENT MEANS OF HYDRAULIC APPARATUS. HENRY E. WARREN, Newton, Mass. Filed July 7, 1903. Serial No. 164,590. (No model.)



Claim.—1. In combination with a motor, a controller for the motor, a fluid system connected with the controller, means to move the fluid in said system to operate the controller, and mechanism

operated by the motor to increase or diminish the fluid capacity of the system in correspondence with the movements of the motor.

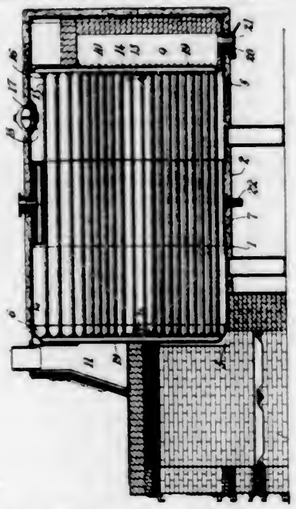
2. In combination with a hydraulic motor, a hydraulically-operated valve to control the flow of fluid to the motor, a fluid-chamber connected with the valve-operating system, which system is closed when in equilibrium, means to move the fluid in the system to operate the valve, and a plunger in said closed fluid-chamber, which is operated synchronously with the motor to change the fluid-space in the chamber to correspond with the movement of the motor.

3. In combination with a hydraulic motor, a hydraulically-operated valve to control the flow of fluid to the motor, a fluid system to operate the valve, mechanism to control the movement of fluid in said system, a speed-governor to operate said mechanism, and means, operated by the motor, to vary the fluid-space in the system to correspond with the movement of the motor.

4. In combination with a hydraulic motor, a controller for the motor, a fluid system to operate the controller, means to determine the amount of movement of fluid in the system, and mechanism, operated by the motor, to vary the fluid capacity of the system in accordance with the movement of the motor.

5. The combination of a motor, a controller for the motor, a fluid system which is connected with each, primary means to alter the fluid-pressure in the system, to displace the controller, and other means connected with the motor, which means act directly upon the fluid in the system in communication with the controller, to restore the latter to its original position.

752,492. STEAM-BOILER. NEWTON L. WARREN, Macon, Ga. Filed May 22, 1903. Serial No. 158,265. (No model.)



Claim.—1. A boiler, comprising a shell, heads for the boiler, each head having a vertically-disposed swelled or bulged-out central portion, extending from top to bottom, sets of flues arranged one above the other and passing through the heads, tie-rods arranged between the heads and between the upper and lower sets of tubes, and tie-rods for the heads arranged above the upper sets of tubes.

2. In a boiler, a shell having a smoke-box at its front end and a soot-chamber at its rear end, sets of tubes arranged one above the other, one set leading into the soot-chamber and the other set from the soot-chamber to the smoke-box, tie-rods connecting the heads of the shell and arranged between the sets of tubes, and tie-rods connecting the heads of the shell and arranged above the upper set of tubes.

3. A steam-boiler having a smoke-box at its front head and a soot-chamber at its rear end, two furnaces arranged at the front end of the boiler, a set of tubes leading from each furnace to the soot-chamber, the sets of tubes being spaced apart, a set of tubes arranged above each of the first-named sets of tubes and leading from the soot-chamber to the smoke box, the said sets of tubes being spaced from each other and from the said first-named sets of tubes, and tie-rods connecting the heads of the boiler.

4. A boiler, comprising a shell, two furnaces at one end of said shell, a soot-chamber at the opposite end of the boiler, heads for the boiler having bulged-out central vertical portions, tubes extended through the heads at opposite sides of said bulged-out portions and providing communication between the furnaces and the soot-chamber, a smoke-box at the front of the furnaces, opposite return-tubes above the first-named tubes and providing communication between the soot-chamber and the smoke-box, there being a considerable space between the tubes of the furnaces and the sets of tubes of each furnace, the shell being provided with a manhole above said space, and tie-rods connecting the heads.

752,493. MOLDING-CASE FOR USE IN ELECTROTYPING AND PROCESS OF MANUFACTURING SAME. WILLIAM H. WELSH, Collingswood, N. J. Filed Oct. 13, 1903. Serial No. 176,900. (No model.)

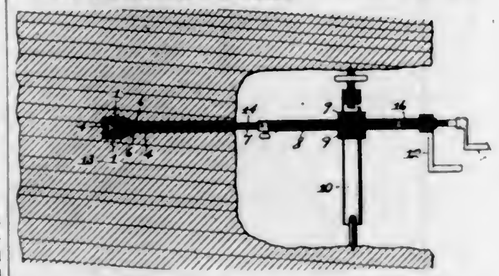


Claim.—1. A process for manufacturing molding-cases for use in electrotyping, consisting of casting an impressionable composition, coating the said composition with flour of copper, forming an impression in the said composition, subjecting the impressed composition to a black-leading machine, and then subjecting it to an electrolytic bath.

2. A process for manufacturing molding-cases for use in electrotyping, consisting of casting an impressionable composition, suitably evening the upper surface of said composition, coating the said composition with flour of copper, forming an impression in the said composition, subjecting the impressed composition to a black-leading machine, and then subjecting it to an electrolytic bath.

3. As a new article of manufacture, a molding-case for use in electrotyping obtained by casting an impressionable composition, coating the said composition with flour of copper, forming an impression in said composition, then subjecting it to a black-leading machine, and then to an electrolytic bath.

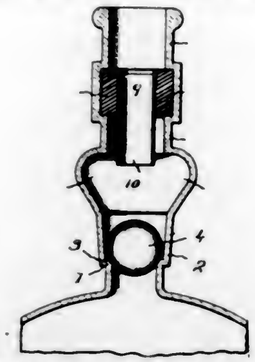
752,494. REAMER. LEROY WERTS, Milford, Mo. Filed Feb. 2, 1903. Serial No. 141,567. (No model.)



Claim.—The combination with a drill-stand of a tubular screw mounted therein, a crank on one end of said screw, a tubular shank secured to the opposite end of said screw, a cutter-guide secured to the end of said shank, said cutter-guide having a longitudinal slot therethrough and its inner end tubular, two cutters pivotally mounted within said slot, the edges of said cutters being beveled, a wedge between the inner edges of said cutters, a rod secured to said wedge and extending through said shank into the tubular screw and having its upper end drawn to a point, a rod externally screw-threaded to fit into and pass through the upper end of the tubular screw, the said rod being so disposed and constructed that its lower end will fit onto the upper end of the first-mentioned rod.

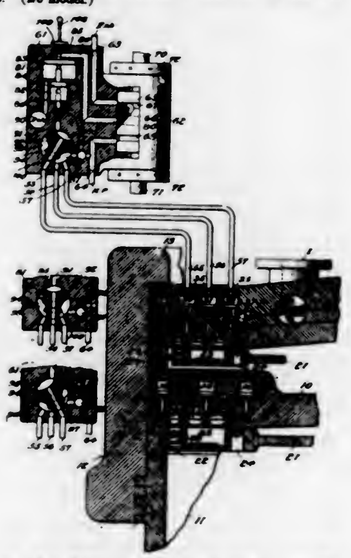
752,495. NON-REFILLABLE BOTTLE. DAVID J. WILKINS, Muncie, Ind. Filed Oct. 24, 1903. Serial No. 178,408. (No model.)

Claim.—1. The combination with a bottle having a neck provided with an enlarged portion forming a valve-seat, a dome integral with said enlarged portion, and a groove within the neck; of an expansible disk seated within the groove and having a passage therethrough, a tube within the passage and projecting into the dome, and a ball-valve seated within the enlarged portion of the neck.



2. A non-refillable bottle having a neck provided at a point between its ends with an enlarged portion, a dome communicating with the enlarged portion, and a groove within the neck adjacent the dome, an expansible disk within the groove and having a passage therethrough, a tube secured within the passage and projecting into the dome, and a ball-valve loosely mounted within the enlarged portion of the neck.

752,496. TWO-SPEED AND REVERSING TURBINE. JAMES WILKINSON, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company, a Corporation of Alabama. Filed Dec. 16, 1903. Serial No. 185,416. (No model.)



Claim.—1. In a motor, a plurality of valves controlling the supply of fluid to induction-passages, and a plurality of governed fluid-actuated valves controlling the operation of said supply-valves.

2. In a motor, a plurality of motor-fluid-supply valves, nozzle-passages, and governor-controlled fluid-actuated means controlling actuating means for said motor-fluid valves.

3. In a motor, a plurality of motor-fluid valves, and a controlling mechanism comprising a casing, fluid-actuated controller-valves therein controlling means to actuate said motor-fluid valves, and means to control the action of said controller-valves.

4. In a motor, a plurality of fluid-actuated controller-valves arranged in a casing, a plurality of motor-fluid valves and means controlled by said controller-valves to actuate said motor-fluid valves.

5. In a motor, a valve-casing, a plurality of valves therein, means to serially transmit a governed power from valve to valve to operate them successively, and means controlled by said valves to operate motor-fluid valves.

6. In a motor, a plurality of motor-fluid valves, a controller power means, a plurality of devices adapted to be independently actuated by variations in the potential of said power means, and means controlled by said devices to actuate said motor-fluid valves.

7. In a motor, a plurality of motor-fluid valves, and a governing mechanism comprising a plurality of controller devices, means to serially transmit an actuating power from one to another of said devices, and means under the control of said devices to actuate said motor-fluid valves.

8. In a motor, a plurality of motor-fluid valves, a plurality of controller-valves, fluid-pressure means to serially actuate said controller-valves, and fluid-pressure motors to actuate said motor-fluid valves controlled by said controller-valves.

9. In a governing mechanism for motors, a casing provided with a plurality of fluid-actuated controller-valves, a governing means to control the action of said valves, and motor-fluid valves which operate under the control of said controller-valves.

10. In a motor, a plurality of motor-fluid valves and a governing mechanism comprising a casing, a series of valve-cylinders therein, passages leading from cylinder to cylinder, means to create and deliver a fluid-pressure of varying potential successively to said cylinders, valves in said cylinders, and means under the control of said valves to actuate said motor-fluid valves.

11. In a motor, a plurality of motor-fluid valves and a governing mechanism comprising a casing, a plurality of controller-valves therein, means to serially transmit an actuating power to said valves, and means controlled by said valves to actuate said motor-fluid valves.

12. In a governing mechanism for motors, a plurality of fluid-actuated controller-valves, fluid-conducting passages leading from valve to valve which are successively opened to an actuating fluid by the movement of the valves from which they lead, and means controlled by said valves to actuate motor-fluid valves.

13. In a governing mechanism for motors, a plurality of motor-fluid valves, a controller power means comprising a casing, a plurality of independently-actuated devices serially coupled up and adapted each to control the operation of one of a group of independent motor-fluid valves.

14. In a governing mechanism for motors, a plurality of valves coupled up in series, means to deliver a varying actuating power to a varying number of said valves, means to vary the actuating power, and motor-fluid valves the operation of which is controlled by said first-mentioned valves.

15. In a governing mechanism for motors, a plurality of fluid-actuated controller-valves, fluid-conducting passages leading from valve to valve which are successively closed to the actuating fluid by the movement of the valves from which they lead, means to exhaust the pressure from said closed passages, means to move said valves to close said passages, and means controlled by said valves to actuate motor-fluid valves.

16. In a governing mechanism for motors, a plurality of controller-valves, passages to serially conduct actuating fluid from valve to valve, means to lock part of said valves at one end of their stroke, while the valve or valves at the critical point of regulation are free to move in either direction subject to variations in said actuating pressure, and means controlled by said valves to actuate said motor-fluid valves.

17. In a governing mechanism for motors, a valve-casing, a plurality of chambers therein forming cylinders, passages leading from cylinder to cylinder and passages leading from said cylinders to an exhaust-pressure, means to deliver to said cylinders a governed pressure, and piston-valves therein normally held by a constant pressure at one end of their stroke and successively actuated by said governed pressure, as its potential exceeds that of the constant pressure below the piston, to cut off the high and leave only an exhaust pressure opposing said governed pressure so that the piston is locked at the other end of its stroke, and means controlled by said piston-valves to actuate said motor-fluid valves.

18. In a governing mechanism for motors, a plurality of motor-fluid-valve-controller means, means transmitting a governed power serially from one to the other of said controller means, means to serially transmit an opposing pressure from one to the other of said controller means and in a reverse direction to said governed power, means to lock all but the valve or valves at the critical point of regulation in a definite position, and means controlled by said valves to operate motor-fluid valves.

19. In a governing mechanism for motors, a controller-casing

provided with a plurality of fluid-actuated controller-valves and passages connecting said valves with a source of governed pressure in combination with a plurality of motor-fluid valves whose operation is governed by said controller means.

20. In a governing mechanism for motors, a controller-casing comprising a series of fluid-actuated valves and passages connecting said valves with a source of governed pressure and an exhaust-pressure in combination with a plurality of motor-fluid valves whose operation is governed by said controller means.

21. In a governing means for motors, a controller-casing, a plurality of fluid-actuated valves therein, and passages connecting said valves with a source of governed pressure, an exhaust-pressure and a constant pressure in combination with a plurality of motor-fluid valves whose operation is governed by said controller means.

22. In a turbine, means to fractionally abstract the velocity of the motor fluid a different number of times in different working passages, in combination with a governor adjustable to accommodate its action to the different rates of speed effected by said passages.

23. In a turbine, three nozzles and three sets of rotating buckets, one set of buckets comprising two or more rows disposed in the line of the fluid's flow from one of said nozzles, and the other sets comprising rows of buckets one of which is opposite each of said other nozzles, the buckets in said latter rows being oppositely disposed to each other.

24. In a turbine, two independent working passages adapted to drive the turbine forward and comprising means to fractionally abstract the velocity of the motor fluid a greater number of times in one than in the other of said passages.

25. In a turbine, two independent working passages designed to drive the turbine at different speeds of rotation by the interposition of a row or rows of stationary guides between rows of buckets in but one of said passages.

26. In a turbine, a plurality of concentric circular rows of working passages at different distances from the shaft-center wherein the velocity of the motor-fluid pressure is fractionally abstracted, and means to abstract the velocity a greater number of times in one row of passages than in the other or others.

27. In a turbine, two or more rows of fluid-pressure nozzles, a rotating element having two or more rows of buckets in the line of the fluid's flow from one of said rows of nozzles, stationary intermediates between said rows of buckets, and a single row of buckets opposite said other row of nozzles.

28. In a turbine, means comprising nozzles, rotating buckets and stationary intermediates to drive the turbine forward, to reverse it, and to operate it at a fraction of its forward driving speed, in combination with means, controlling the admission of motor fluid to said first-mentioned mean- which operate with only open and closed positions.

29. In a turbine a plurality of supply-nozzles, valves therefor having only open and closed positions, means to drive the turbine forward and to reverse it, and independent means to drive the turbine at a fraction of its full speed, in combination with means to control the operation of said valves.

30. In a turbine, three working passages which severally act to drive the turbine forward, to reverse it and to drive it at a fraction of its full speed, all of said passages acting to abstract substantially equal percentages of velocity from said fluid.

31. In a turbine, means to drive the turbine forward at full speed, means to reverse the turbine, and means, independent of said forward and reversing means, to drive the turbine at a fraction of its full speed.

32. In a turbine, two independent working passages adapted to drive the turbine in the same direction and comprising means to fractionally abstract the velocity of the motor fluid a greater number of times in one than in the other of said passages, and means to drive the turbine in a reverse direction to that first mentioned.

33. In combination, a two-speed and reversing turbine comprising independent rows of working passages, motor-fluid-controlling means and a governor adjustable to exert the same controlling effect at each speed of rotation.

34. In a turbine, controller-valves actuated successively by a governor-power of varying potential, means controlled by said valves to deliver motor fluid to two or more rows of working passages, which drive said turbine at different speeds, a governor controlling said valve-actuating fluid and means to adjust the tension of said governor at different speeds.

35. In a turbine, a supply-head, a plurality of nozzle-passages leading therethrough, a motor-fluid-supply passage, and a plurality of branch passages leading substantially radially from said supply-passage which are closed at their outer ends and adapted to deliver motor fluid to one or more of said nozzles.

36. In a turbine, nozzle-passages, and rotary valves therefor, two or more of which are disposed in the same valve-seat end to end.

37. In a turbine, a plurality of rows of working passages, independent rows of rotary valves for said passages, and means to control the action of said valves.

38. In a turbine, a plurality of rows of working passages at different distances from the shaft-center, rows of fluid-actuated rotary valves for said passages, and means to control the actioo of said valves.

39. In a turbine, a plurality of rows of working passages at different distances from the shaft-center, a circular valve-seat leading substantially radially across said rows and a plurality of rotary valves in said seat for said passages, and means to control the action of said valves.

40. In a turbine, three concentric rows of nozzles and rotating buckets forming working passages, and governor-controlled fluid-actuating valves for said passages.

41. In a turbine, two or more working passages in which the fluid-pressure acts to drive a rotating element in reverse directions, supply and stage valves for said passages and governor-controlled means to actuate said valves.

42. In a turbine, nozzles and rotating buckets forming independent working passages wherein the motor fluid acts with different speed-driving effects upon a rotating element of said turbine, and governor-controlled fluid-actuated valves in said passages.

43. In a motor, a plurality of turbine-valves, and a plurality of controller-valves each of which is adapted to control a group of independent rows of turbine-supply and stage valves.

44. In a motor, a plurality of groups of turbine-valves, independent actuating means connected to each valve of a group, and means to control said actuating means.

45. In a governing mechanism for motors, three concentric rows of working passages at different radial distances from the shaft-center, and governing means controlling the admission of fluid-pressure to one of said rows at a time.

46. In a turbine operating by stage expansion two or more working passages at different distances from the shaft-center, supply and stage valves for each passage and governing means to simultaneously admit an actuating fluid-pressure to the supply and stage valves of a passage.

47. In a turbine acting by stage expansion, two or more rows of working passages comprising supply and stage nozzle passages, valves for said passages and a governing means for delivering fluid-pressure to the supply and stage valves of one of said rows at a time.

48. In a turbine operating by stage expansion, two working passages at different distances from the shaft-center and leading through all of the stages, and means in said passages to abstract the velocity of the motor fluid a greater number of times in one than in the other.

49. In a turbine, a wheel-compartment and superheated means to receive the water of condensation and to retain it until evaporated.

50. In a turbine, a wheel-compartment, means to receive and hold the water of condensation until evaporated, and means to superheat said receiving means.

51. In a turbine, a rotating element and circumferential superheated projections disposed within said turbine and adapted to receive the water of condensation from said wheel and to retain it until it has evaporated.

52. In a turbine, a series of internal flanged projections forming receptacles in which the water of condensation collects, and means to superheat said projections to reëvaporate said condensation.

53. In a turbine, a compartment within which a wheel rotates, circumferential ribs disposed around said compartment and provided with upturned edges to form circular receptacles for the water of condensation and a passage supplied with a heating agent and disposed to superheat said ribs.

54. In a turbine, three nozzle-passages at different distances from the shaft-center, valves for said passages, fluid-pressure means to control the action of one of said valves, and means to maintain said other valves closed.

55. In a turbine, a plurality of concentric working passages, fluid-actuated valves for said passages, a controller means, separate passages conducting the valve-actuating fluid to said valves and arranged in groups leading each to one or more valves of each row of working passages and means to divert the governor-controlled valve-actuating fluid from said casing to one passage of each group.

56. In a turbine, rows of working passages and valves therefor at different distances from the shaft-center, groups of passages conducting fluid-pressure to actuate a series of valves across said rows, means to control said valve-actuating fluid and a multiported valve to direct said controlling fluid to the corresponding passage of each group.

57. In a motor, a controller-casing, motor-fluid valves, groups of passages leading from said casing to said valves, a governor-controlled actuating fluid and a compound rotary valve admitting said fluid to a corresponding passage of each group and opening said other passages to a valve-closing pressure.

58. In a turbine having independent rows of working passages at different distances from the shaft-center, rows of valves for said passages independently actuated by fluid-pressure, and a controlling means adapted to deliver a valve-actuating pressure to one or more valves of one of said rows, and to expose said other rows to fluid-pressure means to maintain said latter rows of valves closed.

59. In a turbine, two independent working passages at different distances from the shaft-center, said passages being substantially the same length and one of said passages provided with a greater number of rows of revolving buckets than said other passage, and stationary intermediates in said first-mentioned passage.

60. In a turbine operating by stage expansion, working passages and supply and stage valves therefor, a passage conducting valve-actuating fluid to a row of valves across the stages and a fluid-actuated controller-valve admitting pressure to said passage.

61. In a motor, a plurality of motor-fluid valves a plurality of fluid-actuated controller means for said valves and a governing means for said valves, in combination with means to manually operate said controller means.

62. In a motor, a plurality of motor-fluid valves, a plurality of governor-controlled fluid-actuated valves controlling the operation of said motor-fluid valves, and means to manually control the operation of said controller-valves.

63. In a two-speed motor, independent working passages to drive the motor at different speeds, means to pulsate the supply of motor fluid to one of said passages while the other is held closed.

64. In a turbine, a plurality of rows of supply-valves at different distances from the shaft-center, valves for said passages, and a governing means for said valves adapted to confine its active control to one of said rows of valves and to pulsate one or more of the valves of said row, and means to close the other row or rows of valves.

65. In a turbine, two independent supply-passages at different distances from the shaft-center, and a controller means to pulsate the flow of fluid through one of said passages while the other passage is closed.

66. In a turbine three independent supply-passages at different distances from the shaft-center, and a controller means to pulsate the flow of fluid through one of said passages while the other passages are closed.

67. In a turbine, supply-nozzle passages at different distances from the shaft-center, valves for said passages controlling the delivery of motor fluid against rotating buckets, and means to intermittently actuate one or more of the valves for passages equidistant from the shaft-center while the passage or passages at different distances are closed.

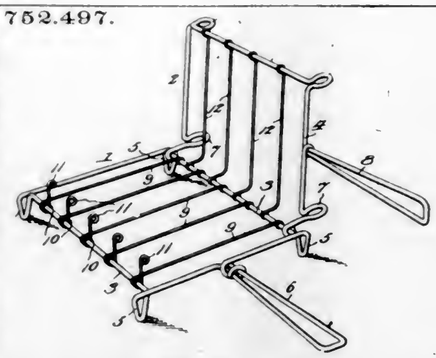
68. In a fluid-pressure motor operating by stage expansion, independent working passages designed to exert different driving effects on said motor and comprising supply and stage nozzles and valves and rotating buckets, and means to maintain one of said passages inactive and to interrupt the flow of motor fluid supplied to the active passage to deliver it in pulsations or blasts to the said buckets in the several compartments or stages.

752,497. TOASTER OR BROILER. GEORGE R. WILSON, Hurley, S. D. Filed Apr. 25, 1903. Serial No. 154,327. (No model.)

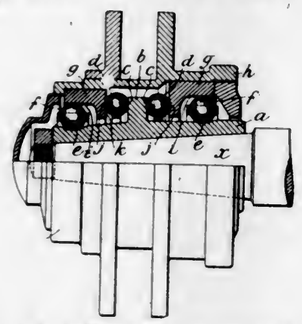
Claim.—1. A device of the class set forth comprising two leaves, one being hinged to the other and both at their corners having outwardly-projecting supporting-legs, and a plurality of upstanding spring-catches at the free edge of one leaf to engage the free edge of the other leaf for fastening both leaves to each other to prevent accidental opening movement of the same.

2. A toaster comprising hinged leaves having margin-wires with grid-wires extending thereacross and secured thereto, the grid-wires at the free edge of one leaf being coiled around the margin-wire of said edge and projected upwardly to provide spring-catches to engage the free edge of the other leaf.

752,497.



752,498. BALL JOURNAL-BEARING. FREDERICK W. WITTE, Chelmsford, England. Filed June 13, 1903. Serial No. 161,382. (No model.)



Claim.—1. In a ball-bearing, the combination with a set of balls for taking the journal-pressure and a further set for taking the thrust, of a cone portion having two separate grooved races, one located vertically, and the other at right angles thereto, a cup portion having two faces at right angles to each other, one of said faces being grooved and the other being a cylindrical surface running out of the part at one end, and of such a length that it can be moved rearwardly before the thrust-bearing balls are put in position, whereby the dimension exposed between the bottom of the groove of the cone and said cylindrical surface is sufficient to allow of the journal-balls being inserted, while when the part is moved forwardly the balls are retained, and the thrust-balls can be placed between the grooved race of the cup and the corresponding grooved race of the cone.

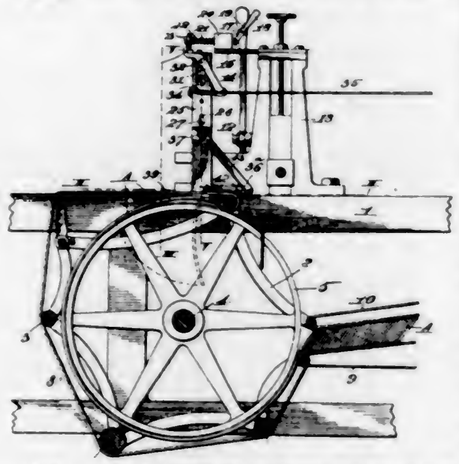
2. In a ball-bearing, the combination with two sets of balls for taking the journal-pressure and a further two sets for taking the thrust, of a cone portion, a rigid abutment forming part of same, having two separate grooved races on each side, one located vertically, and the other at right angles thereto, of cup portions located on each side of said abutment, each cup portion having two faces at right angles to each other, one of said faces being grooved, and the other being a cylindrical surface running out of the part at one end and of such a length that it can be moved rearwardly before its coacting thrust-bearing balls are put in position whereby the dimension exposed between the bottom of the groove of the cone and said cylindrical surface is sufficient to allow of the journal-balls being inserted, while when the part is moved forwardly the balls are retained and the coacting thrust-balls can be placed between the grooved race of the cup and the corresponding grooved race of the abutment.

3. In a ball-bearing, the combination with a cone portion, having two separate races, of a cup portion having two faces at right angles to each other forming races, and having also a bearing-surface forming a segment of a circle, balls located between the races of the cone and cup portions respectively and a retaining-casing having a surface being a segment of a circle and forming a seat for said cup portion.

4. In a ball-bearing, the combination with a cone portion and a rigid abutment forming part of same, of cup portions located on each side of said abutment each cup portion having two faces at

right angles to each other forming races, and having also bearing-surfaces forming segments of a circle, balls located between and bearing on each side of said abutment and one face of each cup portion respectively, balls located also on each side of said abutment and between and bearing on the cone and the other races of the cup respectively and a retaining-casing having surfaces being segments of a circle and forming the seats for said cup portions.

752,499. **STOP MECHANISM FOR ENVELOP-MACHINES.** PAUL J. WOLF, St. Louis, Mo., assignor to Samuel Cupples Envelope Company, St. Louis, Mo. Filed Sept. 26, 1903. Serial No. 174,780. (No model.)



Claim.—1. In a stop mechanism for envelop-machines, the combination with envelop-conveying means and driving-gear for said conveying means; of a spring-controlled shifter for governing said driving-gear, a spring-controlled slide-rod to engage said shifter, means for holding said slide-rod with a spring associated therewith under tension, and a dog supported by the envelops passing through the machine and having means for detachably engaging said slide-rod-holding means, substantially as set forth.

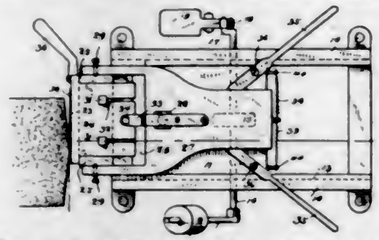
2. In a stop mechanism for envelop-machines, the combination with envelop-conveying means and belt-driving gear for said conveying means; of a spring-controlled shifter for engagement with the belt of said driving-gear, a lever connected to and forming a part of said shifter, a spring-controlled slide-rod for engagement with said lever, a spring-controlled slide, a trigger carried by said slide for engagement with said slide-rod, a rocker-arm having connection with said slide, and a dog supported by the envelops passing through the machine and arranged for engagement with said rocker-arm to maintain said slide in elevated position and said trigger in engagement with said slide-rod, substantially as set forth.

3. In a stop mechanism for envelop-machines, the combination with envelop-conveying means, and driving-gear for said conveying means, of a spring-controlled shifter for governing said driving-gear, an operating-lever forming a part of said shifter, a pawl mounted on said lever, a spring-controlled slide-rod for engagement with said pawl, a spring-controlled slide, a trigger carried by said slide for engagement with said slide-rod, a rocker-arm having connection with said slide, and a dog supported by the envelops passing through the machine and arranged for engagement with said rocker-arm to maintain said slide in elevated position, substantially as set forth.

4. In a stop mechanism for envelop-machines, the combination with envelop-conveying means, and belt-driving gear for said conveying means; of a spring-controlled belt-engaging shifter, a spring-controlled reciprocating slide-rod for engagement with said shifter, a spring-controlled slide, means carried by said slide for engaging said slide-rod and holding it to said shifter, a dog supported by the envelops passing through the machine, and means connected to said slide to be detachably engaged by said dog to maintain said slide in elevated position and hold said slide-rod to said shifter, substantially as set forth.

5. In a stop mechanism for envelop-machines, the combination with envelop-conveying means, and belt-driving gear for said conveying means; of a spring-controlled belt-engaging shifter, a spring-controlled reciprocating slide-rod for engagement with said shifter, a spring-controlled slide, means carried by said slide for engaging said slide-rod and holding it to said shifter, a dog supported by the envelops passing through the machine, and means for detachably engaging said slide-rod to said shifter, substantially as set forth.

752,500. **GRINDING-MACHINE.** RUDOLPH WOLF, Bridgeport, Conn. Filed Nov. 13, 1903. Serial No. 181,018. (No model.)



Claim.—1. In a grinding-machine the combination with a blade-carrying block and an oscillatory carrier therefor, of means for oscillating said carrier in the horizontal plane.

2. In a grinding-machine the combination with a blade-carrying block and a carrier therefor pivoted to swing in the horizontal plane, of means as a hand-lever bearing against the carrier whereby a blade may be passed from end to end over the face of a grinding-wheel, and springs for returning the carrier to its normal position when the action of the lever is relieved.

3. In a grinding-machine the combination with a reciprocating table provided with a rack, a pinion and connections for moving the table backward and a counterweight acting to retain the table in operative position, of a carrier pivoted to the table and adapted to oscillate in the horizontal plane and a knife-carrying block adjustably secured to the carrier.

4. In a grinding-machine the combination with a reciprocating table provided with a rack, a pinion engaging the rack, a shaft by which the pinion is carried and which is provided with a crank and an arm, crank connections by which the table is moved backward and a counterweight on the arm for retaining the table in operative position, of an oscillating carrier pivoted to the table and a knife-carrying block adjustably secured to the carrier.

5. In a grinding-machine the combination with a knife-carrying block and a U-shaped holder to which the block is adjustably secured, of a carrier pivoted to oscillate in the horizontal plane, and having an opening in which the holder is pivoted to oscillate in the vertical plane, and a set-screw for determining the position in which the surface to be ground is presented.

6. In a grinding-machine the combination with a reciprocating table and a horizontally-oscillating carrier pivoted thereto and provided with an opening, of a vertically-oscillatory U-shaped holder pivoted in said opening, a slotted blade-carrying block and bolts engaging the holder whereby the block is adjustably secured thereto.

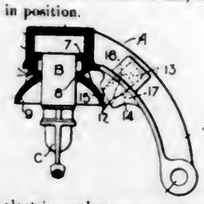
7. In a grinding-machine the combination with a horizontally-oscillating carrier and a vertically-oscillating blade-carrying block pivoted thereto, of means as a set-screw for adjusting the plane of the block so as to vary the position of a blade on the block relative to a grinding-machine.

8. In a grinding-machine the combination with a blade-carrying block and a holder therefor, of a horizontally-oscillating carrier to which the holder is pivoted to oscillate in the vertical plane, and a set-screw engaging the block whereby the position of a blade carried thereby relative to a grinding-wheel may be regulated.

9. In a grinding-machine the combination with a blade-carrying block and a holder therefor, of a horizontally-oscillating carrier to which the holder is pivoted to oscillate in the vertical plane so that oscillation of the carrier will move the blade longitudinally across the face of a grinding-wheel and oscillation of the holder will oscillate the blade in the plane of rotation of the wheel and produce a rounding grind.

752,501. **TROLLEY-HANGER.** MONTRAVILLE M. WOOD, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 8, 1903. Serial No. 168,738. (No model.)

Claim.—1. A hanger for electric conductors comprising a suspender provided with an inverted-cup-shaped recess adapted to receive the head of an insulated stud, a nut or threaded ring adapted to be screwed into the lower end of said recess, and means for locking said nut or ring in position.



2. A hanger for electric conductors comprising a suspender provided with an inverted-cup-shaped recess adapted to receive the head of an insulated stud, a nut or threaded ring adapted to be screwed into the lower end of said recess and provided with a drip-flange or petticoat, and means adapted to engage said flange or petticoat and lock said nut in position.

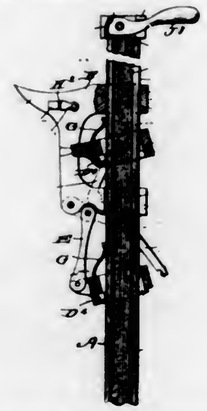
3. A hanger for electric conductors comprising a suspender provided with a recess adapted to receive the head of an insulated stud, a nut or threaded ring through which the said stud may pass and adapted to be screwed into said recess, and a longitudinally-movable bolt carried by said suspender and adapted to engage said nut or threaded ring to lock it in position.

4. A hanger for electric conductors comprising a suspender provided with a recess adapted to receive the head of an insulated stud and a bolt-recess, a nut or threaded ring adapted to be screwed into the first-mentioned recess, and a bolt located in the second recess and adapted to engage and lock said nut or ring in position.

5. A hanger for electric conductors comprising a suspender provided with an inverted-cup-shaped recess and an inwardly-projecting recessed lug, a nut or threaded ring adapted to be screwed into said cup-shaped recess, and a bolt located in said recessed lug and adapted to engage and lock said nut or threaded ring in position.

6. A hanger for electric conductors comprising a suspender provided with an inverted-cup-shaped recess and an inwardly-projecting recessed lug, a nut or threaded ring adapted to be screwed into the cup-shaped recess to sustain an insulated stud therein and provided with a drip-flange having a series of slots in its outer edge, and a bolt located in said recessed lug and adapted to engage the slots in said drip-flange.

752,502. **LIFTING-JACK.** EARNEST C. YEAGER, Rockdale, Tex. Filed May 9, 1903. Serial No. 156,452. (No model.)

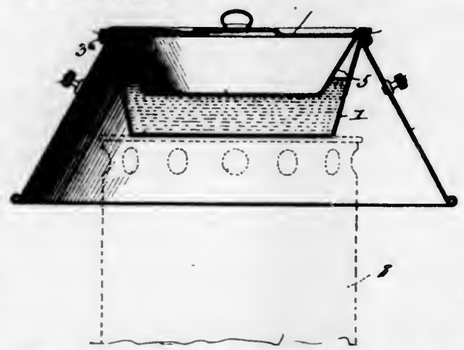


Claim.—1. A lifting-jack comprising a standard, a horn having an upwardly-curved point, said horn being adapted to slide on the standard, a lever secured to the lower part of the horn, a clamping member sliding on the standard above the lever and adapted to engage the horn, a clamping member sliding on the standard below and pivotally connected to the lever, and a bar pivoted intermediate its ends and adapted to engage the clamping members.

2. In a lifting-jack, a standard, a horn comprising a forwardly-projecting portion curved on its upper face and having a rearwardly-projecting slotted arm adapted to slide on the standard, and a downwardly-extending body portion notched on its inner side adjacent its lower end, and having an integral, rearwardly-extending arm, one side of said arm being recessed for the purpose specified.

3. A lifting-jack comprising a standard, a horn sliding on same, clamping members, the upper clamping member being loosely secured on the standard between the horn and the lever, and the lower member being positioned below the lever, the upper member having a nose adapted to engage a notch formed in the horn, and carrying a block having a serrated face adapted to bite into one side of the standard, and the lower member having a similar block adapted to engage the side of the standard, a link connecting the lower clamping member to the lever, and springs secured in the clamping members and bearing on the bar.

752,503. **COMBINED HOOD AND COOKING UTENSIL.** WILLIAM H. ZIMMERMAN, Baltimore, Md. Filed Apr. 4, 1903. Serial No. 151,150. (No model.)

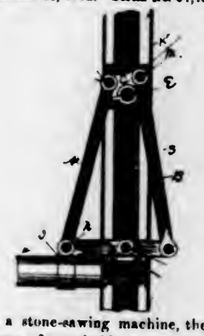


Claim.—1. In a device of the character described, the combination of a receptacle formed with a flat bottom, and rolled at its upper edge to constitute a circumferential flange and an outwardly-flaring hood formed with a circumferential channel at its upper edge in which said flange is permanently secured, the said hood flaring outwardly and downwardly below the bottom of the receptacle upon which the device stands.

2. In a device of the character described the combination with a heating-drum, of a water vessel formed with a flat bottom adapted to rest upon the drum, said receptacle being formed at its upper extremity with a circumferential flange, an outwardly and downwardly flaring hood formed at its upper extremity with a circumferential channel in which said flange is permanently held, the lower edge of the hood extending below the lower edge of the receptacle and to a point intermediate the ends of the heating-drum.

3. In a device of the character described, the combination with a heating-drum, of a receptacle adapted to be seated upon the top of said drum, and a downwardly and outwardly flaring hood the upper edge of which merges with the upper edge of the receptacle and the lower edge of which terminates at a point between the ends of the heating-drum.

752,504. **STONE-SAWING MACHINE.** OSCAR W. ALSTON, Lansboro, Pa. Filed Mar. 11, 1902. Serial No. 97,759. (No model.)



Claim.—1. In a stone-sawing machine, the combination of a bracket carrying saws, of a rockably-mounted saddle, a pair of converging pendulums pivoted at their lower ends to said bracket and at their upper ends to the arms of said saddle, the point of intersection of the lines of direction of said pendulums lying in said lines produced, substantially as described.

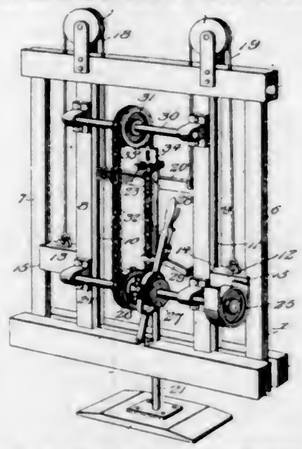
2. In a stone-sawing machine, the combination of a bracket carrying saws, of a rockably-mounted saddle, a pair of converging pendulums located in a common plane, and pivoted to the arms of said saddle and to said bracket, the point of intersection of the lines of direction of said pendulums lying in said lines produced, substantially as described.

3. In a stone-sawing machine, a frame carrying saws, rockably-mounted saddles having oppositely-extending arms, pairs of converging non-crossing pendulums pivoted to said saddles and to said frame, and means for reciprocating said frame, substantially as described.

4. In a stone-sawing machine, a bracket-frame for carrying saws, two rockably-mounted saddles, two pairs of converging pendulums pivoted to said bracket and to said saddles, the members of each of said pairs lying in the same plane, substantially as described.

5. In a stone-sawing machine, a bracket-frame, a rockably-mounted saddle, a bar rigidly connected to said bracket and forming an extension thereto, a pair of pendulums pivoted to said bar and to said saddle, substantially as described.

752,505. COTTON-PACKER. HENRY J. ARNETT, Pontotoc, Ind. Ter. Filed Oct. 17, 1902. Serial No. 127,656. (No model.)



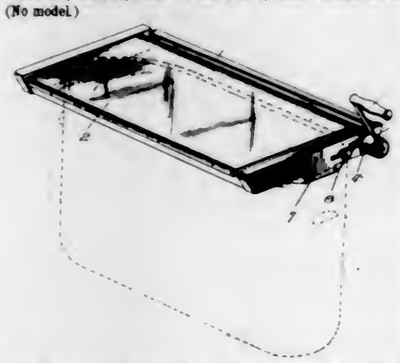
Claim.—1. In a packer for cotton and other materials, the combination of a supporting-frame, constructed of lower duplicate horizontal beams, spaced apart and having secured therebetween the lower ends of duplicate standards, duplicate guide-beams located intermediate of and at suitable distances from the standards, and also having their lower ends secured to the horizontal beams, the said standards and guide-beams being connected at their upper ends by a top beam, the latter having duplicate guide-pulleys mounted thereon, a plunger having a rod working between the horizontal beams, means for operating said plunger, comprising a coöperating trip and trip-link, and weights for retracting the plunger constructed to move between the pairs of standards and guide-beams aforesaid, and having operating-cords connected at one of their ends to said weights, thence passing over the said guide-pulleys and having the other ends thereof secured to a part of the operating means for the plunger.

2. In a packer for cotton and other materials, the combination of a supporting-frame, comprising lower duplicate horizontal beams, spaced apart and having secured therebetween the lower ends of duplicate standards, duplicate vertical guide-beams located intermediate of and at suitable distances from the standards, and also having their lower ends secured to the horizontal beams, the said standards and guide-beams being connected at their upper ends by a top beam, having duplicate guide-pulleys thereon and provided with duplicate openings, each coinciding with a vertical plane passing between each pair of standards and guide-beams aforesaid, the said guide-beams each being formed in each of its edges with a groove, a plunger having a rod working between said horizontal beams and provided at its upper end with a trip having a horizontal member working in adjacent grooves of the guide-beams, means mounted on faces of the guide-beams for operating the plunger, said means including a trip-link coöperating with the trip aforesaid, retracting-weights for the plunger constructed on their inner edges to work in the outer grooves of the guide-beams, and having their outer edges moving upon the said standards, and operating-cords for said weights passing over the guide-pulleys and through the openings in the top beam and connected to the said horizontal member of the trip.

3. In a packer for cotton and other materials, the combination of a supporting-frame, comprising lower duplicate horizontal beams, spaced apart and having secured therebetween the lower ends of duplicate standards, duplicate vertical guide-beams located intermediate of and at suitable distances from the standards, and also having their lower ends secured to the horizontal beams, the said standards and guide-beams being connected at their upper ends by a top beam, having duplicate guide-pulleys mounted thereon and provided with duplicate openings each coinciding with a vertical plane passing between each pair of the standards and guide-beams aforesaid, the said guide-beams each being formed in each of its edges with a groove, a plunger having a rod working between said horizontal beams and provided at its upper end with a trip having a horizontal member working in adjacent grooves of the guide-beams, means mounted on faces of the guide-beams for operating the plunger, said means including a trip-link coöperating with the trip aforesaid, retracting-weights for the plunger constructed on their inner edges to work in the outer grooves of the guide-beams, and having their outer edges moving upon the said standards, operating-cords for said weights passing over the guide-pulleys and through the openings in the top beam and connected to the said horizontal member of the trip, and clutch devices for throwing the operating means for the plunger into and out of engagement.

4. In a packer for cotton and other materials, the combination of a supporting-frame, comprising lower duplicate horizontal beams, spaced apart and having secured therebetween the lower ends of duplicate standards, duplicate vertical guide-beams located intermediate of and at suitable distances from the standards, and also having their lower ends secured to the horizontal beams, the said standards and guide-beams being connected at their upper ends by a top beam having duplicate guide-pulleys mounted thereon and provided with duplicate openings each coinciding with a vertical plane passing between each pair of the standards and guide-beams aforesaid, the said guide-beams each being formed in each of its edges with a groove, a plunger having a rod working between said horizontal beams and provided at its upper end with a trip having a horizontal member working in adjacent grooves of the guide-beams, means mounted on faces of the guide-beams for operating the plunger, said means including a trip-link coöperating with the trip aforesaid, retracting-weights for the plunger constructed on their inner edges to work in the outer grooves of the guide-beams, and having their outer edges moving upon the said standards, and operating-cords for said weights passing over the guide-pulleys and through the openings in the top beam and connected to the said horizontal member of the trip, the said trip being constituted of parallel members connected at one of their ends by a plate, and the said trip-link being formed with lateral projections for engagement with said members.

752,506. ATTACHMENT FOR WASHBOILERS. WILLIAM J. BARTLETT, Jackson, Mich. Filed Nov. 6, 1903. Serial No. 180,086. (No model.)



Claim.—1. In a device of the class described, the combination with a support, a drum mounted upon the support, and a carrier-apron for elevating the clothes, said carrier-apron being adapted to be wound upon the drum.

2. In an attachment of the class described, the combination with a supporting-frame, a flexible carrier-apron secured at one end to the frame, a drum mounted in the frame and having the other end of the carrier-apron secured thereto, means for actuating said drum to wind the carrier thereon, and means for preventing revolution of said drum.

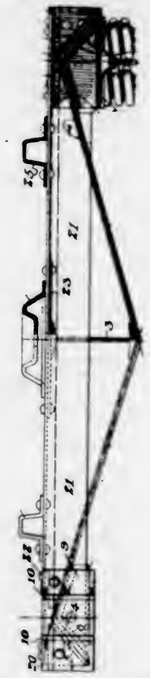
In an attachment of the class described, the combination with a supporting-frame comprising side and end bars, extensions projected downwardly from the end bars, a carrier-apron having one end secured to a side bar, a drum journaled in the end bars of the frame and having an end extended beyond one of said end bars, the other end of the carrier being secured to the drum, a ratchet-wheel and operating-crank secured to the extended end of the drum aforesaid, and a pawl for engagement with the said ratchet-wheel.

752,507. RAILWAY-TIE. ALMON W. BASCOM, Spokane, Wash. Filed June 26, 1902. Serial No. 113,314. (No model.)



Claim.—A railway-tie comprising a pair of cross-sectionally-angular members secured together and having juxtaposed vertical webs and horizontal webs disposed in a common plane, the lower edges of the vertical webs being inclined and converging downwardly from their ends to their centers, to enable said vertical webs to readily become embedded.

752,508. METAL BOLSTER. ARTHUR B. BELLOWS, Pittsburg, Pa. Filed July 20, 1903. Serial No. 166,225. (No model.)



Claim.—1. A metal bolster having a tension member with its outer end portion bent down to form an apex with its adjacent intermediate portion, and secured in an end-joint structure; substantially as described.

2. A metal bolster having a tension member with oppositely-inclined portions extending upwardly from its center, the outer end of each portion being bent down to form an apex with the adjacent intermediate portion, and held between two coacting surfaces; substantially as described.

3. A metal bolster having end boxes with inclined angular surfaces forming an apex, and a tension member having its end portion bent to fit over the apex and secured to place; substantially as described.

4. In a metal bolster, an end joint comprising a box structure, a compression member having vertical legs or flanges fitting the sides of the box, and a tension member having an end portion bent down to form an apex and held within the box; substantially as described.

5. A metal bolster having an upwardly-extending tension-member portion with the end of such portion bent down to form an apex and perforated to receive rivets or holding-lugs, the tension portion of the member adjacent to the apex being imperforate; substantially as described.

6. A metal bolster having a tension member with its ends bent at an angle and held between parallel surfaces in an end-joint box, said box having holding devices extending through the bent end portion of the tension member; substantially as described.

7. A metal bolster having an end joint comprising a casting having vertical sides, and an inclined floor, a tension member with a bent end clamped on the floor by an upper parallel surface, and a compression member having vertical flanges interfitting with the sides of the castings; substantially as described.

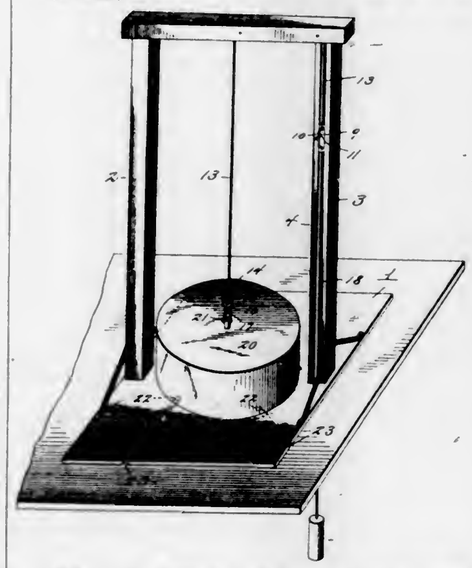
8. A metal bolster having an end joint with two interfitting castings having a ridge portion and sides, a tension member having a downwardly-bent end portion arranged to fit on the ridge between the upper and lower castings, and a compression member having vertical flanges arranged to fit the sides of the casting; substantially as described.

9. An end-joint box for bolsters comprising two interfitting castings arranged to hold the end of the tension member between them, said castings having coacting end lugs independent of the tension member to prevent end movement of one relative to the other; substantially as described.

10. A metal bolster having an end box with a ridge arranged to fit the bent end edge of the tension member, said box having sides, a compression member having flanges coacting with the sides, and rivets extending through the box sides and said flanges; substantially as described.

11. A metal bolster having tension and compression members, the tension member having its outer end portion bent down to form an apex with its adjacent intermediate portion, and secured in an end-joint structure, and a spring-seat beneath the structure, the vertical axis of the spring-seat passing substantially through the intersection of lines through the centers of gravity of and parallel to the tension and compression members; substantially as described.

752,509. PROVISION-SAFE. CHARLES C. BENDER and JAMES E. FISH, Bloomington, Ind. Filed Sept. 12, 1903. Serial No. 172,957. (No model.)



Claim.—1. The combination with a platform having standards thereon and a cross-bar on the standards; of a slide mounted on one of the standards a cord connected to the slide and depending from

the cross-bar, a cover adjustably connected to and supported by the cord, and a counterbalance connected to the slide.

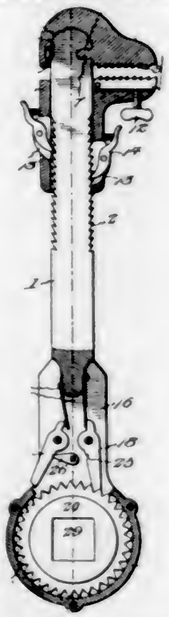
2. The combination with a platform having standards thereon, and a cross-bar on the standards; of a slide mounted upon one of the standards, means for locking the slide in adjusted position, a cord connected to the slide and depending from the cross-bar, a cover adjustably connected to said cord and supported thereby, and a counterbalance connected to the slide.

3. The combination with a platform; of a grooved standard thereon, a cross-bar mounted upon the standard, a slide upon the standard, means for locking the slide against downward movement within the standard, a plunger on the slide adapted to release the slide from the locking means, a cord secured to the slide and depending from the cross-bar, a cover adjustably connected to and supported by said cord, and a counterbalance connected to the slide.

4. The combination with a platform; of a longitudinally-grooved standard thereon, a cross-bar upon the standard, a slide within the groove in the standard, a handle thereon, a spring within the groove and adapted to engage the slide, a plunger mounted within the slide for releasing the spring from the slide, a cord connected to the slide and arranged within the groove and cross-bar, a cover adjustably connected to and supported by said cord, and a counterbalance suspended from the slide.

5. The combination with a platform; of standards thereon, a cross-bar connecting the standards, a cord mounted within the cross-bar and one of the standards, a weighted recessed slide mounted on one of the standards and connected to said cord, a cover adjustably connected to and supported by the cord, a spring upon the standard adapted to engage the slide, and means for removing the spring from engagement with the slide.

752,510. **WRENCH.** WILLIAM J. BERRYMAN, Tyner, N. C. Filed July 1, 1903. Serial No. 163,916. (No model.)

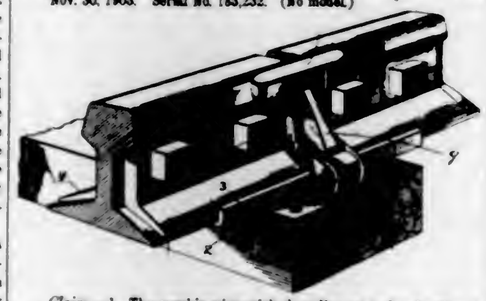


Claim.—1. In a device of the character described, the combination with a toothed shank having a transversely-extending groove in one face thereof and a notch in the opposite face; of a stationary jaw having a recess in one side thereof for the reception of the end of the shank, a tongue within said recess adapted to engage the groove, a spring-catch within the head for engaging the notch, and a jaw adjustably mounted upon the shank.

2. In a device of the character described, the combination with a toothed shank having a transversely-extending groove in one face thereof, and a notch in the opposite face; of a stationary jaw having a recess in one side thereof for the reception of the shank, a tongue within the recess adapted to engage the groove, and a locking device within the head for automatically engaging the notch.

3. In a device of the character described, the combination with a toothed shank having a stationary jaw detachably connected to one end thereof, and means for automatically locking said jaw to the shank; of a jaw slidably mounted on the shank, spring-pressed pawls pivoted to the sliding jaw and normally engaging the teeth on the shank, a block pivotally mounted on the sliding jaw, and means for adjusting the block in relation to the jaw.

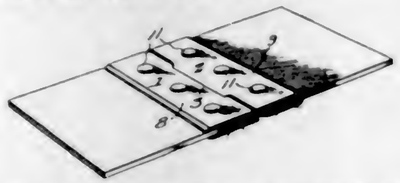
752,511. **RAIL-JOINT.** EUGENE D. BOASSO, Charenton, La. Filed Nov. 30, 1903. Serial No. 183,232. (No model.)



Claim.—1. The combination with the adjacent ends of railroad-rails, of a plate supporting them and having flanges that project above their bases, one of said flanges having a notch in its upper side, and splice-bars bearing against the webs and on the bases of the rails and within the flanges of the said plate, one of said splice-bars having an upwardly-projecting wheel-supporting head, spanning the space between the rails, and an outwardly-projecting extension engaging the notch in the flange of the plate.

2. The combination with the adjacent ends of railroad-rails, of a plate supporting the ends of said rails and provided with upwardly-extending flanges which engage the edges of the base of the rails and project a distance above the same, one of said flanges having a notch or recess formed in its upper edge, splice-bars fitted to the webs and bases of said rails and confined between the flanges of said plate, one of said splice-bars having a wheel-supporting head spanning the space between the ends of the rails and formed with an extension which projects into the notch or recess in the plate-flange said extension having a spike-notch.

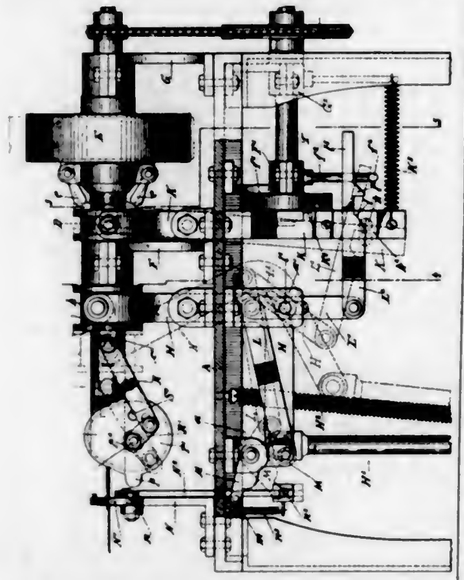
752,512. **BELT-JOINT.** ELIJAH S. BUCKLEY, New Berlin, N. Y. May 6, 1903. Serial No. 155,936. (No model.)



Claim.—The combination with the meeting ends of a belt, of a belt-joint composed of two strips of flexible material having equal dimensions, the one strip being formed with transverse slots extending partially thereover and opening out through the opposite side edge thereof, said slots being in alinement to form inwardly-foldable end members, and the other strip having a slot located in the center thereof and extending transversely of the same, the latter slot being equal in length to the distance between the inner terminal of the slots in the first-named strip and adapted to have the foldable members of said first-named strip inserted therethrough, the oppositely projecting portions of the joint embracing the opposite sides of the belt ends, and means for securing the said oppositely-projecting portions of the joint to the belt ends.

752,513. **MACHINE FOR BENDING CROSS-HEADS AND EYE OF WIRE BALE-TIES.** BRUNO VON BÜLTHINGSLÖWEN, New York, N. Y. assignor of one-half to Theodor Sauer, New York, N. Y. Filed Apr. 16, 1902. Serial No. 103,199. (No model.)

Claim.—1. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, a bending-arm pivoted to said supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a second pin on the bending-arm eccentrically to said center pin, a stationary pin on the supporting-plate, a treadle-operated sliding sleeve splined on said shaft, and means between said sliding sleeve and the pivot of the bending-arm for moving the latter on its pivot for bending the end of the wire blank into the shape of a cross-head or eye, substantially as set forth.



2. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, a bending-arm pivoted to said supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a second pin on said arm eccentrically to said center pin, a stationary pin on the supporting-plate at the side opposite to the bending-arm, a sliding sleeve splined to said shaft, a crank-arm pivoted to said supporting-plate below the bending-arm, a link connecting said crank-arm with the sliding sleeve, and gear-wheels between the pivot of the crank-arm and the pivot of the bending-arm for imparting a rotary reciprocating motion to the bending-arm, substantially as set forth.

3. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, a bending-arm pivoted to the supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a stationary pin on the supporting-plate at a point opposite to the bending-arm, a sliding sleeve splined to the shaft, motion-transmitting mechanism between the sliding sleeve and the pivot of the bending-arm for imparting rotary reciprocating motion to the same, a hook-bending die pivoted to the supporting-plate below the bending-arm, said die being provided with two noses that pass at opposite sides of the stationary pin, and motion-transmitting mechanisms between the sliding sleeve and the pivot of the bending and the pivot of the hook-bending die for imparting rotary reciprocating motion to the latter bending-arm and die, substantially as set forth.

4. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, a treadle-actuated sliding sleeve splined to said shaft, wire-bending devices arranged on said supporting-plate, means interposed between said wire-bending devices and sliding sleeve for operating the same, a spring-actuated counter-plate mounted on one of the pivots of the bending devices, means for imparting lateral motion to the counter-plate toward the supporting main plate for holding the wire during the bending operation and return the counter-plate to its former position for removing the bent wire, substantially as set forth.

5. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a treadle-operated sliding sleeve splined to said shaft, a supporting-plate attached to the head of said shaft, said plate being provided with a rim recessed at its upper part, wire-bending devices pivoted to said supporting-plate, means interposed between the sliding sleeve and said bending devices for operating the latter, a spring-actuated counter-plate guided on one of the pivots of the bending devices, means for guiding said counter-plate on the supporting main plate, and means actuated by the sliding sleeve for imparting lateral motion to said counter-plate during the wire-bending operation, substantially as set forth.

6. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of the shaft, a treadle-actuated sliding sleeve splined to said shaft, a bending-arm pivoted to said supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a second pin on said bending-arm eccentrically to said center pin, a stationary pin on the supporting-plate located opposite to the bending-arm, a recessed hook-bending die pivoted to the supporting-plate below the pivot of the bending-arm, and means between the pivots of the bending-arm and hook-bending die and the sliding sleeve for producing the movement of the bending-arm ahead of the movement of the hook-bending die and in an opposite direction to the latter, substantially as set forth.

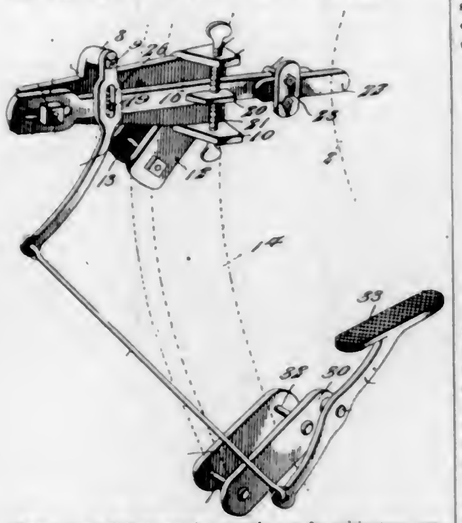
7. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, said supporting-plate being provided with a rim recessed at its upper end, a treadle-operated sliding sleeve splined to said shaft, a bending-arm pivoted to said supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a second pin on said bending-arm eccentrically to said center pin, a stationary pin on the supporting-plate opposite to the bending-arm, means between the pivot of the bending-arm and the sliding sleeve for operating the bending-arm, a hook-bending die pivoted below the bending-arm, means for moving said die in a direction opposite to the movement of the bending-arm, a spring-actuated counter-plate guided on the pivot of the hook-bending die, means for guiding said counter-plate on the main supporting-plate, and means for imparting lateral motion to said counter-plate so as to hold or release the bent wire, substantially as set forth.

8. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, said supporting-plate being provided with a rim recessed at its upper end, a treadle-operated sliding sleeve splined to said shaft, a bending-arm pivoted to said supporting-plate and provided with a pin at its outer end, a center pin in the pivot of the bending-arm, a second pin on said bending-arm eccentrically to said center pin, a stationary pin on the supporting-plate opposite to the bending-arm, means between the pivot of the bending-arm and the sliding sleeve for operating the bending-arm, a hook-bending die pivoted below the bending-arm, means for moving said die in a direction opposite to the movement of the bending-arm, a spring-actuated counter-plate guided on the pivot of the hook-bending die, pins on said counter-plate guided in sockets of the supporting main plate, a cam on the counter-plate, a second cam mounted on the pivot of the die, and means for operating one of said cam-surfaces so as to impart a lateral movement to said counter-plate, substantially as set forth.

9. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, wire-bending devices on said supporting-plate, a spring-actuated counter-plate sidewise of said supporting-plate, means for imparting laterally-reciprocating motion to said counter-plate for holding or releasing the wire to be bent, clamping-jaws arranged in line with said wire-bending devices, means for clamping the wire after the same has been bent by the bending devices, and means for imparting a rotary motion to the shaft and the bending devices supported at the end of the same for twisting the bent end of the wire blank, substantially as set forth.

10. In a machine for bending the cross-heads and eyes of wire bale-ties, the combination of a shaft, a supporting-plate attached to the head of said shaft, wire-bending devices located on said supporting-plate, means for operating said wire-bending devices, a spring-actuated counter-plate located sidewise of the supporting main plate, means for imparting lateral motion to the same for holding the wire during the bending operation, clamping-jaws arranged in line with the wire-bending devices, means between the shaft and the clamping-jaws for clamping the latter to the wire after the same has been bent, and means for imparting a predetermined number of rotations to the shaft and bending devices for twisting the bent end of the wire blank, substantially as set forth.

752,514. DISK-SHARPENER. HENRY BURFORD, Millcreek, Ind Ter. Filed July 18, 1903. Serial No. 166,117. (No model.)



Claim.—1. A disk-sharpening attachment for cultivators, comprising a pivoted longitudinally-shiftable lever having at one end thereof a sharpening device, and means for operating said lever to carry said device into and out of engagement with the edge of the disk at will.

2. A disk-sharpening attachment for cultivators comprising a pivoted longitudinally-shiftable lever having at one end thereof a sharpening device, and means actuated by the foot of the operator for carrying said device into and out of engagement with the edge of the disk at will.

3. A disk-sharpening attachment for cultivators, comprising a pivoted longitudinally-shiftable lever having at one end thereof a sharpening device, means for operating the lever to carry said device into and out of engagement with the edge of the disk, at will, and means for varying the angle at which said lever approaches the disk.

4. A disk-sharpening attachment for cultivators, comprising a pivoted longitudinally-shiftable lever having at one end thereof a sharpening device, means for operating the lever to carry the sharpening device into and out of engagement with the edge of the disk, at will, and a clamp for detachably securing said device to the lever.

5. The combination with a cultivator having a disk, of a sharpening attachment mounted upon a part of the cultivator, comprising a pivotally-mounted shiftable sharpening device, and means for carrying said device into and out of engagement with the edge of the disk at will.

6. The combination with a cultivator having a disk, of a sharpening attachment mounted upon a part of the machine, comprising a pivoted shiftable sharpening device, means for carrying the latter into and out of engagement with the edge of the disk, at will, and means for varying the angle of approach of said device to the disk.

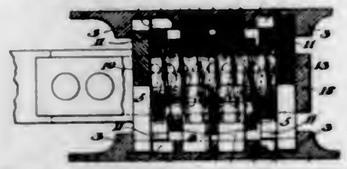
7. The combination with a cultivator having a disk, of a sharpening attachment carried thereby and consisting of a bracket, a shifting lever slidably and pivotally held by the said bracket, a cutter removably attached to the lever, means for varying the angle of movement of the lever and cutter, and means for operating the lever to carry the cutter into engagement with the disk edge at will.

8. The combination with a cultivator having a disk, of a sharpening attachment carried thereby and consisting of a depending support having clip means, and a shiftable sharpening device connected to said clip means, and other clip means having primary actuating devices in engagement with the attachment and operative to vertically adjust the sharpening attachment as an entirety.

9. A disk-sharpening attachment for cultivators, comprising a bracket secured to a part of the machine, and provided with lateral projections having alining threaded openings therein, a slotted shiftable lever working on a stud on the bracket, and having a lug disposed intermediate of the lateral projections, means for operating the lever, and adjusting-screws for the latter, working through the openings in said lateral projections on opposite sides of said lug, said lever carrying a sharpening device.

10. A disk-sharpening attachment for cultivators, comprising a pivoted longitudinally-shiftable lever having at one end thereof a sharpening device, and also having a lateral outstanding lug, a pivoted slotted actuating-lever for said first-named lever, and means for operating said actuating-lever.

752,515. SPRING CUSHIONING DEVICE. CLARENCE P. BYRNES, Sewickley, Pa. Filed Apr. 8, 1902. Serial No. 101,924. (No model.)



Claim.—1. A spring-cushion having a longitudinal coil-spring extending parallel to the axis of the cushion, and a friction element, one of said parts being located around or including the other, and an incline arranged to move the friction element toward the spring substantially as described.

2. A spring-cushion having a coiled spring, radially-movable friction elements arranged around the spring, and inclines arranged to force the friction elements inwardly toward the axis of the spring, substantially as described.

3. A spring-cushion having a coiled spring concentric with its axis, friction-plates arranged around the spring and movable in a radial direction, and mechanism for forcing the plates inwardly toward the spring when the spring is compressed; substantially as described.

4. A spring-cushion having a coiled spring, a friction element around the spring, and an incline arranged to move the friction element inwardly toward the axis of the cushion; substantially as described.

5. A spring-cushion having a central yielding friction member, friction elements around said member, and mechanism for forcing the friction elements inwardly toward the axis of the cushion to cause friction upon the yielding member; substantially as described.

6. A spring-cushion having a coiled spring, radially-movable friction-plates, and a parallel-motion device arranged to move the plate radially; substantially as described.

7. A spring-cushion having a longitudinal coil-spring extending parallel to the axis of the cushion, and a friction element, one of said parts being arranged around or including the other, means for compressing the spring endwise, and mechanism independent of the spring for actuating the friction element; substantially as described.

8. A spring-cushion having a coiled spring, and a friction device having friction-plates arranged to move toward and from the axis of the cushion, a follower to compress the spring, and connections independent of the spring arranged to actuate the friction device and create friction independent of the point in the stroke of the spring; substantially as described.

9. A spring-cushion having a coiled spring, and radially-movable friction elements, end followers arranged to compress the spring independently of the friction elements, and connections independent of the spring for moving the friction elements at a predetermined point in the stroke; substantially as described.

10. A spring-cushion having a coiled spring, and a friction element having plates arranged to move toward and from the axis of the cushion, one located around or including the other means for compressing the spring endwise, and connections independent of the spring for simultaneously actuating the friction elements; substantially as described.

11. A spring-cushion having a coiled spring, a friction element around the spring and arranged to have frictional contact with it and an incline arranged to force the friction element inwardly; substantially as described.

12. A spring-cushion having a coiled spring, friction-plates with inclines, and longitudinally-movable elements with inclined faces arranged to force the friction-plates radially; substantially as described.

13. A spring-cushion having a coiled spring, radially-movable friction-plates with inclines, longitudinally-movable elements with inclined faces arranged to force the friction-plates inwardly toward the spring, and a follower arranged to actuate the longitudinally-moving elements; substantially as described.

14. A spring-cushion having a coiled spring, a follower arranged to compress the same, friction-plates around and arranged to contact with the spring and having inclines, and longitudinally-sliding inclined blocks arranged to force the plates inwardly during the compression of the spring; substantially as described.

15. A draft-rigging having hollow friction elements, one arranged around or including the other and coacting inclines arranged to force one of said elements radially on both buffing and pulling strains; substantially as described.

16. A draft-rigging having a central hollow friction element, a concentric spiral spring within it, other friction elements arranged around and including the same, and inclines arranged to force the outer friction elements toward the axis of the cushion on both buffing and pulling strains; substantially as described.

17. A draft-rigging having a coiled spring, a friction device arranged to have frictional contact with the coils of the spring, and mechanism for forcing the friction device radially in contact with the spring on both buffing and tugging strains; substantially as described.

18. A draft-rigging having a concentric coiled spring, a plurality of radially-movable friction-plates, arranged to contact with the coils, and inclines arranged to force the plates radially into contact with the coils on both buffing and tugging strains; substantially as described.

19. A draft-rigging having a concentric coiled spring, radially-movable friction elements arranged to contact with it, and a parallel-motion device arranged to move the plates radially on both buffing and tugging strains; substantially as described.

20. A draft-rigging having a longitudinal coiled spring, radially-movable friction-plates around the spring, and inclines arranged to force the plates inwardly on both buffing and tugging strains; substantially as described.

21. A draft-rigging having a concentric coiled spring, outer friction-plates around the spring, having opposite inclines, and sliding blocks arranged to act upon the inclines and force the plates inwardly during both buffing and tugging strains; substantially as described.

22. A draft-rigging having a concentric coiled spring, radially-movable friction elements, longitudinally-sliding blocks, and a follower arranged to act on the sliding blocks and force the friction-plates radially in contact with the spring; substantially as described.

23. A spring-cushion having a spiral-spring member, a friction member surrounding and in contact with the spring, and inclines arranged to force the friction member against the spring, substantially as described.

24. A spring-cushion having a spiral-spring member, and a friction member contacting therewith, one of said members surrounding or engaging the other, and inclines arranged to force the friction member radially against the spiral-spring member, substantially as described.

25. A draft-rigging having a spiral-spring member, a friction member contacting therewith, one of said members surrounding or including the other, and inclines arranged to act both in buffing and pulling to force the friction member radially against the spiral-spring member; substantially as described.

26. A draft-rigging having a longitudinal coil-spring parallel with its axis, a plurality of plates arranged to move toward and from the axis, each plate having an incline at one end and an oppositely-directed incline at the other end, and longitudinally-movable wedge elements having inclined faces contacting with the inclines of the plates and arranged to move them toward and from the axis of the cushion on both buffing and pulling strains; substantially as described.

27. A draft-rigging having a longitudinal concentric coil-spring, a plurality of plates around the spring and arranged to move toward and from the axis of the cushion, each plate having external opposite inclines, and followers arranged to act upon said inclines and force the plates inwardly on both buffing and pulling strains; substantially as described.

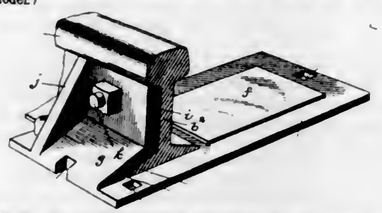
752,516. FOOT-WARMER. JEFFERSON D. CARNEY, Clinton, Mo. Filed Jan. 16, 1903. Serial No. 139,320. (No model.)

Claim.—1. As a new article, a foot-warmer formed of a flexible waterproof material, one end of which is smaller than the other, both ends terminating in oppositely-arranged leg and foot portions, the smaller leg and foot portion being adapted to fold back into the larger leg and boot portion whereby to form a surrounding fluid-holding space, the length of the smaller and larger foot and leg portions being relatively such whereby the inner foot portion will have close contact with the outer foot portion, and the said larger leg portion having an annular rim at the top thereof at the juncture of the larger and smaller leg portions, a valved intake connected to the annular rim and communicating with the space surrounding the foot portion, and a non-heat-conducting material covering the entire external surface of the inner and outer foot and leg members, all being arranged substantially as shown and for the purposes described.



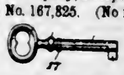
2. As a new article of manufacture, a foot and leg warmer formed of a continuous sheet of flexible waterproof material one portion of which is smaller than the other and adapted to closely fit the leg of the wearer, the other portion being larger than the first-named portion, said larger portion being formed with an integral annular rim at the juncture of the larger and smaller portions, and the said smaller portion being adapted to fold back into the larger portion to form a fluid-holding space, a non-heat-conducting cover for both of said portions, and a valve-intake connected to the annular rim and communicating with fluid-holding space, as set forth.

752,517. SLIDE-PLATE FOR RAILWAY-SWITCHES. JOHN CARTER, Highlandtown, Md., assignor of one-half to Thomas J. Connolly, Baltimore, Md. Filed Sept. 30, 1903. Serial No. 175,118. (No model.)



Claim.—In a railway-switch comprising the fixed and movable rails the combination of a plate, *d*, on which the fixed ralls rest and having an upwardly-projecting brace at one end which is narrower than the plate, said plate also having a spike-hole at opposite sides adjacent said narrower brace and also having a raised surface which is spaced from the flange of the fixed rail and on which the movable rail slides, and a bolt extending through the web of the fixed rail and also through said brace whereby to secure the fixed rail against movement in a direction toward said raised surface.

752,518. KEY. JAMES P. CLARK, Newark, N. J., assignor to the R. Neumann Hardware Company, a Corporation of New Jersey. Filed Aug. 1, 1903. Serial No. 167,825. (No model.)

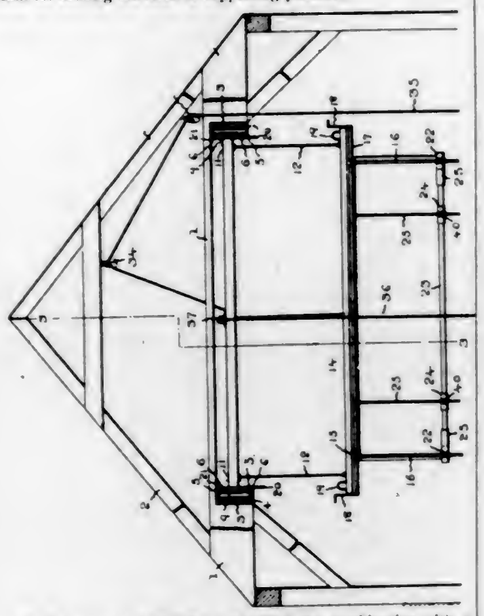


Claim.—1. The improved key herein described comprising a bow, having a shank with a cylindrical reduction at one end, and a sheet-metal tube turned about and fastened onto said reduction of said shank, and having means to engage the lock at the end thereof opposite said shank, substantially as set forth.

2. The combination with a bow having a shank, of a separate tubular piece riveted onto said shank at one end and having a laterally-bent bit extension 15, formed back and away from one longitudinal edge and at its opposite longitudinal edge having a tongue 19, adapted to enter the recess formed in bending the bit and break the longitudinal joint at the meeting of the longitudinal edges, said bit being adapted to engage the lock to unlock the same, substantially as set forth.

752,519. WAGON-UNLOADING MECHANISM. MURRELL C. CLARK, Verona, Miss. Filed July 11, 1903. Serial No. 165,131. (No model.)

Claim.—1. In a wagon-unloading apparatus, the combination with a track, a car thereon, and means for propelling the car; of a second car upon the track, cables loosely mounted on said car and secured to the first-mentioned car, a frame secured to the cables, wagon-body-supporting means pivotally connected thereto, and means for locking the same in supporting position.



2. In a wagon-unloading apparatus, the combination with a track, a car thereon, and means for propelling the car; of a second car upon the track, cables loosely mounted on said car and secured to the first-mentioned car, a frame secured to the cables, a rod connected thereto, wagon-body-supporting bars pivoted on the rod, and means for locking the bars in supporting position.

3. In a wagon-unloading apparatus, the combination with a track, a car thereon, and means for propelling the car; of a second car upon the track, cables loosely mounted on said car and secured to the first-mentioned car, a frame secured to the cables, a rod connected thereto, wagon-body-supporting bars pivoted to the rod, hooked strips connected to the bars, and a movable rod upon the frame and normally engaged by the hooked strips.

4. In a wagon-unloading apparatus, the combination with a track, a car thereon, and means for propelling the car; of a second car upon the track, cables loosely mounted on said car and secured to the first-mentioned car, a frame secured to the cables, a rod connected thereto, wagon-body-supporting bars pivoted to the rod, hooked strips extending from the bars, arms pivoted to the frame, a rod connecting said arms and normally engaged by the hooked strips, and means for automatically releasing the rod from the strips.

5. In a wagon-unloading apparatus, the combination with a track, a car thereon, and means for propelling the car; of a second car upon the track, cables loosely mounted on said car and secured to the first-mentioned car, a frame secured to the cables, a rod suspended therefrom, wagon-body-supporting bars pivotally connected to the rod, hooked wagon-body-engaging rods adjustably secured to the said rod, hooked strips extending from the bars, arms pivoted to the frame, a rod connecting the arms and normally engaged by the hooked strips, and means for automatically releasing the rod from said strips.

752,520. COMBINATION BANKING-BOOK. ABNER B. CLEMENTS, Butte, Mont. Filed Dec. 9, 1903. Serial No. 184,430. (No model.)

Claim.—1. A blank order-form provided on its reverse face with a blank form of deposit.

2. A banking-book comprising a plurality of blank order-forms provided on their reverse faces with a blank form of deposit, a plurality of entry-slips alternating therewith, and a suitable cover therefor.

3. The combination with a withdrawal order-book comprising a plurality of blank order-forms, a plurality of entry-slips alternating therewith, and a suitable cover therefor, of means cooperating with said order-book for also utilizing the same as a pass-book and maintaining the balance to the customer's credit substantially as each transaction is completed, comprising bank charge and credit slips adapted to be pasted on the front face of said entry-slips in lieu of the used and detached order-form.



4. The combination with a withdrawal order-book comprising a plurality of blank order-forms, provided on their reverse faces with a blank form of deposit, a plurality of entry-slips alternating therewith, and a suitable cover therefor, of means cooperating with said order-book for also utilizing the same as a pass-book and maintaining the balance to the customer's credit substantially as each transaction is completed, comprising bank charge and credit slips adapted to be pasted on the front face of said entry-slips in lieu of the used and detachable order-form or deposit-slip.

5. A blank form of check provided on its rear face with a blank form of deposit.

6. A check-book comprising a plurality of check-forms provided on their rear faces with a blank form of deposit, a plurality of entry-slips alternating therewith, and a suitable cover therefor.

7. A check-book comprising a plurality of check-forms provided on their rear faces with a blank form of deposit, a plurality of entry-stubs alternating therewith, and a suitable cover therefor.

8. A blank form of check provided on its rear face with a blank form of deposit and a blank order-form.

9. A check-book comprising a plurality of check-forms provided on their rear faces with a blank form of deposit and a blank order-form, a plurality of entry-slips alternating therewith and a suitable cover therefor.

10. A check-book comprising a plurality of folded check-forms, provided on their rear faces with a blank form of deposit, a plurality of entry-slips alternating therewith, and a suitable cover therefor.

11. A check-book comprising a plurality of check-forms transversely folded substantially centrally thereof and provided on their rear faces with a blank form of deposit and a blank order-form, a plurality of entry-slips alternating therewith, and a suitable cover therefor.

752,521. BOTTLE-CLOSURE. HARVEY COALE, Baltimore, Md. Filed July 17, 1903. Serial No. 166,963. (No model.)

[redacted]

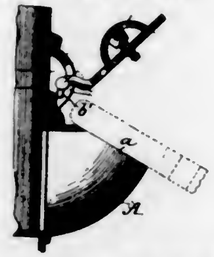
Claim.—1. The combination with a metallic sealing-cap, of a sealing medium composed of thin layers or slices of cork firmly united, all in their natural resilient condition, and having the pit-holes in any one layer offset by solid cork in an adjacent layer, substantially as described.

2. A sealing medium composed of thin layers or slices of cork firmly united by suitable adhesive matter, each layer in its natural resilient condition, the pit-holes in any one layer being offset by solid cork in an adjacent layer, substantially as described.

3. A sealing-disk composed of thin layers or slices of firmly-united cork in its natural resilient condition, the sides of which are parallel with the growth-lines of the cork and have the usually open pit-holes or streaks in the cork of any one layer offset and closed by solid cork of an adjacent layer, substantially as described.

4. A sealing-disk composed of layers of cork in its natural condition as to resiliency firmly united, one of said layers serving as an interior portion or body of the disk, and additional layers serving as a complete facing or facings, substantially as described, said disk having the characteristics of solid cork in its natural condition.

752,522. ASH-DOOR. ERNEST C. COLE, Chicago, Ill., assignor to Cole Manufacturing Company, Chicago, Ill., a Corporation. Filed Oct. 6, 1903. Serial No. 175,958. (No model.)

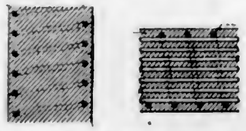


Claim.—1. The improvement in ash-pit or draft doors for stoves substantially as herein described comprising the body or stove section having an upwardly-inclined elbow portion whose outer or open end is inclined and provided with a hinge-knuckle sufficiently remote from the open end to permit the grinding of the latter without abrading the knuckle portion said knuckle having the outwardly-rounded portion provided with the slot for the pintle and with the shoulder at the base of said slot and the lid or cover-section fitted to the open end of the body-section and provided with the projecting hinge-arm having the pintle and the lug projecting therefrom, said pintle being adapted to fit within and engage with the knuckle of the body-section and to be passed through the slot in said knuckle when shifted to a position diagonal thereto, in applying and removing the lid substantially as and for the purpose set forth.

2. The combination in an ash-pit or draft door with the stove-section having a hinge-knuckle provided with a slot for the passage of the pintle and with a recess in rear of said slot for the operation of such pintle, and the lid or cover having the hinge-arm and the pintle thereon, said pintle being formed to engage with the knuckle of the door-section and to be passed through the slot in said knuckle when disposed diagonally thereto in connecting and disconnecting the sections substantially as set forth.

3. The combination in an ash-pit or draft door of the body or stove section having an inlet-opening and a hinge-knuckle having a slot for the passage of the pintle and a shoulder for engagement by the lug thereon, and the lid or door having a pintle to operate in the knuckle of the stove-section and a projecting lug to engage with said section, the knuckle being formed to pass through the slot in the knuckle-section when disposed diagonally thereto substantially as and for the purpose set forth.

752,523. ARMED OR STIFFENED CONCRETE CONSTRUCTION. ARMAND G. COIGNET, Paris, France. Filed June 27, 1902. Serial No. 113,467. (No model.)



Claim.—1. A column or the like of concrete, comprising a solid concrete core with independent helicoidal coils of metal surrounding said core, and arranged very close together, substantially as described.

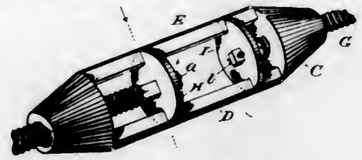
2. A column or the like of concrete, comprising a solid concrete core with independent helicoidal coils of metal surrounding said core, and arranged very close together, and a covering for the coils, substantially as described.

3. A column or the like of concrete, comprising a solid concrete core, longitudinal rods within the core and independent helicoidal coils of metal arranged very close together and surrounding the core and rods, substantially as described.

4. A column or the like of concrete, comprising a solid concrete core, longitudinal rods within the core and independent helicoidal coils of metal arranged very close together and surrounding the core and rods, and a covering for the coils, substantially as described.

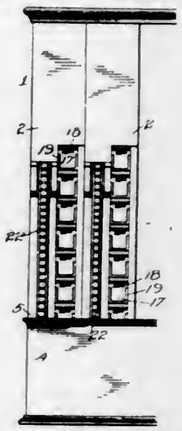
5. A concrete construction, comprising longitudinal metal rods tensioned in the shape they are to maintain, and a concrete covering for said rods to make a solid core, and independent helicoidal coils arranged very close together, surrounded and retaining the core, substantially as described.

752,524. SAFETY-TURNBUCKLE. ELIAS H. COWART, Pleasanton, Cal. Filed Feb. 19, 1903. Serial No. 144,159. (No model.)



Claim.—A turnbuckle formed with parallel bars connecting the opposite right-hand and left-hand threaded members thereof, one or more members situated between said bars and having their opposite edges notched to receive said bars, said members being formed with central square perforations, and opposite rods to engage the threads of said buckle and having their inner ends formed to enter said perforations, said notched members being arranged to slide on said parallel bars substantially as and for the purpose set forth.

752,525. STORE-FIXTURE. ERVIN S. COY, Wilbur, Wash. Filed July 2, 1903. Serial No. 164,070. (No model.)



Claim.—1. A goods-holding device, comprising a case or cabinet, having an open front, a stack or series of goods-receptacles, some of which are continually exposed at and form a closure for said open front, means for moving said receptacles to bring any one to a determined position at the open front for access to the goods contained therein and means for positively guiding said receptacle in such movement, substantially as described.

2. A goods-holding device, comprising a case or cabinet open at front, an endless carrier, an operating device therefor, having a portion crossing said open front and adapted for hand operation, and goods-holders carried by said carrier and displayed at the open front, substantially as set forth.

3. A goods-holding device, comprising a case or cabinet having main and auxiliary compartments open at front, an endless carrier within the main compartment, goods-holders mounted on said carrier, and a traveling endless operating device arranged within said auxil-

iary compartment and adapted to operate the endless carrier, said holders and operating device being arranged to move across the said open-front spaces of the main and auxiliary compartments, substantially as shown and described.

4. A goods-holding device, comprising a case or cabinet having an open front, a series of goods-holders, some of which are continually exposed at and close said open front, an endless carrier for the goods-holders, and an operating device for the endless carrier, substantially as set forth.

5. A goods-holding device, comprising a stack or series of goods-receptacles, each of said receptacles comprising a box having a goods-holder mounted therein, said holder consisting of a spring-clasp having elongated offset clamping-arms, and means for moving said receptacles to bring any one to a determined point for access to the goods contained therein, substantially as shown and described.

6. A goods-holding device, comprising a stack or series of goods-receptacles, each of said receptacles comprising a box having a goods-holder mounted therein, said holder consisting of a U-shaped spring-clasp, elongated clamping-arms, and means for moving said receptacles to bring any one to a determined point for access to the goods contained therein, substantially as set forth.

7. A goods-holding device, comprising a stack or series of goods-receptacles, each of said receptacles comprising a box having a goods-holder mounted therein, said holder consisting of a spring-clasp bent to hold a desired kind or form of goods, and means for moving said receptacles to bring any one to a determined point for access to the goods contained therein, substantially as described.

8. In a goods-holding device of the character described, the combination of a case or cabinet, a series of goods holders or receptacles, an endless carrier connecting said goods holders or receptacles, the said carrier consisting of a series of connected links secured to the receptacle, each of said links comprising in its construction angle-plates connected by rods or bars forming teeth, the rods or bars at the ends of the plates being jointed together to form a pivotal connection between the links, toothed guide-wheels for the endless carrier engaged by the said rods or bars, and means for actuating the same to impart movement to the said endless carrier to bring any one of the aforesaid goods-receptacles into position for access, substantially as described.

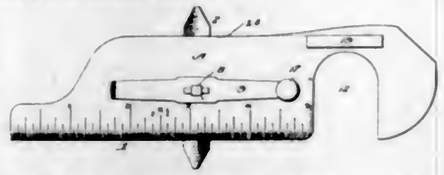
9. In a goods-holder of the character described, the combination of a case or cabinet, sprocket-wheels disposed therein one above the other, an endless carrier passing around said sprocket-wheel, goods holders or receptacles mounted upon said carrier and provided with friction-rollers, means for operating the endless carrier, and guide-strips disposed between the stretches of the carrier and the sprocket-wheels and engaged by said rollers to cause the goods holders or receptacles to move in a determined path, as set forth.

10. In a goods-holder of the character described, the combination of a cabinet having main and auxiliary compartments open at the front thereof, horizontal shafts mounted in said compartments one above the other, sprocket-wheels on said shafts, disposed in sets one within the main compartment and the other within the auxiliary compartment, guide-wheels in the auxiliary compartment at the top and bottom portions of the opening in the front thereof, an endless carrier passing around the sprocket-wheels in the main compartment, a series of goods-holders mounted on said carrier, and an endless operating device passing around the sprocket-wheels and guide-wheels in the auxiliary compartment for operating the said endless carrier, the said endless operating device having a portion exposed at the front of the auxiliary compartment for manipulation, substantially as shown and described.

11. In a goods-holder of the character described, the combination of a case or cabinet having main and auxiliary compartments open at the front thereof, shafts mounted horizontally in the said compartments and provided with sets of gear-wheels, one set being arranged within the main compartment and the other within the auxiliary compartment, guide-wheels also located in the auxiliary compartment, an endless-chain carrier disposed in the main compartment and passing around the sprocket-wheels therein, and comprising a series of links, each consisting of a pair of angle-plates and cross-bars connecting said plates and forming teeth to mesh with the wheels, the ends of said bars having a jointed connection, goods-holders secured to the said links, and an endless-chain operating device passing around the sprocket-wheels and guide-wheels in the auxiliary compartment, and having a portion exposed at the open front of said compartment for operation, substantially as described.

752,526. TIRE-GAGE. FRANK CURRAN, Susquehanna, Pa. Filed Apr. 28, 1903. Serial No. 154,675. (No model.)

Claim.—1. A tire-gage provided with a recess for the reception of the wheel-flange and means carried by the gage outside the recess to vary the width thereof, the means comprising a movable filler, and an automatically-actuated dog engaging the filler to retain it in its adjusted positions.



2. A tire-gage provided with a recess for the reception of the wheel-flange and means carried by the gage outside the recess to vary the width thereof, the means comprising a movable filler having openings therein, the gage provided with an aperture, one end of which is closed by the filler, a dog loosely received in the aperture in the gage, one end of the dog adapted to engage the openings in the filler and means for retaining the dog in position in any one of the openings in the gage.

3. A tire-gage provided with a recess for the reception of the wheel-flange and means carried by the gage outside the recess to vary the width thereof, the means comprising a filler pivotally secured to the gage and provided with openings the edge of the filler adjacent the recess being formed with a corresponding contour, the gage provided with an aperture, a dog loosely received in the aperture, one end of the dog adapted to enter any one of the openings in the filler to retain the latter in adjusted position and a spring engaging the dog to removably retain it in any of the openings of the filler.

4. A tire-gage comprising an irregularly-shaped body, portions of the opposite edges of the body being straight and parallel with each other and a projection extending outward from the body portion, and in alinement with one of the straight edges, the projection being longitudinally offset or removed from the straight edge with which it is in alinement.

5. A tire-gage comprising a body portion having an irregular contour and a projection extending outward transversely of the body portion and offset from the contour thereof, one face of the projection being in alinement with a portion of the contour of the body portion.

6. The combination with a gage, having a recess therein and a movable filler, of an adjustable finger, a pivot, a dog and a spring connected with and common to both the finger and the dog for retaining them yieldingly in place.

7. The combination with a gage, having a recess therein, and means for adjusting the side of this recess, and a dog for controlling said adjustment, of a finger, a stud having sliding connection with the gage, and pivotal connection with the stud, and a spring connected with the stud and dog for yieldingly retaining them in place.

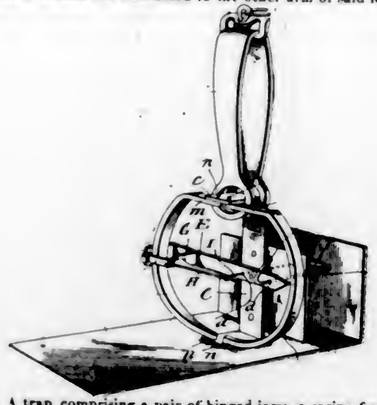
8. A tire-gage comprising a body portion, a scale on one edge thereof, fixed guides carried by the body portion, a scale on one of the guides, a slotted finger received and sliding between the guides, a headed stud passing through the slot in the finger and through a non-circular aperture in the body portion, that portion of the stud opposite and inclosed by the finger being circular, the remainder of the stud being non-circular forming a shoulder, yielding means for holding the head of the stud in contact with the finger to retain the latter between the guides, the stud adapted to have a longitudinal movement, the shoulder of the stud adapted to engage the finger and force it out from between the guides, the finger adapted to rotate on the circular portion of the stud when the latter has been moved longitudinally.

9. A tire-gage comprising a body portion of irregular contour and a strip projecting outward from one side of the body portion, one face of the strip in alinement with a portion of the contour of the body portion and constituting a continuation thereof.

752,527. ANIMAL OR FISH TRAP. ALBERT R. DANIEL, Daniels Landing, Tenn. Filed Nov. 4, 1903. Serial No. 179,801. (No model.)

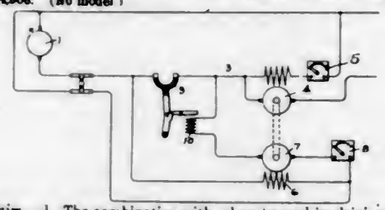
Claim.—1. A jaw-trap, comprising a pair of hinged jaws, a spring for operating said jaws, a trigger, a catch, a bait-holder, and means arranged between said trigger and bait-holder and connecting the same, whereby the trap may be sprung by the bait-holder or trigger.

2. A trap, comprising a pair of hinged or pivoted jaws, a spring for operating said jaws, a pivoted trigger, a bait-holder, a lever, a rod connecting one arm of said lever and the free end of said trigger, and a hooked rod connected to the other arm of said lever.



3. A trap, comprising a pair of hinged jaws, a spring for operating said jaws, a hinged trigger, a hinged catch for engaging said trigger, a lever, a plate arranged between said lever and trigger, a rod connecting said trigger and one arm of said lever, and a hooked rod connected to the other arm of said lever and extending through said plate.

752,528. PROTECTIVE MEANS FOR ELECTRIC BOOSTERS. MAXWELL W. DAY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 6, 1903. Serial No. 164,306. (No model.)



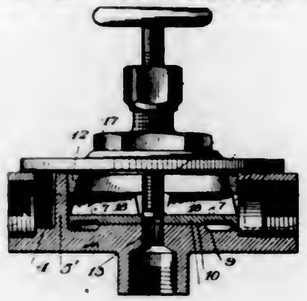
Claim.—1. The combination with a booster and its driving-motor, of a circuit-breaker controlling both of them, and having its tripping-coil in the motor-circuit.

2. The combination with a booster and its driving-motor, of a circuit-breaker located in the main supplying both of them, and having its tripping-coil in the motor-circuit only.

3. The combination with a booster, of a shunt-motor for driving it, and a circuit-breaker in the main supplying both of them, having its tripping-coil in the armature-circuit of the motor.

4. The combination with a generator and supply-mains fed thereby, of a booster connected to one of said mains, a shunt-motor connected across the mains for driving said booster, and a circuit-breaker between the generator and said booster and motor, having its tripping-coil in the armature-circuit of the motor.

752,529. ATOMIZER. ALBERT S. DIXON, Los Angeles, Cal., assignor to Asphalt Paper Pipe Company, Los Angeles, Cal., a Corporation of California. Filed Mar. 24, 1903. Serial No. 149,267. (No model.)



Claim.—1. In an atomizer, in combination a body comprising a closed cylindrical chamber, provided with an inlet opening thereinto axially, a plurality of inlets opening thereinto tangentially, and an outlet, and means in alinement with said axial inlet movable into said chamber toward said axial inlet for regulating the admission therethrough.

2. In an atomizer in combination, a body comprising a closed cylindrical chamber, provided with an inlet opening thereinto axially, a plurality of inlets opening thereinto tangentially and an outlet, a rotary breaker and mixer in said chamber provided with a series of flights against which said tangential inlets are adapted to deliver their stream, said breaker and mixer provided with a central perforation, registering with said axial inlet, and means in alinement with said axial inlet and movable into said chamber toward said axial inlet for regulating the admission therethrough.

3. In an atomizer in combination a body comprising a closed cylindrical chamber provided with an inlet opening thereinto axially, an inlet opening thereinto tangentially and an outlet, a rotary breaker and mixer seated on the bottom of said chamber and provided with a central perforation, registering with said axial inlet and provided with a series of radiating flights on its face, and means in alinement with said axial inlet and movable into said chamber toward said axial inlet for regulating admission therethrough.

4. In an atomizer, in combination, a body comprising a closed cylindrical chamber provided with an axial inlet, a tangential inlet and an outlet, and with a seat for a rotary member, a rotary member loosely seated on said seat and provided with a central perforation registering with said axial inlet and with a series of flights upon its face, said flights forming open-sided, open-ended channels or grooves, and means in alinement with said axial inlet and movable into said chamber toward said axial inlet for regulating the admission therethrough.

5. In an atomizer, in combination, a body comprising a closed cylindrical chamber, provided with an axial inlet, a plurality of tangential inlets and an outlet, and with a seat for a rotary member, a rotary member loosely seated on said seat and provided with a central perforation registering with said axial inlet, and with a series of flights upon its face, said flights forming open-sided, open-ended channels or grooves, and means in alinement with said axial inlet and movable into said chamber toward said axial inlet for regulating admission therethrough.

6. In an atomizer, the combination with a body comprising a breaking and mixing chamber, provided with an axial inlet, a tangential inlet and an outlet and with a seat for a rotary breaker, a rotary breaker mounted on said seat and provided with a central perforation registering with said axial inlet and with flights upon its upper face.

7. In an atomizer, the combination with a body comprising a breaking and mixing chamber, provided with an axial inlet, a tangential inlet and an outlet and with a seat for a rotary breaker, a rotary breaker mounted on said seat and provided with a central perforation registering with said axial inlet and with flights upon its upper face, and means mounted within said chamber for regulating the admission of fluid through said axial inlet.

8. In an atomizer, the combination with a body comprising a closed breaking and mixing chamber, provided with an axial inlet, a tangential inlet and an outlet, and provided with a seat for a rotary breaker, and a rotary breaker seated on said seat and provided with a central perforation registering with said axial inlet and a regulator adapted to control the admission through said axial inlet and forming with said rotary breaker a self-clearing rotary valve.

9. In an atomizer, the combination of a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a plurality of tangential inlets communicating from said channel into said chamber, said body having an axial inlet into said chamber and a peripheral outlet therefrom.

10. In an atomizer, the combination of a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a plurality of tangential inlets communicating from said channel into said chamber, said body having an axial inlet into said chamber, and an outlet therefrom, and a rotary breaker and mixer in said chamber provided with a central perforation registering with said axial inlet, and with a series of flights upon its face.

11. In an atomizer, the combination of a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the

inner wall of said channel, a plurality of tangential inlets communicating from said channel into said chamber, said body having an axial inlet into said chamber, and an outlet therefrom, and a rotary breaker and mixer in said chamber provided with a central perforation registering with said axial inlet, and with a series of flights upon its face, and a regulator operating in connection with the perforation through said rotary breaker and mixer and adapted to control the admission of liquid through said axial inlet.

12. In an atomizer, the combination of a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a plurality of tangential inlets communicating from said channel into said chamber, said body having an axial inlet into said chamber and an outlet therefrom, and means extending in axial alinement with said axial inlet whereby the admission therethrough may be controlled.

13. In an atomizer, in combination, a body provided with an expansive-medium inlet, a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said chamber, said body provided with an inlet entering said body axially and with a plurality of tangential inlets opening from said channel into said chamber and an outlet from said chamber, said body provided with a seat within said chamber for a rotary breaker, a rotary breaker seated thereon, said rotary breaker provided with a central perforation registering with said axial inlet, and with a series of radiating flights extending out from said central perforation.

14. In an atomizer, in combination, a body provided with an expansive-medium inlet, a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said chamber, said body provided with an inlet entering said body axially and with a plurality of tangential inlets opening from said channel into said chamber and an outlet from said chamber, said body provided with a seat within said chamber for a rotary breaker, a rotary breaker seated thereon, said rotary breaker provided with a central perforation registering with said axial inlet, and with a series of radiating flights extending out from said central perforation, and a regulator extending into said chamber opposite said axial inlet and adapted to be moved with relation to said inlet to control the admission of liquid therethrough.

15. In an atomizer, in combination, a body comprising a closed cylindrical chamber, provided with an inlet opening thereinto axially, a plurality of inlets opening thereinto tangentially, and an outlet, a breaker and mixer within said chamber and adapted to rotation by the streams from said tangential inlet, and means in alinement with said axial inlet movable into said chamber toward said axial inlet for regulating the admission therethrough.

16. In an atomizer, the combination of a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a plurality of tangential inlets communicating from said channel into said chamber, said body having an axial inlet into said chamber and an outlet therefrom, and a rotary breaker and mixer in said chamber, adapted to be revolved by the streams from said tangential inlets.

17. In an atomizer, the combination, with a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a tangential inlet communicating from said channel into said chamber, said body provided with an axial inlet and a peripheral outlet.

18. In an atomizer, the combination, with a body provided with an inlet for expansive medium and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a tangential inlet communicating from said channel into said chamber, said body provided with an axial inlet and an outlet, and a breaker and mixer in said chamber adapted to revolution by the stream from said tangential inlet

19. The combination in an atomizer, of a body comprising a breaking and mixing chamber, of a breaker and mixer rotatably mounted therein and provided on its side with a series of open-sided channels or ways, an axial inlet-port adapted to direct liquid into said channels, a tangential expansive-medium inlet adapted to direct its stream against the periphery of said breaker and mixer, and an outlet.

20. The combination, in an atomizer, of a body comprising a breaking and mixing chamber, of a breaker and mixer rotatably mounted therein and provided on its side with a series of open-sided channels or ways radiating from the center, an axial liquid-inlet adapted to direct liquid into said channels, a tangential expansive-medium inlet adapted to direct its stream against the periphery of said breaker and mixer, an outlet, and means for regulating the flow of liquid through said liquid-inlet.

21. In an atomizer, the combination with a body provided with an inlet for expansive medium, and with a channel whereinto said inlet communicates, and a closed cylindrical chamber formed within the inner wall of said channel, a tangential inlet communicating from said channel into said chamber, said body provided with an axial inlet and an outlet, and means within said chamber forming a regulable rotary, self-clearing valve in connection with said axial inlet.

22. In an atomizer, the combination with a body provided with an inlet for expansive medium, and with a channel whereinto said inlet communicates, a closed cylindrical chamber formed within the inner wall of said channel, a tangential inlet communicating from said channel into said chamber, said chamber provided with an axial inlet and a peripheral outlet, and means within said chamber forming a regulable, rotary, self-clearing valve in connection with said axial inlet.

752,530. WALL-FURRING. CLARENCE E. DOBBIN, New York, N. Y., assignor to Freeman, Dobbin Fireproofing Company, New York, N. Y., a Corporation of New York. Filed Dec. 18, 1902. Serial No. 135,796. (No model.)



Claim.—1. In a wall construction, the combination with slabs arranged in parallel series, of seats for such slabs, and clips normally engaging the seats at their inner ends and their outer ends engaging and holding the slabs to such seats, as set forth.

2. In a wall construction, the combination with slabs arranged in parallel series, of seats for such slabs, such seats of adjacent series of slabs having intervening spaces between them, and clips movable in such spaces, such clips having inner and outer lateral flanges, the inner flanges engaging the seats and the outer flanges overlapping and engaging the slabs, as set forth.

3. In a wall construction, the combination with slabs arranged in parallel series, seats for said slabs, such seats having outer straight walls, the walls of adjacent seats forming intervening spaces, and clips movable in such spaces having inner and outer flanges, the inner flanges engaging the seats and the outer flanges overlapping and engaging the slabs, as set forth.

4. In a fireproof partition, the combination with the slabs, and studs having grooves or channels designed to accommodate said slabs at one edge, of movable clips designed to secure the opposite edges of adjacent slabs, and means with which said clips engage for holding them in place, substantially as set forth.

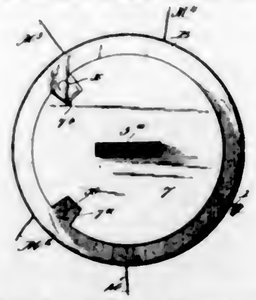
5. In a fireproof partition, the combination with the slabs, and studs having grooves or channels designed to accommodate said slabs at one edge, of studs intermediate the adjacent edges of such slabs having seats therefor, and movable clips engaging said latter studs and overlapping such slabs, to bind them to their seats substantially as set forth.

6. In a fireproof partition, the combination with the slabs, and studs having grooves or channels designed to accommodate said slabs at one edge, of studs intermediate the adjacent edges of such slabs having angular seats therefor, one wall of each of said seats being about flush with the outer face of such slabs, and clips, I shape in cross-section, designed to have their central body portions accommodated between said walls, whereby their inner and outer lateral portions will engage said studs and slabs, respectively, substantially as set forth.

7. In a fireproof partition, the combination with the slabs, and studs having grooves or channels designed to accommodate said slabs at one edge, of studs intermediate the adjacent edges of such slabs having seats therefor, and movable clips engaging said latter studs and designed to support such slabs, such clips consisting each of a single piece of metal bent into I shape in cross-section, the inner and outer lateral flanges of said clips being designed to engage said studs and slabs, respectively, substantially as set forth.

8. In a fireproof partition, seats permanently secured to a wall or other support, slabs designed to be accommodated by such seats, and a clip designed to secure the adjacent edges of such slabs to such seats, such clip being of approximately I shape with its connecting portion interposed between the slabs, its inner laterals being held by such seats and its outer laterals extended over the outer faces of such slabs.

752,531. ELECTRIC SWITCH. WARREN K. DODGE, Manhattan, Kans. Filed Oct. 23, 1903. Serial No. 178,235. (No model.)



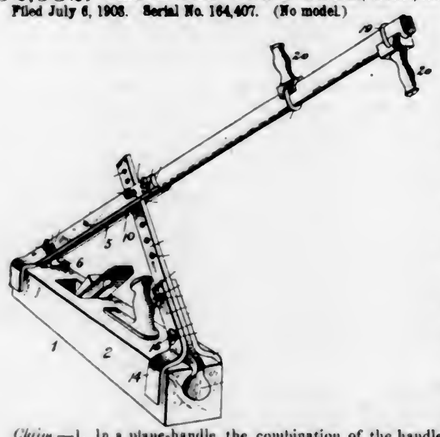
Claim.—1. A circuit-controlling switch, comprising a base-plate, an inclosing case, a rotary stem bearing a rigidly-attached plate with a plurality of radial contact-arms, an external thumb-piece mounted on the rotary stem, a main-line connection, an arm electrically connected thereto and bent up and over the stem-plate and rubbing thereon, and a plurality of branch-line contacts arranged to be pressed upon by the radial arms of the rotary stem, as shown and described.

2. A circuit-controlling switch, comprising a base-plate, an inclosing case, a rotary stem bearing radial contact-arms, a plurality of contacts with branch-line connections, a main-line connection, a rubbing-arm in permanent connection with the radial arms, an electric lamp and a movable arm extending through the wall of the case and arranged to alternately break the branch-line circuits and throw in the indicator-lamp substantially as shown and described.

3. An electric switch, comprising a rotary movable part having a plurality of circuit-contacts, an inclosing case having stenciled markings through the walls of the same, an electric lamp within the case, a movable arm for throwing the same into circuit and a mask-plate attached to the rotary movable part of the switch and having cut-away portions to expose the stencil-markings in the case whenever the corresponding contacts within the case are in circuit substantially as described.

4. An electric switch, comprising a base-plate, an inclosing case with a hole in the side and stenciled markings in the top, a rotary stem mounted in a bearing in the base-plate and extending through the top of the case and provided with a thumb-piece, a rotary plate with radial arms rigidly attached to the stem within the case, corresponding branch-line connections, a main-line connection, an arm connected to the main line and also by a rubbing contact to the radial arms, an electric indicator-lamp in the case, and a spring-arm extending through the side of the case and adapted to break the branch lines and throw in the indicator-lamp, and a mask-plate with cut-out parts attached rigidly to the rotary stem and arranged to expose the stenciled markings in the case which correspond to the contacts within substantially as described.

752,532. PLANE-HANDLE. PETER E. DRAUGHON, Mobile, Ala. Filed July 6, 1903. Serial No. 164,407. (No model.)



Claim.—1. In a plane-handle, the combination of the handle-bar bearing two laterally-offset jaws for engaging the sides of the plane-block, the means for clamping said jaws, the handles mounted on said handle-bar, the brace pivoted to said handle-bar and bearing a claw and two laterally-offset jaws designed to engage the end and sides respectively of the plane-block, substantially as described.

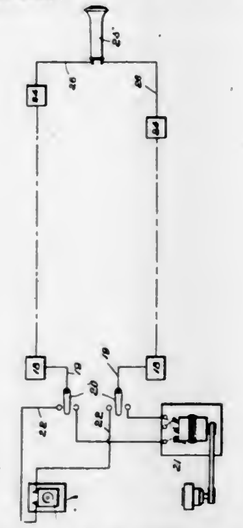
2. In a handle for floor-planes, the combination of the handle-bar provided with handles, the jaws carried by the lower end of said bar and designed to grip the sides of the forward end of the plane-block, the brace connected to said handle-bar and having a claw on its free end designed to engage the rear end of the plane-block, the jaws mounted on the claw end of said brace and designed to engage the opposite sides of the rear end of the block of the plane, substantially as described.

3. In a handle for floor-planes, the combination of the handle-bar provided with handles, the straps bearing laterally-offset jaws for engaging the sides of the plane, the set-screws for clamping said jaws, the brace-bar pivoted to said handle-bar and having a claw formed on the end thereof for engaging the rear end of a plane-block, the straps bearing laterally-offset jaws for engaging the sides of the plane, and the means for clamping said jaws, substantially as described.

4. A plane-handle embracing a handle-bar, a brace connected to said handle-bar, means for connecting said handle-bar laterally to the plane and means for connecting said brace laterally to said plane, said brace having a claw engaging said plane, at its rear end.

5. A plane-handle embracing a handle-bar, jaws connecting the latter to the plane, a brace connected to said handle-bar, and jaws connecting said brace to said plane, said brace having a claw engaging said plane, at its rear end.

752,533. WIRELESS SIGNALING. DANIEL DRAWBAUGH, Eberlys Mills, Pa. Filed Ma 1, 1902. Renewed July 15, 1903. Serial No. 165,660. (No model.)



Claim.—1. In a system for the transmission of intelligence through the natural media, means for impressing on the media currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted.

2. In a system for the transmission of intelligence through the natural media, means for impressing on the media, intermittent currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted.

3. In a system for the transmission of intelligence through the natural media, means for impressing on the media alternating currents of high potential in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted.

4. In a system for the transmission of speech through the natural media, means for impressing on the media currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves.

5. In a system for the transmission of speech through the nat-

ural media, means for impressing on the media intermittent currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves.

6. In a system for the transmission of speech through the natural media, means for impressing on the media alternating currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves.

7. In a system for the transmission of intelligence through the natural media, means for impressing on the media currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted, and means for translating said modified currents into audible or visual signals.

8. In a system for the transmission of intelligence through the natural media, means for impressing on the media, intermittent currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted, and means for translating said modified currents into audible or visual signals.

9. In a system for the transmission of intelligence through the natural media, means for impressing on the media alternating currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted, and means for translating said modified currents into audible or visual signals.

10. In a system for the transmission of speech through the natural media, means for impressing on the media currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves, and means for translating said modified currents into speech.

11. In a system for the transmission of speech through the natural media, means for impressing on the media intermittent currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves, and means for translating said modified currents into speech.

12. In a system for the transmission of speech through the natural media, means for impressing on the media alternating currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves, and means for translating said modified currents into speech.

13. In a system for the transmission of intelligence, through the natural media, means for impressing on the media, currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted, and means for receiving the same.

14. In a system for the transmission of intelligence through the natural media, means for impressing on the media, currents of high potential, in combination with means for impressing on the media currents modified in accordance with the signal to be transmitted, and a telephone-receiver for receiving said modified currents.

15. In a system for the transmission of speech through the natural media, means for impressing on the media currents of high potential, in combination with means for impressing on said media currents modified by and in accordance with sound-waves, and a telephone-receiver for translating said modified currents into speech.

16. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates electrical currents of high potential, and means for impressing on said plates currents modified in accordance with the signal to be transmitted.

17. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, and means for impressing on said plates currents modified in accordance with the signal to be transmitted.

18. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates alternating currents of high potential, and means for impressing on said plates currents modified in accordance with the signal to be transmitted.

19. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates electrical currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, and two metal plates in the media at the receiving-station and a receiver connected therewith.

20. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, two metal plates in the media at the receiving-station, and a receiver connected to the two metal plates.

21. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates currents of high potential, a source of current and means for modifying said latter current by and in accordance with the signal to be transmitted and for impressing said modified currents on said plates.

22. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates alternating currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, two metal plates in the media at the receiving-station, and a receiver connected thereto.

23. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves and for impressing said modified currents on said plates.

24. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified currents on said plates.

25. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates alternating currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified current on said plates.

26. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified currents on said plates, and two metal plates in the media at the receiving-station and a receiver connected thereto.

27. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves and for impressing said modified currents on said plates, and two metal plates in the media at the receiving-station and a receiver connected thereto.

28. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said metal plates alternating currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified currents on said plates, and two metal plates in the media at the receiving-station and a receiver connected thereto.

29. In a system for the transmission of intelligence through the natural media, two metal plates in said receiver, means for impressing on said plates electric currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

30. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

31. In a system for the transmission of intelligence through the natural media, two metal plates in said media, means for impressing on said plates alternating currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be transmitted, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

32. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates currents of high potential, a source of current and means for modifying said latter current, by and in accordance with sound-waves, and for impressing said modified current on said plates, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

33. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates intermittent currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified current on said plates, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

34. In a system for the transmission of speech through the natural media, two metal plates in said media, means for impressing on said plates alternating currents of high potential, a source of current and means for modifying said latter current by and in accordance with sound-waves, and for impressing said modified current on said plates, and two metal plates at the receiving-station and a receiver connected thereto, the line joining said plates forming an angle with the line joining said first-mentioned plates.

35. In a system for the transmission of intelligence through the natural media, the combination of two metal plates in said media, means for impressing on said plates currents of high potential, means for impressing on said plates currents modified in accordance with the signal to be sent, and means for connecting to the plates one of the current-impressing means and at the same time disconnecting therefrom the other current-impressing means.

36. In a system for the transmission of intelligence through the natural media, the combination of two metal plates in said media, means for impressing on said plates currents modified in accordance with the signal to be sent, and a switch for connecting to the plates one of the current-impressing means and at the same time disconnecting therefrom the other current-impressing means.

37. In a system for the transmission of speech through the natural media, the combination of two metal plates in said media, means for impressing on the said plates currents of high potential, a source of current, means for modifying said current by and in accordance with sound-waves and for impressing said modified currents on said plates, and means for connecting to the plates one of the current-impressing means and simultaneously disconnecting therefrom the other current-impressing means.

38. In a system for the transmission of speech through the natural media, the combination of two metal plates in said media, means for impressing on said plates currents of high potential, a source of current, means for modifying said current by and in accordance with sound-waves and for impressing said modified currents on said plates, and a switch for connecting to the plates one of the current-impressing means and simultaneouly disconnecting therefrom the other current-impressing means.

39. In a system for the transmission of intelligence through the natural media, the combination of a magneto-generator for impressing on said media currents of high potential, a source of current, and means for modifying said current in accordance with the signal to be sent and for impressing said modified current on said media.

40. In a system for the transmission of intelligence through the natural media, the combination of a magneto-generator for impressing on said media currents of high potential, a source of current, means for modifying said current in accordance with the signal to be sent and for impressing said modified current on said media, and means for alternately connecting said generator and said last-mentioned means to said media.

41. In a system for the transmission of intelligence through the natural media, the combination of a magneto-generator for impressing on said media currents of high potential, a source of current, a telephone-transmitter for modifying said current in accordance with the signal to be sent and for impressing said modified currents on said media, and means for alternately connecting said generator and said transmitter to said media.

42. In a system for the transmission of intelligence through the natural media, the combination of means for polarizing the media, and means for impressing on the media currents modified in accordance with the signal to be sent.

43. In a system for the transmission of intelligence through the natural media, the combination of means for polarizing the media, means for impressing on the media currents modified in accordance with the signal to be sent, and a receiver at a distant station for receiving the same.

44. In a system for the transmission of speech through the natural media, the combination of means for polarizing the media, and means for impressing on the media currents modified by and in accordance with sound-waves.

45. In a system for the transmission of speech through the natural media, the combination of means for polarizing the media, means for impressing on the media currents modified by and in accordance with sound-waves, and a receiver at a distant station for receiving the same.

46. In a system for the transmission of intelligence through the natural media, the combination of a magneto-generator, means for connecting said generator to the media, and means for short-circuiting said generator at the point of maximum potential of the current generated thereby, so that currents of high potential may be impressed on the media.

47. In a system for the transmission of intelligence through the natural media, the combination of a magneto-generator, means for connecting said generator to the media, and a spring-plate of magnetic material for short-circuiting said generator at the point of maximum potential of the current generated thereby, so that currents of high potential may be impressed on the media.

48. In a system for the transmission of intelligence through the natural media, means for polarizing the media between the transmitting and receiving station, said means comprising a magneto-generator having means for short-circuiting the current generated thereby at the point of maximum potential of said current.

49. In a system for the transmission of intelligence through the natural media, means for polarizing the media between the transmitting and receiving station, said means comprising a magneto-generator having a spring-plate of magnetic material for short-circuiting the current generated thereby at the point of maximum potential of said current.

50. In a system for the transmission of speech through the earth, the combination of two metal plates in the earth a magneto-generator for impressing on said plates currents of high potential, means for short-circuiting said generator at the point of maximum potential, a transmitter for impressing on the plates currents modified by and in accordance with sound-waves, a switch for alternately connecting said generator and said transmitter to the plates, and two plates at the distant station so positioned in the earth that the line joining them forms a small angle with the line joining the two first-mentioned plates, and a telephone-receiver connected to said plates.

51. In a system for the transmission of speech through the natural media, the combination of means for polarizing the media between the transmitting and receiving stations and means for impressing thereon currents modified by and in accordance with sound-waves.

52. In a system for the transmission of speech through the earth, the combination of means for polarizing the earth between the transmitting and receiving stations, and means for impressing thereon currents modified by and in accordance with sound-waves.

53. In an apparatus of the character described, the combination of means for preparing the earth so that undulatory waves can be transmitted through the earth and means for generating said undulatory waves.

54. In an apparatus of the character described, the combination of means for preparing the natural media, so that undulatory waves can be transmitted through the natural media and means for generating said undulatory waves.

55. In a system of telephony, the combination of two ground connections and a transmitting instrument connected therewith, a receiver having two ground connections, and means to impress on the ground at the transmitter currents of high potential, and means for impressing on said plates currents modified by and in accordance with sound-waves.

56. In a system of wireless telephony, a transmitter and a receiver, each having two ground connections, a magneto-generator connected to the transmitter's ground connections to impress a high-potential current on said connections, and means to cut the magneto-generator from connection with the ground connections when the transmitter is connected with the ground.

57. In a system of wireless telephony having two ground connections at the transmitting and receiving stations, a magneto-generator connected to the ground connections of the transmitting-station to impress a high-potential current upon said connections, a transmitter, and means to disconnect the generator from the ground connections when the transmitter is connected to the ground connections.

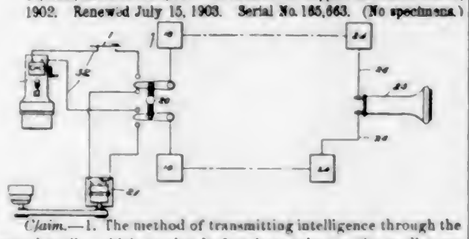
58. In a transmitter, the combination of two ground connections, means to make a signal and means to establish an electrical circuit, said means comprising a pair of supporting-plates, a field-magnet surrounding the same, a revolving armature mounted between the said supporting-plates, a spring-plate suspended above the supporting-plates and armature, and electrical connections between

the armature and one connection of the transmitter and between the spring-plate, magnet and the other connection of the transmitter.

59. In a signaling system, the combination of a transmitter which comprises two connections with the natural media, means to produce a signal, and means to impress a high-potential current upon the natural media, said means comprising a magneto-machine, whose armature is adapted to be revolved, and means to short-circuit the armature for automatically breaking the circuit when the current is at its maximum.

60. In transmitter apparatus for transmitting intelligence through natural medium or media, means for impressing high-potential electric impulses thereupon, and means for transmitting an undulatory variation in correspondence with speech, for substantially the purposes set forth.

752,534. METHOD OF TRANSMITTING INTELLIGENCE THROUGH THE NATURAL MEDIUMS. DANIEL DRAWBAUGH, Eberlys Mills, Pa. Original application filed Mar. 1, 1902. Renewed July 15, 1903. Serial No. 165,860. Divided and this application filed June 28, 1902. Renewed July 15, 1903. Serial No. 165,663. (No specimens.)



Claim.—1. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential, and then impressing on the media currents modified in accordance with the signal to be transmitted.

2. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential, then impressing on the media currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station.

3. The method of transmitting intelligence through the natural media, which consists in first impressing on the media at two points currents of high potential, and then impressing on the media at said two points currents modified in accordance with the signal to be transmitted.

4. The method of transmitting intelligence through the natural media, which consists in first impressing on the media at two points currents of high potential, then impressing on the media at said two points currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station.

5. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential and then impressing on the media currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station in a suitable receiver connected to the media at two points.

6. The method of transmitting intelligence through the natural media, which consists in first impressing on the media at two points currents of high potential, then impressing on the media at said two points currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station in a suitable receiver connected to the media at two points.

7. The method of transmitting intelligence through the earth, which consists in first impressing on the earth currents of high potential, and then impressing on the earth currents modified in accordance with the signal to be transmitted.

8. The method of transmitting intelligence through the earth, which consists in first impressing on the earth currents of high potential, then impressing on the earth currents modified in accordance with the signal to be transmitted, and receiving the modified currents at a distant station.

9. The method of transmitting intelligence through the earth, which consists in first impressing on the earth at two points currents of high potential, and then impressing on the earth at said two points currents modified in accordance with the signal to be transmitted.

10. The method of transmitting intelligence through the earth, which consists in first impressing on the earth at two points currents of high potential, then impressing on the earth at said two points currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station.

11. The method of transmitting intelligence through the earth, which consists in first impressing on the earth currents of high potential, then impressing on the earth currents modified in accordance with the signal to be transmitted, and receiving said modified currents in a suitable receiver connected to the earth at two points at the distant station.

12. The method of transmitting intelligence through the earth, which consists in first impressing on the earth at two points currents of high potential, then impressing on the earth at said two points currents modified in accordance with the signal to be transmitted, and receiving said modified currents in a suitable receiver connected to the earth at two points at the distant station.

13. The method of transmitting speech through the natural media, which consists in first impressing on the media currents of high potential, and then impressing on the media currents modified by and in accordance with sound-waves.

14. The method of transmitting speech through the natural media, which consists in first impressing on the media currents of high potential, then impressing on the media currents modified by and in accordance with sound-waves and translating said modified currents into sound-waves at a distant station.

15. The method of transmitting speech through the earth which consists in first impressing on the earth at two points currents of high potential, and then impressing on the earth currents modified by and in accordance with sound-waves.

16. The method of transmitting speech through the earth which consists in first impressing on the earth at two points currents of high potential, then impressing on the earth currents modified by and in accordance with sound-waves, and translating said modified currents into sound-waves at a distant station.

17. The method of transmitting speech through the natural media, which consists in first impressing on the media currents of high potential, then impressing on the media currents modified by and in accordance with sound-waves, and receiving said modified currents in a telephone-receiver.

18. The method of transmitting speech through the earth which consists in first impressing on the earth at two points currents of high potential, then impressing on the earth currents modified by and in accordance with sound-waves, and receiving said modified currents in a telephone-receiver.

19. The method of transmitting speech through the earth which consists in first impressing on the earth at two points currents of high potential, and then impressing on the earth at said two points currents modified by and in accordance with sound-waves.

20. The method of transmitting speech through the earth which consists in first impressing on the earth at two points currents of high potential, then impressing on the earth at said two points currents modified by and in accordance with sound-waves, and receiving said modified currents in a telephone-receiver at the distant station.

21. The method of transmitting speech through the natural media, which consists in first polarizing the media, and then impressing telephonic currents on said polarized media.

22. The method of transmitting speech through the natural media, which consists in first polarizing the media, and then impressing on the polarized media currents modified by and in accordance with sound-waves.

23. The method of transmitting speech through the natural media, which consists in first polarizing the media, then impressing telephonic currents on said polarized media, and receiving said currents in a telephone-receiver at the distant station.

24. The method of transmitting speech through the natural media, which consists in first polarizing the media, then impressing on the polarized media, currents modified by and in accordance with sound-waves, and receiving said modified currents in a telephone-receiver at the distant station.

25. The method of transmitting speech through the earth, which consists in first polarizing the earth between the transmitting and receiving station, and then impressing telephonic currents on said polarized earth.

26. The method of transmitting speech through the earth, which consists in first polarizing the earth between the transmitting and receiving station, then impressing telephonic currents on said polarized earth, and receiving said currents in a telephone-receiver at the distant station.

27. The method of transmitting intelligence through the natural media, which consists in first polarizing the natural media, and then impressing thereon currents modified in accordance with the signal to be transmitted.

28. The method of transmitting intelligence through the natural media, which consists in first polarizing the natural media and then impressing thereon currents modified in accordance with the signal to be transmitted and receiving said modified currents at a distant station.

29. The method of transmitting intelligence through the earth, which consists in first polarizing the earth between the transmitting and receiving stations, and then impressing on said polarized earth currents modified in accordance with the signal to be transmitted.

30. The method of transmitting intelligence through the earth, which consists in first polarizing the earth between the transmitting and receiving stations, then impressing on said polarized earth currents modified in accordance with the signal to be transmitted, and receiving said modified currents at a distant station.

31. The method of transmitting intelligence through the natural media, which consists in first polarizing the media by currents of high potential, and then impressing thereon currents modified in accordance with the signal to be transmitted.

32. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential, and then passing through said media currents modified in accordance with the signal to be transmitted.

33. The method of transmitting speech through the natural media, which consists in first impressing on the media currents of high potential, and then passing through said media currents modified by and in accordance with sound-waves.

34. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential, then passing through said media currents modified in accordance with the signal to be transmitted and translating said modified currents into audible or visual signals at a distant receiving-station.

35. The method of transmitting speech through the natural media, which consists in first impressing on the media currents of high potential, then passing through said media currents modified by and in accordance with sound-waves, and converting said modified currents into sound-waves at a distant station.

36. The method of transmitting intelligence through the natural media, which consists in first impressing on the media currents of high potential, and then transmitting a signal therethrough by electrical means.

37. The method of transmitting intelligence through the natural media, which consists in first polarizing the media and then transmitting a signal therethrough by electrical means.

38. The method of transmitting intelligence through the earth, which consists in first polarizing the earth, and then transmitting a signal therethrough by electrical means.

39. The method of transmitting speech through the natural media by electrical means, which consists in first impressing on said media currents of high potential, and then impressing thereon currents modified by and in accordance with sound-waves.

40. The method of transmitting speech through the natural media, which consists in first polarizing said media, and then impressing thereon currents modified by and in accordance with sound-waves.

41. The method of transmitting speech through the earth, which consists in first polarizing a portion of the earth, and then passing therethrough currents modified by and in accordance with sound-waves.

42. The method of transmitting speech through the earth, which consists in first polarizing the earth, and then passing telephonic currents therethrough.

43. The method of transmitting speech through the earth, which consists in first polarizing the earth, then passing telephonic currents therethrough, and receiving said currents in a telephone-receiver at a distant station.

44. In the art of transmission of intelligence, the step of polarizing the earth to lessen its resistance to the passage of low-tension currents therethrough.

45. In the art of transmission of speech, the step of polarizing the earth to decrease its resistance to the passage of low-tension currents therethrough.

46. In the art of transmission of intelligence, the step of impressing on the earth currents of high potential to polarize the earth and thereby reduce its resistance to the passage of low-tension currents therethrough.

47. In the art of transmission of speech, the step of impressing on the earth currents of high potential to polarize the earth and thereby reduce its resistance to the passage of low-tension currents therethrough.

48. An improvement in the method of the transmission of intelligence through the natural media, which consists in reducing the resistance of said media to low-tension currents.

49. An improvement in the method of transmitting intelligence through the earth, which consists in reducing the resistance of the earth between the transmitting and receiving station to the passage of low-tension currents.

50. An improvement in the method of the transmission of speech through the natural media, which consists in reducing the resistance of said media to low-tension currents.

51. An improvement in the method of transmitting speech through the earth, which consists in reducing the resistance of the earth between the transmitting and receiving station to the passage of low-tension currents.

52. The step in the art of transmitting intelligence through the natural media, which consists in reducing the resistance of the media.

53. The step in the art of transmitting speech through the natural media, which consists in reducing the resistance of the media

54. The step in the art of transmitting speech through the earth which consists in reducing the resistance of the earth.

55. The step in the art of transmitting intelligence through the earth which consists in reducing the resistance of the earth.

56. The step in the art of transmitting intelligence through the natural media which consists in polarizing the natural media.

57. The step in the art of transmitting intelligence through the earth which consists in polarizing the earth.

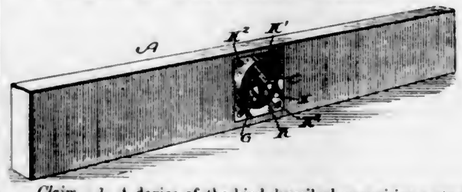
58. The step in the art of transmitting speech through the earth which consists in polarizing the earth.

59. The step in the art of transmitting speech through the natural media which consists in polarizing the natural media.

60. An improvement in the art of transmitting intelligence through the natural media, which consists in polarizing said media by impressing thereon currents of high potential.

61. An improvement in the art of transmitting intelligence through the natural media which consists in polarizing said media by electrical means.

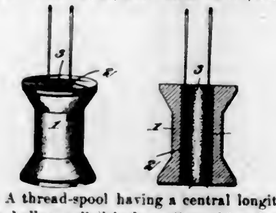
752,535. PLUMB AND LEVEL. HENRY DUISEN, St. Louis, Mo. Filed June 27, 1903. Serial No. 163,434. (No model.)



Claim.—1. A device of the kind described comprising a stock having a recess therein corner-blocks arranged in said recess, a plate arranged also in the recess and provided with extensions resting between the corner-blocks, a pointer or indicator connected to the plate, a glass and face-plate secured within the recess, substantially as described.

2. A combined plumb and level comprising a stock having a square recess, corner-blocks secured in the recess, the circular plate arranged in the recess and provided with angular extensions resting between the corner-blocks, an arbor carried by the circular plate, a pointer arranged upon said arbor, the glass plate resting upon the corner-blocks, and the face-plate for securing the said parts in place, substantially as set forth.

752,536. NEEDLE-CUSHION SPOOL. MAURICE DUNCOMBE, Wattsburg, Pa. Filed July 25, 1903. Serial No. 167,034. (No model.)



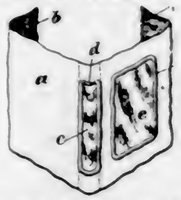
Claim.—1. A thread-spool having a central longitudinal bore provided with a hollow cylindrical needle-cushion formed of soft elastic material which is exposed at the ends of spool substantially as described.

2. A thread-spool having a central longitudinal bore contain-

ing an inserted hollow cylindrical needle-cushion which is formed of soft but elastic material and made of slightly-greater diameter than the bore of the spool proper so that when inserted it holds its place by expansion and consequent friction with the sides of the bore the ends of the cushion being visible and accessible at the ends of the bore substantially as described.

3. A thread-spool having a central longitudinal bore and an inserted needle-cushion formed of a rectangular piece of elastic material, said piece being formed into a cylinder with its side edges in apposition, substantially as described.

752,537. INCLOSING DEVICE. AUBREY G. ENEAS, Chiswick, England. Filed Nov. 14, 1903. Serial No. 181,187. (No model.)



Claim.—1. A book-covering comprising a back portion having a transpareot area through which some display portion upon the book-back may be viewed yet protected, and side members arranged on either side of said back portion and flexibly connected thereto whereby said side members may engage and cover the book-covers and open and close therewith, said back and the adjacent portions of said side members being otherwise substantially impe:forate.

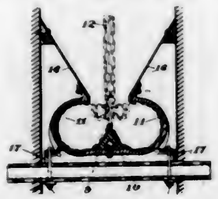
2. A book-wrapper covering having a back-protecting portion provided with a transparent back-display area, substantially coextensive corer-protecting portions flexibly connected therewith on either side thereof to permit them to be opened and closed with the book-covers and relatively to said back-protecting portion and the book-back and infolding wrapper-holding portions at the outer edges of said corer-protecting portion.

3. A book-covering comprising a rear protecting-wall having a transparent portion through which the book-back may be viewed and identified and permanently attached, substantially coextensive side members symmetrically arranged with reference to said rear protecting-wall between which the book may be engaged and disengaged by movement toward and away from the inner face of said rear protecting-wall.

4. The combination of a book with a protecting-covering therefor, the latter having protecting-covering side walls applied to and covering corresponding portions of the side walls of the book-cover, and a rear binding-protecting wall applied to and covering the book-back, said protecting-covering being provided with a transparent area predeterminately located with reference to a display portion upon the book-cover by means of which transparent area the said display portion may be protected yet identified.

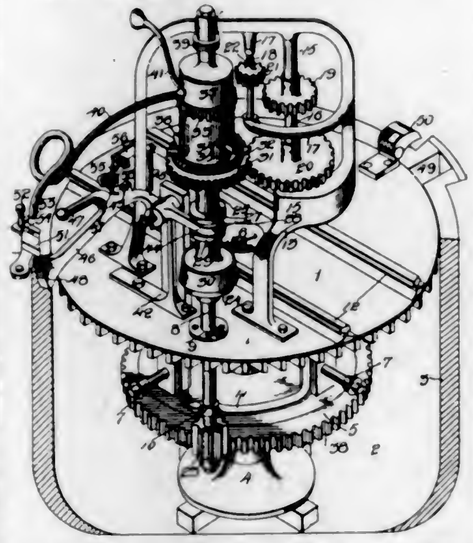
5. As a new article of manufacture, a flexible wrapper having a generally rectangular shape with substantially straight sides, consisting of a flexible sheet of wrapping fabric having the capacity for freely flexing whereby said wrapper may be wrapped about objects dissimilar as to form and size, said wrapper having a transparent wrapping portion having substantially the same capacity for freely flexing and through which a portion or portions of the inclosed contents may be viewed.

752,538. HYDRAULIC ARRESTING DEVICE. ORVILLE H. ENSIGN, Los Angeles, Cal., assignor to William A. Doble, San Francisco, Cal. Filed Nov. 13, 1903. Serial No. 181,053. (No model.)



Claim.—In combination with a water-wheel and deflecting-nozzle, a cushioning or arresting device having an acute wedge to divide the stream and curved faces to divert the divided water upon itself, arranged and operating substantially as specified.

752,539. LOCOMOTIVE TURN-TABLE. RICHARD FAIR, Moosup, and SAMUEL P. DAVIS, Danielson, Conn. Filed Nov. 5, 1903. Serial No. 179,972. (No model.)



Claim.—1. In combination with a turn-table, a fixed gear, a power-shaft carried by and revoluble slidably with the turn-table and having a pinion engaging the fixed gear, a motor also carried by the turn-table, means, including a clutch device, connecting the motor to the power-shaft, and means to automatically operate the clutch device, to disconnect the motor from the power-shaft when the turn-table reaches the required position.

2. In combination with a turn-table, a motor and gear, including a clutch device, to rotate the turn-table, means to automatically lock the turn-table in the required position and means to automatically operate the clutch device to put the motor out of gear with the turn-table-rotating gear when the turn-table reaches such position, substantially as described.

3. In combination with a turn-table, a fixed gear, a power-shaft carried by and revoluble orbitally with the turn-table, and having a pinion engaging the fixed gear and motor, and means, including a clutch device, to drive the said shaft by the power of said motor.

4. In combination with a turn-table, a fixed gear, a power-shaft carried by and revoluble orbitally with the turn-table and having a pinion engaging the fixed gear and motor, and means to automatically operate said clutch device to disconnect the turn-table from the motor when the turn-table reaches the required position.

5. A turn-table having a motor, means operated thereby to rotate the turn-table, means to put said turn-table-rotating means in and out of gear, and a cam to automatically operate the said means for putting the turn-table-rotating means in and out of gear.

6. A turn-table having a power-shaft, means operated thereby to rotate the turn-table, a motor, a clutch to control the application of the power of the motor to said shaft, a shipping element, to operate said clutch, and means to automatically operate said shipping element when the turn-table reaches the required position.

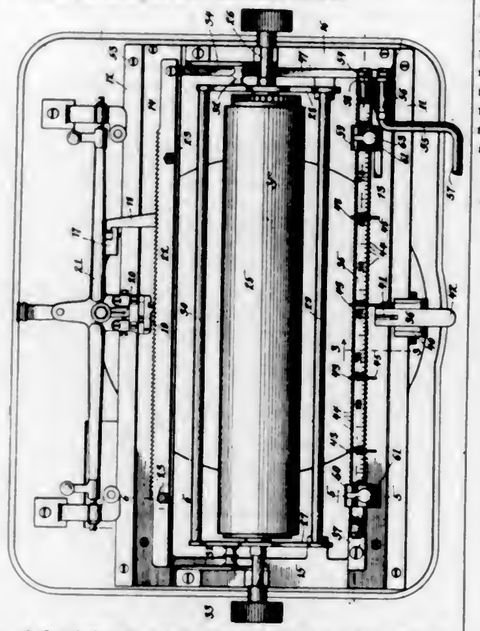
7. A turn-table having a motor, a driving-shaft, means operated by the driving-shaft to rotate the turn-table, means to connect the motor to the driving-shaft to rotate the latter in either direction, means to disconnect the motor from the driving-shaft, and automatically-operating means to actuate said disconnecting mea

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752,540. TABULATING MECHANISM FOR TYPE-WRITING MACHINES. CHARLES N. FAY, Chicago, Ill., assignor to Fay-Sholes Company, Chicago, Ill., a Corporation. Filed May 26, 1902. Serial No. 109,013. (No model.)

Claim.—1. In tabulating mechanism for type-writing machines, the combination with a carriage, of a longitudinally-disposed bar

mounted to rotate between uprights upon the front carriage-rail, a series of stops adjustably mounted on said bar, a coöperating stop-dog mounted on the machine-frame, a finger-key pivotally mounted on one of said uprights, rock-arms fixed to said finger-key and said bar and a connecting-rod between said rock-arms.



2. In tabulating mechanism for type-writing machines, the combination with a carriage and with a pivoted escapement-rack mounted upon the rear of said carriage, of a longitudinally-disposed bar pivotally mounted at the front of said carriage, a series of column-stops and a coöperating stop-dog, one of said elements being mounted upon said bar and the other upon the machine-frame, a shift finger-key mounted at the front of said carriage and a transversely-disposed actuating-rod connecting said shift-key, said bar and said pivoted rack.

3. In tabulating mechanism for type-writing machines, the combination with a carriage and with a pivoted escapement-rack at the rear of said carriage, of a longitudinally-disposed bar rotatably mounted upon the front of said carriage, a series of stops and a coöperating stop dog, one of said elements being mounted on the rotatable bar and the other on the frame of the machine, a pivoted finger-key connected to said carriage, rock-arms mounted in line upon said finger-key, said bar and said pivoted escapement-rack, and a spring-held transverse rod connecting said rock-arms.

4. In tabulating mechanism for type-writing machines, the combination with a carriage and with a pivoted escapement-rack at the rear of said carriage, of a longitudinally-disposed bar pivotally mounted between uprights upon the front rail of said carriage, a series of column-stops independently adjustable on said bar, a coöperative stop-dog mounted upon the carriage-frame and normally out of line with said stops, a finger-key pivoted to one of said uprights, rock-arms mounted in line upon said finger-key, said stop-bar and said escapement-rack, and a transverse spring-held actuating-rod connecting said rock-arms.

5. In tabulating mechanism for type-writing machines, the combination with a carriage, of a longitudinally-disposed bar rotatably mounted upon said carriage, a stop-dog mounted upon the machine-frame, a series of column-stops adjustably mounted upon said bar normally out of line with said stop-dog, right and left hand margin-stops adjustably mounted upon said bar in line with said dog, means for rotating said bar to effect the engagement of said column-stops and dog and means for holding said margin-stops against rotation.

6. In tabulating mechanism for type-writing machines, the combination with a carriage, of a rotatable letter-space scale-bar mounted upon the front of said carriage, a stop-dog coöperating therewith and mounted upon the machine-frame, a series of column-stops adjustably mounted upon said bar normally out of line with said stop-dog, right and left hand margin-stops adjustably mounted upon said bar in line with said stop-dog, means for rotating said bar to effect the engagement of said column-stops with said stop-dog and means for holding said margin-stops against rotation

7. In tabulating mechanism for type-writing machines, the combination with a power-propelled carriage having a pivoted escapement-rack mounted on its rear rail, of a longitudinally-disposed letter-space scale-bar rotatably mounted upon its front rail, a central pivoted stop-dog mounted upon the machine-frame coöperating with said scale-bar, a series of column-stops adjustably mounted upon said scale-bar, a finger-key pivotally mounted to the front of said carriage at one side, rock-arms mounted in line upon said finger-key, said scale-bar and said pivoted rack, and a transverse spring-held actuating-rod connecting said rock-arms.

752,541. GOODS-DISPLAY CABINET. WILLIAM J. FUNK, Enterprise, Oreg. Filed Dec. 4, 1903. Serial No. 183,797. (No model.)



Claim.—1. A display-cabinet comprising a base consisting of a central portion and extensions projected therefrom at right angles to each other, uprights secured to the said central base portions at the angles thereof, a top having the shape of the base secured to the upper end of the said uprights, casings, one for each extension of the casing-top, said casings each consisting of two sections hinged to the uprights to swing outwardly, fabric-holding rollers detachably mounted in the casing-sections, the said casing-sections including sides provided with slots adjacent the goods-holding rollers for the passage of the ends of the fabric, all being arranged substantially as shown and described.

2. A display-cabinet, comprising a base consisting of a central portion and extensions projected therefrom at right angles to each other in the form of a cross, a central vertical body secured upon the central base portion, a plurality of casings each formed of two sections and each section thereof consisting of closed sides having a series of horizontal slots and solid ends that project at right angles to and are firmly connected to the sides, the several inner end members of each casing-section being hinged to the central vertical body portion whereby to permit all of the said casing-sections to swing out in the plane parallel with and against themselves, means for detachably supporting the goods-holders within each casing-section adjacent the slots in the side thereof and a cross-shaped top fixedly mounted upon the upper ends of the central vertical body portion as set forth.

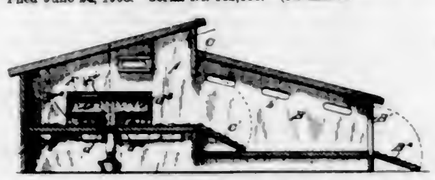
3. In a display-cabinet, a bottom, a base member revolubly mounted thereon and comprising a central portion and extensions projected therefrom at right angles to each other in the form of a cross, a body portion consisting of four radially-disposed casings, one for each extension of the base, each casing being formed of two sections each section having solid ends and a side member, the side members of each section having a series of horizontal slots, vertical partitions in each section having bearing-slots to receive the journals of the goods bolts or rolls, a central vertical frame which includes four uprights projected up from the angle-corners of the base, the inner ends of each casing-section being hinged to an adjacent upright of the central vertical frame and in such a manner whereby when all of the several compartments are closed they project up from their respective angle extensions of the vertical base, means for holding the several casing-sections of each compartment closed and a top having the cross shape of the base and fixedly secured to

the upper end of the said four upright portions and having its end edges adapted to rest upon the upper edges of the several hinged compartment-sections for the purposes described.

4. In a cabinet of the character described; in combination with a base having a cross shape, a central vertical frame which includes four uprights extended up from the angles of the base, a series of vertical casings provided with horizontal slots for the passage of the goods from within, and means on the inside of the said casing and for detachably supporting the goods rolls, or bolts, adjacent the said horizontal slots, a top fixedly mounted upon the upper end of the vertical frame and having extensions that project over the top of the several casings, and spring-wire guides on the outer faces of the casing parallel with and below the goods-discharge slots therein, and portions mounted upon the said guide-uprights each of which comprises a U-shaped top whose ends terminate in a spiral coil and whose cross member is adapted to be supported over the loose end of the ribbon or lace suspended, a price-ticket holder thereover for the purposes described.

5. As an improvement in display-cabinets of the character described; the combination with a revolubly-mounted base said base comprising four radially-disposed extensions projected at right angles to each other, a vertical frame including four uprights fixedly mounted on the base and projected up from the angles thereof, a vertical goods holder or casing projected up from and movably supported on each of the said base extensions, each of the goods-holders being formed of two sections, each section of which comprises a solid inner and outer end and a side member joined to the said ends, the said side member being provided with a series of horizontal slots or partitions mounted on the inner face of the said side members and having journal-receiving slots in the front edges to receive the journals of the goods bolts, or rolls, and a top fixedly mounted on the upper end of the vertical frame-uprights, said top having the cross shape of the base and adapted to extend over the upper or outer end of the hinged casing-sections when they are brought into vertical alinement with the angle extensions of the base and the top as set forth.

752,542. BROODER. SUMNER FUSTON, Murfreesboro, Tenn. Filed June 24, 1903. Serial No. 162,835. (No model.)



Claim.—1. The improvement in brooders herein described, comprising the casing having two compartments, one higher than the other, and provided with a lamp-chamber below the higher compartment, the door hinged at its lower edge between the two compartments and adapted to be turned up to form a partition between the two compartments, or down to form an inclined runway from the upper to the lower compartment, offtake-flues leading laterally from the lamp-compartment, whereby the products of combustion can be discharged directly from said compartment, and a heater located in the upper compartment of the casing and having a portion extending at such height above the floor of said compartment as to form a heating-shelter beneath which the chicks may congregate and padded for contact by the said chicks, substantially as set forth.

2. A brooder having an upper and a lower compartment with an intervening floor between them, the upper compartment being for the chicks, a heating-lamp in the lower compartment, a heater having at its lower end a vertical tubular section extending down through the floor of the upper compartment into the lower chamber immediately over the lamp, the upper end of said tubular section extending up into the upper chamber a short distance above the floor, a horizontally-disposed drum at the upper end of said tubular section, said drum overreaching the floor and located adjacent thereto for the chicks to come in contact with, the outer surface of the drum and the upper portion of the tubular section adjacent thereto being covered with soft non-heat-conducting material, the lower end of the tubular section being provided with branch pipes leading outwardly therefrom into the open air, and turned upwardly at their outer ends, and means carried by said vertical tubular section for supporting said heater at a suitable elevation above said floor.

3. A brooder having a heating-lamp and a heater provided with a downwardly-extending tubular section located immediately above the heating-lamp, said tubular section having branch pipes extending outwardly and upwardly into the open air to carry off the gases from the lamp, a horizontally-disposed drum at the upper end of said tubular section, said drum overreaching the floor and located adjacent thereto for the chicks to come in contact with, the outer surface of the drum being covered with soft non-heat-conducting material.

4. A brooder having a heater with an overreaching drum located adjacent the floor of the brooder for the chicks to come in contact with and to bear upward against, the portion of the drum with which the chicks come in contact being covered with soft, non-conducting material.

5. A brooder having a heater provided with a portion for the chicks to come in contact with, said portion having its side with which the chicks come in contact covered with animal or vegetable wool.

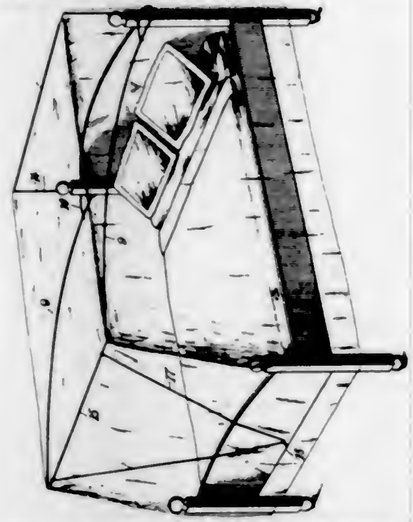
6. A brooder having a heater provided with a portion for the chicks to come in contact with said portion having its side with which the chicks come in contact padded with soft non-heat-conducting material.

7. A brooder having a heater provided with a portion for the chicks to come in contact with, said portion having its side with which the chicks come in contact covered with soft yielding material.

8. A brooder having its heater provided with a portion for the chicks to come in contact with, said portion having its sides with which the chicks come in contact padded.

9. A brooder having a heater extending at such height above the floor as to form a heating-shelter beneath which the chicks may congregate, said shelter to be engaged by the backs of the chicks and padded for contact by said chicks.

752,543. CANOPY-SUPPORT. JOHN O. GAGE, New York, N. Y. Filed Nov. 11, 1903. Serial No. 180,712. (No model.)



Claim.—1. A canopy-support having a suitable headboard-fixture, a canopy-arm pivotally mounted in said fixture, and a spring consisting of a long curved arm and a bowed member continuous one with the other, said bowed member being fastened to the fixture, and crossing said canopy-arm so as to serve as a support therefor and the curved spring-arm connected loosely to the canopy-arm.

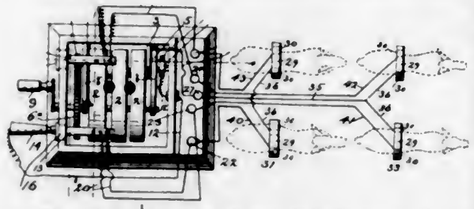
2. A canopy-support comprising a suitable fixture having a recessed clamping member, a canopy-arm pivoted in said fixture, a fixed headboard-arm supported by the fixture, and a spring having a long curved arm and a bowed member, the latter crossing said canopy-arm for the purpose of supporting the same, and being confined at one end on the fixture by the clamping member thereof, and the curved arm of said spring engaging loosely with the canopy-arm.

3. A canopy-support comprising a fixture having a clamping member, the latter being provided with a stop-face, a canopy-arm pivoted in said fixture, a headboard-arm supported by the fixture independently of the movement of the canopy-arm, and a spring including a long curved arm and a bowed member, said bowed member crossing said canopy-arm and supporting the same, one end of said bowed spring member being held in a fixed position on the fixture by the clamping member thereof, and the curved spring-arm being engaged loosely with the canopy, said canopy-arm being limited in one direction by the stop-face of the clamping member.

4. A canopy-support, comprising a canopy-arm, and a spring connected loosely therewith, said spring being provided with a portion directly engaging said canopy-arm and crossing the general direction thereof for the purpose of permitting lateral movements of said canopy-arm.

5. A canopy-support, comprising a fixture, a canopy-arm connected with said fixture and movable relatively thereto, and a spring connected with said fixture and provided with a portion engaging said canopy-arm for the purpose of supporting the same against displacement in a lateral direction, said spring being operatively connected with said canopy-arm for the purpose of tensioning the same.

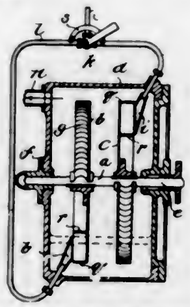
752,544. ELECTRICAL DEVICE FOR SHOCKING HORSES. JAMES A. GILES, Elberton, Ga. Filed Sept. 24, 1902. Serial No. 124,698. (No model.)



Claim.—1. In a device of the class described, the combination of a plurality of conducting-plates, a magneto, a reversible plug in circuit with the collector on said magneto, a pair of conducting-fingers connected to said conducting-plates and arranged to engage and hold said plug, and conductors connecting said plates and said plug, substantially as described.

2. In a device for shocking horses, the combination of a box, a magneto mounted in said box and provided with a crank within reach of the driver for operating said magneto, a pair of rigid conducting-fingers mounted on said box and insulated from one another, two resilient fingers one connected to each of said rigid fingers, a plug bearing a conducting-plate and adapted to be inserted between said rigid and resilient fingers, a conductor connected to said plug and to the armature-coils of said magneto, and conductors connecting said plates and the coils on the armature of said magneto, substantially as described.

752,545. STEAM-TURBINE. JOHANNES H. DE GOEDE and SIMON N. GROOT, Enkhuizen, Netherlands. Filed July 7, 1903. Serial No. 164,583. (No model.)



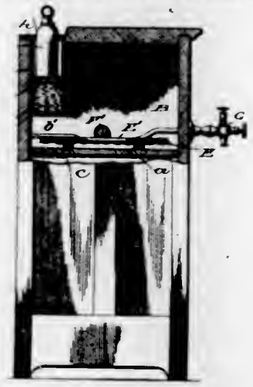
Claim.—1. In a steam-turbine, the combination with a casing, of a shaft journaled therein, a plurality of disks fixed on the shaft, an annular series of cup-shaped vanes fixed on one side of each disk, annular flanges fixed to the disks and encircling the vanes on their inner and outer sides, the vanes on one disk being arranged in a reverse direction to the vanes of the adjacent disk, and means for directing a jet of steam against either set of vanes at will, substantially as described.

2. In a steam-turbine, the combination with a casing, of a shaft journaled therein, a plurality of disks fixed on the shaft, an annular series of laterally-projecting cup-shaped vanes fixed on one side of each disk the vanes of one disk being set on the side of the disk opposed to that on which the vanes of the adjacent disk are set, annular flanges fixed to the disks and encircling the vanes on their inner and outer sides, and means for directing a jet of steam against either set of vanes at will, substantially as described.

3. In a steam-turbine, the combination with a casing, of a shaft journaled therein, a plurality of disks fixed on the shaft, an annular series of laterally-projecting cup-shaped vanes fixed on one side of each disk, the vanes of one disk being set on the side of the disk opposed to that on which the vanes of the adjacent disk are set, annular flanges fixed to the disk and encircling the vanes on their inner and outer side, nozzles one for each disk arranged at angles to the open sides of the vanes, and means for supplying steam to either of said nozzles at will, substantially as described.

4. In a steam-turbine, the combination with a casing, of a shaft journaled therein, a plurality of disks fixed on the shaft, an annular series of laterally-projecting cup-shaped vanes fixed on one side of each disk, the vanes of one disk being set on the side of the disk opposed to that on which the vanes of the adjacent disk are set, annular flanges fixed to the disks and encircling the vanes on their inner and outer side, nozzles, one for each disk arranged at angles to the open sides of the vanes, steam-delivery pipes for supplying steam to said nozzles and a three-way valve for controlling the admission of steam to said nozzles, substantially as described.

752,546. COMBINED REFRIGERATOR AND SODA-WATER APPARATUS. DAVID F. HARRIS and JAMES A. HEARIN, Junction, Ark. Filed Mar. 9, 1903. Serial No. 146,971. (No model.)



Claim.—1. A device of the character described, comprising a casing having an ice-chest in its upper end, a water-containing tank within said chest and having bottle-receiving openings in its top, inwardly-pressed ribs carried by said tank intermediate the top and bottom above the water-line, and a movable bottle-supporting grating resting on said ribs.

2. A device of the character described, comprising a casing having an ice-chest in its upper end, a water-containing tank supported by its upper edge to the upper edge of the ice-chest, said tank of a height considerably less than that of the ice-chest, thus leaving a space below the same, the top of said tank having bottle-receiving openings, inwardly-pressed ribs intermediate the top and bottom of said tank and an open bottle-supporting member within the tank and resting on the ribs.

3. A device of the character described, comprising a casing having an ice-chest in its upper end, a water-containing tank within the rear portion of said chest and having bottle-receiving openings in its top, inwardly-pressed ribs carried by said tank intermediate the top and bottom above the water-line, a movable bottle-supporting grating resting on said ribs and a cover hinged to said ice-chest in front of said tank.

4. A device of the character described, comprising a casing having an ice-chest in its upper end, an elongated water-containing tank extending entirely across the rear end of the ice-chest and having laterally-extending flanges at its ends and rear wall adapted to rest on said ice-chest, the top of said tank having bottle-receiving openings in its top, inwardly-pressed ribs carried by said tank inter-

mediate the top and bottom above the water-line, a movable bottle-supporting grating resting on said ribs, and a cover hinged to said ice-chest in front of said tank, whereby the entire upper end of said chest is closed.

5. A device of the character described, comprising a casing having an ice-chest in its upper end, a water-containing tank within said chest and having bottle-receiving openings in its top, inwardly-pressed ribs carried by said tanks intermediate the top and bottom above the water-line, and a movable bottle-supporting member consisting of longitudinal bars of a length less than that of the tank, and transverse bars connecting said longitudinal bars and said transverse bars resting upon said inwardly-pressed ribs.

752,547. SELF-CLEANING STRAINER FOR DOWN-SPOUTS. JACOB J. HARRIS and JAMES ADAMS, Highland, Ohio. Filed Dec. 16, 1903. Serial No. 185,383. (No model.)



Claim.—1. In a device of the character set furth, the combination with a casing open on one side and provided with an inlet-opening, of an inclined screen or strainer and coacting deflectors pivotally maintained below the screen, for the purpose set forth.

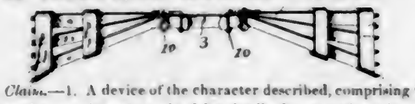
2. The combination with an inclined strainer of coacting deflectors pivoted below the strainer on different horizontal planes.

3. In combination with a casing which is open on one side and is provided with inlet and exit openings, of a frame having near its upper portion an inclined plate, a screen maintained to be inclined toward the open side of the casing, and pivoted deflectors supported below the screen, for the purpose set forth.

4. In a strainer for down-spouts, a casing, a frame adapted to be maintained therein, an inclined screen carried by the frame, deflectors pivoted below the screen on different horizontal planes the lower edges of the deflectors being adapted to engage the under side of the screen, substantially as shown.

5. In a self-cleaning strainer for down-spouts, a casing with inlet and exit openings, a removable front plate with openings therethrough, and swinging doors for the openings, an inclined screen, deflectors pivotally maintained below the screen and adapted to engage the under side thereof when the lower ends are swung upward, and an extension on the lower deflector for engagement with the under side of the upper deflector, for the purpose set forth.

752,548. ABDOMINAL BELT. MARTHA HAZELBAKER, Kokomo, Ind. Filed Nov. 23, 1903. Serial No. 182,377. (No model.)



Claim.—1. A device of the character described, comprising two half-sections each composed of longitudinal converging pieces or straps having their diverging ends connected by a vertical attaching piece or strip and their converging ends united by a loop or ring, means for detachably connecting said vertical pieces or strips, a strap or band having its ends passed through said loops or rings, and clasps for adjusting the ends of said straps, substantially as described.

2. A device of the character described, comprising two half-sections each composed of longitudinal converging pieces or straps having their diverging ends connected by a vertical attaching piece or strip, and their converging ends united by a loop, fasteners for detachably connecting the meeting edges of said vertical pieces or strips, a spacing piece or strip connecting said longitudinal pieces or strips, a strap having its ends passed through said loops, and clasps upon the ends of said strap for adjusting the same, substantially as described.

3. The combination with a corset or the like, having guide-loops attached to its back portion, of an abdominal belt comprising two half-sections each composed of longitudinal converging straps having their diverging ends connected by an attaching-piece and their converging ends united and a spacing-piece connecting said longitudinal straps and secured to said corset to prevent displacement of the belt, means for detachably connecting said attaching-pieces, and an adjustable strap passed through said loops upon the back of the corset and connecting said united converging ends of the longitudinal straps, substantially as described.

752,549. SASH-HOLDER. ERNST HEIMANN, Adder, Tex. Filed Jan. 7, 1903. Serial No. 138,140. (No model.)



Claim.—1. The combination with a sash, an outwardly-spring-pressed bolt having a circumferential groove intermediate its ends, a plate adjacent said bolt, and having an L-shaped slot therein, and a removable key with said slot and having a bifurcated inner end adapted to fit in said circumferential groove.

2. The combination with a sash, an outwardly-spring-pressed bolt held against rotation and having a circumferential groove intermediate its ends, a plate adjacent said bolt and having an L-shaped slot therein, and a key having a reduced central portion adapted to slide in said slot, and a bifurcated inner end adapted to fit in said circumferential groove.

3. The combination with a sash having an elongated squared recess in its outer edge, of an outwardly-spring-pressed squared member in said recess and having a circumferential groove intermediate its ends, the said sash having a transverse recess adjacent the end of the elongated recess, a plate covering said transverse recess and having a horizontal slot therein and a vertical slot in communication with the inner end of said horizontal slot, and a key having a reduced central portion within said slot and a bifurcated inner end resting in said circumferential groove.

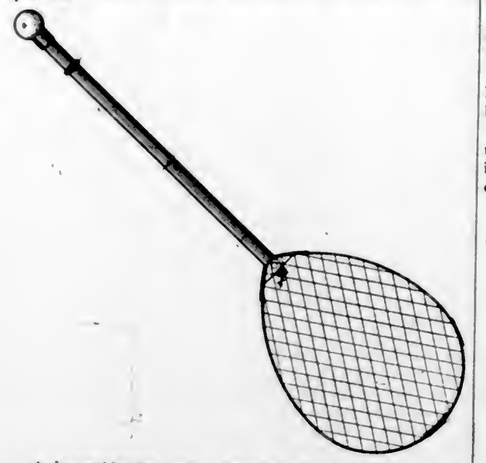
4. The combination with a sash having an elongated squared recess in its outer edge, of an outwardly-spring-pressed squared member in said recess and having a circumferential groove intermediate its ends, and a transverse recess communicating with said squared recess, a plate covering said transverse recess and having an L-shaped slot therein, and a key having a reduced central portion within said slot in said plate, and a bifurcated inner end resting in said circumferential groove.

752,550. LANDING-NET. JESSE C. HERITAGE, Minneapolis, Minn. Filed Jan. 15, 1902. Serial No. 89,833. (No model.)

Claim.—1. In a landing-net, a hoop composed of resilient bows, a pivot-block to which the inner ends of said bows are pivotally affixed, exteriorly-threaded pins extending laterally from opposite sides of the said pivot-block, and an interiorly-threaded handle adapted to alternate engagement with the said exteriorly-threaded pins, substantially as shown and for the purpose specified.

2. In a landing-net frame, the combination with the resilient bows forming the hoop thereof, the hinge-coupling connecting the inner ends of the said bows, and a handle detachably connected with the said hinge-coupling; of the clasp E connecting the outer ends of the said resilient bows, said clasp being fashioned with overlapping ears adapted both to secure it to the outer end of one of the said bows, and to receive the free end of the other one of the said bows, with the lugs *l* adapted to guard the last-named bow and to prevent lateral movement thereof, and with the pin *f* adapted to enter a lateral opening *g* in the said last-named bow to prevent a longitudinal movement thereof.

3. A landing-net formed of an interiorly-threaded handle A, a net-supporting hoop, and a hinged coupling comprising the pivot-block B having oppositely-extending exteriorly-threaded pins adapted to interchangeable engagement with the interiorly-threaded handle, A, substantially as shown and described and for the purpose specified.

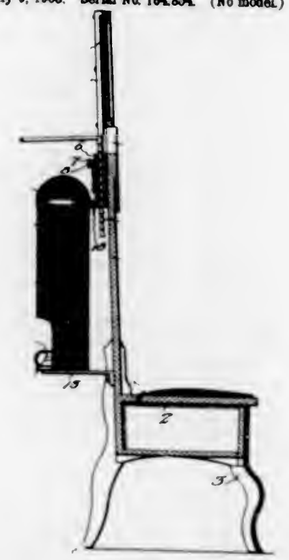


4. In combination with an interiorly-threaded handle, a landing-net having a hinge-screw coupling, the pivot-block having oppositely-extending exteriorly-threaded pins adapted to interchangeable engagement with the interiorly-threaded handle, one of said threaded pins being fashioned with a longitudinally-extending reduced portion substantially as shown, and for the purpose specified.

5. In a landing-net, the tubular handle, having an interiorly-threaded lower end and a closed upper end; and a hinge-coupling, an exteriorly-threaded pivot-block adapted to engage the lower end of the handle, a plug intermediate the said threaded lower end and the said closed upper end; thereby forming the air-tight chamber c, substantially as shown and for the purpose specified.

6. In a landing-net frame having resilient bows connected at their inner ends by means of a hinge-coupling, and a handle adapted for engagement with the said hinge-coupling; the clasp E connecting the outer ends of the said resilient bows, said clasp being fashioned with overlapping ears *k* adapted to secure the said clasp E to its bow c, and to receive the free end of the other bow c', substantially as shown and described.

752,551. TOILET-CHAIR. GEORGE W. HESSLER, Scranton, Pa. Filed July 9, 1903. Serial No. 164,854. (No model.)



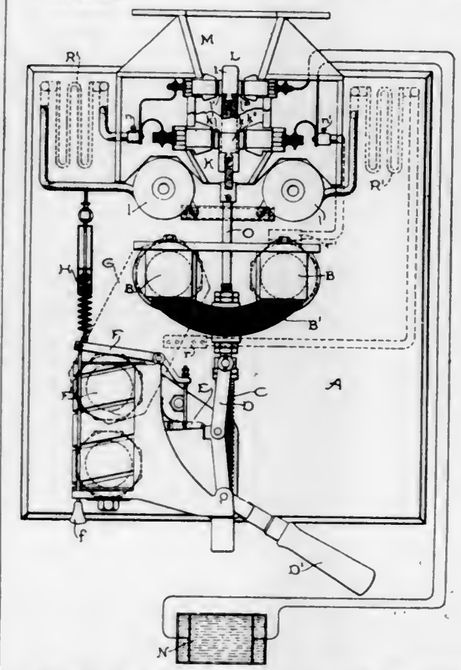
Claim.—1. A toilet-chair having an immovable back with a head-rest construction at its upper end, and a heating apparatus connected to the rear side of the back below the head-rest construction.

2. A toilet-chair, having a back with a rearwardly-projecting horizontally-disposed rail at the upper end thereof, and a heating attachment attached to the back below the rail.

3. A toilet-chair with an immovable upright back, having a heating device supported in connection with the rear side of the back, and a wire-gauze covering over the said heating means.

4. A toilet-chair, having a back with a horizontally-disposed rail projecting rearwardly from the upper portion thereof, a heating means held by the back below the rail, and a wire-gauze covering over the heating means.

752,552. AUTOMATIC CIRCUIT-BREAKER. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Nov. 28, 1898. Serial No. 697,576. (No model.)



Claim.—1. A circuit-breaking device comprising main contacts of large current-carrying capacity, a group of shunts around said contacts including a movable part adapted to open the circuit after the main contacts have parted, and circuits connected with said movable part of differing resistance.

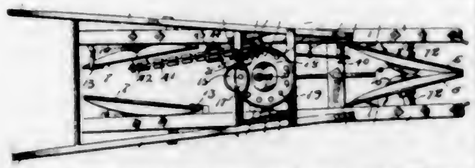
2. In a circuit-breaking mechanism, main contacts and a plurality of shunting contacts closing circuits of different resistance, all the contacts carried on the same rod, and those of lower resistance arranged to open before those of higher resistance; in combination with a chute inclosing the shunted contacts, and arc-extinguishing means, such as a blow-out magnet, for the shunting contacts.

3. In a circuit-breaker, a plurality of circuits of progressively-increasing resistance in shunt or parallel relation to one another with means for opening them in sequence, so arranged that the lower resistance is connected in series with the next higher resistance as the contacts closing the circuits are successively opened.

752,553. SEED-PLANTER. CHARLES HIGHERS, Vicksburg, Ky., assignor of one-half to Charles Wiggens, Vicksburg, Ky. Filed Aug. 20, 1903. Serial No. 170,210. (No model.)

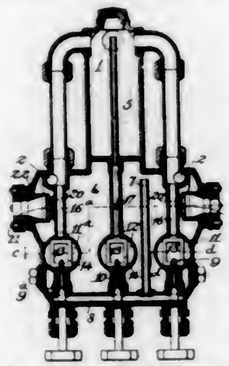
Claim.—1. A planter comprising a supporting-frame having side bars, bearing-brackets depending therefrom, stub-shafts mounted upon said brackets in advance and in rear of the center of the frame, furrow-opening disks mounted upon the forward shafts and having

their concave faces arranged in apposition and diverging from front to rear in the center line of the frame, furrow-closing disks mounted upon the rear shafts and having their inner faces converging from front to rear in the center line of the frame, a hopper supported upon the frame between the two sets of disks, a seed-drill leading from the hopper, and a furrow-opening chute supported from the frame in advance of the seed-drill and between the same and the furrow-opening disks and on a plane between said disks, substantially as described.



2. A planter comprising a supporting-frame provided with bearing-brackets and disks mounted upon said brackets, each of said disks being provided with a hub having an internal bearing-rib, a shaft connected to the brackets and extending through the hub, a sleeve encompassing said shaft and projecting into the hub and forming a bearing on which the disks rotate, one end of said sleeve bearing against one side of said rib, and a stop upon one end of the shaft engaging the other side of the rib, substantially as described.

752,554. **LUBRICATOR.** CLARENCE B. HODGES and FREDERICK W. HODGES, Detroit, Mich. Filed Feb. 5, 1903. Serial No. 142,076. (No model.)



Claim.—1. In a condensation-displacement lubricator, an oil-reservoir having its axis in a substantially horizontal plane and its interior braced by tubing, combined with sight-feed glasses having horizontal axes and being mounted within portions of said tubing, substantially as set forth.

2. In a lubricating apparatus, a condensing-chamber and an oil-reservoir, the latter having its axis in a substantially horizontal plane, and horizontal and vertical tubes within the reservoir for bracing the same, the whole being integral, combined with sight-feed glasses having horizontal axes and being mounted within portions of said tubular bracing, substantially as set forth.

3. In a condensation-displacement lubricator, an oil-reservoir having one or more tubular braces extending from side to side of the reservoir, and oil-feed tubes extending between points in the shell of the reservoir above and below the horizontal plane in which said tubular braces lie and intersecting said braces, substantially as set forth.

4. In a lubricating apparatus, an oil-reservoir having its axis in a horizontal plane, tubular braces extending from side to side of the reservoir, and oil-feed tubes intersecting said braces and extending through said reservoir, combined with sight-feed glasses having horizontal axes and being removably mounted in pairs in said tubular braces, substantially as set forth.

5. In a lubricating apparatus, an oil-reservoir having its axis in a horizontal plane, interior tubular braces extending from side to side of the reservoir, and oil-feed tubes intersecting said braces and extending through said reservoir, the entire structure being integrally formed, combined with sight-feed glasses in pairs, each pair having a common horizontal axis and being mounted in one of said interior tubular braces, substantially as set forth.

6. In a lubricating apparatus, an oil-reservoir the side walls of which are interiorly connected and braced by tubular chambers, and provided with oil-feed tubes intersecting said chambers and extending between the walls of the reservoir, substantially as set forth.

7. In a lubricating apparatus, an oil-reservoir the side walls of which are interiorly connected and braced by a tubular chamber, and an oil-feed tube extending from said tubular chamber to the top and bottom walls of said reservoir, said reservoir, chamber, and oil-feed tubes being integral, substantially as set forth.

8. In a lubricating apparatus, an oil-reservoir the opposite sides of which are connected by a tubular brace or chamber, the said brace or chamber being intersected by an oil-feed tube combined with sight-feed glasses supported by said tubular brace or chamber, substantially as set forth.

9. In a lubricating apparatus, an oil-reservoir having its axis in a horizontal plane and being provided with a series of horizontal tubular braces or chambers connecting its interior sides, and oil-feed pipes intersecting said braces or chambers, combined with sight-feed glasses arranged in pairs, each pair having a common axis and being supported by one of said tubular braces or chambers, substantially as set forth.

10. In a lubricating apparatus, an oil-reservoir having a series of parallel tubular braces or chambers interiorly connecting its sides, and oil-feed pipes intersecting and extending from said tubular braces or chambers to the walls of said reservoir, combined with sight-feed glasses supported by each tubular brace or chamber, substantially as set forth.

11. In a lubricating apparatus, an oil-reservoir having its axis in a horizontal plane and being provided with a series of tubular braces or chambers connecting its interior sides, and oil-feed pipes intersecting such braces or chambers, combined with sight-feed glasses arranged in pairs, each pair having a common axis and being removably mounted in one of said tubular braces or chambers, substantially as set forth.

12. In a lubricating apparatus, an oil-reservoir having a series of tubular braces or chambers connecting its interior sides, and oil-pipes intersecting such braces or chambers, combined with a sight-feed glass in each end of each of said tubular braces or chambers, substantially as set forth.

13. In a lubricating apparatus, an oil-reservoir having a series of tubular braces or chambers connecting its interior sides, and oil-feed pipes intersecting said braces or chambers and extending between the walls of the reservoir, combined with sight-feed glasses arranged in pairs, each pair having a common axis and being removably mounted in one of said tubular braces or chambers within the body of said reservoir, substantially as set forth.

14. In a lubricating apparatus, an oil-reservoir having a series of tubular braces or chambers connecting its interior sides, and oil-feed pipes intersecting said braces or chambers and extending between the walls of the reservoir, combined with a sight-feed glass in each end of each of said tubular braces or chambers within the body of said reservoir, substantially as set forth.

15. In a lubricating apparatus, an oil-reservoir having a series of parallel tubular braces or chambers interiorly connecting its sides, and parallel oil-feed pipes intersecting and extending from said tubular braces at a right angle thereto to the walls of said reservoir, combined with a sight-feed glass in each end of each of said tubular braces or chambers within the body of said reservoir, substantially as set forth.

16. In a lubricator, a condenser and an oil-reservoir, said reservoir being provided with tubular chambers arranged in a row extending substantially in the direction of the greatest horizontal dimension of said reservoir, combined with sight-feed features included within said tubular chamber, substantially as set forth.

17. In a condensation-displacement lubricator, an oil-reservoir and a condensing-chamber, the walls of which reservoir are interiorly connected and braced by one or more tubular chambers, combined with sight-feed glasses supported in said tubular chambers, and oil-feed pipes intersecting said chambers and having at their lower ends valve-controlled passages for permitting the flow of oil from the oil-reservoir, substantially as set forth.

18. In a lubricator, the combination of a condenser and an oil-reservoir the latter having an oil-feed pipe passing vertically therethrough, a tubular chamber supported within the oil-reservoir and intersected by the oil-feed pipes, an oil-delivery nozzle entering said tubular chamber, and a sight-feed glass placed on each side of said nozzle and supported by said chamber, substantially as set forth.

19. In a lubricator, the combination of a condenser, an oil-reservoir having oil-feed pipes passing therethrough, a tubular chamber connected to each oil-feed pipe, each of said chambers extending between the opposite walls of said reservoir, a sight-feed glass in each end of each chamber, and an oil-delivery nozzle situated between each pair of sight-feed glasses, substantially as set forth.

20. In a lubricator, the combination of an oil-reservoir containing within itself an oil-feed tube having an enlarged portion extending between and connected to the side walls of said reservoir, a glass in each end of said enlarged portion, and a nozzle arranged to deliver oil between said glasses, substantially as set forth.

21. In a lubricator, the combination of an oil-reservoir, vertical oil-feed tubes passing therethrough, each tube having oppositely-arranged enlarged horizontal branches, and observation-glasses removably mounted in said enlarged horizontal branches within the compass of the reservoir, substantially as set forth.

22. The combination in a sight-feed lubricator, with a water-chamber and a nozzle through which the oil is delivered in drops in order to ascend through the water in said chamber, of an observation-glass or bull's-eye having a side or surface adapted to internally reflect, so as to be visible to the observer, the position and movement of the lubricant, substantially as set forth.

23. A lubricator having a sight-feed passage, combined with an observation-glass so constructed as to constitute a mirror by internal reflection, and adapted to reflect for observation the position and movement of liquid behind the glass, substantially as set forth.

24. The combination, in a sight-feed lubricator, with a water-chamber and a nozzle through which the oil is delivered in drops to the water in said chamber, of an observation-glass or bull's-eye having polished surfaces adapted to internally reflect, so as to be visible to the observer, when out of the direct line of sight, the position and movement of the lubricant, a casing in which said bull's-eye is retained, a packing for said bull's-eye, and a cap for the casing, substantially as set forth.

25. The combination, in a sight-feed lubricator, with a water-chamber and a nozzle through which the oil is delivered in drops in order to ascend through the water in said chamber, of an observation-glass or bull's-eye having a polished surface, or surfaces, at an angle to its longitudinal axis, a packing adapted to the shape of said surface or surfaces, a casing to receive said bull's-eye, and a retaining-cap for the casing, substantially as set forth.

26. In a lubricator, the combination with an observation-chamber through which the oil ascends in drops, of a thick observation-glass having parallel front and rear ends, and side surfaces adapted to inwardly direct rays of light in order to exhibit the position and movement of liquid behind the glass, substantially as set forth.

27. In a lubricating apparatus, an oil-reservoir having an integral horizontal tubular chamber extending therethrough and an oil-feed pipe intersecting said chamber, combined with cells adapted to be fitted within the tubular chamber, and observation-glasses mounted in said cells, substantially as set forth.

28. In a lubricating apparatus, an oil-reservoir having a horizontal tubular chamber extending therethrough and an oil-feed pipe intersecting said chamber, combined with cells adapted to be removably fitted within said tubular chamber, and observation-glasses removably mounted in said cells, substantially as set forth.

29. In a lubricating apparatus, an oil-reservoir having a tubular chamber forming a part thereof, and an oil-feed pipe intersecting said chamber, combined with observation-glasses connected so as to constitute mirrors by internal reflection, said glasses being removably mounted within said chamber, substantially as set forth.

30. In a lubricating apparatus, an oil-reservoir having a tubular chamber forming a part thereof, and an oil-feed pipe intersecting said chamber, combined with cells fitted to said tubular chamber, an observation-glass having exterior sides angular with reference to its axis, mounted within each cell, a wedge-packing for each glass, and retaining-caps, substantially as set forth.

31. In a lubricating apparatus, an oil-reservoir having a tubular chamber forming a part thereof and an intersecting oil-feed pipe, combined with observation-glasses having surfaces arranged to produce internal reflection, and means for mounting said glasses within said tubular chamber, substantially as set forth.

32. In a lubricating apparatus, an oil-reservoir having a tubular chamber forming a part thereof and an intersecting oil-feed pipe, combined with observation-glasses having exterior sides angular with respect to their axes, cells for containing the observation-glasses, a packing around each glass, and means for forcing the packing into contact with the angular sides of the glass and the inner wall of its cell, substantially as set forth.

33. In a lubricator, the combination with an observation-chamber through which the oil ascends in drops, of a removable cell arranged in relation to said chamber, and a thick observation-glass removably mounted in said cell, said glass having parallel front and rear ends and side surfaces adapted to inwardly direct rays of light in order to exhibit the position and movement of liquid behind the glass, substantially as set forth.

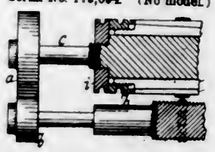
34. In a lubricator, the combination with an observation-chamber through which the oil ascends in drops, of a thick observation-glass suitably mounted in relation to said chamber, a tapered or wedge-shaped packing surrounding said glass, and a cap for compressing the packing around the glass, substantially as set forth.

752,555. **GATE AND CHUTE FOR COAL OR ORE POCKETS.** GEORGE L. HOLMES, Chicago, Ill. Filed Mar. 24, 1902. Serial No. 99,648. (No model.)



Claim.—In a gate and chute for coal or ore pockets, the combination of a gate to cut off the flow of coal with a transverse rod below the bottom of the discharge-way, said gate pivoted on such rod, and an outer spout pivoted concentric with but on pivots independent of the rod.

752,556. **RULING DEVICE.** JOSEF HREN, Brooklyn, N. Y. Filed Oct. 29, 1903. Serial No. 179,094. (No model.)



Claim.—1. A ruling device comprising ruling rings or disks, rails for the disks and expanders for the rails movable relative to said rails.

2. A ruling device comprising ruling rings or disks, expansible rails and longitudinally-movable expanders.

3. A ruling device comprising ruling rings or disks, rails for the disks and longitudinally-movable expanders with set-screw for expanding and clamping the rails to the rings.

4. A ruling device comprising a cylinder having heads, rails made to move radially but not longitudinally in the heads, expanders made to move longitudinally in or through the heads, and a screw or adjusting nut mounted to rotate in a fixed plane and made to engage or adjust the expanders.

5. A ruling device comprising a ruling-roller having rings, expansible rails for clamping or fixing the rings, expanders for the rails and a grooved bearing-roller having spring or elastic rings which can be set along the roller into grooves.

6. A ruling device comprising adjustable rings or rulers with a bearing-roller having elastic or spring rings adapted to be set in conformity to the rulers.

7. A ruling device comprising rings or rulers, rails for the rulers provided with inclines, and expanders made to set against the incline of the rail, the latter being movable longitudinally and independently of the rings and expanders.

8. A ruling device comprising ruling-rings, supports for said rings radially adjustable relative thereto, and means for adjusting said supports to said rings for clamping the same.

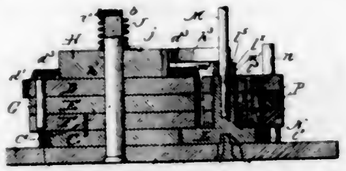
9. A ruling device comprising adjustable ruling-rings, supports radially adjustable relative to said rings, longitudinally-movable members for adjusting said supports, and means for moving said members relative to said supports for clamping and unclamping said rings.

752,557. **MEANS FOR RELEASING TARGET-TRAPS.** STEPHEN A. HUNTLEY, Sioux City, Iowa, assignor to Harvey H. Hawman, William F. Duncan, Joseph W. Gray, and Charles H. Hunter, Sioux City, Iowa. Filed Dec. 18, 1902. Serial No. 135,736. (No model.)

Claim.—1. In mechanism of the character described, the combination with two or more independent triggers and trigger-actuating means, of a signal having sides in number corresponding to the number of triggers and operated by means of said trigger-actuating means, whereby the trigger to be operated is indicated on said signal.

2. In mechanism of the character described, the combination

of a pivotally-mounted trigger equipped with a trigger-arm extending into the path of trigger-actuating mechanism, of trigger-actuating mechanism consisting of a rotatable member equipped with means for engaging and actuating said trigger-arm, a superposed member carrying means for rotating said rotatable member, and means for actuating said last-named member.



3. In mechanism of the character described, the combination of a pivotally-mounted spring-held trigger equipped with a trigger-arm extending into the path of trigger-actuating mechanism, of trigger-actuating mechanism consisting of a rotatable member provided with means for engaging and actuating said trigger and further provided with ratchet-teeth, independently-oscillating means for engaging said ratchet-teeth to rotate said first-named rotatable member, and mechanism for actuating said rotatable means.

4. In mechanism of the character described, the combination of a pivotally-mounted spring-held trigger equipped with a trigger-arm extending into the path of trigger-actuating mechanism, of trigger-actuating mechanism consisting of a rotatable member provided with means for engaging and actuating said trigger and further provided with ratchet-teeth, an independently-rotatable member carrying a pawl to engage said ratchet-teeth, and means for actuating said rotatable member.

5. In mechanism of the character described, the combination of a series of superposed independent, suitably-mounted triggers provided with spring-held trigger-arms extending into the path of trigger-actuating mechanism, of trigger-actuating mechanism comprising a rotary device provided with means for actuating said triggers, and means for actuating said rotary device.

6. In mechanism of the character described, the combination with a series of independent, suitably-supported triggers each provided with a trigger-arm extending into the path of trigger-actuating mechanism, of trigger-actuating mechanism consisting of a series of separately-formed members each carrying means for engaging and actuating said trigger-arms, and means for connecting and securing said members in positions relative to the point of contact of the trigger-actuating teeth with the trigger-arms, and means for actuating said series of separately-formed members.

7. In mechanism of the character described, the combination of a series of independent, suitably-supported spring-held triggers each having a trigger-arm extending into the path of trigger-actuating mechanism, with trigger-actuating mechanism consisting of a series of members rotatable about a common axis each carrying means for engaging and actuating said trigger-arms, means for connecting together said rotatable members, said rotatable members being provided with perforations to receive said last-named members, means for connecting together the said rotatable members, to cause them to rotate in a fixed relation to each other.

8. In mechanism of the character described, the combination of a series of independent, suitably-supported spring-held triggers each having a trigger-arm extending into the path of trigger-actuating mechanism, with trigger-actuating mechanism consisting of a series of members rotatable about a common axis, trigger-actuating teeth on said rotatable members into the path of which the trigger-arms extend, ratchet-teeth on the surface of the top disk of the series of said rotatable members, and actuating means for said trigger-actuating mechanism comprising a spring-held plate, and a pawl carried by said plate to engage said ratchet-teeth, means for operating said spring-held plate against the action of said spring whereby said pawl in its travel engages one of said rotatable members, and means for connecting together and securing the series of rotatable members to rotate the same as one.

9. In mechanism of the character described, the combination of a series of independent, suitably-supported spring-held triggers, each having a trigger-arm extending into the path of trigger-actuating mechanism, with trigger-actuating mechanism comprising a suitably-supported spindle, a series of independent members rotatable about the said spindle, trigger-actuating teeth on said rotatable members into the path of which the trigger-arms extend, and ratchet-teeth on the upper surface of the top disk of the series of said rotatable members, actuating means for said trigger-actuating mechanism comprising a plate located above said series of rotatable members and journaled on said spindle, a pawl carried by said plate to engage said ratchet-teeth, a coiled spring encircling said spindle and attached at one end thereto, means on said plate to which is secured the other end of said spring, an arm projecting from said plate, and a cord attached to said arm through the medium of which the said plate is oscillated about the spindle, and means for connecting and securing the rotatable members to rotate as one.

10. In mechanism of the character described, the combination of a series of suitably-mounted independent triggers each provided with a trigger-arm extending into the path of trigger-actuating mechanism, a suitably-mounted gear and a signal carried thereby, with trigger-actuating mechanism, means for actuating said last-named mechanism, and a gear carried by said trigger-actuating mechanism intermeshing with said first-named gear.

11. In mechanism of the character described, the combination of a series of suitably-mounted spring-held triggers each provided with a trigger-arm extending into the path of trigger-actuating mechanism, a suitably-supported gear, a projecting portion on said gear, in the path of movement of said trigger-arms serving as a stop therefor and provided with a socket, a two or more sided signal, a spindle removably secured in said socket and carrying said signal with trigger-actuating mechanism, means for actuating said last-named mechanism, and a gear carried by said trigger-actuating mechanism intermeshing with said first-named gear.

12. In mechanism of the character described, the combination of a series of suitably-mounted spring-held triggers each provided with a trigger-arm extending into the path of trigger-actuating mechanism, a suitably-supported gear, a projecting portion on said gear in the path of movement of said trigger-arm serving as a stop therefor and provided with a socket having a flat surface on its inner periphery, a two or more sided signal, and a spindle removably secured in said socket having a flat side on its outer periphery at its lower end portion corresponding with the flat surface in said socket and carrying said signal, with trigger-actuating mechanism, means for actuating said last-named mechanism, and a gear carried by said trigger-actuating mechanism intermeshing with said first-named gear.

13. In mechanism of the character described, the combination with a trigger provided with an arm, trigger-actuating mechanism into the path of which said arm extends, said mechanism comprising a rotatable member provided with trigger-actuating teeth, and means for actuating said rotatable member, of means, operated by said means for actuating said trigger-actuating mechanism, to engage said ratchet-teeth to limit the rotary movement of said rotatable member.

14. In mechanism of the character described, the combination of a trigger provided with an arm extending into the path of trigger-actuating mechanism, said last-named mechanism comprising a rotatable member provided with projecting teeth, and means for actuating said trigger-actuating mechanism, with means for limiting the rotary movement of said rotatable member, comprising an oscillating member which in its movement of oscillation intercepts the path of the said projecting teeth, and is operated through the medium of said means for actuating said trigger-actuating mechanism.

15. In mechanism of the character described, the combination of a trigger provided with an arm extending into the path of trigger-actuating mechanism, said last-named mechanism comprising a rotary member provided with trigger-actuating teeth on its side surface and ratchet-teeth on its upper surface, means for actuating said rotary member comprising a plate journaled above said rotary member carrying means for engaging the ratchet-teeth on the upper surface of said rotary member, and provided with two laterally-extending arms, one of the arms carrying a pin, and means attached to said plate to oscillate it, with an oscillating member provided with a shouldered surface and a cam-surface engaging said pin to produce oscillation whereby the said shouldered surface is caused to automatically intercept the path of the said trigger-actuating teeth upon the oscillation of said plate.

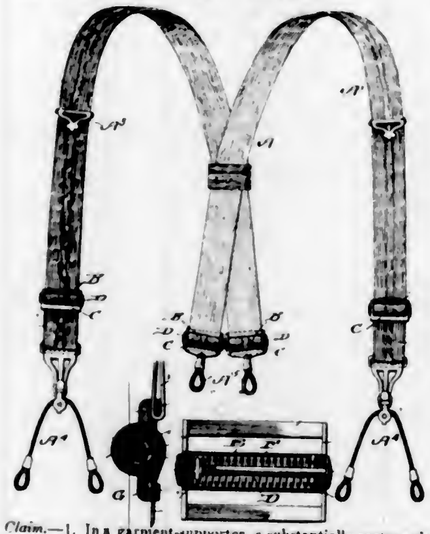
16. The combination of independently-actuated members, two or more rotary members through the medium of which said first-named members are actuated, means for adjusting said rotary members angularly with relation to each other, and a manually-actuated spring-retracted device serving to move said rotary members, for the purpose set forth.

17. The combination of a signal-standard, a series of independent triggers and a rotary device equipped with trigger-actuating means, and with signal-standard-actuating means, for the purpose set forth.

18. The combination of a series of triggers, a rotary signal, a combined trigger-actuating and signal-rotating device, and an escapement for said device, for the purpose set forth.

19. The combination of a signal equipped with a pinion, a series of triggers arranged in different planes, a rotary device equipped in different planes with trigger-actuating means and having connected therewith a gear intermeshing with said pinion, and a manually-actuated spring-retracted device serving to actuate said rotary device.

752,558. SUSPENDERS. MEDFORD HYNSON, Washington, D. C., assignor of one-half to George F. Nelson, Washington, D. C. Filed Jan. 19, 1903. Serial No. 139,591. (No model.)



Claim.—1. In a garment-supporter, a substantially rectangular frame comprising end and side pieces, and a roller journaled intermediate the side pieces thereof, and substantially parallel therewith, either of said side pieces forming a means of attachment for a suspender-section.

2. In a garment-supporter, a substantially rectangular frame comprising end and side pieces, and a roller journaled intermediate the side pieces thereof, and substantially parallel therewith, either of said side pieces forming a means of attachment for a suspender-section, and the roller being provided with means for attaching another suspender-section.

3. In a garment-supporter, a substantially rectangular frame comprising end and side pieces, and a spring-actuated roller journaled intermediate the side pieces thereof, and substantially parallel therewith, the surface of said roller being provided with barbs for forming one means of attachment to a suspender-section, and either of said side pieces forming means for attaching another suspender-section.

4. In a garment-supporter, a substantially rectangular frame comprising end and side pieces, a pin through the end pieces intermediate the side pieces and substantially parallel therewith, a roller on the pin provided with means for attaching a suspender-section thereto, either of the side pieces of the frame forming a means of attachment for another suspender-section, and a spring between the pin and the roller and connected thereto, respectively.

5. In a garment-supporter, a substantially rectangular frame provided with perforated flat end pieces, a pin through said perforations, a roller mounted on the pin with its ends in engagement with said flat end pieces and its surface provided with means for attaching a suspender-section thereto, and a spring between the pin and the roller and having its ends secured thereto respectively, and either of the side pieces of the frame forming a means of attachment for another suspender-section.

6. In a garment-supporter, a substantially rectangular frame comprising end and side pieces, the side pieces of which frame are flat and lie substantially in the same plane and either one forms a means of attachment to a suspender-section, and a roller journaled intermediate said side pieces and substantially parallel therewith, the surface of the roller being provided with means for attaching it to another suspender-section.

7. In a garment-supporter, a frame and a spring-actuated roller arranged therein, one section of a suspender-band connected to said frame, the other section of the suspender-strap being connected to the spring-actuated roller and partially wound thereon, the axis of said roller being substantially parallel with the planes of said suspender-sections, as specified.

8. In a garment-supporter, a frame provided with side and end pieces, said side pieces lying substantially in the same plane, and a spring-actuated roller journaled in the end pieces with its axis substantially parallel with the side pieces and to one side of the plane thereof.

9. In a garment-supporter, a frame provided with side and end pieces, a spring-actuated roller journaled in the end pieces with its axis substantially parallel with the side pieces, and a guide below the roller and adjacent to the lower side piece.

10. In a garment-supporter, a frame provided with flat side and end pieces, the end pieces being perforated and standing at right angles to the side pieces, a pin through the perforations of the end pieces to the rear of and substantially parallel with the side pieces, and a spring-actuated roller mounted on the pin and provided with means for attaching a suspender portion thereto.

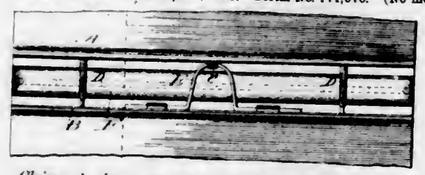
11. In a garment-supporter, a frame provided with perforated end pieces, a pin through said perforations, one end of which is provided with means for securing it in position and with means for securing a spring, a roller mounted on said pin and provided with means for attaching a suspender-section thereto, and a spring within the roller, one end of which is attached thereto and the other end is attached to said pin.

12. In a garment-supporter, a frame provided with perforated end pieces, a pin through said perforations, one end of which is slotted longitudinally and provided with means for securing it in position, a roller mounted on said pin and provided with means for attaching a suspender-section thereto, and a spring in the roller, one end of which is attached thereto, and the other end projects through said slot.

13. In a garment-supporter, a frame provided with perforated end pieces, a pin through said perforations, one end of which is slotted longitudinally and notched for engaging with said end pieces, a roller mounted on said pin and provided with means for attaching a suspender-section thereto, and a spring in the roller, one end of which is attached thereto and the other end projects through said slot.

14. In a garment-supporter, a frame provided with side pieces and rearwardly-projecting end pieces, a spring-actuated roller mounted between the end pieces and to the rear of the side pieces, and a curved guard extending from the upper side piece over and to the rear of said roller.

752,559. TEMPORARY BINDER. MARK P. JACKSON, Newton Center, Mass. Filed Sept. 2, 1903. Serial No. 171,670. (No model.)

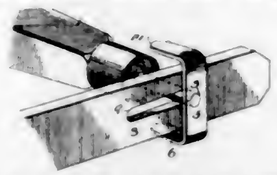


Claim.—1. In a temporary binder, opposite longitudinally-hinged backing-pieces provided with filing-fingers, and a spring attached at its opposite ends to the said backing-pieces, on the inner sides thereof, and adapted to close the binder; with a locking device adapted to be adjusted between the spring and backing-pieces when the binder is closed, to prevent opening of the binder, substantially as described.

2. In a temporary binder, the combination of a pair of backing-pieces hinged together longitudinally, filing devices attached to said pieces and a spring attached to the opposite backing-pieces on the inner sides thereof, extending across the hinge, and adapted to close the binder; with a locking device adapted to be adjusted between the spring and backing-pieces when the binder is closed, to prevent opening of the binder, substantially as described.

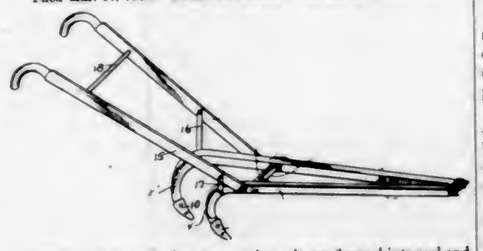
3. In a temporary binder, the combination of a pair of backing-pieces hinged together longitudinally, a bowed spring attached at opposite ends to the opposite backing-pieces and extending across the hinge; and sheet-filing devices attached to the respective backing-pieces; with a removable locking-bar adapted to be inserted between the spring and backing-pieces when the binder is closed, to prevent opening of binder, substantially as and for the purpose set forth.

752,560. TRACE-HOLDER. BELLFIELD JOHNSON, Williamsport, Pa. Filed May 8, 1903. Serial No. 156,264. (No model.)



Claim.—In a trace-holder, the combination with the tree, of a T-shaped hook consisting of a shank secured to the end of the tree, a cross-head immovably fixed to the outer end of the shank and having substantially equal portions located on opposite sides of said shank, and inwardly-extending guard-tongues projecting from the terminals of and at right angles to the cross-head toward the adjacent end of the tree, the inner ends of said tongues being located inside the inner face of the cross-head said tongues forming between them a trace-receiving seat and engaging over the edges of a trace fitted upon the shank, being spaced from the adjacent end of the tree.

752,561. SUBSOIL-PLOW. GEORGE W. JOHNSON, Manassas, Va. Filed Mar. 17, 1903. Serial No. 148,242. (No model.)



Claim.—A subsoil-plow comprising a beam formed integral and including rearwardly-divergent members, the free ends of said members being curved downwardly and forwardly in close lateral spaced relation, blades secured to the downwardly and forwardly curved portions, handles disposed against the outer faces of the members of the beam, a brace consisting of a flat metal plate having its ends bent laterally and at right angles, said bent portions being perforated, the said brace being disposed between the members of the beam and having the bent portions resting against the inner sides of the members and having its perforations in alinement with the perforations in the members of the beam and the handles, and a bolt passing through the said perforations.

752,562. RED AZO DYE. PAUL JULIUS, Ludwigshafen-on-the-Rhine, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on the Rhine, Germany, a Corporation, of Baden, Germany. Filed Mar. 4, 1902. Serial No. 96,623. (Specimens.)

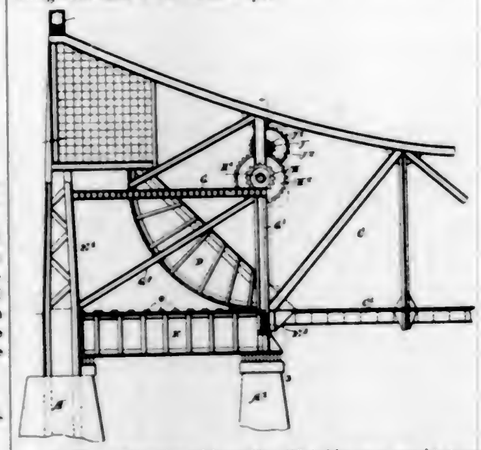
Claim.—1. As a new article of manufacture azo coloring-matter which can be derived from sulfo-acid of para-chlor-anilin and beta-naphthol, and which on suitable treatment with stannous chlorid and hydrochloric acid yields alpha-amido-beta-naphthol, and sulfo-acid of para-chlor-anilin.

2. As a new article of manufacture azo coloring-matter which can be derived from 4-chlor-anilin-5-sulfo-acid and beta-naphthol, and which on suitable treatment with stannous chlorid and hydrochloric acid yields 4-chlor-anilin-5-sulfo-acid and alpha-amido-beta-naphthol.

752,563. BASCULE-BRIDGE. CHARLES L. KELLER, Chicago, Ill., assignor to the Scherzer Rolling Lift Bridge Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 26, 1902. Serial No. 96,575. (No model.)

Claim.—1. The combination with the movable span of a bascule-bridge and means for supporting said movable span, of a rotative non-supporting part on the span, and means attached to a stationary part and operating in connection with said rotating part to give rising-and-falling movement to the span.

2. The combination with the movable span of a bascule-bridge and means for supporting said movable span, of a non-supporting rotative part on the span, a motor connected with said rotative part for driving the same, and means attached to a stationary part and operating in connection with said rotative part to giving rising-and-falling movement to the rotative span.



3. The combination with a rolling lift-bridge span provided with rolling segments, and supports on which said segments rest and roll of a motor-driven, rotative part on the span, and means attached to a stationary support and operating in connection with said rotative part to give rising-and-falling movement to the span.

4. The combination with the movable span of a bascule-bridge and means for supporting said movable span, of actuating means embracing a motor-driven, revoluble, non-supporting pinion on the span, and a stationary operating-strut provided with a rack adapted for engagement with said pinion.

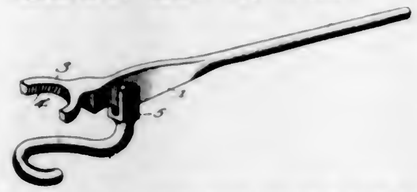
5. The combination with a bridge span or leaf provided with rolling segments, and stationary supports for said segments, of means for actuating the span comprising stationary operating-struts located at the sides of the rolling segments and provided with racks, and motor-driven gear-pinions on the span engaging saidracks.

6. The combination with a bridge span or leaf provided with rolling segments, and stationary girders located on either side of the bridge-approach and affording supports for said segments, of operating-struts located above the level and outside of the planes of said girders, said struts being provided with racks, and motor-driven gear-pinions on the span intermeshing with said racks.

7. The combination with a bridge span or leaf provided with rolling segments and stationary supports for said segments, of stationary operating-struts, gear-pinions on each side of the span, each mounted on a separate shaft, a driving-shaft extending across the span and connected by gearing with both pinion-shafts, and a motor mounted on the span and having operative connection with said driving-shaft.

8. The combination with the movable span of a bascule-bridge, and means for supporting said movable span, of a motor on the span, and means driven by said motor and operating in connection with non-supporting coacting parts on the bridge-approach to give rising-and-falling movement to the span.

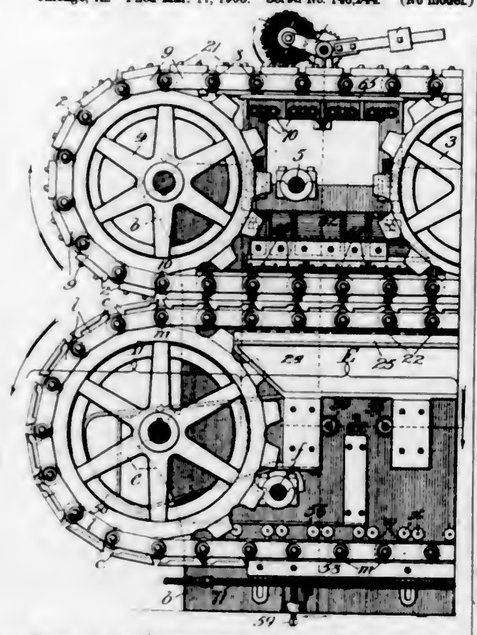
752,564. WRENCH. CHARLES S. KLINE, Mingo Junction, Ohio. Filed Oct. 10, 1903. Serial No. 176,509. (No model.)



Claim.—1. The combination with a bar having a handle at one end and a toothed yoke at the other end; of a hooked arm pivoted to the bar and adapted to engage the opposite side of an object within the yoke.

2. The combination with a bar having a handle at one end and a toothed yoke at the other end; of an L-shaped arm pivotally connected at one end to the bar and having a laterally-extending hook at the other end, said hook and yoke being adapted to contact with opposite faces of an object.

752,565. BRIQUETING-MACHINE. WILLIAM A. KÖNEMAN, Chicago, Ill. Filed Mar. 17, 1903. Serial No. 148,244. (No model.)



Claim.—1. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for feeding material to the molds, of an inclined-plane support across which the plungers move to effect the compression, and means for adjusting the said support with reference to the path of the mold-carrying belt.

2. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for feeding material to the molds, of an inclined-plane support across which the plungers move to effect the compression, and jack-screws upon which said support is mounted to be raised and lowered.

3. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for feeding material to the molds, of an inclined-plane support across which the plungers move to effect the compression, jack-screws upon which said support is mounted, and operating means for the jack-screws at the side of the machine, substantially as set forth.

4. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for feeding material to the molds, of a support across which the plungers move to effect the compression comprising a forward section, and a rear section presenting an inclined plane, the sections being independently adjustable to regulate the capacity of the molds and the compression, substantially as set forth.

5. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for feeding material to the molds, of a support, across which the plungers move to effect the compression, comprising a forward horizontally-disposed section and a rear section presenting an inclined plane, the sections being hinged together, jack-screws beneath the forward section and beneath the forward and rear end portions of the rear section, and operating means for the jack-screws, substantially as and for the purpose set forth.

6. In a briqueting-machine, the combination with companion traveling belts provided respectively with molds and mold-covers, plungers in the molds, and means for actuating the plungers in the movement of the belts, of independent cushioning means for each said mold-covers, substantially as set forth.

7. In a briqueting-machine of the character described, the combination with an endless series of mold-links, of plungers therein, each comprising a head *s* having an outer flange, an annular recess *t* and a recessed guide-flange *v*, a stem for the head and a guide-cap through which the stem moves provided with vent-openings, all constructed to operate substantially as described.

8. In a briqueting-machine of the character described, the combination with the endless mold-belt provided with plungers, of a companion belt formed of an endless series of links each provided with a plurality of independently-yielding mold-covers, substantially as set forth.

9. In a briqueting-machine of the character described, the combination with the traveling mold-belt provided with plungers of a companion belt comprising an endless series of links, each having a plurality of independently-yielding mold-covers, and an unyielding bed across which said links move during the compressing operation.

10. In a briqueting-machine of the character described, a belt formed of an endless series of links, each provided with a plurality of openings through it, mold-covers in said openings, shoulders against which said mold-covers rest, spring-pressed followers in said openings and set-screws adjustable in said followers and bearing against said covers.

11. In a briqueting-machine of the character described, a belt consisting of an endless series of links each provided with a plurality of openings through it, shoulders in said openings, mold-covers in said openings, a cap-plate on each link, a follower in each said opening, stiff springs confined between the followers and cap-plate and set-screws extending through the said followers and bearing against the mold-covers, substantially as described.

12. In a briqueting-machine of the character described, a belt consisting of an endless series of links each provided with a plurality of openings through it, shoulders in said openings, mold-covers in said openings, a cap-plate on each link provided with perforations registering with said openings, a follower in each said opening, stiff springs confined between the followers and cap-plate and set-screws extending through the said followers and bearing against the mold-covers, substantially as described.

13. In a briqueting-machine of the character described, a lower mold-belt consisting of an endless series of links provided with molds and plungers in the molds, an antifriction-support for the upper stretch of said lower belt comprising parallel longitudinally-extending lubricant-holding troughs and antifriction-rollers journaled in said troughs for the links to slide over during the compressing operation.

14. In a briqueting-machine of the character described, the combination with the companion traveling belts provided respectively with molds and mold-covers, of heating means for the said belts, substantially as and for the purpose set forth.

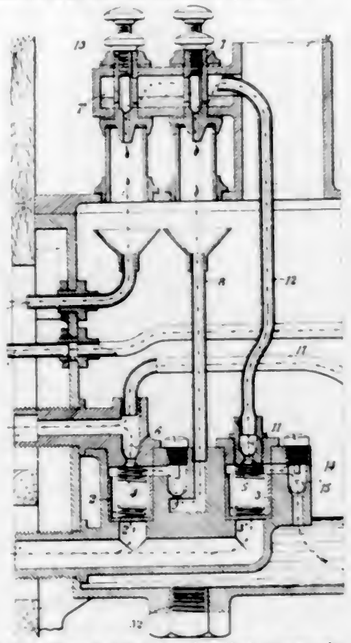
15. In a briqueting-machine of the character described, the combination with companion traveling belts provided respectively with molds and mold-covers, of heating means for the belts comprising steam-conducting pipes mounted in the frame of the machine close to the path of the upper stretch of the upper belt and close to the path of the lower stretch of the lower belt, substantially as set forth.

16. In a briqueting-machine of the character described, means for cleaning the belts in their movement from the discharge end toward the receiving end of the machine comprising cylindrical brushes, counterweighted frames in which the brushes are journaled and by which they are held yieldingly against said belts, and means for rotating said brushes in the direction contrary to the movement of the belts.

752,566. DEVICE FOR LUBRICATING MOTORS AND MACHINERY DRIVEN THEREBY. ARTHUR KREBS, Paris, France, assignor to Société Anonyme des Anciens Etablissements Panhard et Levassor, Paris, France. Filed May 8, 1903. Serial No. 156,311. (No model.)

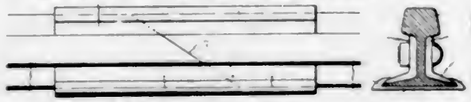
Claim.—1. In an apparatus of the class described, the combination of a main oil-reservoir, a piston and its cylinder, a passage leading into the piston-cylinder for conducting the exhaust-gases thereto, the piston serving to draw oil from the main reservoir, a pipe for receiving the oil drawn by the piston from the reservoir, an auxiliary reservoir for receiving the oil from said pipe, a drip-feed lubricator connected with the auxiliary reservoir, a pipe for receiving the drip-feed oil, a second cylinder containing a piston, said last-mentioned pipe being in communication with the last-mentioned cylinder, and the piston in the latter serving to pump the oil received

from said last-mentioned pipe to a part to be lubricated, a passage opening into the last-mentioned cylinder for conducting exhaust gases thereto to operate the piston therein, and valves for controlling the flow of the oil into and out of the cylinders.



2. In an apparatus of the class described, a reservoir, a hand-pump including a cylinder mounted for turning movement, a part mounted in the reservoir and receiving said cylinder, said part having an opening for the passage of the oil into said cylinder, and also having passages adapted to alternately register with said opening, and pipes leading from said passages to a part to be lubricated.

752,567. RAIL-JOINT. WHEELER W. KERCHER, Goshen, Ind. Filed Sept. 19, 1903. Serial No. 173,864. (No model.)



Claim.—The combination of rails, having the abutting ends cut at a bevel extending through the heads, webs, and base-flanges, fish-plates lapping the said ends and having downwardly-beveled lower flanges extending over said base-flanges and terminating inwardly from the outer edges of the latter, a chair-plate extending snugly under the base-flanges of the rails and having upwardly-extending inturned flanges gradually reduced toward their free edges and overlapping the outer edges of the said base-flanges of the rails and the reduced edges of the lower flanges of the fish-plates.

752,568. SUSPENDERS. CHARLES A. LATIONS, Beverly, Mass. Filed Oct. 14, 1903. Serial No. 177,045. (No model.)

Claim.—1. A suspender comprising shoulder-straps, a suspender-end, a back-strap consisting of two independent sections and a buckle adjustably connecting the sections of said back-strap.

2. A suspender, comprising shoulder-straps, a strap connecting the rear ends of said shoulder-straps, a suspender-end, a back-strap consisting of two independent sections, said sections having loops or flaps to receive the connecting-strap and the suspender-end, and a buckle for adjusting the sections of said back-strap relatively to each other.

3. A suspender, comprising shoulder-straps, a strap connecting the rear ends of the shoulder-straps by being folded and stitched thereto and rounded or contracted between its ends, a suspender-end rounded or contracted between its ends, a back-strap having catgut-reinforced straps or loops at its ends to receive the rounded portions of the connecting-strap and suspender-end, and means for adjusting the length of said back-strap.



4. A back-strap for suspenders having loops or flaps at both ends, and made in two sections, a buckle for adjustably connecting said strap-sections, and having independent locking means for each section.

5. A suspender comprising shoulder-straps, a strap connecting the ends of the shoulder-straps, a suspender-end, a back-strap, and loops secured to the ends of the back-strap to receive the connecting-strap and suspender-end, and linings of catgut in said loops.

752,569. HAY-CARRIER. WILLIAM LOUDEN, Fairfield, Iowa. Filed Dec. 14, 1903. Serial No. 185,049. (No model.)



Claim.—1. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece connected to said fingers, so as to cause the grappling devices to move in unison.

2. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece having a sleeve to fit over said fingers, so as to cause them to move in unison.

3. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece connected to said fingers at one end and pivoted to the carrier-frame at the other end.

4. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece having a sleeve to fit over said fingers at one end and pivoted to the carrier-frame at the other end.

5. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece connected to said fingers at one end, and the other end being forked and pivoted to opposite sides of the carrier-frame.

6. The combination of a pair of grappling devices having their central parts spread apart and being pivoted at their edges to the opposite sides of the carrier-frame, said grapples being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece connected to said fingers, so as to cause the grapples to work in unison.

7. The combination of a pair of grappling devices having their central parts spread apart and being pivoted at their edges to the opposite sides of the carrier-frame, said grapples being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers, and an intermediate piece connected to said fingers at one end and pivoted to the carrier-frame at the other end.

8. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers overlapping each other, and an intermediate piece having a sleeve to fit over said overlapping fingers.

9. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, being adapted to catch an elevating-pulley between them and having inwardly-projecting fingers overlapping each other, and an intermediate piece having a sleeve at one end to fit over said overlapping fingers, and the other end forked and pivoted in opposite sides of the carrier-frame.

10. In hay-carriers, the combination of a pair of grappling devices having their central portions spread apart, a carrier-frame having on each side a pair of vertically-spaced bars, lugs on the spread-apart portions of the grappling devices adapted to enter the spaces between said bars, and means to pivot the lugs to the bars.

11. The combination of a pair of grappling devices, having their upper ends centrally contracted to a single head, their central portions made open and spread apart and having lugs thereon, a pair of vertically-spaced bars in each side of the carrier-frame adapted to fit over said lugs, and means for pivoting the lugs to the bars.

12. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame and having a loop at each lower end, a locking-dog adapted to coact with the upper ends of said devices and an elevating-pulley having projections on its opposite sides, said looped ends being adapted to catch under said projections, and to be released therefrom.

13. The combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, and having a loop at each lower end and inwardly-projecting fingers above said loops, means for connecting said fingers together, so as to make them move in unison, a locking-dog adapted to coact with the upper ends of said devices and an elevating-pulley having projections on its opposite sides, said looped ends being adapted to catch under said projections, and to be released therefrom.

14. The combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame, and having a loop at each lower end and inwardly-projecting fingers above said loops, a sleeve to fit over said fingers, so as to make them move in unison, a locking-dog adapted to coact with the upper ends of said devices and an elevating-pulley having projections on its opposite sides, said looped ends being adapted to catch under said projections, and to be released therefrom.

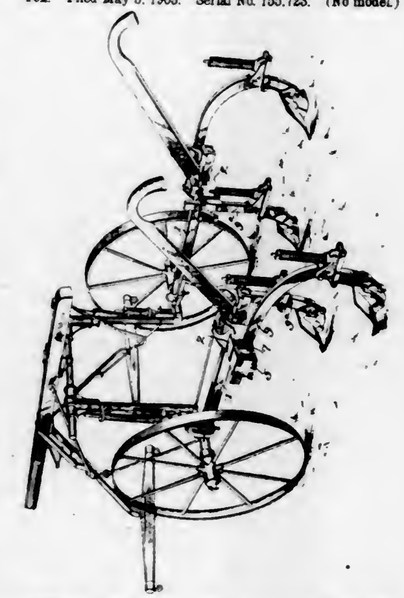
15. In hay-carriers, the combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame and having a loop at each lower end, a locking-dog adapted to coact with the upper ends of said devices and an elevating-pulley having projections on its opposite sides, the sides of said pulley being inwardly contracted adjoining the projections and the loops being adapted to catch under said projections.

16. The combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame and having a loop at each lower end, a locking-dog adapted to coact with the upper ends of said devices, and an elevating-pulley adapted to coact with the devices, said loops being adapted to catch under the hub of the sheave in said elevating-pulley.

17. The combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame and having retaining means at each lower end, a locking-dog adapted to coact with the upper ends of said devices, and an elevating-pulley adapted to coact with the devices, said retaining means being adapted to catch under the hub of the sheave in said elevating-pulley.

18. The combination of a pair of grappling devices pivoted in opposite sides of the carrier-frame and having inwardly-projecting fingers, an intermediate piece fitting over said fingers so as to cause them to move in unison, and an elevating-pulley adapted to strike said intermediate piece and move the grappling devices.

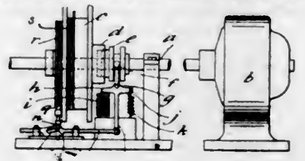
752,570. CULTIVATOR. WILLIAM J. LUTTRELL, Honeygrove, Tex. Filed May 5, 1903. Serial No. 155,723. (No model.)



Claim.—1. In a cultivator, the combination, with the draft-beam, of the shovel or plow having a shank provided with transverse holes, a cross-head secured on said draft-beam, and having its outer ends provided with a hemispherical socket and extended vertically to form flanges which are provided with transverse holes, screw-bolts passing through said flanges, a block having a socket in its inner face and holes for receiving said bolts, and a spherical clamp formed of two like hemispherical members having their flat faces provided with coincident grooves and a projection located in the center of the latter, all constructed and arranged as shown and described.

2. In a cultivator, the combination, with a draft-beam, of a cross-head secured thereon and having a hemispherical socket in its outer end which is extended vertically at top and bottom and provided with transverse holes, a block having a corresponding socket in its inner faces, screw-bolts passing through the said flanges and block, and a spherical clamp formed of two like parts having coincident grooves in their flat faces, the same being adapted to be held in the sockets of the cross-head and block and be clamped therein, said cross-head being beveled on the front and rear sides and thus provided with flaring mouths, as and for the purpose specified.

752,571. MACHINERY FOR RAISING OR LOWERING STAGE SCENERY, &c., OF THEATERS. EDWARD LYTTON, London, England. Filed Aug. 28, 1903. Serial No. 171,134. (No model.)



Claim.—1. In machinery for raising and lowering pieces of stage scenery, a shaft adapted to be rotated in either direction by a motor, a pulley mounted loose on said shaft having the lifting and lowering cord of a piece of scenery attached to its periphery, a friction-clutch upon said shaft adapted to engage with said pulley so as to carry it around with the shaft, a clutch-lever operating said friction-clutch, a catch adapted to lock said clutch-lever in the engaged position and a locking device operating in connection with the clutch-gear and adapted to lock the pulley when the clutch is moved out of engagement and to free the pulley when the clutch is moved into engagement, substantially as described.

2. In machinery for raising and lowering pieces of stage scenery, a shaft adapted to be rotated in either direction by a motor, a pulley mounted loose on said shaft having the lifting and lowering cord of a piece of scenery attached to its periphery, a friction-clutch upon said shaft adapted to engage with said pulley so as to carry it round with the shaft, a clutch-lever operating said friction-clutch, a catch adapted to lock said clutch-lever in the engaged position, a cam adapted to disengage the catch from the lever, and means for automatically actuating said cam when the piece of scenery has been raised or lowered to the desired position, substantially as described.

3. In machinery for raising and lowering pieces of stage scenery, a shaft adapted to be rotated in either direction by a motor, a pulley mounted loose on said shaft having the lifting and lowering cord of a piece of scenery attached to its periphery, a friction-clutch upon said shaft adapted to engage with said pulley so as to carry it round with the shaft, a clutch-lever operating said friction-clutch, a catch adapted to lock said clutch-lever in the engaged position, a cam adapted to disengage the catch from the lever, means for automatically actuating said cam when the piece of scenery has been raised or lowered to the desired position, and a locking device operating in connection with the clutch-gear and adapted to lock the pulley when the clutch is moved out of engagement, and to free the pulley when the clutch is moved into engagement, substantially as described.

4. In machinery for raising and lowering pieces of stage scenery, a shaft adapted to be rotated in either direction by a motor, a pulley mounted loose on said shaft having the lifting and lowering cord of a piece of scenery attached to its periphery, a friction-clutch upon said shaft adapted to engage with said pulley so as to carry it round with the shaft, a tubular shaft carrying the clutch-lever, a catch adapted to lock said clutch-lever in the engaged position, a shaft passing through the tubular shaft and carrying at one end a cam adapted to disengage the catch from the clutch-lever, and at the other end a two-armed lever to which are attached the lower ends of two vertical cords having their upper ends attached to a second two-armed lever, adjustable stops on said cords, eyes attached to the cord of the raising and lowering pulley, adapted to come in contact with said stops so as to cause the two-ended lever and its shaft to be rotated so as to disengage said catch when the piece of scenery has to be raised or lowered to the desired position and a spring acting upon the clutch-lever so as to move the clutch out of engagement when the lever is free of the catch, substantially as described.

752,572. CENTRIFUGAL MACHINE. JAMES W. MACFARLANE, Kingston, Scotland. Filed Nov. 6, 1903. Serial No. 180,098. (No model.)

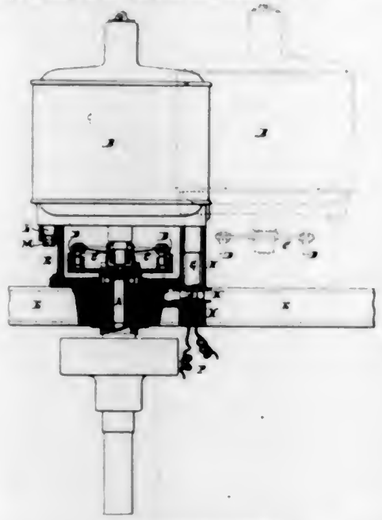
Claim.—1. In combination with the framing and driving-spindle of a centrifugal machine, a motor for driving same, a clutch coupling the motor to the spindle, and a device for moving the motor, such device forming an integral part of the framing, substantially as and for the purpose described.

2. In combination with the framing and spindle of a centrifugal machine, a motor coupled thereto and capable of being disconnected therefrom, and a screw device, forming an integral part of the framing for moving the motor, substantially as and for the purposes described.

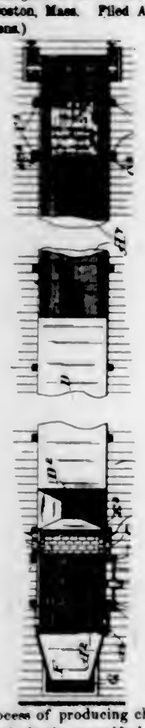
3. In combination with the framing and spindle of a centrifugal machine, a motor for driving same, a clutch coupling the motor thereto, a screwed spindle and nut device between the framing of the machine and the motor, substantially as and for the purposes described.

4. In combination with the framing and spindle of a centrifugal machine, a motor coupled thereto, and capable of being disconnected therefrom, and a screw device for moving the motor, integral with the framing and motor and forming a pivot about which the motor may be turned, substantially as and for the purpose described.

5. In combination with the framing and spindle of a centrifugal machine, a motor for driving same, a clutch coupling the motor thereto, a guide-pillar, a screwed spindle therein and attached to the motor, and a nut on the spindle working in a gap in the pillar, substantially as and for the purpose described.



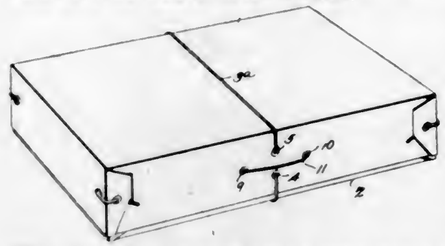
752,573. PROCESS OF MAKING CHIP-SOAP. WILLIAM M. MORSE, Chicago, Ill., assignor of two-thirds to Lewis R. Speare and Edward R. Speare, Boston, Mass. Filed Apr. 10, 1903. Serial No. 152,012. (No specimens.)



Claim.—1. The process of producing chip-soap which consists in transforming a mass of plastic saponified material into the form of a continuous layer or web equal in thickness to the pieces or chips to be made, subjecting such layer or web to the action of a drying agent to effect the drying of the material while still in the form of such continuous layer or web, and finally dividing the dried layer or web into small pieces or chips.

2. The process of producing chip-soap which consists in chilling the heated saponified material to render the same less fluid, transforming the saponified material into the form of a continuous thin layer or web, equal in thickness to the pieces or chips to be made, subjecting such layer or web to the action of a drying agent to effect the drying of the material while still in the form of such layer or web, and finally dividing the dried layer or web into small pieces or chips.

752,574. BAGGAGE-FASTENER. JACOB B. MORSE, Dallas, Tex. Filed July 6, 1903. Serial No. 164,469. (No model.)



Claim.—1. A lid member having a cord, a portion of which is interwoven through the side and end walls of the lid with one end extending transversely and exteriorly of the lid and having its terminal threaded transversely through one side wall of the lid, the other end of said cord being tied to the body portion thereof at the other side wall of the lid with its terminal adapted for connection with the terminal of the first-mentioned end.

2. A lid member, having a cord a portion of which is interwoven through the walls of the lid and having an intermediate transverse portion extending exteriorly of the lid, and secured on opposite sides, and free end portions carried by the cord, one end portion being tied and the other end being free to be drawn through the lid.

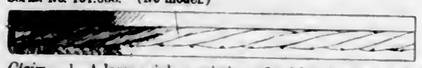
3. A telescope member, having a cord interwoven through the sides and ends, and having a handle-loop carried by one of the side walls intermediate the ends thereof, a tie in the cord at the opposite side of the member, and free tying terminals for transverse engagement with the member.

4. A telescope member, having side and end flanges, a cord interwoven through the side and end flanges, a handle-loop formed by the cord intermediate the ends of one of the flanges, a knot in the cord at a point on the member opposite to the handle, a free terminal leading from the knot, and a second terminal leading from the knot and passing through the member at a point on the side of the box opposite to the knot.

5. A telescope member, having a cord a portion of which is disposed on the interior thereof, with an intermediate exterior handle-loop, and an intermediate transverse cord portion connected to the first-named cord portion at the side of the member opposite to the handle-loop and having free tying terminals for the cord.

6. A pair of telescope members, a cord engaging the side and end flanges on one of the members, a handle-loop formed in the cord on one side of said member, said cord being tied at the opposite side of said member, and having free terminals for encircling the telescope members at right angles to the first-named cord portion.

752,575. LAMP-WICK. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Nov. 19, 1903. Serial No. 181,880. (No model.)



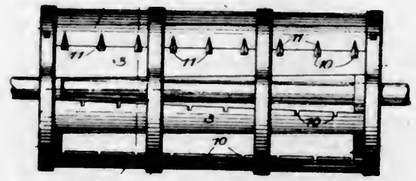
Claim.—1. A lamp-wick consisting of a felt tube or sheath and an internal central woolen strand, substantially as set forth.

2. A lamp-wick consisting of a felt tube or sheath combined with an internal central fibrous strand of density lesser than that of the surrounding tube or sheath, substantially as set forth.

752,576. THRESHING-MACHINE. ROBERT N. MCCLANAHAN, Elreno, Okla. Filed May 29, 1903. Serial No. 159,327. (No model.)

Claim.—1. In a device of the class described, the combination of suitably-supported wedge-shaped tooth-holding bars having notched edges and intermediately-disposed, oppositely-wedged holding-bars.

2. In a device of the class described, a plurality of suitably-supported wedge-shaped bars having notched edges, teeth disposed in said notches, and oppositely-wedged holding-bars introduced between the tooth-holding bars.



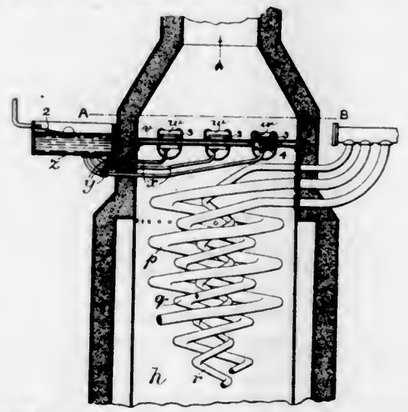
3. In a device of the class described, a plurality of wedge-shaped tooth-holding bars having notches in their edges, means for holding said bars in position with relation to each other, teeth mounted in the notches of said bars, intermediately-disposed, oppositely-wedged holding-bars, and means for securing the latter in position detachably.

4. In a device of the class described, a plurality of notched tooth-holding bars, supporting means for the same, teeth having shanks engaging said notches and shoulders abutting upon the outer and inner sides of said bars, intermediately-disposed wedge-shaped holding-bars engaging the edges of the tooth-holding bars, and means for securing the wedge-shaped holding-bars detachably in position.

5. The combination with holding means comprising permanently-secured wedges having notches in the edges thereof, and detachably-secured oppositely-pointed wedges introduced between said permanently-disposed wedges, of teeth having shanks engaging the notches in the permanently-disposed wedges and provided with shoulders abutting upon the outer and inner sides of said permanently-disposed wedges.

6. In a device of the class described, the combination of supporting means, wedge-bars permanently supported and spaced equidistantly from each other and provided with notches in the edges thereof, means for securely connecting said wedge-bars with the supporting means, intermediate, slidable, oppositely-pointed wedges, means for securing the latter in position detachably, and tooth members clamped between said stationary and detachable wedge members.

752,577. APPARATUS FOR HUMIDIFYING AIR. ISAAC S. MCDOUGALL, Manchester, England. Original application filed Dec. 28, 1901, Serial No. 87,633. Divided and this application filed Jan. 19, 1903. Serial No. 139,647. (No model.)



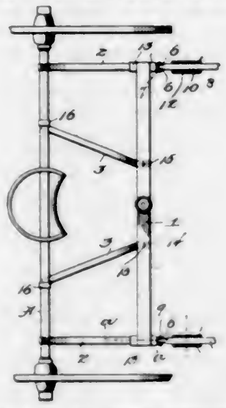
Claim.—1. In combination with an air-heater comprising means for directing a current of air upwardly, a water-tank located in the path of the upward draft of hot air through the said means, an endless band dipping into the said tank and extending down outside the same and under the bottom, said bottom and side portions of the band being exposed to the ascending air-current and means for supplying the tank with water, substantially as described.

2. In combination with an air-heating chamber, a tank therein, an endless band dipping into the tank and extending down outside and under the tank where it is exposed to the ascending air-current, a cistern, a valved connection between the tank and cistern and means for maintaining a body of water at one level within the cistern and tank, substantially as described.

3. In combination, an air-heater, a plurality of water-tanks disposed at different points in said air-heating chamber, an endless band for each tank dipping into the same, and exposed to ascending air-currents along the sides and under the bottom of the water-tank., a cistern and independent valved connections between the cistern and the water-tanks whereby any or all of the tanks may be put out of operation, substantially as described.

4. In combination with an air-heater, a plurality of water-tanks disposed therein at one level and having spaces between and around them for the passage of the heated air, bands in the tanks depending therefrom and exposed below the said tanks, a cistern and means for supplying the water-tanks therefrom, said means including valved connections and said cistern having means for maintaining a certain level of water therein, substantially as described.

752,578. **POLE OR SHAFT FOR VEHICLES.** JAMES S. MCKENZIE, Kline, S. C. Filed July 20, 1903. Serial No. 166,363. (No model.)



Claim.—1. A draft-frame for vehicles, comprising draw-bars, having shaft-coupling devices at their front ends, and holders projecting in advance of the coupling devices to support the shafts in an elevated position.

2. A draft-frame for vehicles, comprising draw-bars having shaft-coupling devices at their front ends, a cross-bar connecting the draw-bars, holders projecting from the draw-bars in advance of the coupling devices, to support the shafts in an elevated position, and clips securing the holders to the under sides of the draw-bars and bearing against the front and rear sides of the cross-bar.

3. A draft-frame for vehicles comprising draw-bars, having means at their rear ends to attach them to a vehicle-axle, a cross-bar connecting the draw-bars, and brace-bars having means at their rear ends to attach them to an axle and having their front ends attached to the cross-bars at points between the ends thereof.

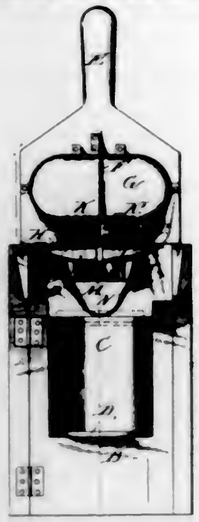
4. A draft-frame for vehicles, comprising forwardly and upwardly curved draw-bars, having means for attaching their rear ends to a vehicle-axle, a cross-bar connecting the front ends of the said draw-bars, brace-bars having their rear ends secured to the vehicle-axle, said brace-bars being curved reversely with respect to the draw-bars, and having their front ends also secured to the cross-bar, substantially as described.

752,579. **LEMON-SQUEEZER.** ALEXANDER MCLAREN, Fort Worth, Tex. Filed June 13, 1903. Serial No. 162,061. (No model.)

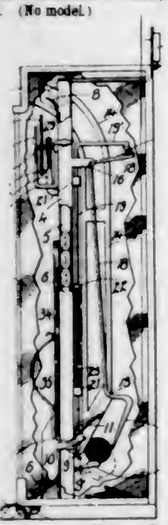
Claim.—1. The combination in a lemon-squeezer, of cutting means, squeezing means, means whereby the lemon is supported while being cut and squeezed, consisting of juice-guiding spring-actuated spaced trays adapted to be dumped, and yielding catches on the squeezing means, whereby the trays are engaged, tilted and dumped, upon raising action of the squeezing means, substantially as described.

2. The combination in a lemon-squeezer, of a supporting-frame, a hinged lever having on its under side a depending knife and a convex surface, yielding catches on the hinged lever, spring-actuated juice-guiding trays adapted to be dumped by the said catches, upon raising action of the hinged lever, the trays being spaced apart providing passage for the depending knife, which passage shall exclude entrance of the lemon-seed, a strainer under the dumping trays, and a lower juice-chute, substantially as described.

3. The combination with a lemon-squeezer of the character described, of a suitable frame having a depressed, open top, front side, a shelf at the lower end of said depressed portion, means for supporting the lemon, adapted to be dumped, cutting and squeezing means, a strainer and a juice-chute leading from under the strainer, into the open top depressed front side, substantially as described.



752,580. **COIN-CONTROLLED VENDING-MACHINE.** MICHAEL J. NASH and JULIUS T. WANIGER, St. Louis, Mo. Filed Nov. 2, 1903. Serial No. 179,517. (No model.)



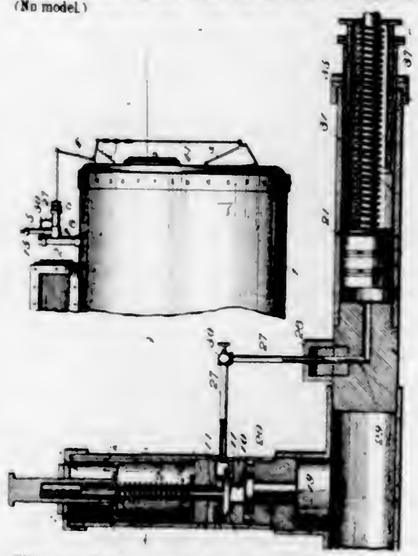
Claim.—1. In a coin-controlled vending-machine, a series of rotatable platforms mounted on a common axis, and adapted to consecutively support a column of the articles to be sold, a coin-chute for the coin, a bent escapement-lever pivoted in proximity to said column and having a lower end in the path of the discharge end of the chute, a reciprocating bar mounted in suitable bearings adjacent to the lever and having its lower end in engagement with one of the platforms, and having its opposite end bearing upon the upper or bent arm of the lever, a collar on said bar, a spring coiled about the bar and interposed between the collar and the lower bearing, whereby upon introduction of a coin the escapement-lever is oscillated and the bar raised, thereby releasing the platforms and permitting their rotation under the weight of the column of articles, and allowing for the discharge of the bottom article of the column, the spring restoring the bar to its normal position and causing the same to arrest further rotation of the platforms, whereupon the articles are supported on the next platform of the series, substantially as set forth.

2. In a coin-controlled vending-machine, a series of platforms rotatable about a common axis and adapted to consecutively support a series of articles to be sold, a coin-chute for the coin, an escapement-lever having one end in the path of the discharge end of the chute, intermediate connections between said lever and platforms for normally holding said platforms stationary, but temporarily releasing the same upon the oscillation of the lever in one direction under the action of the coin to effect discharge of the bottom article of the series, means for arresting further rotation of the platforms after such discharge, and a tilting spring-controlled buffer-lever adapted to be impinged by the coin, simultaneously with the escapement-lever and tilted sufficiently to permit escape of the coin from permanent retention by the escapement-lever, substantially as set forth.

3. In a coin-controlled vending-machine, a series of platforms radiating from a common axis, means for preventing rotation of the platforms in the opposite direction, a frame having guideways for the reception of a column of the articles to be sold, the bottom article resting on one of the radially-disposed platforms, a coin-chute carried by the frame, a bent escapement-lever suspended adjacent to the chute and having its lower end in the path of the discharge-opening of said chute, a spring-controlled reciprocating bar actuated in one direction by the swinging of the lever under the impact of the coin, the lower end of said bar being normally in engagement with one of the series of platforms, but releasing the latter upon the impact of the coin against the lever, and a spring-controlled buffer-lever located in the path of the coin, and jointly intercepting the latter with the adjacent end of the escapement-lever, the depression of the buffer-lever under the impact of the coin providing sufficient space for the coin to escape from under the influence of the escapement-lever, the parts operating substantially as, and for the purpose set forth.

4. In a coin-controlled vending-machine, a series of rotatable platforms for consecutively supporting a column of the articles to be sold, in combination with a coin-actuated escapement-lever for permitting a partial rotation of said platforms to effect the discharge of the bottom article, means for arresting further rotation of the platforms upon such discharge, a buffer-lever for releasing the coin from the influence of the escapement-lever, a rotatable dial, an index therefor, and intermediate connections between said dial and buffer-lever for imparting rotation to the dial upon an oscillation of the buffer-lever under impact of the coin, substantially as set forth.

752,581. **DAMPER-REGULATOR FOR STEAM-BOILERS.** ISAAC E. OSMAN, Greensburg, Ind. Filed Mar. 30, 1903. Serial No. 150,218. (No model.)

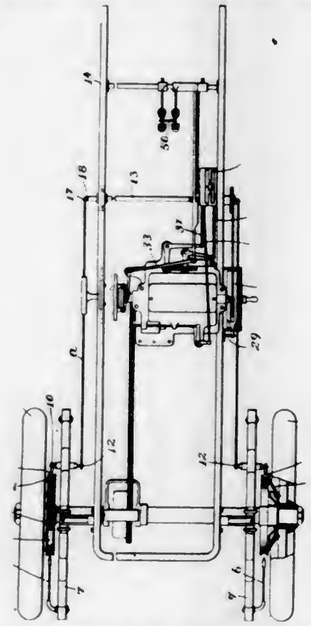


Claim.—1. In an automatic damper-regulator, the combination with an actuator-piston, a valve-casing, a pressure-valve disposed therein, seats located within the valve-casing upon both sides of the pressure-valve, inlet and outlet means disposed upon the casing, a valve-stem carried by the valve, a guide-ring disposed within the casing and receiving the valve-stem to direct same in its movement, spring means located adjacent the said guide-ring and adapted to normally hold the valve seated upon one of the seats aforesaid, and a tubular stem adjustably mounted upon the valve-casing and receiving the upper portion of the valve-stem, said tubular stem being adapted for adjustment of the guide-ring to regulate the tension of the spring adjacent the valve-stem.

2. In a damper-regulator, the combination with an actuator-piston, for actuation by a pressure medium, valve means for regulation of the aforesaid pressure medium, and means for positive engagement with the piston to limit the movement thereof, whereby the throw of the piston may be adjusted and the regulator means applied to different-sized dampers.

3. In a damper-regulator, the combination of a cylinder, an actuator-piston arranged therein, for actuation by a pressure medium valve means for regulation of the aforesaid pressure medium, and adjustable stop means arranged upon the cylinder and adapted for positive engagement with the piston to adjustably limit the movement thereof.

752,582. **BRAKING MECHANISM FOR MOTOR-VEHICLES.** JAMES W. PACKARD and WILLIAM A. HATCHER, Warren, Ohio, assignors to Ohio Automobile Company, Warren, Ohio, a Corporation of West Virginia. Filed Mar. 10, 1902. Serial No. 97,432. (No model.)



Claim.—1. In a motor-vehicle, the combination with a pair of vehicle-wheels upon opposite sides of the vehicle, and a separate braking device for each wheel, of a rope or cable having its ends connected to said braking devices and extending forwardly therefrom at the sides of the vehicle, bearings upon opposite sides of the vehicle through which said cable extends, and a lever having a part in sliding engagement with and adapted to tighten the cable.

2. In a motor-vehicle, the combination with a pair of vehicle wheels upon opposite sides of the vehicle and separate braking devices for each wheel, of a rope or cable having its ends connected to said braking devices, a transverse shaft, arms thereon to which the rope or cable is connected, and bearings for said shaft upon opposite sides of the vehicle, said cable extending through said bearings.

3. In a motor-vehicle, the combination with a pair of vehicle-wheels upon opposite sides of the vehicle and separate braking devices for each wheel, of a rope or cable having its ends connected to said braking devices, a tubular shaft extending transversely of the vehicle and through which the cable extends, and a lever upon said shaft having a part in sliding engagement with the cable.

4. In a motor-vehicle, the combination with a pair of vehicle-wheels upon opposite sides of the vehicle, and a separate braking device for each wheel, of a tubular shaft extending transversely of the vehicle, an arm at one end of said shaft and a lever at the opposite end, said arm and lever each having an eye, and a rope or cable extending through said shaft and through said eyes, and having its ends connected to the braking devices.

5. In a motor-vehicle, the combination with a wheel-brake and a brake for the driving mechanism, of separate operating devices for each of said brakes, and means for detachably connecting said operating devices for the purpose of applying both brakes.

6. In a motor-vehicle, the combination with a wheel-brake and a brake for the driving mechanism, of levers separately connected to each brake, one of said levers having a pawl thereon and the other having a rack adapted to be engaged by said pawl.

7. In a motor-vehicle, the combination with a wheel-brake and a brake for the driving mechanism, of levers separately connected to each brake, one of said levers having a pawl thereon and the other having a rack adapted to be engaged by said pawl, and means for normally holding said pawl out of engagement with the rack.

8. In a motor-vehicle, the combination with a wheel-brake and a brake upon the driving mechanism, of separate operating-levers and connections for each brake, clutch-operating mechanism connected with one of said levers, and means for detachably connecting both of said brake-levers.

9. In a motor-vehicle, the combination with a wheel-brake, a brake upon the driving mechanism and levers arranged to operate the brakes separately, of an independent lever and connections arranged to operate both of said brakes.

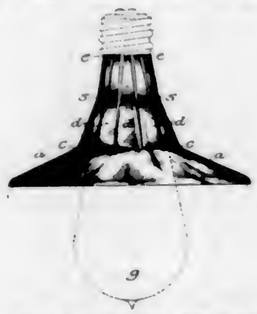
10. In a motor-vehicle, the combination of a wheel-brake, a clutch, a brake upon the driving mechanism, a lever arranged to operate the wheel-brake and clutch, a lever arranged to operate the brake upon the driving mechanism and an independent lever arranged to operate both brakes and the clutch.

11. In a motor-vehicle, the combination of a wheel-brake, a clutch for connecting the power to the driving-wheels, a hand-lever for operating said clutch and brake, a brake upon the driving mechanism, a treadle for operating said latter brake independently, and means for detachably connecting the hand-lever with the mechanism for operating the brake upon the driving mechanism.

12. In a motor-vehicle, the combination of a wheel-brake, a clutch for connecting the power to the driving-wheels, a hand-lever for operating said clutch and brake, a brake upon the driving mechanism, a treadle for operating said latter brake independently, means for detachably connecting the hand-lever with the mechanism for operating the brake upon the driving mechanism, and a separate treadle and connections thereto for operating both brakes and the clutch.

13. In a motor-vehicle, the combination of a wheel-brake, a clutch for connecting the power to the driving-wheels, a hand-lever for operating said clutch and brake, a brake upon the driving mechanism, a treadle for operating said latter brake independently, and a separate treadle and connections thereto for operating both brakes and the clutch.

752,583. LAMP-REFLECTOR. ALBERT J. PARDRIDGE, Chicago, Ill. Filed Apr. 11, 1903. Serial No. 152,161. (No model.)

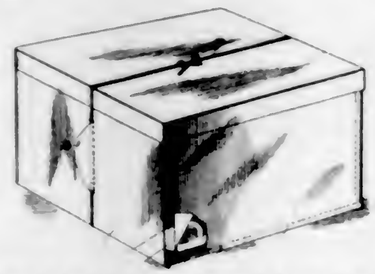


Claim.—1. A shade for incandescent lamps consisting of a conical reflector provided with a downward-turned narrow rim at its base with apex consisting of a series of upturned springs whereof the upper half is, relatively, thinner than the lower half, said springs having their ends inturned, substantially as specified.

2. A conical lamp-shade reflector with apex provided with springs, said springs forming an extension of said cone, whereof one part is thinned and of varying inclination from the other forming, thereby, superimposed frustums of cones of relatively different conicity, said cones forming a longitudinal extension of said reflector, substantially as specified.

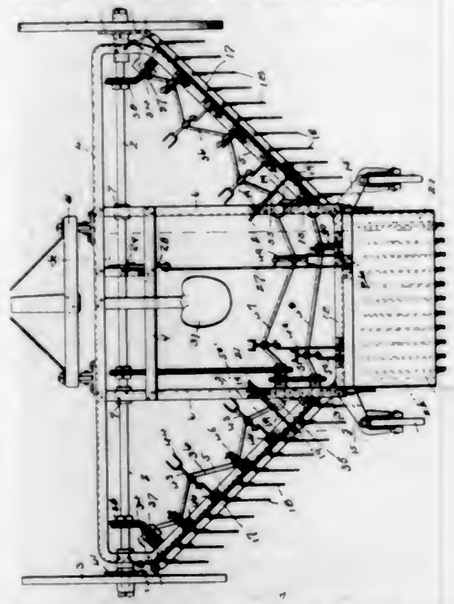
3. The combination with an electrical lamp, of a conical reflector with central portion provided with springs divided to form superimposed frustums of cones of relatively strong and weak parts placed to form frustums of cones of relatively different conicity, said cones forming a longitudinal extension of said reflector, substantially as specified.

752,584. HAT-BOX. SHELDON R. PATRICK, Bridesburg, Pa., assignor to Quaker City Folding Box Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Jan. 7, 1903. Serial No. 138,092. (No model.)



Claim.—A box of the character specified comprising an outwardly-folding bottom having a central longitudinal fold and also diagonal folds, side sections whereof two are integral with the bottom and have central vertical folds forming continuations of the longitudinal fold whereby said integral sides may fold inwardly, said bottom and integral sides having flaps to which the other side sections are sewed, a lid, and a tape extending across the bottom of the box and threaded through two opposite sides thereof and finally secured at the top, substantially as described.

752,585. HAY RAKE AND COCKER. CHRIS E. PAULSON, Boyd, Minn. Filed Dec. 8, 1902. Serial No. 134,225. (No model.)



Claim.—1. The combination, with the wheeled frame, of a rear rake, the forwardly-diverging side gatherers, or rakes also provided on said frame, multiple crank-shafts provided on said frame in front of said side rakes, means for driving said crank-shafts from the machine-axle, and gyrating tedders pivotally supported on said shafts and having pivotal connections with said frame.

2. The combination, with a wheeled frame, of a rear rake, forwardly-diverging rakes or gatherers, multiple crank-shafts provided in advance of said rear rake and said gatherers, operative connections provided between said crank-shafts and the machine-axle for driving said shafts in opposite directions, and a series of tedders provided on said shafts.

3. The combination, with a wheeled frame, of a rear rake, forwardly-diverging rakes or gatherers, multiple crank-shafts mounted in bearings in said frame in advance of said gatherers, suitable gearing connecting said shafts with the machine-axle, driving connections provided between said axle and the machine-wheels, a series of tedders provided on said multiple shafts and operating to pitch the hay forward toward the space in front of said rear rake, and pivotal connections provided between said tedders and said frame.

4. The combination, with an axle and wheels, of a frame mounted thereon and having converging rearwardly-projecting bars, caster-wheels provided near the rear ends of said bars, a rear rake supported by said frame between said bars, diverging rakes or gatherers pivotally supported upon each side of said rear rake, multiple crank-shafts, suitable gearing connecting said shafts with said axle, driving connections provided between said axle and said wheels, tedders provided on said shafts in front of said gatherers and having pivotal connections with said bars, and tedders provided in front of said rear rake, substantially as described.

5. The combination, with an axle and wheels, of a frame comprising a forward part 4 secured to said axle and rearwardly-converging parts 5, bars 6 connecting said parts 5 with said axle, cross-bars connecting said bars 6, means supporting the rear ends of said bars 6, a rear rake pivotally mounted in said bars 6, means for tilting said rear rake and forwardly-diverging rakes or gatherers pivotally supported by said parts, 5, substantially as described.

6. The combination, with an axle and its wheels, of a frame comprising a part 4 secured to said axle and rearwardly-converging parts 5, bars 6 connecting said parts 5 with said axle, cross-bars connecting said bars 6 and said parts 5, a rear rake pivotally supported, forwardly-diverging gatherers or rakes pivoted on said parts 5 and gyrating tedders provided in advance of said diverging rakes and arranged to pitch the hay forward into the space in front of said rear rake.

7. The combination, with an axle and its wheels, of an angle-bar frame comprising the part 4 secured thereon and the rearwardly-converging parts 5, bars 6 connecting said parts 5 with said axle and said part 4 and having upwardly-turned rear ends, cross-bars connecting said bars 6 and said upwardly-turned ends, a rear rake pivotally supported by said upwardly-turned ends, forwardly-diverging gatherers or rakes pivotally supported by said parts 5, multiple crank-shafts provided in advance of said diverging rakes and said rear rake, tedders arranged thereon, and means for driving said shafts in opposite directions from said axle, for the purpose specified.

8. The combination, with an axle and its wheels, of a triangular angle-bar frame mounted on said axle with its base-rail near and substantially parallel therewith, a rear rake provided at the apex of said frame and substantially parallel with said base-rail, and forwardly-diverging gatherers provided in advance of said rake and in the rear of said axle and supported respectively by the side rails of said frame, substantially as described.

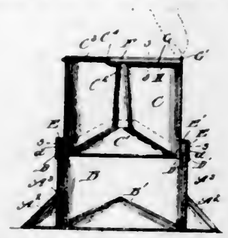
9. The combination, with an axle and wheels, of a frame secured t said axle and having rearwardly-converging bars 5, bars 6 connecting said bars 5 with said axle and having upwardly-turned rear ends, a rear rake supported by said ends, and forwardly-diverging gatherers provided in advance of said rear rake.

10. The combination, with an axle and wheels, of an angle-bar frame secured to said axle and having rearwardly-converging bars 5, bars 6 connecting said bars 5 with said axle and having upwardly-turned rear ends, a cross-bar 12, a rear rake pivotally supported on said upwardly-turned rear ends, and forwardly-diverging gatherers provided in advance of said rake.

11. The combination, with a wheeled frame, having bars provided with upwardly-turned rear ends, of a rake pivotally supported between said bars and comprising a frame 22, teeth secured thereon, and hay-guards 33.

752,586. POMADE-CAN. EDWARD L. PITTS, Jerome, Ariz., assignor of one-half to William McKenzie Parks, Jerome, Ariz. Filed July 30, 1903. Serial No. 167,573. (No model.)

Claim.—1. The improvement herein described, consisting of the base having a base-plate, and an inwardly-sloping side provided with an opening for the body, the body fitting in said opening and having the conical bottom, the plunger sliding at its lower end within the body, and having a conical bottom corresponding to that of the body and provided at its lower end on its outer side with the packing-gasket, and having the discharge-tube extending from its conical bottom upwardly and opening at its upper end at the top of the plunger, said plunger being provided at its top with an undercut channel into which said discharge-tube opens, the slide movable in said undercut channel, and adapted to cover the upper end of the discharge-tube when adjusted to its closed position, and the cap-ring fitting on the upper end of the body, and having an inwardly-projecting flange fitting the plunger, all substantially as and for the purposes set forth.



2. A can for pomade and the like, comprising a body, a plunger operating therein and provided with a discharge-tube communicating at its lower end with the interior of the body, a guideway extending laterally on opposite sides of the outer end of said discharge-tube, and a slide operating in said guideway for closing the outer end of the discharge-tube, substantially as set forth.

3. A can for pomade and the like, comprising a body, a plunger slidable therein and having a discharge-tube communicating at its inner end with the interior of the body, a guideway extending laterally from the other end of said tube and a cut-off slide operating in said guideway substantially as set forth.

4. The combination in a can for pomade and the like, of the body, the plunger slidable in said body, and having a discharge-tube communicating at its inner end with the interior of the body, said can having at its outer end a channel into which the outer end of the discharge-tube opens, and a cut-off slide operating in said channel, and adjustable to position to close the outer end of the discharge-tube, substantially as set forth.

5. The can for pomade and the like, comprising a body, and a plunger sliding in said body and having a discharge-tube communicating at its inner end with the interior of the body, and provided at its outer end with a channel into which the outer end of the discharge-tube opens, substantially as set forth.

6. A can for pomade and the like, comprising the body, the plunger telescoping into said body and provided with a discharge-tube leading to its outer end, and with a channel at such end into which the discharge-tube opens, and the cut-off slide movable in said channel into and out of position to close the outer end of the discharge-tube, substantially as set forth.

752,587. COLLAR OR CUFF HOLDER. EDWARD L. PITTS, Jerome, Ariz., assignor of one-half to William McK. Parks, Jerome Ariz. Filed Nov. 3, 1903. Serial No. 179,714. (No model.)



Claim.—1. A holding device for collars or cuffs substantially as herein described comprising two sections hinged together at one end and slightly curved toward their said hinged joint, a socketed head on one side of one of said sections at its outer end, a sectional button on the opposite side of such section from the socketed head, the other section being provided in its outer end with a slot, the spring-catch secured at one end to said slotted section and having a bowed portion to interlock in the socketed head and provided at its free end with a button, the free wing of the bow being arranged to operate in the slot of the section, substantially as set forth.

2. A holder for collars or cuffs composed of two sections hinged together at one end, a socketed head at the outer end of one of said sections and projecting between the two sections, a spring-catch at

the outer end of the other section to interlock with said socketed head, and a button on one of the sections to connect with the garment, substantially as set forth.

3. A collar or cuff holder composed of two sections jointed together at one end, one of the sections having at its outer end a socketed head, such head being open at its end and provided with a lip or projection and the other section having a spring-catch fitted to enter the socketed head and shouldered to engage with the lip or projection thereof, the socketed head lying between the two sections and being adapted to fit in a buttonhole in a garment placed between the sections, substantially as set forth.

4. A holder comprising the two sections connected together one of said sections being provided in its outer end with a slot, the spring-catch secured at one end to said section, bowed between its ends and operating adjacent to its other end in the slot of the section, and the socketed head on the other section in position to receive the spring-catch, substantially as set forth.

5. The combination in a holder for collars or cuffs of the two sections hinged together, one of the sections having the slot in its outer end, the bowed spring-catch secured at one end to the slotted section and having a wing operating in the slot thereof and a shoulder to engage with a socketed head, and a socketed head on the other section in position to receive the spring-catch and having a lip or projection for engagement with the shoulder of the spring-catch, substantially as set forth.

6. A holder for collars or cuffs comprising the sections connected together at one end, the socketed head at the outer end of one of said sections, and the spring-catch at the outer end of the other section and composed of a strip of spring material secured at one end to its supporting-section and provided at its free end with a button, substantially as and for the purpose set forth.

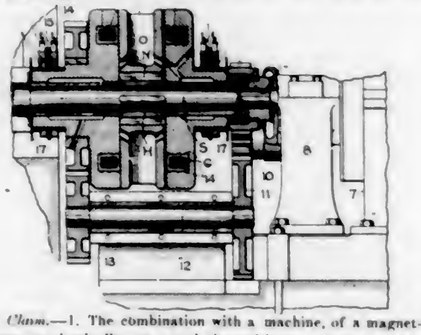
752,588. RIVET. JULIUS E. RETTIG, Reading, Pa. Filed July 8, 1903. Serial No. 164,728. (No model.)



Claim.—1. A rivet having an intaglio character or characters on the driving-face of the head thereof.

2. A rivet having a character or characters impressed into its head below the driving-surface thereof.

752,589. ELECTROMAGNETIC REVERSING DEVICE. JOHN RIDDELL, Schenectady, N. Y., assignor to General Electric Company a Corporation of New York. Filed May 28, 1900. Serial No. 18,227. (No model.)



Claim.—1. The combination with a machine, of a magnet-armature mechanically connected therewith, two electromagnets in operative relations with respect to said armature, means for rotating the magnets simultaneously in opposite directions, and a switch adapted to be operated by the machine at a selected phase of its movement, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and to be operated by the machine at another selected phase of its movement, to open the circuit of the latter coil and close the circuit of the former coil.

2. The combination with a machine having a reciprocable member, of a magnet-armature mechanically connected therewith, two electromagnets, in operative relations with respect to said armature means for rotating said magnets simultaneously in opposite directions, and a switch adapted to be operated by said reciprocable member at a selected stage of its movement in one direction, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and to be operated by said member at a selected stage of its movement in the other direction, to open the circuit of the latter coil and close the circuit of the former coil.

3. The combination with a machine-tool having a reciprocable work-table, of a magnet-armature mechanically connected therewith, two electromagnets in operative relations with respect to said armature, means for rotating said magnets simultaneously in opposite directions and at different relative speeds, a switch adapted to be operated by said work-table at a selected stage of its movement in one direction, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and to be operated by said work-table at a selected stage of its movement in the other direction, to open the circuit of the latter coil and close the circuit of the former coil.

4. The combination with a machine, a magnet-armature mechanically connected therewith, a suitable motor adapted to rotate continuously in one direction, two electromagnets in operative relations with respect to said armature and mechanically connected with said motor, so as to rotate in opposite directions with respect to each other, and a switch adapted to be operated by the machine at a selected phase of its movement, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and to be operated by the machine at another selected stage of its movement, to open the circuit of the latter coil and close the circuit of the former coil.

5. The combination with a machine, of two electromagnets, a magnet-armature mechanically connected with said machine and adapted to be moved to engage with each magnet alternately, means for rotating said magnets continuously in opposite directions, and a switch adapted to be operated by the machine at a selected phase of its movement, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and to be operated by the machine at another selected phase of its movement, to open the circuit of the latter coil and close the circuit of the former coil.

6. A movable body, a magnet-armature mechanically connected therewith, a plurality of electromagnets adapted to be moved simultaneously in opposite directions with respect to each other, and a switch for opening and closing the circuits of the coils of said magnets, which is automatically controlled by the movements of said body to cause said armature and body to be moved in opposite directions alternately.

7. A movable body, a magnet-armature mechanically connected therewith, a plurality of electromagnets adapted to be moved simultaneously at different relative speeds, and a switch for opening and closing the circuits of the coils of said magnets, which is automatically controlled by the movements of said body.

8. The combination with a machine, of a magnet-armature mechanically connected therewith, a plurality of electromagnets adapted to have simultaneous but dissimilar movements with respect to each other, and a switch operated automatically by said machine whereby the circuits of the coils of said magnets are alternately opened and closed and the said magnet-armature is driven by the electromagnets alternately.

9. In combination, a movable body, a plurality of electromagnets adapted to have simultaneous but dissimilar relative movements and adapted to be energized alternately one at a time, a common armature mechanically connected with said movable body but free to move independently toward any one of said magnets, and means controlled by the movement of said movable body for completing the circuits through the actuating-coils to cause said armature to be operated alternately by said electromagnets.

10. The combination with a machine, of a magnet-armature mechanically connected therewith, two electromagnets in operative relations with respect to said armature, means for rotating said magnets simultaneously in opposite directions, a switch for the circuits of the magnets, and means adjustably mounted on the machine, whereby the switch is operated at a certain phase of the movement of the machine, to open the circuit of the coil of one magnet and close the circuit of the coil of the other magnet, and is operated at another phase of the movement of the machine, to open the circuit of the latter coil and close the circuit of the former coil.

11. Two independent bodies having simultaneous but different relative speeds, a movable body adapted to engage with each said independent bodies, and a switch controlled by the movements of said movable body for discontinuing a previously-established mag-

netic attraction between said body and the independent body with which it is at the time engaged, and substantially simultaneously establishing a magnetic attraction between said body and the other independent body.

12. Two electromagnets adapted to have simultaneous but dissimilar relative movements, an armature adapted to engage with either magnet, and to share in the movement thereof, and a switch, one movement of which, caused by the movement of the armature in one direction, opens the coil of one magnet and closes the coil of the other magnet, and another movement of the switch, caused by the consequent movement of the armature in another direction, opens the coil of the latter magnet and closes the coil of the former.

13. The combination with a machine, of a driving-shaft therefor, two electromagnets mounted thereon, and rotated independently thereof, in opposite directions with respect to each other, an armature keyed to the shaft between said magnets, and a switch controlled by the movements of said armature, to open the circuit of the coil of one magnet and to immediately thereafter close the circuit of the coil of the other magnet.

14. The combination with a machine, of a secondary driving-shaft therefor, a magnet-armature keyed to said shaft, two electromagnets mounted on said shaft on opposite sides of said armature, a primary driving-shaft arranged in line with the secondary driving-shaft, a coupling between the primary shaft and the nearer magnet, a counter-shaft with gearing coöperating with the primary shaft and the more remote magnet, whereby the magnets are driven in opposite directions at different relative speeds, and a switch for opening and closing the circuits of the magnet-coils alternately, which is controlled by the movements of the armature.

15. The combination with a machine, of a driving-shaft therefor, a magnet-armature keyed to said shaft, two electromagnets mounted on said shaft on opposite sides of said armature and so as to be rotated independently of said shaft, an electric motor having its armature-shaft arranged in line with said driving-shaft, a coupling between said armature-shaft and the nearer magnet, a counter-shaft, with gearing coöperating with the armature-shaft and with the magnet which is more remote from the motor, whereby the magnets are driven in opposite directions at different relative speeds, and a switch for the circuits of the magnet-coils, which is controlled by the movements of said armature.

16. The combination with a machine, of a driving-shaft therefor, two electromagnets mounted on said shaft and adapted to be rotated independently thereof in opposite directions, an armature keyed to the shaft between said magnets, a pair of collector-rings for each magnet and connected with the ends of the magnet-coils, a pair of brushes connected with each pair of collector-rings, and a switch connected with said brushes and adapted to be operated by the machine to complete the circuits through the electromagnet-coils alternately.

17. Automatic means for causing a moving body to move instantly in the opposite direction, which comprises such body, means for moving said body, an independent body moving in the opposite direction, means operated by said moving body at a selected stage of its movements for cutting off its moving means, and for establishing a sufficient magnetic attraction between said moving body and said independent oppositely-moving body, so that the moving body engages with said independent body, is stopped, and shares the opposite movement of the latter.

18. Automatic means for imparting continuous reciprocatory movement to a body, which comprises such body, two independent bodies moving simultaneously and oppositely with respect to each other, and means operated by said body at a selected stage of its movements for establishing a magnetic attraction between said body and one of said independent bodies, whereby said body engages with and partakes of the movements of said independent body, such means being operated by said body at another selected stage of its movement to discontinue such magnetic attraction, and to substantially simultaneously therewith establish a sufficent magnetic attraction between said body and the other of said independent bodies, so that said body is disengaged from the first independent body, and engages with the latter, is stopped, and partakes of the movement of the latter independent body.

19. Two bodies having simultaneous but dissimilar movements, a third body held in frictional engagement with each of said bodies alternately by magnetic force alone, and means operated by said third body at a selected stage of its movements for causing said body to be so held.

20. In a machine for planing, shaping or slotting, wherein is required a certain rate of movement in one direction and immediately thereafter a different rate in the opposite direction, the combination with the moving part of such a machine, of a driving-shaft therefor, two electromagnets mounted on said shaft to rotate independently thereof, an armature splined to said shaft between the magnets and adapted to move longitudinally along said shaft, means for driving the magnets in opposite directions with respect to each other, and at different relative speeds, and means controlled by the moving part of the machine for energizing said magnets alternately.

21. In a magnetic clutch, the combination with a magnet-armature, of two magnets on opposite sides thereof, and adapted to be rotated in opposite directions with respect to each other, means for energizing said magnets alternately, and a resilient, non-magnetic, absorbent friction material such as cork, attached to said parts to operate between the armature and each magnet.

22. The combination with a machine having a reciprocable member, of a source of power continuously movable in one direction, electromagnetically-actuated clutching means for connecting said reciprocable member with the source of power so that said member is driven alternately in opposite directions thereby, and means operated by said member for making and breaking the circuits through the actuating-coils of said clutching means so as to energize said coils alternately.

23. In combination, a reciprocable work-supporting member of a machine-tool, driving means therefor, oppositely-rotating magnetic clutches between the work-supporting member and the driving means, and a controller operated as the work-supporting member reciprocates, to automatically make and break the circuit of said magnets alternately.

24. The combination with a body to be moved, of a driving-shaft therefor, two electromagnets loosely mounted to rotate on said driving-shaft, an armature-structure moving as a unit and arranged to reciprocate along said driving-shaft between said magnets to engage the same alternately, a power-shaft in alinement with said driving-shaft, a coupling between the power-shaft and the adjacent electromagnet to rotate the latter in one direction, gearing driven by the power-shaft to rotate the other electromagnet in the opposite direction, and means actuated by said movable body for energizing said electromagnets alternately.

25. The combination with a reciprocable element, of a pair of oppositely-moving driving elements, electromagnetic means whereby said first-mentioned element may be clutched to either of said driving elements, and means operated by said first-mentioned element for making and breaking the circuits through the energizing-coils of said clutching means so as to energize said coils alternately.

26. The combination with a reciprocable part, of a pair of oppositely-moving driving elements, electromagnetic means for securing said part to either of said driving elements to cause the same to rotate therewith, and suitable controlling mechanism operated by said reciprocable part for causing said part to become magnetically secured to either of said oppositely-rotating elements, substantially as described.

752,590. MAGNETIC CLUTCH APPLICATION. JOHN RIDDELL, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 27, 1901. Serial No. 69,906. (No model.)

Claim.—1. The combination with two rotatable electromagnets, of a rotatable armature between them, said parts being arranged so that the armature can engage with each of the magnets, and a device for preventing the armature from engaging with either magnet.

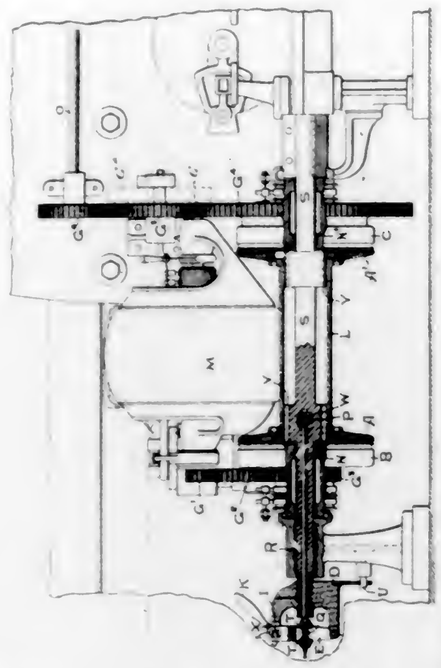
2. The combination with two rotatable electromagnets, of means for rotating them in opposite directions, a rotatable armature between said magnets, the parts being arranged so that the armature can engage with each of the magnets, and a device for preventing the armature from engaging with either magnet.

3 The combination with two rotatable electromagnets, of an armature between them, a machine part connected with the armature, a suitable motor, mechanical connections with the motor and the magnets, a device for preventing the armature from engaging either magnet, and a removable auxiliary mechanical connection from the motor for operating another machine part when the armature is prevented from engaging the magnets.

4. The combination with two rotatable electromagnets, of a rotatable armature, a centering device for the armature and means for locking said centering device in its operative position, substantially as described.

5. The combination with a hollow rotating and reciprocating sleeve, of a rotatable shaft upon which it is mounted for reciprocation, means for reciprocating said sleeve upon said shaft, a plug se-

cured in the sleeve, and normally having free movement in the shaft and a device for preventing the plug from moving.



6. The combination with a rotatable shaft, of a member mounted to reciprocate with respect to said shaft, electromagnets for reciprocating said member, a plug secured in said member and normally having free movement in the shaft, a rod secured to the plug and extending longitudinally through the shaft to reciprocate therein, and a device for preventing the rod from longitudinal movement.

7. The combination with a rotatable shaft, of a member mounted to reciprocate with respect to said shaft, means for reciprocating said member, a rod extending longitudinally through the shaft to reciprocate therein and connected to said member so that normally the latter can reciprocate in the shaft, and a device for preventing the rod from longitudinal movement.

8. The combination with a rotatable shaft, of a member mounted to reciprocate with respect to said shaft, means for reciprocating said member, a rod extending longitudinally through said shaft to reciprocate therein, and connected to said member so that normally the latter can reciprocate in the shaft, a pivoted lever which in normal operation is rocked on its pivot by the rod, and a device for preventing the lever from being rocked.

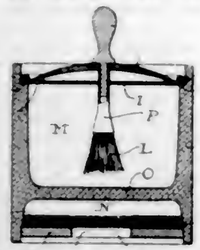
9. The combination with a rotatable shaft, of a member mounted to reciprocate with respect to said shaft, means for reciprocating said member, a rod extending longitudinally through the shaft to reciprocate therein and connected to said member so that normally the latter can reciprocate in the shaft, a bracket mounted on the shaft and prevented from rotation therewith, a lever pivoted on said bracket and rocked in normal operation by the rod, and a device for preventing the lever from being rocked.

10. The combination with a rotatable shaft, of a member mounted to reciprocate with respect to said shaft, means for reciprocating said member, a rod extending longitudinally through the shaft to reciprocate therein and connected to said member so that normally the latter can reciprocate in the shaft, a pivoted lever which in normal operation is rocked by the shaft, an oblong slot in the lever, and an oblong rock-shaft engaging said shaft, the greater width of the rock-shaft being equal to the shorter length of the slot in the lever.

11. The combination with a rotatable shaft, of an armature mounted to reciprocate thereon and to rotate therewith, two electromagnets on opposite sides of the armature, a rod arranged to reciprocate longitudinally in the shaft and connected to the armature, a pivoted lever rocked by the rod, an oblong slot in the lever, and an oblong rock-shaft operating in the slot.

752,591. MUCILAGE-CUP. WADE ROBINSON, New York, N. Y.

Filed Sept. 29, 1903. Serial No. 175,063. (No model.)



Claim.—1. A mucilage-cup comprising a receptacle for mucilage, a plate provided with an opening adapted to form the mouth of said receptacle, means for maintaining said plate removably at the open end of said receptacle and means for holding a plurality of plates of equivalent construction.

2. A mucilage-cup comprising a receptacle for mucilage having a top constructed in plate form and provided with an opening adapted to form the mouth of said receptacle, means for maintaining said top in position and means for holding one or more extra tops of equivalent construction.

3. A mucilage-cup comprising a receptacle for mucilage adapted at its open end to receive a wiping member, and means for holding a plurality of wiping members.

4. A mucilage-cup comprising a receptacle for mucilage, a wiping member, means for maintaining said wiping member in position at the open end of said receptacle and means for holding a plurality of exchangeable wiping members.

5. A mucilage-cup comprising a receptacle for mucilage, a wiping member, means for maintaining said wiping member removably in position at the mouth of said receptacle, a cover, a brush and means for holding a plurality of exchangeable wiping members.

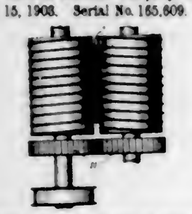
6. A mucilage-cup comprising a receptacle for mucilage adapted at its open end to receive a wiping member, a wiping member and a removable retaining member adapted to retain said wiping member in position at the open end of said receptacle.

7. A mucilage-cup comprising a receptacle for mucilage adapted at its open end to receive a wiping member said cup being provided with means for holding one or more extra wiping members.

8. A mucilage-cup comprising a receptacle for mucilage, a removable top for said receptacle constructed in plate form and provided with an opening adapted to form the mouth of said receptacle, said receptacle being adapted to support said removable top, means for maintaining said top upon said receptacle, said means for maintaining being in construction separate from said cup, a cover and a brush said cover and brush being integrally formed.

9. A mucilage-cup comprising a receptacle for mucilage, a wiping member consisting of a rigid plate, means for maintaining said rigid plate removably at the open end of said receptacle, said plate having an opening adapted to form the mouth of said receptacle, a cover and a dispensing instrument, said dispensing instrument being constructed of bristles in brush form, said cover and said dispensing instrument being of integral construction.

752,592. COATING-MACHINE. GEORGE H. RUPLEY, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 15, 1903. Serial No. 165,609. (No model.)



Claim.—1. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor, and a film-gaging device having ribs maintained in contact with the conductor.

2. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor, and a rotating film-gaging device having ribs maintained in contact with the conductor.

3. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor, and a film-gaging device comprising a roll having a plurality of ribs in contact with the conductor.

4. A machine for insulating an electric conductor, comprising means for applying insulating material to the conductor, and a film-gaging device comprising a roll having a helical rib making a plurality of turns in contact with the conductor.

5. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor, and a film-gaging device comprising two cooperating rolls having oppositely-arranged ribs.

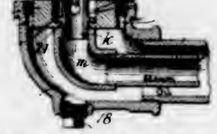
6. A machine for insulating an electric conductor, comprising means for applying insulating material to the conductor, and a film-gaging device comprising two geared rolls having respectively right-handed and left-handed helical ribs arranged opposite to each other.

7. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor and a film-gaging device comprising two rolls having narrow ribs with sharp edges.

8. A machine for insulating an electric conductor, comprising means for applying liquid insulating material to the conductor, and a film-gaging device comprising two cylindrical rolls having widely-spaced narrow ribs.

9. A machine for insulating a ribbon-conductor, comprising means for applying the insulating material to both sides of said conductor, and a gaging device having surfaces parallel to the faces of said conductor, and projections in contact with said conductor and maintaining a uniform space between it and the surfaces of the gaging device.

752,593. CRUDE-HYDROCARBON BURNER. ALLAN C. RUSH, Los Angeles, Cal. Filed June 3, 1902. Serial No. 110,102. (No model.)



Claim.—1. A body having in its top face two annular channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, and a deflector above said inner channel to direct the expansive fluid across said outer channel; the under face of the deflector being dished above the inner channel and the edge of the deflector being arranged close above the top face of the body outside the inner channel and forming therewith a narrow slot.

2. A body having two annular channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, a deflector above said inner channel to direct the expansive fluid across the outer channel, and a director arranged to close a portion of the outer channel to limit the space across which the expansive fluid will pass.

3. A body having two annular channels, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, an adjustable director arranged to close a portion of the outer channel and to limit the space across which the expansive fluid will pass; and means for holding the director in place.

4. A body having two annular channels and between said channels a flat face of considerable width, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the inner channel, and means above said inner channel extending across a portion of said flat face and terminating in a sharp edge close to said face to form therewith a narrow slot to direct the expansive fluid across said outer channel.

5. A burner comprising a body having an annular cup-forming channel the outer wall of which terminates in a plane surface, means for supplying liquid fuel to said channel and means for directing an expansive fluid outward, radially across said channel in a plane parallel to said terminal plane.

6. A burner comprising a body having an annular channel, means for supplying liquid fuel to said channel, means for directing an annular jet of expansive fluid outward, radially across said channel and a member arranged to close a portion of said channel to regulate the space across which the expansive fluid may pass.

7. A body having an annular channel, means for supplying liquid fuel to said channel, means for directing an expansive fluid across said channel, a segmental member having a bead to fit a portion of said channel and to limit the space across which the expansive fluid may pass.

8. A body having an annular channel, means for supplying liquid fuel to said channel, means for directing an expansive fluid across said channel, a segmental member having a bead to fit a portion of said channel and to limit the space across which the expansive fluid may pass, and means for fastening said segmental piece in place.

9. A body having two annular channels, a hollow stem projecting upward therefrom and closed at the top and provided with openings leading into the inner channel, means for supplying liquid fuel to the outer channel, means for supplying an expansive fluid to the hollow stem, a deflector adjustably mounted on the hollow stem, a segmental member closing a portion of the outer channel, a retainer on said stem engaging said segmental member and a nut screwed on the stem and holding the retainer in place.

10. A body having an annular channel and a plane face outside said channel, and a hollow screw-threaded stem closed at the top and provided with openings leading into the channel, a dished deflector screwed on said stem above said channel and terminating above and close to said face, and a set-nut screwed on said stem, and engaging said deflector.

11. An atomizer comprising a hollow outer member, a plug in one end of the member arranged with a channel between the rim of said member and the plug, and a passage from the hollow member into said channel, a channel being provided in the plug; a hollow stem in the plug having an opening leading into said channel; a pipe connected with said hollow stem, and a dished deflector above the plug.

12. An atomizer provided with a channel, means for supplying liquid fuel to the channel, an upright screw-threaded stem, a dished deflector screwed onto said stem, and means for supplying an expansive fluid between the dished face of the deflector and the body of the atomizer, said deflector terminating between the expansive-fluid supply and said channel.

13. An atomizer-body having a channel in its top the outer wall of which is lower than the inner wall, means for supplying liquid to the channel, a screw-stem, a deflector screwed on the stem and arranged to form a narrow slot between itself and the body, and means for supplying an expansive fluid between the deflector and the body.

14. An atomizer comprising a body having an upwardly-opening annular channel, means for supplying liquid to the channel, means for directing an expansive fluid from the interior outward radially across the channel above the same, and detachable means for closing a portion of the channel.

15. An atomizer comprising a pipe-fitting, a plug in one end of said fitting having a perforation and a channel around said perforation, a channel being provided between the plug and the rim of the fitting, and holes communicating between the chamber of the fitting and the last-named channel; a pipe-fitting in said first-named fitting; an externally-screw-threaded stem, closed at the top and hollow at its lower end fastened in the perforation of the plug and in said inner pipe-fitting and having a hole opening into said channel in the plug, a pipe fastened in said inner pipe-fitting, another pipe fastened in said outer pipe-fitting, and a deflector screwed on said stem.

16. An atomizer comprising an outer and an inner pipe-fitting; a plug in the outer pipe-fitting; a hollow stem extending through the plug and fastened to the inner pipe-fitting and having an outward opening from its hollow interior; and a deflector on said stem above said opening, forming with the plug, a narrow slot.

17. An atomizer provided with an annular channel and an upright stem, means for discharging a fluid across said channel; detachable means for closing a part of said channel; and a retainer fastened on said stem to hold said detachable means in place.

18. The combination of a body having a downwardly-tapering channel; means for supplying liquid to said channel; means for discharging a fluid across said channel; and a member provided with a tapering bead to close a part of said channel.

19. An atomizer comprising a body having an annular cup-forming channel in one end and a flat face adjacent the channel; a hollow stem having an opening to supply fluid, and a deflector to direct said fluid across said flat face toward and across said channel in a plane parallel with the rim thereof.

20. A channeled atomizer having a screw-threaded stem which is hollow and radially perforated, and a deflector a portion of which

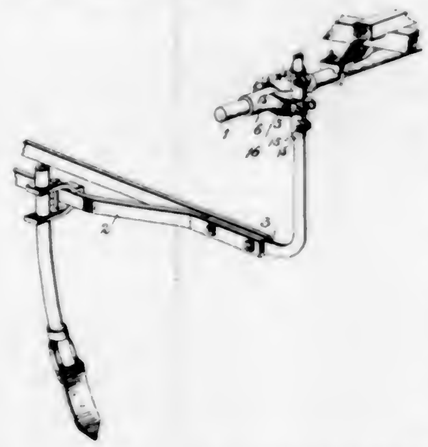
is circular in cross-section and which is screwed on said stem above the perforated portion and has its under face dished.

21. An outer and an inner fitting, a plug in the outer fitting, and a stem inserted through the plug and screwed into the inner fitting and having a collar abutting against the plug.

22. A body having in its top face two annular channels, the outer rim of the outer channel being slightly lower than the face between the channels; an adjustable deflector arranged to form, with said face, a narrow slot; means for supplying liquid fuel to the outer channel, and means for supplying expansive fluid to the inner channel.

23. A burner comprising a body having an annular cup-forming channel, the outer wall of which terminates in a plane surface, an annularly-arranged series of openings into said channel, means for supplying a liquid through said openings into said channel, means for directing an expansive fluid outward radially across said channel in a plane parallel to said terminal plane, and means for closing a portion of said channel and adjustably controlling the direction of the outflowing product.

752,594. **CULTIVATOR-COUPLING.** ANDREW V. RYDER, Bellevue, Ohio, assignor to Edith Ryder, Bellevue, Ohio. Filed Sept. 3, 1903. Serial No. 171,743. (No model.)



Claim.—1. A cultivator-coupling of the class described, having a pair of horizontally-disposed clamping-sleeves to engage the cross-bar of a cultivator and having a pair of perpendicularly-disposed clamping-sleeves to engage the vertical portion of a cultivator-beam draw-bar.

2. A cultivator-coupling of the class described, having a pair of horizontally-disposed split clamping-sleeves to engage the cross-bar of a cultivator, a pair of perpendicularly-disposed split clamping-sleeves to engage the perpendicular portion of the cultivator-beam draw-bar, and means to contract said clamping-sleeves on said cross-bar and cultivator-beam draw-bar.

3. A coupling of the class described, having a pair of sleeves spaced apart and adapted to engage and slide upon an element of a cultivator, and a clamping-collar on said element of the cultivator and disposed in the space between said sleeves to secure the coupling when adjusted on said cultivator element.

752,595. **SEED-PLANTER.** WILLIAM H. SANDIFUR, Bowling Green, Ohio. Filed Nov. 28, 1903. Serial No. 183,063. (No model.)

Claim.—1. In a planter, a seed-disk comprising a member rotatable in a horizontal plane and having pockets and a vertically-adjustable member carried by said first-named member and having means engaging the pockets whereby the capacity of said pockets may be regulated by the adjustment of said member.

2. In a planter, a seed-disk comprising a member rotatable in a horizontal plane and having pockets, and a vertically-adjustable member having tongues engaging the pockets whereby the capacity of said pockets may be regulated by the adjustment of said member.

3. In a planter, a seed-disk comprising a member rotatable in a horizontal plane and having pockets and a hub, a second member provided with tongues engaging said pockets, and a shaft adjustably arranged in the hub in the first-named member and means to hold said shaft in adjusted position.



4. In a planter, a member carrying an outwardly-flaring annular flange and an inner vertical annular flange a member resting upon said inner flange rotatable in a horizontal plane, and having pockets and a vertically-adjustable plate carried by said last-named member and having tongues engaging the pockets therein.

5. In a planter, the combination with a hopper, of a transverse member having an annular vertical flange having an opening, a seed-disk comprising a member resting on said flange rotatable in a horizontal plane and having seed-pockets, a vertically-adjustable plate carried by said last-named member and having tongues engaging the seed-pockets, and a knock-out pivoted on the transverse member and projecting through the opening in the flange to eject the contents of the seed-pockets.

6. In a planter the combination with a hopper, of a transverse member having an annular vertical flange and an outer flaring flange having an opening, a seed-disk comprising a member resting on said vertical flange rotatable in a horizontal plane and having seed-pockets, a vertically adjustable plate carried by said last-named member and having tongues engaging the seed-pockets, a knock-out pivoted on the transverse member and projecting through the opening in the flange to eject the contents of the seed-pockets and a pivoted cut-off on the flaring flange engaging the outer periphery of the seed-disk.

7. In a planter, a hopper, a horizontal member carrying an annular vertical flange having an opening therein a seed-disk resting on said flange rotatable in a horizontal plane and having seed-pockets, a knock-out on the horizontal member and working through the said opening into the seed-pockets to eject the seed therefrom.

8. In a planter, the combination with a hopper, of a horizontal member carrying an outer upwardly-flaring circular flange and an inner vertical flange having an opening, a seed-disk comprising a member resting on the inner flange rotatable in a horizontal plane and having seed-pockets, a vertically-adjustable plate carried by said last-named member and having tongues engaging the seed-pockets, a knock-out pivoted on the transverse member and projecting through the said opening into the seed-pocket to eject the seed, a cut-off pivoted to the outer flange and engaging the outer periphery of the seed-disk and the inner surface of the flange, and a spring on the outer side of the flange and extending through an opening therethrough into engagement with the cut-off.

9. In a planter, a seed-disk comprising a member rotatable in a horizontal plane, and provided with spaced fingers extending above and below the member, and a second member adjustably mounted on said first-named member and provided with depending tongues engaging the spaces between the fingers on said first-named member.

10. In a planter, a seed-disk comprising a member rotatable in a horizontal plane having seed-pockets and a central opening, a vertically-adjustable member carried by said first-named member provided with tongues engaging the seed-pockets and a vertical shaft on the adjustable member and slidably engaging the opening in the first-named member and means to hold the shaft at a determined point in the opening.

11. In a planter, a seed-disk comprising a member rotatable in a horizontal plane, and having seed-pockets a cone-plate arranged over said member and vertically adjustable with relation thereto and having means engaging the seed-pockets to vary the capacity thereof.

752,596. **APPARATUS FOR THE SYSTEMATIC ALTERATION OF PLANE PICTURES BY MEANS OF SPHERICAL LENSES OR MIRRORS.** THEODOR SCHEIMPFLUG, Vienna, Austria-Hungary. Filed Mar. 31, 1903. Serial No. 150,490. (No model.)

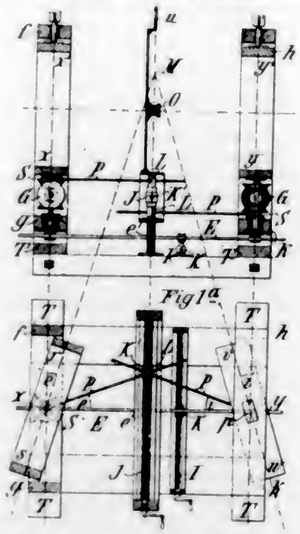


Fig 1a.

Claim.—1. In an apparatus for the systematic transformation of plane pictures, means for intersecting in a straight line the planes of the original image and objective, or mirror means for altering the angles inclosed by the said planes, means for shifting the original, image and objective or mirror in their planes, and rotatable means for placing any straight line of the original or image parallel to the axis of the distortion of the apparatus.

2. A photographic reproducing apparatus comprising objectives whereby the two principal planes cannot be considered to coincide with the objective planes in which the plane of the original and the first principal plane of the objective and the plane of the projected image and the second principal plane of the objective are arranged to intersect one another in parallel straight lines, means for altering the angles inclosed by the four planes, means for shifting the original, projected image and the objective in their planes, and rotatable means for adjusting the original or image or both with the axis of collineation parallel to the axis of distortion of the apparatus.

3. In an apparatus of the character described, sighting devices, said sighting devices adapted to cause the planes of the original and image to intersect the objective plane exactly in the same straight line.

4. In an apparatus of the character described, mechanism for automatically satisfying the two conditions for clearness of definition of the image, said means consisting of a slide apparatus provided with a transverse supporting member and supports for the original and image mounted upon said member, said support mounted for rotation on parallel axes and laterally adjustable, the lateral movements and the rotary movements of the said supports relatively to the objective or mirror and to its optical axis are coupled together positively.

5. In an apparatus of the character described, a positive actuating mechanism for producing and maintaining constant clearness of definition of image, said mechanism comprising supports for the original and image, said supports mounted for rotation on parallel axes, a loose sleeve mounted on each of the said axes, a pair of pivoting-guides, operating means for said guides, connections between the guides and the sleeve for imparting movement thereto when the guides are operated, the rotary motion of said sleeves being transmitted in equal amounts but in opposite directions to the supports mounted on the opposite axis, while the two axes of rotation and the optical center of the objective remain always in one plane.

6. In an apparatus of the character described, a positive actuating mechanism for producing and maintaining positive clearness of definition of image, said mechanism comprising supports for the original and image, said support mounted for rotation on parallel axes, a loose sleeve mounted on each of the said axes, a pair of pivoting-guides arranged in the objective plane, operating means for said guides, a pair of arms connecting the guides to the sleeves, said guides adapted to impart rotation to the said sleeves when said guides are operated, means for transmitting the rotary motion of said sleeves in equal amounts but in opposite directions to the supports mounted on the same axes while the said axes and the optical center of the objective remain in one plane, in combination with means for moving the axes of rotation of the said supports parallel to the objective plane at a distance equal to twice the focal length of the objective.

7. In an apparatus of the character described, means for rotating the original, image and objective or mirror on a common axis so that the planes of the original, image and objective will intersect one another always in the same straight line.

8. In an apparatus of the character described, the combination with an objective or mirror and means for imparting rotary movements to the planes of the original and image, of means for establishing a positive connection between the movements of the objective or mirror and the rotary movements of the planes of the original and image whereby the geometrical counter-axes are maintained permanently in the focal planes of the objective or mirror and obtain clearness of definition of image.

9. In an apparatus of the character described, the combination with a mirror, the original, the image, supports for the original and image, and means for imparting rotary movements to the planes of the original and image, of means for establishing a positive connection between the movements of the mirror and the rotary movements of the planes of the original and image and between the movements of the supports of the original and image, whereby the geometrical counter axes are maintained permanently in the focal plane of the mirror, thereby obtaining clearness of definition of image.

10. In an apparatus of the character described, a positive actuating mechanism for producing and maintaining constant clearness of definition of image, in which the angle inclosed by the plane of the original or image and the plane of the objective is constant while the plane of the image or original is capable of rotating on the straight line of intersection of the first-mentioned plane with the plane of the objective, and a pivoting-guide for moving said mechanism, said guide operating always in the straight line of intersection of the focal plane of the objective or mirror and the counter-plane of the stationary original or image, whereby the axis of the pivoting-guide remaining always coincident with the counter-axis of the rotatable image.

11. In an apparatus of the character described comprising walls capable of rotation toward both sides, a device for producing positive movements for obtaining constant clearness of definition of image, a positive actuating mechanism consisting of the combination of two spindles or straight guides parallel to the plane of the objective or vertex plane of the mirror, nuts fitted on said guides and adapted to produce compulsory rotation of the plane of the original and image, a straight guide for guiding the objective or mirror in its own plane, and a lever pivoted in a straight line drawn through the optical center of the objective or center of curvature of the mirror and parallel to the axis of distortion of the apparatus, said lever adapted to keep the two nuts and the objective always in the same plane.

12. In an apparatus of the character described, a positive actuating mechanism for producing and maintaining constant clearness of definition of image in which the two planes of the original and image are capable of rotation on a common axis lying in the plane of the objective or mirror, and guides for rotating the two planes, said guides adapted to move parallel to the plane of the objective or mirror and further maintained together with the optical center of the objective or the center of curvature of the mirror in a plane parallel to the axis of rotation of the plane of the original or image.

13. An apparatus for producing direct affinite transformation of image comprising a pair of systems of lenses or mirrors capable of rotation relatively to each other.

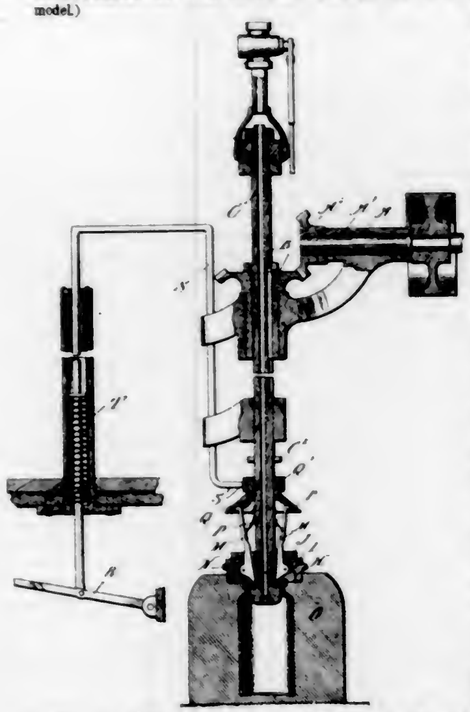
14. In an apparatus of the character described, means for obtaining the direct production of affinite alterations of image, said means comprising two optical systems inclosing any desired, fixed or variable angle with each other.

15. An apparatus for the direct production of affinite alteration of image comprising a pair of optical systems, the focal plane between the said systems coinciding with the counter-plane of the other system.

16. An apparatus for the direct production of affinite alterations of image comprising two optical systems having their focal planes brought into coincidence with each other.

17. In a photographic reproducing apparatus, a plurality of spherical lenses or mirrors for obtaining a systematic transformation of plane pictures.

752,597. GLASS BLOWING AND FINISHING MACHINE. JOHN SCHLEE, Anderson, Ind. Filed Oct. 3, 1902. Serial No. 125,794. (No model.)



Claim.—1. A finishing-head substantially as herein described, comprising the body portion having the central threaded opening, the annular groove in its under side and the laterally-projecting flange at its lower end, and the external threaded portion above said flange and provided with opposite openings formed longitudinally through it, the former having an air-passage and provided with the upwardly-facing shoulder and above the same with the threaded tenon screwed into the lower end of the body, the grooving-plates operating between the upwardly-facing shoulder or top of the former and the lower side of the body, the levers pivoted between their ends to the body, engaged at their lower ends with the grooving plates, and arranged at their upper ends for engagement by the operating device, the base-ring resting on the lateral flange of the body and surrounding the lower portion of said body, the main nut threaded on the upper portion of the body, the balls between said nut and the base-ring, and the jam-nut turning on the body portion down against the main nut, substantially as and for the purposes set forth.

2. In a machine substantially as described, a forming-head having a body provided at its lower end with a former and above the same with laterally-movable grooving-plates and with a groove to form the lip of the jar, levers for operating such plates, and the ring within which the body revolves, substantially as set forth.

3. In a head for glass-machines, the combination of the body portion provided with a former and above the same with laterally-movable circumferentially-extending grooving-plates said plates being approximately semicircular in form, means for operating said plates, and a ring held on said body and within which the body may revolve substantially as set forth.

4. The combination in a finishing-head of the body portion having the central threaded opening, and the laterally-projecting flange at its lower end, and the externally-threaded portion above said flange, and provided with the opposite openings extending longitudinally through it, the former provided with the upwardly-facing shoulder and above the same with the threaded tenon screwed into the lower end of the body, the grooving-plates operating between the upwardly-facing shoulder of the former and the lower side of the body, the levers connected with the grooving-plates, the base ring surrounding the lower portion of the body and resting on the lateral flange thereof, and the retaining devices for said ring, substantially as set forth.

5. The combination with a body having a former, of laterally-movable grooving-plates carried by said body, the body being provided with a lateral flange, and a ring encircling the body and resting on the flange, and means for securing the ring to the body, substantially as set forth.

6. The combination with the body having forming devices for producing a groove in the neck of the bottle, of a ring encircling the body and held thereto and adapted to rest upon the mold and within which the body is free to turn, substantially as set forth.

7. A head for glass-machines comprising the body provided in its lower side with a groove for forming the lip of the jar and below the same with a former to enter the mouth of the jar, and between said body and former with approximately semicircular plates concentric with the former for producing an internal groove in the jar-neck, substantially as set forth.

8. The combination in a head for glass-machines, of the body provided at its lower end with a lateral flange and below the same with a former and with means for producing a groove in the interior of the bottle-neck and having above said flange an externally-threaded portion, the base-ring encircling the body and resting on the lateral flange thereof, and a nut turned on the upper threaded portion of the body and securing the base-ring upon the body, substantially as set forth.

9. The combination with the body having the central threaded opening and the openings on opposite sides of same for the levers, of the former below the same and having a threaded tenon screwing into the body, the laterally-movable grooving-plates operating between the former and the body, the ring within which the body is free to turn and the levers pivoted to the body and connected with the grooving-plates and projecting through and above the body for operation, substantially as set forth.

10. The combination of the body having the central internally-threaded portion, the shaft threaded in one end of said opening, the former having a tenon threaded in the opposite end of the opening, the grooving-plates and means for operating the same, substantially as set forth.

11. The combination with the ring and the body turning in the ring and having the central threaded opening for the tenon of the former, the upwardly-projecting threaded portion for the retaining-nut and the longitudinal openings for the levers, the former having a threaded tenon screwing in the central opening of the body, the retaining-nut for the base-ring threaded on the externally-threaded portion of the body, of the levers fitting in said openings and pivoted to the body, the grooving-plates arranged for operation by said levers, and means for operating the levers for the grooving-plates, substantially as set forth.

12. The combination with the body having a centrally-threaded opening and longitudinal openings on opposite sides thereof, of the former having a threaded tenon screwed in the central opening of the body, the grooving-plates operating between the former and the lower side of the body, and the levers pivoted within the longitudinal openings of the body, and arranged to operate the grooving-plates, substantially as set forth.

13. A head for glass-machines comprising the former provided with the upwardly-facing shoulder and above the same with the threaded tenon, the body portion having a central threaded opening receiving such tenon of the former, and provided at its lower end with the lateral flange and with the externally-threaded portion above the same, the base-ring fitting around the body and resting on said flange, and the nut screwed on the externally-threaded portion of the body above said base-ring, substantially as set forth.

14. The combination in a glass-machine, of the head having a body portion provided with a central internally-threaded portion, the former provided at its upper end with a threaded tenon screwing into the lower portion of said opening, the main shaft screwing into the upper end of said opening in the body, the grooving-plates arranged and operating between the body and the former, and the levers for operating said plates, substantially as set forth.

15. The combination of the former, the body portion supporting the former, and having a laterally-projecting flange and above the same an externally-threaded portion, the base-ring resting upon the flange of the body, and the retaining-nut for said ring threaded on the externally-threaded portion of the body, substantially as set forth.

16. The combination of the former, the body supporting the former, and having the opposite longitudinal openings, the grooving-plates arranged and operating between the former and the body, the levers for operating said plates, said levers extending through the longitudinal openings in the body, the base-ring within which the body may turn, and the retaining devices for said ring connected with the body above the ring, substantially as set forth.

17. The combination in a machine substantially as described, of the shaft provided with a projection, and below the same with a head having grooving-plates and levers for operating the same, the compressor operating on the shaft, below the said projection and in position to engage the levers and operate the same to spread the grooving-plates and to move from said position into engagement with the projection, whereby to permit the readjustment of the grooving-plates and to subsequently lift the shaft with the head thereon, substantially as set forth.

18. The combination of the shaft, the head thereon and provided with the body and the grooving-plates, the ring encircling said body and within which the body may revolve with the shaft, the levers carried by the body and arranged to operate the grooving-plates and projecting above the body, the springs for normally spreading the upper ends of the levers, the compressor slidable on the shaft above the levers and into engagement therewith, and a projection on the shaft above the compressor, and in position for engagement therewith, substantially as and for the purposes set forth.

752,598. TRACK-SANDER FOR LOCOMOTIVES. GEORGE M. SCHWEND, Birmingham, Ala. Filed June 22, 1903. Serial No. 162,595. (No model.)



Claim.—1. A sander comprising the sand-reservoir, the sand-delivery, and a water-delivery device by which to aid the delivery of the sand.

2. A sander comprising the sand-reservoir, the sand-delivery apparatus, whereby the sand in the reservoir, and also, the sand in the delivery, may be heated, and a water-delivery device by which to aid the delivery of the sand.

3. A sander comprising the sand-reservoir, the sand-delivery, and a water-delivery located at the bottom of the reservoir, adapted to underwash and flow the sand, to and through the said sand-delivery, substantially as described.

4. A sander comprising the sand-reservoir, the sand-delivery, and upper and lower water-delivery, whereby the sand is washed and flowed to and through the said sand-delivery, substantially as described.

5. A sander comprising the sand-reservoir, the sand-delivery, upper and lower water-delivery, and a heating-coil ending with nozzles adapted to inject into the receiving end of the said sand-delivery.

6. A sander comprising the sand-reservoir, the sand-delivery, and a water-delivery employing a perforated pipe extending up suitably above the bottom of the reservoir, and a protecting-hood for the said water-delivery, substantially as described.

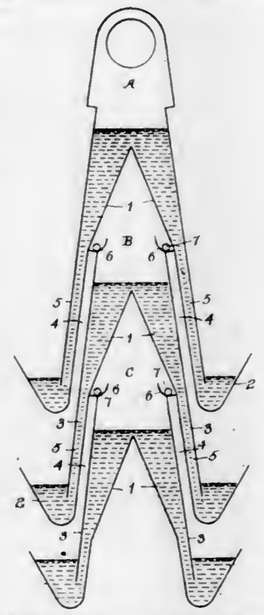
7. The combination with a sander-reservoir employing water as the sand-feeding medium, of front and rear sand-delivery pipes leading from a common outlet in the reservoir, and an injector in the common outlet adapted, in operation, to force the sand therefrom into the said rear delivery-pipe, substantially as described.

8. The combination in a sander, of a reservoir, a water-delivery, front and rear sand-delivery, and an injector adapted in operation, to force the sand into and through the said rear delivery substantially as described.

9. The combination in a sander, of a reservoir, upper and lower water-delivery, front and rear sand-delivery, and an injector adapted in operation, to force the sand into and through the said rear delivery substantially as described.

10. The combination in a sander of a reservoir, front and rear sand-delivery, upper and lower water-delivery, a hood over the said lower water-delivery, a heating-coil ending with nozzles adapted to inject into the receiving end of the said front and rear sand-delivery, and an injector adapted in operation, to force the sand into the said rear sand-delivery substantially as described.

752,599. PROCESS OF EVAPORATING LIQUIDS. BENJAMIN F. B. SEWELL, Skien, Norway. Filed Mar. 18, 1903. Serial No. 148,462. (No specimens.)



Claim.—1. As an improvement in the art of separating solids from liquids the method herein described which consists in maintaining different pressures of two bodies of liquid from which the solid is to be removed, subjecting the body under the lower pressure to an evaporating temperature, causing the deposit of solids formed in such body into the body of liquid under the higher pressure and removing such solids without materially changing the pressures on said bodies, substantially as set forth.

2. As an improvement in the art of separating solids from liquids, the method herein described which consists in maintaining a pressure lower than atmospheric pressure of the surface of the liquid containing the solid to be removed, causing the deposit of the solids formed in such body into a body of liquid subjected to a higher pressure and removing the solids from such body of liquid without materially changing the pressure on the evaporating-surface, substantially as set forth.

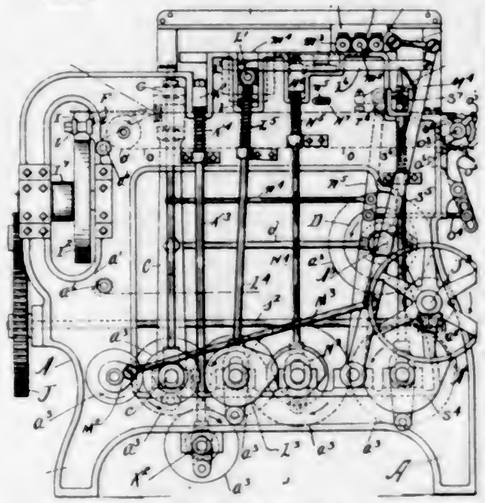
3. As an improvement in the art of separating solids from liquids, the method herein described which consists in maintaining different pressures in two or more bodies of liquid from which the solid is to be removed, subjecting said bodies of liquid to an evaporating temperature, causing the deposit of the solids formed in each of said bodies of liquid into a body of liquid subjected to a pressure higher than that on the body in which the solid was formed, and removing such solids from the last body of liquid without materially changing the pressures on said bodies, substantially as set forth.

752,600. DEVICE FOR AUTOMATICALLY CLOSING THE ORIFICES IN FISH-BASKET COVERS. WALTER A. SINCLAIR, Springfield township, Kalkaska county, Mich. Filed May 16, 1903. Serial No. 157,508. (No model.)

Claim.—In combination with a fish-basket cover having a hole, of a plate having a serrated edge, said plate being secured to the cover with the serrated edge extending over the edge of the hole, a plate secured to the cover, a guard pivoted thereto and extending over the edge of the hole opposite the serrated plate, and a spring bearing against the guard substantially as described.



752,601. **MACHINE FOR MAKING TAGS.** JEROME C. TAFT, Providence, R. I. Filed Mar. 23, 1903. Serial No. 149,985. (No model.)



Claim.—1. In an apparatus of the character described in combination a reciprocating feed-clamp for feeding longitudinally and laying and pressing together two strips or ribbons of material having cemented surfaces, means in said clamp to keep the web from opening up after having been pressed together by said clamp, mechanism for drawing in the tapes or strengtheners transversely to and between said strips at predetermined intervals, means to sever the double strips transversely between the series of strengtheners, substantially as described.

2. In an apparatus of the character described, in combination, a reciprocating clamp for feeding and pressing two strips or ribbons of material having cemented surfaces, means for drawing in flexible tapes or strengtheners transversely to and between said strips of material at predetermined intervals, means for holding said tapes taut while said reciprocating clamp moves forward and presses said strips of material onto said tapes, means for reciprocating said clamp and means for severing the double strip between the series of tapes, substantially as described.

3. In an apparatus of the character described in combination, means for drawing in flexible tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material having cemented surfaces, means for holding said tapes taut while said webs are pressed upon them, a reciprocating clamp to move forward and grip and press the two webs or strips of material together onto said tightly-held tapes, said tapes to be subsequently released and the webs moved along by the movement of the reciprocating clamps, means for reciprocating said clamp and means for severing the double strips between the series of tapes, substantially as described.

4. In an apparatus of the character described, in combination, mechanism for drawing in tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material having cemented surfaces and holding said tapes taut while said webs are being pressed upon them, a reciprocating feed-clamp containing means for laying said strips or webs by first rolling and then pressing them together over said tightly-drawn tapes, means for severing the double strips transversely between the series of strengtheners, substantially as described.

5. In an apparatus of the character described in combination, means for drawing in flexible tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material having cemented surfaces, means for holding said tapes taut, a feed-clamp held to reciprocate longitudinally of the machine, said clamp containing a pair of rolls to keep the webs from opening up after being pressed together by the clamps, a vertically-reciprocating bar forming the upper jaw of said clamp for pressing said webs together onto said tightly-drawn strengthener and holding the webs tightly together while the clamp moves back the width of a tag carrying the tapes secured between the webs, means for vertically reciprocating the feed-clamp, substantially as described.

6. In an apparatus of the character described, in combination a reciprocating feed-clamp for feeding longitudinally and laying and pressing together two strips or ribbons of material having cemented surfaces, mechanism for drawing in the tapes or strengtheners transversely to and between said strips at predetermined intervals and holding said tapes taut while they are pressed in between said strips of material, a finger for carrying the ends of the tapes across the machine, clamps for holding the ends of said tapes while said finger travels back to the opposite side of the machine and means for severing and simultaneously releasing said tapes after said strips or webs are pressed upon and cemented to said tapes, means for imparting said traverse motion to said finger, substantially as described.

7. In an apparatus of the character described in combination, a feed-clamp held to reciprocate longitudinally in the machine, said clamp containing a pair of rolls to keep the webs from opening up after having been pressed together by said clamp, a vertically-reciprocating cross-bar forming the upper jaw of said clamp for pressing said webs together onto said tightly-drawn strengthener-tapes and holding said webs tightly together while the clamps moved back the width of a tag carrying the tapes secured between the webs, means for vertically reciprocating the upper jaw and means for longitudinally reciprocating the feed-clamp, a finger for carrying the ends of the tapes transversely across the machine, clamps for holding the ends of said tapes while said finger travels back to the opposite side of the machine and means for severing and simultaneously releasing said tapes after said strips or webs are pressed upon and cemented to said tapes, means for imparting an intermittent traverse motion to said finger, substantially as described.

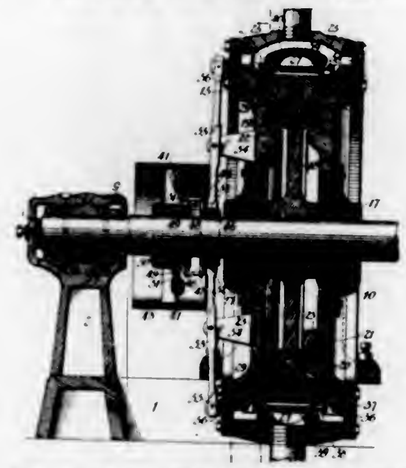
8. In an apparatus of the class described in combination, mechanism for drawing in tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material having cemented surfaces and holding them taut, a reciprocating feed-clamp containing means for laying said strips or webs by first rolling and then pressing them together over said tightly-drawn tapes, an auxiliary pressing-clamp, means for splitting the double web longitudinally through the center, means for severing the double strips transversely between the series of strengtheners, thus producing two tags at each operation, substantially as described.

9. In an apparatus of the class described in combination, means for drawing in flexible tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material furnished with cement, means for holding said tapes taut while said webs are pressed upon them, a reciprocating clamp to move forward and grip and press the two webs or strips of material together onto said tightly-held tapes, said tapes to be subsequently released and the webs moved along by the movement of the reciprocating clamps, means for reciprocating said clamp, an auxiliary pressing-clamp, means for splitting the webs longitudinally through the center, and means for severing the double strips between the series of tapes thus producing two finished tags at each stroke, substantially as described.

10. In an apparatus of the character described in combination a reciprocating feed-clamp for feeding longitudinally and laying and pressing together two strips or ribbons of material having cemented surfaces, a finger mounted to slide in guide-bars for carrying the ends of the tapes transversely across the machine, clamps at one side of the machine for catching and holding the ends of said tapes while said finger travels back to the opposite side of the machine, and means for severing and simultaneously releasing said tapes after said strips or webs are pressed upon and cemented to said tapes, means for imparting an intermittent traverse motion, means for multiplying the stroke of the intermittent mechanism to carry said finger across the machine.

11. In a machine for making tags, in combination, means for drawing in flexible tapes or strengtheners at predetermined intervals between and transversely to two strips or webs of material each having a cemented surface, said tapes projecting a short distance beyond each edge of the web, means for holding said tapes taut while said reciprocating clamp moves forward and presses said strips of material onto said tapes, means for reciprocating said clamp and means for subsequently pressing, splitting longitudinally through the center, and notching each edge of said webs midway between the tapes, and means for severing the double strip between the series of tapes at the apex of said notches forming two complete tags at each stroke, substantially as described.

752,602. **ROTARY ENGINE.** EDWIN F. TAYLOR, Westchester, Pa. Filed Aug. 22, 1902. Serial No. 120,718. (No model.)



Claim.—1. In a rotary engine, a stationary part and an impact and reaction wheel having a diverging passage formed of sections circular in cross-section for adiabatically expanding radially in all directions from its axial flow a motive fluid, and means for absorbing at the intervals of impact and reaction predetermined amounts of the caloric energy of the motive fluid.

2. In a rotary engine, an impact and reaction wheel, a stationary part having a section of a diverging passage circular in cross-section for maintaining a continuous adiabatic expansion of a motive fluid up to a predetermined point, means for utilizing the expanded fluid at the said point to effect the impact against said wheel, a second section of a diverging passage in said wheel circular in cross-section for further continuously expanding the fluid adiabatically after such impact, and means for utilizing the further expanded fluid at the point of reaction, said expansions of the fluid being radial in all directions from its axial flow.

3. In a rotary engine, a wheel driven by the kinetic force of a motive fluid acting upon both sides of the wheel, a stationary part having a section of a diverging passage circular in cross-section for creating and maintaining a continuous adiabatic expansion of the motive fluid to the point of impact, a second section of a diverging passage in said wheel circular in cross-section for further continuously expanding the fluid adiabatically after the impact, and means for utilizing the further expanded fluid at the point of reaction, said expansions of the fluid being radial in all directions from its axial flow.

4. In a rotary engine, a stationary part having a section of a diverging passage circular in cross-section, a wheel driven by the kinetic impact force of a motive fluid issuing from said passage-section and having an adiabatic partial expansion radial in all directions from its axial flow, and driven by the kinetic reactive force of the further adiabatically-expanded fluid issuing from another similar passage-section in said wheel.

5. In a rotary engine, a wheel and a stationary part having a diverging passage formed of sections circular in cross-section, said wheel being driven by the kinetic impact and reactive forces of a proportionate adiabatic expansion radial in all directions from its axial flow and a corresponding change in entropy of a motive fluid issuing from said passage-sections.

6. In a rotary engine, a stationary part having a section of a diverging passage circular in cross-section and forming an adiabatic line or curved fluid-port, a wheel arranged to receive the kinetic impact force from the change in entropy of the fluid expanded in said port radially in all directions from its axial flow, a diverging passage circular in cross-section and forming a second section of an adiabatic line or curved fluid-port in said wheel, and a stationary surface receiving the kinetic force from the change in entropy of the fluid further expanded in said port radial in all directions from its axial flow and discharging from the wheel.

7. In a rotary engine, a wheel provided with a plurality of impact-surfaces, and a stationary part provided with sections of diverging passages each circular in cross-section forming an adiabatic line or curve fluid-port arranged to direct adiabatic partially-expanded fluid with a change in entropy corresponding to the degree of expansion against said surfaces, said fluid being expanded equally in all directions from its axial flow.

8. In a rotary engine, a wheel provided with sections of an adiabatic line or curve fluid-port each having a plurality of impact-surfaces, a rotary part having a section of an adiabatic line or curve fluid-port arranged to direct adiabatic partially-expanded fluid with a change in entropy corresponding to the degree of expansion of said fluid against said surfaces, and a plurality of stationary reactive surfaces reflecting the impact from the change in entropy from the further adiabatically-expanded fluid discharging from the fluid-ports carried by the wheel, said fluid being expanded radially in all directions from its axial flow in each section.

9. In a rotary engine, stationary and movable parts having a series of sections of a diverging passage circular throughout in cross-section providing a complete adiabatic line or curve fluid-port, each section adapted to adiabatically partially expand in all directions from its radial flow a motive fluid, and means at the outlet of each section for effecting a change in entropy of the fluid corresponding to the degree of expansion of the latter.

10. In a rotary engine of the character described, a wheel provided with a plurality of fluid-channels arranged at an angle to the plane of rotation of the wheel and each having an inlet and an outlet and a return-bend adjacent to the inlet providing an impact-surface, a web in the return-bend providing an additional impact-surface, a diverging nozzle arranged to direct expanded fluid against the impact-surfaces, a plurality of stationary pockets receiving the impact of the fluid from the channel-outlets, and exhaust-outlets for the fluid between the channel-outlets.

11. In a rotary engine of the character described, a wheel having at each side a ring provided with a plurality of fluid-channels in which is an impact-surface, a nozzle at each side of the wheel arranged to direct fluid into opposite channels and against the impact-surfaces, and a plurality of stationary pockets at each side of the wheel arranged to receive the impact of the fluid discharging from opposite channel-outlets.

12. In a high-speed rotary engine, a wheel driven by the impact of the motive fluid and carrying a concentric channel and means permitting the introduction of a weighting medium during the rotation of the wheel.

13. In a rotary engine of the character described, a rotary wheel carrying impact-surfaces, a series of diverging nozzles arranged to direct expanded motive fluid against said surfaces, a steam-chamber common to said nozzles, a ring-valve at the nozzle-inlets said valve having a series of openings of gradually-increasing size and a governor operatively connected with the valve to move it and consecutively open or close said nozzles.

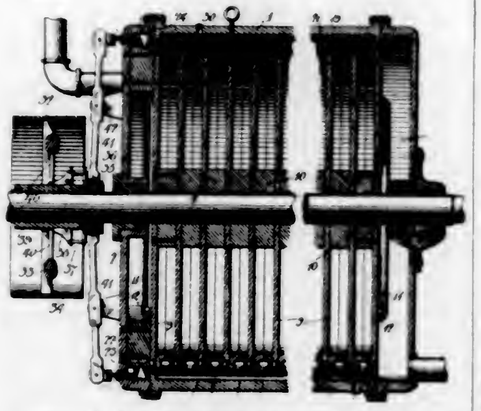
14. In a rotary engine, a rotary wheel provided at each side with a plurality of impact-surfaces, a plurality of diverging nozzles at each side of said wheel arranged to direct expanded motive fluid against said surfaces, a motive-fluid chamber common to both series of nozzles, a ring-valve at the inlets of each series of nozzles, said ring-valves each having a series of openings, a connection between said ring-valves to effect their simultaneous movement, and a governor connected with said valves to operate them in the manner substantially as set forth.

15. In a rotary engine, stationary and movable parts having a series of sections of a diverging nozzle circular in cross section said series providing a complete adiabatic line or curve fluid-port, each nozzle-section adapted to partially expand adiabatically a motive fluid, and means at each nozzle-outlet for effecting a change in entropy of the fluid corresponding to its degree of expansion.

16. In a rotary engine, stationary and movable parts having a series of sections of a motive-fluid passage the walls of each section diverging at an angle coinciding relatively to the axial line in all directions, said sections each effecting an adiabatic partial expan-

sion of the fluid, and means at the outlet of each section for absorbing from the fluid caloric energy corresponding to the degree of expansion of said fluid.

752,603. ROTARY ENGINE. EDWIN F. TAYLOR, New Decatur, Ala. Original application filed Aug. 22, 1902, Serial No. 120,718. Divided and this application filed Oct. 9, 1903. Serial No. 176,368. (No model.)



Claim.—1. In a rotary engine of the character described, a series of wheels driven by the impact and reaction of a continuously adiabatically expanded motive fluid, and means effecting an equal amount of energy of the fluid at each of said wheels.

2. In a rotary engine of the character described, a series of wheels carrying impact-surfaces, and a series of chambers between the wheels at said impact-surfaces, each chamber having in one wall a section of a diverging passage arranged to direct adiabatic partially-expanded fluid against the impact-surfaces of the adjacent wheel, and having in its opposite wall reacting fluid-channels.

3. In a rotary engine of the character described, a series of wheels carrying impact-surfaces, a series of chambers between the wheels at said impact-surfaces, and a series of nozzles at said chambers effecting step by step a continuous adiabatic expansion of the motive fluid, said nozzles adapted to maintain an equal velocity of the fluid at each wheel.

4. In a rotary engine of the character described, a series of wheels carrying impact-surfaces, a series of chambers between the wheels at said impact-surfaces and a series of nozzles removably inserted in the walls of said chambers and adapted to direct adiabatically-expanded fluid against said surfaces.

5. In a rotary engine of the character described, a series of wheels carrying impact-surfaces, a series of chambers between the wheels at said impact-surfaces, a series of nozzles at said chambers effecting step by step a continuous adiabatic expansion of the motive fluid, with an equal velocity of the fluid at each wheel, and means for maintaining an equal weight of the fluid at each wheel.

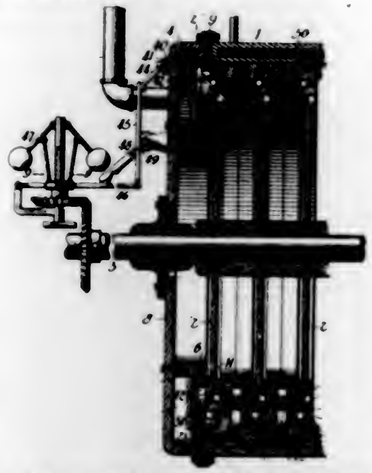
6. In a rotary engine of the character described, a series of wheels carrying impact-surfaces and a series of sections of an adiabatic nozzle each situated so as to deliver the motive fluid against the impact-surfaces of one of the wheels and all arranged to effect a continuous adiabatic expansion of the motive fluid.

752,604. ROTARY ENGINE. EDWIN F. TAYLOR, New Decatur, Ala. Filed Jan. 13, 1904. Serial No. 188,869. (No model.)

Claim.—1. In a rotary engine, a moving part having oppositely-facing sets of impact-surfaces, and an element having a fluid-port said element being revoluble to present the port to either of said sets of impact-surfaces.

2. In a rotary engine, a moving part having oppositely-facing sets of impact-surfaces, and a revoluble disk having a fluid-port at an angle to its axis and adapted to present said port to either of said sets of impact-surfaces.

3. In a rotary engine, a moving part having two oppositely-facing concentric sets of impact-surfaces, and a revoluble disk the center of which is midway between the paths of movement of said sets of surfaces, said disk having at one side of its center a fluid-port extending at an angle to its axis, and means for revolving the disk to bring the discharge end of the port in the path of either set of impact-surfaces.



4. In a rotary engine, a wheel having inner and outer concentric sets of vanes the surfaces of one set facing a direction opposite to that of the other surfaces, an imperforate portion between said sets, a disk the center of which is midway between the paths of movement of said vanes, said disk having at one side of its center an adiabatic line or curve fluid-port section extending through the disk at an angle to the axis of the latter, teeth on the disk and a movable rack meshing with said teeth and adapted to partially revolve the disk to bring the discharge end of the port-section in the path of either set of vanes.

5. In a rotary engine, a series of wheels each having inner and outer concentric sets of vanes, a main fluid-chamber at the first wheel, inner and outer fluid-chambers between the wheels respectively registering with the inner and outer sets of vanes, a disk at the first wheel carrying a fluid-port, and means for rotating the disk to bring the port into the path of either set of vanes.

6. In a rotary engine, a series of wheels each having inner and outer concentric sets of vanes, a main fluid-chamber at the first wheel, inner and outer fluid-chambers between the wheels respectively registering with the inner and outer sets of vanes, a revoluble disk in the main chamber mounted with its axis between the sets of vanes of the first wheel said disk having at one side of its axis a fluid-port extending at an angle to said axis, and means for revolving said disk to bring the discharge end of the port in the path of either set of vanes of the first wheel.

7. In a rotary engine, a series of wheels each having inner and outer concentric sets of vanes, inner and outer fluid-chambers between the wheels respectively registering with the inner and outer sets of vanes, a series of revoluble disks at the first wheel each having at one side of its center a fluid-port adapted to be brought into the path of movement of either set of vanes in the first wheel, means for simultaneously revolving said disks, and partitions in the chambers dividing the same into pockets which are respectively in line with the disks.

8. In a rotary engine, a wheel having inner and outer concentric sets of vanes, a disk having a fluid-port and adapted to be revolved to present the port to either set of vanes, and a valve at said disk for regulating said port.

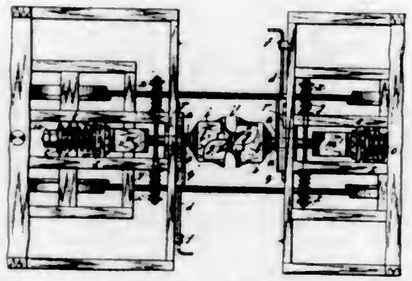
9. In a rotary engine, a wheel having inner and outer concentric sets of vanes, a disk having a fluid-port and adapted to be revolved to present the port to either set of vanes, and a ring-valve having an opening adapted in the rotary movement of the ring-valve to be brought into and carried out of register with said port.

10. In a rotary engine, a wheel having inner and outer concentric sets of vanes, a plurality of revoluble disks each having an inclined fluid-port at one side of its axis said port adapted to discharge against either set of vanes, a revoluble ring-valve having inner and outer openings arranged in pairs one pair for each disk, and means for moving said valve.

11. In a rotary engine, a wheel having inner and outer concentric sets of vanes, a plurality of revoluble disks each having an inclined fluid-port at one side of its axis said port adapted to discharge against either set of vanes, a revoluble ring-valve having inner and outer openings arranged in pairs one pair for each disk, the area of said pairs of openings increasing consecutively, a governor connected with said valve, and hand means for operating the valve independently of the governor.

12. In a rotary engine, a series of revoluble members carrying fluid-ports, and a ring-valve revoluble across said members and having openings for controlling said ports, said openings consecutively increasing in area whereby to successively control said ports.

752,605. AUTOMATIC COUPLING AND BUFFER. JOHN THOMAS, Balham, England. Filed June 29, 1903. Serial No. 163,597. (No model.)



Claim.—1. In an automatic coupling the combination of coupling-hooks, a rotary support for said hooks, and an uncoupling-lever carried by said rotary support.

2. In an automatic coupling the combination of coupling-hooks, a rotary support for said hooks, an uncoupling-lever carried by said rotary support and means for locking said uncoupling-lever.

3. In an automatic coupling, the combination of coupling-hooks, a support for said hooks capable of lateral and rotary movement, an uncoupling-lever carried by said support for rotating said hooks, means for locking said lever, and means for automatically controlling the lateral displacement of said support when moved out of its normal position.

4. In an automatic coupling, the combination of coupling-hooks, a support for said hooks capable of lateral and rotary movement, an uncoupling-lever carried by said support for rotating said hooks, means for locking said lever, and a laterally-disposed spring-operated bar engaging said support for automatically controlling its lateral displacement when moved out of its normal position.

5. In an automatic coupling and buffer, the combination of a laterally-movable hollow draw-head, provided with buffer-flanges, a rotary shank carrying coupling-hooks extending in said hollow head, means for rotating said shank and hooks independently of said head, and means for locking said shank against rotary movement.

6. In an automatic coupling and buffer, the combination of a laterally-movable hollow draw-head, provided with buffer-flanges, a rotary shank carrying coupling-hooks extending in said hollow head, means for rotating said shank and hooks independently of said head, comprising an uncoupling-lever carried by said shank, and means for locking said lever.

7. In an automatic coupling and buffer, the combination of a laterally-movable hollow draw-head, provided with buffer-flanges, a rotary shank carrying coupling-hooks extending in said hollow head, means for rotating said shank and hooks independently of said head, means for locking said shank against rotary movement, and means for automatically controlling the lateral displacement of said shank and draw-head when moved out of their normal positions.

8. In an automatic coupling and buffer, the combination with the car-body, of a hollow draw-head provided with buffer-flanges and a hollow sleeve supported by and laterally movable in said car-body, of a shank rotatably supported in said hollow sleeve, draw and buffer springs engaging said shank, coupling-hooks in said hollow head carried by said shank, means for rotating said shank and hooks independently of said head, and means for locking said shank and hooks against rotary movement.

9. In an automatic coupling and buffer, the combination with the car-body, of a hollow draw-head provided with buffer-flanges and a hollow sleeve supported by and laterally movable in said car-body, of a shank rotatably supported in said hollow sleeve, draw and buffer springs engaging said shank, coupling-hooks in said hollow head carried by said shank, means for rotating said shank and hooks independently of said head, means for locking said shank and hooks against rotary movement, and means for controlling the lateral displacement of said buffer- heads, shank and hooks when moved out of their normal positions.

10. In an automatic coupling and buffer, the combination of a shank, projecting coupling-hooks and a head, said head being provided with box-like flanges and said flanges terminating in flat flanges adapted to abut against corresponding flanges on the coupling of another car, substantially as described.

11. In an automatic coupling and buffer, the combination of couplings having flanges adapted to abut against each other, shanks supporting said flanges, projecting hooks carried by each of said shanks, and springs to bring said shanks into their normal position after they have been displaced by the action of a train in running around a curve, substantially as described.

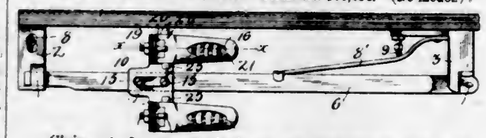
12. The combination in an automatic coupling and buffer of a cylindrical shank *a*, head *b*, projecting coupling-hooks *g*, *h*, with a square sleeve *j* fitting freely on the shank *a* and at its outer end box-like flanges *i* with flanges *i'* forming a buffer, guide *j'*, uncoupling-lever *d* loose upon a key *k* on shaft *a*, guide *f*, washer *m*, buffer-spring *o*, sleeve *t*, abutment-plate *s*, draw-spring *t'*, and nuts and washer *u*, substantially as set forth.

13. The combination with the shank *a*, of the sliding plate *p*, guide *q*, projection upon eye *e* of uncoupling-lever *d*, and recess in sliding plate *p* receiving the projection upon eye *e*, substantially as set forth.

14. The combination with the square sleeve *j*, of transverse bar *y*, springs *x*, *x*, and projections 1, 1, embracing square sleeve *j*, substantially as set forth.

15. The combination with the shank *a* of transverse bar *y*, eye *z*, surrounding shank *a* and springs *x*, *x*, substantially as set forth.

752,606. TEMPLE FOR LOOMS. CHARLES F. THOMPSON, Fulton, N. Y. Filed Oct. 12, 1903. Serial No. 176,730. (No model.)



Claim.—1. In a temple for looms, the combination with a supporting-bar, of a block longitudinally adjustable upon said bar, lateral projections upon each side of said block and a temple-roller mounted upon each of said projections.

2. In a temple for looms, the combination with a supporting-bar, of a block slidable longitudinally upon said bar, means for securing said block in an adjusted position, lateral projections upon opposite sides of said block, and a temple-roller journaled upon each of said projections, substantially as described.

3. In a temple for looms, the combination with a supporting-bar, of a block slidably mounted upon said bar having a longitudinally-disposed central opening to receive said bar and lateral projections upon each side of said block, a set-screw for securing said sliding block upon said bar, and a temple-roller journaled upon each of said projections, substantially as described.

4. In a temple for looms, the combination with a supporting-bar, a block slidably and adjustably mounted upon said bar, lateral projections upon each side of said block having reduced upper ends, temple-rollers mounted upon said blocks, casings for said rollers hingedly connected to the reduced upper portions of said projections, and lugs upon said block adapted to guide said casing, substantially as described.

752,607. DOLL. ARTHUR J. THOWLESS, Newark, N. J. Filed July 25, 1903. Serial No. 166,992. (No model.)



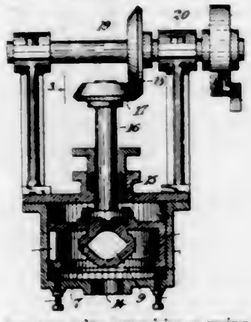
Claim.—1. In a toy, the combination of a hollow, incomplete body portion, provided with a finger-holding strip or strips, so located at the rear of the body portion as to enable the manipulator of the toy to complete the figure by means of his fingers, and simulate the motion of body members thereby.

2. In a toy, the combination of a hollow body-piece adapted to receive a portion of the human hand, a strip for holding the hand in position, one or more fingers forming the locomotive organs of said toy, substantially as set forth.

3. In a toy, the combination of a hollow body portion, a fingers-holding strip fitted across said hollow portion, detachable feet, and bands connecting said feet with the hollow body portion, substantially as described.

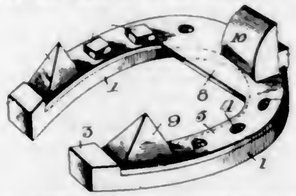
4. In a toy, the combination of a hollow body-piece adapted to receive a human hand, a strip for holding the hand in position, one or more fingers forming the motive organs of said toy, and detachable feet covering the ends of the fingers, substantially as set forth.

752,608. VALVE. JOSEPH UTRILLA, New York, N. Y. Filed Sept. 10, 1903. Serial No. 172,611. (No model.)



Claim.—A two-way valve comprising a casing having opposite ports in its walls and an outlet in its bottom wall, a valve mounted to rotate in the casing and consisting of a hollow cylindrical shell, closed at the top and open at the bottom, and having a port through its outer wall, and a port formed by transverse walls distinct from but connecting with the outer wall of the shell.

752,609. HORSESHOE. CHARLES W. VOSKAMP, Pittsburg, Pa. Filed Oct. 28, 1903. Serial No. 178,352. (No model.)

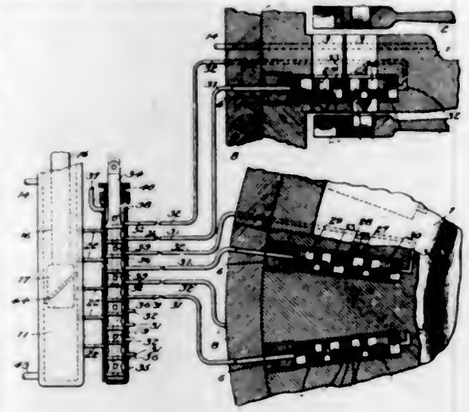


Claim.—1. In combination with the horseshoe, an auxiliary shoe embodying a plate adapted to fit between the calks and toe of the horseshoe, with means for securing the plate to the horseshoe, calks carried by the plate at the extremities thereof, and engaging the inner wall of the horseshoe-calks, a toe carried by said plate having a straight front wall for abutting engagement with the rear wall of the horseshoe-toe, and a bridge portion connecting the legs of the plate adjacent the toe, and merging into the latter and extending to the rear of the horseshoe-toe.

2. In combination with the horseshoe, an auxiliary shoe comprising a plate fitting between the calks and toe of the horseshoe, calks and a toe carried thereby, means extending through the plate and into said calks and toe thereof for securing the latter to said plate, said means lying flush with the under side of the said plate and being engaged by the under side of the horseshoe, the calks and the toe of the plate being in engagement with the calks and toe of the horseshoe, and means for securing the plate to the horseshoe.

752,610. ELASTIC-FLUID TURBINE. JAMES WILKINSON, Birmingham, Ala. Filed Sept. 22, 1903. Serial No. 174,162. (No model.)

Claim.—1. In a turbine operating by stage expansion, a controlling-valve automatically movable between a constant pressure and a variable stage-pressure which regulates by its position means to control the volume of fluid-pressure delivered from said stage to a succeeding wheel-compartment.



2. In a turbine operating by stage expansion, a controlling-valve automatically movable between the initial pressure and a succeeding stage-pressure and means controlled thereby to regulate the volume of fluid-pressure delivered from said stage to a succeeding wheel-compartment.

3. In a turbine operating by stage expansion, a stage controlling-valve in the form of a compound differential piston which is exposed to two different pressures, one constant and the other variable, and moved by relative variations between said pressures, and means controlled by said valve for varying the flow of fluid through the turbine.

4. In a turbine operating by stage expansion, a differential controlling-valve for each stage which is automatically adjustable between a constant pressure and a pressure varying with the load and which controls means to regulate the flow of pressure between wheel-compartments.

5. In a turbine operating by stage expansion, a stage controlling-valve exposed to a constant and a variable pressure, and moved by relative variations between said pressures, and a plurality of stage-valves which are opened or closed by the movement of said controlling-valve.

6. In a turbine operating by stage expansion, a controlling piston-valve exposed to a constant and a variable pressure, a row of stage-valves between wheel-compartments, and a relay-power controlled by said piston-valve which actuates said stage-valves.

7. In a turbine operating by stage expansion, a passage for discharging fluid-pressure from a stage, a piston-valve controlling the flow of fluid in said passage exposed to the stage-pressure tending to move it one way, and to a stage-pressure-controlled power tending to move it the other way.

8. In a turbine wherein the pressure of the motor fluid is fractionally converted into velocity, a working passage for said fluid, means disposed at an intermediate point in said passage to open or close it, and pressure-controlled means to intermittently actuate said first-mentioned means.

9. In a turbine operating by stage expansion, a plurality of passages for discharging fluid-pressure from a stage, valves controlling the flow of fluid through said passages, and means sensitive to variations in the pressure of said stage which actuate said valves to control the volume of fluid discharged from said stage.

10. In a turbine operating by stage expansion, a plurality of fluid-conducting passages between stages, a stage controlling-valve exposed to a constant pressure and a stage-pressure and means controlled by said valve to vary the number of said passages delivering fluid between stages.

11. In a turbine operating by stage expansion, a stage-pressure-controlling mechanism comprising a cylinder communicating with the initial pressure and with a stage-pressure, a differential piston therein movable sensitive to variations between said pressures, a plurality of passages for discharging pressure from said stage, and means controlled by said piston for regulating the flow of pressure through said passages.

12. In a turbine, working passages for the motor fluid, means

to vary the flow of the fluid through said turbine, and a governing-valve controlling said means and exposed to internal pressure by which it is adjusted to set operating positions sensitive to variations in said pressure.

13. In a turbine operating by stage expansion, a differential governing-valve which is exposed to two different pressures, one of which is a stage-pressure, and which automatically adjusts itself to a different set operating position upon a temporary variation in the difference between said pressures, and means controlled by said valve to regulate the discharge of fluid-pressure from a stage.

14. In a turbine wherein the pressure of the motor fluid is fractionally converted into velocity, nozzle-passages for the fluid, valves in said passages and means to pulsate said valves subject to a governor control.

15. In a turbine operating by stage expansion, nozzle-passages between stages, a rotating stage-pressure-controlled piston and means controlled thereby which regulates the flow of fluid through a row of said passages, pulsating it in one or more to compensate small variations in the said stage-pressure.

16. In an elastic-fluid turbine, a nozzle-passage delivering fluid-pressure against a rotating element, and a multiported valve controlling the flow of fluid through said nozzle and seated within a diaphragm-partition of said turbine.

17. In an elastic-fluid turbine, a nozzle-passage, and a multiported slide-valve controlling the flow of fluid through said nozzle and seated in an opening disposed in the nozzle-bearing portion and intersecting said passage.

18. In an elastic-fluid turbine, a plurality of nozzle-passages, circular valve-openings intersecting said passages at their contracted portions, a grated shell inserted in said opening, and a multiported valve movable over the grated openings in said shell to control the flow of fluid through said passage.

19. In an elastic-fluid turbine, a nozzle-passage, a valve-shell in said passage having an unobstructed opening toward the inlet end of said passage, and a grated opening toward the discharge end of said passage, and a multiported piston-valve longitudinally movable in said shell.

20. In an elastic-fluid turbine operating by stage expansion, a plurality of concentric rows of working passages for the fluid, and independent rows of valves controlling said rows of passages.

21. In an elastic-fluid turbine, two independent working passages disposed in reverse directions, valves controlling the fluid-supply to said passages, a valve-controlling means, and means to connect either of said valves with said controlling means.

22. In a turbine wherein the pressure of the motor fluid is fractionally converted into velocity, working passages for said fluid, means disposed at intermediate points in said passages, to open or close them, and pressure-controlled means to intermittently actuate a part of said first-mentioned means.

23. In an elastic-fluid turbine, a stage-pressure-governing mechanism comprising means to vary the volume of the fluid discharged from a stage, and a rotating controller device for said means having an eccentric controller portion.

24. In an elastic-fluid turbine, a governing mechanism comprising means to vary the volume of fluid discharged from a stage and a pressure-shifted rotating controlling device acting to intermittently actuate part of said means to pulsate part of said discharge.

25. In a governing mechanism, a plurality of pressure-operated valves controlling the flow of motive fluid, a series of pressure-conducting passages leading to said valves, and a rotating governor-piston which successively opens said passages to the admission of pressure.

26. In a governing mechanism, a plurality of pressure-operated valves controlling the flow of motive fluid, a series of pressure-conducting passages leading to said valves, and a rotating pressure-shifted piston, movable over said passages, to control the admission of pressure thereto and having its controlling portion tapering.

27. In an elastic-fluid turbine, a plurality of independent working passages at different radial distances from the center, valves controlling the fluid-supply to said passages, a valve-controlling means, and means to connect either of said valves with said controlling means.

28. In an elastic-fluid turbine, two or more concentric rows of working passages for the fluid, means to control the flow of fluid in said passages, controlling mechanism and means, interposed between said mechanism and said pressure-controlling means, to place the means controlling the flow of fluid through one of said rows of passages under the control of said device and to disconnect the other controlling means therefrom.

29. In an elastic-fluid turbine having two or more rows of concentric working passages in which the velocity of the fluid is fractionally abstracted, valves controlling the flow of fluid through said passages, a controller device, and means to confine the controlling effect of said device to any desired row of working passages.

30. In an elastic-fluid turbine, a nozzle-passage, a multiported valve-seat inserted in said passage, and a multiported piston-valve movable over said ports.

31. In a governing mechanism, a plurality of pressure-operated valves admitting motor fluid to a wheel-compartment, a series of pressure-conducting passages leading to said valves, and a rotating governor-piston alternately opening part of said passages to a high and an exhaust or condenser pressure.

32. In a fluid-motor, in combination, working passages for the motor fluid, valves therefor which are held in one position by the action of internal pressure, a rotating controller device, and pressure controlled thereby to actuate said valves against said internal pressure.

33. In a fluid-motor, in combination, a working passage for the motor fluid, a valve therefor normally held in one position by the action of internal pressure, and a rotating pressure-controlling means to move said valve from its normal position.

34. In a fluid-motor, in combination, a nozzle-passage for the motor fluid, a valve therefor normally held in one position by the action of pressure within the motor, and a rotating valve controlling the delivery of a superior pressure to actuate said valve.

35. In an elastic-fluid turbine operating by stage expansion, a stage-valve and means to deliver intermittent impulses of actuating fluid to said valve to pulsate the fluid-supply admitted by said valve to a succeeding wheel-compartment.

36. In a turbine, a plurality of groups of working passages, designed to exert different driving effects upon said turbine, independently-actuated valves to vary the flow of motor fluid through said passages, and governing means for said valves actively controlling the flow of fluid in one of said groups of passages, while maintaining said other passages inactive.

37. In a turbine, two or more working passages at different radial distances from the shaft center, and valves for said passages disposed substantially in radial alinement.

38. In a turbine, a plurality of nozzle-passages at different radial distances from the shaft center, a substantially radially disposed valve-seat, and means thereon to control the admission of pressure to said nozzle-passages.

39. In a turbine, a plurality of nozzle-passages at different radial distances from the shaft center, a substantially radially disposed valve-seat and independently-acting valves thereon for said nozzles.

40. In a turbine, a plurality of nozzle-passages at different radial distances from the shaft center, a valve-seat extending substantially radially from the periphery of the nozzle-bearing portion toward the shaft center, and means to control the flow of fluid in one of said passages while maintaining the other closed.

41. In a turbine, concentric rows of nozzle-passages, a valve-seat communicating with a nozzle of each row, valves on said seat controlling the fluid-supply for the passages with which their seat communicates.

42. In an axial-flow turbine having independent rows of working passages, groups of substantially radially disposed fluid-actuated valves for said passages.

43. In a turbine, a plurality of nozzle-passages, a valve-seat intersecting a plurality of said passages and substantially radially disposed, and valves for each nozzle disposed on said seats.

44. In a governing mechanism for turbines, a plurality of turbine-valves, fluid-conducting passages leading to said valves, valve means to close part of said passages and open the rest to a fluid-pressure-controller means, said controller means being adapted to govern the admission of fluid-pressure to said open passages and control the operation of the turbine-valves to which they lead.

45. In a governing mechanism for turbines, concentric rows of working passages, valves therefor, a controller means delivering valve-actuating fluid to a valve-casing, passages leading from said casing to said rows of turbine-valves and means in said casing to direct said valve-actuating fluid to the passages leading to one row of valves by cutting off said fluid from the other row of valves.

46. In a governing mechanism for turbines, concentric rows of working passages, valves therefor, a controller means delivering valve-actuating fluid to a valve-casing, passages leading from said casing to said rows of turbine-valves and means in said casing to direct said valve-actuating fluid to the passages leading to one row of valves and to open the passages leading to said other row of valves to the exhaust-pressure, and means to move said latter row of valves against said exhaust-pressure.

47. In a governing mechanism for turbines having a plurality of concentric rows of working passages, controlling means admitting valve-actuating fluid to a series of passages leading to a valve-casing, a plurality of passages leading to the valves of each of said rows of working passages, and a compound piston-valve in said casing acting to throw said first-mentioned passages into communication with the passages leading to but one of said rows of turbine-valves at a time.

48. In a turbine, a plurality of fluid-actuated valves at different radial distances from the shaft-center, a group of passages leading to said valves, a passage communicating with a source of valve-actuating pressure, and means to open said passage to one of said group.

49. In a turbine, a stationary element, two nozzle-passages leading in reverse directions therethrough and having their contracted portions oppositely disposed, and an opening in said element intersecting said contracted portions, and motor-fluid-controlling means therein.

50. In a turbine, nozzles and rotating buckets forming independent working passages wherein the motor fluid acts with different driving effects upon a rotating element of said turbine, and governor-controlled fluid-actuated valves in said passages.

51. In a turbine, a plurality of nozzle-passages at distances from the shaft-center, valves for said passages, fluid-pressure means to control the action of one or more of said valves at the same radial distance from said shaft-center, and means to maintain said other valves closed.

52. In a turbine, rows of working passages and valves therefor at different distances from the shaft-center, groups of passages conducting fluid-pressure to actuate a series of valves across said rows, means to control said valve-actuating fluid, and means to direct said controlling fluid to the corresponding passage of each group.

53. In a fluid-pressure motor operating by stage expansion, independent working passages designed to exert different driving effects on said motor, and means to maintain one of said passages inactive and to interrupt the flow of motor fluid through the active passage to pulsate it.

54. In a turbine, a plurality of working passages at different distances from the shaft-center, valves in said passages, means to pulsate a valve or valves at a given radial distance from said shaft-center, and means to maintain the valves at other radial distances closed.

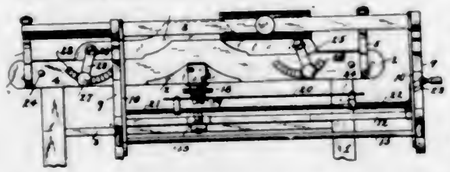
55. In a fluid-pressure motor, independent working passages designed to exert different driving effects on said motor, valves controlling the flow of fluid in said passages, means to maintain a valve in one of said passages closed and to intermittently actuate a valve in the other of said passages.

56. In a reversing-turbine, reversely-disposed nozzles and rotating buckets, and fluid-pressure means to cut off the motor fluid from the nozzles disposed in one direction and to intermittently open one or more nozzles disposed in the opposite direction to pulsate the motor fluid delivered by them to the turbine.

57. In a reversible turbine, nozzles delivering motor fluid against a rotating element to drive it in opposite directions means to close the nozzle or nozzles disposed in one direction, and means to intermittently open one or more of the nozzles disposed in the opposite direction under the control of a governing means.

58. In a turbine, two independent stage-valves controlling the flow of motor fluid through nozzle-passages at different distances from the shaft-center, and a controller means to interrupt the flow of fluid through one of said passages for periods of varying duration, while the other passage is constantly closed.

752,611. TYPE-WRITER CARRIAGE CONSTRUCTION. JAMES ALEXANDER, Brooklyn, N. Y., assignor of one-half to James William Hennessey, Richmond county, N. Y. Filed Feb. 6, 1903. Serial No. 142,177. (No model.)



Claim.—1. A type-writer carriage construction including a back plate, a carriage-plate extending from side to side, pins projecting from one of said plates into recesses in the other, and a spring-pressed arm carried by said back plate and extending over said carriage-plate for holding the two together.

2. A type-writer carriage construction including a back plate, a carriage-plate extending from side to side, pins projecting from one of said plates into a recess in the other, a spring-pressed arm carried by said back plate and extending over said carriage-plate for holding the two together, brackets carried at both ends of said carriage-plate, a guide-rod carried by said brackets, carriage-frames, a bar connecting said frames, and means for slidably mounting said bar on said rod.

3. A type-writer construction including a stationary main back plate, a continuous carriage-plate mounted thereon, a spring-pressed arm for removably holding said plates together, all the remainder of the carriage mechanism being removable with said carriage-plate.

4. A type-writer construction including a main back plate, a carriage-plate extending from side to side and adapted to be mounted on said back plate, a spring-pressed arm pivotally mounted in said back plate and extending over and engaging the said carriage-plate.

5. A type-writer construction including a main back plate, a carriage-plate extending from side to side and adapted to be mounted on said back plate, a spring-pressed arm pivotally mounted in said back plate and extending over and engaging the said carriage-plate, and means for adjustably regulating the pressure of said arm.

6. A type-writer carriage construction including a back plate, a carriage-plate, a carriage structure supported thereby, an inclined cam carried by said carriage-plate, an arm adapted to engage with said cam for adjustably securing said carriage-plate against said back plate.

7. A type-writer carriage construction including a back plate, a carriage-plate mounted thereon, an inclined toothed cam carried by said carriage-plate, and an arm pivotally mounted for engaging the said cam.

8. A type-writer carriage construction including a back plate, a carriage-plate mounted thereon, an inclined toothed cam carried by said carriage-plate, and a spring-pressed arm pivotally mounted for engaging the said cam.

9. A type-writer carriage construction including a back plate, pins carried thereby, a carriage-plate having recesses to correspond to said pins, and a pivoted arm for holding the said plates together.

10. A type-writer carriage construction including a back plate, a carriage-plate extending from side to side supported by said back plate, spring-pressed means for holding the said plates in engagement with one another, a front stationary frame, a carriage structure adapted to be supported by said carriage-plate, a front guide-rail, a roller carried by said stationary frame supporting said rail, and an arm extending in the front of said rail and carrying an upper guide above said rail.

11. A type-writer carriage construction including a back plate, a carriage-plate adapted to be supported thereby and cut away to make allowance for the position of the escapement mechanism, and adjustable spring-pressed means for holding the said plates together.

12. A carriage construction including a back plate, a carriage-plate supported thereby, brackets mounted on said carriage-plate, a guide-rail resting on said brackets, screws for connecting said brackets to said rail said carriage-plate extending from side to side of the machine and adjustable spring-pressed arms for securing said plates together.

13. A carriage construction including a stationary supporting-plate, a carriage-plate, and pivotally-mounted spring-pressed arms for holding said plates together.

14. A carriage construction including a supporting-plate, a carriage-plate mounted thereon, inclined notched cams carried by said carriage-plate and pivoted arms adapted to coact therewith.

15. A carriage construction including a back plate, a continuous carriage-plate, brackets carried thereby for supporting a carriage structure, an inclined notched cam mounted on said carriage-plate at both ends, and spring-pressed pivotally-mounted arms adapted to coact therewith for the purpose specified.

752,612. LOCKING DEVICE FOR PURSES. CHRISTIAN ANDERSEN, St. Louis, Mo. Filed Sept. 17, 1903. Serial No. 173,567. (No model.)

Claim.—1. In a purse, a suitable frame having hinged members adapted to frictionally interlock with one another, and lobes on said members disposed laterally in a plane parallel to the plane of the outer surface or marginal edges of the frame, the lobe of one member overlapping the outer marginal edge of the opposite member, substantially as set forth.

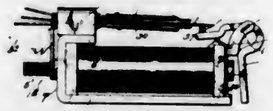
2. In a purse, a suitable frame having hinged members, lobes carried by the respective members and disposed laterally in the plane of the outer surface or marginal edges of the frame, and interlocking devices formed on said lobes, the lobe of one member overlapping the outer marginal edge of the opposite member of the frame, substantially as set forth.



3. In a purse, a suitable frame having hinged members, laterally-formed lobes on the respective members disposed in the plane of the outer or marginal edges of the frame, a nose formed at the free end of one lobe and a corresponding socket or depression formed on the opposite lobe whereby the parts may interlock, the lobe of one member overlapping the outer marginal edge of the opposite member of the frame, substantially as set forth.

4. In a purse, a suitable frame having hinged members, laterally-formed curved lobes on the respective members disposed in the plane of the outer or marginal edges of the frame, a nose formed at the free end of one of the lobes, a corresponding depression being formed in the end of the opposite lobe, the lobe of one member overlapping the outer marginal edge of the opposite member of the frame, substantially as set forth.

752,613. RELAY. ALBERT CARLISS, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation. Filed May 25, 1901. Renewed Dec. 23, 1903. Serial No. 186,414. (No model.)



Claim.—1. A relay having a support or body portion, a block of insulating material mounted upon said body or support, said block being formed with a couple of parallel grooves, a plurality of flat strips or switching-terminals with interposed insulation fitted within said grooves, a magnet and armature, said armature being adapted and arranged to engage one or more of said strips or switching-terminals, a clamping member for holding said strips and interposed insulation in place, and a screw extending through said clamping member and said block of insulation, said screw also extending into said body or support.

2. In a relay, the combination of a body or support, a magnet mounted upon said support, a block of insulation provided with grooves, a set or bundle of superimposed strips or flat springs fitted in each groove, insulation intermediate of said strips or flat springs, the forwardly-projecting end portions of said strips or flat springs serving as contact-pieces, the rearwardly-extending arms or portions of said strips or springs being adapted for connection with circuit-wires, a pivoted armature arranged in front of said magnet and having an arm adapted to engage one or more of said strips or flat springs, a clamping member for holding said strips or flat springs in place, and a connecting member extending through said clamping member and said block of insulation, said block of insulation being rigidly connected with said body or support.

3. A relay comprising a suitable body or support, an electro-magnet mounted upon said body or support, the core of said electro-magnet having an end portion extending through said body or support, said projecting end portion of the magnet-core being threaded, a brass plate secured at the forward end of the relay structure, an armature pivoted to said brass plate and provided with an arm, said brass plate having a projection adapted to serve as a stop for the armature, a plurality of flat springs or contact-strips secured in a block of insulation, said block of insulation being secured to said body or support, said flat springs or contact-strips having flexible projecting portions, and the arm of said armature being adapted to engage one or more of said flexible projecting portions.

4. In a switching device, the combination with a support, of a block of insulation mounted thereon and having parallel grooves, switching-terminals arranged in two series or sets and notched to fit within said grooves, strips of insulation also notched to fit said grooves and placed between the strips and on top of the two series or sets, a clamping-plate having its two edges adapted to bear upon said series or sets, the said plate and block being centrally apertured, a screw adapted to pass therethrough to clamp said plate upon the series or sets of terminals and to secure the whole to the support.

5. The combination with a magnet-coil having terminals projecting therefrom, of a support for the same, metallic strips mounted upon said support, each strip having an arm secured to one of the said terminals, and each strip being adapted for connection with a circuit-wire.

6. The combination with a magnet-coil, of a support therefor, the terminals of said coil being extended through said support, strips of metal rigidly mounted upon said support, each having two arms of each strip, one of said arms being connected with one of said terminals, and the other arm of each strip projecting outwardly in position to be connected with a circuit-wire.

7. The combination with a magnet-shell or magnetic part, of insulated coil-terminals supported therein and projecting therethrough, insulated connecting or terminal strips rigidly supported on said shell or magnetic part, each strip having an integral arm adapted to be soldered to one of said terminals, and each strip having another projecting arm adapted for attachment to a circuit-wire.

8. The combination with a tubular magnet-shell, of coil-terminals projecting through the rear end of said shell and insulated therefrom, connecting terminal-strips supported upon the said shell and insulated therefrom, each strip having an arm connected with one of the said terminals, and each strip having another arm adapted to be connected with a circuit-wire.

9. The combination with a tubular magnet-shell, of coil-terminals projecting through the rear end of said shell and insulated therefrom, an insulating-block upon the side of said shell, said block having parallel grooves, terminal-strips in said grooves, each strip having an arm attached to one of said terminals, and each strip having a rearwardly-projecting portion, switching-strips mounted in said grooves and provided with rearwardly-projecting ends, insulating-strips between said strips, a clamping-plate adapted to bear upon said strips, and means to firmly clamp all of said strips in the support and to the shell.

10. The combination of an armature, a magnet and a support therefor, said support comprising a brass plate having a flat portion centrally apertured to fit over the magnet-core, and having upwardly and outwardly extending ears, a lower arm projecting beyond the magnetic parts of the magnet to prevent the armature from adhering to the magnet, and an upper rearwardly-extending lug between said ears, said armature being pivoted between said ears and having a rearwardly-extending lever adapted to rest upon said lug when the magnet is deenergized.

11. In a relay the combination with a magnet-support and a magnet, switching-terminals mounted on the rear end of said support with their free ends projecting forwardly, an armature for the front end of the magnet, ears on the front end of the magnet projecting beyond the armature, a lever or arm on said armature pivoted between the projecting ends of said ears, said lever or arm extending rearwardly into operative relation with the said free ends of the switching-terminals.

12. The combination with pivot-arms, of an armature pivoted therein, the said arms and armature having registering apertures, and one of the arms having an adjacent aperture, a pivot-pin having a portion passing through the said registering apertures, said pin also having a portion adapted to be passed through the said adjacent aperture.

13. The combination with pivot-arms, of an armature pivoted therein, the said arms and armature having registering apertures, and one of the arms having an adjacent aperture, a pivot-pin having a portion passing through the said registering apertures, and provided with another substantially parallel part having a short bend therein, said substantially parallel part being adapted to be passed through said adjacent aperture and held therein by said short bend.

752,614. CLOSURE. EARLE E. CHAPMAN, Los Angeles, Cal., assignor to Standard Bottle Closure Company, Los Angeles, Cal., a Corporation of California. Filed Mar. 27, 1903. Renewed Nov. 18, 1903. Serial No. 181,738. (No model.)



Claim.—1. In a closure the combination with a vessel having external recesses, a closure having an internal portion provided with

engaging projections, or fingers constructed to enter said recesses when the closure is in position and to be injured or disengaged from the cap by the rotation thereof upon the vessel.

2. In a closure the combination with a vessel having recesses, of a closure having an interior or auxiliary portion retained therein by the deflections of the rim of the closure, said portion being constructed with resilient engaging projections constructed to enter said recesses and to be injured or disengaged from said closure by the rotation thereof on the vessel.

3. In a closure the combination with a vessel having recesses of a closure having an internal or auxiliary portion retained therein by the deflection of the rim of the closure, said portion having integral engaging projections or fingers constructed to enter said recesses and to be twisted or broken off therein by the rotation of the cap.

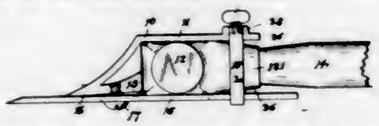
4. In a closure the combination with a vessel having external recesses of a closure having an auxiliary portion carrying engaging fingers or projections to enter said recesses and to be twisted or broken off therein by the rotation of the closure.

5. In a closure the combination with a vessel having recesses of a closure having an internal ring or band carrying engaging projections or fingers constructed to enter said recesses and to be twisted or broken off therein by the rotation of the closure.

6. In a closure the combination with a vessel having external recesses, of a cap or cover having a band or ring carrying integral engaging projections or fingers constructed to enter said recesses and to be twisted or broken off therein by the rotation of the cap or cover.

7. In a closure the combination with a vessel having recesses in the neck thereof arranged in different planes, of a cap or cover having an internal portion carrying engaging fingers or projections arranged in different planes and in the same relation and position as said recesses and constructed to engage the latter and to be broken off therein by the rotation of the cap on the vessel.

752,615. SHINGLING-TOOL. EUGENE H. COKEFAIR, Glenridge, N. J., assignor to Cokefair and Cadmus, Glenridge, N. J., a Firm. Filed Nov. 30, 1903. Serial No. 183,143. (No model.)



Claim.—1. The improved shingling implement herein described, comprising a body having a side bearing for a hammer-head, a back bearing therefor and a blade-bearing arranged near said back bearing, a blade adjustably arranged on said body and adapted to engage the side of the hammer-head opposite the said side bearing, and a clamp for setting the said implement on the hammer.

2. The improved shingling implement herein described, comprising a body providing a side bearing for a hammer-head, a back bearing for the same and a bearing for a blade, a blade, means for adjustably fastening the blade on its bearing, and means for clamping the body and blade on the hammer-head, substantially as set forth.

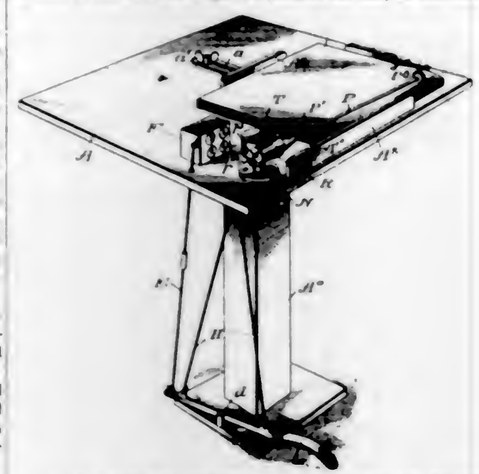
3. The improved shingling implement herein described, comprising a body providing a side bearing for a hammer-head, a back bearing for the same, an incline for guiding the cuttings and a bearing for a blade, a blade, means for adjustably fastening the blade on its bearings, and means for clamping the body and blade on the hammer-head, substantially as set forth.

4. In a shingle-cutting implement, the body having an extension 11, for the side of the hammer-head and a bearing near one end of said extension to engage the back of the hammer, a blade-bearing and an inclined surface extending from said blade-bearing, and means for fastening a cutting-blade to said body, substantially as set forth.

752,616. SHEET LIFTING AND COUNTING DEVICE. JOHN W. DARLEY, Jr., Baltimore, Md., assignor of one-half to David E. Evans, Philip Hamburger, Leon Hamburger, and Michael Holzman, Baltimore, Md. Filed Oct. 29, 1903. Serial No. 179,085. (No model.)

Claim.—1. In a sheet-lifter, the combination with a moving adhesive finger, of means for producing a substantially uniform pressure of said finger on the sheets, and means for superposing a pressure on said finger which pressure increases as the resistance to motion of said finger increases, substantially as described.

2. In a sheet-lifter, the combination with a rotary adhesive finger acting under initial pressure on the sheet, and means for superposing a pressure on said finger which pressure increases as the resistance to motion of said finger increases, substantially as described.



3. In a sheet-lifter, the combination with a rolling rod provided with an adhesive finger adapted to engage the leaf, of a spring normally pressing said finger on said leaf, and means for superposing a pressure on said finger which pressure increases as the resistance to rotation of said finger increases, substantially as described.

4. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger, down on the paper, and means for rotating said rod, substantially as described.

5. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing for rotating said rod, substantially as described.

6. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing adapted to rotate said rod and at the same time to press said fingers more firmly on the paper when the adhesive finger encounters resistance in rotation, substantially as described.

7. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, a spring engaging said sleeve, and pressing said finger down on the paper means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said pinion, and adapted to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said pinion, substantially as described.

8. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, and provided with an annular collar, a spring engaging said annular collar, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said worm and adapted to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said worm-wheel, substantially as described.

9. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing for rotating said rod, having its teeth so disposed as to press said finger down on the paper in conjunction with said spring with increasing pressure as the said finger encounters resistance to rotation, substantially as described.

10. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, means for adjusting the tension of said spring, and spiral gearing for rotating said rod, having its threads so disposed as to press said finger down on the paper in conjunction with said spring with increasing pressure as the said finger encounters resistance to rotation, substantially as described.

11. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, means for adjusting the tension of said spring, and spiral gearing adapted to rotate said rod and having the engaging teeth so disposed as at the same time to press said finger more firmly on the paper when the adhesive finger encounters resistance in rotation, substantially as described.

12. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, a spring engaging said sleeve, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said worm, said pinion and gear having their threads so disposed as to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said spiral gear intermittently in the same direction, substantially as described.

13. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying one end of an adhesive finger, a sleeve loosely mounted on said rod, and provided with an annular collar, a spring engaging said annular collar, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said worm, said pinion and gear having their threads so disposed as to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said worm-wheel intermittently in the same direction, substantially as described.

14. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing adapted to rotate said rod and at the same time to press said finger more firmly on the paper when the adhesive finger encounters resistance in rotation, a counter, and mechanism for driving said spiral gearing, and for simultaneously operating said counter, substantially as described.

15. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, a spring engaging said sleeve, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said pinion, and adapted to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, a counter, and means for simultaneously rotating said worm-wheel, and operating said counter, substantially as described.

16. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, and provided with an annular collar, a spring engaging said annular collar, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said worm and adapted to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, a counter, and means for rotating said worm-wheel, and for simultaneously operating said counter, substantially as described.

17. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, and spiral gearing for rotating said rod, having its teeth so disposed as to press said finger down on the paper with increasing pressure as the said finger encounters resistance to rotation, and means for rotating said worm-wheel intermittently in the same direction, substantially as described.

18. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, means for adjusting the tension of said spring, a spiral gear for rotating said rod, having its teeth so disposed as to press said finger down on the paper in conjunction with said spring with increasing pressure as the said finger encounters resistance to rotation, and means for rotating said spiral gear intermittently in the same direction, substantially as described.

19. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, means for adjusting the tension of said spring, spiral gearing adapted to rotate said rod and having the engaging threads so disposed as at the same time to press said fingers more firmly on the paper when the adhesive finger encounters resistance in rotation, and means for operating said worm-gearing, comprising a drum, a ratchet-and-pawl arrangement, connecting said drum to said worm-gearing, cords rove over said drum, and means for hauling on said cords in reverse directions, substantially as described.

20. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying at one end an adhesive finger, a sleeve loosely mounted on said rod, a spring engaging said sleeve, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said pinion, said pinion and gear having their teeth so disposed as to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said gear, comprising a drum, a ratchet-and-pawl arrangement, connecting said drum to said worm-gearing, cords rove over said drum, and means for hauling on said cords in reverse directions, substantially as described.

21. In a sheet-lifter, the combination with a casing, of a rod fulcrumed in said casing and carrying one end of an adhesive finger a sleeve loosely mounted on said rod, and provided with an annular collar, a spring engaging said annular collar, and pressing said finger down on the paper, means for holding said rod against lateral vibration, a spiral pinion on said rod, a spiral gear engaging said worm, said pinion and gear having their teeth so disposed as to press said finger down on said paper in conjunction with said spring when said finger encounters resistance to rotation, and means for rotating said gear, comprising a drum, a ratchet-and-pawl arrangement, connecting said drum to said worm-gearing, cords rove over said drum, and means for hauling on said cords in reverse directions, substantially as described.

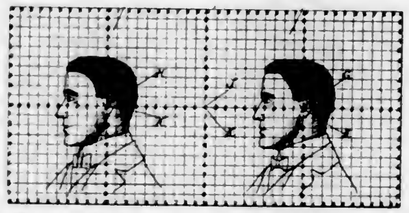
22. The combination with a fulcrumed rod adapted to swing vertically about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing adapted to rotate said rod at the same time to press said finger more firmly on the paper when the adhesive finger encounters resistance in rotation, a counter, a treadle, and mechanism operated by said treadle for driving said spiral gearing, and simultaneously operating said counter, substantially as described.

23. The combination with a fulcrumed rod adapted to swing about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and means for rotating said rod, substantially as described.

24. The combination with a fulcrumed rod adapted to swing about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing for rotating said rod, substantially as described.

25. The combination with a fulcrumed rod adapted to swing about its fulcrum, of an adhesive finger carried by said rod, a spring normally pressing said finger down on the paper, and spiral gearing adapted to rotate said rod and at the same time to press said fingers more firmly on the paper when the adhesive finger encounters resistance in rotation, substantially as described.

752,617. METHOD OF IDENTIFICATION. FRANK H. DE PUE, San Francisco, Cal. Filed May 31, 1902. Serial No. 109,584. (No model.)



Claim.—1. The method of identification consisting in projecting the picture of a known subject onto a smooth surface, projecting a picture of a suspected subject onto an associated smooth surface, relatively adjusting the projections to substantial uniformity as to size and angular position and taking relative measurements of the projected pictures.

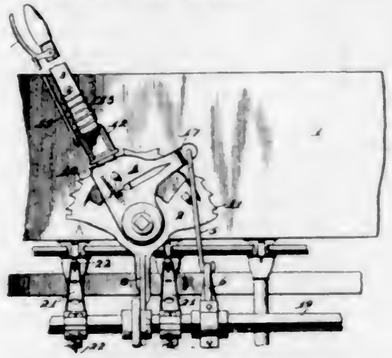
2. The method of identification consisting in projecting the picture of a known subject onto a screen, projecting a picture of a suspected subject onto a screen, relatively adjusting the projections to substantial uniformity as to size and angular position, taking relative measurements of the projected pictures, and superimposing the adjusted projections.

3. A method of identification which consists in comparing a photograph of a known subject with a photograph of the subject to

be identified by projecting the photograph of the known subject onto a ruled screen, projecting the photograph of the subject to be identified onto a similar ruled screen, bringing the projected images to the same scale and a similar point on each to a like center on its ruled surface, and taking off and comparing the several measurements from such center of the two images.

4. A method of identification which consists in comparing a photograph of a known subject with a photograph of the subject to be identified by projecting the photograph of the known subject onto a ruled screen, projecting the photograph of the subject to be identified onto a like ruled screen whose ruled lines are parallel with the corresponding ruled lines of the first-mentioned ruled screen; bringing the projected images to the same scale and a similar point on each to a like center on its ruled surface, so that each image occupies the same relative position to the lines on its screen as the other, and taking off and comparing the several measurements taken from such center of the two images.

752,618. ADJUSTING MECHANISM FOR GRAIN-DRILL FURROW-OPENERS. WILLIAM FETZER, Middletown, Ohio. Filed Aug. 29, 1903. Serial No. 171,286. (No model.)



Claim.—1. In a grain-drilling machine, a supporting-frame, a hopper extending transversely thereof, furrow-openers, a rack on said hopper, a lever pivotally supported to swing transversely of said machine, and means connected therewith for raising and lowering said furrow-openers.

2. In a grain-drill, a hopper, furrow-openers, and means for lifting and depressing the furrow-openers, comprising a lever pivotally mounted upon said hopper, and movable in a plane parallel with the longitudinal axis of the said hopper, and a connection between said lever and said furrow-openers.

3. In a grain-drill provided with a hopper, mechanism for raising or depressing the furrow-openers thereof comprising a lever pivoted upon a transverse wall of the hopper of the drill so that said lever will drop behind the same out of the way when depressed in either direction, and means for holding it in such depressed position.

4. In a grain-drill, a hopper, extending transversely thereof, furrow-openers, mechanism for raising or depressing said furrow-openers comprising a lever fulcrumed on a longitudinal wall of said hopper, a bell-crank carried thereby, a rock-shaft for moving the furrow-openers and means connecting the bell-crank positively with the rock-shaft.

5. A mechanism for lifting or depressing the furrow-openers of a grain-drill, comprising a lever pivoted upon the hopper of the drill, and adapted to swing transversely of the drill, a rack also secured to the hopper, a latch carried by the lever for engaging the said teeth and means for communicating motion from the lever to the furrow-openers.

6. A mechanism for raising or depressing the furrow-openers of a grain-drill comprising a lever pivoted to one side of the hopper of the grain-drill, a bell-crank carried by said lever, a rock-shaft for moving the furrow-openers, an arm secured to the rock-shaft and a link connecting the bell-crank with the said arm.

7. A means for lifting and depressing furrow-openers for grain-drills comprising a lever pivoted to swing transversely of the drill, a plate pivoted adjacent to the lever, an arm projecting laterally from the said plate, means connecting the plate with the lever and means connecting the arm of the plate with the furrow-opener-operating mechanism.

8. A lifting and depressing means for grain-drill furrow-openers comprising a lever, a shaft carrying the same and mounted longitudinally of the planter, a plate provided with a lateral arm and rigidly secured to the lever, a rock-shaft for controlling the furrow-openers, an arm projecting therefrom and a link pivotally connecting the plate-arm with the rock-shaft arm.

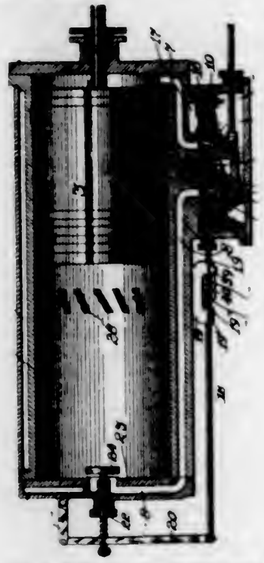
9. A lifting and depressing mechanism for grain-drill furrow-openers comprising a shaft arranged longitudinally of the drill, a lever mounted thereon, a bell-crank lever secured to the said operating-lever and connected with the furrow-opener mechanism, a rack secured to the hopper of the grain-drill, an arm projecting therefrom and engaging the framing of the drill to brace the said rack and a sleeve-dog carried by the operating-lever for engaging the said rack.

10. In a grain-drill, a hopper, furrow-openers, lifting and depressing mechanism for said furrow-openers comprising an operating-lever, adapted to swing transversely thereof, means secured to one side of the lever for operating the furrow-openers and means upon the other side of the lever for holding the lever in its different adjusted positions.

11. A mechanism for lifting and depressing the furrow-openers of drills comprising a lever arranged to swing transversely of the drill, means carried thereby for lifting and depressing the furrow-openers and means for holding the lever against rising when depressed in either direction.

12. A mechanism for raising and depressing the furrow-openers of grain-drills, comprising a lever mounted directly upon the hopper of the drill and arranged to swing transversely of the carrying-frame and means connecting the lever with the furrow-openers.

752,619. COMBINED STEAM AND EXPLOSION ENGINE. WILLIAM D. GARDNER, Washington, Pa. Filed Apr. 3, 1903. Serial No. 151,596. (No model.)



Claim.—1. In an engine of the character described, the combination of a cylinder having a piston adapted to operate within the same, a steam-chest located adjacent to said cylinder, a compression-chamber located adjacent to said cylinder, ports leading from said chest to either end of said cylinder, a slide-valve adapted to operate in the usual manner when said engine is running under fluid-pressure, a plate interposed between said ports and slide-valve whereby said ports may be cut off from communication with said steam-chest, a port leading to the rear of the cylinder being provided with a valve for cutting off communication between said cylinder and steam-chest, the port leading to the forward end of said cylinder being connected with the port leading to the compression-chamber when the plate interposed between said slide-valve and said ports is in one of its positions, said compression-chamber having a port communicating with the rear of the cylinder when the piston is in its forward position, a spring-held valve being connected with said compression-

chamber to permit the mixture to be drawn into the same, means for adjusting the pressure of said spring, an exhaust-port communicating with the rear of said cylinder when the piston is near the end of its forward stroke, a valve in said exhaust adapted to be open when the engine is running as an explosive-engine and closed when the same is running as a fluid-pressure engine, and a lever adapted to operate said valve, said means also operating the valve in the port connecting the rear of the cylinder with the steam-chest, and also operating the plate interposed between the slide-valve and the port which it controls, and means whereby the lever is held in one of its two positions, substantially as described.

2. In an engine of the character described, the combination of a cylinder having a piston adapted to operate in the same, a steam-chest located adjacent to said cylinder and having ports connecting it with either end of the cylinder, a slide-valve adapted to control the same, a spring-held plate carried by the yoke interposed between the said slide-valve and said ports, said plate in one of its positions cutting off communication between said ports and the steam-chest and said yoke in one of its positions connecting the port leading to the forward end of the cylinder with the port leading to the compression-chamber located adjacent the said cylinder, said compression-chamber having a spring-held inlet-valve and a port connecting the same with the rear end of the cylinder, an exhaust for the rear end of the cylinder being open when the same is running as an explosive-engine, a piston operating within said cylinder forming a means of controlling said port leading from the compression-chamber to the cylinder and said exhaust-port, a rod connecting the yoke carrying the plate interposed between the slide-valve and its ports, said rod being connected with the valve adapted to close the port leading from the steam-chest to the rear of the cylinder and also being connected with a valve interposed in the exhaust connected with the rear of the cylinder whereby by moving the said rod, the different parts are so actuated that the engine may be changed from fluid-pressure to an explosive engine, substantially as described.

3. In an engine of the character described, the combination with the cylinder and the steam-chest, said cylinder having ports communicating with its opposite end and with the steam-chest, a compression-chamber provided with air and gas inlets, ports leading from said chamber, one communicating with the cylinder and the other with the steam-chest, a slidable plate formed with openings adapted to simultaneously register with the first-named ports, and with a steam-exhaust port, a piston operating in said cylinder, a spring-pressed valve controlling the inlets of said compression-chamber, a valve mounted in the end of the cylinder for controlling the port thereof, means for simultaneously moving said last-named valve and said plate, said plate when moved to one position permitting one of the compression-chamber ports to communicate with one of the first-named ports, an exhaust for the cylinder, a valve for controlling the same, and a slide-valve acting in conjunction with said plate, substantially as described.

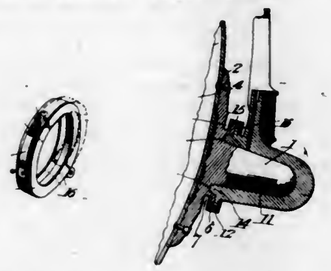
4. In combination with the cylinder formed with gas and steam inlet and outlet ports, a piston operating in said cylinder, a steam-chest, a slidable plate arranged in said chest and being formed with openings adapted to register with said steam inlet and outlet openings, and with a cut-out portion adapted to establish communication between one steam-inlet opening and one of the gas-inlet openings, a valve controlling the other steam-inlet opening, a slide-valve cooperating with the openings of said plate, means for simultaneously operating said plate and said inlet-valve, and independent valves for controlling the gas inlet and outlet ports.

5. In combination with the cylinder formed with gas and steam inlet and outlet ports, the piston, and a compression-chamber through which the mixed air and gas passes, a port leading from said chamber to a point adjacent one of the steam-inlet ports, means for establishing communication therebetween, means for controlling all of the inlet and outlet ports, and means for changing the condition of the engine whereby the same will be changed from a fluid-pressure to an explosive engine.

6. In combination with the cylinder formed with steam and gas, inlet and outlet ports, means for controlling said gas inlet and outlet ports, means for controlling said steam-ports including a valve mounted in one of the cylinder ends, a slidable plate formed with openings alining with the steam inlet and outlet ports, a slide-valve cooperating therewith, and means for simultaneously operating said plate and valve.

752,620. DISK-BEARING. CLEMENT A. HARDY, La Crosse, Wis., assignor to Albert Hirshheimer, La Crosse, Wis. Filed Oct. 31, 1903. Serial No. 179,351. (No model.)

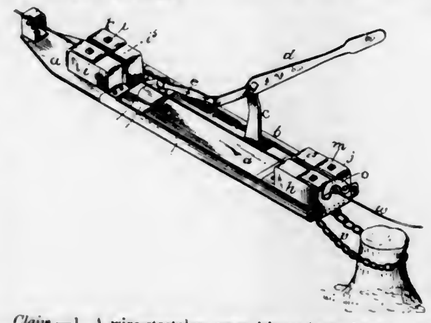
Claim.—1. A disk-axle having an annular, annularly-grooved flange disposed about and at a distance from the base thereof, in combination with a bearing extending into the space between the axle member and its surrounding flange and provided with a flange contacting with said annular flange, and connecting means consisting of a flanged ring engaging the flanges of the axle.



2. A disk-axle comprising an axle member and an annular flange surrounding and spaced from the base of said axle member and having an outwardly-projecting edge overhanging an annular groove, in combination with a bearing for said axle member extending into the space between the base of said axle member and the surrounding flange, said bearing being provided with an engaging flange, and connecting means engaging the flanges of the axle member and the bearing member.

3. A disk-axle comprising a base member or collar having a projecting axle member and an overhanging annular flange surrounding and spaced from the base of said axle member, a bearing member having its inner end extended into the space between the axle member and the surrounding annular flange, said bearing member being provided at a distance from its inner edge with an exterior annular flange, and connecting means for the flanges upon the axle member and the base member, whereby the former is independently revoluble.

752,621. WIRE OR CABLE STRETCHER. MATHIAS HUERTH and OTTO F. OLSON, Oregon City, Oreg. Filed Mar. 11, 1903. Serial No. 147,306. (No model.)

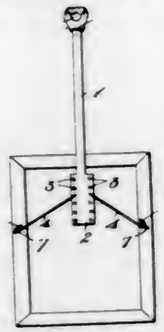


Claim.—1. A wire-stretcher, comprising a base-plate, provided with ways *b*, *b*, a plate *g*, sliding in said ways, and having mounted thereon a pair of spring-controlled cams *p*, *p'*; a box inclosing the same and provided with a longitudinal slot through which to insert the wire; a standard *c*, a lever pivoted thereto; a connection between such lever and the plate *g*; a second pair of spring-controlled cams *s*, *s'*, a box inclosing the same, and provided with a longitudinal slot in which to insert the wire; means for holding the wire against being pulled upwardly from between said cams, and means for securing the wire-stretcher to a fixed support, substantially as set forth.

2. A wire-stretcher, comprising a base-plate provided with ways *b*, *b*, a plate *g*, sliding in said ways, and having mounted thereon a pair of spring-controlled cams *p*, *p'*; a box *i*, inclosing the same and provided with a longitudinal slot through which to insert the wire; a standard *c*, a lever pivoted thereto; a connection between such lever and the plate *g*; a second pair of spring-controlled cams *s*, *s'*, a box *h*, inclosing the same, and provided with a longitudinal slot in which to insert the wire; means for holding the wire against being pulled upwardly from between said cams; an ear *u'*, a chain *v*, and a fork *u*, substantially as set forth.

3. A wire-stretcher, comprising a base-plate provided with ways *b*, *b'*; a plate *g*, sliding in said ways and having mounted thereon a pair of spring-controlled cams *p*, *p'*; a box *i*, inclosing the same, and provided with a longitudinal slot through which to insert the wire; a standard *n*, and a pulley *n'*, journaled therein adapted to hold the front end of the wire against being pulled upwardly from between said cams *p*, *p'*; a standard *c*, and a lever pivoted thereto; a connection between said lever and the plate *g*; a second pair of spring-controlled cams *s*, *s'*; a box *h*, inclosing the same and provided with a longitudinal slot in which to insert the wire; means for holding the back end of the wire against being pulled upwardly from between said cams *s*, *s'*; an ear *u'*, a chain *v*, and a fork *u*, substantially as set forth.

752,622. PICTURE-HANGER. GEORGE M. KITTEMILLER, Norfolk, Va., assignor of two-thirds to James H. Wool and Moses G. Nusbaum, Norfolk, Va. Filed Nov. 3, 1903. Serial No. 179,719. (No model.)



Claim.—1. In a picture-hanger, the combination with a metallic strip provided at its lower end with two vertical series of perforations and at its upper end with means for engaging a picture-support, of two rods provided at their opposite ends with reversely-bent hooks arranged at one end to interchangeably engage the said perforations and at their other ends to engage suitable attachments on the picture-frame, substantially as described.

2. In a picture-hanger, the combination with a metallic strip the lower end of which is enlarged and provided with two vertical parallel series of perforations, the perforations of one series being in horizontal alinement with the perforations of the other series, said strip at its upper end being provided with means for engaging a picture-support, of two rods provided at their opposite ends with reversely-bent hooks arranged at one end to interchangeably engage the said perforations and at their other ends to engage suitable attachments on the picture-frame, substantially as described.

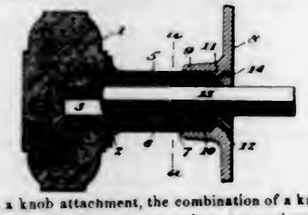
3. A picture-hanger comprising a metallic strip provided with means at its lower end for adjustably connecting it to a picture-frame and at its lower end with a combined hook and eye consisting of an apertured plate bent at its end to form a hook, the edge of the hook being notched, substantially as and for the purpose specified.

4. In a picture-hanger, a metallic strip provided at its lower end with means for connection to a picture-frame and at its upper end with a combined hook and eye comprising a metallic plate bent reversely upon itself to form a hook adapted to engage a wall-molding and having formed in its body an aperture to permit the plate being suspended from a nail, said hook having a horizontal slot formed in its lower edge and the upper end of said strip being passed through said slot and bent back upon itself to form a hinged connection between the hook and said strip, substantially as described.

5. In a picture-hanger, a metallic strip provided at its lower end with two vertical series of perforations, two rods provided at their opposite ends with reversely-bent hooks arranged at one end to interchangeably engage the said perforations and at their other ends to engage suitable attachments on the picture-frame, the strip being made in two parts overlapping one another at their adjacent ends, means for adjustably connecting said overlapping ends, and means at the upper end of the strip for engaging a picture-support, substantially as described.

752,623. KNOB ATTACHMENT. PETER LA BELLE, Anderson, Ind. Filed Oct. 16, 1902. Serial No. 127,574. (No model.)

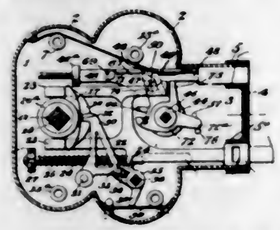
Claim.—1. In a knob-attaching device, the combination of a knob having a shank, a plate adapted for attachment to a door or the like and formed with an opening, a coupling member passed through the opening in said plate and having an enlargement adapted to engage the rear face of said plate, said coupling member being adapted for rotation relative to the knob-shank for attaching it to and detaching it from said knob-shank, and a knob-spindle passed through the coupling member and having means engaged therewith and with the knob-shank to hold said parts against independent turning movement relative to each other, substantially as set forth.



2. In a knob attachment, the combination of a knob having its shank formed with a bore of rectangular cross-sectional form, a plate for attachment to a door or the like and provided with an opening, a coupling member also formed with a bore of rectangular cross-sectional form and passed through the opening in said plate and provided with a head upon the rear face thereof, said coupling member being adapted for rotation relative to the knob-shank for attaching it to and detaching it from said knob-shank, and a knob-spindle of rectangular cross-sectional form passed through and arranged to fit in the bores of the knob-shank and of the coupling member, to hold said parts against relative turning movement, substantially as set forth.

3. In a knob attachment, the combination of a knob having a shank formed with a bore of rectangular cross-sectional form, a plate for attachment to a door or the like and provided with an opening and with a raised boss surrounding said opening, and with a recess on its rear side concentric with and of greater diameter than said opening, a coupling member also formed with a bore of rectangular cross-sectional form and passed through the opening in the plate and having an enlargement held to turn in the recess on the rear side thereof, said coupling member being adapted for rotation relative to the knob-shank for attaching it to and detaching it from said knob-shank, and a knob-spindle of rectangular cross-sectional form passed through and arranged to fit in the bores of the knob-shank and of the coupling member to hold said parts against turning movement, substantially as set forth.

752,624. LOCK. PETER LA BELLE, Anderson, Ind. Filed Oct. 16, 1902. Serial No. 127,575. (No model.)



Claim.—1. In a lock, the combination of a casing adapted to be contained in an opening in a door-stile or the like, an escutcheon-plate adapted to be extended above said opening and screws collared in the escutcheon-plate and having threaded engagement with the lock-casing and adapted, when turned, to move the casing toward and from the escutcheon-plate, substantially as set forth.

2. In a lock, the combination of a casing adapted to be contained in an opening in a door-stile or the like, a bolt movable in the casing, means for moving the bolt, an escutcheon-plate adapted for attachment to the door over the opening therein, said lock-casing being adjustable toward and from the escutcheon-plate, and a button collared in the escutcheon-plate and provided with a stem operatively engaged with the bolt-moving means, substantially as set forth.

3. In a lock, the combination of a casing adapted to be contained in an opening in a door-stile or the like, a bolt movable in the casing, a socketed part held for movement in the casing and operatively connected with the bolt for moving the same, an escutcheon-plate adapted for attachment to the door over the opening therein and a button collared on the escutcheon-plate and provided with an angular stem having a detachable engagement with the socketed part in the casing, substantially as set forth.

4. In a lock, the combination of a casing adapted to be contained in an opening in a door-stile or the like, a bolt movable in the casing, a socket part held for movement in the casing and operatively connected with the bolt for moving the same, an escutcheon-plate adapted for attachment to the door over the opening therein, screws collared on the escutcheon-plate and having threaded engagement with the lock-casing for adjustment of the casing toward and from the escutcheon-plate and a button also collared on the escutcheon-plate and provided with a stem having a detachable, sliding engagement with the socketed part in the casing, substantially as set forth.

5. In a lock, the combination of a casing, a latch-bolt movable in the casing, knob-spindles adapted for independent turning movement and for connection with knobs at opposite sides of the casing and having operative connection with the latch-bolt for moving the same, a detent device for holding one of the spindles against turning movement, and a retractive button movable relatively to the casing and operatively connected with the detent device, substantially as set forth.

6. In a lock, the combination of a casing, a latch-bolt movable therein, knob-spindles adapted for turning movement independent one of the other and adapted for connection with knobs at opposite sides of the casing, cams on the respective spindles and provided with cam-surfaces engaged with the latch-bolt for moving the same, and one of said cams being formed with a notch, a dog pivoted in the casing and adapted for engagement with the notched cam, a tumbler movable in the casing and having an arm connected with and arranged to move the dog into and out of engagement with the cam, and a rotative button having operative connection with the tumbler to move the same, substantially as set forth.

7. In a lock, the combination of a casing, a latch-bolt movable therein, knob-spindles adapted for independent turning movement and for connection with knobs at opposite sides of the casing and having operative connection with the latch-bolt for moving the same, a detent device for holding one of the spindles against turning movement, a tumbler pivoted in the casing and having two arms one of which has engagement with the detent and a spring held at its ends in the casing and having its central part engaged by the other arm of the tumbler, substantially as set forth.

8. In a lock, the combination of a casing, a locking-bolt movable therein, a latch-bolt also movable therein, a button at one side of the casing and operatively connected with and arranged to move the locking-bolt, a knob-spindle operatively connected with and arranged to operate the latch-bolt and key-actuated mechanism located at the other side of the casing and connected with and arranged to operate both of said bolts, substantially as set forth.

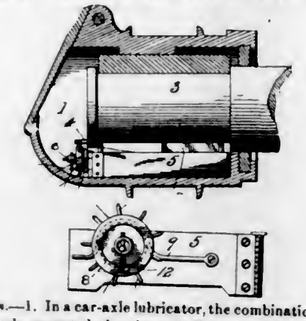
9. In a lock, the combination of a casing, a bolt movable therein a cylinder mounted to turn and provided with a key-slot and with peripheral grooves intersecting said key-slot and having tumblers mounted for endwise movement along the closed edge of said slot, a casing inclosing said cylinder and formed with openings to receive the outer ends of said tumblers, spring-pressed tumblers in said openings in the casing in position for engagement with the cylinder-pins held to the cylinder-casing with portions extended in the peripheral casing-grooves, means for operating the latch-bolt from said cylinder when turned, and a key adapted for insertion in the cylinder and having notches arranged to coincide with the peripheral grooves in the said cylinder, substantially as set forth.

10. In a lock, the combination of a casing, a latch-bolt held for sliding movement therein, and provided with a recess in its extremity, a swinging part held for pivotal movement at the end of said latch-bolt and adapted, when moved in one direction, to be housed within said recess and when moved in an opposite direction, to be extended beyond the end of the latch-bolt, a shoulder on said latch-bolt and a shoulder on said swinging portion and adapted, when said portion is protruded from the extremity of the latch-bolt, to be engaged with the shoulder thereon to limit the outward movement of said swinging portion, substantially as set forth.

11. In a lock, the combination of a casing, a latch-bolt movable therein, a locking-bolt also movable in the casing, a key-cylinder mounted to turn at one side of the casing and having a projection within the casing arranged for engagement with the locking-bolt to throw the same, a sleeve within the casing and having at one end a bearing on the key-cylinder and at the other end a bearing in the casing, said sleeve having an arm connected with the locking-bolt to operate the same, a button for moving said sleeve and a cam having a finger adapted for engagement with the latch-bolt to move the same, said cam being held to turn on the sleeve and having an arm arranged in the path of the projection carried by the key-cylinder, substantially as set forth.

12. In a lock, the combination of a casing, a latch-bolt movable therein, a knob-spindle having means actuated from it for moving the latch-bolt, a locking-bolt also movable in the casing, a button at one side of the casing and having means operated from it to actuate said latch-bolt and a key-cylinder at the opposite side of the casing and having means actuated from it to move both the latch-bolt and locking-bolt, substantially as set forth.

752,625. CAR-AXLE LUBRICATOR. CHARLES LAUNER, Fitzgerald, Ga. Filed Feb. 18, 1903. Serial No. 143,917. (No model.)



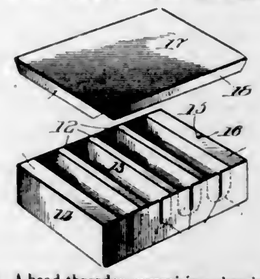
Claim.—1. In a car-axle lubricator, the combination of the axle-box, the axle mounted therein, a shaft mounted in said box below the axle, oppositely-disposed oil-feeding paddles carried by said shaft, and means connected with the paddle-shaft and intermittently actuated by the rotation of the axle for intermittently rotating the paddles, substantially as described.

2. In a car-axle lubricator, the combination of the axle-box, the axle therein, a rectangular frame disposed beneath said axle, a shaft mounted in said frame, oppositely-disposed oil-feeding paddles carried by said shaft, a disk upon the outer end of said shaft, a brake engaging said disk, and means on said shaft coöperating with means on the axle for intermittently rotating said paddles.

3. In a car-axle lubricator, the combination of the axle-box, the axle therein, a rectangular frame disposed beneath said axle, a shaft mounted in said frame, oppositely-disposed oil-feeding paddles carried by said shaft, a disk upon the outer end of said shaft, a brake engaging said disk, means on said shaft coöperating with means on the axle for intermittently rotating said paddles, levers, and a roller carried thereby and serving as an oil-distributer.

4. In a car-axle lubricator, the combination of the axle-box, the axle therein, a rectangular frame disposed beneath said axle, a shaft mounted in said frame, oppositely-disposed oil-feeding paddles carried by said shaft, a disk upon the outer end of said shaft, a brake engaging said disk, means on said shaft coöperating with means on the axle for intermittently rotating said paddles, levers, and a roller carried thereby and serving as an oil-distributer, said levers being connected at one end to the said shaft and pivoted adjacent said shaft, the said shaft being movable with the levers.

752,626. BEAD-THREADER. PRENTIS E. LAW, Wilmette, Ill. Filed Nov. 16, 1903. Serial No. 181,426. (No model.)



Claim.—1. A bead-threader, comprising a box having a bottom, sides and ends, and provided with a slit in its side extending through

the upper edge thereof, said slit being of such width as to receive a needle, and prevent egress of the beads.

2. A bead-threader comprising a box divided into compartments and having a slit in its side extending through the upper edge thereof opposite the end of each compartment to receive a needle.

3. A bead-threader box comprising a filler forming the bottom, and a frame inclosing the sides and ends of the filler and detachably connected therewith and provided with a slit in its side extending through its upper edge.

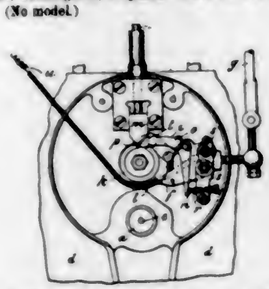
4. A bead-threader box comprising a filler forming the bottom and partitions dividing the box into compartments and having a slit, and a frame formed of a single strip shaped to inclose the sides and ends of the box, said frame having its ends bent to enter said slit in the filler and provided with a slit extending through its upper edge at the end of each compartment.

5. A bead-threader box comprising a filler forming the bottom, and partitions dividing the box into compartments and having a slit, a frame formed of a single strip and shaped to snugly inclose the sides and ends of the box and having its ends bent inwardly to enter said slit and provided with a slit extending through its upper edge at the end of each compartment, and a top to fit on the box against the top edge of the frame and the partitions of the filler.

6. A bead-threader comprising a box provided at one side with a slit extending through its upper edge and having an opening to disclose its contents, and transparent material covering said opening.

752,627. CONTROLLING MEANS FOR EXPLOSION-MOTORS.

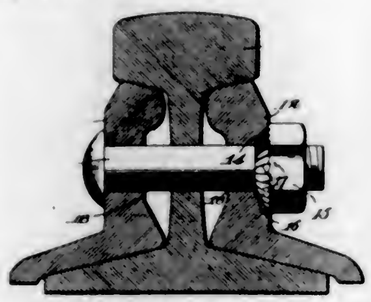
WALTER J. LLOYD, Birmingham, England, assignor of one-half to William Priest, Birmingham, England. Filed Nov. 3, 1902. Serial No. 129,925. (No model.)



Claim.—1. In a motor-cycle, the combination with an explosion-chamber; of a rotary cam, an exhaust-valve for said explosion-chamber, controlling means for said exhaust-valve actuated by said rotary cam, a rotary gapped flange, an angularly-adjustable commutator-plate adjacent to said gapped flange, means for operating said commutator-plate, a projection on said commutator-plate arranged to engage the controlling means for said exhaust-valve, a contact-point on said commutator-plate, a contact-lever pivoted on said commutator-plate and bearing at one end against said gapped flange, means for moving the contact end of said lever into engagement with said contact-point, when the opposite end thereof enters the gap in said gapped flange, and electrical connections between said contact lever and point, and said explosion-chamber.

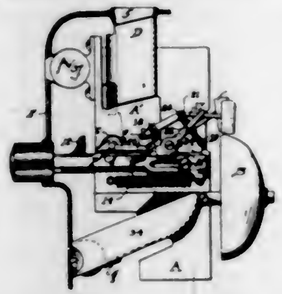
2. In a motor-cycle, the combination with an explosion-chamber, of a rotary cam, an exhaust-valve for said explosion-chamber, a rod, actuated by said rotary cam for operating said exhaust-valve, a rotary gapped flange, a bush adjacent to said gapped flange, a commutator-plate angularly adjustable on said bush, an operating-lever for moving said commutator-plate, a projection on said commutator-plate, arranged to engage the rod of said exhaust-valve, a contact-point on said commutator-plate, a contact-lever pivoted on said commutator-plate and bearing at one end against said gapped flange, a spring for moving the contact end of said lever into engagement with said contact-point when the opposite end thereof enters the gapped flange, and electrical connections between said contact lever and point and said explosion-chamber.

752,628



752,629. COIN-CONTROLLED MECHANISM.

STEPHAN PRASCHL, Cleveland, Ohio, assignor to Lewis Sands, Cleveland, Ohio. Filed Sept 18, 1903. Serial No. 173,675. (No model.)



Claim.—1. In a coin-controlled device, a plunger provided with a projection thereon, a yielding spring-pressed member in the path of the coin and in line with the plunger, a hammer mounted thereon, a sleeve carrying a cam mounted on said member, said cam being adapted to be engaged by the projection of the plunger, a supplemental hammer mounted, independently of the first, adjacent the sleeve, means carried by the sleeve adapted to actuate the supplemental hammer, and means operated by the plunger for preventing the last-named hammer striking for a period after the first, substantially as described.

2. In a coin-controlled mechanism, the combination with a plunger having a cam thereon, a rotatable coin-arresting member, in line with the plunger, a hammer carried thereby, a sleeve carrying an arm secured to the said member, a supplemental hammer actuated by the arm, and a trip adapted to engage said hammer adapted to be actuated by the cam of the plunger to release the last-named hammer at a period after the striking of the first-named hammer, substantially as described.

3. In a coin-controlled mechanism, the combination with a slidably-mounted plunger, of a coin-actuated means to which a coin imparts initiatory movement, means carried upon and integral with the plunger for continuing the movement of said coin-actuated means, and means operated by the coin-actuated means to release the coin comprising a pivoted arm having an integral projection thereon extending into the path of the coin, substantially as described.

4. In a device of the type set forth, the combination with a slidably-mounted, manually-operated plunger having spring-controlling means thereon, a rotatable, yielding coin-controlled means in line with the plunger adapted to receive initiatory movement from the coin, a spring-pressed trip adapted to lock said means, means carried by the plunger to release said trip, and means actuated by the coin-controlled means to release the coin, substantially as described.

5. In a device of the character described, the combination with a coin-chute, of a spring-controlled plunger, a coin-controlled means arranged in a line with the plunger adapted to receive its initiatory movement from a coin deposited in the chute, a pivoted trip adapted to lock said means until a return of the plunger, and means integral with the plunger for releasing the trip on its return, to further actuate the said coin-controlled means, substantially as described.

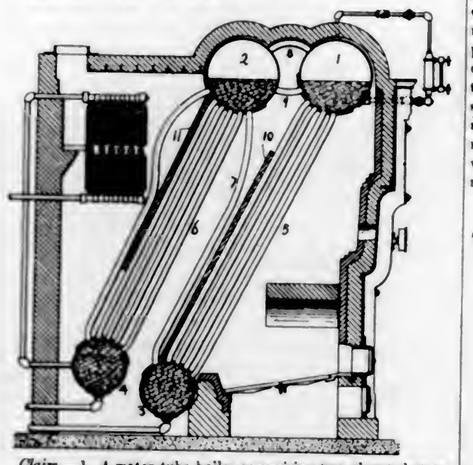
752,628. NUT-LOCK.

WILLIAM C. MINER, Traverse City, Mich., assignor of one-half to William I. De Kay, Traverse City, Mich. Filed Dec. 10, 1903. Serial No. 184,538. (No model.)

Claim.—A device of the class described, comprising a nut having primary ratchet-teeth transversely disposed in its face and spaced apart and with supplementary ratchet-teeth between the primary teeth and projecting a less distance than the same.

752,630. WATER-TUBE BOILER.

GEORGE E. TURNER, Bucyrus, Ohio, assignor to Stirling Company, Chicago, Ill. Filed Aug. 11, 1902. Serial No. 119,235. (No model.)



Claim.—1. A water-tube boiler comprising two elevated steam and water drums, a pipe connecting the steam-spaces of the two elevated steam and water drums, a pipe connecting the water-spaces of the two elevated steam and water drums, two lower mud-drums, a series of tubes connecting the front lower mud-drum with the front elevated steam and water drum, a series of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum, and a row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum, substantially as described.

2. A water-tube boiler comprising two elevated steam and water drums, a pipe connecting the steam-spaces of the two elevated steam and water drums, a pipe connecting the water-spaces of the two elevated steam and water drums, two lower mud-drums, a series of tubes connecting the front lower mud-drum with the front elevated steam and water drum, a series of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum, and a row of tubes connecting the lower mud-drum and the rear elevated steam and water drum, substantially as described.

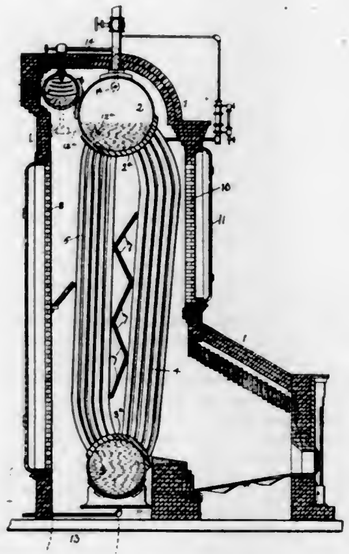
3. A water-tube boiler comprising two elevated steam and water drums, a pipe connecting the steam-spaces of the two elevated steam and water drums, a pipe connecting the water-spaces of the two elevated steam and water drums, two lower mud-drums, a series of tubes connecting the front lower mud-drum with the front elevated steam and water drum, a series of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum and the row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum and extending upwardly from the front lower mud-drum, substantially as described.

4. A water-tube boiler comprising two elevated steam and water drums, a pipe connecting the steam-spaces of the two elevated steam and water drums, a pipe connecting the water-spaces of the two elevated steam and water drums, two lower mud-drums, a series of tubes connecting the front lower mud-drum with the front elevated steam and water drum, a series of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the lower mud-drum and the rear elevated steam and water drum, and a baffle-plate between the series of tubes and the row of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum and depending from the rear elevated steam and water drum, substantially as described.

5. A water-tube boiler comprising two elevated steam and water drums, a pipe connecting the steam-spaces of the two elevated steam and water drums, a pipe connecting the water-spaces of the two elevated steam and water drums, two lower mud-drums, a series of tubes connecting the front lower mud-drum with the front elevated steam and water drum, a series of tubes connecting the rear lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum, a row of tubes connecting the lower mud-drum and the rear elevated steam and water drum, a baffle-plate between the series of tubes connecting the front lower mud-drum with the front elevated steam and water drum and the row of tubes connecting the front lower mud-drum with the rear elevated steam and water drum, and extending upwardly from the front lower mud-drum, and a baffle-plate between the series of tubes and the row of tubes connecting the rear lower mud-drum and the rear elevated steam and water drum and extending downwardly from the rear elevated steam and water drum, substantially as described.

752,631. WATER-TUBE BOILER.

GEORGE E. TURNER, Marion, Ohio, assignor to Stirling Company, Chicago, Ill. Filed May 7, 1900. Serial No. 15,680. (No model.)



Claim.—1. In a water-tube boiler having an upper and lower drum connected by front and rear banks of tubes and an inclosing wall for the drums and tubes, the combination of an elongated narrow opening in the rear inclosing wall, said opening being approximately the length of the rear tubes, a door for closing the opening, a narrow opening located between the top of the arch and the coping in the front inclosing wall, and a door for the last-named opening, for the introduction and removal of the rear and front tubes through the respective openings, substantially as described.

2. In a water-tube boiler, an elevated steam and water drum, a mud-drum, two banks of water-tubes connecting said two drums, and a baffle-plate interposed between said banks of tubes, said baffle-plate comprising a series of sections, which sections are disposed at alternately opposite angles whereby the fire and fire-gases are caused to traverse a zigzag or sinuous path along said tubes.

3. In a water-tube boiler having a vertical chamber within an inclosing wall and a furnace at the bottom and on one side of and opening into the vertical chamber, the combination of a single elevated steam and water drum at the top of the vertical chamber, a single lower mud-drum at the bottom of the vertical chamber, the two drums standing vertical one above the other, a front bank of tubes connecting the two drums and in which the water ascends to the elevated steam and water drum from the lower mud-drum, a rear bank of tubes connecting the two drums and in which the water descends from the elevated steam and water drum into the lower mud-drum, a baffle plate or wall interposed between the two banks of tubes, and a live-steam feed-water purifier disposed wholly within and at the upper rear angle of the vertical chamber adjacent to the elevated steam and water drum and subject to the heat within the chamber and having a steam connection at the top for admitting steam from the elevated steam and water drum to act on and heat

the supplied water and having a water connection at the bottom leading into the elevated steam and water drum below the level of the water in the drum for discharging heated water from the bottom of the purifier into the lower portion of the elevated steam and water drum and have the admitted heated water descend by the rear bank of tubes into the lower mud-drum, substantially as described.

4. In a water-tube boiler, an upper steam and water drum, a lower mud-drum, two banks of water-tubes connecting said two drums, and a baffle-plate of zigzag formation and located between the banks of tubes and extending from the lower drum upwardly and terminating below the under side of the upper drum for giving a sinuous path of travel for the heat and gases upwardly between the banks of tubes, substantially as described.

5. In a water-tube boiler having a vertical chamber within an inclosing wall and a furnace at the bottom and on one side of and opening into the vertical chamber, the combination of an upper steam and water drum at the top of the vertical chamber, a lower mud-drum at the bottom of the vertical chamber, the two drums standing vertically one above the other, two banks of tubes connecting the drums, and a live-steam feed-water purifier disposed wholly within and at the upper rear angle of the vertical chamber adjacent to and at the rear of and above the horizontal center of the elevated steam and water drum and subject to the heat within the chamber, and having at the top a steam connection for admitting steam from the elevated steam and water drum to act on and heat the supplied water and having a water connection at the bottom leading into the elevated steam and water drum below the level of the water in the drum for discharging heated water from the bottom of the purifier into the lower portion of the elevated steam and water drum and have the admitted heated water descend by one of the bank of tubes into the lower mud-drum, substantially as described.

6. In a water-tube boiler having a vertical chamber within an inclosing wall and a furnace at the bottom and on one side of and opening into the vertical chamber, the combination of a single elevated steam and water drum at the top of the vertical chamber, a single lower mud-drum at the bottom of the vertical chamber, the two drums standing vertically one above the other, a front bank of tubes between the two drums and in which the water ascends to the elevated steam and water drum from the lower mud-drum, a rear bank of tubes between the two drums and in which the water descends from the elevated steam and water drum into the lower mud-drum, a live-steam feed-water purifier disposed wholly within and at the upper rear angle of the vertical chamber adjacent to and at the rear of and above the horizontal center of the elevated steam and water drum and subject to the heat within the vertical chamber, a valve-controlled pipe between the elevated steam and water drum and the purifier admitting steam to the purifier from the elevated steam and water drum to act on and heat the supplied water in the purifier, a valve-controlled pipe between the elevated steam and water drum and the bottom of the purifier leading into the elevated steam and water drum below the level of the water in the drum for discharging water from the purifier into the elevated steam and water drum to descend by the rear bank of tubes into the lower mud-drum, substantially as described.

7. In a water-tube boiler having a vertical chamber within an inclosing wall and a furnace at the bottom and on one side of and opening into the vertical chamber, the combination of a single elevated steam and water drum at the top of the vertical chamber, a single lower mud-drum at the bottom of the vertical chamber, the two drums standing vertically one above the other and the lower mud-drum having a less capacity than the elevated steam and water drum, a front bank of tubes between the two drums and in which the water ascends to the elevated steam and water drum from the lower mud-drum, a rear bank of tubes between the two drums and in which the water descends from the elevated steam and water drum into the lower mud-drum, a live-steam feed-water purifier disposed wholly within and at the upper rear angle of the vertical chamber adjacent to and at the rear of and above the horizontal center of the elevated steam and water drum and subject to the heat within the vertical chamber, a valve-controlled pipe between the elevated steam and water drum and the purifier admitting steam to the purifier from the elevated steam and water drum to act on and heat the supplied water in the purifier, a valve-controlled pipe between the elevated steam and water drum and the bottom of the purifier leading into the elevated steam and water drum below the level of the water in the drum for discharging water from the purifier into the elevated steam and water drum to descend by the rear bank of tubes into the lower mud-drum, substantially as described.

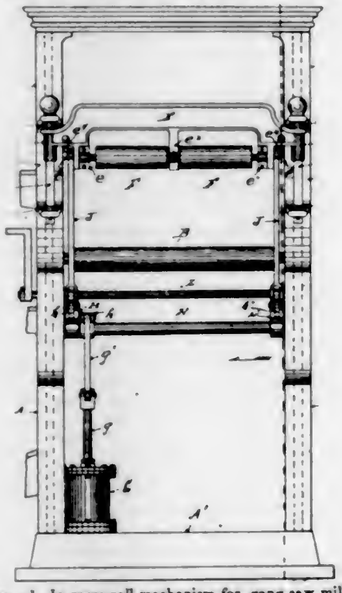
752,632. **HEEL.** EDMUND D. TYLER, Glasgow, Scotland. Filed Oct. 3, 1903. Serial No. 175,672. (No model.)



Claim.—1. In a heel for boots and shoes, the combination with a top piece provided at its outer edge with a series of tongues and a series of openings between, of a base-plate of india-rubber provided with projections fitting in said openings, substantially as and for the purpose described.

2. In a heel for boots and shoes, the combination with a circular top piece provided at its circumference with a series of tongues and a series of openings between, of a circular base-plate of india-rubber provided with projections fitting in said openings, and a central stud about which the top piece is revoluble substantially as and for the purposes described.

752,633. **PRESS-ROLL MECHANISM.** WILLIAM M. WILKIN, Mobile, Ala. Filed Apr. 18, 1903. Serial No. 153,237. (No model.)



Claim.—1. In press-roll mechanism for gang-saw mills, a mill-frame, removable press-roll yoke-guides on said mill-frame, a press-roll yoke mounted on said guides so as to move freely up and down thereon, and capable of being swung around on one of said guides when the other guide is removed, substantially as and for the purpose set forth.

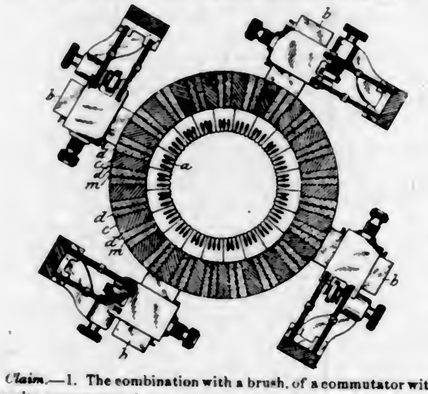
2. In a press-roll mechanism for gang-saw mills, a mill-frame, removable press-roll yoke-guides mounted in ears on said mill-frame, a press-roll yoke mounted on said guides, rock-shaft mechanism mounted on the lower part of the mill-frame, links connecting the ends of the press-roll yoke with said rock-shaft mechanism, and means for operating said rock-shaft mechanism, substantially as set forth.

3. In a press-roll mechanism for gang-saw mills, a mill-frame, guides thereon, press-roll yokes mounted on said guides, steam or compressed-air cylinders mounted at one side of the mill-frame near the base thereof, piston-rods extending upward therefrom, rock-shafts mounted in the mill-frame below the plane of the feed-rolls of the mill, arms on said rock-shafts, links connecting said piston-rods with said arms, arms on the ends of said rock-shafts, and links connecting said arms with studs at the ends of the pressure-roll yoke, substantially as set forth.

4. In a press-roll mechanism for gang-saw mills, a mill-frame, guides thereon, steam or compressed-air cylinders mounted at one side of the lower part of the mill-frame, rock-shafts mounted in the mill-frame below the plane of the feed-rolls of the mill, arms on said rock-shafts, links connecting said arms with the piston-rods of said cylinders, adjustable arms on the ends of said rock-shafts, links connecting said adjustable arms with studs at the ends of the press-roll yoke, mechanism for controlling said adjustable arms, substantially as set forth.

5. In a press-roll mechanism for gang-saw mills, a mill-frame, ears on the edges thereof, vertically-removable guides mounted in said ears, press-roll yokes mounted on said guides, vertical steam or compressed-air cylinders mounted at one side of the mill-frame near the base thereof, piston-rods extending upward from said cylinders, rock-shafts mounted in said mill-frame below the plane of the feed-rolls therein, arms on said rock-shafts, links connecting said piston-rods with said arms, adjustable arms on the ends of said rock-shafts, links connecting said adjustable arms with studs at the ends of the press-roll yoke, means for detachably securing said links upon said studs, and rock-shaft, link-and-lever mechanism for adjusting and controlling said adjustable arms, substantially as set forth.

752,634. **COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES.** FREDERICK W. YOUNG, East Orange, N. J., assignor to Crocker-Wheeler Company, Ampere, N. J., a Corporation of New Jersey. Filed May 22, 1903. Renewed Jan. 9, 1904. Serial No. 188,409. (No model.)



Claim.—1. The combination with a brush, of a commutator with composite commutator-bars, each consisting of a metal contact-bar with a carbon contact-bar adjoining the leaving edge in electric contact with the metal contact-bar, substantially as described.

2. The combination with a brush, of a commutator with composite commutator-bars, each consisting of a metal contact-bar with a carbon contact-bar adjoining the leaving edge and in direct contact with the metal contact-bar, substantially as described.

3. The combination with a brush, of a commutator with composite commutator-bars, each consisting of a metal contact-bar with carbon contact-bars adjoining both edges and in electric contact with the metal contact-bar, substantially as described.

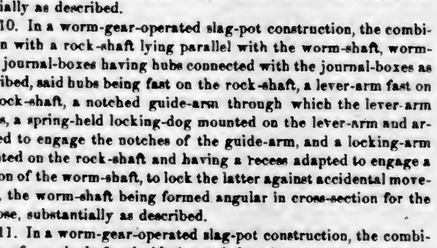
4. The combination with a brush, of a commutator with composite commutator-bars, each consisting of a metal contact-bar with carbon contact-bars adjoining both edges and in direct contact with the metal contact-bar, substantially as described.

5. The combination with a carbon brush, of a commutator with composite commutator-bars, each consisting of a metal contact-bar with a carbon contact-bar adjoining the leaving edge in electric contact with the metal contact-bar, substantially as described.

752,635. **WORM-GEAR-OPERATED SLAG-POT CONSTRUCTION.** NORMAN V. FITTS, Denver, Colo., assignor to the Colorado Iron Works Company, Denver, Colo. Filed May 19, 1902. Serial No. 106,095. (No model.)

Claim.—1. In a slag-pot-truck construction, the combination with a truck-frame, the slag-pot, the worm-shaft and the worm-wheel engaged by said shaft, of a rock-shaft journaled on the truck-frame parallel with the worm-shaft, boxes fast on the rock-shaft in which boxes the worm-shaft is journaled, and means for operating the rock-shaft to lift the worm from engagement with the worm-wheel, substantially as described.

2. The combination with a slag-pot-truck frame, the slag-pot, a worm-wheel fast on a trunnion of the pot, and a worm-shaft whose worm engages the worm-wheel, of movable boxes in which the worm-shaft is journaled, a lever-arm and a suitable connection between the lever-arm and the movable worm-shaft boxes whereby the worm-shaft may be raised from engagement with the worm-wheel, as the lever-arm is actuated, substantially as described.



3. The combination with the slag-pot-truck frame, the slag-pot, a worm-wheel fast on a trunnion of the pot, and a worm-shaft whose worm engages the worm-wheel, of a rock-shaft parallel with the worm-shaft, worm-shaft journal-boxes provided with hubs fast on the rock-shaft, and means for imparting to the rock-shaft a partial rotation whereby the worm is lifted sufficiently to disengage it from the worm-wheel, substantially as described.

4. The combination with a worm-gear-operated slag-pot, of a rock-shaft extending parallel with the worm-shaft, worm-shaft journal-boxes connected with the rock-shaft to raise the worm-shaft as the rock-shaft is actuated, substantially as described.

5. The combination with a worm-gear-operated slag-pot construction, of means for disengaging the worm from its worm-wheel consisting of a rock-shaft having boxes in which the worm-shaft is journaled, substantially as described.

6. The combination with a worm-gear-operated slag-pot construction, of means for locking the worm-shaft against accidental movement, and means for disengaging the worm-shaft from the worm-wheel comprising a rock-shaft having bearings in which the worm-shaft is journaled.

7. The combination with a worm-gear-operated slag-pot construction, of a rock-shaft extending parallel with the worm-shaft, worm-shaft bearings fast on the rock-shaft, and means for actuating the rock-shaft to raise the worm from the worm-wheel, substantially as described.

8. The combination with a worm-gear-operated slag-pot construction, of a rock-shaft extending parallel with the worm-shaft, journal-boxes connected with the rock-shaft substantially as described, a lever-arm fast on the rock-shaft, a notched guide-arm through which the lever-arm passes, and a spring-held locking-dog mounted on the lever-arm and arranged to engage the notches of the guide-arm.

9. In a worm-gear-operated slag-pot construction, the combination of a rock-shaft suitably journaled, a connection between the rock-shaft and the worm-shaft whereby as the rock-shaft is actuated the worm-shaft is disengaged from the worm-wheel, a lever-arm for operating the rock-shaft, and a device movably mounted on the rock-shaft for locking the worm-shaft against accidental movement, substantially as described.

10. In a worm-gear-operated slag-pot construction, the combination with a rock-shaft lying parallel with the worm-shaft, worm-shaft journal-boxes having hubs connected with the journal-boxes as described, said hubs being fast on the rock-shaft, a lever-arm fast on the rock-shaft, a notched guide-arm through which the lever-arm passes, a spring-held locking-dog mounted on the lever-arm and arranged to engage the notches of the guide-arm, and a locking-arm mounted on the rock-shaft and having a recess adapted to engage a portion of the worm-shaft, to lock the latter against accidental movement, the worm-shaft being formed angular in cross-section for the purpose, substantially as described.

11. In a worm-gear-operated slag-pot construction, the combination of a rock-shaft suitably journaled, and a connection between the rock-shaft and the worm-shaft whereby as the rock-shaft is actuated the worm-shaft is disengaged from the worm-wheel.

12. In a dumping-car, the combination of a receptacle of greatest area at its top and gradually diminishing in area to its bottom and trunnions supporting said receptacle at a point to permit the lower end of the receptacle to overbalance the upper portion when empty and be overbalanced thereby when full.

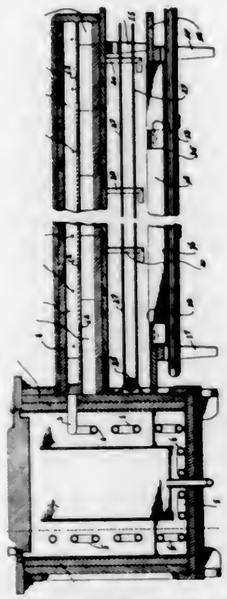
13. In a dumping-car, the combination with a semi-oval bowl or receptacle, trunnions supporting the same in such manner that the

receptacle will be top-heavy when full, and means for slowly tilting the receptacle or permit it to rapidly dump.

14. In a dumping-car, the combination with a receptacle, of trunnions supporting the same in such manner that the receptacle will be top-heavy when full, segments on said trunnions, rigid platforms supporting the segments, a worm-wheel on a trunnion, and a worm to turn said worm-wheel and roll the segments on the platforms to tilt the receptacle.

15. In a dumping-car, the combination of a receptacle pivotally supported and top-heavy when full, a worm-wheel connected with the receptacle, a worm to turn said worm-wheel, and means for throwing said worm out of engagement with the worm-wheel to permit the receptacle to fall to its dumping position.

752,636. CHOCOLATE-COOLING MECHANISM. EDWARD W. MULL, Columbus, Ohio. Filed May 12, 1902. Serial No. 106,880. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a refrigerating device, of a cold-air-conducting casing leading therefrom and provided with doorways having doors, and air-discharge tubes leading at intervals from the casing.

2. In an apparatus of the character described, the combination with a refrigerating device, of a cold-air-conducting casing leading therefrom and provided with separated flues communicating with the main passage of the casing, said casing having doorways and doors therefor, and also provided with air-discharge tubes leading at intervals from the flues.

3. In an apparatus of the character described, the combination with a refrigerating device, of a cold-air-conducting casing leading therefrom and provided with doorways having doors, a work-table disposed below the casing, and air-discharge tubes leading from the casing to the top of the table.

4. In an apparatus of the character described, the combination with a work-table, of a refrigerating device, and a cold-air conduit leading therefrom, disposed above the table and provided with doorways having doors to receive the work from the table.

5. In an apparatus of the character described, the combination with a work-table, of a refrigerating device, a cold-air conduit leading therefrom, disposed above the table and provided with doorways having doors, and a conveyer working longitudinally in the space between the work-table and the conduit.

6. In an apparatus of the character described, the combination with a work-table, of a refrigerating device, a cold-air conduit leading therefrom, disposed above the table and provided with doorways having doors, air-discharge pipes leading from the conduit to the top of the table, and a conveyer working longitudinally in the space between the table and the conduit.

7. In an apparatus of the character described, the combination with a work-table, of a refrigerating device, a cold-air conduit leading therefrom, disposed above the table and provided in opposite sides with doorways having doors, air-discharge pipes leading from opposite sides of the conduit to the top of the table, and a conveyer working in the space between the table and the conduit and between the pipes.

8. In an apparatus of the character described, the combination of a work-table, a work-receiving table leading from one end of the first-mentioned table, a refrigerating device at the opposite end of the work-table, a cold-air conduit leading from the refrigerating device, disposed above the work-table and provided with doorways having doors, and a conveyer working in the space between the work-table and conduit and leading from the refrigerating device to the work-receiving table.

9. In an apparatus of the character described, the combination of a work-table, a work-receiving table at one end of the first-mentioned table, a refrigerating device at the opposite end of the work-table, a cold-air conduit leading from the refrigerating device and disposed above the work-table, air-discharge pipes leading from the conduit to the top of the work-table, and a conveyer disposed between the work-table and the conduit and leading from the refrigerating device to the work-receiving table.

10. In an apparatus of the character described, the combination of a work-table, a work-receiving table at one end of the first-mentioned table, a refrigerating device at the opposite end of the work-table, a cold-air conduit leading from the refrigerating device, disposed longitudinally above the work-table and provided with doorways having doors, air-discharge pipes leading from the conduit to the top of the work-table, and a conveyer located between the work-table and the conduit and leading from the refrigerating device to the work-receiving table.

11. In an apparatus of the character described, the combination of a work-table having a liquid-receptacle, a heater for the receptacle, a cold-air conduit disposed above the table, and air-discharge pipes leading from the conduit to the top of the table.

12. In an apparatus of the character described, the combination of a work-table having an intermediate longitudinal receptacle, a heating-pipe for the receptacle, a cold-air conduit disposed above the table, and air-discharge pipes leading from the conduit to the top of the table.

13. In an apparatus of the character described, a work-table having an intermediate longitudinal receptacle provided with lateral extensions, and a conveyer working longitudinally over the receptacle, the lateral extensions of the receptacle being projected beyond the conveyer to give access to said extensions.

14. In an apparatus of the character described, the combination of a work-table having an intermediate longitudinal receptacle provided at opposite sides with transverse extensions, a cold-air conduit disposed above the table, air-discharge pipes leading from opposite sides of the conduit to the top of the table, and a conveyer disposed between the table and the conduit and also between the pipes and over the receptacle of the table, the extensions of the receptacle being projected at opposite sides of the conveyer.

15. In an apparatus of the character described, a cold-air conduit divided into a lower main passage, an upper intermediate flue having a perforate bottom, and upper side flues at opposite sides of the intermediate flue, the side flues and the intermediate flue having damper-controlled communications, the main passage being provided with doorways having doors, and air-discharge pipes leading from the side flues.

16. In an apparatus of the character described, a cold-air conduit having an intermediate horizontal partition forming a lower main passage, which is provided with doorways and doors, a pair of vertical longitudinal partitions dividing the upper portion of the conduit into an intermediate flue and opposite side flues, all of the partitions having perforations to establish communication between the several parts of the conduit, slidable damper-plates for the perforations of the vertical partitions, rotatable controlling-rods piercing opposite sides of the conduit and having cranks pivotally connected to the respective slides, handles upon the outer ends of the rods, the air-discharge pipes leading from the side flues.

17. In an apparatus of the character described, the combination with a work-table, of a cold-air conduit located above the table and provided with a lower main passage and upper intermediate and side flues, the bottom of the intermediate flue being provided with apertures, the side flues having damper-controlled communications with the intermediate flue, the main passage having doorways and doors therefor, air-discharge pipes leading from the side flues to the table, and a refrigerating device in communication with the side flues only.

752,637. DEVICE FOR PROTECTING EMBANKMENTS. CHARLES MANKEDICK, Sullivan, Ind., assignor of one-half to John C. Chaney and Joseph R. Edson, Washington, D. C. Filed June 8, 1903. Serial No. 160,657. (No model.)



Claim.—1. An embankment-protector comprising sections of closely-woven textile material, having receptacles or pockets to contain means for weighting or anchoring said sections upon or along such embankments, means for lacing together said sections in a continuous manner, suspending means for said protector-sections, connected to, and extending along, the upper longitudinal edge thereof, said suspending means having extensions for securing said sections to such embankments.

2. An embankment-protector comprising sections of closely-woven textile material, having receptacles or pockets, said pockets being flared toward their lower edges, means for anchoring said sections, suspending means for said protector-sections, connected to, and extending along, the upper longitudinal edges thereof, said suspending means having extensions for securing said sections in place.

3. An embankment-protector comprising sections of closely-woven textile material having receptacles or pockets, one of said pockets having extending therefrom a line or cable for anchoring purposes, and suspending means for said protector-sections, connected to, and extending along, the upper longitudinal edges thereof, and suspending means having extensions for securing said sections in place.

4. An embankment-protector comprising sections of closely woven textile material having receptacles or pockets to contain weighting or anchoring means, means for lacing together said sections in continuous manner, suspending means for said protector-sections, connected to, and extending along, the upper longitudinal edges thereof, said suspending means having extensions for securing the whole to the embankment, and securing means connected to, and extending along, the lower longitudinal edges of said sections.

DESIGNS.

36,793. CHARM OR SIMILAR ARTICLE. WALTER W. CHASE, Providence, R. I. Filed Jan. 22, 1904. Serial No. 190,242. Term of patent 3½ years.



Claim.—The ornamental design for a charm or similar article as herein shown.

36,794. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. JOSEPH E. STRAKER, Jr., Attleboro, Mass., assignor to the Watson and Newell Company, a Corporation of Rhode Island. Filed Jan. 20, 1904. Serial No. 189,912. Term of patent 7 years.



Claim.—The ornamental design for the handle of a spoon, fork or similar article as shown.

36,795. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. JOSEPH E. STRAKER, Jr., Attleboro, Mass., assignor to the Watson and Newell Company, a Corporation of Rhode Island. Filed Jan. 20, 1904. Serial No. 189,913. Term of patent 7 years.



Claim.—The ornamental design for the handle of a spoon, fork or similar article as shown.

36,796. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. JOSEPH E. STRAKER, Jr., Attleboro, Mass., assignor to the Watson and Newell Company, a Corporation of Rhode Island. Filed Jan. 20, 1904. Serial No. 189,914. Term of patent 7 years.



Claim.—The ornamental design for the handle of a spoon, fork, or similar article as shown.

36,797. BUTTON-PIECE FOR SUSPENDERS. WILLIAM H. JOHNSON, Revere, Mass. Filed Jan. 22, 1904. Serial No. 190,241. Term of patent 3½ years.



Claim.—The ornamental design for a button-piece for suspenders, as herein shown.

36,798. LEAD-PENCIL. EGON LOTHAR SCHMITZ, New York, N. Y., assignor to E. Faber Pencil Co., a Corporation of New York. Filed Dec. 10, 1903. Serial No. 184,682. Term of patent 7 years.



Claim.—The ornamental design for a lead-pencil, substantially as herein shown.

36,799. PAPER-WEIGHT. WILLIAM D. PAULSON and RICHARD D. HEINBOCKEL, Manitou, Colo. Filed Dec. 11, 1903. Serial No. 184,835. Term of patent 3½ years.



Claim.—The ornamental design for a paper-weight, herein shown.

36,800. HANGING FLOWER-POT. FRIEDRICH HINDERER, New Orleans, La. Filed Jan. 13, 1904. Serial No. 188,932. Term of patent 7 years.



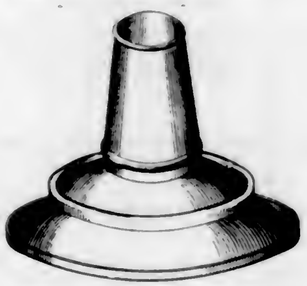
Claim.—The ornamental design for a hanging flower-pot, as shown.

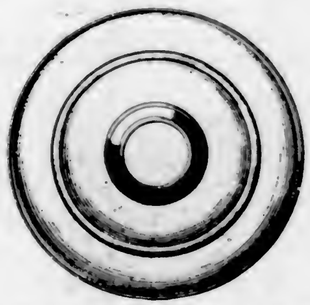
36,801. RENAISSANCE FLOWER-BOX. FRIEDRICH HINDERER, New Orleans, La. Filed Jan. 13, 1904. Serial No. 188,934. Term of patent 7 years.



Claim.—The ornamental design for a flower-box, as shown.

36,802. CHIMNEY-REFLECTOR FOR LAMPS. LOUIS SEPULCHRE, Herstal, Belgium. Filed Aug. 4, 1902. Serial No. 118,412. Term of patent 14 years.





Claim.—The ornamental design for a chimney-reflector for lamps shown.

36,803. CHIMNEY-REFLECTOR FOR LAMPS. LOUIS SEPULCHRE, Herstal, Belgium. Filed Aug. 4, 1902. Serial No. 118,413. Term of patent 14 years.





Claim.—The ornamental design for a chimney-reflector for lamps shown.

36,804. ARTIFICIAL BUILDING-BLOCK. HARMON S. PALMER, Washington, D. C. Filed Jan. 23, 1904. Serial No. 190,405. Term of patent 7 years.



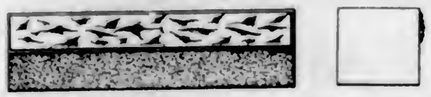
Claim.—The ornamental design for an artificial building-block substantially as herein shown.

36,805. ARTIFICIAL BUILDING-BLOCK. HARMON S. PALMER, Washington, D. C. Filed Jan. 23, 1904. Serial No. 190,406. Term of patent 7 years.



Claim.—The ornamental design for an artificial building-block substantially as herein shown.

36,806. ARTIFICIAL BUILDING-BLOCK. HARMON S. PALMER, Washington, D. C. Filed Jan. 23, 1904. Serial No. 190,407. Term of patent 7 years.



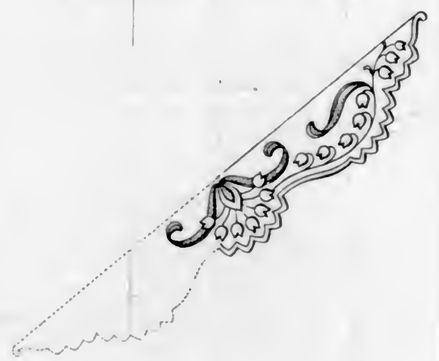
Claim.—The ornamental design for an artificial building-block substantially as herein shown.

36,807. COLLAR. WALTHER HELBIG, New York, N. Y., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Jan. 23, 1904. Serial No. 190,408. Term of patent 3½ years.



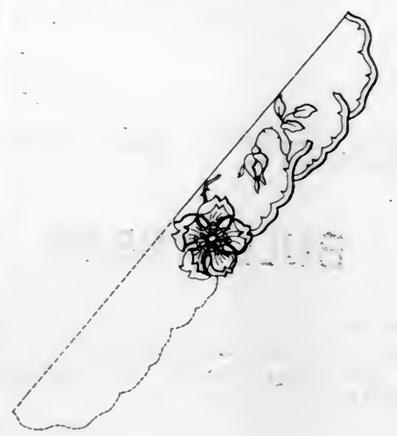
Claim.—The ornamental design for a collar, substantially as herein shown.

36,808. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Jan. 23, 1904. Serial No. 190,409. Term of patent 3½ years.



Claim.—The ornamental design for a collar, substantially as herein shown.

36,809. COLLAR. FREDERICK EDELMANN, Weehawken, N. J., assignor to the Kursheedt Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Jan. 23, 1904. Serial No. 190,410. Term of patent 3½ years.



Claim.—The ornamental design for a collar, substantially as herein shown.

36,810. ORNAMENT. PHILIP R. HOLLAND, Jackson, Tenn. Filed Dec. 9, 1903. Serial No. 184,439. Term of patent 3½ years.



Claim.—The ornamental design for an ornament herein shown.

TRADE-MARKS

REGISTERED FEBRUARY 16, 1904.

42,055. GAMES PLAYED WITH CARDS. Parker Bros., Salem, Mass. Filed Jan. 8, 1904.

BULL AND BEAR

The words "Bull and Bear." Used since October, 1903.

42,056. GAMES PLAYED WITH CARDS. Parker Brothers, Salem, Mass. Filed Jan. 9, 1904.



The representation of a bull's head with a nose-ring. Used since October, 1903.

42,057. GAMES PLAYED WITH CARDS. Parker Bros., Salem Mass. Filed Jan. 21, 1904



The representation of a bear's head. Used since October 15, 1903.

42,058. GAMES PLAYED WITH CARDS. Parker Bros., Salem, Mass. Filed Jan. 25, 1904.

CORNER

The word "Corner." Used since November 1, 1903.

42,059. CERTAIN NAMED JEWELRY. Dooley and Co., Providence, R. I. Filed Jan. 8, 1904.



The representation of a bird in the act of flying and carrying in its bill a pennant on which are the letters and character "D. & Co." Used since January 1, 1894.

42,060. PORCELAIN TEETH. The Dentists' Supply Company, New York, N. Y., and York, Pa. Filed Jan. 8, 1903.

DENTSPLY

The word "Dentsply." Used since August 12, 1902.

42,061. HOSE-SUPPORTERS. I. B. Kleinert Rubber Co., New York, N. Y. Filed Jan. 21, 1904.

BUSTER BROWN

The name "Buster Brown." Used since January, 1904.

42,062. SILK FABRICS. York Silk Manufacturing Company, York, Pa. Filed Jan. 22, 1904.

SILVERBAK

The word "Silverbak." Used since May 1, 1903.

42,063. SILK FABRICS. York Silk Manufacturing Company, York, Pa. Filed Jan. 22, 1904.

GOLDBAK

The word "Goldbak." Used since May 1, 1903.

42,064. SILK FABRICS. York Silk Manufacturing Company, York, Pa. Filed Jan. 22, 1904.

GREENBAK

The word "Greenbak." Used since May 1, 1903.

42,065. SUSPENDERS. Webcraft Co., New York, N. Y. Filed Jan. 12, 1904

WEBCRAFT

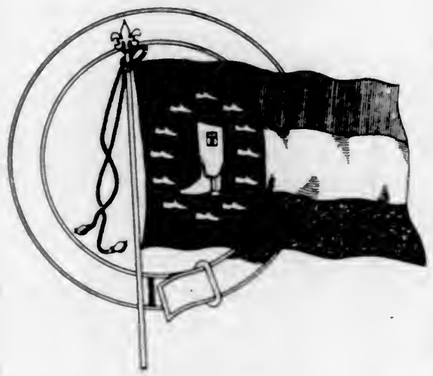
The word "Webcraft." Used since April 1, 1903.

42,066. LEATHER BOOTS AND SHOES. Robert L. Ream, Pittsburg, Pa. Filed Jan. 12, 1904.

KUM-BAK

The hyphenated word "Kum-Bak." Used since May 1, 1902.

42,067. CERTAIN NAMED RUBBER FOOTWEAR. Banner Rubber Co., St. Louis, Mo. Filed Jan. 15, 1904.



The representation of a banner having three longitudinally-disposed outer sections, respectively red, white, and yellow, and an inner transverse blue section. In the latter section is a centrally-disposed pictorial representation of a rubber boot surrounded by an array of the pictorial representations of rubber overshoes. The banner and its staff partially overlap an annular band. Used since January 1, 1904.

42,068. REMEDIES FOR CERTAIN NAMED DISEASES. William M. Starr, Washington, D. C. Filed Dec. 29, 1903.

42,068.



A photograph of the registrant, associated with the word "Tu" and the letters "X X" inclosed in a circle. Used since December 3, 1902.

42,069. MEDICINAL PREPARATION FOR CURE OF CERTAIN NAMED DISEASES. Ralph F. Burnham, Auburn, Me. Filed Jan. 4, 1904.

Sal-Iodide

Ralph F. Burnham

The hyphenated word "Sal-Iodide" and the facsimile signature "Ralph F. Burnham." Used since July 15, 1897.

42,070. LOTION TO BE APPLIED TO THE FACE AND HANDS. Cumalena Manufacturing Co., Crafton, Pa. Filed Jan. 8, 1904.



REX

The word "Rex" used in connection with the representation of a crown. Used since April 1, 1903.

42,071. CERTAIN NAMED TOILET PREPARATIONS. Robert G. Kirsch, St. Louis, Mo. Filed Oct. 29, 1903.

SMART SET

The words "Smart Set." Used since March 10, 1903.

42,072. CANDY. POSTUM CEREAL CO., LIMITED, Battlecreek, Mich. Filed Jan. 20, 1904.

DEXTRO

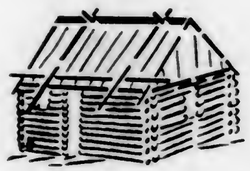
The word "DEXTRO." Used since November 25, 1903.

42,073. CIGAR-BOX FLAVOR. JOHN J. MEUWLY, Little Rock, Ark. Filed Dec. 11, 1903.

SPANISH CEDARINE

The words "SPANISH CEDARINE." Used since August 1, 1903.

42,074. PLUG AND CUT-PLUG CHEWING-TOBACCO. W. A. BROWN TOBACCO COMPANY, Martinsville, Va. Filed Jan. 9, 1904.



LOG CABIN

The words "LOG CABIN," associated with the representation of a log cabin. Used since 1855.

42,075. COFFEES. ELEAZER S. PIKE, Boston, Mass. Filed Dec. 3, 1903.

CHECKER

The word "CHECKER." Used since January, 1895.

42,076. COMPOSITE MATERIAL FOR MAKING BEVERAGES. STEPHEN B. DEXTER, Chicago, Ill. Filed Nov. 11, 1903.

CUP CUPS

The word "CUPCUPS." Used since October 19, 1903.

42,077. CERTAIN NAMED NON-ALCOHOLIC DRINK. SIMON BECKER, Spartanburg, S. C. Filed Dec. 4, 1903.

Clito

The word "CLITO." Used since July 1, 1903.

42,078. BEVERAGE MANUFACTURED FROM APPLE-CIDER. MORGAN-LYONS VINEGAR CO., Louisville, Ky. Filed July 22, 1903.



The representation of a circle superimposed upon a star, with rays radiating from the star, and inclosing the hyphenated word "VIN-O-LA." Used since June 1, 1903.

42,079. WHISKY. STRAUSS & Co., London, England. Filed June 25, 1903.



Elsymore



The representation of a landscape scene, mountains in the distance, a stag in the foreground, and the word "ELSYMORE," inclosed in quotation-marks, and a bunch of thistles and a shield. Used since January 1, 1898.

42,080. COGNAC. STRAUSS & Co., London, England. Filed June 25, 1903.



The representation of a shield surmounted by a five-pointed crown. From under the crown and behind and at the sides of the said shield branch large ornamental conventionalized leaves. At the sides of the said shield are armorial bearings or pieces upon which the said shield appears to rest. The shield has a small border ornamented by a spiral and bears upon its field a bunch of leaves and flowers tied with a ribbon, underneath which are the letter, character, and abbreviation "S. & Co." Used since October 15, 1887.

42,081. OLIVE-OIL. LOS ANGELES OLIVE GROWERS' ASS'N, Los Angeles, Cal. Filed Dec. 21, 1903.

SYLMAR

The word SYLMAR." Used since September, 1901.

42,082. WHEAT-FLOUR. KEHLOR FLOUR MILLS CO., St. Louis, Mo. Filed Dec. 11, 1903.

RADIUM

The word-symbol "RADIUM." Used since November 15, 1903.

42,083. FURNITURE-POLISH. THE MEXICAN MANUFACTURING COMPANY, Wichita, Kans. Filed Aug. 17, 1903.



The capital letters "S. G. S." linked together, surrounded by a peculiar-shaped line, which said line has somewhat the appearance of being two half-circles joined together at an angle. Used since May 1, 1903.

42,084. SPIRIT-VARNISH. BERRY BROTHERS, LIMITED, Detroit, Mich. Filed Jan. 22, 1904.

PATTERNLAC

The word "PATTERNLAC." Used since January 9, 1904.

42,085. SPIRIT-VARNISH. BERRY BROTHERS, LIMITED, Detroit, Mich. Filed Jan. 22, 1904.

KNOTTINGLAC

The word "KNOTTINGLAC." Used since January 9, 1904.

42,086. WELDING COMPOUNDS. THE WELDING COMPOUND COMPANY, Paterson, N. J. Filed Oct. 9, 1903.



The representation of an anvil with a hammer resting upon it and the words "CHERRY HEAT," the whole being surrounded by an elliptical border. Used since March 3, 1874.

42,087. COMPOSITION SOOT-DESTROYERS. GOURMET & Co., London, England. Filed Dec. 29, 1903.



The words "THE IMP," associated with a rectangular panel bearing the representation of an imp holding in one hand a package, to which package the other hand is pointing, said imp being represented as rising from the flame and smoke of a furnace. Used since December 13, 1898.

42,088. ANTHRACITE COAL. VIRGINIA ANTHRACITE COAL CO. Richmond, Va. Filed Jan. 18, 1904.

MERRIMAC

The word "MERRIMAC." Used since March 1, 1903.

42,089. CENTRAL-DRAFT LAMPS. PITTSBURGH LAMP, BRASS & GLASS CO., Pittsburg, Pa. Filed Jan. 11, 1904.

SUCCESS

The word "SUCCESS." Used since August, 1902.

42,090. BABBITT METAL. LYON COHEN, Montreal, Canada. Filed Sept. 8, 1903.

BRONZINE

The word "BRONZINE." Used since September 1, 1903.

42,091. CERTAIN NAMED METAL PRODUCTIONS. CHROME STEEL WORKS, New York, N. Y. Filed Oct. 8, 1903.

ADAMANTINE

The word "ADAMANTINE." Used since 1886.

42,092. SLEDS. SAMUEL L. ALLEN, Philadelphia, Pa. Filed Jan. 14, 1904.

FLEXIBLE FLYER

The words "FLEXIBLE FLYER." Used since August, 1889.

THE NORRIS PETERS CO. PHOTO-LITHO. WASHINGTON, D.C.

LABELS

REGISTERED FEBRUARY 16, 1904.

10,741.—*Title:* "POLITICS." (For a Game.) WILLIAM A. T. JONES, Pittsburg, Pa. Filed January 21, 1904.

10,742.—*Title:* "DR. ANTRIMS INHALANT." (For Medicine.) MARTHA J. HOLP, Butte, Mont. Filed January 20, 1904.

10,743.—*Title:* "McKINLEY COUGH AND COLD CURE." (For Medicine.) CLARENCE O. LARTER, Detroit, Mich. Filed January 22, 1904.

10,744.—*Title:* "IODINIZED EMULSION, (SCOTT.)" (For an Emulsion.) THE DAWSON PHARMACAL CO., Dawson Springs, Ky. Filed January 25, 1904.

10,745.—*Title:* "BADER'S FOOT-RELIEF." (For Foot-Relief.) HENRY F. BADER, East St. Louis, Ill. Filed January 18, 1904.

10,746.—*Title:* "DAN PATCH." (For Cigars.) FOREST CITY CIGAR CO., Wausau, Wis. Filed December 4, 1903.

10,747.—*Title:* "ROSEN'S BEST." (For Snuff.) ISAAC ROSEN, New York, N. Y. Filed January 25, 1904.

10,748.—*Title:* "RED RIBBON COCOA." (For Cocoa.) RUNKEL BROTHERS, New York, N. Y. Filed January 26, 1904.

10,749.—*Title:* "L'ACADIE." (For Olive-Oil.) ACKER, MERRALL & CONDIT COMPANY, New York, N. Y. Filed January 21, 1904.

10,750.—*Title:* "VERIBEST ROAST BEEF." (For Roast Beef.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,751.—*Title:* "VERIBEST DEVILED HAM." (For Devilled Ham.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,752.—*Title:* "VERIBEST VIENNA SAUSAGE." (For Vienna Sausage.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,753.—*Title:* "VERIBEST VEAL LOAF." (For Veal-Loaf.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,754.—*Title:* "VERIBEST CHICKEN LOAF." (For Chicken-Loaf.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,755.—*Title:* "VERIBEST SLICED SMOKED BEEF." (For Sliced Smoked Beef.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,756.—*Title:* "VERIBEST LUNCH TONGUE." (For Lunch-Tongue.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,757.—*Title:* "VERIBEST BRISKET BEEF." (For Brisket Beef.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,758.—*Title:* "VERIBEST HAM LOAF." (For Ham-Loaf.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,759.—*Title:* "VERIBEST BEEF LOAF." (For Beef-Loaf.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,760.—*Title:* "VERIBEST POTTED HAM." (For Potted Ham.) ARMOUR & Co., Chicago, Ill. Filed January 20, 1904.

10,761.—*Title:* "20TH CENTURY STOCK FOOD." (For Stock-Food.) WILLIAM HENRY EASON, Whitehall, N. Y. Filed January 13, 1904.

10,762.—*Title:* "TYPE SOAP." (For Saponaceous Compounds.) TYPE SOAP CO., Pierre, S. D., and Chicago, Ill. Filed January 25, 1904.

PRINTS

REGISTERED FEBRUARY 16, 1904.

897.—*Title:* "OUR FOOTWEAR ATTRACTS." (For Shoes.) ORAN MCCORMICK, Boston, Mass. Filed January 22, 1904.

898.—*Title:* "WOMENS' ARTISTIC EASTER FOOT-WEAR." (For Shoes.) ORAN MCCORMICK, Boston, Mass. Filed January 22, 1904.

899.—*Title:* "WE HAVE COMPETITION BEAT A MILE." (For Shoes.) ORAN MCCORMICK, Boston, Mass. Filed January 22, 1904.

900.—*Title:* "YOU WILL BE SURPRISED." (For Shoes.) ORAN MCCORMICK, Boston, Mass. Filed January 22, 1904.

901.—*Title:* "INSTRUCTIONS 'YANKEE' SAFETY RAZOR." (For Safety-Razors.) THE REICHARD & SCHEUBER MANFG. CO., New York, N. Y. Filed January 22, 1904.

902.—*Title:* "THE ONLY THIRD PARTY WELCOMED ON THESE OCCASIONS." (For Cocoa.) RUNKEL BROTHERS, New York, N. Y. Filed January 26, 1904.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE CRISLER.

Decided January 26, 1904.

DRAWINGS—UNNECESSARY FIGURES SHOULD BE CANCELED.

Where the invention claimed is a belt-shifter and the drawing includes a figure covering an entire sheet which is not necessary to a complete disclosure of the invention and which shows in all of its details a traction-engine upon which the invention may be used, *Held* that the unnecessary sheet of drawings should be canceled.

ON petition.

BELT-SHIFTER.

Mr. Rexford M. Smith for the applicant.

ALLEN, *Commissioner:*

This is a petition from the requirement by the Primary Examiner for the cancellation of Figure 1 of the drawings, which occupies the whole of Sheet 1.

The invention is a belt-shifter and is fully shown in Figs. 2 to 9. Fig. 1 merely gives a general view of the belt-shifter applied to a traction-engine and shows in detail all of the features of the engine, which have nothing whatever to do with the invention claimed. It is clear that the manner of applying the belt-shifter shown in Figs. 2 to 9 to any particular machine would be obvious to any mechanic, and it constitutes no part of the invention. Fig. 1 is unnecessary to a full and clear disclosure of the invention, and to permit it to remain would merely cause confusion and put the Office to the useless expense of printing it in the patent.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

SINGER MANUFACTURING COMPANY *v.* CRAMER.

Decided February 1, 1904.

1. PATENTS—CRAMER—SEWING-MACHINE TREADLE—NO INFRINGEMENT.

Claim 1 of Patent No. 271,426, granted to Herman Cramer for sewing-machine treadle, *Held* not infringed by a device conforming to the disclosure in Patent No. 306,469, granted to Diehl.

2. SAME—SAME—SAME—NOT A PIONEER INVENTION.

Held that the patent to Herman Cramer, No. 271,426, for a sewing-machine treadle is not a primary one and is not entitled to receive the broad construction claimed for it.

3. SAME—CONSTRUCTION OF CLAIM—LIMITED TO WHAT IS SHOWN AND DESCRIBED.

In the light of the circumstances surrounding the issuance of the patent the words of limitation contained in the claim must be given due effect and the elements entering into the combination must be construed to refer to elements having substantially the form and constructed substantially as described in the specification and shown in the drawing.

4. SAME—SAME—PROCEEDINGS IN PATENT OFFICE CONSIDERED.

The proceedings in the Patent Office leading to the grant of Cramer's patent considered and *Held* that it was the purpose of the Patent Office to limit the patent to the particular device of treadle-bar and bearing described and shown when employed in combination with a particular form of vertical cross-brace.

5. SAME—LACK OF INVENTION—SEWING-MACHINE TREADLE.

A vertical cross-brace and a lower cross-brace being common adjuncts of sewing-machines, and it being also customary to support the lower cross-brace in the web of the legs of sewing-machines and to utilize the legs as bearings, and it being old in machinery to employ solid castings as bearings for oscillating shafts where a fixed alinement was essential, *Held* that the mere conception that a double brace was capable of being advantageously utilized as bearings for sewing-machine treadles and devising means for so utilizing such a brace did not involve such exercise of the inventive faculty as entitled Cramer to claim broadly the use of such double brace.

6. SAME—INFRINGEMENT—QUESTION OF LAW—REVIEW BY WRIT OF ERROR.

Where the alleged infringing device is patented and it is apparent from the face of the instrument that extrinsic evidence is not needed to explain terms of art therein, so as to enable the court to compare the devices and determine the question of infringement, *Held* that the question of infringement is one of law susceptible of determination on writ of error.

7. SAME—SAME—DECISION REVERSED—NEW TRIAL.

Held that the trial court erred in refusing to direct a verdict for the defendant on the ground that no infringement whatever was shown, and the cause remanded for new trial.

ON writ of certiorari to the United States Circuit Court of Appeals for the Ninth Circuit.

STATEMENT OF THE CASE.

This controversy relates to an alleged infringement by the petitioner, a New Jersey corporation, of United States Letters Patent No. 271,426, issued to the respondent on January 30, 1883, for "a new and improved sewing-machine treadle." For convenience the petitioner will be hereafter referred to as the Singer Company and the respondent as Cramer.

The treadle device used by the Singer Company on its sewing-machines, which it was charged infringed the Cramer patent, was covered by Letters Patent No. 306,469, dated October 14, 1884, issued to the Singer Company as the assignee of one Diehl.

The file-wrapper and contents exhibit the following proceedings in the Patent Office respecting the Cramer patent. The original application was filed on May 25, 1882, and was for the grant of Letters Patent to Cramer "as the inventor, for the invention set forth in the annexed specification."

The specification and oath thereto read as follows:

I, Herman Cramer, of the city of Sonora, in Tuolumne county, in the State of California, have invented certain improvements in a treadle, to be used in sewing-machines, or other machinery

where a noiseless treadle may be required, of which the following is a specification:

My invention consists of the usual platform marked "A" in Fig. 1 of diagram on treadle-bar. The ends of said treadle-bar, marked "B," are shaped like the letter V and rest in socket in lower end of a brace "C," the socket being ♥-shaped, the brace "C" cast in one piece, and the treadle-bar and platform on the bar is also cast in one piece.

The treadle-bar rests in socket in brace "C," which is immediately above a cross-brace usually in machines to keep them from spreading apart, the nut on end of cross-brace is marked "D." Letter "M" immediately beneath cross-brace and treadle-bar is an oil-receiver to retain any drippings of oil from the bearings of treadle-bar.

My invention consists in having the ends of the treadle-bar V-shaped to fit in hole in brace "C," also ♥-shaped to receive the ends of the treadle-bar.

This V-shaped treadle-bar in brace "C" entirely prevents noise from the treadle, is self-adjusting, and does away with the necessity of cones and set-screws now in use. This I claim as my invention. Fig. 1 represents platform "A" and treadle-bar, the ends of which are V-shaped and marked "B."

Fig. 2 represents the lower end of brace "C" with hole ♥-shaped to receive the ends of treadle-bar "B." "D" represents nut on end of cross-brace immediately below treadle-bar.

STATE OF CALIFORNIA, }
County of Tuolumne. }

Herman Cramer, the above-named petitioner, being duly sworn, deposes and says that he verily believes himself to be the original and first inventor of the improvement in a noiseless self-adjusting treadle described in the foregoing specification, that he does not know and does not believe that the same was ever before known or used, and that he is a citizen of the United States.

The application was referred to the Examiner, who, on May 29, 1882, wrote to Cramer, in care of his attorneys, as follows:

The application is not prepared in conformity with the rules of the Office. The specification is written on both sides of the pages, while the rules direct that it should be written on one side of each page only.

No claim is appended to the specification. The oath is incomplete, as section 39 of the rules requires applicants to state under the oath if the invention has been patented to them, or with their knowledge and consent to others in any foreign country, and if so, the number, date and place of such patent or patents. Reference is made to the patent to G. W. Gregory, No. 256,563, April 18, 1882, which exhibits the alleged invention.

On August 3, 1882, the following substitute specification, concluding with an oath similar to that appended to the prior specification, was sent to the Patent Office:

I, Herman Cramer, of the city of Sonora, in Tuolumne county, in the State of California, have invented certain improvements in a treadle and brace, to be used in sewing-machines or other machinery where a noiseless treadle may be required, of which the following is a specification:

My invention consists in a combination of the usual platform marked "A," in Fig. 1 of diagram on treadle-bar. The ends of said treadle-bar marked "B" are to bear against mufflers.

The treadle-bar bearings are in and on brace "C." The treadle-bar rests in socket in brace "C," which is immediately above a cross-bar usually in machines to keep them from spreading apart.

The nut on end of cross-bar, is marked "D." Letter "M," immediately beneath cross-bar, and treadle-bar, is an oil-receiver to retain any drippings of oil from the bearings of treadle-bar.

The treadle-bar, mufflers and brace "C" are held between the right and left legs of the machine by means of a brace-bar underneath the treadle-bar.

This brace and socket or bearing in or on brace is in one piece.

The treadle-bar with mufflers on the ends, working or bearing in or on brace, entirely prevents noise from the treadle, is self-adjusting, and does away with the necessity for cones and set-screws now in use.

Fig. 1 represents platform "A" and treadle-bar, the ends of which may be V-shaped, or any shape to suit, marked "B."

Fig. 2 represents the lower end of brace "C."

"D" represents nut on end of cross-bar immediately below the treadle-bar.

What I claim is a combination of brace "C" with socket or bearing in it or on it, to receive the treadle-bar with the mufflers at the ends of treadle-bar or in or on brace "C" in connection with said brace "C," and the treadle-bar in connection with brace "C" and mufflers to work in or on brace "C," substantially as set forth.

On August 14, 1882, the Examiner wrote Cramer, in care of his attorneys, as follows:

Applicant's amended claims are met by the patent to J. E. Donovan, June 28, 1881, No. 243,529, in view of which a patent is again refused.

Following this rejection there was filed a revocation of the power of attorney which had been executed by Cramer in favor of the attorneys who had theretofore conducted the proceedings, and an appointment of other attorneys for the further prosecution of the application. On October 17, 1882, the substituted attorneys sent to the Patent Office a new drawing and an amendment of the specification on file, which amendment consisted in canceling all the specification except the signature and substituting for the matter so stricken out the following:

Be it known that I, Herman Cramer, of Sonora, in the county of Tuolumne and State of California, have invented a new and improved sewing-machine treadle; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to improvements in the bearings of sewing-machine treadles, and it has for its object to provide means, first, to keep the treadle-bearings rigidly in line and at a fixed distance apart to avoid friction, and second, to make its movement in use, noiseless. To this end my invention consists in the construction and combination of parts hereinafter fully described and claimed, reference being had to the accompanying drawings in which—

Fig. 1 is a perspective view of a portion of a sewing-machine showing my invention.

Fig. 2 is a transverse vertical section through one bearing of the treadle.

A represents the treadle provided with the usual pitman connection by which to run the sewing-machine wheel. B represents the two trunnions cast as a portion of the treadle and extending from its sides into loop-holes in the common cast-iron cross-brace C. These trunnions are sharpened to an edge or corner along their lower sides, and the lower end of the loop-hole is hollowed to an angle more obtuse than the edge of the trunnion, to serve as a bearing for the same and permit the rocking motion common to treadles.

C represents the usual cast-iron double brace connecting the two end legs diagonally in a plane generally vertical. The lower ends of this brace are secured directly to the web of the legs by bolts *d*, and for convenience and strength I make the two ends of the common cross-bar D serve as these bolts. The upper ends of the brace are secured as usual, either to the web of the legs or to the table of the machine near the legs.

The treadle and its trunnion-bearings are wholly independent of the cross-bar D, except its service as stated, to hold the brace to the legs. The bearing-holes in the brace are formed into long vertical loops to permit the entrance of the treadle.

Pieces of leather F, or other soft material, cover the top and end of each trunnion to serve as cushions to keep the same close in its bearing, to prevent the noise which would result were the trunnions permitted to bounce and thump endways, when the treadle is in motion. The leather F is fitted to the curve of the upper side of the trunnion, which is an arc of a cylinder, whose center of oscillation is the lower edge of the trunnion; the same leather also interposes between the end of the trunnion and the adjacent iron. *f* is a block serving as a mere backer to which the cushion F is attached. This block conforms to the back and top side of the cushion and fills the loop-hole in the brace above the trunnion. It also has tangs or projections *e*, resting in suitable recesses in the brace C, which are held between the brace and the web of the leg E, by which means the block and cushion are held in place. Below the bearings of the trunnions B I provide cups, M, attached to the ends of brace C, to catch the oil that usually drips from such bearings.

By this construction my treadle-bearings are rigidly fixed and in no way liable to get out of line or to require adjustment; the usual noise is prevented, and overflowing of oil is caught before it can do damage.

I am aware that sewing-machine treadles have before been provided with V-shaped bearings and I do not claim the same as my invention but—

What I claim and wish to secure by Letters Patent is—

1. The vertical double brace joining the legs of the two ends of a sewing-machine, provided with holes through its lower extremities to serve as bearings, in combination with a treadle provided with trunnions fitted to oscillate in said bearings, substantially as specified.

2. The sewing-machine legs E, the vertical double brace C secured thereto and provided with holes to serve as bearings for the treadle A, and the treadle provided with trunnions B to oscillate in said bearings, in combination with the cushion F and the block *f*, as and for the purpose specified.

Accompanying the new specification was the following communication, signed by the attorney:

A new oath is herewith filed. Gregory, referred to, pivots the grooved trunnions of his treadle upon knife-edges secured within the upper loops of two collars, which are secured to the cross-bar by means of set-screws to keep them from turning. Donovan pivots his treadle upon its trunnions having sharpened edges, in grooves in the cross-bar, where it is held by collars provided with flanges projecting over the trunnions. Applicant pivots his treadle upon the sharpened edges of its trunnions in loop-holes in the two ends of the brace which is bolted to the legs of the machine by the two ends of the cross-bar. This service of the cross-bar might be as well performed by two short bolts; but the bar being a usual cross-tie to stiffen the legs, applicant uses its ends as bolts to hold his brace ends to the legs. We have rewritten the specification to elucidate the inventor's claim. Should the case meet with favorable consideration a new drawing will be furnished. For the purpose of examination see pencil-sketch on sheet of drawing filed.

On October 19, 1882, the Examiner wrote Cramer, in care of his attorneys, as follows:

The case has been reconsidered in connection with the substituted specification filed the 17th inst., and the Examiner holds that the references previously cited—that of Gregory in particular—meets the alleged invention. The case is accordingly rejected.

To this letter the following reply was made by the attorneys for Cramer:

The Examiner will please notice that applicant's invention places both bearings of the treadle in the cross-brace.

By this means they may be made perfectly true in line either by casting or drilling and they cannot be thrown out of line either by use or by the most awkward setting up.

Therefore one source of friction is avoided. All the references have shown bearings made of two separate pieces which could readily be set up out of line or even be worked loose. The advantage is obvious.

A reconsideration is respectfully asked.

This closed the correspondence. Soon afterward notification was given that the patent had been allowed, and Letters Patent embodying the specification last above set forth, headed "Treadle for sewing-machines," etc., were issued, bearing date January 30, 1883. The following is a *facsimile* of the drawing referred to in the specification:

Fig 1

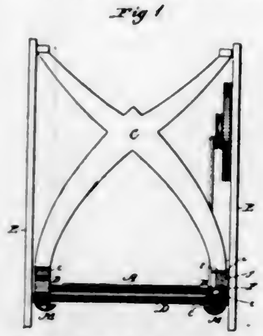
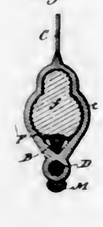
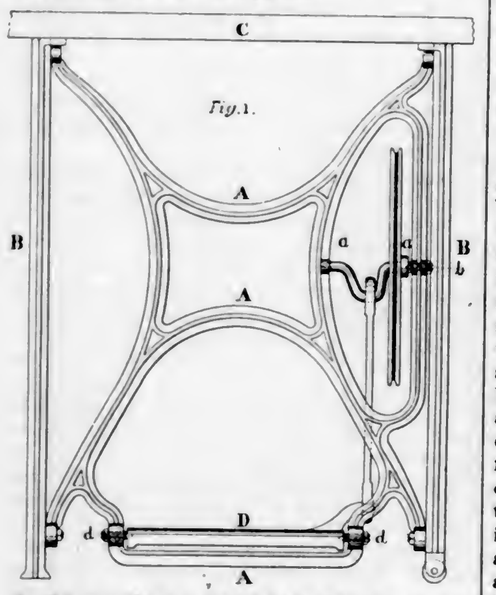


Fig 2



The alleged infringing device is delineated on the following *facsimile* of the first sheet of the drawing attached to the Diehl patent:

Fig. 1.



In this specification Diehl declared his invention to consist in—

certain new and useful improvements in sewing-machine stands and treadles;

and the object to be—

to secure a permanent and reliable support and adjustment for both the band-wheel and treadle and to preserve their respective relative positions, so that they will always coöperate to produce the best results with the least danger of friction or binding.

The claims were five in number, as follows:

1. In a sewing-machine stand, a cross-brace having supports for both the band-wheel and the treadle integral with said brace.
2. In a sewing-machine stand, a cross-brace having supports for both the band-wheel and the treadle integral with said brace, and provided also with means for adjusting and taking up the wear of such band-wheel and treadle.
3. In a sewing-machine stand, a cross-brace adapted to connect the legs or side pieces thereof, provided at one side with bearings for the fly-wheel crank-shaft, and having a support at its base for the treadle, substantially as set forth.
4. The combination, with the cross-brace of a sewing-machine stand, of a crank-shaft and a treadle, both mounted in the said brace, substantially as set forth.
5. A cross-brace for sewing-machine stands, having at its base a cross-bar, combined with a treadle mounted in said cross-bar, substantially as set forth.

To recover damages for alleged infringement of the first claim of the Cramer patent, in the use by the Singer Company of the Diehl device just referred to, Cramer brought this action at law against the Singer Company on October 8, 1896, in the Circuit Court of the United States for the Northern District of California. By amendment of the declaration the recovery was limited to damages sustained by infringements committed within the northern district of California. In the answer filed on behalf of the Singer Company—in addition to excepting to the jurisdiction of the court and pleading as *res judicata* a former judgment rendered in favor of the defendant in an action brought by Cramer against one Fry, an employee of the Singer Company (68 Fed. Rep., 201)—defenses were interposed of want of novelty and utility and lack of invention, and infringement was denied.

A trial was had which resulted (by direction of the court, sustaining the plea of *res judicata*) in a verdict and judgment for the defendant. This judgment was reversed by the Circuit Court of Appeals for the Ninth Circuit. (93 Fed. Rep., 636.) On a second trial a verdict was rendered for Cramer and judgment was entered thereon for the sum of $12,456. On appeal this judgment was affirmed by the Circuit Court of Appeals for the Ninth Circuit. (109 Fed. Rep., 652.) A writ of certiorari was thereafter allowed by this court.

Mr. Chas. K. Offield and *Mr. Chas. C. Linthicum* for the petitioner.

Mr. John H. Miller for the respondent.

Mr. Justice WHITE, after making the foregoing statement delivered the opinion of the Court.

Sixty-eight exceptions were taken by the Singer Company during the trial of the action in the circuit court and were pressed upon the attention of the circuit court of appeals in sixty-nine assignments of error. These exceptions were all in effect relied upon in the argument at bar; but from the view we take of the case it is unnecessary to consider and decide any other assignment than that based upon the exception to the refusal of the court, at the close of all the evidence, to instruct a verdict for the defendant on the ground that "no infringement whatever had been shown." As in each of the patents in question it is apparent from the face of the instrument that extrinsic evidence is not needed to explain terms of art therein, or to apply the descriptions to the subject-matter, and as we are able from mere comparison to comprehend what are the inventions described in each patent and from such comparison to determine

whether or not the Diehl device is an infringement upon that of Cramer, the question of infringement or no infringement is one of law and susceptible of determination on this writ of error. (*Heald* v. *Rice*, 104 U. S., 737; ***Market Street Cable R. Co.*** v. *Rowley*, 155 U. S., 621, 625.)

Whether error was committed in refusing to direct a verdict, is then the question to be decided. The claims of the Cramer patent are two in number, and read as follows:

1. The vertical double brace joining the legs of the two ends of a sewing-machine, provided with holes through its lower extremities to serve as bearings, in combination with a treadle provided with trunnions fitted to oscillate in said bearings, substantially as specified.

2. The sewing-machine legs E, the vertical double brace C secured thereto and provided with holes to serve as bearings for the treadle A and the treadle provided with trunnions B to oscillate in said bearings, in combination with the cushion F and the block *f*, as and for the purpose specified.

Infringement is charged only in respect to the first claim. In substance the contention for Cramer is that the conception or idea of the practicability and desirability of utilizing a vertical double brace as a support for a sewing-machine treadle was new with Cramer, and the combination devised by him produced such new and useful results and exhibited such an exercise of the inventive faculty as to cause the patent to be a pioneer, and, therefore, entitle the patentee to demand that the claim of the patent should be broadly and liberally construed. For the Singer Company it is contended that the availability of use of a vertical cross-brace as a support for a sewing-machine treadle was apparent to any person possessing ordinary mechanical skill, that the invention in question if patentable was in no just sense one of a primary nature, and that the combination described by Cramer is to be restricted narrowly to the mere details of the mechanism described as constituting the combination. We must first determine which of these contentions is correct.

Discussing the significance of the term "pioneer" as applied to a patented invention, this Court, in *Westinghouse* v. *Boyden Power Brake Co.*, (170 U. S., 537,) said (p. 561):

To what liberality of construction these claims are entitled depends to a certain extent upon the character of the invention, and whether it is what is termed in ordinary parlance a "pioneer." This word, although used somewhat loosely, is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before. Most conspicuous examples of such patents are: the one to Howe of the sewing-machine; to Morse of the electrical telegraph; and to Bell of the telephone. The record in this case would indicate that the same honorable appellation might be safely bestowed upon the original air-brake of Westinghouse, and, perhaps, also, upon his automatic brake. In view of the fact that the invention in this case was never put into successful operation, and was to a limited extent anticipated by the Boyden patent of 1868, it is perhaps an unwarrantable extension of the term to speak of it as a "pioneer," although the principle involved subsequently and through improvements upon this invention became one of great value to the public.

To ascertain whether the patented invention of Cramer is entitled to be embraced within the term pioneer as just defined, we will consider it in connection with the state of the art.

In the history of the art it is unquestioned that long prior to the application by Cramer for the grant of the patent in question, devices similar to the vertical cross-brace C and the lower cross-bar or tie-rod D, shown in the drawing of the Cramer patent, were commonly employed in sewing-machines. This is conceded by Cramer in statements made in the progress of his application through the Patent Office. Thus, in the specification which forms a part of the patent the vertical brace C is referred to (italics not in original) as "the *common* cast-iron brace C," and "the *usual* cast-iron double brace;" while in the first of the proposed specifications as well as in that which was finally adopted, the lower bar or tie-rod D is referred to (italics not in original) as "the *common* cross-brace or cross-bar." And in both the first and second specifications the usual purpose subserved in sewing-machines by this cross-bar was "to keep them (the machines) from spreading apart." It is, of course, obvious that such was also the purpose of the employment of the vertical double or cross brace.

The vertical double cross-brace C, as shown in the Cramer drawing, is a solid piece of casting. But it is also an undisputed fact that long prior to the alleged invention of Cramer it was a well-known method of construction when revolving or oscillating shafts were to be placed in bearings or supports, to have both bearings or supports of such shafts attached to a solid metal casting. Instances of such practices, testified to by witnesses, may be referred to. One was a device to hold a saw-mandrel or saw-arbor, the former being cast in one piece for the purpose of connecting both journals of the arbor to keep it in absolute line. Another device is the head-stock of an ordinary engine-lathe or machine-lathe, where in order to have a proper working machine it is absolutely necessary that the shaft-bearings shall be in exact alinement with each other and firmly in one place. Still another illustrative device employed for a great many years is embodied in a high-speed engine. So, also, in the sewing-machine art, as evidenced by the Willcox patent No. 106,242 of date August 9, 1870, to be hereafter noticed, the legs of sewing-machines had long before Cramer's application been used as bearings for treadle-bars, the bearings being cored out of the leg-castings.

A vertical cross-brace and a lower cross-brace or tie-rod being common adjuncts of sewing-machines at the time of Cramer's alleged invention, and it being also customary to support the lower cross rod or brace in the web of the legs of sewing-machines and to utilize the legs as bearings, and it being old in machinery to employ solid castings as bearings or supports for oscillating shafts where a fixed alinement was essential, we readily conclude that there was no merit in mere conception or idea that a vertical double brace was capable of being advantageously utilized as bearings for sewing-machine treadles, and that the devising of means for so utilizing such a brace did not involve such an exercise of the inventive faculty as entitled Cramer to assert in himself a right to claim a patent broadly for the use in combination of a vertical double brace and a sewing-machine treadle. In view of this and of the fact that the principal elements of the Cramer combination

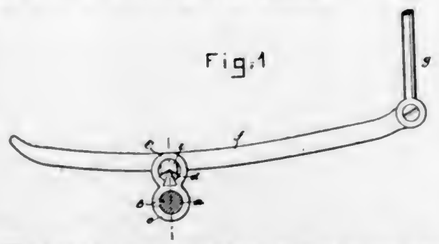
were old, we hold that the Cramer patent was not a primary one, and that it is not, therefore, entitled to receive the broad construction which has been claimed for it. Let us, therefore, examine the first claim of the patent in connection with the proceedings in the Patent Office anterior to the allowance of the patent, in order to fix its precise import, as a preliminary to considering whether, as correctly construed, it is infringed by the Singer appliance. The claim reads as follows:

The vertical double brace joining the legs of the two ends of a sewing-machine, provided with holes through its lower extremities to serve as bearings, in combination with a treadle provided with trunnions fitted to oscillate in said bearings, substantially as specified.

In the first specification sent to the Patent Office, the object sought to be attained is declared to be the elimination of the noise caused by the operation of a loose treadle, whether used in sewing-machines or other machinery. The applicant evidently had in mind treadles which oscillated upon rigid bars and rested on cone-bearings or analogous supports, attached to the rigid bars by set-screws—such bearings needing adjustment from time to time as the friction of the parts from the operation of the treadle caused wear and looseness of the parts. It was recited that the treadle-bar and the platform on such bar (*i. e.*, the foot-rest) was to be cast as one piece. The invention was declared to consist—

in having the ends of the treadle-bar V-shaped to fit in hole in brace C, also heart-shaped to receive the ends of the treadle-bar.

The application based upon this first specification was rejected, as mentioned in the statement of facts, upon a reference to the patent to G. W. Gregory, No. 256,563, April 18, 1882, which the Examiner stated exhibited "the alleged invention." Gregory termed his invention "An improvement in treadle-supports for sewing-machines." It is illustrated in the following *facsimile* of one of the figures of the drawing of the patent:



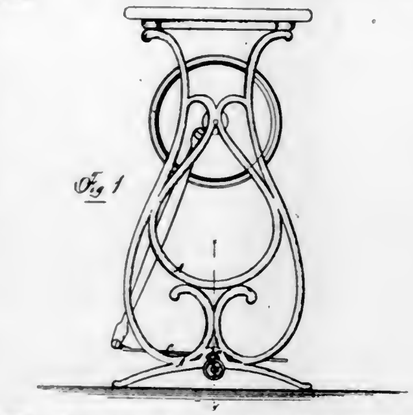
The invention consisted in attaching to the lower cross bar or rod of a sewing-machine two devices styled collars, each collar having two circular openings, one above the other. The upper opening contained a V-shaped bearing. The cross-bar was fitted into the lower opening. The treadle or foot-rest was provided on each side with short projections termed ears, which fitted on the V-shaped bearings in the upper portion of each collar. The specification contained the following statement:

I am aware that V-shaped or scale bearings are old in connection with the sewing-machine treadles—as, for instance, a long rod to which the treadle is secured has been provided at its ends in the set frames of the machine-stand with V-shaped bearings.

At the close of the descriptive portion of the specification it was further stated:

I am aware that sewing-machine treadles have had V-shaped bearings, as in United States Patents Nos. 148,759 and 106,242; but neither of said patents show a bearing constructed in accordance with my invention.

No. 106,242 was a patent granted to C. H. Willcox on August 9, 1870. It covers the following device:



The device shows the character of treadle-support now employed in the Willcox and Gibbs sewing-machine. The stand is devoid of a vertical cross-brace, the legs of the machine being braced near the bottom by the ordinary cross-bar or tie-rod. Just above this rod is exhibited the invention, being a—

rock-shaft B, beveled at the ends, and provided with V-shaped bearings *b*, extending to the center of motion of the rock-shaft B, and supported in a V-shaped bearing-seat *a*, in combination with a treadle-movement.

Elsewhere in the specification the bearings or supports in legs of the machine to receive the ends of the rock-shaft B are referred to as "V-shaped bearings." The statement is also made that—

the bar is prevented from having any undue lateral movement by the washers upon the ends of the tie-rod *c*, which holds the lower part of the frame together.

An alternate mode of construction of the bearings to support the rock-shaft was thus described (italics not in original):

The V-shaped seat of the bearings *a* may be formed of a separate piece of hard metal let into a groove in the frame, or otherwise applied to it, and the ends *b* may be formed also of a piece of hard metal, so that the wear of the parts in contact will be very slight, *and all rattling or loose jarring motions entirely prevented.*

Although the first refusal to allow a patent was made on May 29, 1882, it was not until August 3 following that the attorneys for Cramer transmitted an amended application to the Patent Office. In the substituted specification the object to be attained is stated as in the previous specification. An addition to the combination was made, however, in the use of what were styled "mufflers," against which it was said the ends of the treadle-bars were to bear. A patent was again refused, however, the Examiner noting that—

applicant's amended claims are met by the patent to J. E. Donovan, June 28, 1881, No. 243,529.

The drawing of the Donovan patent exhibits a sewing-machine stand, containing a vertical double brace. One form of treadle-bar constituting a part of the invention was represented as situated just below the vertical cross-brace and as having a

rounded edge, supported in V-shaped bearings, in the legs or sides of the frame. A shoulder was indicated on each end of the bar, and a substitute device was also shown called a button-fastener, which was to be attached from the outside of the frame to meet the end of the bar. It was said in the specification that the treadle-bar might be made of cast-iron and cast on and with the treadle. It was further stated (italics not in original):

The bearing-supports are preferably made by *coring out the frame* in the manner shown in the drawings. It is obvious that other forms of supporting these bearings may be provided.

Several modified forms of ordinary knife-edge bearings and inclined fastening and adjusted devices were also shown. In such modified forms the treadle was represented as designed to oscillate on a rigid bar, in oblong grooves therein; lugs, having knife-edge bearings underneath, being cast on each side of the treadle. Adjustable collars were shown, fastened to the shaft or bar, with inclined lugs or the side of the collars, projecting laterally over and resting against shoulders on the lugs upon each side of the treadle. The object of the invention was declared to be (italics not in original)—

to secure a more substantial table-frame to the driving mechanism and to provide adequate means for the employment of V-shaped treadle-bearings, *so as to obviate the difficulty heretofore occasioned by lost motion, consisting in vertical and endwise play of the treadle bar or shaft.*

It was further observed by the applicant just preceding his statement of claims as follows (italics not in original):

Frequent attempts have been made to use knife-edge bearings for the treadle in sewing-machines, but *it has been found to be difficult to prevent lateral lost motion and to adjust the parts so as to compensate for their wear and to prevent rattling of the treadle, which has been a serious objection in their employment.* My herein-described improvements have overcome all the serious objections hitherto attending their use.

Following the second rejection of his application, Cramer changed his attorneys as mentioned in the statement of facts. In the specification drafted by the new attorneys and which became the basis of the allowed patent, the asserted invention was limited to its use in sewing-machines, eliminating the statement of its adaptability "in other machinery." Concerning the "mufflers," which in the previous specifications were simply referred to as bearing against the end of the treadle-bars or as being on the ends of such bars, the following statement was made (italics not in original):

Pieces of leather F, or other soft material, cover the top and end of each trunnion to serve as cushions *to keep the same close in its bearing, to prevent the noise which would result were the trunnions permitted to bounce, and thump endways, when the treadle is in motion.* The leather F is fitted to the curve of the upper side of the trunnion, which is an arc of a cylinder whose center of oscillation is the lower edge of the trunnion; the same leather also interposes between the end of the trunnion and the adjacent iron. *f* is a block serving as a mere backer to which the cushion F is attached. This block conforms to the back and top side of the cushion and fills the loop-hole in the brace above the trunnion. It also has tangs or projections *e*, resting in suitable recesses in the brace C, which are held between the brace and the web of the leg E, by which means the block and cushion are held in place. Below the bearings of the trunnions B, I provide cups, M, attached to the ends of brace C, to catch the oil that usually drips from such bearings.

It is not a strained deduction that the elaborate provision just referred to, respecting the mode of use of and the purpose to be subserved by the mufflers, was in part at least induced by the statement in the Willcox and Donovan patents above quoted, concerning the difficulties which existed in connection with the use of knife-edge or V-shaped bearings. Be this as it may, however, we are of opinion that the Patent Office, after twice refusing to allow the patent because of the prior patents referred to, was led to take favorable action, owing to the peculiar form of the described bearing, when situated in a vertical cross-brace such as was shown in the drawing, with the described accessories, and that it was the purpose of the Patent Office to limit the patent to the particular device of treadle-bar and bearing described and shown when employed in combination with a particular form o vertical cross-brace. And this view is supported by the claim in question. It contains words of limitation. It is recited therein that the combination is to be "substantially as specified," that is, as described in the specifications and shown in the drawings. (*Westinghouse* v. *Boyden Power Brake Co.*, 170 U. S., 537, 558.) On referring to the specification we find it there expressly declared that the invention consisted—

in the construction and combination of parts hereinafter fully described and claimed, reference being had to the accompanying drawing.

Nowhere, either expressly or by reasonable inference, is it asserted that simply the best or a preferable construction of the whole or any part of the combination is what is described. On the contrary, starting with the well-known vertical cross-brace, a usual accessory to sewing-machines, a specific mode of construction of the treadle-bar and of the bearings or supports in the vertical cross-brace, is set forth, and the specification is concluded with the following declaration (italics mine):

By this construction my treadle-bearings are rigidly fixed and in no way liable to get out of line or to require adjustment; the usual noise is prevented, and overflowing of oil is caught before it can do damage.

To prevent a broadening of the scope of the invention beyond its fair import, in the light of the circumstances surrounding the issuance of the patent, the words of limitation contained in the claim must be given due effect, and, giving them such effect, the statement in the first claim of the elements entering into the combination must be construed to refer to elements in combination having substantially the form and constructed substantially as described in the specification and shown in the drawing.

Having determined the proper construction of the claim of the Cramer patent, which is relied upon, it remains only to consider whether, as correctly construed, infringement resulted from the employment by the Singer Company of the device covered by the Diehl patent. We find no difficulty in reaching a conclusion on this branch of the case. The treadle-supports devised by Diehl, though they serve the same purpose as the device described and shown in the Cramer patent, are substantially different in construction. Irrespective of the question whether the treadle in the Diehl device is hung in the vertical cross-brace proper, or in an addition thereto properly to be regarded as the lower cross-rod or cross-tie of the machine, it is manifest that the bearing is essentially different in construction from that of Cramer, and is not adapted to receive an oscillating bar; while the treadle is not supplied with long projections fitted to oscillate in the vertical cross-bar on bearings therein, but is constructed to turn on point center screws which fit tightly in circular openings in projections from the vertical cross-bar. There is no substantial identity in the character of the two devices, unless, by substantial identity, is meant every combination which produces the same effect. The differences between the Diehl device and the Cramer construction are substantial and not merely colorable.

The trial court should have granted the motion to direct a verdict for the defendant. In affirming the action of the trial court in overruling the motion, the circuit court of appeals erred, and its judgment must, therefore, be reversed. The judgment of the circuit court is also reversed and the cause is remanded to that court with directions to grant a new trial, and for further proceedings not inconsistent with this opinion. *Reversed and remanded.*

Mr. Justice McKENNA took no part in the decision of this cause.

Patents Nos. 752,638 to 753,216.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 108—No. 8 TUESDAY, FEBRUARY 23, 1904. PRICE—$5 per year.

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Trade-Marks	64—No.	42,093 to No. 42,156, inclusive.
Labels	16—No.	10,763 to No. 10,778, inclusive.
Prints	4—No.	903 to No. 906, inclusive.
Reissues	3—No.	12,197 to No. 12,199, inclusive.
Total issue	680	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	5	....	Nevada	....	....
Alaska Territory	....	....	New Hampshire	....	....
Arizona Territory	....	....	New Jersey	22	1
Arkansas	1	....	New Mexico Ter't'y	3	....
California	21	2	New York	92	27
Colorado	8	....	North Carolina	1	1
Connecticut	15	1	North Dakota	....	....
Delaware	....	....	Ohio	49	4
District of Columbia	2	....	Oklahoma Territ'y	5	....
Florida	2	1	Oregon	4	....
Georgia	7	2	Pennsylvania	59	5
Hawaii Territory	....	....	Porto Rico	....	....
Idaho	....	....	Rhode Island	5	....
Illinois	76	9	South Carolina	2	....
Indian Territory	....	....	South Dakota	2	....
Indiana	14	2	Tennessee	3	....
Iowa	20	....	Texas	7	....
Kansas	5	2	Utah	....	....
Kentucky	5	1	Vermont	1	....
Louisiana	4	....	Virginia	7	1
Maine	2	....	Washington	6	....
Maryland	2	2	West Virginia	1	....
Massachusetts	20	8	Wisconsin	8	....
Michigan	9	2	Wyoming	1	....
Minnesota	8	3	U. S. Army	....	....
Mississippi	4	....	U. S. Navy	....	....
Missouri	8	....	Total to citizens of the United States	529	74
Montana	....	....			
Nebraska	4	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade Marks and Prints.
Argentina	....	....	Netherlands	1	....
Austria-Hungary	4	....	Newfoundland	....	....
Belgium	1	....	New South Wales	....	....
Brazil	....	....	New Zealand	2	....
British West Indies	....	....	Norway	1	....
Canada	8	....	Persia	....	....
Cape Colony	....	....	Queensland	....	....
Chile	....	....	Roumania	....	....
China	....	....	Russia	1	....
Costa Rica	....	....	San Salvador	....	....
Cuba	....	....	Scotland	3	....
Denmark	2	....	South Africa	....	1
Ecuador	....	....	Spain	....	....
England	20	3	Sweden	1	....
France	6	....	Switzerland	1	....
Germany	11	6	Transvaal, South Africa	1	....
India	....	....	Victoria	....	....
Ireland	1	....	Western Australia	....	....
Italy	....	....	Total to citizens of foreign countries	64	10
Japan	....	....			
Java	....	....			
Mexico	....	....			

Withdrawal After Payment of Final Fee.

RULE 165. * * * When the final fee has been paid upon an application for Letters Patent, and the case has received its date and number, it will not be withdrawn or suspended from issue on account of any mistake or change of purpose of the applicant or his attorney, nor for the purpose of enabling the inventor to procure a foreign patent. * * *

Notice of Interference.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 16, 1904.

To the next of kin and legal representatives of Samuel B. Locklin, deceased, late of Boston, Mass.:

Notice is hereby given that on October 14, 1903, an interference was declared between the patent to Samuel B. Locklin, No. 706,574, August 12, 1902, and a pending application, the issue of the said interference being claims 1 to 4 of the patent.

Notice is further given that the time within which the statements demanded by Rule 110 must be filed has been extended to April 5, 1904.

This notice will be published in the OFFICIAL GAZETTE for six weeks.

F. I. ALLEN,
Commissioner.

Notice.

Hereafter coupons unless properly filled out will not be accepted in payment for copies of publications.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 16, 1904.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
322	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 3	Feb. 4	141
154	XI. Boots and Shoes, Harness, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Jan. 28	Jan. 8	223
312	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Paper Manufactures.	Jan. 23	Jan. 12	292
321	I. Tillage, etc., and Fences	Jan. 20	Jan. 18	178
308	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 19	Dec. 2	430
172	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 18	Feb. 2	150
179	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 18	Feb. 2	348
167	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Jan. 18	Feb. 2	255
152	XXX. Fluid-Pressure Regulators, Lamps and Gas-Fittings.	Jan. 18	Feb. 2	220
159	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 18	Jan. 30	107
147	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 18	Jan. 28	208
332	X. Carriages and Wagons	Jan. 18	Jan. 28	196
318	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 18	Jan. 27	129
142	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution	Jan. 18	Jan. 26	281
148	XXXII. Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 18	Jan. 23	314
327	XVIII. Steam-Engineering, etc	Jan. 18	Jan. 22	148
379	XXIII. Acoustics, Horology, Recorders, and Registers.	Jan. 18	Jan. 22	224
232	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 18	Jan. 20	329
75	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 18	Jan. 18	231
244	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Packing and Storing Vessels, etc.	Jan. 16	Feb. 2	206
303	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 16	Feb. 2	201
144	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas and Canes, and Toilet.	Jan. 16	Feb. 2	220
175	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 16	Feb. 2	213
315	XXV. Butchering, Mills, Threshing, and Vegetable Cutters and Crushers.	Jan. 16	Jan. 18	268
109	XVI. Telegraphy and Telephony	Jan. 16	Dec. 29	198
12	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 16	Nov. 27	346
	Between one and two months.			
329	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 15	Jan. 23	260
137	VIII. Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 15	Jan. 20	335

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
378	XXXVIII. Artesian and Oil Wells, Bottles and Jars, Care of Live Stock, Educational Appliances, Fishing and Trapping, Signals, Stationery, Stone-Working, Store Furniture.	Jan. 14	Jan. 8	360
307	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 11	Dec. 31	341
122	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 9	Jan. 2	345
133	XXII. Fire-Arms, Ordnance, Navigation.	Jan. 6	Dec. 1	207
304	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock.	Jan. 5	Nov. 14	494
128	II. Farm Products, etc., Lubricators, Presses, etc.	Dec. 29	Dec. 28	342
324	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 24	Dec. 21	248
107	XXXVII. Electricity, Conductors, Special Applications, Electric Heaters, Lighting, and Signaling.	Dec. 24	Dec. 2	405
105	XXVI. Electricity, Generation, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 23	Dec. 1	295
	Between two and three months.			
382	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 14	Dec. 14	487

Total number of applications awaiting action.....10,087

	Oldest new application awaiting action.	Oldest amended application awaiting action.	No. of applications awaiting action.
Under one month.			
*Designs	Feb. 8	Feb. 12	23
†Trade-Marks	Jan. 30	Feb. 13	51
‡Labels and Prints	Feb. 13	Feb. 15	5

Changes in Classification.

(ORDER No. 1,575.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 12, 1904.

The following changes in classification are hereby directed, to take place this day:

In Division XXXVII, class 176, Electric Lighting, establish subclass—

Lights—
Incandescent—
Vapor-conductors—
322. Mercury.

In same Division, class 175, Electricity, Special Applications, establish subclass—

264. Discharging static charges.

F. I. ALLEN,
Commissioner.

Changes in Classification.

(ORDER No. 1,576.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 17, 1904.

The following change in the classification of patents is hereby directed, to take effect this day:

In Division IV, class 61, Hydraulic Engineering, establish the following subclass:

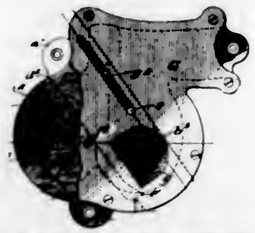
Piles—
52. Sheet-piling.

F. I. ALLEN,
Commissioner

PATENTS

GRANTED FEBRUARY 23, 1904.

752,638. MINER'S CHECK-HOLDER. DENNIS P. ADAMS, Huntington, W. Va. Filed Oct. 20, 1903. Serial No. 177,731. (No model.)



Claim.—1. A miner's check-holder; comprising a receiver having a throat for the insertion of the check, means for locking the check within the said receiver, said means being automatically released when the car to which the holder is attached is tipped.

2. A miner's check-holder; comprising a receiver having a throat for the insertion of the check, a device for closing said throat, said device being controlled by the entrance of the check inserted, an outlet for the deposited check and means for closing the said outlet for the purposes described.

3. A miner's check-holder having a receiving-chamber provided with a throat for the insertion of a check, a cut-off for the said throat mounted within the said chamber, and controlled by the first check inserted to cut off the said throat, said holder having an outlet for the deposited check, a cut-off for said outlet, an automatically-operating means for holding the slide closed until the car on which the holder is mounted is tipped as set forth.

4. A check-holder having a receiving portion provided with a throat for the insertion of the check, a lever pivotally mounted within said pocket, adapted to catch the inserted check and to be tilted by the weight thereof to close the check-throat, said holder having an outlet for the deposited check and a cut-off for said outlet slidably mounted between the said outlet and the check-receiving pocket, as set forth.

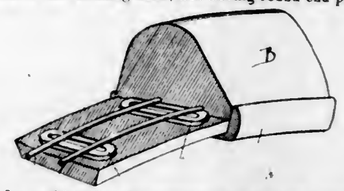
5. A check-holder comprising a back plate adapted to be secured to the car-body, said plate having a recess for the check and an entrance-throat, a gravity-lever mounted within said recess and including an arm adapted to receive and hold the deposited check and having an extension adapted to close the throat when a check is caught by the arm, a cover-plate having a check-outlet, a slide for closing the said outlet, operable under the cover-plate, and the gravity-detent for locking the slide, the said detent being mounted to automatically release the slide when the car is tipped, as specified.

6. A check-holder which comprises a back plate having a pocket to receive the check and provided with a check-receiving throat that communicates with the said pocket, a gravity-lever mounted within the said pocket having a member to catch and hold the deposited check, and having a portion adapted to close the receiving-throat, a cover-plate having a check-outlet, a movable member for closing the said outlet, a lock for engaging said outlet-closing member, consisting of a gravity-actuated pivoted latch adapted to disengage with the said outlet-closing member when the car, to which the holder is attached, is tipped.

752,639. CUSHION-TIRE. SAMUEL ADLAM, New York, N. Y. Filed May 1, 1903. Serial No. 155,123. (No model.)

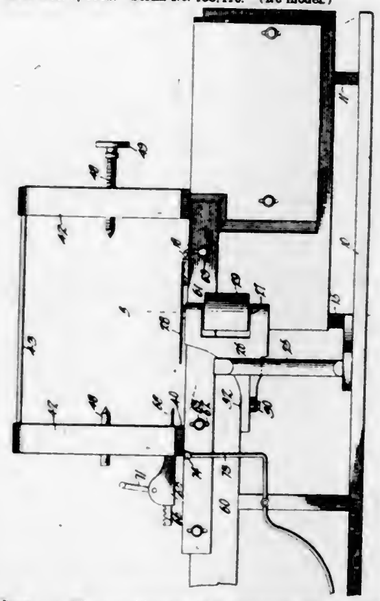
Claim.—1. In a vehicle-tire the combination with a rim having a channel therein, an elastic body and a retaining-band, of a plurality of cross-supports, independent of each other and independent of the retaining-band, and each consisting of an elongated endless band of metal having its sides extending transversely across the elastic body and beneath the retaining-band.

2. In a vehicle-tire the combination with a rim having a channel therein, an elastic body and a retaining-band, of a plurality of cross-supports, independent of each other and independent of the retaining-band and each consisting of an elongated endless band of metal having its sides extending transversely across the elastic body and beneath the retaining-band, and having round end portions.



3. In a vehicle-tire, the combination with a rim having a channel therein, an elastic body and a retaining-band, of a plurality of cross-supports, independent of each other and independent of the retaining-band, and each consisting of an elongated endless band of metal having a rib formed thereon and having its sides extending transversely across the elastic body and beneath the retaining-band.

752,640. SPOKE-CUTTING MACHINE. GEORGE F. AUTRY, Greenfield, Tenn., assignor of one-half to Jas. T. Gardner, Greenfield, Tenn. Filed Dec. 1, 1902. Serial No. 133,410. (No model.)



Claim.—1. The combination in a spoke-cutting machine, of a pair of saws disposed at an angle to each other, a saw-carriage, center pins on said carriage for engaging the ends of the timber from which the spokes are to be cut, and an independent manually-operated tongue or finger arranged on the carriage and adapted to engage with the end of the timber at a point substantially in alinement with the saws to hold the timber from rotative movement and resist endwise thrust due to the action of the saws.

2. The combination in a spoke-cutting machine, of a pair of saws disposed at an angle to each other, a longitudinally-movable carriage, center pins arranged on the carriage for engaging the ends of the timber, a timber-supporting roller disposed on the carriage and arranged in a vertical plane to one side of the vertical plane of said center pins, and an independent timber-engaging means disposed on the carriage below said pins at a point substantially in alinement with the saws and serving to lock the timber from rotative movement.

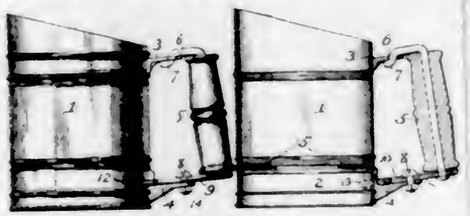
3. The combination in a spoke-cutting machine, of a pair of cutting-saws disposed at an angle to each other a longitudinally-movable carriage, vertically-movable center pins guided by the carriage, a timber-engaging tooth disposed at one end of the carriage to engage the end of the piece of material being severed by the saws and resist endwise thrust due to the sawing operation, and means for forcing said tooth into positive engagement with said material.

4. The combination in a spoke-cutting machine, of a pair of saws disposed at an angle to each other, a carriage having vertically-slotted heads, the walls of each slot being provided with vertical grooves, a center pin having an annular flange fitting in one pair of the grooves to permit free revoluble movement of the pin and free vertical movement thereof, a second flange or collar having an internal thread, and an adjustable threaded pin fitting within said threaded flange or collar, the flange or collar moving freely in the grooves of said opposite head, substantially as specified.

5. The combination in a spoke-cutting machine, of a pair of cutting-saws arranged at an angle to each other, a timber-supporting carriage, timber-engaging center pins mounted on the carriage, and a pedal-lever pivoted to the frame of the machine independent of the carriage and having a tooth for engaging and turning the timber.

6. The combination in a spoke-cutting machine, of the frame, a timber-supporting carriage mounted thereon, slotted standards carried by the frame, brackets pivoted to said standards and each having one end bifurcated and arranged to form bearings for a saw-arbor, saw-arbors carried thereby and disposed parallel with the bracket-pivots, a saw and a driving-pulley mounted on each arbor, a fixed bracket carried by each standard and provided with a segmental slot, and a locking-bolt extending through the slot and through the adjacent end of the pivot-saw-carrying bracket, substantially as specified.

752,641. FLOUR-SIFTER. AUGUSTUS C. BARLER, Chicago, Ill. Filed July 11, 1902. Serial No. 115,223. (No model.)



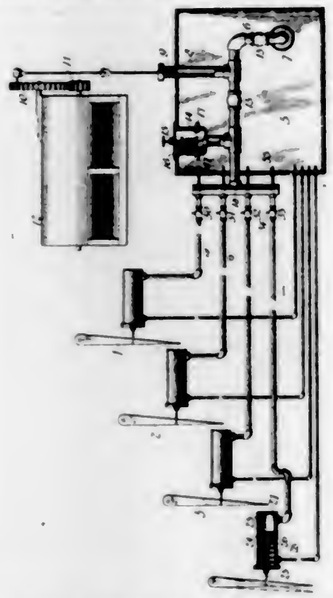
Claim.—1. The combination with a sifter and a handle pivotally connected at its upper and lower ends to the sifter, of arms fixed to the handle and forming abutments on the opposite sides thereof, substantially as and for the purpose described.

2. The combination with a sifter and upper and lower arms projecting therefrom, of a frame pivoted to one of said arms and having portions terminating in proximity to the sifter on opposite sides of the handle, and a handle secured to the said frame and pivotally secured to the other projecting arm.

3. The combination with a sifter and fixed arms projecting outwardly therefrom, of a triangular frame pivotally connected to one of said fixed arms, two members of said frame terminating near the wall of the sifter so as to strike the same alternately when the frame is vibrated, a handle pivoted to the third member of said triangular frame and a pivotal connection between the other end of said handle and the other fixed arm on the sifter.

752,642. MULTIPLE-SWITCH-OPERATING MECHANISM. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moes, Los Angeles, Cal. Filed May 27, 1903. Serial No. 158,953. (No model.)

Claim.—1. A switch-operating mechanism, comprised of a fluid compressor or pump, an actuator for constantly operating said compressor or pump, fluid-pressure-operated means for moving a switching element, and fluid-pressure-relieving means operating alternately with the fluid-pressure-operating means.



2. A multiple-switch-operating mechanism, comprised of a fluid compressor or pump, an actuator for constantly operating said compressor or pump, a hand-controlled fluid-pressure-operated means for moving each switching element, and fluid-pressure-relieving means operating automatically alternately with the fluid-pressure-operating means.

3. A multiple-switch-operating mechanism, comprised of a fluid compressor or pump, an actuator for constantly operating said compressor or pump, fluid-pressure-operated means including hand-controlled three-way valves for moving the switching elements and fluid-pressure-relieving means operating alternately with the fluid-pressure-operating means.

4. A multiple-switch-operating mechanism, comprised of a fluid compressor or pump, an actuator for constantly operating said compressor or pump, fluid-pressure-operated means including pistons and hand-controlled three-way valves for moving the switching elements, and a fluid-pressure-relieving pop-valve operating alternately with the fluid-pressure-operating means.

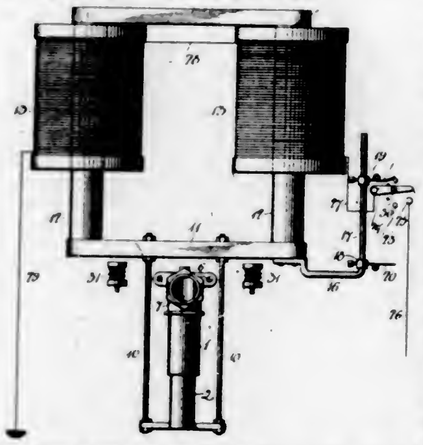
5. A multiple-switch-operating mechanism, comprised of a liquid-pump, a motor for operating said pump, a liquid-reservoir, liquid-operated means including a piston and hand-operated three-way valves for moving the switching elements, liquid-pressure-relieving pop-valve operating alternately with the switch-element-moving means, and liquid-return pipes at the three-way valves and pop-valve.

752,643. ELECTRIC PUMP FOR SWITCHING MECHANISMS. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moes, Los Angeles, Cal. Filed July 31, 1903. Serial No. 167,727. (No model.)

Claim.—1. An electric pump comprised of a cylinder, a gravity-retracted piston, an armature connected with the piston, a solenoid-magnet for moving said armature, a switch-lever and arms movable with the piston for engaging and moving the switch-lever from opposite directions to make and break the magnet-circuit.

2. An electric pump comprised of a cylinder, a gravity-retracted piston, an armature connected with the piston, a solenoid-magnet for moving said armature, a pivoted switch-lever and adjustable spring-arms movable with the piston for engaging and moving the switch-lever from opposite directions to make and break the magnet-circuit.

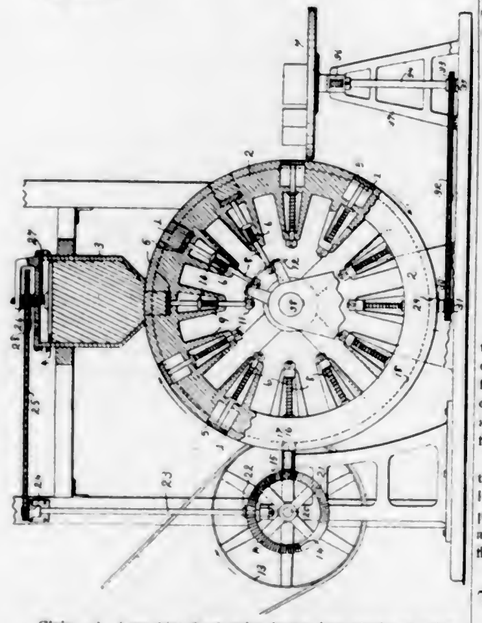
3. An electric pump comprised of a cylinder, a gravity-retracted hollow piston, a check-valve at the upper end of the piston, an armature connected with the piston, a solenoid-magnet for moving said armature, and means including an automatically-moved switch-lever for making and breaking the magnet-circuit.



4. An electric pump comprised of a cylinder, a gravity-retracted hollow piston, a check-valve at the upper end of the piston, solenoid-magnets, armatures at said magnets, a yoke connecting the armatures and to which the piston is attached, spring-buffers receiving the impact of the downwardly-moving parts, and means including an automatically-moved switch-lever for making and breaking the magnet-circuit.

5. An electric pump comprised of a cylinder, a pump-piston, a solenoid-magnet, an armature connected with the piston, a rod carried by the armature, spring-arms adjustable on said rod, pins in the paths of said arms, a pivoted switch-lever between said pins and carrying a shoulder in the paths of said arms, and a contact in the path of movement of said switch-lever.

752,644. BRIQUETING-MACHINE. LOREN BENSON and RAY DE FOREST, Fort Atkinson, Wis. Filed May 7, 1903. Serial No. 156,044. (No model.)

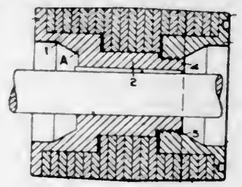


Claim.—1. A machine for forming butter into blocks or cakes; comprising a plurality of butter-receiving dies supported upon a revoluble wheel or frame; a piston located in each of said dies; means for automatically forcing said pistons outward to the front end of said dies; a butter-supply tank supported in contact with the periphery of said wheel in front of said dies; means for communicating an intermittent motion to said wheel, whereby said dies are brought successively to, and stopped in front of the discharge end of said supply-tank; means for forcing the butter from said supply-tank into said dies against said pistons, whereby said pistons are forced to the inner end of their retaining-dies; means for retaining said pistons at the inner end of their movement while passing from the supply-tank to the place of discharge; and means for moving said pistons forward and forcing the butter from said dies when the latter has reached the point of discharge, substantially as set forth.

2. A machine for forming butter into blocks or cakes, comprising a plurality of butter-receiving dies supported from a revoluble wheel or frame; a butter-supply tank supported in contact with the periphery of said wheel in front of said dies; a piston located in said supply-tank; means for communicating an intermittent movement to said wheel, whereby said dies are brought successively beneath the discharge end of said tank; means for communcating motion from the source of power to said piston and forcing the contents from said supply-tank into said dies while the same are at rest; means for communicating motion from such source of power to said dies while said piston is at rest; means for retaining the pistons in said dies at the inner end of their movement, while passing from the supply-tank to the place of discharge and means for forcing said pistons outwardly and discharging the contents of said dies when released from their retaining mechanism, substantially as set forth.

3. A machine for forming butter into blocks or cakes, comprising a plurality of butter-receiving dies supported from a revoluble wheel or frame; a butter-supply tank supported in contact with the periphery of said wheel in front of said dies; a piston located in said supply-tank; means for communicating an intermittent movement to said wheel, whereby said dies are brought successively beneath the discharge end of said tank; means for communicating motion from the source of power to said piston and forcing the contents from said supply-tank into said dies while the same are at rest; means for communicating motion from such source of power to said dies while said piston is at rest; means for retaining the pistons in said dies at the inner end of their movement, while passing from the supply-tank to the place of discharge; means for forcing said pistons outwardly and discharging the contents of said dies when released from their retaining mechanism; a revolving platform located at the discharge end of said butter-forming dies and means operated by the driving mechanism of the machine for communicating an intermittent movement to said platform, all substantially as, and for the purpose specified.

752,645. PAPER CYLINDER-PULLEY FOR THRESHING-MACHINES. OLE BERG, Ash creek, Minn. Filed June 27, 1903. Serial No. 163,286. (No model.)



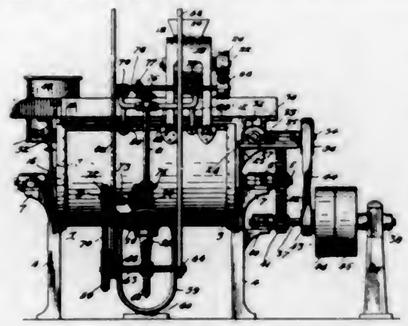
Claim.—1. A pulley of the class described, consisting of a sectional hub provided with flanged ends, there being an interlocking connection for said hub-sections, one of said hub-sections being formed with a square portion and both of said hub-sections being cylindrical intermediate of said square portion and said flanges, and a series of washers surrounding said sections intermediate of said flanged ends.

2. In a pulley of the class described, the combination of a sectional hub having threaded connection and flanged outer ends, said hub being formed with a central square portion and with cylindrical portions intermediate of said square portion and said flanged ends, and a series of washers surrounding said hub intermediate of said flanged ends.

752,646. COMBINED SAND SCREEN AND MIXER. HORACE G. BOUGHTON, Cleveland, Ohio. Filed Dec. 20, 1902. Serial No. 136,024. (No model.)

Claim.—1. In a machine of the character described, the combination with a mixer provided with suitable driving mechanism, of

a vibratory screen disposed above said mixer, springs for supporting said screen, tension devices for regulating the springs, and means for imparting motion to said screen from the driving mechanism of the mixer, substantially as set forth.



2. In a device of the character described, the combination with a mixer having suitable driving mechanism, of a disintegrator supported above said mixer, means for imparting motion to said disintegrator, a spring-supported, vibratory screen interposed between said disintegrator and mixer, and means for imparting motion to said screen from the driving mechanism of the mixer, substantially as set forth.

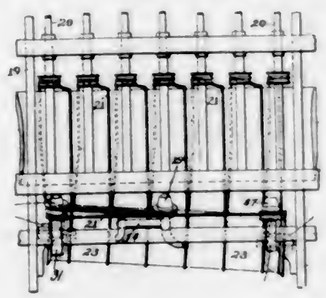
3. The combination with a mixer of the character described having suitable driving mechanism, of a disintegrator supported above said mixer comprising a casing provided with hopper and a discharge-outlet, a shaft journaled in said casing, curved arms arranged in longitudinal overlapping rows upon said shaft, and means for imparting motion to said shaft, substantially as set forth.

4. In a device of the character described, the combination with a mixer having a valve-controlled discharge-spout, of a swiveled yoke having movement in a horizontal plane, a swinging frame journaled or pivoted upon said yoke, and an endless conveyer mounted in said yoke and frame and adapted to receive the discharge from said spout of the mixer, substantially as set forth.

5. A mixer of the character described, comprising a cylindrical body or shell having a central discharge-opening, a shaft in said body, means for imparting motion to said shaft, and paddles or agitators secured to the shaft and arranged in pairs and set alternately at an angle to the right and left, some of said paddles being wider than the others to direct the material toward said discharge-opening, substantially as described.

6. A mixer of the character described, comprising a body or shell, a shaft in said body, means for imparting motion to said shaft, and paddles or agitators carried by the shaft and disposed in pairs, the paddles of each pair projecting in diametrically opposite directions and having their blades set at different angles to the shaft, some of said pairs of paddles being set at right angles to the other pairs of paddles and the several sets of paddles having their blades alternately set at different angles, the blades of the several pairs being adjustably mounted and some of the blades being wider than the other blades to direct the material toward the outlet, substantially as described.

752,647. MECHANISM FOR GUIDING AND APPLYING TENSION TO SPINDLE-DRIVING BANDS. JOHN BOYD, Bothwell, Scotland. Filed Apr. 19, 1902. Serial No. 103,691. (No model.)

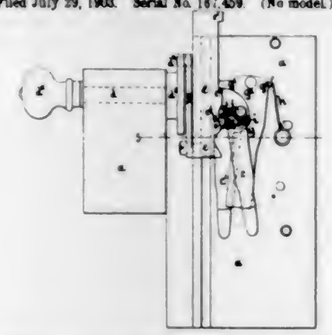


Claim.—1. In spinning, twisting, winding and similar machines, in combination with a horizontal driving-cylinder, a driving-band, and a number of spindles driven by the band from the cylinder, two or more guide-pulleys having live footstep-spindles 40, oil-cup sockets 41 in which these spindles work, stationary brackets 30 and 31, of which said sockets form part, the sockets being at angles to suit the rim of the band as it goes to or returns from the driving-cylinder, a tension-pulley 29 having a live footstep-spindle 40, and an oil-cup socket 41 in which this last-named spindle works, a tension-pulley carriage 34, of which said last-named socket forms part, and the socket being at an angle to suit the run of the driving-band as it passes around said tension-pulley 29, all substantially as described.

2. In spinning, twisting, winding and similar machines, the combination of a horizontal driving-cylinder, a number of spindles and an endless band passing around the driving-cylinder and each of the spindles, with two stationary brackets 30 and 31, and guide-pulleys therein for the band, one of said brackets carrying more than one pulley, live footstep-spindles for said guide-pulleys, oil-cup-socket bearings for said pulleys at angles to suit the run of the band from and to the driving-cylinder, and a tension-pulley also having a live footstep-spindle and an oil-cup-socket bearing for the latter, substantially as described.

3. In spinning, twisting, winding and similar machines, in combination with a horizontal driving-cylinder, a driving-band and a number of spindles driven by the band from the cylinder, a horizontal bar 26, two or more stationary guide-pulleys mounted on said bar and having live footstep-spindles, oil-cup sockets in which these spindles work, stationary brackets 30 and 31 carrying these sockets, a tension-pulley 29 having a live footstep-spindle 40, an oil-cup socket 41 for this spindle, a tension-pulley carriage 34 carrying this last-named socket and mounted to traverse upon the bar 26 automatically between the guide-pulley brackets, the guide-pulleys being adapted to bring the endless band 21 back to the position from which it starts and the tension-pulley having means to tension the band, all substantially as described.

752,648. CARTRIDGE-FEEDING DEVICE. MORTIMER L. BRISTOL, West Hartford, Conn., assignor to Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed July 29, 1903. Serial No. 167,459. (No model.)



Claim.—1. A cartridge-feed comprising a chute to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a projecting hook to strip the clip from the lowest cartridge in said clip, a pivoted carrier mounted to move across the mouth of said chute, and means to operate said carrier to transfer the cartridge from the chute to the path of the plunger.

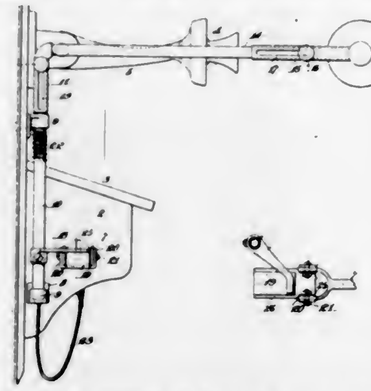
2. In a cartridge-feed the combination of a longitudinally-reciprocating plunger, a cartridge-magazine located alongside of said plunger and fitted to receive and to support a clip holding the cartridges one upon another, a lateral projection carried by said plunger constructed to clear the cartridges in the magazine and to strip the clip from the lowest cartridge held in said magazine, and a lever pivoted to swing across the magazine and connected with the plunger, whereby the movement of said plunger causes the lever to transfer the cartridge from the magazine to the path of said plunger.

3. In a cartridge-feeding device the combination of a chute to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a lateral projection constructed to engage said clip and to strip it from the lowest cartridge in said clip, a pivoted carrier mounted to move across the mouth of said chute, operative connections between said plunger and said carrier to cause the carrier to transfer the cartridge from the chute to the path of the plunger, and means for yieldingly holding said carrier in position.

4. In a machine for loading feed-belts with cartridges, the combination of a bed-plate, a cartridge-chute mounted above the bed-plate to receive a clip holding the cartridges one upon another, a reciprocating plunger carrying a hook to engage the clip in said chute and to strip said clip from the lowest cartridge held by said clip, a carrier pivoted upon the bed-plate to vibrate between said bed-plate and the chute across the mouth of said chute, and operative connections between said plunger and said carrier to cause the latter to transfer the cartridge from the chute to the path of said plunger.

5. In a machine of the character described, the combination of a bed-plate, a cartridge-chute mounted above the bed-plate and fitted to receive and to support a clip holding the cartridges one upon another, a reciprocating plunger carrying a hook to engage the clip in said chute and to strip said clip from the lowest cartridge held by said clip, a carrier pivoted upon the bed-plate to vibrate between said bed-plate and the chute across the mouth of said chute, operative connections between the plunger and the carrier to cause said carrier to transfer the cartridge from the chute to the path of the plunger, and an opening through said bed-plate for the ejection of the clip.

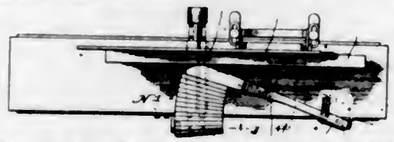
752,649. TELEPHONE ATTACHMENT. GEORGE B. BUCHANAN, Haverstraw, N. Y. Filed Sept. 15, 1902. Serial No. 123,446. (No model.)



Claim.—1. In a telephone attachment, the combination with a telephone-transmitter and switch-hook, of a cam secured to the switch-hook, a tubular vertical shaft rotatably mounted adjacent to the transmitter, a sleeve adjustably carried at the upper end of such shaft, a tubular arm carried by the sleeve, a telephone-receiver carried by said arm and horizontally adjustable with respect to the same, electrical connections extending through the tubular arm and shaft, and connecting the telephone with the receiver, and a lever-arm carried by the tubular shaft and cooperating with the cam, substantially as and for the purposes set forth.

2. In a telephone attachment, the combination with a telephone-transmitter and switch-hook of a cam removably secured to the said switch-hook, a shaft, a receiver carried thereby and an arm carried by the shaft and adapted to engage with the cam when the shaft is partly rotated, substantially as and for the purposes set forth.

752,650. SURFACING AND JOINTING MACHINE. FRANKLIN P. BURKHARDT and FRANK STREICH, Chicago, Ill. Filed May 28, 1903. Serial No. 159,061. (No model.)



Claim.—1. In a surfacing and jointing machine, and in combination with surfacing and jointing cutters, a flexible apron arranged to be normally drawn over the portion of the surfacing and jointing cutters not required for use to entirely cover the same, and an arm arranged to bear against the edge of the material during its passage through the machine, said arm carrying said apron, as and for the purpose set forth.

2. In a surfacing or jointing machine, and in combination with a table and surfacing and jointing cutters, of an arm pivotally mounted at one end and having its free end arranged to operate over the surfacing and jointing cutters, a guard-apron carried by to move with said arm, and means for yieldingly pressing said arm, said apron hanging freely over the edge of said table toward the material being operated upon, whereby more or less of the area of operation of the cutters is entirely covered according to the width of the material being operated upon, as and for the purpose set forth.

3. In a surfacing and jointing machine, and in combination with a work-guide and surfacing and jointing cutters, of a guard-arm, a bracket upon which said arm is pivotally mounted at one end, the material being arranged to pass between the free end of said arm and the guide, means for yieldingly pressing said arm toward said guide, and a flexible guard apron or extension carried by the free end of said arm and operating over the cutters, as and for the purpose set forth.

4. In a surfacing and jointing machine, and in combination with a work-guide and surfacing and jointing cutters, of a bracket, a pivot-stud journaled to swing in said bracket and arranged to be moved longitudinally in its bearings, a guard-arm carried by said stud, a cutter-guard carried by said guard-arm at the free end thereof, and means for yieldingly pressing the free end of said arm toward said guide, whereby said arm may be rocked or swung to clear the work-table and be lowered below the surface of said table, as and for the purpose set forth.

5. In a surfacing and jointing machine, and in combination with a work-guide, a work-supporting table and cutters, of a pivot-stud, a guard-arm slidably mounted upon said stud, a flexible apron carried by said arm at the free end thereof, and means for yieldingly pressing the free end of said arm toward said guide, as and for the purpose set forth.

6. In a surfacing and jointing machine, a work-table, a side guide and cutters, in combination with a flexible apron normally operating to entirely cover and uncover the unused portion of the cutters according to the width of the material to be operated upon, and means for shifting said apron to a position, when not required for use, beneath the surface of the work-table, as and for the purpose set forth.

7. In a surfacing and jointing machine, and in combination with cutting mechanism, a flexible apron, means normally operating to draw the shield or guard over the cutting mechanism, said means yielding to the passage of the material through the machine to uncover the portion of the cutting mechanism required for use, as and for the purpose set forth.

8. In a surfacing or jointing machine, and in combination with cutting mechanism, a flexible guard-apron, means normally operating to draw said apron over the cutting mechanism, said means yielding to the passage of the material to be operated upon through the machine to uncover the portion of the cutting mechanism required for use upon the material, and a supporting-guide over which the apron operates, as and for the purpose set forth.

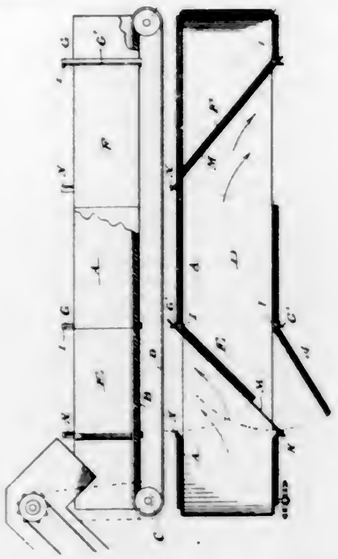
9. In a surfacing or jointing machine, and in combination with cutting mechanism, a pivotally-mounted guard-arm, a flexible guard-apron carried by said arm, at its free end, means normally acting upon said arm to draw said apron over the cutting mechanism, said means yielding to the passage of the material through the machine to expose the portion of the cutting mechanism required for use upon the material, and a guide-roller arranged at the edge of the machine and over which said apron operates, as and for the purpose set forth.

752,651. GRAIN-CONVEYER. JOSEPH E. CAMP, Washington, Ill. Filed Jan. 19, 1903. Serial No. 139,722. (No model.)

Claim.—1. A conveyer for distributing grain comprising the sides and closed fixed bottom, a smooth belt running along the said bottom for carrying the grain, and deflecting-plates extending across the conveyer in close proximity to the belt in an angling manner there being openings in the sides of the conveyer through which the grain is caused to pass by said plates.

2. A conveyer consisting of the sides and bottom, a smooth belt running along such bottom on which the grain is delivered and carried, there being door-openings in the said sides of the conveyer through which the grain is delivered, and deflecting-plates close to the openings and angling across the conveyer and belt for deflect-

ing the grain through such openings by being carried thereagainst by the said belt.



3. A conveyer for grain comprising the sides, the fixed bottom to which the sides are secured, an endless belt adapted to run through said conveyer on the bottom thereof for carrying the grain, deflecting-plates extending across the conveyer in close proximity to the belt, and means for holding the same in place, there being openings in the sides of the conveyer for exit of the grain as set forth.

4. In a conveyer, the sides A, the bottom B, the belt D adapted to run therethrough upon the said bottom, for carrying the grain, the doors E, F in the sides of the conveyer, the hinges G for the same and the deflecting-plates M for interrupting the flow of grain and causing it to pass out through the door-openings all arranged substantially as set forth and described.

5. A conveyer consisting of the sides and bottom, a roller at each end of the bottom the upper periphery thereof being flush with the top surface of the said bottom, an endless smooth belt running over said rollers and dragging upon the bottom, there being openings in the sides of the conveyer, doors permanently hinged in the openings and adapted to be raised to swing inward above the belt to form a deflecting member for grain carried on the belt to force the grain out through the opening left by said door.

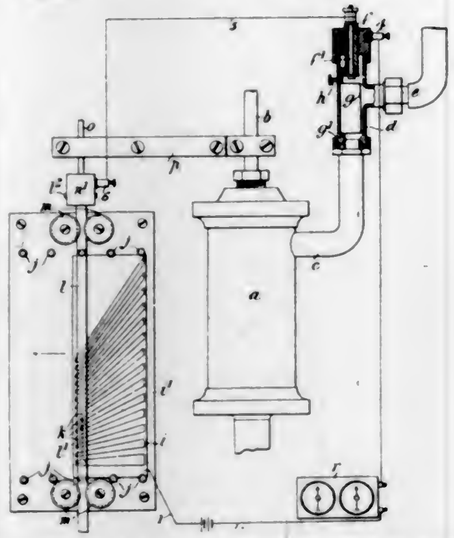
6. A conveyer consisting of the sides and bottom, a smooth belt adapted to drag on the bottom, there being openings in the sides of the conveyer, doors permanently hinged in said opening for tightly closing the same, said doors adapted to rise from the bottom of the conveyer to the height of the top surface of the belt and swing inward to cross said belt in an angling direction substantially as described and for the purposes set forth.

7. A conveyer consisting of the sides and bottom, a smooth belt adapted to drag on the bottom, there being openings in the sides of the conveyer, doors permanently hinged in the openings for tightly closing the same when desired and adapted to rise to the top of the belt and swing across the same in an angling direction, means for sustaining the door in a raised position to permit the belt to pass under substantially as described.

8. A conveyer comprising the sides and bottom, a smooth belt adapted to drag upon the bottom, there being openings in the sides, doors permanently hinged in the openings and adapted to rise to the top of the belt and swing thereover as described and for the purposes explained, a bracket at each corner of the openings there being slots therein and a deflecting-plate occupying position in two of the diagonally-located slotted brackets for the purposes set forth.

9. A conveyer comprising the sides and bottom, a belt therefor, there being openings in the sides, deflecting-plates diagonally crossing the belt from opening to opening and vertically-slotted brackets at each opening for receiving and holding the plates in position substantially as set forth and described.

752,652. ELECTRICAL APPARATUS FOR REGISTERING THE DISCHARGE OF LIQUIDS BY PUMPS. HANS J. S. CASSAL, London, England, assignor to the Liquid (Electric) Register Syndicate, Limited, London, England. Filed Mar. 17, 1903. Serial No. 148,217. (No model.)



Claim.—1. In an electrical registering apparatus of the kind described, the combination with the pump-cylinder, of a discharge-pipe connected therewith provided with a chamber, an outlet for said chamber, a stationary contact in said chamber and a coacting spring-contact within said chamber and arranged adjacent to the outlet thereof whereby said contact will be operated directly by the liquid passing therethrough, and a register electrically connected with said contacts, substantially as described.

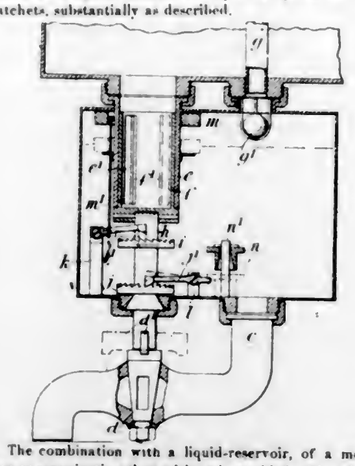
2. In an electrical registering apparatus of the kind described, the combination with the reciprocating contact-rod, adapted to be connected to the piston-rod of a pump, of a plate movable with respect to said rod and provided with a plurality of contacts, and means for adjusting said contact-plate with respect to said rod, in accordance with the stroke of the pump with which the apparatus is connected, and a register electrically connected with said contacts, substantially as described.

3. In an electrical registering apparatus of the kind described, the combination with the reciprocating contact-rod, adapted to be connected to the piston-rod of a pump, of a plate movable with respect to said rod and provided with a plurality of contact-strips arranged in converging lines, and means for adjusting said plate transversely with respect to said contact-rod in accordance with the stroke of the pump to which the apparatus is connected, and a register electrically connected with said contact-strips, substantially as described.

4. In electrical registering apparatus of the kind described, the combination with the cylinder of the pump, of a chamber connected therewith and provided with an outlet, a metallic tube extending into said chamber closed at its end and provided with an orifice, a spring-contact having a part lying in said orifice, a piece of flexible material engaging the exterior of said tube and covering said orifice, and a stationary contact within said tube coacting with said spring-contact whereby the pressure of liquid within said chamber will actuate said spring-contact, and a register electrically connected with said contacts, substantially as described.

752,653. APPARATUS FOR DELIVERING MEASURED QUANTITIES OF LIQUID. HANS J. S. CASSAL, London, England, assignor to the Liquid (Electric) Register Syndicate, Limited, London, England. Filed Mar. 17, 1903. Serial No. 148,239. (No model.)

Claim.—1. The combination with a liquid-reservoir, of a measuring-chamber communicating therewith and provided with a discharge-cock, a cock interposed between said reservoir and measuring-chamber and operatively connected with said discharge-cock, two ratchets having oppositely-disposed teeth operatively connected with said discharge-cock, and float-operated pawls for engaging said ratchets, substantially as described.



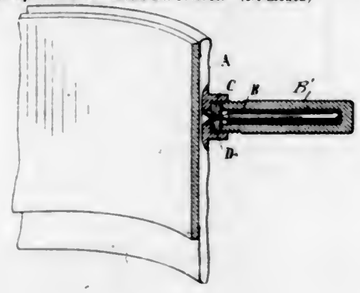
2. The combination with a liquid-reservoir, of a measuring-chamber communicating therewith and provided with a discharge-cock, a cock interposed between said reservoir and measuring-chamber and operatively connected with said discharge-cock, two ratchets having oppositely-disposed teeth operatively connected with said discharge-cock, a pawl for each ratchet, a float for operating one of said pawls when the chamber is filled and a float for operating the other pawl when the chamber is emptied, substantially as described.

3. In apparatus for delivering measured quantities of liquid, the combination with the liquid-reservoir, of a chamber in communication with the said reservoir and having a discharge-pipe, a cock controlling the communication between the reservoir and chamber, a cock in the discharge-pipe, a common stem to the two cocks, the said stem being provided with a pair of ratchet-wheels having pawls which control the rotation of the stem in either direction, and of floats which alternately disengage the pawls on the chamber becoming emptied and filled with liquid, substantially as hereinbefore described.

4. The combination with a liquid-reservoir, of a measuring chamber communicating therewith, two separate inlet-cocks interposed between said reservoir and measuring-chamber for rapidly filling the same, a discharge-cock for said chamber operatively connected with both of said inlet-cocks, two ratchets having oppositely-disposed teeth, operatively connected with said discharge-cock and float-operated pawls for engaging said ratchets, substantially as described.

5. The combination with a liquid-reservoir, of a measuring-chamber communicating therewith, two separate inlet-cocks interposed between said reservoir and measuring-chamber for rapidly filling the same, a discharge-cock for said chamber formed integrally with one of said inlet-cocks, a connection between said inlet-cocks for securing their simultaneous operation, a pair of ratchets having oppositely-disposed teeth, operatively connected with said discharge-cock and float-operated pawls for engaging said ratchets, substantially as described.

752,654. MEANS FOR INFLATING LIFE-BELTS. HENRY CLEWS, Jr., New York, N. Y., and FREDERICK Y. DALZIEL, Paris, France. Filed Sept. 25, 1903. Serial No. 174,646. (No model.)

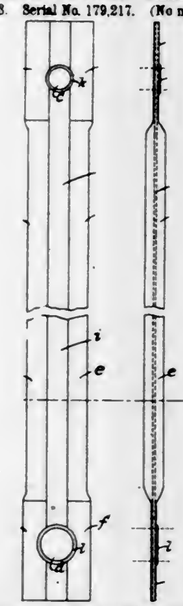


Claim.—1. A safety or life belt comprising an inflatable chamber, a receptacle B containing compressed fluid, a cover for said receptacle, a tube C into which the cover is screwed and points on the tube C against which the receptacle B is forced by screwing in the outer cover, substantially as described.

2. In combination in a safety or life belt, a receptacle carrying a compressed fluid, points against which the receptacle is forced to break the same and means for forcing the receptacle against the points, substantially as described.

3. In combination, an inflatable chamber, a tube C having an opening leading into said chamber, points D at the said opening, a receptacle for compressed fluid and a cover carrying the said receptacle and movable into the said tube, substantially as described

752,655. CROSS-ARM BRACE. FRANK B. COOK, Chicago, Ill. Filed Oct. 30, 1903. Serial No. 179,217. (No model.)



Claim.—1. In a cross-arm brace, the combination of two parallel tubes and a connecting-plate therefor, the said tubes being flattened at one end of the brace, substantially as described.

2. In a cross-arm brace, the combination of two parallel tubes and a connecting-plate therefor, the said tubes being flattened at both ends thereof, substantially as described.

3. In a cross-arm brace, the combination of two parallel tubes, a connecting-plate for same, the said tubes being flattened at one end of the brace, and a hole through the flattened end of the brace between the said tubes, substantially as described.

4. In a cross-arm brace, the combination of two parallel tubes, a connecting-plate for same, the said tubes being flattened at both ends thereof, and a hole through each flattened end of the brace, the said holes being between the said tubes, substantially as described.

5. In a cross-arm brace, the combination of two parallel tubes, a plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, in a plane with the said plate, and a hole through each flattened end of the brace, the said holes being reinforced by respective rings of material therearound, substantially as described.

6. In a cross-arm brace, the combination of two parallel cylindrical tubes, a flat plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, in a plane with the said plate, a hole through each flattened end of the brace, and respective reinforcement-rings around the said holes, substantially as described.

7. The combination with a pole and a cross-arm fastened thereto, of a cross-arm brace comprising two parallel tubes connected by a connecting-plate, the said tubes being flattened at both ends thereof, in a plane with the axes of the tubes, a hole in each flattened end of the brace between the said tubes, and bolts or pins for the

said holes, adapted to secure the ends of the said brace to the pole and cross-arm, respectively, for the purpose of supporting the said cross-arm, substantially as shown.

8. The combination with a pole and a cross-arm fastened thereto, of cross-arm braces therefor, each said brace comprising two parallel tubes connected by a connecting-plate, the tubes of each brace being flattened at both ends thereof, in a plane with their connecting-plate, a hole in each flattened end of each brace, the holes in each brace being between the said tubes thereof, and bolts or pins for the said holes, adapted to secure the said braces to the pole and cross-arm, one of said bolts securing both said braces to the pole, for the purpose of supporting the said cross-arm, substantially as described.

9. In a cross-arm brace, the combination of two parallel tubes, a flat connecting-plate for same, the said tubes being flattened at one end of the brace in a plane with the connecting-plate, and a hole through the flattened end of the brace, substantially as described.

10. In a cross-arm brace, the combination of two parallel tubes, a flat connecting-plate for same, the said tubes being flattened at both ends thereof, in a plane with the connecting-plate, and a hole through each flattened end of the brace, substantially as described.

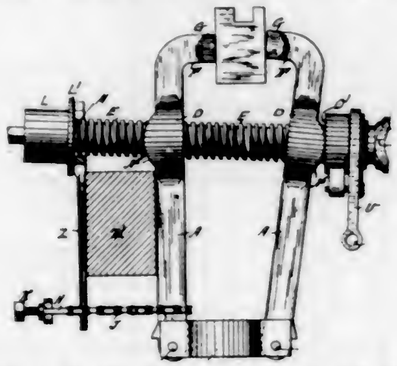
11. In a cross-arm brace, the combination of two parallel tubes, a plate to which the said tubes are secured, the said tubes being flattened at one end thereof, a hole through the said flattened end of the brace, and a reinforcement-ring around the said hole, substantially as described.

12. In a cross-arm brace, the combination of two parallel tubes, a plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, a hole through each flattened end of the brace, and respective reinforcement-rings around the said holes, substantially as described.

13. In a cross-arm brace, the combination of two parallel, cylindrical tubes, a flat plate to which the said tubes are secured, the said tubes being flattened at one end thereof, a hole through the said flattened end of the brace, and a reinforcement-ring around the said hole, substantially as described.

14. In a cross-arm brace, the combination of two parallel, cylindrical tubes, a flat plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, a hole through each flattened end of the brace, and respective reinforcement-rings around the said holes, substantially as described.

752,656. LIFTING-JACK. FITZGERALD V. DALTON, St. Neots, England. Filed Jan. 14, 1903. Serial No. 139,077. (No model.)



Claim.—1. In a lifting-jack, the combination of a jack-screw, a cross-piece carrying a screw-threaded bush for said jack-screw, and legs pivoted to said cross-piece and movable toward and from each other, said legs being shaped to cooperate with one another as a vise.

2. In a lifting-jack, the combination of a jack-screw, a cross-piece carrying a screw-threaded bush for said jack-screw and legs pivoted to said cross-piece and movable toward and from each other, said legs having their feet outwardly turned and ending in cross-heads and being movable each through a semicircle to cooperate with one another as a vise.

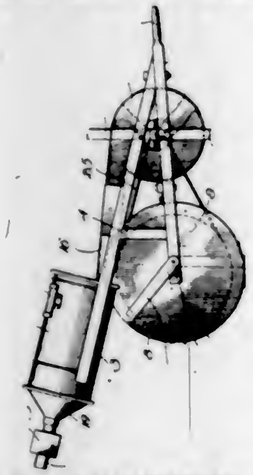
3. In a lifting-jack a hollow jack-screw in combination with a rotary spindle traversing said jack-screw, and adapted to receive a drill and means for revolving said rotary spindle.

4. In a lifting-jack, the combination of a jack-screw a cross-piece carrying a screw-threaded bush for said jack-screw, and legs pivoted to said cross-piece and movable toward and from each other, said legs having perforations in them to cooperate with the removed jack-screw and its threaded bush to force the legs toward each other to act as a vise.

5. In a lifting-jack, the combination of a jack-screw, a cross-piece carrying a screw-threaded bush for said jack-screw, and legs pivoted to said cross-piece and movable toward and from each other, said legs having perforations in them to cooperate with the removed jack-screw and its threaded bush, to force the legs toward each other to act as a vise, the legs having rounded faces A^1 as and for the purpose set forth.

6. In a lifting-jack, the combination of a jack-screw, a cross-piece carrying a screw-threaded bush for said screw, leg-supports hinged to said cross-piece, a removable bail, a chain having detachable connection with said bail and a pressure-screw in said bail for the purpose set forth.

752,657. FUMIGATOR. WILLIAM B. CUNNINGHAM, Houston, Tex. Filed Aug. 20, 1903. Serial No. 170,197. (No model.)



Claim.—1. In a device of the class described, a frame comprising side bars elongated to form handles, forwardly and upwardly inclined supporting-bars connected with the side bars near the handles, braces supporting said supporting-bars, vertical supporting-braces extended downwardly to form legs, a blower mounted between said braces, a fire-box supported upon the front ends of the inclined braces, a funnel connecting said fire-box with the discharge of the blower, a transporting-wheel, and means for transmitting motion from the latter to the fan-shaft.

2. In a device of the class described, a frame including braces which are extended downwardly to form supporting-legs, a blower mounted between said braces, a traction-wheel, means for transmitting motion from said traction-wheel to the blower, and a leg pivotally connected with the frame of the machine and adapted to be supported in inactive position upon a projecting end of the axle carrying the traction-wheel.

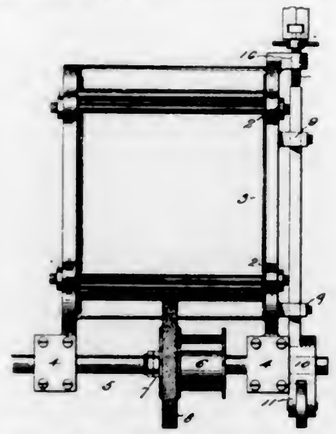
3. In a device of the class described, a fire-box having a discharge-tube, in combination with a tank mounted upon said tube and adapted to contain water surrounding the portion of said tube extending through the tank.

4. In a device of the class described, a frame, a traction-wheel and a blower supported by said frame, means for transmitting motion from said traction-wheel to said blower, a fire-box having a discharge-tube, a tank supported upon the latter, and connecting means between the fire-box and the discharge of the blower.

5. A portable fumigator comprising a frame, a transporting-wheel, a blower, means for operating the latter, a fire-box supported upon the frame, connecting means between said fire-box and the discharge of the blower, a discharge-tube extending from the fire-box, and a tank supported upon said tube.

752,658. GRINDING-MACHINE. SAMUEL K. DART, South Manchester, Conn. Filed Oct. 2, 1903. Serial No. 175,408. (No model.)

Claim.—1. A grinding-machine having a stationary bracket, a frame hinged to the bracket so as to have practically a vertical movement, a shaft bearing a pulley and grinding-wheel supported by the frame, and a pattern-roll mounted at one side of and adjustably connected with the frame so as to rotate in a plane that is parallel with the plane of rotation of the grinding-wheel and having the lowest portion of its periphery practically in the same horizontal plane with the lowest portion of the periphery of the grinding-wheel, substantially as specified.



2. A grinding-machine having a stationary bracket, a vertically-movable frame, links connecting the frame with the bracket, a shaft supported by the frame, a pulley and grinding-wheel borne by the shaft, a carrier adjustably mounted on one side of the frame, and a pattern-roll held by the carrier and having the lowest portion of its periphery practically in the same horizontal plane with the lowest portion of the periphery of the grinding-wheel, substantially as specified.

3. A grinding-machine having a bracket, a vertically-movable frame connected with the bracket, a shaft supported by the frame, a pulley and grinding-wheel borne by the shaft, and a pattern-roll of substantially the same diameter as the grinding-wheel adjustably mounted on one side of the frame and having its axis substantially coincident with the axis of the grinding-wheel, substantially as specified.

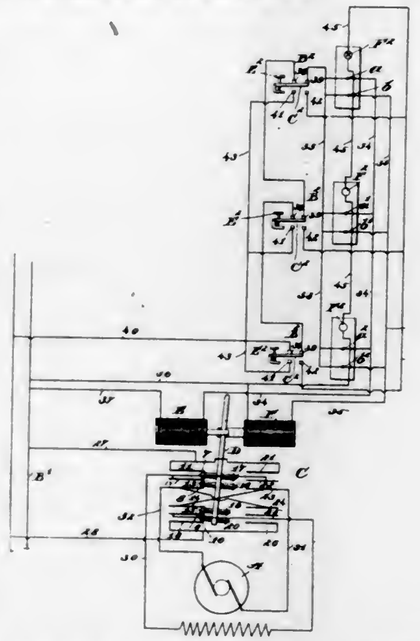
752,659. SAFETY AND SIGNALING DEVICE FOR HOISTING MECHANISM. WILLIAM N. DICKINSON, Jr., Chicago, Ill., assignor to Otis Elevator Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 4, 1902. Serial No. 88,381. (No model.)

Claim.—1. In a system of control for elevators, a plurality of movable members respectively located at the different floors or landings, and normally pressed into an operative position, said members being so disposed with relation to the door of the shaft as to be operated by contact with a portion of the person of the operator which is usually unadaptable to the purpose of unloading the car, and electrical connections made by said movable members, and including the motor-controlling mechanism, whereby when any one of said movable members is operated the car is prevented from moving until the member is restored to its normal condition, as and for the purpose set forth.

2. In system of control for elevators, motor-controlling means, in combination with safety-switches arranged in proper relation with respect to each other and said motor-controlling means, and operating, when actuated, to prevent the starting of the car, said safety-switches including a movable part arranged and adapted to be operated by imposing thereon the weight of the attendant, as and for the purpose set forth.

3. In a system of control for electric elevators, a hoisting-motor, controlling means therefor, circuits for said controlling means, safety-switches arranged in said circuits and including a movable part operating, when actuated, to render said motor inoperative, said safety-switches being normally closed and the movable part thereof arranged to be operated by imposing thereon the weight of the foot, knee or other convenient portion of the body of an attendant and while the hands are otherwise employed, as and for the purpose set forth.

4. In a system of control for electric elevators, a hoisting-motor, controlling means therefor, circuits for said controlling means, devices arranged at various controlling-points for controlling said circuits, and safety-switches arranged in said circuits and in series with respect to each other at the various controlling-points and to be operated by the weight of the attendant to open the same, whereby when any one of said safety-switches is actuated said circuits are broken, and means normally operating to maintain said safety-switches closed, as and for the purpose set forth.



5. In a system of control for electric elevators, a hoisting-motor, controlling mechanism therefor, circuits for said controlling mechanism, a floor or safety switch arranged at each landing, said floor or safety switches being in series with each other and included in said circuit and arranged to be operated by the weight of the attendant to open the same, whereby when any one of said switches is operated said circuit is broken, and means for normally closing said safety-switches, as and for the purpose set forth.

6. In a system of control for electric elevators, a hoisting-motor, controlling mechanism therefor, circuits for said controlling mechanism, a safety-switch arranged on the car and in series with said circuit, whereby when said safety-switch is actuated said circuit is broken, said safety-switch arranged to be opened by imposing thereon the weight of the attendant normally maintaining said switch in closed relation with respect to said circuit, as and for the purpose set forth.

7. In a system of control for electric elevators, a hoisting-motor, controlling mechanism therefor, circuits for said controlling mechanism, safety-switches arranged on each floor or landing and also on the car and in series with each other, said switches arranged to control the circuits of said motor-controlling mechanism, whereby when any one of said switches is actuated said motor-controlling circuits are broken, said switches arranged to be operated by a portion of the person of the operator which is usually unadaptable to the purpose of unloading the car, and means normally operating to maintain said switches closed, as and for the purpose set forth.

8. In a system of control for electric elevators, a hoisting-motor, controlling mechanism therefor, circuits for said controlling mechanism, push-buttons for controlling said circuits, and a normally closed safety-switch also controlling said motor-controlling circuits, said safety-switch being arranged to be operated by the weight of the attendant and arranged as and for the purpose set forth.

9. In a system of control for electric elevators, a hoisting-motor, controlling mechanism therefor, circuits for said controlling mechanism, push-buttons arranged at each floor or landing for controlling said circuits, and a normally closed safety-switch also arranged

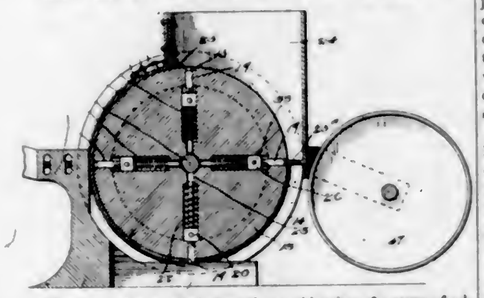
at each floor or landing and adapted to be opened by imposing thereon the weight of the foot, knee or other convenient portion of the body, said switches also controlling said circuits, as and for the purpose set forth.

752,660. COMPOSITION OF MATTER. MARY A. DILLARD, Selma, Ala. Filed Oct. 31, 1903. Serial No. 179,264. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of sugar, gum-arabic and cream of tartar combined in substantially the proportion stated.

2. The herein-described composition of matter, for an icing, consisting of powdered sugar, gum-arabic, cream of tartar and egg combined substantially as stated.

752,661. SEED-PLANTING DEVICE. HENRY S. DYER, Fremont, Ohio. Filed Sept. 10, 1903. Serial No. 172,823. (No model.)



Claim.—1. In a seed-planter, the combination of a rotary feeding-disk provided with seed-pockets, a strip extending partially around said disk to cover said pockets, and means for adjustably securing said strip to vary the point of discharge from said pockets, substantially as set forth.

2. In a seed-planter, the combination of a rotary feeding-disk, provided with radially-disposed seed-pockets opening out in the periphery of the disk, a strip extending partially around the periphery of the disk to close said pockets, a plunger in each pocket, springs normally tending to force the plungers outwardly, means for holding each plunger retracted until its pocket passes beyond the lower end of the said strip, and means for varying the point of discharge from said pockets, substantially as set forth.

3. In a seed-planter, the combination of a rotary feeding-disk provided with radially-disposed seed-pockets opening out in the periphery of the disk, a strip extending partially around the periphery of the disk to close said pockets, means for adjusting said strip to vary the point of discharge from the pockets, a spring-actuated plunger in each pocket, and means for holding each plunger retracted until its pocket passes beyond the lower end of the said strip, substantially as set forth.

4. In a seed-planter, the combination of a rotary feeding-disk having a grooved periphery and radially-disposed seed-pockets opening out into the grooved periphery, a seed-hopper having its lower end curved to correspond to the curvature of the disk and having inwardly-extending projections on its front and rear sides fitting into the grooved periphery, a strip connected at its upper end to the front of the hopper and lying in and partly around the peripheral groove to form a closure for the seed-pockets from the hopper to the point of discharge, and means for adjusting the strip to vary the point of discharge, substantially as set forth.

5. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed seed-pockets opening out in its periphery, said disk having also radial grooves in its face communicating with the inner ends of the pockets, a plunger fitted in each pocket and having a threaded stem extending through the groove communicating with its pocket, a nut fitted to slide in said groove and held against turning therein and through which the threaded stem extends, and a spring surrounding said stem between the nut and inner end of the groove, substantially as set forth.

6. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed seed-pockets opening out in its periphery, said disk having also radial grooves in its face communicating with the inner ends of the pockets, a plunger fitted in each pocket and having a threaded stem extending through the groove communicating with its pocket, a nut fitted to slide in said groove and held against turning therein and through which the threaded stem extends, a pin secured in the nut and projecting laterally therefrom, a broken ring cam to engage said pin and retract the plunger, and a spring surrounding said stem between the nut and inner end of the groove, substantially as set forth.

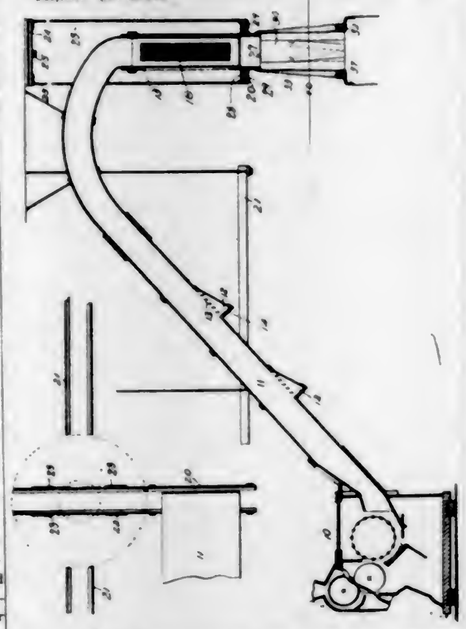
7. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame, a furrow-opening plow connected to the frame in advance of the disk, and separated strips extending rearwardly from the plow below the disk, substantially as and for the purpose described.

8. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame and provided with radially-disposed seed-pockets opening out in its periphery, means for regulating the point of discharge from said pockets, a furrow-opening plow connected to the frame, in advance of the disk, and separated strips extending rearwardly from the plow below the disk and beyond the point of discharge from the seed-pockets, substantially as set forth.

9. In a seed-planter, the combination of a rotary feeding-disk journaled in a frame and provided with radially-disposed seed-pockets opening out in its periphery, means for regulating the point of discharge from said pockets, a furrow-opening plow connected to the frame in advance of the disk, separated strips extending rearwardly from the plow below the disk and beyond the point of discharge from the seed-pockets, and a covering-wheel journaled in said frame in rear of the feeding-disk, substantially as set forth.

10. In a seed-planter, the combination of a rotary feeding-disk having radially-disposed seed-pockets opening out in the periphery of the disk, a spring-impelled plunger in each pocket, a pin projecting laterally from each plunger, a broken ring cam rigidly supported in position to engage said pins and hold the plungers retracted during the movement of the pockets from the point where they receive their seed to the break in said cam, and a half-ring cam pivoted at one end to the broken ring cam and adjustably connected to it at the other end, substantially as set forth.

752,662. PNEUMATIC MATTRESS-STUFFING MACHINE. LOUIS W. ELLMAN and JOHN W. MORGAN, San Antonio, Tex.; said Morgan assignor to James Lewis Davis. Filed Feb. 3, 1903. Serial No. 141,720. (No model.)



Claim.—1. In a device of the class specified, the combination with a conveyer-tube having a flexible depending discharge-spout, of means at the inlet end of the tube for forcing fibrous material therein, and a tick engaging and clamping device disposed at the end of said discharge-spout.

2. In a device of the class specified, the combination with a conveyer-tube having a terminal depending discharge-spout, of a tick-support, and rails arranged adjacent to the spout and adapted to receive and guide said tick-support.

3. In a device of the class specified, the combination with a conveyer-tube, of a spout having reticulated walls or panels, and a pendent yieldable tick-supporting means forming the discharge end of said spout.

4. In a device of the class specified, the combination with a conveyer-tube having a terminal depending discharge-spout, of division-plates arranged within the tube and spout to divide and equalize the material passed therethrough, and a tick-supporting device arranged below the mouth of the spout.

5. In a device of the class specified, the combination with a conveyer-tube, of a discharge-spout comprising a substantially rectangular casing having reticulated walls, an auxiliary chamber disposed at each side of the spout and separated therefrom by the reticulated walls, and means for supporting a tick below said spout.

6. The combination with a conveyer-tube having a terminal depending discharge-spout, of trackways arranged adjacent to the mouth of the spout, main trackways, a fixed support, a turn-table depending therefrom and adapted to place the several trackways in communication, and wheeled tick-supports mounted on said trackways.

7. The combination with a conveyer-tube having a flexible discharge-spout at one end, of a tick-support disposed below the discharge end of the tube, and means carried by the opposite sides of said support for clamping and supporting a pendent tick.

8. The combination with a conveyer-tube, of a tick-support disposed below the discharge end of said tube, a freely-flexible spout member connecting the conveyer-tube and tick-support, means carried by the support for distending the open mouth of the tick, and tick-clamping means also carried by said support.

9. The combination with a conveyer-tube, of a tick-support disposed below the discharge end of the tube, a plurality of outwardly and downwardly curved tick-distending fingers carried by said support, and tick-clamping means also carried by the support.

10. The combination with a conveyer-tube, of a tick-support disposed below the discharge end of said tube, a freely-flexible spout member connecting the conveyer-tube and tick-support, the lower open end of said support being freely expansible and having means for clamping a tick in position.

11. The combination with a conveyer-tube, of a tick-support arranged below the discharge end of said tube and comprising a substantially rigid upper frame, end members having a plurality of hinged sections, lower side bars carried by said hinged sections, tick-clamping means carried by said side bars, and flexible side sections connecting said bars to the upper frame.

12. The combination with a conveyer-tube, of a tick-support arranged below the discharge end of said tube, and comprising a substantially rigid upper frame having depending end members, pivoted bars carried by said end members, overlapping plates carried by the end members and pivoted bars, side bars connecting corresponding pivoted bars, side members formed of textile material connecting said side bars to the rigid frame, and tick-clamping bars connecting to said side bars.

13. The combination with a conveyer-tube, of a plurality of interchangeable tick-supports for engaging and holding ticks of varying size, and trackways adjacent to the discharge end of said tube and adapted to receive and guide said tick-supports.

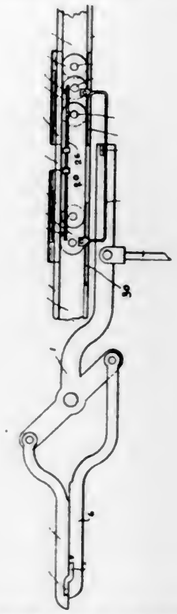
14. In a device of the class specified, the combination of the conveyer-tube having a terminal discharge-mouth, of the supporting-tracks arranged adjacent to the mouth, and interchangeable tick-supports mounted on said tracks, one of said supports being provided with auxiliary track members for the reception of pillow-tick-supporting devices.

15. The combination with a conveyer-tube, of the supporting-rails arranged adjacent to the discharge-mouth of the tube, a hollow casing divided by partitions into a plurality of compartments, a track-section carried by said casing, auxiliary hinged track members connected thereto, and pillow-tick supports mounted on said auxiliary tracks.

752,663. RAILWAY-SWITCH. JOSEPH T. EVANS, Alliance, Nebr. Filed June 8, 1903. Serial No. 160,587. (No model.)

Claim.—1. In a railway-switch provided with means whereby the same may be thrown by means controlled by an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of the shifting-bar, a guideway around said links, and openings in said guideway through which the links may swing to shorten or lengthen the bar.

2. In a railway-switch provided with means whereby the same may be thrown by an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of said shifting-bar, a guideway for said links, openings in said guideway through which the links may swing to fold or unfold, and springs adapted to normally maintain said links in alinement with said shifting-rod.



3. In a railway-switch provided with means whereby the same may be thrown by means operated from an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of said shifting-bar, springs normally maintaining said links in alinement with the shifting-bar, and means connected with the links engaging with the means for throwing the switch by an engine whereby upon operation of the latter the links will be pulled out of alinement with the shifting-bar thereby permitting their folding or unfolding and the shortening or lengthening of the bar.

4. In a railway-switch means for throwing the same by means operated from an engine, comprising a rail-section adapted to be sprung outward by means controlled from an engine, connecting means from said rail-section to a three-arm lever, means connected with said lever adapted to engage the shifting-bar of the switch to throw the same upon movement of the rail-section, a switch-stand connected to the shifting-bar, foldable links forming a part of said shifting-bar, and means connected to the said links and engaging with the three-arm lever whereby movement of the latter will pull the links out of alinement with the shifting-bar and permit the shortening or lengthening of the bar by the folding or unfolding of the links.

752,664. LEG-REST FOR BANJOS, &c. PETER H. FOLEY, Boston, Mass. Filed Aug. 2, 1902. Serial No. 118,150. (No model.)



Claim.—1. A banjo or similar instrument having a leg rest or support, the same comprising a leg secured to the rim or body of the banjo and extending outwardly and downwardly therefrom to rest upon the leg of the user when the banjo is in operable position, substantially as and for the purposes set forth.

2. A banjo or similar instrument having a leg rest or support, the same comprising a leg secured to the rim or body of the banjo, the said leg extending outwardly and downwardly from said banjo when in operable position and provided with a foot adapted to rest upon the leg of the user, substantially as and for the purposes set forth.

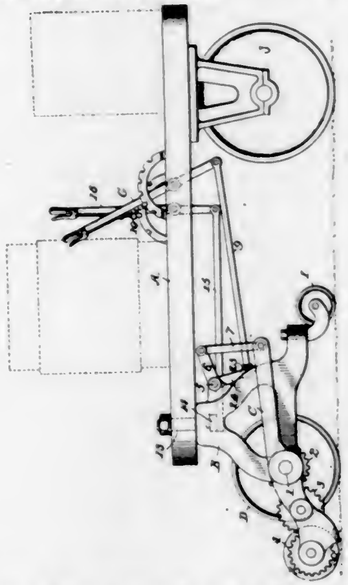
3. A banjo or similar instrument having a leg-rest for supporting the banjo or instrument when in operable position, the same comprising a member extending outwardly and downwardly from the rim to rest upon the leg of the user when the banjo is in operable position, and means for detachably and adjustably securing said leg-rest to the rim or body of the banjo, substantially as described.

4. A banjo or similar instrument having a leg rest or support, the same comprising a leg secured to the rim or body of the banjo and extending outwardly and downwardly therefrom to rest upon the leg of the user when the banjo is in operable position, and means for adjusting the said leg-rest to and from the rim or body of the banjo.

5. A banjo or similar instrument having a leg rest or support, the same comprising a leg secured to the rim or body of the banjo and extending outwardly and downwardly therefrom to rest upon the leg of the user when the banjo is in operable position, and means for adjusting the inclination of said leg-rest with respect to the rim or body of the banjo.

6. A banjo or similar instrument having a leg-rest for supporting the banjo or instrument when in operable position, the same comprising a leg and attached foot, the leg extending outwardly and downwardly from said banjo when in said operable position, and the foot adapted to rest upon the leg of the user when the banjo is in said operable position, and means for adjusting the said foot to and from the body or rim of said instrument and for changing its inclination relatively thereto, substantially as and for the purposes set forth.

752,665. LAWN-MOWER. CHARLES E. FOSTER, Washington, D. C., assignor to William P. Simpson, Philadelphia, Pa. Filed June 23, 1902. Serial No. 112,376. (No model.)



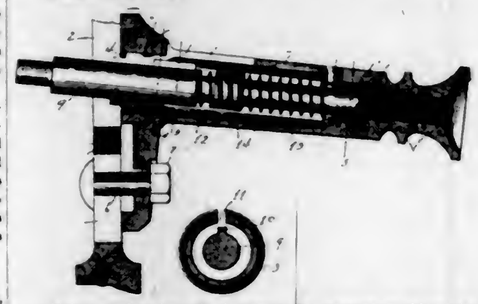
Claim.—1. The combination with the main frame of a lawn-roller, of a supplemental frame pivoted thereto and carrying driving-roller bearings, and a cutter-frame carrying the cutters and supported wholly from the supplemental frame to swing about the axis of the roller, substantially as set forth.

2. The combination with the main frame of a lawn-roller, of a supplemental frame pivoted thereto and carrying driving-roller bearings, a cutter-frame carrying the cutters and supported wholly from the supplemental frame to swing about the axis of the roller, and connections whereby the cutters are driven from the driving-roller, substantially as set forth.

3. The combination in a combined lawn mower and roller, of a main frame, a supplemental frame pivoted thereto to swing about a vertical axis, and provided with roller-supports having a constant bearing on the ground, cutting devices, a frame carrying the cutting devices and movably connected with the supplemental frame to carry the cutting devices up and down, and means for driving the cutting devices, substantially as set forth.

4. The combination in a combined lawn mower and roller, of a main frame, a supplemental frame pivoted thereto, and provided with roller-supports having a constant bearing on the ground, cutting devices, a frame carrying the cutting devices and movably connected with the supplemental frame to carry the cutting devices up and down, and means for driving the cutting devices from one of the rollers of the supplemental frame, substantially as set forth.

752,666. BUR-WHEEL SUPPORT FOR KNITTING-MACHINES. ROBERT W. GORELY, Troy, N. Y. Filed Oct. 24, 1903. Serial No. 178,329. (No model.)



Claim.—1. In a bur-wheel support for knitting-machines, the combination with a barrel; of a bur-wheel-supporting spindle capable of reciprocating slide movements through said barrel; means whereby the spindle is at certain times held against rotary movements within the barrel; and a spindle-actuating coil-spring secured against rotary movement within the barrel and having a screw connection with said spindle whereby the tension of said spring can be varied by rotary movement of the spindle.

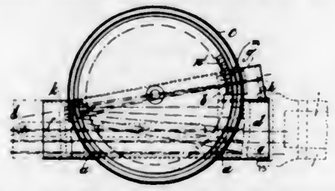
2. In a bur-wheel support for knitting-machines, the combination with a barrel having spindle-bearings at its opposite ends and an enlarged chamber intermediately thereof, and provided with a longitudinal slideway opening into said chamber and offset from and opening into the bearing at the inner end of the barrel; of a bur-wheel-supporting spindle extending through the barrel and capable of reciprocating slide movements in said bearings, said spindle having an offset fitting said offset slideway in the inner end of the barrel and withdrawable into said chamber; and a spindle-actuating coil-spring secured against rotary movement within the barrel and having a screw connection with said spindle, whereby the tension of said spring can be varied by rotary movement of the spindle when its offset is withdrawn into said chamber.

3. In a bur-wheel support for knitting-machines, the combination with a supporting-plate provided with a cylindrical aperture; of a barrel having a cylindrical inner end rotatively mounted in said aperture in the supporting-plate; said barrel being provided with spindle-bearings at its opposite ends, and intermediately thereof with a chamber; a bur-wheel-supporting spindle extending through said barrel, fitting and capable of longitudinal sliding movements in the bearings at the opposite ends of the barrel, a spindle-actuating spring located in the chamber in said barrel; a stop to limit the spring-induced action of the spindle; means whereby the spindle is held from rotative movement in the barrel; and means for locking the barrel in selected positions of rotative adjustment in the aperture in said plate.

4. In a bur-wheel support for knitting-machines and in combination, a barrel; a bur-wheel-supporting spindle capable of endwise movements through the barrel; a spindle-actuating spring interposed between an abutment on the outer end of the barrel and an abutment on said spindle and having a screw connection with one of said abutments, whereby the tension of said spring can be varied by a relative rotary movement between the spring and the abutment with which it has screw connection.

5. In a bur-wheel support for knitting-machines, the combination with a supporting-plate provided with a cylindrical aperture; of a barrel having a cylindrical inner end rotatively mounted in said aperture in the supporting-plate, said barrel being provided at its outer end with a spindle-bearing, and in an integral portion thereof at its inner end with a spindle-bearing and a longitudinal slideway offset from and opening into said bearing; a bur-wheel-supporting spindle extended through said barrel, fitting and capable of longitudinal sliding movements in the bearings at the opposite ends of the barrel; said spindle having an offset fitting said offset slideway in the inner end of the barrel whereby the spindle is held from rotative movement in the barrel, and means for locking the barrel in selected positions of rotative adjustment in the aperture in said plate.

752,667. GEODETICAL INSTRUMENT. HOWARD GRUBB, Dublin, Ireland. Filed Sept. 21, 1901. Serial No. 76,115. (No model.)



Claim.—1. In a geodetical instrument, the combination with the geodetical instrument proper, of a sight and means for rendering luminous rays proceeding therefrom parallel to one another and producing a virtual image of the sight that can be projected on the object being viewed and observed simultaneously therewith while the instrument is being used to make a measurement.

2. A geodetical instrument comprising a casing formed with an aperture therein and through which a distant object can be observed, a sight, means for rendering luminous rays proceeding from said sight parallel to one another and for reflecting them backward to the eye of an observer and producing a virtual image of said sight that can be seen simultaneously with a view of the distant object, a pivoted carrier bearing graduations arranged to come opposite the aperture in said casing, and reflecting means arranged to reflect an image of the graduations that are opposite said aperture backward to the eye of an observer simultaneously with an image of the sight.

3. A geodetical instrument comprising a sighting device consisting of a casing having an aperture therein and through which a distant object can be seen, a sight carried by said casing, and means for rendering luminous rays proceeding from said sight parallel to one another and producing a virtual image of the sight that can be seen simultaneously with the distant object, a box attached to said casing and formed with an aperture opposite the aperture in said casing, a carrier pivoted within said box and bearing a circular scale of degrees arranged to come opposite said apertures, and reflecting means arranged within said casing and adapted to produce an image of the portion of the scale opposite said apertures and enable said image to be seen while viewing the image of the sight and a distant object, substantially as described.

4. In a geodetical instrument, a sighting device comprising a sighting-tube having a piece of concavo-convex glass across its forward end and an inclined reflector at its rearward end, and a collimating-tube arranged at one side of said sighting-tube and provided with a sight, said piece of concavo-convex glass, inclined reflector and sight being arranged so that luminous rays proceeding from said sight will be reflected by said inclined reflector onto the concave side of the piece of concavo-convex glass from which they will be reflected as parallel rays, substantially as described.

5. A geodetical instrument comprising a casing through which a distant object can be viewed, a sight carried by said casing, means for rendering luminous rays proceeding from said sight parallel to one another and for reflecting them back to the eye of an observer and producing a virtual image of the sight that can be projected upon the distant object and viewed simultaneously therewith, a pivot at the under side of said casing, and vertically-movable needle-points located at the front and rear of said instrument, said pivot and needle-points being arranged in the same vertical plane as the virtual image of the sight, substantially as described for the purpose specified.

6. A geodetical instrument comprising a casing through which a distant object can be viewed, a sight carried by said casing, means for rendering luminous rays proceeding from said sight parallel to one another and for reflecting them back to the eye of an observer and producing a virtual image of the sight that can be projected upon the distant object and viewed simultaneously therewith, a level fixed to said casing, and reflecting means whereby an image of the air-bubble of said level can be viewed at the same time as the virtual image of said sight and the distant object.

7. A geodetical instrument comprising a casing through which a distant object can be viewed, a diaphragm carried by said casing and bearing a sight in the form of a scale, and means for rendering luminous rays proceeding from said sight parallel and for reflecting them backward to the eye of an observer while observing a distant object.

8. A geodetical instrument comprising a casing through which a distant object can be viewed and which is adapted to be turned about a vertical center, a diaphragm carried by said casing and bearing a sight in the form of a scale, and means for rendering luminous rays proceeding from said sight parallel and for reflecting them backward to the eye of an observer while observing a distant object.

9. A geodetical instrument comprising a casing through which a distant object can be viewed, a diaphragm carried by said casing and bearing a sight in the form of a calibrated scale, means for rendering luminous rays proceeding from said sight parallel and for reflecting them backward to the eye of an observer, a pivot at the under side of said casing, and vertically-movable needle-points located at the front and rear of said instrument, said pivot and needle-points being arranged in the same vertical plane as the virtual image of the sight, substantially as described for the purpose described.

10. A geodetical instrument comprising a casing through which a distant object can be viewed, a sight carried by said casing means for rendering luminous rays proceeding from said sight parallel to one another and for reflecting them back to the eye of an observer and producing a virtual image of the sight that can be projected upon the distant object and viewed simultaneously therewith, a radial extension hinged or pivoted to the forward end of said casing and capable of being folded under the same, a pivot located at the under side of said casing and at the forward end thereof, a vertically-movable needle-point at the rear end of said casing, and a vertically-movable needle-point at the forward end of said radial extension, said pivot and needle-points being arranged in the same vertical plane as the virtual image of said sight.

11. A geodetical instrument comprising a casing through which a distant object can be viewed, a sight carried by said casing, means for rendering luminous rays proceeding from said sight parallel to one another and for reflecting them back to the eye of an observer and producing a virtual image of the sight that can be projected upon the distant object and viewed simultaneously therewith, a level secured to the under side of said casing, a radius-arm hinged or pivoted to said casing and capable of being folded under the same adjacent to said level, and a mirror secured to the under side of said radius-arm, substantially as described for the purpose specified.

12. In a geodetical instrument, a sighting device comprising a sighting-tube *a* having a piece of concavo-convex glass at its front end and an inclined piece of parallel glass, at its rear end, the concave side of said piece of concavo-convex glass being provided with a semitransparent reflecting-film, and said inclined piece of glass being provided with a reflecting-surface, and a collimating-tube *g* extending from and inclined to one side of said sighting-tube and provided at its forward end with a diaphragm bearing a sight, substantially as described.

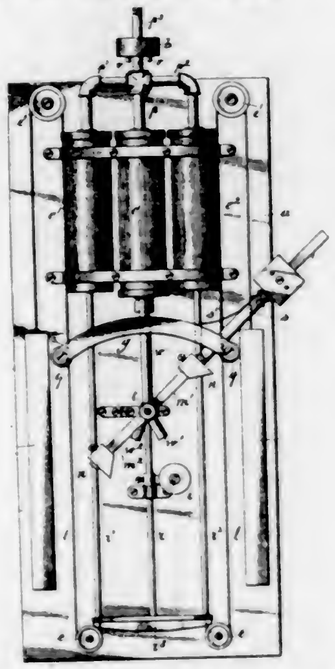
13. A geodetical instrument comprising a sighting-tube, a piece of glass extending across the same and provided with a semitransparent reflecting-surface arranged to reflect in a backward direction, luminous rays falling thereon, a collimating-tube arranged at one side of said sighting-tube, formed with an aperture through its wall and provided with a diaphragm bearing a sight, an inclined reflecting device located behind said aperture, and reflecting means adapted to reflect luminous rays proceeding from said inclined reflecting device and from said sight onto the reflecting-surface of the piece of glass extending across said sighting-tube, and an angle-measuring device comprising a box attached to said collimating-tube and formed with an aperture in its bottom arranged to coincide with that in said collimating-tube, and a carrier pivoted in said box and bearing a circular scale of degrees extending across said apertures, substantially as described for the purpose specified.

14. A geodetical instrument comprising a sighting-tube *a* having at its forward end a piece of concavo-convex glass *e* provided with a semitransparent reflecting-surface, and at its rearward end an inclined piece of parallel glass provided with a reflecting-surface, a collimating-tube *g* extending from and inclined to one side of said

sighting-tube and provided with an aperture *b* in its top and a diaphragm at the forward end bearing a sight line or lines, an inwardly and backwardly inclined reflecting-surface *m* located at the inner side of said aperture, a box *c* attached to the combined sighting and collimating tubes and formed with an aperture in its bottom coinciding with said aperture *b* in the collimating-tube, and a circular carrier *n* pivoted within said box and bearing a circular scale *n'* of degrees extending over said apertures, substantially as described for the purpose specified.

15. A geodetical instrument comprising a sighting-tube provided with a reflecting-surface adapted to reflect, in a backward direction, luminous rays falling upon it and through which a distant object can be seen, a collimating-tube carrying a diaphragm provided with a sight in the form of a scale, means for rendering luminous rays proceeding from said sight parallel to one another, and for directing them onto said reflecting-surface, and a base-piece on which said tubes are mounted, said base-piece being adapted to turn about a vertical center and being provided along one side with a scale of distances.

752,668. **BEER-PUMP.** JOSEPH GRÜNINGER, New York, N. Y. Filed Feb. 17, 1903. Serial No. 143,755. (No model.)



Claim.—1. A beer-pump comprising a central cylinder closed at the top and bottom, two side cylinders closed at the top and open at the bottom, pipings connecting the three cylinders at the top, air-inlets for the upper ends of the cylinders, a piston and piston-rod for each cylinder, a brace connecting rigidly the three piston-rods at their bottom ends, a water-pipe connected with the lower end of the central cylinder, an inlet and an outlet branch formed thereon at its bottom end, and means for automatically connecting the water-pipe and its two branches.

2. A beer-pump comprising a central cylinder, a water-pipe connected thereto at its bottom, an inlet and an outlet branch formed at the bottom of this pipe, two side cylinders, pipings connecting the three cylinders at the top, air-inlets for the upper ends of the cylinders, a piston and piston-rod for each cylinder, a brace connecting rigidly the three piston-rods at their bottom ends, a three-way valve connecting the water-pipe and its two branches, and means for forcing the pistons down.

3. In a water-actuated beer-pump, two side cylinders, a central cylinder, a water-pipe connected to its lower end, an inlet and an outlet branch formed on this pipe, pipings connecting the three cylinders at the top, air-inlets for the upper ends of the cylinders, a piston and piston-rod for each cylinder, a brace connecting rigidly the three piston-rods at their bottom ends, a three-way valve in the water-pipe, means for automatically opening and closing the valve, two wheels arranged below the brace, two wheels arranged above the cylinders, two cords passing over the upper wheels and under the lower wheels and each having one end secured to an end of the brace, and weights secured to the other ends of the cords.

4. In a water-actuated beer-pump, a central cylinder closed at the top and bottom, a water-pipe connected to its bottom, an inlet and outlet branch formed on this pipe, means for connecting the pipe alternately with the inlet and with the outlet branch, two side cylinders closed at the top and open at the bottom, a piston and piston-rod for each cylinder, a brace connecting rigidly the three piston-rods at the bottom and pipings connecting the three cylinders at the top.

5. In a water-actuated beer-pump, a piston with piston-rod, a three-way valve in combination with an automatic valve-operating device comprising a steel bar secured loosely to the key of the valve two adjustable cams on the bar, one on each side of the valve, an inner obtuse-angular edge on each cam arranged inversely to each other, a loose wheel carried up and down by a piston-rod and actuating the cams, two pins secured rigidly to the key of the valve, these pins actuating the key when the bar strikes them, a weight near the top of the bar, one spring on each side of the latter below the weight and an arc-shaped bar-guiding device.

6. In a water-actuated beer-pump, a piston with piston-rod, a loose wheel connected to the piston-rod and moving with it, a three-way valve, and an automatic valve-operating device comprising a steel bar secured loosely to the key of the valve, two adjustable cams on the bar, one on each side of the valve, an inner obtuse-angular edge on each cam arranged inversely to each other, two pins secured rigidly to the key of the valve, the pins actuating the key when the bar strikes them, a weight near the top of the bar, one spring on each side of the latter below the weight, and an arc-shaped guiding device in combination with a loose wheel traveling along the bar and the obtuse-angular edges.

7. In a water-actuated beer-pump three cylinders provided with inlets and outlets for air, a piston and piston-rod for each, a brace connecting the piston-rods at the bottom, a water-pipe on the central cylinder forming an inlet and an outlet branch at its bottom, a three-way valve connecting the water-pipe and its branches, and an automatic valve-operating device consisting of a metal bar secured loosely to the key of the valve, two adjustable cams on the bar one on each side of the valve, an inner obtuse-angular edge on each cam arranged inversely to each other, a weight on the top portion of the bar, one spring on each side of the latter below the weight, an arc-shaped guiding device for the bar, a loose wheel adjustably secured to the central piston-rod and pins secured rigidly to the key of the valve for opening and closing same.

752,669. **DOWEL.** JOSEPH GUZOWSKI, Chicago, Ill., assignor of two-thirds to Francis P. Kujawski and John Matz, Chicago, Ill. Filed July 25, 1902. Renewed Dec. 4, 1903. Serial No. 183,829. (No model.)

Claim.—1. As a new and useful article of manufacture a dowel provided with a spiral groove, extending from end to end thereof substantially as set forth.

2. As a new and useful article of manufacture a dowel provided with a spiral groove extending from end to end thereof and longitudinal grooves crossing said spiral groove, substantially as set forth.

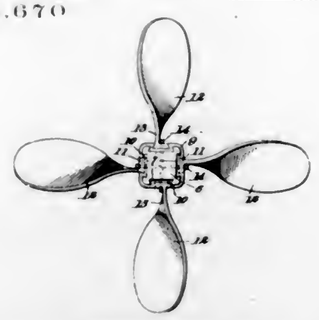
3. As a new and useful article of manufacture, a dowel having a spiral groove extending from end to end thereof, and short disconnected grooves intersecting said spiral groove at intervals throughout its length, substantially as set forth.

752,670. **PROPELLER.** EDWARD D. HAMILTON, Vancouver, Wash. Filed Oct. 31, 1903. Serial No. 179,354. (No model.)

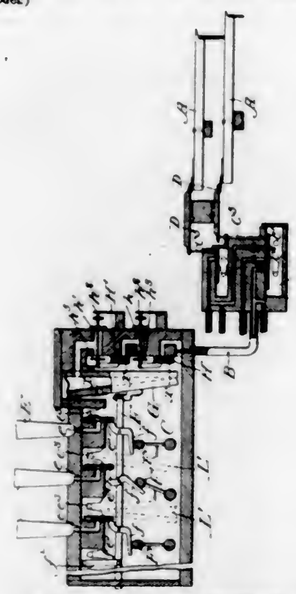
Claim.—1. The combination with a shaft having dovetailed mortises therein, of a hub having on the inside tenons fitting said mortises and on the outside similar dovetailed mortises, and blades having bases fitting the mortises in the hub.

2. The combination with a shaft having lengthwise dovetailed mortises extending from the end of the shaft to shoulders, of the hub having on the inside tenons fitting said mortises and abutting against the shoulders, and blades secured to the hub.

752,670



752,671. **PIPE-ORGAN.** HENRY F. HAMMER, Detroit, Mich. Filed Feb. 27, 1902. Renewed Dec. 14, 1903. Serial No. 185,169. (No model.)



Claim.—1. In an organ-action, the combination with a wind-chest, of motor and primary pneumatics under pressure therein, a pressure from the motor-pneumatic having an exhaust-opening to the atmosphere and an inlet-opening from the wind-chest, valves for said openings controlled by the primary pneumatic and tending to open the exhaust with the wind-chest pressure, and a key-operated rarefied exhaust from the primary pneumatic.

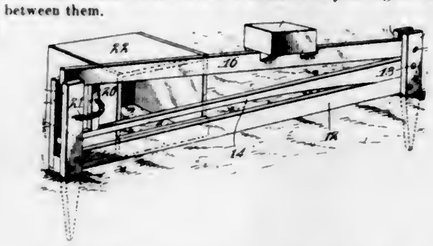
2. In an organ, the combination with a wind-chest, the organ-pipes, the valves in the chest controlling the admission of air to said pipes, the motor-pneumatics in the chest and means to operate the same, of the longitudinally-reciprocating bars connected to and operated by the pneumatics, the dogs pivoted to the bars and settable to engage and open the valves, and means for setting the dogs.

752,672. **ANIMAL-TRAP.** JOHN C. HANNER, Rosehill, Ill. Filed Nov. 11, 1903. Serial No. 180,740. (No model.)

Claim.—1. A trap comprising a spring-arm, a weighted bar movable toward said spring-arm, a block loosely disposed between said arm and bar, and the bait disposed on one side of said bar and arm and accessible only through the space between the bar and arm.

2. A trap comprising a spring-arm, a weighted bar movable toward said spring-arm, a block loosely disposed between said arm and bar and provided with a spring for withdrawing it from between said bars when released and the bait disposed on one side of said bar and arm and accessible only through the space between the bar and arm.

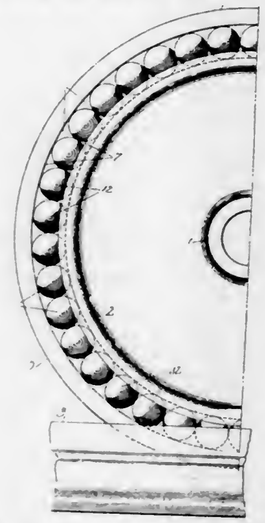
3. A trap comprising a vertical support, a weighted bar movably connected by one end to said support, a spring-arm secured rigidly at one end to said support and extending contiguous to said weighted bar, a block loosely interposed between the free ends of said weighted bar and spring-arm, and the bait for the animals disposed in the rear of said bar and arm and accessible only through the space between them.



4. A trap comprising spaced supports connected by a base member, a weighted bar movably connected by one end to one of said supports and swinging freely over the other support, a spring-arm connected rigidly to the support carrying said weighted bar and extending contiguous thereto, a block interposed loosely between the free ends of said bar and arm, and the bait disposed in the rear of said bar and arm and accessible only through the space between them.

5. A trap comprising spaced supports connected by a base member, a weighted bar movably connected by one end to one of said supports and swinging freely over the other support, a spring-arm connected rigidly to the support carrying said weighted bar and extending contiguous thereto, a block interposed loosely between the free ends of said bar and arm, a bait-box open at one side and connected at said open side to said base member and accessible only through the space between said weighted bar and spring-arm.

752,673. **CAR-WHEEL.** LEVI HAYNE, Schenectady, N. Y. Filed July 29, 1903. Serial No. 167,390. (No model.)



Claim.—1. A flanged rail-engaging wheel having a series of antifriction-balls disposed about its periphery at the junction of its flange and tread.

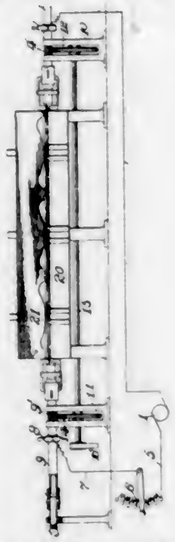
2. The combination with a flanged rail-engaging wheel provided with an annular ball-runway having a contracted slotted opening on the periphery of the wheel along the junction of its tread and flange, of a series of balls located in said runway adapted to contact with the side of the rail through said contracted slotted opening.

3. The combination with a flanged rail-engaging wheel provided with an annular ball-runway having a contracted slotted opening on the periphery of the wheel along the junction of its tread and flange, and an aperture extending from said runway inwardly through said flange; of a series of balls in said runway insertible

and removable through said aperture; and means for closing said aperture.

4. The combination with a flanged rail-engaging wheel provided with an annular ball-runway having a contracted slotted opening on the periphery of the wheel along the junction of its tread and flange, and an aperture extending from said runway inwardly through said flange; of a series of balls in said runway insertible and removable through said aperture; a retaining-ball in said aperture engageable with the balls in said runway; a screw inserted in said aperture; and a spring interposed between said screw and said retaining-ball.

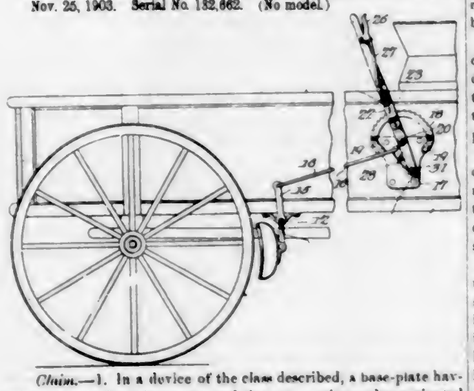
752,674. PROCESS OF WORKING GLASS. HARRY J. HAYS, Pittsburg, Pa., assignor to Edward F. Hays, trustee, Pittsburg, Pa. Filed Apr. 23, 1903. Serial No. 153,963. (No specimens.)



Claim.—1. The herein-described process for working glass which consists in maintaining an electrical current through the glass, working the glass to suitable dimensions while in the heated state, and finally shaping the glass into predetermined form, substantially as described.

2. The herein-described process for working glass which consists in maintaining a variable electrical current through the glass, working the glass to suitable dimensions while in the heated state, and finally shaping the glass into predetermined form, substantially as described.

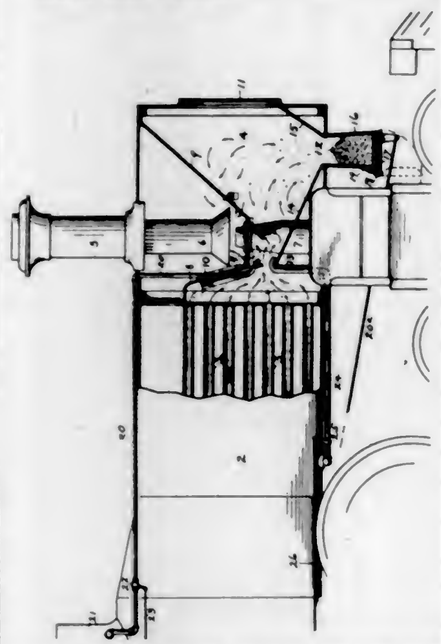
752,675. VEHICLE-BRAKE. WILLIAM S. HAYS, Hillham, Ind., assignor of one-half to Solomon Wesley Clapp, Hillham, Ind. Filed Nov. 25, 1903. Serial No. 182,662. (No model.)



Claim.—1. In a device of the class described, a base-plate having a segmental ratchet connected thereto, a primary lever pivoted near one end to said plate concentric to said segment and having a pawl for engagement with said ratchet, a secondary lever pivoted near one end to said plate and having a longitudinal slot in its longer end for engagement by a pin in the shorter end of said primary lever, and means for connecting the shorter end of said secondary lever to the object to be actuated.

2. In a device of the class described the combination of a brake mechanism, an operating-rod connected to said brake mechanism, a base-plate having a relatively short lever pivoted near one end to said plate and connected by its shorter end to said rod, and with a longitudinal slot at its longer end, a relatively long handle-lever pivoted near one end to said plate and having a pin extending from its shorter end into said slot, a segmental ratchet upon said plate, and a pawl upon the longer portion of said longer lever engaging said ratchet-segment.

752,676. SPARK ARRESTER, EXTINGUISHER, AND DISCHARGER. JOHN W. HEATON, Indianapolis, Ind. Filed May 25, 1903. Serial No. 158,729. (No model.)



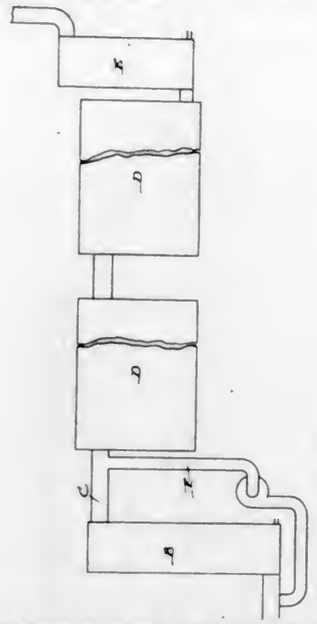
Claim.—1. A smoke-box for a portable boiler having a cinder-discharge opening through its bottom, inclined plates leading to said discharge, a steam-jet to drive the cinders toward the discharge and means discharging upon said inclined plates for wetting the cinders before they are discharged.

2. A smoke-box for a portable boiler having a receptacle for cinders and waste products of combustion under said smoke-box, a discharge-opening to said receptacle, means for opening and closing the receptacle, means for blowing the cinders toward the opening to the receptacle, and means discharging upon the receptacle-approaches for wetting the cinders before they are discharged.

3. A smoke-box, a receptacle under the box, said box having open communication with the receptacle, means for discharging the receptacle, inclines on the bottom of the smoke-box sloping toward the receptacle-opening, means for blowing cinders toward the receptacle-opening and means for discharging water upon one of the said inclines.

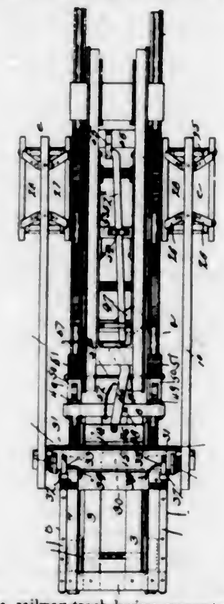
4. A smoke-box, a receptacle under the smoke-box having an upward taper and open communication through the bottom of the smoke-box, means for discharging the contents of the receptacle, inclines on the bottom of the smoke-box leading toward the opening to the receptacle, means for discharging water upon one of the inclines, means for blowing the cinders toward the receptacle-opening and means for regulating the force of the blast and the quantity of water-supply.

752,677. PROCESS OF MAKING SULFURIC ACID. NICHOLAS HEINZ and HERMAN HEDELER, Lasalle, Ill. Filed May 26, 1902. Serial No. 108,908. (No specimens.)



Claim.—An improvement upon the Glover process for the manufacture of sulfuric acid which consists in returning nitrogen compounds from any part of the system and introducing and mixing them with the sulfurous gases entering the Glover tower, as specified.

752,678. RAILROAD-TRACK-LAYING APPARATUS. GEORGE F. H. HICKS, Chicago, Ill. Filed Aug. 7, 1903. Serial No. 168,588. (No model.)



Claim.—1. In a railway-track-laying apparatus, a tie-loading car comprising in combination a tie-supporting body, horses secured to and supporting one end thereof and provided with runners, and a wheel-truck detachably connected with and supporting the other end of said body, substantially as and for the purpose described.

2. In a railway-track-laying apparatus, a tie-loading car comprising in combination a tie-supporting body, horses secured to and supporting one end thereof and provided with runners, and a wheel-truck detachably connected with and supporting the other end of said body, substantially as and for the purpose described.

3. In a railway-track-laying apparatus having a trackway, a tie-loading car comprising in combination a tie-supporting body, horses secured to and supporting one end thereof and provided with runners, resting and slidable on the ties of said trackway, and a wheel-truck detachably connected with and supporting the other end of said body and movable on said trackway, substantially as and for the purpose described.

4. In a railway-track-laying apparatus, a tie-loading car comprising in combination a car-body consisting of horizontal bars in pairs at each side of said car, disconnected horses secured to and supporting one end of each pair of said bars, and a wheel-truck detachably supporting the other end of both pairs of said bars, substantially as and for the purpose described.

5. In a railway-trick-laying apparatus, a tie-loading car comprising in combination a car-body consisting of horizontal bars in pairs arranged one above the other at each side of said car, disconnected horses secured to and supporting one end of each pair of said bars, and a wheel-truck detachably supporting the other end of both pairs of said bars, substantially as and for the purpose described.

6. In a railway-track-laying apparatus, a tie-loading car comprising in combination a tie-supporting body, horses secured to and supporting one end thereof, a wheel-truck detachably connected with and supporting the other end of said body, and an inclined loading structure mounted upon and secured to the wheel-truck whereby ties may be moved up said incline upon the tie-supporting structure of the car-body, substantially as and for the purpose described.

7. In a railway-track-laying apparatus having a trackway, a tie-loading car comprising in combination a car body or frame composed of side bars hinged together in pairs in differing horizontal planes and supported at one end from the trackway by horses and at the other end by a wheel-truck mounted on said trackway with which said side bars are separably and removably connected in pairs, and means for preventing the accidental depression of the upper side bars of each pair from a downward movement when in an elevated position, substantially as and for the purpose described.

8. In a railway-track-laying apparatus, a tie-loading car comprising in combination a tie-supporting body, horses secured to and supporting one end thereof, a wheel-truck at the other end of said body, a cross-sill detachably connected with the wheel-truck and with said car-body, substantially as and for the purpose described.

9. In a railway-track-laying apparatus, a tie-loading car, the sides of the frame or body of which are respectively composed of stationary and movable side bars linked together in combination with means for locking the movable side bars in an elevated position when loading ties thereon, and means for tripping said locking mechanism whereby the movable side bars will descend by gravity to a position delivering said ties upon another car receiving the same, substantially as and for the purpose described.

10. In a railway-track-laying apparatus, a tie-loading car, the frame or body of which is composed of stationary and movable side bars linked together in pairs at each side of said car, means automatically locking the movable side bars when lifted to an elevated position for loading the ties thereon, means for preventing said links assuming a vertical position, and means for tripping the mechanism locking the side bars in their elevated position, substantially as and for the purpose described.

11. In a railway-track-laying apparatus, a tie-loading car, the frame or body of which is composed of stationary side bars and movable side bars linked together in pairs, means for locking the movable side bars in their elevated position for receiving a load of ties, means for tripping said locking mechanism and for lowering said side bars, and means automatically locking the movable bars when lifted to their elevated position, and for automatically returning the tripping mechanism to its normal position for again tripping said side bars, substantially as and for the purpose described.

12. In a railway-track-laying apparatus, a tie-loading car, the combination of a wheel-truck, a cross-sill removably mounted thereon and detachably connected with the car-body, the opposing sides of which car-body are composed of linked side bars disconnected in pairs and supported at the other end by horses secured thereto, substantially as and for the purpose described.

13. In a railway-track-laying apparatus, a tie-loading car, a wheel-truck, a transverse sill supported thereon, a car-body one end of which is supported by and detachable from said sill and composed of side bars linked together in pairs and means for supporting the other end of said side bars in combination with a latch, a tripping mechanism therefor, the several parts of which are respectively secured to one of each pair of said bars, to the removable sill, to the sill fixed on said truck, whereby the disconnection of the sides of the tie-loading car from the removable sill, and this in turn from the truck, serves without further manipulation to separate the several parts of the locking and tripping mechanism without other manipulation of the same, and to likewise connect them when again joining the several parts of the car together, substantially as and for the purpose described.

14. In a railway-track-laying apparatus, a tie-loading car composed of fixed and movable side bars linked together in differing horizontal planes and in pairs in combination with a vibrating latch pivoted to one of the movable side bars adapted to engage and lock upon the opposing fixed side bar whereby when elevating the unlocked movable side bar to its elevated position the latch will by gravity swing toward and automatically lock itself upon the fixed side bar and remain locked until positively moved from engagement with said side bar, substantially as and for the purpose described.

15. In a railway-track-laying apparatus, a tie-loading car composed of fixed and movable side bars linked together in differing horizontal planes and in pairs, with the movable bar above the fixed bar, a latch for locking the movable bar in its elevated position, said side bars being supported at one end by horses and at the other end by a wheel-truck, between which and directly supporting said side bars is a transverse sill detachably connected with said truck and said bars in combination with a weighted gravitating tripping-bar pivoted to said sill, a bell-crank trigger pivoted to a cross-bar fixed on said truck and adapted to engage said tripping-bar, and a pivoted lever connected with said bell-crank trigger and adapted to actuate said trigger, and with it the trip-bar and latch, whereby the tripping-bar, trigger and lever are automatically returned to their normal position after tripping the latch, and may be separated in dismantling the several detachable parts of the tie-loading car and again put together on assembling said several parts without any detachment from their supports or individual manipulation, substantially as and for the purpose described.

16. In a railway-track-laying apparatus, having a trackway, a tie-loading car adapted to discharge its load of ties upon a receiving-car run beneath said ties in combination with a block or blocks provided with inclined faces and so arranged as to stop the backward movement of the receiving-car and automatically produce the initial forward movement thereof at the moment it receives said ties, substantially as and for the purpose described.

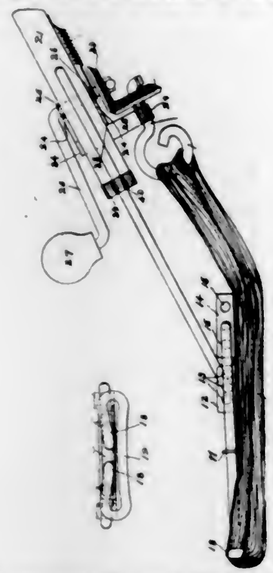
17. In a railway-track-laying apparatus having a trackway, a tie-loading car provided with depressible side rails locked in an elevated position when loaded with ties and under which a receiving-car may be run, means for locking said side rails in their elevated position, means whereby said locking mechanism is tripped, means upon the receiving-car automatically actuating said tripping mechanism in combination with an inclined block, stopping the receiving-car during and until it has received the ties from the tie-loading car and automatically producing the initial forward movement of the receiving-car away from the tie-loading car, substantially as and for the purpose described.

18. In a railway-track-laying apparatus, a tie-loading car, a tie-receiving car adapted to be run beneath and receive ties from the tie-loading car in combination with blocks connected together resting upon both rails of said trackway and hinged to the tie-loading car, means for maintaining said blocks in an elevated position above the trackway when not in use, said blocks being provided with inclined faces both stopping the rearward movement of the receiving-car and automatically producing the initial forward movement thereof, substantially as and for the purpose described.

19. In railway-track-laying apparatus, a tie-loading car, provided with means bodily delivering ties to a dumping-car, ties piled thereon, in combination with a dumping-car, provided with means automatically actuating the tie-loading car to make said delivery, and means by which the dumping-car subsequently automatically discharges said ties upon the road-bed of a railroad, substantially as and for the purpose described.

752,679. COMBINED MOP AND WRINGER. EDWARD HILKER, Chicago, Ill. Filed Sept. 8, 1903. Serial No. 172,302. (No model.)

Claim.—1. The combination with a mop-holder, of a handle pivotally united thereto and having a longitudinal slot, a wringer-body located in said slot, a wringing device on said body, a spring secured at one of its ends to the handle and connected at its other end to the wringer, and a mop or cloth connected at one of its ends to the wringing device and at its other end to the holder.



2. The combination with a mop-holder, comprising a plate and a mop-holder extension adjustably connected to said plate, said extension having at its front end a transverse loop, of a handle extension pivotally secured to the plate, a handle connected to the upper end of said extension and having in its lower portion a longitudinal slot, a wringer-body located in said slot, a wringing device on said body, and a mop or cloth connected at one of its ends to the wringing device and at its other end to the loop of the holder.

3. The combination with a mop-holder comprising a plate having at its front end a slotted flange and at each of its side edges a flange provided with a series of openings, and a mop-holder extension having two members located in said slot and engaging the side flanges and provided with a transverse loop at its front portion, of a handle extension pivotally secured to the plate, a handle connected to the upper end of the handle extension and having in its lower portion a longitudinal slot, a wringer-body located in said slot, a wringing device on said body, and a mop or cloth connected at one of its ends to the wringing device and at its other end to the holder.

4. The combination with a mop-holder, of a handle extension pivotally secured thereto, a handle connected to the upper end of said extension and having in its lower portion a longitudinal slot, a ferrule secured on the lower end of the handle and embracing the handle extension, a wringer-body movably located in said slot, a wringing device on said body, a spring secured at one of its ends to the wringing device and its other end to the handle, and a mop or cloth connected at one of its ends to the wringing device and at its other end to the holder.

5. The combination with a mop-holder, of a handle extension pivotally secured thereto, a handle connected to the upper end of said extension and having in its lower portion a longitudinal slot, a ferrule secured on the lower end of the handle and embracing the handle extension, a wringer-body movable longitudinally in said slot and having on its upper and lower edges lateral extensions, a wringing device on said body, a spring secured at one of its ends to the wringing device and at its other end to the handle, and a mop or cloth connected at one of its ends to the wringing device and at its other end to the holder.

6. A mop-holder comprising a plate having at one of its ends a slotted flange and at each of its side edges apertured flanges, and a mop-holder extension comprising two members located in said slot and engaging the side flanges of the plate and having at its front portion a transverse loop.

7. A wringer body or support comprising a main piece having longitudinal projections provided with eyes and another projection provided with an eye and located at a right angle to the first-named projections, said main piece also having oppositely-extending lateral projections on its upper and lower edges.

752,680. ADJUSTABLE ORNAMENTAL COMB. WILLIAM J. HINES, Leominster, Mass., assignor of one-half to Union Manufacturing Company, Leominster, Mass. Filed Dec. 30, 1903. Serial No. 187,216. (No model.)

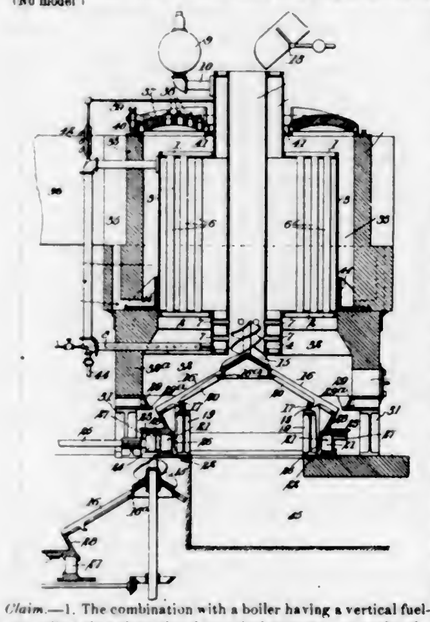


Claim.—1. In a device of the character described, a comb having a neck and head, the said head having a slot, a buckle having a tongue with a gooseneck extension pivoted in the slot of the head, the said tongue having a cross-head traveling between the comb and its head.

2. In a device of the character described, a comb having a neck and head, the said head being slotted, a buckle having openings of irregular contour with spurs of points projecting into the openings, an ornament run through the openings of the buckle, the tongue on the buckle having a cross-head on its end, the said tongue being pivoted in the slot of the head, and the cross-head lying between the head and the comb.

3. In a device of the character described, a comb having a neck and head, said neck being curved back over the comb, and the said head having a slot, a buckle having a curved tongue fitted in the slot, a cross-head on the end of the tongue, the said cross-head having a concaved edge and being of greater width than the distance between the head and the comb.

752,681. STEAM-BOILER FURNACE. HARRY HYATT and JAMES M. WIGHT, Cleveland, Ohio. Filed June 2, 1903. Serial No. 159,736. (No model.)



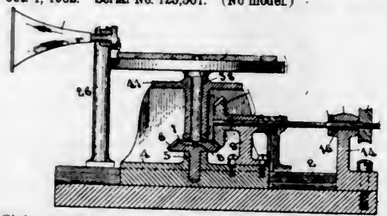
Claim.—1. The combination with a boiler having a vertical fuel-tube extending therethrough, of a conical rotary grate under the boiler, and a feed-screw carried at the apex of the grate in the lower end of the tube.

2. The combination with a vertical-flue boiler having a central fuel-tube extending therethrough, and a water-leg around the lower end of the tube projecting into the fire-box, of a conical rotary grate having a feeding-screw at its apex projecting into the lower end of the tube.

3. The combination with a boiler having a vertical fuel-tube extending therethrough, of a conical grate thereunder, and a rotary feeding-screw extending above the apex of the grate into the tube.

4. The combination with a boiler having a vertical fuel-tube extending therethrough, of a conical rotary grate, and a rotary feeding-screw extending above the apex of the grate into the tube.

752,682. REMOVABLE TURN-TABLE FOR SOUND-RECORDING MACHINES. ELDRIDGE R. JOHNSON, Philadelphia, Pa., assignor to Victor Talking Machine Company, a Corporation of New Jersey. Filed Oct. 1, 1902. Serial No. 125,501. (No model.)



Claim.—1. The combination in a sound-recording machine, of a removable member, and a turn-table carried thereby, removable therewith, and rotatable relative thereto.

2. The combination in a sound-recording machine, of a removable member, and a turn-table carried thereby, removable therewith, and rotatable relative thereto, said member having bearing or contact surfaces, which are always in a fixed relation to the working surface of said turn-table, whereby said turn-table may be transferred from one machine to another without altering its axis of rotation and without damaging the recording-disk carried thereby.

3. In a sound-recording machine, a turn-table comprising a rotatable disk, said disk having accurately-turned bearing-surfaces, which are always in a fixed relation to the surface of said disk, and a member removable from said machine having bearing-surfaces corresponding to and fitting the bearing-surfaces of the disk, upon which bearing-surfaces said disk is rotatable relative to said member.

4. The combination in a sound-recording machine, of a removable member having projecting parts adapted to be secured to said machine, and a turn-table carried by said member and removable therewith, and rotatable relative thereto.

5. The combination in a sound-recording machine of a removable member having a cylindrical bearing, a turn-table having a shaft rotatable in said bearing, and a separable coupling between said shaft and operative parts of said machine.

6. A turn-table for sound-recording machines, comprising a rotatable disk adapted to have the recording-disk attached thereto, an accurately-turned cylindrical bearing attached thereto, an accurately-turned bearing-sleeve carried by said cylindrical bearing, a supporting bar or plate attached to said sleeve and means to allow said plate to be secured to the recording-machine, substantially as described.

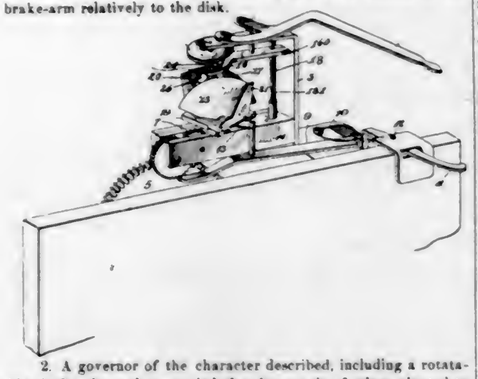
7. A turn-table for sound-recording machines comprising a rotatable disk adapted to have the recording-disk attached thereto, a bearing projecting therefrom, an angular stud projecting from the lower end of said bearing, a bearing-sleeve rotatively carried by said bearing, a collar fixed to said bearing to retain said sleeve in position thereon, a supporting bar or plate attached to said sleeve and means to allow said plate to be removably secured to the recording-machine, substantially as described.

8. In a sound-recording machine, uprising supports, situated below the recording mechanism, a removable member having lateral projections adapted to rest upon said supports, means for securing said projections upon said supports, and a turn-table carried by said member, removable therewith, and rotative relative thereto.

752,683. CONTROLLING MECHANISM FOR AUTOMATIC MUSICAL INSTRUMENTS. ALFRED KELLER, St. Croix, Switzerland, assignor to Louis Philippe Mermod, Gustave Alfred Mermod, and Leon Marcel Mermod, copartners trading as Mermod Frères, St. Croix, Switzerland. Filed Apr. 22, 1903. Serial No. 153,735. (No model.)

Claim.—1. A governor of the character described, including a rotatable shaft, a base-plate carried thereby, a pair of wings pivoted to said base-plate and resting against the same when at rest, a disk mounted on said shaft connected to said wings and movable longitudinally as the wings swing about their pivots, a brake-arm adapted

to coact with the disk and means for adjusting the position of the brake-arm relatively to the disk.

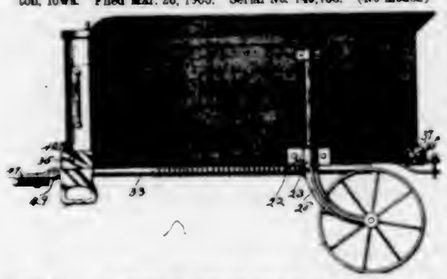


2. A governor of the character described, including a rotatable shaft, a base-plate carried thereby, a pair of wings pivoted to said base-plate, and resting against the same when at rest; a disk mounted on said shaft connected to said wings and movable longitudinally as the wings swing about their pivots, a brake-arm adapted to coact with the disk, a longitudinally-movable rod carrying said brake-arm, a frame forming supports for said rod, one end of the rod projecting beyond a portion of the frame and a lever pivoted to said frame having a cam-face adapted to coact with the rod to adjust its position.

3. A governor of the character described comprising a pair of rotatable wind-resisting wings, a shaft therefor, a rotatable disk on said shaft and longitudinally movable thereon, a connection between said disk and said wings, a frame forming a support for one end of said shaft, a brake having arms for engagement with said disk, a rod secured to said brake and having a longitudinal movement parallel to said shaft, a spring pressing against said rod, the end of said rod projecting through said frame and having a bearing therein, a lever pivoted to said frame and having a cam-surface for engagement with the end of said rod.

4. A governor of the character described comprising, a rotatable shaft, a base-plate mounted thereon, a pair of wings pivoted to said base-plate with their axes at right angles to the shaft, the wind-resisting area of each of said wings comprising a surface substantially a quarter-segment of a circle with its inner edge resting against said plate and said wings overlapping when in their position of rest.

752,684. **TENDER FOR TRACTION-ENGINES.** WILBUR S. KELLEY, Newton, Iowa, assignor of one-half to Walter D. Crawford, Newton, Iowa. Filed Mar. 26, 1903. Serial No. 149,758. (No model.)



Claim.—1. A tender for traction-engines, comprising the body, the draw-bar mounted longitudinally thereof, detachable connections consisting of a removable pin between said draw-bar and the tender-body, and yielding pressure connections consisting of a retractile coil-spring on the draw-bar between said tender-body and the draw-bar, whereby the tender may yield laterally and longitudinally under strain of a load being hauled.

2. A tender for traction-engines, comprising the body, the draw-bar mounted longitudinally thereof, detachable connections between said draw-bar and the tender-body, whereby the draw-bar may be locked to the body, and auxiliary yielding pressure connections between said draw-bar and body, whereby when said draw-bar is unlocked the tender may yield laterally and longitudinally under strain of a load being hauled.

3. A tender for traction-engines, comprising the body, the corner-brackets and buffer-plates thereon, the engine-platform, the rollers thereon engaging said buffer-plates, the caster-wheels journaled on and supporting said body, and the flexible connections between the body and said platform intermediate of the buffer-plates.

4. A tender for traction-engines, comprising the body, the engine-platform, the rubbing connections between said tender-body and platform, consisting of rollers on the platform and buffer-plates on the tender-body engaging said rollers, and the flexible yieldingly-mounted connections between said body and platform intermediate of the rubbing connections.

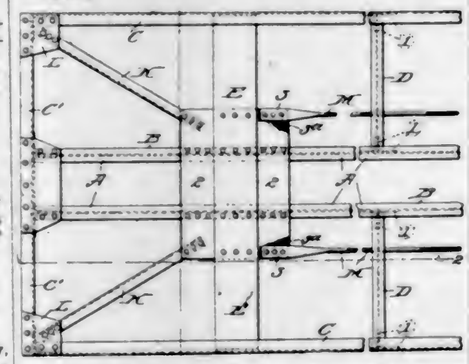
5. A tender for traction-engines, comprising the body, the engine-platform, the rubbing connections between said body and platform, consisting of rollers arranged for rotation on horizontal axes on the engine-platform and vertical buffer-plates on the tender in contact therewith, the flexible, yielding pressure draft connections between said body and platform, and the caster-wheels journaled on and supporting said body.

6. A tender for traction-engines, comprising the body, caster-wheels supporting said body, the coupling-bar fixed to and extending rearward from said body, the draw-bar mounted for rectilinear reciprocation on and beneath the central portion of said body and spring-held in one direction, and corner-brackets on the forward corners of said body and formed with vertical buffer-plates, in combination with an engine-platform, a coupling on said platform detachably connected to said draw-bar, and rollers on said platform engaging said vertical buffer-plates.

7. In a tender for traction-engines, the angle-bars connected at their ends to form a rectangular frame, the corner-brackets on said frame, two of said corner-brackets formed with steps and vertical buffer-plates, the tender-body carried by said frame, the bearings on said tender-body and the bearings on said frame in alinement therewith, the caster-wheels journaled in said bearings, means for attaching said frame to draft mechanism and means for attaching said frame to an object to be drawn.

8. In a tender for traction-engines, the combination of the tender-body and frame therefor, the draw-bar extending longitudinally of said frame, a pin removably and replaceably connecting said draw-bar and frame, the coil-spring on said draw-bar and connected at its ends respectively to the draw-bar and said frame, the engine-platform, the coupling device thereon, the coupling-block pivoted in said coupling device and embraced by said draw-bar and the pin removably and replaceably connecting said draw-bar and coupling-block.

752,685. **UNDERFRAMING FOR RAILWAY-CARS.** GEORGE L. KING, Middletown, Pa. Filed Dec. 26, 1902. Serial No. 136,703. (No model.)



Claim.—1. In a railway-car, center sills, transoms, a truss-rod, and supporting means, extending across the center sills and over the transoms, with which are connected the ends of said truss-rod; substantially as described.

2. In a railway-car, center sills, transoms, a truss-rod, and supporting means for the ends thereof extending across the center sills and over and beyond said transoms; substantially as described.

3. In a railway-car, center sills, end sills, a truss-rod, supporting means for said truss-rods supported above the center sills, and connecting means between said supporting means and said end sills, substantially as described.

4. In a railway-car, center sills, truss-rods, transoms, and connections between said truss-rods and transoms supported by the center sill; substantially as described.

5. In a railway-car, center sills, truss-rods, transoms, and pivoted connections between said truss-rods and transoms supported by the center sill; substantially as described.

6. In a railway-car, center sills, a transom cover-plate extending laterally across said sills, truss-rod-supporting means connected therewith, and truss-rods extending substantially from transom to transom; substantially as described.

7. In a railway-car, center sills, a transom cover-plate, truss-rod-supporting means connected therewith, and truss-rods connected to said supporting means on the side thereof adjacent to the transverse axis of the car; substantially as described.

8. In a railway-car, center sills, a transom cover-plate, truss-rod-supporting means connected therewith, and truss-rods, the ends of which are connected to said supporting means on the side thereof adjacent to the transverse axis of the car; substantially as described.

9. In a railway-car, center sills, end sills, a transom, a cover-plate, truss-rods connected therewith, and braces for said plate connected with the end sills and side sills; substantially as described.

10. In a railway-car, center sills, transoms and longitudinal truss-rods, and a plate connected with said transoms for supporting the ends of said truss-rods; substantially as described.

11. In a railway-car, an underframing comprising a transom, and a continuous plate cooperating therewith for supporting longitudinal truss-rods, in combination with such truss-rods; substantially as described.

12. In a railway-car, an underframing including transoms, and truss-rods supported at their ends from means extending laterally across the center sills; substantially as described.

13. In a railway-car, center sills, supporting means above the same intermediate the ends thereof, and supporting truss-rods whose ends are connected with said supporting means; substantially as described.

14. In a railway-car, center sills, supporting means above the same intermediate the ends thereof, and truss-rods whose ends are flexibly connected with said supporting means; substantially as described.

15. In a railway-car, center sills, end sills, and truss-rod supports above the center sills connected directly thereto; substantially as described.

16. In a railway-car, center sills, transoms connected to said center sills, truss-rods, truss-rod supports connected with said transoms and extending laterally above said center sills substantially as described.

17. In a railway-car, the combination with a truss form of transom including a top cover-plate, of a truss-rod extending longitudinally the car, flexible supporting means for the ends of said truss-rod, which means are connected to the transom cover-plates, and rigid supporting means for the intermediate portions thereof, which rigid supporting means are connected to the center sills and side sills; substantially as described.

18. In a railway-car, center sills, a truss-rod, flexible supporting means for the ends thereof approximately in the plane of the upper portion of said center sills, and rigid retaining means for the intermediate portions below the line of said center sills; substantially as described.

19. In a railway-car, center sills, end sills, a truss-rod, supporting means for the ends thereof connected above said center sills, retaining means for the intermediate portions below the plane of the center sills, and connecting means between said supporting means and said end sills; substantially as described.

20. In a railway-car, center sills, side sills, end sills, transoms extending at each side of said center sills, floor-beams extending from center sills to side sills, queen-posts supporting said floor-beams, longitudinal truss-rods, supporting means for the ends thereof connected with said transoms, and means for connection of said supporting means with the end sills and side sills; substantially as described.

21. In a railway-car, center sills, a transom cover-plate extending laterally across said sills, truss-rod-supporting means connected therewith, floor-beams extending from said center sills laterally, queen-posts supporting said floor-beams, and truss-rods extending substantially from transom to transom; substantially as described.

22. In a railway-car, center sills, a transom, a cover-plate therefor, truss-rod-supporting means connected therewith, floor-beams extending laterally from said center sills, queen-posts thereon, and truss-rods connected therewith and to said supporting means on the side thereof adjacent to the axis of the car; substantially as described.

23. In a railway-car, center sills, end sills, side sills, floor-beams between said center sills and side sills, queen-posts supporting said floor-beams, and truss-rods at each side of said center sills whose ends are supported by means connected above the center sills; substantially as described.

24. In a railway-car, an underframing including transoms, lateral floor-beams and queen-posts supporting said floor-beams, center sills, a cover-plate thereon, and truss-rods supported at their ends from said cover-plate and intermediate their ends supporting said queen-posts; substantially as described.

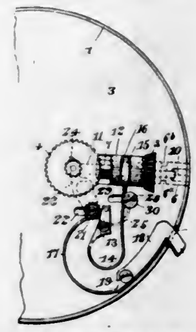
25. In a railway-car, a truss form of transom, center sills passing through said transom and forming struts therefor, a cover-plate connected to said transom, a truss-rod, flexible supporting means for the ends thereof approximately in the plane of the upper portion of said center sills, said supporting means being connected to said transom cover-plate and rigid retaining means for the intermediate portions below the line of said center sills; substantially as described.

26. In a railway-car, center sills, a transom cover-plate extending laterally across said sills, truss-rod-supporting means connected therewith, floor-beams extending from said center sills laterally, queen-posts supporting said floor-beams, and truss-rods extending substantially from transom to transom; substantially as described.

27. In a railway-car, center sills, a cover-plate, truss-rod-supporting means connected therewith, floor-beams extending laterally from said center sills, queen-posts thereon, and truss-rods connected therewith and to said supporting means on the side thereof adjacent to the transverse axis of the car; substantially as described.

28. In a railway-car, center sills, end sills, side sills, floor-beams between said center sills and side sills, queen-posts supporting said floor-beams, and truss-rods at each side of said center sills whose ends are supported by means extending across the center sills, substantially as described.

752,686. **STEM WINDING AND SETTING MECHANISM.** HOMER C. KING, Elgin, Ill. Filed Apr. 17, 1903. Serial No. 153,079. (No model.)



Claim.—1. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of a clutch-spring, a stronger stem-spring operatively connected to the clutch-sleeve and adapted when unrestrained, to move said sleeve to the setting position, a lever connected at one end to the stem-spring, a tumbler opposed to the opposite end of the lever, and a pendant-stem controlling the movement of the tumbler.

2. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and intermediate clutch-sleeve, of differential counteractive springs, one of which directly engages the sleeve, a single intermediate member connecting said springs, and means for normally restraining the stronger spring.

3. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of a clutch-spring engaging and normally urging the sleeve to the winding position, a stronger stem-spring, a yielding connection between the springs, and means for normally restraining the stem-spring.

4. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of a clutch-spring normally urging the sleeve to the winding position, a stem-controlled lever, a stem-spring stronger than the clutch-spring and connected to one end of said lever, and a connecting-spring intermediate of the lever and the clutch-spring.

5. In a stem winding and setting watch, the combination with the movement-plate, dial-wheel, winding-pinion and clutch-sleeve, of differential counteractive clutch and stem springs mounted outside

of the front plate, a lever mounted at the opposite side of the plate and connected to the stem-spring, a connecting member for the clutch and stem springs located at the opposite side of the plate therefrom, and a pendant-stem controlling the movement of the lever.

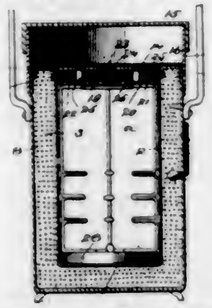
6. In a stem winding and setting watch, the combination with the movement-plate, dial-wheel, winding-pinion and clutch-sleeve, of differential counteractive clutch and stem springs mounted outside of the plate, the clutch-spring being connected to the sleeve, a lever and a connecting-spring located beyond the inner side of the plate, the lever being connected at one end to the stem-spring and the connecting-spring having connection at its opposite ends with the clutch and stem springs, and a pendant-stem controlling the movement of the lever.

7. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of differential and counteractive clutch and stem springs, means for connecting said springs, means for connecting the clutch-spring to the sleeve, a tension-regulating device for the stem-spring, and a pendant-stem normally restraining the stem-spring.

8. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of a clutch-spring connected to the sleeve, a stronger stem-spring connected to the clutch-spring and adapted when unrestrained to move the clutch-sleeve to the setting position, means normally restraining the stem-spring, and a tension-regulating device for said spring extended in one position beyond the periphery of the watch-movement.

9. In a stem winding and setting watch, the combination with the dial-wheel, winding-pinion and clutch-sleeve, of a clutch-spring connected to the sleeve, a stronger and counteractive setting-spring connected to the clutch-spring, means normally restraining the stem-spring, and a tension-regulating lever constituting one end of the stem-spring and retained in one position by the watchcase.

752,687. **HEAT-RETAINER.** EDWARD C. KIRK, Pittsburg, Pa., assignor of one-half to Hyland C. Kirk, Washington, D. C. Filed June 5, 1903. Serial No. 160,237. (No model.)



Claim.—1. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, and a porous packing composition expanded within said space and against said walls.

2. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, and a porous packing composition within said space, said composition having been placed within the space while in a plastic state, and then expanded against the walls of the body.

3. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, a partition dividing said space, a porous packing composition expanded within one part of the divided space and against the walls inclosing said part, and a packing of any suitable material, different from said composition, within the other part of said space.

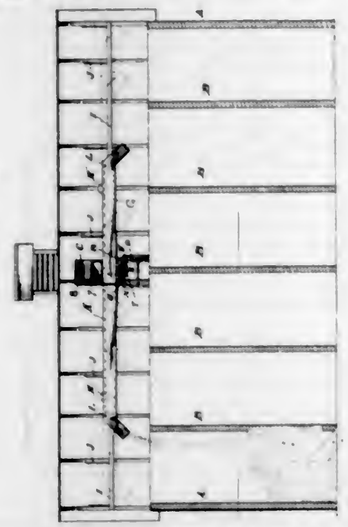
4. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, a porous packing composition expanded within said space and against said walls, and suitable heating means.

5. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, a partition dividing said space, a porous packing composition expanded within one part of the divided space and against the walls inclosing said part, a packing of any suitable material, different from said composition, within the other part of said space, and a suitable heater.

6. A heat-retaining apparatus, comprising a double-walled vessel having a food-containing chamber, the walls of said vessel being separated from each other to form a space for the reception of packing, a porous packing composition expanded within said space and against said walls, a food-rack situated in the food-containing chamber, and a heater for maintaining the temperature within said chamber.

7. A heat-retaining apparatus, comprising a double-walled body, said walls being separated from each other, forming a space therebetween, a partition dividing said space, a porous packing composition expanded within one part of the divided space and against the walls inclosing said part, and a packing composed of alternate layers of perforated and non-perforated material within the other part of said space.

752,688. **CONVEYER MECHANISM FOR HANDLING GRAINS.** EMIL M. KRAMER, Cissnapark, Ill. Filed Dec. 22, 1902. Serial No. 136,286. (No model.)



Claim.—1. The combination with an elevator of a horizontally-disposed conveyer-body mounted for reciprocation beneath the discharge of said elevator, a carrier movable within said body and adapted to discharge the material therefrom and means operating beneath said body for moving said carrier to cause the discharge of the material therefrom substantially as described.

2. In a device of the character described, a receiving structure or storehouse, an elevator within said storehouse, a horizontally-disposed conveyer-body mounted for reciprocation beneath the discharge from said elevator, a carrier movable with said body and adapted to discharge the material therefrom, and operating means for said carrier supported in said storehouse beneath said body, substantially as described.

3. A grain-distributing mechanism comprising a horizontally-shiftable conveyer-body closed at each side to form a trough, a track for supporting the conveyer-body and along which it is shifted, a smooth flat belt occupying a flat position on the bottom and running between the sides of the conveyer-body, means for holding the conveyer in any position placed on the track and means for driving the conveyer-belt the same being located beneath the conveyer-body in line with the said belt and through which the belt runs, motion being imparted to the said belt-driving means in either direction to carry the belt in one direction or the other as described.

4. A grain-distributing mechanism comprising the conveyer-body having the sides and bottom and adapted to shift in the direction of its length, a track for carrying it, a smooth belt carried by the conveyer-body and adapted to lie flat in said conveyer on the bottom thereof between the sides, means for locating the conveyer on its track after adjustment thereon, means beneath the lower run of the belt for driving said belt, and means for reversing the direction of movement of the belt for the purposes explained.

5. A grain-distributing mechanism for the purposes described comprising the conveyer-body having the sides and bottom, a roller in each end of the conveyer the top of each being substantially flush with the upper surface of the bottom of the conveyer-body, a smooth belt running over the rollers and upon the said bottom for carrying grain to be deposited at either end of the conveyer-body, a track upon which the body is mounted to shift in either direction as set forth, means for locating the conveyer in stationary manner after adjustment on the track, a series of pulleys beneath the conveyer through which the belt is adapted to run and by which it is driven and means for reversing the direction of movement of the belt through said pulleys for the purposes explained.

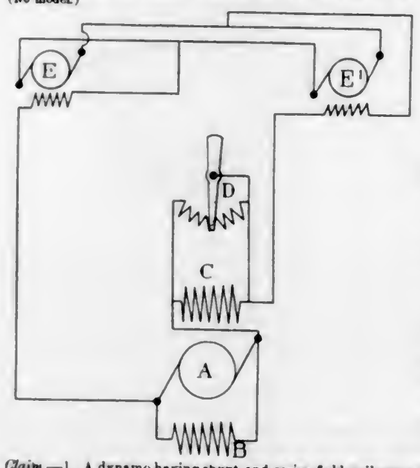
6. A grain-distributing mechanism of the character set forth comprising a conveyer-body having sides and bottom said body adjustable in the direction of its length, a track by which it is supported, means for securing it in a desired position upon the track after adjustment, a belt in the conveyer adapted to run in either direction, mechanism for driving the belt comprising a series of three pulleys beneath the conveyer-body, the belt running alternately over one and under the other substantially as set forth, a gearing for imparting motion to one of the pulleys to drive the belt, and means for reversing the direction of revolution of the gearing to reverse the direction of movement of the belt.

7. In mechanism of the character described, a conveyer-body located above the receptacles to be filled with grain, a track for carrying the said conveyer-body along which the latter is adapted to run, a belt within the conveyer-body the upper stretch of which carries the grain, a series of pulleys for engaging and driving the lower stretch of said belt, means for imparting movement to the pulleys, and other means for reversing the direction of movement thereof for the purposes set forth and described.

8. In mechanism of the character described, a conveyer-body located above the receptacles to be filled with grain, a track for carrying the conveyer and along which the same is adapted to run in either direction, locking means for preventing movement of said conveyer-body when located, a belt within the conveyer-body the upper stretch of which carries the grain, a series of pulleys for engaging and driving the lower stretch of said belt and means for reversing the direction of movement thereof all for the purposes set forth and described.

9. In mechanism of the character described, the conveyer G located above the bins to be filled with grain, the track I upon which the conveyer is mounted, a belt K within the conveyer, a series of pulleys P, Q, R beneath the conveyer for driving the belt, a gear S on the same shaft with the pulley Q, the gears T and U in continual engagement with the gear S, the shaft V on which T and U are loosely mounted, the sleeve-clutch W on said shaft, the same adapted to shift along said shaft but revolving therewith, said sleeve arranged to engage either the gear T or the gear U as desired, and a lever for shifting the sleeve for reversing the direction of movement of the pulley Q for reversing the belt K, and means for imparting movement to the shaft V in one direction as set forth.

752,689. **ELECTRICALLY-PROPELLED VEHICLE.** LOUIS KRIEGER, Courbevoie, France. Filed Feb. 26, 1903. Serial No. 145,200. (No model.)



Claim.—1. A dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and an adjustable resistance across said series coil, as set forth.

2. A dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and normally remaining in circuit regardless of variations in the electromotive force and a battery in circuit with said shunt-coil, as set forth.

3. A dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and normally remaining in circuit regardless of variations in the electromotive force, and a battery in circuit with said shunt and series coils, as set forth.

4. A dynamo having in its circuit a main field-coil and a series field-coil wound in opposition, the series coil being wound to decrease the field excitations as the current increases, and normally remaining in circuit regardless of variations in the electromotive force, and a battery in circuit with said main coil, as set forth.

5. A dynamo having a main field-coil and a series field-coil wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and normally remaining in circuit regardless of variations in the electromotive force, and a battery in circuit with said main and series coils, as set forth.

6. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of the prime mover to the driving member of the vehicle, said dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and an adjustable resistance across said series coil, as set forth.

7. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of the prime mover to the driving member of the vehicle, said dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and a battery in circuit with said shunt-coil, as set forth.

8. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of the prime mover to the driving member of the vehicle, said dynamo having shunt and series field-coils wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and a battery in circuit with said shunt and series coils, as set forth.

9. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of the prime mover to the driving member of the vehicle, said dynamo having shunt and series field-coils wound in opposition, a battery in circuit with said shunt-coil, and a resistance between said shunt-coil and battery and one of the terminals of the dynamo, as set forth.

10. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of the prime mover to the driving member of the vehicle, said dynamo having shunt and series field-coils wound in opposition, a battery in circuit with said shunt and series coils, and a resistance between said shunt-coil and battery and one of the terminals of the dynamo, as set forth.

11. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of said prime mover to the driving member of said vehicle, said dynamo having in its circuit a main field-coil and a series field-coil wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and a battery in circuit with said main coil, as set forth.

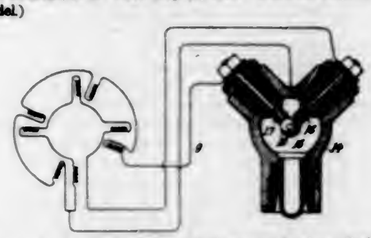
12. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of said prime mover to the driving member of said vehicle, said dynamo having a main field-coil and a series field-coil wound in opposition, the series coil being wound to decrease the field excitation as the current increases, and a battery in circuit with said main and series coils, as set forth.

13. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the energy of said prime mover to the driving member of said vehicle, said dynamo having plural main field-coils and a series field-coil wound in opposition to said main coils, one of said main coils in shunt with the terminals of the dynamo, and a battery in circuit with the other main coil, as set forth.

14. A motor-vehicle, carrying a prime mover, a dynamo and an electric motor, said dynamo and motor serving to transmit the en-

ergy of said prime mover to the driving member of said vehicle, said dynamo having plural main field-coils and a series field-coil wound in opposition to said main coils, one of said main coils in shunt with the terminals of the dynamo, a battery in circuit with the other main coil, and a resistance between the battery and the main coil energized thereby and one of the terminals of the dynamo, as set forth.

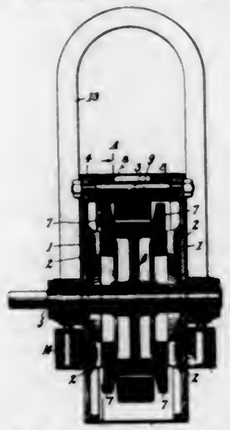
752,690. METHOD OF PRODUCING SPARKS IN THE CYLINDERS OF INTERNAL-COMBUSTION ENGINES. LEON J. LE PONTOIS, New Rochelle, N. Y. Filed Aug. 22, 1903. Serial No. 170,399. (No model.)



Claim.—1. A method of producing sparks in the cylinders of engines consisting in simultaneously breaking two or more alternating currents differing in phase from each other.

2. The method of igniting combustible mixtures in gas-engines which consists in delivering two or more alternating currents differing in phase from each other to a multiple-circuit breaker located in the combustion-chamber, and causing the said breaker to interrupt their respective circuits simultaneously so that the total heat value of the spark or sparks produced thereby at any given time is almost constant.

752,691. INDUCTOR-ALTERNATOR. LEON J. LE PONTOIS, New Rochelle, N. Y. Filed Aug. 22, 1903. Serial No. 170,473. (No model.)



Claim.—1. In an apparatus of the character described oppositely-polarized pole-pieces separated from each other, an inductor arranged between said pole-pieces, polar projections on said inductor arranged opposite each other, means for moving said pole-pieces and said inductor relative to each other, and a stationary coil adjacent to said inductor.

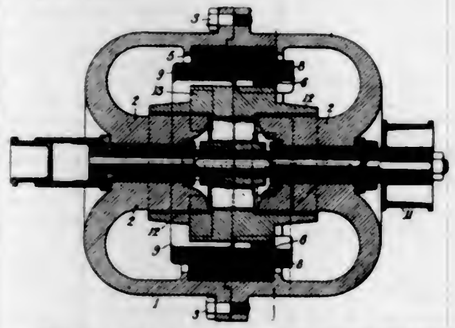
2. In an apparatus of the character described oppositely-polarized stationary pole-pieces separated from each other, an inductor adapted to rotate between said pole-pieces, polar projections on said inductor arranged opposite each other and a stationary coil adjacent to said inductor.

3. In an apparatus of the character described oppositely-polarized stationary pole-pieces separated from each other, polar projections on each of said pole-pieces arranged opposite each other, an inductor adapted to rotate between said pole-pieces, polar projections on said inductor arranged opposite each other and a stationary coil adjacent to said inductor.

4. In an apparatus of the character described oppositely-polarized stationary pole-pieces separated from each other, a plurality of polar projections on each of said pole-pieces, each of the polar projections on one pole-piece being opposite one on the other pole-piece, an inductor adapted to rotate between said pole-pieces, a plurality of polar projections on said inductor adapted to register with the polar projections on the pole-pieces during a portion of each period of revolution and a stationary coil adjacent to said inductor.

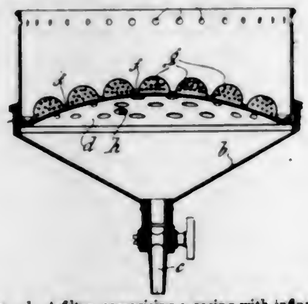
5. In an apparatus of the character described a pair of disks separated from each other, a pair of polar projections on each disk diametrically opposite each other, the polar projections on one disk being opposite those on other disk, magnets having the poles of one sign adjacent to one of said disks and the opposite poles adjacent to the other of said disks, an inductor adapted to rotate between said disks, two pairs of polar projections on said inductor, each pair being side by side and diametrically opposite from the other pair and so arranged with respect to the polar projections on the disks that they will successively vary the reluctance of the magnetic circuit, and a stationary coil supported between the pairs of polar projections on the inductor, substantially as described.

752,692. POLYPHASE MAGNETO-ALTERNATOR. LEON J. LE PONTOIS, New Rochelle, N.Y. Filed Nov. 7, 1903. Serial No. 180,175. (No model.)



Claim.—A polyphase alternating-current generator consisting of permanently-magnetized circular steel shells each shell having inner polar projections, a plurality of pole-pieces displaced with respect to each other and mounted on said shells, coils on said pole-pieces and a rotating inductor in the air-gap between said polar projections and said pole-pieces.

752,693. FILTER. OSWALD LÖWLER, Vienna, Austria-Hungary. Filed June 9, 1903. Serial No. 160,749. (No model.)



Claim.—1. A filter, comprising a casing with influx-openings, a bottom thereto, a tap in said bottom, an intermediate, vaulted and perforated bottom, a carrying-surface above said intermediate bottom, a plurality of perforated cups, and means for readily securing said cups between said carrying-surface and said intermediate bottom and disconnecting them again, substantially as and for the purpose set forth.

2. A filter comprising a casing with influx and efflux openings, a bottom, an intermediate perforated bottom, a carrying-surface above said bottom provided with openings, and a plurality of flanged perforated inverted cups passed upward into said openings and held by their flanges between the perforated bottom and carrying-surface, substantially as set forth.

752,694. WALL OR VAULT. JENS G. F. LUND, Drammen, Norway. Filed Oct. 13, 1903. Serial No. 176,910. (No model.)

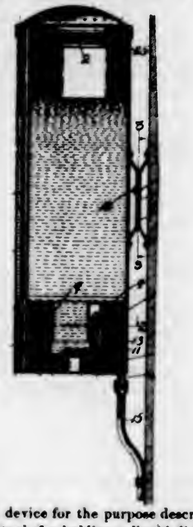


Claim.—1. A stone arch composed of a plurality of stones arranged in rows, the stones of each row having interlocking tongues and grooves, breaking joints with the lines of division between each adjoining row, and each row having a tongue extending throughout the length of the row and engaging directly a groove in the adjoining row, the tongues being wedge-shaped and the grooves correspondingly formed in such a manner, that the side surfaces cannot come together and that the top of the tongues cannot reach the bottom of the grooves, the inclination of the lateral faces of the tongues and grooves corresponding whereby the connection between grooves and tongues is secured close and firm without interposed mortar, metal or other material.

2. A stone arch composed of a plurality of stones arranged in rows, the stones of each row having interlocking tongues and grooves, breaking joints with the lines of division between each adjoining row, and each row having a tongue extending throughout the length of the row and engaging directly a groove in the adjoining row, the adjoining surfaces *l* of the blocks being sloped, the tongues of each block being wedge-shaped and the grooves correspondingly formed in such a manner, that the side surfaces cannot come together and that the top of the tongues cannot reach the bottom of the grooves, the inclination of the lateral faces of the tongues and grooves corresponding whereby the connection between grooves and tongues is secured close and firm without interposed mortar, metal or other material.

3. A stone arch composed of a plurality of stones arranged in rows, the stones of each row having interlocking tongues and grooves, breaking joints with the lines of division between each adjoining row, and each row having a tongue extending throughout the length of the row and engaging directly a groove in the adjoining row, the tongues being formed as a double wedge and the grooves correspondingly formed, so that the side surfaces cannot come together and that the top of the tongues cannot reach the bottom of the grooves, whereby the connection between grooves and tongues is secured close and firm without interposed mortar, metal or other material.

752,695. DISINFECTING DEVICE. FRANK A. MARTIN, Chicago, Ill. Filed July 5, 1901. Serial No. 67,144. (No model.)



Claim.—4. In a device for the purpose described the combination of an invertible tank for holding a liquid disinfectant having a depending neck on the bottom thereof, a cup conforming closely to and receiving said neck for sealing the lower end thereof, a wick depending into said cup at one end and having the other end extending down the outer side of the cup and a removable cap for holding said cup, substantially as set forth.

2. In a device for the purpose described the combination of a tank having an air-chamber at the bottom thereof, and a neck depending into said air-chamber, a removable cup fitted in the bottom of said air-chamber and receiving said neck, a wick dipping into said cup at one end and depending over the edge of said cup into said air-chamber at the other end, a drip-tube leading from the bottom of said air-chamber and an air-tube extending upwardly into said air-chamber, substantially as set forth.

3. In a device for the purpose described the combination of a tank for a disinfectant having a perforated or foraminous chamber on the upper end thereof, an air-chamber in the botom of said tank, means for feeding the disinfectant into said air-chamber, a tube extending through said air-chamber and tank and communicating with both of said chambers and an absorbent in said foraminous chamber for containing a perfume, substantially as set forth.

4. In a device for the purpose described the combination of a shell having the bottom 4 provided with depending neck 9, the annular end piece 7 provided with a threaded flange a cap threaded in said flange, the cup 10 supported on said cap and receiving the lower end of said neck 9, the wick-tube 11 secured to the side of said cup and communicating at its lower end therewith, the wick in said tube and a drip-tube leading from said end piece 7, substantially as set forth

752,696. ELECTRIC-CORD ADJUSTER. JONATHAN E. MASTERSON, Spokane, Wash. Filed May 23, 1903. Serial No. 158,533. (No model.)



Claim.—1. A device of the kind described comprising a stationary casing, the base of said casing being secured to the socket of an incandescent-light bulb, a hollow hub through the casing, plugs arranged in the ends of the hub, a spool adapted to rotate on said hub, a cord comprising a plurality of strands said cord passing through the casing and spool into the hub and having its strands separated within the hub, and connected to the plugs, springs contacting at one end with the outer ends of the plugs, wires leading from the said springs to the socket, means for rotating the spool and means for locking it against rotation.

2. A device of the kind described comprising a cylindrical casing having a hollow perforated hub, plugs projecting outwardly from each end of the hub, a spool rotating on the hub and transversely perforated to register with the perforation of the hub, channel-ways formed on the exterior of the casing, an insulated cord passing through the casing and through the perforations of the spool and hub into the latter, said cord separating within the hub into strands, the ends of which contact with the inner ends of the plugs, and insulated wires leading from the outer ends of the plugs through the channel-ways.

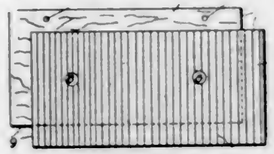
3. A device of the kind described comprising a casing having an insulated hollow hub portion, a spring-actuated spool rotating on said hub, metal plugs fitting in each end of the hub and extending outward, insulating-strips arranged on the exterior of the casing and fitting on the projecting ends of the hubs, longitudinally-curved arms covering said strips and having bowl-shaped portions covering the ends of the plugs, electrical conductors extending through the casing and spool into the hub and contacting with the inner ends of the plugs, and electrical conductors arranged between the strips and arms and contacting with the outer ends of the plugs.

752,697. TILE. ROBERT MCCARREL, Jacksonville, Fla. Filed Nov. 18, 1903. Serial No. 181,636. (No model.)

Claim.—1. A tile comprising a slate backing having projecting lugs on the inner surface thereof, and a facing of plastic composition molded thereon, said parts being offset with respect to each other, the offset of the backing having holes to receive a fastening.

2. A tile comprising a slate backing having a smooth outer sur-

face and a rough inner surface, and anchor-lugs projecting from the inner surface, and a plastic composition facing molded upon the inner surface and around the lugs and having its exposed surface ridged.



752,698. NUT-LOCK. FREDRICK L. MCCULLOCH, Tampa, Fla. Filed July 1, 1903. Serial No. 163,928. (No model.)



Claim.—A lock-nut comprising a polygonal nut provided with internal screw-threads and with grooves on the faces of said nut, said grooves extending the full length of said faces and parallel to the axis of said nut, and a bolt provided with the ordinary head and screw-threads and with a cylindrical locking-pin extending from the center of the screw-threaded end thereof and adapted to be bent in any direction to engage the grooves of the nut and thereby form a universal lock, substantially as described.

752,699. COMBINATION DRAWING-TOOL. PETER NEUKIRCHEN, Chicago, Ill. Filed Feb. 13, 1901. Renewed July 16, 1903. Serial No. 165,869. (No model.)



Claim.—1. In a device of the class described, the combination of the two members, A, A', hinged together at one end upon two axes, one of which is substantially in the plane of one side of the members, and the other of which is transverse to said plane, and suitable stops for limiting the angular movement about the transverse axis between positions in which the two members lie in the same straight line and at right angles to each other; substantially as described.

2. In a device of the class described, the combination of the two contiguous members, A, A', and means for hinging them together at their adjacent ends upon two axes, one of which is substantially in the plane of the flat sides and the other of which is transverse thereto; substantially as described.

3. In a device of the class described, the combination of the two contiguous members, A, A', semicircular in cross-section and a connecting part hinged to the adjacent ends respectively in the line of the flat side thereof, and transverse thereto; substantially as described.

4. The combination with the members, A, A', hinged together at one end, and one of them hollow at the other end, of a sharp point fitted to slide into said open end and a hollow slide, D, adapted to slip over either end of the two members when the same are brought together, said slide being provided with the eraser, *d*, secured in and occupying a portion of the interior of one end of the slide and leaving sufficient room therein to receive and hold the said point in position; substantially as described.

752,700. TUBING. MARK M. NICHOLLS, New York, N. Y. Filed July 7, 1903. Serial No. 164,565. (No model.)

Claim.—1. Tubing comprising an inner layer of fabric, a layer of impervious material surrounding said fabric, an open-mesh fabric surrounding said impervious material and another layer of impervious material surrounding said open-mesh fabric and entering the meshes thereof.

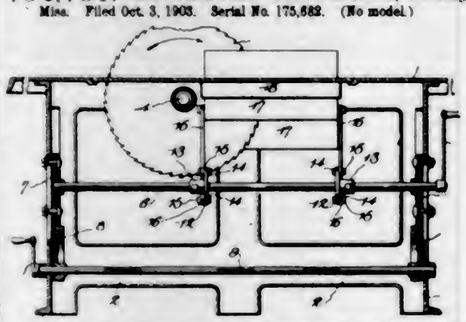
2. Tubing comprising an inner layer of fabric, a surrounding layer of impervious material, and a layer of open-mesh fabric embedded in said impervious material.

3. Tubing comprising an inner layer of fabric, a layer of impervious material surrounding said fabric and a layer of open-mesh fabric in engagement with said impervious material and having its meshes filled with said material.

4. Tubing comprising an inner layer of close-mesh fabric, a layer of impervious material surrounding said close-mesh fabric and another layer of impervious material surrounding said open-mesh fabric, said two layers of impervious material uniting through the interstices of said open-mesh fabric.



752,701. SAW-TABLE GAGE. CHARLES A. HOELIN, Orrisburg, Miss. Filed Oct. 3, 1903. Serial No. 175,682. (No model.)



Claim.—1. The combination with a saw-table and a saw, of a pair of gage members arranged on opposite sides of the saw, and mechanism for alternately raising and lowering said gage members.

2. The combination with a saw-table, of a pair of gage members arranged on opposite sides of the saw, and mechanism for simultaneously raising one of said members and lowering the other.

3. The combination with a saw-table and a saw, of a pair of gage members arranged on opposite sides of the saw, mechanism for simultaneously raising one of said members and lowering the other, and mechanism for simultaneously lowering both of said members.

4. The combination with a saw-table and a saw, of a pair of gage members arranged on opposite sides of the saw, and an oscillatory support for said gage members.

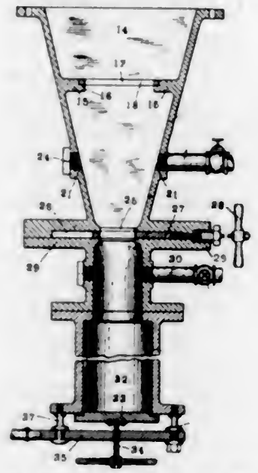
5. The combination with a saw-table and a saw, of a pair of gage members arranged on opposite sides of said saw, an oscillatory support for said gage members, and links connecting said gage members with said support.

6. The combination with a saw-table and a saw, of a shaft disposed longitudinally beneath said table, diametrically-arranged supporting-arms carried by said shaft, links pivotally connected with said arms, and a pair of gage members arranged on opposite sides of said saw and pivotally connected with said links.

7. The combination with a saw-table, of vertically-movable supporting members arranged beneath said table, a shaft journaled in said supporting members, diametrically-arranged supporting-arms projecting from said shaft, a pair of gage members arranged on opposite sides of said saw and supported by said arms, and means for raising and lowering said supporting members.

8. The combination with a saw-table and a saw, of a shaft arranged longitudinally beneath said table, a pair of eccentrics mounted on said shaft near the ends, a pair of vertically-movable supporting-frames raised upon said eccentrics, a shaft journaled in said supporting-frames, diametrically-arranged arms projecting from the last-mentioned shaft, and a pair of gage members arranged on opposite sides of the saw and supported by said arms.

752,702. SEPARATING-HOPPER FOR STAMP-MILL LAUNDERS. FREDERICK W. O'NEIL, Palmesdale, Mich. Filed May 2, 1903 Serial No. 155,267. (No model.)



Claim.—1. In a separator of the class described, a receiving-basin having an orifice through its bottom, a hollow leg mounted beneath said basin, means for closing said leg, a valve for closing communication between said leg and basin, and a water-supply pipe between said basin and said valve, for the purpose set forth.

2. In a separator of the class described, the combination with a hollow body, of a perforated partition in the upper end thereof forming a separating-basin, said basin being larger upon one side of the perforation than it is upon the other side of said perforation, a water-supply pipe leading into the body beneath the partition, and means for closing the lower end of said body.

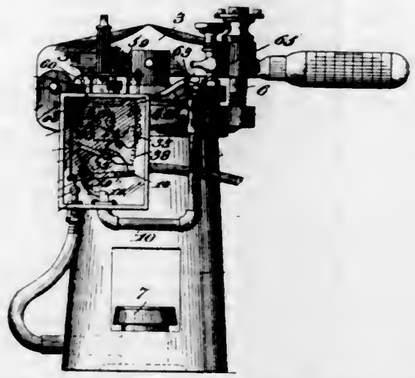
3. In a separator of the class described, the combination with a separating-basin having an outgoing wall more abrupt than the incoming wall and an orifice through the bottom of said basin between the incoming and outgoing walls, of a closed receiving-leg mounted beneath said basin, and means for introducing a stream of water into the basin through its orifice.

4. In a separator of the class described, the combination with a hollow body, of a perforated partition in the upper end thereof, forming a separating-basin, a hollow leg communicating with the lower end of said hollow body, means for opening and closing said hollow leg, a valve arranged between the hollow leg and the hollow body, a water-supply pipe leading into said hollow body between the valve and the separating-basin, and a water-supply pipe leading into the hollow leg beneath said valve.

5. In a separator of the class described, the combination with a hollow body, of a separating-basin formed in the upper end of said body, the outgoing wall of said basin being more abrupt than the incoming wall and a perforation being formed in the bottom of said basin, of a hollow leg communicating with the lower end of said hollow body, means for opening and closing said hollow leg, a valve arranged between the hollow leg and the hollow body, a water-supply pipe leading into said hollow body between the valve and basin, and a water-supply pipe leading into the hollow leg beneath said valve.

752,703. CONTROLLING DEVICE FOR VULCANIZERS OR LIKE APPARATUS. CAMERN E. ORNDORF, Ligonier, Pa., assignor of one-half to Lee S. Smith & Son, Pittsburg, Pa., a Firm. Filed June 15, 1903. Serial No. 161,498. (No model.)

Claim.—1. The combination with a suitable vulcanizer having a steam-chamber and means for heating same, of clock mechanism, and connections between said clock mechanism and steam-releasing valve.



2. The combination with a suitable vulcanizer having a steam-chamber and means for heating same, of clock mechanism, means for automatically starting said clock mechanism when prescribed heat is reached, and connections between said clock mechanism and steam-releasing valve.

3. The combination with a suitable vulcanizer having a steam chamber and means for heating same, of clock mechanism, means for starting said clock mechanism when prescribed heat is reached, means for holding heat at temperature prescribed, and means for releasing the steam by said clock mechanism.

4. The combination with a suitable vulcanizer having a steam-chamber and means for heating same, of a pressure-gage comprising a curved spring-tube, a steam-escape valve, and connections between said gage and said escape-valve.

5. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, a steam-pressure gage, connections between said gage and said valve, clock mechanism for releasing steam from said vulcanizer, and connections between said gage and clock-starting mechanism.

6. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and oulet, a valve controlling said inlet leading to burner, clock mechanism for releasing steam from said vulcanizer, and means for controlling said valve and starting said clock mechanism by the pressure of steam in said vulcanizer.

7. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected up to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, connections between said gage and said valve, and connections between said gage and clock-starting mechanism.

8. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever connected to said gage, connections between said lever and said valve, and between said lever and clock-starting mechanism.

9. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever connected to the free end of said gage by a sliding connection, connections between said lever and said valve, and between said lever and clock-starting mechanism.

10. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever having a slot formed therein with which a pin on free end of said gage engages, connections between said lever and said valve, and between said lever and clock-starting mechanism.

11. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever connected to free end of said gage, connections between said lever and said valve, and a rod connecting said lever with clock-starting mechanism.

12. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever connected to the free end of said gage, connections between said lever and said valve, a rod connected to said lever having a slot, a link having a stud engaging said slot, and connections between said link and clock-starting mechanism.

13. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a lever connected to the free end of said gage, connections between said lever and said valve, a rod connected to said lever having a slot, a rocking frame, a rock-shaft on said frame, a link on said rock-shaft having a stud engaging said slot, clock-retarding mechanism carried by said shaft, and means for adjusting said rocking frame.

14. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a locking device to prevent the operation of said clock mechanism, connections between said gage and said valve, and between said gage and said locking device to release same.

15. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, an arm adapted to bear against balance-wheel of said clock mechanism, connections between said gage and said valve, and between said gage and said arm to withdraw same.

16. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a spring-arm adapted to bear against the balance-wheel of said clock mechanism, connections between said gage and said valve, and between said gage and said arm to withdraw same.

17. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, a clock mechanism adapted to release the steam from said steam-chamber, a rock-shaft, a spring-arm carried by said rock-shaft and bearing against the balance-wheel of said clock mechanism, connections between said lever and said valve, and between said gage and said rock-shaft.

18. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a rock-shaft, a projection on said shaft, a spring on said shaft passing through an opening in said projection and bearing against the balance-wheel of said clock mechanism, connections between said gage and said valve, and between said gage and said rock-shaft.

19. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a rocking frame, carrying clock-retarding mechanism, means for adjusting said rocking frame, connections between said gage and said valve and between said gage and said clock-retarding mechanism.

20. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a spring-actuated rocking frame carrying clock-retarding mechanism, a pivotal plate bearing against said rocking frame, means for regulating the pressure of said plate, connections between said gage and said valve, and between said gage and said clock-retarding mechanism.

21. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling the outlet leading to the burner, a pressure-gage comprising a curved spring-tube connected to the steam-chamber of said vulcanizer, clock mechanism adapted to release the steam from said steam-chamber, a spring-actuated rocking frame carrying clock-retarding mechanism, a pivotal plate bearing against said rocking frame, a set-screw engaging said plate, connections between said gage and said valve, and between said gage and said clock-retarding mechanism.

22. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, connections between said clock mechanism and steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

23. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, a moving frame operated by said clock mechanism, connections between said frame and said steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

24. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, a vertically-moving frame operated by said clock mechanism, connections between said frame and said steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

25. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, a rack-bar, a pinion operated by said clock mechanism engaging said rack-bar, connections between said rack-bar and said steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

26. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, a rack-bar, a pinion operated by said clock mechanism engaging said rack-bar, a cross-bar connected to said rack-bar, connections between said cross-bar and said steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

27. The combination with a suitable vulcanizer, of a box, or casing, having a gas inlet and outlet, a valve controlling said outlet leading to burner, clock mechanism, a steam-escape valve, a rack-bar, a pinion operated by said clock mechanism engaging said rack-bar, a cross-bar connected to said rack-bar, spring-actuated rods connected to said cross-bar, connections between said cross-bar and said steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

28. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling said outlet leading to the burner, clock mechanism, a steam-escape valve, a lever for operating same, a movable frame operated by said clock mechanism, a flexible connection between said lever and said frame, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

29. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling said outlet leading to the burner, clock mechanism, said box having a gas-admission chamber with a port leading to said box, a cut-off valve within said chamber, connections between said cut-off valve and said clock mechanism, connections between said clock mechanism and a steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

30. The combination with a suitable vulcanizer, of a box, or casing, having gas inlet and outlet, a valve controlling said outlet leading to the burner, clock mechanism, said box having a gas-admission chamber with a port leading to said box, a cut-off valve within said chamber, a rack-bar connected to said cut-off valve and operated by said clock mechanism, connections between said rack-bar and a steam-escape valve, and means for controlling said gas-valve and for starting said clock mechanism by the pressure of steam from said vulcanizer.

752,704. **TICKET-PRINTING MACHINE.** FRANCIS C. OSBORN, Detroit, Mich., assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 25, 1901. Serial No. 79,936. (No model.)



Claim.—1. In a machine of the class described, the combination with the type-bars, each carrying type and all arranged to strike a common printing-point, of a ticket-magazine, and an automatically-operating conveyer arranged when released to move the tickets successively from the magazine to the printing-point of the machine.

2. In a machine of the class described, the combination with a series of type-bars, each carrying type arranged to print its designating-numeral, of a stationary magazine, and an automatic spring-actuated conveyer arranged to move the tickets from the magazine to the printing-point of the machine when said conveyer is released.

3. In a machine of the class described, the combination with the type-bars, each carrying a type and having a common printing-point, of a ticket-carrier, a spring tending normally to move the ticket-carrier, and means whereby the tickets in the carrier hold the carrier in check until the ticket which has been printed upon is removed, whereupon the carrier automatically moves far enough to present a fresh ticket at the printing-point.

4. In a machine of the class described, the combination with the pivoted type-bars having a common printing-point, a stationary magazine arranged to be filled with tickets, a conveyer, a motor-spring tending to move the conveyer in one direction, and projections on the conveyer arranged to engage the tickets in the magazine and move them to the printing-point.

5. In a machine of the class described, the combination with type-bars having a common printing-point, of a stationary ticket-magazine, and a conveyer for moving the tickets from the magazine to the printing-point, which conveyer consists of a movable cylinder having projections upon the inner periphery of its cylindrical wall and a shield concentric with the cylindrical wall and extending from the end of the magazine to the printing-point.

6. In a machine of the class described, the combination with a printing mechanism of an automatically-operating ticket-carrier and means engaged by the ticket for arresting the carrier, whereby the carrier is released to move forward when a ticket is withdrawn.

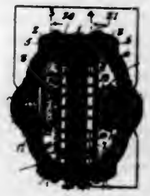
7. In a machine of the class described, the combination with a printing mechanism of a spring-actuated ticket-conveyer, means engaged by the ticket for arresting the conveyer, whereby said conveyer is released when a ticket is withdrawn.

8. In a machine of the class described, the combination with a printing mechanism, of a rotary ticket-conveyer, means for automatically rotating the conveyer when released and devices for releasing the conveyer when the ticket is withdrawn therefrom.

9. In a machine of the class described, the combination with a printing mechanism, of a ticket-conveyer, a magazine feeding tickets to said conveyer, means for automatically operating the conveyer when released and means for permitting the conveyer to operate until a ticket is brought to printing position.

752,705. **AUDIPHONE-RECEIVER.** HERMANN G. PAPE, Brooklyn, N. Y., assignor of thirty one-hundredths to James McVey, New York, N. Y. Filed Oct. 21, 1902. Serial No. 128,191. (No model.)

Claim.—1. An instrument of the character described, comprising a casing, electrodes one of which is a diaphragm; a central sound-chamber disposed opposite the center of the diaphragm, and a plurality of angularly-related receiving-passages extending parallel with the diaphragm and opening into the sound-chamber.



2. An instrument of the character described, comprising a casing, a pair of electrodes one of which is a diaphragm, a central sound-chamber formed in one wall of the casing opposite the diaphragm, and angularly-related receiving-passages formed in the chambered wall of the casing and extending parallel with the diaphragm with their point of convergence located within the sound-chamber.

3. An instrument of the character described, comprising a casing one wall of which is formed with a central sound-chamber, a pair of electrodes one of which is a diaphragm spaced from the chambered wall to form an intermediate sound-dissipating chamber, one or more openings leading from the sound-dissipating chamber to the exterior of the casing, and a plurality of receiving-passages extending substantially parallel with the diaphragm from the exterior of the casing to the central sound-chamber.

4. An instrument of the character described, comprising a casing having a middle wall formed with a central sound-chamber, diaphragms spaced from the opposite sides of said wall, electrodes in operative relation to the diaphragms, and a plurality of receiving-passages leading from the exterior of the casing to the central sound-chamber.

5. An instrument of the character described, comprising a casing having a middle wall formed with a central opening defining a central sound-chamber, diaphragms spaced from the opposite sides of said wall, electrodes in operative relation with the diaphragms, and receiving-passages extending from the periphery of the casing to the central sound-chamber and having their inner ends disposed in angular relation to cause the sound-waves received from said passages to impinge within the sound-chamber and to pass in opposite directions to the diaphragms.

6. An instrument of the character described, comprising a casing having a middle wall, diaphragms spaced from said wall to define intermediate sound-dissipating chambers, electrodes in operative relation with the diaphragms, openings piercing the periphery of the casing in planes between the diaphragms and the middle wall, said middle wall being provided with a central sound-chamber extending transversely therethrough opposite the centers of the diaphragms, and angularly-related receiving-passages formed in the middle wall and extending from the periphery of the casing to the central sound-chamber.

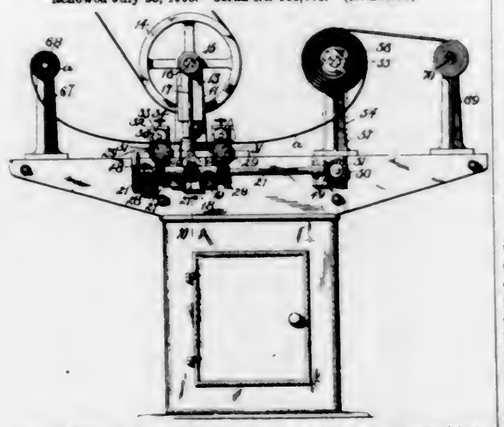
7. An instrument of the character described, comprising a casing, diaphragms, coöperating electrodes, a sound-chamber intermediate of the diaphragms, and a plurality of inclosed receiving passages or funnels located wholly within the confines of the casing and extending from the exterior thereof to the sound-chamber.

8. An instrument of the character described, comprising a central member of circular form having an axial opening constituting a central sound-chamber, surface cavities in its opposite sides and internally-threaded oppositely-disposed annular flanges, diaphragms seated at their edges against the central member, externally-threaded cover-disks of concavo-convex form screwed into the annular flanges of the central member and clamping the peripheral edges of the diaphragms, button-electrodes carried by the cover-disks and operatively related to the diaphragms, openings piercing the outer wall of the central member between the diaphragms, and a pair of receiving passages or funnels formed in the central member and leading from the periphery of the casing to the central sound-chamber, the inner ends of said passages or funnels being disposed in angular relation to cause the sound-waves entering the instrument through said passages to impinge within the central sound-chamber and pass therefrom in opposite directions to the diaphragms.

9. An instrument of the character described, comprising a casing having a middle wall formed with a central transverse sound-chamber, diaphragms spaced from the opposite sides of said wall to define intermediate sound-dissipating chambers, electrodes coöperating with the diaphragms, a plurality of receiving passages or funnels formed in the middle wall of the casing parallel with the dia-

phragms and converging in the central sound-chamber, and a series of radial openings in the peripheral walls of the sound-dissipating chambers and parallel with the diaphragm, whereby the sound-waves passing through the receiving passages or funnels impinge within the central sound-chamber, are thence deflected in opposite directions against the diaphragms, and are permitted to dissipate through the openings in the peripheral walls of the dissipating-chambers to prevent reverberation.

752,706. **MACHINE FOR PREPARING MATCH-STOCK.** WILLIAM H. PARKER, Passaic, N. J., assignor to Parker Match Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 24, 1902. Renewed July 23, 1903. Serial No. 166,771. (No model.)



Claim.—1. A machine for preparing match-stock, comprising a feeding mechanism, a punching mechanism for punching alternate notches in the opposed edges of the stock, and a winding apparatus to roll up the stock after it has been punched.

2. A machine for preparing match-stock, comprising an intermittent feeding mechanism, a punching mechanism operating to punch notches in the edges of the stock while the feed is at rest, a continuous winding apparatus to roll up the stock after it has been punched, and a tension on said winding apparatus to prevent undue strain on the stock.

3. A machine for preparing match-stock, comprising an intermittent feeding mechanism, a punching mechanism operating to punch alternate notches in the opposed edges of the stock, a winding apparatus to roll up the stock after it has been punched, and a tension on said winding apparatus to prevent strain on the stock.

4. A machine for preparing match-stock, comprising an intermittent feeding mechanism, a punching mechanism operating to punch alternate notches in the opposed edges of the stock, a winding apparatus to roll up the stock after it has been notched, and a tension adapted to slip when a certain tension is reached, a device to feed a separating medium into the roll to separate the edges of the stock.

5. In a machine for preparing match-stock, a punch adapted to punch alternate notches in the opposed edges of the stock, said punch having cutting-fingers on the edges thereof and arranged to have the faces toward one another in the same vertical plane.

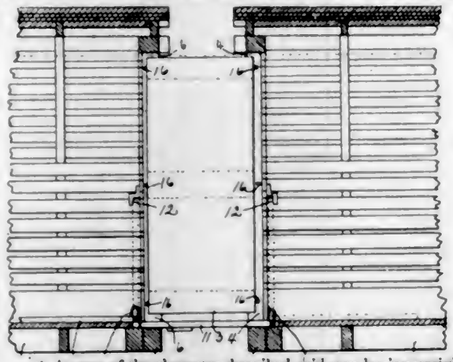
6. In a machine for preparing match-stock, a feeding mechanism, a punching mechanism, a continuous-winding apparatus to roll up the prepared stock with a separating medium, a means for fastening said roll to the winding mechanism, and a friction device to cease the winding when a certain tension on the stock has been reached.

7. A machine for preparing match-stock, comprising a continuous-punching mechanism adapted to punch notches in the edges of the stock, a pair of intermittent feed-rolls feeding the stock to said punching mechanism, a second pair of rolls behind said punching mechanism, a winding apparatus to roll up the match-stock with a separating medium, and an adjustable friction device to prevent the winding when a certain tension on the stock has been reached

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752,707. **VESTIBULE STOCK-CAR.** JOHN L. PENNINGTON, Fort Worth, Tex. Filed Aug. 29, 1903. Serial No. 171,255. (No model.)

Claim.—1. In cars of the character described, means for forming passages from one car to another of adjacent cars comprising doorways in the end of each car, the braces of each car forming the door-posts, a door hinged to one side of the doorway of each car and the door of one car being hinged to the opposite side from the door of the adjacent car, said door being adapted, when opened, to rest each against the door-post of the adjacent car, and a hinged gang-board adapted to form a floor between said doors when open.



2. In cars of the character described, said cars having upright end braces in each end thereof; means for forming a passage from one car to another of adjacent cars comprising doorways in the end of each car, a door for each car hinged at the side of the doorway for one car and adapted to rest against the side of the doorway of the adjacent car, latches for holding said doors open, means for locking said doors closed, and a hinged gang-board adapted to form a floor for the gangway, and means for holding said gang-board in an upright position within the car when not in use.

3. In cars of the character described, said cars having upright end braces in each end thereof; means for forming a passage from one car to another of adjacent cars comprising doorways in the end of each car, a swinging gang-board for each door and hinges permitting vertical adjustment of each gang-board whereby the gang-boards of two adjacent cars may be folded on each other to form a passage-way from car to car, and a door hinged to each car and adapted to rest, when opened, against the brace of the adjacent car whereby a vestibule is formed between the cars.

4. In cars of the character described provided with end braces forming posts for doors in each end of the car; a doorway in each end of each car, swinging gang-boards hinged to the floors of the cars and adapted to stand in upright positions inside of said doorways when not in use and to fold on each other, when in use, to form a passage-way from car to car, means for retaining said boards in upright positions when not in use, and a door hinged at one side of each doorway and adapted to swing open and rest against the door-post of the adjacent car to form a vestibule between the cars.

5. In cars of the character described provided with end braces forming posts for doors in each end of the car; a doorway in each end of each car, swinging gang-boards hinged to the floors of the cars and adapted to stand in upright positions inside of said doorways when not in use and to fold on each other to form a passage-way from car to car, a door hinged at one side of each doorway and adapted to swing open and rest against the door-post of the adjacent car to form a vestibule between the cars, and pairs of bolts for each door adapted to engage the door-posts of the doorway.

752,708. **CRATE FOR BOTTLES.** WILLIAM W. PRICE, Poughkeepsie, N. Y. Filed May 11, 1903. Serial No. 156,599. (No model.)

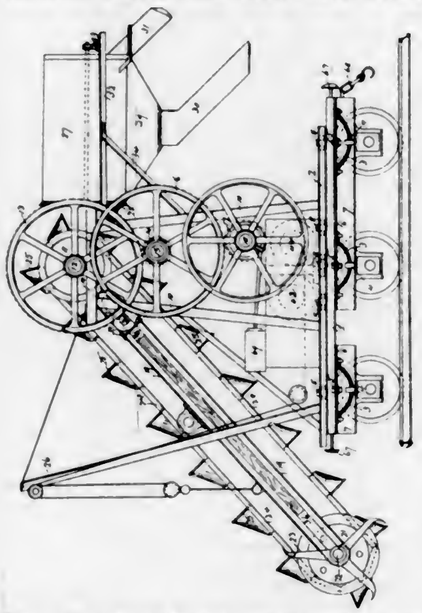


Claim.—1. A crate adapted to contain two rows of bottles, in combination with a holder comprising two parallel spring-wires rigidly connected together near each end and adapted to fit between the bottles and engage the shoulders thereof, the ends of the wires being detachably connected to the ends of the crates, substantially as described.

2. A crate adapted to contain two rows of bottles, in combination with a holder comprising a bar formed of stout parallel wires provided with suitable cross connections, an upwardly-extending spring-catch formed at one end and having a loop serving as a handle, and a cross connection near the other end forming two projecting pins of the ends of the wire, the crate being provided at one end with two holes to receive the said pins and at the other with a keeper for the said catch, substantially as described.

3. A crate adapted to contain two rows of bottles and having a bead or flange formed at each side to engage the sides of the bottles near their shoulders, in combination with a holder comprising a bar formed of stout parallel wires provided with suitable cross connections, an upwardly-extending spring-catch formed at one end and having a loop serving as a handle, and a cross connection near the other end forming two projecting pins of the ends of the wire, the crate being provided at one end with two holes to receive the said pins and at the other with a keeper for the said catch, substantially as described.

752,709. **MACHINE FOR EXCAVATING, RAISING, SCREENING, AND FILLING GRAVEL BALLAST, &c.** HILARY QUERTIER, Dunedin, New Zealand. Filed Feb. 17, 1903. Serial No. 143,859. (No model.)



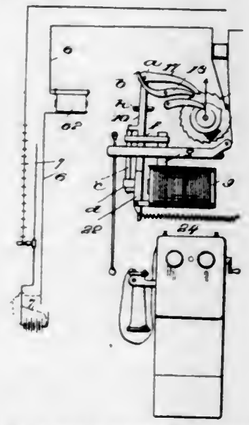
Claim.—1. In a machine for excavating and raising gravel ballast and the like, in combination, a traveling truck, a base-plate thereon rotating about a king-bolt, a tumbler-frame upon the base-plate, a bucket-ladder carrying buckets moving upon the frame, means for driving the same and also winch-drums, a head-line that is wound upon one of the drums and bowlines upon other drums the outer ends of the lines being attached to anchors suitably situated so that when either of the bowlines is inwound the base-plate and superstructure may be swung round a complete circle if need be, substantially as specified.

2. In apparatus for excavating raising and filling gravel ballast and the like, in combination with means for excavating and raising the material, a traveling truck, a base-plate thereon rotating about a king-bolt, a head-line wound upon a drum, bowlines also drum-wound so that said excavating apparatus may if needful be turned about upon the truck to work at the side of the track upon which the truck runs, means for operating the drums, and a chute for conducting away the material as it falls from the topmost bucket, said chute being inclined and capable of being swiveled in its socket, as and for the purposes specified.

3. In apparatus for excavating raising screening and filling gravel ballast and the like, in combination with means for excavating and raising the material, a traveling truck, a base-plate thereon rotating about a king-bolt, a head-line wound upon a drum, bowlines also drum-wound so that said excavating apparatus may be turned about on the truck to work at the side of the track upon which the truck runs, means for operating the drums, a screen into which the material is fed, an apron upon the screen, an inclined chute on the apron capable of delivering material along a circular arc, and a tail-chute in the screen also swiveling as and for the purposes specified.

4. As a means for preventing the extreme side sway of apparatus for excavating raising screening and filling gravel ballast and the like a wheel-bracket adapted to move in guides attaching same to the side of the machine, a wheel in the bracket, a vertical spindle the lower end of which is provided with a thread that meshes with a female thread formed in the said wheel-bracket, a handle for revolving the spindle and an encircling spring upon the upper portion thereof above the hand-wheel and between it and the channel-iron web 55, as specified and operating as set forth.

752,710. **MEANS FOR SYNCHRONIZING THE INSTRUMENTS OF TELEPHONE SYSTEMS.** HOPE REDMON, RUFUS L. HALL, and ROBERT H. CONWAY, Cynthiana, Ky. Filed Sept. 17, 1903. Serial No. 173,613. (No model.)



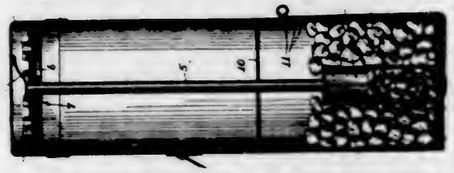
Claim.—1. In an electric system of intercommunication, and in combination with the selective electromagnet of each instrument, the armature coöperating therewith, a feed-pawl adapted to be actuated by said armature, a detent-pawl, an operating device provided with ratchet-teeth for coöperation with the feed and detent pawls, a permanent magnet pivotally mounted and controlled in its movements by the change in polarity of the electromagnet and having oppositely-extended pole-pieces, a stop projected from the permanent magnet, and having a portion to extend across the path of the armature to limit its movement in one direction whereby under abnormal conditions the detent-pawl of the instruments may be tripped and all the instruments synchronized, substantially as specified.

2. In an instrument of the character described, the combination of the selective electromagnet, the armature coöperating therewith, a feed-pawl connected with said armature for actuation thereby, a ratchet-wheel connected with the operating parts of the instruments, a detent-pawl, a stop connected with the armature for tripping the detent-pawl, a permanent magnet pivotally mounted upon and carried by said armature and adapted to be controlled by the change in polarity of the aforesaid electromagnet, and means for normally limiting the amplitude of movement of the armature and adapted to be thrown out of action by reverse movement of the permanent magnet to admit of tripping the aforementioned detent-pawl to admit of synchronizing all the instruments of a system, substantially as set forth.

3. In an instrument of the character described, the combination of an electromagnet, the armature coöperating therewith and having an arm, means for throwing the armature away from the electromagnet, a feed-pawl carried by the arm of the armature for operation thereby, a ratchet-wheel connected with the operating parts of the instrument, a detent-pawl, a trip carried by the arm of said armature for throwing the detent and feed pawls out of contact with the ratchet-wheel, a permanent magnet pivotally connected with said armature and its arm and adapted to be controlled by the change of polarity of the aforesaid electromagnet, and a stop carried by the permanent magnet for limiting the outward movement of the electromagnet and adapted to be controlled by the change

is polarity of said permanent magnet, substantially as and for the purpose specified.

752,711. TORCH. WILLIAM H. ROSE, Baltimore, Md., assignor to the Marine Torch Company of Baltimore City, Baltimore, Md. Filed Jan. 20, 1902. Serial No. 90,512. (No model.)



Claim.—1. A torch comprising a shell having a compartment charged with illuminating material, a burner at the upper end of the shell and communicating with the said compartment, and a pilot-light for the burner consisting of a second compartment charged with phosphid of calcium, said phosphid-compartment being located at the bottom of the shell and provided with a water-inlet and with an outlet-passage leading up to the top of the shell and discharging in proximity to the burner.

2. A marine torch comprising a floatable shell having a compartment charged with carbid of calcium and an opening to admit water to said compartment, a gas-burner in communication with said compartment, and a pilot-light for said burner consisting of a second and smaller compartment charged with phosphid of calcium, said phosphid-compartment being located at the bottom of the shell and being provided with a water-inlet and with a passage leading up to and discharging adjacent to the burner.

3. A torch comprising a shell having a burner at its upper end and a compartment at its lower end charged with carbid of calcium, and provided with a water-inlet, a chamber formed within the lower part of the shell communicating with openings in the bottom and top thereof, a phosphid vessel removably held in said chamber, and means for admitting water to said phosphid vessel and for conducting phosphoreted hydrogen from said vessel to the burner, for the purpose set forth.

4. A torch comprising a floatable shell having at its lower end a compartment charged with carbid of calcium and provided with a water-inlet, and at its upper end a burner for acetylene gas, a chamber in the lower end of the shell which is sealed from the carbid-compartment and which communicates with an opening in the bottom of the shell, a tube connecting said chamber with an opening in the top of the shell adjacent to the burner, a phosphid vessel adapted to be secured in said chamber, a tube extending from the phosphid vessel through the above-mentioned tube and into proximity with the burner, and means for admitting water to the phosphid vessel, for the purpose set forth.

752,712. WOVEN PILE FABRIC. HOVSEP SARAFIAN, Yonkers, N. Y. Filed Dec. 13, 1901. Serial No. 85,829. (No specimens.)



Claim.—1. A pile fabric, comprising upper and lower ground warp-threads, weft-threads for binding the said ground warp-threads, and pile warp-threads, each looped around a lower ground warp-thread and crossing between the lower ground warp-thread and the upper ground warp-thread, the pile ends extending on opposite sides of the upper ground warp-thread, the adjacent pile warp-threads having their adjacent pile ends on the same side of the upper ground warp-thread, as set forth.

2. A pile fabric, comprising ground warp-threads, binding weft-threads, and pile warp-threads, each looped around a lower ground warp-thread, and crossing between this ground warp-thread and an upper ground warp-thread, then extending with its pile ends on opposite sides of the upper ground warp-thread, successive loops being looped in opposite directions around the lower ground warp-thread, as set forth.

3. A pile fabric, comprising upper and lower ground warp-threads, pile warp-threads, each looped ground a lower ground warp thread and crossing between the lower ground warp-thread and the upper ground warp-thread, the pile ends extending on opposite sides of the upper ground warp-thread, the adjacent pile warp-threads having their adjacent pile ends on the same side of the upper ground warp-thread, and weft-threads for binding the said ground warp-threads, one weft-thread being between the warp-threads at the crossing of the same and the adjacent one between the warp-threads about midway between their crossing and between adjacent pile ends of the warp-threads, as set forth.

4. A woven pile fabric which consists of sets of warp-threads and of weft-threads for binding said sets together, each set of warp-threads comprising at least two continuous ground warp-threads, arranged one above the other and one continuous pile warp-thread, the pile warp-thread being looped around the lower ground warp-thread, extended between the ground warp-threads and having upper loops above the upper ground warp-thread, as set forth.

5. A woven pile fabric which consists of sets of warp-threads and of weft-threads for binding said sets together, each set of warp-threads comprising at least two continuous ground warp-threads, arranged one above the other and one continuous pile warp-thread, the pile warp-thread being looped around the lower ground warp-thread, extended between the ground warp-threads and having upper loops about the upper ground warp-thread, the said upper loops being cut to produce a pile surface.

6. A woven pile fabric which consists of sets of warp-threads and of weft-threads for binding said sets together, each set of warp-threads comprising at least two continuous ground warp-threads, arranged one above the other and one continuous pile warp-thread, the pile warp-thread being looped around the lower ground warp-thread, extended between the ground warp-threads and having upper loops above the upper ground warp-thread, the said upper loops being cut to produce a pile surface, the cut ends of an upper loop being on the same side of the upper ground warp-thread.

7. A woven pile fabric which consists of sets of warp-threads and of weft-threads for binding said sets together, each set of warp-threads comprising at least two continuous ground warp-threads, arranged one above the other and one continuous pile warp-thread, the pile warp-thread being looped around the lower ground warp-thread successively in opposite directions, and the pile warp-thread being extended between the ground warp-threads and having upper loops above the upper ground warp-thread, as set forth.

8. A woven pile fabric which consists of sets of warp-threads and of weft-threads for binding said sets together, each set of warp-threads comprising at least two continuous ground warp-threads, arranged one above the other and one continuous pile warp-thread, the pile warp-thread being looped around the lower ground warp-thread successively in opposite directions, and the pile warp-thread being extended between the ground warp-threads and having upper loops above the upper ground warp-threail, the said upper loops being cut to produce a pile surface, the cut ends of an upper loop being on the same side of the upper ground warp-thread.

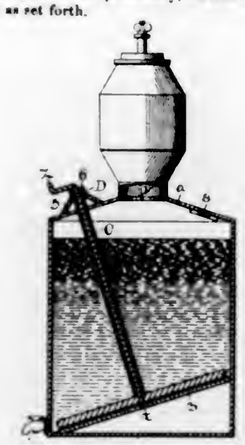
9. A pile fabric comprising sets of upper and lower ground warp-threads, weft-threads for binding the said ground warp-threads, and a continuous pile warp-thread for each set of upper and lower ground warp-threads, the pile warp-thread being looped around the lower ground warp-thread and crossing between the lower ground warp-thread and the upper ground warp-thread, to form upper loops above the upper ground warp-thread.

10. A pile fabric comprising sets of upper and lower ground warp-threads, weft-threads for binding the said ground warp-threads and a continuous pile warp-thread for each set of upper and lower ground warp-threads, the pile warp-thread being looped around the lower ground warp-thread and crossing between the lower ground warp-thread and the upper ground warp-thread, to form upper loops above the upper ground warp-thread, alternately on opposite sides thereof.

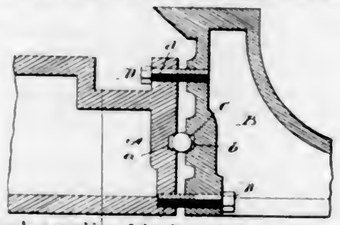
11. A pile fabric comprising sets of upper and lower ground warp-threads, weft-threads for binding the said ground warp-threads, and a continuous pile warp-thread for each set of upper and lower ground warp-thrcads, the pile warp-thread being looped around the lower ground warp-thread and crossing between the lower ground warp-thread and the upper ground warp-thread, to form upper loops above the upper ground warp-thread, alternately on opposite sides thereof, the said upper loops being cut, to produce a pile surface.

752,713. ACETYLENE-GAS GENERATOR. AUGUSTUS E. SCHLIEDER, Omaha, Nebr. Filed Apr. 24, 1901. Serial No. 57,210. (No model.)

Claim.—In an acetylene-gas generator, the combination with the gas-generating tank, having an inclined or bevel base and a carbid-holder, communicating therewith, of a revoluble shaft arranged centrally of and at right angles to the plane of said base, top and bottom bearings for the shaft secured to the upper part of the tank and base respectively, and a series of scraper-blades operatively secured to the shaft, whereby upon rotating the latter, the blades are adapted to scrape or clean, practically, the entire surface of the base substantially as set forth.



752,714. BED-FASTENING FOR HORIZONTAL SPINDLE DRILLING AND BORING MACHINES. GEORGE H. SMITH, Providence, R. I., assignor to the Beaman & Smith Company, Providence, R. I., a Corporation. Filed May 5, 1903. Serial No. 156,132. (No model.)



Claim.—In a machine of the character described, the combination, with the bed and platen, each having a groove formed in its abutting face, a shaft or key secured in said grooves and a series of screws or bolts, one set of bolts being above and the other set below the said shaft or key, whereby the loosening of one set of the screws and the tightening of the others, will adjust the relative position of the platen and bed around said shaft.

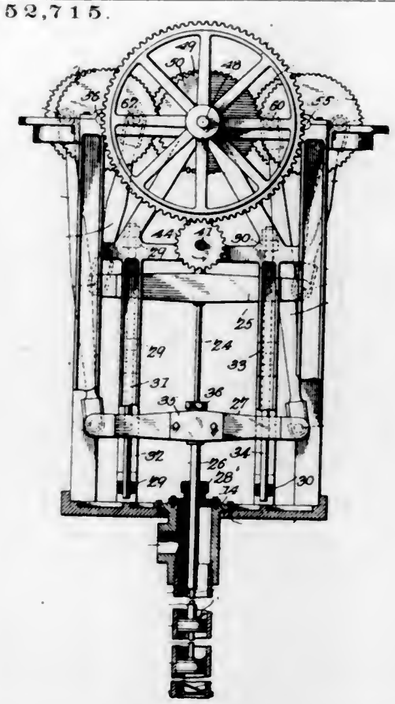
752,715. PUMPING APPARATUS. JAMES E. SMITH, Alamogordo, N. Mex. Filed Oct. 12, 1903. Serial No. 176,683. (No model.)

Claim.—1. A pumping apparatus, comprising a supporting-frame having a cylinder associated therewith, two plungers disposed for alternate movement in said cylinder, a driver-shaft carried by said frame and having spaced gears eccentric thereto and oppositely disposed thereon, counter-shafts upon opposite sides of said driver-shaft and carrying gears having crank-pins and eccentric to their shafts and interengaging said eccentric gears upon said driver-shaft, and connecting means between said crank-pins and plunger-rods, whereby the operative strokes of said plungers will be at a slower speed and with increased force, substantially as described.

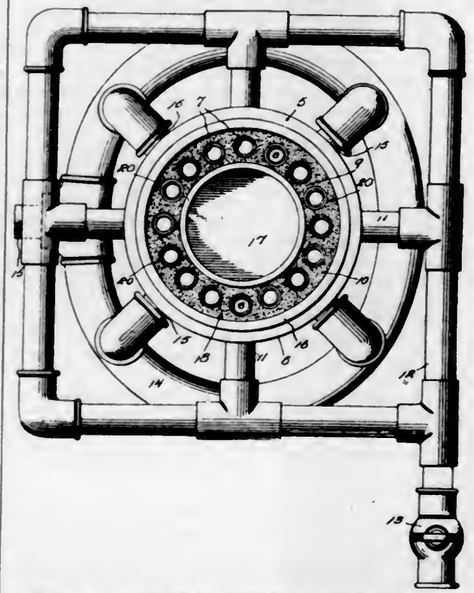
2. A pumping apparatus, comprising a supporting-frame having a cylinder associated therewith, two plungers disposed for alternate movement in said cylinder, a driver-shaft carried by said frame and having spaced gears eccentric thereto and oppositely disposed thereon, counter-shafts upon opposite sides of said driver-shaft and carrying gears having crank-pins and eccentric to their shafts and engaging the gears upon said driver-shaft, and connecting-rods between said crank-pins and said cross-heads, substantially as described.

3. In a pumping apparatus of the class described, a supporting-frame having four uprights, reversely-diagonal cross-heads engaging said uprights and disposed crosswise with relation to each other, a tubular plunger-rod connected with the lower cross-head, a plunger-rod connected with the upper cross-head and extending through the tubular plunger-rod, reversely-disposed eccentrics arranged, one pair at each end of the frame, and pitmen connecting opposite ends of each cross-head with an eccentric at each end of the frame.

752,715.



752,716. OIL-BURNER. JAMES L. SMITH, Taunton, Mass. Filed May 12, 1903. Serial No. 156,753. (No model.)

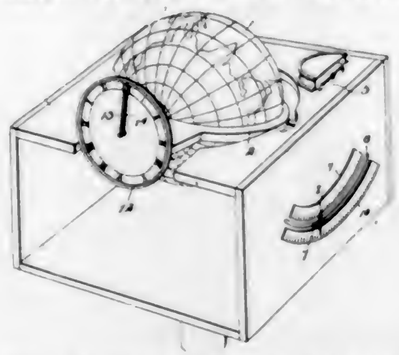


Claim.—1. An oil-burner comprising a burner-head having spaced projections upon its bottom and air-passages formed through the projections, the spaces between the projections being adapted to receive oil, a pipe inclosing the burner-head, and communicating at different points with the interspaces to supply oil thereto, a circular pipe disposed below the burner and having upwardly and inwardly directed pipes communicating therewith and with the spaces be-

tween the projections below the upper ends of the projections to carry off excess oil, a pipe connecting with the circular pipe to carry the oil therefrom, said circular pipe also forming a base for the burner, and a chimney removably connected with the burner-head and a core within the chimney.

2. An oil-burner comprising a burner-head having an oil-holding recess therein, a hollow base disposed below the head, tubular supports connecting the head and base and communicating with the oil-holding recess and with the base, and an oil-supply pipe communicating with the oil-holding recess at points below the points of communication of said tubular supports.

752,717. NAVIGATOR'S POSITION-INDICATOR. JOHN B. SMITH, Valdosta, Ga. Filed Aug. 28, 1903. Serial No. 171,148. (No model.)



Claim.—1. The combination of a terrestrial globe mounted for adjustment to position corresponding to the relative position of earth and sun, and an opaque body disposed in proper position relative to the globe for casting a shadow thereon to indicate the location of the instrument at the time the observation is made.

2. The combination in an instrument of the class described, of a transparent terrestrial globe supported for adjustment to any desired position and an opaque body at the center of the globe.

3. The combination in a device of the class described, of a hollow terrestrial globe of glass mounted for adjustment to any desired position, and an opaque bulb at the center thereof.

4. The combination in a device of the class described, of a transparent terrestrial globe, gimbals in which said globe is supported for adjustment into any desired position, and an opaque body supported at the center of the globe.

5. The combination in a device of the class described, of a transparent terrestrial globe mounted for adjustment to any desired position, an opaque body supported at the center of the globe, a clock-dial, hands mounted in front of the said dial, gearing connected with said hands and said globe, whereby the movement of the globe on its axis will impart movement to the hands at a rate proportionate to the normal relation of changes in longitude to changes in time.

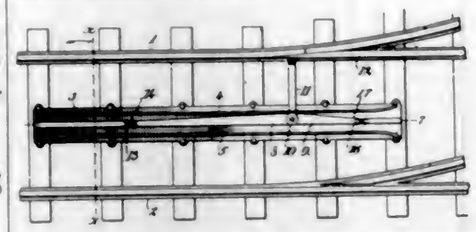
6. The combination in a device of the class described, of a casing, a transparent globe mounted in said casing for adjustment to any desired position, a support for said casing upon which it is rotatable, a compass fixed on the casing in position to show when the axis of the globe is in the meridian, and an opaque body at the center of the globe.

7. The combination in a device of the class described, of a casing, gimbals associated with said casing, a transparent globe mounted in the gimbals, an opaque body mounted at the center of said globe, a scale on said casing to indicate the relative positions of the earth and sun at any time, and an arm bearing an indicator attached to the gimbals and movable over said scale.

752,718. RAILWAY-SWITCH. WILBER K. SMITH, Denver, Colo., assignor to the American Automatic Switch Company, Pueblo, Colo., a Corporation of Colorado. Filed Apr. 1, 1903. Serial No. 150,570. (No model.)

Claim.—1. In a railway-switch of the class described, the combination of a switch-point, the fixed guide-rail, a swinging lever in line with the fixed guide-rail, and pivotally secured thereto between the tracks and connected with the switch-point and adapted to be operated by a device on the car, substantially as described.

2. In a railway-switch of the class described, the combination of a switch-point, a fixed guiding-rail secured in position between the tracks, and a swinging lever arranged in line, and pivotally secured to the fixed guiding-rail and to the switch-point to operate the same, substantially as described.



3. In a railway-switch of the class described, the combination of fixed guiding-rail mechanism, toggle-lever mechanism in line with, and pivotally secured thereto, and means connecting the toggle-lever mechanism with the switch-point to operate the same, substantially as described.

4. In a railway-switch of the class described, the combination of a toggle-lever, a fixed guiding-rail pivotally secured to each end thereof, a switch-point, and means connecting the switch-point and toggle-lever mechanism together to move the switch-point, substantially as described.

5. In a railway-switch of the class described, the combination of toggle-lever mechanism, fixed guiding-rail mechanism secured to each end of the toggle-lever and between the ordinary railway-tracks, link mechanism pivotally secured to the toggle-lever at or near its common fulcrum-point and to the switch-point for operating the same, substantially as described.

6. In a railway-switch of the class described, the combination of toggle-lever mechanism, fixed guard-rail mechanism secured to each end of the toggle-lever mechanism, a switch-point, a link pivotally secured to the toggle-lever mechanism at or near its common fulcrum-point and to the switch-point to operate the same, and guard rails or flanges arranged at each side of the toggle-lever mechanism, substantially as described.

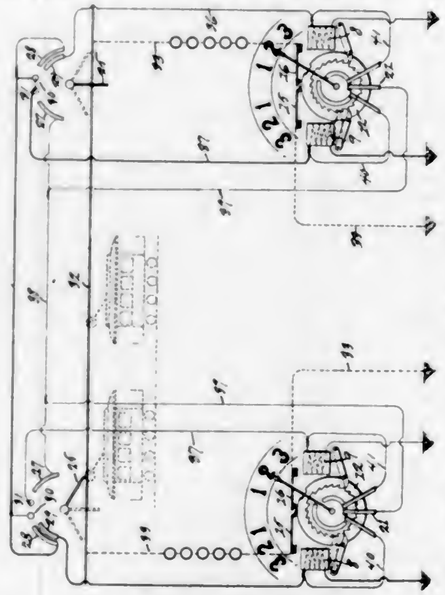
7. In a railway-switch of the class described, the combination of toggle-lever mechanism, a fixed guide-rail secured to each end of the toggle-lever mechanism, a switch-point, link mechanism pivotally secured to the toggle-lever mechanism at or near its common fulcrum-point and to the switch-point, a base-plate arranged underneath the toggle-lever mechanism and provided with upwardly-extending guard flanges or rails arranged at each side of the toggle-lever mechanism, substantially as described.

752,719. AUTOMATIC SIGNALING SYSTEM FOR ELECTRIC RAILWAYS. HARRY B. SNELL, Cement City, Mich., assignor, by direct and mesne assignments, to the Snell Electric Signal Company, a Corporation of Michigan. Filed July 17, 1903. Serial No. 165,964. (No model.)

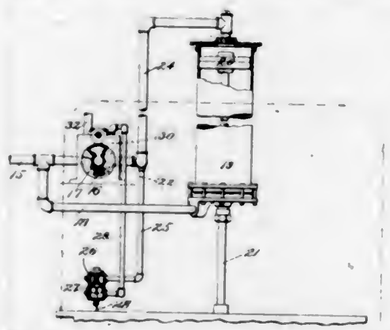
Claim.—1. In an automatic block-signaling system, indicating mechanisms located at opposite ends of a block, each provided with a dial and a rotatable shaft carrying an indicator-hand and an oppositely-toothed ratchet-wheel, a pair of pivoted armatures adapted to be actuated independently to engage the ratchet-wheel and rotate the same intermittently in either direction, magnets for actuating said armatures, a trolley-wire carrying a current-supply, a pair of line-wires extending lengthwise of the block, circuits leading therefrom through the magnets of the indicator mechanisms, and trolley-actuated switch devices at the ends of the block adapted to control said circuits to cause the mechanisms to indicate at both ends of the block the number of cars having entered thereon and the direction in which they are running, substantially as described.

2. In an automatic block-signaling system, indicating mechanisms located at opposite ends of the block, each having a dial provided on its face with two series of numbers arranged on opposite sides of a central point, and a rotatable shaft carrying an indicator-hand and an oppositely-toothed ratchet-wheel, a pair of pivoted armatures adapted to be actuated independently to engage the ratchet-wheel and rotate the same intermittently in either direction, magnets for actuating said armatures, a trolley-wire carrying a current-supply, a pair of line-wires extending lengthwise of the block, circuits leading therefrom through the magnets of the indicator mechanisms, and trolley-actuated switch devices at each end of the block adapted to control said circuits, substantially as shown and described.

3. In an automatic block-signaling system, indicating mechanisms located at opposite ends of a block, each having a dial provided on its face with two series of numbers arranged in the arc of a circle with a central space dividing them, a rotatable shaft carrying an indicator-hand adapted to normally point to the space between the two series of numbers, an oppositely-toothed ratchet-wheel carried upon the shaft, a pair of armatures carrying pivoted pawls upon their ends to engage the ratchet-wheel and rotate the same intermittently in either direction, magnets for actuating said armatures, a trolley-wire carrying a current-supply, a pair of line-wires extending lengthwise of the block, circuits leading therefrom through the magnets, trolley-actuated switch devices mounted upon the trolley-wire at the ends of the block adapted to control said circuits, local signal-circuits containing suitable signals, and a closing device actuated by the rotatable shaft in each signal mechanism to close the local signal-circuits, said circuits being open only when the indicator-hand points to the space between the two series of numbers upon the indicator-dial, substantially as shown and described.



752,720. DIFFERENTIAL AIR-PRESSURE ELEVATOR. GEO. F. STEEDMAN, St. Louis, Mo. Filed Dec. 17, 1901. Serial No. 86,261. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a car, of a cylinder, a piston and its rod in said cylinder, means for admitting constant pressure under the piston, a valve for admitting and exhausting pressure above the piston, and an auxiliary valve operated by the car for exhausting pressure above the piston; substantially as described.

2. In an apparatus of the character described, the combination with a car, of a cylinder, a piston and piston-rod in said cylinder, the latter being connected to the car, means for constantly admitting pressure under the piston, means for admitting and exhausting pressure above the piston, and means for fully exhausting the pressure above the piston when the car is at its highest point; substantially as described.

3. In an apparatus of the character described, the combination with a car, a cylinder, a piston and piston-rod in said cylinder, the latter of which is connected to the car, means for admitting constant pressure under the piston, means for admitting and exhausting pressure above the piston, means for constantly supplying the space above the piston with pressure when the elevator is at its lowermost position and means for fully exhausting the pressure above the piston when the car is at its highest point; substantially as described.

4. In an apparatus of the character described, the combination with a cylinder, its piston and piston-rod, of a passage for constantly admitting pressure under the piston, a valve for admitting and exhausting pressure above the piston, means for moving said valve whereby pressure above the piston is admitted or exhausted, said valve, in one position, when the piston is approaching its highest point in the cylinder, permitting the pressure above the piston to gradually leak past the valve, and an independently-operable valve for quickly exhausting the pressure above the piston; substantially as described.

5. In an apparatus of the character described, the combination with a cylinder, its piston and piston-rod, of a valve for controlling the admission and exhaust of pressure above said piston, said valve comprising a valve-block having pressure-chamber 16, an exhaust-chamber 31, and chambers 22 and 30 in communication with the space above the piston, of a rotary wing-valve having a recess in constant communication with the exhaust-chamber, said wing-valve controlling the ports to chambers 22 and 30, the port to chamber 16 being constantly open, and an auxiliary valve for controlling the opening between the space above the piston and chamber 30; substantially as described.

6. In an apparatus of the character described, the combination with a cylinder, its piston and piston-rod, of a valve for controlling the admission and exhaust of pressure above said piston, said valve comprising a valve-block having a pressure-chamber 16, said pressure-chamber having a lateral lead 17, a chamber 22 in communication with the space above the piston, an exhaust-chamber 31, of a rotary wing-valve having a recess constantly open to said exhaust-chamber for controlling the port to chamber 22, said valve being provided with a projection 9ª for closing the lead 17 in certain positions of the valve; substantially as described.

7. The combination with an elevator-cage, of a hoisting-cylinder, its piston and piston-rod, the latter being connected to the cage, a source of compressed-air supply connected with the space on the under side of the piston for constantly supplying pressure thereto, a port 22 leading to the space above the piston, said port 22 having leads at its sides, a valve coöperating with said port 22 and its leads for admitting and exhausting pressure to the space above the piston, a hand-rope for operating said valve so as to leave one or the other of said leads open at each extremity of movement of the valve, an auxiliary valve for quickly exhausting the air from the space above the piston, when the cage reaches its upper limit of travel, and means on the cage for operating said auxiliary valve; substantially as described.

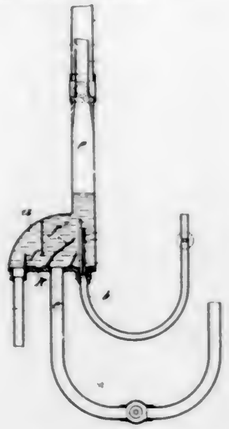
8. In an elevator mechanism or the like, the combination with an elevator-cage, of a hoisting-cylinder and its piston and piston-rod, said cylinder having a port, a valve arranged to admit and exhaust pressure through said port to and from said cylinder, a hand-rope for operating said valve, means on the hand-rope coöperating with the cage to partially close the said port as the cage reaches its upper limit, means on said hand-rope also coöperating with said cage to partially close the said port as the cage reaches its lower limit, and an auxiliary valve for exhausting the air from the upper portion of said cylinder for locking said cage at its upper limit of travel, said auxiliary valve being operated by the movement of the cage; substantially as described.

9. In an elevator mechanism or the like, the combination with an elevator-cage, of a hoisting-cylinder and its piston and piston-rod, said cylinder having a port, a valve for admitting and exhausting pressure through said port to and from said cylinder, a hand-rope for operating said valve, an arm on the cage, a button on the hand-rope coöperating with said arm to operate the valve to partially close said port as the cage reaches its upper limit, a second button on the hand-rope coöperating with the said arm on the cage and arranged to operate the valve to partially close the said port as the cage approaches its lower limit, and an auxiliary valve for ex-

hausting air from the upper portion of said cylinder for locking said cage at its upper limit of travel, said auxiliary valve being operated by the movement of the cage; substantially as described.

752,721. APPARATUS FOR HEATING WATER BY STEAM.

WILLEM G. F. STEINMETZ, Medemblik, Netherlands. Filed May 27, 1903. Serial No. 158,945. (No model.)

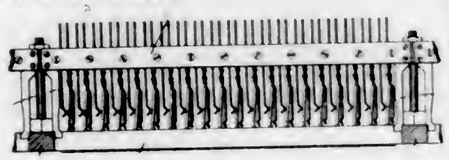


Claim.—1. An apparatus for heating water by steam, composed of a chamber, a steam-inlet pipe, a cold-water-inlet pipe, a hot-water-outlet pipe, partitions between the water inlet and outlet pipes, and a steam-exit pipe at the top of the chamber and in alinement with the steam-inlet pipe, substantially as specified.

2. An apparatus for heating water by steam, composed of a chamber, a steam-inlet pipe having nozzles, a cold-water-inlet pipe and a hot-water-outlet pipe arranged at the bottom of said chamber, partitions between the cold-water-inlet and hot-water-outlet pipes, a steam-exit pipe at the top of the chamber and in alinement with the steam-inlet pipe, and means on the steam-exit pipe for discharging condensed water from said pipe, substantially as specified.

752,722. SWITCHBOARD.

ALFRED STROMBERG, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed May 13, 1902. Serial No. 107,058. (No model.)



Claim.—1. In a multiple switchboard, the combination with a front support, of a plurality of test-thimbles in the support, the test-thimbles being provided with a plurality of lugs carried thereby while the support is provided with an equal number of recesses adapted to engage the lugs, thereby preventing rotation of the thimbles, substantially as described.

2. In a multiple switchboard, the combination with a front vertical support formed in one integral piece provided with a plurality of horizontal rows of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying a plurality of lugs while the said support is provided with an equal number of corresponding recesses within which the lugs may be received to prevent rotation of the test-thimbles, substantially as described.

3. In a multiple switchboard, the combination with a front vertical support formed in one integral piece provided with a plurality of horizontal rows of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying a plurality of lugs at the rear ends thereof while the said support is provided with an equal number of corresponding recesses in its rear vertical surface within which recesses the lugs may be received to prevent rotation of the test-thimbles, substantially as described.

4. In a multiple switchboard, the combination with a front vertical support formed in one integral piece provided with a plurality of horizontal rows of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying a plurality of lugs at the rear ends thereof, the said lugs being flexible, whereby they may be bent in order to permit the passage of the thimbles through the plug-openings, the said thimbles being provided with projecting rims at their front ends, the said lugs being turned at right angles or transversely to the thimbles when the thimbles are inserted to engage the said recesses, substantially as described.

5. In a multiple switchboard, the combination with the front vertical support containing a plurality of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying lugs while the said support is provided with an equal number of corresponding recesses within which the lugs may be received to prevent rotation of the test-thimbles, substantially as described.

6. In a multiple switchboard, the combination with the front vertical support containing a plurality of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying lugs at the rear end thereof, while the said support is provided with an equal number of correspooding recesses in its rear vertical surface, within which recesses the lugs may be received to prevent rotation of the test-thimbles, substantially as described.

7. In a multiple switchboard, the combination with the front vertical support containing a plurality of plug-openings, of test-thimbles within the said plug-openings, the said test-thimbles carrying lugs at the rear ends thereof while the said support is provided with an equal number of corresponding recesses in its rear vertical surface within which recesses the lugs may be received to prevent rotation of the test-thimbles, the said lugs being flexible, whereby they may be bent in order to permit the passage of the thimbles through the plug-openings, the said thimbles being provided with projecting rims at their front ends, the said lugs being turned at right angles or transversely to the thimbles when the thimbles are inserted to engage the said recesses, substantially as described.

8. In a switchboard, the combination with vertical ribs, of a plurality of banks of jacks horizontally alined between said vertical ribs, a front and a rear vertical support for each of said banks, an end plate at each end of said banks interposed between the front and rear supports thereof and secured thereto, and clamping means interposed between said ribs and said rear supports whereby said banks are secured to said ribs and whereby adjacent banks are secured in horizontal alinement, substantially as described.

9. In a switchboard, the combination with vertical ribs, of a plurality of banks of jacks horizontally alined between said vertical ribs, a front and rear vertical support for each of said banks, an end plate at each end of said banks interposed between the front and rear supports thereof and secured thereto, screws extending rearwardly from said ribs and between the end plates of horizontally adjacent banks, and nuts for engaging the free ends of said screws whereby said adjacent banks are held together in horizontal alinement and are secured to said ribs, substantially as described.

10. In a switchboard, the combination with vertical ribs, of a plurality of banks of jacks horizontally alined between said vertical ribs, a front and rear vertical support for each of said banks, the front support being provided with plug-openings while the rear support carries line-springs and holds the same in suitable alinement with respect to the plug-openings, an end plate at each end of said banks interposed between the front and rear supports thereof and secured thereto, screws extending rearwardly from said ribs and between the end plates of horizontally adjacent banks, and nuts for engaging the free ends of said screws whereby the adjacent banks are held together in horizontal alinement and are secured to said ribs, substantially as described.

752,723. UMBRELLA.

THEODOR SUSEMIHL, New York, N. Y. Filed Dec. 7, 1903. Serial No. 184,069. (No model.)

Claim.—In an umbrella, the combination of a tubular slotted stick with a telescoped upper stick-section having a collar, a spring-catch pivoted to the upper stick-section and adapted to engage the stick-slot, means for locking the catch to the stick, foldable ribs pivoted to the upper stick-section, a crown secured to the stick, extensible stretchers composed of slidable overlapping sections that connect the crown to the ribs, a slotted runner adapted to engage the catch and collar, and braces that connect the runner to the outer sections of the extensible stretcher, substantially as specified.

752,723



752,724. REAMER.

JOHN R. S. TAYLOR, Detroit, Mich., assignor to Taylor Manufacturing Company, Limited, Detroit, Mich. Filed Jan. 5, 1903. Serial No. 137,783. (No model.)



Claim.—1. In a reamer, the combination with a head having a socket, of a stem carried by the head and longitudinally slidable in the socket, and a cutter pivoted to the stem and slidable therewith, said cutter having a portion that engages the head when the stem is moved into the socket to throw the operative portion of said cutter outwardly.

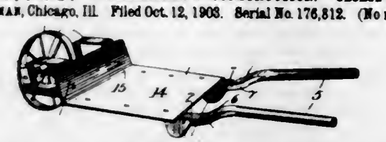
2. In a reamer, the combination with a head having a socket, of a stem carried by and longitudinally movable in the socket, and a cutter pivoted between its ends to the stem and being slidable therewith, the inner end of the cutter engaging in the socket and against the head and swinging the outer operative end of said cutter outwardly upon the movement of the stem into the socket.

3. In a reamer, the combination with a head having a tool-holder-engaging shank at one end and a socket in its other end, the outer end of said socket having an outwardly-inclined wall, of a stem carried by the head and longitudinally slidable in the socket, said stem having one end exposed, and a cutter pivoted to the exposed end of the stem and slidable therewith, the inner end of the cutter having a slidable engagement with the inclined wall of the head and swinging the outer end of said cutter outwardly upon the movement of the stem into the socket.

4. In a reamer, the combination with a head having an angular tool-holder-engaging shank at one end and a longitudinally-disposed socket extending in from the other end, the outer end of said socket being flared, of a stem carried by the head and freely slidable in the socket, said stem having one end exposed and provided with a plurality of longitudinally-disposed seats, means connecting the stem and head to prevent their disassociation and permit their relative movement, and cutters pivoted between their ends in the seats of the stem, the inner ends of said cutters projecting from the seats and bearing against the inner face of the flared wall, the outer ends constituting cutting portions.

752,725. WHEELBARROW CONSTRUCTION.

GEORGE G. TIEMAN, Chicago, Ill. Filed Oct. 12, 1903. Serial No. 176,812. (No model.)



Claim.—1. A wheelbarrow-frame consisting of a pair of two-web angle-irons supporting the wheel and constituting the bed-frame, each of said angle-irons being formed at one end respectively into a substantially rectangular abutment which includes braces therefor and also including wheel-bearings and the other end being formed into a substantially tubular handle.

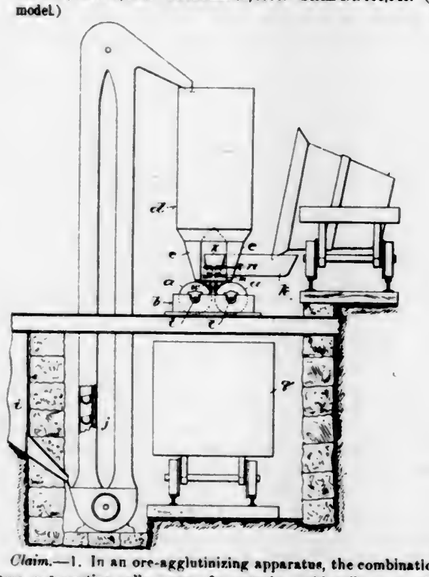
2. A wheelbarrow-frame consisting of two angle-irons curved at one end transversely into tubular handles and having their opposite ends split, one of said split portions being bent into a front-board abutment and fastened upon the body of the angle-iron, and the other of each of said split portions being bent upon itself and apertured for the wheel-spindle.

3. A wheelbarrow-frame consisting of a pair of angle-irons, part of one web of each of said irons being formed into an integral bearing for the wheel and part of the other web being formed into a three-sided abutment for the front board with the extreme end thereof fastened upon another portion of said web; the opposite end of each of said angle-irons having both of its webs curved toward each other into the form of a handle, and suitable legs for said frame.

4. A wheelbarrow consisting of two integral angle-irons each thereof having one end of its wings curved into tubular form and having its opposite end split at the juncture of the wings into two straps with one of the latter bent four times at substantially right angles and the other bent or folded upon itself and apertured for the wheel-spindle.

752,726. ORE-AGGLUTINIZING APPARATUS.

EDWARD A. UEHLING, Passaic, N. J. Filed June 10, 1903. Serial No. 160,949. (No model.)



Claim.—1. In an ore-agglutinizing apparatus, the combination of two cooperating rolls, means for rotating said rolls, means for feeding ore to said rolls and means for feeding slag to said rolls, together with means for regulating the supply of said ore and said slag, substantially as set forth.

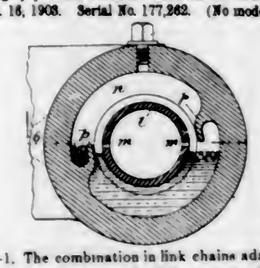
2. In combination, two cooperating rolls, means for actuating said rolls in opposite directions one from the other, a receptacle sit-

uate above said rolls and adapted to feed ore to the surfaces of said rolls, means for feeding slag between the surfaces of said rolls, separate and independently manually actuated means for regulating the supply of said ore and said slag, substantially as described and set forth.

3. In combination in an apparatus adapted to agglutinize ore, two coöperating rolls, rotating toward one another, a hopper situate above said rolls manually-controlled means for discharging the contents of the said hopper on the upper surface of each of the said rolls, a trough situate above said rolls, and manually-controlled means for regulating the discharge of the contents of said trough between the said rolls, substantially as set forth.

4. In combination in an apparatus adapted to agglutinize ore, two coöperating water-cooled rolls, rotating toward one another, a hopper situate above said rolls, manually-controlled means for discharging the contents of the said hopper on the upper surface of each of the said rolls, a trough situate above said rolls, and manually-controlled means for regulating the discharge of the contents of said trough between the said rolls, substantially as set forth.

752,727. **LINK CHAIN.** EDWARD A. UEHLING, Passaic, N. J. Filed Oct. 16, 1903. Serial No. 177,262. (No model.)



Claim.—1. The combination in link chains adapted to carry receptacles for conveying material, of links, each of said links being provided at one extremity with an eye, and at the other extremity with a boss, each of said bosses being adapted to engage the eye of the next succeeding link, the outside of the boss being smaller than the inside of the eye, for establishing a rolling connection of the said boss within the said eye, axles transversely connecting said eyes and said bosses, and means for lubricating the bearing-surfaces of said axles, substantially as set forth and described.

2. The combination in two parallel moving chains, of links, each of said links being provided at one extremity with an eye, and at the other extremity with a boss, axles transversely connecting said two chains and passing through and having a bearing within said bosses, and means for lubricating the said bearings, substantially as shown and described.

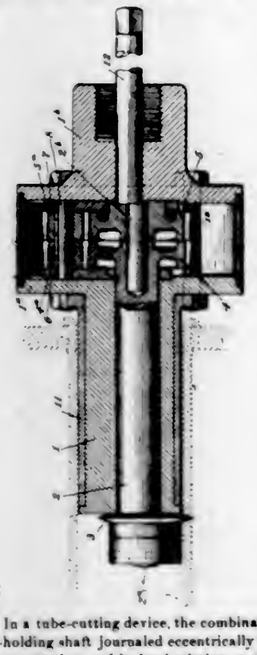
3. In a link-chain connection, consisting of two parallel link chains, the combination of two links in each of said chains, an axle adapted to connect their associated ends, each of said links being provided at one extremity with an eye and at the other extremity with a boss, each of said bosses coöperating with the eye of the next succeeding link, a sleeve situate within each of said bosses surrounding the extremities of said axle, and adapted to act as bearing-surfaces for said axle, each of said bosses being provided with a cavity adapted to contain lubricating fluid, deflecting-partitions within said cavities, means for connecting said bearing-surfaces with said cavities, and means adapted to support said chains and said axles, substantially as described.

4. In a link-chain connection the combination of two links, each of said links being provided with an eye and a boss, an axle adapted to connect their associated ends, said axle being supported within said boss, a wheel keyed upon the extremity of said axle, a flange upon the inner surface of said wheel, and a rim located within said boss, and coöperating with said flange to form a substantially dust-tight joint, substantially as set forth and described.

5. The combination in two parallel chains, of links, each of said links being provided at one extremity with an eye, and at the other extremity with a boss, axles connecting the said two chains, bearings within said bosses adapted to support said axles, means located within said bosses for lubricating said bearings and means adapted to form a substantially dust-tight joint about said bearing-surfaces, substantially as set forth and described.

6. In a link chain, the combination of two links, an axle adapted to connect their associated ends, and having a bearing within one of said ends, the same said end being provided with a cavity adapted to contain a lubricant, means for admitting lubricant to said cavity, deflecting-partitions situate within said cavity and means connecting the bearing-surface of said axle with the said cavity, substantially as set forth.

752,728. **FLUE OR TUBE CUTTER.** JOHN ULRICH, Columbus, Ohio. Filed May 6, 1901. Renewed Jan. 16, 1904. Serial No. 189,378. (No model.)

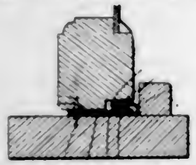


Claim.—1. In a tube-cutting device, the combination of a main spindle, a cutter-holding shaft journaled eccentrically therein, a cutter eccentrically mounted on and in fixed relation to the end of said cutter-holding shaft and beyond the main spindle, combined with a differential gearing between the main spindle and the cutter-holding shaft adapted to feed the cutter by rotation only of the main spindle and cutter-holding shaft, substantially as described.

2. In a tube-cutting device, a main spindle, a cutter-holding shaft journaled therein, a cutter on said shaft mounted stationarily and eccentrically with respect thereto, a gear on said cutter-holding shaft, a gear held stationary with respect to the main spindle, and pinions for differentiating the motion of the gear of the cutter-holding shaft with respect to the main spindle, substantially as described.

3. In a tube-cutting device, a main spindle, a cutter-holding shaft journaled eccentrically therein, a cutter mounted eccentrically on said cutter-holding shaft, combined with a differential gearing comprising a gear 4 secured to or forming a part of said spindle, a stationary gear 5, a shaft 8 carried and revolved by the main spindle, pinions 4^a and 5^a engaging the gears 4 and 5, substantially as described, whereby the cutter-holding shaft is rotated within the main spindle to feed the cutter as set forth.

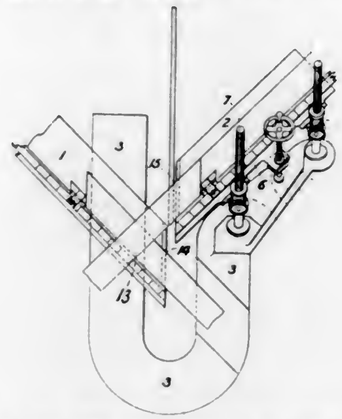
752,729. **WEATHER-STRIP.** CLIFTON VOSE, New York, N. Y. Filed Feb. 11, 1903. Serial No. 142,848. (No model.)



Claim.—1. A weather-strip of sheet metal having a portion E^3 of its width at the working edge partially folded so as to stand inclined relatively to the main body, the strip being also again bent with the curve so as to present a smoothly-rounded junction E^4 of the intermediate part E^3 with the main part or body E, adapted to serve substantially as herein specified.

2. A stationary weather-strip of sheet metal having a portion of its width at the working side doubly folded so as to stiffen and present a smoothly-rounded edge, in combination with a strip D D′ held in a rabbeted support *b* in the moving part B adapted to serve therewith, substantially as herein specified.

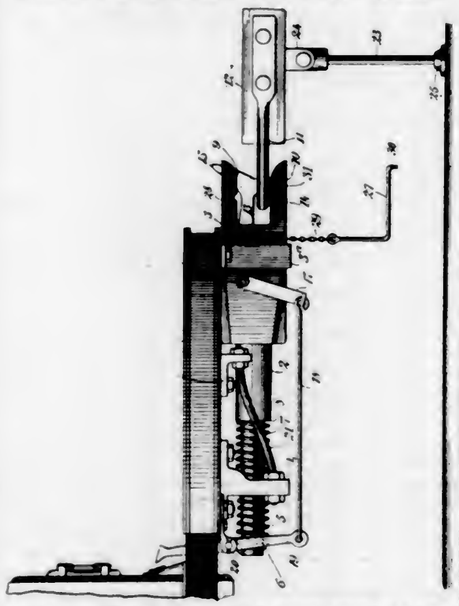
752,730. **ARM ADJUSTMENT FOR MITER-CUTTING MACHINES.** ROBERT WALES, Dunedin, New Zealand. Filed Dec. 29, 1903. Serial No. 187,085. (No model.)



Claim.—1. In a miter-cutting machine of the class described mechanism for raising one of the arms in an inclined plane substantially as and for the purposes set forth.

2. In a miter-cutting machine of the class described a rest, brackets attached at an angle to the back thereof, a base-piece, columns secured thereto at said angle and slidable in said brackets, a threaded bracket on said rest, and a screw therein substantially as and for the purposes set forth.

752,731. **COUPLING.** WILLIAM H. WALLACE, Whitefield, near Henry, Ill. Filed May 15, 1903. Serial No. 157,264. (No model.)



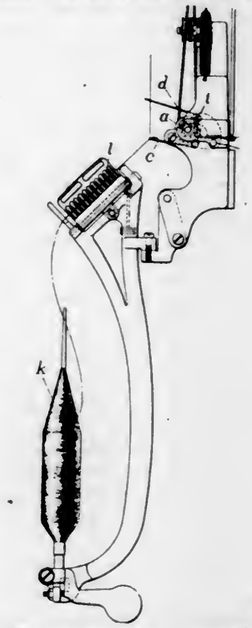
Claim.—1. The combination with a traction-engine, of a coupling-head having spaced upper and lower members, the lower member having a notch or depression in its inner side, a lever mounted to swing in the coupling-head, a hook portion on said lever adapted to engage in said notch or depression, a pole, a swinging support for the pole and a link member on said pole for engaging with the hook.

2. The combination with a traction-engine, of a draw-bar yieldingly connected thereto, a coupling-head on the draw-bar, the said coupling-head having upper and lower spaced members, a lever mounted to swing in the coupling-head, and having a downwardly and forwardly inclined hook member at its end, a link for engaging with said hook, a shaft on which the lever is mounted, the said shaft having bearings in the side walls of the coupling-head, means for rocking the lever upward, and a pin for locking the lever in its depressed position, the said pin having an outwardly-turned end for engaging with a side of the coupling-head.

3. The combination with a traction-engine, of a hanger attached to the lower side of the platform of the engine, the said hanger having an opening, a draw-bar movable through said opening, springs between opposite sides of the hanger and parts on the draw-bar, brace-rods extended from the hanger to the platform, a coupling-head on the draw-bar, a lever mounted to swing in said head, the said lever having a hook portion, a lever having swinging connection with the engine, and a rod connection between said lever and the first-named lever.

4. The combination with a traction-engine, of a coupling member, a tongue or pole, a link-like coupling member attached to said tongue or pole for engaging with the coupling member on the engine, a standard having swinging connection with said tongue or pole, and spring-clips for holding said standard in position parallel with the tongue or pole.

752,732. **SLUB-DETECTOR.** SIMON W. WARDWELL, Providence, R. I., assignor to Universal Winding Company, Portland, Me., a Corporation of Maine. Filed Feb. 26, 1902. Serial No. 95,743. (No model.)



Claim.—1. The combination with a rotating fluted roll and the stopping devices of a machine, of a detector through which a running yarn passes, said detector having a shoulder portion normally held away from said roll but movable into engagement therewith when a slub in the yarn engages the detector, and the latter being movable by the roll when engaged therewith to operate the stopping devices and release the slub.

2. The combination with the stop devices and a rotating member of a machine, of a detector movably supported adjacent to a running thread out of position to engage said rotating member, but to directly contact therewith when moved by a slub in the thread, and means connected with the detector to actuate the stop devices of the machine on the movement of the detector by the rotating member.

3. The combination of a rotating fluted roll member of a machine, a slitted detector movably supported adjacent to a running thread out of position to engage said rotating roll member but to directly contact therewith when moved by a slub, and means connected with the detector to actuate the stop devices of the machine, on the movement of the detector by the rotating member.

4. The combination of a rotating member of a machine, a detector supported adjacent a running thread out of position to engage said rotating member but to directly contact therewith when moved by a slub, and means connected with the detector to actuate the stop devices of the machine on the movement of the detector by the rotating member, said latter movement effecting the release of the slub.

5. The combination with the moving member of a stop-motion device of a machine, of a slotted detector supported adjacent to a running thread out of engagement with the moving member but in position to directly engage the same when the detector is shifted by a passing slub, said detector bodily moved to actuate the stop device without arresting or putting stress upon the thread.

6. The combination with a rotating fluted roll and a tilting plate to be moved from the roll to arrest the winding, of a detector, with a slit for the passage of the yarn, mounted on said tilting plate, maintained normally away from the roll but adapted to be moved by a slub into engagement therewith, to cause the latter to tilt the plate for the purposes and in a manner substantially as described.

7. The combination with a fluted roll *a*, a tilting plate *b* from which the stopping devices of a machine may be operated and a rod *i* secured to the plate, of a detector *d* mounted on said rod, comprising an arm *e* with a slit *f* through which the yarn runs, and an arm *g* with a shoulder *h* adapted to engage the roll for purposes and in a manner substantially as described.

8. The combination with a fluted roll *a*, a tilting plate *b* from which the stopping devices of a machine may be operated and a rod *i* secured to the plate, of a detector *d* mounted on said rod, comprising an arm *e* with a slit *f* through which the yarn passes, and a second arm *g* having a shoulder *h* which, when engaged with the said roll, causes the plate to tilt to arrest the winding and then causes the yarn to be disengaged from the detector.

9. The combination in a stop-motion device for a machine, with a tilting plate *b*, a rod connecting the plate with the stopping devices of the machine, and a fluted roll *a* from which the plate is tilted to cause the stopping devices to act, of a rod *i* secured to the plate and detectors mounted on said rod, having slits through which the yarn passes and prevented from longitudinal movement on the rod by notches *j* in the edge of the plate, with which notches the arms *g* of the detectors engage.

10. The combination with a moving member of a textile-machine, of a slub-detector comprising an arm *e* having a slit *f* of a width to just permit the passage of the yarn, but sufficiently narrow to prevent the passage of a slub, and an arm *g* having a shoulder *h* to engage the moving member to thereby cause the movement of said detector bodily, to effect the stopping of the machine, substantially as described.

11. The combination with a constantly-moving member of a machine-stopping device, of a slub-detector comprising in one piece an arm *e* with a slit *f* through which the yarn passes and which is too narrow to pass a slub, and a second arm formed with a shoulder to engage the moving member, and means to limit the degree of said engagement.

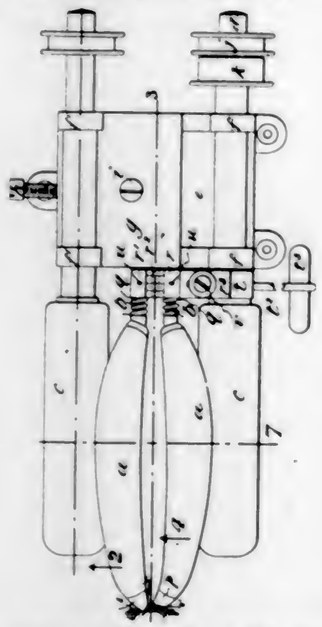
12. The combination with a rotating fluted roll, of a slub-detector for textile-machines, comprising in one piece an arm *e* with a slit *f* through which the yarn passes, and which is too narrow to pass a slub, and a second arm formed as shown with a shoulder *h* to engage the fluted roll, having an offset portion which limits the degree of engagement of the shoulder *h* with said roll.

13. The combination with a rotating fluted roll, of a slub-detector for textile-machines comprising in one piece an arm *e* with a slit *f* through which the yarn passes and which is too narrow to pass a slub, and a second arm with a shoulder to engage the fluted roll and whereby the arm *e* is positively moved away from the yarn.

752,783. CIGAR-MAKING MACHINE. OTTO WARTMANN, Tottenham, England. Filed Oct. 30, 1902. Serial No. 128,013. (No model.)

Claim.—1. In a cigar-making machine, the combination with a plurality of rollers, mounted upon outwardly-curved journals, of friction driving-gear for the rollers mounted upon suitable supports, one stationary and the other adjustable, and means for adjusting the driving-gear relative to each other.

2. In a cigar-making machine, the combination with a plurality of rollers, mounted upon outwardly-curved journals, of friction driving-gear operatively associated with the outer periphery of the rollers, said driving-gear being mounted upon suitable supports, one stationary and the other adjustable and means for adjusting the driving-gear into and out of contact with the rollers.



3. In a cigar-making machine, the combination with a plurality of rollers, mounted upon outwardly-curved journals, of friction driving-gear operatively associated with the outer periphery of the rollers, said driving-gear being mounted upon suitable supports, one stationary and the other adjustable, means for adjusting the driving-gear into and out of contact with the rollers, and means for retaining the driving-gear in its adjusted position.

4. In a cigar-making machine, the combination with a plurality of rollers, mounted upon outwardly-curved journals, of rotatable means operatively associated with the rollers, said rotatable means being mounted upon supports upon the opposite sides of the rollers, one of the supports being stationary and the other adjustable, means for adjusting the rotatable means into and out of contact with the outer periphery of the rollers, and means for retaining the rotatable means in its adjusted position.

5. In a cigar-making machine, the combination with a plurality of rollers, of journals for the rollers, said journals being formed in pairs, and comprising rods bent back upon themselves.

6. In a cigar-making machine, the combination with a plurality of flexible rollers, of outwardly-curved journals for the rollers, said journals being formed in pairs and each pair comprising a rod bent back upon itself.

7. In a cigar-making machine, the combination with a plurality of rollers, of journals for the rollers, said journals being formed in pairs, and each pair comprising a rod bent back upon itself, the bended portion of the rod forming a flat bearing for the ends of the rollers, and resilient means at the free ends of the rods for normally holding the rollers in contact with the bended portion of the rods.

8. In a cigar-making machine, the combination with a plurality of rollers, of journals for the rollers, said journals being formed in pairs, and each pair comprising a rod bent back upon itself, the bended portion of the rod forming a flat bearing for the ends of the rollers.

9. In a cigar-making machine, the combination with a plurality of flexible rollers, of outwardly-curved journals for the rollers, a support for one end of the journals having apertures therein for the reception of the journal ends, said support being formed in two sections hinged together for the purpose specified, and plates at the other end of the journal pivotally secured to a suitable support.

10. In a cigar-making machine, the combination with a plurality of rollers, of outwardly-curved journals for the rollers, a support for one end of the journals, said support being formed in two sections hinged together intermediate the front and back rollers, means for opening and closing the sections, and plates at the other end of the journal pivotally secured to a suitable support.

11. In a cigar-making machine, the combination with a plurality of rollers, of journals for the rollers, a bearing for the ends of the rollers and a spring member for normally holding the rollers in contact with said bearing.

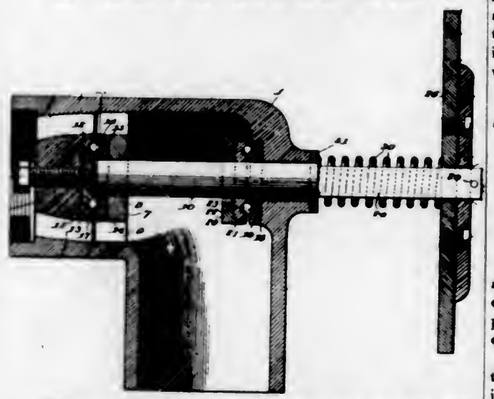
12. In a cigar-making machine, the combination with a plurality of rollers, of plates for supporting the journals of the rollers, and cutting mechanism on said plates to cut off any excess of tobacco after the rolling of the cigar.

13. A cigar-making machine, having flexible rollers, said rollers having a continuous outer surface and being mounted on fixed outwardly-curved mandrels and of approximately the same diameter as the corresponding part of the cigar to be produced, one of the ends of the mandrels being fixed to a pair of plates a which plates are pivotally attached to a plate *s*, and the other ends being mounted in blocks *r r'*, which blocks are joined together at a point r^2.

14. In a cigar-making machine, the combination with a nest of flexible rollers having a continuous surface and being of the same diameter as the corresponding part of the cigar to be produced, of outwardly-curved mandrels, said mandrels being at one end fixed to plates pivotally attached to a suitable support, and at the other end mounted in blocks jointed together by a suitable hinge.

15. In a cigar-making machine, comprising a nest of flexible rollers mounted on outwardly-curved mandrels, said mandrels being at one end fixed to plates pivotally attached to a suitable support, and at the other end mounted in blocks joined together by a suitable hinge, means for adjusting the rollers, comprising the tailpiece *t'*, the block *r* adjustably secured to a collar *t* running idle on one of the mandrels and connected to a slotted link t^3, engaging with a fixed pin t^4, whereby the said nest may be raised and opened.

752,734. TOOL FOR FACING BOILER-TUBE CAPS AND THEIR SEATS. HENRY F. WEINLAND, Springfield, Ohio, assignor to the Lagonda Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed July 13, 1903. Serial No. 165,234. (No model.)



Claim.—1. A tool for facing boiler-tube caps and their seats, comprising a portable motor, a shaft driven by said motor and extending forward therefrom, an abrasive wheel mounted on said shaft extension so as to rotate therewith, and free to rock or tilt relatively thereto, and a spring yieldingly holding said abrasive wheel normally in a plane at right angles to the axis of the shaft, substantially as described.

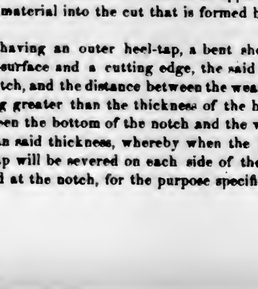
2. A tool for facing boiler-tube caps and their seats, comprising a portable motor, a shaft driven by said motor and extending forward therefrom, an abrasive wheel mounted to rotate with said shaft extension, movable longitudinally thereof, and free to rock or tilt relatively thereto, and a spring yieldingly holding said abrasive wheel to the work in a plane at right angles to the axis of the shaft, substantially as described.

3. A tool for facing boiler-tube caps and their seats, comprising a portable motor provided with an extended shaft having a terminal abutment, an abrasive wheel mounted on said shaft extension so as to rotate therewith, and free to rock or tilt relatively thereto, and a spring bearing against the rear face of said abrasive wheel to hold it normally against the abutment, substantially as described.

4. A tool for facing boiler-tube caps and their seats, comprising a portable motor having an extended shaft, said extension having an abutment or stop at its front end, an abrasive wheel mounted to rotate with said extension, movable longitudinally thereof, and free to rock or tilt relatively thereto, and a spring carried by said extension and bearing against the rear face of the abrasive wheel to hold it normally against the abutment, substantially as described.

5. A tool for facing boiler-tube caps and their seats, comprising a portable motor, the shaft whereof has a forward extension square in cross-section, provided with an abutment at each end, an abrasive wheel mounted on said extension and having an eye also square in cross-section and flaring or of increasing diameter outwardly in both directions, and a spring mounted on said extension and bearing at its rear end against the rear abutment, and at its forward end against the back of the wheel, substantially as described.

752,735. RECEPTACLE. WILHELM WEHR, Hohenstein-Ernstthal, Germany. Filed Aug. 4, 1903. Serial No. 168,165. (No model.)



Claim.—A receptacle, comprising an upper compartment having an exit, and a lower compartment having a drawer, a slide closing said exit, a measure mounted on trunnions below an aperture in the slide, cam-pieces carried by the trunnions, means external of the apparatus for reciprocating said measure, and stops on the receptacle-walls cooperating with said cam-pieces to tilt the measure in its inward travel and return it to the horizontal position in its outward travel, substantially as described.

752,736. HEEL-PROTECTOR. MANSFIELD M. WEST, Cleveland, Ohio, assignor to National Shoe-Plate Manufacturing Company, Cleveland, Ohio, a Partnership. Filed July 20, 1903. Serial No. 166,257. (No model.)



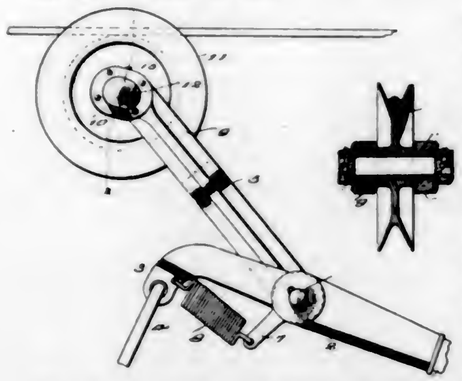
Claim.—1. A shoe-protector having a broad wearing-surface and a cutting edge at its lower part, said wearing-surface and said edge being substantially parallel, and the said cutting edge being provided with a notch that is wider above than it is at the said edge, for the purpose specified.

2. A shoe-protector having a broad wearing-surface and a cutting edge, said edge being substantially parallel with the said wearing-surface and being provided with a notch that is wider above than it is at the said edge, the upper wall of the notch being blunt whereby the edge cuts the shoe material as the protector is driven and the blunt upper wall of the notch crowds the material into the cut that is formed by the lower edge.

3. A shoe-protector having a broad wearing-surface and gradually tapering in cross-section toward an edge at its lower part, said edge being substantially parallel to the said wearing-surface, and having a notch that is wider above than it is at the said edge, the upper wall of the notch being blunt whereby the edge cuts the shoe material as the protector is driven and the blunt upper wall of the notch crowds the material into the cut that is formed by the lower edge.

4. In a heel having an outer heel-tap, a bent shoe-protector having a wearing-surface and a cutting edge, the said edge being provided with a notch, and the distance between the wearing-surface and the edge being greater than the thickness of the heel-tap, but the distance between the bottom of the notch and the wearing-surface being less than said thickness, whereby when the protector is driven, the heel-tap will be severed on each side of the notch, but will not be severed at the notch, for the purpose specified.

752,737. TROLLEY. THOMAS F. WETTON, Newark, Ohio, assignor of one-half to Charles E. Krebs, Newark, Ohio. Filed Oct. 27, 1903. Serial No. 178,782. (No model.)



Claim.—In combination, a harp, a trolley-wheel arranged between the fork members of the harp, a shaft supporting said trolley-wheel and journaled in the fork members and having its extremities flush with the outer sides thereof, caps having basal flanges apertured to receive the fastening employed for attachment thereof to said fork members, absorbent material filling said caps, and screen-cloth applied to the open sides of the caps and coming between the absorbent material and the extremities of the aforementioned shaft, substantially as set forth.

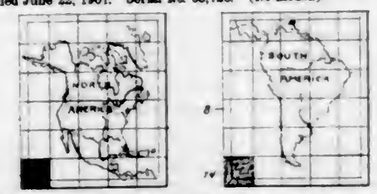
752,738. HAND-LEVER ATTACHMENT FOR SEWING-MACHINES. JONATHAN W. WHEELER, Charleston, S. C. Filed May 28, 1903. Serial No. 159,139. (No model.)



Claim.—1. A hand-lever attachment for sewing-machines comprising a clamp for engagement with a standard of a sewing-machine frame, a laterally-adjustable bracket mounted on said clamp, a pivoted lever supported by said bracket, a pitman, adjustable connecting devices between said pitman and said lever, and a clamp pivotally attached to said pitman and adapted for engagement with the treadle-pitman of a sewing-machine.

2. A hand-lever attachment for sewing-machines comprising a clamp for attachment to a standard of a machine-frame, a slotted arm projecting laterally from said clamp, a bracket having a similar slotted arm, bolts passing through the slots in said arms, a lever pivotally mounted on said bracket, a pitman carried by said lever, and means provided on said pitman for connection with the pitman of a sewing-machine.

752,739. MAP STUDY. EARLE WILKINS, Dawson, N. Mex. Filed June 22, 1901. Serial No. 65,720. (No model.)



Claim.—1. A sectional-map study, comprising a number of cubical blocks, each block having upon its several faces a portion of a map of several countries, each face having a portion of a map of one country, the portions of maps on the several faces of each block being so arranged relatively to the portions on the faces of the other blocks that when the proper corresponding faces of the several blocks are brought into the same plane and in the proper relation one to the other there will be presented the map of a particular country, substantially as described.

2. A sectional-map study, comprising a number of cubical blocks, each block having upon its several faces a portion of a map of several countries, each face having a portion of a map of one country, the portions of maps on the several faces of each block being so arranged, relatively to the portions on the faces of the other blocks that when the proper corresponding faces of the several blocks are brought into the same plane and in the proper relation one to the other there will be presented the map of a particular country and by turning the several blocks of the series in a given direction and each to the same extent as all the others there will be presented to view the map of a different country, substantially as described.

3. A sectional-map study, comprising a number of cubical blocks, each block having upon its several faces a portion of a map of several countries, each face having a portion of a map of one country, the portions of maps on the several faces of each block being so arranged relatively to the portions on the faces of the other blocks that when the proper corresponding faces of the several blocks are brought into the same plane and in the proper relation one to the other there will be presented the map of a particular country, the corresponding faces of the several blocks necessary to form the map of one country having the same color which shall be a color in contrast with the color to the faces of all the other blocks, substantially as described.

752,740. COMBINED CANE AND UMBRELLA. JULIA F. WILKINS, Simpsonville, Tex. Filed Oct. 27, 1903. Serial No. 178,715. (No model.)



Claim.—1. A combined umbrella and cane comprising a tubular case forming the body of the cane, a plug removably inserted in the lower end of the case, a plug-ejecting device, comprising a push-button at the opposite end of the case and a connection between the button and plug, and an umbrella removably inserted in and removable from the lower end of the case and retained in place by the plug.

2. A combined umbrella and cane comprising a tubular case forming the body of the cane, a plug removably inserted in the lower end of the case, a plug-controlling device located at the opposite end of the case, and an umbrella removably inserted in the lower end of the case and retained in place by the plug, the plug being adapted to clamp and hold the staff of the umbrella when the latter is raised.

3. A combined umbrella and cane comprising a tubular case forming the body of the cane, a plug removably inserted in the lower end of the case, an umbrella removably inserted in the lower end of the case and retained in place by the plug, a plug-operating device embodying a push-button at the handle end of the cane, and a connection between the button and plug.

4. A combined umbrella and cane comprising a tubular case forming the body of the cane, a plug removably inserted in the lower end of the case, an umbrella removably inserted in the lower end of the case, a plug ejecting and inserting device embodying a push-button at the opposite or handle end of the cane, and a connection between the button and plug, the plug being adapted to clamp and hold the staff of the umbrella when the latter is raised.

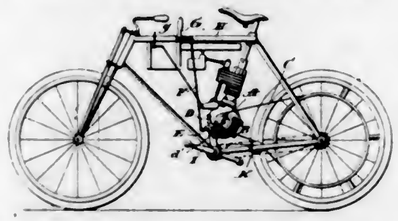
5. A combined umbrella and cane, comprising a tubular case forming the body of the cane, a plug removably inserted in the lower end of the case, a plug-operating device, and an umbrella removably inserted in the lower end of the case and comprising a longitudinally-extensible staff one end of which is fastened within the case, the plug being adapted to clamp and hold the staff of the umbrella when the latter is raised.

6. A combined umbrella and cane comprising a tubular case, forming the body of the cane, a plug removably inserted in the lower end of the case, an umbrella removably inserted in the lower end of the case and retained in place by the plug, and a plug-ejecting device consisting of a push-button at the handle end of the cane, and a plug-operating connection actuated by said push-button and having a jointed connection with the plug.

7. A combined umbrella and cane comprising a tubular case forming the body of the cane, a combined plug and umbrella-staff clamp removably inserted in the lower end of the case and provided with a clamping-groove to receive and hold the umbrella-staff, a plug-operating device, and an umbrella removably inserted in the lower end of the case and retained in place by the plug.

8. A combined umbrella and cane comprising a tubular case forming the body of the cane, a tapered plug removably inserted with a wedging fit in the lower end of the case, a plug ejecting and inserting device, and an umbrella removably inserted in the lower end of the case and retained in place by the plug.

752,741. MOTOR-CYCLE. GEORGE C. WILKINSON, Plattsburg, N. Y. Filed Aug. 12, 1903. Serial No. 169,195. (No model.)



Claim.—1. In a motor-cycle, the combination with a propelling-motor and pedal mechanism, gear connection between said motor and the cycle drive-wheel and between said pedal mechanism and drive-wheel, a clutch device operatively connected in said first-mentioned gear connection and having a radially-movable clutching element, and a governable lever having a shoe portion movable into and out of the path of movement of said clutching element to prevent or allow its clutching action.

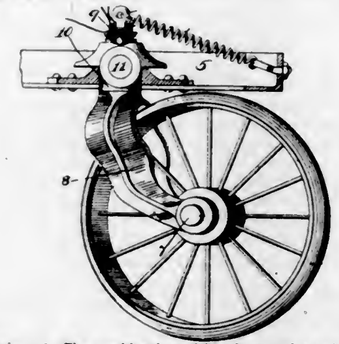
2. In a motor-cycle, the combination with a propelling-motor and pedal mechanism, gear connection between said motor and cycle drive-wheel and between said pedal mechanism and drive-wheel, a clutch operatively connected in said first-mentioned gear connection comprising an inner member and an outer sleeve rotatable upon said inner member, a spring-pressed locking-pawl upon said inner member for engagement with said outer sleeve, and a governable lever for contact with said locking-pawl to prevent the engagement of said pawl with said outer sleeve.

3. In a motor-cycle, the combination with a propelling-motor and pedal mechanism, of a pulley comprising an inner member fast to the motor-shaft and an outer sleeve rotatable upon said inner member, a driving connection between said outer sleeve and the cycle drive-wheel, a movable clutching element mounted upon said inner member for engagement with said outer sleeve, a shoe pivotally mounted and having an inclined curved surface for engagement with said clutching element, and means operable by the rider upon the vehicle-seat for moving said shoe into and out of the path of movement of said clutching element.

4. In a motor-cycle, the combination with a propelling-motor and pedal mechanism, of a pulley comprising an inner member fast to the motor-shaft and an outer sleeve rotatable upon said inner member, a driving connection between said outer sleeve and the cycle drive-wheel, a spring-pressed locking-pawl mounted upon said inner member for engagement with said outer sleeve, and governable means in the path of movement of said locking-pawl to prevent its engagement with said outer sleeve.

5. In a motor-cycle, the combination with a propelling-motor and pedal mechanism, of a pulley comprising an inner member fast to the motor-shaft and an outer sleeve rotatable upon said inner member, a driving connection between said outer sleeve and the cycle drive-wheel, a spring-pressed locking-pawl mounted upon said inner member for engagement with said outer sleeve, a shoe pivotally mounted in operative relation to said locking-pawl, and a cam-lever to move said shoe into the path of movement of said locking-pawl.

752,742. CASTER-WHEEL. JAMES E. WOOD, Harvard, Ill., assignor to Edwin C. Harmon, Chicago, Ill. Filed Feb. 24, 1902. Serial No. 95,427. (No model.)

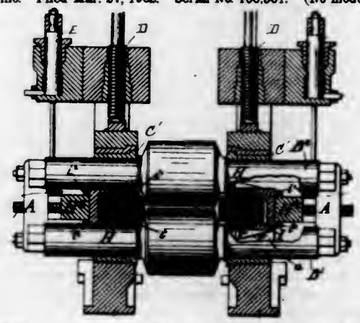


Claim.—1. The combination with a frame, of a yoke, a caster-wheel journaled thereon, a pivot-pin on said yoke and located to one side of the median line of said wheel and said yoke, a rotatable support carried by the frame and adapted to rotatably support said pivot-pin, and a spring connected at one end with said pin and at its other to said frame, said spring adapted to yieldingly restrain the upward rocking of said yoke and thereby keep said caster-wheel in yielding engagement with the ground, substantially as described.

2. The combination with a frame, of a yoke, a caster-wheel journaled thereon, a pivot-pin on said yoke and located to one side of the median line of said wheel and said yoke, a trunnion-support adapted to rotatably support said pivot-pin, bearings carried by said frame for said trunnion-support, and a spring connected at one end with said pin and at its other end to said frame, said spring adapted to yieldingly restrain the upward rocking of said yoke on its trunnion-supports and thereby retain said caster-wheel in yielding engagement with the ground, substantially as described.

3. The combination with a frame, of a yoke, a caster-wheel journaled therein, a pivot-pin on said yoke and located to one side of the median line of said wheel and said yoke, a trunnion-support adapted to rotatably support said pivot-pin, bearings for said trunnion-support, a swivel, and a spring connected at one end to said swivel and at its other end to said frame and adapted to keep said caster-wheel in engagement with the ground, substantially as described.

752,743. ROLLING-MILL. RAYMOND D. YORK, Portsmouth, Ohio. Filed Mar. 27, 1902. Serial No. 100,301. (No model.)



Claim.—1. In a rolling-mill the combination with top and bottom rolls, of means for producing a relative adjustment between the

top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, a bearing-block for said side roll and means mounted independently of the top and bottom rolls and cooperating directly with said block for raising and lowering the said roll.

2. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls and means mounted independently of the top and bottom rolls for raising and lowering the side roll relatively to the center of the space between the top and bottom rolls.

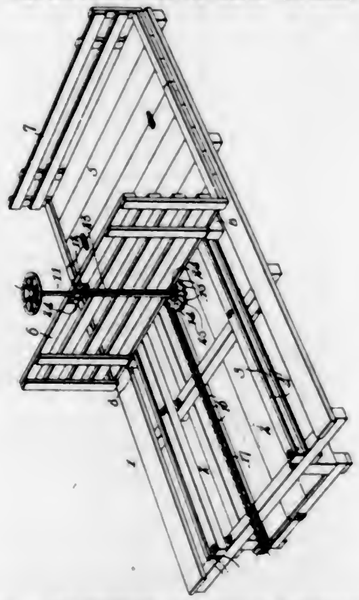
3. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, and means mounted independently of the top and bottom rolls comprising parts having inclined surfaces for raising and lowering the side roll.

4. In a rolling-mill, the combination with top and bottom rolls, of means for producing a relative adjustment between the top and bottom rolls, a side roll, means for moving the side roll outwardly and inwardly transversely to the plane of relative adjustment between the top and bottom rolls, a bearing-block for said side roll having an inclined surface, and means mounted independently of the top and bottom rolls comprising parts having an inclined surface coacting with said inclined surface of the bearing-block.

752,744. PROCESS OF MAKING ORGANIC ACIDS. NICHOLAS ZELINSKY, Moscow, Russia. Filed Dec. 26, 1902. Serial No. 136,898. (No specimens.)

Claim.—The herein-described process of producing organic acids from natural petroleum and its fractions which consists in chlorinating the said petroleum and then subjecting the same to the successive action of magnesium and carbonic acid, substantially as described.

752,745. HAY-RACK ATTACHMENT. JAMES J. ACTON, Eldon, Iowa. Filed Nov. 30, 1903. Serial No. 183,200. (No model.)



Claim.—1. The combination with a hay-rack, of tracks or guides associated therewith, a chain attached to the rack, a carrier mounted for travel upon the tracks or guides, a traction member attached to the carrier and having teeth engaging the chain-links, and means for operating the member.

2. The combination with a hay-rack, of tracks or guides associated therewith, a chain attached to the rack, a carrier mounted for travel upon the guides, a traction member attached to the carrier and having teeth engaging the chain-links, means for operating the member, and a pressure device for holding the chain into engagement with the member.

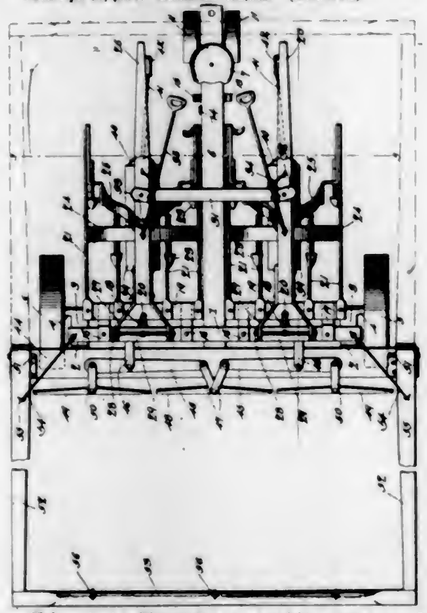
3. The combination with a hay-rack, of tracks or guides associated therewith, a carrier mounted for travel upon the guides, a chain attached to the rack, a traction member connected with the carrier and having teeth engaging the chain-links, means for operating the member, and a rotary pressure-roller for maintaining the chain in engagement with the member.

4. The combination with a hay-rack, of tracks or guides associated therewith, a carrier mounted for travel upon the guides, a chain disposed vertically on edge and attached to the rack, a rotary shaft connected with the carrier, a traction member carried by the shaft and having teeth engaging the chain-links, and an operating member connected with the shaft.

5. The combination with a hay-rack, of tracks or guides associated therewith and having spaced horizontal flanges, a carrier mounted for travel upon the guides and having guide-rollers arranged between the flanges, and interengaging members carried by the rack and carrier and operable for moving the latter.

6. The combination with a hay-rack, of tracks or guides associated therewith and having spaced horizontal flanges, a carrier mounted for travel upon the guides and carrying guide-rollers arranged between the flanges, a chain attached to the rack, a traction member connected with the carrier and having teeth engaging the chain-links, and means for operating the member.

752,746. CULTIVATOR. SAMUEL M. ADAMS, Powhattan, Kans. Filed Apr. 16, 1903. Serial No. 152,941. (No model.)



Claim.—1. A cultivator-frame comprising a transverse frame-beam, vertical bars mounted upon the front side of the same provided at their lower ends with rearwardly-extending brackets having outwardly-extending spindles, wheels upon said spindles, a longitudinal frame-bar connected directly with and extending rearwardly from the main frame-bar near the center of the latter, and rotary supporting means for the rear end of said longitudinal frame-bar.

2. In a machine of the class described, a wheel-supported main frame-beam, a longitudinal frame-beam extending rearwardly from the latter, hooked supporting elements mounted upon the main frame-beam and having rearwardly-extending brackets, draw-bars connected hingedly with the rear side of the main frame-beam and supported upon said brackets, cultivator-beams connected with said draw-bars, operating-bars connected with the upper side of the main frame-beam, connecting means between said operating-bars and the cultivator-beams, and means for manipulating said operating-bars.

3. In a machine of the class described, a wheel-supported transverse main frame-beam, a longitudinal frame-beam extending rearwardly from said main frame-beam, rotary supporting means for the rear end of said longitudinal beam, cultivator-gangs connected with the rear side of the main frame-beam, yokes swiveled upon the latter, operating-bars having divergent arms hingedly connected with the arms of said yokes, connecting means between the operating-bars and the cultivator-beams, upwardly-diverging brackets upon the upper side of the longitudinal frame-beam, a cross-bar connecting said brackets, L-shaped brackets swiveled upon said cross-bar, the bases of said L-shaped brackets being provided with upturned outer ends, hand-levers fulcrumed to said L-shaped brackets, and links connecting said hand-levers with the operating-bars.

4. In a machine of the class described, the combination with a frame comprising a transverse front beam and a longitudinal center beam, of cultivator-gangs connected with the front beam on each side of the center beam, operating-bars for said cultivator-gangs, supporting means upon the upper side of the longitudinal frame-beam, L-shaped brackets pivoted upon said supporting means and having rearwardly-extending hooks, hand-levers pivotally connected with said L-shaped brackets, links connecting the front ends of said hand-levers with the operating-bars of the cultivator-gangs, and chains connected with said operating-bars and adapted for adjustable connection with the rearwardly-extending hooks of the L-shaped brackets.

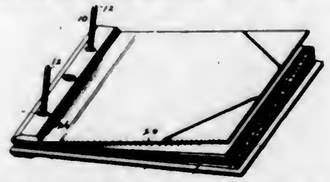
5. In a machine of the class described, the combination of a frame comprising mainly a wheel-supported transverse front beam and a longitudinal rearwardly-extending center beam, rotary supporting means for the rear end of the latter, cultivator-gangs hitched to the front beam on each side of the center beam, means for manipulating said cultivator-gangs, and a frame comprising side pieces hingedly connected at the ends of the draft-bar and a cross-bar firmly connecting the free ends of said side bars and adapted to rest upon the rear end of the longitudinal frame-beam.

6. In a machine of the class described, the combination of a frame comprising mainly a transverse wheel-supported front beam and a longitudinal center beam extending rearwardly from the same, rotary supporting means for the rear end of said center beam, a draft-bar supported upon the front side of the front beam, hooked supporting means at the ends of the draft-bar, a frame comprising side pieces mounted pivotally upon said supporting means, and a cross-bar connecting the free ends of said side pieces, supporting-hooks connected with the ends of the main frame-bar, and staples upon the side bars of the hinged frame adapted to be engaged by the said hooks.

7. In a machine of the class described, the combination with the main frame of an auxiliary frame hingedly connected with the front part of said main frame, and means for supporting said auxiliary frame approximately horizontally in a forwardly-extended position.

8. In a machine of the class described, the combination with the main frame of an auxiliary frame hingedly associated with the front part of said main frame and adapted to be swung rearwardly and to be supported upon the latter.

752,747. LOOSE-LEAF BINDER. EDWARD T. A. AKASS, Chicago, Ill. Filed Jan. 19, 1903. Serial No. 139,719. (No model.)



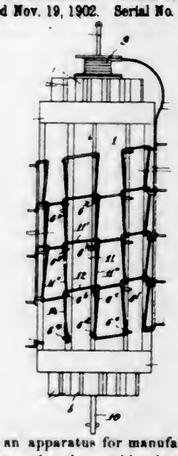
Claim.—1. In a loose-leaf binder having binding-posts, the combination with said posts of a plate having perforations through which the posts pass, a pair of locking-plates also having perforations for the passage of said posts, an elliptic disk between the two locking-plates acting eccentrically thereon when rotated, said disk provided with a key-socket and thickened around said socket and the plate below the disk having a round hole opposite said key-socket, and a key having a squared portion and a cylindrical terminal part.

2. In a loose-leaf binder, a pair of binding-posts, a plate having perforations through which the posts pass, a pair of locking-plates having perforations through which said posts pass, an elliptic disk between the adjacent ends of the two locking-plates to eccentrically move them, said disk being provided with a key-socket, flanges to hold the disk and locking-plates formed by bending over the edges of said first plate and a perforation in the plate below the key-socket to receive a cylindrical extension of the key to center the disk, and a key having an angular portion and a cylindrical terminal.

3. In a loose-leaf binder, a binding-post made of a plurality of separable sections, one section having a screw-threaded socket with longitudinal grooves forming a squared receptacle for a key and the next section having a screw-threaded shank to screw into said threaded socket, a key, a pair of covers to the back of one of which said posts are fastened and to the other of which the posts are locked by a suitable removable fastening.

4. In a loose-leaf binder, a binding-post made from a plurality of transversely-separable sections which present a smooth unbroken surface when united, one of said sections at each joint having a screw-threaded socket and the next section mating with it having a screw-threaded shank and the socket having longitudinal grooves forming a squared receptacle for a key, and a key to enter the squared socket to unlock the sections.

752,748. APPARATUS FOR MAKING RETICULATED OR OPEN-WORK WIRE RECEPTACLES. CORNELIUS AZARY, Lippa, Austria-Hungary. Filed Nov. 19, 1902. Serial No. 131,936. (No model.)

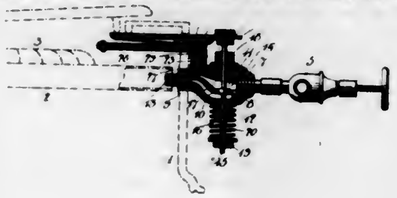


Claim.—1. In an apparatus for manufacturing reticulated or open-work wire receptacles, the combination of a series of movable bars arranged in a circular position, means for holding said bars in adjusted position, and pins projecting from said bars around which the wire may be bent.

2. In an apparatus of the nature set forth, the combination of a plurality of sector-shaped parallel columns, pins projecting from said columns arranged to form a spiral about said columns, bearing-plates for said columns, and means for adjusting said columns toward or away from a common center.

3. In combination with a plurality of sector-shaped columns provided with angular studs at their extremities, disks provided with elongated radial slots for engaging said lugs to hold said columns about a common center and with their arc portions at times in a common circumference, disk-plates adapted to engage said lugs and hold the columns in outward adjusted positions, pins projecting from said lugs arranged spirally about said columns, the arrangement being such that when the columns are adjusted toward the center, the outer ends of the pins will come substantially within the circumference formed about the arc portions of the columns before such adjustment.

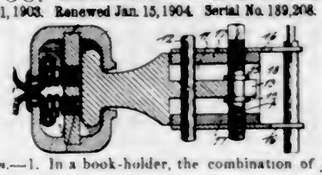
752,749. ATTACHMENT FOR GAS-STOVES. LEWIS H. BEAR, Terre Haute, Ind. Filed July 31, 1903. Serial No. 167,726. (No model.)



Claim.—1. In combination with a burner, a gas-supply passage and a support for a utensil or the like, of a valve in said passage, a stem below the valve connected with a spring for normally seating the valve, a device for adjusting the tension of the spring, a stem above the valve having an adjustable collar, and a pivoted lever connected at one end with said collar and serving at its other end to normally elevate the support.

2. In combination a casing divided by a partition into two chambers the upper one of which is connected with a gas-supply and the other with a burner, a controllable pilot-flame tube connected with the upper chamber, a spring-retracted valve at an opening in said partition, and a pivoted lever connected with the valve and arranged to be moved to unseat the latter by the applied weight of a utensil or the like.

752,750. **BOOK-HOLDER.** LOUIS BLOCK, New York, N. Y. Filed Feb. 21, 1903. Renewed Jan. 15, 1904. Serial No. 189,208. (No model.)



Claim.—1. In a book-holder, the combination of jaws united at one end, parallel clamping-arms each having one end held against motion in one plane by said jaws and each extending outward from the same, a guide for said arms rigidly connected with said jaws, at right angles to said plane, and means for moving said arms along said jaws and guide.

2. In a book-holder, the combination of jaws united at one end, parallel clamping-arms each having one end held against motion in one plane by said jaws and each extending outward from the same, a guide for said arms rigidly connected to said jaws at right angles to said plane, and a swiveled right-and-left screw engaging and moving said arms along said jaws and guide.

3. In a book-holder, the combination of united parallel jaws, clamping-arms between said jaws and held thereby, a guide for said arms rigidly connected with and parallel to said jaws, and means for moving said arms in opposite directions on said jaws and guide, with a guide-pin secured to one of said arms and coacting with the other arm, and a draw-bolt connecting the free ends of said arms.

4. In a book-holder, the combination of united parallel jaws, clamping-arms between said jaws and held thereby, a guide for said arms rigidly connected with said jaws, means for moving said arms in opposite directions on said jaws and guide, a guide-pin secured to one arm and coacting with the other arm, a draw-bolt connecting the free ends of said arms, and a holding-strip having eyes loosely fitting on said guide-pin and draw-bolt.

5. In a book-holder, a socket provided with a vertical partition, an open-ended slot in the front wall thereof, and spring contact-points insulated from and passing through said partition, in combination with a book-holding device provided with a shank having a head provided with insulation at one side of its center in position to contact with said contact-points when the head is in one position and metal at the other side of said center to close the circuit through said points when in another position.

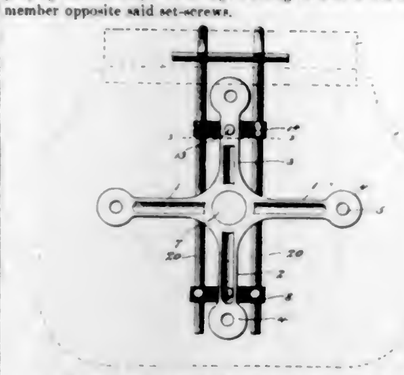
6. In a book-holder, the combination of jaws united at one end, a web or brace extending in the direction of said jaws and uniting the same, parallel clamping-arms, one at either side of said web, each having one end held against motion in a plane parallel to said web by said jaws and each extending outward from said jaws, a guide for said arms rigidly connected with said web, and means for moving said arms along the jaws and guide.

752,751. **CHAIR.** HARRY W. BOLENS, Port Washington, Wis. Filed Aug. 25, 1903. Serial No. 170,701. (No model.)

Claim.—1. In a chair, the combination with a spider and its swivel, of supports arranged at opposite sides of the swivel and connected to the spider, a pair of rods located in said supports and extending upwardly and above the chair-seat, and a back secured to the upper ends of said rods.

2. In a chair, the combination with a spider, a pair of rods located under the seat, clamps carried by the spider and arranged to support said rods, and set-screws passing through the clamps and impinging on said rods.

3. In a chair, the combination with a chair, of rods arranged under the seat, a pair of clamping members concave to fit said rods, set-screws passing through one of said clamping members and impinging on the rods, a knife-edge bearing formed in the companion member opposite said set-screws.



4. In a chair, the combination with a spider, of the rods 20 having the countersinks 25 in one of their sides and the V-shaped notches 26 in their opposite sides, set-screws 12 passing through one of the members of the clamp and adapted to take into said countersinks, and knife-edges 11 formed in the other clamping member and adapted to take into said notches.

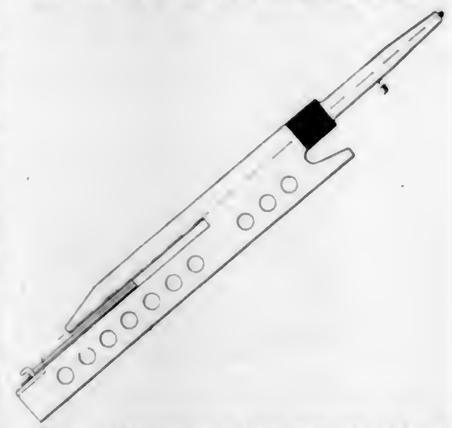
5. In a chair, the combination of a pair of fixed bearings located under the seat near the front thereof, back-supporting rods mounted to vibrate therein, rear bearings for said rods, and means for yieldingly supporting the rear bearings.

6. In a chair, the combination of a pair of fixed bearings located under the seat near the front thereof, back-supporting rods mounted to vibrate therein, rear bearings for the rods, and means for yieldingly and adjustably supporting the same.

7. In a chair, the combination of a pair of fixed bearings located under the seat near the front thereof, back-supporting rods mounted to vibrate therein, and means at the rear for limiting the downward movements of the rods.

8. In a chair, the combination with the seat, a chair-spider, bolts depending through the front and rear spider-arms, clamps carried by said bolts, a spring arranged on the rear bolt and an adjustable nut below the spring, and back-supporting rods arranged in said clamps.

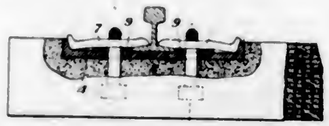
752,752. **MICROMETER-INDICATOR.** JOSEPH BOULET, Beverly, Mass. Filed June 1, 1903. Serial No. 159,488. (No model.)



Claim.—1. A micrometer-indicator, comprising a body, a needle longitudinally movable therein, a pivot-block and an index-arm attached thereto, in combination with an adjustable eccentric threaded bushing, in which the inner end of the needle is journaled for the purpose of adjusting the position of such inner end of the needle to and from the axis of the pivot-block, substantially as specified.

2. A micrometer-indicator, comprising a body, a needle longitudinally movable therein, a spring-pressed rotatable pivot-block journaled in said body, and having a cut-away recess thereon, and an index-arm attached to said pivot-block, in combination with an adjustable eccentric screw-threaded bushing, in which the inner end of the needle is journaled for the purpose of adjusting its position to and from the axis of the pivot-block, substantially as set forth.

752,753. **RAILWAY-TIE.** ARTHUR M. BOWMAN, Bellevue, Pa., assignor of one-half to Charles M. Clarke, Pittsburg, Pa. Filed Apr 27, 1903. Serial No. 154,384. (No model.)



Claim.—1. A railway-tie consisting of a body portion of concrete or cement, and a reinforcing surrounding sheathing incorporated therewith immediately under the surface of the tie, substantially as set forth.

2. A railway-tie consisting of a body portion of concrete or cement, and a reinforcing surrounding sheathing of flexible metal incorporated therewith immediately under the surface of the tie, substantially as set forth.

3. A railway-tie consisting of a body portion of concrete or cement, and a reinforcing surrounding sheathing of flexible metal having open spaces throughout its body portion, incorporated therewith immediately under the surface of the tie, substantially as set forth.

4. A railway-tie consisting of a body portion of concrete or cement and a reinforcing surrounding sheathing incorporated therewith immediately under the surface of the tie, with bearing members for the rails, substantially as set forth.

5. A railway-tie consisting of a body portion of concrete or cement and a reinforcing surrounding sheathing incorporated therewith immediately under the surface of the tie, and holding devices for the rails incorporated with the tie, substantially as set forth.

6. A railway-tie consisting of a body portion of concrete or cement having a reinforcing surrounding sheathing, rail-bearing plates, and rail-holding anchoring devices embedded in the body portion of the tie and provided with upwardly-projecting terminal openings, substantially as set forth.

7. A railway-tie consisting of a body portion of concrete or cement having a reinforcing surrounding sheathing, rail-bearing plates, and rail-holding anchoring devices embedded in the body portion of the tie, projecting upwardly through said plates, and rail-holding devices incorporated with the plates and the anchoring devices, substantially as set forth.

8. A railway-tie formed of concrete or cement provided with anchoring devices embedded in the body of the tie, and having upwardly-projecting looped portions extending above the tie, substantially as set forth.

9. A railway-tie formed of concrete or cement provided with anchoring devices embedded in the body of the tie and having upwardly-projecting looped portions, with rail-bearing plates provided with clearance-openings therefor, substantially as set forth.

10. A railway-tie formed of concrete or cement provided with anchoring devices embedded in the body of the tie and having upwardly-projecting looped portions, with rail-bearing plates provided with clearance-openings therefor and retaining-flanges, and rail-holding devices incorporated with said elements, substantially as set forth.

11. A railway-tie formed of concrete or cement provided with anchoring devices embedded in the body of the tie and having upwardly-projecting looped portions, with rail-bearing plates provided with clearance-openings therefor, and rail-holding keys and underbearing key-plates incorporated with said devices, substantially as set forth.

12. A railway-tie formed of concrete or cement provided with anchoring devices having enlarged heads embedded in the body portion of the tie, and upwardly-projecting holding extremities provided with openings extending beyond the upper surface of the tie, substantially as set forth.

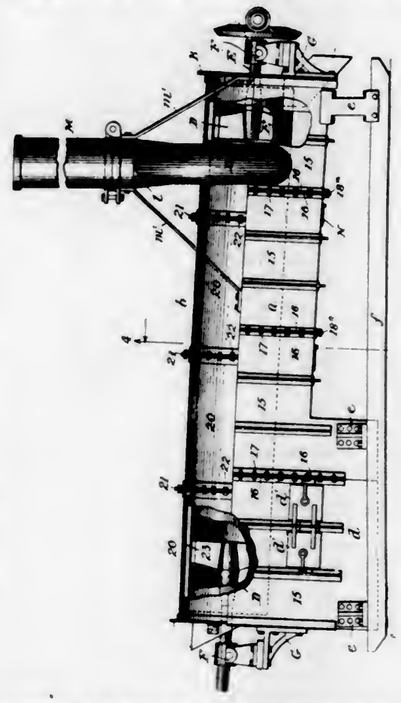
13. The combination with a railway-tie of the character described, of anchoring devices consisting of inverted-U-shaped elements embedded in the body portion of the tie, and having their closed retaining portions projecting upwardly above the same, substantially as set forth.

14. The combination with a railway-tie of the character described, of anchoring-bolts provided with securing-nuts embedded in the body portion of the tie, and having upwardly-projecting key-holding terminal eyes, substantially as set forth.

15. The combination with a railway-tie of the character described, of anchoring devices having upwardly-extending looped terminals embedded in the tie, surrounding protecting-armors therefor, and means for holding said anchoring devices in place, substantially as set forth.

16. A railway-tie consisting of a solid continuous body of concrete or cement, a flexible reinforcing metallic sheathing incorporated therewith, superimposed rail-bearing devices, and means embedded in the cement for securing the rails to the tie, substantially as set forth.

752,754. **PORTABLE SAND-DRIER.** PAUL C. BRENNAN, Long Island City, N. Y. Filed Sept. 15, 1902. Serial No. 123,485. (No model.)



Claim.—1. In a sand-drier, the combination of the inclosing metallic casing, a sand-drum, journals secured to the drum and extending through the ends of the casing, brackets secured to and supported by the ends of the casing, filler-plates on the brackets, bearings for the journals supported on the filler-plates, and means for detachably securing the bearings and filler-plates to the brackets, substantially as set forth.

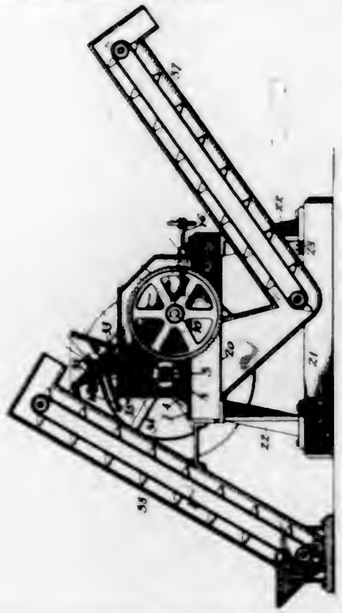
2. In a sand-drier, an outer casing having a fire-box, a sand-drum supported within the casing, and an exit at each side for the products of combustion leading from the casing below the axis of the drum, substantially as set forth.

3. In a sand-drier, an inclosing metallic casing having a rectangular lower portion and a curved hood or cover, a fire-chamber at one end of the rectangular part of the casing, a drum supported within the casing concentric with the hood, and a pipe at each side of and leading from said rectangular portion of the casing, at a point remote from the fire-box and below the axis of the drum and communicating with a smoke-stack above the casing, substantially as set forth.

4. In a sand-drier, the combination of an outer casing, a sand-drum supported within it in parallel relation thereto, a pair of skids, one at each side, parallel saddles secured to the skids and supporting the casing, substantially as set forth.

5. In a sand-drier, the combination of the outer casing having an opening at one end, a sand-drum within the casing, a feed-hopper for the sand opposite said opening and made in sections detachably connected together, and a trunnion on the drum extending between said sections, substantially as described.

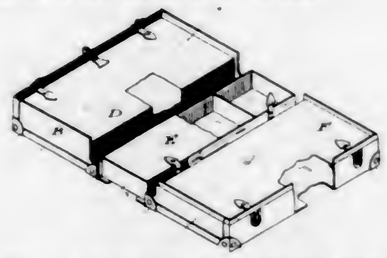
752,755. MILL FOR ROLLING OR GRINDING GRAIN, &c. EUGENE BROWN, Colfax, Wash., assignor of two-thirds to Frank H. Brown and Fred H. Brown, Whitman county, Wash. Filed Apr. 7 1903. Serial No. 151,439. (No model.)



Claim.—1. The combination in a mill, of a pair of grinding-rolls having their axes in substantially the same horizontal plane, a hopper having its opening above the points of contact of said grinding-rolls, an obliquely-disposed screen in said hopper, a chute extending laterally from said hopper at the margin of said screen, one of the sides of said hopper being provided with an opening immediately above said chute, a slide disposed obliquely across said hopper above said screen, means for positively adjusting the position of said slide, and a force-feed device above said slide.

2. In a mill, the combination with a pair of grinding-rolls having their axes in substantially the same horizontal plane, of a feed-hopper having its discharge-opening immediately above the points of contact of said rolls, a screen disposed obliquely across said hopper between the top and bottom thereof, a chute extending laterally from one side of said hopper at the margin of said screen, said side of the hopper being provided with an opening immediately above said chute, a slide disposed obliquely across said hopper above said screen, a screw associated with said slide for adjusting the position thereof, and a rotary force-feed member mounted in said hopper immediately above said slide.

752,756. SUIT-CASE. ATHELSTAN H. CHRISTIE, Milwaukee, Wis. Filed July 16, 1903. Serial No. 165,735. (No model.)



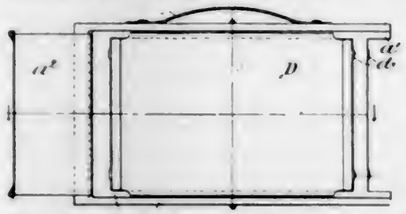
Claim.—1. A suit-case comprising a rectangular bottom tray, a pair of opposite angular compartments longer than the tray to project beyond the ends of same, and outside flat opening-hinges connecting said compartments and the base of said tray, whereby when the suit-case is open the tray and compartments are on the same horizontal plane, the aforesaid compartments being parallel and encompassing the tray when the suit-case is closed.

2. A suit-case comprising a rectangular lid-covered bottom tray, a pair of opposite angular compartments longer than the tray to project beyond the ends of same, and outside flat opening-hinges connecting said compartments and the base of the tray.

3. A suit-case comprising a rectangular bottom tray, a pair of opposite angular compartments longer than the tray to project beyond the ends of same, bottoms and lids in the compartments, and outside flat opening-hinges connecting the compartments and the base of the tray, the bottoms in said compartments being parallel to said base of the tray over the latter when the suit-case is closed.

4. A suit-case comprising a rectangular base, a pair of opposite angular compartments longer than the base to project beyond the ends of same, and outside flat opening-hinges connecting the compartments and base that are on the same horizontal plane when the suit-case is open, said compartments being parallel and encompassing said base when said suit-case is closed.

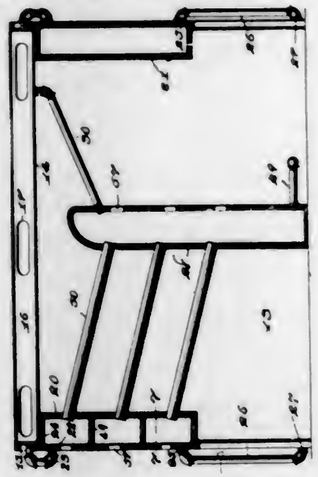
752,757. SKETCHING OUTFIT. ANDREW R. COBB, Boston, Mass. Filed Oct. 8, 1903. Serial No. 176,231. (No model.)



Claim.—1. The outfit above described comprising the inner folding-table frame; the outer folding-stool frame; the two boards; and latches to secure the boards to the stool-frame and form a receptacle whose side walls are the sides of the table-frame, when the stool and table frames are held together in their folded positions by the boards and latches, all the parts being constructed and arranged substantially as described.

2. The outfit above described comprising the inner folding-table frame; the outer folding-stool; the two boards; latches to secure the boards to the stool-frame and form a receptacle whose side walls are the sides of the table-frame, when the stool and table-frames are held together in their folded positions by the boards and latches; and an additional board and means to attach it to the outer frame to form a second receptacle separated from the first between the additional board and one of the other boards, all the parts being constructed and arranged substantially as described.

752,758. BOILER. JOHN COLLIE, Des Moines, Iowa. Filed Jan. 20, 1903. Serial No. 139,767. (No model.)



Claim.—1. The combination with a double-walled, boiler, body-section having the top and sides, and end pieces for closing the space between the walls at the ends thereof, of a hollow end boiler-section shaped to fit into one end of the boiler-body, and pipes communicating between the end boiler-section and the body boiler-section, one pipe projecting outwardly from the top portion of the end boiler-section then upwardly and then into the body boiler-section and two pipes extending outwardly from the lower end portion of the end section, then downwardly and outwardly and then inwardly to the bottom portion of the body portion, a hollow bridge-wall, a pipe communicating with the top portion of the hollow bridge-wall projecting upwardly and rearwardly and communicating with the inner top portion of the body boiler-section and two pipes communicating with the lower end portion of the hollow bridge-wall and projecting rearwardly and communicating with the lower portion of the body boiler-section.

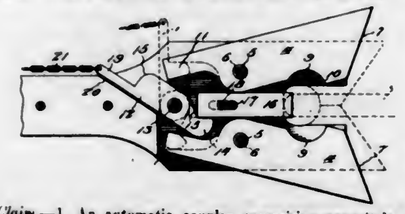
2. The combination with a double-walled, boiler, body-section having the top and sides, and end pieces for closing the space between the walls at the ends thereof, of a hollow end boiler-section shaped to fit into one end of the boiler-body, and pipes communicating between the end boiler-section and the body boiler-section, said pipes extending first outwardly from the boiler-sections then substantially parallel with the boiler end, a hollow bridge-wall and pipes communicating with the interior of the bridge-wall and projecting rearwardly and communicating with the body portion, and boiler-tubes communicating at their ends with the front end section and the bridge-wall, said front section and bridge-wall having openings therein in line with the tubes to provide access to the tubes.

3. The combination with a double-walled boiler body-section having top and sides, of a hollow end boiler-section placed in the upper portion of one end of the boiler, pipes attached to the end section extended upwardly and attached to the body portion and providing communication between said end and body portions, and pipes extended from the end section downwardly and attached to the body portion and also providing communication between said end and body portions, said pipes supporting the end in its elevated position.

4. The combination with a double-walled boiler body-section having top and sides, of a hollow end boiler-section placed in the upper portion of one end of the boiler, pipes attached to the end section extended upwardly and attached to the body portion and providing communication between said end and body portions and pipes extended from the end section downwardly and attached to the body portion and also providing communication between said end and body portions, said pipes supporting the end in its elevated position, a hollow bridge-wall and pipes communicating between it and the hollow body and supporting the bridge-wall in position.

5. The combination with a double-walled boiler body-section having top and sides, and end pieces for closing the space between the walls at the ends thereof, of a hollow end boiler-section shaped to fit into one end of the boiler-body, and pipes communicating between the end boiler-section and the body boiler-section, one pipe projecting outwardly from the top portion of the end boiler-section then upwardly and then into the body boiler-section and two pipes extending outwardly from the lower end portion of the end section, then downwardly and outwardly and then inwardly to the bottom portion of the body portion, a hollow bridge-wall, and pipes communicating between the bridge-wall and hollow body portion and supporting the bridge-wall in position.

752,759. AUTOMATIC COUPLING. JOSEPH L. CRESLER, Perth, Kans. Filed July 14, 1903. Serial No. 165,453. (No model.)



Claim.—1. An automatic coupler comprising oppositely-arranged jaws pivoted intermediate their ends at opposite sides of the center of the coupler-head and having link-engaging hooks, a cam-lever adapted to close the jaws and lock the same closed, and a link-actuated plunger working between the pivots of the jaws for throwing said cam-lever into engagement with the jaws.

2. An automatic coupler comprising oppositely-arranged pivoted jaws having link-engaging hooks and heel extensions, a cam-lever cooperating with the heel extensions and adapted to force and hold the same apart, and a link-actuated plunger operating on the cam-lever at one side of the pivot of said lever for moving the same into engagement with the heel extensions of the jaws.

3. An automatic coupler comprising oppositely-arranged pivoted jaws having link-engaging hooks and heel extensions, a cam-lever cooperating with said heel extensions and adapted to hold the same apart, said lever being provided with a notch, and a link-actuated plunger engaging the notch of the cam-lever for throwing said lever into locked engagement with the heel extensions of the jaw.

4. An automatic coupler comprising oppositely-arranged pivoted jaws having link-engaging hooks and heel extensions, a cam-lever operating between the heel extensions of the jaw, a link-actuated plunger for throwing the cam-lever in one direction, and an operating connection attached to the cam-lever for throwing the latter in the opposite direction.

5. An automatic coupler comprising oppositely-arranged pivoted jaws having link-engaging hooks and heel extensions, a cam-lever cooperating with the heel extensions for locking the same apart, an arm on said cam-lever adapted to cooperate with one of the jaws for limiting the movement of the cam-lever in one direction, a flexible operating connection attached to said arm, and a link-actuated plunger arranged between the jaws and adapted to throw the cam-lever.

6. An automatic coupler comprising oppositely-arranged pivoted jaws, a cam-lever for throwing the jaws and locking the same, a link-actuated plunger for throwing the cam-lever, and a spring-washer cooperating with the cam-lever for preventing accidental movement of the latter, substantially as described.

752,760. SPINNING AND TWISTING APPARATUS. ROBERT L. CUNNOCK, Anderson, S. C. Filed Aug. 22, 1903. Serial No. 170,428. (No model.)

Claim.—1. In apparatus of the class described, the combination of a traveler-ring having a continuous unobstructed edge for the movement of the thread thereabout and means for supporting the said ring, said means having an interrupted edge and being movable to allow the passage of the thread between the same and the traveler-ring, substantially as described.

2. In combination in apparatus of the class described, a ring and rotary turnstiles for supporting the said ring, said turnstiles allowing the passage of the thread between them and the ring, substantially as described.

3. In combination with a ring having a continuous unobstructed edge for the movement of the thread thereabout, supporting devices arranged around the periphery of the ring, said devices having an interrupted edge and being movable to allow the passage of the thread between the same and the ring, substantially as described.

4. In combination in apparatus of the class described a ring having a continuous unobstructed edge and movable supporting devices for the said ring, one of said parts fitting in a groove of the other part, substantially as described.

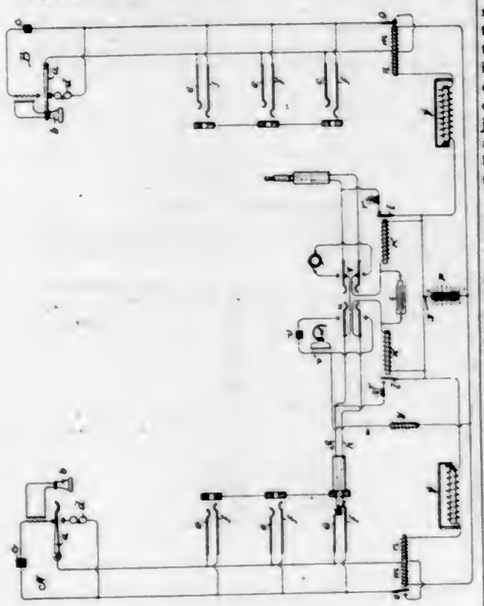
5. An apparatus of the class described, comprising two portions, one portion consisting of a ring and the other consisting of turnstiles for supporting the said ring, one of said portions being grooved to receive the other portion, substantially as described.

6. In combination with a ring, turnstiles for engaging the same and means for adjusting the turnstiles vertically, substantially as described.

7. In combination with a ring turnstiles for supporting the same, threaded bosses arranged on the stand, caps adjustably held on the threaded bosses, flanged sleeves arranged between the caps and the bosses and having ball-bearings, the said sleeves carrying the turnstiles and locking-rings to engage the caps, said locking-rings being screwed on the bosses, substantially as described.

8. In combination a movable ring having its peripheral surface for guiding the thread and rotary devices for supporting the ring, said devices being arranged around the periphery of the ring and each having spaces adapted to allow the thread to pass between them and the ring, substantially as described.

752,761. **MULTIPLE-SWITCHBOARD SYSTEM.** WILLIAM M. DAVIS, Chicago, Ill., assignor, by mesne assignments, to the Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., a Corporation of New York. Filed Dec. 7, 1900. Serial No. 38,984. (No model.)



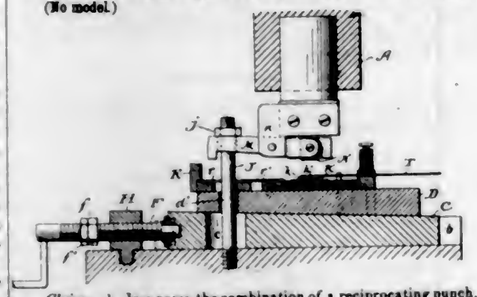
Claim.—1. In a multiple-switchboard telephone-exchange system, the combination with a telephone-line extending by permanently continuous limbs from a subscriber's station to an exchange and connected thereat with a plurality of jack-switches, the limbs of the telephone-line having permanently continuous or unbroken connection with all of the jacks, of a line-relay provided with differentially-wound coils, a source of current, a line-indicator, means controlled at the subscriber's station for closing circuit through the line relay and indicator, whereby the said indicator is operated and the relay remains inactive, the aforesaid jack-switches being provided with switch-contact parts connected with the limbs of the telephone-line, a third contact part acting as a testing means and located in front of the jack-switches but normally insulated therefrom and from the line, a test-circuit adapted to include the aforesaid testing means located before the jacks, and a test-manifesting means included also in the test-circuit, substantially as described.

2. In a multiple-switchboard telephone-exchange system, the combination with a telephone-line extending by permanently continuous limbs from a subscriber's station to an exchange and connected thereat with a plurality of jack-switches, the limbs of the telephone-line having permanently continuous or unbroken connection with all of the jacks, of a line-relay provided with differentially-wound coils, a source of current, a line-indicator, means controlled at the subscriber's station for closing circuit through the line relay and indicator, whereby the said indicator is operated and the relay remains inactive, the aforesaid jack-switches being provided with switch-contact parts connected with the limbs of the telephone-line, a third contact part acting as a testing means and located in front of the jack-switches but normally insulated therefrom and from the line, a test-circuit adapted to include the aforesaid testing means located before the jacks, and a test-manifesting means included also in the test-circuit, substantially as described.

3. In a multiple-switchboard telephone-exchange system, the combination with a telephone-line extending by permanently continuous limbs from a subscriber's station to an exchange and connected thereat with a plurality of jack-switches, the limbs of the telephone-line having permanently continuous connection with each of the jack-switches, of a line-relay provided with differentially-wound coils, a source of current, a line-indicator, means controlled at the subscriber's station for closing circuit through the line relay and indicator, whereby the said indicator is operated and the relay remains inactive, means at the exchange for increasing the energization of one of the coils of the differentially-wound relay with respect to the other to effect the operation of the relay to cut out the line-indicator, the aforesaid jack-switches being provided with switch-contact parts connected with the limbs of the telephone-line, a third contact part acting as a testing means and located in front of the jack-switches but normally insulated therefrom and from the line; a test-circuit adapted to include the aforesaid testing means located before the jacks, and a test-manifesting means included also in the test-circuit, substantially as described.

4. In a multiple-switchboard telephone-exchange system, the combination with a telephone-line extending by permanently continuous limbs from a subscriber's station to an exchange and connected thereat with a plurality of jack-switches, the limbs of the telephone-line having permanently continuous connection with each of the jack-switches, of a line-relay provided with differentially-wound coils, a source of current, a line-indicator, means controlled at the subscriber's station for closing circuit through the line relay and indicator, whereby the said indicator is operated and the relay remains inactive, line-connecting apparatus, means controlled by the line-connecting apparatus for increasing the energization of one of the coils of the differentially-wound relay with respect to the other to effect the operation of the relay to cut out the line-indicator, the aforesaid jack-switches being provided with switch-contact parts connected with the limbs of the telephone-line, a third contact part acting as testing means and located in front of the jack-switches but normally insulated therefrom and from the line, a test-circuit adapted to include the aforesaid testing means located before the jacks, and a test-manifesting means included also in the test-circuit, substantially as described.

752,762. **EMBOSSING-PRESS.** CHARLES R. DELLENBARGER, Cincinnati, and WILLIAM D. CARTER, Cleveland, Ohio; said Carter assignor to said Dellenbarger. Filed Apr. 11, 1903. Serial No. 152,125. (No model.)



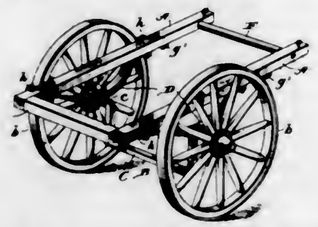
Claim.—1. In a press, the combination of a reciprocating punch, a trimming-frame fitted to and slidable upon the lower end of said punch, a die having a projection corresponding in shape and size to the lower end of the punch, and means for raising and lowering said trimming-frame to cut off the work resting upon the die, substantially as specified.

2. In a press, the combination of a reciprocating punch, a trimming-frame slidable upon the lower end of said punch, a lever pivotally connected with said punch and with said trimming-frame, a die having a projection corresponding in shape and size to the lower end of the punch, and a movable tappet-plate adapted to be moved beneath the tail of said lever, substantially as specified.

3. In a press, the combination of a reciprocating punch, a trimming-frame slidable upon the lower end of said punch, a lever pivotally connected with said punch and with said trimming-frame, a die having a projection corresponding in shape and size to the lower end of the punch, a movable tappet-plate adapted to be moved beneath the tail of said lever, and a tappet-piece above the tail of said lever and adapted to engage therewith, substantially as specified.

4. In a press, the combination of a reciprocating punch, a trimming-frame slidable upon the lower end of said punch, a lever pivotally connected with said punch and with said trimming-frame, a die having a projection corresponding in shape and size to the lower end of the punch, a movable tappet-plate adapted to be moved beneath the tail of said lever, a vertical rod, a tappet-nut thereon for engaging it with the tail of said lever, substantially as specified.

752,763. **CART.** GEORGE R. DONAVIN, HENRY E. STEIN, and OLIVER D. HUNT, Columbus, Ohio, assignors to the George R. Donavin & Company, Columbus, Ohio. Filed Sept. 29, 1903. Serial No. 175,063. (No model.)



Claim.—1. A cart comprising an open frame, a wheeled truck therefor having a dropped axle, a receptacle having offset handles overlying the upper edge of the sides of the frame for supporting the same in a suspended position between the sides thereof and within said dropped portion of the axle.

2. A cart comprising an open frame, a wheeled truck therefor having a dropped axle, a receptacle having offset handles overlying the upper edge of the sides of the frame for supporting the same in a suspended position between the sides thereof and within said dropped portion of the axle, in combination with springs interposed between the sides of said frame and the end portions of the axle.

3. A cart comprising an open frame, a removable bottom portion suspending therefrom, in combination with side-boards projecting upwardly from the sides of said frame.

4. A cart comprising an open frame, a removable bottom portion suspending therefrom, in combination with removable side-boards projecting upwardly from the sides of said frame.

5. A cart comprising an open frame, a removable bottom portion suspending therefrom, in combination with removable side-boards projecting upwardly from the sides of said frame, said side-boards having outwardly-projecting flanges at their upper edges constituting seats.

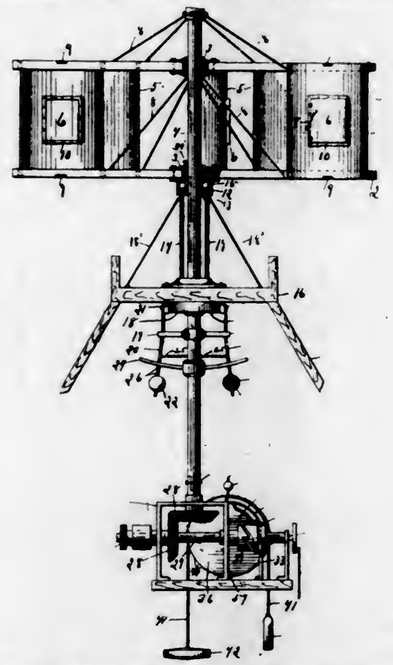
6. A cart comprising an open frame, a removable bottom portion suspending therefrom, in combination with removable side-boards projecting upwardly from the sides of said frame, and means for connecting the ends of said side-boards to reinforce the same.

7. A cart comprising an open frame, a removable bottom portion suspending therefrom, in combination with removable side-boards projecting upwardly from the sides of said frame, said side-boards having outwardly-projecting flanges at their upper edges, and means for connecting the ends of said side-boards to reinforce the same.

8. A cart comprising an open frame, a wheeled truck therefor, a removable bottom portion provided with handles overlying the upper edges of the sides of said frame to suspend said bottom portion, and removable side-boards projecting upwardly from said sides of the frame, said side-boards being cut away to accommodate the handles of said bottom portion.

9. A cart comprising a continuous substantially rectangular frame having oppositely-disposed parallel sides and a normally open bottom, in combination with a wheel-truck therefor, a receptacle removably supported upon said frame and suspended between the sides thereof, and removable side-boards projecting upwardly from the sides of said frame, said side-boards having outwardly-projecting flanges at their upper edges constituting seats.

752,764. **WINDMILL.** LAWRENCE DUNNE, Montgomery, Ala. Filed Sept. 11, 1903. Serial No. 172,773. (No model.)



Claim.—1. In a windmill, a set of radiating arms, a sail rigidly fixed to said arms, said sail having an opening, a spring-actuated valve hinged to the sail and adapted to cover the opening in the sail and a means for regulating the tension of the said spring.

2. A windmill consisting of upper and lower radiating arms, concaved sails interposed vertically between said arms, annular bands horizontally disposed and attached to the said arms and also to the ends of the sails.

3. In combination with a windmill, a means for automatically throwing the same in and out of gear consisting of a float-operated wheel having guides, a clutch having a lever entering the space between said guides.

4. In combination with a windmill adapted to be automatically thrown in and out of gear, a float-operated wheel having guides, a clutch having a lever entering the space between said guides and an appended switch located in said guides.

5. In combination with a windmill, a means for throwing same in and out of gear consisting of a float-operated wheel having guides, a clutch having a lever entering the space between said guides and a spring-actuated switch located within said guides.

6. In combination with a windmill, a means for throwing same in and out of gear consisting of a float-operated wheel having guides, a clutch having a lever entering the space between said guides and weighted arms concentrically pivoted with relation to said wheel and adapted to be operated by studs carried by said wheel.

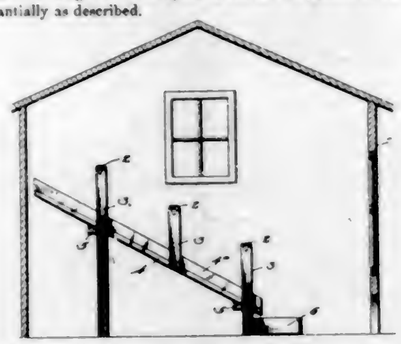
752,765. **POULTRY-HOUSE.** JOSEPH J. EDGERTON, Berwyn, Ill. Filed July 27, 1903. Serial No. 167,202. (No model.)

Claim.—1. In a poultry-house, the combination with suitable supports, having notches formed therein, of perches having ends shaped to removably engage said notches, inclined platforms arranged beneath said perches, a trough arranged at the lower edges of said platforms, and means for cleaning and removing the accumulation in said trough, substantially as described.

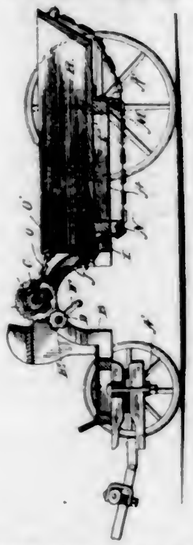
2. In a poultry-house, the combination with suitable supports, having notches formed therein of perches having ends shaped to removably engage said notches, inclined platforms arranged beneath said perches, a trough arranged at the lower edges of said platforms, an endless conveyer adapted to run in said trough to remove the accumulation therein, substantially as described.

3. In a poultry-house, the combination with suitable supports,

having notches formed therein of perches having ends shaped to removably engage said notches, inclined platforms arranged beneath said perches, a trough arranged at the lower edges of said platforms, sprocket-wheels fixed on shafts journaled at the ends of said trough, an endless sprocket-chain adapted to travel on said wheels, blades or hoes fixed on said chain in position to be drawn through said trough to clean the same and discharge the accumulations contained therein at one or the other of the ends of the trough, and means for turning one of said sprocket-wheels to operate said chain, substantially as described.



752,766. DUMPING-WAGON. GEORGE J. ETTERLAMP, Covington, Ky. Filed Dec. 2, 1903. Serial No. 183,485. (No model.)



Claim.—A dumping-wagon comprising in combination with a truck having arched beams, a tilting box mounted upon the truck, a shaft C mounted upon said arched portion, drums of different diameters upon said shaft, chains winding upon said drums, one of said chains being fastened to the rear of the tilting box, and the other to the forward end, cross-pieces of the truck adjacent to the rear arched portions of the frame, one of said cross-pieces being apertured to receive one of said chains, and antifriction-rollers underneath the frame against which the chain which passes through said aperture contacts, as set forth.

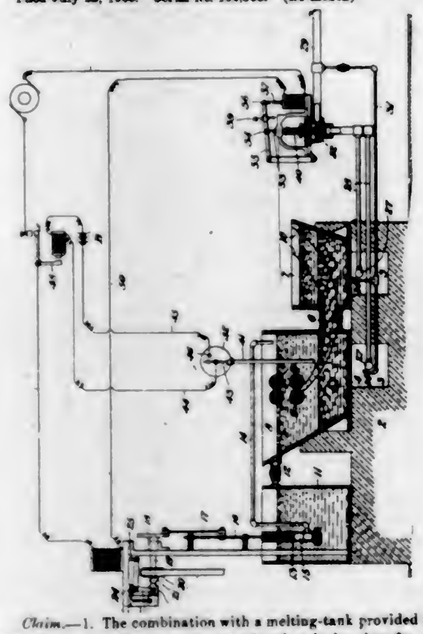
752,767. WEATHER-STRIP. JAMES H. FOOTE, Cincinnati, Ohio. Filed Dec. 6, 1901. Serial No. 84,873. (No model.)

Claim.—1. A window or door the sash or door of which has straight grooves formed therein near its edge, in combination with a strip of metal bent inward forming flanges which stand at an angle to each other one flange being bent again and inserted into one of the grooves in which it holds itself the other or free end bearing outward against an adjacent surface, substantially as shown and described.



2. A window the side rails of the sashes of which have vertical grooves in their front or rear faces, in combination with a strip of metal bent parallel to its edges into two flanges one of which is inserted in one of the grooves and the other of which bears outward against the parting-strip or outer strip of the frame of the window, substantially as shown and described.

752,768. TEMPERATURE-REGULATING APPARATUS. ADAM M. GOODWIN, Pittsburg, Pa., assignor, by mesne assignments, to the Goodwin Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 22, 1903. Serial No. 166,535. (No model.)



Claim.—1. The combination with a melting-tank provided with means for coating sheet metal, and a heating device therefor, of a valve adapted to control the supply of fuel to the heating device, a magnet connected with said valve, and a circuit for the magnet, with means actuated by variations in the temperature of the contents of the melting-tank for making and breaking the circuit through said magnet, whereby the contents of the tank are maintained and applied to the sheet metal at a constant temperature, substantially as set forth.

2. The combination with a melting-tank provided with means for coating sheet metal, and a heating device therefor, of a valve adapted to control the supply of fuel to the heating device, a magnet connected with said valve, a circuit for the magnet, and a pyrometer immersed in the contents of the melting-tank and provided with terminals of said circuit adapted to be connected by operation of the pyrometer, whereby the contents of the tank are maintained and applied to the sheet metal at a constant temperature, substantially as set forth.

3. The combination with a melting-tank provided with means for coating sheet metal, of a device for furnishing fluid thereto, means for actuating said device, and means controlled by variations in the temperature of the contents of the tank for controlling said actuating means, whereby said fluid will be maintained at substantially the same temperature, substantially as set forth.

4. The combination with a melting-tank provided with means for coating sheet metal, of a device for delivering fluid thereto, means for intermittently actuating said device, a magnet and lever adapted to control the operation of said means, and means adapted to be actuated by variations in the temperature of the contents of the tank for making and breaking a circuit through said magnet, whereby said fluid will be maintained at substantially the same temperature, substantially as set forth.

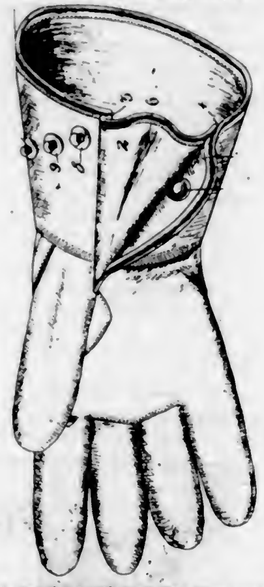
5. The combination with a melting-tank provided with means for coating sheet metal, of a device for delivering fluid thereto, means for intermittently actuating said device, a magnet and lever adapted to control said means, and a pyrometer immersed in the contents of said tank and provided with circuit-terminals adapted to be connected and disconnected by operation of the pyrometer, whereby a circuit is established and broken through said magnet to control the actuating means, substantially as set forth.

6. The combination with a melting-tank provided with means for coating sheet metal, of a supplemental reservoir, a pump therefor provided with a supply-pipe for the tank, a driving-shaft and operating connections for the pump, a driving-pulley and friction-clutch mechanism, a lever connected therewith, a magnet provided with an armature connected with said lever, and means controlled by variations in the temperature of the contents of the tank for making and breaking a circuit through said magnet to control the operation of the pump, substantially as set forth.

7. The combination with a melting-tank provided with means for coating sheet metal, of a supplemental reservoir, a pump therefor provided with a supply-pipe for the tank, a driving-shaft and operating connections for the pump, a driving-pulley and friction-clutch mechanism, a lever connected therewith, a magnet provided with an armature connected with said lever, a generator connected with said magnet, an intervening switch, a magnet adapted to actuate said switch, and a pyrometer provided with contact-terminals and connections to said magnet, whereby the main circuit is established or broken by variations in the temperature of the contents of the tank, substantially as set forth.

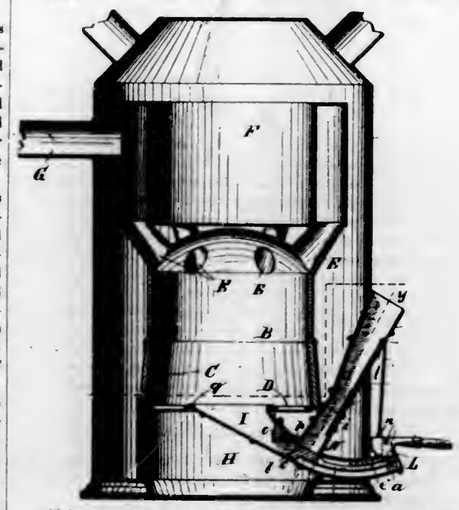
8. The combination with a melting-tank provided with means for coating sheet metal, of a heating device therefor and means for supplying fluid to the tank, a magnet for controlling the fuel-supply, a magnet for controlling the operation of the fluid-supplying means, a generator connected in series with said magnet, a switch, a magnet adapted to actuate said switch, and a device controlled by variations in the temperature of the contents of the tank and provided with contact-terminals, with connections therefrom to said controlling-magnet, whereby the contents of the tank will be maintained at substantially the same temperature, substantially as set forth.

752,769. GLOVE-GAUNTLET. WILLIAM C. GRAICHEN, Winchester, Va. Filed Oct. 29, 1903. Serial No. 179,091. (No model.)



Claim.—A gauntlet having a cuff provided with a gore and a flap at one end of the cuff which overlaps one side of the gore, a fastening member on the flap and a plurality of fastening members on the cuff at the other side of the gore, said plurality of fastening members being disposed in a line which extends transversely on the cuff and obliquely with the outer edge thereof, whereby the cuff may be contracted at will and its ends kept in line with each other at their outer edges by the fastening members at all adjustments of the cuff.

752,770. FURNACE. WILLIAM H. GREGG, Norwood, Ohio, assignor to the Peck-Williamson Heating & Ventilating Company, a Corporation of Ohio. Filed Mar. 6, 1903. Serial No. 146,449. (No model.)



Claim.—1. In fuel-feeding mechanism for furnaces, the combination of a feeding-chute substantially contained within the exterior wall of the furnace and having its lower outer end in the arc of a circle from which point it extends upward with gradually-increasing area to the grate-surface upon which it opens, a reciprocating plunger within the arc-shaped portion of said chute, a feeding-hopper substantially within the wall of the furnace and opening into said chute in the path of said plunger and a pivoted cut-off within said chute just above the end of the plunger which when retracted will permit the passage of the plunger upward in feeding up the fuel and which, when the plunger is retracted will drop back into the chute to serve as a stop to prevent the fed-up fuel from falling back, substantially as described.

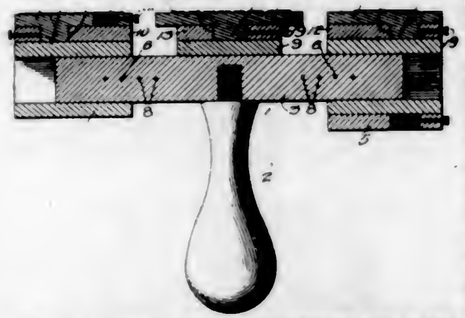
2. In fuel-feeding mechanism for furnaces, the combination of a hopper, a chute below the grate-surface communicating with said hopper and extending up through an opening in the grate with a gradually-enlarged area having no curve on its under side, a reciprocating plunger for forcing the fuel from said hopper up through said chute, contractile mechanism within said chute to prevent the falling back of the upwardly-delivered fuel, means for reciprocating said plunger, an agitator within said hopper, and a connection between said agitator and the plunger-reciprocating mechanism, substantially as described.

3. In fuel-feeding mechanism for furnaces, the combination of a chute extending below and having an enlarged opening at the grate-surface, means for forcing fuel up through said chute, a hopper opening into said chute, and an agitator within said hopper connected with the means for forcing the fuel up through said chute, substantially as described.

4. In fuel-feeding mechanism for furnaces, the combination of the grate D, chute I, hopper J, reciprocating plunger K traversing the delivery end of said hopper within the chute, and contractile valve O within the chute to prevent the falling back of the fed-up fuel, substantially as described.

5. In fuel-feeding mechanism for furnaces, the combination of the grate D, chute I, hopper J, reciprocating plunger K traversing the delivery end of the hopper within the chute, operating-lever L coacting with the plunger K for reciprocating the same, agitator N within the hopper and connected to the lever L and contractile valve O within the chute to prevent the falling back of the fed-up fuel, substantially as described.

752,771. HAND-STAMP. FRED HARDY, Thornton, R. I. Filed July 2, 1903. Serial No. 164,073. (No model.)



Claim.—1. A stamp-holder having a supporting block or head, sleeves or boxes adjustably and detachably supported upon the ends of said block or head, means for adjustably holding said sleeves or boxes in place, stamp-supporting plates detachably secured to said sleeves or boxes, an intermediate stamp-supporting plate secured to said block or head, recesses formed in the outer faces of said plates, stamps, having lugs to enter said recesses, and set-screws passing through the sides of said plates and engaging said lugs to hold said stamp in place, substantially as described.

2. A stamping device of the character described, comprising a supporting block or head, toe and heel stamps mounted upon the ends of the head, a sole-stamp mounted upon the intermediate portion of the head between said heel and toe stamps, and means whereby the stamps may be adjusted relatively to one another and reversed for the stated purpose, substantially as described.

752,772. PIPE-WRENCH. OTTO F. HELFERTS, Chicago, Ill., assignor of one-half to J. Heinsfurter, Chicago, Ill. Filed June 20, 1903. Serial No. 162,330. (No model.)



Claim.—1. In a wrench, the combination of a beam having a rack cut upon its edge and a saddle fitted to and sliding upon said beam, having mounted therein an adjustable jaw, a bolt holding said jaw in place and acting as a pivot-pin, teeth cut in an arc upon the edge of the lower jaw fitting to and coinciding with the teeth of the rack upon the beam, said jaw having an annular opening formed in its side, flat springs mounted therein, bearing respectively against the edge of the beam, and a pin mounted in the saddle for the purpose set forth substantially as described.

2. In a wrench, the combination of a beam, its upper end terminating in a jaw, serrations upon the face of said jaw, a rack cut upon the inner edge of the beam and a shoulder or stop formed near the lower end of said rack, a saddle having a smooth back fitted to and sliding upon said beam, the upper part of said saddle having an adjustable jaw mounted in said saddle and secured in place by a bolt which acts as a pivot-pin, said jaw having a notch cut in its upper end corresponding in width to the beam, serrations cut upon the face of the jaw, teeth cut in an arc upon the lower edge of said jaw fitting to and coinciding with the teeth upon the beam, said arc permitting it to rock upon said teeth in such manner as to keep some teeth in mesh at all times, springs bearing against the beam, and a pin mounted in the said saddle, means to secure the said spring to said jaw for the purpose set forth substantially as described.

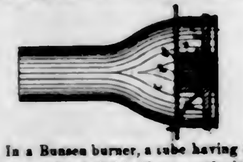
3. In a wrench the combination of a beam, its upper end terminating in a jaw, a rack cut upon its edge, a saddle mounted and sliding on said beam, an adjustable jaw having teeth cut upon its lower edge fitting to the rack upon said beam, said teeth being cut upon an arc to permit the jaw to rock without disengaging the teeth, means to pivot said jaw upon said saddle and spring-actuated means to hold said teeth in mesh, for the purpose set forth substantially as described.

4. In a wrench, the combination of a beam, its upper end terminating in a jaw, having serrations cut upon its face, a rack cut upon its edge, a saddle having a shoulder formed upon its upper edge, mounted and sliding on said beam, an adjustable jaw having teeth cut upon an arc to permit the jaw to rock without disengaging the teeth, the said jaw having a notch at its back fitting to the beam and preventing a lateral movement thereof, means to pivot said jaw upon said saddle and spring-actuated means to hold said teeth in mesh in such manner as to permit a double movement of the saddle and jaw, for the purpose set forth substantially as described.

5. In a wrench, the combination of the beam *a*, the saddle a^1, the adjustable jaw *a'*, the bolt a^3 securing said jaw in position, springs *b'* and b^2 mounted in an annular opening b^3 in said jaw bearing against the beam *a* and a pin a^4 mounted in the saddle, the beam *a* having a rack *d* cut upon it meshing with teeth cut in an arc upon the end a^2 of the jaw *a'*, for the purpose set forth substantially as described.

6. In a wrench, the combination of a beam having a rack cut upon its edge and a saddle fitted to and sliding upon said beam, having mounted therein an adjustable jaw, a bolt holding said jaw in place and acting as a pivot-pin, teeth cut in an arc upon the edge of the lower jaw fitting to and coinciding with the teeth of the rack upon the beam, said jaw having an annular opening formed in its side, flat springs mounted therein, bearing respectively against the edge of the beam, and a pin mounted in the saddle, the spring bearing against the said pin being under tension holding the teeth of the jaw in mesh with the teeth of the rack, for the purpose set forth substantially as described.

752,773. BUNSEN BURNER. MAX HERSKOVITS and ABRAHAM HERSKOVITS, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 53,963. (No model.)



Claim.—1. In a Bunsen burner, a tube having its lower portion flaring outwardly, a perforated thimble secured within the enlarged portion of the tube, a perforated occluding plate rotatably mounted on said thimble and having extensions projecting through the sides of the tube, and an adjustable spring-catch engaging the extension of the plate and the perforated sides of the tube whereby the rotation of the plate may be limited, substantially as set forth.

2. In a Bunsen burner, a thimble having integrally-formed arms extending radially therefrom and provided in its top with perforations and with upwardly-projecting lugs, in combination with an occluding plate having perforations registering with the perforations in the thimble, said plate being engaged loosely by the lugs on the thimble, whereby it is centered and rotatably mounted on said thimble.

3. In a Bunsen burner, a tube having its lower portion flaring outwardly and provided with one or more openings in its sides and with graduated marks adjacent to said opening or openings, in combination with a burner arranged within said tube and a plate adapted to open and close the openings in said burner, said plate having portion extending through the said openings in the tube and means for catching or locking said plate against rotation at the points of said marks, substantially in the manner and for the purpose set forth.

4. In a Bunsen burner, a tube having its lower portion flaring outwardly and with one or more openings in its sides, said openings having notches therein, in combination with a burner arranged in said tube, a plate rotatably mounted on said burner and adapted to open and close the openings therein, said plate having an extension or extensions projecting through said opening or openings in the side of the tube, and a spring-catch secured to said burner and adapted to engage the notches in the tube, whereby the rotatory movement of the plate is limited, substantially in the manner and for the purpose set forth.

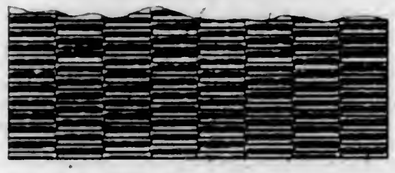
752,774. WINDOW-LOCK AND BURGLAR-ALARM. WILLIAM J. HILL, Buford, Ga. Filed June 9, 1903. Serial No. 160,767. (No model.)



Claim.—1. The combination with a spring-actuated alarm, having an escapement, of an arm on the shaft of the escapement, means for controlling the alarm, comprising a spring-actuated shaft having opposite projections, one of which is provided with an arm to engage the arm on the escapement-shaft, and means for contact with the other projection to throw the opposite arm out of engagement with the arm on the escapement-shaft.

2. The combination with a spring-actuated alarm, having an escapement of an arm on the escapement-shaft, means for controlling the alarm comprising a spring-actuated shaft, oppositely-disposed projections on the shaft, a yielding arm carried by one of the projections and normally engaged with the arm in the escapement-shaft to hold it against operation, and means for engagement with the free projection on the shaft to throw the two arms out of engagement so as to permit the alarm to operate.

752,775. CRIMPED SHEET. PETER HINKEL, Chicago, Ill. Filed June 12, 1903. Serial No. 161,170. (No model.)



Claim.—1. An integrally-formed crimped sheet comprising parallel longitudinal lines of relatively short transverse ribs or crimps extending transversely of the sheet, those of adjacent lines arranged staggering with respect to each other and a vertical web or rib of the sheet between adjacent lines and extending transversely of the crimps thereby increasing the resiliency and rendering the sheet comparatively inelastic under longitudinal or transverse stress.

2. As an article of manufacture a sheet of paper crimped to provide a plurality of longitudinal integrally-connected lines of short transverse ribs or crimps, the adjacent ends thereof terminating in alinement with each other and staggered each to each and an integral, longitudinal, vertical web approximately equal in width to the depth of the corrugations and adapted to form a joint intermediate said staggered ends.

3. An integrally-formed crimped sheet comprising a plurality of longitudinal rows of bends or folds arranged in close proximity each with each and separated by a vertical web extending longitudinally of said rows, said bends or folds arranged staggering with respect to those of adjacent rows and vertical webs acting to increase resistance to longitudinal stress and affording a line along which the sheet may be readily flexed.

4. A crimped sheet of packing-paper having relatively short transverse staggered ribs or crimps and intermediate integral webs extending transversely between the ends thereof and at approximately right angles thereto said sheet being adapted to be folded longitudinally of said webs.

752,776. BOTTLE-OPENER. FREDERICK R. HORTON, Lynn, Mass. Filed Aug. 20, 1902. Serial No. 120,322. (No model.)

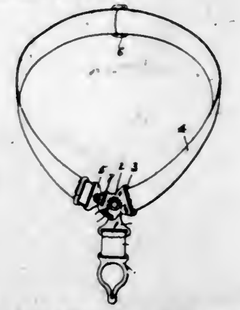


Claim.—1. A bottle-cap remover and replacer having a handle, a prong to penetrate the cap and engage the under side of the same and a resilient circular member of slightly less diameter than the cap to engage the upper side of the cap opposite the prong, substantially as described.

2. A bottle-cap remover and replacer having a prong to penetrate the cap and engage the under side of the same, and a substantially circular member resiliently connected to the prong and engaging the upper side of the cap near its periphery.

3. A bottle-cap remover and replacer formed of a single piece of wire, the intermediate portion of the wire being bent to form a handle, one end of the wire being bent to the form of a hook or prong, and the other end being bent to the form of a spiral adjacent to the hook and in a plane substantially parallel thereto, substantially as described.

752,777. HOSE-SUPPORTER. ERNEST N. HUMPHREY, New Britain, Conn., assignor to The Traut & Hine Manufacturing Company, New Britain, Conn., a Corporation of Connecticut. Filed Dec. 15, 1903. Serial No. 185,185. (No model.)

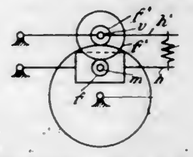


Claim.—1. A joint comprising a pair of connectors pivotally mounted with relation to each other, combined with a band secured to one of said connectors, and a cast-off on the band adapted to be engaged with the connector to which the band is secured.

2. A hose-supporter comprising, in combination, a connector, a hose-grip suspender depending therefrom, a band-connector pivoted with relation to said suspender-connector, a band secured to said band-connector, and a cast-off at the free end of the band, said band-connector having means with which the cast-off may be engaged.

3. A hose-supporter comprising, in combination, a band, a connector to which one end of the band is secured, a cast-off at the free end of the band adapted to engage with either one of a plurality of engaging means on said connector, a suspender-connector, a tubular rivet connecting said two connectors, a suspender secured to said suspender-connector, and a hose-grip dependent from said suspender.

752,778. DRIVING-GEAR. RUDOLF HUNDHAUSEN, Grunewald, Germany. Filed Nov. 28, 1902. Serial No. 133,100. (No model.)



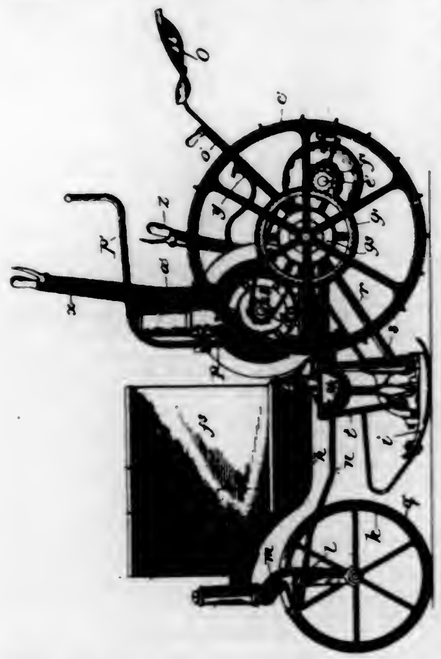
Claim.—1. A driving-gear arrangement comprising a stationarily-supported shaft, a counter-shaft and movable journals or supports for said counter-shaft, a third shaft and movable journals or supports for said third shaft, a friction-gear between the first shaft and the counter-shaft, and a friction-gear between the counter-shaft and the said third shaft, in combination with pressing means for securing the engagement of the friction-gears.

2. A driving-gear arrangement comprising a stationarily-supported shaft, a counter-shaft and movable journals or supports for said counter-shaft, a third shaft and movable journals or supports for said third shaft, a friction-gear between the first shaft and the counter-shaft, and a friction-gear between the counter-shaft and the said third shaft, in combination with a spring between the movable journals and arranged so as to secure the engagement of the friction-gear between said third shaft and the counter-shaft.

3. A driving-gear arrangement comprising a stationarily-supported shaft, a counter-shaft and movable supports for said counter-shaft, a third shaft and movable journals or supports for said third shaft, a friction-gear between the first shaft and the counter-shaft and a friction-gear between the counter-shaft and the said third shaft, in combination with a spring between the movable journals and arranged so as to counteract the weight of the said third shaft and of the parts connected thereto.

4. In a driving-gear arrangement, the combination of three shafts, one being a driving and one being a driven shaft and one being a counter-shaft, two of the shafts being movably journaled, an electric engine connected to one of said movably-journaled shafts, and a spring interposed between the movably-journaled shafts and arranged so as to counteract the weight of the engine and of the parts connected thereto.

752,779. **AUTOMATIC MOWING-MACHINE.** EDWARD A. JOHNSTON, Chicago, Ill., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Filed Mar. 1, 1902. Serial No. 96,265. (No model.)



Claim.—1. In a self-propelled harvester or like machine, the combination of ground-wheels, a main frame, a cutting apparatus, a motor having a driving connection with one or more of said ground-wheels and also with said cutting apparatus, and steering means connected with one of said ground-wheels, which is suitably mounted in said main frame in or near a line traversed by one end of said cutting apparatus.

2. In a self-propelled mower or like machine, the combination of traction-wheels, a main frame, a cutting apparatus, a motor, a connection with one or more of said traction-wheels and also with said cutting apparatus, and a steering-wheel suitably mounted in said main frame in or near the line of travel of the inner end of said cutting apparatus.

3. In a self-propelled harvester or like machine, the combination of ground-wheels, a main frame, mechanism whereby work is performed as the machine is propelled, a motor having a driving connection with one or more of said ground-wheels and also with said mechanism, said connection comprising means for driving either independent of the other, and steering means connected with one of said ground-wheels, which is suitably mounted in said main frame in or near the line of travel of another of said ground-wheels.

4. In a self-propelled mower or like machine, the combination of traction-wheels, a main frame, a cutting apparatus, a motor having a driving connection with said traction-wheels and also with said cutting apparatus, said connection comprising means for driving either independent of the other and a steering-wheel mounted in an extension of said main frame in or near the line of travel of one of said traction-wheels.

5. In a self-propelled mower or like machine, the combination of traction-wheels, a main frame, a cutting apparatus connected thereto, a motor mounted upon said main frame forward of the axle of said traction-wheels, means for transmitting motion from said motor to said traction-wheels and cutting apparatus, hounds secured to and projecting in front and at one side of said main frame, a steering-wheel pivoted in said hounds in or near the line of travel of the inner end of said cutting apparatus, and a tank mounted upon said hounds.

6. In a self-propelled mower or like machine, the combination of traction-wheels, a main frame, a cutting apparatus pivoted thereto and extending to one side thereof, an engine mounted upon said main frame at the opposite side from said cutting apparatus and in front of the axle of said traction-wheels, means for transmitting motion from said engine to said traction-wheels and cutting apparatus, hounds secured to and projecting in front of said main frame at the side adjacent to the cutting apparatus, a caster steering-wheel pivoted in the forward end of said hounds in or near the line of travel of the inner end of said cutting apparatus, and steering and controlling levers located upon the main frame.

7. In a self-propelled harvester or like machine, the combination with a motor, a traction wheel or wheels, and mechanism whereby work is performed as the machine is propelled, of oppositely-rotating gears connected with said motor, means for throwing said mechanism into and out of connection with one of said gears, and means also for throwing said traction wheel or wheels into and out of connection with either of said gears, said means being independent of each other.

8. In a self-propelled mower or like machine, the combination with a motor, traction-wheels, and a cutting apparatus, of a counter-shaft geared to said traction-wheels, oppositely-rotating gears for said counter-shaft geared to said motor, means for throwing said cutting apparatus into and out of connection with one of said gears, means also for throwing said counter-shaft into and out of connection with either of said gears, said means being independent of each other.

9. In a self-propelled mower or like machine, the combination with a motor, traction-wheels, and a cutting apparatus, of a compensating gear for said traction-wheels, a counter-shaft geared to said compensating gear, two oppositely-rotating driving-gears journaled upon said counter-shaft and geared to said motor, a clutch secured to said counter-shaft between said driving-gears, means for throwing said cutting apparatus into and out of connection with one of said driving-gears, and means also for throwing said clutch into and out of connection with either of said driving-gears.

10. In a self-propelled mower or like machine, the combination with a motor, traction-wheels, and a cutting apparatus, of a compensating gear, a counter-shaft geared to said compensating gear, two oppositely-rotating driving-gears journaled upon said counter-shaft, one of which is connected with said motor, a crank-shaft for said cutting apparatus, an intermediate gear meshing with each of said driving-gears, a friction-clutch secured to said counter-shaft between said driving-gears, means for throwing said crank-shaft into and out of connection with said intermediate gear, and means also for moving said counter-shaft endwise to throw said friction-clutch into and out of connection with either of said driving-gears.

11. In a self-propelled harvester or like machine, in combination with a motor, a traction wheel or wheels, and mechanism whereby work is performed as the machine is propelled, a continuously-rotating driving-shaft geared to said motor, oppositely-rotating gears geared to said driving-shaft, a counter-shaft geared to said traction wheel or wheels, means for throwing said mechanism into and out of connection with said driving-shaft, and means also for throwing said counter-shaft into and out of connection with either of said gears.

12. In a self-propelled mower or like machine, in combination with a motor, traction-wheels, and a cutting apparatus, a continuously-rotating driving-shaft geared to said motor, oppositely-rotating gears geared to said driving-shaft, a counter-shaft on which said gears are journaled geared to said traction-wheels, a clutch secured to said counter-shaft between said gears, means for throwing said cutting apparatus into and out of connection with said driving-shaft, said means also for throwing said clutch into and out of connection with either of said oppositely-rotating gears.

13. In a self-propelled mower, in combination with a motor, traction-wheels, and a cutting apparatus, a cutter, a cutter crank-shaft and driving-shaft therefor, a clutch between said driving-shaft and crank-shaft, a gear secured to said driving-shaft, two oppositely-rotating gears meshing with said gear, a compensating gear for said traction-wheels, a counter-shaft on which said oppositely-rotating gears are journaled geared to said compensating gear, a friction-clutch secured to said counter-shaft between said oppositely-rotating gears, means for moving said counter-shaft endwise to throw said friction-clutch into and out of connection with either of said oppositely-rotating gears, a lifting-lever, and means actuated by said lever whereby said clutch is operated to connect and disconnect said driving-shaft and crank-shaft.

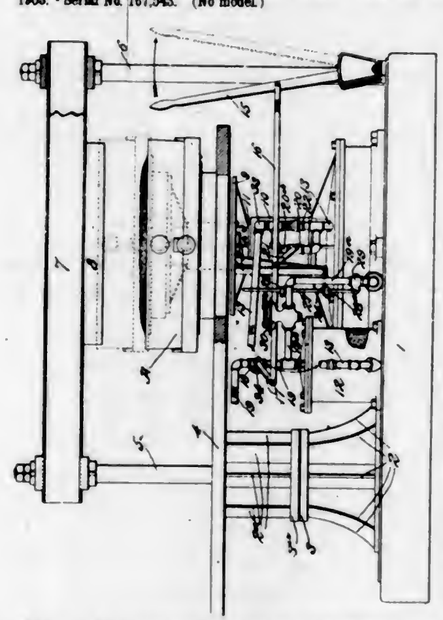
14. In a mower, the combination with a motor, of a cutter, a cutter crank-shaft, a continuously-rotating driving-shaft geared to said motor, a toothed clutch-disk secured to said driving-shaft, a clutch pawl or pawls carried by said crank-shaft and adapted to engage said clutch-disk, a clutch-shipper sliding upon said crank-shaft, a lifting-lever, and a connection between said lever and clutch-shipper for operating the latter.

15. In a self-propelled harvester or like machine, the combination with a motor, a traction wheel or wheels, and mechanism whereby work is performed as the machine is propelled, of oppositely-rotating driving-gears connected with said motor, means for throwing said traction wheel or wheels into and out of connection with either of said driving-gears, and means also for throwing said mechanism into and out of connection with said driving-gears, said two means being independent of each other.

16. In a self-propelled mower, the combination with a motor, traction-wheels, and a cutting apparatus, of oppositely-rotating driving-gears connected with said motor, a compensating gear for said traction-wheels, means for throwing said compensating gear into and out of connection with either of said driving-gears, and means also for throwing said cutting apparatus into and out of connection with said driving-gears, said two means being independent of each other.

17. In a self-propelled harvester or like machine, the combination with a motor, a traction wheel or wheels, and mechanism whereby work is performed as the machine is propelled, of a continuously-rotating driving-gear connected with said motor, oppositely-rotating gears interposed between said driving-gear and said traction wheel or wheels, means for throwing the latter into and out of connection with said driving-gear through the intermediacy of either of said oppositely-rotating gears, and means also for throwing said mechanism into and out of connection with said driving-gear, said means being independent of each other.

752,780. **POWER-ACTUATED MOLDING APPARATUS.** JOSEPH G. JOHNSTON, Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed July 30, 1903. Serial No. 167,543. (No model.)



Claim.—1. In a power molding-machine, a flask-support, a vertically-moving platform, a relatively fixed resisting means cooperating therewith, in combination with a plurality of lifting means comprising cylinders and pistons, one of said cylinders being adapted to contain a relatively incompressible fluid, and means for supplying a compressible fluid for exerting pressure against the incompressible fluid and against the piston in another cylinder, substantially as described.

2. In a power molding-machine, a rotatable flask-support, a relatively fixed resisting means in a different plane therefrom, a movable platform adapted to be projected beyond the plane of said flask-support, a plurality of platform-moving pistons one of which is capable of moving independently of another in the direction of said resisting means, means for supplying compressed air, a fluid-receptacle communicating with said means, a primary chamber communicating with said fluid-receptacle, and a larger chamber communicating with said means for supplying compressed air, substantially as described.

3. In a power molding-machine, a movable platform, in combination with hydropneumatic means for moving said platform, said means comprising a plurality of movable pistons cooperating therewith, a source of compressed-air supply, a source of fluid-supply, a receptacle of relatively small diameter into which said fluid-supply is projected by said air-supply, and a receptacle of relatively large diameter adapted to cooperate therewith, communicating with said source of air-supply; substantially as described.

4. In a power molding machine, a resisting means, a platform, a plurality of platform-moving pistons one of which is capable of moving independently of another in the direction of the resisting means, a source of compressed-air supply, a source of fluid-supply communicating therewith, a receptacle of relatively small diameter communicating with said source of fluid-supply, a receptacle of relatively larger diameter in direct communication with said source of air-supply, a pressure-regulating valve therebetween, and automatically-operating means adapted to establish such communication; substantially as described.

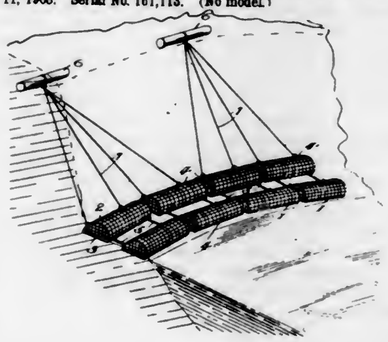
5. In a power molding-machine, a movable platform, a plurality of movable pistons cooperating therewith, a cylinder of relatively small diameter in which one of said pistons is movable throughout a relatively long stroke, a source of fluid-supply in communication therewith, a source of compressed-air supply in communication with said fluid-supply, and a cylinder of relatively larger diameter in direct communication with said source of air-supply; substantially as described.

6. In a power molding-machine, a flask-support, a movable platform, a relatively fixed resisting means, a plurality of lifting-pistons in a plurality of cylinders, one of which pistons has a relatively long stroke, and is of small diameter, the other of which has a relatively shorter stroke and is of larger diameter, a source of fluid-supply in communication with said smaller piston-cylinder, a source of compressed-air supply in communication with said source of fluid-supply and said cylinder of larger diameter, and means whereby said smaller and larger cylinders are successively supplied with their respective motive powers; substantially as described.

7. In a power molding-machine, a flask-support, a movable platform, a plurality of pistons, one of which is of smaller diameter and one of which is of relatively larger diameter, cooperating therewith, means for supplying a relatively incompressible fluid against one of the pistons, means for supplying a compressible fluid to exert pressure against the incompressible fluid, and means whereby said compressible fluid will be caused to successively exert pressure against the piston of smaller diameter and against which the incompressible fluid is disposed, and next against the piston of larger diameter, substantially as described.

8. In a power molding-machine, a flask-support, a movable platform, a plurality of fluid-cylinders, a plurality of pistons therein, said pistons being provided with pressure-faces of different areas, a source of liquid in communication with one of said cylinders, a source of compressed-air supply in communication with said source of liquid and with the larger of said cylinders, a check-valve between said liquid-supply and said smaller cylinder, a by-pass around said check-valve, a pressure-regulating valve between said larger cylinder and said source of compressed air, and means whereby said compressed air is permitted to exert pressure against the liquid and admitted to said larger cylinder, substantially as described.

752,781. **GABION.** CHARLES KERR, Jackson, Miss. Filed June 11, 1903. Serial No. 161,113. (No model.)



Claim.—1. A gabion or fascine consisting of a skeleton frame and a covering of meshed fabric inclosing the bottom, top and ends thereof, substantially as described.

2. A gabion or fascine comprising a hollow body having its bottom flat and its upper portion arched, substantially as described.

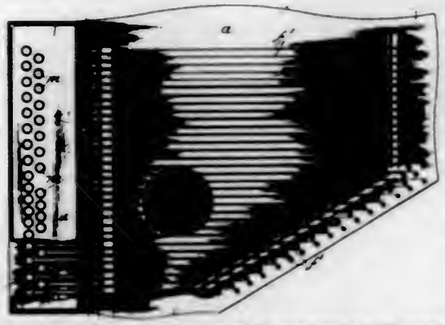
3. A gabion or fascine comprising a hollow body having its bottom flat, its ends straight, and its top arched, substantially as described.

4. A device of the character set forth and for the purpose specified, comprising a skeleton frame having its ends and bottom straight and its top arched, and a covering of meshed material inclosing said frame at its bottom, top and ends.

5. Means for preventing the washing out of embankments and for building wing-dams, sea-walls and the like, the same comprising a series of hollow bodies having flat bottoms and arched tops, links connecting said hollow bodies in series, anchors and means connecting said hollow bodies to the anchors, substantially as described.

6. Means for protecting the opposite sides of a railroad embankment, the same consisting of hollow bodies arranged upon opposite sides of the embankment, and means connecting the bodies upon one side of the embankment with the bodies upon the opposite side, substantially as described.

752,782. **MUSICAL INSTRUMENT.** BERNHARD H. KIMMIG, Chicago, Ill., assignor to the American Music Company, Chicago, Ill., a Corporation of Illinois. Filed May 19, 1903. Serial No. 157,763. (No model.)



Claim.—1. In a musical instrument, the combination with sounding-strings, of a body having a metallic bottom connected at one edge to the wrest-plank and at the other edge to said strings.

2. In a musical instrument, the combination of a wrest-plank; a pin-block; sounding-strings and a metallic bottom piece, said strings being connected at one extremity to the wrest-plank, and at the other extremity to said bottom piece, said strings passing over said pin-block and said bottom piece being attached to said wrest-plank.

3. In a musical instrument, the combination of a wrest-plank; a pin-block; thrust-pieces connecting the same; a sheet-metal bottom piece connected to said wrest-plank upon one surface thereof; and sounding-strings connected to said wrest-plank on another surface thereof, said strings passing over said pin-block and being secured to said bottom piece at said pin-block.

4. In a musical instrument, the combination of a body-frame; sounding-strings and a sheet-metal bottom piece, said strings and said bottom piece being connected together near one edge of the instrument-body, and being also connected to said instrument near the other edge thereof.

5. In a musical instrument, a key-action comprising an oscillating hammer; a damper-lever; a spring connected at one end to said lever and at the other end to said hammer, and means for moving said damper-lever and said hammer simultaneously.

6. In a musical instrument, a key-action comprising an oscillating hammer; a damper-lever; a spring connected at one end to said lever and at the other end to said hammer; and a key-lever connected to said hammer and to said damper-lever to move said hammer and said damper-lever simultaneously.

7. In a musical instrument, a key-action comprising an oscillating hammer; a damper and damper-lever whereon said damper is carried; a spring connected at one end to said lever and at the other end to said hammer; and a key-lever connected to said hammer and to said damper-lever for moving said hammer and said damper-lever simultaneously.

8. In a musical instrument, a key-action comprising an oscillating hammer; a damper; a damper-lever; a flexible connection between said damper and said damper-lever; a spring connected at one end to said lever and at the other end to said hammer; and a key-lever connected to said hammer and to said damper-lever for moving said hammer and said damper-lever simultaneously.

9. In a musical instrument, a key-action comprising a pivoted hammer-segment; a key-lever; a flexible connection such as a cord wrapped upon said segment and attached at one end thereto and at the other end to said key-lever; a damper-lever; and a link connection between said damper-lever and said key-lever.

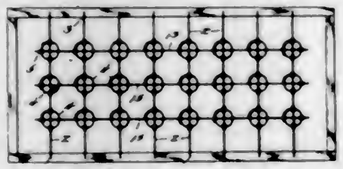
10. In a musical instrument, a key-action comprising a pivoted segment; a hammer-rod extending in one direction therefrom and carrying a hammer; a pin in said segment extending therefrom in a direction away from said hammer-rod, a lever, as *s*, and a spring connected at one end to said pin and at the other end to said lever, and means for moving said lever and said segment simultaneously to reduce the strain on said spring.

11. In a musical instrument, the combination of a body-frame; sounding-strings; a sheet-metal bottom piece, said strings and said bottom piece being connected together near one edge of the instrument-body and being also connected to said instrument-body near the other edge thereof; a key-lever; a hammer operated by said key-lever; and a damper operated by said key-lever.

12. In a musical instrument, the combination of a body-frame; sounding-strings; a sheet-metal bottom piece; said strings and said bottom piece being connected together near one edge of the instrument-body and being also connected to said instrument-body near the other edge thereof; a key-lever; a hammer operated by said key-lever; a damper-lever operated by said key-lever; and a spring connected at one end to said hammer and at the other end to said damper-lever, said hammer and said damper-lever moving simultaneously, the point of attachment of said spring to said damper-lever moving simultaneously with and in the same direction as the point of attachment of said spring to said hammer.

13. In a musical instrument having a vibrating part for the production of sound, the combination of a key-lever having a limited throw; a pivoted hammer normally out of contact with the vibrating sounding part of the instrument; a segment secured to said hammer concentric with the pivot thereof for operating said hammer; a cord wrapped upon said segment, one end of said cord being attached to said segment and the other end of said cord being unyieldingly connected to said key-lever.

752,783. **SPRING CONSTRUCTION.** MELVIN D. KILMER, Cleveland, Ohio. Filed Dec. 13, 1901. Serial No. 85,781. (No model.)

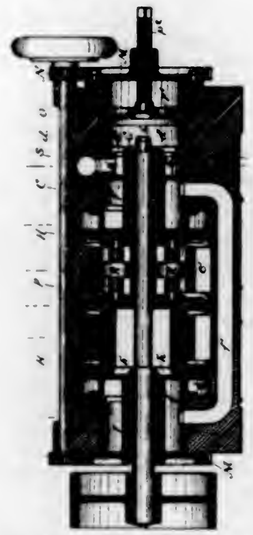


Claim.—In a spring construction, a locking device comprising a U-shaped clip, having its wings formed with slots in horizontal alinement and open at one end, said slots having their upper walls formed with a shoulder and the lower walls hollowed out, and the closed side or bend of the clip being of concavo-convex form, whereby a wire would rest thereon at two points only, as set forth.

752,784. **ROTARY ENGINE.** MARGARET E. KNIGHT, South Framingham, Mass. Filed Apr. 11, 1903. Serial No. 152,279. (No model.)

Claim.—1. In a rotary motor, the combination of a cylindroidal piston-chamber, a rotatable piston-carrier therein, a slot for the pistons extending entirely through the carrier and diametrically thereof, a pair of pistons adapted to slide radially in opposite directions in said slot and each of a length equal to the radius of the carrier, and a port to admit steam between the contiguous ends of the pistons to force them outward.

2. In a rotary motor, the combination of a cylindroidal piston-chamber, the surfaces at the ends of the longest diameter of which are semicircular and the intermediate portions plane surfaces which are tangent to the semicircles, a rotatable hub therein which has a chamber for the pistons extending entirely through it diametrically, and a pair of uniform pistons within the chamber adapted to be forced radially therein, in opposite directions, by the admission of steam between their contiguous ends.



3. In a rotary motor, the combination of two cylindroidal piston-chambers with their respective longest dimensions, which are diametrical to the motor-shaft, at right angles to each other, a rotary piston-carrier in each chamber, a diametrical slot for the pistons in each carrier, a pair of oppositely-sliding pistons in each slot, and a port to admit and exhaust motive fluid at the outer end of each cylindroidal chamber.

4. In a rotary motor, a rotary disk-valve provided with ports which alternately admit steam from the boiler to the steam-chest and from the steam-chest to the engine four times during each rotation of the engine-shaft.

752,785. **RAILROAD.** WILLIAM LAY, Keowee township, Garfield county, Okla. Filed July 23, 1903. Serial No. 166,749. (No model.)



Claim.—1. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, a tie connecting the rail-chairs, a fastening between said tie and the cross-tie, and a spring coöperating with said fastening, substantially as specified.

2. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, tie-rods connecting the rail-chairs, a yoke having its end portions fitted upon the tie-rods, and a fastening connecting the yoke with the cross-tie, substantially as described.

3. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, tie-rods connecting the rail-chairs, a yoke having its end portions fitted upon the tie-rods, a flat spring having its end portions seated upon the end portions of the yoke, and a fastening connecting said spring to the cross-tie, substantially as set forth.

4. In railroad construction, the combination of a cross-tie having longitudinal and transverse grooves formed in the upper side of its end portions, rail-chairs having longitudinal and transverse flanges seated in the respective longitudinal and transverse grooves of the cross-tie, a tie connecting the rail-chairs, and securing means between said tie and the cross-tie, substantially as described.

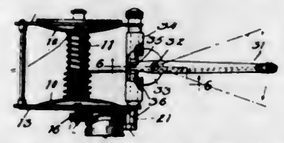
5. In railroad construction, the combination of a cross-tie of approximately arch form, rail-chairs fitted upon the end portions of the cross-tie, a tie connecting the rail-chairs, a reinforcement filling the space between the intermediate and end portions of the cross-tie, and means connecting said tie, the cross-tie and the reinforcement, substantially as set forth.

6. In railroad construction, the combination of a cross-tie of approximately arch form and having the inner parts of the end portions thickened and formed with longitudinal and lateral grooves, rail-chairs seated upon the end portions of the cross-tie and comprising longitudinal and lateral flanges to enter the corresponding longitudinal and lateral grooves of the cross-tie, a tie connecting the rail-chairs, and connecting means between the said tie and cross-tie, substantially as set forth.

7. In railroad construction, the combination of a rail-chair having a longitudinal channel, a strip fitted in said channel, the head or tread portion of the rail being mounted upon the said strip, side members embracing the web of the said head and the strip, and means for securing the parts of the rail and said strip to one another and to the rail-chairs, substantially as set forth.

8. In combination, a rail-chair provided with a clamp-lug and with an intercommunicating opening and slot, a movable clamp-lug having a shank and sleeve portion to fit the said slot and opening of the rail-chair, and a clamp-bolt for drawing the clamp-lugs together to secure the rails to the rail-chair, substantially as set forth.

752,786. **FISH-LINE REEL.** ALBERT E. LEAVER and WILLIAM H. LEAVER, Chicago, Ill. Filed Mar. 18, 1903. Serial No. 148,315. (No model.)



Claim.—1. The combination in a fish-line reel, of a winding-drum, a swinging guide-arm pivoted to the forward side of the outside frame of the reel in the plane of the drum-axis, and mechanism whereby the arm is operated from the winding-handle.

2. The combination in a fish-line reel, of a winding-drum having a winding-handle, a long swinging arm pivoted to the outside frame in the plane of the drum-axis, said arm having an eye at its outer end, and means whereby the arm is swung by power from the winding-handle.

3. The combination of a reel proper and a swinging arm having an eye at its outer end, with an operating-handle and connecting mechanism including a slide 36 whereby the handle actuates the reel and the arm, said handle being movable lengthwise of its shaft, so as to disconnect it from said connecting mechanism.

4. The fish-line reel having a swinging arm carrying an eye for guiding the line during winding, and a grooved cam and slide receiving power from the operating-handle and actuating said arm, said operating-handle being separable at will from the mechanism by which it operates said cam, and the cam being adapted to hold the arm stationary after the handle has been disconnected.

5. The combination in a fish-line reel, of a pivoted swinging

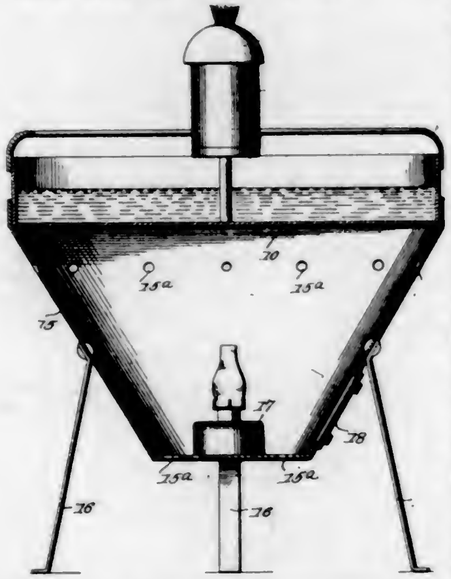
guide-arm, a slide engaging the inner end of said arm, a grooved cam for actuating said slide, an operating-handle and separable mechanism connecting the cam with the handle, whereby when the handle is disconnected from the cam, the latter holds the arm stationary.

6. The combination of a reel proper, a frame in which the reel is supported, a swinging arm supported from the forward side of the frame, a slide engaging the inner end of the arm, and moving in a sleeve supported between the sides of the frame, an operating-handle, and a rotating cam receiving power from said handle and actuating the slide.

7. The combination of a reel proper, a frame in which the reel is supported, a swinging arm supported from the forward side of the frame, a slide engaging the inner end of the arm, and moving in a sleeve supported between the sides of the frame, an operating-handle, a cam rotating on a horizontal axis and having a groove engaging the slide, and means for carrying power from the handle to said cam.

8. The combination in a fish-line reel, of a swinging arm having an eye at its outer end, a support on the forward side of the reel-frame upon which the arm is pivoted, a transversely-moving slide engaging the inner end of the arm, and moving in a sleeve 34, and means for actuating said slide applying power to its end.

752,787. **INSECT-DESTROYER.** JAMES A. LOGSDON, Aley, Tex. Filed Jan. 27, 1903. Serial No. 140,731. (No model.)



Claim.—1. A device of the class described comprising a casing, heating means disposed within the casing, a liquid-receptacle supported by the casing above the heating means, and a light-radiating medium supported by the liquid-receptacle.

2. A device of the class described comprising a casing, a lamp or torch within the casing, a liquid-receptacle removably supported by the casing above the lamp or torch, and a torch supported by the liquid-receptacle.

3. A device of the class described comprising a casing, heating means detachably supported within the casing, a liquid-receptacle supported by the casing above the heating means, and a lamp supported by the receptacle.

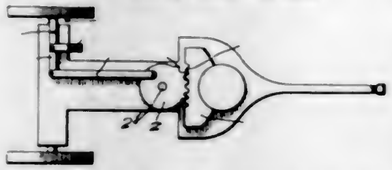
4. A device of the class described, comprising an inclosing casing having ventilating-openings, a door, and heating means located within the casing, a liquid-receptacle supported by the casing and closing the top thereof, and a lamp supported by the receptacle.

5. A device of the class described comprising a ventilated casing, a lamp located within the casing, a cover for said casing constructed to form a receptacle and a lamp supported above the cover.

6. A device of the class described comprising a casing provided with ventilating-openings, supports for said casing, and a lamp or torch located within the casing, a liquid-receptacle supported by the casing above the lamp, and a lamp supported above the receptacle, said receptacle being provided with an inwardly-extending rim.

7. A device of the class described comprising a casing, heating means located within the casing, a receptacle supported by the casing above the heating means, an inwardly-inclined ring removably engaging the top of the receptacle, and a lamp supported by the receptacle and extending above the ring.

752,788. **CORN-PLANTER.** SAMUEL MEINERS, Union City, Iowa. Filed Oct. 3, 1903. Serial No. 175,634. (No model.)



Claim.—In a corn-planter, the combination with a corn-dropping slide-bar and an operating-gear, of a lever pivoted to the upper side of the axle, a pitman connecting the inner end of the lever with said gear, a second lever pivoted to the under side of the axle, a yoke-link connecting said levers and a pin in the driving-wheel adapted to engage with the outer ends of said levers for operating them and imparting an oscillating motion to the operating-gear, substantially as described.

752,789. **SUPPORTING MEANS FOR GARMENTS.** CHARLES W. MERICK, Chicago, Ill., assignor of one-half to James K. P. Pine and Edward O. House, Troy, N. Y. Filed June 27, 1903. Serial No. 163,340. (No model.)

Claim.—1. A hook comprising a wire bent at its middle to provide an outwardly-turned rounded tongue and having the ends of the wire turned upwardly and outwardly from the outward curvature of the tongue and reduced to thin flat points and each provided with an aperture therethrough.

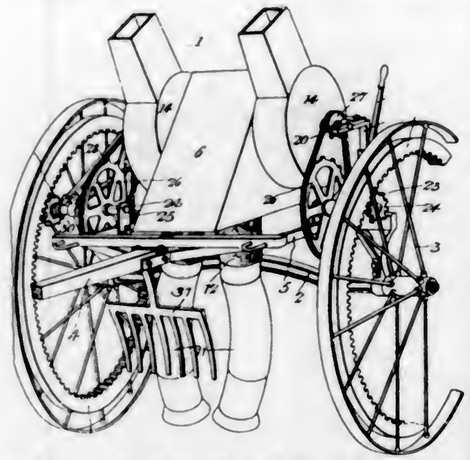
2. A hook of the class described comprising a metallic wire bent at its middle to provide a rounded, outwardly-turned hook each of the ends of the wire being bent upon itself and extending upwardly along the tongue of the hook and turned outwardly therefrom and reduced to a thin, flat point and provided with an eye therethrough, the wire on each side of the throat or bottom of the hook on the outside side thereof being flattened.

3. The combination with the waistband of a garment, of supporting-buttons secured on the outer side thereof and a hook secured on the inner side of the waistband directly opposite and slightly below one or more of said buttons and embracing a thin pointed apertured, outwardly-turned extremities and an integral upwardly-extending tongue of the hook positioned to receive the supporting-tape of an undergarment.

4. A garment-supporting device comprising in combination the waistband of a garment, buttons for shoulder-supports such as suspenders secured on the outer side thereof, a hook secured on the inner side of the waistband directly and slightly below said buttons and comprising a wire bent at its middle part to form an outwardly-turned tongue and rounded in cross-section at the throat, the extremities of said wire extending upwardly parallel with the sides of the hook and terminating in flattened pointed outwardly-curved extremities each provided with an eye to receive attaching means, said extremities being forced through the lining of the waistband and upwardly and adapted to be stitched through said eyes at the top of the waistband.

5. The combination with a waistband of a pair of trousers, of suspender-buttons secured on the outer side thereof and wire hooks comprising parallel outwardly-turned flattened extremities each provided with an eye therethrough and which are forced upwardly through the lining of said waistband opposite the suspender-buttons and to a point near the top of the waistband and are stitched therethrough the middle portion of the wire forming the hook being curved upwardly to provide a tongue having a slight outward curvature and the wire on each side of said throat being flattened on the sides of the hook.

752,790. **PNEUMATIC BOLL-WEEVIL MACHINE.** WILLIAM B. MILLER, Belton, Tex. Filed Apr. 2, 1903. Serial No. 150,832. (No model.)



Claim.—1. In a device of the class described, the combination with a vacuum-chamber provided with exhaust devices, of mechanism for operating the devices, and a pair of spaced open-ended suction-conduits depending vertically from the vacuum-chamber and having their upper ends communicating therewith and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom, the walls of said conduits being wholly impervious.

2. In a device of the class described, the combination with a vacuum-chamber, of means for exhausting air therefrom, and a pair of open-ended oppositely-curved spaced suction-conduits depending vertically from the vacuum-chamber and having their upper ends communicating therewith and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom, the walls of said conduits being wholly impervious.

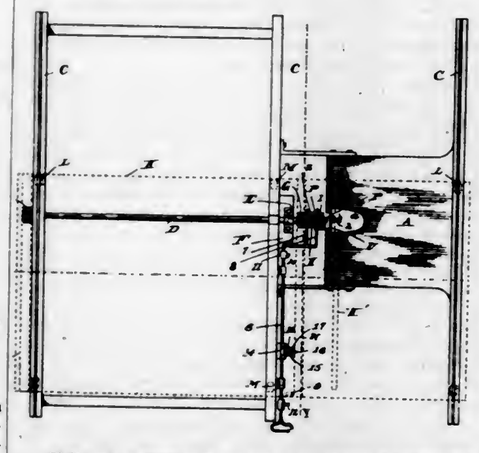
3. In a device of the class described, the combination with a vacuum-chamber, of means for exhausting air therefrom, and a pair of open-ended longitudinally-adjustable suction-conduits suspended from the vacuum-chamber each by a flexible connection, said conduits being oppositely curved and spaced to permit the passage of cotton-plants between them and having wholly-impervious walls and their upper ends communicating with the chamber and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom.

4. In a device of the class described, the combination with a vacuum-chamber, of fan-cases communicating therewith, a shield for preventing the passage of material from the chamber to the fan-cases, fans mounted in the cases, mechanism for operating the fans, and a pair of open-ended spaced suction-conduits depending vertically from the vacuum-chamber and having their upper ends communicating therewith and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom, the walls of the said conduits being wholly impervious.

5. In a device of the class described, the combination with a vehicle having a frame and ground-wheels, of a vacuum-chamber sustained by the vehicle-frame, exhaust-fans associated with said chamber, mechanism operatively connected with and actuated by the ground-wheels for operating the fan, and a pair of open-ended spaced suction-conduits depending vertically from the vacuum-chamber and having their upper ends communicating therewith and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom, the walls of said conduits being wholly impervious.

6. In a device of the class described, the combination with a vehicle having a frame and ground-wheels, of gear-rings associated with the ground-wheels, a vacuum-chamber sustained by the frame, exhaust-fans associated with the chamber, gear connections between the gear-rings and fans for driving the latter during the travel of the vehicle over the ground, and a pair of open-ended spaced suction-conduits depending vertically from the vacuum-chamber and having their upper ends communicating therewith and their lower ends terminating short of and adjacent to the ground for gathering material directly therefrom, the walls of said conduits being wholly impervious.

752,791. **FEEDING MECHANISM FOR BOOK-SEWING MACHINES.** RODNEY MITCHELL, Peoria, Ill. Filed June 14, 1902. Serial No. 111,790. (No model.)



Claim.—1. A stitching-machine for bookbinders' use comprising the sewing mechanism, a movable table for supporting and carrying the work to be sewed, a shaft beneath the table, cog-wheels on the shaft, toothed racks on the table for engaging the said cog-wheels, ratchet-wheels on the shaft each having its teeth extending in an opposite direction from those of its neighbor, a pawl for each ratchet and means for operating said pawls to turn the said wheels, but one of which is in operation at a time, and a controlling device shifted automatically by the table for permitting one of the pawls to engage its respective ratchet-wheel while holding the other out of engagement.

2. In a sewing-machine of the character described, the combination with the shiftable work-carrying table therefor, of a shaft for imparting movement to said table in a step-by-step movement for the purposes indicated, racks on the table, gear-wheels on the shaft for engaging the racks, and a right and a left ratchet-wheel on said shaft, an arm P arranged to oscillate on the shaft adjacent to each of the ratchet-wheels, a pawl pivoted on each arm to engage one of the ratchets, a reciprocating arm pivotally connected with each of the arms P to oscillate the pawls to turn one or the other of said ratchets, a forked controller actuated to engage or disengage one or the other of the pawls as set forth, said controller being operated automatically by the moving table to reverse the position of the pawls and thereby reverse the direction of movement of the table.

3. In a sewing-machine, the shiftable work-carrying table therefor, a shaft beneath the same lying at right angles to the line of movement of such table, gears on the shaft, racks on the table for engaging the gears, ratchet-wheels on the shaft, the teeth of one extending in an opposite direction to those of the other, an arm pivotally carried in the region of each ratchet-wheel, a pawl carried on each arm, a rod pivotally connected to the arm for imparting an oscillating movement to the pawls, such rod receiving a reciprocating movement from the sewing-machine mechanism, a controller for changing the position of the pawls for the purposes set forth consisting of a rod shiftable in the direction of its length and in the direction of the line of movement of the table-fingers on one end of the rod for engaging the pawls, projections on the rod substantially as described and shown, and projections on the shifting table for contacting with the latter fingers for shifting the rod at each limit of movement of the table in its backward-and-forward movement as set forth.

4. In a stitching-machine for bookbinders' use, the sewing mechanism, a shifting table for carrying the work to be sewed, a shaft for

moving said table, cogs on the shaft, a toothed rack on the table for engaging the cogs, ratchet-wheels H and I on said shaft, a pawl S for each ratchet, one above and the other below its respective ratchet, arms P for carrying the pawls, means for imparting movement to the pawls through said arms P whereby the ratchet-wheels are turned as described, and a controlling device consisting of the shifting rod 6 with the fingers 7 and 8 one of which is placed beneath one of the pawls and arranged whereby in one position one of the pawls is in engagement with its ratchet and the other is out of engagement, and when in another position the positions of the pawls is reversed, and when in still another position both pawls are lifted out of engagement and the table is free to move independent of the entire mechanism, and a stop 12 on the table for engaging the shifting rod 6 for throwing the pawls into use and reversing the direction of movement of the shaft and table for the purposes set forth.

5. In a sewing-machine of the character described, a work-carrying table, tracks for carrying it, a shaft lying transversely of the line of movement of the table, racks secured to the table, gear-wheels on the shaft for engaging the racks to move the table, a pair of ratchet-wheels on the shaft the teeth of one ratchet facing in an opposite direction to those of the other, a pawl for engaging each ratchet-wheel, means for carrying the pawls, an arm journaled on the machine and having reciprocating movement in the direction of its length at right angles to the length of the shaft, connection between the pawls and the arm for imparting a to-and-fro movement to the said pawls to move the shaft in a series of partial turns for imparting a series of progressive movements to the carrying-table, a two-arm fork adapted for shifting movement in the direction of the line of movement of the pawls, each of the arms engaging one of the pawls to disengage it from or permit it to engage with its respective ratchet, said fork being operated automatically by contact of the moving table therewith to reverse the position of the pawls and consequently to change the direction of movement of the table.

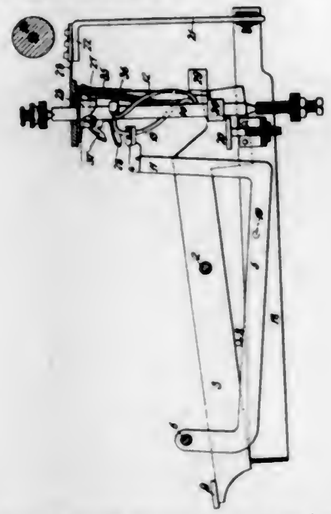
6. In a sewing-machine of the character described, the combination of the moving work-table A, tracks C for carrying it, the shaft D journaled beneath the table at right angles to the tracks, toothed racks N N on the table, gear-wheels G and J on the shaft for engaging the racks, ratchet-wheels H, I, affixed to said shaft D the teeth of each extending in opposite directions to those of the other, the pawls S for engaging the ratchets and arranged substantially as set forth, the reciprocating arm U operated by the machine for imparting a to-and-fro movement to the pawls, the shifting rod 6 having the arms 7 and 8 for engaging the pawls substantially as and for the purposes set forth and means on the table for engaging the rod 6 for changing its position to reverse the position of the pawls for reversing the direction of movement of the said table.

7. In a sewing-machine of the character described, the combination of the moving work-table A, tracks C for carrying it, the shaft D journaled beneath the table at right angles to the tracks, toothed racks N N on the table, gear-wheels G and J on the shaft for engaging the racks, ratchet-wheels H, I affixed to said shaft D the teeth of each extending in opposite directions to those of the other, the pawls S for engaging the ratchets and arranged substantially as set forth, the reciprocating arm U operated by the machine for imparting a to-and-fro movement to the pawls, only one of which is in engagement with its ratchet, the shaft 21, the eccentric plate 26 thereon, the arm V pivoted on the machine and operated by said plate 26 said arm V having pivotal connection with the said arm U for imparting the reciprocating motion thereto, the arms P loosely mounted on the shaft D and carrying the said pawls, the pins W and X carried by said arm U, the links 2 and 4 connecting said pins with the arms P, the rod 6, the fingers 7 and 8 thereon each engaging one of the pawls, the fingers 10 and 12 on the said rod 6, the lug 9 on the shifting work-table all arranged substantially as set forth and described.

752,792. TYPE-WRITING MACHINE. HIDALGO MOYA, Leicester, England, assignor of one-half to John Gordon Chattaway, Leicester, England. Filed Jan. 10, 1902. Serial No. 89,168. (No model.)

Claim.—1. A type-writer comprising a type-carrier, on which the type are arranged in circular rows about an axle and also in crossing rows each on a flexible radial arm of said axle; means for moving the flexible radial arms of the type-carrier angularly to bring the desired crossing row of type in a line crossing the paper-carriage; that paper-carriage; and means for moving it sidewise to bring it in printing relation to a type in one of the crossing rows.

2. In a type-writing machine, the combination with the key-levers and paper-carriage, of a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on the cover-plate, means to rotate the said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, means for moving the collar along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot in the cover-plate through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.



3. In a type-writing machine, the combination with the key-levers and paper-carriage, of a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on the cover-plate, means to rotate the said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, means for insuring the stoppage of the collar when the type corresponding to the key-lever that has been operated is opposite the slot in the cover-plate, means for moving the collar along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot in the cover-plate through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

4. In a type-writing machine, the combination of the paper-carriage, key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, a collar at the upper end of said axle, a collar on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on the cover-plate, means to rotate said axle through such an angle as to bring the required type opposite said slot in the cover-plate when the key-levers are operated, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been operated, means for moving the collars along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot through said cover-plate, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

5. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers, a rotary axle, a collar mounted on said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in the collar, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, means to rotate said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, means for moving the collar along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot in the cover-plate through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

6. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars resilient type-supports carried by the said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, means for rotating said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been operated, means for moving the collars along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot through said cover-plate, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

7. In a type-writing machine, the combination with the key-levers and paper-carriage, of a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on the cover-plate, means to rotate the said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, a rocking frame pivoted to the machine and adapted to be operated by the key-levers so that its inner end moves the collar along the axle to bring the type in contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the cover-plate slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

8. In a type-writing machine, the combination of the paper-carriage, piroted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, of a rotary axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with a recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, means for rotating said axle through such an angle as to bring the required type opposite said slot when the key-levers are operated, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been operated, a rocking frame pivoted to the frame of the machine and adapted to be operated by the key-levers, an adjustable stop located on the inner side of said rocking frame and adapted to strike the collar on the lower end of the axle to move the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the cover-plate slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

9. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, helical rods carried by said axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the collar on the upper end of the axle, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, helical rods carried by the axle, frames hinged to the machine and adapted to be operated by the key-levers, arms carried by said hinged frames, forks located at the ends of said arms and engaging with the helical rods, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been operated, means for moving the collars along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the radial slot through said slot, and means to move the paper-carriage forward, substantially as described for the purpose specified.

10. In a type-writing machine, the combination of the key-levers, the paper-carriage, a rotary axle, type carried by said axle, a cover-plate for said type having a radial slot, helical rods carried by said axle, frames hinged to the machine, diagonal bars carried by said frames and with which the key-levers coöperate, arms carried by said hinged frames and having their ends respectively in sliding engagement with the helical rods, means operated by the key-levers moving the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

11. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, helical rods carried by said axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the collar on the upper end of the axle, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, helical rods carried by the axle, frames hinged to the machine, diagonal bars carried by said hinged frames and with which the key-levers coöperate, arms carried by said hinged frames, forks located at the ends of said arms and engaging with the helical rods, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been operated, means for moving the collars along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the radial slot through said slot, and means to move the paper-carriage forward, substantially as described for the purpose specified.

12. In a type-writing machine, the combination of the key-levers, the paper-carriage, a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on the cover-plate, helical rods carried by the axle, means operated by the key-levers for coöperating with the helical rods to move the axle through such an angle as to bring the required type opposite the slot in the cover-plate when the key-levers are operated, a rocking frame pivoted to the machine and adapted to be operated by the key-levers so that its inner end moves the collar along the axle to bring the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

13. In a type-writing machine, the combination of the key-levers, the paper-carriage, a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink pad on the cover-plate, helical rods carried by the axle, frames hinged to the machine and adapted to be operated by the key-levers, arms carried by said hinged frames and having their ends respectively in sliding engagement with the helical rods, a rocking frame pivoted to the machine and adapted to be operated by the key-levers so that its inner end moves the collar along the axle to bring the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

14. In a type-writing machine, the combination of the key-levers, the paper-carriage, a rotary axle, type carried by said axle, a cover-plate for said type having a radial slot, helical rods carried by said axle, frames hinged to the machine, diagonal bars carried by said frames and with which the key-levers coöperate, arms carried by said hinged frames and having their ends respectively in sliding engagement with the helical rods, a rocking frame pivoted to the machine and adapted to be operated by the key-levers so that its inner end moves the collar along the axle to bring the type into contact with the ink-pad, a presser-foot carried by the inner end of the rocking frame and adapted to press the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

15. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, helical rods carried by the axle, means operated by the key-levers for coöperating with the helical rods to move the axle through such an angle as to bring the required type opposite the slot in the cover-plate when the key-levers are operated, a stop-arm carried by the bar connecting the collars and adapted to strike the inner end of the key-lever that has been op-

erated, a rocking frame pivoted to the machine and adapted to be operated by the key-levers, an adjustable stop located on the inner side of said rocking frame and adapted to strike the collar on the lower end of the axle to move the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite radial slot, through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

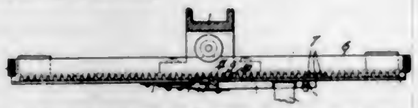
16. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, helical rods carried by the axle, frames hinged to the machine, diagonal bars carried by said hinged frames and with which the key-levers cooperate, arms carried by said hinged frames and having their ends respectively in sliding engagement with the helical rods, a stop-arm carried by the bar connecting said collars and adapted to strike the inner end of the key-lever that has been operated, a rocking frame pivoted to the machine and adapted to be operated by the key-levers, an adjustable stop located on the inner side of said rocking frame and adapted to strike the collar on the lower end of the axle to move the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

17. In a type-writing machine, the combination of the paper-carriage, pivoted key-levers having their inner ends terminating on diagonal lines receding from the center toward the sides of the machine, a rotary axle, a collar mounted on the upper end of said axle and having a recess with inclined sides, a pin fixed to the axle and engaging with the recess in said collar, a collar mounted on the lower end of said axle, a bar rigidly connecting said collars, resilient type-supports carried by the said upper collar, type arranged radially on said supports, a cover-plate for said type having a radial slot, an ink-pad on said cover-plate, helical rods carried by the axle, frames hinged to the machine, diagonal bars carried by said hinged frames and with which the key-levers cooperate, arms carried by said hinged frames and having their ends respectively in sliding engagement with the helical rods, a stop-arm carried by the bar connecting said collars and adapted to strike the inner end of the key-lever that has been operated, stop-arms carried by the axle and adapted to stop said axle in the correct position after each operation, a rocking frame pivoted to the machine and adapted to be operated by the key-levers, an adjustable stop located on the inner side of said rocking frame and adapted to strike the collar on the lower end of the axle to move the type into contact with the ink-pad, a presser-foot carried by the inner end of said rocking frame and adapted to press the type opposite the radial slot through said slot, and means to feed the paper-carriage forward, substantially as described for the purpose specified.

18. In a type-writing machine, the combination of a paper-carriage, key-levers having their ends terminating on diagonal lines receding from the center toward the sides of the machine, the inner end of each succeeding key-lever from the center toward the sides of the machine increasing in depth, a rotary axle, a collar on said axle, resilient type-supports carried by said collar, type arranged radially on said supports, a cover-plate for the type having a radial slot, an ink-pad on the cover-plate, means operated by the key-levers to rotate said axle through such an angle as to bring the required type opposite the radial slot, means for insuring the stoppage of the collar when the type corresponding to the key-lever that has been operated is opposite the slot in the cover-plate, means for moving the collar along the axle to bring the type in contact with the ink-pad, means for moving the type opposite the slot in the cover-plate through said slot, and means to move the paper-carriage forward, substantially as described for the purpose specified.

752,793. TYPE-WRITING MACHINE. HIDALGO MOTA, Leicester, England, assignor of one-half to John Gordon Chattaway, Leicester, England. Filed June 14, 1902. Serial No. 111,305. (No model.)

Claim.—1. In a type-writing machine, the combination with the key-levers and the paper-carriage, of a rack-bar carried by the paper-carriage, a fixed plate provided with an opening and masking the teeth of the rack-bar, a pivoted pawl which passes through the opening in the mask-plate and engages with the teeth of the rack-bar, means which tend to hold the pawl against one end of the opening in the mask-plate, and means operated by the key-levers for rocking the pawl about its pivot to feed forward the paper-carriage, substantially as described.



2. In a type-writing machine the combination of the pivoted key-levers, the paper-cylinder, the frame in which said paper-cylinder is journaled, a rack-bar carried by the paper-cylinder frame, a fixed plate provided with an opening and masking the teeth of the rack-bar, a pivoted pawl which passes through the opening in the mask-plate and engages with the teeth of the rack-bar, a spring which tends to hold said pawl against one end of the opening in the mask-plate, and means operated by the key-levers for rocking the pawl about its pivot to feed forward the paper-cylinder frame, substantially as described for the purpose specified.

3. In a type-writing machine, the combination of the pivoted key-levers, the paper-cylinder, the transversely-traveling frame in which the paper-cylinder is journaled, a rack-bar carried by the paper-cylinder frame and the teeth of which each have a straight side and an inclined side, a fixed plate which masks the teeth of the rack-bar and has an opening provided with a beveled side, a pawl having a nose provided with a straight side and an inclined side, the straight side of said nose engaging with the straight sides of the rack-teeth and the inclined side of said nose facing the beveled side of the opening in the mask-plate, a fixed pivot about which the pawl can both rock and move longitudinally, a spring which tends to hold the nose of the pawl against the mask-plate, and means operated by the key-levers for rocking the pawl about its pivot to feed forward the paper-cylinder frame, substantially as described for the purpose specified.

4. In a type-writing machine, the combination of the pivoted key-levers, the paper-carriage, the transversely-traveling frame in which the paper-cylinder is journaled, a rack-bar carried by the paper-cylinder frame and the teeth of which each have a straight side and an inclined side, a fixed plate which masks the teeth of the rack-bar and has an opening provided with a beveled side, a pawl having a nose provided with a straight side and an inclined side, the straight side of said nose engaging with the straight sides of the rack-teeth and the inclined side of said nose facing the beveled side of the opening in the mask-plate, a fixed pivot about which the pawl can both rock and move longitudinally, a spring which tends to hold the nose of the pawl against the mask-plate, a frame pivoted to the machine and adapted to be rocked by the key-levers, and a foot carried by said frame and engaging with one arm of the pivoted pawl for moving said pawl against the resistance of the spring, substantially as described for the purpose specified.

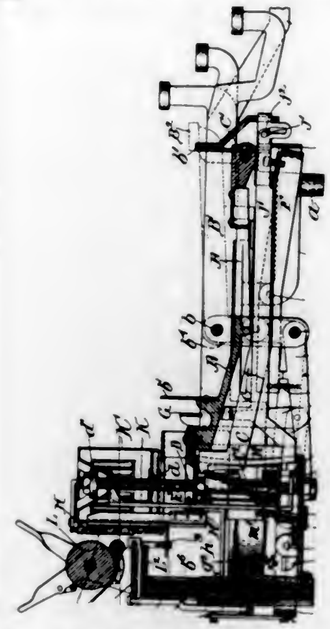
752,794. TYPE-WRITER. HIDALGO MOTA, Leicester, England. Filed Sept. 27, 1902. Serial No. 125,037. (No model.)

Claim.—1. A type-writer comprising a paper-roll; means for moving it endwise, sidewise and about its axis; a type-cylinder whose axis is parallel with the plane in which the axis of the paper-roll moves; and means for moving the type-cylinder about its axis, combined to bring any character on the cylinder into printing relation with the paper-roll by the combined movements of the paper-roll and the type-cylinder.

2. A type-writer comprising a paper-roll; means for moving it endwise, sidewise and about its axis; a type-cylinder whose axis is parallel with the plane in which the axis of the paper-roll moves; and means for moving the type-cylinder about its axis and endwise, combined to bring any character on the cylinder into printing relation with the paper-roll by the combined movements of the paper-roll and the type-cylinder.

3. A type-writer comprising a set of character-keys; a type-cylinder; means whereby each character-key gives an angular movement to the type-cylinder; stops each controlled by its character-key to limit the angular movement of the type-cylinder; means whereby each character-key gives an endwise movement to the type-cylinder; and a stop to limit the endwise movement of the type-cylinder.

4. A type-writer comprising two sets of character-keys; a type-carrier; a type-cylinder on that carrier; means whereby each character-key gives an angular movement to the type-carrier; stops each controlled by its character-key to limit the angular movement of the type-cylinder; means whereby each character-key gives an endwise movement to the type-cylinder; a stop to limit the endwise movement of the type-cylinder when moved endwise by any key of one set; and a second stop to still further limit the endwise movement of the type-cylinder when moved endwise by any key of the second set.



5. A type-writer comprising a type-carrier; its axle; a yielding connection between the type-carrier and its axle; means for moving the axle on its axis; means for moving the type-carrier endwise on its axle; a stud projecting from the type-carrier; and a series of slots for engaging the stud to lock the carrier in its position after it has been moved endwise on its axle and while the axle completes its rotary movement.

6. A type-writer comprising a type-carrier; its axle; a separable connection between the carrier and its axle; means for swinging the axle on its axis; and means controlled by the character-keys for locking the axle in its normal position and for freeing the axle when the character-keys are operated.

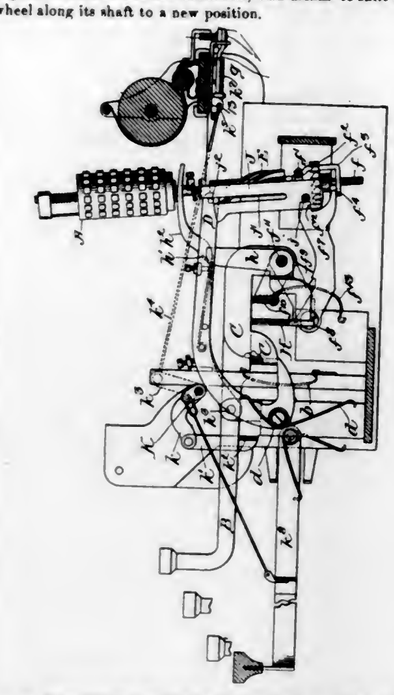
7. A type-writer comprising a type-carrier; its axle; a yielding connection between the carrier and its axle; means for swinging the axle on its axis in one direction; means for swinging the axle on its axis in the other direction; two stops which normally prevent the axle from swinging in either direction; and means controlled by the character-keys to free the axle from one of those stops to allow the swing of the axle on its axis in one direction, but to leave the other stop in position to limit the return swing of the axle on its axis.

752,795. TYPE-WRITER. HIDALGO MOTA, Leicester, England. Filed Mar. 4, 1903. Serial No. 146,152. (No model.)

Claim.—1. A type-writer comprising a type-wheel; a shaft on which the type-wheel is splined to admit it to be moved endwise on the shaft but compel it to rotate with the shaft; means to rotate the shaft; a clutch connecting the rotating means and the shaft of the type-wheel; and means to operate that clutch to permit the rotating means to revolve through a larger angle than the shaft and type-wheel.

2. A type-writer comprising a type-wheel; a shaft on which the type-wheel is carried; a cam for rotating the shaft of the type-wheel; a clutch connecting the cam and the shaft; and means to operate the clutch and disengage the cam and its shaft when they have rotated together through the desired angle.

3. A type-writer comprising a type-wheel; a shaft on which the type-wheel is carried; a cam for rotating the shaft of the type-wheel; a clutch connecting the cam and the shaft; means to operate the clutch and disengage the cam and its shaft when they have rotated together through a desired angle, and lock the shaft while the angular motion of the cam continues; and means to shift the type-wheel along its shaft to a new position.



4. A type-writer comprising a type-wheel; a shaft on which the type-wheel is carried; an oscillatory frame in which the shaft of the type-wheel is mounted; a cam for rotating the type-wheel and its shaft; and a forked lever, one tine of which rotates the cam while the other tine oscillates the frame.

5. A type-writer comprising a type-wheel with two or more pairs of rows of characters about its axis arranged in lengthwise rows substantially parallel with its axis; a shaft on which the type-wheel is splined; means to rotate that shaft through varied angular distances and thus select any one of the lengthwise rows of characters; means to shift the type-wheel lengthwise of its shaft, and thus select one circumferential row of a pair; a paper-roll; means to shift it sidewise and thus select the desired pair of circumferential rows; and means to move the type-wheel as a hammer to impress the selected character on the paper carried by the paper-roll.

6. In combination cam-arm h; forked lever h^2; type-wheel A; its shaft f between the tines of forked lever h^2; means for actuating cam-arm h, and thereby actuating forked lever h^2 and moving type-wheel A lengthwise of the shaft; means for rotating shaft f to give angular motion to type wheel A; and means for swinging shaft f to cause type-wheel A to make the impression.

752,796. DUST-GUARD FOR CAR-WINDOWS. BOOTHE MILLACK, Virgil, Ga. Filed Aug. 17, 1903. Serial No. 169,769. (No model.)

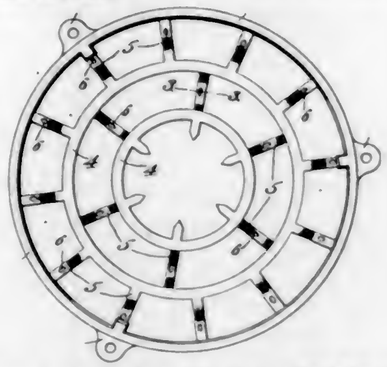


Claim.—1. A guard of the character described, comprising a base-plate provided with an angular rib, and angular deflector-plates spaced from said base-plate and coacting with the same to form flaring inlet-spaces and deflecting outlet-spaces, substantially as described.

2. A guard of the character described, comprising a base-plate formed with a central V-shaped rib, end strips secured to said base-plate, and V-shaped deflector-plates spaced from the base-plates by said end strips and coacting with said base-plates to form flaring inlet-spaces and deflecting outlet-spaces, substantially as described.

3. In combination with a car or the like having a series of windows, of guards secured between the same and comprising base-plates having central V-shaped ribs, strips uniting the ends of said base-plates, and V-shaped deflector-plates spaced from the base-plates by said end strips and adapted to create currents of air and deflect the same past said windows, substantially as described.

752,797. COPE FOR MOLDING. WILLIAM C. NORCROSS, Terre Haute, Ind., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed July 11, 1903. Serial No. 165,143. (No model.)



Claim.—1. A device for use in venting a molding-flask, comprising a supporting exterior shell forming a cope, means thereon for connection with a chill-ring, and inwardly-extending arms which are of wedge shape throughout the major portion thereof and which are provided with vertical vent-passages extending entirely through said arms; substantially as described.

2. A cope for use in a molding-flask comprising an exterior supporting-shell, and having inwardly-projecting arms which are substantially wedge-shaped throughout, and which are provided with vent-openings extending vertically therethrough; substantially as described.

3. A cope for a molding-flask, comprising an outer shell with integral lugs, and having integral arms which are substantially wedge-shaped throughout, and project inwardly therefrom, said arms being provided with perforations projected therethrough; substantially as described.

4. A cope for use in molding car-wheels, comprising an exterior shell of metal, and a plurality of inner concentric rings connected with said exterior shell by means of radially-extended arms which are provided with vertical perforations projected therethrough, said rings being substantially wedge-shaped in section; substantially as described.

5. A cope for use in molding car-wheels, comprising an exterior ring, an inner concentric ring, and vertically-perforated radial arms, which arms are wedge-shaped in cross-section throughout their depth and extend to a lower plane than said exterior ring; substantially as described.

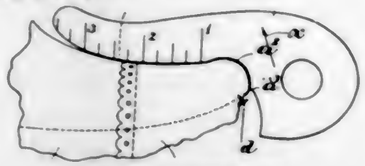
6. A cope for use in a molding-flask comprising an exterior supporting-shell, and having inwardly-projecting arms which are wedge-shaped and vertically elongated, and which are provided with vent-openings extending vertically therethrough; substantially as described.

7. A cope for a molding-flask, comprising an outer shell with integral lugs, and having integral arms projecting inwardly therefrom, said arms being wedge shape and vertically elongated, and provided with perforations projected therethrough; substantially as described.

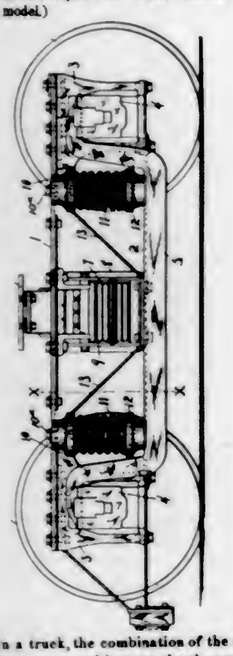
8. A cope for use in a molding-flask, having inwardly-projecting arms provided with vent-openings extending therethrough, said openings being substantially conical in section; substantially as described.

752,798. TOE-TIP MEASURE. FRED H. PACKARD, Brockton, Mass. Filed Dec. 10, 1903. Serial No. 184,526. (No model.)

Claim.—A toe-tip measure having an edge conforming substantially to the contour of the upper front portion of a shoe, one portion of said edge having a convex curvature and graduated, and an adjoining portion of said edge being inwardly curved or recessed, the two ends of the recessed portion forming projections to engage the tip at two points, the projection most distant from the graduated portion being adapted to engage the tip under the front portion thereof to resist tendency of the measure to move or slip upwardly over the tip.



752,799. TRUCK. WILLIAM G. PRICE, Kingston, N. Y., assignor to John A. Brill, Philadelphia, Pa. Filed Mar. 13, 1903. Serial No. 147,574. (No model.)

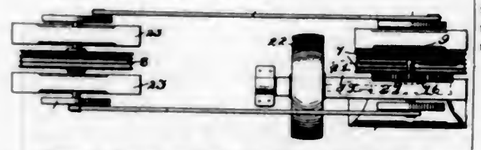


Claim.—1. In a truck, the combination of the side frames each comprising pedestals, a top and bottom chord secured to said pedestals, axle-boxes in the pedestals, inwardly-extending spring-caps formed integrally with the pedestals and located beneath the top chord, a tension member secured to said caps and top chord, a bolster-pedestal extending between the tension member and top chord, a plurality of equalizing-bars having their ends resting on the axle-boxes, and equalizing-springs extending between said equalizing-bars and spring-caps.

2. In a truck, the combination of the side frames each comprising pedestals, a top and bottom chord secured to said pedestals, axle-boxes in the pedestals, inwardly-extending spring-caps formed integrally with the pedestals and located beneath the top chord, and a tension member secured to said caps and top chord, a bolster-pedestal extending between the tension member and top chord, a plurality of equalizing-bars having their ends disposed substantially vertically located closely adjacent and resting on the axle-boxes, and equalizing-springs extending between said equalizing-bars and spring-caps closely adjacent the pedestals.

3. In a truck, the combination of the side frames, each comprising pedestals, a top and bottom chord secured to said pedestals, axle-boxes in the pedestals, inwardly-extending spring-caps formed integrally with the pedestals and located beneath the top chord, a tension member secured to said caps and top chord, a bolster-pedestal extending between the tension member and top chord, a plurality of equalizing-bars having their ends resting on the axle-boxes between said equalizing-bars and spring-caps, the lower chord being vertically disposed between the equalizing-bars and secured to the diagonal tension member and bolster-pedestal.

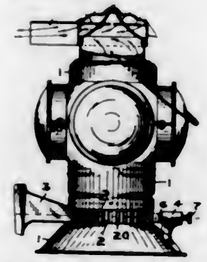
752,800. ELEVATOR. JOSEPH RICK, Chicago, Ill. Filed July 6 1903. Serial No. 164,267. (No model.)



Claim.—1. In an elevator, the combination of two driving-drums arranged at a wide distance apart, two cranks connected with each of said drums, connecting-rods connecting the cranks on one drum with the cranks of the other, a motor geared to one of said drums, a sheave journaled above and close to the top of one of said drums, a car, a cable having one end secured to said car and passing upwardly and thence downwardly and under said sheave, then over and around the outer side of the farther one of said drums and thence under and around the opposite side of the other of said drums and from the latter upwardly and finally downwardly, and a counterweight attached to the other end of said cable.

2. In an elevator, the combination of two driving-drums arranged in the same vertical plane on parallel axes, means for driving one of said drums positively, a pair of cranks connected with each of said drums, connecting-rods connecting the cranks of one of said drums with those of the other, an idler journaled above one of said drums with its outer side contiguous to the outer side of that drum, a cable passing downwardly and under said idler and thence horizontally to the top of and around the outer side of the farther one of said drums, thence under and around the other of said drums and upwardly therefrom, the said downward and upward portions of said cable extending lengthwise of each other, a car attached to one end of said cable and a counterweight to the other end.

752,801. AUTOMATIC WIND-BREAK FOR TRAIN-MARKERS. ELTON M. RIFE, Indianapolis, Ind. Filed Apr. 17, 1903. Serial No. 153,045. (No model.)



Claim.—1. In a train-marker, the body, a slot-carrying cap pivotally secured to the body and forming the top therefor, the cap having a draft-exit the walls of which extend outward and away from the periphery of the cap which provides the means for shifting the cap.

2. In a train-marker, the body, a slot-carrying cap pivotally secured to the body and forming the top therefor, an integral flange on the cap which terminates in wings which form the draft-exit for the marker.

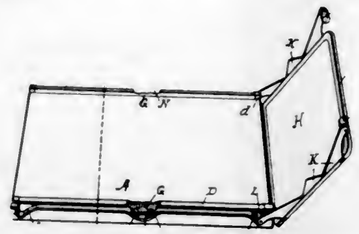
3. In a train-marker, the body, a flanged cap pivotally secured to the body and carrying a series of air-inlet slots and an extended draft-exit as and for the purposes set forth.

752,802. DESK FOR HOTEL-REGISTERS. GEORGE P. ROSE, Jr., Dubuque, Iowa. Filed Dec. 10, 1902. Serial No. 134,710. (No model.)

Claim.—1. In a desk for hotel-registers, a base-board, guideways set on opposite sides of the base-board and formed with openings, and a show-case adapted to engage said guideways and travel therein and be removed through the openings in the guideways.

2. The combination of a base-board, a guideway permanently secured along each side of the base-board and each provided with a central opening, and a show-case provided with projections at each end adapted to engage the guideways through their openings and travel therein, whereby the show-case can be shifted from end to end of the base-board to rest on opposite pages of the register.

3. The combination of a base-board, a guideway attached to each side of the base-board and provided with an opening therein, a show-case adapted to be introduced into the guideways through the openings and travel in the guideways, and means for holding the show-case at an angle to the base-board when turned off from the register.



4. In a desk for hotel-registers, a base-board, a guideway permanently attached at each side of the base-board, a show-case adapted to be introduced into the guideways at its opposite ends, and be shifted from end to end of the base-board in the guideways, and means for permitting the show-case to be sustained upon the register.

5. In a desk for hotel-registers, a base-board, a guideway rigidly secured to each side of the base-board and provided with a central opening, a show-case adapted to be removably engaged in the guideways, and means for permitting the show-case to be disengaged from its contact with the guideways and turned off from the register.

6. In a desk for hotel-registers, a base-board, guideways consisting of tubes having a longitudinal slot in each tube, and a show-case provided with rollers at each corner and adapted to engage the slots in the guideways and travel therein.

7. In a desk for hotel-registers, a base-board, guideways each provided with an opening and secured on opposite sides of the base-board, and a show-case provided with projections adapted to engage the guideways through the openings, whereby the show-case is readily introduced in the guideways and removed therefrom.

8. In a desk for hotel-registers, a base-board provided with recesses in the opposite ends of said base-board, a guideway in each side of the base-board with recesses coincident to and adapted to enter the recesses in the base-board, a show-case, and projections upon said show-case adapted to travel in said guideways and to enter the recesses in the guideways, whereby the show-case may be sustained upon the open register.

9. In a desk for hotel-registers, a base-board provided with recesses in opposite ends of said base-board, a guideway formed with recesses coincident with the recesses in the base-board and set upon opposite sides of the base-board, and a show-case adapted to travel in said guideways and enter said recesses in the guideways.

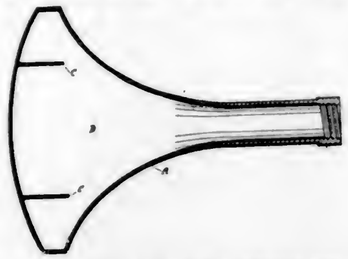
10. In a desk for hotel-registers, a base-board provided with recesses in opposite edges of said board, a guideway upon the opposite edges of said base-board having openings coincident with the recesses in the base-board, and formed with a central opening in each of the guideways, and a show-case adapted to engage the guideways through their central openings and rest upon the open register and be removed from the guideways.

11. In a desk for hotel-registers, a base-board, a guideway on opposite edges of the base-board and each provided with a central opening, and a show-case provided with rollers on each of the corners, adapted to be introduced into the guideways through said central openings and travel in the guideways and be removed therefrom.

12. In a desk for hotel-registers, a base-board, guideways consisting of tubes each having a longitudinal slot and closed at their ends and each provided with a central opening, and a show-case provided with projections adapted to engage said guideways through the opening and hold the show-case at an angle to the desk when it is turned off from the open register by the engagement of the projections on the show-case with the ends of the guideways and engagement of the show-case with the end of the base-board.

13. A desk for hotel-registers, consisting of a base-board provided with recesses in opposite edges of the base-board, a guideway at opposite edges of the base-board and formed with a central opening in each guideway and provided with openings in said guideways coincident with the recesses in said base-board, a show-case provided with rollers to travel in said guideways, and means for sustaining the show-case at an angle when it is turned off from the open register.

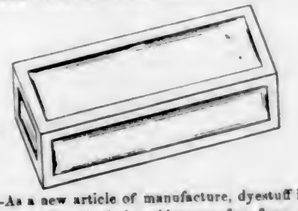
752,803. NOZZLE FOR SPRINKLERS. JOHN D. ROSS, Los Angeles, Cal. Filed July 30, 1903. Serial No. 167,628. (No model.)



Claim.—1. A lawn-sprinkler, having a perforated front face in shape the segment of a circle, a water-chamber in the rear of the front face, and partitions in said chamber extending rearwardly from the perforated front face into and terminating in said chamber.

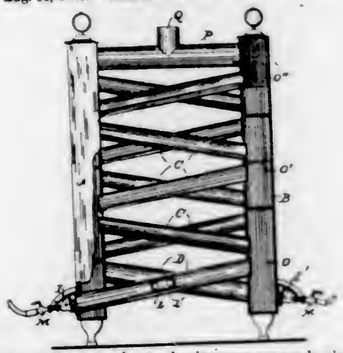
2. The herein-described lawn-sprinkler A having perforated front face B, chamber D with partitions C therein extending from the front face into the chamber substantially as herein shown and described.

752,804. DYESTUFF. GEORGE ROWLAND, Knoxville, Tenn., assignor to the Rowland Dye Soap Company, Knoxville, Tenn. Filed May 25, 1903. Serial No. 158,587. (No specimens.)



Claim.—As a new article of manufacture, dyestuff in the form of a hard cake readily soluble in cold water, free from other binding material or mordant and consisting of soap combined with anilin dye of a group requiring no acid or alkaline mordant, in the proportions substantially as specified.

752,805. GAS-HEATER. HENRY A. SCHMIDT, Milwaukee, Wis. Filed Aug. 10, 1903. Serial No. 169,055. (No model.)



Claim.—1. On a gas-heater having two perpendicular hollow posts connected together by zigzag pipes, partitions in said posts, and a cold-air pipe forming a part of the former, a suitable gas inlet and outlet substantially as set forth.

2. In a gas-heater, the combination of two posts arranged opposite to each other, vertical and lateral partitions in said posts forming chambers, a cold-air pipe forming a part of said partition, two series of conduit-pipes arranged in vertical zigzag form and forming inlet and outlet ports for said chambers, a suitable gas-inlet, means for mixing air with the gas and means for preventing the escape of gas, substantially as set forth.

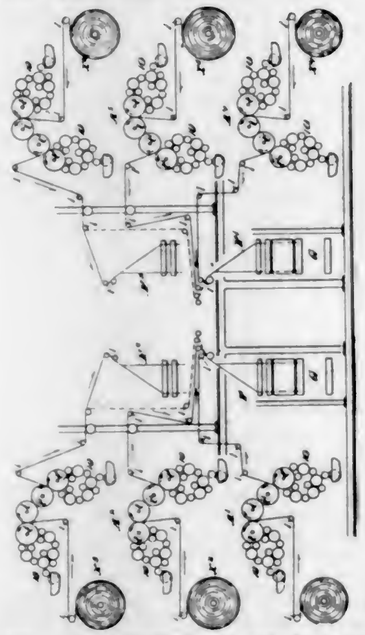
3. On a gas-heater having two opposite perpendicular posts, zigzag pipes and partitions arranged to form a continuous passage-way for hot air, and a cold-air pipe forming a part of said partition; means for mixing air with the gas and means for preventing the escape of gas substantially as set forth.

752,806. EGG-TESTER. PRESTON B. SOUTHWORTH, Hillsboro, Oreg. Filed Nov. 5, 1903. Serial No. 179,958. (No model.)



Claim.—An egg-tester, comprising a box or casing having egg-holding openings at the top thereof, an elongated sight-opening in rear of said egg-holding opening, a removable bottom, a mirror carried by said removable bottom, and a broad tapering sight-tube extending at an angle within the box from said sight-opening to a point in proximity to the mirror, substantially as described.

752,807. WEB-PRINTING MACHINE. WILLIAM SPALCKHAVER, Brooklyn, N. Y., assignor to Robert Hoe, New York, N. Y. Filed July 19, 1902. Serial No. 116,159. (No model.)



Claim.—1. The combination with a plurality of double-wide web-printing mechanisms at each end of a press arranged with their cylinders parallel and in line and with the printing mechanisms at the same end of the press arranged one above the other, of four folding and delivery mechanisms for each side of the double-wide press arranged in line with and between the printing mechanisms at the opposite ends of the press, two of said folding and delivery mechanisms for each side of the press being arranged between the lower printing mechanisms and the other two folding and delivery mechanisms for each side of the press being arranged above and in the same vertical planes transverse to the press with the lower folding and delivery mechanisms, and means for directing the webs from the folders at opposite sides of the press to their respective deliveries, or associating the webs on opposite sides of the press for delivery as a single product by one of the delivery mechanisms, or dividing them between two or more of the delivery mechanisms.

2. The combination with a plurality of double-wide web-printing mechanisms at each end of a press arranged with their cylinders parallel and in line and with the printing mechanisms at the same

end of the press arranged one above the other, of four folding and delivery mechanisms for each side of the double-wide press arranged in line with and between the printing mechanisms at the opposite ends of the press, two of said folding and delivery mechanisms for each side of the press being arranged between the lower printing mechanisms and the other two folding and delivery mechanisms for each side of the press being arranged above and in the same vertical planes transverse to the press with the lower folding and delivery mechanisms, and means for directing the webs from the folders at opposite sides of the press to their respective deliveries, or associating the webs on opposite sides of the press for delivery as a single product by one of the delivery mechanisms, or dividing them between two or more of the delivery mechanisms, one of the delivery mechanisms for combined products having a folding-cylinder and cutting-cylinder coacting therewith to sever sheets from a part of the webs and a second pair of cutting-cylinders arranged to sever sheets from the other part of the webs to be combined and to transfer the cut sheets to the folding-cylinder for folding with the sheets cut thereon.

3. The combination with a plurality of double-wide web-printing mechanisms at each end of the press arranged one above the other with their cylinders parallel and in line, of a plurality of folding and delivery mechanisms for each side of the double-wide press arranged in line with and between said printing mechanisms, two of said folding and delivery mechanisms being arranged between the lower printing mechanisms and two of said folding and delivery mechanisms being arranged above the lower folding and delivery mechanisms, and means for directing the webs from the folders at opposite sides of the press to their respective deliveries on their own side of the press, or associating the webs on opposite sides of the press for delivery as a single product by one of the delivery mechanisms, or dividing them between two or more of the delivery mechanisms.

4. The combination with a plurality of double-wide web-printing mechanisms arranged one above the other with their cylinders parallel and in line, of two folding and delivery mechanisms for each side of the double-wide press arranged in line with said printing mechanisms, two of said folding and delivery mechanisms being arranged opposite the lower printing mechanisms and the other two folding and delivery mechanisms being arranged above the lower folding and delivery mechanisms, and means for directing the webs from the folders at opposite sides of the press to their respective deliveries, or associating the webs on opposite sides of the press for delivery as a single product by one of the delivery mechanisms, or dividing them between two or more of the delivery mechanisms, one of the delivery mechanisms for combined products having a folding-cylinder and cutting-cylinder coacting therewith to sever sheets from a part of the webs and a second pair of cutting-cylinders arranged to sever sheets from the other part of the webs to be combined and to transfer the cut sheets to the folding-cylinder for folding with the sheets cut thereon.

5. The combination with a plurality of double-wide web-printing mechanisms at each end of a press arranged with their cylinders parallel and in line and with the printing mechanisms at the same end of the press arranged one above the other, of two folding and delivery mechanisms for each side of the double-wide press arranged in line with and between the lower printing mechanisms at the opposite ends of the press, and one or more folding and delivery mechanisms for each side of the double-wide press arranged above said lower folding and delivery mechanisms and in line with and between the printing mechanisms at the opposite ends of the press, and means for directing the webs from the folders at opposite sides of the press to their respective deliveries, or associating the webs on opposite sides of the press for delivery as a single product by one of the delivery mechanisms, or dividing them between two or more of the delivery mechanisms.

6. The combination with the lower folders F, F arranged side by side and their delivery mechanisms G, G, of folders F^2, F^2 arranged side by side above said folders F, F, and sheet cutting and delivery mechanisms G, G for said folders F^2, F^2 arranged above and on opposite sides of the delivery mechanisms for folders F, F, and below the tops of the folders F, F, substantially as described.

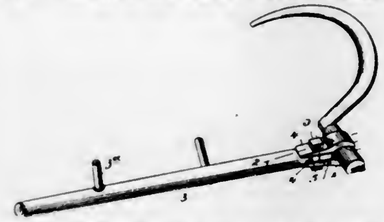
7. The combination with the lower folders F, F arranged side by side and their delivery mechanisms G, G, of folders F^2, F^2 arranged side by side above said folders F, F, sheet cutting and delivery mechanisms G, G for said folders F^2, F^2 arranged above and on opposite sides of the delivery mechanisms for folders F, F, and below the tops of the folders F, F and guides for directing the webs to a single delivery mechanism or dividing them among some or all of said mechanisms, substantially as described.

8. The combination with the lower folders F, F arranged side by side and their delivery mechanisms G, G, of folders F^2, F^2 arranged side by side above said folders F, F, delivery mechanisms G, G for said folders F^2, F^2 arranged above and on opposite sides of the delivery mechanisms for folders F, F, and below the tops of the folders F, F and guides for directing the webs to a single delivery mechanism or dividing them among some or all of said mechanisms, one of said delivery mechanisms for a combined product having a folding-cylinder and cutting-cylinder coacting therewith to sever sheets from a part of the webs and a second pair of cutting-cylinders arranged to sever sheets from the other part of the webs to be combined and to transfer the cut sheets to the folding-cylinder for folding with the sheets cut thereon, substantially as described.

9. The combination with the lower folder F and its delivery mechanism G, of folder F^2 above said folder F, sheet cutting and delivery mechanism G for said folder F^2 arranged above and on one side of the delivery mechanism for folder F and below the top of the folder F, and guides for directing the webs from the two folders to a single delivery mechanism, or dividing them between the delivery mechanisms, substantially as described.

10. The combination with the lower folders F, F arranged side by side and their delivery mechanisms G, G, of folder F^2 arranged above said folders F, F, cutting and delivery mechanism G for said folder F^2 arranged above and on one side of the delivery mechanisms for folders F, F and below the tops of folders F, F, and guides for directing the webs from the three folders to a single delivery mechanism or dividing them among some or all of said mechanisms, substantially as described.

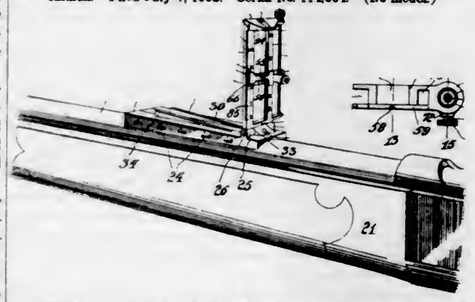
752,808. GRASS-HOOK. MATTHEW A. STEWART, New York, N. Y. Filed Jan. 15, 1903. Serial No. 139,119. (No model.)



Claim.—1. The combination of a grass-hook provided with a handle, a snath having a pair of jaws secured to its lower end and projecting therebeyond, the opposite projecting portions of said jaws being curved and provided with serrations or teeth to receive and grip firmly said handle, and means for detachably securing said jaws upon said handle whereby the snath may be adjusted to different positions with respect to the grass-hook, substantially as described.

2. The combination of a grass-hook provided with a handle, with a snath having a pair of jaws at one end to grip said handle, the inner portions of said jaws resting on opposite sides of the snath and being provided with flat faces to coact with corresponding faces of the snath to permit adjustment of the snath at angles with respect to said handle, and means for detachably holding said jaws upon said snath, substantially as described.

752,809. RIFLE-SIGHT. MURDOCK E. SUTHERLAND, Westville, Canada. Filed July 7, 1902. Serial No. 114,684. (No model.)



Claim.—1. A back sight for firearms comprising a pivoted leaf-plate having its central portion cut away to form a pair of parallel upstanding limbs, an integral sighting-bar having ends embracing said limbs and vertically adjustable thereon, said sighting-bar being

mounted on said limbs by being pushed down over the free ends thereof, and an independent cap-block connecting the free ends of said limbs.

2. A back sight for firearms comprising a pivoted leaf-plate having its central portion cut away to form a pair of parallel upstanding limbs, an integral sighting-bar having ends embracing said limbs and vertically adjustable thereon, said sighting-bar being mounted on said limbs by being pushed down over the free ends thereof, an independent cap-block connecting the free ends of said limbs, and dovetailed pins formed on the upper ends of said upstanding limbs and fitting in correspondingly-shaped recesses in said cap-block, said cap-block having a rearwardly-projecting lug and a pair of sighting-notches formed at right angles to each other in its upper and rearmost edges, whereby said block may be used as a sight when said plate is turned into either vertical or horizontal position.

3. A back sight for firearms comprising a pivotad leaf-plate having a pair of pivot-lugs at one side thereof, a tangent-screw rotatably mounted in said pivot-lugs and having a manually-adjustable milled head, a sighting-bar slidably mounted on said plate and having threaded connection with said screw, a scale formed on said leaf-plate against which said sighting-bar is adapted to be adjusted in elevation, said bar having a transverse sighting-notch therein, a horizontally-adjustable wind-gage slidably mounted on said sighting-bar, a horizontal scale on said sighting-bar against which said wind-gage is adapted to be adjusted, and a vernier-scale formed on said sighting-bar cooperating with said first-named scale.

4. In a back sight for firearms, the combination of a vertically-adjustable sighting-bar, a vertical tangent-screw, a cylindrical nut having threaded engagement with said tangent-screw, a perforated lug formed on said sighting-bar and embracing said tangent-screw and adapted to inclose said nut, and a set-screw adapted to clamp said sighting-bar to said nut.

5. In a back sight for firearms, the combination of an adjustable sighting-piece, a screw, a cylindrical nut mounted thereon and having a squared waist portion, a perforated lug on said sighting-piece surrounding said screw and into which said nut fits, a set-screw radially mounted in the center of said lug radial to said nut, a flattened foot formed on said set-screw of approximately the same width as the squared portion of said nut and coacting therewith and adapted to be withdrawn into a recess formed around the base of said set-screw on the interior of said lug, and a head formed on the outer end of said set-screw.

6. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, and means for clamping said sighting-bar to said nut.

7. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, means for clamping said sighting-bar to said nut, a rough-adjustment scale formed on the face of said leaf-plate, a fine-adjustment scale formed on the edge of said leaf-plate, and a vernier-scale cooperating with said fine-adjustment scale formed on the adjacent edge of said sighting-bar.

8. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its central portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, means for clamping said sighting-bar to said nut, said sighting-bar having a V-notch formed in its upper edge and a gouge formed behind said V-notch to thin the edge thereof, a wind-gage having overhanging flanges engaging in grooves in the upper and lower sides of said sighting-bar, and a transverse sighting-line formed on said wind-gage.

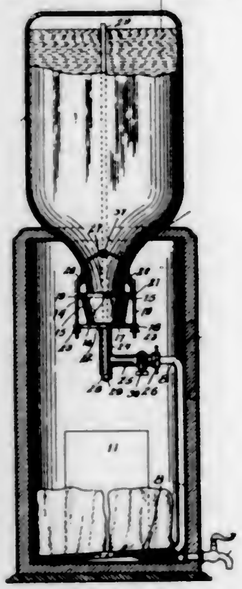
9. A back sight for firearms comprising a sight-bed, a leaf-plate pivoted at its rear end to said bed, said leaf-plate having its cental portion cut away to form two upstanding limbs, a pair of pivot-lugs projecting from one side of the leaf-plate, a tangent-screw rotatably mounted in said lugs and having a milled head, a nut mounted on said tangent-screw, a sighting-bar mounted to slide vertically on the limbs of said leaf-plate and having a lug adapted to embrace said nut, means for clamping said sighting-bar to said nut, a rough-adjustment scale formed on the face of said leaf-plate, a fine-adjustment scale formed on the edge of said leaf-plate, a vernier-scale cooperating with said fine-adjustment scale formed on the adjacent edge of said sighting-bar, said sighting-bar having a V-notch formed in its upper edge at the center thereof, a horizontal scale formed on said sighting-bar and having its zero-point at the center thereof, and a wind-gage having overhanging flanges engaging in grooves at the upper and lower sides of said sighting-bar so as to be horizontally adjustable thereon and having a white-metal transverse vertical sighting-line extending across the same on a dark background and adapted to be adjusted horizontally against said horizontal scale, substantially as described.

10. A leaf-sight for firearms comprising a pivoted plate having a central slot, a vertically-sliding sighting-bar transversely mounted across said slot, a vertical tangent-screw mounted at the side of said pivoted plate, a projecting lug at one side of the said sighting-bar embracing said tangent-screw, a horizontally-adjustable wind-gage mounted on said sighting-bar; and means on said projecting lug for securing a releasable threaded connection thereto of said tangent-screw.

11. A leaf-sight for firearms comprising a pivoted plate having a central slot, a vertically-sliding sighting-bar transversely mounted across said slot, a vertical tangent-screw mounted at the side of said pivoted plate, a projecting lug at one side of the said sighting-bar embracing said tangent-screw, a horizontally-adjustable wind-gage mounted on said sighting-bar, a threaded nut engaged with said screw, and means for releasably connecting said lug with said nut.

12. A back sight for firearms comprising a body-piece, a second piece mounted on said body-piece and vertically adjustable thereon, a scale formed on said first piece against which said second piece is adapted to be adjusted, a tangent-screw at the side of said first piece opposite to said scale, a projecting lug on said second piece embracing said tangent-screw, means for releasably clamping said lug to said screw whereby the second piece may be adjusted either by the screw or by a direct movement, a third or sighting piece carrying a sighting-mark adapted to slide horizontally on said second piece, and a horizontal scale marked on said second piece against which said third piece is adapted to be set.

752,810. WATER-COOLER. HENRY G. SWEENEY, Chicago, Ill.
Filed Feb. 20, 1903. Serial No. 144,191. (No model.)



Claim.—1. The combination with a cooler having an opening at its top adapted to receive the neck of the bottle, and a stationary cooling pipe or coil located within the cooler, of an inverted water-bottle and a water connection made adjustable at one end to fit the outside of the bottle and adapted to be inserted in the cooler with the bottle, and to be detachably joined to the cooling-pipe therein.

2. The combination with a cooler having an opening at its top adapted to receive the neck of the bottle, and a stationary cooling pipe or coil located within the cooler, of an inverted water-bottle and a water connection made adjustable at one end to fit the outside of the bottle and be held thereon and adapted to be inserted in the cooler with the bottle, and to be detachably joined to the cooling-pipe therein, said connection also embodying a valve to prevent the loss of water prior to the attachment to the cooling-pipe and a vent-pipe 29.

3. The combination with a cooler having an opening at its top adapted to receive the neck of the water-bottle and a cooling pipe or coil, of an inverted water-bottle and a water connection located wholly within the cooler and detachably connected both to the bottle and the cooling-pipe, said connection being adjustable to bottles of varying sizes.

4. The combination with a water-cooler, of an inverted water-bottle and a water connection for connecting the bottle to the cooler-pipe of the cooler, said connection having an adjustable collar fitting the neck of the bottle and a device adjustably attached to said collar for closing the bottle.

5. The combination with a water-cooler, of an inverted water-bottle and a water connection for connecting the bottle to the cooler-pipe of the cooler, said connection embodying an adjustable collar grasping the neck of the bottle, and a plate for closing the bottle attached to said collar by adjustable rods.

752,811. WRENCH. CLARK W. THOMAS, Frazeysburg, Ohio
Filed July 8, 1903. Serial No. 164,707. (No model.)



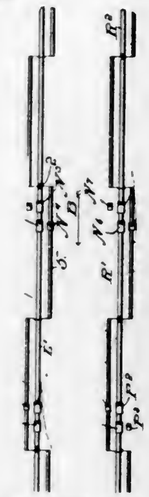
Claim.—1. In a wrench, the combination of a slide-frame comprising independent longitudinal compartments, a jaw of approximately elbow form having its shank inserted in one of said compartments and pivoted therein, a spring normally exerting an outward pressure upon the pivoted jaw, a handle-bar slidable in the other compartment and provided at its inner end with a jaw for cooperating with the said pivoted jaw, and a latch-lever pivoted to the slide-frame and adapted to make positive engagement with the said handle-bar to hold it in an adjusted position with reference to the slide-frame, substantially as set forth.

2. In a wrench, the combination of a slide-frame subdivided by a longitudinal partition into parallel longitudinal compartments, a jaw of approximately elbow form having its shank pivoted in one of said compartments, a spring located in the compartment with the pivoted shank and normally exerting an outward pressure thereon, a handle-bar slidably mounted in the other compartment and provided at its inner end with a jaw notched at its inner end to receive the shank of the pivoted jaw when the same moves inward to cause the jaws to mutually brace each other, and a latch-lever applied to the slide-frame for securing it and the handle-bar in a relative adjusted position, substantially as described.

3. In combination, a slide-frame having independent longitudinal compartments and having a recess in its lower edge, a jaw of approximately elbow form having its shank pivoted in one of said compartments, a handle-bar slidably mounted in the other compartment and provided at its inner end with a jaw having a notch to receive the shank of the pivoted jaw to enable the jaws to mutually brace each other, and a spring-actuated latch-lever pivoted in the recess of the slide-frame and having a projection at its inner end passed through an opening of the wall separating said recess from the adjacent longitudinal compartment so as to engage with the handle-bar and secure it and the slide-frame in a relative adjusted position, substantially as specified.

752,812. ELECTRIC BLOCK-SIGNAL SYSTEM. CHARLES W. S. TURNER, Mountville, Va. Filed Apr. 3, 1903. Serial No. 150,979. (No model.)

Claim.—1. In an electric block-signal system for railways, a rail divided by insulation into sections or blocks each of which constitutes an electrical conductor in combination with a second electrical conductor extending along the road-bed and running substantially parallel with the rail but crossing and recrossing the same at intervals corresponding with the ends and approximate center of each insulated rail-section or block and insulated from the rail at the points of crossing.



2. In an electric block-signal system for railways, a rail divided by insulation into sections or blocks each of which forms an electrical conductor, in combination with a second electrical conductor insulated therefrom and running substantially parallel therewith but crossing and recrossing the same at intervals.

3. In an electric signal system for railways, two electrical conductors one of which is continuous and the other composed of insulated sections, said conductors running substantially parallel but crossing and recrossing each other at intervals and insulated from each other at the points where they cross, in combination with a trolley comprising two sets of contacts which are alternately associated electrically with said conductors.

4. In an electric block-signal system for railways, two electrical conductors running substantially parallel but crossing and recrossing each other at intervals and insulated from each other at the points where they cross, in combination with a trolley comprising a plurality of contacts operating in line with the parallel portions of said conductors.

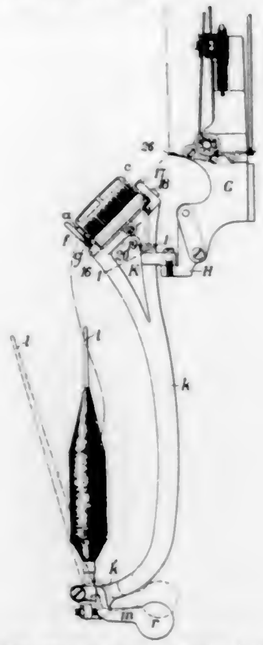
5. In an electric signal system for railways, two electrical conductors running substantially parallel but crossing and recrossing each other at intervals and insulated from each other at the points where they cross, in combination with a trolley comprising two sets of contacts which are alternately associated electrically with said conductors.

6. In an electric block-signal system for railways, two electrical conductors one formed by one of the rails and the other running substantially parallel therewith but crossing and recrossing the same so as to lie alternately on opposite sides thereof and insulated from each other at the points where they cross, in combination with a trolley comprising a plurality of contacts arranged in series which are alternately brought into electrical contact with the conductors.

7. In an electric block-signal system, the rails divided into insulated sections or blocks which break joint or overlap each other, and electrical conductors running substantially parallel therewith but crossing and recrossing the rails and insulated from the rails at the points where they cross, in combination with trolleys comprising independent sets of contacts which are alternately brought into operation so that the intermediate contacts engage the rail while the others alternately engage the outside and inside portions of the crossing conductor.

8. In an electric block-signal system, the rails divided into insulated sections or blocks which break joint or overlap each other, and electrical conductors running substantially parallel therewith but crossing and recrossing the rails and insulated from the rails at the points where they cross, in combination with trolleys comprising four contacts, two of which engage the track-rail and the other two the outside and inside portions of the crossing conductors.

752,813. YARN-CONTROLLER. SIMON W. WARDWELL, Providence, R. I. Filed Dec. 5, 1901. Serial No. 34,825. (No model.)



Claim.—1. The combination with a stopping device for textile-machines in which a drop-wire is sustained by the yarn passing through it, of a detector through which the yarn first passes, and which is adapted to be moved by the engagement therewith of a slub, and means actuated by the detector to relieve the sustaining effect of the yarn, to cause said drop-wire to act to effect the stopping of the machine, and allow the slub to pass by the detector without breaking the yarn.

2. The combination with a stop-motion drop-wire which, when dropped, causes the stopping of the machine and which is sustained and withheld from effecting said stopping by the yarn passing through it, of a detector adapted to be engaged and moved by a slub to cause the drop-wire to fall and effect the stopping of the machine without breaking the yarn.

3. The combination with a stop-motion drop-wire which, when dropped, effects the stopping of the machine, but which is sustained and withheld from thus effecting the stopping by the tension of the yarn passing through it, of devices for applying and controlling the yarn tension and a detector through which the yarn is drawn and which is adapted to be engaged and moved by a slub to release the tension on the yarn, and effect the stopping of the machine without breakage of the yarn, by permitting the drop-wire to fall.

4. The combination with the drop-wire of a stopping device for textile-machines which, when dropped, effects the stopping of the machine but which, during the operation of the machine, is sustained and withheld from effecting such stopping by the tension of the yarn passing through it, of devices for applying and controlling said tension, comprising two members pressed together by suitable means, a detector through which the yarn passes, adapted to be engaged by a slub and rocked thereby to engage and separate the two tension members to release the tension on the yarn and permit the drop-wire to fall to effect the stopping of the machine without breaking the yarn.

5. The combination with the drop-wire of a stop-motion device for textile-machines, of yarn-controlling devices, comprising two tension members pressed together upon the yarn, a guide through which the yarn is drawn into the tension members, of a slotted plate intermediate the guide and the tension members, having a projection of substantially triangular shape, so formed that, when the plate is rocked by a slub, the said extension enters between the members aforesaid and separates them to relieve the yarn of its tension, and when the slub has passed the detector, the latter is returned to its normal position by the reclosing of said members.

6. The combination of a yarn-controlling device of two members adapted to be pressed together to put tension on the yarn, of a swinging slotted plate adapted to be moved by a slub to engage and separate said members to relieve the yarn of its tension in the manner and for the purposes substantially as described.

7. The combination in a yarn-controlling device having two tension members adapted to be pressed toward each other, of a guide mounted on two legs adjacent the tensions, with a swinging plate, mounted between said legs on a pin passing through the legs, having a narrow slot of just sufficient width to be engaged by a slub to be rocked and caused to engage and separate said tension members, to release the tension on the yarn.

8. The combination with the stop-motion drop-wire 26 of two yarn-tension members *c* and *d*, one fixed, the other mounted to be swung and pressed against the fixed member, and both so flared at their outer edges as to form a guide to direct the yarn to its proper position between the members, a swinging slub-detector *a*, formed with a projection 12 to engage the movable tension, whereby when the slub-detector is rocked toward the tension members, the movable member is separated from the fixed one, and when the movable member is swung toward the fixed member, the slub-detector is returned to its normal position.

9. The combination with a stop-motion drop-wire 26, of two tension members, one, *d*, fixed, and the other, *c*, mounted to be swung and pressed against the fixed member, and both formed to diverge from each other at their outer edges, to serve as a guide for the yarn in threading, a guide *f* through and over which the yarn passes as it enters the tensions, a swinging slotted slub-detector *a* mounted to normally stand against the guide *f*, and with a projection 12 engaging the swinging tension member whereby, when the slub-detector is rocked, the swinging tension member *c* is separated from the fixed tension member *d* in the manner and for the purpose substantially as described.

10. A yarn-controller comprising two tension members of grid form, with the bars of one member alternating with the bars of the other, and with a thread-groove cut transversely across the bars of one or both members.

11. A yarn-controller comprising two tension members, each having a portion of grid form and a curved guide portion, one member fixed and the other movable to and from the fixed member, and having an arm by which it is swung toward the fixed member, and one or both members having a thread-groove cut transversely across the bars of the grid portion.

12. A movable tension member for a yarn-controller comprising in one piece a flat grid portion, two ears turned at right angles to said grid portion, having holes to receive a rod and so formed that the axis of the rod lies in the plane of the face of said grid portion, a guide portion curved backward from the face of said grid portion, and an arm to which weight is applied to actuate the tension substantially as described.

13. A fixed tension member for a yarn-controller comprising in one piece, a flat grid portion, two ears turned at right angles to said grid portion, having holes to receive a rod and so formed that the axis of the rod lies in the plane of the face of said grid portion, a guide portion curved backward from the face of said grid portion, and an ear whereby the member is secured from turning on said rod, substantially as described.

14. In a yarn-controller, the combination with the drop-wire of a stop-motion mechanism having an eye or guide through which the yarn passes, of a bracket mounted to be swung about an axis in line with the eye of said drop-wire, separable tensions mounted on the top of the bracket, and a tilting supply-holding device mounted at the bottom of the bracket.

15. In a yarn-controller, the combination with the drop-wire of a stop-motion mechanism having an eye or guide through which the yarn passes, of a bracket mounted to swing on an axis that is in line with the eye of the drop-wire, separable tension members mounted on the top of the bracket, a guide through which the yarn is conducted to the tensions, a detector between the guide and the tensions adapted to be engaged by a slub to open the tensions, and to be rocked to allow the slub to pass on, and after it has passed, then to be returned to its normal position by the reaction of the tension members, and a counterweighted supply-holding device mounted at the bottom of said bracket, substantially as described.

16. A bracket K for a yarn-controller, adapted to be swung about a substantially vertical axis, bearings at the top for tension and guiding devices, a depending arm curved forward at its bottom and having its extremity *k'* offset, and at said extremity, a bearing for the stud *n* and an ear for an adjustable stop-screw *p*, a supply-holder *m* mounted to be rocked on said stud, having a face *q* opposed to the stop-screw *p*, and a counterweight portion *r* to hold the face *q* against said stop-screw, and a supply-holding spindle *l* secured in said supply-holder, substantially as described.

17. The combination with the bracket K for a yarn-controller, having bearings at its top for separable tension members and yarn-guiding devices, and a depending arm having its extremity *k'* offset, and at said extremity an ear *o*, a stop-screw *p* in said ear, a bearing for a stud *n*, a counterweighted supply-holder *m* mounted on the stud and susceptible of being rocked but limited in its movement in one direction by the contact of the counterweight portion *r* with the arm *k* of the bracket K, and in the other direction by its contact with the adjustable stop-screw *p*, and a spindle *l* adapted to be adjusted in its alinement with the entrance to the tensions by said stop-screw.

18. A yarn-controlling device, comprising with a bracket K having at its top two projections, 16 and 17, and at its bottom a depending arm *k*, a rod 18 mounted in the two projections and, mounted on said rod, two separable tension members *c* and *d*, each having a portion of grid form, with the bars of one member alternating with those of the other, and a thread-groove cut transversely across the bars of one or both members and means for pressing the two members together, a guide *f* mounted in the projection 16, with the eye of said guide and the top of the projection 17 in line with the thread-groove in the bars of the tension members, a counterweighted supply-holder *m* pivotally mounted at the bottom of the arm *k*, a spindle *l* in said holder to retain the yarn-supply, and a stop-screw *p* to limit the movement of the supply-holder and aline its spindle with the entrance to the tension members, substantially as described.

19. A slub-detector for a yarn-controller, having two ears 10, 10, a slot 11, and a substantially triangularly shaped projection 12.

20. A slub-detector for a yarn-controller, with two separable tension members, having two ears, 10, 10, a slot 11, and a projection 12, so formed that, when the detector is moved toward the two members, the projection 12 enters between and separates them, and, when the two members of the controller are brought together, the detector is returned to its normal position.

21. A slub-detector for a yarn-controller, having two ears, 10, 10, a yarn-slot 11, with flared opening to readily receive the yarn, and a projection 12 to engage the separable members of a yarn-controlling device, so formed that when the detector is rocked by engagement with a slub, it opens said separable members, and when the slub has passed the detector, the reclosing of said members forces the detector back to its normal position.

22. A slub-detector for a yarn-controller, having two ears 10, 10, a yarn-slot 11, with flared opening to readily receive the yarn, a projection 12 formed at an angle with the body of the detector, and having an extremity 13 formed at substantially right angles to the body of the detector, and adapted to enter between the two members of a yarn-controlling device, to engage the inclined portion 12 in the manner and for the purpose, substantially as described.

23. The combination in a yarn-controlling device of two tension members, each comprising in one piece parallel lateral bars and portions whereby the member is pivotally mounted, and in such manner that the bars of one member alternate those of the other, and means to yieldingly press a running thread between said bars to sinuate the path of the yarn as described.

24. The combination in a yarn-controlling device, of two tension members each comprising in one piece, parallel lateral bars, with a thread-groove cut transversely across them, portions whereby the member is pivotally mounted and in such relation to its mate that the bars of one member alternate with those of the other, and means whereby the members are so pressed together that a thread running through the thread-groove of the bars is diverted from its straight course to follow a sinuous path of travel.

25. The combination with the stop device of a textile-machine, and with the drop-wire thereof supported by the thread, of a tension device, and a detector adapted to be moved by engagement with a slub, and constructed to actuate the tension device to thereby relieve the tension, substantially as described.

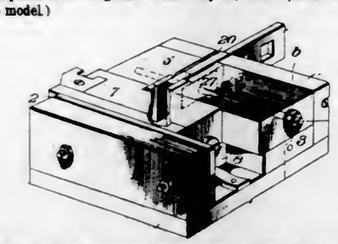
26. The combination with two separable tension members, of a detector adapted to be moved by the engagement of a slub therewith, thereby to cause the separation of the tension members.

27. A slub-detector, constructed for pivotal connection and provided with a thread-groove and projection for actuating a tension device, substantially as described.

28. The combination in a yarn-controlling device, of two tension members each comprising in one piece parallel lateral bars, with a thread-groove cut transversely across them, portions whereby the member is pivotally mounted and in such relation to its mate that the bars of one member alternate with those of the other, and means whereby the members are so pressed together that a thread running through the thread-groove of the bars is diverted from its straight course to follow a sinuous path of travel.

29. A yarn-controller, comprising two members pressed yieldingly toward each other, each having portions which alternate and cooperate with similar portions on the other, to sinuate the yarn as it travels between the members, said portions of one or both members having formed across them a groove or guideway for the yarn.

752,814. TYPE-MOLD. JOHN S. BANCROFT, Philadelphia, Pa., assignor to Lanston Monotype Machine Company, Philadelphia, Pa., a Corporation of Virginia. Filed May 29, 1903. Serial No. 159,363. (No model.)



Claim.—1. In a type-mold such as described the combination with the side blocks and cross-blade, of a mold-blade provided with a central longitudinal opening and a brace extending through said opening and engaging the side blocks; substantially as described.

2. In a type-mold the combination with the side blocks and mold-blade, the latter provided with a transverse opening, of a dimensioning-gage located within said opening in the mold-blade; substantially as described.

3. In a type-mold the combination with the stationary side blocks and a movable mold-blade, of a gage interposed between the side blocks and located within an opening in the mold-blade; substantially as described.

4. In a type-mold the combination with the side blocks of a movable mold-blade provided with a central longitudinal opening and a guide located within said opening and engaging the mold-blade, to hold the latter to its seat; substantially as described.

5. In a type-mold the combination with the side blocks and mold-blade, the latter provided with a transverse opening, of a dimensioning-gage located within said opening and contacting with the side blocks and the mold-blade; substantially as described.

6. In a type-mold the combination with the side blocks and apertured mold-blade, of a dimensioning-gage and mold-blade guide located within the opening in the mold-blade and engaging the side blocks, and means for adjusting said gage to contact with the mold-blade; substantially as described.

7. A type-mold such as described provided with side blocks; an apertured mold-blade; a dimensioning-gage interposed between the said blocks and located within the aperture in the mold-blade; and a bolt connecting the side blocks and extending through said gage provided with adjusting means for shifting said gage into contact with the mold-blade.

8. In a type-mold the combination with the side blocks, apertured movable mold-blade and supporting-block, of a dimensioning-gage extending transversely through the mold-blade and engaging the side blocks, and a bolt connecting the side blocks and extending through said gage; substantially as described.

9. The combination to form a type-mold such as described of the base-section, the intermediate block the side blocks adjustably secured to said intermediate block, the movable mold-blade, the alining-block adjustably secured to the side blocks, and adjusting devices intermediate the base-section and said alining-block for shifting the latter and side blocks, upon the base-section; substantially as described.

10. A type-mold such as described comprising a base-section, an alining bar or block, means for laterally adjusting said alining-bar upon the base-section, side blocks engaging said alining-bar, means for adjusting the side blocks longitudinally of said alining-bar, a dimensioning-gage intermediate the side blocks, and means for securing said elements rigidly in adjusted position.

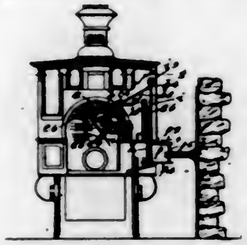
11. A type-mold such as described comprising a base-section provided with a plurality of seating projections or surfaces; an alining-bar; means for adjusting said alining-bar laterally upon the base-section; side blocks engaging the alining-bar provided with means for adjustment longitudinally of said bar; a dimensioning-

gage interposed between said side bars; mold-blade movable between the side blocks.

12. A type-mold such as described provided with a mold-cavity the casting-surface of which is slightly roughened as and for the purpose set forth.

13. In a type-mold such as described, the combination to form the mold-cavity, of a rough-faced side block, a smooth-faced side block, a rough-faced mold-blade, and a smooth-faced cross-blade or opposing wall.

752,815. SAFETY APPARATUS FOR LOCOMOTIVES. JOHN BARBERIE, Brooklyn, N. Y. Filed June 17, 1903. Serial No. 161,573. (No model.)



Claim.—1. A safety apparatus for locomotives, comprising a destructible member mounted beneath the cab of said locomotive, in a radially-movable frame consisting of a vertical pivoted rod, a top member secured to said rod and a bottom member loosely connected with said rod, said frame being radially movable in a horizontal plane and said bottom member thereof being radially movable in a vertical plane, said destructible member being in operative connection with the steam-supply and the air-brakes of said locomotive, substantially as shown and described.

2. A safety apparatus for locomotives comprising a frame, radially movable in a horizontal plane and consisting of a vertical rod, a top member secured thereto, a bottom member loosely mounted on said rod and radially movable in a vertical plane, a displaceable member held between said top and bottom members, said displaceable member being in operative connection with the steam-supply and the air-brakes of said locomotive and means for displacing said displaceable member placed adjacent to the rails upon which said locomotive moves, substantially as shown and described.

3. A safety apparatus for locomotives, comprising a frame movable radially in a horizontal plane, a cylinder mounted in the cab of said locomotive, a piston in said cylinder and a piston-rod connected therewith, a pipe connecting the steam-supply with said cylinder on one side of said piston, a pipe connecting said steam-supply with the other side of said piston, a valve in each of said pipes, a bevel gear-wheel on the top of the pivoted member of said frame, a horizontally-arranged rod in said cab, a bevel gear-wheel on said rod and in operative connection with said first-named gear-wheel and a crank-lever connecting said piston-rod with said horizontally-arranged rod, substantially as shown and described.

4. In a safety apparatus of the class described, a cylinder mounted in the cab of a locomotive, a pipe connecting the rear end of said cylinder with the steam-supply of said locomotive, a valve in said pipe, a supplemental pipe connected with said cylinder and centrally thereof, a valve in the end of said supplemental pipe in operative connection with the air-brakes of said locomotive, a frame mounted beneath the cab of said locomotive, said frame comprising a pivotally-mounted vertical rod, a top member secured to said vertical rod, a bottom member loosely mounted on said vertical rod, a destructible member held between said top and bottom members, a spring-operated rod in connection with said valve and also in operative connection with the inner end of said bottom member, said bottom member being radially movable in a vertical plane and means for destroying said destructible member and thereby operating said spring-operated rod and said valve, substantially as shown and described.

5. A safety apparatus for locomotives, comprising a frame mounted beneath the cab of said locomotive, a displaceable member mounted in said frame, said frame consisting of a vertical pivot member, a top member fixed to said vertical member and a bottom member loosely mounted on said vertical member, a cylinder in the cab of said locomotive and provided with a piston and piston-rod connected therewith, said piston-rod being also in operative connection with said vertical pivot member of said frame, steam-supply pipes in connection with said cylinder on each side of said piston, a valve in each of said steam-supply pipes, a supplemental cylinder in said cab, a piston and piston-rod thereon adapted to operate upon the throttle of said locomotive, a steam-supply pipe connected with said supplemental cylinder, a valve in said last-named supply-pipe in operative connection with said loosely-mounted member, a supplemental pipe connecting said supplemental cylinder with the air-brakes of said locomotive and means for displacing said displaceable member, substantially as shown and described.

6. A safety apparatus for locomotives, comprising a frame radially movable in a horizontal plane and consisting of a vertical pivot member, a top member secured thereto, a loosely-mounted bottom member radially movable in a vertical plane, a cylinder in said locomotive and provided with a piston and piston-rod therefor, a throttle, a pin on said throttle, a casing about said piston-rod, an opening through said casing and said piston-rod through which said pin is adapted to pass when said piston-rod is in one position, said pin and throttle being stopped by said piston-rod when in its other position, steam-supply pipes and valves therefor in said cylinder on each side of said piston, said piston-rod being in operative connection with said vertical pivot member of said frame and adapted to swing the same in a horizontal plane, a supplemental cylinder in said locomotive, a steam-supply pipe therefor, a valve in said last-named supply-pipe, a vertically-movable spring-operated rod in operative connection with said last-named valve and said bottom member of said frame, a displaceable member in said frame, the removal of which releases said bottom member and operates said spring-operated rod and valve connected therewith, a piston and piston-rod therefor in said supplemental cylinder, said piston-rod being adapted to bear against and close said throttle, a pipe in connection with said supplemental cylinder, a valve therein and in operation with the air-brake pipes of said locomotive, said valve when operated, being adapted to release the air from said pipes and set said brakes and adjustable means, adjacent to the rails upon which said locomotive moves, for displacing said displaceable member, substantially as shown and described.

7. In an apparatus of the class described, a movable frame, a displaceable member held therein and means for operating said frame, substantially as shown and described.

8. In a safety apparatus for locomotives provided with the usual boiler, engine, steam-supply pipes and throttle, a movable frame, a displaceable member in said frame and means for locking said throttle when said frame is in one position and for releasing said throttle when said frame is in its other position, substantially as shown and described.

9. In an apparatus of the class described, a radially-movable frame one of the members of which is radially movable in the plane of said frame, a displaceable member in said frame and serving to hold said radially-movable member in position, substantially as shown and described.

10. In a safety apparatus for locomotives provided with the usual boiler, engine, steam-supply pipes and throttle, a radially-movable frame, one of the members of which is radially movable in the plane of said frame, a displaceable member in said frame and serving to hold said radially-movable member in position, devices connecting said radially-movable member with said steam-supply pipes and means for displacing said displaceable member, substantially as shown and described.

11. In a safety apparatus for locomotives provided with the usual boiler, engine, steam-supply pipes and throttle, a movable frame, a cylinder adjacent to said throttle, a piston and piston-rod in said cylinder, said piston-rod being in operative connection with said frame, devices for locking said piston-rod by means of said throttle when said throttle is open and means for locking said throttle in a closed position when said piston and piston-rod are operated, substantially as shown and described.

12. In an apparatus of the class described for locomotives provided with the usual boiler, engine, steam-supply pipes and throttle, a cylinder, a piston in said cylinder, a piston-rod connected therewith, a supplemental steam-supply pipe connected with said cylinder on each side of said piston, a casing about said piston-rod, a pin on said throttle and passing into said casing and through said piston-rod when in its normal position, and means for preventing said pin from passing through said piston-rod when in its other position, substantially as shown and described

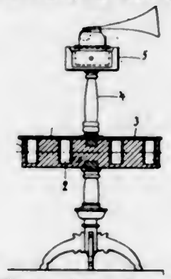
13. In a safety apparatus for locomotives provided with the usual throttle and steam-supply pipes, a movable frame, a radially-movable member in said frame, a displaceable member in said frame serving to hold said radially-movable member in position, devices connected with said radially-movable member for closing said throttle when said displaceable member is removed and means for locking said throttle when said frame is moved from its normal position, substantially as shown and described.

752,816. MANUFACTURE OF JEWELRY. ERNEST P. BENNETT, Colorado Springs, Colo. Filed Apr. 9, 1903. Serial No. 151,828. (No model.)



Claim.—The herein-described process of producing an imitation nugget, which consists in reducing metal or a mixture of metals to a molten state, and dropping the same while still in a molten state upon an unconfined mass of material reduced to small pieces, whereby the whole of the exterior of the metal is caused to assume a form simulating a natural nugget.

752,817. PHONOGRAPH-TABLE. AUGUSTA A. BERGMAN, Stockholm, Sweden. Filed Mar. 3, 1903. Serial No. 145,917. (No model.)



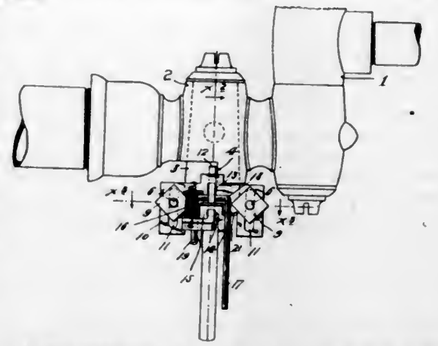
Claim.—1. In a phonograph-table, the combination with a heavy top 1 supported on a foot and provided with vertical recesses 2 having their walls lined with some soft material and serving to receive the cylinders belonging to a phonograph, of a thin covering-disk 3 located above the top 1 so as to cover the recesses 2 and which disk is horizontally rotatable about the center of the table and composed of three parts the two outer ones of which can be folded up, being for this purpose attached by means of hinges to the central part, for the purpose set forth.

2. In a phonograph-table, the combination with a heavy top 1 supported on a foot and provided with vertical recesses 2 having their walls lined with some soft material, and serving to receive the cylinders belonging to a phonograph, of a thin covering-disk 3 located above the top 1 so as to cover the recesses 2 and which disk is horizontally rotatable about the center of the table and composed of three parts the two outer ones of which can be folded up, being for this purpose attached by means of hinges to the central part, and a smaller shelf 5 provided with drawers, said shelf being intended for carrying the phonograph and having a foot consisting of a central post 4 ascending from the heavy top 1 and about which the thin covering-disk 3 is rotatable, for the purpose set forth.

3. In a phonograph-table, the combination with a heavy top 1 supported on a foot and provided with vertical recesses 2 having their walls lined with some soft material, and serving to receive the cylinders belonging to a phonograph, of a thin covering-disk 3 located above the top 1 so as to cover the recesses 2 and which disk is horizontally rotatable about the center of the table and composed of three parts the two outer ones of which can be folded up, being for this purpose attached by means of hinges to the central part, and a smaller shelf 5 provided with drawers, said shelf being intended for carrying the phonograph and having a foot consisting of a central post 4 ascending from the heavy top 1 and about which the thin covering-disk 3 is rotatable, and a frame 6 removably let into the smaller shelf 5 and in which the base-plate of the phonograph is deposited, for the purpose set forth.

752,818. GAS-VALVE LOCK. ROYAL L. BOULTER, East Spokane, Wash. Filed Oct. 6, 1903. Serial No. 175,922. (No model.)

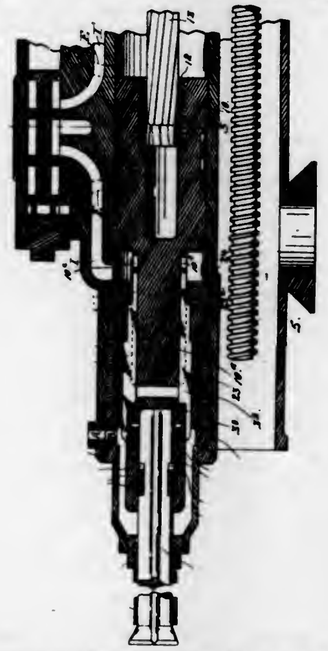
Claim.—1. The combination with a valve-casing having the stop-shoulders 4, of a valve 3 seated in said casing and having the stop-lug 5 cooperating with said shoulders 4 to limit the movements of said valve, and a lock applied to said valve and having a lock-bolt working at a point diametrically opposite to said stop-lug 5 and cooperating with the said shoulders 4 and said lug 5 to lock said valve in either of two extreme positions, substantially as described.



2. The combination with a valve and a valve-casing, of a lock detachably securable to said valve and comprising the separable support, a spring-pressed lock member, and a finger-actuated plunger-releasing lever, substantially as described.

3. A lock for a valve comprising the yoke 6, the notched clamping-plate 7 having the sleeve through which the prongs of said yoke are passed, nuts on the threaded ends of said yoke, a bearing-plate adjustably held by said nuts, a spring-pressed lock-plunger mounted in the said bearing-plate, and a finger-actuated releasing-lever pivoted to said lock-plunger and fulcrumed on said bearing-plate, substantially as described.

752,819. ROCK-DRILLING MACHINE. SANFORD W. BROTHERS, Denver, Colo. Filed Feb. 24, 1903. Serial No. 144,889. (No model.)



Claim.—1. In a rock-drilling machine, the combination with the casing and a reciprocating piston therein, of a drill-holding chuck, and means for connecting the piston and chuck whereby they rotate together, but have independent longitudinal movement, said means comprising detachable keys mounted in seats formed in the chuck and engaging seats or grooves formed in the piston.

2. The combination with the casing, of a reciprocating piston, means for rotating the same, a drill-holding chuck, and detachable keys connecting the chuck and piston causing them to rotate in uni-

son, while allowing the two parts independent movement longitudinally.

3. The combination with the casing and drill-bit, of a hollow chuck open at both ends to receive the drill-bit and piston, respectively, a reciprocating piston entering the chuck from the rear and adapted to act on the drill-bit, and detachable longitudinally-disposed interlocking keys engaging seats formed in the adjacent parts of the chuck and piston, whereby the two parts are allowed independent longitudinal movement but caused to rotate in unison.

4. The combination with the casing, of a reciprocating piston having a reduced forward portion, a chuck open in the rear to receive the reduced part of the piston, the chuck being slotted to form a key-seat, and a detachable longitudinally-disposed key located in said seat, said key extending rearwardly from the chuck and engaging a longitudinal groove formed in the reduced part of the piston whereby the latter is allowed to reciprocate independently of the chuck, while the two key-connected parts are caused to rotate in unison.

5. The combination with a suitable casing and drill-bit, of a hollow open-ended chuck revolubly mounted in the casing, locked against rearward movement, and yieldingly retained in front, the drill-bit being inserted in the forward extremity of said chuck and secured to have a limited independent movement, and a reciprocating piston having a reduced forward extremity entering the chuck from the rear and acting on the drill-bit, and means for interlocking the piston and chuck to cause them to rotate in unison while they are allowed independent longitudinal movement, said means comprising detachable keys mounted in the chuck, extending rearwardly therefrom and engaging counterpart seats or grooves formed in the piston.

6. The combination with the casing, of a bushing located in its forward portion, the said bushing engaging a shoulder on the casing for locking the bushing against rearward movement, a sleeve inserted in the forward extremity of the casing for locking the bushing against forward movement, the rear extremity of the bushing having an interiorly-projecting collar, a hollow open chuck inserted in the front end of the casing and whose rear extremity is provided with a collar engaging the interiorly-projecting collar of the bushing, an elastic buffer surrounding the chuck within the bushing and located between the chuck-collar and the rear extremity of the sleeve, and a cap applied to the rear extremity of the drill-bit and occupying a counterbore formed in the chuck, the cap being arranged to receive the blows of the piston-hammer.

7. The combination with a casing, a drill-bit and a piston-hammer, of a drill-chuck open in front to receive the drill-bit and in the rear to receive the piston-hammer, and a cap applied to the rear extremity of the drill-bit and located in a counterbore formed in the chuck and relatively movable in the chuck.

8. The combination with the drill-bit, of an open-ended chuck adapted to receive the drill-bit in front, of means for connecting the drill-bit with the chuck to allow the bit a limited longitudinal movement, a cap located in the chuck and engaging the rear extremity of the drill-bit, a yielding buffer surrounding the drill-bit forward of the cap and engaging an interior shoulder formed around the chuck, and means connected with the chuck for locking the cap against rearward movement.

9. The combination with a drill-bit, of an open-ended chuck, means for locking the drill-bit in the chuck, and a loose cap located in the chuck and engaging the rear extremity of the drill-bit.

10. The combination with a drill-bit, of a chuck adapted to receive and hold the drill-bit, the latter being allowed a limited independent movement, an annular recess formed in the chuck around the drill-bit, a yielding buffer located in said recess, and a relatively movable cap located in the chuck and covering the rear extremity of the drill-bit, the said cap being located in the rear of the buffer and adapted to engage the latter before the drill-bit has reached the limit of independent movement permitted by the chuck.

11. The combination with a drill-bit and chuck, of a U-shaped device adapted to secure the drill-bit in the chuck, the latter having transverse slots to receive the arms of said device, and the drill-bit having recesses formed in its opposite sides, which recesses the arms of the fastening device engage, the arms of said device being constructed to yield when engaged by the rear shoulders of the recesses in the bit.

12. The combination with a drill-bit and chuck, of a U-shaped fastening device, having bifurcated arms to cause the said arms to yield, the drill-bit having recesses in its opposite sides, the chuck having openings to receive the arms of the folding device, which arms engage the recesses of the drill-bit, the length of the recesses being greater than the width of the arms located in the chuck and applied to the rear extremity of the drill-bit, and a buffer located in the chuck forward of said cap, the latter being arranged to engage the cap before the rear shoulders of the recesses engage the said arms of the fastening device.

13. A U-shaped device for fastening a drill-bit into its chuck, the arms of said device being bifurcated to cause them to yield for the purpose set forth.

14. The combination with the casing, the drill-bit and chuck, of means for connecting the drill-bit and chuck, a tube surrounding the bit, and a coupling interposed between the tube and casing and surrounding the means for connecting the drill-bit and chuck, one extremity of the coupling being detachably connected with the casing and the other extremity of the coupling detachably connected with the tube.

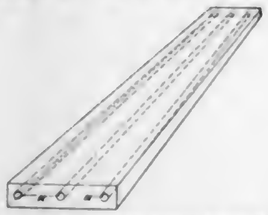
15. The combination with the casing and drill-bit, a chuck, and means for connecting the drill-bit with the chuck, of a tubular covering surrounding the bit, and a housing detachably connected with the casing and surrounding the means for connecting the chuck and drill-bit, the tubular cover being detachably connected with the housing.

16. The combination with the casing, the drill-bit, a tube surrounding the bit, a chuck, and means for connecting the drill-bit with the chuck, of a housing interposed between the tube and the casing, detachably connected with both and surrounding the means for connecting the drill-bit with the chuck.

17. In a rock-drilling machine, the combination with the casing, a tool-holder located in the casing and projecting therefrom, a tool or bit connected with the holder, and a tube surrounding the bit, of a housing interposed between the tube and casing and detachably connected with both, the said housing surrounding the portion of the tool-holder where the connection is made with the tool.

18. In a rock-drilling machine, the combination with the casing, a chuck located therein and projecting therefrom, a drill-bit, a detachable fastener connecting the bit with the chuck, and a tube surrounding the bit, of a housing interposed between the tube and casing and detachably connected with both by means of right and left screw-threads.

752,820. DYNAMO-BRUSH. MAX BÖHNIG, Gardelegen, Germany. Filed Oct. 5, 1903. Serial No. 175,837. (No model.)



Claim.—1. A brush for magneto-electric machines composed of metallic dust and coked tar.

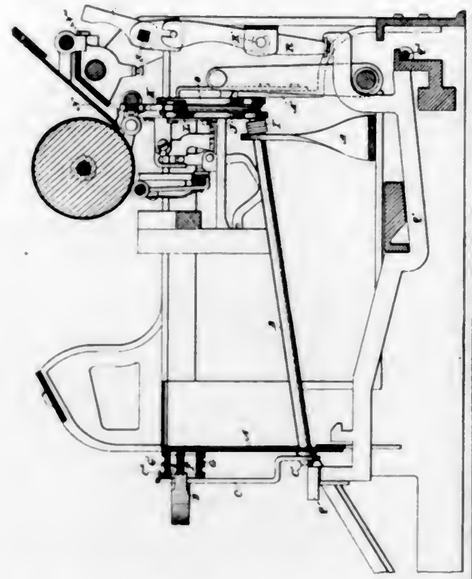
2. A brush for dynamo-electric machines consisting of a body portion composed of metallic dust and coked tar having incorporated therein a softer metallic filling.

3. A process of making brushes for electrical machines consisting of mixing a quantity of metallic dust and tar, pressing the mass into form and heating the same to a temperature for coking the tar.

4. A process for making brushes for electrical machines consisting of first mixing a quantity of metallic dust and tar till a granular mass is obtained, pressing the mass into form with openings therein, then heating the same to a point where the tar will be coked and allowing the form to cool and finally introducing a softer metallic filling into the openings of the body.

752,821. TABULATING DEVICE FOR TYPE-WRITING MACHINES. LEE S. BURRIDGE, New York, N. Y., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 18, 1902. Serial No. 90,307. (No model.)

Claim.—1. In a type-writing machine, the combination with two parts, viz: a carriage and a frame, of a spacing mechanism comprising an element movably mounted on one of said parts and capable of a variable throw, an indicator mounted on the same part so as to indicate the movement of said element irrespective of the position of the carriage on the frame at the beginning of such movement, and a coöperating element on the other part, said elements being arranged to engage each other and to give the carriage a movement the extent of which may be observed on the indicator and depends on the throw given to the movable element of said spacing mechanism.



2. In a type-writing machine, the combination, with an adjustable tabulating-stop arranged to arrest the carriage at a stated point in the printing direction, of a back-spacing mechanism provided with denominational indications.

3. In a type-writing machine, the combination with two main parts, viz: the frame and the carriage, of a tabulating-stop arranged to arrest the carriage at a stated point in the printing direction, and a back-spacing mechanism comprising an element movably mounted on one of said main parts, an indicator mounted on the same part so as to indicate the movement of said element irrespective of the position of the carriage on the frame at the beginning of such movement, and a coöperating element on the other part.

4. In a type-writing machine, the combination with two parts, viz: a carriage and a frame, one movable relatively to the other, of a feed mechanism comprising a loose dog, a back-spacing mechanism, and a locking mechanism operatively connected with the back-spacing mechanism, to lock the loose dog against movement lengthwise of the movable part when the back-spacing mechanism is operated.

5. In a type-writing machine, the combination with two parts, viz: a carriage and a frame, one movable relatively to the other, of a feed mechanism comprising a loose dog movable lengthwise of the movable part to bring about the feed movement thereof, a back-spacing mechanism, a locking mechanism normally out of the path of the loose dog, and an operative connection from the back-spacing mechanism to the locking mechanism to throw the latter into the path of the loose dog and thus prevent the latter from moving to the feed position.

6. In a type-writing machine, the combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a spacing mechanism comprising a rock-shaft mounted on one of said parts, an arm or link connected with said rock-shaft and carrying a dog to engage a coöperating member on the other part, and a guide for normally keeping said dog out of engagement with said coöperating member and for guiding it to said member during the active movement of the spacing mechanism.

7. In a type-writing machine having a tabulating-stop, two separately-operative mechanisms, one for causing the carriage to jump in the printing direction against said stop, and the other having a variable throw to move the carriage in the opposite direction one or more letter spaces, and means for indicating the denominational position of the carriage during the operation of the last-named mechanism.

8. The combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a tabulating-stop movably mounted on one of said parts and adapted to be projected so as to come into arresting contact with a coöperating stop on the other part, to arrest the movable part in its path in one direction, and a back-spacing device for moving the movable part with its stop away from contact with the stop on the other part and means to indicate the denominational position of the carriage relatively to the position at which it is arrested by the coöperation of the said stops.

9. The combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a tabulating-stop movably mounted on one of said parts and adapted to be projected so as to come into arresting contact with a coöperating stop on the other part, to arrest the movable part in its path in one direction, and a back-spacing device for moving the movable part in the opposite direction one or more letter-spaces so as to bring the said stops out of engagement and means to indicate the distance between the said stops.

10. The combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a spacing mechanism having a variable throw to move said movable part the distance of one or more letter-spaces at one stroke or throw of said spacing mechanism, and a touch-indicator connected with said mechanism to indicate the number of letter-spaces corresponding to each throw of the spacing mechanism.

11. The combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a spacing mechanism having a variable throw to move said movable part the distance of one or more letter-spaces at one stroke or throw of said spacing mechanism, and a touch-indicator connected with said mechanism to indicate the number of letter-spaces corresponding to each throw of the spacing mechanism, said touch mechanism comprising a finger and a toothed surface over which said finger is adapted to sweep.

12. The combination with two parts, viz: a carriage and a frame one of which is movable relatively to the other, of a spacing mechanism having a variable throw to move said movable part the distance of one or more letter-spaces at one stroke or throw of said spacing mechanism, and a touch-indicator connected with said mechanism to indicate the number of letter-spaces corresponding to each throw of the spacing mechanism, said touch mechanism comprising a toothed surface and a finger adapted to sweep over said surface and carried by the spacing mechanism, said finger being spring-pressed so that it will have a tendency to keep out of engagement with the rack.

13. The combination with two parts, viz: a carriage and a frame, one of which is movable relatively to the other, of a spacing mechanism having a variable throw to move said movable part the distance of one or more letter-spaces at one stroke or throw of said spacing mechanism, and a touch-indicator connected with said mechanism to indicate the number of letter-spaces corresponding to each throw of the spacing mechanism, said touch mechanism comprising a toothed surface, a spring-pressed finger carried by a part of the spacing mechanism and having a tendency to keep out of engagement with said toothed surface, and a projection or finger-hold located on that side of the frame toward which said spring-pressed finger moves during the active stroke of the spacing mechanism.

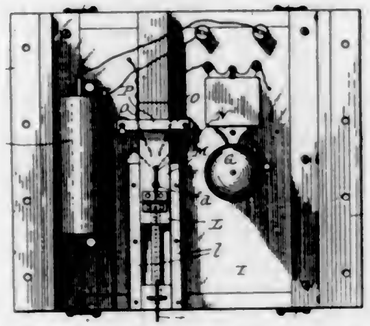
14. The combination of two parts, viz: a carriage and a frame, one movable relatively to the other, a spacing mechanism for feeding the movable part one or more letter-spaces at one throw of said mechanism, the latter comprising an operating member, and a projection or finger-hold located on that side of the frame toward which the said operating member moves during the active stroke of the spacing mechanism.

15. The combination of two parts, viz: a carriage and a frame, one movable relatively to the other, a spacing mechanism for feeding the movable part one or more letter-spaces at one throw of said mechanism, an index arranged to move with said spacing mechanism, and a relatively stationary indicator or scale coöperating with said index, said scale being adjustable to vary its indications.

16. The combination of two parts, viz: a carriage and a frame, one movable relatively to the other, a spacing mechanism for feeding the movable part one or more letter-spaces at one throw of said mechanism, an index arranged to move with said spacing mechanism, a relatively stationary indicator or scale coöperating with said index, and a support or guide upon which said scale is arranged to slide longitudinally for adjustment.

17. The combination of two parts, viz: a carriage and a frame, one movable relatively to the other, a spacing mechanism for feeding the movable part one or more letter-spaces at one throw of said mechanism, an index arranged to move with said spacing mechanism, a relatively stationary endless indicator or scale cooperating with said index, and a support or guide which is encircled by said scale and upon which the scale is arranged to slide lengthwise for adjustment.

752,822. ALARM-SIGNAL FOR RAILWAY-TRAINS. HUGH K. BUTLER and JOAB L. MCCOLLUM, Atlanta, Ga. Filed Nov. 12, 1903. Serial No. 180,364. (No model.)



Claim.—1. In a railway-train signaling apparatus, the combination with a circuit-controlling mechanism, an alarm included in said circuit and an operating-cord extending from said circuit-controlling apparatus forward over a series of cars of the train and secured at its forward end to one of the cars, of a detachable connection between said cord and circuit-controlling apparatus whereby upon the parting of the train the alarm-circuit is established and the rear end of the cord released; substantially as described.

2. In an alarm mechanism for indicating the parting of the cars of a railway-train, the combination with a series of cars, an operating-cord connected with one of said cars and extending rearwardly over the rear cars of the train, an alarm-circuit and circuit-controlling apparatus for said alarm-circuit with which the rear end of the cord is detachably connected; substantially as described.

3. In an alarm apparatus for indicating the parting of cars of a railway-train, the combination with an operating-cord extending forwardly over the several cars and connected with one of said cars at its forward end, of an alarm-circuit in the caboose at the rear end of the train, contacts for establishing said circuit and a slide interposed between said contacts and connected with the cord whereby upon the parting of the cars the slide will be drawn forward, the contacts released and the alarm-circuit established; substantially as described.

4. In a railway-train signaling apparatus the combination with an operating-cord extending forwardly over the several cars of the train and connected with one of said cars at its forward end, of an alarm mechanism located in the caboose at the rear of the train, a control therefor, to which the rear end of said cord is detachably secured, whereby upon the parting of the train said control will be released, the alarm mechanism operated and the cord detached; substantially as described.

5. In an alarm apparatus for indicating the parting of the cars of railway-trains, the combination with an alarm-circuit including a battery, alarm-bell and spring-contacts for establishing the circuit, of a slide having a projection interposed between said contacts, an operating-cord and a pivoted member on the slide with which said cord engages; substantially as described.

6. In an alarm apparatus for indicating the parting of the cars of a railway-train, the combination with the alarm-circuit including a bell, battery and contacts for establishing the circuit, of a slide having a projection interposed between said contacts, a hook on said slide, an operating-cord having an eye engaging said hook and means whereby upon the movement of the slide the contacts and cord will both be released; substantially as described.

7. In an apparatus of the character specified the combination with the alarm-circuit and spring-contacts for establishing said circuit, of the slide having the hinged member provided on its under side with a projection for separating the contacts and on its upper side with a hook, an operating-cord engaging said hook and a guide for holding the hinged member against pivotal movement until moved longitudinally a predetermined distance; substantially as described.

752,823. COMBINED CALIPERS, T-SQUARE, AND SCALE. HENRY B. CARY, Los Angeles, Cal. Filed Apr. 21, 1903. Serial No. 104,018. (No model.)



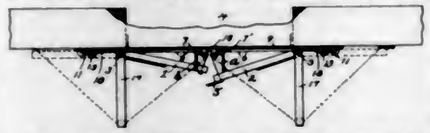
Claim.—In combination with the L-shaped members A, A', the loop or keeper B, secured to one of the members and adapted to receive either arm of the other member, and provided with one or more integral spring friction-tongues D, substantially as and for the purposes set forth.

752,824. ELECTRIC RAILWAY-SWITCH. HARRY H. CHANDLER, Waltham, Mass. Filed Oct. 24, 1903. Serial No. 178,408. (No model.)



Claim.—In an electric railway-switch device; an insulated section of track including a pair of switches; a switch-tongue adapted to be operated by an electromagnet; an electromagnet having hollow arms and plunger-armatures; an electric circuit connected to the said insulated section of track and adapted to energize said magnet and connect with the trolley device; substantially as and for the purpose set forth.

752,825. FIRE-DOOR-CLOSING DEVICE. HARVEY L. COCHRAN, Sheridanville, Pa. Filed Apr. 9, 1902. Serial No. 102,086. (No model.)



Claim.—1. In an automatic door-closer, the combination with a door, of a flexible connection attached to the door, permanently-positioned supports over which the flexible connection runs, means for keeping the flexible connection taut over said supports, normally inactive means adapted to engage the flexible connection between the supports to pull said connection therebetween and cause closing of the door, and means adapted to cause the action of the normally inactive means aforesaid.

2. In an automatic door-closer, the combination with a door, of a flexible connection attached to said door, permanently-positioned supports over which said flexible connection runs, means for holding the flexible connection taut on said supports, a weight adapted to engage the flexible connection between the supports aforesaid, and means for holding said weight normally inactive and for automatically causing the release thereof.

3. In an automatic door-closer, the combination with a door, of a flexible connection attached thereto, permanently-positioned supports over which said flexible connection runs, means for keeping the flexible connection taut on said supports, a weight adapted to engage the flexible connection between the supports aforesaid, means for sustaining said weight and normally preventing it from falling, and a fusible connection controlling said weight-supporting means.

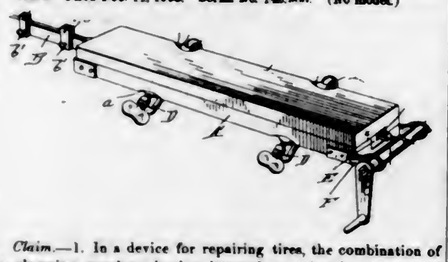
4. In an automatic door-closer, the combination with a door, of a flexible connection attached to the door, means for automatically operating said flexible connection to close the door, and a point of bearing from which the flexible connection is disengaged when the door is closed but over which the flexible connection is made to run when the door is opened which point of bearing is located beyond the face of the door in position to cause the flexible connection to exert a leverage on the door to tend to close the door.

5. In an automatic door-closer, the combination with a pair of doors, of means for automatically closing said doors, means engaging one of the doors when nearly closed and momentarily retaining it until the other door has closed, and means for thereafter releasing the retained door to permit closing thereof.

6. In an automatic door-closer, the combination with a pair of doors and means for automatically closing said doors, of a member engaging one of the doors when nearly closed and momentarily retaining said door, and a member engaged by the door first closing which releases the engagement of the first-mentioned member with the other door and permits said door to close, whereby the doors are closed one after the other.

7. In an automatic door-closer, the combination with a pair of doors and means for causing said doors to automatically close, of a two-armed hinged bracket, one of the members of which engages one of the doors and momentarily retains it until the other door has closed, the other member of said bracket being engaged by the door first closing to release the engagement of the bracket with the retained door.

752,826. TIRE-REPAIRER. CHARLES C. DESCHENES, Fall River, Mass. Filed Feb. 11, 1903. Serial No. 142,905. (No model.)

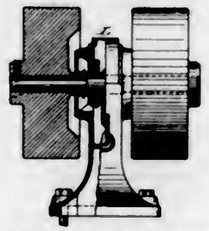


Claim.—1. In a device for repairing tires, the combination of two clamping members having internal opposing shoulders, and means for exerting a diagonal pressure upon said members.

2. In a device for repairing tires, the combination of two members having internal opposing shoulders, means for exerting a diagonal pressure on said clamping members, and means for withdrawing a wire from a tire clamped therebetween.

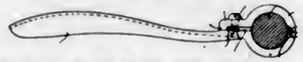
3. In a device for repairing tires, the combination of a tire-holding clamp, means for withdrawing a wire from a tire mounted upon one end of said tire-holding clamp, and a set of clamps mounted upon the opposite end of said tire-holding clamp, for holding the one end of a new wire against the end of that in a tire, while the same are brazed or welded together.

752,827. MEANS FOR TESTING LUBRICATING SUBSTANCES. GEORG DETTMAR, Frankfort-on-the-Main, Germany, assignor to Society of Electricitäts-Action-Gesellschaft, vorm. W. Lahmeyer & Co., Frankfort-on-the-Main, Germany. Filed Aug. 15, 1902. Serial No. 119,781. (No model.)



Claim.—An apparatus for testing lubricating substances, comprising a support having a single bearing, a shaft mounted in the bearing and projecting an equal distance from opposite sides thereof, and two fly-wheels of equal weight mounted on the shaft on opposite sides of said bearing, whereby a uniform distribution of the pressure on the bearing-surface is insured and the lubricant tested by the measure of friction, substantially as described.

752,828. CLAMP-HANDLE. WILLIAM P. DEVINE, Dorchester, Mass. Filed Mar. 27, 1903. Serial No. 149,838. (No model.)



Claim.—1. A device of the character described comprising a handle portion and a cap, a recess in each of said parts, a projection on said handle extending transversely thereacross and constructed to project into the recess in said cap, a projection on said cap extending transversely thereacross and constructed to project into the recess in said handle, and means to clamp said parts together and against a rod lying therebetween.

2. A device of the character described comprising a handle portion and a cap, a recess in each of said parts, a projection on said handle extending transversely thereacross and constructed to project into the recess in said cap, a projection on said cap extending transversely thereacross and constructed to project into the recess in said handle, and means to clamp said parts together and against a rod lying therebetween, said parts constructed to be disengaged one from the other by lateral displacement.

3. A device of the character described comprising a handle portion and a cap, each of said parts formed to extend substantially half-way around a rod lying therebetween, a recess in each of said parts, a projection on said handle extending transversely thereacross and constructed to project into the recess in said cap, a projection on said cap extending transversely thereacross and constructed to project into the recess in said handle, and means to clamp said parts together and against a rod lying therebetween.

4. A device of the character described comprising a handle portion and a cap, each of said parts formed to extend substantially half-way around a rod lying therebetween, a projection on each of said parts extending longitudinally of said rod, said projections constructed to interlock one with the other against displacement transversely of said rod and constructed to be disengaged one from the other by movement longitudinally of said rod, and means to clamp said parts together and against said rod.

5. A device of the character described comprising a handle portion and a cap, each of said parts formed to extend substantially half-way around a rod lying therebetween, a projection on each of said parts extending longitudinally of said rod, said projections constructed to interlock one with the other against displacement transversely of said rod and constructed to be disengaged one from the other by movement longitudinally of said rod, a clamping-flange upon said cap extending longitudinally of said rod and located upon the side thereof diametrically opposite said locking projections, and a clamp-screw joining said flange and handle and adapted to clamp said parts together and against said rod.

6. A device of the character described comprising a handle portion and a cap, each of said parts formed to extend substantially half-way around a rod lying therebetween, a projection on each of said parts extending longitudinally of said rod, said projections adapted to interlock one with the other against displacement transversely of said rod, a clamping-flange upon said cap extending longitudinally of said rod and located upon the side thereof diametrically opposite said locking projections, a bearing-flange on one of said parts lying between said clamping-flange and handle and providing a space therebetween adjacent to said rod, and a clamp-screw intermediate said bearing-flange and rod, joining said clamping-flange and handle together and adapted to clamp said parts together and against said rod.

752,829. SPINNING-MACHINE. LEON DUQUQUIER, Houdeng-Goegnies, Belgium. Filed May 10, 1902. Serial No. 106,810. (No model.)

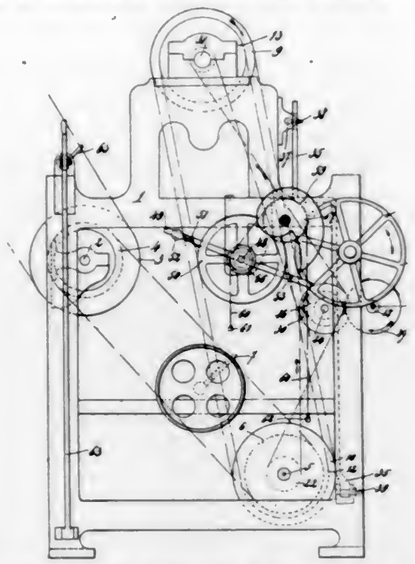
Claim.—1. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5 connected first with the flier 8 by means of equal belt-pulleys 9 and 10, and secondly with the bobbin 11 by means of conical belt-pulleys 12 and 13 inversely arranged, in order to regulate at will both the peculiar and the relative speed of the flier and bobbin and consequently the length of twists, substantially as described.

2. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5 connected with the flier 8 and with the bobbin 11, with suitable belt-pulleys 22, 23, 30, and 31, a differential gear 17 controlled thereby, the free axle of which makes one turn for each winding on the bobbin, substantially as described.

3. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5 connected with the flier and with the bobbin 11, and a differential gear 17, with a shaft 28 having a cross-threaded portion 29, a sleeve 32, an adjustable pin 33 on this sleeve entering a hole 34 of the lever 35, an oscillating lever 35, a movable rod 37, and a fork 40 engaging the bobbin for controlling the traverse of the same, substantially as described.

4. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5, conical belt-pulleys 12 and 13, the flier 8, the bobbin 11,

and a differential gear 17, with change-wheels 26 and 27, a shaft 28 having a cross-threaded portion 29, a sleeve 32, an adjustable pin 33 on this sleeve entering a hole 34 of the lever 35, an oscillating lever 35, a movable rod 37 and a fork 40 for controlling the traverse of the bobbin and for regulating the pitch of winding according to the thickness of the thread, substantially as described.

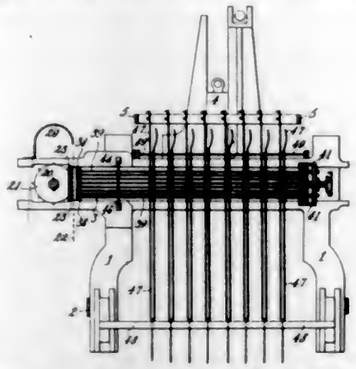


5. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5, the flier 8 and the bobbin 11, a differential gear 17, a shaft 28 having a cross-threaded portion 29, a sleeve 32, an adjustable pin 33 on this sleeve engaging a hole 34 of a lever 35, an oscillating lever 35, a movable rod 37, a fork 40 engaging the bobbin, with a pinion 45 keyed on the shaft 28 engaging a pinion 46, a pin 47, a lever 49, a counterweight 52, a pawl 51 engaging a toothed wheel 50, a shaft with a threaded portion 41 engaging a nut-fork 42, for shifting the band along the pulleys 12 and 13 and consequently regulating the retardation of the bobbin, after each layer of thread wound on it, substantially as described.

6. In spinning and like machines, the combination of a driving-shaft 2, conical drums 4 and 6, an adjustable belt-fork 7, a main shaft 5, the flier 8 and the bobbin 11, a differential gear 17, a shaft 28 having a cross-threaded portion 29, a sleeve 32, an adjustable pin 33 on this sleeve engaging a hole 34 of a lever 35, an oscillating lever 35, a movable rod 37, a fork 40 engaging the bobbin, a pinion 45 keyed on the shaft 28 engaging a pinion 46, a pin 47, a lever 49, a counterweight 52, a pawl 51 engaging a toothed wheel 50, a shaft 48 with a threaded portion 41 engaging a nut-fork 42, a mutable cam 59, chain-wheels 66 and 67, a chain 60 with counterweights 61 and 62, for theoretically shifting the band along the pulleys 12 and 13, and consequently regulating the retardation of the bobbin according to the thickness of the thread, after each layer of thread wound on the bobbin, substantially as described.

752,830. JACQUARD APPARATUS FOR LOOMS. CAMILLE M. EDOUARD and CHARLES SORLIN, Lyons, France. Filed Apr. 25, 1901. Serial No. 57,468. (No model.)

Claim.—1. In a jacquard apparatus adapted for the use of perforated paper, the combination with a knife-frame, of vertical slides fixed to said frame, inclines or cam-plates carried by said slides, pivoted elbow-levers actuated by said inclines, horizontal sliding pieces, means whereby the sliding of said pieces serves to move the needle plate or frame and the resetting-plate and also to bring the perforated paper against the needles so as to operate those that do not face perforations for detaching the corresponding hooks from their knives, the said sliding pieces being actuated by the lower parts of such elbow-levers, and means whereby the sliding of said pieces serves also to separate the paper from the needles again to allow of the forward feed of the paper, while at the same time it causes the needle-frame to be brought back to its original position and the resetting-plate to bring back the pushed needles, substantially as described.



2. In a jacquard apparatus adapted for the use of perforated paper, the combination with a knife-frame, of pivoted elbow-levers, means for causing the perforated paper to act upon the needles in the usual way, and a roll or equivalent appliance operatively connected to said knife-frame and arranged to act upon said elbow-levers so as to cause the perforated paper to act upon the needles a second time as the knife-frame descends, a plate for supporting the jacquard-hooks, bars on said knife-frame, and mechanism, operated by said bars as said knife-frame rises, to effect the lowering of said plate, substantially as described.

3. In a jacquard apparatus adapted for the use of perforated paper, the combination of a horizontally-sliding piece carrying a roller on each side of the mechanism, vertical slides having inclines on their lower parts arranged to act on said rollers, a matrix-plate, means whereby the action of said incline on said roller causes the matrix-plate, together with the perforated paper, to recede, and means whereby after such recession the needle-frame is also moved back to bring the needles back to their flush position and thereby to allow the paper to be freely fed forward by the feeding mechanism, substantially as described.

4. In a jacquard apparatus adapted for the use of perforated paper, the combination of a knife-frame, vertical bars fixed thereto, cranked shafts, a harness-plate supporting the hooks, and connecting-rods connecting said cranked shafts with said harness-plate, said cranked shafts and knife-frame being actuated by said vertical bars, substantially as described.

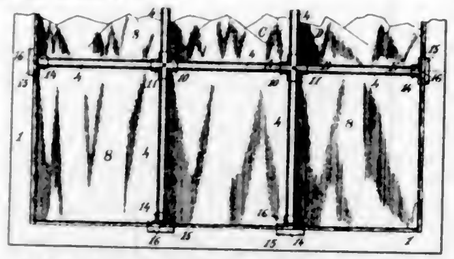
5. In a jacquard apparatus adapted for the use of perforated paper, the combination of horizontal needles, separate grooved pieces thereon, and jacquard-hooks engaged in said pieces, each of said needles being formed with a cylindrical end of small diameter and being flat at the point on which the said grooved piece is mounted so as to prevent said piece from turning, substantially as described.

6. In a jacquard apparatus adapted for the use of perforated paper, the combination of a sliding piece, a carriage carrying the matrix-plate, an adjustable connecting-piece connecting said sliding piece and carriage, and a finger on said connecting-piece adapted to bring back the needle-frame over the needles that have not been pushed back, substantially as described.

752,831. WINDOW-SASH. ISAIAH W. EMERSON, Milford, Mass. Filed May 6, 1903. Serial No. 155,943. (No model.)

Claim.—1. In a window-sash, muntins made in lengths substantially that of the dimensions of the pane of glass to be used in the sash, clamping-pieces placed upon the opposite sides of the sash at the meeting place of a plurality of muntins fitting the surface of the muntins and extending a short distance on each muntin from its meeting place with the other muntins, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntins in place.

2. In a window-sash, tubular muntins made in lengths substantially that of the dimensions of the pane of glass to be used in the sash, clamping-pieces placed upon the opposite sides of the sash at the meeting place of a plurality of muntins fitting the surface of the muntins and extending a short distance on each muntin from its meeting place with the other muntins, filling-pieces inserted within the meeting ends of the tubular muntins, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntins in place.

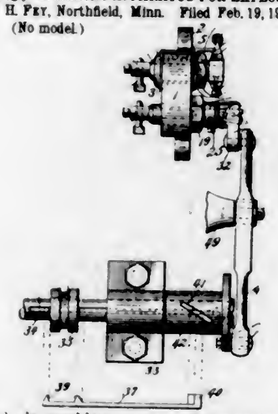


3. In a window-sash, the combination with the outer portion of the sash and a muntin having its end adjacent to the inner surface of the outer portion of the sash, of clamping-pieces on opposite sides of the sash fitting the surfaces of the muntin and the outer portion of the sash and extending a short distance upon the surfaces of said muntin and outer portion of the sash, and means to hold the clamping-pieces firmly in place against the opposite sides of the sash and the muntin and outer portion of the sash in proper relative positions.

4. In a window-sash, muntins divided longitudinally into two pieces thereby forming a groove for the reception of the glass, combined with clamping-pieces on the opposite sides of the sash at the meeting place of said muntin with another part of the sash, said clamping-pieces fitting the surface of said muntin and other part of the sash, and means to hold the clamping-pieces firmly against said parts of the sash and said parts firmly assembled.

5. In a window-sash, an outer portion or frame and muntins extending from one place to another place on said outer frame, combined with clamping-pieces covering the joint between said muntins and outer frame, said clamping-pieces fitting the surfaces of the muntin and outer frame, extending a short distance on both of said parts, projections on the clamping-pieces to enter recesses in the outer frame of the sash, and means to clamp and hold the clamping-pieces firmly against said parts and the part firmly assembled.

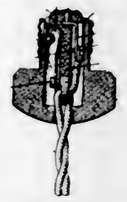
752,832. SPARKING APPARATUS FOR EXPLOSIVE-ENGINES. LINCOLN H. FEY, Northfield, Minn. Filed Feb. 19, 1903. Serial No. 144,161. (No model.)



Claim.—1. In sparking apparatus for explosive-engines, the combination of the oscillating electrode spring-pressed in one direction, an electrode revoluble in the path of the oscillating electrode, a crank, a pawl-and-ratchet connection between the crank and the revoluble electrode, a revoluble power-shaft, a sleeve revoluble thereby, shiftable angularly thereon and having a crank, and the lever-pitman slidable on its fulcrum and connecting the cranks together, substantially as described.

2. A sparking apparatus comprising a base adapted for attachment to the cylinder-head of an explosive-engine and to extend through the opening therein, a screw-sleeve, an insulating-bushing in and extending through said base, a sleeve 6 extending through the bushing and having a head at its inner end, a washer on the outer side of the base and on the said sleeve 6 and having an arm, a nut screwed on said sleeve and bearing against the washer, an oscillatory shaft journaled in the sleeve 6, having a radially-disposed electrode at its inner end and an arm at its outer end, a spring connecting said arm to the arm of the washer to move the said electrode in one direction, a revoluble shaft journaled in the screw-sleeve and having a radially-disposed electrode at its inner end, adapted to engage and effect a sliding contact with the oscillatory electrode, and means including an element on the outer end of the revoluble shaft to drive the latter, substantially as described.

752,833. ATTACHMENT-PLUG. PHILIP H. FIELDING, New York, N. Y. Filed June 27, 1903. Serial No. 163,349. (No model.)

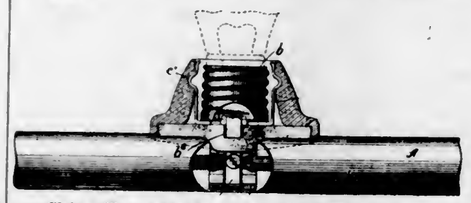


Claim.—1. An attachment-plug consisting of a base of insulating material, having a cylindrical projection surrounded by a metallic sleeve and having an axial chamber opening at the outer end of said projection, in combination with a plug removably fitted into said chamber and carrying two binding devices and an exposed contact, said binding devices being respectively connected with the sleeve and the exposed contact, and a flexible conductor attached to the binding devices and leading rearward through the base, substantially as described.

2. An attachment-plug consisting of a base of insulating material having a cylindrical projection surrounded by a metallic sleeve and having an axial chamber opening at the outer end of the projection, in combination with a plug removably fitted into said chamber and carrying two binding devices for electrical conductors, means for connecting one of the binding devices with said sleeve and a contact on the end of the plug connected with the other binding device and exposed at the end of the projection, substantially as described.

3. An attachment-plug consisting of a base of insulating material having an integral cylindrical projection therefrom containing an axial chamber, a metallic sleeve surrounding said projection, a plate connected with said sleeve and extending into said chamber and a core removably fitted to said chamber and provided with two contacts, one of which is exposed outside when the plug is in place and the other adapted to engage said plate, and binding devices for electric wires connected with said contacts.

752,834. ELECTRICAL RECEPTACLE. PHILIP H. FIELDING, New York, N. Y. Filed June 27, 1903. Serial No. 163,350. (No model.)

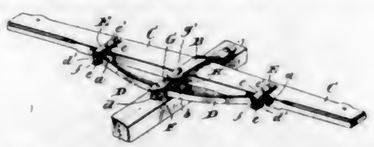


Claim.—The combination with a closed tubular electrical conduit having an opening in its wall, of an electrical appliance consisting of a base adapted to be attached to the exterior of said conduit and to cover said opening and having a projection carrying binding-screws adapted to enter the opening in said conduit, insulated conductors in said conduit adapted to be engaged by said screws, and electric terminals carried by said base and connected respectively with said binding-screws.

752,835. DRAFT-EQUALIZER. FRANK R. GOODE, Decatur, Ill., assignor of one-half to W. R. Sparks, Clinton, Ill. Filed June 10, 1903. Serial No. 160,881. (No model.)

Claim.—1. A device of the character described, comprising a tongue, a hammer-strap secured thereon, a whiffletree arranged to slide between said hammer-strap and tongue, a bow-spring having

its central portion secured to the tongue and its end portions bearing against the whiffletree, and a coil-spring interposed between the spring and the adjacent side of the whiffletree.



2. A device of the character described, comprising a tongue, a hammer-strap secured thereon, a whiffletree arranged to slide between said hammer-strap and tongue, a bow-spring having its central portion secured to the tongue and its end portions bearing against the whiffletree, and a coil-spring secured to the side of the whiffletree adjacent the spring.

3. A device of the character described, comprising a tongue, a hammer-strap secured thereon, a whiffletree arranged to slide between said hammer-strap and tongue, a bow-spring having its central portion secured to the tongue and its end portions bearing against the whiffletree, and clips secured to the whiffletree and arranged to embrace the free ends of said spring, said clips being provided at their extremities with friction-rollers arranged to bear against the outside of the spring.

4. A device of the character described comprising a tongue, a hammer-strap secured at one end to the tongue and having an aperture in its free end, a bow-spring having its ends arranged to bear against the whiffletree and provided at its center with a U-shaped staple, and a bolt arranged to pass through the aperture in the hammer-strap, the staple on the spring and the tongue.
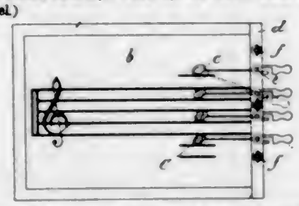
5. A device of the character described comprising a tongue, a hammer-strap secured at one end to the tongue and having an aperture in its free end, an extension-strap provided at one end with a hooked portion adapted to engage the aperture in the free end of the hammer-strap and at the other end with an aperture, a bow-spring having its ends arranged to bear against the whiffletree and provided at its center with a U-shaped staple, and a bolt arranged to pass through the aperture in the extension-strap, the staple on the spring and the tongue.

6. A device of the character described comprising a tongue, a hammer-strap secured at one end to the tongue, an extension-strap secured to the free end of the hammer-strap, a bow-spring having its ends arranged to bear against the whiffletree, and a pivot-bolt arranged to pass through the free end of the extension-strap, the spring at a point intermediate its ends and the tongue.

7. A device of the character described comprising a tongue, a hammer-strap secured at one end to the tongue, an extension-strap secured to the free end of the hammer-strap, a bow-spring having ends arranged to bear against the whiffletree, a pivot-bolt arranged to pass through the free end of the extension-strap, the spring and the tongue, and a buffer secured to the side of the whiffletree adjacent the spring.

8. A device of the character described comprising a tongue, a hammer-strap secured at one end to the tongue, an extension-strap secured to the free end of the hammer-strap, a bow-spring having its ends arranged to bear against the whiffletree, clips secured to the whiffletree and arranged to embrace the free ends of said spring, friction-rollers journaled in the ends of said clips and arranged to bear against the outside of the spring, and a pivot-bolt arranged to pass through the free end of the extension-strap, the spring and the tongue.

752,836. **APPARATUS FOR TEACHING SINGING.** ALOIS GUMMER, Berlin, Germany. Filed Apr. 16, 1903. Serial No. 152,934. (No model.)



Claim.—1. An apparatus for teaching singing consisting of a tablet furnished with a musical staff, a frame surrounding the tablet, stems pivoted on the frame and provided with note-heads and a clamping-bar adapted to hold the stems in any adjusted position in relation to the staff, substantially as described.

2. Apparatus for teaching singing consisting of a tablet furnished with a musical staff, a frame surrounding the tablet, stems or rods pivoted on the frame, and provided at opposite ends with notched handles and note-heads, a clamping-bar adapted to bear against the handles and hold the note-stems in any adjusted position in relation to the staff substantially as described.

752,837. **PIPE-WRENCH.** TRUMAN W. HARDIN, Mason City, Ill. Filed Oct. 16, 1903. Serial No. 177,303. (No model.)

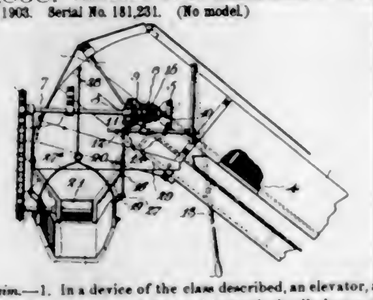


Claim.—1. In a pipe-wrench, the combination with a stock terminating at one of its ends in a fixed jaw and having an offset portion provided with a toothed upper surface, of a pivoted jaw having a toothed edge working upon the toothed surface of said offset portion, and a spring having connection with the pivoted jaw.

2. In a pipe-wrench, the combination with a stock terminating at one of its ends in a fixed jaw and having an offset portion provided with a toothed upper surface, of a pivoted jaw having a toothed edge working upon the toothed surface of the said offset portion, a lever for operating the pivoted jaw, and a spring having connection with the last-mentioned jaw.

3. In a pipe-wrench, the combination with a stock terminating at one of its ends in a fixed jaw and having an offset portion, of a lever, a movable jaw pivotally connected with the lever and working upon the offset portion of the stock, the outer end of the movable jaw extending beyond the fixed jaw, and a spring having connection with the movable jaw.

752,838. **CONVEYER.** JOHN A. HEINTZ, Chenoa, Ill. Filed Nov. 14, 1903. Serial No. 181,231. (No model.)



Claim.—1. In a device of the class described, an elevator, a conveyer-trough having one end disposed beneath the discharge of said elevator, an endless carrier in said conveyer-trough, a guard pivotally connected with the hood of the elevator, and means for manipulating said guard.

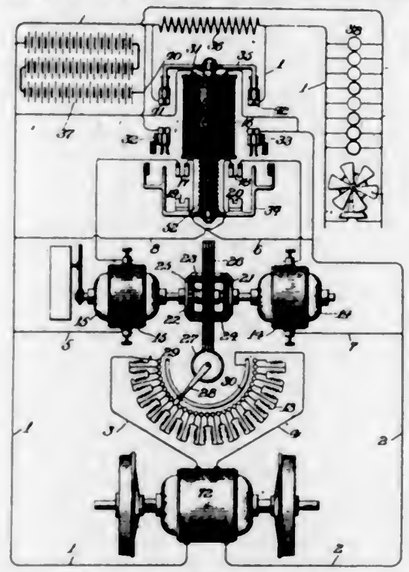
2. In a device of the class described, an elevator, a conveyer trough having one end disposed beneath the discharge of the elevator, an endless carrier in said conveyer-trough, a shaft supporting one end of said carrier, a counter-shaft, bearings for said counter-shaft upon the elevator-hood, connecting means between the carrier-shaft and the counter-shaft, and means for transmitting motion in either direction to said counter-shaft from the shaft supporting the upper end of the elevator-carrier.

3. In a device of the class described, an elevator, a shaft at the upper end of said elevator supporting the upper end of the elevator-carrier, a bevel-gear upon said shaft, bearings disposed adjacent to opposite sides of said bevel-gear, a counter-shaft journaled in said bearings, a sleeve revoluble with and slidable upon said counter-shaft, bevel-gears upon said sleeve, adapted to be interchangeably placed in engagement with the bevel-gear upon the elevator-shaft, sleeve-adjusting means, a conveyer-trough supported beneath the discharge of the elevator, a carrier in said trough, and means for transmitting motion to said carrier from the counter-shaft at a rate of speed greatly exceeding that at which the elevator-carrier is operated.

4. In a device of the class described, an elevator, a counter-shaft supported exteriorly upon the elevator-hood, means for transmitting motion in opposite directions from a supporting-shaft of the elevator-carrier to said counter-shaft, hangers supported upon the latter and provided each with a plurality of perforations at its lower end, brackets connected adjustably with said hangers, a conveyer-trough supported by said brackets, a carrier in said conveyer-trough, and means for transmitting motion to said carrier from the counter-shaft at a rate of speed greatly exceeding that of the elevator-carrier.

5. In a device of the class described, an elevator, a counter-shaft supported upon the hood of said elevator, means for transmitting motion in opposite directions from the elevator-carrier to the counter-shaft, hangers suspended from the latter, a conveyer-trough supported by said opposite hangers, a chute suspended from said hangers beneath the conveyer-trough, means for supporting the discharge end of said chute directly from the elevator-hood, an endless carrier in the conveyer-trough, and means for transmitting motion to said endless carrier from the counter-shaft at a rate of speed greatly exceeding that at which the elevator-carrier is operated.

752,839. **SYSTEM OF ELECTRIC TRAIN-LIGHTING.** DAVID C. HENRY, Denver, Colo., assignor to Henry Electric Equipment Company, Denver, Colo. Filed Sept. 23, 1901. Serial No. 76,200. (No model.)



Claim.—1. In an axle generating and translating system, the combination of a plurality of armatures mounted on a bushing adapted to be secured to the axle of the car-truck, a commutator for each two armatures, a single field-frame for said two armatures journaled on said bushing, a self-adjusting current-collecting device applied to said commutator, means—such as stops—to control the working position of said current-collecting device, and a translating-circuit for consuming the energy furnished by said armature, substantially as described.

2. In a distribution system, the combination of a generator, a regulator consisting of two differentially-acting motors, a gear system and a variable resistance operated by said gear system, and an automatic switch for said motors to include them in or exclude them from the circuit at predetermined voltages, substantially as described.

3. In an electric distribution system, the combination of a generator, two differentially-acting motors energized by said generator, an automatic switch for controlling the circuit connections of said motors and a translating-circuit consisting of a storage battery, and consumption devices connected thereto, substantially as described.

4. In an electric distribution system, the combination of a generator, two differentially-acting motors energized by said generator, an automatic switch for controlling the circuit connections of said motors and a translating-circuit consisting of a storage battery; consumption devices connected thereto, and an automatic switch for simultaneously controlling the circuit connections of said motors and said translating-circuit, substantially as described.

5. In a variable-speed generating system, the combination of an electric generator, two differentially-acting motors, a differential gear and planetary worm actuated by said motors for controlling the generator-pressure, a storage battery, translating devices in circuit with said battery, a solenoid-switch connected across the dynamo-terminals adapted to actuate at a predetermined voltage for simultaneously including into the generator-circuit said motors and battery-circuit, and means for maintaining a practically constant voltage for said translating devices, substantially as described.

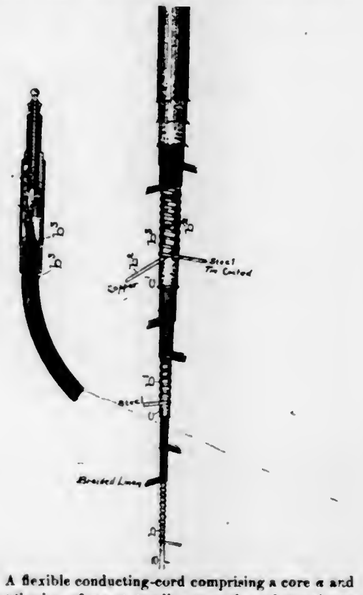
6. In an axle generating and translating system of distribution, the combination with a generator of a self-adjusting brush-holder, a terminal pressure-regulator consisting of two differentially-acting motors deriving power from said generator and controlling suitable means for varying the field-magnet strength of said generator, translating devices, and a storage battery, substantially as described.

7. In a system of distribution, the combination of a generator, translating devices, a regulator interposed between said generator and translating devices, a second regulator for varying the field strength of said generator consisting of a constant-speed and a variable-speed motor, a differential gear jointly operated by both motors and operating means such as an arm for including or excluding more or less resistance in the generator field-circuits, substantially as described.

8. In a system of distribution and in combination with a primary and secondary generator, translating devices, a pressure-regulator for said devices and another for said generator, a single automatic controlling-switch adapted to simultaneously introduce the two regulators into their respective circuits and to connect said primary generator to said translating devices, substantially as described.

9. In a direct-connected generator, the combination with the axle of a car-truck, of collars solidly mounted on said axle, a generator-armature provided with a hollow spindle or bushing and yielding springs firmly supporting said armature and establishing a practically fixed relation between said armature and said axle connecting said bushing with said collars.

752,840. **FLEXIBLE CONDUCTING-CORD.** HOWARD B. HOLMES, Evanston, Ill., assignor to Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 27, 1902. Serial No. 91,335. (No model.)



Claim.—1. A flexible conducting-cord comprising a core *a* and a flat spring-metal wire of great tensile strength and toughness wound helically upon said core, and forming a conducting-strand for the cord, and a protective insulating-covering surrounding the helical conductor.

2. A flexible conducting-cord having flat spring-metal wires wound helically in different concentric layers insulated from one another, forming the conducting-strands of the cord, and an outer insulating-covering surrounding the conducting-strands.

3. A flexible conducting-cord having flat steel wires wound helically in different concentric layers insulated from one another, forming the conducting-strands of the cord, the inner layer having the greater number of turns, in combination with a switch-plug having terminal contact-pieces connected respectively to the helically-wounded conductors of the cord.

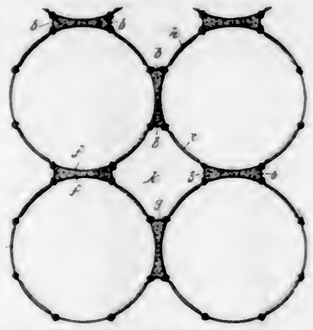
4. A flexible conducting-cord having a core *a*, a flat spring-wire wound helically about the same, and a conducting-strand b^3 of low resistance in contact with the convolutions of said first-mentioned wire, whereby the resistance between the terminals of said first-mentioned wire is reduced, and a suitable covering for the cord.

5. A flexible conducting-cord comprising a core *a*, a flat steel wire *b* forming a conducting-strand of the cord, wound helically upon said core, insulating material covering said conductor, a second conductor *b'* similar to the first, wound over the insulating-covering, an insulating-covering for the second conductor, a conductor b^3 of low resistance wound helically over the last-mentioned insulating-covering, a flat steel wire b^4 similar to conductors *b* and *b'* wound helically over the conductor b^3 and in contact therewith, and a suitable covering for the cord, the linear pitch of the outer convolutions being less than that of the inner, so that the angular pitch of said convolutions is substantially the same.

6. In a conducting-cord for telephone-switchboards, the combination with a flexible core, of a non-collapsible helical conductor wound closely thereon, consisting of a flat wire of metal, as steel, having great rigidity and tensile strength, as described.

7. The combination with a switchboard-plug, of a conducting-cord therefor secured within the body of the plug, said cord being constructed with a conductor in non-collapsible open helical convolutions formed of flat spring-metal wire of great tensile strength and rigidity, whereby the breaking of the cord at the base of the plug is prevented.

752,841. **STORAGE-BIN.** JAMES A. JAMIESON, Montreal, Canada. Filed Oct. 6, 1902. Serial No. 126,257. (No model.)



Claim.—1. In a bin structure, the combination with a series of abutment members, and a series of arched bin-wall members abutting at their ends upon said abutment members and arranged vertically with their convex sides facing inwardly.

2. In a bin structure, the combination with a series of abutment members grouped radially of a common point, and a series of arched bin-wall members abutting at their ends upon said abutment members and arranged vertically with their convex sides facing inwardly.

3. In a group of sheet-metal bins comprising main cylindrical bins and interspace bins the combination with the metal walls of the main cylindrical bins, of a concrete column between each contiguous pair of said main cylindrical bins in a vertical plane extending through the centers of said main cylindrical bins, and means binding said metal walls and said concrete column together.

4. In a group of sheet-metal bins comprising main cylindrical bins and interspace bins the combination with the metal walls of the main cylindrical bins, of a combined metal and concrete column between each contiguous pair of said main cylindrical bins in a vertical plane extending through the centers of said main cylindrical bins, and means binding said metal walls and said concrete column together.

5. In a group of sheet-metal bins comprising main cylindrical bins arranged a short distance apart and interspace bins the combination with the metal walls of the main cylindrical bins, of a pair of vertically-arranged tie-plates disposed adjacent to one another between said main cylindrical bins and extending across the spaces therebetween, means connecting the vertical edges of said tie-plates to the walls of said main cylindrical bins, substantially as described and for the purpose set forth.

6. In a group of sheet-metal bins comprising main cylindrical bins arranged a short distance apart and interspace bins the combination with the metal walls of the main cylindrical bins, of a pair of vertically-arranged metallic members disposed adjacent to one another between said main cylindrical bins and extending across the spaces therebetween, means for connecting said vertical metallic members to the walls of said main cylindrical bins, and a concrete filling between said vertical members.

7. The combination with a pair of contiguous bins, of a pair of vertically-arranged tie-plates of trough or channel cross-section and disposed adjacent to one another between said bins, means for connecting the flanges of said tie-plate to the walls of said bins, substantially as described and for the purpose set forth.

8. The combination with a pair of contiguous bins having vertical bracing-standards, of a pair of vertically-arranged tie-plates disposed adjacent to one another between said bins, means for connecting the vertical edges of said tie-plates to the vertical standards of said bins, substantially as described and for the purpose set forth.

9. The combination with a pair of contiguous bins, of a pair of vertically-arranged tie-plates disposed adjacent to one another between said bins, means for connecting the vertical edges of said tie-plates to the walls of said bins, and a filling for the space between said tie-plates, substantially as described and for the purpose set forth.

10. The combination with a pair of contiguous bins having vertical bearing-standards, of a pair of vertically-arranged tie-plates of trough or channel cross-section and disposed adjacent to one another between said bins, means for connecting the flanges of said tie-plates to the vertical standards of said bins, and a filling for the space between said tie-plates, substantially as described and for the purpose set forth.

11. In a storage-bin the combination with a series of vertical bin-bracing standards, of a series of horizontally-corrugated arciform plate-sections secured between said vertical standards, substantially as described and for the purpose set forth.

12. A pair of vertical cylindrical bins having a series of vertical bin-bracing standards, a vertical series of horizontally-corrugated arciform plate-sections in each alternate space between said vertical standards, and a vertical series of plane arciform plate-sections in the intervening spaces between said standards, means for securing said plate-sections to said standards, and a concrete column between said bins and in contact with the plane plates of each bin and means for securing said bins to said columns, substantially as described and for the purpose set forth.

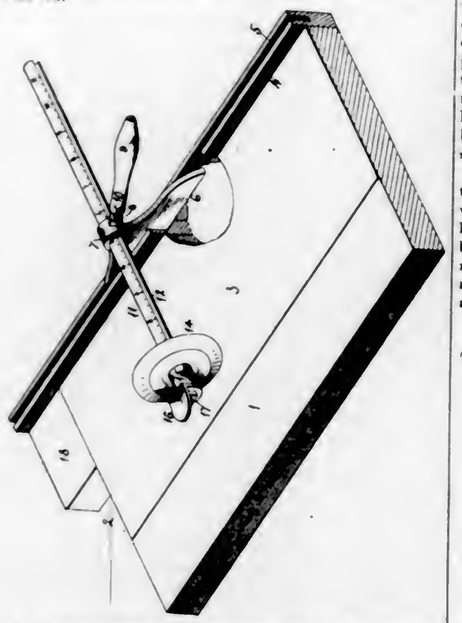
13. A pair of vertical cylindrical bins having a series of vertical bin-bracing standards, a vertical series of horizontally-corrugated arciform plate-sections in each alternate space between said vertical standards and a vertical series of plane arciform plate-sections in the intervening spaces between said standards, means for securing said plate-sections to said standards, a pair of tie-plates extending between said bins and secured at one side edge of each to the side edges of the plane plates of one of said bins and at their other side edges to the side edges of the plane plates of the other bin, and a filling between said tie-plates, substantially as described and for the purpose set forth.

14. A pair of vertical cylindrical bins having a series of vertical bin-bracing standards, a vertical series of horizontally-corrugated arciform plate-sections in each alternate space between said vertical standards, a vertical series of plane arciform plate-sections in the intervening spaces between said standards, means for securing said plate-sections to said standards, a pair of tie-plates of trough or channel cross-section extending between said bins and secured at one side edge of each to the side edges of the plane plates of one of said bins and at their other side edges to the side edges of the plane plates of the other bin, and a filling between said tie-plates, substantially as described and for the purpose set forth.

15. A pair of vertical cylindrical bins having a series of vertical bin-bracing standards, a vertical series of horizontal corrugated arciform plate-sections in each alternate space between said vertical standards, and a vertical series of plane arciform plate-sections in the intervening spaces between said standards, means for securing said plate-sections to said standards and means for securing said bins to said columns substantially as described and for the purpose set forth.

752,842. **PAPER-TRIMMER.** WILLIAM M. KEELING, Rockford, Ill. Filed Mar. 27, 1903. Serial No. 149,356. (No model.)

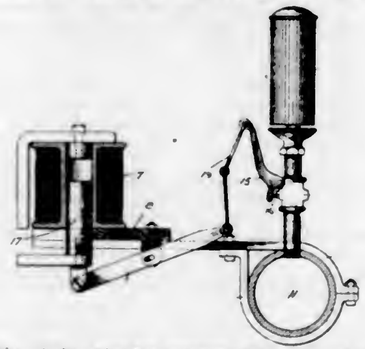
Claim.—1. A paper-trimmer comprising a support, a rod movable in connection with the support and having a lengthwise groove, a handle having a connection with the support and a screw-threaded extension adapted to enter the groove, and a cutter-wheel revoluble on the rod.



2. A paper-trimmer comprising a support, a non-revoluble rod having a sliding connection with the support and having a lengthwise groove, a handle having a connection with the support and a screw-threaded extension adapted to enter the groove, and a cutting-wheel revoluble on the rod.

3. A paper-trimmer comprising a support, a non-revoluble rod having a sliding connection with the support and means for clamping the parts together, a cutting-wheel revoluble on the rod, and a thumb-rest clamped in connection with the rod by a nut.

752,843. **SIGNALING APPARATUS.** ROBERT B. KERNOHAN, Pittsburg, Pa. Filed May 23, 1903. Serial No. 158,440. (No model.)



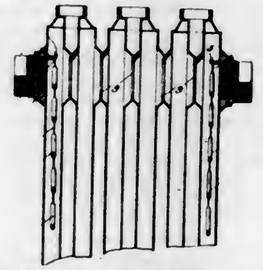
Claim.—1. In a signaling apparatus, the combination, with a main electric circuit, an auxiliary circuit, and a fluid-pressure main, of a whistle in communication with the fluid-main, an electromagnet, a take-up connection between the electromagnet and whistle, and a switch for making and breaking connection between the main and auxiliary circuits, substantially as set forth.

2. In a signaling apparatus, the combination, with a main electric circuit, an auxiliary circuit, a supply of elastic fluid under pressure, a whistle, a valve for controlling the fluid from the elastic-fluid supply to the whistle, an electromagnet and a lamp in the auxiliary circuit, take-up means connecting the electromagnet and whistle and a switch for making and breaking connection between the main and auxiliary circuits, substantially as set forth.

3. In a signaling apparatus, the combination, with a main electric circuit having a lamp suitably connected in said circuit to indicate when said circuit is completed, an auxiliary circuit, a supply of elastic fluid under pressure, a whistle, a valve for controlling the passage of fluid from the elastic-fluid supply to the whistle, an electromagnet in the auxiliary circuit, take-up means connecting the magnet and the whistle, a lamp in the auxiliary circuit which is lighted when the whistle is operated, and a switch for making and breaking connection between the main and auxiliary circuits, substantially as set forth.

4. In a signaling apparatus, the combination with a main electric circuit, an auxiliary circuit, and a fluid-pressure supply, of a whistle in communication with the fluid-supply, an electromagnet having a movable core in the auxiliary circuit, a take-up connection between the electromagnet and whistle whereby the core is allowed an initial movement before the whistle-operating lever is moved, and a switch for making and breaking connection between the main and auxiliary circuits, substantially as set forth.

752,844. **MEANS FOR PROVIDING ZINC IN RADIATORS.** WILLIAM R. KINNEAR, New York, N. Y. Filed Sept. 8, 1903. Serial No. 172,423. (No model.)



Claim.—1. In combination with a radiator composed of units and provided with an opening and means for closing the same, a rod supported by the said closing means and extending transversely of the radiator units and a metal structure of different material from the metal of the radiator supported by the rod and extending longitudinally of the radiator units.

2. In combination with a radiator, having an opening, and a removable metallic cap or plug closing said opening, a zinc rod projecting inwardly from said opening, supported by said cap or plug and electrically connected with the radiator thereby.

3. In combination with a radiator composed of units and having an opening and metallic means for closing same, a rod supported by and electrically connected with the radiator through said closing means, extending transversely of the radiator units, and an elongated zinc structure suspended on said rod extending longitudinally of the radiator units.

4. In combination with a radiator composed of units and provided with an opening and means for closing same, a rod supported by said closing means and extending transversely of the radiator units, and a metal structure electronegative to the metal of the radiator supported by said rod and extending longitudinally of the radiator units.

752,845. **THREAD HOLDING AND CUTTING ATTACHMENT FOR SPOOLS.** DAISY C. LAIRD, Des Moines, Iowa. Filed June 3, 1903. Serial No. 159,864. (No model.)



Claim.—1. An improved thread holding and cutting attachment for spools, comprising two spring-metal parts with their lower ends diverging from each other and designed to enter an opening in a spool and their upper end portions designed to lie flat on top of a spool, and a top piece secured to the said parts at its central portion and extending parallel therewith, one end thereof inclining upwardly and being shorter than its coacting thread-holder member

and the other end provided with an upturned end sharpened at its upper end.

2. An improved thread holding and cutting device, comprising two spool-gripping devices, each having a flat head, a gripping member to enter an opening in a spool and yieldingly engage the sides of said opening, and a top piece riveted to said heads near their central portions, having one end shorter than its adjacent head and rounded and forming with said head a narrow tapered opening, the other end portion resting on top of the other head and having an upturned end sharpened at its top, substantially as and for the purposes stated.

752,846. PROCESS OF PRODUCING DUPLICATE PRINTING-PLATES. FRANK LESLIE and ARTHUR LESLIE, New York, N. Y. Filed Oct. 19, 1903. Serial No. 177,535. (No specimens.)



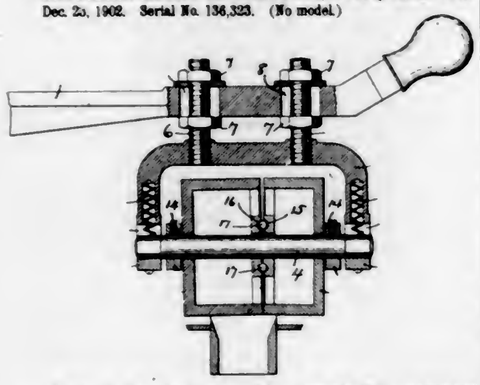
Claim.—1. An article of manufacture, consisting of a metal sheet or plate having embossed therein a reproduction of an etched half-tone plate, substantially as described.

2. The process of making duplicate printing-surfaces of an original half-tone plate which consists in making a second half-tone plate similar in all respects to the original, except that its surface is a female with respect to that of the original plate, then placing a sheet of material between said plates and using the latter as a pair of dies to emboss the intervening plate and reproduce thereon the surface of the original plate.

3. The process of making duplicate printing-plates from an original plate, which consists in etching a half-tone in a steel plate, then etching the same half-tone, but as a female with respect thereto, in a second steel plate, then making the printing-plate by embossing it between the male and female plates to produce on one side of the printing-plate a male embossed printing-surface.

4. The process of making duplicate printing plates or cuts from an original half-tone plate, which consists in making a second half-tone plate similar in all respects to the original, then using said plates as a pair of opposing dies and placing between them a metal plate backed up with a suitable material and embossing the same between said plates, substantially as described.

752,847. PRESSURE-ROLLS FOR CIGAR-WRAPPER CUTTER AND ROLLING TABLES. ISADORE LIBERMAN, Philadelphia, Pa. Filed Dec. 23, 1902. Serial No. 136,323. (No model.)



Claim.—1. In combination with a cutting-die, a compound pressure-roller, the rolling elements of which are provided with cooperating annular channels in their abutting ends, and antifriction-balls in the channels, the channels and balls being so proportioned as to maintain a space between said abutting ends sufficient to permit of a relative tilting of said roller elements.

2. In combination with a cutting-die, a compound pressure-roller, a supporting-shaft therefor, the rolling elements being loosely mounted upon said shaft and provided with coöperating annular channels in their abutting ends and antifriction-balls in the channels, the channels and balls being so placed and proportioned as to maintain a sufficient space between the abutting ends of said elements and the play between the elements and the shaft being sufficient to permit of a relative tilting of said elements.

3. In combination with a cutting-die, a compound pressure-roller, and a supporting-shaft therefor, the rolling elements being loosely mounted upon said shaft and provided with coöperating annular channels in their abutting ends and antifriction-balls in the channels, the channels and balls being so placed and proportioned as to maintain a sufficient space between the abutting ends of said elements and the play between the said roller elements and the shaft at their abutting ends being sufficient to permit of a relative tilting of said roller elements.

4. In combination with a cutting-die, a compound pressure-roller, and a spring-pressed supporting-shaft therefor, the rolling elements being loosely mounted upon said shaft and provided with coöperating annular channels in their abutting ends and antifriction-balls in the channels, the channels and balls being so placed and proportioned as to maintain a sufficient space between the abutting ends of said elements and the play between the said roller elements and the shaft at their abutting ends being sufficient to permit of a relative tilting of said roller elements.

5. In combination with a cutting-die, a compound pressure-roller, a spring-pressed supporting-shaft therefor, a supporting-yoke for said shaft and lock-nut means for securing the adjustment of the same with respect to its vertical and also its longitudinal position, the rolling elements being loosely mounted upon said shaft and provided with coöperating annular channels in their abutting ends and antifriction-balls in the channels, the channels and balls being so placed and proportioned as to maintain a sufficient space between the abutting ends of said elements and the play between the said roller elements and the shaft at their abutting ends being sufficient to permit of a relative tilting of said roller elements.

6. In combination with a cutting-die, two roller elements, a spring-actuated shaft therefor, a rotative arm carrying said shaft and ball-bearings between the abutting ends of the roller elements, the ball-bearings being so proportioned as to maintain a sufficient space between the abutting ends of the roller elements and the play of the roller elements at their abutting ends upon the supporting-shaft being such as to permit of a relative tilting of said roller elements.

752,848. ORE OR GRAIN CHUTE. CHARLES A. MOFFETT and FRANKLIN B. KEISER, Birmingham, Ala. Filed Sept. 12, 1903. Serial No. 172,969. (No model.)



Claim.—1. A chute comprising a hopper the rear wall of which forms the bottom of the chute, detachable side walls carried by the hopper, a cut-off gate pivotally carried by said side walls and adapted when lowered to open the chute and form a continuation of same and when raised to close the chute.

2. A chute comprising a hopper, the rear wall of said hopper extending downwardly and forwardly below the front wall, parallel, vertical side walls secured to the side walls of the hopper, a cut-off gate formed of an angled plate pivoted between the parallel side walls, one of said plates forming a continuation of the chute when the gate is lowered and the other closing the chute and checking the flow of material when the gate is raised.

3. A chute of the kind described comprising a hopper having downwardly and inwardly converging side walls, parallel, depending side walls integral with the inwardly-converging walls, a rear wall extending downwardly and forwardly below the front wall, parallel depending side plates bolted to the depending side walls of the hopper, a plurality of parallel bars connecting the side plates in their upper front portions, and a cut-off gate pivoted at the lower, front corners of the side plates, and forming when lowered, a continuation of the rear wall of the hopper and when raised having a front upper edge resting adjacent the bars.

4. The combination with a hopper and the side walls of a chute, the said side walls consisting of plates having bearings formed at their lower, front corners and lugs extending inwardly from the sides of each plate, of a cut-off gate comprising a flat and a curved plate arranged at an angle to each other, and a shaft rigidly secured to the flat plate adjacent its free end and rotatably journaled in the bearings of the side plates, the curved plate swinging between the lugs of each side plate and closing the chute when raised and the flat plate bearing on a lug of each side plate, and forming a continuation of the chute when the curved plate is lowered.

5. In a chute of the kind described, a hopper having side walls inwardly and downwardly converging in their upper portion, and vertical and parallel in their lower portion, the said parallel walls being cut in their lower front portion, a front hopper-wall having an outwardly-extending flange, a rear wall extending downwardly and forwardly to a line below the plane of the front wall, a detachable wear-plate secured to the said rear wall of the hopper, detachable side plates secured to the side walls of the hopper and extending downward below same, a plurality of bars arranged across the front of the chute and carried by said side plates, and an angled cut-off gate pivotally secured between said side plates, and adapted to form a continuation of the rear wall of the hopper when the gate is opened.

6. The combination with a hopper having its lower portion cut away at the front, of side plates having offset marginal portions on two sides, the said offset marginal portions fitting over and being secured to the cut-out portion of the hopper, stop-lugs formed on each of said side plates, and a cut-off gate pivoted between said side plates and comprising a flat plate and a curved plate, the curved plate swinging between said lugs and having a lip engaging a lug on each side plate when the gate is raised and the flat plate resting on the other lugs when the gate is lowered.

7. A chute of the kind described comprising a hopper having its lower front portion cut out, side plates having an offset marginal portion and a shoulder parallel to such portion, said shoulder fitting against the edge of the cut-out portion of the hopper, transverse bars arranged across the front of the chute and carried by said side plates, and a cut-off gate swingingly pivoted between said side plates below the bars and adapted to swing to a point adjacent the bars and close the chute when raised, and to swing away from the bars and open the chute when lowered.

8. In a chute, the combination with the lower side plates of the chute having bearings formed therein, of front and rear lugs extending inwardly from each plate, a transverse strip resting on the rearmost lugs, a flat plate having square bearings, formed adjacent one end and on its under side, a square shaft fixed in said bearing on the plate and having cylindrical end portions journaled in the bearings of the side plates, an integral curved plate extending downward from the non-pivoted end of the flat plate, said curved plate working between the front and rear lugs of the side plate, a lip formed along the end of the curved plate and contacting with the rear lugs when the gate is raised, and the flat plate resting on the front lugs when the gate is lowered and forming a continuation of the chute, and a lever rigidly secured to one end of the shaft.

9. The combination with a chute having parallel sides, of a cut-off gate swingingly pivoted between said sides, and comprising two plates arranged at an angle to each other, lugs formed on the sides of the chute and adapted to be engaged by both plates, one of said plates being adapted to close the chute when in engagement with the lugs and the other plate forming a continuation of the chute when brought into engagement with the lugs, substantially as described.

752,849. UMBRELLA HANDLE AND ROD. GLENN MUFFLY, Chicago, Ill., and HARRY M. MILLER, Council Bluffs, Iowa. Filed Apr. 30, 1903. Serial No. 155,003. (No model.)



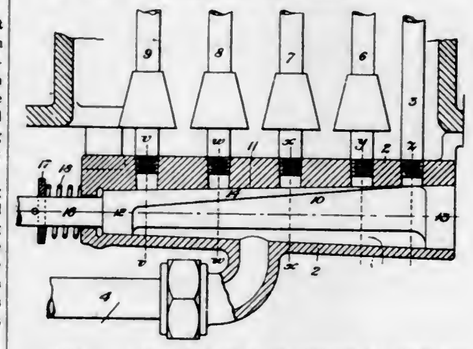
Claim.—1. The combination with an umbrella-rod, provided on the handle end thereof with a tubular interiorly-threaded socket, of a handle having a threaded shank adapted to be screwed into said threaded socket, and formed with laterally-disposed radial ribs, and a supplemental handle having a radially-recessed bore in which the said ribbed handle is received, substantially as described.

2. The combination, in an umbrella-rod, of a main section, a tip-section provided on its inner end with a tongue having a notch or recess formed therein, said tongue being adapted to be inserted in said main section, a spring-catch carried by the main section and adapted to engage said notch and hold said tongue in place, and means for holding said catch in engagement with said notch, substantially as described.

3. The combination, in an umbrella-rod, of a main section, a tip-section provided with a tongue entering the main section and having a notch formed therein, a spring-catch carried by the main section and adapted to enter the same and engage said notch, and a sliding retainer on said main section to engage said catch and hold it in engagement with the notch.

4. The combination, in an umbrella-rod, of a main section, a tip-section provided at its inner end with a tongue having a notch or recess formed therein, said tongue adapted to be inserted in the main section, a spring-catch carried by the main section and adapted to enter the same and engage said notch to hold the tongue in place, and a sliding sleeve for holding the tongue in engagement with the notch, substantially as described.

752,850. VALVE. OSCAR S. MCCURDY, Wilkinsburg, Pa. Filed Mar. 25, 1903. Serial No. 149,489. (No model.)



Claim.—1. A gas-controlling device consisting of a casing having an interior longitudinal valve-seat, circular in cross-section, a pilot-light opening, and one or more burner-pipes arranged longitudinally through the casing: and a valve having a longitudinally-tapered rounded sealing-face on a portion of its periphery and a relatively recessed portion, substantially as set forth.

2. A gas-controlling device consisting of a casing having an interior longitudinal valve-seat circular in cross-section, a pilot-light opening, and one or more burner-pipes arranged longitudinally through the casing, and a valve having a tapered rounded sealing-face slightly less than the pilot-light opening at one end and increasing in width in the direction of the burner-pipes, substantially as set forth.

3. A controlling device consisting of a casing having an interior coniform valve-bearing, a plurality of gas-openings longitudinally arranged through the casing, and a coniform valve seated in the casing provided with a tapered rounded sealing-face on a portion of its periphery and a continuous longitudinal exteriorly-recessed body portion adapted to provide communication to each of the gas-openings, substantially as set forth.

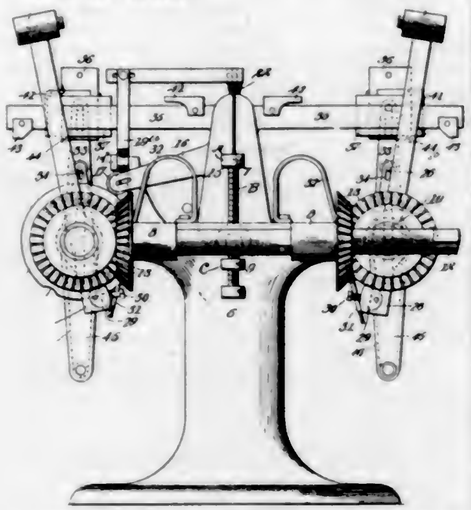
4. A controlling device consisting of a casing having an interior coniform bearing for the valve, a plurality of gas-openings longitudinally arranged through the casing, a coniform valve seated in the casing provided with an exteriorly-tapered sealing-face and a recessed body portion extending from end to end and adapted to communicate with all of the gas-openings, and a turning-stem, with means for exerting a binding pressure on the valve, substantially as set forth.

5. A gas-controlling device consisting of a casing having an interior tapered longitudinal valve-seat circular in cross-section, a pilot-light opening, a plurality of burner-pipes arranged longitudinally and communicating through the casing, and a valve having a tapered sealing-face slightly less than the pilot-light opening at one end and of gradually-increased width so as to close all of the burner-pipe openings in normal position, and having its body portion recessed or hollowed out from one end to the other so as to permit free circulation of the gas to one or all of the burner-pipe openings when the valve is turned, substantially as set forth.

6. A gas-controlling device consisting of a casing having an interior longitudinal valve-seat circular in cross-section, a pilot-light opening and one or more burner-pipes arranged longitudinally

through the casing, and a valve having a longitudinally-tapered rounded sealing-face forming a portion of its periphery, and a reduced portion extending longitudinally of the valve and providing a circulating-chamber for the gas, substantially as set forth.

752,851. **SAW SETTING AND SHARPENING MACHINE.** ROBERT MCMORLAND, Philadelphia, Pa. Filed July 28, 1902. Serial No. 117,389. (No model.)



Claim.—1. In a saw setting and sharpening machine, a suitable saw-holder, means for operating the saw-holder, means for moving the saw longitudinally, carriers movable transversely of the saw, file-clamps carried thereon, said file-clamps having notches in their rear edges, spring-detents for engaging the clamps and holding them depressed, means for tripping the springs and releasing the clamps, means for elevating the clamps, and means for depressing the clamps as and for the purpose described.

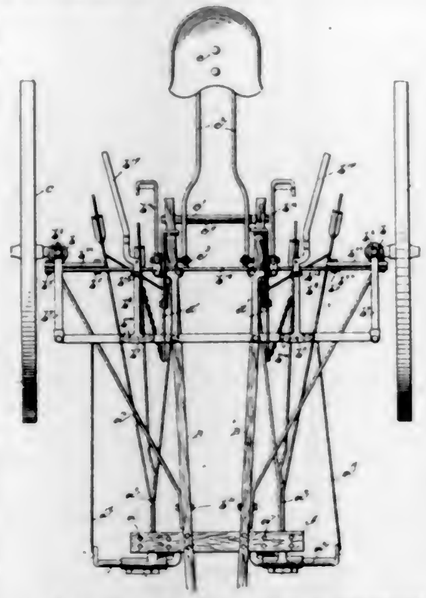
2. In a saw setting and sharpening machine, a saw-clamp for releasing and clamping the saw, an oscillating arm and means for moving the arm, means on the arm for engaging the teeth of the saw to move it longitudinally, carriers movable transversely of the saw, file-clamps carried thereby, springs for holding the clamps depressed, trips for causing the disengagement of the springs with the clamps, pins on the clamps and cam-arms for engaging the pins and depressing the clamps.

752,852. **CULTIVATOR.** JOHN NAGEL, Springfield, Ohio. Filed Aug. 7, 1903. Serial No. 168,685. (No model.)

Claim.—1. In a cultivator, the combination of the carrying-wheels, the carrying-wheel frame, shovels, and a shovel-frame pivotally connected to said carrying-wheel frame, a lever normally holding the carrying-wheel frame and shovel-frame connected, and means connected with said lever for causing the two frames to move in unison whenever said lever is moved laterally, but adapted to permit said lever to move vertically and thereby disconnect the two frames, for the purpose specified.

2. In a cultivator, the combination of the carrying-wheels, the carrying-wheel frame, shovels, and a shovel-frame pivotally connected to said carrying-wheel frame, a lever normally holding said frames connected and adapted to cause same to move in unison whenever said lever is moved laterally, separable connecting devices between said lever and said carrying-wheel frame, and means for disengaging said lever from said separable connections by the vertical movement of said lever while holding connected said lever and the shovel-frame, for the purpose specified.

3. In a cultivator, the combination of the carrying-wheels and the carrying-wheel frame, a series of shovels and shovel-frames pivotally connected to said carrying-wheel frame, a series of levers normally connected to said carrying-wheel frame and the shovel-frame and adapted to be moved laterally, means for moving all said frames by the lateral movement of any one of the levers, and means operated by the vertical movement of said lever for disconnecting any one of said shovel-frames from the carrying-wheel frame, for the purpose of operating any one of said shovel-frames independent of the carrying-wheel frame.



4. In a cultivator, the combination of a carrying-wheel frame, a shovel-frame, a lever pivotally connected to said shovel-frame and adapted when operated laterally to throw said shovel-frame to the right or left, an arm on said lever separably connected to the carrying-wheel frame at one end thereof, and means connected with said lever for operating simultaneously the shovel-frame but adapted to cause the disconnection of said frames whenever said lever is moved vertically and carrying-wheel frame, for the purpose specified.

5. In a cultivator, a machine-frame, a carrying-wheel frame, a rod extending from the front of the machine-frame to the supplemental carrying-wheel frame and connected therewith, a sleeve journaled loosely on said carrying-wheel frame, a convex face formed on its upper end, and means for changing the relative position of said convex face and the machine-frame, for the purpose specified.

6. In a cultivator, the combination of a machine-frame, a carrying-wheel frame, and a supplemental frame for said wheel-frame a rod extending from the front of the machine-frame to the lower end of the supplemental carrying-wheel frame, a convex face formed on the supplemental frame and engaging the machine-frame, and means for adjusting the position of said convex face in its relation to the machine-frame, for the purpose specified.

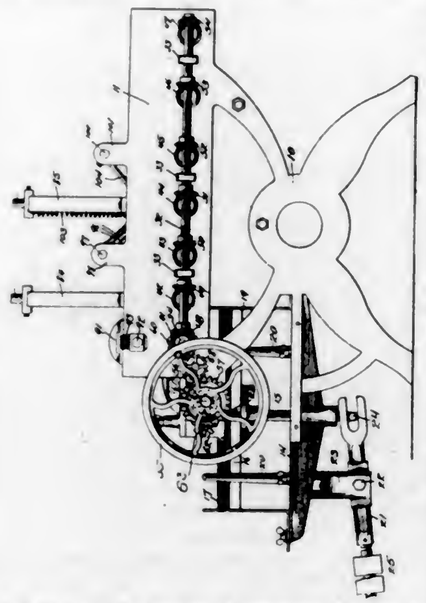
752,853. **PAPER-FOLDING MACHINE.** FREDERICK G. NIND and CHARLES F. STRASBURGER, Chicago, Ill., assignors to George Fuller, Chicago, Ill. Filed Feb. 6, 1903. Serial No. 142,157. (No model.)

Claim.—1. In a paper-folding machine, the combination with means for creasing a sheet of paper of a plate or former having parallel side edges, means for folding said sheet over the said parallel edges of said plate or former and along said previously-formed creases, two series of opposing rolls adapted to move the sheet of paper while being folded, one series projecting through said plate or former, and means for driving said rolls, substantially as specified.

2. In a paper-folding machine, the combination with means for imparting a fold to a sheet of paper, of means for creasing said sheet along two parallel lines at right angles to said fold, means for thereafter folding said sheet along said creases, and means for moving the sheet while being creased and folded, substantially as specified.

3. In a paper-folding machine, the combination with means for imparting a fold to a sheet of paper, of means for creasing said sheet along two parallel lines at right angles to said fold, a plate or former having parallel sides, means for folding said sheet, after being creased, over the side edges of said plate or former, and means for moving said sheet while being creased and folded, substantially as specified.

4. In a paper-folding machine, the combination with means for imparting a fold to a sheet of paper, of a plate or former provided with parallel side edges, means for moving said folded sheet beneath said plate or former, and means for folding projecting lateral portions of said sheet over and against said parallel side edges, said last-mentioned folds being at substantially right angles to the first-mentioned fold, substantially as specified.



5. In a paper-folding machine, the combination with means for imparting a fold to a sheet of paper, of a device having an outwardly-extending inclined portion, means for passing the sheet over said device, and means for applying pressure to said sheet near the inner end of said inclined portion to form a crease in the sheet, substantially as specified.

6. In a paper-folding machine, the combination with means for imparting a fold to a sheet of paper, of a roll having at one end an outwardly-extending inclined portion, means for directing the folded sheet over said roll, and means for pressing said sheet near the inner end of said inclined portion as it passes over the roll, substantially as specified.

7. In a paper-folding machine, the combination of a roll having at its end an outwardly-extending inclined portion, means for passing a sheet of paper over said roll, means for applying pressure to said sheet near the inner end of said inclined portion to form a crease in the sheet, and means for thereafter folding said sheet along said crease, substantially as specified.

8. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from and parallel with said bed, means for moving a sheet of paper between said bed and plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, and means for turning said projecting portions of the paper inward toward each other over and against the side edges of the plate or former, substantially as specified.

9. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means for turning said projecting portions of the paper inward, and other means for applying pressure to the paper to fold it around and against the edges of said plate or former, substantially as specified.

10. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means for turning said projecting portions of the paper inward, and other means for applying a varying pressure to the paper to fold it around the edges of said plate or former, substantially as specified.

11. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means adjacent to the side edges of said plate or former for turning up the said projecting portions of the paper, means for turning said upturned portions inward, and means for applying pressure to the paper along the edges of said plate or former, substantially as specified.

12. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, a bar adjacent to each side edge of the plate or former against which the projecting sides of the sheet of paper come in contact and are thereby caused to be turned up, and means for pressing said paper closely over and around the edges of said plate or former, substantially as specified.

13. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means for turning said projecting portions upward and inward, and a spring-strip over the plate or former at each side thereof adapted to fold the paper over the edge of the said plate or former, substantially as specified.

14. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means for turning said projecting portions upward and inward, and a series of spring-strips over the plate or former at each side thereof, the spring-strips of each series pressing against the paper with different degrees of force, substantially as specified.

15. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, means for turning said projecting portions upward and inward, a spring-strip over the plate or former at each side thereof adapted to fold the paper over the edge of the said plate or former, and another pressure device adapted to further press the sheet after having been pressed by said spring-strip, substantially as specified.

16. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, means for adjusting said plate or former toward or from said bed, means for moving a sheet of paper between said bed and said plate or former with the side portions of the paper projecting beyond the side edges of said plate or former, and means for turning said projecting portions inward and folding them over the sides of the said plate or former, substantially as specified.

17. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a plate or former supported a short distance from said bed, a series of rolls projecting through said bed and another series projecting through said plate or former, the rolls of the two series being in contact, means for driving the rolls of one series, and means for turning and pressing the projecting side portions of a sheet of paper passing between said two series of rolls to cause said projecting side portions to be folded over the side edges of said plate or former, substantially as specified.

18. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a block, a plate or former carried by said block and extending at each side thereof, means connected with said block for holding said plate or former a short distance above said bed, a series of rollers carried by said block and projecting through said plate or former, another series of rollers projecting through said bed and in contact with the first-named series, means for driving the rollers of one of said series, means for turning the projecting side portions of a sheet of paper as it passes between said rolls around the side edges of said plate or former, and means for pressing said sheet at said side edges of the plate or former, substantially as specified.

19. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a block, a plate or former carried

by said block and extending at each side thereof, means connected with said block for holding said plate or former a short distance above said bed, a series of rollers secured in recesses in the sides of said block and projecting through said plate or former, another series of rollers projecting through said bed and in contact with the first-named series, means for driving the rollers of one of said series, means for turning the projecting side portions of a sheet of paper as it passes between said rolls around the side edges of said plate or former, and means for pressing said sheet at said side edges of the plate or former, substantially as specified.

20. In a paper-folding machine, the combination with a frame, and a bed supported thereby, of a block provided with side recesses and with a recess in its upper side, a pair of rollers located in said side recesses and connected by an axle that passes through the recess in the upper side of the block, a spring located in said last-named recess and bearing upon said axle, a plate or former secured to the under face of said block and having an opening through which said rollers project, means for supporting said plate or former a short distance above said bed, a roll projecting through said bed and in contact with said pair of rollers, means for driving said roll, and means for turning and pressing the projecting side portions of a sheet of paper passing between the said bed and said plate or former so as to cause said projecting portions to be turned inward and folded around the side edges of said plate or former, substantially as specified.

21. In a paper-folding machine, the combination with a frame and a bed supported thereby, of a plate or former having parallel side edges, supporting means attached to the upper face of said plate or former to permit a sheet of paper to pass beneath the plate or former from end to end thereof, means for moving a sheet of paper, and means for turning laterally-projecting portions of the sheet over the said parallel side edges of the plate or former, substantially as specified.

22. In a paper-folding machine, the combination with a frame, of a plate or former, a series of rolls supported in said frame and another series projecting through said plate or former, the rolls of the two series being in contact, means for driving the rolls of one series, and means for turning the projecting side portions of a sheet of paper passing between the two said series of rolls over the side edges of said plate or former, substantially as specified

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752,854. FENCE. JAMES A. ODELL, Evanston, Ill. Filed Feb. 18, 1903. Serial No. 144,016. (No model.)



Claim.—1. A hollow post provided with a lateral opening therethrough having a vertical enlargement intermediate its ends and extending through the wall of the post, in combination with a wire, a fastening device for securing the wire to the post provided with a right-angled extension passing through the opening in the post whereby upon giving the fastening a quarter-turn its body will be passed within the vertical enlargement, its right-angled extension automatically engaging the interior wall thereof, and lying flat against the interior wall.

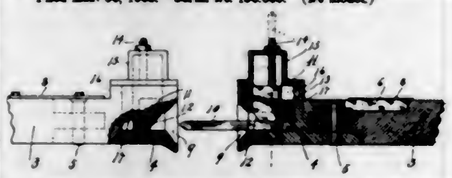
2. A hollow post provided with a lateral opening therethrough having a vertical enlargement intermediate its ends and extending through the wall of the post, in combination with a wire, a wire-fastening device inclosing the wire and provided with lateral right-angled extensions passing through the opening in the post whereby upon giving the fastening a quarter-turn its body will be passed within the vertical enlargement, its right-angled extensions automatically engaging the interior wall of the post and lying flat thereagainst.

3. A fence comprising a plurality of hollow posts, each provided with a plurality of lateral openings therethrough, each opening having a vertical enlargement intermediate its ends and extending through the wall of the post, in combination with wires, and resilient fastening devices passing around the wires and having lateral substantially right-angled extensions passing through said openings whereby upon giving the fastenings a quarter-turn their bodies will be passed within the vertical enlargements, their right-angled extensions loosely engaging the interior wall of the posts by lying flat thereagainst.

4. A hollow post provided with a lateral opening therethrough having a vertical enlargement intermediate its ends and extending through the wall of the post, in combination with a wire, a fastening device for the wire comprising a wire bent upon itself and inclosing the wire, and having laterally-extending legs passing through the opening, whereby upon giving the fastening a quarter-turn its body will be passed within the vertical enlargement and the legs will automatically engage the interior wall of the post.

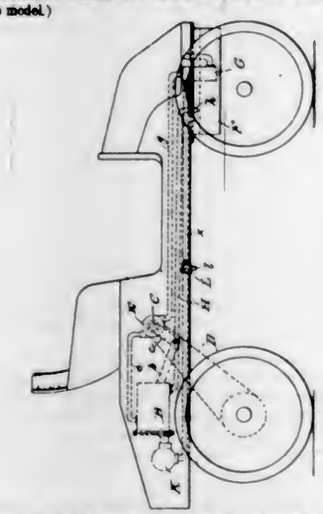
5. A hollow post having a series of openings through the wall thereof, in combination with a series of wires, a fastening means for the wires, said means comprising a plurality of resilient members connected together and bent back upon themselves and inclosing the wires, the ends of said resilient members being struck up to automatically engage the interior of the wall of the post when passed through the openings therein.

752,855. CAR-COUPLING. CARL A. OLSON, St. Francis, Minn. Filed Mar. 30, 1903. Serial No. 150,095. (No model.)



Claim.—The combination with a coupler-head 4 having the link-seat 9, of the lock-dog 11 mounted to move vertically in said coupler-head and having the beveled surface 12, the link 10 adapted to be caught by said lock-dog, and the vertically-movable arighting-block 17 mounted in said coupler-head inward of said lock-dog and operating on the inner end of the coupled link to hold the same in an approximately horizontal position, which arighting-block is movable independently of the lock-dog, substantially as described.

752,856. CIRCULATING SYSTEM FOR AUTOMOBILES. HENRY C. OSBORN, Cleveland, Ohio. Filed June 10, 1902. Serial No. 111,026. (No model.)



Claim.—1. In an automobile, in combination, an engine adapted to propel the vehicle, a water-circulating system, a reservoir forming a part of said system and located at a lower level than any other point in said system, pipes leading to and from said reservoir, one of said pipes extending into said reservoir, and means for passing the exhaust-gases from said engine around said pipe extending into said reservoir, substantially as described.

2. In an automobile, in combination, a gas-engine adapted to propel the vehicle, a water-circulating system including a reservoir in which the water of said system may collect, a suction-nozzle through which the water from said reservoir may be drawn, and means for circulating the exhaust-gases from said engine around said nozzle, substantially as set forth.

3. In an automobile, in combination, a gas-engine adapted to propel the vehicle, a water-circulating system adapted to lead water around the cylinder-wall of said engine, a reservoir in said circulating system in which the water may collect, a suction-nozzle through which the water from said reservoir may be drawn, and means for circulating the exhaust-gases from said engine around said nozzle substantially as set forth.

4. In an automobile, a gas-engine adapted to propel the vehicle, a water-circulating system adapted to lead water around the cylinder-wall of said engine, a pump adapted to maintain said water in circulation while said vehicle is in motion, a reservoir included in said water-circulating system and in which the water is adapted to accumulate, a suction-nozzle through which the water from said reservoir is adapted to be drawn and means for circulating the exhaust-gases from said engine around said nozzle, substantially as set forth

5. In an automobile, in combination, an engine adapted to propel the vehicle, a water-circulating system, including a reservoir in which the water of said system is adapted to accumulate, a pipe adapted to lead the exhaust-gases from said engine through said reservoir, an outlet for said gases directly into the outer air between the engine and said reservoir, and means for controlling the flow of the gases through said reservoir and through said outlet, substantially as set forth.

6. In an automobile, in combination, a gas-engine adapted to propel the vehicle, a water-circulating system adapted to supply water to the jacket of said engine, a reservoir forming a part of said system and located at a lower level than any other point in said system wherefore the water may accumulate therein, means for leading the exhaust-gases from said engine through said reservoir, and means intermediate of the engine and said reservoir for permitting the escape of said gases, substantially as described.

7. In an automobile, in combination, a gas-engine, a water-circulating system including a reservoir at a low level in said system wherefore the water may accumulate therein, a suction-nozzle within said reservoir, through which the water of said reservoir may be drawn, said suction-nozzle comprising an inner duct and a chamber surrounding the same, and means for leading the exhaust-gases from said engine through said chamber, substantially as set forth.

8. In an automobile, in combination, a gas-engine adapted to propel the vehicle, a water-circulating system adapted to lead water around the cylinder-wall of the said engine, a muffler receiving the exhaust, a reservoir at a low level and included in said circulating system, said reservoir being of such capacity as to contain all the circulating water of said system, and means for leading the exhaust-gases from said muffler through said reservoir, substantially as set forth.

9. In an automobile, in combination, a gas-engine adapted to propel the vehicle, a water-circulating system including a reservoir in which the water of said system may accumulate, a muffler into which the exhaust-gases of said engine may pass, a pipe leading from said muffler through said reservoir, a branch outlet connecting with said pipe and leading directly to the open air and a two-way cock adapted to direct the gases from said muffler to said reservoir or through said branch outlet, substantially as set forth.

10. In an automobile, in combination, a water-circulating system, a nozzle adapted to have the circulating water drawn therethrough, means whereby the water may accumulate thereabout when not circulating, and means whereby a fluid at a high temperature may pass around said nozzle, substantially as set forth.

11. In an automobile having a gas-engine and a circulating system including a reservior, the combination of a nozzle extending into said reservior, a pipe connecting said nozzle with the water-jacket of said engine, a casing around said nozzle, connections leading from the exhaust-port of said engine to said casing, and a suitable outlet therefor, substantially as described.

752,857. PENCIL-CASE. ANTON J. FAROUBEK, Jersey City, N. J. Filed June 17, 1903. Serial No. 161,825. (No model.)



Claim.—1. A pencil-case, comprising side pockets adapted to face one another, a central pocket adapted to fold upon itself, and means removably secured in the side pockets to lock the central pocket in its folded position.

2. A pencil-case comprising side pockets arranged in line and opening toward one another, a central pocket adapted to fold upon itself, a pocket secured to the end of the aforesaid central pocket, means for securing a ruler to the side pockets, said ruler acting to hold the central pockets in their folded position, and a cover adapted to fold over and cover all the pockets.

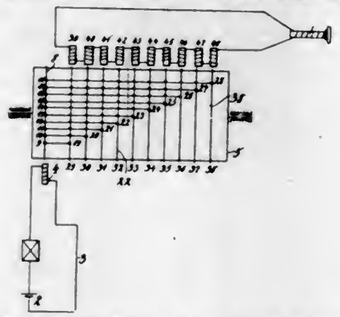
3. A pencil-case, comprising side pockets lying when folded in the same plane and opening toward one another, pockets within said pockets, a central pocket arranged between the side pockets and adapted to be folded over upon itself when the case is folded, means for securing pencils or writing-tools in the inner pockets of the side pockets, means on the side pockets to secure a ruler thereto, said ruler acting to hold the central pocket in its folded position, and a cover adapted to fold over and cover all the pockets.

4. A pencil-case, comprising side pockets, lying normally in the same plane and adapted to open toward one another, a transverse pocket between the side pockets adapted to fold over upon itself, a cover designed to fold over and cover all the pockets, and means for securing said cover in its folded position.

5. A pencil-case, comprising side pockets lying normally in the same plane and opening toward one another, a transverse pocket arranged between the side pockets and adapted to fold over upon itself when the case is folded, pockets within the side pockets for the reception of pencils and writing-tools, straps on the outside of the transverse pocket to secure the ends of the pencils, slits in the side pockets to receive and hold a ruler, the ruler acting to hold the transverse pocket in its folded position, a cover adapted to fold over and cover all the pockets, and means for securing the cover in its folded position.

6. A pencil-case, comprising side pockets lying normally in the same plane and opening toward one another, a transverse pocket arranged between the side pockets and adapted to fold over upon itself when the case is folded, a pocket secured to the end of the transverse pocket, pockets within the side pockets for the reception of pencils and writing-tools, straps on the outside of the transverse pocket to secure the ends of the pencils, slits in the side pockets to receive and hold a ruler, the ruler acting to hold the transverse pocket in its folded position, a cover adapted to fold over and cover all the pockets, and means for securing the cover in its folded position.

752,858. ELECTROMAGNETIC SWITCH DEVICE FOR APPARATUS FOR MAGNETICALLY RECORDING AND STRENGTHENING THE REPRODUCTION OF SPEECH, &c. PEDER O. PEDERSEN, Copenhagen, Denmark. Filed June 21, 1901. Serial No. 65,422. (No model.)



Claim.—1. The combination of two circuits each containing transmitting and receiving apparatus, a paramagnetic body adapted to receive magnetic records of electrical impulses or signals traversing either of said circuits, and means whereby the signals recorded by either of said circuits in said body are reproduced and augmented in the other circuit, substantially as described.

2. In an apparatus for electromagnetically recording and reproducing speech and other signals, the combination of a body adapted to receive a magnetic record, two circuits each containing transmitting and receiving devices, a recording device, means for making a magnetic record in said device of the signals traversing each circuit and means for reproducing the record created by the signals of each circuit and transferring them to the other circuit, for the purpose set forth.

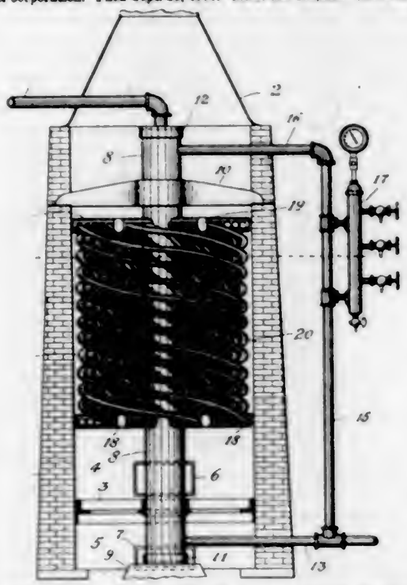
3. In an apparatus for electromagnetically recording and reproducing speech and other signals, the combination of a body adapted

to receive a magnetic record, two circuits each containing transmitting and receiving devices, a recording-magnet and a series of reproducing-magnets in each circuit, the reproducing-magnets of one circuit being adapted to reproduce the record made by the recording-magnet of the other circuit and means whereby each recording-magnet will not record signals reproduced by the reproducing-magnets in its own circuit.

4. In an apparatus for electromagnetically recording and reproducing speech and other signals, the combination of a body adapted to receive a magnetic record, two circuits each containing transmitting and receiving devices, a recording-magnet and a series of reproducing-magnets in each circuit, the reproducing-magnets of one circuit being adapted to reproduce the record made by the recording-magnet of the other circuit and a branch circuit connecting each recording-magnet to an intermediate point of the series of reproducing-magnets in its own circuit, whereby a counter-current traverses the recording-magnet to neutralize the effect in the recording-magnet of the current reproduced by the reproducing-magnets.

5. In an apparatus for electromagnetically recording and reproducing speech and other signals, the combination of a body adapted to receive a magnetic record, two circuits each containing transmitting and receiving devices, a recording-magnet and a series of reproducing-magnets in each circuit, the reproducing-magnets of one circuit being adapted to reproduce the record made by the recording-magnet of the other circuit and means whereby the current reproduced in a given series of reproducing-magnets is divided and traverses the recording-magnet in the same circuit in opposite directions, for the purpose set forth.

752,859. **STEAM-GENERATOR.** HERBERT E. PENNEY, Minneapolis, Minn., assignor to W. S. Nott Company, Minneapolis, Minn., a Corporation. Filed Sept. 29, 1903. Serial No. 175,041. (No model.)



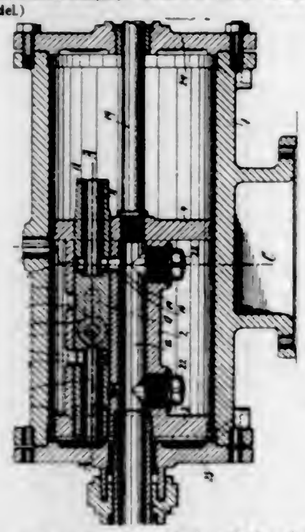
Claim.—1. In a steam-generator, the combintion with a suitable housing, of a central vertical drum providing a water-space in its lower portion and a steam-space in its upper portion, suitable water and steam connections, and tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and series of coils extending spirally around the drum and connecting the upper and lower headers, substantially as set forth.

2. In a steam-generator, the combination with a suitable housing, of a central vertical drum providing a water-space in its lower portion and a steam-space in its upper portion, suitable water and steam connections, and tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and connected in radial order to the upper and lower headers, substantially as set forth.

3. In a steam-generator, the combination with a suitable housing, of a central vertical drum providing a water-space in its lower portion and a steam-space in its upper portion, suitable water and steam connections, tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and series of coils extending spirally around the drum and connecting the upper with the lower headers and trending in substantially equidistant spiral courses around the drum, substantially as set forth.

4. In a steam-generator, in combination, a suitable housing, a central vertical drum providing a water-space in its lower portion and a steam-space in its upper portion, a water-pipe and a steam-pipe extending from the drum to the outside of the housing, and tube-sections comprising series of upper and lower radially-arranged headers in communication with the drum and series of coils extending spirally around the drum and connecting the upper and lower headers, substantially as set forth.

752,860. **STEAM-ENGINE.** CARL POLIČ and JOSEF MÖDLINGER, Budapest, Austria-Hungary. Filed Mar. 2, 1903. Serial No. 145,833. (No model.)

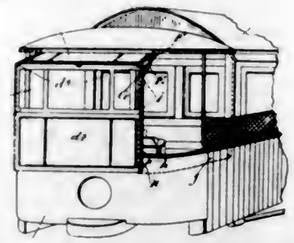


Claim.—1. The combination with the cylinder, of a piston operating therein, said piston having its intermediate portion contracted and formed with a central hollow space, and to one side thereof with a chamber, a pair of exhaust-ports which are spaced apart adjacent the opposite ends of said chamber whereby communication is established with said central hollow space, a second pair of ports leading from said chamber and communicating with a space within the cylinder between the enlarged ends of the piston, a valve having its opposite ends provided with hollow spaces, the opposite walls of which are formed with openings adapted to alternately communicate with the adjacent openings of the chamber, the ends of said cylinder being open, and a pipe secured in said piston communicating with the interior thereof and extending to a point without the cylinder.

2. In combination with the cylinder and the piston operating therein, said piston being hollow and having its intermediate portion contracted whereby a chamber is formed exterior thereto and between its ends, a valve slidably mounted in said piston to one side of its center, ports, communicating in the interior of said piston, said valve being formed with ports adapted to alternately aline with the ports communicating with the interior of said piston, ports formed with the outer wall of said chamber, a second series of ports in said valve adapted to alternately communicate with the ports arranged in the outer wall of said chamber, the first-named series of ports of said cylinders being in alinement with their ports when the second-named series of ports are out of alinement with their ports, the ends of said cylinder being open whereby a propelling medium can pass therethrough into engagement with the end walls of the cylinder and operate the valve, substantially as described.

752,861. **VESTIBULE FOR CARS.** MICHAEL POWER, Toronto, Canada, assignor of one-fifth to Robert George Dickson, Toronto, Ontario, Canada. Filed June 17, 1903. Serial No. 161,855. (No model.)

Claim.—1. A vestibule-front comprising a plurality of folding sections, a detachable connection at the bottom to the dashboard, a hinged connection at the top permitting said section to be swung rearwardly beneath the car-roof, and fastening means for holding the folded sections in close proximity to the car-roof, substantially as described.



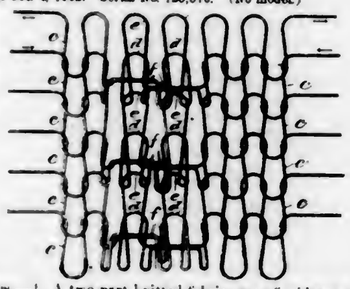
2. A vestibule-front comprising three portions hinged together, the top portion being hinged to the roof and hinged at the outside to the intermediate portion, and the intermediate portion being hinged at the inside to the lower portion and detachable means for connecting the lower portion to the dashboard as and for the purpose specified.

3. A vestibule-front comprising three portions, the upper portion being set at an obtuse angle to the intermediate portion and hinged at the outside thereto, and the intermediate portion being hinged to the lower portion and braces extending between the upper portion and the intermediate portion and designed to hold the same at an obtuse angle as and for the purpose specified.

4. The combination with the vestibule-front and front cross-plate thereof, of hangers depending from the front plate, a vestibule-front comprising three portions, the top portions being pivotally connected to the hangers and hinged together at the outside, and the lower portions being hinged together at the inside, and means for fastening the lower portions to the dashboard as and for the purpose specified.

5. The combination with the vestibule-front and front cross-plate thereof, of hangers depending from the cross-plate, a vestibule-front comprising three portions, the top portions being pivotally connected to the hangers and hinged together at the outside, and the lower portions being hinged together at the inside, means for fastening the lower portions to the dashboard, brackets provided with lugs fastened to the outside edges of the top portions, side brackets fastened to the outside edges of the intermediate portion and provided with fastening-buttons and a brace pivotally connected between the lugs of the brackets of the top portion and fitting over the buttons of the brackets of the intermediate portion as and for the purpose specified.

752,862. **KNITTED FABRIC.** ANDREW W. REDIN, Kenosha, Wis. Filed Oct. 4, 1902. Serial No. 125,876. (No model.)



Claim.—1. A two-part knitted fabric, one of said parts having a wale lying within the other part to secure the two parts together, the yarn of the first-mentioned part passing from the main portion of said part to its wale through the body of the intervening portion of the other part and returning through said intervening portion to its said main portion.

2. A two-part knitted fabric, each of said parts having a wale lying within the other part, the yarn of each part passing from the main portion of said part to its wale through the body of the intervening wale of the other part and returning through said wale to its said main portion.

3. A two-part knitted fabric, each part having a wale composed of anchor-stitches lying in the other part to secure the two parts together, the yarn of each part passing through the body of the wale of the other part.

4. A two-part knitted fabric, one of said parts having a wale lying in the other part, which wale is joined to the main portion of its part by a connecting-strand passing through the body of the intervening portion of said other part and returning through said intervening portion to its said main portion.

5. A two-part knitted fabric, each part having a wale, each of said wales being joined to the main portion of its part by means of a connecting-strand passing through the body of the intervening wale of the other part and returning through said wale to its said main portion.

6. A two-part knitted fabric, each part composed of reversed, reciprocally-knitted courses, one of said parts having a wale lying within the other part, which wale is joined to the body of its part by connecting-strands passing through the body of the intervening portion of said other part.

7. A two-part knitted fabric, each part composed of reversed, reciprocally-knitted courses and each having a wale composed of anchor-stitches located in the body of the other part, the anchor-stitches of each wale being joined to the main portion of their said part by means of connecting-strands passing through the body of the wale of the other part of said fabric.

8. A two-part knitted fabric, each part composed of reversed, reciprocally-knitted courses and each having a wale composed of anchor-stitches located in the other part of said fabric, said anchor-stitches being joined to the main portion of their said respective parts by means of connecting-strands, adjacent anchor-stitches of the wale of each part inclosing between them the connecting-strands of the coinciding courses of the other part of said fabric.

9. A knitted fabric comprising two parts, each made up of reversed, reciprocally-knitted courses, each part having a wale joined to the main portion of said part by means of connecting-strands passing through the body portion of the wale of said other part.

10. A knitted fabric comprising two parts, each made up of reversed, reciprocally-knitted courses, each part having a wale lying in the body of the other part of said fabric, each of which wales is connected to the main portion of its part by connecting-strands passing through the body of the wale of the other part.

11. A knitted fabric comprising two parts, each made up of reversed, reciprocally-knitted courses, each part having a wale composed of anchor-stitches lying in the other part of said fabric, the anchor-stitches of each wale being joined to the main portion of its said part by means of connecting-strands passing between the interlooped anchor-stitches composing the wale of the other part of said fabric.

12. A knitted fabric comprising two parts, each made up of reversed, reciprocally-knitted courses, each part having a wale composed of anchor-stitches lying in the body of the other part of said fabric, said anchor-stitches being joined to the main portion of their respective parts by means of connecting-strands, which connecting-strands pass between and are inclosed by the interlocking loops of the anchor-stitches comprising the wale of the other part of the fabric.

13. A two-part stocking formed from different yarns, each part having a wale in the margin of the other part, the yarn of each part passing from the main portion of said part to its wale through the body of the wale of the other part and returning through said wale to its said main portion.

14. A stocking having a sole and a top, each knitted from a different yarn, said sole and top each having a wale made up of the yarn of its said part and lying in the margin of the other part, each wale being connected to the main portion of its said part by a strand passing through the body of the wale of the other part and returning through said wale to its said main portion.

15. A stocking having a sole and a top knitted from different yarns, said sole and top each having a wale at their adjacent edges, each wale being joined to the main portion of its respective part by means of a connecting-strand passing through the body of the wale of the other part and returning through said wale to its said main portion.

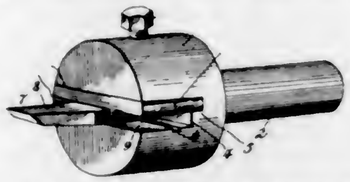
16. A stocking having a sole and a top knitted from different yarns and each made up of reversed, reciprocally-knitted courses, said sole and said top each having a wale lying in the margin of said other part, the yarn of each wale passing through the body of the other wale.

17. A stocking having a sole and a top knitted from different yarns and each made up of reversed, reciprocally-knitted courses, said sole and top being joined together at one of their adjacent edges

by a wale formed from the yarn of one of said parts but lying in the margin of the other part, said wale being connected to the main portion of its part by means of strands passing through the intervening portion of the other part.

18. A stocking having a sole and a top, each knitted from a different yarn and made up of reversed, reciprocally-knitted courses, said sole and top being joined together at each of their adjacent edges by two wales, one of said wales being made up of the yarn composing the sole, and the other of the yarn composing the top, each wale being joined to the main portion of its part of the fabric by means of connecting-strands passing through the body portion of the wale of the other part.

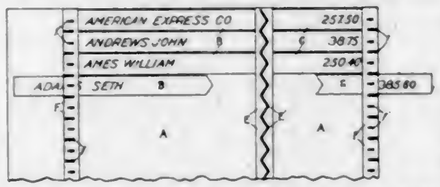
752,863. **TOOL-HOLDER.** OSCAR P. ROSBERG and JULIUS J. BRABANT, La Crosse, Wis. Filed Apr. 9, 1903. Serial No. 151,799. (No model.)



Claim.—1. In a chuck or tool-holder, the combination of a head having a transverse slot formed in one of its side walls with a groove adapted to receive a tongue projecting from a tool, a clamp adapted to fit within the slot and provided at one end with a lateral stop to limit the sliding movement of the tool in one direction, and means for actuating the clamp, substantially as described.

2. In a chuck or tool-holder, the combination of a head having a transverse slot and a tool-bearing shoulder and a recess, and contiguous to the shoulder a longitudinal groove adapted to receive a tongue projecting from a tool, a clamp fitting in the slot and its recess and having at one end a lateral stop-shoulder to limit the sliding movement of the tool in one direction, and means for actuating the clamp, substantially as described.

752,864. **BALANCE-BOOK AND INDEX.** WILLIAM H. SANNOM, Sioux City, Iowa. Filed Oct. 10, 1903. Serial No. 176,516. (No model.)

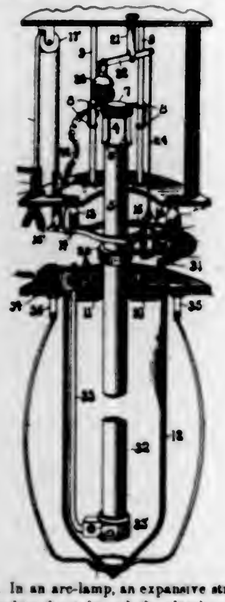


Claim.—1. A balance-book having leaves divided into columns by retaining devices vertically secured thereto consisting of narrow strips having central zigzag indentations adjacent to the leaf, the points of deflection in said indented part forming equal obtuse angles on both sides of the line of indentation for the reception of cards, the ends of said cards being shaped to fit the angles of the indented part, and the flat part of said strips forming guides for the retention of sheets, substantially as described.

2. In a balance-book, vertical retaining devices secured thereto consisting of strips having central zigzag indentations adjacent to the leaf, the points of deflection in said indented part forming equal obtuse angles for the reception of cards, in combination with other vertical strips having a series of indentations formed by cutting parallel slots in the strips and pressing out the intervening material and adapted to press upon the cards at the ends, substantially as described.

3. A balance-book having leaves divided into vertical columns by retaining devices secured thereto, narrow strips with central zigzag indentations adjacent to the leaf, the points of deflection in said indented part forming equal obtuse angles on both sides of the line of indentation, in combination with indentations at the ends of said strips formed by cutting parallel slots in the strips longitudinally with the strips and pressing out the intervening material, adapted to press upon the edge of the sheets inserted underneath said strips, substantially as described.

752,865. **ELECTRIC-ARC LAMP.** CARL SCHUSTER and CHRISTIAN N. BERGMANN, Pittsburg, Pa. Filed Mar. 20, 1902. Renewed July 18, 1903. Serial No. 166,194. (No model.)



Claim.—1. In an arc-lamp, an expansive strip, a carbon-clutch, a lever connected to the strip and the clutch, a weight, and a connection distinct from the lever between the weight and the lever, whereby the tension of the strip is regulated and the carbons separated by the weight.

2. In an arc-lamp, an expansive strip, a carbon-clutch, a lever connected to the strip and the clutch, a second lever, a weight on the second lever, and a connection between the two levers.

3. In an arc-lamp, an expansive strip, a carbon-clutch, a lever connected to the strip and the clutch, a screw to which the strip is connected, and a nut on the screw for adjusting the tension of the strip.

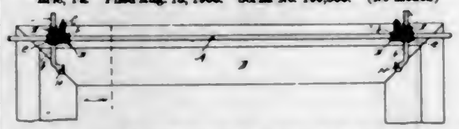
4. In an arc-lamp, a clutch for raising, holding and lowering a carbon, means engaging the clutch for raising it, means for holding the carbon stationary while in the grip of the clutch, and means for releasing the holding means.

5. In arc-lamps, an expansion-strip, a carbon-clutch, a lever associated with the strip and the clutch, a catch arranged to be engaged by the clutch and to stop the feed of the carbon, and means for tripping the catch.

6. In arc-lamps, an expansion-strip in the circuit, a carbon-clutch, a lever operatively associated with the strip and the clutch, and a catch for arresting the motion of the clutch, the lever and the catch coöperating with the clutch on the same side of the carbon.

7. In arc-lamps, a carbon-feed regulator comprising an expansive strip in the circuit, a single carbon-clutch, a lever operatively associated with the strip and the clutch, a catch for arresting the clutch, and means for tripping the catch.

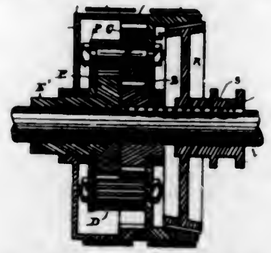
752,866. **SHADE-ROLLER-BRACKET JACK.** MARTIN SCHWAB, Erie, Pa. Filed Aug. 13, 1903. Serial No. 169,355. (No model.)



Claim.—1. The combination in a shade-roller-bracket jack, of a horizontal rod, adjustable sleeves thereon, hooks on said sleeves vertically-adjustable rods mounted thereon, and jaws on the lower ends of said rods, substantially as and for the purpose set forth.

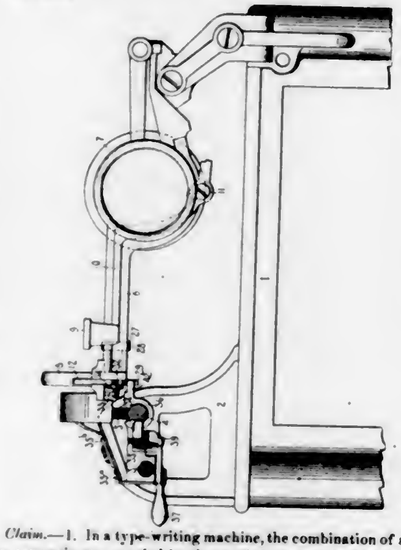
2. The combination in a shade-roller-bracket jack, of a horizontal rod, sleeves adjustably secured thereto, hooks on said sleeves vertical sleeves secured to the sleeves on the rod, vertically-adjustable rods in said sleeves, bracket-jaws on the lower ends of the rods, and means for securing the rods in said sleeves, substantially as set forth.

752,867. **POWER-TRANSMITTING GEAR.** CLARK SMITH, Grand Rapids, Mich., assignor to Frederic J. Ball, Brooklyn, N. Y. Filed Feb. 8, 1902. Serial No. 93,234. (No model.)



Claim.—In combination, a rotary driving-shaft, a power-transmitting sleeve, a closed drum, an open drum, a train of gearing composed of a combination of externally and internally toothed gears intermeshing with each other located entirely within the closed drum for connecting the shaft, drums and sleeve, brakes arranged to engage the peripheral walls of the said drums for arresting one or the other of the said drums and a clutch for engaging the inner face of the peripheral wall of the open drum.

752,868. **TYPE-WRITING MACHINE.** CHARLES E. SMITH, New York, N. Y., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 17, 1903. Serial No. 177,422. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage, a margin-stop carried by the carriage, means for locking said stop, a hand-actuated device at the front of the carriage for releasing said margin-stop from locking engagement, and a coöperating margin-stop on the frame of the machine, said last-mentioned stop being in the path of the stop on the carriage normally to arrest the carriage in its movement from left to right.

2. In a type-writing machine, the combination of a carriage, a stop carried by the carriage, means for locking said stop, a hand-actuated device for releasing said stop from locking engagement, a stop on the frame of the machine, said stops coöperating normally to arrest the carriage at a predetermined point in its travel, means for affording a travel of the carriage beyond the point where it is normally arrested when the carriage-stop is released, and means for automatically restoring the carriage-stop to its normal position when the carriage is returned from beyond where it is normally arrested.

3. In a type-writing machine, the combination of a carriage, a stop carried by the carriage, means for locking said stop, a hand-actuated device for releasing said stop from locking engagement, a stop on the frame of the machine, said stops coöperating normally to arrest the carriage at a predetermined point in its travel, means for affording a travel of the carriage beyond the point where it is normally arrested when the carriage-stop is released, means for automatically restoring the carriage-stop to its normal position when the carriage is returned from beyond where it is normally arrested, and means for automatically locking the carriage-stop when it is in the normal position.

4. In a type-writing machine, the combination of a carriage, a stop carried by the carriage, means for normally preventing a relative movement between the stop and carriage, a stop on the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, and means for affording a travel of the carriage independently of the stop thereon, so that the carriage may travel beyond the point where it is normally arrested.

5. In a type-writing machine, the combination of a carriage, a stop carried by the carriage, means for normally preventing a relative movement between the stop and carriage, a stop on the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, means for affording a travel of the carriage independently of the stop thereon, so that the carriage may travel beyond the point where it is normally arrested, and means for automatically restoring the stop on the carriage to its normal position.

6. In a type-writing machine, the combination of a carriage, margin-stops that coöperate normally to arrest the carriage at a predetermined point, means for locking one of said stops in the normal position, means for releasing said locked stop irrespective of the position of the carriage to afford a movement thereof beyond the point where it is normally arrested, and means for automatically locking said released stop when the carriage is returned from beyond where it is normally arrested.

7. In a type-writing machine, the combination of a carriage, margin-stops that coöperate normally to arrest the carriage at a predetermined point, means for locking one of said stops in the normal position, means for releasing said locked stop irrespective of the position of the carriage, means effecting a relative displacement between the released stop and the part which carries it to afford a movement of the carriage beyond the point where it is normally arrested, means for automatically effecting a restoration of the normal relation between the released stop and the part which carries it when the carriage is returned from beyond where it is normally arrested, and means for automatically bringing about an operation of said locking means to lock said released stop when the normal relation has been attained.

8. In a type-writing machine, the combination of a carriage, margin-stops that coöperate normally to arrest the carriage at a predetermined point, one of said stops being carried by the carriage and the other by the frame of the machine, means for locking the stop on the carriage in the normal position, hand-operated means for releasing said locked stop to afford a movement of the carriage beyond the point where it is normally arrested by the stops abutting one against the other, and the carriage-stop being arrested while the carriage is free to travel independently thereof, means for automatically restoring the stop to normal position on the carriage when the carriage is returned from beyond where it is normally arrested, and means for automatically bringing about an operation of said locking means to lock said released stop when the normal relation has been attained.

9. In a type-writing machine, the combination of a carriage, a slide that moves on the carriage and is adapted to afford a movement of the carriage beyond the point where it is normally arrested, a margin-stop carried by said slide, means for locking said slide in the normal position on the carriage, and a coöperating stop on the frame of the machine.

10. In a type-writing machine, the combination of a carriage, a slide that moves on the carriage and is adapted to afford a movement of the carriage beyond the point where it is normally arrested, a margin-stop carried by said slide, means for locking said slide in the normal position on the carriage, a coöperating stop on the frame of the machine, and means for effecting an adjustment of one of said stops so as to determine the point where the carriage will be normally arrested.

11. In a type-writing machine, the combination of a carriage, a spring-restored slide that moves on the carriage and is adapted to afford a movement of the carriage beyond the point where it is ar-

rested, a margin-stop carried by said slide, means for automatically locking said slide when it is in the normal position on the carriage, and a coöperating stop on the frame of the machine.

12. In a type-writing machine, the combination of a carriage, a hand-operated device carrying a locking member, a slide that is adapted to move relatively to and independently of said hand-operated device and carries a coöperating locking member, a margin-stop on the slide and a second coöperating margin-stop

13. In a type-writing machine, the combination of a carriage, a hand-operated device carrying a locking member, a spring-restored slide that is adapted to move relatively to and independently of said hand-operated device, and carries a coöperating locking member, a margin-stop on the slide, a second coöperating margin-stop, and means for automatically bringing about a locking engagement between said locking members when the slide is restored to its normal position.

14. In a type-writing machine, the combination of a carriage, a hand-operated device carried by the carriage and having a locking member, a slide carried by the carriage and adapted to move relatively to said hand-operated device, a locking member and a stop carried by said slide, said last-mentioned locking member coöperating with the locking member on the hand-actuated device to lock the slide against movement, and a second coöperating stop.

15. In a type-writing machine, the combination of a carriage, a hand-operated device carried by the carriage and having a locking member, an automatically-restored slide carried by the carriage and adapted to move relatively to said hand-operated device, a locking member and a stop carried by said slide, said last-mentioned locking member coöperating with the locking member on the hand-actuated device to lock the slide against movement, a second coöperating stop, and means for automatically bringing about a coöperation between said locking members when said slide is in its normal position on the carriage.

16. In a type-writing machine, the combination of a carriage, a hand-operated lever having a locking member thereon, a slide that moves relatively to said lever in the general direction of the travel of the carriage, a locking member and a stop on said slide, said locking members coöperating to lock the slide against movement on the part which carries it, and a coöperating stop.

17. In a type-writing machine, the combination of a carriage, a hand-operated spring-restored lever having a locking member thereon, a spring-restored slide that moves relatively to said lever in the general direction of the travel of the carriage, a locking member and a stop on said slide, said locking member coöperating to lock the slide against movement on the part which carries it when the slide is in the normal position, and a coöperating stop.

18. In a type-writing machine, the combination of a carriage, a hand-operated lever carried by the carriage and having a locking member thereon, means for restoring said lever to its normal position, a slide that is carried by the carriage and moves thereon relatively to said lever in the general direction of the travel of the carriage, means for restoring said slide to its normal position on the carriage, a locking member and a stop on said slide, said locking members coöperating to lock the slide against movement on the carriage when the slide is in the normal position, and a coöperating stop.

19. In a type-writing machine, the combination of a carriage, a hand-operated device, a locking member and a cam on said device, a slide that moves relatively to said device in the general direction of the travel of the carriage, a locking member, cam and stop on said slide, and a second coöperating stop.

20. In a type-writing machine, the combination of a carriage, a hand-operated spring-pressed lever, a locking member and a cam on said lever, a spring-pressed slide that moves relatively to said lever in the general direction of the travel of the carriage, a locking member, cam and stop on said slide, and a second coöperating stop.

21. In a type-writing machine, the combination of a carriage, a hand-actuated lever on said carriage, a locking member and cam on said lever, means for restoring the lever to normal position, a slide that moves on said carriage and relatively to said lever in the general direction of the travel of the carriage, a locking member, cam and stop on said slide, means for restoring the slide to normal position on the carriage, and a second coöperating stop.

22. In a type-writing machine, the combination of a carriage, a hand-actuated spring-pressed lever on said carriage, a locking member and cam on said lever, a spring-restored slide that moves on said carriage and relatively to said lever in the general direction of the travel of the carriage, a locking member, cam and stop on said slide, a second coöperating stop, and means for affording an adjustment of one of said stops in the general direction of the travel of the carriage.

23. In a type-writing machine, the combination of a carriage, a margin-stop that is adapted to move freely on the part that carries it, a stop to limit the free movement of the margin-stop in one direction, an adjustable stop to limit the movement of the margin-stop in an opposite direction, and a coöperating margin-stop.

24. In a type-writing machine, the combination of a carriage, a spring-pressed margin-stop that is adapted to move on the part that carries it, to afford a movement of the carriage beyond the point where it is normally arrested by the margin-stop, a stop to limit the free movement of the margin-stop in one direction, an adjustable stop to limit the movement of the margin-stop in an opposite direction and to determine the extent of movement afforded the carriage beyond the point where it is normally arrested, and a coöperating margin-stop.

25. In a type-writing machine, the combination of a carriage, a slide carried by the front cross-bar of the carriage and movable in the direction of the length thereof, a margin-stop carried by said slide, a lock which locks the slide to the cross-bar, a finger-piece connected to said lock, and a margin-stop carried by the frame of the machine, whereby when the slide is locked the carriage will be arrested at a predetermined point and when the lock is released the slide will be arrested by the margin-stop on the frame and the carriage can move independently of the slide and beyond the point where it is normally arrested.

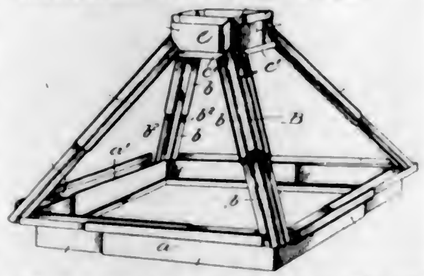
26. In a type-writing machine, the combination of a carriage, a slide carried by the front cross-bar of the carriage and movable in the direction of the length thereof, a spring for restoring the slide to normal position on the cross-bar, a margin-stop carried by said slide, a lock which locks the slide to the cross-bar, a finger-piece connected to said lock, and a margin-stop carried by the frame of the machine.

27. In a type-writing machine, the combination of a carriage a slide carried by the front cross-bar of the carriage and movable in the direction of the length of said bar, a locking member and margin-stop carried by said slide, a spring for restoring the slide to normal position on the cross-bar, a hand-actuated lever having a locking member thereon which coöperates with the locking member on the slide, and a margin-stop carried by the frame of the machine.

28. In a type-writing machine, the combination of a carriage, a slide carried by the front cross-bar of the carriage and movable in the direction of the length of said bar, a locking member and margin-stop carried by said slide, a spring for restoring the slide to normal position on the cross-bar, a hand-actuated lever having a locking member thereon which coöperates with the locking member on the slide, means for automatically engaging said locking members by a movement of the slide to normal position, and a margin-stop carried by the frame of the machine.

29. In a type-writing machine, the combination of a carriage, a slide carried by the front cross-bar of the carriage and movable in the direction of the length of said bar, a locking member and margin-stop carried by said slide, a spring for restoring the slide to normal position on the cross-bar, a hand-actuated spring-restored lever pivoted to the front cross-bar of the carriage and having a locking member thereon which coöperates with the locking member on the slide, means for automatically engaging said locking members by a movement of the slide to normal position, and an adjustable margin-stop carried by the frame of the machine.

752,869. **SKYLIGHT.** CHARLES W. SMITH, New York, N. Y. Filed May 29, 1903. Serial No. 159,350. (No model.)



Claim.—1. A skylight provided with an extensible supporting-frame, and a plurality of extensible glass-supporting ribs connected to said frame and extending above the plane of the frame substantially as described.

2. A skylight provided with a supporting-frame and a plurality of glass-supporting ribs connected therewith and extending above the plane of the frame, each member of said frame and each of said ribs comprising a plurality of parts extensibly connected together substantially as described.

3. A skylight provided with a supporting-frame and a plurality of glass-supporting ribs connected therewith and extending above the plane of the frame, each member of said frame and each of said ribs comprising a plurality of separable parts extensibly connected together substantially as described.

4. A skylight comprising a supporting-frame, a second frame above the supporting-frame and ribs connecting said frames, each member of said frames and each of said ribs being extensible substantially as described.

5. A skylight comprising a supporting-frame, glass-supporting ribs connected therewith and extending above the frame, said frame having members composed of two or more parts extensibly connected substantially as described.

6. A device of the class described, comprising among its members a supporting-frame, ribs and a chimney portion, each of said members being separable and adjustable, substantially as described.

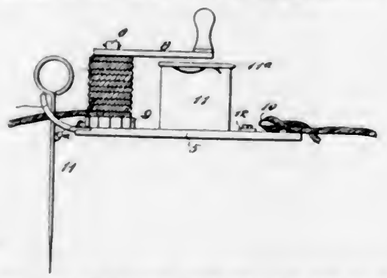
7. A device of the class described comprising among its members, a supporting-frame, a chimney portion, ribs connecting said frame and chimney portion, the sides of said frame and chimney portion and said ribs each comprising two or more portions, slidably mounted one upon the other and adapted to being detached from the same, substantially as described.

8. A device of the class described comprising among its members, a supporting frame, a chimney portion, converging ribs connecting said frame and chimney portion, the sides of said frame and chimney portion and said ribs each comprising two or more portions, one or more of which are provided with grooves and the others provided with tongues adapted to slide in said grooves and to be disengaged from same, substantially as described.

9. A device of the class described comprising among its members, a supporting-frame, a chimney portion, converging ribs connecting said frame and chimney portion, the sides of said frame and chimney portion and said ribs each comprising two or more portions, one or more of which are provided with grooves and the other provided with tongues adapted to slide in said grooves and to be disengaged from same, and means for retaining said slidable portions in place, substantially as described.

10. A device of the class described comprising among its members, a supporting-frame, a chimney portion, converging ribs connecting said frame and chimney portion, the sides of said frame and chimney portion and said ribs each comprising two portions, one of said portions being provided with grooves and the other being provided with tongues adapted to slide in said grooves and to be disengaged from same, and means for retaining said slidable portions in place, substantially as and for the purpose described.

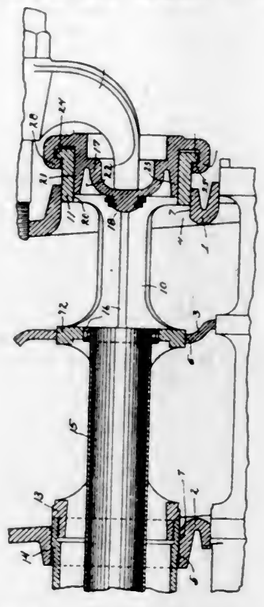
752,870. **SHOCK-BINDER.** JAMES W. SMITH, Mogadore, Ohio. Filed Sept. 10, 1903. Serial No. 172,601. (No model.)



Claim.—1. A shock-binder comprising a base-plate having at one end an upwardly and outwardly projecting bail, a pin extensible therethrough, a spool, a rope carried by the spool, and a cleat for securing the free end of the rope.

2. A shock-binder comprising a base-plate having at one end an upwardly and outwardly projecting bail, and at the opposite end a cleat, a pin extensible through the bail, a spool adjacent to the bail having a crank, a pawl and ratchet for the spool, and a rope on the spool having its free end secured in the cleat.

752,871. **LANTERN AND LANTERN-PLUG FOR WATER-TUBE BOILERS.** JAMES P. SNEDDON, Barberton, Ohio, assignor to the Stirling Company, Chicago, Ill., a Corporation of New Jersey. Filed Jan. 24, 1903. Serial No. 140,348. (No model.)



Claim.—1. In a water-tube boiler, the combination of an outer tube or lantern provided with a conical seat on its inner face, a lantern-plug provided with a face adapted to bear against said seat, and means on said plug in front of its bearing-face for forcing said plug inwardly and holding it in engagement with said conical seat.

2. In a water-tube boiler, the combination of an outer tube or lantern provided with a conical seat, a lantern-plug provided with a face adapted to bear against said seat and having a groove or recess formed in its rear end face, thus leaving an annular wall or shell surrounding the same, and means on said plug in front of its bearing-face for forcing said plug inwardly and holding it in engagement with said conical seat.

3. In a water-tube boiler, the combination of an outer tube or lantern provided with a seat for the lantern-plug and having a spirally-arranged shoulder or shoulders formed thereon, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the outer tube or lantern and provided in front of its bearing-face with a projection or projections adapted to bear against the spirally-arranged shoulder or shoulders.

4. In a water-tube boiler, the combination of an outer tube or lantern provided with a conical seat on its inner face and having a spirally-arranged shoulder or shoulders formed thereon, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the conical seat in the outer tube or lantern and provided in front of its bearing-face with a projection or projections adapted to bear against the spirally-arranged shoulder or shoulders.

5. In a water-tube boiler, the combination of a lantern adapted to have the outer tube connected thereto and having a collar provided with a seat for the lantern-plug and having a spirally-arranged shoulder or shoulders formed thereon, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the lantern and provided in front of its bearing-face with a projection or projections adapted to engage the spirally-arranged shoulder or shoulders on the lantern.

6. In a water-tube boiler, the combination of a lantern adapted to have an outer tube connected thereto and having a collar provided with an inwardly-tapering conical seat for the lantern-plug and having a spirally-arranged shoulder or shoulders formed thereon, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the lantern, and provided in front of its bearing-face with a projection or pro-

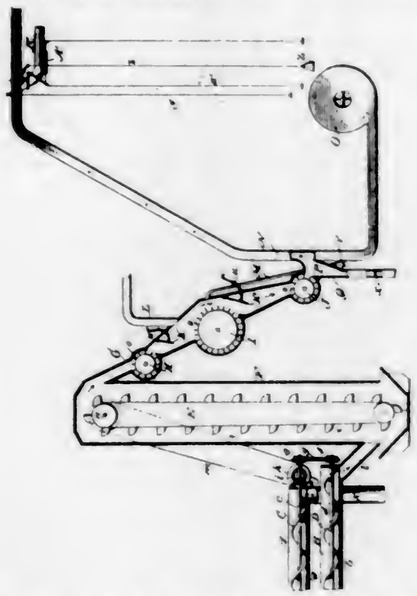
jections adapted to engage the spirally-arranged shoulder or shoulders on the lantern.

7. In a water-tube boiler, the combination of an outer tube or lantern provided with a seat for the lantern-plug and having a spirally-arranged shoulder or shoulders on its outer surface, said shoulder or shoulders being intersected by grooves or spaces, and a plug adapted to have the inner circulating-tube attached thereto and provided with a face adapted to bear against the seat in the outer tube or lantern and provided with a radial projection or projections having overhanging lips adapted to engage the spirally-arranged shoulder or shoulders on the outer tube or lantern.

8. A lantern for a water-tube boiler, comprising a skeleton frame adapted to have an outer tube connected to its rear end and provided at its forward end with a collar having a conical seat formed on its inner face and provided on its outer face with a rib or ribs having their inner edges or shoulders formed on a spiral.

9. A plug for a water-tube boiler comprising a disk-like body having a smooth outer face to engage a seat in the lantern or outer tube and provided with a radially-projecting portion or portions having inwardly-projecting lips on their outer ends.

752,872. APPARATUS FOR CLEANING COTTON-SEED. DONOVAN STAMBELL and XEN GEE, Stroud, Okla. Filed Nov. 9, 1903. Serial No. 180,410. (No model.)



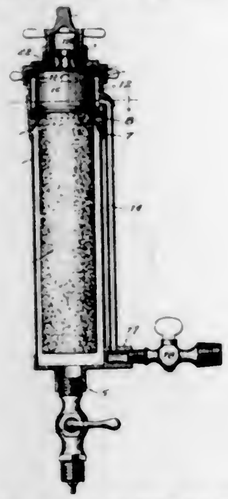
Claim.—1. An apparatus for cleaning cotton-seed, comprising two troughs or hoppers one arranged above the other and provided with suitable conveyers and screen-bottoms of different coarseness, the upper one of said troughs or hoppers having a discharge-spout and an elevator communicating with the lower one of the troughs or hoppers, a casing connecting with the casing of the elevator and rotatable beaters contained therein, substantially as and for the purpose set forth.

2. In an apparatus for cleaning cotton-seed, a suitable elevator, means for delivering the seed thereto, a casing communicating with the casing of the elevator, rotatable beaters contained within the casing, a dust-flue communicating with said casing, a conductor-pipe communicating with the casing of the rotatable beaters and an ejector-pipe communicating with the casing and with the conductor-pipe, an air-forcing device to force the air up through the conductor and ejector pipes, substantially as and for the purpose described.

3. In an apparatus for cleaning cotton-seed, a suitable elevator, means for delivering the seed thereto, a casing communicating with the casing of the elevator, rotatable beaters contained therein, a conductor-pipe and air-forcing device connecting therewith, and a spout communicating with the casing of the rotatable beaters and the conductor-pipe, and an automatically-operating door connecting with the spout, substantially as and for the purpose set forth.

4. An apparatus for cleaning cotton-seed, comprising troughs or hoppers having screen-bottoms and suitable conveyers, an elevator connecting with the lower one of the troughs or hoppers, a casing communicating with the casing of the elevator and rotatable beaters contained therein, adjustable deflectors connecting with said casing, a discharge-spout communicating with the lower end of the casing containing the beaters and provided with an automatically-acting door, a conductor-pipe communicating with the spout, and an air-forcing device connecting with the pipe, an ejector-pipe communicating with casing of the beaters and the conductor-pipe and provided with a valve, and a dust-flue communicating with the casing, substantially as and for the purpose specified.

752,873. FILTER. HENRY G. SWEENEY, Chicago, Ill. Filed Aug. 4, 1902. Serial No. 118,251. (No model.)



Claim.—1. The filter having in combination a removable cap, a filtering-cylinder removable upward through the top when the cap is removed, a pipe for carrying off the filtered water, and an annular chamber or passage surrounding the cylinder and serving to collect the filtered water from the top of the cylinder and deliver it to said pipe, substantially as specified.

2. The filter having a filtering-cylinder covered at the top by a metal thimble provided with openings for the escape of the water percolating through the cylinder, a collecting chamber or passage surrounding the thimble, and a discharge-pipe leading from said chamber or passage, substantially as specified.

3. The filter wherein are combined a tube or casing 4, a removable cap for the tube, a cylinder of filtering material having secured to it an outstanding rim or projection resting on a gasket supported by an interior shoulder of the tube, and means whereby said gasket may be compressed without any tightening of the cap, substantially as specified.

4. The filter wherein are combined the removable cap, the screw-stopper carried by the cap, the cylinder of filtering material, the thimble supporting the cylinder, the gasket and ledge supporting the thimble, and means whereby the stopper may cause the compression of the gasket, substantially as specified.

5. The filter wherein are combined the removable cap, the screw-stopper carried by the cap, the cylinder of filtering material, the thimble supporting the cylinder, the gasket and ledge supporting the thimble, and the flanged ferrule whereby the stopper may cause pressure on the thimble, substantially as specified.

6. A filter comprising a casing provided at one end with a removable closure, a filter-tube which is closed at one end, and is arranged in the casing with its open end adjacent to the removable closure of the casing, means affording a tight joint between the open end of the filter-tube and the surrounding wall of the casing, and inlet and exit pipes, permanently connected with the casing and opening into the interior of the same at opposite sides of the said joint between the open end of the tube and the casing.

7. A filter comprising a casing provided with a removable closure, a filter-tube therein provided with a permanently-attached cap which is provided with holes for the passage of water from the interior of the tube; the space between the casing and tube being divided into two chambers, one of which surrounds the filter-tube and is provided with an inlet-opening, and the other of which communicates with the interior of the tube through the holes in the filter-tube cap and is provided with an exit-opening.

8. A filter comprising a casing with a removable closure, and a filter-tube therein provided with a permanently-attached apertured cap, which, when within the casing, forms with the latter a water-chamber separate from the space which surrounds the filter-tube; said casing being provided with an inlet-opening communicating with the space which surrounds the filter-tube and with an exit-opening communicating with the chamber between the cap and casing.

9. The combination with a cylinder-casing provided at one end with a removable closure, of a filter-tube provided with a permanently-attached, apertured cap, the inner margin of which, when the tube and cap are in place within the casing, forms a tight joint with the surrounding casing, said casing being provided with inlet and exit apertures located at opposite sides of the joint between the filter-tube cap and the casing.

10. The combination with a cylindric casing, provided at one end with a removable closure, of a filter-tube provided with a permanently-attached cap, said casing and cap being provided with means affording a tight joint between the inner part of the cap and the casing and a tight joint between the outer end of the cap and the casing so as to form a water-chamber surrounding the cap.

11. The combination with a cylindric casing provided with a removable closure and with an interior, outwardly-facing shoulder, a filter-tube provided with a permanently-attached apertured cap having an inwardly-facing shoulder, a packing-ring interposed between the shoulder on the casing and cap, and means for forcing the cap toward the shoulder on the casing to compress the said packing-ring between the said shoulders.

12. The combination with a cylindric casing provided with a removable closure, of a filter-tube provided with a permanently-attached cap, the inner margin of which is adapted to form a tight joint with the casing when the tube and its cap are in place within the casing, said cap having holes in its side wall, and a packing-ring interposed between the outer end of the cap, and the adjacent wall of the casing.

13. The combination with a cylindric casing, of a filter-tube provided with a permanently-attached cap, the inner margin of which is adapted to form a tight joint with the casing, said casing being provided with a closure which fits upon the open end of the casing, and a packing-ring which surrounds the filter-tube cap and is clamped between opposite surfaces on the casing and closure.

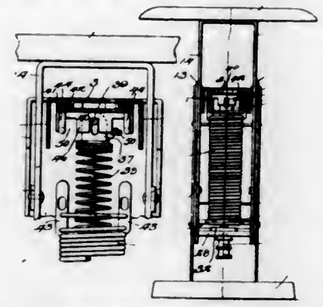
14. The combination with a cylindric casing, of a filter-tube provided with a permanently-attached cap, said casing being provided with an outwardly-facing internal shoulder and the cap with an opposing, inwardly-facing shoulder, a packing-ring interposed between the shoulders, a closure detachably secured to said casing and a screw-plug passing through the said closure and acting on the cap.

15. The combination with a cylindric casing provided with an outwardly-facing, internal shoulder, of a filter-tube provided with a permanently-attached cap having an inwardly-facing shoulder, a packing-ring interposed between said shoulders, a closure for the casing having screw-threaded connection with the end of the same, a screw-plug which passes through the said closure and acts endwise on the filter-tube cap, and a packing-ring which forms a tight joint between the said cap and the casing and also between the closure and the casing.

16. The combination with a cylindric casing provided with an outwardly-facing internal shoulder, of a filter-tube provided with a permanently-attached cap having an inwardly-facing shoulder and a knob on its end wall, a packing interposed between said shoulders, a closure for the casing and a screw-plug which passes through the closure and is made hollow to receive the said knob, and a tube interposed between the inner end of said screw-plug and the end wall of the filter-tube cap.

17. A filter comprising a cylindric casing, closed at one end and open at the other, said casing having an outwardly-facing internal shoulder, a filter-tube provided with a permanently-attached cap, which is perforated for the passage of water from the interior of the tube and is provided with an inwardly-facing shoulder, a packing-ring interposed between said shoulders, a closure for the open end of the casing, a packing-ring interposed between the closure and the casing, said packing-ring being arranged to also form a tight joint between the filter-tube cap and the casing, and a screw-plug which is inserted through the closure and acts endwise on the filter-tube cap, a water-supply pipe connected with the casing and communicating with the space between the same and the filter-tube and an exit-pipe also connected with the casing and communicating with the space between the filter-tube cap and the casing.

752,874. WEIGHING-SCALE. JAMES M. TRINER, Chicago, Ill. Filed June 22, 1901. Serial No. 65,559. (No model.)



Claim.—1. In a scale the combination of a weight-support, two unequal resistances both operatively connected therewith, means for supporting and releasing said resistance members alternately comprising a slide and operatively-projecting support-hooks thereon, and means for indicating the degree of deflection of said weight-support, substantially as set forth.

2. In a scale the combination of a base, a standard for supporting the weighing mechanism planted on said base and consisting of an upright portion having lateral side flanges 5, a horizontal portion having the side flanges 8 mitered with the upper ends of flanges 5, the flanges 11 closer together than the flanges 8, a brace secured to said base and to said standard and the weighing mechanism supported on said standard, substantially as set forth.

3. In a scale, the combination of two resistance members, a platform for supporting the weight, a stem for supporting said platform, a swivel connecting said stem with both of said resistance members, means for holding said stem perpendicular while rising and falling in an arc of a circle, means for supporting either of said resistance members, and means for indicating the degree of deflection of said platform, substantially as set forth.

4. In a scale, the combination of two resistance members, a weight-support secured to one end of said resistance members, each of said resistance members having an eye at the other end, a slide having hooks for engaging in and supporting said eyes, respectively, means for holding said eyes against lateral deflection while said hooks are entering them, and means for indicating the degree of deflection of said weight-support, substantially as set forth.

5. In a weighing-scale, the combination of means for supporting the weight, a spring having a pivotal or rocking support at its upper end, a cross-bar having swivel connection with said weight-supporting means and extending transversely of said spring, and an adjusting-screw secured to said spring and cross-bar.

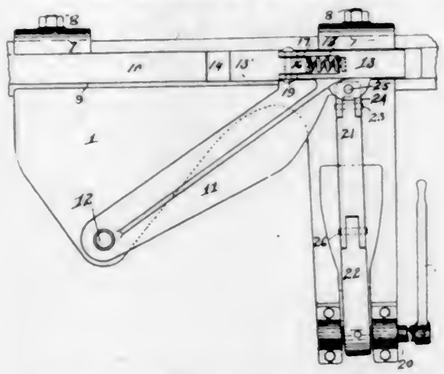
6. In a scale, the combination of a weight-support, two unequal resistances both operatively connected therewith, supporting means individual to said resistances secured thereto respectively, a slide comprising means for engaging said supporting means respectively alternately as the slide is reciprocated, and means for supporting said slide, substantially as set forth.

7. In a weighing-scale, the combination of means for supporting the weight, a two-part stem for supporting said means, an index-arm operatively connected with the weight-support, a spring, a rocking or swivel support for said spring at one end thereof, a cross-bar having its ends journaled in the two parts of said stem transversely of said spring and an adjusting-screw having one end adjustably secured to the other end of the spring and its other end rotatably secured to said cross-bar.

8. In a weighing-scale, the combination of means for supporting the weight, a stem for said weight-supporting means, an index arm operatively connected with said weight-supporting means, a coil-spring arranged lengthwise of said stem, a rocking support for the upper end of said spring, a cross-bar swiveled to said stem and projecting transversely of said spring, a nut secured in the lower end of said spring, an adjusting-screw passing through said cross-bar and engaging in said nut lengthwise of the spring and a jam-nut on said screw engaging against said cross-bar for locking the screw at the desired adjustment.

9. In a weighing-scale, the combination of a frame comprising a standard having an overhanging upper end, a two-part upright stem straddling said overhanging end, parallel arms pivoting said stem to said standard, a cross-bar journaled horizontally between the lower ends of said parts of the stem, a coil-spring secured at its upper end between said parts of the stem to said overhanging end of the standard, and means for securing the lower end of said spring to said cross-bar.

752,875. CAR-STOP. HARMAN WIRSCHING, Dayton, Ohio. Filed Dec. 23, 1903. Serial No. 186,786. (No model.)



Claim.—1. In a car-stop, a base, a clamp secured to said base and engaging a rail to hold said base in rigid contact with the rail, and a stop-arm supported on said base in a position to meet a wheel of a car-truck and to support the same, said stop-arm being pivoted to said base, and means for operating said arm in an arc of a circle to remove it from engagement with the wheel.

2. In a car-stop, a base, means for clamping said base to a rail, a stop-arm pivoted to said base at one end and movable in an arc of a circle to and from an operative position, and means connected with said stop-arm for imparting such movements.

3. In a car-stop, a base, clamps by means of which said base is rigidly united to a rail, an arm pivoted to said base, a stop projection rigidly supported on said arm, a crank-shaft and connecting-links between said crank-shaft and said arm whereby the stop is moved into and out of operative positions.

4. In a car-stop, a base, means for clamping said base to a rail, an arm pivoted to said base, a stop rising vertically from said base, said stop having a yielding portion with which a car-wheel engages, a link-arm connected to said stop, and a shaft to which said arm is connected and by means of which the stop-arm is movable in and out of positions above the track.

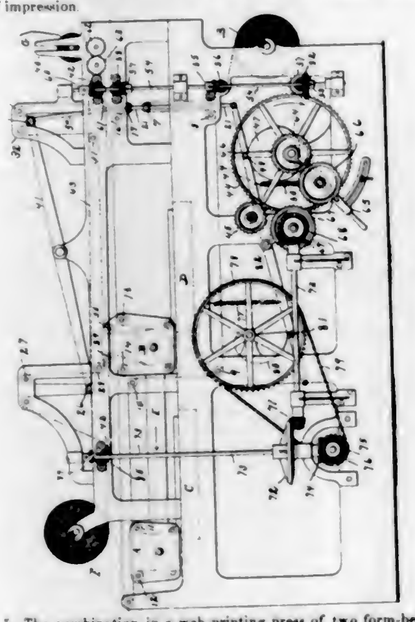
752,876. PRINTING-MACHINE. HENRY A. W. WOOD, New York, N. Y., assignor, by mesne assignments, to Detroit Trust Co., trustee, Detroit, Mich., a Corporation of Michigan. Filed Sept. 17, 1892. Renewed July 16, 1903. Serial No. 165,870. (No model.)

Claim.—1. The combination of the second form-bed and the perfecting traveling impression-cylinder of a web-printing press, an offset-web interposed between said impression-cylinder and the web to be printed, a manipulating mechanism for the web to be printed, and an automatic shifting mechanism for the offset-web, said automatic shifting mechanism being timed to shift the offset-web when the impression-cylinder is off impression.

2. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each of said form-beds, an offset-web interposed between the second impression-cylinder and the web to be printed, a manipulating mechanism for the web to be printed, and an automatic shifting mechanism for said offset-web, said shifting mechanism being timed to shift the offset-web when said impression-cylinder is off impression in either direction.

3. The combination in a web-printing press of two form-beds a traveling impression-cylinder coacting with each of said form-beds an offset-web interposed between the second of said impression-cylinders and the web to be printed, a manipulating mechanism for the web to be printed, and an independent manipulating mechanism for said offset-web, comprising automatic feeding, shifting, and delivery devices.

4. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, an offset-web interposed between the second impression-cylinder and the web to be printed, a manipulating mechanism for the web to be printed, and an independent manipulating mechanism for the offset-web comprising feeding and delivery devices, and a shifting device arranged to shift the offset-web every time said impression-cylinder is off impression.



5. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each of said form-beds, an offset-web interposed between the second of said impression-cylinders and the web to be printed, and a manipulating mechanism for said offset-web arranged so that the offset-web will be automatically shifted at intervals of a number of impressions.

6. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each of said form-beds, an offset-web interposed between the second of said impression-cylinders and the web to be printed, a manipulating mechanism for said offset-web, and connections whereby said manipulating mechanism can be connected to shift the offset-web with the main web or at intervals of a number of impressions.

7. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, a web-manipulating mechanism for the web to be printed, an offset-web interposed between the second of said impression-cylinders and the web to be printed, a manipulating mechanism for this offset-web, and connections between the two manipulating mechanisms whereby they will operate synchronously.

8. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, an offset-web interposed between the second impression-cylinder and the web to be printed, a manipulating mechanism for said offset-web, two sets of gearing for operating said manipulating mechanism, one gearing adapted to move the offset-web in unison with the web to be printed, the second gearing adapted to shift the offset-web only when a number of impressions have been taken, this gearing also being adjustable so that the number of impressions that can be taken without shifting the offset-web can be varied, and connections whereby either of said gearings may be used.

9. The combination with the form-bed and second impression-surface of a printing-press, an offset-web interposed between said impression-surface and the material to be printed, a manipulating mechanism for said offset-web comprising a feeding mechanism located at one side of said impression-surface, a delivery mechanism located at the other side of said impression-surface, and a shifting mechanism.

10. The combination with the form-bed and second impression-surface of a web-press of the class described, an offset-web interposed between the said second impression-surface and the web to be printed, a feeding mechanism for said offset-web located at one side of said impression-surface, a delivery mechanism for said offset-web located at the other side of said impression-surface, and a shifting mechanism for the offset-web comprising a looping-roller arranged at each side of said impression-surface.

11. The combination in a web-printing press of a form-bed, an impression-surface coacting therewith, an offset-web interposed between said impression-surface and the web to be printed, mechanism adapted to slowly move the web on each side of said impression-surface, a looping device arranged substantially on each side of said impression-surface adapted to take up the web fed in by one mechanism and to pay the web out to the other mechanism, and means for operating said looping mechanisms whereby the offset-web can be quickly shifted.

12. The combination with the second impression-cylinder of a web-printing press of the class described, an offset-web interposed between said second impression-cylinder and the web to be printed, continuously-driven feeding-rollers 19, 20 and 21, looping-rollers 23 and 28, continuously-driven delivery-rollers 29, 30 and 31, and means for synchronously moving the looping-rollers 23 and 28.

13. The combination in a web-perfecting printing-press of two stationary form-beds, a traveling carriage carrying an impression-cylinder coacting with each form-bed, web-guiding devices and manipulating mechanism for the web to be printed, guides comprising stationary guides and guides carried in the carriage and arranged on each side of the second impression-cylinder, an offset-web passing around said guides or rollers to the impression-cylinder, and a manipulating mechanism for the offset-web, whereby the second impression-cylinder will move in a loop or wave of both the offset-web and the web to be printed.

14. The combination in a perfecting printing-press of the second impression-cylinder, guides for leading an offset-web to and from said second impression-cylinder whereby the ends thereof will be exterior to said cylinder, and an automatically-operating manipulating mechanism for the offset-web adapted to automatically respace the offset-web relatively to the surface of the second impression-cylinder at intervals of a number of impressions.

15. The combination in a perfecting printing-press of the second impression-cylinder, guides for leading an offset-web to and from said second impression-cylinder whereby the ends thereof will be exterior to said cylinder, and an automatically-operating manipulating mechanism for the offset-web adapted to automatically respace the offset-web relatively to the surface of the second impression-cylinder at intervals of a number of impressions and during the period when the impression-cylinder is out of impression.

16. In a printing-press, the combination of a reciprocating cylinder, an offset-web therefor, supports for the ends of the offset-web located exterior to the cylinder and beyond the range of movement thereof, with means independent of the means employed for shifting the web to be printed, for intermittently shifting the offset-web after impressions.

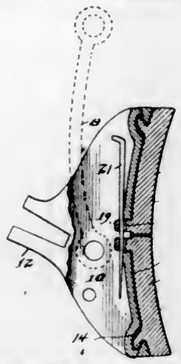
17. In a web-printing press, the combination of a type-bed, a reciprocating cylinder, and means for intermittently feeding the web to be printed between the cylinder and the bed, with an offset-web interposed between the web to be printed and the cylinder and held stationary at its ends beyond the range of travel of the cylinder, and means independent of the means for shifting the web to be printed, for intermittently shifting the offset-web in the direction of the travel of the web to be printed, after the taking of impressions.

752,877. RAILWAY-BRAKE HEAD AND SHOE THEREFOR. CHARLES W. ARMBRUST, Chicago, Ill. Filed June 13, 1903. Serial No. 161,336. (No model.)

Claim.—1. The combination with a brake-shoe having a curved face and back formed on arcs of equal radii of curvature, of a brake-head having a shoe-receiving face longitudinally coextensive with the shoe and formed on an arc of the same radius of curvature as the back and front of the shoe, the adjacent surfaces of said shoe and head being further provided with interfitting members serving to hold said adjacent surfaces in intimate contact throughout, substantially as described.

2. A brake-head of the character described, having formed in each end of its concave face a spur-shaped recess or socket and through the center of said face an opening, in combination with a two-part or divided brake-shoe, each part of which has a spur-shaped projection engaging one of said sockets and an attaching-lug passed through said opening, substantially as described.

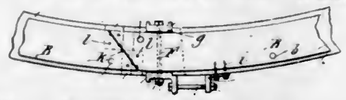
3. A brake-head of the character described, provided in its concave face with recesses, in combination with a brake-shoe provided upon its back with attaching and interlocking lugs adapted to engage said recesses of the head and in its wearing-face with recesses adapted to receive the attaching and interlocking lugs upon the back of another shoe, substantially as described.



4. A brake-head of the character described, provided in its concave face at each end thereof with a spur-shaped recess and centrally thereof with an opening, in combination with a two-part brake shoe, each member of which is provided upon its back with a spur shaped projection engaging a recess of the head and with an apertured attaching-lug passed through said opening, and a key passed through the attaching-lugs at adjacent ends of the brake-shoes, substantially as described.

5. A brake-head of the character described, provided in its concave face at each end thereof with a spur-shaped recess and centrally thereof with an opening, in combination with a two-part brake-shoe, each member of which is provided upon its back with a spur-shaped projection engaging a recess of the head and with an apertured attaching-lug passed through said opening, said members being further provided in their wearing-faces with recesses adapted to engage and interlock with similar projections and lugs on the back of another shoe, and a key passed through the attaching-lugs at adjacent ends of the brake-shoes, substantially as described.

752,878. TRACK-JOINT. JAMES ARMITAGE, North Tonawanda, N. Y., assignor to Armitage-Herschell Company, North Tonawanda, N. Y. Filed Aug. 25, 1903. Serial No. 170,685. (No model.)



Claim.—1. The combination of two track-sections provided with lapped end portions, plates arranged at opposite sides of said lapped end portions, a device connecting said plates and securing the same to one of said sections, a device secured to the other section, and means connecting said device and one of said plates, substantially as set forth.

2. The combination of two track-sections provided with lapped end portions, plates arranged at opposite sides of said lapped portions, a bolt connecting said plates and passing through one of said sections, one of said plates having an outwardly-projecting lug, an outwardly-projecting lug secured to the other section, and a bolt connecting said lugs, substantially as set forth.

3. The combination of two track-sections provided with lapped end portions, clamp-plates arranged at opposite sides of said track opposite to said lapped end portions, and having inwardly-projecting flanges embracing said track-sections, a bolt connecting said clamp-plates and passing through one of said sections, one of said clamp-plates having an outwardly-projecting lug, an outwardly-projecting lug secured to the other track-section, and a bolt connecting said lugs, substantially as set forth.

4. The combination of two track-sections each consisting of a stringer and a metal rail, said stringers having lapped end portions, and means for holding said stringers together and preventing relative lateral movement thereof, one of said metal rails overlapping the joint between said stringers, substantially as set forth.

5. The combination of two track-sections each consisting of a stringer and a metal rail; means connecting the meeting ends of said stringers, the metal rail of one stringer overlapping the joint be-

tween said stringers, and a wear plate or plates secured to the other stringer beneath the meeting ends of said metal rails, substantially as set forth.

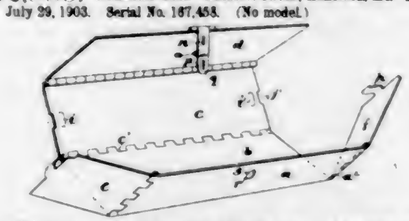
6. The combination of two track-sections each consisting of a stringer and a metal rail, means connecting the meeting ends of said stringers, said rails meeting in oblique line and the metal rail secured to one stringer overlapping the joint between said stringers, and a wear plate or plates secured to the other stringer beneath the meeting ends of said rails, substantially as set forth.

752,879. CLAW-HAMMER. EZEKIEL A. ASHLAND, St. Albans, Vt. Filed May 8, 1902. Renewed Nov. 18, 1903. Serial No. 181,740. (No model.)



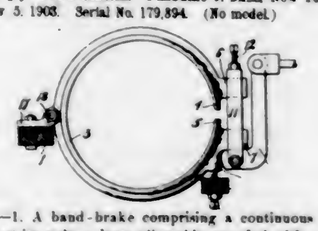
Claim.—In combination with a hammer-head, a fulcrum having integral metal straps, the said fulcrum being adjusted tightly over the hammer-head with the straps extending over the sides of the head and attached to the handle, substantially as described.

752,880. FOLDING BOX. ANSON J. BACON, Hallowell, Me. Filed July 29, 1903. Serial No. 167,458. (No model.)



Claim.—A lunch-box having a bottom side, a front side and a back side each hinged to opposite edges of the bottom side, a locking-pin pivotally attached to the upper front side, end sides hinged to the front side, each of the end sides having rigid locking-lips for locking the back side, apertures in the back side for receiving the locking-lips, a top side hinged to the back side and provided with a hasp having one aperture a for receiving the locking-pin when the sides are opened and formed into a box, and another similar aperture q for receiving the same locking-pin when the parts of the box are folded together and the front side of the box forms the bottom of the folded parts, substantially as shown and described.

752,881. BAND-BRAKE. FREDERIC J. BALL, New York, N. Y. Filed Nov. 5, 1903. Serial No. 179,894. (No model.)



Claim.—1. A band-brake comprising a continuous split ring having lugs at its ends, a loop adjustably engaged with one of the lugs and a cam-lever hinged to the loop in position to engage the other lug for drawing the ends toward each other to contract the ring.

2. A band-brake comprising a continuous split ring having lugs at its ends, a loop adjustably engaged with one of the lugs, a cam-lever hinged to the loop in position to engage the other lug for drawing the ends toward each other to contract the ring and a spring interposed between the lugs tending to force the ends apart.

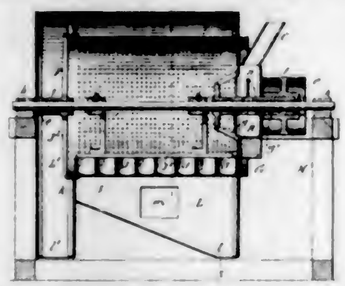
3. Two frame-sections and a band-brake carried thereby comprising a split ring hinged intermediate its ends to one frame-section, means for adjusting the ring with respect to the other frame-section and means for positively drawing the ends of the ring toward each other to contract the ring.

4. A band-brake comprising a continuous split ring having lugs at its ends, a loop engaging one of the lugs, a cam-lever engaging the other lug for drawing the ends toward each other to contract the ring and guides on the lugs for retaining the loop in position thereon.

5. A band-brake comprising a continuous split ring having lugs at its ends, said lugs being provided with guides on their sides, a loop embracing the lugs and engaged by the said guides for retaining the loop in position on the lugs, the said loop engaging one of the lugs and a cam-lever hinged to the loop in position to engage the other lug for drawing the ends toward each other to contract the ring.

6. A band-brake comprising a continuous split ring having lugs at its ends, a loose loop embracing the lugs, a device carried by the loop for adjusting one end of the loop with respect to its adjacent lug and a cam-lever hinged to the other end of the loop in position to engage its adjacent lug for drawing the ends of the ring toward each other to contract the same.

752,882. CENTRIFUGAL GRAIN-DRIER. MALCOLM L. BARBEAU, Silvercreek, N. Y., assignor to the S. Howes Company, Silvercreek, N. Y. Filed July 17, 1901. Serial No. 68,604. (No model.)



Claim.—1. The combination of a stationary shaft supported at opposite ends, a perforated rotary shell provided at opposite ends with bearings by which said shell is journaled and supported on said shaft between the supports thereof, and a stationary conveyer secured to said shaft within said shell and acting to move the material lengthwise through the shell, substantially as set forth.

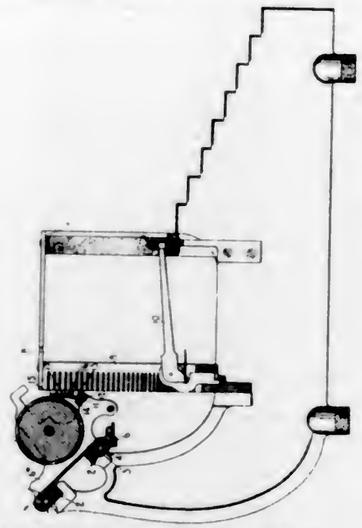
2. The combination of a rotary perforated shell, a stationary shaft extending through the same, and on which said shell is supported and rotates, radial arms secured to said shaft, a longitudinal bar or head connected at opposite ends to said arms, and inclined conveyer-blades carried by said longitudinal bar, substantially as set forth.

3. The combination of a stationary shaft supported at its opposite ends, a perforated shell surrounding said shaft and provided at one end with a bearing journaled on said shaft, a head secured to the opposite end of said shell and provided with an outwardly-extending hub journaled on said shaft, a drive-wheel secured to said hub, a stationary feed-receptacle surrounding said hub, a feed device secured to said hub and working in said feed-receptacle, and a stationary conveyer secured to said shaft in said shell adjacent to the inner surface thereof and acting to move the material longitudinally of the shell, substantially as set forth.

752,883. TYPE-WRITING MACHINE. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Oct. 16, 1902. Serial No. 127,541. (No model.)

Claim.—1. In a visible type-writing machine, the combination of a carriage, a platen carried thereby, a scale carried by the carriage, and a fixed index that at all times registers with the printing-point and with the scale.

2. In a type-writing machine, the combination of a carriage, a platen carried thereby, a scale that is located extraneous to the printing-line, and an index that does not cross the printing-line and at all times registers with the scale and with the printing-point, the index and scale being carried one by the carriage and the other by a fixed portion of the machine.



3. In a type-writing machine, the combination of a carriage, a platen carried thereby, a scale that is located extraneous to the printing-line, and an index that does not cross the printing-line and extends in one direction toward the printing-point and in an opposite direction toward the scale and at all times registers with said printing-point and scale, the index and scale being carried one by the carriage and the other by a fixed portion of the machine.

4. In a "visible" type-writing machine, the combination of a carriage, a platen carried thereby, a scale carried by the carriage at a point extraneous to the printing-line, and a double fixed pointer that extends in opposite directions and does not cross the printing-line, one index-finger terminating at the printing-point and the other at a corresponding point on the scale, said pointer being at all times in register with the printing-point and scale.

5. In a front-strike type-writing machine, the combination of a carriage, a platen carried thereby, a scale that extends throughout the length of the platen and is carried by the carriage below the printing-line and away therefrom, a fixed bar that extends across the machine intermediate of the scale and the printing-line, and a fixed index on the bar, said index at all times registering with the printing-point and with a corresponding division on the scale.

6. In a front-strike type-writing machine, the combination of a carriage, a platen carried thereby, a scale that extends throughout the length of the platen and is carried by the carriage below the printing-line and away therefrom, a fixed bar that extends across the machine intermediate of the scale and printing-line, and a double-ended pointer which is fixed to and extends away from the bar in opposite directions and is at all times in view of the operator, one end of said pointer at all times registering with the printing-point and the other at all times registering with a corresponding division on the scale.

7. In a front-strike type-writing machine, the combination of a vertically-disposed type-bar segment, a carriage, a platen, a scale that extends throughout the length of the platen and is carried by the carriage below the printing-line and away therefrom, a fixed bar that extends horizontally across the machine intermediate of the scale and printing-line and is secured to the type-bar segment, and a vertically-disposed index which extends into register with the printing-point and with a point on the scale, whereby the printing-point and the point on the scale which indicates the position of the carriage with reference to the printing-point are both in sight of the operator and are indicated by said index.

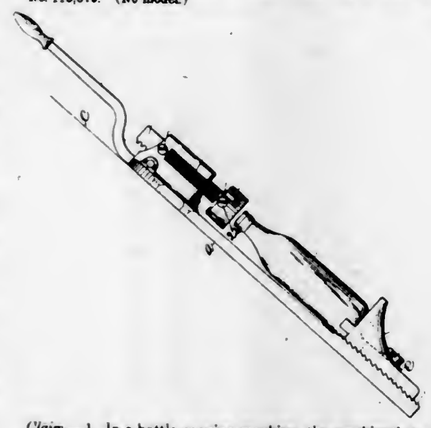
8. In a front-strike type-writing machine, the combination of a vertically-disposed type-bar segment, a carriage, a platen, a scale that extends throughout the length of the platen and is carried by the carriage below the printing-line and away therefrom, a fixed bar that extends horizontally across the machine intermediate of the scale and printing-line and is secured to the type-bar segment, and projections, one of which extends upwardly and into register with the printing-point and the other of which extends downwardly and into register with a point on the scale, whereby the printing-point and the point on the scale which indicates the position of the carriage with reference to the printing-point are both in sight of the operator and are indicated by said projections.

9. In a front-strike type-writing machine, the combination of a carriage, a platen carried thereby, a scale that is carried by the carriage below the printing-line but which is at all times within the view of the operator, a cross-bar that extends across the machine and is rigidly secured to a fixed portion thereof, and the upper edge of which is at all times beneath and adjacent to the printing-line, and a pointer that extends from said bar and is at all times in register with the printing-point and with the scale.

10. In a front-strike type-writing machine, the combination of a carriage, a platen, a scale that is carried by the carriage below the printing-line but which is at all times within the view of the operator, a cross-bar that extends across the machine between the printing-line and scale and is rigidly secured to a fixed portion of the machine and the upper edge of which bar is beneath and adjacent to the printing-line, and an index that registers with the printing-point and with the scale, whereby the printing-point and the point on the scale which indicates the position of the carriage with reference to the printing-point are both in sight of the operator, and are at all times indicated by said index.

11. In a front-strike type-writing machine, the combination of a carriage, a platen, a scale that is carried by the carriage below the printing-line but which is at all times within the view of the operator, a cross-bar that extends across the machine between the printing-line and scale and which is rigidly secured to a fixed portion of the machine and the upper edge of which bar is beneath and adjacent to the printing-line, and a rigid double-ended pointer that extends from said bar, one end extending upwardly and all times in register with the printing-point and the other extending downwardly and at all times in register with the scale, whereby the printing-point and the point on the scale which indicates the position of the carriage with reference to the printing-point are both at all times in sight of the operator, and are at all times indicated by said double-ended pointer.

752,884. APPARATUS FOR CAPPING BOTTLES. HENRY CARMICHAEL, Malden, Mass., assignor to Static Carbonating Company, New York, N. Y., a Corporation of Maine. Filed Aug. 8, 1902. Serial No. 118,879. (No model.)



Claim.—1. In a bottle-capping machine, the combination with a support for the bottle, of a socket-piece movable toward and from the same, a rack-bar connected with said socket-piece and provided with an inclined surface having rack-teeth, a toothed hub in engagement with said rack-bar and eccentrically mounted, and a handle connected with said hub, substantially as described.

2. In a bottle-capping machine, the combination with a socket-piece, provided with a conical or tapering socket, of a ring secured to said socket-piece outside thereof, one of said parts having a plurality of grooves, channels or slots, and spring-jaws located in said slots to operate substantially as described.

3. In a bottle-capping machine, the combination with a socket-

piece provided with a conical or tapering socket, of a ring secured to said socket-piece outside thereof and provided with a plurality of slots or channels on its inner surface, and spring-jaws located in said slots to operate substantially as described.

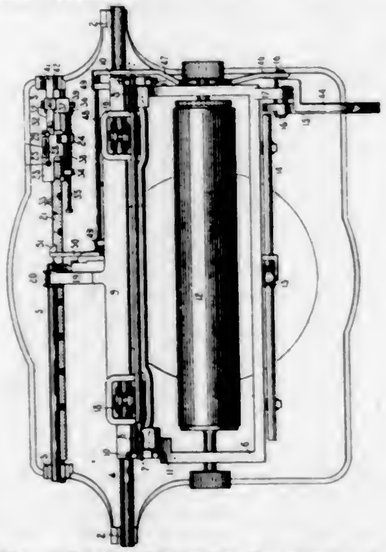
4. In a bottle-capping machine, the combination with a socket-piece provided with a conical or tapering socket, of a ring secured to said socket-piece outside thereof, one of said parts having a plurality of grooves, channels or slots, and spring-jaws consisting of metal strips secured to the outside of said ring and passed over the same and down through said slots, the said strips below the socket-piece having bent portions, substantially as described.

5. In a bottle-capping machine, the combination with a support for the bottle, of a socket-piece movable toward and from the same and provided with a conical or tapering socket, a plurality of spring-jaws secured to said socket-piece to support the cap therein, a rack-bar connected with said socket-piece, a toothed hub in engagement with said rack-bar, and a handle connected with said hub so as to produce downward movement of the rack-bar when said handle is moved downward, substantially as described.

6. In a bottle-capping machine, the combination with a back plate or bar provided with a housing closed at its bottom and open at its top, of a socket-piece located below said housing and provided with a spindle extended through said bottom into said housing, said socket-piece being of greater diameter than the said spindle, a rack-bar movable within said housing and attached to said spindle, a toothed hub mounted in said housing between said rack-bar and the said back plate, and a handle attached to said toothed hub, substantially as described.

7. In a bottle-capping machine, the combination with a back plate *a* provided with the ratchet-teeth *d* at its lower end and with a housing at its upper end, a bracket *f* to support the bottle provided with ratchet-teeth on its rear side, and means to secure said bracket to said back plate, a toothed hub pivoted within the said housing and having a handle attached to it, a toothed rack-bar within the housing in mesh with said toothed hub, a socket-piece located below said housing and having a spindle attached to said rack-bar, means to retain the caps in said socket-piece, and a spring to lift the said socket-piece, substantially as described.

752,885. TYPE-WRITING MACHINE. CHARLES S. CHAMPION, New York, N. Y., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y., a Corporation of New York. Filed Oct. 10, 1903. Serial No. 176,529. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, and means for affording a movement of the carriage beyond the said predetermined point in the travel thereof without removing said stops from coöperative relation.

2. In a type-writing machine, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, and hand-controlled means which through the travel of the carriage affords a movement thereof beyond said predetermined point in its travel.

3. In a type-writing machine, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, one of said stops being adapted to be moved from its normal position when the stops are brought into contact, thus affording a movement of the carriage beyond said predetermined point, and hand-controlled means that are rendered operable by the travel of the carriage for determining when said stop may be moved from its normal position.

4. In a margin-stop mechanism for type-writing machines, the combination of coöperating stops which normally arrest the carriage at a predetermined point in its travel, one of said stops being adapted to recede from its normal position in the general direction of the travel of the carriage to afford a further movement thereof beyond the point where it is normally arrested, means for automatically returning the stop to its normal position, and means for determining when said recedable stop may be moved from its normal position.

5. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking one of said stops in its normal position to arrest the carriage at a predetermined point in the travel thereof, and means for effecting an automatic unlocking of the said locked stop to afford a travel of the carriage beyond the point where it is normally arrested by the stops.

6. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking one of said stops in its normal position to arrest the carriage at a predetermined point in the travel thereof, means for effecting an automatic unlocking of the said locked stop to afford a travel of the carriage beyond the point where it is normally arrested by the stops, and means for automatically locking the unlocked stop when the carriage returns to the point where it is normally arrested.

7. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking one of said stops in its normal position to arrest the carriage at a predetermined point in the travel thereof, and means for effecting an automatic unlocking of the said locked stop and affording a movement thereof in the general direction of the travel of the carriage to afford a movement thereof beyond the point where it is normally arrested by the stops.

8. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking one of said stops in its normal position to arrest the carriage at a predetermined point in the travel thereof, means for effecting an automatic unlocking of the said locked stop and affording a movement thereof in the general direction of the travel of the carriage to afford a movement of the carriage beyond the point where it is normally arrested by the stops, and means for automatically restoring the unlocked stop to its normal position and for locking it in such position after the carriage returns from the point beyond that where it is normally arrested.

9. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for adjusting one of said stops in the direction of the travel of the carriage, means for locking one of said stops in its normal position to arrest the carriage at a predetermined point in the travel thereof, and means for effecting an automatic unlocking of the said locked stop to afford a travel of the carriage beyond the point where it is normally arrested by the stops and as determined by the adjustment of said adjustable stop.

10. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop carried by the carriage, a stop carried by the frame of the machine, said stops coöperating to normally arrest the carriage at a predetermined point in the travel thereof, and means carried by the carriage for effecting an automatic movement of one of said stops on its support in the general direction of the travel of the carriage.

11. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop carried by the carriage, a stop carried by the frame of the machine, said stops coöperating to normally arrest the carriage at a predetermined point in the travel thereof, means carried by the carriage for effecting an automatic movement of one of said stops on its support in the general direction of the travel of the carriage, and means for automatically restoring the said stop, which is movable on its support, to the normal position.

12. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop carried by the carriage, a stop carried by the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, means for locking one of said stops to its support, means for affording a movement of said last-mentioned stop independently of its support, and a finger-piece carried by the carriage and controlling the release of said locking means, whereby when the locking means are released the unlocked stop may be automatically moved and the carriage may move beyond the point where it is normally arrested.

13. In a margin-stop mechanism for type writing-machines, the combination of a carriage, a stop carried by the carriage, a stop carried by the frame of the machine, said stops normally coöperating to arrest the carriage at a predetermined point in the travel thereof, means for locking one of said stops to its support, means for affording a movement of said last-mentioned stop independently of its support, a finger-piece carried by the carriage and controlling the release of said locking means, whereby when the locking means are released, the carriage may move beyond the point where it is normally arrested, means for automatically restoring said released stop to its normal position when the carriage moves back from the point beyond where it is normally arrested, and means for automatically locking said released stop when it is moved back to the normal position.

14. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking the stop on the frame of the machine in position, and means carried by the carriage for releasing said locking means.

15. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop on the carriage, a coöperating stop on the frame of the machine, means for locking the stop on the frame of the machine in its normal position, and means carried by the carriage for releasing said locking means and for moving the stop controlled by said locking means from its normal position.

16. In a margin-stop mechanism for type-writing machines, the combination of a carriage, coöperating stops for normally arresting the carriage at a predetermined point in its travel, means for locking one of said stops in its normal position, a cam for releasing said locking means, and hand-actuated means for throwing said cam into operative position, so that the locking means will be automatically released during the travel of the carriage when said cam is in the operative position.

17. In a margin-stop mechanism for type-writing machines, the combination of a carriage, coöperating stops for normally arresting the carriage at a predetermined point in its travel, means for locking one of said stops in its normal position, a cam for releasing said locking means and affording a movement of the stop controlled thereby, hand-actuated means for throwing said cam into operative position, so that the locking means will be automatically released and the stop controlled thereby will be moved from its normal position during the travel of the carriage and when said cam is in the operative position, means for automatically restoring the released stop to its normal position, and means for automatically locking it in such position.

18. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop-rod, a stop carried by and adapted to be shifted along said rod, a second stop coöperating with the first-mentioned stop to arrest the carriage at a predetermined point in the travel thereof, means for locking the shiftable stop in its normal position, a finger-piece, means controlled by said finger-piece and coöperating with said locking means during the travel of the carriage for releasing the locking means and affording a shifting movement of said shiftable stop, so that the carriage may move beyond the point where it is normally arrested by said stops.

19. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop-rod, a stop carried by and adapted to be shifted along said rod, a second stop coöperating with the first-mentioned stop to arrest the carriage at a predetermined point in the travel thereof, means for locking the shiftable stop in its normal position, a finger-piece, means controlled by said finger-piece and coöperating with said locking means during the travel of the carriage, for releasing the locking means and affording a shifting movement of said shiftable stop, so that the carriage may move beyond the point where it is normally arrested by said stops, and means for automatically restoring the shiftable stop to its normal position and for automatically locking it in such position.

20. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop-rod carried by the frame of the machine, a spring-restored stop carried by and adapted to be shifted along said rod, a second stop carried by the carriage and coöperating with the first-mentioned stop to arrest the carriage at a predetermined point in the travel thereof, means for locking the shiftable stop in its normal position, a finger-piece carried by the carriage, and means controlled by said finger-piece and coöperating with said locking means during the travel of the carriage, for releasing the locking means and affording a shifting movement of said shiftable stop, so that the carriage may move beyond the point where it is normally arrested by said stops.

21. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop-rod, a spring-restored stop carried by and adapted to be shifted along said rod against the pressure of its spring, means for adjusting said stop in the direction of the travel of the carriage, a second stop coöperating with the first-mentioned stop to arrest the carriage at a predetermined point in the travel thereof, means for locking the shiftable stop in its normal position, a finger-piece, means controlled by said finger-piece and coöperating with said locking means during the travel of the carriage for releasing the locking means and affording a shifting movement of said shiftable stop, so that the carriage may move beyond the point where it is normally arrested by said stops, and will be automatically restored to its normal position when the carriage is returned from the point beyond where it is normally arrested, and means for automatically locking the shiftable stop in its normal position.

22. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a stop adapted to be shifted for a limited distance from its normal position and in the general direction of the travel of the carriage, means for automatically locking said stop when it is in its normal position, a second stop coöperating with the first-mentioned stop to arrest the carriage at a predetermined position; a cam for releasing the locking means to afford a shifting movement of the shiftable stop, so as to enable the carriage to move beyond the predetermined point where it is normally arrested, a finger-piece on the carriage for controlling said cam, and means for automatically restoring the shiftable stop to its normal position.

23. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a shiftable stop adapted to receive a shifting movement in the general direction of the travel of the carriage, a spring-pressed locking device for locking said stop to its support, means that are adapted to be brought into contact with said spring-pressed locking device during the travel of the carriage to move it against the pressure of its spring, and a second coöperating stop.

24. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a spring-restored shiftable stop adapted to receive a shifting movement in the general direction of the travel of the carriage and against the pressure of its spring, a spring-pressed locking device for automatically locking said stop to its support when the stop is in the normal position, means that are adapted to be brought into contact with said spring-pressed locking device during the travel of the carriage to move it against the pressure of its spring to afford a shift of the stop, and a second coöperating stop.

25. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a shiftable stop adapted to receive a shifting movement in the general direction of the travel of the carriage, a spring-pressed locking device for locking said stop to its support, means that are adapted to be brought into contact with said spring-pressed locking device during the travel of the carriage to move it against the pressure of its spring to afford a shift of the stop, means for maintaining the locking device out of engagement when it is released and the stop is shifted and for automatically affording a re-engagement of the locking device when the stop reaches the normal position, and a second coöperating stop.

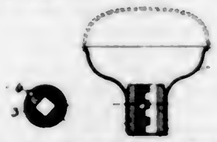
26. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a spring-restored shiftable stop adapted to receive a shifting movement in the general direction of the travel of the carriage, a spring-pressed locking device for locking said stop to its support, means that are adapted to be brought into contact with said spring-pressed locking device during the travel of the carriage to move it against the pressure of its spring and to afford a shift of the stop, a cam for maintaining the locking device out of engagement when it is released and the stop is shifted and for automatically affording a reëngagement of the locking device when the stop reaches the normal position, and a second coöperating stop.

27. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a final stop, an initial stop adapted to move for a limited distance relatively to said final stop, means for locking the initial stop relatively to the final stop, means which are

adapted to be rendered effective through a movement of the carriage for releasing the locking means to afford a movement of the initial stop until it is arrested by the final stop, and a stop which cooperates with said initial stop.

28. In a margin-stop mechanism for type-writing machines, the combination of a carriage, a final stop, an initial stop adapted to move for a limited distance relatively to said final stop, means for locking the initial stop relatively to the final stop, means which are adapted to be rendered effective through a movement of the carriage for releasing the locking means to afford a movement of the initial stop until it is arrested by the final stop, a stop which coöperates with said initial stop, means for automatically restoring the initial stop to its normal position, and means for automatically affording an operation of said locking means to lock the initial stop when it is in the normal position.

752,886. KNOB-SHANK FILLING. NATHAN W. CRANDALL, Meriden, Conn., assignor to the Russell & Erwin Mfg. Company, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 17, 1903. Serial No. 177,369. (No model.)



Claim.—1. A knob-shank filling comprising a pair of companion pieces having alternate projections and notches interlocking with one another along their adjacent longitudinal edges.

2. A knob construction comprising a metal shell, a pair of filling members having projections interlocking with one another, and means for securing said members in place in the shank of the shell.

3. A knob construction comprising a shell, a pair of filling members having alternate projections and notches interlocking with one another, one of said members having a perforation therethrough, the metal of the shell being pressed into and around the edge of said perforation for holding the member in place.

4. A knob construction comprising a sheet-metal shell, a pair of filling members having projections interlocking with one another, the metal of the shell being bent up to form a bearing and covering for one end of said members, one of said members having a perforation therethrough, the metal of the shell adjacent said perforation being indented to hold said member in place.

752,887. BRICK-MACHINE. THOMAS S. CRAPP and ROBERT C. PIERCE, Indianapolis, Ind., assignors to Frank Glossner, Shelbyville, Ind. Filed June 16, 1903. Serial No. 161,664. (No model.)

Claim.—1. In a machine for pressing brick, a press-box a pug-mill discharging therein, molds moving in a transverse vertical plane across the discharge end of said press-box, a hollow revoluble shaft, a piston-rod passing through the hollow shaft, means for intermittently reciprocating the piston-rod and a plunger mounted in said press-box on said piston-rod.

2. In a brick-press, a pug-mill, a hollow shaft rotating therein, clay treating and conveying mechanism on said shaft, a press-box into which the pug-mill discharges, a piston in said press-box, a piston-rod passing through the hollow shaft and connected with said piston, means for reciprocating the piston-rod, and molds moving intermittently in a right plane across the discharge-opening from said press-box.

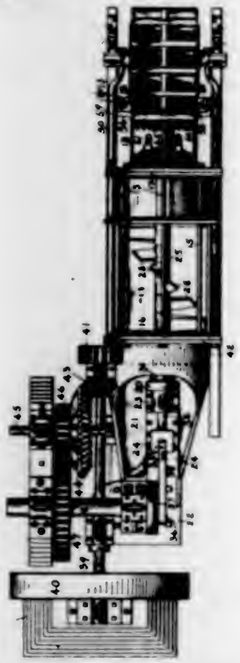
3. In a brick-press, a press-box, and a piston reciprocating therein to force the clay out of the press-box, said piston having one or more transverse openings for the forward passage of the clay and closures hinged to the piston so as to close the openings and prevent back movement of the clay.

4. A press-box for brick-machines having auxiliary relief-openings in its sides to be partially or wholly closed by the piston and radial grooves leading thereto.

5. A press-box for brick-machines having auxiliary relief-openings and bushings in said openings to regulate the size of the discharge.

6. In a brick-press, a pug-mill, a hollow shaft rotating therein, clay treating and conveying mechanism on said shaft, a pillow-block supporting that end of the shaft away from which the clay is conveyed, a collar extension from said shaft between the pug-mill and the pillow-block adjacent to the latter, and ball-bearings between the collar and said block.

7. In a brick-press, a pug-mill, a hollow shaft rotating therein, clay treating and conveying mechanism on said shaft, a press-box into which the pug-mill discharges, a piston in said press-box, a piston-rod passing through the hollow shaft and connected with said piston, a sliding head to which the other end of the piston-rod is fastened, a revoluble crank-wheel having a wrist-pin, and a pitman connecting the sliding head with the wrist-pin, said pitman having a longitudinal slot to receive the wrist-pin to give an intermittent movement to the piston-rod.



8. In a machine for pressing brick, a press-box, a piston located therein, a sliding head, a piston-rod connecting the piston with the sliding head, a crank-wheel having a wrist-pin, a pitman connecting the sliding head and wrist-pin said pitman having a longitudinal slot to receive the wrist-pin and give an intermittent movement to the piston, and molds moving intermittently across the discharge-opening of said press-box.

9. In a machine for pressing brick, a press-box having a discharge-opening, means for forcing clay through the press-box under pressure, molds hinged together in an endless chain, mold-wheels above and below the press-box around which the chain of molds is passed, said molds passing the discharge opening from the press-box with the mold-openings toward the press-box; a platen back of the molds to sustain them under pressure, a false bottom for the molds, means for dumping the contents of the molds as they make the turn around the bottom wheels by an outward movement of the false bottom and springs to return said bottoms to their inner normal positions.

10. In a brick-machine, a press-box, means for forcing clay through it under pressure, molds hinged together in an endless chain, passing the discharge-opening from the press-box, wheels above and below the press-box around which the chain of molds passes, a platen opposite the end of the press-box, behind the molds to resist the pressure, and means for discharging the product of the molds as the latter make their turn around the lower wheels, said means comprising false movable bottoms to the molds, stems secured to said false bottoms and extending through and beyond the fixed bottom of the molds, cams in the paths of said stems to move the stems longitudinally so as to move the false bottoms toward the mouths of the molds and force out the product and springs to return the bottoms to normal position.

11. In a brick-machine, a press-box from which clay issues under pressure, mold-wheels above and below the press-box, molds hinged together in an endless chain, passing around the mold-wheels, a platen back of the molds opposite the press-box, a face-plate between the path of the molds and the end of the press-box having openings for the passage of the clay and guides and retainers at the outer ends of the molds.

12. In a brick-machine, a press-box, molds hinged together in an endless chain which passes the discharge from said press-box, a platen behind the molds opposite the end of the press-box and a removable sole-plate between the molds and the platen.

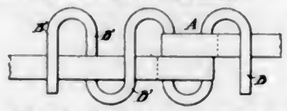
13. In a brick-machine, a press-box from which clay issues under pressure, molds hinged together in an endless chain passing the outlet from said press-box, and holders which enter the first unfilled mold above those in process of filling, during the period of pressure, to keep the molds from spreading in an upward direction.

14. In a brick-press, a press-box having a reciprocating piston, molds in an endless chain passing the discharge-opening from said press-box, a plate on top of the press-box, having fingers, said plate having a longitudinal reciprocating adjustment whereby said fingers are introduced during the period of pressure, into the first upper empty mold to engage the side of the mold and prevent spreading of the molds below in that direction, said press-box being slotted under the finger-plate and a bolt passing through the slotted press-box and connecting the finger-plate with the piston.

15. In a brick-machine, a press-box from which clay issues under pressure, molds hinged together in an endless chain which pass the press-box outlet to be filled, said molds having lugs at their outer ends, a head, a dog pressed by a spring into the path of the lugs, and means for reciprocating the head in the direction of the travel of the molds.

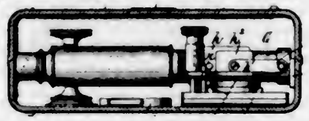
16. The combination with a brick-machine, of vertical standards, mold-wheels supported above and below the clay-discharge of the machine by said standards, molds hinged together in an endless chain, passing around the upper and lower mold-wheels, said molds having movable false bottoms, stems secured to said bottoms and extending inwardly from the molds, springs around the stems to hold the false bottoms in normal position against the fixed bottom of the mold, and a fixed or stationary cam at the bottom turn of the molds against which the stems contact so as to be moved longitudinally and discharge the contents of the molds and a carrier-apron to receive the discharge and remove it.

752,888. BALE-TIE. HUGH DE HAVEN, New York, N. Y. Filed Apr. 3, 1903. Serial No. 150,866. (No model.)



Claim.—A bale-tie which consists of a piece of wire bent back and forth so as to form a series of simple loops open at their rear ends; the main loop being adapted to receive both ends of the bale-strap, and the adjacent bends of the wire on each side of the main loop being adapted to have the free opposite ends of the bale-strap pass under and over them so as to lie under and be pressed by the main body of the bale-strap.

752,889. PORTABLE MICROSCOPE AND CASE THEREFOR. CARL F. DIECKMANN, Buffalo, N. Y., assignor to Spencer Lens Company, Buffalo, N. Y. Filed Dec. 22, 1903. Serial No. 186,157. (No model.)



Claim.—1. A microscope case or receptacle comprising detachably-connected sections, one of which constitutes a base for the microscope and is provided with means for securing the microscope thereto, substantially as set forth.

2. A microscope case or receptacle comprising sections, hinges detachably connecting said sections, one of said sections constituting a base for the microscope, and having means for securing the microscope thereto, substantially as set forth.

3. A microscope case or receptacle comprising detachably-connected sections, one of which when detached and inverted constitutes a base for the said section having external means for securing the microscope therein, substantially as set forth.

4. A microscope case or receptacle comprising detachable hinged sections, the hinge members in one section being set into one side thereof, whereby said sections will rest firmly in a supporting-surface when inverted to form a base for the microscope, substantially as set forth.

5. A microscope case or receptacle comprising detachable hinged sections, one of said sections having hinge members set into one side thereof, and recesses adjacent to said hinge members, and the other section having projecting hinge members adapted to enter the recesses in the other section when the sections are closed to prevent the detachment of the sections except when opened, substantially as set forth.

6. The combination of a microscope, a case therefor, a device for securing the microscope in operative position on said case comprising coöperating parts on the microscope and case, and a part in said case which coöperates with said securing part on the microscope to hold the latter from movement in the case, substantially as set forth.

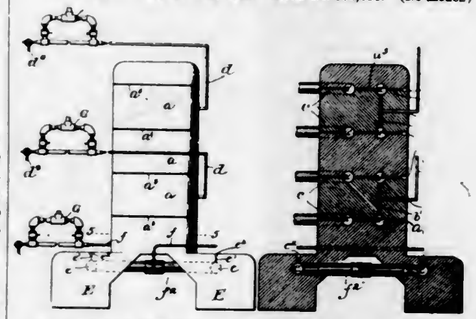
7. The combination of a microscope, a case therefor provided with a socket, a bolt on the microscope which coöperates with said socket to hold the microscope in operative position in the case, and a socket in the case with which said bolt coöperates to hold the microscope stationary in the case, substantially as set forth.

8. The combination of a microscope, a case therefor provided with a socket-plate externally slotted, a bolt on the microscope which engages in said slot to hold the microscope in operative position on the case, and a slotted plate in said case in which said bolt engages to hold the microscope stationary in the case, substantially as set forth.

9. The combination of a stand, a stage provided on said stand and provided with an undercut curved slot concentric with the stage-pivot, and a clamping-bolt mounted in said stand and having a head which enters the curved slot in the stage, substantially as set forth.

10. The combination of a stand, a stage provided with an arm pivoted on said stand, and provided with an undercut curved slot concentric with the stage-pivot, coöperating stops on said stage arm and stand to limit the pivotal movement of the stage, and a clamping-bolt mounted in said stand and having a head which engages the curved slot in the stage, substantially as set forth.

752,890. HYDROCARBON-BURNER. GUSTAV W. DRÄSEL, Hoboken, N. J. Filed Nov. 20, 1902. Serial No. 132,058. (No model.)



Claim.—1. A hydrocarbon-burner, comprising a series of solid blocks and having burner-slits formed between the edges of adjacent blocks, parallel recesses formed longitudinally in the contacting faces of adjacent blocks to constitute ducts for fuel and air and means of communication between said ducts and burner-slits.

2. A hydrocarbon-burner, comprising a series of solid blocks and having burner-slits formed between the edges of adjacent blocks, parallel recesses formed longitudinally between the contacting faces of adjacent blocks to constitute ducts for fuel and air, and a plurality of ducts connecting said recesses and said recesses and burner-slits.

3. A hydrocarbon-burner, comprising a series of solid blocks and having burner-slits formed between the edges of adjacent blocks, a recess formed longitudinally between the contacting faces of any two adjacent blocks and parallel to the burner-slits, a second recess also formed longitudinally between the contacting faces of the same blocks and parallel to the first recess, a plurality of ducts connecting said recesses and one of the recesses and the corresponding burner-slit.

4. A hydrocarbon-burner, comprising a body of separately-formed castings having air-ducts extending longitudinally thereof, fuel-ducts parallel with the said air-ducts and communicating with the air-ducts at intervals throughout their entire lengths, and burner-

slits upon the outer surface of the body parallel to said ducts and communicating with said ducts at intervals throughout their entire lengths, said ducts and slits being formed between the adjacent castings of the burner-body.

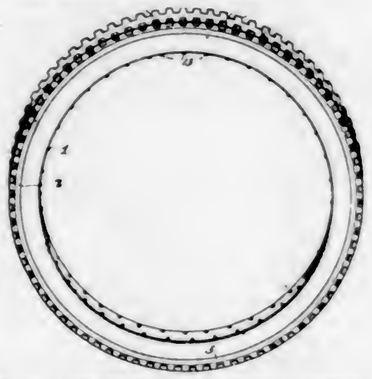
5. A hydrocarbon-burner, comprising a body of separately-formed castings having air-ducts extending longitudinally thereof, fuel-ducts parallel with said air-ducts, channels connecting said air and fuel ducts at intervals throughout their entire lengths, burner-slits upon the outer surface of the body parallel to said ducts, and channels connecting said fuel-ducts and burner-slits at intervals throughout their entire lengths, said ducts, channels and slits being formed between the adjacent castings of the burner-body.

6. In a hydrocarbon-furnace, the combination of a burner comprising a solid prismatic body, a series of air-ducts, a series of fuel-ducts, said air and fuel ducts being arranged in pairs of which one air-duct and one fuel-duct constitute a single pair, channels connecting the ducts in each of said pairs, a series of elongated burner-slits upon the outer surface of the burner-body, and channels communicating respectively with each of said fuel-ducts and opening into the corresponding burner-slit, and a series of fuel-supply tubes carried around the burner-body near the burner-slits respectively and communicating respectively with the fuel-ducts whereby the fuel may be heated and vaporized before passing into the burner.

7. In a hydrocarbon-furnace, the combination of a burner comprising a solid prismatic body, a series of air-ducts, a series of fuel-ducts, said air and fuel ducts being arranged in pairs of which one air-duct and one fuel-duct constitute a single pair, channels connecting the ducts in each of said pairs, a series of elongated burner-slits upon the outer surface of the burner-body, and channels communicating respectively with each of said fuel-ducts and opening into the corresponding burner-slit, a series of fuel-supply tubes carried around the burner-body near the burner-slits respectively and communicating respectively with the fuel-ducts, and a carbureter communicating with each of said fuel-tubes.

8. A hydrocarbon-burner having a solid body composed of a plurality of solid prismatic castings, each pair of adjacent castings having registering grooves upon their contacting faces, which grooves form within the burner-body an air-duct, a fuel-duct, channels connecting said ducts, an elongated slit upon the outer surface of said body, and channels communicating with said fuel-duct and opening into said slit.

752,891. **RUBBER TIRE.** GEORGE B. DEYDEN, Chicago, Ill. Filed Nov. 1, 1902. Serial No. 129,771. (No model.)



Claim.—1. A resilient vehicle-tire comprising a continuous tread portion, and a series of separated, peripherally short, lateral extensions integral therewith, and having their peripheral surfaces in the plane of the tread.

2. A resilient tire for vehicle-wheels comprising a continuous tread portion, and a series of peripherally short, separated lateral extensions integral with the tread and arranged with their peripheral surfaces in the plane thereof, said extensions having transverse faces disposed approximately radially relative to the wheel.

3. A tire for vehicle-wheels comprising a central continuous tread portion, and integral lateral extensions on both sides thereof arranged in alternating relation with their peripheral surfaces in the plane of the tread, said extensions being peripherally short and having their transverse faces disposed approximately radially relative to the wheel.

4. A resilient tire for vehicle-wheels comprising in an integral structure a relatively wide, flat base, a relatively narrow, single, continuous tread portion, and lateral extensions from said tread portion laterally continuous with the base, and having substantially rectangular transverse faces disposed approximately radially relative to the wheel.

5. In a solid, resilient, vehicle-tire, an integral structure comprising a relatively wide, thin base, a relatively narrow, thick tread, and peripherally short, lateral extensions therefrom having their exterior surfaces in the plane of the tread.

6. A resilient vehicle-tire comprising a continuous tread portion, and separted lateral extensions therefrom forming alternating recesses, said recesses being contracted from opposite sides toward the inner periphery of the tire.

7. In a vehicle-tire, an integral, resilient structure comprising a flat base portion, a continuous elevated tread, slightly tapered toward its outward periphery, and separated lateral extensions therefrom each having its lateral faces slightly inclined to give said extensions an outward taper, whereby the recesses between the extensions are contracted toward the base thereof.

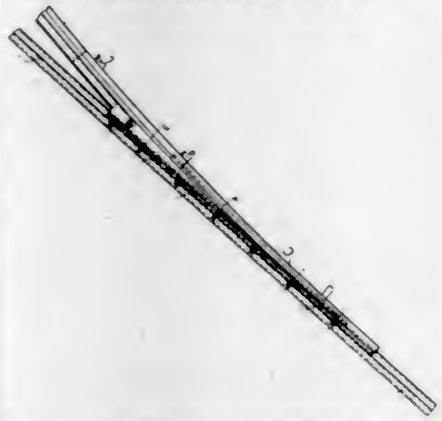
8. The combination of a felly, a tire comprising a base, a relatively narrow, continuous, tread portion, and separated peripheral extensions formed integral with the tread and base, and means for securing the base to the felly intermediate the extensions.

9. The combination of a felly, a rim secured thereto, a tire comprising a base, a relatively narrow tread, separated peripheral extensions formed integral with said base and tread portions, and means for securing the tire to the rim arranged to extend through the tire-base intermediate the extensions.

10. In a vehicle-wheel, a channel-rim having outwardly-projecting flanges at its edges; a tire comprising a base adapted to fit between the flanges of the rim, an elevated continuous tread and separated lateral projections therefrom; and means for securing the tire to the rim arranged to pass through the base thereof and disposed intermediate the elevated tread and the edge of the base.

11. A resilient vehicle-tire comprising a continuous tread portion, and separated lateral extensions therefrom between which are formed recesses, said recesses being contracted from opposite sides toward the inner periphery of the tire.

752,892. **TONGUE-SWITCH.** GEORGE M. ERVIN, Johnstown, Pa., assignor to the Lorain Steel Company, a Corporation of Pennsylvania. Filed June 17, 1903. Serial No. 161,866. (No model.)



Claim.—1. In an outside tongue-switch, the casting fitted to the inner side of the main rail and adapted for connection to the outer rail of a branch or turnout track, said casting having a guard-flange and a seat for a movable tongue.

2. In an outside tongue-switch, the casting fitted to the inner side of the main rail and forming a part of the outer rail of a branch or turnout track, said casting having an undercut guard-flange.

3. The combination with a continuous and uncut main rail, of a casting secured to the inner side thereof and forming a part of a turnout or branch track, and a switch-tongue pivoted to the said casting and resting partly on the same and partly on the tram of the main rail.

4. The combination with the continuous main rail, of a casting secured to the inner side thereof and forming a part of a turnout or branch track, said casting having an undercut and recessed guard portion, and a switch-tongue pivoted to the casting and having a base-flange which engages the said recessed guard portion.

5. In an outside tongue-switch, the casting secured to the inner side of the main rail, and the switch-tongue pivoted to said casting and having its outer straight edge parallel with the gage-line of the main rail, when the tongue is set for the main track.

6. In an outside tongue-switch, the casting secured to the inner side of the main rail, and a switch-tongue pivoted to the said casting and seated partly on the casting and partly on the tram of the main rail, said tongue being shaped and set to give a straight unobstructed main-track flangeway.

7. In an outside tongue-switch, the casting secured to the inner side of the main rail and having the undercut recessed guard portion, and a slender tongue pivoted to said casting and having its point portion shaped to lie in the undercut of said guard portion, and reinforced by a base-flange at its curved side which fits the recess of the said guard portion.

752,893. **POLICEMAN'S MACE.** PETER O. EVENSEN, Chicago, Ill. Filed Aug. 31, 1903. Serial No. 171,348. (No model.)



Claim.—1. The combination provided with a ferrule having an integral socket portion, a revolver-cylinder mounted on said socket portion, a handle also mounted thereupon and a cartridge-discharging mechanism mounted in said handle.

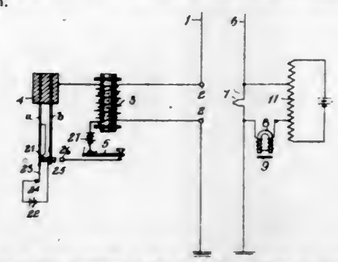
2. The combination of a club having a reduced shank threaded on its outer end, a revolver-cylinder revolubly mounted on said shank, a handle having threaded engagement with said threaded end, and means independently mounted in said handle for discharging cartridges in said cylinder.

3. The combination of a club having a reduced shank provided with a male threaded portion, a handle having a shank-aperture and suitable threads adapted to engage said male threaded portion.

4. The combination in a policeman's mace, of a club, a female threaded ferrule provided with an integral shank threaded on its outer end, a disk threaded upon said shank, a revolver-cylinder mounted on said shank between said disk and club, a hollow handle and means for securing same to said disk, and a cartridge-discharging mechanism mounted in said hollow handle.

752,894. **SELECTIVE SIGNALING.** REGINALD A. FESSENDEN, Fort Monroe, Va., assignor, by direct and mesne assignments, to the National Electric Signaling Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Dec. 29, 1902. Serial No. 136,968. (No model.)

Claim.—1. As an improvement in the art of signaling by electromagnetic waves the method described herein which consists in generating electrical oscillations at a sending-station, radiating prolonged series of electromagnetic waves from the sending-station, in groups of a predetermined frequency lower than the frequency of the waves forming said groups, receiving said waves at a receiving-station, and producing indications or signals at the receiving-station by selecting groups of the predetermined frequency, substantially as set forth.



2. As an improvement in the art of signaling by electromagnetic waves the method described herein which consists in generating electrical oscillations at a sending-station, radiating prolonged series of electromagnetic waves from the sending-station, in groups of a predetermined frequency lower than the frequency of the waves forming said groups, receiving said waves at a receiving-station on a current-operated receiver, and producing indications or signals at the receiving-station by selecting groups of the predetermined frequency, substantially as set forth.

3. As an improvement in the art of signaling by electromagnetic waves the method described herein which consists of producing prolonged electrical oscillation in an auxiliary circuit at a sending-station, radiating prolonged series of electromagnetic waves from the sending-station, in groups of a predetermined frequency lower than the frequency of the waves forming said groups, receiving said waves at a receiving-station, and producing indications or signals at the receiving-station by selecting groups of the predetermined frequency, substantially as set forth.

4. As an improvement in the art of signaling by electromagnetic waves the method described herein which consists in generating electrical oscillations at a sending-station, radiating prolonged series of electromagnetic waves from the sending-station, in groups of a predetermined frequency lower than the frequency of the waves forming said groups, receiving said waves at a receiving-station tuned to the frequency of the electrical waves, and producing indications or signals at the receiving-station.

5. As an improvement in the art of signaling by electromagnetic waves the method described herein which consists of producing prolonged electrical oscillations in an auxiliary circuit at a sending-station, radiating prolonged series of electromagnetic waves from the sending-station, in groups of a predetermined frequency lower than the frequency of the waves forming said groups, receiving said waves at a receiving-station tuned to the frequency of the waves, and producing indications or signals at the receiving-station by selecting groups of the predetermined frequency, substantially as set forth.

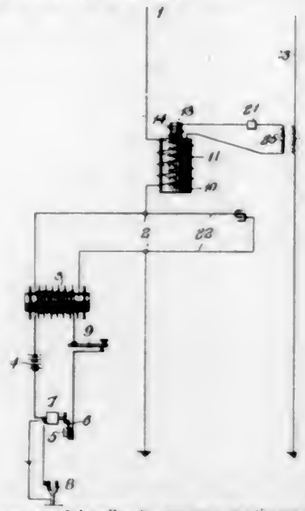
6. As an improvement in the art of signaling by electromagnetic waves, the method herein described which consists in generating electromagnetic waves of a predetermined frequency in groups of a predetermined group frequency lower than that of the waves and producing signals or indications at the receiving-station by selecting electrically waves of a predetermined wave frequency, and selecting mechanically groups formed of such electrically-selected waves and of the predetermined frequency, substantially as set forth.

752,895. **SIGNALING BY ELECTROMAGNETIC WAVES.** REGINALD A. FESSENDEN, Pittsburg, Pa., assignor, by direct and mesne assignments, to the National Electric Signaling Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Mar. 14, 1903. Serial No. 147,726. (No model.)

Claim.—1. In a system of signaling by electromagnetic waves, the combination at a station of two conductors and a receiver for electromagnetic waves in operative relation to said conductors, said conductors being adapted to oppose the effects on the receiver produced by disturbing electrical impulses while permitting waves of the desired periodicity to affect the receiver, substantially as set forth.

2. In a system of signaling by electromagnetic waves, the combination at a station of two conductors one being tuned more closely to the period of the disturbing impulses than the other, said conductors being so arranged and proportioned as to exert equal and

opposite effects on the receiver as regards impulses of the disturbing periodicities, substantially as set forth.



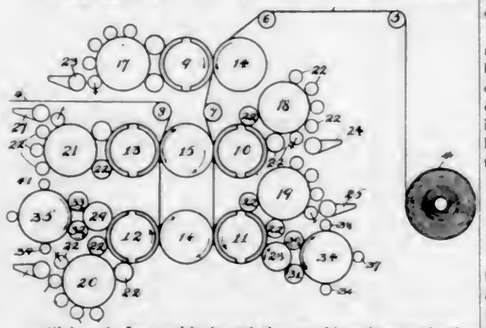
3. In a system of signaling by electromagnetic waves, the combination at a station of two aerial conductors and a receiver for electromagnetic waves in operative relation to said conductors, said conductors being adapted to oppose the effects on the receiver produced by disturbing electrical impulses while permitting waves of the desired periodicity to affect the receiver, substantially as set forth.

4. In a system of signaling by electromagnetic waves, the combination at a station of two conductors and a receiver for electromagnetic waves in operative relation to said conductors, said conductors being adapted to oppose the effects on the receiver produced by disturbing electrical impulses while permitting waves of the desired periodicity to affect the receiver, and a mechanically-tuned receiver, substantially as set forth.

5. In a system of signaling by electromagnetic waves, the combination at a station of two conductors one being tuned more closely to the period of the disturbing impulses than the other, said conductors being so arranged and proportioned as to exert equal and opposite effects on the receiver as regards impulses of the disturbing periodicities, and a mechanically-tuned receiver, substantially as set forth.

6. In a system of signaling by electromagnetic waves, the combination at a station of two aerial conductors one being more closely tuned to the period of the disturbing impulses than the other, said conductors being so arranged and proportioned as to exert equal and opposite effects on the receiver as regards impulses of the disturbing periodicities.

752,896. MULTICOLOR-PRINTING MACHINE. JOSEPH L. FIRM, Chicago, Ill. Filed Nov. 17, 1902. Serial No. 131,721. (No model.)

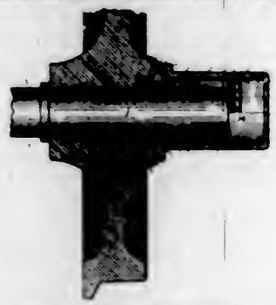


Claim.—1. In a multicolor-printing machine, the combination with a form-cylinder, impression-cylinder and inking mechanism adapted to print upon one side of a web, of a second form-cylinder coacting impression-cylinder and inking mechanism adapted to print a second color upon the same side of a web, and mechanism bearing against said second form-cylinder at a point on its surface before it receives ink from said inking mechanism, and adapted to remove from said second form-cylinder ink offset from said cylinder from said web, substantially as described.

2. In a rotary multicolor-printing machine, the combination with a form-cylinder, coacting impression-cylinder and inking mechanism adapted to print one color upon one side of a web, and a second form-cylinder, coacting impression-cylinder and inking mechanism adapted to print a second color upon the same side of the web, of a receiving-drum, wipers bearing upon the surface of said receiving-drum, and adapted to remove the ink therefrom, and rollers bearing upon said receiving-drum and upon said second form-cylinder at a part of the surface of said second form-cylinder prior to its receiving ink from its inking mechanism, and adapted to transfer to said receiving-drum ink offset upon said second form-cylinder from said web, substantially as described.

3. In a rotary multicolor-printing machine, the combination with a form-cylinder, coacting impression-cylinder and inking mechanism adapted to print one color upon one side of a web, and a second form-cylinder, coacting impression-cylinder and inking mechanism adapted to print a second color upon the same side of the web, of a receiving-drum, wiping-rolls adapted to bear upon the surface of said receiving-drum and remove the ink therefrom, mechanism adapted to intermittently rotate said wiping-rolls against the movement of said receiving-drum, and rollers bearing upon said receiving-drum and upon said second form-cylinder at a part of the surface of said second form-cylinder prior to its receiving ink from its inking mechanism, and adapted to transfer to said receiving-drum ink offset upon said second form-cylinder from said web, substantially as described.

752,897. CAR-AXLE LUBRICATOR. JAMES R. FLEMING, Scranton, Pa. Filed Nov. 28, 1902. Serial No. 133,096. (No model.)



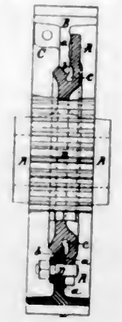
Claim.—1. The herein-described car-axle lubricator comprising in combination with a car-wheel and car-axle, a bracket, a journal-bearing block within said bracket, there being an annular recess within the bore of the car-wheel aforesaid, and a flange on said journal-bearing extending within said annular recess, a lubricant-holding member attachable to said bracket on its under side, and a flange on the said member corresponding to the flange on the journal-bearing aforesaid, and extending with it into the annular recess aforesaid within the wheel, substantially as specified.

2. In a car-axle lubricator, the combination with a car-wheel revolubly mounted on an axle, the said car-wheel having part of its bore enlarged into an annular recess, the walls of said annular recess converging outward, members of the car-axle box having flanges extending within said annular recess, one of said flanges notched at its uppermost part for the purpose of collecting and distributing the lubricant from the walls of the annular recess aforesaid, substantially as specified.

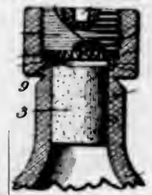
752,898. SECTIONAL WHEEL FOR POWER TRANSMISSION. JAMES H. POGARTY, New York, N. Y. Filed Dec. 5, 1903. Serial No. 183,914. (No model.)

Claim.—1. A sectional wheel comprising a sectional rim and a hub-body, each of which is provided with perpendicular and oblique contact-faces, and one of which is provided with a clearance-pocket located at the apex of the angle formed by the said contact-faces, substantially as set forth.

2. A sectional wheel comprising a sectional rim and a hub-body, each of which is provided with perpendicular and oblique contact-faces and one of which is provided with a clearance-pocket located at the apex of the angle formed by the said contact-faces, and a plurality of wedge-bolts tapered to press in opposite circular directions against the metals of both rim and hub-body, substantially as set forth.



752,899. BOTTLE. HUGH M. GIBB, Cowansville, Pa. Filed Aug. 10, 1903. Serial No. 168,929. (No model.)



Claim.—1. A bottle the neck of which is provided with an interior threaded extension, and an exterior annular groove at the base of the extension, a shoulder, a plurality of holes in the shoulder, a toothed washer, studs secured to the washer, a threaded glass stopper, a ratchet, and means for securing the ratchet to the stopper, substantially as described.

2. A bottle the neck of which is provided with an interior threaded extension, and an exterior annular groove at the base of the extension, a shoulder, a plurality of holes in the shoulder, a toothed washer, a plurality of studs secured to the bottom of the washer, a threaded glass stopper adapted to fit in the neck of the extension, a ratchet, and means for securing the ratchet to the stopper, substantially as described.

3. A bottle the neck of which is provided with an interior annular threaded extension, and an exterior annular groove at the base of the extension, a shoulder, a toothed washer, a plurality of holes in the shoulder, studs secured to the washer and adapted to fit the holes in the shoulder, a threaded glass stopper adapted to fit in the neck of the extension, a ratchet adapted to engage with the teeth in the washer, and means for securing the ratchet to the stopper, substantially as described.

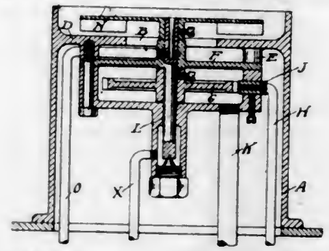
4. In a bottle having a neck provided with an interior annular threaded extension, and an exterior annular groove at the base of the extension, the combination of an exterior annular threaded stopper adapted to fit in the neck of the extension, a shoulder, a plurality of holes in the shoulder, a toothed washer, a plurality of studs secured to the washer and adapted to fit in the holes in the shoulder, a ratchet adapted to engage with the teeth in the washer and means for securing the ratchet to the stopper, substantially as described.

752,900. HYDROCARBON-BURNER. WILLIAM E. GIBBS, Fanwood, N. J., assignor of one-half to Henry Berg, Newark, N. J. Filed Mar. 17, 1903. Serial No. 148,170. (No model.)

Claim.—1. In a hydrocarbon-burner, the combination of a casing, a turbine therein, means for admitting an operating fluid to said turbine, a suitable exhaust-outlet for said fluid to a point without the burner, and a revolving fan at the point of combustion and connected with said turbine.

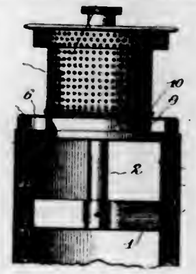
2. In a hydrocarbon-burner, the combination of a turbine with means of supplying fluid for driving same, a centrifugating disk connected therewith for spraying a hydrocarbon, and a fan for producing a whirling motion in the air at the point of combustion, substantially as set forth.

3. In a hydrocarbon-burner, the combination of a turbine with means of supplying fluid for driving same, a centrifugating device for spraying a hydrocarbon, a revolving fan positively driven at a high rate of speed for producing a whirling motion in the air at the point of combustion, and a device for conveying hydrocarbon to said centrifugating device, substantially as set forth.



4. In a hydrocarbon-burner, the combination of a turbine with means of supplying fluid for driving same, a centrifugating disk with means of supplying hydrocarbon thereto, and a revolving fan positively driven at a high velocity for whirling the air in a spiral at the point of combustion, substantially as set forth.

752,901. LAMP-BURNER. JOSEPH GREGORY, Jersey City, N. J. Filed Nov. 24, 1903. Serial No. 182,510. (No model.)



Claim.—1. In lamp-burners, a stationary spreader, a ring-like guard guided thereby and forming an extinguisher, that portion of the spreader on which the guard is movable being imperforate.

2. In a lamp-burner, a stationary spreader, having a flanged lower end seated on the inner wick-tube, said spreader having a lower imperforate portion within the limit of movement of the wick, and a wick-operated guard guided by the imperforate portion of the spreader.

3. In a lamp-burner, an approximately cylindrical body portion having at its lower end an outwardly-extending annular flange resting on the inner wick-tube, the lower portion of the cylindrical body being imperforate and divided from the perforated portion by a knurl or crimp, and a ring-like flame-guard and extinguisher guided by the imperforate portion of the spreader.

4. In a lamp-burner, a spreader including an approximately cylindrical body portion having at its lower end an outwardly-extended annular flange for connection with the inner wick-tube, the flange being provided with perforations, the lower portion of the body of the spreader being imperforate and divided from the perforated portion by a horizontally-disposed knurl or crimp, and a flame-guard in the form of an imperforate ring guided by the imperforate portion of the spreader.

5. In a lamp-burner, the combination with the inner and outer wick-tubes, of a spreader spaced inward from the inner wall of the wick to thereby form an annular gas-space, said spreader being provided with openings for placing the bottom of the gas-space in communication with the central draft-tube of the burner.

6. In a lamp-burner, the combination with the inner and outer wick-tubes, of a stationary spreader having the lower portion of the cylindrical wall imperforate and provided with a horizontally-disposed perforated flange resting on the inner wick-tube, and a movable flame-guard supported by the wick, the lower wall of the spreader, the upper wall of the flange and the opposing walls of the spreader and wick forming a gas-space that communicates with the central draft-tube through the perforations of the flange.

7. In a central-draft lamp, an outer and inner wick-tube, a wick

movable between said tubes, a stationary flame-spreader fitting on and supported by the inner wick-tube, and a wick-guard coacting with the flame-spreader to limit the upward movement of the wick.

8. In a lamp-burner as described, a stationary flame-spreader fitting on and supported by the inner wick-tube, an imperforate wick-guard serving in connection with an imperforate band to form the upper and inner walls of a gas-space.

9. In a lamp-burner of the kind described, a flame-spreader having its lower end flanged outwardly and seated upon the upper end of the inner wick tube, a wick-guard serving in connection with an imperforate band to protect the upper inner edge of the wick from the flame.

10. In a central-draft lamp, an outer and inner wick-tube, a wick movable vertically between said tubes, a stationary flame-spreader fitting on and supported by the inner wick-tube, a wick-guard serving in connection with an imperforate band to form the upper and inner walls of a gas-space and coacting with the spreader to limit the vertical movement of the wick.

752,902. **GRAVE-PROTECTOR.** WILLIAM H. HALFAKER, Clark township, Johnson county, Ind. Filed Sept. 10, 1903. Serial No. 172,539. (No model.)



Claim.—1. A grave-protector including a cover having integral bases, a plurality of sets of anchors for the cover having each an aperture therein, and a plurality of headed rods for insertion in the apertures of the anchors and having each an aperture therein to receive a lock or seal.

2. A grave-protector including a cover having integral external bases provided each with a series of apertures, a plurality of sets of anchors for insertion in the apertures of the bases and having each an apertured head, and a plurality of headed rods for insertion in the apertured heads of the anchors and having each an aperture therein to receive a lock or seal.

3. A grave-protector including a cover having apertured base-flanges, opposing cover ends having apertures therein, anchors having apertured heads for engagement with the tops of the base-flanges, and rods for insertion in the apertures of the anchor-heads and also those in the cover ends and having each a head and also an aperture for sealing the rod in its operative position.

4. A grave-protector including a cover-body having apertured base-flanges, a pair of cover ends having flanges for engagement with the upper portions of the cover-body and also having apertures therein, anchors having apertured heads for cooperation with the base-flanges, and rods for insertion in the apertured heads and in the apertures of the cover ends and having apertures therein.

5. A grave-protector including a cover-body having apertured base-flanges, a pair of cover ends having bases and also having apertured ears, anchors having apertured heads for cooperation with the apertured base-flanges, apertured rods for cooperation with the apertured heads of the anchors and also with the apertured ears of the cover ends.

6. A grave-protector including a cover-body having apertured base-flanges, opposing cover ends having apertured ears, apertured anchors engaging the tops of the base-flanges and extending through the apertures therein, apertured rods extending through the apertures in the anchors and in the ears, and locks in the apertures in the rods.

7. A grave-protector comprising an apertured cover-body having apertured base-flanges, opposing flanged cover ends having apertured ears, apertured anchors engaging the tops of the base-flanges and extending through the apertures therein, a pair of apertured rods extending through the apertures in the anchors and in the ears, an apertured rod engaged by one of the pair of apertured rods and extending through the apertures in the cover-body, and locks in the apertures in the rods.

8. A grave-protector comprising a cover provided with a removable mold at the under side thereof and also with a pair of apertured bases, and anchors for cooperation with the apertured bases.

9. In a grave-protector, the combination with a metallic cover, of a plurality of anchors arranged in sets and having each a flat twisted body and also an apertured head cooperating with the cover, a plurality of apertured rods each inserted in the apertures of a set of the anchors, and locks in the apertures of the rods.

10. In a grave-protector, the combination with a metallic cover having apertured bases, of a plurality of anchors arranged in sets and having flat twisted bodies and also apertured heads cooperating with the apertured bases, a plurality of apertured rods having heads and each inserted in the apertured heads of a set of the anchors, and seals connected in the apertures of the rods.

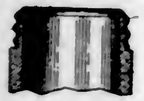
11. In a grave-protector, the combination of a cover having base-flanges, screw-anchors cooperating with the base-flanges, and detachable locking means connected with the anchors preventing rotation thereof.

12. In a grave-protector, the combination of a cover comprising a body, a pair of ends engaging the body, rods engaging the ends and connecting the body thereto, and anchors securing the body to the ground and engaging the rods and thereby connecting the rods with the body.

13. In a grave-protector, the combination of a cover-body comprising two plates hinged together by means of an apertured rod having a head, said plates having each an apertured base, a pair of cover ends having flanges engaging the plates of the cover-body and also having bases and apertured ears, anchors having apertured heads cooperating with the apertured bases, and apertured rods cooperating with the apertured heads of the anchors and also with the apertured ears of the ends.

14. In a grave-protector, the combination of a cover-body having a mold-holder attached to the under side thereof, a mold removably attached to the mold-holder, anchors cooperating with the cover-body, and seals for the anchors.

752,903. **DREDGE.** OLIVER K. HOGAN, New York, N. Y. Filed July 20, 1903. Serial No. 166,239. (No model.)



Claim.—1. A two-part dredge comprising a body of non-corrosive material having integrally an upper threaded portion, and a cap made wholly of a material insensible to the emanations from the salt, said cap embodying a top containing perforations and a flexible threaded flange, the latter in direct engagement with said threaded body portion.

2. A two-part dredge comprising a body of non-corrosive material having integrally an upper threaded portion, and a thin shell-like cap made wholly of celluloid, said cap embodying a top containing perforations and a flexible threaded flange, the latter in direct engagement with said threaded body portion.

3. A two-part dredge comprising a body of non-corrosive material having integrally an upper threaded portion, and a cap made wholly of celluloid, said cap embodying a top containing perforations, and a thin flange having threads impressed through the thickness thereof and in direct engagement with said threaded body portion.

4. A two-part dredge comprising a body of glass having an upper portion with molded threads, and a thin shell-like cap made wholly of celluloid, said cap embodying a top containing perforations and a flexible flange having threads impressed through the thickness thereof and in direct engagement with said molded threads of the body portion.

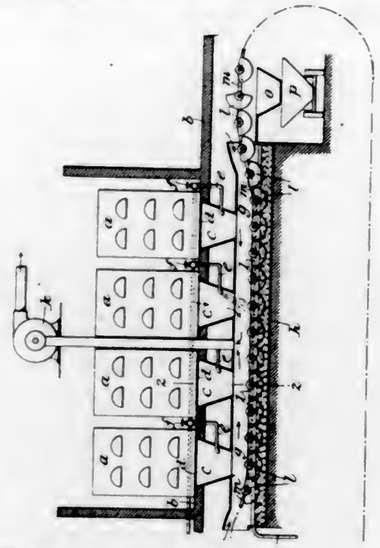
752,904. **APPARATUS FOR HANDLING COKE.** CHARLES W. HUNT, West New Brighton, N. Y. Filed June 17, 1903. Serial No. 161,785. (No model.)

Claim.—1. The combination of a bench of retorts, a floor having an opening through which the coke discharged from the retorts may fall, a cover for said opening, a chamber beneath said opening, and below the floor, and means to withdraw the steam from said chamber as the coke is quenched, substantially as described.

2. The combination of a bench of retorts, a floor having an opening through which the coke discharged from the retorts may fall, means to quench the coke as it falls through said opening, a chamber beneath said opening, and an exhaust device connected to said chamber to withdraw the steam from said chamber as the coke is quenched, substantially as described.

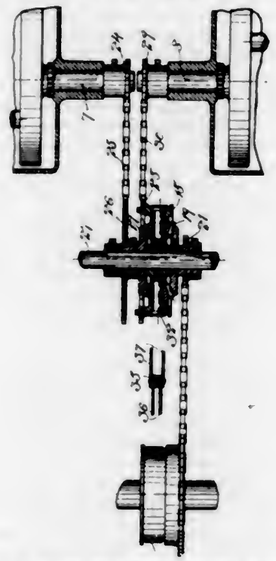
3. The combination of a bench of retorts, a floor having an opening through which the coke discharged from the retorts may fall, a chain conveyer having perforated buckets disposed beneath said opening, and means to quench the coke as it falls through said opening, substantially as described.

4. The combination of a bench of retorts, a floor having an opening through which coke discharged from said retorts may fall, a chain conveyer having perforated buckets disposed beneath said opening, and a tank through which said conveyer moves, substantially as described.



5. The combination of a bench of retorts, a floor having an opening through which coke discharged from said retorts may fall, means to quench the coke as it falls through said opening, a chamber beneath said opening, an exhaust device connected to said chamber, and a conveyer having perforated buckets located in said chamber, substantially as described.

752,905. **DRIVING MECHANISM.** JOHN F. KAY, Passaic, N. J.; John C. Kay administrator of said John F. Kay, deceased. Filed July 5, 1902. Serial No. 114,380. (No model.)

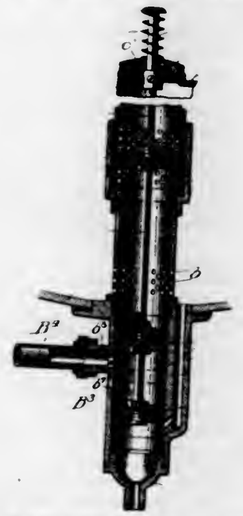


Claim.—1. A driving mechanism comprising two engine-shafts, a driving-wheel and a compensating gear comprising a bevel-gear connected to one engine-shaft, a bevel-gear connected to the driving-wheel and an intermediate pinion connected to the other engine-shaft.

2. A driving mechanism comprising two engine-shafts, a bevel-gear keyed to one shaft, a second bevel-gear loosely mounted on the other shaft, a driving-wheel carried thereby and an intermediate pinion-frame keyed to said other shaft provided with a pinion intermeshing with the said bevel-gears whereby variations in the speeds of the two engine-shafts will drive the driving-wheel at variable speeds.

3. In combination, two engine-shafts, a driving-wheel, a compensating gear connecting the driving-wheel with the said shafts, a transmission-gear connected to said driving-wheel, brakes carried by the transmission-gear and compensating gear and a common brake-lever connected to the said brakes.

752,906. **WATER-CLOSET.** JAMES W. KELLY, Chicago, Ill. Filed Mar. 21, 1903. Serial No. 148,855. (No model.)



Claim.—1. In means of the character described, a tank in combination with a pipe extending thereinto and provided with a by-pass, a valve controlling said by-pass, an extension at the lower end of the tank in alinement with said pipe, an admission-pipe connected therewith, valves located above and below said admission-pipe in the normal position, and a common actuating-stem for said valves.

2. The combination with a suitable tank of a pipe extending thereinto and provided therein with a by-pass, a valve controlling said by-pass, an admission-pipe adapted to be placed in communication with the lower portion of said first-named pipe, valves located above and below said admission-pipe, a by-pass from the tank to the under surface of the lower valve, and a common actuating-stem for said valves.

3. In means of the character described, the combination of a bowl, a tank, a flush-pipe connecting said bowl and tank and extending into the tank and provided within the tank with a by-pass an extension connected with said pipe at the lower end of said tank and provided with a by-pass, a lateral admission-pipe connected with said extension, valves above and below said admission-pipe, a valve controlling said first-named by-pass, and a common actuating-stem for said valves.

4. In means of the character described, a tank, a flush-pipe extending thereinto, and provided within the tank with a by-pass, an extension connected with said pipe at the lower end of the tank and provided at one plane with an admission-port and at a lower plane with a drain-port, a by-pass communicating with said tank and opening into the interior of said extension beneath the plane of said admission-port, a valve located normally above said admission-port, a valve located between said admission-port and the lower end of said last-named by-pass, a valve controlling said first-named by-pass, and a common actuating-stem for said valves.

5. In means of the character described, the combination of a bowl, a seat, a tank, a flush-pipe extending into said tank and in communication therewith, a valve controlling the passage from the tank through said flush-pipe, an admission-passage, a drain-passage, valves controlling said admission and drain passages, a valve-stem

connected with said valves and having its upper end projecting above said flush-pipe to be actuated by said seat, and a spring serving normally to hold said valve-stem in the elevated position.

6. In means of the character described, the combination of a suitable bowl, a flush-pipe connected therewith, an air-tight tank located beneath said bowl and in communication with said flush-pipe, an admission-passage, a drain-passage connected with the lower portion of said tank, valves controlling the admission and drain passages, a valve controlling the passage from the tank through said flush-pipe, and a seat-actuated valve-stem connected with said valves.

7. In means of the character described, the combination of a suitable bowl, a soil-pipe connected therewith, a tank located beneath said bowl, a drain-pipe connecting the lower end of said tank with said soil-pipe, an admission-pipe at the lower end of said tank, valves controlling said admission and drain pipes, a valve controlling the passage from said tank through said flush-pipe, and a common actuating-stem for said valves.

8. In means of the character described, a vertically-disposed tank, a flush-pipe extending through the upper end thereof, a pipe extension at the lower end of said tank having screw connection with said flush-pipe and provided with an admission-port and a drain-passage, valves controlling said admission-port and drain-passage, a valve controlling the passage from said tank through said flush-pipe, and a common actuating-stem for said valves.

9. In means of the character described, the combination of a vertically-disposed tank provided at its lower end with an opening, a pipe extension fitted to said opening and equipped with a suitable gasket, a flush-pipe extending through the upper end of said tank and having threaded connection at its lower end with said pipe extension, a nut having threaded connection with said flush-pipe above said tank, a gasket confined between said nut and tank, an admission-passage at said extension and valves controlling said admission-passage and the passage from said tank through said flush-pipe.

10. In means of the character described, a pipe extension B^3 having an open upper end and provided with a lateral nipple b^4, a vertical drain-passage b^{10}, with an orifice at its upper end, and a circular flange near the upper end of the pipe extension and below said orifice, for the purpose set forth.

11. In means of the character described, a tank, a flush-pipe extending therethrough provided near its lower end with an opening in free communication with said tank, and at a higher plane with openings separated by an imperforate portion, a valve located at said imperforate portion, an enlargement fitted on said pipe and provided with a by-pass around said valve, an admission-port, a drain-passage, valves controlling said admission-port and drain-passage, and a common actuating-stem for said valves.

752,907. TAPPET FOR THE SHAFTS OF ORE STAMP-MILLS, &c. PHILIP C. KELLY, Sandycroft, England, assignor to the Sandycroft Foundry Company, Limited, Sandycroft, England. Filed Oct. 16, 1903. Serial No. 177,253. (No model.)

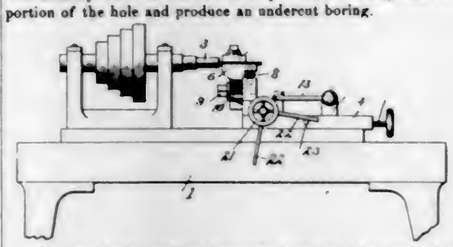


Claim.—1. A tappet formed of two sections, the larger having a longitudinal gap at least equal to the diameter of the shaft to which it is to be secured and the smaller section forming the gate being of a size to fit said gap and having a surface shaped to fit the shaft and means carried by said gate-section for forcing and holding it directly against the shaft.

2. A tappet formed of two solid sections, the larger having a longitudinal gap at least equal to the diameter of the shaft to which it is to be secured, and a surface shaped to partly embrace said shaft and which shaft can be introduced and withdrawn through said opening the smaller section being of a size to fit in said gap and having a surface shaped to fit all over that part of the shaft it touches, both of said sections having holes corresponding with each other, and a cotter adapted to seat in said holes and to draw the two sections together so as to grip the shaft between same.

752,908. BORING-MACHINE. JOSEPH H. LAWLER, Brooklyn, N. Y. Filed Oct. 29, 1902. Serial No. 129,323. (No model.)

Claim.—1. In a machine of the character described, a tool provided with an end cutting or boring edge and a lateral cutting edge, and mounted with said lateral edge inclined toward the forward direction of feed movement, means to feed said tool forward to the work to bore a hole of the required depth, and means to move said tool laterally while in its advanced position, to enlarge the lower portion of the hole and produce an undercut boring.



2. In a machine of the character described, a boring-tool having an end cutting or boring edge and a lateral cutting edge inclined to said end cutting edge, means to secure said tool in operative position, means to feed said tool to the work in a direction inclined to its lateral cutting edge to operate its boring edge, and means to feed said tool transversely to the first-named direction of feed to operate its lateral cutting edge.

3. In a machine of the character described, a tool having an end cutting or boring edge and a lateral cutting edge and mounted to present said lateral cutting edge obliquely to the axis of the work, means to feed said tool toward the work to bore a recess of the desired depth, and means to give said tool a cutting movement transverse to said first-named direction of feed to advance said obliquely-presented lateral edge and enlarge the lower portion of the recess.

4. In a machine of the character described, a tool having an end cutting or boring edge and a lateral cutting edge and mounted to present said lateral cutting edge obliquely to the axis of the work, means to give said tool a boring feed movement toward the work, adjustable stop means to control the depth of the boring, means to give the tool a cutting movement transverse to its boring movement to enlarge the lower portion of the boring and produce an undercut recess, and adjustable stop means to control the amount of said transverse movement or undercutting.

5. In a machine of the character described, a tool having an end cutting or boring edge and mounted to present said lateral cutting edge obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, a tool-holder mounted to slide upon said support in a direction transverse to the movement of said support and adjustable stops to limit said movements.

6. In a machine of the character described, a boring-tool having a lateral cutting edge and mounted to present said lateral edge thereof obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, an adjustable stop device to control the extent of said sliding movement, a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support.

7. In a machine of the character described, a boring-tool having a lateral cutting edge and mounted to present said lateral edge thereof obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, an adjustable stop device to control the extent of said sliding movement, a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support, a screw-rod in the support and engaged by said tool-holder whereby rotation of the screw-rod moves the tool-holder in the said transverse direction, and means to rotate said screw-rod.

8. In a machine of the character described, a boring-tool having a lateral cutting edge and mounted to present said lateral edge thereof obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, an adjustable stop device to control the extent of said sliding movement, a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support, a screw-rod in the support and engaged by said tool-holder whereby rotation of the screw-rod moves the tool-holder in the said transverse direction, means to rotate said screw-rod, and adjustable stop means to limit the rotation of said screw-rod.

9. In a machine of the character described, a boring-tool having a lateral cutting edge and mounted to present said lateral edge thereof obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, an adjustable stop device to control the extent of said sliding movement, a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support, a screw-rod in the support and engaged by said tool-holder whereby rotation of the screw-rod moves the tool-holder in the said transverse direction, a stop projecting from the support into the path of said radial arms so as to limit the transverse movement of said tool-holder.

10. In a machine of the character described, a boring-tool having a lateral cutting edge and mounted to present said lateral edge thereof obliquely to the axis of the work, a support for said tool mounted to slide to and from the work, an adjustable stop device to control the extent of said sliding movement, a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support, a screw-rod in the support and engaged by said tool-holder whereby rotation of the screw-rod moves the tool-holder in the said transverse direction, a collar fitting loosely upon said screw-rod and provided with radial screw-threaded holes therethrough, a pair of rods having screw-threaded ends to fit the holes in said collar and secure the same upon said screw-rod in a desired position, a stop projecting from the support into the path of said rods so as to limit the transverse movement of the tool-holder.

11. In a machine of the character described, a sliding tool-support, means to slide said support comprising a hand-lever pivoted at a point between its ends upon said support, one end of said lever connected to a fixed part of the machine, an adjustable stop device to limit the movement of said support; a tool-holder mounted to slide upon said support and in a direction transverse to the movement of said support, an adjustable stop device to limit the transverse movement of said tool-holder, and a boring-tool mounted in said holder having a lateral cutting edge obliquely inclined to the direction of movement of the tool-support.

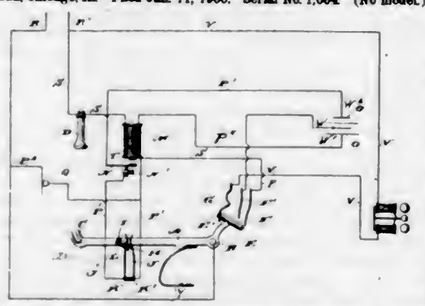
12. In a machine of the character described, a tool-holder, a feed-screw for the same, radial arms adjustably mounted on said feed-screw, means to vary the angular divergence of said arms, a stop arranged in the path of said arms to limit their movement in either direction and control the movement of said feed-screw.

13. In a machine of the character described, a tool-holder, a feed-screw for the same, radial arms mounted on said feed-screw, means to vary the radial position of said arms, and means to vary the angular divergence of said arms, a stop arranged in the path of said arms to limit their movement in either direction and control the movement of said feed-screw.

14. In a machine of the character described, a tool-holder, a feed-screw for the same, a ring loosely mounted on said feed-screw, threaded radial apertures in said ring, arms having screw-threaded ends in said ring-apertures and abutting against the feed-screw, whereby said ring and arms are securely held in any desired position, and a stop arranged in the path of said arms to limit their movement in either direction.

15. In a machine of the character described, a tool having an edge for boring a parallel-walled recess, and a lateral cutting edge inclined to said boring edge, and means to operate said edges successively in the order named, said lateral cutting edge operating to enlarge the lower portion of the recess made by the boring edge and produce an undercutting of the walls of the recess.

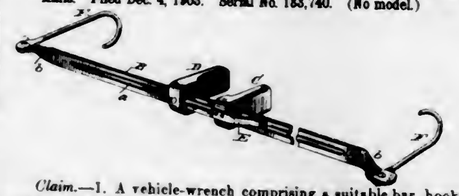
752,909. TELEPHONE SIGNALING MECHANISM. OSCAR O. LER, Chicago, Ill. Filed Jan. 11, 1900. Serial No. 1,064. (No model.)



Claim.—1. A telephone signaling apparatus, comprising a local battery, an induction-coil, a rheotome or vibrator therefor, a receiver-support and an electric signaling apparatus, a circuit from said battery leading through the primary of the induction-coil and through the rheotome thereof, said circuit being made by the movement of the receiver-lever, and additional circuits controlled by said receiver-support, normally throwing said signaling apparatus into circuit with the line-wires, and arranged to throw the secondary of the induction-coil into circuit with said line-wires, and a portion of the said battery together with the transmitter, into circuit with said primary coil, at the limit of upward movement of the receiver-support, as and for the purpose set forth.

2. A telephone signaling apparatus, comprising a local battery, an induction-coil, a rheotome or vibrator therefor, a receiver-support and an electric signaling apparatus, a circuit from said battery leading through the primary of the induction-coil, and through the rheotome thereof, said circuit being made by the movement of the receiver-lever, contacts on the receiver-support, and a series of co-operating springs connected respectively to the secondary of the induction-coil, the signal apparatus, and an intermediate point in the electric battery, whereby the signaling apparatus is normally in circuit with the line-wires, but said battery and induction-coil are thrown into a talking-circuit upon movement of said receiver-support to its limit of upward movement, as and for the purpose set forth.

752,910. VEHICLE-WRENCH. GEORGE H. MARKILLIE, Perth Kans. Filed Dec. 4, 1903. Serial No. 183,740. (No model.)

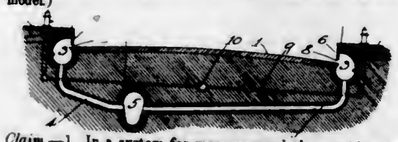


Claim.—1. A vehicle-wrench comprising a suitable bar, hooks at the ends of the bar, and suitably-constructed jaws upon the bar adapted to engage the nut upon the axle, one of said jaws having a curved spring to retain said jaw in its adjusted position upon the bar, substantially as and for the purpose set forth.

2. A vehicle-wrench comprising a bar having a longitudinal bead therein to form a track, hooks upon the ends of the bar, and jaws for engaging the nut upon the axle suitably supported upon the bar, one of said jaws being adjustable and held in its adjusted position by a suitable spring, substantially as and for the purpose specified.

3. A vehicle-wrench comprising a bar having its extremities twisted, hooks having flat disk heads connected thereto, jaws upon the bar, one of which is adjustable thereon and held in its adjusted position by a spring device, substantially as and for the purpose described.

752,911. SYSTEM OF SNOW DISPOSAL. JAMES C. MARRIOTT, New York, N. Y. Filed June 30, 1903. Serial No. 163,672. (No model.)



Claim.—1. In a system for snow removal, the combination of a conduit having openings through which snow may be introduced, a constantly-available source of water-supply, means connecting the same with said conduit for admitting water directly thereto, and means for controlling the flow of water into said conduit.

2. In a system for snow removal, the combination with a conduit extending along a street, and having at a plurality of points openings through which snow may be introduced, of a sewer or channel connected at intervals to said conduit for carrying away water and slush, a source of water-supply independent of said sewer or channel, and means for connecting the same with said conduit for introducing water directly into said conduit.

3. In a system for snow removal, the combination with a conduit extending along a street, and having at a plurality of points openings through which snow may be introduced, and sectional guard-plates normally closing said openings, of a sewer or channel connected at intervals to said conduit for carrying away water and slush, a source of water-supply independent of said sewer or channel, and means connecting the same with said conduit for introducing water directly into said conduit.

4. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof.

said conduit having openings through which snow may be introduced, of means for introducing water into said conduit.

5. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof, said conduit having openings through which snow may be introduced of a sewer or channel connected to said conduit for carrying away water and slush, and means for introducing water into said conduit

6. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof said conduit having openings through which snow may be introduced and guard-plates normally closing said openings, of a sewer or channel connected to said conduit for carrying away water and slush, and means for introducing water into said conduit.

7. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof, said conduit having openings in its face adjacent to the driveway of the street, through which snow may be introduced, of a sewer or channel connected to said conduit for carrying away water and slush, and means for introducing water into said conduit.

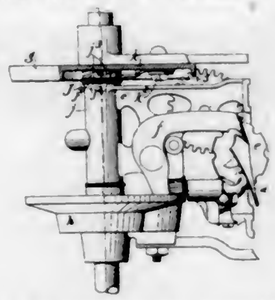
8. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof, said conduit having openings in its face adjacent to the driveway of the street, through which snow may be introduced, and guard-plates, normally closing said openings, of a sewer or channel connected to said conduit for carrying away water and slush, and means for introducing water into said conduit.

9. In a system for snow removal, the combination with a conduit located at the curb-line of a street and forming a curb thereof, said conduit having openings in its face adjacent to the driveway of the street, through which snow may be introduced, and guard-plates, normally closing said openings, openings being provided, between said guard-plates and the street-surface, for the passage of surface water into said conduit, of a sewer or channel connected to said conduit for carrying away water and slush, and means for introducing water into said conduit.

10. In a system for snow removal, the combination with a snow-removal conduit having at a plurality of points openings through which snow may be introduced, and sectional guard-plates normally closing said openings, but adapted to be removed, of a water-supply system connected directly to such conduit, for introducing water therein to melt and carry away the snow.

11. In a system for snow removal, the combination with a snow-removal conduit having at a plurality of points openings through which snow may be introduced, of a sewer or channel connected to said conduit for carrying away water and slush, and a water-supply system connected directly to said conduit for introducing water to melt and carry away the snow.

752,912. GRAIN-BINDER. CHRISTIAN MAUL, Batavia, N. Y., assignor to the Johnston Harvester Company, Batavia, N. Y. Filed July 19, 1902. Serial No. 116,197. (No model.)



Claim.—1. The combination with a knotter-shaft, and a knotter-frame, of a movable device arranged adjacent to said frame and held against movement relative to said frame in a direction longitudinally of said shaft, and means acting when said device is moved to cause a relative movement between said frame and said shaft, substantially as set forth.

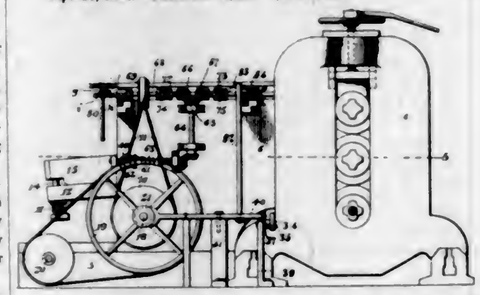
2. The combination of a knotter-shaft and a knotter-frame, of a movable device arranged between a part of said frame and a part on said shaft, cooperating means on said device and one of said parts acting when said device is moved to cause a relative movement between said frame and said shaft, and means for holding said device in adjusted positions, substantially as set forth.

3. The combination with a knotter-shaft, a part secured to said shaft against longitudinal movement, and a knotter-frame, of a collar mounted to turn on said shaft between a part on said frame and said part secured to said shaft, an inclined face on said collar, an inclined face on one of said parts which is engaged by the inclined face on said collar, and means for holding said collar in adjusted positions, substantially as set forth.

4. The combination with a knotter-shaft, a part secured to said shaft against longitudinal movement, and a knotter-frame of a collar loosely surrounding said shaft between said frame and said part secured to said shaft, a flat face on said collar bearing against a flat face on said frame, one or more inclined faces on said collar, cooperating inclined faces on said part secured to said shaft, and means for holding said collar in adjusted positions, substantially as set forth.

5. The combination with a knotter-shaft, a knotter-frame, and a knotter mechanism including a cam secured to said shaft, of a collar loosely surrounding said shaft between said frame and said cam, one or more inclined faces on said collar, one or more cooperating inclined faces on said cam bearing against said inclined face on said collar, and means for securing said collar to said cam, substantially as set forth.

752,913. PLATE-HANDLING MACHINE. EDMUND MILES, Cleveland, Ohio, assignor of one-half to S. L. Selleck, Cleveland, Ohio. Filed Sept. 25, 1901. Serial No. 76,487. (No model.)



Claim.—1. In a plate-handling machine, the combination with a movable plate-receiving member, of means for moving said member to effect the transfer of the plate carried thereby, and a trigger controlling the operation of said means, said trigger being disposed to be held in one position by a plate passing to the member and released by said plate when the latter has been entirely received by said member.

2. In a plate-handling machine, the combination with a vertically-movable plate-receiving member and operating mechanism therefor, of a trigger controlling the movement of the member and disposed in position to be controlled by the plate passing to the member, and a trip device likewise controlling the operation of the member and disposed to be tripped by the plate during the elevation thereof.

3. In a plate-handling machine, the combination with a plate receiving member and mechanism for operating said member to effect the transfer of the plate and the return of the member to its initial position, of a trigger controlling the operation of the receiving member and disposed for actuation by the plate passing to the member, and a trip device located at a point above the trigger and disposed for actuation by the plate to stop said member in position to deliver the plate.

4. The combination with the mill-rolls, rotatable continuously in the same direction, of a movable plate-receiving member arranged to receive a plate from one pass of the rolls, means for moving said member to another pass to deliver the plate, a series of feed-rollers carried by the plate-receiving member, means for rotating the rollers in one direction when the member is in the receiving position, means independent of the rolls for automatically stopping the rollers, and means for automatically starting the rollers in the reverse direction when the member reaches the delivering position.

5. In a continuously-operating rolling-mill, the combination with the rolls and a plate-receiving member provided with a series of feed-rollers and operating means therefor, of automatically-operated means for starting, stopping and reversing said rollers, independently of the rolls.

6. In a plate-handling machine, the combination with a vertically-movable plate-receiving member and a series of feed-rollers carried thereby, of roller-operating mechanism, means for automatically controlling the movement of the member, and automatically-operated means for stopping and starting the rollers in both the elevated and depressed positions of the plate-receiving members.

7. In a plate-handling machine, the combination with the vertically-movable plate-receiving member, a series of feed-rollers carried thereby, and roller-operating mechanism, of a trip device controlling the operation of both the member and the rollers.

8. In a plate-handling machine, the combination with a plate-receiving member, a series of feed-rollers, and roller-operating mechanism, of trip devices arranged to control the operation of the feed-rollers in opposite directions, said trip devices being disposed adjacent to the opposite ends of the receiving member for automatic actuation.

9. In a plate-handling machine, the combination with a vertically-movable plate-receiving member, a series of feed-rollers carried thereby, mechanism for operating the member, and mechanism for operating the feed-rollers, of a trigger controlling the operation of the member and located in position to be actuated by a plate passing to the member, a trip device disposed for automatic actuation when the member has reached its elevated position, and means operated by said trip device for stopping the member and for starting the rollers to discharge the plate.

10. In a plate-handling machine, the combination with a vertically-movable plate-receiving member, a series of feed-rollers carried thereby, operating mechanism for the member, and roller-operating mechanism, of a trigger controlling the operation of the member and disposed to be held in its depressed position by a plate passing to the member, a trip device controlling the operation of both the member and feed-rollers and disposed for actuation by a plate when the latter is raised to its elevated position, a second trip device disposed adjacent to the rear end of the member for actuation by the plate, and means operated by the second trip device for reversing the rollers to effect the discharge of the plate from the rear end of the member.

11. In a plate-handling apparatus, the combination with a vertically-movable plate-receiving member, of an eccentric connected to said member to move the same in a curvilinear path, and means for operating the eccentric.

12. In a plate-handling machine, the combination with a plate-receiving member having a laterally-movable pivotal support, of an eccentric connected to said member to move the same in a curvilinear path, and means for operating the eccentric.

13. In a plate-handling machine, the combination with a plate-receiving member, of an eccentric connected thereto to effect the vertical movement of the member in a curvilinear path, a toothed pinion connected to the eccentric to operate the same, a rack engaging the pinion, and means for reciprocating the rack.

14. In a plate-handling machine, the combination with the frame, a vertically-movable plate-receiving member mounted therein, and feed-rollers carried by the member, of a trip device carried by the frame and disposed for actuation by the plate supported by the member, and mechanism connected with the trip device for controlling the operation of the member and feed-rollers respectively.

15. In a plate-handling machine, the combination with the frame, a vertically-movable plate-receiving member mounted therein, and feed-rollers carried by the member, of a main shaft journaled in the frame, mechanism operated by said shaft for moving the member, a power-pulley loosely mounted on the shaft, a clutch on the shaft to connect the power-pulley thereto, and a trigger disposed in advance of the plate-receiving member and operatively related to the clutch to operate the same.

16. In a plate-handling machine, the combination with the frame, a vertically-movable plate-receiving member mounted therein, feed-rollers carried by said member, member-operating mechanism and roller-operating mechanism, of a machine-clutch controlling the connection of the member-operating mechanism with the member, a trigger controlled by the plate passing to the member and operatively related to the machine-clutch, roller-clutches, controlling the connection between the roller-operating mechanism and the rollers, and designed to effect the rotation of the rollers in opposite directions, and trip mechanism operatively related to the clutches and disposed for actuation by the plate supported by the plate-receiving member.

17. In a plate-handling machine, the combination with a support, of the plate-receiving tongs comprising a pair of pivoted members between which the plate is received, and means for moving the tongs vertically.

18. In a plate-handling machine, the combination with a support, of the plate-receiving tongs comprising a pair of pivoted members, each provided with a series of feed-rollers between which the plate is received, and means for yieldingly urging the members toward each other to grip a plate.

19. In a plate-handling machine, the combination with a vertically-movable plate-receiving member, and feed-rollers, of means for imparting vertical movement to said member, and means for automatically stopping the member and starting the feed-rollers to deliver the plate when the member reaches its elevated position.

20. In a plate-handling machine, the combination with a vertically-movable plate-receiving member, and feed-rollers, of means for imparting vertical movement to said member, and means operated by the movement of the member for stopping the member and starting the feed-rollers.

21. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating means for the member and rollers, of means for automatically stopping the rollers and starting the member.

22. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of operating means for the member and rollers, and means engaged by the plate to stop the member and start the rollers.

23. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating means, of means disposed for automatic actuation to stop the rollers and star the plate-receiving member upon the complete delivery of the plate from said member.

24. In a pale-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating mechanism, of means for effecting the automatic movement of the member in one direction, means for automatically stopping the member and starting the feed-rollers to deliver the plate, and means for stopping the rollers and starting the member after such delivery has been effected.

25. In a plate-handling machine, the combination with a movable plate-receiving member provided with a series of feed-rollers, of means for moving the member, and automatic means for stopping, starting and reversing the rollers.

26. In a plate-handling machine, the combination with a movable plate-receiving member provided with a series of feed-rollers, of means for stopping, starting and reversing the member, and automatic means for stopping, starting and reversing the rollers.

27. In a plate-handling machine, the combination with a movable plate-receiving member, and a series of rollers carried thereby, of operating mechanism for the member, roller-operating mechanism, and a trigger controlling the operation of the member, said trigger being disposed to be held in one position by a plate passing to the member, and operative to start the member when released by the plate.

28. In a rolling-mill, the combination with the rolls, and the plate-receiving member provided with a series of feed-rollers, of means for rotating said rollers, and means independent of the rolls for automatically reversing the rollers.

29. In a rolling-mill, the combination with the rolls, and the movable plate-receiving member provided with a series of feed-rollers, of means for rotating the rollers, and means for automatically stopping and starting the rollers at each limit of movement of the member.

30. In a rolling-mill, the combination with the rolls, and the plate-receiving member provided with a series of feed-rollers, of means independent of the rolls for rotating the rollers, and automatically-operated means for stopping and reversing the rollers.

31. In a plate-handling machine for rolling-mills, the combination with a movable plate-receiving member disposed to receive the plate from the rolls, of operating mechanism for said member controlled by the plate, and means likewise controlled by the plate for automatically stopping the member to permit the delivery of the plate.

32. In a plate-handling machine, the combination with a movable plate-receiving member, and mechanism for moving said member to effect the transfer of the plate, of means controlled by the plate for automatically starting, stopping and reversing the member to effect the transfer of the plate, the stoppage of the member to deliver the plate and the return of the member to its initial position.

33. In a continuously-operating rolling-mill, the combination with the rolls, and the movable plate-receiving member provided with a series of feed-rollers, of means for rotating said rollers, and trip devices disposed for automatic actuation in different positions of the member to control the operation of the rollers independently of the rolls, whereby said rolls may operate continuously without reference to the operation of the rollers.

34. In a continuously-operating rolling-mill, the combination with the rolls, and the plate-receiving member provided with a series of feed-rollers and operating means therefor, of means for starting, stopping and reversing said rollers independently of the rolls, and trip devices disposed to effect the automatic actuation of the starting, stopping and reversing means.

35. In a plate-handling machine, the combination with a movable plate-receiving member, and a series of feed-rollers carried thereby, of roller-operating mechanism, means for automatically controlling the movement of the member, and means controlled by the plate for controlling the operation of the rollers.

36. In a plate-handling machine, the combination with a movable plate-receiving member, a series of feed-rollers carried thereby, and roller-operating mechanism, of a trip device disposed for control by the plate and controlling the operation of both the member and the rollers.

37. In a plate-handling machine, the combination with a movable plate-receiving member, a series of feed-rollers, and roller-operating mechanism, of trip devices arranged to control the operation of the feed-rollers in opposite directions, said trip devices being disposed for control by the plate.

38. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of means for imparting movement to the member, and a trip device arranged to automatically stop the member and start the feed-rollers.

39. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of means for imparting movement to said member, and automatic means for simultaneously stopping the member and starting the feed-rollers.

40. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of a trip device arranged to automatically stop the rollers and start the member.

41. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of automatically-operated means for simultaneously stopping the rollers and starting the member.

42. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating means, of means controlled by the plate and disposed for automatic actuation to stop the rollers and start the plate-receiving member, upon the complete delivery of the plate from said member.

43. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating means, of a trip device disposed for actuation by the plate and arranged to simultaneously stop the rollers and start the plate-receiving member, upon the complete delivery of the plate from said member.

44. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating mechanism, of means for automatically starting the member in one direction, means for simultaneously stopping the member and starting the feed-rollers to deliver the plate, and means for simultaneously stopping the rollers and starting the member after such delivery has been effected.

45. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating mechanism, of means for starting the member in one direction, a trip device for simultaneously stopping the member and starting the feed-rollers to deliver the plate, and means operated by said trip device for stopping the rollers and starting the member after such delivery has been effected.

46. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating mechanism, of means for starting the member in one direction, a trip device disposed for control by the plate and arranged to stop the member and start the feed-rollers to deliver the plate and to stop the rollers and start the member after such delivery has been effected.

47. In a plate-handling machine, the combination with a plate-receiving member provided with a series of feed-rollers, of means for moving the member vertically, and plate-controlled means for stopping, starting and reversing the rollers.

48. In a plate-handling machine, the combination with a plate-receiving member provided with a series of feed-rollers, of plate-controlled means for starting, stopping and reversing the member and for stopping, starting and reversing the rollers.

49. In a rolling-mill, the combination with the rolls, and the plate-receiving member provided with a series of feed-rollers, of means for rotating the rollers, and plate-controlled means for stopping and starting the same.

50. In a rolling-mill, the combination with the rolls, and the plate-receiving member provided with feed-rollers, of means for rotating the rollers, and plate-controlled means for stopping and reversing the rollers.

51. In a plate-handling machine, the combination with a movable plate-receiving member, and operating means therefor, of a trip device disposed to be tripped by the plate to stop the plate-receiving member in proper position.

52. In a plate-handling machine, the combination with a movable plate-receiving member, and operating means therefor, of a trip device operatively related to said means and disposed to be tripped by the plate during the elevation thereof.

53. In a plate-handling machine, the combination with a movable plate-receiving member, and operating means, of a trigger controlling the operation of said member, means for automatically moving the trigger to start the member, a trip, and means for automatically moving the trip to stop the plate-receiving member in proper position to deliver the plate and to subsequently start the member.

54. In a plate-handling machine, the combination with a movable plate-receiving member, and a series of feed-rollers carried thereby, of operating means for the member and rollers, means for starting the member, a trip device, and means operated by said trip device for simultaneously stopping the member and starting the rollers to discharge the plate.

55. In a plate-handling machine, the combination with a movable plate-receiving member having a series of feed-rollers, and operating means for the member and rollers, of plate-controlled means for stopping the rollers and starting the member.

56. In a plate-handling machine, the combination with a movable plate-receiving member, of operating means therefor, and plate-controlled means for stopping the member.

57. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers carried thereby, and operating mechanism for the member and rollers, of plate-operated means for stopping the rollers.

58. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers carried thereby, and operating mechanism for the member and rollers, of plate-operated means for starting the rollers.

59. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers carried thereby, and operating mechanism for the member and rollers, of plate-operated means for stopping and starting the rollers.

60. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers carried thereby, and operating mechanism for the member and rollers, of plate-controlled means controlling the operation of both the member and the rollers thereof.

61. In a plate-handling machine, the combination with a movable plate-receiving member, a feed-roller carried thereby, and operating mechanism for the member and roller, of plate-operated controlling mechanism common to the member and roller and arranged to simultaneously start one and stop the other of said elements.

62. In a plate-handling machine for rolling-mills, the combination with a plate-receiving member provided with feed-rollers, and means for operating the member and rollers, of means for automatically starting the member when the plate has been received thereby from a mill-pass, means for stopping the member and starting the rollers when the member reaches another pass of the mill, and means for automatically stopping the rollers and starting the member when the plate has been delivered.

63. In a plate-handling machine for rolling-mills, the combination with a plate-receiving member provided with feed-rollers, and means for operating the member and rollers, of means for automatically starting the member when the plate has been received thereby from a mill-pass, means for stopping the member and starting the rollers when the member reaches another pass of the mill, and plate-controlled means for stopping the rollers and starting the member when the plate has been delivered.

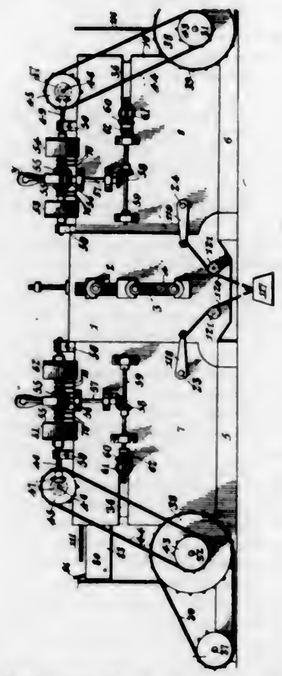
64. In a plate-handling machine, the combination with a movable plate-receiving member, a series of feed-rollers carried thereby, and operating mechanism for the member and rollers, of a trigger controlling the operation of the member and located in position to be actuated by a plate passing to the member, a trip device disposed for automatic actuation when the member has reached another position, and means operated by said trip device for stopping the rollers and starting the member.

65. In a plate-handling machine, the combination with a movable plate-receiving member, a series of feed-rollers carried thereby, and operating mechanism for the member and rollers, of a trigger controlling the operation of the member and located in position to be actuated by a plate passing to the member, a device disposed for automatic actuation when the member has reached another position, and means operated by said device for stopping the member and for starting the rollers to discharge the plate.

752,914. PLATE-HANDLING MACHINE.

EDMUND MILES, Cambridge, Ohio, assignor of one-half to S. L. Selleck, Cleveland, Ohio.

Filed Nov. 13, 1902. Serial No. 131,221. (No model.)



Claim.—1. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of electrical controlling mechanism for the feed-rollers, and plate-operated means for effecting the actuation of said mechanism.

2. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of electrical controlling mechanism for effecting alternate movements of the member and rollers, and means for automatically actuating the controlling mechanism.

3. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism for effecting alternate movements of the member and rollers, and plate-operated means for automatically actuating the controlling mechanism.

4. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill and provided with feed-rollers, of means for operating the member and rollers, and means for automatically stopping the member and starting the rollers when the plate arrives opposite one pass, and for stopping the member and starting the rollers in the reverse direction when said member arrives opposite another pass of the mill.

5. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of operating mechanism for the member and rollers, electrical controlling mechanism for stopping the member and starting the rollers before one pass of a mill, and for stopping the member and starting the rollers in the reverse direction before another pass thereof, and plate-controlled means for actuating the controlling mechanism.

6. In a plate-handling machine, the combination with a movable plate-receiving member, and feed-rollers, of means for operating the rollers to facilitate the reception of a plate by the member, means for moving the member, means for stopping the rollers and starting the member to transport the plate to a different pass of the mill, and means for preventing the stoppage of the rollers and the starting of the member when the plate received by said member exceeds a predetermined length.

7. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers, means for operating said rollers to facilitate the reception of a plate by the member, and means for moving the member, of automatically-operated controlling mechanism for stopping the rollers and starting the member upon the complete reception of a plate, and plate-controlled means for preventing the stoppage of the rollers and the starting of the member when the plate received by said member exceeds a predetermined length.

8. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and means for operating the member and rollers, of electrical controlling mechanism for the rollers including a switch and plate-controlled means for throwing the switch.

9. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and means for operating the member and rollers, of electrical controlling mechanism for the rollers including a switch and separate plate-controlled devices for operating the switch to control the movement of the rollers when the member is disposed opposite different mill-passes.

10. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism common to the member and rollers and including a switch and automatically-operated means for throwing the switch.

11. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism common to the member and rollers and including a switch and plate-controlled means for operating the switch.

12. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism common to the member and rollers and including a switch and separate plate-controlled devices for throwing the switch to effect the movement in opposite directions of the member and rollers, respectively.

13. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic clutch controlling the connection between the rollers and their operating mechanism, a circuit including the clutch, a switch for said circuit, and plate-controlled means for operating the switch.

14. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic clutch controlling the connection between the rollers and their operating mechanism, a circuit including the clutch, a switch for said circuit, and separate plate-controlled devices disposed to be operated to throw the switch when the member is located opposite different passes of the mill.

15. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a switch, electrical connections between the switch and each of the clutches, and means for operating said switch to close a circuit through either of the clutches.

16. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a switch, electrical connections between the switch and each of the clutches, and automatically-operated means for operating said switch to close a circuit through either of the clutches.

17. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a switch, electrical connections between the switch and

each of the clutches, and plate-controlled means for operating said switch to close a circuit through either clutch.

18. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a switch, electrical connections between the switch and each of the clutches, and separate plate-controlled devices for operating the switch when the member is located opposite different passes of the mill.

19. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of a pair of electromagnetic roller-clutches controlling the connection between the rollers and their operating mechanism and arranged when thrown in to operate the rollers in different directions, separate electric circuits each including one of the clutches, a switch constituting a circuit-closing device common to said circuits, and automatically-operated means for throwing the switch, whereby the rollers may be rotated in either direction.

20. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of a pair of electromagnetic roller-clutches controlling the connection between the rollers and their operating mechanisms and arranged when thrown in to operate the rollers in different directions, separate electric circuits each including one of the clutches, a switch constituting a circuit-closing device common to said circuits, and plate-controlled means for throwing the switch, whereby the rollers may be rotated in either direction.

21. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of a pair of electromagnetic roller-clutches controlling the connection between the rollers and their operating mechanism and arranged when thrown in to operate the rollers in different directions, separate electric circuits each including one of the clutches, a switch constituting a circuit-closing device common to said circuits, and separate plate-controlled devices for throwing the switch when the member is located opposite different passes of the mill.

22. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism controlling the connection between the operating mechanism and the member and rollers, respectively, and including a switch operative to effect the alternate connection of the member and rollers with the operating mechanism.

23. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism controlling the connection between the operating mechanism and the member and rollers, respectively, and including a switch operative to effect the alternate connection of the member and rollers with the operating mechanism, and automatic operating means for said switch.

24. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism controlling the connection between the operating mechanism and the member and rollers, respectively, and including a switch operative to effect the alternate connection of the member and rollers with the operating mechanism, and means for operating said switch from a moving part of the machine.

25. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, an electromagnetic roller-clutch controlling the connection between the operating mechanism and the rollers, and electrical controlling mechanism common to said clutches and including a switch operative to open and close the circuits through said clutches

26. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, an electromagnetic roller-clutch controlling the connection between the operating mechanism and the rollers, and electrical controlling mechanism common to said clutches and including a switch operative to open and close the circuits through said clutches and means operated by a movable machine element to throw the switch.

27. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism including a primary switch, separate circuits for which the primary switch constitutes a common circuit-closing device and a secondary switch designed to close said circuits alternately to effect the alternate connection of the member and rollers with the operating mechanism.

28. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism including a primary switch, separate circuits for which the primary switch constitutes a common circuit-closing device, a secondary switch designed to close said circuits alternately to effect the alternate connection of the member and rollers with the operating mechanism and automatic operating means for said switches.

29. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of electrical controlling mechanism including a primary switch, separate circuits for which the primary switch constitutes a common circuit-closing device, a secondary switch designed to close said circuits alternately to effect the alternate connection of the member and rollers with the operating mechanism, plate-controlled means for operating the primary switch and means operated from a moving machine element to actuate the secondary switch.

30. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and the operating mechanism, separate circuits each including one of the clutches, a primary switch constituting a circuit-closing device common to both circuits, and a secondary switch for closing the circuits alternately to alternately energize the machine and roller clutches.

31. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and the operating mechanism, separate circuits each including one of the clutches, a primary switch constituting a circuit-closing device common to both circuits, a secondary switch for closing the circuits alternately to alternately energize the machine and roller clutches, and means for automatically operating one of said switches.

32. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and the operating mechanism, separate circuits each including one of the clutches, a primary switch constituting a circuit-closing device common to both circuits, a secondary switch for closing the circuits alternately to alternately energize the machine and roller clutches, and means for automatically operating the primary switch, and means for operating the secondary switch from a moving machine element.

33. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the rollers and the operating mechanism, an electromagnetic machine-clutch controlling the connection between the member and the operating mechanism, separate circuits each including one of the clutches, a primary switch constituting a circuit-closing device common to both circuits, a secondary switch for closing the circuits alternately to alternately energize the machine and roller clutches, plate-controlled means for operating the primary switch, and means for operating the secondary switch from a moving machine element.

34. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the

member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, and separate switches each controlling a roller-clutch circuit and a machine-clutch circuit.

35. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, separate switches each controlling a roller-clutch circuit and a machine-clutch circuit, a primary switch for throwing either of the secondary switches out of circuit, and automatically-operated mechanism for operating the switches.

36. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, separate switches each controlling a roller-clutch circuit and a machine-clutch circuit, and means for simultaneously operating said switches from moving parts of the machine.

37. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, secondary switches each controlling a roller-clutch circuit and a machine-clutch circuit, and a primary switch for throwing either of the secondary switches out of circuit.

38. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including the machine-clutch, secondary switches each controlling a roller-clutch circuit and a machine-clutch circuit, a primary switch for throwing either of the secondary switches out of circuit, and means for effecting the simultaneous automatic operation of the secondary switches.

39. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, secondary switches each controlling a roller-clutch circuit and a machine-clutch circuit, a primary switch for throwing either of the secondary switches out of circuit, and automatically-actuated operating means for the primary and secondary switches.

40. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic machine-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, secondary switches each controlling a roller-clutch circuit and a machine-clutch circuit, a primary switch for throwing either of the secondary switches out of circuit, means for automatically operating the secondary switches, and plate-controlled means for operating the primary switch.

41. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, feed-rollers, and operating mechanism for the member and rollers, of an electromagnetic roller-clutch controlling the connection between the member and its operating mechanism, a pair of electromagnetic roller-clutches controlling the connection of the rollers with the operating mechanism and arranged to effect the rotation of said rollers in opposite directions, separate electric circuits each including one of the roller-clutches, separate circuits each including the machine-clutch, secondary switches each controlling a roller-clutch circuit and a machine-clutch circuit, a primary switch for throwing either of the secondary switches out of circuit, means for effecting the simultaneous actuation of the secondary switches from moving elements of the machine, and plate-controlled means for operating the primary switch.

42. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of means for moving the receiving members and electrical controlling mechanism common to said members, said mechanism including a switch and automatic operating means therefor.

43. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of electrical controlling mechanism common to said members and including a switch and means for automatically operating said switch in different positions of the members.

44. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of means for moving the members and electrical controlling mechanism common to both members and including a switch, and plate-controlled switch-operating mechanism.

45. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of means for moving the members, electrical controlling mechanism common to said members and including a switch, and separate switch-operating devices disposed for actuation by a plate as it passes through the different passes of the mill.

46. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of a series of feed-rollers carried by each plate-receiving member, and plate-operated controlling mechanism common to both series of feed-rollers.

47. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, and a series of feed-rollers carried by each plate-receiving member, of electrical controlling mechanism common to both series of rollers and including a switch and means for automatically operating the switch to effect the stopping and starting of the rollers.

48. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, and a series of feed-rollers carried by each plate-receiving member, of electrical controlling mechanism common to both series of rollers and including a switch and plate-controlled means for operating the switch to effect the stopping and starting of the rollers.

49. In a plate-handling machine, the combination with a pair of plate-receiving members arranged for disposal at opposite sides of a stand of mill-rolls and movable between the passes of the mill, and a series of feed-rollers carried by each plate-receiving member, of electrical controlling mechanism common to both series of rollers and including a switch and separate plate-controlled switch-operating devices disposed for actuation in different positions of the plate-receiving members.

50. In a plate-handling machine, the combination with a pair of plate-receiving members each of which is equipped with a series of feed-rollers, and operating means for the members and rollers, of automatically-operated means for stopping both members and starting both series of feed-rollers when the members arrive opposite one pass of a mill, and for automatically stopping the members and starting both series of rollers in the reverse direction when the members arrive opposite another pass of the mill.

51. In a plate-handling machine, the combination with a pair

of plate-receiving members each of which is equipped with a series of feed-rollers, and operating means for the members and rollers, of plate-controlled means for stopping both members and starting both series of feed-rollers when the members arrive opposite one pass of a mill, and for stopping the members and starting both series of rollers in the reverse direction when the members arrive opposite another pass of the mill.

52. In a plate-handling machine, the combination with a pair of plate-receiving members, and operating mechanism therefor, of electrical controlling mechanism including electromagnetic machine-clutches controlling the operative connection between the members and the operating mechanism, a switch also included as a part of the electrical controlling mechanism, and automatically-operated means for operating the switch.

53. In a plate-handling machine, the combination with a pair of plate-receiving members, and operating mechanism therefor, of electrical controlling mechanism including electromagnetic machine-clutches controlling the operative connection between the members and the operating mechanism, a switch also included as a part of the electrical controlling mechanism, and plate-controlled means for operating the switch.

54. In a plate-handling machine, the combination with a pair of plate-receiving members, and operating mechanism therefor, of electrical controlling mechanism including electromagnetic machine-clutches controlling the operative connection between the members and the operating mechanism, a switch also included as a part of the electrical controlling mechanism, and separate plate-controlled devices for operating the switch in different positions of the members.

55. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, and a series of feed-rollers carried by each member, of operating mechanism for the members and rollers, separate electromagnetic roller-clutches controlling the connection of the operating mechanism and rollers to effect the rotation of said rollers in opposite directions, and plate-controlled means for closing a circuit through the proper clutch to effect the rotation of the rollers in either direction.

56. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the rollers and members, of electrical controlling mechanism common to both members and to both series of rollers, said mechanism including electromagnetic roller-clutches controlling the operation of the rollers, electromagnetic machine-clutches controlling the operation of the members, a switch and electrical connections between the switch and the several clutches.

57. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the rollers and members, of electrical controlling mechanism common to both members and to both series of rollers, said mechanism including electromagnetic roller-clutches controlling the operation of the rollers, electromagnetic machine-clutches controlling the operation of the members, a switch, electrical connections between the switch and the several clutches and means for automatically operating the switch.

58. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the rollers and members, of electrical controlling mechanism common to both members and to both series of rollers, said mechanism including electromagnetic roller-clutches controlling the operation of the rollers, electromagnetic machine-clutches controlling the operation of the members, a switch, electrical connections between the switch and the several clutches and plate-controlled means for operating the switch.

59. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the rollers and members, of electrical controlling mechanism common to both members and to both series of rollers, said mechanism including electromagnetic roller-clutches controlling the operation of the rollers, electromagnetic machine-clutches controlling the operation of the members, a switch, electrical connections between the switch and the several clutches and separate plate-controlled switch-operating devices disposed for actuation in different positions of the members.

60. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism for said members including a pair of secondary switches controlling the movement of the members in opposite directions and a primary switch for closing a circuit through either of the secondary switches.

61. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism for said members including a pair of secondary switches controlling the movement of the members in opposite directions, a primary switch for closing a circuit through either of the secondary switches and automatically-operated means for throwing the primary switch.

62. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism for said members including a pair of secondary switches controlling the movement of the members in opposite directions, a primary switch for closing a circuit through either of the secondary switches and plate-controlled means for operating the primary switch.

63. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism for said members including a pair of secondary switches controlling the movement of the members in opposite directions, a primary switch for closing a circuit through either of the secondary switches and separate plate-controlled devices operative in different positions of the members to throw the primary switch.

64. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to the rollers of both members and including separate electromagnetic roller-clutches for effecting the simultaneous operation of all of the rollers in each direction, secondary switches each of which controls the clutch for rotating the rollers in one direction and a primary switch arranged to close a circuit through either of the secondary switches.

65. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to the rollers of both members and including separate electromagnetic roller-clutches for effecting the simultaneous operation of all of the rollers in each direction, secondary switches each of which controls the clutch for rotating the rollers in one direction, a primary switch arranged to close a circuit through either of the secondary switches and automatically-operated actuating mechanism for the primary switch.

66. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to the rollers of both members and including separate electromagnetic roller-clutches for effecting the simultaneous operation of all of the rollers in each direction, secondary switches each of which controls the clutch for rotating the rollers in one direction, a primary switch arranged to close a circuit through either of the secondary switches and plate-controlled mechanism for operating the primary switch.

67. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to the rollers of both members and including separate electromagnetic roller-clutches for effecting the simultaneous operation of all of the rollers in each direction, secondary switches each of which controls the clutch for rotating the rollers in one direction, a primary switch arranged to close a circuit through either of the secondary switches and separate plate-controlled devices for operating the primary switch in different positions of the members.

68. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches and a primary switch for cutting either of the secondary switches out of circuit.

69. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches, a primary switch for cutting either of the secondary switches out of circuit and means for effecting the simultaneous operation of the secondary switches.

70. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches, a primary switch for cutting either of the secondary switches out of circuit and means for automatically operating the primary and secondary switches.

71. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches, a primary switch for cutting either of the secondary switches out of circuit, means for operating the secondary switches during the movement of the members and means for operating the primary switch while the members are at rest.

72. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches, a primary switch for cutting either of the secondary switches out of circuit, means for operating the secondary switches from moving elements of the machine and plate-controlled means for operating the primary switch.

73. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and operating mechanism for the members and rollers, of electrical controlling mechanism common to both members and both series of rollers, said mechanism including machine-clutches for connecting the operating mechanism with the members, separate sets of roller-clutches for connecting the operating mechanism with the rollers to drive the latter in opposite directions, secondary switches each controlling a circuit through the machine-clutches and through one set of roller-clutches, a primary switch for cutting either of the secondary switches out of circuit, means for operating the secondary switches during the movement of the members and separate plate-controlled devices for operating the primary switch in different positions of the members.

74. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and means for operating the members and rollers, of means for stopping the rollers and starting the members upon the complete transfer of a plate from one member to the other, and automatically-operated means for preventing the stopping of the rollers and the starting of the members when the plate so transferred exceeds a predetermined length.

75. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and means for operating the members and rollers, of means for stopping the rollers and starting the members upon the complete transfer of a plate from one member to the other, and plate-operated means for preventing the stopping of the rollers and the starting of the members when the plate so transferred exceeds a predetermined length.

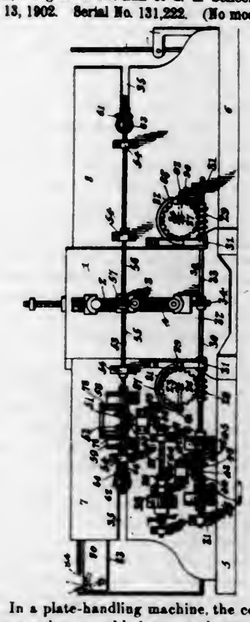
76. In a plate-handling machine, the combination with a pair of plate-receiving members movable between the passes of a mill, a series of feed-rollers carried by each member, and means for operating the members and rollers, of means for stopping the rollers and starting the members upon the complete transfer of a plate from one member to the other, and a lever arranged for actuation by the transferred plate when said plate exceeds a predetermined length, said lever being operatively related to the means for stopping the rollers and starting the members and disposed when operated by the plate to prevent the effective operation of such means.

77. In a plate-handling machine, the combination with a pair of movable plate-receiving members, and operating means therefor, including a pair of eccentrics, of a counterbalancing device common to said members, and having operative connection with the eccentrics.

78. In a plate-handling machine, the combination with a stand of mill-rolls, of a pair of plate-receiving members, means for simultaneously moving said members in curvilinear paths, whereby the inner ends of said members are caused to approach close to the passes of the mill and to clear the sides of the roll disposed between the passes, and plate-controlled devices for starting the members from positions opposite different passes of the mill.

79. In a plate-handling machine, the combination with a movable plate-receiving member, feed-rollers and operating mechanism for the member and rollers, of plate-operated electrical controlling mechanism for effecting alternate movement of the member and rollers.

752,915. PLATE-HANDLING MACHINE. EDMUND MILES, Cambridge, Ohio, assignor of one-half to S. L. Selleck, Cleveland, Ohio. Filed Nov. 13, 1902. Serial No. 131,222. (No model.)



Claim.—1. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of operating means for the member, a pair of electromagnetic machine-clutches each of which controls the movement of the member in one direction only, separate circuits for the clutches, secondary switches each of which is included in one of said circuits, a primary switch common to both circuits, and means for automatically operating the secondary switches.

2. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of operating means for the member, a pair of electromagnetic machine-clutches each of which controls the movement of the member in one direction only, separate circuits for the clutches, secondary switches each of which is included in one of said circuits, a primary switch common to both circuits, and automatic operating means for both the secondary and primary switches.

3. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of operating means for the member, a pair of electromagnetic machine-clutches each of which controls the movement of the member in one direction only, separate circuits for the clutches, secondary switches each of which is included in one of said circuits, a primary switch common to both circuits, means for automatically operating the secondary switches, and plate-controlled operating means for the primary switch.

4. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of operating means for the member, a pair of electromagnetic machine-clutches each of which controls the movement of the member in one direction only, separate circuits for the clutches, secondary switches each of which is included in one of said circuits, a primary switch common to both circuits, and means for operating the secondary switches from moving elements of the machine.

5. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a shaft for operating the member, means for rotating the shaft, and electrical controlling mechanism controlling the connection between the shaft and the operating mechanism and including a switch the arm of which is movable with the shaft.

6. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of an eccentric-shaft for operating the member, a machine-shaft geared to the eccentric-shaft, operating mechanism for the machine-shaft, electrical controlling mechanism controlling the connection between the operating mechanism and the machine-shaft, and a switch included in the controlling mechanism and comprising a contact-plate and a switch-arm movable with the eccentric-shaft and contacting with said plate.

7. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating means for the member and rollers, of separate roller-clutches controlling the rotation of the rollers in opposite directions, separate machine-clutches controlling the movement of the plate-receiving member in opposite directions, and means for simultaneously operating a machine-clutch and a roller-clutch to stop the rollers and start the member.

8. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating means for the member and rollers, of separate roller-clutches controlling the rotation of the rollers in opposite directions, separate machine-clutches controlling the movement of the plate-receiving member in opposite directions, means for simultaneously operating a machine-clutch and a roller-clutch to stop the rollers and start the member, and means for simultaneously operating the other roller-clutch and the other machine-clutch to stop the rollers and start the member in the reverse direction.

9. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, and a primary switch for cutting either of the secondary switches out of circuit.

10. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, a primary switch for cutting either of the secondary switches out of circuit, and automatic operating mechanism for the secondary switches.

11. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, a primary switch for cutting either of the secondary switches out of circuit, and automatic switch-operating mechanism for the primary and secondary switches.

12. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, a primary switch for cutting either of the secondary switches out of circuit, and plate-controlled means for operating the primary switch.

13. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, a primary switch for cutting either of the secondary switches out of circuit, means for simultaneously operating the secondary switches from moving elements of the machine, and plate-controlled means for operating the primary switch.

14. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, a series of feed-rollers carried by the member, and operating mechanism for the member and rollers, of separate electromagnetic roller-clutches controlling the operation of the rollers in opposite directions, separate electromagnetic machine-clutches controlling the movement of the plate-receiving member in opposite directions, a pair of secondary switches each of which controls the circuit through a roller-clutch and a separate circuit through a machine-clutch, a primary switch for cutting either of the secondary switches out of circuit, means for simultaneously operating the secondary switches from moving elements of the machine, and separate plate-controlled devices for operating the primary switch in different positions of the plate-receiving member.

15. In a plate-handling machine, the combination with a pair of plate-receiving members located at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of operating mechanism common to both members, and electrical controlling mechanism controlling the connection between the members and their operating mechanism and including a switch and automatic operating means for said switch.

16. In a plate-handling machine, the combination with a pair of plate-receiving members located at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of operating mechanism common to both members, and electrical controlling mechanism controlling the connection between the members and their operating mechanism and including a switch and plate-controlled operating means for said switch.

17. In a plate-handling machine, the combination with a pair of plate-receiving members arranged to be located at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of operating mechanism common to both members, and electrical controlling mechanism controlling the connection between the members and their operating mechanism and including a switch and separate plate-controlled devices for operating said switch in different positions of the members.

18. In a plate-handling machine, the combination with a pair of plate-receiving members, and operating-shafts therefor, of a single machine-shaft geared to both of said operating-shafts, and automatically-operated means for effecting the rotation of the machine-shaft in either direction.

19. In a plate-handling machine, the combination with a pair of plate-receiving members at opposite sides of a stand of mill-rolls and movable between the passes of the mill, of a roller-operating shaft common to both series of rollers, a machine-shaft common to both plate-receiving members, means for operating said shafts, and electrical controlling mechanism including a pair of machine-clutches, a pair of roller-clutches and means for automatically operating said clutches in the proper order to effect the stopping of the rollers and the starting of the members in one direction to transfer the plate to a mill-pass; to stop the members and start the rollers in the reverse direction for the purpose of effecting the repassing of the plate from one member to the other; to stop the rollers and start the members in the reverse direction for the purpose of transferring the plate to the initial pass of the mill; and to stop the members and start the rollers when such pass has been reached.

20. In a plate-handling machine, the combination with a plate-receiving member provided with a series of feed-rollers, of a truing device including truing-fingers extended between the rollers to engage the opposite edges of a plate and means for moving the fingers to shift the plate to its proper position.

21. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of a vertical truing device including truing-fingers movable transversely of the member and means for automatically moving the fingers into engagement with the plate to shift the same during the movement of the member.

22. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill and provided with a series of feed-rollers, of a truing device comprising two series of alined truing-fingers extending between the feed-rollers for engagement with the opposite side edges of the plate, and automatic means for causing the two series to approach each other for the purpose of shifting a plate previously received by the member to its proper position thereon.

23. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of a truing device comprising two series of truing-fingers arranged to engage the opposite edges of a plate, a rock-shaft connected to the fingers of both series to cause their approach and recession and means for operating the rock-shaft to cause the approach of the fingers during the movement of the member in one direction and to cause the recession of the fingers during the movement of the member in the opposite direction.

24. In a plate-handling machine, the combination with a plate-receiving member movable between the passes of a mill, of a truing device comprising two series of alined truing-fingers, a rock-shaft connected to both series of fingers, a spring for urging the rock-shaft in one direction, a weight for urging the rock-shaft in the opposite direction, said weight being of sufficient power to overcome the spring, and means for supporting the weight in one position of the member to permit the actuation of the rock-shaft under the impulse of the spring.

752,916. **PEDAL.** GORDON MERRITT, Ridgewood, N. J. Filed May 8, 1903. Serial No. 156,144. (No model.)



Claim.—1. A pedal combined with a fulcrum-support; a fastening device for securing the two together; and means for engaging such device with the pedal at different points therealong, whereby the relative position of the support may be adjusted.

2. A pedal having a series of reduced portions disposed along its length, combined with a support, and means for securing the support in engagement with the desired one of said reduced portions.

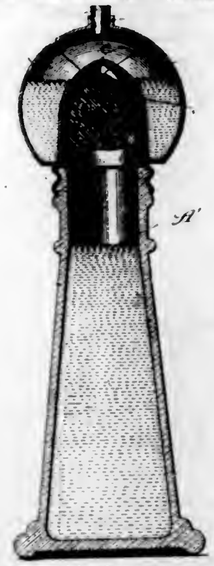
3. As a new article of manufacture, a piano-pedal, a fulcrum-support therefor; a fastening device for securing the two together; and means for engaging such device with the pedal at different points therealong whereby the relative position of the support may be adjusted.

4. As a new article of manufacture, a piano-pedal having reduced portions along its length, a fulcrum-pin adapted to engage with the walls of any of said reduced portions, and means for clamping the pin in position.

5. As a new article of manufacture, a piano-pedal having a series of openings in its upper part, a fulcrum-pin, and means engaging with one of said openings for clamping the pin in position.

6. The combination with a piano-pedal provided with reduced portions along its length, of a fulcrum-pin, means for holding said fulcrum-pin, one of said parts being adapted to engage with any particular one of said reduced portions, and side supports for the pin.

752,917. **CAP FOR MUCILAGE-BOTTLES OR THE LIKE.** WM. R. MORSE, Chicago, Ill., assignor to J. H. Lee, trustee, Chicago, Ill. Filed July 6, 1903. Serial No. 164,341. (No model.)



Claim.—1. As a new article of manufacture, a cap for a mucilage-bottle, paste-box, or the like, comprising an inner wall and an outer wall forming between them a liquid-chamber, said inner wall containing an opening leading from said chamber for conducting the vapor from its liquid contents.

2. As a new article of manufacture, a cap for a mucilage-bottle, paste-box or the like, comprising an inner wall and an outer wall forming between them a liquid-chamber, said inner wall forming a housing communicating with said chamber, substantially as and for the purpose set forth.

3. As a new article of manufacture, a cap for a mucilage-bottle, or the like, provided with a transfer-stopper of the character described, comprising an inner wall and an outer wall forming between them a liquid-chamber having a stoppered liquid-supply opening, said inner wall forming a housing for said stopper and provided with an opening above the water-line in said chamber through which to communicate therewith, substantially as and for the purpose set forth.

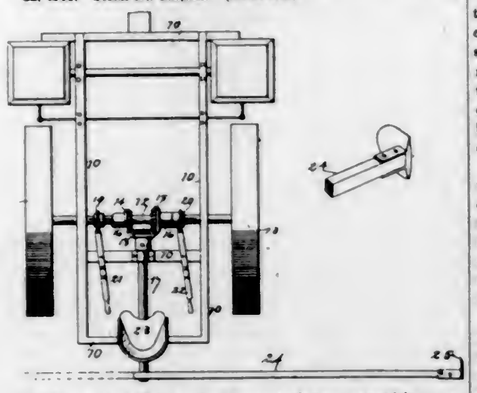
752,918. **SPRING-BALANCE.** SAMUEL R. MUMSON, New Britain, Conn., assignor to Landers, Frary and Clark, New Britain, Conn. Filed June 26, 1902. Serial No. 113,299. (No model.)



Claim.—In a spring-balance, the herein-described cylindrical case consisting of the rolled-up sheet-metal body having projecting lugs with intermediate flat seats at each end, and the caps having a cylindrical flange at the edge for fitting and inclosing a short portion of the periphery of the said body at each of its ends, the said

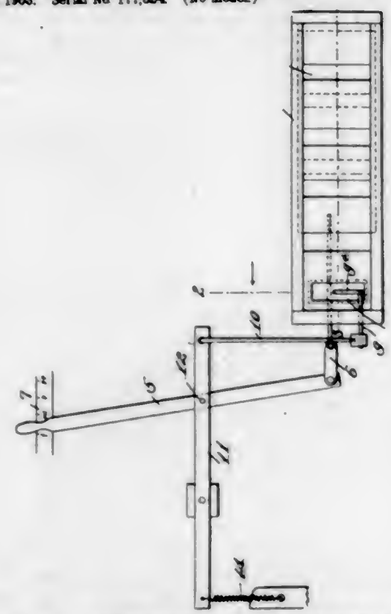
caps having also mortises just inside the said flange with the outer edge of the said mortises in substantially the plane of the inner face of the said flange, the said lugs passing through the said mortises and headed down to secure the said caps in place.

752,919. **REVERSIBLE AUTOMATIC MARKER FOR CORN-PLANTERS.** LEONARD P. MCVAY, New Virginia, Iowa. Filed June 22, 1903. Serial No. 162,691. (No model.)



Claim.—A reversible marker for corn-planters comprising a rotatable carriage-axle, two bevel gear-wheels mounted loosely on said axle and each wheel provided with a fixed clutch member, two clutch members slidably mounted on the said axle, two levers fulcrumed to the carriage-frame and pivotally connected with said slidable clutch members, a rock-shaft mounted in right-angled position to the carriage-axle and a bevel gear-wheel fixed to its front end and a straight bar fixed to its rear end to extend at right angles and provided with a marker on its end, arranged and combined to operate in the manner set forth for the purposes stated.

752,920. **ATTACHMENT FOR EXPRESSION OR ACCENT CONTROLLING MECHANISMS FOR MECHANICAL MUSICAL INSTRUMENTS.** ROBERT W. PAIN, New York, N. Y., assignor to the Aeolian Company, New York, N. Y., a Corporation of Connecticut. Filed Oct. 14, 1903. Serial No. 177,024. (No model.)



Claim.—1. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, an exhauster-selector arranged to control the opening and closing of said passages, and a handle for operating said exhauster-selector, of a supplemental port communicating with said action-chamber and a predetermined exhauster, and means connected to the exhauster-selector-operating handle for opening and closing said port whereby said handle may be manipulated to open said port and produce a predetermined accent.

2. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, and means connected to the gate-operating handle for opening and closing said port and whereby said handle may be manipulated to open said port and produce a predetermined accent.

3. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, and connections between said valve and handle whereby the valve may be opened by manipulation of the handle of the latter.

4. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying a gate and a handle for operating said gate, of a normally closed valve, and connections between said valve and handle whereby the valve may be opened by manipulation of the handle in any position of angular adjustment of the latter.

5. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages connecting the action-chamber with exhausters, a gate controlling said passages, and a handle for operating said gate, of a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, an arm pivotally connected to said handle, and connections between said arm and said valve whereby the valve may be opened by manipulation of said handle.

6. The combination with means for regulating or controlling the accent of mechanical musical instruments embodying passages communicating with the action-chamber of the instrument and exhausters, a gate for selectively opening and closing communication between the action of the instrument and the exhausters, a supplemental port communicating with said action-chamber and a predetermined exhauster, a valve controlling said port, a gate-operating handle having pivotal link connection with the gate, a pivoted arm connected with the handle, and connections between said arm and said valve whereby the latter may be opened by manipulation of said handle.

7. The combination with means for regulating or controlling the accent of mechanical musical instruments, embodying a gate and a movable handle for operating said gate, of a normally closed valve, and connections between said valve and handle whereby the valve may be opened by a movement of said handle different from that imparted thereto in operating the gate.

8. The combination with means for regulating or controlling the accent of mechanical musical instruments, embodying a gate and a separate normally closed valve, of an operating-handle having connection with said gate and said valve and having two motions, one in direction to operate said gate and the other in different direction to open said valve.

752,921. **AUDIPHONE-RECEIVER.** HERMANN G. PAPE, Brooklyn, N. Y., assignor of thirty one-hundredths to James McVey, New York, N. Y. Filed Sept. 13, 1902. Serial No. 123,330. (No model.)



Claim.—1. An instrument of the character described, comprising a casing, a diaphragm rigidly retained at its periphery within the casing, an opening or passage in the casing leading to the center of the diaphragm, and a series of sound-dissipating openings in the casing at the periphery of the diaphragm and substantially parallel therewith.

2. In an instrument of the character described, the combination with a casing, a diaphragm having its entire periphery retained rigidly within the casing, an opening or passage in the casing leading to the center of the diaphragm, and a series of sound-dissipating openings leading from the periphery of the diaphragm to the outer air and disposed parallel with said diaphragm.

3. An instrument of the character described, comprising a substantially circular casing having a centrally-apertured wall, a peripherally-retained diaphragm spaced from the apertured wall to define an intermediate sound-dissipating chamber, the peripheral wall of the casing being formed with a circumferential series of radial openings located in a plane between the diaphragm and the apertured wall and parallel therewith, and an electrode in coöperative proximity to the diaphragm.

4. An instrument of the character described comprising separate connected members or units each including a casing, a diaphragm rigidly retained at its periphery within the casing, and a series of sound-dissipating openings leading from the periphery of the diaphragm to the outer air and disposed substantially with said diaphragm, and a receiving opening or passage extending from the exterior of the instrument to the centers of the diaphragms.

5. An instrument of the character described, comprising a casing divided by a middle wall having an axial opening constituting a central sound-chamber, diaphragms spaced from the opposite sides of the middle wall to define intermediate sound-dissipating chambers, sound-dissipating openings disposed substantially parallel with the diaphragms and leading from the peripheries of said diaphragms to the outer air, electrodes in coöperative proximity to the diaphragms, and a receiving-passage leading from the exterior of the casing to the central sound-chamber.

6. An instrument of the character described, comprising a casing divided by a middle wall having an axial opening constituting a central sound-chamber, diaphragms spaced from the opposite sides of said wall to define intermediate sound-dissipating chambers, openings piercing the outer wall of the casing in planes between the middle wall and the diaphragms and disposed parallel with the latter, electrodes in coöperative proximity with said diaphragms, and a passage from the exterior of the instrument to the central sound-chamber.

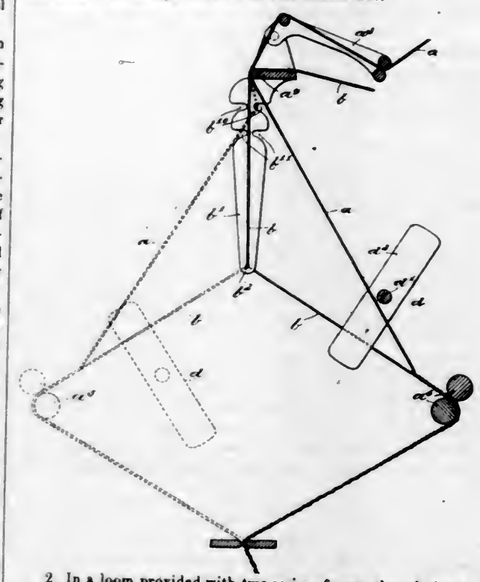
7. An instrument of the character described, comprising a casing divided by a middle wall having an axial opening defining a central sound-chamber whose walls are flared in opposite directions from the middle of the chamber, diaphragms retained at their peripheries and spaced from the middle wall of the casing to define intermediate sound-dissipating chambers, circumferential series of radial openings piercing the outer wall of the casing in planes between the middle wall and the diaphragms, button-electrodes secured to the side walls of the casing and connected to the diaphragms at their centers, and a receiving-funnel formed in the middle wall of the casing and extending radially from the central sound-chamber to the periphery of the casing.

8. An instrument of the character described, comprising a casing having a centrally-apertured wall, a peripherally-retained diaphragm spaced from the apertured wall to define an intermediate sound-dissipating member, the wall of the casing being formed with a series of openings located in a plane between and extending parallel with the diaphragm and the apertured wall, and an electrode in coöperative proximity to the diaphragm.

9. An instrument of the character described, comprising a casing, divided by a middle wall having an axial opening flared in opposite directions from the middle of the wall, and constituting a central sound-chamber, diaphragms spaced from the middle wall of the casing to define intermediate sound-dissipating chambers, series of openings piercing the outer wall of the sound-dissipating chambers and extending substantially around the instrument, said openings extending radially and being in planes parallel with the diaphragms, electrodes connected to the diaphragms, and a receiving-funnel formed in the middle wall of the casing and extending radially from the central sound-chamber to the periphery of said casing.

752,922. **LOOM.** JAMES L. POALK, Philadelphia, Pa. Filed July 1, 1903. Serial No. 163,864. (No model.)

Claim.—1. In a loom of the character described, wherein the warp-threads are arranged in two series depending from a medial line in the loom, a means for oscillating one of said series of threads with respect to the other series to form triangular sheds disposed alternately to the right and left of said medial line.



2. In a loom provided with two series of warp-threads depending from varying points in a medial line, a means for oscillating each series from its depending point as a center to thereby form triangular sheds disposed alternately to the right and left of said medial line.

3. In a loom of the character described, in combination with means for forming warp-threads into sheds, means for drawing a continuous weft-thread doubled through each shed at one pick, means for elevating one part of said doubled thread into inoperative position after said pick, and means for drawing said elevated inoperative weft-thread into operative position upon the reverse pick.

4. In a loom of the character described, means for forming a series of warp-threads into sheds alternately upon either side of a medial line of the loom, in combination with means for drawing a doubled continuous weft-thread through each shed at one pick of the loom, means for raising one part of said doubled weft-thread into inoperative position after said pick, and means for drawing said inoperative weft-thread into operative position upon a reverse pick in the same shed.

5. In a loom provided with two series of warp-threads, each series suspended from a center of oscillation, said centers varying in position upon a medial line of the loom, an oscillating frame carrying both series of warp-threads and arranged below their centers of oscillation, and a reed carried by said frame, said reed consisting of a shaft revoluble in the frame, and a series of arms projecting diametrically across said shaft and revolving with said shaft.

752,923. **ELECTRIC-TELEGRAPH SYSTEM.** CHARLES ADAMS-RANDALL, New York, N. Y. Filed Sept. 6, 1902. Serial No. 122,418. (No model.)



Claim.—1. In a system of telegraphy the combination of a single-circuit line, suitable transmitting and receiving apparatus and a source of electric energy contained therein, said circuit being open or mechanically ungrounded at one end and grounded at the other end, substantially as and for the purpose set forth.

2. In a system of telegraphy the combination with a main-line circuit of transmitting apparatus, a source of electric energy and a double-wound coil contained in the line-circuit, said circuit being inductively grounded at the receiving end through the medium of said coil, one side of the helix being connected in the line and me-

chanically ungrounded, the other side of helix being connected up in a local grounded circuit, which includes suitable receiving apparatus, substantially as described.

3. In a system of telegraphy, a main-line circuit mechanically grounded in combination with an alternating-current generator, a transmitting apparatus and a double-wound coil contained in said circuit, one side or half of said coil being connected in the line-circuit and mechanically ungrounded, the other side or half of said coil being connected up in a local grounded circuit, which includes the receiving apparatus.

4. In a system of telegraphy, a line-circuit mechanically ungrounded at the transmitting end and open at the receiving end in combination with a suitable current-generator and transmitting and receiving apparatus, double-wound coils, one half or side of such coils being connected up in the line, the other half or side being connected up in local ungrounded circuits at each end of the line in which local circuits are included the transmitting and receiving apparatus.

5. In a system of telegraphy, a single line mechanically ungrounded at one or both of its terminals, in combination with means for producing at the transmitter induced alternating currents of uniform power and duration, and means for automatically selecting, transmitting and receiving such currents, substantially as and for the purpose specified.

6. In a system of telegraphy, a single line inductively grounded at its terminals, in combination with means for automatically selecting, transmitting and receiving thereover rapidly-alternating currents of uniform duration, substantially as and for the purpose specified.

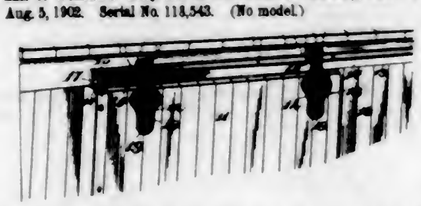
7. In a system of telegraphy, a circuit mechanically ungrounded and having condensers, one or more included therein, in combination with suitable transmitting and receiving apparatus for automatically selecting, transmitting and receiving electric impulses of uniform power and duration over and upon said line, substantially as and for the purpose specified.

8. In a system of telegraphy, the combination with a mechanically-ungrounded line-circuit, of a generator of electric energy, apparatus for automatically selecting and transmitting currents or impulses from such generator, and suitable receiving apparatus, substantially as described.

9. In a system of telegraphy, the combination with a mechanically-ungrounded line-circuit, of a generator of electric energy, apparatus such as perforated paper for automatically selecting and transmitting currents or impulses from such generator, and suitable receiving apparatus, the generator and transmitter being in a local ungrounded circuit inductively connected to the main-line circuit, substantially as described.

10. In a system of telegraphy, the combination with a mechanically-ungrounded line-circuit, of a generator of electric energy, apparatus such as perforated paper for automatically selecting and transmitting currents or impulses from such generator, and suitable receiving apparatus, the generator and transmitter being in the line-circuit or in a local circuit, substantially as described.

752,924. **HANGER FOR DOORS, GATES, OR THE LIKE.** WILLIAM ROHDE and WILLIAM HASTINGS, Sandusky, Ohio, assignors of one-half to William F. Bolly and Ed. H. Zurhorst, Sandusky, Ohio. Filed Aug. 5, 1902. Serial No. 118,543. (No model.)



Claim.—1. A hanger of the class described, comprising a body, a roller arranged upon the inner face of the body, a journal-pin passing through the body and roller, said pin being removable through the front of the body, and means engaging the front end of the pin to hold it against longitudinal displacement.

2. A hanger of the class described, comprising a body having an ear spaced from the inner face thereof, a supporting-roller located between the ear and the body, a journal-pin passing through the body and roller and engaging the ear, said pin being removable through the body, and a holding device mounted upon the body and detachably engaging the front end of the pin to hold it against longitudinal displacement.

3. A hanger of the class described, comprising a body having an ear spaced from the inner face thereof, a supporting-roller located between the ear and the body, a journal-pin passing through the body and roller and engaging the ear, said pin being removable through the body, and a key detachably securing the pin to the body.

4. A hanger of the class described, comprising a body having an ear spaced from the inner face thereof, said body being provided with an opening and a projection located contiguous to said opening, a supporting-roller located between the ear and the body, a journal-pin passing through the opening in the body through the roller and engaging the ear, and a key passing through the projection of the body and the front end of the pin to hold said pin against longitudinal displacement.

5. In a hanger of the class described, the combination with a track comprising a bearing-flange, an attaching-flange that is wider than the bearing-flange, and an intermediate horizontal web connecting the flanges between their upper and lower edges, of fastening means passing through the attaching-flange above the web, the depending portion of said flange below the web constituting a bearing, and door-hangers supported on the bearing-flange and having upstanding lugs located in the spaces between the lower edges of the flanges and beneath the web.

752,925. **BUTTON.** MICHAEL R. RYAN, Boston, Mass. Filed Feb. 13, 1903. Serial No. 143,233. (No model.)



Claim.—1. As an article of manufacture, a button having a head formed of a blank of sheet metal and comprising a circular central portion, a semicircular portion integral with said central portion, the curved side of said semicircular portion joined to the periphery of said central portion, and a shank extending at right angles from the straight side of said semicircular portion and terminating in a spiral foot whose convolutions lie in a single plane at right angles to said shank.

2. As an article of manufacture, a button comprising a head, a shank, and a spiral foot formed of a blank of sheet metal, comprising a circular central portion, two semicircular portions integral with said central portion, the curved side of each of said semicircular portions joined, respectively, to said curved portion upon diametrically opposite sides thereof, and a prong extending at right angles from the straight side of one of said semicircular portions.

3. As an article of manufacture, a button comprising a head, a shank, and spiral foot formed of a blank of sheet metal comprising a circular central portion, two semicircular portions integral with said central portion, the curved side of each of said semicircular portions joined, respectively, to said curved portion upon diametrically opposite sides thereof, and a prong extending at right angles from the straight side of the other of said semicircular portions provided with a notch to receive said prong.

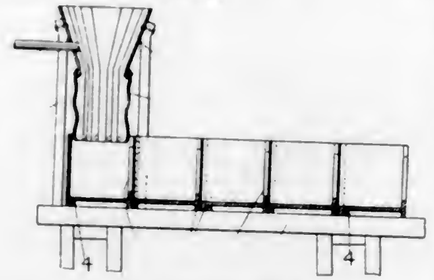
4. As an article of manufacture, a button having a head formed of a blank of sheet metal and comprising a circular central portion, two semicircular portions integral with said central portion, the curved side of each of said semicircular portions joined, respectively, to said central portion upon diametrically opposite sides thereof, and a shank and spiral foot fast to said head.

5. As an article of manufacture, a button having a head formed of a blank of sheet metal and comprising a circular central portion, two semicircular portions integral with said central portion, the curved side of each of said semicircular portions joined, respectively, to said central portion upon diametrically opposite sides thereof and folded back in contact therewith, with said two straight sides adjacent to each other, and a shank and spiral foot fast to said head.

6. As an article of manufacture, a button having a head formed of a blank of sheet metal and comprising a circular central portion, provided with an annular rim, together with two semicircular portions integral with said central portion, the curved side of each of said semicircular portions joined, respectively, to said rim upon diametrically opposite sides thereof and folded back with said two straight sides adjacent to each other, and a shank and spiral foot fast to said head.

752,926. **RECIPROCATORY GOLD-SEPARATOR.** JOHN P. SCHMITZ, San Francisco, Cal. Filed Jan. 28, 1903. Serial No. 140,906. (No model.)

Claim.—An improved gold or like separator comprising a flat smooth table inclined in the direction of its length, and having stops or abutments along its sides; an inclined trough of equal diameter throughout and consisting of segmental sections abutting endwise, each of said sections having a flange at one end which projects both above and below the bottom of the section and a flange at the opposite end which projects below only, each of said outwardly-extending flanges forming rockers for the section; transversely-disposed stops on the table engaged by said rockers to prevent end movement of the trough, packing-strips between abutting-sections; means for oscillating the trough; and lugs on the outer sides of said trough and adapted to contact with said abutments at the end only of each transverse oscillation of the trough.



752,927. **PROCESS OF PREPARING ALUMINIUM SULFATE.** HEINRICH F. D. SCHWAHN, St. Louis, Mo. Filed June 12, 1902. Serial No. 111,404. (No specimens.)

Claim.—1. The herein-described method of purifying aluminous materials containing iron, which consists in subjecting them in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, and then heating the mass to a temperature above the volatilizing-point of ferric chlorid but below the point at which aluminium compounds become insoluble, as set forth.

2. The herein-described process of purifying aluminous materials containing iron and silica which consists in subjecting them in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, and heating the resultant product first to a temperature sufficient to volatilize the ferric chlorid and then to a higher temperature to render the silica insoluble in acids, as set forth.

3. The herein-described process of purifying aluminous materials containing iron and silica which consists in subjecting them in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, heating the resultant product first to a temperature sufficient to volatilize the ferric chlorid, and then to a higher temperature to render the silica insoluble in acids, the temperature in each stage being maintained at the minimum degree capable of effecting the required result, as set forth.

4. The herein-described process of preparing aluminium sulfate from aluminous materials containing iron which consists in subjecting such materials in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, heating them to a temperature sufficient to volatilize the ferric chlorid, treating the resultant product with sulfuric acid to convert the aluminium compounds into sulfate, and simultaneously injecting air into the resultant mixture of acid and aluminous material, as set forth.

5. The herein-described process of preparing aluminium sulfate from aluminous materials containing iron which consists in subjecting such materials in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, heating them to a temperature sufficient to volatilize the ferric chlorid, treating the resultant product with sulfuric acid to concert the aluminium compounds into sulfate, and simultaneously injecting hot air into the resultant mixture of acid and aluminous material, as set forth.

6. The herein-described process of preparing aluminium sulfate from aluminous materials containing iron which consists in subjecting such materials in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, heating them to a tempertaure sufficient to volatilize the ferric chlorid, and treating the resultant product with sulfuric acid of gradually-increasing strength to convert the aluminium compounds into sulfate, as set forth.

7. The herein-described process of preparing aluminium sulfate from aluminous material containing iron which consists in subjecting such materials in the raw state to the action of a chloridizing agent to convert the iron into ferric chlorid, heating them to a temperature sufficient to volatilize the ferric chlorid, treating the resultant product with sulfuric acid to convert the aluminium compounds into sulfate, separating the sulfate solution from the insoluble residuum, and concentrating it, as set forth.

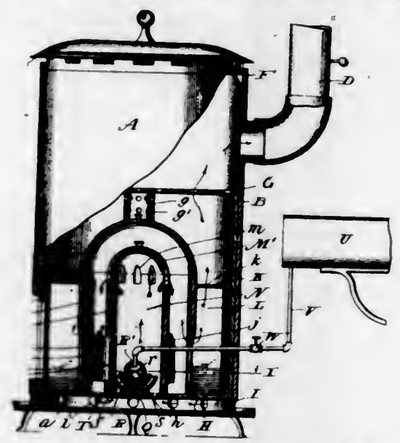
8. The herein-described process of preparing aluminium sulfate from aluminous materials which consists in treating such materials with sulfuric acid to convert the aluminium compounds into sulfate, and simultaneously injecting air into the resultant mixture of acid and aluminous materials, as set forth.

9. The herein-described process of preparing aluminium sulfate from aluminous materials which consists in treating such materials with sulfuric acid to convert the aluminium compounds into sulfate, and simultaneously injecting hot air into the resultant mixture of acid and aluminous materials, as set forth.

10. The herein-described process of preparing aluminium sulfate from aluminous materials which consists in treating such materials with sulfuric-acid solution of gradually-increasing strength to convert the aluminium compounds into sulfate, and simultaneously injecting air into the resultant mixture of acid and aluminous materials, as set forth

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752,928. **HYDROCARBON-BURNER.** CHARLES SCHWEIKER, Maplewood, Mass. Filed May 28, 1902. Serial No. 109,340. (No model.)



Claim.—1. In a hydrocarbon-burner, a series of superposed cups, each cup constructed of greater horizontal area than that of the next above one, and all except the lowest of said cups provided with overflow-openings so arranged that the overflow-openings of any cup shall not lie in a lower plane than those of the cup next above, and means constructed to supply oil to the top cup of the series, whereby the products of combustion issuing from any of the several cups will not impinge upon the oil overflowing from the other of said cups, and whereby the products of combustion issuing from the lowest cup of the series constitute a mantle to prevent free access of atmospheric air to the heated products of combustion issuing from the remaining cups, substantially as described.

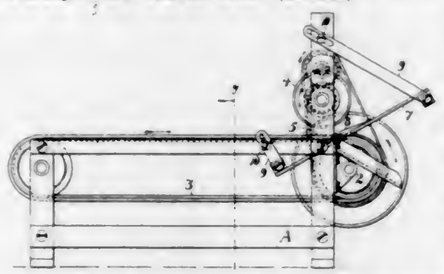
2. In a hydrocarbon-burner, a series of superposed cups, each cup constructed of greater horizontal area than that of the next above one, and all except the lowest of said cups provided with overflow-openings so arranged that the overflow-openings of any cup shall not lie in a lower plane than those of the cup next above, and means constructed to supply oil to the top cup of the series, and arranged in the path of the flames issuing from the several cups, whereby the products of combustion issuing from any of the several cups will not impinge upon the oil overflowing from the other of said cups, and whereby the products of combustion issuing from the lowest cup of the series constitute a mantle to prevent free access of atmospheric air to the heated products of combustion issuing from the remaining cups, substantially as described.

3. In a hydrocarbon-burner, a series of superposed cups, each cup constructed of greater horizontal area than that of the next above one, and all except the lowest of said cups provided with overflow-openings so arranged that the overflow-openings of any cup shall not lie in a lower plane than those of the cup next above, means constructed to supply oil to the top cup of the series, whereby the products of combustion issuing from any of the several cups will not impinge upon the oil overflowing from the other of said cups, and

whereby the products of combustion issuing from the lowest cup of the series constitute a mantle to prevent free access of atmospheric air to the heated products of combustion issuing from the remaining cups, an escape-flue, and means constructed to intimately intermingle atmospheric air with the products of combustion during their travel to the escape-flue, substantially as described.

4. In a hydrocarbon-burner, the combination with the stove-body and a perforated, false bottom fitted in the lower portion thereof, of a combustion-cup centrally located upon said false bottom in proximity to said perforations, an inner casing inclosing said combustion-cup and perforations, an outer casing inclosing said inner casing, said casings being provided with intercommunicating passages, a perforated collar or partition interposed between said outer casing and the stove-body, a perforated diaphragm located above said partition, and means for conducting the products of combustion from above said diaphragm, substantially as described.

752,929. FRUIT-PITTER. SIVERT H. SHELLEY, San Jose, Cal. Filed Aug. 20, 1903. Serial No. 170,118. (No model.)



Claim.—1. In a device of the character described, the combination of an endless traveling slotted carrier, a rotary cutter in the plane of the slot, and an upwardly-inclined resilient stop means at the discharge end of the carrier in the path of the fruit and capable of retarding the progress of the fruit along the carrier said carrier extending beyond the lower end of the stop means.

2. In a device of the character described, the combination of an endless traveling carrier, a rotary cutter near the discharge end thereof, and a detent inclined upwardly from a point proximate to but in advance of the discharge end of the carrier and upon which detent the fruit is given a rolling action while being operated upon by the cutter.

3. The combination of a traveling slotted carrier, a rotary cutter, and a flexible stop proximate to the cutter and inclined upwardly in the direction of travel of the carrier said stop retarding the travel of the fruit and enabling the fruit to partake of a rolling action while being acted on by the cutter.

4. The combination in a device of the character described, of a carrier, a rotary cutter, and a vertically-yielding support for the fruit intermediate of the carrier and cutter and resting upon said carrier.

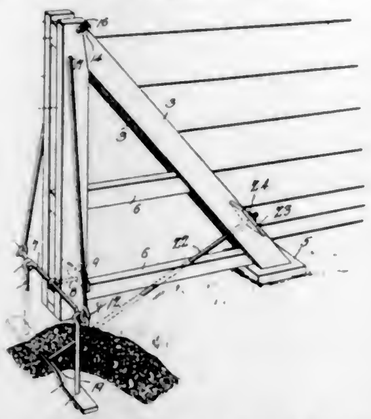
5. The combination in a device of the character described, of an endless carrier comprising parallel separated belts, a cutter, and vertically-yielding shields or fruit-rests intermediate of said belts and cutter and overlying the former.

6. The combination in a device of the character described, of an endless flexible carrier comprising parallel separated belts angular in cross-section, a cutter journaled in bearings fixed relative to said belts, and pivotally-supported vertically-yielding shields intermediate of the cutter and belts, and made ∧-shaped in cross-section to correspond to the belts.

752,930. FENCE-POST. SILAS C. SILVER, London, Ohio. Filed Mar. 28, 1903. Serial No. 150,052. (No model.)

Claim.—1. The combination with a post, of a pair of spaced inclined brace-bars, extending inwardly from the post, an anchor, an angularly-disposed tie-bar one end of which is secured to the anchor, the opposite end thereof passing between the inclined brace-bars, and adjustable tie-bars extending between the anchor and the upper portion of the post.

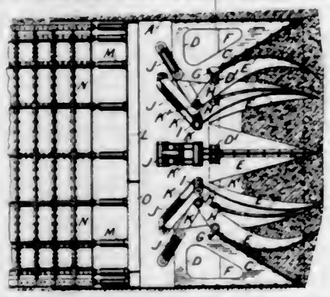
2. The combination of a post, an angularly-disposed brace-bar secured thereto, and extending inwardly from the post, an anchor, a tie-bar extending between the anchor and the lower portion of the brace, an auxiliary cross-bar arranged in contact with the front of the post, vertically-disposed bars connecting the anchor to said auxiliary cross-bar, and adjustable braces connecting the end portions of the cross-bar to the upper portion of the post.



3. The combination of the post, an angularly-disposed brace-bar secured thereto, and extending inwardly from the post, an anchor, an auxiliary cross-bar arranged in contact with the front of the post, tie-bars connecting the anchor to the cross-bar, adjustable braces connecting the opposite ends of the cross-bar to the upper ends of the post, and a bolt connecting the post to an intermediate portion of the cross-bar.

4. The combination of the post formed of two spaced members, a pair of spaced members forming an angularly-disposed brace secured to the post, an anchor, a tie-bar extending between the anchor and the lower portion of the brace, an auxiliary cross-bar arranged in contact with the front of the post, said cross-bar having hooked portions adjacent to its opposite ends, vertically-disposed adjustable tie-bars connecting the cross-bar to the anchor, a bolt connected to an intermediate portion of the cross-bar and extending between the spaced bars which form the post, braces extending from the hooked ends of the cross-bar through openings extending transversely of the upper portion of the post, the upper ends of said braces being threaded, and adjusting-nuts arranged on the threaded portions of the braces to tighten the same.

752,931. TUNNELING APPARATUS. CHARLES W. SMITH, Brooklyn, N. Y. Filed May 28, 1903. Serial No. 159,122. (No model.)



Claim.—1. In a tunneling apparatus the combination of a shell, knives or shovels constructed to operate toward each other on radial lines to form a shield, and means for operating them.

2. In a tunneling apparatus the combination of a shell, knives or shovels carried thereby and constructed to move toward a central point and means for operating them.

3. In a tunneling apparatus, the combination of a shell, knives or shovels within the shell constructed to move toward each other and form a shield across the mouth of the shell, and means for operating them.

4. In a tunneling apparatus, the combination of a shell, curved knives or shovels carried thereby and constructed to move toward each other and form a semispherical shield across the mouth of the shell and means for operating them.

5. In a tunneling apparatus, the combination of a shell, knives or shovels carried thereby and constructed to move toward each other, and means for independently moving them.

6. In a tunneling apparatus, the combination of a shell having a cutting edge, knives or shovels carried thereby and constructed to move toward each other and form a shield and means for operating them.

7. In a tunneling apparatus the combination of a shell, a funnel-shaped ring united to the shell to form a cutting edge, knives or shovels arranged within the ring and shell and constructed to move toward each other and means for operating them.

8. In a tunneling apparatus, the combination of a shell within a funnel-shaped mouth, a bulkhead, cutting knives or shovels constructed to move each other and means for operating them.

9. In a tunneling apparatus, the combination of a shell having a funnel-shaped mouth, a bulkhead within the shell, and cutting knives or shovels constructed together with the bulkhead, to form a compartment within the shell.

10. In a tunneling-machine, the combination of a shell, knives or shovels pivoted thereon and adapted to move toward each other and means for operating them.

11. In a tunneling apparatus, the combination of a shell, a bulkhead, knives or shovels pivoted on the shell and constructed to close as a shield to form, with the bulkhead, a chamber within the shell and means for closing the knives or shovels.

12. In a tunneling apparatus, the combination of a shell, knives or shovels carried thereby and constructed to move toward and from each other and means for independently operating them.

13. In a tunneling apparatus, the combination of a shell, a funnel-shaped ring at the mouth of the shell, brackets bracing the ring and shell, and knives or shovels journaled in the brackets.

14. In a tunneling apparatus, the combination of a shell, a funnel-shaped ring forming the mouth of the shell, brackets within the shell, knives or shovels journaled in the brackets and adapted to move toward and from each other and means for operating them.

15. In a tunneling apparatus, the combination of a shell having a funnel-shaped mouth and a bulkhead in rear thereof, brackets mounted in the shell, and knives or shovels mounted in the brackets and constructed to move toward and from each other to form a shield across the mouth of the shell, and means for operating the knives or shovels.

16. In a tunneling apparatus, the combination of a shell with a funnel-shaped mouth, knives or shovels constructed to move toward and from each other and having flanges adapted to form a closed joint with the inner edge of the funnel and means for operating the knives.

17. In a tunneling apparatus, the combination of a shell having a bulkhead and a funnel-shaped mouth and knives or shovels constructed to form a shield over the mouth of the shell and having flanges to form a close joint with the inner edge of the funnel, the whole to constitute with the bulkhead, a closed compartment.

18. In a tunneling apparatus, the combination of a shell, a funnel-shaped ring forming the mouth of the shell and having openings for the operation of tools, brackets bracing the shell and ring and means for closing the openings in the ring.

19. In a tunneling apparatus, the combination of a shell, a funnel-shaped ring forming the mouth of the shell and a series of pairs of brackets securing the ring to the shell and each pair of brackets carrying a knife or shovel and its actuating-jack.

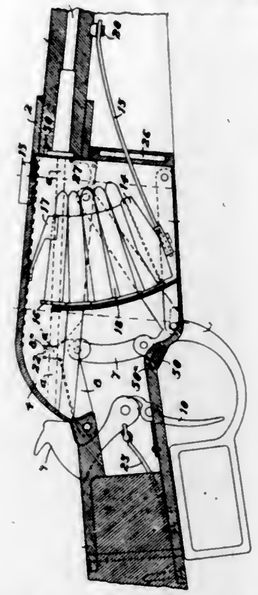
20. In a tunneling apparatus, the combination of a shell having a bulkhead, shovels carried thereby and constructed to move toward each other, means for advancing the shell to cause the shovels to penetrate the earth, and means for moving the shovels toward each other to form a shield within which is contained the dislodged earth.

21. In a tunneling apparatus the combination of a shell having a bulkhead and a cutting edge, shovels carried thereby and constructed to move toward each other, means for advancing the shell to cause its cutting edge and the shovels to penetrate the earth, and means for moving the shovels toward each other to form a shield between which and the bulkhead is contained the dislodged earth.

22. In a tunneling apparatus, the combination of a shell having a bulkhead, shovels carried thereby, means for operating the shovels to cause them to penetrate the earth and move toward each other to form a shield between which and the bulkhead is contained the dislodged earth, and means for at intervals advancing the shell.

23. The combination of excavating-shovels constructed to move toward each other, a movable support in which they are mounted, means for operating the respective shovels independently and means for advancing the support.

752,932. MAGAZINE-GUN. CHARLES H. SNOW, Stockton, Cal. Filed Feb. 7, 1903. Serial No. 142,254. (No model.)



Claim.—1. The combination with the barrel of a gun, of a plurality of vertically-disposed cartridge-magazines located upon opposite sides of the rear opening of the barrel, carrier-springs by which cartridges contained in said magazines are impelled upwardly, guides by which cartridges from either magazine are directed into the line of the barrel, a reciprocating breech-block, and actuating mechanism including plates pivoted upon the front of the breech-block and adapted to engage the uppermost cartridge whereby the cartridges are successively introduced into the barrel.

2. The combination with the barrel of a gun, of a plurality of vertically-disposed cartridge-containing magazines upon opposite sides of the central slot, a guard-lever fulcrumed and movable within said slot, a breech-bolt reciprocating above the upper portion of said slot, and connections between it and the guard-lever whereby it is actuated, and laterally-movable plates pivotally mounted on the front of the breech-bolt, and means for projecting the plates beyond the plane of the sides of the bolt and into the path of the uppermost cartridges whereby the cartridges are successively engaged by the plates to be impelled into the barrel when the breech-bolt is actuated.

3. The combination with the barrel of a gun of a plurality of vertically-disposed cartridge-magazines located in rear of said barrel, carriers and springs by which the cartridges are impelled upwardly, a breech-bolt and spring-pressed plates carried at each side of the front end thereof, and guides by which the cartridges are successively directed into line with the barrel, a vertical channel through the central portion of the magazine, the breech-bolt slidable above said channel in line with the barrel, a guard-lever having its upper end pivoted to the breech-bolt, a link pivoted in the forward part of the channel and having its rear end loosely connected with the guard-lever whereby the movement of the latter reciprocates the breech-bolt.

4. The combination with the barrel of a gun, of a plurality of vertically-disposed cartridge-magazines upon opposite sides of the axis of the barrel, carrier-springs, and guides whereby the cartridges are directed into the barrel, a vertical channel between the cartridge-magazines and a breech-block slidable in line with the barrel above the magazine, and means including a pivoted plate upon the front end of the breech-bolt and means for projecting said plate outwardly in the path of the uppermost cartridge whereby said cartridge is forced into the barrel, a guard-lever having the upper end pivoted to the breech-block, a link pivoted in the front end of the channel and loosely connected with the guard-lever, a safety locking-bolt having one end pivoted to the frame and a link connecting the opposite end with the guard-lever, said locking-bolt having a projec-

tion and a corresponding recess in the breech-bolt with which said projection engages when the breech mechanism is closed.

5. A longitudinally-reciprocating breech-bolt axially in line with the barrel, a plurality of cartridge-magazines upon opposite sides, and at the rear of the barrel, a vertical channel between said magazines, a guard-lever having the upper end connected with the breech-bolt, a safety locking-bolt having the rear end pivoted to the frame, and a spur or projection at the front end, a recess in the breech-bolt with which said spur engages when the breech is closed, a link connecting the swinging end of the locking-bolt with the guard-lever at a point intermediate between its ends and a link having the front end pivoted within the magazine-channel and the rear end slotted with a pin connecting it with the guard-lever whereby the first downward movement of the guard-lever disengages the safety-lock, and the continuation of said movement acts to retract the breech-bolt.

6. In a magazine-gun, a plurality of vertically-disposed essentially parallel cartridge-magazines located upon opposite sides of the axis of the barrel, carriers and springs by which the cartridges are impelled upward, plates exterior to the magazines having teeth adapted to engage with the spring-impelled carriers and compression-knobs upon each side whereby the toothed plates may be forced into line with the carriers to engage and hold them down while the cartridges are being introduced.

7. In a magazine-gun, a plurality of vertically-disposed cartridge-magazines located upon opposite sides of the axial line of the barrel, spring-pressed carriers by which the cartridges are raised within the magazines, a reciprocable breech-bolt and plates carried thereby and projecting into the magazines, a cut-off mechanism and operating device whereby either or both the plates may be retracted and the cartridges may be retained in both magazines, or either of them released and loaded into the barrel.

8. The combination in a magazine-gun of a barrel, a plurality of vertically-disposed cartridge-magazines having spring-pressed carriers and located upon opposite sides of the axis of the barrel, a reciprocating breech-bolt, a vertical central channel in the magazine and guard-lever and mechanism operating therein whereby the breech-bolt is reciprocated, spring-pressed plates on the breech-bolt and guides whereby the cartridges are transmitted from the magazines to a position in rear of the barrel, and a centrally-located guiding and spring-actuated fin or guide.

9. In a gun, magazines adapted to contain cartridges, a breech-bolt slidable longitudinally in line with the barrel and a laterally-movable plate on the front end thereof with mechanism for projecting the same into the path of the uppermost cartridge said plate adapted to transmit cartridges from the magazine to the barrel, a guard-lever and connections whereby the breech-bolt is reciprocated, a locking device actuated by the movement of the guard-lever and adapted to lock the breech-bolt when closed, and a sectional firing-pin, part of which is located in the breech-bolt and the other part in the locking-spur.

10. In a magazine-gun, a plurality of magazines located upon opposite sides of the axis of the barrel, a breech-bolt longitudinally slidable in line with the barrel, spring-pressed plates pivoted upon each side of the front of the breech-bolt, means by which either of said plates may be released and projected so as to engage the rear of a cartridge when the breech-bolt has been withdrawn, and to impel the cartridge forward when the breech-bolt is returned.

11. In a magazine-gun, a plurality of cartridge-magazines located upon opposite sides of the axis of the barrel, a breech-bolt longitudinally slidable in line with the barrel and above the cartridge-magazines, spring-pressed plates pivoted to the front of the breech-bolt, a turnable cam carried by the breech-bolt by which said plates may be retracted flush with the sides of the breech-bolt, or either of them allowed to project to engage and advance cartridges from either magazine.

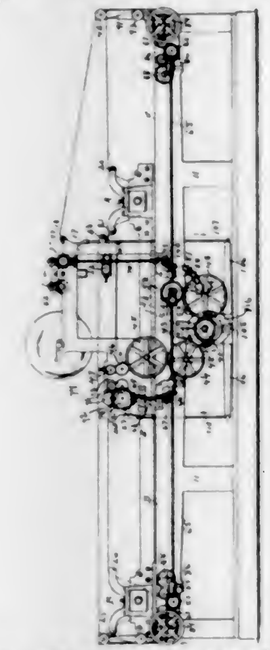
12. The combination with the reciprocating breech-bolt of a magazine-gun, of plates pivoted upon each side at the front of the breech-bolt, springs by which said plates are normally projected so as to engage cartridges in magazines upon either side of the breech-bolt, a cam turnably mounted upon the breech-bolt, projections from the plates into the groove of said cam, whereby the turning of the cam to one position will retract both of said plates, turning it to another position will allow the plate upon one side to be projected so as to engage and load cartridges upon that side, and the turning of it to a third position will retract the first-named plate and project the opposite one to engage cartridges upon the opposite side.

13. In a magazine-gun, a plurality of magazines located upon opposite sides of the axis and in rear of the barrel, said magazines being closed at the top, a centrally-located reciprocating breech-bolt between the upper part of said magazines and openings whereby cartridges may be delivered from either magazine into the line of the breech-bolt and barrel, concaved spring-plates located in the upper part of each magazine and fitting the top of the uppermost cartridge therein to prevent displacement.

14. A gun having a plurality of cartridge-holding magazines located upon opposite sides of the axis of the barrel, a reciprocating breech-bolt movable between said magazines, means by which cartridges may be transferred from either magazine to the front of the breech-bolt and in line with the barrel, an extractor carried by the breech-bolt and adapted to engage the upper part of the cartridge-flange, an elastic ejector in the lower part of the breech-block, and a lever by which the breech-block is reciprocated, said lever being adapted to contact with the ejector when the breech-block is retracted whereby it acts in unison with the extractor to eject the shell.

15. In a gun, a plurality of magazines located upon opposite sides and below the plane of the barrel-axis, means for elevating the cartridges, means including a breech-bolt having laterally-movable wings pivotally mounted at the front portion for forcing the cartridges from the magazines into the barrrel, said magazines having the rear ends formed in segments of circles and with grooves upon each side within which the flanges of the cartridges are movable whereby the difference in diameter of the front and rear contact-points will be compensated and the cartridges raised in the magazines about a point located in front of the magazines.

752,933. **WEB-MANIPULATING MECHANISM.** LOUIS W. SOCTSGATE, Worcester, Mass., assignor, by mesne assignments, to Detroit Trust Co., trustee, Detroit, Mich., a Corporation of Michigan. Filed Aug. 14, 1893. Renewed July 16, 1903. Serial No. 165,872. (No model.)



Claim.—1. The combination in a web-printing press, of a device for continuously feeding the web into the press, a web-shifting device, a single changeable part or piece, and gearing and connections from the same to actuate both said devices.

2. In a web-printing press the combination of a printing mechanism, a web-manipulating mechanism consisting of devices arranged to feed the web to and from the printing mechanism, and an intermediate intermittently-acting web-shifting device, a single changeable part or piece, gearing from the same to drive the feeding-in and feeding-out devices, and connections from the same to operate the intermediate web-shifting device.

3. The combination in a web-printing press of means for continuously feeding the web into the machine, means for continuously drawing the web from the machine, an intermediate intermittently acting web-shifting device, and means whereby these three mechanisms may be adjusted simultaneously.

4. The combination in a web-printing press of a feeding-in mechanism, a feeding-out mechanism, an intermediate looping mechanism, and means for varying the action of all three devices by changing a single part.

5. The combination in a web-printing press of a feeding-in mechanism, a looping mechanism for intermittently shifting the web, gearing for driving the feeding-in mechanism, connections for actuating the looping device, and a single piece controlling both the action of the feeding-in device and the looping mechanism, which piece may be changed.

6. The combination in a web-printing press of a feeding-in mechanism, a feeding-out mechanism, a looping mechanism, web coaxing or combing mechanism, a single piece or part for controlling the action or speed of these various mechanisms, which single piece or part may be changed.

7. The combination in a web-printing press of the feeding-in mechanism, the feeding-out mechanism, an intermediate looping mechanism, and an inking mechanism, a single piece or part for driving or actuating all these various mechanisms, which single piece or part may be changed.

8. The combination in a web-printing press of the feed-in mechanism, a looping mechanism, gearing for driving the feeding-in mechanism, and connections for actuating the looping mechanism, and a series of interchangeable cams and gears, the cams and gears being made in integral pieces, whereby, by one change, both the action of the looping device and the feeding-in mechanism can be varied.

9. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting therewith, a continuously-running feeding-in device, and a looping device for manipulating the web, with means whereby the action of the looping device and the feeding-in device can be varied by changing a single piece.

10. The combination in a web-printing press of two form-beds an impression-cylinder coacting with each form-bed, a continuously-running feeding-in device and a looping device, with means whereby the action of the continuously-running feeding-in device and the looping device can be varied by changing a single piece of mechanism.

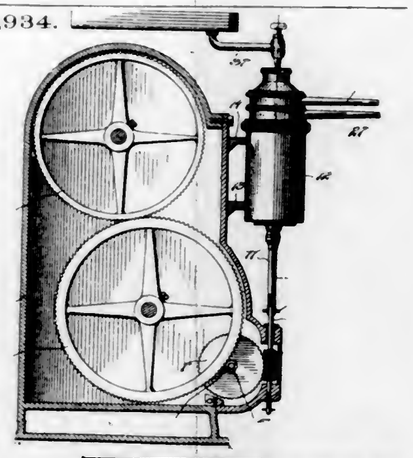
11. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, a feeding-in device and a feeding-out device, two intermediate loopers for shifting the web around the impression-cylinders, gearing for driving the feeding-in and feeding-out devices, connections including a yoke for actuating the looping-rollers, and a change-gearing for varying the speed of the feeding-in and feeding-out devices and the action of the looping-rollers, consisting of a cam adapted to engage the yoke, and a gear, the cam and gear being made integral.

12. The combination in a feed-changing mechanism for the purpose described of a yoke and a series of interchangeable cams adapted to engage the yoke, each cam having a gear formed or made integral therewith, a suitable sweep carrying a gear which may be adjusted to engage the various interchangeable gears, and connections from the yoke and gearing driven from said gear to actuate the feed.

752,934. **CREAM-SEPARATOR.** EMIL STARCH and BENJAMAN STARCH, La Crosse, Wis. Filed July 16, 1903. Serial No. 165,818. (No model.)

Claim.—The herein-described cream-separator comprising a suitable housing 1 and driving mechanism located therein; a stationary or outer casing 12; an inner revoluble casing located therein; a closure for said revoluble casing, said closure having a flange designed to be received by said revoluble casing, said flange having an annular groove and a plurality of ports communicating therewith; a suitable receiving-chamber for said ports and a discharge-pipe, said closure also having near its center a discharge-port for the cream; a suitable chamber and a discharge-pipe cooperating with said cream-port; a tubular locking-bolt having a threaded terminal and adapted to fit a seat in the bottom of the revoluble chamber whereby the closure or lid 16 will be locked in engagement therewith, said tubular bolt having an opening 33 in its lower end; suitable means to deliver the supply of milk through said tubular bolt whereby it will be delivered into the bottom of the revoluble chamber through said opening 33 and a bifurcated member 40 having interior and exterior flanges and suitable means to hold the revoluble chamber and said member against relative movement, all combined substantially as specified and for the purpose set forth.

752,934.

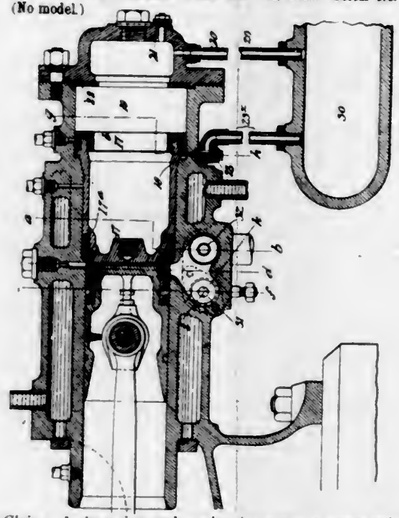


752,935. **PENCIL SHARPENER AND POINT PROTECTOR.** WILLIAM A. TEW, Bowling Green, Ohio. Filed Mar. 6, 1903. Serial No. 146,554. (No model.)



Claim.—A pencil sharpener and point protector comprising a hollow split shell, one end of the bore of said shell terminating in a conical wall which is slitted longitudinally, an integral knife-clamping member upon said shell, the outer edge of which clamping member is beveled with a space intervening between one end thereof and a right-angled shoulder at the end of said slit, and a longitudinally-tapering knife with beveled cutting edge held by the clamping member adjacent to one of the longitudinal edges of the slit, whereby a draw cut may be produced, the extreme end of said shell being contracted and extended to receive and protect the lead of a pencil, as set forth.

752,936. **INTERNAL-COMBUSTION MOTOR.** ADOLF VOGT, West Norwood, England. Filed Mar. 24, 1902. Serial No. 99,813. (No model.)



Claim.—1. In an internal-combustion motor, a compression and combustion space of the working cylinder having a part of its walls capable of yielding, and means for holding such part in position during the entire compression of the charges and only allowing it to yield to the combustion-pressure, substantially as described.

2. In an internal-combustion motor, a compression and combustion space of the working cylinder having a part of its walls capable of yielding, and an elastic cushion behind such yielding part that holds it in the forward position during the entire compression of the charges and only allows it to yield to the combustion-pressure,

and causes it to move forward again as such pressure sinks, substantially as described.

3. In an internal-combustion motor, a compression and combustion space of the working cylinder having a part of its walls capable of yielding, a cushion of compressed air behind such part which allows it to yield only to the combustion-pressure and causes it to move forward again as such pressure sinks, and means whereby said part is made to act as an air-pump during the forward stroke for supplying compressed air to the air-cushion for making good leakage, substantially as described.

4. In an internal-combustion motor, a compression and combustion space of the working cylinder having a part of its walls capable of yielding, a cushion of compressed air behind such part which allows it to yield only to the combustion-pressure and causes it to move forward again as such pressure sinks, and means whereby said part is made to act as an air-pump during the forward stroke for supplying compressed air to an air vessel whence part of such compressed air is conveyed to the said air-cushion to make good leakage, substantially as described.

5. In an internal-combustion motor, an auxiliary piston constituting a yielding wall of the compression and combustion space of the working cylinder, a chamber in the cylinder-walls in which such piston works, and a cushion of compressed air in said chamber that keeps said piston in the forward position during the entire compression of the combustible charges and only allows it to yield to the combustion-pressure, and causes it to move forward again as such pressure sinks, substantially as described.

6. In an internal-combustion motor, a piston constituting a yielding wall of the compression and combustion space of the working cylinder, which piston works in a chamber containing a cushion of compressed air acting on said piston so as to keep it in the normal forward position until the maximum compression-pressure is exceeded, said piston being formed to act as a valve bearing against a seating in the said chamber when in the normal position so as to close said chamber against any escape of compressed air therefrom.

7. In an internal-combustion motor, a piston constituting a yielding wall of the compression and combustion space of the working cylinder, which piston works in a chamber containing a cushion of compressed air acting on said piston so as to keep it in the normal forward position until it is forced backward, after the completion of the compression of a charge, by the pressure of the ignited charge, means for causing said piston during its forward stroke to compress a separate body of gaseous fluid, and means for conveying said body of compressed gaseous fluid into a separate reservoir, substantially as described.

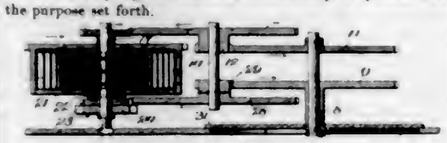
8. In an internal-combustion motor, a piston constituting a yielding wall of the compression and combustion space of the working cylinder, which piston works in a chamber containing a cushion of compressed air acting on said piston so as to keep it in the normal forward position until it is forced backward, after the completion of the compression of a charge, by the pressure of the ignited charge, means for causing said piston during its forward stroke to compress a separate body of gaseous fluid, and means for conveying said body of compressed gaseous fluid into a separate reservoir at a higher pressure than the compression-pressure and a duct containing a reducing-valve connecting said reservoir with the chamber behind said piston, substantially as described.

9. In an internal-combustion motor, a piston constituting a yielding wall of the compression and combustion space of the working cylinder, which piston is of larger diameter than the working piston of the engine and works in a chamber which is of corresponding larger diameter than the working cylinder and contains a cushion of compressed air acting on said piston so as to keep it in the normal forward position during the compression of a combustible charge, but to allow it to yield to the increased pressure on the combustion of said charge, substantially as and for the purpose described.

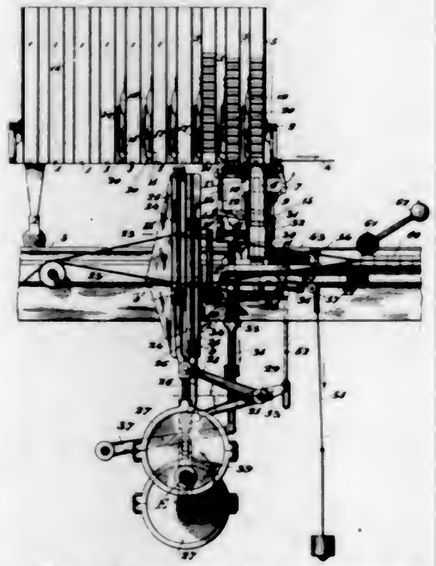
10. In an internal-combustion motor, a piston constituting a yielding wall of the compression and combustion space of the working cylinder, the rear part of which piston is of larger diameter than the forward part thereof that forms the wall of the compression-space, a chamber in the working cylinder containing said piston and made of corresponding larger diameter at its rear part than at its forward part, and a cushion of compressed air contained in the rear part of said chamber and acting upon said piston so as to keep it in the forward position during the compression of the combustible charge but to allow it to yield to the increased pressure consequent on the combustion of the charge, substantially as and for the purpose described.

752,937. WINDING-INDICATOR FOR WATCHES. JOHN WALL, St. Paul, Minn. Filed Dec. 4, 1903. Serial No. 183,805. (No model.)

Claim.—The herein-described indicator showing the condition of the mainspring of a watch, comprising a suitable mainspring and barrel or housing therefor; a gear 15 rigidly secured to said housing; a train of gears 13, 12 and 11 placed in operative relation to said gear, in combination with a gear 23 and a ratchet-wheel 24 keyed rigidly to the shaft of the mainspring and independent of said housing and a train of gears 28, 29 and 9 placed in cooperation with said gear 23, said gear 9 being loose upon its supporting-shaft and having a sleeve and an indicator-plate carried by said sleeve and disposed in view upon the dial of the watch, and an indicator-hand cooperating with said indicator-plate, all of said parts being combined and suitably supported whereby when the mainspring is wound the indicator-plate will be moved under the indicator-hand to indicate the initial point or wound condition of the spring and will be moved by one of said trains of gears to indicate the exhausted condition of the spring, all combined substantially as specified and for the purpose set forth.



752,938. MACHINE FOR MAKING WOOD MOSAIC FLOORING OF BLOCKS OF WOOD. JOHANN WERINGER, Dornbirn, Austria-Hungary, assignor to Fabrik für Mechanische Hirnholzmosaik, Gesellschaft mit Beschränkter Haftung, Munich, Germany, a Firm. Filed Nov. 19, 1901. Serial No. 82,916. (No model.)



Claim.—1. The combination with a work-table, means for successively feeding thereto rows of blocks, comprising a progressively-movable carriage, rows of open-ended block-holders thereon, a stop device for each holder preventing the blocks from dropping out, means actuating the stop devices of a row of holders to release the lowermost blocks and engage the next succeeding blocks, and guides movable to and from a row of holders adapted to guide the blocks to the table of weaving appliances operating to unite the blocks of each row and the successive rows of blocks into a web by warp and weft threads.

2. The combination with a work-table and feeding devices adapted to successively feed rows of blocks onto said table, comprising a progressively-movable carriage, a series of rows of open-ended block-holders thereon, a stop device for and engaging the lowermost block in each holder, a bar of a width equal to two rows of holders, a row of guide-channels in and depending from said bar, delivery-channels adapted to move simultaneously up and down on said guide-channels, means for moving the delivery-channels and operating during the upward motion thereof to disengage the stop devices of a row of block-holders from the lowermost blocks therein before such row of holders comes into register with the guide-channels and to release said stop devices during their downward motion, means holding the lowermost blocks fed to the delivery-channels during their upward movement from dropping out, and means for releasing the blocks during the downward motion of said delivery-channels whereby a row of blocks is delivered onto the work-table; of appliances for uniting the blocks of a row and the successive rows of such into a web by warp and weft wires.

3. The combination with a work-table and means successively feeding rows of blocks thereto; of weaving appliances comprising reciprocally-movable heddles, and a traversing shuttle operating to unite the blocks of a row and the successive rows of such into a web by means of a warp and weft thread.

4. The combination with a work-table and means for successively feeding rows of blocks thereto; of weaving appliances comprising warp-heddles, means moving the same to open and close the shed, a weft-shuttle, a carrier detachably connected thereto, means driving the carrier from one side to the other through the open shed, means disconnecting the carrier from the shuttle and driving said carrier back before the closing of the shed, then driving said carrier back to the shuttle, connecting it thereto and returning the same to normal position during the next opening of the shed.

5. The combination with a work-table, means for feeding successive rows of blocks thereto, heddles, mechanism reciprocally moving the same to open and close the shed; a shuttle, and mechanism driving said shuttle to and fro through the open shed; of a vertically and horizontally to-and-fro movable lay, for the purpose set forth.

6. The combination with a work-table, a progressively-movable carriage, rows of open-ended block-holders thereon, a spring-actuated latch for and engaging the lowermost block in each holder, and means for delivering the lowermost block from a row of holders to the work-table; of weaving appliances for weaving the blocks of a row and the successive rows of such into a web, comprising a vertically and horizontally to-and-fro movable lay, and means actuated by its upward movement acting on the aforesaid latches of a row of holders to disengage them from the lowermost block therein and to again release said latches by the downward movement of the lay.

7. The combination with a work-table, feeding appliances comprising a progressively-movable carriage, rows of open-ended block-holders thereon, latches engaging the lowermost block in each holder, means periodically disengaging said latches from the lowermost block and engaging the same with the next succeeding blocks, and locking devices locking the carriage after each progressive motion; of vertically-movable guide-channels adapted to receive the released blocks and guide them to the work-table, means connected thereto and acting on the locking devices to release the carriage, and appliances for weaving the blocks of each row and the successive rows of such into a web.

8. The combination with a work-table, means for feeding successive rows of blocks thereto and appliances for weaving the blocks of a row and the successive rows of such into a web; of gripping devices near each end of the shuttle-race operating to grip the weft-thread and hold it taut during the beating-up of the weft.

9. The combination with a work-table, means for feeding successive rows of blocks thereto, and appliances for weaving the blocks of a row and the successive rows of such into a web; of gripping devices near each end of the shuttle-race operating to grip the weft-thread and hold it taut during the beating-up of the weft, and means acting on said devices to release said weft-thread when the lay moves back.

10. The combination with a work-table, means for feeding successive rows of blocks thereto, and appliances for weaving the blocks of a row and the successive rows of such into a web; of gripping devices near each end of the shuttle-race operating to grip the weft-thread and hold it taut during the beating-up of the weft, and means operated by the lay during its backward movement and operating the gripping devices to release the weft-thread.

11. The combination with a work-table, means for feeding successive rows of blocks thereto, and appliances for weaving the blocks of a row and the successive rows of such into a web; of gripping devices near each end of the shuttle-race comprising gripping-jaws, means closing the same to grip the weft-thread during the beating-up of the weft and for opening said jaws during the return movement of the lay.

12. The combination with a work-table, means for feeding successive rows of blocks thereto, and appliances for weaving the blocks of a row and the successive rows of such into a web; said appliances comprising a lay having a projection at each end carrying a roller adapted to engage the weft-thread.

13. The combination with a work-table, means for successively feeding rows of blocks thereto and weaving appliances for weaving the blocks of each row and the successive rows of such into a web; of a yielding shuttle-receiver at one end of the shuttle-race.

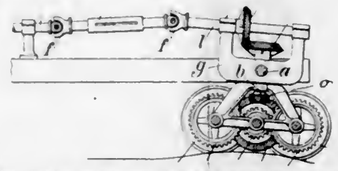
14. The combination with a work-table, means for successively feeding rows of blocks thereto and weaving appliances for weaving the blocks of each row and the successive rows of such into a web; of a shuttle-carrier, a shuttle-driver detachably connected with the shuttle-carrier, a shuttle-receiver at one end of the shuttle-race, and means for disconnecting the driver from and connecting it to the shuttle-carrier, for the purpose set forth.

15. The combination with a work-table, means for successively feeding rows of blocks thereto and weaving appliances for weaving the blocks of each row and the successive rows of blocks into a web; of a shuttle-carrier, a shuttle-driver detachably connected to the shuttle-carrier, a movable shuttle-receiver at one end of the shuttle-race, and mechanism controlled by the movements of the receiver to disconnect and connect the shuttle-driver from and to the shuttle, for the purpose set forth.

16. The combination with a work-table, means for successively feeding rows of blocks thereto, and weaving appliances for weaving the blocks of each row and the successive rows of such into a web; of a shuttle-carrier, a shuttle-driver detachably connected with the shuttle-carrier, a movable shuttle-receiver at one end of the shuttle-race, a buffer-spring for said receiver, and means for disconnecting the driver from and connecting it to the shuttle-carrier, for the purpose set forth.

17. The combination with the heddles, means reciprocally moving the same to open and close the shed, the lay, and means imparting thereto a downward movement and a horizontal movement in one direction during the closure of the shed and a horizontal movement in a reverse direction and an upward movement during the opening of the shed; of mechanism organized to time the closure and opening of the shed to enable the lay to perform its aforesaid movements.

752,939. DEVICE FOR THE PROPULSION OF CRANES. RICHARD WILKE, Brunswick, Germany. Filed Apr. 2, 1903. Serial No. 150,848. (No model.)



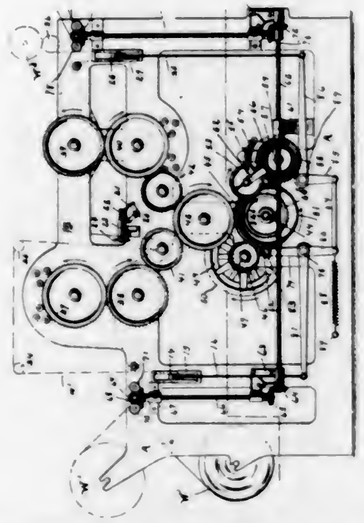
Claim.—In a carriage for traveling cranes, the combination with the groups of wheels, each group being journaled in a frame pivoted on a common horizontal axis, and a beveled gear for driving the wheels of each group, a vertical shaft carried by each of said frames on which said beveled gears are mounted, a second beveled gear mounted on said vertical shaft, a main driving-shaft, auxiliary driving-shafts carrying beveled gears gearing with the said second beveled gears on the vertical shaft, and telescoping and connecting links connecting the main and auxiliary driving-shafts, substantially as described.

752,940. ROTARY PRINTING-MACHINE. HENRY A. W. WOOD New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 15, 1893. Renewed July 16, 1903. Serial No. 165,871. (No model.)

Claim.—1. The combination in a web-printing press, of two printing-couples, each comprising a continuously-rotating impression-cylinder and printing-cylinder, said printing-cylinders being adapted to carry plates thereon, so that the same will make impressions for only a part of their rotations, a web-manipulating mechanism independent of the printing-couples, arranged to advance the web to and pull the same through said couples during the printing periods, and to withhold the web when the printing-cylinders are not printing, and means for adjusting the action of said web-manipulating mechanism, so that the length of web advanced to and pulled through the printing-couples for each rotation thereof may be varied, whereby by adjusting said web-manipulating mechanism, and by varying the lengths of plates on the printing-cylinders, different lengths of sheets may be printed.

2. The combination in a web-printing press of two printing-

couples, each comprising a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression on the web for a part of the rotation of the printing-cylinders, means for continuously feeding the web into and out of the press, a compensating device for withholding the web during the non-printing period, and advancing the web during the printing period, and means for adjusting the action of the feeding-in, the feeding-out and the compensating devices so that variable lengths of sheets can be printed on the web.



3. The combination in a web-printing press of two printing-couples, each comprising a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression on the web for part of a revolution of the printing-cylinders, devices for continuously feeding the web into and out of the press, and compensating devices as two loopers arranged in the path of the web so that the web will be advanced through the printing mechanisms substantially only while an impression is being made.

4. The combinatioo in a web-printing press of two printing couples, each comprising a rotating impression-cylinder, and a rotating printing-cylinder adapted to make an impression on the web for a part of the rotation of the printing-cylinders, devices for continuously feeding the web into and out of the press, compensating devices as two looping-rollers adapted to permit the advance of the web through the printing mechanism only while an impression is being made, and means for adjusting the action of the feeding-in and feeding-out devices, and the compensating device so that variable lengths of sheet may be perfected.

5. The combination in a web-printing press of a printing-couple comprising a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression on the web for part of a revolution of the printing-cylinders, continuously-running rollers for feeding the web into the press, a continuously-acting manipulating device consisting of two looping-rollers adapted to loop the web before and after the same passes to the printing mechanism, a change-gearing for operating the continuously-running feeding-in rollers, and a change-cam for actuating the looping-rollers whereby variable lengths of sheet can be printed.

6. The combination in a web-printing mechanism of two printing-couples each comprising a continuously-rotating impression-cylinder and a continuously-rotating printing-cylinder adapted to make an impression on the web for part of a revolution of the printing-cylinder, with a continuously-acting feeding-in device and feeding-out device for the web, a looping-roller arranged in the path of the web between the feeding-in device and the first printing-couple, a looping-roller arranged in the path of the web between the second printing-couple and the delivery device, a change-gearing for adjusting the speed of the feeding-in and feeding-out devices, and a change-cam for actuating the looping-rollers, whereby variable lengths of sheet can be printed.

7. The combination in a printing-press of a rotary printing mechanism adapted to print variable lengths of sheets, continuously-running feeding-in and delivery rollers adapted to continuously feed the web into and out of the press, gearing whereby the continuously feeding-in and feeding-out rollers are driven from a common change-gear, a looping-roller arranged in the path of the web between the feeding-in rollers and the printing mechanism, a feeding-out looping-roller arranged in the path of the web between the printing mechanism and the delivery-rollers, connections whereby the two looping-rollers are actuated from a common change-cam, and change cams and gears, whereby variable lengths of sheet can be printed.

8. The combination in a web-printing press of two printing-couples each comprising a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression on the web for part of a rotation, with a web feeding and delivery device, a web-compensating device adapted to permit the advance of the web through the printing mechanisms substantially only while an impression is being made, gearing and connections whereby the feeding-in, feeding-out and compensating devices are driven, and a single change-piece comprising a combined cam and gear which may be changed to vary the length of the sheets, substantially as described.

9. The combination in a web-printing press of two rotary printing-couples adapted to make an impression for part of a revolution upon a web, a web-manipulating device adapted to permit the advance of the web through the printing mechanisms only while an impression is being made, and an offset-web led through the web-manipulating device, so as to clear the first printing-cylinder and running with the web to be printed, so as to prevent offset on the second impression-cylinder.

10. The combination in a web-printing press of two rotary printing-couples each comprising a continuously-rotating impression-cylinder and a continuously-rotating printing-cylinder adapted to make an impression on the web for part of a revolution thereof, a feeding-in device and a feeding-out device for the web and a compensating device adapted to manipulate the web so that the same will advance through the printing mechanism substantially only while the impression is being made, an offset-web also led through the press, so as to clear the first printing-cylinder and controlled by the feeding-in and feeding-out devices and the compensating device so as to prevent offset on the web to be printed from the second impression-cylinder.

11. The combination in a web-printing press of two printing-couples, each comprising a continuously-rotating impression-cylinder and a continuously-rotating printing-cylinder adapted to make an impression on the web for part of a revolution thereof, with a web-manipulating device adapted to permit the advance of the web through the printing mechanisms substantially only while an impression is being made, means for adjusting the web-manipulating device so that various lengths of sheets can be printed, and an offset-web led through the printing-press so as to clear the first printing-couple and so as to prevent contact of the web to be printed with the second impression-cylinder, the offset-web being led through and controlled by the web-manipulating device for the web to be printed.

12. The combination in a web-printing press of two printing-couples, each comprising a continuously-rotating impression-cylinder and a continuously-rotating printing-cylinder adapted to make an impression on the web for part of a revolution thereof, a continuously-running feeding-in device, a continuously-running feeding-out device for the web, a web-compensating device as two looping-rollers so arranged that the web will be advanced through the printing mechanisms substantially only while an impression is being made, means for adjusting the action of the web-manipulating devices so that various lengths of sheets can be printed, and an offset-web led through the web-manipulating device so as to prevent offset of the web on the second impression-cylinder, said offset-web being led to clear the first printing-cylinder.

13. The combination in a web-printing press of a printing-couple consisting of a rotary impression-cylinder and printing-cylinder adapted to make an impression for part of a revolution, with means for moving the web clear of the impression-cylinder while no impression is being taken.

14. The combination in a web-printing press of a printing-couple consisting of a rotating impression-cylinder and printing-cylinder adapted to make an impression on the web for part of a revolution, a web-guiding device for leading the web around the impression-cylinder, and means for moving this guiding device so that the web will be in contact with the impression-cylinder only while the impression is being made.

15. The combination in a web-printing press of a rotary impression-cylinder, a printing-cylinder adapted to make an impression for part of a revolution, guides mounted on each side of the impression-cylinder in frames, and means for moving these frames so that the guides will allow the web to come in contact with the impression-cylinder only while the impression is being made.

16. The combination in a printing-press of the rotating impression-cylinder and rotating printing-cylinder, the frames carrying a guide at each side of the impression-cylinder, and cams for actuating these frames so that the web will be allowed to come in contact with the impression-cylinder only while the impression is being made.

17. The combination in a web-printing press of a rotating couple consisting of an impression-cylinder and printing-cylinder adapted to make an impression for part of a revolution, with means for moving the web clear of the impression-cylinder while no impression is being made, and means for adjusting or regulating this movement to correspond with the printing-plate used on the printing-cylinder.

18. The combination in a web-printing machine of a printing-couple consisting of a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression for part of a revolution, with frames at each side of the printing-couple carrying a device adapted to move the web clear of the impression-cylinder while no impression is being made, and cams for actuating these frames.

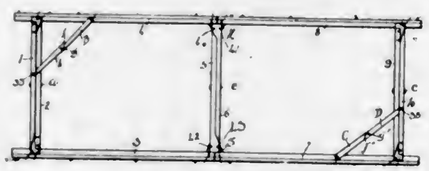
19. The combination in a printing-press of a printing-couple consisting of a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression during part of a revolution, with frames mounted on the axles of the printing-couple carrying a device adapted to move the web clear of the impression-cylinder while no impression is being made, and adjustable means for moving these frames.

20. The combination in a printing-press, of a rotating impression-cylinder and a rotating printing-cylinder adapted to make an impression on the web for part of a revolution, with means for varying the length of the sheet printed by the couple, and means for lifting the web clear of the impression-cylinder while no impression is being made, consisting of frames carrying clearing devices as two guides, and adjustable means as double cams for controlling the movement of the frames to correspond with the length of sheet printed.

21. The combination in a printing-press of a rotating printing-couple with means for varying the length of sheets printed by the couple, frames mounted at each side of the couple carrying a clearing device as two guides, and means for adjusting the movement of these frames, consisting of adjustable cams, and means for adjusting the relation between each of the cams so that the action of the frames will correspond to the length of the sheets printed.

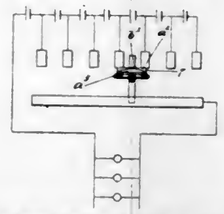
22. The combination in a printing-press of a rotating printing-couple with means for varying the length of the sheets printed by the couple, and a web-clearing device consisting of frames mounted at each side of the couple, carrying a clearing device as two guides, these frames being mounted substantially on the shafts of the printing-couple, and double adjustable cams mounted on one of these shafts, whereby the action of the clearing device can be adjusted to suit the length of sheet printed.

752,941. CAMP-BEDSTEAD. HENRY R. WYKERT, Omaha, Nebr. Filed Feb. 19, 1901. Serial No. 47,915. (No model.)



Claim.—In a camp-bedstead, the combination with the side rails each of which is formed of sections hinged to be folded in a direction transverse to the plane which they occupy when distended, of folding supporting-legs connected to said side rails at their ends and middle portions, the end legs being hinged to the side rails to be folded in a direction parallel with the side rails, and a cover extending over said side rails and provided with projecting staples arranged to correspond with the arrangement of eyelets located at intervals on the side rails, said staples being adapted to be sprung over the eyelets to engage the latter, whereby the cover is detachably held upon the side rails.

752,942. END-CELL SWITCH. JOHN W. ACHARD, Philadelphia Pa., assignor to the Electric Storage Battery Company, Philadelphia, Pa., a Corporation of New Jersey. Filed May 17, 1902. Serial No. 107,755. (No model.)



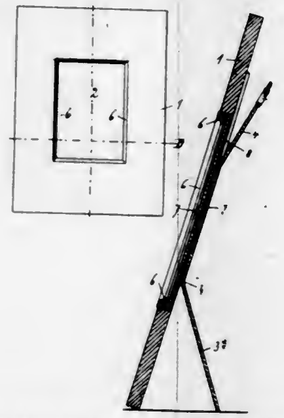
Claim.—1. The herein-described brush consisting of carbon and an embedded conductor arranged transversely of the brush and which operates to decrease and increase the resistance of the brush throughout its depth, substantially as set forth.

2. The herein-described brush consisting of carbon and an embedded metallic conductor arranged transversely of the brush and which operates to decrease and increase the resistance of the brush throughout its depth, substantially as set forth.

3. In an end-cell switch the combination of a main brush, contacts, and an auxiliary brush having different resistances throughout its length and consisting of carbon and a metallic conductor, substantially as described.

4. The combination of a main brush, contacts, and an auxiliary brush consisting of carbon having embedded in it a conductor which lies nearer its surface at some points than at others, substantially as described.

752,943. PICTURE-FRAME. GEORGE H. ALLEN, Clinton, N. Y. Filed May 1, 1903. Serial No. 155,121. (No model.)



Claim.—A picture-frame consisting of a main body-board having a picture-opening through the same, a backing-piece secured to the back of the board and covering said opening and extending to the line of the lower edge of the same, and slitted vertically at its upper edge forming a tab by which to hang the picture, and scored transversely at its lower portion forming an outwardly-swinging part adapted to act as a brace, a picture and glass successively placed in said picture-opening against the backing-piece and retaining-strips securing said picture and glass in position, substantially as set forth.

752,944. RIM-SPECTACLES. JAMES C. ANDERSON, Highland Park, Ill. Filed Dec. 14, 1903. Serial No. 185,052. (No model.)

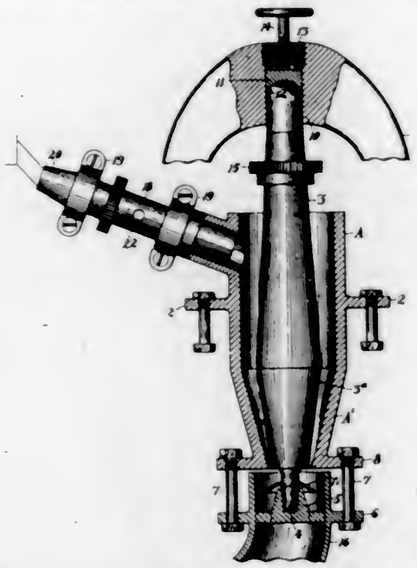
Claim.—1. As a new article of manufacture, rims for spectacles connected at their inner ends by a nose-bridge, and formed or provided with lugs or blocks at their outer ends at a right angle to and extending rearwardly from the rims, and adapted to clamp said rims upon lenses; temples located within the lugs or blocks, and a single screw securing the temples in vibrative position, and adapted to clamp the rims upon lenses, substantially as hereinbefore set forth.

2. In spectacles, the combination with a pair of lenses, rims connected at their inner ends by a nose-bridge and formed or pro-

vided with lugs or blocks at their outer ends, at a right angle to and extending behind the rims; temples located within the lugs or blocks, and a single screw securing the temples in position and clamping the rims upon the lenses, substantially as hereinbefore set forth



752,945. ROCK BREAKER AND PULVERIZER. DRURY D. BAILEY and JAMES O. BAILEY, Banner, Cal. Filed June 15, 1903. Serial No. 161,553. (No model.)



Claim.—1. A crusher and pulverizer consisting of a shell, the upper portion of which is cylindrical, the lower portion convergent, a crusher consisting of an upper cone divergent downwardly and a lower cone convergent downwardly, the bases of said cones being contiguous, a feed-chute connecting with the cylindrical portion of the shell at a point below the top thereof, a step and a spindle forming a journal for the lower cone, and a cap within which the upper end of the upper cone is turnable, and screws by which the step and cap are vertically adjustable.

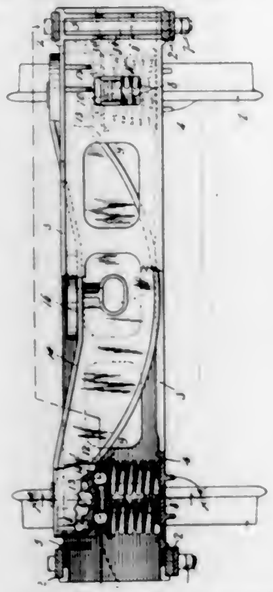
2. The combination in a crusher of a stationary shell comprising a cylindrical upper and a convergent lower portion, a crusher axially turnable within the shell consisting of an upper portion divergent downwardly and a lower portion convergent downwardly, the bases of the two parts being united, a spindle projecting from the lower cone and a step in which it is supported and turnable, a support having a bearing within which the upper end of the crusher projects, a cap and a screw by which said cap is movable within the bearing, said cap having a concaved socket in which the correspondingly-shaped head of the crusher is revolubie, a chute inclosing the spindle and adapted to receive the discharged material, and means protecting the step and preventing the entry of pulverized material.

3. The combination in a crushing and pulverizing apparatus of a double cone, the upper part divergent and the lower part convergent downwardly, an adjustable step and guide at the bottom and top respectively, means by which the cones are revoluble on their bearings, a fixed exterior shell, the upper portion being cylindrical and inclosing the divergent upper cone, the lower portion convergent and inclosing the lower convergent cone, a chute by which material to be crushed is delivered into the upper portion of the shell, a chute surrounding the step into which the pulverized material is delivered from the lower part of the crusher.

4. The combination in a crusher and pulverizer of the double revoluble cones with inclosing cylindro-conical stationary shell, and means for adjusting the cones within the shell to regulate the discharge at the lower end, a spindle and a step within which the spindle is supported, a chute inclosing the spindle adapted to receive the discharged material, and a protecting-cap carried by the spindle and projecting over the step to prevent the entry of the pulverized material.

5. The combination in a crushing and pulverizing apparatus, of a cone and shell, a revoluble inclined chute connecting the ore-bin and the upper part of the shell said chute having a supplemental discharge-opening at one side, and a chute into which the pulverized ore is delivered from the bottom of the apparatus.

752,946. CAR-TRUCK. JOHN C. BARBER, Chicago, Ill. Filed Apr. 27, 1903. Serial No. 154,444. (No model.)



Claim.—1. In a car-truck, the combination with side frames, of transoms connecting said side frames, said transoms being rigidly connected together and spaced apart from each other, springs supported by said transoms, spring-caps supported by said springs, and guided vertically by said transoms, and provided on their faces with concave roller-seats, rollers resting in said seats of said spring-caps, and a truck-bolster of less length than the distance between said side frames and provided with concave roller-seats resting on said rollers, substantially as described.

2. In a car-truck, the combination with side frames, of transoms connecting said side frames, said transoms being rigidly connected together and spaced apart from each other, at their ends, by upper and lower cross-ties, springs resting on the lower cross-ties, spring-caps supported by said springs, and guided by said transoms, with freedom for vertical movement and provided on their faces with concave roller-seats, rollers in said seats of said caps, a truck-bolster of less length than the distance between the side frames and provided, at its ends, with concave roller-seats resting on said rollers, one of said cross-ties being disposed so as to serve as end stops for said bolster, substantially as described.

3. In a car-truck, the combination with side frames, of the transoms 3 uniting said side frames, said transoms being connected by the lower tie-plates 4 inward of the said side frames, and by the upper tie-ribs 5, said transoms also being provided with vertical guide-slots 11 inward of the said side frames, the springs 8 resting on the lower tie-plates 4, the spring-caps 9 on said springs and provided with the concave roller-seats 12 and also having guide-lugs 10 which work in the slots 11 of said transoms, rollers 13 resting in said concave seats 12, and the bolster 14 of less length than the distance between the side frames and provided with the concave seats 15 resting on said rollers, the said upper tie-ribs 5 serving as end stops for said bolster, all for coöperation substantially as described.

752,947. PROCESS OF MAKING ORGANIC ACID COMPOUNDS. WILHELM BAUM, Ludwigshafen-on-the-Rhine, Germany, assignor to Badische Anilin und Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Baden. Filed Nov. 13, 1902. Serial No. 131,249. (No specimens.)

Claim.—1. The process of manufacturing organic acid compounds by acting on an organic acid with a salt of chlorsulfonic acid.

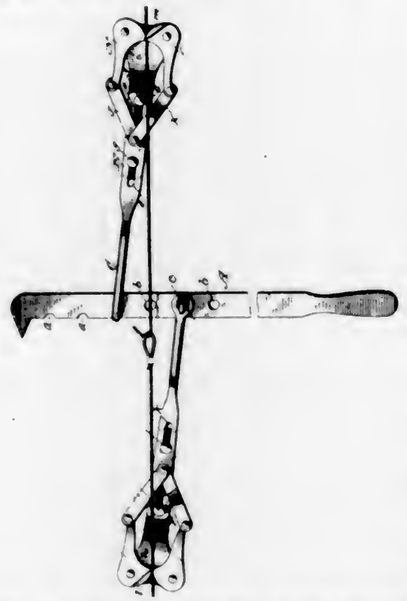
2. The process of manufacturing organic acid compounds by treating a salt of an organic acid with a salt of chlorsulfonic acid.

3. The process of manufacturing acid anhydrid by acting on acetic acid with a salt of chlorsulfonic acid.

4. The process of manufacturing acid anhydrids by acting on an acetate with a salt of chlorsulfonic acid.

5. The process of manufacturing acetic anhydrid by acting on an acetate with the sodium salt of chlorsulfonic acid.

752,948. WIRE-STRETCHER. SIDNEY BECKWORTH and HERMAN F. WULLSTEIN, Littlerock, Iowa. Filed Dec. 19, 1903. Serial No 185,858. (No model.)



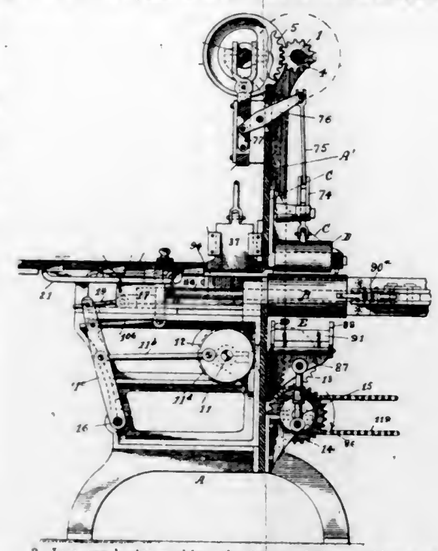
Claim.—1. A wire-stretcher comprising a suitable hand-lever, two clamping devices, each adjustably and removably connected to the lever and consisting of a shank and curved support, a bar having elongated slots adjustably connected to the shank, pivoted cam-jaws upon the support, one of which has a raised guide-flange, and toggle-links pivotally connected to the slotted bar and to the pivoted cam-jaws, substantially as and for the purpose set forth.

2. A wire-stretcher comprising a hand-lever having notches and perforations, a slotted bar having double arms with eyes at their ends to embrace the lever and a set-screw engaging the eyes and the perforations in the lever, a slotted bar terminating in a yoke to engage the notches in the lever, the bar and the yoke carrying each a shank having a curved support, cam-jaws pivoted thereto, toggle-links connecting the slotted bar with the jaws, one of the jaws having a raised guide-flange, substantially as and for the purpose specified.

752,949. CAN-BODY MACHINE. JOSEPH BLACK and FRANK J. SMITH, San Francisco, Cal. Filed May 1, 1902. Serial No. 105,547 (No model.)

Claim.—1. In a can-body machine, carriers for feeding blanks and carriers for feeding can-bodies, the said last-named carriers having a shorter stroke than the blank-feeding carriers, and means for accomplishing the differential strokes of said carriers.

2. In a can-body machine, the frame of the machine, a reciprocating slide guided in said frame, a series of blank-feeding carriers connected to said slide, a second slide guided in said frame, a series of can-body-feeding carriers connected to said second slide, an oscillating arm having independent connections to said slides, the connection to said second slide being set relatively near the fulcrum of said arm; whereby said series of carriers derive differential strokes.



3. In a can-body machine, the frame of the machine, a reciprocating recessed slide guided in said frame, a series of blank-feeding carriers connected to said slide, a second slide guided in said frame, a series of can-body-feeding carriers connected to said second slide, an oscillating arm having independent connections to said slides; whereby they derive a differential stroke, the recess in the first slide acting as a clearance for the second slide.

4. In a can-body machine, the main frame having a feed-table for blanks, a slide guided in said main frame, carriers connected to said slide by which the body-blanks are delivered to the edge-bending mechanism and to the horn, a horn having a longitudinal groove at the top, and a push-bar pivoted in said slide and working in said longitudinal groove for removing the can-body from said horn.

5. In a can-body machine, the combination with the horn having a longitudinal upper groove, of a pivoted push-bar working in said groove and having a head provided with a rear incline; whereby said bar is permitted to yield and pass back through a can-body on the horn, and afterward to bear against the edge of said can-body, and push it from the horn.

6. In a hook-forming mechanism of a can-body machine, an anvil for supporting one edge of the body-blank, a vertical slide above said anvil, a presser-foot hinged to said slide, and provided with a spring which tends to hold it in line with said slide, and opposing inclines for positively throwing said presser-foot out of line as it rises over said anvil.

7. In hook-bending mechanism, rigid anvils for supporting body-blanks during the bending operation, presser-feet adapted to clamp said body-blanks upon said anvils, means for operating said presser-feet, and connections which include relieving-springs, between said presser-feet and said operating means, substantially as and for the purpose set forth.

8. In a can-body machine, the slotted upward extension A' of the main frame, in combination with a shaft having two series of cams for operating the hook-forming mechanism, a cam on said shaft intermediate between said series, a horn, hinged folding wings above the horn, and connections extending through said extension for operating the folding wings from said intermediate cam.

9. In a can-body machine, a vertical standard of the main frame, a shaft journaled therein, a cam centrally located on said shaft, a vertical slide on the same side of the said standard as said cam and connected to said cam, an oscillating lever linked to said slide and projecting back through a slot in the main frame, a horn, folding wings above the horn, and connections between said oscillating lever and said folding wings.

10. In a can-body machine, the combination with the horn, and with folding wings hinged together above the same, of a block or clamp beneath the folding wings and adapted to clamp a blank upon the horn at the top, and a leaf-spring bearing upon the upper surface of said block at its ends for forcing said block downwardly with an equalized pressure.

11. In a can-body machine, the combination with the horn, and with folding wings hinged together above the same, of a block or clamp beneath the folding wings and adapted to clamp a blank upon the horn at the top, a spring for forcing said block downwardly, and a cam on a folding wing for increasing the pressure of the spring.

12. In a can-body machine, the combination with the horn and with folding wings hinged together above the same, of a block or clamp located beneath the folding wings, and recessed so as to provide two contact-surfaces, and means for forcing said block or clamp toward the horn; whereby the blank upon the horn is clamped on both sides of its central longitudinal line.

13. In a can-body machine, the combination with a horn having a longitudinal groove in its upper surface, and a push-bar operating in said groove, of a clamping-block grooved so as to provide two separate contact-surfaces, and so as also to permit the passage of said push-bar, and means for forcing said block toward the horn.

14. In a can-body machine, the combination with the horn and with folding wings for bending blanks around said horn, of a vertically-movable slide and a clenching-hammer pivoted to said slide and provided with means for drawing the blank in toward the horn by a sidewise movement.

15. In a can-body machine, the combination with the horn and the folding wings, of a pivoted clenching-hammer normally out of line with the vertical slide to which it is connected, and means carried by the horn which, upon contact with said hammer, cause it to move into line with its slide, and thereby draw the sheet in toward the horn.

16. In a can-body machine, the combination with the horn, provided with the recesses 69, of a vertical slide, a clenching-hammer pivoted thereto, and having beveled projections adapted to enter said recesses, and thereby bring the hammer into line with said slide, substantially as and for the purpose set forth.

17. In a can-body machine, the combination with the horn and with the folding wings, of a pivoted clenching-hammer, a yielding block carried thereby, and against which one edge of the body-blank bears previous to compression, and means carried by the horn for forcing said hammer and block sidewise so as to draw the blank in toward the horn.

18. In a can-body machine, the combination with the horn and with the seam-closing mechanism, of a pivoted and spring-pressed thrust-block bearing on the horn opposite the seam-closing mechanism, and adapted to yield to permit the passage of can-bodies along the horn after the seam-closing operation.

19. In a can-body machine, a guide-frame, a soldering mechanism located beneath said frame and comprising a series of inclined idle rollers, revolved by contact with the moving can-body in the same direction and means for supplying solder thereto, and a single seam-guide within said frame against which the seam is held by said rollers.

20. In a can-body machine, a soldering device comprising a solder-trough, oblique idle rollers journaled therein, and revolved by contact with moving can-bodies in the same direction and means for causing can-bodies to pass in contact with said rollers.

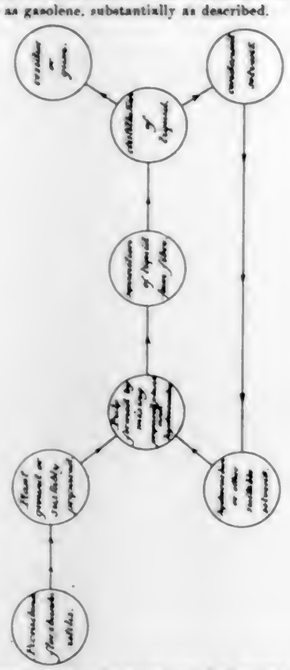
752,950. PELT-STRETCHER. FRANCIS M. BOWMAN, Colfax, Wash. Filed Nov. 20, 1903. Serial No. 181,958. (No model.)



Claim.—In a pelt-stretcher, in combination, a spring-bow having notched ends, a cross-piece having a series of holes through which the ends of the bow extend, and hooks around the edge of the cross-piece.

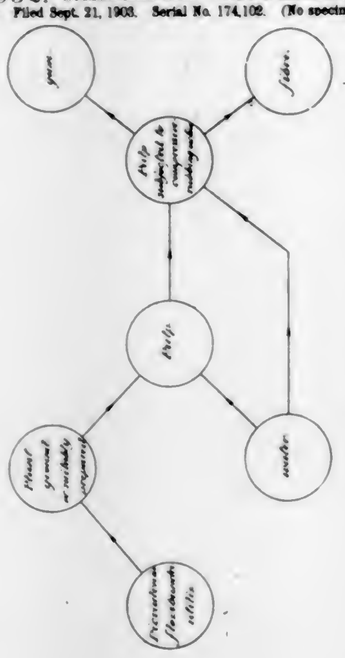
752,951. RUBBER-LIKE GUM. MYRON O. BROWNELL, Denver, Colo. Filed Sept. 9, 1903. Serial No. 172,455. (No specimens.)

Claim.—1. As a new article of manufacture, a plastic, rubber-like body, consisting essentially of the gummy particles contained in the plant *Picradenia floribunda utilis*, separated and agglomerated into a coherent mass, insoluble in water but soluble in light hydrocarbons such as gasolene, substantially as described.



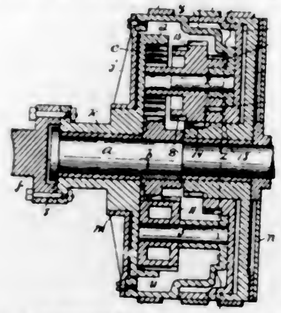
2. A new manufacture or composition of matter, consisting of a rubber-like and waterproof gum, said gum comprising the agglomerated gummy portions of the plant *Picradenia floribunda utilis* and the residual portions of a volatile hydrocarbon solvent, substantially as described.

752,952. RUBBER-LIKE GUM. MYRON O. BROWNELL, Denver, Colo. Filed Sept. 21, 1903. Serial No. 174,102. (No specimens.)



Claim.—As a new article of manufacture, a plastic rubber-like body, consisting essentially of the pure or unadulterated gummy particles contained in the plant *Picradenia floribunda utilis*, separated and agglomerated into a coherent mass, insoluble in water but soluble in light hydrocarbons, such as gasolene, substantially as described.

752,953. TRANSMISSION-GEAR. ALANSON P. BRUSH, Detroit, Mich. Filed Oct. 17, 1902. Serial No. 126,880. (No model.)



Claim.—1. A transmission device comprising a driving-shaft, a single driving-gear thereupon, a single internal gear, a power-transmission member rigidly connected with the single internal gear, actuating mechanism to secure a reverse motion of the transmission member to that of the driving-shaft, and to secure plural speeds ahead of the transmission member, said reversing motion and said plural speeds ahead secured by the use of the said single driving-gear and the said single internal gear.

2. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member provided with a single internal gear, actuating mechanism comprising reversing mechanism embodying pinions meshing with the internal gear on the transmission member to secure a reverse motion, additional pinions meshing with the reversing-pinions to secure a low speed ahead, and means to prevent the rotation of said pinions upon their axes, the reversing mechanism embodying a member upon which the reversing-pinions and low-speed pinions are journaled.

3. In a transmission device, a driving-shaft, a driving-gear thereupon, a power-transmission member, reversing mechanism embodying pinions to secure a reverse motion of the power-transmisson member, additional mechanism in combination with said reversing mechanism to secure plural speeds ahead of the power-transmission member embodying additional pinions, means to prevent the rotation of all the said pinions, the reversing mechanism embodying a member upon which all of said pinions are journaled, and a cover for said member forming in connection with said member an oil-case.

4. In a transmission device a driving-shaft, a single driving-gear thereupon, a power-transmission member, reversing mechanism embodying pinions to secure a reverse motion of the power-transmission member, additional mechanism in combination with said reversing mechanism embodying additional pinions to secure plural speeds ahead of the power-transmission member, means to prevent the rotation of all of said pinions, said reversing mechanism embodying a member upon which all of said pinions are journaled, and a cover for said member forming in connection with said member an oil-case in which all of the gears are revoluble.

5. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member provided with a single internal gear, reversing mechanism embodying pinions to secure a reverse motion of the power-transmission member, additional mechanism in combination with said reversing mechanism embodying additional pinions to secure plural speeds ahead of the power-transmission member, and means to prevent the rotation of all of said pinions, said reversing mechanism embodying a member upon which all of said pinions are journaled, the reverse motion and the speeds ahead of the power-transmission member being secured through said internal gear.

6. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member provided with a single internal gear, reversing mechanism embodying pinions to secure a reverse motion of the transmission member, additional mechanism in combination with said reversing mechanism embodying additiona pinions to secure plural speeds ahead of the power-transmissior member, means to prevent the rotation of said pinions, and said reversing mechanism embodying a member upon which all of said pinions are journaled, the reversing motion and the speeds ahead being secured through said single internal gear.

7. A transmission device comprising a driving-shaft turning continuously in the same direction, a single internal gear, a power-transmission member rigidly connected with the single internal gear, reversing mechanism embodying gears meshing with the internal gear of the transmission member, additional mechanism in combination with said reversing mechanism to secure plural speeds ahead, said plural speeds ahead and the reverse motion secured by said single internal gear.

8. In a speed varying and reversing apparatus, a driving-shaft, a single driving gear thereupon, a power-transmission member loosely mounted upon said shaft, a single internal gear, said gear rigidly attached to the transmission member, reversing mechanism to reverse the transmission member embodying reversing-pinions, and additional mechanism cooperating with a part of said reversing mechanism and with said single internal gear to produce a plurality of speeds ahead, said plural speeds ahead and a reverse motion secured through said single internal gear.

9. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft and provided with a single internal gear, reversing mechanism embodying reversing-pinions to secure a reverse motion of the power-transmission member, additional mechanism in combination with said reversing mechanism to secure plural speeds ahead of the power-transmission member embodying additional pinions meshing with the reversing-pinions, the reversing mechanism embodying a member carrying all of said pinions, said additional mechanism embodying a low-speed member having a pinion meshing with the low-speed pinions, and a friction device to engage said low-speed member, the shafts of the said pinions engaged upon one side of the reversing member.

10. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft and provided with a single internal gear, reversing mechanism embodying pinions meshing with said internal gear, additional mechanism in combination with a part of said reversing mechanism to secure a low speed ahead embodying pinions meshing with the reversing-pinions, the reversing mechanism embodying a member carrying all of said pinions, the low-speed mechanism embodying a member having a pinion meshing with the low-speed pinions, and a cover for said reversing member and forming therewith an oil-case.

11. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft and provided with a single internal gear, mechanism embodying reversing-pinions meshing with said internal gear, additional mechanism embodying low-speed pinions meshing with the reversing-pinions, the first-named mechanism comprising a member carrying all of the said pinions, said low-speed mechanism embodying a member having a pinion meshing with the low-speed pinions, said last-named member having a peripheral flange and an inwardly-extended toothed hub.

12. In a transmission device a driving-shaft, a driving-gear thereupon, a power-transmission member loosely mounted upon said shaft, reversing mechanism to secure a reverse motion of the power-transmission member to that of the driving-shaft, and additional mechanism in combination with a part of said reversing mechanism to secure plural speeds ahead in the direction of the driving-shaft, the additional mechanism comprising a low-speed member mounted upon said shaft, the reversing mechanism comprising a member mounted upon the hub of the low-speed member and means to prevent the rotation of said members.

13. A transmission device of the type described comprising a driving-shaft, a power-transmission member, reversing mechanism embodying a reversing member, additional mechanism in combination with said reversing mechanism to secure plural speeds ahead, and a cover for the reversing member journaled upon the hub of the power-transmission member.

14. A transmission device of the class described having a driving-shaft, a power-transmission member, reversing mechanism embodying a reversing member open at one side thereof, additional mechanism in combination with said reversing mechanism to secure plural speeds ahead, and a cover closing one side of the reversing member, and forming in connection therewith an oil-case.

15. In a transmission device, a driving-shaft provided with a single driving-gear, a power-transmission member loosely mounted upon said shaft and provided with a single internal gear, reversing mechanism embodying pinions meshing with said internal gear, ad-

ditional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with the reversing-pinions, a low-speed member having a pinion meshing with the low speed pinions, and a friction device to engage with said low-speed member, the reversing mechanism embodying a member carrying all of said pinions, and a cover for said reversing member and forming therewith an oil-case, said oil-case inclosing all the gears embodied in said mechanism.

16. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member provided with a single internal gear, reversing mechanism embodying pinions meshing with said internal gear and with the driving-gear, additional mechanism in combination with a part of said reversing mechanism embodying a member having a gear thereupon, and low-speed pinions meshing with the reversing-pinions and with the gear of the low-speed member, said reversing-pinions being of greater width than the width of the toothed portion of the driving-gear.

17. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member mounted upon said shaft and provided with a single internal gear, reversing mechanism embodying pinions meshing with the said internal gear, additional mechanism in combination with a part of the said reversing mechanism embodying additional pinions meshing with the reversing-pinions, and a low-speed member provided with a pinion meshing with the low-speed pinions, the reversing mechanism embodying a member carrying all of said pinions, and a friction device to engage with said low-speed member, the low-speed member having a peripheral flange and an inwardly-extended toothed hub, the reversing-pinions being of greater width than the toothed portion of the driving-gear, one end of the low-speed pinions meshing with the gear upon the inner end of the hub of the low-speed member.

18. A transmission device comprising a driving-shaft, a single driving-gear thereupon, a power-transmission member, a single internal gear rigidly connected with the power-transmission member, reversing mechanism to secure a reverse motion of the power-transmission member, additional mechanism cooperating with a part of said reversing mechanism to secure plural speeds ahead of the power-transmission member, said reverse motion and said plural speeds ahead secured from said single driving-gear and from said single internal gear, said additional mechanism embodying a low-speed member revoluble with the driving-shaft at the will of the operator, and means to cause the low-speed member to revolve with the shaft and at the same speed as that of the shaft.

19. In a speed varying and reversing apparatus a transmission device comprising a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft, a single internal gear, said gear rigidly attached to the transmission member, and actuating mechanism to secure a reverse motion of the power-transmission member, and to secure plural speeds ahead of said member, said reverse motion and said plural speeds ahead both secured by the use of the single driving-gear and the said single internal gear, said mechanism comprising reversing-pinions meshing with said internal gear, and means to prevent the rotation of said pinions.

20. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member mounted upon the shaft and provided with a single internal gear, reversing mechanism embodying reversing-pinions meshing with said internal gear, additional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with said reversing-pinions, and a low-speed member provided with a pinion meshing with the low-speed pinions, the reversing mechanism embodying a member carrying all of said pinions, and a friction device to engage with said low-speed member, said pinion meshing on opposite sides with the reversing-pinions.

21. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member mounted upon said shaft and provided with a single internal gear, reversing mechanism embodying pinions meshing with the internal gear, additional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with the reversing-pinions, and a low-speed member provided with a pinion meshing with the low-speed pinions, the reversing mechanism embodying a member carrying all of said pinions, and a friction device to engage with said low-speed member rotatable with the driving-shaft and carrying all the rest of the mechanism therewith.

22. In a speed varying and reversing apparatus, a driving-shaft, a single driving-gear thereupon, a power-transmission member mounted upon said shaft, a single internal gear, said gear rigidly attached to the transmission member, reversing mechanism embodying pinions meshing with said internal gear, additional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with the reversing-pinions, a member of the reversing mechanism revoluble about the shaft and carrying all of said pinions a member of the additional mechanism having a pinion meshing with said additional pinions, and means to prevent the said member of the reversing mechanism from rotating, the varying speeds ahead and the reverse motion secured through said single internal gear.

23. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft provided with a single internal gear, reversing-pinions meshing with said internal gear, and with the driving-gear, low-speed pinions meshing with the reversing-pinions, a reversing member carrying all of said pinions, a brake for the reversing member, a low-speed member, embodying a gear meshing with the low-speed pinions, and means to hold the low-speed member from rotation, whereby motion is imparted to the reversing member in the same direction as that of the driving-shaft.

24. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft, provided with a single internal gear, reversing mechanism embodying pinions meshing with said internal gear and with the driving-gear, additional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with the reversing-pinions, and plural low-speed members each having pinions meshing with the low-speed pinions, the reversing mechanism comprising a member carrying all of said pinions, said low-speed pinions being of different diameters at their extremities.

25. In a transmission device, a driving-shaft, a single driving-gear thereupon, a power-transmission member loosely mounted upon said shaft provided with a single internal gear, reversing mechanism embodying pinions meshing with said internal gear and with the driving-gear, additional mechanism in combination with a part of said reversing mechanism embodying additional pinions meshing with the reversing-pinions, and plural low-speed members each having pinions meshing with the low-speed pinions, the reversing mechanism embodying a member carrying all of said pinions, said low-speed pinions being of different diameters at their extremities, the pinions of said low-speed members being of different sizes and having their ends meshing with the low-speed pinions.

26. In a transmission device, a driving-shaft, a driving-gear thereupon, a power-transmission member, a single internal gear rigidly secured to the transmission member, mechanism to secure a reverse motion of the power-transmission member, additional mechanism cooperating with a part of the reversing mechanism to secure plural speeds ahead of the transmission member, said additional mechanism embodying a low-speed member, a friction-plate, toothed disks having interlocking wedge-shaped teeth on their adjacent faces, and means to rotate said disks to force the friction-plate upon the low-speed member.

27. In a transmission device, a driving-shaft provided with a driving-gear, a transmission member, a single internal gear which is rigidly attached to the transmission member, mechanism for obtaining plural speeds ahead, and a reverse motion of the transmission member, said plural speeds ahead and the reverse motion both secured through said single internal gear.

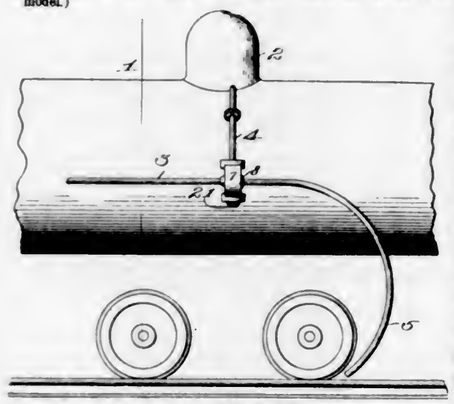
28. In a speed varying and reversing apparatus, a driving-shaft provided with a driving-gear, a transmission member, a single internal gear, said gear rigidly attached to the transmission member, mechanism for obtaining plural speeds ahead and a reverse motion of the driving-shaft, said plural speeds ahead and the reverse motion both secured through said single internal gear and through said driving-gear upon the driving-shaft.

29. A variable speed and reversing mechanism comprising a driving-shaft, a single driving-gear rigidly mounted thereupon, a power-transmission member comprising an internal gear and a power-transmitting device, said transmission member revoluble upon and revoluble with the driving-shaft, a gear loosely mounted upon the driving-shaft, a gear-case containing all of said gears, a cover for said case forming in connection therewith an oil-case, reversing mechanism embodying reversing-pinions within the gear-case meshing with the internal gear and with the driving-gear and journaled upon the gear-case, additional pinions within the gear-case and journaled thereupon meshing with the reversing-pinions, and with said loosely-mounted gear, a friction-drum outside the gear-case rigidly engaged with the loosely-mounted gear, said case journaled upon said drum, and said cover journaled upon the transmission member, a friction device revoluble with the driving-shaft to engage said drum, an additional friction device to engage said drum, and an additional friction device to engage the gear-case.

30. A variable speed and reversing mechanism comprising a driving-shaft, a single driving-gear rigidly mounted thereupon, a power-transmission member comprising an internal gear and a power-transmission device, said transmission member revoluble upon and revoluble with the driving-shaft, a plurality of gears loosely mounted upon the driving-shaft, a gear-case containing all of said gears, a cover for said case forming in connection therewith an oil-case, reversing mechanism embodying reversing-pinions within the gear-case meshing with the internal gear and with the driving-gear and journaled upon the gear-case, additional pinions within the gear-case and journaled thereupon meshing with the reversing-pinions and with said loosely-mounted gears, a plurality of friction-drums outside the gear-case rigidly engaged with the corresponding loosely-mounted gears, a friction device revolving with the driving-shaft to engage the adjacent drum, additional friction devices to engage each of said drums respectively, and an additional friction device to engage the gear-case.

31. In a speed varying and reversing device the combination of a driving-shaft and a single driving-gear thereupon, a transmission member, a single internal gear, said gear rigidly attached to the transmission member, and additional mechanism to give the transmission member more than two speeds in the same direction with the driving-shaft, and to give a single speed in the opposite direction, the plural speeds ahead and the reverse motion secured through said internal gear.

752,954. PNEUMATIC SANDER. IRA P. CARNES, Lima, Ohio, assignor to Lima Locomotive and Machine Company, Lima, Ohio, a Corporation of Ohio. Filed Nov. 12, 1903. Serial No. 180,946. (No model.)



Claim.—1. A sander comprising a casing having an integral nozzle and air-chamber, the wall of which is formed with duplex openings, one of which forms an air-inlet, and a plug extending through the other of the openings for establishing communication between the air-chamber and the nozzle and to permit of access to the nozzle.

2. A sander comprising a casing provided with an enlargement, one wall of said enlargement having a discharge-opening and the other wall an integral nozzle.

3. A sander comprising a casing provided with an enlargement, one wall of said enlargement having a discharge-opening and the other wall an integral nozzle, pipe connections for supplying air, sand and for discharging sand from said casing, and means adapted to permit of access to the nozzle without removing said pipe connections.

4. A sander comprising a casing provided with a discharge-opening and an integral nozzle opposite said discharge-opening, said casing further provided with duplex openings, one of which forms an inlet for air, and a removable plug arranged in the other of said openings and adapted to permit of access to the nozzle.

5. A sander comprising a casing provided with an offset having an integral nozzle and a discharge-opening, an extension connected with the offset and forming an air-chamber, said extension provided with duplex openings, one of which forms an inlet for the air-chamber, a removable plug for closing the other of said openings and adapted to permit of access to the nozzle for cleaning it, and supply and discharge pipe connections suitably connected to said extension, offset and casing.

6. A sander comprising a casing provided with an offset having an integral nozzle and a discharge-opening opposite the nozzle, an extension connected with the offset and forming an air-chamber, said extension provided with duplex openings, one of which is arranged opposite the nozzle and the other of which forms an air-inlet for the air-chamber, a removable plug for closing the opening opposite the nozzle and adapted to permit of access to the nozzle for cleaning it, and supply and discharge pipe connections suitably connected with said extension, offset and casing.

7. A sander comprising a casing provided with an offset having an integral nozzle and a discharge-opening, an extension connected with the offset and forming an air-chamber, said extension provided with duplex openings, one of which forms an inlet for the air-chamber, and a removable plug for closing the other of said openings and adapted to permit of access to the nozzle for cleaning it.

8. A sander comprising a casing provided with an offset having an integral nozzle and a discharge-opening opposite the nozzle, an extension connected with the offset and forming an air-chamber, said extension provided with duplex openings, one of which is arranged opposite the nozzle and the other of which forms an inlet for the air-chamber, and a removable plug for closing the opening opposite the nozzle and adapted to permit of access to the nozzle for cleaning it.

9. A sander comprising a casing open at both ends, a plug for closing one end of said casing, a supply-pipe connected to the other end of said casing, said casing further provided with a discharge-opening, a discharge-pipe connected to said opening, a nozzle arranged in said casing, an extension integral with the casing and forming an air-chamber, said extension provided with duplex openings, one of which forms an air-inlet, a supply-pipe connected to said inlet-opening, and a removable plug for closing the other of said openings, and adapted to permit of access to the nozzle for cleaning it.

10. A sander comprising a casing open at both ends and provided with a discharge-opening, a plug for closing one end of said casing, a nozzle arranged in said casing, an extension integral with the casing and forming an air-chamber, said extension provided with duplex openings, one of which forms the air-inlet for said chamber, and a removable plug for closing the other of said openings and adapted to permit of access to the nozzle for cleaning it.

11. A sander comprising an integral body open at both ends and provided with an integral nozzle, a discharge-opening, an air-inlet opening, a removable plug which when removed will permit of access to the nozzle for cleaning it, and a plug for closing one of its ends.

12. A sander comprising a casing open at both ends, a plug for closing one end of said casing, said casing further provided with a discharge-opening, a nozzle integral with the casing and arranged opposite said discharge-opening, an extension integral with the casing and forming an air-chamber, said extension provided with duplex openings, one of which forms an air-inlet for said chamber and the other of which is arranged opposite the nozzle, and a removable plug for closing the other of said openings and adapted when removed to permit of access to the nozzle for cleaning it.

13. A sander comprising a casing provided with a discharge-opening and an integral nozzle arranged opposite said opening, and means adapted to permit of access to the nozzle for cleaning it.

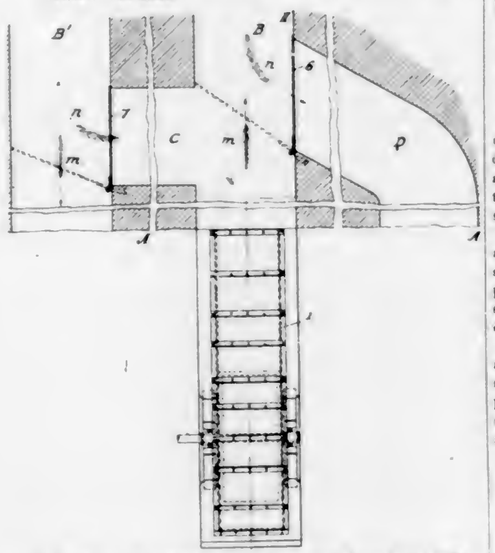
14. A sander comprising a casing provided with an integral nozzle and a discharge-opening, an extension integral with said casing and forming an air-chamber, said extension provided with a pair of openings, one of which forms an air-inlet for said chamber and the other of which is arranged opposite said nozzle, and a removable plug extending through said opening opposite the nozzle and engaging said casing at the back of the nozzle, said plug provided with a passage registering with the port of the nozzle and opening into the air-chamber for establishing communication between the air-chamber and the nozzle, said plug when removed adapted to permit of access to the nozzle so as to clean the same.

15. A sander comprising a casing provided with an offset, one wall of which is formed with a discharge-opening and the other wall of which has integral therewith a nozzle arranged opposite the opening in the other wall, an extension formed integral with one wall of said offset and forming an air-chamber, said extension provided with a pair of openings, one of which forms an air-inlet for said chamber and the other of which is arranged opposite said nozzle, and a removable plug extending through said opening opposite the nozzle and engaging one wall of said offset at the back of said nozzle, said plug provided with a passage registering with the port of the nozzle and opening into the air-chamber for establishing communication between the air-chamber and the nozzle, said plug when removed adapted to permit of access to the nozzle.

16. A sander comprising a nozzle open at both ends, said casing provided with an integral nozzle and a discharge-opening opposite said nozzle, a plug for closing one end of the casing, an air-supply pipe communicating with one end of said casing, a discharge-pipe connected to said discharge-opening, an air-supply pipe communicating with said casing, and means connected with the casing and adapted when removed to permit of access to the nozzle without disconnecting the said pipes.

17. A sander comprising a nozzle open at both ends, said casing provided with an integral nozzle and a discharge-opening, a plug for closing one end of the casing, an air-supply pipe communicating with one end of said casing, a discharge-pipe connected to said discharge-opening, an air-supply pipe communicating with said casing, and means connected with the casing and adapted when removed to permit of access to the nozzle without disconnecting the said pipes.

752,955. MINE-VENTILATION SYSTEM AND APPARATUS. WILLIAM CLIFFORD, Jeannette, Pa. Filed June 3, 1903. Serial No. 160,597. (No model.)



Claim.—1. In a mine having a plurality of entries, a drift or drifts connecting the entries, and a drift connecting one of the entries with the open air, the combination of a fan adapted to impel a current of air through the mine, and movable doors placed at the points of communication between the entries and drifts, adapted when in one position to allow the current to circulate through the mine in one direction and when in another position to allow the current to circulate in another direction and out through the drift to the open air, substantially as described.

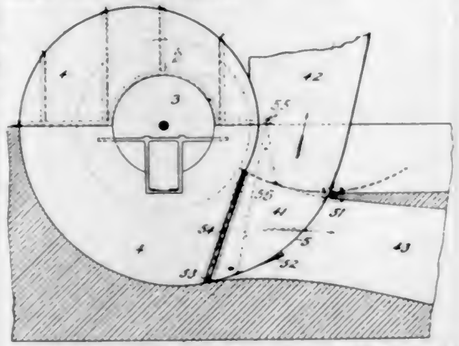
2. In a mine having two entries, a drift connecting the entries and a drift or by-pass from one entry to the open air, the combination of a fan adapted to impel a current of air through the mine, and two swinging doors, one of said doors within its range of movement obstructing one entry and one drift, and the other door within its range of movement obstructing the other entry and the other drift, substantially as described.

3. In a mine having a plurality of entries, a drift or by-pass connecting one of the said entries with the open air, in combination with a fan, means for connecting the fan to either of the said entries, and a door controlling the flow of air through the drift or by-pass, substantially as described.

752,956. VENTILATING-FAN STRUCTURE. WILLIAM CLIFFORD, Jeannette, Pa. Filed June 3, 1903. Serial No. 160,599. (No model.)

Claim.—1. In a centrifugal-fan construction, a delivery-chamber, a chimney-passage, and a blowing-passage, in combination with a door adapted to control said passages, and a support for said door, the said door being movable laterally and longitudinally on its support, substantially as described.

2. In a centrifugal-fan construction, a delivery-chamber, a chimney-passage, and a blowing-passage, in combination with a swinging and sliding door having a curvature whereby when in position across the blowing-passage it forms a continuation of the spiral wall of the chimney-passage and when in position across the chimney-passage it forms part of the constricted gullet in the blowing-passage, substantially as described.

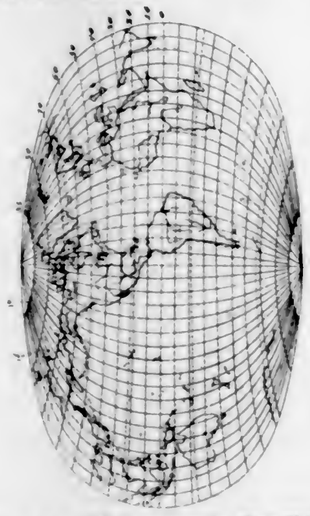


3. In a centrifugal-fan construction having a delivery-chamber, a chimney-passage, and a blowing-passage, the combination of a door adapted to control said passages, a support for said door, and a shield formed upon said door adapted when the door is in position to close the chimney-passage to stand in operative relation to the support, substantially as described.

4. In a centrifugal-fan construction having a delivery-chamber, a chimney-passage, and a blowing-passage, the combination of a swinging and sliding door adapted to control said passages, a support for said door upon which said door is adapted to swing and slide, and means for swinging and sliding said door to its several operative positions, substantially as described.

5. In a centrifugal-fan construction having a delivery-chamber, a chimney-passage, and a blowing-passage, the combination of a swinging and sliding door adapted to control said passages, a support for said door upon which the said door is adapted to swing and slide, and guides adapted to control the movement of the door, substantially as described.

752,957. MAP. JULES A. COLAS, Chicago, Ill., assignor to Poole Brothers, Chicago, Ill., a Corporation of Illinois. Filed Feb. 24, 1902. Serial No. 95,355. (No model.)



Claim.—1. A map of the earth having the outline of an oval and provided with an equatorial line dividing said oval longitudinally, a central meridian perpendicular to the equator, a series of other meridians intersecting the equator at regular and uniform intervals apart and curved to converge to the poles, a series of parallels which throughout the greater part of the distance north and south of the equator are spaced to intersect the central meridian at uniform intervals, the total length of the central meridian being substantially greater than one-half the length of the equator-line.

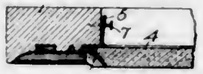
2. A map of the earth having the outline of an oval and provided with a straight equatorial line dividing said oval longitudinally, a central meridian perpendicular to the equator, a series of other meridians intersecting the equator at regular and uniform intervals apart and curved to converge to the poles, a series of parallels which throughout the greater part of the distance north and south of the equator are spaced to intersect the central meridian at intervals uniform with the spacing apart of the meridians at the equator, the total length of the central meridian being substantially greater than one-half the length of the equator-line.

3. A map of the earth having the form of an oval provided with a straight equatorial line dividing said oval longitudinally and equally, a central meridian perpendicular to the equator and of a length substantially greater than one-half the length of the equatorial line, a series of parallels north and south of the equator, a series of meridians east and west of the central meridian intersecting the equator at regular and uniform intervals apart and dividing the equator into three hundred and sixty degrees, said meridians being curved to converge to the poles and to intersect all of the parallels so as to divide each of the latter into an equal number of spaces of a uniform length, said parallels from the equator north and south to points approximately seventy degrees therefrom being spaced apart at uniform distances on the central meridian and distances equal to the spacing apart of the meridians at the equator substantially as described.

4. A map of the globe, having the outline of an oval, whose ends are arcs of equal circles, its equatorial line of a length equal to twice the diameter of said circles and arranged to equally divide said oval longitudinally, its longer sides formed by arcs of circles of a radius to intersect right-line continuations of the equator-line at points outside of and distant from the ends of the oval one-fourth the length of the equator and tangent to said circles, its meridians arranged to divide said equator into equal parts of three hundred and sixty degrees and its central one perpendicular to the equator, and its north and south seventy-degree parallels arranged to intersect said central meridians at points seven thirty-sixths ($\frac{7}{36}$) of the length of the equator-line respectively north and south of the latter and to intersect the outline of the oval at the points where the arcs thereof of different curvature merge.

5. A map of a globe consisting of a plane oval figure whose longer axis represents the equator and is intersected by a series of meridians spaced at uniform intervals apart and which spaces aggregate three hundred and sixty degrees, a meridian arranged perpendicularly to the equator and intersecting the latter centrally of its length, a series of parallels of latitude laid off upon said central meridian, the seventieth-degree parallels of which are located a distance from the equator equal to seven thirty-sixths ($\frac{7}{36}$) of the length of the latter, north and south poles located at points where the central meridian intersects the boundary of the map, said north and south poles being located at a distance from the equator approximately ten thirty-sixths of the length of the equator, for the purposes set forth.

752,958. SUPPORT FOR MIRRORS. JOHN M. CONROY, Allegheny, Pa. Filed Sept. 16, 1903. Serial No. 173,404. (No model.)



Claim.—1. The combination with a mirror and a frame therefor, of resilient clips engaging opposite edges of the mirror and the frame, each clip consisting of a body portion engaging the back of the mirror, a lug extending forward from the body portion and engaging the edge of the mirror and a lug extending backward from the body portion and engaging the frame, substantially as described.

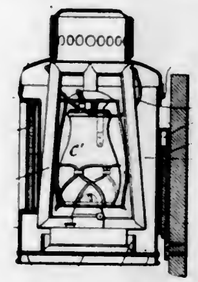
2. The combination with a mirror having a beveled edge and a frame therefor, of resilient clips, each clip consisting of a body portion, a lug extending rearward from the body portion, and a lug extending forward from the body portion at an angle normally more acute than the angle of the bevel of the mirror's edge, substantially as described.

3. The combination with a mirror and a frame therefor, of a resilient clip consisting of a body portion, a lug extending forward from the body portion and contacting with the edge of the mirror, and a lug extending rearward from the body portion adjacent to the inner edge of the frame and normally diverging therefrom, together with means for securing the rearward-extending lug to the frame, substantially as described.

4. The combination with a mirror having a chipped bevel edge and a frame therefor, of resilient clips, each clip consisting of a body portion, a lug extending rearward from the body portion and adapted to engage the frame, and a plurality of lugs extending forward from the body portion and adapted to engage the mirror's edge substantially as described.

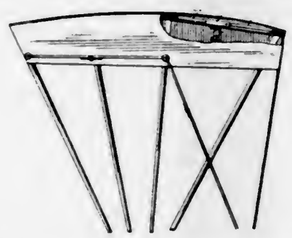
5. The combination with a mirror, a frame, and resilient clips engaging opposite edges of the mirror and the frame, each of the said clips having a body portion engaging the back of the mirror, a forward-extending lug engaging the mirror's edge, and a backward-extending lug engaging the frame; and the said frame provided with recesses which the rearward-extending lugs of the clips engage, substantially as described.

752,959. SIDE LIGHT FOR VESSELS. JOHN J. CURRIER, Gloucester, Mass. Filed Feb. 24, 1903. Serial No. 144,664. (No model.)



Claim.—A side light for vessels comprising an open front casing having a cover and a bottom provided on its upper face with a socket adapted to receive the reservoir of a lantern, a transparent sheet mounted in the open front of the casing, a spring-clip secured to the inner face of the rear wall of the casing and adapted to receive the bail of the lantern for securing the latter in position, a rearwardly-extending bearing attached to the rear wall of the casing, and a member secured within said bearing and forming in connection therewith a socket open at its lower end, said socket adapted to receive a suitable means for supporting the casing in position.

752,960. TOP-JOINT FOR BUGGIES. HERBERT J. DOUGLAS, Elkhart, Ind. Filed Oct. 13, 1903. Serial No. 176,908. (No model.)

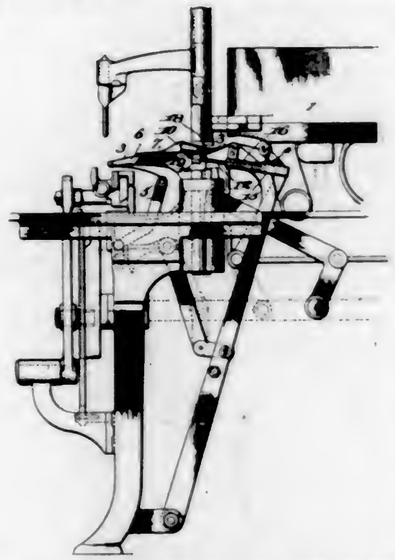


Claim.—1. A top-joint for buggies consisting of arms pivoted at one end to the top-bows and at the other end to a connecting member, said joint being secured to the horizontal portion at the upper extremity of the bows and inside of the webbing and padding of said top, substantially as described.

2. A top-joint for buggies consisting of arms pivoted at one end to a connecting member and at the other end to the horizontal portion at the upper extremity of the top-bows, substantially as described.

3. In a top-joint for buggies, the combination with a joint box or sleeve, of arms having one end pivoted therein, said arms being secured at the other end to the horizontal portion at the upper extremity of the top-bows substantially as described.

752,961. **BINDER OR WRAPPER MECHANISM FOR CIGAR OR CIGARETTE MACHINES.** ALBERT DU BRUL, New York, N. Y., assignor to the Miller, Du Brul & Peters Manufacturing Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Dec. 3, 1902. Serial No. 133,762. (No model.)



Claim.—1. In a machine of the character set forth, the combination with the binder-rolling means, of an air-suction-holding means for the binder moving in advance of the binder-rolling means, and over which the binder is drawn as it is wrapped around the bunch.

2. In combination with the apron, the table, and the roller, of a machine of the character set forth: an air-suction-holding means disposed above the apron, holding the binder and having such binder drawn over it during the operation of rolling the binder about the bunch.

3. In combination with the apron, the table, and the roller, of a machine of the character set forth; an air-suction box located above the apron, having the binder held upon it, and drawn over it in the operation of rolling the binder around the bunch; said air-suction box moving over the table in advance of and at the same speed with the roller, and maintaining its relation thereto during the rolling operation.

4. The combination with the apron, the table and the roller, of a means acting on the binder independently of the roller to hold the binder on the apron against the movement due to the approach of the roller to the binder, and a spreading-tongue for the binder during the wrapping operation, carried by the binder-holding means and projecting therefrom toward the bunch.

5. The combination with the apron, the table and the roller, of a suction-box movable with the roller for holding the binder on the apron.

6. The combination with the apron, the table and a roller, of a suction-box disposed above the apron, for holding the binder thereon, and movable with the roller.

7. The combination with the apron, the table and the roller, of a lever carrying the roller, and a suction-box also carried by the lever and movable relatively thereto.

8. The combination with the apron, the table and the roller; of a lever carrying the roller; a suction-box; connections between the suction-box and the lever comprising a rod, a barrel and a spring within the barrel; and a stop limiting the movement of the suction-box in one direction.

9. The combination with the apron, the table and the roller, of a suction-box, and an elastic connection between the suction-box and the roller.

10. The combination with the apron, the table and the roller, of a suction-box movable with the roller, an elastic connection between the suction-box and the roller, and means for separating the roller and the suction-box.

11. The combination with the apron, the table and the roller, of a suction-box for holding the leaf on the apron, and a spreading attachment carried thereby.

12. The combination with the apron, the table and the roller, of a suction-box disposed over the apron and a spreading attachment carried by said box.

13. The combination with the apron, the table and the roller, of a suction-box disposed over the apron, and a tongue carried by the suction-box.

14. In combination with the apron, the table the roller and a spreader, connections between the roller and the spreader comprising guiding-rods projecting from one of the two latter parts, spring-barrels carried with the other of said parts, and springs confined between the spring-barrel and the supporting and guiding rods.

15. In a cigar-bunch machine, the combination with the apron, the table, the roller, and the spreader, of spring-barrels carried with one of the two latter parts, supporting and guiding rods working in said spring-barrels, and carried by the other of said parts, springs in said barrels engaging the supporting and guiding rods, and drawing the spreader toward the roller, and set-screws for limiting the approach of the spreader to the roller.

16. In a cigar-bunch machine, the combination with the apron, the table, the roller and the spreader, of spring-barrels carried with one of the two latter parts, supporting and guiding rods working in said spring-barrels, and carried by the other of said parts, springs in said barrels drawing the spreader toward the roller, and arresting-stops mounted upon the machine in the path of the spreader to arrest its rearward movement as the roller passes from it.

752,962. **GUN-SIGHT.** HENRY C. EBY, Jolley, Iowa. Filed Aug. 31, 1903. Serial No. 171,421. (No model.)



Claim.—1. The herein-described adjustable gun-sight comprising the clamping members 2 and 3 adapted to fit the end of the gun-barrels; means to draw said parts tightly toward each other in contact with the barrels; said members each having upon its outer side a seat or bracket; arms adjustably mounted in said brackets; means to adjust said arms relative to the plane of the gun-barrels and additional means to adjust the sights carried by said arms whereby they may be located and multiplied in number as desired, all combined substantially as specified and for the purpose set forth.

2. The herein-described adjustable gun-sight comprising the clamping members 2 and 3, each having a bracket upon its outer side; an arm having a right-angled extension or stem 7 adapted to fit an aperture in said bracket; a spring coiled around said stem and disposed to hold the arm normally downward, said arm having a rib 14 adapted to fit a notch or recess in the upper edge of the bracket whereby when the arm is moved forwardly or rearwardly said spring will yield to permit said rib to ride out of one recess into the next adjacent one and thereby hold the arm against casual movement, substantially as specified and for the purpose set fortb.

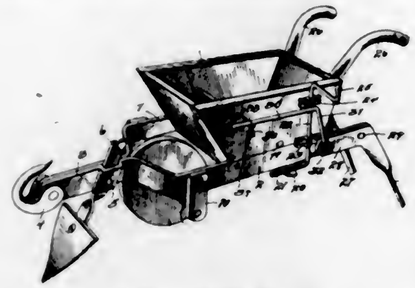
3. The herein-described adjustable gun-sight comprising suitable clamping members 2 and 3, means to connect said members and secure them to the gun-barrel; a bracket carried by each clamping member; each bracket having a vertically-disposed aperture therethrough and a plurality of recesses 15 and 16; sight-carrying arms having right-angled extensions fitting said vertically-disposed apertures; each of said arms also having a rib to fit any of said recesses, and means to hold said rib within any of said recesses whereby the arms may be disposed at different angles to the longitudinal plane of the gun-barrel, as set forth.

4. The herein-described adjustable gun-sight comprising suitable clamping members 2 and 3, means to secure said members to the outer end of a gun-barrel, each of said members having a bracket, an arm 8 pivotally mounted in each bracket, an auxiliary arm 20 telescopically mounted within said arm 8, a plurality of sights movably secured on said arms, and means to adjust said sights, as set forth.

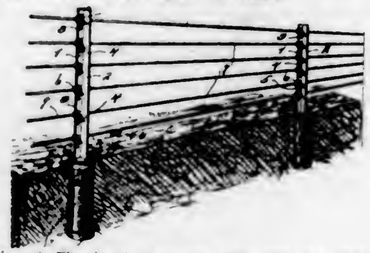
752,963. **COTTON-PLANTER.** LUTHER C. ELLISON, Dundee, Ga. Filed July 27, 1903. Serial No. 167,146. (No model.)

Claim.—The herein-described planter and fertilizer-distributer, comprising a suitable carrying-frame; a hopper mounted upon said frame; a feeding-disk operatively disposed in said hopper above a discharging-orifice provided therein; a carrying-wheel 8; suitable

sprocket-wheels 11 and 13 and connecting means therefor, in combination with a furrow-forming shovel and coöperating blades 27 adapted to cover said furrow after the seed has been deposited therein; controlling-springs 30 operatively connected with said blades; a shaft 34 extending through the hopper-section adapted to support said springs, an arm 35 carried by said shaft, and cushioning devices for said shaft adapted to vibrate said arm 35 in advance of the feeding-wheel and thereby remove all disintegrating, adhering masses of seeds, &c., all combined substantially as specified.



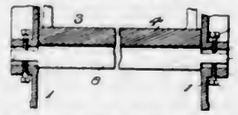
752,964. **FENCE-POST.** JOHN N. ERIXON, Concord, Ill. Filed Sept. 28, 1903. Serial No. 174,952. (No model.)



Claim.—1. The herein-described fence-post and anchoring means for the same, comprising the post proper, which is T-shaped in cross-section, a tubular anchoring member 8 of suitable material, a post-receiving member 10 slightly tapered at its lower end and provided at its upper end with intersecting slots into which is placed the lower end of the post, whereby when the member 10 is entered into the anchoring member 8, the post will be reliably clamped and anchored therein, as set forth.

2. The herein-described fence-post and anchoring means therefor, comprising the combination with the post proper, of a receiving member 10 having suitable slots to receive the lower end of said post, said member being slightly tapered at its lower end and oval at its upper end, a tubular anchoring member 8 and reinforcing-bands therefor whereby, when the member 10 is driven into the anchoring member 8 said member 8 will be reinforced and the post firmly anchored and secured in place, substantially as shown and described.

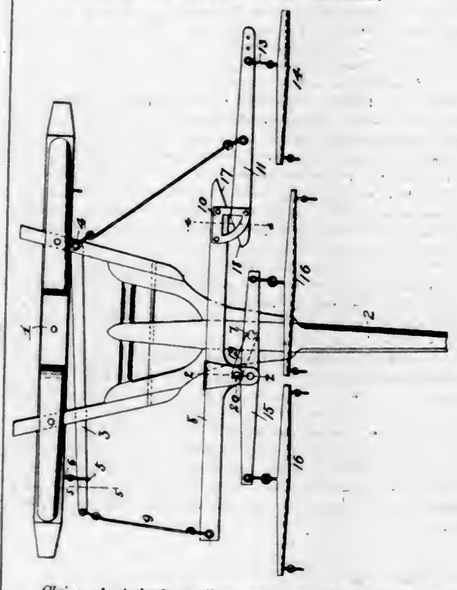
752,965. **COTTON-SEED HULLER.** MICHAEL W. FAHERTY, Memphis, Tenn., assignor of one-half to Frederick B. Jones, Memphis, Tenn. Filed Aug. 14, 1903. Serial No. 169,542. (No model.)



Claim.—1. In a cotton-seed huller, the combination with the cylinder, and the huller sides having a series of openings therein, which openings are arranged concentric with the cylinder, and do not extend within the plane of the periphery of the cylinder, of knives, each of which knives has offsets secured in two opposite huller-openings, and each knife bearing against both the inner faces of the huller sides, thereby closing the part of the huller-openings between the offsets and the cylinder, and means acting on said offsets for adjusting the knives radially.

2. In a cotton-seed huller, the combination with the cylinder and the huller sides having knife-openings, of lugs forming the inner edge of said openings and extending outside the periphery of the cylinder, knives having transverse slots for said lugs, the outer ends of said knives being mounted in said openings, and means for adjusting said knives in said openings.

752,966. **DRAFT-EQUALIZER.** JAMES FARMER, Barry, Ill. Filed June 23, 1903. Serial No. 162,744. (No model.)



Claim.—1. A draft-equalizer, consisting of a draft-bar attached at one end to the vehicle-hound, and extending across the line of draft approximately twice the distance from the said line of draft to the said poim of attachment to the hound, and being connected at its longer end to the axle, a draft-lever fulcrumed to the tongue and having one end connected to the longer end of said draft-bar, a supplementary lever fulcrumed to the opposite end of said draft-lever, and a connection connecting said supplementary lever with the hound to which the draft-bar is attached.

2. A draft-equalizer, consisting of a draft-bar connected at one end to one of the hounds of the vehicle, and extending across the line of draft substantially twice the distance from said line of draft to the point where it is connected to said hound, and being connected at its longer end to the axle, an oscillating pin pivoted to the tongue and having an end extending in substantially the same direction as the longer end of the draft-bar, a draft-lever fulcrumed to the extended end of said crank-pin, a connection connecting one end of said lever with the longer end of the draft-bar, a supplementary lever fulcrumed to the opposite end of said draft-lever, a connection connecting said supplementary lever with the hound to which the draft-bar is attached.

3. A draft-equalizer, consisting of a draft-bar attached at one end to the vehicle-hound and extending across the line of draft substantially twice the distance as the distance between the said line and the point to which it is attached to said hound, and being connected at its longer end to the axle, a draft-lever fulcrumed to the tongue, a connection connecting one end of said lever with the longer end of said draft-bar, a supplementary lever extending in the same plane as said draft-lever and being fulcrumed to the same and in front thereof, and a connection connecting said supplementary lever with the hound, to which the draft-bar is attached.

4. A draft-equalizer, consisting of a draft-bar attached at one one to one of the hounds of the vehicle, and extending across the line of draft substantially twice the distance as the distance between the said line and the point to which it is attached to the hound, and being connected at its longer end to the axle, a draft-lever fulcrumed to the tongue and being connected at one end with the longer end of said draft-bar, a supplementary lever extending in the

same plane as said draft-lever, and being in front thereof and fulcrumed thereto, and having a chamfered end facing said draft-lever, and a connection between said supplementary lever and the hound to which the draft-bar is attached.

5. A draft-equalizer, consisting of a draft-bar attached at one end to one of the hounds of the vehicle, and extending substantially twice the distance between the line of draft and the point, to which it is attached to the hound, and being secured at its longer end to the axle, a draft-lever fulcrumed to the tongue, and being connected at one end to the longer end of said draft-bar, the opposite end of said lever being chamfered, a supplementary lever extending in the same plane as the draft-lever and being located in front thereof, and fulcrumed thereto, and a connection between said supplementary lever and the hound, to which the draft-bar is attached.

6. A draft-equalizer, consisting of a draft-bar fixed at one end to one of the hounds of the vehicle, and extending across the line of draft for a distance substantially twice the distance between said line and the point to which the bar is attached to the hound, and being secured at its longer end to the axle, a draft-lever fulcrumed to the tongue and being connected at one end with the longer end of the draft-bar, and being chamfered at its opposite end, a supplementary lever extending in the same plane as the draft-lever, and being fulcrumed thereto, and having a chamfered end opposite said draft-lever, and a connection between said supplementary lever and the hound to which the draft-bar is attached.

7. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue and being connected at one end to the vehicle, a supplementary lever fulcrumed to the opposite end of said draft-lever and being connected to the vehicle.

8. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue, and being connected at one end to the vehicle, a supplementary lever extending in the same plane as said draft-lever, and being located in front thereof, and fulcrumed thereto, and a connection connecting said supplementary lever with the vehicle.

9. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue, and being connected at one end to the vehicle and having its opposite end chamfered, a supplementary lever located in the same plane as the first said lever, and being in front thereof, and fulcrumed thereto, and a connection between said supplementary lever and the vehicle.

10. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue and being connected at one end to the vehicle, a supplementary lever located in the same plane, as said draft-lever, and in front thereof, and being fulcrumed thereto, and having its end opposite the draft-lever chamfered, and a connection between said supplementary lever and the vehicle.

11. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue and being connected at one end with the vehicle, said draft-lever having its opposite end chamfered, a supplementary lever located in the same plane as the draft-lever, and in front thereof, and being fulcrumed thereto, and having its end opposite said draft-lever chamfered, and a connection between said supplementary lever and the vehicle.

12. A draft-equalizer, consisting of a draft-lever suitably connected to the tongue, a draft-bar fixed at one end to the vehicle and extending across the line of draft, and passing at its opposite end through a link attached to the vehicle, and a connection between said draft-lever and said draft-bar.

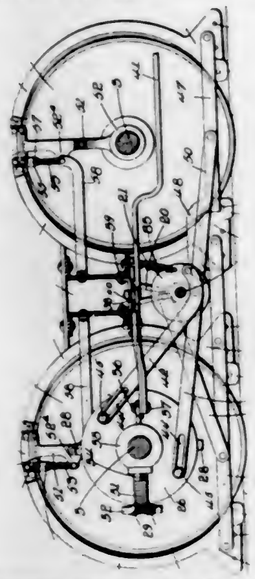
13. A draft-equalizer, consisting of a draft-lever fulcrumed to the tongue, a draft-bar extending across the line of draft, and being secured at one end to the vehicle the distance between the point where it is secured to the vehicle and the line of draft being substantially one-half of the distance between said line of draft and the opposite ends of said bar, and a connection between the longer end of said draft-bar and the vehicle, and suitable connections between said draft-bar and the draft-lever.

752,967. **BRAKE.** JESSE A. FIELD, Dunkirk, N. Y. Filed Apr. 2, 1903. Serial No. 150,804. (No model.)

Claim.—1. In combination, a rotatable axle having a wheel, a brake-shoe adapted to frictionally engage said wheel, a rotatable rock-shaft having means for applying the brake, and a friction device on the axle having means for rocking the shaft.

2. In combination, a rotatable axle having a wheel, a multipart brake-shoe adapted to frictionally engage said wheel, a rotatable rock-shaft having means for applying the brake, and a friction device on the axle having means for rocking the shaft.

3. In combination, a rotatable axle having a wheel, a multipart brake-shoe formed of a plurality of pivoted curved members and a pivotally-connecting member, said members being adapted to fit nearly around said wheel and all of said members being arranged to frictionally contact with the wheel.



4. In combination, a rotatable axle having a wheel, a multipart brake-shoe formed of a plurality of curved members adapted to fit nearly around said wheel, a connecting member pivoted to the curved members and means for applying the brake, said connecting member being adapted to frictionally contact with the wheel, substantially as set forth.

5. In combination, a rotatable axle having a wheel and a brake-shoe adapted to fit nearly around the wheel and comprising two curved side members and a top member pivoted to said side members, all of said members being adapted to frictionally contact with the braking-surface of the wheel, substantially as set forth.

6. In combination, a rotatable axle having a wheel and a brake-shoe adapted to fit nearly around the wheel and comprising two curved side members reduced in size at their upper ends and a top member provided with a longitudinal recess at each end in which the reduced ends of the side members fit and are pivoted, all of said members being adapted to contact with the wheel, substantially as set forth.

7. In combination, a rotatable axle having a wheel and a brake-shoe fitting nearly around the wheel and having a plurality of pivotal side members and a connecting top member and friction-blocks at the lower ends of some of said members adapted to contact with the rail.

8. In combination, a rotatable axle having a wheel and a brake-shoe fitting partially around the wheel and having a plurality of pivotal members and a connecting member; said connecting member being adapted to be brought into contact with the wheel by a slight movement of the pivotal members in correspondence with the rotation of the wheel.

9. In combination, a rotatable axle having a wheel and a brake-shoe adapted to fit nearly around the wheel and having at least three members all of which are adapted to frictionally contact with the braking-surface of the wheel.

10. In combination, a rail, a rotatable axle having a wheel on the rail, and a brake-shoe having a friction-block adapted to contact with the rail when the brake is applied and an ear or projection extending from the inner surface of said block and adapted to project on the inner side of the rail.

11. In combination, a rail, a rotatable axle having a wheel on the rail, and a brake-shoe fitting partially around the wheel and having a friction-block adapted to contact with the rail when the brake is applied and an ear or projection extending down from the inner side of said block and adapted to project on the inner surface of the rail to prevent the block moving laterally from the rail.

12. In combination, an axle having a wheel, a multipart brake-shoe adapted to fit nearly around the wheel and means whereby all of the parts of said brake-shoe may move into and out of contact with said wheel.

13. In combination, a rotatable axle having a wheel, a rotatable rock-shaft, a friction device on said axle having operative connection to said rock-shaft, and a brake-shoe having operative connection to said rock-shaft.

14. In combination, a rotatable axle having a wheel, a rotatable rock-shaft, a plurality of disks on said rock-shaft, a friction device on said axle having operative connection to one of the disks on said rock-shaft, and a brake-shoe having operative connection to another of the disks on said rock-shaft.

15. In combination, a rotatable axle having a wheel, a rotatable rock-shaft, a friction device on the axle, rods operatively connecting the friction device to the rock-shaft and a brake-shoe adapted to be applied by the rocking of the shaft.

16. In combination, an axle having a wheel, a brake-shoe adapted to fit nearly around the wheel comprising side members and a top member pivoted together, means for moving the side members into and out of frictional contact with the wheel and means for normally supporting the top member from contact with the wheel; said top member being adapted to be brought into contact with the wheel by the turning of the side members when in contact therewith, substantially as set forth.

17. In combination, an axle having a wheel, a brake-shoe adapted to fit nearly around the wheel comprising side members and a top member pivoted together, means for moving the side members into and out of frictional contact with the wheel, a support, links pivoted to said support and the top member for normally supporting said top member from contact with the wheel; said top member being adapted to be brought into contact with the wheel by the turning of the side members when in contact therewith, substantially as set forth.

18. In combination, an axle having a wheel, a brake-shoe adapted to fit nearly around the wheel and having yieldingly-connected parts, means for moving at least one of said parts into and out of contact with the wheel, and at least another part being adapted to be brought into contact with said wheel by a slight turning of the brake-shoe consequent upon the contact of the first-mentioned part with said wheel.

19. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes, a rock-shaft, means wholly actuated by the rotation of an axle adapted to rock said shaft and mechanism operatively connecting said rock-shaft to all of said brake-shoes.

20. In combination, an axle having a wheel, a brake-shoe adapted to fit nearly around the wheel comprising side members and a top member pivoted together, means for moving the side members into and out of frictional contact with the wheel, a support, links pivotally connected to said support and the top member and a spring for normally holding said links extended and the top member out of contact with the wheel, substantially as set forth.

21. In combination, an axle having a wheel, a brake-shoe adapted to fit nearly around the wheel comprising side members and a top member pivoted together, means for moving the side members into and out of frictional contact with the wheel a vertical support having a T-shaped upper portion and a hub loose on the axle, links pivoted to the T of the support and the top member, one of said links being longer than the other, and a spring connected to the longer link, substantially as set forth.

22. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes, a rotatable rock-shaft, a friction mechanism actuated by the rotation of an axle adapted to rock said shaft and mechanism operatively connecting said rock-shaft to all of said brake-shoes.

23. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes, a rock-shaft, means wholly actuated by the rotation of an axle adapted to rock said shaft, and rods operatively connecting said rock-shaft to all of said brake-shoes.

24. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes and a rotatable brake-applying mechanism directly connecting to said brake-shoes and adapted to be operated by the rotation of an axle, substantially as set forth.

25. In combination, a rotatable axle having a wheel and a disk, a rock-shaft, a friction device on the axle having a split spring-band around the disk on the axle and a case inclosing said band, rods operatively connecting said case to the rock-shaft and a brake-shoe adapted to be applied by the rocking of said shaft.

26. In combination, a rotatable axle having a wheel and a disk a rock-shaft, a friction device on the axle having a split spring-band around the disk on the axle and a case inclosing said band, pins projecting from the ends of the split band and carrying rollers, an angular bar having a bifurcated end with tapered forks straddling the pins, a slide-collar on the axle to which the angular bar is attached, means for sliding the collar, rods operatively connecting the inclosing case to the rock-shaft, and a brake-shoe adapted to be applied by the rocking of said shaft.

27. In combination, a rotatable axle, a rock-shaft, a brake adapted to be applied by the rocking of said shaft, a friction device on the axle, and two rods operatively connecting the friction device to the rock-shaft.

28. In combination, a rotatable axle, a rock-shaft, a brake adapted to be applied by the rocking of said shaft, a friction device on the axle, and two rods operatively connecting the friction device to the rock-shaft, said rods being slotted and having connection to said friction device at diametrically opposite points.

29. In combination, a rotatable axle, a rock-shaft, a brake adapted to be applied by the rocking of said shaft, a friction device on the axle, means for operatively connecting the friction device to the rock-shaft, a bar having tapered parts for operating the friction device and a collar on the axle and means for sliding said collar.

30. In combination, a rotatable axle, a rock-shaft, a brake adapted to be applied by the rocking of said shaft, a friction device on the axle, a plurality of rods having operative connection to the rock-shaft, said rods having longitudinal slots near their ends, and pins extending from the friction device and projecting in said slots.

31. In combination, a rotatable axle, a rock-shaft, a brake adapted to be applied by the rocking of said shaft, a friction device on the axle, a plurality of rods having operative connection to the rock-shaft, said rods having longitudinal slots near their ends, and pins extending from the friction device diametrically opposite each other and projecting in said slots.

32. In combination, a rotatable axle having a wheel, a friction device on said axle, a bar for operatively connecting said friction device to the axle, a slide-collar on said axle attached to said bar, a bell-crank having operating connection to said slide-collar, a system of connecting rods and levers adapted to rock said bell-crank, a brake-shoe, and means controlled by the friction device for applying the brake, substantially as set forth.

33. In combination, a rotatable axle having a wheel, a friction device on said axle, a bar for operatively connecting said friction device to the axle, a slide-collar on said axle attached to said bar and having a slot, a bell-crank, an end projecting into said slot in said slide-collar, a system of connecting rods and levers adapted to rock said bell-crank, a brake-shoe, and means controlled by the friction device for applying the brake, substantially as set forth.

34. In combination, a rotatable axle having a wheel, a rock-shaft, frictional mechanism on said axle adapted to rock said shaft, a brake-shoe having a plurality of members partially inclosing the wheel and means operatively connecting a majority of said members to the rock-shaft.

35. In combination, a rotatable axle having a wheel, a rock-shaft, frictional mechanism on said axle adapted to rock said shaft, a brake-shoe having a plurality of members partially encircling the wheel and rods operatively connecting a majority of said members to the rock-shaft.

36. In combination, a rotatable axle having a wheel, a rock-shaft, a disk on said rock-shaft, frictional mechanism on said axle adapted to rock said shaft, a brake-shoe having a plurality of members partially encircling the wheel and means operatively connecting a majority of said members to the disk, substantially as set forth.

37. In combination, a truck, axles in said truck having wheels, a brake-shoe partially encircling each wheel and having pivoted side members, a rod connecting each side member of each shoe to a corresponding side member of an adjacent shoe, and means for moving said rods to apply the brake, substantially as set forth.

38. In combination, a truck, axles in said truck having wheels, a brake-shoe partially inclosing each wheel and having pivoted side members, a rod connecting each side member of each shoe to a corresponding side member of an adjacent shoe, a rock-shaft, rods connecting the said first-mentioned connecting-rods to the rock-shaft and means for rocking said shaft.

39. In combination, a truck, axles in said truck having wheels, a brake-shoe partially inclosing each wheel and having pivoted side members, a rod connecting each side member of each shoe to a corresponding side member of an adjacent shoe, a rock-shaft, rods connecting the said first-mentioned connecting-rods to the rock-shaft and friction means on one of said axles having operating connection to the rock-shaft.

40. In combination, a truck, axles in said truck having wheels,

a brake-shoe partially inclosing each wheel and having pivoted side members, a rod connecting each side member of each shoe to a corresponding side member of an adjacent shoe, a rock-shaft, rods connecting the said first-mentioned connecting-rods to the rock-shaft and friction means on one of said axles having operating connection to the rock-shaft and adapted to be operatively connected to the axle, substantially as set forth.

41. In combination, a truck, axles in said truck having wheels, a plurality of brake-shoes having pivoted side members a rod connecting each side member of each shoe to a corresponding side member of an adjacent shoe and means for moving said rods to apply the brake, substantially as set forth.

42. In combination, a truck, axles in said truck having wheels, a plurality of brake-shoes having pivoted side members each of which is connected to a corresponding side member of an adjacent shoe, and means for moving said side members to apply the brake, substantially as set forth.

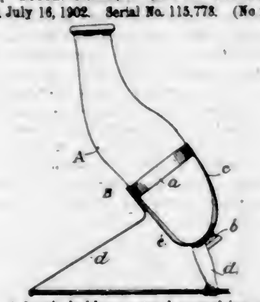
43. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes and a rotatable brake-applying mechanism directly connecting to said brake-shoes and comprising in part a friction device on an axle, substantially as set forth.

44. In combination, a truck, a plurality of axles in said truck having wheels, a plurality of brake-shoes and a brake-applying mechanism operatively connecting to said brake-shoes and comprising in part a friction device on an axle, a rotatable rock-shaft and a series of connecting-rods, substantially as set forth.

45. In combination, a car-truck, a brake device and mechanism for operating said brake device including a connecting-rod having its normal pivoting-point exactly in the center of the truck whereby the brake may be properly operated at any position to which the truck may be turned on a track curve.

46. In combination, a car-truck, a brake device and mechanism for operating said brake device including a lever having pivotal support from the truck, devices connecting to said lever, and a connecting-rod pivoted to said lever at the center of the truck whereby the brake may be properly operated at any position to which the truck may be turned on a track curve.

752,968. BOTTLE-HOLDER. EDWIN L. GATTERER, Jersey City, N. J. Filed July 16, 1902. Serial No. 115,778. (No model.)



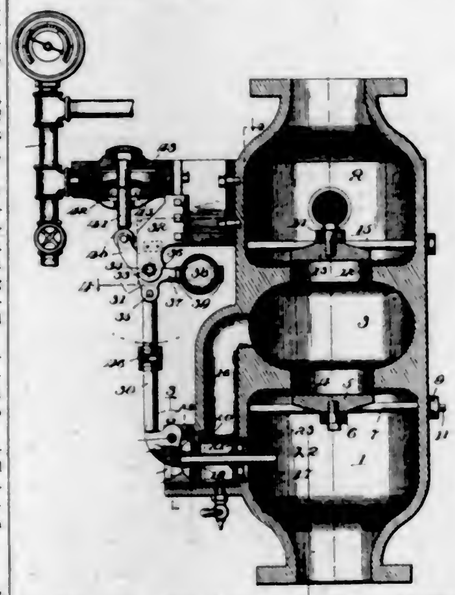
Claim.—1. A bottle holder or stand comprising a ring or band and a bottom support secured to said ring or band for receiving and holding a bottle, a relatively broad base, and standards for supporting said ring or band and bottom support upon said base, substantially as described.

2. A bottle holder or stand adapted to receive and hold a bottle having a vent-valve at the bottom thereof, said holder or stand comprising a flat ring or band for encircling the bottle, a second ring or band for supporting the base of the bottle and encircling the neck of said vent, a relatively broad base for supporting said rings or bands, and standards upon said base arranged to support the bottle and rings or bands centrally over the base, substantially as described.

3. A bottle holder or stand adapted to receive and hold a bottle having a vent-valve at the bottom thereof, said holder or stand comprising a flat ring or band for encircling the bottle, a second ring or band for supporting the base of the bottle and secured to the first ring or band, a relatively broad base for supporting said rings or bands, the center of said base being on a line between the centers of said rings or bands, and standards upon said base to support the bottle and rings or bands, substantially as described.

4. A bottle holder or stand comprising a ring or band and a bottom support secured to said ring or band for receiving and holding a bottle, a wire bent so as to form a relatively broad base, and standards upon the base arranged to support the ring or band and bottom support at an angle over the base, substantially as described.

752,969. VALVE FOR AUTOMATIC FIRE-EXTINGUISHERS. WILLIAM A. GOLDTHWAIT, Melrose Park, Ill. Filed Mar. 2, 1903. Serial No. 145,821. (No model.)



Claim.—1. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber, and a port connecting them, of a main water-valve located in the water-chamber and arranged to seat upward, with the water-pressure, for closing said port, a by-pass connecting the two chambers, a valve for controlling said by-pass, and means controlled by the pressure of the air in the system for holding it normally seated, substantially as described.

2. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber, and a port connecting them, of a main water-valve located in the water-chamber and arranged to seat upward, with the water-pressure, for closing said port, an arm carrying said valve and mounted to swing from a point at one side of said port, a by-pass connecting the two chambers, a valve for controlling said by-pass, and means controlled by the pressure of the air in the system for controlling said valve, substantially as described.

3. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber, and a port connecting them, of a main water-valve located in the water-chamber and arranged to seat upward, with the water-pressure, for closing said port, a by-pass connecting the two chambers and terminating at its lower end in a port opening from the water-chamber, said by-pass having a second port, opposite the port aforesaid, opening to atmosphere, a double-faced valve for controlling said ports, and means controlled by the pressure in the system for controlling said valve, substantially as described.

4. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber and a port connecting them, of a valve for controlling said port, a by-pass connecting the chambers, a valve for controlling said by-pass, means interposed between said valve and a fixed abutment for holding said valve seated, said means including a toggle, a stop for arresting the movement of the toggle members in one direction when the joint reaches the dead-center and means controlled by the pressure in the system for holding said joint on the dead-center, substantially as described.

5. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber and a port connecting them, of a valve for controlling said port, a by-pass connecting the chambers, a valve for controlling said by-pass, means interposed between said valve and a fixed abutment for holding the valve seated, said means including a toggle, a stop for arresting the movement of the toggle members in one direction when the joint reaches the dead-center, means controlled by the pressure in the system for holding said joint on the dead-center, and means for breaking the joint upon a predetermined reduction of the pressure in the system, substantially as described.

6. In a device of the class described, the combination with a casing having a water-chamber, a low-pressure chamber and a port connecting them, of a valve for controlling said port, a by-pass connecting the chambers, a valve for controlling said by-pass, means interposed between said valve and a fixed abutment for holding the valve seated, said means including a toggle, a stop for arresting the movement of the members of the toggle in one direction when the joint reaches the dead-center, means controlled by the pressure in the system for holding said joint on the dead-center, and means including a weight for breaking the joint upon a reduction of the pressure, substantially as described.

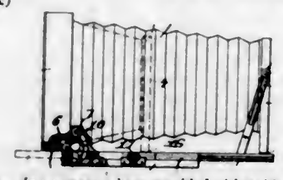
7. In a device of the class described, the combination with a casing having a water-chamber and a port leading therefrom, of a valve for controlling said port, means interposed between said valve and a fixed abutment for holding the valve seated, said means including a toggle, an arm projecting from one side of one member of the toggle, a weight carried by said arm, an arm projecting from the opposite side of said member, and means controlled by the pressure in the system and engaging the arm last aforesaid for resisting the influence of the weight, substantially as described.

8. In a device of the class described, the combination with the casing having a water-chamber, a low-pressure chamber, and a port connecting them, of a main water-valve located in the water-chamber and seating with the pressure, a by-pass connecting the chambers, a valve for controlling said by-pass, means interposed between said valve and a fixed abutment for controlling said valve, said means including a toggle, and means controlled by the pressure in the system for controlling the toggle, substantially as described.

9. In a device of the class described, the combination with the casing having a water-chamber, a low-pressure chamber, and a port connecting them, of a valve located in the water-chamber and seating with the pressure for controlling said port, a by-pass connecting the chambers and terminating at its lower end in a port opening from the water-chamber, an auxiliary water-valve closing said port against the pressure, a horizontal stem carrying the auxiliary water-valve, a bell-crank lever one arm of which is engaged by said stem, a toggle interposed between the other arm of said lever and a fixed abutment, and means controlled by the pressure in the system for controlling the toggle, substantially as described.

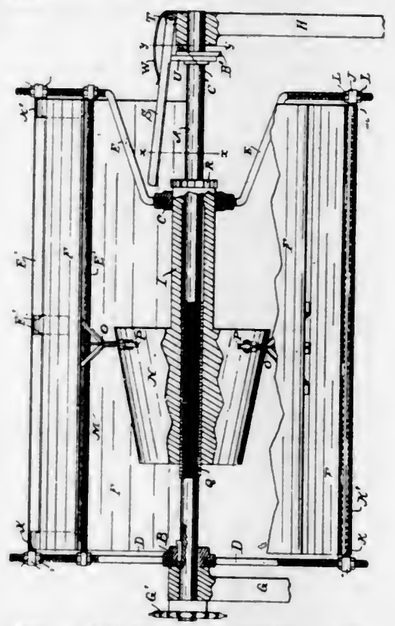
10. In a device of the class described the combination with a casing having a water-chamber, a low-pressure chamber, an air-chamber, and ports connecting them, of a main water-valve located in the water-chamber and seating with the water-pressure to close the port to the low-pressure chamber, a main air-valve located in the air-chamber and seating with the air-pressure to close the port into the low-pressure chamber, a by-pass connecting the low-pressure chamber and water-chamber and terminating at its lower end in a port opening from the water-chamber, an auxiliary water-valve seating against the water-pressure to close the port last aforesaid, means interposed between the auxiliary water-valve and a fixed abutment for holding said valve seated, said means including a toggle, an auxiliary air-valve, and means interposed between said auxiliary air-valve and toggle for controlling the latter, substantially as described.

752,970. PHOTOGRAPHIC CAMERA. WILHELM GUNDERMANN, Erfurt, Germany. Filed Mar. 24, 1903. Serial No. 149,358. (No model.)



Claim.—In a camera, a base provided with guides, upwardly and rearwardly extending plates connected to the sides of said base and near the rear end thereof and provided with curved slots in the rearwardly-extending portion thereof, a rear frame, forwardly-projecting plates fixedly connected to said frame and hinged at their lower ends to the upper rear corner of the plates of the base, said forwardly-projecting plates adapted to support the said frame, means caried by the forwardly-projecting portions of the plates of the frame and engaging in the curved slots of the plates of the base for adjustably connecting the latter to the frame, and a sliding frame mounted upon the base and movable between the said guides, said rear frames supported by said plates a suitable distance above the base so as not to interfere with the movement of the sliding frame substantially as herein shown and described.

752,971. PAPER-REEL. JOHN HOBERG, Sr., and FRANK H. HOBERG, Greenbay, Wis. Filed July 25, 1902. Serial No. 116,961. (No model.)



Claim.—1. In an automatically-contractible reel, the combination of the central shaft, suitably supported at its ends in journal-bearings; a plurality of radial arms supported from said shaft; a plurality of paper-supporting bars pivotally supported from one edge, at their respective ends, in an annular series around said central shaft, from said radial arms; a conical drum adjustably supported upon said shaft; means for supporting the free edges of said paper-supporting bars from said conical drum; and means for intermittingly moving said conical drum longitudinally on said central shaft, as said reel is revolved.

2. In an automatically-contractible reel, the combination of a central shaft, suitably supported at its ends in journal-bearings; a plurality of radial arms supported from said shaft; a plurality of paper-supporting bars, pivotally supported at their edge from one end of said radial arms; a conical drum having screw-threaded bearings on said central shaft; means for supporting the free edges of said paper-supporting bars from said drum; means for arresting the rotary movement of said drum during a partial revolution of said central shaft; and means for automatically releasing the same, whereby said drum is caused to revolve intermittingly, and said shaft is caused to gain a partial revolution on said drum with each revolution of the reel, and said drum is caused to move laterally upon said shaft, as set forth.

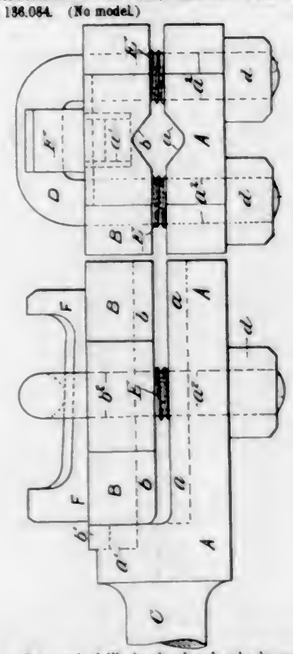
3. In an automatically-contractible reel of the class described, the means herein described for adjustably securing the paper-supporting bars F to the ends of the radial arms D and E, consisting in the combination with the ends of said radial arms and the paper-supporting bars; of the collar J, trunnion K and locking-nuts L, L, as set forth.

4. In an automatically-contractible reel herein set forth, the device for automatically severing the sheets of paper, as they are successively wound thereon, consisting in the combination with the ra-

dial arms D and E; of the blade E', adjustably secured at its respective ends from one side to said radial arms, and having its cutting edge protruding through an aperture in said paper-supporting bars substantially as and for the purpose specified.

5. In an automatically-contractible reel, the device herein described for intermittingly checking the revoluble movement of the drum N, consisting in the combination with said drum; of a ratchet-wheel R, pawl S, pivotally supported at one end from the standard H; collars U and B', provided with angular bearings V and A'; and means for adjusting the relative position of said collars U and B', so as to increase or diminish the distance between the angular bearings V and A', all substantially as and for the purpose specified.

752,972. **CHUCK FOR ROCK-DRILLING MACHINES.** JAMES HODGE, Witwatersrand Gold Fields, Transvaal. Filed Dec. 21, 1903. Serial No. 186,084. (No model.)



Claim.—1. In a rock-drill chuck a head or body constructed in two parts longitudinally, the one part being provided with a projection and the other part with a corresponding groove or recess to receive said projection, in such manner that the two parts of the head may be expanded to receive the shank of the drill, and means for compressing the two parts of the head to secure the drill, substantially as described.

2. In a rock-drill chuck, a head or body constructed in two parts longitudinally, the one part being constructed with a projection and the other part with a corresponding groove or recess to receive said projection, the two parts being adapted to receive between them and grip the shank of the drill, a spring medium interposed between the plane parallel faces of the two parts of the head for expanding the two parts of the head to receive or release the drill, and means for forcing the two parts together to grip and secure the shank of the drill or bit, substantially as described.

3. In a chuck for rock-drills in combination a head or body constructed in two parts longitudinally, the one part being formed with a dovetail projection and the other part with a corresponding dovetail recess in which said projection fits in such manner that the two parts may be expanded to receive the drill and means for compressing the two parts of the head to secure the drill when it is projected between them, substantially as described.

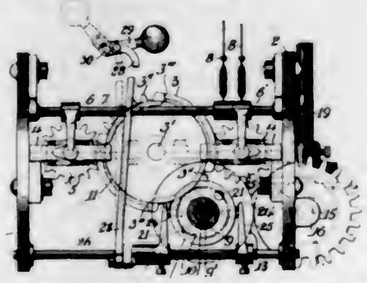
4. In a chuck for rock-drills in combination a head or body constructed in two parts longitudinally, the one part being formed with a dovetail projection and the other part with a corresponding dovetail recess in which said projection fits, the two parts being adapted to receive between them and grip the shank of the drill, the springs interposed between the plane parallel faces of the two parts of the head to receive or release the drill, and means for forcing the two parts together to grip and secure the shank of the drill or bit, substantially as described.

5. In a chuck for rock-drills the combination of the head or body comprising a lower part and an upper and detachable part or cap, the one part formed with a projection fitting a correspondingly-shaped recess in the other part and adapted to receive and secure between them the drill or bit, a U-bolt projected through coincident holes formed in the two parts of the head at each side, nuts screwed on the extremities of the U-bolt beneath the one part and a taper key or wedge interposed between the top of the U-bolt and the bottom of the other part for forcing the detachable part or cap inward to grip the shank of the drill or bit, substantially as described.

6. In a chuck for rock-drills the combination of the head or body comprising a lower part and an upper and detachable part or cap, the one part formed with a projection fitting a corresponding recess in the other part and adapted to receive and secure between them the drill or bit, a U-bolt projected through coincident holes formed in the two parts of the head at each side, nuts screwed on the extremities of the U-bolt beneath the one part, and the taper key or wedge interposed between the top of the U-bolt and the bottom of the other part for forcing the detachable part or cap inward to grip the shank of the drill, springs encircling the U-bolt between the parallel faces of the two parts of the head for moving the detachable part to release the shank of the drill or bit, substantially as described.

7. In combination the part A of the head or body of the chuck constructed with the internal longitudinal groove *a* to receive the extremity of the drill, and with the dovetail recess *a'* at the inner end and the holes a^2 at each side of the groove *a*, the detachable part or cap B of the head or body of the chuck constructed with the internal longitudinal groove *b* to receive the extremity of the drill and at the inner end with the dovetail projection *b'* fitting the recess *a'* in the part A and with the holes b^2 at each side of the groove *b* coinciding with the holes a^2 in the part A, the U-bolt D projected through the coincident holes a^2 b^2 at each side of the longitudinal grooves *a b*, the spiral springs E arranged around the U-bolt between the inner plane parallel faces of the parts A B at each side of the grooves *a b*, the nuts *d* screwed on the ends of the U-bolt beneath the one part of the head and the taper key or wedge F arranged between the U-bolt and the other part of the head for forcing the cap inward to grip the shank of the drill in the grooves *a b*, substantially as described.

752,973. **SHUTTLE-BOX MOTION FOR LOOMS.** EDWARD HOLLINGWORTH, Doboross, England, assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed July 5, 1902. Serial No. 114,388. (No model.)

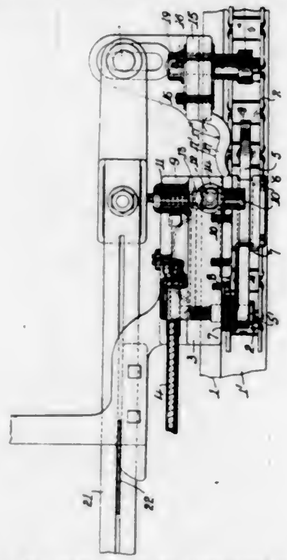


Claim.—1. In looms for weaving, the combination of the pattern-controlled positive shuttle-box mechanism for operating the shuttle-boxes, said mechanism including a master-gear, means for imparting motion to the master-gear, said means comprising two separate shafts, devices for connecting said shafts for operating the box-motion, and for disconnecting said shafts to permit the shuttle-box mechanism to be reversed to the same extent as the pattern mechanism when lagging back.

2. In looms for weaving, the combination with positive shuttle-box mechanism, connections from the pattern mechanism for actuating said shuttle-box mechanism to bring the required box into alinement with the shed, and means for transmitting motion from the pattern mechanism to the shuttle-box mechanism when reversing the pattern mechanism, of a hollow shaft driven from the loom, an auxiliary shaft extending through said hollow shaft and supported therein, means for connecting the two said shafts together to form a single driven shaft for imparting motion to the shuttle-box mechanism in the usual way when the loom is weaving, and disconnecting the shafts when the loom is stopped for reversing the pattern mechanism, the outer shaft remaining idle while the auxiliary shaft derives motion from the reversal of the pattern mechanism and conveys it to the rear box mechanism and across the loom to the box mechanism at the opposite side, substantially as set forth.

3. In a positive shuttle-box motion for looms, the combination, with the mechanism for determining the operation of the parts for bringing the desired box in the series to the level of the shed, of a shaft for driving said motion, an auxiliary shaft for imparting motions thereto when the loom is stopped and the pattern mechanism is being turned back, means for conveying motion from the pattern mechanism to said auxiliary shaft when reversing, and means for connecting or disconnecting the auxiliary shaft so as to form a part of the loom and revoluble therewith, or to form an independent shaft for reversing the motion of the shuttle-box mechanisms, substantially as set forth.

752,974. **WIRING-MOTION OF LOOMS FOR WEAVING CARPETS.** EDWARD HOLLINGWORTH, Doboross, England, assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed May 19, 1903. Serial No. 157,762. (No model.)

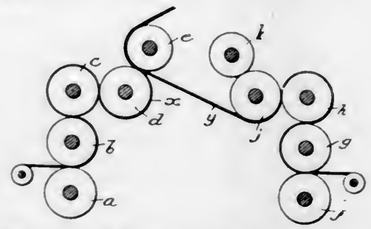


Claim.—1. In a wiring-motion for carpet-looms, the combination with a sliding hook-box, and an endless traveling chain, for traversing the hook-box away from the loom to its full extent, of a pivoted catch or hook-lever mounted on a stud projecting from the hook-box, lying in a plane over the traveling chain centrally thereof, and in the path of engaging clips or lugs carried by the chain, said lugs or clips each being secured at its forward end on two adjacent connecting-pins of the chain and between the side links thereof, the rear end of the clip being free, and the forward end adapted to engage the catch or hook-lever, means for depressing the hook-lever and holding it in its normal position, means for locking and releasing said hook-lever, substantially as set forth.

2. In a wiring-motion for carpet-looms, the combination with a sliding hook-box and an endless traveling chain carrying devices for engaging a connection of the hook-box, to carry it outward at the predetermined times, of a catch or hook-ended lever pivotally connected to the hook-box, and occupying a position over the chain, and centrally thereof, a spring secured at one end to the hook-box, then coiled around the pivot-pin and engaging at its opposite free end with the catch or hook-lever to hold it in its normal position, a clip or engaging device mounted at its forward end on two adjacent coupling-pins of the endless chain, between the respective side links, and free at its rear end, the forward end being shaped to engage securely with the hook or catch on the pivoted lever, a transverse horizontal sliding locking bar or spindle mounted in bearings in the hook-box, and having a projection or lip on its outer end, adapted normally to extend over and engage the upper side of the hook-lever, means for returning the said sliding locking-spindle to, and holding it in its normal position, means connected with the sliding spindle and lying in the same plane as a fixed cam-surface over which said means will ride and move the spindle backward against the pressure of a spring, to withdraw the projection or lip clear of the hook-lever at the proper time, and the means for raising the hook-lever clear of the clip or lug on the endless traveling chain, substantially as set forth.

3. In a wiring-motion for carpet-looms, an endless traveling chain, and a sliding hook-box, carrying a pivoted catch or hook-ended lever, which lies in a plane directly over and centrally of the endless traveling chain, and in the path of lugs or clips secured to the traveling chain between the side links of same, and adapted to engage successively with said hook-lever to slide the hook-box outward to its full extent away from the loom, the said lugs or clips attached at their forward ends to the chain, means for holding the hook-lever in its normal position, a sliding locking-spindle carried in bearings in the hook-box, a spring encircling a part of same and confined between the head of the spindle and the end of a recess in the bearings, and acting to maintain the spindle in its outer extended position to lock the pivoted hook-lever, a vertical member connected to said spindle and extending through a longitudinal slot in the hook-box, a roll secured on the upper end of said vertical member, a fixed finger or extension having a cam-surface thereon which lies in the path of a roll, and over which said roll is adapted to ride when the hook-box approaches the limit of its outward traverse, and to be actuated thereby to withdraw the sliding spindle and release the hook-lever, and a semicircular recess in said finger to receive the roll as it passes away from the cam-surface and hold the hook-box in position until the scroll-band operates to draw back the hook-box, substantially as set forth.

752,975. **MACHINE FOR WORKING RUBBER.** ARTHUR N HOOD, Boston, Mass. Filed July 3, 1903. Serial No. 164,168. (No model.)



Claim.—1. A machine for working rubber comprising two sets of film-forming rolls, each set including a finishing-roll, a presser-roll arranged to coact with each finishing-roll, the finishing and presser rolls of each set being arranged in reverse relation to the finishing and presser rolls of the other set, substantially as described.

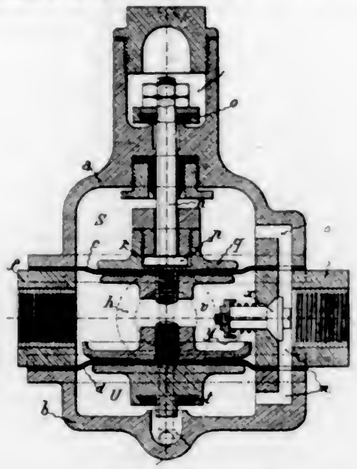
2. A machine for working rubber comprising two sets of film-forming rolls, each set including a finishing-roll, a presser-roll arranged to coact with each finishing-roll, the finishing and presser rolls of each set being arranged in reverse relation to the finishing and presser rolls of the other set, one of said finishing-rolls having an engraved or uneven surface and said finishing-rolls being removable and interchangeable, substantially as described.

3. A machine for forming rubber comprising two sets of film-forming rolls, each set including a plurality of film-forming rolls arranged in a vertical row with a space between it and the other row and a finishing-roll arranged in proximity to the topmost roll on the inner side thereof, and a presser-roll in proximity to each finishing-roll, substantially as described.

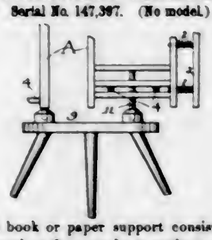
752,976. **DISTRIBUTING-VALVE FOR COMPRESSED-AIR BRAKES.** GEORGES HOUPLAIN, Paris, France. Filed Sept. 18, 1902. Serial No. 123,924. (No model.)

Claim.—A distributing-valve mechanism for fluid-pressure railway-brakes comprising a piston for establishing communication between the auxiliary reservoir and the brake-cylinder, a piston for establishing communication between the brake-cylinder and the atmosphere, a chamber between the said pistons, and a spring-con-

trolled valve in said chamber for regulating the passage of air from the train-pipe to the auxiliary cylinder.



752,977. READING-STAND. ANDREW HOWK, Olema, Cal. Filed Mar. 12, 1903. Serial No. 147,397. (No model.)



Claim.—1. A book or paper support consisting of a substantially rectangular rack or frame and supporting means therefor, projections extending to the front of the rack and adapted to support the lower edge of the book, an extension-frame forming a lateral continuation of the rack or frame and extending from the side member thereof said member having guides and said extension-frame having parallel rods movable in said guides, a lighting-bracket, and means upon the main and extension frames upon which the bracket is turnably mounted.

2. A book or paper support consisting of a main and supplemental detachable racks, supports for the lower edge of the book or paper upon the rack, a supplemental bar adapted to rest upon said supports having downwardly-projecting upturned strips whereby the lower-edge support may be extended below the bottom of the rack.

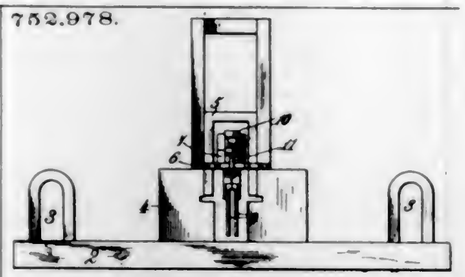
3. A reading-support for books or papers consisting of a main and supplemental rack, supports for the lower edge of the paper connected with the rack, removable side extensions, and a supporting-stand adapted to receive one or more of said racks, said stand having holes bored in the top, and rods entering said holes and connected with the racks whereby the latter are adjustably mounted upon the supports.

752,978. MITER-BOX. SIDNEY D. HOY, Sioux City, Iowa. Filed July 18, 1903. Serial No. 166,126. (No model.)

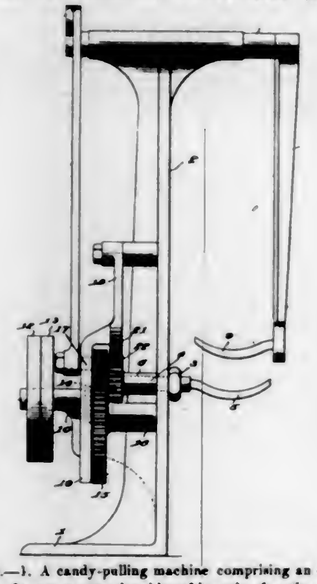
Claim.—1. In a device of the class described, a base, a standard connected to said base, a traveler on said standard, provided with a sector, a saw-guide provided with a stud, the sector having a hub to rotatively receive said stud, a hand-lever fixedly connected with said stud, and a detent carried by the hand-lever, the curved edge of the sector being notched to receive the detent.

2. In a device of the class described, a base, a standard connected to said base, a traveler on said standard, provided with a sector, a saw-guide supported by the sector, consisting of complemental plates, a spring-clip straddling the plates for holding them in working relation to each other, a hand-lever connected with the saw-guide for actuating the same, and a detent carried by the hand-lever, the sector being notched for engagement by the detent.

752,978.



752,979. CANDY-PULLING MACHINE. DENNIS T. IGOU, Springfield, Ohio. Filed Sept. 17, 1903. Serial No. 173,500. (No model.)



Claim.—1. A candy-pulling machine comprising an oscillating arm having fingers on opposite sides of its axis of motion, and a vibrating arm provided with a finger across the path of which the fingers of the oscillating arm move, the axes of said arms being parallel and said fingers supporting the candy, substantially as described.

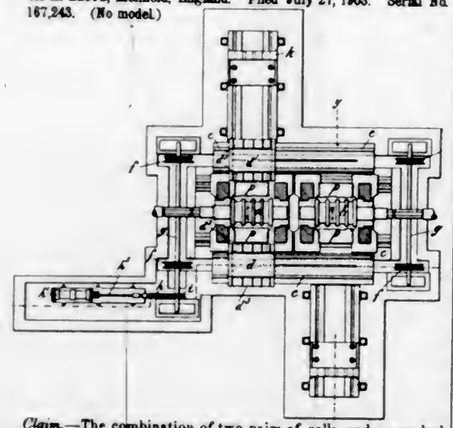
2. A candy-pulling machine comprising an oscillating arm having fingers on opposite sides of its axis of motion, and a vibrating arm provided with a finger across the path of which the fingers of the oscillating arm move, the finger of the vibrating arm passing between the fingers of the oscillating arm, the axes of said arms being parallel and said fingers supporting the candy, substantially as described.

3. A candy-pulling machine comprising an oscillating arm having fingers on opposite sides of its axis of motion, and a vibrating arm provided with a finger across the path of which the fingers of the oscillating arm move, the finger of the vibrating arm passing at each movement between the fingers of the oscillating arm from below upward, substantially as described.

4. A candy-pulling machine comprising an arm oscillating on a central horizontal axis and having fingers on opposite sides of said axis, in combination with a vibrating arm having at its upper end an axis parallel with and above that of the oscillating arm, said vibrating arm being provided with a finger at its lower end, the fingers of the oscillating arm moving across the path of the finger of the vibrating arm, and the finger of the vibrating arm passing between the fingers of the oscillating arm from below upward at each movement of the vibrating arm in either direction, substantially as described.

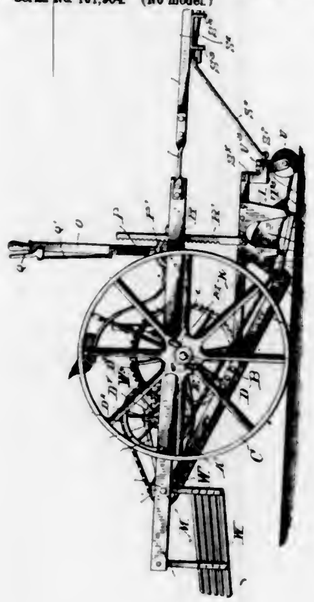
5. A candy-pulling machine comprising a rotating wheel provided with a crank-pin, a rocker-arm slotted to receive said crank-pin and provided with a gear-segment, an oscillating arm provided with fingers at its ends and a central shaft having a gear-segment meshing with that of the rocker-arm, a vibrating arm having a finger the path of which is crossed by the paths of the fingers of the oscillating arm, a shaft carrying said vibrating arm and provided with a crank-arm, and a link connecting said crank-arm with the crank-pin of the revolving wheel, substantially as described.

752,980. MACHINERY FOR THE MANUFACTURE OF METALLIC TUBES, &c. WILLIAM U. JACKSON, Heath Town, and FRANCIS H. LLOYD, Lichfield, England. Filed July 27, 1903. Serial No. 167,243. (No model.)



Claim.—The combination of two pairs of rolls, and a mandrel operative in connection with each pair of rolls, the said pairs of rolls being arranged end to end and being rotative in opposite directions, each pair of rolls having a series of gradually-diminishing eyes or grooves, the eyes or grooves of one pair of rolls alternating in size with the eyes or grooves of the other pair, thereby to permit a series or cycle of rolling operations to be conducted by the two pairs of rolls on a tube or billet to be treated thereby, combined with a pair of traveling tables, one at each side of the rolls, the tables being arranged to travel backward and forward simultaneously.

752,981. POTATO-DIGGER. JOHN JOHNSON, Lowville, N. Y., assignor of one-half to William L. Elliott, Lowville, N. Y. Filed June 17, 1903. Serial No. 161,904. (No model.)



Claim.—1. A potato-digger comprising a truck, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by beams projecting from the conveyer-frame, a vibrating rack made up of longitudinal strips, rock-shafts journaled underneath the plow and provided with integral lugs to which the strips of said rack are pivotally connected, crank-arms upon said rock-shafts, pitman connections between said crank-arms, and means actuated by said conveyer for rocking the shafts to impart a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, as set forth.

2. A potato-digger comprising a truck, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by the beams projecting from the conveyer-frame, a vibrating rack comprising longitudinal strips spaced apart and of varying lengths, the longest strips being positioned at the center of the rack and graduating in length toward the opposite sides of the plow, rock-shafts journaled underneath the plow and having integral lugs pivoted to the strips of said rack, crank-arms upon said shafts, a pitman pivotally connecting said crank-arms, and means actuated by said conveyer for imparting a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, as set forth.

3. A potato-digger comprising a truck, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by beams projecting from the conveyer-frame, depending bracket-arms secured to said beams, rock-shafts journaled in said bracket-arms, lugs integral with said rock-shafts, longitudinal strips of graduated lengths pivotally mounted upon said lugs and confined within the opening of the plow, means actuated by said conveyer for imparting a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, and means for holding the conveyer in an adjusted position, as set forth.

4. A potato-digger comprising a truck, a tongue secured thereto, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by beams projecting from the conveyer-frame, a vibrating rack made up of longitudinal strips of graduated length, rock-shafts having lugs to which said strips are secured, a pitman connecting the rock-shafts, means actuated by said conveyer for imparting a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, a hooked rod secured to said tongue and having a nut fitted on the threaded end thereof, a rod connecting said hook with said beam of the conveyer-frame, as set forth.

5. A potato-digger comprising a truck, a tongue secured there to, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by beams projecting from the conveyer-frame, a vibrating rack made up of longitudinal strips of graduated length, rock shafts having lugs to which said strips are secured, a pitman connecting the rock-shafts, means actuated by said conveyer for imparting a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, a bracket-arm secured to said tongue having downwardly-extending ends which are apertured, a hooked rod mounted in said apertures of the bracket-arm, a nut mounted on the threaded end of the hook, and a rod connecting the hook with said beam, as set forth.

6. A potato-digger comprising a truck, a conveyer-frame, an endless conveyer mounted thereon, a plow supported by beams projecting from the conveyer-frame, a vibrating rack made up of longitudinal strips of graduated lengths, rock-shafts having lugs to which said strips are secured, a pitman connecting said rock-shafts, and means actuated by said conveyer for imparting a longitudinal movement to the rack, whereby potatoes may be jumped up the inclined surface of the rack and deposited upon said conveyer, as set forth.

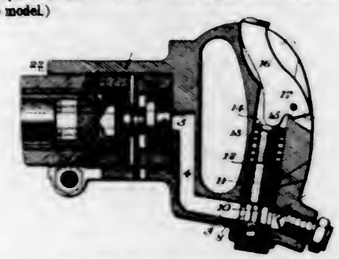
7. A potato-digger comprising a truck, a conveyer-frame, an endless conveyer thereon, forwardly-projecting beams secured to the conveyer-frame, plates secured to the faces of said beams and having downwardly-projecting arms, a plow supported intermediate the plates, shafts journaled in said arms and having lugs projecting therefrom, a rack made up of strips which are pivotally secured to said lugs and positioned in an open space intermediate the sides of the plow, and means actuated by the conveyer for rocking said shafts to impart a longitudinal reciprocating movement to the strips of the rack, whereby the potatoes may be jumped up in their inclined faces and deposited upon the conveyer, as set forth.

8. A potato-digger, comprising a truck, a conveyer-frame, an endless conveyer mounted thereon and means for actuating said conveyer, a plow supported by said conveyer-frame, a vibrating rack intermediate the plow and conveyer, a ratchet-wheel on one of the

conveyer-shafts, a reciprocating rod connected by crank-arms to the vibrating rack, and a spring for holding one end of said rod against the circumference of said ratchet-wheel, as set forth.

9. A potato-digger, comprising a truck, an endless conveyer and means for driving the latter, a plow connected to said frame, a rack intermediate said plow and conveyer and comprising rock-shafts with bars secured thereto, crank-arms secured to said shafts, a ratchet-wheel on one of the conveyer-shafts, a rod pivotally connecting said crank arms, and having a free end held in contact with the circumference of said ratchet-wheel, a plow having vertical sides along the marginal edges of the rack, as set forth.

752,982. **HANDLE FOR PNEUMATIC TOOLS.** JULIUS KELLER, Philadelphia, Pa., assignor to Philadelphia Pneumatic Tool Company, a Corporation of New Jersey. Filed Sept. 9, 1902. Serial No. 122,673. (No model.)



Claim.—1. A handle for a pneumatic tool, having a pressure-supply duct located exterior to its grasping portion, a duct or passage leading therefrom to the interior of said tool, a passage located in the grasping portion of said handle, a bushing located in said passage, a throttle-valve stem in said bushing, a throttle-valve attached to said stem by a neck, said valve being outside the grasping portion of said handle, a slit in the upper portion of said handle, a lever pivoted in said slit and projecting from the upper portion of said handle, and a pressure-piece upon said lever adapted to underlie the workman's thumb or finger as he grasps said handle.

2. In a pneumatic tool, a handle, a pressure-supply duct located exterior to the grasping portion thereof and leading to said tool, a passage in the grasping portion of said handle, a rotatable, ported throttle-valve bushing in said passage, means for locking said bushing in position, a throttle-valve located in the lower portion of said bushing and outside of the grasping portion of said handle, means intermediate the upper end of said bushing and valve for holding the latter normally closed, a slit or cut in the upper portion of said handle, an operating-lever for said throttle-valve pivotally mounted in said slit and projecting slightly therefrom at its upper end, and a thumb-piece arranged to underlie the thumb or finger of the workman's hand as he grasps the handle of the tool.

3. A grasping-handle for a pneumatic tool, having a rectilinear passage through its lower portion outside of said grasping portion, a second rectilinear passage therein located at substantially a right angle to said first-mentioned passage and discharging into said tool, a throttle-valve bushing located in said grasping portion, a throttle-valve located in the lower portion of said bushing and outside of the grasping portion of said handle, a stem projecting upwardly from said valve, a head on said stem, a spring interposed between the upper portion of said bushing and said head, a slit or cut in the upper portion of said handle, an operating-lever pivoted in said slit and projecting therefrom, and a thumb-piece on said lever adapted to underlie the workman's thumb or finger during the grasping of said handle.

4. A handle for a pneumatic tool, having a pressure-supply duct, located exterior to its grasping portion, a duct or passage leading therefrom to the interior of said tool, a passage located in the grasping portion of said handle, a throttle-valve bushing having ports therein and located in said passage, means for permitting the rotation and preventing the longitudinal movement of said bushing, a throttle-valve in said bushing, a stem projecting upwardly from said valve, a head on said stem, a spring interposed between the end of said bushing and head, a slit in the upper portion of said handle, an operating-lever pivoted in said slit, and a thumb-piece on said lever adapted to underlie the workman's thumb or finger during the grasping of said handle.

5. In a pneumatic tool, a handle, a pressure-supply duct extending therethrough exteriorly to the grasping portion, a passage leading therefrom to the interior of said tool, a throttle-valve bushing having ports therein and located in the lower portion of said passage, a throttle-valve in said bushing a stem projecting upwardly from said valve and having a head thereon, a spring interposed between the end of said bushing and head, a slit in the upper portion of said handle, an operating-lever pivoted in said slit, a cam on said lever engaging the head of said valve, a projection on said lever adapted to engage a suitable portion of said handle, and a thumb-piece on said lever adapted to underlie the workman's thumb or finger during the grasping of said handle.

6. In a pneumatic tool, a handle, a pressure-supply duct extending through said handle exteriorly to the grasping portion thereof, a throttle-valve bushing located in the grasping portion of said handle, a throttle-valve in said bushing, provided with a stem projecting upwardly from said valve and having a head thereon, a spring interposed between the upper end of said bushing and said head and means for operating said valve.

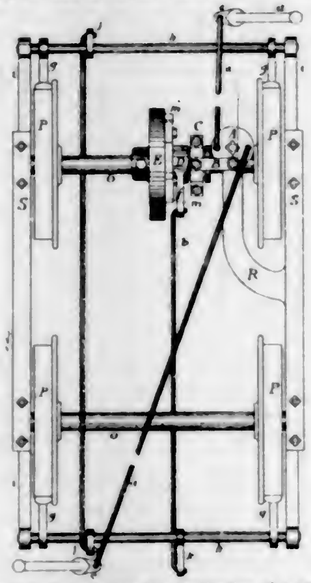
752,983. **CURTAIN-FIXTURE.** FRANCE I. KNIGHTON, Louisville, Ky. Filed Dec. 7, 1903. Serial No. 184,209. (No model.)



Claim.—1. As a new article of manufacture, a curtain-fixture comprising a plate having a socket, a bodkin inserted in said socket, a cord attached to said bodkin, and a second plate provided with a bobbin, substantially as and for the purpose specified.

2. In a curtain-fixture, the combination of securing-plates, a socket on one of said plates, a bodkin adapted to slip into said socket, a cord attached at one of its ends to said bodkin, and a ratchet-controlled bobbin rotatably mounted on the other of said plates adapted to take up the slack of, tighten and form a housing for said cord, substantially as specified.

752,984. **VEHICLE-BRAKE.** JAKE KNUTH and CHARLES READ, Oswego, Ill. Filed Oct. 25, 1902. Serial No. 128,708. (No model.)



Claim.—1. In a brake, the combination of a pair of beams, hangers carried by the beams, brake-shoes carried by the hangers, a rigid arm projecting upward from one of said beams, a rigid arm projecting downward from the other of said beams, a rod crossing the plane common to the centers of oscillation of the brake-beams and connecting said rigid arms whereby the brake-beams are compelled to oscillate in opposite directions, a second rigid arm projecting from one of said brake-beams at the side thereof opposite its aforesaid rigid arm, a rod connected to the rigid arm last aforesaid and means for exerting a pull upon said rod, substantially as described.

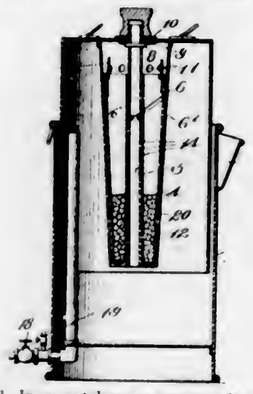
2. In a brake, the combination of a rotary shaft deriving its rotation from a ground-wheel, a clutch member rigidly secured to said shaft and having a flange, a coöperating clutch member mounted to slide upon the shaft, said coöperating clutch member having radially-presented friction-blocks adapted to engage the inner surface of said flange, radial stems carrying said friction-blocks, radial bearings in which said stems are radially adjustable, and means for adjusting said stems in said bearings, substantially as described.

3. In a brake, the combination of a rotary shaft deriving its rotation from a ground-wheel, a clutch member having a flange, a coöperating clutch member mounted to slide longitudinally upon the shaft and having radially-presented friction-blocks adapted to engage the inner surface of said flange, radial stems carrying said blocks, radial bearings in which said stems are radially adjustable and bolts for securing said stem in place, the openings through which the bolts pass being elongated radially, substantially as described.

4. In a brake, the combination of a rotary clutch member deriving its rotation from a ground-wheel, a slidable clutch member adapted to coöperate therewith, means for transmitting movement from the slidable clutch member to the brake-shoe and controllable means for operating the slidable clutch member, said controllable means including a rocker, pull-rods connected to said rocker at diametrically opposite points, and a link connected to said rocker at a point between the points of attachment of the pull-rods, substantially as described.

5. In a brake, the combination of a rotary clutch member deriving its rotation from a ground-wheel, a slidable clutch member adapted to coöperate therewith and capable of a limited rotary movement, means for transmitting movement from the slidable clutch member to the brake-shoe, a collar engaging the slidable clutch member, a link pivoted at one end to the collar, a rocker to which the other end of the link is eccentrically connected and a pair of pull-rods connected to the rocker at diametrically opposite points equidistant from the point of connection with the rocker, substantially as described.

752,985. **ACETYLENE-GAS GENERATOR.** HILLARD W. KOEHLER, Duquoin, Ill. Filed Apr. 24, 1903. Serial No. 154,154. (No model.)



Claim.—1. In an acetylene-gas generator in combination with a tank adapted to contain water, a bell inserted in said tank, a generating-chamber secured to the top of said bell and having substantially the same height, whereby it is adapted to be normally submerged in the water of said tank, and means for securing the generating-chamber to said bell comprising a pipe secured to and extending through the bottom of said generating-chamber and extending through the top of the bell and there secured by means of a nut, said pipe having an open lower end and being provided near its upper end with a series of openings.

2. In an acetylene-gas generator, in combination with a tank adapted to contain water, a bell inserted in said tank, a generating-chamber secured to the top of said bell and being of substantially the same height, whereby it is adapted to be normally submerged in the water of said tank, a series of segmental carbid-receptacles removably mounted side by side in parallel relation in said generating-chamber, and means located near the upper end of said generating-chamber for admitting water to said carbid-receptacles.

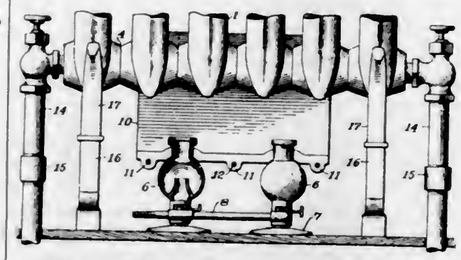
3. In an acetylene-gas generator in combination with a tank adapted to contain water, a bell inserted in said tank, a generating-chamber, means for securing said generating-chamber to the bell comprising a pipe secured to the bottom of the generating-chamber, extending upward through the same and having a screw-threaded end extending through the top of the bell and a nut secured to said screw-threaded end, a series of removable perforated carbid-receptacles surrounding said pipe, and means located near the upper end of said pipe for admitting water into the generating-chamber.

752,986. **PHOTOGRAPHIC DEVELOPING APPARATUS.** HUBERT KUCKELKORN and EMIL SAUPE, Erfurt, Germany. Filed June 29, 1903. Serial No. 163,650. (No model.)



Claim.—A photographic developing apparatus consisting of a receptacle having front and rear walls of transparent material and a countersunk portion in its top, inwardly-extending ribs integral with the end walls and the bottom of said receptacle, said ribs provided with guide-grooves and arranged at a point slightly removed from one side wall of the receptacle and that portion of the receptacle between said ribs and the other side wall forming a chamber for the developing liquid, said receptacle further provided in its top with a slot having the ends thereof registering with guide-grooves of the ribs of the end walls, an adjustable and closable inlet-pipe directly communicating with said chamber near one end thereof, a closable discharge-pipe communicating directly with the said chamber near the other end thereof, a hinged cover adapted to be seated in the countersunk portion of said top, said cover closing said slot, and a latch for securing said cover in its closing position, substantially as herein shown and described.

752,987. **HOT-WATER RADIATOR.** JAMES J. LAWLER, Mount Vernon, N. Y. Filed Oct. 23, 1902. Serial No. 128,398. (No model.)



Claim.—1. The combination with the radiator of a burner arranged beneath the same, a shield formed in two sections, having their inner edges snugly receiving the burner and said sections being curved outwardly and upwardly therefrom so as to extend on opposite sides of the radiator, apertured lugs formed integral with the inner edges of said sections, and a securing means arranged in the apertures of said lugs.

2. In combination with the radiator and the leg 16 of the stands 7 and the burners 6 mounted thereon, said stands and burners raised directly beneath the said radiator and between the said legs, and the shield secured to said burners and extending on opposite sides of the radiator.

752,988. **RUBBER-LIKE MATERIAL.** RICHARD A. LEIGH, Denver, Colo., assignor to the Western Rubber Company, Denver, Colo. Filed Dec. 8, 1903. Serial No. 184,355. (No specimens.)

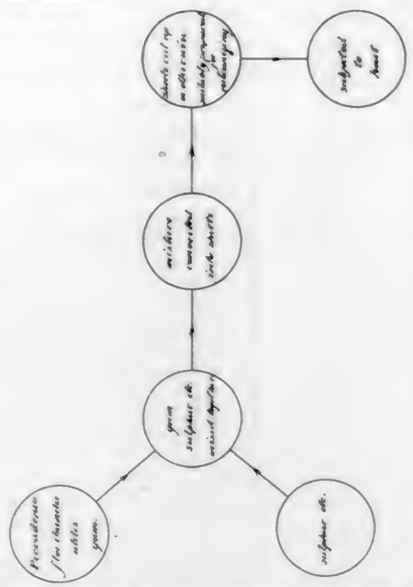
Claim.—1. As a new article of manufacture, the gummy constituents of the plant *Picradenia floribunda utilis*, agglomerated into a coherent mass and vulcanized.

2. The new manufacture or composition of matter resulting from heating agglomerated gummy portions of the plant *Picradenia floribunda utilis*, after mixing the same with sulfur or sulfur compounds.

3. The new manufacture or composition of matter resulting from heating under pressure a mixture of agglomerated gummy portions of the plant *Picradenia floribunda utilis* and sulfur or sulfur compounds.

4. The new manufacture or composition of matter resulting from heating a mixture of agglomerated gummy portions of the

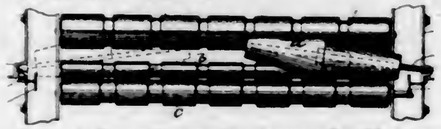
plant *Picradenia floribunda utilis* and sulfur or sulfur compounds and other matter.



5. The new manufacture or composition of matter resulting from heating under pressure a mixture of agglomerated gummy portions of the plant *Picradenia floribunda utilis*, sulfur and suitable coloring-matter.

6. The new manufacture or composition of matter resulting from the mixture of the gummy matter of the plant *Picradenia floribunda utilis* with one or more suitable ingredients, and the subsequent subjection of the mixture to heat.

752,989. ROLL-CLEANING DEVICE FOR SPINNING-MACHINES. VICTOR MAHIU, Willimantic, Conn. Filed June 23, 1903. Serial No. 162,763. (No model.)



Claim.—1. The combination with a cleaning-roller of the herein-described stop-plate comprising a base, the projection grooved lengthwise thereof, and a removable stop located in said groove.

2. The combination with a cleaning-roller of a grooved plate, and a stop normally located in said groove and supported on a yielding stem.

3. The combination with a cleaning-roller of the herein-described stop-plate provided with a groove, a slot cut in the wall of said groove, a spring secured to said plate extending first into the slot and from there to the front of the plate and provided with a button at its end, substantially as described and for the purposes set forth.

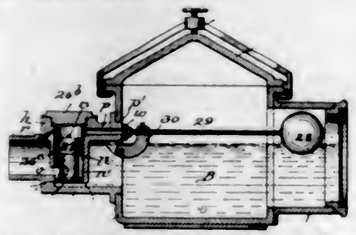
4. The combination with a roll-cleaning device comprising a body and a weight supported on a rod movable lengthwise through said body, of a stop-plate adapted to shift said weight from one end of the body to the other, said plate being adapted to offer resistance to the upward movement of the depressed end of the body to a limited extent.

752,990. COMBINATION DESK, BOOK-RACK, AND EASEL. EDWARD M. MILLER, Adrian, Ohio. Filed Sept. 25, 1902. Serial No. 124,317. (No model.)

Claim.—In a device of the class described, the combination with a supporting-frame comprising side bars and pivoted leg members, of braces pivoted to the leg members and detachably engaging the side bars, a shelf inclosed at its rear and ends and sustained by the side bars and projecting beyond the same to form a transverse rib, a blackboard, and devices movably connecting the blackboard to the frame, said devices each comprising a pair of links having their inner ends pivotally connected and their outer ends pivoted respectively to the board and the frame and constituting the sole connection between the parts and permitting free adjustment of the board to a position at the top of the frame, at the bottom of the frame, or an intermediate position over and resting upon the transverse rib and forming a front closure for the shelf.



752,991. AUTOMATIC INDUCTION-VALVE FOR BOTTLE-FILLING MACHINES. SAMUEL C. MILLER, Louisville, Ky. Filed Oct. 4, 1902. Serial No. 125,958. (No model.)

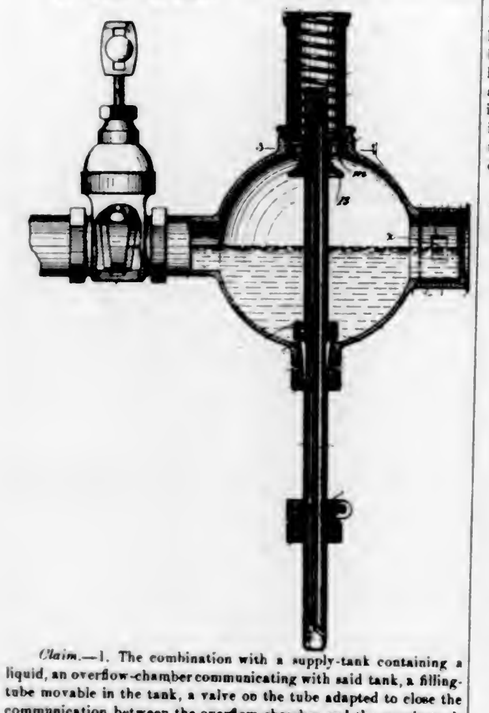


Claim.—1. The combination with a filling-tank, of an automatic liquid-controlling valve thereon, comprising a body bored in two diameters and secured to the tank, said body being provided with an upright valve-case having an open bottom and arranged in the larger bore with its lower end a short distance above the bottom of said bore, the body also having two oppositely arranged passages leading into the upper part of the valve-case, a floatable valve in the valve-case, and provided with an annular shoulder and a head at its lower end adapted to close the opening in the bottom of the valve-case, and a rod held to rock in the tank and having a float at one end and a valve at the other for closing one of the passages of the valve-body, as set forth.

2. The combination with a tank, of an automatic liquid-controlling induction-valve thereon, comprising a body having a bore in two diameters, and secured by one end in a side of the tank, a valve-case held upright in the horizontal body at right angles with its bore, said valve-case having an opening in its bottom forming a valve-seat, the valve-casing being transversely slotted at one side above and near said valve-seat, a by-pass passage leading from the front portion of the bore in the body into the valve-case above the valve therein, a duct formed in the thickened upper side of the body and extending from the valve-case above the valve into the tank, a floatable valve shouldered between its ends and adapted to slide in the valve-case, a valve-head on the lower end of the valve-body adapted to close the opening in the bottom wall of the valve-case, a rock-arm on the inner end of the body, a valve-rod carried by said rock-arm, a valve on one end of the rod, that will close the duct, and a float on the other end of said rod.

3. In a bottle-filling machine, an automatic liquid-controlling valve, comprising a body bored in two diameters and provided with a valve-case arranged in the larger bore with its lower end a short distance above the bottom of said bore, the lower end of the valve-case being open and provided with an inlet above said bottom, the said body being also provided with two passages of unequal size leading into the upper end of the valve-case, a floatable valve in the valve-case and having a valve-head and an annular shoulder above the said head, a rod mounted to swing, a float on one end of the rod, and a valve on the other end of the rod for closing the larger passage leading from the upper end of the valve-case, as set forth.

752,992. BOTTLE-FILLING MACHINE. SAMUEL C. MILLER, Louisville, Ky. Filed Nov. 7, 1902. Renewed Jan. 14, 1904. Serial No. 189,061. (No model.)



Claim.—1. The combination with a supply-tank containing a liquid, an overflow-chamber communicating with said tank, a filling-tube movable in the tank, a valve on the tube adapted to close the communication between the overflow-chamber and the supply-tank and means for introducing liquid matter in the tank after the valve has closed communication between the chamber and the tank whereby to cause a portion of the liquid in the tank to be forced through the filling-tube, substantially as set forth.

2. The combination with a filling-tank containing a liquid, of an overflow-chamber communicating with the tank, a valve closing the communication between the tank and the chamber, means for admitting a liquid into the tank while the valve is closed to force a portion of the liquid already in said tank therefrom, and means for permitting the return of the overflow liquid into the tank, substantially as set forth.

3. The combination with a filling-tank, and a valve-controlled supply-pipe communicating with one side of the tank, of a sight-chamber extending from the opposite side of the tank near its diametrical center and communicating therewith, said chamber having a transparent lining and the side wall of the chamber having an opening therein through which a part of the lining is exposed, thereby to show the height of liquid held within the tank and chamber, the outer end of said lining terminating short of the outer end of the chamber, a seal, and a cap closing said outer end of the chamber, said seal being confined in place between the outer end of the lining and the inner end of said cap.

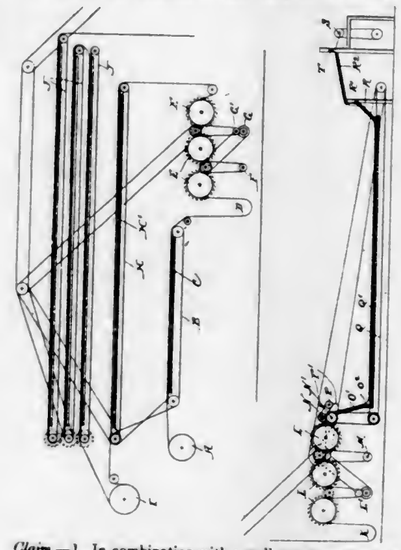
4. The combination with a filling-tank and means for introducing liquid therein under pressure, of a horizontal chamber extended at one side of the tank opposite its vertical center and opening therein, said chamber having an apertured side wall, a transparent lining, sealing-joints at the ends of the lining, and sealing-cap screwing on the outer end of the chamber for its closure.

5. The combination with a filling-tank, and means for introducing material into the tank, of an overflow-receptacle on the upper side of the tank, a spring-pressed filling-tube to receive liquid from the tank, and a valve on the filling-tube, adapted to close the lower end of the overflow-receptacle when the tank is lowered and the filling-tube slides upward.

6. The combination with a filling-tank and a valve-controlled supply-pipe therefor, of an overflow-receptacle on the upper side of the tank, a spring-pressed filling-tube that receives liquid from the tank, and an adjustable cup-valve mounted upon the filling-tube below an opening in the overflow-receptacle, closing said opening when the tank is lowered and the filling-tube slides upward.

7. In an apparatus of the character described, the combination with a filling-tank, of a hollow plug screwed into an opening in the lower side of the tank, said plug being conical or tapered for its full height interiorly, forming a thin annular upper edge thereto, the lower part of the plug being threaded exteriorly and having thereon a cap-nut containing a joint-washer, a spring-pressed filling-tube having apertures in its sides, and passing through the plug, and a sealing device carried by the filling-tube and normally seated upon said upper edge of the plug, substantially as shown and for the purpose described.

752,993. WALL-PAPER-DRYING MACHINE. LOUIS H. MCCARTNEY, Philadelphia, Pa., assignor to Quaker City Wallpaper Company, Philadelphia, Pa. Filed May 12, 1903. Serial No. 156,739. (No model.)



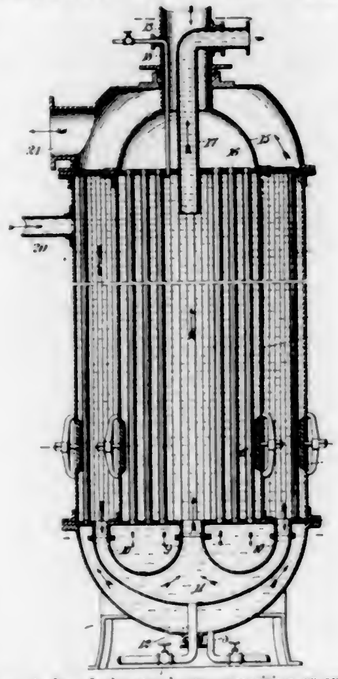
Claim.—1. In combination with a wall-paper, coating, printing and rolling machine, a wall-paper-drying machine, consisting of an endless heated belt over which the paper passes from the coating-machine, a series of heated drums over which the paper passes from this endless belt, idle pulleys, the paper passing downward between each drum and around said idle pulleys, an endless heated belt over which the paper then passes to the printing-machine, a series of heated endless belts arranged one above the other over which the paper then passes, a series of heated drums around which the paper then passes, idle pulleys, the paper passing downward between each drum and around said idle pulleys, nip-rollers between which the paper then passes, an inclined board guiding the paper downward from the nip-rollers, an endless belt over which the paper then passes, an upward inclined board and table over which the paper then passes to the machine for rolling the paper in rolls and cutting the same off, as specified.

2. In combination with a wall-paper, coating, printing and rolling machine, a drying-machine for wall-paper, consisting of a heated endless belt over which the paper passes from the coating-machine, the paper then passing downward to form a loop, a series of heated drums, the paper then passing upward and over the first of said drums, then over each succeeding drum, idle rolls located below the drums, the paper passing downward and around said idle rolls before passing to the next succeeding drum, a driven roll located below one of the idle rolls and in contact with the paper, an endless heated belt arranged above the drums and first-named belt over which the paper then passes to the printing-machine, a series of endless heated belts arranged one above the other and over the last-named heated

belt over which the paper passes successively from the printing-machine, the paper then passing downward to form a loop, a series of heated drums, the paper passing upward and over the first of said series, idle rolls journaled below the drums, the paper passing downward and around said idle rolls before passing to the next succeeding drum, a driven roll located below one of the idle rolls and in contact with the paper, a driven roll over which the paper passes from the last of the heated drums, a weighted roll lying on top of the paper passing over the driven roll, an inclined board down which the paper then passes, an endless belt arranged horizontally along which the paper then passes, an upward inclined board and table over which the paper then passes to the rolling-machine, as specified.

3. In combination with a wall-paper-drying machine, the wall-paper-rolling machine, a driven roll over which the paper passes from the drying-machine, a weighted idle roller lying on top of the paper passing over the driven roller, a series of annular grooves formed in the driven roller, a board hinged at its lower end, fingers secured to the board and flush with its outer surface and extending above its upper edge, said fingers lying within the annular grooves, a driven roller arranged in juxtaposition to the roller having the annular grooves, a series of rubber clappers or wings secured to this roller and adapted to rotate so that the clappers will come in contact and beat down the paper and prevent the same from passing around the weighted roller, an endless belt over which the paper passes from the hinged board, a board located underneath the upper run of said endless belt, an inclined board located near the other end of the endless belt upward over which the paper is adapted to pass, an inclined table over which the paper passes to the rolling-machine, as specified.

752,994. **FEED-WATER HEATER.** WILLIAM A. MCKEE, Hinckley, N. Y. Filed June 2, 1903. Serial No. 159,811. (No model.)



Claim.—1. In a feed-water heater comprising an outer cylinder, an inner cylinder, a chamber below said cylinders, a pipe providing communication from the space between the two cylinders and the interior of the inner cylinder, tubes extended through the inner cylinder and communicating with said lower chamber, a dome arranged over the upper ends of said tubes and having communication with an inlet-pipe for exhaust, a feed-water-outlet pipe leading from the inner cylinder, an outlet-chamber dome secured upon the upper end of the cylinders, tubes providing communication between said chamber and the said lower chamber, and an inlet-pipe communicating with the space between the two cylinders.

2. A feed-water heater comprising an outer cylinder, an inner cylinder, a chamber below said cylinders and closed from the space between the outer cylinder and the inner cylinder, a pipe providing communication from the space between the cylinders to the inner cylinder, tubes leading through the inner cylinder to said chamber, and tubes leading from said chamber through the space between the cylinders.

3. A feed-water heater comprising an outer cylinder, an inner cylinder, a chamber at the lower end of the heater, a dome arranged to embrace the upper end of the inner cylinder, tubes providing communication between said dome and the said chamber, a feed-pipe leading into said dome, an outlet-pipe for feed-water leading from said inner cylinder, a blow-off tube leading from said inner cylinder, a pipe providing communication from the space between the inner and outer cylinders to the interior of the inner cylinder, an outlet-chamber dome, and tubes providing communication between the first-named chamber and said outlet-chamber dome.

4. A feed-water heater comprising an inner cylinder, an outer cylinder, a branch pipe providing communication between the space formed between the two cylinders and the interior of the inner cylinder, said branch pipe having a settling-chamber, a discharge-pipe leading therefrom, a bowl-shaped header attached to the lower end of the cylinders, a spreader-dome arranged over the inner cylinder, tubes providing communication between said spreader-dome and the bowl-shaped header, and exhaust discharge-tubes leading upward from said bowl-shaped header.

5. In a feed-water heater, an outer cylinder, an inner cylinder, a pipe having a branch leading into the inner cylinder, branches leading into the space between the cylinders, the said pipe being enlarged at its lower portion to form a settlings-receiver, exhaust-tubes leading through the space between the cylinders, and circulating-tubes leading through the inner cylinder.

752,995. **CLOTH-FOLDER.** HORATIO NELSON, Philadelphia, Pa., assignor, by mesne assignments, to Samuel S. Wenzell, Philadelphia, Pa. Filed Aug. 27, 1903. Serial No. 171,016. (No model.)



Claim.—1. A cloth-folder consisting of a flattened tube having in one side a slot extending diagonally inward from one of its corners, substantially as specified.

2. A cloth-folding device consisting of a flattened tube having slots extending diagonally inward from each of its forward corners, substantially as specified.

3. A cloth-folding device consisting of a flattened tube having one side diagonally slotted at its forward end and having an inwardly-bent tongue on said slotted side of the tube, substantially as specified.

4. A cloth-folding device consisting of a flattened tube having one of its sides diagonally slotted at its forward end, and having, in the other side, a longitudinal opening for permitting access to the under layer of cloth, substantially as specified.

5. A cloth-folding device consisting of a flattened tube having one of its sides diagonally slotted at the forward end and also bent to form an inturned tongue, the other side of the tube having an opening for permitting access to the under layer of cloth, substantially as specified.

6. A cloth-folding device consisting of a flattened tube having one of its sides diagonally slotted at the forward end, the other side of the tube being closed at the ends but having an opening for permitting access to the under layer of cloth, substantially as specified.

7. A cloth-folding device consisting of a flattened tube having one of its sides diagonally slotted at the forward end and also bent to form an inturned tongue, the other side of the tube being closed at the ends but having an opening for permitting access to the under layer of the cloth, substantially as specified.

754,996. **HANGER.** GEORGE NIEMENSON, New York, N. Y. Filed Sept. 24, 1903. Serial No. 174,438. (No model.)

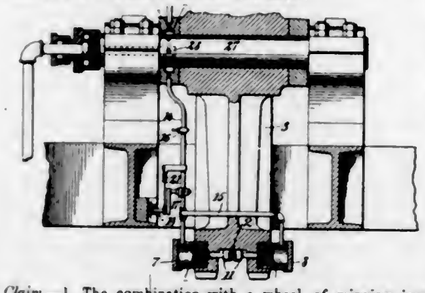
Claim.—1. A hanger comprising a casing having openings for the passage of pipes and the like, a sectional clamp for engaging a beam, a screw engaging the clamp-sections, and a pivot on which the casing is mounted to turn, the pivot screwing on the said screw to act as a nut to fasten the clamp-sections together, as set forth.



2. A hanger comprising a casing made in sections and having sets of oppositely-disposed openings, a pivot held between the sections of the casing and provided with a flange outside of the casing, a sectional clamp for engaging a beam, and a screw held on the clamp-sections and on which screws the said pivot, the flange of the pivot abutting against one of the clamp-sections, as set forth.

3. A hanger comprising a casing made in sections, removably fastened together and having openings for the reception of pipes and the like, a pivot on which the casing is mounted to turn, the pivot engaging both sections, to allow removal of either section without disconnecting the other section, and means for attaching the said pivot to a support, as set forth.

752,997. **GRIP-WHEEL.** HARLON F. OWG, Wendling, Oreg. Filed June 30, 1903. Serial No. 163,719. (No model.)



Claim.—1. The combination with a wheel, of gripping-jaws thereon, and means actuated by fluid-pressure for operating the jaws.

2. The combination with a grip-wheel, of a plurality of cylinders mounted thereon, pistons operating in the cylinders, gripping-jaws operated by the pistons, and means for controlling the inlet and exhaust of a motive agent for operating the pistons in the cylinders.

3. The combination with a cable-grip wheel, having peripheral flanges, of a plurality of pairs of cylinders mounted on said wheel, pistons operating in the cylinders, the flanges of said wheel having openings for the stems of the pistons, gripping-jaws on the piston-stems, a shaft for the wheel having a tubular portion, tubes leading from the cylinders and having communication with said tubular portion of the shaft, means for conducting compressed air to said tubular portion, valves in the tubes, and means for moving said valves to open and closed position.

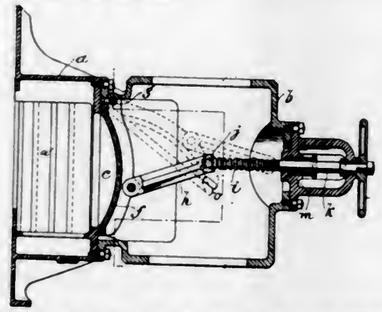
4. The combination with a traction-engine, of a cable-grip wheel thereon, a plurality of cylinders on the wheel, pistons in the cylinders, gripping-jaws operated by the pistons, a compressed-air tank on the engine, and pipe communications between said tank and the said cylinders.

5. The combination with a traction-engine, of a grip-wheel mounted thereon, a plurality of cylinders mounted on the wheel, pistons operating in the cylinders, gripping-jaws operated by the pistons, a main air-tank on the engine, a supplemental air-tank, a pipe connection between the main tank and supplemental tank, and pipe connections between said supplemental tank and the said cylinders.

6. The combination with a traction-engine, of a cable-grip wheel mounted thereon, a plurality of cylinders on the wheel, pistons operating in the cylinders, gripping-jaws connected to the pistons, an air-chamber casing mounted on the shaft of the wheel, means for supplying air thereto, pipe connections between said chamber and the several cylinders, valves in said pipe connections, and pairs of flanges for causing movements of the several valves to open or closed position.

752,998. **DEVICE FOR CONTROLLING THE SUPPLY OF STEAM TO FEED-WATER HEATERS.** MILLARD P. OSBOURN, Merchantville, N. J., assignor to Warren Webster and Company, a Corporation of New Jersey. Filed Aug. 1, 1903. Serial No. 167,810. (No model.)

Claim.—1. The combination with the inlet of a feed-water heater, of a casing secured thereto and provided with inlet and outlet openings for the passage of exhaust-steam and also with an opening communicating with the supply-opening of the heater-inlet, a hinged door in said casing controlling the supply-opening to the heater-inlet, a threaded spindle journaled in said casing, links carried by said door, and a threaded nut engaging said threaded spindle and journaled in said links.



2. The combination with the inlet of a feed-water heater, of a casing secured thereto and provided with inlet and outlet openings for the passage of exhaust-steam and also with an opening communicating with the supply-opening of the heater-inlet, a hinged door in said casing controlling the supply-opening to the heater-inlet, a threaded spindle journaled in said casing, links carried by said door, a threaded nut engaging said threaded spindle and swiveled in said links, and a limit-stop within said casing to limit the extent to which the door may be opened.

3. The combination with the casing *b* adapted for attachment to the inlet of a feed-water heater having inlet and outlet openings for the passage of steam and a third supply-opening to supply steam to the heater-inlet, a hinged door in said casing for controlling said third supply-opening, and means carried by the casing for opening and closing said door from the exterior.

4. The combination with the casing *b* adapted for attachment to the inlet of a feed-water heater having inlet and outlet openings for the passage of steam and a third supply-opening to supply steam to the heater-inlet, a hinged door in said casing for controlling said third supply-opening, means carried by the casing for opening and closing said door from the exterior, consisting of a threaded spindle journaled in the casing, a swivel-nut engaging said threaded spindle and a link connection between said swivel-nut and the door.

5. The combination with the casing *b* adapted for attachment to the inlet of a feed-water heater having inlet and outlet openings for the passage of steam and a third supply-opening to supply steam to the heater-inlet, a hinged door in said casing for controlling said third supply-opening, means carried by the casing for operating said door from the exterior and a link connection between said door and means for operating it.

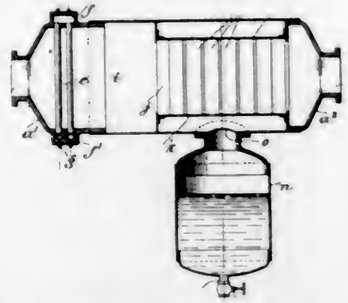
6. The combination with the casing adapted for attachment to the inlet of a feed-water heater, having inlet and outlet openings for the passage of steam and a third opening for supplying steam to the heater-inlet, a door to control said third opening having a hinge-pin, removable bearings for said hinge-pin carried by the casing, and means for opening and closing said door from the exterior of said casing.

752,999. **OIL-SEPARATOR.** MILLARD P. OSBOURN, Merchantville, N. J., assignor to Warren Webster and Company, a Corporation of New Jersey. Filed Aug. 6, 1903. Serial No. 168,416. (No model.)

Claim.—1. In an oil-separator, the combination of a shell having an inlet and an outlet, a series of baffles located between said inlet and outlet, and water-tubes arranged within the shell transversely in front of the inlet and forming a screen of water-cooled tubes through which the steam passes on entering the separator and before reaching the baffles.

2. In an oil-separator, the combination of a shell having an inlet and an outlet, a series of baffles located between said inlet and outlet, and water-tubes arranged within the shell transversely in front of the inlet and forming a screen of water-cooled tubes through which the steam passes directly on entering the separator and before reaching the baffles, said shell being provided with an expansion-chamber between said water-tubes and baffles, whereby the steam is first cooled and then expanded before reaching the baffles.

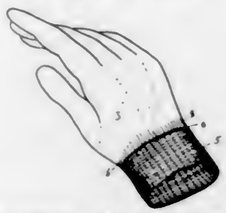
3. An oil-separator consisting of an outer body having an inlet and an outlet, and having a baffle-chamber provided with baffles, the interior of the separator between the inlet and baffle-chamber being of larger cross-sectional area than the baffle-chamber and inlet to form an expansion-chamber for the steam before it reaches the baffle-chamber.



4. In an oil-separator, the combination of an outer shell or body having an inlet and an outlet, and a baffle-chamber adjacent to the outlet formed by two parallel plates *k k* within the outer shell and baffles *m* extending between said plates, said outer shell being formed with an internal expansion-chamber *i* between the inlet and baffle-chamber.

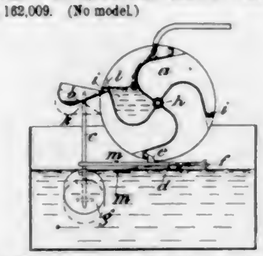
5. In an oil-separator, the combination of an outer shell or body having an inlet and an outlet, a baffle-chamber adjacent to the outlet formed by two parallel plates *k k* within the outer shell and baffles *m* extending between said plates the lower plate *k* being perforated, and a drip-chamber *n* communicating with the baffle-chamber through an opening *o* in the base of the shell below the lower perforated baffle-plate *k*.

753,000. GLOVE. WARREN B. PHILLIPS, Fort Wayne, Ind. Filed Aug. 4, 1900. Serial No. 25,880. (No model.)



Claim.—In combination with a glove or mitten body, a wristband secured completely around the top of said body and normally holding the same contracted, the said wristband containing nonyielding cords which range lengthwise respecting said body; and elastic strands of india-rubber which are interwoven with said cords and which range laterally respecting said body.

753,001. METER FOR MEASURING WATER OR OTHER LIQUIDS. OSCAR C. PIPER, Horsens, Denmark. Filed June 18, 1903. Serial No. 162,009. (No model.)

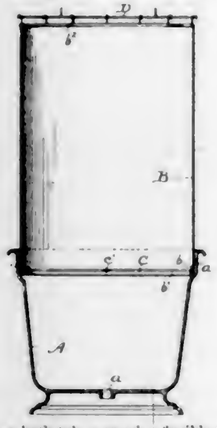


Claim.—1. The combination of a wheel having compartments therein, a receptacle arranged adjacent to said wheel, a rod upon which said receptacle is pivotally mounted, a lever connected to said rod and extending beneath the wheel, a catch on said lever adapted to be moved into and out of locking engagement with the wheel as the lever is raised or depressed, and stops for limiting the movement of the lever.

2. The combination of a fluid-motor, a locking-bar arranged adjacent to said motor, and a tipping receptacle connected with said bar, designed to contact with and receive fluid from said motor, substantially as set forth.

3. The combination of a wheel having compartments therein, a bar pivoted adjacent to said wheel, a rod connected with said bar, and a receptacle pivoted to said rod and designed to receive fluid from the compartments of the wheel, substantially as set forth.

753,002. BATH-TUB. CHARLES A. RICKS, Glenville, Ohio. Filed Sept. 4, 1902. Serial No. 122,026. (No model.)



Claim.—1. In a bath-tub, a vessel, a flexible tubular upper extension therefor, and a clamping means for forcing the flexible extension into contact with the vessel, substantially as described.

2. In a bath-tub, in combination, a vessel, a flexible tube extending inside the vessel near its upper end, a ring within the tube, and means for expanding the ring to force the tube into intimate contact with the vessel, substantially as described.

3. In a bath-tub, in combination, a vessel, a flexible water-tight tube, means for clamping the lower end of the tube in a water-tight manner to the upper end of the vessel, and means engaging the upper end of the tube for holding it in vertical position, substantially as described.

4. In a bath-tub, in combination, a vessel, a flexible rubber tube, said tube having an annular bead near its lower edge, a clamping-ring adjacent to said bead, and means for constraining said ring toward the vessel to force the rubber tube into intimate contact with the vessel, substantially as described.

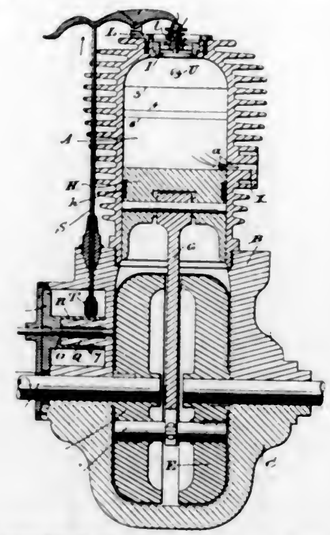
5. In a bath-tub, in combination, a vessel, a flexible rubber tube extending into the same, said tube having a pair of annular beads near its lower edge, a clamping-ring between said beads, and means for expanding said ring to force the rubber tube into intimate contact with the vessel, substantially as described.

6. In a bath-tub, in combination, a vessel substantially round at its upper end, a flexible water-tight cylindrical tube, and means for clamping the lower end of the tube to the upper end of the vessel in a water-tight manner, substantially as described.

753,003. GAS-ENGINE. ANSON G. RONAN, Toronto, Canada. Filed Jan. 24, 1903. Serial No. 140,378. (No model.)

Claim.—1. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; means for feeding raw liquid fuel into said explosion-chamber through said fuel-opening, and a valve controlling a port from said explosion-chamber to the atmosphere, of means whereby the valve is opened to permit the piston-head to remove waste products of combustion from explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port, so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke.

2. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; means operated by the suction-stroke or portion thereof of said piston-head, for feeding raw liquid fuel into said explosion-chamber through said fuel-opening, and a valve controlling a port from said explosion-chamber to the atmosphere, of means whereby the valve is opened to permit the piston-head to remove waste products of combustion from explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber; and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port, so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke.



3. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; a valve controlling a port from said explosion-chamber to the atmosphere, and means whereby said valve is opened to permit the piston-head to remove waste products of combustion from the explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port, so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke, of means for measuring and delivering a charge of raw liquid fuel into said explosion-chamber through said fuel-opening.

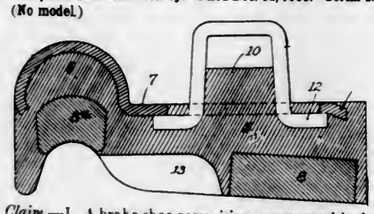
4. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port, opened and closed by the piston-head; said piston-head; a valve controlling a port from said explosion-chamber to the atmosphere, and means whereby said valve is opened to permit the piston-head to remove waste products of combustion from the explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port, so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke, of means, operated by the suction-stroke or portion thereof of said piston-head, for feeding raw liquid fuel into said explosion-chamber through said fuel-opening.

5. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; means for feeding raw liquid fuel into said explosion-chamber through said fuel-opening, and a valve, situated in the head of the explosion-chamber, controlling a port from said explosion-chamber to the atmosphere, of means whereby the valve is opened to permit the piston-head to remove waste products of combustion from explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port, so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke.

6. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; means for feeding raw liquid fuel into said explosion-chamber through said fuel-opening, and a valve controlling a port from said explosion-chamber to the atmosphere, of a bearing; a revolving member operating on said bearing, and means intermediate said revolving member and said valve, the said revolving member being constructed so as to operate said intermediate means so that the said valve is opened to permit the piston-head to remove waste products of combustion from the explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke.

7. The combination with an explosion-chamber, provided with an opening through which fuel only is fed, and a main exhaust-port opened and closed by the piston-head; said piston-head; means for feeding raw liquid fuel into said explosion-chamber through said fuel-opening, and a valve controlling a port from said explosion-chamber to the atmosphere, of a bearing; a rod resting against said revolving member, and means intermediate said rod and said valve, the said revolving member being constructed so as to operate said rod and said intermediate means so that the said valve is opened to permit the piston-head to remove waste products of combustion from the explosion-chamber during one of its inward movements, and kept open while the piston-head is moved a certain distance outward so as to admit fresh air into the explosion-chamber, then closed while the raw liquid fuel is fed into the explosion-chamber, and then opened and kept open until the piston-head has moved to the limit of its outward stroke and opened the main exhaust-port so as to remove the residue of the waste products of combustion, and then closed when the piston-head closes said exhaust-port on the return stroke.

753,004. BRAKE-SHOE. FITZ W. SARGENT, Mahwah, N. J., as signor to American Brake Shoe & Foundry Company, Mahwah, N. J., a Corporation of New Jersey. Filed Dec. 16, 1903. Serial No. 185,403. (No model.)



Claim.—1. A brake shoe comprising a cast metal body portion, a series of steel inserts on the face thereof disposed so as to wear on the outer edge and the flange of the wheel only, a steel backing for the cast body covering the entire surface thereof and having its edges anchored in the metal of the body, and metallic attaching means anchored underneath the steel back, substantially as described.

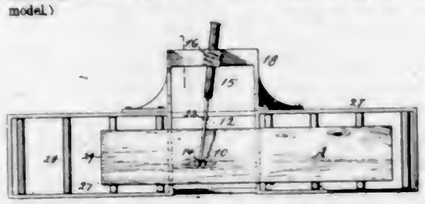
2. A brake shoe comprising a body portion having a recess over the inner tread portion of the wheel, a series of hard metal inserts, a steel back, and a malleable metal attaching lug.

3. A brake shoe comprising a body portion having a recess over the inner tread portion of the wheel, a series of hard metal inserts over the outer tread and flange of the wheel, a steel back, and a malleable metal attaching lug anchored beneath the steel back.

4. In a brake shoe the combination of a cast metal body portion, a malleable metal backing anchored in the cast metal of the body, and attaching means comprising a malleable hook at one end and a malleable post at the other, both of which are anchored underneath the steel back, substantially as described.

5. In a brake shoe the combination of a cast iron body having a recess over the inner tread of the wheel, a series of malleable metal inserts over the outer tread and the flange of the wheel, a malleable metal backing, a malleable metal hook extending under the malleable metal backing at one end, and at the other a malleable post extending through the shoe and having a shoulder underneath the malleable backing, substantially as described.

753,005. DUPLICATING DEFECT-TRACER. EDWIN M. SCHANTZ, Zimmerman, Ohio. Filed July 18, 1903. Serial No. 166,119. (No model.)



Claim.—1. In a duplicating defect-tracer for the purpose described the combination of a table consisting of two parts with a gap between them, two points, one being a tracer and the other a transferrer, a frame supported in the gap mentioned and on which these points are carried, a spring operating to hold them normally a fixed distance apart and means operatively connecting them in a manner that if one is moved toward the other this latter is caused to move also, approaching the moved point, while if one is moved in a direction at right angles to the movement first mentioned, the other is caused to follow the moved point, both moving them tdgether at a maintained distance apart.

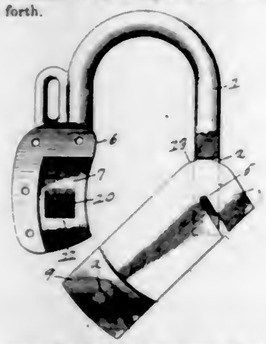
2. In a duplicating defect-tracer for the purpose described, the combination of a tracing and a transfer point, a support whereby the material may be held between these two points, arms, at one end of each of which these points are carried, one being arranged below the other, a support to which the other ends of each of these arms are attached, said support being pivotally mounted whereby the two arms may be swung simultaneously about in a horizontal plane and means connecting the arms to each other and operating so that if one arm is moved in a vertical direction the other is caused to move also vertically but opposite thereto.

3. In a duplicating defect-tracer for the purpose described, the combination of a tracer and a transfer point, an arm for each at one end of which it is carried, a sliding head to which the other end of each of these arms is hinged, a push-rod supported in this sliding head, links connecting it to these arms, a spring operating in a manner to normally keep the free ends of these arms apart, a swiveled bearing for the sliding head and means to support lumber in a manner that it may occupy a position between the tracer and transfer point, the operation being such that when the tracer-point is caused to bear against one side of the material, the transfer-point comes automatically in contact with the other side of this material after which, when one point is moved, the other follows automatically over the material.

753,006. CAR LOCK AND SEAL. JOSIAH SCOTT, Toledo, Ohio, assignor of one-half to Charles H. Burchinal, Toledo, Ohio. Filed Jan. 9, 1903. Serial No. 138,356. (No model.)

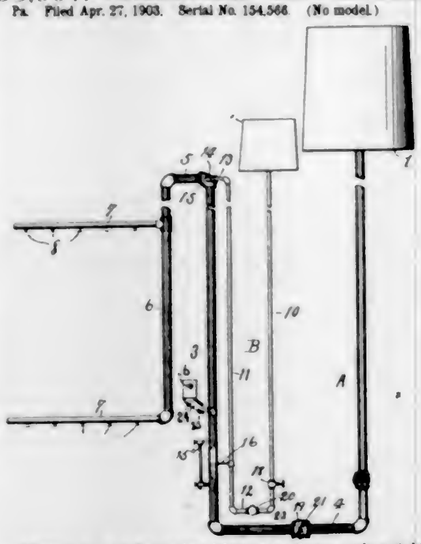
Claim.—1. In a car lock and seal, a lock proper of general U form having arms arranged in parallel relation, one of said arms being provided with means for securing one end of a sealing-plate, the other of said arms being formed with a pocket and a shouldered recess communicating therewith, and a sealing-plate having a tongue near one end deflected from the plane of the body portion thereof and adapted to enter and engage said recess to lock the plate in position, as set forth.

2. In a car lock and seal, a lock proper of general U form, having arms arranged in parallel relation, one of said arms having a slotted end and a pin extending transversely of the same, the other arm being enlarged and formed with a pocket open at the bottom and side, and a shouldered recess communicating with said pocket, and a sealing-plate having a hook-shaped end adapted to enter the slot in the first-mentioned arm and engage the transverse pin, the opposite end of said plate being provided with a tongue to enter and engage the recess in the enlarged arm to lock the plate in position, as set forth.



3. In a car lock and seal, a lock proper of general U form, having arms arranged in parallel relation, one of said arms having a slotted end and a pin extending transversely of the same, the other arm being enlarged and formed with a pocket open at the bottom and side and a shouldered recess communicating with said pocket, and a sealing-plate having a hook-shaped end adapted to enter the slot in the first-mentioned arm and engage the transverse pin, the other end of said plate being formed with a tongue to enter and engage the recess in the enlarged arm and a shoulder formed in the sealing-plate adjacent to the tongue, substantially as shown and described.

753,007. FIRE-EXTINGUISHER. HENRY C. SHAW, Glenshaw, Pa. Filed Apr. 27, 1903. Serial No. 154,566. (No model.)



Claim.—1. In a fire-extinguisher, a set of automatic sprinklers, reservoirs containing fluids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for said liquids, and pipes connecting said chamber and reservoirs and the chamber and the sprinklers.

2. In a fire-extinguisher, a set of automatic sprinklers, reservoirs containing fluids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for said liquids, U-pipes for conveying the liquids to said chamber, a pipe connecting the chamber and the sprinklers

3. In a fire-extinguisher, a set of automatic sprinklers, reservoirs containing liquids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for said liquids, U-pipes for conveying the liquids to said chamber, a cross-connecting pipe between the U-pipes and a pipe connecting the chamber and the sprinklers.

4. In a fire-extinguisher, a set of automatic sprinklers, reservoirs containing liquids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for said liquids, U-pipes for conveying the liquids to said chamber, and a cross-connecting pipe between the U-pipes, pipes connecting said chamber and the sprinkler, and a liquid-gage on one of the U-tubes.

5. In a fire-extinguisher, having automatic sprinklers, reservoirs for fluids, a mixing-chamber, pipes for connecting the reservoirs with the mixer and the mixer with the sprinklers, a cross-pipe connecting between the pipes, intermediate the tanks and the mixer.

6. In a fire-extinguisher having automatic sprinklers, a set of pipes provided with automatic sprinklers, reservoirs for liquids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for the liquids, and fluid-checking means located between the sprinklers and the tank and opening toward the mixing-chamber, the said checking means checking the flow of fluid into the said tanks.

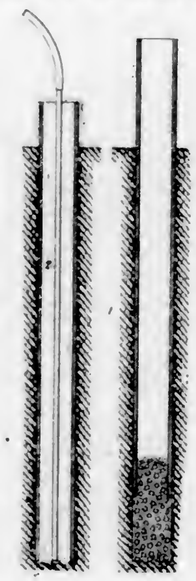
7. In a fire-extinguisher, a set of pipes provided with automatic sprinklers, reservoirs for liquids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for the fluids, pipes connecting the tanks and the mixing-chamber, and check-valves in the last-named pipes opening toward the mixing-chamber.

8. In a fire-extinguisher, a set of pipes provided with automatic sprinklers, reservoirs for liquids capable when mixed of forming a fire-extinguishing gas, a mixing-chamber for the fluids, pipes connecting the tanks and the mixing-chamber, and check-valves in the last-named pipes opening toward the mixing-chamber, said check-valves being provided with small holes to permit the flow of the fluids toward the reservoirs.

9. In a fire-extinguisher, a set of automatic sprinklers, reservoirs for liquids capable when mixed of forming a fire-extinguishing gas, one reservoir having greater elevation than the other, a mixing-chamber for the fluids, and pipes connecting the reservoirs and the mixing-chamber, and the mixing-chamber and the sprinklers.

10. In a fire-extinguisher, automatic sprinklers, reservoirs containing liquids a mixing-chamber for the fluids, pipes connecting the reservoirs and the chamber, and the chamber and the sprinklers, a pair of electric terminals in one of the tubes above the normal liquid-line, and an alarm and a source of electricity connected to the said terminals.

753,008. FORMING CONCRETE PILES. FRANK SHUMAN, Philadelphia, Pa. Filed Dec. 21, 1903. Serial No. 186,038. (No model.)



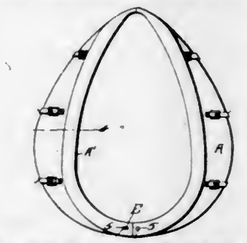
Claim.—1. The mode of forming concrete piles which consists in sinking an open-bottomed tube into the ground to the proper depth, removing the earth from the interior of said tube, introducing the concrete into the tube, and withdrawing the latter, so that the concrete will pass from its lower end into the opening, substantially as specified.

2. The mode of forming concrete piles which consists in sinking an open-bottomed tube into the ground to the proper depth, removing the earth from the interior of the tube, slowly or intermittently withdrawing the tube, and introducing concrete into the opening through said tube, as the latter is thus withdrawn, substantially as specified.

3. The mode of forming concrete piles which consists in sinking an open-bottomed tube into the ground to the proper depth, removing the earth from the interior of the tube simultaneously with the sinking of the same, introducing concrete into the tube, and withdrawing the tube so that the concrete will pass from its lower end into the opening, substantially as specified.

4. The mode of forming concrete piles which consists in sinking an open-bottomed tube into the ground to the proper depth, removing the earth from the interior of the tube simultaneously with the sinking of the same, slowly or intermittently withdrawing the tube, and introducing concrete into the opening through the tube as the latter is thus withdrawn, substantially as specified.

753,009. PNEUMATIC HORSE-COLLAR. EDWARD L. SILL, Woodward, Okla. Filed Jan. 22, 1903. Serial No. 140,095. (No model.)



Claim.—A pneumatic horse-collar consisting of a rigid frame consisting of two sections composed of two metallic sheets, a tube formed by curling the inner edges of the metallic sheets, straps connecting the two sections at their bottoms, an air-pad mounted upon the metallic sheets and a metallic rod whereby the air-pad is held within the tube, and straps whereby the air-pad is detachably connected to the rigid frame, substantially as and for the purposes specified.

753,010. DIE FOR PRODUCING ARTICLES FROM PLASTIC MATERIALS. LOUIS STEINBERGER, New York, N. Y. Filed July 13, 1903. Serial No. 165,249. (No model.)



Claim.—1. A die for molding, comprising a member provided with pins inclined obliquely, a second member provided with holes inclined obliquely for engaging said pins, and means for spacing said members apart so as to form a flask.

2. A die for molding, comprising a longitudinal member provided with pins rigidly connected therewith and inclined relatively thereto, a second longitudinal member provided with holes mating said pins and inclined obliquely, and spacing-blocks connected with one of said members and provided with surfaces to be engaged by the other of said members.

3. A die for molding, comprising mechanism provided with a surface to be engaged by the material to be molded, pins projecting from said surface and slanting relatively thereto, bosses projecting above said surface and provided with pins, said pins and said bosses respectively being so disposed as to be partially enveloped by said material for the purpose of forming holes and countersinks therefor, and means for bringing into engagement with said mechanism the material to be molded so as to partially embed said boses and said pins.

4. A die for molding, comprising a bottom plate provided with pins, a box-like member to be fitted upon said bottom plate and

provided with apertures engaging said pins, said box-like member being further provided with pins inclined relatively to a surface of said box-like member, spacing-blocks for engaging said box-like member, and a top plate provided with apertures for engaging all of said pins, said top plate being free to rest upon said spacing-blocks.

5. A die for molding, comprising a longitudinal die member provided with pins inclined relatively thereto, a longitudinal die member provided with holes, the general direction of which is inclined relatively to said longitudinal member, and mechanism to be connected with said die members so as to form a flask.

6. A die for molding, comprising a bottom plate provided with bosses and with upright members, a box-like member to fit upon said bottom plate and provided with holes engaging said bosses, said box-like member being further provided with inclined members, and with holes for engaging said upright members, and spacing-blocks for engaging said box-like member and said top plate.

7. A die for molding, comprising a plurality of parts adapted to fit together and thus form a flask, one of said parts being provided with a flat surface and with pins mounted thereon and inclined relatively thereto, and spacing-blocks adapted to engage said parts.

8. A die for molding, comprising mechanism provided with pins inclined relatively thereto, said pins having rounded ends, a member provided with holes mating said pins and free to detachably engage the same, and mechanism for spacing said members apart, thereby forming a flask.

9. A die for molding, comprising a longitudinal member provided with pins inclined relatively thereto, said die being also provided with holes extending vertically, pins for engaging said holes, a second longitudinal member provided with holes for engaging all of said pins, and spacing-blocks and bearing mechanism connected with one of said members.

10. A die for molding, comprising mechanism provided with a surface to be engaged by the material to be molded, slanting pins free to project from said surface, bosses projecting above said surface and provided with pins, said pins and said bosses respectively, and also said slanting pins, being so disposed as to be partially enveloped by said material for the purpose of forming holes and counsinks therefor, and means for bringing into engagement with said mechanism the material to be molded.

11. A die for molding, comprising mechanism provided with upright pins and also with slanting pins, a member provided with holes for engaging all of said pins, and means for spacing said mechanism relatively said member.

12. A die for molding, comprising mechanism provided with upright pins and with pins disposed obliquely to said upright pins, a member provided with holes disposed at different angles for the purpose of mating said upright and said oblique pins, and means for detachably securing said members together.

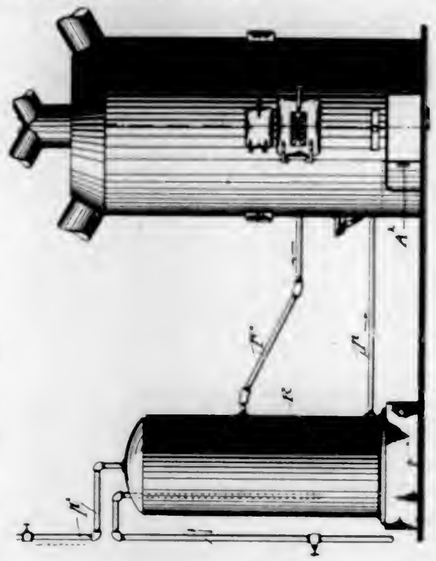
13. A die for molding, comprising a plurality of separable parts adapted to fit and form a box-like member, said box-like member having both upright and slanting pins and having upright and slanting holes for mating said pins, and means for closing said box-like member.

753,011. HOT-AIR AND HOT-WATER FURNACE. LOUIS A. STEYNE, New York, N. Y. Filed Sept. 18, 1903. Serial No. 173,692. (No model.)

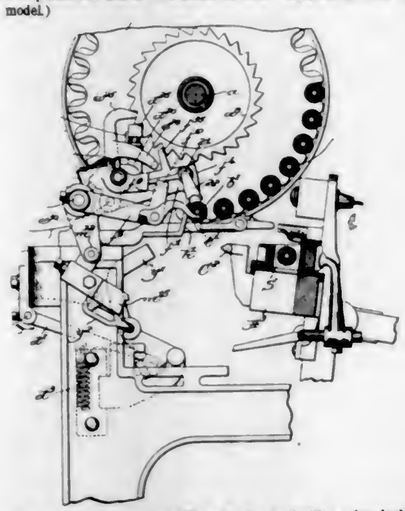
Claim.—1. In a combined hot-air and hot-water furnace, the combination of a fire-pot, a water-back surrounding the fire-pot, a feed-chute for the fire-pot, a smoke-pipe leading from the fire-pot to the chimney, an extension on the fire-pot above the . .me, a system of heating-chambers and connecting-flues above and around the extension, a smoke-pipe connecting the upper heating-chamber with the chimney, a casing inclosing the fire-pot and system of heating chambers and flues, and a slide-plate arranged to cut off the fire-pot from the said extension, substantially as set forth.

2. In a combined hot-air and hot-water furnace, the combination of a fire-pot, a cylindrical extension supported above the fire-pot, an upper chamber connected with the upper end of the extension, a lower chamber supported on the fire-pot, a top chamber above the upper chamber, a series of downwardly-extending flues between the upper and lower chambers, a system of upwardly-extending flues, between the lower chamber and the top chamber, said flues passing through the upper chamber, a smoke-pipe connecting the top chamber with the chimney for conducting off the products of combustion, and an exterior casing surrounding the fire-pot and the systems of air-heating chambers and flues and provided with air-flues for conducting the hot air to the apartments to be heated, substantially as set forth.

3. In a combined hot-air and hot-water furnace, the combination of a fire-pot, a water-back surrounding the fire-pot, a smoke-pipe connecting the fire-pot with the chimney, a cylindrical extension supported above the fire-pot, an upper chamber connected with the upper end of the extension, a lower chamber supported on the water back, a top chamber above the upper chamber, a series of downwardly-extending flues between the upper and lower chambers, a system of upwardly-extending flues between the lower chamber and the top chamber, said flues passing through the upper chamber, a smoke-pipe connecting the top chamber with the chimney for conducting the products of combustion to the chimney, and a horizontally-guided slide-plate adapted for separating the fire-pot from the extension so as to permit the independent use of the fire-pot for hot-water heating, substantially as set forth.



753,012. FILLING-REPLENISHING LOOM. EDWARD S. STIMPSON, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 15, 1903. Serial No. 177,133. (No model.)



Claim.—1. A rotatable filling-feeder to hold a circularly-arranged series of filling-carriers, a transferrer, and means, including a device movable with and also relatively to the transferrer and having a cushioned impact member, to move the feeder positively and intermittingly without shock and place the filling-carriers one by one in position to be transferred.

2. A rotatable filling-feeder to hold a circularly-arranged series of filling-carriers, a transferrer, a device movably mounted thereof having a cushioned impact member, and a toothed disk movable with the feeder, return of the transferrer to normal position first causing the impact member to engage said disk, and yieldingly overcome the inertia of the feeder and thereafter to positively advance the same a predetermined distance, whereby another filling-carrier is moved into position to be transferred.

3. A rotatable filling-feeder to hold a series of circularly-arranged and equidistant filling-carriers, a transferrer, and means mounted thereon to yieldingly start, and positively complete and stop, an angular movement of the feeder of fixed amplitude by or through each operation of the transferrer.

4. A rotatable filling-feeder to hold a series of circularly-arranged and equidistant filling-carriers, a transferrer, a spring-controlled device pivotally mounted thereon provided with a cushioned impact member, to yieldingly start and thereafter complete a predetermined angular advance of the feeder on the return of the transferrer to normal position, and a detent to prevent retrograde movement of the feeder.

5. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, a transferrer, a spring-controlled device pivotally mounted thereon and having a yieldingly-supported impact member, a toothed disk rotatable with the feeder, and a detent to prevent retrograde movement of the latter, operative movement of the transferrer positioning said device and return movement of the transferrer causing the impact member to engage the disk and yieldingly start and complete a predetermined advance of the feeder.

6. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, a ratchet-wheel rotatable therewith, a transferrer, a dog thereon having a yieldingly-supported tip to coöperate with the ratchet-wheel, a detent to prevent retrograde movement of the feeder, operation of the transferrer advancing the dog upon the ratchet-wheel and its return to normal position acting through said dog to yieldingly start and move the feeder forward a predetermined distance, and stopping means for the feeder acting independently of the filling-carriers therein.

7. A step-by-step rotatable feeder adapted to hold a plurality of filling-supplies, a transferrer to remove them one by one, and cushioned means mounted on and controlled by movement of the transferrer to overcome the inertia of the feeder without shock and effect a predetermined angular movement of the feeder after operative movement of the transferrer.

8. A step-by-step rotatable feeder adapted to hold a plurality of filling-supplies, a transferrer to remove them one by one, a spring-controlled detent to prevent retrograde movement of the feeder, and cushioned means mounted on and controlled by movement of the transferrer to overcome the inertia of the feeder without shock and effect a predetermined angular movement of the feeder after operative movement of the transferrer.

9. A step-by-step rotatable feeder adapted to hold a plurality of filling-supplies, a ratchet-wheel rotatable therewith, a transferrer to remove the filling-supplies one by one, a dog pivotally mounted on the transferrer, and a spring-controlled plunger-tip carried by the dog to coöperate with the ratchet-wheel, operation of the transferrer advancing the tip along the ratchet-wheel and return movement of said transferrer causing said tip to yieldingly start and then advance said ratchet-wheel and feeder to place another filling-supply in position to be transferred.

10. A step-by-step rotatable feeder adapted to hold a plurality of filling-supplies, a ratchet-wheel rotatable therewith, a transferrer to remove the filling-supplies one by one, a dog pivotally mounted on the transferrer, and provided with a yieldingly-sustained tip, a spring carried by the transferrer to act upon the dog and rock it into active position upon operative movement of the transferrer, return of the latter to normal position causing the tip to engage and yieldingly start the ratchet-wheel and then complete its advance, and means to stop the advance of the feeder independently of the filling-supplies therein.

11. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers, a ratchet-wheel rotatable with said feeder, a transferrer, means mounted thereon to yieldingly engage the ratchet-wheel and effect a predetermined angular advance of the feeder after each operation of the transferrer, a detent to prevent retrograde movement of the latter, and means to disengage said means from the ratchet-wheel by or through movement of the detent to inoperative position.

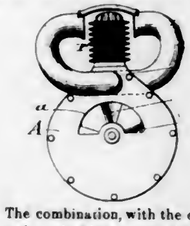
12. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers, a transferrer, means mounted thereon and including a cushioned impact member, to yieldingly engage and effect a predetermined angular advance of the feeder after each operation of the transferrer, and a device acting through said means to stop the advance of the feeder independently of the filling-carriers therein.

13. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers, a transferrer, means mounted thereon and including a cushioned impact member, to yieldingly engage and effect a predetermined angular advance of the feeder after each operation of the transferrer, a detent for the feeder, mounted independently of the transferrer, and a device carried by the detent to render said feeder-advancing means inoperative by or through manual retraction of the detent.

14. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers, a transferrer, means governed by or through movement thereof to effect a predetermined angular advance of the feeder after each operation of the transferrer, and a fixed guard to limit manual movement of the transferrer.

15. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers, a ratchet-wheel rotatable with said feeder, a transferrer, a dog fulcrumed thereon, a spring-controlled impact member mounted on said dog to yieldingly coöperate with the ratchet-wheel and effect angular advance of the feeder upon retraction of the transferrer, a positioning-spring for the dog, mounted on the transferrer and acting to position the dog and its impact member relatively to the ratchet-wheel upon operative movement of the transferrer, and a detent to at such time prevent retrograde movement of the feeder.

753,013. COOLING ATTACHMENT FOR INTERNAL-COMBUSTION ENGINES. JOHN W. SUTTON, Brooklyn, N. Y. Filed Oct. 22, 1902. Serial No. 128,281. (No model.)



Claim.—1. The combination, with the crank-case, cylinder and piston of an internal-combustion motor, of a fly-wheel on the crank-shaft of said motor, ventilating means actuated by said fly-wheel, air-inlet openings in said crank-case, an exterior deflecting-hood extending over and around the top of the cylinder, an opening at the upper part of each side of the crank-case, and pipes connecting the openings with said deflecting-hood for cooling the exterior of the cylinder, substantially as set forth.

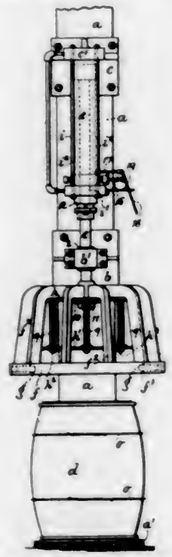
2. The combination, with the crank-case, cylinder and piston of an internal-combustion motor, said crank-case being provided with air-inlet openings, of fly-wheels arranged at the interior of said crank-case and provided with spirally-bent spokes or vanes so as to force the current of air into the cylinder, a deflecting-hood located at the outside of the cylinder and over the same, outlet-openings in the upper part of the crank-case and in each side of the same, and pipes connecting the outlet-openings of the crank-case with said hood, so as to supply air to the exterior of the cylinder, substantially as set forth.

753,014. MACHINE FOR APPLYING BILGE-HOOPS TO CASKS OR BARRELS. ERNEST C. THORSCHMIDT, New York, N. Y., assignor to himself, and Erastus H. Barnes, Brooklyn, N. Y. Filed Aug. 31, 1903. Serial No. 171,339. (No model.)

Claim.—1. In a machine for applying bilge-hoops to casks or barrels, the combination with a standard, a vertically-moving piston-rod or plunger and means for actuating the same, of an annulus structure comprising adjacent ring plates with downturned arms integral with one of said plates, and said plates connected to and suspended from the lower end of the piston-rod or plunger, and a circularly-arranged series of outwardly-yielding devices located between said plates.

2. In a machine for applying bilge-hoops to casks or barrels, the combination with a standard, a vertically-moving piston-rod or plunger and means for actuating the same, of an annulus structure comprising adjacent ring plates with downturned arms integral with one

of said plates, and said plates connected to and suspended from the lower end of the piston-rod or plunger, a circularly-arranged series of outwardly-yielding devices located between the said plates, and other yielding devices within the downturned arms of the annular structure adapted to engage the uppermost end of the cask or barrel and hold the same in position against the return and disengaging movement of the annular structure.



3. In a machine for applying bilge-hoops to casks or barrels, the combination with a standard, a vertically-movable piston-rod or plunger and means for actuating the same, of an annulus structure comprising adjacent ring plates with downturned arms integral with one of said plates and said plates connected to and suspended from the lower end of the piston-rod or plunger, a circularly-arranged series of radially-placed spring-projected dogs extending within the inner diameter of the annulus and located between said plates, substantially as set forth.

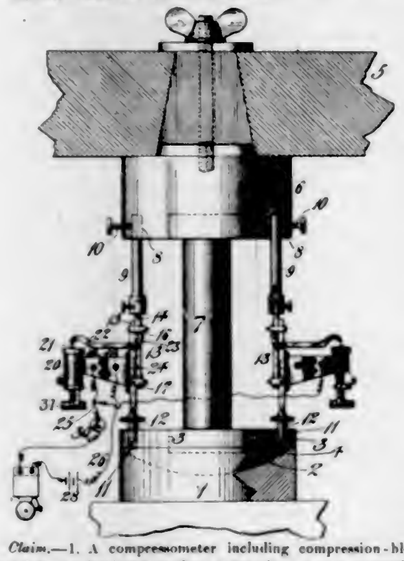
4. In a machine for applying bilge-hoops to casks or barrels, the combination with a standard, a vertically-movable piston-rod or plunger and means for actuating the same, of an annulus structure comprising adjacent ring plates with downturned arms integral with one of said plates and said plates connected to and suspended from the lower end of the piston-rod or plunger, a circularly-arranged series of radially-placed spring-projected dogs extending within the inner diameter of the annulus and located between said plates, and a yielding structure secured within the area of the arms of the annulus structure and connected thereto at the lower end of the piston-rod or plunger and comprising two parallel plates with a series of vertically-placed rods connecting the same and interposed springs about said rods, substantially as set forth.

5. In a machine for applying bilge-hoops to casks or barrels, the combination with a standard, a vertically-movable piston-rod or plunger and means for actuating the same, a series of downturned arms f' centrally connected to and suspended from the lower end of the piston-rod or plunger, an L-shaped annulus-plate preferably formed integral with said arms and occupying a horizontal plane, an annulus-plate received within the aforesaid L-shaped plate and having in its upper surface a series of radial ribs between which are radial grooves, the ribs being tapering and the grooves parallel-sided and a circularly-arranged series of dogs received within said grooves, springs for projecting said dogs and means for limiting the extent of said projection.

6. In a machine for applying bilge-hoops to casks or barrels, the combination with an L-shaped annulus-plate f and a series of arms f^3, of an annulus-plate f' received within the plate f, bolts for removably connecting the said parts, a series of tapering radial ribs 3 rising from the surface of the plate f' to contact with the under side of the plate f, a series of intermediate shallow tapering ribs 4 between the ribs 3 so that between the several ribs there are parallel-sided grooves forming slideways, dogs g adapted to be received in said grooves and which are preferably square in cross-section and provided with longitudinal intersecting slots and recessed inner ends, pins passing through the slots of said dogs to limit their projected position and springs between the parts of the plates f f' and at one end bearing in the recesses of the dogs for projecting the dogs, substantially as set forth.

7. In a machine for applying bilge-hoops to casks or barrels, the combination with a series of downturned arms and annulus-plates connected thereto, of a plate A and washer 10 having central apertures, a piston-rod or plunger passing through said apertures and through an aperture in the center of the downturned arms and a nut 11 for securing said parts together, a plate A' parallel with the plate A, a series of rods A^3 passing freely through the plate A' and having shoulders and reduced portions that respectively come against and pass through the plate A, clamping-nuts on the respective ends of the rods A^3 and springs surrounding the rods A^3 and applying tension to normally keep the plates A A' separate, substantially as set forth.

753,015. COMPRESSOMETER. WILLIAM J. TRETOR, Philadelphia, Pa., assignor to Frederick A. Riehle, Philadelphia, Pa. Filed Nov. 19, 1903. Serial No. 181,791. (No model.)



Claim.—1. A compressometer including compression-blocks adapted to receive between them a test-piece, a gage operatively connected to said compression-blocks to measure the reduction of distance between them and a portion on which one of said blocks bears, said portion and said block having the one a convex and the other a concave surface.

2. A compressometer including compression-blocks adapted to retain between them a test-piece, a gage and means in the faces of said blocks for supporting said gage between them.

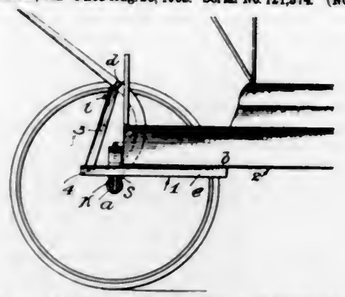
3. A compressometer comprising compression-blocks adapted to retain between them a test-piece, a plurality of gages and means in the faces of said blocks for supporting said gages at opposite sides of and substantially equal distances from said test-piece.

4. A compressometer including compression-blocks adapted to retain between them a vertically-disposed test-piece, a gage suspended from the upper of said blocks and adjustable means in the lower of said blocks bearing against said gage.

5. A compressometer comprising compression-blocks adapted to contain between them a test-piece, a gage supported between said blocks and an adjusting-screw in one of said blocks bearing against said gage whereby said gage may be brought to an initial zero.

6. In a compressometer, a gage comprising portions adapted to relative movement, a multiplying-lever operatively connected to said portions, contact-points connected to each of said portions and electrically insulated from each other, one of said contact-points being adjacent the end of said multiplying-lever, a micrometer-screw for adjusting the position of the other of said contact-points and an electric circuit, the flow of current through which is alterable by the contact of said points.

753,016. THILL OR TONGUE SUPPORT. EDSON D. WAFFLE, Santa Ana, Cal. Filed Aug. 28, 1902. Serial No. 121,374. (No model.)

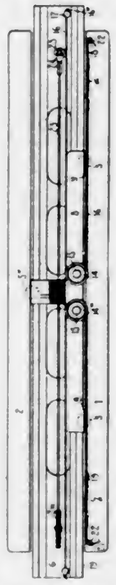


Claim.—1. In a thill or tongue support, a longitudinally-slotted member, the sides of the slotted portion of which are resilient, a swinging member pivotally mounted between said sides, and adjustable means for frictionally clamping the swinging member in position

2. In a thill or tongue support, a longitudinally-slotted member, the sides of the slotted portion of which are resilient, a bolt through said sides adjacent to one end, and a swinging member mounted on said bolt at one end and adapted to be frictionally held in position thereby.

3. In a thill or tongue support, a longitudinally-slotted member, the inner edges of the sides of which are cut away for a portion of their length, and a swinging member pivotally mounted between said sides, the length of the swinging member being such that its free end is adapted to engage with the whiffletree-bar and support the same.

753,017. TYPE-WRITING MACHINE. CHARLES W. WALKER, Bridgeport, Conn., assignor to Yost Writing Machine Company, Ilion, N. Y., a Corporation of New York. Filed Nov. 21, 1902. Serial No. 132,224. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, and flexible connections for causing the said rollers always to maintain their proper relationship to said carriage.

2. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, and flexible connections for causing the said rollers always to maintain their proper relationship to the frame of the machine.

3. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage and flexible connections for causing the said rollers always to maintain their proper relationship to the frame of the machine and to the carriage.

4. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, and flexible connections for said carrier to maintain fixed relations between said carrier and the frame of the machine.

5. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, and flexible connections for said carrier to maintain fixed relations between said carrier and the frame of the machine and between said carrier and the carriage.

6. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers and flexible connections that are operatively connected to the carriage, to the carrier and to a fixed portion of the machine.

7. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, and flexible connections each secured at one end to the carriage and at the opposite end to a fixed portion of the machine and operatively connected to the carrier.

8. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, pulleys on said carrier, and flexible connections which pass around said pulleys and each of which is connected at one end to the carriage and at the opposite end to a fixed portion of the machine.

9. In a type-writing machine, the combination of a carriage, fixed tracks therefor, cooperating tracks on the carriage, antifriction-rollers which run on said tracks for supporting said carriage, a carrier for said antifriction-rollers, pulleys on said carrier, and oppositely-disposed flexible connections which pass around said pulleys and extend in the general direction of the travel of the carriage, and each of which is connected at one end to the carriage and at the opposite end to a fixed portion of the machine.

10. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers and flexible connections each of which is connected to the carrier by a rolling connection and which is secured at one end to a fixed portion of the machine and at the other end to the carriage.

11. In a type-writing machine, the combination of a carriage having oppositely-disposed antifriction-roller-receiving tracks, fixed rails having oppositely-disposed antifriction-roller-receiving tracks, antifriction-rollers contained in said tracks, a separator or carrier that cooperates with the antifriction-rollers of both sets of tracks, and oppositely-disposed flexible connections each of which is connected at one end to a fixed portion of the machine and at the other end to the carriage, the bight or loop in each connection being operatively connected to and rolling on the carrier.

12. In a type-writing machine, the combination of a carriage bearing-rollers therefor, a separator for said rollers and flexible connections for effecting a travel of the carrier of substantially one-half the extent of travel of the carriage.

13. In a type-writing machine, the combination of fixed tracks, a carriage, tracks on said carriage, antifriction-rollers interposed between the fixed tracks and the tracks on the carriage, a separator for said rollers, flexible connections that have a sliding or rolling connection with the carrier and each of which is connected at one end to a fixed portion of the machine and at the opposite end to the carriage and which are effective to move the separator substantially one-half the extent of movement of the carriage.

14. In a type-writing machine, the combination of fixed tracks, a carriage, tracks on said carriage, antifriction-rollers interposed between the fixed tracks and the tracks on the carriage, a separator for said rollers, pulleys pivoted on said separator, flexible connections that pass around said pulleys and extend in opposite directions therefrom, and each of which is connected at one end to a fixed portion of the machine and at the other end to the carriage, whereby the separator receives substantially one-half the extent of movement given to the carriage.

15. In a type-writing machine, the combination of a carriage-bar having oppositely-disposed grooved tracks one of which faces toward the front and the other toward the rear of the machine, cooperating oppositely-disposed fixed grooved tracks, antifriction-rollers interposed between the grooved tracks in the carriage-bar and the fixed grooved tracks, a separator having openings in which said antifriction-rollers are loosely seated, pulleys on said separator, flexible connections which pass around said pulleys and each of which is

connected at one end to a fixed portion of the machine and at the opposite end to the carriage.

16. In a type-writing machine, the combination of a carriage-bar having oppositely-disposed grooved tracks, one of which faces toward the front and the other toward the rear of the machine, co-operating oppositely-disposed fixed grooved tracks, antifriction-balls interposed between the grooved tracks in the carriage-bar and the fixed grooved tracks, and which support the carriage-bar in place, a separator having openings in which said antifriction-balls are loosely seated, pulleys on said separator, flexible connections which pass around said pulleys and extend therefrom in opposite directions and each of which is connected at one end to a fixed portion of the machine and at the opposite end to the carriage, whereby the separator will receive substantially one-half the extent of movement given to the carriage.

17. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, flexible connections for maintaining fixed relations between said carriage and said antifriction-rollers, and means for taking up the slack in said connections.

18. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, flexible connections for maintaining fixed relations between said carriage and said antifriction-rollers and between the antifriction-rollers and the frame of the machine, and means for automatically taking up the slack in said connections.

19. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, flexible connections for said carrier to maintain fixed relations between said carrier and the frame of the machine, and springs for automatically taking up the slack in said flexible connections.

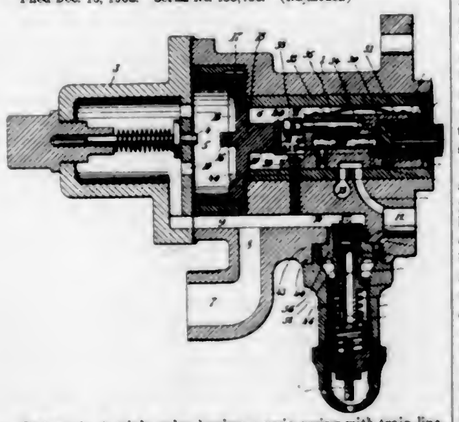
20. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, a carrier for said antifriction-rollers, pulleys on said carrier, and flexible connections which pass around said pulleys and each of which is connected at one end to the carriage and at the opposite end to a spring which is secured at one end to a fixed portion of the machine.

21. In a type-writing machine, the combination of a carriage, fixed tracks therefor, cooperating tracks on the carriage, antifriction-rollers which run on said tracks for supporting said carriage, a carrier for said antifriction-rollers, pulleys on said carrier, and oppositely-disposed flexible connections which pass around said pulleys and extend in the general direction of the travel of the carriage, and each of which is connected at one end to the carriage and at the opposite end to means for automatically taking up the slack in the associated connection.

22. In a type-writing machine, the combination of a carriage, antifriction-rollers for supporting said carriage, and means including flexible connections for causing each of said rollers always to assume a definite position along the bearing therefor at each point in the travel of the carriage.

753,018. TRIPLE VALVE. JOHN V. WELLS, Braddock, Pa.

Filed Dec. 18, 1902. Serial No. 135,738. (No model.)



Claim.—1. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a valve proper or slide-valve having passages therein placing the auxiliary and train-line in communication with the brake-cylinder, and a means located in said passages for alternately opening and closing the same.

2. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a valve proper or slide-valve having passages therein placing the auxiliary and train-line in communication with the brake-cylinder, and a means for alternately establishing and closing said communication, said means being operated by the train-line and auxiliary pressures when blowing through said passages in the slide-valve.

3. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a valve proper having ports therein placing the auxiliary and train-line in communication with the brake-cylinder, and a valve for alternately opening and closing said ports, said valve being operated by the train-line and auxiliary pressures when blowing through said passages of the slide-valve.

4. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a valve proper or slide-valve having passages therein placing the auxiliary and train-line in communication with the brake-cylinder, and a valve mounted in the slide-valve for alternately establishing and closing said communication, said valve being operated by the train-line and auxiliary pressures when blowing through said passages of the slide-valve.

5. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the train-line and brake-cylinder communications, and also having a chamber communicating with said ports, a valve located in said chamber and serving to close the train-line port, and a hollow stem attached to the valve and having communication with the cylinder-port and auxiliary, said communication with the cylinder-port being cut off when the valve is open.

6. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the train-line and brake-cylinder communications, and also having a chamber communicating with said ports, a valve located in said chamber and serving to close the train-line port, and a hollow stem attached to the valve and having communication with the cylinder-port and auxiliary, said communication with the cylinder-port being cut off when the valve is open, the said valve in the slide-valve chamber opening under train-line pressure and closing under auxiliary pressure, for the purpose specified.

7. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the train-line and brake-cylinder communications, and also having a chamber communicating with said ports, a valve located in said chamber and serving to close the train-line port, a hollow stem attached to the valve and having communication with the cylinder-port and auxiliary, said communication with the cylinder-port being cut off when the valve is open, the said valve in the slide-valve chamber opening under train-line pressure and closing under auxiliary pressure, for the purpose specified, and a spring normally seating the valve.

8. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the cylinder and train-line ports and also having a chamber extending from the auxiliary connection to the said ports, an orificed member fastened in the auxiliary end of said chamber, a hollow stem communicating with the auxiliary and sliding in said orificed member, the stem being orificed within the chamber, and a valve attached to the stem and serving to close the train-line port, said valve opening under train-line pressure and closing under auxiliary pressure.

9. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the cylinder and train-line ports and also having a chamber extending from the auxiliary connection to the said ports, an orificed member fastened in the auxiliary end of said chamber, a hollow stem communicating with the auxiliary and sliding in said orificed member, the stem being orificed within the chamber, a valve attached to the stem and serving to close the train-line port, said valve opening under train-line pressure and closing under auxiliary pressure, and a spring bearing between the said orificed member and the valve, normally to seat the latter.

10. A triple valve having a main casing with train-line, auxiliary and brake-cylinder connections, a slide-valve having communicating ports adapted respectively to register with the cylinder and train-line ports and also having a chamber extending from the auxiliary connection to the said ports, an orificed member fastened in the auxiliary end of said chamber, a hollow stem communicating with the auxiliary and sliding in said orificed member, the stem being orificed within the chamber, and a valve attached to the stem and serving to close the train-line port, said valve opening under train-line pressure and closing under auxiliary pressure, and the said orifice in the hollow stem being passed into the said orificed member to close the stem-orifice as the stem slides toward the auxiliary.

11. A triple valve having a train-line connection, a piston and valve cavity communicating therewith and with the auxiliary, and a passage leading from the valve-cavity to the brake-cylinder connection and also having a direct passage from the train-line connection to the brake-cylinder connection, a piston in the piston-cavity, a valve device in the valve-cavity, and a pressure-blow-down device located in and commanding the said passage from the train-line connection to the brake-cylinder connection.

12. A triple valve having a train-line auxiliary and brake-cylinder connections, valve devices and their appurtenances, and a pressure-blow-down device having its discharge leading back to the train-line connection for the purpose specified.

13. A triple valve having communicating train-line and brake-cylinder connections, and a pressure-blow-down device interposed therein, said blow-down device comprising a perforate hollow rod, a sleeve in which it slides for the purpose specified, a piston connected to the rod, and means for yieldingly holding the rod and piston in position.

14. A triple valve having communicating train-line and brake-cylinder connections, a pressure blow-down device interposed therein, said blow-down device comprising a perforate hollow rod, a sleeve in which it slides for the purpose specified, a piston connected to the rod, a spring pressing the rod and piston, and an adjustable stop in the path of the rod.

15. A triple valve having communicating train-line and brake-cylinder connections, a pressure-blow-down device interposed therein, said blow-down device comprising a perforate hollow rod, a sleeve in which it slides for the purpose specified, a piston connected to the rod, means for yieldingly holding the rod and piston in position, and an adjustable stop in the path of the rod.

16. A pressure-blow-down device, comprising the combination with a case, and a tubular part or sleeve, of a piston working in the case a perforate hollow rod attached to the piston and sliding in said sleeve, for the purpose specified, and means for yieldingly holding the rod and piston in position.

17. A pressure-blow-down device, comprising the combination with a case and a tubular part or sleeve, of a piston working in the case, a perforate hollow rod attached to the piston and sliding in said sleeve, for the purpose specified, means for yieldingly holding the rod and piston in position, and an adjustable stop for said rod and piston.

18. A pressure-blow-down device, comprising the combination with a case and a tubular part or sleeve, of a piston working in the case, a tubular rod having separated perforations and fitting in the sleeve with the perforations at opposite ends thereof when the blow-down device is open, and means for yieldingly holding the piston and rod in closed position.

19. A pressure-blow-down device, comprising the combination with a case and a tubular part or sleeve, of a piston working in the case, a tubular rod having separated perforations and fitting in the sleeve with the perforations at opposite ends thereof when the blow-down device is open, means for yieldingly holding the piston and rod in closed position, and an adjustable stop for the piston-rod.

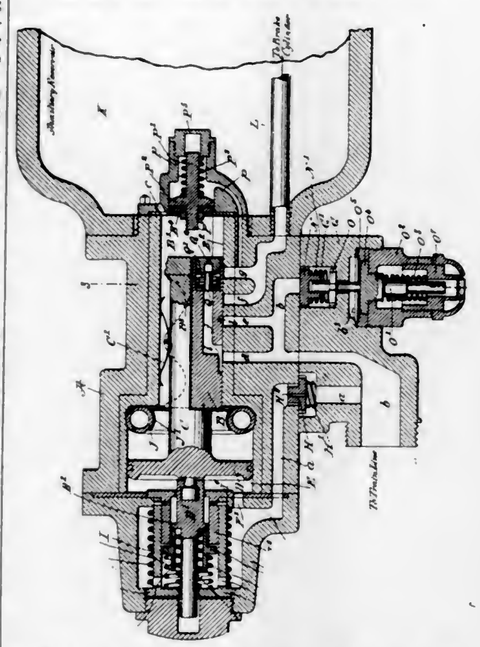
20. A pressure-blow-down device, comprising the combination with a case and a tubular part or sleeve, of a piston working in the case, a tubular rod having separated perforations and fitting in the sleeve with the perforations at opposite ends thereof when the blow-down device is open, and means for yieldingly holding the piston and rod in closed position, the said perforations at the discharge end of the rod being at different positions along the length, for the purpose specified.

21. In a fluid-pressure brake system, the combination with communication train-line and brake-cylinder connections, of a pressure-blow-down device interposed therein and discharging back into the train-line.

22. A triple valve having a train-line, auxiliary and brake-cylinder connections, a slide and its operating means, the slide having intercommunicating passages leading respectively from the train-line and auxiliary-reservoir connections, and a brake-cylinder connection and a pressure-operating valve seated in said intercommunicating passages of the slide and commanding the same, said valve serving alternately to open and close communication of the train-line and auxiliary connections with the brake-cylinder.

753,019. TRIPLE VALVE. JOHN V. WELLS, Braddock, Pa.

Filed Jan. 3, 1903. Serial No. 137,650. (No model.)



Claim.—1. A triple valve comprising a casing having train-line, auxiliary and brake cylinder connections, and valve devices in the casing, said devices including a slide-valve having port-openings capable of establishing communication between the train-line and brake-cylinder connections, to effect a brake application, said slide-valve also having two additional port-openings capable each of establishing communication between the auxiliary and brake cylinder respectively, to effect service and emergency brake applications.

2. A triple valve comprising a casing having train-line, auxiliary and brake cylinder connections, and valve devices in the casing, said devices including a slide-valve having port-openings capable of establishing communication between the train-line and brake-cylinder connections, to effect a brake application, said slide-valve also having two additional port-openings capable each of establishing communication between the auxiliary and brake cylinder respectively, to effect service and emergency brake applications, the ports of said valve devices also establishing communication between the train-line and brake-cylinder connections upon the aforesaid emergency-brake application, whereby to reinforce the auxiliary pressure from the train-line.

3. A triple valve comprising a casing having train-line, auxiliary and brake cylinder connections, valve devices in the casing, said devices having ports capable of establishing communication between the train-line and brake-cylinder connections, to effect a brake application, and also having two additional ports capable each of establishing communication between the auxiliary and brake cylinder, respectively to effect service and emergency brake applications, and three springs acting with said valve devices, the one spring resisting movement to train-line brake-cylinder communication, the second spring resisting movement to auxiliary-brake-cylinder service communication, and the second and third springs resisting movement to auxiliary-brake-cylinder emergency application.

4. A triple valve comprising a casing, valve devices therein, capable of making brake applications, substantially as described, and three springs located at one end of the valve devices and coacting therewith, one spring resisting the movement of the valve devices in one direction and the second and third springs successively resisting movement in the opposite direction.

5. A triple valve comprising a casing, valve devices therein, capable of making brake applications, substantially as described, a stem in connection with the said valve devices, a spring pressing the stem in one direction, a sleeve adapted to be engaged by the stem,

a second spring engaging the sleeve and acting in the same direction as the first spring, a second sleeve also adapted to be engaged by the stem, and a third spring engaging the second sleeve and acting oppositely to the two springs first named.

6. In a triple valve, the combination with the main casing and the slide-valve piston, of a hollow rubber cushion with an orifice therein.

7. In a triple valve, the combination with the main casing and the slide-valve piston, of a hollow annular rubber cushion with an orifice therein.

8. In a triple valve, a device for automatically returning the slide to lap position, said device comprising a cap having a cylinder formed therein, a piston working in the cylinder, stems projected oppositely from said piston, one stem serving to engage the slide, a spring encircling the other stem and pressing the piston toward the slide, and means working in the outer end of the cap and engaging the corresponding end of the spring to adjust the tension thereof.

9. A triple valve having a port in the valve-casing establishing communication between the train-line and auxiliary, a feed-valve commanding said communication, a diaphragm actuating the valve, said diaphragm being controlled by auxiliary pressure, a spring back of said diaphragm, acting against the auxiliary pressure, a check in said passage, seating by auxiliary pressure, and a spring-bearing between the check and said feed-valve.

10. A triple valve having a port in the valve-casing establishing communication between the train-line and auxiliary, a feed-valve commanding said communication, and itself controlled by the auxiliary pressure, a check in said passage, seating by auxiliary pressure, and a spring-bearing between the check and said feed-valve.

11. A triple valve comprising a casing having a cylinder and valve-cavity formed therein and also having auxiliary communication from the valve-cavity, and also having a passage from the train-line to the cylinder, a passage from the train-line to the valve-cavity, and a passage from the valve-cavity to the brake-cylinder, a piston in the cylinder, a slide-valve in the valve-cavity, a feed device in the passage from the train-line to the valve-cavity, said feed device being controlled by the auxiliary pressure, and a check in the passage from the train-line to the cylinder, said check seating against the train-line pressure and having a permanently-open vent therein.

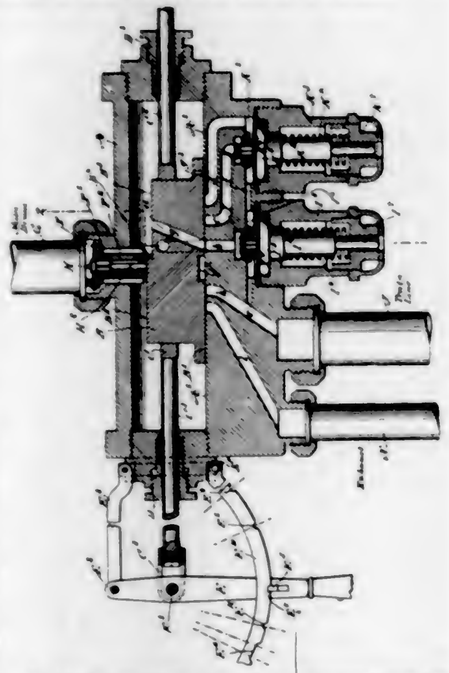
12. A triple valve, having a casing formed with a slide-valve cavity and having a train-line communication extending into the slide-valve cavity, a feed-valve in said train-line communication, the valve-casing also having two ports from the train-line communication direct to the slide-valve cavity, and also having two ports communicating with the slide-valve cavity and with the brake-cylinder connection, a slide-valve having a port opening therein capable of communication with one of the said ports to the brake-cylinder connection and also having a cavity therein capable of connecting one of the ports of the train-line connection with the other of the brake-cylinder ports simultaneously with the communication between the said slide-valve port and brake-cylinder port, a valve commanding the said cavity in the slide-valve and said cavity being also capable of connecting the remaining of the train-line ports with one of the brake-cylinder ports independently of the valve in the cavity, and means for operating the slide-valve.

13. A triple valve, comprising a casing having a train-line, auxiliary and brake cylinder connections, valve devices in the casing, said devices having ports capable of establishing communication between the train-line and brake-cylinder connections to effect a brake application, and also having two additional ports capable each of establishing communication between the auxiliary and brake cylinder respectively to effect service and emergency brake applications, and a cushioning means comprising three elements respectively resisting the aforesaid three movements of the valve devices.

14. A triple valve, comprising a casing, valve devices therein, for the purpose specified, a spring pressing the valve devices in one direction, a sleeve adapted to be engaged by a part of the valve devices, a second spring engaging the sleeve and acting in the same direction as the first spring, a second sleeve also adapted to be engaged by a part of the valve devices, and a third spring engaging the second sleeve and acting oppositely to the two springs first named.

753,020. BRAKE-VALVE. JOHN V. WELLS, Braddock, Pa. Filed Jan. 3, 1903. Serial No. 137,651. (No model.)

Claim.—1. In a brake-valve, the combination of a casing having main-drum and train-line connections, a slide-valve mounted in the casing and having a port adapted to establish or break communication between said connections, a valve commanding said communication between the train-line and main drum, means controlled by the train-line pressure for operating the valve, the casing and slide-valve having additional ports leading from communication with the train-line, and a pressure-relief device to which said ports lead and whereby the excess pressure of the train-line is exhausted.



2. A brake-valve having a main-drum connection, a valve commanding the same, a train-line connection, and a slide-valve adapted to control the train-line connection, said slide-valve having a surface thereon for operating the main-drum valve.

3. A brake-valve having a main-drum connection, a valve commanding the same, a train-line connection, and a slide-valve adapted to control the train-line connection, said slide-valve having a surface thereon for operating the main-drum valve, and said main-drum valve comprising two parts, seating the one on the other and opening successively, for the purpose specified.

4. In a brake-valve, the combination of a main casing having train-line and main-drum connections, a main-valve cavity communicating with the main-drum connection, and three ports leading to the train-line from the main-valve cavity, valves in two of said ports, said valves seating against the main-drum pressure, means for operating each valve, said means being controlled by the train-line pressure, and a main valve located in the main-valve cavity and commanding said three ports, substantially as described.

5. In a brake-valve, the combination of a main casing having train-line and main-drum connections, a main-valve cavity communicating with the main-drum connection, and three ports leading to the train-line from the main-valve cavity, valves in two of said ports, said valves seating against the main-drum pressure, means for operating each valve, said means being controlled by the train-line pressure, a main valve located in the main-valve cavity and commanding said three ports, and a valve commanding the main-drum connection and operated by the said main valve, substantially as described.

6. In a brake-valve, the combination of a casing having a main-drum and train-line connections, a valve operating in the casing and serving to establish a brake communication between said connections, a means controlled by the train-line pressure for commanding said communication between the train-line and main-drum connections, the said valve and casing having additional ports leading from the communication with the train-line, and a pressure-relief device to which said ports lead and whereby the excess pressure of the train-line is exhausted.

7. A brake-valve having a main-drum connection a valve commanding the same, a train-line connection, and a sliding valve adapted to control the train-line connection, said slide-valve having an incline surface acting against the main-drum valve to operate the same.

8. A brake-valve having a main-drum connection, a valve commanding the same, a train-line connection, and a valve adapted to control the train-line connection, said valve acting against the main-drum valve to operate the same, the said main-drum valve comprising two parts seating the one on the other, and said parts being successively engaged by the second-named valve, whereby successively to operate the said parts of the main-drum valve.

9. A brake-valve having a casing with train-line and main-drum connections, means for controlling the train-line pressure, and a valve commanding the main-drum connection, said valve being seated by the main-drum pressure, and comprising two parts mounted the one on the other and arranged to open successively, for the purpose specified.

10. A brake-valve, having a casing with main-drum and train-line connections, means for controlling the train-line pressure, a valve commanding the main-drum connection, said valve seating by the main-drum pressure and comprising two parts mounting the one on the other, said parts having stems of varying length, and operating members arranged successively to engage said stems.

11. A brake-valve, comprising a casing having train-line and main-drum connections and a main-valve cavity communicating with the main-drum connections, and three ports leading to the train-line from said cavity, valves commanding two of said ports, means controlled by the train-line pressure for operating said valves, and a main valve located in the main-valve cavity and commanding the said three ports.

12. A brake-valve, comprising a casing having main-drum and train-line connections, a main-valve cavity communicating with the main-drum connections and three ports leading to the train-line from the main-drum cavity, valves commanding two of said ports, means controlled by the train-line pressure for operating said valves, a main valve located in the main-valve cavity and commanding said three ports, and means commanding the main-drum connection and operated by the said main valve.

13. A brake-valve, comprising a casing having main-drum and train-line connections, a main-valve cavity and two ports leading from the main-valve cavity into the train-line connection, an automatic valve commanding one of said ports, the second port having a clear passage to the train-line independently of the said valve, and a main valve located in the main-valve cavity and commanding both of the said ports.

14. A brake-valve, comprising a casing having main-drum and train-line connections and also having a main-valve cavity and three ports leading therefrom into the train-line connection, valves commanding two of said ports, means controlled by the train-line pressure for operating said valves, the third port having a clear passage into the train-line independently of said valves, and a main valve located in the main-valve cavity and commanding the said three ports.

15. A brake-valve, comprising a casing having main-drum and train-line connections, a main-valve cavity and two ports leading from the main-valve cavity into the train-line connection, an automatic valve commanding one of said ports, the second port having a clear passage to the train-line independently of the said valve, and a main valve located in the main-valve cavity and commanding both of the said ports, the said casing also having an exhaust-port and the main valve having a cavity capable of placing the train-line connection and the exhaust-port in communication.

16. A brake-valve, comprising a casing having main-drum and train-line connections and also having a main-valve cavity and three ports leading therefrom into the train-line connection, valves commanding two of the said ports, means controlled by the train-line pressure for operating said valves, the third port having a clear passage into the train-line independently of said valves, and a main valve located in the main-valve cavity and commanding the said three ports, the casing also having an exhaust-port and the main valve having a cavity capable of placing the train-line connection and said exhaust-port in communication.

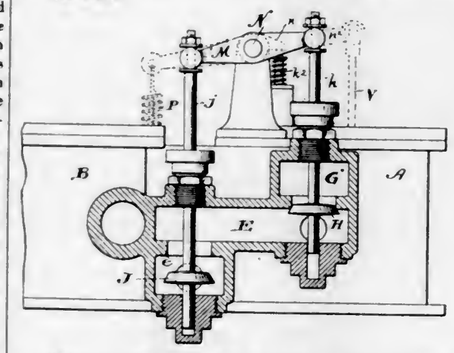
17. A brake-valve, comprising a casing having main-drum and train-line connections, a main-valve cavity and two ports leading from the main-valve cavity into the train-line connection, an automatic valve commanding one of said ports, the second port having a clear passage to the train-line independently of the said valve, and a main valve located in the main-valve cavity and commanding both of the said ports, the casing and main valve having additional passages leading from the train-line connection, and a pressure-relief device to which said passages lead.

18. A brake-valve, comprising a casing having main-drum and train-line connections and also having a main-valve cavity and three ports leading therefrom into the train-line connection, valves commanding two of the said ports, means controlled by the train-line pressure for operating said valves, the third port having a clear passage into the train-line independently of said valves, and a main valve located in the main-valve cavity and commanding the said three ports, the valve-casing and main valve having additional passages leading from the train-line connection and a pressure-relief device to which said passages lead.

19. A brake-valve having a casing with train-line and main-drum connections, valve devices for controlling said connections, said devices including a slide-valve mounted in the casing, the said casing and slide-valve having ports therein capable of registry to form a passage from the train-line connection to the atmosphere, and a pressure-relief device commanding said passage.

20. A brake-valve having a casing with train-line and main-drum connections, valve devices commanding the same and comprising a slide-valve mounted in the casing, said casing having two ports therein, one leading from the train-line connection and the other leading to the atmosphere, and the slide-valve having an arching port capable of connecting the said two ports of the casing to form a continuous passage, and a pressure-relief device commanding said passage.

753,021. COMPOUND ENGINE. ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 1, 1902. Serial No. 133,330. (No model.)



Claim.—1. The combination of a high-pressure cylinder, and a low-pressure cylinder, and their respective steam-chests, with a passage-way connecting the exhaust side of the high-pressure cylinder with the low-pressure steam-chest, a valve in said passage-way opening toward the low-pressure steam-chest, an exhaust-port connected with said passage-way, a valve for closing said exhaust-port by moving toward said exhaust-port, a passage-way connecting the two steam-chests, and a valve therefor which closes by moving away from the high-pressure steam-chest, and mechanism for simultaneously operating said valves, substantially as specified.

2. The combination of a high-pressure cylinder, and a low-pressure cylinder, and their respective steam-chests, with a passage-way connecting the high-pressure cylinder with the low-pressure steam-chest, a valve J in said passage-way having its valve-stem extended upward, an exhaust-port connected with said passage-way, a valve H for closing said exhaust-port having an upwardly-extended valve-stem, a passage-way connecting two steam-chests, and a valve *k* therefor which closes by moving away from the high-pressure steam-chest, and having an upwardly-extended valve-stem, a rock-shaft, two oppositely-extended arms secured thereto into operative engagement with the stems of the valves H and J, a finger on said rock-shaft in engagement with the stem of the valve *k*, and mechanism for moving said rock-shaft, substantially as described.

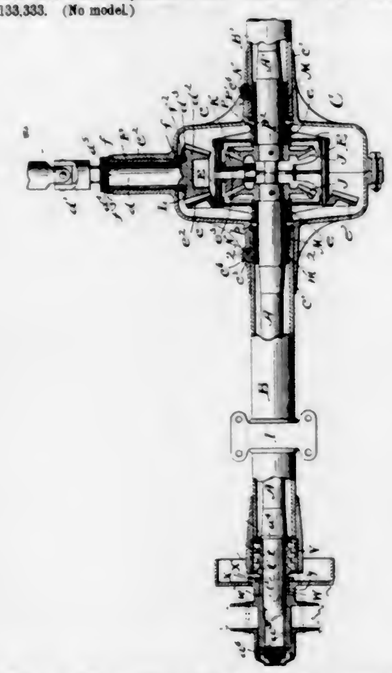
3. The combination of a high-pressure cylinder, and a low-pressure cylinder, and their respective steam-chests, with a passage-way connecting the high-pressure cylinder and low-pressure steam-chest, a valve in said passage-way for closing the same, an exhaust-port connected with said passage-way, and a valve for closing said exhaust-port, a passage-way connecting the two steam-chests, a valve for closing the same, the frame of an automobile upon which the parts referred to are supported, a rock-shaft mounted on said automobile-frame, operative connections between said rock-shaft and said

valves whereby they are simultaneously operated, a push device extending through the floor of the automobile within reach of the operator's foot and in operative relation to said rock-shaft, substantially as specified.

4. The combination of a high-pressure cylinder, and a low-pressure cylinder, and their respective steam-chests, and an automobile-frame upon which said parts are secured, a passage-way connecting the high-pressure cylinder and low-pressure steam-chest, a valve in said passage-way for closing the same, an exhaust-port connected with said passage-way, a valve for closing said exhaust-port, a passage-way connecting the two steam-chests, a valve closing said passage-way, a rock-shaft having oppositely-extended arms, which are operatively connected with the two valves first named, and having a finger which is operatively connected with the other valve, an operating-arm secured to said rock-shaft, a spring for moving this rock-shaft in one direction, a second rock-shaft mounted in the automobile-frame having two arms, a link connecting one of them with the operating-arm of the first-named rock-shaft, a push-rod engaging with the other arm, and extended to a position where it may be pressed downward by the foot of the driver of the automobile, substantially as specified.

5. The combination of a high-pressure cylinder, a low-pressure cylinder, which are parts of the same casting, there being in said casting a high-pressure steam-chest and a low-pressure steam-chest, an exhaust-port for the low-pressure cylinder, a passage-way connecting the exhaust side of the high-pressure cylinder with the low-pressure steam-chest, and an exhaust-port communicating with said passage-way, with a valve for closing the communication between said passage-way and exhaust-port, a second valve for closing communication between said passage-way and the low-pressure steam-chest, a rock-shaft, a rocker connected therewith, and, on opposite sides of said rock-shaft, with stems of said two valves, a spring acting to close the first valve and to open the second valve, a passage-way connecting said two steam-chests, a valve for closing the same a spring moving said valve in the closing direction, and an arm secured to said rock-shaft and engaging with the stem of said valve, substantially as described.

753,022. **DRIVING-AXLE MECHANISM.** ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 1, 1902. Serial No. 133,333. (No model.)



Claim.—1. The combination of a gear-casing composed of two connected parts, and two alined tubes respectively connected with said two parts, with two axle-sections rotatively mounted in said tubes and extended into the casing, wheels secured to the outer ends of said axle-sections, a hollow member within the casing rotatively mounted upon the ends of said axle-sections, two bevel-gears secured respectively to said axle-sections within said hollow member, a bevel-gear meshing with both of the bevel-gears last named and rotatively mounted on a radial shaft secured to and carried by said hollow member, a bevel-gear secured externally to said hollow member, a forwardly-extended bearing-sleeve secured to the gear-casing, a driving-shaft section rotatively mounted in the last-named bearing-sleeve, a bevel-gear secured to said shaft within the gear-casing in mesh with the bevel-gear secured externally to the hollow member, thrust-bearings at both ends of the hollow member, means for adjusting said thrust-bearings, and thrust-bearings for the driving-shaft at both ends of the sleeve in which it is mounted, and means for adjusting said thrust-bearings, substantially as specified.

2. The combination of a housing comprising a gear-case and two alined tubes respectively connected with said gear-case, with two axle-sections rotatively mounted in said tubes and extended into the casing, wheels secured to the outer ends of said axle-sections, a hollow member within the casing rotatively mounted upon the ends of said axle-sections, two bevel-gears secured respectively to said axle-sections within said hollow member, a bevel-gear meshing with both of the bevel-gears last named and rotatively mounted on a radial shaft secured to and carried by said hollow member, a bevel-gear secured externally to said hollow member, a forwardly-extended bearing-sleeve secured to the gear-casing, a driving-shaft section mounted therein, and a bevel-gear secured to said shaft-section within the gear-casing and in mesh with the bevel-gear secured externally to the hollow member, a bearing-sleeve secured in each tube close to the gear-casing, ball-bearings interposed between said bearing-sleeves and the hubs of said hollow member, one of said bearing-sleeves being screwed into its tube and having external worm-teeth, and a worm mounted in said housing and engaging with said worm-teeth, substantially as specified.

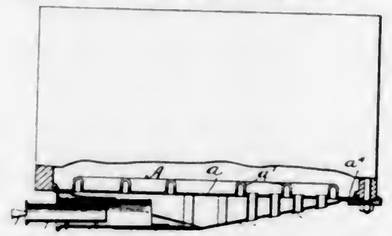
3. The combination of a housing comprising a gear-case and two alined tubes fixed thereto, bearing-sleeves screwed into the inner ends of said tubes, one of said sleeves having external worm-teeth, and a worm mounted in said housing in mesh with said teeth, with a driving-shaft section projecting into the gear-case and having a bevel-gear on its inner end, axle-sections extending through said tubes and mounted near their inner ends in said sleeves, and compensating gearing within the casing rotatable about the axis of said axle-sections and operatively connected with the bevel-gear on the driving-shaft, and thrust-bearings interposed between the said sleeve and the external member of said compensating gearing, substantially as described.

4. The combination of a gear-casing composed of two separable halves each having a forwardly-projecting half-tube, a bearing-sleeve in said half-tube and having external flanges at its ends, two tubes secured to said casing-sections in alinement and at right angles to the bearing-sleeve, two bearing-sleeves screwed respectively into the inner ends of said tubes, a driving-shaft mounted in the bearing-sleeve first mentioned and having a bevel-gear on its inner end within said casing, two axle-sections rotatively mounted in said tubes, and, specifically, at their inner ends in the bearing-sleeves in said tubes, a hollow member rotatively mounted upon the inner ends of said axle-sections within said casing, an external bevel-gear attached to said hollow member in mesh with the bevel-gear on the driving-shaft, ball-bearings interposed between the inner ends of the two bearing-sleeves in the tubes and the hubs of said hollow cylinder, bevel-gears secured to the axle-sections within the hollow member, a bevel-gear within said hollow cylinder mounted on a radial axle carried thereby, which gear is in mesh with the two gears on the axle-sections, means preventing endwise movement of the driving-shaft within its bearing-sleeve, and wheels secured to the outer end of said axle-section, substantially as described.

5. The combination of a gear-casing, and two tubes secured thereto in axial alinement, axle-sections rotatively mounted within said tubes, mechanism within the gear-case for rotating said axle-sections; each axle-section having near its outer end a squared portion, and, inside of said portion, an annular shoulder, an annularly-grooved sleeve embracing each axle-section and abutting the said shoulder thereon, a wheel-hub fitted to the squared part of said axle-section, which hub has a tongue-and-groove interlocking engagement with said annularly-grooved sleeve, a bearing-cylinder secured in each tube around the last-named sleeve, and balls interposed between it and said cylinder, substantially as described.

6. The combination of an axle-section having a squared outer end and some little distance from the same an external annular shoulder, an annularly-grooved sleeve embracing the axle and abutting said shoulder, a bearing-cylinder surrounding said annularly-grooved sleeve, and balls interposed between said sleeve and cylinder, a wheel-hub having a squared portion which fits upon the squared portion of the axle and having a tongue-and-groove interlocking connection with the annularly-grooved sleeve, said hub having also a reduced inner end, a brake-drum whose hub embraces the reduced portion of the axle-hub and has a tongue-and-groove interlocking connection with said hub, and a lock-nut screwed upon the end of said hub against said brake-cylinder hub, substantially as specified.

753,023. **HEATING-BURNER FOR STEAM-GENERATORS OR THE LIKE.** ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 24, 1903. Serial No. 144,556. (No model.)



Claim.—1. In a burner for automobiles, the combination of a burner-casing having a bottom of inverted conical or dish shape, of a mixing-tube open at both ends and extending through the inclined wall of the bottom with the inner portion of its lower wall in substantially the plane of the lowest point of said bottom, the outer portion of the lower wall of said mixing-tube being on a level at least as low as that of the inner end of said wall whereby said mixing-tube also constitutes a drainage-outlet for the burner, substantially as described.

2. In a burner for automobiles, the combination of a burner-casing having a top plate, a bottom plate inclining inwardly and downwardly, of a mixing-tube open at both ends and extending through the inclined wall of the bottom plate, with the inner portion of its lower wall in substantially the plane of the lowest point of said bottom, said tube inclining downwardly from its inner to its outer end whereby it also constitutes a drainage-outlet for the burner, substantially as described.

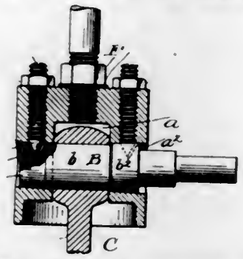
3. In a burner for automobiles, the combination of a burner-casing having a bottom of inverted conical or dish shape, said bottom being provided with a sleeve portion extending outwardly from the lowest point thereof, and a mixing-tube open at both ends and fitting in said sleeve portion, with the outer portion of its lower wall at a level at least as low as that of the inner portion of said wall whereby said mixing-tube also constitutes a drainage-outlet for the burner, substantially as described.

4. In a burner for automobiles, the combination of a burner-casing having a top plate, a bottom plate inclining inwardly and downwardly, said bottom plate being provided with a sleeve portion extending outwardly and inclining downwardly from the lowest point thereof, and a mixing-tube open at both ends fitting in said sleeve portion, with the outer end of its lower wall at a lower level than the inner end of said wall whereby said tube also constitutes a drainage-outlet for the burner, substantially as described.

5. In a burner for automobiles, the combination of a burner-casing having a dish-shape bottom plate, a mixing-tube open at both ends connected with said burner at or near the lowest point of said bottom plate, with the outer end of its bottom wall at a level at least as low as that of the inner portion of said wall, a supplemental mixing-tube projecting centrally into the first-mentioned mixing-tube and spaced therefrom, and a nozzle discharging into the supplemental tube, whereby the burner may be drained through the first-mentioned tube without obstruction by the jet projected into the supplemental tube, substantially as described.

6. In a burner for automobiles, the combination of a burner-casing having a top plate and a bottom plate, said bottom plate being inclined inwardly and downwardly and provided with a sleeve portion extending outwardly and inclined downwardly from the lowest portion of said bottom, a mixing-tube open at both ends fitting said sleeve, with the outer end of its lower wall at a lower level than the inner end of said wall, a supplemental mixing-tube projecting into and spaced from said first-mentioned mixing-tube, and a nozzle discharging into the supplemental tube whereby the burner may be drained through the first-mentioned tube without obstruction by the jet projecting into the supplemental tube, substantially as described.

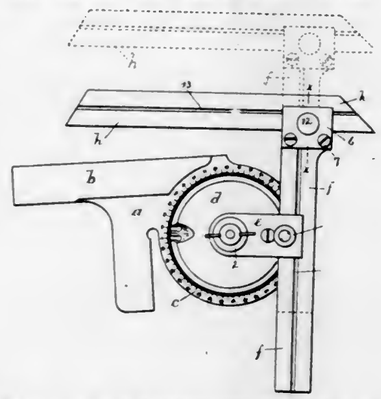
753,024. **CROSS-HEAD.** ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed May 21, 1903. Serial No. 158,063. (No model.)



Claim.—1. The combination of a reciprocating member having in its sides, two alined tapered holes, and a connecting-rod, with a pin having a cylindrical portion which passes through the connecting-rod, and having, on opposite sides thereof, two tapered portions which are fitted to the holes in said member, and having also a transverse tapered recess b^2, and a screw having a conical point which screws through the said member and engages in the tapered recess in the pin, substantially as specified.

2. The combination of a reciprocating member having two tapered openings, a connecting-rod, a pin having a portion on which the connecting-rod is journaled, and, on opposite sides thereof two tapered portions fitting in said tapered openings, and having also a tapered recess crosswise of the pin, and a locking device, having a tapered end, which is adjustably connected with said member and engages in the tapered recess in the pin.

753,025. **PROTRACTOR.** HENRY WOODBOROUGH, New York, N. Y. Filed July 2, 1903. Serial No. 164,020. (No model.)



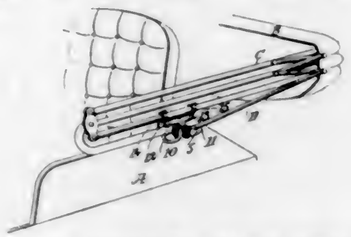
Claim.—1. A bevel-protractor comprising a stock having a straight-edge, a revoluble arm, a grooved blade slidable in said arm, means for clamping said blade to said arm, a second grooved blade slidable in the end of the aforesaid blade and coacting with the said straight-edge, and means for clamping the said second blade in position.

2. A bevel-protractor, comprising a stock having a dial in degrees on one side thereof and a straight-edge, a revoluble indicator mounted on said stock, an arm connected to said indicator, a grooved blade slidable in said arm, means for clamping said blade to said arm, a second grooved blade slidable in the end of the aforesaid blade and coacting with the said straight-edge, and means for clamping the said second blade in position.

3. The combination with a bevel-protractor of well-known form, of a longitudinally-grooved blade having a jaw and clamping devices

at one end and adapted upon the removal of the grooved blade of the protractor to be received by the clamping device that held said blade, and to in turn receive such blade in its jaw and to hold the same by its clamping device for the purposes set forth.

753,026. SUPPORT FOR BUGGY-TOPS. JULIUS D'ALESSANDRO, Walnutgrove, Cal. Filed July 18, 1903. Serial No. 166,073. (No model.)



Claim.—1. A support comprising a clamping member, supporting-arms carried by the clamping member, sockets mounted on the arms, and a hinged connection between said arms, substantially as set forth.

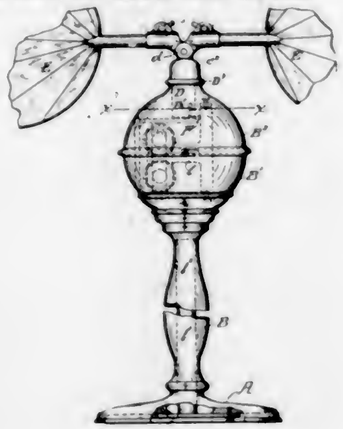
2. The combination with a buggy, of an attachment for supporting the top thereof, such attachment comprising a clamping member formed of hinged sections adapted to be secured to the prop-bolt of the buggy, oppositely-extending arms formed of a single spring secured to said clamping member, sockets carried by said arms, said sockets being designed to form a rest for the bows of the buggy-top, and a hinged rod connecting said sockets, substantially as set forth.

3. The combination with a buggy, of a support therefor, said support comprising a clamping member formed of two hinged curved sections, a spring formed with a curved bend intermediate its length and designed to be secured to the clamping member at such curved portion, arms or members formed by the portions of the spring on either side of the curved bend, spring-sockets carried at the extremities of said arms, and a rod formed of hinged sections connecting said sockets, substantially as set forth.

4. A device for supporting buggy-tops, comprising a clamping-collar, supporting-arms formed from a single spring, each of said arms comprising a compound curved spring, the curves of said arms extending in opposite directions, a supporting-socket formed at the extremity of each arm, and a hinged rod connecting said sockets, substantially as set forth.

5. A device for supporting buggy-tops, comprising a clamp formed of hinged sections, means for locking the sections together, upwardly-extending spring-arms carried by the clamping-section, a rocket carried by each arm, and a rod formed of hinged sections connecting said sockets, substantially as set forth.

753,027. OSCILLATING ELECTRIC FAN. JACOB AMROM, New York, N. Y., assignor of one-half to David Buer, New York, N. Y. Filed June 27, 1903. Serial No. 163,330. (No model.)



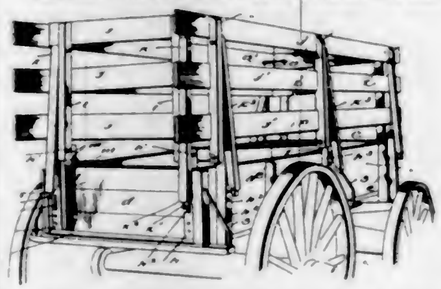
Claim.—1. In an electrically-operated fan, the combination with an oscillative fan-support, of an oscillative armature engaged therewith, an electromagnet in circuit with the armature for moving the same in one direction, a spring for retracting said armature, a lever also in the magnet-circuit and in electrical contact with the armature during the magnet pull and out of contact with said armature at the termination of such pull to permit the retracting-spring to move the armature and restore the contact of the lever therewith.

2. In an electrically-operated fan, the combination with an oscillative fan-support, of an oscillative armature engaged therewith and having an insulating-notch, an electromagnet in circuit with the armature for moving the same in one direction, a spring for retracting said armature, a lever also in the magnet-circuit and in electrical contact with the armature during the magnet pull and adapted to enter the insulating-notch at the termination of such pull to permit the retracting-spring to move the armature and force the lever from the said notch again into electrical contact with the armature.

3. In an electrically-operated fan, the combination with an oscillative cylindrical fan-support having a recess in the wall thereof, of a pivoted armature provided with a lever engaging said recess, and an electromagnet, retracting-spring and circuit making and breaking provision for oscillating the armature.

4. In an electrically-operated fan, the combination with a column provided with a lower casing-section, of an upper casing-section detachably connected with the lower section, a fan-support rotatably supported by the upper section and depending within the same, of a pivoted armature located within the lower section and provided with a lever engaging the fan-support, and an electromagnet, retracting-spring and circuit making and breaking provision also within the lower section and adapted for oscillating the armature.

753,028. HAY AND STOCK RACK. JOHN H. ANDERSON, Little Falls, Minn. Filed Nov. 25, 1903. Serial No. 182,640. (No model.)



Claim.—1. A wagon-body attachment comprising a hay and stock rack having supporting-posts formed with mortises in their outer faces and arranged vertically at the exterior of the wagon-box and means to confine the same thereto, and a swinging section comprising bars at their lower ends hinged to said posts, and freely-swinging legs at their upper ends hinged to said bars and at their lower free ends formed with tenons adapted to enter said mortises when the said section is swung down to the hay-rack position.

2. A wagon-box, in combination with a hay and stock rack comprising vertical posts arranged at the exterior of said box and having mortises opening through their outer faces, and swinging rack-sections, each section comprising rigidly-connected upright bars at their lower ends hinged to the upper ends of certain of said posts and swinging legs or braces, each brace arranged in the vertical plane of a post and at its upper end pivoted to the upper portion of the bar hinged to said post, the lower free end of each leg formed with a tenon to enter the mortise of the post and with shoulders to abut against the posts when the rack-section is thrown down to hay-rack position, said legs hanging vertically from their upper ends freely beside said bars and posts and disengaged from said mortises when the sections are in vertical stock-rack position.

3. A wagon-box, in combination with a hay and stock rack comprising the two end and the two side sections, each end rack-section comprising a removable end-gate having vertical posts fixed thereto, and a swinging rack-section hinged to the upper ends of said posts, and provided with swinging depending legs at their upper ends hinged to the swinging rack-section, each side rack-section comprising posts having supporting-hooks to detachably catch over the wagon-box sides, and the swinging rack-section hinged to the upper ends of said posts and provided with the swinging depending legs, the lower free ends of said legs of the swinging side and end rack-sections formed to fit into and abut against the respective posts when said sections are swung to hay-rack position, and means to detachably lock said swinging side and end sections together when in the vertical position.

4. A hay and stock rack for wagon-boxes comprising swinging side rack-sections, means to support said sections when swung down to hay-rack position, means to hold the sections vertically in stock-rack position, vertical posts to the upper portions of which the lower portions of said rack-sections are pivoted, each post at its upper portion provided with a vertically-adjustable hook extending inwardly from the inner face of the post and formed with an elongated downwardly-extending bill, and means securing said hook to the post and rendering the same vertically adjustable of the post.

5. A wagon-box stock and hay rack attachment comprising a pair of similar side sections, a pair of similar end sections, each end section consisting of a removable end-gate provided with a swinging rack-section, and swinging depending supporting-legs, each side section consisting of vertical posts provided with the swinging rack-section and swinging supporting-legs and with supporting means to removably catch over the wagon-box sides.

6. A wagon-box rack attachment comprising swinging rack-sections and a removable wagon-box end-gate having uprights rigid therewith and an end swinging rack-section pivoted to the upper ends of said uprights and provided with freely-swinging depending legs at their upper ends pivoted thereto and at their lower free ends formed to removably fit in said uprights.

7. A wagon-box, in combination with a stock and hay rack attachment comprising front and rear removable end-gates, end swinging rack-sections hinged thereto, removable side rack-sections comprising vertical posts having vertically-adjustable supporting-hooks hung over the top edges of the wagon sides and the swinging rack-sections hinged to the posts, and detachable connections between the side and end swinging sections to lock said sections together in vertical position.

8. A wagon-box hay and stock rack attachment comprising a removable rack-section having vertical posts and the swinging rack-sections hinged to the upper ends thereof, each post having a supporting-hook to detachably catch over the top edge of the wagon-box, and means for adjusting said hook vertically of the post.

753,029. TIP-CAT. JOSEPH A. ASTARITA, New York, N. Y. Filed Oct. 14, 1903. Serial No. 176,947. (No model.)



Claim.—The improved tip-cat having the body portion *a*, and the straight cylindrical striking portion *b*, having extended straight surfaces substantially parallel to the longitudinal axis of the instrument and joined to the body portion by the cone or tapered section, *c*, so as to form a striking part when force is at right angles to the vertical line of stroke of the stick.

753,030. CURTAIN-POLE TIP. GEORGE H. ATKINS, Torrington, Conn., assignor to the Turner & Seymour Mfg. Co., Torrington, Conn., a Corporation. Filed Sept. 8, 1903. Serial No. 172,342. (No model.)

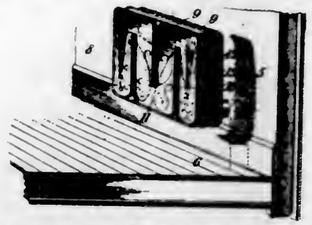


Claim.—1. A curtain-pole tip comprising a metal shell formed with an outwardly-projecting cylindrical neck, a collar folded over said neck with which it corresponds in form so as to reinforce the same, the inner edge of the collar being bent outward over the inner face of said shell, substantially as described.

2. A curtain-pole tip comprising a metal shell formed with an outwardly-projecting cylindrical neck, a metal collar folded over said neck with which it corresponds in form and size so as to closely fit and reinforce the same, the inner edge of the collar formed with points which are bent outward over the inner face of said shell, substantially as described

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753,031. RADIATOR. GEORGE M. AYLSWORTH, Collingwood Canada. Filed Apr. 4, 1903. Serial No. 151,052. (No model.)



Claim.—1. A radiator, comprising a plurality of sections, each formed of reversely-disposed duplicate plates having inwardly-projecting meeting ribs extending alternately from the upper and lower edges and forming a circuitous passage for the heating agent, the innermost section being provided with inlet and exit openings near the opposite lower corners, and pipe-sections connecting the radiator-sections, said pipe-sections being in alinement with the inlet and exit openings of the innermost radiator-section, as set forth.

2. A radiator constructed of reversely-disposed duplicate plates united all around at the edges and having inwardly-projecting bends extending alternately from the upper and lower edges thereof, forming inwardly-projecting internal meeting ribs thereby constituting a conduit for the passage therethrough of a heating agent, and means for securing the structure to the side of a wall or similar support.

3. A radiator constructed of reversely-disposed duplicate plates united all around at the edges, and formed alternately from the upper and lower edges thereof with inwardly-projecting meeting ribs, thereby constituting a conduit for the passage therethrough of a heating agent, and bolts or pins passing through said flanges for securing the structure to the side of a wall or other support.

4. A radiator comprising a pluralty of sections each constructed with a conduit having a circuitous passage for the flow therethrough of a heating agent, each conduit being provided with an inlet and an exit opening for such agent, means connecting corresponding openings of the sections, and means for securing the structure to the side of a wall or similar support, said conduits also being each of constricted dimensions transversely with reference to the diametric distance between the sides of each of said openings and the connecting means therefor.

5. A radiator, comprising a plurality of sections each formed of reversely-disposed duplicate plates having border-flanges secured together, each section having inwardly-projecting bends extending alternately from the upper and lower edges and forming internal meeting ribs, bolts passing through the ribs of the several sections, and plates secured between the marginal flanges of the sections.

6. A radiator formed of sections each having inwardly-projecting meeting ribs extending alternately from the upper and lower edges, said ribs being provided with openings, bolts passing through the openings of the ribs and having their inner ends projecting beyond the innermost section, and sleeves on the bolts between the sections and on the projecting ends of the bolts.

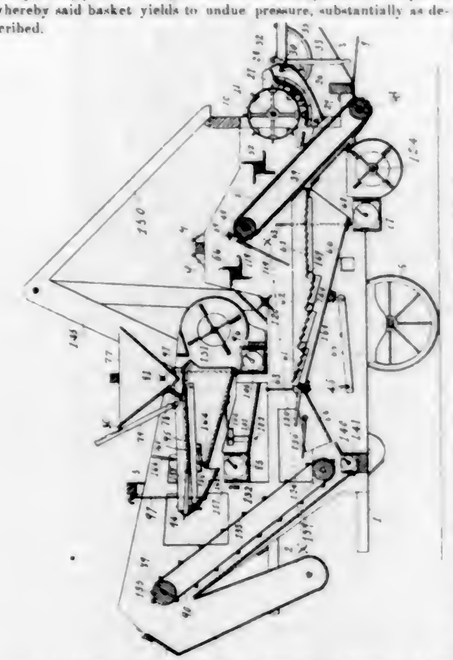
753,032. THRESHING-MACHINE. CHARLES BANKEY, San Francisco, Cal. Filed Jan. 18, 1901. Serial No. 43,823. (No model.)

Claim.—1. A threshing-machine having a threshing-cylinder, an extension forward of said cylinder, supported directly above the front wheels of the machine, a shaft in the forward end of said extension, fast and loose pulleys on said shaft, a longitudinal shaft extending from a point in front of said wheels to the rear of the same, and bevel-gearing connecting said longitudinal shaft with the shaft on the extension and the shaft of the cylinder, substantially as described.

2. A threshing-machine having a threshing-cylinder, a basket swinging from its rear side, concaves supported by said basket, said cylinder and concaves having teeth for threshing the straw, removable supports for the front side of said basket, and means for wholly removing said supports from engagement with said basket to permit the front side thereof to fall freely, substantially as described.

3. A threshing-machine having a threshing-cylinder, a basket swinging from its rear side, concaves supported by said basket, said cylinder and concaves having teeth for threshing the straw, removable supports for the front side of said basket, means for wholly removing said supports from engagement with said basket to permit

the front side thereof to fall freely, and a set-screw for adjustably and yieldingly maintaining said means in the position of support, whereby said basket yields to undue pressure, substantially as described.



4. A threshing-machine having a threshing-cylinder, a draper for carrying the grain and straw therefrom, a separator for separating the grain and straw, an agitator, an elevator for carrying the grain to the cleaner, a hopper for receiving the grain from the elevator and having an adjustable door, a cleaner onto which the hopper discharges, a trough receiving the grain from the cleaner, an auger in said trough, and a hopper into which the auger discharges the grain from said trough, substantially as described.

5. A threshing-machine having a threshing-cylinder, a draper ascending therefrom, a separator at the top of the draper, fingers extending downwardly from said separator and forming a partition, and a rotary beater beating the straw against said fingers said fingers extending obliquely rearwardly under said beater, substantially as described.

6. A threshing-machine having a threshing-cylinder, a separator for separating the grain from the straw, an agitator comprising a grate, a chute below the grate, a wind-blast directed upwardly along the surface of the chute, a second chute descending from the top of the first chute but in the opposite direction, and fingers extending from the top of said second chute to carry the straw thereover, substantially as described.

7. A threshing-machine having a threshing-cylinder, a separator for separating the grain from the straw, an agitator comprising a grate, a chute below the grate, a wind-blast directed upwardly along the surface of the chute, a second chute descending from the top of the first chute but in the opposite direction, fingers extending from the top of said second chute to carry the straw thereover, and a box at the bottom of the second chute to catch the grain blown over, substantially as described.

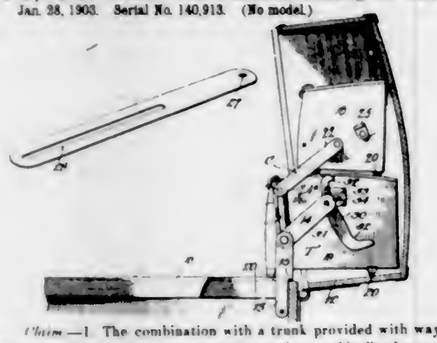
8. A threshing-machine having a threshing-cylinder, a separator for separating the grain from the straw, a cleaner, an elevator for carrying the grain to the cleaner, an agitator for the straw, a carrier for the straw, two troughs, whereby one receives the uncleaned grain from the cleaner and the other receives the grain dropped from the straw when carried by the carrier, and an elevator for reconveying to the threshing-cylinder the grain from both the said troughs, substantially as described.

9. A threshing-machine having a threshing-cylinder, an agitator, a cleaner, means for conveying grain from the agitator to the cleaner, and means for conveying the uncleaned grain from the cleaner to the threshing-cylinder, said agitator comprising groups of transverse bars between which the grain passes and short vertical bars between the groups to catch foreign substances, such as loose cylinder-teeth, substantially as described.

10. A threshing-machine having a threshing-cylinder, a cleaner, an elevator for conveying the grain to the cleaner, a trough for receiving the grain from the cleaner, an auger in said trough, means for operating the auger in either direction, a hopper, and means for supporting the hopper at either end of the trough, substantially as described.

11. A threshing-machine having a threshing-cylinder, a cleaner, an elevator for conveying the grain to the cleaner, a trough for receiving the grain from the cleaner, an auger in the trough, a hopper, and adjustable means for supporting the hopper at the end of the trough at varying heights, substantially as described.

753,033. TRUNK. JOHN H. BEASLEY, Petersburg, Va. Filed Jan. 28, 1903. Serial No. 140,913. (No model.)



Claim.—1. The combination with a trunk provided with ways and a cover for said trunk provided with an elongated inclined curved working face, of a tray having a projection coacting with the working face to move the tray over the ways when the cover is raised or lowered.

2. The combination with a trunk provided with ways and a cover for said trunk provided with an inclined curved working face having spaced stops, of a tray having a projection coacting with said working face to move the tray over the ways.

3. The combination with a trunk provided with ways and a cover for said trunk provided with an inclined curved working face having stop-faces at each end thereof, of a tray having a projection coacting with the working face to move the tray over the ways.

4. The combination with a trunk provided with ways, of a movable tray consisting of a plurality of sections, and a connector for the sections comprising a member attached to one of the sections and provided with a slot and a projection carried by the other section and entering said slot.

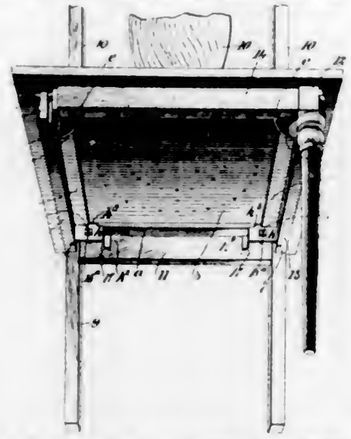
5. The combination with a trunk, of a movable tray consisting of a plurality of sections and a connector for the sections comprising a member attached to one of the sections and provided with a slot and a member pivoted to the adjacent section and having a projection entering the slot.

6. The combination with a trunk, of a movable tray consisting of two sections, one of which may be raised upon the other, and a connector for these sections comprising a member attached to one of the sections and provided with a slot, a member pivoted to the adjacent section and having a projection entering the slot, and a stop with which the pivoted portion of the connector may contact as it is lowered from its raised position.

753,034. KNOCKDOWN CHAIR. ERNEST BERN, New York, N. Y. Filed May 2, 1903. Serial No. 155,373. (No model.)

Claim.—1. A chair, comprising a seat-frame, with its parts fixedly secured together, a seat thereon, an auxiliary frame thereunder, a back-frame whereon two rear legs are fixedly secured, two front legs, said auxiliary frame comprising a front bracket-bar engaged with the front legs, two side bracket-bars joining the front and rear legs together, each of said bars being separably connected to a front and rear leg, a rear transverse bar, and adjustable clamping means connected with the legs, bracket-bars and seat-frame, and adapted to releasably secure said parts together.

2. A chair, comprising a seat-frame, a seat thereon, a back-frame having a transverse stretcher-bar, and two rear legs intact therewith, two front legs, side bracket-bars detachably connecting the front legs with the rear legs, a transverse bracket-bar detachably connecting the front legs, clamps for uniting the side bracket-bars with the front transverse bracket-bar and the rear stretcher-bar, and bolts having nuts, said bolts and nuts being adapted to releasably engage the clamps that engage the stretcher-bar, legs and bracket-bars, thereby holding them upon the seat-frame.



3. A chair, comprising a seat-frame, a seat thereon, a back-frame having a transverse stretcher-bar, and two rear legs intact therewith, two front legs having doweled ends that seat in sockets at the corners of the seat-frame, side bracket-bars having their ends engaged in openings in the rear and front legs, a transverse bracket-bar engaged at its ends in openings in the front legs, two clamps engaged at like ends in slots in the rear ends of the side bracket-bars, opposite bent ends of said clamps seating upon the stretcher-bar, lateral lugs on the clamps, having depending members adapted to enter openings in the seat-frame, bolts engaging the stretcher-bar and the clamps, nuts on the bolts drawing the clamps so as to hold the side bars clamped upon the rear legs and upon the seat-frame, two clamps having bent ends that engage slots in the front legs and in the forward portions of the side bracket-bars, said clamps also having a lug thereon that engages an opening in the seat-frame, bolts passing through the front legs and through said clamps, and nuts on said bolts that by adjustment draw the clamps into firm engagement with the seat-frame and side and front bracket-bars.

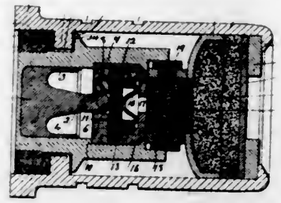
4. In a chair of the character described, the duplicate clamps for the detachable connection of the rear legs with side bracket-bars and with the seat-frame, each comprising a flat bar having an angular offset at one end, and also having a lug extending outwardly from one side thereof and in the same plane therewith, said lug terminating in an angular extension at its outer end, and said bar being perforated in the flat portion for the reception of a bolt.

5. In a chair of the character described, the duplicate clamps for the detachable connection of the front legs and forward ends of the side bracket-bars with the seat-frame, each comprising a plate of metal bent at its side edges to provide two parallel flanges both extending in the same direction, a lateral lug on one end of the plate projecting between the flanges and extending in the same direction therewith, said plate having a perforation therein between the flanges.

6. The combination with a chair having a seat-frame provided with apertures near its front corners, of an auxiliary frame including side bracket-bars and a front transverse bracket-bar, front legs having dowels on their upper ends adapted to be received into the recesses in said frame, tenons on the ends of said bracket-bars overreaching the sides of said apertures in the seat-frame, said front legs having grooves into which said tenons are received, and means for connecting said legs and bracket-bars into binding engagement with each other and with said seat-frame.

753,035. COMBINED PERCUSSION AND ELECTRIC PRIMER. THOMAS G. BENNETT and WILLIAM MASON, New Haven, Conn., assignors to Winchester Repeating Arms Co., New Haven, Conn., a Corporation. Filed Nov. 23, 1903. Serial No. 182,240. (No model.)

Claim.—1. A primer having a shell or body, a receiving-cup located therein and having a relatively thin bottom wall, and a firing-plunger located within the said cup and having an impact-receiving head which rests upon the said wall of the cup, a centrally-arranged forwardly-projecting stem, a forwardly-projecting gas-check flange surrounding the said stem which projects beyond the edge of the flange, and a forwardly-opening annular gas-check recess surrounding the base of the stem.



2. In a combined percussion and electric primer, the combination with the shell or body, of a receiving-cup located therein and insulated therefrom, a percussion-primer located within the said receiving-cup, a primer-sustaining or primer-breeching washer located within the said cup and having the percussion-primer breeched against its forward face, and means passing through the said washer for detonating the percussion-primer.

3. In a combined percussion and electric primer, the combination with the shell or body, of a receiving-cup located therein and insulated therefrom, a percussion-primer located within the said cup, a primer-sustaining or primer-breeching washer located within the said cup and having the percussion-primer breeched against its forward face, and a firing-plunger located in the bottom of the cup and comprising a stem, a gas-check flange surrounding the same, a gas-check recess surrounding the base of the stem, and an impact-receiving head.

4. In a combined percussion and electric primer, the combination with the shell or body, of a receiving-cup located therein and insulated therefrom, a firing-plunger located in the bottom of the said cup and comprising a forwardly-projecting stem, a forwardly-opening gas-check recess surrounding the base of the stem, a forwardly-projecting gas-check flange forming the outer wall of the said recess, and an impact-receiving head, a primer-sustaining or primer-breeching washer located within the cup and having the said stem passed through it, a cup-shaped anvil-block breeched against the said washer, a percussion-primer located within the said block and also breeched against the said washer, and an electric primer mounted in the forward end of the cup.

753,036. SAFETY-RAZOR. JOHN BIGGIN, Sheffield, England. Filed Nov. 6, 1903. Serial No. 180,010. (No model.)



Claim.—1. In a safety-razor, the main frame 10 of substantially triangular form, one member 15 of the triangle being adapted to receive the handle, and said frame 10 being provided with the series of slots 17 which extend partly through both members thereof, combined with an independent clip for holding and carrying the razor-blade and adapted to be removably applied to the member 14 of said frame, and means for adjusting and securing said clip on said member 14; substantially as set forth.

2. In a safety-razor, the main frame 10 of substantially triangular form, one member 15 of the triangle being adapted to receive the handle, and said frame 10 being provided with the series of slots 17 which extend partly through both members thereof, combined with an independent clip for holding and carrying the razor-blade and adapted to be removably applied to the member 14 of said

frame, and means carried by said clip for adjustably securing the clip on said member 14; substantially as set forth.

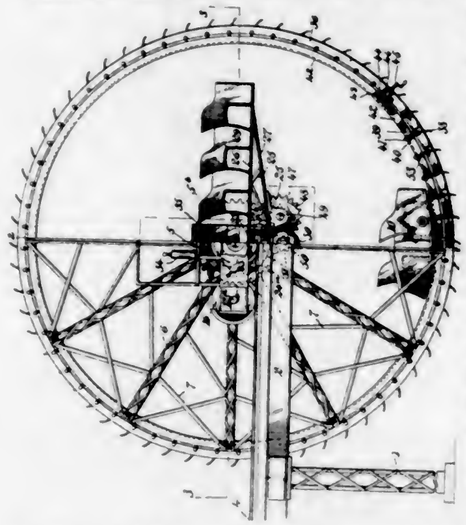
3. In a safety-razor, the clip 12 for holding the blade, said clip having the backwardly-turned end lips 20 and the downwardly and inwardly turned upper front lip 23 to engage and firmly hold the blade, combined with a main frame adapted to receive the handle and having a member 14 to receive said clip and blade, and means for fastening said clip upon said member, said member at its end edges being between the back of said clip and said end lips; substantially as set forth.

4. In a safety-razor, the clip for holding the blade, said clip having the backwardly-turned end lips 20, the frontwardly-projecting flange 22 at its upper edge, and the lip 23 extending downwardly and inwardly from the front edge of said flange 22 to bind against the outer face of said blade, combined with a main frame adapted to receive the handle and having a member 14 to receive said clip and blade, and means for fastening said clip upon said member, said member at its end edges being between the back of said clip and said end lips; substantially as set forth.

5. In a safety-razor, the clip for holding the blade, said clip having the backwardly-turned end lips 20, the frontwardly-projecting flange 22 at its upper edge, and the lip 23 extending downwardly and inwardly from the front edge of said flange 22 to bind against the outer face of said blade, combined with the screw 24 and nut 25 carried by said clip, and a main frame having a member 14 to receive said clip and blade, said member 14 having the slot 19 for the passage of said screw and at its end edges passing between the back of said clip and said end lips; substantially as set forth.

6. In a safety-razor, the clip for holding the blade, said clip having the backwardly-turned end lips 20, the small flange 21 to form a stop for the end of the blade, the frontwardly-projecting flange 22 at its upper edge, and the lip 23 extending downwardly and inwardly from the front edge of said flange to bind against the outer face of said blade, combined with the screw 24 and nut 25 carried by said clip, and a main frame having a member 14 to receive said clip and blade, said member 14 having the slot 19 for the passage of said screw and at its end edges passing between the back of said clip and said end lips; substantially as set forth.

753,037. **OBSERVATION-WHEEL.** DAVID W. BLAIR, Perth Amboy, N. J. Filed Oct. 9, 1903. Serial No. 176,400. (No model.)



Claim.—1. In an observation-wheel, the combination of a hollow revoluble member, a platform mounted therein and suspended below the axis thereof, rails mounted within said revoluble member and connected thereto, and vehicles mounted upon said rails.

2. In an observation-wheel, the combination of a hollow revoluble member, means for accommodating passengers within the same, a stationary track upon said hollow revoluble member which is free to rotate, and electric mechanism carried by said hollow revoluble member for propelling the same.

3. In an observation-wheel, the combination of a hollow revoluble member of comparatively large diameter, wheels of comparatively small diameter connected rigidly thereto, truck-frames connected with said wheels, loose wheels connected with said truck-frame, and a track for engaging all of said wheels.

4. In an observation-wheel, the combination of a revoluble member provided at its outer circumference with rings rigidly connected thereto, other rings loosely connected therewith and movable in relation thereto, and members connected with said stationary and said movable rings, said members being adapted to feather.

5. In an observation-wheel, the combination of a hollow revoluble member provided adjacent to its outer circumference with a ring movable relatively thereto, manually-controlled mechanism for shifting the position of said ring relatively to said circumference, and fan-like members connected with said outer circumference and said ring, said members being adapted to feather when said movable ring is moved relatively to said circumference.

6. In an observation-wheel, the combination of an elevated track, a hollow revoluble member provided with hubs supported directly upon said track and revoluble relatively thereto, trucks engaging said elevated track and maintained substantially level thereby, a platform mounted within said hollow revoluble member, and connections extending from said trucks to said platform for maintaining the same substantially level.

7. In an observation-wheel, the combination of an elevated track, a hollow member disposed adjacent to said track and movable bodily in relation thereto, trucks mounted upon said elevated track and movable bodily in relation thereto, and a platform mounted within said hollow member and connected with said trucks, said platform being maintained substantially level thereby.

8. In an observation-wheel, the combination of a hollow revoluble member provided adjacent to its outer circumference with cross-bars connecting opposite portions of said revoluble member together, annular rails mounted within said hollow member and connected with said cross-bars, which thereby serve both as braces for said hollow revoluble members and as cross-ties for said annular rails, and a vehicle mounted upon said annular rails and free to move relatively thereto.

9. In an observation-wheel, the combination of a hollow revoluble member, vehicles loosely mounted therein so that said hollow revoluble member can move relatively to said vehicles, a platform disposed within said hollow revoluble member, and means for securing said platform rigidly in a predetermined plane independently of the movements of said hollow revoluble member.

10. In an observation-wheel, the combination of a track, a hollow revoluble member free to revolve and also to move bodily along said track, vehicles disposed loosely within said hollow revoluble member and movable relatively thereto, a platform disposed within said hollow revoluble member and movable bodily therewith in the general direction of travel thereof along said track, and mechanism connecting said platform with stationary mechanism outside of said wheel, thereby maintaining said platform level.

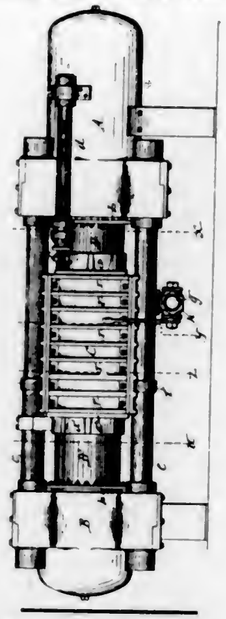
753,038. **WOOD-PULP PRESS.** RUFUS E. BOECHERT, Syracuse, N. Y. Filed May 14, 1903. Serial No. 157,060. (No model.)

Claim.—1. The combination with the press-chamber and follower, of a head closing one end of said chamber, means for pressing the head to its closed position, means for releasing said head from said pressure, and means for applying pressure to the follower and thereby force the released head and compressed material simultaneously from the press-chamber.

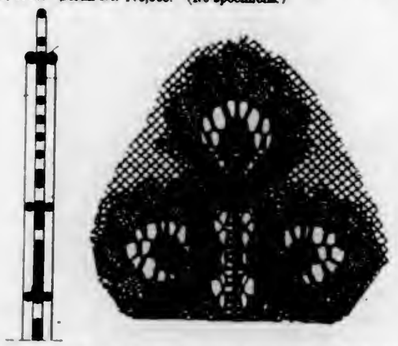
2. A wood-pulp press provided with the pressing-follower in one end of the press-chamber, an abutting head closing the opposite end of said chamber and sustained movably in a line parallel with the axis of the follower and to a remote position from the press-chamber, and means for forcing the follower inward and simultaneously forcing the compressed pulp and abutting head from the press-chamber by the pressure of the follower as set forth.

3. The improved wood-pulp press consisting of a press-chamber formed with imperforate sides and open ends, an abutting head movable to and from one end of said chamber, a strainer on the inner face of said abutting head, means for forcing said head to the press-chamber, a main cylinder facing the opposite end of the press-chamber, a follower in said press-chamber forced inward by the piston of said main cylinder and receiving a secondary inward movement to force the compressed pulp and abutting head from the press-chamber, supplemental cylinders disposed parallel with said main cylinder, and pistons in the supplemental cylinders actuated reverse from the piston of the main cylinder and connected to the follower to retract

the same, all constructed and combined to operate in the manner set forth.



753,039. **EMBROIDERED FABRIC.** ARTHUR BURGESS, Philadelphia, Pa., assignor to Joseph H. Bromley, Philadelphia, Pa. Filed Oct. 28, 1903. Serial No. 178,805. (No specimens.)

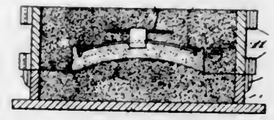


Claim.—1. A reversible embroidered fabric composed of a body fabric having superposed upon each of the opposite faces thereof, a design or pattern in outline, of like contour and character, and in register, the same being formed of embroidering cords or braids, which follow a predetermined pattern, and are bound to each other through the body fabric by a tying-in thread on each side of the fabric, which severally unite said embroidering braids to each other and to the interposed body fabric.

2. An embroidered fabric composed of a lace-body fabric having an integral pattern woven therein and having superposed upon each of the opposite faces thereof a braided design or pattern in outline of like contour, and conforming and registering in such outline with the integral woven pattern in the lace-body fabric, the braids forming said like embroidered designs upon the opposite sides being bound to the interposed body fabric by the same or coinciding lines of switches or tying-in threads.

753,040. **METHOD OF MAKING BRAKE-SHOES.** JAMES R. CARDWELL, Chicago, Ill. Filed May 25, 1903. Serial No. 158,663. (No model.)

Claim.—1. A method of making brake-shoes having a main cast body and a separately-formed open loop-like attaching-lug cast therein, which consists in forming a pattern of the main body of the shoe provided with cavities conformed to, and adapted to receive the cast-in portions of the lug, assembling therewith said attaching-lug to form a complementary part of the pattern, forming a mold of the combined parts and in so forming the mold, covering and filling all parts of the lug which remain outside of the completed shoe-body and tamping the molding-sand firmly so as to anchor the lug therein, withdrawing the pattern of the main body, leaving the lug anchored in position in the mold, and finally filling in the metal to form said main body.



2. A method of making brake-shoes having a main cast body, a separately-formed open loop-like attaching-lug and a separately-formed reinforcing back strip, which consists in forming a pattern of the main body of the shoe provided with cavities conformed to, and adapted to receive, the cast-in portions of the lug and said reinforcing back strip, securing together said lug and reinforcing back strip and assembling these with the pattern of the main body to form a complete pattern, then placing an anchor in position to support the attaching-lug and tamping in covering and filling all parts of the lug and anchor and pattern, except only such portions of the lug as are to be cast in, thereby forming a mold of the combined parts, then withdrawing the pattern of the main body, leaving the complementary parts anchored in position in the mold, and finally filling in the metal which forms said main body.

3. A method of making brake-shoes having a main cast body, a separately-formed loop-shaped attaching-lug and a separately-formed reinforcing back strip, both attached to said main body by being cast in, which consists in forming a pattern of the main body of the shoe provided with cavities conformed to, and adapted to receive the cast-in portions of the lug and reinforcing-strip, wedging the back strip between the arms of the attaching-loop and combining said complementary parts with the pattern of the main body to form a complete pattern, inserting an anchor through the lug and forming a mold of the combined parts, withdrawing the pattern of the main body and leaving the lug and back strip anchored in position in the mold, inverting the mold, and finally filling in the metal to form the main body.

753,041. **STEAM-BOILER.** CHARLES E. CHAPMAN, Fort Edward, N. Y., assignor of one-half to Joseph Goodfellow, Fort Edward, N. Y. Filed June 18, 1903. Serial No. 162,019. (No model.)

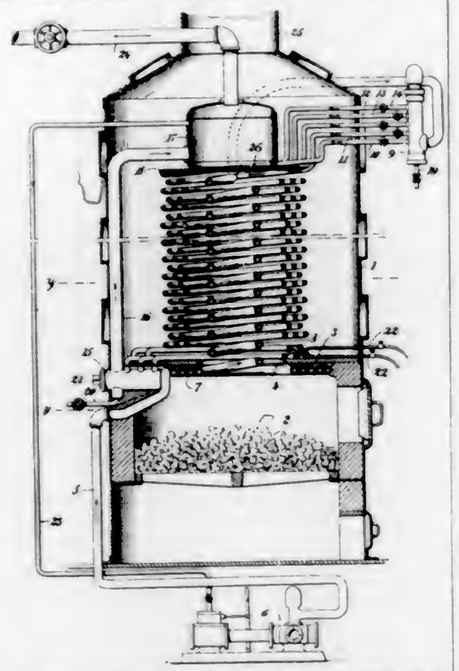
Claim.—1. A steam-boiler, comprising a shell, a furnace on which the shell is mounted, the top plate of said furnace having a restricted central opening, a feed-water pipe having a portion coiled on the under side of said top plate, and a coiled portion extended upward within the shell, a steam-dome, and means for providing communication between the feed-water pipe and said dome.

2. A steam-boiler comprising a shell, a furnace on which the shell is mounted, a top plate for said shell having a restricted opening, a feed-water pipe having a flat coiled portion at the under side of said top plate and a coiled portion extended upward in the shell, a header at the outer side of the shell and with which said feed-pipe communicates, a plurality of valved tubes leading from said header and coiled around the first-named coil, a header with which said tubes communicate, a steam-dome in the shell, and a pipe connection between said dome and the last-named header.

3. A steam-boiler comprising a furnace, a shell mounted on the furnace, a feed-water pipe having a coiled portion in the shell, a header at the outer side of the shell and with which said feed-pipe communicates, a plurality of tubes extended from said header and having portions coiled around the first-named coils, valved test-tubes leading from the lower portions of said tube-coils, a header with which the tubes communicate, a steam-dome arranged above the coils, and a pipe connection between said dome and the last-named header.

4. A boiler comprising a furnace, a shell supported on the furnace, a feed-water pipe having a coiled portion within the shell, a header at the outer side of the shell with which said feed-pipe communicates, a plurality of tubes extended from said header and coiled around the first-named coil, a baffle-plate at the upper portion of the coils, a steam-dome arranged above the coils, and a pipe connection between said dome and said tubes.

5. A steam-boiler comprising a furnace, a shell mounted thereon, a feed-water pipe having a flat or mat-shaped coiled portion arranged in the furnace and a plurality of independent valved tubes surrounding the pipe and having communication therewith



6. A steam-boiler comprising a furnace, a shell mounted thereon, a feed-water pipe having a coiled portion in the shell, and a plurality of tubes having portions coiled around the feed-water-pipe coil, the said tubes being of smaller diameter than said pipe.

7. A steam-boiler comprising an inner coil and a plurality of independent outer coils having a forced and constant circulation by means of a pump or other constant pressure, forcing water through the inner coil and returning through the outer coils in the form of steam.

753,042. HEATER. ANALIE VON CHIGOR, New York, N. Y., assignor to Margaret Kussner, New York, N. Y. Filed Jan. 14, 1902. Serial No. 89,714. (No model.)

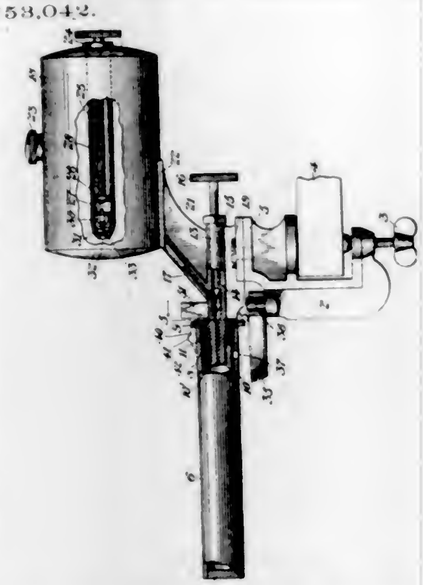
Claim.—1. In a heater, the combination with a bracket, of a Bunsen-burner tube secured to said bracket and having at one side and in fixed relation therewith a locking-face, means for supplying air and gas to said burner, and an article to be heated having a locking-face cooperative with said first locking-face.

2. In a heater, the combination with a bracket, of a Bunsen-burner tube secured to said bracket and having at one side and in fixed relation therewith a locking-face, means for supplying air and gas to said burner, and a sad-iron having a longitudinal opening adapted to receive said burner one wall of said bore constituting a locking-face cooperative with said first locking-face.

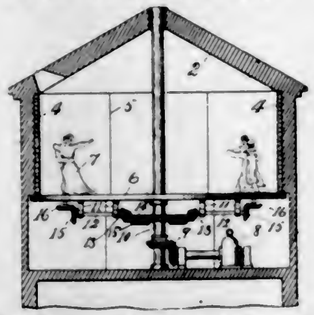
3. In a heater, the combination with a bracket, of a Bunsen-burner tube secured to said bracket and having a locking-lug projecting beyond the periphery of the burner, means for supplying air and gas to said burner, and a sad-iron having a longitudinal opening adapted to receive said burner and also having a locking-recess cooperative with said lug.

4. In a heater, the combination with a bracket, of a Bunsen-burner tube secured to said bracket and having at one side a locking-face and also having a locking-lug projecting beyond the periphery of said burner, means for supplying air and gas to said burner, and a sad-iron having a longitudinal opening adapted to receive said burner and also having a locking-face and a locking-recess cooperative respectively with said first locking-face and with the lug for preventing turning and longitudinal movements of said sad-irons.

753,042.



753,043. ROUNDABOUT. CHARLES A. CLEAL, Capitola, Cal. Filed Oct. 9, 1902. Serial No. 126,525. (No model.)



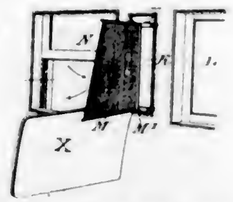
Claim.—The apparatus of the character described comprising a casing having vertical walls and closed at the top except for an aperture for inspection, vertical mirrors arranged in the form of a polygon around the walls at angles with each other each less than two right angles and fitting closely against each other at their sides, the aperture flaring inwardly and sufficiently contracted on the outside, and the mirrors extending to a sufficient height around the walls that no part of the casing above the mirrors is exposed to view through said aperture, a platform revolving within the casing, the edge of the platform being extended underneath the lower edges of the mirrors and being concealed thereby, figures on the platform, means for revolving the platform, and means actuated by the revolution of the platform for imparting an additional movement to said figures, substantially as described.

753,044. CAR-WINDOW GUARD OR SHIELD. ALBERT D. COOKE, Philadelphia, Pa. Filed Apr. 6, 1903. Serial No. 151,233. (No model.)

Claim.—1. In a car-window guard, a shield of pliable material and a frame therefor consisting of vertical and horizontal bars jointed together and a brace formed of jointed sections adapted respectively to engage said horizontal bars.

2. In a window-guard, a screen-support, jaws at opposite ends thereof, carriers for said jaws movably fitted to said support and means for imparting pressure on said jaws one toward the other.

3. In a window-guard, a screen-support, jaws at opposite ends thereof, carriers for said jaws movably fitted to said support and a spring on said support adapted to impart pressure on said jaws one toward the other



4. In a window-guard, a screen-support, jaws at opposite ends thereof, carriers for said jaws movably fitted to said support, an adjusting-screw on said support adapted to engage with one of said carriers and a spring connected with the other carrier to impart pressure on the jaw of the last-named carrier toward the opposite jaw.

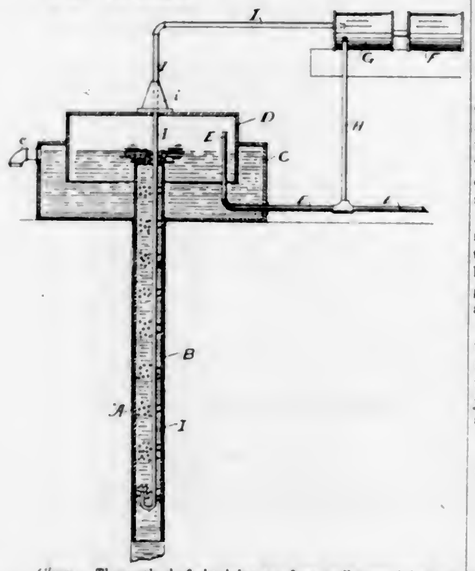
5. In a window-guard, a casing, a screen secured to said casing, two carriers passing through said casing and both longitudinally adjustable therethrough, a clamping-jaw at the end of each of said carriers and means for retaining said carriers in their operative position.

6. In a window-guard, a pair of carriers, a clamping-jaw at the end of each of said carriers, means for retaining said carriers in their operative position, a casing longitudinally adjustable with respect to both of said carriers and a screen supported on said casing.

7. In a window-guard, a pair of carriers, a clamping-jaw at the end of each of said carriers, a casing, means for locking said casing in any of a plurality of positions with respect to one of said carriers, independent means for holding the other of said carriers in adjusted position with respect to said casing and a screen supported on said casing.

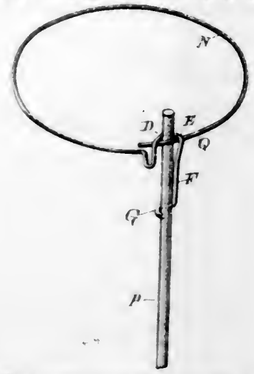
8. In a window-guard, a screen-attaching portion, a clamping-jaw carrier on which said screen portion is longitudinally adjustable, a second coacting clamping-jaw carrier and means for holding said second carrier in any of a plurality of positions with respect to said screen portion.

753,045. METHOD OF OBTAINING GAS FROM WELLS. AUGUSTUS S. COOPER, Oakland, Cal. Filed Dec. 12, 1902. Serial No. 134,933. (No specimens.)



Claim.—The method of obtaining gas from wells containing water with gas held in solution, which consists in lifting said water in the well by means of a hydrocarbon gas introduced under pressure into the water column below, and collecting the gas liberated from said lifted water.

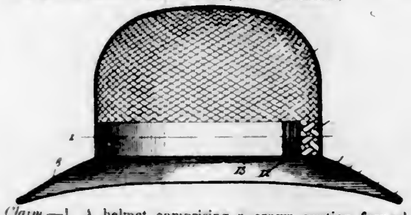
753,046. SUPPORTING FRAME OR TRELLIS. AUGUST CORTS, Wyncote, Pa. Filed Mar. 25, 1902. Serial No. 99,872. (No model.)



Claim.—The combination with a supporting member, a fastening device consisting of a loop, one end of which is provided with members constituting a crotch that is situated on one side of said supporting member and with an arm having means for engaging the same side of said supporting member, the other end of said loop being situated between said crotch members and said supporting member on the side of the latter opposite to that engaged by said crotch

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753,047. HELMET. JEREMIAH J. CURTIS, Jersey City, N. J. Filed Nov. 10, 1903. Serial No. 180,553. (No model.)



Claim.—1. A helmet comprising a crown portion formed of straw or similar light material, a brim portion, and a stiffening-plate of aluminium or the like connected to the under side of and extending entirely around the brim portion.

2. A helmet comprising a crown portion, a brim portion, a stiffening-plate of metal secured to the under side and extending entirely around the brim portion and conforming to the shape and inclination of the brim, a fabric for covering the stiffening-plate secured to the outer face of the latter, a binding extending entirely around the outer edge of the brim and securing the fabric and the plate, and means for ventilating the helmet.

3. A helmet comprising a crown portion and a brim portion, a metallic stiffening-plate for the brim, the crown portion adjacent to the brim having openings formed therein for the ventilation of the helmet, a hat-band secured within the crown portion, and a corrugated strip interposed between the open-work portion of the crown and the hat-band.

4. A helmet comprising a crown portion and a brim portion, the lower part of the crown adjacent to the brim having openings therein for the ventilation of the helmet, a corrugated band arranged to extend entirely around on the interior of the crown portion adjacent to the open-work portion, and a stiffening-plate of aluminium secured to the under side of brim of the helmet.

753,048. MINER'S TOOL. ALFRED V. DES MOINEAUX, Silverplume, Colo., assignor of three-fourths to Helen Des Moineaux, Silverplume, Colo. Original application filed July 19, 1902, Serial No. 116,269. Divided and this application filed May 15, 1903. Serial No. 157,245. (No model.)

Claim.—1. A miner's tool having handles provided with slitting-blades adapted to shear past one another, and a guide-cap carried by one blade and having an open side presented to the other blade, said cap presenting opposing spaced members between which a fuse may be inserted and into which one of the blades is adapted to be received.

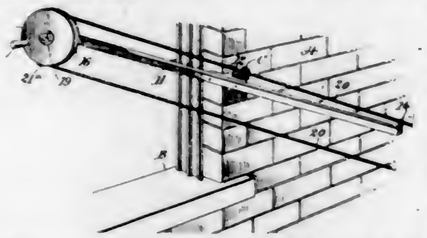
2. A miner's tool having handles provided with wide and narrow slitting-blades adapted to shear past one another, and a guide-cap carried by the narrow blade and presenting an open side toward the wide blade.



3. A miner's tool having handles provided with wide and narrow slitting-blades adapted to shear past one another, and a guide-cap having a contracted closed side which envelops the narrow blade and is attached firmly thereto, said cap being open at its ends and on the wide side for the insertion of a fuse and for the free play of the wide slitting-blade therein.

4. A miner's tool comprising pivoted members having jaws which are provided with terminal slitting-blades, and a cap provided with a contracted closed portion which is fitted snugly to one of said slitting-blades and is arranged to project beyond the active edge thereof in a position to receive the companion slitting-blade of the other member.

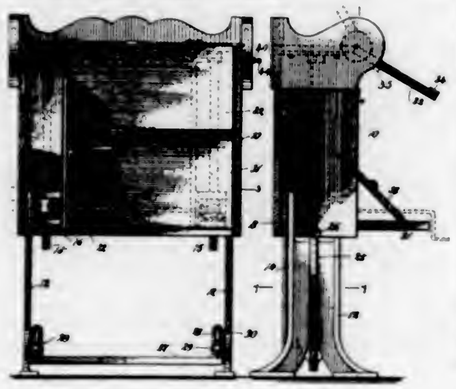
753,049. CLOTHES-LINE HOLDER. GEORGE H. DE VINE and ALBERT BAUMANN, Jersey City, N. J. Filed Sept. 4, 1903. Serial No 171,923. (No model.)



Claim.—1. A clothes-line holder consisting of a body-bar provided with a pivot member between its ends, a peripherally-grooved manipulating-pulley mounted at one end of the body-bar, a fixed loop-guide for the upper stretch of the line at the opposite end of the body-bar, and a line-guide carried by the body-bar and adjustable to and from the under portion of the said pulley, as set forth.

2. A clothes-line holder, consisting of a body-bar, a bracket extending from one side of the body-bar about centrally between its ends, the bracket having an opening at its outer portion, a pulley mounted to turn at one end of the body-bar, a guide located adjacent to the pulley and comprising a vertical member and an adjustable horizontal member extending beneath the bottom portion of the pulley and adapted to prevent a line from leaving the pulley, and a loop-guide at the opposite end of the said body-bar, adapted to receive the upper stretch of a clothes-line, for the purpose described.

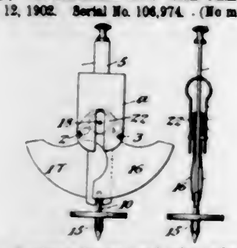
753,050. DESK. OLIVER C. DORNEY, Allentown, Pa. Filed Nov. 26, 1901. Serial No. 83,686. (No model.)



Claim.—1. A desk, comprising a cabinet, a front closure therefor, consisting of upper and lower sections, the lower section being hinged to the lower portion of the cabinet, a shaft to which the upper section is attached, notched wheels on said shaft, and a sliding locking-bar for engaging with said wheels, substantially as specified.

2. In a desk, a cabinet, a front section therefor forming a book-support, a shaft mounted to turn in bearings on the cabinet, notched wheels on the ends of said shaft, arms extended from the wheels and connected to said book-rest section, and a sliding bar adapted to engage with the wheels, substantially as specified.

753,051. MECHANICAL TOY. LUIS DRESCHER, Newark, N. J. Filed May 12, 1902. Serial No. 106,974. (No model.)

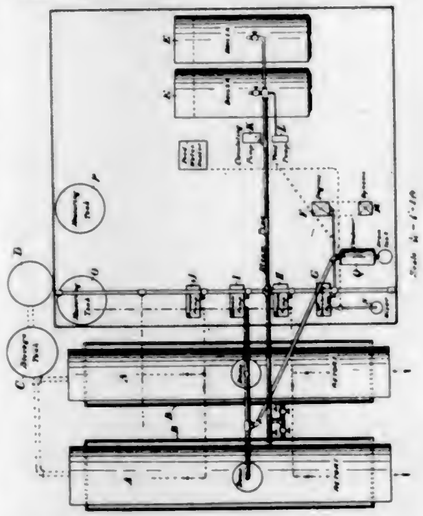


Claim.—1. A spinner for tops and other spinning toys, comprising a frame, opposing wings operatively mounted in the frame and adapted to engage a spindle interposed between them, and means for swinging said wings in opposite directions to impart rapid rotary motion to the spindle, substantially as described.

2. A spinner for tops and other spinning toys, comprising a frame, an actuator sliding in the frame, and opposing wings pivoted on the actuator and oppositely engaged with the frame, said wings being adapted to engage and rotate a spindle interposed between them, substantially as described.

3. A spinner for tops and other spinning toys, comprising a frame, an actuator sliding in the frame and having a longitudinal slit in its end, and wings pivoted on the actuator and oppositely engaged with the frame, said wings being adapted to engage a spindle interposed between them in the slit in the actuator, substantially as described.

753,052. TIMBER-TREATING PROCESS. PATRICK F. DUNDON, San Francisco, Cal. Filed Dec. 13, 1902. Serial No 135,115. (No specimens.)



Claim.—The process of treating timber for preservative purposes which consists in first opening the pores and expelling the native sap by means of steam heat, moisture and pressure; second, drying out the contained moisture; third, treating the timber with a limpid mineral oil under heat and pressure to fill the pores of the interior or heart portion, and, fourth, treating the timber with a bituminous pitch under heat and pressure to fill the pores of the outer stratum, whereby the latter is sealed to form an impervious coating for the conservation of the limpid interior substance, substantially as specified.

753,053. JOIST-HANGER. AUGUST H. EBERHARDT, Cleveland, Ohio. Filed July 10, 1903. Serial No. 164,963. (No model.)



Claim.—1. A sheet-metal joist-hanger having a back portion, integral side portions with tenons on their lower ends, and an integral bottom portion having holes to receive said tenons, substantially as described.

2. A joist-hanger having a back portion, side portions with tenons on their lower ends, and a bottom portion having holes to receive said tenons, said bottom portion having wings which are bent upward onto the outer side of said side portions and there secured, all of said parts being made of a single piece of sheet metal, substantially as described.

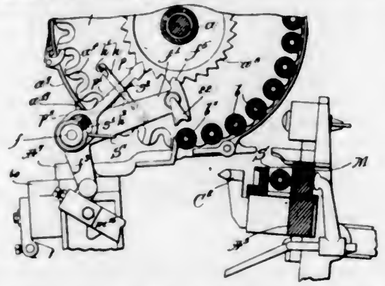
3. A sheet-metal joist-hanger consisting of a back plate and side plates bent forward therefrom, and a bottom plate bent forward from the back plate and carrying at its edges wings bent upward alongside of the side plates and secured thereto by rivets, substantially as described.

4. A joist-hanger made of sheet metal and consisting of a back plate, a top plate bent rearward therefrom, side plates bent forward from the back plate, and a bottom plate bent forward from the back plate and having wings bent upward from its edges and secured to the side plates, substantially as described.

5. A joist-hanger made of sheet metal and consisting of a single blank form bent to comprise a back plate, a bottom plate, side plates tenoned into the bottom plate, wings on the bottom plate bent upward on the outer sides of the side plate and a top plate bent rearward from the back plate, substantially as described.

6. A joist-hanger made of sheet metal and consisting of the following portions, namely, a back plate, a bottom plate, side plates tenoned into the bottom plate, wings on the bottom plate bent upward on the outer sides of the side plates, and a top plate bent rearward from the back plate, there being reinforcing-dents formed across the junction of the top plate and the back plate, and rivets securing said wings and side plates, substantially as described.

753,054. FILLING-FEEDER MECHANISM FOR AUTOMATIC LOOMS. JOHN C. EDWARDS, Brookline, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 23, 1903. Serial No. 178,269. (No model.)



Claim.—1. A movable filling-feeder to hold a series of filling-carriers, an actuating device therefor, a transferrer having a movement independent of said device, and means operated by transferring movement of said transferrer to positively set the actuating device, return movement of the transferrer acting through said means and the actuating device to yieldingly start and complete the movement of the feeder.

2. A movable filling-feeder to hold a series of filling-carriers, an actuating device therefor, a transferrer, and means operated thereby during the latter part of its transferring movement to positively set the actuating device, and to operate the same and advance the feeder during the latter part of the return movement of the transferrer to normal position.

3. A movable filling-feeder to hold a series of filling-carriers, an actuating device therefor, a transferrer, and a connection between them having a limited movement relative to said device, transferring movement of the transferrer acting through said connection to positively move and set the actuating device, the latter acting to yieldingly start and positively complete feeder movement on the return movement of the transferrer.

4. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an actuating device for the feeder, a fixed support for said device, a transferrer, and means operated by transferring movement thereof to positively set the actuating device, return movement of said transferrer acting through said means to first yieldingly and then positively operate said device to effect movement of the feeder.

5. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an actuating device for the feeder, a transferrer, a common fixed support on which the actuating device and transferrer are movably mounted, and means intermediate the transferrer and actuating device to positively position the latter by or through operative movement of the transferrer, and to operate said actuating device by return movement of the transferrer, and thereby advance the feeder.

6. A movable filling-feeder to hold a series of filling-carriers, an actuating device therefor, a transferrer, and means to positively move and set the actuating device by transferring movement of the transferrer, said means including a spring, return movement of the transferrer acting through the spring to yieldingly start and then positively complete operative movement of the actuating device to thereby advance the feeder.

7. A movable filling-feeder to hold a series of filling-carriers, means independent of the filling-carriers to normally lock the feeder, a transferrer, operative movement thereof releasing the feeder from the locking means, and means positively moved by the transferrer into position to start the feeder, said means thereafter acting to move said feeder forward during the latter part of the return of the transferrer to normal position.

8. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, a rocking transferrer, an actuating device adapted to rock coaxially with the transferrer, and means operatively connecting the transferrer and actuating device and having limited lost motion relative to the latter, each complete operation of the transferrer acting through said means to positively set, and thereafter operate the actuating device to effect advance of the feeder.

9. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, a transferrer having an angular movement independent of said device, and means intermediate the actuating device and transferrer to positively position the former by operative movement of the latter, and to operate the actuating device and thereby advance the feeder by return movement of the transferrer to normal position.

10. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an actuating device therefor, a transferrer having an angular movement independent of said device, and means, including a spring, intermediate said actuating device and transferrer, operative movement of the latter acting positively through said means to set the actuating device, return movement of the transferrer acting, by or through the spring, to cause said means to yieldingly start the operative movement of the actuating device.

11. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, a transferrer, means movable therewith to normally lock the feeder, a device to start and effect advance movement of the feeder, and means, including a spring, intermediate said device and the transferrer, operative movement of the latter unlocking the feeder and thereafter positively moving the said device into starting position, return movement of the transferrer acting to compress the spring and through said means operate the said device to effect advance of the feeder without shock.

12. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an attached ratchet, a cooperating pawl, a transferrer having an angular movement independent of the pawl, a connection between the latter and the transferrer to positively set the pawl by operative movement of the transferrer, and a spring between said pawl and connection to yieldingly move the pawl and advance the feeder by return movement of the tranferrer.

13. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an attached ratchet, a rocking and longitudinally-movable cooperating pawl, a transferrer having an angular movement independent of the pawl, means to positively rock and set the pawl by or through the operative movement of the transferrer,

and a spring intermediate said pawl and transferrer to yieldingly operate the pawl on return of the transferrer to normal position.

14. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an attached ratchet, a transferrer, a longitudinally-movable, spring-controlled pawl mounted coaxially with the transferrer and cooperating with the ratchet, a pawl-setter carried by the transferrer and acting to positively set the pawl by operative movement of the transferrer, and a spring interposed between the pawl and transferrer to operatively move the pawl and advance the feeder by or through return movement of the transferrer, said pawl moving longitudinally to click over the ratchet during setting movement.

15. A rotatable filling-feeder to hold a series of circularly-arranged filling-carriers, an attached ratchet, a transferrer, a longitudinally-movable pawl fulcrumed coaxially with the transferrer, a spring to maintain the pawl in cooperative relation with the ratchet, a pawl-setter movable with the transferrer and acting to positively set the pawl by or through operative movement of the transferrer, and a spring interposed between the transferrer and pawl and compressed by return movement of the transferrer to operatively move the pawl in a yielding manner and thereby advance the feeder without shock.

16. A movable filling-feeder, a transferrer, means to move the feeder said means including a pawl, a spring interposed between the pawl and transferrer, and a positively-acting pawl-setter, operative movement of the transferrer operating the pawl-setter, and return movement of said transferrer compressing the spring and acting through it upon the pawl to effect movement of the feeder.

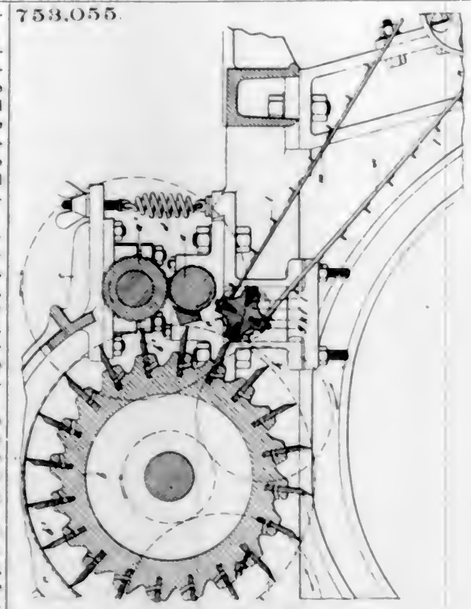
17. A rotatable filling-feeder including a peripherally-notched end member, a detent cooperating therewith to prevent retrograde movement of the feeder, a transferrer, means to move the feeder, said means including a pawl, a spring interposed between it and the transferrer, and a yoke-like member rigidly mounted on said transferrer, operative movement of the latter positively engaging and setting the pawl, return movement of the transferrer compressing the spring and acting through it upon the pawl to effect advance movement of the feeder.

18. A rotatable filling-feeder, an attached ratchet, an actuating-pawl to cooperate therewith and advance the feeder, a transferrer, a pawl-setter rigidly mounted thereon to engage and positively set the pawl by operative movement of the transferrer, a spring interposed between the pawl and transferrer, return movement of the latter compressing the spring and yieldingly moving the pawl to advance the feeder, and a fixed stop for and to positively limit such movement of the pawl.

19. A rotatable filling-feeder, an attached ratchet, an actuating-pawl to cooperate therewith and advance the feeder, a transferrer, a pawl-setter rigidly mounted thereon to engage and positively set the pawl by operative movement of the transferrer, a spring interposed between the pawl and transferrer, return movement of the latter compressing the spring and yieldingly moving the pawl to advance the feeder, a fixed stop for and to limit such movement of the pawl, and a locking-finger on the transferrer, to normally engage the ratchet and lock the feeder, the pawl and its stop also cooperating to lock the feeder when the transferrer is at rest.

20. A rotatable filling-feeder, an attached ratchet, an actuating-pawl to cooperate therewith and advance the feeder, a transferrer having a rigid arm overhanging and normally disengaged from the pawl, operative movement of the transferrer causing said arm to engage and positively set the pawl, a spring interposed between the pawl and transferrer and compressed by return movement of the latter, to thereby yieldingly operate the pawl and advance the feeder, and a fixed abutment to engage and stop the pawl when the feeder has been advanced a predetermined amount.

753,055.

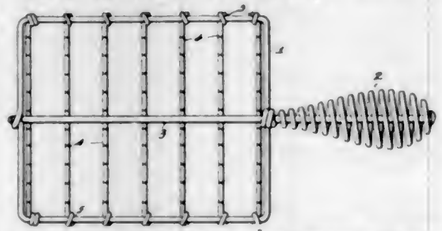


753,055. DECORTICATING-MACHINE. ALFRED D. BUTIENNE, Marseilles, France, assignor to Anglo-French Ramie Machine Company, Limited, Paris, France. Filed Mar. 13, 1902. Serial No. 98,038. (No model.)

Claim.—1. A decorticating-machine, comprising feed-rollers, a rotary beater, a scutching-board between the feed-rollers and beater a spindle below said board and having channels, blades in said channels, the said blades having transverse openings, pins passing through said openings, and spring-supports for said blades.

2. A decorticating-machine, comprising feed-rollers, a rotary beater, a scutching-board between the feed-rollers and beater, a spindle below said board and having channels, yielding blades in said channels and having heels provided with transverse openings, pins passing through said openings, and spring-supports for said blades.

753,056. CURRYCOMB. HUGO E. EWART, St. Louis, Mo. Filed Sept. 28, 1903. Serial No. 174,977. (No model.)



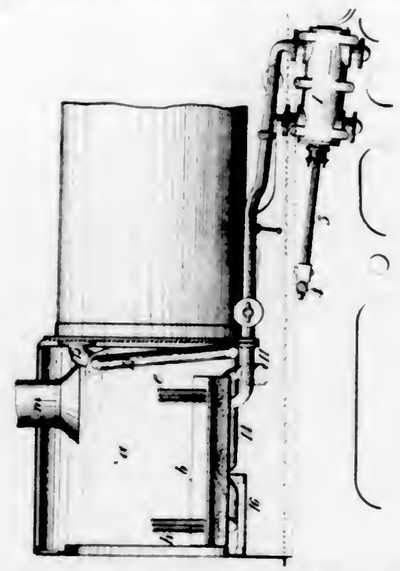
Claim.—1. The improved currycomb, comprising a suitable frame, and flexible rows of wire teeth, formed of a single piece of wire bent intermediate of its ends to form oppositely-projecting U-shaped loops, said rows secured at their ends to said frame, the lower ones of said loops being smaller than the upper loops of said rows, substantially as specified.

2. The improved currycomb, comprising a suitable frame, flexible rows of wire teeth, formed of a single piece of wire bent intermediate of its ends to form oppositely-projecting U-shaped loops, and said rows secured at their ends to said frame, and a wire loop applied to the back of said frame so as to form a space between said loop and said frame for the insertion of the operator's hand, the opposite ends of said loop being curved to form finger-holds, substantially as specified.

3. The improved currycomb, comprising a suitable frame, flexible rows of wire teeth, formed of a single piece of wire bent intermediate of its ends to form oppositely-projecting U-shaped loops and said rows secured at their ends to said frame, a wire loop applied to the back of said frame so as to form a space between said loop and said frame for the insertion of the operator's hand, the opposite ends of said loop being curved to form finger-holds, and a handle projecting at one end of said back loop, substantially as specified.

753,057. LOCOMOTIVE-ENGINE. EDWARD FIELD, London, England. Filed Apr. 23, 1903. Serial No. 154,022. (No model.)

Claim.—1. In a locomotive steam-engine, the combination with the locomotive-boiler, the engine-cylinders, and the smoke-box, of a heating device located in said smoke-box so as to be heated by hot gases admitted thereto and formed with a plurality of passages for air and steam, means for supplying air and steam under pressure to one end portion of said heating device, and means for conducting the superheated mixture of air and steam, constituting motive fluid, from the opposite end portion of said heating device to said engine-cylinders.



2. In a locomotive steam-engine, the combination with the locomotive-boiler, the engine-cylinders, and the smoke-box, of a heating device located in said smoke-box and adapted to present a large heating-surface to hot gases flowing therethrough, means for supplying air and steam under pressure to one portion of said heating device, and means for conducting the superheated mixture of air and steam from the delivery end of said heating device to said engine-cylinders, said heating device having long tortuous heating-passages through which said air and steam are constrained to flow and become highly heated as set forth.

3. In a locomotive steam-engine, the combination with the locomotive-boiler, the engine-cylinders, and the smoke-box, of a heating device arranged within said smoke-box so as to be heated externally by hot gases and to permit said hot gases to pass to the chimney at a point located to the rear of the forward end of the heating device, means for supplying air and steam under pressure to one portion of said heating device, and means for conducting the superheated mixture of air and steam from the delivery end of said heating device to said engine-cylinders.

4. In a locomotive steam-engine, the combination with the locomotive-boiler, the engine-cylinders, and the smoke-box, of a tubulous heating device located in said smoke-box and extending partly around the interior thereof, said device having an opening through its upper part to permit hot gases entering the smoke-box to pass upward to and through the chimney, means for supplying air and steam under pressure to one portion of said heating device, and means for conducting the superheated mixture of air and steam from the delivery end of said heating device to said engine-cylinders.

5. In a locomotive-engine, the combination with the locomotive-boiler, the engine-cylinders, the smoke-box, and a chimney the lower end of which extends into said smoke-box, of a heating device located in said smoke-box, adapted to present a large heating-surface to hot gases, and arranged to extend partly around the interior of said smoke-box and to surround the lower projecting end of said chimney, means for supplying air and steam under pressure to one portion of said heating device, and means for conducting the superheated mixture of air and steam from the delivery end of said heating device to said engine-cylinders.

6. In a locomotive steam-engine, the combination with the boiler, the engine-cylinders, the smoke-box, and a main steam-pipe terminating in said smoke-box, of a heating device located in said smoke-box, means for supplying air under pressure to said heating device, a steam-pipe located within said smoke-box, connected to the end of the main steam-pipe therein and arranged to supply steam under pressure to said heating device, and means for conducting the superheated mixture of air and steam, after traversing said heating device, to said engine-cylinders.

7. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box, of a heating device comprising a number of tubes arranged to extend around the sides and top of said smoke-box and adapted to present a large heating-surface to hot gases flowing therethrough to the chimney, means located in said smoke-box for supplying steam from said main steam-pipe to one end portion of the heating device, means for supplying air at a pressure equal at least to that of the steam to the same end portion of said heating device, and means for supplying the heated mixture of air and steam from the other end portion of the heating device to said engine-cylinders.

8. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box, of a heating device located in said smoke-box and adapted to present a large heating-surface to hot gases flowing therethrough to the chimney, means for compressing and supplying air at a pressure about equal to that of the steam in the boiler to one end portion of the heating device, means for supplying steam from said steam-pipe to the heating device at a point thereof between its ends, and means for supplying the heated mixture of air and steam to the engine-cylinders.

9. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box, of a heating device located in said smoke-box and adapted to present a large heating-surface to hot gases flowing therethrough to the chimney, an air-compressor arranged to be driven from the locomotive-engine and an air-supply pipe adapted to deliver the air from said compressor to one end of such heating device, a pressure-relief valve for said air-delivery pipe, a steam-supply pipe connecting said main steam-pipe to the heating device at a point thereof between its ends but nearer to the air-inlet end of the said device than to the opposite end thereof, and a pipe for conducting the heated mixture of air and steam to the engine-cylinders.

10. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, the engine cross-heads, and the smoke-box, of a heating device arranged in said smoke-box so as to be heated by hot gases admitted thereto, air-compressors each located between a side frame of the locomotive and the adjacent connecting-rod of the engine and adapted to be worked from the corresponding cross-head, an air-supply pipe connected to the air-delivery pipes of said pumps and to one end of said heating device, a pressure-relief valve in connection with said air-supply pipe, a steam-supply pipe connecting said main steam-pipe to said heating device at a point thereof between its ends, and a pipe connecting the other end of said heating device to the valve-chests of said engine-cylinders.

11. In a locomotive steam-engine, the combination with a main steam-pipe, the engine-cylinders, and the smoke-box, of a tubular heating device located in said smoke-box and comprising two lower longitudinal vessels divided into compartments, and groups of tubes connected at their ends to said vessels and arranged in said smoke-box so as to be acted upon by hot gases therein, said tubes being connected to the compartments of said vessels so that the tubes in each group are in parallel with each other and in series with the tubes in the other groups, means for supplying air and steam under pressure to said heating device, and means for conveying the heated mixture of air and steam to said cylinders.

12. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box with chimney, of a tubular heating device located in said smoke-box and comprising groups of tubes connected together in series and some of which have their upper curved portions located to the rear of said chimney and some to the front of said chimney, means for supplying steam from said main steam-pipe to one end portion of said heating device, means for supplying air under pressure from the external atmosphere to said heating device, and means for conducting the heated mixture of air and steam to said cylinders.

13. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box with chimney, of a tubular heating device located in said smoke-box and comprising two longitudinal vessels each divided into compartments by transverse divisions and a number of groups of bent tubes connected to said vessels so as to be in series with each other through the compartments in said vessels, means for supplying air and steam under pressure to one end portion of said heating device, and means for conveying the heated mixture of air and steam from the other end portion of said heating device to said engine-cylinders.

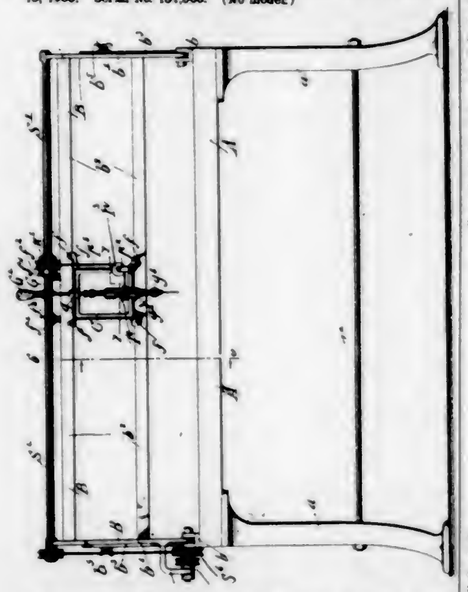
14. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box with chimney, of a tubular heating device located in said smoke-box and com-

prising two longitudinal vessels each divided into compartments by transverse divisions and a number of groups of bent tubes connected to said vessels so as to be in series with each other through the compartments in said vessels, means for supplying compressed air to one end of said heating device, a bent pipe located in the smoke-box and connecting said main steam-supply pipe to one of said vessels so as to supply steam to the heating device at about a quarter of its length from the air-inlet end, and a pipe connecting the last compartment of said heating device to said cylinders.

15. In a locomotive steam-engine, the combination with the main steam-pipe, the engine-cylinders, and the smoke-box with chimney, of a tubular heating device comprising groups of bent tubes located within and extending around the sides and top of said smoke-box, an air-compressor worked from said engine, an air-supply pipe connecting the delivery of said air-compressor to one end of said heating device, a pressure-relief valve located on said air-supply pipe, a bent steam-supply pipe located in said smoke-box and connecting said main steam-pipe to said heating device at a point between two of the groups of tubes thereof, and a pipe connecting the outlet end of said heating device to said engine-cylinders.

16. In a locomotive steam-engine, the combination with a main steam-pipe, the engine-cylinders, and a smoke-box, of a tubular heating device located in said smoke-box and comprising a pair of longitudinal vessels divided into compartments, and groups of bent tubes connected to said vessels and extending around the sides and top of said smoke-box, air-compressors having their air-delivery pipes connected together and each located between one of the side frames of the engine and the adjacent engine connecting-rod, a compressed-air-supply pipe connected to the air-delivery pipes of said compressors and to one end of said heating device, a pressure-relief valve in communication with said air-supply pipe, a steam-supply pipe connecting said main steam-pipe to said heating device at a point between the ends thereof, and a pipe connecting the outlet end of said heating device to said engine-cylinders.

753,058. MACHINE FOR BORING HOLES IN THE KEYS OF PIANO-ACTIONS. FRANK J. FLOCKE, New York, N. Y. Filed May 15, 1903. Serial No. 157,303. (No model.)



Claim.—1. In a machine for boring holes in the keys of piano-actions, the combination, with a supporting-table for the piano-keyboard, of an upright guide-frame pivoted to said table, means for adjusting said upright guide-frame in proper position relatively to the table, a traversing frame guided on said guide-frame, a drill-spindle supported on said traversing frame, and means for transmitting continuous rotary motion to said drill-spindle while the same is lowered for boring the hole, substantially as set forth.

2. In a machine for boring holes in the keys of piano-actions, the combination, with a supporting-table for the piano-keyboard, of an upright guide-frame pivoted to said table, means for adjusting said upright guide-frame in proper position relatively to the table, a traversing frame guided on said guide-frame, a drill-spindle supported on said traversing frame, means for transmitting continuous rotary motion to said drill-spindle while the same is lowered for boring the hole, and means arranged on the drill-spindle for controlling the depth of the hole to be bored, substantially as set forth.

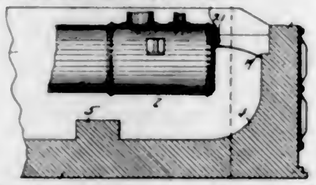
3. In a machine for boring holes in the keys of piano-actions, the combination, with a supporting-table for the piano-keyboard, of an upright guide-frame pivoted to said table, means for adjusting said upright guide-frame in proper position relatively to the table, a traversing frame guided on said guide-frame, a drill-spindle supported on said traversing frame, a driving-shaft at one end of the machine, an intermediate shaft supported in bearings at the upper end of said guide-frame, means for transmitting motion from the driving-shaft to the intermediate shaft, and means for transmitting motion from the intermediate shaft to the drill-spindle, substantially as set forth.

4. In a machine for boring holes in the keys of piano-actions, the combination, with an upright supporting guide-frame formed of vertical end standards and horizontal guide-bars, of a traversing frame, hangers on said traversing frame for suspending the same from the horizontal guide-bars, antifriction-rollers on said hangers, corner set-screws on said traversing frame, step and neck bearings on said traversing frame, a drill-spindle supported in said step and neck bearings, a handle at the upper end of the drill-spindle, means arranged on said drill-spindle for limiting the extent of boring motion of the tool, means for returning the drill-spindle into normal raised position, and means for imparting rotary motion to the drill-spindle, substantially as set forth.

5. In a machine for boring holes in the keys of piano-actions, the combination, with an upright supporting-frame provided with longitudinal guide-bars, of a driving-shaft supported at the upper end of said supporting-frame, a pulley splined to said driving-shaft, a traversing frame guided on said guide-bars, means for connecting said traversing frame with the splined pulley, bearings on said traversing frame, a drill-spindle supported in said bearings, a handle at the upper end of the drill-spindle, means for limiting the vertical motion of the drill-spindle for controlling the depth of the bore-hole a spring for returning the drill-spindle into normal position, and means for transmitting rotary motion from the pulley on the intermediate shaft to the drill-spindle, substantially as set forth.

6. In a machine for boring holes in the keys of piano-actions, the combination, with an upright supporting-frame provided with longitudinal guide-bars, of a traversing frame supported and movable on said guide-bars, a drill-spindle supported by said traversing frame, a sleeve keyed to said drill-spindle, means for limiting the motion of said sleeve when the spindle is pressed, for limiting the depth of hole to be bored, means for returning the spindle to its normal position, and means for rotating the spindle, substantially as set forth.

753,059. BOILER-FURNACE. JOHN H. FOOTE, Troy, N. Y., assignor of one-half to Harvey S. McLeod, Troy, N. Y. Filed Mar. 10, 1903. Serial No. 147,134. (No model.)



Claim.—1. In a boiler-furnace, a combustion-chamber arch, consisting of a series of elongated interlapping fire-bricks, adapted to rest upon and be supported at one end by the back wall of the furnace, and provided, at the other end, with a supporting-bar embedded in the arch with its ends projecting at the sides of the arch and adapted to bear upon the side walls of the furnace and support the arch in close proximity to, but wholly independently of, the boiler, substantially as described.

2. In a boiler-furnace, a combustion-chamber arch, consisting of a series of elongated interlapping fire-bricks, adapted to rest upon and be supported at one end by the back wall of the furnace, and provided at the other end, with a supporting-bar embedded in the arch with its ends projecting at the sides of the arch and adapted to bear upon the side walls of the furnace and support the arch in close proximity to, but wholly independently of, the boiler, and a yielding packing between the arch and boiler, substantially as described.

3. A combustion-chamber arch adapted at one end to rest upon the back furnace-wall and at its other end provided with a plane approximately horizontal under surface extending to the extreme front end of the arch and means for supporting such end in close proximity to the boiler with its horizontal under surface just above the upper edge of the upper tier of boiler-flues, substantially as described.

753,060. RAZOR-STROP DRESSER. THOMAS J. FORDE, Geneva, Ohio, assignor of two-thirds to Frank S. Turner and Charles B. Gladding, Geneva, Ohio. Filed Jan. 23, 1903. Serial No. 140,275. (No model.)

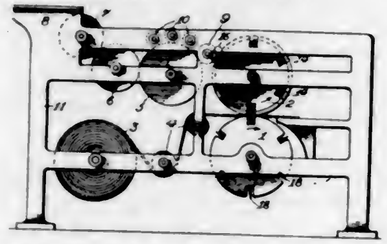


Claim.—1. A razor-strop dresser comprising a strop-dressing member composed of a composition consisting, in the main, of lead, and also comprising, as ingredients, zinc, tin and Babbitt metal which is free from graphite.

2. A razor-strop dresser comprising a strop-dressing member composed of a composition comprising the following ingredients: lead, tin and zinc, and Babbitt metal which is free from graphite, in the proportions, by weight, of about one-third of a pound of said Babbitt metal, one-third of a pound of tin, and one-third of a pound of zinc, to twelve pounds of lead.

3. A razor-strop dresser comprising a strop-dressing member composed of a metallic composition capable of leaving a deposit upon a razor-strop in rubbing the said strop-dressing member upon the strop.

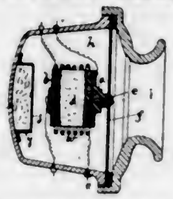
753,061. PRINTING-PRESS. JOHN A. GATES, Allegheny, Pa. Filed Sept. 5, 1903. Serial No. 172,131. (No model.)



Claim.—1. In a printing-press, a type-cylinder, spring-pressed strips arranged in the periphery thereof, means for inking said cylinder, and an impression-cylinder with cutters arranged in its periphery to engage with the spring-pressed strips of the type-cylinder, as and for the purpose described.

2. In a printing-press, a type-cylinder, spring-pressed strips arranged in the periphery of said cylinder, an inking-roller, means for depressing the strips while passing the inking-cylinder to keep the same free of ink, and an impression-cylinder carrying cutters to engage the spring-pressed strips, as and for the purpose described.

753,062. MICROPHONE. PIERRE GERMAIN, Fontenay aux Roses, France. Filed Oct. 7, 1899. Serial No. 732,941. (No model.)



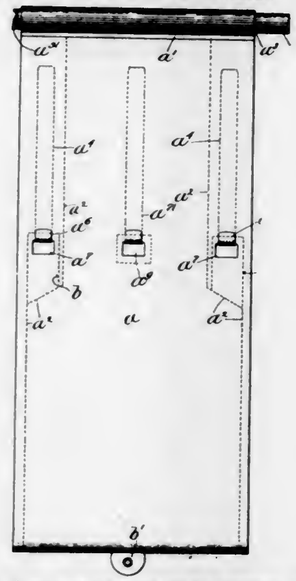
Claim.—1. A microphonic transmitter having a chamber and chemical means inside said chamber to eliminate the oxygen contained therein, as and for the purpose described.

2. A microphonic transmitter having a chamber to contain the elements and sodium in said chamber, as and for the purpose set forth.

3. A microphonic transmitter having a chamber containing means for eliminating the combustion-supporting element of the air and means for applying heat to the chamber.

4. A microphonic transmitter having a chamber and granulate therein, composed of a mixture of carbon and some metal of good conductivity, in combination with means for applying heat to the granulate, and means within said chamber to eliminate the oxygen contained therein.

753,063. WATER-BOTTLE. JAMES F. GOODRIDGE, Boston, Mass. Filed Jan. 26, 1903. Serial No. 140,481. (No model.)



Claim.—1. A water or ice bottle closure consisting of elastic sheet material stretched and under tension rolled upon itself into a roll, and means to secure the outer convolution in this condition and prevent release of tension, all operating to cause the outer convolutions to constrict those within and the closure to maintain its status by internal friction.

2. A water or ice bottle made of elastic rubber and adapted, at its open end, to be rolled upon itself under tension into a water-tight roll and means substantially as described to secure said end in that condition.

3. A water or ice bottle made of elastic rubber and adapted, at its open end, to be stretched and wound upon itself under tension into a water-tight roll and means to secure said end in that condition independently of the contents of the bottle.

4. A water or ice bottle made of elastic rubber and adapted, at its open end, to be stretched and rolled upon itself under tension into a water-tight roll, and straps to secure said end in that condition.

5. A water or ice bottle of flexible material; a mandrel fixed to the bottle near the open end thereof; said end being adapted to be wound under tension upon said mandrel into a non-capillary water-tight roll, and means to hold said end in that condition.

6. A water or ice bottle made of elastic rubber; a mandrel fixed to the bottle near the open end thereof, said end being adapted to be wound under tension upon said mandrel into a non-capillary water-tight roll, and means to hold said end in this condition.

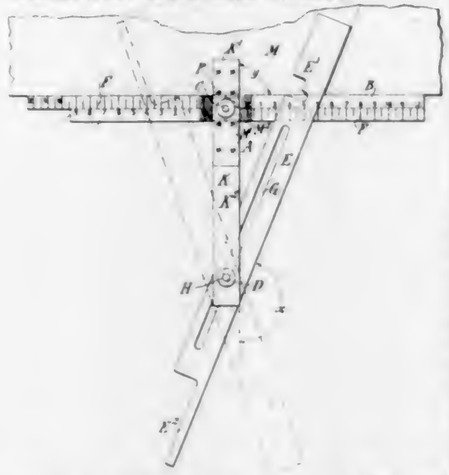
7. A water or ice bottle of flexible material, its open end formed into a neck narrower than the body portion; perforations in the neck edge and straps adapted to pass through the perforations and secure the neck in its rolled-up shape independently of the contents of the bottle.

8. A water or ice bottle of flexible material, its open end formed into a neck narrower than the body portion, and adapted to be formed into a water-tight roll; a mandrel on which the roll is formed and straps encircling the roll and cooperating with the mandrel to secure the convolutions of the roll in their position.

9. A water or ice bottle made of flexible material having a

neck adapted to be wound upon itself into a water-tight roll to close the bottle, and one or more straps for directly encompassing the roll adapted to hold the latter against unwinding independently of the contents of the bottle.

753,064. **BEVEL AND SQUARE.** JACOB GRAFF, New York, N. Y. Filed May 8, 1903. Serial No. 155,800. (No model.)



Claim.—1. A tool comprising in combination, a body, a square-blade attached thereto and exteeding at right angles to both sides thereof, a bevel-blade pivoted to said body at a standard distance from the point of attachment of the square-blade and adapted to extend over the face of the square-blade, the latter carrying a scale in fractions of said standard distance, and said bevel-blade being adapted to slide endwise relatively to its pivotal point.

2. A tool comprising in combination, a body, a square-blade pivoted thereto at an intermediate point of its length to permit it to fold parallel therewith or to extend at right angles on both sides thereof, and a bevel-blade pivoted to said body at a standard distance from the point of attachment of the square-blade and adapted to extend over the face of the square-blade, the latter carrying a scale in fractions of said standard distance, and said bevel-blade being adapted to slide endwise relatively to its pivotal point.

3. A tool comprising in combination, a body having an upper and a lower portion, the former projecting beyond the latter to extend over the work, a square-blade having its forward edge in position to provide a long bearing on the edge of the work, and a bevel-blade pivoted to the body at a standard distance from the point of attachment of the square-blade and adapted to extend over the face of the square-blade and over the work, the square-blade carrying a scale in fractions of said standard distance.

4. A tool comprising in combination a body having an upper and lower portion, the former projecting beyond the latter to extend over the work, a square-blade pivoted between said portions to permit it to fold parallel therewith or to extend at right angles thereto with its forward edge in position to provide a long bearing on the edge of the work, a stop for determining the right-angle position of said square-blade, and a bevel-blade pivoted between said upper and lower portions at a standard distance from the pivotal point of the square-blade and adapted to extend over the face of the square-blade and over the work, the square-blade carrying a scale in fractions of said standard distance.

5. A tool comprising in combination a body having an upper and a lower member, the former projecting beyond the latter to extend over the work, a square-blade pivoted between said members to permit it to fold parallel therewith or to extend at right angles thereto with its forward edge coinciding with the forward end of the lower member to provide a long bearing on the edge of the work, a bevel-blade pivoted to the body at a standard distance from the pivotal point of the square-blade and adapted to extend over the face of the square-blade, the latter carrying a scale in fractions of said standard distance, and a metal plate having a portion l' extending over the end of said lower member.

6. A tool comprising in combination, a body, a square-blade attached thereto and extending at right angles to both sides thereof, a bevel-blade pivoted to said body at a standard distance from the point of attachment of the square-blade and adapted to be extended over the face of said square-blade at both sides of the body, the square-blade carrying a scale in fractions of said standard distance.

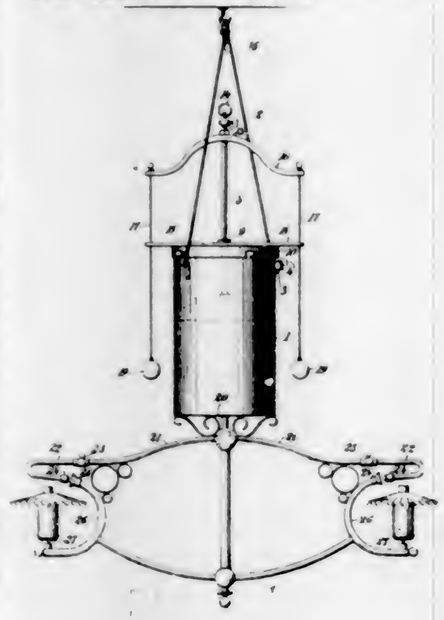
753,065. **LAMP-BURNER.** WILLIAM GUSHELL and WILLIAM O'TOOLE, Pittsburg, Pa. Filed July 25, 1903. Serial No. 166,977. (No model.)



Claim.—1. In a device of the type set forth, the combination with the burner-body, a perforated top plate having a central portion provided with a wick-receiving slot and parallel slits at each end of the said central portion, said plate having pockets formed at each side of the central portion, a pair of snuffing-wings comprising horizontal portions normally closing the said pockets, an upwardly-extending angularly-disposed portion adapted to engage the wick, said wings having lugs extending in the parallel slits of the perforated plate, means in the pockets adapted upon upsetting of the lamp to engage the horizontal portion of the wings to actuate the same, and a lever having forked ends with an upwardly-extending portion formed centrally of said ends, said portion being adapted to engage the lugs of the wing when the lever is depressed.

2. In a device of the type set forth the combination of the burner-body and the perforated top plate having a central portion provided with a wick-slot and parallel slits at each end of the said central portion with pockets formed at each side of the latter, of a pair of snuffing-wings comprising horizontal portions for closing the pockets, and upwardly-extending angularly-disposed portions adapted to engage the wick, said wings having lugs engaging in the parallel slits of said plate, spherical bodies in the pockets adapted upon upsetting of the lamp to engage the horizontal portion of the wings to actuate the same, a lever pivotally hinged to the burner-body, said lever having forked ends straddling the wick-tube, and a central upwardly-extending arm located between said forked ends and carrying at its forward end side lugs adapted for engagement with said lugs of the wings upon depression of the outer end of said lever to actuate said wings.

753,066. **LAMP.** RICHARD P. HABEL, Sturgis, S. D. Filed Nov 4, 1902. Serial No. 130,060. (No model.)



Claim.—1. A gasolene-lamp, comprising a reservoir having guides projecting from its cover and provided with means by which it may be suspended, a plunger in the reservoir, a vent-tube secured to the plunger and extending out through the cover of the reservoir, oppositely-projecting arms carried by the vent-tube, rods secured to the arms and passing through the guides and carrying weights at their ends, a generator-tube connected with the bottom of the reservoir, and a burner-tube carried by the reservoir and into which discharges the generator-tube, as set forth.

2. A gasolene-lamp, comprising a reservoir, means for suspending the reservoir, a plunger in the reservoir, a vent-tube secured to and extending upwardly from the plunger and beyond the upper end of the reservoir, oppositely-projecting arms carried by the vent-tube, weighted rods secured to said arms, a generator-tube connected with the bottom of the reservoir, and a burner-tube carried by the reservoir and into which discharges the generator-tube, as set forth.

3. A gasolene-lamp, comprising a reservoir, means for suspending the reservoir, a plunger in the reservoir, a weighted vent-tube secured to the plunger and extending loosely through the cover of the reservoir, a supply-tube leading from the bottom of the reservoir and provided with lateral branches, inwardly-curved generator-tubes on the ends of the said branches, and curved burner-tubes supported from the reservoir below the branch supply-tubes, each burner-tube supporting a burner and having a funnel-shaped end arranged opposite the generator-tube, as set forth.

4. A gasolene-lamp, comprising a suspended reservoir, a concavo-convex rubber plunger in the reservoir, a valved vent-tube secured to the plunger and extending loosely through the cover of the reservoir and provided with oppositely-projecting arms, rods secured to the ends of the arms and carrying weights at their ends, a generator-tube connected with the bottom of the reservoir, and a burner-tube carried by the reservoir and into which the generator-tube discharges, as set forth.

5. In a gasolene-lamp a bent generator-tube, a metal netting arranged in the bend of the tube, and metal rods arranged in the upper and lower portions of the tube and having connections with the opposite ends of the netting, substantially as specified.

6. In a lamp, the combination with a reservoir, of a plunger therein, a vent-tube secured to the plunger and extending out through the cover thereof, opposite-projecting arms on the vent-tube, and rods secured to the ends of the arms and provided with weights at their ends, as set forth.

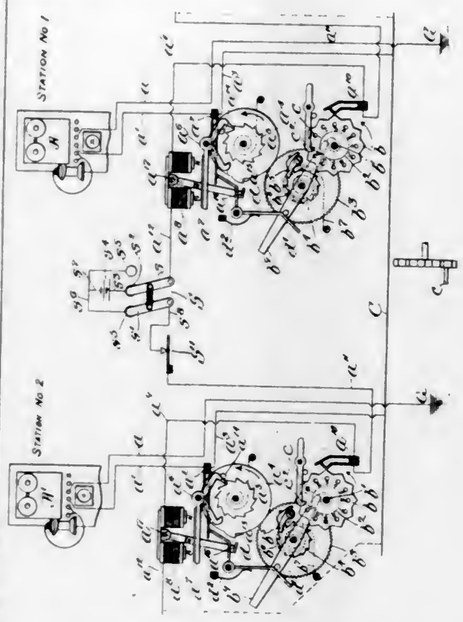
7. In a lamp, the combination with a reservoir provided with apertured guide-arms projecting from its top and means for suspending the reservoir, of a plunger in the reservoir, a valved vent-tube secured to the plunger and projecting out through the cover of the reservoir, a cross-head secured to the vent-tubes, depending rods secured to the ends of the cross-head and passing through the apertures of the guide-arms, and weights on the lower ends of said rods, as set forth.

753,067. **TELEPHONE OR TELEGRAPH SYSTEM.** ROBERT HAMILTON, Milton, Mass. Filed Feb. 10, 1903. Serial No. 142,758. (No model.)

Claim.—1. In a telephone or telegraph system of the character described, in combination, two stations; two instruments one at each station; a normally open circuit for connecting those instruments, a normally open switch at each station arranged in said circuit; means controlled by the operator at either station for operating said switches to connect and disconnect the two instruments; and means for controlling said switch-operating means independently of either station to disconnect the two instruments.

2. In a telephone or telegraph system of the character described, a plurality of stations; a plurality of instruments, one at each station, a plurality of normally open circuits for connecting those instruments; a plurality of normally open switches arranged in said circuits, one for each station; means controlled by the operator at either station for operating said switches to connect the instrument of his own station with, or to disconnect it from, the instrument of any one of the other stations; and means for controlling said switch-operating means independently of any two connected stations to disconnect the instruments of said connected stations.

3. In a telephone or telegraph system of the character described, in combination, a plurality of stations; a plurality of instruments one at each station; a plurality of normally open circuits for connecting those instruments; a plurality of normally open switches arranged in said circuits one for each station; means controlled by the operator at either station for operating said switches to connect the instrument of his own station with, or disconnect it from, the instrument of any one of the other stations; means for controlling said switch-operating means independently of any two connected stations to disconnect the instruments of said connected stations; and means for synchronizing the first-mentioned switch-operating means.



4. In a telephone or telegraph system of the character described, a plurality of stations; an instrument at each station; a circuit for connecting said instruments; a number of normally open switches in said circuit, one for each instrument; means controllable at each station for operating said switches to connect the instrument of such station with or disconnect it from the instrument of any one of the other stations, comprising a magnet for each switch; a normally closed circuit in which all of the magnets are located; a normally closed switch at each station in the normally closed circuit; a polarized armature at each station controlled by the magnet thereof adapted to regulate the action of the switch-operating means, and a reversing-switch in the normally closed circuit.

5. In a telephone or telegraph system of the character described, in combination, a plurality of stations; an instrument at each station; a plurality of normally open circuits for connecting any two of said instruments; a plurality of normally open switches in said circuits, one at each station; means controlled by the operator at each station for operating said switches to connect the instrument of his own station with or disconnect it from the instrument of any one of the other stations, comprising a plurality of magnets one for each switch, and a normally closed circuit in which those magnets are arranged; means for controlling the switch-operating devices independently of any connected station; means for synchronizing the switch-operating means, and an independent normally closed switch in the normally closed circuit.

6. In a telephone or telegraph system of the character described, a plurality of stations; a main-line wire and return common to all of the stations; a local telephone-circuit at each station connected at one end with the main-line wire and at its other end with the return; a telephone instrument in each local circuit; a normally open switch in each local circuit; means controllable at each station for operating said switches to connect the instrument thereof with and disconnect it from any one of the other instruments, comprising a magnet for each switch; a normally closed circuit in which all of the magnets are arranged, and a normally closed switch at each station in the normally closed circuit; and means for operating the normally open switches in the local circuits independently of the first-mentioned switch-operating means including the magnets to disconnect two connected stations.

753,068. ANIMAL CATCHER AND HOLDER. JACOB L. HAHER, London, Ohio. Filed Dec. 17, 1903. Serial No. 185,574. (No model.)



Claim.—1. In an animal catcher and holder, a hollow handle having its outer end flattened to form a detent, a rod slidable in the handle and having shoulders on its outer end adapted to be engaged by the detent and in combination therewith, a flexible connection for one end secured to the rod and its opposite end secured to the casing.

2. In an animal catcher and holder, a hollow handle having its outer end flattened to form a detent, a rod slidable in the handle and having shoulders adapted to be engaged by the detent, the said rod being bent to normally hold the outer end in contact with the detent, and in combination therewith, a flexible connection secured to the inner end of the rod, the opposite end of the flexible conuection being secured to the handle.

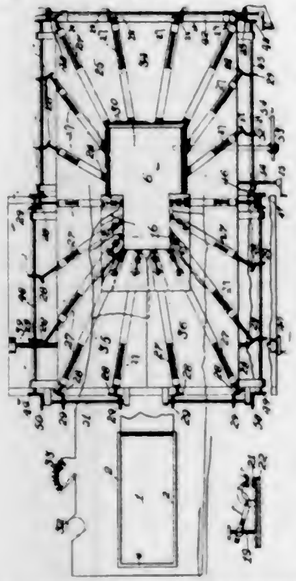
3. In an animal catcher and holder, a hollow handle having its outer end bent to form a detent, a rod slidable in the handle and having shoulders adapted to be engaged by the detent, the said rod being bent to normally hold the outer end in contact with the detent, and in combination therewith, a flexible connection secured to the inner end of the rod, the opposite end of the flexible conuection being secured to the handle, and a spur formed on the outer end of the rod or handle.

4. In an animal catcher and holder, a hollow handle having its outer end bent to form a detent, a rod slidable in the handle and having shoulders adapted to be engaged by the detent the said rod being bent to normally hold the outer end in contact with the detent, and in combination therewith, a flexible connection secured to the inner end of the rod, the opposite end of the flexible connection being secured to the handle, and a spur formed on the rod or handle for anchoring the device.

753,069. APPARATUS FOR FORMING PLATE-GLASS. HARRY J. HAYS, Pittsburg, Pa., assignor to Edward F. Hays, trustee, Pittsburg, Pa. Filed May 2, 1903. Serial No. 155,303. (No model.)

Claim.—1. In an apparatus for forming sheet or plate glass, the combination of an adjustable table, a chamber surrounding said table, means for holding a sheet of glass over said chamber, electrical means connected therewith for heating said glass, and an air-supply means connected with said chamber, substantially as described.

2. In an apparatus for forming sheet or plate glass, the combination of an adjustable table, a chamber in which said table operates, a plurality of adjustable clamps above said table for holding a piece of glass, means connected with said clamps for electrically heating said glass, a supply means for fluid-pressure connected with said chamber, substantially as described.



3. In an apparatus for forming glass, the combination of an adjustable table, a chamber in which said table operates, a plurality of clamps above said table for holding a piece of glass, means to produce an electrical current of variable strength connected with said glass for rebeating the same, and a supply means for fluid-pressure connected with said chamber, substantially as described.

4. In an apparatus of the character described, the combination of an adjustable table, a chamber in which said table operates, a plurality of adjustable clamps above said table for holding a piece of glass, means electrically connected with said clamps for electrically heating said glass, means for impartiug a relative horizontal movement to said clamps, and a supply means for fluid-pressure connected with said chamber, substantially as described.

5. In an apparatus of the character described, the combination of a vertically-adjustable table, means for moving said table vertically, a receiving-table located adjacent to said vertically-movable table, a telescoping slide adapted to connect said tables, a plurality of clamps located above said vertically-movable table, slides on which said clamps are mounted, means for imparting a relatively horizontal movement to said clamps, and electrical means connected to said clamps, substantially as described.

6. In an apparatus of the character described, the combination of a vertically-adjustable table, means for moving said table vertically, a receiving-table located adjacent to said vertically-movable table, a telescoping slide adapted to connect said tables, a plurality of clamps located above said vertically-movable table, slides on which said clamps are mounted, a sectional bed-piece in which said slides operate, and means for moving said sections relatively, means for imparting a relative horizontal movement to said clamps independent of said sections, and a source of electrical energy the terminals of which connect with the several clamps.

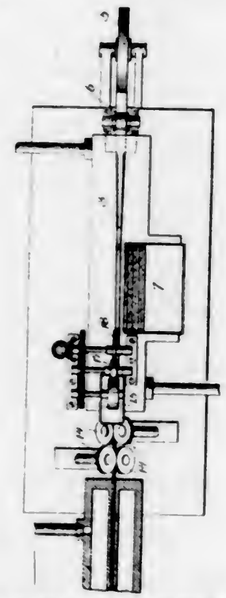
7. In a device of the type set forth, the combination with a vertically-movable table, a receiving-table, slidable clamps located above said vertical table, slides supporting said clamps, electrical conducting means secured to said clamps, and a source of electrical supply connected therewith, substantially as described.

8. In an apparatus of the character described the combination with an adjustable table, of a plurality of clamps for holding a piece of glass thereon, said clamps being insulated from said glass, contact-pieces carried by the clamps, electrical supply means in circuit therewith, and means for moving said clamps, substantially as described.

9. An apparatus of the character set forth, comprising an adjustable table, a chamber surrounding the same, an air-supply means for said chamber, a plurality of clamps, slidable supporting means therefor, means for simultaneously moving said clamps, insulating means carried by said clamps, contact means secured to each of said clamps for engagement with the glass, and a source of electrical supply operatively connected with said last-named means, substantially as described.

10. In an apparatus of the type set forth the combination with an adjustable table, of a series of slidable clamps, slides supporting the same, sectional means carrying said slides, means for moving said sections relatively, and electrical supply means connected with said clamps for heating glass carried by the table, substantially as described.

753,070. APPARATUS FOR MAKING HAIR-PINS. DANIEL H. HAYWOOD, New York, N. Y. Filed Apr. 23, 1903. Serial No. 153,891. (No model.)



Claim.—1. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, and means for heating the strip prior to its introduction into the said pressing mechanism.

2. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for severing the rod so formed into lengths, and bending mechanism arranged to bend the same into hair-pin form.

3. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the strip, means for severing the rod so formed into lengths, and bending mechanism.

4. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the strip, a pasting device, means for severing the rod so formed into lengths, and bending mechanism.

5. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, and pinching mechanism, for dividing the rod so formed into lengths and for tapering the ends of such lengths.

6. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, pinching mechanism, for dividing the rod so formed into lengths, and for tapering the ends of such lengths, cutting mechanism, and bending mechanism.

7. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, means for heating the material wrapped about such wire, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the strip, pinching mechanism, for dividing the rod so formed into lengths and for tapering the ends of such lengths, and cutting mechanism.

8. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the strip, pinching mechanism, for dividing the rod so formed into lengths and for tapering the ends of such lengths, cutting mechanism, and bending mechanism.

9. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the rod so formed, pinching mechanism, for dividing the wire so formed into lengths and for tapering the ends of such lengths, and cutting mechanism.

10. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for heating the rod so formed pinching mechanism, for dividing the wire so formed into lengths and for tapering the ends of such lengths, cutting mechanism, and bending mechanism.

11. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism arranged to introduce a wire into the partly-formed tube, means for rendering plastic the material wrapped about such wire, and feeding and pressing mechanism adapted to feed a strip through said die and press the same against the wire, comprising grooved presser-rollers having projections arranged to pinch, but not sever, the plastic material at intervals.

12. In an apparatus of the class described, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, means for heating the material wrapped about such wire, feeding and pressing mechanism adapted to feed a strip through said die and press the same against the wire, comprising grooved presser-rollers having projections arranged to pinch, but not sever, the plastic material at intervals, and means for hardening the said material.

13. In an apparatus of the class described, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, means for heating the material wrapped about such wire, feeding and pressing mechanism adapted to feed a strip through said die and press the same against the wire, comprising grooved presser-rollers having projections arranged to pinch, but not sever, the plastic material at intervals, means for hardening the said material, and cutting mechanism.

14. In an apparatus of the class described, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, means for heating the material wrapped about such wire, feeding and pressing mechanism adapted to feed a strip through said die and press the same against the wire, comprising grooved presser-rollers having projections arranged to pinch, but not sever, the plastic material at intervals, means for hardening the said material, and cutting and bending mechanism.

15. In an apparatus for making hair-pins, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, and means for swaging or drawing out the covering over the ends of the wire.

16. In an apparatus for making hair-pins, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, pressing mechanism for pressing the cover, and means for swaging or drawing out the covering over the ends of the wire.

17. In an apparatus of the class described, the combiuation with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, pressing mechanism for pressing the cover, and means for rendering said cover plastic.

18. In an apparatus of the class described, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, means for swaging or

drawing out the covering over the ends of the wire, pressing mechanism for pressing the cover, and cutting mechanism for cutting the cover between the sections of wire.

19. In an apparatus of the class described, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, and pinching mechanism arranged to swage or draw out the covering over the ends of the wire.

20. In an apparatus of the class described, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, pinching mechanism arranged to swage or draw out the covering over the ends of the wire, and cutting mechanism.

21. In an apparatus of the class described, the combination with means for wrapping a covering-strip around a core of wire, of means for feeding wire thereto at spaced intervals, pinching mechanism for pinching the cover between the sections of wire, and means for rendering the cover plastic.

22. In an apparatus of the class described, the combination with a magazine adapted to contain core-wires, and means for feeding wires therefrom at intervals, of means for wrapping a covering-strip around said wires.

23. In an apparatus of the class described, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, and means for rendering the strip or cover plastic.

24. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for rendering the strip or cover plastic, means for severing the rod so formed into lengths, and bending mechanism.

25. In an apparatus for making hair-pins, the combination of a tube-forming die, wire-feeding mechanism, arranged to introduce a wire into the partly-formed tube, feeding and pressing mechanism adapted to feed a strip through said die and press the same about the wire, means for rendering the cover plastic, and pinching mechanism, for dividing the rod so formed into lengths and for tapering the ends of such lengths.

26. In an apparatus for making hair-pins, the combination of wire-feeding mechanism, wrapping mechanism for wrapping a covering-strip around said wire, means for rendering said cover plastic, and pointing mechanism for dividing the rod so formed into lengths and pointing the lengths.

27. In an apparatus for making hair-pins, the combination of wire-feeding mechanism, wrapping mechanism for wrapping a covering-strip around said wire, means for rendering said cover plastic, pointing mechanism for dividing the rod so formed into lengths and pointing the lengths, and cutting mechanism.

28. In an apparatus for making hair-pins, the combination of wire-feeding mechanism, wrapping mechanism for wrapping a covering-strip around said wire, means for rendering said cover plastic, pointing mechanism for dividing the rod so formed into lengths and pointing the lengths, and cutting and bending mechanisms.

29. In an apparatus for making hair-pins, the combination of wire-feeding mechanism, means for wrapping a covering-strip around said wire, means for rendering said cover plastic, means for pressing said cover about the wire, and means for dividing the rod so formed into lengths.

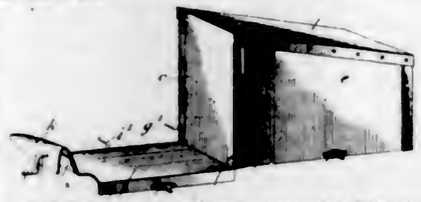
30. In an apparatus of the class described, the combination of a former or die adapted to form a flexible strip into a tube having a longitudinal seam, of means for feeding a core into such tube, and feeding and pressing mechanism for the strip comprising pairs of oppositely-arranged grooved rolls set at different angles, each pair acting upon the tube at an angle with respect to the seam thereof.

753,071. BINDER-COVER. ABRAHAM HERTER, Tonkawa, Okla. Filed Apr. 29, 1903. Serial No. 154,828. (No model.)

Claim.—1. A cover for grain-binders, comprising a box-like inclosure for the body of the binder, an outwardly-extending section covering the platform, and a third cover-section open at its lower side to inclose the grain-wheel and divider-board and mounted on the outer end of the platform-section.

2. A binder-cover, comprising an inclosure capable of covering the body of the binder, and a platform-section lying over the platform and having an upward extension projected into the first-named section and hingedly mounted therein.

3. A binder-cover, comprising a casing capable of inclosing the body of the binder, a platform-section extending out horizontally therefrom, and an inverted channel-shaped section attached to the outer end of the platform-section and inclosing the divider-board and grain-wheel.

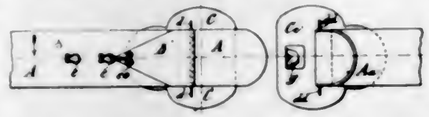


4. A binder-cover, comprising a casing capable of inclosing the body of the binder, a platform-section extending out horizontally therefrom, and an inverted channel-shaped section attached to the outer end of the platform-section and inclosing the divider-board and grain-wheel, the said platform-section being hingedly mounted on the body-section.

5. A binder-cover, comprising a casing capable of inclosing the body of the binder, a platform-section extending out horizontally therefrom, an inverted channel-shaped section attached to the outer end of the platform-section and inclosing the divider-board and grain-wheel, the said platform-section having an upward extension projected into the body-section, and a tie-rod extending through the body-section and having said upward extension of the platform-section mounted loosely thereon.

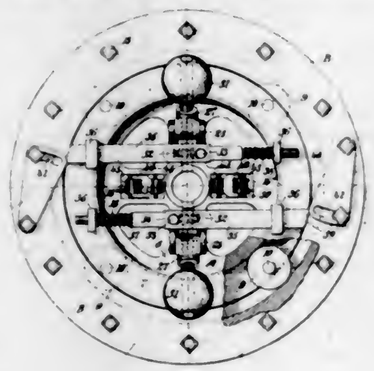
6. A binder-cover, comprising a box-like inclosure for the body of the binder, said inclosure being open at its bottom, a removable tie-rod extending across the lower portion of the inclosure or casing to hold it on the binder-body, a platform-section extending out from the body-section and capable of lying over the platform to cover the same, the platform-section having downwardly-extended flanges adapted to project below the platform, and a tie-rod passing between said flanges and adapted to extend under the binder-platform to hold the platform-section in place.

753,072. BELT. FRIEDRICH HEYL, New York, N. Y. Filed Nov. 20, 1902. Serial No. 132,073. (No model.)



Claim.—A fastening device for belts consisting in combination of a two-part clasp, a bar on each part said clasp, a flexible member secured to the bar on one part of said clasp, said flexible member being adjustably secured by means of two-part fasteners to one end of said belt, the other end of said belt being permanently secured to the bar on the other part of said clasp, substantially as disclosed.

753,073. CLUTCH-PULLEY. WILLIAM J. HILLIARD, Buffalo, N. Y. Filed Mar. 24, 1903. Serial No. 149,328. (No model.)



Claim.—1. A clutch-pulley having a fast member, a loose member, coincident channels in the opposing surfaces of said members, a series of rollers in said channels of the members, forked shoes slidably mounted in the fast member to straddle the roller-channel and having faces adapted to engage the inner surface of the loose member, and means for adjusting said shoes.

2. A clutch-pulley having fast and loose members provided in their opposing faces with coincident channels, bearing-rollers fitted in said channels and supporting the loose member on the fast member and against lateral displacement thereon, forked shoes mounted for radial movement on the fast member and straddling the roller-channel therein, said shoes having divided friction-faces presented to the loose member, and means for adjusting said shoes.

3. A clutch-pulley having fast and loose members, movable shoes carried by the fast member, means also carried by the fast member for moving said shoes into engagement with the loose member, and coöperating devices mounted on the fast and loose members for automatically actuating the shoe-adjusting means, whereby the rotation of one member brings certain of said coöperating devices into engagement with other parts of the coöperating devices on the other member for automatically clutching the pulley members one to the other.

4. A clutch-pulley having fast and loose members, friction-shoes on the fast member, threaded stems for moving said shoes, divided nuts adapted for engagement with said stems, means operable by the rotation of the fast member for closing said nuts around the stems, and coöperating devices on the fast and loose members and operable by the rotation of the fast member for rotating the stems in the nuts, whereby the stems are moved radially and adjust the shoes automatically.

5. A clutch-pulley having fast and loose members, shoes on the fast member, threaded stems for moving said shoes, nuts in which the stems work, ratchets on the stems, slidable bars on the fast members, levers engaging the bars and the ratchets, and tappets carried by the loose member in the path of the slidable bars.

6. A clutch-pulley having fast and loose members, ball-bearings between said members, forked shoes having radial stems associated therewith and arranged to straddle the ball-bearings for presentation to the loose member, and means engaging said stems for moving the shoes radially.

7. A clutch-pulley having a shaft member, a loose member, forked shoes movable radially in the shaft member, bridge-plates carried by the shaft member and extending through said shoes, bearing-rollers fitted to the members and adapted to ride on the bridge-plates, and means for moving said shoes into frictional engagement with the loose member.

8. A clutch-pulley having a shaft member provided with a channel, a loose member consisting of complemental sections united laterally to complete said member and produce an internal channel which coincides with the channel of said shaft member, bearing-rollers fitted in said channels of the members, forked shoes mounted in the shaft member, bridge-plates spanning the shoes and affording track-surfaces for the rollers, and means for adjusting the shoes.

9. A clutch-pulley having a shaft member, a loose member, radially-movable shoes, threaded stems to move the shoes outwardly, nuts in which said stems work, and means for imparting a step-by-step rotation to the stems on the rotation of the shaft member.

10. A clutch-pulley having a shaft member, a loose member, shoes movable radially in the shaft member, stems engaging said shoes, divided nuts in which the stems are arranged to work, centrifugal levers connected with said nuts to automatically open the same on the stoppage of the shaft member, and means for imparting a step-by-step movement to said stems.

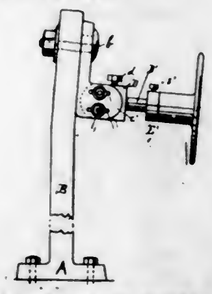
11. A clutch-pulley having a shaft member, a loose membe, radially-movable shoes on the shaft member, threaded stems provided with ratchets and adapted to engage with said shoes, slides carried by the shaft member and connected operatively with the ratchets of the stems, and cams on the loose member and in the path of said slides.

12. A clutch-pulley having a shaft member, a loose member, friction-shoes on said shaft member, threaded stems arranged to impel the shoes outwardly, a divided nut engaging with each threaded stem, weighted levers connected with said divided nuts, and means for imparting a step-by-step rotation to the stems on the rotary motion of the shaft member.

13. In a clutch-pulley, the combination with a shoe, of a threaded stem, a divided nut adapted for engagement with said stem, a lever having arms provided with cam-slots, and projections on the members of the nut and fitting in a said cam-slots of the levers.

14. In a clutch-pulley, the combination with fast and loose members, and a shoe carried by one member and adapted for engagement with the other member, of a stem, a nut in which the stem works, a ratchet on said stem, a ratchet-lever engaging with said ratchet, a bar slidably fitted on the shaft member and engaging with the ratchet member, a spring for impelling said bar in one direction, and an adjustable cam carried by the loose member in the path of said bar.

753,074. CLOTH-WHEEL OR CLOTH-SHOE FOR KNITTING-MACHINES. THOMAS P. HOLLORAN, Utica, N. Y. Filed July 16, 1903. Serial No. 165,785. (No model.)



Claim.—1. In a circular-knitting machine, a cloth-wheel support vertically slotted in its main shank for adjustment on the cloth-wheel standard and open at its other end for the support of a saddle-block, a standard, a saddle-block, means for adjustably connecting the said support and the saddle-block, which means comprise a plurality of bolt-holes in the saddle-block through which bolts pass and engage with the support in slots prepared therein, a wheel-supporting arm adjustably mounted in the saddle-block, and a cloth-wheel revolubly mounted on the wheel-arm, in combination, substantially as set forth.

2. In a circular-knitting machine, a standard, a wheel-support mounted thereon and vertically adjustable, a saddle-block adjustably mounted in the said support, the said mounting means comprising a plurality of bolts passing through the saddle-block and extending therefrom through slots provided in the support, a wheel-arm adjustably mounted in the saddle-block, and means provided on the wheel-arm for pressing the knitted fabric downward from the needles, in combination, substantially as set forth.

3. In a circular-knitting machine, means for adjustably mounting the cloth-pressing member, the said means comprising a support mounted vertically adjustable on a fixed standard, the said support comprising means to engage and hold a saddle-block by a plurality of slotted pivotal bearings between the said supports and the saddle-block, a saddle-block and a standard, in combination, substantially as set forth.

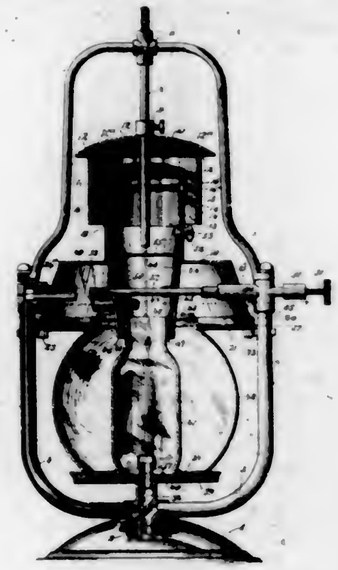
4. In a circular-knitting machine, a fixed standard, a support mounted thereon and vertically adjustable thereon, the saddle-block adjustably mounted on said support, the mounting comprising a plurality of slotted pivotal bearings between the saddle-block and the said support, a wheel-arm provided with a revolubly-mounted wheel thereon and adjustably mounted in the saddle-block whereby the plane of the cloth-wheel may be placed at any desired angle to the axis of the cylinder with its periphery equally distant from the needles adjacent to said wheel, in combination, substantially as set forth.

5. In a circular-knitting machine, a fixed standard, a wheel-support mounted thereon vertically adjustable, a saddle-block adjustably mounted in the said support, the said mounting means comprising a plurality of bolts passing through the saddle-block and extending therefrom through slots provided in the support, a wheel-arm adjustably mounted in the saddle-block, means provided on the wheel-arm for pressing the knitted fabric downward from the needles, said means being adjustable to cylinders of different diameter to permit placing its edge substantially equidistant from the needles, in combination, substantially as shown.

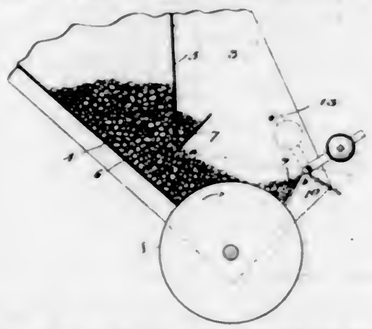
753,075. LAMP. CHARLES G. HOLMBERG, Woonsocket, S. D., assignor to Anna Holmberg and John M. Wheeler, Woonsocket, S. D. Filed Apr. 9, 1902. Serial No. 102,078. (No model.)

Claim.—In a lamp, the combination of a hood for containing a supply of air, a chimney inclosing the same, a globe inclosing said chimney, a hood disposed above said chimney and containing a supply of air heated thereby, a burner, a metallic member closing

said hood and provided with a polished concave surface facing directly toward said burner and serving as a reflector, a thimble connected with said hood and projecting thereinto, tubing connecting said thimble with said burner, a distributing-head mounted within said hood, and means for conducting a jet of hydrocarbon vapor from said distributing-head into said thimble, thereby entraining a portion of said supply of air within said hood and causing an admixture of vapor and air to be carried to said burner.



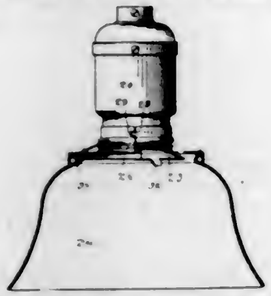
753,076. GATE FOR ORE-POCKETS OR SIMILAR RECEPTACLES. FRANK K. HOOVER and ARTHUR J. MASON, Chicago, Ill. Filed May 1, 1903. Serial No. 155,189. (No model.)



Claim.—1. The combination with a pocket or hopper having a discharge-roller mounted across its discharging end, of a pivoted gate in the nature of a guard mounted above and parallel with the discharging-surface of said roller, and controlling means connected with the pivot of said gate serving to hold the latter stationary in both its fully open and closed positions, but permitting the gate to pass from closed to open position under the impact of the material thereagainst when the roller is operated, substantially as described.

2. The combination with a pocket or hopper having a discharge-roller mounted across its discharging end, of a pivoted gate in the nature of a guard mounted above and parallel with the discharging-surface of said roller, and a counterweight mounted on the pivot of said gate in such a relation thereto as to hold the gate stationary in both its fully open and closed positions, but permitting the gate to pass from closed to open position under the impact of the material thereagainst when the roller is operated, substantially as described.

753,077. SHADE-HOLDER. HARVEY HUBBELL, Bridgeport, Conn. Filed June 11, 1903. Serial No. 161,017. (No model.)



Claim.—1. A shade-holder comprising a contractile threaded collar adapted to engage a standard socket-shell and a holder having a threaded collar adapted to engage the said contractile collar.

2. A contractile collar for a shade-holder, said collar having external screw-threads and having a circumferential internal groove.

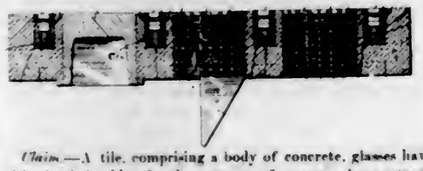
3. An internally and externally threaded collar divided across, whereby it is made capable of expansion and contraction, one end thereof being provided with a projecting tongue and the other with a recess to receive the tongue.

4. The combination with a standard socket-shell having a circumferential rib, of a contractile threaded collar retained in place by the rib and a shade-holder having a threaded collar which engages the contractile collar.

5. The combination with a shade-holder having a threaded collar and a socket, and a shade having an attaching-neck adapted to engage the socket, of a shade-locking ring having a threaded collar adapted to engage the collar upon the shade-holder and integral yielding arms which engage the under side of the neck of the shade and retain it in place in the socket.

6. The combination with a socket-shell having a circumferential rib and a contractile threaded collar engaging said shell and retained in place by the rib, of a shade-holder having a collar provided with a double thread adapted to engage the contractile collar and a socket, a shade having an attaching-neck adapted to engage the socket and a shade-locking ring having arms engaging the under side of the neck to retain the neck in the socket and a threaded collar to engage the collar of the shade-holder.

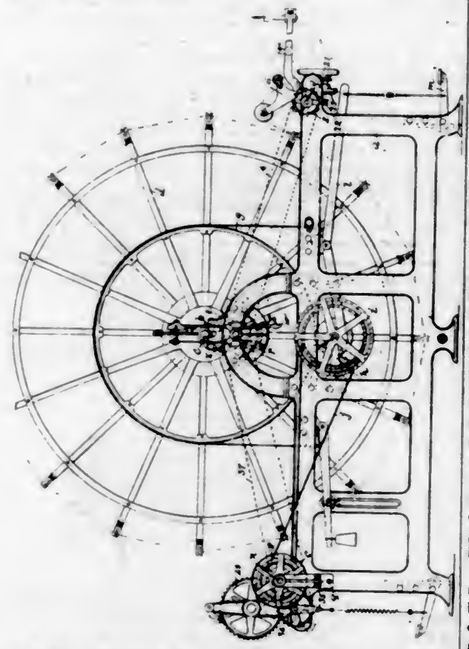
753,078. ILLUMINATING-TILE. JACOB JACOBS, Brooklyn, N. Y. Filed June 23, 1903. Serial No. 162,786. (No model.)



Claim.—A tile, comprising a body of concrete, glasses having cavities in their sides for the entrance of concrete, bars extending through and being embedded in the concrete and constituting means for tying the same and fixing the position of the glasses, said bars having vertical flutes for the entrance of concrete, and blocks whose ends form non-slipping surfaces that have downwardly-projecting lugs adapted to grip the sides of the bars, said blocks having in their sides horizontal concrete-receiving recesses or surfaces.

753,079. WARPING AND BEAMING MACHINE. WILLIAM C. KEYWORTH, Paterson, N. J., assignor to the Benjamin Eastwood Company, Paterson, N. J., a Corporation of New Jersey. Filed May 1, 1903. Serial No. 156,152. (No model.)

Claim.—1. The combination of the frame, the reel journaled therein, a traversing reed-carriage, a traversing beam-supporting means, an actuating means from which the power for traversing both the beam-supporting means and the reed-carriage is derivable, power-transmitting mechanism operatively connected to said reed-carriage, power-transmitting mechanism operatively connected to said beam-supporting means, and means for throwing one of said power-transmitting mechanisms into, and the other of said power-transmitting mechanisms out of, operative engagement with the actuating means, substantially as described.



2. The combination of the frame, the reel journaled therein, a traversing reed-carriage, a traversing beam-supporting means, a rotary shaft from which the power for traversing both the beam-supporting means and the reed-carriage is derivable, power-transmitting mechanism operatively connected to said reed-carriage, power-transmitting mechanism operatively connected to said beam-supporting means, and means for throwing one of said power-transmitting mechanisms into, and the other of said power-transmitting mechanisms out of, operative engagement with said shaft, substantially as described.

3. The combination of the frame, the reel journaled therein, a traversing reed-carriage, a traversing beam-supporting means, a rotary shaft from which the power for traversing both the beam-supporting means and the reed-carriage is derivable, power-transmitting mechanism operatively connected to said reed-carriage, power-transmitting mechanism operatively connected to said beam-supporting means, and a clutch member revoluble with but movable longitudinally of said shaft and operatively engageable with either of said mechanisms to transmit thereto power from the shaft, substantially as described.

4. The combination of the frame, the reel journaled therein, a traversing reed-carriage, a traversing beam-supporting means, a rotary shaft from which the power for traversing both the beam-supporting means and the reed-carriage is derivable, power-transmitting mechanism operatively connected to said reed-carriage comprising a part arranged to rotate on said shaft, power-transmitting mechanism operatively connected to said beam-supporting means and also comprising a part arranged to rotate on said shaft, and a clutch member rotatable with but movable lengthwise of said shaft, said clutch member being shiftable into engagement with either of said rotary parts to transmit thereto power from the shaft, substantially as described.

5. In a beaming mechanism, the combination of the frame, the beam, a guideway arranged in said frame, stands or puppets arranged to slide on said guideway and constituting a partial support for the beam, a reach-rod carried by one of said stands, and means for adjustably securing the other stand to said reach-rod, substantially as described.

6. In a beaming mechanism, the combination of the frame, the beam, beam-driving means, guide-rods arranged in said frame, stands or puppets arranged to slide on said guide-rods and constituting a supporting means for the beam and its immediate driving means, a reach-rod carried by one of said stands, and means for adjustably securing the other stand to said reach-rod, substantially as described.

7. In a beaming mechanism, the combination of the frame, the beam, guide-rods arranged in said frame, stands or puppets arranged to slide on said guide-rods and constituting a supporting means for the beam and its immediate driving means, means for securing said stands against movement relatively to each other, and a screw journaled in said frame and having a threaded engagement with one of said stands, substantially as described.

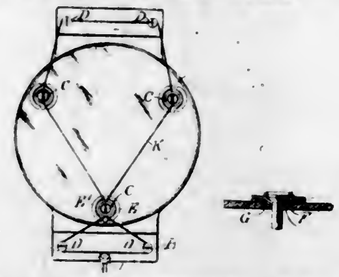
8. In a beaming mechanism, the combination of a frame, the beam, beam-supporting means, a guideway for said beam-supporting means, a rotary screw operatively connecting said frame and the beam-supporting means and adapted to effect the traverse of the latter, an actuating means for the screw, and disconnective connecting means between the actuating means and the screw, substantially as described.

9. In a warping-machine, the combination of the frame comprising a rail, a traversing reed-carriage bearing against the top of said rail, said carriage having depending portions disposed both sides of, and extending below, said rail, a rack and a rotary screw arranged under and parallel with said rail, a worm-wheel and a gear respectively engaging the screw and the rack and arranged under the same, and means for rendering said gear and worm-wheel fast or loose relatively to each other, the group of parts comprising the worm-wheel, the gear and the means for rendering said gear and worm-wheel fast or loose relatively to each other having support in both said depending portions of the carriage and being also disposed under said rail, substantially as described.

10. The combination, with a cross-bar of a warping-machine reel, of an adjustable equalizer-bar arranged in said cross-bar, a swiveled part, and a longitudinally-movable part having a threaded engagement with said swiveled part and also engaging said equalizer-bar, substantially as described.

11. The combination, with a cross-bar of a warping-machine reel, of an adjustable equalizer-bar arranged in said cross-bar, a casting arranged on said equalizer-bar, a swiveled part arranged in said casting, and a longitudinally-movable part having a threaded engagement with said swiveled part and engaging said equalizer-bar, substantially as described.

753,080. METER-SEAL. DARRAGH DE LANCEY and HERBERT M. SMITH, Great Barrington, Mass., assignors to the Stanley Instrument Company, Great Barrington, Mass., a Corporation of Massachusetts. Filed Oct. 21, 1903. Serial No. 177,882. (No model.)



Claim.—1. In a meter the combination of a cover, a plurality of fastening-screws therefor, and a single wire engaging with the heads of said screws and preventing the turning of any one of the said screws and means for securing the ends of said wire.

2. In a meter the combination of a meter-cover, screws for securing the same, projections on said meter-cover adjacent to said screws, holes in said projections and a wire passing through said projections and engaging with the heads of said screws and having its ends secured.

3. In a meter the combination of a cover, screws for securing said cover, the heads of the screws embraced by projections upon said meter-case, a single wire passing through holes in said projections and also through the slots of said screws and means for securing the ends of said wire.

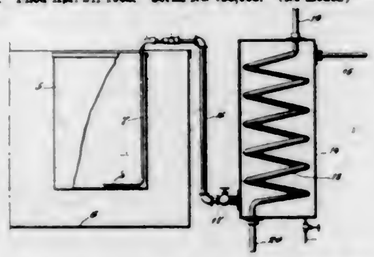
4. In a meter the combination of a cover, screws for securing said cover, said screws being provided with passages in their heads and a single wire passing through the said passages in a plurality of said screws and means for securing the ends of said wire.

5. In a meter the combination of a cover consisting of a fragile non-metallic portion having a plurality of holes therein, projections

formed in said non-metallic cover about said holes and inserts inserted in said holes and prevented from turning by said projections, said inserts having projections, screws passed through said inserts and secured to said meter-case and a wire passing through holes in the projections on said inserts and means for securing the ends of said wire.

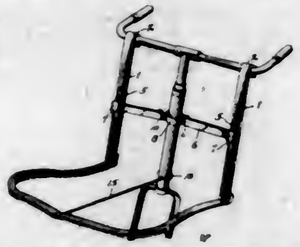
6. In a meter in combination a plurality of covers, a plurality of screws for fastening said covers and having passages in their heads and a wire extending through said passages for securing said screws and means for securing the end of said wire.

753,081. ICE-MAKING MACHINE. RUFUS F. LEARNED, Natchez, Miss. Filed Apr. 21, 1902. Serial No. 103,935. (No model.)



Claim.—The combination with a freezing-can, of a bent metallic tube internally attached thereto, extending down the side and across the bottom toward the center of said can, said tube being provided with a single vapor-port of small area in the extremity of the lower part of said tube, said vapor-port opening horizontally and located in eccentric relation to the tube and close to the bottom side thereof, and a refrigerant vapor-pipe for delivering a current of compressed refrigerant vapor to said tube.

753,082. PACKAGE-CARRIER. CHARLES LEDERMAN, Columbus, Ohio. Filed July 21, 1903. Serial No. 166,491. (No model.)



Claim.—1. A device of the character described embodying a pair of hangers, a base-frame supported upon the hangers and disposed at an angle thereto, a cross-brace connected to the hangers and having an intermediate bend to form a seat for partially embracing the head-tube of a bicycle, a detachable clamp member having an intermediate bend to close the open side of the seat and pivotally connected at one end to the cross-bar, and an adjusting-screw piercing the other end of the clamp member and the cross-bar.

2. A device of the character described embodying opposite hangers, a base-frame supported upon the hangers and disposed at an angle thereto, and a cross-brace having its opposite ends adjustable vertically upon the hangers and provided with an intermediate seat for the reception of the head-tube of a bicycle.

3. A device of the character described embodying a pair of hangers having intermediate longitudinal slots, a base-frame supported upon the hangers and disposed at an angle thereto below the slots, a cross-brace extending between the hangers and provided with an intermediate seat for the reception of the head-tube of a bicycle, and adjusting-screws piercing the respective slots and engaging the cross-brace to adjustably connect the same to the hangers.

4. A device of the character described embodying a pair of hangers having their lower ends terminating in hooks, and a base-frame having openings for the reception of the hangers and also provided with upstanding projections in rear of the openings to lie against the backs of the hangers to form a detachable and hinged connection between the base-frame and the hangers.

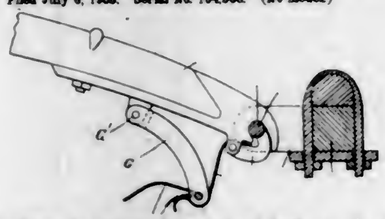
5. A device of the character described embodying a pair of hangers having reduced lower terminals directed laterally to form hooks, and a substantially U-shaped base-frame having its opposite ends provided with upstanding lugs and openings formed in front of the lugs for the reception of the hooks of the hangers.

6. A device of the character described embodying a hanger, a base-frame supported upon the hanger and at an angle thereto, and a brace carried by the frame independently of the hangers and provided with means for engagement with the head-tube of a bicycle.

7. A device of the character described embodying a hanger, a base-frame carried by and disposed at an angle to the hanger, and a brace carried by the frame and provided with a spring-clamp to embrace the head-tube of a bicycle.

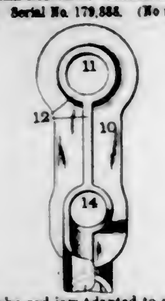
8. A device of the character described embodying a pair of hangers, a substantially U-shaped base-frame having its opposite ends connected to the hangers and disposed at an angle thereto, and a brace-bar projected rearwardly from an intermediate portion of the base-frame and provided at its rear end with a spring-hook to embrace the head-tube of a bicycle.

753,083. THILL-COUPLING. CHRISTIAN S. LEHMAN, Lawn, Pa. Filed July 6, 1903. Serial No. 164,368. (No model.)



Claim.—In a thill-coupling, a pair of shafts, an axle, clips secured to the axle, bolts carried by the clips, the rear end of the thills composing the shafts being hook shape and notched, the notches adapted to embrace the bolts of the clips, curved retaining-pieces pivoted at one end to the under side of the thills, the free end of the retainers being concaved and adapted to come in contact with the bolts within the notches, springs, one end of each being curved so as to form a socket, levers pivoted at one end to the under side of the thills, the free end of the levers adapted to be forced into the sockets of the springs so as to hold said springs under tension, and levers pivoted to the free ends of the other levers adapted to disengage the spring from the levers when the releasing-levers are pressed downward, as and for the purpose specified.

753,084. BRAKE-ROD JAW. ARTHUR LIPSCHUTZ, St. Louis, Mo. Filed Nov. 5, 1903. Serial No. 179,858. (No model.)



Claim.—1. A brake-rod jaw adapted to embrace a brake-lever and be pivoted thereto, said jaw having a web adapted to be embraced by the loop of a brake-rod, an abutment forward of said web, and means for preventing the spreading of the loop of the rod.

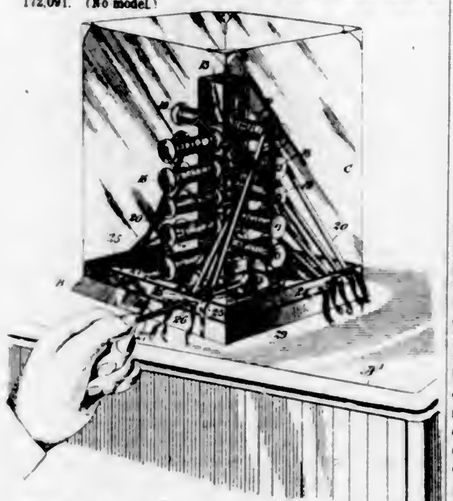
2. A brake-rod jaw adapted to embrace a brake-lever and be pivoted thereto, said jaw having an opening for the passage of a brake-rod, the front wall of said opening forming an abutment, and the rear wall a web adapted to be embraced by the loop of the brake-rod, and means for preventing the spreading of the loop.

3. A brake-rod jaw adapted to embrace a brake-lever and be pivoted thereto, said jaw having a web adapted to be embraced by the loop of a brake-rod, an abutment forward of said web, and a lug adjacent to said web, said lug being so arranged that the side of the loop may be swung laterally between said lug and web.

4. A brake-rod jaw adapted to embrace a brake-lever and be pivoted thereto, said jaw having a web adapted to be embraced by the loop of a brake-rod, an abutment forward of said web, and lugs carried by said jaw for engaging the sides of the loop of the brake-rod and preventing its spreading.

5. A brake-rod jaw adapted to embrace a brake-lever and be pivoted thereto, said jaw having a web adapted to be embraced by the loop of a brake-rod, an abutment forward of said web, and a pair of lugs reversely arranged at opposite sides of said web to prevent spreading of the loop.

753,085. SPOOL HOLDER AND CASE. MAYER MAAS and FRANK RICAUD, Baton Rouge, La. Filed Sept. 5, 1903. Serial No. 172,091. (No model.)



Claim.—1. A spool-holder, consisting of a support, a flanged base having sets of openings in its flange, a post secured centrally to the base with its lower end extending through the base, a block secured to the lower end of the post and pivoted to the support, balls between the block and support, radial spool-carrying arms on the post, springs secured to the post for engaging the inner heads of the spools, and a cover resting upon the base, as set forth.

2. A spool-holder, comprising a support, a flanged base having sets of openings in its flange, a post secured centrally to the base with its lower end projecting through the same and pivoted to the support, radial spool-carrying arms on the post, springs secured to the post for engaging the inner heads of the spools, and a cover carried by the base, as set forth.

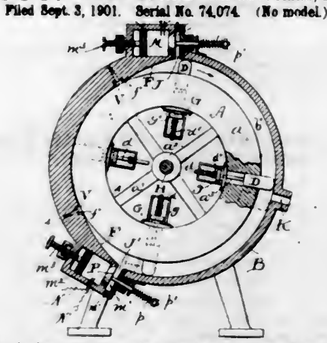
3. A spool-holder, comprising a support, a casing mounted to revolve on the support and provided with sets of openings in its lower portion, a post centrally arranged in the casing, radially-projecting spool-carrying arms on the post, and springs secured to the post and adapted to engage the inner heads of the spools, as set forth.

4. A spool-holder, comprising a support, a casing mounted to revolve on the support and provided with sets of openings in its lower portion, a post arranged centrally in the casing, the post being rectangular in cross-section, horizontal arms projecting from each side of the post, the arms being in staggered arrangement, with the arms on opposite sides in the same horizontal plane, and spring-plates secured to the post, each plate having its ends constructed to engage the inner heads of oppositely-arranged spools, as set forth.

5. In a spool-holder, the combination with a post provided with horizontal spool-holding arms, of spring-plates secured to the post, each plate having a hook at each end adapted to engage the heads of spools carried by the arms, and provided with finger-pieces at the outer ends of the hooks, as set forth.

6. In a spool-holder, a casing having in its lower portion a series of openings arranged in step form, and below the central opening with a second opening, a post arranged in the casing and provided with a plurality of horizontal arms arranged one above the other and upon which spools of ribbon are adapted to be held, the ribbons from the spools passing out through the stepped openings of the casing, and a tape-measure case secured to the base of the casing at that side of the post from which the arms project and having its tape passing out through the opening below the central ribbon-receiving opening, to permit any and all of the ribbons held on said arms and passing out through the said openings to be measured, as set forth.

753,086. ROTARY ENGINE. CLAUDE P. MAINS, Lakewood, Ohio. Filed Sept. 3, 1901. Serial No. 74,074. (No model.)



Claim.—1. In a rotary engine, the combination of a cylindrical casing having first an internal annular groove forming a piston-chamber, second an abutment with inclined ends projecting into said piston-chamber, third two inwardly-projecting side flanges, fourth an inlet-opening to the piston-chamber located near one end of said abutment, and fifth an outlet-opening, an explosion-chamber adjacent to said inlet-opening, means for periodically filling said chamber with an explosive gas and then exploding the same, an outwardly-opening spring-closed valve between said explosion-chamber and inlet-opening, adapted to be blown open by the force of the charge with a rotary piston-carrier comprising a hub, spokes and a rim with annular recesses through it, pistons movable in said recesses and having piston-stems projecting inward beyond said rim, cap-plates secured to the inner periphery of said rim over the inner ends of said recesses and having stuffing-boxes through which said piston-stems pass, and springs acting on said stems to force said pistons outward, substantially as and for the purpose specified.

2. In an explosion-engine, the combination of an explosion-chamber communicating with the piston-chamber through a valve-controlled opening, and a piston in said explosion-chamber, with means for adjusting the position of said piston for the purpose of varying the size of said explosion-chamber, substantially as and for the purpose specified.

3. In an explosion-engine, in combination, a casing having a piston-chamber and an explosion-chamber, and a port therebetween, a valve adapted to normally close said port, means whereby an explosion within said explosion-chamber may open said valve, and means for changing the capacity of said explosion-chamber, substantially as described.

4. In an explosion-engine, in combination, a main shaft, a piston-chamber, a piston mounted therein and adapted to rotate said shaft, an explosion-chamber having a port communicating with said piston-chamber, a puppet-valve adapted to close said port and opening outwardly from said explosion-chamber, a spring normally maintaining said valve upon its seat, a piston mounted in said explosion-chamber, and means for maintaining said last-named piston in different positions within said explosion-chamber.

753,087. COPYING-PENCIL. EMMERICH MARKOVITS, New York, N. Y., assignor of one-half to George von Skal, New York, N. Y. Filed July 3, 1903. Serial No. 164,115. (No model.)



Claim.—1. A copying-pencil combined with a reservoir connected thereto, and with a wick within the reservoir, substantially as specified.

2. A copying-pencil combined with a reservoir adjustably connected thereto, and a wick in the reservoir which projects below the pencil-point, substantially as specified.

3. A copying-pencil combined with an adjustable reservoir having a curved flattened nozzle, and a wick within the nozzle that has an inclined lower edge and projects below the pencil-point, substantially as specified.

753,088. COMBINATION PEN AND PENCIL HOLDER AND CALENDAR. HARRY J. MELLOW, Pittsburg, Pa. Filed July 7, 1903. Serial No. 164,591. (No model.)

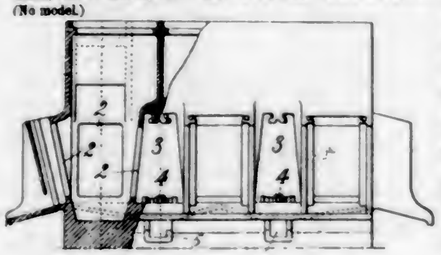


Claim.—1. The combination of an elongated tube having a pencil secured in its one end and an eraser in its other end, a sleeve rotatably secured upon said tube and having one end enlarged, said sleeve having apertures formed therein, figures being arranged upon the tube and adapted to register with one of the apertures in the sleeve, a second sleeve rotatably secured on said tube between the enlarged portion of the first-named sleeve and tube, names of the month being placed on said sleeve and adapted to register with another of the apertures in the first-named sleeve, an auxiliary sleeve adapted to be rotatably mounted upon the tube, a portion of said sleeve being enlarged and adapted to fit between the second sleeve and the enlarged portion of the first-named sleeve and having thereon the days of the week adapted to register with a third aperture in said first-named sleeve, substantially as described.

2. The combination of an elongated tube having a pencil secured in its one end and an eraser in its other end, a sleeve rotatably secured upon said tube and having one end enlarged, said sleeve having apertures formed therein, figures being arranged upon the tube and adapted to register with one of the apertures of the sleeve, a second sleeve rotatably secured on said tube between the enlarged portion of the first-named sleeve and the tube, names of the months and the number of days in the month being placed on said second sleeve and adapted to register with one or more of the apertures of the first-named sleeve, an auxiliary sleeve adapted to be rotatably mounted upon the tube, a portion of said sleeve being enlarged and adapted to fit between the second sleeve and the enlarged portion of the first-named sleeve and having the days of the week upon a portion of said sleeve and adapted to register with an aperture in the first-named sleeve, substantially as described.

3. The combination of an elongated tube having a pencil secured in its one end and an eraser in its other end, said tube having its one end sheared and contracted to support the pencil, a sleeve rotatably secured upon said tube and having its one end engaging said tube and the other end enlarged, said sleeve having apertures formed therein, figures being arranged upon the tube and adapted to register with one of the apertures of the sleeve, a second sleeve rotatably secured on said tube, between the enlarged portion of the first-named sleeve and the tube, names of the months and the number of the days in the month being placed on said sleeve and adapted to register with one or more of the apertures of the first-named sleeve, an auxiliary sleeve adapted to be rotatably mounted upon the tube, a portion of said sleeve being enlarged and adapted to fit between the second sleeve and the enlarged portion of the first-named sleeve and having thereon the days of the week adapted to register with one of the apertures of the first-named sleeve, substantially as described.

753,089. MULTIPLE-STAMP MORTAR. WILLIAM A. MERRALLS, San Francisco, Cal. Filed Dec. 10, 1903. Serial No. 184,637. (No model.)



Claim.—A mortar having a plurality of chambers for stamps, each chamber having four discharge-openings on the four sides, the chambers being spaced from each other, and the mortar being provided in said spaces between said chambers with channels for the pulp inclined downward from the rear to the front, said mortar also having lower channels immediately below the aforesaid channels, leading from the rear to the front and having a trough at the rear of the chamber, said trough having surfaces inclined downward and meeting at points immediately behind the lower channels and discharging thereinto, substantially as described.

753,090. AIR-VALVE. ARTHUR MCGONAGLE, East Orange, N. J. Filed Feb. 26, 1903. Serial No. 145,186. (No model.)



Claim.—1. In an air-valve device, the combination of a valve, an expansion-spring to which the valve is connected, an expansion-abutment against which one end of the said expansion-spring bears, and a casing in which these parts are mounted, substantially as set forth.

2. In an air-valve device, the combination of a pair of expansion abutment members, an expansion-spring arranged between and having its ends resting against the said expansion abutment members, a valve connected with the spring between its ends, and a casing in which the said parts are mounted, substantially as set forth.

3. In an air-valve, the combination of a casing, a pair of independent expansion members situated therein, a valve independent of the said expansion members, and a flexible connection between the valve and the said expansion members arranged to be bent by the combined expansion thereof and thereby seat the valve, substantially as set forth.

4. In an air-valve the combination of a casing, a pair of separated expansion members, a bow-spring situated between said expansion members, and a valve operated by the said spring, substantially as set forth.

5. In an air-valve the combination of a casing, an expansion member, a double-bow spring connected at one end with the said expansion member, a valve connected with one leaf of the said spring, and a stationary abutment against which the other leaf of the spring rests, substantially as set forth.

6. In an air-valve the combination of a casing, an expansion member, a double-bow spring connected at one end with the said expansion member, a valve connected with one leaf of the said spring and an adjusting-screw connected with the other leaf of the spring, substantially as set forth.

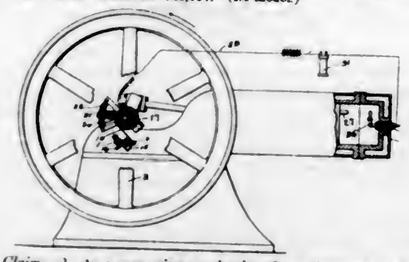
7. In an air-valve the combination of a casing, a double-bow spring, a valve connected with a leaf of the spring near its middle portion, an adjusting-screw connected with the other leaf of the spring near its middle portion, and expansible supports for the ends of the spring, arranged to approach each other as they expand, substantially as set forth.

8. In an air-valve the combination of a casing, a pair of cylindrical expansion members E, a double-bow spring arranged between and connected with the said expansion members, and a valve connected with the said spring, substantially as set forth.

9. In an air-valve the combination of a casing, an expansion member of cylindrical shape, a cup-shaped support fitting into one end of the said cylindrical expansion member, a spring having one end resting in the said cup, and a valve connected with the spring, substantially as set forth.

10. In an air-valve, the combination of a casing, independent expansion members therein arranged in line with each other, connecting means between the said expansion members, of a material whose coefficient of expansion is less than that of the expansion members and having connections with the latter at their ends which are most remote from each other, and a valve operated by the expansion members and connected with the ends thereof that are closest together, substantially as set forth.

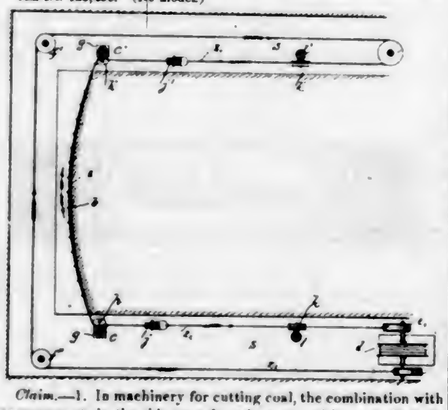
753,091. GOVERNING MECHANISM FOR INTERNAL-COMBUSTION ENGINES. WALTER J. MCVICKER, Rogers, Nebr. Filed Mar. 7, 1903. Serial No. 146,637. (No model.)



Claim.—1. As a governing mechanism for an internal-combustion engine and in combination with an electrically-controlled igniter therefor, an engine-driven rotative member, a spring secured to said rotative member, a weight carried by said spring, a contact-screw on said rotative member with which the weight is normally held in engagement by the spring, and an igniter-controlling circuit of which said weight and contact-screw are a part, the arrangement being such that the weight may by its centrifugal force move away from the contact-screw and break the igniter-controlling circuit when the speed of the rotative member reaches a predetermined limit, and the direction of rotation relative to the weight and contact-screw being such that the weight will follow the contact-screw, whereby upon a sudden acceleration of the rotative member the weight will tend by its inertia to fall behind the contact-screw and break the igniter-controlling circuit, or upon a sudden slowing of speed of the rotative member the weight will tend by its inertia to overtake the contact-screw and close the igniter-controlling circuit.

2. As a governing mechanism for an internal-combustion engine and in combination with an electrically-controlled igniter therefor, an engine-driven rotative member, a spring secured thereto, means for adjusting the tension of said spring, a weight carried by the spring and adapted to move in a direction partly radial to the axis of rotation and partly concentric thereto, a contact-screw carried on said rotative member with which the weight is normally held in engagement by the spring, and an igniter-controlling circuit of which said weight and contact-screw are a part, the arrangement being such that the weight may by its centrifugal force move away from the contact-screw and break the igniter-controlling circuit when the speed of the rotative member reaches a definite limit, and the direction of movement of the rotative member relative to the weight and contact-screw being such that the weight will follow the contact-screw, whereby upon a sudden acceleration of the rotative member the weight will tend by its inertia to fall behind the contact-screw and break the igniter-controlling circuit, or upon a sudden slowing of speed of the rotative member the weight will tend by its inertia to overtake the contact-screw and close the igniter-controlling circuit.

753,092. MACHINERY FOR CONTINUOUSLY CUTTING COAL. HUBERT V. NEUKIRCH, Zwickau, Germany. Filed Sept. 30, 1902. Serial No. 125,430. (No model.)

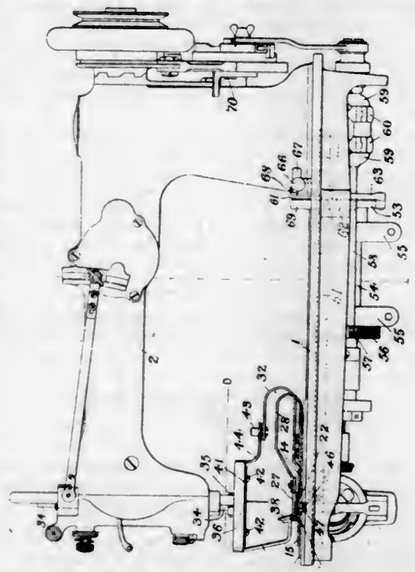


Claim.—1. In machinery for cutting coal, the combination with temporary posts in the side tunnels and upper and lower guide-pulleys carried thereby, of pulleys in the rear of said guide-pulleys, an endless belt of rope carrying cutters, passing over the upper guide-pulleys and across the breast on the level of the top of said upper pulleys, under the lower guide-pulleys and across the breast on the level of the bottom of said lower pulleys, and around the rear pulleys, and suitable driving and feeding means whereby the cutter-rope makes two cuts across the breast at the same time, substantially as described.

2. In machinery for cutting coal, the combination with temporary posts in the side tunnels and upper and lower guide-pulleys carried thereby, of pulleys in the rear of said guide-pulleys, an endless belt of rope carrying cutters, passing over the upper guide-pulleys and across the breast on the level of the top of said upper pulleys, under the lower guide-pulleys and across the breast on the level of the bottom of said lower pulleys, and around the rear pulleys, and suitable driving and feeding means whereby the cutter-rope is driven continuously in the same direction and makes two cuts across the breast at the same time, substantially as described.

3. In machinery for cutting coal, the combination with temporary posts in the side tunnels, and upper and lower guide-pulleys carried thereby, of a truck in one tunnel, a shaft thereon, a pulley on said shaft, a second truck in the other tunnel, a shaft thereon, a pulley on said shaft an endless-belt rope passing across the breast at two levels, over said guide-pulleys and around the truck-pulleys, a driven pulley on the shaft on the first-named truck, a drum on the second truck, and a rope winding thereon and adapted to be secured at its end, substantially as described.

753,093. BUTTONHOLE-SEWING MACHINE. DONALD NOBLE, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a corporation of Connecticut. Filed Oct. 25, 1902. Serial No. 128,784. (No model.)



Claim.—1. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-clamp, a feed-slide upon which the cloth-clamp is fixed, a turn-table upon which said feed-slide is slidably mounted, said turn-table capable of being turned to reverse the feed-slide and to present opposite sides of a buttonhole-slit to the action of the stitch-forming mechanism, and a one-way-feeding mechanism for said feed-slide, in combination with a presser-bar, provided with a presser mounted to rotate in a horizontal plane and adapted to cooperate with said cloth-clamp, substantially as described.

2. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-clamp, a feed-slide upon which the cloth-clamp is fixed, a turn-table upon which said feed-slide is slidably mounted, said turn-table capable of manual turning to reverse the feed-slide and to present opposite sides of the buttonhole-slit to the action of the stitch-forming mechanism, and a one-way-feeding mechanism for said feed-slide, in combination with a presser-bar provided with

a presser, and means to turn said presser with said cloth-clamp when said clamp is turned to present opposite sides of the buttonhole-slit to the action of the stitch-forming mechanism, substantially as described.

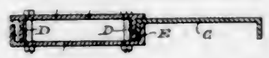
3. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-clamp, a feed-slide carrying the cloth-clamp, a turn-table upon which said feed-slide is slidably mounted, said turn-table capable of manual turning to turn the feed-slide end for end and thus present opposite sides of the buttonhole-slit to the action of the stitch-forming mechanism, and a one-way-feeding mechanism for said feed-slide, in combination with a presser-bar having a rotatable presser and provided with an annular bearing for guiding the movements of the presser substantially concentric with the rotary movements of the cloth-clamp when said clamp is actuated to present opposite sides of the buttonhole to the action of the stitch-forming mechanism, substantially as described.

4. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth clamping and feeding mechanism, including a cloth-clamp and a feed-slide carrying said clamp, a turn-table with which said clamping and feeding mechanism is slidably connected and capable of manual reversal to present opposite sides of the buttonhole to the action of the stitch-forming mechanism, and means to actuate said feed-slide forwardly in the line of feed, in combination with a presser-bar provided with an annular carrier operatively connected with said clamping and feeding mechanism for partaking of the rotary movement of the latter when actuated to present opposite sides of the buttonhole to the action of the stitch-forming mechanism, substantially as described.

5. In a buttonhole-sewing machine, the combination of a stitch-forming mechanism, a cloth clamping and feeding mechanism, including a feed-slide provided with rack-bars at opposite ends, a turn-table upon which the clamping and feeding mechanism is slidably mounted, a gear-wheel to engage said rack-bars alternately as they are presented to it, a presser-bar and presser, and a stationary plate in which the turn-table is mounted, provided with cam portions for effecting vertical movements of the cloth clamping and feeding mechanism to disengage and reëngage the rack-bars and gear-wheel when the turn-table is rotated to present opposite sides of the buttonhole to the action of the stitch-forming mechanism, substantially as described.

6. In a buttonhole-sewing machine, a stitch-forming mechanism, a feed-slide, a turn-table connected therewith, a cloth-clamp carried by said slide, means to impart a right-line movement to said slide in one direction only, and means to rotate the turn-table and with it the slide while the cloth is clamped in position and thus turn the feed-slide and cloth end for end, combined with a presser-bar, a ring-track carried by it and a presser-foot mounted upon said ring and rotatably connected with the feed-slide.

753,094. INTERLOCKING METAL SHEET-PILING. GEORGE K. NYE, Chicago, Ill. Filed Nov. 2, 1903. Serial No. 179,611. (No model.)



Claim.—1. In a sheet-metal piling, a unit comprising in combination a member consisting of a plate provided with parallel longitudinal ribs inwardly of its side edges, and an opposing part abutting against the free edges of said ribs and provided with flanges of less depth than said ribs extending parallel with the latter and separated therefrom to form L-shaped recesses in the sides of said unit.

2. In sheet-metal piling a unit provided in its side edges with L-shaped recesses, said unit being composed of a plurality of members secured together and including a member consisting of a plate provided inwardly of its side edges with parallel integral ribs.

3. In metal sheet-piling, a unit comprising in combination a channel-beam, a member equal in width with said channel-beam and having its web extending parallel therewith, longitudinal ribs on said member of greater depth than said flanges of said channel-beam and extending between the latter inwardly thereof and resting on the web of said channel-beam, the free edge portions of said members overhanging said flanges of said channel-beams but being separated therefrom, the spaces between the ribs of said member and said flanges and between the free ends of the latter and the overhanging portions of said member together forming L-shaped recesses each adapted to receive a flange and part of the web of a channel-beam adapted thereby to interlock with said unit.

753,095. NECKTIE OR RIBBON CLASP. JOHN J. O'CALLAGHAN, Chicago, Ill. Filed July 29, 1903. Serial No. 167,514. (No model.)



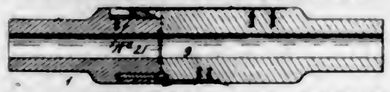
Claim.—1. A clasp of the character described, comprising a cross-bar, parallel plates outstanding from said cross-bar and adapted to engage the interposed article, and duplicate levers fulcrumed at inner opposite edges of said plates, respectively, and having their free ends engaging said plates adjacent said fulcrumed ends, said levers and plates adapted to substantially form a single loop to receive the clasped article, and a spring for acting upon said levers.

2. A clasp of the character described, comprising a cross-bar, parallel plates outstanding from said cross-bar, duplicate levers fulcrumed upon inner opposite edges of said plates and having their free ends engaging said plates adjacent to said fulcrumed ends, respectively, said levers lapping their entire length by each other and adapted to form, with said plates, a single loop to receive the article to be engaged, and a spring arranged to act upon said levers.

3. A clasp of the character described, comprising a cross-bar, parallel plates outstanding from said cross-bar, duplicate levers fulcrumed upon inner opposite edges of said plates, respectively, and having their free ends engaging said plates adjacent to said fulcrumed ends, said levers being curved or bowed to form, with said plates, a single loop to receive the article to be engaged, and a spring acting upon said levers.

4. A clasp of the character described, comprising a cross-bar, parallel plates outstanding from the latter, duplicate levers fulcrumed upon inner opposite edges of said plates, respectively, and having their free ends engaging the opposite edges of said plates adjacent to said fulcrumed ends, said levers being bowed or curved and lapping their entire length by each other, and forming with said plates a single loop, and a spring arranged to act upon said levers.

753,096. HOSE-COUPLING. PERCY C. OSTEEN, Hendersonville, N. C. Filed Mar. 30, 1903. Serial No. 150,261. (No model.)



Claim.—A coupling of the character described, tubular members, one having, upon one side, a spring with an inturned catch or lug thereon entering a notch or recess in said member, and the other member having a rigid beveled catch also let into a notch or recess of said member and adapted to effect engagement with the inturned lug of said spring, said first-named member having, upon its opposite side, an apertured rigid plate let into a recess therein, and the latter-referred-to member having an inflexible strap also let into a recess therein and provided with a lateral or right-angled lug engaging the eye or aperture of said strap, the abutting end of the first-referred-to member also having a notch or recess receiving said lug where it enters the eye of said strap, said members having interfitting or interlocking tongues and grooves at their meeting ends.

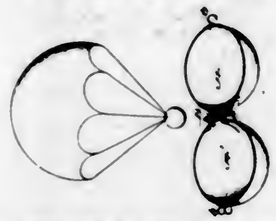
753,097. PROCESS OF TRANSFERRING AND ETCHING DESIGNS ON METAL SURFACES. OTTO PALM, Jr., and WILLIAM T. BLOEMER, New York, N. Y., assignors to the Palm Letter Company, Cincinnati, Ohio, a Corporation of Ohio. Filed May 9, 1903. Serial No. 156,376. (No specimens.)



Claim.—1. The process for transferring and etching designs upon metal surfaces consisting in coating a sheet of paper with gum, printing the design upon the gummed surface, the material used in printing being mixed with acid-resisting materials, cleansing the unprinted surface of the paper, pressing the printed face of the paper into close contact with the surface to be etched, removing the paper from the design, subjecting the open places in the transferred design to the action of acid and removing the transferred design.

2. The process for transferring and etching designs upon metal surfaces consisting in preparing a sheet of paper with a coating of gum, printing the design to be transferred in a solid color, the latter comprising a mixture of asphaltum and beeswax, on said gum-coated sheet, cleansing the face of the printed sheet to remove the gum coating therefrom, applying to both the surface to be decorated and the design a thin coating of asphaltum, applying the design to the metallic surface and causing the same to adhere thereto, separating the paper and design by saturating the same with water, subjecting the open surfaces in the transferred design to the action of an etching preparation and removing the transferred design from the metal surface by the application thereto of equal parts of tupentine and alcohol, substantially as specified.

753,098. AMUSEMENT DEVICE. WILLIAM C. PARNELLA, Ellenville, N. Y. Filed Feb. 7, 1903. Serial No. 142,420. (No model.)



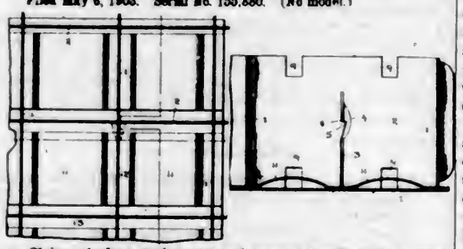
Claim.—1. The combination, with a parachute having a weight for automatically opening it, of a sectional casing for containing said parachute and weight, said casing entirely diconnected from the parachute and provided with means normally holding its sections together to inclose the parachute, and with automatic means for opening said casing.

2. The combination, with a parachute having a weight for automatically opening it, of a sectional casing for containing said parachute and weight, said casing entirely disconnected from the parachute and provided with means normally holding its sections together to inclose the parachute, and a fuse for automatically opening said casing.

3. The combination, with a parachute having a weight for automatically opening it, of a sectional casing for containing the parachute provided with a clasp, for holding the sections together, said clasp adapted to contain a fuse located entirely without the casing, and arranged to be opened by the destruction of such fuse.

4. The combination, with a parachute having a weight for automatically opening it, of a sectional casing for containing the parachute provided with a clasp, comprising registering loops adapted to receive a fuse and arranged to cause said fuse to act as a pin to hold the sections together.

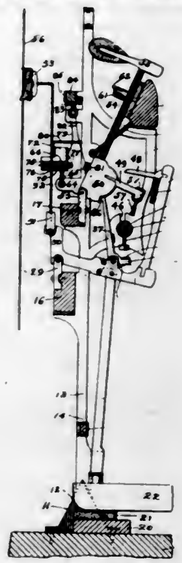
753,099. EGG-CRATE. EDWARD N. PAUL, Philadelphia, Pa. Filed May 6, 1903. Serial No. 155,880. (No model.)



Claim.—1. In a device of the character described, the combination with a division-board having parallel undulating strips secured thereon and forming channels therebetween, whereby air and liquid may freely circulate upon the face of the division-board; of interlocking partitions arranged within the channels, and transversely thereof at points between their undulations.

2. In a device of the character described, the combination with a division-board having parallel undulating strips secured thereon and forming channels therebetween, whereby air and liquid are free to circulate upon the face of the board; of interlocking partitions having recessed edges arranged within the channels and upon said strips between the raised portions thereof.

753,100. PIANO-ACTION. SWAN PAULSON, Chicago, Ill. Filed May 1, 1903. Serial No. 155,108. (No model.)



Claim.—1. In a piano-action, the combination with a pivoted key, of a hammer-butt having a forwardly-extending arm, a hammer connected to said butt, a jack-lever suitably fulcrumed below the hammer-butt, a spring-pressed jack fulcrumed on the jack-lever and provided with a forward extension at its lower end and adapted to impinge the butt with its upper end, a hammer-check vertically secured on the front portion of the jack-lever and having at its upper end an arm projecting rearwardly and above the arm on the butt, a longitudinally removable and rotatable shaft horizontally journaled near the jack, a screw adjustably secured in said shaft to impinge the extension on the jack, and a connection uniting the inner portion of the key and the jack-lever, substantially as described.

2. In a piano-action, the combination with a pivoted key, of a hammer-butt having a forwardly-extending arm, a hammer connected to said butt, a jack-lever fulcrumed below the butt and provided at its rear portion with an upwardly-extending arm, a spring-pressed jack fulcrumed on the jack-lever and provided with a forward extension at its lower end and adapted to impinge the butt with its upper end, a hammer-check vertically secured on the front portion of the jack-lever and having at its upper end an arm projecting rearwardly and above the arm on the butt, a shaft horizontally journaled near the jack and carrying a screw to impinge the extension thereof, a connection uniting the inner portion of the key and the jack-lever, a damper-wire having at its upper end a damper and its lower end pivotally secured to the arm of the jack-lever, a rail pivotally secured to the supporting-brackets and having means to engage said wire above its pivot, and means to tilt said rail, substantially as described.

3. In a piano-action, the combination with a support comprising a number of upright brackets located in alinement and parallel with one another in the piano-casing, of horizontal rails secured on the rear portion of the brackets, a pivoted key, a jack-lever fulcrumed on one of the rails of the support, a pilot pivotally secured at its upper end to the jack-lever and in engagement with the key at its lower end, a jack fulcrumed on the jack-lever and adapted to impinge the hammer-butt at its upper end, and provided with a forward extension on its lower portion, a spring on the jack-lever to actuate the jack, a shaft horizontally journaled on the support above said extension, an adjustable screw in said shaft to impinge said extension, a hammer-check vertically secured on the front portion of the jack-lever and having at its upper portion a rearwardly-extending arm, a spring-pressed hammer-butt having an arm projecting forwardly and below the arm on the said check-lever, and a hammer connected to said butt, substantially as described.

4. In a piano-action, the combination with a pivoted key, of a hammer-butt having a forwardly-extending arm, a hammer connected to said butt, a jack-lever fulcrumed below the butt and pro-

vided at its rear portion with an upwardly-extending arm, a spring-pressed jack fulcrumed on the jack-lever and provided with a forward extension at its lower end and adapted to impinge the butt with its upper end, a hammer-check vertically secured on the front portion of the jack-lever and having at its upper end an arm projecting rearwardly and above the arm on the butt, a shaft horizontally journaled near the jack and carrying a screw to impinge the extension thereof, a connection uniting the inner portion of the key and the jack-lever, a damper-wire having at its upper end a damper and its lower end pivotally secured to the arm of the jack-lever, a rail pivotally secured to the supporting-brackets and having means to engage said wire above its pivot, means to tilt said rail, the hammer-rest rail pivotally secured and having means to check its movements, and means to raise said rail, substantially as described.

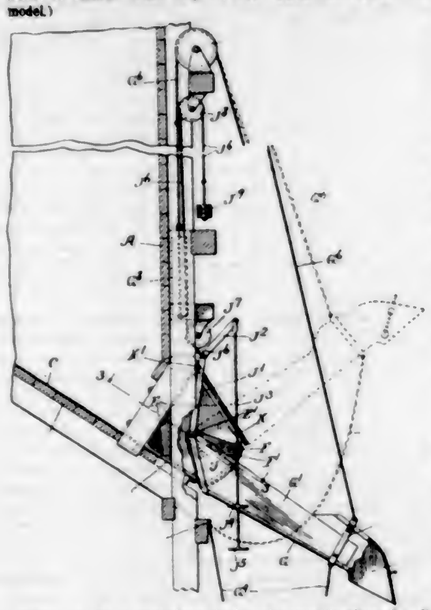
753,101. **METHOD OF MAKING GLASS WITH WIRE EMBEDDED THEREIN.** James W. Paxton, Washington, Pa. Filed June 3, 1903. Serial No. 159,228. (No model.)



Claim.—1. The method of making sheet-glass with a metallic center portion, consisting in depositing a single batch of glass upon a suitable support, then dividing it into a front and a rear portion, introducing the metallic center at the divided point, then spreading the front portion of the glass below the metallic center and the rear portion above the metallic center.

2. The method of making sheet-glass with a metallic center portion which consists in depositing a single batch of glass upon a suitable support, then dividing it into a front and rear portion, introducing the metallic center at the divided point, and simultaneously spreading the front portion of the glass under the metallic center and the rear portion above the metallic center.

753,102. **COAL-CHUTE DEVICE.** Staunton B. Peck, Chicago, Ill., assignor to Link Belt Machinery Company, Chicago, Ill., a Corporation of Illinois. Filed July 11, 1903. Serial No. 165,089. (No model.)



Claim.—1. In a coal-chute device, the combination of a discharge-way with forwardly-projecting exterior parts, a lid which lies upon these parts and a chute adapted to receive coal from the way

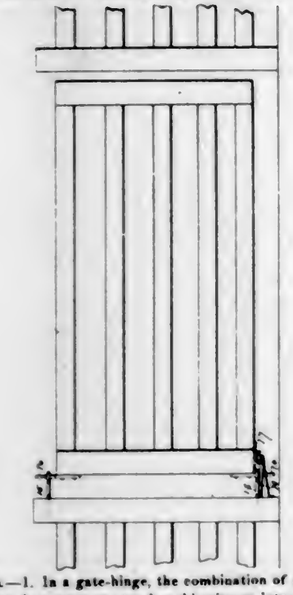
2. In a coal-chute device, the combination of a chute with a discharge-way having an interval between them, an upwardly-cutting gate between the chute and the discharge-way and a movable cover above the gate and over the outer end of the discharge-way.

3. In a coal-chute device, the combination of a bin having a discharge-opening with outwardly-projecting side plates for such discharge-opening, a hinged lid on top of said plates, and an upwardly-cutting gate beneath the hinged lid.

4. In a coal-chute device, the combination of a bin having a discharge-opening with outwardly-projecting side plates for such discharge-opening, a hinged lid on top of said plates, and an upwardly-cutting gate beneath the hinged lid, with a chute beyond the gate.

5. In a coal-chute device, the combination of a coal-bin with a discharge-opening, a hinged chute an upwardly-cutting gate, and a downwardly-turned hood at the outer end of such chute.

753,103. **GATE-HINGE.** Charles Pelmulder, Grant City, Iowa. Filed June 18, 1903. Serial No. 162,066. (No model.)



Claim.—1. In a gate-hinge, the combination of a semicircular frame adapted to serve as a track and having an integral perforated lug at the under side and center of semicircle, a brace fixed to the lug and the frame and brace fixed to a post, as shown and described for the purposes stated.

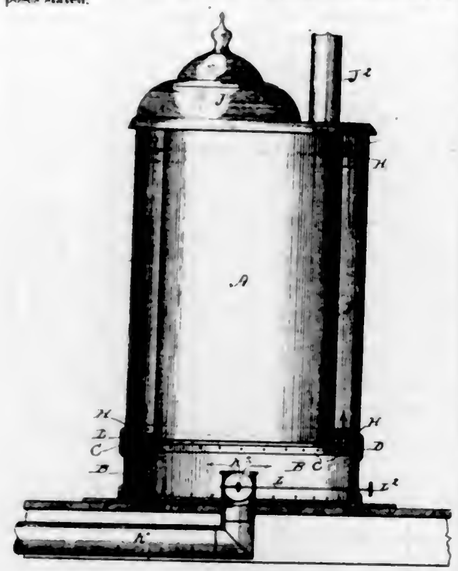
2. A gate-hinge comprising a semicircular frame and track having a perforated ear and a concave in its top and center, a brace fixed to the center of the track and to a post, a hinge-iron fixed to a post, a pintle fixed to a gate and extended through the hinge-iron, a roller-bearer fixed to the gate and a roller journaled to the bearer, as shown and described to operate in the manner set forth for the purposes stated.

753,104. **VENTILATOR ATTACHMENT FOR STOVES.** Charles Pelmulder, Grant City, Iowa. Filed June 26, 1903. Serial No. 163,257. (No model.)

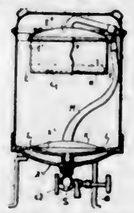
Claim.—1. An attachment for stoves consisting of an air-chamber and base closed at its bottom excepting to provide a pipe-aperture and having a fixed flange at its inside top said flange having apertures for the upward passage of air and a pipe in the bottom of the chamber for the purposes stated.

2. An attachment for stoves consisting of an air-chamber and base closed at its bottom excepting to provide a pipe-aperture and having a fixed flange at its inside top and said flange having apertures for the upward passage of air, a pipe in the bottom of the chamber, a pipe fitted in said aperture, a damper in the pipe and a damper-handle extended to the outside of the chamber, a stove on said perforated flange, a jacket in concentric position with the stove and provided with apertures at its top, arranged and combined as

shown and described to operate in the manner set forth for the purposes stated.



753,105. **COFFEE-URN.** Alexander Phillips and John Phillips, Glasgow, Scotland. Filed June 11, 1901. Renewed Dec. 29, 1903. Serial No. 187,069. (No model.)



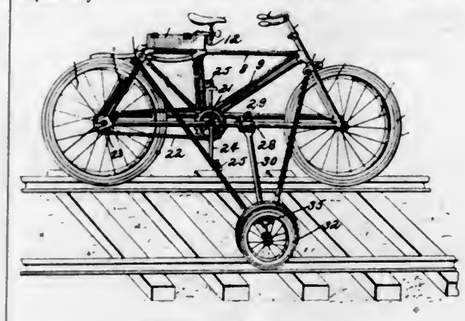
Claim.—In a coffee-urn, the combination, with a closed casing having an outlet at its bottom, and means for heating its said bottom; of a receptacle E for coffee supported in the upper part of the casing and having a bottom G of wire-gauze, a removable sieve G' resting on the said bottom G, a removable straining-cloth H secured under the said bottom G, a removable perforated distributing-cover F supported at the upper part of the receptacle E, a top cover having a central hole over the said cover F, a bent pipe M secured to the casing on one side of the receptacle E, a bent delivery-pipe pivoted to the upper part of the pipe M and having its free end inserted in the said central hole of the top cover, and a concavo-convex plate secured to the bottom end of the pipe M with its periphery arranged a short distance above the said bottom of the casing, substantially as set forth.

753,106. **RAILWAY-VELOCIPEDE.** Charles H. Pierce, Alma, Cal. Filed June 20, 1903. Serial No. 162,411. (No model.)

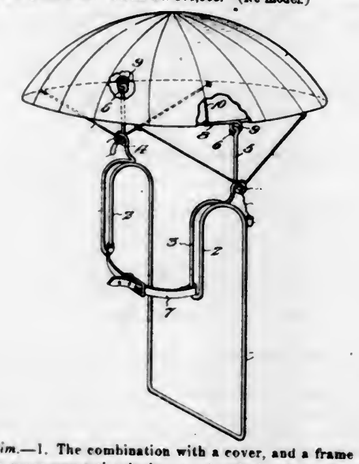
Claim.—1. In a railway-velocipede, the combination with a frame, and wheels journaled in the ends thereof; of a longitudinally-extending rod journaled at one side of the frame, arms at the ends of the rod, a rod hinged to the frame, a wheel journaled at the end of said rod and adapted to bear upon a rail, rods pivoted to the arms and to said hinged rod, and means for rotating the longitudinally-extending rod.

2. In a railway-velocipede, the combination with a frame having wheels journaled in the ends thereof, and means for propelling the wheels; of a rod journaled on one side of the frame, arms extending from the ends of said rod, a rod hinged to the frame, a stem adjustably secured in one end thereof, a wheel journaled upon the stem, ears extending from the hinged rod, rods pivoted to the ears and the arms, and means for rotating the arms and other rod.

3. In a railway-velocipede, the combination with a frame having wheels journaled therein, and means for propelling the wheels; of a revoluble rod journaled upon the frame, means for rotating the rod, arms to the rod, a rod hinged to the frame, a stem adjustably mounted in one end thereof, a wheel journaled upon the stem, and rods pivoted at opposite ends to the arms and the rod of the stem, respectively.



753,107. **UMBRELLA.** Thomas W. Pidcheack, Gibsland, La. Filed Sept. 4, 1903. Serial No. 171,995. (No model.)



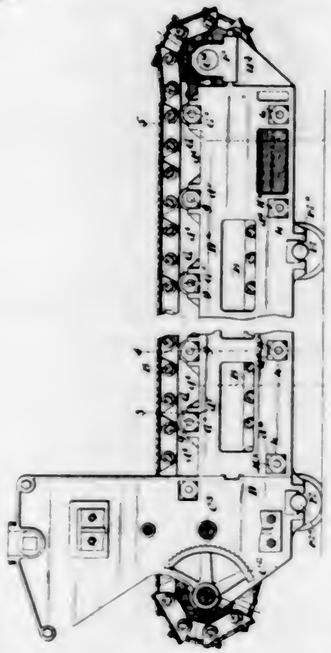
Claim.—1. The combination with a cover, and a frame therefor; of a cover-supporting body-engaging device formed in a single strip of material and comprising arms pivotally connected to opposite sides of the frame, hooks integral with the arms and adapted to receive the shoulders of a person, a U-shaped body integral with and connecting the hooks, a securing-strap connecting the hooks, and stays adjustably secured to the frame and arms.

2. A device of the character described comprising a body portion adapted to extend across the body of a person, hooks integral with the ends of said body portion for engaging the shoulders of a person, arms integral with the hooks and having eyes at their ends, a frame pivotally mounted upon and supported by the arms, a cover upon the frame, flexible stays secured at their ends to the frame and adjustably mounted within the eyes of the arms, means for locking the stays in adjusted position, and a securing-strap connected to the hooks.

753,108. **FURNACE-GRATE.** Herman A. Poppenhusen, Evanston, Ill. Filed Mar. 12, 1903. Serial No. 147,389. (No model.)

Claim.—1. The combination of an endless traveling grate and a supporting-frame therefor having longitudinal side members, the lower lap of the grate being located above the level of the lower edge of said side members with their lower edges separated from the side members to afford longitudinal air-inlet openings between the side margins of said lower lap and the said side members of the frame, for the passage of air to the upper lap of the grate, and said side members at the rear part of the grate being inwardly offset and located closely adjacent to the side edges of said lower lap to lessen the air-supply at such rear part of the grate.

2. The combination of an endless traveling grate, a supporting-frame therefor, having longitudinal side members and furnace side walls provided with recesses to receive said side members, said side members of the frame embracing vertical, web portions which are located closely adjacent to the furnace side walls and are provided with lower, inwardly-extending, horizontal stiffening-flanges and the lower lap of the grate being located above the level of said stiffening-flanges, supporting-rollers for said lower lap of the grate, and bearing-blocks for said rollers which rest on the top of said stiffening-flanges.



3. The combination of an endless traveling grate, and a supporting-frame therefor having longitudinal side members which embrace vertical, web portions, provided with lower, inwardly-extending longitudinal stiffening-flanges, the lower lap of the grate being located above the level of said stiffening-flanges to afford longitudinal openings for admission of air to the upper lap of the grate and said web portions of the side members at the rear part of the grate being inwardly offset and located closely adjacent to the side edge of said lower lap to lessen the air-supply at such rear portion of the grate.

4. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members, which embrace vertical web portions provided with upper and lower, horizontal, inwardly-extending stiffening-flanges, the upper lap of the grate being located above the level of the upper stiffening-flanges and the lower lap of the grate being located above the level of the lower stiffening-flanges, supporting-rollers for the upper and lower laps of said grate and bearing-blocks for said rollers which rest upon and are supported by said upper and lower flanges.

5. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members which are provided with vertical web portions having horizontally, longitudinal inwardly-extending stiffening-flanges, supporting-rollers for the grate, and bearing-blocks for the said supporting-rollers, said frame members being provided with sockets to receive the bearing-blocks formed by means of transverse flanges which rise from the said longitudinal flanges.

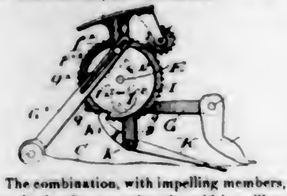
6. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members which are provided with vertical web portions having horizontally-arranged, longitudinal stiffening-flanges, supporting-rollers for the grate and bearing-blocks for said supporting-rollers, said frame being provided with sockets to receive the bearing-blocks formed by means of transverse flanges which rise from the said longitudinal flanges, said bearing-blocks having a plurality of flat faces at uniform distances from the central axis of the rollers to enable the said blocks to be placed in said sockets and a plurality of positions.

7. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members which are provided with vertical web portions having horizontally-arranged, longitudinal stiffening-flanges, supporting-rollers for the grate and bearing-blocks for the ends of the said supporting-rollers, said frame members being provided with sockets to receive the bearing-blocks formed by means of transverse flanges which rise from the said longitudinal flanges and said bearing-blocks and the said sockets being provided with interfitting grooves and projections to hold the bearing-blocks from movement in a direction endwise of the rollers.

8. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members which are provided with vertical web portions having horizontally-arranged, longitudinal stiffening-flanges, supporting-rollers for the grate, and bearing-blocks for the ends of the said supporting-rollers, said frame being provided with sockets to receive the bearing-blocks formed by means of transverse flanges which rise from the said longitudinal flanges, said bearing-blocks being provided with a plurality of flat faces arranged at uniform distances from the central axes of the rollers, all of the flat faces of the blocks and the said sockets being provided with interfitting grooves and ribs to hold the blocks from movement in a direction endwise of the rollers.

9. The combination of an endless traveling grate, a supporting-frame therefor having longitudinal side members which embrace vertical web portions having lower inwardly-extending horizontal stiffening-flanges, supporting-rollers at the lower lap of the grate, bearing-blocks for said rollers which rest upon and are supported by the said horizontal, lower stiffening-flanges, said lower stiffening-flanges being provided with transverse flanges which rise from the same to form sockets to receive the said bearing-blocks and the vertical, web portions of the side members being provided with openings opposite said sockets to receive the outer ends of said bearing-blocks.

753,109. **TOY.** HERMAN A. POPPENHUSEN, Chicago, Ill. Filed May 1, 1903. Serial No. 156,139. (No model.)



Claim.—1. The combination, with impelling members, of a shaft provided with crank-pins for operating the said impelling members, a spring applied to turn said shaft, a rotative disk which turns with the shaft, provided with a shoulder and a pivoted trigger engaging said shoulder to hold the disk and shaft from rotation and adapted to be released from said disk by contact of the toy with a supporting-surface.

2. The combination with oscillatory impelling members, of a shaft to which said members are attached, an arm rigid with said shaft, a spring-actuated disk provided with a crank-pin which engages a slot in said arm, said disk being provided with a shoulder and a pivoted trigger adapted to engage said shoulder.

3. The combination with front and rear oscillatory impelling members, two shafts to which said impelling members are attached, an arm attached to each of said shafts, a spring-actuated shaft, disks attached to the opposite ends of said shaft, crank-pins which project outwardly from the disks and engage said arms, one of said disks having a shoulder, and a trigger adapted to engage said shoulder.

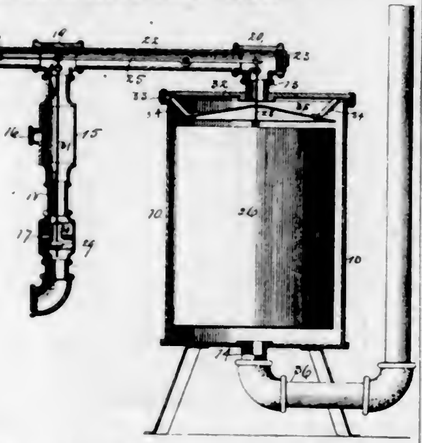
4. A toy embracing a hollow body simulating an animal, front and rear shafts mounted in said body, impelling members attached to the shafts, arms attached to the shafts, a spring-actuated driving-shaft provided with crank-pins which engage and give oscillatory movement to said arms, a disk on said shaft provided with a shoulder, and a pivoted trigger adapted at one end to engage said shoulder and at its other end to engage a supporting-surface.

5. The combination with front and rear oscillatory impelling members, two shafts to which said impelling members are attached, an arm attached rigidly to each shaft, a spring-actuated shaft, disks attached to the opposite ends of said spring-actuated shaft, said arms being provided at their inner ends with slots, crank-pins projecting outwardly from said disks, and each engaging the slot of one of said arms, one of said disks having a shoulder and a trigger adapted to engage said shoulder.

6. The combination with front and rear oscillatory impelling members, two shafts to which said impelling members are attached, an arm attached rigidly to each shaft, a spring-actuated shaft, disks attached to the opposite ends of said spring-actuated shaft, said arms being provided at their inner ends with slots, crank-pins projecting outwardly from said disks, and each engaging the slot of one of said arms, one of said disks having a shoulder and a pivoted trigger adapted to engage said shoulder and to be released therefrom by contact of the toy with a supporting-surface.

7. A jumping toy comprising a frame having downwardly-projecting side members attached to the body of the toy, a shaft extending between and having rotative bearing in said side members, a spring applied to said shaft to rotate the same, means for winding said spring, two disks, one on each end of said shaft, outside of said frame members, crank-pins on said disks, front and rear oscillatory impelling members, two shafts to which said impelling members are attached, arms rigid with said shafts and adapted for engagement with the crank-pins of the disks, one of said disks being provided with a shoulder and a trigger pivoted to said frame and adapted for engagement with said shoulder of the disk.

753,110. **AUTOMATIC GAS-REGULATOR.** FRANK W. PRIESTLEY, JAMES KEPHART, and FRANK M. MERCHANT, Webster City, Iowa, assignors to the Iowa Gas Plant Company of Webster City, Iowa. Filed May 18, 1903. Serial No. 157,745. (No model.)

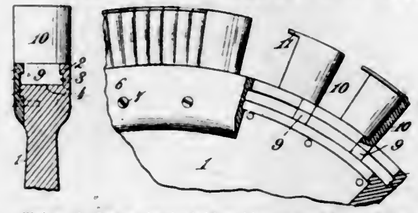


Claim.—1. In a gas-regulator, a main mixing-chamber, a removable head, a ring fixed under the head and a cone-shaped deflector connected with the ring and an air-tight float suspended under the head, a tube fixed in the top and center of the head and an elongated chamber extended horizontally from the top of said tube, a lever fulcrumed in said elongated chamber and its short arm connected with said float, and an adjustable weight on the end of its long arm for operating a valve, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a gas-regulator, a main mixing-chamber, a removable head, a ring fixed under the head and a cone-shaped deflector connected with the ring and an air-tight float suspended under the head, an elongated chamber extended horizontally from the center of the head, a lever fulcrumed in said elongated chamber and its short arm connected with said float, an adjustable weight on the end of its long arm for operating a valve, a minor mixing-chamber connected with the said elongated chamber and adapted to be connected with a carbureter, a valve-chamber at the bottom of said minor mixing-chamber, a valve fitted to a valve-seat in said valve-chamber and a valve-stem fixed to the valve and connected with the long arm of the lever, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a gas-regulator, a main mixing-chamber, a removable head, a ring fixed under the head and a cone-shaped deflector connected with the ring and an air-tight float suspended under the head, an elongated chamber extended horizontally from the center of the head, a lever fulcrumed in said elongated chamber and its short arm connected with said float, an adjustable weight on the end of its long arm for operating a valve, a minor mixing-chamber connected with the said elongated chamber and adapted to be connected with a carbureter, a valve-chamber at the bottom of said minor mixing-chamber, a valve fitted to a valve-seat in said valve-chamber and a valve-stem fixed to the valve and connected with the long arm of the lever and a discharge-pipe at the bottom of the main mixing-chamber, arranged and combined to operate in the manner set forth for the purposes stated.

753,111. **TURBINE-WHEEL.** JAMES WILKINSON, Birmingham, Ala., assignor to the Wilkinson Steam Turbine Company, a Corporation of Alabama. Filed July 31, 1903. Serial No. 167,733. (No model.)



Claim.—1. In an elastic-fluid turbine, a vane-bearing element, in combination with a row of compound overlapping vanes detachably mounted in said element.

2. In an elastic-fluid turbine, a vane-bearing element, in combination with a row of compound two-speed vanes detachably mounted in said element.

3. In an elastic-fluid turbine, a vane-bearing element, in combination with a row of compound two-speed and reversing vanes detachably mounted in said element.

4. In an elastic-fluid turbine, a vane-bearing element, a plurality of compound vanes detachably secured therein, each comprising a plurality of concavo-convex buckets, a spacer base-block, and abutments between said buckets.

5. In an elastic-fluid turbine, a vane-bearing element, a plurality of compound vanes detachably secured therein, each comprising a plurality of buckets of varying dimensions.

6. In an elastic-fluid turbine, a vane-bearing element, a plurality of compound vanes detachably secured therein, each comprising a plurality of buckets some of which are detachably mounted in said compound vane.

7. In an elastic-fluid turbine, a vane-bearing element having a row of circumferential vanes around its periphery, and an outer row of vanes detachably mounted on the vanes of said first-mentioned row.

8. In an elastic-fluid turbine, a vane-bearing element, a row of full-speed vane elements peripherally mounted thereon, and a plurality of rows of fractional-speed vanes detachably mounted on the elements of said first-mentioned row.

9. In an elastic-fluid turbine, a row of compound vanes detachably mounted in a vane-bearing element, each comprising reversely-disposed buckets whose sides overlap the sides of adjacent buckets in their respective rows, integral spacer-blocks interposed between said buckets, and a base-block.

10. In an elastic-fluid turbine, a vane-bearing element, a row of compound reversing-vanes peripherally mounted thereon, two rows of small vanes mounted in parallelism on said compound vanes, and stationary intermediates between said rows of small vanes.

11. In an elastic-fluid turbine, a vane-bearing element, vanes having oppositely-disposed buckets peripherally mounted thereon, head-blocks on the outer ends of said vanes, small vanes mounted on said blocks and disposed to form two parallel circumferential rows, and a row of stationary intermediates between said parallel rows.

753,112. **BOLSTER.** JAMES S. ANDREWS, St. Louis, Mo., assignor to Separable Body Bolster Company, St. Louis, Mo., a Corporation. Filed Sept. 23, 1901. Serial No. 76,246. (No model.)

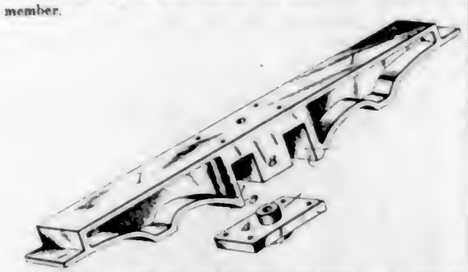
Claim.—1. A car-bolster having a recessed under side with draft-timbers located in the recessed portion and a compression part also in said recessed portion.

2. A car-bolster having a recessed under side with draft-timbers located in the recessed portion and a compression part also in said recessed portion between the draft-timbers.

3. A car-bolster having a recessed under side with draft-timbers located in the recessed portion and a compression part also in said recessed portion holding the draft-timbers in place.

4. A cast body-bolster for railway-cars having draft-timbers inserted into and removably secured in the under side thereof.

5. A body-bolster for railway-cars having an open recess on its under side to receive draft-timbers and a filler-block or compression member.



6. A body-bolster for railway-cars constructed with a recess on its under side, a compression part in said recess leaving spaces on opposite sides thereof and draft members in said spaces between the compression part and the sides of the recess.

7. In a body-bolster for railway-cars the combination of a bolster having a recess on its under side, draft-timbers in said recess and a two-part compression member, one part of which is located in a a recess between the draft members and the other part of which closes the lower portion of the recess and is removable.

8. In a body-bolster for railway-cars the combination of a bolster having a recess on its under side, draft-timbers in said recess and a two-part compression member, one part of which is located in a recess between the draft members and the other part of which closes the lower portion of the recess and is removable and extends from side to side of the recess beneath the timbers.

9. A body-bolster having its central lower portion removable whereby the draft-timbers can be taken out without removing their connecting-bolts, substantially as set forth.

10. A cast body-bolster having recesses for the draft-timbers, and a removable portion beneath the draft-timbers, substantially as and for the purpose set forth.

11. A body-bolster having recesses for the draft-timbers, and a removable section set into the body of the bolster beneath the draft-timbers, substantially as set forth.

12. A body-bolster having recesses for the draft members, and a removable section set into the body of the bolster, and having a stud fitting in a socket in the central part of the body, substantially as set forth.

13. A body-bolster, composed of a casting having a recess formed in its under side adapted to receive the draft members, and a combined center plate and compression-block adapted to be located within said recess, substantially as specified.

14. A body-bolster for railway-cars, consisting of a casting having a recess formed in its under side adapted to receive the draft members, and a center bearing removably located in said recess, substantially as specified.

15. A body-bolster for railway-cars consisting of a casting having downward and outward extensions at its ends, and provided with a recess in its under side adapted to receive the draft members, a combined center bearing and compression-block located in said recess and means for holding the said center bearing and compression-block in position thereon.

16. A body-bolster for railway-cars, comprising a casting consisting of a top member, lower members having their outer ends formed integral with the top and integral connections connecting the inner ends of the lower members with the top and there being a recess or space between the connections which connect the inner ends of the said lower members with the top, and a removable center bearing and compression-block adapted to be located in said recess, substantially as specified.

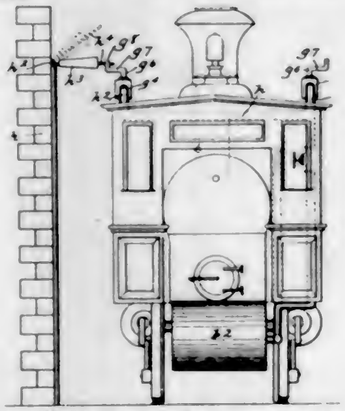
17. A car-bolster for railway-cars, comprising a casting consisting of a top having downward and outward extensions integral with its ends, lower members having their outer ends formed integral with the said extensions, integral connections connecting the inner ends of the lower members with the top, there being a recess or space between the said members adapted to receive the draft members, a combined center bearing and compression-block located within said recess or space, and means for holding the said center bearing and compression-block in position, substantially as specified.

753,113. MOUTHPIECE FOR VOICE-PIPES. THOMAS W. BATTIN, Philadelphia, Pa. Filed July 29, 1902. Serial No. 117,548. (No model.)

Claim.—A mouthpiece for a voice-pipe comprising a body having a surrounding guard-flange and a laterally-projecting flange on one of its ends, said body having alining apertures in advance of the guard-flange, a gravitating gate or telltale hinged to the body and disposed over one of the apertures, a signal communicating with the other opening, an outstanding shoulder extending from the face of the body, an eccentric closing-plate having an opening through its lower extremity pivoted to the end flange of the body, a receiver secured in the opening in the plate, and a stop-lug on the plate opposite the location of its pivotal point adapted to engage the outstanding shoulder extending from the body.



753,114. AIR-BRAKE-OPERATING DEVICE. GEORGE J. BERBERT, New York, N. Y. Filed Jan. 8, 1903. Serial No. 138,190. (No model.)



Claim.—The combination with a railway-engine provided with the usual air-brake apparatus, of pipes connected with said apparatus and extending upwardly through the top of the cab at the opposite sides thereof, and valve-casings connected with said pipes above the top of the cab and provided with valves having laterally-directed arms adapted to be operated by a semaphore arm or signal located at the side of the track when in a position to indicate danger, substantially as shown and described

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753,115. LIGHTING-RING. ATWELL J. BLACKFORD, Cleveland, Ohio, assignor to American Stove Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 3, 1903. Serial No. 159,955. (No model.)

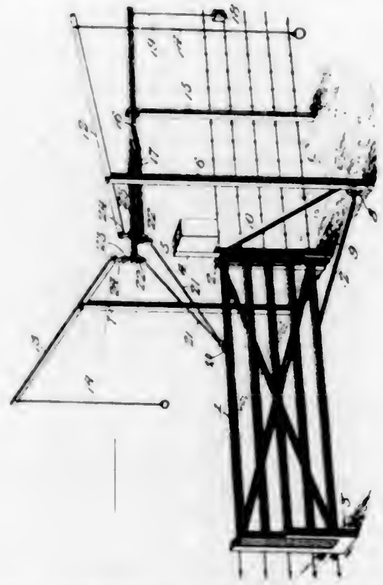


Claim.—1. An initial lighting device for hydrocarbon-burners, composed of interwoven threads of asbestos and wire whereby both the wire and asbestos threads form the side-exposed surfaces thereof, the wire threads being arranged in crosswise relation in respect to themselves.

2. A horizontally-arranged initial lighting device for hydrocarbon-burners, composed of interwoven threads of asbestos and wire, whereby the asbestos and wire threads form the side-exposed surfaces thereof, the asbestos threads extending vertically and the wire threads extending in crosswise relation in respect to themselves and in respect to said asbestos threads.

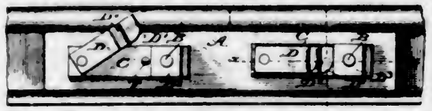
3. An initial lighting device for hydrocarbon-burners composed of interwoven threads of asbestos and wire, the said threads so arranged that both the asbestos and wire threads compose the exposed side surfaces of said device.

753,116. GATE. ASA A. BRADBURY, Exter, N. Mex. Filed Apr. 11, 1903. Serial No. 152,223. (No model.)



Claim.—The combination of a gate pivotally supported at its inner end and having a counterbalancing-weight directly at the upper portion of this end, uprights on opposite sides of said pivoted end of the gate, and another upright in rear of and in alinement with the gate, operating-levers pivotally mounted on the upper ends of said opposite uprights, an auxiliary operating-lever mounted at an intermediate point thereof on the upper end of the said rear upright, and having an inner bifurcated end and a weighted outer end, said main operating-levers having their inner ends above the extremities of the said bifurcated end of the auxiliary lever, and links connecting said extremities to said inner ends of the main levers, and connecting-rods extending from said links to the upper edge of the gate, said gate having a side brace extending to and having pivotal movement on the lower part of one of said opposite uprights.

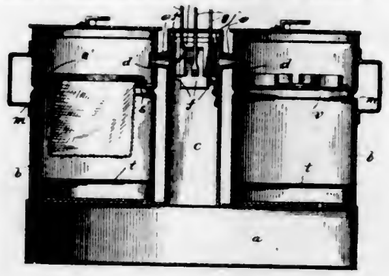
753,117. NUT-LOCK. JOSEPH D. BRENT, Raymond, Miss. Filed Nov. 10, 1903. Serial No. 180,549. (No model.)



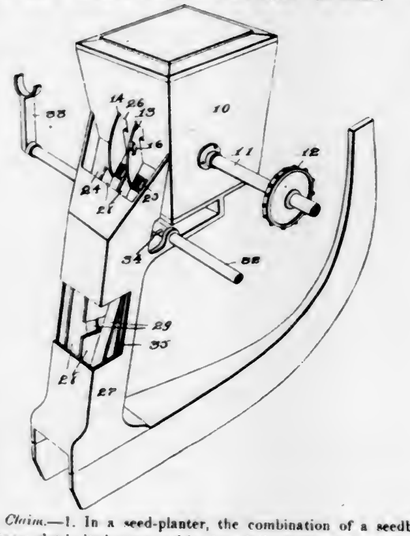
Claim.—The combination with the bolt and nut, of a perforated plate adapted to receive the bolt, a longitudinally-yieldable spring turn-button on the said plate, a projection on the plate and a recess in the turn-button, substantially as described.

753,118. STEAM-COOKER. CLINTON H. BURTON, St. Louis, Mo. Filed July 3, 1903. Serial No. 164,223. (No model.)

Claim.—In a steam-cooker, the combination with a base-reservoir having a central upwardly-projecting steam-dome provided with radial conical laterally-projecting nipples on the sides thereof, said reservoir having a flat upper surface, of a plurality of cooking vessels adapted to rest upon said upper surface and having lateral openings in their side walls in alinement with the nipples of said dome, and valves controlling the openings of said nipples and grouped at the upper portion of said dome, substantially as specified.



753,119. SEED-PLANTER. HENRY S. BUTLER, Des Moines, Iowa. Filed Jan. 16, 1902. Serial No. 89,969. (No model.)



Claim.—1. In a seed-planter, the combination of a seedbox having a slot in its bottom and back and also having an opening in the bottom beside the slot, a chute extending downwardly and rearwardly from the rear of the box, said chute also having a slot and an opening, and a disk rotatably mounted within the seedbox and passing through the slot in the back and bottom of the box and the slot in the chute, pockets on the sides of the disk near its periphery to pass through the said openings, and brushes covering the openings in the bottom of the seedbox and in the said chute, for the purposes stated.

2. In a seed-planter, a planter-leg having a number of independent vertically-arranged compartments open at the top and bottom of the leg, means for independently supporting seeds in each compartment at the bottom of the planter-leg, and means for simultaneously dropping all of the seeds thus supported.

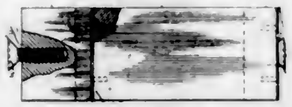
3. In a seed-planter, the combination of a planter-leg having a number of vertical, longitudinal partitions, and a number of horizontal partitions 30 at the bottom of the planter-leg, a hollow seed-dropper 31 above each of the partitions 30, and means for simultaneously operating all of said seed-droppers.

4. In a seed-planter, the combination of a planter-leg having a number of vertical longitudinal partitions and a number of horizontal partitions 30 at the bottom of the planter-leg, a hollow seed-dropper 31 above each of the partitions 30, means for simultaneously operating said seed-droppers and an adjustable plate 36 at the top of each of the partitions 30.

5. In a seed-planter, a planter-leg having separate compartments arranged side by side to receive seeds and to conduct them to the bottom of the leg and maintain them separated from each other, a runner at the bottom of said leg having on its under sur-

face a number of longitudinal ribs, said compartments in the leg discharging through the runner at points between the ribs.

753,120. GAGE. JOSEPH J. BUTTERWORTH, Chicago, Ill. Filed Feb. 12, 1903. Serial No. 143,007. (No model.)



Claim.—1. A gage comprising a solid body, a plurality of transverse integral shoulders thereon, a wear-plate on each of said shoulders and a cutter in each end of said body longitudinally adjustable with respect to said shoulders, said body being tapered at its ends to permit the cutters to overhang said shoulders.

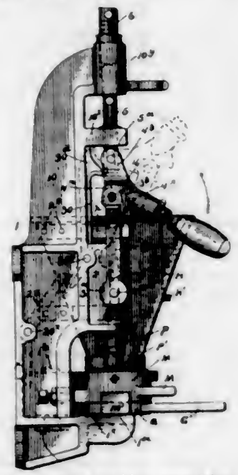
2. In a device of the class described a rigid body, a plurality of transverse shoulders thereon, a wear-plate on each of said shoulders, a screw engaged in the end of and movable longitudinally of said body and an integral cutting-head on said screw and adjustable thereby with respect to said shoulders.

3. In a device of the class described the combination with a rigid body having a plurality of integral transverse shoulders thereon, a wear-plate permanently secured on each of said shoulders, a screw of uniform diameter seated and longitudinally movable in the end of said block and a circular, peripherally-sharpened head on said screw adjustable with respect to either of said shoulders.

4. In a gage the combination with a rigid body of wood or the like, of a plurality of transverse metal-lined shoulders facing toward opposite ends thereof, a screw engaged in each end of said block axially thereof, a cutting edge on the heads of each screw adjustable with respect to said shoulders, one or both of the extremities of the gage serving to scribe for thickness.

5. In a device of the class described the combination with a rigid body of wood or the like, of a plurality of transverse metal-lined shoulders arranged on each side of said body and facing the ends at distances from the ends with the hinge thickness of various doors, an untapered screw seated axially in each end of said body and a cutting edge on the outward extremity of each of said screws adjustable with respect to said shoulders and the ends of the body which may also be used for scribing purposes.

753,121. CUPEL-MAKING MACHINE. ALBERT C. CALKINS, Los Angeles, Cal., assignor to the Calkins Company, Los Angeles, Cal., a Corporation of California. Filed June 26, 1902. Renewed July 28, 1903. Serial No. 167,356. (No model.)



Claim.—1. cupel-making machine, comprising a main frame, a feed-hopper, a reciprocating plunger mounted on the main frame, a two-part mold swingable alternately under the hopper and plunger, and comprising an upper member having a vertical aperture or cell, a lower solid body that forms a false bottom for the said cell, the said upper and lower portions having interengaging members, whereby the two can be moved in unison, and means for supporting the said upper and lower members for movement independent of each other, and means for imparting a compressing movement to the plunger, as set forth.

2. In a compressing-machine as stated, a plunger, a lever joined to the plunger, said lever having a positive bearing for effecting a predetermined thrust of the plunger, and an automatically-shiftable resistance-bearing for the said lever, adapted to adjust the lever to effect a further thrust movement of the plunger, as set forth.

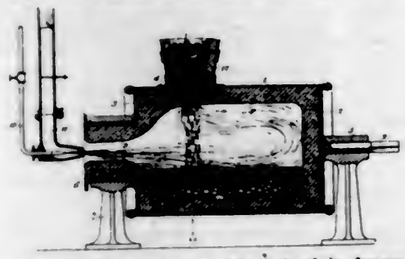
3. In a compressing-machine of the character described, a main frame, a plunger mounted thereon, a mold, having an aperture adapted to be set in axial alinement with the plunger, a movable bottom for the mold, a toggle mechanism including a bearing cooperating with the plunger for effecting a compression movement thereof, and an automatically-shiftable resistance bearing-point for the toggle mechanism controlled by the adjustment of the movable bottom for the mold, as set forth.

4. In a machine of the character described, the combination with the main frame, the cupel-carrying mold, said main frame having a vertical socket, said socket having oppositely-disposed slots said slots comprising perpendicular portions and lower tangentially-directed ends, a plunger movable in the said socket, having lateral studs for moving within the slots of the socket, a yoke for straddling the socket and engaging the plunger-studs, and a toggle mechanism including an actuating-lever connected with the said yoke, substantially as shown and for the purposes described.

5. In a machine as described, the combination with the main frame, said frame including a socket 2, having oppositely-disposed vertical slots 2^a, said slots having their lower ends deflected from a perpendicular, the tail-rod mounted in the upper end of the main frame, in axial alinement with the slotted socket, said tail-rod having a transverse fulcrum-pin at its lower end, a toggle-lever pivotally connected with the said fulcrum-pin, a plunger movable in the socket, having lateral studs engaging the slots in the socket, a yoke pivotally connected to the said studs at one end, its other end being pivotally joined with the toggle-lever, and a shiftable bearing mounted on the main frame adapted to be swung over in the vertical path of movement of the tail-rod fulcrum-pin, all being arranged substantially as shown and described.

6. In a machine as described, the combination with the main frame, the mold M having a vertical cell extending therethrough, the gate G, said mold and gate having a common fulcrum-point and swingable in a horizontal plane, the gate having a cam member, the rocking lever 20, fulcrumed on the main frame and having a portion for engaging the cam on the gate, the socket 2, forming a part of the main frame, having oppositely-disposed vertical slots, whose lower ends deflect from a perpendicular, a tail-rod movable in the vertical axis of the socket, and having a fulcrum-pin 5^a at the lower end and extended laterally at one side, a plunger vertically movable in the socket of the main frame, said plunger having lateral studs for engaging the slots in the socket in which it travels, a yoke having its pendent portions pivotally connected with the said studs, a toggle-lever pivotally connected with the upper end of the yoke, and having an angle member for engaging the fulcrum 5^a of the tail-rod, the spring-actuating lever 30, having the hook 30^a, and having a heel portion for engaging with the lever 20, a spring for normally forcing the hook end 30^a, of the lever 30, over the projecting end of the fulcrum-pin 5^a, when said pin is lowered in a plane below the said hook end, all being arranged substantially as shown and described.

753,122. MELTING-FURNACE. HENRI J. J. CHARLIER, Philadelphia, Pa. Filed Aug. 9, 1902. Serial No. 119,016. (No model.)

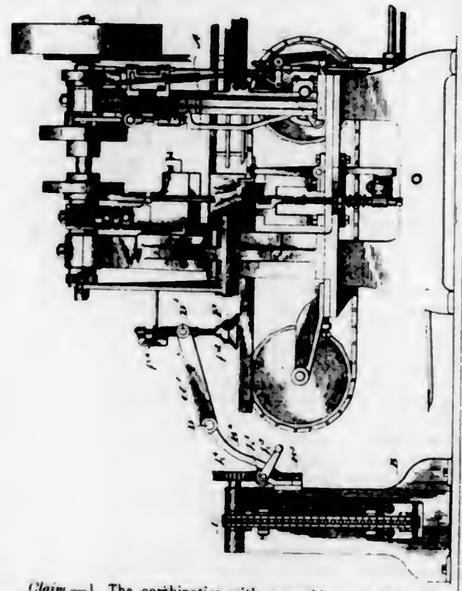


Claim.—1. The combination of the body of the furnace having at one end an opening for receiving the products of combustion, with a charging-hopper through which the products of combustion escape from the furnace, said charging-hopper being located adjacent to that end of the furnace which receives the products of combustion, whereby a reverberating effect of the latter within the body of the furnace is obtained, substantially as specified.

2. The combination of the body of the furnace pivotally mounted so as to turn about its longitudinal axis and having at one end an axial opening for receiving gaseous products of combustion, with a combined feeding and pouring opening located in the peripheral portion of the body of the furnace closer to that end of the same which receives the products of combustion than to the other end, substantially as specified.

3. The combination of the body of a furnace pivotally mounted so as to turn about its longitudinal axis and having at one end an axial opening for receiving gaseous products of combustion, with a combined vent and pouring opening located in the peripheral portion of the body of the furnace closer to that end of the same which receives the products of combustion than to the other end, substantially as specified.

753,123. AUTOMATIC VACUUM AND SUCTION FEED MECHANISM. ARNOLD D. COLEMAN, Chicago, Ill. Filed Mar. 18, 1901. Serial No. 51,746. (No model.)



Claim.—1. The combination with a machine to be fed, of an endless conveyer adapted to move a stack of blanks upwardly to feeding position, means for supporting said conveyer, means operated by pneumatic pressure adapted to engage said blanks by impact and to adjust the same one by one in the receiving-machine and means for releasing said blanks from the carrier when so adjusted.

2. In a machine of the class described, the combination with a rock-shaft, of an arm secured thereon, a vacuum-cup carried by said arm, means acting to prevent the inversion of said vacuum-cup, an endless-chain conveyer, means acting to oscillate said arm and vacuum-cup into position to engage and lift a blank from said conveyer and carry it to a discharge position and means for releasing the blank therefrom.

3. The combination with an endless-chain conveyer of an oscillating arm, a sleeve secured thereon, a vacuum-cup movably secured in said sleeve, means adapted to retain said vacuum-cup at all times in a vertical position independent of the position of the arm and means for oscillating said arm to bring said cup into engagement with a blank on said conveyer and to swing the same with a blank to a discharging position.

4. The combination with an endless-chain conveyer, of a rack-bar, a horizontal shaft operated thereby, a radial arm rigidly secured on said shaft, a sleeve secured thereon, a vacuum-cup movably secured in said sleeve and adapted to receive partial rotation about said shaft, means adapted to hold said cup in a vertical position during said rotation, and means for exhausting the air from the cup by the impact of its engagement with the blank.

5. The combination with a frame, of oppositely-movable conveyers therein a horizontal shaft journaled in said frame, means adapted to impart a partial rotation to said shaft, a radial arm rigidly secured on the shaft, a swinging vacuum-cup therein means for holding the cup vertically during the rotation of the shaft, means for producing a vacuum in said cup operated solely by impact thereof on a blank in said conveyers and means for discharging the blank when the cup is at the limit of its movement from said conveyers.

6. In a device of the class described the combination with a supporting-frame of endless-chain conveyers carried thereon, means for moving a plurality of blanks upwardly therein, a feed mechanism comprising a rock-shaft journaled transversely in said frame, an arm rigidly secured on said rock-shaft, means operated from a receiving-machine acting to actuate said rock-shaft and means secured on said arm and operated by atmospheric pressure for engaging said blank and feeding the same singly to said receiving-machine.

7. In a device of the class described, the combination with a frame of an endless chain, lugs on said chain, tables adapted to be engaged thereby and carry a plurality of blanks into position for engagement, of a feed mechanism, a rock-shaft, an arm rigidly secured thereon, means operated from the receiving-machine for actuating said rock-shaft and arm, means carried on said arm and operated by atmospheric pressure for successively engaging said blank and feeding the same singly to the receiving-machine and means carried on said receiving-machine acting to release each blank from the feed mechanism when adjusted in position on the receiving-machine.

8. In a machine of the class described, the combination with the frame, of a rock-shaft journaled thereon, an arm rigidly secured on said rock-shaft, automatic carrying means journaled at the extremity of said arm and operated by pneumatic pressure, means for oscillating said rock-shaft operated from a receiving-machine and means also operated from the receiving-machine acting to hold said automatic carrying means at all times in a vertical position.

9. In a machine of the class described, the combination with a supporting-standard, of means for moving a plurality of blanks into position to be engaged by the carrying means and means also supported on said frame for engaging said blanks when lifted and acting to spring said blanks thereby separating the blank engaged from the succeeding blanks.

10. In a machine of the class described, the combination with automatic feeding mechanism, of a supporting-frame, ways secured thereon, chain conveyers movable in said ways, means journaled in the frame acting to move said conveyers oppositely and acting normally to move a plurality of blanks into position to be engaged by the feeding mechanism, means acting to separate succeeding blanks from that engaged by the feeding means, said feeding means and the means for moving the blanks thereto being operated from a receiving-machine.

11. In a machine of the class described the combination with a feed mechanism operated by atmospheric pressure, of a supporting-frame, a shaft journaled therein, a right and left worm carried on said shaft, an endless-chain conveyer carried on each worm and adapted to move a plurality of blanks upwardly to the feed mechanism, said conveyers and feed mechanism actuated from a receiving-machine and said conveyer being provided with means for actuating the the same manually.

12. In a machine of the class described means for moving a plurality of blanks upwardly to a feed mechanism comprising a supporting-frame, ways secured thereon, a removable carriage secured between said ways and endless-chain conveyers engaging said carriage at each end thereof and moving the same upwardly into operative position said means being actuated normally from a receiving-machine and means adapted to be actuated manually for accelerating the upward movement of said carriage.

13. In a machine of the class described, means for moving a plurality of blanks into a position to be fed comprising oppositely-driven sprocket-chains on each side of a supporting-frame, a carriage adapted to be actuated by said chains, means for driving said chains normally comprising a shaft adapted to be rotated from a receiving-machine, interacting means on said shaft and the chain-driving shafts and a crank adapted to be normally actuated on said first-mentioned shaft.

14. In a machine of the class described means for moving a plurality of blanks upwardly into position to be fed comprising a supporting-frame, a shaft journaled on each side of the same and adapted to actuate oppositely-movable sprocket-chains, a carriage adapted to support the blanks and to be moved upwardly by said chains,

gears on said shafts and worms driven from a machine coacting with said gears.

15. In a machine of the class described the combination with a support for a plurality of blanks of a feed mechanism comprising a rock-shaft, arms piroted thereon, a vacuum-cup movably supported from said arms, means operated from a receiving-machine for oscillating said arms and cup into engagement with a blank and into position to deposit the same in said receiving-machine and means for holding said vacuum-cup vertically during such oscillation comprising a shaft journaled on one of said arms parallel therewith and provided on its extremity with bevel-gears one of which engages a non-rotative bevel-gear on the frame the other of which engages a bevel-gear rigidly connected with the vacuum-cup.

16. In a machine of the class described, the combination with an oscillating vacuum-cup adapted to lift a blank from a package of the same and swing the same to a receiving-machine, means operated from the receiving-machine for oscillating the vacuum-cup comprising a longitudinally-movable rack-bar, a plurality of cogs on its upper surface adapted to engage a coacting pinion acting to drive the feed mechanism.

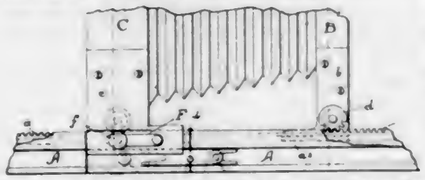
17. In a machine of the class described the combination with a supporting-frame, of a feed mechanism secured on said frame comprising a transverse rock-shaft, rigid arms thereon provided at their outer ends with means for engaging rigidly a blank, means for oscillating said arms comprising a reciprocating rack-bar operated from a receiving-machine, a pinion on said rock-shaft adapted to be engaged by said rack-bar and means also operated from said receiving-machine for moving the blanks upwardly into position to be engaged comprising a reciprocating rod driven from said rock-shaft and acting to rotate the elevating mechanism.

18. In a machine of the class described, means for moving a plurality of blanks upwardly into position to be fed comprising rotatable right and left worms, a rock-shaft having secured thereon a feed mechanism, a pinion on said rock-shaft, a rack-bar engaging said pinion, said rock-shaft being provided at its extremity with an adjustable reciprocating connecting-rod operatively engaging a lever provided with a pawl, a ratchet operatively connected with said worms and engaged by the pawl whereby the reciprocation of said rack-bar acts to oscillate said rock-shaft and rotates said worms.

19. In a machine of the class described, a vacuum-cup, a resilient margin therefor, a hollow stem connected therein, a spring-actuated valve at the top of said stem adapted to be lifted as the air is compressed within said vacuum-cup and means on said valve adapting the same to be lifted thereby permitting the escape of air from said cup when in its raised discharging position and a spring-actuated, longitudinally-movable, sleeve on said stem.

20. In a device of the class described, a vacuum feed mechanism comprising an outer cup, an inner cup complemental therewith, a resilient flange or ring rigidly engaged between the margins of said cups, a hollow extensible stem connected with said cup, a spring acting to hold said stem normally in its extended position, a valve at the top of said stem adapted to be lifted when the air is compressed within said cup by impact upon a blank or the like and adapted to close automatically when the pressure is equalized, and a projection on said valve adapted to be engaged by a part on a receiving-machine when the device is swung to the discharging position.

753,124. CAMERA. WILLIAM H. COOLEY, Brockport, N. Y. Filed Sept. 3, 1903. Serial No. 171,789. (No model.)



Claim.—1. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, such bed-plates having thereon a rack arranged to be engaged by pinions carried by shafts revolubly supported in suitable bearings carried upon such camera elements, a suitable bolt cooperating with guiding and locking surfaces therefor in such bed-plates and arranged, when in its operative position, to hold the sections of such camera-bed in their opened-out position, one of the supporting and guiding plates on one of such camera elements carrying a spring-catch arranged to engage a cooperating locking-surface on one of such bed-plates when the element carrying such supporting and guiding plate is in its normal position for folding up the sections of such camera-bed.

2. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out.

3. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surface cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, such bed-plate having thereon a rack arranged to be engaged by pinions carried by shafts revolubly supported in suitable bearings carried upon such camera elements.

4. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, such bed-plate having thereon a rack arranged to be engaged by pinions carried by shafts revolubly supported in suitable bearings carried upon such camera elements, a suitable bolt cooperating with guiding and locking surfaces therefor in such bed-plates and arranged, when in its operative position, to hold the sections of such camera-bed in their opened-out position.

5. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, a suitable bolt cooperating with guiding and locking surfaces therefor in such bed-plates and arranged, when in its operative position, to hold the sections of such camera-bed in their opened-out position, one of the supporting and guiding plates on one of such camera elements carrying a spring-catch arranged to engage a cooperating locking surface on one of such bed-plates when the element carrying such supporting and guiding plate is in its normal position for folding up the sections of such camera-bed.

6. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, such bed-plate having thereon a rack arranged to be engaged by pinions carried by shafts revolubly supported in suitable bearings carried upon such camera elements, one of the supporting and guiding plates on one of such camera elements carrying a spring-catch arranged to engage a cooperating locking-surface on one of such bed-plates when the element carrying such supporting and guiding plate is in its normal position for folding up the sections of such camera-bed.

7. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, one of the supporting and guiding plates on one of such camera elements carrying a spring-catch arranged to engage a cooperating locking-surface on one of such bed-plates when the element carrying such supporting and guiding plate is in its normal position for folding up the sections of such camera-bed.

8. In a camera having a bed formed in two sections hinged together and two elements independently slidable thereon, bed-plates secured upon the sections of such bed-comprising continuous independent guiding and supporting surfaces cooperating with suitable supporting and guiding plates on each of such camera elements to support and guide such camera elements independently in different longitudinal adjustments on such bed when opened out, a suitable bolt cooperating with guiding and locking surfaces therefor in such bed-plate and arranged, when in its operative position, to hold the sections of such camera-bed in their opened-out position.

753,125. PAINTING-BRUSH. MAXEY C. COOPER, Selma, Ala. Filed Oct. 7, 1903. Serial No. 176,102. (No model.)

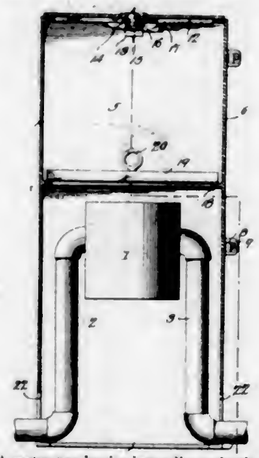


Claim.—1. In an apparatus of the character described, the combination with a brush comprising bristles and a tubular handle; of a tubular inlet extending through the handle, a receptacle detachably connected to said inlet and inclosed by the bristles and distributing-tubes extending from the receptacle at different angles, said tubes being inclosed by the bristles.

2. In an apparatus of the character described, the combination with a brush comprising a handle and bristles secured thereto; of an inlet-tube extending through the handle, a non-resilint receptacle detachably secured to said tube and inclosed by the bristles, said receptacle having a curved end, and distributing-tubes extending from said end at different angles, said tubes being inclosed by the bristles.

3. In an apparatus of the character described, the combination with a brush comprising a handle and bristles secured thereto; of an inlet-tube extending through the handle, a non-resilient receptacle detachably secured to said tube and inclosed by the bristles, said receptacle having a curved end, distributing-tubes extending from said end at different angles, said tubes being inclosed by the bristles, a flexible tube connected to the inlet-tube and means for supplying liquid to said tubes.

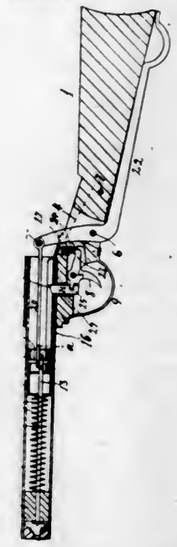
753,126. METER-BOX. EDWARD H. COWAN and BENJAMIN C. PALMER, Marion, Ohio. Filed Apr. 1, 1903. Serial No. 150,650. (No model.)



Claim.—A meter-box having inwardly projecting wedge-shaped lugs associated with its walls near its top, a cover, a bolt extended loosely through the latter for free rotation, and a longitudinally and downwardly curved locking-bar fixedly attached to and operable by the bolt for engagement with the lugs to secure the cover.

753,127. LIQUID-SHOOTING GUN AND INSECT-DESTROYER. JOHN W. DICKSON and NILS J. CARSON, Castlerock, Wash. Filed Jan 5, 1903. Serial No. 137,809. (No model.)

Claim.—A gun for shooting liquid, comprising a stock, a loading-lever pivotally connected thereto and having an upwardly-extending arm, a barrel, open at the breech, an arched plate bent over the rear portion of the barrel, having cheek-pieces secured to opposite sides of the stock and thereby securing the barrel to the stock, a piston in the barrel, a connection between the piston and the arm of the lever, a spring to force the piston forward in the barrel, a trigger, and means coacting therewith to lock the piston in a retracted position in the barrel.



753,128. DENTAL-PLATE MOLD. OWEN E. DRISCOLL, Charlottesville, Va. Filed Sept. 26, 1903. Serial No. 174,814. (No model.)



Claim.—1. A mold for forming the palate portion of a dental plate, said mold being made of rigid material and in two sections, the inner section having an approximate arch to the roof of the mouth and being removable and interchangeable with others of a series substantially as and for the purpose set forth.

2. A mold for forming the palate portion of a dental plate, said mold being composed of a two-part rigid body part, the inner part being removable and interchangeable with others having arches approximating the roofs of different mouths, and a thin layer of plastic material applied to said inner part and receiving on its outer face the counterpart of the mouth-impression substantially as described.

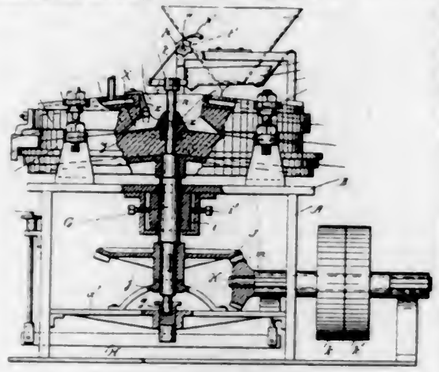
3. A mold for forming the palate portion of a dental plate comprising a two-part body portion made of metal the inner part being fitted in the outer part with a slip-joint and made interchangeable substantially as described and for the purpose set forth.

753,129. COCOA-MILL. PETER FAUST, Brooklyn, N. Y. Filed June 29, 1903. Serial No. 163,548. (No model.)

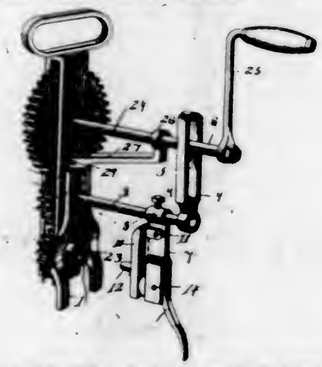
Claim.—1. In a mill, the combination, with a frame provided with a cross-bar, and a table for supporting the grinding-stones arranged above the said cross-bar; of a step slidable vertically in the said cross-bar, means for sliding the said step, a shaft journaled in the said step and revolving one of the grinding-stones, a bearing-bracket for the said shaft secured to the said cross-bar, a driving-wheel splined to the said shaft and resting on the said bracket, and bearing-blocks for the upper part of the said shaft to revolve in supported from the said table and provided with means for adjusting them laterally.

2. In a mill, the combination, with a stationary upper grinding-stone having an eye, and a revoluable lower grinding-stone provided with a cone which projects within the said eye; of a guide-blade arranged at an inclination to the axis of the stones with its edge adjacent to the said lower stone, said blade being provided with a

carved end portion which projects over the said cone, and an arm which supports the said blade from the upper stone.



753,130. TIRE-BOLTING MACHINE. JOHN E. FILLMAN and WILLIAM DAVIS, Meno, Okla.; said Fillman assignor to said Davis. Filed Aug. 12, 1903. Serial No. 169,290. (No model.)



Claim.—1. A tire-bolting machine comprising a clamping-frame embodying a fork, a guide connected therewith, a clamp adjustable on said guide and movable toward and away from the fork, a second frame mounted pivotally on the clamping-frame, a rotary head or chuck carried thereby, and a main operating-shaft geared to said rotary head and provided with an operating crank-handle, substantially as described.

2. A tire-bolting machine comprising a clamping-frame embodying a clamping-fork, a guide extending laterally therefrom, a clamp adjustable on said guide, a shaft-guide connected with said clamping-frame, a gear-frame pivotally connected with the clamping-frame, a rotary head or wrench carried by said head, and an operating-shaft geared to said head, and moving up and down in the shaft-guide, substantially as described.

3. A tire-bolting machine comprising a clamping-frame embodying a clamping-fork, a guide-rod, a clamp adjustable on the guide-rod and having a bolt-engaging stud or prong, a shaft-guide extending upward from said guide-rod, a gear-frame pivotally connected with the clamping-fork, a rotary head or wrench journaled in said gear-frame, a crank-shaft geared to the rotary head and journaled in said gear-frame and also movable up and down in the shaft-guide, and means for operating said shaft.

4. A tire-bolting machine comprising a clamping-frame adapted to be fastened upon a wheel-rim and embodying a clamping-fork, a gear-frame, a rotary head or wrench carried by said frame, an operating crank-shaft also carried by said frame and geared to the rotary head, and a brace pivotally connected intermediate its ends with the clamping-fork and having one end secured to the gear-frame and provided at its opposite end with a bearing for the crank-shaft.

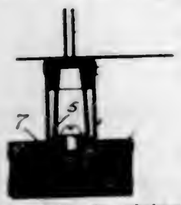
753,131. HOUSE-GOWN. FARREDIE A. FLUTIE, Washington, D. C. Filed Mar. 5, 1903. Serial No. 146,397. (No model.)

Claim.—1. A gown, comprising a straight back, strips extending along the lines of the sides of the back and integral therewith to form the neck, shoulder, and front portions of the garment, gores fitting within the strips below the neck portion, to give additional width to the garment at the bottom, and a straight roll-collar piece fitting within the neck portion and extending down along the edge of the gores, and a sleeve comprising a straight piece folded upon itself and stitched.



2. A gown, comprising a straight back, strips extending along the lines of the sides of the back and integral therewith to form the neck, shoulder, and front portions of the garment, gores fitting within the strips below the neck portion, to give additional width to the garment at the bottom, and a straight roll-collar piece fitting within the neck portion and extending down along the edge of the gores, a sleeve comprising a straight piece folded and stitched along the lower edge approximately half-way up its edges to form a pocket in the lower portion of the sleeve.

753,132. BUTTON-SUPPORT FOR TUFTING-MACHINES. ALFRED FRESCHL, Chicago, Ill. Filed Dec. 15, 1903. Serial No. 185,242. (No model.)



Claim.—1. In a button-holder for upholstering-machines, the combination, with a button-clamp having suitable button-holding jaws, of an elastic cushion covering the outer surfaces of said jaws, substantially as described.

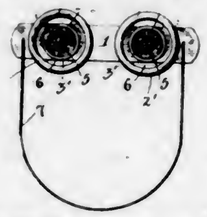
2. In a button-holder for upholstering-machines, the combination, with a button-clamp having suitable button-holding jaws and a tufting-tube within which said clamp is arranged, of an elastic cushion arranged between the outer surface of said clamp and the inner surface of said tube, substantially as described.

3. In a button-holder for upholstering-machines, the combination, with a button-clamp having suitable button-holding jaws, and a tufting-tube within which said clamp is arranged, of an elastic cushion covering the end of said tube and the outer surface of the button-holding jaws, substantially as described.

4. In a button-holder for upholstering-machines, the combination, with a button-clamp having suitable button-holding jaws and a tufting-tube within which said clamp is arranged, of an elastic-ring cushion arranged between said tube and said clamp, substantially as described.

5. In a button-holder for upholstering-machines, the combination, with a button-clamp having suitable button-holding jaws and a tufting-tube within which said clamp is arranged, of an elastic-ring cushion arranged between said tube and said clamp and covering the end of the tube and the outer surface of said jaws, substantially as described.

753,133. INHALER. CYRUS T. GAMBLE, Diamondville, Wyo. Filed Aug. 6, 1903. Serial No. 168,516. (No model.)

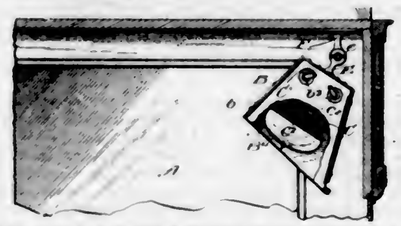


Claim.—1. An inhaler comprising a base-piece having an air-opening therein, an inner tube supported thereon in line with said opening and forming a medicament-chamber, an outer tube supported by the base-piece concentric with the medicament-tube and forming an intervening air-passage, and means upon the outer tube for engaging the wall of the nostril and retaining the inhaler therein, substantially as described.

2. An inhaler comprising a base-piece having an air-opening therein, an inner medicament-tube supported thereby in line with the said opening, an outer tube supported by the base-piece concentric with the inner tube, said outer tube having an outspringing rim portion at its free end to engage the wall of the nostril and retain the inhaler therein, and a cap adapted to fit over said rim portion and close the free ends of both tubes, substantially as described.

3. An inhaler comprising a base-piece, companion respirators carried thereby, each respirator comprising concentric tubes forming a medicament-chamber and surrounding air-passage, and means for supporting the device from the head, substantially as described.

753,134. ELECTRICAL ILLUMINATING DEVICE FOR SHOW-WINDOWS. JOHN H. GORST, Chicago, Ill. Filed May 6, 1903. Serial No. 155,905. (No model.)



Claim.—1. An electrical illuminating device for show-windows comprising a casing opened at one side and provided on the inner face of its side wall with interior reflector, a lamp-support extending across and detachably secured to the side walls of the casing, above and independently of said reflector, and sockets and wiring carried by said support, said casing being made wider at its open side than at the part thereof to which said support is attached, whereby the support, sockets and wiring may be removed from the casing or assembled structure.

2. An electrical illuminating device for show-windows comprising a casing opened at one side and provided on its inner side with interior reflecting-surfaces, a lamp-support extending across the casing and detachably connected with the walls thereof, sockets and wiring carried by said support, whereby said lamp-support, sockets and wiring as an assembled or unitary structure may be inserted into and removed from the open side of the casing and attaching-arms projecting from said casing and adapted for attachment to a suitable support.

3. An electrical illuminating device for show-windows comprising a casing opened at one side and provided with an interior reflecting-surface, a sheet-metal lamp-support extending across the casing and detachably connected with the walls thereof and sockets and wiring carried by said support, whereby said lamp-support and the sockets and wiring, as an assembled or unitary structure, may be inserted into and removed from the open side of the casing, and means for supporting the casing constructed to hold the same at varying angles.

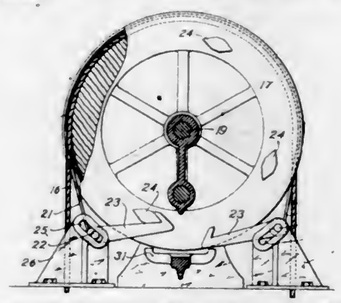
4. An electrical illuminating device for show-windows comprising a casing which is closed at its top and sides and open at its bottom and provided with an interior reflecting-surface, a lamp-support extending across said casing and detachably connected at its margins to the side walls thereof, whereby is formed between the support and the side and top walls an inclosure, sockets connected with the lamp-support and extending into said inclosure, wiring in said inclosure and which is connected with said sockets, said casing being made wider at its open side than at the part thereof to which the support is attached, whereby said sockets, wiring and support may be removed from and inserted into the casing through its open side as an assembled or unitary structure.

5. An electrical illuminating device for show-windows comprising a casing made of sheet metal and having connected top, side and end walls, and open at its bottom and provided on its side wall with an interior reflector, a sheet-metal lamp-support extending across said casing and detachably connected with the side walls thereof, and lamp-sockets and wiring carried by said support, said casing being made wider at its open side than at the part to which said support is attached whereby the support, the sockets and wiring may be removed from and inserted into the casing through the open side thereof as an assembled or unitary structure.

6. An electrical illuminating device for show-windows comprising a casing which is open at one side and provided with an interior reflecting-surface, a perforated lamp-support extending across said casing and detachably secured at its margins to the casing-walls, a plurality of lamp-sockets each comprising a body portion made wholly of insulating material and having a tubular portion which is adapted to protrude through the perforation in the support, with the hollow portion thereof located partially inside the support, whereby the plugs of the lamps extend partially inside said support, means for clamping the sockets on the support, and conducting-wires connected with said sockets and extending through openings in the wall of the casing.

7. An electrical illuminating device for show-windows comprising a casing which is open at one side and provided on the inner face of its side wall with a reflector, a perforated sheet-metal lamp-support extending between the walls of said casing, inwardly-extending brackets on the walls of the casing located above and independently of said reflector and which overlap the margins of said support, screws extending through the overlapping brackets and support, a plurality of lamp-sockets extending through the perforation in said support and clamped to the support and conducting-wires connected with said socket and extending outwardly through the casing-wall, said casing being made wider at its open side than at the part at which said brackets are located.

753,135. ELEVATOR SAFETY APPARATUS. MELANCTHON HANFORD, Malden, Mass. Filed Apr. 27, 1903. Serial No. 154,556. (No model.)



Claim.—1. In an elevator safety apparatus, the car-frame, air-chambers suitably secured to and carried on the car-frame, with inclosed pistons and projecting piston-rods, in combination with safety-cables suitably connected to such pistons, with a rotatable sheave therefor at top of the elevator-well, and with gripping mechanism adapted to arrest the downward movement of said cables and thereby support the car on air-cushions carried upon it, in case of failure of the hoisting apparatus.

2. In an elevator safety apparatus, the car-frame, air-chambers suitably secured to and carried on the car-frame with inclosed pistons, and projecting piston-rods transversely connected by a cross

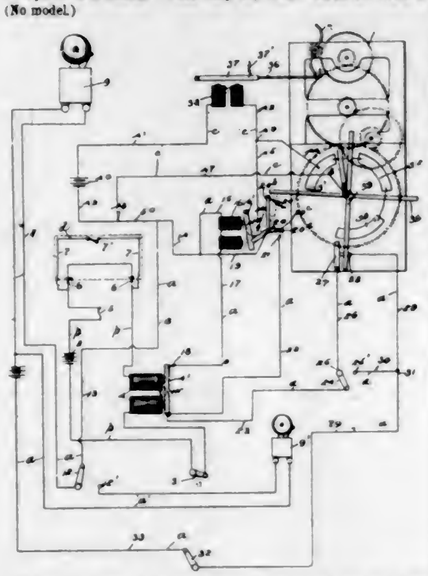
beam, in combination with safety-cables secured to said beam, with a rotatable sheave therefor at top of the elevator-well, and with gripping mechanism adapted to arrest the downward movement of said cables and thereby support the car on cushions carried upon it, in case of failure of the hoisting apparatus.

3. In an elevator safety apparatus, the car-frame, air-chambers suitably secured to and carried on the car-frame, with inclosed pistons, projecting piston-rods and safety-cables suitably connected to such pistons, with a rotatable sheave therefor at top of the elevator-well and with a counterweight, in combination with a gripping apparatus comprising a brake-band anchored to the sheave-supports and applied to said cables where they pass over the sheave, hooks mounted on said support and adapted to engage lateral lugs on the sheave, and means for engaging said hooks and lugs when it is desired to support the car on its air-cushions.

4. In an elevator safety apparatus, the car-frame, air-chambers suitably secured to and carried on the car-frame, with inclosed pistons, safety-cables suitably connected to said pistons and a rotatable sheave over which said cables pass, in combination with a friction brake-band and mechanism automatically actuated by a governor and adapted to arrest the descent of the car and support it on air-cushions carried thereon, in case of failure of the hoisting apparatus.

5. In an elevator safety apparatus, a rotatable sheave fixed on a horizontal shaft at the top of the elevator-well, cables connected to the car-frame and running over said sheave, and ratchet-collars fixed on said shaft at each end of a threaded portion thereof and formed with reversely-set ratchet-teeth on its opposite faces, in combination with a spur-gear internally threaded to engage with and traverse the threaded portion of such shaft, an oscillatory drum having longitudinal teeth in its periphery traversed by the peripheral teeth of said spur-gear, a lever linked to said drum, and gripping mechanism automatically actuated through said lever to arrest the vertical movement of said cables at the desired terminal points.

753,136. **ALARM SYSTEM.** JOHN W. HASBURG, Chicago, Ill., assignor to National Burglar and Fire Alarm Company, Chicago, Ill., a Corporation of Illinois. Filed July 23, 1903. Serial No. 166,672. (No model.)



Claim.—1. In an alarm system, an alarm-circuit, a controlling-circuit, a drop arranged to control both of said circuits, a timing device controlled by the controlling-circuit and adapted when in operation to move the drop to inactive position at predetermined intervals, said timing device being arranged to be started when the drop is moved to active position, a local protective circuit, and means for actuating the drop controlled by the condition of the protective circuit.

2. In an alarm system, an alarm-circuit, a controlling-circuit, a drop arranged to control both of said circuits, a motor, means for controlling the operation of said motor arranged in the controlling-circuit, a time-switch arranged in said controlling-circuit, and actuated by the motor, means operated by the motor for moving the drop to inactive positions at predetermined intervals, a local protective circuit, and means for actuating the drop controlled by the condition of the protective circuit.

3. In an alarm system, an alarm-circuit, a controlling-circuit having two branches, a drop arranged to control the alarm-circuit and one branch of the controlling-circuit, a time-switch in the other branch of the controlling-circuit, a motor arranged to drive the time-switch, a means for controlling the motor arranged in the controlling-circuit and common to both branches thereof, means operated by the motor for moving the drop to inactive position at predetermined intervals, a local protective circuit, and means for actuating the drop controlled by the condition of the protective circuit.

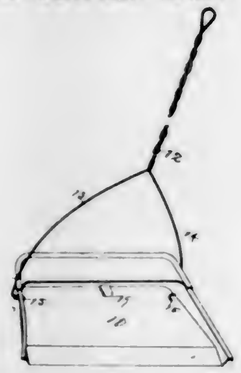
4. In an alarm system, an alarm-circuit, a controlling-circuit having two branches, a drop arranged to control one of the branches of the controlling-circuit and the alarm-circuit, and a time-switch arranged in the other branch of the controlling-circuit, a switch in the alarm-circuit arranged relative to the time-switch of the controlling-circuit to be operated by a switch member thereof as the time-switch completes its operation, devices for controlling the operation of the motor including an electromagnet arranged in the controlling-circuit common to both branches thereof, means operated by the motor for moving the drop to inactive position at predetermined times, latch devices for maintaining said drop in elevated or inactive position, and electromagnetic means for actuating the latch devices controlled by the condition of the protective circuit.

5. In an alarm system, a protective circuit including a relay, a normally open alarm-circuit adapted to be closed by the operation of said relay, a current-responsive device in said alarm-circuit, a drop controlled by said current-responsive device, a controlling-circuit controlled by said drop, a motor, electromagnetic means arranged in the controlling-circuit for controlling the operation of said motor, means actuated by the motor for moving the drop to inactive position at predetermined intervals.

6. In an alarm system, a local protective circuit, a relay having its coils arranged in said circuit, an alarm-circuit having two branches, one of said branches including the armature of the said relay, and a current-responsive device controlling a drop, and the other branch being controlled by said drop, a controlling-circuit having two branches, one of which is controlled by said drop, a time-switch arranged in the other branch, an electromagnet arranged in the protective circuit common to both branches, a motor adapted to actuate the time-switch, means for controlling the motor actuated by the electromagnet in the controlling-circuit, and means actuated by the motor for moving the drop to inactive position.

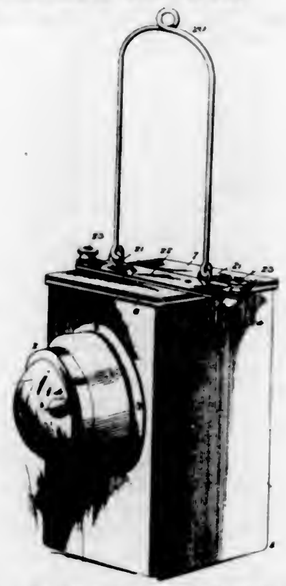
7. In an alarm system, an alarm-circuit, and a controlling-circuit, a circuit-closer arranged to control both of said circuits, an instrumentality for automatically moving the circuit-closer to inactive position at intervals, motor devices for actuating said instrumentality, means for controlling the operation of said motor including an electromagnet arranged in the controlling-circuit, a local protective circuit, and means controlled by the condition of the protective circuit for retaining the circuit-closer in inactive position.

753,137. **DUST-PAN.** WARD H. HILLS, Des Moines, Iowa. Filed July 11, 1903. Serial No. 165,194. (No model.)



Claim.—A dust-pan having side walls and a rim extending outwardly from the top of said walls, a wire handle bifurcated at the lower end, the ends of said handle being bent at right angles passed through spacing-sleeves, and then extended into the pan through apertures in the side walls thereof, whereby said handle is pivoted to turn into approximately the plane of the pan-bottom, notches in said outwardly-extending rim positioned to engage the branches of said handle and to hold the same releasably in operative position; the extremity of one of the branches being bent forward at right angles within the pan, said bent portion being adapted to engage the bottom of the pan to prevent rotation of the handle in a forward direction.

753,138. **PORTABLE ELECTRIC LAMP.** HARRY C. HUBBELL, Brooklyn, N. Y., assignor to Horace W. Fuller, New York, N. Y. Filed July 2, 1903. Serial No. 164,040. (No model.)



Claim.—1. In a portable, electric, hand-lamp, a cell having a lining of metal capable of being amalgamated, and containing a zinc amalgam, an alkaline solution, and silver oxid, suspended in said cell, and forming the cathode, as herein set forth.

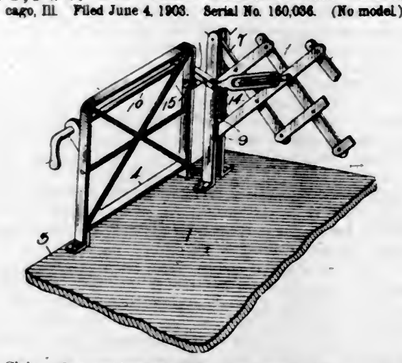
2. In a portable, electric, hand-lamp, a steel cell, having a lining of metal capable of being amalgamated, and containing a zinc amalgam, an alkaline solution, and a number of silver-oxid pencils suspended in said cell, and forming the cathode, as herein set forth.

3. In a portable, electric, hand-lamp, a steel cell, having its sides lined with a metal capable of being amalgamated, a zinc amalgam; an alkaline solution; a wire projecting upward from the bottom of the cell, and protected from the solution: and one or more silver-oxid pencils suspended from the upper part of the wire, and forming the cathode, as herein set forth.

4. In a portable, electric, hand-lamp, a body portion, consisting of a steel box; a number of steel cells located in said box; each cell having its sides provided with a lining of metal capable of being amalgamated; a wire projecting up from the bottom of each cell; a protecting-tube inclosing the wire; a zinc amalgam in the bottom of each cell; an alkaline solution in each cell: and one or more silver-oxid pencils suspended from the upper end of each wire, and forming the cathode, as herein set forth.

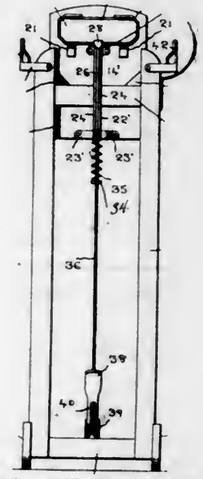
5. A portable, electric, hand-lamp, consisting of a box; a number of cells, located side by side in said box; each cell having its sides provided with a lining of metal capable of being amalgamated, and a wire projecting upwardly from the bottom of the cell, with a tube surrounding said wire; a zinc amalgam in the bottom of each cell; an alkaline solution in each cell; one, or more silver-oxid pencils suspended from the upper end of each of said wires; and a cover and gasket fitting over the top of the box and the tops of the cells, and sealing the same; and means for securing said cover and gasket in place, as herein set forth

753,139. **GATE.** SAMUEL KALISHER and HARRY KALISHER, Chicago, Ill. Filed June 4, 1903. Serial No. 160,036. (No model.)



Claim.—In combination with a lazy-tongs gate, a rock-shaft having a crank-arm and means whereby it may be turned, bearings for said shaft, and a link attached to the crank-arm and having a longitudinally-adjustable member connected to the bar of the gate.

753,140. **BOX OR BASKET MAKING MACHINE.** WILLIAM J. KENNEDY, Rockisland, Tex. Filed Sept. 12, 1903. Serial No. 172,999. (No model.)



Claim.—1. In a box-making machine, the combination with suitable uprights, of a vertically-reciprocatory plate, a former carried thereby, an opposing bed in operative relation to said former, coöperating folding-levers fulcrumed on said uprights, and having pivoted connection with said plate, and means for operating said plate to actuate said former and folding-levers.

2. In a box-making machine, the combination with suitable uprights, of a vertically-reciprocatory plate, a former carried thereby, an opposing bed in operative relation to said former, coöperating folding-levers fulcrumed on said uprights, and having pivoted link connection with the plate, and means for operating said plate to actuate said former and folding-levers, including a follower for the bottom portion of the box, adapted to be carried into operative relation to the former.

3. In a box-making machine, the combination with suitable uprights, of a vertically-reciprocatory plate, a former carried thereby, an opposing bed in operative relation to said former, coöperating folding-levers fulcrumed on said uprights, and having pivoted connection with said plate, and means for operating said plate to actuate said former and folding-levers, said opposing bed being constructed of a cross-strip between the uprights, and angle-blocks located in the angles formed by the intersection of the ends of said strip with said uprights.

4. In a box-making machine, the combination with suitable uprights, of a vertically-reciprocatory plate, a former carried thereby,

an opposing bed in operative relation to said former, cooperating folding-levers fulcrumed on said uprights, and having pivoted link connection with the plate, and means for operating said plate to actuate said former and folding-levers, including a follower for the bottom portion of the box, adapted to be carried into operative relation to the former, said opposing bed being constructed of a cross-strip between the uprights, and angle-blocks located in the angles formed by the intersection of the ends of said strip with said uprights.

5. In a box-making machine, the combination with suitable uprights and a stationary forming-bed, of a vertically-reciprocatory plate, a former-block carried thereby, and means on the supports for guiding said plate and block, cooperating folding-levers fulcrumed on said uprights and having pivoted link connection with the plate, a follower and treadle mechanism for operating the several parts, including a retracting-spring for the plate.

6. In a box or basket making machine, the combination of a framework, a gate arranged for vertical reciprocation thereon, a former carried thereby, a spring arranged in opposition to said gate, an opposing forming-bed, that is arranged beneath the former, and that is arranged to cooperate therewith, folding levers or wings mounted on said frame, in operative relation to said former and connected respectively to said gate by pivoted levers a pair of brackets mounted on the front face of said gate in parallel planes, in a manner to provide a guide-opening, a bell-crank follower-lever pivoted to said brackets that is adapted to enter said guide-opening and to shoulder said brackets, and that is provided on its upper end with a bottom-holding frame, and a treadle mechanism connected with said follower-lever, substantially as described.

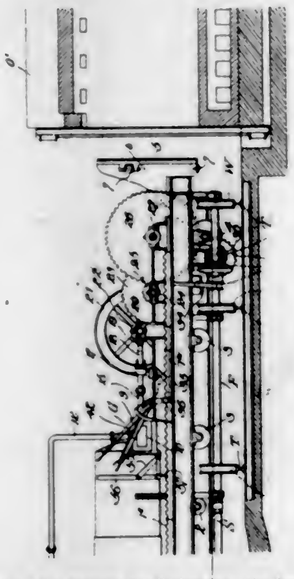
7. In a box-making machine the combination with suitable uprights, provided with cross-pieces and legs, and further provided with vertical guideways, a gate, a horizontally-disposed block disposed on the front face of said gate, an opposing forming-bed, that is adapted to be arranged in operative proximity to said block, and that comprises in its construction the angular sides produced by the union of the upper inner end portions of the uprights, and angle-blocks attached thereto, brackets secured to the front face of the gate, a follower-carrying lever pivotally mounted on said bracket, that is adapted to be swung into a plane coincident with that of the outer face of the former and that is adapted to shoulder on the upper portion of said bracket to cause a descending thrust when actuated to its extreme limit, and a spring-retracted treadle-bar suitably mounted, and a treadle-rod connecting said follower-carrying lever and said treadle-bar, substantially as described.

753,141. EXTENSIBLE CHANDELIER. WARREN H. KERR, Olean, N. Y. Filed Aug. 19, 1903. Serial No. 170,091. (No model.)



Claim.—In a chandelier, the combination with a fixed tube having its lower end threaded and provided with longitudinal slots upon the threaded portion thereof, a slidable tube mounted within the fixed tube adapted to carry the light means, the upper end of the slidable tube being threaded, a bushing screwed to the threaded portion of the slidable tube aforesaid and having a reduced end portion provided with threads, an annular flange provided upon the reduced end portion aforesaid, a ring screwed to the threaded part of the reduced end portion of the bushing, a packing-ring interposed between the annular flange and the ring, and a set-collar provided with a tapered threaded opening and adapted to be screwed to the lower threaded end of the fixed tube to effect a contraction or compression of the slotted portions thereof to hold the inner tube at an ascertained adjustment.

753,142. MACHINE FOR DISCHARGING COKE FROM OVENS. JOSEPH KERSHOEN, Charleroi, Pa. Filed June 30, 1903. Serial No. 163,759. (No model.)



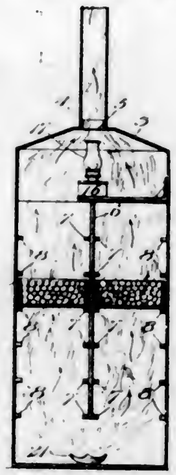
Claim.—1. In a machine for discharging coke from ovens, the combination with a supporting-frame, of a push-bar arranged for reciprocation on said frame and adapted to be projected from the side of the frame, means for projecting said push-bar normally disengaged from the push-bar, and separate means for imparting initial movement to the push-bar to bring it into engagement with said projecting means.

2. In a machine for discharging coke from ovens, the combination with a supporting-frame, of a push-bar slidably mounted on the frame and adapted to be projected at one side thereof, means on said frame for advancing and retracting said push-bar, said means being disengaged from said bar when the bar is retracted, and means for imparting initial projecting movement to the push-bar.

3. In a machine for discharging coke from ovens, the combination of a frame, a push-bar mounted for reciprocation on said frame and having a rack formed thereon, said rack terminating at a slight distance from the head of the push-bar, a gear adapted to engage said rack when the push-bar is advanced slightly, means for imparting movement to said gear, and separate means for advancing said push-bar sufficiently to bring the rack thereon into engagement with said gear.

4. In a machine for discharging coke from ovens, a frame, a push-bar mounted for reciprocation on said frame and having a rack thereon terminating a slight distance from the head of the push-bar, a gear adapted to engage said rack when the push-bar is slightly advanced, a motor for imparting movement to said gear, and a pivoted lever having a dog adapted to engage the rack on the push-bar, whereby said push-bar may be advanced sufficiently to cause the rack thereon to be engaged by said gear.

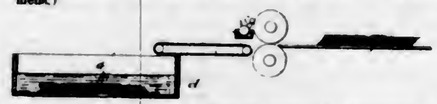
753,143. FRUIT-BLEACHER. JOEL W. KINNOSS, Lowell, Ark. Filed Dec. 19, 1903. Serial No. 185,821. (No model.)



Claim.—1. A fruit-bleacher, consisting of a body having trays supported therein and a lower receptacle to contain an ignitible material, a chamber disposed on the upper end of the body and having a lamp arranged therein and an opening at the top over the lamp, and an outlet-pipe applied to the top over the opening.

2. A fruit-bleacher, consisting of a body having means therein for supporting trays and a lower receptacle to hold an ignitible material, a chamber disposed on the upper end of the body and provided with an inwardly-extending supporting means and an opening in the top thereof, a lamp disposed on the said supporting means, the chamber having a door with a transparent panel to give access to the lamp and expose the latter from the exterior, and a pipe applied to the top of the chamber over the said opening.

753,144. METHOD OF PRINTING ON TINS. ISIDOR KITSEE Philadelphia, Pa. Filed Sept. 18, 1899. Serial No. 730,877. (No specimens.)



Claim.—1. The method of producing designs or inscriptions on tins or tin cans which consists in printing on said tins or tin cans with an ink containing a solution of an acidulous compound of copper, thickened with a dissolved gum.

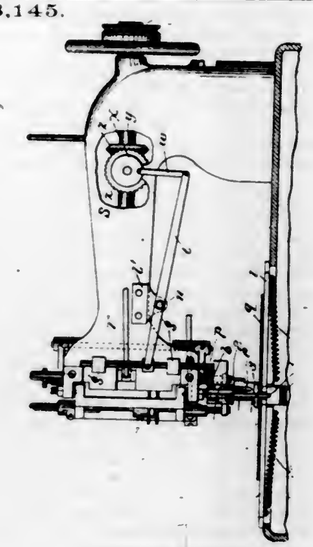
2. The method of printing on tins which consists in first printing on said tins with the aid of an ink containing a dissolved metal and then subjecting the inked-in parts to the action of a compound containing sulfur.

3. The method of printing on one metal with an ink containing in solution a second metal which consists in first providing an ink containing said metal in solution, then printing with said ink on said metal, and then subjecting the printed-in parts of said metal to the action of a sulfur.

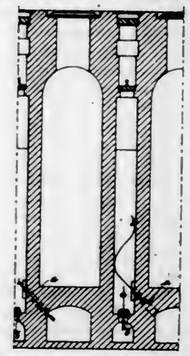
753,145. TRIMMING-CUTTER ATTACHMENT FOR ZIGZAG-SEWING MACHINES. HERMANN A. KLEHM, New York, N. Y. Filed May 13, 1903. Serial No. 156,910. (No model.)

Claim.—The combination with a pair of zigzag-stitch-forming needles and means for operating said needles, of a pair of bed-cutters and slideways therefor placed laterally to and respectively on opposite sides of the feed-line, and a double-edged reciprocating vertical cutter located in the median plane of the feed-line and coacting with the bed-cutters respectively, means for operating said cutter, a prong of said vertical cutter working between the ends of the bed-cutters back of the operative parts of the cutters and gaging the edges of the bed-cutters relatively to its respective edges, and means for maintaining pressure of the bed-cutters against said gage-prong.

753,145.

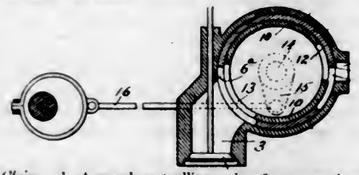


753,146. COKE-OVEN. HEINRICH KOPPERS, Essen-on-the-Ruhr, Germany. Filed Aug. 27, 1903. Serial No. 170,926. (No model.)



Claim.—A coke-oven comprising in combination with the usual coking-chambers and the heating-flues, provided with nozzles at the bottom for the admission of a vertically-ascending gas-column, inclined channels connecting the air-conduits with the base part of the heating-flues, the inclination being out of line with the ascending gas-column in order to leave it undisturbed, and to circulate around it, substantially as described and for the purpose set forth.

753,147. SPEED-CONTROLLING VALVE FOR GAS OR GASOLENE ENGINES. JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Mfg. Co., Anderson, Ind. Filed Dec. 29, 1902. Serial No. 137,010. (No model.)



Claim.—1. A speed-controlling valve for gas-engines comprising, a valve-casing having a cylindrical interior and provided with an inlet-port and with an outlet-port opposite the inlet-port, a valve controlling the outlet from said casing, a cylindrical regulating-valve within the valve-casing and formed with an inlet-port adapted to register with the inlet-port of the casing and with an outlet-port

which is always in communication with the outlet-port of said casing, a cylindrical tubular cut-off valve arranged within the regulating-valve and formed with an inlet-port adapted to register with the inlet-port of the regulating-valve and with an outlet-port always in communication with the outlet-port of the casing, an outward-extending valve-rod connected to the cut-off valve, means connected to said valve-rod for rocking the cut-off valve, a crank-arm connected to the regulating-valve and a governor means connected to said crank-arm whereby said regulating-valve will be actuated by said governor.

2. A speed-controlling valve for gas-engines comprising, a valve-casing having a cylindrical interior provided with an inlet-port and with an outlet-port opposite the inlet-port, a valve controlling the outlet from said casing, a cylindrical regulating-valve within the valve-casing and formed with an inlet-port adapted to register with the inlet-port of the casing, and with an outlet-port which is always in communication with the outlet-port of said casing, one end of said regulating-valve being open and the other end being closed by a head which also forms a closure for one end of the valve-casing, a cylindrical tubular cut-off valve arranged within the regulating-valve and formed with an inlet-port adapted to register with the inlet-port of the regulating-valve and with an outlet-port always in communication with the outlet-port of the casing, both ends of said cut-off valve being closed, an outward-extending valve-rod secured centrally to one end of the cut-off valve, an outward-extending journal secured to the other end of said cut-off valve and projecting through the closed end of the regulating-valve, means connected to the valve-rod for rocking the cut-off valve and a crank-arm connected to the closed head of the regulating-valve, and a governor device connected to said arm.

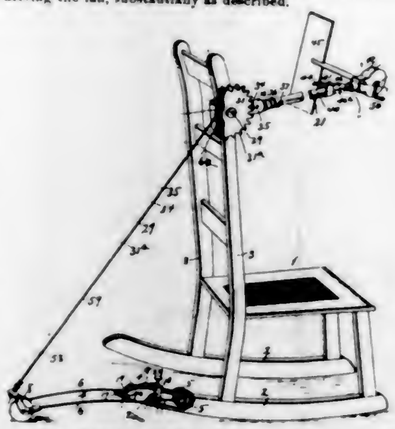
3. A speed-controlling valve for gas-engines comprising, a valve-casing formed with a large interior chamber and provided with an inlet-port and with an outlet-port in communication with the engine-cylinder, a valve controlling this outlet-port, a reciprocating regulating-valve within the valve-casing and provided with an inlet-port adapted to register with the inlet-port of the casing, a reciprocating cut-off valve within the casing and between the inlet to the cylinder and the inlet to the regulating-valve, means for reciprocating the cut-off valve, and a governor device connected to the regulating-valve, whereby a gas-mixing chamber will be formed between the inlet-port of the cut-off valve and the outlet-port of the valve-casing.

4. A speed-controlling valve for gas-engines comprising, a valve-casing having a cylindrical interior provided with an inlet-port and with an outlet-port opposite the inlet-port, a valve controlling the outlet from said casing, a cylindrical regulating-valve within the valve-casing, and formed with an inlet-port adapted to register with the inlet-port of the casing and with an outlet-port which is always in communication with the outlet-port of said casing, a cylindrical tubular cut-off valve arranged within the regulating-valve and formed with an inlet-port having one longitudinal edge inclined with respect to the adjacent edge of the port in the regulating-valve and adapted to register with the inlet-port of the regulating-valve, and with an outlet-port always in communication with the outlet-port of the casing, an outward-extending valve-rod connected to the cut-off valve and means connected to said valve-rod for rocking the cut-off valve, a crank-arm connected to the cut-off valve, and a governor means connected to said crank-arm whereby the said cut-off valve will be actuated by said governor.

753,148. FAN ATTACHMENT FOR ROCKING-CHAIRS. WILLIAM G. LANGDALE, Milford, Ohio, and ROBERT J. NOWLIN, Lawrenceburg, Ind. Filed July 6, 1903. Serial No. 164,420. (No model.)

Claim.—1. In a fan-motor for rocking-chairs, the combination of a fan the adjustable clamp engaging the rear end of a rocker, the motor-lever comprising the spiral spring the extremities of which are prolonged to form arms, the arm connected to the inner coil being connected to said clamp and the arm connected to the outer coil extending rearwardly and bearing on the floor, and the roller carried by said last-mentioned arm and bearing on the floor, and means for actuating said fan from said motor-lever, substantially as described.

2. In a fan-motor for rocking-chairs, the combination of a fan, a clamp embracing the rear end of a rocker, the two spiral springs located on opposite sides of the rocker, the inner coil of each of said springs being rigidly connected to said clamp, and the extremity of the outer coil being prolonged to form an arm extending beyond the rear of the rocker and held down by said spring, the roller carried by the rear ends of said arms and bearing on the floor, the cord connected to said last-mentioned arms, and means operated by said cord for driving the fan, substantially as described.



3. In a fan-motor for rocking-chairs, the adjustable clamp for the rear end of the rocker comprising a jointed member adapted to conform to the contour of the tip of the rocker, and one end being serrated, a yoke striding said rocker and having its arms connected to one end of said jointed member, and a set-screw seated in an aperture in the cross-bar of said yoke with its point engaging the serrated end of said jointed member, substantially as described.

4. In a fan-motor for rocking-chairs, a bracket-arm comprising the combination of the inner tube slotted from end to end, an outer tube traversed by a longitudinal slot and fitted upon said inner tube, and the catch for adjustably securing said tubes against relative movement to enable the length of said arm to be adjusted, substantially as described.

5. In a fan-motor for rocking-chairs, the combination of the hollow bracket-arm, the casing carried by the outer end of said arm, the shaft journaled in said casing and bearing a fan, and a pulley located in alinement with the bore of said bracket-arm, the shaft journaled in said casing and bearing a crank-arm exterior to said casing and a spool located thereon, a spiral spring surrounding said last-mentioned shaft and having its inner coil connected thereto, the bolt engaging the outer coil of said spring, the cord passing around said pulley and secured to said spool, and means for pulling said cord to turn said spool in opposition to said spring, substantially as described.

6. In a fan-motor for rocking-chairs, the combination of a fan, a hollow bracket-arm bearing the shaft of said fan, a casing mounted on said arm, the shaft bearing the spool, the spiral spring surrounding said shaft and connected thereto, the end of the outer coil of said spring having a hook formed thereon, and the spring-pressed slidably-mounted bolt normally engaged by said hook, said bolt being adapted to be operated to release said hook, the cord passing through said arm and around said spool and connected thereto, and the motor-lever connected to said cord and opposing said spring, substantially as described.

753,149. PLUMB-LEVEL. JEROME J. LANKFORD, Accomac, Va. Filed July 20, 1903. Serial No. 166,370. (No model.)

Claim.—1. A device of the kind described comprising a level having recesses formed in each end, and a socket in the bottom midway the ends, a transit-plate block having a central standard adapted to fit into the socket of the level, sights hinged to the level between the recesses and the top of the level, and adapted to fold within the recesses, and means for supporting the transit-block.

2. The combination with a level and a transit-plate block, of a tripod-head having a central socket, a ball loosely held therein, a wear-plate on the under side of the block, adapted to rest on the ball, and threaded rods working vertically through the tripod-plate and adapted to support said block.

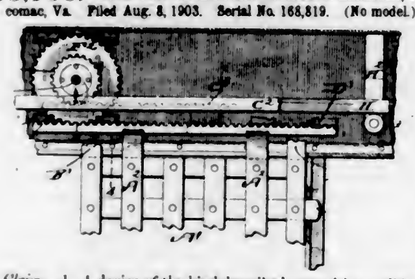
3. The combination with a level, a transit and a tripod-head, of short legs pivoted to the under side of the tripod-head, hollow sectional supporting-legs, the short legs sliding within the upper portion of the supporting-legs, set-screws adapted to lock them in position, means for holding a ball in the center of the tripod-head, a ball loosely resting in said holding means, a screw having a wear-head secured in the center of the transit and on the under side, said wear-head being adapted to rock on the ball, and means for adjusting the transit at an angle to the tripod-head.



4. The combination with a level having longitudinal grooves formed on each side thereof adjacent each end of the level, of a circular plate centrally cut out and set in each side of the level between the inner ends of the grooves, a circular glass tube set in each plate the tubes lying entirely within the planes of the side faces of the level, and a non-freezable fluid in an amount adapted to fill each tube to one-half of its capacity.

5. The combination with a level having a socket formed in its under face midway its ends, a transit-plate, a transit-block supporting said plate and having a central standard projecting upwardly through the plate adapted to fit in the socket of the level, a tripod-head having a central boss said boss having a vertical opening therein, a detachable plate adapted to close the lower end of the opening, a ball resting loosely in said opening on the detachable plate, and a wear-plate secured to the under side of the transit-block adapted to rest on the ball.

753,150. LOCK FOR CELL-DOORS. JEROME J. LANKFORD, Accomac, Va. Filed Aug. 8, 1903. Serial No. 168,819. (No model.)



Claim.—1. A device of the kind described comprising a sliding door, a rack-bar attached to said door, a movable rack-bar independent of the door, a shaft transverse to the rack-bars, a hub sliding and rotating on the shaft, gears on said hub adapted to engage the rack-bars, respectively, means for sliding the hub and throwing the gears into engagement with the rack-bars and means for moving the independent rack-bar.

2. The combination with a door traveling on rollers carried by an overhead hanger, of a rack-bar above and connected to the door, a movable rack-bar independent of the door, a transverse shaft, a hub having a double gear thereon sliding on said shaft, means for forcing the double gear into engagement with the two rack-bars, means for forcing them out of engagement with the rack-bars, and means for locking the gears against rotation when out of engagement with the rack-bars.

3. The combination with a door traveling on rollers carried by an overhead hanger, of a rack-bar connected with the door, a non-rotatable rack-segment connected to the rear side of said rack-bar, an independently-movable rack-bar, a shaft transverse to the rack-bars, a hub sliding on said shaft, gears fixed on the hub one of said gears adapted to mesh with the independently-movable rack-bar and the other adapted to mesh with the rack-bar connected to the door, a spring adapted to throw said gears out of engagement with the rack-bars and to hold one of them into engagement with the rack-segment, and a cam-bar adapted to slide the hub and hold the gears in engagement with the rack-bars.

4. A cell-door lock comprising a bar having cams thereon, a lever adapted to move said bar, a shaft, a hub carrying a plurality of gears said hub being movable on the shaft by the cams, a rack-bar adapted to be engaged by one of the gears, a lever adapted to move said rack-bar, a rack-bar adapted to be engaged and moved by the other gear, a slidable door, and means connecting the last-mentioned rack-bar to the door.

5. A cell-door lock comprising a casing having parallel ledges arranged therein and spaced apart, slidable doors having vertical bars extending upward between said ledges, a horizontal rack-bar supported by the vertical bars, segmental gears carried by the inner side of the said horizontal rack-bar, a shaft arranged in the casing adjacent each door and transverse to the rack-bar, a hub slidably arranged on the said shaft, a gear formed on the hub adapted to engage the rack-bar and the segmental gears, a spring adapted to normally hold the said gear in engagement with one of the segmental gears, hangers connected to the doors extending upward between the parallel ledges, rollers carried on each side of the hangers adapted to travel on the ledges, dependent hangers arranged in the casing, rollers carried by said hangers, a horizontal bar adapted to travel on said rollers, a rack-bar carried on the inner side of the last-mentioned bar adjacent each door, a second gear formed on the hub adapted to mesh with the last-mentioned rack-bar when the first-mentioned gear is in engagement with the first-mentioned rack-bar, means for sliding the hub on the shaft, and means for horizontally moving the last-mentioned rack-bar.

753,151. ROCKET. THOMAS LLOYD, New York, N. Y. Filed Nov. 9, 1903. Serial No. 180,425. (No model.)



Claim.—1. In a rocket, the combination of a body, legs for supporting the body grouped about the same, and having beveled upper ends adapted when the legs are spread to bring up against the body and serve as stops to limit the spreading of the legs, and

flexible strips secured on the body and fixed to the inner sides of the legs below the beveled ends thereof.

2. In a rocket, the combination of a body, and outwardly-spring-pressed legs for supporting the body, connected with the same.

3. In a rocket, the combination of a body, legs for supporting the body, and spring-strips secured on the body and fixed to the legs, and tending to hold the legs in an open or spread position.

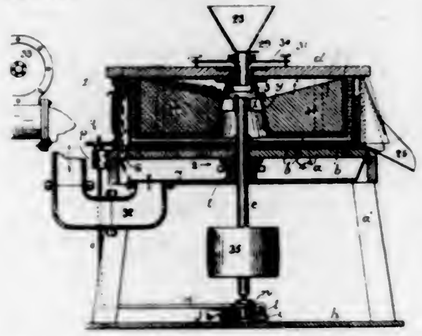
4. In a rocket, the combination of a body, and outwardly-spring-pressed legs for supporting the body, connected with the body, and having beveled upper ends grouped about the same.

5. In a rocket, the combination of a body, legs for supporting the body, having beveled ends grouped about the same, and spring-strips secured on the body and fixed to the legs, below the beveled ends thereof, and tending to hold the legs in an open or spread position.

6. In a rocket, the combination of a body, legs for supporting the body, having beveled ends grouped about the same, spring-strips having upper portions grouped about the body, and normally outwardly-extending portions fixed to the legs, and one or more bands surrounding the upper portions of the spring-strips and the body.

7. The combination, in a rocket, of a body, outwardly-spring-pressed legs for supporting the body, connected with the same, and a band removably placed on the legs, and adapted to hold them together.

753,152. HULLING AND SCOURING MACHINE. FRITZ A. LOESCHER, Portland, Oreg. Filed Sept. 5, 1900. Serial No. 29,089. (No model.)

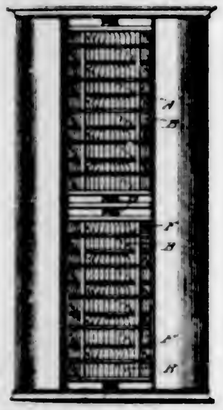


Claim.—1. In a scouring-machine, the combination with the table and the runner, of the plate, *b*, having perforated ears, set-screws 9, inserted in said ears, nuts on the set-screws, on which nuts the plate rests by its said ears; blocks set into the surface of the table on which rest the set-screws; means for holding the plate *b* against lateral displacement, and the outer casing comprising a top, 12, and annular walls, 13, 14, the inner of which is perforated, and the outer wall having perforated ears which register with the ears of the plate *b*, and also receive the set-screws, 9, and nuts on the latter to secure the casing in place, substantially as described.

2. A scouring-machine comprising a table, the top of which has peripheral openings, a dust-chamber, 7, on the under side of the table, a pipe, 32, leading therefrom, and an exhaust-fan; a plate, *b*, also having peripheral openings corresponding with those in the table-top; the runner, *f*, having a central feed-opening, a casing for the runner comprising a roof or top, 12, outer wall, 13, and inner perforated wall, 14, the same being secured to the rim, 18, on the under side of the top, and united by the partition, 17; doors, 16, in the outer wall between said partitions; means securing the casing on the plate, *b*, and adjustably supporting the plate, *b*, on the table-top; a discharge passage-way in the casing of the runner, a gate controlling such passage-way, such gate consisting of two vertically-adjustable sections; and means for securing said gate-sections in place as adjusted, substantially as described.

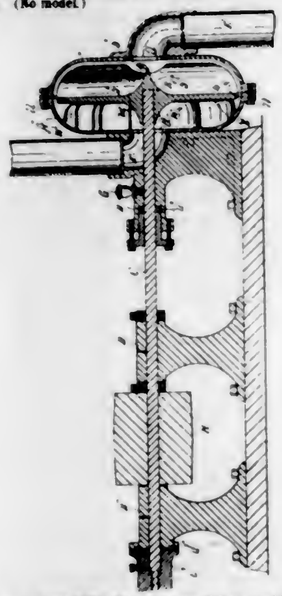
3. A scouring-machine comprising a table, the top of which has peripheral openings, a dust-chamber 7, on the under side of the table, a pipe 32, leading therefrom and an exhaust-fan, a plate *b*, also having peripheral openings corresponding with those in the table-top, the runner *f*, having a central feed-opening; a removable funnel-like hopper discharging into said feed-opening and provided with a gate for controlling such discharge; a casing for the runner, comprising a roof or top 12, outer wall 13, and inner perforated wall 14, the same being secured to the rim, 18, on the under side of the top, and united by partitions 17; doors 16 in the outer wall between said partitions; means for securing the casing on the plate *b*, and adjustably supporting the plate *b*, on the table-top; a discharge passage-way in the casing of the runner, a gate controlling such passage-way, such gate consisting of two vertically-adjustable sections, and means for securing said gate-section in place as adjusted, substantially as described.

753,153. DRUGGIST'S PRESCRIPTION-CABINET. JOHN P. LONQUIST, Minneapolis, Minn. Filed Mar. 7, 1903. Serial No. 146,713 (No model.)



Claim.—A druggist's filing-cabinet comprising a casing having revolving compartments arranged one above the other, each compartment being provided with a plurality of surrounding spaces, cardboards in said spaces, a bar hinged in front of the cardboards and secured to prevent the dislodgment of said boards, a wire passing through said boards to hold the same in proper position, and an ejector adapted to be inserted between the said cardboards, substantially as specified.

753,154. CENTRIFUGAL PUMP. LUTHER LOOK, Los Angeles, Cal., assignor to New Standard Concentrator Company, Los Angeles, Cal., a Corporation of California. Filed June 27, 1898. Serial No. 684,613. (No model.)

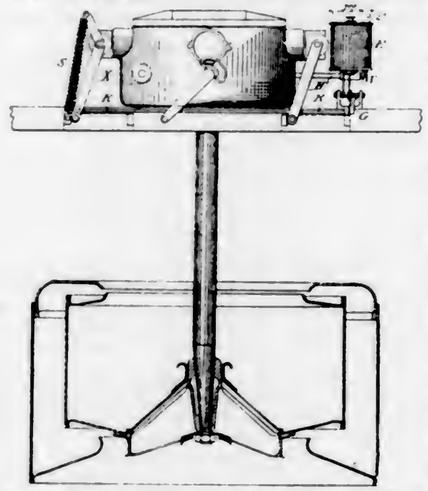


Claim.—1. A centrifugal pump comprising an oblate spheroidal chamber having an axial inlet on one side and an outlet on the other side; a disk to revolve in the chamber and provided on the inlet side with an axially-arranged cone and radiating wings which are, respectively, sections of a hollow cylindroid the chords of said wings being at an angle with the plane of rotation substantially as set forth.

2. A centrifugal pump having its runner provided with radial wings and blades each of which is curved transversely to form a radial channel along its forward side, substantially as and for the purpose set forth.

3. In a centrifugal pump, the combination set forth of a cylindrical chamber provided with a centrally-arranged inlet and outlet; spirally-arranged wings leading to the outlet and each having its outer edge curved over to hug the water toward the casing; a runner comprising a disk of less diameter than the chamber, journaled to revolve in the chamber and provided on its suction side with radial wings or blades, each curved to form a longitudinal channel on its forward side.

753,155. WATER-DRIVEN CENTRIFUGAL MACHINE. JAMES W. MACFARLANE, Glasgow, Scotland. Filed June 10, 1901. Serial No. 63,986. (No model.)



Claim.—1. The combination with a casing, a rotary motor, and fluid-delivery means, of a device entrapping a portion of the spent fluid as described, a device constructed and arranged to be operated by such entrapped fluid, means for reducing the delivery of fluid, and connections between said device and said means.

2. The combination with a rotary motor, and fluid-delivering means, of a device entrapping a portion of the spent fluid when the current formed by the spent fluid is flowing in one direction and inoperative when said current is flowing in the reverse direction, mechanism to reduce the fluid-delivery and constructed to be operated by the entrapped fluid.

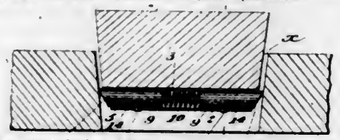
3. The combination with a casing, a rotary motor, and fluid-delivering means, of a device entrapping a portion of the spent fluid when the current formed by the spent fluid is flowing in one direction and inoperative when said current is flowing in the reverse direction, and means operated by the entrapped spent fluid automatically reducing the supply of fluid delivered to the motor.

4. The combination with a casing, a rotary motor, and a series of fluid-delivering nozzles, and mechanism for holding some of the nozzles normally closed, of mechanism holding the said normally closed nozzles open, a device entrapping a portion of the spent fluid when the current formed by the spent fluid is flowing in one direction and inoperative when the said current is flowing in a reverse direction, and mechanism operated by the entrapped fluid for releasing the mechanism which holds the nozzles closed.

5. The combination with a casing, a rotary motor, and fluid-delivering means, of a device entrapping a portion of the spent fluid when the current formed by the spent fluid is flowing in one direction and inoperative when said current is flowing in the reverse direction, a float-tank receiving the spent fluid, a float, and means operated by the float to reduce the supply of the fluid-delivering means.

6. The combination with a casing, a rotary motor, and two fluid-delivering nozzles, a spring holding the valve of one of said nozzles normally closed, a sliding bar connected with the valve of the normally closed nozzle, a detent holding the sliding bar against movement when the valve is open; a device entrapping a portion of the spent fluid when the current formed by the spent fluid is flowing in one direction and inoperative when said current is flowing in the opposite direction, a conduit conveying the entrapped fluid to a float-tank, a float and a lever connected to the float and operating the detent to release the slide-bar.

753,156. BARREL-BUNG. EMIL M. MAYER, Cincinnati, Ohio. Filed Sept. 14, 1903. Serial No. 173,210. (No model.)



Claim.—1. A device of the character described comprising bolts movable toward and from each other and having flattened upper faces and beveled extremities for engagement with the interior of a barrel or the like and a spring engaged with each bolt and arranged to hold its extremity normally pressed outward for engagement with said barrel, the flattened upper faces of the bolts conforming to the inner surface of the barrel.

2. A device of the character described comprising a frame adapted for attachment to a bung or the like and formed of two members of rectangular contour one above the other, one member having its corners cut away and the other member having its corners bent underneath the cut-away portions of the first-named member and one member having a central portion bent away from the other member to produce a longitudinal groove or channel provided with slots, bolts held in the groove or channel with extremities protruding at the ends thereof and with projections engaged in said slots and a spring held in the channel between the bolts.

3. A barrel-bung having upon its under side an attached frame provided with an elongated channel, a bolt movable endwise in said channel with an extremity beveled upon its lower side for engagement with a stave when the bung is inserted in a bung-hole and a spring held in said channel and engaged with the other end of the bolt to hold the same pressed out for engagement with said stave.

4. A barrel-bung having upon its under side an attached frame provided with an elongated channel, bolts movable endwise in the channel with extremities beveled upon their lower sides and adapted to project beyond opposite ends of the channel for engagement with a stave when the bung is inserted in a bung-hole and a spring centrally arranged in the channel and having opposite ends engaged with the respective bolts to hold each bolt with its beveled end normally extended from the channel.

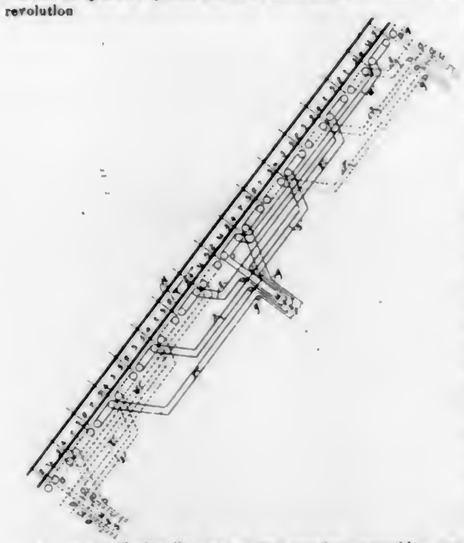
753,157. RAILWAY BLOCK SYSTEM. JOSEPH MORTON, New Westminster, Canada. Filed Oct. 19, 1903. Serial No. 177,655. (No model.)

Claim.—1. As a means for signaling from the track to a passing train; a bell-ringing mechanism on the locomotive comprising a vertical shaft extending from within the cab downward toward the track-level and having a limited rotative movement which is operative of the bell-striker, a lever projecting from the lower end of said shaft, a series of sprocket-wheels along the track each having an upwardly-projecting member toward the periphery designed to engage the lever of the bell-ringing mechanism of the locomotive when in one position, but clear of such lever when partially rotated, and means operative from a signal-cabin for imparting partial rotation to the sprockets whereby the bell on the locomotive may be rung or not, as required.

2. As a means for signaling from the track to a passing train; a series of wheels rotatable on vertical axes at suitable intervals along the track, such wheels having upwardly-projecting members toward the periphery designed to engage and operate a bell-ringing mechanism on a passing locomotive, and means operative from the signal-cabins for partially rotating the wheels by which the upwardly-projecting members may be moved out of or into the path of the locomotive-signaling mechanism.

3. As a block-signaling means for railway-trains; a series of sprocket-wheels at suitable intervals along the track rotatable on vertical axes and having members upwardly projecting toward their peripheries, an endless wire rope having chain-sections adjacent to

the sprockets, such chain passing round a group of such sprockets and in engagement with the intermediate ones, and means for moving such rope back and forth whereby the sprockets may be rotated a half-revolution, and a bell-ringing mechanism on the locomotive designed to be engaged and operated by the upward projections of the sprockets when they are in one position, but which will not be operated by such when the sprockets are rotated a half-revolution

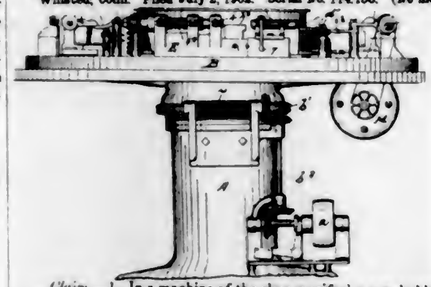


4. As a block-signaling means, two sprockets rotatable on vertical axes a suitable distance apart on the track and having members upwardly projecting from toward the same side of their peripheries, a wire rope and chain passing round the sprockets and designed to be operated to impart a half-revolution to the sprockets, two similar sprockets situated between the foregoing and having their upward projections both on the same side of the periphery but on the opposite side to those of the aforementioned sprockets, a bell-ringing mechanism on the locomotive comprising a light vertical shaft extending from within the cab to toward the track-level and having a lever secured to the lower end designed to engage the upwardly-projecting members of the track-sprockets by which the shaft may be partially rotated, a spring to return the lever to its normal mid-position, and a toothed sector toward the upper end of the shaft meshing with a pinion whereby strikers will ring a bell adjacent when the shaft is rotated.

5. In a train-signaling means having a bell-ringing mechanism on the locomotive and means for operating such by a series of controlled upward projections on the track; a means for intimating to the cabin-signalman the passage of the train from the position of the track projections comprising contacts on the track which when depressed will ring a bell or gong in the cabin, and a controlled lever depending from the locomotive whereby the contacts may be depressed.

6. In a railway block-signaling system wherein a bell-ringing mechanism on the locomotive is operated by upwardly-projecting members on the track which may be moved in or out of the path of the locomotive-bell-ringing mechanism; the arrangement of the projection carrying and operating mechanism of each cabin into four groups of four projections each, the two end projection-carrying mechanisms of each group being fixed a section distance apart and arranged that their projections will be in and out of the path of the locomotive-bell-ringing mechanism at one time, the other two projection-carrying mechanisms being similarly operative together but arranged to be in the path when the end ones are out, and vice versa, each group of four to be separately operative from the cabin and each group to extend the first from three-fourths of a section distance on one side of the cabin to one-fourth on the other, the second from one-half such section on one side to one-half on the other, the third from one-fourth of a section distance on one side to three-fourths on the other, and the fourth a section distance to one side, and the necessary means automatically operative by the locomotive for signaling to the cabins by bell or gong when a train passes the several subdivisions of each section, all substantially as described.

753,158. METAL-TURNING MACHINE. THOMAS W. R. MCCABE, Winsted, Conn. Filed July 2, 1902. Serial No. 114,155. (No model.)



Claim.—1. In a machine of the class specified a cam-holder, and a table, one of which is mounted in operative relation and rotatable independently of the other, said table carrying tools, each of which has a plurality of moving parts operatively connected to the tool, whose movements are controlled by the cams carried by the cam-holder.

2. In a machine of the class specified the cam-holder and the table, one mounted in operative relation to and rotatable independently of the other, cams carried by the cam-holder, lathes carried by the table, and controlling mechanism, connected with the movable parts of the lathes, actuated by the cams in the cam-holder, substantially as described.

3. In a machine of the class specified the base supporting a cam-holder and a table, one of said parts being surrounded by the other, means for rotating one of said parts independently of the other, cams carried by the cam-holder, lathes carried by the table, and controlling mechanism, attached to the moving parts of the lathes, actuated by the cams, substantially as described.

4. In a machine of the class specified the standard supporting a stationary cam-holder, a rotatable table which surrounds said cam-holder, and means for imparting rotary motion to said table, said table carrying tools, each of which has a plurality of moving parts operatively connected to the tool, whose movements are controlled by the cams carried by the cam-holder.

5. In a device of the class specified a cam-holder, a table surrounding said cam-holder, means for causing the table to rotate about the cam-holder, cams carried by the cam-holder, a plural number of lathes carried on the table, a turret carried on the table and supporting tools adapted to cooperate with the lathe, and levers connected with the movable parts of the lathes and turrets and actuated by the cams.

6. A cam-holder, cams carried thereby, a table surrounding said cam-holder and adapted to rotate about it, lathes and their cooperating turrets carried by the table, means for driving the spindles of the lathes, and levers connected with the moving parts of the lathes and turrets actuated by said cams, substantially as described.

7. A cam-holder, a table surrounding the cam-holder and adapted to rotate thereabout, cams carried by the cam-holder, lathes carried by the table, driving mechanism for the lathe-spindles, and means actuated by one set of cams in the cam-holder for throwing said driving mechanism into and out of driving engagement with the lathe-spindle, substantially as described.

8. A cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, lathes carried by the table, driving mechanism for the lathe-spindles controlled by a clutch mechanism, and a double-ended lever connected with said clutch and actuated by one set of cams on the cam-holder, substantially as described.

9. A cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, lathes carried by the table, the lathe-chuck normally closed by a spring, and a lever actuated by a set of cams in the cam-holder for releasing the jaws of said chuck, substantially as described.

10. The cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, and lathes carried by the table; in combination with the turrets and means operating with said cams for moving the turret toward and away from and lengthwise of the lathe.

11. The cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, and lathes carried by the table; in combination with cylindrical turrets rotatably supported in suitable bearings, with their axes substantially parallel to the axes of the lathes; mechanisms cooperating with said cams for rotating each turret, for moving each turret toward and away from the lathe, and for imparting to each turret a reciprocating motion lengthwise of the lathe.

12. The cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, and lathes carried by the table; in combination with cylindrical turrets rotatably supported in suitable bearings, with their axes substantially parallel to the axes of the lathes, the stationary tool-rests; mechanisms cooperating with said cams for rotating each turret, for moving a turret toward the lathe and away from it free of the tool-rest, and for reciprocating each turret in a direction lengthwise of the lathe, substantially as described and for the purposes set forth.

13. The cam-holder, cams carried thereby, a table surrounding the cam-holder and adapted to rotate thereabout, and lathes carried by the table; in combination with cylindrical turrets rotatably supported in suitable bearings, with their axes substantially parallel to the axes of the lathes, the stationary tool-rests, tools projecting radially from the turrets, mechanism cooperating with said cams for rotating each turret, for retracting a turret and holding it in that position while it is being rotated, for advancing a turret, and yielding means for holding the tools on the tool-rests.

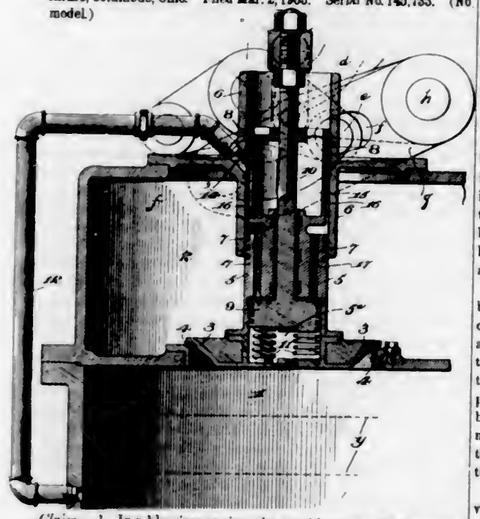
14. In a machine of the class specified the stationary cam-holder, the table rotatably mounted with relation thereto, one or more lathes mounted on the table and driving mechanism therefor, cams carried by the cam-holder and operating-levers coacting with said cams for controlling the operation of the lathes, as and for the purposes specified.

15. In a machine of the class described the stationary cam-holder, the table rotatably mounted with relation thereto, cams carried by the cam-holder, lathes mounted upon the table and driving mechanism therefor, levers for controlling the operation of said lathes, one or more of said levers being operated by the cams in the cam-holder, substantially as set forth.

16. In a machine of the class specified in combination the stationary cam-holder the cams carried thereby, the rotatable table, the lathes and turrets mounted thereon, driving mechanism for the lathes, levers connected with the moving parts of the lathes and turrets and adapted to control the operation thereof, said levers being actuated by cams as and for the purposes specified.

17. In combination in a machine of the class specified the stationary cam-holder, the table rotatably mounted with relation thereto, means for moving the table, independently-driven lathes mounted on said table, turrets cooperating with said lathes, levers connected with the moving parts of the lathes and turrets and adapted to be actuated by cams in the cam-holder, all substantially as described and for the purposes set forth.

753,159. VALVE FOR BLOWING-ENGINES. ALEXANDER K. RARIG, Columbus, Ohio. Filed Mar. 2, 1903. Serial No. 145,733. (No model.)



Claim.—1. In a blowing-engine, the combination with the valve between the compression-cylinder and the receiver and the positively-acting valve-gear therefor; of a yielding connection between the valve and its gear, a pressure-actuated valve-balancing piston connected with the valve, and means communicating pressure to the valve-balancing piston from the compression-cylinder.

2. In a blowing-engine, the combination with the valve between the compression-cylinder and the receiver, and the valve-gear for normally opening said valve; of a piston connected with said valve, and a cylinder in which said piston works, having communication with the compression-cylinder and receiving pressure therefrom to counterbalance the closing tendency of the valve when the valve-gear fails to act.

3. In a blowing-engine, the combination with the valve between the compression-cylinder and the receiver, and the valve-gear normally actuating said valve; of a valve-piston connected with the valve, a valve-piston cylinder in which the valve-piston works, and a communication between said valve-piston cylinder and a point in the compression-cylinder between the limits of motion of the pumping-piston, whereby pressure is communicated to and exhausted from the valve-piston cylinder by the pumping-piston.

4. In a blowing-engine, the combination with the valve between the compression-cylinder and the receiver, and the valve-gear for normally operating said valve; of a valve-stem through which said gear is connected to the valve, having yielding connection with the valve, a valve-piston surrounding said stem, a cylinder in which said valve-piston works, and a communication between the cylinder of the valve-piston and the compression-cylinder, whereby pressure is supplied to balance the valve.

5. In a blowing-engine, the combination of the valve between the compression-cylinder and the receiver, a balancing-piston connected with said valve, a cylinder in which said balancing-piston works, and by which the valve is guided in its movements, a valve-stem working through said piston and having yielding connection with the valve and suitable valve-gear normally operating the valve through said stem.

6. In a blowing-engine, the combination of the valve located between the compression-cylinder and the receiver, a balancing-piston connected with said valve, a cylinder in which said piston works, a valve-stem moving said valve in the direction of opening, springs interposed between the valve-stem and the valve through which the stem may close the valve, a suitable valve-gear controlling the valve through said stem, and communication between the balancing-piston cylinder and the pressure-cylinder of the engine.

7. In combination with a valve for blowing-engines, the balancing-piston connected with said valve, the cylinder in which said balancing-piston works, the positively-actuated valve-stem working through said piston and having a head thereon working in said piston, a passage establishing communication from the compression-cylinder to the space between the head and piston.

8. In combination with a valve for blowing-engines, the balancing-piston connected with said valve, the cylinder in which said balancing-piston works, communicating with main compression-cylinder, the positively-actuated valve-stem for said valve, a head on said valve-stem, springs interposed beneath said head, closing the valve, and a passage communicating pressure from the balancing-piston cylinder to the space between the head and piston.

9. In a blowing-engine, the combination of the valve located between the compression-cylinder and the receiver, the balancing-piston connected with said valve, the cylinder in which said balancing-piston works, having communication with the compression-cylinder, the valve-stem extending through and having a head working in said balancing-piston, and engaging the piston in one direction through the medium of said head, pressure-communicating passages between the balancing-piston cylinder and the space between the head and piston, springs interposed between the head and the valve, and positively-acting valve-gear connected with the valve-stem.

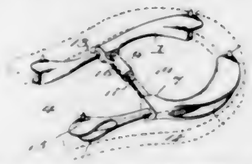
10. In a blowing-engine, the combination of the valve located between the pressure-cylinder and the receiver, a valve-balancing cylinder, a piston working in said cylinder connected with the valve, and having a pressure-chamber between its ends, a valve-stem extending through the piston and having a head working in the piston, passages communicating between the pressure-chamber in the piston and the space between said piston and head, springs located between the head and the valve, positively-acting valve-gear connected with the valve-stem, and a suitable communication between the pressure-chamber of the piston and the compression-cylinder of the blowing-engine.

11. In a blowing-engine, the combination of the air-discharge valve, valve-gear therefor, a cylinder arranged in line with said air-valve, a piston working in said cylinder, connected with the air-valve, a valve-stem extending through said piston and having a head working in the piston, a passage supplying pressure from the main compression-cylinder to the space between the valve-piston and the

head; the superficial area of the valve-piston exposed to pressure being such that the weight of the piston and valve is balanced when the valve-gear fails to operate, thereby permitting the valve to rise under increase of pressure beneath it.

12. In a blowing-engine, the combination of the air-discharge valve, valve-gear therefor, a cylinder arranged in line with said air-valve, a piston working in said cylinder, connected with the air-valve, a valve-stem extending through said piston, and having a head working in the piston, springs interposed between said head and the valve, and a passage supplying pressure from the main pumping-cylinder to the space between the valve-piston and the head; the superficial area of the valve-piston exposed to pressure being such that the weight of the piston and valve, and the pressure of said springs, are balanced when the valve-gear fails to operate, thereby permitting the valve to rise under increase of pressure beneath it.

753,160. **HORSESHOE ICE-CREEPER.** CHARLES H. ROCKEFUS, Port Deposit, Md. Filed Oct. 28, 1903. Serial No. 178,854. (No model.)



Claim.—1. A creeper comprising oppositely-arranged grooved members, grooved extensions adjustably connected thereto, and means for adjusting the extensions longitudinally in relation to the members.

2. A creeper comprising oppositely-arranged grooved curved members, grooved extensions adjustably connected thereto, calks extending from the members and the extensions, and means for adjusting said extensions longitudinally in relation to the members.

3. A device of the character described comprising oppositely-arranged members having grooves therein for the reception of a horseshoe, extensions longitudinally adjustable in relation to the members and having horseshoe-receiving grooves, calks extending from the members and their extensions, and means for adjusting said members from or toward each other.

4. A device of the character described comprising oppositely-arranged members having horseshoe-receiving grooves therein, calks detachably seated within the members and adapted to be retained in positions by the horseshoe, extensions adjustably connected to the members and having horseshoe-receiving grooves, and means for adjusting the members from or toward each other.

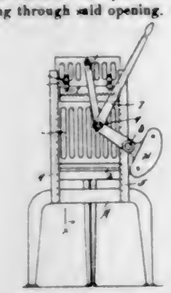
5. A device of the character described comprising oppositely-arranged members having horseshoe-receiving grooves, extensions adjustably connected to the members and having horseshoe-receiving grooves therein, calks within the members and extensions and adapted to be retained in position by a horseshoe, a tube connected to one of the members, and a recessed extension integral with the other member, and an oppositely-threaded screw engaging said extension and the tube.

6. A device of the character described comprising oppositely-arranged members pivoted together and having horseshoe-receiving grooves in their outer faces, extensions adjustably connected to the members and having grooves therein, calks detachably arranged within the members and extensions and adapted to be retained therein by a horseshoe, a tube pivoted to one of the members, a recessed extension integral with the other member, and an oppositely-threaded screw engaging the tube and recessed extension, respectively.

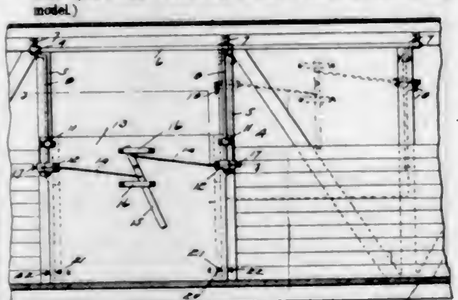
753,161. **ICE-SHAVING MACHINE.** FRANK J. REINHOLD, Detroit, Mich., assignor to Lina Reinhold, Detroit, Mich. Filed May 12, 1902. Serial No. 106,906. (No model.)

Claim.—1. In an ice-shaving machine in combination with a table arranged to hold a block of ice and to cause the same to feed by gravity, a plate arranged to engage against the front of the ice and provided with an opening for a knife, means for actuating the plate, a bracket secured to the plate above the opening, a knife-holder held adjustably to said bracket, knife-holding bolts carried by the holder, a knife held by the bolts and springs interposed between the knife and the holder arranged to hold the knife yieldingly with its cutting edge projecting through the opening in the plate, substantially as described.

2. In an ice-shaving machine, the combination of an ice-support arranged to feed a block of ice thereon by gravity, a reciprocatory knife-carrying plate arranged as a stop to the ice block and provided with an opening for the reception of a knife, a knife, and means for supporting said knife yieldingly in a position slanting to the direction of movement of the plate, with the cutting edge of said knife protruding through said opening.



753,162. **GRAIN-DOOR FOR FREIGHT-CARS.** JOHN RILEY, Minneapolis, Minn. Filed Aug. 4, 1903. Serial No. 168,152. (No model.)



Claim.—1. The combination, with a freight-car, of a track mounted above the door-opening and extending beyond the same on one side, bars loosely mounted on said track and adapted to slide longitudinally thereof and oscillate laterally with respect thereto, a door having guides to receive the lower ends of said bars and whereon said door is vertically slidable, and a mechanism carried by said door and arranged to engage said bars to lock said door in its raised position, substantially as described.

2. The combination, with a freight-car, of a rod supported above the door-opening and extending beyond the same on one side, bars mounted on said rod and adapted to slide lengthwise thereof, a door having guides to receive the lower ends of said bars and whereon said door is slidable, and sliding rods for locking said door when raised to a certain predetermined point on said bars.

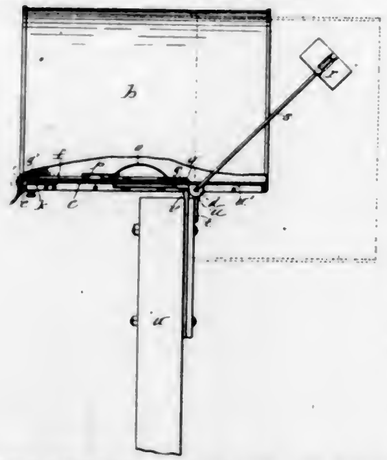
3. The combination, with a freight-car, of a track supported above the door-opening and projecting beyond the same on one side, bars mounted on said track and slidable lengthwise thereof, a door having guides to receive said bars and slidable vertically thereon, and a hook 18 pivoted on the car and arranged to engage a lug 17 on the door for securing it against the side of the car when said door is raised and moved away from said opening, substantially as described.

4. The combination, with a freight-car, of a rod supported above the door-opening, bars loosely mounted on said rod, a door having guides to receive the lower ends of said bars and to slide vertically thereon, and a lever-operated mechanism provided on said door and arranged to engage said bars to lock said door in its raised position.

5. The combination, with a freight-car, of a rod supported above the door-opening, bars suspended on said rod and having slots in their upper ends, a door having guides to receive the lower ends of said bars and vertically slidable thereon, a lever pivoted on said door, and rods connected with said lever on each side of its pivotal connection with said door and adapted to enter said slots when said door is raised to lock it in its elevated position.

753,163. **MAIL-BOX.** GEORGE E. ROBISON, Locke, N. Y. Filed Sept. 4, 1903. Serial No. 171,900. (No model.)

Claim.—1. The combination of a stationary support, a door rigidly secured in a horizontal position on said support, and the mail-box pivotally connected to said door as set forth.



2. The combination of a stationary support, a door fastened in a horizontal position to said support, the mail-box pivotally connected to said door, and a signal adjustably connected to the box-support as set forth.

3. The combination of a mail-box having its door fastened in horizontal position to the support of the box and hinged to the box by a pivot-rod formed at one end with a crank engaging the box-support during the tilting of the box from its door, an arm extending from the opposite end of the pivot-rod, and a signal attached to said arm as set forth.

4. A mail-box having its door fastened in horizontal position to the support of the box and hinged to the box to allow it to tilt vertically from the door, a rabbeted door-jamb on the box, and a packing in said door-jamb as set forth and shown.

5. The combination of a stationary support, a door fastened horizontally to said support, a holder for unstamped mail, and a pay-receptacle secured to the top of said door, and the mail-box hinged to the door and housing said holder and receptacle as set forth.

6. The combination of a stationary support, a door fastened horizontally to said support, the mail-box hinged to said door, a partition dividing the box into front and rear compartments and provided with a mail-depositing opening leading to the rear compartment, and a door in said partition provided with a lock and a removable key as set forth.

753,164. **PRINTING-PRESS.** JAMES ROWE, Chicago, Ill. Filed Aug. 7, 1903. Serial No. 168,655. (No model.)

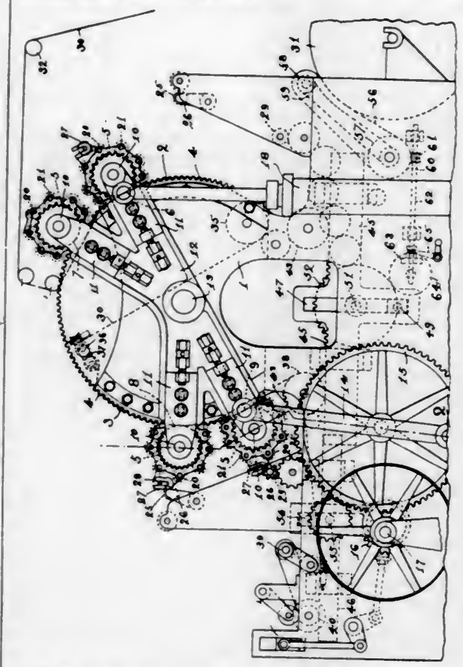
Claim.—1. In a printing-press, the combination with a segmental impression-bed, and devices for feeding a web to be printed intermittently over same, of an oscillating frame swinging in an arc concentric with said impression-bed and carrying the printing devices movable over said bed.

2. In a printing-press, the combination with a segmental impression-bed, and an oscillating frame swinging in an arc concentric with said bed and carrying the other member of the printing-couple, of web-feeding devices coacting with said last-named member of said printing-couple, to feed the web to be printed at intervals over said bed.

3. In a printing-press, the combination with a segmental impression-bed, and an oscillating frame swinging in an arc concentric with said bed and carrying the other member of the printing-couple, of web-feeding devices coacting with said last-named member of said printing-couple to feed the web to be printed a predetermined distance between the printing intervals.

4. In a printing-press, the combination with an oscillating member carrying the printing member, and an impression-bed concentric with said oscillating member, of web-feeding devices coacting with said oscillating member and engaging the web to be printed for moving said web a predetermined distance between the printing operations.

5. In a printing-press, the combination with an oscillating member carrying the printing member, and an impression-bed concentric with said oscillating member, of web-feeding devices coacting with said oscillating member and engaging the web to-be printed for moving said web a predetermined distance as said oscillating member is adjacent either limit of its movement.



6. The combination with an oscillating member, a printing-cylinder carried thereby, an impression-bed concentric with said oscillating member and over which said cylinder moves, and a raised printing-plate on said printing-cylinder, of web-shifting devices coacting with said oscillating member to shift said web when said raised portion of said cylinder is out of printing relation with said bed.

7. The combination with an oscillating member, a printing-cylinder carried thereby, an ink-distributing surface on said cylinder, a raised printing-plate carried by said cylinder, and an impression-bed concentric with the axis of said oscillating member, of intermittently-actuated web-shifting devices and means for imparting motion thereto when said raised printing-plate carried by said cylinder is out of printing relation with said bed.

8. In a printing-press, the combination with a segmental impression-bed, concentric racks at each side of said bed, and an oscillating frame swinging in an arc concentric with said bed, of a printing-cylinder carried by said oscillating frame and movable over said bed, spur-gears rigid with said cylinder and meshing with said racks, a raised printing-surface partially covering said cylinder, web-shifting devices, and gearing controlling the movements of said oscillating frame and said web-shifting devices to actuate the latter when said printing-surface of said cylinder is out of printing relation with said bed and the web is free.

9. In a printing-press, the combination with a rigid segmental impression-bed, racks at each side thereof, concentric therewith, an oscillating frame swinging in an arc concentric with said bed, a printing-cylinder carried by said frame, spur-gears rigid with said cylinder and meshing with said rack, and a raised printing-surface covering part of said cylinder, of web-shifting devices, gearing between said web-shifting devices and said oscillating frame for operating said shifting devices when said printing-surface of said cylinder is out of printing relation with said bed, and means for regulating the movements of said web-shifting devices for varying the feed of the web.

10. In a printing-press, the combination with a rigid impression-bed, an oscillating frame, a printing-cylinder carried by said frame and movable over said bed, and a raised printing-surface covering

part of said cylinder, of web-feeding devices and gearing between said web-feeding devices and said frame for feeding said web when said printing-surface of said cylinder is out of printing relation with said bed.

11. In a printing-press, the combination with a rigid impression-bed, an oscillating frame, a printing-cylinder carried by said frame and movable over said bed, and a printing-surface covering part of said cylinder, of web-feeding devices, means common to said frame and said web-feeding devices for operating the latter when said printing-surface of said cylinder is out of printing relation with said bed, and means for varying the feed of said web to accord with the length of the impression made by said cylinder.

12. In a printing-press, the combination with a rigid impression-bed, an oscillating frame, a printing-cylinder carried by said frame and movable over said bed, and a raised printing-surface covering part of said cylinder, of web-feeding devices, a reciprocating rack controlling same, means for varying the stroke of said rack to vary the length of web fed, and means common to said rack and said oscillating frame for actuating said web-feeding devices when said printing portion of said cylinder is out of printing relation with said bed.

13. In a printing-press, the combination with a rigid impression-bed, an oscillating frame, a printing-cylinder carried by said frame and movable over said bed, and a raised printing-surface covering part of said cylinder, of web-feeding devices, a reciprocating rack controlling same, an adjustable crank operating said rack and adapted to vary the stroke thereof to vary the feed of said web, and gearing between said crank and said oscillating frame to operate said web-feeding devices when the printing-surface of said cylinder is out of printing relation with said bed.

14. In a printing-press, the combination with an impression-bed, a rack rigid therewith, a printing-cylinder, spur-gears carried thereby and meshing with said rack, a raised printing-surface partially covering said cylinder, and means for setting said members in relative motion for printing, of web-shifting devices, a reciprocating member, clutch devices operable from said reciprocating member and adapted to clutch and actuate said web-shifting devices when said reciprocating member moves in one direction, and gearing between said means for operating said printing members and said reciprocating member for actuating said web-shifting devices when said printing members are out of printing relation.

15. In a printing-press, the combination with an impression-bed, a rack rigid therewith, a printing-cylinder, spur-gears carried thereby and meshing with said rack, a raised printing-surface partially covering said cylinder, and means for setting said members in relative motion for printing, of web-shifting devices, a reciprocating member, clutch devices operable from said reciprocating member and adapted to clutch and actuate said web-shifting devices when said reciprocating member moves in one direction, means for varying the stroke of said reciprocating member for regulating the length of web fed, and gearing between said printing members and said reciprocating members for causing said web-shifting devices to be actuated when said printing members are out of printing relation with each other.

16. In a printing-press, the combination with an impression-bed, a plurality of printing-cylinders movable over different parts of said impression-bed and provided with segmental raised printing-surfaces covering part of the surface of each cylinder, and means for simultaneously operating said cylinders, of web-shifting devices, gearing between the same and said cylinder-operating devices to actuate said web-shifting devices between the printing intervals, and means for varying the feed of said web to present a fresh surface simultaneously to all cylinders or to present the same surface successively to each of same.

17. In a printing-press, the combination with an impression-bed, a plurality of cylinders simultaneously movable over different parts of said bed and provided with raised printing-surfaces covering part of the periphery of each cylinder, and means imparting motion to said cylinder, of web-shifting devices, gearing between the same and said cylinder-operating devices to actuate said web-shifting devices when said printing portions of said cylinders are out of printing relation, and means for regulating the length of web fed at each operation including a reciprocating member having a variable throw, gearing between said member and said web-shifting devices, and means for throwing said gearing into operation when said member moves in one direction.

18. In a printing-press, the combination with an impression-bed, a plurality of printing members each operating on a different portion of said bed, and means for simultaneously operating said printing members, of web-feeding mechanism, gearing between the same and said printing members for actuating said web-feeding devices between the printing intervals, and means controlling the length of web fed at each operation, including a reciprocating member, a crank, and a radially-adjustable crank-pin engaging said reciprocating member to vary the stroke thereof.

19. In a printing-press, the combination with two oppositely-disposed impression-beds, printing members movable over said beds, and a single frame common to both said members, of web-shifting devices, gearing common to the latter and said frame to actuate said web-shifting devices between the printing intervals, compensating devices between said impression-beds engaging said web, and means for varying the feed of said web.

20. In a printing-press, the combination with two oppositely-disposed impression-beds, printing members movable over each of said beds, and connection between said members for simultaneously operating same, of web-shifting devices, and gearing between the latter and said printing members for actuating said web-shifting devices between the printing intervals.

21. In a printing-press, the combination with the oppositely-disposed impression-beds, printing members movable over each of said beds, and connection between said members for simultaneously operating same, of web-shifting devices, and gearing between the latter and said printing members for actuating said web-shifting devices between the printing intervals, and devices controlling said web-shifting devices for varying the stroke thereof, including a radially-adjustable crank-pin engaging a part of said web-shifting mechanism.

22. In a printing-press, the combination with a plurality of impression-beds, a plurality of printing members movable over each of same, means for simultaneously operating all of said printing members, and web-shifting devices common to both said beds, of gearing common to said printing members and said web-shifting devices for actuating the latter between the printing intervals.

23. In a printing-press, the combination with a plurality of impression-beds, a plurality of printing members movable over each of same, means for simultaneously operating all of said printing members, and web-shifting devices common to both said beds, of gearing common to said printing members and said web-shifting devices for actuating the latter between the printing intervals, and means for varying the throw of said web-shifting devices including a radially-adjustable revoluble crank-pin engaging a part of said web-shifting mechanism.

24. In a printing-press, the combination with a plurality of impression-beds, a plurality of printing members movable over each of same, means for simultaneously operating all of said printing members, and web-shifting devices common to both said beds, of gearing common to said printing members and said web-shifting devices for actuating the latter between the printing intervals, compensating devices between the impression-beds engaging the web to control the register, and means for varying the throw of said web-shifting devices including a radially-adjustable revoluble crank-pin engaging a part of said web-shifting mechanism.

25. In a printing-press, the combination with a plurality of impression-beds, a web movable consecutively over said beds, printing members movable simultaneously over said beds and printing consecutively over each given section of said web, and compensating devices engaging said web to control the register thereof of said various beds, of web-shifting devices, gearing common to said printing members and said web-shifting devices to actuate the latter between the printing intervals, and means controlling said web-shifting devices to vary the throw thereof.

26. In a printing-press, the combination with a plurality of impression-beds, a web movable consecutively over said beds, printing members movable simultaneously over said beds and printing consecutively over each given section of said web, and compensating devices engaging said web to control the register thereof on said various beds, of web-shifting devices, gearing common to said printing members and said web-shifting devices to actuate the latter between the printing intervals, and means controlling said web-shifting devices to vary the throw thereof, including a radially-adjustable revoluble crank-pin engaging a part of the web-shifting mechanism.

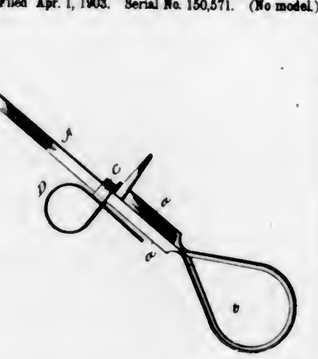
27. In a printing-press, the combination with two diametrically opposite segmental impression-beds, printing members movable over same, and an oscillating frame swinging on the axis of said impression-beds, of web-shifting mechanism, gearing common to the latter and said oscillating frame to actuate said web-shifting mechanism between the printing intervals, means for varying the feed of the web to accord with the length of the impression thereon at each operation, and compensating devices between said impression-beds engaging said web to control the register.

28. In a printing-press, the combination with the diametrically opposite concentric segmental impression-beds, an oscillating frame swinging on the axis of said impression-beds, two cylinders at each end of said frame moving over said impression-beds, and having raised printing-surfaces, a web movable consecutively over said beds, and compensating devices between said beds engaging said web and controlling the register on the second bed, of web-shifting mechanism, gearing common to said oscillating frame and web-shifting mechanism to operate the latter between the printing intervals, devices interposed in said gearing for varying the throw of said web-shifting mechanism, a revoluble roll from which the web is taken, and variable-speed gearing engaging said roll to revolve the same at a uniform speed in accordance with the rapidity of operation of said web-shifting mechanism.

29. In a printing-press, the combination with a bed, and a frame movable over said bed, of a cylinder journaled in bearings in said frame and having its surface divided into two segmental parts of different radius, one of said parts forming an ink-distributing surface and the other thereof a printing-surface, and ink-distributing rollers journaled in said frame and adapted to be brought alternately in contact with said two parts of the surface of said cylinder as the latter revolves.

30. In a printing-press, the combination with a bed and a revoluble cylinder, said bed and cylinder being relatively movable, of members carrying said cylinder, inking-rollers journaled in said member and held in contact with said cylinder, an ink-distributing surface on said cylinder and a printing-surface on said cylinder of longer radius than said inking-surface adapted to receive ink from said rollers.

753,165. **MINER'S CANDLESTICK.** RICHARD H. ROBDEN, Rossland, Canada. Filed Apr. 1, 1903. Serial No. 150,571. (No model.)

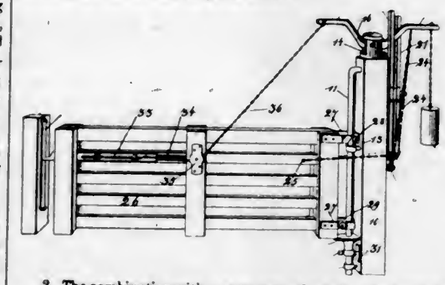


Claim.—1. A miner's candlestick having its prod and handle formed of a single piece of material with parallel members, a hook secured to said prod between said parallel members and projecting at an angle thereto, a thimble sleeved upon the prod and having a portion engaging the end of the shorter of said members, and a nut on said prod bearing against said end of the thimble.

2. A miner's candlestick having its prod and handle formed of a single piece of material with parallel members, a hook secured to said prod between said parallel members and projecting at an angle thereto, a thimble sleeved upon the prod and having a portion engaging the end of the shorter of said members, and a nut on said prod bearing against said end of the thimble, the opposite end of the material forming said thimble bearing against said nut and lying parallel with the other member.

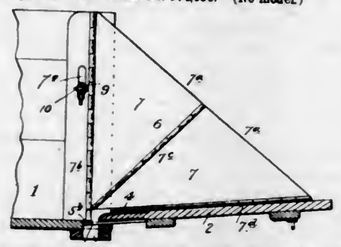
753,166. **FARM-GATE.** TIMOTHY J. RYAN, Des Moines, Iowa. Filed Feb. 24, 1903. Serial No. 144,920. (No model.)

Claim.—1. The combination with a gate-post, of a gate, means for supporting the gate upon the post to permit either vertical or horizontal movement of the gate, a collar pivoted to the top of the post to swing horizontally, a lever fulcrumed to said collar with its ends projecting in opposite directions, a weight on one end of the lever, a sliding latch on the gate, a chain connecting said latch with the other end of the lever, two levers fulcrumed to the gate-post, a pulley on each lever, two pulleys on the gate-post, and two chains, each having one end attached to the weighted end of the lever pivoted in said collar, then passed under one of the pulleys on the gate-post, then over one of the pulleys on one of the levers fulcrumed to the gate-post, and having the other end attached to the gate, substantially as and for the purposes stated.



2. The combination with a gate-post, of a rod or pipe attached to the gate-post and parallel therewith, a gate, straps at the corners of the gate overlapping said pipe or rod, a roller in the upper strap to engage the face of the pipe or rod nearest the post and a roller in the lower strap to engage the face of the pipe or rod farthest from the gate, an adjustable platform on the pipe or rod to support the rear post of the gate, a pivoted collar at the top of the gate-post to swing in a horizontal plane, a lever fulcrumed in said collar, a weight on one end of said lever and a chain on the other end of the lever, said chain being attached to the gate, two cross-levers fulcrumed to the gate-post and having pulleys at their inner ends, two pulleys mounted on the outer face of the gate-post and two chains attached at their upper ends to the lever on top of the post and extended downwardly and under the pulleys on the gate-post, then over the pulleys on the ends of the levers, and finally attached to the sides of the gate proper, for the purposes stated.

753,167. **END-GATE.** JAMES W. SCHIRMER, Westchester, Iowa. Filed Sept. 25, 1903. Serial No. 174,658. (No model.)



Claim.—1. An end-gate or "shoveling-board" for wagons or vehicles, having lateral sectional wings or guards, with the sections of each guard or wing adapted to fold one upon the other.

2. An end-gate or "shoveling-board" for vehicles, having lateral sectional wings or guards, the sections of each guard or wing being triangular and articulate or hinged together along diagonal lines, and adapted to fold one upon the other.

3. An end-gate or "shoveling-board" for vehicles, having lateral sectional guards or wings, each guard comprising two triangular hinged-together sections, and a third articulated or hinged section vertically movable upon its pivot or support.

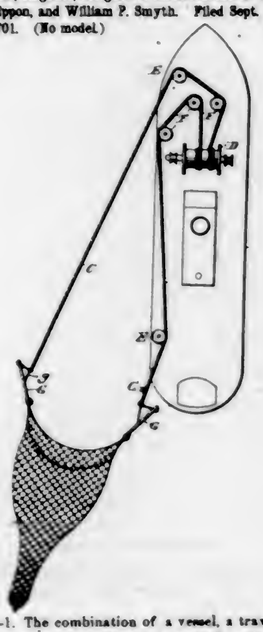
4. An end-gate or "shoveling-board" for wagons or vehicles, having lateral sectional wings or guards, each guard comprising two articulated or hinged-together sections, one of which is also hinged to said gate, and a third hinged section having an elongated slot receiving a pivot or support from the wagon-body.

5. An end-gate or "shoveling-board" for vehicles, means for connecting said end-gate to the vehicle-body, and means for the retention in position of said end-gate, formed of fingers or bars secured to the latter, at its lower end portion engaging rear-end opening-slots provided in the floor of the wagon-body at its rear end, and with their forward ends extending in under a reinforcing-piece applied to said floor.

6. An end-gate or "shoveling-board" for vehicles, having, at its bottom end, fingers or bars engaging rear-end opening-slots in the floor or bottom of the wagon-body adapted to receive said fingers for sustaining said end-gate in position for shoveling out the

contents of said wagon-body, said end-gate also having sectional lateral wings or guards, each section comprising hinged-together sections and a third section axially pivoted or connected to said wagon-body and hinged to one of the aforesaid sections.

753,168. HAULING-GEAR FOR TRAWL-NETS. JAMES R. SCOTT, Hull, England, assignor of three-fourths to William Marshall, Henry Rippon, and William P. Smyth. Filed Sept. 10, 1903. Serial No. 172,701. (No model.)



Claim.—1. The combination of a vessel, a trawl-net provided with means for normally holding its mouth distended, guide-blocks respectively situated at the bow and the stern of the vessel, warps or ropes connected with the net and each passing around one of the guide-blocks and a winch or windlass upon which the warps or ropes may be wound, said guide-blocks being adapted to maintain the separation of the warps or ropes, substantially as described.

2. The combination of a vessel, a trawl-net provided with boards or spreaders for normally holding its mouth distended, guide-blocks respectively situated at the bow and the stern of the vessel, warps or ropes connected with the net and each passing around one of the guide-blocks and a winch or windlass upon which the warps or ropes may be wound, said guide-blocks being adapted to maintain the separation of the warps or ropes, substantially as described.

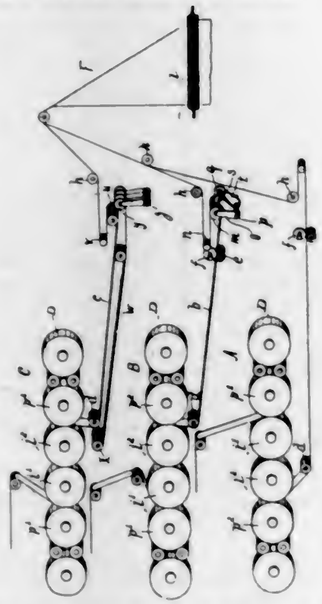
3. A gearing for trawl-nets including means for maintaining the separation of the warps or ropes, in combination with a trawl-net provided with means for holding its mouth distended, when in use, substantially as described.

753,169. PRINTING AND FOLDING MACHINE. WALTER SCOTT, Plainfield, N. J. Filed May 14, 1901. Serial No. 60,196. (No model.)

Claim.—1. The combination with a web-perfecting printing mechanism through which the web-path lies in one plane, of folding mechanism into which the paper passes by a path in a plane forming an acute angle with the first-named plane, and means interposed between said printing and folding mechanisms for reversing the direction of travel of the paper and also changing the course thereof from one to the other of said planes, substantially as described.

2. The combination with a plurality of web-perfecting printing mechanisms through which the web-path lies in one plane, of folding mechanism over a roller of which the paper passes into said mechanism by a path in a plane forming an acute angle with the first-named plane, reversing-rollers parallel with the cylinders of the printing mechanism, guide-rollers parallel with said roller of the folding mechanism, and angle-bars interposed between the reversing and the guide rollers, substantially as described.

3. The combination with web-perfecting printing mechanism through which the web-path lies in one plane, of a longitudinal folder into which the web passes by a path in a plane forming an acute angle with the first-named plane, and means interposed between said printing mechanism and folder for reversing the direction of travel of the web and also changing the course thereof from one to the other of said planes, substantially as described.



4. The combination with web-perfecting printing mechanism through which the web-path lies in one plane, of a longitudinal folder into which the web passes by a path lying in a plane forming an acute angle with the first-named plane, reversing-rollers parallel with the cylinders of the printing mechanism, guide-rollers parallel with a roller at the top of the folder, and angle-bars interposed between the reversing and the guide rollers.

5. The combination with a web-perfecting press whose cylinders are parallel with each other and through which the web-path lies in one plane, of a folding mechanism into which the paper passes by a path in a plane forming an acute angle with the first-named plane, a roller of the folding mechanism forming with the cylinders of the said press an acute angle the same as the first-named angle, and an angle-bar placed at an acute angle with both said roller and said cylinders, substantially as described.

6. The combination with a web-perfecting printing-press through which the web-path lies in one plane, of a folding mechanism into which the paper passes by a path in a plane forming an acute angle with the first-named plane, a reversing-roller parallel with the cylinders of said press, a guide-roller parallel with a roller of the folding mechanism, and an angle-bar interposed between the reversing and the guide rollers, substantially as described.

7. The combination with a web-perfecting printing-press through which the web passes in one plane, of a folding mechanism placed at an obtuse angle to the printing-press, a guide-roller parallel with a roller of the folding mechanism, a guide-roller parallel with the cylinders of the press, and an angle-bar placed at an angle with both of said guide-rollers, whereby the course of the web is changed from its path through the printing-press to its path through the folding mechanism, substantially as described.

8. The combination with a plurality of web-perfecting printing-presses arranged one above another, of a folding mechanism placed at an obtuse angle to the web-path through said presses, guide-rollers parallel with the cylinders of said presses, guide-rollers parallel with a roller at the folding mechanism, and bars placed at an angle with both sets of guide-rollers, whereby the web-path is changed from one to another plane, substantially as described.

9. The combination of a web-perfecting printing-press through which the web-path lies in one plane, a longitudinal folding mechanism into which the paper passes by a path at an angle other than a right angle to said web-path, a guide-roller placed at an acute angle to the cylinders of said press, and a turning-bar located between said press and said roller and placed at an angle to said cylinders and said roller, substantially as described.

10. The combination with a web-perfecting printing-press through which the web-path lies in one plane, a longitudinal folder into which the paper passes by a path forming an angle other than a right angle with said web-path, a roller at an acute angle with the cylinders of said press and at right angles to the folding-rollers of the longitudinal folder, and a turning-bar located between the press and the folder and placed at angles with both said roller and the cylinders of the press, substantially as described.

11. The combination with a web-perfecting printing-press through which the web-path lies in one plane, a longitudinal folder into which the paper passes by a path forming other than a right angle with the said web-path, a guide-roller at an acute angle to the cylinders of said press and at right angles to the folding-rollers of the said folder, and an angle-bar located between the press and the said guide-roller, with means for guiding the web to said bar in such wise that the side first printed comes into contact with said bar, substantially as described.

12. The combination with a web-perfecting printing-press through which the web-path passes in one plane, of a folding mechanism into which the paper passes by a path forming an acute angle with said web-path, a reversing-roller parallel with the cylinders of said press, a guide-roller parallel with a roller of the folding mechanism, an angle-bar interposed between the reversing and the guide rollers at an angle to both, and means for feeding the web to the bar at the speed at which it comes from the press, whereby the strain on the web is not drawn by the folding-machine around the bar but from the bar only, substantially as described.

13. The combination with a web-perfecting printing-press through which the web-path lies in one plane, of a folding mechanism into which the paper passes by a path in a plane forming an acute angle with the first-named plane, an adjustable reversing and registering roller parallel with the cylinders of the said press, a guide-roller parallel with a roller at the folding mechanism, an angle-bar interposed between the reversing and the guide rollers, and friction-rollers coacting with the reversing-roller so that as the registering-roller is adjusted the friction-rollers will remain in the same relation thereto, substantially as described.

14. In a printing and folding machine, the combination of means for diverting a web from a path in one vertical plane into another path in a vertical plane at an acute angle to the first, with printing mechanism delivering a web into the first-named path, and a folding mechanism into which the web passes by the second-named path, substantially as described.

15. In a printing and folding machine, the combination of means for diverting webs from one vertical plane into another at an acute angle to the first, with printing mechanisms delivering webs into paths in the first-named plane, means for associating said webs while traveling in one of said planes, and a folding mechanism into which the associated webs pass while in the second-named plane, substantially as described.

16. In a printing and folding machine, the combination of independent means for diverting independent webs from paths in one vertical plane into paths in another vertical plane forming an acute angle with the first-named plane, with printing mechanisms, means for associating said webs after they are so diverted, and a folding mechanism, substantially as described.

17. In a printing and folding machine, the combination of means for diverting webs from one vertical plane into another at an acute angle to the first, with printing mechanisms arranged one above another in the first-named plane, means for associating said webs while they are traveling in one of said planes, and a folding mechanism into which said associated webs pass while they are traveling in said second-named plane, substantially as described.

18. In a printing and folding machine, the combination of independent means for diverting independent webs from paths in one vertical plane into paths in another vertical plane forming an acute angle with the first-named plane, with web-perfecting mechanisms arranged one above another in the first-named plane, means for associating said webs after they are so diverted, and a folding mechanism into which said associated webs pass while traveling in said second-named plane, substantially as described.

19. In a printing-machine, a register-roll, swinging arms in which the same is journaled, and pressure-rolls coacting with said register-roll and having the same axis of motion as said arms, substantially as described.

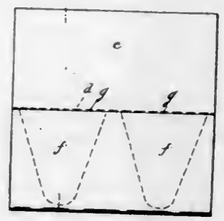
20. In a printing-machine, means for changing the course of a web from one path to another forming an acute angle with the first path, consisting of two rollers and a guide-bar, one roller being at right angles to one path and the other roller at right angles to the other path, and the guide-bar being at an angle to both rollers.

21. In a printing and folding machine, the combination of a plurality of web-perfecting presses arranged one above another and having their cylinders parallel and their webs moving in the same direction, means for directing the web for the lowermost press between the printing-couple thereof farthest from the roll therefor, a folding mechanism having its longitudinal axis in a vertical plane forming an acute angle with the vertical plane in which said presses lie, and means for diverting the webs from one to the other of said planes, substantially as described.

22. In a printing and folding machine, the combination of two web-perfecting presses arranged one above the other with their cylinders parallel, means for directing the web for the lower press between the members of the printing-couple farthest from the roll of paper, means for directing the web for the upper press between the members of the printing-couple nearest to the roll of paper therefor, a longitudinal folder having its axis in a vertical plane forming an acute angle with the vertical plane in which said presses lie, and independent means for diverting said webs from the first to the second vertical plane, said means each consisting of two rollers one of which is parallel with the press-cylinders and the other of which is at right angles to the folding-rolls of the folder and an angle-bar forming an angle with both said rollers and the angle-bar for the lower web being farther from the lower press than are the two rollers coacting with the lower web and the angle-bar for the upper web being nearer the upper press than are the rollers coacting with the upper web, substantially as described.

23. In a printing-machine, the combination of a web-perfecting press whose cylinders are all parallel with each other, a folding mechanism having its drawing-rolls disposed at an acute angle with relation to said cylinders and a guide-roller at right angles to its said drawing-rolls, and a turning-bar located in the path of the web between the press and the folder and placed at angles with both said guide-roller and said cylinders.

753,170. MAGIC COIN CARRIER OR MAILER. PARKER S. SHORT and WILLIAM S. POLING, Anderson, Ind. Filed May 21, 1903. Serial No. 158,161. (No model.)

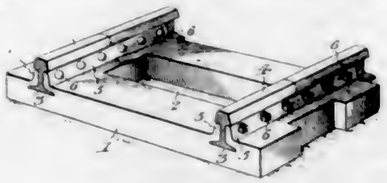


Claim.—A paper coin-carrier having a body portion comprising interfolded front and back sections separated by a folding-line, and a cover-flap of the same size as said body portion and separated therefrom by a folding-line, said carrier having located between the sections of said body portion tapering pockets provided with wedge-form interiors, and a layer of adhesive material bounding said pockets and forming a filling giving extra thickness and directly connecting the sections of said body portion throughout except at the parts thereof in which the pockets are located, substantially as specified.

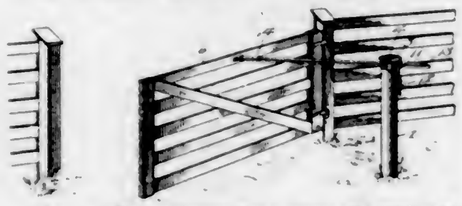
753,171. RAILWAY-TIE. JOHN G. SHUSTER, Caldwell, Kans. Filed July 11, 1903. Serial No. 165,151. (No model.)

Claim.—A combined tie and rail-joint comprising a casting having a central cut-out portion and also having its ends cut away to provide two parallel members connected to each other by parallel transversely-arranged webs, said members and webs being provided with grooves extending throughout their entire width and length respectively, and below the upper faces of the members and webs, the lower portions of the grooves conforming to the contour of the flanges of rails and the walls of the upper portion thereof being parallel, and parallel flanges extending upward from the upper edges of said grooves and extending the entire length thereof, said flanges forming fish-plates and provided with apertures for the reception of

rail engaging and securing means, the entire device being formed integral.



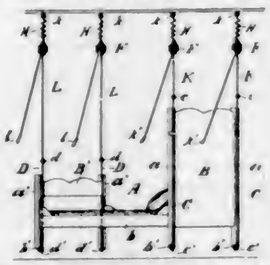
753,172. GATE ATTACHMENT. ALLEN SKELLENGER, Whiting, Ind. Filed Sept. 2, 1903. Serial No. 171,630. (No model.)



Claim.—1. The combination with a closure, of a tubular post at a distance therefrom having an opening through the upper extremity thereof and a closing-cap, a roller mounted in the upper extremity of the post below the cap, a connecting-bar formed of channel-iron and movably attached at one end to the closure and freely slidable through the open extremity of the post on the roller, the channeled side of the connecting-bar being in engagement with the roller, and a weight movably inclosed within the post and attached to the bar by a flexible device which moves over the roller and is held within the under channeled side of the said bar.

2. The combination with a closure, of a tubular post having an upper open extremity and a cap thereover with a pin-opening therein, a connecting-bar movable through the upper open extremity of the post below the cap and also movably attached to the closure, a weight movably held within the post and having a flexible connecting means engaging the roller, the connecting-bar having openings therein to aline with the opening in the cap, and a pin for removable insertion through the cap into the connecting-bar to lock the closure either in open or shut position.

753,173. SWINGING BED SPRING DEVICE. HOSEA D. SMITH, Cecil, Ga., assignor of one-half to John B. Robinson, Cecil, Ga. Filed Nov. 4, 1903. Serial No. 179,316. (No model.)

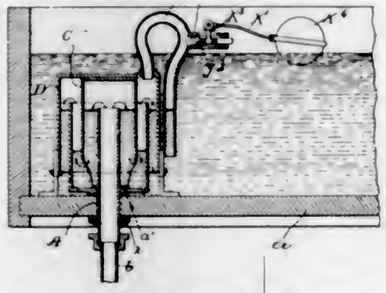


Claim.—1. In a bed-frame, the corner-posts having sockets in their lower ends, in combination with rods having at their lower ends upwardly-bent pins or projections adapted to engage with said sockets, springs and attached pulleys connecting with the ceiling in position above and corresponding to the bed-posts and ropes connected with said rods and passing over the pulleys, substantially as described.

2. In a bed-frame, the corner-posts having sockets in their lower ends, supporting-rods having upwardly-bent or hooked lower ends for engaging with the sockets, and eyes at their upper ends, coiled springs connecting to an overhead support in position corresponding with said corner-posts, pulleys having each a rope-locking device attached to said springs, and ropes connecting with the rods and passing over the pulleys, substantially as described.

3. In a set of devices for suspending and swinging a bed clear of the floor, a rod having an upwardly-bent hook at one end and an eye at the other end, a catch-pulley having a rope-locking device, a coiled spring connecting with the pulley, a rope connecting with the eye of the rod and adapted to pass over the sheave of the pulley, substantially as described.

753,174. FLUSHING APPARATUS FOR WATER-CLOSETS, &c. JOHN H. SMITH, Revere, Mass., assignor of one-half to George R. Sackett, Revere, Mass. Filed Dec. 31, 1902. Serial No. 137,236. (No model.)



Claim.—1. A flushing apparatus comprising a siphon having an air-chamber in its crown communicating with the upper end of its shorter leg and sealed against communication with the longer leg, an air-outlet for permitting the escape of air from said chamber to start the siphon, a tube communicating with said air outlet and capable of being bent and extending from said crown above the same and down to a point above the entrance to said siphon to break the siphon, and a valve controlling the outlet of air from said pipe.

2. A flushing apparatus comprising a siphon having an air chamber in its crown communicating with the upper end of its shorter leg and sealed against communication with the longer leg, an air-outlet for permitting the escape of air from said chamber to start the siphon, a valve controlling said outlet, and an air-inlet opening at one end into the upper portion of said chamber, said air-inlet comprising a tube extending upward from said crown and down to a point above the entrance to said siphon, said tube being adjustable to vary its lower end relatively to the entrance to the siphon.

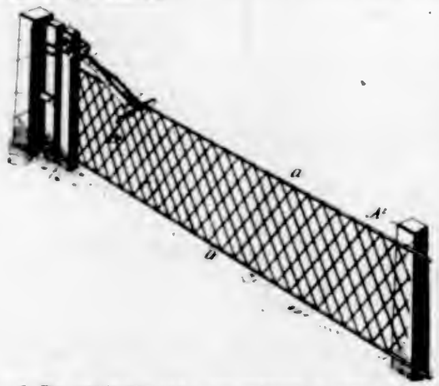
3. A flushing apparatus comprising a stand-pipe adapted for attachment to a supply-tank and constituting the longer leg of a siphon, a fixed cup surrounding the upper end of the siphon, a fixed bell surrounding and extending above the cup, the space between the bell and cup constituting the shorter leg of the siphon, while the upper portion of the bell constitutes an air-chamber adapted to confine a cushion of air in position to obstruct the crown of the siphon, a hood or trap preventing communication between the said air-chamber and the stand-pipe, an air-outlet communicating with the air-chamber, a valve controlling said outlet, and a flexible tube extending upward from the top of the bell and down to a point above the lower edge of said bell to break the siphon.

4. A flushing apparatus comprising a tank, a siphon having an air-chamber in its crown communicating with the upper portion of its shorter leg and sealed against communication with the longer leg, a tube extending upward above the top of the bell and then downward below the high-water level in the tank, an air-outlet for permitting the escape of air from said tube to start the siphon, a valve controlling said outlet, and automatic means for opening and closing said valve.

753,175. FASTENER DEVICE. WILLIAM C. STARCK, Yates Center, Kans. Filed Sept. 23, 1902. Serial No. 124,598. (No model.)

Claim.—1. As a new article of manufacture, a fastener device comprising a lever fulcrumed adjacent its forward end, an engaging device movably supported on said lever in the rear of its fulcrum at a point lying substantially in a common right line extending from the engaging portion of said engaging device through the lever-fulcrum when said lever is disposed in intermediary position, whereby the engaging device will lie above the lever-fulcrum when the lever is elevated into releasing position and will lie below such fulcrum when the lever is depressed into securing position, and an engaging device carried at the rear end of said lever for securing it in locking position, substantially as described.

2. The combination with a gate composed of a post and a bar, with interposed gate-wiring, a lever carried by and supported on the bar, and having bifurcated forward and rear ends, the former carrying a bifurcated engaging device encompassing the bar, and the latter provided with means, cooperating with the gate-wiring, to effect a locking therewith to maintain the parts in operative position, in use, substantially as described.

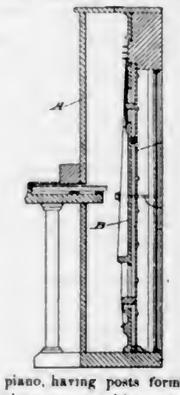


3. The combination with a gate composed of a post and a bar, with interposed gate-wiring, a lever carried by and supported on the bar, and having bifurcated forward and rear ends the former carrying a bifurcated engaging device encompassing the bar, and the latter provided with means, cooperating with the gate-wiring, to effect a locking therewith to maintain the parts in operative position, and a gate-post carrying means with which the engaging device and gate-bar cooperate to effect a locking of the gate, substantially as described.

4. The combination with a gate composed of a post and a bar, with interposed gate-wiring, a lever carried by and supported on the bar, and having bifurcated forward and rear ends, the former carrying a bifurcated engaging device encompassing the bar, and the latter provided with means, cooperating with the gate-wiring, to effect a locking therewith to maintain the parts in operative position, and a gate-post carrying equalizing means with which the engaging device and gate-bar cooperate to effect a locking of the gate, substantially as described.

5. The combination with a gate composed of a post and a bar, with interposed gate-wiring, a lever carried by and supported on the bar, and having bifurcated forward and rear ends, the former carrying a bifurcated engaging device encompassing the bar, and the latter provided with means, cooperating with the gate-wiring, to effect a locking therewith to maintain the parts in operative position, in use, and means for regulating the length of the interposed wiring, substantially as described

753,176. PIANO. WILLIAM J. STREET, Jr., Madisonville, Ohio Filed May 11, 1903. Serial No. 156,686. (No model.)



Claim.—1. A piano, having posts forming the back thereof, and a vibratory diaphragm mounted between two of said posts and wholly within the rear plane thereof, said diaphragm being secured at its edges to those faces of the posts adjacent each other.

2. A piano, having posts forming the back thereof, and a plurality of vibratory diaphragms mounted between said posts and wholly within the rear plane thereof, said diaphragms being secured at their edges to those faces of the posts adjacent each other.

3. In a musical instrument, the combination with the sounding-board, string-plate, posts, and bolts connecting said string-plate and posts, of one or more vibratory diaphragms connecting said posts, said diaphragms being secured at their edges to those faces of the posts adjacent each other.

4. In a piano, the combination with a string-plate, sounding-board, posts, grooved moldings on the adjacent faces of said posts, and bolts connecting said string-plate and posts, of one or more diaphragms mounted between said posts and engaging the grooves of said moldings.

5. A piano having top and bottom pieces, posts connected thereto and forming the back of the piano, and a vibratory diaphragm mounted between two of said posts and the top and bottom pieces and wholly within the rear planes thereof, said diaphragm being secured at its edges to the faces of said top and bottom pieces and posts.

6. In a musical instrument, the combination with the top and bottom pieces, of a sounding-board, string-plate, posts, bolts connecting said string-plate and posts, and one or more vibratory diaphragms mounted between said posts and top and bottom pieces, said diaphragms being secured at their edges to the faces of said posts and top and bottom pieces.

7. In a piano, the combination with the top and bottom pieces, of a sounding-board, string-plate, posts, bolts connecting said string-plate and posts, one or more vibratory diaphragms mounted between said posts and top and bottom pieces and grooved moldings on said posts and top and bottom pieces and adapted to engage said vibratory diaphragms.

753,177. GLANDULAR EXTRACTIVE COMPOUND. JOKICHI TAKAMINE, New York, N. Y. Filed May 12, 1903. Serial No. 156,747. (No specimens.)

Claim.—1. As an article of manufacture, a substance consisting of the blood-pressure-raising principle of the suprarenal glands chemically combined with a non-suprarenal substance whereby the stability of a water solution of said blood-pressure-raising principle is maintained.

2. As a new article of manufacture, a solution consisting of water and the blood-pressure-raising principle of the suprarenal glands chemically combined with a non-suprarenal substance whereby the stability of the solution is maintained.

3. As a new article of manufacture, a substance having the properties of the hemostatic, astringent and blood-pressure-raising principle of the suprarenal glands substantially free from non-blood-pressure-raising constituents thereof, which is soluble in water and the water solution of which is practically inert to the oxygen of the air and gives a green coloration with ferric chlorid and a red coloration with iodin.

4. As a new article of manufacture, a compound of the crystallizable blood-pressure-raising constituent of the suprarenal glands substantially free from the non-crystallizable constituents thereof which is soluble in water and which when in water solution is practically inert to the oxygen of the air and gives a green coloration with ferric chlorid and a red coloration with iodin.

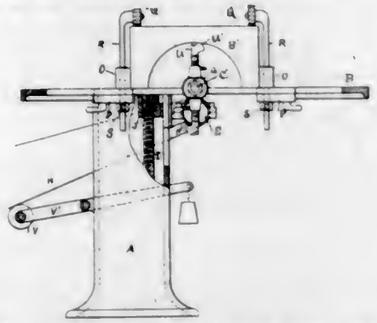
5. The substance consisting of a salt of the herein-described product of the suprarenal glands; said salt being easily soluble in water and possessing the physiological and therapeutic characteristics and reactions of said product in substantially stable and concentrated form.

6. The substance consisting of a chemical compound of an inorganic acid and the herein-described product of the suprarenal glands; said compound having the physiological and therapeutic characteristics and reactions of said product in substantially stable and concentrated form.

7. The substance consisting of a chemical compound of a halogenic acid and the herein-described product of the suprarenal glands; said compound having the physiological and therapeutic characteristics and reactions of said product in substantially stable and concentrated form.

8. The substance consisting of a chlorid of the herein-described product of the suprarenal glands and having the physiological and therapeutical characteristics and reactions of said product in substantially stable and concentrated form.

753,178. CORE-BOX CUTTER. FRANK E. THOMES, Portland, Me., assignor of one-half to Charles F. Mantine, Portland, Me. Filed July 20, 1903. Serial No. 166,276. (No model.)

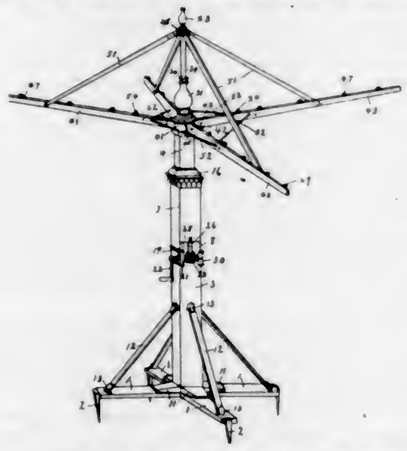


Claim.—1. In a core-box cutter, a suitable frame, a table secured to the frame provided with a slot for the cutter, a main shaft and means for rotating it below the table, a vertical bracket carrying a short spur and adapted with such spur to project through said slot, a cutter-head adapted to revolve on said spur and a driving connection between the head and shaft and means for vertically adjusting the shaft and therewith the bracket and cutter-head relative to the table.

2. A core-box cutter comprising in combination a suitable frame, a table mounted thereon and having a slot therein, a rotating cutter-head projecting upwardly through said slot in said table and adapted to cut work fed axially over the cutter, vertical guide-rolls one on each side of and in the plane of the cutter and means for adjusting them horizontally relative to the table, whereby they can be brought into contact with the sides of a core-box blank while being fed over the table.

3. In a core-box cutter, a suitable frame, a table mounted thereon and having a slot therein, a rotating cutter-head projecting through said slot in said table and adapted to cut work fed axially over the cutter, posts adapted to have vertical and horizontal adjustment relative to said table one on each side of and in the plane of the cutter, horizontal offsets on said posts and antifriction-rolls mounted on said offsets.

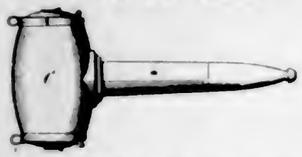
753,179. CLOTHES-REEL. STEPHEN TILLSON, Chatham, Canada assignor of one-half to Henry B. Fry, Bridgeport, Mich. Filed Dec. 23, 1901. Renewed Jan. 7, 1904. Serial No. 188,140. (No model.)



Claim.—1. In a device of the class described, an adjustable standard and a toothed rack secured to said standard, in combination with a hollow body, side plates secured to said hollow body, flanges on said side plates extending over on the front and back of said body, bearings in said side plates one of which is in the form of a horizontal slot, a shaft supported in said bearings, a pinion mounted on said shaft, and a set-screw passing through the front edge of the plate into said slot and engaging with said shaft.

2. In a device of the class described, an adjustable standard, a cap on said standard, a hub in the upper end of which radial recesses are formed, in combination with a rotary spindle supported in said standard and extending through said hub, a band secured to said rotary spindle and provided with radial flanges, which are fitted to and inserted in the radial recesses in the upper end of said hub, a ring secured to the upper end of said rotary spindle, line-carrying arms secured to said hub, and supporting-bars secured to and extending from said ring to said line-carrying arms, substantially as and for the purpose set forth

753,180. SMOKING-PIPE. THOMAS TOMLINSON, Charleroi, Pa. Filed Dec. 28, 1903. Serial No. 186,831. (No model.)



Claim.—1. A pipe comprising a bowl, open and provided with a concaved cover at both ends, each cover having an opening at its highest point, and a cap therefor.

2. A pipe comprising a bowl open at both ends, a stem therefor, a cover for each open end of the bowl, flanged rings engaging said ends of the bowl, means securing the cover to said rings, and caps for covering ventilating-apertures in the cover.

753,181. CURTAIN-POLE. PAUL S. TRUXAL, Latrobe, Pa. Filed Nov. 2, 1903. Serial No. 179,614. (No model.)

Claim.—1. A curtain-pole having a longitudinally-disposed groove or channel formed in the lower side thereof, recesses formed in the ends of said pole and, communicating with said groove or channel, and a clamping rod or bar arranged in said groove or channel, the ends of said bar entering said recesses, and means for preventing the rotation of said rod or bar, substantially as described.

2. A curtain-pole having a longitudinally-disposed groove or channel formed in the lower side thereof, recesses formed in the ends of said pole and communicating with said groove or channel, slots formed in the wall of said recesses, the ends of said slots opening into said groove, a clamping rod or bar arranged in said groove or channel the ends of said rod entering said recesses, and a finger projecting from one end of said rod and entering one of said slots whereby said rod or bar is locked against rotation, substantially as described.

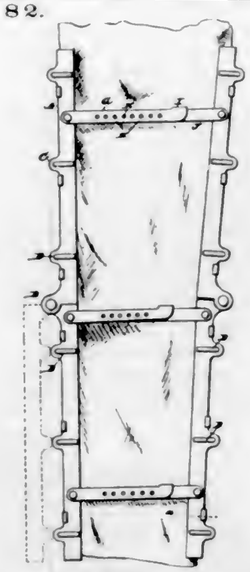
753,182. TROUSERS-STRETCHER. HOSMER TUTTLE, Cedar Rapids, Iowa, assignor to S. C. Walters, Chicago, Ill. Filed Aug. 18, 1903. Serial No. 169,946. (No model.)

Claim.—1. A trousers-stretcher comprising two or more pairs of clamping wing-plates, hinged at the edges, bifurcated clips pivoted at one end to one of each such pair of plates and adapted to press them tightly over the folded trousers-legs at the front and back, respectively, and toggle-levers connecting the front and back sets of wing-plates, substantially as and for the purpose set forth.

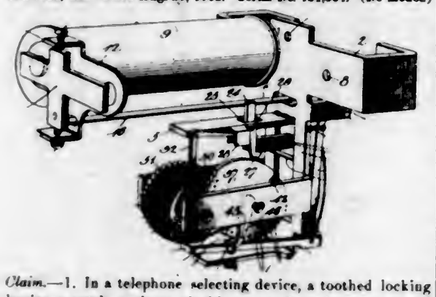
2. A trousers-stretcher, comprising two or more pairs of clamping-wings, clips adapted to press them tightly over the folded trousers at the front and back, respectively, and pairs of toggle-levers each pair consisting of a link provided with a lateral stud hinged to one pair of wings, and a link with a series of holes to receive said stud hinged to the opposite pair of wings, substantially as and for the purpose set forth.

3. In a trousers-stretcher, the combination with suitable stretching-levers, of clamps for the front and rear folds of the trousers-legs, each comprising a plurality of pairs of flatwise-folding wing-plates, hinged also to fold endwise, and bifurcated clips pivoted at one end to one of each pair of wing-plates, adapted to clamp each pair of wings tightly over the folded edges of the trousers-legs, substantially as described.

753,182.



753,183. TELEPHONE SELECTING DEVICE. WILLIAM D. WATKINS, San Jose, Cal., assignor to Watkins Manufacturing Company, San Jose, Cal. Filed Aug. 29, 1902. Serial No. 121,531. (No model.)



Claim.—1. In a telephone selecting device, a toothed locking disk having a notch, a clapper-locking arm adapted to enter said notch to effect the release of the clapper, a catch for holding said arm in locking position, and a toothed guard-disk having means for releasing the catch and permitting the locking-arm to enter said notch.

2. In a telephone selecting device, a pair of toothed disks, means for imparting a step-by-step movement to one disk and an oscillatory movement to the second disk, a locking-arm for engaging the clapper-rod of the telephone call-bell, a catch for holding said locking-arm in position, and means carried by the oscillating disk for releasing said catch and permitting the locking-arm to move from engagement with the clapper-rod.

3. A selecting system comprising electromagnets, a call-bell or alarm, a clapper-rod, an armature carrying the clapper-rod and adapted to be actuated by the electromagnets, a locking-arm for engaging and holding the clapper-rod in inoperative position, a locking-catch adapted to engage the locking-arm, a toothed locking-disk having a notch for the reception of said arm, a guard-disk having means for effecting a releasing movement of the catch, and an electromechanical means for imparting a step-by-step movement to the locking-disk and an oscillatory movement to the guard-disk.

4. A selecting device comprising a toothed disk, an electromechanical means for effecting a rapid oscillatory movement of said disk, a clapper-rod, a locking-arm for holding the clapper-rod in inoperative position, a counterweighted lever or catch normally maintaining the locking-arm in clapper-rod-engaging position, a bell-crank lever for moving the catch to releasing position, and a pin carried by the disk and adapted to engage said bell-crank lever to effect a releasing movement of the catch.

5. In a telephone selecting device, an electromagnet, an electromechanically-actuated clapper-rod, a clapper-rod locking-arm, an armature for moving said arm to locking position, a catch for engaging and holding said arm, a pivoted bell-crank lever for moving the catch to releasing position, a toothed disk having peripheral teeth, a pin projecting from the disk and adapted to engage said bell-crank lever, and a pawl carried by said armature and engaging the teeth of the disk.

6. A telephone selecting device comprising an electromagnet, an electromechanically-actuated clapper-rod, a locking-arm for engaging the clapper-rod, an armature for moving said arm to locking position, a catch for maintaining the arm in its locked position, and means operable by the movement of said armature for releasing said catch.

7. A telephone selecting device comprising an electromagnet, an electromechanically-actuated clapper-rod, a locking-arm adapted to engage said clapper-rod, a catch adapted to maintain the locking-arm in clapper-rod-engaging position, a finger carried by the armature and adapted to move said arm to operative position, a locking-disk having a notch for the reception of said arm, peripheral teeth on the disk, a guard-disk having peripheral teeth, a pawl-bar carried by said armature and provided with pawls for engaging the teeth of both disks and for imparting a step-by-step movement to the locking-disk and an oscillatory movement to the guard-disk, a bell-crank lever having one arm adapted to engage the catch, a pin carried by the guard-disk for engaging with and moving the bell-crank lever to effect a releasing movement of the catch, and pawls actuated by the armature for engaging with and rotating said disk.

8. A telephone selecting device comprising an electromagnet, an electromechanically-actuated clapper-rod, a locking-lever for engaging the clapper-rod, an armature for moving the locking-lever to clapper-rod-engaging position, a catch for holding the locking-lever in position, a bell-crank lever having one arm disposed adjacent to the catch, a locking-disk having a notch for the reception of the locking-lever, peripheral teeth on said disk, a pawl pivoted on the fixed stud and engaging the teeth of the disk, a guard-disk having a pin for engaging the bell-crank lever and a second pin for engagement with the pawl, a pawl-bar carried by the armature and having pawls for engaging the teeth of both disks, and means for interlocking one of the pawls and the locking-disk at the completion of a single tooth movement of the latter.

9. In a device of the class specified, a supporting-frame formed of a single piece of diamagnetic material having a plurality of arms bent to form supports for the various portions of the device, a pair of electromagnets carried by said frame, a plate carried at the opposite ends of the electromagnets, a polarized armature supported by said plate, a clapper-rod carried by the armature, a locking-arm pivoted to the frame and serving to release and hold the clapper-rod in inoperative position, a soft-iron armature pivotally mounted on the frame at that end of the electromagnet opposite the polarized armature, a pair of toothed disks supported by the frame, a pawl-bar carried by the soft-iron armature and having pawls for engaging both disks, a notch formed in one disk for the reception of the locking-arm, a catch for holding the locking-arm in clapper-rod-engaging position, a pivoted lever for moving the catch to inoperative position, and a pin carried by the second toothed disk for engaging said pivoted lever, substantially as specified.

10. The combination in a telephone selecting device, of a pair of electromagnets, a polarized armature disposed at one end thereof, means carried by said armature for effecting the sounding of an alarm, a soft-iron armature arranged at the opposite ends of said electromagnets and serving when attracted to bridge the magnet-cores for a more effective operation of the polarized armature, a locking device normally holding the alarm-sounding mechanism from movement, and means actuated by the movements of the soft-iron armature for effecting the movement of the locking device to releasing position.

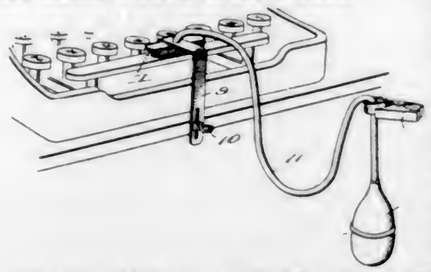
753,184. TYPE-WRITER ATTACHMENT. LEWIS H. WESTON, Deer Island, Oreg. Filed Oct. 24, 1903. Serial No. 178,376. (No model.)

Claim.—1. An attachment of the character described comprising a casing having an aperture in one face thereof, an elastic strip extending over the aperture and adapted to be projected therethrough, and means for forcing air into the casing.

2. In a device of the character described, the combination with a casing having an aperture therein; of an elastic strip extending across the apertnre, and flexible means for forcing air into the casing and projecting the strip through the aperture.

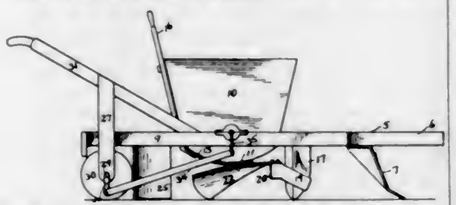
3. A device of the character described comprising a casing having an aperture in one face thereof, an elastic strip within the casing

and extending across the aperture, a gasket upon said strip, a block within the casing and above the gasket, said block having a passage therein, a tubular extension upon the block, a bulb, and a flexible tubular connection between the bulb and the extension.



4. In a device of the character described, the combination with a casing having an aperture in one face thereof; of an elastic strip within the casing and extending over the aperture, a gasket upon the strip, a block for securing the gasket in position upon the strip, an extension on the block, said extension and block having a passage therethrough, a bulb, a tubular connection between the bulb and extension, and a bracket for supporting the casing.

753,185. **COTTON-PLANTER.** IRVIN J. WILLCOX, Lenox, Ga., assignor of one-half to Elisha F. Kinard, Lenox, Ga. Filed Mar. 26, 1903. Serial No. 149,730. (No model.)



Claim.—A device of the class described comprising a platform having a hopper mounted thereon, said hopper being provided with a discharge-opening in its bottom, a furrow-opener carried in advance of the hopper, a plate secured to the forward face of the furrow-opener and having its ends directed outwardly and rearwardly of the opener, a beam secured to the ends of the plate and lying rearwardly of the opener, plates secured to the beam and disposed rearwardly and divergently therefrom, the adjacent edges of the plate being directed downwardly and in engagement with each other, said plates lying beneath the opening of the hopper to direct the seed into the furrow, coverers mounted rearwardly of the hopper and a roller disposed in the rear of the coverers.

753,186. **SCREW-DRIVER.** GEORGE R. WOOD, Southington, Conn., assignor, by mesne assignments, to the Hurwood Manufacturing Company, Plantsville, Conn., a Corporation of Connecticut. Filed July 14, 1902. Serial No. 115,523. (No model.)



Claim.—1. In a screw-driver or the like, in combination with the blade having a shank, a flattened head secured at the end of the shank, prong-like projections extending from the under side of the head, and adapted to be forced into the material of the handle and a handle having a central opening adapted to receive the shank and a recess for the reception of the head.

2. In a screw-driver or the like, in combination with the blade having a shank, a flattened head secured at the end of the shank, projections extending beyond and downward from the edge of the head, and a handle having a central opening adapted to receive the shank, and a recess for the reception of the head.

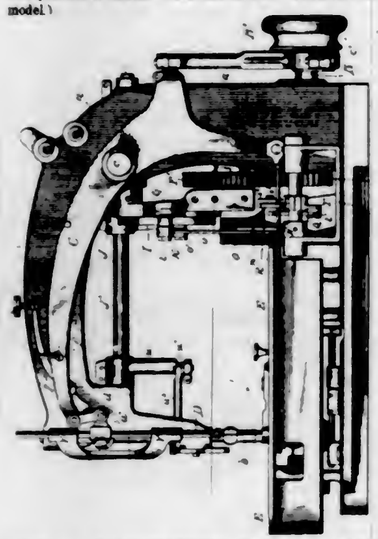
3. In combination in a screw-driver or the like, a blade having a shank, a flattened head located on the end of the shank, projections extending downward from the edge of the head, a handle having a lengthwise opening and a recess for the head, said projections adapted to be driven into the material of the handle and means for preventing backward movement of the shank within the handle.

4. In combination in a screw-driver or the like, a blade having a shank, a flattened head located at the end of the shank, prongs formed integral upon the head and projecting downward therefrom, a handle having a central opening for the reception of the shank, and a recess for the reception of said head.

5. In combination in a screw-driver or the like, a blade having a shank, a flattened head located at the end of the shank and formed integral therewith, projections extending beyond the edge of the head, downward-extending prongs located on said projections, a handle having a central opening for the reception of the shank, and a recess for the reception of said head.

6. In combination in a screw-driver or the like, a blade having a shank, a flattened head located at the end of the shank and formed integral therewith, projections extending beyond the edge of the head, downwardly-exteoding prongs located at the outer ends of said projections, a handle having a central opening for the reception of the shank, a recess for the reception of said head, and means for preventing backward movement of the shank.

753,187. **SEWING-MACHINE.** RUSSEL G. WOODWARD, Waukegan, Ill., assignor to Union Special Sewing Machine Co., Chicago, Ill., a Corporation of Illinois. Filed June 13, 1901. Serial No. 64,396. (No model.)



Claim.—1. In a sewing-machine, suitable stitch-forming mechanism and means for vibrating the needle laterally across the line of the seam, said means including a vibrating member, and a link, automatic mechanism for shifting the connection between the vibrating member and the link, and means under the control of the operator for throwing said automatic mechanism into action; substantially as described.

2. In a sewing-machine, suitable stitch-forming mechanism and means for vibrating the needle laterally across the line of the seam, said means including a vibrating member, and a link, automatic mechanism for shifting the connection between the vibrating member and the link, and means under the control of the operator for throwing said automatic mechanism into action, said parts being so timed that the shift can only take place while the needle is above the material being sewed; substantially as described.

3. In a sewing-machine, suitable stitch-forming mechanism, a needle, means for reciprocating it vertically, means for vibrating it laterally, automatic mechanism operated by the movement of the machine itself for throwing the needle-vibrating means into and out of action, and means under the control of the operator for throwing said automatic mechanism into action; substantially as described.

4. In a sewing-machine, suitable stitch-forming mechanism and means for vibrating the needle laterally across the line of the seam, said means including a rock-shaft with connections between it and the needle-bar, a link connected to the opposite end of the rock-shaft, a vibrating member to which the link is connected, and automatic means for shifting the connection between the link and the vibrating member, and means under the control of the operator for throwing said automatic mechanism into action; substantially as described.

5. A sewing-machine having stitch-forming mechanism and operating devices therefor, said stitch-forming mechanism including a needle-bar, a movable guide carrying said needle-bar, mechanism for holding said guide in fixed position, and mechanism for vibrating said guide, automatic means operable by the movement of the machine for throwing into and out of operation the vibrating mechanism, and means under the control of the operator for throwing said automatic mechanism into and out of action.

6. In a sewing-machine for forming straightaway and zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted segment, means for oscillating the same, a pivoted link adjustable on said segment, mechanism connecting said pivoted link to the needle-bar, and mechanism controlled by the operator for effecting the automatic adjustment of the link on said segment; substantially as described.

7. In a sewing-machine for forming straightaway and zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted segment, means for oscillating the same, a pivoted link connected indirectly to the needle-bar and adjustable on said segment, and means under the control of the operator for automatically effecting such adjustment; substantially as described.

8. In a sewing-machine for forming straightaway and zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame, means for oscillating the same, mechanism for transmitting the movements of said frame to the needle-bar, a controlling-lever adapted to be moved by the operator and movable into and out of the path of the oscillating frame, and mechanism connecting the controlling-lever to the needle-bar-operating mechanism; substantially as described.

9. In a sewing-machine for forming straightaway or zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame, means for oscillating the same, a segment carried by said frame, a link adjustable on said segment and connected indirectly to the needle-bar, a controlling-lever adapted to be moved by the operator and movable into and out of the path of the oscillating frame, and mechanism connecting the controlling-lever to said link for effecting its adjustment on said segment; substantially as described.

10. In a sewing-machine for forming straightaway or zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having arms or jaws, a segment carried by the frame, a link adjustable on the segment, mechanism connecting the link and needle-bar, means for oscillating the pivoted frame, a controlling-lever having contact-shoulders movable into and out of the path of movement of the frame arms or jaws, and mechanism connecting said controlling-lever to said link for effecting the adjustment of the latter on said segment; substantially as described.

11. In a sewing-machine for forming straightaway or zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having twin arms or jaws, a segment carried by the frame, a link adjustable on the segment and connected to the needle-bar, means for oscillating the pivoted frame, a controlling-lever having contact-shoulders movable into and out of the path of movement of the frame arms or jaws, a slide carrying said operating-lever and movable therewith, and mechanism connecting the slide to the said link for effecting the adjustment of the latter on said segment; substantially as described.

12. In a sewing-machine for forming straightaway or zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having twin arms or jaws, a segment carried by the frame, a link adjustable on the segment and connected to the needle-bar, a rotatable eccentric or cam operating between the twin arms to effect the oscillation of the frame and segment, a controlling-lever having contact-shoulders movable into and out of the path of movement of the arms or jaws, a slide carrying said lever and movable therewith, and mechanism connecting said slide to the said link for effecting the adjustment of the latter on the segment; substantially as described.

13. In a sewing-machine for forming straightaway or zigzag stitches, the combination of the needle-bar and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having twin arms or jaws, a segment carried by the frame, a link adjustable on said segment and connected to the needle-bar, an eccentric or cam operating between the arms or jaws, a slide, guides therefor, a rock-shaft, an arm thereon connected to the slide, a rocking lever carried by the shaft and connected to the said link, a controlling-lever pivoted to the slide, there being on said controlling-lever shoulders adapted to be operated on by the twin arms or jaws; substantially as described.

14. The combination in a sewing-machine having a needle-bar and mechanism for laterally moving the same, of a controlling-lever for governing the operation of such mechanism, means for connecting the controlling-lever to such mechanism, a rock-shaft, a rocking lever secured thereto and indirectly connected to and movable by the controlling-lever, a frame having a guiding-slot for the end of said rocking lever, and a spring in contact with said rocking lever and adapted to hold the same at its two extremes of movement; substantially as described.

15. The combination in a sewing-machine having a needle-bar, and mechanism for laterally moving the same, of a controlling-lever for governing the operation of such mechanism, means for connecting the controlling-lever to such mechanism, a rock-shaft, a rocking lever secured thereto and indirectly connected to and movable with the controlling-lever, a frame having a guiding-slot for the end of said rocking lever and adjustable stops carried by said frame for limiting the extremes of movement of said rocking lever; substantially as described.

16. The combination in a sewing-machine, for the formation of straightaway or zigzag stitches, of the needle-bar, and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted segment, a link connected to the needle-bar, and adjustable on said segment, rollers carried by said link and situated one on either side of the segment, and means for oscillating said segment; substantially as described.

17. The combination in a sewing-machine for the formation of straightaway and zigzag stitches, of the needle-bar, and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted segment, a two-part link connected to the needle-bar and adjustable on said segment, said segment being adjustable as to length, rollers carried by said link and situated one on either side of said segment, and means for oscillating said segment; substantially as described.

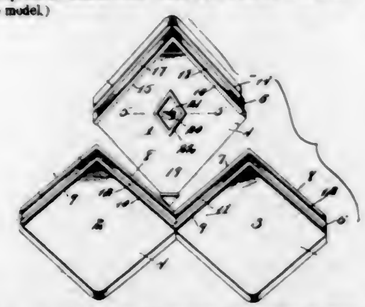
18. The combination in a sewing-machine for the formation of straightaway or zigzag stitches, of the needle-bar, and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having twin arms or jaws, a segment carried by said frame, a link adjustable on said segment and connected to the needle-bar, means for oscillating said frame, a controlling-lever adapted to be moved by the operator, a slide carrying said lever, adjustable contact-shoulders carried by said lever for engagement with the twin arms or jaws, and mechanism connecting said slide to said link for effecting the adjustment of the latter on the segment; substantially as described.

19. The combination in a sewing-machine for the formation of straightaway or zigzag stitches, of the needle-bar, and its operating mechanism, of means for laterally vibrating said needle-bar, comprising a pivoted frame having twin arms or jaws, a segment carried by said frame, a link adjustable on the segment and connected to the needle-bar, means for oscillating said frame, a controlling-lever adapted to be moved by the operator, a slide to which said controlling-lever is pivoted, adjustable stops carried by the slide for limiting the movement of said lever, and mechanism connecting said slide to said link for effecting the adjustment of the latter on the segment; substantially as described.

20. In a sewing-machine, comprising a vertically-reciprocating needle-bar, with means for holding it in position to move merely vertically, with means also for imparting to it a lateral vibration, automatic mechanism operable by the movement of the machine for throwing into and out of operation the vibrating means, and means under the control of the operator for throwing into and out of action said automatic mechanism; substantially as described.

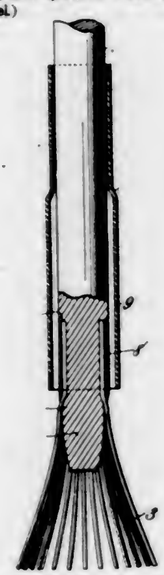
21. In a sewing-machine, comprising a vertically-moving needle-bar, means for imparting lateral reciprocation to said needle-bar, means under the control of the operator for automatically throwing into and out of operation said mechanism for laterally reciprocating said needle-bar, including a pivoted segment, connections between said pivoted segment and the needle-bar, and means under the control of the operator for varying the point of application of said connections with the pivoted segment, whereby lateral movement may or may not be imparted to the needle-bar; substantially as described.

753,188. CEMENT ROOFING-PLATE. HENRY BADEN and WILLIAM GLÜSS, Hamler, Ohio, assignors to American Cement Roofing Co., Incorporated, Hamler, Ohio. Filed Sept. 16, 1903. Serial No. 173,449. (No model.)



Claim.—A roofing-plate comprising a body having upon its upper face marginal and inset flanges arranged parallel and coöperating to form gutters and upon its lower face oppositely-disposed similarly-arranged marginal and inset flanges forming gutters, said body also having upon its lower face adjacent to its center a depending perforated lug surrounded by a strengthening rib or portion and opposite said flanges a depending lug provided with a flat lower bearing-face, said lugs being adapted to bear at their lower ends upon a roof-sheathing to sustain the plate distant therefrom.

753,189. CLEANER FOR RIFLES. WILLIAM C. BUCKELEW and JAMES P. FLOURNOY, Jr., Shreveport, La.; said Flournoy, Jr., assignor to Marion N. Wood, Shreveport, La. Filed Sept. 19, 1903. Serial No. 173,881. (No model.)



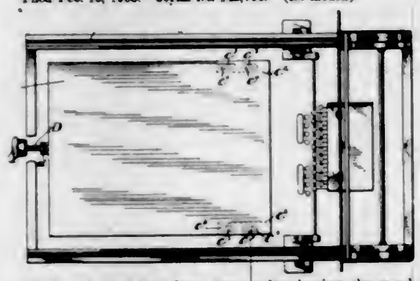
Claim.—1. A device of the class described comprising a rod having a reduced end provided with a shoulder, and a plurality of strips fixedly secured at their inner extremities to the inner portion of said reduced end, the shoulder bearing against the free portions of the spring-strips to normally force the same outward.

2. A device of the class described comprising a rod having a reduced end provided with a shoulder, and a plurality of strips fixedly secured at their inner extremities to the inner portion of said reduced end, the shoulder bearing against the free portions of the spring-strips to normally force the same outward, said reduced end extending ontward beyond its shoulder toward the free ends of said spring-strips.

3. A device of the class described comprising a rod having a reduced end provided with a shoulder, and a plurality of strips fixedly secured at their inner extremities to the inner portion of said reduced end, the shoulder bearing against the free portions of the spring-strips to normally force the same outward, combined with a sleeve on said rod slidable from the body thereof onto and around said spring-strips.

4. A device of the class described comprising a rod having a reduced end, and a plurality of strips bearing at their inner extremities against the inner portion of said reduced end, and a binding of wire encircling said strips at their inner extremities to fixedly secure them in place, said reduced end being provided with a shoulder to bear against the free portions of the spring-strips to normally force the same outward.

753,190. ADJUSTABLE PLATEN. GEORGE W. DOWNING, East Orange, N. J., assignor of one-half to Harry T. Ambrose, Orange, N. J. Filed Feb. 10, 1903. Serial No. 142,790. (No model.)



Claim.—1. In a flat-platen type-writer having the usual writing-mechanism carriage and line-spacing mechanism, the combination of a tiltable flat-surfaced work-support disposed for longitudinal movement independent of the longitudinal movement or position of the writing-mechanism carriage to permit longitudinal positioning of the work without movement of the carriage, a base for sustaining the work-support, and an adjusting device comprising a plurality of members independently disposed, one on the base and another on the work-support, and constructed for coaction to effect longitudinal movement of the work-support and for separation to permit tilting of the work-support away from its base, substantially as described.

2. In a flat-platen type-writer having the usual writing-mechanism carriage and line-spacing mechanism, the combination of a flat-surfaced hinged work-support constructed and arranged for longitudinal movement independent of the carriage and without movement thereof, a base, a hinge member on which one end of the work-support is movably connected for longitudinal adjustment thereon, and an adjusting device connecting with the opposite end of the work-support and constructed to adjust the same longitudinally on the hinge member without movement of the carriage, to present the work in positions intermediate of the regular spacing effected by the line-spacing mechanism, substantially as described.

3. In a flat-platen type-writer provided with the usual writing-mechanism carriage and line-spacing mechanism, the combination of a flat-surfaced, tiltable platen, a base, a hinge member on which one end of said platen is slidably supported for longitudinal adjustment thereon, a locking device for securing said platen to the hinge member against sliding thereon when the platen is tilted, and an adjusting device connecting with the opposite end of the platen and constructed to adjust the same longitudinally on said hinge member independent of the movement or position of the carriage to present work in positions intermediate of the regular line-spacing, substantially as described.

4. In a flat-platen type-writer provided with the usual writing-mechanism carriage and line-spacing mechanism, the combination of a flat-surfaced, tiltable platen, a base, a hinge member on which one end of said platen is slidably supported for longitudinal adjustment thereon, an automatic locking device for securing said platen to the hinge member against sliding thereon when the platen is tilted, and an adjusting device connecting with the opposite end of the platen and constructed to adjust the same longitudinally on said hinge member independent of the movement or position of the carriage to present work in positions intermediate of the regular line-spacing, substantially as described.

5. In a flat-platen type-writer having the usual writing-mechanism carriage and line-spacing mechanism, the combination of a flat-surfaced work-support disposed for longitudinal movement independent of the longitudinal movement or position of the writing mechanism carriage to permit longitudinal positioning of the work without movement of the carriage, and means constructed to lock said work-support in its several positions, substantially as described.

6. In a flat-platen type-writer having the usual writing-mechanism carriage and line-spacing mechanism, the combination of a flat-surfaced work-support disposed for longitudinal movement independent of the longitudinal movement or position of the writing-mechanism carriage to permit longitudinal positioning of the work without movement of the carriage, and independent means constructed to lock said work-support in its several positions, substantially as described.

7. In a flat-platen type-writer having the usual writing and line-spacing mechanisms, the combination with a support for the writing mechanism, of a longitudinally-movable flat platen disposed independent of said support, an actuating-screw engaging said platen and constructed to adjust it in a direction transverse to the line of writing and intermediate of the regular line-spacing, without disturbing the position of the writing mechanism, substantially as described.

8. In a type-writer having the usual writing and line-spacing mechanisms, the combination of a platen, and an actuating-screw engaging said platen and constructed to adjust it in a direction transverse to the line of writing, and independent means constructed to lock said platen in its adjusted positions, substantially as described.

9. In a type-writer having the usual writing and line-spacing mechanisms, the combination of a base, a track-frame supported on said base, a longitudinally-movable platen also hinged upon said base, but having movement independent of the track-frame, and means carried by said base and coöperating with said platen and constructed to adjust said platen to position any particular point thereof independent of the movement of and without disturbing the track-frame, whereby to present the work in positions intermediate of the regular line-spacing, substantially as described.

10. In a type-writer, having the usual writing and line-spacing mechanisms, the combination of a base, a track-frame pivotally supported on said base, a longitudinally-movable platen supported on said base, means constructed to adjust said platen to present the work thereon in positions intermediate of two transverse lines of writing, and means constructed to lock the said platen in its adjusted positions, substantially as described.

11. In a type-writer having the usual writing and line-spacing mechanisms, the combination of a base, a track-frame supported on said base, a longitudinally-movable platen supported on said base, means constructed to adjust the platen intermediate of two transverse lines of writing, and means constructed to lock the platen in its adjusted positions from movement relative to said track-frame when the former is swung from its normal operative position, and to release the platen from movement upon return to its normal operative position, substantially as described.

12. In a type-writer having the usual writing and line-spacing mechanisms, the combination of a base, a member pivotally supported on said base, a platen slidably connected to said member, means constructed to adjust the platen on said member, and means, coacting with the base, and constructed to lock the platen in its adjusted positions from movement relative to said member when the former is swung from its normal, operative position, and to release the platen for movement upon return to its normal operative position, substantially as described.

13. In a type-writer, the combination with a track frame or rails, of a book-rest, a longitudinally-movable platen, means connecting said book-rest and the platen and constructed to permit relative movement thereof, and means constructed simultaneously to adjust said book-rest and platen without movement of the track-frame, substantially as described.

14. In a type-writer, the combination of a track-frame, a book-rest disposed contiguous thereto, a platen overlying the book-rest, means connecting said book-rest and platen and constructed to permit relative movement thereof in one direction, and means constructed simultaneously to adjust said book-rest and platen in a direction normal to their relative motion independent of the normal position of the track-frame, substantially as described.

15. In a type-writer, the combination of a stationary base, a book-rest movably supported thereon, a track-frame overlying the book-rest, a platen also overlying the book-rest, means connecting said book-rest and platen and constructed to permit relative movement thereof, and means constructed simultaneously to adjust said book-rest and platen without disturbing the position of the track-frame, whereby the positioning of the printing-point on the work is permitted intermediate of the regular transverse lines of writing on the work, substantially as described.

16. In a type-writer having the usual writing and line-spacing mechanisms, the combination of a base, a member pivotally supported on said base, a platen slidably connected to said member, means constructed to adjust the platen on said member, and means coacting with the base and constructed to lock the platen in its adjusted positions from movement relative to said member when the former is swung from its normal operative position and to release the platen for movement upon return to its normal operative position, the said locking means comprising a dog pivoted upon said pivotal member, a rack on the under side of the platen with which the dog coöperates, whereby, when the platen is raised, the dog is retained in engagement with the rack, and, when the platen is lowered, the dog contacts with the pivotal member and disengages itself from the rack on the platen, and means for maintaining the dog in contact with the rack, substantially as described.

17. The combination with the base, and the writing mechanism, of a platen slidably mounted on the base, a lug on said platen, and a screw mounted on the base and arranged to engage said lug and thereby traverse the platen in a direction transverse to the line of writing, substantially as described.

18. The combination with the base, and the writing mechanism, of a pair of slotted plates hinged to the base, a platen mounted on the plates, and bolts secured to the platen and engaging the plates at their slotted portions, thereby permitting the platen to slide in a direction transverse to the line of writing, substantially as described.

19. The combination with the base, and the writing mechanism, of a platen slidably mounted on the base, a lug on the platen having an extension, a lug on the base having a threaded aperture, a screw engaging the threads in said latter lug, and a pair of collars on the screw arranged to engage said extension between them and thereby traverse the platen when the screw is rotated, substantially as described.

20. The combination with the base, and the writing mechanism, of a platen slidably and tiltably mounted on the base, a lug secured to the platen and having a forked extension projecting downward, a lug on the base having a threaded aperture, a screw engaging the threads in said latter lug and a pair of collars on the screw arranged to engage the said forked extension between them and thereby traverse the platen when the screw is rotated, substantially as described.

21. The combination with the base, and the writing mechanism, of a member hinged to the base, a platen slidably mounted on the said member, and means for locking the platen to the hinged member, substantially as described.

22. The combination with the base and the writing mechanism, of a member hinged to the base, a platen slidably mounted on the hinge member, means arranged automatically to lock the platen to the hinge-plate when being tilted, and means arranged automatically to release the said locking means when the platen is in the position for writing, substantially as described.

23. The combination with the base and the writing mechanism, of a pair of plates hinged to the base, a platen slidably mounted on the said plates, a dog on one of said plates, a rack on the platen arranged to be engaged by the dog, a spring tending to retain the dog in engagement with the rack, an arm on said dog arranged to engage the base when the platen is in position for writing, and means for adjusting the platen in a direction transverse to the line of writing, substantially as described.

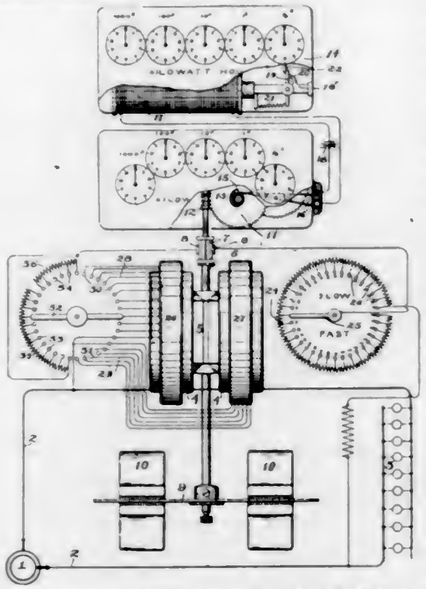
24. In a type-writer, a stationary base, a platen, a book-rest supported beneath the platen, connections between the platen and book-rest permitting lateral movement of the book-rest independent of the platen, and simultaneous longitudinal movement thereof with the platen, and means for effecting such longitudinal movement of the platen and book-rest, substantially as described.

753,191. ELECTRIC METER. THOMAS DUNCAN, Chicago, Ill. Filed July 11, 1901. Serial No. 67,821. (No model.)

Claim.—1. In a system of electrical distribution, the combination with a current-generator, of a meter receiving current therefrom, a graduated resistance 24 in circuit with a winding of the meter, a switch-arm 25 including the resistance 24 in circuit, means whereby the torque of the meter may be adjusted to permit the switch-arm 25 to be located to normally include a portion only of the resistance 24, whereby the said switch-arm may be rotated in one direction or the other to readjust the torque of the meter when thrown out of adjustment, substantially as described.

2. In a system of electrical distribution, the combination with a current-generator, of a meter receiving current therefrom, a graduated resistance 24 in circuit with a winding of the meter, a switch-

arm 25 including the resistance 24 in circuit, and means for adjusting the initial torque of the meter, whereby the switch-arm 25 may be located to normally include a portion only of the resistance 24, whereby the said switch-arm may be rotated in one direction or the other to readjust the torque of the meter when thrown out of adjustment, substantially as described.



3. The combination with a system of electrical distribution, of a meter receiving current therefrom, a winding for producing supplemental torque, a resistance in circuit with the winding, and switching mechanism whereby resistance is included in circuit as turns of the supplemental winding are cut out of circuit and vice versa, substantially as described.

4. The combination with a system of electrical distribution, of a meter receiving current therefrom, a winding for producing supplemental torque in circuit with a main winding of the meter, a resistance in circuit with a main winding of the meter, and switching mechanism whereby the resistance is included in circuit as turns of the supplemental winding are cut out of circuit and vice versa, whereby a variation of the number of turns of the supplemental winding will not modify the current flowing through the main winding, substantially as described.

5. The combination with a system of electrical distribution, of a meter receiving current therefrom, a winding for producing supplemental torque in series with a main winding of the meter, a resistance in series with the supplemental and main windings of the meter, and switching mechanism whereby the resistance is included in circuit as turns of the supplemental winding are cut out of circuit and rice versa, whereby a variation of the number of turns of the supplemental winding will not modify the current flowing through the main winding, substantially as described.

6. The combination with a system of electrical distribution, of a meter receiving current therefrom, windings for producing supplemental torques, one in aid of the torque of the meter and the other in opposition to the torque of the meter, switching mechanism for including one or the other of the said windings in series with a main winding of the meter, and a resistance, the said switching mechanism serving to exclude turns of one or the other of the said supplemental torque-producing windings from circuit with the said main field-winding and to include a corresponding amount of ohmic resistance in series with said main field-winding, substantially as described.

7. The combination with a system of electrical distribution, of a meter receiving current therefrom, windings for producing supplemental torques, one in aid of the torque of the meter and the other in opposition to the torque of the meter, switching mechanism for including one or the other of the said windings in series with a main winding of the meter, a resistance, the said switching mechanism serving to exclude turns of one or the other of the said supplemental torque-producing windings from circuit with the said main field-winding and to include a corresponding amount of ohmic resistance in series with said main field-winding, the said field-winding being in the form of an armature, and a commutator with its brushes for including the armature in circuit, substantially as described.

8. The combination with a system of electrical distribution, of a meter receiving current therefrom, windings for producing supplemental torques, one in aid of the torque of the meter and the other in opposition to the torque of the meter, switching mechanism for including one or the other of the said windings in series with a main winding of the meter, a resistance, the said switching mechanism serving to exclude turns of one or the other, of the said supplemental torque-producing windings from circuit with the said main field-winding and to include a corresponding amount of ohmic resistance in series with said main field-winding, the said field-winding being in the form of an armature, a commutator with its brushes for including the armature in circuit, and an adjustable resistance 24 in circuit with the said main field-winding, substantially as described.

9. The combination with a system of electrical distribution, of a meter receiving current therefrom, windings for producing supplemental torques, one in aid of the torque of the meter and the other in opposition to the torque of the meter, switching mechanism for including one or the other of the said windings in series with a main winding of the meter, a resistance, the said switching mechanism serving to exclude turns of one or the other of the said supplemental torque-producing windings from circuit with the said main field-winding and to include a corresponding amount of ohmic resistance in series with said main field-winding, and an adjustable resistance 24 in circuit with the said main field-winding, substantially as described.

10. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and means for regulating the torque exerted by one of the coils, substantially as described.

11. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and means for regulating the torque exerted by both of the coils, substantially as described.

12. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and means for changing the effective winding of one of the coils, substantially as described.

13. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and means for changing the effective winding of both of the coils, substantially as described.

14. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and switching mechanism for regulating the torque exerted by one of the coils substantially as described.

15. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and switching mechanism for regulating the torque exerted by both of the coils substantially as described.

16. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and switching mechanism serving to cut in and out turns of one of the coils, substantially as described.

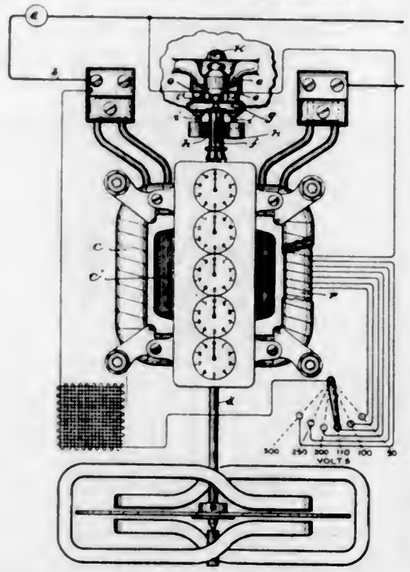
17. A commutated wattmeter having two friction compensating coils exerting opposing torques upon the armature, and switching mechanism serving to cut in and out turns of both of the coils, substantially as described.

753,192. ELECTRIC METER. THOMAS DUNCAN, Chicago, Ill. Filed July 18, 1901. Serial No. 68,751. (No model.)

Claim.—1. A motor-meter provided with an armature-winding a commutator for the armature, commutator-brushes for engaging the commutator to connect the armature in circuit, a detachable support for the commutator-brushes, a sleeve *l'*, and a screw *k* passing through the same into engagement with the said detachable support, substantially as described.

2. A motor-meter provided with an armature-winding, a commutator for the armature, commutator-brushes for engaging the commutator to connect the armature in circuit, a detachable support for the commutator-brushes, a sleeve *l'*, and a screw *k* passing through the same into engagement with the said detachable support, the support being provided with a projection *m* engaging a corresponding recess of the sleeve, whereby the brushes may be exactly reset to their original position, substantially as described.

3. A motor-meter provided with an armature-winding, a commutator for the armature, commutator-brushes for engaging the commutator to connect the armature in circuit, a detachable support for the commutator-brushes, springs *o o* secured upon the meter-frame, and parts *i i* in electrical connection with the brushes, brought into engagement with the springs *o o* when the detachable support is replaced, the said springs *o o* serving to convey current to the commutator-brushes and armature, substantially as described.



4. The combination with a motor-meter, of an adjustable auxiliary-pressure field-winding, a step-by-step adjusting means for adjusting the field of this auxiliary field-pressure winding to compensate for a variation in the field of a main-pressure winding, whereby the meter may be adapted to circuits of different voltages, and a calibrated scale associated with said step-by-step adjusting means, whereby the voltage for which said auxiliary field-pressure winding is adjusted may be ascertained, substantially as described.

5. The combination with a motor-meter, of an adjustable auxiliary-pressure field-winding, and step-by-step adjusting means for varying the number of turns of the said auxiliary winding to compensate for a variation in the field of a main-pressure winding, whereby the meter may be adapted to circuits of different voltages, substantially as described.

6. The combination with a motor-meter, of an adjustable auxiliary-pressure field-winding, and step-by-step adjusting means for adjusting the said winding bodily and means for adjusting the number of turns thereof to compensate for a variation in the field of a main-pressure winding, whereby the meter may be adapted to circuits of different voltages, substantially as described.

7. The combination with a motor-meter, of an adjustable auxiliary-pressure field-winding, and step-by-step adjusting means for varying the number of turns of the said auxiliary winding to compensate for a variation in the field of a main-pressure winding, substantially as described.

8. The combination with a motor-meter, of an adjustable auxiliary-pressure field-winding, and step-by-step adjusting switching mechanism for varying the number of turns of the said auxiliary winding to compensate for a variation in the field of a main-pressure winding, substantially as described.

9. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having a current field-winding and a wound armature with its commutator and brushes, said armature being subject to the pressure of the circuit, an auxiliary coil in addition to the armature and field coils for adjusting the voltage of the meter and subject to the pressure of the circuit and provided to furnish a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby render more or less of said coil subject to the pressure of the circuit and adjust the meter to the line-pressure, substantially as described.

10. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having a current field-winding and a wound armature with its commutator and brushes, said armature being subject to the pressure of the circuit, an auxiliary coil in addition to the armature and field coils for adjusting the voltage of the meter and subject to the pressure of the circuit and provided to furnish a field for the armature, and switching mechanism for rendering more or less of said coil subject to the pressure of the circuit and adjust the meter to the line-pressure, substantially as described.

11. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of an auxiliary-pressure coil in addition to the armature and field coils for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit, substantially as described.

12. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of an auxiliary coil for adjusting the voltage of the meter and provided in addition to the armature and field coils adapted to be located between the mains of the system containing the meter for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

13. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of an auxiliary coil for adjusting the voltage of the meter and provided in addition to the armature and field coils adapted to be located between the mains of the system containing the meter for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

14. In a meter, the combination with the motor element thereof, including field portions and a wound armature with its commutator and brushes, of an auxiliary-pressure coil in addition to the armature and field coils for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit, substantially as described.

15. The combination with a source of current, the mains leading therefrom to supply translating devices, a motor-meter having a pressure-winding and a current field-winding, an auxiliary coil in addition to the pressure and current field-coils for adjusting the voltage of the meter and subject to the pressure of the circuit and provided to furnish a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby render more or less of said coil subject to the pressure of the circuit and adjust the meter to the line-pressure, substantially as described.

16. In a meter, the combination with the motor element thereof, including pressure and current windings, of an auxiliary coil for adjusting the voltage of the meter and provided in addition to said windings adapted to be located between the mains of the system containing the meter for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

17. The combination with a source of current, of mains leading therefrom to supply translating devices, a motor-meter having a pressure-winding and a current field-winding, an auxiliary coil in addition to the pressure and current field-coils for adjusting the voltage of the meter and subject to the pressure of the circuit and provided to furnish a field for the armature, and switching mechanism for rendering more or less of said coil subject to the pressure of the circuit and adjust the meter to the line-pressure, substantially as described.

18. In a meter, the combination with the motor element thereof, including pressure and current field-windings, of an auxiliary-pressure coil for adjusting the voltage of the meter and provided in addition to the armature and field windings for producing a field for the armature and a switching device having a number of contact-buttons connected with different portions of said coil, and a switch-arm adapted to engage said buttons and thereby include

more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

19. In a meter, the combination with the motor element thereof, including pressure and current field-windings, of an auxiliary-pressure coil for adjusting the voltage of the meter and provided in addition to said windings for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

20. In a meter, the combination with the motor element thereof, including pressure and current windings, of an auxiliary-pressure coil for adjusting the voltage of the meter and provided in addition to said windings adapted to be located between the mains of the system containing the meter for producing a field for the armature, and switching mechanism for including more or less of said coil in circuit and adjust the meter to the line-pressure, substantially as described.

753,193. ELECTRIC METER. THOMAS DUNCAN, Lafayette, Ind. Filed Oct. 23, 1903. Serial No. 178,248. (No model.)



Claim.—1. In a motor-meter, the combination with the armature thereof, of a commutator for the armature and a spindle for the armature and commutator, said spindle being formed of three separable sections, one carrying the armature, another, the commutator and the third the worm for operating the measuring element, substantially as described.

2. In a motor-meter, the combination with the armature thereof, of a commutator for the armature, and a spindle for the armature and commutator, said spindle being provided with a worm for operating the measuring element and formed of separable sections, one carrying the commutator and another the worm, substantially as described.

3. In a motor-meter, the combination with the armature thereof, of a spindle therefor provided with a worm, and formed in separable sections, one section carrying the armature and the other the worm, substantially as described.

4. In a motor-meter, the combination with the armature and commutator of the meter, of a spindle therefor divided into separable sections, one carrying the armature, and the other the commutator, substantially as described.

5. In a motor-meter, the combination with the spindle thereof, formed of magnetic material, of a magnetized bearing-pin therefor, a recess being provided in one end of the spindle in which the pin is removably received, substantially as described.

6. In a motor-meter, the combination with the spindle thereof formed of magnetic material, of a magnetized bearing-point therefor removably held upon the spindle by its magnetic attraction, substantially as described.

7. In a motor-meter, the combination with the spindle thereof formed of magnetic material, of a bearing-pin therefor having magnetic material in its formation removably held in position upon the spindle by magnetic attraction, substantially as described.

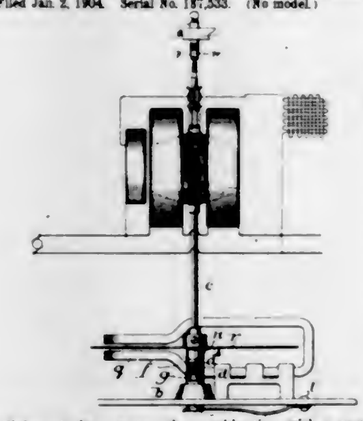
8. In a motor-meter, the combination with the spindle thereof, provided with a recess in one end, said recess having a smooth interior, of a bearing-pin with a smooth exterior held within said recess by suction, substantially as described.

9. In a motor-meter, the combination with the spindle thereof provided at its upper end with a recess, of an upper bearing-pin stationarily and adjustably mounted and projecting within said recess, substantially as described.

10. In a motor-meter, the combination with the spindle thereof provided at one end with a recess, of a bearing-pin held in said recess by suction, substantially as described.

11. In a motor-meter, the combination with the spindle thereof provided at its upper end with a recess, of an upper bearing-pin stationarily mounted and projecting within said recess, substantially as described.

753,194. ELECTRIC METER. THOMAS DUNCAN, Lafayette, Ind. Filed Jan. 2, 1904. Serial No. 187,533. (No model.)



Claim.—1. In a meter, the combination with a meter-shaft formed in separable sections, one of said sections comprising a magnetizable ball or sphere, and a bearing supporting the ball and the balance of the shaft, the said shaft being magnetized to hold the ball in place, substantially as described.

2. In a meter, the combination with a meter-shaft formed in separable sections, one of said sections comprising a magnetizable ball or sphere, and a bearing supporting the ball and the balance of the shaft, said ball being held in place by magnetic attraction, substantially as described.

3. In a meter, the combination with a meter-shaft thereof, of a bearing therefor, a casing surrounding the bearing and the shaft where it engages the bearing, the said casing having a side portion cut away to reveal the bearing and the shaft portion engaging the same, and a movable covering for the cut-away portion, whereby the casing may be opened and closed, substantially as described.

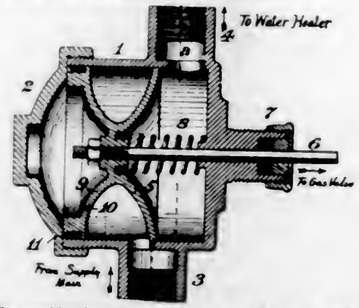
4. In a meter, the combination with its shaft of a bearing therefor, a casing surrounding the bearing and shaft where the shaft engages the bearing, and a sleeve surrounding the casing and rotatable about the same, the said casing having an opening in its side to show the bearing and the shaft portion engaging the same, the sleeve having an opening in its side to register with the opening in the casing when in one position, the said sleeve serving to close the opening in the casing when the sleeve is in another position, substantially as described.

5. In a meter, the combination with its shaft of a damping-disk thereon, a damping-magnet between whose poles the disk may rotate, a displaceable jewel-bearing post serving to support the shaft in rotation, and a limiting-stop serving to prevent movement of said disk into contact with the damping-magnet upon the displacement of said post, substantially as described.

6. In a meter, the combination with a bearing for its shaft, of means for inclosing the said bearing and the portion of the shaft engaging the same, said means permitting of access to said bearing and shaft where engaged without changing the relative positions of the shaft and bearing, substantially as described.

753,195. VALVE FOR WATER-HEATERS. JOHN ELLIS, Pittsburg, Pa., assignor to Knud Manufacturing Company, Camden, N. J., a Corporation of New Jersey. Filed May 15, 1903. Serial No. 157,247. (No model.)

Claim.—1. The combination of a valve-case, provided with water inlet and delivery passages, a piston-valve fitted to traverse in the case, and, when in normal position therein, interposed between, and having its opposite faces exposed to the pressures in, the inlet and the delivery passage, respectively, a piston fixed to the valve, and fitting in the case on the side of the inlet-passage which is farther from the valve, and means for permitting slow traverse of water from one side of the piston to the other.



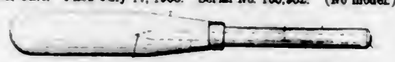
2. The combination of a valve-case, provided with water inlet and delivery passages, a piston-valve fitted to traverse in the case, and, when in normal position therein, interposed between, and having its opposite faces exposed to the pressures in, the inlet and the delivery passage, respectively, a piston fixed to the valve, and fitting in the case on the side of the inlet-passage which is farther from the valve, means for permitting slow traverse of water from one side of the piston to the other, and a spring bearing on the valve in direction to effect its closure.

3. The combination of a valve-case, provided with water inlet and delivery passages, a piston-valve fitted to traverse in the case, and, when in normal position therein, interposed between, and having its opposite faces exposed to the pressure in, the inlet and the delivery passage, respectively, a piston fixed to the valve, and fitting in the case on the side of the inlet-passage which is farther from the valve, and a restricted port or passage leading from one side of the piston to the other.

4. The combination of a valve-case provided with water inlet and delivery passages, a piston-valve fitted to traverse in the case, and, when in normal position therein, interposed between, and having its opposite faces exposed to the pressures in, the inlet and the delivery passage respectively, a piston fixed to said valve, and fitting in the case, said piston being continuously exposed, on its face adjoining the valve, to the pressure in the inlet-passage, and a restricted port or passage leading from one side of the piston to the other.

5. The combination of a valve-case provided with water inlet and delivery passages, a piston-valve and a connected balance-piston fitted to traverse in the case and separated by a space which is continuously open to the inlet-passage, the valve, when in normal position being interposed, and closing communication, between the inlet and delivery passages, and opening such communication by its movement with the balance-piston, and means for permitting slow traverse of water from one side of the balance-piston to the other.

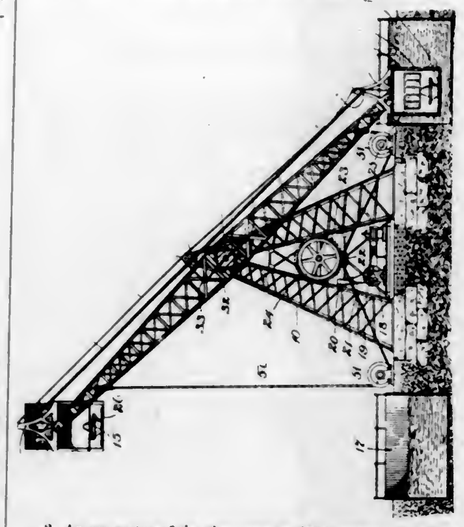
753,196. RAZOR-STROP DRESSER. THOMAS J. FORDE, Geneva, Ohio, assignor of two-thirds to F. S. Turner and C. B. Gladding, Geneva, Ohio. Filed July 17, 1903. Serial No. 165,932. (No model.)



Claim.—In a razor-strop dresser, the combination, with a handle, and a strop-dressing member in the form of a tube arranged at one end of and in line with the handle, which tube is annular in cross-section, of a permanent magnet in the form of a round pin extending through the said tube into the handle and thick enough to fill the tube interiorly, which magnet is provided, at its outer end, with a head overlapping the outer end of the said tube.

753,197. SEESAW AMUSEMENT APPARATUS. WILLARD H. GILMAN, Boston, Mass., assignor, by direct and mesne assignments, to American Amusement Company, Kittery, Me., a Corporation of Maine. Filed Mar. 23, 1903. Serial No. 149,022. (No model.)

Claim.—1. An apparatus of the character specified, comprising a liquid-holding tank, a diving-bell movable into and out of said tank, said diving-bell having a cage and a hood vertically movable relatively to the cage, means for alternately raising and depressing said diving-bell and for raising and depressing the hood, and mechanism for intermittently locking the hood to the cage.



2. An apparatus of the character specified, comprising a tilting frame or seesaw, a fixed support for said frame between the ends thereof, diving-bells connected with the ends of the said frame, each bell comprising a cage or carrier and a hood vertically movable relatively thereto, tanks arranged at opposite sides of the support to receive said diving-bells, means for oscillating the frame, means for raising and depressing said hoods, and mechanism for intermittently locking the hoods to the cages, said mechanism having provisions for locking the hoods alternately.

3. An apparatus of the character specified, comprising a pivoted frame or seesaw, means for oscillating the same, diving-bells connected with the end portions of said frame, each diving-bell comprising a cage or carrier and a hood vertically movable relatively thereto, and mechanism actuated by the movements of the frame for raising and depressing said hoods.

4. An apparatus of the character specified, comprising a pivoted frame or seesaw, means for oscillating the same, diving-bells connected with the end portions of said frame, each diving-bell comprising a cage or carrier and a hood vertically movable relatively thereto, mechanism actuated by the movements of the frame for raising and depressing said hoods, and mechanism for intermittently locking each hood to the accompanying cage.

5. An apparatus of the character specified, comprising a liquid-holding tank, a diving-bell movable into and out of the tank, said diving-bell having a cage and a hood vertically movable relatively to the cage, means for alternately raising and depressing the hood relatively to the cage, and means for intermittently locking the hood to the cage.

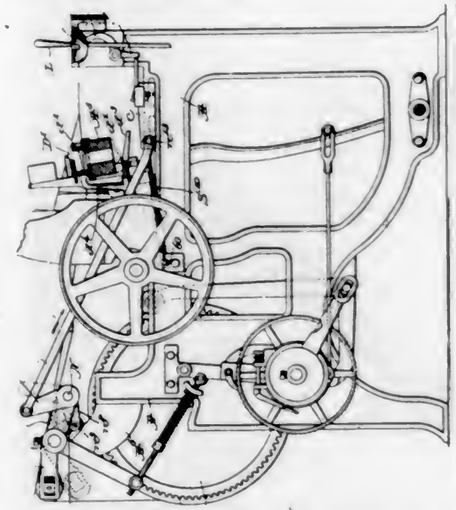
753,198. MEANS FOR PREVENTING WARP BREAKAGE IN LOOMS. ROBERT JAMIESON, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Aug. 31, 1903. Serial No. 171,323. (No model.)

Claim.—1. In a loom, a movable whip-roll, a lay, means operated thereby on its forward beat, upon improper boxing of the shuttle, to move positively the whip-roll to slacken the warps, a check to stop the lay at such time before it reaches front center, and means to thereafter restore the whip-roll to operative condition and control of the warps and simultaneously retract the lay.

2. In a loom, a movable whip-roll, a lay, means operated thereby on its forward beat, upon improper boxing of the shuttle, to move positively the whip-roll to slacken the warps, a check to stop the lay at such time before it reaches front center, and means independent of the lay to thereafter restore the whip-roll to operative condition and control of the warps.

3. In a loom, a movable whip-roll, protector mechanism includ-

ing a frog, a connection between it and the whip-roll to positively move the latter to slacken the warps upon operation of the protector mechanism, a lay, a device to stop forward movement of the frog before the lay reaches front center, and a spring connected with the frog to thereafter immediately retract it and restore the whip-roll to normal operative position.



4. In a loom, a movable whip-roll, a lay, protector mechanism, including a dagger movable with the lay, and a frog to be engaged by said dagger upon improper boxing of the shuttle, a connection between the whip-roll and frog to positively move the former to slacken the warps upon operation of the protector mechanism, a device to stop the frog and check forward movement of the lay before it reaches front center, and a spring flexed by forward movement of the frog, to thereafter retract it and the lay and restore the whip-roll to operative position.

5. In a loom, a lay, a shipper, protector mechanism, including a dagger, and a frog to be engaged and moved thereby on the forward beat of the lay to release the shipper upon improper boxing of the shuttle, a device to stop forward movement of the frog before the lay reaches front center, a whip-roll, means actuated by operative forward movement of the frog to move the whip-roll positively to slacken the warps, and a spring directly connected with the frog to retract the same and act through said means to restore the whip-roll to operative position.

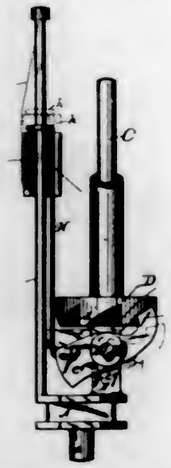
6. In a loom, a movable whip-roll, a lay, means operated thereby on its forward beat, upon improper boxing of the shuttle, to move positively the whip-roll to slacken the warps, and means to take up the momentum of and stop the lay before it reaches front center and to thereafter restore automatically the whip-roll to operative condition and control of the warps.

7. In a loom, a movable whip-roll, protector mechanism, including a frog, a connection between it and the whip-roll to positively move the latter to slacken the warps upon operation of the protector mechanism, a lay, means directly connected with the frog to take up the momentum of the lay and stop it and the frog before the lay reaches front center, and to thereafter retract the frog and restore automatically the whip-roll to normal operative position, and a stop to limit retractive movement of the frog.

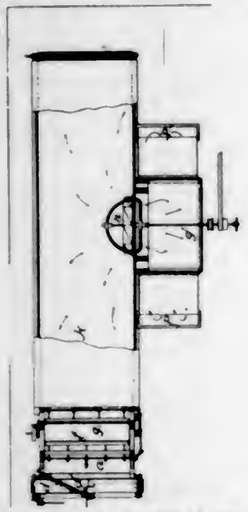
753,199. BRAIDING-CARRIER. HENRY JARMES, Wyomissing, Pa., assignor to Textile Machine Works, Incorporated, Wyomissing, Pa. Filed July 23, 1903. Serial No. 166,670. (No model.)

Claim.—The combination with the tension-weight stud and parallel spool-spindle, of a yarn spool or holder having a ratcheted base loosely supported on said spindle, a transversely-arranged pawl pivoted intermediately of its length below said base and having its outer end adapted to engage the latter, an operating device guided on said stud and connected to the inner end of said pawl and a cooperating tension-weight

753,199.



753,200. **APPARATUS FOR DRYING WOOL, &c.** JAMES KEITH and WILLIAM W. WARDLE, London, England, assignors to James Keith & Blackman Company, Limited, London, England. Filed Aug. 22, 1903. Serial No. 170,407. (No model.)



Claim.—1. For continuous treatment of wool and like fibrous material apparatus comprising the combination with a washing-machine, dyeing or like machine, and a drying-machine of greater breadth than said washing-machine, of means for spreading and opening out the material and automatically transferring it from said washing-machine to said drying-machine, as described.

2. For continuous treatment of wool and like fibrous material apparatus comprising the combination with a washing-machine, a hopper of greater width than said washing-machine and a drying-machine of the same width as said hopper, of devices for automatically distributing the material from said washing-machine equally throughout said hopper and devices for automatically opening out said material and delivering it in uniform masses to the drying-machine as described.

3. For continuous treatment of wool and like fibrous material apparatus comprising the combination with a washing-machine, a hopper of greater width than said washing-machine and a drying-machine of the same width as said hopper, of devices for distributing the material from the washing-machine uniformly throughout said hopper, devices for opening out and carding the material, means for delivering said material to a drying-machine and means for regulating the quantity of material so delivered, as described.

4. The combination with a hopper for receiving wool from a washing or dyeing machine, said hopper being of greater width than the washing-machine, of a spiked band for raising the wool from said hopper, combs for regulating the quantity of material raised by said spiked band and a drying-chamber including an endless traveling band onto which the wool is continuously fed to be dried and continuously delivered at the end of the drying-chamber as described.

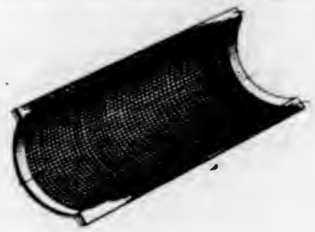
5. For continuous treatment of wool from a washing or dyeing machine, apparatus comprising in combination a hopper, a traveling band and a transverse traveling web delivering the material to said hopper, and a push-plate for removing the material from said web, means for raising the wool from said hopper, means for throwing down surplus wool into the hopper, means for throwing off the wool from said receiving means onto the traveling band of a drying-machine, said traveling band delivering the conditioned wool continuously as described.

6. For continuous treatment of wool from a washing or dyeing machine, apparatus comprising in combination a traveling band receiving the wool from the washing-machine, a transverse traveling web beneath said band and receiving the material therefrom, a hopper of the same width as the drying-machine, a push-plate located over said traveling web, and means for operating said push-plate to distribute the material into a hopper, a creeper comprising an endless band of laths having projecting spikes and means for moving said band to raise the material from said hopper, a knock-off comb and means for swinging said comb for throwing down surplus wool into said hopper and a knock-off comb for throwing off the raised wool, an endless band passing through a drying-chamber and receiving the wool and devices for causing said band to travel continuously through the drying-chamber to deliver the conditioned wool as described.

7. For continuous treatment of wool the combination with a washing-machine of a drying-machine of greater width, a hopper of the same width as the drying-machine, a traveling band, a traveling web and a push-plate cooperating to distribute the material from the washing-machine uniformly into said hopper, a spiked band for raising the material from said hopper, means for regulating the quantity of material delivered by said spiked band, an endless band passing through the drying-machine, means for throwing down the material onto said band, means for moving said band through the drying-chamber, means for heating said drying-chamber, and means for circulating air-currents through said chamber as and for the purpose set forth.

8. For continuous treatment of wool the combination with a washing-machine and a drying-machine of a hopper of the full width of said drying-machine, a traveling band delivering the material from the washing-machine, a transverse endless traveling web beneath said band and above said hopper, receiving the material, a push-plate at an angle to the line of travel of said web, levers for swinging said push-plate and assisting to distribute the material uniformly into said hopper, an endless traveling band of laths having projecting spikes for raising the material from said hopper, means for throwing down surplus material back into said hopper and means for throwing forward the wool to be treated into the drying-chamber, an endless band passing through said drying-chamber, means for supporting said band, and means for imparting to said band a continuous movement through the drying-chamber, means for heating said chamber and means for circulating air through said chamber as and for the purpose set forth.

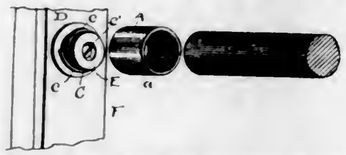
753,201. LUBRICANT-SUPPLYING DEVICE. THOMAS A. MATTHEWS, New York, N. Y. Original application filed Dec. 11, 1901, Serial No. 85,437. Divided and this application filed June 19, 1902. Renewed July 15, 1903. Serial No. 165,666. (No model.)



Claim.—1. A screen semicircular in cross-section, and a frame surrounding the edges of the screen having two parallel long sides and two end strips bent to a semicircle connecting the parallel sides.

2. A device for lubricating open journals, comprising a frame having two parallel sides and two ends bent to a semicircle, and a screen bounded by said frame and semicircular in cross-section.

753,202. CURTAIN-ROD FIXTURE. HERMANN H. MEYER, Cleveland, Ohio. Filed Nov. 6, 1903. Serial No. 180,025. (No model.)



Claim.—1. In curtain-rod fixtures, a sleeve and a stud having corresponding quick-threads for engaging the sleeve upon the stud, and a metallic rim about the base of the stud projecting laterally beyond the stud all around, whereby a bearing is formed for the edge of said sleeve and the window-casing is protected, substantially as described.

2. In curtain-rod fixtures, a sleeve for the end of the rod provided with a quick-thread internally in its outer portion, a stud having a quick-thread externally adapted to engage in said sleeve, and spurs on the bottom of the stud to prevent its turning, and a washer having a central hole and slots coincident with the opening and spurs on the said stud and wider than the stud at its base, substantially as described.

3. A curtain-rod fixture consisting of a sleeve A having internal threads *a*, a stud C having threads *c* to engage in said sleeve, and a washer D at the base of said stud extending outward beyond the stud all around, thereby forming a metallic bearing for the edge of sleeve A, substantially as described.

753,203. BIT FOR COAL-MINING MACHINES. ROBERT MCKINNEY, Hays borough, Pa., assignor of one-half to Thomas M. Gibbs, Canonsburg, Washington county, Pa. Filed June 10, 1903. Serial No. 160,854. (No model.)



Claim.—1. A cutter device of the type set forth comprising a chain, three bits which are adapted to be secured in said chain, said bits comprising a shank and angle portion, the angled portion of each bit having its front and rear faces tapered toward an edge, one of said bits having its sides tapered toward the rear face and toward the outer extremity, said outer extremity being beveled from the front to the rear face and the other two having one side tapered toward the extremity.

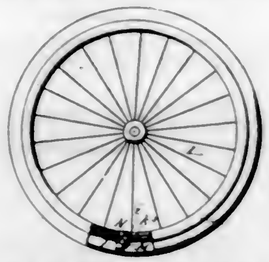
2. A cutting device of the type set forth comprising a chain, three bit-sections which are adapted to be secured in said chain each bit consisting of a shank and angled portion, the angled portions of one bit having front and rear faces tapered toward the extremity of the angled portion and its sides tapered inwardly toward the rear face and toward said extremity of the angled portion and said extremity being beveled from the front face to the rear face and the other bits having an angled portion, front and rear faces and having one side tapered toward the extremity of the angled portion, the front edge of the outer side being in alinement with the shank and said last-named side being hollowed or recessed substantially as described.

3. A cutter of the type described comprising a chain and three bits adapted to be secured in said chain, each of said bits having a shank, an angled portion, a tapered front and rear face and beveled extremity, one of said bits having both sides tapered toward said extremity and from the front face to the rear, the other two having their inner side tapered toward the beveled extremity and their outer side in alinement with the shank and beveled toward the rear face of the angled portion substantially as described.

753,204. METHOD OF MANUFACTURING CUSHION-TIRES. MAX NIEDLINGER, Philadelphia, Pa. Filed Jan. 22, 1900. Serial No. 2,358. (No model.)

Claim.—1. The herein-described improvement in the art of manufacturing vehicle-tires, which consists in forming a mass of liquid

or viscid material capable of producing on hardening a yielding, flexible filler, heating said mass, introducing it under pressure while heated into the interior of a rubber-like tube or sheathing, and enveloping the said tube or sheathing in heated water during such introduction of the filling mass, substantially as set forth.

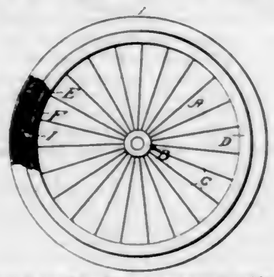


2. The herein-described improvement in the art of manufacturing elastic vehicle-tires which consists in heating a formed elastic outer sheath or tire-tube, and then injecting into such sheath or tube a mass of heated viscid filler material capable of forming on hardening an elastic or yielding filler, whereby union between the said filler and the tire-tube is effected, substantially as set forth.

3. The herein-described improvement in the art of manufacturing elastic vehicle-tires which consists in heating a formed elastic sheath or tire-tube, then injecting into the tire-tube a heated mass of filler material capable of forming on hardening an elastic or yielding filler, and maintaining the filler under relatively high pressure until it sets within the tire-tube, substantially as set forth.

4. The herein-described improvement in the art of manufacturing elastic vehicle-tires, which consists in forming a fluid filler comprising sponging and space-forming ingredients, said filler being capable of setting into porous and elastic form, agitating the filler material in contact with a body of air under pressure to aerate it and introducing the said filler in fluid and aerated condition and under pressure into a tube or sheath.

753,205. **VEHICLE-TIRE.** MAX NIEDLINGER, Philadelphia, Pa. Filed Jan. 22, 1900. Renewed Mar. 5, 1902. Serial No. 96,842. (No model.)



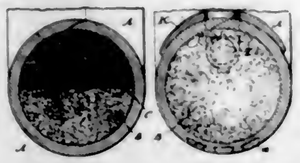
Claim.—1. A tire for vehicles comprising a rubber tube having an interior chamber, in combination with a ring-like filler in the said chamber and smaller in cross-section than the chamber, and a supplemental filler for said chamber intimately adhering to and engaging with the interior surface of the tube and formed of an elastic adhesive material, substantially as set forth.

2. A tire for vehicles comprising a rubber tube and an interior chamber, in combination with a ring-like filler in said chamber made of a mixture of comminuted cork or equivalent material coated by or immersed in a mass of rubber-like material, and a mass of liquid or viscous filling material in that part of the chamber not occupied by the first aforesaid filler, and formed of a yielding or spongy mixture, substantially such as described.

3. A filler for tires composed of the following ingredients in about the following proportions by weight, glue fourteen parts, glycerin sixteen parts, syrup twenty parts, sugar ten parts, pine-tar five parts, and an absorptive or fibrous vehicle, substantially as described.

4. A filler for tires composed of glue, glycerin, syrup, sugar and pine-tar in about the proportions specified, associated with a sponging mixture, composed of calcium chlorid, saleratus and vinegar, in about the proportions specified.

753,206. **ART OF MANUFACTURING VEHICLE-TIRES.** MAX NIEDLINGER, Philadelphia, Pa. Filed May 21, 1900. Serial No. 17,463 (No model.)



Claim.—1. The herein-described improvement in the art of manufacturing vehicle-tires which consists in mixing together in a heated condition glue, glucose or grape-sugar, glycerin or petrea, producing air or gas spaces in and throughout such composition, and introducing the same in the last-mentioned condition and while fluid, under pressure into a tire tube, covering or envelop.

2. The herein-described improvement in the art of manufacturing vehicle-tires which consists in mixing together in a heated condition glue, glucose or grape-sugar, glycerin or petrea, and a gas-generating substance or substances, and introducing the same while fluid into a tire tube, covering or envelop.

3. The herein-described improvements in the art of manufacturing vehicle-tires which consists in inserting into a tire tube or envelop a mass of strips or blocks of solid material, such as cork, arranging said solid blocks in a series in the inner side of the chamber within the tube, and inserting in that part of the chamber in the tube which is outside of the said strips or blocks a composition more or less viscid in consistency adapted to form a spongy, elastic body when hard, and applying pressure to said mass when it is being inserted into the tube, substantially as set forth.

4. The herein-described improvements in the art of manufacturing vehicle-tires which consists in the mixing together in a heated condition a glutinous material, a viscid material, and a gas-generating substance and introducing the composition into a tire tube or envelop under pressure.

5. The herein-described method for the manufacture of vehicle-tires which consists in making a composition of fluid-like character capable of setting to form an elastic body, and containing materials adapted by chemical combination to produce gas and render the body porous, and introducing said composition in a fluid condition into a flexible tire tube or sheath, substantially as set forth.

6. The herein-described method for the manufacture of vehicle-tires which consists in making a composition of fluid-like character capable of setting to form an elastic body, and containing saleratus for the purpose of producing gas and of rendering the body porous, and introducing said composition in a fluid condition into a flexible tire tube or sheath.

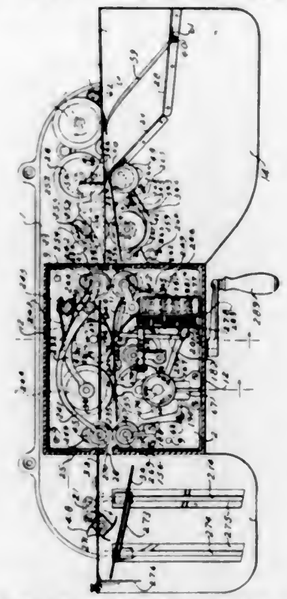
753,207. **MAIL-MARKING MACHINE.** ARTHUR H. PITNEY, Chicago, Ill. Filed Aug. 8, 1902. Serial No. 118,937. (No model.)

Claim.—1. The combination of a frame; a shaft secured to said frame; a member journaled on said shaft, and having a cylindrical printing-surface concentric with said shaft; a series of numbering-wheels mounted on said member on an axis transverse to said shaft, said wheels being provided with printing-surfaces and being of such form that their printing-surfaces conform with that of said member; suitable means for rotating said member on its shaft; mechanism operated by the rotation of said member and adapted to increase the count of said numbering-wheels during a certain portion of each revolution of said printing member, substantially as described.

2. The combination of a frame; a shaft secured to said frame; a member journaled concentrically with said shaft; a series of numbering-wheels mounted on said member on an axis transverse to that of said shaft; a lever mounted on said member and having connected thereto suitable mechanism for operating said numbering-wheels; a cam secured to said frame and adapted to engage said lever and cause same to reciprocate during the revolution of said member about said shaft, thereby operating said numbering-wheels.

3. The combination of a frame; a shaft secured to said frame; a member journaled concentrically with said shaft; a series of numbering-wheels mounted on said member on an axis transverse to that of said shaft; a lever mounted on said member and having connected thereto suitable mechanism for operating said numbering-wheels; a cam adjustably secured to said frame and adapted to engage said lever and cause same to reciprocate during the revolution of said member about said shaft, thereby operating said numbering-wheels.

4. The combination of a frame; a shaft secured to said frame; a member journaled concentrically with said shaft; a series of numbering-wheels mounted on said member on an axis transverse to that of said shaft; a lever mounted on said member and having connected thereto suitable mechanism for operating said numbering-wheels; a cam secured to said shaft and adapted to engage said lever and cause same to reciprocate during the revolution of said member about said shaft, thereby operating said numbering-wheels.



5. In a mail-marking machine, the combination of a frame; a rotary printing member journaled on an axis in said frame; a type-wheel journaled on said member on an independent axis and having on its periphery a plurality of printing-surfaces, each having the same curvature and each being adapted to be moved into or out of printing position by the turning of said wheel; means for turning said type-wheel to bring different surfaces into printing position; means for securing said type-wheel in different positions; a plurality of registering devices mounted in said frame and each corresponding to one of the printing-surfaces on said type-wheel; and suitable mechanism for causing each of said registers to count the number of impressions made by its respective printing-surface.

6. In a mail-marking machine, the combination of a frame; a printing-roller journaled in said frame and adapted to print a stamp; a series of numbering-wheels journaled in said roller and adapted to print a number in connection with said stamp; means for increasing the count of said numbering-wheels after each impression made by said printing-roller; and means for locking said printing-roller against further operation when a certain number of impressions have been made.

7. In a mail-marking machine, the combination of a frame; a printing-roller journaled in said frame and adapted to print a stamp; a series of numbering-wheels journaled in said roller and adapted to print a number in connection with said stamp; mechanism for feeding envelops singly and in succession to said printing-roller; means for operating said numbering-wheels at suitable intervals to increase their count and print a different serial number upon each envelop fed to said printing-roller; and means for locking said printing-roller against further operation when a certian number of impressions have been made and independently of the operation of said feeding mechanism.

8. The combination of a frame; a driving-shaft journaled in said frame; a member journaled concentrically with said shaft; a series of numbering-wheels mounted on said member and revoluble therewith; means for causing said numbering-wheels to increase their count during a certain interval of the revolution of said member; a clutch for connecting said member to said driving-shaft; means for normally urging said clutch into its engaged position; and suitable mechanism adapted to automatically release said clutch when said numbering-wheels indicate a certain number.

9. The combination of a frame; a printing-roller journaled in said frame; a series of numbering-wheels, journaled in said roller and adapted to successively number the impressions made by said printing-roller; and means for automatically locking said roller against further operation when said numbering-wheels indicate a certain number.

10. The combination of a frame; a printing-roller journaled in said frame; a series of numbering-wheels, journaled in said roller and adapted to successively number the impressions made by said printing-roller; means for locking said roller against further operation; a spring normally urging said locking means into locking position; a movable detent adapted to hold said locking means against said spring and out of locking position; suitable releasing mechanism for moving said detent out of engagement with said locking means, said releasing mechanism being adapted to operate when said numbering-wheels indicate a certain number.

11. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; means for changing the disposition of said type-wheel; and a dial secured to said frame and adapted to indicate the disposition of said type-wheel.

12. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; means for changing the disposition of said type-wheel; a dial secured to said frame and adapted to indicate the disposition of said type-wheel; and suitable means for preventing a change in the indication of said dial without correspondingly changing the disposition of the type-wheel.

13. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; a pinion journaled on the same axis with said type-wheel and secured thereto; a gear loosely journaled concentrically with said member and meshing with said pinion; a second pinion journaled in said frame independently of said member, and meshing with said gear, said pinions lying in different planes and being adapted to freely pass each other during the revolution of said member; a dial secured to said frame and having a revolable indicator journaled concentrically with said second pinion; a clutch for connecting said indicator with said second pinion; means for normally holding said clutch in a disengaged position; and means for preventing the turning of said indicator, except while said clutch is in its engaged position.

14. In a mail-marking machine, the combination of an intermittently-operated printing-roller; suitable mechanism for feeding mail-matter to said printing-roller; a finger projecting across the path of the mail-matter fed to said printing-roller and adapted to control the operation of said printing-roller, said finger being adjustable toward and from said printing-roller for the purpose of regulating the location of an impression made by said roller upon said mail-matter.

15. In a mail-marking machine, the combination of a frame; an intermittently-moving printing-roller journaled in said frame and provided with a clutch of the class described; mechanism for feeding mail-matter to said printing-roller; an arm pivoted in said frame and adapted to engage said clutch and stop the revolution of said printing-roller; a finger projecting across the path of the mail-matter and adapted, when in engagement with the advancing edge of said mail-matter, to move said arm and cause same to release said clutch and permit said roller to rotate; and a second arm adapted to move into position for engaging said clutch when said first arm moves out of such position.

16. In a mail-marking machine, the combination of a frame; a revoluble member journaled in said frame and provided with a spring-actuated clutch of the class described; a pivoted arm adapted to engage said clutch and stop the rotation of said member; a finger movably mounted in said frame; a link connecting said arm with said finger and adapted to move said arm out of engagement with said clutch when said finger is moved a certain distance; a spring normally urging said arm into position for engaging said clutch; and means operated by the continued movement of said finger and adapted to disconnect said arm from said finger and permit said arm to return to engagement with said clutch independently of said finger.

17. In a mail-marking machine, the combination of a printing-roller provided with a clutch of the class described; the finger 196;

the arm 182; the link 203, normally held in position to connect said finger with said arm by means of a spring 208; the beveled shoulder 211 on the link; the stop 212 adapted to engage said shoulder and trip said link, thereby disconnecting said arm from said finger, substantially as shown and described.

18. In a mail-marking machine, the combination of a printing-roller provided with a clutch of the class described; the finger 196; the arm 182; the link 203, normally held in position to connect said finger with said arm by means of a spring 208; the beveled shoulder 211 on the link; an adjustable stop adapted to engage said shoulder and trip said link, thereby disconnecting said arm from said finger, substantially as shown and described.

19. In a mail-marking machine, the combination of a frame; a printing-roller journaled in said frame and provided with a clutch of the class described; a finger movably mounted in said frame; an arm movably mounted in said frame and adapted to engage said clutch and stop the revolution of said printing-roller; a spring normally urging said arm into engagement with said clutch; suitable connection between said arm and finger whereby a certain movement of said finger will cause said arm to release said clutch; mechanism for tripping said connection and permitting said arm to return to engagement with said clutch, independently of said finger; and a second arm adapted to move into position for engaging said clutch when said first arm moves out of such position, substantially as described.

20. In a machine of the class described, the combination of a frame; a pair of shafts journaled in said frame and each having loosely journaled thereon a feed-roller; pawl-and-ratchet mechanism connecting said rollers to their respective shafts in such manner that said rollers may be driven by said shafts or may rotate faster than their shafts; a second pair of feed-rollers disposed in parallel relation to said first pair and geared to rotate faster than said first pair, substantially as described.

21. In a machine of the class described, the combination of a platform; a printing-roller journaled on a vertically-disposed axis and located above said platform; a pair of feed-rollers adapted to move mail-matter along said platform and toward said printing-roller, and geared to the same peripheral velocity as said printing-roller; a second pair of feed-rollers preceding said first pair and geared to rotate with a slower peripheral velocity than said first pair; and suitable pawl-and-ratchet mechanism adapted to permit said second pair of feed-rollers to increase their peripheral speed independently of their driving mechanism when engaging matter that is also engaged by said first pair.

22. The combination of a frame; a printing member journaled in said frame and adapted to make an impression when revolved on its axis; a printing-surface movably mounted in said member and adapted to be moved into and out of printing position; a register mounted in said frame; and suitable connection between said printing member and said register whereby said register will count the number of revolutions of said member when said printing-surface is in its printing position, but will be unaffected by the rotation of said member when said printing-surface is out of printing position.

23. In a machine of the class described, the combination of a frame; a printing member journaled in said frame, and adapted to print an impression when revolved on its axis; a plurality of printing-surfaces movably mounted on said printing member and each adapted to be moved into and out of printing position; a plurality of registers mounted in said frame and each corresponding to one of said printing-surfaces; and suitable mechanism connecting said member with said registers, whereby each of said registers will count the number of impressions made by its respective printing-surface.

24. In a machine of the class described, the combination of a frame; a printing member journaled in said frame, and adapted to print an impression when revolved on its axis; a plurality of printing-surfaces movably mounted on said printing member and each adapted to be moved into and out of printing position; a plurality of registers mounted in said frame and each corresponding to one of said printing-surfaces; a plurality of register-stars journaled on a common axis and each geared to one of said registers; a plate movably mounted on said member and having thereon a plurality of shoulders, each corresponding to one of said printing-surfaces; and means connecting said plate with said printing-surfaces in such manner that each of said shoulders will be moved to suitable position to engage its respective register-star, during the revolution of said member, when its respective printing-surface is moved to its printing-position.

25. The combination of a frame; a series of counting-wheels mounted on a common axis and each having therein an annular series of holes; suitable movable means for closing said holes; a pin slidably mounted near said wheels and adapted to engage any of said holes, which is open when such hole is opposed to said pin; means normally urging said pin toward said wheels; and means for suitably adjusting said pin to bring same into suitable position for engaging the holes in any one of said wheels, substantially as and for the purpose specified.

26. The combination of a frame; a series of counting-wheels mounted on a common axis and each having in its side face an annular series of holes; suitable movable means for closing said holes; a pin slidably mounted near said wheels and adapted to engage any of said holes, which are open when such hole is opposed to said pin; means normally urging said pin toward said wheels; and means for adjusting the length of said pin to bring same into suitable position for engaging the holes in any one of said wheels, substantially as and for the purpose specified.

27. The combination of a frame; a counting-wheel journaled in said frame, and having in its side a hole; a second wheel journaled on a common axis with said counting-wheel, having a hole extending through same and adapted to be moved to bring said hole into or out of alinement with the hole in said counting-wheel; a pin slidably mounted near said wheels and in alinement with one of the positions of the hole in the counting-wheel; means normally urging said pin toward said holes; means for moving said second wheel to prevent said pin from entering the hole in said counting-wheel; and suitable mechanism for operating said counting-wheel and for moving the hole in said second wheel into alinement with said pin when the hole in the counting-wheel returns to a position of alinement with said pin, substantially as and for the purpose described.

28. In a mail-marking machine, the combination of a frame; a printing member journaled in said frame on a vertical axis; a moistening-roller journaled in said frame on a horizontal axis; suitable feeding mechanism adapted to receive envelops and carry same on edge singly and in succession to said moistening-roller and printing member; and suitable guides for causing the flaps of the envelops to pass in contact with said moistening-roller and for folding said flaps against the envelops, while said envelops are being fed to said printing mechanism.

29. The combination of a frame; a member rotatably mounted in said frame and having a cylindrical printing-surface; a series of numbering-wheels mounted on said member on an axis transverse to the axis of said member, and adapted to print a number when said member is rotated; suitable means for rotating said member on its axis; and mechanism operated by the rotation of said member and adapted to increase the count of said numbering-wheels, substantially as described.

30. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; means for changing the disposition of said type-wheel; a dial rigidly secured to said frame and having a movable pointer adapted to indicate the disposition of said type-wheel; mechanism connecting said pointer to said type-wheel and adapted to change the disposition of said type-wheel when the pointer is moved, substantially as described.

31. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; means for changing the disposition of said type-wheel; a dial rigidly secured to said frame and having a movable pointer adapted to indicate the disposition of said type-wheel; mechanism connecting said pointer with said type-wheel and adapted to change the disposition of said type-wheel when the pointer is moved, said pointer being normally disconnected from said printing member so as to permit the free rotation of said printing member on its axis, substantially as described.

32. The combination of a frame; a rotary printing member journaled in said frame; a type-wheel journaled on said member and having on its periphery a printing-surface, said wheel being adapted to be turned to bring said printing-surface into and out of printing position; means for changing the disposition of said type-wheel; a dial rigidly secured to said frame and having a movable pointer adapted to indicate the disposition of said type-wheel; mechanism connecting said pointer with said type-wheel and adapted to change the disposition of said type-wheel when the pointer is moved, said mechanism being adapted to operate when said printing member is secured against rotation and independently of the angular position of said printing member on its axis, substantially as described.

33. The combination of a frame; a rotary printing member journaled in said frame; a type member movably mounted on said printing member and having thereon a printing-surface; said type member being adapted to be moved so as to bring said printing-surface into and out of printing position; means for changing the disposition of said type member; a dial secured to said frame and adapted to indicate the disposition of said type member; suitable means for preventing a change in the indication of said dial without correspondingly changing the disposition of said type member, substantially as described.

34. The combination of a frame; a counting-wheel journaled in said frame; a second wheel loosely mounted in axial alinement with said counting-wheel and having therein an aperture; said second wheel being free to rotate independently of said counting-wheel; mechanism for rotating said counting-wheel, adapted to simultaneously rotate said second wheel; a pin slidably mounted in said frame and normally urged against said second wheel and adapted to engage said aperture, substantially as and for the purpose specified.

35. The combination of a frame; a counting-wheel journaled in said frame; a second wheel loosely mounted in axial alinement with said counting-wheel, and free to rotate independently of said counting-wheel; mechanism adapted to simultaneously rotate both of said wheels; a stop on said second wheel; and a locking device adapted to be operated by said stop when said second wheel is turned to a certain position, substantially as described.

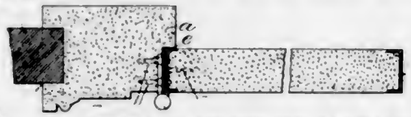
753,208. FIREPROOF STRUCTURE. NIELS POULSON, Brooklyn, N. Y. Filed Mar. 1, 1902. Renewed Jan. 23, 1904. Serial No. 190,364. (No model.)



Claim.—1. As a new article of manufacture, a fireproof door-slab adapted to receive and retain screws and consisting of a tough core strengthened by a grid embedded therein, and hard facing capable of being polished, substantially as described.

2. As a new article of manufacture, a fireproof door-slab adapted to receive and retain screws and consisting of composition, and having a core and a facing, each containing a mixture of earthy material the core also containing fiber, tougher than the facing, and the facing being harder than the core and capable of being polished, substantially as set forth.

753,209. FIREPROOF STRUCTURE. NIELS POULSON, New York, N. Y. Original application filed Mar. 1, 1902, Serial No. 96,309. Divided and this application filed Nov. 20, 1903. Serial No. 181,994. (No model.)



Claim.—1. A fireproof door-frame constructed of lignolith and including architraves in one piece with the body of the frame, substantially as hereinbefore specified.

2. A fireproof door-frame constructed of lignolith and including architraves in one piece with the body of the frame, a rabbet within the frame, and a recess which admits and incloses the adjoining edges of the partition in which the doorway is formed, substantially as hereinbefore specified.

3. A fireproof structure consisting of a door-frame constructed of lignolith having architraves in one piece with the body of the frame, a door having a body of lignolith, hinges connecting the door-frame and door, and wood-screws attaching the hinges to the respective parts and having their hold in lignolith, substantially as hereinbefore specified.

753,210. FIREPROOF DOOR. NIELS POULSON, New York, N. Y. Original application filed Mar. 1, 1902, Serial No. 96,309. Divided and this application filed Nov. 20, 1903. Serial No. 181,996. (No model.)

Claim.—1. A door, comprising a frame filled with lignolith and a metallic facing connected thereto and provided with a backing of lignolith, substantially as described.

2. A door, comprising a frame filled with lignolith and a metallic facing backed with lignolith and connected to the frame by screws having their hold in the filling of the frame, substantially as described.



3. A door, comprising a hollow metallic frame filled with lignolith, and a metallic facing applied externally to said frame and fastened in place by screws having their hold in the filling of said frame, substantially as described.

4. A door, comprising a hollow metallic frame the members of which are substantially T-shaped in cross-section with an open inner edge, a filling of lignolith within said frame, and a metallic facing applied externally to the open-edged thin portion of said frame and fastened in place by screws having their hold in the filling of said frame, substantially as described.

5. A door, comprising a hollow metallic frame the members of which are substantially T-shaped in cross-section with an open inner edge, a filling of lignolith within said frame, and a metallic facing provided with a backing of lignolith, applied externally to the open-edged thin portion of said frame and fastened in place by screws having their hold in the filling of said frame, substantially as described.

6. A door, comprising a hollow metallic frame the members of which are substantially T-shaped in cross-section with an open inner edge, a filling of lignolith within said frame, and a facing of electrodeposited metal provided with a facing of lignolith, applied externally to the open-edged thin portion of said frame and fastened in place by screws having their hold in the filling of said frame, substantially as described.

7. A fireproof door, consisting of a hollow metallic frame, the members of which are substantially T-shaped in cross-section with an open inner edge, a filling of lignolith within said frame, and metallic facings provided with backings of lignolith applied to the respective sides of said frame and fastened in place by screws having their hold in the filling of said frame, substantially as described.

8. A fireproof door consisting of a casing in whole or part of electrodeposited metal, and a filling of lignolith, substantially as described.

753,211. SCREW-DRIVER. HERBERT S. PULLMAN, Meriden, Conn., assignor, by mesne assignments, to the Hurwood Manufacturing Company, Plantsville, Conn., a Corporation of Connecticut. Filed July 14, 1902. Serial No. 115,530. (No model.)



Claim.—1. In a screw-driver or the like, in combination, a handle having a central opening, a blade having a shank with integral projections adapted to be projected through the handle, with the integral projections forced into the material of the handle, a removable cross-piece located in a slot in the outer end of the shank and handle, and means for securing the shank and cross-piece together.

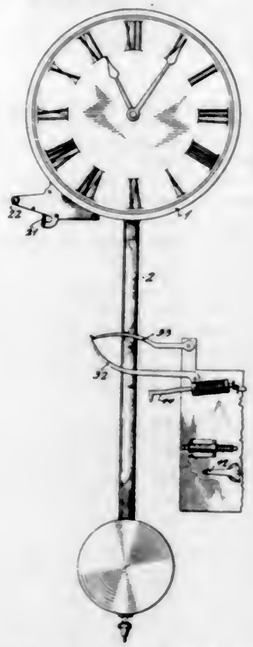
2. In a screw-driver or the like, in combination, a handle having a central opening, a blade having a shank projecting through the opening, said shank provided with integral projections extending from opposite sides thereof and adapted to be forced into the substance of the hand handle, a cross-piece located in a slot in the outer end of the shank and handle, and a pin arranged to secure the handle, shank and cross-piece together.

3. In a screw-driver or the like, in combination, a handle having a central opening, a shank projecting through said opening and having integral wings near its inner end, a cross-piece secured in a slot at the outer end of the shank and handle and arranged transversely with respect to the integral wings, and a pin projecting through the handle, shank and cross-piece.

753,212. CLOCK. WILHELM RAUSCH, New York, N. Y. Filed Apr. 1, 1903. Serial No. 150,513. (No model.)

Claim.—1. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, means to intermittently raise said weight, and means actuated by the pendulum to operate the weight-raising means, and means for giving intermittent impulses to said pendulum.

2. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, means to intermittently raise said weight, means actuated by the pendulum to operate the weight-raising means, and intermittently-acting means to give a fresh impulse to the pendulum.



3. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a spring-actuated lever to raise said weight, means actuated by the pendulum to control the time of operation of said lever, and means for giving intermittent impulses to said pendulum.

4. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, a spring-actuated lever to raise said weight, and means actuated by the pendulum to move said lever against the stress of its spring and to release said lever to permit said spring to act to raise the weight, and means for giving intermittent impulses to said pendulum.

5. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, a lever connected to said weight, a rod connected to said lever so as to be raised when the weight is lowered, means to raise the weight through said rod, means actuated by the pendulum to control the time of actuation of said weight-raising means, and means for giving intermittent impulses to said pendulum.

6. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, means to intermittently raise said weight comprising a wheel having pins thereon, a lever adapted to be raised by said pins and means attached to the pendulum to rotate said pin-carrying wheel and means to retract said lever when released from said pins, and means for giving intermittent impulses to said pendulum.

7. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, a ratchet-wheel, a pawl attached to the pendulum and adapted to engage and intermittently rotate said wheel, a wheel carrying pins thereon and geared to said ratchet-wheel, a lever projecting into the path of travel of said pins and adapted to be raised thereby, connections between said lever and weight, and a spring to retract said lever when released from said pins, and means for giving intermittent impulses to said pendulum.

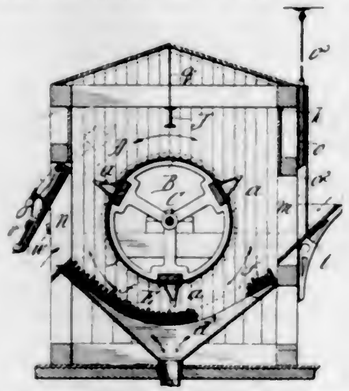
8. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, means to intermittently raise said weight, means actuated by the pendulum to operate the weight-raising means, means for giving intermittent impulses to said pendulum, and means actuated by the pendulum to control the time of operation of said impulse-giving means.

9. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, means to intermittently raise said weight, means actuated by the pendulum to operate the weight-raising means, a spring-controlled striker adapted to impart fresh impulses to the pendulum, and means actuated by the pendulum to control the time of operation of said striker.

10. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, a pendulum, mechanism to impart a fresh impulse to the pendulum when the amplitude of vibration of the pendulum decreases to a predetermined arc comprising a spring-controlled striker, a movable stop to engage said striker, and means actuated by the pendulum to move said stop to release the striker.

11. In a clock the combination with the usual train of gearing, of a weight to drive said gearing, means to intermittently raise said weight, a pendulum, a striker having a plurality of arms, means to rotate said striker, a stop-rod interposed in the path of the arms of said striker and means actuated by the pendulum to move said stop to release the striker.

753,213. RAG-DUSTING MACHINE. WILLIS H. SANBURN, Mittineague, Mass. Filed July 27, 1903. Serial No. 167,082. (No model.)



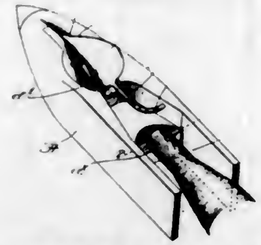
Claim.—1. In a machine for dusting rags, in combination, a housing having, in a lower portion thereof, a concave grating, provided with upwardly-projecting members, a longitudinally-extending bar located in an upper part of the housing, and a rotatable body having outwardly-extending projections arranged in their revoluble movements to pass in proximity to said grating and to said bar, and a suction-chamber and suction-conduit below the grating.

2. In a machine for dusting rags, in combination, a housing having, in a lower portion thereof, a concave grating provided with upwardly-projecting members, a rotary body mounted to turn within the housing having radial projections, a longitudinal bar arranged within the housing below its top and above the path of revoluble movement of said radial projections, and a screen extending between the top of said bar and the top of the housing.

3. In a rag-dusting machine, in combination, a housing having a rag-entrance and a rag-discharge opening, and closing means therefor, and having, in a lower portion thereof, a plurality of separated upwardly-extending partitions, the upper edges of which are of concave form, the curvature of each corresponding to that of the others, a suction-chamber in the lower portion of the housing, a plurality of grating sections or gangs composed of longitudinally-parallel bars having spacing-blocks therebetween, and curved bolts or tie-rods penetrating and holding together the series of bars and spacing-blocks, said gangs of said separated connected bars being supported on the upper edges of said partitions constituting a concave grating-bed next above the suction-chamber, and a rotatable body mounted to turn within the housing, having outwardly-extending projections, the ends of which are revoluble in proximity to the said grating-bed, for the purpose set forth.

4. In a rag-dusting machine, in combination, a housing having a rag-entrance and a rag-discharge opening, and closing means therefor, and having, in a lower portion thereof, a plurality of separated upwardly-extending partitions, the upper edges of which are of concave form, the curvature of each corresponding to that of the others, a suction-chamber in the lower portion of the housing, a plurality of grating sections or gangs composed of longitudinally-parallel bars, some of which are further upwardly extended than others, having spacing-blocks therebetween, and curved tie-rods penetrating and holding together the series of bars and spacing-blocks, and said gangs of said partitions constituting a concave grating-bed next above the suction-chamber, and a cylinder mounted to turn within the housing, having outwardly-extending projections, the ends of which are revoluble in proximity to the said grating-bed, for the purpose set forth.

753,214. AUTOMATICALLY-SELF-THREADING LOOM-SHUTTLE. JOHN W. SHERRY, New York Mills, N. Y., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 12, 1903. Serial No. 176,500. (No model.)



Claim.—1. An automatically-self-threading loom-shuttle having an open side delivery-eye, a threading device having a longitudinal thread-passage open at its top and means to direct the thread from the front end thereof to the eye of the shuttle, and a guard extended rearwardly from and beyond said threading device and projecting over the path of the thread between the tip of the bobbin and the rear end of the thread-passage, said guard being curved laterally at its rear side to engage the side wall of the shuttle.

2. An automatically-self-threading loom-shuttle having an open side delivery-eye, a threading device having a longitudinal thread-passage and means to direct the thread from the front end thereof to the eye of the shuttle, and a rearwardly-extended prolongation on said threading device at one side of the thread-passage and projecting along the median line of the shuttle over the path of the thread between the tip of the bobbin and the rear end of the thread-passage, to serve as a guard and prevent the filling-thread from being thrown forward and out of the thread-passage.

3. An automatically-self-threading loom-shuttle having an open side delivery-eye, a threading device having a longitudinal thread-passage and means to direct the thread from the front end thereof to the eye of the shuttle, and a guard extending rearwardly from said device above the path of the thread between the tip of the bobbin and the rear end of the thread-passage, said guard at its rear end being curved laterally to and supported in the side wall of the shuttle.

4. An automatically-self-threading loom-shuttle having a longitudinal opening to receive a filling-carrier or bobbin and provided with a side delivery-eye, a threading device at one end of said opening having a longitudinal thread-passage and means to direct the thread therefrom to the eye, a tip-support at the adjacent end of the opening in the shuttle-body, and a guard mounted on the threading device and extending rearwardly therefrom to project above the tip-support over the path of the filling-thread between the tip of the filling-carrier and the rear end of the thread-passage.

5. An automatically-self-threading loom-shuttle having an open side delivery-eye, a threading device having a longitudinal thread-passage and means to direct the thread from the front end thereof to the eye of the shuttle, and a rearwardly-extended guard attached at its forward end to the threading device and having its rear end curved laterally and supported in the side wall of the shuttle, said guard projecting over the path of the filling-thread as it passes to the thread-passage and preventing it from being thrown forward out of said passage.

753,215. VALVE. WILLIAM H. STRATTON, Hartford, Conn.; Cora M. Stratton administratrix of said William H. Stratton, deceased. Filed Feb. 3, 1902. Serial No. 92,289. (No model.)

Claim.—1. In combination with a valve-seat, a valve mounted upon said valve-seat, a spring for holding the valve to its seat, a stem operatively arranged with relation to the valve, a removable abutment adapted for locking and releasing actions with relation to said spring, and interlocking parts appurtenant to the abutment and stem arranged to permit removal of the abutment upon a partial movement of one of the interengaging parts.

2. In combination with a valve-deck having openings therethrough, a valve mounted on the surface of said deck, a spring for holding the valve to its seat, a stem extending through the valve, an abutment separable from the valve-stem for locking the spring in place, and interengaging parts appurtenant to the removable abutment and stem whereby the abutment may be removed upon a partial movement.



3. In a valve device, a valve-seat with openings therethrough, a valve located on the seat, a spring for forcing the valve against its seat, a stem projecting through the valve and spring and having lugs, and a lock located on the stem and having openings adapted to permit the passage of lugs, and recesses arranged to receive the lugs.

4. In a valve device, in combination, a valve-seat having openings therethrough, a valve located on the seat, a spring for forcing the valve against its seat, a lock to hold the spring, and a stem extending through the valve, spring and lock, said lock and stem being provided with interengaging lugs and recesses, adapted to be locked and released upon a partial rotation.

5. In a valve device, in combination with a valve and a spring adapted to force the valve to its seat, a lock adapted to hold the spring, means for holding the lock, said lock and holding means being provided with interengaging lugs and recesses and with beveled surfaces extending into said recesses.

6. In a valve device, in combination with a valve, valve-stem and a spring adapted to force the valve to its seat, a lock for holding the spring separable from the valve-stem and having a stop located in the path of movement of the valve, means for normally holding the lock against longitudinal or rotary movement, including means for releasing the lock upon its partial rotation.

7. In a valve device in combination with a valve and a spring adapted to force the valve to its seat, a lock, separable from the valve-stem, a stem extending through the valve, spring and lock, means located on the stem and lock for normally preventing relative rotary and longitudinal movement of said parts, said means arranged for releasing the parts upon a partial rotation, and a stop located on the lock in the path of movement of the valve.

8. In a valve device, in combination with a valve and a spring adapted to force the valve to its seat, a lock separable from the valve-stem for holding the spring, a stem extending through the valve, spring and lock, said lock and stem having means for normally preventing relative rotary and longitudinal movement of the lock and stem, yet permitting said movements for disengaging the parts.

9. In combination with a valve and valve-seat, a stem operatively mounted with relation to said parts, a spring for holding the valve to its seat, an abutment coöperating with the stem and separable therefrom for locking the parts in position and provided with parts coöperating with interengaging parts upon the stem, said abutment provided with a separate stop adapted to determine the maximum movement of the valve.

10. In combination with a valve and its seat, a spring for holding the valve to its seat, a stationary stem operatively arranged with relation to the valve and provided with a shoulder, an abutment or lock separable from the stem for holding the spring in position and provided with a stop extending toward the shoulder on the stem, interengaging parts between the stem and abutment arranged to permit rotation of the latter upon its depression against the shoulder of the stem.

11. In combination, with a valve-deck and openings therethrough, a valve mounted on the surface of said deck, a spring for holding the valve to its seat, a stem extending through the valve and spring, a lock or abutment on the stem and separable therefrom, said lock and stem having interengaging fixed lugs and recesses coöperating therewith for the purpose specified.

12. In a valve device of the character described, in combination, the apertured valve-seat provided with a post, the valve centrally apertured and arranged to move endwise relatively to the post to open and close the valve-seat opening, a spiral spring encircling the post for exerting a closing pressure to the valve, a spring-retainer comprising an annular axially-apertured central portion, and

a spring-bearing flange, and said post and retainer being constructed, the one with a groove parallel with its axis, and the other with a lug adapted to play through the groove, and both arranged whereby, upon matching the lug with the groove the retainer may have an endwise spring-compressing movement relatively to the post, and whereby upon rotating the retainer the lug may serve as a stop for preventing the displacement of the retainer under the reaction of the spring.

13. In a fluid-controlling device including a valve-seat, a valve for said seat, a stem projecting through the valve, means for normally holding the valve to its seat, an abutment appurtenant to the stem for said holding means, and means appurtenant to the stem and abutment for preventing relative, axial or rotative movement of said abutment and stem.

753,216. **TELESCOPIC SPRING-POST FOR LOOSE-LEAFED BOOKS, &c.** ANDREW D. HULQUIST, Chicago, Ill., assignor to J. S. McDonald, Chicago, Ill. Filed June 22, 1903. Serial No. 162,615. (No model.)



Claim.—1. A telescopic spring-post for the backs of loose-leafed books, &c., comprising two clamping-plates; two telescoping tubes each having the edges of one end flanged inward and secured to said plates, respectively; and a coil-spring housed within said tubes and having its ends bear against the said flanged edges thereof.

2. A telescopic spring-post for the backs of loose-leafed books, &c., comprising two clamping-plates each having a screw-threaded opening therein; two tubes having the end edges of one flanged inward and the circumference thereof screw-threaded and tapped into said openings, the one in the one plate and the other in the other plate, in alinement and telescopic engagement with each other; and a coil-spring housed within said tubes and having its ends bearing against the flanged edges thereof.

3. In a telescopic spring-post for the backs of books, &c., two cylindrical tubes engaging each other and normally retained at the limit of their extended movement by a spring, said tubes having their outer ends flanged inward and detachably engaging clamping-plates.

REISSUES.

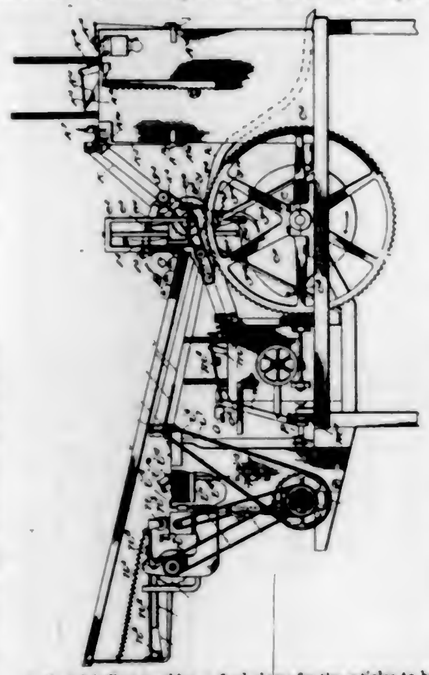
12,197. **MACHINE FOR APPLYING LABELS, WRAPPERS, &c.** CHARLES W. CHENEY, Brookline, Mass. Filed Oct. 20, 1903. Serial No. 177,814. Original No. 713,353, dated Nov. 18, 1902.

Claim.—1. In a labeling-machine, a series of label-applying devices substantially equally spaced and adapted to completely surround the article to be labeled; a separable frame or cage for said devices, each member of which contains two or more of said devices; means for automatically moving part of the said frame and the applying devices carried thereby to afford space for the insertion or the removal of the article; means for presenting the article to the frame in line with the space thus afforded; and connecting mechanism for operating said label-applying devices and said automatic means.

2. In a labeling-machine, a series of label-applying rolls substantially equally spaced and adapted to surround and engage the article to be labeled; rotating means common to all of said rolls; a separable cage or frame, each member of which contains bearings for a plurality of said rolls; means for automatically moving one of the separable members of the said frame out of the way for the insertion or removal of the article; means for presenting the article to the frame in line with the space thus afforded; and connecting mechanism for operating said rotating means and said automatic means.

3. In a labeling-machine, a series of label-applying rolls substantially equally spaced and arranged to surround the article to be labeled; bearings for said rolls spring-pressed toward the said article; rotating means common to all of said rolls; a separable frame containing said bearings; and means for automatically removing part of said frame for the insertion or removal of the article, substantially as described.

4. In a labeling-machine, a series of rolls adapted to surround the article to be labeled, each roll being provided with a gear; a single gear intermeshing with the gears of all of said rolls, a movable frame containing the bearings for a plurality of said rolls; means for automatically moving the said frame to afford space for the insertion or removal of the article; means for presenting the article to the frame in line with the space thus afforded; and connecting mechanism to operate said gear and said automatic moving means.



5. In a labeling-machine, a feed-chute for the articles to be labeled; a series of rolls close together and equally spaced and arranged to surround and bear against the said article; a movable frame for a plurality of the rolls which are in line with the chute; means for automatically moving the said frame to afford space for the insertion of the article; and connecting mechanism to operate said rolls and the means for moving the said frame.

6. In a labeling-machine, a series of label-applying rollers equally spaced and close together; a feed-chute leading toward said rollers; means for automatically moving a plurality of the rollers out of the path of said feed-chute for the insertion of the article; a delivery-chute at the opposite side of the series of rollers; and a removable frame for a plurality of the rollers which are above said delivery-chute, substantially as described.

7. The combination with a series of label-applying rollers arranged close together; of a frame movable in a straight line and containing the bearings for a plurality of the said rollers, a swinging frame containing bearings for others of the said rollers; and means for consecutively moving the said frames to permit the article to enter from one side and be delivered from the other side, as set forth.

8. The combination with the label-applying rollers; of a swinging frame containing the bearings for a plurality of the said rollers; a locking device for said swinging frame; and means for unlocking said locking device and then swinging the said frame after the labeling operation has been completed, as set forth.

9. In a labeling-machine; the combination with means for revolving an article to be wrapped; of means for delivering a loose circular or the like about the article and holding the circular wrapped on the article; and means for thereafter delivering a wrapper and wrapping the same around the article to be wrapped, whereby the loose circular will be held inside the wrapper.

10. In a labeling-machine; the combination with means for revolving an article to be wrapped; of means for applying a label to the article; means for delivering a loose circular or the like and wrapping the same about the article and holding the same wrapped on the article; means for thereafter delivering a wrapper and wrapping the same around the article to be wrapped; whereby the loose circular will be secured to the article and inside the wrapper.

11. The combination with a series of label-applying rollers adapted to surround the article to be labeled; of a plurality of delivering devices adapted to deliver labels, circulars or the like between adjacent rolls; and means for relatively timing said feeding devices to feed one article over another consecutively.

12. In a labeling-machine, a cage or frame of rollers; a stationary rigid bearing for one or more rollers in said frame; the rigidly-supported roller or rollers positioning the article to be labeled; and spring-supported bearings for the remaining rollers, as set forth

13. The combination with means for applying labels or wrappers; of a paste-applying device adapted to apply paste to the top sheet of a pile; a feed-finger and means for moving said feed-finger rearward and downward into contact with the pasted sheet, and then upward and forward to separate and advance the sheet adhering thereto; and a feed-apron to receive the sheet thus advanced, as set forth.

14. The combination with means for applying labels or wrappers; of a paste-applying device comprising a movable paste-roll; a paste-reservoir; a reciprocating member to carry said roll, said member being provided with rack-teeth; a spring connected with said member; a mutilated gear coöperating with said rack member; and a guide for the said member to move the roll carried by said member downward into contact with the top sheet of the pile, as set forth.

15. The combination with the label-applying device; of a feed-apron having upper and lower members to forward the labels; and guides arranged adjacent to said feed-apron at opposite sides thereof to coöperate with the pasted edges of the label and straighten the said label before it reaches the applying devices.

16. In a machine for applying labels and the like; a series of rolls substantially equally spaced and arranged to surround completely the article to be labeled; a gear common to all of said rolls for rotating the same; a rigid bearing for one of said rolls, the roll having the rigid bearing constituting the means for positioning the article; and yielding bearings for the other rolls, as set forth.

17. The combination with a number of label-applying rolls having their peripheries close together and arranged to surround the article to be labeled and engage the surface thereof at points substantially equally spaced; of a centering device to engage the ends of the article and position the same endwise; and means for operating the said centering device after the article has been fed to the label-applying rolls.

18. The combination with a number of label-applying rolls arranged to surround the article to be labeled; of means for moving a plurality of the rolls out of the way to permit the insertion of the article; a centering device to engage the ends of the article to position the same endwise; and means for operating said centering device to engage the article after it has been inserted and release the same prior to its delivery, as set forth.

19. The combination with a number of label-applying rolls arranged in a circle to surround the article to be labeled; of a frame containing yielding bearings for a plurality of said rollers; means for moving said frame in a substantially straight line to carry the rollers out of the way for the insertion of the article; a second frame for others of the rollers adapted to be moved out of the way to permit the delivery of the labeled article; and means for moving the first frame before the second frame is restored.

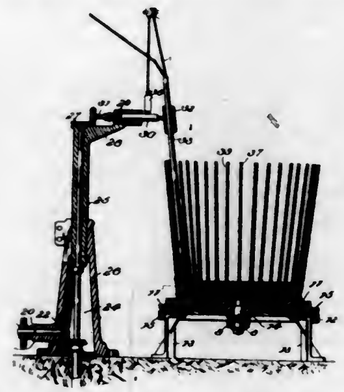
20. The combination with a separable cage of label-applying rollers substantially equally spaced and adapted to completely surround the article to be labeled; of a movable frame carrying a plurality of said rollers; means for automatically moving said frame to afford space for the insertion of the articles to be labeled; a chute for the articles to be labeled inclined toward said frame; a separator; means for moving said separator into engagement with the last article but one in the chute when said frame is moved away from the cage; and connecting mechanism for operating said rollers, said means for moving said frame and the means for moving the separator, as set forth.

21. The combination with a cage of label-applying rollers lying close together and adapted to surround the article to be labeled; of a movable frame carrying a plurality of said rollers; a chute for the articles to be labeled, inclined toward said frame; a separator; means for moving said separator into engagement with the last article but one in the chute when said frame is moved away from the cage; a retaining member connected with the cage to be moved thereby into engagement with the last article in the chute when said frame is restored, as set forth.

22. The combination with a cage of label-applying rollers adapted to surround the article to be labeled; of a movable frame carrying part of said rollers; a centering device comprising longitudinally-movable rods to engage the ends of the articles; springs or the equivalent for normally holding said rods out of engagement with the articles, and engaging members connected with the frame and coöperating with said rods to force them into engagement with the article to be labeled.

23. The combination with a cage of label-applying rolls substantially equally spaced and arranged to surround the article to be labeled; of yieldingly-supported bearings for part of said rolls; means for removing a plurality of the rolls to permit the egress of the article from the cage; and means for dislodging the article from the cage after said rolls have been removed.

12,198. **MACHINE FOR MAKING BASKETS.** OSCAR SCHLEICHER, Heinsberg, Germany, assignor, by direct and mesne assignments, to the Williams Manufacturing Company, a Corporation of Massachusetts. Filed Aug. 3, 1903. Serial No. 168,849. Original No. 693,911, dated Feb. 25, 1902.



Claim.—1. A machine for making baskets, comprising a fixed support for the stakes of the basket to be formed, means for guiding and intertwining the material, of which the basket is formed, around and between the stakes without changing the relative position of the stakes.

2. A machine for making baskets, comprising a fixed support for the stakes of the basket to be formed, means for guiding and intertwining the material, of which the basket is formed, around and between the stakes without changing the relative position of the stakes, and means for batting down the intertwined material.

3. In a machine for making baskets, the combination with a basket-support moving the basket-stakes in a path, of a strand-feeding device movable completely from one side of the basket-stakes to the other in a path transverse to the path of the stakes.

4. In a machine for making baskets, the combination of a feeding device movable bodily in a straight path, a basket-support, and means for moving the basket-support to carry the stakes of the basket in the path transversely to the path in which the feeding devices move without interference with the feeding device.

5. In a machine for making baskets the combination with the rotary support, of a feeding-tube approximately parallel with the stakes of the basket and means for moving the tube transversely to its length between the stakes.

6. In a basket-making machine, a feeding-tube movable bodily approximately parallel with the stakes of the basket and between the same and means for moving the tube bodily.

7. In a basket-making machine, a counterbalanced feeding-tube movable bodily approximately parallel with the stakes of the basket and between the same and means for moving the tube bodily.

8. In a basket-making machine, the combination of the basket-support, a feeding device movable vertically relatively to the support, and a counterbalance for said device.

9. In a basket-making machine, the combination of the basket-support, an approximately vertically disposed tube movable vertically relatively to the support, and a counterbalance for said tube.

10. In a machine for making baskets, a feeding device comprising, the slide-bar, means for reciprocating the same, and a feed-tube slidingly mounted in said bar.

11. In a machine for making baskets, a feeding device comprising a hollow post, a reciprocal bar mounted on said post, a shaft mounted within the post, connections between the reciprocal bar and the shaft, and a feed-tube, slidingly mounted on the reciprocal bar.

12. In a machine for making baskets, a feeding device comprising a hollow post, a reciprocal bar mounted on said post, a shaft mounted within the post, connections between the reciprocal bar and the shaft and a counterbalanced feed-tube slidingly mounted on the reciprocal bar.

13. In a machine for making baskets, a feeding device comprising a standard, a hollow post adjustable in said standard, a shaft journaled in the hollow post, a sliding bar, a crank-disk and a link connecting the shaft and the sliding bar, and a feed-tube slidingly mounted in the sliding bar.

14. In a machine for making baskets, the combination with the rotary basket-support, of a hollow post, a shaft journaled in the post, a sliding bar mounted on the post, connections between the sliding bar and the shaft, a feeding device carried by the sliding bar, and means for operating the shaft in the hollow post and rotating the basket-support simultaneously.

15. In a basket-making machine, a support for the basket comprising a table and a plurality of removable rods disposed to conform to the shape desired for the basket and to which the stakes of the basket are secured.

16. In a basket-making machine, the combination with the basket-forming means, of a batting device, and means automatically advancing the batting device, as the size of the basket increases, said means being advanced by the material acting upon the batting-iron.

17. In a basket-making machine, the combination of the basket-forming mechanism of a batting device comprising a batting-iron, a shaft for operating the batting-iron, and means automatically advancing said batting-iron on the shaft as the size of the basket increases.

18. A batting device for basket-making machines comprising a shaft, a cam-head rotating with but adapted to slide on the shaft, and carrying the batting-iron with it, a connection between the cam-head and batting-iron for operating said batting-iron, and means advancing the cam-head and the batting-iron on the shaft.

19. In a machine for making baskets, the combination with the basket-support, of a shaft provided with teeth, a pawl adapted for engagement with the teeth and a batting-iron carried with the pawl.

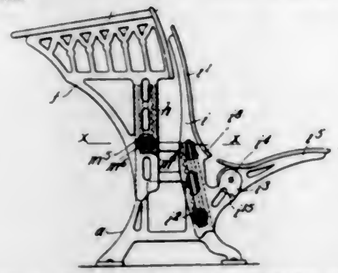
20. A batting device for basket-making machines comprising a shaft provided with teeth, a cam-head rotating and sliding on the shaft, a batting-iron held against rotary movement, and sliding on the shaft with the cam-head, a connection between the cam-head and the batting-iron for operating said iron, and a pawl adapted for engagement with the teeth on the shaft to advance the batting-iron and cam-head.

21. A machine for making baskets, comprising a rotatory table provided with removable auxiliary iron or steel rods, means for supporting and rotating said table, self-adjusting means for batting down and intertwining material as the work advances, a standard carrying a longitudinally and radially adjustable post, a rotatory shaft therein for imparting motion to the tube guiding the intertwining material around the stakes of the basket, and means for operating these several parts.

22. In a machine for making baskets, the combination of a rotating shaft with a rotatory table, a plurality of removable auxiliary iron or steel rods on said table, a worm on the table, a worm upon said shaft imparting motion to the worm-wheel of said rotatory table, a frame supporting said table, a second shaft, a spur-wheel on the second shaft, a spur-wheel upon said first-mentioned rotating shaft meshing with the spur-wheel on the second shaft, an inclined shaft, miter-wheels forming connection between the second shaft and the inclined shaft, a standard in which the miter-wheels are mounted, guide-rods upon said standard parallel with inclined shaft, a traverse sliding upon said guide-rods, a rotating head in said traverse, having a groove, a batting-iron hinged to said traverse, pins on the batting-iron entering the groove in said head which in rotating actuates said batting-iron, the said inclined shaft having a toothed groove, a double-ended pawl in said rotating head, and a spring in said head to press the lower point of said pawl into the teeth of said groove.

23. In a machine for making baskets, the combination of a rotatory table, a number of removable auxiliary iron or steel rods for said table, means for rotating said table, an inclined shaft, means for imparting motion to said inclined shaft, a head slidingly mounted upon said inclined shaft, batting-iron-self-adjusting means within said head, a main driving-shaft imparting motion to the rotatory table and the inclined shaft, a longitudinally and radially adjustable post, a vertical shaft, miter-gears holding the vertical shaft in the post, a spur-wheel on the end of the main driving-shaft, an idler mounted on the main driving-shaft and meshing with the spur-wheel, a second spur-wheel meshing with the idler and connected with the vertical shaft, a crank-disk on one end of the vertical shaft, an arm on the vertical post, a sleeve on the arm, a sliding bar guided in the sleeve, a T-shaped head for the sliding bar, a tube movable in the T-shaped head, and means to counterbalance the tube.

12,199. **ADJUSTABLE SCHOOL DESK AND SEAT.** WARREN L. STARKEY, Flatbush, N. Y., assignor, by mesne assignments, to American School Furniture Company, a Corporation of New Jersey. Filed July 28, 1903. Serial No. 167,361. Original No. 556,565, dated Mar. 17, 1896.



Claim.—1. An adjustable desk and seat combined, consisting of two sets of legs or standards, of the desk proper, vertically adjustable on said standards, a back to said desk, a seat adjustably arranged on said standards and movable at an acute angle to the desk to increase or decrease the distance between said seat and a desk placed in front of it, and a back forming part of the seat, said back being independent of the back of the desk behind it and clearing the same, substantially as and for the purposes described.

2. An adjustable desk and seat combined, consisting of two sets of legs or standards, of the desk proper vertically adjustable on said standards, a back to said desk, a seat adjustably arranged on said standards and movable at an acute angle to the desk to increase or decrease the distance between said seat and a desk placed in front of it, a back, forming part of the seat, being independent of the back of the desk behind it, and means for adjusting the desk and seat independently of each other, substantially as and for the purposes described.

3. An adjustable desk and seat combined, consisting of two sets of legs or standards, each standard being provided with a vertical slot, a rack-bar on one side of said slot, the desk proper provided with a back and having on each side a depending arm engaging the legs or standards, a rod passing through said arms and provided with screw-threaded ends, a blind nut on one end of said rod, a clamping-nut on each end of said rod, a hollow shaft on said rod and secured with one end to the blind nut, a pinion secured near each end of said hollow shaft and engaging its respective rack-bar, a seat adjustably arranged on the standards and movable at an acute angle to the desk to increase or decrease the distance between said seat and a desk placed in front of it, and having a back independent of the back of the desk behind it and clearing the same, and means for locking said seat on the standards, substantially as and for the purposes described.

4. An adjustable desk and seat combined, consisting of two sets of legs or standards, each standard being provided with a vertical slot and with a slot at an acute angle to the vertical slot, a desk adjustably arranged in said vertical slot, and provided with a back, a seat adjustably arranged in the other slot and adapted to be moved in a plane at an acute angle to the desk to increase or decrease the distance between said seat and a desk placed in front of it, a back forming part of said seat, said back being independent of the back of the desk behind it, and clearing the same, and means for adjustably securing the desk and seat independently of each other, substantially as and for the purposes described.

5. An adjustable desk and seat combined, consisting of two sets of legs or standards, each standard being provided with a vertical slot with a slot at an acute angle to the vertical slot and having wedge-shaped outer sides, a rack-bar on one side of each slot, a desk provided with a back and having depending arms, each of said arms having inwardly-extending wedge-shaped flanges adapted to engage the wedge-shaped sides of the standards, a horizontally-arranged rod connecting said depending arms of the desk, clamping-nuts on the outer ends of said rod, a hollow shaft on said rod, a pinion on each end of said hollow shaft and engaging the rack-bars of the vertical slot, a seat provided with a back independent of the back of the desk and having on each side a depending arm with inwardly projecting wedge-shaped flanges adapted to engage the wedge-shaped outer sides of the standards (on each side of the inclined slot), a rod connecting the depending arms of the seat, clamping-nuts on each end of the rod, a hollow shaft on said rod and a pinion on each end of the hollow shaft and engaging the rack-bars of the inclined slot, all said parts, substantially as and for the purposes described.

6. In an adjustable desk, the combination with the legs or standards, each provided with a slot, of a rack-bar on one side of said slot, the desk proper having depending arms adapted to bear against the legs or standards, a rod connecting said arms and provided with screw-threaded ends, a hollow clamping-nut on each of said ends, a hollow shaft on the rod, and a pinion on each end of the hollow shaft and engaging the rack-bars of the slots, and adapted to bear against the legs or standards, when the clamping-nuts are tightened all said parts, substantially as and for the purposes described.

7. In an adjustable desk, the combination with the legs or standards, each provided with a slot, of a rack-bar on one side of said slot, the desk proper having depending arms adapted to bear against the legs or standards, a rod connecting said arms and provided with screw-threaded ends, a hollow shaft on said rod, a blind nut on one end of said rod and secured to said hollow shaft, a pinion on each end of said hollow shaft and engaging the rack-bars of the slot and adapted to bear against the legs or standards, and a hollow clamping-nut on each end of the rod and bearing against the outer faces of the depending arms, all said parts, substantially as and for the purposes described.

DESIGNS.

36,811. **CHARM OR SIMILAR ARTICLE.** SIDNEY WILLIAMS, Providence, R. I., assignor to Williams & Anderson, Providence, R. I. Filed Dec. 29, 1903. Serial No. 187,072. Term of patent 7 years.



Claim.—The ornamental design for a charm or similar article, as shown.

36,812. **CROSS.** FRIEDRICH HINDERER, New Orleans, La. Filed Jan 18 1904. Serial No. 188,933. Term of patent 7 years.



Claim —The ornamental design for a cross, as shown.

36,813. **BAS-RELIEF BORDER FOR METALLIC TABLEWARE.** ALBERT STEFFIN, New Bedford, Mass., assignor to the Pairpoint Corporation, New Bedford, Mass. Filed Jan. 25, 1904. Serial No. 190,634 Term of patent 7 years.



Claim.—The ornamental design for a bas-relief border for metallic tableware, as herein shown

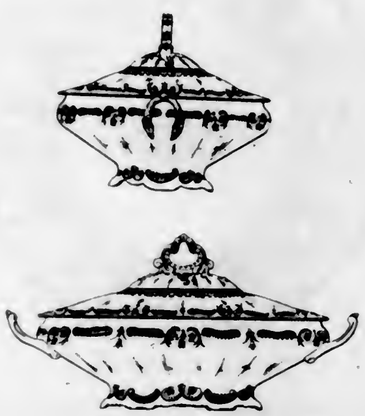
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36,814. **CANDELABRUM.** ALBERT STEFFIN, New Bedford, Mass., assignor to the Pairpoint Corporation, New Bedford, Mass. Filed Jan. 12, 1904. Serial No. 188,799. Term of patent 7 years.

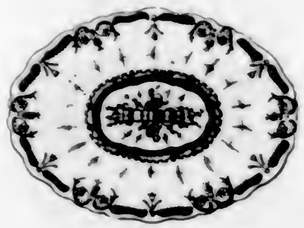


Claim.—The ornamental design for candelabra, as herein shown

36,815. **COVERED DISH.** JAMES MADDOCK, Alsager, England assignor to Maddock & Miller, a Corporation of New York. Filed Jan 20, 1904. Serial No. 189,915. Term of patent 3½ years.



36,815.



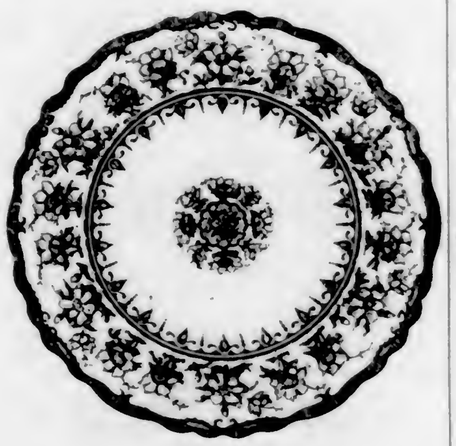
Claim.—The ornamental design for a covered dish, as shown.

36,816. DISH. JAMES MADDOCK, Alsager, England, assignor to Maddock & Miller, a Corporation of New York. Filed Jan. 20, 1904. Serial No. 189,916. Term of patent 3½ years.



Claim.—The ornamental design for a dish, as shown.

36,817. DISH. JAMES MADDOCK, Alsager, England, assignor to Maddock & Miller, a Corporation of New York. Filed Jan. 20, 1904. Serial No. 189,913. Term of patent 3½ years.



Claim.—The ornamental design for a dish, as shown.

36,818. SIGN-FRAME. JOHN L. DAWES, Pittsburg, Pa. Filed Dec. 27, 1900. Serial No. 41,290. Term of patent 7 years.



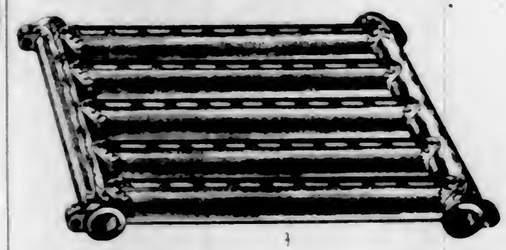
Claim.—The ornamental design for a sign-frame substantially as herein shown.

36,819. HEATING-STOVE. FRANK W. LAW, Pittsburg, Pa. Filed Jan. 8, 1904. Serial No. 188,256. Term of patent 14 years.



Claim.—The ornamental design for a heating-stove, substantially as shown.

36,820. RADIATOR-SECTION. SAMUEL B. WATERS, Johnstown, Pa. Filed Dec. 17, 1902. Serial No. 135,646. Term of patent 14 years.



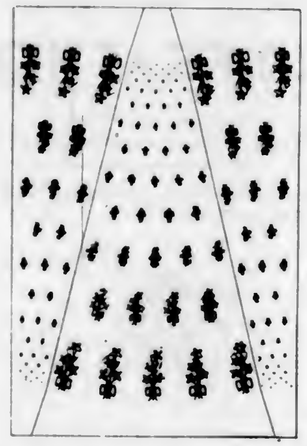
Claim.—The ornamental design for a radiator-section, as shown

36,821. HAMMOCK-CLOTH. DANIEL W. SNOVER, New York, N. Y. Filed Jan. 14, 1904. Serial No. 189,070. Term of patent 7 years.



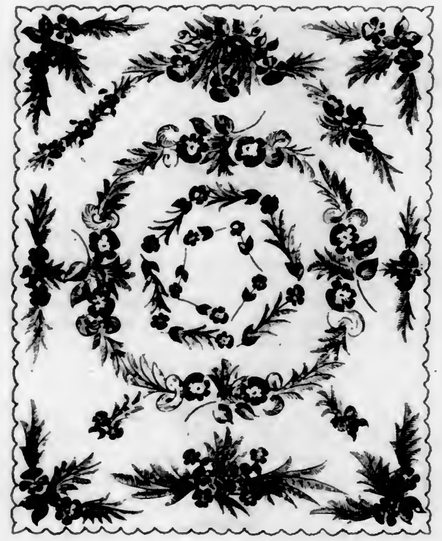
Claim.—The ornamental design for hammock-cloth as shown.

36,822. FABRIC. FREDERICK A. ARBENZ, West Hoboken, N. J. Filed June 8, 1903. Serial No. 160,667. Term of patent 14 years.



Claim.—The ornamental design for a fabric, as shown.

36,823. DOILY OR SIMILAR ARTICLE. GEORGE W. LANKFORD, Springfield, Mo., and WILLIAM H. KEITH, Ottawa, Kans.; said Lankford assignor to said Keith. Filed Nov. 11, 1903. Serial No. 180,781. Term of patent 14 years.



Claim.—The ornamental design for a doily or similar article, as shown.

36,824. COMB. FREDERICK W. GRELL, New York, N. Y., assignor to American Hard Rubber Company, New York, N. Y., a Corporation of New York. Filed Dec. 29, 1903. Serial No. 187,071. Term of patent 14 years.



Claim.—The new, original and ornamental design for a comb as herein shown.

TRADE-MARKS

REGISTERED FEBRUARY 23, 1904.

42,093. WRITING-PAPER, PACKING-PAPER, AND CIGARETTE-PAPER. ARNOLD OTTO MEYER, Hamburg, Germany. Filed Jan. 27, 1904.



The representation of a water-buffalo. Used since October 28, 1901.

42,094. PLAYING-CARDS. CATHERINE C. MERIWETHER, Asheville, N. C. Filed Feb. 2, 1904.



The representation of the letter "Z," provided centrally with a substantially oval-shaped scroll, the whole being associated with the letters "ERO," disposed within the angles formed by the diagonal and transverse lines of the letter "Z" and forming with said letter the word "ZERO." Used since January 25, 1904.

42,095. DRILLING, SHEETING, AND JEANS. AMERICAN TRADING COMPANY, New York, N. Y. Filed Mar. 14, 1902.



The representation of a pony and a bowman seated on the pony and provided with bow and arrow. Used since November, 1896.

42,096. MEN'S HATS. THE KLEINHANS COMPANY, Buffalo, N. Y. Filed Oct. 31, 1903.

Varsity

The word "VARSITY." Used since August 1, 1903.

42,097. MEN'S HATS. LOUIS KLINE & Co., San Francisco, Cal. Filed Jan. 2, 1904.



The words "THE GRIZZLY," associated with the representation of a grizzly bear standing upon a ledge and looking downward, all being surrounded by a rectangular border. Used since September 1, 1895.

42,098. HATS. WARING HAT MANUFACTURING COMPANY, Yonkers, N. Y. Filed Jan. 27, 1904.

RED FEATHER

The words "RED FEATHER." Used since December 20, 1903.

42,099. LADIES' WAISTS, DRESSES, SKIRTS, AND WRAPS. QUEEN MANUFACTURING CO., New York, N. Y. Filed Dec. 3, 1903.



The representation of a septangular figure in which are the initials and abbreviation "Q M Co," being in monogram form, point at bottom surrounded by a double circle. Over the septangular figure is a crown or diadem extending through and above the double circle. Used since December, 1902.

42,100. LEATHER BOOTS, SHOES, AND SLIPPERS. RICHEGREEN & Co., Baltimore, Md. Filed Dec. 22, 1903.

FIDELITY

The word "FIDELITY." Used since November 21, 1903.

42,101. LEATHER BOOTS AND SHOES. GEORGE LEAL, Johannesburg, South Africa. Filed July 20, 1903.

NON TREAD OVER

The words "NON TREAD OVER." Used since April 19, 1902.

42,102. MEN'S AND BOYS' OVERSHIRTS OF ALL KINDS. ROSEN & HERMAN, New York, N. Y. Filed Jan. 6, 1904.

The Duke

The words "THE DUKE." The word "The" is encompassed by the loop of the "D" and a paraph is drawn under the word "Duke." Used since 1893.

42,103. ROPES, CORDS, TWINE FIBER, TWINE, AND BINDER-TWINE. INTERNATIONAL HARVESTER COMPANY OF AMERICA, Chicago Ill. Filed Feb. 24, 1903.

CHAMPION

The word "CHAMPION." Used since February 13, 1903.

42,104. WASHING COMPOUND. FRANK HARRISON, Norfolk, Va. Filed Jan. 22, 1904.

Rozine

The word "ROZINE." Used since August 1, 1903.

42,105. CERTAIN NAMED SCOURING AND POLISHING POWDER FOR METALS. THE ABRASINE COMPANY, New York, N. Y. Filed Jan. 13, 1904.

ABRAZINE

The word "ABRAZINE." Used since January 2, 1904.

42,106. GREASE OR LUBRICANT IN SOLID FORM. HARRY D. SMITH, Philadelphia, Pa. Filed Dec. 24, 1903.

42,106.



The representation of a tiger, associated with a ribbon and having thereon the letters "S. D. H." Used since December 10, 1903.

42,107. PERFUMES IN LIQUID AND POWDERED FORM. EDDY PALMER, New York, N. Y. Filed Jan. 14, 1904.

ARISTON

The word-symbol "ARISTON." Used since September, 1903.

42,108. WHEAT-FLOUR. WASHBURN, CROSBY COMPANY, Minneapolis, Minn. Filed Jan. 28, 1904.

WILHELMINA

The word "WILHELMINA." Used since December 1, 1893.

42,109. WHEAT-FLOUR. THORNTON & CHESTER MILLING CO., Buffalo, N. Y. Filed Feb. 2, 1904.



The representation of a shield having the monogram "T & C" thereon. Used since May, 1874.

42,110. WHEAT-FLOUR. THORNTON & CHESTER MILLING CO. Buffalo, N. Y. Filed Feb. 2, 1904.



The word "FRANKLIN" and the representation of a man's head intended to represent the portrait of Benjamin Franklin. Used since May, 1874.

42,111. WHEAT-FLOUR. THORNTON & CHESTER MILLING CO., Buffalo, N. Y. Filed Feb. 2, 1904.



The representation of a globe or hemisphere having the meridian-lines and parallels of latitude marked thereon, and centrally across the hemisphere and arranged within a scroll are the words "GLOBE MILLS." Used since May, 1867.

42,112. BREAD, BISCUITS, AND CAKES MADE OF DRIED BANANAS AND CEREALS. WILLIAM ALFRED JONES, West Kirby, England. Filed Nov. 20, 1903.

BANANINE

The word "BANANINE." Used since February 6, 1902.

42,113. CHEWING-GUM. FRANK H. FLEER & CO., Philadelphia, Pa. Filed Feb. 1, 1904.



The word "CHICLETS," the representation of a seal, and the rays of a sunburst. Used since October 1, 1899.

42,114. CANDY. THE MURRACH COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Jan. 30, 1904.

CAVERNS

The word "CAVERNS." Used since December 8, 1903.

42,115. CANDY KISSES. WILDER & BUCHANAN, Atlanta, Ga. Filed Jan. 7, 1904.

GEORGIA CANE



The words "GEORGIA CANE" and the representation of a cane-field and a man in the act of kissing a girl. Used since 1903.

42,116. ICE-CREAM AND FROZEN PUDDINGS. THE HAWT ICE CREAM COMPANY, New Haven, Conn. Filed May 13, 1902.



The representation of a plane figure bounded by a circle and having its surface colored throughout except that the words "CREAM OF PERFECTION" appear across its surface without coloring. Used since April 1, 1902.

42,117. EVAPORATED CREAM. VAN CAMP CONDENSED MILK COMPANY, Indianapolis, Ind. Filed Jan. 28, 1904.



The representation of a milk-can. Used since July 20, 1903.

42,118. EVAPORATED CREAM. VAN CAMP CONDENSED MILK COMPANY, Indianapolis, Ind. Filed Jan. 28, 1904.

TOP NOTCH

The words "TOP NOTCH." Used since July 20, 1903.

42,119. ARTIFICIAL OR SUBSTITUTE COFFEE. THE JAVRIL CO., Lrn., Battlecreek, Mich. Filed Apr. 6, 1903.

JAVRIL

The word "JAVRIL." Used since April 1, 1902.

42,120. TEA. CHARLOTTE A. S. JESSOP, Cambridge, Mass. Filed Jan. 23, 1904.



The representation of a cup and saucer, associated with the words "CUP TO CHEER." Used since October, 1903.

42,121. MINERAL WATER. RUFUS G. MELSON, Punxsutawney, Pa. Filed Aug. 25, 1903.



GRANNY COON SPRING

The representation of an old woman sitting by the side of a spring in the attitude of drinking, in connection with the words "GRANNY COON SPRING." Used since July, 1903.

42,122. COMPOUNDED BEVERAGES HAVING TONIC, APPETIZING, AND STIMULATING PROPERTIES. LESTER D. GARDNER, New York, N. Y. Filed Jan. 20, 1904.

LIQUID
SUNSHINE

The words "LIQUID SUNSHINE." Used since January 18, 1904.

42,123. REMEDIES FOR TREATMENT OF CERTAIN NAMED DISEASES. GEORGE H. WHITE, INCORPORATED, Jersey City, N. J. Filed Jan. 27, 1904.

SCRAPERS

The word "SCRAPERS." Used since January 1, 1903.

42,124. REMEDIES FOR CURE OF CERTAIN NAMED DISEASES. THE ABBOTT ALKALOIDAL CO., Chicago, Ill. Filed Jan. 14, 1904.

CALCIDIN

The word "CALCIDIN." Used since December 4, 1903.

42,125. REMEDIES FOR CURE OF CERTAIN NAMED DISEASES. THE ABBOTT ALKALOIDAL CO., Chicago, Ill. Filed Jan. 14, 1904.

CALCALITH

The word "CALCALITH." Used since December 4, 1903.

42,126. MEDICINE FOR RELIEF OF HEADACHE. GARFIELD TEA COMPANY, Brooklyn, N. Y. Filed July 22, 1901.



The name "GARFIELD," associated with the portrait of Ex-President James A. Garfield. Used since September, 1885.

42,127. MEDICINE FOR RELIEF OF INDIGESTION. GARFIELD TEA COMPANY, Brooklyn, N. Y. Filed July 22, 1901.



The name "GARFIELD," associated with the portrait of Ex-President James A. Garfield. Used since September, 1885.

42,128. CERTAIN NAMED MEDICINE. MÖLLER & LIEBERT, Hamburg-Reichenhof, Germany. Filed Sept. 17, 1903.

Hetralin

The word "HETRALIN." Used since June 1, 1903.

42,129. CERTAIN NAMED MEDICINE. PINEULE MEDICINE CO., Chicago, Ill. Filed Dec. 31, 1903.



The representation of a chain of rings held by two ladies, above which appears the word "RINGS." Used since December 1, 1903.

42,130. CERTAIN NAMED MEDICINE. PINEULE MEDICINE CO., Chicago, Ill. Filed Dec. 31, 1903.

TEKO

The word "TEKO." Used since December 1, 1903.

42,131. CERTAIN NAMED MEDICINE. PINEULE MEDICINE CO., Chicago, Ill. Filed Dec. 31, 1903.

Man Zan

The word "MANZAN." Used since December 1, 1903.

42,132. MEDICAL PREPARATION FOR CURE OF CERTAIN NAMED DISEASES. BREMNER EXTRACT COMPANY, Boston, Mass. Filed Jan. 29, 1904.

Herbal Dew

The words "HERBAL DEW." Used since November 16, 1903.

42,133. URIC-ACID SOLVENT FOR CERTAIN NAMED DISEASES. THE DR. HASKINS COMPANY, Toledo, Ohio. Filed Jan. 21, 1904.

RE-NU

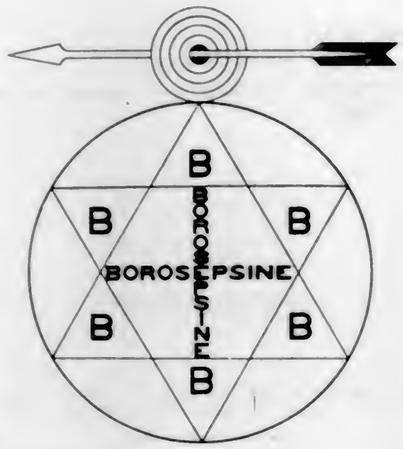
The hyphenated word "RE-NU." Used since January, 1902.

42,134. HEART STIMULANTS, DIURETICS, AND ELIMINANTS. THE COR-AGO COMPANY, Lake Linden, Mich. Filed Jan. 12, 1904.

COR-AGO

The word-symbol "COR-AGO." Used since July 21, 1903.

42,135. ANTISEPTIC POWDER FOR CERTAIN NAMED DISEASES. DAVID WILLIAM REES, Needles, Cal. Filed Jan. 5, 1904.



The word "BOROSEPSINE," arranged to form a cross disposed within a field consisting of crossed triangles arranged in a circle surmounted by a target centrally pierced by a dart and having capital letters "B" arranged in the angles of the triangles. Used since September 18, 1903.

42,136. INSECTICIDES AND COMPOUNDS FOR PREVENTING INJURY TO TREES. LEANDER L. BLAKLEY, Clearwater, Fla. Filed Dec. 8, 1903.

SULVITRO

The word "SULVITRO." Used since June 1, 1901.

42,137. MEDICINES FOR TREATMENT OF DISEASES OF CATS. CHARLES I. BICKUM, Haverhill, Mass. Filed Jan. 23, 1904.

KITCAT

The word "KITCAT." Used since August 1, 1903.

42,138. CERTAIN NAMED EXTERNAL APPLICATIONS. DR. A. C. DANIELS, (INCORPORATED,) Boston, Mass. Filed Jan. 26, 1904.

42,138.

Oster-Cocus

The word-symbol "OSTER-COCUS." Used since 1892.

42,139. SODIUM SILICATE. THE GRASSELLI CHEMICAL COMPANY, Cleveland, Ohio. Filed Jan. 16, 1904.

JELLICATE

The word "JELLICATE." Used since November, 1903.

42,140. ANTIPYRETIC. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Jan. 18, 1904.

ASUROL

The word "ASUROL." Used since July 1, 1903.

42,141. SUCCEDANEUM FOR ATROPIN. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Jan. 23, 1904.

EUMYDRIN

The word "EUMYDRIN." Used since July 1, 1903.

42,142. SALVE AND OINTMENTS OF WITCH-HAZEL OR HAMAMELIS. LANMAN & KEMP, New York, N. Y. Filed Jan. 4, 1904.



The portrait of Dr. C. C. Bristol and the words "DEL DR. C. C. BRISTOL" below the portrait. Used since July 3, 1884.

42,143. POROUS PLASTERS. BAUER & BLACK, Chicago, Ill. Filed Nov. 9, 1903.



REX

The word "REX," associated with the representation of a crown. Used since October, 1898.

42,144. PANTOGRAPHS. OTTO SONNE, Boston, Mass. Filed Jan 30, 1904.

UNIVERSAL

The word "UNIVERSAL." Used since January 1, 1903

42,145. OPERA-GLASSES, FIELD-GLASSES, AND TELESCOPES. GEO. BORGFELDT & Co., New York, N. Y. Filed Jan. 21 1904.

TRIANON

The word "TRIANON." Used since November 15, 1903.

42,146. OPERA-GLASSES, FIELD-GLASSES, AND TELESCOPES. GEO. BORGFELDT & Co., New York, N. Y. Filed Jan. 21, 1904.

LA DAUPHINE

The words "LA DAUPHINE." Used since November 15, 1903.

42,147. BASE-BALLS. CHARLES DISCH, Brooklyn, N. Y. Filed Feb. 1, 1904.

42,147.

SIXTY

The word "SIXTY." Used since January 25, 1904.

42,148. RAZORS. MAHOUD HATEB, New York, N. Y. Filed Sept. 28, 1903.



The portrait of Abdul Hamidd, deceased, with scrollwork above and below the portrait and said portrait surrounded by ornamental scrollwork and associated with the name "ABDUL HAMIDD." Used since May, 1903.

42,149. WITHDRAWN.

42,150. RAZORS. C. FRIEDR. ERN, Wald, Germany. Filed Jan. 6, 1904.



The representation of an eagle standing on a snake. Used for thirty years.

42,151. POCKET-KNIVES. HOCKADAY HARDWARE COMPANY, Wichita, Kans. Filed July 30, 1903.



The word "KANOKLA" and the representation of the head and shoulders of an Indian chief. Used since August 1, 1902.

42,152. WITHDRAWN.

42,153. MANIFOLDING DEVICE. WESTENHOFF & Co., Hanover, Germany. Filed Apr. 17, 1903.



The representation of a hand holding a pen in position for writing. Used since May 1, 1899.

42,154. ILLUMINATED SIGNS. ROBERT W. CLARK and HENRY J. GILLE, St. Paul, Minn. Filed Feb. 1, 1904.

REFLECTRIC

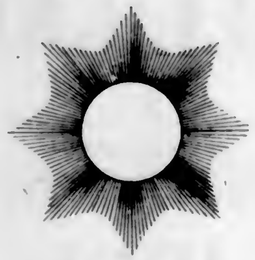
The word "REFLECTRIC." Used since October 1, 1903.

42,155. ACETYLENE-LAMPS AND THEIR PARTS. BRITELITE LAMP COMPANY, New York, N. Y. Filed Oct. 16, 1903.

Britelite

The word "BRITELITE." Used since October, 1902.

42,156. BAR, SHEET, OR FORGED STEEL. PERCY F. HOGAN, New York, N. Y. Filed Jan. 27, 1904.



The representation of the sun. Used since January 1, 1904

PHOTO LITH
THE NORRIS PETERS CO.

LABELS

REGISTERED FEBRUARY 23, 1904.

10,763.—*Title:* "L'UNION FAIT LA FORCE." (For Hats.) THE CRESCENT HAT CO., Fall River, Mass. Filed January 2, 1904.

10,764.—*Title:* "UNITED WE STAND. LIVE AND LET LIVE." (For Hats.) THE CRESCENT HAT CO., Fall River, Mass. Filed January 2, 1904.

10,765.—*Title:* "HOLSTEIN BRAND." (For Butter.) ILLINOIS CREAMERY CO., Chicago, Ill. Filed November 16, 1903.

10,766.—*Title:* "PARSIFAL RYE." (For Whisky.) A. A. WOLF & Co., Pittsburg, Pa. Filed February 1, 1904.

10,767.—*Title:* "POINDEXTER'S TONIC." (For Medicine.) A. A. POINDEXTER, Columbus, Ga. Filed December 24, 1903.

10,768.—*Title:* "EYELENE." (For Eye Medicine.) HARRY C. WISE, Cincinnati, Ohio. Filed February 1, 1904.

10,769.—*Title:* "KREMELITE." (For Medicine.) W. B. DAVIS, Topeka, Kans. Filed January 30, 1904.

10,770.—*Title:* "J. L. HOWES' REMEDY." (For Medicine.) JOSEPH LAWRENCE HOWES, New York, N. Y. Filed January 27, 1904.

10,771.—*Title:* "J. L. HOWES' BALM." (For Medicine.) JOSEPH LAWRENCE HOWES, New York, N. Y. Filed January 27, 1904.

10,772.—*Title:* "J. L. HOWES' MAGIC RELIEF." (For Medicine.) JOSEPH LAWRENCE HOWES, New York, N. Y. Filed January 27, 1904.

10,773.—*Title:* "EPI." (For Medicine.) W. E. MARTIN & SON, Macomb, Ill. Filed January 28, 1904.

10,774.—*Title:* "GALVIN'S COUGH SYRUP." (For Cough-Syrup.) WILLIAM M. STEEVER, New York, N. Y. Filed February 2, 1904.

10,775.—*Title:* "DAY'S VIOLET ENAMEL." (For a Lotion.) W. L. SHOEMAKER, Akron, Ohio. Filed January 29, 1904.

10,776.—*Title:* "AUNT RHODY'S LINIMENT." (For Liniment.) MATTIE BRUCE REYNOLDS, Louisville, Ky. Filed January 27, 1904.

10,777.—*Title:* "'UNGUNTUM' ASCEPTICINE." (For Ointment.) ASCEPTICINE CHEMICAL COMPANY, Homestead, Pa. Filed January 28, 1904.

10,778.—*Title:* "PROBILIN." (For Pills.) KARL WEINREBEN, Frankfort-on-the-Main, Germany. Filed January 27, 1904.

PRINTS

REGISTERED FEBRUARY 23, 1904.

903.—*Title:* "MARY AND HER LITTLE LAMBS." (For Wall-Paper.) LAWRENCE & BULLEN, LTD., London, England. Filed August 4, 1903.

904.—*Title:* "MEN'S AND BOYS' APPAREL." (For Apparel.) TALBOT COMPANY, Boston, Mass. Filed January 28, 1904.

905.—*Title:* "LYCOMING RUBBERS." (For Rubbers.) UNITED STATES RUBBER CO., New York, N. Y. Filed February 2, 1904.

906.—*Title:* "WHAT ELSE—PLEASE?" (For Flour.) WASHBURN, CROSBY CO., Minneapolis, Minn. Filed February 1, 1904.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

GREENWOOD *v.* DOVER.

Decided May 27, 1903.

1. INTERFERENCE—PRIORITY OF INVENTION.

Held that the evidence on behalf of Greenwood fails to establish for him a date of invention before Dover's filing date and that therefore the decision must be in favor of Dover.

2. SAME—ABANDONED EXPERIMENT—REDUCTION TO PRACTICE.

Where a device said to embody the invention was made by Greenwood, but the pin used as the pivot of the joint was loose and was not of the proper length for practical use, *Held* that the device was a mere experiment and was not a reduction to practice.

3. SAME—SAME—SAME—UNEXPLAINED DELAY.

Where there is doubt whether a device made operated successfully and constituted a reduction to practice, *Held* that long and unexplained delay in manufacturing the device or applying for a patent warrants resolving the doubt against the maker of the device.

APPEAL from Examiners-in-Chief.

JOINTS.

Application of Thomas F. Greenwood. Application of George W. Dover.

Messrs. Arnold & Barlow and *Mr. William S. Hodges* for Greenwood.

Mr. Horatio E. Bellows and *Messrs. L. Deane & Son* for Dover.

ALLEN, *Commissioner:*

This is an appeal by Greenwood from the decision of the Examiners-in-Chief awarding priority of invention to Dover on the following issue:

In a device of the character described, the combination of a pin having a hook-shaped portion at one end inclosing a substantially cylindrical bore; a pivot secured at its middle part in said bore of the pin by pressure; a plate; and a cup mounted on the plate and arranged to loosely engage the ends of the pivot.

The allegations in the preliminary statements of the parties are as follows:

	Dover.	Greenwood.
Conception	July 1, 1900	July, 1899
Disclosure	July 1, 1900	July, 1899
Drawings	June 9, 1900	July, 1899
Model	August 15, 1901	July, 1899
Reduction	August 25, 1901	July, 1899

The invention in controversy is constructed substantially as follows: The body of the pin, termed a "plate," has mounted thereon a bearing or post, termed a "cup," which consists of two parallel uprights standing out at right angles to the surface of the plate and provided with openings in which is supported a pivot or pintle rotatable therein. The pin proper, termed the "tongue," has the loose end pointed, as usual, and the other end bent upon itself to form a hook, which is then flattened, leaving little or no space between the bent portions. The flattened part is then "bored" and inserted between the "uprights" with its bore in alinement with the openings in the uprights. A pivot or pintle, which is of a size large enough to turn loosely in the openings in the uprights, but a little larger than the "bore" in the pin-tongue, is inserted through the opening in one of the uprights and driven or forced through the base in the tongue into the other opening. As a result of having the pivot larger than the bore in the tongue the tongue is held thereon by a spring action, and it is therefore unnecessary to upset the pivot ends or to provide other means to retain it in its bearings.

Thomas F. Greenwood, the junior party, a manufacturing jeweler in Providence, R. I., testifying in his own behalf, states that in February or March, 1899, while he was employed by the firm of Esser and Barry, he—

completed a one-piece back which could be made into a circle, or oval, or a square, with the joint and catch in one piece.

This device was then laid away in a bookcase-drawer, and on July 4, 1899, Greenwood, having occasion to open the drawer, took the device out and showed it to his wife with the following remark:

Now I says, "that is a good thing—all right," I says, "but it needs a pin-tongue to complete it." He states that he then "conceived his first idea of the pin-tongue." (Qs. 6 to 9.)

Testifying further, he states that in the same month:

I was meditating over something one day, and a piece of wire laid on my tool-bench bent up in that form (indicates). I happened to look at it, and it suggested itself to me at once, "Now, here, there is the idea for this pin-tongue," and I took a pin-stem and bent it up with a pair of pliers and took it to the flattening-press, flattened it so as to give that flat effect, so that when it entered the joint it would not have any play; and I worked a hole through it with a rat-tail file; and I completed that pin-tongue that same day.

I took it and pinned it into the back that I had made heretofore, you know; and I said to myself, "There is a good thing;" and I pinned it up and put it in actual practice in a full-sized model. The model I have got to this day, and I have got it right in my pocket now. (Qs. 12 and 13.)

The model referred to by Greenwood is in evidence as "Greenwood Exhibit No. 1." (Qs. 12 to 14.) He identifies the exhibit, states that it has been in his possession since it was made in July, 1899, and that—

it is just the same as when completed * * * except it might be a little loose from being knocked around. (Qs. 15 to 20.)

The drawing of the invention referred to by Greenwood in his preliminary statement is introduced in evidence as "Greenwood Exhibit No. 2," and he states that "it was made within sixty days of July 4, 1899." (Qs. 21 to 30.) This is the only

drawing he made. (Q. 31.) Exhibit No. 2 need not be given any consideration, for the reasons that it does not disclose the invention, and there is no corroborating testimony as to the making of it or the time at which it was made.

Greenwood testifies that he showed his "Exhibit No. 1" to his wife and daughter "within sixty days of the Fourth of July, 1899," (Qs. 36 to 41,) and that he showed it to his brother in November or December, 1900. (Qs. 41 to 43, 48, 49, and X-Q. 146.)

In connection with Exhibit No. 1 Greenwood testified on cross-examination that he soldered the ring to the plate at the shop of Schwartzcopf & Solinger in March or April, 1900. (X-Qs. 121 to 125.) This testimony is in conflict with Greenwood's direct testimony, referred to above, to the effect that Exhibit No. 1 was completed in July, 1899. According to his own testimony, therefore, this device, "Exhibit No. 1," was not completed before some time in April, 1900.

Greenwood testifies to certain disclosures to Howard P. Chase and David H. Child; but it does not appear from Greenwood's testimony or the testimony of these witnesses that the disclosure was commensurate with the issue. (Greenwood, Qs. 57, 59, 61, 66; Child, Qs. 19, 24, 25, 26, and Chase, Qs. 16, 17, X-Qs. 69 to 71.) The disclosure to Chase and Child embodied at most only the structure of the pin-tongue.

J. H. Greenwood, a brother of Thomas F. Greenwood, identifies "Greenwood Exhibit No. 1" and testifies that the latter showed it to him some time "between Thanksgiving, 1900, and New Year's, 1901." (Qs. 7 to 10.) It does not appear, however, that the features of construction therein which Thomas F. Greenwood regarded as novel were understood by him (J. H. Greenwood) or called to his attention.

Mrs. Ada B. Greenwood, Thomas F. Greenwood's wife, identifies "Greenwood Exhibit No. 1" and states that it was shown to her by her husband; but her testimony is not definite as to the time she saw it. It may be taken as established that Greenwood had in his possession his "Exhibit No. 1," or a device substantially identical with it, in the latter part of 1900 or the first part of 1901.

Greenwood contends that this device is a reduction to practice of the invention in issue; but this contention is not thought to be sound. In the first place, the pin-tongue and the pin forming the pivot are too long to permit of the device being employed for the purpose for which devices of this character are normally used. In the second place, it does not appear from the testimony of Greenwood or of any of his witnesses or from "Exhibit No. 1" that it was intended that the pin-tongue was to have a sufficiently firm hold on the pivot to enable the latter to be held in its bearings without other fastening means. When Greenwood was asked (X-Q. 137) why he had not cut the pivot shorter, he said:

It was not necessary. The reason I didn't cut that pivot was because it was so much easier to get that pivot in and out than to have it in a short plug. I suppose that was the reason.

Bearing on this point is question 11 put to Mrs. Greenwood and the answer thereto, which are as follows:

Q. 11. Whether or not it was taken apart so that you could see the construction of it?
A. Yes, he took it apart and showed me all the parts of it and also showed me the back and told me that it was all in one piece, he said, and soldered.

The fact that the pivot was so easily removable from the pin-tongue would leave in doubt the question whether it was Greenwood's intention to have the pin-tongue held firmly on the pivot by the spring action or "pressure" of the hook at the end of the tongue. Whether or not it was Greenwood's intention to make a pin having the specific pivot and tongue construction of the issue at the time he made "Exhibit No. 1" cannot be determined with any certainty from the testimony offered in his behalf or from the device itself, and it must be held, therefore, that "Exhibit No. 1" cannot avail Greenwood as a reduction to practice. For the same reason it cannot avail him as a conception or disclosure. He must therefore be restricted to his record date, February 1, 1902.

Even assuming, however, for the purpose of argument, that there is a doubt as to whether "Greenwood Exhibit No. 1" is a reduction to practice of the invention in issue, this doubt must be resolved against Greenwood in view of his unexplained delay in taking active steps to manufacture the device or to apply for a patent thereon. (*Beals* v. *Finkenbiner*, C. D., 1898, 326; 82 O. G., 598; *Warner* v. *Smith*, C. D., 1898, 517; 84 O. G., 311; *Traver* v. *Brown*, C. D., 1899, 296; 86 O. G., 1324; C. A. D. C.)

Assuming, further, that "Greenwood Exhibit No. 1" shows a conception of the invention, Greenwood cannot prevail in this proceeding, for the reason that it does not appear that he was exercising diligence in reducing the invention to practice when Dover filed his application for a patent.

For the reasons given it must be held that Greenwood has not overcome the burden resting upon him as junior applicant, and the decision of the Examiners-in-Chief awarding judgment of priority to Dover is accordingly affirmed.

IN RE MOLLER.

Decided January 28, 1904.

1. CONFLICTING ASSIGNMENTS—PATENT ISSUED TO INVENTOR.

Where there are of record two assignments by the inventor to different parties of his entire rights in the application, *Held* that the patent should issue to the inventor.

2. SAME—SAME—LAW NOT MANDATORY.

The law is not mandatory that the patent issue to the assignee in any case, and where by reason of conflicting assignments the Office is uncertain who is the real owner it is justified in issuing the patent to the inventor who made the application, leaving it to the courts to determine who is the real owner.

3. SAME—OFFICE CANNOT SETTLE DISPUTES.

While the Office cannot undertake to settle disputes as to title, it should not ignore the fact of conflicting assignments shown by its records.

4. ASSIGNMENTS—OFFICE ACTS IN MINISTERIAL CAPACITY—FRAUD MUST BE TREATED BY COURTS.

The Office acts in a ministerial capacity in regard to assignments and cannot undertake to prevent fraud in them, but must leave that to the courts and the punishment there meted out.

IN the matter of the request of Mrs. Frederika Moller that patent upon application, Serial No. 106,880, filed by Edward W. Mull May 12, 1902, be issued to her.

Mr. Chester C. Shepherd for the applicant.
Mr. Thomas Bracken for the petitioner.

ALLEN, *Commissioner:*

This is a petition by Frederika Moller that the patent upon the above-entitled application be issued to her as assignee instead of to the inventor.

It appears from the assignment records that an assignment was executed by the inventor on September 8, 1903, identifying the above-entitled application and transferring the entire interest to Frederika Moller. It requested that the patent issue to the assignee, and it was recorded on September 14, 1903, Liber C 68, 235. The records show, further, that on December 18, 1903, the inventor executed an assignment of the entire interest in the above-entitled application to The Mull Chocolate Machine Company and in the instrument requested that the patent issue to the assignee. That assignment was recorded December 21, 1903, Liber U 68, 184.

Either one of the assignments if standing alone would be regarded as conveying the legal title to the assignee named therein and would have been accepted as authority in such assignee to prosecute the application and receive the patent. Since, however, there are two inconsistent assignments, the Office cannot recognize and act upon one without disregarding the other. In the case of such conflict it has been the practice of the Office to refuse to pass upon the question which party is the real owner and to issue the patent to the inventor. As was said by Commissioner Duell in *ex parte McTammany*, (93 O. G., 751:)

Where there are two or more assignments purporting to convey the exclusive right and in each there is a request that the patent issue to the assignee named therein, the Office should not investigate the question of title and decide which assignee has the right to the invention and to prosecute the case, but the applicant should be permitted to prosecute it and to appoint an attorney of his own selection, the question which assignee has the right to the invention being left to the courts, where it properly belongs.

The petitioner contends that this practice is wrong and that the patent should issue in accordance with the assignment of earliest date. She argues that the first assignee has the *prima facie* right and that the Office should be guided in its action by that fact alone.

This Office is not authorized to render binding decisions upon questions of title, and it uniformly refuses to undertake to settle disputes in such matters, since it acts in a merely ministerial capacity in regard to assignments. (*Ex parte Spielmann*, 58 O. G., 141; *ex parte Gallatin*, 59 O. G., 1104; *ex parte McFarlane*, 76 O. G., 1418.) While it cannot settle disputes as to title, it does not and should not disregard the fact that there is dispute. The law is not mandatory that the patent issue to the assignee in any case, and where there is dispute as to the ownership the Office is justified in issuing the patent to the inventor who made the application.

The fact in the present case that the second assignment was executed and filed for record shows that the contention that the first assignment is in force is disputed, although the grounds of the dispute do not appear. It should be noted that the Office has no means of knowing whether the first assignment is valid or whether there is an assignment not recorded transferring the invention from the first assignee, Moller, back to the inventor, Mull.

The suggestion is made on behalf of the petitioner that the practice of issuing the patent to the inventor in case of conflicting assignments furnishes means whereby an unscrupulous inventor may defraud his first assignee by making a second assignment. It should be noted, however, that the issuance of the patent to the inventor does not deprive the first assignee of his rights in the patent, if he is the rightful owner, (*Gayler* v. *Wilder*, 10 How., 477,) but merely puts him to some inconvenience.

As was said in *De la Vergne* v. *Featherstone*, (147 U. S., 209:)

A patent issued to an inventor after an assignment of his entire interest has been entered of record, immediately and by operation of law inures to the benefit of his assignee.

The second assignment puts the first assignee to some inconvenience even if the patent is issued to him, since it throws a cloud upon his title which it is necessary to clear in the courts. This Office cannot undertake to prevent fraudulent second assignments any more than to prevent fraud in any other assignments, but must leave that to the courts and the punishment there meted out. It is believed that justice is best secured, as a general rule, by issuing the patent to the inventor in case of conflicting assignments.

The petition is denied.

IN RE MARIE, PRINCESS OF YSENBURG.

Decided January 30, 1904.

1. APPLICATION—SIGNATURE OF APPLICANT—FULL NAME MUST BE GIVEN.

It is not sufficient for the purposes of this Office that the name of the applicant be written as it is ordinarily signed; but the full first name and surname must be given. *Held*, therefore, that an application signed "Marie, Princess of Ysenburg" is informal.

2. SAME—FULL NAME NOT GIVEN—ERROR CORRECTED BY AMENDMENT.

Where an application is actually signed by the inventor, it is not to be regarded as incomplete merely because the full name of the applicant is not given. The full name may be supplied subsequently, and therefore the application should be accepted and acted upon.

3. SAME—INFORMALITIES—PAPERS NOT RETURNED.

Where papers are filed as an application for patent and they are not regarded as constituting a complete and formal application, *Held* that they should not be returned to the applicant, but should be entered as an incomplete application and the applicant notified of the defects or informalities.

IN the matter of certain papers filed on December 9, 1903, in the name of Marie, Princess of Ysenburg, as an application for patent.

ALLEN, *Commissioner:*

My attention has been called to certain papers filed as an application for patent on December 9,

1903, and the question is presented whether they should be entered as a complete application.

The name of the inventor appears in the papers as "Marie, Princess of Ysenburg," and it is so signed to the application. The Office rules require that the surname and first name of the applicant be given, and since this was not done in the present case the papers were returned to the applicant. It may be noted here that the papers should not have been returned merely because it was thought that they could not be entered as a complete and formal application. They should have been retained and the applicant notified of the informality in them. The papers were refiled on January 25, 1904.

The application was signed and sworn to by the person who seeks the patent as inventor, and the only informality is that her full name was not given, as required in the rules. Such informality may be cured subsequently by filing substitute papers properly signed, and therefore the application should be entered as filed complete on December 9, 1903.

Substitute papers properly signed are necessary, for the reasons stated *in re Charles, Prince de Loewenstein*, (108 O. G., 562.) It is not sufficient for the purposes of this Office that the name be written as the applicant ordinarily signs it; but the full first name and surname must be given. (*Ex parte Gentry*, 44 O. G., 822.)

The application should be forwarded to the Examiner for examination, and the Examiner should call on the applicant for substitute papers properly signed.

PERRAULT *v.* PIERCE.

Decided February 4, 1904.

1. INTERFERENCE—EXTENSION OF TIME FOR TAKING TESTIMONY.
   Where a party makes no effort to take testimony as to priority of invention within the time set, but devotes his time to an investigation of the question of public use of the invention, *Held* that he is not entitled to an extension of time for taking testimony.
2. SAME—PUBLIC-USE PROCEEDINGS—INTERFERENCE BETWEEN APPLICANTS NOT SUSPENDED.
   It is contrary to the usual practice to suspend an interference between two applications to investigate the question of public use of the invention.
3. SAME—SAME—SAME—ABANDONMENT OF CLAIMS.
   Where one of two applicants involved in an interference expresses a willingness to abandon the claims of the issue if public-use proceedings are instituted, but it appears that the case is ready for final hearing upon the question of priority of invention and affidavits have not been filed making out a *prima facie* case of public use, *Held* that the interference should proceed to a decision upon the question of priority before investigating the question of public use.

APPEAL on motion.

GAGE FOR LACING-HOOK-SETTING MACHINES.

Application of Joseph E. Perrault. Application of John Pierce.

Mr. Frederick L. Emery for Perrault.

Mr. Charles S. Gooding and *Mr. Charles F. Perkins* for Pierce.

ALLEN, *Commissioner:*

This is an appeal by Pierce from the decision of the Examiner of Interferences denying his motion to suspend proceedings to investigate the question of public use and denying his motion for an extension of time for taking testimony.

It appears from an affidavit filed on behalf of Pierce that he heard a rumor that the invention had been in public use at Waterbury, Conn., many years, and his attorney spent his time investigating that matter instead of attempting to produce evidence in regard to priority of invention within the time set. The attorney says that as a result of his investigation he is satisfied that the invention was in public use more than two years before either application was filed, and he wishes the interference suspended and public-use proceedings instituted.

It is very clear that Pierce is not entitled to an extension of time to take testimony as to priority of invention, since he made no efforts to do so within the time set and therefore the decision of the Examiner of Interferences upon that branch of the motion is affirmed.

It is contrary to the usual practice to suspend an interference between two applicants to investigate the question of public use. (*Tyler* v. *Arnold*, 84 O. G., 1584.) Pierce, however, has filed a stipulation signed by himself and assignee agreeing to abandon the claims of the issue if public use proceedings are instituted, and he argues that this avoids the objection to the institution of the proceedings at this time. The Office will under its usual practice investigate the question of public use at some time before allowing a patent to Perrault, provided Pierce makes such a showing of probable public use as justifies it and agrees to bear the expense; but it has been regarded as better, as a general rule, to postpone that investigation until the interference is determined. The only reason apparent why Pierce does not wish such postponement in this case is that he does not wish a judgment against him in the interference. It is to be noted, however, that the abandonment proposed by him would result in that judgment. (Rule 125.) The taking of testimony is closed, and the case is now set for final hearing on February 16, 1904, and therefore the parties will not be delayed and put to inconvenience by allowing the interference to proceed.

Pierce has not produced affidavits disclosing the machine said to have been used at Waterbury, together with the date and particulars of that use, so as to make out a *prima facie* case of two years' public use. No good reason is seen for suspending proceedings to permit him to present those affidavits at this time, when they may be presented later on with equal effect. It is held that the interference should proceed to a conclusion before investigating the question of public use.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

SHAFFER *v.* DOLAN.

Decided January 5, 1904.

1. INTERFERENCE—PRIORITY OF INVENTION.
   Held that Dolan reduced the invention to practice before any date which can be awarded Shaffer, and therefore the decision of the Commissioner awarding priority of invention to Dolan affirmed.

2. SAME—BURDEN OF PROOF—PATENT INADVERTENTLY ISSUED.
   Where a patent is inadvertently granted to a later applicant while the application of the other party to the interference is pending in the Patent Office, *Held* that the patentee can derive no advantage from the fact that his patent has issued.
3. SAME—PRELIMINARY STATEMENT AND TESTIMONY NOT IN ACCORD—DISCREDITING CIRCUMSTANCE.
   The fact that in the testimony a party makes no attempt whatever to support the allegation of his preliminary statement as to the dates indicates a reprehensible looseness of assertion on his part and tends to discredit him.

Mr. Melville Church and *Mr. Frederick F. Church* for the appellant.

Mr. Edwin H. Brown and *Mr. Charles S. Jones* for the appellee.

MORRIS, *J.:*

This is an appeal from the decision of the Commissioner of Patents in an interference case.

The subject-matter of controversy is an improvement in gas-burners, principally for the burning of acetylene gas, and is described as follows:

A tip for acetylene and similar gas burners having the discharge-passage for gas and air, the small gas-aperture leading into said passage, and the separate air-passages extending from the outside of the tip into the lower end of the discharge-passage and directing the air upon the column of gas at right angles to its plane of movement, thereby causing a thorough mixture of air and gas.

The appellee Dolan was the first to apply to the Patent Office, his application having been received at the Office on December 17, 1897. He alleges conception of the invention by him on May 1, 1896; the making of sketches on May 5, 1896; disclosure on May 10, 1896; and reduction to practice on June 30, 1896. The appellant Shaffer filed his application on January 17, 1899, which was two years and one month after Dolan's application; but through some inadvertence of the Office Shaffer's application was permitted to go to patent without being placed in interference with that of Dolan. Shaffer's patent therefore will not avail him in the present controversy. Shaffer alleges conception of the invention on October 20, 1896; the making of sketches on January 1, 1897; disclosure on August 1, 1897; and reduction to practice on August 15, 1897.

Both parties took testimony in support of their respective claims; and upon the evidence adduced the Examiner of Interferences decided in favor of Shaffer; the Board of Examiners (two members, one being absent) in favor of Dolan; and the Commissioner of Patents also in favor of Dolan. Shaffer has appealed to this court from the Commissioner's decision.

It is a remarkable fact that neither party in the testimony in this case has made the slightest attempt to support the allegation of his preliminary statement as to the date of his reduction to practice. The proof of such reduction to practice is on the part of both parties several months later than as alleged in the preliminary statement. This fact would indicate a reprehensible looseness of assertion in the preliminary statement, which tends to discredit both parties.

The question to be determined here is purely one of fact to be ascertained from a consideration of the testimony, which, it must be confessed, is not entirely satisfactory on either side. That testimony has been fully analyzed by the several tribunals of the Patent Office, and especially in the opinion of the Commissioner of Patents to be found in the record; and a further analysis by us would serve no useful purpose. It is sufficient to say that we fully concur in the reasoning of the Commissioner, and in the conclusion reached by him.

It is sufficiently proved that Dolan, the senior applicant and the appellee, had the invention in controversy and had reduced it to practice by the construction of an operative device in December of 1896, or in the early part of the year 1897; while Shaffer's reduction of the invention to practice is not shown to have taken place until October of 1897. These dates dispose of the case. We think that the appellee is entitled to the judgment of priority of invention awarded to him by the Commissioner of Patents.

The clerk of the court will certify this opinion, and the proceedings in this court in the premises, to the Commissioner of Patents, according to law.

Court of Appeals of the District of Columbia.

QUIST *v.* OSTROM.

Decided January 5, 1904.

1. INTERFERENCE—BURDEN OF PROOF—JOINT APPLICATION—SOLE INVENTOR.
   Where Quist's application was filed after Ostrom's patent issued, but it appears that at the time of the issue there was a joint application by Hogan and Quist pending, *Held* that Quist can derive no benefit in so far as the burden of proof is concerned from the joint application.
2. SAME—REDUCTION TO PRACTICE—ABANDONED EXPERIMENT—CLAIMS DISCREDITED BY DELAY.
   Where the attachment in controversy is said to have been made by Quist and successfully tested in 1894, but it was then removed from the machine, put away in a drawer, and nothing was done in the way of putting it on the market or applying for a patent for four years, although it is said that there was a demand for that very thing, *Held* that the making of the device must be regarded as an unsuccessful and abandoned experiment.
3. SAME—PRIORITY OF INVENTION—TESTIMONY DISCREDITED BY CONDUCT.
   Where the device is a simple one easily made and attached to machines then in use and its commercial value is apparent, *Held* that the failure of the inventor to make use of it for four years, during which time he put substitutes on the market, is sufficient to discredit his claim that he regarded it as perfected.

Mr. Charles E. Foster, Mr. Edwin H. Brown, and *Mr. Harold Binney* for the appellant.

Mr. L. Gifford and *Mr. O. B. Roberts* for the appellee.

MORRIS, *J.:*

This is an appeal from the decision of the Commissioner of Patents in an interference proceeding involving the following issue:

1. In a buttonhole-sewing machine, work-moving mechanism, and needle-thread tension mechanism, combined with a tension-controller, means interposed between the tension-controller and the work-moving mechanism by which the tension-controller is actuated from said work-moving mechanism, and connections between said tension-controller and needle-thread tension mechanism whereby the degree of tension given the needle-thread may be automatically varied by said controller during the sewing operation and stitches of different character formed at the ends and sides of the buttonhole.
2. In a buttonhole-sewing machine, a work-feed mechanism including a rotating feed-disk, and a needle-thread tension mechanism, combined with a tension-controller connected to and rotating with said rotating feed-disk, and connections be-

tween said tension-controller and the needle-thread tension mechanism, whereby by the rotation of said tension-controller in unison with said feed-disk the degree of tension given the needle thread may be automatically varied during the sewing operation.

Ostrom, the appellee, holds a patent for the invention issued November 29, 1898, upon an application filed December 17, 1897. Quist, the appellant filed his application on February 9, 1899. It appears that at the time of the grant of Ostrom's patent there was pending in the Patent Office a joint application by Hogan and Quist for a device to accomplish the same practical purpose and which by amendments, had they been suggested, might have been put in condition for a declaration of interference with Ostrom's application. However that may be, as against this application of Quist claiming to be the sole inventor of the specific device of the issue, Ostrom is clearly entitled to the advantage, in respect of the burden of proof, which a regularly-issued patent gives in a contest with a rival claimant under an application thereafter filed. The reasons for this conclusion are satisfactorily stated in the Commissioner's decision, and there is no occasion for their restatement. To this burden imposed upon the appellant by the patent of the appellee is superadded the weight which this court has always given to unanimity of decision in the Patent Office.

Those decisions elaborately review the important evidence bearing on the claims of the respective parties, and in our view of the case it is unimportant to add anything thereto.

It appears that Ostrom has exercised commendable diligence since June 4, 1897, when he constructed two machines embodying the invention, in filing his application and subsequent actual reduction to practice by complete tests.

Quist, on the other hand, conceived the invention in the early spring of 1894, and produced in evidence a device made about that time, which it is claimed was temporarily attached to a sewing-machine of the manufacture of his assignee, the National Machine Company, and successfully operated. The device was then removed from that machine, which was afterward sold to the trade, and put away in the drawer of a desk in a room to which alone the principal officers of the company had access.

In 1896, and 1897, the National Company manufactured a new machine and put it upon the market, without attempting the incorporation or attachment of the Quist tension-controller. Neither this nor the first-mentioned machine were satisfactory to the manufacturers of garments on account of the defective "barring-stitches" across the ends of the buttonhole-slit.

In February, 1898, Hogan made a tension-controller differing in details of construction from that formerly made by Quist, and it was attached to machines and put upon the market by the National Company. Under the case stated, the question for determination was this: Was it shown by Quist with the necessary certainty of proof that his invention had been successfully tested and reduced to practice as claimed?

We agree with the tribunals of the Patent Office that it was not.

It is evident that since the introduction of the first buttonhole-stitching devices, the discovery of a means whereby, with one continuous movement, the defects in such stitching could be overcome, had been regarded as a matter of great importance by the trade, and that Quist and his company, as well as other inventors and the manufacturers, were fully alive to the commercial value of such an invention.

If, then, Quist really made this discovery and became fully convinced of its practical usefulness early in 1894, there is no conceivable reason why he or the National Company should have deliberately concealed the invention from the public for four years or more.

The device was a simple one, easily attached to the machines then in use, and there were no difficulties in the way of its manufacture. Yet during four years they sold the old machines, made and sold improved ones, without attaching or using this effective device, or attempting to obtain a patent upon it, and even invented, patented and manufactured another. Such conduct is irreconcilable with the idea that the experiment of 1894 had operated in such manner as to demonstrate its practical operativeness to the satisfaction of its inventor and owner.

Referring to the decision of the Commissioner for a review of the evidence upon which it was sought to overcome this presumption, it is sufficient here to say, that in our opinion it lacks the requisite certainty and weight.

In the light of all the facts and surrounding circumstances, we can arrive at no other conclusion than that what was done in 1894 amounted to nothing more than an insufficient and unsatisfactory experiment, as has been frequently held in other cases where the conditions were somewhat the same. (*Warner* v. *Smith*, 13 App. D. C., 111, 116; *Guilbert* v. *Killinger*, *idem*, 107; *Traver* v. *Brown*, 14 App. D. C., 34, 41; *Howard* v. *Hey*, 18 App. D. C., 142.)

This conclusion renders unnecessary the consideration of the second question that was also determined against the appellant, namely: Assuming that the invention was actually reduced to practice early in 1894, was it not concealed from the public in such manner as to subordinate the right of the inventor to the claims of his rival who entered the field and obtained a patent during the time of such concealment?

The decision of the Commissioner of Patents must be affirmed, and it is so ordered.

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DIGEST OF DECISIONS

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DIGEST OF DECISIONS.

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ABANDONED APPLICATIONS.

(See Interference, 12, 13.)

1. DELAY NOT UNAVOIDABLE.
Where there was a delay of more than sixteen months in acting upon a case and it is said that for the first seven months the attorneys were waiting for an opportunity to consult the inventor and during the balance of the time were waiting for instructions from him and no reason appears why he did not give the instructions except that he was busy, *Held* that the delay was not unavoidable and the case is abandoned.
[*Ex parte* Marconi, 796.

2. SAME—CONSULTATION BETWEEN ATTORNEYS AND INVENTOR.
Where it is said that intelligent action could not be taken by the attorneys without consulting the inventor, but no attempt was made to consult him for several months, and after being consulted he did not furnish the information required or make a real effort to do so, *Held* that the delay was not unavoidable. [Id.

3. ACTION NOT RESPONSIVE.
Where the applicant is twice informed that the claims are finally rejected and that an amendment presented involves new matter and at the end of the time allowed by law for action he presents substitute claims and an argument as to new matter, *Held* that his action is not such as the condition of the case required and that it is abandoned.
[*Ex parte* Edwards, 1051.

ABANDONED EXPERIMENTS.

(See Interference, 24, 32.)

ABANDONMENT OF APPLICATIONS.

ARGUMENT BY APPLICANT—DIVISION.
Where the Examiner requires division and within the year fixed by law the applicant presents an argument pointing out wherein he thinks the Examiner is wrong, *Held* that the application is not abandoned. [*Ex parte* Lovejoy, 1053.

ABANDONMENT OF CLAIMS.

(See Interference, 27.)

ABSTRACT OF TITLE.

(See Reissue, 2.)

AFFIDAVITS.

(See Public Use and Sale, 2.)

AMENDMENTS.

(See Abandoned Applications, 3; Interference, 2; Rejected Cases, 2.)

1. CLAIM MADE IN DIVISIONAL CASE.
Where on a motion to amend under Rule 109 it appears that the claim is made in a divisional application not involved in the interference, *Held* that it is nevertheless proper to add it as a count to the issue. [Meyers *v.* Tyden, 287.

2. FIXING TIME FOR ACTION LESS THAN THAT ALLOWED BY LAW.
Where after a decision against the applicant in an interference the Examiner rejects certain claims as not patentable over the issue and requires the applicant to amend or cancel them within a fixed time, *Held* that the Examiner had no authority to require action within any time less than that fixed by law. [*Ex parte* Hewlett, 1052.

3. DIVISION—REFUSAL TO ENTER.
An amendment should not be entered if its entry would necessitate a requirement for division, and this applies before action by the Office as well as afterward.
[*Ex parte* Dubern, 1588.

4. SAME—SAME—PRACTICE.
The refusal to enter an amendment including two inventions instead of entering it and requiring its elimination keeps the Office records in better shape and affects no substantial rights on the part of the applicant. [Id.

5. SAME—CONTINUOUS APPLICATION.
The entry or refusal to enter an amendment including two inventions does not affect the question whether a later application including one of those inventions is to be considered a division and continuation of the first case, entitling the applicant to the benefit of the original date. [Id.

AMENDMENTS TO PRELIMINARY STATEMENTS.

(See Preliminary Statement, 1, 2.)

ANTICIPATION.

(See Invention, 1, 2, 4.)

APPEAL FEES.

RETURN OF MONEY—APPEAL WITHDRAWN.
Where after filing an appeal to the Examiners-in-Chief the applicant concludes to withdraw the appeal and ask for permission to amend the rejected claims, *Held* that the appeal fee will not be returned. [*Ex parte* Zehrbach, 290.

APPEAL TO THE EXAMINERS-IN-CHIEF.

(See Appeal Fees; Reissue, 1.)

APPLICATIONS.

(See Abandoned Applications; Abandonment of Applications; Amendments; Division of Applications; Drawings; Examination of Applications; Reissue; Rejected Cases; Rejection of Cases; Signature to Specifications.)

1. CHANGING FROM SOLE TO JOINT APPLICATION.
Where an application is filed alleging that one party is the sole inventor and asking that a patent be granted to him, *Held* that it cannot be changed to a joint application including another party merely because that other party signed the papers. [*Ex parte* Gordon, 561.

2. COMPLETE—SUPPLEMENTAL OATH.
Where an application is filed complete and thereafter a supplemental oath is required and furnished, *Held* that the application must retain its original filing date and will not be given the date of the supplemental oath.
[*Ex parte* Brough, 564.

ASSIGNEES.

(See Assignments.)

ASSIGNMENTS.

1. CONFLICTING—PATENT ISSUED TO INVENTOR.
Where there are of record two assignments by the inventor to different parties of his entire rights in the application, *Held* that the patent should issue to the inventor.
[*In re* Moller, 2144.

2. SAME—SAME—LAW NOT MANDATORY.
The law is not mandatory that the patent issue to the assignee in any case, and where by reason of conflicting assignments the Office is uncertain who is the real owner it is justified in issuing the patent to the inventor who made the application, leaving it to the courts to determine who is the real owner. [Id.

3. SAME—OFFICE CANNOT SETTLE DISPUTES.
While the Office cannot undertake to settle disputes as to title, it should not ignore the fact of conflicting assignments shown by its records. [Id.

4. Office Acts in Ministerial Capacity—Fraud Must be Treated by Courts.
The Office acts in a ministerial capacity in regard to assignments and cannot undertake to prevent fraud in them, but must leave that to the courts and the punishment there meted out. [Id.

ATTORNEYS.

(See Abandoned Applications, 1, 2.)

BURDEN OF PROOF.

(See Interference, 20, 29, 31.)

CERTIFIED COPIES.

(See Interference, 7.)

CLAIMS.

(See Amendments, 1, 2; Division of Application; Interference, 1.)

Inaccurate Description.
Where the claim refers to a stencil as "means for marking" and the examiner raises the objection of inaccuracy, *Held* that the objection should not be insisted upon, since the description is sufficiently accurate to avoid any mistake as to the meaning. [*Ex parte* Conley, 291.

COAT OF ARMS.

(See Labels, 3, 4.)

COMMISSIONER OF PATENTS.

(See Petition to Commissioner of Patents.)

CONCEPTION OF INVENTION.

(See Interference, 11, 22.)

CONSTRUCTION OF RULES.

(See Amendments, 1; Interference, 1, 2, 9, 10, 17; Signature to Specifications.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Infringement; Particular Patents.)

1. Construction of Claim—Limited to What is Shown and Described.
In the light of the circumstances surrounding the issuance of the patent the words of limitation contained in the claim must be given due effect and the elements entering into the combination must be construed to refer to elements having substantially the form and constructed substantially as described in the specification and shown in the drawing.
[*Singer Manufacturing Company *v.* Cramer, 1869.

2. Same—Proceedings in Patent Office Considered.
The proceedings in the Patent Office leading to the grant of Cramer's patent considered and *Held* that it was the purpose of the Patent Office to limit the patent to the particular device of treadle-bar and bearing described and shown when employed in combination with a particular form of vertical cross-brace. [*Id.

3. Lack of Invention—Sewing-Machine Treadle.
A vertical cross-brace and a lower cross-brace being common adjuncts of sewing-machines, and it being also customary to support the lower cross-brace in the web of the legs of sewing-machines and to utilize the legs as bearings, and it being old in machinery to employ solid castings as bearings for oscillating shafts where a fixed alinement was essential, *Held* that the mere conception that a double brace was capable of being advantageously utilized as bearings for sewing-machine treadles and devising means for so utilizing such a brace did not involve such exercise of the inventive faculty as entitled Cramer to claim broadly the use of such double brace.
[*Id.

CONSTRUCTION OF STATUTES.

(See Delay; Foreign Patents.)

CONTINUOUS APPLICATIONS.

(See Amendments, 5; Interference, 12, 13.)

DECISIONS OF THE COURTS.

(See Public Use and Sale, 1.)

Judicial Notice of Findings—Basis for Office Action.
The Office is bound to take notice of the decisions of the court and may base its actions upon the findings of facts contained therein. [*Ex parte* Tournier, 798.

DELAY.

(See Abandoned Applications, 1, 2; Interference, 18, 19, 32.)

Meaning of "Unavoidable."
The word *unavoidable* in the statute means more than that to act would have been inconvenient, and the mere plea that the inventor was busy upon other matters cannot be accepted as showing that the delay was unavoidable.
[*Ex parte* Marconi, 796.

DEPOSITIONS.

(See Testimony.)

DESCRIPTION.

(See Claims.)

DILIGENCE.

(See Interference, 18, 19, 20.)

DISCLOSURE OF INVENTION.

(See Interference, 4, 22; Preliminary Statements, 1.)

DIVISIONAL APPLICATION.

(See Amendments, 1.)

DIVISION OF APPLICATION.

(See Abandonment of Applications; Amendments, 3, 4, 5; Drawings, 3.)

1. Requirement Made at Late Date.
A requirement for division will not be overruled merely because it is made for the first time late in the prosecution of the case. [*Ex parte* Lewis, 559.

2. Mixing-Machine and Cleaning-Machine.
Held that division was properly required between claims to a mixing and kneading machine and claims covering a cleaning-machine, since they constitute independent inventions and are examinable in different divisions of the Office.
[*Ex parte* Stacey, 1050.

3. Different Species.
Where one set of claims calls for an element which is not applicable to or capable of use in the structure covered by another set of claims, *Held* that this shows the inventions covered by the sets of claims respectively are for different species, and the requirement of division is sustained.
[*Ex parte* Brown, 1062.

4. Telephone System and Switchboard.
Since telephone-switchboards are recognized by inventors and manufacturers as independent inventions from the general telephone systems in which they are used, *Held* that division was properly required between claims to a switchboard and claims to the system. [*Ex parte* Ford, 1327.

5. Method of Making a Matrix—Article Cast in the Matrix—Independent Inventions—Division Required.
Held that division is properly required between claims for the method of making a matrix and a claim for an article cast in the matrix, as these claims cover independent inventions.
[*Ex parte* Jennens, 1587.

6. Two Species of Invention.
Held that the claims cover two species of the invention and that division was properly required.
[*Ex parte* Butcher, 1587.

7. Practice—Election by Applicant.
Where division is required between two or more sets of claims covering two independent inventions, *Held* that the applicant should be permitted to elect which invention he desires to prosecute and that he should not be required to eliminate from his application any one set of claims. [Id.

8. Voting-Machine—Key-Locking Mechanism—Independent-Voting Mechanism.
Held that the general combination in a voting-machine, key-locking mechanism which may be used in such machine, and mechanism for independent voting constitute three independent inventions and should be claimed in separate applications.
[*Ex parte* Benke, 1588.

9. Same—Independent Subjects of Invention.
Key-locking mechanism and independent-voting mechanism have been made subjects of invention independent of the general improvements in voting-machines and are useful in other relations. They therefore constitute independent inventions.
[Id.

10. Separate Classification Not the Test.
The fact that patents covering several inventions would be placed in one class is no reason for overruling a requirement for division where the inventions are independent. [Id.

11. Requirement Made Late in Prosecution—Practice.
A requirement for division will not be overruled because made for the first time late in the prosecution of the case.
[Id.

DRAWINGS.

(See Construction of Specifications and Patents, 1; Interference, 19.)

1. Inconsistent Views—Amendment Necessary.
Where two figures of the drawings are inconsistent if intended to represent the same structure, *Held* that they should either be made consistent by amendment or the specification should state that they represent different modifications.
[*Ex parte* Sturtevant *et al.*, 563.

2. Should Clearly Disclose Device.
It is a great *desideratum* of Patent Office drawings that they should tell their story to the eye without making it necessary to go into the specification for explanation, which should be apparent upon inspection. [Id.

3. Illustration of Invention—New Matter—Species Not Disclosed.
An applicant will not be permitted to illustrate a specific form of the invention not originally disclosed although it illustrates the generic invention disclosed.
[*Ex parte* Butcher, 1587.

4. Unnecessary Figures Should be Canceled.
Where the invention claimed is a belt-shifter and the drawing includes a figure covering an entire sheet which is not necessary to a complete disclosure of the invention and which shows in all of its details a traction-engine upon which the invention may be used, *Held* that the unnecessary sheet of drawings should be canceled. [*Ex parte* Crisler, 1869.

EXAMINATION OF APPLICATIONS.

(See Amendments; Claims; Rejected Cases; Rejection of Cases; Signature to Specifications.)

All Objections Made Without Delay—Practice.
All objections to the application, whether relating to form or merits, should be made as soon as possible, and new objections late in the prosecution of a case should be necessary only in exceptional cases; but it does not follow that the objection is to be ignored because not discovered as soon as desirable.
[*Ex parte* Lewis, 559.

EXAMINERS.

(See Claims; Petition to Commissioner of Patents, 3.)

FEES.

(See Appeal Fees.)

FOREIGN PATENTS.

(See Interference, 7.)

Judicial Notice of Office Records.
Under the provisions of section 893, Revised Statutes, this Office must take judicial notice of foreign patents where copies have been furnished it by the foreign governments and they are among the records in this Office.
[Robin *v.* Muller and Bonnet, 292.

INFRINGEMENT.

(See Particular Patents, 1.)

1. Question of Law—Review by Writ of Error.
Where the alleged infringing device is patented and it is apparent from the face of the instrument that extrinsic evidence is not needed to explain terms of art therein, so as to enable the court to compare the devices and determine the question of infringement, *Held* that the question of infringement is one of law susceptible of determination on writ of error.
[*Singer Manufacturing Company *v.* Cramer, 1869.

2. Decision Reversed—New Trial.
Held that the trial court erred in refusing to direct a verdict for the defendant on the ground that no infringement whatever was shown, and the cause remanded for new trial.
[*Id.

INOPERATIVENESS.

(See Rejection of Cases, 2, 3, 4.)

INTERFERENCE.

(See Preliminary Statements; Reduction to Practice.)

1. Issue Not Patentable—Amending Issue—Using Testimony Taken.
Where an interference is dissolved because the issue is not patentable and one party presents an amended claim which he asks be substituted for the issue, *Held* that the request was properly denied. If the new claim is patentable and the other parties make it, a new interference may be declared and the old testimony may be used under the conditions specified in Rule 157. [Brooks *v.* Foote *v.* Wenk, 287.

2. Amendment Under Rule 109—Hearing to Parties.
Where a motion to amend under Rule 109 by inserting a claim made by another party to the interference is transmitted to the Primary Examiner, *Held* that he should grant a hearing to the parties and render a decision and should not merely write a letter in the case where the amendment is presented stating his views. [Meyers *v.* Tyden, 287.

3. Irregularity—Supplemental Oath—Ex parte Matter.
Where it is contended that there was irregularity in the declaration of interference because one party was not required to furnish a supplemental oath, *Held* that this is an *ex parte* matter not open to argument in the interference.
[Auerbach and Gubing *v.* Wiswell, 289.

4. Motion to Dissolve—Sufficiency of Disclosure—Merits—Appeal.
The contention on a motion to dissolve that the disclosure in a party's application is too incomplete to show a conception of the invention relates to the merits, and there is no appeal from a favorable decision in regard to it. [Id.

5. In Fact—Broad Issue.
Where the issue is broad, covering only common features of construction, *Held* that there is an interference in fact, notwithstanding differences in details of construction not claimed. [Id.

6. Testimony Taken Abroad—Originality of Invention.
Where a motion is made to take testimony abroad to show that the opposing party to the interference is not an original inventor and it appears from the showing that the testimony will tend to show that fact, *Held* that the motion will be granted. [Stiff *v.* Galbraith, 290.

7. Proving Foreign Patent—Copy in Scientific Library.
Where on a motion to dissolve an interference a certified copy of a French patent is produced, but the certificate is on a separate sheet from the specification and is not attached, *Held* that the certificate may be taken to show the grant and its date and the copy of the patent in the Scientific Library of this Office may be accepted as proving the contents of the patent. [Robin *v.* Muller and Bonnet, 292.

8. Motion to Dissolve—Irregularity.
Where on a motion to dissolve it is contended that the issue is a species of the invention shown by H., H., and H. which they did not claim originally and that they should not have been permitted to shift from one species to another, *Held* that this is a mere matter of procedure alone which in no way affects the rights of B. and is not such irregularity as will preclude a proper decision as to priority of invention.
[Hoefer, Hoefer, and Hoefer *v.* Barnes, 560.

9. Stay of Proceedings—Separate Motion Necessary.
Where after judgment by the Examiner of Interferences certain motions are made and appeal taken thereon within the limit of appeal from the judgment, *Held* that neither the motions nor the appeal operated as a stay, since Rule 123 specifically requires a separate motion for a stay of proceedings.
[Hoegh *v.* Gordon, 797.

10. Jurisdiction of Examiner of Interferences—Motion to Restore Jurisdiction.
Where the limit of appeal from his judgment has expired, the jurisdiction of the Examiner of Interferences to reconsider the matter can be restored only by a motion before the Commissioner for that purpose. [Id.

11. Conception—What Constitutes.
Where an inventor has only a conception of what he wanted to accomplish and not a conception of the means to be used to that end, *Held* that it is not an "available conception within the meaning of the law." (*Mergenthaler v. Scudder*, 81 O. G., 1417.) [Lotterhand v. Hanson, 799.

12. Constructive Reduction to Practice—What Constitutes.
When an applicant filed a complete application for a patent on a certain invention and thereafter files another application for the same invention the two applications pending at the same time, and subsequently permits the first application to become abandoned, he is entitled to the date of the first application for his date of constructive reduction to practice for the invention which is common to the two applications. [Id.

13. Continuous Applications—Effect of.
When two applications filed by the same applicant are pending together, the applicant has the benefit of the first date of filing for a constructive reduction to practice, as the whole constitutes one continuous proceeding. [Id.

14. Priority.
H. having a constructive reduction to practice prior to the date of L.'s established conception is entitled to the award of priority of invention. [Id.

15. Motion to Reopen—Question of Joint Invention—Statutory Bar.
Where a party is in interference with joint applicants and makes a motion to reopen to take newly-discovered evidence tending to show that the joint applicants are not joint inventors, *Held* that the question relates to a statutory bar and not to the question of priority of invention, and therefore the motion denied. [Ritter v. Krakau and Conner, Jr., 1050.

16. Suspension to Add New Count—Testimony Taken.
Where both parties have completed their testimony-in-chief, the interference will not be suspended to add new counts consisting of claims made by one party, which claims the opposing party is presumed to have known even before the declaration of the interference. If there is to be a contest as to them, it must be a separate interference.
[Newell v. Hubbard, 1053.

17. Use of Testimony in Different Proceeding—Rule 157.
Where in one interference one of the applicants admits that the proceeding is closely related to another interference in which he was involved and introduces in evidence the decision in that other interference and says that he has no objection to the introduction of the entire record, *Held* that the opposing party may refer to the entire record without printing it as a part of his proofs. [Hall v. Weber, 1054.

18. Priority of Invention.
Held that Watson was the first to conceive the invention and the last to reduce to practice and that he has not shown that he was exercising diligence. The decision of the Commissioner of Patents awarding priority of invention to Thomas affirmed.
[*Watson v. Thomas, 1560.

19. Same—Lack of Diligence.
Where the inventor who was first to conceive the invention produces no evidence whatever of any action on his part to reduce the invention to practice beyond the making of some working drawings and a blue-print from them, *Held* that these acts cannot be held to be a manifestation of due diligence.
[*Id.

20. Same—Same—Uncertainty as to Dates.
Where the burden is upon a party to show diligence between his conception and reduction to practice and his proofs leave it in doubt whether the alleged steps taken by him were before or after his opponent entered the field, *Held* that he has not proved diligence, and the decision must be against him.
[*Id.

21. Same.
Held that the evidence on behalf of Cobb does not establish a possession of the invention by him before Goebel filed his application, and therefore the decision of the Commissioner of Patents awarding priority of invention to Goebel affirmed.
[*Cobb v. Goebel, 1591.

22. Evidence of Disclosure—Means Not Disclosed.
Where the witnesses called to corroborate Cobb as to a disclosure of the invention make it appear that he had in mind the result to be accomplished, but not the means by which it was to be done, *Held* that a conception and disclosure of the invention is not established. [*Id.

23. Priority of Invention.
Held that the evidence on behalf of Greenwood fails to establish for him a date of invention before Dover's filing date and that therefore the decision must be in favor of Dover.
[Greenwood v. Dover, 2143.

24. Abandoned Experiment—Reduction to Practice.
Where a device said to embody the invention was made by Greenwood, but the pin used as the pivot of the joint was loose and was not of the proper length for practical use, *Held* that the device was a mere experiment and was not a reduction to practice. [Id.

25. Extension of Time for Taking Testimony.
Where a party makes no effort to take testimony as to priority of invention within the time set, but devotes his time to an investigation of the question of public use of the invention, *Held* that he is not entitled to an extension of time for taking testimony. [Perrault v. Pierce, 2146.

26. Public-Use Proceedings—Interference Between Applicants Not Suspended.
It is contrary to the usual practice to suspend an interference between two applications to investigate the question of public use of the invention. [Id.

27. Same—Same—Abandonment of Claims.
Where one of two applicants involved in an interference expresses a willingness to abandon the claims of the issue if public-use proceedings are instituted, but it appears that the case is ready for final hearing upon the question of priority of invention and affidavits have not been filed making out a *prima facie* case of public use, *Held* that the interference should proceed to a decision upon the question of priority before investigating the question of public use. [Id.

28. Priority of Invention.
Held that Dolan reduced the invention to practice before any date which can be awarded Shaffer, and therefore the decision of the Commissioner awarding priority of invention to Dolan affirmed. [*Shaffer v. Dolan, 2146.

29. Burden of Proof—Patent Inadvertently Issued.
Where a patent is inadvertently granted to a later applicant while the application of the other party to the interference is pending in the Patent Office, *Held* that the patentee can derive no advantage from the fact that his patent has issued.
[*Id.

30. Preliminary Statement and Testimony Not in Accord—Discrediting Circumstance.
The fact that in the testimony a party makes no attempt whatever to support the allegation of his preliminary statement as to the dates indicates a reprehensible looseness of assertion on his part and tends to discredit him. [*Id.

31. Burden of Proof—Joint Application—Sole Inventor.
Where Quist's application was filed after Ostrom's patent issued, but it appears that at the time of the issue there was a joint application by Hogan and Quist pending, *Held* that Quist can derive no benefit in so far as the burden of proof is concerned from the joint application.
[*Quist v. Ostrom, 2147.

32. Reduction to Practice—Abandoned Experiment—Claims Discredited by Delay.
Where the attachment in controversy is said to have been made by Quist and successfully tested in 1894, but it was then removed from the machine, put away in a drawer, and nothing was done in the way of putting it on the market or applying for a patent for four years, although it is said that there was a demand for that very thing, *Held* that the making of the device must be regarded as an unsuccessful and abandoned experiment. [*Id.

33. Priority of Invention—Testimony Discredited by Conduct.
Where the device is a simple one easily made and attached to machines then in use and its commercial value is apparent, *Held* that the failure of the inventor to make use of it for four years, during which time he put substitutes on the market, is sufficient to discredit his claim that he regarded it as perfected. [*Id.

INVENTION.

(See Construction of Specifications and Patents, 3.)

1. Anticipation—Rubber-Soled Shoe.
Held that a claim for a leather boot or shoe provided with a rubber outer sole secured by vulcanization directly to the under surface of the inner sole and welt does not involve invention over an English patent which shows that it is old to secure a rubber sole by vulcanization to the inner sole of a shoe which has no welt, as welts are old and well known in this art.
[*Ex parte* Butterfield, 795.

2. Same—Same.
It being old, as shown in an English patent, to secure a rubber sole by vulcanization to an inner sole of a shoe, and the particular way adopted by the appellant of securing rubber to leather being old, as shown in United States patents, it is not invention to secure the rubber sole to the leather sole of the English patent by the old way of securing rubber to leather disclosed by the United States patents. [Id.

3. Method—Necessary Mode of Making an Article—Not Patentable.
A method claim is not patentable which on its face is nothing more than the necessary or obvious mode of making the shoe of the application. (*Ex parte Trevette*, 97 O. G., 1173.)
[Id.

4. Anticipation—Rubber-Soled Shoe.
Where it was old to vulcanize a rubber sole to the outer leather sole of a shoe and was old to vulcanize a rubber sole to the inner sole, *Held* that there was no invention to vulcanize a rubber sole directly to an inner sole of a particular kind provided with a welt. [*In re Butterfield, 1599.

5. Same—Mechanical Skill.
Where a prior patent shows a rubber sole vulcanized to the inner sole with an interposed layer of rubber-coated cloth, *Held* that the omission of the cloth does not involve invention, but mere mechanical skill. [*Id.

6. Process Claim—Necessary Mode of Constructing Articles.
Quære, whether a statement of the mode of construction of a shoe having a rubber sole vulcanized to it can be considered a process at all. [*Id.

JOINT APPLICATIONS.

(See Applications, 1; Interference, 31.)

JUDICIAL NOTICE.

(See Decisions of the Courts; Foreign Patents.)

LABELS.

1. Lack of Artistic Merit—Trade-Mark.
A label which in itself possesses no artistic merit is not rendered registrable by including as one feature a registered trade-mark which does possess artistic merit.
[*Ex parte* Wm. T. Reynolds & Co., 559.

2. Same—Same.
Where the only thing in a label founded in the creative powers of the mind is a registered trade-mark placed on it, *Held* that the label is not registrable. [Id.

3. Coat of Arms of Foreign Nation—Registration Refused.
A label will not be registered where it includes as a feature thereof the coat of arms of a foreign nation.
[*Ex parte* Rippen, 798.

4. Same—Public Policy.
The grounds of public policy which prevent the registration of the coat of arms of a nation as a trade-mark have equal force in the matter of the registration of labels. [Id.

LIMIT OF APPEAL.

(See Interference, 9, 10.)

LIMIT OF TIME.

(See Amendments, 2.)

MECHANICAL SKILL.

(See Invention, 5.)

METHOD.

(See Invention, 3.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 4, 8.)

MOTION TO REOPEN INTERFERENCE.

(See Interference, 15.)

MOTION TO STAY PROCEEDINGS.

(See Interference, 9, 10.)

NAME OF APPLICANT.

(See Signature to Specifications.)

NEWLY-DISCOVERED EVIDENCE.

(See Interference, 15.)

NEW MATTER.

(See Abandoned Applications, 3.)

OATH.

(See Applications, 2; Interference, 3.)

PARTICULAR PATENTS.

(See Construction of Specifications and Patents, 3.)

1. Patents—Cramer—Sewing-Machine Treadle—No. 271,426—No Infringement.
Claim 1 of Patent No. 271,426, granted to Herman Cramer for sewing-machine treadle, *Held* not infringed by a device conforming to the disclosure in Patent No. 306,469, granted to Diehl.
[*Singer Manufacturing Company v. Cramer, 1869.

2. Same—Same—Same—Not a Pioneer Invention.
Held that the patent to Herman Cramer, No. 271,426, for a sewing-machine treadle is not a primary one and is not entitled to receive the broad construction claimed for it.
[*Id.

PATENTABILITY.

(See Invention, 3.)

PATENTEE AND APPLICANT.

(See Interference, 29.)

PATENTS.

(See Assignments; Construction of Specifications and Patents; Foreign Patents; Infringement; Interference, 29; Particular Patents; Reissues.)

PERPETUAL MOTION.

(See Rejection of Cases, 2, 3, 4.)

PETITION TO THE COMMISSIONER OF PATENTS.

(See Examination of Applications.)

1. Complaint—No Specific Relief Asked.
A petition asking for no specific relief, but merely that the Examiner's actions be reviewed to determine whether or not they have been of an obstructive character, *Held* in the nature of a complaint and not proper subject-matter for petition. [*Ex parte* Lewis, 559.

2. Must Ask Specific Relief—Issue Between Applicant and Examiner.
Remedy by petition applies only to review a particular action or refusal to act where an issue has been reached between the applicant and the Examiner after a full discussion.
[Id.

3. Explanation by Examiner—Action by Applicant—Practice.
Where the applicant makes no attempt whatever to point out the supposed errors in the Examiner's action, it is not incumbent upon the Examiner to point out wherein he has failed. [Id.

PRELIMINARY STATEMENTS.

(See Interference, 30.)

1. Amendment—Failure to Discover Facts Sooner—Excuse Insufficient.
Where in support of a motion to amend a preliminary statement it is said by F. that when preparing to take testimony he learned of an earlier disclosure than that alleged in his statement, but no good reason is shown for not discovering the fact sooner, *Held* that the amendment should not be permitted. [Fowler v. Boyce v. Temple and Goodrum, 561.

2. Same—No Newly-Discovered Facts—Mistake of Law.
Where a party wishes to amend his preliminary statement, setting up an earlier reduction to practice, and it appears that he has discovered no new facts, but upon consultation with his attorney has obtained a better idea of what in law constitutes a reduction to practice, *Held* that the amendment should not be permitted. He should consult his attorney when preparing his statement. [Id.

3. Care Necessary in Preparation.
Applicants should exercise the same care in preparing their preliminary statements that they exercise in discovering evidence after they learn the dates alleged by their opponents.
[Id.

PRIORITY OF INVENTION.

(See Interference, 14, 15, 18, 19, 21, 22, 23, 28, 33.)

PROCESS.

(See Invention, 6.)

PUBLIC USE AND SALE.

1. Decision of Court—Rejection.
Where in considering an application for patent the court has ruled that the evidence in possession of the Office showed public use of the invention for more than two years before the filing date, *Held* that the Office is justified in rejecting a subsequent application by the same party claiming the same device on the ground of public use.
[*Ex parte* Tournier, 798.

2. Testimony Not Overcome by Affidavits.
Where public use is shown by testimony regularly taken, *Held* that its effect cannot be overcome by *ex parte* affidavits, but only by evidence taken in the regular way. [Id.

PUBLIC-USE PROCEEDINGS.

(See Interference, 26.)

RECORDS OF THE PATENT OFFICE.

(See Foreign Patents.)

REDUCTION TO PRACTICE.

(See Interference, 12, 13, 14, 20, 24, 32; Preliminary Statements, 2.)

Unexplained Delay.
Where there is doubt whether a device made operated successfully and constituted a reduction to practice, *Held* that long and unexplained delay in manufacturing the device or applying for a patent warrants resolving the doubt against the maker of the device. [Greenwood *v.* Dover, 2143.

REFERENCES.

(See Rejection of Cases, 1, 2, 5.)

REFUNDMENT OF APPEAL FEES.

(See Appeal Fees.)

REISSUE.

1. Rejection—Appeal to Examiners-in-Chief.
Where the Examiner rejects the claims of a reissue application on the ground that the application for reissue was not filed within two years after the grant of the patent, *Held* that the remedy is by appeal to the Examiners-in-Chief and not by petition. [*Ex parte* Powers, 1063.

2. Application Complete—Abstract of Title.
A reissue application cannot be entered as a complete application until the certified abstract of title called for in Rule 86 is furnished. [Id.

REJECTED CASES.

1. Reopening Finally-Rejected Cases—Showing of Good Reasons.
Final rejection of the claims is intended to close the consideration of the case upon the merits, and the applicant is not entitled to demand that it be reopened thereafter to consider amendments except upon a verified showing of good and sufficient reasons why the amendment was not sooner presented.
[*Ex parte* Novotny, 1327.

2. Final Rejection—Formal Objections—Amendments.
Where certain formal objections are made and the claims are finally rejected, *Held* that the applicant may amend to avoid the formal objections, but cannot make amendments presenting new claims or affecting the merits.
[*Ex parte* Paige, 1587.

REJECTION OF CASES.

(See Abandoned Applications, 3; Public Use and Sale, 1.)

1. Final—Explanation of References.
Where the Examiner rejects the claims upon references and the applicant twice asks him to explain why the device shown in one of those references is operative and the Examiner has fully and carefully explained the reference and his position in regard to it, *Held* that he was justified in finally rejecting the claims. [*Ex parte* Leilich, 561.

2. Examination—Practice—Perpetual-Motion Machine—Citation of References.
Where claim is made to a perpetual-motion machine, *Held* that the Examiner may properly reject the claim on the ground of inoperativeness without making a search through and citing the prior art. [*Ex parte* Payne, 1049.

3. Same—Same—Same—Not Necessary to Make Search.
As an ordinary rule all reasons for rejection should be given; but an exception may be made properly where the alleged invention is based on principles in direct conflict with the fundamental laws of science and mechanics. [Id.

4. Same—Same—Same—Inoperativeness.
The objection of inoperativeness on the ground that the machine is a perpetual-motion machine does not stand upon the same footing as an objection of inoperativeness based upon some mechanical defect in the device. [Id.

5. Final—Practice.
Where the applicant explains his position in regard to the references fully and asks for reconsideration, *Held* that the Examiner properly rejected the claims finally, stating his reasons fully. The case is different from one where explanation is asked on some point before action.
[*Ex parte* Silsby, 1051.

REOPENING OF REJECTED CASES.

(See Rejected Cases.)

SCIENTIFIC LIBRARY.

(See Foreign Patents.)

SIGNATURE TO SPECIFICATIONS.

1. Name of Applicant—Official Title.
Where the application papers were signed "Charles, Prince de Loewenstein," *Held* that the full name of the applicant was not given, as required in Rule 40.
[*In re* Charles, Prince de Loewenstein, 502.

2. Same—Same—Titles No Part of Name.
Honorable titles form no part of a person's name, however well they serve to identify the individual, and therefore they cannot be accepted as a compliance with the rule calling for the applicant's name. [Id.

3. Application—Full Name Must Be Given.
It is not sufficient for the purposes of this Office that the name of the applicant be written as it is ordinarily signed; but the full first name and surname must be given. *Held*, therefore, that an application signed "Marie, Princess of Ysenburg" is informal.
[*In re* Marie, Princess of Ysenburg, 2145.

4. Same—Full Name Not Given—Error Corrected by Amendment.
Where an application is actually signed by the inventor, it is not to be regarded as incomplete merely because the full name of the applicant is not given. The full name may be supplied subsequently, and therefore the application should be accepted and acted upon. [Id.

5. Same—Informalities—Papers Not Returned.
Where papers are filed as an application for patent and they are not regarded as constituting a complete and formal application, *Held* that they should not be returned to the applicant, but should be entered as an incomplete application and the applicant notified of the defects or informalities.
[Id.

STATUTORY BAR.

(See Interference, 15.)

TECHNICAL TERMS.

(See Delay.)

TESTIMONY.

(See Interference, 1, 16, 17, 25, 30, 33; Public Use and Sale, 2.)

1. Insufficient Notice.
Where notice was served in Chicago of testimony to be taken at Erie, Pa., less than two days thereafter, *Held* that the notice was not reasonable and that the depositions taken will be suppressed. [Tripp *v.* Wolff *v.* Jones, 503.

2. Same—Names of Witnesses Not Given.
Where notice was given that certain witnesses "and perhaps others" would be examined, *Held* where the opposing party objects the notice is insufficient except as to the witnesses whose names were given. [Id.

TESTIMONY TAKEN ABROAD.

(See Interference, 6.)

TITLE.

(See Signature to Specifications.)

TRADE-MARKS.

1. "Health" for Candy—Descriptive.
The word "Health" as a trade-mark for chocolate candy refused registration on the ground that it is descriptive.
[*Ex parte* Geron, 288.

2. Edge-Tools—Goods of Same Descriptive Properties—Division of Application.
Where a trade-mark application for cutlery and edge-tools describes many different kinds of edged tools which have no real resemblance to each other, *Held* that the application is not limited to goods of substantially the same descriptive properties, and division of the application is necessary.
[*Ex parte* Marsh Brothers Company, 288.

3. Division of Application—Goods of the Same Descriptive Properties.
Where a trade-mark application covers "railway supplies," the goods being described as "car-doors, their trimmings and journal-bearings," *Held* that the application is not limited to goods of substantially the same descriptive properties and that the Examiner properly required amendment.
[*Ex parte* Camel Company, 288.

4. Particular Description of Goods.
Where the particular goods of a trade-mark application are described as trimmings for car-doors and journal-bearings, *Held* too indefinite and not a compliance with the law requiring a particular description of the goods. [Id.

5. "Cantripum" for Clothing—Misspelled Descriptive Phrase.
"Cantripum" refused registration as a trade-mark for clothing upon the ground that it is a mere misspelling of the descriptive phrase "can't rip them."
[*Ex parte* Hooker, Corser and Mitchell Company, 289.

6. The Word "Pepko" Anticipated by the Word "Pep-Kola."
A trade-mark consisting of the word "Pepko" refused registration upon the registered word "Pep-Kola."
[*Ex parte* Sutton, 291.

7. Identity of Marks—Appearance as Well as Sound Shall Be Considered.
"In considering the identity of two trade-marks the appearance of the marks is as important as the sound of the words used therein when these words are spoken. Both senses are to be used in determining the question whether or not one mark so nearly resembles the other as to have the tendency to mislead and to cause confusion in the minds of the purchasing public." (*Ex parte Vogel and Son*, 99 O. G., 2321.) [Id.

8. Interference—Ex parte Affidavits.
Where the interference relates to "President" for suspenders and it is alleged in affidavits filed that F. and G. have never used the mark upon suspenders, but only upon hose-supporters, *Held* that the Office cannot found judgment upon *ex parte* affidavits even if it were conceded that suspenders and hose-supporters were not goods of substantially the same descriptive properties.
[Frank and Gutmann *v.* Macwilliam, 291.

9. Interference—Priority.
Held that V. B. & Co. adopted the mark for gin before B. & N. adopted it for geneva, and therefore priority awarded to V. B. & Co.
[Vanden Bergh & Company *v.* Blankenheym & Nolet, 563.

10. Same—Goods of the Same Class—Gin and Geneva.
Where one party used the trade-mark upon gin and the other upon "Holland Schiedam Geneva," *Held* that the goods are substantially the same and that the first to adopt the mark is entitled to registration. [Id.

WITNESSES.

(See Interference, 22; Testimony, 2.)

ALPHABETICAL LIST OF PATENTEES

FOR THE

MONTHS OF JANUARY AND FEBRUARY, 1904.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Labels, and Prints, follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. Garrison Foundry Company. (See Chartener, Victor, assignor.)						
A. Garrison Foundry Company. (See Knecht, Paul, assignor.)						
A. Steinhardt & Brother. (See Wertheim, Ludwig, assignor.)						
A. B. Dick Company. (See Cox, Edwin A., assignor.)						
A. B. Dick Company. (See Dick, Albert B., assignor.)						
A. B. Dick Company. (See Dick and Brasseur, assignors.)						
A. B. Dick Company. (See Klaber, Augustus D., assignor.)						
A. B. Dick Company. (See Sternberg, William D., assignor.)						
A. G. Hammell Amusement Company. (See Hammell, Alvin G., assignor.)						
Abbs, James, Philadelphia, Pa. Horseshoe-calk	749,599	Jan. 12	2142	447	108	502
Abernathy, John P., assignor of one-half to Hiett Wagon Company, Jonesboro, Ark. Adjustable chock-block	751,306	Feb. 2	1101	249	108	1291
Abizaid, Ameen G., Washington, D. C. Car-door	748,909	Jan. 5	676	149	108	152
Aborn, George P. (See De Laval and Aborn.)						
Abronski, John V., Philadelphia, Pa. Pipe or spout holder	750,516	Jan. 26	3899	846	108	916
Abt, Roman, Lucerne, Switzerland, assignor of one-half to W. Hildenbrand, New York, N. Y. Rack-railway	749,142	Jan. 12	1201	257	108	295
Achard, John W., assignor to Electric Storage Battery Company, Philadelphia, Pa. End-cell switch	752,942	Feb. 23	4143	922	108	2013
Acheson, Edward G., Niagara Falls, N. Y. Making carbon articles	749,418	Jan. 12	1777	376	108	421
Acker, Finley, Philadelphia, Pa. Coffee-urn	748,910	Jan. 5	678	149	108	152
Ackley, Rollin D., assignor to American Steam Pump Company, Battlecreek, Mich. Steam-actuated valve	750,331	Jan. 26	3559	770	108	844
Acton, James J., Eldon, Iowa. Hay-rack attachment	752,745	Feb. 23	3721	830	108	1920
Adair, Arthur B. (See Bagley, Frank A., assignor.)						
Adair, Charles E., Columbus, Ohio, assignor to E. J. and W. E. Jones. Egg-tray for incubators	749,143	Jan. 12	1202	257	108	295
Adair, Charles E., assignor to E. J. and W. E. Jones, Columbus, Ohio. Brooder	749,144	Jan. 12	1203	257	108	295
Adams, Charles F., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Commutator-lead and making same	751,440	Feb. 9	1219	279	108	1335
Adams, Dennis P., Huntington, W. Va. Miner's check-holder	752,638	Feb. 23	3527	785	108	1877
Adams, Harry, Fostoria, Ohio. Coffee-pot	751,709	Feb. 9	1703	388	108	1439
Adams, Harry L., Philadelphia, Pa. Pencil-sharpener	749,011	Jan. 5	910	192	108	212
Adams, Henry A., Sandwich, Ill. Hay-rake	749,711	Jan. 19	2375	502	108	567
Adams, Henry P., Salem, Ohio. Window curtain and shade adjuster	750,382	Jan. 26	3559	771	108	844
Adams, Jacob K., Hoopeston, Ill. Combined door stop and spring	751,925	Feb. 9	1942	440 441	108	1490
Adams, James. (See Harris and Adams.)						
Adams, James M. (See Lamb and Adams.)						
Adams Laundry Machinery Company. (See Sharp, Alonzo, assignor.)						
Adams-Randall, Charles, New York, N. Y. Electric-telegraph system	752,923	Feb. 23	4093	912 913	108	2003
Adams, Samuel M., Powhattan, Kans. Cultivator	752,746	Feb. 23	3723	830 831	108	1920
Adams, Thomas P., Indianola, Nebr. Incubator	750,333	Jan. 26	3561	771	108	844
Adams Top Cutting Machine Company. (See Faltermayer, Harry, assignor.)						
Adams and Westlake Company. (See Hamm, William S., assignor.)						
Adams & Westlake Company. (See Mosher, John A., assignor.)						
Adams and Westlake Company. (See Mosher and Legge, assignors.)						
Adamson, Thomas, New York, N. Y. Distance or range finding instrument	748,567	Jan. 5	1	1	108	3
Adelsperger, Dow L., assignor to Foos Manufacturing Company, Springfield, Ohio. Separator	750,071	Jan. 19	3074	660 661	108	716
Adlam, Samuel, New York, N. Y. Cushion-tire	752,630	Feb. 23	3529	785	108	1877
Adrian Wire Fence Company. (See Withington, Sherman S., assignor.)						
Adriance, Platt & Company. (See Brown, Thomas S., assignor.)						
Advance Furnace Company of America. (See Stevens and Timmerman, assignors.)						
Adwen, Joseph H., Rochester, N. Y. Device for straining liquids	752,019	Feb. 16	2333	522	108	1595
Aeolian Company. (See Pain, Robert W., assignor.)						
Aeolian Company. (See Votey, Edwin S., assignor.)						
Agobian, George, New York, N. Y. Match-box	749,600	Jan. 12	2144	447	108	502
Ahern, John. (See Stapleton and Ahern.)						
Air Tight Closure Company. (See Page, Frank C. B., assignor.)						
Akass, Edward T. A., Chicago, Ill. Loose-leaf binder	752,747	Feb. 23	3726	831	108	1921

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Aktieselskabet Bornholm Granitvaerk. (See Weiller, Ferdinand J. H., assignor.)						
Alexander, Eli. (See Baker and Alexander.)						
Alexander, Henry L., Blackland, Miss. Yoke	751,135	Feb. 2	646	149	108	1108
Alexander, Jesse, New York, assignor of one-half to F. H. Ward, Brooklyn, N. Y. Type-writer carriage construction	748,681	Jan. 5	241	56	108	52
Alexander, Jesse, New York, assignor of one-half to F. H. Ward, Brooklyn, N. Y. Type-writer alinement and adjustment	750,788	Feb. 2	1	1	108	1057
Alexander, Jesse, Brooklyn, assignor of one-half to J. W. Hennessey, Richmond county, N. Y. Type-writer carriage construction	752,611	Feb. 16	3464	773	108	1846
Alexander, Jesse, Brooklyn, assignor of one-half to E. Nilson, New York, and J. A. Lafrentz, Brooklyn, N. Y. Type-writer carriage construction	752,191	Feb. 16	2628	583	108	1661
Alexia Manufacturing Company. (See Bauer, Waldemar, assignor.)						
Algonquin Electric Brake Corporation. (See Anthon, George C., assignor.)						
Algonquin Electric Brake Corporation. (See Crafts, Perley P., assignor.)						
Allen, Benjamin F. (See Ford and Allen.)						
Allen, Charles J., Sabina, Ohio. Pump	750,560	Jan. 26	3908	864	108	933
Allen, Charles W., Merriman, Nebr. Rotary engine	749,712	Jan. 19	2376	502	108	567
Allen, Debbie B., San Francisco, Cal. Strainer attachment for washbasins	750,043	Jan. 19	3015	646	108	706
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company. Thread-cutting device for sewing-machines	749,012	Jan. 5	912	193	108	213
Allen, Edward B., Elizabeth, N. J., assignor to Singer Manufacturing Company. Button-hole-stitching machine	751,239	Feb. 2	866	198 199 200	108	1241
Allen, Elmer V., Hiawatha, Kans. Washing-machine	750,419	Jan. 26	3704	804	108	875
Allen, Fred H., Somerville, Mass. Gas-burner	749,251	Jan. 12	1421	305	108	346
Allen, Frederick H., Dunkirk, N. Y. Trolley-harp device	749,601	Jan. 12	2145	447	108	502
Allen, George H., Clinton, N. Y. Picture-frame	752,943	Feb. 23	4144	923	108	2013
Allen, Heber, Blount, Ill. Fence	751,600	Feb. 9	1511	343	108	1399
Allen, John R. (See Darrow, Wood, and Allen.)						
Allen, William V., Chico, Cal. Harvester thresher and separator	750,044	Jan. 19	3016	646	108	705
Allerding, Cletus N., Mansfield, Ohio. Tile	750,561	Jan. 26	3908	864	108	934
Allerding, Cletus N., Mansfield, Ohio. Building-block and wall	750,562	Jan. 26	3909	864	108	934
Allinson, John T., Warragul, and W. T. S. Robertson, Sale, Victoria, Australia. Puttie-legging	749,911	Jan. 19	2759	592	108	651
Allis-Chalmers Company. (See Gray, William D., assignor.)						
Allman, Eugene H., Mobile, Ala. Attachment for plows	748,682	Jan. 5	243	56	108	53
Alminana, Louise, New Orleans, La. Baby-band	751,240	Feb. 2	875	200	108	1243
Alston, Oscar W., Lanesboro, Pa. Stone-sawing machine	752,504	Feb. 16	3241	722	108	1795
Altermatt, George J., Philadelphia, Pa. Magazine cap-pistol	751,089	Feb. 2	474	111	108	1162
Althoff, Richard A. (See Wright, William H., assignor.)						
Ambrose, Harry T. (See Donning, George W., assignor.)						
Ambrose, Robert L., Tarrytown, assignor to Rand Drill Company, New York, N. Y. Pneumatic tool	748,568	Jan. 5	3	1	108	3
American Amusement Company. (See Gilman, Willard H., assignor.)						
American Automatic Switch Company. (See Smith, Wilber K., assignor.)						
American Brake Shoe & Foundry Company. (See Sargent, Fitz William, assignor.)						
American Car & Foundry Company. (See Johnston, Joseph G., assignor.)						
American Car & Foundry Company. (See King, George L., assignor.)						
American Car & Foundry Company. (See Norcross, William C., assignor.)						
American Cement Roofing Co. (See Baden and Gluss, assignors.)						
American Electric Telephone Company. (See Carliss, Albert, assignor.)						
American Electric Telephone Company. (See Clausen, Henry P., assignor.)						
American Electric Telephone Company. (See Setter, Micheal, assignor.)						
American Electric Telephone Company. (See Yaxley, Ernest E., assignor.)						
American Filter Press Extraction Company. (See Hack, Ernest B., assignor.)						
American Lubricator Company. (See Deare, Joseph H., assignor.)						
American Match Manufacturing Company. (See Dininny, Ferral C., Jr., assignor.)						
American Metal Wheel and Toy Company. (See Barschow, George H., assignor.)						
American Moistening Company. (See Comins, Frank B., assignor.)						
American Motor and Pulley Co. (See Siebert, Frederick, assignor.)						
American Music Company. (See Klessig, Bernhard R., assignor.)						
American School Furniture Company. (See Starkey, Warren L., assignor.) (Reissue.)						
American Ship Windlass Co. (See Van Doorn, Henry D., assignor.)						
American Signal & Power Company. (See Hunter, Robert L., assignor.)						
American Soda Fountain Company. (See Hopkins, Heber A., assignor.)						
American Spiral Pipe Works. (See Taylor, James H., assignor.)						
American Steam Pump Company. (See Ackley, Rollin D., assignor.)						
American Stove Company. (See Blackford, Atwell J., assignor.)						
American Street Flushing Machine Company. (See Shaw, Edward, assignor.)						
American Telephone and Telegraph Company. (See Ford, James S., assignor.)						
American Telephone and Telegraph Company. (See Larned, Sherwood J., assignor.)						
American Telephone and Telegraph Company. (See Larned and Ford, assignors.)						
American Telephone and Telegraph Company. (See Pickard, Greenleaf W., assignor.)						
American Telephone and Telegraph Company. (See Rorty, Malcolm C., assignor.)						
American Tin Plate Company. (See Cronemeyer, Ernest L., assignor.)	748,683	Jan. 5	243	56, 57	108	53
Amond, Charles E., Ilion, N. Y. Coin-controlled testing-machine	753,027	Feb. 23	4306	957	108	2002
Amrom, Jacob, assignor of one-half to D. Euer, New York, N. Y. Oscillating electric fan.						
Anderegg, David. (See Pillmore and Anderegg.)						
Andersen, Charles, and W. C. Wells, assignors of one-third to J. G. Carroll, Grand Rapids, Mich. Vehicle-wheel	748,684	Jan. 5	245	57	108	53
Andersen, George, Denver, Colo. Adjustable electrolier	749,138	Jan. 5	1186	253 254	108	274
Anderson, Andrew A., Scotthaven, Pa. Machine for forming sleeves, couplings, or the like	749,013	Jan. 5	914	193	108	212
Anderson, Axel R., Worcester, Mass. Friction-clutch	748,569	Jan. 5	5	1, 2	108	4
Anderson, David W., Richmond, Va. Combined brick and tile	750,789	Feb. 2	2	1	108	1057
Anderson, David W., Richmond, Va. Combined brick and tile	750,790	Feb. 2	4	2	108	1057
Anderson, Eleck, assignor of one-half to O. C. Mann, Chicago, Ill. Tank-car	751,040	Feb. 2	475	111 112	108	1163
Anderson, Frank E., near Marathon, Iowa. Spool-holder	751,891	Feb. 9	2067	467	108	1518
Anderson, Frank T., Chicago, Ill. Permutation-padlock	752,020	Feb. 16	2334	522	108	1595
Anderson, Harry T., Avalon, assignor to Standard Steel Car Company, Pittsburg, Pa. Brake-beam	752,277 752,944	Feb. 16 Feb. 23	2815 4145	634 923	108	1704 2013
Anderson, James C., Highland Park, Ill. Rim-spectacles						
Anderson, James C., Jersey City, N. J., assignor to Varley Duplex Magnet Company. Machine for covering flat wire	748,911	Jan. 5	680	150	108	153

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Anderson, James C., Jersey City, N. J., assignor to Varley Duplex Magnet Company. Covering wire	750,563	Jan. 26	4000	865	108	934
Anderson, John, *et al.* (See Norstrom, Nils E., assignor.)						
Anderson, John, Philadelphia, Pa. Egg-boiler	750,072	Jan. 19	3077	661	108	717
Anderson, John H., Littlefalls, Minn. Hay and stock rack	753,028	Feb. 23	4308	957	108	2052
Anderson, John S., Gloster, Miss. Rail-joint chair	751,770	Feb. 9	1825	416	108	1463
Anderson, John S., Jamestown, N. Y., assignor of one-half to J. H. Frew, Newcastle, Pa. Composite board for doors, panels, or the like	749,511	Jan. 12	1993	414	108	466
Anderson, John W., Werley, Wis. Windrow attachment	749,512	Jan. 12	1995	414 415	108	466
Anderson, Jonas, St. Paul, Minn. Combined saw set and jointer	750,073	Jan. 19	3078	661	108	717
Anderson, Jonas, St. Paul, Minn. Saw-gummer	750,074	Jan. 19	3079	662	108	717
Anderson, Joseph, Seattle, Wash. Sash-fastener	750,420	Jan. 26	3706	804	108	876
Anderson, Neal L., Montgomery, Ala. Type-writer	748,831	Jan. 5	521	118 119	108	118
Anderson, Peter A., Grandin, N. D. Rotary engine	748,832	Jan. 5	524	119 120	108	119
Anderson, Samuel C., Xenia, Ohio. Corn-harvester	749,831	Jan. 19	2014	558 559	108	619
Anderson, Samuel C., Xenia, Ohio. Corn-harvester	751,367	Feb. 2	1102	249	108	1292
Anderson, William G., San Francisco, Cal. Concentrator	750,075	Jan. 19	3080	662	108	717
Andersson, Anders, St. Cloud, Minn. Saw-sharpening machine	748,685	Jan. 5	247	57	108	54
André, Henry, Cincinnati, Ohio. Book-rest	751,892	Feb. 9	2067	468	108	1518
Andresen, Christian, St. Louis, Mo. Clasp for garment-supporters	749,145	Jan. 12	1205	258	108	295
Andresen, Christian, St. Louis, Mo. Locking device for purses	752,612	Feb. 16	3466	774	108	1846
Andrews, Herbert L. (See Schustek and Andrews.)						
Andrews, James S., assignor to Separable Body Bolster Company, St. Louis, Mo. Bolster	753,112	Feb. 23	4454	990	108	2083
Andrews, Leonard, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Synchronizer	749,252	Jan. 12	1423	305	108	346
Andrews, Leonard, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Means for protection against reverse currents	751,441	Feb. 9	1220	279	108	1335
Andrews, Leonard, Manchester, England, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Reverse-current cut-out	751,442	Feb. 9	1221	279	108	1335
Andrews, William C., Wheeling, W. Va. Shock-reducing mechanism for cars	751,368	Feb. 2	1105	250	108	1292
Andricht, George. (See Willis and Andricht.)						
Andrus Charles J., Cincinnati, Ohio. Furnace	748,833	Jan. 5	526	120 121	108	120
Angerbower, George J., Forestville, assignor to Taplin Manufacturing Company, New Britain, Conn. Egg-beater	751,601	Feb. 9	1511	344	108	1399
Anglo-French Ramie Machine Company. (See Estienne, Alfred D., assignor.)						
Annen, John P., Greenbay, Wis. Machine for coating confections	750,076	Jan. 19	3081	662 663	108	718
Ansley, Edward L., Ben Wheeler, Tex. Heel-sweep for plows	751,369	Feb. 2	1106	250	108	1293
Anspach, Angelius, assignor of one-half to T. F. Bennett, Philadelphia, Pa. Adjustable bracket and support	750,045	Jan. 19	3018	646	108	706
Anthes, Albert N., Kansas City, Mo. Pipe-rest	751,443	Feb. 9	1223	279	108	1336
Anthon, George C., Medford, assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass. Electric brake	750,421	Jan. 26	3708	804 805	108	876
Anthon, George C., Medford, assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass. Electric brake	750,422	Jan. 26	3712	805 806	108	877
Anthony, Edgar W., Brookline, Mass. Hot-air furnace	751,136	Feb. 2	648	150	108	1198
Apperson, Elmer. (See Haynes and Apperson.)						
Applas, Clarence S., Celina, Ohio. Valance for vehicle-tops	750,564	Jan. 26	4002	865	108	934
Applegate, Eugene W., Chicago, Ill., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., and Dayton, Ohio. Cash-register	750,791	Feb. 2	6	2, 3 4, 5	108	1058
Applegate, Harry S., Lakewood, N. J. Film-bath	749,513	Jan. 12	1996	415	108	467
Applegate, William J. (See Howard, George T., assignor.)						
Appleton, Wallace N., Kent, assignor of one-half to G. L. Darrow, Darrowville, Ohio. Chain-maker's power-hammer	749,912	Jan. 19	2760	592	108	651
Arantz, William F., Indianapolis, Ind. Saw-setting device	750,148	Jan. 19	3210	691	108	746
Arcade Manufacturing Company. (See Morgan, Charles, assignor.)						
Arco, Georg G. (See Slaby and Arco.)						
Arend, Francis J., *et al.* (See Berrigan, John J., assignor.)						
Arens, Jacob. (See Johnstone, Lloyd G., assignor.)						
Arents, George, Jr., *et al.* (See Tyberg and Prescott, assignors.)						
Arey, Fred C., assignor of one-half to J. E. Donaldson, Chicago, Ill. Label or stamp affixer	749,891	Jan. 19	2717	581	108	642
Armbrust, Charles W., Chicago, Ill. Railway-brake head and shoe therefor	752,877	Feb. 23	3980	891	108	1977
Armitage-Herschell Company. (See Armitage, James, assignor.)	751,444	Feb. 9	1224	.....	108	1336
Armitage, James, assignor to Armitage-Herschell Company, North Tonawanda, N. Y. Track-joint	752,878	Feb. 23	3982	892	108	1977
Armstrong Cork Company. (See Thompson, Thomas S., assignor.)						
Arndt, Frederick W., Platte Center, Nebr. Land-evener	751,826	Feb. 9	1943	441 442	108	1490
Arnesen, Charlotte, Larvik, Norway. Bridle	752,278	Feb. 16	2816	624	108	1704
Arnett, Henry J., Pontotoc, Ind. Ter. Cotton-packer	752,505	Feb. 16	3242	723	108	1796
Arno, Oliver H., assignor of one-half to A. Steinert, Boston, Mass. Device for automatically playing pianos	750,517	Jan. 26	3900	846	108	916
Arnold, Collins, Albany, N. Y. Movable storage-pocket	749,653	Jan. 12	2240	472 473	108	521
Arnold, Eugene H., Wheaton, Ill. Bridge	749,771	Jan. 19	2501	532	108	595
Arnold, George T., Oshkosh, Wis. Puzzle	749,351	Jan. 12	1640	349	108	394
Arnold, Wilber E., Madisonville, Ohio. Door for screw-door safes	750,792	Feb. 2	18	5	108	1061
Arpin, Godfrey, Clark, S. D. Casket-holder	750,245	Jan. 26	3391	733	108	803
Arquembourg, Henri. (See Grouvelle and Arquembourg.)						
Art Metal Construction Company. (See Ohnstrand, Enoch, assignor.)						
Arzt, Henry, *et al.* (See Gordon, George W., assignor.)						
Ash, Fred, Ada, Ohio. Drill-joint	751,241	Feb. 2	876	200	108	1243
Ashby, Hugh R., Mustard, Pa. Hose-coupling	750,931	Feb. 2	283	67	108	1120
Ashland, Ezekiel A., St. Albans, Vt. Claw-hammer	752,879	Feb. 23	3983	892	108	1978
Ashton, Florence, Washington, Pa. Hat-pin and attachment	751,771	Feb. 9	1826	416	108	1463
Askew, Charles B., Chicago, Ill. Storage-battery plate	751,772	Feb. 9	1827	416	108	1463
Asphalt Paper Pipe Company. (See Dixon, Albert S., assignor.)						
Assorati, Antenor, New York, N. Y. Sash-fastener	749,469	Jan. 12	1910	396	108	449

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Astarita, Joseph A., New York, N. Y. Tip-cat	753,029	Feb. 23	4311	957	108	2053
Atherton, Abel T. (See Atherton, Charles T. and A. T.)						
Atherton, Charles T., Pawtucket, and A. T. Atherton, Warwick, R. I. Spinning and twisting machine	749,470	Jan. 12	1912	397	108	449
Athey, Charles M., Baltimore, Md. Display-case	751,137	Feb. 2	653	151	108	1199
Atkins, George H., assignor to Turner & Seymour Mfg. Co., Torrington, Conn. Curtain-pole tip	753,030	Feb. 23	4311	958	108	2053
Atkinson, Hobart F. (See Denio, William L., assignor.)						
Atkinson, Perry W., Troy Center, Wis. Invalid-sling	749,014	Jan. 5	917	194	108	214
Auld, John, Hamden, N. Y. Bottle	748,570	Jan. 5	7	2	108	4
Ault, Horace B., Newmarket, Tenn. Automatic signaling apparatus for incubators or hothouses	752,431	Feb. 16	3114	691	108	1768
Aultman, Thomas G., and J. C. Gaskill, Fairmont, W. Va.; said Aultman assignor to J. A. Jeffrey, Columbus, Ohio. Locomotive system	751,868	Feb. 9	2008	468	108	1519
Austern, Carl, New York, N. Y. Coat	751,242	Feb. 2	877	200 / 201	108	1243
Austin, Frederick C. (See Bentson, Hans J., assignor.)						
Austin, William L., assignor to Burnham, Williams & Company, Philadelphia, Pa. Joint for containers	750,505	Jan. 26	4003	865	108	933
Austin, William L., assignor to Burnham, Williams & Company, Philadelphia, Pa. Motor-truck	751,243	Feb. 2	878	201	108	1243
Automatic Humiditor Company. (See Boggs, Odin E., assignor.)						
Autry, George F., assignor of one-half to J. T. Gardner, Greenfield, Tenn. Spoke-cutting machine	752,640	Feb. 23	3590	785 / 786	108	1877
Averill, Frank L., Kansas City, Kans. Sulky-plow	749,146	Jan. 12	1906	258	108	296
Avery, William G., Painesville, Ohio. Elevator-bucket	751,138	Feb. 2	653	151	108	1199
Aydelott, Jacob S., Marion, Ind. Exercising-ball	749,147	Jan. 12	1907	258	108	296
Ayer, James I., Cambridgeport, assignor to Simplex Electric Heating Company, Boston, Mass. Electric soldering-iron	748,571	Jan. 5	8	2	108	4
Ayer, James I., Cambridge, assignor to Simplex Electric Heating Company, Boston, Mass. Apparatus for controlling current-supply to electrically-heated tools	748,572	Jan. 5	9	3	108	4
Ayer, James I., Cambridge, assignor to Simplex Electric Heating Company, Boston, Mass. Electrically-heated tool	748,573	Jan. 5	14	4	108	6
Ayer, James I., Cambridge, assignor to Simplex Electric Heating Company, Boston, Mass. Apparatus for producing electric arcs for heating and lighting purposes	748,574	Jan. 5	15	4	108	6
Ayers and Sons, William. (See Ayres, Louis H., assignor.)						
Ayers, William F. (See Johnson, Benjamin L., assignor.)						
Aylsworth, George M., Collingwood, Canada. Radiator	753,031	Feb. 23	4312	958	108	2053
Aylward, William, Jr., Neenah, Wis. Catch-basin	749,148	Jan. 12	1908	259	108	296
Ayres, Louis H., assignor to W. Ayers and Sons, Philadelphia, Pa. Horse-blanket	749,514	Jan. 12	1996	415	108	467
Ayres & Sons, William. (See Hooper, Frank, assignor.)						
Azary, Cornelius, Lippa, Austria-Hungary. Apparatus for making reticulated or open-work wire receptacles	752,748	Feb. 23	3728	831	108	1921
B. F. Goodrich Company. (See Raymond, Harry K., assignor.)						
Babcock, Garrison, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Selective signaling system	750,708	Feb. 2	20	5	108	1002
Bacharach, Samuel, Brooklyn, N. Y. Penholder-guide	752,432	Feb. 16	3115	692	108	1768
Bachenheimer, Hugo, *et al.* (See Stone, John V., assignor.)						
Backes, Charles, Wallingford, Conn. Detonating toy	751,041	Feb. 2	478	112	108	1163
Backus, Henry M., Weston, Ohio. Shoe-polisher	749,882	Jan. 19	2617	559	108	620
Bacon, Anson J., Hallowell, Me. Folding box	752,880	Feb. 23	3984	892	108	1978
Bacon, Arthur S., Gonzales, Tex. Fire-escape	752,279	Feb. 16	2817	625	108	1705
Bacon, Paul H., New Haven, Conn. Water-closet attachment	752,321	Feb. 16	2899	646	108	1722
Badeau, Charles C., Swissvale, Pa. Electric switch	752,192	Feb. 16	2631	584	108	1662
Baden, Henry, and W. Glüss, assignors to American Cement Roofing Co., Incorporated, Hamler, Ohio. Cement roofing-plate	753,188	Feb. 23	4586	1023	108	2114
Badger, Arthur C., Boston, Mass. Chemical fire-extinguisher	750,566	Jan. 26	4004	865	108	935
Badger, Oliver L., Wheeling, W. Va. Warm-air furnace	748,834	Jan. 5	527	121	108	120
Badische Anilin & Soda Fabrik. (See Bally, Oscar, assignor.)						
Badische Anilin & Soda Fabrik. (See Bäuml, Wilhelm, assignor.)						
Badische Anilin & Soda Fabrik. (See Julius, Paul, assignor.)						
Badische Anilin & Soda Fabrik. (See Lüttringhaus, Arthur, assignor.)						
Badlam, Edgar B., San Francisco, Cal. Hydrocarbon-burner	752,193	Feb. 16	2632	584	108	1662
Baechtold, Charles A., Westfield, N. J., assignor to Lidgerwood Manufacturing Company. Derrick-swinging mechanism	749,352	Jan. 12	1640	349	108	394
Baeumle, John, Milwaukee, Wis. Pipe-elbow machine	748,690	Jan. 5	248	58, 59	108	54
Bagley, Frank A., assignor of one-half to A. B. Adair, Chicago, Ill. Shoe-lace tip	752,433	Feb. 16	3116	692	108	1769
Bail, Vincent, Holyoke, Mass. Fastening device for doors and sashes	749,515	Jan. 12	1997	415	108	467
Bailey, Drury D. and J. O., Banner, Cal. Rock breaker and pulverizer	752,945	Feb. 23	4147	923	108	2014
Bailey, Frank T. (See Mickey, Bailey, and Noppenberger.)						
Bailey, Howard S., and W. E. Wild, assignors to Mining, Milling, and Machinery Manufacturing Company, Denver, Colo. Ore-concentrator	751,971	Feb. 9	2221	500 / 501 / 502 / 503 / 504 / 505	108	1552
Bailey, James O. (See Bailey, Drury D. and J. O.)						
Bailey, Samuel L., Brooklyn, N. Y. Fence structure	749,015	Jan. 5	919	194	108	214
Baines, Frederick E. V., Greenwich, England. Device for use in connection with the sharpening of lead-pencils, crayons, or the like	749,713	Jan. 19	2378	508	108	568
Baird, John P., Whitestone, N. Y., assignor to W. D. Johnson, L. E. Rhodes, Hartford, Conn., and W. I. Lyman, Whitestone, N. Y. Overhead vehicle-washer	750,932	Feb. 2	284	67	108	1120
Baker, Benjamin F., Burnthills, N. Y. Harness	751,773	Feb. 9	1829	416	108	1463
Baker Brothers. (See Colburn, Leslie H., assignor.)						
Baker, George L. (See Haller and Baker.)						
Baker, George S., London, England. Draw-plate oven	751,445	Feb. 9	1227	280	108	1336
Baker, Thomas, Melbourne, Victoria, Australia. Preparing photographic prints for tonning	750,014	Jan. 19	2068	.....	108	696
Baker, Thomas J., and E. Alexander, Findlay, Ohio. Flue-cleaner	751,446	Feb. 9	1228	280	108	1337
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft-replenishing mechanism for looms	749,979	Jan. 19	2388	617 / 618 / 619	108	678
Baker, William J., Scarborough, England. Apparatus for separating grease or water from steam	752,194	Feb. 16	2631	584 / 585	108	1663
Baldwin, Alfred, Goffs Falls, N. H. Loom-shuttle	749,353	Jan. 12	1643	350	108	395
Baldwin, Charles B., Brooklyn, N. Y. Box	749,892	Jan. 19	2720	581	108	643

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Baldwin Company. (See Sorenson, Andrew J., assignor.)						
Baldwin, Samuel S. (See Roever and Baldwin.)						
Ball, Frederic J. (See Sintz, Clark, assignor.)						
Ball, Frederic J., Brooklyn, N. Y. Reversing mechanism	749,516	Jan. 12	1909	416	108	468
Ball, Frederic J., New York, N. Y. Reversing mechanism	749,602	Jan. 12	2147	447	108	502
Ball, Frederic J., New York, N. Y. Band-brake	752,881	Feb. 23	3985	892	108	1978
Ball, Henry P., New York, N. Y., assignor of one-half to S. Insull, Chicago, Ill. Speed-regulator for mechanical musical instruments	749,517	Jan. 12	2002	416	108	469
Ballenberger, John, and C. Scheidemantel, Pittsburg, Pa. Hose-coupling	749,253	Jan. 12	1425	305	108	347
Balluet, Henri, assignor to J. E. Thomé, Nouzon, France. Drilling-machine	750,429	Jan. 26	3717	806 / 807	108	878
Bally, Oscar, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Anthraquinone dye and making same	749,913	Jan. 19	2763	.....	108	651
Balsley, Charles H., Newhaven, assignor of two-thirds to J. J. Driscoll, Connellsville, and R. S. McKee, Newhaven, Pa. Vending-machine	751,774	Feb. 9	1832	417	108	1464
Balsley, Philip H. A., Detroit, Mich. Flower-pot	752,370	Feb. 16	2989	666	108	1743
Balthazard, Baptiste, assignor to Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monnet et Cartier, St. Fons, France. Making acetyl-salicylic acid and esters thereof	749,980	Jan. 19	2898	.....	108	680
Baltimore Amalgamator Company of Baltimore City. (See Nelson, Peter J., assignor.)						
Baltimore Railway Specialty Company. (See Norwood, John E., assignor.)						
Baltzer, Henry P., Hamburg, N. Y. Vehicle-tongue	750,933	Feb. 2	286	67	108	1120
Baltzinger, Frederic, Montbéllard, France. Explosion-motor	752,484	Feb. 16	3117	692 / 693	108	1769
Bancroft, John S., assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Centering mechanism	749,149	Jan. 12	1909	259	108	297
Bancroft, John S., assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Type-mold	752,814	Feb. 23	3955	864	108	1949
Bandlow, Henry E., Chicago, Ill. Tin can	750,077	Jan. 19	3083	663	108	718
Bankey, Charles, San Francisco, Cal. Threshing-machine	753,032	Feb. 23	4314	958 / 959 / 960	108	2053
Bannihr, Caesar R., New York, N. Y. Heater	748,885	Jan. 5	530	121 / 122	108	120
Banta, Bert, and C. Mathews, Fenton, Mich. Rotary explosive-engine	749,654	Jan. 12	2245	473 / 474	108	521
Banzett, Henry. (See Banzett, William E., assignor.)						
Banzett, William E., New York, N. Y., assignor of one-half to H. Banzett, Axtell, Nebr. Cover for cooking utensils	751,244	Feb. 2	879	201	108	1244
Barbeau, Malcolm L., assignor to S. Howes Company, Silvercreek, N. Y. Centrifugal grain-drier	752,882	Feb. 23	3986	893	108	1978
Barber, Eugene R., Valdosta, Ga. Cotton-gin	750,567	Jan. 26	4005	866	108	935
Barber, John C., Chicago, Ill. Car-truck	752,946	Feb. 23	4149	923 / 924	108	2014
Barber, Thomas W., London, England. Motor-vehicle	749,150	Jan. 12	1214	260 / 261	108	298
Barber, Thomas W., London, England. Variable-speed gear	749,151	Jan. 12	1216	261 / 262	108	298
Barberie, John, Brooklyn, N. Y. Safety apparatus for locomotives	752,815	Feb. 23	3858	865	108	1950
Barbier, Alexandre, C. Charmetant, and J. Grassy, Lyons, France. Loom for weaving figured goods	750,015	Jan. 19	2969	635	108	696
Bard, William B., Elizabethtown, Pa. Propulsion-gearing	750,424	Jan. 26	3718	807	108	879
Bardot, Pierre, Lyons, France. Gas-lighting attachment	752,021	Feb. 16	2335	522	108	1595
Barker, James, Philadelphia, Pa. Massage implement	750,568	Jan. 26	4007	866	108	936
Barker, John F., assignor to Gilbert & Barker Manufacturing Company, Springfield, Mass. Melting-furnace	750,748	Jan. 26	4366	943	108	1016
Barler, Augustus C., Chicago, Ill. Flour-sifter	752,641	Feb. 23	3532	786	108	1878
Barnard and Leas Manufacturing Company. (See Cornwall, John B., assignor.)						
Barnes, Charles O., Fruit Valley, assignor to K. Kellogg, Oswego, and M. I. Barnes, Fruit Valley, N. Y. Vehicle	752,435	Feb. 16	3121	694	108	1769
Barnes, Erastus H. (See Thorschmidt, Ernest C., assignor.)						
Barnes, John, assignor to W. F. & John Barnes Company, Rockford, Ill. Groove-cutter	749,603	Jan. 12	2148	448	108	503
Barnes, John S., and C. A. Willmarth, assignors to Majestic Wire Fence Company, Limited, Detroit, Mich. Fence	749,714	Jan. 19	2380	503	108	568
Barnes, M. I., *et al.* (See Barnes, Charles O., assignor.)						
Barnes, Samuel E., Holyoke, Mass., assignor of one-half to J. W. Paxson Co., Philadelphia, Pa. Core-box	751,775	Feb. 9	1834	417	108	1464
Barnett, Charles M., *et al.* (See Cuntz, Gregor R. F. H., assignor.)						
Barnhart Brothers & Spindler. (See Murray, Charles R., assignor.)						
Barnhart, Clarence V., Waynesboro, Pa. Cultivator	749,833	Jan. 19	2619	559 / 560	108	620
Barre, Ferdinand. (See Bossyns, Albert J., assignor.)						
Barrett, John R., Chicago, Ill. Temporary binder	751,710	Feb. 9	1704	388	108	1439
Barrett, Josiah, Bellevue, Pa. Oil-well swivel-wrench	751,447	Feb. 9	1230	281	108	1337
Barron, J. W., *et al.* (See Reel, John, assignor.)						
Barron, T. E., *et al.* (See Reel, John, assignor.)						
Barron, Walter J., Brooklyn, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	748,912	Jan. 5	681	150	108	158
Barry, James, assignor of one-half to A. F. Johnson, Seattle, Wash. Grain-car door	750,149	Jan. 19	3212	691	108	746
Barschow, George H., assignor to American Metal Wheel and Toy Company, Toledo, Ohio. Folding go-cart	751,448	Feb. 9	1231	281	108	1337
Barten, Joseph A., and S. R. Sneeringer, Philadelphia, Pa. Electric fire-alarm	750,150	Jan. 19	3214	691	108	747
Barter, Frank, assignor to L. F. Fales, Walpole, Mass. Arbor	750,078	Jan. 19	3084	663	108	718
Bartholomew, Wilbur F., New York, N. Y. Time hand-stamp	749,655	Jan. 12	2250	474	108	523
Bartlett, William J., Jackson, Mich. Attachment for washboilers	752,506	Feb. 16	3244	723	108	1796
Barton, Williamson R., Iola, Kans. Dispensing-tank	750,791	Feb. 2	27	5	108	1063
Baschen, John, Chicago Heights, Ill. Device for swaging rail-bonds	751,245	Feb. 2	880	201	108	1244
Bascom, Almon W., Spokane, Wash. Railway-tie	752,507	Feb. 16	3245	723	108	1797
Bassford, Edward C., and B. Dawson, Sheridan, Wyo. Listing-plow	749,656	Jan. 12	2252	475	108	523
Bassinger, William H., Passaic, N. J. Invoice index and filing-case	751,042	Feb. 2	479	112	108	1164
Batcheller, Birney C., Philadelphia, Pa. Pneumatic-despatch system	749,152	Jan. 12	1222	262	108	300
Batchelor, Sanford L., Grafton, Mass. Bicycle with rowing attachment	749,153	Jan. 12	1225	263	108	300
Batdorf, Charles S., Brooklyn, N. Y. Coin-sorter	748,886	Jan. 5	531	122	108	121
Batdorf, Charles S., Brooklyn, N. Y. Coin counting, registering, and wrapping machine	751,246	Feb. 2	882	202 / 203	108	1244
Bateman, Arthur B., Washington, D. C. Fly-outlet for screens	751,043	Feb. 2	480	112	108	1164

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Bates, Eddo V. (See Waters, Douglas H., assignor.)						
Bates, Eugene J., Bakersfield, Cal. Pipe-wrench	750,795	Feb. 2	28	8	108	1003
Bates, Frank H., San Francisco, Cal. Generating gas	748,687	Jan. 5	258	50	108	57
Battey, Sumter B., New York, N. Y. Threading device	748,913	Jan. 5	684	151	108	154
Battey, Sumter B., New York, N. Y. Threading device for sewing-machines	748,914	Jan. 5	687	151, 152	108	155
Battin, Thomas W., Philadelphia, Pa. Mouthpiece for voice-pipes	753,113	Feb. 23	4455	990	108	2084
Bauer & Black. (See Hollister, Bertram K., assignor.)						
Bauer & Co. (See Busch, Albert, assignor.)						
Bauer, Henry. (See Schmidt, Fred, assignor.)						
Bauer, Waldemar, assignor to Alexia Manufacturing Company, Chicago, Ill. Music-leaf turner	751,449	Feb. 9	1284	282	108	1398
Baughn, Samuel C., Jr., assignor of one-half to H. L. Finley, Bertrand, Mo. Lock for spindle-nuts	750,425	Jan. 26	3730	808	108	879
Baumann, Albert. (See De Vine and Baumann.)						
Baumann, Robert, assignor of one-half to T. H. Wurmb, St. Louis, Mo. Disk valve	749,518	Jan. 12	2004	416	108	469
Bäuml, Wilhelm, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Making organic acid compounds	752,947	Feb. 23	4150	.....	108	2015
Bausch, Edward, and G. Hommel, assignors to Bausch & Lomb Optical Company, Rochester, N. Y. Iris-diaphragm	750,237	Jan. 19	3377	729	108	783
Bausch & Lomb Optical Company. (See Bausch and Hommel, assignors.)						
Bausch & Lomb Optical Company. (See Brueck, Theodor, assignor.)						
Baxeres de Alzugaray, José, Bromley, England. Extraction of metals from complex ores	752,320	Feb. 16	2897	.....	108	1722
Baxter, John, Buffalo, N. Y. Course and bearing correcting device. (Reissue)	12,196	Feb. 2	1216	278	108	1316
Bayless, Frank, Springfield, Ohio. Railway-switch	750,331	Jan. 26	3564	771, 772	108	845
Bayley, Walter H., Peacham, Vt. Neck-yoke attachment	751,044	Feb. 2	481	113	108	1164
Bayley, William D. (See McCauley, John E., assignor.)						
Baylor, Elwood O., Adrian, Mich. Building-block	751,711	Feb. 9	1706	388	108	1439
Beach, John K., administrator. (See Gibbons, Rodmond.)						
Beach, William G., Grandlake, Ark. Land-anchor	750,151	Jan. 19	3215	691	108	747
Beall, Allen M., South Bend, Ind., assignor to Beall Non-Pounding Frog and Crossing Company, Huron, S. D., and South Bend, Ind. Railway-crossing	751,602	Feb. 9	1512	344	108	1399
Beall Non-Pounding Frog and Crossing Company. (See Beall, Allen M., assignor.)						
Beaman & Smith Company. (See Smith, George H., assignor.)						
Bear, Lewis H., Terre Haute, Ind. Attachment for gas-stoves	752,749	Feb. 23	3729	831	108	1921
Bear, Theophilous L., Camden, N. J. Electric time-alarm	750,569	Jan. 26	4009	867	108	937
Beard, Edward J., Kansas City, Mo. Cantaliver car-track	750,152	Jan. 19	3216	692, 693	108	747
Beardslee, John P., assignor of one-half to J. M. Wright, Tama, Iowa. Vending-machine	752,322	Feb. 16	2901	647	108	1723
Beardsley, Frank W., New York, N. Y. Gas apparatus	750,016	Jan. 19	2971	636	108	606
Beardsley, Robert F. W., assignor of four-fifths to R., L., and H. D. Levy and B. E. Nussbaum, Chicago, Ill. Package-sealing machine	749,681	Jan. 12	2206	485, 486	108	533
Beardsley, Robert F. W., assignor of four-fifths to R., L., and H. D. Levy and B. E. Nussbaum, Chicago, Ill. Package-sealing machine	749,682	Jan. 12	2209	486	108	534
Beasley, John H., Petersburg, Va. Trunk	753,083	Feb. 23	4319	960	108	2054
Beaudoin, Frederick A. (See Billy and Beaudoin.)						
Beaver Dam Malleable Iron Company. (See Peirce, Ernest F., assignor.)						
Beazley, Charles H. (See Lee and Beazley.)						
Bechtol, Joseph W., and J. C. Manley, Tacoma, Wash. Shaft-hanger	750,153	Jan. 19	3218	693	108	748
Bechtold, William S., Newark, N. J. Comb	749,471	Jan. 12	1914	397	108	449
Bechtold, William S., Newark, N. J. Comb	750,288	Jan. 19	3378	729	108	783
Beck, Andrew P., Greenville, Mich. Latch	751,450	Feb. 9	1237	262	108	1339
Beck, Frederick E. (See Keville, William J., assignor.)						
Beckman Brothers. (See Beckman, Herman H., assignor.)						
Beckman, Herman H., assignor to Beckman Brothers, Des Moines, Iowa. Band-fastening	751,370	Feb. 2	1107	250	108	1208
Beckwith, Edwin, New York, N. Y. Eyeglasses	752,280	Feb. 16	2819	625	108	1705
Beckwith, Edwin F., Ionia, Mich. Graded photographic film	749,898	Jan. 19	2722	581	108	644
Beckworth, Sidney, and H. F. Wullstein, Littlerock, Iowa. Wire-stretcher	752,948	Feb. 23	4151	924	108	2015
Beddies, Alfred, Berlin, Germany. Converting raw peat into paper-pulp	751,130	Feb. 2	654	151	108	1199
Bedell, Jerome E. (See Burnside and Bedell.)						
Bedinger, George W., I. King, and S. S. Bedinger, Weatherford, Tex. Crude-oil burner	751,603	Feb. 9	1515	344	108	1400
Bedinger, Solomon S. (See Bedinger, King, and Bedinger.)						
Beecher Construction Company. (See Beecher, Lina, assignor.)						
Beecher, Lina, Batavia, N. Y., assignor to Beecher Construction Company. Pleasure-railway	750,246	Jan. 26	3392	733	108	803
Beecher, Lina, Batavia, N. Y., assignor to Beecher Construction Company. Monorail-way and truck therefor	750,247	Jan. 26	3394	734	108	804
Beecroft, Clement, Philadelphia, Pa., assignor to Tea Tray Company, Newark, N. J. Horn-support	751,140	Feb. 2	657	151	108	1200
Beeghly, David E., Dayton, Ohio. Hollow wall construction	749,254	Jan. 12	1426	309	108	347
Beemer, Miles W., New York, N. Y. Amusement and advertising device	749,657	Jan. 12	2253	475	108	523
Behn, Ernest, New York, N. Y. Knockdown chair	753,081	Feb. 23	4321	960	108	2054
Behrendt, Barnin L., New York, N. Y. Identification-card	751,247	Feb. 2	854	204	108	1247
Beisel, Charles E., assignor of one-half to R. F. Bigger, Indianapolis, Ind. Packaging-clip	749,834	Jan. 19	2620	560	108	620
Beker, Rudolph G., assignor of two-thirds to F. H. Kindl, Pittsburg, Pa. Upsetting-machine	751,141	Feb. 2	660	152	108	1201
Belcher, George E. (See Weir, William J., assignor.)						
Belden, Edward H., Dayton, Ohio, assignor to Westinghouse Electric & Manufacturing Company. Electric-arc lamp	748,915	Jan. 5	602	152	108	156
Belden, Edward H., Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company. Electric-arc lamp	749,016	Jan. 5	920	194, 195	108	214
Belden, Edward H., Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company. Electric-arc lamp	749,017	Jan. 5	923	195, 196	108	215
Belden, Edward H., Fort Wayne, Ind., assignor to Westinghouse Electric & Manufacturing Company. Electric-arc lamp	749,018	Jan. 5	928	196, 197	108	215
Belknap, Thomas M., Anamosa, Iowa. Rail-joint	751,451	Feb. 9	1238	262	108	1339
Bell, George H., Job, W. Va. Spike-pulling device	751,604	Feb. 9	1516	345	108	1400
Bell Pure Air & Cooling Co. (See Webber, William O., assignor.)						
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Street-railway switch	748,688	Jan. 5	260	60	108	57
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Electromechanical switching mechanism	749,835	Jan. 19	2621	560	108	620
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Multiple-switch-operating mechanism	752,642	Feb. 23	3533	786	108	1878

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Electric pump for switching mechanisms	752,643	Feb. 23	3535	786, 787	108	1878
Bellamy, William. (See Peters and Bellamy.)						
Bellett, James. (See Pennington and Bellett.)						
Bellows, Arthur B., Pittsburg, Pa. Metal bolster	752,508	Feb. 16	3246	723, 724	108	1797
Beltz, William H., Canton, Ohio. Brick-cut-off table	749,354	Jan. 12	1645	350	108	396
Bender, Charles C., and J. E. Fish, Bloomington, Ind. Provision-safe	752,509	Feb. 16	3248	724	108	1797
Bender, Charles J., Philadelphia, Pa. Combined placket and shirt-waist holder	752,371	Feb. 16	2990	666	108	1748
Benedict, Charles W. (See Johnson, Charles J., assignor.)						
Benjamin Eastwood Company. (See Keyworth, William C., assignor.)						
Benjamin, John M., Boston, assignor of one-half to M. E. Knight, South Framingham, Mass. Rotary motor	748,689	Jan. 5	262	60	108	58
Benjamin, Peter H. (See Harvey, John, assignor.)						
Benjamin, Walter R., St. Louis, Mo. Air-gun	749,519	Jan. 12	2006	417	108	469
Benkert, William C., Philadelphia, Pa. Boot or shoe holder	750,570	Jan. 26	4010	867	108	937
Bennett, Allison D., *et al.* (See Davis, James T., assignor.)						
Bennett, Charles F., Waterloo, Iowa. Telephone-transmitter	748,690	Jan. 5	264	61	108	58
Bennett, Ernest F., Colorado Springs, Colo. Manufacture of jewelry	752,816	Feb. 23	3802	866	108	1951
Bennett, Thomas F. (See Anspach, Angelius, assignor.)						
Bennett, Thomas G., and W. Mason, assignors to Winchester Repeating Arms Co., New Haven, Conn. Combined percussion and electric primer	753,035	Feb. 23	4323	961	108	2055
Bennett, William H., Chicago, Ill. Brooder	750,395	Jan. 26	3566	772	108	845
Bennitt, Joel, assignor of one-half to J. O. Weldon, London, Canada. Sad-iron	749,529	Jan. 12	2008	417	108	470
Benson, Loren, and R. De Forest, Fort Atkinson, Wis. Briqueting-machine	752,644	Feb. 23	3536	787	108	1879
Benson, Simon W., Denver, Colo. Metal window-screen	749,715	Jan. 19	2380	503	108	568
Bentley, Charles S. (See Hanson and Bentley.)						
Bentley, Manton T., assignor of one-half to York Silk Manufacturing Company, York, Pa. Ring-rail motion for spinning-machines	749,521	Jan. 12	2010	417	108	470
Bentley, Manton T., assignor of one-half to York Silk Manufacturing Company, York, Pa. Belt-shifter for spinning-machines	751,894	Feb. 9	2071	468	108	1519
Benton, George E., East Hampton, N. Y. Letter-box	749,154	Jan. 12	1226	263	108	301
Bentson, Hans J., assignor to F. C. Austin, Chicago, Ill. Trenching-machine	750,984	Feb. 2	237	68, 69, 70	108	1121
Bentz, Jacob F., Schenectady, N. Y. Combustion-motor	750,336	Jan. 26	3568	773	108	845
Bentz, Jacob F., Schenectady, N. Y. Fluid-motor	750,337	Jan. 26	3570	773	108	846
Berbert, George J., New York, N. Y. Air-brake-operating device	753,114	Feb. 23	4456	990, 991	108	2084
Berciioux, Eugène, Paris, France. Clarionet of Boehm	750,985	Feb. 2	295	70	108	1122
Berendes, Rudolf, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Sensitizing dyestuff	752,323	Feb. 16	2903	.....	108	1723
Berg, Elling O., Madison, Minn. Pneumatic stacker	748,575	Jan. 5	17	4	108	7
Berg, George W. von, *et al.* (See Decker, Carl W., assignor.)						
Berg, Henry. (See Gibbs, William E., assignor.)						
Berg, Ole, Ashcreek, Minn. Paper cylinder-pulley for threshing-machines	752,645	Feb. 23	3538	787	108	1879
Berg, Rudolf, assignor of one-half to F. Wenig, Pittsburg, Pa. Generating motor fluids	751,972	Feb. 9	2250	505	108	1558
Berg, Rudolf, assignor of one-half to F. Wenig, Pittsburg, Pa. Motor-fluid generator	751,973	Feb. 9	2253	505, 506	108	1558
Berger, Charles L., Richmond, Ind., assignor of one-half to R. Morrow, Minneapolis, Minn. Pneumatic seat	750,571	Jan. 26	4012	867	108	937
Bergman, Augusta A., Stockholm, Sweden. Phonograph-table	752,817	Feb. 23	3803	866	108	1951
Bergmann, Christian N. (See Schuster and Bergmann.)						
Berkey, Harvey E., Monongahela, Pa. Fastening device	752,372	Feb. 16	2991	667	108	1748
Berkley, Henry J., Baltimore, Md. Nut-lock	750,706	Feb. 2	29	6	108	1063
Berlin Machine Works. (See Ross, Harry B., assignor.)						
Bermont, Victor, Paris, France. Producing hydrated sulfid of zinc	751,712	Feb. 9	1707	.....	108	1439
Bernard, Leopold, New York, N. Y. Needle-threading attachment for sewing-machines	751,827	Feb. 9	1946	442	108	1491
Bernard, Philip, *et al.* (See Melvin and Brusseau, assignors.)						
Bernays, Augustus C., St. Louis, Mo. Surgical retainer	749,811	Jan. 19	2572	547	108	610
Bernsau & Uellenberg. (See Mühlinghaus, Ernst, assignor.)						
Bernstrom, John, *et al.* (See Berrigan, John J., assignor.)						
Berrenberg, Reinold. (See Drisko and Berrenberg.)						
Berrigan, John J., East Orange, N. J. Centrifugal machine	750,080	Jan. 19	3088	664	108	719
Berrigan, John J., Orange, N. J., assignor to F. J. Arend, New York, N. Y., and J. Bernstrom, Stockholm, Sweden. Centrifugal machine	750,079	Jan. 19	3086	663, 664	108	719
Berry, Cyrus M., and I. C. Putnam, Orlando, Fla. Tent for shading tobacco or the like	751,713	Feb. 9	1708	388	108	1440
Berryman, William J., Tyner, N. C. Wrench	752,510	Feb. 16	3249	724	108	1798
Bertels, Charles E., Wilkesbarre, Pa. Cuspidor	749,019	Jan. 5	930	197	108	216
Bessonet, George C., Channing, Tex. Non-refillable bottle	749,604	Jan. 12	2149	448	108	503
Best, William N., assignor, by mesne assignments, to W. N. Best International Calorific Company, Los Angeles, Cal. Hydrocarbon-burning apparatus	752,195	Feb. 16	2686	585	108	1663
Bethlehem Steel Company. (See Philp, Casimir von, assignor.)						
Beury, Julia A., Beury, W. Va. Radiator-support	751,828	Feb. 9	1949	442	108	1491
Bévillard, Edward P., Rome, N. Y. Detachable handle for umbrellas	750,046	Jan. 19	3019	646	108	709
Beyerlen, Angelo, Stuttgart, Germany. Keyboard for type-writing machines	750,572	Jan. 26	4013	868	108	937
Beyerlen, Angelo, Stuttgart, Germany. Type-writer	750,573	Jan. 26	4015	868	108	938
Beyerlen, Angelo P., Stuttgart, Germany. Tabulating device for type-writing machines	750,338	Jan. 26	3572	774	108	846
Bicket, Frank A., Traer, Iowa. Twine-holder and tension device for harvesters	750,574	Jan. 26	4016	868	108	938
Bickford, Dana, West Medford, Mass. Vegetable pulp or compound	752,022	Feb. 16	2336	.....	108	1595
Bidwell, Walter, Plain City, Ohio. Hog-holding implement	750,797	Feb. 2	30	6	108	1064
Bieberstein, Samuel A., assignor to Schmitz & Shroder, St. Louis, Mo. Trousers	749,605	Jan. 12	2151	448, 449	108	503
Bieger, Charles, Chicago, Ill. Coil-protector	751,776	Feb. 9	1835	417	108	1464
Bielefeldt, Max, Berlin, Germany. Priming composition	751,605	Feb. 9	1517	.....	108	1400
Bierley, Henry A., Portsmouth, Ohio. Churn	751,371	Feb. 2	1108	251	108	1208
Bigelow, George E., assignor to Morgan Spring Company, Worcester, Mass. Upholstery-spring and means for supporting same	749,155	Jan. 12	1227	263	108	301
Bigger, Richard F. (See Beisel, Charles E., assignor.)						
Biggin, John, Sheffield, England. Safety-razor	753,036	Feb. 23	4325	961	108	2055
Bijur, Joseph, New York, N. Y. Plate for storage batteries	751,046	Feb. 2	484	113	108	1165
Bilby, John E., and R. R. Keffer, Skidmore, Mo. Wagon-body	751,045	Feb. 2	482	113	108	1164
Bilgram, Hugo, Philadelphia, Pa. Gear-cutting machine	749,606	Jan. 12	2151	449, 450	108	504
Bilgram, Hugo, Philadelphia, Pa. Shaping gear-teeth	749,683	Jan. 12	2303	487	108	534
Billsoly, Charles F., Portsmouth, Va. Collar for lamps	751,248	Feb. 2	895	204	108	1247

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Billig, Ernest T., New York, N. Y. Telephone	751,529	Feb. 9	1949	442 443	108	1491
Billings, Charles G., Eau Galle, Wis. Corn-husker	750,496	Jan. 26	3721	808	108	879
Billings, Frederic C. (See Johnson, Daniel E., assignor.)						
Billy, Joseph, and F. A. Beaudoin, Manchester, N. H. Trunk-guard	749,522	Jan. 12	2012	418	108	471
Bingay, Robert V., *et al.* (See McCurdy, Charles B., assignor.)						
Bingham, James A., Lahoma, Okla. Ter. Attachment for double-disk grain-drills	750,339	Jan. 26	3572	774	108	846
Binns, James R., assignor of one-half to R. F. Morse, Providence, R. I. Wood-turning machine	749,804	Jan. 19	2723	582 583	108	644
Birch, James H. (See Davis and Birch.)						
Bircher, Eugene A., Rochester, N. Y. Label for round boxes	751,047	Feb. 2	486	114	108	1165
Birchfield, Nathan L., Bowden, Ala. Vehicle-brake	749,806	Jan. 19	2726	583	108	644
Bird, John, assignor to Camden Anchor-Rockland Machine Company, Rockland, Me. Boom-swinging machine	748,601	Jan. 5	206	61	108	59
Bird, Lillian A. W., London, England. Robe for folding carts	751,452	Feb. 9	1940	283	108	1339
Bird & Son, F. W. (See Wyman, George R., assignor.)						
Birkenmayer, Frank, *et al.* (See Masters, Arthur M., assignor.)						
Birmingham, William E., Philadelphia, Pa. Eyeglass or spectacle case	750,017	Jan. 19	2975	637	108	997
Bishop, R. P., *et al.* (See Brown, William E., assignor.)						
Bishop, W. T., *et al.* (See Brown, William E., assignor.)						
Bissell Carpet Sweeper Company. (See Mason, Francis C., assignor.)						
Bissing, Fritz, Kreuzlingen, Switzerland. Hose-pipe fastener	750,340	Jan. 26	3574	774	108	846
Bittlinger, Harry F. (See Hofmann, Johann, assignor.)						
Bivert, Eugene, assignor to Fairbanks, Morse and Company, Chicago, Ill. Pivoted-bucket conveyer	748,576	Jan. 5	18	5, 6	108	7
Bivert, Eugene, assignor to Fairbanks, Morse and Company, Chicago, Ill. Tripper for bucket conveyers, &c	748,577	Jan. 5	22	6	108	8
Black, Joseph, and F. J. Smith, San Francisco, Cal. Can-body machine	752,949	Feb. 23	4152	925 926	108	2015
Blackburn, Albert B., Springfield, Ohio. Hydrocarbon-burner	751,249	Feb. 2	896	304 305	108	1248
Blackford, Atwell J., Cleveland, Ohio, assignor to American Stove Company, Jersey City, N. J. Lighting-ring	753,115	Feb. 23	4457	991	108	2064
Blackler, Archibald T., Malden, assignor to J. S. Wilson, Chelsea, Mass. Flexible conduit	751,777	Feb. 9	1896	418	108	1465
Blackman, George L. and M. P., Whitesville, N. Y. Supplemental pie-plate rim	749,523	Jan. 12	2013	418	108	471
Blackman, Mary P. (See Blackman, George L. and M. P.)						
Blackmer, James L., Medford, Mass. Changeable sign	752,324	Feb. 16	2904	647	108	1723
Blackstone, Clarence W., assignor of one-half to F. H. Knapp, Chicago, Ill. Riveting-machine	751,778	Feb. 9	1897	418	108	1465
Blagburn, Charles, San Francisco, Cal. Apparatus for preserving perishable substances	750,518	Jan. 26	3905	846	108	917
Blair, David W., Perth Amboy, N. J. Observation-wheel	753,037	Feb. 23	4327	961 962	108	2056
Blaisdell, Hiram W., Los Angeles, Cal. Apparatus for cleaning sand filter-beds	752,196	Feb. 16	2641	586 587	108	1664
Blaschke, Edward E., Jr., Clifton, Wis. Shell resizing and decapping machine	751,806	Feb. 9	2073	468 469	108	1520
Blasius, John, Bayonne, N. J. Clothes-line-securing device	750,081	Jan. 19	3000	664	108	719
Blessing, James H., Albany, N. Y. Steam-trap	751,250	Feb. 2	898	205	108	1248
Bleynie, Gustave, and T. Ducousso, Paris, France. Electric interlocking switch and signal system	749,253	Jan. 12	1428	306 307	108	347
Blickensderfer, George C., Stamford, Conn. Type-writing machine	749,914	Jan. 19	2764	502 503	108	651
Block, Louis, New York, N. Y. Book-holder	752,750	Feb. 23	3730	882	108	1922
Blodgett, Aaron D., Newton, Mass., assignor to Blodgett Clock Company, Portland, Me. Clock-case	750,787	Jan. 26	4458	960	108	1038
Blodgett Clock Company. (See Blodgett, Aaron D., assignor.)						
Blodt, John J., and T. H. Dana, assignors to C. Munson, Clinton, Iowa. Couch-truck	750,936	Feb. 2	296	71	108	1123
Blomberg, William T. (See Palm and Blomberg.)						
Blood, Charles E., Fitchburg, Mass. Arc-preventer	751,830	Feb. 9	1951	443	108	1491
Bloom, Robert L. (See Estep, James, assignor.)						
Bloomberg, William, New York, N. Y. Suspender-end	749,355	Jan. 12	1647	350	108	396
Bloss, Ernst. (See Bumiller, Julius, assignor.)						
Blum, Maurice, La Chaux-de-Fonds, Switzerland. Watch-barrel	751,806	Feb. 9	2074	469	108	1520
Blume, Richard, Magdeburg, Germany. Manufacturing varnish substitutes	750,575	Jan. 26	4017	.....	108	989
Boasso, Eugene D., Charenton, La. Rail-joint	752,511	Feb. 16	3251	725	108	1798
Bobinsky, Vladimir de. (See Ellieson and Bobinsky.) (Reissue.)						
Bode, Paul, Duisburg, Germany. Device for adjusting piston-rings from outside the cylinders	751,779	Feb. 9	1899	419	108	1465
Bodlaender, Richard, Breslau, Germany. Mortar-mixer	751,808	Feb. 9	2077	469	108	1521
Bodländer, Guido, Brunswick, Germany. Determining the quantity of carbonic acid in gases	751,807	Feb. 9	2075	469	108	1520
Boekel, Julius. (See Boekel, William and J.)						
Boekel, William and J., Philadelphia, Pa. Check-valve and coöperating parts	750,082	Jan. 19	3001	665	108	720
Boekel, William and J., Philadelphia, Pa. Pump cylinder, tank, and base-plate	750,154	Jan. 19	3219	694	108	748
Boesch, John C. (See Oven and Boesch.)						
Boggs, Odin E., assignor to Automatic Humiditor Company, Cincinnati, Ohio. Apparatus for supplying various atmospheres	750,155	Jan. 19	3221	694	108	748
Bohnert, George M., Petersburg, Ind. Eaves-protector	749,419	Jan. 12	1782	376	108	422
Bois, Clara. (See Bois, Nathaniel, assignor.)						
Bois, Nathaniel, New York, assignor to C. Bois, Brooklyn, N. Y. Stair structure	750,156	Jan. 19	3223	694	108	749
Boismaure, Alfred A., New York, N. Y., assignor to Boismaure Oscillating Jewelry Company, of New Jersey. Jewel-mounting	750,798	Feb. 2	31	6	108	1064
Boismaure Oscillating Jewelry Company. (See Boismaure, Alfred A., assignor.)						
Boland, Frank K. (See Lutz, George A., assignor.)						
Bolen, Orville H. Denver, Colo. Building-block	749,020	Jan. 5	932	197	108	216
Bolens, Harry W., Port Washington, Wis. Chair	752,751	Feb. 23	3732	882	108	1922
Boley Wire Fence Company. (See Foss, John J., assignor.)						
Bollée, Amédée, Père, Le Mans, France. Belt driving-gear	750,576	Jan. 26	4019	869	108	989
Bollinger, George E. (See Bollinger, John C. and G. E.)						
Bollinger, John C. and G. E., Olympia, Wash. Knife	751,251	Feb. 2	901	205	108	1248
Bollinger, William A., Allegheny, Pa. Valve mechanism	749,156	Jan. 12	1220	263	108	301
Bolly, William F., *et al.* (See Rohde and Hastings, assignors.)						
Bolte, Frank H., assignor of three-fourths to F. L. Kryder, A. G. and M. Seiberling, Peoria, Ill. Vehicle-body	749,668	Jan. 12	2256	475	108	594
Bomberger, James B., assignor of two-thirds to T. Brown and A. Cohn, Mount Gilead, Ohio. Garden implement	749,157	Jan. 12	1231	264	108	302

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Bonini, Charles. (See Peacock, George J., assignor.)						
Bonnechose, Gaston C. E. de, Bourges, France. Piston-joint	748,916	Jan. 5	695	152	108	157
Bonus, George Y., Chicago, Ill. Mausoleum or burial-vault	750,157	Jan. 19	3224	695	108	749
Boop, John, Cleveland, Ohio. Piston	751,252	Feb. 2	902	206	108	1249
Boorum and Pease Company. (See Gresham, George H., assignor.)						
Booth, James, assignor of one-half to P. H. Corr, Taunton, Mass. Indicator for mailing or similar boxes	750,519	Jan. 26	3907	847	108	917
Booth, William C., Elmhurst, Cal. Burial-casket	748,692	Jan. 5	268	61, 62	108	59
Boring, John B. (See Field, Samuel F., assignor.)						
Bornemann, Joseph, New York, N. Y. Furniture-caster	750,799	Feb. 2	33	7	108	1064
Boschert, Rufus E., Syracuse, N. Y. Wood-pulp press	753,038	Feb. 23	4329	962 963	108	2056
Bossert, Charles P., Milwaukee, Wis. Leach-clearing mechanism	750,427	Jan. 26	3723	808 809	108	879
Bossyns, Albert J., Mount Washington, assignor to F. Barre, Baltimore, Md. Reinforcement for concrete beams	751,427	Feb. 2	1196	272	108	1311
Bostedo Pneumatic Tube Company. (See Foyer, Melvin J., assignor.)						
Bostock, Thomas. (See Bosworth and Bostock.)						
Bostwick, Grant W. and R. W., Pittsburg, Pa. Self-leveling furniture	750,577	Jan. 26	4021	869 870	108	989
Bostwick, Grant W. and R. W., Pittsburg, Pa. Self-leveling furniture	750,578	Jan. 26	4023	870	108	940
Bostwick, Robert W. (See Bostwick, Grant W. and R. W.)						
Boswell, Fletcher O., and C. J. Davis, Pittsburg, Pa. Non-refillable bottle	750,937	Feb. 2	297	71	108	1123
Bosworth, Charles B., assignor to Star Brass Manufacturing Company, Boston, Mass. Steam-engine indicator	752,197	Feb. 16	2650	588	106	1666
Bosworth, Wendell P., and T. Bostock, Brockton, Mass. Heel-building machine	752,325	Feb. 16	2906	648	108	1724
Bottum, George L., Chicago, Ill. Vacuum and circulatory system for heating	750,158	Jan. 19	3225	695	108	749
Boughton, Horace G., Cleveland, Ohio. Combined sand screen and mixer	752,646	Feb. 23	3539	788	108	1879
Boulet, Joseph, Beverly, Mass. Micrometer-indicator	752,752	Feb. 23	3733	882	108	1922
Boulter, Royal L., East Spokane, Wash. Gas-valve lock	752,818	Feb. 23	3864	866	108	1951
Bourdeau Food Company. (See Bourdeau, Jesse D., assignor.)						
Bourdeau, Jesse D., assignor to Bourdeau Food Company, Limited, Battlecreek, Mich. Making cereal malted food	749,420	Jan. 12	1788	.....	108	422
Bourke, Richard J., trustee. (See Collins, Patrick J., assignor.)						
Bourke, William. (See Fogel and Bourke.)						
Bousquet, Oscar. (See Parisien and Gingras, assignors.)						
Bovy, Victor, Herstal, Belgium. Corset-busk	751,142	Feb. 2	661	152	108	1201
Bowen, George A., assignor to S. A. Cook & Company, Medina, N. Y. Foot-rest for chairs	749,524	Jan. 12	2015	418	108	471
Bowen, William J., assignor to Williams-Abbott Electric Company, Cleveland, Ohio. Electrically-heated soldering-iron	750,239	Jan. 19	3379	729	108	788
Bower, Almond P., Pleasanthill, Ill. Mail-bag catcher	750,341	Jan. 26	3575	774	108	847
Bowers, Alphonzo B. (See Smyth and Bowers.)						
Bowers, Andrew, Stroud, Okla. Ter. Hair-pin	750,579	Jan. 26	4026	870	108	940
Bowers, Andrew, Stroud, Okla. Ter. Suspender-button	750,580	Jan. 26	4027	871	108	940
Bowling, Joseph R. (See Ingoldsby and Bowling.)						
Bowman, Arthur M., Bellevue, assignor of one-half to C. M. Clarke, Pittsburg, Pa. Railway-tie	752,753	Feb. 23	3735	882	108	1923
Bowman, Eugene C. (See Speer and Bowman.)						
Bowman, Francis M., Colfax, Wash. Pelt-stretcher	752,950	Feb. 23	4157	927	108	2016
Box, William A., assignor of one-half to E. Y. Sayer, Denver, Colo. Power-driven rock-drill	748,693	Jan. 5	270	62	108	60
Boyce, James C., assignor to Oil Well Supply Company, Pittsburg, Pa. Casing-head and tubing-anchor	750,428	Jan. 26	3724	809	108	880
Boyd, Alfred S., Rockville, Ind. Pruning-shears	752,436	Feb. 16	3124	694	108	1769
Boyd, James H., Washington, D. C. Incubator	749,359	Jan. 12	1648	350	108	396
Boyd, John, Bothwell, Scotland. Mechanism for guiding and applying tension to spindle-driving bands	752,047	Feb. 23	3542	788 789	108	1880
Boyer, Addison J., *et al.* (See Warner, Isaac M., assignor.)						
Boykin, Christopher C., assignor of one-half to G. W. Face, Jr., Norfolk, Va. Paper-file	749,021	Jan. 5	933	197	108	217
Boylan, Thomas, Elk Mountain, Wyo. Railway-rail	751,372	Feb. 2	1109	251	108	1294
Boynton Furnace Company. (See Kniffin, George G., assignor.)						
Brabant, Julius J. (See Roberge and Brabant.)						
Brackett, Earl. (See Petrie, William A., assignor.)						
Bradbury, Asa A., Exter, N. Mex. Ter. Gate	753,116	Feb. 23	4458	991	108	2085
Braddock, Edward I., Winchester, Mass. Barrel-hoop	750,520	Jan. 26	3908	847	108	918
Braddock, Louis H. (See Hayes, John H., assignor.)						
Bradley, Artemus E. (See Warren, Eddie M., assignor.)						
Bradley, Carl D., *et al.* (See La Burt and Campbell, assignors.)						
Bradley, Harold E., Warwick, R. I. Electric signal	751,780	Feb. 9	1840	419 420	108	1466
Bradley, Henry L., New Haven, Conn. Machine for forming sheet-metal articles	750,581	Jan. 26	4027	871 872	108	941
Brady, Francis W., Englewood, N. J. Tool for cleaning drilled holes	751,253	Feb. 2	904	206	108	1249
Brady, George W., and L. R. Jones, Wheaton, Ill. Rail contact-shoe	749,716	Jan. 19	2383	504	108	560
Brady, George W., and L. R. Jones, Wheaton, Ill. Rail contact-shoe and support therefor	751,974	Feb. 9	2259	503	108	1559
Brady, John H., Baltimore, Md. Transposing-keyboard	750,083	Jan. 19	3093	665	108	720
Brady, W. H. S. (See Sampson, Fles H., assignor.)						
Braim, William H., Vancouver, Canada. Railway-switch	751,254	Feb. 2	905	206	108	1249
Brakebill, Benjamin F., Pinhook Landing, Tenn. Harrow	749,158	Jan. 12	1232	264	108	302
Brammer, Henry F., Davenport, Iowa. Mechanical movement	751,606	Feb. 9	1518	345	108	1400
Branch, Eliza D., Chardon, Ohio. Dumping-wagon	750,084	Jan. 19	3095	666	108	720
Brandt, Charles, *et al.* (See Eberstein, August, assignor.)						
Brandt, Charles E., *et al.* (See Eberstein, August, assignor.)						
Brandt, Rudolph, Athens, Ga. Kettle	750,159	Jan. 19	3228	695	108	750
Brannock, Samuel T., assignor to Brannock Stove Pipe Co., Northview, Mo. Stove-pipe	751,143	Feb. 2	662	152	108	1201
Brannock Stove Pipe Co. (See Brannock, Samuel T., assignor.)						
Brannon, Patrick P., Armenia, San Salvador, assignor of one-half to E. W. Conable, Roswell, Colo. Cattle-guard	751,373	Feb. 2	1111	251	108	1294
Brantingham, Allen C., Toledo, Ohio. Dust-collector	750,342	Jan. 26	3577	775	108	847
Brantley, Henry J., Valdosta, Ga., and J. C. Brantley, Marksville, Miss. Liquid-measure	748,694	Jan. 5	273	62, 63	108	60
Brantley, John C. (See Brantley, Henry J. and J. C.)						
Brashears, William J., Wilmington, Del., assignor, by mesne assignments, to C. J. Heppe & Son, Philadelphia, Pa. Sounding-board for pianos	750,248	Jan. 26	3896	734	108	804

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page
Brasseur, Charles L. A., New York, N. Y. Stereoscopic color image and making same	749,159	Jan. 12	1234	265	108	302
Brasseur, Ernest. (See Dick and Brasseur.)						
Bratlie, Birgit, Brooklyn, N. Y. Invalid-lifting apparatus	752,198	Feb. 16	2653	588	108	1667
Braun, Adolf. (See Eichengrün and Braun.)						
Braun, Ferdinand, Strassburg, Germany. Wireless electric transmission of signals over surfaces	750,429	Jan. 26	3726	809	108	880
Braun, Henry. (See Miller, John J., assignor.)						
Braun, Otto, Cologne, Germany. Water-meter	752,836	Feb. 16	2908	648	108	1724
Braun, William, Brooklyn, N. Y. Brush	748,917	Jan. 5	696	153	108	157
Bray, John F. (See Duke and Bray.)						
Bray, John W., Leeds, England. Incandescent gas-burner	750,018	Jan. 19	2976	637	108	697
Braymer, Clifton W. (See Braymer, Forrest V., assignor.)						
Braymer, Forrest V., assignor of one-third to C. W. Braymer, Blooming Valley, Pa. Atomizer	750,521	Jan. 26	3909	847	108	918
Breedlove, Claude W., and R. R. Grant, Berkley, Va. Electrically-operated railway-switch	749,160	Jan. 12	1235	265 266	108	303
Breese, Charles P., Norfolk, Va., and A. J. Wilson, Westfield, N. J., assignors to Hall Signal Company. Signal system for electric railways	751,048	Feb. 2	487	114	108	1166
Breheny, Daniel G., New York Mills, N. Y. Spindle-brake	752,199	Feb. 16	2654	588	108	1667
Brehm, Frederick W., assignor to Gundlach Optical Company, Rochester, N. Y. Photographic camera	749,126	Jan. 5	1153	245	108	267
Brehm, Frederick W., assignor to Gundlach Optical Company, Rochester, N. Y. Photographic camera	749,127	Jan. 5	1155	245	108	267
Breilding, Henry, Sterling, Ill. Holdback-hook	752,023	Feb. 16	2387	523	108	1595
Breitstein, Harry, Richmond, Va. Chopping device	749,357	Jan. 12	1649	351	108	397
Brennan, John S., Milwaukee, Wis. Radiator connection	750,582	Jan. 26	4084	872	108	942
Brennan, Mary H. (See Johnson, Carol E., assignor.)						
Brennan, Paul C., Long Island City, N. Y. Portable sand-drier	752,754	Feb. 23	3736	833	108	1923
Brenner, Frederick, Cincinnati, Ohio. Composite barrel-stave	750,019	Jan. 19	2977	637	108	697
Brent, Joseph D., Raymond, Miss. Nut-lock	753,117	Feb. 23	4460	992	108	2065
Brewington, Henry S., assignor of one-half to W. F. Seim, Baltimore, Md. Jar-closure	752,084	Feb. 16	2338	523	108	1596
Bridgeport Brass Company. (See Lyhne, Anker S., assignor.)						
Brielmaier, Bernhard, Milwaukee, Wis. Fire-escape	750,240	Jan. 19	3381	729	108	783
Brigel, Leo A., Jr., Cincinnati, Ohio. Bucket-pump	749,886	Jan. 19	2923	561	108	621
Briggs, Henry, Hasbrouck Heights, N. J. Heeling-machine	750,047	Jan. 19	3020	647 648	108	706
Briggs, Ulysses S., Plainfield, Wis. Screen	751,375	Feb. 2	1113	252	108	1294
Briggs, William C., Winston-Salem, N. C. Machine for stemming tobacco-leaves	750,160	Jan. 19	3229	696	108	750
Briggs, William C., Winston-Salem, N. C. Machine for stemming tobacco-leaves	750,161	Jan. 19	3234	697 698	108	751
Bright, Colonel E. (See Perrin, James H., assignor.)						
Bright, George M., Abingdon, Va. Fastening means for hoes	751,374	Feb. 2	1111	252	108	1294
Brill, John A. (See Price, William G., assignor.)						
Brindle, Philip S., assignor to F. N. and F. M. Hammond, C. P. Mosher, Jr., C. E. Woolman, and C. J. Fretzman, Columbus, Ohio. Nut-lock	752,025	Feb. 16	2339	523	108	1596
Brinton, Burtwin L., Bradford, Pa. Well pumping apparatus	751,049	Feb. 2	490	114	108	1166
Bristol, Mortimer L., West Hartford, assignor to Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn. Cartridge-feeding device	752,648	Feb. 23	3545	789 790	108	1880
Bristol, William H., Hoboken, N. J. Record-sheet for recording instruments	748,918	Jan. 5	697	153	108	158
Brixen, Hugo A., Gurnee, Ill. Harrow	748,837	Jan. 5	533	122 123	108	121
Broadhouse, John, North Finchley, England. Linotype for printing music typographically	751,607	Feb. 9	1519	345 346	108	1401
Brockway, Albert P., Tampa, Fla. Joint-coupling	750,347	Jan. 26	3581	775	108	848
Broestler, Herman E., assignor to Elmer & Amend, New York, N. Y. Hydrometer	748,838	Jan. 5	536	123	108	121
Bromley, John C., Rock Island, Ill. Boiler	751,453	Feb. 9	1241	283	108	1339
Bromley, Joseph H. (See Burgess, Arthur, assignor.)						
Bronk, Charles L., New York, N. Y. Door-jamb-setting machine	751,050	Feb. 2	491	114 115	108	1167
Bronson, Adelbert E., Cleveland, Ohio. Multiple baking-pan	750,344	Jan. 26	3582	776	108	848
Brooke, Thomas V., Sutherlin, Va. Antifriction seat-cover for riding-saddles	749,358	Jan. 12	1650	351	108	397
Brookes, Harry, Stirchley, near Birmingham, England. Protective band for pneumatic tires	750,249	Jan. 26	3397	734 735 7 8	108	804
Brooks, Byron A., Brooklyn, N. Y. Mechanism for preparing printing-surfaces	748,578	Jan. 5	24	9 10 11	108	8
Brooks, Charles H., assignor to Merrell-Soule Company, Syracuse, N. Y. Machine for closing the ends of paper boxes	751,714	Feb. 9	1709	389 390	108	1440
Brooks, Edward J., East Orange, N. J. Seal	750,020	Jan. 19	2979	637	108	698
Brooks, Hezekiah K., Bellows Falls, Vt., assignor to Casein Company of America. Casein compound and producing same	750,048	Jan. 19	3026		108	707
Brosi, Frederick T., Quincy, Ill. Gearing for washing-machines	750,243	Jan. 19	3385	731	108	785
Brosnan, Michael, assignor of one-half to L. Garrow, Chicago, Ill. Apparatus for switching cars	750,102	Jan. 19	3239	698	108	752
Brothers, Sanford W., Denver, Colo. Rock-drilling machine	752,819	Feb. 23	3895	807	108	1951
Brough, Thomas J., Baltimore, Md. Weighing and packaging machine	749,659	Jan. 12	2258	475 476	108	524
Brough, William, assignor of one-half to A. L. Horner, Baltimore, Md. Automatic weighing-machine	749,022	Jan. 5	935	198	108	217
Brown, Albert L. (See Harrison and Brown.)						
Brown, Alexander T., Syracuse, N. Y. Type-writing machine	752,883	Feb. 23	3967	803	108	1978
Brown, Benjamin F., Boston, Mass. Apparatus for fastening filled bags	752,373	Feb. 16	2993	667	108	1744
Brown, Charles, Chicago, Ill. Fire-extinguishing device	752,327	Feb. 16	2909	649 650	108	1724
Brown, Charles A., Chicago, Ill. Alternating-current wattmeter	750,938	Feb. 2	300	71	108	1123
Brown, Charles A., Chicago, Ill. Measuring watts in alternating-current circuits	750,939	Feb. 2	302	71	108	1124
Brown, Charles A., Chicago, Ill. Alternating-current motor	750,940	Feb. 2	303	72	108	1125
Brown, Charles H., Perry, Iowa. Safety-torch	748,839	Jan. 5	537	123	108	122
Brown, Elbert J., Coalinga, Cal. Cable-grip clamp	749,896	Jan. 19	2728	583	108	644
Brown, Eugene, Colfax, assignor of two-thirds to F. H. and F. H. Brown, Whitman county, Wash. Mill for rolling or grinding grain, &c	752,755	Feb. 23	3739	834	108	1924
Brown, Everett E., Richmond, Ind. Nut-lock washer	749,256	Jan. 12	1439	308	108	349
Brown, Francis C., New York, N. Y. Fountain-pen	750,430	Jan. 26	3727	810	108	880
Brown, Francis C., New Brighton, N. Y. Fountain-pen	750,588	Jan. 26	4085	872	108	942

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Brown, Frank H., *et al.* (See Brown, Eugene, assignor.)						
Brown, Fred H., *et al.* (See Brown, Eugene, assignor.)						
Brown, Fred H., Los Angeles, Cal. Administering electrical vibrations	750,584	Jan. 26	4037	872	108	943
Brown, George R., Rosebud Agency, S. D. Vehicle-seat	748,695	Jan. 5	275	63	108	61
Brown, Jacob S., Los Angeles, assignor to W. H. Clark, Fullerton, Cal. Tool-dresser	750,941	Feb. 2	305	72	108	1125
Brown, James M., Elkfalls, Kans. Carpet-stretcher	749,161	Jan. 12	1238	266	108	303
Brown, John J., Toledo, Ohio. Bottle-valve	750,585	Jan. 26	4039	873	108	943
Brown, Lewis A., and D. Tredway, St. Louis, Mo. Pipe and making same	751,454	Feb. 9	1242	283	108	1340
Brown, Nat E., Robbinsdale, Minn. Draft mechanism for traction-sleds	750,586	Jan. 26	4040	873	108	944
Brown, Robert A., Chicago, Ill. Life-boat	748,919	Jan. 5	698	153	108	158
Brown, Rudolph L., Chicago, Ill. Switch-stand	750,800	Feb. 2	34	7	108	1064
Brown and Sharpe Manufacturing Company. (See Parker, John, assignor.)						
Brown, Theodore, *et al.* (See Bomberger, James B., assignor.)						
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Mowing-machine	750,942	Feb. 2	308	73	108	1126
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Harvester-cutter	750,943	Feb. 2	311	73	108	1126
Brown, Walter H., and J. E. Truckses, Boston, Mass. Apparatus for mixing and delivering air and gas	748,840	Jan. 5	531	123 124	108	122
Brown, William D., Blackwater, Miss. Vehicle-brake	752,328	Feb. 16	2912	650	108	1725
Brown, William E., assignor of one-half to F. A. Parker, W. T. and R. P. Bishop, and J. O. Koepfli, Los Angeles, Cal. Jar-closure	751,975	Feb. 9	2261	506	108	1560
Brownell, Myron G., Denver, Colo. Rubber-like gum	752,051	Feb. 23	4158	927	108	2016
Brownell, Myron G., Denver, Colo. Rubber-like gum	752,052	Feb. 23	4159	927	108	2016
Browning Brothers Company. (See Browning, Ell and W. B., assignors.)						
Browning, Ell and W. B., Iowa City, assignors to Browning Brothers Company, Westbranch, Iowa. Swinging gate	750,587	Jan. 26	4042	874	108	944
Browning, James M., Jr., Corona, Cal. Solar heater	748,696	Jan. 5	277	64	108	62
Browning, William B. (See Browning, Ell and W. B.)						
Brownley, Alexander H., Onehunga, assignor to himself, and F. Gollar, Auckland, New Zealand. Parcel-grip	749,660	Jan. 12	2262	476	108	525
Brownrigg, John J. (See Norstrom and Brownrigg.)						
Brueck, Theodor, assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Photographic shutter	749,102	Jan. 12	1240	267	108	304
Brun, Camille and G., Lyons, France, assignors, by mesne assignments, to E. C. Foerster, New York, N. Y. Shuttle	748,920	Jan. 5	700	154	108	158
Brun, Camille and G., Lyons, France, assignors to E. C. Foerster, New York, N. Y. Shuttle	748,921	Jan. 5	702	154	108	159
Brun, Camille and G., Lyons, France, assignors to E. C. Foerster, New York, N. Y. Shuttle	748,922	Jan. 5	704	154	108	160
Brun, Gustave. (See Brun, Camille and G.)						
Bruner, Martin R., Buckland, Ohio. Vehicle-tongue	749,837	Jan. 19	2924	561	108	621
Brunn, Charles H., *et al.* (See Wackerow, George L., assignor.)						
Brunson, Horace, Chicago, Ill. Railway-tie	749,163	Jan. 12	1247	268	108	306
Brush, Alanson P., Detroit, Mich. Testing device for self-propelled vehicles	750,749	Jan. 26	4368	943 944	108	1017
Brush, Alanson P., Detroit, Mich. Transmission-gear	752,953	Feb. 23	4161	928	108	2017
Brush, Frederick F., Detroit, Mich. Steam-trap	751,144	Feb. 2	663	152	108	1201
Brussean, Edward. (See Melvin and Brussean.)						
Bryan, John H. B., Buffalo, N. Y., assignor to Niles-Bement-Pond Company, Jersey City, N. J. Friction-clutch	750,944	Feb. 2	312	74	108	1126
Bryan, Winfield S., Cincinnati, Ohio. Electric battery	750,250	Jan. 26	3398	735	108	805
Bryant, Fred L., Newport News, Va. Device for removing rosette-covers	748,923	Jan. 5	706	155	108	160
Bryar, George, assignor of one-half to M. A. Harding, St. John, Canada. Joint for lead pipe	748,579	Jan. 5	41	11	108	12
Bryar, George, assignor of two-thirds to J. M. Smith and T. P. Pugsley, St. John, Canada. Manufacture of bottles	750,801	Feb. 2	35	7	108	1064
Bryon, William J., Jr., New York, N. Y. Door check and closer	750,802	Feb. 2	35	7	108	1065
Bryson, James L., assignor of one-half to D. R. Oliver, San Francisco, Cal. Drill-sharpener	752,026	Feb. 16	2340	523 524	108	1596
Buchanan, George B., Haverstraw, N. Y. Telephone attachment	752,649	Feb. 23	3548	790	108	1881
Buck, Carl F., Salt Lake City, Utah. Spreading-machine	750,241	Jan. 19	3382	730	108	784
Buck, George H., New York, N. Y. Folding furniture	749,915	Jan. 19	2775	608	108	655
Buck, Horatio M., Burlington, Wash. Kiln	750,588	Jan. 26	4046	874 875	108	945
Buck, William T. (See Denise and Buck.)						
Buckelew, William C., and J. P. Flournoy, Jr.; said Flournoy assignor to M. N. Wood, Shreveport, La. Cleaner for rifles	753,189	Feb. 23	4587	1023	108	2114
Buckeye Mfg. Co. (See Lambert, John W., assignor.)						
Buckland, Seth J., Springfield, Mass. Automatic check device for trolley-cords	752,374	Feb. 16	2996	667	108	1744
Buckley, Elijah S., New Berlin, N. Y. Belt-joint	752,512	Feb. 16	3252	725	108	1798
Buckton, Albert R., assignor to H. Stevenson and Sons, Limited, Manchester, England. Folding or collapsible box of cardboard or the like	748,125	Jan. 5	1153	244	108	266
Buechting, Hans. (See Spinrad and Buechting.)						
Buehl, Louis I., Massillon, Ohio. Ironing-board	749,525	Jan. 12	2016	418	108	472
Buente, Charles F., Pittsburg, Pa. Fireproof building construction	749,812	Jan. 19	2574	547 548	108	610
Buhoup, Harry C., Chicago, Ill. Brake-beam	751,051	Feb. 2	493	115	108	1167
Bullard, James H., Springfield, Mass. Insulator-pin	751,831	Feb. 9	1953	443 444	108	1491
Bullock, John, Wilmington, Del. Dumping-wagon	751,455	Feb. 9	1243	284	108	1340
Bullock, Stanton D. (See Rettich, Victor A., assignor.)						
Bültzingslöwen, Bruno von, assignor of one-half to T. Sauer, New York, N. Y. Machine for forming hooks on wire bale-ties	748,580	Jan. 5	42	12, 13	108	12
Bültzingslöwen, Bruno von, assignor of one-half to T. Sauer, New York, N. Y. Machine for bending cross-heads and eyes of wire bale-ties	752,513	Feb. 16	3253	725 726	108	1798
Bumiller, Julius, assignor of three-fourths to E. Bloss, St. Louis, Mo. Boring-tool	751,052	Feb. 2	495	115	108	1168
Bünnig, Max, Gardelegen, Germany. Dynamo-brush	752,820	Feb. 23	3869	808	108	1952
Burchill, Richard D., Tampa, Fla. Railway-rail fastener	750,345	Jan. 26	3583	776	108	849
Burchinal, Charles H. (See Scott, Josiah, assignor.)						
Burdett, Frederick A., New York, N. Y. Door-hanger	750,589	Jan. 26	4049	875	108	945
Burdick, Hiram M., assignor to Standard Harrow Company, Utica, N. Y. Corn-harvester	749,838	Jan. 19	2925	561	108	621
Bureau Can and Manufacturing Company of Delaware. (See Rehfuss, John G. and M. O., assignors.)						
Buresh, Francis, Mapleleaf, Iowa. Adding-machine	748,924	Jan. 5	708	155	108	160
Burford, Henry, Millcreek, Ind. Ter. Disk-sharpener	752,514	Feb. 16	3258	726 727	108	1800

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burgess, Arthur, assignor to J. H. Bromley, Philadelphia, Pa. Embroidered fabric	753,099	Feb. 23	4331	963	108	2057
Burke-Bollmeyer Manufacturing Company. (See Burke, Stephen E., assignor.)						
Burke, Erwin A., Cleveland, Ohio. Punching-machine	749,164	Jan. 12	1248	268	108	806
Burke, James J., Hartford, Conn. Feeder for steam-boilers	750,085	Jan. 19	3097	666	108	721
Burke, Stephen E., Edon, assignor to Burke-Bollmeyer Manufacturing Company, Wauseon, Ohio. Windmill-oiler	749,526	Jan. 12	2017	419	108	472
Burkett, Thomas, and L. C. Davenport, McCrory, Ark. Plow attachment	750,251	Jan. 26	3399	735	108	805
Burkhardt, Franklin P., and F. Streich, Chicago, Ill. Surfacing and jointing machine	752,650	Feb. 23	3549	790	108	1881
Burkhead, Charles W., Madisonville, Ohio. Overhead-trolley guide	752,437	Feb. 16	3125	694	108	1770
Burks, William E., Ashland, Ky. Holder for paper sacks	749,527	Jan. 12	2030	419	108	473
Burlingham, Lucious D., assignor to Warren Novelty Company, Warren, Ohio. Jar-sealing wrench	750,163	Jan. 19	3242	699	108	752
Burnett, Charles, Shreve, Ohio. Fat-cutter	748,841	Jan. 5	541	124	108	123
Burnham, Williams & Company. (See Austin, William L., assignor.)						
Burnham, Williams & Company. (See Rushton, Kenneth, assignor.)						
Burnside, Curtis, and J. E. Bedell, Chetopa, Kans. Display-rack	750,808	Feb. 2	38	8	108	1065
Burnstone, Hirsch, New York, N. Y. Display-stand	750,801	Feb. 2	39	8	108	1065
Burpee, George H., Philadelphia, Pa., assignor to Fuel Economizer Company of America, Camden, N. J. Fuel-economizing apparatus	750,500	Jan. 26	4050	876	108	945
Burridge, Lee S., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y. Tabulating device for type-writing machines	752,821	Feb. 23	3870	898	108	1932
Burroughs, Henry J., Los Angeles, Cal. Ore-separator	752,027	Feb. 16	2341	524	108	1596
Burrows, Frank E., *et al.* (See Gallagher, George S., assignor.)						
Burrows, Thomas, Hamilton, Canada. Hand-truck	751,053	Feb. 2	497	115	108	1168
Burson, William W. (See Burson, Wilson W. and W. W.)						
Burson, Wilson W., Rockford, and W. W. Burson, Chicago, Ill. Motor-vehicle	749,165	Jan. 12	1250	269	108	807
Burt, Alonzo L., Bridgeport, Conn., assignor to Burt Company, Hackensack, N. J. Game-ball-dyeing apparatus	751,145	Feb. 2	664	153	108	1201
Burt Company. (See Burt, Alonzo L., assignor.)						
Burton, Amos J., Parry Sound, Canada. Band-saw clapboard-machine	749,839	Jan. 19	2626	592	108	622
Burton, Asher S. (See Wettlin, Charles H., assignor.)						
Burton, Clinton H., St. Louis, Mo. Steam-cooker	753,118	Feb. 23	4461	992	108	2065
Burton, William H. (See Repsdorph and Burton.)						
Busbee, Miles L., Oklahoma, Okla. Ter. Miter-box	751,255	Feb. 2	907	207	108	1250
Busch, Albert, Brunswick, assignor to Bauer & Co., Berlin, Germany. Making water-soluble albuminous compounds	750,945	Feb. 2	314	.....	108	1127
Busch, Albert, Brunswick, assignor to Bauer & Cie., Berlin, S. W., Germany. Making water-soluble albuminous compounds	751,428	Feb. 2	1198	.....	108	1312
Bush, Charles, assignor of one-half to W. R. Carnahan, Schoolhouse, W. Va. Wire-stretcher	748,607	Jan. 5	279	64	108	62
Bush, George F., Pricedale, Pa. Fowl-carrier	750,252	Jan. 26	3400	735	108	805
Bushey, Sylvester A., Denton, Tex. Grain-car door	750,431	Jan. 26	3729	810	108	881
Bussinger, William J., assignor to National Specialty Manufacturing Company, Philadelphia, Pa. Clamp for securing pumps to barrels	750,501	Jan. 26	4051	876	108	946
Butler, Henry S., Des Moines, Iowa. Seed-planter	753,119	Feb. 23	4462	992 / 993	108	2065
Butler, Hugh E., and J. L. McCollum, Atlanta, Ga. Alarm-signal for railway-trains	752,922	Feb. 23	3874	899	108	1951
Butler, Joseph, Cleveland, Ohio. Bearing	751,715	Feb. 9	1717	390	108	1441
Butler, Samuel, Westbury-upon-Trym, England. Rim for vehicle-wheels	749,840	Jan. 19	2630	562 / 563	108	622
Butler, William E., Millersburg, Ky. Game-board	750,346	Jan. 26	3584	776	108	849
Butler, William H., New York, N. Y. Box-making machine	749,359	Jan. 12	1632	351 / 352 / 353	108	397
Butterworth, Joseph J., Chicago, Ill. Gage	753,120	Feb. 23	4465	993	108	2066
Butts, Ida M., *et al.* (See Harmany, Frederic, assignor.)						
Butts, Lucien A., Russell, Iowa. Fence-wire stretcher	751,008	Feb. 9	1521	346	108	1401
Buys, Thomas A., Brooklyn, N. Y. Brace or support for tennis-poles	751,146	Feb. 2	667	153	108	1202
Byram, Theodore P., Detroit, Mich. Rudder	750,502	Jan. 26	4052	876 / 877	108	946
Byrnes, Clarence P., Sewickley, Pa. Drawing articles from molten baths	750,253	Jan. 26	3401	736	108	805
Byrnes, Clarence P., Sewickley, Pa. Spring cushioning device	752,515	Feb. 16	3261	727	108	1800
C. B. Cottrell & Sons Company. (See Cottrell, Edgar H., assignor.)						
Cable, Frank T., New Suffolk, and L. Y. Spear, Greenport, assignors to Electric Boat Company, New York, N. Y. Tank for liquid fuel	751,009	Feb. 9	1521	347	108	1401
Cadden, Charles C. (See Sands and Cadden.)						
Cadle, Wilbert W., assignor of one-half to J. W. Reeser, Curwensville, Pa. Jar-closure	751,716	Feb. 9	1718	390	108	1441
Cadotte, Joseph, Suncook, N. H. Case-hardening compound	748,842	Jan. 5	543	.....	108	123
Cady, Carson J. (See Toscan and Cady.)						
Cady, Henry G., Pine Bluff, Ark. Blow-testing apparatus	750,503	Jan. 26	4053	877	108	946
Cahn, Arthur and J., and A. R. Mosler, New York, N. Y.; said Mosler assignor to said Arthur and J. Cahn. Sign-display device	751,832	Feb. 9	1935	441	108	1492
Cahn, Jacob. (See Cahn and Mosler.)						
Cain, John J. (See Struble, Robert D., assignor.)						
Cain, William M., Carlton, Minn. Position-governing means for load-retaining stakes	748,698	Jan. 5	280	64	108	62
Cain, William M., Carlton, Minn. Position-governing means for load-retaining stakes	748,699	Jan. 5	283	64	108	63
Cairns, Thomas, Auckland, New Zealand. Apparatus for preventing engine-drivers running past home or distant signals	752,028	Feb. 16	2344	524	108	1597
Calberla, Georg M., Dresden, Germany. Cigarette-machine	750,254	Jan. 26	3403	736 / 737	108	805
Calberla, Georg M., Dresden, Germany. Apparatus for coating cigarette-paper with leaf metal	750,255	Jan. 26	3405	737	108	806
Caldwell, Eugene W., New York, N. Y. Portable X-ray apparatus	749,813	Jan. 19	2576	548 / 549	108	611
Caldwell, Fred E., Brooklyn, N. Y., assignor to Westinghouse, Church, Kerr and Company, Jersey City, N. J. Casing for economizers or the like	752,281	Feb. 16	2930	625 / 626	108	1705
Caldwell, Harry C. (See Casanova and Caldwell.)						
Caldwell, John, *et al.* (See Coomber, James, assignor.)						
California Powder Works. (See Stevens, Brainard W., assignor.)						
Calkins, Albert C., assignor to Calkins Company, Los Angeles, Cal. Cupel-making machine	753,121	Feb. 23	4466	993 / 994	108	2066
Calkins Company. (See Calkins, Albert C., assignor.)						
Callaway, Quinn. (See Jones and Callaway.)						
Callender, Ward G., Plainfield, Iowa. Neck-yoke strap	749,166	Jan. 12	1252	269	108	807
Callow, John, Liverpool, England. Apparatus for dividing and compressing or molding dough or like plastic materials	749,021	Jan. 5	988	198	108	218

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Camden Anchor-Rockland Machine Company. (See Bird, John, assignor.)						
Cameron, Herbert G. (See Mackrow and Cameron.)						
Cameron, Julia E. (See Coryell, Edwin M., assignor.)						
Camfield, William H., Newark, N. J., assignor to Patent Development Company of America, New York, N. Y. Fountain-pen	751,250	Feb. 2	908	207	108	1250
Cammann, Charles F. A., New York, N. Y. Match safe and lighter	748,925	Jan. 5	711	155	108	161
Camp, Erwin M. (See Murphy and Camp.)						
Camp, Joseph E., Washington, Ill. Grain-conveyer	752,651	Feb. 23	3552	791	108	1881
Campbell, Al D., Minneapolis, Minn. Coupling for awning-frames	749,421	Jan. 12	1784	376	108	422
Campbell, David M. P. (See La Burt and Campbell.)						
Campbell, Eleanor A., Los Angeles, Cal. Safety-pin hook and eye	751,610	Feb. 9	1595	347	108	1402
Campbell, George F., and S. T. Isherwood, Bootle, near Liverpool, England. Portable electrically-driven drilling apparatus	749,841	Jan. 19	2632	563	108	622
Campbell, Henry F., Boston, Mass., assignor to National Magnetic Mineral Separating Company. Magnet	750,594	Jan. 26	4054	877	108	946
Campbell, John, Sam, Ga. Fertilizer-distributer	750,164	Jan. 19	3248	699	108	753
Campbell, John L., Winnipegosis, Canada. Cattle-guard	749,024	Jan. 5	940	199	108	218
Campbell, Joseph, Essex, Mass. Child's crib	750,805	Feb. 2	39	8	108	1065
Campbell Printing Press & Manufacturing Company. (See Wood, Henry A. W., assignor.)						
Campbell, Solon O., East Peru, Iowa, assignor of one-half to E. C. Tilley, Kansas City, Mo. Fence-post	750,256	Jan. 26	3407	737	108	807
Campbell, William H., Everett, Mass. Clamp for holding glass shelves	750,595	Jan. 26	4056	877	108	947
Canda, Ferdinand E., New York, N. Y., assignor to Chrome Steel Works, Woodbridge township, N. J. Making metal wheels	751,429	Feb. 2	1198	273	108	1312
Canda, Ferdinand E., New York, N. Y., assignor to Chrome Steel Works, Woodbridge township, N. J. Forging press and die	751,430	Feb. 2	1200	273	108	1312
Candee Brothers. (See Smyser, Louis B., assignor.)						
Canfield, Lewis T., New York, N. Y. Cup-washer for use in the construction of cars	750,806	Feb. 2	40	8	108	1066
Canfield, Milton C., Cleveland, Ohio, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Surface-cleaning device for third rails of electric railways	751,456	Feb. 9	1245	284	108	1340
Canners Machine Co. (See Farmer, Albert J., assignor.)						
Cannom, Charles, London, Canada. Steam cooker	750,596	Jan. 26	4057	878	108	947
Cannon, Thomas H., Spartanburg, S. C. Form for stacking coats	751,376	Feb. 2	1114	252	108	1295
Cantono, Eugenio, Rome, Italy. Trolley for overhead-electrical-conductor systems	749,916	Jan. 19	2777	593	108	656
Capewell, George J., Hartford, Conn. Bench-shears	749,257	Jan. 12	1441	306	108	349
Capiton, George A. (See Gugenheim, Capiton, Herrick, and Jacobs.)						
Capra, Alessandro, Philadelphia, Pa. Tremolo-action for mechanical pianos	750,946	Feb. 2	314	74	108	1127
Cardwell, James R., Chicago, Ill. Making brake-shoes	753,040	Feb. 23	4332	963 / 964	108	2057
Carey, Daniel J., assignor of three-fifths to N. Foerster, New York, N. Y. Shuttle	748,926	Jan. 5	713	155	108	161
Carlberg, Walfred F., Sisseton, S. D. Single-delivery match-safe	749,472	Jan. 12	1915	397	108	450
Carlisle, Bryant B., and J. R. Elder, assignors of one-third to L. D. Hagerty, Columbus, Ohio. Emergency car-coupling	748,927	Jan. 5	715	156	108	162
Carliss, Albert, assignor to American Electric Telephone Company, Chicago, Ill. Relay	752,618	Feb. 16	3467	774	108	1847
Carll, Charles E., Indianapolis, Ind. Ear	748,581	Jan. 5	46	13	108	13
Carlson, Charles A., Chicago, Ill. Valve for fluid-pressure motors	748,928	Jan. 5	716	156	108	162
Carmichael, Henry, Malden, Mass., assignor to Static Carbonating Company, New York, N. Y. Apparatus for capping bottles	752,884	Feb. 23	3990	894	108	1979
Carmody, John T., Jr., Lincoln, Ill. Switch-operating device	749,025	Jan. 5	942	199	108	219
Carnahan, Cyrus M., Allegheny, assignor to National Rolled Steel Car Company, Pittsburg, Pa. Metallic-car construction	750,049	Jan. 19	3027	648 / 649	108	707
Carnahan, William R. (See Bush, Charles, assignor.)						
Carncross, Jacob M., Jackson, Mich. Machine for manufacturing paper boxes	749,917	Jan. 19	2779	594	108	656
Carnes, George E., St. Louis, Mo. Elevator-brake	750,597	Jan. 26	4058	878	108	947
Carnes, Ira P., assignor to Lima Locomotive and Machine Company, Lima, Ohio. Pneumatic sander	752,954	Feb. 23	4166	928 / 929	108	2019
Carney, Jefferson D., Clinton, Mo. Foot-warmer	752,516	Feb. 16	3263	727	108	1801
Carney, John E., Montgomery, Ala. Telegraph apparatus	750,807	Feb. 2	41	9	108	1066
Carnochan, John W., assignor to Huntley Manufacturing Company, Silvercreek, N. Y. Can-filling machine	751,257	Feb. 2	910	207	108	1250
Carolin, James B., Newark, N. J., assignor to A. H. Cohn, New York, N. Y. Hose-supporter	749,918	Jan. 19	2782	594	108	657
Carpenter, Martin B. (See Jones, Newton C., assignor.)						
Carpenter, Theophilus L., Hustonville, Ky. Feed-trough	749,717	Jan. 19	2385	504	108	569
Carpet Yarn Printing Company. (See Fornander, Alfred, assignor.)						
Carr Brothers. (See Carr, James, assignor.)						
Carr, Charles, Boston, Mass. Nut-shelling machine	751,377	Feb. 2	1115	253	108	1295
Carr, James, assignor to Carr Brothers, Syracuse, N. Y. Lathe tool-holder	751,054	Feb. 2	498	116	108	1168
Carr, Joseph F., Coushatta, La. Fan-actuating mechanism	750,165	Jan. 19	3244	699	108	753
Carr, Walter C. (See Webber, William O., assignor.)						
Carr, William H., Rochelle, Ga. Hame	750,598	Jan. 26	4060	879	108	948
Carroll, Ellery, Morrow, Ohio. Shock-loader	752,140	Feb. 16	2546	567	108	1642
Carroll, John G. (See Andersen and Wells, assignors.)						
Carroll, Thomas, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	750,086	Jan. 19	3100	666 / 667	108	721
Carroll, Thomas, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	751,611	Feb. 9	1526	347 / 348	108	1402
Carroll, Timothy. (See Foote, Charles G., assignor.)						
Carson, Edward, *et al.* (See Henderson, Ewen C., assignor.)						
Carson, Horace F. (See Sommer, Jacob, assignor.)						
Carson, Nils J. (See Dickson and Carson.)						
Carson, William D., Centralia, Ill. Mechanism for exhibiting animals	748,700	Jan. 5	285	65	108	63
Carson, William D., Centralia, Ill. Stack-covering	748,701	Jan. 5	286	65	108	63
Carstens, Magnus, Davenport, Iowa. Steel screw	751,258	Feb. 2	911	207	108	1251
Carter, Alfred G. (See Carter, John and A. G.)						
Carter, John, Highlandtown, assignor of one-half to T. J. Connolly, Baltimore, Md. Slide-plate for railway-switches	752,517	Feb. 16	3265	727	108	1801
Carter, John and A. G., Malden, Mass. Muffle	752,438	Feb. 16	3127	695	108	1770
Carter, William, Foster, Ind. Ter. Releasing trace-hook	752,029	Feb. 16	2345	524	108	1597
Carter, William D. (See Dellenbargar and Carter.)						
Carter, William E., Baker City, Oreg. Wrench	749,167	Jan. 12	1253	269	108	808
Cary, Henry B., Los Angeles, Cal. Combined calipers, T-square, and scale	752,823	Feb. 23	3870	869	108	1954
Casanova, Henry J., and H. C. Caldwell, Chicago, Ill. Nut-lock	751,457	Feb. 9	1246	285	108	1340
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company. Electric controller	750,947	Feb. 2	317	75	108	1127

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Case Manufacturing Company. (See Rydquist, Adolph, assignor.)						
Case, William H., Springfield, Mass. Sprinkler	751,612	Feb. 9	1534	348, 349	108	1403
Casein Company of America. (See Brooks, Hezekiah K., assignor.)						
Casein Company of America. (See Dunham, Andrew A., assignor.)						
Casein Company of America. (See Dunham, Henry V., assignor.)						
Casler, Herman, and J. A. Pross, Canastota, assignors to Simplex Manufacturing Company, New York, N. Y. Coin-controlled device for embossing strips of metal, &c	750,432	Jan. 26	3730	810, 811	108	881
Caspary, Fritz, Berlin, Germany. Wire mattress	751,147	Feb. 2	668	153	108	1202
Casper, Louis, Chicago, Ill. Station-indicator and advertising device	751,458	Feb. 9	1247	285, 286	108	1341
Cassal, Hans J. S., assignor to Liquid (Electric) Register Syndicate, Limited, London, England. Electrical apparatus for registering the discharge of liquids by pumps	752,652	Feb. 23	3554	791	108	1882
Cassal, Hans J. S., assignor to Liquid (Electric) Register Syndicate, Limited, London, England. Apparatus for delivering measured quantities of liquid	752,653	Feb. 23	3556	792	108	1882
Cassel, Henry R., London, England. Burglar-alarm for safes	749,842	Jan. 19	2633	563	108	623
Cassel, Henry R., New York, N. Y. Extracting precious metals by electrolysis	749,843	Jan. 19	2634	564	108	623
Cassel, Henry R., New York, N. Y. Apparatus for extracting precious metals by electrolysis	749,844	Jan. 19	2636	564	108	623
Cassella Color Company. (See Hoffmann, Meinhard, assignor.)						
Castle, Arthur, assignor to Wilmot Castle Company, Rochester, N. Y. Sterilizer	749,128	Jan. 5	1157	245	108	267
Caswell, Harry, Chicago, Ill. Eyeglass-mounting	752,009	Feb. 16	2347	525	108	1508
Caughey, Edward G., Belleme, assignor to Standard Steel Car Company, Pittsburg, Pa. Carline	752,282	Feb. 16	2823	621	108	1706
Cazier, Perry H., assignor to G. H. Young and J. A. Scarvell, Nashville, Mich. Twine-holder	749,772	Jan. 19	2504	533	108	595
Center Drive Automobile Company. (See Hicks, John C., assignor.)						
Century Camera Company. (See Locke, Harvey W., assignor.)						
Cerf, Lester, New York, N. Y. Adding-machine	749,473	Jan. 12	1916	397, 398	108	450
Chadwick, Lee S., Ridley Park, Pa. Folding step for vehicles	752,031	Feb. 16	2347	525	108	1508
Chaffey, Charlie E., Pittsburg, Pa. Hose-coupling	751,270	Feb. 2	912	208	108	1251
Chainey, Emanuel, Florence, Wis. Mowing-machine	750,808	Feb. 2	42	9	108	1066
Chamberlain, William, Jennings, La. Oil-burner regulator	752,300	Feb. 16	2655	589	108	1698
Chamberlin Cartridge and Target Company. (See North, Paul, assignor.)						
Chambers, James, and S. Cook, Bury, assignors to Mather and Platt, Limited, Manchester, England. Clip for stentering or like machines	751,899	Feb. 9	1078	470	108	1321
Champion, Charles S. (See Tabak and Champion.)						
Champion, Charles S., New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	752,885	Feb. 23	3091	894	108	1980
Champion Shoe Machinery Company. (See Corcoran and Dobyne, assignors.)						
Chandler, Adoniram J., Altoona, Iowa. Fence-wire stretcher	750,750	Jan. 26	4070	944	108	1017
Chandler, Clarence A., Worcester, Mass. Machine for grinding twist-drills	750,809	Feb. 2	45	9	108	1067
Chandler, Eugene C., Sycamore, assignor of one-half to W. E. Hecht, Chicago, Ill. Trousers-creaser	752,141	Feb. 16	2547	567	108	1642
Chandler, Harry H., Waltham, Mass. Electric railway-switch	752,824	Feb. 23	3878	899	108	1964
Chaney, John C., *et al.* (See Mankedick, Charles, assignor.)						
Chapin, Murray H., Bridgeport, Conn., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Paper and making same for obtaining fast copies from writings of anilin inks	749,684	Jan. 12	2304	.....	108	534
Chaplin, Orril R., assignor of one-third to R. W. Howard, Boston, Mass. Lawn-mower	751,378	Feb. 2	1118	253, 254	108	1295
Chapman, Albert C. L., assignor of one-half to A. S. Cooley, Easthampton, Mass. Pen-wiper	749,474	Jan. 12	1900	398	108	451
Chapman, Charles E., assignor of one-half to J. Goodfellow, Fort Edward, N. Y. Steam-boiler	753,041	Feb. 23	4334	964	108	2057
Chapman, Earle E., assignor to Standard Bottle Closure Company, Los Angeles, Cal. Closure	749,422	Jan. 12	1785	377	108	423
Chapman, Earle E., assignor to Standard Bottle Closure Company, Los Angeles, Cal. Closure	749,423	Jan. 12	1787	377	108	423
Chapman, Earle E., assignor to Standard Bottle Closure Company, Los Angeles, Cal. Closure	750,257	Jan. 26	3408	738	108	807
Chapman, Earle E., assignor to Standard Bottle Closure Company, Los Angeles, Cal. Closure	752,614	Feb. 16	3471	774	108	1847
Chapman, James W. (See Savage and Chapman.)						
Chapman, John H., Cedar Rapids, Iowa. Filler for cob pipes	748,582	Jan. 5	47	.....	108	13
Chapman, Leonard, assignor of one-half to W. H. Knowles, London, England. Lubricator	750,751	Jan. 26	4070	944, 945	108	1017
Chapman, William S., deceased; C. A. Hastings, Lewiston, administrator, assignor of one-half to E. Erickson and A. H. Peterson, Kippen, Idaho. Rotary engine	750,188	Jan. 19	3278	707, 708	108	760
Charlier, Henri J. J., Philadelphia, Pa. Melting-furnace	753,122	Feb. 23	4469	994	108	2096
Charmetant, Claude. (See Barbier, Charmetant, and Grassy.)						
Chartener, Victor, Pittsburg, Pa., assignor to A. Garrison Foundry Company. Securing means for removable journal-boxes	750,810	Feb. 2	46	10	108	1067
Chase, Floyd T., Smithville, Tex. Steam-boiler	750,087	Jan. 19	3106	668	108	723
Chase, Harry A., East Orange, N. J. Electric alarm-clock	751,781	Feb. 9	1845	420	108	1468
Chase, Milton, Haverhill, Mass. Prospecting instrument	749,718	Jan. 19	2386	504, 505	108	569
Chattaway, John G. (See Moya, Hidalgo, assignor.)						
Cheape, John A., Charlottesville, Va. Calendar	749,528	Jan. 12	2021	419, 420	108	473
Chemische Fabrik auf Actien, (vorm. E. Schering.) (See Stephan and Kaiser, assignors.)						
Chemische Fabrik von Heyden, Aktien-Gesellschaft. (See Seifert, Bruno R., assignor.)						
Chenault, Courtland P., *et al.* (See Hacker, Matt A., assignor.)				(1095		
Cheney, Charles W., Brookline, Mass. Machine for applying labels, wrappers, &c. (Reissue)	12,197	Feb. 23	4053	1096, 1097)	108	2128
Cheney, George K., New York, N. Y., assignor to Universal Talking Machine Manufacturing Company. Sound-box for sound recording and reproducing machines	749,900	Jan. 12	1659	353	108	399
Chesney, Cummings C., Pittsfield, Mass. Line-insulator	751,459	Feb. 9	1250	286	108	1341
Chesney, Cummings C., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Lightning-arrester	751,460	Feb. 9	1251	286	108	1341
Chicago Railway Equipment Company. (See Harrison and Huntoon, assignors.)						
Chicago Railway Equipment Company. (See Huntoon, Charles F., assignor.) (Reissue.)	753,042	Feb. 23	4336	964	108	2058
Chigor, Amalie von, assignor to M. Küssner, New York, N. Y. Heater	750,088	Jan. 19	3108	668	108	723
Child, Alfonso B. (See Turse, William, assignor.)						
Child, Dwight S., Holden, Mo. Spark-arrester						

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Childs, Jesse, Hite, Pa. Non-explosive oil-can	750,089	Jan. 19	3109	668	108	723
Chorens, Hermann. (See Rod, Alfred J., assignor.)						
Christensen, Christen N., Meriden, Conn. Umbrella	752,032	Feb. 16	2349	525	108	1508
Christensen, Henry A., Chattanooga, Tenn. Bar-cutter	750,599	Jan. 26	4061	879	108	948
Christensen, Joseph C., Santa Rosa, Cal. Garment-fastener	749,026	Jan. 5	943	199	108	219
Christensen, Niels A., Milwaukee, Wis. Fluid-pressure jack	752,201	Feb. 16	2657	589	108	1668
Christenson, Lars, New York, N. Y. Revolving metallic window	751,379	Feb. 2	1122	254, 255	108	1296
Christiansen, Carl, Crookston, Minn. Band-cutter and feeder for threshing-machines	751,260	Feb. 2	914	208	108	1251
Christie, Athelstan H., Milwaukee, Wis. Hinge	751,461	Feb. 9	1252	286	108	1342
Christie, Athelstan H., Milwaukee, Wis. Suit-case	752,756	Feb. 23	3741	834	108	1924
Chritton, Isaiah D., Graves, Kans. Belt-guide	752,202	Feb. 16	2658	589	108	1668
Chrome Steel Works. (See Canda, Ferdinand E., assignor.)						
Church, Josiah W., Wylie, Tex. Nut-lock	749,529	Jan. 12	2023	420	108	474
Cilley, Ithiel J., *et al.* (See Stockwell, Millard E., assignor.)						
Clancy, John R., Syracuse, N. Y. Theatrical-scenery trimmer	749,981	Jan. 19	2894	619	108	680
Clapham, George S. (See Clapham, John N., assignor.)						
Clapham, John N., assignor of one-half to G. S. Clapham, Ashburst, New Zealand. Rein-holder	751,462	Feb. 9	1253	287	108	1342
Clapp, George D., Boston, Mass. Machine for feeding welts	749,719	Jan. 19	2392	505, 506	108	570
Clapp, Solomon W. (See Hays, William S., assignor.)						
Clark, Charles A., Hartford, Conn. Handle for snap-switches	749,919	Jan. 19	2784	594	108	657
Clark, Charles B., Buffalo, N. Y. Apparatus for disinfecting paper money	750,847	Jan. 26	3585	776, 777	108	849
Clark, Clement, Sandusky, Ohio. Bottle	750,258	Jan. 26	3410	738	108	807
Clark, Eli M., Sycamore, Kans. Brick-kiln furnace	750,600	Jan. 26	4063	879	108	948
Clark, Francis L., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Interchangeable draw-gear for railway-cars	749,361	Jan. 12	1660	353	108	399
Clark, George P., Windsor Locks, Conn. Journal-bearing for truck wheels and casters	751,833	Feb. 9	1956	444	108	1492
Clark, James P., Newark, N. J., assignor to R. Neumann Hardware Company. Key	752,518	Feb. 16	3266	728	108	1801
Clark, Murrell O., Verona, Miss. Wagon-unloading mechanism	752,519	Feb. 16	3267	728, 729	108	1801
Clark, Walter G. (See De Forest and Clark.)						
Clark, William H. (See Brown, Jacob S., assignor.)						
Clarke, Alfred W., New York, N. Y. Motor-operated hand-tool	751,261	Feb. 2	917	208, 209	108	1252
Clarke, Charles M. (See Bowman, Arthur M., assignor.)						
Clarke, George F., Toronto, Canada. Suspending attachment for game-bags, &c	749,661	Jan. 12	2263	477	108	525
Clarke, Joseph F., Woolwich, New South Wales, Australia. Automatic weighing-machine	749,027	Jan. 5	944	200	108	219
Clausen, Henry P., assignor to American Electric Telephone Company, Chicago, Ill. Electrical signaling system	749,982	Jan. 19	2895	619	108	680
Clay, David Z., East Hanover, Pa. Combined truck and hoist	750,166	Jan. 19	3245	700	108	753
Cleal, Charles A., Capitola, Cal. Roundabout	753,043	Feb. 23	4338	965	108	2058
Clearwater, Nelson D., Binghamton, N. Y. Receiver for mail, &c	751,834	Feb. 9	1958	444	108	1492
Cleathero, Edward T., Altrincham, England. Machine for cleaning the rollers of printing-machines	748,563	Jan. 5	47	13, 14, 15, 16	108	13
Cleff, Friedrich, Rauenthal, near Barmen, Germany. Apparatus for dyeing, &c	750,601	Jan. 26	4065	880	108	949
Clegg, George E., Irlams o' th Height, near Manchester, England. Paper-reeler bar	752,329	Feb. 16	2913	650	108	1725
Clement, Henry K., Laporte, Ind. Grain-sieve	750,167	Jan. 19	3247	700	108	753
Clement, Jesse W. (See Cruser and Clement.)						
Clement, John, assignor to F. A. Philbrick, Baraboo, Wis. Collar-clasp	749,168	Jan. 12	1254	270	108	308
Clements, Abner B., Butte, Mont. Combination banking-book	752,520	Feb. 16	3269	729	108	1802
Clements, George, and J. M. Hostler, Chicago, Ill. House-cleaning apparatus	751,380	Feb. 2	1123	255	108	1297
Cleveland Car Specialty Company. (See Maltby, George B., assignor.)						
Cleveland, Ernest E., Worcester, Mass. Toilet article	750,168	Jan. 19	3248	700	108	754
Cleveland Punch and Shear Works Company. (See Doolittle, John F., assignor.)						
Cleveland, William B., Cleveland, Ohio. Apparatus for bonding rails	750,522	Jan. 26	3910	848	108	918
Cleveland Wire Spring Company. (See Colling, Charles J., assignor.)						
Clewley, Frank, Philadelphia, Pa. Towel	752,033	Feb. 16	2350	525, 526	108	1508
Clews, Henry, Jr., New York, N. Y., and F. Y. Dalziel, Paris, France. Means for inflating life-belts	752,654	Feb. 23	3558	792	108	1888
Cliff, Edward, New York, N. Y. Door closer and check	748,929	Jan. 5	720	156, 157	108	163
Cliff, Edward, East Orange, N. J. Electric-car truck	751,835	Feb. 9	1959	445	108	1493
Cliff, Edward, East Orange, N. J. Semi-elliptic spring	752,034	Feb. 16	2351	526	108	1508
Cliff, Edward, Newark, N. J., assignor to Vose and Cliff Manufacturing Company, New York, N. Y. Car-truck bolster and bearing therefor	750,348	Jan. 26	3588	777	108	850
Clifford, Charles T. H., *et al.* (See Farmer, Julius M., assignor.)						
Clifford & Co., James J. (See Clifford, James J., assignor.)						
Clifford, Hersey A., San Francisco, Cal. Decorticating-machine	749,475	Jan. 12	1921	398, 399	108	451
Clifford, James J., assignor to J. J. Clifford & Co., Green Island, N. Y. Bottle-washing machine	748,584	Jan. 5	53	16, 17	108	14
Clifford, James J., assignor to J. J. Clifford & Co., Green Island, N. Y. Bottle-filling apparatus	748,585	Jan. 5	61	18	108	16
Clifford, Patrick, Quincy, Mass. Mold for lacing-hooks	750,602	Jan. 26	4066	880	108	949
Clifford, William, Jeannette, Pa. Mine-ventilation system and apparatus	752,955	Feb. 23	4169	929	108	2020
Clifford, William, Jeannette, Pa. Ventilating-fan structure	752,956	Feb. 23	4171	929	108	2020
Climer, Frank O., Chicago, Ill. Printing-press form	751,782	Feb. 9	1847	420	108	1468
Clingman, George F., assignor to Tobey Furniture Company, Chicago, Ill. Chair	751,463	Feb. 9	1253	287	108	1342
Cloutier, Samuel, Lewiston, Me. Fly-closer for shoe-uppers	750,603	Jan. 26	4069	881	108	949
Cloutier, Samuel, Lewiston, Me. Movable top	750,604	Jan. 26	4071	881	108	950
Clyburn, Ida C., Bishopville, S. C. Fertilizer-distributer and cotton-planter	748,843	Jan. 5	543	124	108	123
Clyde Iron Works. (See Merkel, Arthur E., assignor.)						
Clymer, Forrest, *et al.* (See Harmany, Frederic, assignor.)						
Coale, Harvey, Baltimore, Md. Bottle-closure	752,521	Feb. 16	3271	730	108	1802
Coaleo Fuel Manufacturing Company. (See Cottle, Melvin W., assignor.)						
Cobb, Andrew R., Boston, Mass. Sketching outfit	752,757	Feb. 23	3742	834, 835	108	1924
Cochran, Adam, deceased; H. S. Cochran, Kansas City, Mo., administrator. Iron-founding	749,258	Jan. 12	1442	308	108	350

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Cochran, Haggert S., administrator. (See Cochran, Adam.)						
Cochran, Harvey L., Sheridanville, Pa. Fire-door-closing device	752,825	Feb. 23	3879	870	108	1954
Cockburn, Sidney M., London, England. Device for collecting and removing steam	751,717	Feb. 9	1719	391	108	1441
Cockburn, Sidney M., London, England. Steam-generator	751,718	Feb. 9	1721	391 392	108	1442
Coddington, George D. C., Heno, Ohio. Packing-ring for fruit-jars or the like	748,586	Jan. 5	'64	19	108	16
Coffelt, William H., Anacortes, Wash. Can-weighing machine	750,259	Jan. 26	3411	738 739	108	808
Cohen, Stanley A., New York, N. Y. Nail or tack driving implement	750,606	Jan. 26	4071	881	108	959
Cohen, William B. (See Tarbett, William A., assignor.)						
Cohn, Adolf, *et al.* (See Bomberger, James B., assignor.)						
Cohn, Adolph H. (See Carolin, James B., assignor.)						
Cohn, Adolph H., New York, N. Y. Hose-supporter	752,085	Feb. 16	2353	526	108	1599
Cohn, Georg, Breslau, Germany. Picture-frame	752,283	Feb. 16	2824	626	108	1706
Cokefair and Cadmus. (See Cokefair, Eugene H., assignor.)						
Cokefair, Eugene H., assignor to Cokefair and Cadmus, Glenridge, N. J. Shingling-tool	752,615	Feb. 16	3473	775	108	1848
Colahan, Charles, Chicago, Ill. Grain-binder	748,597	Jan. 5	66	19	108	17
Colas, Jules A., assignor to Poole Brothers, Chicago, Ill. Map	752,957	Feb. 23	4172	930	108	2020
Colbert, Carl. (See Neuber and Tambour, assignors.)						
Colburn, Leslie H., Franklin, Pa., assignor of one-half to Baker Brothers, Toledo, Ohio. Slotting-machine	748,844	Jan. 5	545	125 126	108	123
Cole, Charles H., Baltimore, Md. Door stop and holder	752,875	Feb. 16	2998	668	108	1745
Cole, Christopher C., *et al.* (See Matthews, James F., assignor.)						
Cole, Edward, New York, N. Y. Ship-cleaning device	752,142	Feb. 16	2548	568	108	1642
Cole, Edward S., Chicago, Ill. Means for controlling flowing streams	750,752	Jan. 26	4373	945	108	1018
Cole, Ernest C., assignor to Cole Manufacturing Company, Chicago, Ill. Ash-door	752,522	Feb. 16	3273	730	108	1803
Cole, Gideon W., Canton, Ill. Garden-plow	749,259	Jan. 12	1444	308 309	108	350
Cole, Isaac F., Williamsfield, Ill. Automatic mail-delivery apparatus	751,464	Feb. 9	1255	287 288	108	1342
Cole, Isaac F., Williamsfield, Ill. Automatic mail-delivery apparatus	751,465	Feb. 9	1258	288	108	1343
Cole, James R., Jr., *et al.* (See Matthews, James F., assignor.)						
Cole Manufacturing Company. (See Cole, Ernest C., assignor.)						
Cole, William H., assignor of one-half to W. E. Holmes, Watertown, Mass. Oil-switch	750,811	Feb. 2	47	10, 11	108	1067
Coleman, Arnold D., Chicago, Ill. Automatic vacuum and suction feed mechanism	753,123	Feb. 23	4470	994 995 996	108	2067
Coleman, Edgar P., Chicago, Ill. Valve-stem packing	750,090	Jan. 19	3110	668 669	108	723
Coleman, George B., Memphis, Tenn. Shoe-polisher	752,143	Feb. 16	2551	568	108	1643
Coley, William I. (See Wiley and Coley.)						
Collier, John W., Riverside, Cal. Turner for sheet-music	749,028	Jan. 5	946	200	108	220
Collin, Carl, Offenbach, Germany. Apparatus for lacquering bottle-capsules or similar objects	751,788	Feb. 9	1848	420 421	108	1468
Colling, Charles J., Glenville, assignor to Cleveland Wire Spring Company, Cleveland, Ohio. Rack or cabinet-frame	751,466	Feb. 9	1262	289	108	1344
Collins, Arch D., Lawton, Va. Car-lock	750,812	Feb. 2	50	11	108	1068
Collins, Francis, *et al.* (See Steers, William, Sr., assignor.)						
Collins, James M., Byesville, assignor to J. A. Jeffrey, Columbus, Ohio. Trolley road-crossing	751,900	Feb. 9	2079	470	108	1521
Collins, James R., Larchmont, N. Y. Manufacture of bags	749,424	Jan. 12	1789	377	108	423
Collins, James R., Larchmont, N. Y. Manufacture of bags	749,425	Jan. 12	1791	377	108	423
Collins, Lathrop H. (See Nagel, Theodore, assignor.)						
Collins, Patrick J., assignor, by mesne assignments, to R. J. Bourke, trustee, Scranton, Pa. Automobile	748,932	Jan. 5	724	157	108	164
Colhs, John, Des Moines, Iowa. Boiler	752,758	Feb. 23	3743	835 836	108	1924
Colorado Iron Works Company. (See Fitts, Norman V., assignor.)						
Colorado Iron Works Company. (See Hopkins, Frank W., assignor.)						
Colthar, William U., Springfield, assignor to W. J. Johnson, Yellowsprings, Ohio. Hasplock	751,148	Feb. 2	669	154	108	1202
Colt's Patent Fire Arms Manufacturing Company. (See Bristol, Mortimer L., assignor.)						
Columbian Hardware Company. (See Valentine, Harry J., assignor.)						
Colwell, William S., Chicago, Ill. Apparatus for condensing vaporous fluid	750,813	Feb. 2	51	11, 12	108	1068
Comins, Frank B., Sharon, assignor to American Moistening Company, Boston, Mass. Atomizer	750,200	Jan. 26	3414	739	108	808
Commiskey, Charles A., Indianapolis, Ind. Domestic heater	750,606	Jan. 26	4073	882	108	950
Compagnie Duplex. (See Pagan, Louis, assignor.)						
Comptograph Company. (See Felt, Dorr E., assignor.)						
Compton, Melvin D., New York, N. Y. Prepayment apparatus	752,036	Feb. 16	2354	526 527	108	1599
Compton, Melvin D., New York, N. Y. Electric train-service	752,037	Feb. 16	2356	527	108	1599
Compton, Melvin D., New York, N. Y. Combination check, spreader, and pilot-light device	752,038	Feb. 16	2360	528	108	1600
Compton, Melvin D., New York, N. Y. Gas-lamp	752,039	Feb. 16	2361	528	108	1600
Compton, Melvin D., New York, N. Y. Shade-holder	752,040	Feb. 16	2362	528	108	1601
Compton, Melvin D., New York, N. Y. Burner for incandescent lights	752,041	Feb. 16	2363	529	108	1601
Compton, Otto L., Union, Oreg. Gate	749,530	Jan. 12	2024	430	108	474
Conable, Edgar W. (See Brannon, Patrick P., assignor.)						
Conary, Hoyt L., Waltham, Mass. Fender for elevators	748,702	Jan. 5	286	65	108	63
Condon, Henry F., Dekalb, Ill. Pipe-bending machine	749,029	Jan. 5	949	200 201	108	220
Cone, William E., Memphis, Mo. Lightning-arrester	749,426	Jan. 12	1792	378	108	424
Congdon, Peleg J., Cranston, R. I. Lacing	748,703	Jan. 5	288	65	108	64
Conklin, Joseph, Philadelphia, Pa. Time gas-lighting apparatus	751,381	Feb. 2	1194	255	108	1297
Connell, John F., assignor of one-half to W. H. Stimson, Los Angeles, Cal. Apparatus for supplying hot water and steam	748,845	Jan. 5	551	127	108	125
Conner, George F., Port Huron, Mich. Valve-gear for engines	748,931	Jan. 5	726	157 158 159	108	164
Conner, George F., Port Huron, Mich. Threshing-machine	749,531	Jan. 12	2025	421	108	474
Conner, William S., Minneapolis, Minn. Vending-machine	749,200	Jap. 12	1446	309 310	108	350
Connolly, Joseph B. (See Connolly, Thomas A. and J. B.)						
Connolly, Thomas A. and J. B., Washington, D. C. Sound-reproducing record and making same	749,030	Jan. 5	951	201	108	221

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Connolly, Thomas J. (See Carter, John, assignor.)						
Conroy, John M., Allegheny, Pa. Support for mirrors	752,958	Feb. 23	4175	980	108	2021
Considere, Armand G., Paris, France. Armed or stiffened concrete construction	752,523	Feb. 16	3275	730	108	1803
Consolidated Car-Heating Company. (See McElroy, James F., assignor.)						
Contal, Camille, Paris, France. Ratchet screw-key	751,055	Feb. 2	499	116	108	1168
Contardo, Rámon C., Sèvres, France. Electric furnace	750,753	Jan. 26	4377	945 946	108	1020
Continental Paper Bag Company. (See Pippert, Willis, assignor.)						
Continuous Metal Refining Company. (See Talbot and Gredt, assignors.)						
Converse, Francis B., Jr., Louisville, Ky., assignor to Converse Manufacturing Company, Cleveland, Ohio. Justifying mechanism	749,720	Jan. 19	2394	506 507	108	571
Converse, Francis B., Jr., assignor to Converse Manufacturing Company, Cleveland, Ohio. Type-setting machine	749,773	Jan. 19	2505	533	108	596
Converse Manufacturing Company. (See Converse, Francis B., Jr., assignor)						
Conway, Robert H. (See Redmon, Hall, and Conway.)						
Cook & Company, S. A. (See Bowen, George A., assignor.)						
Cook, Everett, Portland, assignor of one-fourth to D. Pray, Shapleigh, Me. Boiler-brace	750,607	Jan. 26	4075	882	108	950
Cook, Frank B., Chicago, Ill. Door-hanger	750,608	Jan. 26	4076	882	108	951
Cook, Frank B., Chicago, Ill. Cross-arm brace	752,655	Feb. 23	3559	792	108	1883
Cook, Frank M., Goshen, Ind. Rack for horse-collars	752,208	Feb. 16	2060	580	108	1668
Cook, Robert F., San Francisco, Cal. Lifting-jack	751,613	Feb. 9	1537	349	108	1408
Cook, Samuel. (See Chambers and Cook.)						
Cook, Willard J., Dexter, Iowa. Threshing-machine tooth	750,091	Jan. 19	3112	669	108	724
Cooke, Albert D., Philadelphia, Pa. Car-window guard or shield	753,044	Feb. 23	4338	965	108	2058
Cookingham, De Witt C., assignor of one-half to J. H. Hertner, Cleveland, Ohio. Electric-brush holder	752,876	Feb. 16	2999	668	108	1745
Cooley, Amos S. (See Chapman, Albert C. L., assignor.)						
Cooley, Mortimer E., Ann Arbor, Mich. Vibratory drier	750,262	Jan. 26	3423	740	108	811
Cooley, William H., Brockport, N. Y. Brake for vehicles	750,261	Jan. 26	3416	739	108	809
Cooley, William H., Brockport, N. Y. Camera	753,124	Feb. 23	4475	996	108	2068
Cooley, William I., Saltville, Va. Rotary engine	750,169	Jan. 19	3249	701	108	754
Coomber, James, assignor of three-fourths to J. Caldwell, H. E. Wood, and A. C. Gifford, New York, N. Y. Cushion-tire	749,845	Jan. 19	2639	564	108	624
Coombs, Charles A., Natick, Mass. Carton-machine	750,814	Feb. 2	54	12	108	1069
Coon, George C., Elizabeth, N. J. Soap-tray	750,815	Feb. 2	55	12	108	1069
Cooney, Asa C. (See Woolley, Leonidas G., assignor.)						
Cooper, Augustus S., Oakland, Cal. Pile-protector	749,920	Jan. 19	2785	595	108	657
Cooper, Augustus S., Oakland, Cal. Pile-strengthener	749,957	Jan. 19	2851	609	108	670
Cooper, Augustus S., Oakland, Cal. Obtaining gas from wells	753,045	Feb. 23	4340	965	108	2059
Cooper, Ernest H., and C. Schütz, Philadelphia, Pa. Sewing-machine	751,056	Feb. 2	501	116 117	108	1169
Cooper, Ernest H., and C. Schütz, Philadelphia, Pa. Sewing-machine	751,057	Feb. 2	504	117 118	108	1170
Cooper, Henry R., Sr., Butler, Pa. Paint-sprayer	749,774	Jan. 19	2508	533	108	597
Cooper Hewitt Electric Company. (See Hewitt, Peter C., assignor.)						
Cooper Hewitt Electric Company. (See Potter, Henry N., assignor.)						
Cooper Hewitt Electric Company. (See Recklinghausen, Max von, assignor.)						
Cooper Hewitt Electric Company. (See Rogers, Nelson W., assignor.)						
Cooper, I. D., *et al.* (See Cornish, Harry B., assignor.)						
Cooper, John Y., Nashville, Tenn. Harrow or cultivator tooth	751,262	Feb. 2	918	209	108	1252
Cooper, Maxey C., Selma, Ala. Painting-brush	753,125	Feb. 23	4477	996 997	108	2069
Cooper, William, Denver, Colo. Emergency-valve	752,204	Feb. 16	2660	590	108	1669
Cope George W. (See Moore and Cope.)						
Cope, Troy, New Waterford, Ohio. Switch	749,261	Jan. 12	1449	310	108	351
Copeland, David W., and J. R. Montague, Syracuse, N. Y. Car-brake	749,169	Jan. 12	1255	270 271	108	308
Copeland, Herschel P. (See Villard and Copeland.)						
Coppens, Peter J., Grand Rapids, Mich. Stove	752,144	Feb. 16	2552	568	108	1643
Coradino, Dominick, Jersey City, N. J. Oil-burner	752,042	Feb. 16	2365	529	108	1601
Corbin Cabinet Lock Company. (See Johnson, Charles E., assignor.)						
Corcoran, George L., and G. A. Dobyne, assignors to Champion Shoe Machinery Company, St. Louis, Mo. Presser-bar-actuating mechanism	751,263	Feb. 2	920	209	108	1252
Corcoran, George L., and G. A. Dobyne, assignors to Champion Shoe Machinery Company, St. Louis, Mo. Thread-measuring mechanism for sewing-machines	751,264	Feb. 2	922	209 210	108	1253
Corey, Fred B., Schenectady, N. Y., assignor to General Electric Company. Motorman's valve	751,467	Feb. 9	1264	289	108	1345
Corey, William W., St. Louis, Mo., assignor to Pratt & Cady Company, Hartford, Conn. Hydrant	750,021	Jan. 19	2980	638	108	698
Cornish, Harry B., assignor of two-thirds to I. D. Cooper, R. G. and W. E. Ford, Minneapolis, Minn. Carbureter	750,483	Jan. 26	3738	812	108	882
Cornwall, John B., assignor to Barnard and Leas Manufacturing Company, Moline, Ill. Feeder for grain-separators	750,092	Jan. 19	3114	669	108	724
Cornwall, John B., assignor to Barnard and Leas Manufacturing Company, Moline, Ill. Grain-separator	752,145	Feb. 16	2554	568 569	108	1644
Corr, Peter H. (See Booth, James, assignor.)						
Corrington, Murray, New York, N. Y. Automatic fluid-pressure brake apparatus	749,262	Jan. 12	1451	310 311	108	352
Corrington, Murray, New York, N. Y. Automatic fluid-pressure brake mechanism	749,263	Jan. 12	1458	311	108	352
Corts, August, Wyncote, Pa. Supporting frame or trellis	753,046	Feb. 23	4341	966	108	2059
Coryell, Edwin M., assignor to J. E. Cameron, New York, N. Y. Synchronizer for duplex engines	749,170	Jan. 12	1257	271	108	308
Coryell, Howard G., and J. E. Stephens, Marietta, Ga. Locomotive-valve	752,439	Feb. 16	3128	695	108	1770
Cotè, Victor, Turners Falls, Mass. Machine for molding pastry	750,609	Jan. 26	4078	883	108	951
Cotten, Thomas, Rulerville, Miss. Lap ring or link	751,614	Feb. 9	1538	349	108	1408
Cottle, Melvin W., assignor to Coaleo Fuel Manufacturing Company, St. Louis, Mo. Artificial-fuel block and producing same	751,468	Feb. 9	1267	.....	108	1345
Cottrell, Edgar H., Stonington, Conn., assignor to C. B. Cottrell & Sons Company, New York, N. Y., and Stonington, Conn. Machinery for cutting and folding paper or other fabrics	749,362	Jan. 12	1661	353 354 355	108	399
Couch, Albert B., Houston, Tex. Grain-huller	750,610	Jan. 26	4079	883	108	951
Coughenour, George W., Norfolk, Va. Spool-holder for sewing-machines	752,043	Feb. 16	2366	529	108	1601
Coulson, William A. (See Creed, Frederick G., assignor.)						
Courville, Joseph, assignor to Farrand & Votey Organ Company, Detroit, Mich. Self-playing attachment for musical instruments. (Reissue)	12,189	Jan. 5	1198	256	108	278
Conts, Charles O., Newcomerstown, Ohio. Grafting-knife	751,382	Feb. 2	1125	256	108	1297

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Cowan, Edward H., and B. C. Palmer, Marion, Ohio. Meter-box	753,126	Feb. 23	4478	997	108	2089
Cowart, Elias H., Pleasanton, Cal. Safety-turnbuckle	752,524	Feb. 16	3275	730	108	1803
Cowdin, William L. (See Kendall and Cowdin.)						
Cowles, Alfred H., Cleveland, Ohio. Electric-resistance furnace	750,093	Jan. 19	3115	669 670	108	724
Cowles, Alfred H., Cleveland, Ohio. Smelting materials and producing carbid	750,094	Jan. 19	3118	670	108	725
Cowles, Alfred H., Cleveland, Ohio. Electrically heating materials	750,095	Jan. 19	3120	670	108	725
Cowles, Alfred H., Cleveland, Ohio. Effecting chemical changes	750,096	Jan. 19	3123	671	108	727
Cowles, Alfred H., Cleveland, Ohio. Electric heating	750,170	Jan. 19	3251	701	108	754
Cowles, Alfred H., Cleveland, Ohio. Electric furnace	750,171	Jan. 19	3253	701 702	108	755
Cowles, Walter L., and J. N. Hatch, Chicago, Ill. Metallic piling	751,469	Feb. 9	1207	290	108	1345
Cox, Alpheus M., Haviland, Kans. Wind-wheel	750,611	Jan. 26	4081	884	108	952
Cox, Edwin A., London, England, assignor to A. B. Dick Company, Chicago, Ill. Stencil-printing machine	750,816	Feb. 2	56	12, 13	108	1009
Cox, Frank P., Lynn, Mass., assignor to General Electric Company. Demand-discount meter	750,948	Feb. 2	320	75, 76	108	1128
Cox, John H., Erie, Kans. Sad-iron holder	749,363	Jan. 12	1668	355	108	400
Coy, Erwin S., Wilbur, Wash. Store-fixture	752,525	Feb. 16	3276	731	108	1803
Cracknell, Richard J., Streatham, England. Ammonia-still	751,058	Feb. 2	508	119	108	1171
Crafts, Perley P., assignor, by mesne assignments, to Algonquin Electric Brake Corporation, Boston, Mass. Electric brake	750,434	Jan. 26	3741	812 813	108	883
Craig, Alvan J., *et al.* (See Henderson, Ewen C., assignor.)						
Craig, David, Melrose, Mass. Urinal	751,976	Feb. 9	2262	507	108	1560
Craig, James A., Stockbridge, Mich. Latch	750,485	Jan. 26	3746	813	108	884
Crampton Farley Brass Co. (See Edelen, Frederick C., assignor.)						
Crandall, Nathan W., Meriden, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Lock and latch	752,205	Feb. 16	2962	590	108	1609
Crandall, Nathan W., Meriden, assignor to Russell & Erwin Mfg. Company, New Britain, Conn. Knob-shank fitting	752,886	Feb. 23	3097	894	108	1982
Crane, Clarence A., Warren, Ohio. Well-bucket	748,704	Jan. 5	289	66	108	64
Crane, Quince, and J. Restine, San Diego, Cal. Vapor generator and burner	749,685	Jan. 12	2306	487	108	535
Cranford, William J., Spokane, Wash. Felly-joint holder	750,303	Jan. 26	3425	740	108	812
Crapp, Thomas S., and R. C. Finch, Indianapolis, assignors to F. Giessner, Shelbyville, Ind. Brick-machine	752,887	Feb. 23	3098	805 806	108	1982
Craven, Enoch B., Asbestos, Ga. Reducing and separating machine	752,044	Feb. 16	2308	529 530	108	1602
Craven, Henry T., Vineland, N. J. Differential gearing	750,172	Jan. 19	3256	702	108	755
Crawford, John A., Allegheny, Pa. Smoke-consumer	751,060	Feb. 2	509	119	108	1171
Crawford, Walter D. (See Kelley, Wilbur S., assignor.)						
Crawford, William H., Port Huron, Mich. Hatch-fastener	749,532	Jan. 12	2027	421	108	474
Crawfort, August, Detroit, Mich. Guide for sewing-machines	751,615	Feb. 9	1540	340	108	1404
Creath, Thomas L., Mount Sterling, Ohio. Corn-shocker	748,982	Jan. 5	732	159 160	108	166
Cree Dickson Manufacturing Company. (See Cree and Dickson, assignors.)						
Cree, Dugal, and H. Dickson, assignors to Cree Dickson Manufacturing Company, Minneapolis, Minn. Bookcase	749,264	Jan. 12	1461	311 312	108	353
Creed, Frederick G., Lenzie, assignor to himself, and W. A. Coulson, Glasgow, Scotland. Telegraph apparatus	749,081	Jan. 5	962	201	108	221
Creed, Frederick G., Lenzie, assignor to himself, and W. A. Coulson, Glasgow, Scotland. Perforating telegraphy	749,082	Jan. 5	965	201 202	108	222
Creed, Frederick G., Lenzie, assignor to himself, and W. A. Coulson, Glasgow, Scotland. Telegraphic receiving apparatus	749,083	Jan. 5	963	203	108	224
Creighton, Hugh J., Anderson, Ind. Magneto-electric generator	751,616	Feb. 9	1541	350	108	1404
Crenshaw, Edmund M., Baltimore, Md. Case for carrying firearms	750,817	Feb. 2	58	13	108	1070
Cresp, Jean H. E. (See Martin, Jean, assignor.)						
Crisler, Joseph L., Perth, Kans. Automatic coupling	752,759	Feb. 23	3745	886	108	1925
Crist, Mark B. (See Meriam and Crist.)						
Crittenden, Orlando, Akron, Ohio. Puzzle	752,377	Feb. 16	3001	668	108	1745
Croak, James. (See Kelly, James, assignor.)						
Crocker-Wheeler Company. (See Young, Frederick W., assignor.)						
Crockett, Fred P., and O. P. Johnson, Kalamazoo, Mich. Trolley harp or fork	750,818	Feb. 2	60	13	108	1070
Crofut, Frank V., assignor to Sterling Co., Derby, Conn. Adjusting device for cases of automatic piano-players	750,612	Jan. 26	4083	884	108	952
Crompton, Charles, Worcester, Mass. Steam-engine	749,968	Jan. 19	2832	609 610	108	671
Crompton & Knowles Loom Works. (See Hollingworth, Edward, assignor.)						
Crompton & Knowles Loom Works. (See McGuiness, Benjamin F., assignor.)						
Crompton & Knowles Loom Works. (See Wattie, William, assignor.)						
Crone, Seth A., New York, N. Y. Brake-beam	752,045	Feb. 16	2371	530	108	1602
Cronemeyer, Ernest L. McKeesport, Pa., assignor to American Tin Plate Company, Orange, N. J. Tin-plate catcher	752,016	Feb. 9	2326	520	108	1574
Cross, Edward E., Alanson, Mich. Barrel-support	750,613	Jan. 26	4084	884	108	952
Crossley, Charles C., New Britain, Conn. Clothes-drier	751,205	Feb. 2	936	210	108	1254
Crothers, Perl E. (See Terry and Crothers.)						
Crow, Samuel C., South Sharon, Pa. Nut-lock	748,588	Jan. 5	68	19	108	17
Crowell, Henry M., Maplewood, N. J. Polishing-lathe	749,205	Jan. 12	1403	312 313	108	353
Crowley, James. (See Dickason, Jonathan, assignor.)						
Crozier, Alfred O. (See Jaques, William E., assignor.)						
Crumley, James, Grand Rapids, Mich. Warning-signal for railway-crossings	750,204	Jan. 26	3426	740	108	812
Cruser, Nephi, and J. W. Clement, Fairview, Utah. Incubator	751,381	Feb. 2	1120	256	108	1206
Cruttenden, Henry L., Northfield, Minn. Dental-cement-injecting tube	749,816	Jan. 19	2641	564	108	624
Csik, Istvan, Stockton, Cal. Blotting-pad	752,146	Feb. 16	2357	569	108	1644
Cumback, William E., San Francisco, Cal. Roller for laundry-machines	751,836	Feb. 9	1961	445	108	1498
Cumberland Steel Company. (See Muncaster, Walter J., assignor.)						
Cummings, Harry A., Del Paso, Cal. Bridle-bit	751,901	Feb. 9	2084	471	108	1523
Cummings, Henry H., Malden, Mass. Coin-controlled apparatus	750,819	Feb. 2	61	13 14 15	108	1071
Cummins, Albert W., New York, N. Y. Comb	749,533	Jan. 12	2028	421	108	474
Cumnock, Robert L., Anderson, S. C. Spinning and twisting apparatus	752,760	Feb. 23	3747	886	108	1925
Cunliffe, Joseph H., and J. Law, Rochdale, England. Loom for weaving bordered fabrics	751,384	Feb. 2	1128	256	108	1206
Cunneen, Peter, New Rochelle, N. Y. Washing-machine	751,149	Feb. 2	670	154	108	1208
Cunniff, Edward, New Bedford, assignor to Draper Company, Hopedale, Mass. Filling-detecting mechanism for looms	749,364	Jan. 12	1669	355 356	108	400

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Cunningham, Andrew C., Washington, D. C. Floating dock	749,171	Jan. 12	1260	272	108	309
Cunningham, Stewart, Turtlecreek, Pa. Combined gas controller and igniter for explosive-engines	750,349	Jan. 26	3590	777 778	108	850
Cunningham, Walter C., assignor to M. Straus, Denver, Colo. Tobacco-pipe	749,266	Jan. 12	1465	313	108	354
Cuntz, Gregor R. F. H., Hamburg, Germany, assignor of one-half to C. M. Barnett and C. J. Hargreaves, Norfolk, Va. Fumigator	752,657	Feb. 23	3562	793	108	1884
Curran, Frank, Susquehanna, Pa. Water-tube boiler	749,129	Jan. 5	1158	245 246	108	268
Currier, John J., Gloucester, Mass. Tire-gage	752,526	Feb. 16	3279	731	108	1804
Curtis, Charles G., New York, N. Y. Side light for vessels	752,959	Feb. 23	4176	930	108	2021
Curtis, Gerard O., Hartford, Conn. Apparatus for governing elastic-fluid turbines	749,476	Jan. 12	1926	399 400	108	452
Curtis, Jeremiah J., Jersey City, N. J. Safety-guard	750,265	Jan. 26	3427	741	108	812
Curtis, Wallace B., Jamestown, N. Y. Helmet	753,047	Feb. 23	4342	966	108	2059
Curtiss, Dorothy W., Brooklyn, N. Y. Bale-tie	749,847	Jan. 19	2641	565	108	625
Custer, Joseph M., Graysville, assignor of three-fourths to Graham Lumber Company, Christiansburg, Va. Garment-holding attachment for trunks	749,959	Jan. 19	2855	610	108	671
Cutting, Otis, assignor of one-half to M. J. O'Donnell, Seattle, Wash. Shingle-sawing machine	751,719	Feb. 9	1725	392	108	1442
Cutts, Charles D., Toronto Junction, Canada. Reversible rotary snow-plow	749,172	Jan. 12	1261	272	108	309
Czedik, Otto von. (See Meinong, Rafael von, assignor.)	750,266	Jan. 26	3428	741	108	813
D'Alessandro, Julius, Walnutgrove, Cal. Support for buggy-tops	753,026	Feb. 23	4304	956	108	2052
Daggett, Herbert M., Jr., Woodbury, assignor to Welsbach Light Company, Gloucester City, N. J. Light-reflector	750,820	Feb. 2	70	15	108	1073
Dahl, Charles A., Boston, Mass., assignor to Reece Buttonhole Machine Company, Portland, Me. Buttonhole-sewing machine	749,721	Jan. 19	2398	507	108	571
Dahl, Charles A., assignor to Reece Button Hole Machine Company, Boston, Mass. Buttonhole-sewing machine	749,776	Jan. 19	2512	534	108	597
Dahlen, Charles A., Farwell, Minn. Draft-equalizer	751,470	Feb. 9	1299	290	108	1345
Dahlgren, Charles J., New York, N. Y., assignor of one-half to E. Hopkinson, East Orange, N. J. Penholder	748,589	Jan. 5	69	19	108	17
Dahlke, Hermann, Sömmerda, Germany. Fuse for projectiles	749,534	Jan. 12	2029	422	108	474
Dahlqvist, John A., assignor to Nya Aktiebolaget Radiator, Stockholm, Sweden. Centrifugal liquid-separator	752,284	Feb. 16	2826	627	108	1706
Dahly, Charles L., Decorah, Iowa. Horseshoe-calk	750,614	Jan. 26	4085	884	108	952
Daigneault, Joseph, Buffalo, N. Y. Spring bed-bottom	750,821	Feb. 2	71	16	108	1073
Dailey, Charles I., Cleveland, Ohio. Discharging device for furnaces	751,720	Feb. 9	1728	392	108	1443
Dailey, Joseph T., St. Louis, Mo. Attachment for boots	750,097	Jan. 19	3125	671	108	728
Dailey, Wilber M., New York, N. Y. Dental appliance	750,615	Jan. 26	4087	885	108	953
Dailey, Wilber M., New York, N. Y. Casting impressions of the teeth and mouth	752,378	Feb. 16	3002	668 669	108	1746
Dalberg, Salmon W., *et al.* (See Ruggles, Harry A., assignor.)						
Daley, Michael R., Fall River, Mass. Safety gas-cock	750,822	Feb. 2	73	16	108	1073
Dallinger, Frank W., Cambridge, Mass. Apparatus for making coffee or the like	749,777	Jan. 19	2517	535	108	598
Dalton, Fitzgerald V., St. Neots, England. Lifting-jack	752,656	Feb. 23	3561	793	108	1884
Dalton, Francis M., and J. G. Walker, Marlock, Okla. Ter. Cotton-picker's bag	749,722	Jan. 19	2403	508	108	572
Dalziel, Frederick Y. (See Clews and Dalziel.)						
Damron, Joseph C., assignor of one-half to E. C. Watson, Roanoke, Va. Hay-press	749,662	Jan. 12	2264	477	108	526
Dana, Thomas H. (See Blodt and Dana.)						
Dancyger, Simon, Dayton, Ohio. Tag-clasp	751,977	Feb. 9	2264	507	108	1560
Daniel, Albert E., Daniels Landing, Tenn. Animal or fish trap	752,527	Feb. 16	3281	732	108	1804
Daniels, John J., Minneapolis, Minn. Gopher-trap	749,848	Jan. 19	2642	565	108	625
Daniels, Oscar, Chicago, Ill. Derrick	752,379	Feb. 16	3005	669	108	1746
Daniels, Thomas, Brooklyn, N. Y. Book-cover cleaning and polishing machine	750,267	Jan. 26	3429	741	108	813
Danley, James S., assignor of one-half to R. Patterson, Greeley, Colo. Dumping-wagon	752,206	Feb. 16	2963	590	108	1609
Danner, John, Canton, Ohio. Bookcase	750,823	Feb. 2	74	16	108	1074
Darley, John W., Jr., assignor of one-half to D. E. Evans, P. and L. Hamburger, and M. Holzman, Baltimore, Md. Sheet lifting and counting device	752,616	Feb. 16	3475	775	108	1848
Darrow, George L. (See Appleton, Wallace N., assignor.)						
Darrow, William A., A. C. Wood, Philadelphia, Pa., and J. R. Allen, Merchantville, N. J. Apparatus for use in the manufacture of artificial stone, &c.	750,949	Feb. 2	322	76	108	1129
Dart, Samuel E., South Manchester, Conn. Grinding-machine	752,658	Feb. 23	3563	794	108	1884
Daut, Carl, Mannheim, Germany. Ruling device	749,034	Jan. 5	907	203	108	225
Davenport, Lot C. (See Burkett and Davenport.)						
David, Aiken L. (See Wilson and David.)						
David Bradley Manufacturing Company. (See Paul, William L., assignor.)						
Davidson, Nels G., Anaconda, Mont. Plotting instrument	749,921	Jan. 19	2785	595	108	657
Davidson, Robert W., Salt Lake City, Utah. Car-raiser	751,978	Feb. 9	2265	507	108	1561
Davidson, W. P. & E. J., *et al.* (See White, Howard, assignor.)						
Davies, Evan T., Portland, Oreg. Off-bearing mechanism for sawmills	752,440	Feb. 16	3129	696	108	1771
Davies, Roderick W. (See Murnane and Davies.)						
Davis, Augustine, Chicago, Ill., and J. H. Birch, Elkhart, Ind. Acetylene-gas generator	752,330	Feb. 16	2914	650 651	108	1726
Davis, Charles J. (See Boswell and Davis.)						
Davis, Cleland, U. S. Navy. Powder charge	751,385	Feb. 2	1131	257	108	1206
Davis, Cleland, U. S. Navy. Powder-grain	751,386	Feb. 2	1132	257	108	1206
Davis, George W., Princeton, Kans. Vehicle-axle boxing	749,173	Jan. 12	1263	273	108	310
Davis, Horace A., New York, N. Y. Inking device	752,285	Feb. 16	2926	627	108	1707
Davis, Isaac H., Boston, Mass., assignor of one-half to H. H. Westinghouse, Pittsburg, Pa. Motor lawn-mower	750,616	Jan. 26	4088	885	108	953
Davis, James L. (See Ellman and Morgan, assignors.)						
Davis, James T., deceased; W. M. Davis, Hattiesburg, Miss., administrator, assignor to A. A. Voss and A. D. Bennett, Mobile, Ala. Sawing-machine	751,060	Feb. 2	511	119 120	108	1171
Davis, John H. (See Snow, William J., assignor.)						
Davis, John W., Palmyra, Ill. Adjustable wrench	750,523	Jan. 26	3912	848	108	918
Davis, Leonard D., Erie, Pa. Producing pierced ingots with solid ends	750,824	Feb. 2	75	16	108	1074
Davis, Linford J., Battlecreek, Mich. Stock-marker	749,035	Jan. 5	908	204	108	225
Davis, Oscar C., assignor of one-half to G. E. Keith, Brockton, Mass. Lasting portions of boot or shoe uppers	749,267	Jan. 12	1467	314	108	354
Davis, Richard S., Columbia, Miss. Pile-point	748,705	Jan. 5	290	66	108	64
Davis, Robert J. (See Shearer, Joe E., assignor.)						
Davis, Samuel P. (See Fair and Davis.)						
Davis, William. (See Fillman and Davis.)						
Davis, William. (See Kartzmark, Otto, assignor.)						
Davis, William M., administrator. (See Davis, James T.)						
Davis, William M., Chicago, Ill., assignor, by mesne assignments, to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Multiple-switchboard system	752,761	Feb. 23	3748	886	108	1926

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Davis, William W., East Orange, N. J. Putter	749,174	Jan. 12	1265	273	108	310
Davison, Charles, Kewanee, Ill. Blotter-holder	751,617	Feb. 9	1542	350	108	1404
Davison, George R., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Electric-arc lamp	749,208	Jan. 12	1468	314	108	354
Davison, Vincent H., Park City, Utah. Hose-clamp	749,849	Jan. 19	2643	565	108	625
Davy, Charles F., assignor of one-half to H. M. & M. M. Scofield, Mohawk, N. Y. Automatic trolley-line reel	750,825	Feb. 2	76	17	108	1074
Dawes, Charles A., assignor of three-fourths to Publishers: George Knapp and Co., and J. F. Farish, St. Louis, Mo. Vending apparatus	749,535	Jan. 12	2033	422 423	108	476
Dawson, Albert R., Hamilton, Canada. Railway cattle-guard	750,524	Jan. 26	3913	848	108	918
Dawson, Benjamin. (See Bassford and Dawson.)						
Dawson, Charles E., Cleveland, Ohio. Piston-packing	752,046	Feb. 16	2372	530	108	1608
Day, Maxwell W., Schenectady, N. Y., assignor to General Electric Company. Protective means for electric boosters	752,528	Feb. 16	3282	732	108	1805
De Carli, Louis C., San Jose, Cal. Label-holder for library-shelves	750,436	Jan. 26	3747	813	108	884
De Forest, Lee, New York, N. Y. Wireless signaling device	748,597	Jan. 5	78	21	108	19
De Forest, Lee, New York, N. Y. Wireless signaling apparatus	749,178	Jan. 12	1279	276	108	314
De Forest, Lee, New York, N. Y. Wireless-telegraph receiver	749,371	Jan. 12	1685	358	108	408
De Forest, Lee, New York, N. Y. Wireless telegraphy	749,372	Jan. 12	1687	359	108	404
De Forest, Lee, New York, N. Y. Wireless signaling apparatus	749,434	Jan. 12	1813	380	108	420
De Forest, Lee, New York, N. Y. Generating set for wireless telegraphy	749,435	Jan. 12	1815	381	108	429
De Forest, Lee, New York, N. Y. Wireless-telegraph range-finder	749,436	Jan. 12	1816	381	108	430
De Forest, Lee, New York, N. Y. Controlling spark production	750,180	Jan. 19	3267	705	108	758
De Forest, Lee, New York, N. Y., assignor to Wireless Telegraph Company of America. Wireless signaling apparatus	749,131	Jan. 5	1163	247	108	269
De Forest, Lee, New York, N. Y., and W. G. Clark, Seattle, Wash. Device for clearing ice from antennæ	750,181	Jan. 19	3270	705	108	758
De Forest, Ray. (See Benson and De Forest.)						
De Haven, Hugh, New York, N. Y. Bale-tie	752,888	Feb. 23	4002	896	108	1968
De Kay, William I. (See Miner, William C., assignor.)						
De La Mare, Thomas, Tooele, assignor of one-half to J. B. Dunn, Salt Lake City, Utah. Tire-tightener	751,721	Feb. 9	1730	398	108	1443
De Lamater, Edgar, assignor of one-fourth to A. D. F. Reynolds, Ogden, Utah. Clip	749,663	Jan. 12	2267	478	108	527
De Lancey, Darragh, and H. M. Smith, assignors to Stanley Instrument Company, Great Barrington, Mass. Meter-seal	753,080	Feb. 23	4403	979	108	2073
De Laval, George, Cambridge, and G. P. Aborn, Boston, Mass., assignors to International Steam Pump Company, New York, N. Y. Pumping-engine	748,758	Jan. 5	376	85, 86	108	83
De Laval, George, Cambridge, and G. P. Aborn, Boston, Mass., assignors to International Steam Pump Company, New York, N. Y. Engine	750,377	Jan. 26	3683	788 789	108	859
De Pue, Frank H., San Francisco, Cal. Method of identification	752,617	Feb. 16	3479	775	108	1849
De Vault, William E., Colerain, Ohio. Extensible bed	748,847	Jan. 5	555	128	108	126
De Vilbiss, Thomas, Toledo, Ohio. Speculum	751,475	Feb. 9	1278	291	108	1348
De Vine, George H., and A. Baumann, Jersey City, N. J. Clothes-line holder	753,049	Feb. 23	4345	966	108	2060
De Zeng, Henry L., Philadelphia, Pa., and P. S. Reid, Hammonton, N. J. Ophthalmoscope	750,099	Jan. 19	3127	671	108	728
Dean, Alexander. (See Oviatt and Dean.)						
Dean, Alexander, Denver, Colo. Electromagnetic ore-separator	751,150	Feb. 2	672	454	108	1208
Dean, Isaac P., *et al.* (See Stouffer, Hiram C., assignor.)						
Dean, Jacob J., *et al.* (See Stouffer, Hiram C., assignor.)						
Deans, Edward C., Scranton, Pa. Detachable cover for bank-checks	750,826	Feb. 2	77	17	108	1074
Deare, Joseph H., assignor to American Lubricator Company, Detroit, Mich. Crank-pin oiler	752,047	Feb. 16	2373	530	108	1608
Debacher, Robert R., New York, N. Y. Chatelaine	748,846	Jan. 5	555	127	108	126
Decarie, Louis F., Montreal, Canada. Garbage-crematory	749,269	Jan. 12	1469	314 315	108	355
Decker, Alexander C., Keokuk, Iowa. Hog-tamer	750,487	Jan. 26	3747	814	108	884
Decker, Carl W., assignor of two-thirds to F. E. Hirsch and G. W. von Berg, Charles City, Iowa. Windmill-pump coupling	750,173	Jan. 19	3257	702 703	108	756
Decker, Goshen A., Latham, Ohio. Traction-coupling	751,471	Feb. 9	1270	290	108	1346
Decrow, William E., Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y. Electric signaling apparatus	750,268	Jan. 26	3430	741	108	813
Decrow, William E., Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y. Electric signaling apparatus	750,269	Jan. 26	3433	742	108	814
Decrow, William E., Boston, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y. Electric signaling apparatus	750,270	Jan. 26	3435	742	108	814
Defiance Machine Company. (See Ocumpaugh, Edmund, assignor.)						
Defiance Machine Works. (See Ensign, George A., assignor.)						
Del Negro, Paul von, Salzburg, Austria-Hungary. Hay rake and tedder	751,618	Feb. 9	1543	350 351	108	1404
Delaney, James G., New York, N. Y. Conveyer	752,441	Feb. 16	3132	696	108	1771
Delaney, James G., New York, N. Y. Hoisting and conveying device	752,442	Feb. 16	3134	697	108	1772
Delaney, Thomas A., assignor to Hills-McCanna Company, Chicago, Ill. Lubricator	749,477	Jan. 12	1928	400	108	452
Delaunay, Juan, and R. Vasquez, Buenos Aires, Argentina. Automatic or self-acting gate	751,837	Feb. 9	1964	446	108	1494
Dellenbarger, Charles E., Cincinnati, and W. D. Carter, Cleveland, Ohio; said Carter assignor to said Dellenbarger. Embossing-press	752,762	Feb. 23	3751	837	108	1926
Dellwo, Christ. (See Granger, Hollis R., assignor.)						
Delzeit, Bertram J., Philadelphia, Pa. Motor	750,098	Jan. 19	3126	671	108	728
Dempsey, William S., New York, N. Y. Metallurgical furnace	750,022	Jan. 19	2982	638	108	698
Dempster, Robert, Marietta, Ohio. Apparatus for the manufacture of gas	748,933	Jan. 5	735	160	108	167
Dempster, Robert, Marietta, Ohio. Utilizing exhaust of gas-engines	751,472	Feb. 9	1271	290	108	1346
Denayrouze, Louis, Paris, France. Air-gas burner	749,478	Jan. 12	1929	400	108	453
Denayrouze, Louis, Neuilly, France. Incandescent vapor-lamp	750,438	Jan. 26	3749	814 815	108	885
Denio, William L., assignor of one-half to H. F. Atkinson, Rochester, N. Y. Automatic and manual fire-alarm	749,173	Jan. 12	1266	273	108	310
Denis, Emile L. N., Paris, France. Kinetic-energy machine	749,664	Jan. 12	2268	478	108	527
Denise, Frank, and W. T. Buck, Freehold, N. J. Bag-holder	750,174	Jan. 19	3260	703	108	756
Dennett, Charles W. (See Winslow and Dennett.)						
Dennis, Arthur E. (See Dennis, Waldo H. and A. E.)						
Dennis, Samuel K., assignor to Plano Manufacturing Company, Chicago, Ill. Mowing-machine	750,827	Feb. 2	78	17 18 19 20	108	1074
Dennis, Waldo H. and A. E., St. Louis, Mo. Game apparatus	751,473	Feb. 9	1273	291	108	1346
Densmore Typewriter Company. (See Barron, Walter J., assignor.)						
Denson, Claude B., Raleigh, N. C. Envelop	750,350	Jan. 26	3591	778	108	851

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Depew, George M., Canandaigua, N. Y. Tire	750,073	Jan. 19	2984	639	108	699
Derfus, Joseph, *et al.* (See Farmer, Julius M., assignor.)						
Derick, Myron L., Chicago, Ill. Sponge-rubber mattress	752,147	Feb. 16	2559	569	108	1645
Des Moineaux, Alfred V., assignor of three-fourths to H. Des Moineaux, Silverplume, Colo. Miner's tool	753,048	Feb. 23	4343	966	108	2059
Des Moineaux, Helen. (See Des Moineaux, Alfred V., assignor.)						
Deschenes, Charles C., Fall River, Mass. Tire-repairer	752,826	Feb. 23	3880	870	108	1955
Deshler, Charles D., Allentown, Pa. Filter-cleaner	751,061	Feb. 2	514	120	108	1172
Desmond, John, assignor to Desmond-Stephan Manufacturing Company, Urbana, Ohio. Tool for dressing emery-wheels	750,828	Feb. 2	86	20	108	1076
Desmond-Stephan Manufacturing Company. (See Desmond, John, assignor.)						
Detrick, Jacob S., Baltimore, Md. Vertically-swinging support or shelf	750,829	Feb. 2	87	20	108	1076
Detroit Electric Signal Company. (See Fessenden, Howard A., assignor.)						
Detroit Table Manufacturing Company. (See Johnson, Henry, assignor.)						
Detroit Trust Co., trustee. (See Southgate, Louis W., assignor.)						
Detroit Trust Co., trustee. (See Wood, Henry A. W., assignor.)						
Dette, Max H., assignor to estate of P. Prybil, New York, N. Y. Hanger-box	751,838	Feb. 9	1965	446	108	1494
Dettmar, Georg, assignor to Society of Electricität's-Actien-Gesellschaft, vorm. W. Lahmeyer & Co., Frankfort-on-the-Main, Germany. Means for testing lubricating substances	752,827	Feb. 23	3881	870	108	1955
Deubner, John W., Chicago, Ill., assignor, by mesne assignments, to International Time Recording Company. Time-recorder	749,922	Jan. 19	2787	595 596	108	657
Deutsch, Isidor, Montreal, Canada. Pole-changer for dynamos	751,474	Feb. 9	1275	291	108	1347
Devine, William P., Dorchester, Mass. Clamp-handle	750,617	Jan. 26	4089	885	108	953
Dew, John, assignor to L. S. M. Hood, trustee, Chicago, Ill. Safety-truck for railways	752,928	Feb. 23	3882	870	108	1955
Dewey, Harry. (See Grice and Dewey.)						
Dexter, Talbot C., Pearl River, N. Y. Automatic controlling mechanism for printing-presses	749,596	Jan. 12	2037	423 424	108	476
Dexter, Talbot C., Pearl River, N. Y. Automatic controlling mechanism for printing-presses or other machines designed to operate upon sheets of paper	749,597	Jan. 12	2041	424 425	108	478
Dexter, Talbot C., Pearl River, N. Y. Sheet-conveying machine	752,380	Feb. 16	3007	669 670	108	1746
Dexter, Talbot C., Pearl River, N. Y. Sheet-conveying machine	752,381	Feb. 16	3011	670 671	108	1747
Dexter, Talbot C., Pearl River, N. Y. Sheet-conveying machine	752,382	Feb. 16	3014	671	108	1748
Dexter, Talbot C., Pearl River, N. Y. Sheet-conveying machine	752,383	Feb. 16	3017	671 672	108	1748
Dexter, Talbot C., and H. Hallstream, Pearl River, N. Y.; said Hallstream assignor to said Dexter. Automatic controlling mechanism for printing-presses	749,086	Jan. 5	969	204 205	108	226
Dexter, Talbot C., and H. Hallstream, Pearl River, N. Y.; said Hallstream assignor to said Dexter. Sheet-calipering device for paper-handling machinery	749,087	Jan. 5	974	205	108	227
Dey, Harry E., New York, N. Y. Electric bell	749,365	Jan. 12	1672	356	108	400
Deydier, Joseph M. A., Nyons, France. Pocket-spittoon	751,266	Feb. 2	927	210	108	1254
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Stencil-printing machine	749,983	Jan. 19	2900	620	108	681
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Paper-feeding and stencil-printing apparatus	749,984	Jan. 19	2904	620 621	108	682
Dick, Albert B., assignor to A. B. Dick Company, Chicago, Ill. Paper-feeding apparatus	749,986	Jan. 19	2913	622	108	684
Dick, Albert B., and E. Brasseur, assignors to A. B. Dick Company, Chicago, Ill. Paper-feeding apparatus	749,985	Jan. 19	2910	621	108	684
Dick, John. (See Lewis and Dick.)						
Dickason, Jonathan, assignor of one-half to J. Crowley, Larue, Ohio. Nut-lock	752,207	Feb. 16	2665	591	108	1669
Dicke, Hugo, assignor to J. E. Goldschmid, Frankfort-on-the-Main, Germany. Welding apparatus	752,208	Feb. 16	2666	591	108	1670
Dickinson, Frank T., Chicago, Ill. Brake-shoe	752,209	Feb. 16	2666	591	108	1670
Dickinson, William N., Jr., Chicago, Ill., assignor to Otis Elevator Company, New York, N. Y. Safety and signaling device for hoisting mechanism	751,477	Feb. 9	1283	292	108	1349
Dickson, Herman. (See Cree and Dickson.)						
Dickson, John W., and N. J. Carson, Castlerock, Wash. Liquid-shooting gun and insect-destroyer	752,650	Feb. 23	3565	794	108	1885
Dickson, Robert G. (See Power, Michael, assignor.)						
Dieckmann, Carl F., assignor to Spencer Lens Company, Buffalo, N. Y. Portable microscope and case therefor	753,127	Feb. 23	4480	997	108	2089
Diederichs, M. Jean. (See Hesse and Paraf-Javal, assignors.)	752,889	Feb. 23	4003	896 897	108	1983
Diehl, Thompson R., Allentown, Pa. Carpet-fastener						
Dierdorff, Henry B., assignor to J. A. Jeffrey, Columbus, Ohio. Mining-machine	751,267	Feb. 2	928	211	108	1254
Diesel, Conrad, assignor to F. Diesel, Chicago, Ill. Tin can	751,478	Feb. 9	1284	293	108	1349
Diesel, Frank. (See Diesel, Conrad, assignor.)	751,784	Feb. 9	1851	421	108	1469
Dieter, John C. (See Shilling and Dieter.)						
Dieterle, John M., St. Louis, Mo. Ice-pick	749,665	Jan. 12	2270	479	108	527
Dietrich, Joseph, St. Cloud, Minn. Saw-set	749,270	Jan. 12	1476	315	108	355
Dietsch, Lorenz, Wapakoneta, assignor of one-half to F. Krein, Sr., St. Marys, Ohio. Acetylene-gas generator	750,618	Jan. 26	4090	886	108	954
Dietz, Conrad, Cincinnati, Ohio. Mechanical movement	751,268	Feb. 2	930	211	108	1255
Dillard, Mary A., Selma, Ala. Composition of matter	752,660	Feb. 23	3569	.....	108	1886
Dilley, Elmer O., *et al.* (See Stouffer, Hiram C., assignor.)						
Dilley, Henry E., *et al.* (See Stouffer, Hiram C., assignor.)						
Dinges, William W., Racine, Wis. Threshing-machine	751,619	Feb. 9	1545	352	108	1405
Dininny, Ferral C., Jr., assignor to American Match Manufacturing Company, New York, N. Y. Splint-carrier	750,754	Jan. 26	4380	946	108	1020
Diss, Louis P., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	752,210	Feb. 16	2669	592 593	108	1671
Diss, Louis P., and W. A. Schmidt, assignors to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	749,538	Jan. 12	2046	425 426	108	479
Ditesheim, Achille, La Chaux-de-Fonds, Switzerland. Watch winding and setting mechanism	750,619	Jan. 26	4092	886	108	954
Dittmar, Charles. (See Weber, Benjamin, assignor.)						
Dixon, Albert S., assignor to Asphalt Paper Pipe Company, Los Angeles, Cal. Atomizer	752,529	Feb. 16	3283	732	108	1805
Dixon, Arthur, Rolla, N. D. Self-cleaning harrow	749,923	Jan. 19	2798	597	108	660
Doak, Egbert O. (See Harter and Doak.)						
Dobbin, Clarence E., assignor to Freeman, Dobbin Fireproofing Company, New York, N. Y. Wall-furring	752,530	Feb. 16	3286	732	108	1806
Doble, William A. (See Ensign, Orville H., assignor.)						
Doble, William A., San Francisco, Cal. Nozzle for impact water-wheels	751,722	Feb. 9	1731	393	108	1443

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Doble, William H., Quincy, Mass., assignor to Pneumatic Scale Corporation, Portland, Me. Weighing and packaging machine	750,890	Feb. 2	88	20,21	108	1076
Dobyne, George A. (See Corcoran and Dobyne.)						
Dodd, Hamilton D., assignor of one-half to D. L. Smith, Walterboro, S. C. Rice-cultivator	749,960	Jan. 19	2856	610	108	672
Dodd, Samuel T., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Electric-motor control	749,271	Jan. 12	1477	316	108	356
Dodd, Samuel T., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Motor control	749,272	Jan. 12	1481	316, 317	108	357
Doddrell, Thomas, Slough, England. Wrest-pin for pianofortes	751,479	Feb. 9	1287	208	108	1350
Dodge Coal Storage Company. (See Titcomb, George E., assignor.)						
Dodge, Harold A., Elizabeth, N. J. Match-box	749,539	Jan. 12	2054	496	108	481
Dodge, Harold A., Newark, N. J. Wardrobe attachment for chairs	751,151	Feb. 2	674	154	108	1208
Dodge, James M., Philadelphia, Pa. Expansion rivet, bolt, &c.	751,902	Feb. 9	2085	471	108	1323
Dodge, James M., assignor to Link Belt Engineering Company, Philadelphia, Pa. Pan conveyer	749,038	Jan. 5	977	206	108	227
Dodge, Warren K., Manhattan, Kans. Electric switch	752,531	Feb. 16	3288	731	108	1807
Dodson, Frank, Allegheny, Pa. Rail-joint	750,100	Jan. 19	3128	672	108	729
Doe, Walter S., Jersey City, N. J. Device for use in sharpening pencils	749,666	Jan. 12	2271	479	108	587
Doersch, Henry C., Nyack, assignor of one-half to W. S. Pickard, Brooklyn, N. Y. Electric hair-brush	751,889	Feb. 9	1907	446	108	1494
Doherty, Henry. (See Farrar, James H., assignor.)						
Doherty, William, Attleboro, Mass. Cuff-button	749,540	Jan. 12	2055	420	108	482
Dohrmann, Frank C. (See George and Dohrmann.)						
Dohse, John, New York, N. Y. Sample-sheet	750,620	Jan. 26	4008	886	108	954
Doldt, John E., Portland, Me. Machine for operating upon corns	748,934	Jan. 5	736	160, 161	108	167
Dolechek, Veat J., Claflin, Kans. Motion-transmitter	749,089	Jan. 5	978	206	108	228
Donahoo, James T., Edgar, Nebr. Water-tank	749,273	Jan. 12	1488	317	108	358
Donaldson, J. Edmund. (See Arey, Fred C., assignor.)						
Donavin, George B., H. E. Stein, and O. D. Hunt, assignors to George B. Donavin & Company, Columbus, Ohio. Cart	752,763	Feb. 23	3753	837	108	1927
Donning, George W., East Orange, assignor of one-half to H. T. Ambrose, Orange, N. J. Adjustable platen	748,190	Feb. 23	4589	1023, 1024	108	2114
Donovan, William D. (See Wilcox, Henry, assignor.)						
Dooley, William E., Grand Haven, Mich. Tobacco-pipe	750,950	Feb. 2	323	76	108	1129
Doolittle, John F., assignor to Cleveland Punch and Shear Works Company, Cleveland, Ohio. Universal slotting-punch	751,723	Feb. 9	1782	393	108	1443
Dorney, Oliver C., Allentown, Pa. Desk	753,050	Feb. 23	4346	907	108	2060
Dorr, George H., New Rochelle, N. Y. Photographic-plate-treating apparatus	750,621	Jan. 26	4004	886, 887	108	955
Douden, Edwin, Brooklyn, N. Y. Sheet-music turner	750,101	Jan. 19	3129	672	108	729
Douglas, Herbert J., Elkhart, Ind. Top-joint for buggies	752,960	Feb. 23	4177	931	108	2021
Douglas, Robert D. (See Surmann and Douglas.)						
Dow Chemical Company. (See Dow, Herbert H., assignor.)						
Dow, Herbert H., assignor to Dow Chemical Company, Midland, Mich. Fractioning bromin apart from chlorin	752,296	Feb. 16	2829	627	108	1707
Dow, Herbert H., assignor to Dow Chemical Company, Midland, Mich. Fractioning bromin from chlorin	752,331	Feb. 16	2917	651	108	1726
Dow, Herbert H., assignor to Dow Chemical Company, Midland, Mich. Manufacturing bromin from natural brines	752,332	Feb. 16	2919	651	108	1727
Dow, Mark L., administrator. (See True, Mark B.)						
Dow, Wallace H. (See Sager, Sagmeister, and Dow.)						
Dow, Willard E., Braintree, Mass. Electrical igniter for explosive-engines	752,384	Feb. 16	3021	673	108	1749
Dowd, John C., New York, N. Y. Toilet-stand	750,439	Jan. 26	3751	815	108	885
Dowler, James A. (See Turner and Dowler.)						
Downey, Richard F. (See Halley and Downey.)						
Downham, Fletcher W. (See Jones and Downham.)						
Downing, Jacob, Denver, Colo. Agricultural implement	748,706	Jan. 5	291	66, 67	108	65
Downing, William H., assignor of one-half to J. W. Solley, Parkersburg, W. Va. Double-acting chain wrench	750,440	Jan. 26	3752	815	108	885
Downs, John P., assignor to North Electric Company, Cleveland, Ohio. Relay device	749,814	Jan. 19	2578	549	108	611
Doyle, Francis J., Chicago, Ill. Steam-boiler	749,850	Jan. 19	2644	565, 566	108	625
Doyle, James S., New York, N. Y. Convertible cab for railway-cars	750,961	Feb. 2	324	76, 77, 78	108	1129
Doyle, John F., Chicago, Ill. Smoke-purifier	750,351	Jan. 26	3592	778	108	851
Drake, Seaborn C., Washington, Ga. Plow-handle clamp	749,274	Jan. 12	1489	317	108	358
Drake, William F., Pueblo, Colo. Cap	751,480	Feb. 9	1287	208	108	1350
Draper Company. (See Cunniff, Edward, assignor.)						
Draper Company. (See Edwards, John C., assignor.)						
Draper Company. (See Jamieson, Robert, assignor.)						
Draper Company. (See Lovejoy, Alfred, assignor.)						
Draper Company. (See Oldfield, William, assignor.)						
Draper Company. (See Sherry, John W., assignor.)						
Draper Company. (See Stimpson, Edward S., assignor.)						
Draper Company. (See Stone, Melvin L., assignor.)						
Draper Company. (See Trombly, William C., assignor.)						
Dräsel, Gustav W., Hoboken, N. J. Hydrocarbon-burner	752,800	Feb. 23	4005	897, 898	108	1983
Draughon, Peter E., Mobile, Ala. Plane-handle	752,532	Feb. 16	3280	733	108	1807
Draver, Emil R., Richmond, Ind. Grain cleaner and separator	749,366	Jan. 12	1675	356	108	402
Draver, Emil R., Richmond, Ind. Self-contained grain-scourer and dust-collector	749,367	Jan. 12	1677	357	108	402
Drawbaugh, Daniel, Eberlys Mills, Pa. Wireless signaling	752,533	Feb. 16	3290	734	108	1807
Drawbaugh, Daniel, Eberlys Mills, Pa. Transmitting intelligence through the natural mediums	752,534	Feb. 16	3296	734	108	1810
Dreany, Henry, Sudbury, Canada. Explosive	750,175	Jan. 19	3261	.....	108	756
Dreistadt, John. (See Shotwell and Dreistadt.)						
Drennan, Charles M., Boston, Mass. Non-refillable bottle	750,755	Jan. 26	4382	946	108	1021
Drescher, Luis, Newark, N. J. Mechanical toy	753,051	Feb. 23	4348	907	108	2060
Drew, Willis A., *et al.* (See Waters, Frank J., assignor.)						
Dreyfus, Louis. (See Stadelmann, Hermann, Jr., assignor.)						
Drieschman, John. (See Drieschman, William F. and J.)						
Drieschman, William F. and J., San Francisco, Cal. Mechanical door opening or closing device	748,848	Jan. 5	556	128	108	196

Alphabetical list of patentees for January and February—Continued.

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Driscoll, James J., *et al.* (See Baisley, Charles H., assignor.)						
Driscoll, Owen E., Charlottesville, Va. Dental-plate mold	753,128	Feb. 23	4481	997	108	2089
Drisko, Alonzo S., and R. Berrenberg, Boston, Mass. Liquid-meter	748,707	Jan. 5	294	67	108	65
Drouillard, Albert, Windsor, Canada. Ventilating device for water-closets, &c	750,952	Feb. 2	328	78	108	1130
Drury, Frederick A., Jersey City, N. J. Wrench	751,481	Feb. 9	1289	294	108	1351
Dryden, George B., Chicago, Ill. Rubber tire	752,891	Feb. 23	4008	898	108	1984
Du Brul, Albert, New York, N. Y., assignor to Miller, Du Brul & Peters Manufacturing Company, Cincinnati, Ohio. Binder or wrapper mechanism for cigar or cigarette machines	752,961	Feb. 23	4178	931	108	2022
Dubach, Anton, Highland, Ill. Combined corn planter and marker	749,541	Jan. 12	2056	426, 427	108	482
Dubé, Joseph, Cambridge, Mass. Gang soldering-machine	752,333	Feb. 16	2922	651, 652	108	1727
Ducousso, Théophile. (See Bleynie and Ducousso.)						
Dudley, Job, Hamilton, Canada. Hydraulic propeller for vessels	749,427	Jan. 12	1794	378	108	424
Dudley, William W., Trenton, N. J., assignor to Trenton Watch Company. Watchcase	748,590	Jan. 5	70	20	108	17
Duff Manufacturing Company. (See Fresel, George F., assignor.)						
Duffy, Henry F., Seattle, Wash. Third-rail cover	748,591	Jan. 5	72	20	108	17
Duffy, Henry F., Seattle, Wash. Third-rail protector	748,592	Jan. 5	73	20	108	18
Dufur, Douglas S., The Dalles, Oreg. Carriage-return for type-writers	749,723	Jan. 19	2405	508	108	572
Duganquier, Leon, Houdeng-Goegnies, Belgium. Spinning-machine	752,820	Feb. 23	3884	871	108	1955
Duhring, Warner J., *et al.* (See Weyrs, Frank S., assignor.)						
Duisen, Henry, St. Louis, Mo. Plumb and level	752,535	Feb. 16	3300	735	108	1811
Duke, Joseph H., Corry, Pa., and J. F. Bray, Saltpetre, Ohio. Deep-well pump-valve	751,482	Feb. 9	1290	294	108	1351
Dumars, Horace, Glenridge, N. J. Mechanism for separating liquid air into its constituents oxygen and nitrogen	749,040	Jan. 5	979	207	108	228
Dunaway, C. W. (See Webb, Samuel F., assignor.)						
Dunbar, Henry C., Minneapolis, Minn. Indexed book	752,385	Feb. 16	3023	673	108	1749
Duncan, Charles. (See Milligan and Duncan.)						
Duncan Chemical Company. (See Duncan, Robert K., assignor.)						
Duncan, Emily C., Jennings, La. Calculator	749,851	Jan. 19	2649	566	108	626
Duncan, Joseph S., Chicago, Ill. Machine for making printing-plates	750,831	Feb. 2	94	22, 23	108	1078
Duncan, Robert K., Washington, Pa., assignor to Duncan Chemical Company. Ornamented or lettered glassware or similar ware	748,849	Jan. 5	558	.....	108	126
Duncan, Robert K., Washington, Pa., assignor to Duncan Chemical Company. Manufacturing ornamented or lettered articles	748,850	Jan. 5	560	.....	108	126
Duncan, Robert K., Washington, Pa., assignor to Duncan Chemical Company. Material for producing designs, ornamentations, or letters on articles	748,851	Jan. 5	562	.....	108	127
Duncan, Thomas, Lafayette, Ind. Electric meter	752,048	Feb. 16	2375	531	108	1603
Duncan, Thomas, Lafayette, Ind. Electric meter	753,193	Feb. 23	4600	1025	108	2118
Duncan, Thomas, Lafayette, Ind. Electric meter	753,194	Feb. 23	4603	1025	108	2118
Duncan, Thomas, Chicago, Ill. Electric meter	753,191	Feb. 23	4598	1024	108	2115
Duncan, Thomas, Chicago, Ill. Electric meter	753,192	Feb. 23	4597	1024, 1025	108	2116
Duncan, William F., *et al.* (See Huntley, Stephen A., assignor.)						
Duncombe, Maurice, Wattsburg, Pa. Needle-cushion spool	752,536	Feb. 16	3301	735	108	1811
Dundon, Patrick F., San Francisco, Cal. Timber-treating process	753,052	Feb. 23	4349	908	108	2062
Dunfee, Robert G., Fostoria, Ohio. Plug-ejecting jack for telephone-switchboards	750,953	Feb. 2	330	78	108	1131
Dunham, Andrew A., New York, N. Y., assignor to Casein Company of America. Preparing food casein	750,832	Feb. 2	100	24	108	1079
Dunham, Henry V., New York, N. Y., assignor to Casein Company of America. Insoluble gelatinous product and producing same	748,708	Jan. 5	295	.....	108	66
Dunham, Henry V., New York, N. Y., assignor to Casein Company of America. Casein-cellulose composition and producing same	748,709	Jan. 5	296	.....	108	66
Dunlop, John B. and John B., Jr., Dublin, Ireland. Exhaust-silencer for internal-combustion engines	752,386	Feb. 16	3025	673	108	1750
Dunn, Alfred F., Mooar, Iowa. Hook	749,852	Jan. 19	2650	566	108	626
Dunn, J. B. (See De La Mare, Thomas, assignor.)						
Dunn, James F., Salt Lake City, Utah. Locomotive buffer-beam	750,441	Jan. 26	3754	816	108	886
Dunn, Louis, St. Paul, Minn. Safety device for point-switches	749,275	Jan. 12	1490	317, 318	108	359
Dunn, Mary A., New York, N. Y. Bottle, stopper, and opener	752,049	Feb. 16	2377	531	108	1604
Dunn, Wilbur. (See Snider, Walter D., assignor.)						
Dunne, Lawrence, Montgomery, Ala. Windmill	752,764	Feb. 23	3754	838	108	1927
Dunne, Ralph, Dunedin, New Zealand. Miter-cutting machine	752,050	Feb. 16	2378	531, 532	108	1604
Dupuis, Adolphe C. G., New Orleans, La., and W. S. Fell, Waveland, Miss., assignors to F. P. Morrill and G. E. Pitcher, New Orleans, La. Distilling apparatus	749,368	Jan. 12	1680	357, 358	108	403
Durham, Thomas F., Philadelphia, Pa. Blasting-cartridge	748,935	Jan. 5	742	161	108	169
Durkee, Eugene W., East Patchogue, N. Y. Display-rack	752,387	Feb. 16	3026	674	108	1750
Durkee, Lafayette, assignor to Mine & Smelter Supply Company, Denver, Colo. Rock-cutting drill-bit	749,369	Jan. 12	1682	358	108	403
Dusenbury, Philip S., and H. M. Kelly, San Francisco, Cal. Mail or letter box	749,428	Jan. 12	1795	378	108	425
Dusinberre, George B., Edgewood Park, Pa. Paper-clip	749,429	Jan. 12	1797	379	108	425
Dust Guard Manufacturing Company. (See Sager, Sagmeister, and Dow, assignors.)						
Dutrieu, Hélène, Paris, France. Construction of switchback-roadways	749,607	Jan. 12	2153	450	108	504
Duvall, Robert E., Washington, D. C. Cutting-tool	752,211	Feb. 16	2675	593	108	1672
Dye, Thomas J., assignor of one-fourth to J. H. Hines, Gloster, Miss. Railway-rail joint	751,483	Feb. 9	1291	294	108	1351
Dyer, Henry S., Fremont, Ohio. Seed-planting device	752,661	Feb. 23	3570	795	108	1886
Dyer, Warren C., St. Louis, Mo. Curling-iron	752,051	Feb. 16	2381	532	108	1605
Dzink, Wladislaw, Duquesne, Pa. Window-lock	749,041	Jan. 5	981	207	108	229
E. C. Atkins & Company. (See Reppeto, Augustus O., assignor.)						
E. & T. Fairbanks & Company. (See Heyer, Charles A., assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
E. W. Bliss Company. (See Pollard, Charles E., assignor.)						
Eader, William M., Middletown, Md. Electric-railway system	749,042	Jan. 5	982	208	108	229
Earle, Reginald W., Brooklyn, and N. Goodyear, Flushing, assignors to J. B. Colt Company, New York, N. Y. Signaling apparatus	749,815	Jan. 19	2579	549, 550	108	612
Eastwood, Arthur C., Cleveland, Ohio. System for the operation of electric motors	751,903	Feb. 9	2087	471, 472	108	1324
Eaton, William S., Sag Harbor, N. Y. Plate printing and embossing machine	752,052	Feb. 16	2382	532, 533	108	1605
Eavenson, Francis V., St. Davids, Pa. Coaster-wagon	751,785	Feb. 9	1852	422	108	1469
Eberhardt, August H., Cleveland, Ohio. Joist-hanger	753,053	Feb. 23	4350	908	108	2061
Eberstein, August, assignor to C. and C. E. Brandt, Boston, Mass. Fountain-pen	750,271	Jan. 26	3439	742	108	815

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Ebner, Leon, Philadelphia, Pa. Match-holder	752,443	Feb. 16	3137	697	108	1773
Eby, Henry C., Jolley, Iowa. Gun-sight	752,902	Feb. 23	4180	992	108	2022
Eck, Charles A., Belleville, N. J. Fan	751,484	Feb. 9	1292	294 295	108	1351
Eck, Charles A., Newark, N. J. Fan	751,485	Feb. 9	1294	295	108	1352
Eck, Lorenz, Dusseldorf, Germany. Calendering-machine	748,508	Jan. 5	74	20	108	18
Eckard, Theodore, Baltimore, Md. Railway-switch	751,387	Feb. 2	1133	257	108	1209
Eckstorm, John, Baltimore, Md. Collar-button	750,622	Jan. 26	4099	887	108	956
Eclipse Manufacturing Company. (See Kermath, James, assignor.)						
Eddy, Marie E., St. Louis, Mo. Soap-receptacle	750,831	Feb. 2	101	24	108	1079
Ede, George A., Cobden, Ill. Stapling-machine	751,152	Feb. 2	675	155	108	1204
Edel, Lucas, assignor to Majestic Manufacturing Company, St. Louis, Mo. Adjustable water-tank for stoves or ranges	749,542	Jan. 12	2058	427	108	482
Edelen, Frederick C., Kansas City, Mo., assignor to Crampton Farley Brass Co. Combined floor-drain and backwater-trap	748,996	Jan. 5	744	162	108	169
Edgerton, Joseph J., Berwyn, Ill. Poultry-house	752,765	Feb. 23	3757	838	108	1927
Edison, Thomas A., Llewellyn Park, N. J. Kinetoscopic film. (Reissue)	12,192	Jan. 12	2370	500 501	108	549
Edison, Thomas A., Orange, N. J. Electrical automobile	750,102	Jan. 19	3132	672	108	729
Edmonds-Metzel Manufacturing Company. (See Search, Casper F., assignor.)						
Edmonds, Thomas H., Washington, D. C. Illuminated sign or number plate for automobile-lamps	749,779	Jan. 19	2521	536	108	599
Edmonds, William G. (See Higgins and Edmonds.)						
Edmunds, John M., New York, N. Y. Cartridge	750,623	Jan. 26	4099	888	108	956
Edmunds, John M., New York, N. Y. Primer	750,624	Jan. 26	4100	888	108	956
Edouard, Camille M., and C. Sorlin, Lyons, France. Jacquard apparatus for looms	752,830	Feb. 23	3888	872	108	1956
Edson, Joseph R., *et al.* (See Mankedick, Charles, assignor.)						
Edward Miller & Company. (See Homan, William C., assignor.)						
Edwards, John C., Brookline, assignor to Draper Company, Hopedale, Mass. Filling-feeder mechanism for automatic looms	753,054	Feb. 23	4351	968	108	2061
Edwards, Nora C., Spooner, Wis. Waist-lengthener	749,543	Jan. 12	2059	427	108	482
Edwin Harrington, Son and Company. (See Mullen, Peter, assignor.)						
Eggers, Anton C., New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn. Holder for the stoppers of water-bottles	748,937	Jan. 5	745	162	108	169
Eggers, Anton C., New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., and New York, N. Y. Bed-pan	750,103	Jan. 19	3134	673	108	730
Eggers, Anton C., New York, N. Y., assignor to Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn., and New York, N. Y. Throat-bag	750,104	Jan. 19	3134	673	108	730
Egly, John C., Philadelphia, Pa., assignor to Keystone Knitting Machine Company. Knitting-machine needle	749,686	Jan. 12	2308	487	108	535
Ehret, Cornelius D., Ardmore, Pa., assignor, by mesne assignments, to International Wireless Telegraph Company. Wireless signaling system	749,370	Jan. 12	1684	358	108	403
Ehrhardt, Gustav, Eisenach, Germany. Gun carriage or mounting	751,840	Feb. 9	1968	447	108	1495
Ehrhardt, Otto P. W., Seattle, Wash. Mail-bag catcher	752,344	Feb. 16	2924	652	108	1728
Ehrlich, Leo. (See Fassett, Francis K., assignor.)						
Eichengrün, Arthur, Elberfeld, and A. Braun, Mülhausen, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Sensitive photographic emulsion	752,388	Feb. 16	3028	.....	108	1750
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Bag-fastener	749,430	Jan. 12	1798	379	108	425
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Bag-fastener	749,431	Jan. 12	1804	379 380	108	427
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Bag-frame handle	749,432	Jan. 12	1809	380	108	428
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Box	749,479	Jan. 12	1930	401	108	453
Ellertsen, Lucien, Paris, France. Rendering denture-plates, &c., antiseptic	749,276	Jan. 12	1492	.....	108	359
Elmer & Amend. (See Broestler, Herman E., assignor.)						
Einarson, Luther, Seattle, Wash. Means for facilitating casting and drawing fish-nets	748,710	Jan. 5	298	67	108	66
Einstein, Alfred C., St. Louis, Mo. Acetylene-gas generator	752,063	Feb. 16	2397	583	108	1606
Eipp, William J., Syracuse, N. Y. Cleaner for brick or tile cutting machines	751,209	Feb. 2	992	211	108	1255
Eisenstein, Israel, New York, N. Y. Musical cane or sounding device	751,153	Feb. 2	678	155	108	1204
Ek, Arvid, Portland, Me. Water-closet bowl	751,270	Feb. 2	984	212	108	1256
Eklund, Isak I., Stockholm, Sweden. Cheese-holder	750,756	Jan. 26	4383	947	108	1021
Elam, William E., Atlanta, Ga. Baling-press	751,486	Feb. 9	1296	295 296	108	1353
Elam, William E., Atlanta, Ga. Baling-press	751,487	Feb. 9	1298	297	108	1353
Elb, Max, Dresden, Germany. Preparing alimentary yeast extracts	748,711	Jan. 5	299	.....	108	66
Elder, H. S., *et al.* (See Welsh, Hamilton E., assignor.)						
Elder, John R. (See Carlisle and Elder.)						
Eldridge, Edgar S. (See Miller, John C., assignor.)						
Electra Manufacturing Company. (See Feldkamp, Frederick A., assignor.)						
Electric Boat Company. (See Cable and Spear, assignors.)						
Electric Boat Company. (See Spear, Lawrence Y., assignor.)						
Electric Gas Lighting Company. (See Thomson, Henry C., assignor.)						
Electric Storage Battery Company. (See Achard, John W., assignor.)						
Electro Surgical Instrument Company. (See Houghton, Thomas A., assignor.)						
Ellel, Albert L., *et al.* (See La Burt and Campbell, assignors.)						
Elleson, Chaimsonovitz P., and V. de Bobinsky, Paris, France. Electrical accumulator. (Reissue)	12,195	Jan. 26	4460	960	108	1038
Ellicott, Charles E., and J. B. Norris, Baltimore, Md. Crank and crank-shaft mechanism	749,277	Jan. 12	1493	318	108	359
Ellicott, Charles E., and J. B. Norris, Baltimore, Md. Interchangeable hand and motive power mechanism	749,278	Jan. 12	1494	318	108	359
Ellicott, Charles E., and J. B. Norris, Baltimore, Md. Combined hand and motive power winch	749,279	Jan. 12	1496	319	108	360
Elliott, James A. R., Kansas City, Mo. Ear-drum protector	750,625	Jan. 26	4101	888	108	956
Elliott, James E. (See Jones, Joseph H., assignor.)						
Elliott, Jonathan R., and G. L. Kelly; said Kelly assignor to N. R. Elliott, Topeka, Kans. Portable folding window-scaffold	751,620	Feb. 9	1548	352	108	1406
Elliott, Neoma R. (See Elliott and Kelly, assignors.)						
Elliott, Robert, Olney, assignor of one-half to W. B. Keefer, Philadelphia, Pa. Yarn-dyeing machine	751,154	Feb. 2	679	156	108	1204
Elliott, Sterling, Newton, Mass. Turn-table	749,724	Jan. 19	2407	508 509	108	573
Elliott, William L. (See Johnson, John, assignor.)						
Ellis, John, Pittsburg, Pa., assignor to Ruud Manufacturing Company, Camden, N. J. Valve for water-heaters	753,195	Feb. 23	4606	1026	108	2118
Ellis, S. H. (See Mathews, Karl, assignor.)						
Ellis, Samuel J., assignor to W. C. Ellis & Sons, Memphis, Tenn. Seed-huller	748,852	Jan. 5	564	128	108	127

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Ellis & Sons, William C. (See Ellis, Samuel J., assignor.)						
Ellis, William J., Akron, Ohio. Floor-tiling	750,954	Feb. 2	331	79	108	1131
Ellison, Luther C., Dundee, Ga. Cotton-planter	752,963	Feb. 23	4183	992	108	2022
Ellison, Oliver E., assignor of one-half to E. Prentice and J. N. McCutcheon, Chattanooga, Tenn. Disk plow	749,043	Jan. 5	964	208 209	108	229
Elliman, Louis W., and J. W. Morgan, San Antonio, Tex.; said Morgan assignor to J. L. Davis. Pneumatic mattress-stuffing machine	752,602	Feb. 23	3573	795 796	108	1886
Elmasian, Garabad, Philadelphia, Pa. Device for measuring and truing tips of shoes	751,621	Feb. 9	1550	353	108	1406
Elston, Edmund E., Jr., Norwood, assignor to W. H. Emerson, Cambridge, Mass. Cleaning device	751,786	Feb. 9	1853	422	108	1469
Eltz, Victor, Abbazia, Austria-Hungary. Apparatus for heating air or liquids to a constant temperature	751,271	Feb. 2	934	212	108	1256
Emerson, Isaiah W., Milford, Mass. Window-sash	752,831	Feb. 23	3891	873	108	1956
Emerson, Oliver S., Luxora, Ark. Separator	749,280	Jan. 12	1498	319	108	360
Emerson, William H. (See Elston, Edmund E., Jr., assignor.)						
Emmington, Emil. (See Klatt, Albert, assignor.)						
Emory, Joseph P., Columbus, Ohio, assignor to Hallwood Cash Register Company, Jersey City, N. J. Cash register and indicator	750,272	Jan. 26	3441	742 743	108	815
Empire Engine and Motor Company. (See Galloway, Edwin F., Jr., assignor.)						
Eneas, Aubrey G., Chiswick, England. Inclosing device	752,537	Feb. 16	3302	735	108	1812
Engel, Albert W., Chicago, Ill. Picture-mounting leaf or book	749,281	Jan. 12	1500	320	108	361
Engel, John A., Washington, Ill. Feed-grinder	751,488	Feb. 9	1300	297 298	108	1354
Engeljohn, August H., and S. Weale, Farina, Ill. Neck-yoke	750,626	Jan. 26	4102	888	108	957
Engelking, Ferdinand C. (See Engelking, Peter and F. C.)						
Engelking, Peter and F. C., Peters, Tex. Music-leaf turner	749,667	Jan. 12	2272	479	108	528
Engelmann, Max, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Making dialkyl-barbituric acid	750,627	Jan. 26	4103	.....	108	957
Engelmann, Max, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co., New York, N. Y. Making dialkyl-barbituric acid	751,724	Feb. 9	1735	.....	108	1444
Engels, Ewald, Dusseldorf, Germany. Treating iron and steel	752,054	Feb. 16	2388	.....	108	1607
Engels, Ewald, Dusseldorf, Germany. System of feeding slow-burning stoves	752,389	Feb. 16	3028	674	108	1751
Engels, Peter J., Farwell, Nebr. Glove-fastener	750,834	Feb. 2	102	24	108	1079
Englehardt, Frank L., Kansas City, Mo. Draft-rigging	751,155	Feb. 2	681	156	108	1204
Englund, Phillip, Chico, Cal. Reservoir for storing petroleum	749,282	Jan. 12	1503	320	108	361
Engstrom, Jacob B., Manchester, Iowa. Fence-post	751,622	Feb. 9	1552	353	108	1407
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Thread-cutting machine	751,841	Feb. 9	1968	447 448	108	1495
Ensign, Orville H., Los Angeles, assignor to W. A. Doble, San Francisco, Cal. Hydraulic arresting device	752,538	Feb. 16	3304	735	108	1812
Entriken, J. Carroll, *et al.* (See Entriken, John C., assignor.)						
Entriken, John C., assignor to himself, G. R. Walton, J. C. Entriken, and W. S. Everett, Malvern, Pa. Reversing-gear	751,787	Feb. 9	1854	242	108	1470
Epstean, George G., *et al.* (See McIntyre, David, assignor.)						
Erickson, Charles, Bremerton, Wash. Drilling-machine	751,062	Feb. 2	515	120	108	1172
Erickson, Erick, *et al.* (See Chapman, William S., assignor.)						
Erickson, Frederick W., Boston, Mass. Outlet-bushing for junction-boxes	750,352	Jan. 26	3592	778	108	851
Ericson, Job E., San Francisco, Cal. Automatic flushing-tank	750,955	Feb. 2	332	79	108	1131
Ericson, Victor, Chicago, Ill. Rotary engine	751,842	Feb. 9	1972	448	108	1495
Erie City Iron Works. (See Ferrari and Whittemore, assignors.)						
Erixon, John N., Concord, Ill. Fence-post	752,964	Feb. 23	4184	992	108	2023
Ermentrout, William H., Reading, Pa. Wrench	749,544	Jan. 12	2060	427	108	482
Ervin, George M., Johnstown, Pa., assignor to Lorain Steel Company. Tongue-switch	752,892	Feb. 23	4010	898	108	1964
Escuder, Miguel, and A. Forest, Barcelona, Spain. Embroidering-machine	749,044	Jan. 5	987	209	108	230
Eskilsson, Theodor. (See Magnuson and Eskilsson.)						
Esselen, Henry M. (See Folsom, George F., assignor.)						
Esselius, Eric, Steubenville, Ohio. Shifting mechanism for conveying-tables	752,444	Feb. 16	3138	697 698	108	1773
Essig, Harry E., Canton, Ohio, assignor to Essig Pivot Window Company, Pittsburg, Pa. Window-sash pull	750,956	Feb. 2	334	79	108	1132
Essig Pivot Window Company. (See Essig, Harry E., assignor.)						
Estep, Blair A., Chicago, Ill., assignor to Search Light Manufacturing Company. Spring-extension support	752,212	Feb. 16	2676	593	108	1673
Estep, James, Tacoma, assignor of one-half to R. L. Bloom, Lakeview, Wash. Making butter	749,853	Jan. 19	2651	.....	108	627
Estienne, Alfred D., Marseilles, assignor to Anglo-French Ramie Machine Company, Limited, Paris, France. Decorticating-machine	753,055	Feb. 23	4355	968 969	108	2062
Etheridge, James, Hamilton, Ohio. Caster	751,489	Feb. 9	1302	298	108	1354
Etnyre, Edward D., and W. A. Whitney, Oregon, Ill. Punch	750,034	Jan. 19	2985	699	108	699
Etter, William H., Marietta, Ohio. Weather-strip	752,390	Feb. 16	3031	674	108	1751
Euer, David. (See Amrom, Jacob, assignor.)						
Evans, David E., *et al.* (See Darley, John W., Jr., assignor.)						
Evans, Joseph T., Alliance, Nebr. Railway-switch	752,663	Feb. 23	3576	796	108	1887
Evensen, Peter O., Chicago, Ill. Policeman's mace	752,893	Feb. 23	4012	899	108	1965
Everest, Augustine R., Lynn, Mass., assignor to General Electric Company. Transformer	750,525	Jan. 26	3915	849	108	919
Everett, Daniel S., Macedon, N. Y. Dumping-wagon	750,442	Jan. 26	3755	816	108	886
Everett, William S., *et al.* (See Entriken, John C., assignor.)						
Ewald, Julius, Philadelphia, Pa. Garment-belt	751,272	Feb. 2	935	212	108	1256
Ewart, Hugo E., St. Louis, Mo. Currycomb	753,056	Feb. 23	4357	969	108	2062
Exterkamp, George J., Covington, Ky. Dumping-wagon	752,766	Feb. 23	3758	839	108	1928
Eyermann, Peter, Philadelphia, Pa., assignor to C. T. Schoen, New York, N. Y. Machine for rolling tires	748,594	Jan. 5	75	21	108	19
Eyres, Robert, Aurora, Nebr. Coat-hanger	749,176	Jan. 12	1208	274	108	311
F. S. M. Syndicate. (See Spear and Moriarty, assignors.)						
Faber, John P., assignor, by mesne assignments, to Faber Sulky Co., Rochester, N. Y. Speed-wagon	749,545	Jan. 12	2061	428	108	483
Faber Sulky Co. (See Faber, John P., assignor.)						
Fabrik für Mechanische Hirnholzmosaik, Gesellschaft mit Beschränkter Haftung. (See Wehinger, Johann, assignor.)						
Face, George W., Jr. (See Boykin, Christopher C., assignor.)						
Faessler, John W., Moberly, Mo. Flue-expander	750,176	Jan. 19	3262	703	108	756
Faessler, John W., Moberly, Mo. Flue-expander	750,177	Jan. 19	3263	704	108	757
Fagan, John J. (See Smith, Orson W., assignor.)						
Faherty, Michael W., assignor of one-half to F. B. Jones, Memphis, Tenn. Cotton-seed huller	752,965	Feb. 23	4186	993	108	2023

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Fahnestock, Ernest B., New York, N. Y. Telephone-transmitter	750,895	Feb. 2	104	24	108	1079
Fahrney, Daniel P., G. A. Newton, and F. F. Simmons, Springfield, Mo. Pipe-joint	751,273	Feb. 2	999	213	108	1256
Fahrney, William H., Chicago, Ill. Means for converting faint vibrations into electrical energy	749,854	Jan. 19	2652	567	108	627
Fahrzeugfabrik Eisenach. (See Schröder, Heinrich, assignor.)						
Fair, Richard, Moosup, and S. P. Davis, Danielson, Conn. Locomotive turn-table	752,509	Feb. 16	3305	736	108	1812
Fairbanks, Morse and Company. (See Bivert, Eugene, assignor.)						
Fairchild, Nelson D., Olean, N. Y. Monkey-wrench	748,908	Jan. 5	746	162	108	170
Fales, Lewis F. (See Barter, Frank, assignor.)						
Fallows, Edward H., executor. (See Powter, Nathaniel B.)						
Faltermayer, Harry, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J. Fabric-cutting machine	748,853	Jan. 5	599	129	108	127
Fanning, Charles E., assignor to Folding Baby Carriage Company, Davenport, Iowa. Folding vehicle	751,843	Feb. 9	1973	448, 449	108	1496
Farbenfabriken of Elberfeld Co. (See Berendes, Rudolf, assignor.)						
Farbenfabriken of Elberfeld Co. (See Eichengrün and Braun, assignors.)						
Farbenfabriken of Elberfeld Co. (See Engelmann, Max, assignor.)						
Farish, Joseph F., *et al.* (See Dawes, Charles A., assignor.)						
Farmer, Albert J., assignor to Canners Machine Co., San Francisco, Cal. Centrifugal washer for fish-dressing machines	751,388	Feb. 2	1135	258	108	1299
Farmer, Frederick, assignor to M. J. Whittall, Worcester, Mass. Oiling device for looms	751,063	Feb. 2	517	121	108	1173
Farmer, James, Barry, Ill. Draft-equalizer	752,960	Feb. 23	4187	933	108	2025
Farmer, Julius M., assignor of part to J. Vierthaler, J. Derfus, J. E. Matteson, E. L. Terrell, V. A. Gudex, D. P. Redd, C. S. Matteson, and C. T. H. Clifford, Milwaukee, Wis. Self-threading sewing-machine needle	752,213	Feb. 16	2678	593	108	1673
Farnham, Arthur C., *et al.* (See Waters, Frank J., assignor.)						
Farnham, Frank E., *et al.* (See Waters, Frank J., assignor.)						
Farnham, Neal, Chicago, Ill. Waterproofing and finishing the surface of stone, brick, or other analogous porous material	748,705	Jan. 5	76	.....	108	19
Farnum, William C., Arlington, Vt., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	752,214	Feb. 16	2679	594	108	1673
Farnum, William C., Arlington, Vt., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	752,215	Feb. 16	2683	594	108	1674
Farr, Charles W., Chicago, Ill. Sounding apparatus	751,623	Feb. 9	1532	353	108	1407
Farrand & Votey Organ Company. (See Courville, Joseph, assignor.) (Reissue.)						
Farrant, Frederick W., San Francisco, Cal. Glove	750,443	Jan. 26	3758	817	108	886
Farrar, James H., Dundee Lake, assignor to H. Doherty, Paterson, N. J. Swivel-loom	751,725	Feb. 9	1736	394	108	1444
Fashion Specialty Company. (See Triner, James M., assignor.)						
Fassett, Francis K., assignor to L. Ehrlich, St. Louis, Mo. Pneumatic hammer	750,836	Feb. 2	107	25	108	1081
Faucher, Jules, Lawrence, Mass. Runner for vehicles	750,957	Feb. 2	335	80	108	1132
Fauck, Albert, Vienna, Austria-Hungary. Rock-drilling machine	748,712	Jan. 5	300	67	108	66
Faulhaber, Frederick A., Newark, N. J. Bow-holder for cases for musical instruments	749,483	Jan. 12	1810	380	108	499
Faulkner, Edward J. (See Rust and Faulkner.)						
Faust, Casper, Rhinelander, Wis. Lock	752,148	Feb. 16	2560	569	108	1645
Faust, Emily C., Kasson, Minn. Chart or pattern for crochet-work	748,989	Jan 5	747	162, 163	108	170
Faust, Peter, Brooklyn, N. Y. Cocoa-mill	753,129	Feb. 23	4482	998	108	2080
Fay, Charles N., assignor to Fay-Sholes Company, Chicago, Ill. Tabulating mechanism for type-writing machines	752,540	Feb. 16	3307	736	108	1812
Fay, Irving H., Indio, assignor to F. Stebler, Riverside, Cal. Fruit-feeder	750,628	Jan. 26	4104	889	108	957
Fay, John, Jersey City, N. J. Instrument for determining the position of cutters on molding cutter-heads	750,629	Jan. 26	4105	889	108	957
Fay-Sholes Company. (See Fay, Charles N., assignor.)						
Fay-Sholes Company. (See Hochklassen, Henry, assignor.)						
Fehr, William, Philadelphia, Pa. Heddle	748,713	Jan. 5	301	68	108	67
Fehr, William, Philadelphia, Pa. Producing heddles	749,725	Jan. 19	2410	509	108	574
Feldkamp, Frederick A., Newark, N. J., assignor to Electra Manufacturing Company. Producing electrodes for storage batteries	748,940	Jan. 5	749	.....	108	170
Feldkamp, Frederick A., Newark, N. J., assignor to Electra Manufacturing Company. Producing electrodes for storage batteries and electrode	749,853	Jan. 19	2653	567	108	627
Fell, William S. (See Dupuis and Fell.)						
Fellows, Olin S. (See Hopkins and Fellows.)						
Felt, Dorr E., assignor to Comptograph Company, Chicago, Ill. Calculating-machine	749,177	Jan. 12	1209	274, 275, 276	108	311
Feltus, Barton B., Mingary, South Australia, Australia. Wire-working tool	750,630	Jan. 26	4108	889	108	958
Feltus, Henry A., Minneapolis, Minn. Self-heating sad-iron	751,156	Feb. 2	682	157	108	1205
Fenn, Edward J., New Decatur, Ala. Hitching-strap	749,726	Jan. 19	2411	509	108	574
Fenner, George P., New London, Conn. Inking mechanism for printing-presses	749,546	Jan. 12	2002	428	108	483
Ferguson, Fergus, Santa Rosa, Cal. Drawers-supporting attachment for suspenders	751,064	Feb. 2	519	121	108	1173
Ferguson, George C., Fredericton, Canada. Shoe-lace fastener	750,526	Jan. 26	3916	849	108	919
Ferguson, John A. (See Kidder, Frank E., assignor.)						
Ferrari, Carl A., and J. R. Whittemore, assignors to Erie City Iron Works, Erie, Pa. Discharge-valve mechanism for steam-engines	750,105	Jan. 19	3135	673, 674	108	730
Ferrel, John, deceased, Zanesville, Ohio; J. F. Reynolds, administrator. Vehicle-brake	751,274	Feb. 2	997	213	108	1256
Ferris, Frank C., Columbus, Ohio. Mortar holding and discharging device	750,887	Feb. 2	113	25	108	1082
Fesenfeld, Herman, Hoquiam, Wash. Marlinespike	748,714	Jan. 5	302	68	108	67
Fesenfeld, Herman, Hoquiam, Wash. Knockdown umbrella	750,178	Jan. 19	3264	704	108	757
Fesenmeier, Michael L., Cumberland, Md. Pasteurizing	749,547	Jan. 12	2003	428	108	483
Fessenden, Howard A., assignor to Detroit Electric Signal Company, Detroit, Mich. Electric signal system	748,941	Jan. 5	752	163	108	171
Fessenden, Reginald A., Fort Monroe, Va., assignor to National Electric Signaling Company, Pittsburg, Pa. Selective signaling	752,894	Feb. 23	4013	899	108	1985
Fessenden, Reginald A., assignor to National Electric Signaling Company, Pittsburg, Pa. Signaling by electromagnetic waves	752,895	Feb. 23	4015	900	108	1985
Fetzer, William, Middletown, Ohio. Adjusting mechanism for grain-drill furrow-openers	752,618	Feb. 16	3481	776	108	1850
Fey, Lincoln H., Northfield, Minn. Sparking apparatus for explosion-engines	752,892	Feb. 23	3893	873	108	1957
Fidjeland, Terje A., Fostvedt in Iveland, near Christiansand S., Norway. Stream motor	750,025	Jan. 19	2996	639	108	700
Fiebeger, Frank, Akron, Ohio. Means for securing air-blast devices to furnaces	751,389	Feb. 2	1136	258	108	1299
Fiego, Alexander J. R. (See Pratt and Fiego.)						
Field, Charles N., Waterbury, Conn. Stereotype-block	748,590	Jan. 5	77	21	108	19
Field, Edward, London, England. Locomotive-engine	753,057	Feb. 23	4358	969, 970	108	2062
Field, Jesse A., Dunkirk, N. Y. Brake	752,967	Feb. 23	4189	933, 934	108	2024
Field, John F., Chicago, Ill. School-desk	750,527	Jan. 26	3917	849	108	919

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Field, Samuel F., assignor of one-half to J. B. Boring, Anderson, Ind. Pump-operating mechanism	751,624	Feb. 9	1554	354	108	1407
Fieldhouse, Alfred, Paterson, N. J. Umbrella	750,631	Jan. 26	4109	890	108	958
Fielding, Philip H., New York, N. Y. Attachment-plug	752,833	Feb. 23	3895	873	108	1957
Fielding, Philip H., New York, N. Y. Electrical receptacle	752,834	Feb. 23	3897	873	108	1957
Filler, Francis M., assignor of one-half to C. K. Pering, St. Joseph, Mo. Copy-holder	751,490	Feb. 9	1303	298	108	1354
Fillman, John E., and W. Davis, Meno, Okla. Ter.; said Fillman assignor to said Davis. Tire-bolting machine	753,130	Feb. 23	4483	998	108	2090
Finch, Robert C. (See Crapp and Finch.)						
Finger, Alfred P., Jacobs Fork, N. C. Shingle-machine	752,055	Feb. 16	2389	534	108	1697
Fink, Joseph H., Kansas City, Mo. Vapor-burning furnace	750,106	Jan. 19	3137	674, 675	108	731
Finley, Henry L. (See Baughn, Samuel C., Jr., assignor.)						
Finn, John, Montgomery, Miss., assignor of one-half to E. A. Guilfoyle, Louisville, Ky. Track-leveler	750,358	Jan. 26	3594	779	108	851
Firm, Joseph L., Chicago, Ill. Multicolor-printing machine	752,896	Feb. 23	4018	900	108	1986
Firth Sterling Steel Company. (See Wheeler and McKenna, assignors.)						
Fischer, Fred F., Pittsburg, Pa. Apparatus for grinding or polishing glass	749,961	Jan. 19	2858	610, 611	108	672
Fish, Frank H. (See Shepard and Fish.)						
Fish, James E. (See Bender and Fish.)						
Fish, Walter C. (See Stevens and Fish.)						
Fisher, Adam E., Hannibal, Mo. Checking or unchecking device	749,480	Jan. 12	1983	401	108	454
Fisher, Alexander D. (See Parkin, George E. B., assignor.)						
Fisher, Charles, Phelps, N. Y. Telescopic measuring-pail	750,632	Jan. 26	4110	890	108	958
Fisher, Charles, assignor of one-half to V. L. Swain, Stillwater, Minn. Engine	752,056	Feb. 16	2393	534	108	1608
Fisher, Frank A., assignor of one-half to J. Hanley, Virden, Ill. Powder-can	751,157	Feb. 2	684	157	108	1205
Fisher, Michel J., Utica, N. Y. Fabric-marking machine	748,851	Jan. 5	569	130	108	128
Fisher, Phillip E., Spokane, Wash. Pipe-coupling	750,444	Jan. 26	3759	817	108	887
Fisher, Willis H., Oklahoma, Okla. Ter. Hydraulic press for molding artificial stone or the like	751,904	Feb. 9	2000	472, 473	108	1524
Fiske, Henry G., New York, N. Y., assignor, by mesne assignments, to Morton Trust Company, trustee. Multiple-tube pneumatic tire	750,633	Jan. 26	4112	890	108	958
Fiske, Henry G., New York, N. Y., assignor, by mesne assignments, to Morton Trust Company, trustee. Tire	750,838	Feb. 2	114	26	108	1082
Fite, Jeremiah T., Childress, Tex. Piston-travel regulator	751,905	Feb. 9	2003	473, 474	108	1525
Fitts, Norman V., assignor to Colorado Iron Works Company, Denver, Colo. Worm-gear-operated slag-pot construction	752,635	Feb. 16	3518	782, 783	108	1857
Fitzpatrick, Kerlen, *et al.* (See Yoe, Philip, assignor.)						
Flagler, Claude, assignor to Quaker Shade Roller Company, Bay City, Mich. Spear for shade-rollers	749,780	Jan. 19	2522	536	108	599
Flanagan, John J., Cleveland, Ohio. Non-refillable-bottle attachment	750,050	Jan. 19	3030	649	108	708
Fleegle, Irvin B., Daley, Pa. Adjustable flue-collar	751,065	Feb. 2	521	121	108	1174
Fleischmann, Christian, Bloomfield, N. J. Electric motor	752,891	Feb. 16	3482	675	108	1751
Fleming, James R., Scranton, Pa. Car-axle lubricator	752,897	Feb. 23	4020	900	108	1986
Fleming, John C., New York, N. Y. Refining oil	749,925	Jan. 19	2802	597, 598	108	660
Fleming, Lamar L., *et al.* (See Pope, Frederick B., assignor.)						
Fleming, William S. S., Bemidji, Minn. Safe	749,283	Jan. 12	1505	320	108	362
Fleshman, James B., *et al.* (See Weyrs, Frank S., assignor.)						
Fletcher, Addison C., New York, N. Y. Nut-lock	748,942	Jan. 5	755	163	108	171
Flexner, Isidor, assignor to Pittsburgh Crushed Steel Company, Limited, Pittsburg, Pa. Apparatus for feeding abrasive material to grinding-machines	748,855	Jan. 5	571	130	108	128
Fliegel, Josef, Mallmitz, Germany. Apparatus for heating liquids, especially milk	749,926	Jan. 19	2803	598	108	661
Flindt, Carl J. H., Hoboken, N. J. Propeller-ship	751,158	Feb. 2	685	157, 158	108	1205
Flint, Stanley B., New York, N. Y. Tile	751,275	Feb. 2	940	214	108	1257
Flocke, Frank J., New York, N. Y. Machine for boring holes in the keys of piano-actions	753,058	Feb. 23	4362	971	108	2064
Flood, Harry J., Chicago, Ill. Mold for brick-machines	749,781	Jan. 19	2523	536	108	599
Flora, Ellsworth E. (See Northcott and Flora.)						
Florance, William D., Dallas, Tex. Upsetting-machine	751,491	Feb. 9	1304	298	108	1354
Flournoy, James P., Jr. (See Buckelew and Flournoy.)						
Floyd, Byron B., Philadelphia, Pa., assignor to Philadelphia Amusement Company. Toboggan-slide	749,130	Jan. 5	1161	246, 247	108	269
Flutie, Fareedie A., Washington, D. C. House-gown	753,131	Feb. 23	4485	998, 999	108	2090
Foerster, Emil C. (See Brun, Camille and G., assignors.)						
Foerster, Norbert. (See Carey, Daniel J., assignor.)						
Fogarty, James H., New York, N. Y. Sectional wheel for power transmission	752,898	Feb. 23	4022	901	108	1986
Fogel, Rube R., New York, and W. Bourke, Brooklyn, N. Y. Button	749,856	Jan. 19	2656	567	108	628
Foglesong, Charles, St. Paul, Minn. Electric blanket	750,179	Jan. 19	3266	704	108	757
Folding Baby Carriage Company. (See Fanning, Charles E., assignor.)						
Foley, Daniel T., assignor of one-half to W. McNiece, Philadelphia, Pa. Truss	752,445	Feb. 16	3140	698	108	1774
Foley, James S., West Bromwich, England. Motor sparking plug	749,045	Jan. 5	990	210	108	230
Foley, Peter H., Boston, Mass. Leg-rest for banjos, &c	752,664	Feb. 23	3878	797	108	1887
Folger, Harry S., Chicago, Ill. Type-holder	748,715	Jan. 5	304	68	108	67
Folmer, William F., and A. M. Lawrence, New York, N. Y. Stereoscope	749,046	Jan. 5	991	210	108	230
Folsom, George F., Roslindale, assignor to H. M. Esselen, Boston, Mass. Snow-guard	752,216	Feb. 16	2687	594	108	1676
Fontaine, Patrick H., Bethel Hill, N. C. Shock-binder	749,047	Jan. 5	994	210	108	231
Foos Gas Engine Company. (See Sonander, Andrew, assignor.)						
Foos Manufacturing Company. (See Adelsperger, Dow L., assignor.)						
Foote, Charles E. and C. T., Nunda, N. Y. Mixing-machine	749,962	Jan. 19	2860	611	108	672
Foote, Charles G., Denver, Colo., assignor to T. Carroll, Anaheim, Cal. Dumping apparatus	749,139	Jan. 5	1190	254, 255	108	276
Foote, Chester T. (See Foote, Charles E. and C. T.)						
Foote, James H., Cincinnati, Ohio. Weather-strip	752,767	Feb. 23	3759	839	108	1928
Foote, John H., assignor one-half to H. S. McLeod, Troy, N. Y. Boiler-furnace	753,059	Feb. 23	4364	972	108	2064
Forbes, John S., Philadelphia, Pa. Apparatus for heating and sterilizing	750,757	Jan. 26	4385	947	108	1022
Forbes, Robert, Downieville, Cal. Trunk-strap	749,782	Jan. 19	2526	537	108	599
Forbes, William C., Elsternwick, Victoria, Australia. Distance-recorder for ships	749,927	Jan. 19	2804	598, 599	108	661
Force, Horace W., Newburgh, N. Y. Slide-carrier for stereopticons, magic lanterns, or the like	749,048	Jan. 5	996	210, 211	108	232
Forcke, Carl, Hanover, Germany. Baking-mold	750,445	Jan. 26	3760	817	108	887

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ford, Charles A., Madison, Ind. Can-opener	749,548	Jan. 12	2064	429	108	484
Ford, George R., and B. F. Allen, St. Louis, Mo.; said Allen assignor to said Ford. Roll-grinding apparatus	750,528	Jan. 26	3918	850	108	920
Ford, George R., and B. F. Allen, St. Louis, Mo.; said Allen assignor to said Ford. Roll-grinding apparatus	750,529	Jan. 26	3922	850 / 851	108	920
Ford, George R., and B. F. Allen, St. Louis, Mo.; said Allen assignor to said Ford. Roll-grinding apparatus	750,530	Jan. 26	3925	851	108	921
Ford, George R., and B. F. Allen, St. Louis, Mo.; said Allen assignor to said Ford. Roll-grinding apparatus	750,531	Jan. 26	3927	852	108	921
Ford, James S. (See Larned and Ford.)						
Ford, James S., Chicago, Ill., assignor to American Telephone and Telegraph Company. Wire-connector	748,716	Jan. 5	305	68	108	67
Ford, Joseph, Cromwell, New Zealand. Perambulator	752,287	Feb. 16	2831	628	108	1706
Ford, R. G., *et al.* (See Cornish, Harry B., assignor.)						
Ford, W. E., *et al.* (See Cornish, Harry B., assignor.)						
Forde, Thomas J., assignor of two-thirds to F. S. Turner and C. B. Gladding, Geneva, Ohio. Razor-strop dresser	753,060	Feb. 23	4306	972	108	2065
Forde, Thomas J., assignor of two-thirds to F. S. Turner and C. B. Gladding, Geneva, Ohio. Razor-strop dresser	753,190	Feb. 23	4607	1026	108	2119
Forest, Antonio. (See Escudei and Forest.)						
Fornander, Alfred, New York, N. Y., assignor to Carpet Yarn Printing Company. Apparatus for coloring yarns	750,758	Jan. 26	4389	947	108	1022
Forslund, Noble G., Cherokee, Iowa. Wrench	749,068	Jan. 12	2275	480	108	528
Forsythe, William, Tama, Iowa. Vending-machine	751,276	Feb. 2	942	214	108	1257
Fortney, Frank G., Monroeville, Ind. Creaming-can	748,598	Jan. 5	80	21	108	19
Forton, Dwight E., Evart, Mich. Tile-machine	749,669	Jan. 12	2276	480	108	529
Forwood, Lorin C., Decatur, Ill. Apparatus for grinding or polishing metals	749,179	Jan. 12	1282	276	108	314
Foss, John J., Glenville, assignor, by mesne assignments, to Boley Wire Fence Company, Sandusky, Ohio. Wire-fence-weaving machine	750,899	Feb. 2	117	26, 27	108	1083
Foster, Charles E., Washington, D. C., assignor to W. P. Simpson, Overbrook, Pa. Lawn-mower	751,844	Feb. 9	1976	449	108	1497
Foster, Charles E., Washington, D. C., assignor to W. P. Simpson, Philadelphia, Pa. Lawn-mower	752,665	Feb. 23	3579	797 / 798	108	1888
Foster, Charles G., North English, Iowa. Window-curtain fixture	751,906	Feb. 9	2096	474	108	1526
Foster, James A., Binghamton, N. Y. Bottle	752,395	Feb. 16	2925	652	108	1728
Foster, Jed S., Westfield, N. J., assignor to Lidgerwood Manufacturing Company, New York, N. Y. Suspension device for two-rope buckets	749,784	Jan. 19	2528	537	108	600
Foster, John H. (See Sharpe, Alfred H. B., assignor.)						
Foster, John R., Chicago, Ill. Copy-holding device	749,783	Jan. 19	2527	537	108	600
Foster, Theodore W., Providence, R. I. Locket	752,396	Feb. 16	2927	653	108	1729
Foster, Thomas J. (See Nelson, Stewart, and Foster.)						
Fournier, Frederick, Pontiac, Mich. Weather-strip	749,807	Jan. 19	2729	584	108	645
Fowler, Charles S., and F. C. Wetzler, Toledo, Ohio. Mop-wringer	750,354	Jan. 26	3596	779	108	852
Fowler, Charles V., Los Angeles, Cal. Apparatus for raising or lowering heavy bodies	749,808	Jan. 19	2730	584 / 585	108	645
Fox, Albert B., Brazil, N. D. Stove	750,355	Jan. 26	3597	780	108	852
Fox, Alfred, *et al.* (See Wiesman, Lester A., assignor.)						
Fox, Christopher C., Higginsville, Mo. Well-drill	750,840	Feb. 2	121	28	108	1084
Fox, Henry H., Newburgh, N. Y. Weighing-scoop	748,856	Jan. 5	572	130	108	129
Foy, George P., deceased, Homestead, Pa.; L. Foy, administratrix, assignor of one-half to A. Nelli, Pittsburg, Pa. Machine for handling ingots or like pieces under the hammer	749,049	Jan. 5	1000	211 / 212	108	282
Foy, Lizzie, administratrix. (See Foy, George P.)						
Foyer, Melvin J., assignor, by mesne assignments, to Bostedo Pneumatic Tube Company, Chicago, Ill. Pneumatic conveyer	750,356	Jan. 26	3598	780	108	852
Framburg, Henry A., Chicago, Ill. Incandescent-electric-lamp socket	748,599	Jan. 5	81	22	108	20
France, David, Hawley, Minn. Car-starter	750,958	Feb. 2	336	80	108	1132
Francis, George S., and B. B. Ryan, Havre, Mont. Gate-fastener	752,217	Feb. 16	2698	595	108	1676
Frangart, Valentine B., Boundbrook, N. J. Measuring device	752,446	Feb. 16	3141	696	108	1774
Frank, John P., Danville, Ky. Skid	750,446	Jan. 26	3760	817	108	887
Frank, Oskar, assignor to L. J. Lennox and Michigan Storage Battery Co., Detroit, Mich. Battery-plate	749,785	Jan. 19	2530	537	108	601
Franke, Theodor, Berlin, Germany. I-iron bearer for concrete structures	749,987	Jan. 19	2916	622	108	685
Franz, Robert S., Etna, Pa. Furnace	750,739	Jan. 26	4304	948	108	1023
Fraser, Isaac A., Providence, R. I. Steam-blower	749,050	Jan. 5	1005	212	108	283
Fraser, Joseph W., Ottawa, Canada. Cribwork or the like	751,492	Feb. 9	1305	299	108	1355
Frazee, Cassius F., Portland, Oreg. Combined jointer and raker-gage for saws	751,390	Feb. 2	1138	250	108	1300
Frease, George B. (See Kling, John C., assignor.)						
Fred. M. Prescott Steam Pump Company. (See Prescott, Frederick M., assignor.)						
Frederick, Charles W. H., Melrose, Mass. Car-seat	751,277	Feb. 2	943	215	108	1258
Fredericks, George E., Hamler, Ohio. Horse-cleaner	749,727	Jan. 19	2412	509	108	574
Freed, George F., assignor to Duff Manufacturing Company, Allegheny, Pa. Pipe-forcing jack	750,959	Feb. 2	337	80	108	1133
Freeman, Dobbin Fireproofing Company. (See Dobbin, Clarence E., assignor.)						
Freiberg, Harry E., Dexter, Iowa. Belt-guide	751,625	Feb. 9	1556	354	108	1408
French, Warren. (See McAnulty, O'Brien, and French.)						
Frenot, Louis D., Newark, N. J. Safety nut-lock	752,057	Feb. 16	2903	535	108	1608
Frerot, Charles, Reims, France, assignor to J. H. Haworth and W. S. Watson, Lowell, Mass. Machine for making paper tubes	749,051	Jan. 5	1006	212 / 213 / 214	108	234
Freschl, Alfred, Chicago, Ill. Button-support for tufting-machines	753,132	Feb. 23	4486	999	108	2090
Frew, James H. (See Anderson, John S., assignor.)						
Fricke, William F., Mount Sterling, Ill. Steam-condenser	749,549	Jan. 12	2065	429	108	484
Friedrich, Alfred V. (See Smith, Andrew, assignor.)						
Friedt, David M., Seville, Ohio. Currycomb	749,052	Jan. 5	1016	214	108	235
Friel, John F. (See Stockman and Friel.)						
Friend, George J., Kingsley, Oreg. Bolster attachment	748,600	Jan. 5	82	22	108	20
Frizell, Henry, Grassrange, Mont. Shepherd's crook	752,058	Feb. 16	2905	535	108	1608
Frost, Horace L., Bristol, Tenn. Water-elevating apparatus	751,626	Feb. 9	1558	354 / 355	108	1408
Frost, Samuel H., Franklin, Mass. Thill-tug	750,841	Feb. 2	122	28	108	1084
Frotscher, Oscar, Philadelphia, Pa. Window	749,608	Jan. 12	2154	451	108	504
Fry, David M., assignor of one-half to E. B. Zimmerman, Ulysses, Nebr. Wire-stretcher	750,273	Jan. 26	3445	743	108	816
Fry, Henry B. (See Tillson, Stephen, assignor.)						
Fryer, George G., Syracuse, N. Y. Tile	749,786	Jan. 19	2531	538	108	601

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fuel Economizer Company of America. (See Burpee, George H., assignor.)						
Fuel Oil Power Company. (See Ostergren, Oscar P., assignor.)						
Fulford, Elijah D., Utica, N. Y., assignor of one-half to J. H. Webster and P. North, Cleveland, Ohio. Single-trigger mechanism for firearms	749,687	Jan. 12	2309	487	108	535
Fulford, Elijah D., Utica, N. Y., assignor of one-half to J. H. Webster and P. North, Cleveland, Ohio. Single trigger for firearms	751,979	Feb. 9	2266	507 / 508	108	1561
Fulghum, Elisha J., assignor of one-half to Traverse City Iron Works, Traverse City, Mich. Machine for trimming and matching the ends of flooring	749,550	Jan. 12	2067	429	108	484
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company. Match or other box	750,447	Jan. 26	3761	818	108	887
Fuller, Charles W. (See Kimball, Earle F., assignor.)						
Fuller, George. (See Nind and Strasburger, assignors.)						
Fuller, Horace W. (See Hubbell, Harry C., assignor.)						
Fuller, James W., Jr., Catasauqua, Pa. Chill	749,928	Jan. 19	2806	599	108	662
Fuller, William H., Abbeville, La. Checkrein	749,929	Jan. 19	2807	599	108	662
Fulton, Fred H., Anacortes, assignor of one-half to Letson & Burpee, Fairhaven, Wash., and Vancouver, Canada. Can-filling machine	750,760	Jan. 26	4395	948 / 949	108	1024
Funk, Henry, Pana, Ill. Grain-drill	748,717	Jan. 5	306	69	108	68
Funck, Jacob F., assignor of one-half to P. Funck, Rochester, N. Y. Vulcanizer	751,498	Feb. 9	1307	299	108	1355
Funck, Philipp. (See Funck, Jacob F., assignor.)						
Funk, Richard W., New York, N. Y., assignor to Hudson Machine and Pneumatic Tool Co., Jersey City, N. J. Motor	751,980	Feb. 9	2269	508	108	1562
Funk, William J., Enterprise, Oreg. Goods-display cabinet	752,541	Feb. 16	3310	737	108	1813
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Reversible screw-driver	750,182	Jan. 19	3271	705	108	758
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Ratchet-tool	750,183	Jan. 19	3272	705	108	759
Furst, Richard C., Burlington, N. J. Hammock	751,907	Feb. 9	2098	474	108	1526
Fuston, Sumner, Murfreesboro, Tenn. Brooder	752,542	Feb. 16	3313	737	108	1814
Fyfe, John C., and V. Odquist, Chicago, Ill. Releasing device for the plate-holders of magazine-cameras	749,284	Jan. 12	1506	321	108	362
Gable, Martin N., Flint, Mich. Hat-holder	750,634	Jan. 26	4114	891	108	959
Gabrielson, Carl, Worcester, Mass., assignor to L. C. Smith and Bros. Typewriter Company, Syracuse, N. Y. Type-writing machine	750,274	Jan. 26	3446	744	108	817
Gaffner, Charles H. (See Parker, George L., assignor.)						
Gage, John O., New York, N. Y. Canopy-support	752,543	Feb. 16	3315	738	108	1814
Gage, John W., Chicago, Ill., assignor of one-half to J. P. Wiens, Milwaukee, Wis. Grating implement	751,159	Feb. 2	687	158	108	1206
Galbreath, Thomas M., Memphis, Tenn. Railway	749,609	Jan. 12	2157	451 / 452	108	505
Galetti, Joseph T., assignor of part to C. Piva and E. Pergoli, New York, N. Y. Combined cigar-cutter and match-igniter	749,964	Jan. 19	2864	612	108	673
Gallagher, George S., New York, N. Y. Apparatus for applying disinfectants to water-closets	749,963	Jan. 19	2863	611	108	673
Gallagher, George S., assignor to himself, R. L. Joseph, and F. E. Burrows, New York, N. Y. System for operating stock-boards	752,059	Feb. 16	2897	595	108	1608
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y. Draft-rigging	752,337	Feb. 16	2928	653	108	1729
Gallinger, Samuel, *et al.* (See McCormick, Patrick F., assignor.)						
Galloway, Edwin F., Jr., Newark, N. J., assignor to Empire Engine and Motor Company, Orangeburg, N. Y. Forging-suspender	752,218	Feb. 16	2690	595	108	1676
Galloway, William A., Xenia, Ohio. Surgical pan	749,180	Jan. 12	1283	277	108	314
Gally, Merritt, Brooklyn, N. Y. Telephonic repeater	749,481	Jan. 12	1934	401	108	454
Gally, Merritt, Brooklyn, N. Y. Adjustable and self-adjusting music roll and spool	751,494	Feb. 9	1309	300	108	1356
Gally, Merritt, Brooklyn, N. Y. Telephonic repeater	751,845	Feb. 9	1978	450	108	1497
Gally, Merritt, Brooklyn, N. Y. Pneumatic action for mechanical musical instruments and players	752,060	Feb. 16	2399	535	108	1609
Gally, Robert A., Brooklyn, N. Y. Music recording and self-playing mechanism	749,181	Jan. 12	1284	277	108	315
Gamble, Cyrus T., Diamondville, Wyo. Inhaler	753,133	Feb. 23	4487	999	108	2091
Gamble, Joseph W., Omaha, Nebr. Five-horse gang-plow evener	749,373	Jan. 12	1690	359	108	404
Gamewell Fire Alarm Telegraph Company. (See Decrow, William E., assignor.)						
Gamewell Fire Alarm Telegraph Company. (See Kirnan, William H., assignor.)						
Gander, Harry W., Rudy, Pa. Heat-regulator	752,061	Feb. 16	2401	536	108	1610
Gantz, Henry H., Albia, Iowa. Sprayer for dental polishing and grinding instruments	749,899	Jan. 19	2732	585	108	645
Gardenier, Henry, Paterson, N. J. Water-supply valve	750,960	Feb. 2	339	80	108	1133
Gardiner, David R., Neepawa, Canada. Apparatus for pickling or treating grain with liquids	749,285	Jan. 12	1509	321	108	363
Gardiner, David R., Neepawa, Canada. Pneumatic blower	750,961	Feb. 2	340	81	108	1133
Gardiner, George H., New York, assignor to Wichert & Gardiner, Brooklyn, N. Y. Protector for shoe-uppers	751,627	Feb. 9	1564	355	108	1409
Gardner, Charles S., *et al.* (See Keen, Arthur W. M., assignor.)	751,846	Feb. 9	1980	450	108	1498
Gardiner, Frank J., Chicago, Ill. Curing meats	752,392	Feb. 16	3084	675	108	1752
Gardner, James, Lismore, New South Wales, Australia. Bracket	749,670	Jan. 12	2277	480	108	529
Gardner, Jas. T. (See Autry, George F., assignor.)						
Gardner, Joe S., *et al.* (See Hacker, Matt A., assignor.)						
Gardner, John A., Grifton, N. C. Tobacco-truck	751,628	Feb. 9	1566	355	108	1410
Gardner, John W., Quincy, Ill. Pressure-regulator for steam-pump governors	750,448	Jan. 26	3762	818	108	887
Gardner, William D., Washington, Pa. Combined steam and explosion engine	752,619	Feb. 16	3483	776 / 777	108	1850
Garlick, Bertha. (See Garlick, Walter J., assignor.)						
Garlick, Walter J., assignor, by mesne assignments, to B. Garlick, Paterson, N. J. Warping-machine	752,393	Feb. 16	3085	675	108	1752
Garrett, George, Coatbridge, Scotland. Furnace	750,635	Jan. 26	4115	891 / 892	108	959
Garrett, Samuel, assignor to Garrett Tip Company, Chicago, Ill. Rubber-and-metal-cap tip for chairs	751,160	Feb. 2	689	158	108	1206
Garrett Tip Company. (See Garrett, Samuel, assignor.)						
Garrow, Leon. (See Brosnan, Michael, assignor.)						
Garvin, George K., New York, N. Y. Milling-machine	751,629	Feb. 9	1567	356	108	1410
Gaskill, James C. (See Aultman and Gaskill.)						
Gaston, Wilbert T., Hackberry, Okla. Ter. Vehicle-axle	751,278	Feb. 2	948	215	108	1258
Gates, Elmer, Chevy Chase, Md. Extinguishing fires	749,374	Jan. 12	1691	359	108	404
Gates, John A., Allegheny, Pa. Printing-press	753,061	Feb. 23	4367	972	108	2065
Gatterer, Edwin L., Jersey City, N. J. Bottle-holder	752,908	Feb. 23	4195	985	108	2026
Gauchet, Edward A., Saugatuck, Conn. Car-door fastener	751,495	Feb. 9	1311	300	108	1356

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gaumont et Cie., Ste L. (See Gaumont, Léon, assignor.)						
Gaumont, Léon, assignor to Ste L. Gaumont et Cie., Paris, France. Means for operating synchronously phonographs and kinematographs	752,394	Feb. 16	3087	676	108	1732
Gebert, William, Trenton, N. J. Horn	752,447	Feb. 16	3142	699	108	1774
Gee, James, *et al.* (See Waters, Frank J., assignor.)						
Gee, Xen. (See Stansell and Gee.)						
Geer, Harvey G., Rockford, Ill. Attachment for suspenders	752,149	Feb. 16	2561	570	108	1645
Gehring, Marie V., *et al.* (See Shoemaker, Harry, assignor.)						
Gehrung, Julien A., St. Louis, Mo. Electric selective system	752,150	Feb. 16	2562	570	108	1645
Geiger, Charles E., Louisville, Ky. Drier	750,051	Jan. 19	3032	649, 650	108	708
Geisler, Fernando H., assignor of one-half to H. E. Snyder, Dayton, Ohio. Extension lamp-hanger	748,718	Jan. 5	307	69	108	68
Geistert, Rudolph H. A., Camden, N. J. Sounding toy	749,482	Jan. 12	1935	402	108	454
Gelbaugh, William H., Denver, Colo. Hinge-gage	750,842	Feb. 2	122	28	108	1084
Gell, John, London, England. Perforator for use with automatic telegraph-transmitters	751,161	Feb. 2	600	150	108	1206
Gell, John, London, England. Perforator for automatic telegraph-transmitters	751,162	Feb. 2	695	160, 161	108	1207
Gell, John, London, England. Feed-wheel for automatic telegraphic perforators and transmitters	751,163	Feb. 2	701	161	108	1208
Gell, John, Wellington, New Zealand. Apparatus for perforating tape for automatic telegraph instruments or the like	751,164	Feb. 2	703	161, 162	108	1208
General Electric Company. (See Case, Frank E., assignor.)						
General Electric Company. (See Corey, Fred B., assignor.)						
General Electric Company. (See Cox, Frank P., assignor.)						
General Electric Company. (See Day, Maxwell W., assignor.)						
General Electric Company. (See Everest, Augustine R., assignor.)						
General Electric Company. (See Haskins, Caryl D., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Kaler, Charles H., assignor.)						
General Electric Company. (See Monson, George, assignor.)						
General Electric Company. (See Perry, Charles L., assignor.)						
General Electric Company. (See Pratt and Flego, assignors.)						
General Electric Company. (See Read, Robert H., assignor.)						
General Electric Company. (See Riddell, John, assignor.)						
General Electric Company. (See Robinson, Lewis T., assignor.)						
General Electric Company. (See Rupley, George H., assignor.)						
General Electric Company. (See Stevens and Fish, assignors.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Tournier, Julius C., assignor.)						
General Electric Company. (See Wood, Montraville M., assignor.)						
General Fire Extinguisher Company. (See Spratt, Albert, assignor.)						
George B. Donavin & Company. (See Donavin, Stein, and Hunt, assignors.)						
George, Joseph A., and F. C. Dohrmann, Brooklyn Hills, N. Y. Fire-starting device	752,338	Feb. 16	2330	653	108	1729
George, Seymour, Altoona, assignor of one-half to C. F. Harris, Pittsburg, Pa. Steam and hydraulic spiral motor	750,532	Jan. 26	3929	852	108	921
George, Seymour, assignor of one-half to C. F. Harris, Pittsburg, Pa. Jet propulsion apparatus for vessels	750,533	Jan. 26	3932	853, 854, 855	108	922
George, Seymour, Derry Station, assignor of one-half to C. F. Harris, Pittsburg, Pa. Adjustable packing device for the stuffing-boxes of rotary motors	750,534	Jan. 26	3947	855, 856	108	923
Gerdom, Gregory, Watervliet, N. Y., assignor to Ordnance Improvement Company. Retracting attachment for firing-pins for ordnance	751,847	Feb. 9	1981	450	108	1408
Germain, Peter H., assignor to Spencer Wire Company, Worcester, Mass. Towel-rack	748,719	Jan. 5	309	69	108	69
Germain, Pierre, Fontenay aux Roses, France. Microphone	753,062	Feb. 23	4368	972	108	2065
Gerner, Henry J., Vandergrift, Pa. Continuous ice-cream freezer	749,286	Jan. 12	1510	321, 322	108	363
Gertz, Richard W., Cambridge, Mass. Piano	751,726	Feb. 9	1738	394	108	1445
Gessner, David, Worcester, Mass. Strickle for card-clothing	751,165	Feb. 2	708	162, 163	108	1209
Gibb, Hugh M., Cowansville, Pa. Bottle	752,899	Feb. 23	4023	901	108	1987
Gibbons, Edward F., assignor to Silver Manufacturing Company, Salem, Ohio. Cutting-machine	750,107	Jan. 19	3189	675	108	731
Gibbons, Redmond, deceased, New York, N. Y.; J. K. Beach, administrator. Household implement	750,357	Jan. 26	3902	781	108	853
Gibbs, Eugene U., Peterboro, Canada. Steam-boiler	750,275	Jan. 26	3448	744, 745	108	817
Gibbs, James E., Bridgewater, Va. Sash-fastener	752,092	Feb. 16	2403	596	108	1610
Gibbs, Lucius T., New York, N. Y., assignor to Vehicle Equipment Company. Running-gear	749,287	Jan. 12	1517	322	108	365
Gibbs, Thomas M. (See McKinney, Robert, assignor.)						
Gibbs, William E., Fanwood, assignor of one-half to H. Berg, Newark, N. J. Hydrocarbon-burner	750,992	Feb. 2	341	81	108	1133
Gibbs, William E., Fanwood, assignor of one-half to H. Berg, Newark, N. J. Hydrocarbon-burner	751,066	Feb. 2	522	121	108	1174
Gibbs, William E., Fanwood, assignor of one-half to H. Berg, Newark, N. J. Hydrocarbon-burner	752,900	Feb. 23	4024	901	108	1987
Gibson, Robert L. (See Jetter, Julius, assignor.)						
Gibson, Robert L. (See Jones, Henry, assignor.)						
Gidley, Lee, Morgantown, W. Va. Angle-strip	751,279	Feb. 2	960	215	108	1259
Gies, Charles W., Seattle, Wash. Clothes-drier	752,151	Feb. 16	2566	570	108	1646
Giesler, Arthur, assignor to Stilwell-Bierce & Smith-Vaile Co., Dayton, Ohio. Water-wheel setting	750,761	Jan. 26	4402	949	108	1025
Giesler, Arthur, assignor to Stilwell-Bierce & Smith-Vaile Co., Dayton, Ohio. Water-wheel setting	750,843	Feb. 2	123	29	108	1085
Gifford, Aaron C., *et al.* (See Coomber, James, assignor.)						
Giglio, Calocero, and B. Zaouche, Paris, France. Agglomerating compound for agglomerating pulverulent materials	751,280	Feb. 2	960	.....	108	1259
Gilbert & Barker Manufacturing Company. (See Barker, John F., assignor.)						
Giles, James A., Elberton, Ga. Electrical device for shocking horses	752,544	Feb. 16	3317	738	108	1815
Giles, Joseph S., assignor to M. J. Whittall, Worcester, Mass. Oiling device for looms	751,067	Feb. 2	523	122	108	1174
Giles, Joseph S., assignor to M. J. Whittall, Worcester, Mass. Oiling device for looms	751,068	Feb. 2	524	122	108	1174
Giles, William, Amarillo, Tex. Fodder-fork	748,601	Jan. 5	84	22	108	90
Gill, George E., Wake Forest, N. C. Combination-plow	751,630	Feb. 9	1568	356	108	1410
Gill, John E., Jefferson, Iowa. Window-shade bracket	750,184	Jan. 19	3274	706	108	759

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gillard, William J., Minneapolis, Minn. Depth-scale	750,449	Jan. 26	3764	818	108	888
Gillett, Vernor J., assignor to Standard Metal Furniture Company, Detroit, Mich. Folding bed	750,702	Jan. 26	4404	950	108	1026
Gillette, Randolph, assignor of one-half to S. J. Vasaly, Littlefalls, Minn. Rotary valve	751,281	Feb. 2	951	216	108	1259
Gilliam Manufacturing Company. (See Miller, Charles W., assignor.)						
Gillin, Robert F., New York, N. Y. Flushing-valve	750,763	Jan. 26	4405	950	108	1026
Gillon, Edward F., Wakefield, Mass., assignor to Miller Lock Company, Philadelphia, Pa. Lock	752,063	Feb. 16	2404	596	108	1610
Gilman, Edward, New Haven, Conn. Phonograph	749,857	Jan. 19	2657	567, 568	108	628
Gilman, Edward R. (See Keiner and Gilman.)						
Gilman, Willard H., Boston, Mass., assignor to American Amusement Company, Kittery, Me. Seesaw amusement apparatus	753,197	Feb. 23	4008	1026	108	2119
Giltner, Oliver, Portland, Oreg. Ventilating-fan	750,450	Jan. 26	3765	818, 819	108	888
Gingras, Joseph H. (See Parisien and Gingras.)						
Gioiosa, Giuseppe, East Boston, Mass. Guide for sewing-machines	751,009	Feb. 2	525	122	108	1175
Gladding, Charles B., *et al.* (See Forde, Thomas J., assignor.)						
Gladwill, William H., Kansas City, Mo. Washboard	751,282	Feb. 2	953	216	108	1259
Glaze, William, Buckingham, Ill. Grain-guide for harvesters	749,375	Jan. 12	1693	360	108	405
Glazier, Peter F., Indianapolis, Ind. Mantle-guard for cocks and faucets	748,720	Jan. 5	310	69, 70	108	69
Gleason, William J., Philadelphia, Pa. Lamp-chimney	750,844	Feb. 2	124	29	108	1085
Giessner, Frank. (See Crapp and Finch, assignors.)						
Globe Automatic Telephone Company. (See Norstrom and Brownrigg, assignors.)						
Glück, Josef, New York, N. Y. Hose-coupling	751,631	Feb. 9	1570	356	108	1410
Glüss, William. (See Baden and Glüss.)						
Goade, Richard J., Allentown, Pa. Filter	748,857	Jan. 5	573	131	108	129
Goculdas, Narottam M., and K. S. Irani, Bombay, India. Alarm for road-vehicles	750,686	Jan. 26	4116	892	108	960
Gode, Albert G., assignor of two-fifths to A. H. Yund, Amsterdam, N. Y. Antifriction crank-handle	751,496	Feb. 9	1313	300	108	1356
Goede, Johannes H. de, and S. N. Groot, Enkhuizen, Netherlands. Steam-turbine	752,545	Feb. 16	3318	739	108	1815
Goehring, Charles L., and W. Troche, Akron, Ohio; said Troche assignor to said Goehring. Beveling glass or like substances	749,551	Jan. 12	2060	430	108	485
Goehst, John H., Chicago, Ill. Electrical illuminating device for show-windows	753,134	Feb. 23	4488	999, 1000	108	2091
Goertz & Co., Aug. (See Eigen, Benno vom, assignor.)						
Goetz, Henri, Frankfort-on-the-Main, Germany. Flask for volatile or other liquids	750,637	Jan. 26	4117	893	108	960
Goff, Frank C., Denver, Colo. Heating system	750,358	Jan. 26	3604	781	108	853
Goff, Thomas E., Whitewright, Tex. Game apparatus	751,070	Feb. 2	526	122	108	1175
Goings, Elisha R., Clay City, Ill. Evaporator	750,585	Jan. 26	3954	856	108	935
Gold, Edward E., New York, N. Y. Hose-coupling	749,483	Jan. 12	1936	402	108	454
Gold, Egbert H., Chicago, Ill. Expansion-trap	752,219	Feb. 16	2691	596	108	1676
Gold, Martin D., Amherst, Mass. Lamp-shade holder	750,963	Feb. 2	343	81	108	1134
Goldberg, John S., Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Switching apparatus	750,845	Feb. 2	125	29	108	1085
Golding, John M., Washington, D. C. Electrical signal apparatus	751,788	Feb. 9	1856	422, 423	108	1470
Goldschmid, Jacob E. (See Dicke, Hugo, assignor.)						
Goldsmith, Elias, Norfolk, Va., assignor of two-thirds to J. R. Whittley and J. P. Williams. Loom-picker	751,497	Feb. 9	1315	301	108	1357
Goldsmith, Julius, Eugene, Oreg. Plug-tobacco puller	751,848	Feb. 9	1983	451	108	1498
Goldthwait, William A., Melrose Park, Ill. Valve for automatic fire-extinguishers	752,969	Feb. 23	4196	935	108	2026
Golland, Henry S., Worsley, England. Spinning-mule	750,026	Jan. 19	2988	639, 640	108	700
Golland, Henry S., Worsley, England. Yarn-winding machine	750,964	Feb. 2	344	82	108	1134
Gollar, Frank. (See Brownley, Alexander H., assignor.)						
Goode, Frank R., Decatur, assignor of one-half to W. B. Sparks, Clinton, Ill. Draft-equalizer	752,835	Feb. 23	3898	874	108	1957
Goodell, Henry E., assignor to Goodell Manufacturing Company, Greenfield, Mass. Miter-box	751,908	Feb. 9	2099	474, 475	108	1526
Goodell Manufacturing Company. (See Goodell, Henry E., assignor.)						
Goodfellow, Joseph. (See Chapman, Charles E., assignor.)						
Goodridge, James F., Boston, Mass. Water-bottle	753,063	Feb. 23	4369	973	108	2065
Goodwin, Adam M., assignor, by mesne assignments, to Goodwin Company, Pittsburg, Pa. Temperature-regulating apparatus	752,768	Feb. 23	3760	839	108	1928
Goodwin Company. (See Goodwin, Adam M., assignor.)						
Goodyear, Nelson. (See Earle and Goodyear.)						
Goodyear, William E., London, England, assignor to Willcox and Gibbs Sewing Machine Company, New York, N. Y. Buttonhole-sewing machine	749,437	Jan. 12	1817	381, 382	108	430
Goodyear's India Rubber Glove Manufacturing Co. (See Eggers, Anton C., assignor.)						
Goord, Charles G., Brighton, England. Rail and conductor point operating mechanism	748,721	Jan. 5	311	70	108	69
Gordon, George W., assignor of two-fifths to H. Arzt and J. Sostman, Philadelphia, Pa. Preserving wood	751,981	Feb. 9	2272	.....	108	1562
Gordon, Millicent, West Kensington, London, England. Hat-fastener	752,288	Feb. 16	2832	628	108	1708
Gorick, Charles. (See Stutchbury and Gorick.)						
Gorman, Mary C. (See Lawson, Robert R., assignor.)						
Gormly, Robert W., Troy, N. Y. Bur-wheel support for knitting-machines	752,666	Feb. 23	3580	798	108	1898
Gorton, William S., Cleveland, Ohio. Machine for making metallic wheel-rims	751,106	Feb. 2	711	163	108	1210
Gosett, Allen D., Krum, Tex. Horseshoe	751,498	Feb. 9	1316	301	108	1357
Goth, Thomas R., San Francisco, Cal. Centrifugal pump	750,846	Feb. 2	128	29, 30	108	1086
Goughenour, Levi D., and J. A. Marx, Braddock, Pa.; said Goughenour assignor to said Marx. Hose coupling and shut-off	751,391	Feb. 2	1140	259	108	1300
Gould, Aaron P., Canton, Ohio. Surgical chair	751,167	Feb. 2	713	163, 164	108	1210
Grace, Ethel W., Sapulpa, Ind. Ter. Bluing gage and mixer for washing-machines	750,185	Jan. 19	3275	706	108	759
Graef Hat-Band Mfg. Co. (See Vonderheyden, Ernest, assignor.)						
Graff, Jacob, New York, N. Y. Bevel and square	753,064	Feb. 23	4371	973	108	2066
Graft, John C., East Orange, N. J. Manufacturing attrition-disks and the product thereof	750,630	Jan. 26	4120	894	108	960
Graham, David L., Wilkinsburg, Pa. Propelling mechanism	750,638	Jan. 26	4119	893	108	960
Graham, Edinburgh, Orangeburg, S. C. Trousers creaser and presser	750,186	Jan. 19	3276	706	108	760
Graham, Levi P., Decatur, Ill. Corn-planter	751,632	Feb. 9	1571	356, 357	108	1411
Graham, Levi P., Decatur, Ill. Corn-planter	751,633	Feb. 9	1573	357	108	1411
Graham Lumber Company. (See Custer, Joseph M., assignor.)						
Graichen, William C., Winchester, Va. Glove-gauntlet	752,769	Feb. 23	3762	839	108	1929

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Granberg, Ole, Blair, Wis. Metallic railway-tie and rail-fastener	749,817	Jan. 19	2583	550	108	612
Granger, Hollis R., assignor of one-half to C. Dellwo, St. Paul, Minn. Shaft-straightener	749,816	Jan. 19	2582	550	108	612
Grant, John S., *et al.* (See Henderson, Ewen C., assignor.)						
Grant, Rudolph R. (See Breedlove and Grant.)						
Grant, William W., Brooklyn, N. Y. Vaporizer for gas-engines	750,451	Jan. 26	3767	819	108	888
Grassy, Joseph. (See Barbier, Charmetant, and Grassy.)						
Grath, Walter P., St. Louis, Mo. Roofing-tile	749,182	Jan. 12	1289	277	108	316
Grauel, Edwin L., assignor to National Telegraphone Company, Rochester, N. Y. Signaling apparatus	751,071	Feb. 2	527	123	108	1175
Grawl, Joseph. (See Schwieger, Adolf, assignor.)						
Gray, Christian H., Silvertown, and T. Sloper, Devizes, England. Cover for elastic tires	748,858	Jan. 5	576	131, 132	108	129
Gray, David G., assignor to McGaw and Gray, Philadelphia, Pa. Building concrete walls, &c	751,789	Feb. 9	1858	423	108	1470
Gray, Joseph W., *et al.* (See Huntley, Stephen A., assignor.)						
Gray, William D., Milwaukee, Wis., assignor, by mesne assignments, to Allis-Chalmers Company. Shaking-sieve and cleaner therefor	752,448	Feb. 16	3143	699	108	1774
Graybill, George, and J. P. Oden, York, Pa. Rheostat	751,634	Feb. 9	1574	357	108	1411
Gréaud, Arthur, Angers, France. Lamb knitting-machine	750,052	Jan. 19	3087	650, 651, 652	108	710
Gredlt, Paul. (See Talbot and Gredt.)						
Green, Carl A., Katrineholm, and H. E. Larsson, Stockholm, Sweden. Sweeping-machine	752,152	Feb. 16	2567	571	108	1647
Green, Edwin F., assignor to Stephens Lithographing & Engraving Company, St. Louis, Mo. Check-book	750,452	Jan. 26	3770	819	108	889
Green, Hary, Chicago, Ill. Combined sad-iron and radiating stove	751,909	Feb. 9	2108	475	108	1527
Green, James O., and H. T. Martin, Whitewater, Wis. Consolidating peat	752,054	Feb. 16	2406	.....	108	1611
Green, Roselle T., Worcester, Mass. Adjustable curtain-bracket	750,027	Jan. 19	2990	641	108	700
Greenway, John C., Ishpeming, Mich. Car-unloading apparatus	752,449	Feb. 16	3144	699, 700	108	1775
Greer, Fredric. (See Hoffmann, Otto C., assignor.)						
Gregg, William H., Norwood, Ohio, assignor to Peck-Williamson Heating & Ventilating Company. Furnace	752,770	Feb. 23	3768	840	108	1929
Grégoire, Félix, St. Jean Baptiste, Canada. Railway-brake	750,028	Jan. 19	2991	641	108	700
Gregory, Joseph, Jersey City, N. J. Central-draft lamp-burner	749,132	Jan. 5	1167	248	108	270
Gregory, Joseph, Jersey City, N. J. Lamp-burner	752,901	Feb. 23	4026	902	108	1987
Greiner, Woldemar, Brunswick, Germany. Evaporating apparatus	749,582	Jan. 12	2071	430	108	485
Grempler, Francis W., Hoboken, N. J. Metal-beating machine	748,722	Jan. 5	315	70, 71	108	70
Gresham, George H., New York, N. Y., assignor to Boorum and Pease Company. Temporary binder	751,499	Feb. 9	1317	301	108	1357
Gresly, Julius, Liesberg, Switzerland. Manufacturing hydraulic cement	748,943	Jan. 5	757	.....	108	172
Greth, John C. W., assignor to Wm. B. Scaife & Sons Company, Pittsburg, Pa. Water-purifying apparatus	749,728	Jan. 19	2415	510	108	575
Grice, George, and H. Dewey, Birmingham, England. Incandescent gas-burner	749,553	Jan. 12	2072	430	108	485
Grier, Samuel A., Cuthbert, Ga. Seed-planter	749,484	Jan. 12	1989	402, 403	108	455
Grieves, Albert, Springfield, Ohio, assignor to International Harvester Company, Chicago, Ill. Pitman	751,500	Feb. 9	1319	301	108	1357
Griffin, Charles E., Sac City, and H. A. Low, Lake City, Iowa. Fence-post and electrical conductor	749,554	Jan. 12	2072	430	108	485
Griffin, James C. (See Shimp and Griffin.)						
Griffin, James C., Erie, Pa. Hinge-pin	749,729	Jan. 19	2417	510	108	575
Grinnell, Alonzo P., Lynn, Mass. Shank-stiffener for shoes	750,963	Feb. 2	347	83	108	1135
Grist, Charles J., Apsley, Banstead, England. Golf-ball, &c	749,053	Jan. 5	1017	215	108	235
Griswold, John H., Oakland, Cal. Dish-washing machine	748,859	Jan. 5	580	132	108	131
Groenig, August, Halloway, Minn. Power-hammer	750,350	Jan. 26	3605	781, 782	108	853
Groff, Charles R., St. Paul, Minn., assignor, by mesne assignments, to Laundry Blue Company, Chicago, Ill. Bluing device	750,847	Feb. 2	131	30	108	1086
Groff, John M., assignor to Vehicle Specialty Company, North Lawrence, Ohio. End-gate	748,860	Jan. 5	581	132, 133	108	131
Groff, Sylvanus E., assignor of one-half to A. C. Mellert, Reading, Pa. Umbrella-rib retainer	749,376	Jan. 12	1694	360	108	405
Grohmann, Carl F., Güstrow, Germany. Machine for harvesting potatoes or the like	750,029	Jan. 19	2994	641, 642	108	701
Groot, Simon N. (See Goede and Groot.)						
Grothe, William, assignor to White Sewing Machine Company, Cleveland, Ohio. Drop-table for sewing-machines	749,787	Jan. 19	2533	538	108	601
Grotnes, Charles, Chicago, Ill. Hoop flaring and sizing machine	752,153	Feb. 16	2569	571	108	1647
Grouvelle, Jules, and H. Arquembourg, Paris, France. Diaphragm indicating, controlling, and measuring appliance	748,944	Jan. 5	758	164	108	172
Grover, George B., assignor of one-half to C. E. Harwood, Lynn, Mass. Machine for assembling heel-blanks	749,788	Jan. 19	2535	538, 539	108	602
Groves, Abraham. (See Hammill, William J., assignor.)						
Grubb, Howard, Dublin, Ireland. Geodetical instrument	752,667	Feb. 23	3582	798, 799	108	1899
Grundeen, Erick, Carney, Mich. Combination-tool	751,727	Feb. 9	1740	394	108	1445
Grüninger, Joseph, New York, N. Y. Beer-pump	752,668	Feb. 23	3587	799	108	1899
Gruss, Francis J., San Francisco, Cal. Vaginal syringe	750,276	Jan. 26	3450	745	108	818
Gudex, V. A., *et al.* (See Farmer, Julius M., assignor.)						
Guenzburg, Isaac B., St. Petersburg, Russia. Sleeping appliance for passenger-cars	749,080	Jan. 19	2808	599, 600	108	662
Guest, John H., Brooklyn, N. Y. Surface-contact electric railway	750,906	Feb. 2	347	83	108	1135
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Rotary snap electric switch	751,728	Feb. 9	1742	394	108	1445
Gugenheim, Jonas, G. A. Capiton, L. D. Herrick, and H. Jacobs, Scranton, Miss. Drawers	750,187	Jan. 19	3277	706, 707	108	760
Guice, William O. (See Metzger and Guice.)						
Guiles, Charles H., Addison, N. Y. Window-curtain-roller bracket	750,848	Feb. 2	132	30	108	1087
Guilfoyle, Edward A. (See Flinn, John, assignor.)						
Guindon, Arthur, Montreal, Canada. Rotary engine	748,861	Jan. 5	583	133	108	132
Gundermann, Wilhelm, Erfurt, Germany. Photographic camera	752,970	Feb. 23	4199	935	108	2027
Gundlach, Ernst. Western Springs, Ill. Electric telephone	751,501	Feb. 9	1321	302	108	1358
Gundlach Optical Company. (See Brehm, Frederick W., assignor.)						
Gunn, Robert T., and E. C. Hathaway, Norfolk, Va. Combined rail joint and bond	751,910	Feb. 9	2104	475	108	1527

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gunn, William P. (See Lindsay and Gunn.)						
Gunnell, Elias, Chicago, Ill. Supporting apparatus for impact-tools	750,967	Feb. 2	351	84	108	1135
Gunnell, Elias, Chicago, Ill. Pneumatic hammer	751,072	Feb. 2	530	123	108	1176
Gunnell, William, and W. O'Toole, Pittsburg, Pa. Lamp-burner	753,065	Feb. 23	4373	973	108	2066
Gurd, John A., New York, N. Y., and J. R. Gurd, London, Canada. Broom-girdle	751,502	Feb. 9	1324	302	108	1359
Gurd, John R. (See Gurd, John A. and J. R.)						
Gusinde, Alois, Berlin, Germany. Apparatus for teaching singing	752,836	Feb. 23	3899	874	108	1968
Gustafson, Charles J., Chattanooga, Tenn. Self-lubricating wheel for cars, &c	751,635	Feb. 9	1576	358	108	1412
Gutshall, Robert S., Denver, Colo. Tent	751,392	Feb. 2	1142	259, 260	108	1300
Gutstein, Adolf, assignor of one-half to H. Licht, New York, N. Y. Shears	752,339	Feb. 16	2932	653	108	1780
Guy, George G., assignor to United States Wind Engine & Pump Company, Batavia, Ill. Tie-rod connection	752,065	Feb. 16	2407	537	108	1611
Guynan, Richard B., Philadelphia, Pa. Railway-rail	749,183	Jan. 12	1290	277	108	316
Guyton, Henry P., Chicago, Ill. Box	751,790	Feb. 9	1859	423	108	1471
Guzowski, Joseph, assignor of two-thirds to F. P. Kujawski and J. Matz, Chicago, Ill. Dowel	752,669	Feb. 23	3590	800	108	1890
Gvatsovsky, A. L. (See Zimmermann and Langos, assignors.)						
H. B. Smith Machine Company. (See Vivarttas, William O., assignor.)						
H. C. White Co. (See White, Hawley C., assignor.)						
H. K. Miller Manufacturing Company. (See Nelson, Clinton D., assignor.)						
H. T. Marshall Machine Company. (See Marshall, Charles S., assignor.)						
H. W. Johns-Manville Company. (See Lyman, Thomas T., assignor.)						
Haag, Paul, Chicago, Ill., assignor to Pope Manufacturing Company, Jersey City, N. J. Frame for bicycles	748,602	Jan. 5	85	22	108	21
Habel, Richard P., Sturgis, S. D. Lamp	753,066	Feb. 23	4375	973, 974	108	2066
Hack, Ernest B., assignor to American Filter Press Extraction Company, Denver, Colo. Filter-press	749,140	Jan. 5	1194	255, 256	108	277
Hacker, George, St. Louis, Mo. Incubator	749,858	Jan. 19	2658	598	108	628
Hacker, George, St. Louis, Mo. Watering apparatus for poultry-houses	752,154	Feb. 16	2571	571, 572	108	1647
Hacker, George, St. Louis, Mo. Water-supply apparatus for cattle, poultry, &c	752,155	Feb. 16	2572	572	108	1648
Hacker, George, St. Louis, Mo. Stock-watering apparatus	752,157	Feb. 16	2575	573	108	1648
Hacker, George, assignor of one-half to H. J. Vollmer, St. Louis, Mo. Clamping device	752,156	Feb. 16	2574	572	108	1648
Hacker, Matt A., assignor to himself, J. S. Gardner, L. A. West, Irvine, and C. P. Chenault, Frankfort, Ky. Sound-magnifier for relays	751,982	Feb. 9	2272	508	108	1562
Hacking, John G., *et al.* (See McIntyre, David, assignor.)						
Hadley, Edward, Ottawa, Kans. Ice-cream-packing cabinet	751,168	Feb. 2	716	164	108	1210
Haege, Carl E., Munich, Germany. Head-rest for shaving-chairs	749,184	Jan. 12	1291	278	108	316
Hager, Rudolf, Halensee, near Berlin, Germany. Electrode	749,185	Jan. 12	1292	278	108	316
Hagerty, L. D. (See Carlisle and Elder, assignors.)						
Haggerty, Charles H., Brooklyn, N. Y. Expansion-bolt	750,596	Jan. 26	3956	856	108	926
Haggstrom, Charles J., Warren, Pa. Fire-escape	750,640	Jan. 26	4121	894	108	961
Hagman, William J., Philadelphia, Pa., assignor to Niles-Bement-Pond Company, Jersey City, N. J. Multiple-speed gearing	749,186	Jan. 12	1293	278	108	316
Hahn, Herman, San Francisco, Cal. Non-refillable bottle	749,288	Jan. 12	1518	322	108	365
Hainsfurther, Sol, *et al.* (See Osborne, John W., assignor.)						
Haideman, John R., Springfield, Mo. Dust-spraying machine	750,968	Feb. 2	352	84	108	1136
Hale, George C., assignor of one-half to O. C. Wiesner, Kansas City, Mo. Fire-extinguisher	749,688	Jan. 12	2311	488	108	536
Hale, John F., Chicago, Ill., assignor to Warren Webster and Company. Oil-separator	752,066	Feb. 16	2408	537	108	1611
Hale, John F., Chicago, Ill., assignor to Warren Webster and Company. Steam-trap	752,067	Feb. 16	2410	537, 538	108	1611
Hale, William B., assignor to Western Electric Company, Chicago, Ill. Key for cable-testing	752,158	Feb. 16	2575	573	108	1648
Hale, William M., Nashville, Tenn. Fertilizer-mixing apparatus	751,393	Feb. 2	1143	260	108	1300
Haley, Thomas S., assignor to Wire Novelty Manufacturing Company, New Haven, Conn. Wire-working machine	749,730	Jan. 19	2418	511, 512, 513, 514	108	575
Haley, Timothy, Xenia, Ohio. Valve for air-brakes	749,859	Jan. 19	2660	598	108	629
Halfaker, William H., Clark township, Johnson county, Ind. Grave-protector	752,902	Feb. 23	4028	902	108	1988
Hall, Charles L., *et al.* (See Willard, James A., assignor.)						
Hall, Frederick W., Camden, N. J., assignor of one-half to J. W. Paxson Company, Philadelphia, Pa. Vibrator for molding apparatus	750,641	Jan. 26	4122	894	108	961
Hall, Harry C., Telluride, Colo. Stretcher-stand	749,731	Jan. 19	2424	514	108	577
Hall, Henry J. S., New York, N. Y. Rotary cap-closure	749,671	Jan. 12	2279	481	108	529
Hall, John A. (See Steiner and Hall.)						
Hall, Joseph R., Indianapolis, Ind. Feeding device for corn-husking machines	750,642	Jan. 26	4125	895	108	961
Hall, Robert P., Gem, Idaho. Amalgamator	751,911	Feb. 9	2106	475, 476	108	1528
Hall, Rufus L. (See Redmon, Hall, and Conway.)						
Hall, Schuyler H., Meriden, Conn. Collar-button	750,360	Jan. 26	3607	782	108	854
Hall, Seth M., Akron, N. Y. Lubricator	750,053	Jan. 19	3043	653	108	710
Hall Signal Company. (See Breese and Wilson, assignors.)						
Hallberg, Ernst J., Stockholm, Sweden. Paper-feeding machine	750,453	Jan. 26	3772	820	108	889
Hallberg, Josef H., New York, N. Y. System of electrical distribution	750,454	Jan. 26	3774	820	108	889
Haller, Carl, and W. E. Sinclair, assignors to Haller Machine Company, Chicago, Ill. Mechanism for controlling lamps in photographic-printing devices	751,503	Feb. 9	1325	302	108	1359
Haller, John L., and G. L. Baker, Bushton, Kans.; said Baker assignor to said Haller. Harness	749,054	Jan. 5	1018	215	108	235
Haller Machine Company. (See Haller and Sinclair, assignors.)						
Halley, Edward, Montague, Mich., and R. F. Downey, assignors to National Valve Company, Milwaukee, Wis. Valve	752,220	Feb. 16	2692	596	108	1677
Hallock, Patrick F., Detroit, Mich. Means for arresting elevator-cars	751,504	Feb. 9	1328	303	108	1360
Hallstream, Henry. (See Dexter and Hallstream.)						
Hallwood Cash Register Company. (See Emory, Joseph P., assignor.)						
Hallwood Cash Register Company. (See Swan, Will R., assignor.)						
Haltom, Samuel, Henderson, Tex. Saw-set	751,849	Feb. 9	1984	451	108	1498
Ham, Jesse, Emery Mills, Me. Insect-destroyer	750,080	Jan. 19	2996	642	108	701
Hamburger, Leon, *et al.* (See Darley, John W., Jr., assignor.)						
Hamburger, Philip, *et al.* (See Darley, John W., Jr., assignor.)						
Hamel, Charles, Lowell, Mass. Strike-plate for locks	749,818	Jan. 19	2585	550	108	613

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hamilton-Adams, Thomas. (See Wirtz and Hamilton-Adams.)						
Hamilton, Clarence J., assignor, by mesne assignments, to C. Hamilton, Plymouth, Mich. Firearm	748,723	Jan. 5	317	71, 72	108	70
Hamilton, Coello. (See Hamilton, Clarence J., assignor.)						
Hamilton, Edward D., Vancouver, Wash. Box	752,130	Feb. 16	2577	573	108	1649
Hamilton, Edward D., Vancouver, Wash. Propeller	752,670	Feb. 23	3591	800	108	1890
Hamilton, Evlyn S., Adrian, Mich. Sectional hub for pulleys	750,277	Jan. 26	3451	745 746	108	818
Hamilton, Robert, Milton, Mass. Telephone or telegraph system	753,067	Feb. 23	4376	974	108	2067
Hamm, William S., Chicago, Ill., assignor to Adams and Westlake Company, of Illinois. Lamp-burner	750,455	Jan. 26	3775	821	108	800
Hammel, Charles A. (See Walkley, James A., assignor.)						
Hammel, Charles A., Los Angeles, Cal. Hydrocarbon-burner	748,862	Jan. 5	587	133	108	132
Hammell, Alvin G., New York, N. Y., assignor to A. G. Hammell Amusement Company. Amusement device	752,450	Feb. 16	3146	700	108	1775
Hammer, Charles S. (See Lotz, Wismeyer, Hammer, Thoma, and Rentschler.)						
Hammer, Henry F., Detroit, Mich. Pipe-organ	752,671	Feb. 23	3591	800	108	1891
Hammer, John C., Rosehill, Ill. Animal-trap	752,672	Feb. 23	3593	800	108	1891
Hammill, William J., Guelph, assignor of one-half to A. Groves, Fergus, Ontario, Canada. Fanning-mill	749,819	Jan. 19	2586	551	108	613
Hammond, Frank N., *et al.* (See Brindle, Philip S., assignor.)						
Hammond, Fred M., *et al.* (See Brindle, Philip S., assignor.)						
Hammond, Myron B., Bridgeport, Conn. Clasp	748,724	Jan. 5	319	72	108	71
Hampden, Wellesley R., Omaha, Nebr. Furnace	752,068	Feb. 16	2411	538	108	1612
Hampton, Manoah B., *et al.* (See Le May, Marcus M., assignor.)						
Hancox, Edwin, Stockton-on-Tees, England. Machine for working pipe-plates	751,636	Feb. 9	1578	358	108	1412
Hancox, Edwin, Stockton-on-Tees, England. Apparatus for upsetting pipe ends	751,637	Feb. 9	1579	359	108	1412
Haner, Jacob L., London, Ohio. Animal catcher and holder	753,068	Feb. 23	4380	974	108	2068
Hanfbauer, Charles J., Cleveland, Ohio. Attachment for machines for perforating strips	752,069	Feb. 16	2412	538 539	108	1612
Hanford, Melancthon, Malden, Mass. Elevator safety apparatus	753,135	Feb. 23	4400	1000	108	2091
Hanley, E. W., *et al.* (See Yoe, Philip, assignor.)						
Hanley, John. (See Fisher, Frank A., assignor.)						
Hanlon, Joseph P. A., Somerville, Mass. Screw-driver	750,849	Feb. 2	133	30	108	1087
Hanlon, Wabrance B., Sterling, Kans. Combined end-gate, shovel-board, and live-stock chute	749,187	Jan. 12	1295	279	108	317
Hannam, Edward T., Cincinnati, Ohio. Superheater for steam-boilers	748,945	Jan. 5	759	164	108	172
Hansberger, Henry, Millersport, Ohio. Fence-post	748,946	Jan. 5	761	165	108	173
Hansen, John, Northcove, Wash. Ship's windlass	749,188	Jan. 12	1296	279 280	108	317
Hansen, John M., Pittsburg, Pa. Side and center dump coke-car	752,289	Feb. 16	2883	628 629 630	108	1708
Hansen, John M., Pittsburg, Pa. Pedestal-truck	752,290	Feb. 16	2886	630	108	1709
Hansen, John M., assignor to Pressed Steel Car Company, Pittsburg, Pa. Body-bolster for railway-cars	749,133	Jan. 5	1169	248	108	271
Hansen, Theodore C., Chicago, Ill. Cutting machinery	749,920	Jan. 19	2587	551	108	613
Hansen, Theodore C., Chicago, Ill. Drilling-machine	749,921	Jan. 19	2590	552 553	108	614
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Tool-holder	748,725	Jan. 5	320	72	108	71
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Tool- and back-rest holder	748,726	Jan. 5	322	73	108	71
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Tool-holder	750,108	Jan. 19	3140	675	108	731
Hanson, Bengt M. W., assignor to Pratt & Whitney Company, Hartford, Conn. Tool-turret mechanism	750,278	Jan. 26	3452	746	108	818
Hanson, Bengt M.W., assignor to Pratt & Whitney Company, Hartford, Conn. Drilling-tool	750,537	Jan. 26	3908	856	108	926
Hanson, Hans C., Albert Lea, Minn. Oil-supply system	748,727	Jan. 5	320	73	108	72
Hanson, Henry M., and C. S. Bentley, Janesville, Wis., assignors to said Hanson. Clamp	749,732	Jan. 19	2426	515	108	577
Hanson, Hilmer, Artichoke Lake, Minn. Threshing-machine	750,969	Feb. 2	354	85, 86	108	1136
Hanson & Van Winkle Company. (See King, Willis R., assignor.)						
Happich, Ernest P., Philadelphia, Pa. Cuff-button	750,643	Jan. 26	4127	895	108	962
Harbin, William L., Lexington, N. C. Brick-truck	751,283	Feb. 2	954	216 217	108	1259
Hardie, Robert W., Albany, N. Y. Cigar-box	748,863	Jan. 5	588	134	108	132
Hardin, Truman W., Mason City, Ill. Pipe-wrench	752,837	Feb. 23	3900	874	108	1958
Harding, D. S., *et al.* (See Vance and Lanahan, assignors.)						
Harding, Henry M., New York, N. Y. Means for loading or unloading vessels	749,860	Jan. 19	2661	568 569	108	620
Harding, Mathew A. (See Bryar, George, assignor.)						
Harding, Russell, St. Louis, Mo. Journal-bearing	750,279	Jan. 26	3456	747	108	819
Harding, Samuel B., Waukesha, Wis. Traveling carrier for metal-working machines	750,644	Jan. 26	4128	895 896	108	962
Hardman, Peter, Willimantic, Conn. Knot-catching device	750,850	Feb. 2	134	31	108	1087
Hardy, Clement A., assignor to A. Hirshheimer, La Crosse, Wis. Disk-bearing	752,620	Feb. 16	3486	777	108	1851
Hardy, Fred, Thornton, R. I. Hand-stamp	752,771	Feb. 23	3766	840	108	1930
Hare, Will C. (See Mullins, Hare, and Nelson.)						
Hargreaves, Charles J., *et al.* (See Cuntz, Gregor R. F. H., assignor.)						
Haring, Ledra W., Chicago, Ill. Dish-washing apparatus	750,851	Feb. 2	135	31	108	1087
Harmany, Frederic, assignor of part to I. M. Butts, J. McCormick, F. Clymer, and J. B. McCormick, Marietta, Ohio. Carbureter	750,704	Jan. 26	4406	950	108	1026
Harmet, Henri, St. Etienne, France. Electrometallurgy of iron or steel	750,861	Jan. 26	3908	782	108	854
Harmon, Edwin C. (See Wood, James E., assignor.)						
Harmon, John W., Creston, Iowa. Riding-harrow	750,970	Feb. 2	355	86	108	1136
Harmon, Willard. (See Lindsay, Thomas J., assignor.)						
Harnish, John F., West Earl township, Lancaster county, Pa. Tension device for harvester-binders	749,035	Jan. 5	1019	215	108	235
Harrington, Charles D., assignor to Harrington Cutlery Company, Southbridge, Mass. Rivet	749,438	Jan. 12	1820	382	108	490
Harrington Cutlery Company. (See Harrington, Charles D., assignor.)						
Harrington, David, Worcester, Mass. Spinning-ring	749,189	Jan. 12	1297	280	108	317
Harrington, John J., Brockton, Mass. Shaft-bearing	750,362	Jan. 26	3609	783	108	854
Harrington, John W., Eastpoint, Ga. Attachment for cotton-seed linters	751,638	Feb. 9	1580	360	108	1413
Harrington, John W., Augusta, Ga. Cotton-seed cleaner	751,639	Feb. 9	1582	360	108	1413

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Harris, Adelbert M. (See Seymour and Harris.)						
Harris Automatic Press Company. (See Harris, Charles G., assignor.)						
Harris, Charles F. (See George, Seymour, assignor.)						
Harris, Charles G., assignor to Harris Automatic Press Company, Niles, Ohio. Feeder for printing or other machines	751,284	Feb. 2	955	217	108	1260
Harris, David F., and J. A. Hearin, Junction, Ark. Combined refrigerator and soda-water apparatus	752,546	Feb. 16	3320	739	108	1815
Harris, Ernest C., Beckenham, England. Window-blind fitting	749,289	Jan. 12	1520	323	108	365
Harris, Jacob, St. Louis, Mo. Truss	749,555	Jan. 12	2073	431	108	485
Harris, Jacob J., and J. Adams, Highland, Ohio. Self-cleaning strainer for down-spouts	752,547	Feb. 16	3322	739	108	1816
Harris, John K., Clung, Va. Fence-post	749,056	Jan. 5	1021	215	108	235
Harris, Thomas D., assignor of one-half to E. L. Moffitt, Ashboro, N. C. Mold for manufacturing wheelbarrow-wheels	749,556	Jan. 12	2074	431	108	486
Harris, William E., Philadelphia, Pa. Dumping-cart	749,057	Jan. 5	1021	216	108	236
Harrison, Alfred, *et al.* (See Waters, Frank J., assignor.)						
Harrison, Frank B., Toledo, Ohio. Dust-guard	752,164	Feb. 16	2583	574	108	1650
Harrison, Frank B., and L. Y. Williams, Toledo, Ohio. Lubricating device for car-axle journals	752,161	Feb. 16	2579	574	108	1649
Harrison, Frank B., and L. Y. Williams, Toledo, Ohio. Lubricating device for car-axle journals	752,162	Feb. 16	2580	574	108	1649
Harrison, Frank B., and L. Y. Williams, Toledo, Ohio. Lubricating device for car-axle journals	752,163	Feb. 16	2582	574	108	1650
Harrison, Harry K., and A. L. Brown, assignors to W. J. Dyer & Bro., St. Paul, Minn. Combined drum and cymbal beater	751,505	Feb. 9	1330	303	108	1360
Harrison, Philip B., and C. F. Huntoon, assignors to Chicago Railway Equipment Company, Chicago, Ill. Brake-releasing device	750,031	Jan. 19	2997	642	108	702
Hart, Alvin L., Burlington, Iowa. Apparatus for perforating music-sheets	752,221	Feb. 16	2694	596 597	108	1677
Hart, Ell S., Chicago, Ill. Pneumatic road-bed cleaner	750,852	Feb. 2	137	31	108	1088
Hart & Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)						
Hart, Hubert C., Unionville, Conn. Finger-nail clipper	748,864	Jan. 5	589	134	108	133
Hart, Louis F., Baton Rouge, La. Brick-handling apparatus	750,645	Jan. 26	4133	896	108	962
Hart, Walter H., New Britain, Conn. Tumbling-barrel	752,160	Feb. 16	2578	573	108	1649
Hart, Walter H., assignor to Stanley Works, New Britain, Conn. Back-band buckle	750,109	Jan. 19	3142	676	108	732
Harte, Henry, assignor to Harte-Stevens Company, Rochester, N. Y. Mechanism for sealing and delivering envelops	749,378	Jan. 12	1698	360 361	108	405
Harte, Henry, and R. J. Stevens, assignors to Harte-Stevens Company, Rochester, N. Y. Envelop-sealing machine	749,377	Jan. 12	1695	360	108	405
Harte-Stevens Company. (See Harte, Henry, assignor.)						
Harte-Stevens Company. (See Harte and Stevens, assignors.)						
Harter, Ell E., and E. O. Doak, Sac City, Iowa. Marker-lifter for corn-planters	748,728	Jan. 5	327	73	108	72
Hartman, John R., Davenport, Iowa. Door-hinge	749,379	Jan. 12	1701	361	108	406
Hartman, John S., assignor of one-half to W. S. Schroll, Manchester, Pa. Tool for scraping and finishing floors	749,861	Jan. 19	2662	569	108	629
Hartman, Rudolph, Madison, Wis. Composite building material	750,456	Jan. 26	3776	821	108	890
Harty, James W., Chicago, Ill. Locomotive-spring	751,859	Feb. 9	1992	451	108	1500
Harvey, George H., borough of Glenfield, Pa. Glass-drawing machine	750,538	Jan. 26	3959	857	108	927
Harvey, John, Grand Rapids, assignor of one-half to P. H. Benjamin, Grand Haven, Mich. Sofa-bed	749,789	Jan. 19	2537	539	108	602
Harvey, William A., assignor of two-thirds to C. and W. L. Schlager, Scranton, Pa. Combined electrical-battery receptacle and bell-support	750,646	Jan. 26	4135	897	108	963
Harwood, Charles E. (See Grover, George B., assignor.)						
Hasburg, John W., assignor to National Burglar and Fire Alarm Company, Chicago, Ill. Alarm system	753,136	Feb. 23	4402	1000	108	2092
Hasenbach, Wilhelm, assignor to Verein Chemischer Fabriken in Mannheim, Mannheim, Germany. Contact apparatus for the production of sulfuric anhydrid	752,165	Feb. 16	2581	575	108	1650
Haskins, Caryl D., Schenectady, N. Y., assignor to General Electric Company. Switch for series arc-circuits	750,971	Feb. 2	357	86	108	1136
Haskins, James H., San Diego, Cal., assignor of one-half to International Harvester Company, Chicago, Ill. Machine for grinding metal surfaces	751,791	Feb. 9	1860	423 424 425	108	1471
Hassler, Charles W., Westfield, Mass. Racer for braiding-machines	749,290	Jan. 12	1520	323	108	366
Hastings, Charles A., administrator. (See Chapman, William S.)						
Hastings, William. (See Rohde and Hastings.)						
Hatch, James N. (See Cowles and Hatch.)						
Hatcher, William A. (See Packard and Hatcher.)						
Hatfield, Frank K., assignor to F. F. Hicks, Boston, Mass. Burnishing-machine	751,506	Feb. 9	1331	304	108	1360
Hathaway, Edwin C. (See Gunn and Hathaway.)						
Hauff, Fred, Akron, Ohio. Hame-tug	749,733	Jan. 19	2427	515	108	578
Hauser, Isaiah L., Chicago, Ill. Tobacco-pipe	748,729	Jan. 5	320	73	108	73
Haussmann, Hermann, Chicago, Ill. Tenpin	751,507	Feb. 9	1333	304	108	1361
Hawkins, James B., Slater, Mo. Fastener for doors or the like	752,166	Feb. 16	2585	575	108	1651
Hawman, Harvey H., *et al.* (See Huntley, Stephen A., assignor.)						
Haworth, John H., *et al.* (See Frerot, Charles, assignor.)						
Hay, Philip C., Chicago, Ill. Antiseptic thermometer-case	752,395	Feb. 16	3039	676	108	1753
Haycock, Frank E., and J. McDermott, Minneapolis, Minn. Crematory	750,457	Jan. 26	3777	821 822	108	890
Hayden, Frank, Danville, Ill. Chimney-top	751,912	Feb. 9	2108	476	108	1528
Hayden, Frederick B., Belleville, N. J. Vehicle-tire protector	750,647	Jan. 26	4135	897	108	963
Hayden, Jefferson B., Abilene, Tex. Draft-equalizer	748,730	Jan. 5	330	74	108	73
Haydock, Edward, Manchester, England. Hand-plane	750,189	Jan. 19	3280	708	108	761
Hayes, George D., Chetek, Wis. Whiffletree-hook	752,222	Feb. 16	2696	597	108	1678
Hayes, James A. (See Kellum, Claude S., assignor.)						
Hayes, Jesse W., Baltimore, Md. Tobacco-pipe	749,190	Jan. 12	1298	280	108	318
Hayes, John H., East Tawas, assignor of one-half to L. H. Braddock, Tawas City, Mich. Vegetable-cooker	751,640	Feb. 9	1584	361	108	1414
Hayes, John J. (See Powers, Edmund B., assignor.)						
Hayne, Levi, Schenectady, N. Y. Car-wheel	752,673	Feb. 23	3594	801	108	1891
Haynes, Elwood, and E. Apperson, Kokomo, Ind. Carbureting device for explosive-engines	751,918	Feb. 9	2109	476	108	1528
Hays, Edward F., trustee. (See Hays, Harry J., assignor.)						
Hays, Harry J., assignor to E. F. Hays, trustee, Pittsburg, Pa. Working glass	752,674	Feb. 23	3595	801	108	1892
Hays, Harry J., assignor to E. F. Hays, trustee, Pittsburg, Pa. Apparatus for forming plate-glass	753,069	Feb. 23	4381	974	108	2068
Hays, William S., assignor of one-half to S. W. Clapp, Hillham, Ind. Vehicle-brake	752,675	Feb. 23	3596	801	108	1892

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hayward, Jonathan B. (See Strong, Arthur J., assignor.)						
Haywood, Daniel H., New York, N. Y. Apparatus for making hair-pins	753,070	Feb. 23	4383	975	108	2069
Hazel, George W., Aurora, Ill. Trap	749,380	Jan. 12	1708	361	108	406
Hazelbaker, Martha, Kokomo, Ind. Abdominal supporter	751,641	Feb. 9	1585	361	108	1414
Hazelbaker, Martha, Kokomo, Ind. Abdominal belt	752,548	Feb. 16	3323	740	108	1816
Healy, Ozias C., Mapleton, Minn. Staple-extractor	751,792	Feb. 9	1864	425	108	1472
Hearin, James A. (See Harris and Hearin.)						
Heaton, John W., Indianapolis, Ind. Spark arrester, extinguisher, and discharger	752,676	Feb. 23	3597	801	108	1892
Hebb Coke Drawer Company. (See Hebb, John A., assignor.)						
Hebb, John A., assignor to Hebb Coke Drawer Company, Uniontown, Pa. Coke-drawing machine	749,058	Jan. 5	1024	216, 217	108	236
Hecht, Walter E. (See Chandler, Eugene C., assignor.)						
Heermann, Herman H., Stanton county, Nebr. Safety-stirrup	751,394	Feb. 2	1145	260, 261	108	1301
Heermans, Thaddeus W., Chicago, Ill. Electric motor	750,765	Jan. 26	4410	951	108	1027
Hegbom, Marselius, assignor to F. Voss, Chicago, Ill. Metallic stud or the like	749,892	Jan. 19	2064	569	108	629
Hegeler, Herman. (See Heinz and Hegeler.)						
Heil, John, Mount Oliver, Pa. Quick-acting monkey-wrench	751,851	Feb. 9	1903	452	108	1501
Heimann, Ernst, Ander, Tex. Sash-holder	752,549	Feb. 16	3324	740	108	1816
Heimann, Morris A., St. Louis, Mo. Shoe-polisher	750,280	Jan. 26	3457	747	108	819
Heimann, Morris A., St. Louis, Mo. Squirt-gun	750,853	Feb. 2	140	32	108	1068
Heinitsh, Margaret M., Philadelphia, Pa., and J. T. Moriarty, New Bedford, Mass. Shoe-lacing	751,729	Feb. 9	1743	396	108	1446
Heinsfurter, J. (See Helfritz, Otto F., assignor.)						
Heintz, John A., Chenoa, Ill. Conveyer	752,838	Feb. 23	3901	875	108	1938
Heinz, Nicholas, and H. Hegeler, Lasalle, Ill. Making sulfuric acid	752,677	Feb. 23	3598	802	108	1893
Helfritz, Otto F., assignor of one-half to J. Heinsfurter, Chicago, Ill. Pipe-wrench	752,772	Feb. 23	3767	841	108	1930
Helgerson, Thomas O., assignor of two-thirds to J. Rosholt and C. A. Paulson, Minneapolis, Minn. Traveling thresher	751,073	Feb. 2	532	123, 124, 125	108	1176
Hellmann, Heinrich W., Berlin, Germany. Bunsen burner for incandescent gas-lamps with mantle hanging downward	749,381	Jan. 12	1704	361, 362	108	406
Helmold, Julius F., Chicago, Ill. Hand-press	748,947	Jan. 5	761	165	108	173
Helwig, Christian D., Kansas City, Kans., and W. W. Montague, San Francisco, Cal.; said Montague assignor to said Helwig. Stove	749,059	Jan. 5	1026	217	108	237
Henault, Joseph, Los Angeles, Cal. Cooking device	750,190	Jan. 19	3282	709	108	761
Henderson, Ewen C., assignor of three-fourths to J. Monroe, E. Carson, A. J. Craig, and J. S. Grant, Pictou, Canada. Stitch-forming mechanism	752,451	Feb. 16	3148	701	108	1776
Henderson, Floyd W., assignor of one-twentieth to F. Theisen, Pittsburg, Pa. Urinal	749,392	Jan. 12	1708	362	108	407
Henderson, Leona, Palestine, Tex. Copy-holder	749,393	Jan. 12	1708	362	108	408
Henderson, Thomas M., Portsmouth, Va., assignor of two-thirds to C. P. Storrs, Wilmington, Del., and R. R. Hicks, Norfolk, Va. Lubricator for air-brake pumps	748,731	Jan. 5	331	74	108	73
Hendricks, Kearney J. (See Shrum and Hendricks.)						
Hendry, William F. (See Muschenheim and Hendry.)						
Hendryx, Andrew B., New Haven, Conn. Cage-trap	749,790	Jan. 19	2539	540	108	603
Hennessey, James W. (See Alexander, Jesse, assignor.)						
Henry, David C., assignor to Henry Electric Equipment Company, Denver, Colo. System of electric train-lighting	752,889	Feb. 23	3903	875, 876	108	1959
Henry, David F., Jr., Port Murry, N. J. Apparatus for drying tile	751,852	Feb. 9	1904	452	108	1501
Henry Disston & Sons. (See Smith, William, assignor.)						
Henry, Edward G., assignor of one-half to W. T. Herrin, Carrollton, Ga. Plow	751,642	Feb. 9	1586	361	108	1414
Henry Electric Equipment Company. (See Henry, David C., assignor.)						
Henry, Frank B., Philadelphia, Pa. Building-block	748,608	Jan. 5	86	23	108	21
Henry, Frank B., Philadelphia, Pa. Building or paving blocks	752,070	Feb. 16	2417	539, 540	108	1613
Hentgen, Theodor, New York, N. Y. Bottle-stopper	749,060	Jan. 5	1027	217	108	237
Hentgen, Theodor, New York, N. Y. Key-ring	751,643	Feb. 9	1588	361	108	1414
Heppe & Son, C. J. (See Brashears, William J., assignor.)						
Heraeus, Firm of W. C. (See Küch, Richard, assignor.)						
Herbert, George. Jr., Glasgow, Scotland. Apparatus for cleaning dried fruits	749,981	Jan. 19	2810	600	108	662
Heritage, Jesse C., Minneapolis, Minn. Landing-net	752,550	Feb. 16	3326	740, 741	108	1816
Hermance Machine Company. (See Marsh, Calvin D., assignor.)						
Herr, Edwin M., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Fluid-pressure brake	752,071	Feb. 16	2419	540, 541	108	1614
Herrick, Leman D. (See Gugenheim, Capiton, Herrick, and Jacobs.)						
Herrin, W. T. (See Henry, Edward G., assignor.)						
Herring, Earnest C., Reno, Nev. Garment-supporting hook-pin	750,092	Jan. 19	2999	643	108	702
Herskovitz, Abraham. (See Herskovitz, Max and A.)						
Herskovitz, Max and A., Chicago, Ill. Bunsen burner	752,773	Feb. 23	3769	841	108	1930
Hertje, Abraham, Tonkawa, Okla. Ter. Binder-cover	753,071	Feb. 23	4387	976	108	2070
Hertner, John H. (See Cookingham, De Witt C., assignor.)						
Hertzler, John. (See Pendergast, Thomas, assignor.)						
Herz, Maximilian, Berlin, Germany. Apparatus for developing, washing, and fixing photographic films	751,644	Feb. 9	1590	362	108	1415
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	749,191	Jan. 12	1299	280	108	318
Herzog, John, Saginaw, Mich. Table	751,285	Feb. 2	957	217, 218	108	1260
Hess, Alexander W., and A. S. Williams, San Jose, Cal. Oil-burner	751,395	Feb. 2	1147	261	108	1301
Hess, Michael. (See Plummer and Hess.)						
Hesse, Jules E., and M. Paraf-Javal, Paris, assignors to J. Diederichs, Lyons, France. Transferring and printing	748,604	Jan. 5	87	------	108	21
Hessler, George W., Scranton, Pa. Toilet-chair	752,551	Feb. 16	3328	741	108	1817
Hetzel, Frederic V., assignor to Link Belt Engineering Company, Philadelphia, Pa. Bucket elevator and conveyer	751,396	Feb. 2	1149	262	108	1302
Hewes, James A., *et al.* (See Johnson, William H., assignor.)						
Hewitt, Edward R., Garden City, N. Y. Clarifying liquors	748,865	Jan. 5	591	------	108	133
Hewitt, Edward R., Garden City, N. Y. Making glue from hides	748,866	Jan. 5	593	------	108	133
Hewitt, Peter C., New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Means for reproducing electrical variations	749,791	Jan. 19	2540	540	108	603
Hewitt, Peter C., New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Reproducing electrical variations	749,792	Jan. 19	2541	540	108	603
Hewitt, Peter C., New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Regulator for gas or vapor electric apparatus	749,793	Jan. 19	2542	541	108	604
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company. Means for controlling electric boosters	750,972	Feb. 2	358	87	108	1137

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company. Automatic circuit-breaker	752,552	Feb. 16	3329	741	108	1817
Heyer, Charles A., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Registering device for printing-beams	751,286	Feb. 2	959	218	108	1260
Heyl, Friedrich, New York, N. Y. Belt	753,072	Feb. 23	4389	976	108	2070
Hibbard, George E., Chicago, Ill. Packing for shafts	750,766	Jan. 26	4415	951	108	1028
Hibbard, George E., Chicago, Ill. Sprinkler-head for automatic fire-extinguishers	750,767	Jan. 26	4416	952	108	1028
Hibbard, George E., Chicago, Ill. Sprinkler-head for automatic fire-extinguishers	750,768	Jan. 26	4419	952	108	1029
Hickox, William C., Sayre, Pa. Chemical fire-extinguisher	752,072	Feb. 16	2423	541, 542	108	1615
Hicks, Bohn C., Chicago, Ill., assignor to Center Drive Automobile Company, Chicago, Ill., and Pierre, S. D. Motor-vehicle	751,508	Feb. 9	1333	304	108	1361
Hicks, Cordelia S. (See Hicks, Simeon J., assignor.)						
Hicks, Emery F., Whitehall, Ill. Opening attachment for doors	750,363	Jan. 26	3610	783	108	855
Hicks, Francis F. (See Hatfield, Frank K., assignor.)						
Hicks, George F. H., Chicago, Ill. Railway-track-laying apparatus	752,678	Feb. 23	3600	802, 803	108	1893
Hicks Gold and Silver Extraction Company. (See Hicks, Thomas H., assignor.)						
Hicks, John T., Medford, Mass. Differential wine-shelf	749,291	Jan. 12	1322	323	108	366
Hicks, Robert R., *et al.* (See Henderson, Thomas M., assignor.)						
Hicks, Simeon J., assignor to C. S. Hicks, Chicago, Ill. Coating-machine	751,730	Feb. 9	1744	395, 396, 397	108	1446
Hicks, Thomas H., Fort Wayne, Ind., assignor to Hicks Gold and Silver Extraction Company. Ore-concentrator	750,281	Jan. 26	3457	747, 748	108	819
Hiett Wagon Company. (See Abernathy, John P., assignor.)						
Higgin, Henry, assignor to Higgin Manufacturing Company, Newport, Ky. Top-prop	749,557	Jan. 12	2075	431	108	486
Higgin Manufacturing Company. (See Higgin, Henry, assignor.)						
Higgins, William, Roscommon, and W. G. Edmonds, Dublin, Ireland. Machine or apparatus for affixing labels to bottles, boxes, or other articles	751,074	Feb. 2	536	125, 126	108	1177
Higgins, William W., Chicago, Ill. Reel-oven	751,169	Feb. 2	717	164, 165	108	1211
Highers, Charles, assignor of one-half to C. Wiggens, Vicksburg, Ky. Seed-planter	752,553	Feb. 16	3330	742	108	1817
Hildenbrand, Wilhelm. (See Abt, Roman, assignor.)						
Hilker, Edward, Chicago, Ill. Combined mop and wringer	752,679	Feb. 23	3606	803	108	1894
Hill, Charles V., St. Louis, Mo. Gas-burner	751,793	Feb. 9	1905	425	108	1472
Hill, David H., Philadelphia, Pa. Stop-motion for knitting-machines	749,982	Jan. 19	2811	600	108	662
Hill, Frederick H., Somerville, Mass. Culinary vessel	752,167	Feb. 16	2587	575	108	1651
Hill, John B., assignor of one-half to E. W. Westervelt, Blackhawk, Colo. Rein-guard	751,509	Feb. 9	1335	305	108	1361
Hill, Joseph S., Washington, D. C., assignor to L. C. Hill. Tube-expander	751,731	Feb. 9	1752	398	108	1448
Hill, Leonore C. (See Hill, Joseph S., assignor.)						
Hill, William J., Buford, Ga. Window-lock and burglar-alarm	752,774	Feb. 23	3770	841	108	1930
Hillard, Charles W., trustee, *et al.* (See Sargent, Charles E., assignor.)						
Hillcoat, Headley V., Amherst, Canada. Combination ball and roller bearing	749,192	Jan. 12	1309	281	108	322
Hiller, Nicolai H., Carbondale, Pa. Water-gage	750,539	Jan. 26	3961	857	108	927
Hilliard, William J., Buffalo, N. Y. Clutch-pulley	753,078	Feb. 23	4389	976	108	2070
Hills-McCanna Company. (See Delaney, Thomas A., assignor.)						
Hills, Ward H., Des Moines, Iowa. Dust-pan	753,137	Feb. 23	4496	1001	108	2092
Hillyer, Francis L. (See Smith, Ernest D., assignor.)						
Hinckley, Harry P., Glenfield, Pa. Can-catcher	750,978	Feb. 2	360	87	108	1137
Hines, Freeman. (See Thorpe, William, assignor.)						
Hines, John H. (See Dye, Thomas J., assignor.)						
Hines, William J., assignor of one-half to Union Manufacturing Company, Leominster, Mass. Adjustable ornamental comb	752,680	Feb. 23	3607	803	108	1895
Hinkel, Peter, Chicago, Ill. Crimped sheet	752,775	Feb. 23	3771	842	108	1931
Hinks, Harry D., Birmingham, England. Lamp-extinguisher	749,061	Jan. 5	1029	217	108	237
Hinson, James A., Chicago, Ill. Draft-rigging for railway-cars	751,983	Feb. 9	2274	509	108	1502
Hipwell, John B., Philadelphia, Pa., assignor to Windsor Machine Company. Automatic circular-knitting machine	749,933	Jan. 19	2812	601	108	663
Hirner, Emil A., Allentown, Pa. Stitch-cam for knitting-machines	749,672	Jan. 12	2281	481	108	530
Hirsch, Frank E., *et al.* (See Decker, Carl W., assignor.)						
Hirsch, Max, New York, N. Y. Fire-escape	749,558	Jan. 12	2076	432	108	486
Hirshheimer, Albert. (See Hardy, Clement A., assignor.)						
Hisey, Charles S., Dayton, Ky., assignor to Hisey-Wolf Machine Company, Cincinnati, Ohio. Variable-speed mechanism	752,223	Feb. 16	2697	597	108	1678
Hisey-Wolf Machine Company. (See Hisey, Charles S., assignor.)						
Hiss, Nelson, New York, N. Y. Elevator	749,193	Jan. 12	1311	281	108	322
Hitz, Emil. (See Johnson and Hitz.)						
Hoag, Hermon V., Jr., Smithville Flats, assignor to Pun Vending Company, Rochester, N. Y. Vending-machine	749,485	Jan. 12	1941	408	108	455
Hoaglund, Peter J. W., Sterritt township, Allegheny county, Pa. Heater	751,794	Feb. 9	1867	426	108	1472
Hoberg, Frank H. (See Hoberg, John, Sr., and F. H.)						
Hoberg, John, Sr., and F. H., Greenbay, Wis. Paper-reel	752,971	Feb. 23	4200	936	108	2027
Hobson, John H., Mattoon, Ill. Wrench	751,914	Feb. 9	2113	476	108	1529
Hochklassen, Henry, assignor to Fay-Sholes Company, Chicago, Ill. Type-writing machine	749,822	Jan. 19	2594	553	108	615
Hock, Henry W. and J. A., Youngstown, Ohio. Machine for rolling pipe-couplings, &c.	748,948	Jan. 5	763	165	108	173
Hock, John A. (See Hock, Henry W. and J. A.)						
Hodge, Charles J., Honghton, Mich. Quartz-mill	748,867	Jan. 5	595	134, 135	108	133
Hodge, James, Witwatersrand Gold Fields, Transvaal. Chuck for rock-drilling machines	752,972	Feb. 23	4202	936	108	2028
Hodges, Addison S., Everett, Mass. Car-brake	748,605	Jan. 5	90	23, 24	108	22
Hodges, Clarence B. and F. W., Detroit, Mich. Lubricator	752,554	Feb. 16	3332	742	108	1818
Hodges, Frederick W. (See Hodges, Clarence B. and F. W.)						
Hodges, John A., *et al.* (See Stockwell, Millard E., assignor.)						
Hodgkinson, Francis, Wilkinsburg, Pa., assignor to Westinghouse Machine Company. Valve-controlling mechanism	751,510	Feb. 9	1336	305	108	1362
Hodil, Harrison S., Etna, Pa. Running-gear	750,854	Feb. 2	140	32	108	1068
Hodshon, Ernest E., Wheeling, W. Va. Sportsman's convertible hat	748,949	Jan. 5	765	166	108	174
Hodshon, Ernest E., Wheeling, W. Va. Sportsman's convertible hat	748,950	Jan. 5	768	166	108	175
Hoeges, Jacob. (See Mosteller, Dosier H., assignor.)						
Hoelscher, Adolph G., assignor to A. T. Palmer, Boston, Mass. Bookbinding	751,481	Feb. 2	1201	273	108	1312
Hoepner, George, assignor to Union Scale and Manufacturing Company, San Francisco, Cal. Weighing apparatus	749,194	Jan. 12	1313	281, 282	108	323
Hoerr, Louis A., St. Louis, Mo. Tie-plate	751,511	Feb. 9	1339	305	108	1362

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hoey, John, San Francisco, Cal. Bed or couch bottom	748,868	Jan. 5	596	135	108	134
Hoey, John, San Francisco, Cal. Couch	749,673	Jan. 12	2283	481	108	530
Hoffman, George D., assignor to Norwall Manufacturing Company, Chicago, Ill. Valve for steam-heating systems	751,853	Feb. 9	1906	453	108	1502
Hoffman, George D., assignor to Norwall Manufacturing Company, Chicago, Ill. Thermostat	751,854	Feb. 9	1909	453	108	1502
Hoffman, Otto N., St. Johnsville, N. Y. Jar-closure	749,674	Jan. 12	2284	481	108	530
Hoffmann, Meinhard, Frankfort-on-the-Main, Germany, assignor to Cassella Color Company, New York, N. Y. Dark-blue wool-dye and making same	749,195	Jan. 12	1317	.....	108	324
Hoffmann, Otto C., assignor to F. Greer, Chicago, Ill. Cable-clip	749,988	Jan. 19	2916	623	108	685
Hoffmann, Otto C., assignor to F. Greer, Chicago, Ill. Cable-clip	749,989	Jan. 19	2917	623	108	685
Hofmann, Johann, West Covington, assignor of one-half to H. F. Bittlinger, Covington, Ky. Water-motor	751,732	Feb. 9	1754	396	108	1449
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, Troy, N. Y. Needle-vibrating mechanism for sewing-machines	750,648	Jan. 26	4137	897, 898	108	963
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, Mamaroneck, N. Y. Stitched buttonhole	751,512	Feb. 9	1340	305	108	1363
Hogan, Oliver K., New York, N. Y. Dredge	752,908	Feb. 23	4030	902	108	1968
Hogue, Charles L., San Francisco, Cal. Optometrist's trial-frame	748,732	Jan. 5	333	74, 75	108	74
Hohmann, August B., Richmond Hill, assignor to C. J. Tagliabue, Brooklyn, N. Y. Means for securing measuring instruments centrally in bottles, &c	752,452	Feb. 16	3149	701, 702	108	1776
Hoisington, Benjamin R., Minneapolis, Minn. Threshing-machine	750,855	Feb. 2	142	32, 33	108	1089
Holbrook, Lyman C., Charlotte, Mich. Surgical instrument	751,513	Feb. 9	1342	306	108	1363
Holinger, Emil F., McKeesport, Pa. Valve	749,900	Jan. 19	2918	623	108	685
Hollé, Gustav, and C. Stevenson, Philadelphia, Pa.; said Stevenson assignor to said Hollé. Milk-jar-locking device	750,191	Jan. 19	3288	709	106	761
Hollingworth, Edward, Dobeross, England, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shuttle-box motion for looms	752,973	Feb. 23	4204	936	108	2028
Hollingworth, Edward, Dobeross, England, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Wiring-motion of looms for weaving carpets	752,974	Feb. 23	4206	937	108	2029
Hollister, Bertram K., assignor to Bauer & Black, Chicago, Ill. Ligature-tube	749,384	Jan. 19	2916	601	108	663
Holloran, Thomas P., Utica, N. Y. Cloth-wheel or cloth-shoe for knitting-machines	753,074	Feb. 23	4398	977	108	2071
Holloway, George W. (See Reed, Charles E., assignor.)						
Holmberg, Anna, *et al.* (See Holmberg, Charles G., assignor.)						
Holmberg, Charles G., assignor to A. Holmberg and J. M. Wheeler, Woonsocket, S. D. Lamp	753,075	Feb. 23	4396	977	108	2071
Holmes, George L., Chicago, Ill. Gate and chute for coal or ore pockets	752,555	Feb. 16	3339	743	108	1819
Holmes, Howard B., Evanston, assignor to Western Electric Company, Chicago, Ill. Flexible conducting-cord	752,840	Feb. 23	3907	876	108	1969
Holmes, Jesse L., Butte, Mont. Tunnel construction	751,287	Feb. 2	960	218, 219	108	1261
Holmes, Welles E. (See Cole, William H., assignor.)						
Holmgren, Per F., New York, N. Y. Turbine-engine	749,196	Jan. 12	1318	283	108	324
Holt Manufacturing Company. (See Severance, Adam W., assignor.)						
Holt, Thomas. (See Melxell and Holt.)						
Holyland, Charles, Sr., Pittsburg, Pa. Overhead-trolley attachment	750,458	Jan. 26	3781	823	108	892
Holzman, Michael, *et al.* (See Darley, John W., Jr., assignor.)						
Holzwarth, Hans, assignor to Hooven, Owens, Rentschler Company, Hamilton, Ohio. Impact-engine	750,974	Feb. 2	961	87, 88	108	1138
Holzwarth, Hans, assignor to Hooven, Owens, Rentschler Company, Hamilton, Ohio. Dynamo-electric machine	752,168	Feb. 16	2588	576	108	1651
Holzwarth, Hans, assignor to Hooven-Owens-Rentschler Company, Hamilton, Ohio. Turbine-bearing	752,224	Feb. 16	2700	597	108	1679
Holzwarth, Hans, assignor to Hooven-Owens-Rentschler Company, Hamilton, Ohio. Turbine	752,340	Feb. 16	2983	654	108	1730
Homan & Company. (See Leavenworth, Seth H., assignor.)						
Homan, William C., assignor to Edward Miller & Company, Meriden, Conn. Shade and globe holder	752,225	Feb. 16	2701	598	108	1679
Homestead Valve Manufacturing Company. (See Rylands, James J., assignor.)						
Hommel, George. (See Bausch and Hommel.)						
Honold, Gottlob F., Sheboygan, Wis. Casket-holder	750,282	Jan. 26	3459	748	108	819
Honsberger, William H., Buffalo, N. Y. Emergency air-brake	748,733	Jan. 5	336	75	108	74
Hood, Arthur N., Boston, Mass. Machine for working rubber	752,975	Feb. 23	4209	937	108	2029
Hood, L. S. M., trustee. (See Dew, John, assignor.)						
Hoon, Paul, St. Paul, assignor of one-half to E. A. Ritt, Ramsey county, Minn. Oil-can	751,684	Feb. 9	2277	509	108	1502
Hooper, Frank, Philadelphia, Pa., assignor to W. Ayres & Sons. Snap-hook	751,915	Feb. 9	2113	477	108	1529
Hooper, John J., assignor of one-third to T. K. Wilson, Chillicothe, Ohio. Railway-switch	751,916	Feb. 9	2115	477, 478	108	1529
Hooven, Owens, Rentschler Company. (See Holzwarth, Hans, assignor.)						
Hoover, Frank K., and A. J. Mason, Chicago, Ill. Brake for hoisting-machines	750,283	Jan. 26	3461	748, 749	108	880
Hoover, Frank K., and A. J. Mason, Chicago, Ill. Gate for ore-pockets or similar receptacles	753,076	Feb. 23	4396	977	108	2072
Hope, George W. (See Savage and Hope.)						
Hopkins, Archibald E., and O. S. Fellows, Middletown, N. Y. Can-runway	752,841	Feb. 16	2934	654	108	1731
Hopkins, Archibald E., and O. S. Fellows, Middletown, N. Y.; said Hopkins assignor to said Fellows. Can-elevator	751,170	Feb. 2	722	165, 166	108	1211
Hopkins, Frank W., assignor to Colorado Iron Works Company, Denver, Colo. Pneumatic hydraulic separator	751,645	Feb. 9	1591	362	108	1415
Hopkins, Heber A., Cambridge, Mass., assignor to American Soda Fountain Company, Jersey City, N. J. Soda-water apparatus	752,458	Feb. 16	3151	702	108	1776
Hopkinson, Ernest. (See Dahlgren, Charles J., assignor.)						
Hopper, Bernard W., Philadelphia, Pa. Shoe-fastening device	751,432	Feb. 2	1208	273, 274	108	1313
Hopperstad, Julius J. (See Johnson, Erick J., assignor.)						
Horlacher, Adam S., Indianapolis, Ind. Knotting-tool	750,053	Jan. 19	3001	643	108	702
Horn, Louise, Detroit, Mich. Wrapper for cooking articles of irregular outline	751,171	Feb. 2	726	166	108	1213
Horne, Rowlan G., Chicago, Ill. Tailor's measure	750,975	Feb. 2	363	88	108	1138
Horner, Arthur L. (See Brough, William, assignor.)						
Horner Brothers *et al.* (See Whitcomb, Clark A., assignor.)						
Horr, Jacob, Mechanicsburg, Ohio. Railway-tie	748,606	Jan. 5	92	24	108	22
Horton, Charles H., Painesville, Ohio. Brick-machine	752,073	Feb. 16	2425	542, 543	108	1615
Horton, Frederick B., Lynn, Mass. Bottle-opener	752,776	Feb. 23	3778	842	108	1981
Hoskins, William A., Charleston, Mo. Wheel	751,075	Feb. 2	580	126	108	1178

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Hostler, James M. (See Clements and Hostler.)						
Hotson, John H., New York, N. Y. Type-writing machine	751,855	Feb. 9	2002	453	108	1508
Hough, Arthur, Dover, N. J. Nitrated carbohydrate	751,076	Feb. 2	541	.....	108	1178
Hough, Azel C., assignor to Hough Shade Corporation, Janesville, Wis. Weave for shades, &c	748,734	Jan. 5	338	75	108	75
Hough Shade Corporation. (See Hough, Azel C., assignor.)						
Houghton, Thomas A., assignor to Electro Surgical Instrument Company, Rochester, N. Y. Surgical instrument	749,689	Jan. 12	2315	488	108	537
Hougland, Harvey H., Cedar Rapids, Nebr. Device for thinning beets	750,856	Feb. 2	146	33	108	1089
Houplain, Georges, Paris, France. Distributing-valve for compressed-air brakes	752,976	Feb. 23	4210	937, 938	108	2029
House, Edward O., *et al.* (See Mesick, Charles W., assignor.)						
House, William, Syracuse, N. Y. Car-brake	748,735	Jan. 5	340	75, 76	108	75
Houseman, Harry A., assignor to Standard Machine Company, Philadelphia, Pa. Circular-knitting machine	749,062	Jan. 5	1030	218	108	237
Houseman, Harry A., assignor to Standard Machine Company, Philadelphia, Pa. Belt-shifting mechanism	749,863	Jan. 19	2665	570	108	630
Houseman, James D. (See Murphy, John J., assignor.)						
Hovas, John, New York, N. Y. Dumping-cart	749,559	Jan. 12	2077	432	108	486
Hove, Ole, Ellsworth, Wis. Engine-governor	750,649	Jan. 26	4139	898	108	963
Hovland, Jacob S., Chicago, Ill. Glazier's hammer	752,454	Feb. 16	3152	702	108	1777
Howard, Alfred E., assignor to A. E. Howard, Detroit, Mich. Gas-burner	748,607	Jan. 5	94	24, 25	108	22
Howard, Amy E. (See Howard, Alfred E., assignor.)						
Howard, Frank A., Fresno, Cal. Nut-lock	750,364	Jan. 26	3612	783	108	855
Howard, George T., Lagrange, assignor of one-half to W. J. Applegate, Chicago, Ill. Artificial fuel	751,172	Feb. 2	727	.....	108	1213
Howard, Henry G. M., Kalamazoo, Mich. Angle-steel	748,736	Jan. 5	343	76	108	76
Howard, Robert W. (See Chaplin, Orril R., assignor.)						
Howe, Andrew, Olema, Cal. Reading-stand	752,977	Feb. 23	4212	938	108	2030
Howe, Elbridge G., Millbury, Mass. Bottle-stopper	749,063	Jan. 5	1034	219	108	238
Howes, Thomas A., Eola, Ill. Currycomb	749,064	Jan. 5	1036	219	108	239
Howson & Howson, trustees. (See Northrop, Walter, assignor.)						
Hoxie, Elmer E., Edmeston, N. Y. Hoe	750,857	Feb. 2	147	34	108	1089
Hoy, Sidney D., Sioux City, Iowa. Miter-box	752,978	Feb. 23	4213	938	108	2030
Hoyt, Frederick J., Chicago, Ill. Hydraulic gold-mining	749,197	Jan. 12	1320	283, 284	108	324
Hoyt, James T., New York, N. Y. Package or sheets of toilet-paper and cabinet therefor	749,965	Jan. 19	2866	612, 613	108	673
Hoyt, William E., New York, N. Y. Shaft-supporter	749,991	Jan. 19	2920	624	108	686
Hoyt, William E., New York, N. Y. Sad-iron	751,288	Feb. 2	961	216	108	1261
Hren, Josef, Brooklyn, N. Y. Ruling device	752,556	Feb. 16	3340	743	108	1819
Hubbard, Joseph R., Trimble, Mo. Rail-tie	750,110	Jan. 19	3143	676	108	732
Hubbard, Richard W., Ashtabula, Ohio. Door-check	750,650	Jan. 26	4141	899	108	964
Hubbell, Harry C., Brooklyn, assignor to H. W. Fuller, New York, N. Y. Portable electric lamp	753,138	Feb. 23	4397	1001	108	2093
Hubbell, Harvey, Bridgeport, Conn. Shade-holder	753,077	Feb. 23	4397	978	108	2072
Hubbell, Thomas J., assignor of three-elevenths to H. C. Norris and C. E. Norton, Los Angeles, Cal. Combined cultivator, weeder, and furrow-maker	748,737	Jan. 5	344	76	108	76
Huber, Firm of Andreas. (See Sattler, Heinrich, assignor.)						
Huber, Sigmund V., Pittsburg, Pa. Feed-table for rolling-mills	751,733	Feb. 9	1757	399	108	1450
Hübner, Josef. (See Mayer and Hübner.)						
Huck, Benjamin J., Independence, La. Grass-destroyer	749,202	Jan. 12	1528	323	108	366
Hucks, William, Jr., Camden-Town, London, England. Apparatus for aerating liquids or charging them with gas	751,397	Feb. 2	1150	262	108	1302
Huddle, Clinton L., North Baltimore, Ohio. Combined collapsible tube and spreader	749,486	Jan. 12	1943	403	108	455
Hudson, Edmund, Templeton, Mass. Engine-governor	748,738	Jan. 5	345	76	108	77
Hudson Machine and Pneumatic Tool Co. (See Funk, Richard W., assignor.)						
Hudson, William T., Atlanta, Ga. Candy-working machine	752,226	Feb. 16	2702	598	108	1679
Hudson, William T., Atlanta, Ga. Candy-working machine	752,227	Feb. 16	2704	598	108	1680
Huenl, John, Chicago, Ill. Nozzle	748,608	Jan. 5	95	25	108	22
Huerth, Mathias, and O. F. Olson, Oregon City, Oreg. Wire or cable stretcher	752,621	Feb. 16	3488	777	108	1851
Huesman, John H. (See Ingle, Thomas G., assignor.)						
Huffelmann, Wilhelm, Duisburg, Germany. Making briquets	748,739	Jan. 5	347	77	108	77
Hughart, William O., Jr., *et al.* (See Warner, Isaac M., assignor.)						
Hughes, Herbert H., St. Louis, Mo. Means for preventing smoke	749,734	Jan. 19	2428	515, 516	108	578
Hughes, Judson, assignor of one-half to F. H. Knowlton, Fremont, Nebr. Roller-guide for leather-stitching machines	751,398	Feb. 2	1151	263	108	1302
Hughes, William G., Pittsburg, Pa. Mantle and support	751,856	Feb. 9	2006	454	108	1505
Hulback, Oliver, Crookston, Minn. Roll note-book	750,651	Jan. 26	4143	899	108	964
Hull, Henrietta M., Detroit, Mich. Collapsible carriage	748,869	Jan. 5	598	135	108	134
Hulquist, Andrew D., assignor to J. S. McDonald, Chicago, Ill. Lock for the adjustable backs of loose-leafed ledgers, account-books, &c	749,560	Jan. 12	2078	432	108	487
Hulquist, Andrew D., assignor to J. S. McDonald, Chicago, Ill. Lock for the adjustable backs of loose-leafed ledgers, account-books, record-books, files, &c	749,992	Jan. 19	2921	624	108	686
Hulquist, Andrew D., assignor to J. S. McDonald, Chicago, Ill. Lock for the adjustable back-frames of account-books	751,646	Feb. 9	1593	362	108	1416
Hulquist, Andrew D., assignor to J. S. McDonald, Chicago, Ill. Telescopic spring-post for loose-leafed books, &c	753,216	Feb. 23	4652	1035	108	2128
Humiston, John M., Berwyn, Ill. Underground-conduit insulation	751,985	Feb. 9	2279	510	108	1504
Humphrey, Ernest N., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Hose-supporter	750,652	Jan. 26	4145	899	108	965
Humphrey, Ernest N., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Hose-supporter	752,777	Feb. 23	3774	842	108	1931
Humphreys, William, New York, N. Y. Elevator-cam	751,173	Feb. 2	728	167	108	1213
Hundhausen, Rudolf, Grunewald, Germany. Driving-gear	752,778	Feb. 23	3775	842, 843	108	1931
Hunt, Alexander T., *et al.* (See Stouffer, Hiram C., assignor.)						
Hunt, Charles W., West New Brighton, N. Y. Apparatus for handling coke	752,904	Feb. 23	4032	903	108	1988
Hunt, Clifford M., *et al.* (See Stouffer, Hiram C., assignor.)						
Hunt, Frederick F., New Brighton, assignor of two-thirds to Maas & Waldstein, New York, N. Y. Production of hydroxids and oxids of metals by electrolysis	748,609	Jan. 5	95	25	108	23
Hunt, Henry A., Marrickville, New South Wales, Australia. Recording-anemometer	751,514	Feb. 9	1343	306	108	1363
Hunt, James C., *et al.* (See Stouffer, Hiram C., assignor.)						
Hunt, Oliver D. (See Donavin, Stein, and Hunt.)						
Hunt, Thomas B., Chicago, Ill. Combined friction and direct-acting spring draft-rigging for railway-cars	748,951	Jan. 5	771	167	108	175

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Hunt, Thomas E., Blue Island, assignor to Quaker Manufacturing Company, Chicago Heights, Ill. Warm-air register	749,065	Jan. 5	1088	219	108	239
Hunter, Charles H., *et al.* (See Huntley, Stephen A., assignor.)						
Hunter, Robert L., Minneapolis, Minn., assignor to American Signal & Power Company. Fishing-reel	750,054	Jan. 19	3045	653	108	711
Huntley Manufacturing Company. (See Carnochan, John W., assignor.)						
Huntley, Stephen A., assignor to H. H. Hawman, W. F. Duncan, J. W. Gray, and C. H. Hunter, Sioux City, Iowa. Means for releasing target-traps	752,557	Feb. 16	3342	743, 744	108	1819
Huntoon, Charles F. (See Harrison and Huntoon.)						
Huntoon, Charles F., assignor to Chicago Railway Equipment Company, Chicago, Ill. Side bearing for railway-cars. (Reissue)	12,193	Jan. 12	2372	501	108	549
Hurley, John, *et al.* (See Reeve, Frank L., assignor.)						
Hurt, Celestin, assignor of one-half to H. E. Vavra, Chicago, Ill. Machine for cutting noodles, &c	748,952	Jan. 5	772	167	108	175
Hurwood Manufacturing Company. (See Pullman, Herbert S., assignor.)						
Hurwood Manufacturing Company. (See Wood, George E., assignor.)						
Huson, Winfield S., assignor to Whitlock Printing Press Mfg. Co., Derby, Conn. Flat-bed cylinder printing-press	752,291	Feb. 16	2838	630, 631	108	1710
Hussa, William B. S., West Hoboken, N. J. Foldable stool	749,675	Jan. 12	2286	482	108	531
Hutchins, Francis E., Warren, Ohio. Instrument for measuring angles	751,647	Feb. 9	1595	363	108	1416
Hyatt, Harry, and J. M. Wight, Cleveland, Ohio. Steam-boiler furnace	752,681	Feb. 23	3009	803	108	1895
Hyatt, Samuel W., Mount Vernon, assignor of one-half to O. Wise, Mount Blanchard, Ohio. Gas-light regulator	750,540	Jan. 26	3062	857	108	927
Hybinette, Noak V., Plainfield, N. J. Treating copper ores	751,648	Feb. 9	1598	.....	108	1416
Hyde, David B., Springfield, Ohio. Abrasive wheel	750,653	Jan. 26	4147	899	108	965
Hyde, Thomas G., London, assignor to G. H. Whitehead, New Eltham, England. Printing-machine	751,917	Feb. 9	2120	478	108	1531
Hyman, Noah C., New York, N. Y. Wrench	749,134	Jan. 5	1171	248	108	271
Hymers, Christopher, St. Louis, Mo. Fishing-float	751,734	Feb. 9	1758	399	108	1450
Hynson, Medford, assignor of one-half to G. F. Nelson, Washington, D. C. Suspenders.	752,558	Feb. 16	3345	744	108	1821
Ibbotson, Edward B., *et al.* (See Peddle, John T., assignor.)						
Igou, Dennis T., Springfield, Ohio. Candy-pulling machine	752,979	Feb. 23	4215	939	108	2080
Ihlder, John D., Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Electrical controlling apparatus	749,439	Jan. 12	1821	382, 383	108	430
Imbert, Georges, Brussels, Belgium. Heating and lighting apparatus	749,384	Jan. 12	1710	362	108	408
Improved Paper Machinery Company. (See Parker, Howard, assignor.)						
Indianapolis Arm, Bracket and Pin Company. (See Magers, Bonneventure T., assignor.)						
Ingle, Thomas G., assignor of one-half to J. H. Huesman, Dayton, Ohio. Nut-lock	750,365	Jan. 26	3013	788	108	855
Ingoldsby Automatic Car Company. (See Ingoldsby and Bowling, assignors.)						
Ingoldsby, Frank S., and J. R. Bowling, assignors to Ingoldsby Automatic Car Company, St. Louis, Mo. Bolster	749,298	Jan. 12	1524	324	108	366
Ingraham, Henry C., Moodus, Conn. Thill-coupling	748,610	Jan. 5	98	25	108	23
Inman, Edward R. (See Smith and Inman.)						
Inman, Fred R., Providence, R. I. Lathe-chuck	749,794	Jan. 19	2544	541	108	604
Insull, Samuel. (See Ball, Henry P., assignor.)						
International Electric Company. (See Liebreich, Hans, assignor.)						
International Harvester Company. (See Grieves, Albert, assignor.)						
International Harvester Company. (See Haskins, James H., assignor.)						
International Harvester Company. (See Sharp, James A., assignor.)						
International Steam Pump Company. (See De Laval and Aborn, assignors.)						
International Time Recording Company. (See Deübner, John W., assignor.)						
International Wireless Telegraph Company. (See Ehret, Cornelius D., assignor.)						
International Wireless Telegraph Company *et al.* (See Shoemaker, Harry, assignor.)						
Iowa Gas Plant Company. (See Priestley, Kephart, and Merchant, assignors.)						
Irani, Kakhusroo S. (See Goculdas and Irani.)						
Irish, Fremont L., Auburn, Me. Acetylene-gas generator	749,294	Jan. 12	1525	324	108	367
Irish, William F., East Orange, N. J. Electric switch	751,174	Feb. 2	729	167	108	1213
Iron Clad Manufacturing Company. (See Reynolds, Henry S., assignor.)						
Irvine, Frederick G., Marietta, Ohio. Sand-pump	750,192	Jan. 19	3284	709	108	761
Irving, Alexis D., Los Angeles, Cal. Combined telephone-book support and note-paper-supply device	749,141	Jan. 5	1196	256	108	277
Irwin, Herbert E., Galesburg, assignor to Irwin Rubber Company, Chicago, Ill. Pneumatic tire	752,228	Feb. 16	2705	599	108	1681
Irwin Rubber Company. (See Irwin, Herbert E., assignor.)						
Isherwood, Stanley T. (See Campbell and Isherwood.)						
Ives, Charles A., New York, N. Y. Fire-escape	751,649	Feb. 9	1600	363	108	1417
J. A. Fay & Egan Company. (See Spencer, Harry S., assignor.)						
J. A. Fay & Egan Company. (See Thomas and Spencer, assignors.)						
J. B. Colt Company. (See Earle and Goodyear, assignors.)						
J. E. Mergott Company. (See Fuller, Albert F., assignor.)						
J. W. Paxson Co. (See Barnes, Samuel E., assignor.)						
J. W. Paxson Company. (See Hall, Frederick W., assignor.)						
Jackman, Stephen E., New York, N. Y. Inclined railway	749,676	Jan. 12	2288	482	108	531
Jackman, Stephen E., New York, N. Y. Inclined railway	749,677	Jan. 12	2289	483	108	531
Jackman, Stephen E., New York, N. Y. Brake mechanism for inclined railways	749,691	Jan. 12	2320	489, 490	108	538
Jackman, Stephen E., New York, N. Y. Railway	750,242	Jan. 19	3383	730, 731	108	784
Jackson, Alfred M. (See St. Louis and Jackson.)						
Jackson, Charles C., Osborn, Ohio. Coin-changer	750,976	Feb. 2	363	88	108	1138
Jackson & Corbett Bridge and Steel Works. (See Jackson, George W., assignor.)						
Jackson Cushion Spring Company. (See Thayer, Adelbert H., assignor.)						
Jackson, Frank, Denver, Colo. Chain-tightener	752,074	Feb. 16	2427	543	108	1616
Jackson, George W., Chicago, Ill. Tunnel-bar	751,280	Feb. 2	903	219, 220	108	1261
Jackson, George W., assignor to Jackson & Corbett Bridge and Steel Works, Chicago, Ill. Temporary supporting-form for masonry structures	749,735	Jan. 19	2430	516, 517	108	579
Jackson, James M., Cannon, Tex. Coupling for sewing-machines	749,295	Jan. 12	1527	324	108	367
Jackson, Mark P., Newton Center, Mass. Temporary binder	752,559	Feb. 16	2348	744, 745	108	1821
Jackson, Peter H., San Francisco, Cal. Floor, sidewalk, roof, or like support	749,440	Jan. 12	1840	383	108	433
Jackson Skirt & Novelty Co. (See Smith and Mainight, assignors.)						
Jackson, Uriah S., Ossipee, N. H., assignor to Superior Automatic Telephone Company, Boston, Mass. Telephone-service apparatus	750,769	Jan. 26	4422	952, 953	108	1029
Jackson, Uriah S., assignor to Superior Automatic Telephone Company, Boston, Mass. Telephone-service apparatus	750,770	Jan. 26	4424	953, 954	108	1030

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Jackson, William U., Heath Town, and F. H. Lloyd, Lichfield, England. Machinery for the manufacture of metallic tubes, &c	752,980	Feb. 23	4216	940	108	2081
Jacobs, Henry. (See Gugenheim, Capiton, Herrick, and Jacobs.)						
Jacobs, Jacob, Brooklyn, N. Y. Illuminating-tile	753,078	Feb. 23	4399	978	108	2072
Jacobs, John E. (See Schmidt and Jacobs.)						
Jacobs, William S., Malden, Mass. Tool for seating rubber tires in rim-channels	748,953	Jan. 5	773	167	108	176
Jacobsen, Nicolay, Christiania, Norway, assignor to E. Klaveness, Brookings, S. D. Massage instrument	749,690	Jan. 12	2316	488, 489	108	537
Jacobsen, Soren S., Bellevue, Pa. Gate-valve	751,735	Feb. 9	1760	400	108	1450
Jacoby, William L., Maywood, Ill., assignor to Latrobe Steel & Coupler Company, Philadelphia, Pa. Car-coupling	748,740	Jan. 5	348	77	108	77
Jacques, Oscar R., Manchester, N. H. Shuttle-threader	748,954	Jan. 5	774	168	108	176
Jacques, Wilfrid, Woonsocket, R. I. Edge-tool sharpener	751,077	Feb. 2	543	127	108	1178
Jacquet, Charles A. M. (See Josserand and Jacquet.)						
Jaeger, Ferdinand, New York, N. Y. Mirror	751,290	Feb. 2	965	220	108	1262
Jaeger, Ferdinand, New York, N. Y. Mirror	751,291	Feb. 2	966	220	108	1262
Jagger, Hubert A., Southampton, N. Y. Strainer attachment for spraying-pumps	751,918	Feb. 9	2123	478	108	1531
Jahraus, Edwin M., Dayton, Ohio. Pneumatic dry ore-separator	750,836	Jan. 26	3618	784	108	855
Jahraus, Edwin M., Dayton, Ohio. Ore-concentrator	750,867	Jan. 26	3616	785	108	856
James, John W. H., Philadelphia, Pa. Manufacture of white lead	750,541	Jan. 26	3964	.....	108	928
James Keith & Blackman Company. (See Keith and Wardle, assignors.)						
James, Thomas S., London, England. Steam or internal-combustion engine or motor	749,864	Jan. 19	2666	570, 571	108	630
James, Willard C., Cucamonga, Cal. Wardrobe, closet, &c	750,193	Jan. 19	3285	710	108	762
Jamieson, James A., Montreal, Canada. Storage-bin	752,841	Feb. 23	3910	876	108	1960
Jamieson, Robert, assignor to Draper Company, Hopedale, Mass. Means for preventing warp breakage in looms	753,198	Feb. 23	4610	1027	108	2119
Jamieson, William, and F. J. Odling, Melbourne, Victoria, Australia. Separating zinc-blende from ores	750,034	Jan. 19	3002	643	108	703
Jamison, Albert W. (See Richie and Jamison.)						
Janssen, Henry, assignor to Textile Machine Works, Incorporated, Wyomissing, Pa. Braiding-carrier	753,199	Feb. 23	4612	1027	108	2120
Jaques, William E., assignor to A. O. Crozier, Grand Rapids, Mich. Making cementitious products or artificial stone	748,611	Jan. 5	99	26	108	23
Jardine, John T., Paso Robles, Cal. Self-adjusting grain-shoe	748,741	Jan. 5	350	77	108	78
Jarrett, Charles, Dravosburg, Pa. Endless conveyer for pipe-mills	751,795	Feb. 9	1808	426	108	1473
Jarrett, George, Tunbridge Wells, England. Window blind or shutter	749,966	Jan. 19	2868	613	108	674
Jarry, Henry J., assignor of one-half to J. A. McLane, Fall River, Mass. Picker-stick check	752,342	Feb. 16	2686	654	108	1731
Jarvis, John, Kensington, England. Cycle-saddle for supporting rifles or other articles	749,865	Jan. 19	2668	571	108	630
Jefferson, George F., Brooklyn, N. Y. Show-window	749,678	Jan. 12	2290	483, 484	108	532
Jeffery, Jefferson, Newcastle, Pa. Hose-coupling	748,742	Jan. 5	352	78	108	78
Jeffrey, Joseph A. (See Aultman and Gaskill, assignors.)						
Jeffrey, Joseph A. (See Collins, James M., assignor.)						
Jeffrey, Joseph A. (See Dierdorff, Henry B., assignor.)						
Jeffrey, Joseph A. (See Sessions, Frank L., assignor.)						
Jeffrey, Joseph A. (See Slocum, John C., assignor.)						
Jeffrey, Joseph A. (See Webster, Alfred J., assignor.)						
Jeffrey, Joseph A. (See Willson, Freeman R., Jr., assignor.)						
Jeffrey, Joseph A., Columbus, Ohio. Mining-machine	751,919	Feb. 9	2124	478, 479	108	1531
Jeffrey, Thompson, Pittsburg, Ky. Hinge for mine-doors	749,561	Jan. 12	2080	432	108	487
Jenings, George W., Rochester, N. Y. Attacher for stamps, &c	751,516	Feb. 9	1847	397	108	1364
Jenkins, James, Buckley, Wash. Combination-tool	750,284	Jan. 26	3464	749	108	820
Jenness, Peter, Philadelphia, Pa. Vehicle-hub	749,610	Jan. 12	2150	452	108	505
Jessup, Robert W. (See Wheelan, Fairfax H., assignor.)						
Jester, John, St. Joseph, Mo. Scrubber	749,206	Jan. 12	1529	324	108	368
Jetley, Victor, London, England. Fire-escape	749,736	Jan. 19	2482	517	108	579
Jetter, Eugen, Erfurt, Germany. Preparing horn-like material from raw skins	749,297	Jan. 12	1529	.....	108	368
Jetter, Julius, Camden, N. J., assignor to R. L. Gibson, Philadelphia, Pa. Self-adjusting arm for talking-machines	750,977	Feb. 2	966	89	108	1138
Jewell, Martin, Morrisons Corner, Me. Vehicle-brake	748,955	Jan. 5	775	168	108	176
Jewett, Clarence F., New York, N. Y. Jacket for automobile steam-boilers	751,650	Feb. 9	1601	364	108	1417
Joffe, Abraham D., *et al.* (See Ruckdeschel, Frederick E., assignor.)						
Joffe, Harris, *et al.* (See Ruckdeschel, Frederick E., assignor.)						
Johanson, Johan M., Cambridge, Mass. Mixer for gasolene-engines	751,292	Feb. 2	967	220	108	1263
Johanson, Johan M., Cambridge, Mass. Valve-gear for explosive-engines	751,293	Feb. 2	971	221	108	1263
John Hetherington and Sons. (See Ross, George E., assignor.)						
John V. Rice, Junior, Company. (See Rice, John V., Jr., assignor.)						
John W. Swan Company. (See Swan, John W., assignor.)						
Johnson, Alfred E., Colorado Springs, Colo. Mechanical rabble for ore roasting or calcining furnaces	750,194	Jan. 19	3286	710	108	762
Johnson, Arthur T. M., Highbury, assignor to himself, and E. J. Richardson, London, England. Apparatus for electrically transmitting and receiving messages	751,294	Feb. 2	973	221, 222, 223	108	1264
Johnson, Augusta F. (See Barry, James, assignor.)						
Johnson, Bellfield, Williamsport, Pa. Trace-holder	752,560	Feb. 16	3350	745	108	1822
Johnson, Benjamin F., Beeville, Tex. Machine for collecting insects from plants	749,562	Jan. 12	2082	433	108	487
Johnson, Benjamin L., assignor of one-half to W. F. Ayers, Washington, Pa. Cover for vessels	749,998	Jan. 19	2923	624	108	687
Johnson, Carol E., assignor of one-half to M. H. Brennan, Toledo, Ohio. Bottle-case fastener	752,396	Feb. 16	3040	676	108	1753
Johnson, Charles E., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Lock	750,285	Jan. 26	3464	749, 750	108	821
Johnson, Charles H., Colony, Kans. Printing-press	748,743	Jan. 5	354	78	108	79
Johnson, Charles J., assignor of one-half to C. W. Benedict, St. Louis, Mo. Trolley for electric-railway cars	750,368	Jan. 26	3020	785	108	856
Johnson, Daniel E., assignor to F. C. Billings, Hartford, Conn. Liquid-fuel-feeding system	749,994	Jan. 19	2924	625	108	687
Johnson, Eldridge R., Philadelphia, Pa., assignor to Victor Talking Machine Company. Speed-governor for motors	750,858	Feb. 2	148	34	108	1090
Johnson, Eldridge R., Philadelphia, Pa., assignor to Victor Talking Machine Company. Removable turn-table for sound-recording machines	752,682	Feb. 23	3610	804	108	1895
Johnson, Erick J., Gilmanton, Wis., assignor of one-third to J. J. Hopperstad, Decorah, Iowa. Automatic vehicle-brake	750,195	Jan. 19	3287	710	108	762

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Johnson, Frank M., assignor to Oakville Company, Waterbury, Conn. Machine for sticking safety-pins	752,220	Feb. 16	2707	599, 600	108	1681
Johnson, George W., Manassas, Va. Subsoil-plow	752,561	Feb. 16	3351	745	108	1822
Johnson, Godfrey B., London, England. Rolls for use in the production of sheet-metal strips	749,679	Jan. 12	2293	484	108	532
Johnson, Guy R., Chicago, Ill. Reclaiming flue-dust	751,399	Feb. 2	1154	263	108	1363
Johnson, Henry, assignor of one-half to Detroit Table Manufacturing Company, Detroit, Mich. Folding table	748,966	Jan. 5	776	168	108	176
Johnson, James W., *et al.* (See Whitaker, Richard, assignor.)						
Johnson, John. (See Johnson, Ole and J.)						
Johnson, John, assignor of one-half to W. L. Elliott, Lowville, N. Y. Potato-digger	752,981	Feb. 23	4218	940, 941	108	2081
Johnson, John, and E. Hitz, St. Louis, Mo. Hydrant system for country houses	749,563	Jan. 12	2085	483	108	480
Johnson, John W., and L. Lock, Upper Sandusky, Ohio. Preparing rice food products	749,564	Jan. 12	2086	------	108	480
Johnson, Kate A., Lorene, Wash. Fruit-jar holder	750,654	Jan. 26	4148	900	108	965
Johnson, Lucian H., Bonifay, Fla. Dipper-scraper	750,459	Jan. 26	3785	823	108	892
Johnson, Manander M., Clay Center, Nebr. Heating apparatus for incubators	752,230	Feb. 16	2713	600	108	1682
Johnson, Mary E., executrix. (See Mollett, Alexander L., assignor.)						
Johnson, Morten S., Chicago, Ill. Pin-ticket	748,957	Jan. 5	777	168	108	177
Johnson, Nels V., Colby, Kans. Combined governor and speed-gear mechanism	748,958	Jan. 5	778	169	108	177
Johnson, Nestor G., Chicago, Ill. Skate	750,542	Jan. 26	3965	857	108	928
Johnson, Ole and J., Milwaukee, Wis. Hoisting and conveying apparatus	749,198	Jan. 12	1322	284	108	325
Johnson, Osro P. (See Crockett and Johnson.)						
Johnson, Robert W., *et al.* (See Whitaker, Richard, assignor.)						
Johnson, Thomas W., San Francisco, Cal. Water-tube boiler	750,286	Jan. 26	3466	750	108	821
Johnson, William D., *et al.* (See Baird, John P., assignor.)						
Johnson, William H., Revere, assignor to J. A. Hewes and F. W. Potter, Melrose, Mass. Garment-buckle	749,995	Jan. 19	2927	625	108	687
Johnson, William J. (See Colthar, William U., assignor.)						
Johnston, Allen, Ottumwa, Iowa. Ball-swaging machine	748,612	Jan. 5	108	26	108	24
Johnston, Edward A., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Corn-harvester	749,298	Jan. 12	1530	325, 326	108	368
Johnston, Edward A., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Automatic mowing-machine	752,779	Feb. 23	3776	843, 844	108	1932
Johnston Harvester Company. (See Maul, Christian, assignor.)						
Johnston, Hugh A., Sydney, Canada. Inkstand	749,611	Jan. 12	2160	452	108	505
Johnston, John. (See Potter and Johnston.)						
Johnston, Joseph G., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Power-actuated molding apparatus	752,780	Feb. 23	3780	844, 845	108	1933
Johnston, William E. (See Pomeroy, Bennard H., assignor.)						
Johnstone, Lloyd G., assignor of one-half to J. Arens, New York, N. Y. Third rail for electric railways	751,175	Feb. 2	730	167	108	1214
Joliet Stove Works. (See Moore and Cope, assignors.)						
Jones, Alfred W., Pacific Grove, Cal., assignor to J. S. Tait, Washington, D. C. Elastic-tread horseshoe	749,299	Jan. 12	1534	326	108	368
Jones, Daniel F., Providence, R. I. Skeleton frame for tanks or cells of electric batteries	749,199	Jan. 12	1327	285	108	326
Jones, Dora, Chicago, Ill. Advertising-display device	749,441	Jan. 12	1842	384	108	434
Jones, Evan J., *et al.* (See Adair, Charles E., assignor.)						
Jones, Florence M., *et al.* (See Ruggles, Harry A., assignor.)						
Jones, Frederick B. (See Faherty, Michael W., assignor.)						
Jones, Harry, Richmond, Ind. Pump	751,651	Feb. 9	1608	364	108	1417
Jones, Henry, assignor to R. L. Gibson, Philadelphia, Pa. Sound recording and reproducing machine	750,460	Jan. 26	3786	823	108	892
Jones, Herbert A., Himrods, N. Y. Cattle-marking tool	748,613	Jan. 5	106	27	108	24
Jones, Horace K., Hartford, assignor to Russell and Erwin Manufacturing Company, New Britain, Conn. Machine for rolling carpenters' squares	748,870	Jan. 5	600	135, 136	108	134
Jones, Howard F., Wilson, N. C. Heat-alarm	750,543	Jan. 26	3966	858	108	928
Jones, Howard F., Wilson, N. C. Fluid-pressure weighing-scale	751,295	Feb. 2	981	223	108	1265
Jones, Howard F., Wilson, N. C. Fluid-pressure weighing-scale	751,296	Feb. 2	984	224	108	1266
Jones, Howard F., Wilson, N. C. Fluid-pressure weighing-scale	751,297	Feb. 2	985	224	108	1266
Jones, James, Jr., Jasper, Tex. Combined box-lid support and label-holder	750,655	Jan. 26	4148	900	108	966
Jones, James R., and Q. Callaway, Highland Park, Tenn. Windlass water-elevator	751,652	Feb. 9	1605	364	108	1418
Jones, John A., New York, N. Y. Bottle-stopper	749,565	Jan. 12	2087	434	108	489
Jones, John J., and J. E. Swanstrom, St. Paul, Minn. Supplemental auxiliary feed for air-brake systems	749,612	Jan. 12	2161	452, 453	108	505
Jones, John M. C., Gibson City, Ill. Corn and syrup feeder for canning factories	748,744	Jan. 5	335	78, 79	108	79
Jones, Joseph H., assignor of one-half to J. E. Elliott, Scotland, Canada. Automatic attachment for gates	748,614	Jan. 5	107	27	108	25
Jones, Lawrence R. (See Brady and Jones.)						
Jones, Lois M., Grand Rapids, Mich. Combined underwaist and garment-supporter	752,343	Feb. 16	2938	654	108	1731
Jones, Newton C., assignor of one-half to M. B. Carpenter, Springfield, Mass. Curtain-roll support	752,307	Feb. 16	3041	676	108	1753
Jones, Omer W., Sugar Creek township, Montgomery county, Ind. Marker-lifter for corn-planters	751,176	Feb. 2	732	167, 168	108	1214
Jones, Owen J., Bangor, Pa. Clasp	750,656	Jan. 26	4150	900	108	966
Jones, Richard T., Baltimore, Md. Paper-roll holder and cutter	751,920	Feb. 9	2127	479	108	1532
Jones, Samuel A., and F. W. Downham, Deshler, Ohio. Cream-can	752,344	Feb. 16	2940	655	108	1732
Jones, Thomas S. (See Williams, Willie L., assignor.)						
Jones, Wiley W., Downs, Kans. Cutter-bar for mowing-machines	749,618	Jan. 12	2163	453	108	506
Jones, William E., *et al.* (See Adair, Charles E., assignor.)						
Joseph, Rupert L., *et al.* (See Gallagher, George S., assignor.)						
Josephi, Ina O. (See Josephi, James E. and I. O.)						
Josephi, James E. and I. O., San Francisco, Cal. Combination suspenders and stocking-supporter	750,978	Feb. 2	368	89	108	1139
Josserand, François, and C. A. M. Jacquet, Paris, France. Machine for dressing solid or hollow bars, rods, &c.	748,745	Jan. 5	357	79, 80	108	79
Joy, David C., Flints Mill, Ohio. Toe-swage	750,369	Jan. 26	3622	786	108	857
Judd, Edward M., Wallingford, Conn. Mail-marking and canceling device	751,736	Feb. 9	1762	400, 401	108	1450
Julius, Paul, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Red azo dye	752,562	Feb. 16	3352	------	108	1822
Jung, Albert. (See Servuss, Eugen, assignor.)						
Juschke, Paul, New York, N. Y. Pool-ball placer and holder	752,292	Feb. 16	2843	631	108	1710
Kadlecsik, George, Brooklyn, N. Y. Pump and water-power motor	749,614	Jan. 12	2165	453	108	506
Kadow, Otto F. (See Keller and Kadow.)						
Kaestner, John D., Minneapolis, Minn. Sole or heel protector	750,979	Feb. 2	369	89	108	1139

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Kaffer, Edward, Manhattan, Ill. Coffin-case	752,075	Feb. 16	2428	543	108	1616
Kahlenberg, William R., Two Rivers, Wis. Gas-engine	748,615	Jan. 5	108	27	108	25
Kahlmus, Henry, Philadelphia, Pa. Non-refillable bottle	749,385	Jan. 12	1712	363	108	408
Kahn, Julius, Detroit, Mich. Composite building construction	751,921	Feb. 9	2129	479, 480	108	1533
Kaiser, Friedrich. (See Stephan and Kaiser.)						
Kaier, Charles H., Schenectady, N. Y., assignor to General Electric Company. Field-coil structure	750,980	Feb. 2	370	89, 90	108	1139
Kallsher, Harry. (See Kallsher, Samuel and H.)						
Kallsher, Samuel and H., Chicago, Ill. Gate	753,130	Feb. 23	4499	1001, 1002	108	2098
Kaltschmid, Karl, Oberriexingen, Germany. Sad-iron	749,615	Jan. 12	2167	454	108	506
Kammerer, Otto, Charlottenburg, Germany. Electric gear for cranes	750,370	Jan. 26	3623	786	108	857
Kanarr, William R., Marion Center, assignor of one-half to H. S. McAfoos, Deckers Point, Pa. Railway-rail joint	750,859	Feb. 2	149	34	108	1090
Kaping, Herman, Chicago, Ill. Smoke-consumer	750,860	Feb. 2	150	34, 35	108	1090
Karle, Hugo, Seckenheim, and J. Schmidt, Mannheim, Germany. Production of substances resembling leather	750,371	Jan. 26	3624	786	108	857
Karr, Burton A., assignor of one-half to C. F. Mauer, Council Bluffs, Iowa. Grading-machine	748,616	Jan. 5	109	28	108	25
Kartzmark, Otto, Brooklyn, N. Y., assignor of one-half to W. Davis, Jersey City, N. J. Apparatus for purifying liquids	751,986	Feb. 9	2280	510	108	1564
Katz, Danniel P., Philadelphia, Pa. Button	750,861	Feb. 2	151	35	108	1090
Katz, Oscar J., Rochester, N. Y. Stocking-stretcher	751,653	Feb. 9	1605	365	108	1418
Kautz, George, Sr., assignor to H. M. Kautz, Albany, N. Y. Dumping-wagon	750,196	Jan. 19	3289	711	108	763
Kautz, Huldah M. (See Kautz, George, Sr., assignor.)						
Kavle, Oscar C., Hartford, Conn., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y. Paper-guide for type-writers	752,076	Feb. 16	2429	543	108	1616
Kay, John C., administrator. (See Kay, John F.)						
Kay, John F., deceased, Passaic, N. J.; J. C. Kay, administrator. Driving mechanism	752,905	Feb. 23	4033	903	108	1989
Keding, Louis, assignor to J. W. Suetterle, Milwaukee, Wis. Draft connection	750,544	Jan. 26	3968	858	108	928
Keefer, William B. (See Elliott, Robert, assignor.)						
Keeler, Henry, Atchison, Kans. Puzzle	750,862	Feb. 2	152	35	108	1091
Keeling, William M., Rockford, Ill. Paper-trimmer	752,842	Feb. 23	3912	876	108	1960
Keen, Arthur W. M., assignor of two-thirds to C. S. Gardner and E. Watson, London, England. Race game	750,545	Jan. 26	3970	858, 859	108	929
Keener, Josephine V., St. Joseph, Mo. Mail-box	751,922	Feb. 9	2131	480	108	1533
Kees, Frederick D. (See Sues, George W., assignor.)						
Keffer, Robert R. (See Bilby and Keffer.)						
Kegrize, Frank M., Philadelphia, Pa. Fountain-pen	750,546	Jan. 26	3971	859	108	929
Keil, Henry F., Bronxville, N. Y. Handle for valves, faucets, plumbers' fittings, &c	749,692	Jan. 12	2322	490	108	538
Keil, Henry F., Bronxville, N. Y. Ball-bearing sheave	750,771	Jan. 26	4426	954	108	1030
Kellwerth, Franz, Cincinnati, Ohio. Movable car-step	750,981	Feb. 2	371	90	108	1140
Keiner, Henry A., Brooklyn, and E. R. Gilman, assignors to E. C. Seaman, New York, N. Y. Milk-can	750,461	Jan. 26	3789	823	108	893
Keiser, Franklin B. (See Moffett and Keiser.)						
Keith, George E. (See Davis, Oscar C., assignor.)						
Keith, James, and W. W. Wardle, assignors to James Keith & Blackman Company, Limited, London, England. Apparatus for drying wool, &c	753,200	Feb. 23	4613	1027, 1028	108	2120
Keithley, Herbert R., Chicago, Ill. Underframe for railway-cars	752,231	Feb. 16	2714	601	108	1683
Keller, Albert T., Wilkinsburg, assignor of one-half to Mesta Machine Company, Pittsburg, Pa. Universal mill	749,823	Jan. 19	2596	553, 554	108	616
Keller, Alfred, assignor to Mermod Frères, St. Croix, Switzerland. Controlling mechanism for automatic musical instruments	752,688	Feb. 23	3613	804	108	1895
Keller, Charles F., assignor to G. L. Lavery, Chicago, Ill. Rural mail-box	750,547	Jan. 26	3973	859	108	929
Keller, Charles L., assignor to Scherzer Rolling Lift Bridge Company, Chicago, Ill. Bascule-bridge	752,563	Feb. 16	3353	745, 746	108	1822
Keller, James C., and O. F. Kadow, Cleveland, Ohio. Electromagnet	752,345	Feb. 16	2942	655	108	1732
Keller, John E., Jr., Litchfield, Conn. Valve for pneumatic tires	750,982	Feb. 2	373	90	108	1140
Keller, Julius, Philadelphia, Pa., assignor to Philadelphia Pneumatic Tool Company. Handle for pneumatic tools	752,982	Feb. 23	4221	941	108	2082
Keller, Paul G. W., Manitowoc, Wis. Apparatus for ascertaining the acceleration due to gravity	751,517	Feb. 9	1349	307, 308	108	1365
Kelley, Wilbur S., assignor of one-half to W. D. Crawford, Newton, Iowa. Tender for traction-engines	752,684	Feb. 23	3615	804, 805	108	1896
Kellner, Henry F., North Platte, Nebr. Fascine	749,386	Jan. 12	1714	363	108	409
Kellogg, Benjamin H., Sherman, Conn. Draft-lightener	750,462	Jan. 26	3790	824	108	893
Kellogg, George W., Winsted, Conn. Air-pump	748,617	Jan. 5	112	28	108	26
Kellogg, Karl, *et al.* (See Barnes, Charles O., assignor.)						
Kellogg Switchboard and Supply Company. (See Knudsen, Anton M., assignor.)						
Kellogg Switchboard and Supply Company. (See Lendl, John H., assignor.)						
Kellogg Switchboard and Supply Company. (See Libby, Albion D. T., assignor.)						
Kellogg Switchboard and Supply Company. (See Miller, Kempster B., assignor.)						
Kellum, Claude S., Indianapolis, assignor of one-half to J. A. Hayes, Kokomo, Ind. Letter-package tie	749,935	Jan. 19	2817	602	108	663
Kelly, George L. (See Elliott and Kelly.)						
Kelly, Henry M. (See Dusenbury and Kelly.)						
Kelly, James, assignor of one-third to J. Croak, Pittsburg, Pa. Trolley	751,298	Feb. 2	988	224	108	1207
Kelly, James J., Dublin, Ireland. Tobacco-pipe and cigar or cigarette holder	751,923	Feb. 9	2132	480	108	1533
Kelly, James W., Chicago, Ill. Water-closet	752,906	Feb. 23	4035	904	108	1989
Kelly, John F., Pittsfield, Mass. High-potential switch	749,200	Jan. 12	1329	285	108	326
Kelly, John J. (See Seager and Kelly.)						
Kelly, John P., assignor to Union Water Meter Company, Worcester, Mass. Disk water-meter	749,066	Jan. 5	1041	220	108	240
Kelly, Philip C., assignor to Sandycroft Foundry Company, Limited, Sandycroft, England. Tappet for the shafts of ore stamp-mills, &c	752,907	Feb. 23	4037	904	108	1990
Kelly, Walter F. (See Smith, William H., assignor.)						
Kelly, William W., Lorain, Ohio. Triple-cylinder engine	751,924	Feb. 9	2133	480	108	1533
Kelsey, Willis S., Meriden, Conn., assignor of one-half to H. L. Morehouse. Fastening means for parquet floors, paneling, or the like	748,746	Jan. 5	359	80	108	80
Kelso, William, Pittsburg, Pa. Car-coupling	751,737	Feb. 9	1766	401, 402	108	1451
Kemp & Burpee Manufacturing Company. (See Love, Robert, assignor.)						
Kemp, Harry, Newton, Mass. Waste-end conveyer	749,300	Jan. 12	1535	327	108	369
Kendall, George E., and W. L. Cowdin, Delphi, Ind. Magazine-stove	749,067	Jan. 5	1044	220	108	240
Kendall, William M., Manchester, N. H. Napkin-ring	750,197	Jan. 19	3291	711	108	763
Kendrick, Arthur B., assignor to J. R. Kendrick, Philadelphia, Pa. Abdominal belt	750,983	Feb. 2	375	90	108	1140

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Kendrick, James R. (See Kendrick, Arthur B., assignor.)						
Kenfield, Elmer E., Washburn, Wis. Grain-car door	750,111	Jan. 19	3144	676	108	732
Kennedy, David, Erie, Pa. Grinding-machine	750,372	Jan. 26	3696	786, 787	108	858
Kennedy, John W., Cecil, Ga. Furniture-caster	750,964	Feb. 2	376	91	108	1141
Kennedy, Walter J., Grand Rapids, Mich. Steam-cooker	751,488	Feb. 2	1204	275	108	1213
Kennedy, William J., Rockisland, Tex. Box or basket making machine	753,140	Feb. 23	4500	1002, 1003	108	2093
Kenner, George A., Herrin, Ill. Coal-separator	750,657	Jan. 26	4150	900	108	966
Kenney, Owen E., Toledo, Ohio, assignor to Yost-Miller Company. Socket for incandescent lamps	750,198	Jan. 19	3292	711	108	763
Kenny, Micheal J. (See Lockett, Kenny, Stimebach, and Udell.)						
Kent, Hiram T., Appleton, Wis. Printing-press	749,487	Jan. 12	1944	404	108	456
Kephart, James. (See Priestley, Kephart, and Merchant.)						
Kercher, Wheeler W., Goshen, Ind. Rail-joint	752,567	Feb. 16	3362	750	108	1824
Kermath, James, Detroit, Mich., assignor to Eclipse Manufacturing Company. Trolley-stand	749,795	Jan. 19	2547	541	108	604
Kern, Eli, Stuttgart, Kans. Fusee	751,400	Feb. 2	1155	263	108	1308
Kernohan, Robert B., Pittsburg, Pa. Signaling apparatus	752,843	Feb. 23	3912	877	108	1961
Kerr, Charles, Jackson, Miss. Gabion	752,781	Feb. 23	3783	845	108	1953
Kerr, Warren H., Olean, N. Y. Extensible chandelier	753,141	Feb. 23	4503	1003	108	2094
Kershgens, Joseph, Charleroi, Pa. Machine for discharging coke from ovens	753,142	Feb. 23	4504	1003, 1004	108	2094
Kespohl, William M., *et al.* (See McKnight, John A., assignor.)						
Kessler, Richard Y., Pawnee, Ill. Fertilizer and grain distributer	750,463	Jan. 26	3798	824	108	894
Keville, William J., assignor of one-half to F. E. Beck, Denver, Colo. Brake slack-adjuster	749,967	Jan. 19	2869	613, 614	108	674
Keyser, William W. (See Orr, Francis L., assignor.)						
Keystone Knitting Machine Company. (See Ecly, John C., assignor.)						
Keyworth, William C., assignor to Benjamin Eastwood Company, Paterson, N. J. Warping and beaming machine	753,079	Feb. 23	4490	978, 979	108	2072
Kidd, Joseph, Duluth, Minn. Device for mooring and warping vessels	748,618	Jan. 5	113	29	108	26
Kidder, Frank E., assignor to J. A. Ferguson, Denver, Colo. Building block and wall	749,796	Jan. 19	2548	542	108	604
Kidston-Hunter, Archibald G., Dunedin, New Zealand. Grading, classifying, and distributing auriferous wash in gold-saving	751,925	Feb. 9	2134	481, 482	108	1533
Kieffer, Joseph L., Montreal, Canada. Stitch-forming mechanism for shoe-sewing machines	752,398	Feb. 16	3042	677	108	1753
Kiesig, Bernhard R., assignor to American Music Company, Chicago, Ill. Musical instrument	752,792	Feb. 23	3784	845, 846	108	1984
Kilbourn, Washington H., Greenfield, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Trolley-stand	749,301	Jan. 12	1537	327	108	309
Kilgallon, Luke, Far Rockaway, N. Y. Device for attaching rubber tires to vehicle-wheels	751,177	Feb. 2	734	168	108	1214
Killion, John H., Chicago, Ill. Stock for framing or other purposes	751,518	Feb. 9	1351	308	108	1365
Kilmer, Melvin D., Cleveland, Ohio. Spring construction	752,788	Feb. 23	3787	846	108	1984
Kilroy, Willie D., Uxbridge, England. Apparatus for the regulation of electrical circuits in heating devices	751,654	Feb. 9	1606	365	108	1418
Kilzer, John H., Seward, Nebr. Cartridge	751,519	Feb. 9	1354	309	108	1366
Kimball, Earle F., assignor of one-half to C. W. Fuller, Chelsea, Mass. Pump attachment	749,797	Jan. 19	2549	542	108	605
Kimball, Perley L., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Centrifugal separator	751,178	Feb. 2	735	168, 169	108	1215
Kimberly, Luman C., Circleville, Ohio. Lifting-jack	750,287	Jan. 26	3468	750	108	821
Kimmons, Joel W., Lowell, Ark. Fruit-bleacher	753,143	Feb. 23	4507	1005	108	2095
Kinard, Elisha F. (See Willcox, Irvin J., assignor.)						
Kindig, Benjamin W., Jr., York, Pa. Bridle and bit	750,200	Jan. 19	3295	712	108	764
Kindig, Benjamin W., Jr., assignor of one-half to T. I. Welsh, York, Pa. Head-controller for horses	748,747	Jan. 5	360	80	108	80
Kindig, Benjamin W., Jr., assignor of one-half to T. I. Welsh, York, Pa. Bit	750,199	Jan. 19	3294	712	108	764
Kindl, Frederick H. (See Beker, Rudolph G., assignor.)						
Kindl, Frederick H., Pittsburg, Pa. Railway-tie	752,455	Feb. 16	3154	702	108	1777
King, Charles D., Olympia, Wash. Automatic locomotive-alarm	751,926	Feb. 9	2135	482	108	1534
King, Frank R., *et al.* (See Le May, Marcus M., assignor.)						
King, George I., Middletown, Pa. Underframing for railway-cars	752,665	Feb. 23	3617	805	108	1896
King, George I., Middletown, Pa., assignor to American Car & Foundry Company, St. Louis, Mo. Gondola car	751,299	Feb. 2	900	224, 225	108	1267
King, George W., Washington, D. C. Spring draft attachment	750,112	Jan. 19	3145	676	108	732
King, Henry B., and H. M. Quick, Paterson, N. J. Vehicle mud-guard	749,866	Jan. 19	2669	571	108	631
King, Homer C., Elgin, Ill. Stem winding and setting mechanism	752,686	Feb. 23	3639	806	108	1897
King, Ira. (See Bedinger, King, and Bedinger.)						
King, Joseph D., Wellsville, Mo. Spark-arrester	750,658	Jan. 26	4152	901	108	966
King, Phineas F., assignor of one-half to C. H. Tucker, Cleveland, Ohio. Top clamp for upholstery-springs	752,160	Feb. 16	2590	576	108	1651
King, Willis R., New York, N. Y., assignor to Hanson & Van Winkle Company. Sand-blast apparatus	749,488	Jan. 12	1949	405	108	457
Kingsbury, Jesse H., Lapeer, Mich. Lifting-jack and thill-support	749,489	Jan. 12	1953	405	108	458
Kingsley, Albert F., Washington, D. C. Locomotive or other boiler furnace	748,748	Jan. 5	761	81	108	81
Kingston, James L., Roxbury, Mass. Reversible rug-adjuster	751,738	Feb. 9	1768	402	108	1452
Kinnard, Will M., Dayton, Ohio. Machine for manufacturing vessels of paper or other fibrous material	751,300	Feb. 2	993	225	108	1268
Kinnear, Blanch, Clinton, Mass. Trace-hook	750,373	Jan. 26	3627	787	108	858
Kinnear, William R., New York, N. Y. Means for providing zinc in radiators	752,844	Feb. 23	3913	877	108	1961
Kintner, Charles J., New York, N. Y. Electric railway	748,619	Jan. 5	115	29	108	26
Kintner, Charles J., New York, N. Y. Electric railway	748,620	Jan. 5	121	30, 31	108	28
Kintner, Charles J., New York, N. Y. Safety system of electric railways	748,621	Jan. 5	138	31, 32	108	30
Kip, Frederic E. (See Baker and Kip.)						
Kirk, Edward C., Pittsburg, Pa., assignor of one-half to H. C. Kirk, Washington, D. C. Heat-retainer	752,687	Feb. 23	3622	806	108	1896
Kirk, Hyland C. (See Kirk, Edward C., assignor.)						
Kirk, Robert A. (See Shelton and Kirk.)						
Kirkpatrick, William P., Newcastle, Pa. Churn	751,520	Feb. 9	1355	309	108	1366
Kirnan, William H., Bayonne, N. J., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y. Automatic non-interfering repeater for fire-alarm circuits	749,387	Jan. 12	1715	363, 364	108	409
Kissam, George F., *et al.* (See Sauvage, William H., assignor.)						
Kitfield, Edward H., Swampscott, Mass. Electrical system of heating	748,749	Jan. 5	364	81, 82	108	81
Kitsee, Isidor, Philadelphia, Pa. Telephony	751,655	Feb. 9	1608	365, 366	108	1419
Kitsee, Isidor, Philadelphia, Pa. Printing on tins	753,144	Feb. 23	4508	1005	108	2095

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Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Thayer, Russell, assignor.)						
Kitzmiller, George M., assignor of two-thirds to J. H. Wool and M. G. Nusbaum, Norfolk, Va. Picture-hanger	752,622	Feb. 16	3490	778	108	1852
Klaber, Augustus D., London, England, assignor to A. B. Dick Company, Chicago, Ill. Duplicating-machine	750,863	Feb. 2	153	35, 36	108	1091
Klatt, Albert, assignor of one-half to E. Emmington, Collinsville, Cal. Detachable sail-fastening for mast-hoops	749,968	Jan. 19	2870	614	108	674
Klaveness, E. (See Jacobsen, Nicolay, assignor.)						
Klay, Andrew, Bluffton, Ohio. Expansible mandrel	749,202	Jan. 12	1332	286	108	327
Kleeman, Louis F., El Paso, Tex. Coin-controlled clock and money-box	750,374	Jan. 26	3698	787, 788	108	858
Kleinbielen, Hubert. (See Neinens and Kleinbielen.)						
Kleinfeldt, Hermann, New York, N. Y. Clothes-line fastener	748,622	Jan. 5	139	32	108	31
Klemm, Hermann A., New York, N. Y. Trimming-cutter attachment for zigzag-sewing machines	753,145	Feb. 23	4509	1005	108	2095
Kley, Gustav, Siegburg, Germany. Weighing-machine	751,301	Feb. 2	995	225	108	1269
Kline, Alexander, Jersey City, N. J. Securing electric wires	749,867	Jan. 19	2670	571	108	631
Kline, Charles S., Mingo Junction, Ohio. Wrench	752,564	Feb. 16	3356	746	108	1822
Kline, John P., Brooklyn, Mich. Manufacture of hopple-loops	750,201	Jan. 19	3297	712	108	764
Kling, John C., assignor of one-half to G. B. Frease, Canton, Ohio. Galley-stand	750,464	Jan. 26	3794	824	108	894
Klingensmith, Edward W., and F. W. Lane, Century, Fla. Log-car standard	750,659	Jan. 26	4153	901	108	967
Knapp, Charles H., Paterson, N. J. Winding-machine	748,750	Jan. 5	367	82	108	81
Knapp, Fred H. (See Blackstone, Clarence W., assignor.)						
Kneas, Strickland L., assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Injector	750,202	Jan. 19	3298	712	108	765
Knecht, Paul, Knoxville borough, Pa., assignor to A. Garrison Foundry Company. Adjusting mechanism for rolls, &c	750,864	Feb. 2	156	36, 37	108	1091
Knell, Benjamin F., Philadelphia, Pa. Mandolin-pick holder	749,616	Jan. 12	2168	455	108	507
Knimn, George G., Bayonne, N. J., assignor to Boynton Furnace Company, New York, N. Y. Fire-pot	749,203	Jan. 12	1333	286	108	327
Knight, Alfred J., Melrose, assignor of one-half to J. B. Thomas, Boston, Mass. Chemical fire-extinguisher	752,399	Feb. 16	3050	678	108	1755
Knight, Lewis, Beloit, Kans. Dental articulator	750,203	Jan. 19	3301	713	108	765
Knight, Margaret E., South Framingham, Mass. Rotary engine	752,784	Feb. 23	3788	846, 847	108	1984
Knight, Margret E. (See Benjamin, John M., assignor.)						
Knighton, France I., Louisville, Ky. Curtain-fixture	752,968	Feb. 23	4223	941	108	2032
Kniphals, Henry, Davenport, Iowa. Potato-digger	750,375	Jan. 26	3630	788	108	859
Knisely, John A., Chicago, Ill. Metal window frame and sash	749,201	Jan. 12	1331	285, 286	108	327
Knisely, John A., Chicago, Ill. Metal window	751,521	Feb. 9	1356	309	108	1366
Knoch, Charles E., Charleroi, Pa. Barrow-wheel	749,566	Jan. 12	2090	484	108	490
Knowles, William H. (See Chapman, Leonard, assignor.)						
Knowlton, Frank H. (See Hughes, Judson, assignor.)						
Knudsen, Anton M., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Ringer	750,288	Jan. 26	3469	751	108	822
Knupp, Jacob C., Warren, Pa. Well-derrick	751,078	Feb. 2	544	127	108	1178
Knuth, Jake, and C. Read, Oswego, Ill. Vehicle-brake	752,984	Feb. 23	4224	941, 942	108	2032
Koch, Arthur A., Montezuma, Iowa. Power-hammer	751,522	Feb. 9	1357	310	108	1366
Koch, Charles J., Bigstone, S. D. Governor-regulator	748,751	Jan. 5	368	83	108	82
Koch, Frederick A., New York, N. Y. Surgical-instrument case	750,465	Jan. 26	3795	825	108	895
Koch, Henry E., Hartington, Nebr. Obstetrical forceps	751,656	Feb. 9	1613	366	108	1419
Koeneman, Eugene O., Eldora, Iowa. Shield for clinical thermometers	752,985	Feb. 23	4226	942	108	2033
Koenig, Frank P., Lower St. Clair township, Allegheny county, Pa. Nut-lock	748,752	Jan. 5	369	83	108	82
Koepfl, J. O., *et al.* (See Brown, William E., assignor.)	750,466	Jan. 26	3796	825	108	895
Koepp & Co., Rudolph. (See Rieche and Saame, assignors.)						
Kohl, Edward, *et al.* (See Wiesman, Lester A., assignor.)						
Kohler, George H. A. (See Wagner, John, assignor.)						
Kollrepp, Alexander, Berlin, and A. Wohl, Charlottenburg, Germany. Electrolytically purifying juices	751,179	Feb. 2	737	169	108	1215
Köneman, William A., Chicago, Ill. Manufacture of gas	749,302	Jan. 12	1540	327	108	370
Köneman, William A., Chicago, Ill. Briqueting-machine	752,565	Feb. 16	3355	747, 748, 749	108	1823
Koppel, Arthur, Berlin, Germany. Rail-fastening	749,936	Jan. 19	2818	602	108	664
Koppers, Heinrich, Essen-on-the-Ruhr, Germany. Coke-oven	753,146	Feb. 23	4510	1005	108	2095
Korff, Max, Hanau, Germany. Illuminating-body	748,753	Jan. 5	371	83, 84	108	82
Körting, Ernst, Körtingsdorf, near Hanover, Germany. Internal-combustion engine	748,959	Jan. 5	780	169	108	177
Kraeuter, Arthur A., Newark, N. J. Belt-punch	751,079	Feb. 2	546	127	108	1179
Kraft, Edward L., and C. P. Young, York, Pa. Apparel-pad	751,302	Feb. 2	998	226	108	1270
Kramer, Emil M., Clasnapark, Ill. Conveyer mechanism for handling grains	752,688	Feb. 23	3624	806, 807	108	1896
Krantz, Hubert, New York, N. Y. Outlet-box	749,442	Jan. 12	1844	384	108	434
Krantz, Hubert, New York, N. Y. Receptacle and attachment-plug	752,456	Feb. 16	3154	703	108	1777
Kraus, Julius, Cuyahoga Falls, Ohio. Power-hammer and rock-drill	749,996	Jan. 19	2928	625, 626	108	688
Krause, Erich, assignor of one-fifth to H. and R. Kürten, Hoboken, N. J. System of electrical propulsion	751,857	Feb. 9	2007	454	108	1505
Krause, Friedrich, Jersey City, N. J. Making diamond draw-plates	751,180	Feb. 2	739	169	108	1215
Krauss, Louis, near Gypsum, Kans. Evener for reapers	748,754	Jan. 5	372	84	108	82
Krcma, John F., Chicago, Ill. Power-transmission device	749,868	Jan. 19	2671	572	108	631
Krebs, Arthur, assignor to Société Anonyme des Anciens Etablissements Panhard et Levassor, Paris, France. Device for lubricating motors and machinery driven thereby	752,566	Feb. 16	3361	749	108	1823
Krebs, Charles E. (See Wetton, Thomas F., assignor.)						
Kreimer, Joseph, Piqua, Kans. Sash-cord support	751,858	Feb. 9	2008	454	108	1505
Krein, Franz, Sr. (See Dietsch, Lorenz, assignor.)						
Krementz, George, Newark, N. J. Button-fastener	752,298	Feb. 16	2844	631	108	1710
Kremer, Christoph, Frankfort-on-the-Main, Germany. Apparatus for the recovery of fats or the like	751,303	Feb. 2	999	226	108	1270
Kremer, Michael J., assignor of one-half to M., M., E., and L. Silberstein, Davenport, Iowa. Washtub-joint	749,668	Jan. 12	2323	490	108	539
Kresge, C. M. (See Stoughton, William B., assignor.)						
Kressler, William H. (See Puterbaugh and Kressler.)						
Kreuter, Hugh E., Nickelplate, Ind. Reversible plow	748,623	Jan. 5	139	83	108	82

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Krieger, Louis, Courbevoie, France. Electrically-propelled vehicle	752,689	Feb. 23	3627	807	108	1809
Krogh, Ferdinand W., San Francisco, Cal. Device for protecting the joints between stationary and movable machinery	752,170	Feb. 16	3501	576	108	1652
Kromer, Emanuel, Newark, Ohio. Valve mechanism	752,400	Feb. 16	3054	678	108	1756
Kromer, Emanuel, Newark, Ohio. Reversing-valve for steam-engines	752,401	Feb. 16	3056	678 679	108	1756
Kronenberg, Rudolf, Ohligs, Germany. Perforating or punching apparatus	749,308	Jan. 12	1543	328	108	371
Kronvall, Karl G., Chicago, Ill. Range	749,304	Jan. 12	1544	328	108	371
Krouchkoll, Michel, Paris, France. Electric vacuum discharge-tube	751,304	Feb. 2	1000	226 227	108	1270
Krueger, Charles, Wausau, Wis. Leader for threshing-machine straw-carriers	751,657	Feb. 9	1613	366 367	108	1420
Krueger, Hermann F., Brownton, Minn. Traction-engine wheel	749,068	Jan. 5	1046	220 221	108	211
Krüger, Friedrich, Berlin, Germany. Manufacture of fireproof bricks or material	751,080	Feb. 2	548	.....	108	1179
Krupp, Fried. (See Resow and Lauber, assignors.)						
Krupp, Fried. (See Wieser, Karl, assignor.)						
Kryder, Frank L., *et al.* (See Bolte, Frank H., assignor.)						
Kubon, William M., Minneapolis, Minn. Manifolding sales-book	748,735	Jan. 5	374	84	108	83
Küch, Richard, assignor to Firm of W. C. Heraeus, Hanau, Germany. Electric heating apparatus	749,304	Jan. 12	1334	286	108	327
Küchenmeister, Edmund C., Zittau, Germany. Basket for centrifugal machines	748,756	Jan. 5	374	85	108	83
Kuck, Henry G., *et al.* (See Morgan, Alfred W., assignor.)						
Kuckelkorn, Hubert, and E. Saupe, Erfurt, Germany. Photographic developing apparatus	752,986	Feb. 23	4227	942	108	2033
Kuenneth, George W., New York, N. Y. Jacquard mechanism for looms	751,927	Feb. 9	2139	482 483	108	1524
Kujawski, Francis P., *et al.* (See Guzowski, Joseph, assignor.)						
Kunath, Edward F., Jersey City, N. J., assignor to Underwood Typewriter Company, New York, N. Y. Type-bar construction for type-writers or the like	752,077	Feb. 16	3490	544	108	1616
Kunneke, George H., New York, N. Y., assignor to New Jersey Wire Cloth Company, Trenton, N. J. Centering-support	751,181	Feb. 2	741	170	108	1216
Kunz, Emil, Chicago, Ill. Heat-safe	749,216	Jan. 12	1336	287	108	327
Kunzinger, Philip. (See Miller and Kunzinger.)						
Kürten, Hans, *et al.* (See Krause, Erich, assignor.)						
Kürten, Rosa, *et al.* (See Krause, Erich, assignor.)						
Kurzman, Samuel, New York, N. Y. Cart-cover	750,467	Jan. 26	3797	825	108	805
Kussner, Margaret. (See Chigot, Amalie von, assignor.)						
L. C. Smith and Bros. Typewriter Company. (See Gabrielson, Carl, assignor.)						
La Belle, Peter, Anderson, Ind. Knob attachment	752,623	Feb. 16	3491	778	108	1652
La Belle, Peter, Anderson, Ind. Lock	752,624	Feb. 16	3493	778	108	1652
La Burt, John, and D. M. P. Campbell, New York, N. Y.; said La Burt assignor to himself, C. D. Bradley and A. L. Eliel, Parlin, N. J. Marking-brush	752,078	Feb. 16	2432	544	108	1617
La Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz. (See Millet, Laurent, assignor.)						
La Cour, Dan, Copenhagen, Denmark. Electrostatic relay	749,775	Jan. 19	2509	594	108	597
La Société Quenard Frères et Fils. (See Quenard, Emile, assignor.)						
La Sor, William A., Rahway, N. J., and C. M. Smith, New York, N. Y. Paper-slitting device for folding-machines	751,185	Feb. 2	747	171 172	108	1217
La Voo, George W., Steubenville, Ohio. Screw-threading and welding thread-protectors, &c.	751,859	Feb. 9	2009	454	108	1505
La Voo, George W., Steubenville, Ohio. Apparatus for screw-threading and welding rings	751,860	Feb. 9	2010	455	108	1505
La Voo, George W., Steubenville, Ohio. Apparatus for rolling rings	751,861	Feb. 9	2011	455	108	1506
Lachmann, Robert A., Chicago, Ill. Gage	750,204	Jan. 19	3301	713 714	108	765
Lacoin, Auguste E. G. M., Paris, France. Necktie-band fastener	751,305	Feb. 2	1001	227	108	1270
Ladd, Hermon W., Boston, assignor to G. E. Smith, trustee, Everett, Mass. Means for determining the nautical bearing of navigable vessels	749,694	Jan. 12	2324	490	108	539
Lafferty, Harry C., Allegheny, Pa. Dust-guard	751,306	Feb. 2	1002	227	108	1270
Lafferty, Jacob W., near Mechanicsburg, Ohio. Field-leveler	752,079	Feb. 16	2433	544	108	1617
Lafrentz, Julius A., *et al.* (See Alexander, Jesse, assignor.)						
Lagonda Manufacturing Company. (See Weinland, Henry F., assignor.)						
Laird, Daisy C., Des Moines, Iowa. Thread holding and cutting attachment for spools	752,845	Feb. 23	3915	877	108	1961
Lajoie, Jules P., Paris, France. Fluid-pressure motor	752,232	Feb. 16	2716	601	108	1683
Lake, Emma V., Philadelphia, Pa. Garment-hook	752,457	Feb. 16	3155	708	108	1777
Lake, Robert G., Corona, N. Y. Window-shade sign	751,307	Feb. 2	1004	227	108	1271
Lamb, Ernest G., Camden, Me. Sheer-pole support	748,660	Jan. 5	784	170	108	178
Lamb, John J., and J. M. Adams, Galveston, Tex. Combined loader and trimmer	750,865	Feb. 2	157	37	108	1092
Lambert, Adelard, Manchester, N. H. Curtain-bracket	750,055	Jan. 19	3047	653	108	711
Lambert, John W., assignor to Buckeye Mfg. Co., Anderson, Ind. Speed-controlling valve for gas or gasolene engines	753,147	Feb. 23	4511	1006	108	2095
Lambotte, Emile, Salina, Kans. Musical instrument	752,080	Feb. 16	2435	545	108	1618
Lamont, Robert P., assignor to Simplex Railway Appliance Company, Chicago, Ill. Brake-beam	749,567	Jan. 12	2091	434	108	490
Lamos, Stephen D., Longlake, N. Y. Snow-plow	751,182	Feb. 2	743	170	108	1216
Lamos, Stephen D., Longlake, N. Y. Snow-plow	751,183	Feb. 2	744	170	108	1216
Lampitt, Edwin A., Pekin, Ill. End-gate for wagons	750,376	Jan. 26	3632	788	108	859
Lanahan, Thomas. (See Vance and Lanahan.)						
Land, Martin R., Norfolk, Va. Match-safe	751,308	Feb. 2	1005	228	108	1271
Lander, Leroy O., Lisabuela, Wash. Lifting-jack	751,309	Feb. 2	1007	228	108	1271
Landers, Frary and Clark. (See Munson, Samuel R., assignor.)						
Landis, Israel L., Chicago, Ill. Hasp-latch	751,658	Feb. 9	1615	367	108	1420
Landis, Israel L., Chicago, Ill. Gate	752,233	Feb. 16	2717	602	108	1683
Lane, Frederick W. (See Klingensmith and Lane.)						
Lane, George M., Brooklyn, N. Y. Car-signal	752,081	Feb. 16	2436	545	108	1618
Lane, Giles A., Bronco, Ga. Plow	750,985	Feb. 2	377	91	108	1141
Lane, Julius S. (See Purdy and Lane.)						
Langdale, William G., Milford, Ohio, and R. J. Nowlin, Lawrenceburg, Ind. Fan attachment for rocking-chairs	753,148	Feb. 23	4513	1006	108	2096
Langford, John T., Newton, Mass. Machine for lining pipes	750,660	Jan. 26	4154	901	108	967
Langoe, Otto. (See Zimmermann and Langos.)						
Langstroth, John A., Oakland, Cal. Wave-motor	748,737	Jan. 5	375	85	108	83
Lanigan, Pierce, Grey Lynn, New Zealand. Machine for cutting and shaping stone	749,987	Jan. 19	2819	602	108	664
Lankford, Jerome J., Accomac, Va. Plumb-level	753,149	Feb. 23	4516	1006 1007	108	2096
Lankford, Jerome J., Accomac, Va. Lock for cell-doors	753,150	Feb. 23	4517	1007	108	2097

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Lanston Monotype Machine Company. (See Bancroft, John S., assignor.)						
Lanston Monotype Machine Company. (See Vold, Lars H., assignor.)						
Lapp, Valentin, Leipzig, Germany. Coating internal walls of metal fermenting and storing vessels	750,986	Feb. 2	379	.....	108	1141
Laramie, Mitchel, Willimantic, Conn. Animal-trap	750,661	Jan. 26	4157	902	108	967
Larkin, Dennis F., San Francisco, Cal. Whetstone-case	751,659	Feb. 9	1617	367	108	1420
Larned, Sherwood J., Chicago, Ill., assignor to American Telephone and Telegraph Company. Coin-controlled telephone apparatus	751,081	Feb. 2	548	128	108	1179
Larned, Sherwood J., and J. S. Ford, Chicago, Ill., assignors to American Telephone and Telegraph Company. Locking device for telephone apparatus	749,388	Jan. 12	1721	364	108	410
Larrabee Automobile and Manufacturing Company. (See Larrabee, Charles E., assignor.)						
Larrabee, Charles E., San Francisco, Cal., assignor to Larrabee Automobile and Manufacturing Company. Motor-propelled vehicle	751,660	Feb. 9	1617	367	108	1420
Larsen, Andru, Chicago, Ill. Hoof-pad	751,184	Feb. 2	745	170 171	108	1217
Larsen, August. (See Wennersten, John P., assignor.)						
Larson, Peter L., Des Moines, Iowa. Counterbalancing stair or ladder for fire-escapes	752,082	Feb. 16	2438	545	108	1618
Larsson, Hans E. (See Green and Larsson.)						
Larue, Louise J., *et al.* (See Payne, Carl S., assignor.)						
Lash, Horace W., Minneapolis, Minn. Ingot and forming same	749,490	Jan. 12	1954	406	108	458
Lashlie, Cowper, Temuka, New Zealand. Combined hat and clothes brush	749,389	Jan. 12	1723	365	108	411
Lasley, Theodore H., *et al.* (See Willard, James A., assignor.)						
Lasley, William M., *et al.* (See Willard, James A., assignor.)						
Lathrop, Elias L., Fort Wayne, Ind. Road-making machine	749,617	Jan. 12	2169	455 456	108	507
Lations, Charles A., Beverly, Mass. Suspenders	752,568	Feb. 16	3363	750	108	1824
Latrobe Steel & Coupler Company. (See Jacoby, William L., assignor.)						
Lauber, Otto. (See Resow and Lauber.)						
Laughlin, Joseph M., Fourchambault, France. Machinery for the manufacture of horseshoe-nails	749,135	Jan. 5	1174	249 250 251 252	108	272
Laundry Blue Company. (See Groff, Charles R., assignor.)						
Launer, Charles, Fitzgerald, Ga. Car-axle lubricator	752,625	Feb. 16	3499	779	108	1853
Laurin, Joseph, Maisonneuve, Canada. Seam-finisher for shoe-sewing machines	751,523	Feb. 9	1358	310	108	1366
Lavery, George L. (See Keller, Charles F., assignor.)						
Law, John. (See Cunliffe and Law.)						
Law, Prentis E., Wilmette, Ill. Bead-threader	752,626	Feb. 16	3500	779	108	1853
Lawler, James J., Mount Vernon, N. Y. Hot-water radiator	752,987	Feb. 23	4229	942	108	2033
Lawles, Joseph H., Brooklyn, N. Y. Boring-machine	752,908	Feb. 23	4038	904	108	1990
Lawrence, Arthur M. (See Folmer and Lawrence.)						
Lawrence, James L., and G. W. Stewart, El Paso, Tex. Oil-gas generator for explosive engines	751,928	Feb. 9	2140	483 484	108	1535
Lawson, Alfred B., Irene, Va. Cattle-guard	752,294	Feb. 16	2846	631	108	1711
Lawson, Joseph A., Menands, N. Y. Reference-book shelf-desk	752,234	Feb. 16	2719	602	108	1684
Lawson, Robert R., assignor to M. C. Gorman, New York, N. Y. Envelop and stationery device	751,524	Feb. 9	1360	310	108	1367
Lawson, Robert R., assignor to M. C. Gorman, New York, N. Y. Envelop-fastener	752,402	Feb. 16	3057	679	108	1756
Layne, Mahlon E., Rock Rapids, Iowa. Well mechanism	752,785	Feb. 23	3790	848	108	1935
Layne, Mahlon E., Rock Rapids, Iowa. Wire-winding tool	750,205	Jan. 19	3305	714	108	766
Layton, Edwin, Gyula-Fehervar, Austria-Hungary. Propelling and steering apparatus for balloons	750,206	Jan. 19	3306	714	108	766
Lazareff, Mathias A., assignor to Royal Glass Jar and Bottle Company, New York, N. Y. Bottle	751,082	Feb. 2	552	128	108	1180
Le Fevre, George A., New York, N. Y. Electric coupling	751,088	Feb. 2	553	128	108	1180
Le May, Marcus M., assignor of three-fourths to F. R. King, Leighton, Ala., A. M. Young, Fort Worth, Tex., and M. B. Hampton, Leighton, Ala. Wrench	748,961	Jan. 5	786	170	108	179
Le Pontois, Leon J., New Rochelle, N. Y. Producing sparks in the cylinders of internal-combustion engines	750,772	Jan. 26	4428	954 955	108	1030
Le Pontois, Leon J., New Rochelle, N. Y. Inductor alternator	752,690	Feb. 23	3629	808	108	1900
Le Pontois, Leon J., New Rochelle, N. Y. Polyphase magneto-alternator	752,691	Feb. 23	3631	808	108	1900
Leach, John N., Melrose, Mass., assignor to National Oil Heating Company. Lubricator	752,692	Feb. 23	3633	809	108	1900
Leahy, William, Chicago, Ill. Cope	751,186	Feb. 2	751	172	108	1218
Leake, Frank, *et al.* (See Linton, Ernest O., assignor.)	749,069	Jan. 5	1048	221	108	241
Lear, Phillip N., Whitecloud, Kans. Yoke	752,083	Feb. 16	2440	546	108	1619
Learned, Rufus F., Natchez, Miss. Ice-making machine	753,081	Feb. 23	4404	979 980	108	2074
Leavenworth, Seth H., assignor to Homan & Company, Cincinnati, Ohio. Candle-molding machine	750,662	Jan. 26	4159	902	108	968
Leaver, Albert E. and W. H., Chicago, Ill. Fish-line reel	752,786	Feb. 23	3793	848	108	1985
Leaver, William H. (See Leaver, Albert E. and W. H.)						
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Automobile torpedo	748,759	Jan. 5	380	86 87 88	108	84
Leblanc, Alfredo, Stamford, Conn. Glove-fastener	749,618	Jan. 12	2173	456	108	507
Lecompte, Louis, Chicago, Ill. Combined railway draw-head and air-coupling	749,900	Jan. 19	2734	585 586	108	646
Ledbetter, Albert M., Vixen, La. Vehicle-brake	750,378	Jan. 26	3636	789	108	860
Lederman, Charles, Columbus, Ohio. Package-carrier	753,062	Feb. 23	4406	980	108	2074
Lee, Elijah B., and C. H. Beazley, Leesburg, Ga. Disk cultivator-plow	749,619	Jan. 12	2174	456	108	507
Lee, J. H., trustee. (See Morse, William R., assignor.)						
Lee, John O., St. Paul, Minn. Gate-lifting device for elevators	751,796	Feb. 9	1870	426	108	1473
Lee, Joseph D., Salem, Oreg. Water-motor	749,491	Jan. 12	1957	406	108	458
Lee, Marion, Angola, Ind. Tank-mold	750,468	Jan. 26	3799	826	108	896
Lee, Oscar O., Chicago, Ill. Telephone signaling mechanism	752,909	Feb. 23	4041	905	108	1991
Leech, James W., Staunton, Va. Telegraph-instrument stand	750,289	Jan. 26	3471	751	108	822
Leedy, John K., Roanoke, Va. Railway-signal	752,084	Feb. 16	2441	546	108	1619
Lefingwell, Howard G., Severy, Kans. Mail-box	751,310	Feb. 2	1008	228 229	108	1272
Leffler, John, Lagrange, Cal. Gate-hinge	751,661	Feb. 9	1619	368	108	1421
Legge, William D. (See Mosher and Legge.)						
Lehman, Charles J., deceased, New York, N. Y.; P. Lehman, administratrix. Lubricator for yarns or threads	752,458	Feb. 16	3156	708	108	1776
Lehman, Christian S., Lawn, Pa. Thill-coupling	753,068	Feb. 23	4408	980	108	2074

Alphabetical list of patentees for January and February—Continued.

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Lehman, Pauline, administratrix. (See Lehman, Charles J.)						
Leibe, Hugo, assignor to Lerch Brothers, Baltimore, Md. Seat for harness-saddles	749,620	Jan. 12	2176	456	108	508
Leigh, Leonard, Jr., Luipaardsvlei, Transvaal. Chuck for rock-drilling machines	751,311	Feb. 2	1011	229	108	1272
Leigh, Richard A., assignor to Western Rubber Company, Denver, Colo. Rubber-like material	752,988	Feb. 23	4230	943	108	2034
Leistner, Paul G., assignor of one-fourth to H. H. Niemeyer, St. Charles, Mo. Reversible car-seat	751,312	Feb. 2	1013	229 230	108	1273
Lemke, William, Camden, N. J. Sash-holder	750,469	Jan. 26	3810	826	108	896
Lendl, John H., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Central-energy telephone system	751,797	Feb. 9	1871	426	108	1473
Lenhart, Philip F., New York, N. Y., assignor to Old Colony Cork Wood Company, Portland, Me. Corkwood	750,548	Jan. 26	3974	.....	108	929
Lennox, Levi J., *et al.* (See Frank, Oskar, assignor.)						
Lenot, Louis, Lützelhausen, Germany. Apparatus for checking the output of machinery	749,305	Jan. 12	1546	328	108	371
Lenzner, Samuel, Detroit, Mich. Weather-strip	750,669	Jan. 26	4162	903	108	969
Leonard, John T., New York, N. Y. Sash-weight	752,235	Feb. 16	2720	602	108	1684
Lerch Brothers. (See Leibe, Hugo, assignor.)						
Leslie, Arthur. (See Leslie, Frank and A.)						
Leslie, Frank and A., New York, N. Y. Producing duplicate printing-plates	752,846	Feb. 23	3916	877	108	1902
Leslie, Leon M., New York, N. Y. Binder for loose-leaf ledgers	750,664	Jan. 26	4163	903	108	969
Lespérance, Joseph, Montreal, Canada. Daylight plate-developing apparatus	750,665	Jan. 26	4165	903 904	108	970
Letson & Burpee. (See Fulton, Fred B., assignor.)						
Lettieri, Frank, *et al.* (See Milligan and Duncan, assignors.)						
Levalley, Christopher W., Milwaukee, Wis. Shaft-hanger	750,666	Jan. 26	4171	904	108	971
Levy, Harry D., *et al.* (See Beardsley, Robert F. W., assignor.)						
Levy, Lydia, *et al.* (See Beardsley, Robert F. W., assignor.)						
Levy, Rose, *et al.* (See Beardsley, Robert F. W., assignor.)						
Lewellyn, Matthew C., Buffalo, N. Y. Necktie-retainer	749,621	Jan. 12	2177	457	108	508
Lewellyn, Oscar I., and J. W. Schock, Kokomo, Ind. Vacuum-frame	750,667	Jan. 26	4173	905	108	971
Lewiak, Stanislaw, Warsaw, Russia. Apparatus for condensing and bleaching oils	751,187	Feb. 2	753	172	108	1218
Lewis, Charles E., Braddock, and J. Dick, East Pittsburg, Pa. Hydraulic valve	749,136	Jan. 5	1182	252	108	274
Lewis, Henry J., Minneapolis, Minn. Cigar-box filler	748,624	Jan. 5	140	33,34	108	32
Lewis, Joseph, Sault Ste. Marie, Canada. Safety appliance for mining-hoists	748,902	Jan. 5	788	170	108	170
Lewis, Melvin J., Ypsilanti, Mich. Extension-ladder	749,070	Jan. 5	1049	221	108	241
Lewis, William N., Abingdon, Ill. Handle	749,869	Jan. 19	2675	572	108	632
Lewzey, Fredrick J., San Francisco, Cal. Mattress	749,901	Jan. 19	2737	586	108	646
Ley, Joseph H., Kellogg, Minn. Pneumatic stacker	749,737	Jan. 19	2435	518	108	579
Leyer, William J., Erie, Pa. Metal-holding apparatus for flat-bed lithographic-printing presses	748,871	Jan. 5	608	136	108	135
Libby, Albion D. T., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Telephone system	749,366	Jan. 12	1548	328	108	371
Liberman, Isadore, Philadelphia, Pa. Pressure-rolls for cigar-wrapper cutter and rolling tables	752,847	Feb. 23	3917	878	108	1902
Licht, Heinrich. (See Gutstein, Adolf, assignor.)						
Lidgerwood Manufacturing Company. (See Baechtold, Charles A., assignor.)						
Lidgerwood Manufacturing Company. (See Foster, Jed S., assignor.)						
Lieb, Charles A., New York, N. Y. Portable power plant	751,798	Feb. 9	1877	427	108	1475
Liebreich, Hans, Boston, Mass., assignor to International Electric Company. Electric generator	752,236	Feb. 16	2721	602 603	108	1684
Liebrock, George F., Chicago, Ill. Bung-lock	751,525	Feb. 9	1861	311	108	1367
Liedbeck, Alarik, Stockholm, Sweden. Centrifugal apparatus	750,668	Jan. 26	4175	905	108	972
Liggins, William L., St. Louis, Mo. Steam-cooker	749,568	Jan. 12	2092	434 435	108	490
Lima Locomotive and Machine Company. (See Carnes, Ira P., assignor.)						
Limbert, George W., Saspamco, Tex. Fuel-feeding device	749,206	Jan. 12	1538	287	108	328
Lincoln, Ward, assignor to Sterling Manufacturing Company, Rockfalls, Ill. Hay-rake. (Reissue)	12,194	Jan. 19	3388	732	108	785
Lindal, Peter S., Edinburg, Pa. Insulator	751,739	Feb. 9	1769	402	108	1452
Lindblad, Fredrik, New York, N. Y. Carpenter's tool	750,866	Feb. 2	150	38	108	1092
Linden, Frank L., assignor to Linden Glass Company, Chicago, Ill. Leaded glass mosaic	752,340	Feb. 16	2943	655	108	1733
Linden Glass Company. (See Linden, Frank L., assignor.)						
Lindenberg, Theodore, Columbus, Ohio. Pneumatic-tired wheel	750,379	Jan. 26	3937	789	108	860
Linderoth, Herman A., Österby, Stjernsund, Sweden. Bed-chair or bed-sofa	749,307	Jan. 12	1535	329	108	374
Lindgren, August, Moline, Ill., assignor to Moline Plow Company. Cultivator	751,314	Feb. 2	1015	230	108	1274
Lindgren, Gilbert O., Sioux City, Iowa. Automatic draft-regulator	750,669	Jan. 26	4176	906	108	972
Lindholm, Johan O. N., Stockholm, Sweden. Safety-lock for sacks, bags, &c.	751,313	Feb. 2	1015	230	108	1274
Lindmark, Tore G. E., Stockholm, Sweden. Turbine-wheel	751,315	Feb. 2	1017	231	108	1274
Lindmark, Tore G. E., Stockholm, Sweden. Compound steam-turbine	751,316	Feb. 2	1017	231	108	1274
Lindquist, John S., Swedeburg, Nebr. Churn	750,380	Jan. 26	3938	790	108	860
Lindsay, Alexander, and J. Meinert, Davenport, Iowa. Mechanical movement	751,317	Feb. 2	1019	231	108	1275
Lindsay, George F., and W. P. Gunn, Sherman, Tex. Spoke-tightener	751,602	Feb. 9	1619	368	108	1421
Lindsay, Thomas J., assignor of one-half to W. Harmon, Indianapolis, Ind. Shaft-bearing	748,625	Jan. 5	142	34	108	32
Lindsay, Thomas J., Indianapolis, Ind., assignor to himself and W. Harmon. Driving-axle structure for motor-vehicles	748,760	Jan. 5	384	88	108	85
Lindsay, Thomas J., Indianapolis, Ind., assignor to himself and W. Harmon. Driving-axle adjustment for automobiles	750,867	Feb. 2	161	38	108	1008
Lindström, Charles A., Allegheny, and J. F. Streib, Avalon, assignors to Pressed Steel Car Company, Pittsburg, Pa. Car-frame	750,290	Jan. 26	3473	751	108	823
Lineback, Alfred S., Ophir, Utah. Steam-engine	752,237	Feb. 16	2727	604	108	1685
Link Belt Engineering Company. (See Dodge, James M., assignor.)						
Link Belt Engineering Company. (See Hetzel, Frederic V., assignor.)						
Link Belt Machinery Company. (See Peck, Staunton B., assignor.)						
Link, Oliver, and A. Schnedler, St. Charles, Mo. Ash-pan	751,929	Feb. 9	2143	484	108	1535
Linnert, Frank W., Warrenton, Mo. Friction speed-regulator	750,056	Jan. 19	3049	653	108	712
Linton, Ernest O., assignor of three-fourths to F. Leake, W. Shambeau, and J. H. Spengler, Marion, Wis. Liquid-measuring tank	748,761	Jan. 5	396	88	108	86
Lipschutz, Arthur, St. Louis, Mo. Brake-rod jaw	753,084	Feb. 23	4409	940	108	2074
Lipschutz, Arthur, St. Louis, Mo., assignor of two-thirds to M. Toltz, St. Paul, Minn., and H. W. Wolff, St. Louis, Mo. Combined freight and dump car	750,670	Jan. 26	4177	906 907	108	972
Liquid (Electric) Register Syndicate. (See Cassal, Hans J. S., assignor.)						
Litchfield, Edgar C. and H. L., assignors to Litchfield Mfg. Co., Webster City, Iowa. Fertilizer-distributer	749,695	Jan. 12	2326	491	108	539
Litchfield, Henry L. (See Litchfield, Edgar C. and H. L.)						
Litchfield Mfg. Co. (See Litchfield, Edgar C. and H. L., assignors.)						
Little, Edmund B., Union City, Tenn. Barrel truck and hoist	750,671	Jan. 26	4181	907	108	973

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Little Giant Fire Extinguisher Company. (See Yost, Fernando, assignor.)						
Livingstone, William, Flushing, assignor to himself, and S. P. Porter, Brooklyn, N. Y. Caster-horn	751,668	Feb. 9	1620	368	108	1421
Llewellyn, David F., Hazleton, Pa. Permutation-padlock	752,347	Feb. 16	2944	655	108	1733
Lloyd, Ernest F., Detroit, Mich. Safety dumping-door for gas-purifiers	750,470	Jan. 26	3802	826	108	897
Lloyd, Francis H. (See Jackson and Lloyd.)						
Lloyd, Thomas, New York, N. Y. Rocket	753,151	Feb. 23	4519	1007	108	2097
Lloyd, Walter J., assignor of one-half to W. Priest, Birmingham, England. Controlling means for explosion-motors	752,627	Feb. 16	3502	779 780	108	1854
Lock, Lee. (See Johnson and Lock.)						
Locke, Harvey W., assignor to Century Camera Company, Rochester, N. Y. Means for attaching supplementary parts to photographic cameras	749,738	Jan. 19	2436	518	108	580
Lockett, Oswald, M. J. Kenny, J. P. Stimebach, and T. H. Udell, assignors to Orr & Lockett Hardware Co., Chicago, Ill. Door-stop	752,171	Feb. 16	2591	576	108	1652
Lockwood, John S., Kansas City, Mo. Electromagnetic brake	750,207	Jan. 19	3308	714 715	108	766
Lodge, William, Cincinnati, Ohio. Variable-speed mechanism for lathes	749,492	Jan. 12	1958	406 407	108	458
Loe, Syver, Minneapolis, Minn. Voting-machine	750,987	Feb. 2	381	91, 92	108	1142
Loenwenbach, Hugo. (See Schilz, Frank, assignor.)						
Loescher, Fritz A., Portland, Oreg. Hulling and scouring machine	753,152	Feb. 23	4520	1008	108	2098
Löffler, Oswald, Vienna, Austria-Hungary. Filter	752,693	Feb. 23	3634	899	108	1900
Logan, Joseph B., Lebanon, Ind. Bridge cross-tie	750,208	Jan. 19	3309	715	108	767
Logsdon, James A., Aley, Tex. Insect-destroyer	752,787	Feb. 23	3794	849	108	1936
Long, Linville V., assignor of one-half to J. A. McKean, Bowerston, Ohio. Hose-coupling	752,085	Feb. 16	2443	546	108	1619
Long, Walter B., Cleveland, Ohio. Wheel-painting apparatus	749,622	Jan. 12	2178	457	108	508
Lonquist, John P., Minneapolis, Minn. Druggist's prescription-cabinet	753,153	Feb. 23	4523	1008	108	2098
Look, Luther, assignor to New Standard Concentrator Company, Los Angeles, Cal. Centrifugal pump	753,154	Feb. 23	4523	1008	108	2098
Lorain Steel Company. (See Ervin, George M., assignor.)						
Lorin, Ernest, Doulaincourt, France. Raising or hoisting apparatus	748,762	Jan. 5	389	89	108	87
Lotz, William, Brooklyn, N. Y. Game device	750,988	Feb. 2	383	92	108	1142
Lotz, William, Jr., C. Wismeyer, C. S. Hammer, F. Thoma, and H. A. Rentschler, Hamilton, Ohio. Molder's flask	749,696	Jan. 12	2327	491	108	540
Louden, William, Fairfield, Iowa. Hay-carrier	752,569	Feb. 16	3364	750	108	1824
Lount, Samuel, Barrie, Canada. Turbine-engine	749,739	Jan. 19	2438	518 519	108	580
Love, Robert, assignor to Kemp & Burpee Manufacturing Company, Syracuse, N. Y. Fertilizer-distributer	750,381	Jan. 26	3640	790 791	108	861
Lovejoy, Alfred, Lowell, assignor to Draper Company, Hopedale, Mass. Ring-spinning apparatus	752,238	Feb. 16	2728	604	108	1685
Low, Abbot A., Horseshoe, N. Y. Exhaust for explosive-engines	751,188	Feb. 2	755	173	108	1218
Low, Harold A. (See Griffin and Low.)						
Lowe, Ernest A., Plainfield, N. J. Electric switch	751,084	Feb. 2	554	128 129	108	1180
Lowe, Leon P., San Francisco, Cal. Apparatus for accurately measuring the flow of oil in pipes	749,300	Jan. 12	1724	365	108	411
Lowe, Leon P., San Francisco, Cal. Apparatus for the manufacture of gas	751,085	Feb. 2	556	129	108	1181
Lowery, Joseph S. (See Smith, Cullen R., assignor.)						
Lowrie, William G., New York, N. Y. Electric-railway system	748,872	Jan. 5	605	137	108	185
Luebben, Melchior L., Sutton, Nebr. Machine for compressing and reeling fibrous material	750,672	Jan. 26	4184	907 908 909	108	974
Luks, Emil C., Reading, Pa. Shoe-lacing	749,569	Jan. 12	2093	435	108	490
Luks, Emil C., Reading, Pa. Non-refillable bottle	749,570	Jan. 12	2094	435	108	491
Lumyer, Fred, North Monroeville, Ohio. Hot-water furnace	749,740	Jan. 19	2440	519	108	580
Lund, Jens G. F., Drammen, Norway. Wall or vault	752,694	Feb. 23	3635	899	108	1901
Lundgren, Jacob, Philadelphia, Pa. Tension device	751,930	Feb. 9	2146	484	108	1535
Lundgren, Jakob, Philadelphia, Pa. Power-shifter	751,740	Feb. 9	1770	402 403	108	1452
Lundquist, Frank A., and J. K. Norstrom, Chicago, Ill., assignors to M. E. Richardson, trustee, Sterling, Kans. Telephone-exchange	749,308	Jan. 12	1557	329 330	108	375
Luppino, Joseph, New York, N. Y. Folding bed	748,963	Jan. 5	791	171	108	180
Luttrell, William J., Honeygrove, Tex. Cultivator	752,570	Feb. 16	3367	751	108	1825
Lüttringhaus, Arthur, assignor to Badishe Anilin & Soda Fabrik, Ludwigshafen-on-the-Rhine, Germany. Green dye	750,113	Jan. 19	3146	.....	108	732
Lutts, Frank W., Natick, Mass. Hinge and automatic catch for awning-blinds	752,348	Feb. 16	2945	656	108	1733
Lutz, George A., assignor, by mesne assignments, of one-half to F. K. Boland, New York, N. Y. Bond for conduits for electric wires	749,391	Jan. 12	1725	365	108	411
Lutz, George A., assignor, by mesne assignments, of one-half to F. K. Boland, New York, N. Y. Elbow for conduits for electric wires	749,392	Jan. 12	1727	366	108	411
Lutz, Isaac, Frankfort, Mich. Device for relieving choke in elevator-boots	749,071	Jan. 5	1050	222	108	242
Lutz, Rufus R., San German, Porto Rico. Pocket developing and fixing device	748,964	Jan. 5	792	171	108	180
Luyten, Johannes J., Batavia, Java. Signal	749,870	Jan. 19	2676	573	108	632
Lyford, Oliver S., *et al.* (See Sargent, Charles E., assignor.)						
Lyhne, Anker S., assignor to Bridgeport Brass Company, Bridgeport, Conn. Shade-holder	751,862	Feb. 9	2014	456	108	1506
Lyman, Thomas T., Montclair, N. J., assignor to H. W. Johns-Manville Company, New York, N. Y. Electric Insulator	751,664	Feb. 9	1623	.....	108	1421
Lyman, William I., *et al.* (See Baird, John P., assignor.)						
Lyndon, Lamar, New York, N. Y., assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. System of electrical generation, distribution, and control	750,549	Jan. 26	3975	860	108	929
Lyndon, Lamar, New York, N. Y., assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. System of electrical generation, distribution, and control	750,550	Jan. 26	3977	860	108	930
Lyndon, Lamar, New York, N. Y., and E. A. Sperry, Cleveland, Ohio, assignors to National Battery Company, Jersey City, N. J. System of electrical generation, distribution, and control	750,471	Jan. 26	3804	826 827	108	897
Lynn, John, New York, N. Y. Advertising-wheel	751,086	Feb. 2	557	129	108	1181
Lyons, David. (See Winnie, Ralph J., assignor.)						
Lyons, David, Chicago, Ill. Trousers	751,741	Feb. 9	1772	403	108	1452
Lytton, Edward, London, England. Machinery for raising and lowering stage scenery, &c., of theaters	752,571	Feb. 16	3368	751	108	1825
Lytton, Walter, Chicago, Ill. Colored sign-lamp	751,087	Feb. 2	559	130	108	1181
M. Rumely Company. (See Rumely and Robby, assignors.)						
Maas, Mayer, and F. Ricaud, Baton Rouge, La. Spool holder and case	753,085	Feb. 23	4410	981	108	2075

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Maas & Waldstein. (See Hunt, Frederick F., assignor.)						
MacCormac, Rockwell M. (See Schoenefeldt, Ludwig F., assignor.)						
MacDougall, Frederick S., Seattle, Wash. Clothes-drier	751,863	Feb. 9	2015	456	108	1506
MacFadden, Carl K., Geneva, Ind. Gasgenerating and feeding mechanism for gas-engines	748,763	Jan. 5	390	80	108	87
MacKay, Philip A., Wenona, and W. E. Moore, Peru, Ill. Furnace	750,868	Feb. 2	162	38	108	1093
MacKinnon, Falkland R. A., Grand Rapids, Wis. Vehicle-axle	749,902	Jan. 19	2738	586	108	647
MacLennan, William, Bowie, La. Crosscut-saw handle	750,773	Jan. 26	4430	955	108	1081
Macauley, Lorenzo G., Malcom, Iowa. Shackle and tail-holder for cows	751,088	Feb. 2	561	130	108	1182
Macey, Sidney, Barnes, England. Device for sounding chords on keyboard instruments	751,742	Feb. 9	1774	403	108	1453
Macfarlane, James W., Kingston, Scotland. Centrifugal machine	752,572	Feb. 16	3370	751, 752	108	1826
Macfarlane, James W., Glasgow, Scotland. Water-driven centrifugal machine	753,155	Feb. 23	4525	1009	108	2009
Mackrow, George C., and H. G. Cameron, Blackwall, London, England. Depository for coal or the like	749,307	Jan. 12	1340	288, 289	108	328
Maclean, Alexander J., New York, N. Y. Means for locking or unlocking rudders	752,086	Feb. 16	2444	547	108	1610
Macwilliam, Hugh G., New Rochelle, N. Y. Suspenders	750,774	Jan. 26	4432	955	108	1081
Macwilliam, Hugh G., New Rochelle, N. Y. Suspenders	750,989	Feb. 2	385	92	108	1143
Macwilliam, Hugh G., New Rochelle, N. Y. Suspenders	750,990	Feb. 2	386	92	108	1143
Madden, Patrick J., Chicago, Ill. Pipe-fitting	749,309	Jan. 12	1360	330	108	375
Magee Furnace Company. (See Magee, John, assignor.)						
Magee, John, Malden, assignor to Magee Furnace Company, Boston, Mass. Plate for ranges or stoves	752,239	Feb. 16	2729	604, 605	108	1686
Magers, Bonneventure T., assignor to Indianapolis Arm, Bracket and Pin Company, Madison, Ind. Automatic turning-machine	750,209	Jan. 19	3311	715, 716, 717	108	767
Magie, Lizzie J., Brentwood, Md. Game-board	748,626	Jan. 5	144	34, 35	108	82
Maginn, Felix, Warrington, England. Apparatus for coating paper or the like with adhesives	750,291	Jan. 26	3473	762	108	823
Maginnis, Patrick, Kimball, Nebr. Extensible trough or flume	749,871	Jan. 19	2678	573	108	633
Magnuson, Axel, New York, and T. Eskilsson, Long Island City, N. Y. Means for controlling the operation of locks of elevator-hatchway doors	751,590	Feb. 9	1878	427	108	1475
Maheu, Victor, Willimantic, Conn. Roll-cleaning device for spinning-machines	752,089	Feb. 23	4231	943	108	2034
Mahl, Joseph. (See Tabak and Champion, assignors.)						
Mahoney, George F., Brooklyn, N. Y. Emptying rooms of smoke	750,809	Feb. 2	165	39	108	1094
Mahoney, Joseph M., Boston, Mass. Insulator	751,743	Feb. 9	1775	404	108	1453
Mahony, Albert D., Troy, N. Y. Revolving sad-iron	748,627	Jan. 5	146	35	108	33
Maine Valve Company. (See Tozier, Charles C., assignor.)						
Mains, Claude P., Lakewood, Ohio. Rotary engine	753,086	Feb. 23	4412	981	108	2073
Maitland, John, Swampscott, Mass. Device for measuring heights of individuals	750,870	Feb. 2	167	39	108	1094
Majestic Manufacturing Company. (See Edel, Lucas, assignor.)						
Majestic Wire Fence Company. (See Barnes and Willmarth, assignors.)						
Malette, Frederick A., Geneva, N. Y. Making concrete building-blocks	751,089	Feb. 2	563	130, 131	108	1182
Mallat, Julius, St. Louis, Mo. Railway-rail and joint therefor	748,764	Jan. 5	392	89	108	87
Mallonee, Joseph C., assignor of one-half to B. A. Owen, Denver, Colo. Bracket sawtable	750,531	Jan. 26	3982	890	108	990
Mallory, George, Fairbury, Ill. Combined window shade, curtain, and cornice supporter	751,800	Feb. 9	1881	428	108	1476
Mainight, John V. (See Smith and Mainight.)						
Maltby, George B., assignor to Cleveland Car Specialty Company, Cleveland, Ohio. Brake-beam	751,804	Feb. 9	2016	456	108	1507
Mankedick, Charles, Sullivan, Ind., assignor of one-half to J. C. Chaney and J. R. Edson, Washington, D. C. Device for protecting embankments	752,637	Feb. 16	3523	783, 784	108	1859
Manley, James C. (See Bechtol and Manley.)						
Mann, Albert W., assignor to Rockford Frame & Fixture Company, Rockford, Ill. Mirror-support	751,596	Feb. 9	1362	311	108	1367
Mann, Frank E., *et al.* (See Welsh, Hamilton E., assignor.)						
Mann, O. C. (See Anderson, Eleck, assignor.)						
Mann, Orville C. (See Young, Otis W., assignor.)						
Manning, Bowman & Co. (See Savage and Chapman, assignors.)						
Manning, Bowman & Co. (See Savage and Hope, assignors.)						
Manss, John A., assignor to Urfit Company, Cincinnati, Ohio. Shoe	752,172	Feb. 16	2593	577	108	1652
Manss, John A., assignor to Urfit Company, Cincinnati, Ohio. Shoe	752,173	Feb. 16	2594	577	108	1652
Mantine, Cleas F. (See Thomes, Frank E., assignor.)						
Maples, Richard A., Clinton, Iowa. Reversing-gear	751,665	Feb. 9	1694	368	108	1422
Maranville, Harvey F., Akron, Ohio. Can-closure	751,318	Feb. 2	1020	232	108	1275
Marchesseault, Joseph R., Meriden, Conn. Railway signaling device	750,991	Feb. 2	887	93	108	1143
Marchéville, Marcel de, Paris, France. Centrifugal machine	749,628	Jan. 12	2179	457, 458	108	508
Marek, John A., Lewiston, Idaho. Fluid-motor	752,240	Feb. 16	2730	605	108	1686
Marine Torch Company of Baltimore City. (See Rose, William H., assignor.)						
Markillie, George H., Perth, Kans. Vehicle-wrench	752,910	Feb. 23	4043	905	108	1991
Markovits, Emmerich, assignor of one-half to G. von Skal, New York, N. Y. Copying-pencil	753,087	Feb. 23	4414	981	108	2075
Marks, Clara L., Stamford, Conn. Collapsible umbrella	749,310	Jan. 12	1561	330	108	376
Marold, Oscar S., Saguache, Colo. Snap-hook	751,090	Feb. 2	565	131	108	1182
Marple, Samuel L., Clairton, Pa. Steam-boiler	748,765	Jan. 5	398	89	108	87
Marr, Alexander, Manchester, England. Apparatus for dividing, severing, and similarly treating cloth	751,527	Feb. 9	1363	311	108	1367
Marrett, William J., Leeds, Md. Folding table	749,571	Jan. 12	2095	435, 436	108	491
Marriott, James C., New York, N. Y. System of snow disposal	752,911	Feb. 23	4044	905	108	1991
Marrs, David J., Denver, Mo. Kiln	749,208	Jan. 12	1345	289	108	330
Marschall, Adolf J., Littlefalls, N. Y. Exciting compound for batteries	750,871	Feb. 2	169	------	108	1094
Marsden, John A., assignor to A. R. Paul, Lyon Falls, and A. Tromblee, Carthage, N. Y. Apparatus for burning sulfur	749,311	Jan. 12	1562	331	108	376
Marsh, Calvin D., assignor to Hermance Machine Company, Williamsport, Pa. Chip-breaker for woodworking-machines	749,072	Jan. 5	1051	222	108	242
Marsh, Calvin D., assignor to Hermance Machine Company, Williamsport, Pa. Molding-machine	750,552	Jan. 26	3983	861	108	931
Marshall, Charles S., assignor to H. T. Marshall Machine Company, Brockton, Mass. Folding-machine for shoe-uppers, &c	750,872	Feb. 2	170	40, 41, 42	108	1095
Marshall, E. S. (See Shallenberger, Charles S., assignor.)						
Marshall, Holmes, New York, N. Y. Automatic attachment for adding-machines	748,766	Jan. 5	393	90	108	88
Marshall, Holmes, New York, N. Y. Attachment for type-writers	749,319	Jan. 12	1563	331	108	376
Marshall, Norman, Newton, Mass. Insulating sleeve and making same	750,873	Feb. 2	179	42	108	1096
Marshall, Samuel W., Dallas, Tex. Fountain blacking-brush	748,767	Jan. 5	396	90	108	88

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Marshall, William, *et al.* (See Scott, James R., assignor.)						
Marshall, William A., Washburn, Wis. Apparatus for handling lumber or laths	750,775	Jan. 26	4433	955, 956	108	1082
Marshman, Newman R., New York, N. Y. Manual coal-carrying vessel or bag	749,209	Jan. 12	1347	289	108	330
Martien, Gilbert, Mansfield, Ohio. Axle box and spindle	750,292	Jan. 26	3475	752	108	823
Martin, Bernard F., assignor to Martin Packing Case Company, Rochester, N. Y. Packing-case for bottles	749,741	Jan. 19	2441	519, 520	108	581
Martin, Frank A., Chicago, Ill. Disinfecting device	752,695	Feb. 23	3636	810	108	1901
Martin, Harry T. (See Green and Martin.)						
Martin, Henry K., Chicopee, Mass. Pile-wire motion for looms	749,443	Jan. 12	1345	384	108	434
Martin, Jean, assignor to J. H. E. Cresp, Grasse, France. Means for attaching stirrup-leathers to riding-saddles	751,865	Feb. 9	2017	457	108	1507
Martin Packing Case Company. (See Martin, Bernard F., assignor.)						
Martin, Samuel D., Woodlawn, Ohio. Combined convertible cot and pack-bag	751,190	Feb. 2	758	173	108	1219
Martin, Thomas J., New York, N. Y. Ash-sifter	751,744	Feb. 9	1776	404	108	1453
Martin, William H., Nevada City, and A. McCombie, Grass Valley, Cal. Battery stem-guide	752,340	Feb. 16	2947	656	108	1734
Martinez, Joseph D., Whitecastle, La. Cane-loader	749,073	Jan. 5	1052	222, 223	108	242
Martini, Hermann, Riga, Russia. Stoppering device for preserve-jars or the like	749,074	Jan. 5	1056	223	108	244
Marx, Julius A. (See Goughenour and Marx.)						
Maskrey, Arthur J., Martins Ferry, Ohio. Rolling metal plates	751,801	Feb. 9	1882	428	108	1476
Mason, Arthur J. (See Hoover and Mason.)						
Mason, Francis C., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Display-stand	749,493	Jan. 12	1960	407	108	459
Mason, Francis C., assignor to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Display-stand	749,494	Jan. 12	1961	407	108	459
Mason, Harry R., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Load-brake apparatus	749,075	Jan. 5	1058	224	108	244
Mason, Isaac, New York, N. Y. Cabinet	750,673	Jan. 26	4192	909	108	976
Mason, William. (See Bennett and Mason.)						
Massey, Madison M., and G. Spooner, assignors of one-third to J. J. Wiles, Cloudcroft, N. Mex. Ter. Fastening for tubes or stay-bolts for steam-boilers	749,210	Jan. 12	1348	290	108	331
Massey, Samuel A., Frankfort, Kans. Three-horse evener	752,087	Feb. 16	2447	574	108	1620
Master, James W., Los Angeles, Cal. Valve	749,444	Jan. 12	1347	384	108	435
Masters, Arthur M., Jacksonville, assignor to F. Birkenmayer and F. W. Sibert, Morgan county, Ill. Automatic water-feed regulator and low-water alarm	752,241	Feb. 16	2731	605	108	1686
Masterson, Jonathan E., Spokane, Wash. Electric-cord adjuster	750,293	Jan. 26	3477	752	108	824
Mather, Joseph S., St. Louis, Mo. Game apparatus	752,696	Feb. 23	3638	810	108	1901
Mather and Platt. (See Chambers and Cook, assignors.)	749,872	Jan. 19	2680	573, 574	108	634
Mathews, Allen, *et al.* (See Washington, David, assignor.)						
Mathews, Charles. (See Banta and Mathews.)						
Mathews, Frank V., Rochester, N. Y. Variable-speed mechanism	750,874	Feb. 2	181	42, 43	108	1096
Mathewson, Elmer W., East Greenwich, R. I. Extensible curtain-support	750,875	Feb. 2	185	43	108	1098
Matlack, Lucius C., Chicago, Ill. Furniture-tip	750,776	Jan. 26	4435	956	108	1082
Matrolis, William A., Cumbola, Pa. Padlock	748,965	Jan. 5	794	172	108	181
Matson, Taylor, Philadelphia, Pa. Device for cooling piston-rods	751,528	Feb. 9	1365	312	108	1368
Matteson, Clark S., *et al.* (See Farmer, Julius M., assignor.)	751,802	Feb. 9	1883	429	108	1476
Matteson, Jesse E., *et al.* (See Farmer, Julius M., assignor.)						
Matthew, William E., Bucyrus, Ohio. Torpedo-placer	751,981	Feb. 9	2147	485	108	1536
Matthews, Edgar K., Hampton, Tex. Combined faucet and measure	752,459	Feb. 16	3158	703	108	1778
Matthews, James F., assignor of one-half to H. S. Parker, Elreno, Okla. Ter. Game board or table	751,189	Feb. 2	756	173	108	1219
Matthews, James F., Elreno, assignor of one-half to J. R., Jr., and C. C. Cole, Oklahoma, Okla. Ter. Cotton-bale-tie buckle	749,076	Jan. 5	1060	225	108	244
Matthews, Myron B. (See Smith, Adolph T., assignor.)						
Matthews, Thomas A., Nashville, Tenn. Envelop or card delivering cabinet	748,966	Jan. 5	795	172	108	181
Matthews, Thomas A., Nashville, Tenn. Stationery-cabinet	748,967	Jan. 5	797	172, 173	108	181
Matthews, Thomas A., New York, N. Y. Lubricant-supplying device	753,201	Feb. 23	4615	1028	108	2121
Matthiesen, Nickels J., Clinton, Iowa. Wood scraping and smoothing machine	750,294	Jan. 26	3478	753	108	824
Matz, John, *et al.* (See Guzowski, Joseph, assignor.)						
Mauer, Charles F. (See Karr, Burton A., assignor.)						
Maul, Christian, assignor to Johnston Harvester Company, Batavia, N. Y. Grain-binder	752,912	Feb. 23	4046	905	108	1992
Maurer, Emil, Karolinenthal, Austria-Hungary. Speed-regulator	751,319	Feb. 2	1023	232	108	1275
Mautner, Ludwig J., Vienna, Austria-Hungary. Firing mechanism for ships' guns	752,460	Feb. 16	3159	704	108	1778
Maxim, Hiram P., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Electric motor	751,191	Feb. 2	760	173, 174	108	1219
Maxson, Charles B., assignor to Maxson Printing Press Company, Westerly, R. I. Paper-feeding machine	750,295	Jan. 26	3480	753, 754	108	824
Maxson Printing Press Company. (See Maxson, Charles B., assignor.)						
Maxwell, David, Dundee, Scotland. Automatic guard or life-saver for tram-cars or the like	748,628	Jan. 5	147	35	108	33
Maxwell, Jonathan D., Detroit, Mich. Motor-vehicle	751,529	Feb. 9	1368	312	108	1368
May, Franz, Hatschein, near Olmütz, Austria-Hungary. Furnace for steam-generators	749,938	Jan. 19	2821	602	108	664
May, Rudolph A., Akron, Ohio. Convertible furnace	751,530	Feb. 9	1370	312, 313	108	1369
May, Rudolph A., Akron, Ohio. Gas or solid fuel furnace	752,461	Feb. 16	3162	705	108	1779
May, Walter S., Clifton, Ariz. Ter. Acetylene-generator	750,674	Jan. 26	4193	909	108	977
Mayer, Adolph, New York, N. Y. Hat	750,992	Feb. 2	892	93	108	1144
Mayer, Emil M., Cincinnati, Ohio. Barrel-bung	753,156	Feb. 23	4527	1009	108	2099
Mayer, Isidor, and J. Hübner, Vienna, Austria-Hungary. Stop and automatic cut-off valve	751,666	Feb. 9	1627	369	108	1483
Mayers, Joseph A., Redbank, N. J. Clip	751,531	Feb. 9	1372	313	108	1369
McAdams, George F., New York, N. Y. Ringed roller for line-printing and ruling machines	750,680	Jan. 26	4203	911	108	979
McAdams, Sylvester L., Beaverfalls, Pa. Steam-motor	750,681	Jan. 26	4204	912	108	979
McAfoos, H. S. (See Kanarr, William R., assignor.)	751,326	Feb. 2	1035	235	108	1278
McAnulty, Thomas D., E. O'Brien, and W. French, Eau Claire, Wis. Suction-box cover for paper-making machines	751,095	Feb. 2	574	133	108	1184
McArdle, Eugene F., New York, N. Y. Vehicle-tire	750,000	Jan. 19	2935	627	108	689
McAuley, John G., deceased; M. W. McAuley, Lansing, Mich., administratrix. Pulverizer	749,574	Jan. 12	2100	437	108	498

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McAuley, Mary W., administrator. (See McAuley, John G.)						
McBerty, Frank R., Evanston, assignor to Western Electric Company, Chicago, Ill. Ringing-key for telephone-switchboards	751,539	Feb. 9	1382	315	108	1371
McBride, Louis C., *et al.* (See McIntyre, David, assignor.)						
McCabe, Thomas W. R. (See Woodruff and McCabe.)						
McCabe, Thomas W. R., Winsted, Conn. Metal-turning machine	753,158	Feb. 23	4532	1010, 1011	108	2100
McCaleb, William. (See Osborne, John W., assignor.)						
McCann, Joseph W., Washington, D. C. Copy-holder	751,327	Feb. 2	1086	225	108	1278
McCants, Jason S., Talladega, Ala. Ditching-plow	749,082	Jan. 5	1075	227	108	248
McCarrel, Robert, Jacksonville, Fla. Tile	752,607	Feb. 23	3639	810	108	1901
McCarthy, John, Syracuse, N. Y. Casket-handle	750,001	Jan. 19	2996	627	108	689
McCarthy, John, Syracuse, N. Y. Casket-handle	750,002	Jan. 19	2997	627	108	689
McCartney, Louis H., assignor to Quaker City Wallpaper Company, Philadelphia, Pa. Wall-paper-drying machine	752,908	Feb. 23	4239	944	108	2035
McCarty, Thomas E., Parkersburg, Iowa. Calculating-machine	751,670	Feb. 9	1633	370	108	1424
McCasland, Charles O., East St. Louis, Ill. Coin-operated towel-machine	750,883	Feb. 2	199	46	108	1101
McCauley, John E., assignor of one-half to W. D. Bayley, Springfield, Ohio. Hand-tool	751,671	Feb. 9	1634	371	108	1424
McCausey, Joseph W., *et al.* (See Warner, Isaac M., assignor.)						
McClanahan, Robert N., Elreno, Okla. Ter. Threshing-machine	752,576	Feb. 16	3377	754	108	1827
McClean, Samuel N., Washington, Iowa. Breech-loading and discharge-actuated firearm	749,214	Jan. 12	1359	292	108	334
McClean, Samuel N., Cleveland, Ohio. Means for controlling the recoil of guns	749,215	Jan. 12	1360	293	108	335
McClellon, James M., Everett, Mass. Coal-handling apparatus	750,008	Jan. 19	2938	627, 628	108	689
McClintock, David L., Kansas City, Mo. Power-transmitting mechanism	751,540	Feb. 9	1396	316	108	1372
McClure, Charles W., Atlanta, Ga. Refrigerator attachment	750,057	Jan. 19	3000	654	108	712
McClure, Edward, assignor of one-half to F. P. Smith, Chicago, Ill. Elevator-door	749,395	Jan. 12	1732	367	108	412
McCollum, Joab L. (See Butler and McCollum.)						
McCombie, Alexander. (See Martin and McCombie.)						
McCormack, James, Chicago, Ill. Boiler-cleaning compound	750,682	Jan. 26	4305	.....	108	979
McCormick Harvesting Machine Company. (See Johnston, Edward A., assignor.)						
McCormick, James, *et al.* (See Harmany, Frederic, assignor.)						
McCormick, James B., *et al.* (See Harmany, Frederic, assignor.)						
McCormick, James H., Beartown, Mont. Crushing-machine	751,672	Feb. 9	1636	371, 372	108	1425
McCormick, John H., Columbus, Ohio. Draw-gear and buffing apparatus	751,673	Feb. 9	1638	372	108	1425
McCormick, John L., Emden, Ill. Closure for mail-pouches	749,876	Jan. 19	2988	575	108	636
McCormick, Patrick F., East Pittsburg, assignor of three-fourths to R. J. McCormick, S. Gallinger, Allegheny, and P. J. McMurphy, McKeesport, Pa. Car-wheel-grinding device	750,479	Jan. 26	3823	880	108	901
McCormick, Richard J., *et al.* (See McCormick, Patrick F., assignor.)						
McCulloch, Fredrick L., Tampa, Fla. Nut-lock	752,608	Feb. 23	3640	810	108	1902
McCullough, Piercy B., Philadelphia, Pa. Dental bur	749,624	Jan. 12	2182	458	108	509
McCurdy, Charles B., assignor to Peerless Electric Company, Warren, Ohio, F. C. Sutter and R. V. Bingay, Pittsburg, Pa. Transformer	752,405	Feb. 16	3061	680	108	1757
McCurdy, Oscar S., Wilkinsburg, Pa. Valve	752,850	Feb. 23	3922	879	108	1963
McCutchan, Algernon S., assignor of one-half to J. Yule, Oakland, Cal. Device for treating tegumentary tissues	751,194	Feb. 2	765	174	108	1221
McCutcheon, Joel N., *et al.* (See Ellison, Oliver E., assignor.)						
McDermott, Joseph. (See Haycock and McDermott.)						
McDonald, Henry F., Fontanet, Ind. Safety-catch for elevators	751,328	Feb. 2	1068	235	108	1279
McDonald, J. S. (See Hulquist, Andrew D., assignor.)						
McDonald, William H., Titusville, Pa. Portable tool or cement house	748,637	Jan. 5	164	39	108	37
McDonald, William L., Chicago, Ill. Receptacle for disinfectants	748,636	Jan. 5	163	39	108	36
McDougall, Isaac S., Manchester, England. Apparatus for humidifying air	752,577	Feb. 16	3378	754	108	1827
McElroy, James F., assignor to Consolidated Car-Heating Company, Albany, N. Y. Current-director	751,291	Feb. 9	2288	511, 512	108	1565
McElroy, Cora P., Philadelphia, Pa. Water-closet seat	749,683	Jan. 5	1077	227	108	248
McEntee, Amby, South Presque Isle, Me. Steering-gear for wagons	750,215	Jan. 19	3325	718	108	770
McEvoy, Joseph H., Dallas, Tex. Sheet-metal roof-joint	749,943	Jan. 19	2881	604	108	667
McFarland, Wesley. (See Schafer, Erwin D., assignor.)						
McFeron, Hiram, Burnsville, Ind. Fence-post	749,944	Jan. 19	2882	605	108	667
McGarvey, John. (See Obolenskii, Nicholas, assignor.)						
McGaw and Gray. (See Gray, David G., assignor.)						
McGill, George W., Riverdale-on-Hudson, N. Y. Pin-hook	749,084	Jan. 5	1078	228	108	248
McGlashan, John, Cawnpore, India. Making sugar	751,900	Feb. 9	2286	.....	108	1565
McGonagle, Arthur, East Orange, N. J. Air-valve	753,080	Feb. 23	4417	982	108	2076
McGrath, Andrew F., New York, N. Y. Tent	748,974	Jan. 5	833	176	108	193
McGuiness, Benjamin F., Grafton, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shedding mechanism for looms	752,332	Feb. 16	2954	657, 658	108	1735
McGuirk, Joseph J., Albany, N. Y. Unalterable duplex ticket	752,296	Feb. 16	2848	632	108	1711
McIntyre, David, assignor to himself, J. G. Hacking, G. G. Epstean, and L. C. McBride, Detroit, Mich. Hydraulic motor	749,625	Jan. 12	2183	459	108	509
McKay, John, Cape Town, Cape Colony. Foot-ball valve and connected parts	751,402	Feb. 2	1156	293	108	1303
McKean, James A. (See Long, Linville V., assignor.)						
McKee, Robert S., *et al.* (See Balsley, Charles H., assignor.)						
McKee, Thomas M., Greenfield, Ind. Convertible table-desk	749,699	Jan. 12	2334	493	108	541
McKee, William A., Hinckley, N. Y. Feed-water heater	752,994	Feb. 23	4240	944, 945	108	2036
McKeesport Plate Company. (See Russell, George, assignor.)						
McKelvey Concrete Machinery Company. (See McKelvey, Samuel P., assignor.)						
McKelvey, Samuel P., assignor to McKelvey Concrete Machinery Company, Chicago, Ill. Rotary feeding device for concrete-mixers	751,541	Feb. 9	1390	316, 317	108	1372
McKenna, Alexander G. (See Wheeler and McKenna.)						
McKenzie, Andrew, Providence, R. I. Pressing-board	751,674	Feb. 9	1640	372	108	1425
McKenzie, Donald, Dunedin, New Zealand. Finger-guide for penholders or the like	751,542	Feb. 9	1391	317	108	1372
McKenzie, James S., Kline, S. C. Pole or shaft for vehicles	752,578	Feb. 16	3379	754	108	1828
McKinley, Marques, Claysville, Ky. Wrench	750,994	Feb. 2	394	94	108	1145
McKinley, William B., Prichard, Ala. Plow or cultivator	748,774	Jan. 5	405	98	108	99
McKinney, Robert, Hays borough, assignor of one-half to T. M. Gibbs, Cannonsburg, Pa. Bit for coal-mining machines	753,208	Feb. 23	4617	1029	108	2121
McKnight, John A., assignor to W. M. Kespohl and G. A. Meyer, Duluth, Minn. Ankle-joint	750,884	Feb. 2	208	46	108	1102
McLane, James A. (See Jarry, Henry J., assignor.)						
McLaren, Alexander, Fort Worth, Tex. Lemon-squeezer	752,579	Feb. 16	3381	754	108	1828
McLarty, John, Seattle, Wash. Attachment for bicycles	750,480	Jan. 26	3824	880	108	901
McLaughlin, James R., Canandaigua, N. Y. Sheet-metal vessel	749,319	Jan. 12	1575	333	108	379

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McLaughlin, John B., Bloomington, Ill. Washtub	749,575	Jan. 12	2101	438	108	492
McLaughlin, John C., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y. Paper-edge guide for type-writing machines	752,004	Feb. 16	2457	549	108	1622
McLaughlin, Milton P., Wakefield, Mass. Hose-clamp	751,329	Feb. 2	1089	236	108	1279
McLean, Warren L., Yonge Mills, Canada. Steam-engine for curd-cutting machines	749,742	Jan. 19	2442	520	108	581
McLeod, Harvey S. (See Foote, John H., assignor.)						
McMahon, Johnston. (See Young and McMahon.)						
McMasters, Robert B., Marathon, N. Y. Glove	750,683	Jan. 26	4206	912	108	979
McMorland, Robert, Philadelphia, Pa. Saw setting and sharpening machine	752,851	Feb. 23	3924	879, 880	108	1964
McMullen, Joseph B., Howard county, Md. Wheel	748,775	Jan. 5	406	93	108	91
McMurphy, Patrick J., *et al.* (See McCormick, Patrick F., assignor.)						
McNamara, Frank, Clinton, Mass. Pianoforte	750,035	Jan. 19	3003	643, 644	108	708
McNeal, Luther C., Rochester, N. Y. Pipe-elbow	751,543	Feb. 9	1392	317	108	1373
McNear, George W., Jr., Oakland, Cal. Grain transporting and weighing apparatus	749,216	Jan. 12	1371	293	108	336
McNiece, William. (See Foley, Daniel T., assignor.)						
McPherson, Columbus B., Birmingham, Ill. Electrical cut-out	749,085	Jan. 5	1080	228	108	248
McQuown, Thomas H., Biggsville, Ill. Electric-circuit closer and breaker	748,638	Jan. 5	165	40	108	37
McQuown, Thomas H., Biggsville, Ill. Speed-indicator	749,743	Jan. 19	2446	521	108	582
McTammany Ballot Company. (See McTammany, John, assignor.)						
McTammany, John, Spencer, Mass., assignor, by mesne assignments, to McTammany Ballot Company, Portland, Me. Vote-counting machine	749,446	Jan. 12	1855	385, 386	108	436
McTurk, Gilbert. (See Smith and McTurk.)						
McVay, Leonard P., New Virginia, Iowa. Reversible automatic marker for corn-planters	752,919	Feb. 23	4081	910	108	2002
McVey, James. (See Pape, Hermann G., assignor.)						
McVicar, Philip H., Livermore, Cal. Disk harrow	752,245	Feb. 16	2737	607	108	1687
McVicker, Walter J., Rogers, Nebr. Governing mechanism for internal-combustion engines	753,091	Feb. 23	4419	982	108	2077
Mead, George A., assignor to Ohio Brass Company, Mansfield, Ohio. Manufacture of rail-bonds	751,329	Feb. 2	1024	232	108	1276
Meanley, Frank, Mount Elgin, Canada. Reverse motion for steam-engines	748,629	Jan. 5	148	36	108	33
Meding, Charles E., Paterson, N. J. Cloth take-up and stretching device	751,192	Feb. 2	762	174	108	1220
Meehan, Michael, Tonica, Ill. Grain-car door	748,630	Jan. 5	151	36	108	34
Meffert, Alexander, St. Louis, Mo. Water-carousal	750,472	Jan. 26	3810	827	108	898
Mehard, Charles E., *et al.* (See Stouffer, Hiram C., assignor.)						
Meher, Patrick F., Boston, Mass. Meat cutter or chopper	749,873	Jan. 19	2683	574	108	634
Mehl, John, Jr., Jersey City, N. J. Handle for bags	749,997	Jan. 19	2930	626	108	688
Mehring, Mary M. (See Smelker, Angeline, assignor.)						
Meighan, George A., Providence, R. I. Automatic switch for tramways	751,932	Feb. 9	2149	485	108	1536
Meily, Ringgold W., Lima, Ohio. Barbed fastening device	749,077	Jan. 5	1061	225	108	245
Meinert, John. (See Lindsay and Meinert.)						
Meinhardt, Theodore F., Charlottesville, Va. Hot-air furnace	752,788	Feb. 23	3795	849	108	1936
Meinong, Rafael von, Innsbruck, assignor of two-thirds to Oesterreichische Asphalt Actiengesellschaft and O. von Czedik, Vienna, Austria-Hungary. Permanent way	750,114	Jan. 19	3147	677	108	732
Melxell, William B., and T. Holt, Sayre, Pa., assignors of part to S. Thorp, Elmira, N. Y., H. L. Towner and F. K. Stephens, Sayre, Pa. Making paper from old newspapers, books, magazines, &c	752,408	Feb. 16	3059	679	108	1756
Meliert, Allen C. (See Groff, Sylvanus E., assignor.)	748,968	Jan. 5	800	.....	108	182
Mellon, Harry J., Pittsburg, Pa. Combination pen and pencil holder and calendar	753,088	Feb. 23	4414	982	108	2076
Melville, Colin, New York, N. Y. Megaphone	748,969	Jan. 5	801	173	108	183
Melvin, Fred, and E. Brusseau, assignors of one-half to P. Bernard and W. R. Melvin, Jefferson, S. D. Disk-sharpener	748,768	Jan. 5	397	91	108	88
Melvin, Josiah W., Houston, Tex. Gage	751,866	Feb. 9	2018	457	108	1507
Melvin, Will R., *et al.* (See Melvin and Brusseau, assignors.)						
Menkin, Burnett, Philadelphia, Pa. Electrical alarm device	751,193	Feb. 2	763	174	108	1220
Merchant, Frank M. (See Priestley, Kephart, and Merchant.)						
Mergenthaler Linotype Company. (See Petersen, Hans, assignor.)						
Meriam-Abbott Company. (See Meriam and Crist, assignors.)						
Meriam, Joseph B., and M. B. Crist, assignors to Meriam-Abbott Company, Cleveland, Ohio. Electric plant for charging storage batteries	750,876	Feb. 2	186	43	108	1096
Merkel, Arthur E., Cleveland, Ohio, assignor to Clyde Iron Works, Duluth, Minn. Loading device	750,882	Jan. 26	3644	791	108	802
Mermod, Fréres. (See Keller, Alfred, assignor.)						
Merralls, William A., San Francisco, Cal. Rock-breaker	751,532	Feb. 9	1374	313	108	1369
Merralls, William A., San Francisco, Cal. Multiple-stamp mortar	753,089	Feb. 23	4416	982	108	2076
Merrell, Galus L., assignor to Merrell-Soule Company, Syracuse, N. Y. Soldering-machine	749,211	Jan. 12	1349	290, 291	108	331
Merrell-Soule Company. (See Brooks, Charles H., assignor.)						
Merrell-Soule Company. (See Merrell, Galus L., assignor.)						
Merritt, Gordon, Ridgewood, N. J. Pedal	752,916	Feb. 23	4080	909	108	2001
Merry, Benjamin P., Archbold, Ohio. Muzzle for animals	750,210	Jan. 19	3320	717	108	709
Mersman, Joseph, Ottawa, Ohio. Cream-separator	749,393	Jan. 12	1728	366	108	412
Mesick, Charles W., Chicago, Ill., assignor of one-half to J. K. P. Pine and E. O. House, Troy, N. Y. Supporting means for garments	752,789	Feb. 23	3797	849	108	1936
Messner, Matthias, Trossingen, Germany. Mouth-harmonica	752,295	Feb. 16	2847	632	108	1711
Mesta Machine Company. (See Keller, Albert T., assignor.)						
Metallic Specialty Manufacturing Company. (See Sternberg, Marc, assignor.)						
Metcalf, Ernest H., Bridgeport, Conn. Hand-wheel	751,533	Feb. 9	1375	314	108	1370
Metz, Harry J., Bellevue, Iowa. Harrow	750,473	Jan. 26	3810	828	108	898
Metzger, Henry C., and W. O. Guice, Meridian, Miss. Scoop	751,933	Feb. 9	2152	485	108	1536
Meyer, George A., *et al.* (See McKnight, John A., assignor.)	750,877	Feb. 2	190	44	108	1099
Meyer, Hermann H., Cleveland, Ohio. Curtain-rod fixture	753,202	Feb. 23	4616	1028	108	2121
Meyer, John, Yuton, Ill. Gate	748,709	Jan. 5	399	91	108	89
Meyer, Otto, Richmond, Va. Manufacturing ether	749,078	Jan. 5	1062	225	108	245
Meyer, William C., St. Louis, Mo. Coin-controlled atomizer	749,874	Jan. 19	2684	574	108	635
Michael, Ira A., Chicago, Ill., assignor of one-half to J. H. Reynolds, Troy, N. Y. Automatic signaling apparatus	748,970	Jan. 5	802	173, 174, 175	108	183
Michael, John B., Knoxville, Tenn. Throttle-valve	751,667	Feb. 9	1629	369	108	1423
Michelin, Edouard, Clermont-Ferrand, France. Nut for safety-bolts, air-valve caps, or other analogous purposes	750,675	Jan. 26	4195	910	108	977
Michigan Storage Battery Co. (See Frank, Oskar, assignor.)						
Mickey, John F., F. T. Bailey, and J. J. Noppenberger, Baltimore, Md. Railway signaling apparatus	749,989	Jan. 19	2822	603	106	664

Alphabetical list of patentees for January and February—Continued.

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Middlekauff, Lawrence, and C. A. Schirm, Los Angeles, Cal. Fruit pitting and stuffing machine	749,697	Jan. 12	2328	491, 492	108	540
Milburn, Frederick. (See Sheppard, Herbert C., assignor.)						
Miles, Edmund, assignor of one-half to S. L. Selleck, Cleveland, Ohio. Plate-handling machine	752,913	Feb. 23	4048	906	108	1092
Miles, Edmund, Cambridge, assignor of one-half to S. L. Selleck, Cleveland, Ohio. Plate-handling machine	752,914	Feb. 23	4057	906, 907, 908	108	1095
Miles, Edmund, Cambridge, assignor of one-half to S. L. Selleck, Cleveland, Ohio. Plate-handling machine	752,915	Feb. 23	4071	908, 909	108	1099
Miles, Willis C., Jersey City, N. J. Cover for earthen chamber vessels	752,088	Feb. 16	2448	548	108	1020
Miller, A. M. (See Spangler, John H., assignor.)						
Miller, Albe D., Portland, Ind. Clover-harvester	749,572	Jan. 12	2006	436	108	491
Miller, Charles A., Marshalltown, Iowa. End seat for elliptical springs	749,318	Jan. 12	1565	331	108	377
Miller, Charles W., assignor to Gilliam Manufacturing Company, Canton, Ohio. Harness-saddle	752,404	Feb. 16	3060	679	108	1757
Miller, Du Brul & Peters Manufacturing Company. (See Du Brul, Albert, assignor.)						
Miller, Edward H., London, England. Treating refractory ores	751,401	Feb. 2	1155	.....	108	1303
Miller, Edward M., Adrian, Ohio. Combination desk, book-rack, and easel	752,960	Feb. 23	4232	943	108	2084
Miller, Emma T., Urumia, Persia. Umbrella	750,553	Jan. 26	3985	861	108	981
Miller, George, Lancaster, Pa. Paper-filing case	751,987	Feb. 9	2282	510	108	1564
Miller, Harry M. (See Mufly and Miller.)						
Miller, John C., assignor of one-half to E. S. Eldridge, Philadelphia, Pa. Shade-roller bracket	752,089	Feb. 16	2449	548	108	1020
Miller, John J., Pittsburg, assignor of one-half to H. Braun, Allegheny, Pa. Electric-light fixture	751,321	Feb. 2	1026	233	108	1276
Miller, John W., Muscatine, Iowa. Button-blank-cutting machine	749,079	Jan. 5	1064	225, 226	108	245
Miller, Kempster B., assignor to Kellogg Switchboard and Supply Company, Chicago, Ill. Central-energy telephone system	749,798	Jan. 19	2550	542	108	605
Miller Lock Company. (See Gillon, Edward F., assignor.)						
Miller, Nicholas C., Dodgeville, Wis. Horseshoe	752,090	Feb. 16	2450	548	108	1020
Miller, Otto, and P. Kunzinger, New York, N. Y. Fishing-tackle	752,091	Feb. 16	2454	548	108	1022
Miller, Samuel C., Louisville, Ky. Automatic induction-valve for bottle-filling machines	752,991	Feb. 23	4233	943	108	2084
Miller, Samuel C., Louisville, Ky. Bottle-filling machine	752,992	Feb. 23	4236	944	108	2085
Miller, Sidney W., Chicago, Ill. Siphon	749,445	Jan. 12	1849	385	108	435
Miller, Valentine M., *et al.* (See Wackerow, George L., assignor.)						
Miller, William B., Belton, Tex. Pneumatic boll-weevil machine	752,790	Feb. 23	3798	849, 850	108	1937
Millet, Laurent, assignor to La Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz, Paris, France. Gas-meter	752,850	Feb. 16	2948	656, 657	108	1734
Milligan, Edward J., and C. Duncan, assignors to F. Lettieri and F. Sebastian, Salt Lake City, Utah. Billiard-cue chalk-holder	751,984	Feb. 9	2153	486	108	1537
Mills, Charles, assignor to Saco & Pettle Machine Shops, Newton, Mass. Flat for carding-engines	752,242	Feb. 16	2732	606	108	1686
Mills, Thomas, assignor of one-half to R. D. Stetson, Oklahoma, Okla. Ter. Steam-boiler attachment	749,314	Jan. 12	1566	331	108	377
Millspaugh, David, Anderson, Ind. Door-gage	748,878	Jan. 5	608	137	108	136
Millspaugh, William H., assignor to Sandusky Foundry and Machine Company, Sandusky, Ohio. Liquid mixing and spraying apparatus	748,971	Jan. 5	829	175	108	193
Mine & Smelter Supply Company. (See Durkee, Lafayette, assignor.)						
Miner, William C., assignor of one-half to W. I. De Kay, Traverse City, Mich. Nut-lock	750,211	Jan. 19	3321	717	108	769
Miner, William C., assignor of one-half to W. I. De Kay, Traverse City, Mich. Nut-lock	752,628	Feb. 16	3504	780	108	1854
Minger, Franklin, Westbend, Iowa. Chimney-tile	751,534	Feb. 9	1377	314	108	1370
Mining, Milling, and Machinery Manufacturing Company. (See Bailey and Wild, assignors.)						
Minturn, Joseph A., assignor of one-half to F. W. Noble, Indianapolis, Ind. Burglar-alarm	752,174	Feb. 16	2505	577	108	1653
Mitchell, James E., Lowell, Mass., assignor to Mitchell Tongueless Buckle Company, New York, N. Y. Buckle	751,867	Feb. 9	2020	457	108	1508
Mitchell, Rodney, Peoria, Ill. Feeding mechanism for book-sewing machines	752,791	Feb. 23	3800	850, 851	108	1937
Mitchell Tongueless Buckle Company. (See Mitchell, James E., assignor.)						
Mitchell, William D., Toronto, Canada. Combination credit-file	748,631	Jan. 5	152	37	108	34
Mitchem, Charles E., Harvard, Ill. Remnant-table	749,799	Jan. 19	2554	542	108	606
Moak, William V., Albany, N. Y. Electric railway-signal	750,296	Jan. 26	3484	754	108	825
Mock, Robert E., Lahoma, Okla. Ter. Chair-brace	752,243	Feb. 16	2734	606	108	1687
Mödlinger, Josef. (See Polič and Mödlinger.)						
Moffett, Charles A., and F. B. Keiser, Birmingham, Ala. Ore or grain chute	752,848	Feb. 23	3919	878	108	1902
Moffitt, Alexander, Elkins, W. Va. Car-coupling	750,383	Jan. 26	3646	792	108	862
Moffitt, Emmett L. (See Harris, Thomas D., assignor.)						
Moffitt, Fred W., Chicago, Ill. Nasal douche	750,297	Jan. 26	3487	754	108	826
Mohlenhoff, Hermann J., assignor to G. K. Wallace, C. D. Newton, and F. M. Sames, New York, N. Y. Gearing	751,535	Feb. 9	1377	314	108	1370
Moline Plow Company. (See Lindgren, August, assignor.)						
Molitor, Charles, Chicago, Ill. Coin-controlled game apparatus	749,608	Jan. 12	2331	492, 493	108	540
Mollett, Alexander L., Stonecoal, W. Va., assignor to M. E. Johnson, executrix of Iver Johnson, Fitchburg, Mass. Revolving firearm	749,212	Jan. 12	1356	291	108	333
Monjeau, Cleophas, Middletown, Ohio. Water purification	750,474	Jan. 26	3812	828	108	899
Monnier, Alfred P., Greenfield, Mich. Mute for water-pipes	752,175	Feb. 16	2597	578	108	1653
Monroe, John, *et al.* (See Henderson, Ewen C., assignor.)						
Monroe, Robert F., Pontiac, Mich. Vehicle-body	750,298	Jan. 26	3490	755	108	826
Monson, George, Schenectady, N. Y., assignor to General Electric Company. Electric switch	750,908	Feb. 2	398	93, 94	108	1144
Montague, D. P. (See Owens, Charles, assignor.)						
Montague, John L. C., Christiansburg, Va. Temporary binder	750,676	Jan. 26	4197	910	108	977
Montague, John R. (See Copeland and Montague.)						
Montague, Wilfred W. (See Helwig and Montague.)						
Montenegro y Van-Halen, Antonio, Madrid, Spain. Pneumatic fluid elevator or pump	750,326	Jan. 26	3552	767, 768, 769	108	842
Montgomery, Henry J., Silvercreek, N. Y. Couch-display truck	748,770	Jan. 5	400	92	108	89
Moodie, Kenneth, and J. S. Small, assignors of one-fourth to R. H. Pierce and S. G. Neller, Chicago, Ill. Apparatus for selective signaling	750,777	Jan. 26	4436	956, 957	108	1032
Mooers, Louis P., assignor, by mesne assignments, to Peerless Motor Car Company, Cleveland, Ohio. Carbureting device for explosive-engines	749,315	Jan. 12	1568	333	108	377

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Moon, Orville P., Lorain, Ohio. Vaginal syringe	750,878	Feb. 2	191	44	108	1099
Moore, Abraham L. (See Sennett and Moore.)						
Moore, Daniel M., Newark, N. J. Electric tube-lamp	749,998	Jan. 19	2931	626	108	688
Moore, Daniel M., Newark, N. J. Electrode for electric tube-lamps	749,999	Jan. 19	2933	626	108	688
Moore, George, Monroe, Wash. Logging device	751,322	Feb. 2	1028	233, 234	108	1276
Moore, John M., Wena, Ala. Distilling apparatus	749,816	Jan. 12	1570	332	108	378
Moore, Lafayette, Tuskegee, Ala. Desk-lock	750,384	Jan. 26	3648	792	108	862
Moore, Marshall G., Johnstown, and R. V. Sage, borough of Westmont, Pa. Miner's safety-lamp	748,632	Jan. 5	154	37	108	34
Moore, Melville M., Sr., Santa Barbara, Cal. Lifting-jack	748,972	Jan. 5	830	176	108	193
Moore, Sidney S., Crockett, Tex. Rail-joint	750,778	Jan. 26	4440	957	108	1033
Moore, William E. (See MacKay and Moore.)						
Moore, William N., Joliet, Ill., and G. W. Cope, Detroit, Mich., assignors to Joliet Stove Works, Joliet, Ill. Ash-chute for stoves	750,879	Feb. 2	193	44	108	1100
Moran, David P., Wichita, Kans. Car-coupling	748,874	Jan. 5	609	137	108	136
Moran, Thomas F., De Young, and F. J. Moser, Kane, Pa. Elevating liquids from wells	751,323	Feb. 2	1030	234	108	1277
Moran, William J., Yonkers, N. Y. Fire-mask	751,091	Feb. 2	566	131	108	1183
Morawetz, John, Castella, Cal. Gopher-trap	750,677	Jan. 26	4198	911	108	978
Morehouse, Henry L. (See Kelsey, Willis S., assignor.)						
Morey, Edward L., Telluride, Colo. Tappet for stamp-mills	752,402	Feb. 16	3163	705	108	1779
Morgan, Alfred W., Urbana, assignor of one-half to J. Stuber and H. G. Kuck, Peoria, Ill. Car-seal	749,317	Jan. 12	1572	333	108	378
Morgan, Charles, assignor to Arcade Manufacturing Company, Freeport, Ill. Mop-holder	749,940	Jan. 19	2825	603	108	665
Morgan, John H., Chicago, Ill. Means for anchoring the combined third and traction rail of electric railways	750,880	Feb. 2	194	45	108	1100
Morgan, John T., Boise, Idaho. Pack-saddle	751,324	Feb. 2	1032	234	108	1277
Morgan, John W. (See Ellman and Morgan.)						
Morgan, Newton, Springfield, Mass. Fan-deflector	751,325	Feb. 2	1033	234	108	1277
Morgan Potter Company. (See Potter, Morgan, assignor.)						
Morgan Spring Company. (See Bigelow, George E., assignor.)						
Morgan, William, Cleveland, Ohio. Screw-cutting die-head	751,536	Feb. 9	1379	314	108	1370
Moriarty, Edward. (See Spear and Moriarty.)						
Moriarty, Joseph T. (See Heinitsh and Moriarty.)						
Morrill, Frederick P., *et al.* (See Dupuis and Fell, assignors.)						
Morris, Henry G., Philadelphia, Pa. Electrically-driven centrifugal machine	748,771	Jan. 5	401	92	108	89
Morris, John B., Philadelphia, Pa. Emergency-case	752,463	Feb. 16	3165	705	108	1779
Morris, Thomas E., Calvary, Ohio. Drill-rod clamp	749,318	Jan. 12	1575	333	108	378
Morris, William L., Batavia, Ill. Gage-cock	750,881	Feb. 2	196	45	108	1101
Morrison, Cornelius, Cleveland, Tenn. Churn-power	752,244	Feb. 16	2736	606	108	1687
Morrow, Ray. (See Berger, Charles L., assignor.)						
Morse, Robert S., Formoso, Kans. Hay-stacker	750,882	Feb. 2	198	45	108	1101
Morse, Rodolph F. (See Binns, James R., assignor.)						
Morse, William M., Chicago, Ill., assignor of two-thirds to L. R. and E. R. Speare, Boston, Mass. Making chip-soap	752,573	Feb. 16	3372	752, 753	108	1926
Morse, William R., assignor to J. H. Lee, trustee, Chicago, Ill. Cap for mucilage-bottles or the like	752,917	Feb. 23	4082	910	108	2001
Morton, David A. (See Morton, John F., assignor.)						
Morton, John F., St. Louis, assignor of one-half to D. A. Morton, Montauk, Mo. Construction of bridges	750,475	Jan. 26	3813	828	108	899
Morton, Joseph, New Westminster, Canada. Railway block system	753,157	Feb. 23	4529	1009, 1010	108	2099
Morton Trust Company, trustee. (See Fiske, Henry G., assignor.)						
Morton Trust Company, trustee. (See Pope, Harry M., assignor.)						
Morton, William M., Essex, assignor to William Scholihorn Company, New Haven, Conn. Punch, pliers, &c	750,678	Jan. 26	4200	911	108	978
Moser, Fred J. (See Moran and Moser.)						
Moses, Horace A., Springfield, Mass. Paper-machine	748,973	Jan. 5	831	176	108	193
Moses, Jacob B., Dallas, Tex. Baggage-fastener	752,574	Feb. 16	3375	753	108	1927
Mosher, Charles P., Jr., *et al.* (See Brindle, Philip S., assignor.)						
Mosher, John A., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Lamp-wick	752,575	Feb. 16	3376	753	108	1927
Mosher, John A., and W. D. Legge, Chicago, Ill., assignors to Adams and Westlake Company, of Illinois. Lamp-burner	750,476	Jan. 26	3814	828	108	899
Moskow, Joseph H., San Francisco, Cal. Combined screen, window, and ventilator attachment for doors	751,668	Feb. 9	1630	370	108	1424
Moskowitz, Morris, New York, N. Y., assignor to United States Light & Heating Company, of New Jersey. Automatic switch	751,745	Feb. 9	1777	404, 405	108	1453
Mosler, Arthur R. (See Cahn and Mosler.)						
Moss, Leon F. (See Bell, Walter J., assignor.)						
Mosteller, Dosier H., assignor of one-half to C. Peters, San Francisco, Cal. Lemon-squeezer	749,573	Jan. 12	2007	436	108	491
Mosteller, Dosier H., assignor of one-half to J. Hoeges, San Francisco, Cal. Liquid-fuel burner	751,092	Feb. 2	568	132	108	1183
Mottlau, August J., New York, N. Y. Detector of the contents of bottles, jars, or similar receptacles	749,080	Jan. 5	1069	226	108	246
Moureu, Charles, Paris, France. Homologous propiolic acid and making same	749,800	Jan. 19	2555	.....	108	606
Moureu, Charles, Paris, France. Ether of amylpropiolic acid	750,212	Jan. 19	3322	.....	108	769
Moureu, Charles, Paris, France. Ether of propiolic acid, &c	750,213	Jan. 19	3323	.....	108	769
Moya, Hidalgo, Leicester, England. Type-writer	752,794	Feb. 23	3812	853, 854, 855	108	1940
Moya, Hidalgo, Leicester, England. Type-writer	752,795	Feb. 23	3815	855, 856	108	1941
Moya, Hidalgo, assignor of one-half to J. G. Chattaway, Leicester, England. Type-writing machine	752,792	Feb. 23	3804	851, 852, 853	108	1938
Moya, Hidalgo, assignor of one-half to J. G. Chattaway, Leicester, England. Type-writing machine	752,793	Feb. 23	3810	853	108	1940
Muckenhirn, Charles H., Detroit, Mich., assignor to J. S. Tyler, Buffalo, N. Y. Ventilator for water-closets	749,875	Jan. 19	2688	575	108	635
Mueller, Alfred F., Philadelphia, Pa. Amusement apparatus	749,941	Jan. 19	2827	603, 604	108	666
Mueller, John, Seattle, Wash. Malt turner and aerator	748,875	Jan. 5	610	137	108	137

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Muffly, Glenn, Chicago, Ill., and H. M. Miller, Council Bluffs, Iowa. Umbrella handle and rod	752,849	Feb. 23	3021	879	108	1963
Mühlinghaus, Ernst, Mettmann, assignor to Bernsau & Uellenberg, Varresbeck, near Elberfeld, Prussia, Germany. Lock	748,772	Jan. 5	402	92	108	90
Mull, Edward W., Columbus, Ohio. Chocolate-cooling mechanism	752,636	Feb. 16	3020	783	108	1858
Mullen, Ella D., Whitesville, Ky. Towel-rack	749,081	Jan. 5	1074	227	108	247
Mullen, Peter, assignor to Edwin Harrington, Son and Company, Incorporated, Philadelphia, Pa. Hoisting mechanism	751,537	Feb. 9	1380	315	108	1370
Müller, Eugen K., Zurich, Switzerland. Electromagnetic device for vibratory massage	749,213	Jan. 12	1357	291	108	833
Mullin, Royal J., Seattle, Wash. Automatic controller for feed-pumps	749,942	Jan. 19	2829	604	108	666
Mullins, William H., W. C. Hare, and H. C. Nelson, Salem, Ohio. Skylight	751,746	Feb. 9	1780	405, 406	108	1454
Mumford, Joseph A., Roslyn, N. Y. Steam-boiler	752,351	Feb. 16	2053	657	108	1735
Muncaster, Walter J., assignor of one-half to Cumberland Steel Company, Cumberland, Md. Apparatus for applying couplings to and removing couplings from shafting	750,477	Jan. 26	3816	829	108	899
Munk, Gottlieb L., Peoria Heights, Ill. Cider-press	748,633	Jan. 5	155	37, 38	108	35
Munro, William, assignor to P. & F. Corbin, New Britain, Conn. Sash-cord holder	751,093	Feb. 2	571	132	108	1183
Munson, Clair. (See Blodt and Dana, assignors.)						
Munson, John K., Houghton, Wash. Packing for manholes	749,909	Jan. 19	2871	614	108	675
Munson, Samuel R., assignor to Landers, Frary and Clark, New Britain, Conn. Spring-balance	752,918	Feb. 23	4083	910	108	2001
Muntz, Oliver H., Greenville, Pa. Pad-hook	748,773	Jan. 5	404	93	108	90
Murdock, Samuel N., Columbus, Ohio. Gage-cock	751,538	Feb. 9	1381	315	108	1371
Murnane, Daniel J., Kirkwood, Mo., and R. W. Davies, Avonmore, Pa.; said Murnane assignor to St. Louis Plate Glass Company. Table for grinding, smoothing, and polishing glass	749,801	Jan. 19	2557	543	108	606
Murphy, Frank, Lisbon Center, N. Y. Butter-press	752,464	Feb. 16	3166	705, 706	108	1779
Murphy, Herman. (See Richards, George C., assignor.)						
Murphy, John H., and E. M. Camp, Chicago, Ill. Metallic formed sheet	748,634	Jan. 5	159	38	108	36
Murphy, John H., and E. M. Camp, Chicago, Ill. Retaining material for plaster or the like	751,094	Feb. 2	572	132, 133	108	1181
Murphy, John J., Wellston, assignor of forty-nine one-hundredths to J. D. Houseman, St. Charles, Mo. Railway-switch	751,988	Feb. 9	2283	510	108	1564
Murphy, Peter F., Milwaukee, Wis. Trap for catch-basins	751,989	Feb. 9	2285	511	108	1565
Murphy, Thomas, Detroit, Mich. Furnace	750,214	Jan. 19	3324	718	108	770
Murphy, William R., St. Louis, Mo. Automatic railway-switch	751,868	Feb. 9	2020	457	108	1508
Murray, Charles R., assignor to Barnhart Brothers & Spindler, Chicago, Ill. Type-mold	748,876	Jan. 5	613	138	108	137
Murray, Gordon B., Allendale, Mo. Car or barn door	750,679	Jan. 26	4202	911	108	978
Muschenheim, Frederick A., and W. F. Hendry, New York, N. Y., assignors to Western Electric Company, Chicago, Ill. Automatic brake for controlling switches of electric motors	748,635	Jan. 5	161	39	108	36
Musgrave, Bernard, Heaton, England. Gas and oil engine	750,478	Jan. 26	3819	829, 830	108	900
Musso, Giuseppe, S. Angelo del Lombardi, Italy. Wireless electric apparatus acting on type-writers	751,803	Feb. 9	1884	429, 430	108	1477
Myers, Albert G., Charlotte, N. C. Planter	749,394	Jan. 12	1730	366	108	412
Myers, Henry R., Covington, Ky. Automatic measure and funnel	751,669	Feb. 9	1651	370	108	1424
Myers, Louis, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y. Paper-release device for type-writers	752,602	Feb. 16	2455	549	108	1622
Myers, Louis, Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y. Carriage-shifting mechanism	752,603	Feb. 16	2456	549	108	1622
Nace, John C., Johnetta, Pa. Heating apparatus	749,086	Jan. 5	1062	228	108	249
Naef, Paul, New York, N. Y. Lixiviating ores	749,700	Jan. 12	2386	493, 494	108	541
Naef, Paul, New York, N. Y. Manufacturing gas	749,945	Jan. 19	2833	605	108	667
Nagel, John, Springfield, Ohio. Cultivator	752,532	Feb. 23	3925	889	108	1961
Nagel, Theodore, assignor of one-half to L. H. Collins, Chicago, Ill. Fuse for electric circuits	748,639	Jan. 5	166	40	108	37
Nagle, James C., and B. Prouty, Columbus, Ohio. Crate	749,946	Jan. 19	2834	605	108	667
Naldul, Joseph, Milwaukee, Wis. Plow	750,385	Jan. 26	3949	792	108	863
Nameche, Joseph, Tarentum, Pa. Elevator safety device	751,330	Feb. 2	1041	236	108	1270
Nance, Albert W. and T. H., Davis Mills, Va. Harness-buckle	748,776	Jan. 5	408	94	108	91
Nance, Thaddeus H. (See Nance, Albert W. and T. H.)						
Napier, Montague S., and A. J. Rowledge, London, England; said Rowledge assignor to said Napier. Carbureter for petrol-motors	751,431	Feb. 2	1206	275	108	1313
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Water-meter	748,777	Jan. 5	410	94	108	92
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Meter registering mechanism	748,778	Jan. 5	411	94	108	92
Nash, Michael J., and J. T. Waniger, St. Louis, Mo. Coin-controlled vending-machine	752,580	Feb. 16	3382	755	108	1828
Nash, Nathan E., Detroit, Mich. Heat-regulating apparatus	749,397	Jan. 12	1734	367	108	413
Nash, Nathan E., Toronto, Canada, assignor to Nash Regulating Valve Company, Detroit, Mich. Regulating-valve	749,396	Jan. 12	1732	367	108	413
Nash Regulating Valve Company. (See Nash, Nathan E., assignor.)						
National Battery Company. (See Lyndon, Lamar, assignor.)						
National Battery Company. (See Lyndon and Sperry, assignors.)						
National Battery Company. (See Sperry, Elmer A., assignor.)						
National Burglar and Fire Alarm Company. (See Hasburg, John W., assignor.)						
National Cash Register Company. (See Applegate, Eugene W., assignor.)						
National Cash Register Company. (See Carroll, Thomas, assignor.)						
National Cash Register Company. (See Osborn, Francis C., assignor.)						
National Drill and Manufacturing Company. (See Rhodes, Bert O., assignor.)						
National Electric Signaling Company. (See Fessenden, Reginald A., assignor.)						
National Machine Company. (See Hogan, James T., assignor.)						
National Magnetic Mineral Separating Company. (See Campbell, Henry F., assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
National Meter Company. (See Tuttle, Arthur S., assignor.)						
National Oil Heating Company. (See Leach, John N., assignor.)						
National Rolled Steel Car Company. (See Carnahan, Cyrus M., assignor.)						
National Shoe-Plate Manufacturing Company. (See West, Mansfield M., assignor.)						
National Specialty Manufacturing Company. (See Bussinger, William J., assignor.)						
National Telegraphone Company. (See Grauel, Edwin L., assignor.)						
National Valve Company. (See Halley and Downey, assignors.)						
Navarrete, Juan, *et al.* (See Washington, David, assignor.)						
Neahr, Jacob E., Melrose, Mass. Receptacle for matches	751,675	Feb. 9	1641	373	108	1426

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Nederman, Herman, assignor of three-fourths to E. Sloane and T. L. Schurmeier, St. Paul, Minn. Automatic turning and sewing machine	751,544	Feb. 9	1394	317, 318, 319, 320	108	1373
Neil, John W., Cincinnati, Ohio. Duplicate engine	748,975	Jan. 5	834	176	108	194
Neiler, Samuel G., *et al.* (See Moodie and Small, assignors.)						
Neill, Arthur. (See Foy, George P.)						
Neinens, Jacob, and H. Kleinbielen, Geldern, Germany. Mud-guard for cycles	750,386	Jan. 26	3649	798	108	863
Neligh, Sherman. (See Schwartz and Neligh.)						
Nelson, Albert H., Lewiston, Me. Lamp-burner	751,545	Feb. 9	1400	320	108	1375
Nelson, Andrew S., A. Stewart, and T. J. Foster, Motherwell, Scotland. Bogie or truck for tramway-cars, railway-carriages, or the like	750,387	Jan. 26	3650	798	108	863
Nelson, Christian, Morrison, Ill. Buggy-boot	748,779	Jan. 5	413	95	108	92
Nelson, Clinton D., Lordsburg, assignor to H. K. Miller Manufacturing Company, Glendora, Cal. Fruit-elevator	751,676	Feb. 9	1642	373	108	1426
Nelson, Edward L. (See Simpson and Nelson.)						
Nelson, Emil A., Cleveland, Ohio. Power-transmission mechanism	750,995	Feb. 2	395	94	108	1145
Nelson, Frank J. (See Walbridge, Frank C., assignor.)						
Nelson, George F. (See Hynson, Medford, assignor.)						
Nelson, Henry C. (See Mullins, Hare, and Nelson.)						
Nelson, Henry C., Salem, Ohio. Window	751,747	Feb. 9	1784	407	108	1455
Nelson, Hilding, New Britain, Conn. Cooling means for explosive-engines	750,885	Feb. 2	204	46	108	1103
Nelson, Horatio, assignor, by mesne assignments, to S. S. Wenzell, Philadelphia, Pa. Cloth-folder	752,995	Feb. 23	4242	945	108	2036
Nelson, James W., New York, N. Y. Riveting-tool	751,195	Feb. 2	767	175	108	1221
Nelson, Martin W., Kent, Minn. Car-door	751,935	Feb. 9	2154	486	108	1537
Nelson, Martin W., Kent, Minn. Grain-door for cars	751,992	Feb. 9	2291	512	108	1566
Nelson, Nels L., Crookston, Minn. Pneumatic straw-stacker	748,640	Jan. 5	168	40	108	37
Nelson, Peter J., Baltimore, Md., assignor to Baltimore Amalgamator Company of Baltimore City. Amalgamator	752,246	Feb. 16	2738	607	108	1687
Neracher, Inozens J., Cleveland, Ohio. Wire-loom	751,546	Feb. 9	1401	320	108	1375
Nethery Hydraulic Valve Company. (See Nethery, Joseph W., assignor.)						
Nethery, Joseph W., assignor to Nethery Hydraulic Valve Company, Indianapolis, Ind. Valve	751,096	Feb. 2	576	133, 134	108	1184
Nethery, Joseph W., assignor to Nethery Hydraulic Valve Company, Indianapolis, Ind. Valve	751,677	Feb. 9	1645	373	108	1427
Nethery, Joseph W., assignor to Nethery Hydraulic Valve Company, Indianapolis, Ind. Valve	752,176	Feb. 16	2598	578	108	1653
Neuber, Franz, Wiener Neustadt, and J. Tambour, assignors of one-third to C. Colbert, Vienna, Austria-Hungary. Small-arms	749,877	Jan. 19	2690	575	108	636
Neubert, Armin L., and S. T. Wiedenbeck, Minneapolis, Minn. Brewer's apparatus	749,087	Jan. 5	1083	229	108	249
Neukirch, Hubert V., Zwickau, Germany. Machinery for continuously cutting coal	753,092	Feb. 23	4421	983	108	2077
Neukirchen, Peter, Chicago, Ill. Combination drawing-tool	752,699	Feb. 23	3941	811	108	1902
Neusser, Hugo, San Rafael, Cal. Automatic wheel-brake	751,678	Feb. 9	1647	374	108	1427
New Century Hook and Eyelet Company. (See Poalk, James L., assignor.)						
New Jersey Wire Cloth Company. (See Kunneke, George H., assignor.)						
New Standard Concentrator Company. (See Look, Luther, assignor.)						
Newbold, Sidney. (See Taylor and Newbold.)						
Newcastle Paper Box and Manufacturing Company. (See Plummer and Hess, assignors.)						
Newell, Charles H., Saginaw, Mich. Awning-roller	748,641	Jan. 5	170	41	108	38
Newell, Edgar G., Glenridge, N. J. Machine for making packing bands or rings	752,353	Feb. 16	2357	658	108	1735
Newington, Herbert F. H., Ticehurst, England. Playing-card shuffler	750,216	Jan. 19	3326	718	108	770
Newman, Edwin A., Washington, D. C. Floating pulsometer-dredge	752,247	Feb. 16	2739	607, 608	108	1688
Newton, Charles D., *et al.* (See Mohlenhoff, Hermann J., assignor.)						
Newton, Charles E., Hartford, Conn. Belting	753,299	Jan. 26	3491	755	108	826
Newton, George A. (See Fahrney, Newton, and Simmons.)						
Newton, George W., Cambria, Cal. Mowing-machine	752,095	Feb. 16	2458	549, 550	108	1623
Newton, Lewis W. (See Pierce and Newton.)						
Newton, William G., assignor to Peck Bros. & Co., New Haven, Conn. Universal compression stop and waste cock	751,809	Feb. 9	2022	458	108	1508
Niblack, Boothe, Virgil, Ga. Dust-guard for car-windows	752,796	Feb. 23	3818	856	108	1941
Nicholls, Francis V., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Motor-controller	751,547	Feb. 9	1403	321	108	1376
Nicholls, Mark M., New York, N. Y. Tubing	752,709	Feb. 23	3942	811	108	1902
Nichols, Aaron S., Boston, Mass. Veneer-drier	750,058	Jan. 19	3051	654	108	712
Nichols, Frank J., Cleveland, Ohio. Shade-bracket	749,088	Jan. 5	1087	229	108	250
Nichols, Henry B., Philadelphia, Pa. Railway-switch mechanism	750,996	Feb. 2	401	94, 95	108	1146
Nichols, Henry B., Philadelphia, Pa. Rail-sawing machine	751,679	Feb. 9	1647	374, 375	108	1427
Nichols, Lewis A., *et al.* (See Smith, Frank L., assignor.)						
Nichols, Lewis P., Pittsburg, Pa. Miter-box	752,406	Feb. 16	3064	680	108	1757
Nichols, Thomas, Templeton, assignor of one-half to I. G. Waite, Baldwinville, Mass. Holdback for breeching-straps	748,976	Jan. 5	836	177	108	194
Nicholson, Charles H., New York, N. Y. Jar-closure	748,642	Jan. 5	172	41	108	38
Nickerson, Ernest, Newton, Mass. Crane	752,248	Feb. 16	2745	609, 610	108	1689
Nickerson, Ernest, Newton, Mass. Form for making holes or conduits in concrete or other structures	752,249	Feb. 16	2751	610	108	1691
Nielsen, Jens, Cedarfalls, Iowa. Rotary pump	751,196	Feb. 2	768	175	108	1221
Niemeyer, Hermann H. (See Leistner, Paul G., assignor.)						
Nies, Frederick H., New York, N. Y. Rubber-dam clamp	748,977	Jan. 5	836	177	108	194
Niles-Bement-Pond Company. (See Bryan, John H. B., assignor.)						
Niles-Bement-Pond Company. (See Hagman, William J., assignor.)						
Nilsen, Ernst A., Christiania, Norway. Screw-propeller	750,036	Jan. 19	3004	644	108	703
Nilson, Eric, *et al.* (See Alexander, Jesse, assignor.)						
Nilson, Knut, Duluth, Minn. Neck-yoke	750,997	Feb. 2	404	95	108	1147
Nilson, Nils, Minneapolis, Minn. Steam-heating system for railway-cars	749,970	Jan. 19	2872	614, 615	108	675
Nilsson, Axel W., New York, N. Y. Interlocking tile for floor or wall coverings	750,779	Jan. 26	4441	958	108	1033
Nind, Frederick G., and C. F. Strasburger, assignors to G. Fuller, Chicago, Ill. Paper-folding machine	752,853	Feb. 23	3928	881, 882	108	1964
Nirdlinger, Max, Philadelphia, Pa. Manufacturing cushion-tires	753,204	Feb. 23	4618	1029	108	2121
Nirdlinger, Max, Philadelphia, Pa. Vehicle-tire	753,205	Feb. 23	4620	1029	108	2122
Nirdlinger, Max, Philadelphia, Pa. Manufacturing vehicle-tires	753,206	Feb. 23	4623	1030	108	2122
Nissenson, George, New York, N. Y. Hanger	752,996	Feb. 23	4243	945	108	2036

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Nixon, Lewis. (See Riotte, Carl C., assignor.)						
Noble, Donald, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Buttonhole-sewing machine	753,068	Feb. 23	4422	983, 984	108	2077
Noble, Frank W. (See Minturn, Joseph A., assignor.)						
Nolan, Rudolph Z., Alton, Ill. Window-shade roller	752,090	Feb. 16	2430	550	108	1623
Noles, Wilson, Montrose, Iowa. Filter	749,576	Jan. 12	2102	438	108	492
Nollenberger, Carl, Leadville, Colo. Necktie	751,331	Feb. 2	1042	236	108	1279
Nollenberger, Carl, Leadville, Colo. Necktie	751,332	Feb. 2	1043	236	108	1279
Noller, Charles, Detroit, Mich. Ventilating attachment for tanks	749,802	Jan. 19	2559	543	108	607
Nonnast, Hermann, and W. Tesar, Chicago, Ill. Extension-table	749,330	Jan. 12	1576	333, 334	108	379
Noppenberger, Joseph J. (See Mickey, Bailey, and Noppenberger.)						
Norcott, William T., Kedron, Ark. Nail-puller	751,680	Feb. 9	1659	375	108	1427
Norcross, William C., Terre Haute, Ind., assignor to American Car & Foundry Company, St. Louis, Mo. Cope for molding	752,797	Feb. 23	3819	857	108	1912
Nordell, Carl, Stamford, Conn. Railway-truck	749,947	Jan. 19	2836	605, 606	108	668
Nordenfelt, Per de, and E. Ternström, Paris, France. Eccentric-screw breech-closing device	748,978	Jan. 5	807	177	108	194
Nordhoff, Elsie S., Alpine, N. J. Ribbon-winding device	749,971	Jan. 19	2873	615	108	675
Norlin, Charles A., Orvisburg, Miss. Saw-table gage	752,701	Feb. 23	3643	811, 812	108	1902
Norman, William C., Smithton, Ark. Pie-pan	752,250	Feb. 16	2754	610	108	1691
Norrie, Robert, Rangoon, British Burma, India. Punching and shearing machine, &c	748,979	Jan. 5	839	178	108	195
Norris, H. C., *et al.* (See Hubbell, Thomas J., assignor.)						
Norris, John B. (See Ellicott and Norris.)						
Norstrom, John K. (See Lundquist and Norstrom.)						
Norstrom, John K., and J. J. Brownrigg, assignors to Globe Automatic Telephone Company, Chicago, Ill. Automatic telephone system	752,251	Feb. 16	2756	611, 612	108	1692
Norstrom, Nils E., Chicago, Ill., assignor of two-thirds to J. Anderson, Salina, and M. E. Richardson, Sterling, Kans. Telephone-exchange	748,980	Jan. 5	841	178, 179	108	195
Norstrom, Nils E., Chicago, Ill., assignor of two-thirds to J. Anderson, Salina, and M. E. Richardson, Sterling, Kans. Telephone-exchange	749,824	Jan. 19	2597	554, 555	108	616
North Brothers Manufacturing Company. (See Furbish, Zachry T., assignor.)						
North Electric Company. (See Downs, John P., assignor.)						
North & Judd Manufacturing Company. (See Smith, Clarence E., assignor.)						
North, Paul, *et al.* (See Fulford, Elijah D., assignor.)						
North, Paul, Lakewood, assignor to Chamberlin Cartridge and Target Company, Cleveland, Ohio. Target-trap	752,407	Feb. 16	3067	680	108	1737
Northcott, William P., and E. E. Flora, Chicago, Ill.; said Flora assignor to said Northcott. Machine for printing the backs of books	748,643	Jan. 5	173	41, 42	108	38
Northrop, Walter, Toronto, Canada, assignor to Howson & Howson, trustees, Philadelphia, Pa. Automatic weighing apparatus	748,644	Jan. 5	178	43	108	40
Northrup, Wesley W., Belleville, Mich. Composition post	752,354	Feb. 16	2959	659	108	1736
Norton, C. E., *et al.* (See Hubbell, Thomas J., assignor.)						
Norton, Frank E., Sidney, N. Y. Chisel	751,403	Feb. 2	1158	264	108	1304
Norton, James A., Odebolt, Iowa. Expansive-fluid motor	750,217	Jan. 19	3327	719, 720	108	770
Norwall Manufacturing Company. (See Hoffman, George D., assignor.)						
Norwood, John E., assignor to Baltimore Railway Specialty Company, Baltimore, Md. Universal street-car side bearing	750,481	Jan. 26	3826	831	108	902
Noth, George J., Davenport, Iowa. Grain-valve	752,465	Feb. 16	3168	706	108	1780
Notter, Charles H., Chicago, Ill. Bucket conveyer	750,886	Feb. 2	206	47	108	1108
Nourse, Rupert A., *et al.* (See Shupe, Eli, assignor.)						
Nowlin, Robert J. (See Langdale and Nowlin.)						
Nusbaum, Moses G., *et al.* (See Kitzmiller, George M., assignor.)						
Nusebaum, Bertram E., *et al.* (See Beardsley, Robert F. W., assignor.)						
Nussbaum, Bertram E., *et al.* (See Beardsley, Robert F. W., assignor.)						
Nya Aktiebolaget Radiator. (See Dahlqvist, John A., assignor.)						
Nye, C. A., *et al.* (See Stone, John V., assignor.)						
Nye, George E., Chicago, Ill. Interlocking metal sheet-piling	753,094	Feb. 23	4426	984	108	2078
O'Brien, Charles H., Augusta, Me. Electrical apparatus for producing sound-signals	752,408	Feb. 16	3068	681	108	1758
O'Brien, Eugene. (See McAnulty, O'Brien, and French.)						
O'Brien, John D., Boston, Mass. Elastic band or strap	750,780	Jan. 26	4442	958	108	1033
O'Brien, Miles W., Ottawa, Ill. Shoe-tree	752,409	Feb. 16	3069	681	108	1758
O'Brien, Thomas E., Chicago, Ill. Couch	752,177	Feb. 16	2602	578	108	1654
O'Brien, William C., Baltimore, Md. Automatic starter for electric motors	752,097	Feb. 16	2490	550	108	1623
O'Callaghan, John J., Chicago, Ill. Necktie or ribbon clasp	753,005	Feb. 23	4427	985	108	2078
O'Connor, James. (See Sibley, James T., assignor.)						
O'Connor, John. (See Simmonds, Percy V., assignor.)						
O'Donnell, Maximilian J. (See Cutting, Otis, assignor.)						
O'Higgins, John B., New York, N. Y. Comb for applying liquid to the scalp	750,388	Jan. 26	3651	793	108	864
O'Neil, Frederick W., Palnesdale, Mich. Separating-hopper for stamp-mill launders	752,702	Feb. 23	3645	812	108	1903
O'Shaughnessy, Thomas, San Jose, Cal. Sewing-awl	751,334	Feb. 2	1045	237	108	1280
O'Shea, John C., Washington, D. C. Purse	751,748	Feb. 9	1786	407	108	1455
O'Toole, William. (See Gunnell and O'Toole.)						
Oakville Company. (See Johnson, Frank M., assignor.)						
Oberdahn, Walter R., East McKeesport, Pa. Brick-making machine	750,059	Jan. 19	3062	654, 655	108	712
Obolensku, Nicholas, Hermitage, assignor of fifty-one one-hundredths to J. McGarvey, Rochester, N. Y. Valve	751,333	Feb. 2	1044	237	108	1280
Ocumpaugh, Edmund, assignor to Defiance Machine Company, Rochester, N. Y. Stamp	749,577	Jan. 12	2108	438	108	493
Oddie, Philip F., Oschersleben, Germany. Duplex pump	749,069	Jan. 5	1088	229, 230	108	250
Odell, James A., Evanston, Ill. Fence	752,854	Feb. 23	3033	882	108	1900
Oden, John P. (See Graybill and Oden.)						
Odling, Francis J. (See Jamieson and Odling.)						
Odquist, Victor. (See Fyfe and Odquist.)						
Oesterreichische Asphalt Actiengesellschaft *et al.* (See Meinong, Rafael von, assignor.)						
Ogden, Irvin, Whatcheer, Iowa. Road-making machine	750,482	Jan. 26	3828	831	108	902
Ohio Automobile Company. (See Packard and Hatcher, assignors.)						
Ohio Brass Company. (See Mead, George A., assignor.)						
Ohio Cultivator Company. (See Ripperger, Clemens M., assignor.)						
Ohio Cultivator Company. (See Ryder, Andrew V., assignor.)						
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Stairway	750,998	Feb. 2	404	95	108	1147

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Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Window-sash	750,999	Feb. 2	405	95	108	1147
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Metallic furniture	751,097	Feb. 2	579	131	108	1184
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Stairway	751,098	Feb. 2	581	134	108	1185
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Metallic furniture	751,099	Feb. 2	582	135	108	1185
Ohnstrand, Enoch, assignor to Art Metal Construction Company, Jamestown, N. Y. Metallic furniture	751,435	Feb. 2	1207	276	108	1314
Oil Well Supply Company. (See Boyce, James C., assignor.)						
Old Colony Cork Wood Company. (See Lenhart, Philip F., assignor.)						
Oldfield, William, New Bedford, assignor to Draper Company, Hopedale, Mass. Warp stop-motion for looms	750,300	Jan. 26	3492	755	108	827
Olds Motor Works. (See Olds, Ransom E., assignor.)						
Olds, Ransom E., assignor to Olds Motor Works, Detroit, Mich. Brake mechanism	749,903	Jan. 19	2740	596	108	647
Olds, Ransom E., assignor to Olds Motor Works, Detroit, Mich. Valve-gear for explosive-engines	750,684	Jan. 26	4207	912	108	979
Oliver, Charles, Pennant Hills, near Sydney, New South Wales, Australia. Apparatus for separating oil or grease from water	748,981	Jan. 5	843	179	108	195
Oliver, Dew R. (See Bryson, James L., assignor.)						
Olsen, Monrad J. (See Rasck, George P., assignor.)						
Olson, Carl A., St. Francis, Minn. Car-coupling	752,835	Feb. 23	3935	883	108	1966
Olson, John P., near Tacoma, Wash. Raker gage and jointer	749,090	Jan. 5	1090	230	108	251
Olson, Otto F. (See Huerth and Olson.)						
Olson, William, Jersey City, N. J. Electric striking-clock	749,495	Jan. 12	1962	407, 408	108	459
Omlor, Reinhart, Pittsburg, Pa. Hat-pin	749,948	Jan. 19	2837	606	108	668
Ong, Harlon F., Wendling, Oreg. Grip-wheel	752,997	Feb. 23	4244	945, 946	108	2037
Oostdyk, Anthony J., assignor to Parke, Davis & Company, Detroit, Mich. Case for carboys	751,804	Feb. 9	1898	430	108	1481
Ordnance Improvement Company. (See Gerdom, Gregory, assignor.)						
Orndorf, Camern E., Ligonier, assignor of one-half to L. S. Smith & Son, Pittsburg, Pa. Controlling device for vulcanizers or like apparatus	752,703	Feb. 23	3646	812, 813	108	1903
Orr, Francis L., Thurman, assignor of one-half to W. W. Keyser, Percival, Iowa. Automatic electric pump	750,115	Jan. 19	3149	677	108	733
Orr & Lockett Hardware Co. (See Lockett, Kenny, Stimebach, and Udell, assignors.)						
Ortman, Carl F., Martinton, Ill. Tongue-support and side-draft check for grain or grass harvesters	750,116	Jan. 19	3151	677	108	733
Osborn, Francis C., Detroit, Mich., assignor to National Cash Register Company, Jersey City, N. J. Ticket-printing machine	752,704	Feb. 23	3651	813	108	1905
Osborn, Henry C., Cleveland, Ohio. Circulating system for automobiles	752,856	Feb. 23	3936	883	108	1966
Osborn, Winfield S., Remington, Ind. Wrench	751,936	Feb. 9	2155	486	108	1537
Osborne, John W., Exeter, assignor to W. McCaleb, Bluffs, Ill. Switch mechanism	749,626	Jan. 12	2184	459	108	509
Osborne, John W., assignor of three-fourths to C. Smithson and S. Halnsfurther, Winchester, Ill. Filtering-machine	751,805	Feb. 9	1900	430, 431	108	1481
Osbourn, Millard P., Merchantville, N. J., assignor to Warren Webster and Company. Device for controlling the supply of steam to feed-water heaters	752,998	Feb. 23	4246	946	108	2037
Osbourn, Millard P., Merchantville, N. J., assignor to Warren Webster and Company. Oil-separator	752,999	Feb. 23	4247	946	108	2037
Osgood, George W., St. Charles, Ill. Ash-sifter for furnaces or the like	751,197	Feb. 2	770	175	108	1222
Osgood, Ralph R., Troy, N. Y. Dredge	751,937	Feb. 9	2157	487, 488	108	1537
Osman, Isaac E., Greensburg, Ind. Damper-regulator for steam-boilers	752,581	Feb. 16	3384	755	108	1829
Osteen, Percy C., Hendersonville, N. C. Hose-coupling	753,096	Feb. 23	4428	985	108	2078
Ostergren, Oscar P., New York, N. Y., assignor, by mesne assignments, to Fuel Oil Power Company. Internal-combustion engine	752,410	Feb. 16	3071	681, 682	108	1759
Other, John C., St. Louis, Mo. Fire-escape	751,870	Feb. 9	2024	458	108	1508
Otis Elevator Company. (See Dickinson, William N., Jr., assignor.)						
Otis Elevator Company. (See Ihlder, John D., assignor.)						
Otis Elevator Company. (See Venn, Isaac H., assignor.)						
Oven, John H. G. von, and J. C. Boesch, Charleston, S. C. Cotton-gin	748,780	Jan. 5	414	95	108	98
Oviatt, Ellen M., and A. Dean, Denver, Colo. Electromagnetic ore-separator	751,100	Feb. 2	583	135	108	1185
Ow, Alexander, New Brighton, Pa. Leg-fastening	748,877	Jan. 5	614	138	108	137
Owen, Bert A. (See Mallonee, Joseph C., assignor.)						
Owens, Charles, assignor of one-half to D. P. Montague, Chattanooga, Tenn. Movement-cure apparatus	752,252	Feb. 16	2761	612	108	1693
Owens, John A., Moultrie, Ga. Clothes-steamer	750,483	Jan. 26	3830	832	108	902
Owens, Thomas D., Jr., Pittsburg, Pa. Scoop	748,878	Jan. 5	616	138	108	138
P. & F. Corbin. (See Munro, William, assignor.)						
Packard, Fred H., Brockton, Mass. Toe-tip measure	752,798	Feb. 23	3821	857	108	1942
Packard, James W., and W. A. Hatcher, assignors to Packard Motor Car Company, Warren, Ohio. Motor-vehicle	749,744	Jan. 19	2452	521, 522	108	583
Packard, James W., and W. A. Hatcher, assignors to Ohio Automobile Company, Warren, Ohio. Braking mechanism for motor-vehicles	752,582	Feb. 16	3387	755, 756	108	1829
Packard Motor Car Company. (See Packard and Hatcher, assignors.)						
Packard, William D., Warren, Ohio. Acetylene-gas generator	748,781	Jan. 5	416	95, 96	108	98
Packer, Eli, Des Moines, Iowa. Shaft for vehicles	750,685	Jan. 26	4209	912	108	980
Pagan, Louis, Maubeuge, assignor to Compagnie Duplex, Paris, France. High-speed regulator	749,217	Jan. 12	1372	293	108	336
Page, Frank C. B., assignor to Air Tight Closure Company, New York, N. Y. Closure for vessels	751,335	Feb. 2	1046	237	108	1280
Page, Frank C. B., assignor to Air Tight Closure Company, New York, N. Y. Closure for vessels	751,404	Feb. 2	1159	264	108	1304
Page, Henry J., *et al.* (See Waters, Frank J., assignor.)						
Page, John, Lima, Ohio. Ditching-machine	750,686	Jan. 26	4210	913	108	980
Page, Phillip H., Surrey Centre, Canada. Window-sash fastener	752,253	Feb. 16	2764	613	108	1694
Page, Wallace R., North Salem, Ind. Corn-harvester	750,687	Jan. 26	4214	914	108	981
Pagett, Charles H., Lafayette, Ind. Hydraulic engine and pump	752,098	Feb. 16	2464	550	108	1624
Pain, Robert W., assignor to Aeolian Company, New York, N. Y. Attachment for expression or accent controlling mechanisms for mechanical musical instruments	752,920	Feb. 23	4085	910, 911	108	2002
Painter, Nlie J., Rowlesville, Ohio. Kitchen-table	751,101	Feb. 2	585	135	108	1185
Palm Letter Company. (See Palm and Blomberg, assignors.)						
Palm, Otto, Jr., and W. T. Blomberg, New York, N. Y., assignors to Palm Letter Company, Cincinnati, Ohio. Transferring and etching designs on metal surfaces	753,097	Feb. 23	4428	985	108	2078

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Palmer, Alfred T. (See Hoelscher, Adolph G., assignor.)						
Palmer, Benjamin C. (See Cowan and Palmer.)						
Palmer, Cassius C., New York, N. Y., assignor to Railway and Stationary Refrigerating Company. Safety-valve	752,099	Feb. 16	2466	551	108	1625
Palmer, Cornelius, Escanaba, Mich. Elevated storage-dock	751,000	Feb. 2	406	96	108	1147
Palmer, Guy D., Powell Valley, Oreg. Indicator for sawmill set-works	751,405	Feb. 2	1161	294	108	1304
Palmer, Isaac E., Middletown, Conn. Hammock	751,102	Feb. 2	587	136	108	1185
Palmer, John E., Somerville, Mass. Trolley-wheel	751,749	Feb. 9	1788	408	108	1455
Pannkoke, Wilhelm, Berlin, Germany. Apparatus for cutting glass	752,017	Feb. 9	2327	520 521	108	1574
Pape, Hermann G., Brooklyn, assignor of thirty one-hundredths to J. McVey, New York, N. Y. Audiphone-receiver	752,705	Feb. 23	3653	813	108	1905
Pape, Hermann G., Brooklyn, assignor of thirty one-hundredths to J. McVey, New York, N. Y. Audiphone-receiver	752,921	Feb. 23	4087	911	108	2002
Paraf-Javal, Mathias. (See Hesse and Paraf-Javal.)						
Pardridge, Albert J., Chicago, Ill. Lamp-reflector	752,583	Feb. 16	3389	756	108	1830
Parisien, George, and J. H. Gingras, assignors of one-third to O. Bousquet, Fall River, Mass. Fender	749,878	Jan. 19	2994	576	108	637
Parke, Davis & Company. (See Oostdyk, Anthony J., assignor.)						
Parke, Peter. (See Stimson and Parke.)						
Parker, Arthur M., Los Angeles, Cal. Combined knife-sharpener and can-opener	751,001	Feb. 2	407	96	108	1147
Parker, Frank A., *et al.* (See Brown, William E., assignor.)						
Parker, George L., Bremerton, assignor of one-half to C. H. Gaffner, Seattle, Wash. Weather-strip	752,355	Feb. 16	2960	659	108	1736
Parker, Henry S. (See Matthews, James F., assignor.)						
Parker, Howard, Bellows Falls, Vt., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H. Paper-making machinery	748,645	Jan. 5	180	43, 44	108	40
Parker, Howard, Nashua, N. H., assignor to Improved Paper Machinery Company, Castine, Me., and Nashua, N. H. Rolls for paper-making or like machinery	750,887	Feb. 2	408	47	108	1108
Parker, James C., Woolston, Kans. Harvester	748,792	Jan. 5	420	96	108	94
Parker, James C., Woolston, Kans. Sheaf-tie	748,793	Jan. 5	422	96	108	94
Parker, John, assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Gear-cutting machine	750,485	Jan. 26	3893	832	108	903
Parker, Lyman B., Chickasha, Ind. Ter. Composite condiment-holder	750,688	Jan. 26	4215	914	108	981
Parker Match Company. (See Parker, William H., assignor.)						
Parker, Nora, Oxford, Mich. Corset-stay	752,397	Feb. 16	2850	632	108	1712
Parker, William H., Passaic, N. J., assignor to Parker Match Company. Apparatus for preparing match-stock	749,218	Jan. 12	1374	294	108	336
Parker, William H., Passaic, assignor to Parker Match Company, Jersey City, N. J. Machine for preparing match-stock	752,706	Feb. 23	3650	814	108	1906
Parkes, Howard, New York, N. Y. Belt holder or attaching device	750,484	Jan. 26	3892	832	108	903
Parkin, George E. B., assignor to A. D. Fisher, Toronto, Canada. Screw-driver	748,879	Jan. 5	618	139	108	138
Parks, William M. (See Pitts, Edward L., assignor.)						
Parnell, John J. (See Wertz and Parnell.)						
Paroubek, Anton J., Jersey City, N. J. Pencil-case	752,857	Feb. 23	3668	893	108	1907
Parpart, Otto, assignor to Standard Tool Company, Cleveland, Ohio. Drill-grinding machine	751,198	Feb. 2	771	176	108	1222
Parsells, William C., Ellenville, N. Y. Amusement device	753,068	Feb. 23	4430	985	108	2079
Parshall, William B., Philadelphia, Pa. Towel-holder	751,406	Feb. 2	1162	265	108	1304
Parsons, Leo S., *et al.* (See Warner, Isaac M., assignor.)						
Passburg, Emil, Berlin, Germany. Drying sugar-loaves	749,627	Jan. 12	2185	450	108	510
Patent Development Company of America. (See Camfield, William H., assignor.)						
Paterson, Alexander, Wilkinsburg, Pa. Manufacture of sheet metal	752,411	Feb. 16	3075	682	108	1759
Paton, James W., Southport, and H. G. Taylor, Egremont, England. Machine for beading sheet-metal wares	748,982	Jan. 5	844	180	108	195
Patrick, Sheldon E., Bridesburg, assignor to Quaker City Folding Box Company, Philadelphia, Pa. Hat-box	752,584	Feb. 16	3390	756	108	1830
Patterson, George Y. (See Perkins and Patterson.)						
Patterson, Henry S., Ravenna, Ohio, and H. S. Patterson, Scenery Hill, Pa. Hose-coupling	749,496	Jan. 12	1964	408	108	460
Patterson, Herbert S. (See Patterson, Henry S. and H. S.)						
Patterson, Richard. (See Danley, James S., assignor.)						
Patterson, Robert A., Boonville, Ark. Planter attachment	751,988	Feb. 9	2161	488	108	1538
Patterson, Rufus L., *et al.* (See Tyberg and Prescott, assignors.)						
Patterson, William J., Pittsburg, Pa. Conveyer	749,803	Jan. 19	2960	543 544	108	607
Patton, George B., Williamstown, W. Va. Well-drill jar	751,199	Feb. 2	774	176 177	108	1222
Patton, George J., Nokeville, Va. Boot or shoe ventilator	752,254	Feb. 16	2765	613	108	1694
Paul, A. R., *et al.* (See Marsden, John A., assignor.)						
Paul, Edward N., Philadelphia, Pa. Egg-crate	753,009	Feb. 23	4432	986	108	2079
Paul, Rockingham, *et al.* (See Smith, John N., assignor.)						
Paul, William L., assignor to David Bradley Manufacturing Company, Bradley, Ill. Corn-planter	751,548	Feb. 9	1406	321	108	1377
Paul, William M., New York, N. Y. Automobile-brake	748,646	Jan. 5	182	44	108	41
Paulson, C. A., *et al.* (See Helgerson, Thomas O., assignor.)						
Paulson, Chris E., Boyd, Minn. Hay rake and cocker	752,585	Feb. 16	3391	756 757	108	1830
Paulson, Swan, Chicago, Ill. Piano-action	753,100	Feb. 23	4433	986	108	2079
Pawel, Franz, Hanover, Germany. Peripheral structure for wheels	748,880	Jan. 5	620	139	108	139
Paxton, Jesse W., Washington, Pa. Making glass with wire embedded therein	753,101	Feb. 23	4436	986	108	2080
Payne, Carl S., assignor of one-fourth to L. J. Larue, San Francisco, and E. R. Rice, Sausalito, Cal. Draft connection for railway-cars	749,447	Jan. 12	1859	387	108	437
Payne, John A., Jersey City, N. J. Glazed structure	750,389	Jan. 26	3652	794	108	864
Peabody, Agnes V. (See Tribble, Joseph F., assignor.)						
Peachey, John D., East Orange, N. J. Telephonic call instrument	751,108	Feb. 2	587	136	108	1186
Peacock, George J., assignor of one-fourth to C. Bonini, Pittsburg, Pa. Electric heater	749,628	Jan. 12	2187	460	108	510
Peacock, Thomas L., Union Star, Mo. Attachment for feed-troughs	748,647	Jan. 5	188	44	108	41
Pearne, Frank D., assignor to Pearne, Krum & Company, Chicago, Ill. Plug for telephone-switchboards	750,669	Jan. 26	4216	914	108	981
Pearne, Krum & Company. (See Pearne, Frank D., assignor.)						
Pearson, Fred, Philadelphia, Pa. Double-pile fabric	749,219	Jan. 12	1376	294	108	337
Pearson, William H., New Brunswick, N. J. Safety-can	748,784	Jan. 5	422	97	108	95
Peart, Alpheus A., Deloraine, Tasmania, Australia. Lubricator for vehicle-axles	748,881	Jan. 5	621	139	108	139
Peate, Alfred M., Baltimore, Md. Umbrella-notch	752,178	Feb. 16	2604	578	108	1655
Peck Bros. & Co. (See Newton, William G., assignor.)						
Peck, John S., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. System of electrical distribution	751,549	Feb. 9	1411	322	108	1378

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Peck, Staunton B., assignor to Link Belt Machinery Company, Chicago, Ill.. Coal-chute device	753,102	Feb. 23	4437	987	108	2080
Peck-Williamson Heating & Ventilating Company. (See Gregg, William H., assignor.)						
Peddle, John T., assignor to E. B. Ibbotson and W. Peddle, Montreal, Canada. Rifle-sight	751,200	Feb. 2	775	177	108	1223
Peddle, William, *et al.* (See Peddle, John T., assignor.)						
Pedersen, Peder O., Copenhagen, Denmark. Electromagnetic switch device for apparatus for magnetically recording and strengthening the reproduction of speech, &c	752,858	Feb. 23	3940	884	108	1967
Peerless Electric Company *et al.* (See McCurdy, Charles B., assignor.)						
Peerless Motor Car Company. (See Mooers, Louis P., assignor.)						
Peirce, Ernest F., assignor to Beaver Dam Malleable Iron Company, Beaverdam, Wis. Railway-tie plate	751,201	Feb. 2	777	177	108	1223
Pelmulder, Charles, Grant City, Iowa. Gate-hinge	753,103	Feb. 23	4438	987	108	2080
Pelmulder, Charles, Grant City, Iowa. Ventilator attachment for stoves	753,104	Feb. 23	4439	987	108	2080
Pelouze, William N., Chicago, Ill. Single-piece sheet-metal scale-case and blank therefor	749,497	Jan. 12	1965	408	108	460
Pelouze, William N., Chicago, Ill. Weighing-scale	749,498	Jan. 12	1966	408	108	460
Pelstring, George J., Cincinnati, Ohio. Starting device for explosive-engines	752,412	Feb. 16	3077	682	108	1760
Pelstring, George J., Cincinnati, Ohio, and H. G. Pelstring, Covington, Ky. Speed-regulator for generators	751,993	Feb. 9	2291	512	108	1566
Pelstring, Henry G. (See Pelstring, George J. and H. G.)						
Pement, Joseph A., Chicago, Ill. Boiler-brace	752,466	Feb. 16	3170	706	108	1780
Pendergast, Thomas, assignor of fifty-one one-hundredths to J. Hertzler, Lancaster, Pa. Record-retainer for liquid-packages	750,390	Jan. 26	3654	794	108	864
Penfold, Edwin W., Battlecreek, Mich. Steam-actuated valve	750,486	Jan. 26	3895	833	108	903
Penney, Herbert E., assignor to W. S. Nott Company, Minneapolis, Minn. Steam-generator	751,002	Feb. 2	408	96, 97	108	1148
Penney, Herbert E., assignor to W. S. Nott Company, Minneapolis, Minn. Steam-generator	752,859	Feb. 23	3942	884	108	1968
Pennington, John L., Fort Worth, Tex. Vestibule stock-car	752,707	Feb. 23	3657	814 815	108	1906
Pennington, Richard E., and J. Bellett, Melbourne, Victoria, Australia. Nut-lock	751,550	Feb. 9	1414	322	108	1378
Pennsylvania Globe Gas Light Company. (See Prendergast, Slinack, and Wilson, assignors.)						
Pergoli, Eduardo, *et al.* (See Galetti, Joseph T., assignor.)						
Pering, Charlie K. (See Filler, Francis M., assignor.)						
Perkins, Charles G., Hartford, Conn. Indicating-dial for snap electric switches	749,949	Jan. 19	2838	606	108	668
Perkins, Charles G., Hartford, Conn. Indicating means for snap electric switches	751,750	Feb. 9	1789	408	108	1456
Perkins, Franklin J., Woburn, Mass., assignor to Vaughn-Rood Machine Company, Portland, Me. Staking-machine	749,398	Jan. 12	1736	368	108	413
Perkins, Frederick M., Boston, Mass. Wood-carbonizer	749,091	Jan. 5	1091	230	108	251
Perkins, Martin V. H., New York, and G. Y. Patterson, Brooklyn, N. Y. Lifting-jack	751,336	Feb. 2	1048	238	108	1281
Perkins, Nathan W., Jr., St. Louis, Mo. Garment-fastener	749,321	Jan. 12	1581	334	108	380
Perlie, Rebecca A., Washington, D. C. Garment-supporter	751,904	Feb. 9	2293	513	108	1566
Perrin, James H., assignor of one-half to C. E. Bright, Columbus, Ohio. Press for molding building-blocks	752,298	Feb. 16	2851	632 633	108	1712
Perry, Charles L., Schenectady, N. Y., assignor to General Electric Company. Controller-casing	751,008	Feb. 2	410	97	108	1148
Perryman, Henry L., Springfield, Ohio. Buckle	749,879	Jan. 19	2695	576	108	637
Perryman, Henry L., Springfield, Ohio. Buckle	751,407	Feb. 2	1163	265	108	1305
Person, Axel, Attleboro, Mass., assignor to Watson & Newell Company. Clasp	750,487	Jan. 26	3897	833	108	904
Peters, Clay. (See Mosteller, Dozier H., assignor.)						
Peters, Robert D., Knox, Ind. Electrical operated and controlled railway-signal	750,117	Jan. 19	3153	678	108	784
Peters, Walter C., and W. Bellamy, Ely, England. Lock-nut	748,882	Jan. 5	622	140	108	139
Petersen, Hans, Minneapolis, Minn., assignor to Mergenthaler Linotype Company. Linotype-matrix	752,179	Feb. 16	2605	579	108	1655
Petersen, Peter N., Herman, Nebr. Four-horse equalizer	751,004	Feb. 2	412	97	108	1149
Peterson, Albert H., *et al.* (See Chapman, William S., assignor.)						
Peterson, Christian L. (See Rue, Edward, assignor.)						
Peterson, Walferd C., assignor of one-half to F. Skipton, Geneva, Nebr. Governor for feeders of threshing-machines	749,629	Jan. 12	2188	460 461	108	510
Petit, Ademor N., Waterloo, near Liverpool, England. Apparatus for duplicating sound-record cylinders of phonographs, &c	750,118	Jan. 19	3155	679	108	784
Petit, Ademor N., Waterloo, near Liverpool, England. Celluloid phonograph record-cylinder	750,119	Jan. 19	3159	679	108	785
Petit, Ademor N., Newark, N. J., assignor of one-half to F. M. Prescott, New York, N. Y. Double-faced sound-record	749,092	Jan. 5	1093	231	108	251
Petrie, William A., assignor of one-half to E. Brackett, Petoskey, Mich. Stovepipe-lock	750,120	Jan. 19	3161	679	108	785
Pett, Frederick A., Denver, Colo. Horse-collar	751,551	Feb. 9	1414	322	108	1378
Pettit, Jerry P., Neweagle Mills, Ky. Book-holder	751,408	Feb. 2	1166	265	108	1305
Petty, Otis O., Olney, Ill. Foot warmer or heater	750,060	Jan. 19	3055	655	108	713
Pfister, Theophil, London, England. Manufacturing cloissonné ware	751,104	Feb. 2	590	136	108	1186
Phegley, Elbert. (See Phegley, Louis W. and E.)						
Phegley, Louis W. and E., Marshall, Mo. Flood gate and fence	750,004	Jan. 19	2940	628	108	690
Philadelphia Amusement Company. (See Floyd, Byron B., assignor.)						
Philadelphia Pneumatic Tool Company. (See Keller, Julius, assignor.)						
Philbrick, Frank A. (See Clement, John, assignor.)						
Philippi, Theodore F., St. Louis, Mo. Self-waiting lunch-counter	751,681	Feb. 9	1651	375 376	108	1428
Phillus, Cornelius, Olean, N. Y. Rotary wheel for sharpening razors	750,301	Jan. 26	3493	755	108	827
Phillips, Alexander and J., Glasgow, Scotland. Coffee-urn	753,105	Feb. 23	4439	988	108	2081
Phillips, Benjamin. (See Winkley and Phillips.)						
Phillips, Elwood C., Chicago, Ill. Fuse for electric circuits	750,244	Jan. 19	3387	731	108	785
Phillips, John. (See Phillips, Alexander and J.)						
Phillips, John B., San Bernardino, Cal. Machine for grinding piston chambers and rings	750,087	Jan. 19	3005	644	108	708
Phillips, John H., Pottsville, Pa. Air-brake coupling	751,682	Feb. 9	1653	376	108	1428
Phillips, Martin T., Akron, Ohio. Sheet-music turner	750,391	Jan. 26	3655	794	108	864
Phillips, Warren B., Fort Wayne, Ind. Glove	753,000	Feb. 23	4248	940	108	2038
Philp, Casimir von, West Bethlehem, assignor to Bethlehem Steel Company, South Bethlehem, Pa. Rolling-mill	749,745	Jan. 19	2454	522	108	584
Philp, Frederick D., Buffalo, N. Y. Globe-valve	751,005	Feb. 2	412	98	108	1149
Phipps, William G., Stockton, Cal. Ore-grinder	749,630	Jan. 12	2192	461	108	511
Pickard, Greenleaf W., Amesbury, Mass., assignor to American Telephone and Telegraph Company. Alternating-current relay	749,399	Jan. 12	1738	368	108	414
Pickard, William S. (See Doersch, Henry C., assignor.)						
Pickett, William H., Shannopin, Pa. Device for delivering train-orders, messages, &c	749,093	Jan. 5	1095	231	108	252
Pierce, Charles H., Alma, Cal. Railway-velocipede	753,106	Feb. 23	4441	988	108	2081

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Pierce, Erastus E., and L. W. Newton, assignors to Standard Horse Nail Company, New Brighton, Pa. Machine for the manufacture of horseshoe-nails	752,255	Feb. 16	2766	613, 614	108	1604
Pierce, Richard H., *et al.* (See Moodie and Small, assignors.)						
Pierron, Leon. (See Raynaud and Pierron.)						
Pierson, Edward, Milan, Kans. Disk-sharpener	748,795	Jan. 5	425	97	108	95
Pietsch, Adolph, Milwaukee, Wis. Scouring-machine	748,796	Jan. 5	426	97	108	95
Piggott, Edmund, assignor to Piggott Manufacturing Company, Ltd., Detroit, Mich. Wheel-hoe	750,218	Jan. 19	3333	730	108	772
Piggott, Edmund, assignor to Piggott Manufacturing Company, Ltd., Detroit, Mich. Combined wheel and hand hoe	751,105	Feb. 2	502	136	108	1187
Piggott Manufacturing Company. (See Piggott, Edmund, assignor.)						
Pike, Boaz D., San Francisco, Cal. Explosive and making same	751,751	Feb. 9	1790	.....	108	1456
Pilling, Charles J., Lansdowne, Pa. Curette	752,356	Feb. 16	2061	659	108	1736
Pilliod, Eugene, Wynant, Ohio. Press	751,752	Feb. 9	1792	408, 409	108	1456
Pillmore, William F., and D. Anderegg, Westernville, N. Y. Pea-hulling machine	752,256	Feb. 16	2709	614	108	1605
Pinch, Pearse, Chicago, Ill. Fruit-picker	750,061	Jan. 19	3056	656	108	713
Pinchback, Thomas W., Gibsland, La. Umbrella	753,107	Feb. 23	4442	988	108	2081
Pine, Harry G., Oskaloosa, Iowa. Post-hole digger	750,888	Feb. 2	209	47	108	1104
Pine, James K. P., *et al.* (See Mesick, Charles W., assignor.)						
Pinkerton, Harry W., Randolph, Mass. Shoe-lacing	749,904	Jan. 19	2741	587	108	648
Ploch, Frank J., Creston, Iowa. Stove	748,648	Jan. 5	185	45	108	41
Piper, Oscar C., Horsens, Denmark. Meter for measuring water or other liquids	753,001	Feb. 23	4249	947	108	2038
Pippert, Willis, assignor to Continental Paper Bag Company, Rumford Falls, Me. Apparatus for feeding self-opening square paper bags	750,302	Jan. 26	3494	756	108	827
Pitcher, George E., *et al.* (See Dupuis and Fell, assignors.)						
Pitner, Henry B., East Aurora, N. Y. Upholstering device	750,699	Jan. 26	4218	914, 915	108	982
Pitney, Arthur H., Chicago, Ill. Mail-marking machine	753,207	Feb. 23	4425	1080, 1081	108	2122
Pitt, Rafford. (See Pitt, William R. and R.)						
Pitt, Walter H. (See Sittmann and Pitt.)						
Pitt, William R. and R., New Rochelle, N. Y. Door, gate, &c	752,413	Feb. 16	3079	683, 684	108	1760
Pittler, Wilhelm von, Leipzig-Gohlis, Germany. Rotary engine	750,219	Jan. 19	3334	720, 721	108	772
Pitts, Edward L., assignor of one-half to W. M. Parks, Jerome, Ariz. Ter. Pomade-can	752,586	Feb. 16	3394	737	108	1831
Pitts, Edward L., assignor of one-half to W. M. Parks, Jerome, Ariz. Ter. Collar or cuff holder	752,587	Feb. 16	3395	737	108	1831
Pittsburgh Crushed Steel Company. (See Flexner, Isidor, assignor.)						
Piva, Celestino, *et al.* (See Galetti, Joseph T., assignor.)						
Pixley, Charles H., Chicago, Ill. Eyeglasses	750,302	Jan. 26	3057	706	108	865
Place, Bion C., Hartwell, Ohio. Lazy-back for vehicle-seats	749,804	Jan. 19	2562	544	108	607
Place, Bion C., Hartwell, Ohio. Lazy-back attachment for vehicle-seats	749,805	Jan. 19	2563	544	108	607
Plano Manufacturing Company. (See Dennis, Samuel K., assignor.)						
Plantinga, Pierre, Cleveland, Ohio. Means for controlling the flow of gases	752,299	Feb. 16	2853	633, 634	108	1712
Plumley, Gardner L., New York, N. Y. Apparatus for developing photographic plates	751,552	Feb. 9	1415	322	108	1378
Plumley, Gardner L., New York, N. Y. Photographic developing apparatus	751,553	Feb. 9	1418	323	108	1379
Plummer, Alvin H., and M. Hess, assignors to Newcastle Paper Box and Manufacturing Company, Newcastle, Ind. Paper box	751,806	Feb. 9	1901	431	108	1482
Pneumatic Scale Corporation. (See Doble, William H., assignor.)						
Poalk, James L., Philadelphia, Pa. Loom	752,922	Feb. 23	4090	911, 912	108	2008
Poalk, James L., Merchantville, assignor to New Century Hook and Eyelet Company, Camden, N. J. Lacing stud or eyelet	750,901	Jan. 26	4221	916	108	982
Poe, Henry H., Morven, Ga. Bridle	751,006	Feb. 2	414	98	108	1149
Poenitz, Robert F., Indianapolis, Ind. Portable fastener for doors	750,692	Jan. 26	4222	916	108	982
Poetter, Heinrich, Dortmund, Germany. Explosive	751,807	Feb. 9	1902	.....	108	1482
Pohl, Emilie, Baltimore, Md. Corset	749,400	Jan. 12	1742	308, 309	108	415
Polič, Carl, and J. Möllinger, Budapest, Austria-Hungary. Steam-engine	752,860	Feb. 23	3944	885	108	1968
Poling, William S. (See Short and Poling.)						
Pollard, Charles E., assignor to E. W. Bliss Company, Brooklyn, N. Y. Clutch for power-presses	752,100	Feb. 16	2467	551	108	1625
Pollock, Robert C., Kings Bridge, N. Y. Device for automatically preventing escape of air from train-pipe couplings	749,746	Jan. 19	2456	523	108	585
Pomeroy, Bennard H., St. Louis, Mo., assignor to W. E. Johnston, East St. Louis, Ill. Vapor-engine	750,488	Jan. 26	3838	833, 834	108	904
Pomeroy, Bennard H., St. Louis, Mo., assignor to W. E. Johnston, East St. Louis, Ill. Petroleum-engine	750,489	Jan. 26	3839	834	108	904
Pond, Edmund M., Rutland, Vt. Medicated tampon	749,230	Jan. 12	1578	294	108	337
Pond, Orlando M., Independence, Iowa. Rocker attachment for baby-carriages	751,409	Feb. 2	1168	266	108	1305
Poole Brothers. (See Colas, Jules A., assignor.)						
Pope, Charles L., Ely, Nev. Railway-rail joint	750,490	Jan. 26	3840	834	108	905
Pope, Frederick B., Augusta, Ga., assignor of one-half to M. Swenson, Chicago, Ill., and L. L. Fleming, New York, N. Y. Treating oils	749,822	Jan. 12	1582	334, 335	108	380
Pope, Harry M., Hartford, Conn., assignor, by mesne assignments, to Morton Trust Company, trustee. Motor-vehicle	750,062	Jan. 19	3058	656	108	713
Pope Manufacturing Company. (See Haag, Paul, assignor.)						
Pope, William C., St. Louis, Mo. Effervescent ink-tablet	751,554	Feb. 9	1422	.....	108	1380
Poppenhusen, Herman A., Evanston, Ill. Furnace-grate	753,108	Feb. 23	4443	988, 989	108	2081
Poppenhusen, Herman A., Chicago, Ill. Toy	753,109	Feb. 23	4447	989	108	2082
Porteous, Hugh A., Hemet, Cal. Lid or covering for fruit-jars and analogous vessels	751,410	Feb. 2	1169	266	108	1306
Porter, Albert L., assignor of one-half to C. A. Roberts, Leonard, N. D. Attachment for bicycles	750,393	Jan. 26	3059	705	108	865
Porter, Charles M., Philadelphia, Pa. Lens-fastening for spectacles or eyeglasses	751,939	Feb. 9	2163	488	108	1539
Porter, Henry K., Chelsea, Mass. Bolt-clipper	751,302	Feb. 2	779	178	108	1223
Porter, Samuel P. (See Livingstone, William, assignor.)						
Porter, William E., Sandfork, W. Va. Screen	749,578	Jan. 12	2104	438	108	493
Post, Claude L., Chicago, Ill. Multicolor-printing press	751,337	Feb. 2	1051	238	108	1281
Post, Henry W., New York, N. Y. Drawers-supporter	751,338	Feb. 2	1052	239	108	1281
Potter, Frank W., *et al.* (See Johnson, William H., assignor.)						
Potter, Henry N., New Rochelle, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Ballast device for vapor-lamps	750,554	Jan. 26	3986	861, 862	108	981

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Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Potter, Henry N., New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company. System of lighting by gas or vapor electric lamps	751,411	Feb. 2	1171	266	108	1306
Potter, Henry N., New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company. System of lighting by gas or vapor electric lamps	751,412	Feb. 2	1173	267	108	1306
Potter, Henry N., New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company. System of lighting by gas or vapor electric lamps	751,413	Feb. 2	1174	267	108	1307
Potter, Henry N., New Rochelle, N. Y., assignor to Cooper Hewitt Electric Company. System of lighting by gas or vapor electric lamps	751,414	Feb. 2	1175	267	108	1307
Potter, Henry N., Pittsburg, Pa., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Gas or vapor electric lamp	750,889	Feb. 2	210	47	108	1104
Potter, James C., and J. Johnston, assignors to Potter and Johnston Machine Company, Pawtucket, R. I. Metal-working machine	752,257	Feb. 16	2772	615	108	1695
Potter and Johnston Machine Company. (See Potter and Johnston, assignors.)						
Potter, Morgan, Fishkill-on-the-Hudson, N. Y., assignor to Morgan Potter Company. Brake-block shoe	749,701	Jan. 12	2338	494	108	542
Poulson, Niels, Brooklyn, N. Y. Fireproof structure	753,208	Feb. 23	4639	1032	108	2125
Poulson, Niels, New York, N. Y. Fireproof structure	753,209	Feb. 23	4640	1032	108	2125
Poulson, Niels, New York, N. Y. Fireproof door	753,210	Feb. 23	4641	1032	108	2125
Powell, George F. C., Titusville, Pa. Rail-joint	750,693	Jan. 26	4223	916	108	983
Powell, William, Normanton, England. Free-wheel and brake attachment for cycles	749,959	Jan. 19	2839	606	108	668
Powell, William P., Grand Rapids, Mich. Curtain-hanging	749,499	Jan. 12	1968	409	108	461
Power, Michael, Toronto, Canada. Convertible car	749,579	Jan. 12	2106	439	108	493
Power, Michael, assignor of one-fifth to R. G. Dickson, Toronto, Canada. Vestibule for cars	752,861	Feb. 23	3945	885	108	1968
Powers, Edmund B., Brooklyn, N. Y., assignor to Railway Cab Signal & Equipment Company, Portland, Me. Safety device for railway service	748,649	Jan. 5	187	45	108	42
Powers, Edmund B., New York, N. Y., assignor to Railway Cab Signal & Equipment Company, Portland, Me. Safety device for railway service	750,781	Jan. 26	4443	958	108	1034
Powers, Edmund B., assignor of one-half to J. J. Hayes, New York, N. Y. Safety device for railway service	752,101	Feb. 16	3469	551	108	1625
Powers, Richard J. (See Saffell, Frederick, assignor.)						
Powter, Nathaniel B., deceased, Brooklyn, N. Y.; E. H. Fallows, executor. Making phosphoric acid	751,753	Feb. 9	1793	409	108	1456
Prade, Julien, Waco, Tex. Ice-cream freezer	750,121	Jan. 19	3162	680	108	735
Praschl, Stephan, assignor to L. Sands, Cleveland, Ohio. Coin-controlled mechanism	752,629	Feb. 16	3505	780	108	1854
Prather, Samuel E., *et al.* (See Weaver, Ira A., assignor.)						
Pratt & Cady Company. (See Corey, William W., assignor.)						
Pratt, Le Gage, East Orange, N. J. Combination letter-clip and blotter	749,221	Jan. 12	1379	294	108	337
Pratt, Tom, Shipley, England. Apparatus for mercerizing	750,694	Jan. 26	4224	917	108	983
Pratt & Whitney Company. (See Hanson, Bengt M. W., assignor.)						
Pratt, William H., and A. J. R. Flego, Lynn, Mass., assignors to General Electric Company. Telltale-register	751,007	Feb. 2	417	98, 99	108	1150
Pratz, William A., Marshall, Tex. Protecting-plate for window-sills	751,008	Feb. 2	419	99	108	1150
Pray, Delia. (See Cook, Everett, assignor.)						
Prendergast, Daniel J., New York, N. Y., V. H. Slinack and T. Wilson, assignors to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Street-light	750,555	Jan. 26	3988	862	108	982
Prentice, Ernest, *et al.* (See Ellison, Oliver E., assignor.)						
Prentice, John F., New York, N. Y. Case	750,122	Jan. 19	3164	680	108	736
Prentiss, Gilbert N., *et al.* (See Shupe, Eli, assignor.)						
Prescott, F. M. (See Petit, Ademor N., assignor.)						
Prescott, Frederick M., Milwaukee, assignor to Fred. M. Prescott Steam Pump Company, West Allis, Wis. Multiple-expansion engine	751,995	Feb. 9	2294	513	108	1567
Prescott, Frederick M., Milwaukee, assignor to Fred. M. Prescott Steam Pump Company, West Allis, Wis. Multiple-expansion engine	751,996	Feb. 9	2295	513	108	1567
Prescott, Frederick M., Milwaukee, assignor to Fred. M. Prescott Steam Pump Company, West Allis, Wis. Multiple-expansion engine	751,997	Feb. 9	2296	513	108	1567
Prescott, James E., Passaic, N. J. Filling-machine	751,555	Feb. 9	1423	323, 324	108	1380
Prescott, Sydney I. (See Tyberg and Prescott.)						
Presnell, James F., Chicago, Ill. Wick-trimmer	751,339	Feb. 2	1054	239	108	1282
Pressed Metal Manufacturing Company. (See Zamboni, Lawrence, assignor.)						
Pressed Prism Plate Glass Company. (See Wadsworth, Frank L. O., assignor.)						
Pressed Steel Car Company. (See Hansen, John M., assignor.)						
Pressed Steel Car Company. (See Lindström and Streib, assignors.)						
Pressed Steel Car Company. (See Stucki, Arnold, assignor.)						
Prested, Henry G., Camden Town, England. Miner's electric lamp	749,500	Jan. 12	1970	409	108	461
Pretzman, Charles J., *et al.* (See Brindle, Philip S., assignor.)						
Price, Andrew J., Dobson, Miss. Rubber-dam holder	750,695	Jan. 26	4227	917	108	983
Price, Charles W., Spirit Lake, Iowa. Skate-sharpener	750,696	Jan. 26	4228	917	108	983
Price, Edgar F., assignor to Union Carbide Company, Niagara Falls, N. Y. Electrically heating articles	752,357	Feb. 16	2963	659	108	1736
Price, Edgar F., assignor to Union Carbide Company, Niagara Falls, N. Y. Heating articles by electricity	752,358	Feb. 16	2965	660	108	1737
Price, Raymond B., Chicago, Ill. Covered elastic cord	752,414	Feb. 16	3083	684	108	1761
Price, Raymond B., Chicago, Ill. Apparatus for mounting tires	752,415	Feb. 16	3084	684	108	1761
Price, Raymond B., Chicago, Ill. Rubber vehicle-tire	752,416	Feb. 16	3086	685	108	1761
Price, Raymond B., Chicago, Ill. Rubber vehicle-tire	752,417	Feb. 16	3089	685	108	1762
Price, William G., Kingston, N. Y., assignor to J. A. Brill, Philadelphia, Pa. Truck	752,799	Feb. 23	3822	858	108	1942
Price, William W., Poughkeepsie, N. Y. Crate for bottles	752,708	Feb. 23	3659	815	108	1906
Priem, Paul, assignor to J. M. Voith Maschinen-Fabrik, Heidenheim-on-the-Brenz, Württemberg, Germany. Machine for making pasteboard	748,983	Jan. 5	846	181	108	196
Pries, Herman. (See Williamson and Pries.)						
Priest, Frank L., Dallas, Tex. Pessary	748,650	Jan. 5	190	45	108	42
Priest, William. (See Lloyd, Walter J., assignor.)						
Priestley, Frank W., J. Kephart, and F. M. Merchant, assignors to Iowa Gas Plant Company, Webster City, Iowa. Automatic gas-regulator	753,110	Feb. 23	4450	989	108	2083
Priestman, Albert, Philadelphia, Pa. Apparatus for automatically controlling the flow of liquids	749,825	Jan. 19	2599	555	108	616
Prieto, Manuel, Mexico, Mexico. Machine for cleaning fibers	752,258	Feb. 16	2774	615, 616	108	1695
Prindle, Frank P., Stamford, Conn. Nipple-shield	751,415	Feb. 2	1177	268	108	1307
Proskauer, Jenny, St. Louis, Mo. Kitchen-fork	750,697	Jan. 26	4229	918	108	984
Proskey, Winfield S., Ocala, Fla. Hydrocarbon-vapor burner	752,102	Feb. 16	2472	551, 552	108	1626
Pross, John A. (See Casler and Pross.)						
Prouty, Burt. (See Nagle and Prouty.)						
Prouty, Enoch, Chicago, Ill. Fuel-feed device for gasolene or vapor engines	748,868	Jan. 5	623	140	108	139

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Prouty, Theodore C., Albion, Mich. Adjustable sliding-door support	748,787	Jan. 5	428	98	108	96
Pryibil, Estate of F. (See Dette, Max H., assignor.)						
Publishers: George Knapp and Co., *et al.* (See Dawes, Charles A., assignor.)						
Pugsley, Thomas P., *et al.* (See Bryar, George, assignor.)						
Pullen, Leon W., assignor to Wireless Railway Company, Philadelphia, Pa. Electric railway	749,401	Jan. 12	1743	309	108	415
Pullman, Herbert S., Meriden, assignor, by mesne assignments, to Hurwood Manufacturing Company, Plantsville, Conn. Screw-driver	753,211	Feb. 23	4643	1033	108	2125
Pullman, Irving W., Bristol, Vt. Fluid-strainer	749,880	Jan. 19	2097	576	108	638
Pun Vending Company. (See Hoag, Hermon V., Jr., assignor.)						
Purdy, Corydon T., Upper Montclair, and J. S. Lane, Jersey City, N. J. Attachment for uniting metal bars and beams	749,222	Jan. 12	1380	295	108	337
Purdy, John H., New London, Ohio. Telegraph-pole	752,259	Feb. 16	2776	616	108	1696
Puterbaugh, Harry S., and W. H. Kressler, East Stroudsburg, Pa. Handle attachment for demijohns, &c	751,009	Feb. 2	421	100	108	1150
Putnam, Israel C. (See Berry and Putnam.)						
Pyle, Abner W., Hopkinsville, Ky. Bedclothing and mattress clamp	751,010	Feb. 2	422	100	108	1151
Quaker City Folding Box Company. (See Patrick, Sheldon E., assignor.)						
Quaker City Wallpaper Company. (See McCartney, Louis H., assignor.)						
Quaker Manufacturing Company. (See Hunt, Thomas E., assignor.)						
Quaker Shade Roller Company. (See Flagler, Claude, assignor.)						
Quarngeser, Henry, Baltimore, Md. Coat	751,940	Feb. 9	2165	489	108	1540
Quenard, Emile, assignor to La Société Quenard Frères et Fils, Paris, France. Paper-bag machine	749,631	Jan. 12	2194	461, 462, 463, 464, 465	108	511
Quertier, Hilary, Dunedin, New Zealand. Machine for excavating, raising, screening, and filling gravel ballast or the like	750,005	Jan. 19	2943	629, 630	108	691
Quertier, Hilary, Dunedin, New Zealand. Machine for excavating, raising, screening, and filling gravel ballast, &c	752,709	Feb. 23	3660	815, 816	108	1907
Quick, Byron J., and W. H. Smith, Jr., Ithaca, Mich.; said Quick assignor to said Smith. Door-latch	749,094	Jan. 5	1097	231	108	252
Quick, Hiram M. (See King and Quick.)						
R. Neumann Hardware Company. (See Clark, James P., assignor.)						
Raasloff, Harald de, New York, N. Y. Centrifugal machine	750,098	Jan. 26	4230	918	108	984
Rabe, Johannes F., Kiel, Germany. Cooking apparatus	749,223	Jan. 12	1382	295	108	338
Radcliffe, William G., Petersburg, Va. Churn	751,208	Feb. 2	780	178	108	1224
Ragatz, Benjamin J., St. Joseph, Mich. Handle for baskets	750,699	Jan. 26	4232	918	108	984
Raht, William L., Salt Lake City, Utah. Ore-sampling machine	751,340	Feb. 2	1054	239	108	1282
Railway Cab Signal & Equipment Company. (See Powers, Edmund B., assignor.)						
Railway and Stationary Refrigerating Company. (See Palmer, Cassius C., assignor.)						
Ramme, Henry, Flushing, N. Y. Game apparatus	748,788	Jan. 5	429	98	108	96
Ramsey, Lewis F., Kansas City, Mo. Rope-tie	750,782	Jan. 26	4447	958	108	1035
Rand Drill Company. (See Ambrose, Robert L., assignor.)						
Rand, Harry W. (See Youmans and Rand.)						
Rand, James H., North Tonawanda, N. Y. Account-book	748,789	Jan. 5	430	98	108	96
Randall, George M., *et al.* (See Wackerow, George L., assignor.)						
Randall, Philip G., Boston, Mass. Telephone-transmitter	749,448	Jan. 12	1361	387	108	437
Randolph, Leonard M., Newark, N. J. Compound applicable for insulating material or other purposes	749,224	Jan. 12	1383	.....	108	338
Randolph, William J., Jr., Newton, Iowa. Coupling for threshing-machines, &c	752,309	Feb. 16	2855	634	108	1713
Rapke, Victor H., New York, N. Y., assignor to Tea Tray Company, Newark, N. J. Horn-support	751,204	Feb. 2	781	178, 179	108	1224
Rapson, Charles R., Badaxe, Mich. Hame-tug and trace connector	751,011	Feb. 2	424	101	108	1151
Rarig, Alexander K., Columbus, Ohio. Valve for blowing-engines	753,159	Feb. 23	4535	1011	108	2101
Rasck, George P., assignor of one-third to M. J. Olsen, Des Moines, Iowa. Windmill	749,095	Jan. 5	1098	232	108	252
Rasmussen, Halvor, *et al.* (See Stone, John V., assignor.)						
Ratcliff, Walter J., Lansford, Pa. Wrench	751,416	Feb. 2	1178	268	108	1307
Rateau, Auguste C. E., Paris, France. Vapor-generator	751,998	Feb. 9	2296	514	108	1508
Rausch, Wilhelm, New York, N. Y. Clock	753,212	Feb. 23	4643	1033, 1034	108	2125
Rauscher, Edward P., Columbus, Ohio. Mining-machine	752,180	Feb. 16	2606	579	108	1655
Raymond, Harry K., assignor to B. F. Goodrich Company, Akron, Ohio. Vulcanizer for repairing tires	751,536	Feb. 9	1427	324	108	1361
Raymond, Hoyt, Chicago, Ill. Flue-ventilator	751,341	Feb. 2	1055	240	108	1282
Raymond, James R., Bayonne, N. J. Boat-detaching apparatus	751,205	Feb. 2	783	179	108	1224
Raynaud, Emile, Spy, and L. Pierron, Jette St. Pierre, Belgium. Making sulfuric anhydrid	751,941	Feb. 9	2166	489	108	1540
Rea, Edmund K., Ovid, Mo. Nose-ring for animals	750,123	Jan. 19	3166	680	108	736
Read, Charles. (See Knuth and Read.)						
Read, Robert H., Schenectady, N. Y., assignor to General Electric Company. Fuse-box	751,012	Feb. 2	425	101	108	1151
Read, Robert H., Schenectady, N. Y., assignor to General Electric Company. Signal device for search-light projectors	751,013	Feb. 2	427	101	108	1151
Recht, Frederick, Brooklyn, assignor to Rex Cap & Cork Company, New York, N. Y. Producing bottle-closures	750,124	Jan. 19	3167	680, 681	108	737
Recht, Frederick, assignor to Rex Cap & Cork Company, New York, N.Y. Bottle-closure	750,220	Jan. 19	3336	721	108	772
Reckefus, Charles H., Port Deposit, Md. Horseshoe ice-creeper	753,160	Feb. 23	4538	1011	108	2102
Recklinghausen, Max von, New York, N. Y., assignor, by mesne assignments, to Cooper Hewitt Electric Company. Gas or vapor lamp and apparatus connected therewith	750,890	Feb. 2	211	48	108	1104
Recklinghausen, Max von, New York, N. Y., assignor to Cooper Hewitt Electric Company. Gas or vapor electric apparatus	750,891	Feb. 2	214	48	108	1105
Recklinghausen, Max von, New York, N. Y., assignor to Cooper Hewitt Electric Company. Gas or vapor electric apparatus	750,892	Feb. 2	215	48	108	1105
Redd, D. P., *et al.* (See Farmer, Julius M., assignor.)						
Redding, Michael J., Baltimore, Md. Display-rack	750,063	Jan. 19	3060	657	108	714
Redin, Andrew W., Kenosha, Wis. Knitted fabric	752,892	Feb. 23	3946	885	108	1909
Redmon, Hope, R. L. Hall, and R. H. Conway, Cynthiana, Ky. Telephone system	749,225	Jan. 12	1385	296	108	338
Redmon, Hope, R. L. Hall, and R. H. Conway, Cynthiana, Ky. Means for synchronizing the instruments of telephone systems	752,710	Feb. 23	3664	816	108	1907
Reece Buttonhole Machine Company. (See Dahl, Charles A., assignor.)						
Reed, Charles E., Sunnyside, Wash., assignor of one-half to G. W. Holloway, Brawley, Cal. Land-scraper	751,106	Feb. 2	593	137	108	1187
Reed, Hiram E., Erie, Pa. Vise	752,360	Feb. 16	2778	616	108	1696
Reed, Jesse W., Detroit, Mich. Curtain-stretcher	749,702	Jan. 12	2340	494	108	542
Reed, John J., Labelle, Mo. Syrup	752,359	Feb. 16	2967	.....	108	1738

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Reel, John, French Camp, assignor of one-half to T. E. Barron, Sturgis, and J. W. Barron, Aberdeen, Miss. Plow	751,688	Feb. 9	1657	376	108	1429
Rees, William H., Worcester, Mass. Automatic playing attachment for musical instruments	751,755	Feb. 9	1795	409	108	1457
Rees, William H., Boston, Mass. Automatic musical instrument	751,808	Feb. 9	1908	431, 432	108	1482
Reese, Daniel S., Mahanoy City, Pa. Puzzle	751,754	Feb. 9	1794	409	108	1457
Reeser, J. W. (See Cadle, Wilbert W., assignor.)						
Reeve, Frank L., assignor of one-half to J. A. Schlehr and J. Hurley, Frazee, Minn. Grain-separator	751,417	Feb. 2	1179	268	108	1308
Reeves, Clifton, Trenton, N. J. Shiftable shaft-bearing	751,557	Feb. 9	1430	324	108	1382
Rehfuss, John G. and M. O., Philadelphia, Pa., assignors to Bureau Can and Manufacturing Company of Delaware. Apparatus for transferring tops and bottoms of cans	751,206	Feb. 2	786	179, 180	108	1225
Rehfuss, Martin O. (See Rehfuss, John G. and M. O.)						
Reichardt, Henry C., Pottsville, Pa. Fish-catcher	748,884	Jan. 5	625	140	108	140
Reid, Philip S. (See De Zeng and Reid.)						
Reid, Robert S., Timaru, New Zealand. Sash-fastener	751,809	Feb. 9	1906	432	108	1483
Reilly, Emmet T., Evansville, Wis. Box-fastener	750,700	Jan. 26	4234	919	108	985
Reilly, William J., Cleveland, Ohio. Separator	752,418	Feb. 16	3091	685, 686	108	1763
Reimann, Adolph H., Detroit, Mich. Twist-drill grinder	748,651	Jan. 5	192	46	108	42
Reimann, Albert, Waldenburg, Germany. Safety arrangement for bicycle-lanterns	750,556	Jan. 26	3990	862	108	932
Rein, Carl, Hanover-List, Germany. Rotary pump, blower, &c	751,014	Feb. 2	428	101	108	1152
Reinert, Ressa C. W., Keota, Iowa. Bed	752,103	Feb. 16	2473	552	108	1626
Reinfeld, Mayer, St. Louis, Mo. Non-refillable bottle	748,885	Jan. 5	626	140	108	140
Reinhardt, James H., East Orange, N. J., assignor to Reinhardt Press and Paper Company. Printing-machine	748,886	Jan. 5	627	141	108	141
Reinhardt Press and Paper Company. (See Reinhardt, James H., assignor.)						
Reinhold, Frank J., assignor to L. Reinhold, Detroit, Mich. Ice-shaving machine	753,161	Feb. 23	4539	1012	108	2102
Reinhold, Lina. (See Reinhold, Frank J., assignor.)						
Reis, Morris M., assignor, by mesne assignments, to F. M. Underkuffler, Philadelphia, Pa. Gage and marker for dressmakers or others	750,221	Jan. 19	3338	721	108	773
Remington, Charles H., Roswell, N. Mex. Ter. Automatic switch danger-signal	751,871	Feb. 9	2025	458, 459	108	1509
Renault, Louis, Billancourt, France. Steering-gear for motor-vehicles	748,984	Jan. 5	847	181	108	196
Renault, Louis, Billancourt, France. Motor-vehicle	749,096	Jan. 5	1100	232	108	252
Renno, John A., Sumter, S. C. Crutch	752,104	Feb. 16	2474	552	108	1626
Reno, Jesse W., New York, N. Y. Elevator	751,942	Feb. 9	2167	489	108	1540
Rentschler, Henry A. (See Lotz, Wismeyer, Hammer, Thoma, and Rentschler.)	751,999	Feb. 9	2297	514	108	1568
Reppeto, Augustus O., Blachly, Oreg., assignor to E. C. Atkins & Company, Indianapolis, Ind. Swage-gage for saws	748,790	Jan. 5	433	99	108	97
Repsdorph, Bernhard, and W. H. Burton, Houston, Tex. Car-seat	749,097	Jan. 5	1101	233	108	253
Resow, Adolf, Essen-on-the-Ruhr, and O. Lauber, Altendorf, assignors to F. Krupp, Essen-on-the-Ruhr, Germany. Fluid-brake for guns	751,684	Feb. 9	1658	376	108	1429
Restine, James. (See Crane and Restine.)						
Rettich, Victor A., New York, N. Y., assignor of one-half to S. D. Bullock, Montclair, N. J. Adjustable gas-check	751,107	Feb. 2	595	137	108	1187
Rettich, Victor A., New York, N. Y., assignor of one-half to S. D. Bullock, Montclair, N. J. Incandescent gas-burner	751,556	Feb. 9	1432	325	108	1382
Rettig, Julius E., Reading, Pa. Rivet	752,588	Feb. 16	3396	758	108	1832
Rex Cap & Cork Company. (See Recht, Frederick, assignor.)						
Reynders, Arthur B. (See Stuart and Reynders.)						
Reynolds, A. D. F. (See De Lamater, Edgar, assignor.)						
Reynolds, Henry S., assignor to Iron Clad Manufacturing Company, Brooklyn, N. Y. Making metal barrels or like structures	750,394	Jan. 26	3660	795	108	866
Reynolds, Irving H., Milwaukee, Wis. Inlet-valve for compressing-engines	749,323	Jan. 12	1584	335	108	381
Reynolds, John F., administrator. (See Ferrel, John.)						
Reynolds, John H. (See Michael, Ira A., assignor.)						
Reynolds, Sidney G., Louisville, Ky. Ink-well	749,098	Jan. 5	1103	233	108	253
Rhoads, Charles B., Kinmundy, Ill. Bottle	750,303	Jan. 26	3497	757	108	828
Rhodes, Bert O., Barberton, Ohio, assignor to National Drill and Manufacturing Company, Chicago, Ill. Grading and ditching machine	749,747	Jan. 19	2458	523	108	585
Rhodes, Bert O., Barberton, Ohio, assignor to National Drill and Manufacturing Company, Chicago, Ill. Grading and ditching machine	749,748	Jan. 19	2459	524	108	585
Rhodes, Ernest D., *et al.* (See Whitcomb, Clark A., assignor.)						
Rhodes, Joseph E., New York, N. Y. Printer's blanket	752,105	Feb. 16	2476	552	108	1626
Rhodes, Leverett E., *et al.* (See Baird, John P., assignor.)						
Ricaud, Frank. (See Maas and Ricaud.)						
Rice, Charles D., Hartford, Conn., assignor to Underwood Typewriter Company, New York, N. Y. Type-writer carriage	752,106	Feb. 16	2478	553	108	1627
Rice, E. R., *et al.* (See Payne, Carl S., assignor.)						
Rice, George M., Worcester, Mass. Apparatus for separating liquids from solids	751,810	Feb. 9	1908	432, 433	108	1483
Rice, Jesse I., New York, N. Y. Pompadour-comb	752,261	Feb. 16	2779	616	108	1697
Rice, John V., Jr., assignor to John V. Rice, Junior, Company, Edgewater Park, N. J. Electric sparking ignition apparatus for gas rock-drills	749,324	Jan. 12	1586	335, 336	108	381
Rice, Joseph, Chicago, Ill. Elevator	752,800	Feb. 23	3823	858	108	1943
Richard, Eugene. (See Weir, Roderick, assignor.)						
Richard, George J. (See Washburne and Richard.)						
Richard, Napoleon, Sherbrooke, Canada. Pulp-screening machine	752,107	Feb. 16	2479	553	108	1627
Richards, George C., Berkeley, assignor of one-half to H. Murphy, San Francisco, Cal. Stamp-mill	750,006	Jan. 19	2947	630	108	691
Richardson, Edwin J. (See Johnson, Arthur T. M., assignor.)						
Richardson, M. E. (See Lundquist and Norstrom, assignors.)						
Richardson, M. E., *et al.* (See Norstrom, Nils E., assignor.)						
Richardson, William S., Boston, Mass. Garment-fastener	751,559	Feb. 9	1434	325	108	1383
Richie, Arthur J., and A. W. Jamison, Toledo, Ohio. Coin-controlled perfume-vending machine	748,652	Jan. 5	194	46	108	43
Richmond, William J., assignor of one-half to G. W. Rudolph, Auburn, Ind. Rotary steam-engine	749,703	Jan. 12	2342	495	108	542
Richter, Friedrich A., Rudolstadt, Germany. Gear-wheel	748,653	Jan. 5	195	46	108	43
Ricks, Charles A., Glenville, Ohio. Bath-tub	753,002	Feb. 23	4250	947	108	2088
Ricksecker, Alva C., *et al.* (See Smith, Frank L., assignor.)						
Riddell, John, Schenectady, N. Y., assignor to General Electric Company. Electromagnetic reversing device	752,589	Feb. 16	3397	758	108	1832

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Riddell, John, Schenectady, N. Y., assignor to General Electric Company. Magnetic clutch application	752,500	Feb. 16	3402	758	108	1823
Rieche, Friedrich, and O. Saame, assignors to R. Koepp & Co., Oestrich, Rheingau, Germany. Making oxalates	748,731	Jan. 5	434	.....	108	97
Riehle, Frederick A. (See Tretch, William J., assignor.)						
Rife, Elton M., Indianapolis, Ind. Automatic wind-break for train-markers	752,801	Feb. 23	3825	858	108	1943
Riggs, Benjamin G., Kinzua, Pa. Railway-rail joint	749,449	Jan. 12	1802	387	108	488
Riggs, Charles E., McCrory, Ark. Vehicle-step	750,893	Feb. 2	216	40	108	1105
Rignon, Joseph A., Berlin, Germany. Electric-arc lamp	750,894	Feb. 2	218	40	108	1106
Riley, John, Minneapolis, Minn. Grain-door for freight-cars	753,162	Feb. 23	4540	1012	108	2102
Riley, Robert L., Newburgh, N. Y. Device for releasing trucks from cars	752,467	Feb. 16	3171	706	108	1780
Rink, Johan J., Elsinore, Denmark. Apparatus for electrolytic decomposition of alkali chlorids	748,985	Jan. 5	848	182 180	108	196
Rinsche, Frank C., assignor to Universal Accountant Machine Company, St. Louis, Mo.) Calculating-machine	751,207	Feb. 2	788	181 182 183 184	108	1225
Riotte, Carl C., assignor, by mesne assignments, to L. Nixon, New York, N. Y. Speed-controlling mechanism for automobiles or the like	749,580	Jan. 12	2109	439 440	108	494
Riotte, Carl C. and E. A., New York, N. Y. Driving mechanism	749,704	Jan. 12	2344	495	108	543
Riotte, Eugene A. (See Riotte, Carl C. and E. A.)						
Rioux, Alfred C., Toronto, Canada. Mower-bar	752,108	Feb. 16	2481	554	108	1627
Ripperger, Clemens M., assignor to Ohio Cultivator Company, Belleview, Ohio. Harrow-tooth fastener	749,226	Jan. 12	1388	296	108	338
Rippon, Henry, *et al.* (See Scott, James R., assignor.)						
Ritt, Edward A. (See Hoon, Paul, assignor.)						
Ritter, Gilbert P., Chicago, Ill. Friction draft-gear	751,943	Feb. 9	2169	489 490	108	1540
Ritz, August N., Milwaukee, Wis. Paste-receptacle	750,304	Jan. 26	3498	757	108	828
Roach, Finis E., Chicago, Ill. Thumb-support and root-brace for enamel-cleavers	749,881	Jan. 19	2698	576	108	638
Roach, William F., Lindsey, Pa. Rotary engine	751,872	Feb. 9	2427	459	108	1509
Robbert, Jane, San Francisco, Cal. Appliance for drafting garments	748,792	Jan. 5	435	99	108	97
Robby, William C. (See Rumely and Robby.)						
Roberge, Oscar P., and J. J. Brabant, La Crosse, Wis. Tool-holder	752,863	Feb. 23	3948	885	108	1970
Roberson, William A., Louisville, Ky. Portable laundry	748,966	Jan. 5	850	182	108	197
Roberts, Charles A. (See Porter, Albert L., assignor.)						
Roberts, David B., St. Joseph, Mo. Fish-trap	748,654	Jan. 5	196	47	108	44
Roberts, Elbridge G., Redbank, N. J. Steam-generator	752,801	Feb. 16	2857	635	108	1713
Roberts, William M., Newport News, Va. Cigar-cutter	750,805	Jan. 26	3499	757	108	828
Robertson, Elisa E., New York, N. Y. Belt-holder	750,222	Jan. 19	3339	721	108	773
Robertson, William T. S. (See Allinson and Robertson.)						
Robinson, Aaron J., Fremont, N. H. Grinding mill	750,701	Jan. 26	4235	919 920	108	985
Robinson, Aaron J., Fremont, N. H. Grinding-mill	750,805	Feb. 2	221	49,50	108	1106
Robinson, Charles H., Huntsville, Tex. Releasing valve-gear for Corliss engines	749,892	Jan. 19	2701	577	108	638
Robinson, Frank W., assignor of one-half to O. B. Wetherhold, Reading, Pa. Stocking-top-cutting machine	751,560	Feb. 9	1435	325 326	108	1368
Robinson, Frederick C., Farmington, Me. Electric block system	750,223	Jan. 19	3340	722	108	773
Robinson, John B. (See Smith, Hosea D., assignor.)						
Robinson, John F., Rockaway, N. J. Horseshoe-pad	752,408	Feb. 16	3172	707	108	1781
Robinson, Lewis T., Schenectady, N. Y., assignor to General Electric Company. Electrical measuring instrument	751,015	Feb. 2	429	102	108	1152
Robinson, Wade, New York, N. Y. Mucilage-cup	752,591	Feb. 16	3404	759	108	1834
Robinson, William, Boston, Mass. Braking and clutching mechanism	752,262	Feb. 16	2780	617	108	1697
Robison, George E., Locke, N. Y. Mail-box	753,163	Feb. 23	4542	1012 1013	108	2102
Rockford Frame & Fixture Company. (See Mann, Albert W., assignor.)						
Rockman, Henry, Allison township, Lyon county, Iowa. Ground-marking device for corn-planters	749,581	Jan. 12	2112	440	108	495
Rockstroh, Charles F., Brooklyn, N. Y., assignor to Rockstroh Manufacturing Company. Printing-plate holder	750,305	Jan. 26	3661	796	108	866
Rockstroh Manufacturing Company. (See Rockstroh, Charles F., assignor.)						
Rockstroh, Wilhelm M., Klein Sedlitz, near Pirna, Germany. Engaging and disengaging device for platen printing-presses	751,873	Feb. 9	2080	459 460	108	1510
Rockwell, Edward D., Bristol, Conn. Trolley-harp	748,987	Jan. 5	852	183	108	197
Rod, Alfred J., assignor to H. Chorens, Ste. Croix, Switzerland. Device for mechanically substituting one disk for another in music-pieces	749,826	Jan. 19	2608	556	108	617
Roderwald, Otto, Chicago, Ill. Liquid-cooler	749,325	Jan. 12	1588	336	108	382
Rodrigues, Manuel R., Brooklyn, N. Y. High-tension therapeutic electrode	752,419	Feb. 16	2603	686	108	1763
Roedde, Gustav A., Vancouver, Canada. Loose-leaf binder	749,582	Jan. 12	2113	441	108	495
Roever, Julius, New York, N. Y., and S. S. Baldwin, Philadelphia, Pa. Picture-exhibitor	751,561	Feb. 9	1488	326 327	108	1384
Roger, Jules, Monceaux, near Lisieux, France. Stoppering device for sparkling liquids	749,749	Jan. 19	2461	524	108	586
Rogers, Alonzo C., Toledo, Ohio. Metal traction-wheel	748,733	Jan. 5	445	99	108	100
Rogers, James H., Gridley, Ill. Watch-bow fastener	749,099	Jan. 5	1105	234	108	254
Rogers, Nelson W., Mount Vernon, N. Y., assignor to Cooper Hewitt Electric Company. System of electrical distribution	751,016	Feb. 2	432	102	108	1152
Rohde, William, and W. Hastings, assignors of one-half to W. F. Bolly and E. H. Zurhorst, Sandusky, Ohio. Hanger for doors, gates, or the like	752,924	Feb. 23	4097	913	108	2004
Rohrer, Jacob B., Washington, D. C. Umbrella	748,655	Jan. 5	198	47	108	44
Rollins, George E., East Bridgewater, Mass. Welt-making machine	748,794	Jan. 5	446	100	108	100
Romünder, Hermann, Bloomsbury, N. J. Convertible vehicle	750,396	Jan. 26	3066	797	108	866
Ronan, Anson G., Toronto, Canada. Raw-liquid-fuel measurer for explosive-engines	752,181	Feb. 16	2608	579	108	1655
Ronan, Anson G., Toronto, Canada. Gas-engine	753,008	Feb. 23	4251	947 948	108	2038
Rônay, Árpád, Budapest, Austria-Hungary. Drying and annealing stove	749,326	Jan. 12	1589	336 337	108	382
Rood, William C., Chicago, Ill. Display-case	751,562	Feb. 9	1440	327	108	1384
Root, Albert G., Danbury, Conn. Trap-nest	750,702	Jan. 26	4239	921	108	986
Ropes, Albert G. (See Scott, Rufus D., assignor.)						
Roppel, Henry, St. Louis, Mo. Bag-turner	750,703	Jan. 26	4240	921	108	986
Rorty, Malcolm C., Dedham, Mass., assignor to American Telephone and Telegraph Company. Telephone switching and signaling apparatus	750,704	Jan. 26	4242	922	108	987
Rose, George P., Jr., Dubuque, Iowa. Desk for hotel-registers	752,802	Feb. 23	3826	859	108	1943
Rose, William H., assignor to Marine Torch Company of Baltimore City, Baltimore, Md. Torch	752,711	Feb. 23	3666	817	108	1908

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Rose, William R., Auberry, Cal. Nut-lock	752,263	Feb. 16	2786	617	108	1698
Rosenberg, Emil W., Chicago, Ill. Car-replacer	750,896	Feb. 2	223	50	108	1107
Rosenblatt, Harry M., Philadelphia, Pa. Buckle-fastener for belts	750,064	Jan. 19	3061	657	108	714
Rosenfeld, Bela, Vienna, Austria-Hungary. Calendar	749,227	Jan. 12	1390	297	108	339
Rosenow, Ferdinand, Renfrow, Okla. Ter. Draft-evener	749,100	Jan. 5	1106	234	108	254
Rosenthal, Samuel. (See Throop, Charles G., assignor.)						
Rosenwasser, Morris, New York, N. Y. Legging-spring	749,951	Jan. 19	2841	607	108	669
Rosholt, Julius, *et al.* (See Helgerson, Thomas O., assignor.)						
Ross, Donald W. (See Stronach and Ross.)						
Ross, George E., assignor to John Hetherington and Sons, Limited, Manchester, England. Self-acting mule and twiner	752,302	Feb. 16	2839	635 636	108	1714
Ross, Harry B., assignor to Berlin Machine Works, Beloit, Wis. Planing-machine	750,125	Jan. 19	3170	682	108	737
Ross, John D., Los Angeles, Cal. Nozzle for sprinklers	752,803	Feb. 23	3828	859	108	1944
Ross, Joseph M. (See Ross, Noble G., T. D., and J. M.)						
Ross, Noble G., Kansas City, Mo., T. D. and J. M. Ross, Kansas City, Kans. Threshing machine	752,182	Feb. 16	2616	580	108	1658
Ross, Rhoderick G. (See Walsh, James R., assignor.)						
Ross, Thomas D. (See Ross, Noble G., T. D., and J. M.)						
Rossman, John B., St. Paul, Minn. Amalgamator and concentrator	750,224	Jan. 19	3341	723	108	774
Rost, Willie, Gilmore City, Iowa. Gun-barrel	749,462	Jan. 12	1746	369	108	416
Rouse, Edwin F., Bay City, Mich. Dry-kiln	750,305	Jan. 26	3501	758	108	828
Rouse, George W., Lowell, Mich. Wrench	749,632	Jan. 12	2204	465	108	513
Rousseau, Louis, Paris, France. Movable swinging-body furnace for melting steel, &c.	749,463	Jan. 12	1747	370	108	416
Rowe, Davis, Indianapolis, Ind. Saw-holder	752,420	Feb. 16	3095	686	108	1764
Rowe, James, Chicago, Ill. Printing-press	753,164	Feb. 23	4543	1013 1014	108	2103
Rowland Dye Soap Company. (See Rowland, George, assignor.)						
Rowland, George, assignor to Rowland Dye Soap Company, Knoxville, Tenn. Dyestuff	752,804	Feb. 23	3829	859	108	1944
Rowledge, Arthur J. (See Napier and Rowledge.)						
Royal Glass Jar and Bottle Company. (See Lazareff, Mathias A., assignor.)						
Royal Milling and Manufacturing Company. (See Welch, Rosia W., assignor.)						
Royle, Vernon, Paterson, N. J. Tube-making machinery	751,108	Feb. 2	596	137	108	1187
Ruckdeschel, Frederick E., assignor of two-thirds to H. and A. D. Joffe, Rochester, N. Y. Eyeglass or spectacle attachment	751,418	Feb. 2	1180	268	108	1308
Ruckstuhl, George, Rutherford, N. J. Means for holding piano tuning-pins	752,460	Feb. 16	3174	707	108	1781
Rudolph, George W. (See Richmond, William J., assignor.)						
Rue, Edward, assignor of one-half to C. L. Peterson, Amboy, Minn. Windmill	749,806	Jan. 19	2563	545	108	608
Ruggles, Harry A., Chicago, Ill., assignor to F. M. Jones and S. W. Dalberg, Milwaukee, Wis. Wrench	751,342	Feb. 2	1056	240	108	1288
Rumely, William N., Laporte, Ind. Thresher-toothing	751,017	Feb. 2	433	102	108	1153
Rumely, William N., and W. C. Robby; said Robby assignor to M. Rumely Company, Laporte, Ind. Clover-huller	752,421	Feb. 16	3097	687	108	1764
Runyan, Elmer G., Washington, D. C. Wearing-apparel	749,228	Jan. 12	1390	297	108	339
Rupley, George H., Schenectady, N. Y., assignor to General Electric Company. Coating-machine	752,592	Feb. 16	3406	759	108	1834
Rusden, Richard H., Rossland, Canada. Miner's candlestick	753,165	Feb. 23	4549	1014	108	2105
Rush, Allan C., Los Angeles, Cal. Crude-hydrocarbon burner	752,593	Feb. 16	3408	759	108	1835
Rushmore, David B., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Dynamo-electric machine	751,563	Feb. 9	1442	328	108	1385
Rushton, Kenneth, assignor to Burnham, Williams & Company, Philadelphia, Pa. Relief-valve for locomotives	749,101	Jan. 5	1107	234	108	254
Rusk, William T., Sterling, Nebr. Washing-machine	750,126	Jan. 19	3172	682	108	737
Rusa, Julius, New York, N. Y. Display device	751,109	Feb. 2	597	138	108	1188
Russell, Alexander, Noblestown, Pa. Engine	750,705	Jan. 26	4249	922	108	988
Russell, Charles H., Manistee, Mich. Folding box or crate	751,944	Feb. 9	2171	490	108	1541
Russell, Edwin L., assignor to Russell Motor Vehicle Co., Cleveland, Ohio. Muffler for hydrocarbon-engines	749,888	Jan. 19	2708	577	108	639
Russell Motor Vehicle Co. (See Russell, Edwin L., assignor.)						
Russell and Erwin Manufacturing Company. (See Crandall, Nathan W., assignor.)						
Russell and Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell, Frank J., New York, N. Y. Prismatic lamp	751,208	Feb. 2	803	184	108	1228
Russell, Frank K., Dallas, Tex. Boring-machine	750,897	Feb. 2	224	51	108	1107
Russell, George, assignor to McKeesport Plate Company, McKeesport, Pa. Painting-machine	750,307	Jan. 26	3502	758	108	829
Russell, Hiram J., Crescent Mills, Cal. Combined concentrator and amalgamator	750,706	Jan. 26	4250	922 923	108	988
Russell, Robert C., and A. W. Siegel, Williamsport, Pa. Carpet-fastener	752,360	Feb. 16	2968	660	108	1738
Russell, Wilder W., Bayonne, N. J. Wall-washer	749,450	Jan. 12	1863	.....	108	438
Russell, William J., Charleston, Nebr. Car-brake	749,102	Jan. 5	1109	234 235	108	255
Rust, George M., and E. J. Faulkner, Dayton, Ohio. Shade or curtain holder	750,898	Feb. 2	227	51	108	1108
Ruth Automatic Knitting Machine Company. (See Ruth, George W., assignor.)						
Ruth, George W., Norristown, Pa., assignor to Ruth Automatic Knitting Machine Company. Stop-motion for knitting-machines	750,225	Jan. 19	3346	723 724	108	775
Ruth, George W., Norristown, Pa., assignor to Ruth Automatic Knitting Machine Company. Stop-motion for knitting-machines	751,811	Feb. 9	1910	433	108	1463
Ruth, Samuel D., Beatrice, Nebr. Paper cutting and folding machine	749,905	Jan. 19	2743	587	108	648
Ruttman, Charles F., Valparaiso, Nebr. Office-indicator	750,226	Jan. 19	3349	724	108	775
Ruud Manufacturing Company. (See Ellis, John, assignor.)						
Ryan, Bernard B. (See Francis and Ryan.)						
Ryan, James B., Kansas City, Mo. Broom-bridle	751,343	Feb. 2	1057	240	108	1288
Ryan, Michael B., Boston, Mass. Button	752,925	Feb. 23	4099	913	108	2004
Ryan, Timothy J., Des Moines, Iowa. Farm-gate	753,166	Feb. 23	4550	1014	108	2105
Ryder, Andrew V., assignor to Ohio Cultivator Company, Bellevue, Ohio. Two-row lister-cultivator	749,906	Jan. 19	2746	588	108	648
Ryder, Andrew V., assignor to E. Ryder, Bellevue, Ohio. Cultivator-coupling	752,594	Feb. 16	3412	760	108	1836
Ryder, Edith. (See Ryder, Andrew V., assignor.)						
Rydquist, Adolph, assignor to Case Manufacturing Company, Rochester, N. Y. Coin-controlled vending apparatus	751,812	Feb. 9	1914	434 435	108	1484
Rylands, James J., Homestead, Pa., assignor to Homestead Valve Manufacturing Company. Valve	749,750	Jan. 19	2463	524	108	586
S. Howes Company. (See Barbeau, Malcolm L., assignor.)						
Saame, Otto. (See Rieche and Saame.)						
Sabin, Willard C., Laurel, Nebr. Machine for picking ears of corn	748,656	Jan. 5	199	47	108	44
Sachse, Louis, Los Angeles, Cal. Gold-saving apparatus	750,227	Jan. 19	3350	724 725	108	776

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Sackett, George R. (See Smith, John H., assignor.)						
Saco & Pettie Machine Shops. (See Mills, Charles, assignor.)						
Saffell, Frederick, Fresno, assignor of one-half to R. J. Powers, San Leandro, Cal. Steam-generator	749,451	Jan. 12	1864	387	108	438
Sage, Ralph V. (See Moore and Sage.)						
Sager, Elf E., J. Sagmeister, and W. H. Dow, assignors to Dust Guard Manufacturing Company, Seattle, Wash. Dust-guard for car-axle boxes	749,327	Jan. 12	1591	337	108	382
Sagmeister, John. (See Sager, Sagmeister, and Dow.)						
Salger, Ferdinand J., Chicago, Ill. Cabinet	749,884	Jan. 19	2705	577, 578	108	639
Salomon, Joseph, Chicago, Ill. Wire furniture	751,419	Feb. 2	1181	269	108	1308
Salzmann, Max, Magdeburg-Buckau, Germany. Press	749,328	Jan. 12	1598	337, 338	108	383
Sames, Fred M., *et al.* (See Mohlenhoff, Hermann J., assignor.)						
Sammons, William H., Sioux City, Iowa. Balance-book and index	752,864	Feb. 23	3050	886	108	1970
Sampson, Pies H., assignor of one-half to W. H. S. Brady, Kansas City, Mo. Tender for traction-engines	749,065	Jan. 19	3092	657, 658	108	714
Samuel Cupples Envelope Company. (See Wolf, Paul J., assignor.)						
Sanburn, Willis H., Mittineague, Mass. Rag-dusting machine	753,213	Feb. 23	4647	1034	108	2126
Sandberg, Josefine, New York, N. Y. Satchel	748,637	Jan. 5	200	47	108	44
Sanders, George, Burton-upon-Trent, England. Cask-tilter	748,658	Jan. 5	201	48	108	44
Sandifur, William H., Bowling Green, Ohio. Seed-planter	752,595	Feb. 16	3413	760	108	1896
Sands, Lewis. (See Praschl, Stephan, assignor.)						
Sands, Lewis, and C. C. Cadden, assignors to Williams-Abbott Electric Company, Cleveland, Ohio. Telephone-receiver	751,344	Feb. 2	1058	241	108	1283
Sandusky Foundry and Machine Company. (See Millspaugh, William H., assignor.)						
Sandycroft Foundry Company. (See Kelly, Philip C., assignor.)						
Sanford, Charles L., Bellaire, Ohio. Handle for trunks	751,685	Feb. 9	1660	377	108	1429
Saraflan, Hovcep, Yonkers, N. Y. Woven pile fabric	752,712	Feb. 23	3668	817	108	1908
Sargent, Charles E., Chicago, Ill. Variable-speed mechanism	751,564	Feb. 9	1443	328	108	1385
Sargent, Charles E., Chicago, Ill. Valve for internal-combustion engines	752,304	Feb. 16	2963	637	108	1714
Sargent, Charles E., Chicago, Ill., assignor of three-fourths to O. S. Lyford, New York, N. Y., and C. W. Hillard, trustee, Chicago, Ill. Governor for internal-combustion engines	752,109	Feb. 16	2483	554	108	1628
Sargent, Charles E., Chicago, Ill., assignor of three-fourths to O. S. Lyford, New York, N. Y., and C. W. Hillard, trustee, Chicago, Ill. Valve for internal-combustion engines	752,308	Feb. 16	2960	636	108	1713
Sargent, Fitz William, Mahwah, assignor to American Brake Shoe & Foundry Company, Jersey City, N. J. Brake-shoe	749,103	Jan. 5	1110	235	108	255
Sargent, Fitz William, assignor to American Brake Shoe & Foundry Company, Mahwah, N. J. Brake-shoe	753,004	Feb. 23	4255	948	108	2089
Sargert, Charles A., Sheridanville, Pa. Fishing-tool for oil or like wells	750,491	Jan. 26	3841	834	108	905
Sartwell, William E., North Troy, Vt. Picker-stick check for looms	752,110	Feb. 16	2486	555	108	1628
Sattler, Heinrich, assignor to Firm of A. Huber, Munich, Germany. Compensation-pendulum	751,686	Feb. 9	1662	377	108	1430
Sattley, Clyde A., *et al.* (See Weaver, Ira A., assignor.)						
Sauer, Theodor. (See Bültzingslöwen, Bruno von, assignor.)						
Saunders, William H., New London, Conn. Drill-chuck	751,345	Feb. 2	1061	241	108	1284
Saupe, Emil. (See Kuckelkorn and Saupe.)						
Sauvage, William H., assignor of one-hundred-and-forty-nine two-hundredths to G. C. St. John and G. F. Kissam, New York, N. Y. Air-brake	752,111	Feb. 16	2487	555	108	1629
Sauvage, William H., assignor of one-hundred-and-forty-nine two-hundredths to G. C. St. John and G. F. Kissam, New York, N. Y. Air-brake	752,112	Feb. 16	2491	555	108	1629
Savage, George E., and J. W. Chapman, assignors to Manning, Bowman & Co., Meriden, Conn. Coffee or tea pot	751,565	Feb. 9	1447	322	108	1386
Savage, George E., and G. W. Hope, assignors to Manning, Bowman & Co., Meriden, Conn. Coffee or tea pot	752,113	Feb. 16	2495	556	108	1631
Savale, Louis C., Paterson, N. J. Combined flue-shield and lamp-support for automobiles	749,452	Jan. 12	1866	388	108	436
Savings & Trust Company. (See Sears, Charles, assignor.) (Reissue.)						
Sawyer, Edmund H., Lexington, Mass. Shuttle and quill for narrow-ware looms	748,897	Jan. 5	632	142	108	141
Sawyer, Harry, Muskegon, Mich. Combined controller and brake-operating mechanism	749,329	Jan. 12	1595	388	108	383
Sawyer, Harry, Muskegon, Mich. Tongs or grapple	749,330	Jan. 12	1599	389	108	384
Sawyer, Mathews N., Rapid City, S. D. Pipe or nut wrench	750,308	Jan. 26	3506	758	108	880
Sayer, Eugene Y. (See Box, William A., assignor.)						
Sayre, Charles E., Waterloo, and J. W. Sayre, Hartley, Iowa. Blower for gas-machines	752,000	Feb. 9	2299	514	108	1568
Sayre, James W. (See Sayre, Charles E. and J. W.)						
Scarvell, John A., *et al.* (See Cazier, Perry H., assignor.)						
Scatchard, Herbert F., and M. B. Waters, Roanoke, Va. Device for truing journals of locomotive driving-wheels	751,945	Feb. 9	2174	490, 491	108	1542
Schacht, Barnet, New York, N. Y. Combined lock and latch	750,707	Jan. 26	4253	923, 924	108	980
Schafer, Erwin D., assignor of one-half to W. McFarland, Walnutport, Pa. Automatic valve for combined measures and funnels	748,988	Jan. 5	854	183	108	196
Schall, Joseph, Evergreen Park, Ill. Interlocking building-tiles	748,989	Jan. 5	855	183, 184	108	196
Schall, Joseph, Evergreen Park, Ill. Fireproof floor construction	750,066	Jan. 19	3064	658	108	715
Schall, Joseph, Evergreen Park, Ill. Building-tile	751,346	Feb. 2	1063	241	108	1284
Schantz, Edwin M., Zimmerman, Ohio. Duplicating defect-tracer	753,005	Feb. 23	4256	948	108	2040
Scheble, Eugene S., Cleburne, Tex., assignor, by mesne assignments, to S. E. Wilmore, New York, N. Y. Vending-machine	748,795	Jan. 5	448	100, 101	108	101
Scheidemantel, Charles. (See Ballenberger and Scheidemantel.)						
Scheimpflug, Theodor, Vienna, Austria-Hungary. Distorting plane images by means of lenses or mirrors	751,347	Feb. 2	1063	241, 242	108	1284
Scheimpflug, Theodor, Vienna, Austria-Hungary. Apparatus for the systematic alteration of plane pictures by means of spherical lenses or mirrors	752,506	Feb. 16	3416	761, 762, 763	108	1887
Schenck Governor Company. (See Schenck, Marcus P., assignor.)						
Schenck, Marcus P., Springfield, Mass., assignor to Schenck Governor Company, Meriden, Conn. Governor for water-wheels	748,659	Jan. 5	902	48, 49	108	44
Scherzer Rolling Lift Bridge Company. (See Keller, Charles L., assignor.)						
Scheuber, August W., Hoboken, N. J. Safety-razor frame	749,751	Jan. 19	2465	585	108	587
Scheuber, August W., Hoboken, N. J. Stropping-machine	750,397	Jan. 26	3668	797	108	867
Scheuber, August W., Hoboken, N. J. Stropping-machine	750,398	Jan. 26	3670	797	108	868
Scheuber, August W., Hoboken, N. J. Razor sharpening machine	750,399	Jan. 26	3673	798	108	869
Schickerling, Alfred, Jersey City, N. J. Brush	749,331	Jan. 12	1601	389	108	385
Schierbeck, Rudolf, Philadelphia, Pa. Measuring instrument	752,470	Feb. 16	3175	707	108	1781

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Schies, John, Anderson, Ind. Glass blowing and finishing machine	752,597	Feb. 16	3425	763, 764	108	1888
Schievenbusch, Eberhard, Cologne, Germany. Picture-frame	749,332	Jan. 12	1603	389	108	385
Schilde, Martin, New Orleans, La. Valve mechanism	752,471	Feb. 16	3177	708	108	1782
Schilde, Martin, New Orleans, La. Valve mechanism	752,472	Feb. 16	3179	709	108	1782
Schiller, Joseph, Burlington, Tex. Insect-exterminator	750,708	Jan. 26	4256	924	108	989
Schilz, Frank, assignor to H. Loewenbach, Milwaukee, Wis. Paper-feeding device	751,687	Feb. 9	1663	377, 378	108	1430
Schindehütte, Ernest J., McKees Rocks, Pa. Rail-joint	749,333	Jan. 12	1608	340	108	385
Schirm, Carey A. (See Middlekauff and Schirm.)						
Schirmer, James W., Westchester, Iowa. End-gate	753,167	Feb. 23	4552	1015	108	2105
Schlager, Charles, *et al.* (See Harvey, William A., assignor.)						
Schlager, Walter L., *et al.* (See Harvey, William A., assignor.)						
Schlehr, Joseph A., *et al.* (See Reeve, Frank L., assignor.)						
Schleicher, Oscar, Heinsberg, Germany, assignor to Williams Manufacturing Company. Machine for making baskets. (Reissue)	12,196	Feb. 23	4660	1037	108	2129
Schlieder, Augustus E., Omaha, Nebr. Acetylene-gas generator	752,713	Feb. 23	3670	817	108	1908
Schloemer, Edward W., Milwaukee, Wis. Compressed-air motor	748,660	Jan. 5	205	49	108	45
Schlorff, Joseph E., Pesotum, Ill. Type-holder	750,127	Jan. 19	3173	683	108	788
Schmidt, Fred, Oak Station, assignor of one-half to H. Bauer, Lock No. 3, Allegheny county, Pa. Electric clock	750,492	Jan. 26	3843	835	108	905
Schmidt, Friedrich, Springfield, Mass. Beer-keg-washing apparatus	749,583	Jan. 12	2116	441	108	496
Schmidt, Henry A., Milwaukee, Wis. Gas-heater	752,805	Feb. 23	3881	859	108	1944
Schmidt, Jean. (See Karle and Schmidt.)						
Schmidt, Joseph P., and J. E. Jacobs, Kansas City, Mo. Attachment for bottle corking, capping, and wiring machines	751,515	Feb. 9	1345	307	108	1364
Schmidt, Lambert, Weehawken, N. J. Annunciator	750,309	Jan. 26	3507	758	108	880
Schmidt, Wilhelm, Wilhelmshöhe, near Cassel, Germany. Piston-valve for steam-engines	750,400	Jan. 26	3676	798	108	869
Schmidt, William A. (See Diss and Schmidt.)						
Schmitz, George, Pittsburg, Pa. Belt and garment fastener for supporting skirts or trousers	750,709	Jan. 26	4258	924	108	990
Schmitz, Frank, Chicago, Ill. Banana-shipping case	750,783	Jan. 26	4449	959	108	1035
Schmitz, Henry. (See Weiner, Wilhelm, assignor.)						
Schmitz, John P., San Francisco, Cal. Reciprocatory gold-separator	752,926	Feb. 23	4100	913	108	2004
Schmitz & Shroder. (See Bieberstein, Samuel A., assignor.)						
Schnedler, August. (See Link and Schnedler.)						
Schneider, John E., Allegheny, Pa. Valve	750,128	Jan. 19	3175	683	108	788
Schneider, John E., Allegheny, Pa. Bottle	750,129	Jan. 19	3176	683	108	788
Schnoor, Claus, Wichita, Kans. Draft-equalizer	751,848	Feb. 2	1070	243	108	1285
Schock, James W. (See Llewellyn and Schock.)						
Schoen, Charles T. (See Eyermann, Peter, assignor.)						
Schoenefeldt, Ludwig F., assignor of two-thirds to R. M. MacCormac, Denver, Colo. Concentrator	749,104	Jan. 5	1111	285, 286	108	255
Schoening, Eduard, Berlin, Germany. Printing by means of elastic rollers or plates	751,946	Feb. 9	2176	491	108	1542
Schoening, Eduard, Berlin, Germany. Printing	751,947	Feb. 9	2179	492	108	1543
Schofield, Charles, Philadelphia, Pa. Willow	751,948	Feb. 9	2181	492	108	1543
Schofield, Frederick C., Washington, D. C. Regulator for incandescent lamps	749,705	Jan. 12	2349	496	108	544
Schoonmaker, James H., assignor to Winona Wire Cable Company, Winona, Minn. Cable-making machine	749,752	Jan. 19	2466	525, 526	108	587
Schopbach, Charles H., Aurora, Ill. Attaching device for sanitary napkins	749,453	Jan. 12	1866	388	108	438
Schröder, Heinrich, assignor to Fahrzeugfabrik Eisenach, Eisenach, Germany. Recoil-spring apparatus for guns	751,874	Feb. 9	2082	460	108	1510
Schroeder, Emil, New York, N. Y. Fleshing and shaving machine	751,849	Feb. 2	1072	243	108	1285
Schroll, William S. (See Hartman, John S., assignor.)						
Schubert, Bernhard F. (See Simms, Rudolph, assignor.)						
Schubert, Max, Cottbus, Germany. Apparatus for making and simultaneously driving nails of wire	752,305	Feb. 16	2865	637	108	1714
Schuckers, Jacobs W., Newark, N. J. Type-writing machine	752,422	Feb. 16	3098	687, 688	108	1764
Schurmeier, Theodore L., *et al.* (See Nederman, Herman, assignor.)						
Schustek, Daniel, and H. L. Andrews, Chicago, Ill.; said Schustek assignor to said Andrews. Leg for furniture	750,900	Feb. 2	232	52	108	1109
Schuster, Carl, and C. N. Bergmann, Pittsburg, Pa. Electric-arc lamp	752,865	Feb. 23	3951	886	108	1970
Schütt, Alfred, Charlottenburg, Germany. Generating motive power	750,493	Jan. 26	3846	835	108	906
Schütt, Alfred, Charlottenburg, Germany. Generation of motive power	750,494	Jan. 26	3847	835	108	906
Schutt, Duny A., Peru, Ind. Lamp-socket	749,952	Jan. 19	2842	607	108	699
Schütz, Conrad. (See Cooper and Schütz.)						
Schutz, Joseph M., Minneapolis, Minn. Producing heat from fuel	751,350	Feb. 2	1073	243	108	1286
Schwab, Martin, Erie, Pa. Shade-roller-bracket jack	752,866	Feb. 23	3953	886	108	1970
Schwahn, Heinrich F. D., St. Louis, Mo. Preparing aluminium sulfate	752,927	Feb. 23	4101	.....	108	2005
Schwartz, John O., and S. Neligh, Hope, Ind. Railway-rail	751,110	Feb. 2	598	138	108	1188
Schwarze, Henry C., Chicago, Ill. Steam-turbine	752,861	Feb. 16	2969	660	108	1788
Schweinfürth, Johann, Richen, Germany. Harrow-tooth	751,209	Feb. 2	805	185	108	1228
Schweizer, Charles, Maplewood, Mass. Stove	750,495	Jan. 26	3848	835	108	906
Schweizer, Charles, Maplewood, Mass. Kiln	748,796	Jan. 5	450	101	108	101
Schweizer, Charles, Maplewood, Mass. Hydrocarbon-burner	750,899	Feb. 2	230	51, 52	108	1109
Schwend, George M., Birmingham, Ala. Track-sander for locomotives	752,928	Feb. 23	4103	914	108	2005
Schwieger, Adolf, assignor to J. Grawi, Hanover, Germany. Spring-tire for vehicles	752,598	Feb. 16	3429	764	108	1889
Schwinn, Edward, Dayton, Ohio. Clothes-line support	748,797	Jan. 5	452	101	108	102
Scofield, H. M. & M. M. (See Davy, Charles F., assignor.)	751,688	Feb. 9	1668	378	108	1431
Scott, Baptist H., Allegheny, Pa. Electric signal	749,105	Jan. 5	1112	236	108	256
Scott, Charles, Minneapolis, Minn. Color-blending wheel	748,661	Jan. 5	206	50	108	45
Scott, Ellis, Richmond, Ind. Pocket souvenir	752,183	Feb. 16	2619	581	108	1659
Scott, James R., Hull, England, assignor of three-fourths to W. Marshall, H. Rippon, and W. P. Smyth. Hauling-gear for trawl-nets	753,108	Feb. 23	4553	1015	108	2106
Scott, Jasper S., assignor of one-half to A. E. Shepard, San Jose, Cal. Bolt-holding implement	749,454	Jan. 12	1868	388	108	439
Scott, John H., Huntington, Utah. Combined mud and dust guard for vehicles	750,007	Jan. 19	2948	631	108	692
Scott, Josiah, assignor of one-half to C. H. Burchinal, Toledo, Ohio. Car lock and seal	753,006	Feb. 23	4258	949	108	2040
Scott, Rufus D., Beverly, Mass., assignor to A. G. Ropes, Morristown, N. J. Transmission-gear for power-driven vehicles	752,001	Feb. 9	2302	514, 515	108	1569
Scott, Walter, Plainfield, N. J. Printing-machine	750,401	Jan. 26	3677	798	108	870
Scott, Walter, Plainfield, N. J. Inking apparatus for printing-presses	751,351	Feb. 2	1076	243, 244	108	1287

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Scott, Walter, Plainfield, N. J. Printing and folding machine	753,169	Feb. 23	4554	1015 1016	108	2106
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Ringing-key for telephone-switchboards	751,506	Feb. 9	1448	329	108	1386
Searcist, Elwood E., Alliance, Ohio. Self-leveling furniture-support	751,649	Feb. 9	1669	378	108	1432
Seager, James H., and J. J. Kelly, Flushing, N. Y. Flush-tank apparatus	750,228	Jan. 19	3360	725	108	778
Seaman, Elizabeth C. (See Keiner and Gilman, assignors.)						
Search, Casper F., Oakpark, assignor to Edmonds-Metzel Manufacturing Company, Chicago, Ill. Knife	751,567	Feb. 9	1452	329	108	1386
Search Light Manufacturing Company. (See Estep, Blair A., assignor.)						
Searle, Joseph M., Pittsburg, Pa. Underfeed-stoker	749,501	Jan. 12	1971	409	108	461
Sears, Charles, assignor, by mesne assignments, to Savings & Trust Company, trustee, Cleveland, Ohio. Type-writing machine. (Reissue)	12,190	Jan. 12	2365	499	108	548
Sebastian, Frank, *et al.* (See Milligan and Duncan, assignors.)						
Sébillot, Amédée M. G., Paris, France. Treating copper ores	748,662	Jan. 5	207	50	108	45
Sebring, William L., Colorado Springs, Colo. Seal-lock	751,690	Feb. 9	1670	378 379	108	1432
Sebring, William L., Colorado Springs, Colo. Seal-padlock	751,691	Feb. 9	1672	379	108	1432
Sechler, Thomas U., Fort Scott, Kans. Truck-ladder	750,402	Jan. 26	3679	798	108	870
Sedgwick, Hiram G., Brooklyn, N. Y. Apparatus for automatically stopping railway-trains	750,310	Jan. 26	3508	759 760 761	108	830
Seeley, William G., Brookline, Mass. Electrical hose signaling apparatus	749,639	Jan. 12	2305	466	108	514
Segner, Charles B. (See Segner, Harry H. and C. B.)						
Segner, Harry H. and C. B., Hagerstown, Md. Feed-regulator for gasolene-engines	748,900	Jan. 5	856	184	108	199
Sehon, Robert L., Taylor, Tex. Wire-clamp	751,352	Feb. 2	1079	244	108	1287
Seiberling, Alton G., *et al.* (See Bolte, Frank H., assignor.)						
Seiberling, Monroe, *et al.* (See Bolte, Frank H., assignor.)						
Seifert, Bruno R., assignor to Chemische Fabrik von Heyden, Aktien-Gesellschaft, Radebeul, Germany. Acetyl para cresotinic acid	749,634	Jan. 12	2307	.....	108	514
Seim, William F. (See Brewington, Henry S., assignor.)						
Seitz, Frederick A., Newark, N. J. Internal-combustion or explosive engine	750,901	Feb. 2	234	52	108	1109
Selleck, S. L. (See Miles, Edmund, assignor.)						
Selley, Frederick A., Lafayette, Tenn. Weighing-scale	751,018	Feb. 2	434	102 103	108	1153
Selsor, Hiram, Hunnewell, Mo. Cell-case	748,663	Jan. 5	210	50	108	46
Semm, Charles H., Carville, assignor of two-thirds to G. W. Whitworth, Cedar Falls, Iowa. Vehicle-coupling	751,692	Feb. 9	1674	379	108	1433
Semple, Eugene, Seattle, Wash. Pipe	752,474	Feb. 16	3188	710	108	1783
Sennett, Leonidas, and A. L. Moore, Russell, Ky. Breath-guard	752,114	Feb. 16	2497	556	108	1631
Separable Body Bolster Company. (See Andrews, James S., assignor.)						
Servuss, Eugen, assignor to A. Jung, Berlin, Germany. Picture-frame	749,229	Jan. 12	1392	297	108	339
Sessions, Frank L., assignor to J. A. Jeffrey, Columbus, Ohio. Road-crossing device	751,949	Feb. 9	2192	492	108	1543
Setter, Micheal, assignor to American Electric Telephone Company, Chicago, Ill. Hanger for telephone-transmitters	752,184	Feb. 16	2020	581	108	1660
Severance, Adam W., Walla Walla, Wash., assignor to Holt Manufacturing Company, Stockton, Cal. Sidehill-harvester	751,111	Feb. 2	509	138 139	108	1188
Severance, Edward A., Antrim, N. H. Pocket-knife	749,230	Jan. 12	1392	297	108	339
Severance, Wallace L., Freeport, Ill. Carbureter	750,311	Jan. 26	3522	761	108	834
Sewell, Benjamin F. B., Skien, Norway. Evaporating liquids	752,399	Feb. 16	3431	765 766	108	1839
Seymour, James M., and A. M. Harris, Newark, N. J.; said Harris assignor to said Seymour. Leather-splitting machine	750,468	Jan. 26	3680	799	108	870
Shafer, Samuel F., Findlay, Ohio. Heating apparatus	752,002	Feb. 9	2268	515	108	1569
Shallenberger, Charles S., Milwaukee, Wis., assignor of one-half to E. S. Marshall, St. Louis, Mo. Body-bolster for railway-cars	751,875	Feb. 9	2033	460	108	1511
Shambeau, William, *et al.* (See Linton, Ernest O., assignor.)						
Shannon, Harry L., Findlay, Ohio. Bottle-closure	752,473	Feb. 16	3181	710	108	1783
Shannon, John J., Montreal, Canada. Can	749,231	Jan. 12	1392	298	108	339
Sharp, Alonzo, Troy, N. Y., assignor to Adams Laundry Machinery Company. Apparatus for stretching collars	751,019	Feb. 2	436	103	108	1153
Sharp, James A., assignor to International Harvester Company, Chicago, Ill. Grain-header	749,907	Jan. 19	2749	588 589 590	108	649
Sharp, Warren M., Binghamton, N. Y. Dental mouth-mirror	751,950	Feb. 9	2185	493	108	1544
Sharpe, Alfred H. B., assignor of one-third to J. H. Foster, Lincoln, England. Fastening device for driving-belts	750,404	Jan. 26	3683	799	108	871
Shattuck, Freeman L., Paterson, N. J. Milk-pail holder	750,312	Jan. 26	3525	761	108	835
Shaver, Elmer C., New York, N. Y. Car-brake	751,112	Feb. 2	601	139	108	1189
Shaw, Edward, London, England, assignor, by mesne assignments, to American Street Flushing Machine Company, St. Louis, Mo. Nozzle for discharging liquids	749,232	Jan. 12	1396	298 299	108	340
Shaw, Henry C., Glenshaw, Pa. Fire-extinguisher	753,007	Feb. 23	4260	949	108	2040
Shaw, John, Featherstone, near Pontefract, England. Railway wagon or truck	751,113	Feb. 2	605	140	108	1189
Shaw, Samuel H., Philadelphia, Pa. Roller-wheel for form-inking rollers of printing-presses	750,710	Jan. 26	4259	924	108	990
Shaw, Wallace H., Brooklyn, N. Y. Stretcher-frame for paintings	751,756	Feb. 9	1797	410	108	1457
Shaw, Warwick A., Chicago, Ill. Rail-joint	751,693	Feb. 9	1676	379 380	108	1433
Shea, Michael F., Newport, R. I. Optical device	750,711	Jan. 26	4261	925	108	990
Shearer, Joe E., San Francisco, assignor to R. J. Davis, Ross Station, Cal. Rotary engine	751,694	Feb. 9	1677	380 381	108	1433
Sheets, Thomas J. and Z. T., Columbus, Ohio. Carpet-stretcher	748,664	Jan. 5	211	51	108	46
Sheets, Zachary T. (See Sheets, Thomas J. and Z. T.)						
Shelley, Sivert H., San Jose, Cal. Fruit-pitter	752,929	Feb. 23	4106	914	108	2006
Shelton, Albert A., and R. A. Kirk, Salina, Kans. Threshing-machine concave	750,902	Feb. 2	236	52	108	1110
Shepard, A. E. (See Scott, Jasper S., assignor.)						
Shepard, Charles H., Brooklyn, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	749,106	Jan. 5	1113	236 237	108	256
Shepard, Charles H., New York, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	750,712	Jan. 26	4262	925	108	990
Shepard, Harry H., and F. H. Fish, Bristol, R. I. Manufacturing hose	748,798	Jan. 5	453	101 102	108	102
Shepard, Louis A., assignor to C. Vanderbilt, New York, N. Y. Brake-beam fulcrum	749,107	Jan. 5	1122	237	108	259
Shepard, Louis A., assignor to C. Vanderbilt, New York, N. Y. Door-operating mechanism	749,108	Jan. 5	1123	237 238	108	259

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Sheppard, Herbert C., Porthcawl, assignor of one-half to F. Milburn, Cardiff, Glamorganshire, Wales, England. Variable-speed and reversing gear	748,799	Jan. 5	455	102 103	108	102
Sheppard, John S., Essington, Pa. Shaft-reversing mechanism	750,229	Jan. 19	3361	725 726	108	779
Sheridan, Robert E. (See Tons and Sheridan.)						
Sherry, John W., New York Mills, N. Y., assignor to Draper Company, Hopedale, Mass. Automatically-self-threading loom-shuttle	753,214	Feb. 23	4648	1035	108	2127
Shigley, Clarence M., Columbus, Ohio. Multicolor-printing press	750,405	Jan. 26	3684	800	108	871
Shilling, Henry F., and J. C. Dieter, Troy, Ohio. Time-recorder	748,800	Jan. 5	458	103	108	103
Shilling, Willard S., New Concord, Ohio. Rail-joint	751,951	Feb. 9	2186	493	108	1544
Shimer, Elmer S., Milton, Pa. Rotary cutter-head	751,952	Feb. 9	2187	493	108	1545
Shimp, Frank G., and J. C. Griffin, Patoka, Ill. Railway torpedo-placer	750,713	Jan. 26	4264	926	108	991
Shippy, Winfield S., Bayfield, Colo. Hay-knife	748,991	Jan. 5	858	184	108	199
Shipway, Jesse, Memphis, Tenn. Compressor	750,313	Jan. 26	3526	762	108	835
Shirreff, Charles J., Brockville, Canada. Food-cutter	748,665	Jan. 5	212	51	108	46
Shobert, Frederick C., Pittsburg, Pa. Copy-holder	750,230	Jan. 19	3365	726	108	779
Shoemaker, Harry, assignor to International Wireless Telegraph Company and M. V. Gehring, Philadelphia, Pa. Wireless signaling system	749,584	Jan. 12	2118	441	108	496
Shoenberg, Milton H., San Francisco, Cal. Attemperating device	750,088	Jan. 19	3006	644	108	703
Shoeneman, Eleonore, Chicago, Ill. Garment-hanger	749,455	Jan. 12	1869	388	108	439
Short, Parker S., and W. S. Poling, Anderson, Ind. Magic coin carrier or mailer	753,170	Feb. 23	4558	1016	108	2107
Shotwell, William B., Idlewild, Ky. Wire-stretcher	749,635	Jan. 12	2208	466	108	514
Shotwell, William N., and J. Dreistadt, Oldforge, Pa. Drill	749,585	Jan. 12	2123	442	108	498
Shriber, Samuel P., St. Louis, Mo. Fur-beater	750,714	Jan. 26	4265	926	108	991
Shrum, Peter J., and K. J. Hendricks, Pittsburg, Pa.; said Shrum assignor to said Hendricks. Wire article	750,908	Feb. 2	237	53	108	1110
Shubert, Charles M., West Philadelphia, Pa. Garment-fastening	750,008	Jan. 19	2940	631	108	692
Shuman, Frank, Philadelphia, Pa. Forming concrete piles	752,003	Feb. 9	2305	515	108	1570
Shuman, Frank, Philadelphia, Pa. Forming concrete piles	753,008	Feb. 23	4262	949	108	2041
Shupe, Eli, assignor of two-thirds to R. A. Nourse and G. N. Prentiss, Racine, Wis. Vise	749,233	Jan. 12	1396	299	108	340
Shuster, John G., Caldwell, Kans. Railway-tie	753,171	Feb. 23	4559	1016	108	2107
Shuster, Samuel B., New Concord, Ohio. Harness-tug	751,953	Feb. 9	2189	494	108	1545
Sibert, Fred W., *et al.* (See Masters, Arthur M., assignor.)						
Sibley, Edward L., Bennington, Vt. Paper-clip	752,185	Feb. 16	2022	581	108	1660
Sibley, Edward L., Bennington, Vt. Apparatus for inserting paper-fasteners	752,186	Feb. 16	2023	582	108	1660
Sibley, James T., Jersey City, N. J., assignor to J. O'Connor, New York, N. Y. Tracker-bar for musical instruments	748,801	Jan. 5	459	103 104	108	108
Siebenhaar, Louis E. (See Siebenhaar, Otto W. and L. E.)						
Siebenhaar, Otto W. and L. E., Rosendale, Wis. Fertilizer-distributer	749,334	Jan. 12	1605	340	108	386
Sieber & Trussell Mfg. Company. (See Trussell, Emory A., assignor.)						
Siebert, Frederick, assignor to American Motor and Pulley Co., St. Louis, Mo. Bushing	751,757	Feb. 9	1708	410	108	1457
Siegel, Andrew W. (See Russell and Siegel.)						
Sielaff, Max, Berlin, Germany. Coin-controlled apparatus	750,314	Jan. 26	3528	762	108	836
Sielaff, Max, Berlin, Germany. Mechanism for dispensing stamps, tickets, or the like	751,568	Feb. 9	1453	330	108	1387
Siemens Gebrüder & Co. (See Viertel, Hermann, assignor.)						
Silberstein, Emil, *et al.* (See Kremer, Michael J., assignor.)						
Silberstein, Louis, *et al.* (See Kremer, Michael J., assignor.)						
Silberstein, Martin, *et al.* (See Kremer, Michael J., assignor.)						
Silberstein, Max, *et al.* (See Kremer, Michael J., assignor.)						
Sill, Edward L., Woodward, Okla. Ter. Pneumatic horse-collar	753,009	Feb. 23	4263	950	108	2041
Silver Manufacturing Company. (See Gibbons, Edward F., assignor.)						
Silver, Silas C., London, Ohio. Fence-post	752,930	Feb. 23	4107	914	108	2006
Simering, John C., Baltimore, Md. Shoe-polishing chair	751,114	Feb. 2	607	140	108	1189
Simmonds, Percy V., assignor of one-half to J. O'Connor, Toronto, Canada. Gravity-lock	751,954	Feb. 9	2190	494	108	1545
Simmons, Frank F. (See Fahrney, Newton, and Simmons.)						
Simmons, Jesse W., Oak, Tex. Meat-cutter	752,264	Feb. 16	2787	618	108	1690
Simms, Rudolph, assignor of one-half to B. F. Schubert, Washington, D. C. Smoke-consuming means	749,586	Jan. 12	2125	442	108	498
Simon, Ernst, Vienna, Austria-Hungary. Mold-press for making cigarette or cigar holders or the like	750,406	Jan. 26	3687	800	108	872
Simon, William F., West Hoboken, N. J. Bracelet or other ornament	749,587	Jan. 12	2127	443	108	498
Simons, Frank, Buffalo, N. Y. Luggage-carrier for vehicles	752,004	Feb. 9	2306	516	108	1570
Simplex Electric Heating Company. (See Ayer, James I., assignor.)						
Simplex Manufacturing Company. (See Casler and Pross, assignors.)						
Simplex Railway Appliance Company. (See Lamont, Robert P., assignor.)						
Simpson, Harry, Edgely, Pa. Greenhouse-frame	749,972	Jan. 19	2876	615	108	676
Simpson, Thomas H., and E. L. Nelson, Detroit, Mich.; said Nelson assignor to said Simpson, trustee. Mechanism for attaching end plates to arbors	750,231	Jan. 19	3368	727	108	781
Simpson, William P. (See Foster, Charles E., assignor.)						
Sinclair, James, Chicago, Ill. Artificial-stone-molding machine	748,666	Jan. 5	214	51	108	46
Sinclair, Walter A., Springfield township, Kalkaska county, Mich. Device for automatically closing the orifices in fish-basket covers	752,600	Feb. 16	3433	766	108	1839
Sinclair, William E. (See Haller and Sinclair.)						
Sindingchristensen, Frederick, Brooklyn, N. Y., assignor of one-half to F. F. Storm, Maywood, N. J. Electric-arc lamp	752,005	Feb. 9	2308	516	108	1570
Singer, Frank K., Wheeling, W. Va. Electric blanket	751,353	Feb. 2	1080	244	108	1287
Singer Manufacturing Company. (See Allen, Edward B., assignor.)						
Sintz, Clark, Grand Rapids, Mich., assignor to F. J. Ball, Brooklyn, N. Y. Power-transmitting gear	752,867	Feb. 23	3954	886 887	108	1971
Sittmann, Gustav, and W. H. Pitt, Brooklyn, N. Y. Screw-machine	748,667	Jan. 5	216	52	108	47
Sjolander, Eric O., Deepwater, Tex. Bench-plane	749,827	Jan. 19	2605	556 557	108	618
Skal, George von. (See Markovits, Emmerich, assignor.)						
Skellenger, Allen, Whiting, Ind. Gate attachment	753,172	Feb. 23	4559	1016	108	2108
Skipton, Franklin. (See Peterson, Walferd C., assignor.)						
Slaby, Adolf, Charlottenburg, and G. G. Arco, Berlin, Germany. Spark telegraphy	750,496	Jan. 26	3848	836	108	907
Sleeman, William W., Oil City, Pa. Working barrel for wells	750,715	Jan. 26	4266	926	108	992
Sleeper, Joseph J., Philadelphia, Pa. Vending-machine	750,315	Jan. 26	3529	763	108	836
Sleigh, Charles F., Parkersburg, W. Va. Valve-motion	749,456	Jan. 12	1870	389	108	439
Slemmer, Frank G., Goldsboro, Md. Canning device for fruits or vegetables	750,407	Jan. 26	3689	801	108	872
Slinack, Victor H. (See Prendergast, Slinack, and Wilson.)						
Sloane, Edwin, *et al.* (See Nederman, Herman, assignor.)						
Slocum, John C., assignor to J. A. Jeffrey, Columbus, Ohio. Clam-shell bucket	751,955	Feb. 9	2193	494	108	1546
Slocum, John C., assignor to J. A. Jeffrey, Columbus, Ohio. Clam-shell bucket	751,956	Feb. 9	2195	495	108	1546

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sloper, Thomas. (See Gray and Sloper.)						
Sly, Byron E. (See Teeter and Sly.)						
Small, John S. (See Moodie and Small.)						
Small, Richard E., Los Angeles, Cal. Pump-piston	751,758	Feb. 9	1799	410	108	1458
Smalley Manufacturing Company. (See Windingstad, Nels N., assignor.)						
Smart, Donald G., Grand Rapids, Wis. Insulated wiring-tack	751,354	Feb. 2	1061	244	108	1288
Smelker, Angeline, Greenville, Ohio, assignor of one-third to M. M. Mehring, Indianapolis, Ind. Jar neck and closure	749,457	Jan. 12	1873	389	108	440
Smith, Adolph T., New York, N. Y., assignor of one-half to M. B. Matthews, Passaic, N. J. Electric fan	750,716	Jan. 26	4268	926	108	992
Smith, Albert D., Lancaster, Pa. Post-hole digger	752,115	Feb. 16	2497	556	108	1631
Smith, Andrew, Frankfort, assignor of two-thirds to A. V. Friedrich, Traverse City, Mich. Clothes-pin	749,284	Jan. 12	1368	299	108	340
Smith, Arthur W., Barking, England. Spanner	749,598	Jan. 12	2128	443	108	498
Smith, Barnet, New York, N. Y. Convertible chair and cradle	751,813	Feb. 9	1918	435	108	1484
Smith, Charles E., New York, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	752,808	Feb. 23	3955	867	108	1971
Smith, Charles F., Paterson, N. J. Clothes-line fastener	749,235	Jan. 12	1309	300	108	341
Smith, Charles F., Shobonier, Ill. Combination derrick and dump	752,187	Feb. 16	2624	562	108	1660
Smith, Charles M. (See La Sor and Smith.)						
Smith, Charles W., Buffalo Center, Iowa. Manure-spreader	750,067	Jan. 19	3065	658	108	715
Smith, Charles W., New York, N. Y. Skylight	752,869	Feb. 23	3960	867 868	108	1972
Smith, Charles W., Brooklyn, N. Y. Tunneling apparatus	752,931	Feb. 23	4108	914 915	108	2006
Smith, Christian H., Trauger, Pa. Latch for mine-car doors	752,265	Feb. 16	2788	618	108	1699
Smith, Clarence E., assignor to North & Judd Manufacturing Company, New Britain, Conn. Buckle	749,589	Jan. 12	2129	443	108	499
Smith, Cullen R., assignor to himself and J. S. Lowery, Gonzales, Tex. Cotton-stalk puller	749,636	Jan. 12	2210	466 467	108	515
Smith, D. Lawrence. (See Dodd, Hamilton D., assignor.)						
Smith, Ernest D., assignor of one-half to F. L. Hillyer, Lockhart, Tex. Baling-press	750,232	Jan. 19	3370	727	108	781
Smith, Frank J. (See Black and Smith.)						
Smith, Frank L., assignor of two-thirds to A. C. Ricksecker and L. A. Nichols, Chicago, Ill. Valve	749,537	Jan. 12	2214	467	108	515
Smith, Franklin P. (See McClure, Edward, assignor.)						
Smith, Frederic E., Franklin, Pa. Portable traction-crane	752,303	Feb. 16	2973	662	108	1739
Smith, Frederic E., and E. R. Inman, Franklin, Pa.; said Inman assignor to said Smith. Portable traction-crane	752,302	Feb. 16	2971	660 661	108	1739
Smith, George E., trustee. (See Ladd, Hermon W., assignor.)						
Smith, George H., assignor to Beaman & Smith Company, Providence, R. I. Bed-fastening for horizontal spindle drilling and boring machines	752,714	Feb. 23	3671	817	108	1909
Smith, Grover D., Montclair, N. J. Attachment for vehicle steering-gear	751,876	Feb. 9	2035	460	108	1511
Smith, Gustava F., New Berlin, Ohio. Tripod	752,423	Feb. 16	3104	688 689	108	1766
Smith, Harry E., Mercersburg, Pa. Fruit-drier	749,404	Jan. 12	1750	370	108	417
Smith, Henry C., Chicago, Ill. Support for fire-doors	752,188	Feb. 16	2625	562	108	1660
Smith, Henry P., Canaan, Ohio. Cockeye	752,189	Feb. 16	2626	562	108	1661
Smith, Herbert M. (See De Lancey and Smith.)						
Smith, Hosea D., assignor of one-half to J. B. Robinson, Cecil, Ga. Swinging bed spring device	753,173	Feb. 23	4561	1017	108	2108
Smith, James E., Alamogordo, N. Mex. Ter. Pumping apparatus	752,715	Feb. 23	3672	818	108	1909
Smith, James J., Enid, Okla. Ter. Feed-trough	748,802	Jan. 5	462	104	108	108
Smith, James L., Taunton, Mass. Oil-burner	752,716	Feb. 23	3673	818	108	1909
Smith, James W., Mogadore, Ohio. Shock-binder	752,870	Feb. 23	3961	868	108	1973
Smith, Jerome T., Scotland, S. D. Heating-stove	748,803	Jan. 5	463	104	108	108
Smith, John B., Valdosta, Ga. Navigator's position-indicator	752,717	Feb. 23	3675	819	108	1910
Smith, John C., Perrysville, Ohio. Abrading-tool	752,475	Feb. 16	3184	710	108	1783
Smith, John F., *et al.* (See True, Mark B., assignor.)						
Smith, John H., Montgomery, Ala. Car-brake	751,355	Feb. 2	1083	245	108	1288
Smith, John H., assignor of one-half to G. R. Sackett, Revere, Mass. Flushing apparatus for water-closets, &c	753,174	Feb. 23	4562	1017	108	2108
Smith, John J. C. and M., Passaic, N. J. Flooring or wall-covering material	752,116	Feb. 16	2499	556	108	1632
Smith, John M., *et al.* (See Bryar, George, assignor.)						
Smith, John N., assignor of one-half to R. Paul and J. S. Tipton, Roanoke, Va. Nut-lock	750,130	Jan. 19	3177	683	108	738
Smith, Lyman C., Oshawa, Canada. Feed or litter carrier	751,020	Feb. 2	438	103	108	1154
Smith, Michael. (See Smith, John J. C. and M.)						
Smith, Norman J., Philadelphia, Pa. Type-writer attachment	750,233	Jan. 19	3371	727	108	781
Smith, Orson W., assignor to himself and J. J. Fagan, Charlevoix, Mich. Cheese-cutter	752,006	Feb. 9	2310	516	108	1571
Smith, Richard H., Springfield, Mass. Combined molding-press, mold-drier, and vulcanizer	751,759	Feb. 9	1800	410 411	108	1458
Smith, Robert R., Philadelphia, Pa. Door-check	752,117	Feb. 16	2508	557	108	1632
Smith, Robert R., Traer, and G. McTurk, Crystal, Iowa. Pump-rod counterbalance	749,236	Jan. 12	1400	300	108	341
Smith, Solon C., Jackson, Ohio. Raising and dropping mechanism	749,590	Jan. 12	2130	443	108	499
Smith, Sommers N., Philadelphia, Pa. Steam-turbine	749,885	Jan. 19	2708	578	108	640
Smith & Son, Lee S. (See Orndorf, Camern E., assignor.)						
Smith, Walter T., and J. V. Malnight, Jackson, Mich., assignors to Jackson Skirt & Novelty Co. Skirt	750,234	Jan. 19	3372	728	108	781
Smith, Wilber K., Denver, assignor to American Automatic Switch Company, Pueblo, Colo. Railway-switch	752,718	Feb. 23	3676	819	108	1910
Smith, William, assignor to Henry Disston & Sons, Incorporated, Philadelphia, Pa. Trowel-handle	751,356	Feb. 2	1084	245	108	1288
Smith, William C., Chicago, Ill. Lifting-jack	748,902	Jan. 5	859	184	108	199
Smith, William D., Denver, Colo. Watchmaker's tool	751,439	Feb. 2	1215	277	108	1516
Smith, William G. (See Truman, Charles, assignor.)						
Smith, William H. (See Villiers, Edward C., assignor.)						
Smith, William H., Jr. (See Quick and Smith.)						
Smith, William H., assignor of one-half to W. F. Kelly, Elizabeth, N. J. Automatic marine water-closet	751,210	Feb. 2	806	185	108	1229
Smith, William J., Chicago, Ill. Fan	750,904	Feb. 2	288	53	108	1110
Smithson, Charles, *et al.* (See Osborne, John W., assignor.)						
Smithwick, Samuel D., Mangum, Okla. Ter. Fruit or vegetable cutter	751,695	Feb. 9	1681	381	108	1484
Smyser, Louis B., Elizabeth, N. J., assignor, by mesne assignments, to Candee Brothers, New York, N. Y. Reversing-gear	751,211	Feb. 2	806	186	108	1229

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smyth, William H., and A. B. Bowers, San Francisco, Cal. Dredging-machine	748,804	Jan. 5	465	104 105	108	104
Smyth, William P., *et al.* (See Scott, James R., assignor.)						
Snavely, Charles T. (See Snavely, Ferdinand S. and C. T.)						
Snavely, Ferdinand S. and C. T., Marion, Va. Grain grading and separating machine	751,696	Feb. 9	1688	382	108	1484
Sneddon, James P., Barberton, Ohio, assignor to Stirling Company, Chicago, Ill. Lantern-plug	749,807	Jan. 19	2565	545	108	608
Sneddon, James P., Barberton, Ohio, assignor to Stirling Company, Chicago, Ill. Lantern and lantern-plug for water-tube boilers	752,871	Feb. 23	3962	888	108	1973
Sneeringer, Samuel R. (See Barten and Sneeringer.)						
Sneider, Joseph, Buckley, Wash. Cattle-guard	751,957	Feb. 9	2197	495	108	1547
Snell Electric Signal Company. (See Snell, Harry B., assignor.)						
Snell, Harry B., Cement City, Mich., assignor to Snell Electric Signal Company. Automatic signaling system for electric railways	751,021	Feb. 2	440	104	108	1154
Snell, Harry B., Cement City, Mich., assignor to Snell Electric Signal Company. Automatic signaling system for electric railways	752,719	Feb. 23	3678	819 820	108	1910
Snider, Walter D., assignor of one-half to W. Dunn, Paterson, N. J. Speed-change mechanism for lathes	752,007	Feb. 9	2312	516	108	1571
Snow, Charles H., Stockton, Cal. Magazine-gun	752,982	Feb. 23	4111	915 916	108	2007
Snow, William J., assignor of one-half to J. H. Davis, Vilonia, Ark. Milk-can	748,805	Jan. 5	470	105	108	105
Snyder, H. E. (See Geisler, Fernando H., assignor.)						
Snyder, William R., Kimberton, Pa. Rotary pleasure-tower	750,717	Jan. 26	4269	927 928	108	992
Société Anonyme des Anciens Etablissements Panhard et Levassor. (See Krebs, Arthur, assignor.)						
Société Chimique des Usines du Rhône, Anciennement Gilliard, P. Monnet et Cartier. (See Balthazard, Baptiste, assignor.)						
Society of Electricität-Actien-Gesellschaft, vorm. W. Lahmeyer & Co. (See Dettmar, Georg, assignor.)						
Soisson, Louis H., Connellsville, Pa. Detachable handle	749,753	Jan. 19	2470	526	108	588
Solley, John W. (See Downing, William H., assignor.)						
Solomon, David W., Arlington, Wash. Saw-handle	752,864	Feb. 16	2975	662	108	1740
Solon, Thomas F., Solon Springs, Wis. Coin-controlled apparatus	751,420	Feb. 2	1183	269	108	1308
Somers, Erastus C., deceased, Corning, N. Y.; N. L. Somers, administrator. Revolubie window	749,109	Jan. 5	1125	238 239	108	260
Somers, Nelson L., administrator. (See Somers, Erastus C.)						
Somerville, William, St. Louis, Mo. Disk plow or harrow	752,306	Feb. 16	2966	638	108	1715
Sommer, Jacob, Kearney, assignor of one-half to H. F. Carson, Fremont, Nebr. Fifth-wheel	751,877	Feb. 9	2037	461	108	1512
Sonander, Andrew, assignor to Foos Gas Engine Company, Springfield, Ohio. Reversing-gear	751,022	Feb. 2	443	104	108	1155
Sorenson, Andrew J., Chicago Heights, Ill., assignor to Baldwin Company, Hamilton county, Ohio. Piano-pedal guard	751,697	Feb. 9	1685	382	108	1485
Sorlin, Charles. (See Edouard and Sorlin.)						
Sostman, Julius, *et al.* (See Gordon, George W., assignor.)						
Soulé, George W., Meridian, Miss. Clamp	752,424	Feb. 16	3106	689	108	1766
Sourek, Joseph S., Ghent, Ohio. Buckle	749,953	Jan. 19	2844	607	108	669
South, James T., Brighton, England. Artificial slate	750,905	Feb. 2	239		108	1110
Southard, Frank E., Toledo, Ohio. Vehicle-wheel	748,993	Jan. 5	860	185	108	200
Southard, Frank E., Toledo, Ohio. Go-cart	748,994	Jan. 5	861	185	108	200
Southern, Leonard A., Stokesdale, N. C. Eye-protector for horses	749,405	Jan. 12	1752	371	108	417
Southgate, Louis W., Worcester, Mass., assignor, by mesne assignments, to Detroit Trust Co., trustee, Detroit, Mich. Web-manipulating mechanism	752,933	Feb. 23	4115	916 917	108	2008
Southwick, Charles A., Peabody, Mass. Automatic control for return-traps	749,973	Jan. 19	2877	616	108	676
Southworth, Preston B., Hillsboro, Oreg. Egg-tester	752,806	Feb. 23	3932	860	108	1944
Spalckhaver, William, Brooklyn, assignor to R. Hoe, New York, N. Y. Web-printing machine	752,807	Feb. 23	3933	860 861	108	1944
Spangler, John H., Crafton, assignor to A. M. Miller, Pittsburg, Pa. Household tongs	749,110	Jan. 5	1127	239	108	261
Spangler, Samuel C., Clyde, assignor of one-half to O. P. and J. A. Swenson, Medford, Okla. Ter. Friction-gear	751,878	Feb. 9	2038	461	108	1512
Spangler, Siramrion S., Terre Haute, Ind. Curtain-pole and shade hanger	752,425	Feb. 16	3108	689	108	1767
Sparks, W. B. (See Goode, Frank R., assignor.)						
Spaulding, Nathan R., Monroeville, Ind. Heating-stove	748,995	Jan. 5	863	185	108	200
Spear, Edwin H., New York, N. Y., and E. Moriarty, assignors to F. S. M. Syndicate, Limited, London, England. Machine for receiving, delivering, sorting, registering, and detecting coins	750,718	Jan. 26	4273	928 929 930 931	108	993
Spear, John H., Springfield, Mass. Spokeshave	752,365	Feb. 16	2976	663	108	1740
Spear, Lawrence Y. (See Cable and Spear.)						
Spear, Lawrence Y., Greenport, N. Y., assignor to Electric Boat Company. Altiscope for submarine boats	749,754	Jan. 19	2471	526	108	588
Spear, Lawrence Y., Greenport, N. Y., assignor to Electric Boat Company. Altiscope or the like	749,755	Jan. 19	2472	527	108	588
Spear, Lawrence Y., Greenport, N. Y., assignor to Electric Boat Company. Altiscope or the like	751,569	Feb. 9	1455	330	108	1387
Speare, Edward R., *et al.* (See Morse, William M., assignor.)						
Speare, Lewis R., *et al.* (See Morse, William M., assignor.)						
Specht, George W., and W. P. Wetzler, Allegheny, Pa. Ball-rack	751,814	Feb. 9	1919	436	108	1485
Speelman, Allen T., Crestline, Ohio. Tool for removing or replacing incandescent-electric-light bulbs	750,408	Jan. 26	3691	801	108	872
Speer, Clyde A., and E. C. Bowman, Los Angeles, Cal. Pneumatic hammer	749,808	Jan. 19	2568	545 546	108	609
Spencer, George F., Thompson, Pa. Vertical boiler	748,806	Jan. 5	471	106	108	106
Spencer, Harry S. (See Thomas and Spencer.)						
Spencer, Harry S., Bondhill, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Dovetailing-machine	749,458	Jan. 12	1875	389 390	108	440
Spencer, Ira H., Hartford, Conn. Variable-speed device	751,958	Feb. 9	2198	495 496	108	1547
Spencer, Jesse F., Philadelphia, Pa. Mold	748,996	Jan. 5	864	185 186	108	201
Spencer Lens Company. (See Dieckmann, Carl F., assignor.)						
Spencer Wire Company. (See Germain, Peter H., assignor.)						
Spengler, John H., *et al.* (See Linton, Ernest O., assignor.)						
Sperry, Elmer A. (See Lyndon and Sperry.)						
Sperry, Elmer A., Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. System of electrical generation, distribution, and control	750,497	Jan. 26	3853	887 888	108	907

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sperry, Elmer A., Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. Power-transmitting mechanism	750,498	Jan. 26	3860	838, 839	108	908
Sperry, Elmer A., Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. Power-transmitting mechanism	750,499	Jan. 26	3865	839, 840	108	910
Sperry, Elmer A., Cleveland, Ohio, assignor to National Battery Company, Jersey City, N. J., and Buffalo, N. Y. System of electrical generation, distribution, and control	750,500	Jan. 26	3868	840	108	910
Speyer, John, Cascade, Mich. Wrench	749,237	Jan. 12	1401	300	108	341
Spinrad, Max, and H. Buechting, New York, N. Y. Electrically-operated railway-gate	750,008	Jan. 19	3008	659	108	715
Spiro, Julius, New York, N. Y. Fire-escape	749,406	Jan. 12	1753	371	108	417
Spivey, Charles, Sutton, Nebr. Flood-gate for fences crossing streams	751,023	Feb. 2	444	105	108	1135
Splitdorf, Charles F., New York, N. Y. Induction-coil	752,008	Feb. 9	2313	517	108	1571
Spooner, George. (See Massey and Spooner.)						
Sprague, Henry A., Birnamwood, Wis. Milking-stool	751,357	Feb. 2	1085	245	108	1288
Spratt, Albert, Providence, R. I., assignor to General Fire Extinguisher Company, New York, N. Y. Pipe joint or coupling	748,807	Jan. 5	473	106	108	106
Spratt, Albert, Providence, R. I., assignor to General Fire Extinguisher Company, New York, N. Y. Pipe joint or coupling	748,808	Jan. 5	474	106	108	106
Sprich, Emil, St. Louis, Mo. Car-fender	750,719	Jan. 26	4309	981, 982	108	1002
Springall, Walter A., San Antonio, Tex. Incandescent lamp	750,720	Jan. 26	4310	982	108	1002
Spurlock, John W., Tyty, Ga. Apparatus for wood distillation	751,698	Feb. 9	1685	382	108	1435
St. John, Gamaliel C., *et al.* (See Sauvage, William H., assignor.)						
St. Louis Car Company. (See Witte, Hubert, assignor.)						
St. Louis, Francis X., and A. M. Jackson, Colusa, Cal. Voting-machine	752,807	Feb. 16	2867	688, 689	108	1715
St. Louis Plate Glass Company. (See Murnane and Davies, assignors.)						
Stack, Thomas L. F., Drumquin, Ireland. Lifting mechanism	750,400	Jan. 26	3002	801	108	872
Stadelmann, Hermann, Jr., Apolda, assignor of one-half to L. Dreyfus, Frankfort-on-the-Main, Prussia, Germany. Apparatus for signaling on locomotives	749,111	Jan. 5	1129	239, 240	108	261
Standard Bottle Closure Company. (See Chapman, Earle E., assignor.)						
Standard Coupler Company. (See Gallagher, Richard D., Jr., assignor.)						
Standard Harrow Company. (See Burdick, Hiram M., assignor.)						
Standard Horse Nail Company. (See Pierce and Newton, assignors.)						
Standard Machine Company. (See Houseman, Harry A., assignor.)						
Standard Metal Furniture Company. (See Gillett, Vernor J., assignor.)						
Standard Steel Car Company. (See Anderson, Harry T., assignor.)						
Standard Steel Car Company. (See Caughey, Edward G., assignor.)						
Standard Steel Car Company. (See Stucki, Arnold, assignor.)						
Standard Tool Company. (See Parpart, Otto, assignor.)						
Stange, Cleora C., Yates Center, Kans. Marking and cutting device	748,997	Jan. 5	871	187	108	201
Stange, William C., Yates Center, Kans. Fastener device	753,175	Feb. 23	4564	1017	108	2108
Stanley Electric Manufacturing Company. (See Adams, Charles F., assignor.)						
Stanley Electric Manufacturing Company. (See Andrews, Leonard, assignor.)						
Stanley Electric Manufacturing Company. (See Canfield, Milton C., assignor.)						
Stanley Electric Manufacturing Company. (See Chesney, Cummings C., assignor.)						
Stanley Electric Manufacturing Company. (See Davison, George R., assignor.)						
Stanley Electric Manufacturing Company. (See Dodd, Samuel T., assignor.)						
Stanley Electric Manufacturing Company. (See Kilbourn, Washington H., assignor.)						
Stanley Electric Manufacturing Company. (See Nicholls, Francis V., assignor.)						
Stanley Electric Manufacturing Company. (See Rushmore, David B., assignor.)						
Stanley Electric Manufacturing Company. (See Wilson, Leonard, assignor.)						
Stanley Electric Manufacturing Company. (See Wright, Gilbert, assignor.)						
Stanley Electric Manufacturing Company. (See Wright and White, assignors.)						
Stanley, Francis E. and F. O., Newton, Mass. Vapor-burner	750,410	Jan. 26	3002	801	108	873
Stanley, Frederick W., McComb, Miss. Seed-planter	751,879	Feb. 9	2039	461	108	1512
Stanley, Freelan O. (See Stanley, Francis E. and F. O.)						
Stanley Instrument Company. (See De Lancey and Smith, assignors.)						
Stanley, James, Newcastle, Ind. Windmill	748,998	Jan. 5	873	187	108	202
Stanley, James, Newark, N. J. Spreader for the legs of horses	751,115	Feb. 2	607	141	108	1190
Stanley Rule & Level Company. (See Trant, Justus A., assignor.)						
Stanley Works. (See Hart, Walter H., assignor.)						
Stannard, John E., Springfield, Mass. Electric signaling apparatus	751,760	Feb. 9	1803	411	108	1458
Stansell, Donovan, and X. Gee, Stroud, Okla. Ter. Apparatus for cleaning cotton-seed	752,872	Feb. 23	3965	888, 889	108	1974
Stapleton, Benjamin, and J. Ahern, Perry, Iowa. Automatic air-brake	751,024	Feb. 2	445	105	108	1156
Star Brass Manufacturing Company. (See Bosworth, Charles B., assignor.)						
Starbuck, George F., Waltham, Mass. Car-buffer	751,212	Feb. 2	810	186, 187	108	1230
Starch, Benjamin. (See Starch, Emil and B.)						
Starch, Emil and B., La Crosse, Wis. Cream-separator	752,934	Feb. 23	4119	917	108	2009
Stark, Ferdinand, New York, N. Y. Photographic lens for cameras	751,116	Feb. 2	609	141	108	1190
Starkey, Warren L., Flatbush, N. Y., assignor, by mesne assignments, to American School Furniture Company. Adjustable school desk and seat. (Reissue)	12,199	Feb. 23	4664	1008	108	2130
Static Carbonating Company. (See Carmichael, Henry, assignor.)						
Stead, James C., Brooklyn, N. Y. Steam-boiler	750,721	Jan. 26	4312	932, 933	108	1002
Stearns, Fred M., Starlake, Wis. Hand fish-dressing implement	752,118	Feb. 16	2506	357	108	1633
Stearns, Robert B., Chicago, Ill. Stop-lock for sliding doors	752,476	Feb. 16	3184	710	108	1784
Stearns, Sarah R., Redlands, Cal. Bread-making machine	752,119	Feb. 16	2507	357	108	1633
Steber, Bernard T., Utica, N. Y. Knitting-machine	751,213	Feb. 2	812	187, 188	108	1230
Stebler, Fred. (See Fay, Irving H., assignor.)						
Steeb, Rudolph A., Roselle, N. J. Twine-holder	751,214	Feb. 2	815	188	108	1231
Steedman, George F., St. Louis, Mo. Differential air-pressure elevator	752,720	Feb. 23	3681	820, 821	108	1911
Steele, Elbert L., Worcester, Mass. Educational game apparatus	750,906	Feb. 2	240	53, 54	108	1111
Steers, William, Sr., assignor to F. Collins and G. Welse, Chicago, Ill. Carpenter's folding square	749,112	Jan. 5	1132	241	108	262
Stein, Henry E. (See Donavin, Stein, and Hunt.)						
Stein, Paul, Homestead, Pa. Lock	752,009	Feb. 9	2314	517	108	1572
Steinberger, Louis, Brooklyn, N. Y. Insulator	749,335	Jan. 12	1608	341	108	387
Steinberger, Louis, New York, N. Y. Insulated support for wires	749,336	Jan. 12	1611	341	108	388
Steinberger, Louis, New York, N. Y. Insulator	750,722	Jan. 26	4314	933	108	1003
Steinberger, Louis, New York, N. Y. Insulator	750,723	Jan. 26	4316	933	108	1003
Steinberger, Louis, New York, N. Y. Binding-post	753,010	Feb. 23	4264	950	108	2041
Steinberger, Louis, New York, N. Y. Die for producing articles from plastic materials	749,407	Jan. 12	1757	371, 372	108	418
Steiner, Barnette T., and J. A. Hall, Canton, Ohio. Book-holder						

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Steiner, Morris, New York, N. Y. Fan attachment for sewing-machines	749,638	Jan. 12	2216	467, 468	108	516
Steinert, Alexander. (See Arno, Oliver H., assignor.)						
Steinmetz, Willem G. F., Medemblik, Netherlands. Apparatus for heating water by steam	752,721	Feb. 23	3685	821	108	1912
Steitz, John L., Chicago, Ill. Cooler for liquids	749,238	Jan. 12	1402	300	108	341
Stempel, Carl H., Burlington, Iowa. Coin-mailer	752,010	Feb. 9	2317	517	108	1572
Stenhouse, Katherine L., Chicago, Ill. Form-pad	751,215	Feb. 2	817	188	108	1231
Stephan, Karl, and F. Kaiser, assignors to Chemische Fabrik auf Actien, (vorm. E. Scherling,) Berlin, Germany. Acidyl derivatives of rufigallic-acid ethers and making same	751,216	Feb. 2	819	.....	108	1232
Stephens, Fred K., *et al.* (See Meixell and Holt, assignors.)						
Stephens, Gavin A., Memphis, Tenn. Square	750,725	Jan. 26	4319	934	108	1004
Stephens, Joseph E. (See Coryell and Stephens.)						
Stephens Lithographing & Engraving Company. (See Green, Edwin F., assignor.)						
Stephenson, Thomas B., Bristol, Conn. Compound grinding attachment	751,815	Feb. 9	1921	436	108	1485
Sterling, Charles O., Washington, D. C. Curling-iron case	750,724	Jan. 26	4317	933	108	1004
Sterling Co. (See Crofut, Frank V., assignor.)						
Sterling Manufacturing Company. (See Lincoln, Ward, assignor.) (Reissue.)						
Stern, Refel, Chicago, Ill. Printing-press	750,907	Feb. 2	241	54	108	1111
Sternberg, Marc, Philadelphia, Pa., assignor to Metallic Specialty Manufacturing Company. Ball-and-socket fastener	749,639	Jan. 12	2216	468	108	516
Sternberg, William D., London, England, assignor to A. B. Dick Company, Chicago, Ill. Stencil-printing machine	749,113	Jan. 5	1134	241	108	262
Stetson, Robert D. (See Mills, Thomas, assignor.)						
Stevens, Brainard W., Pinole, assignor to California Powder Works, Hercules, Cal. Wad sorter and assembler	749,459	Jan. 12	1882	391	108	442
Stevens, Frederick, Syracuse, N. Y. Device for stretching and pressing trousers	751,217	Feb. 2	820	189	108	1232
Stevens, George E., and W. C. Fish, Lynn, Mass., assignors to General Electric Company. Electric-arc lamp	751,025	Feb. 2	447	105	108	1156
Stevens, Josiah P., Atlanta, Ga. Fertilizer-distributer and seed-drill	750,726	Jan. 26	4321	934	108	1004
Stevens, Le Roy W., and B. Timmerman, Chicago, Ill., assignors to Advance Furnace Company of America. Electric furnace	749,460	Jan. 12	1886	392, 393	108	443
Stevens, Le Roy W., and B. Timmerman, Chicago, Ill., assignors to Advance Furnace Company of America. Electric furnace	749,461	Jan. 12	1890	393	108	444
Stevens, Le Roy W., and B. Timmerman, Chicago, Ill., assignors to Advance Furnace Company of America. Furnace	749,462	Jan. 12	1893	394	108	445
Stevens, Richard J. (See Harte and Stevens.)						
Stevens, Thomas G., Greenhithe, England. Saddle for cycles or the like	750,069	Jan. 19	3072	660	108	716
Stevenson, Clayton. (See Hollé and Stevenson.)						
Stevenson, Edward S., Eldorado, Kans. Musical instrument	751,880	Feb. 9	2042	461, 462	108	1512
Stevenson, James W., Philadelphia, Pa. Fastener for awnings	750,070	Jan. 19	3073	660	108	716
Stevenson, Robert C., Kilmarnock, Scotland. Repeating rifle	749,463	Jan. 12	1896	394	108	446
Stevenson and Sons, Hugh. (See Buckton, Albert R., assignor.)						
Stewart, Albert. (See Nelson, Stewart, and Foster.)						
Stewart, David, Govan, Scotland. Nut or pipe wrench	750,727	Jan. 26	4322	934	108	1004
Stewart, George W. (See Lawrence and Stewart.)						
Stewart, Matthew A., New York, N. Y. Grass-hook	752,808	Feb. 23	3837	861	108	1945
Stewart, Richard C., Jr., and W. A., Covington, Ky. Base for fence-posts	749,337	Jan. 12	1614	341	108	389
Stewart, Scott, Rivesville, W. Va. Check-lock	752,018	Feb. 9	2329	521	108	1575
Stewart, Wallace, and W. J. Wiles, Buffalo, N. Y. Heater	752,426	Feb. 16	3109	690	108	1767
Stewart, Wallace A. (See Stewart, Richard C., Jr., and W. A.)						
Steyne, Louis A., New York, N. Y. Hot-air and hot-water furnace	753,011	Feb. 23	4266	950, 951	108	2042
Stickles, Fred G., *et al.* (See Wackerow, George L., assignor.)						
Stiehle, Guido, Seltmanns, Harbatzhofen, Germany. Fiber-gathering can for spinning-machines	750,131	Jan. 19	3178	684	108	738
Stier, Herman, Chicago, Ill. Fluid-circulating apparatus	749,886	Jan. 19	2710	579	108	641
Stiles, Frank I., Sauk Rapids, Minn. Cloth measuring and cutting machine	752,120	Feb. 16	2509	558	108	1634
Still, William M., London, England. Steam-trap	748,888	Jan. 5	634	142	108	142
Stillwell, Edwin C., Bethany, Mo. Neck-yoke center	751,959	Feb. 9	2203	496	108	1549
Stilwell-Bierce & Smith-Valle Co. (See Giesler, Arthur, assignor.)						
Stimebach, John P. (See Lockett, Kenny, Stimebach, and Udell.)						
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom	753,012	Feb. 23	4269	951	108	2042
Stimson, Oscar M., and P. Parke, Chicago, Ill. Brake-shoe	750,728	Jan. 26	4326	934, 935	108	1006
Stimson, Willard H. (See Connell, John F., assignor.)						
Stirling Company. (See Sneddon, James P., assignor.)						
Stirling Company. (See Turner, George E., assignor.)						
Stitt, Elisha S., Newton, Mass. Trolley-finder	752,121	Feb. 16	2511	558	108	1634
Stitt, Samuel, Homer City, Pa. Plate-lifter	752,366	Feb. 16	2977	663	108	1740
Stockman, Henry, New York, N. Y. Bale	748,999	Jan. 5	874	187	108	202
Stockman, Watson B., and J. F. Friel, Chester, Pa. Lamp-burner attachment	748,889	Jan. 5	635	142	108	142
Stockwell, Dalton, South Lawrence, Mass. Automatic safety stop-motion for gill-boxes	751,570	Feb. 9	1456	330	108	1388
Stockwell, Millard E., assignor to J. A. Hodges and I. J. Cilley, Grand Rapids, Mich. Furniture	749,709	Jan. 12	2358	498	108	546
Stone, John V., assignor of eleven-sixteenths to H. Rasmussen, H. Bachenheimer, and C. A. Nye, Moorhead, Minn. Horse-collar	751,358	Feb. 2	1066	246	108	1289
Stone, Melvin L., Lowell, assignor to Draper Company, Hopedale, Mass. Filling-end-holding means for automatic looms	750,411	Jan. 26	3693	802	108	873
Stone, Morris M., New York, N. Y. Garment-hanger	752,122	Feb. 16	2513	559	108	1635
Stone, Roy, New York, N. Y. Tunneling apparatus	748,809	Jan. 5	475	107	108	107
Stone-Working Machine Company. (See Thomson, Charles A., assignor.)						
Stoner, Lewis H., Albany, Ind. Animal-trough	752,427	Feb. 16	3110	690	108	1767
Storey, Daniel M., Weeping Water, Nebr. Concentrator	749,706	Jan. 12	2351	496	108	545
Storm, Francis F. (See Sindingchristensen, Frederick, assignor.)						
Storrs, Charles P., *et al.* (See Henderson, Thomas M., assignor.)						
Storrs, Eugene O., Winterset, Iowa. Automatic check-row corn-planter	750,729	Jan. 26	4328	935	108	1006
Stouffer, Hiram C., Mineralridge, Ohio, assignor of nine-sixteenths to J. J. and I. P. Dean and C. E. Mehard, Newcastle, Pa. Pump	749,239	Jan. 12	1403	301	108	341
Stouffer, Hiram C., Mineralridge, assignor of five-sixths to A. T. Hunt, E. O. and H. E. Dilley, Warren, J. C. Hunt, Leavittsburg, Ohio, and C. M. Hunt, Newcastle, Pa. Nut-lock	750,412	Jan. 26	3695	802	108	873
Stough, William F., Prattville, Ala. Window-blind lock	750,730	Jan. 26	4330	935	108	1006
Stoughton, William B., Rockton, assignor of one-half to C. M. Kresge, Dubois, Pa. Stone-dressing machine	749,240	Jan. 12	1405	301	108	342

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stout, Hiram, Kingman, Kans. Ice-making apparatus	752,477	Feb. 16	3186	711	108	1784
Strain, C. M., *et al.* (See White, Howard, assignor.)						
Strasburger, Charles F. (See Nind and Strasburger.)						
Stratton, Cora M., administratrix. (See Stratton, William H.)						
Stratton, James M., Brooklyn, N. Y. Fire-box for steam-boiler or other furnaces	752,123	Feb. 16	2513	550	108	1685
Stratton, William H., deceased, Hartford, Conn.; C. M. Stratton, administratrix. Valve	753,215	Feb. 23	4650	1085	108	2127
Straus, Max. (See Cunningham, Walter C., assignor.)						
Street, Clement F., Cleveland, Ohio. Truck-bolster for railway-cars	750,731	Jan. 26	4330	985	108	1007
Street, William J., Jr., Madisonville, Ohio. Piano	753,176	Feb. 23	4565	1018	108	2109
Streib, John F. (See Lindström and Streib.)						
Streich, Frank. (See Burkhardt and Streich.)						
Stroba, Samuel, Allegheny, Pa. Split pulley	749,756	Jan. 19	2474	527	108	589
Stromberg, Alfred, Chicago, Ill., assignor to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y. Switchboard	752,722	Feb. 23	3696	821, 822	108	1912
Stromberg-Carlson Telephone Manufacturing Company. (See Babcock, Garrison, assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Davis, William M., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Goldberg, John S., assignor.)						
Stromberg-Carlson Telephone Manufacturing Company. (See Stromberg, Alfred, assignor.)						
Stronach, Harry S., and D. W. Ross, Marinette, Wis. Car-loader	751,859	Feb. 2	1087	246	108	1289
Strong, Arthur J., assignor of one-half to J. B. Hayward, Dayton, Ohio. Winding	751,816	Feb. 9	1922	436	108	1485
Struble, Robert D., assignor of one-half to J. J. Caln, Philadelphia, Pa. Release-hinge	750,908	Feb. 2	245	55	108	1111
Stuart, Frank, Ritzville, Wash. Wrench	749,908	Jan. 19	2732	500	108	649
Stuart, Harve R., and A. B. Reynders, Wilkinsburg, Pa., assignors to Westinghouse Electric & Manufacturing Company. Time-limit relay for electric circuits	751,571	Feb. 9	1459	331	108	1388
Stuart, Orion K., assignor of one-half to W. R. Watson, Indianapolis, Ind. Acetylene-gas generator	749,757	Jan. 19	2474	527	108	589
Stuber, Joseph, *et al.* (See Morgan, Alfred W., assignor.)						
Stubner, Friedrich H., East Rutherford, N. J. Elastic heel	751,817	Feb. 9	1926	436	108	1486
Stucki, Arnold, Allegheny, Pa. Dumping-car	751,437	Feb. 2	1211	276	108	1315
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Metallic brake-beam	750,732	Jan. 26	4331	986	108	1007
Stucki, Arnold, Allegheny, assignor to Pressed Steel Car Company, Pittsburg, Pa. Stock-car	751,436	Feb. 2	1210	276	108	1314
Stucki, Arnold, Allegheny, assignor to Pressed Steel Car Company, Pittsburg, Pa. Tank-car	751,438	Feb. 2	1213	277	108	1315
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Railway-truck	752,306	Feb. 16	2871	639	108	1716
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Metallic railway-car	752,309	Feb. 16	2874	639, 640	108	1716
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Door-operating device for hopper-cars	752,310	Feb. 16	2876	640, 641	108	1717
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Metallic car	752,311	Feb. 16	2879	641, 642	108	1718
Stucki, Arnold, Allegheny, assignor to Standard Steel Car Company, Pittsburg, Pa. Metallic underframe for railway-cars	752,478	Feb. 16	3189	711	108	1784
Stumpf, Johann, Charlottenburg, Germany. Steam or gas turbine	750,316	Jan. 26	3531	763	108	837
Stutchbury, William T., Northfleet, and C. Gorick, Gravesend, England. Perforator mechanism for preparing the composing-strip of type setting and casting machines	751,421	Feb. 2	1185	270	108	1309
Suddard, William A., Providence, R. I. Motor-bicycle	750,317	Jan. 26	3532	763	108	837
Sues, George W., Omaha, assignor to F. D. Kees, Beatrice, Nebr. Adjustable-hook corn-husker	749,408	Jan. 12	1750	372	108	418
Suetterle, John W. (See Keding, Louis, assignor.)						
Suizen, Herman J., Sacramento, Cal. Malt-making machine	751,026	Feb. 2	449	106	108	1157
Superior Automatic Telephone Company. (See Jackson, Uriah S., assignor.)						
Surmann, Charles, and R. D. Douglas, Fall River, Mass. Tube or roll forming machine	749,114	Jan. 5	1135	241	108	262
Susemihl, Theodor, New York, N. Y. Umbrella	752,723	Feb. 23	3689	822	108	1912
Sutherland, Jesse H., Dawkins, Colo. Combined school seat and desk	749,640	Jan. 12	2219	468	108	516
Sutherland, Murdock E., Westville, Canada. Rifle-sight	752,809	Feb. 23	3838	861, 862	108	1945
Sutter, Frederick C., *et al.* (See McCurdy, Charles B., assignor.)						
Sutton, John W., New York, N. Y. Cooling attachment for internal-combustion engines	752,479	Feb. 16	3191	712	108	1785
Sutton, John W., Brooklyn, N. Y. Cooling attachment for internal-combustion engines	753,013	Feb. 23	4273	952	108	2043
Sutton, Thomas J., New York, N. Y. Sash-lock for windows	749,641	Jan. 12	2222	469	108	517
Sutton, Thomas J., New York, N. Y. Sash-lock for windows	749,642	Jan. 12	2224	469	108	517
Swaggerty, Dolphus A., Knoxville, Tenn. Holder for abrading-sheets	751,117	Feb. 2	611	142	108	1190
Swain, Verne L. (See Fisher, Charles, assignor.)						
Swan, John W., assignor to John W. Swan Company, Lima, Ohio. Starting device for explosive-engines	750,318	Jan. 26	3534	763	108	837
Swann, Will R., assignor to Hallwood Cash Register Company, Columbus, Ohio. Credit account	750,557	Jan. 26	3990	863	108	932
Swanstrom, John E. (See Jones and Swanstrom.)						
Swedenborg, Swan, Ashtabula, Ohio. Clam-shell bucket. (Reissue)	12,191	Jan. 12	2369	500	108	549
Sweeney, Henry G., Chicago, Ill. Water-cooler	752,810	Feb. 23	3843	862	108	1946
Sweeney, Henry G., Chicago, Ill. Filter	752,873	Feb. 23	3968	880	108	1974
Sweetland, Frank, *et al.* (See Sweetland, William W., assignor.)						
Sweetland, James, *et al.* (See Sweetland, William W., assignor.)						
Sweetland, William W., Edwardsburg, Mich., assignor of two-thirds to F. and J. Sweetland, Angola, N. Y. Clutch mechanism	751,027	Feb. 2	452	106	108	1158
Swenson, Gustaf T., San Pedro, Cal. Electrically-produced-sound intensifier	751,818	Feb. 9	1927	437	108	1486
Swenson, John A., *et al.* (See Spangler, Samuel C., assignor.)						
Swenson, Magnus, *et al.* (See Pope, Frederick B., assignor.)						
Swenson, Oloff P., *et al.* (See Spangler, Samuel C., assignor.)						
Swift, Orin F., Quincy, Mass. Appliance for scrubbing	752,134	Feb. 16	2515	559, 560	108	1635
Swihart, Virgil D., Denver, Colo. Razor-stropper	751,422	Feb. 2	1187	270	108	1309
Switzer, Oscar S., Chicago, Ill. Cover attachment for receptacles	751,881	Feb. 9	2043	462	108	1513
Swoboda, Hans O., East Orange, N. J. Panel-board	752,125	Feb. 16	2516	560	108	1635
Sylvester, Cyrus O., Leavenworth, Kans. Windmill	752,126	Feb. 16	2517	560, 561	108	1636
Synnestvedt, Paul, Glenview, Ill., assignor to Westinghouse Air Brake Company, Wilmerding, Pa. Fluid-pressure-regulating device	749,974	Jan. 19	2880	616	108	676
Synnestvedt, Paul, Glenview, Ill., assignor to Westinghouse Air Brake Company, Wilmerding, Pa. Fluid-pressure-regulating device	749,975	Jan. 19	2882	616	108	677

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tabak, Leopold, New York, and C. S. Champion, Brooklyn, assignors to J. Mahl, New York, N. Y. Supporting device for coats, hats, umbrellas, &c	752,480	Feb. 16	3198	712	108	1785
Taft, Jerome C., Providence, R. I. Machine for making tags	752,601	Feb. 16	3433	766, 767, 768	108	1840
Tagliabue, Charles J. (See Hohmann, August B., assignor.)						
Tagliaferri, Joseph, New York, N. Y. Mechanical movement	751,218	Feb. 2	822	189	108	1232
Tait, James S. (See Jones, Alfred W., assignor.)						
Takamine, Jokichi, New York, N. Y. Glandular extractive compound	753,177	Feb. 23	4566	.....	108	2109
Talbot, Benjamin, Leeds, England, and P. Gredt, Luxemburg, Germany, assignors to Continuous Metal Refining Company, Philadelphia, Pa. Manufacture of steel and ingot-iron	749,115	Jan. 5	1138	.....	108	263
Tallman, James W., Beamsville, Canada. Boiler	750,909	Feb. 2	247	55	108	1112
Tambour, Joseph. (See Neuber and Tambour.)						
Tanner, Julius R., Pittsburg, Pa. High-pressure valve	751,572	Feb. 9	1463	331, 332	108	1389
Taplin Manufacturing Company. (See Angerbower, George J., assignor.)						
Tarbett, William A., Stoneham, assignor to W. B. Cohen, Salem, Mass. Paper-feeding mechanism	750,319	Jan. 26	3536	764, 765	108	838
Tarbox, Alfred B., Chelsea, Mass. Stud and pin coupling	750,501	Jan. 26	3871	840	108	911
Tartt, John J., Los Angeles, Cal. Trolley-pole	750,733	Jan. 26	4335	936	108	1009
Tasker, Vernon C., assignor to United States Ordinance Company, Washington, D. C.) Breech-loading ordinance	751,761	Feb. 9	1806	411, 412	108	1459
Taylor, Edwin F., Westchester, Pa. Rotary engine	752,602	Feb. 16	3439	768, 769	108	1841
Taylor, Edwin F., New Decatur, Ala. Rotary engine	752,603	Feb. 16	3443	769	108	1842
Taylor, Edwin F., New Decatur, Ala. Rotary engine	752,604	Feb. 16	3447	770	108	1842
Taylor, Elias, Winchester, Ill. Leaf-turner	751,219	Feb. 2	823	189	108	1232
Taylor, Frederick W., Philadelphia, Pa., and S. Newbold, Jobstown, N. J. Metal-boring tool	748,890	Jan. 5	636	143	108	142
Taylor, Henry G. (See Paton and Taylor.)						
Taylor, J. Saunders. (See Williams, George S., assignor.)						
Taylor, James A., Wabash, Ind. Lifting apparatus	750,320	Jan. 26	3542	765	108	839
Taylor, James H., assignor to American Spiral Pipe Works, Chicago, Ill. Pipe	749,338	Jan. 12	1616	341	108	389
Taylor, John D., assignor to Taylor Signal Company, Buffalo, N. Y. Railway switching and signaling apparatus	752,127	Feb. 16	2518	561	108	1636
Taylor, John E. S., assignor to Taylor Manufacturing Company, Limited, Detroit, Mich. Reamer	752,724	Feb. 23	3690	822	108	1913
Taylor Manufacturing Company. (See Taylor, John E. S., assignor.)						
Taylor Signal Company. (See Taylor, John D., assignor.)						
Taylor, Thomas D. (See Taylor, William F., Jr., assignor.)						
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Electric-car plow	748,810	Jan. 5	478	107	108	108
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Switch	748,811	Jan. 5	479	108	108	108
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Switch-throwing mechanism	748,812	Jan. 5	482	108	108	109
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Contact-shoe	748,813	Jan 5	484	109	108	110
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Semaphore mechanism	748,814	Jan. 5	485	109	108	110
Taylor, William F., Jr., Providence, R. I., assignor of one-half to T. D. Taylor, Boston, Mass. Railway block-signal and switch	748,815	Jan. 5	848	109, 110, 111	108	111
Tea Tray Company. (See Beecroft, Clement, assignor.)						
Tea Tray Company. (See Rapke, Victor H., assignor.)						
Teeter, Ira, and B. E. Sly, Watertown, N. Y. Fifth-wheel	751,699	Feb. 9	1686	383	108	1435
Teichgraeber, George, Marchienne au Pont, Belgium. Apparatus for heating air for supplying blast-furnaces	749,502	Jan. 12	1972	409, 410	108	462
Teller, George L., Chicago, Ill. Baking-powder	749,643	Jan. 12	2225	.....	108	517
Templeton, James F., Winnipeg, Canada. Pneumatic straw-stacker	751,573	Feb. 9	1464	332	108	1390
Templeton, William G., Colorado Springs, Colo. Irrigating device	749,758	Jan. 19	2477	528	108	589
Tenney, Alva L., Hartland, Wis. Freezing and bricking apparatus	751,360	Feb. 2	1088	246	108	1289
Ternström, Ernst. (See Nordenfelt and Ternström.)						
Terrell, Emery L., *et al.* (See Farmer, Julius M., assignor.)						
Terrell, Wales, Ansonia, Conn. Railway construction	752,312	Feb. 16	2882	642	108	1719
Terry, Edward F., New York, N. Y. Rivet-holder	748,816	Jan. 5	491	111	108	111
Terry, Fred B., and P. E. Crothers, Grand Rapids, Mich. Shoe-fastening means	751,220	Feb. 2	825	189	108	1233
Terry, Robert E., Mobile, Ala. Single-track elevated railway for logs, &c	751,960	Feb. 9	2205	496, 497	108	1549
Tesar, Wilhelm. (See Nonnast and Tesar.)						
Tew, William A., Bowling Green, Ohio. Pencil sharpener and point protector	752,935	Feb. 23	4122	918	108	2009
Textile Machine Works. (See Janssen, Henry, assignor.)						
Thayer, Adelbert H., assignor to Jackson Cushion Spring Company, Jackson, Mich. Automatic draft-regulator and smoke-preventer for furnaces	752,011	Feb. 9	2317	517, 518	108	1572
Thayer, Russell, assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa. Oil-gas generator and burner	750,558	Jan. 26	3992	863	108	932
Theige, George L., Westby, Wis. Door-opener	749,339	Jan. 12	1617	342	108	390
Theisen, Frederick. (See Henderson, Floyd W., assignor.)						
Theiss, Joseph F., Mendota, Ill. Display-rack	749,464	Jan. 12	1899	395	108	447
Thiedemann, Hinry, Hickman, Nebr. Sleigh-runner attachment for vehicles	749,887	Jan. 19	2712	579	108	641
Thiersch, Curt, St. Louis, Mo. Heating-lamp	750,502	Jan. 26	3873	841	108	911
Thode, Martin H., Riparia, Wash. Spark-arrester	751,118	Feb. 2	612	142	108	1191
Thom, James C., Helmetta, N. J. Packing-machine for plastic materials	752,481	Feb. 16	3196	712	108	1786
Thoma, Frederick. (See Lotz, Wismeyer, Hammer, Thoma, and Rentschler.)	749,644	Jan. 12	2225	469	108	517
Thomas, Abner D., Little Rock, Ark. Cotton-press	751,119	Feb. 2	613	142	108	1191
Thomas, Albert D., Keokuk, Iowa, assignor to Union Staple Seam Re-Enforcing Company. Staple-setting machine	751,700	Feb. 9	1688	384	108	1435
Thomas, Clark W., Frazeysburg, Ohio. Wrench	752,811	Feb. 23	3845	862	108	1947
Thomas, Jesse B. (See Knight, Alfred J., assignor.)						
Thomas, Jesse R., Walnutgrove, Mo. Match-safe	748,891	Jan. 5	639	143	108	143
Thomas, John, Balham, England. Automatic coupling and buffer	752,605	Feb. 16	3450	770, 771	108	1843
Thomas, John R., Cincinnati, and H. S. Spencer, Norwood, assignors to J. A. Fay & Egan Company, Cincinnati, Ohio. Feeding device for woodworking-machines	752,313	Feb. 16	2884	642, 643	108	1719

Alphabetical list of patentees for January and February—Continued.

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Thomas, Stephen S., Bloomfield, Mo. Hub-attaching device	748,892	Jan. 5	640	143	108	143
Thomé, Julieo E. (See Balluet, Henri, assignor.)						
Thomes, Frank E., assignor of one-half to C. F. Mantine, Portland, Me. Core-box cutter	753,178	Feb. 23	4568	1018	108	2110
Thompson, Charles F., Fulton, N. Y. Temple for looms	752,606	Feb. 16	3453	772	108	1843
Thompson, Crozier T., Cripplecreek, Colo. Fireman's helmet	752,396	Feb. 16	2790	618 619	108	1699
Thompson, George, Vincennes, Ind. Shovel	750,413	Jan. 26	3696	802	108	873
Thompson, James, Boston, Mass. Lug-strap connection for looms	751,819	Feb. 9	1928	437	108	1486
Thompson, Philip H., St. Louis, Mo. Adding-machine	750,734	Jan. 26	4386	936 937	108	1009
Thompson, Robert. (See Thompson, William H. and R.)						
Thompson, Thomas C., Haley, Tenn. Extension-table	751,921	Feb. 2	891	190	108	1233
Thompson, Thomas S., assignor to Armstrong Cork Company, Pittsburg, Pa. Cork-finishing machine	752,482	Feb. 16	3198	713	108	1786
Thompson, William, New York, N. Y. Telescopic couch-bed	751,222	Feb. 2	828	190	108	1233
Thompson, William H., London, England. Valve	750,321	Jan. 26	3543	765 766	108	840
Thompson, William H. and R., London, England. Interchangeably-locked gearing	752,129	Feb. 16	2526	562	108	1637
Thomson, Charles A., Belleville, N. J., assignor to Stone-Working Machine Company, New York, N. Y. Stone-sawing machine	749,707	Jan. 12	2354	496 497	108	545
Thomson, Charles D., deceased, Grand Rapids, Mich.; H. Thomson, executrix. Photographic plate and making same	751,882	Feb. 9	2045	462	108	1513
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company. Means for extinguishing electric arcs	751,028	Feb. 2	454	107	108	1158
Thomson, Helen, executrix. (See Thomson, Charles D.)						
Thomson, Henry C., assignor to Electric Gas Lighting Company, Boston, Mass. Igniting device for acetylene-gas burners	749,409	Jan. 12	1760	372	108	419
Thordarson, Chester H., Chicago, Ill. Electric-spark-producing apparatus	751,574	Feb. 9	1466	332 333	108	1390
Thordon, Eric, Pittsburg, Pa., assignor to Westinghouse Machine Company. Electromagnetic gearing	750,009	Jan. 19	2950	681 682	108	682
Thorn, George R. H., Swampscott, Mass. Watch-holder	750,503	Jan. 26	3874	841	108	911
Thornburg, Lincoln, Gas City, Ind., assignor to Window Glass Machine Company. Cooling-retarder for drawing glass	749,680	Jan. 12	2295	484	108	533
Thorp, Samuel, *et al.* (See Meixell and Holt, assignors.)						
Thorpe, William, Chelsea, London, assignor to F. Hines, Limited, London, England. Pipe and jointing same	749,465	Jan. 12	1909	395	108	447
Thorschmidt, Ernest C., New York, assignor to himself, and E. H. Barnes, Brooklyn, N. Y. Machine for applying bilge-hoops to casks or barrels	753,014	Feb. 23	4274	962	108	2043
	752,607	Feb. 16	3454	772	108	1843
Thowless, Arthur J., Newark, N. J. Doll	751,223	Feb. 2	829	190 191	108	1233
Threewits, Alvin M., Centerville, Ind. Mowing-machine	751,423	Feb. 2	1189	270	108	1310
Throop, Charles G., River Forest, assignor to himself, and S. Rosenthal, Chicago, Ill. Envelop	751,120	Feb. 2	616	143	108	1191
Tice, Walter W., Rahway, N. J. Electrical controller and brake-operating device	752,267	Feb. 16	2792	619	108	1700
Tideman, Carl G., Worcester, Mass. Relief mechanism for gearing of machinery	751,121	Feb. 2	617	143	108	1192
Tidey, Charles H., Newark, N. J. Automatic gage	750,504	Jan. 26	3875	841	108	911
Tiefel, Charles G., Rochester, N. Y. Extension-ladder	752,190	Feb. 16	2627	583	108	1661
Tieman, George G., Chicago, Ill. Wheelbarrow	752,725	Feb. 23	3092	823	108	1913
Tieman, George G., Chicago, Ill. Wheelbarrow construction	751,701	Feb. 9	1660	384	108	1486
Tiffany, Albert R., Dayton, Ohio. Tool-support for lathes						
Tilley, E. C. (See Campbell, Solon O., assignor.)						
Tillson, Stephen, Chatham, Canada, assignor of one-half to H. B. Fry, Bridgeport, Mich. Clothes-reel	753,179	Feb. 23	4569	1018 1019	108	2110
Timby, Theodore R., Brooklyn, N. Y. Coffee-treating machine	749,340	Jan. 12	1618	342	108	390
Timmerman, Bernard. (See Stevens and Timmerman.)						
Timmis, Edgar W. (See Timmis, Illius A. and E. W.)						
Timmis, Illius A. and E. W., London, England. Electromagnet	750,132	Jan. 19	3179	684	108	739
Tinsley, Albert C., Fay, Tex. Baling-press	749,759	Jan. 19	2478	528	108	500
Tipton, Franklin P., Cunningham, Kans. Harvesting-machine	751,122	Feb. 2	619	143	108	1192
Tipton, Joseph S., *et al.* (See Smith, John N., assignor.)						
Titamore, Herbert E., Agenda, Cal. Grain-lifter	752,367	Feb. 16	2978	663	108	1740
Titcomb, George E., assignor to Dodge Coal Storage Company, Philadelphia, Pa. Rope system for coal-bridge hoists	752,483	Feb. 16	3199	714	108	1787
Tobey Furniture Company. (See Clingman, George F., assignor.)						
Tobisch, Franz, Budapest, Austria-Hungary. Gun or firearm	749,341	Jan. 12	1620	343 344	108	390
Todd, George W., Platteville, Wis. Fence-post	748,817	Jan. 5	496	111	108	112
Tokheim, John J., Cedar Rapids, Iowa. Non-siphoning liquid-trap	749,503	Jan. 12	1973	410	108	462
Toledo Metal Wheel Company. (See Weber, John, Jr., assignor.)						
Tollack, Theodore O., Curran, Wis. Plow	749,504	Jan. 12	1975	410	108	462
Toltz, Max, *et al.* (See Lipschutz, Arthur, assignor.)						
Tomlinson, Thomas, Charleroi, Pa. Smoking-pipe	753,180	Feb. 23	4571	1019	108	2110
Tons, George, Jr., and R. E. Sheridan, St. Louis, Mo. Surface smoothing and sandpapering machine	751,820	Feb. 9	1929	437	108	1486
Toohey, Patrick, Darragh, Pa. Wrench	751,821	Feb. 9	1930	438	108	1487
Toscan, James E., and C. J. Cady, Jamestown, N. Y. Ice-creeper	749,342	Jan. 12	1622	344	108	391
Tournier, Julius C., Schenectady, N. Y., assignor to General Electric Company. Lamp-socket	751,029	Feb. 2	456	107	108	1158
Tousey, William G., Somerville, Mass. Filter-tablet	750,235	Jan. 19	3374	728	108	782
Tower, Daniel W., Grand Rapids, Mich. Drawer-pull	749,410	Jan. 12	1761	372	108	419
Tower, Daniel W., Grand Rapids, Mich. Hinge	749,411	Jan. 12	1762	373	108	419
Towner, Harry L., *et al.* (See Meixell and Holt, assignors.)						
Townsend, Everette E., Fort Stockton, Tex. Pipe or rod holder	749,760	Jan. 19	2480	528	108	500
Townsend, Fred E. (See Wight and Townsend.)						
Townsend, Richard S., Union City, Mich. Split hub and sprocket	750,910	Feb. 2	248	55	108	1112
Townsend, Stephen, Scotchplains, N. J. Telegraph or other blank	749,241	Jan. 12	1406	301	108	342
Tozier, Charles C., assignor to Maine Valve Company, Skowhegan, Me. Ball-cock valve	752,314	Feb. 16	2887	644	108	1730
Trapp, Matilda L., Los Angeles, Cal. Smelting-furnace	749,954	Jan. 19	2845	607 608	108	669
Traut & Hine Manufacturing Company. (See Humphrey, Ernest N., assignor.)						
Traut, Justus A., assignor to Stanley Rule & Level Company, New Britain, Conn. Miter-box	749,242	Jan. 12	1407	302	108	342
Traverse City Iron Works. (See Fulghum, Elisha J., assignor.)						
Traviss, Norman W., St. Thomas, N. D. Colter	749,591	Jan. 12	2131	444	108	499
Tredway, Dwight. (See Brown and Tredway.)						
Treen, Stephen L., Jersey City, N. J. Cooking utensil	749,592	Jan. 12	2133	444	108	499

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Tregurtha, George E., Malden, Mass. Variable sparking mechanism	749,505	Jan. 12	1976	410 411	108	462
Treloar, Thomas, Radersburg, Mont. Vehicle-brake	748,818	Jan. 5	494	111	108	112
Trenton Watch Company. (See Dudley, William W., assignor.)						
Trescott, Charles B., Portland, Oreg. Plant for curing food products	750,133	Jan. 19	3181	684	108	739
Tretch, William J., assignor to F. A. Riehle, Philadelphia, Pa. Compressometer	753,015	Feb. 23	4277	952	108	2044
Tribble, Joseph F., Norwich, Conn., assignor of one-half to A. V. Peabody, Worcester, Mass. Buoy for sunken vessels	750,922	Jan. 26	3546	766	108	841
Triner, James M., Chicago, Ill. Weighing-scale	752,874	Feb. 23	3970	889	108	1975
Triner, James M., assignor to Fashion Specialty Company, Chicago, Ill. Skirt-hanger	751,030	Feb. 2	458	107	108	1159
Troche, William. (See Goehring and Troche.)						
Trombiee, Andrew, *et al.* (See Marsden, John A., assignor.)						
Trombley, Charles L., Grayling, Mich. Skidway for sawmills	750,911	Feb. 2	249	55	108	1112
Trombly, William C., Lowell, assignor to Draper Company, Hopedale, Mass. Self-threading loom-shuttle	751,123	Feb. 2	620	144	108	1192
Trone, George W., Rushville, Ill. Farrowing-house	751,961	Feb. 9	2207	497	108	1549
Troutman, Birdine, Saxton, Pa. Coke-oven door	750,323	Jan. 26	3548	766	108	841
Truckses, John E. (See Brown and Truckses.)						
True, Mark B., deceased; M. L. Dow, administrator, assignor to J. F. Smith and M. L. Dow, Salisbury, Mass. Ditching-machine	749,778	Jan. 19	2519	535 536	108	598
Truman, Charles, Toledo, Ohio. Air-brake safety device	749,810	Jan. 19	2571	546	108	610
Truman, Charles, assignor of one-half to W. G. Smith, Toledo, Ohio. Air-brake safety device	749,809	Jan. 19	2570	546	108	609
Trump, Edward N., Syracuse, N. Y. Apparatus for drying moist material	748,893	Jan. 5	642	144	108	143
Trump, Edward N., Syracuse, N. Y. Treating material	748,894	Jan. 5	643	144	108	145
Trussell, Emory A., assignor to Sieber & Trussell Mfg. Company, St. Louis, Mo. Perforating-machine	749,593	Jan. 12	2134	444	108	500
Truxal, Paul S., Latrobe, Pa. Curtain-pole	753,181	Feb. 23	4572	1019	108	2110
Tuck, William W., Richmond Hill, and A. Wassmann, Astoria, N. Y. Feed-controlling mechanism for hydrocarbon-motors	750,912	Feb. 2	250	56,57	108	1113
Tucker, Charles H. (See King, Phineas F., assignor.)						
Tulloch, Louis R., Angels Camp, Cal. Concentrator	748,819	Jan. 5	495	112	108	112
Tulloch, Louis R., Angels Camp, Cal. Stamp-mill attachment	748,820	Jan. 5	498	113	108	113
Turck, Fenton B., Chicago, Ill. Implement for mechanical vibratory treatment	750,735	Jan. 26	4343	937	108	1010
Tures, William, assignor of one-half to A. B. Child, Granville, Ill. Incandescent vapor-lamp	750,784	Jan. 26	4450	959	108	1035
Turnbull, George A., Chicago, Ill. Shoe-fastening device	752,268	Feb. 16	2794	619	108	1700
Turnbull, Luke W., Port Huron, Mich. Pneumatic tool	750,236	Jan. 19	3375	728	108	782
Turner, Charles W. S., Mountville, Va. Electric block-signal system	752,812	Feb. 23	3846	862 863	108	1947
Turner, F. S., *et al.* (See Forde, Thomas J., assignor.)						
Turner, Frank S., *et al.* (See Forde, Thomas J., assignor.)						
Turner, George E., Bucyrus, Ohio, assignor to Stirling Company, Chicago, Ill. Water-tube boiler	752,630	Feb. 16	3508	781	108	1855
Turner, George E., Marion, Ohio, assignor to Stirling Company, Chicago, Ill. Water-tube boiler	752,631	Feb. 16	3510	781	108	1855
Turner, John J., and J. A. Dowler, Laharpe, Kans. Molding-machine	752,484	Feb. 16	3201	714	108	1787
Turner, Robert L., Toledo, Ohio. Angle-indicator	749,976	Jan. 19	2983	617	108	677
Turner & Seymour Mfg. Co. (See Atkins, George H., assignor.)						
Tuttle, Arthur S., Brooklyn, N. Y., assignor to National Meter Company. Fluid-meter	749,645	Jan. 12	2228	470	108	518
Tuttle, Hosmer, Cedar Rapids, Iowa, assignor to S. C. Walters, Chicago, Ill. Trousers-stretcher	753,182	Feb. 23	4573	1019	108	2110
Tuttle, Josiah S., Kansas City, assignor to Whitman Agricultural Company, St. Louis, Mo. Baling-press	750,324	Jan. 26	3549	767	108	841
Twigg, Henry A., Denver, Colo. Collar-shaper	752,269	Feb. 16	2795	619 620	108	1700
Tyberg, Oluf, Brooklyn, N. Y. Mechanical movement for printing devices	749,000	Jan. 5	875	188	108	202
Tyberg, Oluf, Brooklyn, N. Y. Type-writing machine	749,001	Jan. 5	879	188 189	108	203
Tyberg, Oluf, Brooklyn, N. Y. Type-writing machine	749,002	Jan. 5	895	189 190	108	209
Tyberg, Oluf, and S. I. Prescott, assignors to R. L. Patterson and G. Arents, Jr., New York, N. Y. Pasting mechanism	751,224	Feb. 2	893	191	108	1235
Tyler, Edmund D., Glasgow, Scotland. Heel	752,632	Feb. 16	3513	781	108	1856
Tyler, John S. (See Muckenhirn, Charles H., assignor.)						
Tyler, William B., Camden, N. J. Combination garment-suspender	750,325	Jan. 26	3550	767	108	842
Udell, Theodore H. (See Lockett, Kenny, Stimelbach, and Udell.)						
Uehling, Edward A., Passaic, N. J. Ore-agglutinizing apparatus	752,726	Feb. 23	3693	823	108	1913
Uehling, Edward A., Passaic, N. J. Link chain	752,727	Feb. 23	3694	824	108	1914
Ulrich, John, Columbus, Ohio. Flue or tube cutter	752,728	Feb. 23	3696	824	108	1914
Umbreit, Fredrich W., Clarion, Iowa. Railway-crossing	750,913	Feb. 2	252	57	108	1113
Underkuffler, Franklin M. (See Reis, Morris M., assignor.)						
Underwood Typewriter Company. (See Burridge, Lee S., assignor.)						
Underwood Typewriter Company. (See Kavle, Oscar C., assignor.)						
Underwood Typewriter Company. (See Kunath, Edward F., assignor.)						
Underwood Typewriter Company. (See McLaughlin, John C., assignor.)						
Underwood Typewriter Company. (See Myers, Louis, assignor.)						
Underwood Typewriter Company. (See Rice, Charles D., assignor.)						
Underwood Typewriter Company. (See Wagner, Franz X., assignor.)						
Union Carbide Company. (See Price, Edgar F., assignor.)						
Union Manufacturing Company. (See Hines, William J., assignor.)						
Union Scale and Manufacturing Company. (See Hoepner, George, assignor.)						
Union Special Sewing Machine Co. (See Woodward, Russel G., assignor.)						
Union Staple Seam Re-Enforcing Company. (See Thomas, Albert D., assignor.)						
Union Typewriter Company. (See Farnum, William C., assignor.)						
Union Typewriter Company. (See Smith, Charles E., assignor.)						
Union Water Meter Company. (See Kelly, John P., assignor.)						
United Shoe Machinery Company. (See Winn, Arthur L., assignor.)						
United States Light & Heating Company. (See Moskowitz, Morris, assignor.)						
United States Ordnance Company. (See Tasker, Vernon C., assignor.)						
United States Wind Engine & Pump Company. (See Guy, George G., assignor.)						
Universal Accountant Machine Company. (See Rinsche, Frank C., assignor.)						
Universal Safety Tread Company. (See Works, Frank H., assignor.)						
Universal Talking Machine Manufacturing Company. (See Cheney, George K., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., assignor.)						
Upham, Charles S., Odell, Ill. Grain-elevator	751,762	Feb. 9	1810	412 413	108	1459

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Upham, Richard D., New York, N. Y. Sheathing for vessels	749,909	Jan. 19	2753	590	108	650
Urbanek, John P., Seattle, Wash. Feed-water heater	752,270	Feb. 16	2797	620	108	1701
Urbanitzky, Rudolf, Linz, Austria-Hungary. Chair for railway-rails and rail-joints	750,786	Jan. 26	4345	988 989	108	1011
Urfit Company. (See Manss, John A., assignor.)						
Utrilla, Joseph, New York, N. Y. Valve	752,608	Feb. 16	3455	772	108	1844
Vaile, Percy A., Auckland, New Zealand. Toy golf-player	750,134	Jan. 19	3155	685	108	740
Valentine, Harry J., assignor to Columbian Hardware Company, Cleveland, Ohio. Face-plate for registers	748,668	Jan. 5	218	52	108	47
Valentine, Harry J., assignor to Columbian Hardware Company, Cleveland, Ohio. Face-plate for registers	748,669	Jan. 5	220	52	108	48
Valentine, Harry J., Hempstead, N. Y., assignor to Columbian Hardware Company, Cleveland, Ohio. Top plate for registers	749,116	Jan. 5	1140	242	108	203
Van Beresteyn, Hugo, Brussels, Belgium. Rotary motor	750,914	Feb. 2	253	57, 58	108	1113
Van Brunt, William T., *et al.* (See Vance and Lanahan, assignors.)						
Van Cleave, Franklin B., Echo, Oreg. Dumping-elevator	751,225	Feb. 2	836	191	108	1235
Van der Grinten, Alphons, Chicago, Ill. Map	751,296	Feb. 2	888	192	108	1236
Van Deusen, William S., South Sodus, N. Y. Heating-stove	751,962	Feb. 9	2208	497	108	1350
Van Doorn, Henry D., assignor to American Ship Windlass Co., Providence, R. I. Wharf-drop	749,595	Jan. 12	2130	445	108	500
Van Dorn, Dwight B., Cleveland, Ohio. Running-gear	750,915	Feb. 2	254	58, 59	108	1114
Van Dorn, William T., Chicago, Ill. Railway draft-rigging	749,888	Jan. 19	2712	580	108	641
Van Dorn, William T., Chicago, Ill. Draft-rigging for railway-cars	752,315	Feb. 16	2883	644	108	1720
Van Duijn, Pieter, Almelo, and L. W. Van Thiel, Helmond, Netherlands. Locking device for nuts, &c	749,924	Jan. 19	2800	597	108	660
Van Gent, Marinus C., New York, N. Y. Fire-escape	751,361	Feb. 2	1090	247	108	1200
Van Plew, James W., Chicago, Ill. Necktie-holder	750,135	Jan. 19	3187	685	108	741
Van Thiel, Lambertus W. (See Van Duijn and Van Thiel.)						
Van Westrum, Leonard S., Berlin, Germany. Sprinkling streets, &c	752,485	Feb. 16	3304	.....	108	1788
Van Westrum, Leonard S., Berlin, Germany. Making roads or like surfaces	752,486	Feb. 16	3305	.....	108	1788
Van Westrum, Leonard S., Berlin, Germany. Sprinkling streets	752,487	Feb. 16	3306	.....	108	1788
Vance, John M., and T. Lanahan, Louisville, Ky., assignors of two-thirds to W. T. Van Brunt and D. S. Harding, New York, N. Y. Automatic device for setting air-brakes on steam-railway cars	752,012	Feb. 9	2220	518	108	1573
Vancuren, William M., Foyil, Ind. Ter. Muzzle for calves or colts	749,594	Jan. 12	2135	445	108	500
Vanderbilt, Cornelius. (See Shepard, Louis A., assignor.)						
Vanderbilt, Cornelius, New York, N. Y. Railway-car	748,866	Jan. 5	653	145	108	146
Vandever, John H., assignor of one-half to W. R. Wells, Olalla, Oreg. Gate-hinge	748,670	Jan. 5	221	52	108	48
Varley Duplex Magnet Company. (See Anderson, James C., assignor.)						
Varley Duplex Magnet Company. (See Varley, Richard, assignor.)						
Varley, Richard, Providence, R. I., assignor to Varley Duplex Magnet Company. Ruhmkorff coil	750,039	Jan. 19	3008	645	108	704
Varley, Richard, Providence, R. I., assignor to Varley Duplex Magnet Company. Vibratory circuit-controller	750,040	Jan. 19	3011	645	108	704
Varley, Richard, Providence, R. I., assignor to Varley Duplex Magnet Company. Vibratory circuit-controller	750,041	Jan. 19	3012	645	108	705
Vars, Washington M., Norwich, Conn. Stocking-supporter	752,271	Feb. 16	2798	620	108	1701
Vasaly, Spirit J. (See Gillette, Randolph, assignor.)						
Vasquez, Ramon. (See Delaunay and Vasquez.)						
Vaughan, David F., Haddonfield, N. J. Guard-rail	752,428	Feb. 16	3111	691	108	1767
Vaughan, Edward B., Selma, Ala. Cotton-picker	752,272	Feb. 16	2799	620	108	1701
Vaughn-Rood Machine Company. (See Perkins, Franklin J., assignor.)						
Vavra, Herman E. (See Hurt, Celestin, assignor.)						
Veeder, Curtis H., assignor to Veeder Manufacturing Company, Hartford, Conn. Steering mechanism for motor-vehicles	751,575	Feb. 9	1468	333	108	1390
Veeder, Curtis H., assignor to Veeder Manufacturing Company, Hartford, Conn. Steering mechanism for motor-vehicles	751,576	Feb. 9	1469	333	108	1390
Veeder Manufacturing Company. (See Veeder, Curtis H., assignor.)						
Vehicle Equipment Company. (See Gibbs, Lucius T., assignor.)						
Vehicle Specialty Company. (See Groff, John M., assignor.)						
Venn, Isaac H., Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Traveling stairway	751,702	Feb. 9	1692	385	108	1436
Verein Chemischer Fabriken in Mannheim. (See Hasenbach, Wilhelm, assignor.)						
Vermont Farm Machine Company. (See Kimball, Perley L., assignor.)						
Verner, William H., Pittsburg, Pa. Electric cut-out	751,227	Feb. 2	840	192	108	1236
Veronee, Edward B., St. Augustine, Fla. Fan attachment	751,961	Feb. 9	2209	498	108	1350
Vick, Frank H., Jr., New York, N. Y. Combined match-box and cigar-cutter	752,130	Feb. 16	2528	563	108	1638
Vickery, William, London, England. Feed mechanism for printing or like machines	752,486	Feb. 16	3307	715 716	108	1788
Victor Electric Company. (See Wantz, Julius B., assignor.)						
Victor Talking Machine Company. (See Johnson, Eldridge R., assignor.)						
Viert, Albert, Chicago, Ill. Boat	749,412	Jan. 12	1764	373	108	419
Viertel, Hermann, assignor to Gebrüder Siemens & Co., Charlottenburg, Germany. Device for producing electric light	750,414	Jan. 26	3698	802	108	874
Vierthaler, John, *et al.* (See Farmer, Julius M., assignor.)						
Vihon, Louis, Austin, Chicago, Ill. Hat-fastener	749,466	Jan. 12	1902	395	108	448
Villard, Richard H., New York, N. Y., and H. P. Copeland, Jersey City, N. J. Cable-hanger	751,228	Feb. 2	842	192	108	1236
Villiers, Edward C., Windsor, assignor of one-half to W. H. Smith, Queen's Acre, England. Steam-generator	750,916	Feb. 2	256	59, 60	108	1114
Vining, Robert W., London, England. Automatic apparatus for delivering articles in exchange for coin	749,005	Jan. 5	899	190	108	210
Vinyard, Alfred L., Slidell, La. Wrench	748,671	Jan. 5	222	53	108	48
Vinyard, Alfred L., Slidell, La. Rail-joint	748,672	Jan. 5	222	53	108	48
Vivarttas, William O., Weehawken, assignor to H. B. Smith Machine Company, Smithville, N. J. Planing-machine	750,917	Feb. 2	259	60	108	1114
Vogt, Adolf, West Norwood, England. Internal-combustion motor	752,273	Feb. 16	2800	621	108	1701
Vogt, Adolf, West Norwood, England. Internal-combustion motor	752,936	Feb. 23	4123	918 919	108	2009
Vogtherr, Max, Berlin, Germany. Testing butter	749,343	Jan. 12	1623	344	108	391
Voight, Henry G., New Britain, Conn. Molder's flask and gated pattern	750,559	Jan. 26	3994	863 864	108	983
Voight, Henry G., New Britain, Conn. Sand-press	750,918	Feb. 2	260	60, 61	108	1115
Voith Maschinen-Fabrik, J. M. (See Priem, Paul, assignor.)						
Void, Lars H., assignor to Lanston Monotype Machine Company, Philadelphia, Pa. Controller or stop-bar for centering mechanisms	749,343	Jan. 12	1408	302	108	343

Alphabetical list of patentees for January and February—Continued.

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Volkhardt, William, Stapleton, N. Y. Hydrant	750,415	Jan. 26	3700	803	108	874
Vollmer, Henry J. (See Hacker, George, assignor.)						
Vonderheyden, Ernest, Paterson, N. J., assignor to Graef Hat-Band Mfg. Co. Cam or eccentric	751,577	Feb. 9	1471	333	108	1391
Vose and Cliff Manufacturing Company. (See Cliff, Edward, assignor.)						
Vose, Clifton, New York, N. Y. Weather-strip	753,729	Feb. 23	3697	824	108	1914
Voskamp, Charles W., Pittsburg, Pa. Horseshoe	752,609	Feb. 16	3456	773	108	1844
Voss, Albert A., *et al.* (See Davis, James T., assignor.)						
Voss, Frederick. (See Hegbom, Marselius, assignor.)						
Voss, William H., Davenport, Iowa. Mechanical movement	750,136	Jan. 19	3188	685	108	741
Votey, Edwin S., Summit, N. J., assignor to Aeolian Company, New York, N. Y. Pneumatically-operated musical apparatus	751,229	Feb. 2	842	192 193	108	1236
W. F. & John Barnes Company. (See Barnes, John, assignor.)						
W. J. Dyer & Bro. (See Harrison and Brown, assignors.)						
W. N. Best International Calorific Company. (See Best, William N., assignor.)						
W. S. Nott Company. (See Penney, Herbert E., assignor.)						
Wackerow, George L., assignor of one-half to F. G. Stickles, V. M. Miller, C. H. Brunn, and G. M. Randall, Mellette, S. D. Strainer	748,821	Jan. 5	500	113	108	118
Wadamori, Kikujiro, Orange, N. J. Treating wood	749,004	Jan. 5	900	190	108	210
Wadewitz, Edward H., Racine, Wis. Shift-key mechanism for type-writing machines	751,578	Feb. 9	1471	334	108	1391
Wadsworth, Claudius, Jr., Brooklyn, N. Y. Wind instrument	750,919	Feb. 2	262	61	108	1115
Wadsworth, Frank L. O., Williams Bay, Wis., assignor, by mesne assignments, to Pressed Prism Plate Glass Company. Illuminating prism-plate	749,761	Jan. 19	2481	528	108	590
Wadsworth, Frank L. O., Williams Bay, Wis. assignor, by mesne assignments, to Pressed Prism Plate Glass Company. Prismatic illuminating structure	752,429	Feb. 16	3111	691	108	1767
Waffle, Edson D., Santa Ana, Cal. Thill or tongue support	748,896	Jan. 5	654	145	108	147
Wagener, Louise, Jacksonville, Fla. Combined scrubber, mop, and wringer	753,016	Feb. 23	4278	963	108	2045
Wagner, Emil L., Aberdeen, S. D. Pulley	749,506	Jan. 12	1978	411	108	463
Wagner, Franz X., assignor, by mesne assignments, to Underwood Typewriter Company, New York, N. Y. Platen-locking mechanism for type-writers or other machines	750,920	Feb. 2	265	61, 62	108	1116
Wagner, Franz X., assignor to Underwood Typewriter Company, New York, N. Y. Type-bar holder	751,579	Feb. 9	1473	334	108	1391
Wagner, Franz X., assignor to Underwood Typewriter Company, New York, N. Y. Paper-guide for type-writing machines	751,580	Feb. 9	1474	334	108	1391
Wagner, John, assignor of one-half to G. H. A. Kohler, New York, N. Y. Bottle	752,131	Feb. 16	2528	563	108	1638
Wagor, David, Syracuse, N. Y. Marking-gage	749,117	Jan. 5	1141	242	108	263
Wahl, Frank S., Buffalo, N. Y. Controlling mechanism for electric vehicles	751,763	Feb. 9	1812	413	108	1460
Waite, Gilman. (See Washburn, Theodore W., assignor.)	751,581	Feb. 9	1475	334 335	108	1392
Waite, Henry E., Newton, Mass. Mail-marking apparatus	752,132	Feb. 16	2530	563 564	108	1639
Waite, Irving G. (See Nichols, Thomas, assignor.)						
Waite, Ralph B., Springville, N. Y. Combination-lock for umbrellas	752,480	Feb. 16	3210	717	108	1789
Walbridge, Frank C., assignor to F. J. Nelson, Hornellsville, N. Y. Door or window trimming	749,118	Jan. 5	1142	242	108	264
Walbridge, Henry B., Washington, D. C. Railway system	751,883	Feb. 9	2046	463	108	1513
Wales, Robert, Dunedin, New Zealand. Arm adjustment for miter-cutting machines	752,730	Feb. 23	3698	825	108	1915
Walker, Alexander, assignor to What Cheer Drill & Miners Tool Co., Whatcheer, Iowa. Mining-drill for coal or rock	752,490	Feb. 16	3212	717	108	1789
Walker, Charles W., Bridgeport, Conn., assignor to Yost Writing Machine Company, Ilion, N. Y. Type-writing machine	753,017	Feb. 23	4279	953	108	2045
Walker, James G. (See Dalton and Walker.)						
Walker, Janet, Brisbane, Queensland, Australia. Garment-form	751,764	Feb. 9	1813	413 414	108	1460
Walker, Robert, London, England. Strengthener for vulcanite artificial-teeth base	751,582	Feb. 9	1477	335	108	1392
Walkley, James A., assignor to C. A. Hammel, Los Angeles, Cal. Hydrocarbon-burner	748,897	Jan. 5	656	146	108	147
Wall, Charles F., Philadelphia, Pa. Nose-piece for eyeglasses	751,230	Feb. 2	845	193	108	1237
Wallace, George K., *et al.* (See Mohlenhoff, Hermann J., assignor.)						
Wallace, William H., Whitefield, near Henry, Ill. Coupling	752,731	Feb. 23	3699	825	108	1915
Wallin, John E., Tacoma, Wash. Wood-holder	749,646	Jan. 12	2230	470	108	518
Wallmann Engine Company. (See Wallmann, Henning F., assignor.)						
Wallmann, Henning F., Chicago, Ill., assignor to Wallmann Engine Company. Means for superheating steam	748,822	Jan. 5	502	113 114	108	114
Wairath, John H., Milwaukee, Wis. Fire-extinguishing device	750,416	Jan. 26	3701	803	108	874
Walsh, James R., assignor of one-half to R. G. Ross, Jacksonville, Fla. Bowling-alley	752,133	Feb. 16	2533	564	108	1639
Walsh, Owen, New York, N. Y. Curling-iron heater	749,647	Jan. 12	2231	470	108	518
Walter, Edwin L., Scranton, Pa. Regulable self-closing faucet	749,910	Jan. 19	2755	591	108	650
Walters, Julius W., New York, N. Y. Motor-wheel for vehicles	751,231	Feb. 2	845	193	108	1237
Walters, S. C. (See Tuttle, Hosmer, assignor.)						
Walther, Franz K., Berlin, Germany. Heat-protector for animals	750,505	Jan. 26	3877	841	108	912
Walton, George R., *et al.* (See Entriken, John C., assignor.)						
Walz, John, St. Paul, Minn. Winding-indicator for watches	752,937	Feb. 23	4127	919	108	2010
Waniger, Julius T. (See Nash and Waniger.)						
Wantz, Julius B., assignor to Victor Electric Company, Chicago, Ill. Massaging implement	751,031	Feb. 2	460	108	108	1159
Ward, Amorose P., Central City, Iowa. Button	748,673	Jan. 5	223	53	108	49
Ward, Frederick H. (See Alexander, Jesse, assignor.)						
Ward, John L., Ord, Nebr. Thermostat	751,362	Feb. 2	1091	247	108	1290
Ward, Joseph, assignor of one-half to A. E. Woodrow, Wellston, Ohio. Display-sign	750,137	Jan. 19	3191	686	108	742
Ward, William G., Braddock, Pa. Hydraulic valve	749,005	Jan. 5	901	191	108	210
Wardle, William W. (See Keith and Wardle.)						
Wardwell, Simon W., Providence, R. I. Yarn-controller	752,813	Feb. 23	3849	863 864	108	1848
Wardwell, Simon W., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Slub-detector	753,732	Feb. 23	3700	826	108	1915
Warner, Isaac M., Union City, assignor to J. W. McCausey, L. S. Parsons, A. J. Boyer, and W. O. Hughart, Jr., Grand Rapids, Mich. Wire-stretcher	750,417	Jan. 26	3702	803	108	875
Warner, William A., Bridgeport, Conn. Section for buildings	749,762	Jan. 19	2484	529	108	591
Warner, William A., Bridgeport, Conn. Hermetical casket	749,763	Jan. 19	2485	529	108	591
Warren, Eddie M., assignor of one-half to A. E. Bradley, Nashville, Tenn. Heating apparatus	749,244	Jan. 12	1410	302	108	343
Warren, Henry E., Newton, Mass. Mechanism for operating valves or equivalent means of hydraulic apparatus	752,491	Feb. 16	3214	717 718	108	1789
Warren, Myles Y., Philadelphia, Pa. Rake	750,737	Jan. 26	4346	939	108	1011
Warren, Neuton L., Macon, Ga. Steam-boiler	752,492	Feb. 16	3217	718	108	1790

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Warren Novelty Company. (See Burlingham, Lucious D., assignor.)						
Warren Webster and Company. (See Hale, John F., assignor.)						
Warren Webster and Company. (See Osbourn, Millard P., assignor.)						
Warrens, Hermann L., East Croydon, England. Time-table appliance and advertising device	752,374	Feb. 16	2807	622	108	1708
Warriner, Robert, London, England. Steam-trap	751,708	Feb. 9	1694	385	108	1437
Warsop, Thomas, Coniston, England. Means for coupling railway wagons, carriages, &c.	751,583	Feb. 9	1479	335	108	1392
Wartman, Otto, Tottenham, England. Cigar-making machine	752,738	Feb. 23	3702	826 827	108	1916
Warwick, John F., Chicago, Ill. Kiln	749,413	Jan. 12	1764	373	108	419
Washburn, Edwin C., Minneapolis, Minn. Car-coupling	749,344	Jan. 12	1624	345	108	391
Washburn, Edwin C., Minneapolis, Minn. Car-coupling	749,345	Jan. 12	1627	346	108	392
Washburn, Edwin C., Minneapolis, Minn. Coupling-support	749,346	Jan. 12	1629	346	108	392
Washburn, Theodore W., assignor to G. Waite, Baldwinsville, Mass. Folding chair	749,764	Jan. 19	2486	529	108	591
Washburne, James V., and G. J. Richard, Waterbury, Conn., assignors to said Washburne. Fastening device for garments	749,648	Jan. 12	2232	471	108	519
Washington, David, assignor of two-thirds to J. Navarrete and A. Mathews, Rusk, Tex. Cotton-chopper	750,138	Jan. 19	3194	686 687	108	742
Washington, Madison T. B., Chicago, Ill. Cooking utensil	749,414	Jan. 12	1766	374	108	420
Washington, William H., Coatesville, Pa. Protective covering for pipes, &c.	749,955	Jan. 19	2847	608	108	670
Wassmann, August. (See Tuck and Wassmann.)						
Waterous, Frederick L., St. Paul, Minn. Traction-engine	750,921	Feb. 2	207	62, 63	108	1116
Waters, Douglas H., Poquetanuck, Conn., assignor to E. V. Bates, Dracut, Mass. Card-feeding machine	749,649	Jan. 12	2234	471	108	519
Waters, Frank J., assignor of two-thirds to W. A. Drew, F. E. and A. C. Farnham, A. Harrison, Providence, J. Gee, Cranston, and H. J. Page, Warwick, R. I. Rotary engine	751,584	Feb. 9	1480	335 336	108	1393
Waters, Michael B. (See Scatchard and Waters.)						
Watkins Manufacturing Company. (See Watkins, William D., assignor.)						
Watkins, William D., assignor to Watkins Manufacturing Company, San Jose, Cal. Telephone selecting device	753,183	Feb. 23	4574	1030	108	2111
Watson, Edmund C. (See Damron, Joseph C., assignor.)						
Watson, Ernest, *et al.* (See Keen, Arthur W. M., assignor.)						
Watson & Newell Company. (See Person, Axel, assignor.)						
Watson, Walter S., *et al.* (See Frerot, Charles, assignor.)						
Watson, William R. (See Stuart, Orion K., assignor.)	751,092	Feb. 2	461	108	108	1159
Watt, Andrew P., Baltimore, Md. Adding-machine	750,922	Feb. 2	270	63	108	1117
Watt, George F., Chicago, Ill. Binder for loose-leaf books	752,816	Feb. 16	2891	644 645	108	1721
Wattie, William, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shed-forming mechanism for looms						
Weale, Samuel. (See Engeljohn and Weale.)						
Weaning, Lawrence D., Cleveland, Ohio. Spacing-table	748,823	Jan. 5	508	114 115	108	114
Weatherby, Joseph, Jr., Wilmington, Del. Block-signal system	748,824	Jan. 5	505	115 116	108	114
Weathers, Joseph S., Windsor, Mo. Animal-poke	752,134	Feb. 16	2584	564	108	1639
Weaver, Ira A., assignor of one-half to S. E. Prather and C. A. Sattley, Springfield, Ill. Hood for pneumatic stackers	750,738	Jan. 26	4347	989	108	1012
Weaver, Jacob B., Baltimore, Md. Chair for railway-rails	752,430	Feb. 16	3113	691	108	1768
Weaver, William J. M., Philadelphia, Pa. Packing	751,884	Feb. 9	2048	463	108	1514
Webb, Arthur N., Youngsville, Pa. Device for holding chair-rungs, &c	751,765	Feb. 9	1815	414	108	1460
Webb, Edward B., Rock City, Ill. Currycomb	749,596	Jan. 12	2138	445	108	501
Webb, Hartwell W., New York, N. Y. Gas-generator	749,006	Jan. 5	908	191	108	211
Webb, Hartwell W., New York, N. Y. Acetylene-gas generator	749,007	Jan. 5	905	191	108	211
Webb, Hartwell W., New York, N. Y. Gas-burner	751,766	Feb. 9	1817	414	108	1461
Webb, Jean F., Denver, Colo. Pulley-covering	748,674	Jan. 5	225	53	108	49
Webb, Samuel F., assignor to C. W. Dunaway, Wichita, Kans. Animal-poke	752,013	Feb. 9	2321	519	108	1573
Webb, Samuel J., Minden, La. Roller-bearing	748,825	Jan. 5	510	116	108	116
Webber, William O., Boston, Mass., assignor to W. C. Carr, New York, N. Y. Hydraulic air-compressor	748,906	Jan. 5	659	146	108	148
Webber, William O., Boston, Mass., assignor to Bell Pure Air & Cooling Co., New York, N. Y. Fan-blade	752,275	Feb. 16	2808	622	108	1708
Weber, Benjamin, assignor of one-half to C. Dittmar, Baltimore, Md. Trunk-fastener	750,739	Jan. 26	4349	989	108	1012
Weber, Charles H., Alton, Ohio. Fertilizer-spreader	752,135	Feb. 16	2535	565	108	1640
Weber, Emil, assignor of one-half to E. F. Weber, Peoria, Ill. Hoe	750,418	Jan. 26	3704	808	108	875
Weber, Emil F. (See Weber, Emil, assignor.)						
Weber, George A., assignor to Weber Railway Joint Manufacturing Company, New York, N. Y. Composite structure	749,507	Jan. 12	1980	411	108	463
Weber, John, Jr., assignor to Toledo Metal Wheel Company, Toledo, Ohio. Go-cart or child's chair	749,119	Jan. 5	1143	242	108	264
Weber, Joseph F., Hastings, Mich. Sod-cutting plow	748,673	Jan. 5	227	54	108	50
Weber Railway Joint Manufacturing Company. (See Weber, George A., assignor.)						
Weber, Rudolf, Burgdorf, Germany. Producing paved tracks on macadamized roads or the like	751,704	Feb. 9	1695	385	108	1437
Webster, Alfred J., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyer	751,885	Feb. 9	2050	463 464	108	1514
Webster, J. H., *et al.* (See Fulford, Elijah D., assignor.)						
Weed, William S., Chicago, Ill. Handkerchief	751,088	Feb. 2	464	108	108	1160
Weeks, Joseph H., Battlecreek, Mich. Carton-sealing machine	751,822	Feb. 9	1931	438 439	108	1487
Weeks, Joseph H., Battlecreek, Mich. Carton-machine	751,823	Feb. 9	1936	439 440	108	1488
Wehinger, Johann, Dornbirn, Austria-Hungary, assignor to Fabrik für Mechanische Hirnholzmosaik, Gesellschaft mit Beschränkter Haftung, Munich, Germany. Machine for making wood mosaic flooring of blocks of wood	752,988	Feb. 23	4129	919 920	108	2010
Weiller, Ferdinand J. H., Sandvig, near Allinge, assignor to Aktieselskabet Bornholms Granitvaerk, Copenhagen, Denmark. Machine for breaking or splitting stone	751,084	Feb. 2	465	108 109	108	1160
Weiner, Wilhelm, assignor of one-half to H. Schmitz, Wymore, Nebr. Spring-motor	750,327	Jan. 26	3563	769	108	842
Weinland, Henry F., assignor to Lagonda Manufacturing Company, Springfield, Ohio. Tool for facing boiler-tube caps and their seats	752,734	Feb. 23	3706	827	108	1917
Weir, Roderick, assignor of one-half to E. Richard, Winnipeg, Canada. Clothes-wardrobe	749,120	Jan. 5	1145	243	108	264
Weir, William J., New York, N. Y., assignor of one-half to U. E. Belcher, Stoughton, Mass. Last	752,317	Feb. 16	2993	645	108	1721
Weise, Gustav, *et al.* (See Steers, William, Sr., assignor.)						
Weise, Wilhelm, Hohenstein-Ernstthal, Germany. Receptacle	752,735	Feb. 23	3708	827	108	1917
Weiss, Wilhelm, Godesberg, Germany. Rail-joint for tracks and especially for field-railways	748,896	Jan. 5	511	116 117	108	116

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Welch, Mason, Alma, Mich. Buckle	751,585	Feb. 9	1484	336	108	1393
Welch, Rosia W., Baltimore, Md., assignor to Royal Milling and Manufacturing Company. Rice-hulling machine	749,650	Jan. 12	2236	471	108	520
Weldon, James O. (See Bennitt, Joel, assignor.)						
Welles, George S. (See Wilson, Edward F., assignor.)						
Welles, Richard H., Kenosha, Wis. Jack	750,740	Jan. 26	4350	940	108	1012
Wellman, Samuel G., Corry, Pa. Key for invisible sash-locks	750,139	Jan. 19	3196	687	108	743
Wells, Albert H., Springboro, Pa. Combined planter and fertilizer-distributer	751,586	Feb. 9	1485	336	108	1393
Wells, Frank A., Florence, Kans. Seed-huller	751,124	Feb. 2	622	144	108	1193
Wells, John C., East Hampton, Conn. Toy	751,705	Feb. 9	1696	386	108	1437
Wells, John V., Braddock, Pa. Triple valve	750,506	Jan. 26	3877	842	108	912
Wells, John V., Braddock, Pa. Triple valve	753,018	Feb. 23	4282	953	108	2046
Wells, John V., Braddock, Pa. Brake-valve	753,019	Feb. 23	4287	953 954	108	2047
Wells, William C. (See Andersen and Wells.)	753,020	Feb. 23	4292	954	108	2048
Wells, William R. (See Vandever, John H., assignor.)						
Welsbach Light Company. (See Daggett, Herbert M., Jr., assignor.)						
Welsh, Hamilton E., assignor of two-thirds to F. E. Mann and H. S. Elder, Lewistown, Pa. Draw-head support	749,245	Jan. 12	1411	302	108	343
Welsh, Hamilton E., assignor of two-thirds to F. E. Mann and H. S. Elder, Lewistown, Pa. Car-coupling	749,246	Jan. 12	1413	303	108	343
Welsh, John H., New York, N. Y. Aerial whirling tower	750,140	Jan. 19	3198	687	108	743
Welsh, Thomas I. (See Kindig, Benjamin W., Jr., assignor.)						
Welsh, William H., Collingswood, N. J. Molding-case for use in electrotyping and manufacturing same	752,493	Feb. 16	3218	719	108	1790
Wenger, Milton, New Holland, Pa. Wrench	752,186	Feb. 16	2537	565	108	1640
Wenig, Ferdinand. (See Berg, Rudolf, assignor.)						
Weniger, Johann G., New York, N. Y. Electric-railway switch	749,597	Jan. 12	2139	446	108	501
Wennersten, John P., Dunning, assignor to A. Larsen, McHenry, Ill. Machine for shearing blanks from metal rods	749,415	Jan. 12	1768	374	108	420
Wenzell, Samuel S. (See Nelson, Horatio, assignor.)						
Werner, Louis C., Broadbrook, Conn. Electric block-signal system	749,710	Jan. 12	2360	498 499	108	547
Werner, Paul H., Newark, N. J. Hot-water heater for kitchen-ranges	748,899	Jan. 5	660	146 147	108	148
Wernicke, Carl G. W., Mankato, Minn. Band-cutter and feeder for corn-huskers	751,282	Feb. 2	849	198 194	108	1238
Wertenbruch, Franz, Nottingham, England. Drying-machine	749,828	Jan. 19	2607	557	108	618
Wertheim, Ludwig, assignor to A. Steinhardt & Brother, New York, N. Y. Belt	748,900	Jan. 5	663	147	108	149
Werts, Leroy, Milford, Mo. Reamer	752,494	Feb. 16	3219	719	108	1790
Wertz, Charles V., Portsmouth, Ohio. Vending-machine	750,741	Jan. 26	4352	940 941	108	1013
Wertz, Merrian N., and J. J. Parnell, Thomasville, Ga. Swinging hammock	751,125	Feb. 2	623	144 145	108	1193
Wessels, Henry J., Paris, France. Apparatus for sterilizing water	751,886	Feb. 9	2053	464	108	1515
Wesson, John P., Atalla, Ala. Orrery	749,508	Jan. 12	1981	411 412 413	108	464
West, Charles F., Philadelphia, Pa. Device for filing keys	749,598	Jan. 12	2141	446	108	501
West, Charles F., Wollaston, Mass. Index and advertising device	750,507	Jan. 26	3879	842	108	912
West, Leonard A., *et al.* (See Hacker, Matt A., assignor.)						
West, Mansfield M., assignor to National Shoe-Plate Manufacturing Company, Cleveland, Ohio. Heel-protector	752,736	Feb. 23	3709	828	108	1917
Westcott, Mark K., Camberwell, Victoria, Australia. Apparatus for treating fodder preparatory to compressing same	751,887	Feb. 9	2054	465	108	1515
Western Electric Company. (See Hale, William B., assignor.)						
Western Electric Company. (See Holmes, Howard B., assignor.)						
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See Muschenheim and Hendry, assignors.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Rubber Company. (See Leigh, Richard A., assignor.)						
Westervelt, Elias W. (See Hill, John B., assignor.)						
Westinghouse Air Brake Company. (See Clark, Francis L., assignor.)						
Westinghouse Air Brake Company. (See Herr, Edwin M., assignor.)						
Westinghouse Air Brake Company. (See Mason, Harry R., assignor.)						
Westinghouse Air Brake Company. (See Synnestvedt, Paul, assignor.)						
Westinghouse Air Brake Company. (See Westinghouse, George, assignor.)						
Westinghouse, Church, Kerr and Company. (See Caldwell, Fred E., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Belden, Edward H., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Maxim, Hiram P., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Peck, John S., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Stuart and Reynders, assignors.)						
Westinghouse, George, Pittsburg, Pa. Friction spring mechanism	749,708	Jan. 12	2356	498	108	546
Westinghouse, George, Jr., Pittsburg, Pa. Rotary fluid-motor	751,587	Feb. 9	1486	337 338	108	1394
Westinghouse, George, Pittsburg, Pa. Gearing	751,588	Feb. 9	1490	338 339	108	1394
Westinghouse, George, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Air-brake	750,010	Jan. 19	2953	632	108	693
Westinghouse, George, Pittsburg, Pa., assignor to Westinghouse Machine Company. Fluid-pressure turbine	751,589	Feb. 9	1492	339	108	1395
Westinghouse, Henry H. (See Davis, Isaac H., assignor.)						
Westinghouse Machine Company. (See Hodgkinson, Francis, assignor.)						
Westinghouse Machine Company. (See Thordon, Eric, assignor.)						
Westinghouse Machine Company. (See Westinghouse, George, assignor.)						
Weston, Lewis H., Deer Island, Oreg. Type-writer attachment	753,184	Feb. 23	4578	1020	108	2111
Weston, William, Denver, Colo. Portable camp-stove	750,742	Jan. 26	4356	941	108	1014
Wetherhold, Oscar B. (See Robinson, Frank W., assignor.)						
Wettlin, Charles H., assignor of one-half to A. S. Burton, Asbury Park, N. J. Automatic suction-pump or vacuum-chamber	749,121	Jan. 5	1146	243	108	265
Wetton, Thomas F., assignor of one-half to C. E. Krebs, Newark, Ohio. Trolley	752,737	Feb. 23	3710	828	108	1918
Wetzler, Frank C. (See Fowler and Wetzler.)						
Wetzler, William P. (See Specht and Wetzler.)						
Weyrs, Frank S., assignor of one-half to J. B. Fleshman and W. J. Duhring, Philadelphia, Pa. Computing-machine	751,706	Feb. 9	1697	386 387	108	1437

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What Cheer Drill & Miners Tool Co. (See Walker, Alexander, assignor.)						
Wheelan, Fairfax H., assignor of one-half to R. W. Jessup, San Francisco, Cal. Drawing instrument	750,923	Feb. 2	272	64	108	1118
Wheeler, Charles V., Allegheny, and A. G. McKenna, Braddock, Pa., assignors to Firth Sterling Steel Company. Cap for projectiles	748,827	Jan. 5	513	117	108	116
Wheeler, John M., *et al.* (See Holmberg, Charles G., assignor.)						
Wheeler, Jonathan W., Charleston, S. C. Hand-lever attachment for sewing-machines	752,738	Feb. 23	3711	828	108	1918
Wheeler, Melbourn, Prices Branch, Mo. Plow-clevis	749,889	Jan. 19	2715	580	108	642
Wheeler & Wilson Manufacturing Company. (See Noble, Donald, assignor.)						
Whelan, Bert, Roseland, Nebr. Sieve for threshing-machines	751,085	Feb. 2	466	109	108	1161
Wherry, William H., Cleveland, Ohio. Mold for casting terminals for rail-bonds	750,508	Jan. 26	3891	842	108	913
Wherry, William H., Cleveland, Ohio. Electrical conductor	750,509	Jan. 26	3893	842, 843	108	913
Wherry, William H., Cleveland, Ohio. Forming electrical rail-bonds directly in place on the rails	750,510	Jan. 26	3893	843	108	913
Wherry, William H., Cleveland, Ohio. Uniting two metals	750,511	Jan. 26	3896	843	108	914
Wherry, William H., Cleveland, Ohio. Flux	750,512	Jan. 26	3900	.....	108	915
Whitaker, Richard, assignor of two-thirds to R. W. and J. W. Johnson, New Brunswick, N. J. Condensing-coil	749,247	Jan. 12	1414	303	108	344
Whitcomb, Clark A., assignor to Horner Brothers and E. D. Rhodes, Ypsilanti, Mich. Shoe-rack	752,368	Feb. 16	2979	662	108	1741
White, George T., Colfax, Iowa. Mining-pick	748,901	Jan. 5	664	147	108	149
White, Harold C. (See Wright and White.)						
White, Hawley C., North Bennington, Vt., assignor to H. C. White Co. Lens-setting for stereoscopes	748,676	Jan. 5	228	54	108	50
White, Howard, assignor of two-thirds to C. M. Strain and W. P. & E. J. Davidson, Crawfordsville, Iowa. Disk-sharpener	751,500	Feb. 9	1494	340	108	1396
White, James D., London, England. Printing-telegraph receiver	751,363	Feb. 2	1092	247, 248	108	1290
White, Jeremiah D., Philadelphia, Pa. Support or holder for nursing-bottles	751,233	Feb. 2	862	195	108	1239
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Apparatus for generating kerosene-vapor	752,137	Feb. 16	2539	566	108	1640
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Compound engine	753,021	Feb. 23	4296	955	108	2049
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Driving-axle mechanism	753,022	Feb. 23	4298	955	108	2050
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Heating-burner for steam-generators or the like	753,023	Feb. 23	4301	955	108	2051
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Crosshead	753,024	Feb. 23	4302	956	108	2051
White Sewing Machine Company. (See Grothe, William, assignor.)						
White Sewing Machine Company. (See White, Rollin H., assignor.)						
Whitehead, Gilbert H. (See Hyde, Thomas G., assignor.)						
Whitely, William N., Springfield, Ohio. Safety appliance for locomotive-engines or motor-vehicles	751,234	Feb. 2	864	195, 196	108	1239
Whiteside, James, New York, N. Y. Apparatus for teaching gun practice	751,501	Feb. 9	1495	340	108	1396
Whiteside, Thomas H., Youngstown, Ohio. Artificial-tooth-crown mounting	751,502	Feb. 9	1498	340	108	1396
Whiting, William J., Handsworth, near Birmingham, England. Revolving firearm	750,743	Jan. 26	4357	941, 942	108	1014
Whitlock Printing Press Mfg. Co. (See Huson, Winfield S., assignor.)						
Whitlock, Ralph G., Los Angeles, Cal. Device for holding or binding loose or removable sheets of paper	749,122	Jan. 5	1149	243	108	266
Whitman Agricultural Company. (See Tuttle, Josiah S., assignor.)						
Whitney, William A. (See Etnyre and Whitney.)						
Whitt, Thomas, Lexington, Ky. Curtain-shade adjuster	752,318	Feb. 16	2894	645	108	1722
Whittall, Matthew J. (See Farmer, Frederick, assignor.)						
Whittall, Matthew J. (See Giles, Joseph S., assignor.)						
Whittemore, John R. (See Ferrari and Whittemore.)						
Whittlesey, John J., Pittsfield, Mass. Umbrella	750,924	Feb. 2	274	64	108	1118
Whittley, J. R., *et al.* (See Goldsmith, Elias, assignor.)						
Whitworth, George W. (See Semm, Charles H., assignor.)						
Wichert & Gardiner. (See Gardiner, George H., assignor.)						
Wichman, Henry J., Dubuque, Iowa. Shoe-shining frame	751,086	Feb. 2	469	110	108	1161
Wickey, Edward W., East Chicago, Ind. Automobile	751,235	Feb. 2	859	195, 197	108	1240
Wideman, Gustavus, assignor to Wilcox Manufacturing Company, Aurora, Ill. Self-closing fire-door	751,503	Feb. 9	1499	341	108	1396
Wiebe, John, Whitewater, Kans. Treadle mechanism for light machinery	749,651	Jan. 12	2237	471	108	580
Wiedenbeck, Siegmund T. (See Neubert and Wiedenbeck.)						
Wiedenfeld, August, Bochum, Germany. Magnetic lock for miners' safety-lamps	749,123	Jan. 5	1151	244	108	266
Wiens, John P. (See Gage, John W., assignor.)						
Wieser, Karl, Rüttenscheid, near Essen-on-the-Ruhr, assignor to F. Krupp, Essen-on-the-Ruhr, Germany. Projectile	750,328	Jan. 26	3555	769	108	843
Wieser, Karl, Rüttenscheid, assignor to F. Krupp, Essen-on-the-Ruhr, Germany. Percussion-fuse for exploding shells	750,785	Jan. 26	4151	950	108	1036
Wiesman, Lester A., assignor of two-thirds to E. Kohl and A. Fox, Cleveland, Ohio. Combined level and square	752,014	Feb. 9	2322	519	108	1578
Wiesner, Oscar C. (See Hale, George C., assignor.)						
Wiggens, Charles. (See Highers, Charles, assignor.)						
Wight, James M. (See Hyatt and Wight.)						
Wight, William N., and F. E. Townsend, New York, N. Y. Reservoir-bottom and expansion-joint	749,765	Jan. 19	2487	580	108	591
Wilcox, Henry, assignor of one-half to W. D. Donovan, Newark, N. J. Razor stropping and honing machine	749,467	Jan. 12	1908	395, 396	108	448
Wilcox Manufacturing Company. (See Wideman, Gustavus, assignor.)						
Wild, William E. (See Bailey and Wild.)						
Wild, William E., Denver, Colo. Ore-mill	752,138	Feb. 16	2540	566	108	1641
Wilehart, Frank J. (See Wilehart, George R., assignor.)						
Wilehart, George R., assignor of one-half to F. J. Wilehart, The Dalles, Oreg. Valve	751,861	Feb. 2	1099	248	108	1291
Wiles, J. J. (See Massey and Spooner, assignors.)						
Wiles, William J. (See Stewart and Wiles.)						
Wiley, George E., and W. I. Coley, Saltville, Va. Means for propelling bicycles	751,226	Feb. 2	861	197	108	1240
Wilke, Richard, Brunswick, Germany. Device for the propulsion of cranes	752,989	Feb. 23	4134	921	108	2011
Wilkin, William M., Mobile, Ala. Press-roll mechanism	752,633	Feb. 16	3514	781, 782	108	1856
Wilkins, David J., Muncie, Ind. Non-refillable bottle	752,495	Feb. 16	3221	719	108	1790

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wilkins, Earle, Dawson, N. Mex. Ter. Map study	752,739	Feb. 23	3712	828	108	1918
Wilkins, Julia F., Simpsonville, Tex. Combined cane and umbrella	752,740	Feb. 23	3714	829	108	1918
Wilkins, Willan A., Marietta, Ind. Ter. Buggy-top	749,008	Jan. 5	907	191	108	212
Wilkinson, Charles H., Huddersfield, England. Machine for setting staples, nails, &c	749,956	Jan. 19	2849	608, 609	108	670
Wilkinson, George C., Plattsburg, N. Y. Motor-cycle	752,741	Feb. 23	3716	829	108	1919
Wilkinson, James, Birmingham, Ala. Elastic-fluid turbine	752,610	Feb. 16	3457	773	108	1844
Wilkinson, James, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company. Regulating turbines	749,468	Jan. 12	1906	396	108	449
Wilkinson, James, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company. Governing mechanism for turbines	751,888	Feb. 9	2055	465, 466	108	1515
Wilkinson, James, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company. Elastic-fluid turbine	751,889	Feb. 9	2059	466	108	1516
Wilkinson, James, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company. Two-speed and reversing turbine	752,496	Feb. 16	3222	719, 720	108	1791
Wilkinson, James, Birmingham, Ala., assignor to Wilkinson Steam Turbine Company. Turbine-wheel	753,111	Feb. 23	4452	990	108	2083
Wilkinson Steam Turbine Company. (See Wilkinson, James, assignor.)						
Wilkison, Fred E., Horton, Kans. Disk-grinding device	749,766	Jan. 19	2489	580	108	592
Willard, James A., assignor of three-fourths to W. M. and T. H. Lasley and C. L. Hall, Chattanooga, Tenn. Smoke-consuming furnace	750,786	Jan. 26	4453	959	108	1036
Willcox and Gibbs Sewing Machine Company. (See Goodyear, William E., assignor.)						
Willcox, Irvin J., assignor of one-half to E. F. Kinard, Lenox, Ga. Cotton-planter	753,185	Feb. 23	4579	1020, 1021	108	2112
Willcox, Percy F. C., Sunderland, England. Valve-gear for engines	751,037	Feb. 2	471	110	108	1161
Willey, James F., Jeffersonville, Ind. Portable drill	750,744	Jan. 26	4360	942	108	1015
Willey, William J., Clayton, Del. Hitching device	750,141	Jan. 19	3201	688	108	744
William L. Gilbert Clock Company. (See Woodruff and McCabe, assignors.)						
William Schollhorn Company. (See Morton, William M., assignor.)						
William Sellers & Company. (See Kneas, Strickland L. J., assignor.)						
Williams-Abbott Electric Company. (See Bowen, William, assignor.)						
Williams-Abbott Electric Company. (See Sands and Cadden, assignors.)						
Williams, Andrew S. (See Hess and Williams.)						
Williams, George S., assignor of one-half to J. S. Taylor, Norfolk, Va. Action for mechanical playing attachments for pianos	748,828	Jan. 5	515	117	108	117
Williams, J. Pearson, *et al.* (See Goldsmith, Elias, assignor.)						
Williams, Lacey Y. (See Harrison and Williams.)						
Williams Manufacturing Company. (See Schleicher, Oscar, assignor.) (Reissue.)						
Williams, William L., Winona, Minn. Plier-type tool	751,594	Feb. 9	1501	341	108	1397
Williams, Willie L., assignor of one-half to T. S. Jones, Jeffersonville, Ga. Railway-switch	750,925	Feb. 2	273	64, 65	108	1118
Williams, Willis D., Kirkland, Ariz. Ter. Trolley	749,509	Jan. 12	1990	418	108	465
Williamson, Henry C., and H. Pries, Michigan City, Ind. Draft-rigging	749,347	Jan. 12	1631	347	108	392
Willis, Thomas J., and G. Andricht, Milwaukee, Wis.; said Andricht assignor to said Willis. Exhaust-muffler	750,011	Jan. 19	2955	632	108	668
Willmann, Joseph, Chicago, Ill. Pump	749,248	Jan. 12	1415	304	108	344
Willmarth, Charles A. (See Barnes and Willmarth.)						
Willson, Freeman R., Jr., assignor to J. A. Jeffrey, Columbus, Ohio. Conveyer-loading device	751,890	Feb. 9	2063	466, 467	108	1517
Wilmore, S. E. (See Scheble, Eugene S., assignor.)						
Wilmot Castle Company. (See Castle, Arthur, assignor.)						
Wilson, Adoniram J. (See Breese and Wilson.)						
Wilson, Caesar, Greenleaf, Minn. Seat for farm machinery	750,142	Jan. 19	3202	688	108	744
Wilson, Columbus J., Pittsburg, Pa. Eyeglass-case	750,926	Feb. 2	278	65	108	1119
Wilson, Edgar H. (See Wilson, George T., assignor.)						
Wilson, Edward F., assignor to G. S. Welles, Chicago, Ill. Producing carbureted air	749,767	Jan. 19	2492	580, 581	108	592
Wilson, Edward F., assignor to G. S. Welles, Chicago, Ill. Apparatus for producing carbureted air	749,768	Jan. 19	2494	581	108	593
Wilson, George R., Hurley, S. D. Toaster or broiler	752,497	Feb. 16	3220	720	108	1793
Wilson, George T., assignor of one-half to E. H. Wilson, Moline, Ill. Spring for buggy-boots	750,927	Feb. 2	278	65	108	1119
Wilson, Henry P., New York, N. Y. Machine for bending the cross-heads of hay-bale wires	749,348	Jan. 12	1633	347, 348	108	393
Wilson, Howard S., Puebla, Mexico. Convertible car	751,126	Feb. 2	625	145	108	1193
Wilson, James H., Lowell, Mass. Electric sanitary closet	749,769	Jan. 19	2497	581, 582	108	594
Wilson, James S. (See Blackler, Archibald T., assignor.)						
Wilson, James S., Bloomsburg, Pa. Culm-bar	751,127	Feb. 2	628	146	108	1194
Wilson, Leonard, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Parallel-feeder protection	751,595	Feb. 9	1502	341	108	1397
Wilson, Thomas. (See Prendergast, Slinack, and Wilson.)						
Wilson, Thomas B., and A. L. David, Epes, Ala. Minnow-bucket	750,143	Jan. 19	3203	688	108	744
Wilson, Thomas K. (See Hooper, John J., assignor.)						
Winchester Repeating Arms Co. (See Bennett and Mason, assignors.)						
Windingstad, Nels N., assignor to Smalley Manufacturing Company, Manitowoc, Wis. Corn-shredder	750,329	Jan. 26	3556	770	108	843
Window Glass Machine Company. (See Thornburg, Lincoln, assignor.)						
Windsor Machine Company. (See Hipwell, John B., assignor.)						
Wing, Charles P., Hinsdale, Ill. Tire-bolt wrench	751,964	Feb. 9	2210	498	108	1550
Wing, Charles P., Chicago, Ill. Combined key-ring and tool	751,965	Feb. 9	2212	498	108	1550
Winkler, Godfrey, Sardis, Ohio. Bag-closure	748,902	Jan. 5	664	147	108	149
Winkley, Erastus E., and B. Phillips, Lynn, Mass. Buffing-machine	748,677	Jan. 5	229	54	108	50
Winn, Arthur L., Brockton, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., and Boston, Mass. Lasting-machine	751,128	Feb. 2	630	146	108	1194
Winnek, Frederick G., Holton, Kans. Wagon-pole	750,745	Jan. 26	4361	942	108	1015
Winnie, Ralph J., assignor of one-third to D. Lyons, Chicago, Ill. Machine for dipping sheep	748,829	Jan. 5	518	118	108	118
Winona Wire Cable Company. (See Schoonmaker, James H., assignor.)						
Winpenny, Ellen E., Indianapolis, Ind. Paper cuspidor	751,966	Feb. 9	2213	498	108	1551
Winslow, George H., and C. W. Dennett, North Adams, Mass. Printing warps	750,513	Jan. 26	3892	843, 844	108	915
Winslow, George H., and C. W. Dennett, North Adams, Mass. Warp-printing machine	750,514	Jan. 26	3895	844, 845	108	915
Winslow, William F., Wipsted, Conn. Repeating alarm-clock	752,319	Feb. 16	2895	646	108	1722

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Winter, William J., Christopher, Wash. Saw-sharpener	750,144	Jan. 19	3304	688, 689	108	744
Winters, Elhanan C., Rockfalls, Ill. Railway-spike lock	751,767	Feb. 9	1818	414	108	1461
Wire Novelty Manufacturing Company. (See Haley, Thomas S., assignor.)						
Wireless Railway Company. (See Pullen, Leon W., assignor.)						
Wireless Telegraph Company of America. (See De Forest, Lee, assignor.)						
Wirsching, Harman, Dayton, Ohio. Car-stop	752,875	Feb. 23	3973	890	108	1976
Wirtz, Luis, and T. Hamilton-Adams, London, England. Electric-arc lamp	748,904	Jan. 5	667	148	108	150
Wise, Oscar. (See Hyatt, Samuel W., assignor.)						
Wismeyer, Christian, *et al.* (See Lotz, Wismeyer, Hammer, Thoma, and Rentschler.)						
Wismeyer, Henry, Emporia, Kans. Concentrator	751,424	Feb. 2	1191	271	108	1310
Wismeyer, Henry, Emporia, Kans. Combined gold separator and amalgamator	751,425	Feb. 2	1192	271, 272	108	1310
Wister, Jones, Philadelphia, Pa. Locomotive-boiler	750,145	Jan. 19	3206	689	108	745
Withington, Sherman S., assignor to Adrian Wire Fence Company, Adrian, Mich. Wire fence	749,137	Jan. 5	1185	253	108	274
Witte, Frederick W., Cheimsford, England. Ball journal-bearing	752,498	Feb. 16	3231	721	108	1793
Witte, Hubert, assignor to St. Louis Car Company, St. Louis, Mo. Car-seat	748,903	Jan. 5	666	148	108	149
Wittemann, John, Milwaukee, Wis. Feeding mechanism for carpet-sewing machines	749,249	Jan. 12	1417	304	108	345
Wm. B. Scaife & Sons Company. (See Greth, John C. W., assignor.)						
Wohl, Alfred. (See Kollrepp and Wohl.)						
Wolf, George N., Anderson, Ind. Hydrocarbon-burner	751,968	Feb. 9	2217	499	108	1551
Wolf, John H., Sun Prairie, Wis. Wheeled sleigh	750,146	Jan. 19	3207	689, 690	108	745
Wolf, Paul J., assignor to Samuel Cupples Envelope Company, St. Louis, Mo. Stop mechanism for envelop-machines	752,499	Feb. 16	3232	721	108	1794
Wolf, Rudolph, Bridgeport, Conn. Grinding-machine	752,500	Feb. 16	3235	721	108	1794
Wolfensberger, Arnold, West Hoboken, N. J. Loom	749,890	Jan. 19	2715	580	108	642
Wolff, H. W., *et al.* (See Lipschutz, Arthur, assignor.)						
Wolhaupter, Benjamin, Chicago, Ill. Tie-plate	751,129	Feb. 2	632	146, 147	108	1195
Wolhaupter, Benjamin, Chicago, Ill. Tie-plate	751,967	Feb. 9	2214	499	108	1551
Wolke, Herman, San Francisco, Cal. Turbine	748,678	Jan. 5	235	55	108	51
Wollaston, Thomas R., Manchester, England. Apparatus for removing suspended matter from liquids by continuous decantation	751,098	Feb. 2	472	110, 111	108	1162
Wood, Albert C. (See Darrow, Wood, and Allen.)						
Wood, Charles D., Central Falls, R. I. Corset-spring	748,830	Jan. 5	590	118	108	118
Wood, David G., Suffern, N. Y. Axle journal and skein	751,130	Feb. 2	636	147	108	1195
Wood, Edgar J., New York, assignor to M. A. Wood, Brooklyn, N. Y. Turbine	749,770	Jan. 19	2499	532	108	595
Wood, George E., Southington, assignor, by mesne assignments, to Hurwood Manufacturing Company, Plantsville, Conn. Screw-driver	751,186	Feb. 23	4581	1021	108	2112
Wood, Harry E., *et al.* (See Coomber, James, assignor.)						
Wood, Henry A. W., New York, N. Y., assignor, by mesne assignments, to Detroit Trust Co., trustee, Detroit, Mich. Printing-machine	752,876	Feb. 23	3974	890, 891	108	1976
Wood, Henry A. W., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Rotary printing-machine	752,940	Feb. 23	4135	921, 922	108	2011
Wood, James E., Harvard, assignor to E. C. Harmon, Chicago, Ill. Caster-wheel	752,742	Feb. 23	3717	829	108	1919
Wood, James J., Fort Wayne, Ind. Globe-holder for arc-lamps	751,969	Feb. 9	2219	500	108	1552
Wood, Margaret A. (See Wood, Edgar J., assignor.)						
Wood, Marion N. (See Buckelew and Flournoy, assignors.)						
Wood, Miles C., Rockhill, S. C. Hoisting and carrying device	751,237	Feb. 2	863	197	108	1240
Wood, Montraville M., Schenectady, N. Y., assignor to General Electric Company. Trolley-hanger	752,501	Feb. 16	3237	722	108	1794
Woodborough, Henry, New York, N. Y. Protractor	753,025	Feb. 23	4303	956	108	2051
Woodburn, Oscar P., Pierce, Tex. Punching-machine	750,746	Jan. 26	4302	942, 943	108	1015
Woodrow, Arthur E. (See Ward, Joseph, assignor.)						
Woodruff, George B., and T. W. R. McCabe, assignors to William L. Gilbert Clock Company, Winsted, Conn. Clock-case	748,679	Jan. 5	238	55	108	52
Woods, Edwin S., Chicago, Ill. Draft-rigging for car-couplings	749,829	Jan. 19	2609	557	108	618
Woods, Franklin C., Alliance, Ohio. Fish-hook	751,365	Feb. 2	1100	248	108	1291
Woodward, Irving C., Chicago, Ill. Combined ink-well and pen-wiper	750,928	Feb. 2	279	66	108	1119
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Co., Chicago, Ill. Sewing-machine	753,187	Feb. 23	4582	1021, 1022, 1023	108	2112
Woodward, William C. (See Wright, Harry G., assignor.)						
Wool, James H., *et al.* (See Kitzmiller, George M., assignor.)						
Woolley, Leonidas G., assignor to A. C. Cooney, Kenton, Ohio. Fire-alarm mechanism	750,012	Jan. 19	2966	632, 633, 634	108	694
Woolley, Leonidas G., assignor to A. C. Cooney, Kenton, Ohio. Fire-alarm system	750,013	Jan. 19	2968	634, 635	108	695
Woolman, Clarence E., *et al.* (See Brindle, Philip S., assignor.)						
Wooster, Silas H., Charlotte, Vt. Harrow	751,768	Feb. 9	1819	415	108	1461
Work, Josiah Q., Lamar, Mo. Vehicle-tire	749,890	Jan. 19	2611	557	108	619
Works, Frank H., Boston, Mass., assignor to Universal Safety Tread Company, Jersey City, N. J. Sidewalk or other light	750,929	Feb. 2	280	66	108	1120
Worsley, Otto G., Newark, Ill. Pump	751,596	Feb. 9	1504	342	108	1397
Worth, Mason G., Philadelphia, Pa. Means for producing metallic floor-plates	750,042	Jan. 19	3014	645	108	705
Wright, Charles W., Cleveland, Ohio. Window parting-strip	748,905	Jan. 5	669	148	108	150
Wright, Gilbert, assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Means for controlling governor-motors	751,598	Feb. 9	1506	343	108	1398
Wright, Gilbert, and H. C. White, assignors to Stanley Electric Manufacturing Company, Pittsfield, Mass. Electric switch	751,597	Feb. 9	1506	342, 343	108	1398
Wright, Harry G., assignor to W. C. Woodward, Providence, R. I. Safety-appliance system for electrically-actuated elevators	749,416	Jan. 12	1770	374, 375	108	490
Wright, J. M. (See Beardslee, John P., assignor.)						
Wright Reverse Company. (See Wright, William J., assignor.)						
Wright, William H., assignor of one-half to R. A. Althoff, Baltimore, Md. Bottle	749,124	Jan. 5	1152	244	108	268
Wright, William J., assignor to Wright Reverse Company, Pittsburg, Pa. Reversing-clutch mechanism	749,349	Jan. 12	1687	348, 349	108	394
Wrigley, Emanuel. Woonsocket, R. I. Stop-motion device for knitting-machines	750,147	Jan. 19	3208	690	108	745
Wullstein, Herman F. (See Beckworth and Wullstein.)						
Wunderlich, Frederick A., New York, N. Y. Paraffin-bath for microscopists	750,515	Jan. 26	3898	845	108	916
Wünsch, Alois, Prague-Smichow, Austria-Hungary. Rotary vessel with charging or discharging means	750,330	Jan. 26	3557	770	108	843

Alphabetical list of patentees for January and February—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Spec.	Dr'g.	Vol.	Page.
Wünsche, Eugen, Schöneberg, near Berlin, Germany. Preparing printing-plates	749,350	Jan. 12	1639	.....	108	394
Wurmb, Theodore H. (See Baumann, Robert, assignor.)						
Wyckoff, Seamans & Benedict. (See Champion, Charles S., assignor.)						
Wyckoff, Seamans & Benedict. (See Chapin, Murray H., assignor.)						
Wyckoff, Seamans & Benedict. (See Diss, Louis P., assignor.)						
Wyckoff, Seamans & Benedict. (See Diss and Schmidt, assignors.)						
Wyckoff, Seamans & Benedict. (See Shepard, Charles H., assignor.)						
Wykert, Henry R., Omaha, Nebr. Camp-bedstead	752,941	Feb. 23	4142	922	108	2013
Wyly, James J., Fort Worth, Tex. Game apparatus	748,680	Jan. 5	239	55	108	52
Wyman, George R., assignor to F. W. Bird & Son, East Walpole, Mass. Machine for closing and sealing cartons	752,369	Feb. 16	2981	664, 665, 666	108	1741
Yaxley, Ernest E., assignor to American Electric Telephone Company, Chicago, Ill. Transmitter	748,906	Jan. 5	670	148	108	151
Yaxley, Ernest E., assignor to American Electric Telephone Company, Chicago, Ill. Telephone-hook switch	749,977	Jan. 19	2884	617	108	677
Yeager, Earnest C., Rockdale, Tex. Lifting-jack	752,502	Feb. 16	3238	722	108	1795
Yeatman, John A., San Francisco, Cal. Hydraulic nozzle and joint	749,417	Jan. 12	1775	375	108	421
Yoe, Philip, assignor to himself, E. W. Hanley, and K. Fitzpatrick, Dayton, Ohio. Voting-machine	752,276	Feb. 16	2809	622, 623, 624	108	1703
York, Raymond D., Portsmouth, Ohio. Rolling-mill	752,743	Feb. 23	3719	889, 890	108	1919
York Silk Manufacturing Company. (See Bentley, Manton T., assignor.)						
Yost, Fernando, Weehawken Heights, N. J., assignor to Little Giant Fire Extinguisher Company, New York, N. Y. Fire-extinguisher	751,238	Feb. 2	894	198	108	1241
Yost-Miller Company. (See Kenney, Owen E., assignor.)						
Yost Writing Machine Company. (See Walker, Charles W., assignor.)						
Youmans, Benjamin P., and H. W. Rand, Vancouver, Wash. Ball-bearing wheel-hub	749,552	Jan. 12	2238	472	108	520
Young, Andrew M., *et al.* (See Le May, Marcus M., assignor.)						
Young, Charles A. (See Young, George A. and C. A.)						
Young, Charles P. (See Kraft and Young.)						
Young, Frederick W., East Orange, assignor to Crocker-Wheeler Company, Ampere, N. J. Commutator for dynamo-electric machines	752,634	Feb. 16	3516	782	108	1857
Young, George A. and C. A., Detroit, Mich. Water-still	750,747	Jan. 26	4364	943	108	1016
Young, Glenn H., *et al.* (See Cazier, Perry H., assignor.)						
Young, Harry T., Homestead, Pa. Device for operating street-railway switches	749,009	Jan. 5	908	192	108	212
Young, Joseph F., Pittsburg, Pa. Safety-envelop	749,010	Jan. 5	909	192	108	212
Young, Otis W., Rockford, Iowa. Valve-gearing	751,769	Feb. 9	1820	415	108	1461
Young, Otis W., Chicago, assignor of one-half to O. C. Mann, Oakpark, Ill. Steam-engine valve	751,131	Feb. 2	637	147, 148	108	1196
Young, William C., and J. McMahon, Buffalo, N. Y. Trolley-catcher	752,139	Feb. 16	2542	566, 567	108	1641
Yule, John. (See McCutchan, Algernon S., assignor.)						
Yund, Albert H. (See Gode, Albert G., assignor.)						
Zalikowski, John, Chicago, Ill. Mangle	750,830	Feb. 2	282	66, 67	108	1120
Zamboni, Lawrence, New York, N. Y., assignor to Pressed Metal Manufacturing Company. Pulley or wheel	751,707	Feb. 9	1700	387	108	1438
Zaouche, Bachir. (See Giglio and Zaouche.)						
Zaring, Charles W., New York, N. Y. Composite block for soft treads and making same	749,978	Jan. 19	2887	617	108	678
Zelinsky, Nicholas, Moscow, Russia. Making organic acids	752,744	Feb. 23	3720	.....	108	1920
Zenger, Simon F., Austin, Pa. Belt	751,132	Feb. 2	641	148	108	1197
Ziegenberg, Rudolf, Schöneberg, near Berlin, Germany. Electric dynamo or motor with alternating field	748,907	Jan. 5	672	149	108	151
Ziegler, Alfred M., Boston, Mass. Cast-off	748,908	Jan. 5	674	149	108	151
Ziegler, Friedrich J., Decatur, Ill. Cultivator	749,510	Jan. 12	1991	414	108	466
Zierl, Johann, Hechingen, Germany. Fly-catcher	751,970	Feb. 9	2220	500	108	1552
Zilliox, John, Buffalo, N. Y. Flue-scraper	751,708	Feb. 9	1701	387	108	1438
Zimmerman, Elbert B. (See Fry, David M., assignor.)						
Zimmerman, John W., Chicago, Ill. Resin-distributer for violin-bows	751,599	Feb. 9	1509	343	108	1399
Zimmerman, William H., Baltimore, Md. Combined hood and cooking utensil	752,503	Feb. 16	3240	722	108	1795
Zimmermann, George, Pittsburg, Pa., and O. Langos, Alliance, Ohio, assignors of one-third to A. L. Gvatsovsky, Allegheny, Pa. Switch	752,015	Feb. 9	2323	519	108	1573
Zolles, Andreas, assignor to Zolles Brothers, Fürth, Germany. Means for mounting and exhibiting toy figures	751,894	Feb. 9	1941	440	108	1490
Zolles Brothers. (See Zolles, Andreas, assignor.)						
Zuck, David H., Mount Carroll, Ill. Corn-shock tier	749,250	Jan. 12	1419	304	108	345
Zurhorst, Ed. H., *et al.* (See Rohde and Hastings, assignors.)						
Zwick, William F., Seattle, Wash. Safety hair-pin	751,426	Feb. 2	1195	272	108	1311
Zwoyer, Ellsworth B. A. and R. A., Hoboken, N. J., assignors to Zwoyer Fuel Company, New York, N. Y. Apparatus for preparing pulverulent materials for molding or briqueting	751,133	Feb. 2	642	148	108	1197
Zwoyer, Ellsworth B. A. and R. A., Hoboken, N. J., assignors to Zwoyer Fuel Company, New York, N. Y. Preparing pulverulent materials for molding or briqueting	751,134	Feb. 2	644	149	108	1197
Zwoyer Fuel Company. (See Zwoyer, Ellsworth B. A. and R. A., assignors.)						
Zwoyer, Rolland A. (See Zwoyer, Ellsworth B. A. and R. A.)						

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
A. R. T. Manufacturing Company. (See Anthony, Mark O., assignor.)				
Alves, Manuel, West Berkeley, Cal. Cement-paving roller	36,788	Feb. 9	108	1577
American Cut Glass Co. (See Anderson, William C., assignor.)				
American Hard Rubber Company. (See Grell, Frederick W., assignor.)				
American Silver Company. (See Large, Samuel J., assignor.)				
American Type Founders Company. (See Orcutt, William D., assignor.)				
Anderson, William C., assignor to American Cut Glass Co., Lansing, Mich. Cut-glass vessel	36,738	Jan. 19	108	786
Anderson, William C., assignor to American Cut Glass Co., Lansing, Mich. Cut-glass vessel	36,739	Jan. 19	108	786
Anthony, Mark O., New York, N. Y., assignor to himself and A. R. T. Manufacturing Company. Match-box	36,783	Feb. 9	108	1576
Arbenz, Frederick A., West Hoboken, N. J. Fabric	36,822	Feb. 23	108	2133
Bailey, Banks & Biddle Company. (See Bailey, Joseph T., assignor.)				
Bailey, Joseph T., Philadelphia, Pa., assignor to Bailey, Banks & Biddle Company. Badge	36,730	Jan. 12	108	555
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	36,773	Feb. 2	108	1319
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	36,774	Feb. 2	108	1319
Blower, Leon, New York, N. Y. Decanter	36,781	Feb. 9	108	1576
Booth, William G., West Somerville, assignor to William Underwood Company, Boston, Mass. Box	36,785	Feb. 9	108	1576
Boeselman, Andrew C., New York, N. Y. Cup	36,780	Feb. 9	108	1575
Boston Automatic Bed Company. (See Ruggles, Horatio B., assignor.)				
Brainard, Ellerson L., Danbury, Conn. Standard for lights, clocks, or similar articles	36,751	Jan. 26	108	1040
Bristol Manufacturing Company. (See Keller, Sidney A., assignor.)				
Bromley & Sons, John. (See Bennett, Ernest H., assignor.)				
Bromley & Sons, John. (See Petzold, Adolph, assignor.)				
Brown, Louis H., assignor to M. J. Whittall, Worcester, Mass. Carpet	36,735	Jan. 12	108	501
Brunswick-Balke-Collender Company. (See Ehrenpreis, John, assignor.)				
Bustanoby, André, New York, N. Y. Bottle	36,764	Feb. 2	108	1317
Caley, Charles J., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Key	36,740	Jan. 19	108	786
Caley, Charles J., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Key	36,741	Jan. 19	108	786
Chase, Walter W., Providence, R. I. Charm or similar article	36,798	Feb. 16	108	1859
Curtis, Henry H. (See Hobson, John H., assignor.)				
Dale, Charles J., Plattsburg, N. Y. Souvenir-spoon	36,768	Feb. 2	108	1312
Dana, Harry S., San Francisco, Cal. Finger-ring	36,747	Jan. 26	108	1039
Dawes, John L., Pittsburg, Pa. Sign-frame	36,818	Feb. 23	108	2137
Doyle, Bernard W., assignor to Sterling Comb Company, Leominster, Mass. Pompadour-puff comb	36,727	Jan. 5	108	279
Doyle, Bernard W., assignor to Sterling Comb Company, Leominster, Mass. Pompadour-puff comb	36,742	Jan. 19	108	787
E. Faber Pencil Co. (See Schmitz, Egon L., assignor.)				
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,753	Jan. 26	108	1040
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,754	Jan. 26	108	1040
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,755	Jan. 26	108	1041
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,756	Jan. 26	108	1041
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,808	Feb. 16	108	1861
Edelmann, Frederick, Weehawken, N. J., assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,809	Feb. 16	108	1861
Ehrenpreis, John, assignor to Brunswick-Balke-Collender Company, Chicago, Ill. Drinking counter, or bar proper, for bar-fixtures	36,731	Jan. 12	108	550
Elk Manufacturing and Vending Company. (See Nichols, Frank L., assignor.)				
Englewood, Patrick H., Bristol, Conn. Badge	36,758	Jan. 26	108	1041
Fisher, Robert E., assignor to Smith Brothers, Providence, R. I. Charm or similar article	36,723	Jan. 5	108	278
Fritsche, Albert C., assignor to H. M. Rosenblatt, Philadelphia, Pa. Leather rope for bag-handles	36,789	Feb. 9	108	1577
Grell, Frederick W., assignor to American Hard Rubber Company, New York, N. Y. Comb	36,824	Feb. 23	108	2133
Haas, Frank A., New York, N. Y., assignor to M. J. Whittall, Worcester, Mass. Carpet	36,733	Jan. 12	108	550
Haas, Frank A., New York, N. Y., assignor to M. J. Whittall, Worcester, Mass. Carpet	36,734	Jan. 12	108	550
Helbig, Walther, assignor to Kursheedt Manufacturing Company, New York, N. Y. Collar	36,807	Feb. 16	108	1861
Henson, John W., New York, N. Y. Fabric	36,791	Feb. 9	108	1578
Hinderer, Friedrich, New Orleans, La. Hanging flower-pot	36,800	Feb. 16	108	1860
Hinderer, Friedrich, New Orleans, La. Renaissance flower-box	36,801	Feb. 16	108	1860
Hinderer, Friedrich, New Orleans, La. Cross	36,812	Feb. 23	108	2131
Hobson, John H., assignor to H. H. Curtis, North Attleboro, Mass. Handle for spoons, forks, or similar articles	36,759	Jan. 26	108	1041
Hohner, Hans, Trossingen, Germany. Mouth-harmonica	36,748	Jan. 26	108	1039
Hopton, Lemuel R., assignor to Oxley Enos Company, New York, N. Y. Globe-support for incandescent-lighting apparatus	36,743	Jan. 19	108	787
Hostachy, Gabriel, Plainfield, N. J. Glove	36,790	Feb. 9	108	1577
Huld, Franz, New York, N. Y. Souvenir-card or similar article	36,762	Feb. 2	108	1316
Hunt, Ozello R., assignor to Simmons Manufacturing Company, Kenosha, Wis. Wire fabric	36,745	Jan. 19	108	787
Jacobi, Leopold, St. Louis, Mo., assignor to National Cash Register Company, Jersey City, N. J. Cash-register cabinet or casing	36,767	Feb. 2	108	1317
Johnson, Robert L., Hanley, England. Cover-dish	36,765	Feb. 2	108	1317
Johnson, William H., Revere, Mass. Button-piece for suspenders	36,797	Feb. 16	108	1859

Alphabetical list of patentees of designs for January and February—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Keith, William H. (See Lankford and Keith.)				
Keller, Sidney A., New York, N. Y., assignor to Bristol Manufacturing Company. Brooch, button, or buckle-plate, or similar article	36,757	Jan. 26	108	1041
Kellogg, John H., Battlecreek, Mich. Chair	36,771	Feb. 2	108	1319
Knighton, Lella W., Portland, Oreg. Toy bank	36,766	Feb. 2	108	1317
Knorr, Frederick J., and A. S. Kuhn, Bloomington, Ill. Spoon	36,779	Feb. 9	108	1575
Krause, Otto, New York, N. Y. Liquid-container	36,750	Jan. 26	108	1040
Kuhn, Alice S. (See Knorr and Kuhn.)				
Kursheedt Manufacturing Company. (See Edelmann, Frederick, assignor.)				
Kursheedt Manufacturing Company. (See Helbig, Walther, assignor.)				
Lankford, George W., Springfield, Mo., and W. H. Keith, Ottawa, Kans.; said Lankford assignor to said Keith. Dolly or similar article	36,883	Feb. 23	108	2133
Large, Samuel J., assignor to American Silver Company, Bristol, Conn. Handle for spoons or similar articles	36,737	Jan. 19	108	786
Law, Frank W., Pittsburg, Pa. Heating-stove	36,819	Feb. 23	108	2132
Levy, Nathan B., Scranton, Pa. Watch-charm	36,724	Jan 5	108	278
Maddock, James, Alsager, England, assignor to Maddock & Miller. Covered dish	36,815	Feb. 23	108	2131
Maddock, James, Alsager, England, assignor to Maddock & Miller. Dish	36,816	Feb. 23	108	2132
Maddock, James, Alsager, England, assignor to Maddock & Miller. Dish	36,817	Feb. 23	108	2132
Maddock & Miller. (See Maddock, James, assignor.)				
Maxwell, John, Oneida, N. Y. Burial-casket	36,709	Feb. 2	108	1318
National Cash Register Company. (See Jacobi, Leopold, assignor.)				
National Cash Register Company. (See Ringold, Edwin, assignor.)				
Nichols, Frank L., assignor to Elk Manufacturing and Vending Company, Washington, D. C. Casing for vending-machines	36,780	Feb. 9	108	1577
Nostitz, Hans P. von, New York, N. Y. Braid	36,746	Jan. 19	108	787
Orcutt, William D., Brookline, Mass., assignor to American Type Founders Company, New York, N. Y. Font of type	36,729	Jan 5	108	279
Oxley Enos Company. (See Hopton, Lemuel R., assignor.)				
Pairpoint Corporation. (See Steffin, Albert, assignor.)				
Palmer, Harmon S., Washington, D. C. Artificial building-block	36,772	Feb. 2	108	1319
Palmer, Harmon S., Washington, D. C. Artificial building-block	36,804	Feb. 16	108	1860
Palmer, Harmon S., Washington, D. C. Artificial building-block	36,805	Feb. 16	108	1860
Palmer, Harmon S., Washington, D. C. Artificial building-block	36,806	Feb. 16	108	1860
Penfold, Charles C., Buffalo, N. Y. Buckle-plate or similar article	36,725	Jan. 5	108	278
Perry, Ira D. (See Weir and Perry.)				
Perry, William A., assignor to M. J. Whittall, Worcester, Mass. Carpet	36,736	Jan. 12	108	551
Petroskey, John H., Detroit, Mich. Rack for umbrellas and canes	36,787	Feb. 9	108	1577
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	36,775	Feb. 2	108	1319
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	36,776	Feb. 2	108	1319
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	36,777	Feb. 2	108	1319
Post, Charlie A., Kansas City, Mo. Kitchen-cabinet	36,752	Jan. 26	108	1040
Printz, Daniel F., Reading, Pa. Stove-door	36,732	Jan. 12	108	550
Reaves, Frank J., Rockford, Ill., assignor to Rockford Watch Company, Limited. Watch-wheel	36,778	Feb. 9	108	1575
Ringold, Edwin, Boston, Mass., assignor to National Cash Register Company, Jersey City, N. J. Cash-register cabinet or casing	36,768	Feb. 2	108	1318
Robinson, Charles W., San Diego, Cal. Dinner-plate or similar article	36,782	Feb. 9	108	1576
Rockford Watch Company. (See Reaves, Frank J., assignor.)				
Rosenblatt, Harry M. (See Fritsche, Albert C., assignor.)				
Rowley, Frederick H., assignor to Sterling Comb Company, Leominster, Mass. Pompadour-puff comb	36,728	Jan. 5	108	279
Ruggles, Horatio B., Medford, assignor to Boston Automatic Bed Company, Boston, Mass. Bracket	36,770	Feb. 2	108	1318
Russell & Erwin Manufacturing Company. (See Caley, Charles J., assignor.)				
Schmitz, Egon L., New York, N. Y., assignor to E. Faber Pencil Co. Lead-pencil	36,788	Feb. 16	108	1859
Sepulchre, Louis, Herstal, Belgium. Chimney-reflector for lamps	36,802	Feb. 16	108	1860
Sepulchre, Louis, Herstal, Belgium. Chimney-reflector for lamps	36,803	Feb. 16	108	1860
Shoyer, Daniel W., New York, N. Y. Hammock-cloth	36,792	Feb. 9	108	1578
Shoyer, Daniel W., New York, N. Y. Hammock-cloth	36,821	Feb. 23	108	2133
Simmons Manufacturing Company. (See Hunt, Ozello R., assignor.)				
Smith Brothers. (See Fisher, Robert E., assignor.)				
Spadone, Alfred A., New York, N. Y. Tiling	36,761	Jan. 26	108	1042
Steffin, Albert, assignor to Pairpoint Corporation, New Bedford, Mass. Bas-relief border for metallic tableware	36,813	Feb. 23	108	2131
Steffin, Albert, assignor to Pairpoint Corporation, New Bedford, Mass. Candelabrum	36,814	Feb. 23	108	2131
Sterling Comb Company. (See Doyle, Bernard W., assignor.)				
Sterling Comb Company. (See Rowley, Frederick H., assignor.)				
Straker, Herbert J., assignor to G. K. Webster, North Attleboro, Mass. Back for brushes, mirrors, or similar articles	36,760	Jan. 26	108	1042
Straker, Joseph E., Jr., Attleboro, Mass., assignor to Watson and Newell Company. Handle for souvenir spoons, forks, or similar articles	36,726	Jan. 5	108	278
Straker, Joseph E., Jr., Attleboro, Mass., assignor to Watson and Newell Company. Handle for spoons, forks, or similar articles	36,794	Feb. 16	108	1859
Straker, Joseph E., Jr., Attleboro, Mass., assignor to Watson and Newell Company. Handle for spoons, forks, or similar articles	36,795	Feb. 16	108	1859
Straker, Joseph E., Jr., Attleboro, Mass., assignor to Watson and Newell Company. Handle for spoons, forks, or similar articles	36,796	Feb. 16	108	1859
Vernon, Rosa M., Gambier, Ohio. Kitchen wall-cabinet	36,744	Jan. 19	108	787
Warner, Charles A., New York, N. Y. Clock case and support	36,784	Feb. 9	108	1576
Waters, Samuel B., Johnstown, Pa. Radiator-section	36,820	Feb. 23	108	2132
Watson and Newell Company. (See Straker, Joseph E., Jr., assignor.)				
Webster, George K. (See Straker, Herbert J., assignor.)				
Weir, John B., and I. D. Perry, Chicago, Ill. Money-bank	36,749	Jan. 26	108	1039
Whittall, Matthew J. (See Brown, Louis H., assignor.)				
Whittall, Matthew J. (See Haas, Frank A., assignor.)				
Whittall, Matthew J. (See Perry, William A., assignor.)				
William Underwood Company. (See Booth, William G., assignor.)				
Williams & Anderson. (See Williams, Sidney, assignor.)				
Williams, Sidney, assignor to Williams & Anderson, Providence, R. I. Charm or similar article	36,811	Feb. 23	108	2131

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. Engelhard & Sons Co., Louisville, Ky. Coffee	41,946	Jan. 26	108	1044
A. Engelhard & Sons Co., Louisville, Ky. Coffees	41,972	Feb. 2	108	1320
A. Engelhard & Sons Co., Louisville, Ky. Coffees	42,092	Feb. 9	108	1581
A. F. MacLaren Imperial Cheese Co., Limited, Toronto, Canada. Fancy full-cream Canadian cheese	41,976	Feb. 2	108	1321
Abbott Alkaloidal Co., Chicago, Ill. Remedies for cure of certain named diseases	42,124	Feb. 23	108	2137
Abbott Alkaloidal Co., Chicago, Ill. Remedies for cure of certain named diseases	42,125	Feb. 23	108	2137
Abrazine Company, New York, N. Y. Certain named scouring and polishing powder for metals	42,105	Feb. 23	108	2135
Acker, Merrall & Condit Co., New York, N. Y. Canned fruits	42,022	Feb. 9	108	1580
Adams, William E., Philadelphia, Pa. Confections, and chocolate and cocoa in all forms	41,975	Feb. 2	108	1321
Allen, Samuel L., Philadelphia, Pa. Sleds	42,092	Feb. 16	108	1866
Allison, James E., Chambersburg, Pa. Ointment	41,986	Feb. 2	108	1322
Almy, Frederick, New York, N. Y. Woolen piece goods	41,803	Jan. 5	108	280
Alpha Manufacturing Company, New York, N. Y. Face-cream	42,039	Feb. 9	108	1582
American Leather Co., New York, N. Y.; Wilmington, Del.; Boston, Mass., and Cincinnati, Ohio. Glazed or otherwise-finished kid-leather	41,968	Feb. 2	108	1320
American Music Company, Chicago, Ill. Keyed stringed musical instruments	42,015	Feb. 9	108	1580
American Thread Company, Jersey City, N. J. Spool-cotton, thread, and sewing-cotton	41,985	Jan. 26	108	1043
American Trading Company, New York, N. Y. Drilling, sheeting, and jeans	42,095	Feb. 23	108	2134
Anthony and Scovill Company, New York, N. Y. Photographic developing, toning, and fixing material	41,994	Feb. 2	108	1323
Anthony and Scovill Company, New York, N. Y. Photographic cameras and tripods	41,995	Feb. 2	108	1323
Armour & Company, Chicago, Ill. Certain named food products	41,867	Jan. 12	108	554
Austin, Young & Co., Chelsea, Mass. Biscuits	41,894	Jan. 19	108	789
Baldt Steel Company, Newcastle, Del. Steel castings	41,846	Jan. 5	108	284
Banner Rubber Co., St. Louis, Mo. Certain named rubber footwear	42,067	Feb. 16	108	1863
Bargar, Frederick C., Columbus, Ohio. Scouring-soap	41,991	Feb. 2	108	1323
Bauer & Black, Chicago, Ill. Porous plasters	42,143	Feb. 23	108	2139
Becker, Simon, Spartanburg, S. C. Certain named non-alcoholic drink	42,077	Feb. 16	108	1864
Berry Brothers, Limited, Detroit, Mich. Spirit varnish	42,045	Feb. 9	108	1583
Berry Brothers, Limited, Detroit, Mich. Spirit varnish	42,064	Feb. 16	108	1865
Berry Brothers, Limited, Detroit, Mich. Spirit varnish	42,065	Feb. 16	108	1865
Bey, Reshid S., London, England. Turkish cigarettes	41,944	Jan. 26	108	1044
Bickum, Charles I., Haverhill, Mass. Medicines for treatment of diseases of cats	42,137	Feb. 23	108	2138
Binney & Smith Co., New York, N. Y. Marking substances and crayons and pencils	41,937	Jan. 26	108	1043
Bird & Co., J. A. & W., Boston, Mass. Certain named coating material	41,876	Jan. 12	108	555
Birdsey & Somers, New York, N. Y. Corsets	41,885	Jan. 19	108	788
Birdsey & Somers, New York, N. Y. Corsets	41,965	Feb. 2	108	1320
Birdsey & Somers, New York, N. Y. Corsets and corset-covers	42,007	Feb. 9	108	1579
Birdsey & Somers, New York, N. Y. Children's knitted waists	42,008	Feb. 9	108	1579
Blakley, Leander L., Clearwater, Fla. Insecticides and compounds for preventing injury to trees	42,136	Feb. 23	108	2138
Boegle Bros., St. Joseph, Mo. Leather boots and shoes	41,887	Jan. 19	108	788
Booklovers Library, Camden, N. J., and Philadelphia, Pa. Teas	41,864	Jan. 12	108	554
Booklovers Library, Camden, N. J., and Philadelphia, Pa. Milk and milk products	41,865	Jan. 12	108	554
Booklovers Library, Camden, N. J., and Philadelphia, Pa. Bread, biscuits, crackers, gems, and wafers	41,866	Jan. 12	108	554
Booklovers Library, Camden, N. J., and Philadelphia, Pa. Portable circulating libraries, books, periodicals, and pamphlets	41,883	Jan. 19	108	788
Borden's Condensed Milk Co., New York, N. Y. Confectionery	41,823	Jan. 5	108	282
Borden's Condensed Milk Co., New York, N. Y. Confectionery	41,824	Jan. 5	108	282
Boston Gore and Web Manufacturing Co., Boston and Chelsea, Mass. Elastic webbing fabrics and goring	41,852	Jan. 12	108	552
Brackett, George, Boston, Mass. Antiseptic medicine for internal use	41,928	Jan. 19	108	792
Bremner Extract Company, Boston, Mass. Medical preparation for cure of certain named diseases	42,132	Feb. 23	108	2136
Britelite Lamp Company, New York, N. Y. Acetylene-lamps and their parts	42,155	Feb. 23	108	2140
Brown, Durrell & Co., Boston, Mass. Yarns	41,984	Jan. 26	108	1043
Brown, James H., Glasgow, Scotland. Whisky	41,971	Feb. 2	108	1320
Brown Tobacco Company, W. A., Martinsville, Va. Plug and cut-plug chewing-tobacco	42,074	Feb. 16	108	1864
Brunner, Mond & Co., Limited, Northwich, England, and New York, N. Y. Certain named drugs and chemicals	41,942	Jan. 26	108	1044
Brunner, Mond & Co., Limited, Northwich, England, and New York, N. Y. Certain named drugs and chemicals	41,992	Feb. 2	108	1322
Buck, John A., Kosciusko, Miss. Cleaning compounds for cleaning and scouring	41,992	Feb. 2	108	1323
Burnham, Ralph F., Auburn, Me. Medicinal preparation for cure of certain named diseases	42,069	Feb. 16	108	1863
Butler, James, New York, N. Y. Flour	41,869	Jan. 12	108	554
C. H. Blomstrom Motor Co., Detroit, Mich. Automobiles and their parts	41,903	Jan. 26	108	1046
Canonsburg Iron & Steel Co., Pittsburg, Pa. Sheet-metal lath and metal sheets	41,845	Jan. 5	108	284
Carénou & Tu, Nimes, France, and New York, N. Y. Licorice extract	41,890	Jan. 5	108	282
Carpenter, William S., Des Moines, Iowa. Embalming fluids and formaldehyde compounds	41,943	Jan. 26	108	1044
Cassebeer Pharmacal Co., New York, N. Y. Preparations for the skin, hair, and nails	42,088	Feb. 9	108	1582
Chauvenet, F., Nuits, France. Wine	41,945	Jan. 26	108	1044
Chauvenet, F., Nuits, France. Wine	42,028	Feb. 9	108	1581
Chauvenet, F., Nuits, France. Wine	42,029	Feb. 9	108	1581
Chemische Fabrik von Heyden Aktiengesellschaft, Radebeul, Germany. Certain named chemical productions for pharmaceutical use	41,818	Jan. 5	108	281
Chilton Paint Co., Portland, Me., and New York, N. Y. Marine paint	41,840	Jan. 5	108	284
Chrome Steel Works, New York, N. Y. Certain named metal productions	42,051	Feb. 9	108	1583
Chrome Steel Works, New York, N. Y. Certain named metal productions	42,091	Feb. 16	108	1866
Civita, Charles, New York, N. Y. Proprietary remedies for internal use	41,812	Jan. 5	108	281
Clapp, Dwight M., Boston, Mass. Tooth-brushes	41,906	Jan. 19	108	790
Clark, Robert W., and H. J. Gille, St. Paul, Minn. Illuminated signs	42,154	Feb. 23	108	2140
Cohen, Lyon, Montreal, Canada. Babbitt metal	42,090	Feb. 16	108	1866

Alphabetical list of registrants of trade-marks for January and February—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Columbia Rice Packing Co., Ltd., Crowley, La. Rice	41,826	Jan. 5	108	283
Columbia Rice Packing Co., Ltd., Crowley, La. Rice	41,827	Jan. 5	108	283
Columbia Rice Packing Co., Ltd., Crowley, La. Rice	41,828	Jan. 5	108	283
Consolidated Manhattan Suspender Co., New York, N. Y. Suspenders	41,911	Jan. 19	108	791
Cooke & Cobb Company, Brooklyn, N. Y. Pocket letter-files	41,841	Jan. 5	108	284
Cor-Ago Company, Lake Linden, Mich. Heart stimulants, diuretics, and eliminants	42,134	Feb. 23	108	2138
Cotton Collar Co., Atlanta, Ga. Harness-collars	42,049	Feb. 9	108	1583
Coulter, Frank M., Los Angeles, Cal. Toilet soap	41,836	Jan. 5	108	284
Cramer, William F., Catawissa, Pa. Leather boots and shoes	41,912	Jan. 19	108	791
Crosby Mfg. Co., East Glastonbury, Conn. Woolen piece goods	42,004	Feb. 9	108	1579
Cross, John H., Lynn, Mass. Leather boots and shoes	41,854	Jan. 12	108	553
Cudahy Bros. Co., Cudahy, Wis. Lard, tallow, lard compounds, and substitutes for lard	41,870	Jan. 12	108	555
Cudahy Bros. Co., Cudahy, Wis. Lard, tallow, lard compounds, and substitutes for lard	41,871	Jan. 12	108	555
Cudahy Bros. Co., Cudahy, Wis. Lard, tallow, lard compounds, and substitutes for lard	41,897	Jan. 19	108	789
Cumalena Manufacturing Co., Crafton, Pa. Lotion to be applied to the face and hands	42,070	Feb. 16	108	1863
Dean Brothers Steam Pump Works, Indianapolis, Ind. Pumping machinery, parts, and attachments	42,000	Feb. 2	108	1324
Dentists' Supply Company, New York, N. Y., and York, Pa. Porcelain teeth	42,060	Feb. 16	108	1862
Dewar, Thomas R., London, England, and New York, N. Y. Spring-water for table use	41,862	Jan. 12	108	554
Dexter, Stephen B., Chicago, Ill. Composite material for making beverages	42,076	Feb. 16	108	1864
Disch, Charles, Brooklyn, N. Y. Base-balls	42,147	Feb. 23	108	2139
Donley and Co., Providence, R. I. Certain named jewelry	42,059	Feb. 16	108	1862
Dornan Brothers, Philadelphia, Pa. Ingrain, damask, and Venetian carpets	41,850	Jan. 12	108	552
Dr. A. C. Daniels, (Incorporated,) Boston, Mass. Certain named external applications	42,138	Feb. 23	108	2138
Dr. Haskins Company, Toledo, Ohio. Uric-acid solvent for certain named diseases	42,133	Feb. 23	108	2138
Du Bose, Edgar L., Port Arthur, Tex. Books	41,892	Jan. 19	108	788
Duael, Elsa, New York, N. Y. Skin-lotions	41,930	Jan. 19	108	792
Eagle Manufact'g Co., Cleveland, Ohio. Metal and furniture polish	41,954	Jan. 26	108	1045
Eichengreen & Co., Baltimore, Md. Leather boots, shoes, and slippers	42,100	Feb. 23	108	2134
Electric Appliance Co., Burlington, Kans. Electric belts	41,958	Jan. 26	108	1046
Elgin National Watch Company, Chicago, Ill. Watches	42,014	Feb. 9	108	1580
Elson, Alfred W., Boston, Mass. Process pictures	41,898	Jan. 26	108	1044
Ern, C. Friedr., Wald, Germany. Razors	42,150	Feb. 23	108	2140
Eschmann, Frederick W. R., Yonkers, N. Y. Nutritive compound for invalids	41,979	Feb. 2	108	1321
F. E. Atteaux & Company, Boston, Mass. Dyestuffs derived from coal-tar products	42,043	Feb. 9	108	1582
Fairchild Bros. & Foster, New York, N. Y. Tonics and bitters	41,819	Jan. 5	108	282
Farbenfabriken of Elberfeld Co., New York, N. Y. Antipyretic	41,927	Jan. 19	108	792
Farbenfabriken of Elberfeld Co., New York, N. Y. Antipyretic	42,140	Feb. 23	108	2139
Farbenfabriken of Elberfeld Co., New York, N. Y. Succedaneum for atropin	42,141	Feb. 23	108	2139
Farbwerke-Vormals, Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Dyes	41,857	Jan. 12	108	553
Fleer & Co., Frank H., Philadelphia, Pa. Chewing-gum	42,113	Feb. 23	108	2136
Flexible Rubber Goods Company, Winsted, Conn. Certain named rubber goods	41,809	Jan. 5	108	281
Florence Manufacturing Co., Northampton, Mass.; New York, N. Y., and Chicago, Ill. Brushes for toilet purposes	41,833	Jan. 5	108	283
Foster Rubber Company, Boston, Mass. Rubber heels and soles for boots and shoes	41,966	Feb. 2	108	1330
Fowlring, John W., Albia, Iowa. Antinarcotic medicines	41,941	Jan. 26	108	1044
Frederick Stearns & Co., Detroit, Mich. Hemostatic, astringent, and cardiac stimulants	41,980	Feb. 2	108	1322
Frederick Stearns & Co., Detroit, Mich. Germicides and antiseptics	41,981	Feb. 2	108	1322
Frederick Stearns & Co., Detroit, Mich. Syringes	42,018	Feb. 9	108	1580
Gallagher, William C., Philadelphia, Pa. Certain named knit goods	41,800	Jan. 5	108	280
Gallinowsky, Hugo, Toronto, Canada. Composition of wood-dust and a cementing element	41,998	Feb. 2	108	1323
Gardner, Lester D., New York, N. Y. Compounded beverages having tonic, appetizing, and stimulating properties	42,122	Feb. 23	108	2137
Garfield Tea Company, Brooklyn, N. Y. Medicine for relief of headache	42,126	Feb. 23	108	2137
Garfield Tea Company, Brooklyn, N. Y. Medicine for relief of indigestion	42,127	Feb. 23	108	2137
Garrettson & Co., F. P., New York, N. Y. Laundry soap	41,888	Jan. 5	108	284
Geo. Borgfeldt & Co., New York, N. Y. Opera-glasses, field-glasses, and telescopes	42,145	Feb. 23	108	2139
Geo. Borgfeldt & Co., New York, N. Y. Opera-glasses, field-glasses, and telescopes	42,146	Feb. 23	108	2139
Geo. E. Keith Company, Campello, Mass. Leather boots and shoes	41,967	Feb. 2	108	1330
George H. White, Incorporated, Jersey City, N. J. Remedies for treatment of certain named diseases	42,123	Feb. 23	108	2137
Gilbert Manufacturing Company, New York, N. Y. Silk piece goods	41,802	Jan. 5	108	280
Gile, Ernest S., Boston, Mass. Leather boots and shoes	41,806	Jan. 5	108	281
Gill Brothers Company, Steubenville, Ohio. Glass lamp-chimneys, lantern-globes, and reflectors	41,907	Feb. 2	108	1320
Gille, Henry J. (See Clark and Gille.)	41,799	Jan. 5	108	280
Globe Corset Company, Worcester, Mass. Corsets	42,067	Feb. 16	108	1865
Gourmet & Co., London, England. Composition soot-destroyers	42,139	Feb. 23	108	2139
Grasselli Chemical Company, Cleveland, Ohio. Sodium silicate	41,920	Jan. 19	108	791
Gude & Co., Dr. A., Leipzig, Germany. Remedies for the cure of anemia, chlorosis, and similar troubles	41,921	Jan. 19	108	792
Gude & Co., Dr. A., Leipzig, Germany. Remedies for the cure of anemia, chlorosis, and similar troubles	41,922	Jan. 19	108	792
Gude & Co., Dr. A., Leipzig, Germany. Remedies for the cure of anemia, chlorosis, and similar troubles	41,923	Jan. 19	108	792
Gude & Co., Dr. A., Leipzig, Germany. Remedies for the cure of anemia, chlorosis, and similar troubles	41,924	Jan. 19	108	792
Guitar, John, Jr., Abilene, Tex. Cooking fats and oil	42,023	Feb. 9	108	1580
H. J. Blodgett Co., Inc., Boston, Mass. Powder for use in making ice-cream	41,825	Jan. 5	108	283
H. J. Blodgett Co., Inc., Boston, Mass. Gelatin and a powder for use in making gelatins	42,020	Feb. 9	108	1580
H. K. Mulford Co., Philadelphia, Pa. Product of the active principle of the suprarenal gland	41,916	Jan. 19	108	791
Hall & Co., Martin L., Boston, Mass. Certain named fruits and vegetables	42,021	Feb. 9	108	1580
Hammacher, Dellius & Co., New York, N. Y. Steel in bars and sheets	42,002	Feb. 2	108	1323
Hanford Produce Company, Sioux City, Iowa. Butter	42,024	Feb. 9	108	1580
Hansen, Charles S. T., Philadelphia, Pa. Salve	41,860	Jan. 12	108	553
Hardtmuth, L. & C., Vienna and Budweis, Austria-Hungary, and London, England. India-rubber pencil-erasers	41,847	Jan. 12	108	552
Harris Suspender Co., New York, N. Y. Suspender-buckles	41,957	Jan. 26	108	1046
Harrison, Frank, Norfolk, Va. Washing compound	42,104	Feb. 23	108	2135
Hart & Co., Theodore H., Philadelphia, Pa. Cigars	41,969	Feb. 2	108	1324
Harts Medicine Co., Lincoln, Ill. Syrup for coughs, colds, and la grippe	42,086	Feb. 9	108	1582
Harts Medicine Co., Lincoln, Ill. Tonic and laxative medicines	42,087	Feb. 9	108	1582
Hatem, Nahoum, New York, N. Y. Razors	42,148	Feb. 23	108	2140
Hauff Ice Cream Company, New Haven, Conn. Ice-cream and frozen puddings	42,116	Feb. 23	108	2136

Alphabetical list of registrants of trade-marks for January and February—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Hermanos, Rodrigues B., Havana, Cuba, and New York, N. Y. Cigars	41,970	Feb. 2	108	1320
Hobart, Frank, Topeka, Kans. Certain named proprietary medicines	41,918	Jan. 19	108	791
Hockaday Hardware Company, Wichita, Kans. Pocket-knives	42,151	Feb. 23	108	2140
Hogan, Percy F., New York, N. Y. Bar, sheet, or forged steel	42,156	Feb. 23	108	2140
Holmes, David G., New York, N. Y. Cleansing compound	42,042	Feb. 9	108	1582
Holst & Sohn, Wilhelm, Wandsbeck, near Hamburg, Germany. Fruit-lemonade	41,863	Jan. 12	108	554
Holway, William C., Chicago, Ill. Liquid cure for rheumatism	42,035	Feb. 9	108	1582
Huff and Wedge, New York, N. Y. Cleaning compounds	41,913	Jan. 19	108	791
Hunt Leather Goods Co., Westboro, Mass. Leather bags	41,805	Jan. 5	108	281
I. B. Kleinert Rubber Co., New York, N. Y. Golf-balls	41,906	Feb. 2	108	1320
I. B. Kleinert Rubber Co., New York, N. Y. Hose-supporters	42,061	Feb. 16	108	1862
International Food Co., Minneapolis, Minn. Baking-powder	41,977	Feb. 2	108	1323
International Harvester Company of America, Chicago, Ill. Ropes, cords, twine fiber, twine, and binder-twine	42,103	Feb. 23	108	2135
International Shirt and Collar Co., Troy, N. Y. Shirts, collars, and cuffs	41,910	Jan. 19	108	791
International Talking Machine Co., Berlin, Germany. Machines for receiving and reproducing sounds, parts thereof, and accessories for same	41,875	Jan. 12	108	555
Ives, Frank O., Cheshire, Conn. Soap	41,899	Jan. 19	108	790
J. P. Hartray Shoe Co., Chicago, Ill. Leather shoes	41,807	Jan. 5	108	281
Javril Co., Ltd., Battlecreek, Mich. Artificial or substitute coffee	42,119	Feb. 23	108	2136
Jem Shade Holder Co., New York, N. Y. Lamp-shade holders for electric lamps	41,810	Jan. 5	108	281
Jessop, Charlotte A. S., Cambridge, Mass. Tea	42,120	Feb. 23	108	2137
John A. Roebling's Sons Co., Trenton, N. J. Wire	41,844	Jan. 5	108	284
John Finn Metal Works, San Francisco, Cal. Certain named bearing metals	41,877	Jan. 12	108	555
John Finn Metal Works, San Francisco, Cal. Certain named bearing metals	41,878	Jan. 12	108	556
John Finn Metal Works, San Francisco, Cal. Certain named metals	41,879	Jan. 12	108	556
Jones, William A., West Kirby, England. Bread, biscuits, and cakes made of dried bananas and cereals	42,112	Feb. 23	108	2136
Joseph Heap & Sons, Limited, Liverpool, England. Rice	41,829	Jan. 5	108	283
Julian & Kokenge Co., Cincinnati, Ohio. Leather boots and shoes	41,855	Jan. 12	108	553
Kehlor Flour Mills Co., St. Louis, Mo. Wheat-flour	42,082	Feb. 16	108	1865
Kelffer & Co., Isidore, New Orleans, La. Certain named boots and shoes	41,888	Jan. 19	108	788
Kelffer & Co., Isidore, New Orleans, La. Boots and shoes made of leather, kid, vici, or other skins	42,010	Feb. 9	108	1579
Kinney & Co., F. G., New Orleans, La. Vegetable-oil cake	41,898	Jan. 19	108	789
Kirsch, Robert G., St. Louis, Mo. Certain named toilet preparations	42,071	Feb. 16	108	1863
Kleinhans Company, Buffalo, N. Y. Men's hats	42,096	Feb. 23	108	2134
Kline & Co., Louis, San Francisco, Cal. Men's hats	42,097	Feb. 23	108	2134
Kny-Scheerer Co., New York, N. Y. Metallic surgical instruments	41,907	Jan. 19	108	790
Kuhn, Henry, New York, N. Y. Stomach-bitters and tonic medicines	41,915	Jan. 19	108	791
L. C. Smith & Bros. Typewriter Company, Syracuse, N. Y. Type-writing machines	41,998	Feb. 2	108	1321
Ladd & Coffin, New York, N. Y. Perfumes, toilet waters, and sachet-powders	41,834	Jan. 5	108	283
Ladd & Coffin, New York, N. Y. Perfumes, toilet waters, and sachet-powders	41,835	Jan. 5	108	283
Lanman & Kemp, New York, N. Y. Salve and ointments of witch-hazel or hamamelis	42,142	Feb. 23	108	2139
Laundry Blue Company, Chicago, Ill. Laundry bluing	41,952	Jan. 26	108	1045
Laurent & Sons, F., Philadelphia, Pa. Candy	41,822	Jan. 5	108	282
Lautemann, Henry L., Newark, N. J. Remedies for cure of certain named diseases	41,902	Jan. 19	108	790
Lawrence, William A., Chester, N. Y. Neufchâtel cheese	41,948	Jan. 26	108	1045
Leal, George, Johannesburg, South Africa. Leather boots and shoes	42,101	Feb. 23	108	2135
Levering Coffee Co., Baltimore, Md. Roasted coffee	42,033	Feb. 9	108	1582
Levering Coffee Co., Baltimore, Md. Roasted coffee	42,034	Feb. 9	108	1582
Lipp, Albert B., Sidney, Mo. Cough remedy	41,900	Jan. 19	108	790
Lippmann & Sons, G., New York, N. Y. Boys' and children's coats, vests, and trousers	41,853	Jan. 12	108	552
Liverpool China & India Tea Company, Limited, Liverpool, England. Tea	41,974	Feb. 2	108	1321
Lockhart, Edwin H., New York, N. Y. Preparations for beautifying and softening the skin	41,858	Jan. 12	108	553
Loeb & Co., Marcus, Atlanta, Ga. Overalls, pants, and blouse or work shirts	41,886	Jan. 19	108	788
Loeser & Co., Fred'k, New York, N. Y. Black ribbons	41,801	Jan. 5	108	280
Loevenhart, Jacob H., St. Louis, Mo. Artificial stones	41,964	Jan. 26	108	1046
Los Angeles Olive Growers' Ass'n, Los Angeles, Cal. Olive-oil	42,081	Feb. 16	108	1865
Lothrop Publishing Company, Boston, Mass. Books	41,940	Jan. 26	108	1044
Ludorff, Albert, New York, N. Y. Certain named beverages	42,031	Feb. 9	108	1581
Luyties, Herman C. G., St. Louis, Mo. Tooth-powder	42,040	Feb. 9	108	1582
Luyties, Herman C. G., St. Louis, Mo. Bath and talcum powder	42,041	Feb. 9	108	1582
Maltby & Co., C. R., Corning, N. Y. Wheat-flour	41,895	Jan. 19	108	789
Marmite Food Extract Coy., Ltd, London, England. Concentrated meat and vegetable preparation for soup-making	41,950	Jan. 26	108	1045
Marsh Brothers Co., Sheffield, England. Certain named hand cutting-tools	41,960	Jan. 26	108	1046
Martin, Mary L., Denver, Colo. Remedy for piles	41,859	Jan. 12	108	553
Martindale & Co., Thos., Philadelphia, Pa. Tea	41,973	Feb. 2	108	1320
Mayo, William F., Boston, Mass. Leather boots and shoes	42,009	Feb. 9	108	1579
Melson, Rufus G., Punxsutawney, Pa. Mineral water	42,121	Feb. 23	108	2137
Meriwether, Catherine C., Asheville, N. C. Playing-cards	42,094	Feb. 23	108	2134
Metallschlauchfabrik Pforzheim, (vorm. Hch. Witzenmann,) G. M. B. H., Pforzheim, Germany. Flexible metal pipes	41,880	Jan. 12	108	556
Meuwly, John J., Little Rock, Ark. Cigar-box flavor	42,073	Feb. 16	108	1864
Mexican Manufacturing Company, Wichita, Kans. Furniture-polish	42,083	Feb. 16	108	1865
Meyer, Arnold O., Hamburg, Germany. Writing-paper, packing-paper, and cigarette-paper	42,093	Feb. 23	108	2134
Meyrowitz, Emil B., New York, N. Y. Lenses for eyeglasses and spectacles	41,848	Jan. 12	108	552
Michigan Condensed Milk Co., New York, N. Y. Milk, condensed milk, cream, and evaporated cream	42,025	Feb. 9	108	1581
Michigan Condensed Milk Co., New York, N. Y. Milk, condensed milk, cream, and evaporated cream	42,026	Feb. 9	108	1581
Michigan Condensed Milk Co., New York, N. Y. Milk, condensed milk, cream, and evaporated cream	42,027	Feb. 9	108	1581
Möller & Linsert, Hamburg-Reichenhof, Germany. Certain named medicine	42,128	Feb. 23	108	2137
Monarch Stock Food Co., Kansas City, Mo. Stock-food	41,951	Jan. 26	108	1045
Morgan, John B., New York, N. Y. Trading-stamps	42,013	Feb. 9	108	1579
Morgan-Lyons Vinegar Co., Louisville, Ky. Beverage manufactured from apple-cider	42,078	Feb. 16	108	1864
Moshy & Rahaim, New York, N. Y. Razors	41,830	Jan. 5	108	283
Murbach Company of Baltimore City, Baltimore, Md. Candy	42,114	Feb. 23	108	2136
Muse, Joseph E., Baltimore, Md. Remedy for coughs and colds	41,919	Jan. 19	108	791
National Biscuit Company, Jersey City, N. J., and Chicago, Ill. Certain named bakery products	41,868	Jan. 12	108	554
National Carbon By-Products Company, Freeport, Ill. Paint, paint-pigments, and lampblack	42,044	Feb. 9	108	1583
Neher, Ruhe & Welper, Eau Claire, Wis. Remedies for venereal diseases	41,926	Jan. 19	108	792
Netheim, Herman, Newark, N. J. Cleaning or polishing compounds	41,953	Jan. 26	108	1045

Alphabetical list of registrants of trade-marks for January and February—Continued.

Name, residence, and title	No.	Date.	Official Gazette. Vol.	Page.
New Process Yeast Co., Chicago, Ill. Yeast	41,949	Jan. 26	108	1045
New York Consolidated Card Company, New York, N. Y. Playing-cards	41,939	Jan. 26	108	1044
Oatmeal Cocoa Company, Minneapolis, Minn. Oatmeal-cocoa preparations	42,030	Feb. 9	108	1581
Ohio Blower Company, Cleveland, Ohio. Dust-collectors, exhaust-fans, and blowers	42,001	Feb. 2	108	1321
Ohio Filler & Shield Co., Columbus, Ohio. Certain named lubricants	41,955	Jan. 26	108	1045
P. & F. Corbin, New Britain, Conn. Locks and latches	41,961	Jan. 26	108	1046
Palethorpe, Percy R., Louisville, Ky. Animal-dip and insecticides	41,929	Jan. 19	108	792
Palmer, Eddy, New York, N. Y. Perfumes in liquid and powdered form	42,107	Feb. 23	108	2135
Palmer, Isaac E., Middletown, Conn. Hammocks	41,953	Jan. 26	108	1043
Parker Bros., Salem, Mass. Games played with cards	42,055	Feb. 16	108	1862
Parker Bros., Salem, Mass. Games played with cards	42,056	Feb. 16	108	1862
Parker Bros., Salem, Mass. Games played with cards	42,057	Feb. 16	108	1862
Parker Bros., Salem, Mass. Games played with cards	42,058	Feb. 16	108	1862
Patent Vulcanite Roofing Co., Chicago, Ill. Asphalt roofing	41,956	Jan. 26	108	1045
Peck & Co., Samuel W., New York, N. Y. Coats, trousers, and vests for boys and youths	41,798	Jan. 5	108	280
Peirce & Son, Thomas F., Providence, R. I. Leather boots and shoes	41,856	Jan. 12	108	553
Perfection Welding Compound Co., Scranton, Pa. Welding compounds to be used in welding iron, steel, and other metals	42,046	Feb. 9	108	1583
Pike, Eleazer S., Boston, Mass. Coffees	42,075	Feb. 16	108	1864
Pineule Medicine Co., Chicago, Ill. Certain named medicine	42,129	Feb. 23	108	2138
Pineule Medicine Co., Chicago, Ill. Certain named medicine	42,130	Feb. 23	108	2138
Pineule Medicine Co., Chicago, Ill. Certain named medicine	42,131	Feb. 23	108	2138
Pioneer Chemical Company, New York, N. Y. Plaster compound	41,965	Feb. 2	108	1322
Pittsburgh Lamp, Brass & Glass Co., Pittsburg, Pa. Central-draft lamps	42,069	Feb. 16	108	1866
Pittsburgh & Montana Copper Co., Butte, Mont. Copper pigs, bars, and slabs	41,909	Jan. 19	108	791
Pope, Joseph W., St. Louis, Mo. Coffee	41,893	Jan. 19	108	789
Postum Cereal Co., Limited, Battlecreek, Mich. Candy	42,072	Feb. 16	108	1864
Puck Manufacturing Company, Des Moines, Iowa. Soap	41,887	Jan. 5	108	284
Pure Gum Specialty Company, Barberton, Ohio. Rubber gloves	42,011	Feb. 9	108	1579
Queen Manufacturing Co., New York, N. Y. Ladies' waists, dresses, skirts, and wraps	42,099	Feb. 23	108	2134
Raimes & Co., Ltd., Stockton-on-Tees, England. Metal-polishes	41,891	Jan. 19	108	789
Raum, Wilhelm, Nuremberg, Germany. Cream dressings for leather	41,890	Jan. 19	108	788
Raymond Chemical Co., New York, N. Y. Soaps	41,990	Feb. 2	108	1322
Ream, Robert L., Pittsburg, Pa. Leather boots and shoes	42,066	Feb. 16	108	1863
Rees, David W., Needles, Cal. Antiseptic powder for certain named diseases	42,135	Feb. 23	108	2138
Reisinger, Hugo, New York, N. Y. Bottle-corking machines	41,999	Feb. 2	108	1324
Rendrock Powder Company, New York, N. Y. Blasting compounds and ingredients thereof	42,047	Feb. 9	108	1583
Retailers Specialty Mfg. Co., Haverhill, Mass. Leather boots and shoes	41,951	Jan. 26	108	1043
Retailers Specialty Mfg. Co., Haverhill, Mass. Leather boots and shoes	41,952	Jan. 26	108	1043
Rice, Elwood E., Dayton, Ohio. Blood medicine	41,963	Feb. 2	108	1322
Riedel, J. D., Berlin, Germany. Medicinal preparation for certain named diseases	41,917	Jan. 19	108	791
Rosen & Herman, New York, N. Y. Men's and boys' overshirts of all kinds	42,102	Feb. 23	108	2135
Russian-American India Rubber Co., St. Petersburg, Russia. Rubber sponges	41,905	Jan. 19	108	790
Sall Mountain Asbestos Mfg. Co., Chicago, Ill. Composition roofing	41,881	Jan. 12	108	554
Sanitas Condensed Milk Co., Seattle, Wash. Condensed milk	41,947	Jan. 26	108	1045
Savage, Marion W., Minneapolis, Minn. Antiseptics and germicides	41,815	Jan. 5	108	281
Savage, Marion W., Minneapolis, Minn. Worm-powder	41,816	Jan. 5	108	282
Savage, Marion W., Minneapolis, Minn. Healing-oil	41,817	Jan. 5	108	282
Savage, Marion W., Minneapolis, Minn. Heave cure	41,818	Jan. 5	108	282
Savage, Marion W., Minneapolis, Minn. Poultry-food	41,874	Jan. 12	108	555
Schornstein-Aufsatz-und Blechwaren-Fabrik J. A. John, Aktien-Gesellschaft, Ilversgehofen, Germany. Chimney-tops	42,053	Feb. 9	108	1581
Schornstein-Aufsatz-und Blechwaren-Fabrik J. A. John, Aktien-Gesellschaft, Ilversgehofen, Germany. Steam washing-machines	42,054	Feb. 9	108	1581
Schülke & Mayr, Hamburg, Germany. Disinfectants and deodorizers	41,814	Jan. 5	108	281
Scott Paper Co., Philadelphia, Pa. Toilet-paper	41,801	Jan. 5	108	283
Scott Paper Co., Philadelphia, Pa. Toilet-paper	41,802	Jan. 5	108	283
Selwyn Importing & Trading Co., New York, N. Y. Perfumes	41,988	Feb. 2	108	1322
Selwyn Importing & Trading Co., New York, N. Y. Perfumes	41,989	Feb. 2	108	1322
Sill Stove Works, Rochester, N. Y. Heating and cooking stoves or ranges, furnaces, and parts thereof	41,843	Jan. 5	108	284
Slatington Textile Manufacturing Co., Slatington, Pa. Silks	42,005	Feb. 9	108	1579
Slatington Textile Manufacturing Co., Slatington, Pa. Silks	42,006	Feb. 9	108	1579
Smith, Harry D., Philadelphia, Pa. Grease or lubricant in solid form	42,106	Feb. 23	108	2135
Smith, Lichty & Hillman Co., Waterloo, Iowa. Pie-fruits, dried fruits, preserved fruits, fruit-jellies, fruit-juices, and fruit-flavorings	41,872	Jan. 12	108	555
Smokeless Fuel Co., Charleston, W. Va. Coal and coke	42,013	Feb. 2	108	1324
Sonne, Otto, Boston, Mass. Pantographs	42,144	Feb. 23	108	2139
Standard Water Purifying Co., Cleveland, Ohio. Purified water	41,892	Jan. 19	108	789
Starr, William M., Washington, D. C. Remedies for certain named diseases	42,068	Feb. 16	108	1863
Steinway & Sons, New York, N. Y. Pianos	41,959	Jan. 26	108	1046
Sterling Pickling Works, St. Joseph, Mo. Pickles	41,896	Jan. 19	108	789
Stewart Silk Company, New York, N. Y. Silk dress goods	41,936	Jan. 26	108	1043
Strauss & Co., London, England. Whisky	42,079	Feb. 16	108	1864
Strauss & Co., London, England. Cognac	42,080	Feb. 16	108	1864
Supplee Hardware Company, Philadelphia, Pa. Axes, hatchets, and adzes	42,050	Feb. 9	108	1583
Tacoma Grain Company, Tacoma, Wash. Wheat-flour	41,978	Feb. 2	108	1321
Taylor, Thomas J., New York, N. Y. Celluloid or imitation tortoise-shell hair-pins	41,849	Jan. 12	108	552
Thompson Medical Company, Titusville, Pa. Ointment	41,997	Feb. 2	108	1322
Thornton & Chester Milling Co., Buffalo, N. Y. Wheat-flour	42,109	Feb. 23	108	2135
Thornton & Chester Milling Co., Buffalo, N. Y. Wheat-flour	42,110	Feb. 23	108	2135
Thornton & Chester Milling Co., Buffalo, N. Y. Wheat-flour	42,111	Feb. 23	108	2136
Tiffany Furnaces, Hoboken, N. J., and Corona, N. Y. Decorative glassware	42,012	Feb. 9	108	1579
20th Century Coal Co., Columbus, Ohio. Bituminous coal	42,048	Feb. 9	108	1583
Van Camp Condensed Milk Company, Indianapolis, Ind. Evaporated cream	42,117	Feb. 23	108	2136
Van Camp Condensed Milk Company, Indianapolis, Ind. Evaporated cream	42,118	Feb. 23	108	2136
Varley Duplex Magnet Company, Providence, R. I. Induction-coils	41,908	Jan. 19	108	790
Varley Duplex Magnet Company, Providence, R. I. Induction-coils	41,992	Jan. 26	108	1046
Vernal Remedy Company, Buffalo, N. Y. Remedy for all diseases of kidneys, bladder, stomach, and bowels	41,903	Jan. 19	108	790
Virginia Anthracite Coal Co., Richmond, Va. Anthracite coal	42,088	Feb. 16	108	1865
Vischer & Co., A., New York, N. Y. Ornaments made of wood	41,811	Jan. 5	108	281
Wade, Joseph M., New York, N. Y. Panels made from fireproof material	42,052	Feb. 9	108	1583
Waring Hat Manufacturing Company, Yonkers, N. Y. Hats	42,098	Feb. 23	108	2134
Wartman, John F. A. C., Milwaukee, Wis. Antiseptic preparations	41,904	Jan. 19	108	790
Washburn, Crosby Company, Minneapolis, Minn. Wheat-flour	42,108	Feb. 23	108	2135

Alphabetical list of registrants of trade-marks for January and February—Continued.

Name, residence, and title	No.	Date.	Official Gazette. Vol.	Page.
Water Paint Company of America, New York, N. Y., and Bellows Falls, Vt. Kalsomine or water paints	41,889	Jan. 5	108	284
Webcraft Co., New York, N. Y. Suspenders	42,065	Feb. 16	108	1863
Weeks, Oscar J., New York, N. Y. Powder preparation used in the manufacture of ice-cream, water-ice, and pies	41,873	Jan. 12	108	555
Weiffenbach Mfg. Co., Chicago, Ill. Razor-strops	42,016	Feb. 9	108	1580
Weiffenbach Mfg. Co., Chicago, Ill. Razor-strops	42,017	Feb. 9	108	1580
Weil, J. M. & V., Chicago, Ill. Leather	41,808	Jan. 5	108	281
Weingarten Bros., New York, N. Y. Corsets	41,884	Jan. 19	108	788
Welding Compound Company, Paterson, N. J. Welding compounds	42,086	Feb. 16	108	1865
Wellington, Sears & Company, Boston, Mass. Drilling	41,804	Jan. 5	108	280
Wells, Jerome B., Cleveland, Ohio. Nerve and stomach tonic	41,914	Jan. 19	108	791
West Point Manufacturing Co., Langdale, Ga. Cotton-duck cloth	41,851	Jan. 12	108	552
Westenhoff & Co., Hanover, Germany. Manifolding device	42,158	Feb. 23	108	2140
Westheimer, Samuel, St. Joseph, Mo. Whisky	41,821	Jan. 5	108	282
Whitcomb, Myron L., Haverhill, Mass. Leather shoes	41,889	Jan. 19	108	788
Wilder & Buchanan, Atlanta, Ga. Candy kisses	42,115	Feb. 23	108	2136
Williams, Eureka U., Los Angeles, Cal. Poultry remedies	41,964	Feb. 2	108	1322
Wm. Knabe & Co. Mfg. Co. of Baltimore City, Baltimore, Md. Miniature grand pianos	41,842	Jan. 5	108	284
Yellow Actors Company, Limited, Grand Rapids, Mich. Tablets containing a remedy for liver and kidney diseases	41,925	Jan. 19	108	792
York Silk Manufacturing Company, York, Pa. Silk fabrics	42,062	Feb. 16	108	1862
York Silk Manufacturing Company, York, Pa. Silk fabrics	42,063	Feb. 16	108	1862
York Silk Manufacturing Company, York, Pa. Silk fabrics	42,064	Feb. 16	108	1863
Young, Albert B., Buffalo, N. Y. External remedy for animals	41,861	Jan. 12	108	554
Ziffer, Charles, Berlin, Germany. Medicine for certain named diseases	41,901	Jan. 19	108	790

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Acker, Merrall & Condit, New York, N. Y. "Alta Vista" (For Wine)	10,695	Jan. 26	108	1047
Acker, Merrall & Condit Company, New York, N. Y. "Mauna Mountain." (For Coffee)	10,688	Jan. 19	108	798
Acker, Merrall & Condit Company, New York, N. Y. "L'Acadie." (For Olive-Oil)	10,749	Feb. 16	108	1867
Allen Lumber Co., Rochester, N. Y. "The Corker." (For Shingles)	10,677	Jan. 12	108	557
American Lithographic Company, New York, N. Y. "La Marica." (For Cigars)	10,674	Jan. 12	108	557
Armour & Co., Chicago, Ill. "Veribest Roast Beef." (For Roast Beef)	10,750	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Deviled Ham." (For Deviled Ham)	10,751	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Vienna Sausage." (For Vienna Sausage)	10,752	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Veal Loaf." (For Veal-Loaf)	10,753	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Chicken Loaf." (For Chicken-Loaf)	10,754	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Sliced Smoked Beef." (For Sliced Smoked Beef)	10,755	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Lunch Tongue." (For Lunch-Tongue)	10,756	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Brisket Beef." (For Brisket Beef)	10,757	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Ham Loaf." (For Ham-Loaf)	10,758	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Beef Loaf." (For Beef-Loaf)	10,759	Feb. 16	108	1867
Armour & Co., Chicago, Ill. "Veribest Potted Ham." (For Potted Ham)	10,760	Feb. 16	108	1867
Armour and Company, Chicago, Ill. "Veribest Ox Tongue." (For Ox-Tongue)	10,730	Feb. 9	108	1585
Armour and Company, Chicago, Ill. "Veribest Corned Beef." (For Corned Beef)	10,731	Feb. 9	108	1585
Asceptiline Chemical Company, Homestead, Pa. "'Unguntum' Asceptiline." (For Ointment)	10,777	Feb. 23	108	2141
Aztec Pile Cure Co., San Antonio, Tex. "Aztec Pile Cure." (For Medicine)	10,653	Jan. 5	108	285
Bader, Henry F., East St. Louis, Ill. "Bader's Foot-Relief." (For Foot-Relief)	10,745	Feb. 16	108	1867
Badger Chemical Company, Beaverdam, Wis. "Nox-All Soot." (For Soot-Destroyers)	10,711	Feb. 2	108	1325
Badger Chemical Company, Beaverdam, Wis. "Dr. Sherman's Hog Cholera Preventive." (For Hog-Cholera Preventives)	10,712	Feb. 2	108	1325
Bass, E. & J., New York, N. Y. "The Buster Brown Belt and Buckle." (For Belts and Buckles)	10,696	Jan. 26	108	1047
Benbow, M. M., St Louis, Mo. "Martha Washington's Lily of the Valley Cream." (For Complexion-Cream)	10,694	Jan. 19	108	798
Benson, Christian L., Chicago, Ill. "Swan Island Brand." (For Canned Salmon)	10,679	Jan. 19	108	793
Bobbitt, W. H., Leon, Iowa. "Foxy Tom." (For Cigars)	10,716	Feb. 2	108	1325
Burkstrom, Carl O. F., Chicago, Ill. "Himmalia Tonic." (For Stomach and Blood Tonic)	10,652	Jan. 5	108	285
Central Litho. Co., Cleveland, Ohio. "Extra Fina Cigarros." (For Cigars)	10,667	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Superiores Cigarros." (For Cigars)	10,668	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Elegantes Cigarros." (For Cigars)	10,669	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Cigarros Habana." (For Cigars)	10,670	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Puro Fino Cigarros." (For Cigars)	10,671	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Cubanas Cigarros." (For Cigars)	10,672	Jan. 12	108	557
Central Litho. Co., Cleveland, Ohio. "Habana Cigarros." (For Cigars)	10,673	Jan. 12	108	557
Charles E. Hires Company, Malvern and Philadelphia, Pa. "Purock." (For Bottled Water)	10,696	Jan. 26	108	1047
Clipper Manufacturing Company, New York, N. Y. "The Clipper Clip." (For Paper-Clips)	10,704	Jan. 26	108	1047
Clipper Manufacturing Company, New York, N. Y. "The Fay Clip." (For Paper-Clips)	10,705	Jan. 26	108	1047
Clipper Manufacturing Company, New York, N. Y. "The Gem Clip." (For Paper-Clips)	10,706	Jan. 26	108	1047
Clipper Manufacturing Company, New York, N. Y. "The Niagara Clip." (For Paper-Clips)	10,707	Jan. 26	108	1047
Coe, C. E., Memphis, Tenn. "Louisiana Beauty New Orleans Molasses." (For Molasses)	10,648	Jan. 5	108	285
Cohen, Michael, New York, N. Y. "White Label." (For Wine)	10,736	Feb. 9	108	1585
Coleman, B. H., Boise, Idaho. "Boise Natural Mineral Water." (For Mineral Water)	10,699	Jan. 26	108	1047
Collins, James M., Concord, N. H. "Old Cumberland." (For Whisky)	10,718	Feb. 2	108	1325
Conrad, Chas., New York, N. Y. "Dr. Conrad's Femaline." (For Medicine)	10,709	Feb. 2	108	1325
Crescent Hat Co., Fall River, Mass. "L'Union Fait La Force." (For Hats)	10,783	Feb. 23	108	2141
Crescent Hat Co., Fall River, Mass. "United We Stand. Live and Let Live." (For Hats)	10,784	Feb. 23	108	2141
Davis, W. B., Topeka, Kans. "Kremelite." (For Medicine)	10,769	Feb. 23	108	2141
Dawson Pharmacal Co., Dawson Springs, Ky. "Iodinized Emulsion, (Scott.)" (For an Emulsion)	10,744	Feb. 16	108	1867
De Giorgi, Joseph H., Utica, N. Y. "Rheumol, The Monarch Cure." (For Medicine)	10,654	Jan. 5	108	285
Ditz, Joe, Saginaw, Mich. "San Toy." (For Cigars)	10,650	Jan. 5	108	285
Dr. Farrell's Catarrh Cure Co., Sheridan, Wyo. "Dr. Farrell's Absolute Cure for Catarrh." (For Medicine)	10,734	Feb. 9	108	1585
Drennan, John D., Cincinnati, Ohio. "American Glory Seven Oils." (For Medicinal Oils)	10,650	Jan. 5	108	285
Eason, William H., Whitehall, N. Y. "20th Century Stock Food." (For Stock-Food)	10,761	Feb. 16	108	1867
Eckert, T. A., Newport, Ky. "Eckert." (For Coffee)	10,728	Feb. 9	108	1585
Elder-Harrison Co., Baltimore, Md. "Green Spring Valley." (For Whisky)	10,708	Jan. 26	108	1047
Faulhaber Chemical Co., New York, N. Y. "Royal Bengal Stove Polish." (For Stove-Polish)	10,713	Feb. 2	108	1325
Faxon, William H., Buffalo, N. Y. "Faxon's Black & Green Tea." (For Tea)	10,684	Jan. 19	108	793
Forest City Cigar Co., Wausau, Wis. "Dan Patch." (For Cigars)	10,746	Feb. 16	108	1867
Fred Miller Brewing Co., Wauwatosa, Wis. "High Life." (For Beer)	10,719	Feb. 2	108	1325
Gardner, Lester D., New York, N. Y. "Liquid Sunshine." (For Beverages)	10,727	Feb. 9	108	1585
Gold Spring Distilling Company, St. Louis, Mo. "Artee Genuine German Distilled Peppermint." (For Peppermint)	10,733	Feb. 9	108	1585
Guzowski, P. J., Chicago, Ill. "Guzo Calvarian Elixir." (For Medicine)	10,702	Jan. 26	108	1047
H. J. Grell Butter & Egg Co., Johnson Creek, Wis. "Grell's Rose Leaf Brand Creamery Butter The Butter That Betters the Bread." (For Butter)	10,680	Jan. 19	108	793
Hanna, John W., New York, N. Y. "Wyoming." (For Cotton Piece Goods)	10,722	Feb. 9	108	1585
Hicks, Royal C., Worcester, Mass. "Hill's Popular Pink Penetrating Hand Soap." (For Soap)	10,740	Feb. 9	108	1585
Henschel Manfg. Co., C. B., Milwaukee, Wis. "Last Arrow." (For Cigars)	10,666	Jan. 12	108	557
Henschel Mfg. Co., C. B., Milwaukee, Wis. "American Kid." (For Cigars)	10,649	Jan. 5	108	285
Hesselroth, Lawrence, Chicago, Ill. "Ozonets." (For Breath-Perfuming Candies)	10,700	Jan. 26	108	1047
Holp, Martha J., Butte, Mont. "Dr. Antrims Inhalant." (For Medicine)	10,742	Feb. 16	108	1867
Howes, Joseph L., New York, N. Y. "J. L. Howes' Remedy." (For Medicine)	10,770	Feb. 23	108	2141
Howes, Joseph L., New York, N. Y. "J. L. Howes' Balm." (For Medicine)	10,771	Feb. 23	108	2141
Howes, Joseph L., New York, N. Y. "J. L. Howes' Magic Relief." (For Medicine)	10,772	Feb. 23	108	2141
Illinois Creamery Co., Chicago, Ill. "Holstein Brand." (For Butter)	10,765	Feb. 23	108	2141
Jackson, Lee A., Boston, Mass. "H L C Tooth Bleach." (For Dentifrice)	10,698	Jan. 19	108	793
Jarrell and Turner, Easton, Md. "Klenzene." (For Washing-Powder)	10,646	Jan. 5	108	285

Alphabetical list of registrants of labels for January and February—Continued.

Name, residence, and title	No.	Date.	Official Gazette. Vol.	Page.
John A. Roebling's Sons Co., Trenton, N. J. "Lead Seal." (For Wire)	10,645	Jan. 5	108	285
Johnson Seed Potato Co., Richmond, Me. "Seed Boils from Our Potato Fields." (For Seed-Potatoes)	10,678	Jan. 19	108	798
Johnson Seed Potato Co., Richmond, Me. "Quality Our Motto." (For Seed-Potatoes)	10,732	Feb. 9	108	1585
Jones, William A. T., Pittsburg, Pa. "Politics." (For a Game)	10,741	Feb. 16	108	1867
Kelty, Harvey E., San Francisco, Cal. "Santol." (For Medicine)	10,680	Jan. 19	108	798
Kieffer, Edward J., Savannah, Ga. "Clay's Sure Cure for Rheumatism." (For Medicine)	10,689	Jan. 19	108	798
La Hilda Cigar Factory, Philadelphia, Pa. "Tribe of the Mac-O-Chee." (For Cigars)	10,714	Feb. 2	108	1325
La Hilda Cigar Factory, Philadelphia, Pa. "Cuban's Favorite." (For Cigars)	10,715	Feb. 2	108	1325
Larter, Clarence O., Detroit, Mich. "McKinley Cough and Cold Cure." (For Medicine)	10,743	Feb. 16	108	1867
Latzar, Isidor, Chicago, Ill. "Trust Fighters." (For Cigars, Cigarettes, and Tobacco)	10,717	Feb. 2	108	1325
Liberty Incandescent Light Co., New York, N. Y. "The Fiance." (For Mantles)	10,724	Feb. 9	108	1585
Lind, Alfred, Minneapolis, Minn. "Iduna." (For Medicine)	10,655	Jan. 5	108	285
Lubovitz, Edward J., New York, N. Y. "Lagima." (For Cigars)	10,665	Jan. 12	108	557
Marshall, Thomas H., Kingston, N. Y. "Kremo Dentine." (For Tooth-Powder)	10,692	Jan. 19	108	798
Martin & Son, W. E., Macomb, Ill. "Epi." (For Medicine)	10,773	Feb. 23	108	2141
May Co., Cleveland, Ohio. "The Tramp $2.50." (For Shoes)	10,644	Jan. 5	108	285
McClintic, Frank L., Battlecreek, Mich. "Salax." (For Medicine)	10,688	Jan. 19	108	798
Mentho-Jell Co., Albert Lea, Minn. "Kalo's Ruby Oil." (For Medicine)	10,658	Jan. 5	108	285
Munro, James H., and J. M. Van Orden, Newark, N. J. "Munro's Corded Ceramic." (For Tiling)	10,675	Jan. 12	108	557
National Toilet Co., Paris, Tenn. "Nadine Face Powder." (For Face-Powder)	10,691	Jan. 19	108	798
Newmark & Co., M. A., Los Angeles, Cal. "Farm Brand Sterilized Cream." (For Sterilized Cream)	10,729	Feb. 9	108	1585
Pennsylvania Cement Company, Bath, Pa., and New York, N. Y. "Portland Pennsylvania Cement." (For Portland Cement)	10,676	Jan. 12	108	557
Phillips Medical Co., Omaha, Nebr. "Phillips' Scalp Lotion." (For Scalp-Lotion)	10,710	Feb. 2	108	1325
Poindexter, A. A., Columbus, Ga. "Poindexter s Tonic." (For Medicine)	10,767	Feb. 23	108	2141
Ramsay, William J., Des Moines, Iowa. "Ramsay Mexican Sea Salt Shampoo Massages." (For Toilet Preparation)	10,662	Jan. 12	108	557
Reliable Tea Company, Limited, Grand Rapids, Mich. "Parker House Coffee." (For Coffee)	10,651	Jan. 5	108	285
Reynolds, Mattie B., Louisville, Ky. "Aunt Rhody's Liniment." (For Liniment)	10,776	Feb. 23	108	2141
Roberts, Edgar, East St. Louis, Ill. "Salax." (For Mineral Water)	10,695	Jan. 19	108	798
Rosen, Isaac, New York, N. Y. "Rosen's Best." (For Snuff)	10,747	Feb. 16	108	1867
Royalle Chemical Co., Massillon, Ohio. "Royalle." (For Massage-Cream)	10,736	Feb. 9	108	1585
Royalle Chemical Co., Massillon, Ohio. "Vivedermis." (For Cosmetic)	10,737	Feb. 9	108	1585
Royalle Chemical Co., Massillon, Ohio. "Hair Health." (For Shampoo)	10,738	Feb. 9	108	1585
Royalle Chemical Co., Massillon, Ohio. "Herpikill." (For Dandruff Cure)	10,739	Feb. 9	108	1585
Runkel Brothers, New York, N. Y. "Red Ribbon Cocoa." (For Cocoa)	10,748	Feb. 16	108	1867
Seary, William N., Philadelphia, Pa. "Kennelworth Flea Killer." (For a Preparation for Cleaning Animals)	10,660	Jan. 5	108	285
Seville Packing Co., New York, N. Y. "Gold Medal Brand." (For Olives)	10,647	Jan. 5	108	285
Shoemaker, W. L., Akron, Ohio. "Day's Violet Enamel." (For a Lotion)	10,775	Feb. 23	108	2141
Steever, William M., New York, N. Y. "Galvin's Cough Syrup." (For Cough-Syrup)	10,774	Feb. 23	108	2141
Stern & Co., Louis, Chicago, Ill. "Medicated Charcoal Old Rye Whiskey." (For Whisky)	10,730	Feb. 9	108	1585
Tillinghast, S. E., Atlanta, Ga. "Rejuvenator Medicine Co." (For Medical Preparations)	10,708	Jan. 26	108	1047
Toledo Biscuit Company, Toledo, Ohio. "Buckeye." (For Crackers)	10,681	Jan. 19	108	798
Toledo Biscuit Company, Toledo, Ohio. "Toledo Flakes." (For Flakes)	10,682	Jan. 19	108	798
Tower, Charles M., Battlecreek, Mich. "Tower's Genuine Original Cancer and Scrofula Syrup." (For Medicine)	10,735	Feb. 9	108	1585
Trompeter, H. G., Louisville, Ky. "Old Kaintuck." (For Cigars)	10,697	Jan. 19	108	798
Type Soap Co., Pierre, S. D., and Chicago, Ill. "Type Soap." (For Saponaceous Compounds)	10,702	Feb. 16	108	1867
United Paper Co., Atlanta, Ga. "Elk." (For Oranges)	10,664	Jan. 12	108	557
Van Orden, John M. (See Munro and Van Orden.)				
Vandolah & Pullins, Kahoka, Mo. "Noxal Louse Killer." (For Insecticide)	10,701	Jan. 26	108	1047
Vaughan, Jas. C., Fayetteville, Ark. "Vaughan's Pink Cream." (For Medicine)	10,656	Jan. 5	108	285
Wabash Baking Powder Co., Wabash, Ind. "Sponge Loaf." (For Baking-Powder)	10,663	Jan. 12	108	557
Wagner's Sons, W. T., Cincinnati, Ohio. "Wagner's Lithiated Vichy." (For Artificial Mineral Water)	10,686	Jan. 19	108	798
Wagner's Sons, W. T., Cincinnati, Ohio. "Wagner's Carbonated C. P. Sodium Phosphate." (For Artificial Mineral Water)	10,720	Feb. 2	108	1325
Wagner's Sons, W. T., Cincinnati, Ohio. "Wagner's Carbonated C. P. Sodium Phosphate." (For Artificial Mineral Water)	10,721	Feb. 2	108	1325
Weeks & Co., O. J., New York, N. Y. "Perfect Jelly Powder." (For Jelly Powder)	10,697	Jan. 26	108	1047
Weinreben, Karl, Frankfort-on-the-Main, Germany. "Probilin." (For Pills)	10,778	Feb. 23	108	2141
Wenneker Chemical Co., St. Louis, Mo. "Sun Flower Rock Candy Cough Syrup." (For Cough-Syrup)	10,657	Jan. 5	108	285
Whitcher, Frank W., Boston, Mass. "'Whitcher' Menders." (For Menders)	10,723	Feb. 9	108	1585
Wise, Harry C., Cincinnati, Ohio. "Eyelene." (For Eye Medicine)	10,768	Feb. 23	108	2141
Wm. H. Horstmann Company, Philadelphia, Pa.; New York, N. Y.; Boston, Mass.; Baltimore, Md.; Detroit, Mich., and Paris and Lyons, France. "Triumph." (For Yarns)	10,661	Jan. 12	108	557
Wolf & Co., A. A., Pittsburg, Pa. "Parsifal Rye." (For Whisky)	10,766	Feb. 23	108	2141

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. R. Coulson Co., Inc., Petaluma, Cal. "Phenolene." (For Insect-Destroyer)	883	Jan. 19	108	798
American Waltham Watch Company, Waltham, Mass. "Waltham Watches." (For Watches)	887	Jan. 26	108	1047
Berrisford Candy Co., St. Paul, Minn. "The Candy Girl." (For Candy)	888	Jan. 26	108	1047
Bon Ami Co., New York, N. Y. "Hasn't Scratched Yet." (For Scouring-Soap)	882	Jan. 12	108	557
Both, W. C., Chicago, Ill. "Apparel for 1904." (For Apparel)	900	Feb. 2	108	1325
Cahn, Wampold & Company, Chicago, Ill. "Men's Apparel." (For Men's Apparel)	878	Jan. 12	108	557
Chase, Rolla M., Bethel, Vt. "Porcelain Inlays Made by the Dr. R. M. Chase Impression and Matrix System." (For Dental Fillings)	895	Feb. 9	108	1585
Curiel, Herman, New York, N. Y. "Daintiness." (For Fruit Syrups and Extracts With and Without Ice-Cream Soda)	877	Jan. 5	108	285
David Adler & Sons Clothing Co., Milwaukee, Wis. "Adler's Spring Fashions for 1904." (For Men's Apparel)	886	Jan. 19	108	798
David Adler & Sons Clothing Co., Milwaukee, Wis. "Adler's Garments for Spring and Summer." (For Men's Apparel)	894	Feb. 9	108	1585
Frank & Gutman, New York, N. Y. "Wizard Cuff Holder." (For Cuff-Holders)	875	Jan. 5	108	285
John A. Roebling's Sons Co., Trenton, N. J. "Lead Seal." (For Wire)	873	Jan. 5	108	285
Laflin & Rand Powder Co., Wilmington, Del. "Smokeless Powders." (For Smokeless Powder)	889	Feb. 2	108	1325
Lawrence & Bullen, Ltd., London, England. "Mary and Her Little Lambs." (For Wall-Paper)	908	Feb. 23	108	2141
May Co., Cleveland, Ohio. "The Tramp $2.50." (For Shoes)	876	Jan. 5	108	285
McCormick, Oran, Boston, Mass. "Our Footwear Attracts." (For Shoes)	897	Feb. 16	108	1867
McCormick, Oran, Boston, Mass. "Womens' Artistic Easter Foot-Wear." (For Shoes)	898	Feb. 16	108	1867
McCormick, Oran, Boston, Mass. "We Have Competition Beat a Mile." (For Shoes)	899	Feb. 16	108	1867
McCormick, Oran, Boston, Mass. "You Will Be Surprised." (For Shoes)	900	Feb. 16	108	1867
Natural Carbon By-Products Co., Freeport, Ill. "Mindura." (For Paint-Pigments and Paint Materials)	896	Feb. 9	108	1585
New England Confectionery Co., Boston, Mass. "Necco's Chocolates Are Ripe." (For Chocolates)	881	Jan. 12	108	557
Palmer, Isaac E., Middletown, Conn. "Palmer's Patented Hammocks." (For Hammocks)	879	Jan. 12	108	557
Prange, L., Brooklyn, N. Y. "Prunitura." (For Medicinal Prune-Syrup)	880	Jan. 12	108	557
Raymond & Pierce, New York, N. Y. "Art Shirt Waist." (For Shirt-Waists)	885	Jan. 19	108	798
Reichard & Scheuber Manfg. Co., New York, N. Y. "Instructions 'Yankee' Safety Razor." (For Safety-Razors)	901	Feb. 16	108	1867
Runkel Brothers, New York, N. Y. "The Only Third Party Welcomed on These Occasions." (For Cocoa)	902	Feb. 16	108	1867
Soule, Marie L., St. Louis, Mo. "The Excelsior Dress-Makers Fitting Saddle." (For Dressmakers' Fitting-Saddles)	884	Jan. 19	108	798
Talbot Company, Boston, Mass. "Men's and Boys' Apparel." (For Apparel)	904	Feb. 23	108	2141
United States Rubber Co., New York, N. Y. "Lycoming Rubbers." (For Rubbers)	905	Feb. 23	108	2141
Victor Talking Machine Co., Camden, N. J. "Victor." (For Talking-Machines and Accessories)	874	Jan. 5	108	285
Washburn, Crosby Co., Minneapolis, Minn. "For Goodness Sake." (For Flour)	891	Feb. 2	108	1325
Washburn, Crosby Co., Minneapolis, Minn. "There Are Other Kinds." (For Flour)	892	Feb. 2	108	1325
Washburn, Crosby Co., Minneapolis, Minn. "No Doubt About It." (For Flour)	893	Feb. 2	108	1325
Washburn, Crosby Co., Minneapolis, Minn. "What Else—Please?" (For Flour)	906	Feb. 23	108	2141

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Specification.	Drawing.	Volume.	Page.
Abdominal supporter	M. Hazelbaker	751,641	Feb. 9	1585	361	108	1414
Abrading-sheet holder	D. A. Swaggerty	751,117	Feb. 2	611	142	108	1190
Abrading-tool	J. C. Smith	752,475	Feb. 16	3184	710	108	1788
Abrasive wheel	D. B. Hyde	750,653	Jan. 26	4147	899	108	965
Account. Credit	W. R. Swan	750,557	Jan. 26	3990	863	108	982
Acetylene-generator	W. S. May	750,674	Jan. 26	4198	909	108	977
Acid. Acetyl para cresotinic	B. R. Seifert	749,634	Jan. 12	2207	.....	108	514
Acid and esters thereof. Making acetyl-salicylic	B. Balthazard	749,980	Jan. 19	2898	.....	108	680
Acid and making same. Homologous propiolic	C. Moureu	749,800	Jan. 19	2555	.....	108	606
Acid compounds. Making organic	W. Bäuml	752,947	Feb. 23	4150	.....	108	2015
Acid. Ether of amylpropiolic	C. Moureu	750,212	Jan. 19	3322	.....	108	769
Acid, &c. Ether of propiolic	C. Moureu	750,213	Jan. 19	3323	.....	108	769
Acid in gases. Determining the quantity of carbonic	G. Bodländer	751,897	Feb. 9	2075	469	108	1520
Acid. Making dialkyl-barbituric	M. Engelmann	750,627	Jan. 26	4108	.....	108	957
Acid. Making dialkyl-barbituric	M. Engelmann	751,724	Feb. 9	1735	.....	108	1444
Acid. Making phosphoric	N. B. Powter	751,753	Feb. 9	1793	409	108	1456
Acid. Making sulfuric	N. Heinz and H. Hegeler	752,677	Feb. 23	3596	802	108	1893
Acids. Making organic	N. Zelinsky	752,744	Feb. 23	3720	.....	108	1920
Acidyl derivatives of rufigallic-acid ethers and making same.	K. Stephan and F. Kaiser	751,216	Feb. 2	819	.....	108	1232
Adding-machine	F. Buresh	748,924	Jan. 5	706	155	108	160
Adding-machine	L. Cerf	749,473	Jan. 12	1916	397, 398	108	450
Adding-machine	P. H. Thompson	750,784	Jan. 26	4336	936, 937	108	1009
Adding-machine	A. P. Watt	751,082	Feb. 2	461	108	108	1159
Adding-machine automatic attachment	H. Marshall	748,766	Jan. 5	398	90	108	88
Adjustable bracket and support	A. Anspach	750,045	Jan. 19	3018	646	108	706
Adjustable wrench	J. W. Davis	750,528	Jan. 26	3972	848	108	918
Advertising-display device	D. Jones	749,441	Jan. 12	1842	384	108	434
Advertising-wheel	J. Lynn	751,086	Feb. 2	557	129	108	1181
Aerating liquids or charging them with gas. Apparatus for	W. Hucks, Jr.	751,397	Feb. 2	1150	262	108	1302
Agglomerating compound for agglomerating pulverulent materials.	C. Giglio and B. Zaouche	751,280	Feb. 2	950	.....	108	1259
Agricultural implement	J. Downing	748,706	Jan. 5	291	66, 67	108	65
Air and gas mixing and delivering apparatus	W. H. Brown and J. E. Truckses	748,840	Jan. 5	532	123, 124	108	122
Air-brake	G. Westinghouse	750,010	Jan. 19	2958	632	108	698
Air-brake	W. H. Sauvage	752,111	Feb. 16	2487	555	108	1629
Air-brake	W. H. Sauvage	752,112	Feb. 16	2491	555	108	1629
Air-brake. Automatic	B. Stapleton and J. Ahern	751,024	Feb. 2	445	105	108	1156
Air-brake coupling	J. H. Phillips	751,682	Feb. 9	1653	376	108	1428
Air-brake. Emergency	W. H. Honsberger	748,733	Jan. 5	336	75	108	74
Air-brake-operating device	G. J. Berbert	753,114	Feb. 23	4456	990, 991	108	2084
Air-brake-pump lubricator	T. M. Henderson	748,731	Jan. 5	331	74	108	73
Air-brake safety device	C. Truman	749,809	Jan. 19	2570	546	108	609
Air-brake safety device	C. Truman	749,810	Jan. 19	2571	546	108	610
Air-brake systems. Supplemental auxiliary feed for	J. J. Jones and J. E. Swanstrom	749,612	Jan. 12	2161	452, 453	108	505
Air-brakes on steam-railway cars. Automatic device for setting	J. M. Vance and T. Lanahan	752,012	Feb. 9	2320	518	108	1573
Air-compressor. Hydraulic	W. O. Webber	748,898	Jan. 5	659	146	108	148
Air-humidifying apparatus	I. S. McDougall	752,577	Feb. 16	3378	754	108	1827
Air into its constituents oxygen and nitrogen. Mechanism for separating liquid	H. Dumars	749,040	Jan. 5	979	207	108	228
Air motor. Compressed	E. W. Schloemer	748,660	Jan. 5	205	49	108	45
Air-pressure elevator. Differential	G. F. Steedman	752,720	Feb. 23	3681	820, 821	108	1911
Alarm: *See* Burglar-alarm. Electric time-alarm. Fire-alarm. Heat-alarm. Locomotive-alarm. Vehicle-alarm.							
Alarm device. Electrical	B. Menkin	751,198	Feb. 2	763	174	108	1220
Alarm system	J. W. Hasburg	753,136	Feb. 23	4492	1000	108	2092
Albuminous compounds. Making water-soluble	A. Busch	750,945	Feb. 2	314	.....	108	1127
Albuminous compounds. Making water-soluble	A. Busch	751,428	Feb. 2	1198	.....	108	1312
Alkali chlorids. Apparatus for electrolytic decomposition of	J. J. Rink	748,985	Jan. 5	848	182	108	196
Alternator. Inductor	L. J. Le Pontois	752,691	Feb. 23	3631	806	108	1900
Alternator. Polyphase magneto	L. J. Le Pontois	752,692	Feb. 23	3633	809	108	1900
Altiscope for submarine boats	L. Y. Spear	749,754	Jan. 19	2471	526	108	588
Altiscope or the like	L. Y. Spear	749,755	Jan. 19	2472	527	108	588
Altiscope or the like	L. Y. Spear	751,509	Feb. 9	1455	330	108	1387
Aluminium sulfate. Preparing	H. F. D. Schwahn	752,927	Feb. 23	4101	.....	108	2005
Amalgamator	R. P. Hall	751,911	Feb. 9	2106	475, 476	108	1528

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Amalgamator	P. J. Nelson	752,246	Feb. 16	2738	607	108	1687
Amalgamator and concentrator	J. B. Rossman	750,224	Jan. 19	3341	798	108	774
Amusement and advertising device	M. W. Beemer	749,657	Jan. 12	2253	475	108	523
Amusement apparatus	A. F. Mueller	749,941	Jan. 19	2827	508 / 604	108	666
Amusement device	A. G. Hammell	752,450	Feb. 16	3146	709	108	1775
Amusement device	W. C. Parsells	753,098	Feb. 23	4430	985	108	2079
Anemometer. Recording-	H. A. Hunt	751,514	Feb. 9	1343	306	108	1363
Angle-indicator	R. L. Turner	749,976	Jan. 19	2883	617	108	677
Angle-strip	L. Gidley	751,279	Feb. 2	950	215	108	1259
Animal catcher and holder	J. L. Haner	753,068	Feb. 23	4380	974	108	2068
Animal heat-protector	F. K. Walther	750,505	Jan. 26	3877	841	108	912
Animal or fish trap	A. E. Daniel	752,527	Feb. 16	3281	732	108	1804
Animal-trap	M. Laramie	750,661	Jan. 26	4157	902	108	967
Animal-trap	J. C. Hammer	752,672	Feb. 23	3593	800	108	1891
Animal-trough	L. H. Stoner	752,427	Feb. 16	3110	690	108	1767
Ankle-joint	J. A. McKnight	750,884	Feb. 2	208	46	108	1102
Annunciator	L. Schmidt	750,309	Jan. 26	3507	758	108	830
Apparel-pad	E. L. Kraft and C. P. Young	751,302	Feb. 2	998	220	108	1270
Apparel. Wearing-	H. Runyan	749,228	Jan. 12	1390	297	108	339
Arbor	F. Barter	750,078	Jan. 19	3084	663	108	718
Arbors. Mechanism for attaching end plates to	T. H. Simpson and E. L. Nelson	750,231	Jan. 19	3368	727	108	781
Arc-preventer	C. E. Blood	751,830	Feb. 9	1951	443	108	1491
Ash-door	E. C. Cole	752,522	Feb. 16	3273	730	108	1803
Ash-pan	O. Link and A. Schnedler	751,929	Feb. 9	2143	484	108	1535
Atmospheres. Apparatus for supplying various	O. E. Boggs	750,155	Jan. 19	3221	694	108	748
Atomizer	F. B. Comins	750,260	Jan. 26	3414	739	108	808
Atomizer	F. V. Braymer	750,521	Jan. 26	3909	847	108	918
Atomizer	A. S. Dixon	752,529	Feb. 16	3283	732	108	1805
Atomizer. Coin-controlled	W. C. Meyer	749,874	Jan. 19	2684	574	108	635
Attemperating device	M. H. Shoenberg	750,088	Jan. 19	3006	644	108	708
Attrition-disks and the product thereof. Manufacturing	J. C. Graft	750,639	Jan. 26	4120	894	108	960
Audiphone-receiver	H. G. Pape	752,705	Feb. 23	3953	813	108	1905
Audiphone-receiver	H. G. Pape	752,921	Feb. 23	4097	911	108	2002
Automatic coupling	J. L. Crisler	752,759	Feb. 23	3745	836	108	1925
Automatic coupling and buffer	J. Thomas	752,605	Feb. 16	3450	770 / 771	108	1843
Automatic gage	C. H. Tidey	751,121	Feb. 2	617	143	108	1192
Automatic or self-acting gate	J. Delaunay and R. Vasquez	751,837	Feb. 9	1964	446	108	1494
Automatic switch	M. Moskowitz	751,745	Feb. 9	1777	404 / 405	108	1453
Automobile	P. J. Collins	748,930	Jan. 5	724	157	108	164
Automobile	E. W. Wickey	751,235	Feb. 2	859	196 / 197	108	1240
Automobile-brake	W. M. Paul	748,646	Jan. 5	182	44	108	41
Automobile circulating system	H. C. Osborn	752,856	Feb. 23	3986	883	108	1966
Automobile. Electrical	T. A. Edison	750,102	Jan. 19	3132	672	108	729
Automobile flue-shield and lamp-support combined	L. C. Savale	749,452	Jan. 12	1866	388	108	438
Automobiles or the like. Speed-controlling mechanism for	C. C. Riotte	749,560	Jan. 12	2109	439 / 440	108	494
Awl. Sewing-	T. O'Shaughnessy	751,334	Feb. 2	1045	237	108	1280
Awning-fastener	J. W. Stevenson	750,070	Jan. 19	3073	660	108	716
Awning-frame coupling	A. D. Campbell	749,421	Jan. 12	1784	376	108	422
Awning-roller	C. H. Newell	748,641	Jan. 5	170	41	108	38
Axle adjustment for automobiles. Driving-	T. J. Lindsay	750,867	Feb. 2	161	38	108	1093
Axle box and spindle	G. Martien	750,202	Jan. 26	3475	752	108	823
Axle-box dust-guard. Car-	E. E. Sager, J. Sagmeister, and W. H. Dow.	749,327	Jan. 12	1591	337	108	382
Axle boxing. Vehicle-	G. W. Davis	749,173	Jan. 12	1263	273	108	310
Axle lubricator. Car-	C. Launer	752,625	Feb. 16	3499	779	108	1853
Axle lubricator. Car-	J. R. Fleming	752,997	Feb. 23	4030	900	108	1966
Axle lubricator. Vehicle-	A. A. Peart	748,881	Jan. 5	621	139	108	139
Axle mechanism. Driving-	R. H. White	753,022	Feb. 23	4298	955	108	2050
Axle structure for motor-vehicles. Driving-	T. J. Lindsay	748,700	Jan. 5	386	88	108	85
Axle. Vehicle-	F. R. A. MacKinnon	749,902	Jan. 19	2738	586	108	647
Axle. Vehicle-	W. T. Gaston	751,278	Feb. 2	948	215	108	1258
Bag: *See* Cotton-picker's bag.							
Bag-closure	G. Winkler	748,902	Jan. 5	664	147	108	149
Bag-fastener	B. vom Eigen	749,430	Jan. 12	1798	379	108	425
Bag-fastener	B. vom Eigen	749,431	Jan. 12	1804	379 / 380	108	427
Bag-fastening apparatus. Filled-	B. F. Brown	752,373	Feb. 16	2993	667	108	1744
Bag-frame handle	B. vom Eigen	749,432	Jan. 12	1809	380	108	428
Bag-handle	J. Mehl, Jr.	749,997	Jan. 19	3050	625	108	688
Bag-holder	F. Denise and W. T. Buck	750,174	Jan. 19	3260	708	108	756
Bag-turner	H. Roppel	750,708	Jan. 26	4240	921	108	986
Bags. Manufacture of	J. R. Collins	749,424	Jan. 12	1789	377	108	423
Bags. Manufacture of	J. R. Collins	749,425	Jan. 12	1791	377	108	423
Bags, &c. Suspending attachment for game	G. F. Clarke	749,661	Jan. 12	2263	477	108	525
Baggage-fastener	J. B. Moses	752,574	Feb. 16	3375	753	108	1827
Baking-mold	C. Forcke	750,445	Jan. 26	3790	817	108	887
Baking-pan. Multiple	A. E. Bronson	750,344	Jan. 26	3582	776	108	848
Baking-powder	G. L. Teller	749,643	Jan. 12	2225	.....	108	517
Balance. Spring-	S. R. Munson	752,918	Feb. 23	4093	910	108	2001
Bale	H. Stockman	748,999	Jan. 5	874	187	108	202
Bale-tie	W. B. Curtis	749,847	Jan. 19	2641	565	108	625
Bale-tie	H. De Haven	752,888	Feb. 23	4002	896	108	1983
Bale-ties. Machine for bending cross-heads and eyes of wire	B. von Bültzingslöwen	752,513	Feb. 16	3253	725 / 726	108	1798
Bale-ties. Machine for forming hooks on wire	B. von Bültzingslöwen	748,580	Jan. 5	42	12, 13	108	12
Bale wires. Machine for bending the cross-heads of hay-	H. P. Wilson	749,348	Jan. 12	1633	347 / 348	108	393
Baling-press	A. C. Tinsley	749,759	Jan. 19	2478	528	108	590
Baling-press	E. D. Smith	750,232	Jan. 19	3370	727	108	781

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Baling-press	J. S. Tuttle	750,324	Jan. 26	3549	767	108	841
Baling-press	W. E. Elam	751,486	Feb. 9	1296	295 / 296	108	1352
Baling-press	W. E. Elam	751,487	Feb. 9	1298	297	108	1353
Ball: *See* Exercising-ball. Golf-ball.							
Ball-and-socket fastener	M. Sternberg	749,639	Jan. 12	2216	468	108	516
Ball-rack	G. W. Specht and W. P. Wetzler	751,814	Feb. 9	1919	436	108	1485
Ball-swaging machine	A. Johnston	748,612	Jan. 5	102	26	108	24
Ball valve and connected parts. Foot-	J. McKay	751,402	Feb. 2	1156	263	108	1308
Balloon propelling and steering apparatus	E. Layton	751,082	Feb. 2	552	128	108	1180
Banana-shipping case	F. Schmitz	750,783	Jan. 26	4449	959	108	1035
Band. Baby-	L. Almirana	751,240	Feb. 2	875	200	108	1233
Band-brake	F. J. Ball	752,881	Feb. 23	3985	892	108	1978
Band-fastening	H. H. Beckman	751,370	Feb. 2	1107	250	108	1293
Bands or rings. Machine for making packing	E. G. Newell	752,353	Feb. 16	2957	650	108	1735
Banjos, &c. Leg-rest for	P. H. Foley	752,664	Feb. 23	3578	797	108	1887
Bar-cutter	H. A. Christensen	750,599	Jan. 26	4061	879	108	948
Bars, rods, &c. Machine for dressing solid or hollow	F. Josserand and C. A. M. Jacquet	748,745	Jan. 5	357	79, 80	108	79
Barrel-hoop	E. I. Braddock	750,520	Jan. 26	3908	847	108	918
Barrel-support	E. E. Cross	750,613	Jan. 26	4064	884	108	952
Barrels, &c. Making metal	H. S. Reynolds	750,394	Jan. 26	3660	795	108	866
Barrow-wheel	C. E. Knoch	749,566	Jan. 12	2090	434	108	490
Basin. Catch-	W. Aylward, Jr	749,148	Jan. 12	1208	259	108	296
Basin strainer attachment. Wash-	D. B. Allen	750,043	Jan. 19	3015	646	108	705
Basin trap. Catch-	P. F. Murphy	751,989	Feb. 9	2285	511	108	1565
Basket-handle	B. J. Ragatz	750,699	Jan. 26	4282	918	108	984
Basket-making machine	O. Schleicher. (Reissue)	12,198	Feb. 23	4660	1087	108	2129
Bath: *See* Film-bath.							
Bath-tub	C. A. Ricks	753,002	Feb. 23	4250	947	108	2038
Battery: *See* Electric battery.							
Battery exciting compound	A. J. Marschall	750,871	Feb. 2	169	.....	108	1094
Battery-plate	O. Frank	749,785	Jan. 19	2580	537	108	601
Battery plate. Storage-	J. Bijur	751,046	Feb. 2	484	113	108	1165
Battery plate. Storage-	C. B. Askew	751,772	Feb. 9	1827	416	108	1463
Battery receptacle and bell-support. Combined electrical-	W. A. Harvey	750,646	Jan. 26	4135	897	108	963
Battery stem-guide	W. H. Martin and A. McCombie	752,349	Feb. 16	2947	656	108	1734
Battery tanks or cells. Skeleton frame for electric-	D. F. Jones	749,199	Jan. 12	1327	285	108	326
Bead-threader	P. E. Law	752,626	Feb. 16	3500	779	108	1853
Bearing	J. Butler	751,715	Feb. 9	1717	390	108	1441
Bearing. Combination ball and roller	H. V. Hillcoat	749,192	Jan. 12	1309	281	108	322
Bearing. Disk-	C. A. Hardy	752,620	Feb. 16	3486	777	108	1851
Bearing. Roller-	S. J. Webb	748,825	Jan. 5	510	116	108	116
Bearing. Shaft-	T. J. Lindsay	748,625	Jan. 5	142	34	108	32
Bearing. Shaft-	J. J. Harrington	750,362	Jan. 26	3609	788	108	854
Bearing. Shiftable shaft-	C. Reeves	751,557	Feb. 9	1430	324	108	1382
Bed	R. C. W. Reinert	752,103	Feb. 16	2473	552	108	1626
Bed-bottom. Spring-	J. Daigneault	750,821	Feb. 2	71	16	108	1078
Bed-chair or bed-sofa	H. A. Linderoth	749,307	Jan. 12	1555	329	108	374
Bed. Extensible	W. E. De Vault	748,847	Jan. 5	555	128	108	126
Bed. Folding-	J. Luppino	748,963	Jan. 5	791	171	108	180
Bed. Folding-	V. J. Gillett	750,702	Jan. 26	4404	950	108	1026
Bed or couch bottom	J. Hoey	748,868	Jan. 5	597	135	108	134
Bed-pan	A. C. Eggers	750,103	Jan. 19	3134	673	108	730
Bed. Sofa-	J. Harvey	749,789	Jan. 19	2537	539	108	602
Bed spring device. Swinging	H. D. Smith	753,173	Feb. 23	4561	1017	108	2108
Bed. Telescopic couch-	W. Thompson	751,222	Feb. 2	828	190	108	1233
Bedclothing and mattress clamp	A. W. Pyle	751,010	Feb. 2	422	100	108	1151
Bedstead. Camp-	H. R. Wykert	752,941	Feb. 23	4142	922	108	2013
Beet-thinning device	H. H. Hougland	750,856	Feb. 2	146	33	108	1089
Bell. Electric	H. E. Dey	749,365	Jan. 12	1672	356	108	401
Belt	L. Wertheim	748,900	Jan. 5	663	147	108	149
Belt	S. F. Zenger	751,132	Feb. 2	641	148	108	1197
Belt	F. Heyl	753,072	Feb. 23	4389	976	108	2070
Belt. Abdominal	A. B. Kendrick	750,993	Feb. 2	375	90	108	1140
Belt. Abdominal	M. Hazelbaker	752,548	Feb. 16	3323	740	108	1816
Belt and garment fastener for supporting skirts or trousers.	G. Schmitt	750,709	Jan. 26	4258	934	108	990
Belt-fastening device. Driving-	A. H. B. Sharpe	750,404	Jan. 26	3688	799	108	871
Belt. Garment-	J. Ewald	751,272	Feb. 2	935	212	108	1256
Belt-guide	H. E. Freiberg	751,625	Feb. 9	1556	354	108	1408
Belt-guide	I. D. Chritton	752,202	Feb. 16	2658	589	108	1668
Belt-holder	E. E. Robertson	750,222	Jan. 19	3339	721	108	773
Belt holder or attaching device	H. Parkes	750,484	Jan. 26	3892	892	108	963
Belt-joint	E. S. Buckley	752,512	Feb. 16	3252	725	108	1798
Belt-shifting mechanism	H. A. Houseman	749,863	Jan. 19	2665	570	108	630
Belting	C. E. Newton	750,299	Jan. 26	3491	753	108	826
Bench-shears	G. J. Capewell	749,257	Jan. 12	1441	308	108	349
Bevel and square	J. Graft	753,064	Feb. 23	4371	973	108	2066
Bicycle attachment	A. L. Porter	750,393	Jan. 26	3659	795	108	865
Bicycle attachment	J. McLarty	750,480	Jan. 26	3824	831	108	901
Bicycle-frame	P. Haag	749,602	Jan. 5	85	22	108	21
Bicycle-lantern safety arrangement	A. Reimann	750,556	Jan. 26	3990	862	108	932
Bicycle. Motor-	W. A. Suddard	750,317	Jan. 26	3532	763	108	837
Bicycle propelling means	G. E. Wiley and W. I. Coley	751,326	Feb. 2	861	197	108	1240
Bicycle with rowing attachment	S. L. Batchelor	749,153	Jan. 12	1225	263	108	300
Billiard-cue chalk-holder	E. J. Milligan and C. Duncan	751,934	Feb. 9	2153	486	108	1537
Bin: *See* Storage-bin.							
Binder-cover	A. Hertje	753,071	Feb. 23	4387	976	108	2070
Binder. Loose-leaf	G. A. Roedde	749,582	Jan. 12	2113	441	108	495

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Binder. Loose-leaf	E. T. A. Akass	752,747	Feb. 23	3726	881	108	1021
Binder. Temporary	J. L. C. Montague	750,676	Jan. 26	4197	910	108	977
Binder. Temporary	G. H. Gresham	751,499	Feb. 9	1317	301	108	1357
Binder. Temporary	J. R. Barrett	751,710	Feb. 9	1704	388	108	1439
Binder. Temporary	M. P. Jackson	752,559	Feb. 16	3348	744 745	108	1021
Binding-post	L. Steinberger	750,723	Jan. 26	4316	983	108	1008
Bit: *See* Bridle-bit. Drill-bit.							
Bit	B. W. Kindig, Jr	750,199	Jan. 19	3294	712	108	764
Blind fitting. Window-	E. C. Harris	749,299	Jan. 12	1529	323	108	365
Blind lock. Window-	W. F. Stough	750,730	Jan. 26	4330	985	108	1006
Blind or shutter. Window	G. Jarrett	749,966	Jan. 19	2808	613	108	674
Block: *See* Building-block. Composite block. Building or paving block. Fuel block. Stereotype-block. Chock-block.							
Block-signal system	J. Weatherby, Jr	748,824	Jan. 5	505	115 116	108	114
Block-signal system. Electric	L. C. Werner	749,710	Jan. 12	2360	498 499	108	547
Block-signal system. Electric	C. W. S. Turner	752,812	Feb. 23	3846	862 863	108	1947
Block system. Electric	F. C. Robinson	750,228	Jan. 19	3340	722	108	773
Blotter-holder	C. Davison	751,617	Feb. 9	1542	350	108	1404
Blotting-pad	I. Calk	752,146	Feb. 16	2557	569	108	1644
Blow-testing apparatus	H. G. Cady	750,593	Jan. 26	4053	877	108	946
Blower. Pneumatic	D. R. Gardiner	751,627	Feb. 9	1564	355	108	1409
Blower. Steam-	I. A. Fraser	749,050	Jan. 5	1006	212	108	233
Bluing device	C. R. Groff	750,847	Feb. 2	131	30	108	1086
Board: *See* Composite board. Panel-board. Game-board. Pressing-board. Ironing-board.							
Boat	A. Vlert	749,412	Jan. 12	1764	373	108	419
Boat-detaching apparatus	J. R. Raymond	751,305	Feb. 2	783	179	108	1224
Boat. Life-	R. A. Brown	748,919	Jan. 5	698	153	108	158
Boiler: *See* Egg-boiler. Vertical boiler. Locomotive-boiler. Water-tube boiler. Steam-boiler.							
Boiler	J. W. Tallman	750,909	Feb. 2	247	55	108	1112
Boiler	J. C. Bromley	751,453	Feb. 9	1241	283	108	1339
Boiler	J. Collis	752,758	Feb. 23	3743	835 836	108	1924
Boiler attachment. Steam-	T. Mills	749,314	Jan. 12	1566	331	108	377
Boiler-brace	E. Cook	750,607	Jan. 26	4075	892	108	950
Boiler-brace	J. A. Pement	752,466	Feb. 16	3170	706	108	1780
Boiler-cleaning compound	J. McCormack	750,682	Jan. 26	4205	.....	108	979
Boiler damper-regulator. Steam-	I. K. Osman	752,581	Feb. 16	3321	735	108	1820
Boiler-furnace	J. H. Foote	753,059	Feb. 23	4364	972	108	2064
Boiler furnace. Locomotive or other	A. F. Kingsley	748,748	Jan. 5	361	81	108	81
Boiler furnace. Steam-	H. Hyatt and J. M. Wight	752,681	Feb. 23	3909	803	108	1905
Boiler jacket. Automobile steam-	C. F. Jewett	751,650	Feb. 9	1601	364	108	1417
Boiler superheater. Steam-	E. T. Hannam	748,945	Jan. 5	759	164	108	172
Boiler-tube caps and their seats. Tool for facing	H. F. Weinland	752,734	Feb. 23	3706	827	108	1917
Boiler tubes or stay-bolts. Fastening for steam-	M. M. Massey and G. Spooner	749,210	Jan. 12	1348	290	108	351
Boilers. Lantern and lantern-plug for water-tube	J. P. Sneddon	752,871	Feb. 23	3902	886	108	1973
Boll-weevil machine. Pneumatic	W. B. Miller	752,790	Feb. 23	3798	849 850	108	1937
Bolster	F. S. Ingoldsby and J. R. Bowling	749,298	Jan. 12	1534	324	108	366
Bolster	J. S. Andrews	753,112	Feb. 23	4454	990	108	2083
Bolster attachment	G. J. Friend	748,600	Jan. 5	82	22	108	30
Bolster. Metal	A. B. Bellows	752,508	Feb. 16	3246	723 724	108	1797
Bolt: *See* Expansion-bolt.							
Bolt-clipper	H. K. Porter	751,202	Feb. 2	779	178	108	1223
Bolt-holding implement	J. S. Scott	749,454	Jan. 12	1808	388	108	439
Book. Account-	J. H. Rand	748,790	Jan. 5	430	96	108	96
Book and index. Balance-	W. H. Sammons	752,864	Feb. 23	3950	886	108	1970
Book. Check-	E. F. Green	750,452	Jan. 26	3770	819	108	889
Book. Combination banking-	A. B. Clements	752,580	Feb. 16	3269	729	108	1802
Book-cover cleaning and polishing machine	T. Daniels	750,267	Jan. 26	3429	741	108	813
Book-holder	B. T. Steiner and J. A. Hall	749,407	Jan. 12	1737	371 372	108	418
Book-holder	J. P. Pettit	751,408	Feb. 2	1166	265	108	1305
Book-holder	L. Block	752,750	Feb. 23	3730	832	108	1922
Book. Indexed	H. C. Dunbar	752,385	Feb. 16	3023	673	108	1749
Book. Manifolding sales-	W. M. Kubon	748,755	Jan. 5	374	84	108	83
Book-rest	H. André	751,892	Feb. 9	2067	468	108	1518
Book. Roll note-	O. Hulback	750,651	Jan. 26	4143	899	108	964
Books. Lock for the adjustable back-frames of account-	A. D. Hulquist	751,646	Feb. 9	1598	362	108	1416
Books, &c. Telescopic spring-post for loose-leafed	A. D. Hulquist	753,216	Feb. 23	4652	1035	108	2128
Book binder. Loose-leaf-	G. F. Watt	750,922	Feb. 2	270	63	108	1117
Bookbinding	A. G. Hoelscher	751,431	Feb. 2	1202	273	108	1312
Bookcase	D. Cree and H. Dickson	749,264	Jan. 12	1461	311 312	108	338
Bookcase	J. Danner	750,823	Feb. 2	74	16	108	1074
Boom-swinging machine	J. Bird	748,691	Jan. 5	266	61	108	59
Boot attachment	J. T. Dalley	750,097	Jan. 19	3125	671	108	728
Boot or shoe holder	W. C. Benkert	750,570	Jan. 26	4010	867	108	937
Boot or shoe ventilator	G. J. Patton	752,254	Feb. 16	2765	613	108	1694
Boring-machine	F. K. Russell	750,897	Feb. 2	224	51	108	1107

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Boring-machine	J. H. Lawles	752,908	Feb. 23	4038	904	108	1990
Boring-tool	J. Bumiller	751,052	Feb. 2	495	115	108	1168
Bottle	J. Auld	748,570	Jan. 5	7	2	108	4
Bottle	J. Wagner	749,117	Jan. 5	1141	242	108	263
Bottle	W. H. Wright	749,124	Jan. 5	1152	244	108	266
Bottle	J. E. Schneider	750,129	Jan. 19	3176	683	108	738
Bottle	C. Clark	750,258	Jan. 26	3410	738	108	807
Bottle	C. B. Rhoads	750,303	Jan. 26	3497	757	108	828
Bottle	M. A. Lazareff	751,083	Feb. 2	553	128	108	1180
Bottle	J. A. Foster	752,335	Feb. 16	2925	632	108	1728
Bottle	H. M. Gibb	752,899	Feb. 23	4023	901	108	1967
Bottle attachment. Non-refillable-	J. J. Flanagan	750,050	Jan. 19	3080	649	108	706
Bottle-capping apparatus	H. Carmichael	752,884	Feb. 23	3900	894	108	1979
Bottle-case fastener	C. E. Johnson	752,396	Feb. 16	3040	676	108	1753
Bottle-closure	F. Recht	750,220	Jan. 19	3336	721	108	772
Bottle-closure	H. L. Shannon	752,473	Feb. 16	3181	710	108	1783
Bottle-closure	H. Coale	752,521	Feb. 16	3271	730	108	1802
Bottle-closures. Producing	F. Recht	750,124	Jan. 19	3167	680 681	108	737
Bottle corking, capping, and wiring machine attachment.	J. P. Schmidt and J. E. Jacobs	751,515	Feb. 9	1345	307	108	1364
Bottle-filling apparatus	J. J. Clifford	748,585	Jan 5	61	18	108	16
Bottle-filling machine	S. C. Miller	752,992	Feb. 23	4236	944	108	2035
Bottle-filling machines. Automatic induction-valve for	S. C. Miller	752,991	Feb. 23	4233	943	108	2034
Bottle-holder	E. L. Gatterer	752,968	Feb. 23	4195	935	108	2026
Bottle. Non-refillable	M. Reinfeld	748,885	Jan. 5	626	140	108	140
Bottle. Non-refillable	H. Hahn	749,288	Jan 12	1518	322	108	365
Bottle. Non-refillable	H. Kahlmus	749,385	Jan. 12	1712	363	108	408
Bottle. Non-refillable	E. C. Luks	749,570	Jan. 12	2094	435	108	491
Bottle. Non-refillable	G. C. Bessonet	749,604	Jan. 12	2149	448	108	503
Bottle. Non-refillable	C. M. Drennan	750,755	Jan. 26	4382	946	108	1021
Bottle. Non-refillable	F. O. Boswell and C. J. Davis	750,987	Feb. 2	297	71	108	1123
Bottle. Non-refillable	D. J. Wilkins	752,495	Feb. 16	3221	719	108	1790
Bottle-opener	F. B. Horton	752,776	Feb. 23	3773	842	108	1931
Bottle-packing case	B. F. Martin	749,741	Jan. 19	2441	519 520	108	581
Bottle-stopper	T. Hentgen	749,060	Jan. 5	1027	217	108	237
Bottle-stopper	E. G. Howe	749,063	Jan. 5	1034	219	108	238
Bottle-stopper	J. A. Jones	749,565	Jan. 12	2087	434	108	489
Bottle, stopper, and opener	M. A. Dunn	752,049	Feb. 16	2377	531	108	1604
Bottle-stopper holder. Water-	A. C. Eggers	748,987	Jan. 5	745	162	108	169
Bottle support or holder. Nursing-	J. D. White	751,233	Feb. 2	852	195	108	1239
Bottle-valve	J. J. Brown	750,555	Jan. 26	4039	873	108	943
Bottle-washing machine	J. J. Clifford	748,584	Jan. 5	53	16, 17	108	14
Bottle. Water-	J. F. Goodridge	753,063	Feb. 23	4369	973	108	2065
Bottles, &c. Cap for mucilage-	W. R. Morse	752,917	Feb. 23	4092	910	108	2001
Bottles, jars, &c. Detector of the contents of	A. J. Mottlau	749,080	Jan. 5	1069	226	108	246
Bottles. Manufacture of	G. Bryar	750,801	Feb. 2	35	7	108	1064
Bowling-alley	J. R. Walsh	752,133	Feb. 16	2533	564	108	1639
Box: *See* Cigar-box. Mail or letter box. Folding box. Match-box. Hanger-box. Match or other box. Hat-box. Miter-box. Letter-box. Paper box. Mail-box.							
Box	B. vom Eigen	749,479	Jan. 12	1930	400 401	108	458
Box	C. B. Baldwin	749,892	Jan. 19	2720	581	108	643
Box	H. P. Guyton	751,790	Feb. 9	1859	423	108	1471
Box-fastener	E. D. Hamilton	752,159	Feb. 16	2577	573	108	1649
Box-lid support and label-holder. Combined	E. T. Reilly	750,700	Jan. 26	4234	919	108	985
Box-making machine	J. Jones, Jr.	750,655	Jan. 26	4148	900	108	966
Box or basket making machine	W. H. Butler	749,359	Jan. 12	1652	351 352 353	108	397
Brace: *See* Cross-arm brace.	W. J. Kennedy	753,140	Feb. 23	4500	1002 1003	108	2093
Bracelet or other ornament	W. F. Simon	749,587	Jan. 12	2127	443	108	498
Bracket: *See* Adjustable bracket. Shade-bracket. Curtain-bracket. Shade-roller bracket. Curtain-roller bracket. Wardrobe-bracket.							
Bracket	J. Gardner	749,670	Jan. 12	2277	480	108	529
Braiding-carrier	H. Janssen	753,199	Feb. 23	4612	1027	108	2120
Braiding-machine racer	C. W. Hassler	749,290	Jan. 12	1530	323	108	366
Brake: *See* Air-brake. Elevator-brake. Automobile-brake. Fluid-pressure brake. Band-brake. Hoisting-machine brake. Car-brake. Railway-brake. Electric brake. Spindle-brake. Electromagnetic brake. Vehicle-brake. Wheel-brake.							
Brake	J. A. Field	752,967	Feb. 23	4189	933 934	108	2024
Brake apparatus. Automatic fluid-pressure	M. Corrington	749,262	Jan. 12	1451	310 311	108	352
Brake apparatus. Load-	H. R. Mason	749,075	Jan. 5	1058	224	108	244
Brake-beam	R. P. Lamont	749,567	Jan. 12	2091	434	108	490
Brake-beam	H. C. Buhoup	751,051	Feb. 2	493	115	108	1167
Brake-beam	G. B. Maltby	751,864	Feb. 9	2016	456	108	1507

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brake-beam	S. A. Crone	752,045	Feb. 16	2371	530	108	1602
Brake-beam	H. T. Anderson	752,277	Feb. 16	2815	624	108	1704
Brake-beam fulcrum	L. A. Shepard	749,107	Jan. 5	1122	237	108	259
Brake-beam. Metallic	A. Stucki	750,732	Jan. 26	4331	996	108	1007
Brake-block shoe	M. Potter	749,701	Jan. 12	2038	494	108	542
Brake mechanism	R. E. Olds	749,908	Jan. 19	2740	586	108	647
Brake mechanism. Automatic fluid-pressure	M. Corrington	750,081	Jan. 19	2997	642	108	702
Brake-releasing device	P. B. Harrison and C. F. Huntoon	753,084	Feb. 23	4409	980	108	2074
Brake-rod jaw	A. Lipschutz	749,108	Jan. 5	1110	235	108	255
Brake-shoe	F. W. Sargent	749,109	Jan. 5	1110	235	108	255
Brake-shoe	O. M. Stimson and P. Parke	750,728	Jan. 26	4326	934 935	108	1006
Brake-shoe	F. T. Dickinson	751,477	Feb. 9	1283	292	108	1349
Brake-shoe	F. W. Sargent	753,004	Feb. 23	4255	948	108	2089
Brake-shoes. Making	J. R. Cardwell	753,040	Feb. 23	4332	963 964	108	2067
Brake slack-adjuster	W. J. Keville	749,967	Jan. 19	2809	613 614	108	674
Braking and clutching mechanism	W. Robinson	752,202	Feb. 16	2780	617	108	1697
Bread-making machine	S. R. Stearns	752,119	Feb. 16	2507	557	108	1633
Breath-guard	L. Sennett and A. L. Moore	752,114	Feb. 16	2497	556	108	1631
Breech-closing device. Eccentric-screw	P. de Nordenfelt and E. Ternström	748,978	Jan. 5	837	177	108	194
Brewer's apparatus	A. L. Neubert and S. T. Wiedenbeck	749,087	Jan. 5	1083	229	108	249
Brick and tile. Combined	D. W. Anderson	750,789	Feb. 2	2	1	108	1057
Brick and tile. Combined	D. W. Anderson	750,790	Feb. 2	4	2	108	1057
Brick-cut-off table	W. H. Beltz	749,354	Jan. 12	1645	350	108	396
Brick-handling apparatus	L. F. Hart	750,645	Jan. 26	4133	896	108	992
Brick-kiln furnace	E. M. Clark	750,600	Jan. 26	4003	879	108	948
Brick-machine	C. H. Horton	752,073	Feb. 16	2125	542 543	108	1615
Brick-machine	T. S. Crapp and R. C. Finch	752,897	Feb. 23	3998	805 806	108	1992
Brick-machine mold	H. J. Flood	749,781	Jan. 19	2523	536	108	599
Brick-making machine	W. R. Oberdahn	750,059	Jan. 19	3052	654 655	108	712
Brick or tile cutting machine cleaner	W. J. Eipp	751,269	Feb. 2	982	211	108	1255
Brick-truck	W. L. Harbin	751,283	Feb. 2	954	216 217	108	1250
Bridge	E. H. Arnold	749,771	Jan. 19	2501	532	108	595
Bridge. Bascule	C. L. Keller	752,563	Feb. 16	3353	745 746	108	1822
Bridge construction	J. F. Morton	750,475	Jan. 26	3813	828	108	899
Bridge cross-tie	J. B. Logan	750,218	Jan. 19	3309	715	108	767
Bridle	H. H. Poe	751,006	Feb. 2	414	98	108	1149
Bridle	C. Arnesen	752,278	Feb. 16	2816	624	108	1704
Bridle and bit	B. W. Kindig, Jr	750,200	Jan. 19	3295	712	108	764
Bridle-bit	H. A. Cummings	751,901	Feb. 9	2084	471	108	1523
Briqueting-machine	W. A. Köneman	752,565	Feb. 16	3356	747 748 749	108	1823
Briqueting-machine	L. Benson and R. De Forest	752,644	Feb. 23	3536	787	108	1879
Briquets. Making	W. Huffelmann	748,739	Jan. 5	347	77	108	77
Bromin apart from chlorin. Fractioning	H. H. Dow	752,295	Feb. 16	2829	627	108	1707
Bromin from chlorin. Fractioning	H. H. Dow	752,331	Feb. 16	2917	651	108	1726
Bromin from natural brines. Manufacturing	H. H. Dow	752,332	Feb. 16	2919	651	108	1727
Brooder	C. E. Adair	749,144	Jan. 12	1208	257	108	295
Brooder	W. H. Bennett	750,335	Jan. 26	3566	772	108	845
Brooder	S. Fuston	752,542	Feb. 16	3313	737	108	1814
Broom-bridle	J. B. Ryan	751,343	Feb. 2	1057	240	108	1293
Broom-girdle	J. A. and J. R. Gurd	751,502	Feb. 9	1324	302	108	1359
Brush	W. Braun	748,917	Jan. 5	696	153	108	157
Brush	A. Schickerling	749,331	Jan. 12	1601	339	108	385
Brush. Combined hat and clothes	C. Lashlie	749,389	Jan. 12	1723	365	108	411
Brush. Electric hair	H. C. Doersch	751,939	Feb. 9	1967	446	108	1494
Brush. Fountain blacking	S. W. Marshall	748,767	Jan. 5	396	90	108	88
Brush holder. Electric	D. C. Cookingham	752,376	Feb. 16	2999	668	108	1745
Brush. Marking	J. La Burt and D. M. P. Campbell	752,078	Feb. 16	2432	544	108	1617
Brush. Painting	M. C. Cooper	753,125	Feb. 23	4477	996 997	108	2089
Bucket. Clam-shell	S. Swedenborg. (Reissue)	12,191	Jan. 12	2369	500	108	549
Bucket. Clam-shell	J. C. Slocum	751,905	Feb. 9	2193	494	108	1546
Bucket. Clam-shell	J. C. Slocum	751,906	Feb. 9	2195	495	108	1546
Bucket elevator and conveyer	F. V. Hetzel	751,306	Feb. 2	1149	262	108	1302
Bucket. Minnow	T. B. Wilson and A. L. David	750,143	Jan. 19	3203	688	108	744
Bucket suspension device. Two-rope	J. S. Foster	749,784	Jan. 19	2528	537	108	600
Bucket. Well	C. A. Crane	748,704	Jan. 5	290	66	108	64
Buckle	C. E. Smith	749,580	Jan. 12	2120	443	108	499
Buckle	H. L. Perryman	749,879	Jan. 19	2695	576	108	637
Buckle	J. S. Sourek	749,963	Jan. 19	2844	607	108	669
Buckle	H. L. Perryman	751,407	Feb. 2	1163	265	108	1305
Buckle	M. Welch	751,685	Feb. 9	1484	336	108	1398
Buckle	J. E. Mitchell	751,867	Feb. 9	2020	457	108	1508
Buckle. Back-band	W. H. Hart	750,109	Jan. 19	3142	676	108	732
Buckle. Cotton-bale-tie	J. F. Matthews	749,076	Jan. 5	1000	225	108	244
Buckle fastener. Belt	H. M. Rosenblatt	750,064	Jan. 19	3061	657	108	714
Buckle. Garment	W. H. Johnson	749,995	Jan. 19	2927	625	108	687
Buckle. Harness	A. W. and T. H. Nance	748,776	Jan. 5	408	94	108	91
Buffing-machine	E. E. Winkley and B. Phillips	748,677	Jan. 5	229	54	108	50
Buggy-boot	C. Nelson	748,779	Jan. 5	413	95	108	92
Buggy-boot spring	G. T. Wilson	750,987	Feb. 2	278	65	108	1119
Buggy-top	W. A. Wilkins	749,008	Jan. 5	907	191	108	212
Buggy-top joint	H. J. Douglas	752,969	Feb. 23	4177	931	108	2021
Buggy-top support	J. d'Alessandro	753,026	Feb. 23	4304	956	108	2068
Building-block	F. B. Henry	748,608	Jan. 5	86	23	108	21
Building-block	O. H. Bolen	749,080	Jan. 5	992	197	108	216
Building-block	E. O. Baylor	751,711	Feb. 9	1706	388	108	1439

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Building block and wall	F. E. Kidder	749,796	Jan. 19	2548	542	108	604
Building block and wall	C. N. Allerding	750,562	Jan. 26	3999	864	108	934
Building-block-molding press	J. H. Perrin	752,298	Feb. 16	2851	632 633	108	1712
Building construction. Composite	J. Kahn	751,921	Feb. 9	2129	479 480	108	1533
Building material. Composite	R. Hartman	750,456	Jan. 26	3776	821	108	890
Building or paving blocks	F. B. Henry	752,070	Feb. 16	2417	539 540	108	1613
Building-section	W. A. Warner	749,762	Jan. 19	2484	529	108	591
Bung. Barrel	E. M. Mayer	753,156	Feb. 23	4527	1009	108	2099
Bung-lock	G. F. Liebrock	751,525	Feb. 9	1361	311	108	1367
Bunsen burner	M. and A. Herskovitz	752,773	Feb. 23	3769	841	108	1930
Buoy for sunken vessels	J. F. Tribble	750,322	Jan. 26	3546	766	108	841
Burglar-alarm	J. A. Minturn	752,174	Feb. 16	2595	577	108	1653
Burglar-alarm. Safe	H. R. Cassel	749,842	Jan. 19	2633	563	108	623
Burial-casket	W. C. Booth	748,692	Jan. 5	268	61, 62	108	59
Burner: *See* Bunsen burner. Liquid-fuel burner. Gas-burner. Oil-burner. Hydrocarbon-burner. Vapor-burner. Hydrocarbon-vapor burner.							
Burnishing-machine	F. K. Hatfield	751,506	Feb. 9	1331	304	108	1360
Bushing	F. Siebert	751,757	Feb. 9	1798	410	108	1457
Bushing for junction-boxes. Outlet	F. W. Erickson	750,352	Jan. 26	3592	778	108	851
Butter. Making	J. Estep	749,853	Jan. 19	2651		108	627
Butter-press	F. Murphy	752,464	Feb. 16	3166	705 706	108	1779
Butter. Testing	M. Vogtherr	749,343	Jan. 12	1623	344	108	391
Button	A. P. Ward	748,673	Jan. 5	223	53	108	24
Button	R. R. Fogel and W. Bourke	749,856	Jan. 19	2656	567	108	626
Button	D. P. Katz	750,861	Feb. 2	151	35	108	1040
Button	M. B. Ryan	752,925	Feb. 23	4099	913	108	2004
Button-blank-cutting machine	J. W. Miller	749,079	Jan. 5	1064	225 226	108	245
Button. Collar	S. H. Hall	750,360	Jan. 26	3607	782	108	854
Button. Collar	J. Eckstorm	750,622	Jan. 26	4099	887	108	956
Button. Cuff	W. Doherty	749,540	Jan. 12	2055	426	108	482
Button. Cuff	E. P. Happich	750,643	Jan. 26	4127	895	108	962
Button-fastener	G. Krementz	752,298	Feb. 16	2844	631	108	1710
Button. Suspender	A. Bowers	750,580	Jan. 26	4027	871	108	940
Buttonhole. Stitched	J. T. Hogan	751,512	Feb. 9	1340	305	108	1363
Buttonhole-stitching machine	E. B. Allen	751,239	Feb. 2	866	198 199 200	108	1241
Cabinet	F. J. Saiger	749,884	Jan. 19	2705	577 578	108	639
Cabinet	I. Mason	750,673	Jan. 26	4192	909	108	976
Cabinet. Druggist's prescription	J. P. Lonquist	753,153	Feb. 23	4523	1008	108	2098
Cable-clip	O. C. Hoffmann	749,988	Jan. 19	2916	623	108	685
Cable-clip	O. C. Hoffmann	749,989	Jan. 19	2917	623	108	685
Cable-grip clamp	E. J. Brown	749,806	Jan. 19	2728	588	108	644
Cable-hanger	R. H. Villard and H. P. Copeland	751,228	Feb. 2	842	192	108	1236
Cable-making machine	J. H. Schoonmaker	749,752	Jan. 19	2466	525 526	108	587
Cable-testing key	W. B. Hale	752,158	Feb. 16	2575	573	108	1648
Cage-trap	A. B. Hendryx	749,790	Jan. 19	2539	540	108	608
Calculating-machine	D. E. Felt	749,177	Jan. 12	1269	274 275 276	108	311
Calculating-machine	F. C. Rinsche	751,207	Feb. 2	788	180 181 182 183 184	108	1225
Calculating-machine	T. E. McCarty	751,670	Feb. 9	1633	370	108	1424
Calculator	E. C. Duncan	749,851	Jan. 19	2649	566	108	626
Calendar	B. Rosenfeld	749,227	Jan. 12	1390	297	108	339
Calendar	J. A. Cheape	749,528	Jan. 12	2021	419 420	108	473
Calendering-machine	L. Eck	748,593	Jan. 5	74	20	108	18
Calipers, T-square, and scale. Combined	H. B. Cary	752,823	Feb. 23	3876	869	108	1954
Cam or eccentric	E. Vonderheyden	751,577	Feb. 9	1471	333	108	1391
Camera	W. H. Cooley	753,124	Feb. 23	4475	996	108	2088
Camera. Photographic	F. W. Brehm	749,126	Jan. 5	1153	245	108	267
Camera. Photographic	F. W. Brehm	749,127	Jan. 5	1155	245	108	267
Camera. Photographic	W. Gundermann	752,970	Feb. 23	4199	935	108	2027
Camera plate-holders. Releasing device for magazine	J. C. Fyfe and V. Odquist	749,284	Jan. 12	1506	321	108	362
Cameras. Means for attaching supplementary parts to photographic	H. W. Locke	749,788	Jan. 19	2436	518	108	580
Cameras. Photographic lens for	F. Stark	751,116	Feb. 2	609	141	108	1190
Can: *See* Cream-can. Pomade-can. Creaming-can. Powder-can. Milk-can. Safety-can. Oil-can. Tin can.							
Can	J. J. Shannon	749,231	Jan. 12	1393	298	108	339
Can-body machine	J. Black and F. J. Smith	752,949	Feb. 23	4152	925 926	108	2015
Can-catcher	H. P. Hinckley	750,973	Feb. 2	360	87	108	1137
Can-closure	H. F. Maranville	751,818	Feb. 2	1020	232	108	1275
Can-elevator	A. E. Hopkins and O. S. Fellows	751,170	Feb. 2	722	165 166	108	1211

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Can-filling machine	F. B. Fulton	750,760	Jan. 26	4305	948, 949	108	1024
Can-filling machine	J. W. Carnochan	751,257	Feb. 2	910	207	108	1250
Can-opener	C. A. Ford	749,548	Jan. 12	2064	420	108	484
Can-runway	A. E. Hopkins and O. S. Fellows	752,341	Feb. 16	2934	654	108	1731
Can tops and bottoms. Apparatus for transferring	J. G. and M. O. Rehfuss	751,306	Feb. 2	786	179, 180	108	1225
Canning device. Fruit or vegetable	F. G. Slemmer	750,407	Jan. 26	3689	801	108	872
Canning-factory corn and syrup feeder	J. M. C. Jones	748,744	Jan. 5	355	78, 79	108	79
Candle-molding machine	S. H. Leavenworth	750,602	Jan. 26	4159	902	108	968
Candlestick. Miner's	R. H. Rusden	753,165	Feb. 23	4549	1014	108	2105
Candy-pulling machine	D. T. Igou	752,979	Feb. 23	4215	930	108	2090
Candy-working machine	W. T. Hudson	752,226	Feb. 16	2702	598	108	1679
Candy-working machine	W. T. Hudson	752,227	Feb. 16	2704	598	108	1680
Cane and umbrella. Combined	J. F. Wilkins	752,740	Feb. 23	3714	829	108	1918
Cane-loader	J. D. Martinez	749,073	Jan. 5	1092	222, 223	108	242
Canopy-support	J. O. Gage	752,543	Feb. 16	3315	738	108	1814
Cap	W. F. Drake	751,480	Feb. 9	1287	293	108	1350
Cap-closure. Rotary	H. J. S. Hall	749,671	Jan. 12	2279	481	108	520
Cap. Projectile	C. V. Wheeler and A. G. McKenna	748,827	Jan. 5	513	117	108	116
Car body-bolster. Railway	J. M. Hansen	749,133	Jan. 5	1169	248	108	271
Car body-bolster. Railway	C. S. Shallenberger	751,575	Feb. 9	2093	460	108	1511
Car-brake	A. S. Hodges	748,605	Jan. 5	90	23, 24	108	22
Car-brake	W. House	748,735	Jan. 5	340	75, 76	108	75
Car-brake	W. J. Russell	749,102	Jan. 5	1109	234, 235	108	255
Car-brake	D.W. Copeland and J. R. Montague	749,169	Jan. 12	1295	270, 271	108	308
Car-brake	E. C. Shaver	751,112	Feb. 2	601	139	108	1189
Car-brake	J. H. Smith	751,355	Feb. 2	1083	245	108	1288
Car-buffer	G. F. Starbuck	751,212	Feb. 2	810	186, 187	108	1230
Car. Combined freight and dump	A. Lipschutz	750,670	Jan. 26	4177	906, 907	108	972
Car construction. Metallic	C. M. Carnahan	750,049	Jan. 19	3027	648, 649	108	707
Car. Convertible	M. Power	749,579	Jan. 12	2106	439	108	493
Car. Convertible	H. S. Wilson	751,126	Feb. 2	625	145	108	1198
Car-coupling	W. L. Jacoby	748,740	Jan. 5	348	77	108	77
Car-coupling	D. P. Moran	748,874	Jan. 5	609	137	108	136
Car-coupling	H. E. Welsh	749,246	Jan. 12	1413	313	108	343
Car-coupling	E. C. Washburn	749,344	Jan. 12	1624	345	108	391
Car-coupling	E. C. Washburn	749,345	Jan. 12	1627	346	108	392
Car-coupling	A. Moffitt	750,393	Jan. 26	3646	792	108	862
Car-coupling	W. Kelso	751,737	Feb. 9	1766	401, 402	108	1451
Car-coupling	C. A. Olson	752,855	Feb. 23	3935	893	108	1966
Car-coupling draft-rigging	E. S. Woods	749,929	Jan. 19	2909	557	108	618
Car-coupling. Emergency	B. B. Carlisle and J. R. Elder	748,967	Jan. 5	715	156	108	162
Car-door	A. G. Abizaid	748,909	Jan. 5	676	149	108	152
Car-door	M. W. Nelson	751,285	Feb. 9	2154	486	108	1537
Car-door fastener	E. A. Gauchet	751,495	Feb. 9	1311	300	108	1356
Car door. Grain	M. Meehan	748,630	Jan. 5	151	36	108	34
Car door. Grain	E. E. Kenfield	750,111	Jan. 19	3144	676	108	732
Car door. Grain	J. Barry	750,149	Jan. 19	3212	691	108	746
Car door. Grain	S. A. Bushey	750,451	Jan. 26	3729	810	108	881
Car-door latch. Mine	C. H. Smith	752,965	Feb. 16	2788	618	108	1699
Car door-operating device. Hopper	A. Stucki	752,310	Feb. 16	2876	640, 641	108	1717
Car draft connection. Railway	C. S. Payne	749,447	Jan. 12	1859	387	108	437
Car draft-rigging. Railway	J. A. Hinson	751,993	Feb. 9	2274	509	108	1502
Car draft-rigging. Railway	W. T. Van Dorn	752,315	Feb. 16	2888	644	108	1720
Car. Dumping	A. Stucki	751,437	Feb. 2	1211	276	108	1315
Car-fender	E. Sprich	750,719	Jan. 26	4309	981, 982	108	1002
Car-frame	C. A. Lindström and J. F. Streib	750,290	Jan. 26	3473	751	108	823
Car. Gondola	G. I. King	751,209	Feb. 2	990	224, 225	108	1207
Car grain-door	M. W. Nelson	751,992	Feb. 9	2291	512	108	1506
Car grain-door. Freight	J. Riley	753,162	Feb. 23	4540	1012	108	2102
Car interchangeable draw-gear. Railway	F. L. Clark	749,361	Jan. 12	1660	353	108	399
Car-loader	H. S. Stronach and D. W. Ross	751,359	Feb. 2	1087	246	108	1289
Car lock and seal	J. Scott	753,006	Feb. 23	4258	949	108	2040
Car. Metallic	A. Stucki	752,311	Feb. 16	2879	641, 642	108	1718
Car. Metallic railway	A. Stucki	752,309	Feb. 16	2874	639, 640	108	1716
Car metallic underframe. Railway	A. Stucki	752,478	Feb. 16	3189	711	108	1784
Car or barn door	G. B. Murray	750,679	Jan. 26	4202	911	108	978
Car plow. Electric	W. F. Taylor, Jr.	748,810	Jan. 5	478	107	108	108
Car. Railway	C. Vanderbilt	748,995	Jan. 5	653	145	108	146
Car-raiser	R. W. Davidson	751,978	Feb. 9	2265	507	108	1501
Car-replacer	E. W. Rosenberg	750,996	Feb. 2	223	50	108	1107
Car-seat	H. Witte	748,908	Jan. 5	666	142	108	149
Car-seat	B. Repsdorph and W. H. Burton	749,097	Jan. 5	1101	232, 233	108	253
Car-seat	C. W. H. Frederick	751,277	Feb. 2	945	215	108	1258
Car-seat. Reversible	P. G. Leistner	751,312	Feb. 2	1013	229, 230	108	1273
Car-shock-reducing mechanism	W. C. Andrews	751,308	Feb. 2	1105	250	108	1292
Car. Side and center dump coke	J. M. Hansen	752,299	Feb. 16	2833	628, 629, 630	108	1708
Car side bearing. Railway	C. F. Huntoon. (Reissue)	12,198	Jan. 12	2372	501	108	549
Car side bearing. Universal street	J. E. Norwood	750,481	Jan. 26	3826	831	108	902

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Car-signal	G. M. Lane	752,081	Feb. 16	2436	545	108	1618
Car-starter	D. France	750,958	Feb. 2	336	80	108	1132
Car steam-heating system. Railway	N. Nilson	749,970	Jan. 19	2872	614, 615	108	675
Car-step. Movable	F. Keilwerth	750,981	Feb. 2	371	90	108	1140
Car. Stock	A. Stucki	751,436	Feb. 2	1210	276	108	1314
Car-stop	H. Wirsching	752,875	Feb. 23	3973	890	108	1976
Car-switching apparatus	M. Brosnan	750,162	Jan. 19	3239	698	108	752
Car. Tank	E. Anderson	751,040	Feb. 2	475	111, 112	108	1168
Car. Tank	A. Stucki	751,438	Feb. 2	1213	277	108	1315
Car underframe. Railway	H. R. Kelthley	752,231	Feb. 16	2714	601	108	1683
Car underframing. Railway	G. I. King	752,685	Feb. 23	3617	805	108	1896
Car-unloading apparatus	J. C. Greenway	752,449	Feb. 16	3144	699, 700	108	1775
Car-vestibule	M. Power	752,861	Feb. 23	3945	885	108	1968
Car. Vestibule stock	J. L. Pennington	752,707	Feb. 23	3657	814, 815	108	1906
Car-wheel	L. Hayne	752,673	Feb. 23	3594	801	108	1891
Car-wheel-grinding device	P. F. McCormick	750,479	Jan. 26	3823	830	108	901
Car-window dust-guard	B. Niblack	752,796	Feb. 23	3818	856	108	1941
Car-window guard or shield	A. D. Cooke	753,044	Feb. 23	4338	965	108	2058
Cars, &c. Automatic guard or life-saver for tram-	D. Maxwell	748,628	Jan. 5	147	35	108	33
Cars. Combined friction and direct-acting spring draft-rigging for railway	T. B. Hunt	748,951	Jan. 5	771	167	108	175
Cars. Convertible cab for railway	J. S. Doyle	750,951	Feb. 2	324	76, 77, 78	108	1129
Cars. Cup-washer for use in the construction of	L. T. Canfield	750,806	Feb. 2	40	8	108	1066
Cars. Electrical controller for railway	H. P. Wellman	750,139	Jan. 19	3196	687	108	743
Cars, railway-carriages, or the like. Bogie or truck for tramway	A. S. Nelson, A. Stewart, and T. J. Foster.	750,387	Jan. 26	3650	798	108	863
Cars. Sleeping appliance for passenger	I. B. Guenzburg	749,930	Jan. 19	2908	599, 600	108	662
Carbon articles. Making	E. G. Acheson	749,418	Jan. 12	1777	376	108	421
Carboy-case	A. J. Oostdyk	751,804	Feb. 9	1898	490	108	1481
Carbureted air. Apparatus for producing	E. F. Wilson	749,768	Jan. 19	2494	531	108	598
Carbureted air. Producing	E. F. Wilson	749,767	Jan. 19	2492	530, 531	108	592
Carbureter	W. L. Severance	750,311	Jan. 26	3522	761	108	884
Carbureter	H. B. Cornish	750,433	Jan. 26	3788	812	108	892
Carbureter	F. Harmany	750,764	Jan. 26	4408	950	108	1026
Carbureter. Petrol-motor	M. S. Napier and A. J. Rowledge	751,434	Feb. 2	1206	275	108	1313
Carbureting device. Explosive-engine	L. P. Mooers	749,315	Jan. 12	1568	332	108	377
Carbureting device. Explosive-engine	E. Haynes and E. Apperson	751,918	Feb. 9	2109	476	108	1528
Card-clothing strickle	D. Gessner	751,165	Feb. 2	708	162, 163	108	1209
Card-feeding machine	D. H. Waters	749,649	Jan. 12	2234	471	108	519
Card shuffler. Playing	H. F. H. Newington	750,216	Jan. 19	3326	718	108	770
Carding-engine flat	C. Mills	752,342	Feb. 16	2732	606	108	1686
Carline	E. G. Caughey	752,392	Feb. 16	2823	626	108	1706
Carousal. Water	A. Meffert	750,472	Jan. 26	3810	837	108	896
Carpenter's tool	F. Lindblad	750,866	Feb. 2	159	38	108	1092
Carpet-fastener	T. R. Diehl	751,267	Feb. 2	928	211	108	1254
Carpet-fastener	R. C. Russell and A. W. Siegel	752,390	Feb. 16	2968	660	108	1738
Carpet-stretcher	T. J. and Z. T. Sheets	748,664	Jan. 5	211	51	108	46
Carpet-stretcher	J. M. Brown	749,161	Jan. 12	1238	266	108	303
Carriage. Collapsible	H. M. Hull	748,869	Jan. 5	566	135	108	134
Carriage rocker attachment. Baby	O. M. Pond	751,409	Feb. 2	1168	266	108	1305
Carriage-shifting mechanism	L. Myers	752,098	Feb. 16	2456	549	108	1622
Carrier: *See* Feed or litter carrier. Fowl-carrier. Package-carrier. Splint-carrier.							
Cart	G. B. Donavin, H. E. Stein, and O. D. Hunt.	752,763	Feb. 23	3753	887	108	1927
Cart-cover	S. Kurzman	750,467	Jan. 26	3797	825	108	895
Cart. Dumping	W. E. Harris	749,057	Jan. 5	1021	216	108	236
Cart. Dumping	J. Hovas	749,559	Jan. 12	2077	432	108	486
Carton closing and sealing machine	G. R. Wyman	752,369	Feb. 16	2981	664, 665, 666	108	1741
Carton-machine	C. A. Coombs	750,814	Feb. 2	54	19	108	1069
Carton-machine	J. H. Weeks	751,823	Feb. 9	1936	439, 440	108	1488
Cartridge	J. M. Edmunds	750,628	Jan. 26	4099	888	108	956
Cartridge	J. H. Kilzer	751,519	Feb. 9	1354	309	108	1366
Cartridge. Blasting	T. F. Durham	748,985	Jan. 5	742	161	108	169
Cartridge-feeding device	M. L. Bristol	752,648	Feb. 23	3545	789, 790	108	1880
Case: *See* Banana-shipping case. Bookcase. Bottle-packing case. Carboy-case. Curling-iron case. Display-case. Emergency-case. Eyeglass-case. Eyeglass or spectacle case. Filing-case. Firearm-carrying case. Pencil-case. Suit-case. Surgical-instrument case. Whetstone-case.							
Case	J. F. Prentice	750,122	Jan. 19	3164	680	108	736
Case-hardening compound	J. Cadotte	748,842	Jan. 5	543	------	108	123
Casing-head and tubing-anchor	J. C. Boyce	750,428	Jan. 26	3794	809	108	880
Casein-cellulose composition and producing same	H. V. Dunham	748,709	Jan. 5	996	------	108	66
Casein compound and producing same	H. K. Brooks	750,048	Jan. 19	3026	------	108	707
Casein. Preparing food	A. A. Dunham	750,832	Feb. 2	100	24	108	1079

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cash-register	T. Carroll	750,086	Jan. 19	3100	666 667	108	721
Cash-register	E. W. Applegate	750,791	Feb. 2	6	2, 3 4, 5	108	1068
Cash-register	T. Carroll	751,611	Feb. 9	1526	347 348	108	1402
Cash register and indicator	J. P. Emory	750,272	Jan. 26	3441	742 743	108	815
Cask-tilter	G. Sanders	748,658	Jan. 5	201	48	108	44
Casket-handle	J. McCarthy	750,001	Jan. 19	2986	627	108	690
Casket-handle	J. McCarthy	750,002	Jan. 19	2987	627	108	690
Casket, Hermetical	W. A. Warner	749,763	Jan. 19	2485	520	108	591
Casket-holder	G. Arpin	750,245	Jan. 26	3391	733	108	803
Casket-holder	G. F. Honold	750,282	Jan. 26	3450	748	108	819
Cast-off	A. M. Ziegler	748,908	Jan. 5	674	149	108	151
Caster	J. Etheridge	751,480	Feb. 9	1302	298	108	1354
Caster, Furniture-	J. Bornemann	750,799	Feb. 2	33	7	108	1064
Caster, Furniture-	J. W. Kennedy	750,984	Feb. 2	376	91	108	1141
Caster-horn	W. Livingstone	751,563	Feb. 9	1620	368	108	1421
Caster-wheel	J. E. Wood	752,742	Feb. 23	3717	820	108	1919
Cattle-guard	J. L. Campbell	749,024	Jan. 5	940	199	108	218
Cattle-guard	P. P. Brannon	751,373	Feb. 2	1111	251	108	1204
Cattle-guard	J. Sneider	751,957	Feb. 9	2197	495	108	1547
Cattle-guard	A. B. Lawson	752,294	Feb. 16	2846	631	108	1711
Cell-case	H. Selsor	748,663	Jan. 5	210	50	108	46
Cement, Manufacturing hydraulic	J. Gresly	748,943	Jan. 5	757	------	108	172
Cementitious products or artificial stone, Making	W. E. Jaques	748,611	Jan. 5	99	26	108	23
Centering-machine controller or stop-bar	L. H. Vold	749,243	Jan. 12	1408	302	108	343
Centering mechanism	J. S. Bancroft	749,149	Jan. 12	1209	259	108	297
Centering-support	G. H. Kunneke	751,181	Feb. 2	741	170	108	1216
Centrifugal apparatus	A. Liedbeck	750,668	Jan. 26	4175	905	108	972
Centrifugal machine	M. de Marchéville	749,623	Jan. 12	2179	457 458	108	508
Centrifugal machine	J. J. Berrigan	750,079	Jan. 19	3086	663 664	108	719
Centrifugal machine	J. J. Berrigan	750,080	Jan. 19	3088	664	108	719
Centrifugal machine	H. de Raasloff	750,698	Jan. 26	4220	918	108	984
Centrifugal machine	J. W. Macfarlane	752,372	Feb. 16	3370	751 752	108	1826
Centrifugal-machine basket	E. C. Küchenmeister	748,756	Jan. 5	374	85	108	83
Centrifugal machine, Electrically-driven	H. G. Morris	748,771	Jan. 5	401	92	108	89
Centrifugal machine, Water-driven	J. W. Macfarlane	753,155	Feb. 23	4525	1009	108	2099
Centrifugal separator	P. L. Kimball	751,178	Feb. 2	735	168 169	108	1215
Chain, Link	E. A. Uehling	752,727	Feb. 23	3694	824	108	1914
Chain-tightener	F. Jackson	752,074	Feb. 16	2427	543	108	1616
Chain wrench, Double-acting	W. H. Downing	750,440	Jan. 26	3772	815	108	865
Chair: *See* Convertible chair. Folding chair. Knockdown chair. Shoe-polishing chair. Surgical chair. Toilet-chair.							
Chair	G. F. Clingman	751,463	Feb. 9	1253	287	108	1342
Chair	H. W. Boiens	752,751	Feb. 23	3732	832	108	1922
Chair-brace	R. E. Mock	752,243	Feb. 16	2734	606	108	1697
Chair fan attachment, Rocking-	W. G. Langdale and R. J. Nowlin	753,148	Feb. 23	4513	1006	108	2096
Chair foot-rest	G. A. Bowen	749,594	Jan. 12	2015	418	108	471
Chair head-rest, Shaving-	C. E. Haege	749,184	Jan. 12	1291	278	108	316
Chair-rungs, &c. Device for holding	A. N. Webb	751,765	Feb. 9	1815	414	108	1460
Chair wardrobe attachment	H. A. Dodge	751,151	Feb. 2	674	154	108	1203
Chairs, Rubber-and-metal-cap tip for	S. Garrett	751,160	Feb. 2	699	158	108	1206
Chamber vessels, Cover for earthen	W. C. Miles	752,088	Feb. 16	2448	548	108	1620
Chandelier, Extensible	W. H. Kerr	753,141	Feb. 23	4503	1003	108	2094
Chart or pattern for crochet-work	E. C. Faust	748,930	Jan. 5	747	162 163	108	170
Chatelaine	R. R. Debacher	748,846	Jan. 5	555	127	108	126
Check-holder, Miner's	D. P. Adams	752,698	Feb. 23	3527	785	108	1877
Check-lock	S. Stewart	752,018	Feb. 9	2329	521	108	1575
Check, spreader, and pilot-light device, Combination	M. D. Compton	752,088	Feb. 16	2360	528	108	1600
Checks, Detachable cover for bank-	E. C. Deans	750,836	Feb. 2	77	17	108	1074
Checking or unchecking device	A. E. Fisher	749,480	Jan. 12	1983	401	108	454
Checking the output of machinery, Apparatus for	L. Lenot	749,305	Jan. 12	1546	328	108	371
Checkrein	W. H. Fuller	749,989	Jan. 19	2807	599	108	662
Cheese-cutter	O. W. Smith	752,006	Feb. 9	2310	516	108	1571
Cheese-holder	I. I. Eklund	750,756	Jan. 26	4388	947	108	1021
Chemical changes, Effecting	A. H. Cowles	750,096	Jan. 19	3123	671	108	727
Chill	J. W. Fuller, Jr	749,998	Jan. 19	2806	599	108	662
Chimney-top	F. Hayden	751,912	Feb. 9	2108	476	108	1528
Chisel	F. E. Norton	751,408	Feb. 2	1158	264	108	1204
Chock-block, Adjustable	J. P. Abernathy	751,366	Feb. 2	1101	249	108	1291
Chocolate-cooling mechanism	E. W. Mull	752,686	Feb. 16	3380	788	108	1858
Chopper: *See* Cotton-chopper.							
Chopping device	H. Breitstein	749,357	Jan. 12	1649	351	108	397
Chuck, Drill-	W. H. Saunders	751,345	Feb. 2	1061	241	108	1284
Chuck, Lathe-	F. R. Inman	749,794	Jan. 19	2544	541	108	604
Chuck, Rock-drilling-machine	L. Leigh, Jr	751,311	Feb. 2	1011	229	108	1272
Chuck, Rock-drilling-machine	J. Hodge	752,972	Feb. 23	4302	936	108	2028
Churn	J. S. Lindquist	750,360	Jan. 26	3658	790	108	860
Churn	W. G. Radcliffe	751,208	Feb. 2	780	178	108	1224
Churn	H. A. Bierley	751,371	Feb. 2	1108	251	108	1208
Churn	W. P. Kirkpatrick	751,580	Feb. 9	1355	309	108	1356
Churn-power	C. Morrison	752,944	Feb. 16	2736	606	108	1687
Chute device, Coal-	S. B. Peck	753,108	Feb. 23	4437	967	108	2060
Chute, Ore or grain	C. A. Moffett and F. B. Keiser	752,848	Feb. 23	3019	676	108	1962
Cider-press	G. L. Munk	748,653	Jan. 5	155	37, 38	108	85

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cigar-box	R. W. Hardie	748,863	Jan. 5	588	134	108	132
Cigar-box filler	H. J. Lewis	748,624	Jan. 5	140	33, 34	108	32
Cigar-cutter	W. M. Roberts	750,305	Jan. 26	3499	757	108	828
Cigar-cutter and match-igniter, Combined	J. T. Galetti	749,964	Jan. 19	2964	612	108	673
Cigar-making machine	O. Wartmann	752,733	Feb. 23	3702	826 827	108	1916
Cigar or cigarette machines, Binder or wrapper mechanism for	A. Du Brul	752,961	Feb. 23	4178	931	108	2022
Cigar-wrapper cutter and rolling tables, Pressure-rolls for	I. Liberman	752,847	Feb. 23	3917	878	108	1962
Cigarette-machine	G. M. Calberla	750,254	Jan. 26	3403	736 737	108	806
Cigarette or cigar holders, &c. Mold-press for making	E. Simon	750,406	Jan. 26	3687	800	108	872
Cigarette-paper with leaf metal, Apparatus for coating	G. M. Calberla	750,255	Jan. 26	3405	737	108	806
Circuit-breaker, Automatic	E. M. Hewlett	752,552	Feb. 16	3329	741	108	1817
Circuit-controller, Vibratory	R. Varley	750,040	Jan. 19	3011	645	108	704
Circuit-controller, Vibratory	R. Varley	750,041	Jan. 19	3012	645	108	705
Clamp: *See* Cable-grip clamp. Drill-rod clamp. Hose-clamp. Plow-handle clamp. Pump barrel clamp. Rubber-dam clamp. Shelf-clamp. Upholstery-spring top clamp. Wire-clamp.							
Clamp	H. M. Hanson and C. S. Bentley	749,732	Jan. 19	2926	515	108	577
Clamp	G. W. Soulé	752,424	Feb. 16	3106	689	108	1766
Clamp-handle	W. P. Devine	752,828	Feb. 23	3882	870	108	1955
Clamping device	G. Hacker	752,156	Feb. 16	2574	572	108	1648
Clarinet of Boehm	E. Bercioux	750,985	Feb. 2	295	70	108	1122
Clasp: *See* Tag-clasp.							
Clasp	M. B. Hammond	748,724	Jan. 5	319	72	108	71
Clasp	A. Person	750,487	Jan. 26	3337	833	108	904
Clasp	O. J. Jones	750,656	Jan. 26	4150	900	108	966
Cleaner: *See* Filter-cleaner. Flue-cleaner. Grain-cleaner. Horse-cleaner. Road-bed cleaner. Seed-cleaner.							
Cleaning device	E. E. Elston, Jr	751,786	Feb. 9	1853	422	108	1469
Clevis, Plow-	M. Wheeler	749,889	Jan. 19	2715	580	108	642
Clip: *See* Cable-clip. Letter-clip. Packaging-clip. Paper-clip.							
Clip	E. De Lamater	749,963	Jan. 12	2267	478	108	527
Clip	J. A. Mayers	751,581	Feb. 9	1372	313	108	1369
Clock	W. Rausch	753,212	Feb. 23	4643	1083 1084	108	2125
Clock and money-box, Coin-controlled	L. F. Kleeman	750,374	Jan. 26	3622	787 788	108	859
Clock-case	G. B. Woodruff and T. W. R. McCabe	748,679	Jan. 5	238	55	108	52
Clock-case	A. D. Blodgett	750,787	Jan. 26	4458	960	108	1088
Clock, Electric	F. Schmidt	750,492	Jan. 26	3843	835	108	905
Clock, Electric alarm-	H. A. Chase	751,781	Feb. 9	1845	420	108	1468
Clock, Electric striking-	W. Olson	749,495	Jan. 12	1962	407 408	108	459
Clock, Repeating alarm-	W. F. Winslow	752,319	Feb. 16	2895	646	108	1722
Cloisonné ware, Manufacturing	T. Pfister	751,104	Feb. 2	590	136	108	1186
Closet: *See* Sanitary closet.							
Closure	E. E. Chapman	749,422	Jan. 12	1785	377	108	423
Closure	E. E. Chapman	749,423	Jan. 12	1787	377	108	423
Closure	E. E. Chapman	750,257	Jan. 26	3408	788	108	807
Closure	E. E. Chapman	752,614	Feb. 16	3471	774	108	1847
Cloth, Apparatus for dividing, severing, and similarly treating	A. Marr	751,527	Feb. 9	1363	311	108	1367
Cloth-folder	H. Nelson	752,995	Feb. 23	4242	945	108	2036
Cloth take-up and stretching device	C. E. Meding	751,192	Feb. 2	762	174	108	1220
Clothes-drier	C. C. Crossley	751,265	Feb. 2	926	210	108	1254
Clothes-drier	F. S. MacDougall	751,863	Feb. 9	2015	456	108	1506
Clothes-line fastener	C. W. Gles	752,151	Feb. 16	2566	570	108	1646
Clothes-line fastener	H. Kleinfeldt	748,622	Jan. 5	139	32	108	31
Clothes-line holder	C. F. Smith	749,235	Jan. 12	1899	300	108	341
Clothes-line-securing device	G. H. De Vine and A. Baumann	753,049	Feb. 23	4345	966	108	2060
Clothes-line support	J. Blasius	750,081	Jan. 19	3090	664	108	719
Clothes-pin	E. Schwinn	751,698	Feb. 9	1668	378	108	1431
Clothes-reel	A. Smith	749,234	Jan. 12	1898	299	108	340
Clover-huller	S. Tillson	753,179	Feb. 23	4569	1018 1019	108	2110
Clutch application, Magnetic	W. N. Rumely and W. C. Robby	752,421	Feb. 16	3097	687	108	1764
Clutch, Friction-	J. Riddell	752,590	Feb. 16	3402	758	108	1833
Clutch, Friction-	A. R. Anderson	748,569	Jan. 5	5	1, 2	108	4
Clutch mechanism	J. H. B. Bryan	750,944	Feb. 2	312	74	108	1196
Clutch mechanism, Reversing-	W. W. Sweetland	751,027	Feb. 2	452	105	108	1158
Clutch, Power-press	W. J. Wright	749,349	Jan. 12	1637	348 349	108	394
Coal-carrying vessel or bag, Manual	C. E. Pollard	752,100	Feb. 16	2467	551	108	1625
Coal, &c. Depository for	N. R. Marshman	749,209	Jan. 12	1347	289	108	330
Coal-handling apparatus	G. C. Mackrow and H. G. Cameron	749,207	Jan. 12	1340	288 289	108	328
Coal, Machinery for continuously cutting	J. M. McClellon	750,008	Jan. 19	2988	627 628	108	689
	H. V. Neukirch	753,092	Feb. 23	4421	983	108	2077

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Coal or ore pockets. Gate and chute for	G. L. Holmes	752,555	Feb. 16	3339	743	108	1819
Coal-separator	G. A. Kenner	750,657	Jan. 26	4150	900	108	966
Coat	C. Austern	751,242	Feb. 2	877	200 201	108	1243
Coat	H. Quarngeser	751,940	Feb. 9	2165	489	108	1540
Coat-hanger	R. Eyres	749,176	Jan. 12	1968	274	108	811
Coats, hats, umbrellas, &c. Supporting device for	L. Tabak and C. S. Champion	752,480	Feb. 16	3193	712	108	1785
Coating-machine	S. J. Hicks	751,730	Feb. 9	1744	396 396 397	108	1446
Coating-machine	G. H. Rupley	752,592	Feb. 16	3406	759	108	1834
Cob-pipe filler	J. H. Chapman	748,582	Jan. 5	47		108	13
Cock and faucet mantle-guard	P. F. Glazier	748,720	Jan. 5	310	69, 70	108	69
Cock. Gage-	W. L. Morris	750,881	Feb. 2	196	45	108	1101
Cock. Gage-	S. N. Murdock	751,538	Feb. 9	1381	315	108	1371
Cock. Safety gas-	M. R. Daley	750,822	Feb. 2	73	16	108	1073
Cock. Universal compression stop and waste	W. G. Newton	751,869	Feb. 9	2022	458	108	1508
Cockeye	H. P. Smith	752,180	Feb. 16	2626	582	108	1661
Cocoa-mill	P. Faust	753,129	Feb. 23	4482	998	108	2099
Coffee, &c. Apparatus for making	F. W. Dallinger	749,777	Jan. 19	2517	535	108	596
Coffee or tea pot	G. E. Savage and J. W. Chapman	751,565	Feb. 9	1447	328	108	1396
Coffee or tea pot	G. E. Savage and G. W. Hope	752,113	Feb. 16	2496	556	108	1631
Coffee-pot	H. Adams	751,709	Feb. 9	1708	388	108	1439
Coffee-treating machine	T. R. Timby	749,340	Jan. 12	1618	342	108	390
Coffee-urn	F. Acker	748,910	Jan. 5	678	149	108	152
Coffee-urn	A. and J. Phillips	753,105	Feb. 23	4489	988	108	2081
Coffin-case	E. Kaffer	752,075	Feb. 16	2428	543	108	1616
Coil-protector	C. Bieger	751,776	Feb. 9	1835	417	108	1464
Coil. Ruhmkorff	R. Varley	750,039	Jan. 19	3008	645	108	704
Coil structure. Field-	C. H. Kaler	750,980	Feb. 2	370	89, 90	108	1139
Coin. Automatic apparatus for delivering articles in exchange for	R. W. Vining	749,008	Jan. 5	899	190	108	210
Coin carrier or mailer. Magic	P. S. Short and W. S. Poling	753,170	Feb. 23	4558	1016	108	2107
Coin-changer	C. C. Jackson	750,976	Feb. 2	362	88	108	1138
Coin-controlled apparatus	M. Sielaff	750,314	Jan. 26	3528	702	108	896
Coin-controlled apparatus	H. H. Cummings	750,819	Feb. 2	61	13 14 15	108	1071
Coin-controlled apparatus	T. F. Solon	751,420	Feb. 2	1138	260	108	1308
Coin-controlled mechanism	S. Praschl	752,029	Feb. 16	3505	740	108	1854
Coin counting, registering, and wrapping machine	C. S. Batdorf	751,246	Feb. 2	882	203 208	108	1244
Coin receiving, delivering, sorting, registering, and detecting machine	E. H. Spear and E. Moriarty	750,718	Jan. 26	4273	928 929 930 931	108	993
Coin-sorter	C. S. Batdorf	748,836	Jan. 5	531	122	108	121
Coins. Machine for operating upon	J. E. Doldt	748,934	Jan. 5	736	160 161	108	167
Coke-drawing machine	J. A. Hebb	749,068	Jan. 5	1024	216 217	108	206
Coke from ovens. Machine for discharging	J. Kershgens	753,142	Feb. 23	4504	1003 1004	108	2094
Coke-handling apparatus	C. W. Hunt	752,904	Feb. 23	4462	968	108	1988
Coke-oven	H. Koppers	753,146	Feb. 23	4510	1005	108	2095
Coke-oven door	B. Troutman	750,323	Jan. 26	3548	790	108	841
Collapsible tube and spreader. Combined	C. L. Huddle	749,486	Jan. 12	1943	401	108	455
Collar-clasp	J. Clement	749,168	Jan. 12	1854	370	108	308
Collar. Horse-	J. V. Stone	751,358	Feb. 2	1086	246	108	1289
Collar. Horse-	F. A. Pett	751,551	Feb. 9	1414	322	108	1378
Collar or cuff holder	E. L. Pitts	752,587	Feb. 16	3395	757	108	1831
Collar. Pneumatic horse-	E. L. Sill	753,009	Feb. 23	4263	950	108	2041
Collar rack. Horse-	F. M. Cook	752,303	Feb. 16	2660	589	108	1668
Collar-shaper	H. A. Twigg	752,269	Feb. 16	2795	619 620	108	1700
Collar-stretching apparatus	A. Sharp	751,019	Feb. 2	430	103	108	1153
Color-blending wheel	C. Scott	748,661	Jan. 5	206	50	108	45
Coloring apparatus. Yarn-	A. Fornander	750,758	Jan. 26	4389	947	108	1022
Colter	N. W. Travis	749,591	Jan. 12	2131	444	108	499
Comb: *See* Curry comb. Pompadour-comb. Ornamental comb.							
Comb	W. S. Bechtold	749,471	Jan. 12	1914	397	108	449
Comb	A. W. Cummins	749,533	Jan. 12	3028	421	108	474
Comb	W. S. Bechtold	750,298	Jan. 19	3078	729	108	783
Comb for applying liquid to the scalp	J. B. O'Higgins	750,368	Jan. 26	3551	793	108	864
Combustion-motor	J. F. Bentz	750,336	Jan. 26	3508	778	108	845
Commutator. Dynamo-electric-machine	F. W. Young	752,634	Feb. 16	3516	782	108	1857
Commutator-lead and making same	C. F. Adams	751,440	Feb. 9	1219	279	108	1335
Composite block for soft treads and making same	C. W. Zaring	749,978	Jan. 19	2887	617	108	678
Composite board for doors, panels, &c.	J. S. Anderson	749,511	Jan. 12	1903	414	108	466
Composition of matter	M. A. Dillard	752,660	Feb. 23	3509		108	1886
Composition post	W. W. Northrup	752,354	Feb. 16	2639	559	108	1736
Compound engine	R. H. White	753,021	Feb. 23	4296	965	108	2049
Compressometer	W. J. Tretch	753,015	Feb. 23	4277	962	108	2044
Compressor	J. Shipway	750,313	Jan. 26	3526	782	108	895
Computing-machine	F. S. Weyrs	751,706	Feb. 9	1697	366 367	108	1437
Concentrator	L. R. Tulloch	748,819	Jan. 5	495	112	108	112
Concentrator	L. F. Schoenefeldt	749,104	Jan. 5	1111	235 236	108	254
Concentrator	D. M. Storey	749,706	Jan. 12	2351	496	108	545
Concentrator	W. G. Anderson	750,075	Jan. 19	3060	662	108	717
Concentrator	H. Wismeyer	751,494	Feb. 2	1191	271	108	1310

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Concentrator and amalgamator. Combined	H. J. Russell	750,706	Jan. 26	4250	922 923	108	988
Concrete-beam reinforcement	A. J. Bossyns	751,427	Feb. 2	1196	272	108	1311
Concrete building-blocks. Making	F. A. Malette	751,089	Feb. 2	563	130 131	108	1182
Concrete construction. Armed or stiffened	A. G. Considere	752,523	Feb. 16	3275	730	108	1803
Concrete-mixers. Rotary feeding device for	S. P. McKelvey	751,541	Feb. 9	1390	316 317	108	1372
Concrete piles. Forming	F. Shuman	752,008	Feb. 9	2305	515	108	1570
Concrete piles. Forming	F. Shuman	753,008	Feb. 23	4262	940	108	2041
Concrete structures. I-iron bearer for	T. Franke	749,987	Jan. 19	2916	622	108	685
Concrete walls, &c. Building	D. G. Gray	751,789	Feb. 9	1858	423	108	1470
Condenser. Steam-	W. F. Fricke	749,549	Jan. 12	2065	429	108	484
Condensing-coil	R. Whitaker	749,247	Jan. 12	1414	303	108	344
Condensing vaporous fluid. Apparatus for	W. S. Colwell	750,813	Feb. 2	51	11, 12	108	1068
Condiment-holder. Composite	L. B. Parker	750,688	Jan. 26	4215	914	108	981
Conducting-cord. Flexible	H. B. Holmes	752,840	Feb. 23	3907	876	108	1959
Conduit. Flexible	A. T. Blackler	751,777	Feb. 9	1836	418	108	1465
Confection-coating machine	J. P. Annen	750,076	Jan. 19	3061	662 663	108	718
Contact-shoe	W. F. Taylor, Jr.	748,813	Jan. 5	484	109	108	110
Container-joint	W. L. Austin	750,565	Jan. 26	4003	865	108	935
Controller and brake-operating mechanism. Combined	H. Sawyer	749,329	Jan. 12	1595	338	108	383
Controller-casing	C. L. Perry	751,008	Feb. 2	410	97	108	1148
Convertible chair and cradle	B. Smith	751,813	Feb. 9	1918	435	108	1484
Convertible furnace	R. A. May	751,530	Feb. 9	1370	312 313	108	1369
Conveyer	W. J. Patterson	749,808	Jan. 19	2560	543 544	108	607
Conveyer	A. J. Webster	751,885	Feb. 9	2050	463 464	108	1514
Conveyer	J. G. Delaney	752,441	Feb. 16	3132	696	108	1771
Conveyer	J. A. Heintz	752,838	Feb. 23	3901	875	108	1958
Conveyer. Bucket	C. H. Notter	750,966	Feb. 2	206	47	108	1103
Conveyer-loading device	F. R. Willson, Jr	751,890	Feb. 9	2063	466 467	108	1517
Conveyer. Pan	J. M. Dodge	749,038	Jan. 5	977	206	108	227
Conveyer. Pivoted-bucket	E. Bivert	748,576	Jan. 5	18	5, 6	108	7
Conveyer. Pneumatic	M. J. Foyer	750,356	Jan. 26	3508	780	108	852
Conveyer. Waste-end	H. Kemp	749,300	Jan. 12	1585	327	108	369
Conveyers, &c. Tripper for bucket	E. Bivert	748,577	Jan. 5	22	6	108	8
Conveying-table shifting mechanism	E. Esselius	752,444	Feb. 16	3138	697 698	108	1773
Cooker. Steam-	W. L. Liggins	749,568	Jan. 12	2092	434 435	108	490
Cooker. Steam-	C. Cannom	750,596	Jan. 26	4057	878	108	947
Cooker. Steam-	W. J. Kennedy	751,485	Feb. 2	1204	275	108	1313
Cooker. Steam-	C. H. Burton	753,118	Feb. 23	4461	992	108	2065
Cooker. Vegetable-	J. H. Hayes	751,640	Feb. 9	1584	361	108	1414
Cooking apparatus	J. F. Rabe	749,228	Jan. 12	1892	295	108	338
Cooking articles of irregular outline. Wrapper for	L. Horn	751,171	Feb. 2	726	166	108	1213
Cooking device	J. Henault	750,190	Jan. 19	3282	709	108	761
Cooking utensil	M. T. B. Washington	749,414	Jan. 12	1766	374	108	420
Cooking utensil	S. L. Treen	749,592	Jan. 12	2133	444	108	499
Cooler: *See* Liquid-cooler. Water-cooler.							
Cope	W. Leahy	749,069	Jan. 5	1048	221	108	241
Copper ores. Treating	A. M. G. Sébilliot	748,662	Jan. 5	207	50	108	45
Copper ores. Treating	N. V. Hybinette	751,648	Feb. 9	1598		108	1416
Copy-holder	L. Henderson	749,383	Jan. 12	1708	302	108	408
Copy-holder	F. C. Shobert	750,230	Jan. 19	3365	726	108	779
Copy-holder	J. W. McCann	751,827	Feb. 2	1086	235	108	1278
Copy-holder	F. M. Filler	751,490	Feb. 9	1303	298	108	1354
Copy-holding device	J. R. Foster	749,783	Jan. 19	2527	537	108	600
Core-box	S. E. Barnes	751,775	Feb. 9	1834	417	108	1464
Core-box cutter	F. E. Thomes	753,178	Feb. 23	4568	1018	108	2110
Cork-finishing machine	T. S. Thompson	752,482	Feb. 16	3198	713	108	1786
Corkwood	P. F. Lenhart	750,548	Jan. 26	3974		108	929
Corn-ears. Machine for picking	W. C. Sabin	748,656	Jan. 5	199	47	108	44
Corn-husker	C. G. Billings	750,426	Jan. 26	3721	808	108	879
Corn-husker. Adjustable-hook	G. W. Sues	749,408	Jan. 12	1759	372	108	418
Corn-husker band-cutter and feeder	C. G. W. Wernicke	751,232	Feb. 2	849	193 194	108	1238
Corn-husking-machine feeding device	J. R. Hall	750,642	Jan. 26	4125	895	108	961
Corn-shock tier	D. H. Zuck	749,250	Jan. 12	1419	304	108	345
Corn-shocker	T. L. Creath	748,932	Jan. 5	732	159 160	108	166
Corn-shredder	N. N. Windingstad	750,329	Jan. 26	3556	770	108	843
Corset	E. Pohl	749,400	Jan. 12	1742	368 369	108	415
Corset-busk	V. Bovy	751,142	Feb. 2	661	152	108	1201
Corset-spring	C. D. Wood	748,830	Jan. 5	520	118	108	118
Corset-stay	N. Parker	752,297	Feb. 16	2850	632	108	1712
Cot and pack-bag. Combined convertible	S. D. Martin	751,190	Feb. 2	758	173	108	1219
Cotton-chopper	D. Washington	750,138	Jan. 19	3194	686 687	108	742
Cotton-gin	J. H. G. von Oven and J. C. Boesch	748,780	Jan. 5	414	95	108	93
Cotton-gin	E. R. Barber	750,567	Jan. 26	4005	866	108	935
Cotton-packer	H. J. Arnett	752,505	Feb. 16	3242	723	108	1796
Cotton-picker	E. B. Vaughan	752,272	Feb. 16	2799	620	108	1701
Cotton-picker's bag	F. M. Dalton and J. G. Walker	749,722	Jan. 19	2403	508	108	572
Cotton-press	A. D. Thomas	751,119	Feb. 2	613	142	108	1191
Cotton-stalk puller	C. R. Smith	749,636	Jan. 12	2210	466 467	108	515
Couch	J. Hoey	749,673	Jan. 12	2283	481	108	530

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Couch	T. E. O'Brien	752,177	Feb. 16	2602	578	108	1654
Couch-truck	J. J. Blodt and T. H. Dana	750,936	Feb. 2	206	71	108	1123
Counter. Self-waiting lunch-	T. F. Philippi	751,681	Feb. 9	1651	375 / 376	108	1428
Coupling: *See* Air-brake coupling. Automatic coupling. Awning-frame coupling. Car-coupling. Cultivator-coupling. Electric coupling. Hose-coupling. Joint-coupling. Pipe-coupling. Pump-coupling. Sewing-machine coupling. Stud and pin coupling. Thill-coupling. Threshing-machine, &c., coupling. Traction-coupling. Vehicle-coupling.							
Coupling	W. H. Wallace	752,731	Feb. 23	3099	825	108	1915
Coupling-support	E. C. Washburn	749,346	Jan. 12	1629	346	108	392
Course and bearing correcting device	J. Baxter. (Reissue)	12,196	Feb. 2	1216	278	108	1316
Cover attachment. Receptacle	O. S. Switzer	751,881	Feb. 9	2043	462	108	1513
Cover. Cooking-utensil	W. E. Banzett	751,244	Feb. 2	879	201	108	1244
Cover. Vessel-	B. L. Johnson	749,998	Jan. 19	2923	624	108	687
Cows. Shackle and tail-holder for	L. G. Macauley	751,088	Feb. 2	561	130	108	1182
Crane	E. Nickerson	752,248	Feb. 16	2745	609 / 610	108	1689
Crane. Portable traction-	F. E. Smith and E. R. Inman	752,362	Feb. 16	2971	660 / 661	108	1739
Crane. Portable traction-	F. E. Smith	752,363	Feb. 16	2973	662	108	1739
Crane-propulsion device	R. Wilke	752,989	Feb. 23	4134	921	108	2011
Cranes. Electric gear for	O. Kammerer	750,370	Jan. 26	3023	786	108	857
Crank and crank-shaft mechanism	C. E. Ellicott and J. B. Norris	749,277	Jan. 12	1493	318	108	359
Crank-handle. Antifriction	A. G. Gode	751,496	Feb. 9	1313	300	108	1356
Crate	J. C. Nagle and B. Prouty	749,946	Jan. 19	2854	605	108	667
Crate. Bottle-	W. W. Price	752,708	Feb. 23	3059	813	108	1906
Crate. Egg-	E. N. Paul	753,099	Feb. 23	4492	986	108	2079
Cream-can	S. A. Jones and F. W. Downham	752,344	Feb. 16	2940	655	108	1732
Cream-separator	J. Mersman	749,398	Jan. 12	1728	366	108	412
Cream-separator	E. and B. Starch	752,934	Feb. 23	4119	917	108	2009
Creaming-can	F. G. Fortney	748,598	Jan. 5	80	21	108	19
Crematory	F. E. Haycock and J. McDermott	750,457	Jan. 26	3777	821 / 822	108	899
Crib. Child's	J. Campbell	750,805	Feb. 2	39	8	108	1065
Cribwork or the like	J. W. Fraser	751,492	Feb. 9	1305	299	108	1355
Crimped sheet	P. Hinkel	752,775	Feb. 23	3771	842	108	1931
Cross-arm brace	F. B. Cook	752,655	Feb. 23	3559	792	108	1883
Cross-head	R. H. White	753,024	Feb. 23	4302	956	108	2051
Crushing-machine	J. H. McCormick	751,672	Feb. 9	1636	371 / 372	108	1425
Crutch	J. A. Renno	751,942	Feb. 9	2167	489	108	1540
Culinary vessel	F. H. Hill	752,167	Feb. 16	2587	575	108	1651
Culm-bar	J. S. Wilson	751,127	Feb. 2	628	146	108	1194
Cultivator	F. J. Ziegler	749,510	Jan. 12	1991	414	108	466
Cultivator	C. V. Barnhart	749,833	Jan. 19	2619	559 / 560	108	620
Cultivator	A. Lindgren	751,314	Feb. 2	1015	230	108	1274
Cultivator	W. J. Luttrell	752,570	Feb. 16	3367	751	108	1825
Cultivator	S. M. Adams	752,746	Feb. 23	3723	830 / 831	108	1920
Cultivator	J. Nagel	752,852	Feb. 23	3925	880	108	1964
Cultivator-coupling	A. V. Ryder	752,594	Feb. 16	3412	760	108	1836
Cultivator. Rice-	H. D. Dodd	749,960	Jan. 19	2856	610	108	672
Cultivator. Two-row lister-	A. V. Ryder	749,906	Jan. 19	2746	588	108	648
Cultivator, weeder, and furrow-maker. Combined.	T. J. Hubbell	748,737	Jan. 5	344	76	108	76
Cup: *See* Mucilage-cup.							
Cupel-making machine	A. C. Calkins	753,121	Feb. 23	4466	993 / 994	108	2086
Curette	C. J. Pilling	752,356	Feb. 16	2961	659	108	1736
Curling-iron	W. C. Dyer	752,051	Feb. 16	2381	522	108	1605
Curling-iron case	C. O. Sterling	750,724	Jan. 26	4317	983	108	1004
Curling-iron heater	O. Walsh	749,647	Jan. 12	2231	470	108	518
Current cut-out. Reverse-	L. Andrews	751,442	Feb. 9	1221	279	108	1335
Current-director	J. F. McElroy	751,991	Feb. 9	2288	511 / 512	108	1565
Current motor. Alternating-	C. A. Brown	750,940	Feb. 2	308	72	108	1125
Currents. Means for protection against reverse	L. Andrews	751,441	Feb. 9	1220	279	108	1335
Currycomb	D. M. Friedt	749,052	Jan. 5	1016	214	108	235
Currycomb	T. A. Howes	749,064	Jan. 5	1096	219	108	239
Currycomb	E. B. Webb	749,596	Jan. 12	2138	445	108	501
Currycomb	H. E. Ewart	753,056	Feb. 23	4357	969	108	2062
Curtain and shade adjuster. Window	H. P. Adams	750,332	Jan. 26	3559	771	108	844
Curtain-bracket	A. Lambert	750,055	Jan. 19	3047	653	108	711
Curtain-bracket. Adjustable	R. T. Green	750,027	Jan. 19	2990	641	108	700
Curtain-fixture	F. I. Knighton	752,993	Feb. 23	4223	941	108	2032
Curtain fixture. Window-	C. G. Foster	751,906	Feb. 9	2006	474	108	1526
Curtain-hanging	W. P. Powell	749,499	Jan. 12	1968	409	108	461
Curtain-pole	P. S. Truxal	753,181	Feb. 23	4572	1019	108	2110
Curtain-pole and shade hanger	S. S. Spangler	752,425	Feb. 16	3108	689	108	1767
Curtain-pole tip	G. H. Atkins	753,030	Feb. 23	4311	958	108	2033
Curtain-rod fixture	H. H. Meyer	753,202	Feb. 23	4616	1028	108	2121
Curtain-roll support	N. C. Jones	752,397	Feb. 16	3041	676	108	1753
Curtain-roller bracket. Window-	C. H. Gulles	750,848	Feb. 2	132	30	108	1087
Curtain-shade adjuster	T. Whitt	752,318	Feb. 16	2894	645	108	1722
Curtain-stretcher	J. W. Reed	749,702	Jan. 12	2340	494	108	542
Curtain-support. Extensible	E. W. Mathewson	750,776	Jan. 26	4435	956	108	1082
Cuspidor	C. E. Bertels	749,019	Jan. 5	980	197	108	216

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Cutter: *See* Bar-cutter. Cheese-cutter. Cigar-cutter. Fat-cutter. Flue or tube cutter. Food-cutter. Fruit or vegetable cutter. Groove-cutter. Meat-cutter.							
Cutter-head. Rotary	E. S. Shimer	751,952	Feb. 9	2187	498	108	1545
Cutter-heads. Instrument for determining the position of cutters on molding	J. Fay	750,629	Jan. 26	4105	889	108	957
Cutting-machine	E. F. Gibbons	750,107	Jan. 19	3139	675	108	731
Cutting machinery	T. C. Hansen	749,820	Jan. 19	2587	551	108	618
Cutting-tool	R. E. Duvall	752,211	Feb. 16	2675	598	108	1672
Cycle free-wheel and brake attachment	W. Powell	749,950	Jan. 19	2889	606	108	668
Cycle. Motor-	G. C. Wilkinson	752,741	Feb. 23	3716	829	108	1919
Cycle mud-guard	J. Neinens and H. Kleinbielen	750,386	Jan. 26	3649	793	108	863
Cycle-saddle for supporting rifles, &c.	J. Jarvis	749,865	Jan. 19	2668	571	108	630
Cycles or the like. Saddle for	T. G. Stevens	750,069	Jan. 19	3072	660	108	716
Decorticating-machine	H. A. Clifford	749,475	Jan. 12	1921	398 / 399	108	451
Decorticating-machine	A. D. Estienne	753,055	Feb. 23	4355	968 / 969	108	2062
Dental appliance	W. M. Dailey	750,615	Jan. 26	4087	885	108	953
Dental articulator	L. Knight	750,208	Jan. 19	3301	713	108	765
Dental bur	P. B. McCullough	749,624	Jan. 12	2182	458	108	509
Dental-cement-injecting tube	H. L. Cruttenden	749,846	Jan. 19	2641	564	108	624
Dental mouth-mirror	W. M. Sharp	751,950	Feb. 9	2185	498	108	1544
Dental-plate mold	O. E. Driscoll	753,128	Feb. 23	4481	997	108	2069
Dental polishing and grinding instrument sprayer	H. H. Gantz	749,809	Jan. 19	2732	585	108	645
Denture-plates, &c., antiseptic. Rendering	L. Eilertsen	749,276	Jan. 12	1492	.....	108	359
Derrick	O. Daniels	752,379	Feb. 16	3005	669	108	1746
Derrick and dump. Combination	C. F. Smith	752,187	Feb. 16	2624	582	108	1660
Derrick-swinging mechanism	C. A. Baechtold	749,852	Jan. 12	1640	349	108	394
Derrick. Well-	J. C. Knupp	751,078	Feb. 2	544	127	108	1178
Designs, ornamentations, or letters on articles. Material for producing	R. K. Duncan	748,851	Jan. 5	562	.....	108	127
Desk	O. C. Dorney	753,050	Feb. 23	4346	967	108	2060
Desk and seat. Adjustable school	W. L. Starkey. (Reissue)	12,199	Feb. 23	4664	1088	108	2180
Desk, book-rack, and easel. Combination	E. M. Miller	752,990	Feb. 23	4232	943	108	2034
Desk. Convertible table-	T. M. McKee	749,699	Jan. 12	2334	493	108	541
Desk for hotel-registers	G. P. Rose, Jr	752,802	Feb. 23	3826	859	108	1943
Desk-lock	L. Moore	750,384	Jan. 26	3648	792	108	862
Desk. Reference-book shelf-	J. A. Lawson	752,234	Feb. 16	2719	602	108	1684
Desk. School-	J. F. Field	750,527	Jan. 26	3917	849	108	919
Detachable handle	L. H. Soisson	749,753	Jan. 19	2470	526	108	588
Detector: *See* Slub-detector.							
Developing and fixing device. Pocket	R. R. Lutz	748,964	Jan. 5	792	171	108	180
Developing apparatus. Daylight plate-	J. Lespérance	750,665	Jan. 26	4165	903 / 904	108	970
Diamond draw-plates. Making	F. Krause	751,180	Feb. 2	739	169	108	1215
Diaphragm indicating, controlling, and measuring appliance	J. Grouvelle and H. Arquembourg	748,944	Jan. 5	758	164	108	172
Digger: *See* Post-hole digger. Potato-digger.							
Discount meter. Demand-	F. P. Cox	750,948	Feb. 2	320	75, 76	108	1128
Dish-washing apparatus	L. W. Haring	750,851	Feb. 2	135	31	108	1087
Dish-washing machine	J. H. Griswold	748,859	Jan. 5	580	132	108	131
Disinfectant-receptacle	W. L. McDonald	748,636	Jan. 5	163	39	108	36
Disinfectants to water-closets. Apparatus for applying	G. S. Gallagher	749,963	Jan. 19	2862	611	108	673
Disinfecting device	F. A. Martin	752,695	Feb. 23	3636	810	108	1901
Disinfecting paper money. Apparatus for	C. B. Clark	750,347	Jan. 26	3585	776 / 777	108	849
Dispensing-tank	W. R. Barton	750,794	Feb. 2	27	5	108	1063
Display cabinet. Goods-	W. J. Funk	752,541	Feb. 16	3310	737	108	1813
Display-case	C. M. Athey	751,137	Feb. 2	653	151	108	1190
Display-case	W. C. Rood	751,562	Feb. 9	1440	327	108	1384
Display device	J. Russ	751,109	Feb. 2	597	138	108	1188
Display-rack	J. F. Theiss	749,464	Jan. 12	1899	395	108	447
Display-rack	M. J. Redding	750,068	Jan. 19	3060	657	108	714
Display-rack	C. Burnside and J. E. Bedell	750,808	Feb. 2	38	8	108	1065
Display-rack	E. W. Durkee	752,887	Feb. 16	3026	674	108	1750
Display-stand	F. C. Mason	749,493	Jan. 12	1960	407	108	459
Display-stand	F. C. Mason	749,494	Jan. 12	1961	407	108	459
Display-stand	H. Burnstone	750,804	Feb. 2	39	8	108	1065
Display truck. Couch-	H. J. Montgomery	748,770	Jan. 5	400	92	108	89
Distance or range finding instrument	T. Adamson	748,567	Jan. 5	1	1	108	3
Distillation apparatus. Wood-	J. W. Spurlock	751,698	Feb. 9	1685	382	108	1435
Distilling apparatus	J. M. Moore	749,316	Jan. 12	1570	382	108	378
Distilling apparatus	A. C. G. Dupuis and W. S. Fell	749,368	Jan. 12	1680	357 / 358	108	408
Ditching-machine	M. B. True	749,778	Jan. 19	2519	535 / 536	108	598
Ditching-machine	J. Page	750,686	Jan. 26	4210	913	108	980
Dock. Elevated storage-	C. Palmer	751,000	Feb. 2	406	96	108	1147
Dock. Floating	A. C. Cunningham	749,171	Jan. 12	1260	272	108	309
Doll	A. J. Thowless	752,607	Feb. 16	3454	772	108	1843
Domestic heater	C. A. Commiskey	750,606	Jan. 26	4078	882	108	950
Door. Air-	J. T. Deviese	750,617	Jan. 26	4089	885	108	953
Door and sash fastening device	V. Ball	749,515	Jan. 12	1997	415	108	467
Door-check	R. W. Hubbard	750,650	Jan. 26	4141	899	108	964
Door-check	R. R. Smith	752,117	Feb. 16	2508	557	108	1632
Door check and closer	W. J. Bryon, Jr	750,802	Feb. 2	35	7	108	1065
Door closer and check	E. Cliff	748,929	Jan. 5	730	156 / 157	108	168

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Door-fastener. Portable	R. F. Poenitz	750,692	Jan. 26	4222	916	108	982
Door-gage	D. Millspaugh	748,873	Jan. 5	608	137	108	136
Door, gate, &c	W. R. and R. Pitt	752,413	Feb. 16	3079	683 684	108	1760
Door, gate, or like hanger	W. Rohde and W. Hastings	752,924	Feb. 23	4097	913	108	2004
Door-hanger	F. A. Burdett	750,589	Jan. 26	4049	875	108	945
Door-hanger	F. B. Cook	750,608	Jan. 26	4076	882	108	951
Door-jamb-setting machine	C. L. Bronk	751,060	Feb. 2	491	114 115	108	1167
Door lock. Cell-	J. J. Lankford	753,150	Feb. 23	4517	1007	108	2097
Door-opener	G. L. Theige	749,339	Jan. 12	1617	342	108	390
Door opening and closing device. Mechanical	W. F. and J. Drieschman	748,848	Jan. 5	556	128	108	126
Door-opening attachment	E. F. Hicks	750,368	Jan. 26	3610	788	108	855
Door-operating mechanism	L. A. Shepard	749,108	Jan. 5	1123	237 238	108	259
Door or window trimming	F. C. Walbridge	749,118	Jan. 5	1142	242	108	264
Door-stop	O. Lockett, M. J. Kenny, J. P. Stimebach, and T. H. Udell.	752,171	Feb. 16	2591	576	108	1652
Door stop and holder	C. H. Cole	752,375	Feb. 16	2998	668	108	1745
Door stop and spring. Combined	J. K. Adams	751,825	Feb. 9	1942	440 441	108	1490
Door stop-lock. Sliding-	R. B. Stearns	752,476	Feb. 16	3184	710	108	1784
Door support. Adjustable sliding-	T. C. Prouty	748,787	Jan. 5	428	98	108	96
Doors. Combined screen, window, and ventilator attachment for	J. H. Moskow	751,668	Feb. 9	1630	370	108	1424
Doors, &c. Fastener for	J. B. Hawkins	752,166	Feb. 16	2585	575	108	1651
Douche. Nasal	F. W. Moffitt	750,297	Jan. 26	3487	754	108	826
Douche. Vaginal	N. C. E. Schwartz	752,361	Feb. 16	2999	660	108	1738
Dough or like plastic materials. Apparatus for dividing and compressing or molding	J. Callow	749,028	Jan. 5	938	198	108	218
Dovetailing-machine	H. S. Spencer	749,458	Jan. 12	1873	389 390	108	440
Dowel	J. Guzowski	752,669	Feb. 23	3590	800	108	1890
Draft attachment. Spring	G. W. King	750,112	Jan. 19	3145	676	108	732
Draft connection	L. Keding	750,544	Jan. 26	3998	858	108	928
Draft-equalizer	J. B. Hayden	748,730	Jan. 5	330	74	108	73
Draft-equalizer	C. Schnoor	751,348	Feb. 2	1070	243	108	1285
Draft-equalizer	C. A. Dahlen	751,470	Feb. 9	1269	290	108	1345
Draft-equalizer	F. R. Goode	752,885	Feb. 23	3998	874	108	1957
Draft-equalizer	J. Farmer	752,966	Feb. 23	4187	933	108	2023
Draft-evener	F. Rosenow	749,100	Jan. 5	1106	234	108	254
Draft-gear. Friction	G. P. Ritter	751,943	Feb. 9	2169	489 490	108	1540
Draft-lightener	B. H. Kellogg	750,462	Jan. 26	3790	824	108	808
Draft-regulator. Automatic	G. O. Lindgren	750,669	Jan. 26	4176	906	108	972
Draft-rigging	H. C. Williamson and H. Pries	749,347	Jan. 12	1631	347	108	392
Draft-rigging	F. L. Englehardt	751,155	Feb. 2	681	156	108	1204
Draft-rigging	R. D. Gallagher, Jr.	752,337	Feb. 16	2928	653	108	1729
Drafting appliance. Garment-	J. Robberts	748,792	Jan. 5	435	99	108	97
Draw-gear and buffing apparatus	J. H. McCormick	751,673	Feb. 9	1638	372	108	1425
Draw-head support	H. E. Welsh	749,245	Jan. 12	1411	302	108	343
Drawer-pull	D. W. Tower	749,410	Jan. 12	1761	372	108	419
Drawers	J. Gugenheim, G. A. Capiton, L. D. Herrick, and H. Jacobs.	750,187	Jan. 19	3277	706 707	108	760
Drawers-supporter	H. W. Post	751,338	Feb. 2	1062	239	108	1281
Drawing instrument	F. H. Wheelan	750,923	Feb. 2	272	64	108	1118
Drawing-tool. Combination	P. Neukirchen	752,699	Feb. 23	3641	811	108	1902
Dredge	R. R. Osgood	751,937	Feb. 9	2157	487 488	108	1537
Dredge	O. K. Hogan	752,903	Feb. 23	4030	902	108	1988
Dredge. Floating pulsometer-	E. A. Newman	752,247	Feb. 16	2739	607 608	108	1668
Dredging-machine	W. H. Smyth and A. B. Bowers	748,804	Jan. 5	465	104 105	108	104
Drier: *See* Clothes-drier. Sand-drier. Fruit-drier. Veneer-drier. Grain-drier. Vibratory drier.							
Drier	C. F. Geiger	750,051	Jan. 19	3032	649 650	108	708
Dry-kiln	E. F. Rouse	750,806	Jan. 26	3501	758	108	828
Drying apparatus for wool, &c.	J. Keith and W. W. Wardle	753,200	Feb. 23	4613	1027 1028	108	2120
Drying-machine	F. Wertenbruch	749,828	Jan. 19	3607	557	108	618
Drying moist material. Apparatus for	E. N. Trump	748,893	Jan. 5	642	144	108	143
Drill: *See* Grain-drill. Rock-drill. Mining-drill. Well-drill. Portable drill.							
Drill	W. N. Shotwell and J. Dreistadt	749,585	Jan. 12	2123	442	108	498
Drill-bit. Rock-cutting	L. Durkee	749,369	Jan. 12	1682	358	108	408
Drill-joint	F. Ash	751,241	Feb. 2	876	200	108	1233
Drill-rod clamp	T. E. Morris	749,318	Jan. 12	1575	333	108	378
Drilled holes. Tool for cleaning	F. W. Brady	751,253	Feb. 2	904	206	108	1249
Drilling and boring machines. Bed-fastening for horizontal spindle	G. H. Smith	752,714	Feb. 23	3671	817	108	1909
Drilling apparatus. Portable electrically-driven	G. F. Campbell and S. T. Isherwood	749,841	Jan. 19	2632	563	108	622
Drilling-machine	T. C. Hansen	749,821	Jan. 19	2590	552 553	108	614
Drilling-machine	H. Balluet	750,423	Jan. 26	3717	806 807	108	878
Drilling-machine	C. Erickson	751,062	Feb. 2	515	120	108	1172
Drilling-tool	B. M. W. Hanson	750,537	Jan. 26	3968	856	108	996
Driving mechanism	C. C. and E. A. Riotte	749,704	Jan. 19	2344	495	108	543
Driving mechanism	J. F. Kay	752,905	Feb. 23	4083	903	108	1969
Drum and cymbal beater. Combined	H. K. Harrison and A. L. Brown	751,505	Feb. 9	1330	308	108	1360

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Dumping apparatus	C. G. Foote	749,189	Jan. 5	1190	254 255	108	276
Dumping-elevator	F. B. Van Cleave	751,225	Feb. 2	836	191	108	1232
Duplicate engine	J. W. Neil	748,975	Jan. 5	834	176	108	194
Duplicating-machine	A. D. Klaber	750,863	Feb. 2	153	35, 36	108	1091
Dust-collector	A. C. Brantingham	750,342	Jan. 26	3577	775	108	847
Dust-guard	H. C. Lafferty	751,306	Feb. 2	1002	227	108	1270
Dust-guard	F. B. Harrison	752,164	Feb. 16	2583	574	108	1650
Dust-pan	W. H. Hills	753,137	Feb. 23	4496	1001	108	2092
Dust-spraying machine	J. R. Haldeman	750,968	Feb. 2	352	84	108	1136
Dye and making same. Anthraquinone	O. Bally	749,913	Jan. 19	2763	------	108	651
Dye and making same. Dark-blue wool-	M. Hoffmann	749,195	Jan. 12	1317	------	108	324
Dye. Green	A. Lüttringhaus	750,113	Jan. 19	3146	------	108	732
Dye. Red azo	P. Julius	752,562	Feb. 16	3332	------	108	1822
Dyeing, &c. Apparatus for	F. Cleff	750,601	Jan. 26	4065	880	108	949
Dyeing apparatus. Game-ball-	A. L. Burt	751,145	Feb. 2	664	153	108	1201
Dyeing machine. Yarn-	R. Elliott	751,154	Feb. 2	679	156	108	1204
Dyestuff	G. Rowland	752,804	Feb. 23	3839	859	108	1944
Dyestuff. Sensitizing	R. Berendes	752,323	Feb. 16	2903	------	108	1723
Dynamo-brush	M. Bünnig	752,820	Feb. 23	3869	868	108	1952
Dynamo or motor with alternating field. Electric	R. Ziegenberg	748,907	Jan. 5	672	149	108	151
Dynamo pole-changer	I. Deutsch	751,474	Feb. 9	1275	291	108	1347
Ear	C. E. Carll	748,581	Jan. 5	46	13	108	13
Ear-drum protector	J. A. R. Elliott	750,625	Jan. 26	4101	898	108	956
Eaves-protector	G. M. Bohnert	749,419	Jan. 12	1782	376	108	422
Economizers, &c. Casing for	F. E. Caldwell	752,281	Feb. 16	2820	625 626	108	1705
Egg-beater	G. J. Angerbower	751,601	Feb. 9	1511	344	108	1399
Egg-boiler	J. Anderson	750,072	Jan. 19	3077	661	108	717
Egg-tester	P. B. Southworth	752,806	Feb. 23	3832	860	108	1944
Elastic band or strap	J. D. O'Brien	750,780	Jan. 26	4442	958	108	1088
Elastic cord. Covered	R. B. Price	752,414	Feb. 16	3063	684	108	1761
Electric apparatus. Gas or vapor	M. von Recklinghausen	750,801	Feb. 2	214	48	108	1105
Electric apparatus. Gas or vapor	M. von Recklinghausen	750,802	Feb. 2	215	48	108	1105
Electric arcs for heating and lighting. Apparatus for producing	J. I. Ayer	748,574	Jan. 5	15	4	108	6
Electric arcs. Means for extinguishing	E. Thomson	751,028	Feb. 2	454	107	108	1158
Electric battery	W. S. Bryan	750,250	Jan. 26	3396	735	108	805
Electric blanket	C. Foglesong	750,179	Jan. 19	3266	704	108	757
Electric blanket	F. K. Singer	751,353	Feb. 2	1060	244	108	1287
Electric boosters. Means for controlling	E. M. Hewlett	750,972	Feb. 2	358	87	108	1137
Electric boosters. Protective means for	M. W. Day	752,528	Feb. 16	3282	732	108	1805
Electric brake	G. C. Anthon	750,421	Jan. 26	3708	804 805	108	876
Electric brake	G. C. Anthon	750,422	Jan. 26	3712	805 806	108	877
Electric brake	P. P. Crafts	750,434	Jan. 26	3741	806 812 813	108	883
Electric-circuit closer and breaker	T. H. McQuown	748,638	Jan. 5	165	40	108	37
Electric controller	F. E. Case	750,947	Feb. 2	317	75	108	1127
Electric-cord adjuster	J. E. Masterson	752,096	Feb. 23	3638	810	108	1901
Electric coupling	G. A. Le Fevre	748,961	Jan. 5	786	170	108	179
Electric cut-out	W. H. Verner	751,227	Feb. 2	840	192	108	1236
Electric furnace	L. W. Stevens and B. Timmerman	749,460	Jan. 12	1886	302 303	108	443
Electric furnace	L. W. Stevens and B. Timmerman	749,461	Jan. 12	1890	303	108	444
Electric furnace	A. H. Cowles	750,171	Jan. 19	3253	701 702	108	755
Electric furnace	R. C. Contardo	750,758	Jan. 26	4377	945 946	108	1020
Electric generator	H. Liebreich	752,236	Feb. 16	2721	602 603	108	1684
Electric heater	G. J. Peacock	749,698	Jan. 12	2167	460	108	510
Electric-light bulbs. Tool for removing or replacing incandescent-	A. T. Speelman	750,406	Jan. 26	3691	801	108	872
Electric-light fixture	J. J. Miller	751,321	Feb. 2	1026	233	108	1276
Electric-light-producing device	H. Viertel	750,414	Jan. 26	3698	802	108	874
Electric machine. Dynamo-	D. B. Rushmore	751,563	Feb. 9	1442	328	108	1385
Electric machine. Dynamo-	H. Holzwarth	752,168	Feb. 16	2588	576	108	1651
Electric meter	T. Duncan	752,048	Feb. 16	2975	531	108	1803
Electric meter	T. Duncan	753,191	Feb. 23	4598	1024	108	2115
Electric meter	T. Duncan	753,192	Feb. 23	4597	1024 1025	108	2116
Electric meter	T. Duncan	753,193	Feb. 23	4600	1025	108	2118
Electric meter	T. Duncan	753,194	Feb. 23	4603	1025	108	2118
Electric motor	T. W. Heermans	750,765	Jan. 26	4410	951	108	1027
Electric motor	H. P. Maxim	751,191	Feb. 2	760	173 174	108	1219
Electric motor	C. Fleischmann	752,391	Feb. 16	3032	675	108	1751
Electric-motor control	S. T. Dodd	749,271	Jan. 12	1477	316	108	356
Electric-motor starter. Automatic	W. C. O'Brien	752,097	Feb. 16	2460	550	108	1623
Electric-motor switches. Automatic brake for controlling	F. A. Muschenheim and W. F. Hendry.	748,635	Jan. 5	161	39	108	36
Electric motors. System for the operation of	A. C. Eastwood	751,908	Feb. 9	2087	471 472	108	1524
Electric plant for charging storage batteries	J. B. Meriam and M. B. Crist	750,876	Feb. 2	186	43	108	1098
Electric-resistance furnace	A. H. Cowles	750,093	Jan. 19	3115	669 670	108	724
Electric selective system	J. A. Géhrung	752,150	Feb. 16	2562	570	108	1645
Electric signal	B. H. Scott	749,105	Jan. 5	1112	236	108	256
Electric signal	H. E. Bradley	751,780	Feb. 9	1840	419 420	108	1466
Electric-spark-producing apparatus	C. H. Thordarson	751,574	Feb. 9	1466	332 333	108	1390
Electric switch	G. Monson	750,993	Feb. 2	393	93, 94	108	1144

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric switch	E. A. Lowe	751,084	Feb. 2	554	128, 129	108	1180
Electric switch	W. F. Irish	751,174	Feb. 2	729	167	108	1213
Electric switch	G. Wright and H. C. White	751,597	Feb. 9	1506	342, 343	108	1398
Electric switch	C. C. Badeau	752,192	Feb. 16	2031	584	108	1662
Electric switch	W. K. Dodge	752,531	Feb. 16	2288	733	108	1807
Electric switch. Rotary snap	M. Guett	751,728	Feb. 9	1742	394	108	1445
Electric time-alarm	T. L. Bear	750,560	Jan. 26	4009	807	108	987
Electric vacuum discharge-tube	M. Krouchkoll	751,304	Feb. 2	1000	226, 227	108	1270
Electric-wire-conduit bond	G. A. Lutz	749,891	Jan. 12	1725	365	108	411
Electric-wire-conduit elbow	G. A. Lutz	749,892	Jan. 12	1727	366	108	411
Electric wires. Securing	A. Kline	749,867	Jan. 19	2670	571	108	631
Electrical accumulator	C. P. Elieson and V. de Bobinsky. (Reissue.)	12,195	Jan. 26	4460	960	108	1038
Electrical conductor	W. H. Wherry	750,509	Jan. 26	3883	842, 843	108	913
Electrical controller and brake-operating device	W. W. Tice	751,120	Feb. 2	616	143	108	1191
Electrical controlling apparatus	J. D. Ihlder	749,439	Jan. 12	1821	382, 383	108	430
Electrical cut-out	C. B. McPherson	749,085	Jan. 5	1080	228	108	248
Electrical-distribution system	J. H. Hallberg	750,454	Jan. 26	3774	820	108	899
Electrical-distribution system	N. W. Rogers	751,016	Feb. 2	432	102	108	1152
Electrical-distribution system	J. S. Peck	751,549	Feb. 9	1411	322	108	1378
Electrical energy. Means for converting faint vibrations into	W. H. Fahrney	749,854	Jan. 19	2632	567	108	627
Electrical generation, distribution, and control system.	L. Lyndon and E. A. Sperry	750,471	Jan. 26	3804	826, 827	108	897
Electrical generation, distribution, and control system.	E. A. Sperry	750,497	Jan. 26	3853	837, 838	108	907
Electrical generation, distribution, and control system.	E. A. Sperry	750,500	Jan. 26	3868	840	108	910
Electrical generation, distribution, and control system.	L. Lyndon	750,549	Jan. 26	3975	860	108	929
Electrical generation, distribution, and control system.	L. Lyndon	750,550	Jan. 26	3977	860	108	930
Electrical illuminating device for show-windows	J. H. Goehst	753,134	Feb. 23	4488	999, (1000)	108	2091
Electrical receptacle	P. H. Fielding	752,834	Feb. 23	3807	573	108	1957
Electrical variations. Means for reproducing	P. C. Hewitt	749,791	Jan. 19	2540	540	108	603
Electrical variations. Reproducing	P. C. Hewitt	749,792	Jan. 19	2541	540	108	603
Electrical vibrations. Administering	F. H. Brown	750,584	Jan. 26	4087	872	108	943
Electrode	R. Hager	749,185	Jan. 12	1202	278	108	316
Electrode and producing storage-battery electrodes.	F. A. Feldkamp	749,855	Jan. 19	2633	567	108	627
Electrode for electric tube-lamps	D. M. Moore	749,999	Jan. 19	2933	626	108	688
Electrode. High-tension therapeutic	M. R. Rodrigues	752,419	Feb. 16	3068	686	108	1703
Electrodes for storage batteries. Producing	F. A. Feldkamp	748,940	Jan. 5	749	------	108	170
Electroller. Adjustable	G. Andersen	749,138	Jan. 5	1196	253, 254	108	274
Electromagnet	I. A. and E. W. Timmis	750,132	Jan. 19	3179	684	108	739
Electromagnet	J. C. Keller and O. F. Kadow	752,345	Feb. 16	2042	605	108	1732
Electromagnetic brake	J. S. Lockwood	750,207	Jan. 19	3308	714, 715	108	766
Electrotyping and manufacturing same. Molding-case for use in	W. H. Welsh	752,498	Feb. 16	3218	719	108	1700
Elevator: *See* Bucket elevator. Can-elevator. Dumping-elevator. Fluid-elevator. Fruit-elevator. Grain-elevator. Water-elevator.							
Elevator	N. Hiss	749,198	Jan. 12	1311	281	108	322
Elevator	J. W. Reno	751,999	Feb. 9	2297	514	108	1568
Elevator	J. Rice	752,800	Feb. 23	3823	858	108	1943
Elevator-boots. Device for relieving chokes in	I. Lutz	749,071	Jan. 5	1050	222	108	242
Elevator-brake	G. E. Carnes	750,597	Jan. 26	4068	878	108	947
Elevator-bucket	W. G. Avery	751,138	Feb. 2	653	151	108	1199
Elevator-cam	W. Humphreys	751,173	Feb. 2	728	167	108	1213
Elevator-car-arresting means	P. F. Hallock	751,504	Feb. 9	1328	308	108	1360
Elevator-door	E. McClure	749,306	Jan. 12	1732	367	108	412
Elevator-fender	H. L. Conary	748,702	Jan. 5	288	65	108	63
Elevator-gate-lifting device	J. O. Lee	751,795	Feb. 9	1870	426	108	1473
Elevator-hatchway-door locks. Means for controlling the operation of	A. Magnuson and T. Eskilsson	751,799	Feb. 9	1875	427	108	1475
Elevator safety apparatus	M. Hanford	753,135	Feb. 23	4490	1000	108	2091
Elevator safety-appliance system. Electrically-actuated	H. G. Wright	749,416	Jan. 12	1770	374, 375	108	420
Elevator safety-catch	H. F. McDonald	751,328	Feb. 2	1038	235	108	1279
Elevator safety device	J. Nameche	751,330	Feb. 2	1041	236	108	1279
Embankment-protecting device	C. Mankedick	752,637	Feb. 16	3023	783, 784	108	1859
Embossing-press	C. E. Dellenbarger and W. D. Carter.	752,762	Feb. 23	3751	837	108	1926
Embroidered fabric	A. Burgess	753,089	Feb. 23	4331	963	108	2057
Embroidering-machine	M. Escuder and A. Forest	749,044	Jan. 5	987	209	108	230
Emergency-case	J. B. Morris	752,463	Feb. 16	3165	706	108	1779
Emery-wheel-dressing tool	J. Desmond	750,828	Feb. 2	86	20	108	1076
End-cell switch	J. W. Achard	752,942	Feb. 23	4143	922	108	2013
End-gate	J. M. Groff	748,860	Jan. 5	581	132, 133	108	131
End-gate	J. W. Schirmer	753,167	Feb. 23	4532	1015	108	2105
End-gate, shovel-board, and live-stock chute. Combined	W. B. Hanlon	749,187	Jan. 12	1205	279	108	317
End-gate. Wagon	E. A. Lampitt	750,376	Jan. 26	3632	788	108	869

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engine: *See* Compound engine. Duplicate engine. Gas-engine. Gas and oil engine. Hydraulic engine. Impact-engine. Internal-combustion engine. Internal-combustion or explosive engine. Locomotive-engine. Multiple-expansion engine. Petroleum-engine. Pumping-engine. Rotary engine. Rotary explosive-engine. Rotary steam-engine. Steam-engine. Steam and explosion engine. Traction-engine. Triple-cylinder engine. Turbine-engine. Vapor-engine.							
Engine	G. De Laval and G. P. Aborn	750,377	Jan. 26	3633	788, 789	108	859
Engine	A. Russell	750,705	Jan. 26	4249	922	108	988
Engine	C. Fisher	752,056	Feb. 16	2398	534	108	1608
Engine cooling attachment. Internal-combustion	J. W. Sutton	752,479	Feb. 16	3191	712	108	1785
Engine cooling means. Explosive	H. Nelson	750,885	Feb. 2	204	46	108	1108
Engine exhaust. Explosive	A. A. Low	751,188	Feb. 2	735	173	108	1218
Engine feed-regulator. Gasolene	H. H. and C. B. Segner	748,990	Jan. 5	856	184	108	199
Engine indicator. Steam	C. B. Bosworth	752,197	Feb. 16	2650	588	108	1666
Engine mixer. Gasolene	J. M. Johanson	751,292	Feb. 2	967	220	108	1263
Engine muffler. Hydrocarbon	E. L. Russell	749,883	Jan. 19	2708	577	108	639
Engine oil-gas generator. Explosive	J. L. Lawrence and G. W. Stewart	751,928	Feb. 9	2140	483, 484	108	1535
Engine reverse motion. Steam	F. Meanley	748,629	Jan. 5	148	36	108	33
Engine sparking apparatus. Explosive	L. H. Fey	752,882	Feb. 23	3898	873	108	1957
Engine starting device. Explosive	J. W. Swan	750,318	Jan. 26	3534	763	108	887
Engine starting device. Explosive	G. J. Pelstring	752,412	Feb. 16	3077	682	108	1760
Engine synchronizer. Duplex	E. M. Coryell	749,170	Jan. 12	1257	271	108	308
Engine tender. Traction	P. H. Sampson	750,065	Jan. 19	3062	657, 658	108	714
Engine tender. Traction	W. S. Kelley	752,684	Feb. 23	3615	804, 805	108	1896
Engine vaporizer. Gas	W. W. Grant	750,451	Jan. 26	3767	819	108	888
Engine wheel. Traction	H. F. Krueger	749,068	Jan. 5	1046	220, 221	108	241
Engines. Combined gas controller and igniter for explosive	S. Cunningham	750,349	Jan. 26	3590	777, 778	108	850
Engines. Cooling attachment for internal-combustion	J. W. Sutton	753,013	Feb. 23	4273	952	108	2043
Engines. Electrical igniter for explosive	W. E. Dow	752,384	Feb. 16	3021	673	108	1749
Engines. Exhaust-silencer for internal-combustion	J. B. and J. B. Dunlop, Jr.	752,386	Feb. 16	3025	673	108	1750
Engines. Fuel-feed device for gasolene or vapor	E. Prouty	748,883	Jan. 5	623	140	108	139
Engines. Gas generating and feeding mechanism for gas	C. K. MacFadden	748,763	Jan. 5	390	89	108	87
Engines. Producing sparks in the cylinders of internal-combustion	L. J. Le Pontois	752,690	Feb. 23	3629	806	108	1900
Engines. Raw-liquid-fuel measurer for explosive	A. G. Ronan	752,181	Feb. 16	2608	579	108	1655
Engines. Utilizing exhaust of gas	R. Dempster	751,472	Feb. 9	1271	290	108	1346
Envelop	C. B. Denson	750,350	Jan. 26	3591	778	108	851
Envelop	C. G. Throop	751,423	Feb. 2	1189	270	108	1310
Envelop and stationery device	R. R. Lawson	751,524	Feb. 9	1360	310	108	1367
Envelop-fastener	R. R. Lawson	752,402	Feb. 16	3057	679	108	1756
Envelop-machine stop mechanism	P. J. Wolf	752,499	Feb. 16	3232	721	108	1794
Envelop or card delivering cabinet	T. A. Matthews	748,966	Jan. 5	795	172	108	181
Envelop. Safety	J. F. Young	749,010	Jan. 5	909	192	108	212
Equalizer. Four-horse	P. N. Petersen	751,004	Feb. 2	412	97	108	1149
Ether. Manufacturing	O. Meyer	748,078	Jan. 5	1092	225	108	245
Evaporating apparatus	W. Greiner	749,552	Jan. 12	2071	430	108	485
Evaporating liquids	B. F. B. Sewell	752,599	Feb. 16	3431	765, 766	108	1839
Evaporator	E. R. Goings	750,535	Jan. 26	3954	856	108	925
Evener. Three-horse	S. A. Massey	752,087	Feb. 16	2447	547	108	1620
Excavating, raising, screening, and filling gravel ballast, &c. Machine for	H. Quertier	750,005	Jan. 19	2943	629, 630	108	691
Excavating, raising, screening, and filling gravel ballast, &c. Machine for	H. Quertier	752,709	Feb. 23	3660	815, 816	108	1907
Exercising-ball	J. S. Aydelott	749,147	Jan. 12	1207	258	108	296
Exhibiting mechanism. Animal	W. D. Carson	748,700	Jan. 5	285	65	108	63
Expansion-bolt	C. H. Haggerty	750,586	Jan. 26	3956	856	108	926
Expansion-trap	E. H. Gold	752,219	Feb. 16	2691	596	108	1676
Explosion-motor	F. Baltzinger	752,484	Feb. 16	3117	692, 693	108	1769
Explosive	H. Dreany	750,173	Jan. 19	3261	------	108	756
Explosive	H. Poetter	751,807	Feb. 9	1902	------	108	1482
Explosive and making same	B. D. Pike	751,751	Feb. 9	1790	------	108	1456
Extensible trough or flume	P. Maginnis	749,871	Jan. 19	2678	573	108	636
Extension-table	H. Nonnast and W. Tesar	749,320	Jan. 12	1576	333, 334	108	379
Extension-table	T. C. Thompson	751,221	Feb. 2	826	190	108	1233
Extractor: *See* Staple-extractor,							
Eyeglass-case	C. J. Wilson	750,926	Feb. 2	278	65	108	1119
Eyeglass-mounting	H. Caswell	752,030	Feb. 16	2347	525	108	1598
Eyeglass nose-piece	C. F. Wall	751,290	Feb. 2	845	193	108	1237
Eyeglass or spectacle attachment	F. E. Ruckdeschel	751,418	Feb. 2	1180	268	108	1308
Eyeglass or spectacle case	W. E. Birmingham	750,017	Jan. 19	2975	637	108	697
Eyeglasses	C. H. Pixley	750,392	Jan. 26	3657	795	108	865
Eyeglasses	E. Beckwith	752,280	Feb. 16	2819	625	108	1705
Fabric: *See* Embroidered fabric. Pile fabric. Knitted fabric.							
Fabric-cutting machine	H. Faltermayer	748,853	Jan. 5	566	129	108	127

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fabric-marking machine	M. J. Fisher	748,854	Jan. 5	569	130	108	128
Fan	W. J. Smith	750,904	Feb. 2	238	53	108	1110
Fan	C. A. Eck	751,484	Feb. 9	1292	294 295	108	1351
Fan	C. A. Eck	751,485	Feb. 9	1294	295	108	1352
Fan-actuating mechanism	J. F. Carr	750,165	Jan. 19	3244	699	108	753
Fan attachment	E. P. Veronee	751,963	Feb. 9	2399	498	108	1550
Fan-blade	W. O. Webber	752,275	Feb. 16	2808	622	108	1703
Fan-deflector	N. Morgan	751,325	Feb. 2	1033	234	108	1277
Fan, Electric	A. T. Smith	750,716	Jan. 26	4268	926	108	992
Fan, Oscillating electric	J. Amrom	752,027	Feb. 23	4306	957	108	2052
Fan structure, Ventilating	W. Clifford	752,956	Feb. 23	4171	929	108	2020
Fan, Ventilating	O. Giltner	750,450	Jan. 26	3765	818 819	108	888
Fanning-mill	W. J. Hammill	749,819	Jan. 19	2586	551	108	613
Farm-gate	T. J. Ryan	753,166	Feb. 23	4550	1014	108	2105
Farm-machinery seat	C. Wilson	750,142	Jan. 19	3202	688	108	744
Farrowing-house	G. W. Trone	751,961	Feb. 9	2397	497	108	1549
Faucine	H. F. Kellner	749,386	Jan. 12	1714	363	108	409
Fastener device	W. C. Stange	753,175	Feb. 23	4564	1017	108	2108
Fastening device	H. E. Berkey	752,372	Feb. 16	2991	667	108	1743
Fastening device, Barbed	R. W. Melly	749,077	Jan. 5	1061	225	108	245
Fat-cutter	C. Burnett	748,841	Jan. 5	541	124	108	128
Fats, &c. Apparatus for the recovery of	C. Kremer	751,308	Feb. 2	999	226	108	1270
Faucet and measure, Combined	E. K. Matthews	752,459	Feb. 16	3158	708	108	1778
Faucet, Regulable self-closing	E. L. Walter	749,910	Jan. 19	2735	591	108	650
Feed mechanism, Automatic vacuum and suction	A. D. Coleman	753,123	Feb. 23	4470	994 995 996	108	2087
Feed or litter carrier	L. C. Smith	751,030	Feb. 2	438	108	108	1154
Feed regulator and low-water alarm, Automatic water-	A. M. Masters	750,298	Jan. 26	3477	752	108	824
Feed-trough	J. J. Smith	748,802	Jan. 5	462	104	108	103
Feed-trough	T. L. Carpenter	749,717	Jan. 19	2385	504	108	509
Feed-trough attachment	T. L. Peacock	748,647	Jan. 5	183	44	108	41
Feed-water heater	J. P. Urbanek	752,270	Feb. 16	2797	620	108	1701
Feed-water heater	W. A. McKee	752,994	Feb. 23	4240	944 945	108	2036
Feed-water heaters, Device for controlling the supply of steam to	M. P. Osbourn	752,998	Feb. 23	4246	946	108	2037
Feeder protection, Parallel	L. Wilson	751,566	Feb. 9	1502	341	108	1397
Feeder, Steam-boiler	J. J. Burke	750,085	Jan. 19	3097	666	108	721
Felly-joint holder	W. J. Cranford	750,263	Jan. 26	3425	740	108	812
Fence	J. S. Barnes and C. A. Willmarth	749,714	Jan. 19	2380	503	108	508
Fence	H. Allen	751,600	Feb. 9	1511	343	108	1399
Fence	J. A. Odell	752,854	Feb. 23	3983	882	108	1996
Fence-post	G. W. Todd	748,817	Jan. 5	498	111	108	112
Fence-post	H. Hansberger	748,946	Jan. 5	761	165	108	173
Fence-post	J. K. Harris	749,056	Jan. 5	1021	215	108	235
Fence-post	H. McFeron	749,944	Jan. 19	2832	605	108	667
Fence-post	S. O. Campbell	750,256	Jan. 26	3407	737	108	807
Fence-post	J. B. Engstrom	751,622	Feb. 9	1532	353	108	1407
Fence-post	S. C. Silver	752,930	Feb. 23	4107	914	108	2006
Fence-post	J. N. Erixon	752,964	Feb. 23	4184	932	108	2023
Fence-post and electrical conductor	C. E. Griffin and H. A. Low	749,554	Jan. 12	2072	430	108	485
Fence-post base	R. C., Jr., and W. A. Stewart	749,337	Jan. 12	1614	341	108	389
Fence structure	S. L. Bailey	749,015	Jan. 5	919	194	108	214
Fence-weaving machine, Wire	J. J. Foss	750,889	Feb. 2	117	26, 27	108	1088
Fence, Wire	S. S. Withington	749,137	Jan. 5	1185	253	108	274
Fence-wire stretcher	A. J. Chandler	750,750	Jan. 26	4309	944	108	1017
Fence-wire stretcher	L. A. Butts	751,608	Feb. 9	1521	346	108	1401
Fender: *See* Car-fender. Elevator-fender.							
Fender	G. Parisien and J. H. Gingras	749,878	Jan. 19	2694	576	108	637
Fermenting and storing vessels, Coating internal walls of metal	V. Lapp	750,986	Feb. 2	379	.....	108	1141
Fertilizer and grain distributer	R. Y. Kessler	750,463	Jan. 26	3792	824	108	894
Fertilizer-distributer	O. W. and L. E. Siebenhaar	749,334	Jan. 12	1605	340	108	386
Fertilizer-distributer	E. C. and H. L. Litchfield	749,695	Jan. 12	2326	491	108	539
Fertilizer-distributer	J. Campbell	750,164	Jan. 19	3243	699	108	753
Fertilizer-distributer	R. Love	750,981	Jan. 26	3640	790 791	108	861
Fertilizer-distributer and cotton-planter	I. C. Clyburn	748,843	Jan. 5	543	124	108	128
Fertilizer-distributer and seed-drill	J. P. Stevens	750,726	Jan. 26	4321	934	108	1004
Fertilizer-mixing apparatus	W. M. Hale	751,393	Feb. 2	1143	260	108	1300
Fertilizer-spreader	C. H. Weber	752,135	Feb. 16	2535	565	108	1640
Fiber-cleaning machine	M. Prieto	752,258	Feb. 16	2774	615 616	108	1695
Fibrous material, Machine for compressing and reeling	M. L. Luebben	750,672	Jan. 26	4184	907 908 909	108	974
Fifth-wheel	I. Teeter and B. E. Sly	751,609	Feb. 9	1686	383	108	1435
Fifth-wheel	J. Sommer	751,877	Feb. 9	2037	461	108	1512
File, Combination credit	W. D. Mitchell	748,631	Jan. 5	152	37	108	84
File, Paper	C. C. Boykin	749,021	Jan. 5	983	197	108	217
Filing case, Paper	G. Miller	751,987	Feb. 9	2282	510	108	1564
Filling-machine	J. E. Prescott	751,555	Feb. 9	1423	323 324	108	1380
Film-bath	H. S. Applegate	749,513	Jan. 12	1996	415	108	467
Filter	R. J. Goade	748,857	Jan. 5	573	131	108	129
Filter	W. Noles	749,576	Jan. 12	2102	438	108	492
Filter	O. Löffler	752,693	Feb. 23	3634	809	108	1900
Filter	H. G. Sweeney	752,873	Feb. 23	3968	880	108	1974
Filter-bed-cleaning apparatus, Sand	H. W. Blaisdell	752,196	Feb. 16	2641	566 567	108	1664
Filter-cleaner	C. D. Deshler	751,061	Feb. 2	514	120	108	1172

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Filter-press	E. B. Hack	749,140	Jan. 5	1194	255 256	108	277
Filter-tablet	W. G. Tousey	750,235	Jan. 19	3374	728	108	782
Filtering-machine	J. W. Osborne	751,805	Feb. 9	1900	430 431	108	1481
Finger-nail clipper	H. C. Hart	748,864	Jan. 5	589	134	108	133
Fire-alarm, Automatic and manual	W. L. Denio	749,175	Jan. 12	1266	273	108	310
Fire-alarm circuits, Automatic non-interfering repeater for	W. H. Kirnan	749,387	Jan. 12	1715	363 364	108	409
Fire-alarm, Electric	J. A. Barten and S. R. Sneeringer	750,150	Jan. 19	3214	691	108	747
Fire-alarm mechanism	L. G. Woolley	750,012	Jan. 19	2956	632 633 634	108	694
Fire-alarm system	L. G. Woolley	750,013	Jan. 19	2963	634 635	108	695
Fire-door-closing device	H. L. Cochran	752,825	Feb. 23	3879	870	108	1954
Fire-door, Self-closing	G. Wideman	751,593	Feb. 9	1499	341	108	1396
Fire-door support	H. C. Smith	752,188	Feb. 16	2625	582	108	1660
Fire-escape	J. Spiro	749,406	Jan. 12	1753	371	108	417
Fire-escape	M. Hirsch	749,558	Jan. 12	2076	432	108	486
Fire-escape	V. Jetley	749,736	Jan. 19	2432	517	108	579
Fire-escape	B. Brielmaier	750,240	Jan. 19	3381	729	108	788
Fire-escape	C. J. Haggstrom	750,640	Jan. 26	4121	894	108	961
Fire-escape	M. C. Van Gent	751,361	Feb. 2	1090	247	108	1290
Fire-escape	C. A. Ives	751,649	Feb. 9	1600	363	108	1417
Fire-escape	J. C. Other	751,870	Feb. 9	2024	458	108	1508
Fire-escape	A. S. Bacon	752,279	Feb. 16	2817	625	108	1705
Fire-escapes, Counterbalancing stair or ladder for	P. L. Larson	752,062	Feb. 16	2438	545	108	1618
Fire-extinguisher	G. C. Hale	749,588	Jan. 12	2311	488	108	536
Fire-extinguisher	F. Yost	751,238	Feb. 2	864	198	108	1241
Fire-extinguisher	H. C. Shaw	753,007	Feb. 23	4260	949	108	2040
Fire-extinguisher, Chemical	A. C. Badger	750,566	Jan. 26	4004	865	108	985
Fire-extinguisher, Chemical	W. C. Hickox	752,072	Feb. 16	2423	541 542	108	1615
Fire-extinguisher, Chemical	A. J. Knight	752,399	Feb. 16	3050	678	108	1755
Fire-extinguishers, Sprinkler-head for automatic	G. E. Hibbard	750,767	Jan. 26	4416	952	108	1028
Fire-extinguishers, Sprinkler-head for automatic	G. E. Hibbard	750,768	Jan. 26	4419	952	108	1029
Fire-extinguishers, Valve for automatic	W. A. Goldthwait	752,969	Feb. 23	4196	935	108	2026
Fire-extinguishing device	J. H. Walrath	750,416	Jan. 26	3701	808	108	874
Fire-extinguishing device	C. Brown	752,827	Feb. 16	2909	649 650	108	1724
Fire-mask	W. J. Moran	751,091	Feb. 2	566	131	108	1188
Fire-pot	G. G. Kniffin	749,293	Jan. 12	1333	286	108	327
Fire-starting device	J. A. George and F. C. Dohrmann	752,338	Feb. 16	2930	653	108	1729
Fires, Extinguishing	E. Gates	749,874	Jan. 12	1691	359	108	404
Firearm	C. J. Hamilton	748,723	Jan. 5	317	71, 72	108	70
Firearm, Breech-loading and discharge-actuated	S. N. McClean	749,214	Jan. 12	1359	292	108	334
Firearm-carrying case	E. M. Crenshaw	750,817	Feb. 2	58	13	108	1070
Firearm, Revolving	A. L. Mollett	749,212	Jan. 12	1356	291	108	333
Firearm, Revolving	W. J. Whiting	750,743	Jan. 26	4357	941 942	108	1014
Firearm single trigger	E. D. Fulford	751,979	Feb. 9	2266	507 508	108	1561
Firearm single-trigger mechanism	E. D. Fulford	749,687	Jan. 12	2309	487	108	535
Fireman's helmet	C. T. Thompson	752,266	Feb. 16	2790	618 619	108	1699
Fireproof bricks or material, Manufacture of	F. Krüger	751,080	Feb. 2	548	.....	108	1179
Fireproof building construction	C. F. Buente	749,812	Jan. 19	2574	547 548	108	610
Fireproof door	N. Poulson	753,210	Feb. 23	4641	1082	108	2125
Fireproof floor construction	J. Schall	750,066	Jan. 19	3064	658	108	715
Fireproof structure	N. Poulson	753,208	Feb. 23	4639	1082	108	2125
Fireproof structure	N. Poulson	753,209	Feb. 23	4640	1082	108	2125
Fish-basket covers, Device for automatically closing the orifices in	W. A. Sinclair	752,600	Feb. 16	3433	766	108	1839
Fish-catcher	H. C. Reichardt	748,884	Jan. 5	625	140	108	140
Fish-dressing implement, Hand	F. M. Stearns	752,118	Feb. 16	2505	557	108	1633
Fish-dressing machines, Centrifugal washer for	A. J. Farmer	751,388	Feb. 2	1135	258	108	1299
Fish-hook	F. C. Woods	751,365	Feb. 2	1100	248	108	1291
Fish-line reel	E. A. and W. H. Leaver	752,786	Feb. 23	3798	848	108	1935
Fish-nets, Means for facilitating casting and drawing	L. Einarson	748,710	Jan. 5	298	67	108	66
Fish-trap	D. B. Roberts	748,654	Jan. 5	196	47	108	44
Fishing-float	C. Hymers	751,734	Feb. 9	1758	399	108	1450
Fishing-reel	R. L. Hunter	750,054	Jan. 19	3045	653	108	711
Fishing-tackle	O. Miller and P. Kunzinger	752,091	Feb. 16	2454	548	108	1622
Flask: *See* Molder's flask.							
Flask for volatile or other liquids	H. Goetz	750,637	Jan. 26	4117	868	108	950
Fleshing and shaving machine	E. Schroeder	751,349	Feb. 2	1072	243	108	1295
Flood gate and fence	L. W. and E. Phegley	750,004	Jan. 19	2940	628	108	690
Flood-gate for fences crossing streams	C. Spivey	751,023	Feb. 2	444	105	108	1155
Floor-drain and backwater-trap, Combined	F. C. Edelen	748,986	Jan. 5	744	162	108	169
Floor-plates, Means for producing metallic	M. G. Worth	750,042	Jan. 19	3014	645	108	705
Floor scraping and finishing tool	J. S. Hartman	749,861	Jan. 19	2662	569	108	629
Floor, sidewalk, roof, or like support	P. H. Jackson	749,440	Jan. 12	1840	383	108	433
Floors, paneling, &c., Fastening means for parquet	W. S. Kelsey	748,746	Jan. 5	859	80	108	80
Flooring ends, Machine for trimming and matching	E. J. Fulghum	749,550	Jan. 12	2067	429	108	484
Flooring of blocks of wood, Machine for making mosaic	J. Wehinger	752,988	Feb. 23	4129	919 920	108	2010
Flooring or wall-covering material	J. J. C. and M. Smith	752,116	Feb. 16	2499	556	108	1632
Flower-pot	P. H. A. Balsley	752,870	Feb. 16	2989	666	108	1743
Flue-cleaner	T. J. Baker and E. Alexander	751,446	Feb. 9	1228	280	108	1387
Flue-collar, Adjustable	I. B. Fleegle	751,065	Feb. 2	521	121	108	1174
Flue-dust, Reclaiming	G. R. Johnson	751,399	Feb. 2	1154	263	108	1308

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Flue-expander	J. W. Faessler	750,176	Jan. 19	3202	703	108	756
Flue-expander	J. W. Faessler	750,177	Jan. 19	3203	704	108	757
Flue or tube cutter	J. Ulrich	752,728	Feb. 23	3696	824	108	1914
Flue-scraper	J. Zilliox	751,708	Feb. 9	1701	387	108	1438
Flue-ventilator	H. Raymond	751,341	Feb. 2	1065	240	108	1282
Fluid-circulating apparatus	H. Stier	749,896	Jan. 19	2710	579	108	641
Fluid elevator or pump. Pneumatic	A. Montenegro y Van-Halen	750,326	Jan. 26	3552	767, 768, 769	108	842
Fluid-meter	A. S. Tuttle	749,645	Jan. 12	2228	470	108	518
Fluid-motor	J. F. Bentz	750,337	Jan. 26	3570	773	108	846
Fluid-motor	J. A. Marek	752,240	Feb. 16	2730	605	108	1686
Fluid motor. Expansive	J. A. Norton	750,217	Jan. 19	3327	719, 720	108	770
Fluid-motor. Rotary	G. Westinghouse, Jr	751,587	Feb. 9	1486	337, 338	108	1394
Fluid-pressure brake	E. M. Herr	752,071	Feb. 16	2419	540, 541	108	1614
Fluid-pressure jack	N. A. Christensen	752,201	Feb. 16	2657	589	108	1668
Fluid-pressure motor	J. P. Lajoie	752,232	Feb. 16	2716	601	108	1683
Fluid-pressure-regulating device	P. Synnestvedt	749,974	Jan. 19	2680	616	108	676
Fluid-pressure-regulating device	P. Synnestvedt	749,975	Jan. 19	2682	616	108	677
Flush-tank apparatus	J. H. Seager and J. J. Kelly	750,228	Jan. 19	3360	725	108	778
Flushing-tank. Automatic	J. E. Ericson	750,955	Feb. 2	332	79	108	1131
Flux	W. H. Wherry	750,512	Jan. 26	3890		108	915
Fly-catcher	J. Zierl	751,970	Feb. 9	2220	500	108	1552
Fodder-fork	W. Giles	748,601	Jan. 5	84	22	108	20
Fodder preparatory to compressing same. Apparatus for treating	M. K. Westcott	751,887	Feb. 9	2054	465	108	1515
Folding box	A. J. Bacon	752,880	Feb. 23	3084	892	108	1978
Folding box or crate	C. H. Russell	751,944	Feb. 9	2171	490	108	1541
Folding chair	T. W. Washburn	749,764	Jan. 19	2486	529	108	591
Folding or collapsible box of cardboard, &c	A. R. Buckton	749,125	Jan. 5	1153	244	108	206
Folding table	H. Johnson	748,956	Jan. 5	776	168	108	176
Folding table	W. J. Marrett	749,571	Jan. 12	2095	435, 436	108	491
Food-cutter	C. J. Shirreff	748,663	Jan. 5	212	51	108	46
Food. Making cereal malted	J. D. Bourdeau	749,420	Jan. 12	1788		108	422
Food products. Plant for curing	C. B. Trescott	750,133	Jan. 19	3181	681	108	739
Food products. Preparing rice	J. W. Johnson and L. Lock	749,564	Jan. 12	2086		108	489
Foot-warmer	J. D. Carney	752,516	Feb. 16	3263	727	108	1801
Foot warmer or heater	O. O. Petty	750,060	Jan. 19	3055	655	108	713
Forceps. Obstetrical	H. E. Koch	751,656	Feb. 9	1613	366	108	1419
Forging press and die	F. E. Canda	751,430	Feb. 2	1200	278	108	1312
Forging-suspender	E. F. Galloway, Jr	752,218	Feb. 16	2690	595	108	1676
Fork: *See* Fodder-fork. Kitchen-fork.							
Form for making holes or conduits in concrete or other structures.	E. Nickerson	752,249	Feb. 16	2751	610	108	1691
Form for stacking coats	T. H. Cannon	751,376	Feb. 2	1114	252	108	1295
Form. Garment	J. Walker	751,764	Feb. 9	1813	413, 414	108	1460
Form-pad	K. L. Stenhouse	751,215	Feb. 2	817	188	108	1231
Fowl-carrier	G. F. Bush	750,292	Jan. 26	3400	785	108	805
Frame: *See* Picture-frame. Supporting-frame.							
Framing or other purposes. Stock for	J. H. Killion	751,518	Feb. 9	1351	308	108	1365
Freezing and bricking apparatus	A. L. Tenney	751,360	Feb. 2	1088	246	108	1289
Fruit-bleacher	J. W. Kimmons	753,143	Feb. 23	4507	1005	108	2095
Fruit-cleaning apparatus. Dried	G. Herbert, Jr	749,981	Jan. 19	2810	600	108	662
Fruit-drier	H. E. Smith	749,404	Jan. 12	1750	370	108	417
Fruit-elevator	C. D. Nelson	751,676	Feb. 9	1642	373	108	1426
Fruit-feeder	L. H. Fay	750,628	Jan. 26	4104	889	108	957
Fruit or vegetable cutter	S. D. Smithwick	751,695	Feb. 9	1681	381	108	1434
Fruit-picker	P. Pinch	750,061	Jan. 19	3056	656	108	713
Fruit-pitter	S. H. Shelley	752,929	Feb. 23	4100	914	108	2006
Fruit pitting and stuffing machine	L. Middlekauff and C. A. Schirm	749,697	Jan. 12	2328	491, 492	108	540
Fuel. Artificial	G. T. Howard	751,172	Feb. 2	727		108	1213
Fuel block and producing same. Artificial	M. W. Cottle	751,468	Feb. 9	1207		108	1345
Fuel-economizing apparatus	G. H. Burpee	750,500	Jan. 26	4050	876	108	945
Fuel-feeding device	G. W. Limbert	749,206	Jan. 12	1838	387	108	628
Fuel-feeding system. Liquid	D. E. Johnson	749,994	Jan. 19	2924	625	108	687
Fuel tank. Liquid	F. T. Cable and L. Y. Spear	751,609	Feb. 9	1523	347	108	1401
Fumigator	W. B. Cunningham	752,657	Feb. 23	3502	793	108	1884
Fur-beater	S. P. Shriber	750,714	Jan. 26	4265	926	108	997
Furnace: *See* Boiler-furnace. Hot-water furnace. Brick-kiln furnace. Melting-furnace. Convertible furnace. Metallurgical furnace. Electric furnace. Roasting-furnace. Electric-resistance furnace. Smelting-furnace. Gas or solid fuel furnace. Smoke-consuming furnace. Hot-air furnace. Steam-generator furnace. Hot-air and hot-water furnace. Vapor-burning furnace. Warm-air furnace.							
Furnace	C. J. Andrus	748,833	Jan. 5	595	120, 121	108	120
Furnace	L. W. Stevens and B. Timmerman	749,462	Jan. 12	1808	394	108	445
Furnace	T. Murphy	750,214	Jan. 19	3324	718	108	770
Furnace	G. Garrett	750,635	Jan. 26	4115	891, 892	108	959
Furnace	R. S. Franz	750,759	Jan. 26	4304	948	108	1023

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Furnace	P. A. MacKay and W. E. Moore	750,868	Feb. 2	162	38	108	1023
Furnace	W. R. Hampden	752,068	Feb. 16	2411	538	108	1612
Furnace	W. H. Gregg	752,770	Feb. 23	3763	840	108	1929
Furnace air-blast devices. Means for securing	F. Fiebeger	751,389	Feb. 2	1136	258	108	1299
Furnace discharging device	C. I. Dailey	751,720	Feb. 9	1728	392	108	1443
Furnace for melting steel, &c. Movable swinging-body	L. Rousseau	749,403	Jan. 12	1747	370	108	416
Furnace-grate	H. A. Poppenhusen	753,108	Feb. 23	4443	988, 989	108	2061
Furnaces. Apparatus for heating air for supplying blast	G. Teichgraeber	749,502	Jan. 12	1972	409, 410	108	462
Furnaces. Automatic draft-regulator and smoke-preventer for	A. H. Thayer	752,011	Feb. 9	2317	517, 518	108	1572
Furnaces. Fire-box for steam-boiler or other	J. M. Stratton	752,128	Feb. 16	2513	559	108	1635
Furnaces. Mechanical rabble for ore roasting or calcining	A. E. Johnson	750,194	Jan. 19	3286	710	108	762
Furniture	M. E. Stockwell	749,709	Jan. 12	2358	498	108	546
Furniture. Folding	G. H. Buck	749,915	Jan. 19	2775	593	108	655
Furniture-leg	D. Schustek and H. L. Andrews	750,900	Feb. 2	232	52	108	1109
Furniture. Metallic	E. Ohnstrand	751,097	Feb. 2	579	134	108	1184
Furniture. Metallic	E. Ohnstrand	751,099	Feb. 2	582	135	108	1185
Furniture. Metallic	E. Ohnstrand	751,435	Feb. 2	1207	276	108	1314
Furniture. Self-leveling	G. W. and R. W. Bostwick	750,577	Jan. 26	4021	869, 870	108	989
Furniture. Self-leveling	G. W. and R. W. Bostwick	750,578	Jan. 26	4023	870	108	940
Furniture-support. Self-leveling	E. E. Seacrist	751,689	Feb. 9	1669	378	108	1432
Furniture-tip	L. C. Matlack	748,965	Jan. 5	794	172	108	181
Furniture. Wire	J. Salomon	751,419	Feb. 2	1181	269	108	1308
Furring. Wall	C. E. Dobbin	752,530	Feb. 16	3286	732	108	1806
Fuse-box	R. H. Read	751,012	Feb. 2	425	101	108	1151
Fuse. Electric-circuit	T. Nagel	748,639	Jan. 5	166	40	108	37
Fuse. Electric-circuit	E. C. Phillips	750,244	Jan. 19	3387	731	108	785
Fuse for exploding shells. Percussion	K. Wieser	750,785	Jan. 26	4451	959	108	1086
Fuse. Projectile	H. Dahlke	749,584	Jan. 12	2029	422	108	474
Fusee	E. Kern	751,400	Feb. 2	1155	263	108	1308
Gabion	C. Kerr	752,781	Feb. 23	3783	845	108	1933
Gage: *See* Automatic gage. Door-gage. Hinge-gage. Marking-gage. Raker-gage. Saw-swage gage. Saw-table gage. Tire-gage. Washing-machine bluing-gage. Water-gage.							
Gage	R. A. Lachmann	750,304	Jan. 19	3301	713, 714	108	765
Gage	J. W. Melvin	751,866	Feb. 9	2018	457	108	1507
Gage	J. J. Butterworth	753,120	Feb. 23	4465	998	108	2086
Gage and marker for dressmakers or others	M. M. Reis	750,221	Jan. 19	3338	721	108	773
Galley-stand	J. C. Kling	750,464	Jan. 26	3794	824	108	894
Game apparatus	J. J. Wyly	748,680	Jan. 5	239	55	108	52
Game apparatus	H. Ramme	748,788	Jan. 5	429	96	108	96
Game apparatus	J. S. Mather	749,872	Jan. 19	2680	573, 574	108	634
Game apparatus	T. E. Goff	751,070	Feb. 2	526	122	108	1175
Game apparatus	W. H. and A. E. Dennis	751,473	Feb. 9	1273	291	108	1346
Game apparatus. Coin-controlled	C. Molitor	749,698	Jan. 12	2331	492, 493	108	540
Game apparatus. Educational	E. L. Steele	750,906	Feb. 2	240	53, 54	108	1111
Game-board	L. J. Magie	748,626	Jan. 5	144	34, 35	108	32
Game-board	W. E. Butler	750,346	Jan. 26	3584	776	108	849
Game board or table	J. F. Matthews	751,189	Feb. 2	756	173	108	1219
Game device	W. Lotz	750,968	Feb. 2	383	92	108	1142
Game. Race	A. W. M. Keen	750,545	Jan. 26	3970	858, 859	108	929
Garbage-crematory	L. F. Decarie	749,269	Jan. 12	1469	314, 315	108	355
Garden implement	J. B. Bomberger	749,157	Jan. 12	1231	264	108	302
Garment-fastener	J. C. Christensen	749,026	Jan. 5	943	199	108	219
Garment-fastener	N. W. Perkins, Jr	749,321	Jan. 12	1581	334	108	380
Garment-fastener	W. S. Richardson	751,559	Feb. 9	1484	325	108	1388
Garment-fastening	C. M. Shubert	750,008	Jan. 19	2949	631	108	692
Garment-fastening device	J. V. Washburne and G. J. Richard	749,648	Jan. 12	2282	471	108	519
Garment-hanger	E. Shoeneman	749,455	Jan. 12	1869	388	108	439
Garment-hanger	M. M. Stone	752,122	Feb. 16	2513	559	108	1635
Garment-hook	E. V. Lake	752,457	Feb. 16	3155	703	108	1777
Garment-supporter	R. A. Perlie	751,994	Feb. 9	2208	513	108	1566
Garment-supporter clasp	C. Andresen	749,145	Jan. 12	1205	258	108	295
Garment-supporting hook-pin	E. C. Herring	750,082	Jan. 19	2999	643	108	702
Garment-supporting means	C. W. Mesick	752,789	Feb. 23	3797	849	108	1936
Garment-suspender. Combination	W. B. Tyler	750,325	Jan. 26	3550	767	108	842
Gas and oil engine	B. Musgrave	750,478	Jan. 26	3819	829, 830	108	900
Gas apparatus	F. W. Beardsley	750,016	Jan. 19	2971	636	108	696
Gas. Apparatus for the manufacture of	R. Dempster	748,933	Jan. 5	735	160	108	167
Gas. Apparatus for the manufacture of	L. P. Lowe	751,085	Feb. 2	556	129	108	1181
Gas-burner	A. E. Howard	748,607	Jan. 5	94	24, 25	108	22
Gas-burner	F. H. Allen	749,251	Jan. 12	1421	305	108	346
Gas-burner	H. W. Webb	751,766	Feb. 9	1817	414	108	1461
Gas-burner	C. V. Hill	751,798	Feb. 9	1865	425	108	1472
Gas burner. Air	L. Denayrouze	749,478	Jan. 12	1929	400	108	453
Gas-burner-igniting device. Acetylene	H. C. Thomson	749,409	Jan. 12	1760	372	108	419
Gas-burner. Incandescent	G. Grice and H. Dewey	749,553	Jan. 12	2072	430	108	485
Gas-burner. Incandescent	J. W. Bray	750,018	Jan. 19	2976	637	108	697
Gas-burner. Incandescent	V. A. Rettich	751,558	Feb. 9	1432	325	108	1389
Gas-check. Adjustable	V. A. Rettich	751,107	Feb. 2	595	137	108	1187
Gas-engine	W. R. Kahlenberg	748,615	Jan. 5	108	27	108	25

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gas-engine	A. G. Ronan	753,008	Feb. 23	4251	947, 948	108	2038
Gas from wells. Obtaining	A. S. Cooper	753,045	Feb. 23	4340	965	108	2059
Gas. Generating	F. H. Bates	748,687	Jan. 5	258	59	108	57
Gas-generator	H. W. Webb	749,006	Jan. 5	903	191	108	211
Gas generator. Acetylene-	W. D. Packard	748,781	Jan. 5	416	95, 96	108	93
Gas generator. Acetylene-	H. W. Webb	749,007	Jan. 5	905	191	108	211
Gas generator. Acetylene-	F. L. Irish	749,294	Jan. 12	1525	324	108	367
Gas generator. Acetylene-	O. K. Stuart	749,757	Jan. 19	2474	527	108	589
Gas generator. Acetylene-	L. Dietsch	750,618	Jan. 26	4090	886	108	954
Gas generator. Acetylene-	A. C. Einstein	752,063	Feb. 16	2387	533	108	1606
Gas generator. Acetylene-	A. Davis and J. H. Birch	752,330	Feb. 16	2914	650, 651	108	1726
Gas generator. Acetylene-	A. E. Schlieder	752,713	Feb. 23	3670	817	108	1908
Gas generator. Acetylene-	H. W. Koehler	752,985	Feb. 23	4226	942	108	2033
Gas generator and burner. Oil-	R. Thayer	750,558	Jan. 26	3992	863	108	962
Gas-heater	H. A. Schmidt	752,845	Feb. 23	3851	859	108	1944
Gas-light regulator	S. W. Hyatt	750,540	Jan. 26	3962	857	108	957
Gas-lighting apparatus. Time	J. Conklin	751,361	Feb. 2	1124	255	108	1297
Gas-lighting attachment	P. Bardot	752,021	Feb. 16	2335	522	108	1595
Gas-machine blower	C. E. and J. W. Sayre	752,000	Feb. 9	2299	514	108	1589
Gas. Manufacture of	W. A. Köneman	749,302	Jan. 12	1540	327	108	370
Gas. Manufacturing	P. Naef	749,945	Jan. 19	2833	605	108	667
Gas-meter	L. Millet	752,350	Feb. 16	2948	656, 657	108	1734
Gas or solid fuel furnace	R. A. May	752,461	Feb. 16	3162	705	108	1779
Gas or vapor electric apparatus. Regulator for	P. C. Hewitt	749,793	Jan. 19	2543	541	108	604
Gas-purifier safety dumping-door	E. F. Lloyd	750,470	Jan. 26	3802	826	108	807
Gas-regulator. Automatic	F. W. Priestley, J. Kephart, and F. M. Merchant.	753,110	Feb. 23	4450	999	108	2083
Gas-valve lock	R. L. Boulter	752,818	Feb. 23	3864	866	108	1951
Gases. Means for controlling the flow of	P. Plantinga	752,299	Feb. 16	2893	633, 634	108	1712
Gate: *See* Automatic or self-acting gate. End-gate. Flood-gate. Railway-gate. Swinging gate.							
Gate	J. Meyer	748,769	Jan. 5	399	91	108	89
Gate	O. L. Compton	749,590	Jan. 12	2024	430	108	474
Gate	I. L. Landis	752,233	Feb. 16	2717	602	108	1683
Gate	A. A. Bradbury	753,116	Feb. 23	4458	991	108	2085
Gate	S. and H. Kalisher	753,139	Feb. 23	4499	1001, 1002	108	2093
Gate attachment	A. Skellenger	753,172	Feb. 23	4550	1016	108	2108
Gate automatic attachment	J. H. Jones	748,614	Jan. 5	107	27	108	25
Gate-fastener	P. Mast	749,444	Jan. 12	1847	384	108	435
Gate-fastener	G. S. Francis and B. B. Ryan	752,217	Feb. 16	2698	595	108	1676
Gear. Belt driving-	A. Bollée, Père	750,576	Jan. 26	4019	869	108	939
Gear-cutting machine	H. Bilgram	749,606	Jan. 12	2151	449, 450	108	504
Gear-cutting machine	J. Parker	750,485	Jan. 26	3833	832	108	903
Gear. Driving-	R. Hundhausen	752,778	Feb. 23	3775	842, 843	108	1931
Gear. Friction-	S. C. Spangler	751,878	Feb. 9	2038	461	108	1512
Gear. Power-transmitting	C. Sintz	752,867	Feb. 23	3964	886, 887	108	1971
Gear. Reversing	A. Sonander	751,022	Feb. 2	443	104	108	1155
Gear. Reversing-	L. B. Smyser	751,211	Feb. 2	808	186	108	1220
Gear. Reversing-	R. A. Maples	751,665	Feb. 9	1624	368	108	1422
Gear. Reversing-	J. C. Entriken	751,787	Feb. 9	1854	422	108	1470
Gear-teeth. Shaping	H. Bilgram	749,603	Jan. 12	2148	487	108	534
Gear. Transmission-	A. P. Brush	752,963	Feb. 23	4161	928	108	2017
Gear. Variable-speed	T. W. Barber	749,151	Jan. 19	1216	261, 262	108	208
Gear. Variable-speed and reversing	H. C. Sheppard	748,799	Jan. 5	455	102, 103	108	102
Gear-wheel	F. A. Richter	748,653	Jan. 5	195	46	108	43
Gearing	H. J. Mohlenhoff	751,535	Feb. 9	1377	314	108	1370
Gearing	G. Westinghouse	751,588	Feb. 9	1490	338, 339	108	1394
Gearing. Differential	H. T. Craven	750,172	Jan. 19	3256	708	108	755
Gearing. Electromagnetic	E. Thordon	750,009	Jan. 19	2960	631, 632	108	692
Gearing. Interchangeably-locked	W. H. and R. Thompson	752,129	Feb. 16	2526	562	108	1637
Gearing. Multiple-speed	W. J. Hagman	749,186	Jan. 12	1293	278	108	316
Gearing. Relief mechanism for machinery-	C. G. Tideman	752,267	Feb. 16	2792	619	108	1700
Gelatinous product and producing same. Insoluble	H. V. Dunham	748,708	Jan. 5	295	.....	108	66
Generator: *See* Acetylene-generator. Electric generator. Gas-generator. Motor-fluid generator. Steam-generator. Vapor-generator.							
Generator speed-regulator	G. J. and H. G. Feistring	751,908	Feb. 9	2291	512	108	1566
Geodetical instrument	H. Grubb	752,667	Feb. 23	3592	789, 790	108	1889
Gill-boxes. Automatic safety stop-motion for	D. Stockwell	751,570	Feb. 9	1456	330	108	1388
Glandular extractive compound	J. Takamine	753,177	Feb. 23	4566	.....	108	2109
Glass blowing and finishing machine	J. Schles	752,597	Feb. 16	3425	763, 764	108	1888
Glass. Cooling-retarder for drawing	L. Thornburg	749,680	Jan. 12	2296	484	108	533
Glass-cutting apparatus	W. Pannkoke	752,017	Feb. 9	2327	520, 521	108	1574
Glass-drawing machine	G. H. Harvey	750,586	Jan. 26	3969	857	108	927
Glass-forming apparatus. Plate-	H. J. Hays	753,069	Feb. 23	4381	974	108	2066
Glass grinding or polishing apparatus	F. F. Fischer	749,961	Jan. 19	2858	610, 611	108	672

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Glass grinding, smoothing, and polishing table	D. J. Murnane and R. W. Davies	749,801	Jan. 19	2557	543	108	606
Glass mosaic. Leaded	F. L. Linden	752,346	Feb. 16	2943	655	108	1733
Glass or like substances. Beveling	C. L. Goehring and W. Troche	749,551	Jan. 12	2009	430	108	485
Glass with wire embedded therein. Making	J. W. Paxton	753,101	Feb. 23	4436	986	108	2080
Glass. Working	H. J. Hays	752,674	Feb. 23	3595	801	108	1892
Glassware, &c. Ornamented or lettered	R. K. Duncan	748,849	Jan. 5	558	.....	108	126
Glazed structure	J. A. Payne	750,389	Jan. 26	3952	794	108	864
Glove	F. W. Farrant	750,443	Jan. 26	3758	817	108	886
Glove	R. B. McMasters	750,683	Jan. 26	4206	912	108	979
Glove	W. B. Phillips	753,000	Feb. 23	4248	946	108	2038
Glove-fastener	A. Leblanc	749,618	Jan. 12	2173	456	108	507
Glove-fastener	P. J. Engels	750,834	Feb. 2	102	24	108	1079
Glove-gauntlet	W. C. Graichen	752,769	Feb. 23	3762	839	108	1929
Glue from hides. Making	E. R. Hewitt	748,866	Jan. 5	593	.....	108	133
Go-cart	F. E. Southard	748,994	Jan. 5	861	185	108	200
Go-cart. Folding	G. H. Barschow	751,448	Feb. 9	1231	281	108	1337
Go-cart or child's chair	J. Weber, Jr.	749,119	Jan. 5	1143	242	108	264
Gold-saving apparatus	L. Sachse	750,227	Jan. 19	3350	724, 725	108	776
Gold-saving. Grading, classifying, and distributing auriferous wash in	A. G. Kidston-Hunter	751,925	Feb. 9	2134	481, 482	108	1533
Gold separator and amalgamator. Combined	H. Wismeyer	751,425	Feb. 2	1192	271, 272	108	1310
Gold-separator. Reciprocatory	J. P. Schmitz	752,926	Feb. 23	4100	913	108	2004
Golf-ball, &c	C. J. Grist	749,053	Jan. 5	1017	215	108	235
Gopher-trap	J. J. Daniels	749,848	Jan. 19	2642	565	108	625
Gopher-trap	J. Morawetz	750,677	Jan. 26	4198	911	108	978
Governing mechanism for internal-combustion engines	W. J. McVicker	753,091	Feb. 23	4419	982	108	2077
Governor and speed-gear mechanism. Combined	N. V. Johnson	748,958	Jan. 5	778	169	108	177
Governor. Engine-	E. Hudson	748,738	Jan. 5	345	76	108	77
Governor. Engine-	O. Hove	750,649	Jan. 26	4139	898	108	963
Governor. Internal-combustion-engine	C. E. Sargent	752,109	Feb. 16	2483	554	108	1628
Governor. Motor speed-	E. R. Johnson	750,858	Feb. 2	148	34	108	1090
Governor-regulator	C. J. Koch	748,751	Jan. 5	368	83	108	82
Gown. House-	F. A. Flutie	753,131	Feb. 23	4485	998, 999	108	2090
Grading and ditching machine	B. O. Rhodes	749,747	Jan. 19	2458	523	108	585
Grading and ditching machine	B. O. Rhodes	749,748	Jan. 19	2459	524	108	585
Grading-machine	B. A. Karr	748,616	Jan. 5	109	28	108	25
Grafting-knife	C. O. Couts	751,382	Feb. 2	1125	256	108	1297
Grain-binder	C. Colahan	748,587	Jan. 5	66	19	108	17
Grain-binder	C. Maul	752,912	Feb. 23	4046	905	108	1992
Grain cleaner and separator	E. R. Draver	749,366	Jan. 12	1675	356	108	402
Grain-conveyer	J. E. Camp	752,651	Feb. 23	3552	791	108	1881
Grain. Conveyer mechanism for handling	E. M. Kramer	752,688	Feb. 23	3624	806, 807	108	1898
Grain-drier. Centrifugal	M. L. Barbeau	752,882	Feb. 23	3986	993	108	1978
Grain-drill	H. Funk	748,717	Jan. 5	306	69	108	68
Grain-drill attachment. Double-disk	J. A. Bingham	750,339	Jan. 26	3572	774	108	846
Grain-drill furrow-openers. Adjusting mechanism for	W. Fetzer	752,618	Feb. 16	3481	776	108	1850
Grain-elevator	C. S. Upham	751,762	Feb. 9	1810	412, 413	108	1459
Grain grading and separating machine	F. S. and C. T. Snavely	751,696	Feb. 9	1683	382	108	1434
Grain-header	J. A. Sharp	749,907	Jan. 19	2749	588, 589, 590	108	649
Grain-huller	A. B. Couch	750,610	Jan. 26	4079	888	108	951
Grain-lifter	H. E. Titamore	752,367	Feb. 16	2978	663	108	1740
Grain, &c. Mill for rolling or grinding	E. Brown	752,755	Feb. 23	3739	834	108	1924
Grain-scourer and dust-collector. Self-contained	E. R. Draver	749,367	Jan. 12	1677	357	108	402
Grain-separator	F. L. Reeve	751,417	Feb. 2	1179	268	108	1308
Grain-separator	J. B. Cornwall	752,145	Feb. 16	2554	568, 569	108	1644
Grain-separator feeder	J. B. Cornwall	750,092	Jan. 19	3114	669	108	724
Grain-shoe. Self-adjusting	J. T. Jardine	748,741	Jan. 5	350	77	108	78
Grain transporting and weighing apparatus	G. W. McNear, Jr	749,216	Jan. 12	1371	293	108	336
Grain-valve	G. J. Noth	752,465	Feb. 16	3168	706	108	1780
Grain with liquids. Apparatus for pickling or treating	D. R. Gardiner	750,961	Feb. 2	340	81	108	1133
Grass-destroyer	B. J. Huck	749,292	Jan. 12	1523	323	108	366
Grass-hook	M. A. Stewart	752,808	Feb. 23	3837	861	108	1945
Grating implement	J. W. Gage	751,159	Feb. 2	687	158	108	1206
Grave-protector	W. H. Halfaker	752,902	Feb. 23	4028	902	108	1988
Gravity. Apparatus for ascertaining the acceleration due to	P. G. W. Keller	751,517	Feb. 9	1349	307, 308	108	1365
Gravity-lock	P. V. Simmonds	751,954	Feb. 9	2190	494	108	1545
Greenhouse-frame	H. Simpson	749,972	Jan. 19	2876	615	108	676
Grinder. Feed-	J. A. Engel	751,488	Feb. 9	1300	297, 298	108	1354
Grinder. Twist-drill	A. H. Reimann	748,651	Jan. 5	192	46	108	42
Grinding apparatus. Roll-	G. R. Ford and B. F. Allen	750,528	Jan. 26	3918	850	108	920
Grinding apparatus. Roll-	G. R. Ford and B. F. Allen	750,529	Jan. 26	3922	850, 851	108	920
Grinding apparatus. Roll-	G. R. Ford and B. F. Allen	750,530	Jan. 26	3925	851	108	921
Grinding apparatus. Roll-	G. R. Ford and B. F. Allen	750,531	Jan. 26	3927	852	108	921
Grinding attachment. Compound	T. B. Stephenson	751,815	Feb. 9	1921	436	108	1485
Grinding device. Disk-	F. E. Wilkison	749,766	Jan. 19	2489	530	108	592
Grinding-machine	D. Kennedy	750,372	Jan. 26	3626	786, 787	108	858
Grinding-machine	R. Wolf	752,500	Feb. 16	3235	721	108	1794
Grinding-machine	S. E. Dart	752,658	Feb. 23	3563	794	108	1884
Grinding machine. Drill-	O. Parpart	751,198	Feb. 2	771	176	108	1222
Grinding machine. Twist-drill-	C. A. Chandler	750,809	Feb. 2	45	9	108	1067

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Grinding-machines. Apparatus for feeding abrasive material to	I. Flexner	748,853	Jan. 5	571	130	108	128
Grinding-mill	A. J. Robinson	750,701	Jan. 26	4235	919 920	108	985
Grinding-mill	A. J. Robinson	750,805	Feb. 2	221	49, 50	108	1106
Grip-wheel	H. F. Ong	752,907	Feb. 23	4244	945 946	108	2087
Groove-cutter	J. Barnes	749,603	Jan. 12	2148	448	108	503
Gun. Air-	W. R. Benjamin	749,519	Jan. 12	2006	417	108	469
Gun and insect-destroyer. Liquid-shooting	J. W. Dickson and N. J. Carson	753,127	Feb. 23	4480	997	108	2089
Gun barrel	W. Rost	749,402	Jan. 12	1746	369	108	416
Gun carriage or mounting	G. Ehrhardt	751,840	Feb. 9	1968	447	108	1495
Gun-firing mechanism. Ship's	L. J. Mautner	752,460	Feb. 16	3159	704	108	1778
Gun Magazine	C. H. Snow	752,982	Feb. 23	4111	915 916	108	2007
Gun or firearm	F. Tobisch	749,341	Jan. 12	1620	343 344	108	399
Gun recoil-spring apparatus	H. Schröder	751,874	Feb. 9	2032	460	108	1510
Gun-sight	H. C. Eby	752,902	Feb. 23	4180	932	108	2022
Gun. Squirt-	M. A. Heimann	750,853	Feb. 2	140	32	108	1088
Guns. Fluid-brake for	A. Resow and O. Lauber	751,684	Feb. 9	1658	376	108	1429
Guns. Means for controlling the recoil of	S. N. McClean	749,215	Jan. 12	1309	293	108	335
Hair-pin	A. Bowers	750,579	Jan. 26	4026	870	108	940
Hair-pin. Safety	W. F. Zwick	751,495	Feb. 2	1195	272	108	1311
Hair-pins. Apparatus for making	D. H. Hayward	753,070	Feb. 23	4383	975	108	2069
Hame	W. H. Carr	750,508	Jan. 26	4060	879	108	948
Hammer and rock-drill. Power-	J. Kraus	749,906	Jan. 19	2928	625 626	108	688
Hammer. Chain-maker's power-	W. N. Appleton	749,912	Jan. 19	2760	592	108	651
Hammer. Claw-	E. A. Ashland	752,879	Feb. 23	3983	892	108	1978
Hammer. Glazier's	J. S. Hovland	752,454	Feb. 16	3152	702	108	1777
Hammer. Pneumatic	C. A. Speer and E. C. Bowman	749,808	Jan. 19	2568	545 546	108	609
Hammer. Pneumatic	F. K. Fassett	750,890	Feb. 2	107	25	108	1081
Hammer. Pneumatic	E. Gunnell	751,072	Feb. 2	590	123	108	1176
Hammer. Power-	A. Groenig	750,359	Jan. 26	3005	781 782	108	853
Hammer. Power-	A. A. Koch	751,522	Feb. 9	1357	310	108	1366
Hammock	I. E. Palmer	751,102	Feb. 2	587	136	108	1185
Hammock	R. C. Furst	751,907	Feb. 9	2008	474	108	1526
Hammock. Swinging	M. N. Wertz and J. J. Parnell	751,125	Feb. 2	623	144 145	108	1193
Hand-press	J. F. Helmold	748,947	Jan. 5	761	165	108	173
Hand-wheel	E. H. Metcalf	751,533	Feb. 9	1375	314	108	1370
Handkerchief	W. S. Weed	751,033	Feb. 2	464	108	108	1160
Handle: *See* Bag-handle. Bag-frame handle. Basket-handle. Casket-handle. Clamp-handle. Crank-handle. Detachable handle. Plane-handle. Saw-handle. Switch-handle. Tool-handle. Trowel-handle. Trunk-handle. Umbrella-handle.							
Handle	W. N. Lewis	749,869	Jan. 19	2675	572	108	632
Handle attachment for demijohns, &c	H. S. Puterbaugh and W. H. Kressler.	751,009	Feb. 2	421	100	108	1150
Hanger: *See* Cable-hanger. Door-hanger. Garment-hanger. Joist-hanger. Lamp-hanger. Picture-hanger. Shaft-hanger. Skirt-hanger. Trolley-hanger.							
Hanger	G. Nissenson	752,906	Feb. 23	4243	945	108	2086
Hanger-box	M. H. Dette	751,838	Feb. 9	1965	446	108	1494
Harmonica. Mouth-	M. Messner	752,295	Feb. 16	2947	632	108	1711
Harness	J. L. Haller and G. L. Baker	749,054	Jan. 5	1018	215	108	235
Harness	B. F. Baker	751,773	Feb. 9	1829	416	108	1463
Harrow	H. A. Brixen	748,837	Jan. 5	533	122 123	108	121
Harrow	B. F. Brakebill	749,158	Jan. 12	1232	264	108	302
Harrow	H. J. Metz	750,473	Jan. 26	3810	828	108	898
Harrow	S. H. Wooster	751,768	Feb. 9	1819	415	108	1461
Harrow. Disk	P. H. McVicar	752,245	Feb. 16	2737	607	108	1687
Harrow or cultivator tooth	J. Y. Cooper	751,362	Feb. 2	918	209	108	1252
Harrow. Riding-	J. W. Harmon	750,970	Feb. 2	855	86	108	1136
Harrow. Self-cleaning	A. Dixon	749,923	Jan. 19	2798	597	108	660
Harrow-tooth	J. Schweinfürth	750,495	Jan. 26	3848	835	108	906
Harrow-tooth fastener	C. M. Ripperger	749,226	Jan. 12	1388	296	108	338
Harvester	J. C. Parker	748,782	Jan. 5	420	96	108	94
Harvester-binder tension device	J. F. Harnish	749,055	Jan. 5	1019	215	108	235
Harvester. Clover-	A. D. Miller	749,572	Jan. 12	2096	436	108	491
Harvester. Corn-	E. A. Johnston	749,208	Jan. 12	1530	325 326	108	368
Harvester. Corn-	S. C. Anderson	749,831	Jan. 19	2614	558 559	108	619
Harvester. Corn-	H. M. Burdick	749,888	Jan. 19	2625	561	108	621
Harvester. Corn-	W. R. Page	750,697	Jan. 26	4214	914	108	981
Harvester. Corn-	S. C. Anderson	751,367	Feb. 2	1102	249	108	1292
Harvester-cutter	T. S. Brown	750,943	Feb. 2	811	73	108	1126
Harvester grain-guide	W. Glaze	749,375	Jan. 12	1698	360	108	405
Harvester. Sidehill-	A. W. Severance	751,111	Feb. 2	599	138 139	108	1188
Harvester tongue-support and side-draft check. Grain or grass	C. F. Ortman	750,116	Jan. 19	3151	677	108	733
Harvester twine-holder and tension device	F. A. Bicket	750,574	Jan. 26	4016	868	108	988

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Harvesting-machine	F. P. Tipton	751,122	Feb. 2	619	143	108	1192
Harvesting potatoes or the like. Machine for	C. F. Grohmann	750,029	Jan. 19	2994	641 642	108	701
Hasp-lock	W. U. Colthar	751,148	Feb. 2	669	154	108	1202
Hat	A. Mayer	750,992	Feb. 2	392	98	108	1144
Hat-box	S. E. Patrick	752,584	Feb. 16	3390	756	108	1830
Hat-fastener	L. Vihon	749,466	Jan. 12	1902	395	108	448
Hat-fastener	M. Gordon	752,288	Feb. 16	2832	628	108	1708
Hat-holder	M. N. Gable	750,634	Jan. 26	4114	891	108	959
Hat-pin	R. Omlor	749,948	Jan. 19	2837	606	108	668
Hat-pin and attachment	F. Ashton	751,771	Feb. 9	1826	416	108	1463
Hat. Sportsman's convertible	E. E. Hodshon	748,949	Jan. 5	765	166	108	174
Hat. Sportsman's convertible	E. E. Hodshon	748,950	Jan. 5	768	166	108	175
Hatch-fastener	W. H. Crawford	749,582	Jan. 12	2027	421	108	474
Hay and stock rack	J. H. Anderson	753,028	Feb. 23	4308	957	108	2052
Hay-carrier	W. Louden	752,509	Feb. 16	3364	750	108	1824
Hay-knife	W. S. Shippy	748,991	Jan. 5	858	184	108	199
Hay-press	J. C. Damron	749,662	Jan. 12	2264	477	108	526
Hay-rack attachment	J. J. Acton	752,745	Feb. 23	3721	830	108	1920
Hay-rake	H. A. Adams	749,711	Jan. 19	2375	502	108	567
Hay-rake	W. Lincoln. (Reissue)	12,194	Jan. 19	3398	732	108	785
Hay rake and cocker	C. E. Paulson	752,585	Feb. 16	3391	756 757	108	1830
Hay rake and tedder	P. von Del Negro	751,618	Feb. 9	1543	350 351	108	1404
Heat-alarm	H. F. Jones	750,543	Jan. 26	3966	856	108	928
Heat from fuel. Producing	J. M. Schutz	751,350	Feb. 2	1073	243	108	1286
Heat-regulating apparatus	N. E. Nash	749,397	Jan. 12	1734	367	108	413
Heat-regulator	H. W. Gander	752,061	Feb. 16	2401	536	108	1610
Heat-retainer	E. C. Kirk	752,687	Feb. 23	3622	806	108	1898
Heater: *See* Curling-iron heater. Feed-water heater. Domestic heater. Gas-heater. Electric heater. Solar heater.							
Heater	C. R. Bannihr	748,835	Jan. 5	530	121 122	108	120
Heater	P. J. W. Hoaglund	751,704	Feb. 9	1867	426	108	1472
Heater	W. Stewart and W. J. Wiles	752,420	Feb. 16	3109	690	108	1767
Heater	A. von Chigor	753,042	Feb. 23	4336	964	108	2058
Heating air or liquids to a constant temperature. Apparatus for	V. Eltz	751,271	Feb. 2	984	212	108	1256
Heating and lighting apparatus	G. Imbert	749,384	Jan. 12	1710	392	108	408
Heating and sterilizing apparatus	J. S. Forbes	750,737	Jan. 26	4385	947	108	1021
Heating apparatus	J. C. Nace	749,086	Jan. 5	1082	228	108	249
Heating apparatus	E. M. Warren	749,244	Jan. 12	1410	302	108	343
Heating apparatus	S. F. Shafer	752,002	Feb. 9	2308	515	108	1569
Heating apparatus. Electric	R. Küch	749,204	Jan. 12	1334	286	108	327
Heating articles by electricity	E. F. Price	752,358	Feb. 16	2965	660	108	1737
Heating articles. Electrically	E. F. Price	752,357	Feb. 16	2963	659	108	1736
Heating devices. Apparatus for the regulation of electrical circuits in	W. D. Kilroy	751,654	Feb. 9	1605	365	108	1418
Heating. Electric	A. H. Cowles	750,170	Jan. 19	3251	701	108	754
Heating liquids, especially milk. Apparatus for	J. Fliegel	749,926	Jan. 19	2803	598	108	661
Heating materials. Electrically	A. H. Cowles	750,095	Jan. 19	3120	670	108	725
Heating system	F. C. Goff	750,358	Jan. 26	3604	781	108	853
Heating system. Electrical	E. H. Kitfield	748,749	Jan. 5	364	81, 82	108	81
Heating system. Vacuum and circulatory	G. L. Bottum	750,158	Jan. 19	3225	695	108	749
Heating water by steam. Apparatus for	W. G. F. Steinmetz	752,721	Feb. 23	3685	821	108	1912
Heddle	W. Fehr	748,713	Jan. 5	301	68	108	67
Heddles. Producing	W. Fehr	749,725	Jan. 19	2410	509	108	574
Heel	E. D. Tyler	752,632	Feb. 16	3513	781	108	1856
Heel-blank-assembling machine	G. B. Grover	749,788	Jan. 19	2535	538 539	108	602
Heel-building machine	W. P. Bosworth and T. Bostock	752,325	Feb. 16	2906	648	108	1724
Heel. Elastic	F. H. Stubner	751,817	Feb. 9	1926	436	108	1486
Heel-protector	M. M. West	752,736	Feb. 23	3709	828	108	1917
Heeling-machine	H. Briggs	750,047	Jan. 19	3020	647 648	108	706
Helmet	J. J. Curtis	753,047	Feb. 23	4342	966	108	2059
High-potential switch	J. F. Kelly	749,300	Jan. 12	1329	285	108	326
Hinge	D. W. Tower	749,411	Jan. 12	1762	373	108	419
Hinge	A. H. Christie	751,461	Feb. 9	1252	286	108	1342
Hinge and automatic catch for awning-blinds	F. W. Lutts	752,348	Feb. 16	2945	656	108	1733
Hinge. Door-	J. R. Hartman	749,379	Jan. 12	1701	361	108	406
Hinge-gage	W. H. Gelbaugh	750,842	Feb. 2	122	28	108	1084
Hinge. Gate-	J. H. Vandever	748,670	Jan. 5	221	52	108	48
Hinge. Gate-	J. Leffler	751,661	Feb. 9	1619	368	108	1421
Hinge. Gate-	C. Pelmulder	753,103	Feb. 23	4438	987	108	2080
Hinge. Mine-door	T. Jeffrey	749,561	Jan. 12	2080	432	108	487
Hinge-pin	J. C. Griffin	749,729	Jan. 19	2417	510	108	575
Hinge. Release-	R. D. Struble	750,908	Feb. 2	245	55	108	1111
Hitching device	W. J. Willey	750,141	Jan. 19	3201	688	108	744
Hitching-strap	E. J. Fenn	749,726	Jan. 19	2411	509	108	574
Hoe	E. Weber	750,418	Jan. 26	3704	803	108	875
Hoe	E. E. Hoxie	750,857	Feb. 2	147	34	108	1089
Hoe. Combined wheel and hand	E. Piggott	751,105	Feb. 2	592	136	108	1187
Hoe-fastening means	G. M. Bright	751,374	Feb. 2	1111	252	108	1294
Hoe. Wheel-	E. Piggott	750,218	Jan. 19	8333	720	108	772
Hog-holding implement	W. Bidwell	750,797	Feb. 2	30	6	108	1067
Hog-tamer	A. C. Decker	750,437	Jan. 26	3747	814	108	884
Hoisting and carrying device	M. C. Wood	751,237	Feb. 2	863	197	108	1240
Hoisting and conveying apparatus	O. and J. Johnson	749,198	Jan. 12	1322	284	108	325
Hoisting and conveying device	J. G. Delaney	752,442	Feb. 16	3134	697	108	1772
Hoisting-machine brake	F. K. Hoover and A. J. Mason	750,283	Jan. 26	3461	748 749	108	820
Hoisting mechanism	P. Mullen	751,587	Feb. 9	1380	315	108	1370

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hoisting mechanism. Safety and signaling device for	W. N. Dickinson, Jr	752,659	Feb. 23	3565	794	108	1885
Hoists. Rope system for coal-bridge	G. E. Titcomb	752,483	Feb. 16	3199	714	108	1787
Holdback. Breeching-strap	T. Nichols	748,976	Jan. 5	836	177	108	194
Holdback-hook	H. Breiding	752,023	Feb. 16	2337	521	108	1566
Hood and cooking utensil. Combined	W. H. Zimmerman	752,506	Feb. 16	3240	722	108	1703
Hoof-pad	A. Larsen	751,184	Feb. 2	745	170 171	108	1217
Hook: *See* Fish-hook. Pin-hook. Garment-hook. Snap-hook. Grass-hook. Trace-hook. Holdback-hook. Whiffletree-hook. Pad-hook.							
Hook	A. F. Dunn	749,892	Jan. 19	2650	566	108	626
Hook and eye. Safety-pin	E. A. Campbell	751,610	Feb. 9	1325	347	108	1402
Hoop: *See* Barrel-hoop.							
Hoop flaring and sizing machine	C. Grotnes	752,153	Feb. 16	2269	571	108	1647
Hoops to casks or barrels. Machine for applying bilge	E. C. Thorschmidt	753,014	Feb. 23	4274	952	108	2043
Hopple-loops. Manufacture of	J. P. Kline	750,901	Jan. 19	3297	712	108	764
Horn	W. Gebert	752,447	Feb. 16	3142	699	108	1774
Horn-like material from raw skins. Preparing	E. Jetter	749,297	Jan. 12	1329		108	368
Horn-support	C. Beecroft	751,140	Feb. 2	657	151	108	1200
Horn-support	V. H. Rapke	751,204	Feb. 2	781	178 179	108	1224
Horse-blanket	L. H. Ayres	749,514	Jan. 12	1996	415	108	467
Horse-cleaner	G. E. Fredericks	749,727	Jan. 19	2412	509	108	574
Horse eye-protector	L. A. Southern	749,405	Jan. 12	1752	371	108	417
Horse head-controller	B. W. Kindig, Jr.	748,747	Jan. 5	360	80	108	80
Horse-legs. Spreader for	J. Stanley	751,115	Feb. 2	607	141	108	1190
Horse-shocking device. Electrical	J. A. Giles	752,544	Feb. 16	3317	738	108	1815
Horseshoe	A. D. Gosett	751,498	Feb. 9	1316	301	108	1357
Horseshoe	N. C. Miller	752,090	Feb. 16	2450	548	108	1620
Horseshoe	C. W. Voskamp	752,609	Feb. 16	3456	773	108	1844
Horseshoe	J. Abbs	749,509	Jan. 12	2142	447	108	502
Horseshoe-calk	C. L. Dahly	750,614	Jan. 26	4085	884	108	952
Horseshoe-calk	A. W. Jones	749,299	Jan. 12	1534	326	108	398
Horseshoe. Elastic-tread	C. H. Reckefus	753,160	Feb. 23	4538	1011	108	2102
Horseshoe ice-creeper	E. E. Pierce and L. W. Newton	752,255	Feb. 16	2766	613 614	108	1694
Horseshoe-nails. Machine for the manufacture of	J. M. Laughlin	749,135	Jan. 5	1174	249 250 251 252	108	272
Horseshoe-pad	J. F. Robinson	752,468	Feb. 16	3172	707	108	1781
Hose-clamp	V. H. Davison	749,849	Jan. 19	2643	565	108	625
Hose-clamp	M. P. McLaughlin	751,329	Feb. 2	1099	236	108	1279
Hose-coupling	J. Jeffery	748,742	Jan. 5	352	78	108	78
Hose-coupling	J. Ballenberger and C. Scheidemantel	749,253	Jan. 12	1425	306	108	347
Hose-coupling	E. E. Gold	749,483	Jan. 12	1996	402	108	454
Hose-coupling	H. S. and H. S. Patterson	749,496	Jan. 12	1964	408	108	460
Hose-coupling	H. R. Ashby	750,931	Feb. 2	293	67	108	1120
Hose-coupling	C. E. Chaffey	751,259	Feb. 2	912	208	108	1251
Hose-coupling	J. Glück	751,631	Feb. 9	1570	356	108	1410
Hose-coupling	L. V. Long	752,085	Feb. 16	2443	546	108	1619
Hose-coupling	P. C. Osteen	753,096	Feb. 23	4428	985	108	2078
Hose coupling and shut-off	L. D. Goughenour and J. A. Marx	751,391	Feb. 2	1140	259	108	1300
Hose. Manufacturing	H. H. Shepard and F. H. Fish	748,798	Jan. 5	453	101 102	108	102
Hose-pipe fastener	F. Bissing	750,340	Jan. 26	3574	774	108	846
Hose signaling apparatus. Electrical	W. G. Seeley	749,633	Jan. 12	2305	466	108	514
Hose-supporter	J. B. Carolin	749,918	Jan. 19	2782	594	108	657
Hose-supporter	E. N. Humphrey	750,652	Jan. 26	4145	899	108	965
Hose-supporter	A. H. Cohn	752,093	Feb. 16	2353	526	108	1599
Hose-supporter	E. N. Humphrey	752,777	Feb. 23	3774	842	108	1931
Hot-air and hot-water furnace	L. A. Steyne	753,011	Feb. 23	4266	950 951	108	2042
Hot-air furnace	T. F. Meinhardt	750,114	Jan. 19	3147	677	108	732
Hot-air furnace	E. W. Anthony	751,136	Feb. 2	648	150	108	1198
Hot water and steam. Apparatus for supplying	J. F. Connell	748,845	Jan. 5	551	127	108	125
Hot-water furnace	F. Lumyer	749,740	Jan. 19	2440	519	108	580
House: *See* Poultry-house. Tool or cement house.							
House-cleaning apparatus	G. Clements and J. M. Hostler	751,380	Feb. 2	1123	255	108	1297
Household implement	R. Gibbons	750,357	Jan. 26	3602	781	108	853
Hub and sprocket. Split	R. S. Townsend	750,910	Feb. 2	248	55	108	1112
Hub-attaching device	S. S. Thomas	748,892	Jan. 5	640	143	108	143
Hub. Ball-bearing wheel	B. P. Youmans and H. W. Rand	749,652	Jan. 12	2288	472	108	520
Hub. Vehicle	P. Jenness	749,610	Jan. 12	2159	452	108	505
Huller: *See* Clover-huller. Seed-huller. Grain-huller.							
Hulling and scouring machine	F. A. Loescher	753,152	Feb. 23	4520	1006	108	2068
Hydrant	W. W. Corey	750,021	Jan. 19	2989	628	108	696
Hydrant	W. Volkhardt	750,415	Jan. 26	3700	803	108	874
Hydrant system for country houses	J. Johnson and E. Hitz	749,563	Jan. 12	2085	433	108	489
Hydraulic arresting device	O. H. Ensign	752,586	Feb. 16	3304	735	108	1812
Hydraulic engine and pump	C. H. Pagett	752,098	Feb. 16	2464	550	108	1624
Hydraulic motor	D. McIntyre	749,625	Jan. 12	2183	459	108	509
Hydraulic separator. Pneumatic	F. W. Hopkins	751,645	Feb. 9	1591	362	108	1415
Hydrocarbon-burner	C. A. Hammel	748,862	Jan. 5	587	133	108	132
Hydrocarbon-burner	J. A. Walkley	748,897	Jan. 5	656	146	108	147
Hydrocarbon-burner	W. E. Gibbs	750,962	Feb. 2	341	81	108	1133

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hydrocarbon-burner	W. E. Gibbs	751,066	Feb. 2	522	121	108	1174
Hydrocarbon-burner	A. B. Blackburn	751,249	Feb. 2	896	204 205	108	1248
Hydrocarbon-burner	G. N. Wolf	751,968	Feb. 9	2217	499	108	1551
Hydrocarbon-burner	E. B. Badlam	752,198	Feb. 16	2632	584	108	1662
Hydrocarbon-burner	G. W. Dräsel	752,890	Feb. 23	4005	897 898	108	1983
Hydrocarbon-burner	W. E. Gibbs	752,900	Feb. 23	4024	901	108	1987
Hydrocarbon-burner	C. Schweizer	752,928	Feb. 23	4103	914	108	2005
Hydrocarbon burner. Crude	A. C. Rush	752,593	Feb. 16	3408	759	108	1835
Hydrocarbon-burning apparatus	W. N. Best	752,195	Feb. 16	2636	585	106	1663
Hydrocarbon-vapor burner	W. S. Proskey	752,102	Feb. 16	2472	551 552	108	1626
Hydrometer	H. E. Broestler	748,838	Jan. 5	536	123	108	121
Hydroxids and oxids of metals by electrolysis. Production of	F. F. Hunt	748,609	Jan. 5	95	25	108	23
Ice-cream freezer	J. Prade	750,121	Jan. 19	3162	680	108	735
Ice-cream freezer. Continuous	H. J. Gerner	749,286	Jan. 12	1510	321 322	108	363
Ice-cream-packing cabinet	E. Hadley	751,168	Feb. 2	716	164	108	1210
Ice-creeper	J. E. Toscan and C. J. Cady	749,342	Jan. 12	1622	344	108	391
Ice from antennæ. Device for clearing	L. de Forest and W. G. Clark	750,181	Jan. 19	3270	705	108	758
Ice-making apparatus	H. Stout	752,477	Feb. 16	3186	711	108	1784
Ice-making machine	R. F. Learned	753,081	Feb. 23	4404	979 980	108	2074
Ice-pick	J. M. Dieterle	749,665	Jan. 12	2270	479	108	527
Ice-shaving machine	F. J. Reinhold	753,161	Feb. 23	4539	1012	108	2102
Identification-card	B. L. Behrendt	751,247	Feb. 2	894	204	108	1247
Identification. Method of	F. H. De Pue	752,617	Feb. 16	3479	775	108	1847
Illuminating-body	M. Korff	748,753	Jan. 5	371	83, 84	108	82
Illuminating prism-plate	F. L. O. Wadsworth	749,761	Jan. 19	2481	526	108	590
Illuminating structure. Prismatic	F. L. O. Wadsworth	752,429	Feb. 16	3111	691	108	1767
Impact-engine	H. Holzwarth	750,974	Feb. 2	361	87, 88	108	1138
Incandescent-light burner	M. D. Compton	752,041	Feb. 16	2363	529	108	1601
Inclosing device	A. G. Eneas	752,537	Feb. 16	3302	735	108	1812
Incubator	J. H. Boyd	749,356	Jan. 12	1648	350	108	396
Incubator	G. Hacker	749,858	Jan. 19	2658	568	108	628
Incubator	T. P. Adams	750,333	Jan. 26	3561	771	108	844
Incubator egg-tray	N. Cruser and J. W. Clement	751,388	Feb. 2	1126	256	108	1236
Incubator-heating apparatus	C. E. Adair	749,143	Jan. 12	1202	257	108	295
Incubators or hothouses. Automatic signaling apparatus for	M. M. Johnson	752,230	Feb. 16	2713	600	108	1682
Index and advertising device	H. B. Ault	752,431	Feb. 16	3114	691	108	1768
Index and filing-case. Invoice	C. F. West	750,507	Jan. 26	3879	842	108	912
Indicator: *See* Angle-indicator. Office-indicator. Engine-indicator. Speed-indicator. Micrometer-indicator. Station-indicator. Navigator's position-indicator. Watch winding-indicator.	W. H. Bassinger	751,042	Feb. 2	479	112	108	1164
Induction-coil	C. F. Splitdorf	752,008	Feb. 9	2313	517	108	1571
Ingot and forming same	H. W. Lash	749,490	Jan. 12	1954	406	108	458
Ingots or like pieces under the hammer. Machine for handling	G. P. Foy	749,049	Jan. 5	1000	211 212	108	232
Ingots with solid ends. Producing pierced	L. D. Davis	750,824	Feb. 2	75	16	108	1074
Inhaler	C. T. Gamble	753,133	Feb. 23	4487	999	108	2091
Injector	S. L. Kneass	750,202	Jan. 19	3298	712	108	765
Ink-tablet. Effervescent	W. C. Pope	751,554	Feb. 9	1422		108	1390
Ink-well	S. G. Reynolds	749,098	Jan. 5	1103	233	108	253
Ink-well and pen-wiper. Combined	I. C. Woodward	750,928	Feb. 2	279	66	108	1119
Inking device	H. A. Davis	752,285	Feb. 16	2826	627	108	1707
Inkstand	H. A. Johnston	749,611	Jan. 12	2160	452	108	505
Insect-destroyer	J. Ham	750,030	Jan. 19	2906	642	108	701
Insect-destroyer	J. A. Logsdon	752,787	Feb. 23	3794	849	108	1936
Insect-exterminator	J. Schiller	750,708	Jan. 26	4256	924	108	989
Insects from plants. Machine for collecting	B. F. Johnson	749,562	Jan. 12	2082	433	108	487
Insulated support for wires	L. Steinberger	749,336	Jan. 12	1611	341	108	388
Insulated wiring-tack	D. G. Smart	751,351	Feb. 2	1081	244	108	1238
Insulating material or other purposes. Compound applicable for	L. M. Randolph	749,224	Jan. 12	1388		108	338
Insulating-sleeve and making same	N. Marshall	750,873	Feb. 2	179	42	108	1096
Insulation. Underground-conduit	J. M. Humiston	751,985	Feb. 9	2279	510	108	1564
Insulator	L. Steinberger	749,335	Jan. 12	1608	341	108	387
Insulator	L. Steinberger	750,722	Jan. 26	4314	933	108	1003
Insulator	P. S. Lindal	751,739	Feb. 9	1769	402	108	1452
Insulator	J. M. Mahoney	751,743	Feb. 9	1775	404	108	1453
Insulator. Electric	T. T. Lyman	751,664	Feb. 9	1623		108	1421
Insulator. Line	C. C. Chesney	751,459	Feb. 9	1250	286	108	1341
Insulator-pin	J. H. Bullard	751,831	Feb. 9	1953	443 444	108	1491
Internal-combustion engine	E. Körting	748,959	Jan. 5	781	169	108	177
Internal-combustion engine	O. P. Ostergren	752,410	Feb. 16	3071	681 682	108	1759
Internal-combustion motor	A. Vogt	752,273	Feb. 16	2800	621	108	1701
Internal-combustion motor	A. Vogt	752,986	Feb. 23	4123	918 919	108	2009
Internal-combustion or explosive engine	F. A. Seitz	750,901	Feb. 2	234	52	108	1109
Invalid-lifting apparatus	B. Bratlie	752,198	Feb. 16	2653	586	108	1667
Invalid-sling	P. W. Atkinson	749,014	Jan. 5	917	194	108	214
Iris-diaphragm	E. Bausch and G. Hommel	750,237	Jan. 19	3377	729	108	783
Iron: *See* Curling-iron. Soldering-iron. Sad-iron.							
Iron and steel. Treating	E. Engels	752,054	Feb. 16	2388		108	1607

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Iron-founding	A. Cochran	749,258	Jan. 12	1442	308	108	350
Iron or steel. Electrometallurgy of	H. Harmet	750,361	Jan. 26	3608	782	108	854
Ironing-board	L. I. Buehl	749,525	Jan. 12	2016	418	108	472
Irrigating device	W. G. Templeton	749,758	Jan. 19	2477	528	108	589
Jack:							
See Fluid-pressure jack. Shade-roller-bracket jack. Lifting-jack. Pipe-forcing jack.							
Jack	R. H. Welles	750,740	Jan. 26	4350	940	108	1012
Jar-closure	C. H. Nicholson	748,642	Jan. 5	172	41	108	38
Jar-closure	O. N. Hoffman	749,674	Jan. 12	2284	481	108	530
Jar-closure	W. W. Cadle	751,716	Feb. 9	1718	390	108	1441
Jar-closure	W. E. Brown	751,975	Feb. 9	2261	506	108	1560
Jar-closure	H. S. Brewington	752,024	Feb. 16	2338	523	108	1590
Jar holder. Fruit-	K. A. Johnson	750,654	Jan. 26	4148	900	108	965
Jar neck and closure	A. Smelker	749,457	Jan. 12	1873	389	108	440
Jars, &c. Lid or covering for fruit-	H. A. Porteous	751,410	Feb. 2	1169	266	108	1306
Jars, &c. Packing-ring for fruit-	G. D. C. Coddington	748,586	Jan. 5	64	19	108	16
Jars, &c. Stoppering device for preserve-	H. Martin	749,074	Jan. 5	1056	223	108	244
Jewel-mounting	A. A. Boismaure	750,798	Feb. 2	81	6	108	1064
Jewelry. Manufacture of	E. F. Bennett	752,816	Feb. 23	3862	866	108	1951
Joint:							
See Ankle-joint. Belt-joint. Buggy-top joint. Container-joint. Pipe-joint. Piston-joint. Rail-joint. Railway-rail joint. Roof-joint. Track-joint. Washtub-joint.							
Joint-coupling	A. P. Brockway	750,343	Jan. 26	3581	775	108	848
Joist-hanger	A. H. Eberhardt	753,063	Feb. 23	4350	968	108	2061
Journal and skein. Axle	D. G. Wood	751,130	Feb. 2	636	147	108	1195
Journal-bearing	R. Harding	750,279	Jan. 26	3476	747	108	819
Journal-bearing. Ball	F. W. Witte	752,498	Feb. 16	3231	721	108	1708
Journal-bearing for truck wheels and casters	G. P. Clark	751,833	Feb. 9	1956	444	108	1492
Journal-boxes. Securing means for removable	V. Chartener	750,810	Feb. 2	46	10	108	1067
Journal lubricating device. Car-axle-	F. B. Harrison and L. Y. Williams.	752,161	Feb. 16	2579	574	108	1649
Journal lubricating device. Car-axle-	F. B. Harrison and L. Y. Williams.	752,162	Feb. 16	2580	574	108	1649
Journal lubricating device. Car-axle-	F. B. Harrison and L. Y. Williams.	752,163	Feb. 16	2582	574	108	1650
Journals of locomotive driving-wheels. Device for truing	H. F. Scatchard and M. B. Waters.	751,945	Feb. 9	2174	490 491	108	1542
Juices. Electrolytically purifying	A. Kollrepp and A. Wohl	751,179	Feb. 2	737	169	108	1215
Justifying mechanism	F. B. Converse, Jr.	749,720	Jan. 19	2394	506 507	108	571
Keg-washing apparatus. Beer-	F. Schmidt	749,583	Jan. 12	2116	441	108	496
Kerosene-vapor-generating apparatus	R. H. White	752,137	Feb. 16	2539	566	108	1640
Kettle	R. Brandt	750,159	Jan. 19	3228	695	108	750
Key:							
See Cable-testing key. Screw-key. Sash-lock key.							
Key	J. P. Clark	752,518	Feb. 16	3266	728	108	1801
Key-filing device	C. F. West	749,598	Jan. 12	2141	446	108	501
Key-ring	T. Hentgen	751,643	Feb. 9	1588	361	108	1414
Key-ring and tool. Combined	C. P. Wing	751,965	Feb. 9	2212	498	108	1550
Keyboard instruments. Device for sounding chords on	S. Macey	751,742	Feb. 9	1774	403	108	1453
Keyboard. Transposing-	J. H. Brady	750,083	Jan. 19	3093	665	108	720
Kiln:							
See Dry-kiln.							
Kiln	D. J. Marrs	749,308	Jan. 12	1345	289	108	330
Kiln	J. F. Warwick	749,413	Jan. 12	1764	373	108	419
Kiln	H. M. Buck	750,588	Jan. 26	4046	874 875	108	945
Kiln	C. Schweizer	750,899	Feb. 2	230	51,52	108	1109
Kinetic-energy machine	E. L. N. Denis	749,664	Jan. 12	2268	478	108	527
Kinetoscopic film	T. A. Edison. (Reissue)	12,192	Jan. 12	2370	500 501	108	549
Kitchen-fork	J. Proskauer	750,697	Jan. 26	4229	918	108	984
Kitchen-table	N. J. Painter	751,101	Feb. 2	585	135	108	1185
Knife:							
See Grafting-knife. Hay-knife. Pocket-knife.							
Knife	J. C. and G. E. Bollinger	751,251	Feb. 2	901	205	108	1248
Knife	C. F. Search	751,567	Feb. 9	1452	329	108	1386
Knitted fabric	A. W. Redin	752,862	Feb. 23	3946	885	108	1999
Knitting-machine	B. T. Steber	751,213	Feb. 2	812	187 188	108	1230
Knitting machine. Automatic circular-	J. B. Hipwell	749,933	Jan. 19	2812	601	108	663
Knitting-machine bur-wheel support	R. W. Gormly	752,666	Feb. 23	3380	798	108	1888
Knitting machine. Circular-	H. A. Houseman	749,062	Jan. 5	1030	218	108	237
Knitting-machine cloth-wheel or cloth-shoe	T. P. Holloran	753,074	Feb. 23	4393	977	108	2071
Knitting-machine. Jamb	A. Gréaud	750,032	Jan. 19	3037	650 651 652	108	710
Knitting-machine needle	J. C. Egly	749,686	Jan. 12	2308	487	108	535
Knitting-machine stitch-cam	E. A. Hirner	749,672	Jan. 12	2281	481	108	530
Knitting-machine stop-motion	D. H. Hill	749,992	Jan. 19	2811	600	108	662
Knitting-machine stop-motion	G. W. Ruth	750,225	Jan. 19	3346	723 724	108	775
Knitting-machine stop-motion	G. W. Ruth	751,811	Feb. 9	1910	433	108	1483
Knitting-machine stop-motion device	E. Wrigley	750,147	Jan. 19	3208	690	108	745
Knob attachment	P. La Belle	752,623	Feb. 16	3491	778	108	1852
Knob-shank filling	N. W. Crandall	752,886	Feb. 23	3997	894	108	1992
Knockdown chair	E. Behn	753,034	Feb. 23	4321	960	108	2054
Knot-catching device	P. Hardman	750,859	Feb. 2	134	31	108	1067
Knotting-tool	A. S. Horlacher	750,033	Jan. 19	3001	643	108	702
Label for round boxes	E. A. Bircher	751,047	Feb. 2	486	114	108	1165

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Label or stamp affixer	F. C. Arey	749,891	Jan. 19	2717	581	108	642
Labels to bottles, boxes, or other articles. Machine or apparatus for affixing	W. Higgins and W. G. Edmonds	751,074	Feb. 2	536	125 126	108	1177
Labels, wrappers, &c. Machine for applying	C. W. Cheney. (Reissue)	12,197	Feb. 23	4653	1085 1086 1087	108	2128
Lace fastener. Shoe-	G. C. Ferguson	750,526	Jan. 26	3916	849	108	919
Lace tip. Shoe-	F. A. Bagley	752,433	Feb. 16	3116	692	108	1769
Lacing	P. J. Congdon	748,708	Jan. 5	288	65	108	64
Lacing-hook mold	P. Clifford	750,602	Jan. 26	4066	880	108	949
Lacing. Shoe-	E. C. Luks	749,569	Jan. 12	2068	435	108	490
Lacing. Shoe-	H. W. Pinkerton	749,904	Jan. 19	2741	587	108	648
Lacing. Shoe-	M. M. Heinitsh and J. T. Moriarty	751,729	Feb. 9	1743	395	108	1446
Lacing stud or eyelet	J. L. Poalk	750,691	Jan. 26	4221	916	108	982
Lacquering bottle-capsules or similar objects. Apparatus for	C. Collin	751,783	Feb. 9	1848	420 421	108	1468
Ladder. Extension-	M. J. Lewis	749,070	Jan. 5	1049	221	108	241
Ladder. Extension-	C. G. Tiefel	750,504	Jan. 26	3875	841	108	911
Ladder. Truck-	T. U. Sechler	750,402	Jan. 26	3679	798	108	870
Lamp	R. P. Habel	753,066	Feb. 23	4375	973 974	108	2066
Lamp	C. G. Holmberg	753,075	Feb. 23	4395	977	108	2071
Lamp and apparatus connected therewith. Gas or vapor	M. von Recklinghausen	750,890	Feb. 2	211	48	108	1104
Lamp ballast device. Vapor-	H. N. Potter	750,554	Jan. 26	3986	861 862	108	931
Lamp-burner	W. S. Hamm	750,455	Jan. 26	3775	821	108	890
Lamp-burner	J. A. Mosher and W. D. Legge	750,476	Jan. 26	3814	828	108	899
Lamp-burner	A. H. Nelson	751,545	Feb. 9	1400	320	108	1375
Lamp-burner	J. Gregory	752,901	Feb. 23	4026	902	108	1987
Lamp-burner attachment	W. Gunnell and W. O'Toole	753,065	Feb. 21	4373	973	108	2066
Lamp-burner. Central-draft	W. B. Stockman and J. F. Friel	748,889	Jan. 5	635	142	108	142
Lamp-chimney	J. Gregory	749,132	Jan. 5	1167	248	108	270
Lamp-collar	W. J. Gleason	750,844	Feb. 2	124	29	108	1085
Lamp. Colored sign-	C. F. Bilisoly	751,248	Feb. 2	895	204	108	1247
Lamp. Electric-arc	W. Lytton	751,087	Feb. 2	559	130	108	1181
Lamp. Electric-arc	L. Wirtz and T. Hamilton-Adams	748,904	Jan. 5	667	148	108	150
Lamp. Electric-arc	E. H. Belden	748,915	Jan. 5	692	152	108	156
Lamp. Electric-arc	E. H. Belden	749,016	Jan. 5	920	194 195	108	214
Lamp. Electric-arc	E. H. Belden	749,017	Jan. 5	923	194 195 196	108	215
Lamp. Electric-arc	E. H. Belden	749,018	Jan. 5	928	196 197	108	215
Lamp. Electric-arc	G. R. Davison	749,268	Jan. 12	1468	314	108	354
Lamp. Electric-arc	J. A. Rignon	750,894	Feb. 2	218	49	108	1106
Lamp. Electric-arc	G. E. Stevens and W. C. Fish	751,025	Feb. 2	447	105	108	1156
Lamp. Electric-arc	F. Sindingchristensen	752,005	Feb. 9	2308	516	108	1570
Lamp. Electric tube-	C. Schuster and C. N. Bergmann	752,865	Feb. 23	3951	886	108	1970
Lamp-extinguisher	D. M. Moore	749,908	Jan. 19	2981	626	108	688
Lamp. Gas-	H. D. Hinks	749,061	Jan. 5	1029	217	108	237
Lamp. Gas or vapor electric	M. D. Compton	752,039	Feb. 16	2361	528	108	1600
Lamp globe-holder. Arc-	H. N. Potter	750,889	Feb. 2	210	47	108	1104
Lamp-hanger. Extension	J. J. Wood	751,909	Feb. 9	2219	500	108	1552
Lamp. Heating-	F. H. Geisler	748,718	Jan. 5	307	69	108	68
Lamp. Incandescent	C. Thiersch	751,118	Feb. 2	612	142	108	1191
Lamp. Incandescent vapor-	W. A. Springall	750,720	Jan. 26	4310	932	108	1002
Lamp. Incandescent vapor-	L. Denayrouze	750,488	Jan. 26	3749	814 815	108	885
Lamp. Miner's electric	W. Tures	750,784	Jan. 26	4450	959	108	1035
Lamp. Miner's safety-	H. G. Prested	749,500	Jan. 12	1970	409	108	461
Lamp. Portable electric	M. G. Moore and R. V. Sage	748,632	Jan. 5	154	37	108	34
Lamp. Prismatic	H. C. Hubbell	753,138	Feb. 23	4497	1001	108	2093
Lamp regulator. Incandescent-	F. J. Russell	751,308	Feb. 2	803	184	108	1228
Lamp-shade holder	F. C. Schofield	749,705	Jan. 12	2349	496	108	544
Lamp-socket	M. D. Gold	750,963	Feb. 2	343	81	108	1134
Lamp-socket	D. A. Schutt	749,952	Jan. 19	2842	607	108	669
Lamp socket. Incandescent-	J. C. Tournier	751,029	Feb. 2	456	107	108	1158
Lamp socket. Incandescent-electric-	O. E. Kenney	750,198	Jan. 19	3292	711	108	763
Lamps. Illuminated sign or number plate for automobile-	H. A. Framburg	748,599	Jan. 5	81	22	108	20
	T. H. Edmonds	749,779	Jan. 19	2521	536	108	599
Lamps. Magnetic lock for miners' safety-	A. Wiedenfeld	749,123	Jan. 5	1151	244	108	266
Lamps. System of lighting by gas or vapor electric.	H. N. Potter	751,411	Feb. 2	1171	266	108	1300
Lamps. System of lighting by gas or vapor electric.	H. N. Potter	751,412	Feb. 2	1173	267	108	1306
Lamps. System of lighting by gas or vapor electric.	H. N. Potter	751,413	Feb. 2	1174	267	108	1307
Lamps. System of lighting by gas or vapor electric.	H. N. Potter	751,414	Feb. 2	1175	267	108	1307
Lamps with mantle hanging downward. Bunsen burner for incandescent gas-	H. W. Hellmann	749,381	Jan. 12	1704	361 362	108	406
Land-anchor	W. G. Beach	750,151	Jan. 19	3215	691	108	747
Land-evener	F. W. Arndt	751,826	Feb. 9	1943	441 442	108	1490
Lantern-plug	J. P. Sneddon	749,867	Jan. 19	2765	545	108	668
Lap ring or link	T. Cotten	751,614	Feb. 9	1538	349	108	1403
Last	W. J. Weir	752,317	Feb. 16	2893	645	108	1721
Lasting-machine	A. L. Winn	751,128	Feb. 2	690	146	108	1194
Lasting portions of boot or shoe uppers	O. C. Davis	749,267	Jan. 12	1467	314	108	354
Latch	J. A. Craig	750,485	Jan. 26	3746	813	108	884
Latch	A. P. Beck	751,450	Feb. 9	1237	282	108	1339
Latch. Door-	B. J. Quick and W. H. Smith, Jr	749,094	Jan. 5	1097	231	108	252
Latch. Hasp-	I. L. Landis	751,658	Feb. 9	1615	367	108	1420
Lathe speed-change mechanism	W. D. Snider	752,007	Feb. 9	2312	516	108	1573
Lathe tool-holder	J. Carr	751,054	Feb. 2	498	116	108	1168
Lathe tool-support	A. R. Tiffany	751,701	Feb. 9	1690	384	108	1436
Lathes. Variable-speed mechanism for	W. Lodge	749,492	Jan. 12	1958	406 407	108	458

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Laundry-machine roller	W. E. Cumback	751,836	Feb. 9	1961	445	108	1498
Laundry. Portable	W. A. Roberson	748,966	Jan. 5	850	182	108	197
Leach-clearing mechanism	C. P. Bossert	750,427	Jan. 26	3728	806 809	108	879
Lead. Manufacture of white	J. W. H. James	750,541	Jan. 26	3964	------	108	928
Leaf-turner	E. Taylor	751,219	Feb. 2	823	189	108	1232
Leather. Production of substances resembling	H. Karle and J. Schmidt	750,371	Jan. 26	3624	786	108	857
Leather-splitting machine	J. M. Seymour and A. M. Harris	750,403	Jan. 26	3680	799	108	870
Leather-stitching-machine roller-guide	J. Hughes	751,398	Feb. 2	1151	263	108	1302
Ledger binder. Loose-leaf	L. M. Leslie	750,664	Jan. 26	4163	903	108	999
Ledgers, account and record books, files, &c. Lock for the adjustable backs of loose-leafed	A. D. Hulquist	749,992	Jan. 19	2921	634	108	686
Ledgers, account-books, &c. Lock for the adjustable backs of loose-leafed	A. D. Hulquist	749,560	Jan. 12	2078	432	108	487
Leg-fastening	A. Ow	748,877	Jan. 5	614	138	108	137
Legging. Puttie	J. T. Allinson and W. T. S. Robertson	749,911	Jan. 19	2750	592	108	651
Legging-spring	M. Rosenwasser	749,951	Jan. 19	2841	607	108	699
Lemon-squeezer	D. H. Mosteller	749,573	Jan. 12	2097	436	108	491
Lemon-squeezer	A. McLaren	752,579	Feb. 16	3381	754	108	1828
Lenses or mirrors. Apparatus for the systematic alteration of plane pictures by means of spherically	T. Schelmpflug	752,506	Feb. 16	3416	761 762 763	108	1837
Lenses or mirrors. Distorting plane images by means of	T. Schelmpflug	751,347	Feb. 2	1063	241 242	108	1284
Letter-box	G. E. Benton	749,154	Jan. 12	1226	263	108	301
Letter-clip and blotter. Combination	L. Pratt	749,221	Jan. 12	1379	294	108	337
Letter-package tie	C. S. Kellum	749,365	Jan. 19	2817	602	108	668
Level and square. Combined	L. A. Wiesman	752,014	Feb. 9	2332	519	108	1573
Level. Plumb-	J. J. Lankford	753,149	Feb. 23	4516	1006 1007	108	2006
Leveler. Field-	J. W. Lafferty	752,079	Feb. 16	2433	544	108	1617
Life-belts. Means for inflating	H. Clews, Jr., and F. Y. Dalziel	752,654	Feb. 23	3558	792	108	1883
Lifter: *See* Grain-lifter. Plate-lifter.							
Lifting apparatus	J. A. Taylor	750,320	Jan. 26	3542	765	108	889
Lifting-jack	M. M. Moore, Sr	748,972	Jan. 5	830	176	108	193
Lifting-jack	W. C. Smith	748,992	Jan. 5	859	184	108	199
Lifting-jack	L. C. Kimberly	750,287	Jan. 26	3468	750	108	821
Lifting-jack	L. O. Lander	751,309	Feb. 2	1047	228	108	1271
Lifting-jack	M. V. H. Perkins and G. Y. Patterson.	751,336	Feb. 2	1048	238	108	1281
Lifting-jack	R. F. Cook	751,613	Feb. 9	1537	349	108	1403
Lifting-jack	E. C. Yeager	752,502	Feb. 16	3238	722	108	1795
Lifting-jack	F. V. Dalton	752,656	Feb. 23	3561	793	108	1884
Lifting-jack	J. H. Kingsbury	749,489	Jan. 12	1953	405	108	456
Lifting-jack and thill-support	T. L. F. Stack	750,409	Jan. 26	3692	801	108	879
Lifting mechanism	B. K. Hollister	749,984	Jan. 19	2816	601	108	663
Ligature-tube							
Light: *See* Sidewalk or other light. Skylight. Street-light.							
Lighting-ring	A. J. Blackford	753,115	Feb. 23	4457	991	108	2084
Lightning-arrester	W. E. Cone	749,436	Jan. 12	1792	378	108	424
Lightning-arrester	C. C. Cheaney	751,460	Feb. 9	1951	286	108	1341
Linotype for printing music typographically	J. Broadhouse	751,607	Feb. 9	1519	345 346	108	1401
Linotype-matrix	H. Petersen	752,179	Feb. 16	2605	579	108	1655
Liquid. Apparatus for delivering measured quantities of	H. J. S. Cassal	752,653	Feb. 23	3556	792	108	1882
Liquid-cooler	J. L. Steitz	749,288	Jan. 12	1402	300	108	341
Liquid-cooler	O. Roderwald	749,325	Jan. 12	1588	396	108	392
Liquid-fuel burner	D. H. Mosteller	751,092	Feb. 2	568	132	108	1188
Liquid-meter	A. S. Drisko and R. Berrenberg	748,707	Jan. 5	204	67	108	65
Liquid mixing and spraying apparatus	W. H. Millspaugh	748,971	Jan. 5	829	175	108	198
Liquid-purifying apparatus	O. Kartzmark	751,986	Feb. 9	2280	510	108	1564
Liquid-separator. Centrifugal	J. A. Dahlqvist	752,284	Feb. 16	2886	627	108	1706
Liquid-trap. Non-siphoning	J. J. Tokheim	749,508	Jan. 12	1973	410	108	462
Liquids. Apparatus for automatically controlling the flow of	A. Priestman	749,825	Jan. 19	2599	556	108	616
Liquids by continuous decantation. Apparatus for removing suspended matter from	T. R. Wollaston	751,088	Feb. 2	472	110 111	108	1102
Liquids from solids. Apparatus for separating	G. M. Rice	751,810	Feb. 9	1908	432 433	108	1483
Liquids. Stoppering device for sparkling	J. Roger	749,749	Jan. 19	2461	524	108	586
Liquors. Clarifying	E. R. Hewitt	748,895	Jan. 5	591	------	108	133
Load-retaining stakes. Position-governing means for	W. M. Cain	748,698	Jan. 5	280	64	108	62
Load-retaining stakes. Position-governing means for	W. M. Cain	748,699	Jan. 5	283	64	108	63
Loader and trimmer. Combined	J. J. Lamb and J. M. Adams	750,865	Feb. 2	157	37	108	1092
Loading device	A. E. Merkel	750,382	Jan. 26	3644	791	108	892
Lock: *See* Blind-lock. Bung-lock. Check-lock. Deak-lock. Door-lock. Door stop-lock. Gravity-lock. Hasp-lock. Nut-lock. Padlock. Railway-spike lock. Safety-lock. Sash-lock. Seal-lock. Umbrella-lock. Window-lock.							
Lock	E. Mühlinghaus	748,772	Jan. 5	402	92	108	96
Lock	C. E. Johnson	750,285	Jan. 26	3464	749 750	108	821
Lock	P. Stein	752,009	Feb. 9	2314	517	108	1572
Lock	E. F. Gillon	752,063	Feb. 16	2404	536	108	1610
Lock	C. Faust	752,148	Feb. 16	2560	569	108	1645
Lock	P. La Belle	752,224	Feb. 16	3498	778	108	1852

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lock and latch	N. W. Crandall	752,205	Feb. 16	2662	590	108	1669
Lock and latch. Combined	B. Schacht	750,707	Jan. 26	4253	923 924	108	989
Lock strike-plate	C. Hamel	749,818	Jan. 19	2585	550	108	613
Locket	T. W. Foster	752,336	Feb. 16	2927	653	108	1729
Locomotive-alarm. Automatic	C. D. King	751,926	Feb. 9	2135	482	108	1584
Locomotive-boiler	J. Wister	750,145	Jan. 19	3206	680	108	745
Locomotive buffer-beam	J. F. Dunn	750,441	Jan. 26	3754	816	108	886
Locomotive-engine	E. Field	753,057	Feb. 23	4358	969 970	108	2062
Locomotive-engine or motor-vehicle safety appliance.	W. N. Whitely	751,234	Feb. 2	854	195 196	108	1239
Locomotive safety apparatus	J. Barberie	752,815	Feb. 23	3858	865	108	1950
Locomotive signaling apparatus	H. Stadelmann, Jr	749,111	Jan. 5	1129	239 240	108	261
Locomotive-spring	J. W. Harty	751,850	Feb. 9	1992	451	108	1500
Locomotive system	T. G. Aultman and J. C. Gaskill	751,898	Feb. 9	2068	468	108	1519
Locomotive track-sander	G. M. Schwend	752,598	Feb. 16	3429	764	108	1839
Locomotive turn-table	R. Fair and S. P. Davis	752,539	Feb. 16	3305	736	108	1812
Log-car standard	E. W. Klingensmith and F. W. Lane	750,659	Jan. 26	4153	901	108	967
Logging device	G. Moore	751,322	Feb. 2	1028	233	108	1276
Loom	A. Wolfensberger	749,890	Jan. 19	2715	580	108	642
Loom	J. L. Poalk	752,922	Feb. 23	4090	911 912	108	2003
Loom filling-detecting mechanism	E. Cunniff	749,364	Jan. 12	1669	355 356	108	400
Loom filling-feeder mechanism. Automatic	J. C. Edwards	753,054	Feb. 23	4351	968	108	2061
Loom. Filling-replenishing	E. S. Stimpson	753,012	Feb. 23	4269	951	108	2042
Loom for weaving bordered fabrics	J. H. Cunliffe and J. Law	751,384	Feb. 2	1128	256	108	1298
Loom for weaving figured goods	A. Barbier, C. Charmetant, and J. Grassy.	750,015	Jan. 19	2969	695	108	696
Loom jacquard apparatus	C. M. Edouard and C. Sorlin	752,890	Feb. 23	3888	872	108	1956
Loom jacquard mechanism	G. W. Kuenneth	751,927	Feb. 9	2139	482 483	108	1534
Loom lug-strap connection	J. Thompson	751,819	Feb. 9	1928	437	108	1486
Loom-picker	E. Goldsmith	751,497	Feb. 9	1315	301	108	1357
Loom picker-stick check	W. E. Sartwell	752,110	Feb. 16	2486	555	108	1628
Loom pile-wire motion	H. K. Martin	749,443	Jan. 12	1845	384	108	434
Loom shed-forming mechanism	W. Wattle	752,316	Feb. 16	2891	644 645	108	1721
Loom shedding mechanism	B. F. McGuiness	752,352	Feb. 16	2954	657 658	108	1535
Loom-shuttle	A. Baldwin	749,353	Jan. 12	1643	350	108	395
Loom shuttle and quill. Narrow-ware	E. H. Sawyer	748,887	Jan. 5	632	142	108	141
Loom-shuttle. Automatically-self-threading	J. W. Sherry	753,214	Feb. 23	4648	1035	108	2127
Loom shuttle-box motion	E. Hollingworth	752,973	Feb. 23	4204	936	108	2023
Loom-shuttle. Self-threading	W. C. Trombly	751,123	Feb. 2	620	144	108	1192
Loom. Swivel-	J. H. Farrar	751,725	Feb. 9	1736	394	108	1444
Loom-temple	C. F. Thompson	752,606	Feb. 16	3453	772	108	1843
Loom warp stop-motion	W. Oldfield	750,300	Jan. 26	3492	755	108	827
Loom weft-replenishing mechanism	W. H. Baker and F. E. Kip	749,979	Jan. 19	2888	617 618 619	108	678
Looms. Filling-end-holding means for automatic	M. L. Stone	750,411	Jan. 26	3693	802	108	873
Looms for weaving carpets. Wiring-motion of	E. Hollingworth	752,974	Feb. 23	4206	937	108	2020
Looms. Means for preventing warp breakage in	R. Jamieson	753,198	Feb. 23	4610	1027	108	2110
Lubricant-supplying device	T. A. Matthews	753,201	Feb. 23	4615	1028	108	2121
Lubricating motors and machinery driven thereby. Device for	A. Krebs	752,566	Feb. 16	3361	749	108	1823
Lubricating substances. Means for testing	G. Dettmar	752,827	Feb. 23	3881	870	108	1955
Lubricator: *See* Air-brake-pump lubricator. Yarn or thread lubricator. Axle-lubricator.							
Lubricator	T. A. Delaney	749,477	Jan. 12	1928	400	108	452
Lubricator	S. M. Hall	750,053	Jan. 19	3043	653	108	710
Lubricator	L. Chapman	750,751	Jan. 26	4370	944 945	108	1017
Lubricator	J. N. Leach	751,186	Feb. 2	751	172	108	1218
Lubricator	C. B. and F. W. Hodges	752,554	Feb. 16	3332	742	108	1818
Lumber or lath handling apparatus	W. A. Marshall	750,775	Jan. 26	4433	955 956	108	1082
Machinery. Device for protecting the joints between stationary and movable	F. W. Krogh	752,170	Feb. 16	2591	576	108	1652
Magnet	H. F. Campbell	750,594	Jan. 26	4054	877	108	946
Magneto-electric generator	H. J. Creighton	751,616	Feb. 9	1541	350	108	1404
Mail-bag catcher	A. P. Bower	750,341	Jan. 26	3575	774	108	847
Mail-bag catcher	O. P. W. Ehrhardt	752,334	Feb. 16	2924	652	108	1728
Mail-box	H. G. Leffingwell	751,310	Feb. 2	1008	228 229	108	1272
Mail-box	J. V. Keener	751,922	Feb. 9	2131	480	108	1583
Mail-box	G. E. Robison	753,168	Feb. 23	4542	1012 1013	108	2102
Mail-box. Rural	C. F. Keller	750,547	Jan. 26	3973	859	108	929
Mail-delivery apparatus. Automatic	I. F. Cole	751,464	Feb. 9	1255	287 288	108	1342
Mail-delivery apparatus. Automatic	I. F. Cole	751,465	Feb. 9	1258	288	108	1343
Mail-marking and canceling device	E. M. Judd	751,736	Feb. 9	1762	400 401	108	1450
Mail-marking apparatus	H. E. Waite	752,132	Feb. 16	2580	563 564	108	1639
Mail-marking machine	A. H. Pitney	753,207	Feb. 23	4625	1030 1031	108	2122
Mail or letter box	P. S. Dusenbury and H. M. Kelly	749,428	Jan. 12	1795	378	108	425
Mail-pouch closure	J. L. McCormick	749,876	Jan. 19	2668	575	108	686
Mail, &c. Receiver for	N. D. Clearwater	751,884	Feb. 9	1958	444	108	1492
Mailer. Coin-	C. H. Stempel	752,010	Feb. 9	2317	517	108	1572

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mailing or similar box indicator	J. Booth	750,519	Jan. 26	3907	847	108	917
Malt-making machine	H. J. Sulzen	751,026	Feb. 2	449	106	108	1157
Malt turner and aerator	J. Mueller	748,875	Jan. 5	610	137	108	137
Mandolin-pick holder	B. F. Knell	749,616	Jan. 12	1332	286	108	327
Mandrel. Expansible	A. Klay	749,202	Jan. 12	1332	286	108	327
Mangle	J. Zalikowski	750,930	Feb. 2	281	66, 67	108	1120
Mantle and support	W. G. Hughes	751,856	Feb. 9	3006	454	108	1505
Manure-spreader	C. W. Smith	750,097	Jan. 19	3065	658	108	715
Map	A. Van der Grinten	751,226	Feb. 2	838	192	108	1230
Map	J. A. Colas	752,957	Feb. 23	4172	930	108	2020
Map study	E. Wilkins	752,739	Feb. 23	3712	828	108	1918
Marker. Stock-	L. J. Davis	749,085	Jan. 5	908	204	108	225
Marking and cutting device	C. C. Stange	748,997	Jan. 5	871	187	108	201
Marking-gage	D. Wagor	751,763	Feb. 9	1812	413	108	1460
Marking tool. Cattle-	H. A. Jones	748,613	Jan. 5	105	27	108	24
Marlinespike	H. Fesenfeld	748,714	Jan. 5	302	68	108	67
Masonry structures. Temporary supporting-form for	G. W. Jackson	749,735	Jan. 19	2430	516, 517	108	579
Massage. Electromagnetic device for vibratory	E. K. Müller	749,213	Jan. 12	1357	291	108	333
Massage implement	J. Barker	750,508	Jan. 26	4007	866	108	996
Massage instrument	N. Jacobsen	749,690	Jan. 12	2316	488, 489	108	537
Massaging implement	J. B. Wantz	751,081	Feb. 2	460	108	108	1159
Match-box	H. A. Dodge	749,589	Jan. 12	2054	426	108	481
Match-box	G. Agobian	749,600	Jan. 12	2144	447	108	502
Match-box and cigar-cutter. Combined	F. H. Vick, Jr	752,130	Feb. 16	2528	563	108	1638
Match-holder	L. Ebner	752,443	Feb. 16	3137	697	108	1773
Match or other box	A. F. Fuller	750,447	Jan. 26	3761	818	108	887
Match-receptacle	J. E. Neahr	751,675	Feb. 9	1641	373	108	1426
Match-safe	J. R. Thomas	748,891	Jan. 5	689	143	108	143
Match-safe	M. R. Land	751,208	Feb. 2	1005	228	108	1271
Match safe and lighter	C. F. A. Cammann	748,925	Jan. 5	711	155	108	161
Match-safe. Single-delivery	W. F. Carlberg	749,472	Jan. 12	1915	397	108	450
Match-stock-preparing apparatus	W. H. Parker	749,218	Jan. 12	1374	294	108	330
Match-stock-preparing machine	W. H. Parker	752,706	Feb. 23	3656	814	108	1906
Mattress	F. J. Lewzey	749,901	Jan. 19	2737	586	108	646
Mattress. Sponge-rubber	M. L. Derick	752,147	Feb. 16	2559	569	108	1645
Mattress-stuffing machine. Pneumatic	L. W. Ellman and J. W. Morgan	752,602	Feb. 23	3573	795, 796	108	1886
Mattress. Wire	F. Caspary	751,147	Feb. 2	668	153	108	1202
Mausoleum or burial-vault	G. Y. Bonus	750,157	Jan. 19	3224	695	108	749
Measure and funnel. Automatic	H. R. Myers	751,609	Feb. 9	1631	370	108	1424
Measure. Liquid-	H. J. and J. C. Brantley	748,694	Jan. 5	273	62, 63	108	51
Measure. Tailor's	R. G. Horne	750,975	Feb. 2	363	88	108	1138
Measure. Toe-tip	F. H. Packard	752,708	Feb. 23	3821	857	108	1942
Measures and funnels. Automatic valve for combined	E. D. Schafer	748,988	Jan. 5	854	183	108	198
Measuring and cutting machine. Cloth	F. I. Stiles	752,190	Feb. 16	2569	556	108	1684
Measuring and truing shoe-tips. Device for	G. Elmasian	751,621	Feb. 9	1559	353	108	1406
Measuring device	V. B. Frangart	752,446	Feb. 16	3141	698	108	1774
Measuring heights of individuals. Device for	J. Maitland	750,870	Feb. 2	167	39	108	1094
Measuring instrument	R. Schierbeck	752,470	Feb. 16	3175	707	108	1781
Measuring instrument. Angle-	F. E. Hutchins	751,647	Feb. 9	1595	363	108	1416
Measuring instrument. Electrical	L. T. Robinson	751,015	Feb. 2	429	102	108	1152
Measuring instruments centrally in bottles, &c. Means for securing	A. B. Hohmann	752,452	Feb. 16	3149	701, 702	108	1776
Measuring tank. Liquid-	E. O. Linton	748,761	Jan. 5	389	88	108	86
Measuring the flow of oil in pipes. Apparatus for accurately	L. P. Lowe	749,390	Jan. 12	1724	395	108	411
Measuring watts in alternating-current circuits	C. A. Brown	750,989	Feb. 2	302	71	108	1124
Meat-cutter	J. W. Simmons	752,264	Feb. 16	2787	618	108	1699
Meat cutter or chopper	P. F. Meher	749,873	Jan. 19	2683	574	108	634
Meats. Curing	F. J. Gardner	752,392	Feb. 16	3034	675	108	1752
Mechanical movement	W. H. Voss	750,136	Jan. 19	3188	685	108	741
Mechanical movement	J. Tagliaferri	751,218	Feb. 2	822	189	108	1222
Mechanical movement	C. Dietz	751,268	Feb. 2	930	211	108	1255
Mechanical movement	A. Lindsay and J. Melaert	751,317	Feb. 2	1019	231	108	1275
Mechanical movement	H. F. Brammer	751,606	Feb. 9	1518	345	108	1400
Medicated tampon	E. M. Pond	749,220	Jan. 12	1378	294	108	337
Megaphone	C. Melville	748,969	Jan. 5	801	173	108	183
Melting-furnace	J. F. Barker	750,748	Jan. 26	4306	943	108	1016
Melting-furnace	H. J. J. Charlier	753,122	Feb. 23	4469	994	108	2096
Mercerizing apparatus	T. Pratt	750,694	Jan. 26	4224	917	108	983
Messages. Apparatus for electrically transmitting and receiving	A. T. M. Johnson	751,294	Feb. 2	973	221, 222, 223	108	1264
Metal bars and beams. Attachment for uniting	C. T. Purdy and J. S. Lane	749,222	Jan. 12	1380	295	108	337
Metal-beating machine	F. W. Gremppler	748,722	Jan. 5	315	70, 71	108	70
Metal-boring tool	F. W. Taylor and S. Newbold	748,890	Jan. 5	636	143	108	142
Metal, &c. Coin-controlled device for embossing strips of	H. Casler and J. A. Pross	750,432	Jan. 26	3730	810, 811	108	881
Metal grinding or polishing apparatus	L. C. Forwood	749,179	Jan. 12	1282	276	108	314
Metal rods. Machine for shearing blanks from	J. P. Wennersten	749,415	Jan. 12	1768	374	108	420
Metal-surface-grinding machine	J. H. Haskins	751,791	Feb. 9	1860	423, 424, 425	108	1471
Metal surfaces. Transferring and etching designs on	O. Palm, Jr., and W. T. Blomberg	753,097	Feb. 23	4428	985	108	2078
Metal-turning machine	T. W. R. McCabe	753,158	Feb. 23	4532	1010, 1011	108	2100
Metal wheels. Making	F. E. Canda	751,429	Feb. 2	1198	273	108	1312
Metal-working machine	J. C. Potter and J. Johnston	752,257	Feb. 16	2772	615	108	1695
Metal-working-machine traveling carrier	S. B. Harding	750,644	Jan. 26	4128	895, 896	108	962
Metals from complex ores. Extraction of	J. Baxeres de Alzugaray	752,320	Feb. 16	2807	------	108	1722
Metals. Uniting two	W. H. Wherry	750,511	Jan. 26	3886	843	108	914
Metallic formed sheet	J. H. Murphy and E. M. Camp	748,634	Jan. 5	159	38	108	36

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Metallurgical furnace	W. S. Dempsey	750,022	Jan. 19	2982	638	108	698
Meter: *See* Electric meter. Fluid-meter. Gas-meter. Liquid-meter. Water-meter. Wattmeter.							
Meter-box	E. H. Cowan and B. C. Palmer	753,126	Feb. 23	4478	997	108	2089
Meter for measuring water or other liquids	O. C. Piper	753,001	Feb. 23	4249	947	108	2038
Meter registering mechanism	L. H. Nash	748,778	Jan. 5	411	94	108	92
Micrometer-indicator	J. Boulet	752,752	Feb. 23	3733	832	108	1922
Microphone	P. Germain	753,062	Feb. 23	4368	972	108	2065
Microscope and case therefor. Portable	C. F. Dieckmann	752,889	Feb. 23	4003	896, 897	108	1983
Microscopist's paraffin-bath	F. A. Wunderlich	750,515	Jan. 26	3898	845	108	916
Milk-can	W. J. Snow	748,805	Jan. 5	470	106	108	105
Milk-can	H. A. Keiner and E. R. Gilman	750,461	Jan. 26	3789	823	108	893
Milk-jar-locking device	G. Hollé and C. Stevenson	750,191	Jan. 19	3283	709	108	761
Milk-pail holder	F. L. Shattuck	750,312	Jan. 26	3525	761	108	835
Mill: *See* Fanning-mill. Grinding-mill. Ore-mill. Quartz-mill. Rolling-mill. Stamp-mill. Universal mill. Windmill.							
Milling-machine	G. K. Garvin	751,629	Feb. 9	1567	356	108	1410
Mine-ventilation system and apparatus	W. Clifford	752,955	Feb. 23	4169	929	108	2020
Miner's tool	A. V. Des Moineaux	753,048	Feb. 23	4343	966	108	2059
Mining drill. Coal or rock	A. Walker	752,490	Feb. 16	3212	717	108	1789
Mining-hoist safety appliance	J. Lewis	748,962	Jan. 5	788	170	108	179
Mining. Hydraulic gold-	F. J. Hoyt	749,197	Jan. 12	1320	283, 284	108	324
Mining-machine	H. B. Dierdorff	751,478	Feb. 9	1284	268	108	1349
Mining-machine	J. A. Jeffrey	751,919	Feb. 9	2124	478, 479	108	1531
Mining-machine	E. P. Rauscher	752,180	Feb. 16	2606	579	108	1655
Mining-machine bit. Coal-	R. McKinney	753,203	Feb. 23	4617	1029	108	2121
Mirror	F. Jaeger	751,290	Feb. 2	965	220	108	1262
Mirror	F. Jaeger	751,291	Feb. 2	966	220	108	1262
Mirror-support	A. W. Mann	751,526	Feb. 9	1302	311	108	1367
Mirror-support	J. M. Conroy	752,958	Feb. 23	4175	930	108	2021
Miter-box	J. A. Traut	749,242	Jan. 12	1407	302	108	342
Miter-box	M. L. Busbee	751,255	Feb. 2	907	207	108	1250
Miter-box	H. E. Goodell	751,908	Feb. 9	2099	474, 475	108	1526
Miter-box	L. P. Nichols	752,406	Feb. 16	3064	680	108	1757
Miter-box	S. D. Hoy	752,978	Feb. 23	4213	938	108	2030
Miter-cutting machine	R. Dunne	752,050	Feb. 16	2378	531, 532	108	1604
Miter-cutting-machine arm adjustment	R. Wales	752,730	Feb. 23	3698	825	108	1915
Mixer: *See* Mortar-mixer.							
Mixing-machine	C. E. and C. T. Foote	749,902	Jan. 19	2860	611	108	672
Mold: *See* Baking-mold. Brick-machine mold. Lacing-hook mold. Tank-mold. Type-mold.							
Mold	J. F. Spencer	748,996	Jan. 5	864	185, 186	108	201
Molder's flask	W. Lotz, Jr., C. Wismeyer, C. S. Hammer, F. Thoma, and H. A. Rentschler.	749,696	Jan. 12	2327	491	108	540
Molder's flask and gated pattern	H. G. Voight	750,559	Jan. 26	3994	863, 864	108	933
Molding apparatus. Power-actuated	J. G. Johnston	752,780	Feb. 23	3780	844, 845	108	1933
Molding-apparatus vibrator	F. W. Hall	750,641	Jan. 26	4122	894	108	961
Molding-cope	W. C. Norcross	752,797	Feb. 23	3819	857	108	1942
Molding-machine	C. D. Marsh	750,552	Jan. 26	3983	861	108	931
Molding-machine	J. J. Turner and J. A. Dowler	752,484	Feb. 16	3201	714	108	1787
Molding or briqueting. Apparatus for preparing pulverulent materials for	E. B. A. and R. A. Zwoyer	751,133	Feb. 2	642	148	108	1197
Molding or briqueting. Preparing pulverulent materials for	E. B. A. and R. A. Zwoyer	751,134	Feb. 2	644	149	108	1197
Molding-press, mold-drier, and vulcanizer. Combined	R. H. Smith	751,759	Feb. 9	1800	410, 411	108	1458
Molten baths. Drawing articles from	C. P. Byrnes	750,258	Jan. 26	3401	786	108	805
Monkey-wrench	N. D. Fairchild	748,938	Jan. 5	746	162	108	170
Monkey-wrench. Quick-acting	J. Heil	751,851	Feb. 9	1993	452	108	1501
Monorailway and truck therefor	L. Beecher	750,247	Jan. 26	3894	784	108	804
Mop and wringer. Combined	E. Hilker	752,679	Feb. 23	3606	803	108	1894
Mop-holder	C. Morgan	749,940	Jan. 19	2825	603	108	665
Mop-wringer	C. S. Fowler and F. C. Wetzler	750,354	Jan. 26	3595	779	108	852
Mortar holding and discharging device	F. C. Ferris	750,837	Feb. 2	113	25	108	1082
Mortar-mixer	R. Bodlaender	751,898	Feb. 9	2077	469	108	1521
Motion-transmitter	V. J. Dolechek	749,089	Jan. 5	978	206	108	228
Motive power. Generating	A. Schütt	750,493	Jan. 26	3846	835	108	906
Motive power. Generation of	A. Schütt	750,494	Jan. 26	3847	835	108	906
Motor: *See* Air-motor. Combustion-motor. Current-motor. Electric motor. Explosion-motor. Fluid-motor. Fluid-pressure motor. Hydraulic motor. Internal-combustion motor. Rotary motor. Spiral motor. Spring-motor. Steam-motor. Water-motor. Wave-motor.							
Motor	B. J. Delzeit	750,098	Jan. 19	3126	671	108	728

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Motor	R. W. Funk	751,980	Feb. 9	2269	508	108	1502
Motor control	S. T. Dodd	749,272	Jan. 12	1484	316 317	108	357
Motor-controller	F. V. Nicholls	751,547	Feb. 9	1403	321	108	1376
Motor-fluid generator	R. Berg	751,973	Feb. 9	2253	505 506	108	1558
Motor fluids. Generating	R. Berg	751,972	Feb. 9	2250	505	108	1558
Motor sparking plug	J. S. Foley	749,045	Jan. 5	990	210	108	230
Motors. Controlling means for explosion-	W. J. Lloyd	752,627	Feb. 16	3502	779 780	108	1854
Motors. Feed-controlling mechanism for hydrocarbon-	W. W. Tuck and A. Wassmann	750,912	Feb. 2	250	56, 57	108	1113
Motors. Means for controlling governor-	G. Wright	751,508	Feb. 9	1508	343	108	1308
Movement-cure apparatus	C. Owens	752,252	Feb. 16	2761	612	108	1693
Mower-bar	A. C. Rioux	752,108	Feb. 16	2481	554	108	1627
Mower. Lawn-	O. R. Chaplin	751,378	Feb. 2	1118	253 254	108	1295
Mower. Lawn-	C. E. Foster	751,844	Feb. 9	1976	440	108	1497
Mower. Lawn-	C. E. Foster	752,665	Feb. 23	3579	797 798	108	1888
Mower. Motor lawn-	I. H. Davis	750,616	Jan. 26	4088	885	108	953
Mowing-machine	E. Chainey	750,808	Feb. 2	42	9	108	1066
Mowing-machine	S. K. Dennis	750,827	Feb. 2	78	17 18 19 20	108	1074
Mowing-machine	T. S. Brown	750,942	Feb. 2	308	73	108	1120
Mowing-machine	A. M. Threewits	751,223	Feb. 2	829	190 191	108	1233
Mowing-machine	G. W. Newton	752,095	Feb. 16	2458	549 550	108	1623
Mowing-machine. Automatic	E. A. Johnston	752,779	Feb. 23	3776	843 844	108	1932
Mowing-machine cutter-bar	W. W. Jones	749,613	Jan. 12	2163	453	108	406
Mucilage-cup	W. Robinson	752,591	Feb. 16	3404	759	108	1834
Muffle	J. and A. G. Carter	752,488	Feb. 16	3127	695	108	1770
Muffler. Exhaust-	T. J. Willis and G. Andricht	750,011	Jan. 19	2955	632	108	668
Mule and twiner. Self-acting	G. E. Ross	752,302	Feb. 16	2859	635 636	108	1713
Multiple-expansion engine	F. M. Prescott	751,905	Feb. 9	2294	513	108	1567
Multiple-expansion engine	F. M. Prescott	751,906	Feb. 9	2295	513	108	1567
Multiple-expansion engine	F. M. Prescott	751,907	Feb. 9	2296	513	108	1567
Music-leaf turner	P. and F. C. Engelking	749,667	Jan. 12	2272	479	108	598
Music-leaf turner	W. Bauer	751,449	Feb. 9	1234	282	108	1338
Music-pieces. Device for mechanically substituting one disk for another in	A. J. Rod	749,826	Jan. 19	2008	556	108	617
Music recording and self-playing mechanism	R. A. Gally	749,181	Jan. 12	1284	277	108	315
Music roll and spool. Adjustable and self-adjusting	M. Gally	751,494	Feb. 9	1309	300	108	1356
Music-sheet-perforating apparatus	A. L. Hart	752,221	Feb. 16	2694	505 507	108	1677
Music turner. Sheet-	J. W. Collier	749,028	Jan. 5	946	200	108	220
Music turner. Sheet-	E. Douden	750,101	Jan. 19	3129	672	108	729
Music turner. Sheet-	M. T. Phillips	750,391	Jan. 26	3655	794	108	864
Musical apparatus. Pneumatically-operated	E. S. Votey	751,229	Feb. 2	842	192 193	108	1236
Musical cane or sounding device	I. Eisenstein	751,153	Feb. 2	678	155	108	1201
Musical instrument	E. S. Stevenson	751,880	Feb. 9	2042	461 462	108	1512
Musical instrument	E. Lambotte	752,080	Feb. 16	2435	543	108	1618
Musical instrument	B. R. Klessig	752,782	Feb. 23	3784	845 846	108	1934
Musical-instrument. Automatic	W. H. Rees	751,808	Feb. 9	1908	431 432	108	1482
Musical instrument automatic playing attachment	W. H. Rees	751,735	Feb. 9	1795	409	108	1457
Musical-instrument cases. Bow-holder for	F. A. Faulhaber	749,433	Jan. 12	1810	380	108	429
Musical-instrument controlling mechanism. Automatic-	A. Keller	752,683	Feb. 23	3613	804	108	1895
Musical-instrument self-playing attachment	J. Courville. (Reissue)	12,199	Jan. 5	1198	256	108	278
Musical-instrument speed-regulator. Mechanical-	H. P. Ball	749,517	Jan. 12	2002	416	108	469
Musical-instrument tracker-bar	J. T. Sibley	748,801	Jan. 5	459	103 104	108	103
Musical instruments and players. Pneumatic action for mechanical	M. Gally	752,060	Feb. 16	2399	535	108	1609
Musical instruments. Attachment for expression or accent controlling mechanisms for mechanical	R. W. Pain	752,930	Feb. 23	4085	910 911	108	2002
Muzzle. Animal-	B. P. Merry	750,210	Jan. 19	3320	717	108	769
Muzzle for calves or colts	W. M. Vancuren	749,594	Jan. 12	2135	445	108	500
Nail or tack driving implement	S. A. Cohen	750,605	Jan. 26	4071	881	108	950
Nail-puller	W. T. Norcott	751,680	Feb. 9	1650	375	108	1427
Nails. Apparatus for making and simultaneously driving wire	M. Schubert	752,305	Feb. 16	2865	637	108	1714
Napkin-attaching device. Sanitary-	C. H. Schopbach	749,453	Jan. 12	1866	388	108	438
Napkin-ring	W. M. Kendall	750,197	Jan. 19	3291	711	108	768
Navigator's position-indicator	J. B. Smith	752,717	Feb. 23	3675	819	108	1910
Necktie	C. Nollenberger	751,331	Feb. 2	1042	236	108	1279
Necktie	C. Nollenberger	751,332	Feb. 2	1043	236	108	1279
Necktie-band fastener	A. E. G. M. Lacoin	751,305	Feb. 2	1001	227	108	1270
Necktie-holder	J. W. Van Plew	750,135	Jan. 19	3187	685	108	741
Necktie or ribbon clasp	J. J. O'Callaghan	753,095	Feb. 23	4427	985	108	2078
Necktie-retainer	M. C. Lewellyn	749,621	Jan. 12	2177	457	108	508
Nest. Trap-	A. G. Root	750,702	Jan. 26	4239	921	108	966
Net. Landing-	J. C. Heritage	752,550	Feb. 16	3326	740 741	108	1816
Nipple-shield	F. P. Prindle	751,415	Feb. 2	1177	268	108	1307
Nitrated carbohydrate	A. Hough	751,076	Feb. 2	541	------	108	1178
Noodles, &c. Machine for cutting	C. Hurt	748,962	Jan. 5	772	167	108	175

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Nose-ring for animals	E. K. Rea	750,123	Jan. 19	3166	680	108	736
Nozzle	J. Hueni	748,608	Jan. 5	95	25	108	22
Nozzle and joint. Hydraulic	J. A. Yeatman	749,417	Jan. 12	1775	375	108	421
Nozzle for discharging liquids	E. Shaw	749,232	Jan. 12	1396	298 299	108	340
Nozzle. Sprinkler-	J. D. Ross	752,808	Feb. 23	3828	859	108	1944
Nut for safety-bolts, air-valve caps, &c	E. Michelin	750,675	Jan. 26	4195	910	108	977
Nut-lock	S. C. Crow	748,588	Jan. 5	68	19	108	17
Nut-lock	A. C. Fletcher	748,942	Jan. 5	755	163	108	171
Nut-lock	J. W. Church	749,529	Jan. 12	2023	420	108	474
Nut-lock	J. N. Smith	750,130	Jan. 19	3177	683	108	738
Nut-lock	W. C. Miner	750,211	Jan. 19	3321	717	108	769
Nut-lock	F. A. Howard	750,364	Jan. 26	3612	788	108	855
Nut-lock	T. G. Ingle	750,365	Jan. 26	3613	788	108	855
Nut-lock	H. C. Stouffer	750,412	Jan. 26	3695	802	108	873
Nut-lock	F. P. Koenig	750,466	Jan. 26	3796	825	108	895
Nut-lock	H. J. Berkley	750,796	Feb. 2	29	6	108	1063
Nut-lock	H. J. Casanova and H. C. Caldwell	751,457	Feb. 9	1246	285	108	1340
Nut-lock	R. E. Pennington and J. Bellett	751,550	Feb. 9	1414	322	108	1378
Nut-lock	P. S. Brindle	752,025	Feb. 16	2389	523	108	1596
Nut-lock	J. Dickason	752,207	Feb. 16	2665	591	108	1669
Nut-lock	W. R. Rose	752,263	Feb. 16	2786	617	108	1698
Nut-lock	W. C. Miner	752,628	Feb. 16	3504	790	108	1854
Nut-lock	F. L. McCulloch	752,698	Feb. 23	3640	810	108	1902
Nut-lock	J. D. Brent	753,117	Feb. 23	4460	992	108	2065
Nut. Lock-	W. C. Peters and W. Bellamy	748,882	Jan. 5	622	140	108	139
Nut-lock. Safety	L. D. Frenot	752,057	Feb. 16	2395	535	108	1608
Nut lock. Spindle	S. C. Baughn, Jr.	750,425	Jan. 26	3720	808	108	879
Nut-lock washer	E. E. Brown	749,256	Jan. 12	1439	308	108	349
Nut or pipe wrench	D. Stewart	750,727	Jan. 26	4322	934	108	1004
Nut-shelling machine	C. Carr	751,377	Feb. 2	1115	253	108	1295
Nuts, &c. Locking device for	P. Van Duijn and L. W. Van Thiel	749,924	Jan. 19	2800	597	108	660
Oar-lock	A. D. Collins	750,812	Feb. 2	50	11	108	1068
Observation-wheel	D. W. Blair	753,087	Feb. 23	4327	961 962	108	2056
Office-indicator	C. F. Ruttman	750,226	Jan. 19	3349	724	108	775
Oil-burner	A. W. Hess and A. S. Williams	751,395	Feb. 2	1147	261	108	1301
Oil-burner	D. Coradino	752,042	Feb. 16	2365	529	108	1601
Oil-burner	J. L. Smith	752,716	Feb. 23	3673	818	108	1909
Oil burner. Crude-	G. W. Bedinger, I. King, and S. S. Bedinger.	751,608	Feb. 9	1515	344	108	1400
Oil-burner regulator	W. Chamberlain	752,300	Feb. 16	2655	589	108	1668
Oil-can	P. Hoon	751,984	Feb. 9	2277	509	108	1563
Oil-can. Non-explosive	J. Childs	750,080	Jan. 19	3109	668	108	723
Oil condensing and bleaching apparatus	S. Lewiak	751,187	Feb. 2	753	172	108	1218
Oil. Refining	J. C. Fleming	749,925	Jan. 19	2802	597 598	108	660
Oil-separator	J. F. Hale	752,066	Feb. 16	2408	537	108	1611
Oil-separator	M. P. Osbourn	752,999	Feb. 23	4247	946	108	2037
Oil-supply system	H. C. Hanson	748,727	Jan. 5	326	73	108	72
Oil-switch	W. H. Cole	750,811	Feb. 2	47	10, 11	108	1067
Oils. Treating	F. B. Pope	749,322	Jan. 12	1582	334 335	108	380
Oiler. Crank-pin	J. H. Deare	752,047	Feb. 16	2373	530	108	1608
Oiler. Traveling	J. M. Gard	750,960	Feb. 2	339	80	108	1133
Oiler. Windmill-	S. E. Burke	749,526	Jan. 12	2017	419	108	472
Oiling device. Loom-	F. Farmer	751,063	Feb. 2	517	121	108	1173
Oiling device. Loom-	J. S. Giles	751,067	Feb. 2	523	122	108	1174
Oiling device. Loom-	J. S. Giles	751,068	Feb. 2	524	122	108	1174
Ophthalmoscope	H. L. De Zeng and P. S. Reid	750,099	Jan. 19	3127	671	108	728
Optical device	M. F. Shea	750,711	Jan. 26	4261	925	108	990
Optometrist's trial-frame	C. L. Hogue	748,732	Jan. 5	333	74, 75	108	74
Ordnance. Breech-loading	V. C. Tasker	751,761	Feb. 9	1806	411 412	108	1459
Ordnance firing-pins. Retracting attachment for	G. Gerdom	751,847	Feb. 9	1981	450	108	1498
Ore-agglutinizing apparatus	E. A. Uehling	752,726	Feb. 23	3693	823	108	1913
Ore-concentrator	T. H. Hicks	750,281	Jan. 26	3457	747 748	108	819
Ore-concentrator	E. M. Jahraus	750,367	Jan. 26	3616	785	108	856
Ore-concentrator	H. S. Bailey and W. E. Wild	751,971	Feb. 9	2221	500 501 502 503 504 505	108	1552
Ore-grinder	W. G. Phipps	749,690	Jan. 12	2192	461	108	511
Ore-mill	W. E. Wild	752,138	Feb. 16	2540	566	108	1641
Ore-pockets, &c. Gate for	F. K. Hoover and A. J. Mason	753,076	Feb. 23	4396	977	108	2072
Ore-sampling machine	W. L. Raht	751,340	Feb. 2	1054	289	108	1282
Ore-separator	H. J. Burroughs	752,027	Feb. 16	2341	524	108	1596
Ore-separator. Electromagnetic	E. M. Oviatt and A. Dean	751,100	Feb. 2	583	135	108	1185
Ore-separator. Electromagnetic	A. Dean	751,150	Feb. 2	672	154	108	1208
Ore-separator. Pneumatic dry	E. M. Jahraus	750,366	Jan. 26	3613	784	108	855
Ores. Lixiviating	P. Naef	749,700	Jan. 12	2336	493 494	108	541
Ores. Treating refractory	F. H. Miller	751,401	Feb. 2	1155	------	108	1303
Organ. Pipe-	H. F. Hammer	752,671	Feb. 23	3591	800	108	1891
Ornamental comb. Adjustable	W. J. Hines	752,640	Feb. 23	3607	803	108	1895
Ornamented or lettered articles. Manufacturing	R. K. Duncan	748,850	Jan. 5	560	------	108	126
Orrery	J. P. Wesson	749,508	Jan. 12	1981	411 412 413	108	464
Outlet-box	H. Krantz	749,442	Jan. 12	1844	384	108	434
Oven. Draw-plate	G. S. Baker	751,445	Feb. 9	1227	280	108	1336
Oven. Reel-	W. W. Higgins	751,169	Feb. 2	717	164 165	108	1211

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Oxalates. Making	F. Rieche and O. Saame	748,791	Jan. 5	434	.....	108	97
Package-carrier	C. Lederman	753,082	Feb. 23	4406	980	108	2074
Package record-retainer. Liquid-	T. Pendergast	750,390	Jan. 26	3654	794	108	864
Packaging-clip	C. E. Beisel	749,834	Jan. 19	2630	560	108	620
Packing	W. J. M. Weaver	751,884	Feb. 9	2048	463	108	1514
Packing device for rotary-motor stuffing-boxes. Adjustable	S. George	750,534	Jan. 26	3947	855, 856	108	923
Packing. Manhole-	J. K. Munson	749,969	Jan. 19	2871	614	108	675
Packing. Piston-	C. E. Dawson	752,046	Feb. 16	2372	530	108	1603
Packing. Shaft-	G. E. Hibbard	750,766	Jan. 26	4415	951	108	1028
Packing. Valve-stem	E. P. Coleman	750,090	Jan. 19	3110	668, 669	108	723
Pad: *See* Apparel-pad. Blotting-pad. Form-pad. Hoof-pad. Horseshoe-pad.							
Pad-hook	O. H. Muntz	748,773	Jan. 5	404	93	108	90
Padlock	W. A. Matrolis	751,528	Feb. 9	1905	312	108	1368
Padlock. Permutation-	F. T. Anderson	752,020	Feb. 16	2334	522	108	1595
Padlock. Permutation-	D. F. Llewellyn	752,347	Feb. 16	2944	655	108	1733
Padlock. Seal-	W. L. Sebring	751,601	Feb. 9	1672	379	108	1432
Pail. Telescopic measuring-	C. Fisher	750,632	Jan. 26	4110	890	108	958
Paint-sprayer	H. R. Cooper, Sr	749,774	Jan. 19	2708	533	108	597
Painting apparatus. Wheel-	W. B. Long	749,622	Jan. 12	2178	457	108	508
Painting-machine	G. Russell	750,307	Jan. 26	3502	758	108	829
Painting stretcher-frame	W. H. Shaw	751,756	Feb. 9	1797	410	108	1457
Pan: *See* Ash-pan. Baking-pan. Pie-pan. Surgical pan.							
Panel-board	H. O. Swoboda	752,125	Feb. 16	2516	560	108	1695
Paper and making same for obtaining fast copies from writings of anilin inks.	M. H. Chapin	749,684	Jan. 12	2304	.....	108	534
Paper-bag machine	E. Quenard	749,631	Jan. 12	2194	461, 462, 463, 464, 465	108	511
Paper bags. Apparatus for feeding self-opening square	W. Pippert	750,302	Jan. 26	3494	756	108	827
Paper box	A. H. Plummer and M. Hess	751,806	Feb. 9	1901	431	108	1482
Paper-box-end-closing machine	C. H. Brooks	751,714	Feb. 9	1709	389, 390	108	1440
Paper boxes. Machine for manufacturing	J. M. Carncross	749,917	Jan. 19	2779	594	108	656
Paper-clip	G. B. Dusinberre	749,429	Jan. 12	1797	379	108	425
Paper-clip	E. L. Sibley	752,185	Feb. 16	2622	581	108	1660
Paper cuspidor	E. E. Wispenny	751,960	Feb. 9	2213	498	108	1551
Paper cutting and folding machine	S. D. Ruth	749,905	Jan. 19	2743	587	108	648
Paper-drying machine. Wall-	L. H. McCartney	752,903	Feb. 23	4259	944	108	2035
Paper-fastener-inserting apparatus	E. L. Sibley	752,186	Feb. 16	2623	582	108	1660
Paper-feeding and stencil-printing apparatus	A. B. Dick	749,984	Jan. 19	2904	620, 621	108	682
Paper-feeding apparatus	A. B. Dick and E. Brasseur	749,985	Jan. 19	2910	621	108	684
Paper-feeding apparatus	A. B. Dick	749,986	Jan. 19	2913	622	108	684
Paper-feeding device	F. Schilz	751,687	Feb. 9	1663	377, 378	108	1430
Paper-feeding machine	C. B. Maxson	750,295	Jan. 26	3480	753, 754	108	824
Paper-feeding machine	E. J. Hallberg	750,453	Jan. 26	3772	820	108	889
Paper-feeding mechanism	W. A. Tarbett	750,319	Jan. 26	3536	764, 765	108	838
Paper-folding machine	F. G. Nind and C. F. Strasburger	752,853	Feb. 23	3928	881, 882	108	1964
Paper from old newspapers, books, magazines, &c. Making	W. B. Meixell and T. Holt	748,968	Jan. 5	800	.....	108	182
Paper-handling machinery. Sheet-calipering device for	T. C. Dexter and H. Hallstream	749,037	Jan. 5	974	205	108	227
Paper-machine	H. A. Moses	748,973	Jan. 5	831	176	108	193
Paper-making machinery	H. Parker	748,645	Jan. 5	180	43, 44	108	40
Paper-making machines. Suction-box cover for	T. D. McAnulty, E. O'Brien, and W. French.	751,995	Feb. 2	574	133	108	1184
Paper-making or like machinery. Roll for	H. Parker	750,887	Feb. 2	208	47	108	1108
Paper or other fabrics. Machinery for cutting and folding	E. H. Cottrell	749,392	Jan. 12	1661	353, 354, 355	108	399
Paper or other fibrous-material vessels. Machine for manufacturing	W. M. Kinnard	751,300	Feb. 2	998	225	108	1208
Paper or the like with adhesives. Apparatus for coating	F. Maginn	750,291	Jan. 26	3473	752	108	823
Paper package or sheets and cabinet therefor. Toilet-	J. T. Hoyt	749,965	Jan. 19	2866	612, 613	108	673
Paper-pulp. Converting raw peat into	A. Beddies	751,139	Feb. 2	654	151	108	1199
Paper-reel	J., Sr., and F. H. Hoberg, Jr.	752,971	Feb. 23	4200	986	108	2027
Paper-reeler bar	G. E. Clegg	752,320	Feb. 16	2913	650	108	1725
Paper-roll holder and cutter	R. T. Jones	751,930	Feb. 9	2127	479	108	1532
Paper-sack holder	W. E. Burks	749,527	Jan. 12	2020	419	108	473
Paper sheets. Device for holding or binding loose or removable	R. G. Whitlock	749,122	Jan. 5	1149	243	108	266
Paper-slitting device for folding-machines	W. A. La Sor and C. M. Smith	751,185	Feb. 2	747	171, 179	108	1217
Paper-trimmer	W. M. Keeling	752,842	Feb. 23	3919	876	108	1960
Paper-tube-making machine	C. Frerot	749,061	Jan. 5	1006	212, 213, 214	108	234
Parcel-grip	A. H. Brownley	749,660	Jan. 12	2202	476	108	525
Paste-receptacle	A. N. Ritz	750,304	Jan. 26	3498	757	108	828
Pasting mechanism	O. Tyberg and S. I. Prescott	751,224	Feb. 2	883	191	108	1235

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pasteboard-making machine	P. Priem	748,963	Jan. 5	846	181	108	196
Pasteurizing	M. L. Fesenmeier	749,547	Jan. 12	2063	428	108	483
Pastry-molding machine	V. Coté	750,609	Jan. 26	4078	883	108	951
Paved tracks on macadamized roads, &c. Producing	R. Weber	751,704	Feb. 9	1695	385	108	1437
Pea-hulling machine	W. F. Pillmore and D. Anderegg	752,256	Feb. 16	2769	614	108	1695
Peat. Consolidating	J. O. Green and H. T. Martin	752,064	Feb. 16	2406	.....	108	1611
Pedal	G. Merritt	752,916	Feb. 23	4080	909	108	2001
Pelt-stretcher	F. M. Bowman	752,950	Feb. 23	4157	927	108	2016
Pen and pencil holder and calendar. Combination	H. J. Mellon	753,088	Feb. 23	4414	982	108	2076
Pen. Fountain-	A. Eberstein	750,271	Jan. 26	3439	742	108	815
Pen. Fountain-	F. C. Brown	750,430	Jan. 26	3727	810	108	880
Pen. Fountain-	F. M. Kegrize	750,546	Jan. 26	3971	859	108	929
Pen. Fountain-	F. C. Brown	750,568	Jan. 26	4085	872	108	942
Pen. Fountain-	W. H. Camfield	751,256	Feb. 2	908	207	108	1250
Pen-wiper	A. C. L. Chapman	749,474	Jan. 12	1920	398	108	451
Penholder	C. J. Dahlgren	748,589	Jan. 5	69	19	108	17
Penholder-guide	S. Bacharach	752,432	Feb. 16	3115	692	108	1768
Penholders or the like. Finger-guide for	D. McKenzie	751,542	Feb. 9	1391	317	108	1372
Pencil-case	A. J. Paroubek	752,857	Feb. 23	3938	883	108	1967
Pencil. Copying-	E. Markovits	753,087	Feb. 23	4414	981	108	2075
Pencil-sharpener	H. L. Adams	749,011	Jan. 5	910	192	108	212
Pencil sharpener and point protector	W. A. Tew	752,935	Feb. 23	4122	918	108	2009
Pencil-sharpening device	W. S. Doe	749,666	Jan. 12	2271	479	108	527
Pencils, crayons, &c. Device for use in connection with the sharpening of lead-	F. E. V. Baines	749,713	Jan. 19	2378	503	108	568
Pendulum. Compensation-	H. Sattler	751,686	Feb. 9	1662	377	108	1430
Perambulator	J. Ford	752,287	Feb. 16	2331	628	108	1706
Perforating-machine	E. A. Trussell	749,593	Jan. 12	2134	444	108	500
Perforating or punching apparatus	R. Kronenberg	749,308	Jan. 12	1543	328	108	371
Perforating strips. Attachment for machines for	C. J. Hanfbauer	752,069	Feb. 16	2412	538, 539	108	1612
Permanent way	R. von Melnong	752,408	Feb. 16	3059	679	108	1756
Pessary	F. L. Priest	748,650	Jan. 5	190	45	108	42
Petroleum-engine	B. H. Pomeroy	750,489	Jan. 26	3839	884	108	904
Petroleum-storing reservoir	P. Englund	749,282	Jan. 12	1503	320	108	361
Phonograph	E. Gilman	749,857	Jan. 19	2657	567, 568	108	628
Phonograph record-cylinder. Celluloid	A. N. Petit	750,119	Jan. 19	3159	679	108	735
Phonograph-table	A. A. Bergman	752,817	Feb. 23	3863	866	108	1951
Phonographs and kinematographs. Means for operating synchronously	L. Gaumont	752,894	Feb. 16	3087	676	108	1752
Phonographs, &c. Apparatus for duplicating sound-record cylinders of	A. N. Petit	750,118	Jan. 19	3155	679	108	734
Photographic developing apparatus	G. L. Plumley	751,553	Feb. 9	1418	323	108	1379
Photographic developing apparatus	H. Kuckelkorn and E. Saupe	752,986	Feb. 23	4227	942	108	2033
Photographic emulsion. Sensitive	A. Eichengrün and A. Braun	752,388	Feb. 16	3028	.....	108	1750
Photographic film. Graded	E. F. Beckwith	749,893	Jan. 19	2722	581	108	644
Photographic films. Apparatus for developing, washing, and fixing	M. Herz	751,644	Feb. 9	1500	362	108	1415
Photographic plate and making same	C. D. Thomson	751,882	Feb. 9	2045	462	108	1513
Photographic-plate-developing apparatus	G. L. Plumley	751,552	Feb. 9	1415	322	108	1378
Photographic-plate-treating apparatus	G. H. Dorr	750,621	Jan. 26	4094	886, 887	108	955
Photographic-printing devices. Mechanism for controlling lamps in	C. Haller and W. E. Sinclair	751,503	Feb. 9	1325	302	108	1359
Photographic prints for toning. Preparing	T. Baker	750,014	Jan. 19	2968	.....	108	696
Photographic shutter	T. Brueck	749,162	Jan. 12	1240	267	108	304
Piano	R. W. Gertz	751,726	Feb. 9	1738	394	108	1445
Piano	W. J. Street, Jr	753,176	Feb. 23	4565	1018	108	2100
Piano-action	S. Paulson	753,100	Feb. 23	4433	986	108	2079
Piano-action keys. Machine for boring holes in	F. J. Flocke	753,058	Feb. 23	4362	971	108	2064
Piano-pedal guard	A. J. Sorenson	751,697	Feb. 9	1685	382	108	1435
Piano-players. Adjusting device for cases of automatic	F. V. Crofut	750,612	Jan. 26	4083	884	108	952
Piano sounding-board	W. J. Brashears	750,948	Jan. 26	3396	734	108	804
Piano tremolo-action. Mechanical-	A. Capra	750,946	Feb. 2	314	74	108	1127
Piano tuning-pins. Means for holding	G. Ruckstuhl	752,409	Feb. 16	3174	707	108	1781
Pianos. Action for mechanical playing attachments for	G. S. Williams	748,828	Jan. 5	515	117	108	117
Pianos. Device for automatically playing	O. H. Arno	750,517	Jan. 26	3900	846	108	916
Pianoforte	F. McNamara	750,035	Jan. 19	3003	643, 644	108	708
Pianoforte wrest-pin	T. Doddrell	751,479	Feb. 9	1287	298	108	1350
Pick. Mining-	G. T. White	748,901	Jan. 5	664	147	108	149
Picker: *See* Cotton-picker. Fruit-picker.							
Picker-stick check	H. J. Jarry	752,342	Feb. 16	2936	654	108	1731
Picture-exhibitor	J. Roever and S. S. Baldwin	751,561	Feb. 9	1438	326, 327	108	1384
Picture-frame	E. Servuss	749,229	Jan. 12	1392	297	108	339
Picture-frame	E. Schievenbusch	749,332	Jan. 12	1603	339	108	385
Picture-frame	G. Cohn	752,283	Feb. 16	2824	626	108	1706
Picture-frame	G. H. Allen	752,943	Feb. 23	4144	923	108	2013
Picture-hanger	G. M. Kitzmiller	752,622	Feb. 16	3490	778	108	1852
Picture-mounting leaf or book	A. W. Engel	749,281	Jan. 12	1500	320	108	361
Pie-pan	W. C. Norman	752,250	Feb. 16	2754	610	108	1691
Pie-plate rim. Supplemental	G. L. and M. P. Blackman	749,523	Jan. 12	2013	418	108	471
Pigments. Making	W. J. Armbruster	751,444	Feb. 9	1224	.....	108	1336
Pile fabric. Double-	F. Pearson	749,219	Jan. 12	1376	294	108	337
Pile fabric. Woven	H. Sarafian	752,712	Feb. 23	3668	817	108	1908
Pile-point	R. S. Davis	748,705	Jan. 5	290	66	108	64
Pile-protector	A. S. Cooper	749,920	Jan. 19	2785	594	108	657
Pile-strengthener	A. S. Cooper	749,957	Jan. 19	2851	609	108	670
Piling. Interlocking metal sheet-	G. E. Nye	753,094	Feb. 23	4426	984	108	2078
Piling. Metallic	W. L. Cowles and J. N. Hatch	751,469	Feb. 9	1267	290	108	1345

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Pin: *See* Clothes-pin. Hinge-pin. Hair-pin. Insulator-pin. Hat-pin.							
Pin-hook	G. W. McGill	749,084	Jan. 5	1078	228	108	248
Pin-sticking machine. Safety-	F. M. Johnson	752,229	Feb. 16	2707	599 600	108	1681
Pipe: *See* Tobacco-pipe.							
Pipe	J. H. Taylor	749,338	Jan. 12	1616	341	108	889
Pipe	E. Semple	752,474	Feb. 16	3183	710	108	1783
Pipe and jointing same	W. Thorpe	749,465	Jan. 12	1900	395	108	447
Pipe and making same	L. A. Brown and D. Tredway	751,454	Feb. 9	1242	283	108	1340
Pipe-bending machine	H. F. Condon	749,029	Jan. 5	949	300 301	108	220
Pipe-coupling	P. E. Fisher	750,444	Jan. 26	3759	817	108	887
Pipe-elbow	L. C. McNeal	751,543	Feb. 9	1392	317	108	1373
Pipe-elbow machine	J. Baeumle	748,686	Jan. 5	948	58, 59	108	54
Pipe ends. Apparatus for upsetting	E. Hancox	751,697	Feb. 9	1579	359	108	1412
Pipe-fitting	P. J. Madden	749,300	Jan. 12	1560	330	108	875
Pipe-forcing jack	G. F. Freed	750,959	Feb. 2	337	80	108	1133
Pipe-joint	D. P. Fahrney, G. A. Newton, and F. F. Simmons.	751,273	Feb. 2	936	213	108	1256
Pipe joint. Lead-	G. Bryar	748,579	Jan. 5	41	11	108	12
Pipe joint or coupling	A. Spratt	748,807	Jan. 5	473	106	108	106
Pipe joint or coupling	A. Spratt	748,808	Jan. 5	474	106	108	106
Pipe-lining machine	J. T. Langford	750,660	Jan. 26	4154	901	108	967
Pipe-mills. Endless conveyer for	C. Jarrett	751,795	Feb. 9	1808	426	108	1473
Pipe or nut wrench	M. N. Sawyer	750,308	Jan. 26	3506	758	108	880
Pipe or rod holder	E. E. Townsend	749,760	Jan. 19	2480	528	108	590
Pipe or spout holder	J. V. Abronski	750,516	Jan. 26	3999	846	108	916
Pipe-plates. Machine for working	E. Hancox	751,696	Feb. 9	1578	358	108	1412
Pipe-rest	A. N. Anthes	751,443	Feb. 9	1223	279	108	1336
Pipe-wrench	E. J. Bates	750,795	Feb. 2	28	6	108	1063
Pipe-wrench	O. F. Helfritz	752,772	Feb. 23	3767	841	108	1930
Pipe-wrench	T. W. Hardin	752,837	Feb. 23	3900	874	108	1956
Pipes, &c. Protective covering for	W. H. Washington	749,955	Jan. 19	2847	608	108	670
Pistol. Magazine cap-	G. J. Altermatt	751,089	Feb. 2	474	111	108	1162
Piston	K. Mathews	750,875	Feb. 2	185	43	108	1098
Piston	J. Boop	751,252	Feb. 2	902	206	108	1249
Piston chambers and rings. Machine for grinding	J. B. Phillips	750,037	Jan. 19	3005	644	108	708
Piston-joint	G. C. E. de Bonnechose	748,916	Jan. 5	695	152	108	157
Piston-rings from outside the cylinders. Device for adjusting	P. Bode	751,779	Feb. 9	1839	419	108	1465
Piston-rod-cooling device	T. Matson	751,802	Feb. 9	1883	429	108	1476
Piston-travel regulator	J. T. Fite	751,905	Feb. 9	2093	473 474	108	1525
Pitman	A. Grieves	754,500	Feb. 9	1319	301	108	1357
Placket and shirt-waist holder. Combined	C. J. Bender	752,371	Feb. 16	2990	666	108	1748
Plane. Bench-	E. O. Sjolander	749,827	Jan. 19	2605	556 557	108	618
Plane. Hand-	E. Haydock	750,180	Jan. 19	3280	708	108	761
Plane-handle	P. E. Draughon	752,582	Feb. 16	3289	733	108	1807
Planing-machine	H. B. Ross	750,125	Jan. 19	3170	682	108	737
Planing-machine	W. O. Vivarttas	750,917	Feb. 2	259	60	108	1114
Planter	A. G. Myers	749,394	Jan. 12	1730	366	108	412
Planter and fertilizer-distributer. Combined	A. H. Wells	751,194	Feb. 2	622	144	108	1193
Planter and marker. Combined corn-	A. Dubach	749,541	Jan. 12	2056	426 427	108	482
Planter attachment	R. A. Patterson	751,988	Feb. 9	2161	488	108	1538
Planter. Automatic check-row corn-	E. O. Storrs	750,720	Jan. 26	4328	995	108	1006
Planter. Corn-	W. L. Paul	751,548	Feb. 9	1406	321	108	1377
Planter. Corn-	L. P. Graham	751,632	Feb. 9	1571	356 357	108	1411
Planter. Corn-	L. P. Graham	751,633	Feb. 9	1573	357	108	1411
Planter. Corn-	S. Meiners	752,788	Feb. 23	3795	849	108	1936
Planter. Cotton-	L. C. Ellison	752,963	Feb. 23	4183	992	108	2022
Planter. Cotton-	I. J. Willcox	753,185	Feb. 23	4570	1020 1021	108	2112
Planter marker-lifter. Corn-	E. E. Harter and E. O. Doak	748,728	Jan. 5	827	73	108	72
Planter marker-lifter. Corn-	O. W. Jones	751,176	Feb. 2	732	167 168	108	1214
Planter. Seed-	S. A. Grier	749,484	Jan. 12	1939	402 403	108	455
Planter. Seed-	F. W. Stanley	751,879	Feb. 9	2089	461	108	1512
Planter. Seed-	C. Highers	752,553	Feb. 16	3330	742	108	1817
Planter. Seed-	W. H. Sandifur	752,595	Feb. 16	3413	760	108	1836
Planter. Seed-	H. S. Butler	753,119	Feb. 23	4462	992 993	108	2085
Planters. Ground-marking device for corn-	H. Rockman	749,581	Jan. 12	2112	440	108	495
Planters. Reversible automatic marker for	L. P. McVay	752,919	Feb. 23	4084	910	108	2002
Planting device. Seed-	H. S. Dyer	752,661	Feb. 23	3570	795	108	1896
Plaster or the like. Retaining material for	J. H. Murphy and E. M. Camp	751,094	Feb. 2	572	132 133	108	1184
Plastic-material-packing machine	J. C. Thom	749,644	Jan. 12	2295	469	108	517
Plastic materials. Die for producing articles from	L. Steinberger	753,010	Feb. 23	4264	950	108	2041
Plate-handling machine	E. Miles	752,913	Feb. 23	4048	906	108	1992
Plate-handling machine	E. Miles	752,914	Feb. 23	4057	906 907 908	108	1995
Plate-handling machine	E. Miles	752,915	Feb. 23	4071	908 909	108	1999
Plate-lifter	S. Stitt	752,866	Feb. 16	2977	665	108	1740
Platen. Adjustable	G. W. Donning	753,190	Feb. 23	4589	1023 1024	108	2114
Plier-type tool	W. L. Williams	751,594	Feb. 9	1501	341	108	1397

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Plotting instrument	N. G. Davidson	749,921	Jan. 19	2785	595	108	657
Plow	T. O. Tollack	749,504	Jan. 12	1975	410	108	462
Plow	J. Naidul	750,385	Jan. 26	3649	792	108	863
Plow	G. A. Lane	750,985	Feb. 2	377	91	108	1141
Plow	E. G. Henry	751,643	Feb. 9	1596	361	108	1414
Plow	J. Reel	751,689	Feb. 9	1657	376	108	1429
Plow attachment	E. H. Allman	748,682	Jan. 5	943	56	108	53
Plow attachment	T. Burkett and L. C. Davenport	750,251	Jan. 26	3399	735	108	805
Plow. Combination-	G. E. Gill	751,680	Feb. 9	1568	356	108	1410
Plow. Disk	O. E. Ellison	749,043	Jan. 5	984	208 209	108	229
Plow. Disk cultivator-	E. B. Lee and C. H. Beazley	749,619	Jan. 12	2174	456	108	507
Plow. Ditching-	J. S. McCants	749,082	Jan. 5	1075	227	108	248
Plow evener. Five-horse gang-	J. W. Gamble	749,373	Jan. 12	1690	359	108	404
Plow. Garden-	G. W. Cole	749,259	Jan. 12	1444	308 309	108	350
Plow-handle clamp	S. C. Drake	749,274	Jan. 12	1489	317	108	358
Plow heel-sweep	E. L. Ansley	751,369	Feb. 2	1106	250	108	1293
Plow-irons. Means for forming	M. M. Renn	752,104	Feb. 16	2474	532	108	1626
Plow. Listing-	E. C. Bassford and B. Dawson	749,656	Jan. 12	2252	475	108	523
Plow or cultivator	W. B. McKinley	748,774	Jan. 5	405	93	108	90
Plow or harrow. Disk	W. Somerville	752,306	Feb. 16	2966	688	108	1715
Plow. Reversible	H. E. Kreuter	748,623	Jan. 5	139	33	108	32
Plow. Sod-cutting	J. F. Weber	748,675	Jan. 5	227	54	108	50
Plow. Subsoil-	G. W. Johnson	752,561	Feb. 16	3351	745	108	1822
Plow. Sulky-	F. L. Averill	749,146	Jan. 12	1206	258	108	296
Plug. Attachment-	P. H. Fielding	752,833	Feb. 23	3895	873	108	1957
Plumb and level	H. Dulsen	752,585	Feb. 16	3300	735	108	1811
Pneumatic-despatch system	B. C. Batcheller	749,152	Jan. 12	1222	262	108	300
Pneumatic seat	C. L. Berger	750,571	Jan. 26	4012	867	108	987
Pneumatic-tired wheel	T. Lindenberg	750,379	Jan. 26	3637	789	108	860
Pocket-knife	E. A. Severance	749,230	Jan. 12	1392	297	108	339
Poke. Animal-	S. F. Webb	752,013	Feb. 9	2821	519	108	1573
Poke. Animal-	J. S. Weathers	752,184	Feb. 16	2584	564	108	1639
Pole or shaft. Vehicle	J. S. McKenzie	752,578	Feb. 16	3379	754	108	1828
Pole. Wagon-	F. G. Winnek	750,745	Jan. 26	4361	942	108	1015
Policeman's mace	P. O. Evensen	752,893	Feb. 23	4012	899	108	1965
Polishing-lathe	H. M. Crowell	749,265	Jan. 12	1463	312 313	108	858
Pomade-can	E. L. Pitts	752,596	Feb. 16	3394	757	108	1831
Pompadour-comb	J. I. Rice	752,261	Feb. 16	2779	616	108	1697
Pool-ball placer and holder	P. Juschke	752,292	Feb. 16	2848	631	108	1710
Portable drill	J. F. Willey	750,744	Jan. 26	4360	942	108	1015
Post: *See* Binding-post. Fence-post. Composition post.							
Post-hole digger	H. G. Pine	750,898	Feb. 2	209	47	108	1104
Post-hole digger	A. D. Smith	752,115	Feb. 16	2497	556	108	1631
Pot: *See* Coffee-pot. Flower-pot. Coffee or tea pot.							
Potato-digger	H. Kniphals	750,875	Jan. 26	3630	788	108	859
Potato-digger	J. Johnson	752,961	Feb. 23	4218	940 941	108	2031
Poultry-house	J. J. Edgerton	752,765	Feb. 23	3757	838	108	1927
Powder-can	F. A. Fisher	751,157	Feb. 2	684	157	108	1205
Powder charge	C. Davis	751,385	Feb. 2	1131	257	108	1298
Powder-grain	C. Davis	751,386	Feb. 2	1132	257	108	1298
Power: *See* Churn-power.							
Power mechanism. Interchangeable hand and motive	C. E. Ellicott and J. B. Norris	749,278	Jan. 12	1494	318	108	359
Power plant. Portable	C. A. Lieb	751,798	Feb. 9	1877	427	108	1475
Power-shifter	J. Lundgren	751,740	Feb. 9	1770	402 403	108	1452
Power-transmission device	J. F. Krcma	749,868	Jan. 19	2671	572	108	631
Power-transmission mechanism	E. A. Nelson	750,905	Feb. 2	395	94	108	1145
Power transmission. Sectional wheel for	J. H. Fogarty	752,898	Feb. 23	4022	901	108	1966
Power-transmitting mechanism	E. A. Sperry	750,498	Jan. 26	3860	838 839	108	908
Power-transmitting mechanism	E. A. Sperry	750,499	Jan. 26	3865	839 840	108	910
Power-transmitting mechanism	D. L. McClintock	751,540	Feb. 9	1396	316	108	1372
Precious metals by electrolysis. Apparatus for extracting	H. R. Cassel	749,844	Jan. 19	2636	564	108	623
Precious metals by electrolysis. Extracting	H. R. Cassel	749,843	Jan. 19	2634	564	108	623
Prepayment apparatus	M. D. Compton	752,036	Feb. 16	2354	526 527	108	1599
Preserving perishable subetances. Apparatus for	C. Blagburn	750,518	Jan. 26	3905	846	108	917
Press: *See* Baling-press. Forging-press. Building-block-molding press. Hand-press. Hay-press. Butter-press. Hydraulic press. Cider-press. Printing-press. Cotton-press. Pulp-press. Embossing-press. Sand-press. Filter-press.							
Press	M. Salzmann	749,328	Jan. 12	1593	387 388	108	383
Press	E. Pilliod	751,752	Feb. 9	1792	408 409	108	1456
Press-roll mechanism	W. M. Wilkin	752,683	Feb. 16	3514	781 782	108	1856
Presser-bar-actuating mechanism	G. L. Corcoran and G. A. Dobyne	751,263	Feb. 2	920	209	108	1252
Pressing-board	A. McKenzie	751,674	Feb. 9	1640	372	108	1425

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Primer	J. M. Edmunds	750,024	Jan. 26	4100	888	108	956
Primer. Combined percussion and electric	T. G. Bennett and W. Mason	753,035	Feb. 23	4323	961	108	2055
Priming composition	M. Bielefeldt	751,605	Feb. 9	1517	.....	108	1400
Printer's blanket	J. E. Rhodes	752,105	Feb. 16	2476	552	108	1626
Printing	E. Schoening	751,947	Feb. 9	2179	492	108	1543
Printing and embossing machine. Plate-	W. S. Eaton	752,052	Feb. 16	2382	532 533	108	1605
Printing and folding machine	W. Scott	753,169	Feb. 23	4554	1015 1016	108	2106
Printing and ruling machine ringed roller. Line-	G. F. McAdams	750,680	Jan. 26	4208	911	108	979
Printing-beam registering device	C. A. Heyer	751,286	Feb. 2	959	218	108	1260
Printing book-backs. Machine for	W. P. Northcott and E. E. Flora	748,643	Jan. 5	173	41, 42	108	38
Printing by means of elastic rollers or plates	E. Schoening	751,946	Feb. 9	2176	491	108	1542
Printing-device mechanical movement	O. Tyberg	749,000	Jan. 5	875	188	108	202
Printing-machine	J. H. Reinhardt	748,886	Jan. 5	627	141	108	141
Printing-machine	W. Scott	750,401	Jan. 26	3677	708	108	870
Printing-machine	T. G. Hyde	751,917	Feb. 9	2120	478	108	1531
Printing-machine	H. A. W. Wood	752,876	Feb. 23	3974	890 891	108	1976
Printing machine. Line-	G. F. McAdams	750,681	Jan. 26	4204	912	108	979
Printing machine. Multicolor-	J. L. Firm	752,896	Feb. 23	4018	900	108	1986
Printing-machine rollers. Machine for cleaning	E. T. Cleathero	748,583	Jan. 5	47	13 14 15 16	108	13
Printing-machine. Rotary	H. A. W. Wood	752,940	Feb. 23	4135	921 922	108	2011
Printing machine. Stencil-	W. D. Sternberg	749,113	Jan. 5	1134	241	108	262
Printing machine. Stencil-	A. B. Dick	749,983	Jan. 19	2900	620	108	681
Printing machine. Stencil-	E. A. Cox	750,816	Feb. 2	56	12, 13	108	1009
Printing machine. Ticket-	F. C. Osborn	752,704	Feb. 23	3951	813	108	1905
Printing machine. Warp-	G. H. Winslow and C. W. Dennett	750,514	Jan. 26	3895	844 845	108	915
Printing machine. Web-	W. Spalckhaver	752,807	Feb. 23	3883	860 861	108	1944
Printing on tins	I. Kitsee	753,144	Feb. 23	4508	1005	108	2056
Printing or like machines. Feed mechanism for	W. Vickery	752,488	Feb. 16	3207	715 716	108	1788
Printing or other machine feeder	C. G. Harris	751,284	Feb. 2	955	217	108	1260
Printing-plate holder	C. F. Rockstroh	750,395	Jan. 26	3661	796	108	866
Printing-plates. Machine for making	J. S. Duncan	750,831	Feb. 2	94	22, 23	108	1078
Printing-plates. Preparing	E. Wünsche	749,350	Jan. 12	1639	.....	108	394
Printing-plates. Producing duplicate	F. and A. Leslie	752,846	Feb. 23	3916	877	108	1962
Printing-press	C. H. Johnson	748,743	Jan. 5	354	78	108	79
Printing-press	H. T. Kent	749,487	Jan. 12	1944	404	108	456
Printing-press	R. Stern	750,907	Feb. 2	241	54	108	1111
Printing-press	J. A. Gates	753,061	Feb. 23	4367	972	108	2065
Printing-press	J. Rowe	753,164	Feb. 24	4543	1013 1014	108	2108
Printing-press automatic controlling mechanism	T. C. Dexter and H. Hallstream	749,696	Jan. 5	960	204 205	108	226
Printing-press automatic controlling mechanism	T. C. Dexter	749,536	Jan. 12	2087	423 424	108	476
Printing-press engaging and disengaging device. Platen-	W. M. Rockstroh	751,873	Feb. 9	2030	459 460	108	1510
Printing-press. Flat-bed cylinder	W. S. Huson	752,291	Feb. 16	2838	630 631	108	1710
Printing-press form	F. O. Climer	751,782	Feb. 9	1847	490	108	1468
Printing-press form-inking rollers. Roller-wheel for	S. H. Shaw	750,710	Jan. 26	4259	994	108	990
Printing-press inking apparatus	W. Scott	751,351	Feb. 2	1076	243 244	108	1287
Printing-press inking mechanism	G. P. Fenner	749,546	Jan. 12	2002	428	108	488
Printing press. Multicolor-	C. M. Shigley	750,406	Jan. 26	3684	800	108	871
Printing press. Multicolor-	C. L. Post	751,537	Feb. 2	1051	238	108	1281
Printing-presses, &c. Automatic controlling mechanism for	T. C. Dexter	749,537	Jan. 12	2041	424 425	108	478
Printing presses. Metal-holding apparatus for flat-bed lithographic-	W. J. Leyer	748,871	Jan. 5	603	136	108	135
Printing-surfaces. Mechanism for preparing	B. A. Brooks	748,578	Jan. 5	24	7 8 9 10 11	108	8
Printing warps	G. H. Winslow and C. W. Dennett	750,513	Jan. 26	3892	843 844	108	915
Projectile	K. Wieser	750,328	Jan. 26	3655	799	108	848
Propeller	E. D. Hamilton	752,670	Feb. 23	3591	800	108	1890
Propeller for vessels. Hydraulic	J. Dudley	749,427	Jan. 12	1794	378	108	424
Propeller. Screw-	E. A. Nilsen	750,686	Jan. 19	3004	644	108	708
Propelling mechanism	D. L. Graham	750,638	Jan. 26	4119	893	108	960
Propulsion apparatus for vessels. Jet	S. George	750,593	Jan. 26	3982	853 854 855	108	922
Propulsion-gearing	W. B. Bard	750,424	Jan. 26	3718	807	108	879
Propulsion system. Electrical-	E. Krause	751,857	Feb. 9	2007	484	108	1505
Prospecting instrument	M. Chase	749,718	Jan. 19	2986	504 505	108	509
Protractor	H. Woodborough	753,025	Feb. 23	4303	956	108	2051
Pruning-shears	A. S. Boyd	752,436	Feb. 16	3124	694	108	1760
Puller: *See* Cotton-stalk puller. Tobacco-puller. Nail-puller.							
Pulley	E. L. Wagner	750,920	Feb. 2	965	61, 62	108	1116
Pulley. Clutch-	W. J. Hilliard	753,073	Feb. 23	4389	976	108	2070
Pulley-covering	J. F. Webb	748,674	Jan. 5	225	53	108	49

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Pulley for threshing-machines. Paper cylinder-	O. Berg	752,645	Feb. 23	3538	787	108	1879
Pulley or wheel	L. Zamboni	751,707	Feb. 9	1700	387	108	1438
Pulley. Split	S. Stroba	749,756	Jan. 19	2474	527	108	589
Pulleys. Sectional hub for	E. S. Hamilton	750,277	Jan. 26	3451	745 746	108	818
Pulp or compound. Vegetable	D. Bickford	752,022	Feb. 16	2336	.....	108	1595
Pulp press. Wood-	R. E. Boschert	753,038	Feb. 23	4329	962 963	108	2056
Pulp-screening machine	N. Richard	752,107	Feb. 16	2479	558	108	1627
Pulverizer	J. G. McAuley	749,574	Jan. 12	2100	437	108	492
Pump	H. C. Stouffer	749,239	Jan. 12	1403	301	108	341
Pump	J. Willmann	749,248	Jan. 12	1415	304	108	344
Pump	C. J. Allen	750,560	Jan. 26	3908	864	108	933
Pump	O. G. Worsley	751,596	Feb. 9	1504	342	108	1397
Pump	H. Jones	751,651	Feb. 9	1603	364	108	1417
Pump. Air-	G. W. Kellogg	748,617	Jan. 5	112	28	108	26
Pump and water-power motor	G. Kadlecsik	749,614	Jan. 12	2165	453	108	506
Pump attachment	E. F. Kimball	749,797	Jan. 19	2549	542	108	605
Pump automatic controller. Feed-	R. J. Mullin	749,942	Jan. 19	2829	604	108	666
Pump. Automatic electric	F. L. Orr	750,115	Jan. 19	3149	677	108	738
Pump barrel clamp	W. J. Bussinger	750,591	Jan. 26	4051	876	108	946
Pump. Beer-	J. Grüninger	752,668	Feb. 23	3587	799	108	1890
Pump, blower, &c. Rotary	C. Rein	751,014	Feb. 2	428	101	108	1152
Pump. Bucket-	L. A. Brigel, Jr.	749,836	Jan. 19	2623	561	108	621
Pump. Centrifugal	T. R. Goth	750,846	Feb. 2	128	29, 30	108	1096
Pump. Centrifugal	L. Look	753,154	Feb. 23	4523	1008	108	2098
Pump coupling. Windmill-	C. W. Decker	750,173	Jan. 19	3257	702 703	108	756
Pump cylinder, tank, and base-plate	W. and J. Boekel	750,154	Jan. 19	3219	694	108	748
Pump. Duplex	P. F. Oddie	749,089	Jan. 5	1088	229 230	108	250
Pump for switching mechanisms. Electric	W. J. Bell	752,643	Feb. 23	3535	786 787	108	1878
Pump governors. Pressure-regulator for steam-	J. W. Gardner	750,448	Jan. 26	3762	818	108	887
Pump or vacuum-chamber. Automatic suction-	C. H. Wettlin	749,121	Jan. 5	1146	243	108	265
Pump-operating mechanism	S. F. Field	751,624	Feb. 9	1554	354	108	1407
Pump-piston	R. E. Small	751,758	Feb. 9	1799	410	108	1458
Pump-rod counterbalance	R. R. Smith and G. McTurk	749,236	Jan. 12	1400	300	108	341
Pump. Rotary	J. Nielsen	751,196	Feb. 2	768	175	108	1221
Pump. Sand-	F. G. Irvine	750,192	Jan. 19	3284	709	108	761
Pump strainer attachment. Spraying-	H. A. Jagger	751,918	Feb. 9	2123	478	108	1531
Pump valve. Deep-well	J. H. Duke and J. F. Bray	751,482	Feb. 9	1290	294	108	1351
Pumps. Electrical apparatus for registering the discharge of liquids by	H. J. S. Cassal	752,652	Feb. 23	3554	791	108	1882
Pumping apparatus	J. E. Smith	752,715	Feb. 23	3672	818	108	1909
Pumping apparatus. Well	B. L. Brinton	751,049	Feb. 2	490	114	108	1166
Pumping-engine	G. De Laval and G. P. Aborn	748,758	Jan. 5	380	85, 86	108	83
Punch	E. D. Etnyre and W. A. Whitney	750,024	Jan. 19	2985	699	108	699
Punch. Belt-	A. A. Kraeuter	751,079	Feb. 2	546	127	108	1179
Punch, pliers, &c	W. M. Morton	750,678	Jan. 26	4200	911	108	978
Punch. Universal slotting-	J. F. Doolittle	751,723	Feb. 9	1732	393	108	1443
Punching and shearing machine, &c	R. Norrie	748,979	Jan. 5	839	178	108	195
Punching-machine	E. A. Burke	749,164	Jan. 12	1248	268	108	306
Punching-machine	O. P. Woodburn	750,746	Jan. 26	4362	942 943	108	1015
Purse	J. C. O'Shea	751,748	Feb. 9	1786	407	108	1455
Purse-locking device	C. Andresen	752,612	Feb. 16	3466	774	108	1846
Putter	W. W. Davis	749,174	Jan. 12	1265	273	108	310
Puzzle	G. T. Arnold	749,351	Jan. 12	1640	349	108	394
Puzzle	H. Keefer	750,862	Feb. 2	152	35	108	1091
Puzzle	D. S. Reese	751,754	Feb. 9	1794	409	108	1457
Puzzle	O. Crittenden	752,877	Feb. 16	3001	668	108	1745
Quartz-mill	C. J. Hodge	748,867	Jan. 5	595	134 135	108	133
Rack: *See* Ball-rack. Hay and stock rack. Collar-rack. Shoe-rack. Display-rack. Towel-rack.							
Rack or cabinet-frame	C. J. Colling	751,466	Feb. 9	1262	289	108	1344
Radiator	G. M. Aylsworth	753,031	Feb. 23	4312	958	108	2053
Radiator connection	J. S. Brennan	750,582	Jan. 26	4034	872	108	942
Radiator. Hot-water	J. J. Lawler	752,987	Feb. 23	4229	942	108	2033
Radiator-support	J. A. Beury	751,828	Feb. 9	1949	442	108	1491
Radiators. Means for providing zinc in	W. R. Kinnear	752,844	Feb. 23	3918	877	108	1961
Rag-dusting machine	W. H. Sanburn	753,213	Feb. 23	4647	1034	108	2126
Rail and conductor point operating mechanism	C. G. Goord	748,721	Jan. 5	311	70	108	69
Rail-bond-swaging device	J. Baschen	751,245	Feb. 2	890	201	108	1244
Rail-bond terminals. Mold for casting	W. H. Wherry	750,508	Jan. 26	3881	842	108	913
Rail-bonds directly in place on the rails. Forming electrical	W. H. Wherry	750,510	Jan. 26	3884	843	108	913
Rail-bonds. Manufacture of	G. A. Mead	751,320	Feb. 2	1024	232	108	1276
Rail-bonding apparatus	W. B. Cleveland	750,522	Jan. 26	3910	848	108	918
Rail contact-shoe	G. W. Brady and L. R. Jones	749,716	Jan. 19	2383	504	108	569
Rail contact-shoe and support therefor	G. W. Brady and L. R. Jones	751,974	Feb. 9	2259	506	108	1559
Rail cover. Third-	H. F. Duffy	748,591	Jan. 5	72	20	108	17
Rail-fastening	A. Koppel	749,936	Jan. 19	2818	602	108	664
Rail. Guard-	D. F. Vaughan	752,428	Feb. 16	3111	691	108	1767
Rail-joint	A. L. Vinyard	748,672	Jan. 5	222	53	108	48
Rail-joint	E. J. Schindehütte	749,333	Jan. 12	1603	340	108	385
Rail-joint	F. Dodson	750,100	Jan. 19	3128	672	108	729
Rail-joint	G. F. C. Powell	750,603	Jan. 26	4223	916	108	963
Rail-joint	S. S. Moore	750,778	Jan. 26	4440	957	108	1033
Rail-joint	T. M. Belknap	751,451	Feb. 9	1238	282	108	1339
Rail-joint	W. A. Shaw	751,693	Feb. 9	1676	379 380	108	1438
Rail-joint	W. S. Shilling	751,951	Feb. 9	2186	493	108	1544

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rail-joint	E. D. Boasso	752,511	Feb. 16	3851	725	108	1708
Rail-joint	W. W. Kercher	752,567	Feb. 16	3362	750	108	1824
Rail joint and bond. Combined	R. T. Gunn and E. C. Hathaway	751,910	Feb. 9	2104	475	108	1527
Rail-joint chair	J. S. Anderson	751,770	Feb. 9	1825	416	108	1463
Rail-joint for tracks and especially for field-railways.	W. Weiss	748,826	Jan. 5	511	116, 117	108	116
Rail protector. Third-	H. F. Duffy	748,502	Jan. 5	73	20	108	18
Rail-sawing machine	H. B. Nichols	751,679	Feb. 9	1647	374, 375	108	1427
Rail-tie	J. R. Hubbard	750,110	Jan. 19	3143	676	108	732
Railway	T. M. Galbreath	749,600	Jan. 12	2157	451, 452	108	505
Railway	S. E. Jackman	750,242	Jan. 19	3383	730, 731	108	784
Railway	W. Lay	752,785	Feb. 23	3790	848	108	1935
Railway block-signal and switch	W. F. Taylor, Jr.	748,815	Jan. 5	488	109, 110, 111	108	111
Railway block system	J. Morton	753,157	Feb. 23	4529	1009, 1010	108	2099
Railway-brake	F. Grégoire	750,028	Jan. 19	2991	641	108	700
Railway-brake head and shoe therefor	C. W. Armbrust	752,877	Feb. 23	3980	891	108	1977
Railway brake mechanism. Inclined-	S. E. Jackman	749,691	Jan. 12	2320	489, 490	108	538
Railway cattle-guard	A. R. Dawson	750,524	Jan. 26	3913	848	108	918
Railway construction	W. Terrell	752,312	Feb. 16	2982	642	108	1719
Railway-crossing	F. W. Umbreit	750,913	Feb. 2	252	57	108	1113
Railway-crossing	A. M. Beall	751,602	Feb. 9	1512	344	108	1399
Railway-crossing warning-signal	J. Crumley	750,264	Jan. 26	3426	740	108	812
Railway draft-rigging	W. T. Van Dorn	749,888	Jan. 19	2712	580	108	641
Railway draw-head and air-coupling. Combined	L. Lecompte	749,900	Jan. 19	2734	585, 586	108	646
Railway. Electric	C. J. Kintner	748,619	Jan. 5	115	29	108	26
Railway. Electric	C. J. Kintner	748,620	Jan. 5	121	30, 31	108	28
Railway. Electric	L. W. Pullen	749,401	Jan. 12	1743	369	108	415
Railway for logs, &c. Single-track elevated	R. E. Terry	751,960	Feb. 9	2205	496, 497	108	1549
Railway-gate. Electrically-operated	M. Spinrad and H. Buechting	750,068	Jan. 19	3068	659	108	715
Railway. Inclined	S. E. Jackman	749,676	Jan. 12	2288	482	108	531
Railway. Inclined	S. E. Jackman	749,677	Jan. 12	2289	483	108	531
Railway. Pleasure-	L. Beecher	750,246	Jan. 26	3392	733	108	808
Railway. Rack-	R. Abt	749,142	Jan. 12	1901	257	108	295
Railway-rail	R. B. Guynan	749,183	Jan. 12	1920	277	108	316
Railway-rail	J. O. Schwartz and S. Neligh	751,110	Feb. 2	508	138	108	1188
Railway-rail	T. Boylan	751,372	Feb. 2	1109	251	108	1294
Railway-rail and joint therefor	J. Mallat	748,764	Jan. 5	398	89	108	87
Railway-rail and rail-joint chair	R. Urbanitzky	750,736	Jan. 26	4345	938, 939	108	1011
Railway-rail chair	J. B. Weaver	752,430	Feb. 16	3113	691	108	1768
Railway-rail fastener	R. D. Burchill	750,345	Jan. 26	3583	776	108	849
Railway-rail joint	B. G. Riggs	749,449	Jan. 12	1902	387	108	438
Railway-rail joint	C. L. Pope	750,490	Jan. 26	3840	834	108	905
Railway-rail joint	W. R. Kanarr	750,859	Feb. 2	149	34	108	1090
Railway-rail joint	T. J. Dye	751,483	Feb. 9	1291	294	108	1351
Railway safety system. Electric	C. J. Kintner	748,621	Jan. 5	133	31, 32	108	30
Railway-service safety device	E. B. Powers	748,649	Jan. 5	187	45	108	42
Railway-service safety device	E. B. Powers	750,781	Jan. 26	4443	958	108	1084
Railway-service safety device	E. B. Powers	752,101	Feb. 16	2469	551	108	1625
Railway-signal	J. K. Leedy	752,084	Feb. 16	2441	546	108	1619
Railway-signal. Electric	W. V. Moak	750,206	Jan. 26	3484	754	108	825
Railway-signal. Electrical operated and controlled	R. D. Peters	750,117	Jan. 19	3153	678	108	734
Railway signal system. Electric	C. P. Breese and A. J. Wilson	751,048	Feb. 2	487	114	108	1166
Railway signaling apparatus	J. F. Mickey, F. T. Bailey, and J. J. Noppenberger.	749,989	Jan. 19	2822	603	108	664
Railway signaling device	J. R. Marchesseault	750,991	Feb. 2	387	93	108	1143
Railway-spike lock	E. C. Winters	751,767	Feb. 9	1818	414	108	1461
Railway. Surface-contact electric	J. H. Guest	750,966	Feb. 2	347	88	108	1135
Railway-switch	F. Bayless	750,334	Jan. 26	3564	771, 772	108	845
Railway-switch	W. L. Williams	750,925	Feb. 2	275	64, 65	108	1118
Railway-switch	W. H. Braim	751,254	Feb. 2	905	206	108	1249
Railway-switch	T. Eckard	751,387	Feb. 2	1133	257	108	1299
Railway-switch	J. J. Hooper	751,916	Feb. 9	2115	477, 478	108	1539
Railway-switch	J. J. Murphy	751,988	Feb. 9	2283	510	108	1564
Railway-switch	J. T. Evans	752,668	Feb. 23	3576	796	108	1887
Railway-switch	W. K. Smith	752,718	Feb. 23	3676	819	108	1910
Railway-switch. Automatic	W. R. Murphy	751,868	Feb. 9	2020	457	108	1508
Railway-switch. Electric	J. G. Weniger	749,507	Jan. 12	2139	446	108	501
Railway-switch. Electric	H. H. Chandler	752,884	Feb. 23	3878	869	108	1954
Railway-switch. Electrically-operated	C. W. Breedlove and R. R. Grant	749,160	Jan. 12	1235	365, 366	108	303
Railway-switch mechanism	H. B. Nichols	750,996	Feb. 2	401	94, 95	108	1146
Railway-switch-operating device. Street	H. T. Young	749,009	Jan. 5	908	192	108	219
Railway-switch slide-plate	J. Carter	752,517	Feb. 16	3295	737	108	1801
Railway switch. Street-	W. J. Bell	748,699	Jan. 5	290	60	108	57
Railway switching and signaling apparatus	J. D. Taylor	752,127	Feb. 16	2518	561	108	1636
Railway system	H. B. Walbridge	751,893	Feb. 9	2046	463	108	1513
Railway system. Electric	W. G. Lowrie	748,873	Jan. 5	605	137	108	135
Railway system. Electric	W. M. Eader	749,042	Jan. 5	998	208	108	229
Railway-tie	J. Horr	748,936	Jan. 5	92	24	108	22
Railway-tie	H. Brunson	749,168	Jan. 12	1247	266	108	306
Railway-tie	F. H. Kindl	752,455	Feb. 16	3154	709	108	1777
Railway-tie	A. W. Bascom	752,507	Feb. 16	3245	723	108	1797
Railway-tie	A. M. Bowman	752,753	Feb. 23	3735	832	108	1923
Railway-tie	J. G. Shuster	753,171	Feb. 23	4559	1016	108	2107

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Railway-tie and rail-fastener. Metallic	O. Granberg	749,817	Jan. 19	2588	550	108	612
Railway-tie plate	E. F. Peirce	751,201	Feb. 2	777	177	108	1223
Railway-track-laying apparatus	G. F. H. Hicks	752,678	Feb. 23	3600	802, 803	108	1893
Railway-train alarm-signal	H. E. Butler and J. L. McCollum	752,822	Feb. 23	3874	869	108	1954
Railway-trains. Apparatus for automatically stopping	H. G. Sedgwick	750,310	Jan. 26	3508	759, 760, 761	108	830
Railway wagon or truck	J. Shaw	751,113	Feb. 2	605	140	108	1189
Railway wagons, carriages, &c. Means for coupling	T. Warsop	751,583	Feb. 9	1479	335	108	1392
Railways. Automatic signaling system for electric	H. B. Snell	751,021	Feb. 2	440	104	108	1154
Railways. Automatic signaling system for electric	H. B. Snell	752,719	Feb. 23	3678	819, 820	108	1910
Railways. Means for anchoring the combined third and traction rail of electric	J. H. Morgan	750,880	Feb. 2	194	45	108	1100
Railways. Surface-cleaning device for third rails of electric	M. C. Canfield	751,456	Feb. 9	1245	284	108	1340
Railways. Third rail for electric	L. G. Johnstone	751,175	Feb. 2	730	167	108	1214
Raising and dropping mechanism	S. C. Smith	749,500	Jan. 12	2130	448	108	499
Raising or hoisting apparatus	E. Lorin	748,762	Jan. 5	389	89	108	87
Raising or lowering heavy bodies. Apparatus for	C. V. Fowler	749,898	Jan. 19	2730	584, 585	108	645
Rake: *See* Hay-rake.							
Rake	M. Y. Warren	750,737	Jan. 26	4346	939	108	1011
Raker gage and jointer	J. P. Olson	749,090	Jan. 5	1090	230	108	251
Range	K. G. Kronvall	749,304	Jan. 12	1544	328	108	371
Range hot-water heater. Kitchen-	P. H. Werner	748,899	Jan. 5	660	146, 147	108	148
Range or stove plate	J. Magee	752,239	Feb. 16	2729	604, 605	108	1686
Ratchet-tool	Z. T. Furbish	750,183	Jan. 19	3272	705	108	759
Razor frame. Safety-	A. W. Scheuber	749,751	Jan 19	2465	525	108	587
Razor. Safety-	J. Biggin	753,036	Feb. 23	4325	961	108	2055
Razor-strop dresser	T. J. Forde	753,060	Feb. 23	4366	962	108	2065
Razor-strop dresser	T. J. Forde	753,196	Feb. 23	4607	1026	108	2119
Razor-stropper	V. D. Swihart	751,422	Feb. 2	1187	270	108	1309
Razor stropping and honing machine	H. Wilcox	749,467	Jan. 12	1903	395, 396	108	448
Reading-stand	A. Howe	752,977	Feb. 23	4212	938	108	2030
Reamer	L. Werts	752,491	Feb. 16	3219	719	108	1790
Reamer	J. E. S. Taylor	752,724	Feb. 23	3690	822	108	1913
Reaper-evener	L. Krauss	748,754	Jan. 5	372	84	108	82
Receptacle	W. Weise	752,735	Feb. 23	3708	827	108	1917
Receptacle and attachment-plug	H. Krantz	752,456	Feb. 16	3154	703	108	1777
Recorder: *See* Ship's distance-recorder. Time-recorder.							
Recording-instrument record-sheet	W. H. Bristol	748,918	Jan. 5	697	153	108	158
Reducing and separating machine	E. B. Craven	752,044	Feb. 16	2368	529, 530	108	1602
Reel: *See* Fish-line reel. Paper-reel. Fishing-reel.							
Reflector. Lamp-	A. J. Pardridge	752,583	Feb. 16	3389	756	108	1830
Reflector. Light-	H. M. Daggett, Jr.	750,820	Feb. 2	70	15	108	1073
Refrigerator and soda-water apparatus. Combined	D. F. Harris and J. A. Hearin	752,546	Feb. 16	3320	739	108	1815
Refrigerator attachment	C. W. McClure	750,057	Jan. 19	3050	654	108	712
Register: *See* Cash-register. Warm-air register. Telltale-register.							
Register face-plate	H. J. Valentine	748,668	Jan. 5	218	52	108	47
Register face-plate	H. J. Valentine	748,669	Jan. 5	220	52	108	48
Register top plate	H. J. Valentine	749,116	Jan. 5	1140	242	108	263
Regulator: *See* Draft-regulator. Governor-regulator. Engine feed-regulator. Heat-regulator. Piston-travel regulator. Feed-regulator. Speed-regulator. Gas-light regulator.							
Rein-guard	J. B. Hill	751,509	Feb. 9	1335	305	108	1361
Rein-holder	J. N. Clapham	751,402	Feb. 9	1253	287	108	1342
Relay	A. Carliss	752,613	Feb. 16	3467	774	108	1847
Relay. Alternating-current	G. W. Pickard	749,399	Jan. 12	1738	368	108	414
Relay device	J. P. Downs	749,814	Jan. 19	2578	549	108	611
Relay. Electrostatic	D. la Cour	749,775	Jan. 19	2509	534	108	597
Relay for electric circuits. Time-limit	H. R. Stuart and A. B. Reynders	751,571	Feb. 9	1459	331	108	1388
Relay sound-magnifier	M. A. Hacker	751,982	Feb. 9	2272	508	108	1562
Remnant-table	C. E. Mitchem	749,799	Jan 19	2554	542	108	606
Reservoir-bottom and expansion-joint	W. N. Wight and F. E. Townsend	749,765	Jan. 19	2487	530	108	591
Reversing device. Electromagnetic	J. Riddell	752,589	Feb. 16	3397	758	108	1832
Reversing mechanism	F. J. Ball	749,516	Jan. 12	1999	416	108	468
Reversing mechanism	F. J. Ball	749,602	Jan. 12	2147	447	108	502
Rheostat	G. Graybill and J. P. Oden	751,634	Feb. 9	1574	357	108	1411
Ribbon-winding device	E. S. Nordhoff	749,971	Jan. 19	2873	615	108	675
Rice-hulling machine	R. W. Welch	749,650	Jan. 12	2230	471	108	520
Rifle-cleaner	W. C. Buckelew and J. P. Flournoy, Jr.	753,189	Feb. 23	4587	1023	108	2114
Rifle. Repeating	R. C. Stevenson	749,463	Jan. 12	1898	394	108	446
Rifle-sight	J. T. Peddie	751,200	Feb. 2	775	177	108	1223
Rifle-sight	M. E. Sutherland	752,809	Feb. 23	3838	861, 862	108	1945

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ring: *See* Key-ring. Napkin-ring. Lap-ring.							
Ringer	A. M. Knudsen	750,398	Jan. 26	3469	751	108	822
Rivet	C. D. Harrington	749,438	Jan. 12	1920	382	108	430
Rivet	J. E. Rettig	752,588	Feb. 16	3396	758	108	1332
Rivet, bolt, &c. Expansion	J. M. Dodge	751,902	Feb. 9	2085	472	108	1523
Rivet-holder	E. F. Terry	748,816	Jan. 5	491	111	108	111
Riveting-machine	C. W. Blackstone	751,778	Feb. 9	1887	418	108	1465
Riveting-tool	J. W. Nelson	751,196	Feb. 2	767	175	108	1221
Road-bed cleaner. Pneumatic	E. S. Hart	750,852	Feb. 2	137	31	108	1088
Road-crossing device	F. L. Sessions	751,949	Feb. 9	2182	492	108	1543
Road-making machine	E. L. Lathrop	749,617	Jan. 12	2169	455 / 456	108	507
Road-making machine	I. Ogden	750,482	Jan. 26	3888	881	108	902
Roads, &c. Making	L. S. Van Westrum	752,486	Feb. 16	3205	.....	108	1788
Roadways. Construction of switchback	H. Dutrieu	749,607	Jan. 12	2153	450	108	504
Roasting-furnace	A. R. Meyer	750,877	Feb. 2	190	44	108	1099
Robe. Folding-cart	L. A. W. Bird	751,452	Feb. 9	1240	288	108	1320
Rock-breaker	W. A. Merralls	751,532	Feb. 9	1374	313	108	1369
Rock breaker and pulverizer	D. D. and J. O. Bailey	752,945	Feb. 23	4147	923	108	2014
Rock-drill. Power-driven	W. A. Box	748,608	Jan. 5	270	62	108	60
Rock-drills. Electric sparking ignition apparatus for gas	J. V. Rice, Jr.	749,324	Jan. 12	1586	335 / 336	108	381
Rock-drilling machine	A. Fauck	748,712	Jan. 5	300	67	108	66
Rock-drilling machine	S. W. Brothers	752,819	Feb. 23	3865	867	108	1951
Rocket	T. Lloyd	753,151	Feb. 23	4519	1007	108	2097
Roller: *See* Awning-roller. Shade-roller.							
Rolling apparatus. Ring-	G. W. La Voo	751,861	Feb. 9	2011	455	108	1506
Rolling metal plates	A. J. Maskrey	751,801	Feb. 9	1892	428	108	1476
Rolling-mill	C. von Philp	749,745	Jan. 19	2454	562	108	581
Rolling-mill	R. D. York	752,743	Feb. 23	3719	829 / 830	108	1919
Rolling-mill feed-table	S. V. Huber	751,733	Feb. 9	1757	399	108	1450
Rolling pipe-couplings, &c. Machine for	H. W. and J. A. Hock	748,948	Jan. 5	763	165	108	173
Rolls, &c. Adjusting mechanism for	P. Knecht	750,864	Feb. 2	156	36, 37	108	1091
Roof-joint. Sheet-metal	J. H. McEvoy	749,943	Jan. 19	2831	604	108	667
Roofing-plate. Cement	H. Baden and W. Gluss	753,188	Feb. 23	4586	1023	108	2114
Rope-tie	L. F. Ramsey	750,782	Jan. 26	4447	958	108	1085
Rosette-covers. Device for removing	F. L. Bryant	748,923	Jan. 5	707	153	108	160
Rotary engine	P. A. Anderson	748,892	Jan. 5	594	119 / 120	108	119
Rotary engine	A. Guindon	748,861	Jan. 5	583	133	108	132
Rotary engine	C. W. Allen	749,712	Jan. 19	2376	502	108	567
Rotary engine	W. I. Cooley	750,169	Jan. 19	3249	701	108	754
Rotary engine	W. S. Chapman	750,188	Jan. 19	3278	707 / 708	108	760
Rotary engine	W. von Pittler	750,219	Jan. 19	3334	720 / 721	108	772
Rotary engine	F. J. Waters	751,561	Feb. 9	1480	335 / 336	108	1393
Rotary engine	J. E. Shearer	751,694	Feb. 9	1677	380 / 381	108	1433
Rotary engine	V. Ericson	751,842	Feb. 9	1972	448	108	1495
Rotary engine	W. F. Roach	751,872	Feb. 9	2027	459	108	1509
Rotary engine	E. F. Taylor	752,602	Feb. 16	3439	768 / 769	108	1841
Rotary engine	E. F. Taylor	752,603	Feb. 16	3443	769	108	1842
Rotary engine	E. F. Taylor	752,604	Feb. 16	3447	770	108	1842
Rotary engine	M. E. Knight	752,784	Feb. 23	3788	846 / 847	108	1934
Rotary engine	C. P. Mains	753,086	Feb. 23	4412	981	108	2075
Rotary explosive-engine	B. Banta and C. Mathews	749,654	Jan. 12	2245	473 / 474	108	521
Rotary motor	J. M. Benjamin	748,689	Jan. 5	292	60	108	58
Rotary motor	H. Van Beresteyn	750,914	Feb. 2	253	57, 58	108	1113
Rotary steam-engine	W. J. Richmond	749,708	Jan. 12	2342	495	108	542
Roundabout	C. A. Cleal	753,043	Feb. 23	4338	965	108	2068
Rubber-dam clamp	F. H. Nies	748,977	Jan. 5	836	177	108	194
Rubber-dam holder	A. J. Price	750,695	Jan. 26	4227	917	108	983
Rubber-like gum	M. G. Brownell	752,951	Feb. 23	4158	927	108	2016
Rubber-like gum	M. G. Brownell	752,952	Feb. 23	4159	927	108	2016
Rubber-like material	R. A. Leigh	752,988	Feb. 23	4230	943	108	2033
Rubber-working machine	A. N. Hood	752,975	Feb. 23	4209	937	108	2029
Rudder	T. P. Byram	750,592	Jan. 26	4052	876 / 877	108	946
Rudders. Means for locking or unlocking	A. J. Maclean	752,086	Feb. 16	2444	547	108	1619
Rug-adjuster. Reversible	J. L. Kingston	751,738	Feb. 9	1768	402	108	1452
Ruling device	J. Hren	752,556	Feb. 16	3340	743	108	1819
Ruling-machine	K. Daut	749,084	Jan. 5	967	203	108	225
Running-gear	L. T. Gibbs	749,287	Jan. 12	1517	322	108	365
Running-gear	H. S. Hodil	750,854	Feb. 2	140	32	108	1088
Running-gear	D. B. Van Dorn	750,915	Feb. 2	254	58, 59	108	1114
Sad-iron	J. Bennitt	749,530	Jan. 12	2008	417	108	470
Sad-iron	K. Kaltschmid	749,615	Jan. 12	2167	454	108	506
Sad-iron	W. E. Hoyt	751,298	Feb. 2	961	219	108	1261
Sad-iron and radiating stove. Combined	H. Green	751,909	Feb. 9	2108	475	108	1527
Sad-iron holder	J. H. Cox	749,363	Jan. 12	1668	355	108	400
Sad-iron. Revolving	A. D. Mahony	748,627	Jan. 5	146	35	108	35
Sad-iron. Self-heating	H. A. Feltus	751,156	Feb. 2	682	157	108	1205
Saddle. Harness-	C. W. Miller	752,404	Feb. 16	3060	679	108	1757
Saddle. Pack-	J. T. Morgan	751,324	Feb. 2	1082	234	108	1277
Saddle seat. Harness-	H. Leibe	749,630	Jan. 12	2176	456	108	508
Saddles. Antifriction seat-cover for riding-	T. V. Brooke	749,358	Jan. 12	1650	351	108	397

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Saddles. Means for attaching stirrup-leathers to riding-	J. Martin	751,865	Feb. 9	2017	457	108	1507
Safe	W. S. S. Fleming	749,288	Jan. 12	1505	320	108	362
Safe. Heat-	E. Kunz	749,205	Jan. 12	1336	287	108	327
Safe. Provision-	C. C. Bender and J. E. Fish	752,509	Feb. 16	3248	724	108	1797
Safes. Door for screw-door	W. E. Arnold	750,792	Feb. 2	18	5	108	1061
Safety-can	W. H. Pearson	748,784	Jan. 5	423	97	108	95
Safety-guard	G. O. Curtis	750,265	Jan. 26	3427	741	108	812
Safety-lock for sacks, bags, &c	J. O. N. Lindholm	751,313	Feb. 2	1015	230	108	1274
Sail-fastening for mast-hoops. Detachable	A. Klatt	749,968	Jan. 19	2870	614	108	674
Sample-sheet	J. Dohse	750,620	Jan. 26	4093	886	108	954
Sand-blast apparatus	W. R. King	749,488	Jan. 12	1949	405	108	457
Sand-drier. Portable	P. C. Brennan	752,754	Feb. 23	3736	833	108	1923
Sand-press	H. G. Volght	750,918	Feb. 2	260	60, 61	108	1115
Sand screen and mixer. Combined	H. G. Boughton	752,646	Feb. 23	3539	788	108	1879
Sander. Pneumatic	I. P. Carnes	752,954	Feb. 23	4166	928 / 929	108	2019
Sanitary closet. Electric	J. H. Wilson	749,769	Jan. 19	2497	531 / 532	108	594
Sash-cord holder	W. Munro	751,098	Feb. 2	571	132	108	1183
Sash-cord support	J. Kreimer	751,858	Feb. 9	2008	454	108	1505
Sash-fastener	A. Assorati	749,469	Jan. 12	1910	396	108	449
Sash-fastener	J. Anderson	750,420	Jan. 26	3706	804	108	876
Sash-fastener	R. S. Reid	751,809	Feb. 9	1906	432	108	1483
Sash-fastener	J. E. Gibbs	752,062	Feb. 16	2403	536	108	1610
Sash fastener. Window-	P. H. Page	752,253	Feb. 16	2764	613	108	1694
Sash-holder	W. Lemke	750,469	Jan. 26	3800	826	108	896
Sash-holder	E. Heimann	752,549	Feb. 16	3324	740	108	1816
Sash-lock key. Invisible-	S. G. Wellman	751,586	Feb. 9	1485	336	108	1398
Sash lock. Window-	T. J. Sutton	749,641	Jan. 12	2222	469	108	517
Sash lock. Window-	T. J. Sutton	749,642	Jan. 12	2224	469	108	517
Sash pull. Window-	H. E. Essig	750,956	Feb. 2	334	79	108	1132
Sash-weight	J. T. Leonard	752,235	Feb. 16	2720	602	108	1684
Sash. Window-	E. Ohnstrand	750,999	Feb. 2	405	95	108	1147
Sash. Window-	I. W. Emerson	752,831	Feb. 23	3891	873	108	1956
Satchel	J. Sandberg	748,657	Jan. 5	200	47	108	44
Saw clapboard-machine. Band-	A. J. Burton	749,839	Jan. 19	2626	582	108	622
Saw-gummer	J. Anderson	750,074	Jan. 19	3079	662	108	717
Saw-handle	D. W. Solomon	752,364	Feb. 16	2975	662	108	1740
Saw handle. Crosscut-	W. MacLennan	750,773	Jan. 26	4430	955	108	1081
Saw-holder	D. Rowe	752,420	Feb. 16	3095	686	108	1760
Saw jointer and raker-gage. Combined	C. F. Frazee	751,390	Feb. 2	1138	259	108	1300
Saw-set	J. Dietrich	749,270	Jan. 12	1476	315	108	355
Saw-set	S. Haltom	751,849	Feb. 9	1964	451	108	1498
Saw set and jointer. Combined	J. Anderson	750,073	Jan. 19	3078	661	108	717
Saw setting and sharpening machine	R. McMorland	752,851	Feb. 23	3924	879 / 880	108	1964
Saw-setting device	W. F. Arantz	750,148	Jan. 19	3210	691	108	746
Saw-sharpener	W. J. Winter	750,144	Jan. 19	3204	688 / 689	108	744
Saw-sharpening machine	A. Andersson	748,685	Jan. 5	247	57	108	54
Saw-swage gage	A. O. Reppeto	748,790	Jan. 5	433	99	108	97
Saw-table. Bracket	J. C. Mallonee	750,551	Jan. 26	3982	860	108	930
Saw-table gage	C. A. Norlin	752,701	Feb. 23	3643	811 / 812	108	1902
Sawing-machine	J. T. Davis	751,060	Feb. 2	511	119 / 120	108	1171
Sawmill off-bearing mechanism	E. T. Davies	752,440	Feb. 16	3129	696	108	1771
Sawmill set-works indicator	G. D. Palmer	751,405	Feb. 2	1161	264	108	1304
Sawmill-skidway	C. L. Trombley	750,911	Feb. 2	249	55	108	1112
Scaffold. Portable folding window-	J. R. Elliott and G. L. Kelly	751,620	Feb. 9	1548	352	108	1406
Scale-case and blank therefor. Single-piece sheet-metal	W. N. Pelouze	749,497	Jan. 12	1965	408	108	460
Scale. Depth-	W. J. Gillard	750,449	Jan. 26	3764	818	108	888
Scale. Fluid-pressure weighing-	H. F. Jones	751,295	Feb. 2	981	223	108	1265
Scale. Fluid-pressure weighing-	H. F. Jones	751,296	Feb. 2	984	224	108	1266
Scale. Fluid-pressure weighing-	H. F. Jones	751,297	Feb. 2	985	224	108	1266
Scale. Weighing-	W. N. Pelouze	749,498	Jan. 12	1966	408	108	460
Scale. Weighing-	F. A. Selley	751,018	Feb. 2	434	102 / 103	108	1153
Scale. Weighing-	J. M. Triner	752,874	Feb. 23	3970	889	108	1975
Scenery, &c., of theaters. Machinery for raising and lowering stage	E. Lytton	752,571	Feb. 16	3368	751	108	1825
Scenery trimmer. Theatrical-	J. R. Clancy	749,081	Jan. 19	2894	619	108	680
School seat and desk. Combined	J. H. Sutherland	749,640	Jan. 12	2219	468	108	516
Scoop	T. D. Owens, Jr.	748,878	Jan. 5	616	138	108	138
Scoop	H. C. Metzger and W. O. Guice	751,933	Feb. 9	2152	485	108	1536
Scourer: *See* Grain-scourer.							
Scouring-machine	A. Pietsch	748,786	Jan. 5	426	97	108	95
Scraper. Dipper-	L. H. Johnson	750,459	Jan. 26	3785	823	108	892
Scraper. Land-	C. E. Reed	751,106	Feb. 2	593	137	108	1187
Screen: *See* Sand-screen. Window-screen.							
Screen	W. E. Porter	749,578	Jan. 12	2104	438	108	493
Screen	U. S. Briggs	751,375	Feb. 2	1113	252	108	1294
Screens. Fly-outlet for	A. B. Bateman	751,043	Feb. 2	480	112	108	1164
Screw-cutting die-head	W. Morgan	751,536	Feb. 9	1379	314	108	1370
Screw-driver	G. E. B. Parkin	748,879	Jan. 5	618	139	108	138
Screw-driver	J. P. A. Hanlon	750,849	Feb. 2	133	30	108	1087
Screw-driver	G. E. Wood	753,186	Feb. 23	4581	1021	108	2112
Screw-driver	H. S. Pullman	753,211	Feb. 23	4643	1033	108	2125
Screw-driver. Reversible	Z. T. Furbish	750,182	Jan. 19	3271	705	108	758
Screw-key. Ratchet	C. Contal	751,055	Feb. 2	499	116	108	1168
Screw-machine	G. Sittmann and W. H. Pitt	748,667	Jan. 5	216	52	108	47
Screw. Steel	M. Carstens	751,258	Feb. 2	911	207	108	1251

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Screw-threading and welding rings. Apparatus for	G. W. La Voo	751,860	Feb. 9	2010	455	108	1505
Screw-threading and welding thread-protectors, &c.	G. W. La Voo	751,859	Feb. 9	2009	454	108	1505
Scrubber	J. Jester	749,296	Jan. 12	1529	324	108	368
Scrubber, mop, and wringer. Combined	L. Wagener	749,506	Jan. 12	1978	411	108	463
Scrubbing appliance	O. F. Swift	752,124	Feb. 16	2515	559 560	108	1635
Seal	E. J. Brooks	750,020	Jan. 19	2979	637	108	608
Seal. Car-	A. W. Morgan	749,317	Jan. 12	1572	333	108	378
Seal-lock	W. L. Sebring	751,690	Feb. 9	1670	378 379	108	1432
Seal. Meter-	D. de Lancey and H. M. Smith	753,080	Feb. 23	4408	979	108	2073
Sealing and delivering mechanism. Envelop	H. Harte	749,378	Jan. 12	1608	360 361	108	405
Sealing machine. Carton-	J. H. Weeks	751,822	Feb. 9	1931	438 439	108	1487
Sealing machine. Envelop-	H. Harte and R. J. Stevens	749,377	Jan. 12	1606	360	108	405
Sealing machine. Package-	R. F. W. Beardsley	749,681	Jan. 12	2296	485 486	108	583
Sealing machine. Package-	R. F. W. Beardsley	749,682	Jan. 12	2300	486	108	584
Sealing wrench. Jar-	L. D. Burlingham	750,163	Jan. 19	3242	699	108	752
Search-light projectors. Signal device for	R. H. Read	751,013	Feb. 2	427	101	108	1151
Seat: *See* Farm-machinery seat. Pneumatic seat. School-seat.							
Seed cleaner. Cotton-	J. W. Harrington	751,639	Feb. 9	1582	360	108	1413
Seed-cleaning apparatus. Cotton-	D. Stansell and X. Gee	752,872	Feb. 23	3905	888 889	108	1974
Seed-huller	S. J. Ellis	748,852	Jan. 5	504	128	108	127
Seed-huller	F. A. Wells	751,705	Feb. 9	1696	386	108	1437
Seed huller. Cotton-	M. W. Faherty	752,965	Feb. 23	4186	933	108	2023
Seed-linter attachment. Cotton-	J. W. Harrington	751,638	Feb. 9	1580	360	108	1413
Seesaw amusement apparatus	W. H. Gilman	753,197	Feb. 23	4608	1026	108	2119
Self-lubricating wheel for cars, &c	C. J. Gustafson	751,635	Feb. 9	1576	358	108	1412
Semaphore mechanism	W. F. Taylor, Jr.	748,814	Jan. 5	488	109	108	110
Semi-elliptic spring	E. Cliff	752,084	Feb. 16	2851	526	108	1508
Separator: *See* Centrifugal separator. Grain-separator. Hydraulic separator. Coal-separator. Liquid-separator. Cream-separator. Oil-separator. Gold-separator. Ore-separator.							
Separator	O. S. Emerson	749,280	Jan. 12	1498	319	108	360
Separator	D. L. Adelsperger	750,071	Jan. 19	3074	660 661	108	716
Separator	W. J. Reilly	752,418	Feb. 16	3091	685 686	108	1763
Sewing-machine	E. H. Cooper and C. Schütz	751,656	Feb. 2	501	116 117	108	1169
Sewing-machine	E. H. Cooper and C. Schütz	751,657	Feb. 2	504	117 118	108	1170
Sewing-machine	R. G. Woodward	753,187	Feb. 23	4582	1021 1022 1023	108	2112
Sewing machine. Buttonhole-	W. E. Goodyear	749,437	Jan. 12	1817	381 382	108	430
Sewing machine. Buttonhole-	C. A. Dahl	749,721	Jan. 19	2308	507	108	571
Sewing machine. Buttonhole-	C. A. Dahl	749,776	Jan. 19	2312	534	108	597
Sewing machine. Buttonhole-	D. Noble	753,066	Feb. 23	4422	983 984	108	2077
Sewing-machine coupling	J. M. Jackson	749,295	Jan. 12	1527	324	108	367
Sewing-machine drop-table	W. Grothe	749,787	Jan. 19	2553	538	108	601
Sewing-machine fan attachment	M. Steiner	749,638	Jan. 12	2216	467 468	108	516
Sewing-machine feeding mechanism. Book-	R. Mitchell	752,791	Feb. 23	3890	850 851	108	1967
Sewing-machine feeding mechanism. Carpet-	J. Wittemann	749,249	Jan. 12	1417	304	108	345
Sewing-machine guide	G. Gioiosa	751,069	Feb. 9	1540	349	108	1404
Sewing-machine guide	A. Crawfort	751,515	Feb. 9	1540	349	108	1404
Sewing-machine hand-lever attachment	J. W. Wheeler	752,738	Feb. 23	3711	828	108	1918
Sewing-machine needle. Self-threading	J. M. Farmer	752,213	Feb. 16	2678	593	108	1673
Sewing-machine needle-threading attachment	L. Bernard	751,827	Feb. 9	1946	442	108	1491
Sewing-machine needle-vibrating mechanism	J. T. Hogan	750,648	Jan. 26	4137	897 898	108	963
Sewing-machine seam-finisher. Shoe-	J. Laurin	751,521	Feb. 9	1358	310	108	1300
Sewing-machine spool-holder	G. W. Coughenour	752,043	Feb. 16	2966	669	108	1601
Sewing-machine stitch-forming mechanism. Shoe-	J. L. Kieffer	752,398	Feb. 16	3042	677	108	1733
Sewing-machine thread-cutting device	E. B. Allen	749,012	Jan. 5	912	193	108	213
Sewing-machine thread-measuring mechanism	G. L. Corcoran and G. A. Dobyne	751,264	Feb. 2	922	209 210	108	1253
Sewing-machine threading device	S. B. Battey	748,914	Jan. 5	687	151 152	108	155
Sewing machines. Trimming-cutter attachment for zigzag-	H. A. Klemm	753,145	Feb. 23	4509	1005	108	2095
Shade and globe holder	W. C. Homan	752,225	Feb. 16	2701	598	108	1679
Shade-bracket	F. J. Nichols	749,088	Jan. 5	1067	229	108	250
Shade bracket. Window-	J. E. Gill	750,184	Jan. 19	3274	706	108	759
Shade, curtain, and cornice supporter. Combined window	G. Mallory	751,800	Feb. 9	1881	428	108	1476
Shade-holder	A. S. Lyhne	751,862	Feb. 9	2014	456	108	1506
Shade-holder	M. D. Compton	752,040	Feb. 16	2962	668	108	1601
Shade-holder	H. Hubbell	753,077	Feb. 23	4397	978	108	2072
Shade-holder	G. M. Rust and E. J. Faulkner	750,808	Feb. 2	227	51	108	1108
Shade or curtain holder	J. C. Miller	752,090	Feb. 16	2449	548	108	1620
Shade-roller bracket	M. Schwab	752,866	Feb. 23	3963	886	108	1970
Shade-roller-bracket jack	C. Flagler	749,780	Jan. 19	2522	536	108	599
Shade-roller spear							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shade roller. Window-	R. Z. Nolan	752,096	Feb. 16	2459	550	108	1623
Shaft-hanger	J. W. Bechtol and J. C. Manley	750,153	Jan. 19	3218	693	108	487
Shaft-hanger	C. W. Levalley	750,666	Jan. 26	4171	904	108	971
Shaft-reversing mechanism	J. S. Sheppard	750,229	Jan. 19	3361	725 726	108	779
Shaft-straightener	H. R. Granger	749,816	Jan. 19	2582	550	108	612
Shaft-supporter	W. E. Hoyt	749,991	Jan. 19	2920	624	108	686
Shaft. Vehicle-	E. Packer	750,685	Jan. 26	4209	912	108	980
Shafting-couplings. Apparatus for applying and removing	W. J. Muncaster	750,477	Jan. 26	3816	829	108	899
Sharpener and can-opener. Combined knife-	A. M. Parker	751,001	Feb. 2	407	96	108	1147
Sharpener. Disk-	F. Melvin and E. Brusseau	748,768	Jan. 5	397	91	108	88
Sharpener. Disk-	E. Pierson	748,785	Jan. 5	425	97	108	95
Sharpener. Disk-	H. White	751,590	Feb. 9	1494	340	108	1395
Sharpener. Disk-	H. Burford	752,514	Feb. 16	3258	726 727	108	1800
Sharpener. Drill-	J. L. Bryson	752,026	Feb. 16	2340	523 524	108	1596
Sharpener. Edge-tool	W. Jacques	751,077	Feb. 2	543	127	108	1178
Sharpening machine. Razor-	A. W. Scheuber	750,399	Jan. 26	3673	798	108	860
Sharpening razors. Rotary wheel for	C. Philius	750,301	Jan. 26	3493	755	108	827
Sheaf-tie	J. C. Parker	748,783	Jan. 5	422	96	108	94
Shears: *See* Bench-shears. Pruning-shears.							
Shears	A. Gutstein	752,339	Feb. 16	2932	653	108	1730
Sheave. Ball-bearing	H. F. Kell	750,771	Jan. 26	4426	954	108	1030
Sheep-dipping machine	R. J. Winnie	748,829	Jan. 5	518	118	108	118
Sheer-pole support	E. G. Lamb	748,960	Jan. 5	784	170	108	178
Sheet-conveying machine	T. C. Dexter	752,380	Feb. 16	3007	669 670	108	1746
Sheet-conveying machine	T. C. Dexter	752,381	Feb. 16	3011	670 671	108	1747
Sheet-conveying machine	T. C. Dexter	752,382	Feb. 16	3014	671	108	1748
Sheet-conveying machine	T. C. Dexter	752,383	Feb. 16	3017	671 672	108	1748
Sheet lifting and counting device	J. W. Darley, Jr.	752,616	Feb. 16	3475	775	108	1848
Sheet-metal articles. Machine for forming	H. L. Bradley	750,581	Jan. 26	4027	871 872	108	941
Sheet metal. Manufacture of	A. Paterson	752,411	Feb. 16	3075	682	108	1759
Sheet-metal strips. Rolls for use in the production of	G. B. Johnson	749,679	Jan. 12	2293	484	108	532
Sheet-metal vessel	J. R. McLaughlin	749,319	Jan. 12	1575	333	108	379
Sheet-metal wares. Machine for beading	J. W. Paton and H. G. Taylor	748,982	Jan. 5	844	180	108	195
Shelf clamp. Glass-	W. H. Campbell	750,595	Jan. 26	4056	877	108	947
Shelf. Differential wine-	J. T. Hicks	749,291	Jan. 12	1522	323	108	366
Shelves. Label-holder for library-	L. C. De Carli	750,436	Jan. 26	3747	813	108	884
Shell resizing and decapping machine	E. E. Blaschke, Jr.	751,895	Feb. 9	2073	468 469	108	1520
Shepherd's crook	H. Frizell	752,058	Feb. 16	2395	535	108	1606
Shingle-machine	A. P. Finger	752,055	Feb. 16	2389	534	108	1607
Shingle-sawing machine	J. M. Custer	751,719	Feb. 9	1725	392	108	1442
Shingling-tool	E. H. Cokefair	752,615	Feb. 16	3473	775	108	1848
Ship-cleaning device	E. Cole	752,142	Feb. 16	2548	568	108	1642
Ship. Propeller-	C. J. H. Flindt	751,158	Feb. 2	685	157 158	108	1205
Ship's distance-recorder	W. C. Forbes	749,927	Jan. 19	2804	598 599	108	661
Shock-binder	P. H. Fontaine	749,047	Jan. 5	994	210	108	231
Shock-binder	J. W. Smith	752,870	Feb. 23	3961	888	108	1973
Shock-loader	E. Carroll	752,140	Feb. 16	2546	567	108	1642
Shoe	J. A. Manss	752,172	Feb. 16	2593	577	108	1652
Shoe	J. A. Manss	752,173	Feb. 16	2594	577	108	1652
Shoe-fastening device	B. W. Hopper	751,432	Feb. 2	1203	273 274	108	1313
Shoe-fastening device	G. A. Turnbull	752,268	Feb. 16	2794	619	108	1700
Shoe-fastening means	F. B. Terry and P. E. Crothers	751,220	Feb. 2	825	189	108	1233
Shoe-polisher	H. M. Backus	749,832	Jan. 19	2617	559	108	620
Shoe-polisher	M. A. Helmann	750,280	Jan. 26	3457	747	108	819
Shoe-polisher	G. B. Coleman	752,143	Feb. 16	2551	568	108	1643
Shoe-polishing chair	J. C. Simering	751,114	Feb. 2	607	140	108	1180
Shoe-rack	C. A. Whitcomb	752,368	Feb. 16	2979	663	108	1741
Shoe-shank stiffener	A. P. Grinnell	750,965	Feb. 2	347	83	108	1135
Shoe-shining frame	H. J. Wichman	751,036	Feb. 2	469	110	108	1161
Shoe-tree	M. W. O'Brien	752,409	Feb. 16	3069	681	108	1758
Shoe-upper fly-closer	S. Cloutier	750,603	Jan. 26	4069	881	108	949
Shoe-upper protector	G. H. Gardiner	751,846	Feb. 9	1980	450	108	1498
Shoe-uppers, &c. Folding-machine for	C. S. Marshall	750,872	Feb. 2	170	40 41 42	108	1095
Shovel	G. Thompson	750,413	Jan. 26	3696	802	108	832
Show-window	G. F. Jefferson	749,678	Jan. 12	2290	483 484	108	573
Shuttle	C. and G. Brun	748,920	Jan. 5	700	151	108	158
Shuttle	C. and G. Brun	748,921	Jan. 5	702	154	108	159
Shuttle	C. and G. Brun	748,922	Jan. 5	704	154	108	160
Shuttle	D. J. Carey	748,926	Jan. 5	713	155	108	161
Shuttle-threader	O. R. Jacques	748,954	Jan. 5	774	168	108	176
Sidewalk or other light	F. H. Works	750,929	Feb. 2	280	66	108	1120
Sieve and cleaner therefor. Shaking-	W. D. Gray	752,448	Feb. 16	3143	699	108	1774
Sieve. Grain-	H. K. Clement	750,167	Jan. 19	3247	709	108	753
Sifter. Ash-	T. J. Martin	751,744	Feb. 9	1776	404	108	1453
Sifter. Flour-	A. C. Barler	752,641	Feb. 23	3582	786	108	1878
Sifter for furnaces, &c. Ash-	G. W. Osgood	751,197	Feb. 2	770	175	108	1222
Sign. Changeable	J. L. Blackmer	752,324	Feb. 16	2904	647	108	1723
Sign. Display-	J. Ward	750,137	Jan. 19	3191	686	108	742
Sign-display device	A. and J. Cahn and A. R. Mosler	751,882	Feb. 9	1955	444	108	1492

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sign. Window-shade	R. G. Lake	751,307	Feb. 2	1004	227	108	1271
Signal: *See* Car-signal. Electric signal. Railway-signal. Railway block-signal. Railway-crossing warning-signal. Railway-train alarm-signal. Switch danger-signal.							
Signal	J. J. Luyten	749,870	Jan. 19	2676	573	108	632
Signal apparatus. Electrical	J. M. Golding	751,788	Feb. 9	1856	422, 423	108	1470
Signal system. Electric	H. A. Fessenden	748,941	Jan. 5	732	163	108	171
Signals. Apparatus for preventing engine-drivers running past home or distant	T. Cairns	752,028	Feb. 16	2344	524	108	1597
Signals. Electrical apparatus for producing sound-	C. H. O'Brien	752,408	Feb. 16	3068	681	108	1758
Signals over surfaces. Wireless electric transmission of	F. Braun	750,429	Jan. 26	3726	809	108	880
Signaling apparatus	R. W. Earle and N. Goodyear	749,815	Jan. 19	2579	549, 550	108	612
Signaling apparatus	E. L. Grauel	751,071	Feb. 2	527	123	108	1175
Signaling apparatus	R. B. Kernohan	752,843	Feb. 23	3912	877	108	1961
Signaling apparatus. Automatic	I. A. Michael	748,970	Jan. 5	802	173, 174, 175	108	183
Signaling apparatus. Electric	F. B. Herzog	749,191	Jan. 12	1299	280	108	318
Signaling apparatus. Electric	W. E. Decrow	750,268	Jan. 26	3430	741	108	813
Signaling apparatus. Electric	W. E. Decrow	750,269	Jan. 26	3433	742	108	814
Signaling apparatus. Electric	W. E. Decrow	750,270	Jan. 26	3435	742	108	814
Signaling apparatus. Electric	J. E. Stannard	751,760	Feb. 9	1808	411	108	1458
Signaling apparatus. Selective	K. Moodie and J. S. Small	750,777	Jan. 26	4436	956, 957	108	1032
Signaling apparatus. Wireless	L. de Forest	749,131	Jan. 5	1163	247	108	269
Signaling apparatus. Wireless	L. de Forest	749,178	Jan. 12	1279	276	108	314
Signaling apparatus. Wireless	L. de Forest	749,434	Jan. 12	1813	380	108	429
Signaling by electromagnetic waves	R. A. Fessenden	752,895	Feb. 23	4015	900	108	1965
Signaling device. Wireless	L. de Forest	748,597	Jan. 5	78	21	108	19
Signaling. Selective	R. A. Fessenden	752,894	Feb. 23	4013	899	108	1965
Signaling system. Electrical	H. P. Clausen	749,902	Jan. 19	2905	619	108	680
Signaling system. Selective	G. Babcock	750,788	Feb. 2	20	5	108	1002
Signaling system. Wireless	C. D. Ehret	749,570	Jan. 12	1684	358	108	408
Signaling system. Wireless	H. Shoemaker	749,584	Jan. 12	2118	441	108	496
Signaling. Wireless	D. Drawbaugh	752,533	Feb. 16	3290	734	108	1807
Silk. Making artificial	E. Thiele	750,502	Jan. 26	3873	841	108	911
Siphon	S. W. Miller	749,445	Jan. 12	1849	386	108	435
Skate	N. G. Johnson	750,542	Jan. 26	3965	857	108	928
Skate-sharpener	C. W. Price	750,606	Jan. 26	4228	917	108	988
Sketching outfit	A. R. Cobb	752,757	Feb. 23	3742	834, 835	108	1924
Skid	J. P. Frank	750,446	Jan. 26	3760	817	108	887
Skirt	W. T. Smith and J. V. Malnight	750,234	Jan. 19	3372	728	108	781
Skirt-hanger	J. M. Triner	751,030	Feb. 2	458	107	108	1159
Skylight	W. H. Mullins, W. C. Hare, and H. C. Nelson.	751,746	Feb. 9	1780	405, 406	108	1454
Skylight	C. W. Smith	752,809	Feb. 23	3960	887, 888	108	1972
Slag-pot construction. Worm-gear-operated	N. V. Fitts	752,635	Feb. 16	3518	782, 783	108	1857
Slate. Artificial	J. T. South	750,905	Feb. 2	239		108	1110
Sled draft mechanism. Traction-	N. E. Brown	750,586	Jan. 26	4040	873	108	944
Sleeves, couplings, or the like. Machine for forming	A. A. Anderson	749,013	Jan. 5	914	193	108	213
Sleigh-runner attachment. Vehicle	H. Thiedemann	749,887	Jan. 19	2712	579	108	641
Sleigh. Wheeled	J. H. Wolf	750,146	Jan. 19	3207	689, 690	108	745
Slotting-machine	L. H. Colburn	748,844	Jan. 5	545	125, 126	108	123
Slub-detector	S. W. Wardwell	752,732	Feb. 23	3700	826	108	1915
Small-arms	F. Neuber and J. Tambour	749,877	Jan. 19	2690	575	108	636
Smelting-furnace	M. L. Trapp	749,964	Jan. 19	2845	607, 608	108	669
Smelting materials and producing carbid	A. H. Cowles	750,094	Jan. 19	3118	670	108	725
Smoke-consumer	H. Kaping	750,890	Feb. 2	150	34, 35	108	1000
Smoke-consumer	J. A. Crawford	751,059	Feb. 2	509	119	108	1171
Smoke-consuming furnace	J. A. Willard	750,786	Jan. 26	4453	959	108	1036
Smoke-consuming means	R. Simms	749,586	Jan. 12	2125	442	108	498
Smoke. Emptying rooms of	G. F. Mahoney	750,869	Feb. 2	165	39	108	1004
Smoke-preventing means	H. H. Hughes	749,734	Jan. 19	2498	515, 516	108	578
Smoke-purifier	J. F. Doyle	750,351	Jan. 26	3502	773	108	851
Smoking-pipe	T. Tomlinson	752,180	Feb. 23	4371	1019	108	2110
Smoothing and sandpapering machine. Surface	G. Tons, Jr., and R. E. Sheridan	751,820	Feb. 9	1929	437	108	1486
Snap-hook	O. S. Marold	751,090	Feb. 2	565	131	108	1182
Snap-hook	F. Hooper	751,915	Feb. 9	2113	477	108	1529
Snow-disposal system	J. C. Marriott	752,911	Feb. 23	4044	905	108	1991
Snow-guard	G. F. Folsom	752,216	Feb. 16	2687	594	108	1676
Snow-plow	S. D. Lamos	751,182	Feb. 2	743	170	108	1216
Snow-plow	S. D. Lamos	751,183	Feb. 2	744	170	108	1216
Snow-plow. Reversible rotary	O. Cutting	749,172	Jan. 12	1261	272	108	309
Soap. Making chip-	W. M. Morse	752,573	Feb. 16	3372	752, 753	108	1826
Soap-receptacle	M. E. Eddy	750,833	Feb. 2	101	24	108	1079
Soap-tray	G. C. Coon	750,815	Feb. 2	55	12	108	1009
Soda-water apparatus	H. A. Hopkins	752,453	Feb. 16	3151	702	108	1776
Solar heater	J. M. Browning, Jr	748,696	Jan. 5	277	64	108	62
Soldering-iron. Electric	J. I. Ayer	748,571	Jan. 5	8	2	108	4
Soldering-iron. Electrically-heated	W. J. Bowen	750,239	Jan. 19	3379	729	108	783
Soldering-machine	G. L. Merrell	749,211	Jan. 12	1349	290, 291	108	331

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Soldering-machine. Gang	J. Dubé	752,333	Feb. 16	2922	651, 652	108	1727
Sole or heel protector	J. D. Kaestner	750,979	Feb. 2	369	89	108	1139
Sound intensifier. Electrically-produced	G. T. Swenson	751,818	Feb. 9	1927	437	108	1486
Sound-record. Double-faced	A. N. Petit	749,092	Jan. 5	1093	231	108	251
Sound recording and reproducing machine	H. Jones	750,460	Jan. 26	3786	823	108	892
Sound recording and reproducing machine sound-box.	G. K. Cheney	749,360	Jan. 12	1659	358	108	399
Sound-recording machines. Removable turn-table for	E. R. Johnson	752,682	Feb. 23	3610	804	108	1895
Sound-reproducing record and making same	T. A. and J. B. Connolly	749,030	Jan. 5	951	201	108	221
Sounding apparatus	C. W. Farr	751,623	Feb. 9	1552	353	108	1407
Souvenir. Pocket	E. Scott	752,183	Feb. 16	2619	581	108	1659
Spacing-table	L. D. Weaning	748,823	Jan. 5	503	114, 115	108	114
Spanner	A. W. Smith	749,588	Jan. 12	2128	443	108	498
Spark-arrester	D. S. Child	750,088	Jan. 19	3108	668	108	728
Spark-arrester	J. D. King	750,658	Jan. 26	4152	901	108	966
Spark-arrester	M. H. Thode	752,481	Feb. 16	3196	712	108	1786
Spark arrester, extinguisher, and discharger	J. W. Heaton	752,676	Feb. 23	3597	801	108	1892
Spark production. Controlling	L. de Forest	750,180	Jan. 19	3267	705	108	758
Sparking mechanism. Variable	G. E. Tregurtha	749,505	Jan. 12	1976	410, 411	108	462
Spectacle or eyeglass lens-fastening	C. M. Porter	751,939	Feb. 9	2163	486	108	1539
Spectacles. Rim-	J. C. Anderson	752,944	Feb. 23	4145	923	108	2013
Speculum	T. De Vilbiss	751,475	Feb. 9	1278	291	108	1348
Speech, &c. Electromagnetic switch device for apparatus for magnetically recording and strengthening the reproduction of	P. O. Pedersen	752,858	Feb. 23	3940	884	108	1967
Speed device. Variable-	I. H. Spencer	751,958	Feb. 9	2198	495, 496	108	1547
Speed-indicator	T. H. McQuown	749,743	Jan. 19	2446	521	108	582
Speed mechanism. Variable-	F. V. Mathews	750,874	Feb. 2	181	42, 43	108	1096
Speed mechanism. Variable-	C. E. Sargent	751,564	Feb. 9	1443	328	108	1385
Speed mechanism. Variable-	C. S. Hisey	752,223	Feb. 16	2097	597	108	1678
Speed-regulator	E. Maurer	751,319	Feb. 2	1023	232	108	1275
Speed-regulator. Friction	F. W. Linnert	750,056	Jan. 19	3049	653	108	712
Speed regulator. High-	L. Pagan	749,217	Jan. 12	1872	398	108	336
Spike-pulling device	G. H. Bell	751,604	Feb. 9	1516	345	108	1400
Spindle-brake	D. G. Breheny	752,199	Feb. 16	2654	588	108	1667
Spindle-driving bands. Mechanism for guiding and applying tension to	J. Boyd	752,647	Feb. 23	3542	788, 789	108	1880
Spinning and twisting apparatus	R. L. Cumnock	752,760	Feb. 23	3747	836	108	1925
Spinning and twisting machine	C. T. and A. T. Atherton	749,470	Jan. 12	1912	397	108	449
Spinning apparatus. Ring-	A. Lovejoy	752,288	Feb. 16	2728	604	108	1685
Spinning-machine	L. Dugauquier	752,829	Feb. 23	3884	871	108	1955
Spinning-machine belt-shifter	M. T. Bentley	751,894	Feb. 9	2071	468	108	1519
Spinning-machine ring-rail motion	M. T. Bentley	749,521	Jan. 12	2010	417	108	470
Spinning-machine roll-cleaning device	V. Maheu	752,989	Feb. 23	4231	943	108	2034
Spinning-machines. Fiber-gathering can for	G. Stiehle	750,131	Jan. 19	3178	684	108	738
Spinning-mule	H. S. Golland	750,026	Jan. 19	2998	639, 640	108	700
Spinning-ring	D. Harrington	749,189	Jan. 12	1297	280	108	317
Spiral motor. Steam and hydraulic	S. George	750,532	Jan. 26	3929	852	108	921
Spittoon. Pocket-	J. M. A. Deydier	751,266	Feb. 2	927	210	108	1254
Splint-carrier	F. C. Dininny, Jr	750,754	Jan. 26	4380	946	108	1020
Spoke-cutting machine	G. F. Autry	752,640	Feb. 23	3530	785, 786	108	1877
Spoke-tightener	G. F. Lindsay and W. P. Gunn	751,602	Feb. 9	1619	368	108	1421
Spokeshave	J. H. Spear	752,365	Feb. 16	2976	663	108	1740
Spool-holder	F. E. Anderson	751,991	Feb. 9	2067	467	108	1518
Spool holder and case	M. Maas and F. Ricaud	753,085	Feb. 23	4410	981	108	2075
Spool. Needle-cushion	M. Duncombe	752,536	Feb. 16	3301	735	108	1811
Spreading-machine	C. F. Buck	750,241	Jan. 19	3382	730	108	784
Spring: *See* Buggy-boot spring. Corset-spring. Legging-spring. Locomotive-spring. Semi-elliptic spring.							
Spring construction	M. D. Kilmer	752,783	Feb. 23	3787	846	108	1934
Spring cushioning device	C. P. Byrnes	752,515	Feb. 16	3261	727	108	1800
Spring-extension support	B. A. Estep	752,212	Feb. 16	2676	593	108	1673
Spring mechanism. Friction	G. Westinghouse	749,708	Jan. 12	2356	498	108	546
Spring-motor	W. Weiner	750,327	Jan. 26	3553	709	108	842
Springs. End seat for elliptical	C. A. Miller	749,313	Jan. 12	1565	331	108	377
Sprinkler	W. H. Case	751,612	Feb. 9	1534	348, 349	108	1408
Square	G. A. Stephens	750,725	Jan. 26	4319	934	108	1004
Square. Carpenter's folding	W. Steers, Sr	749,112	Jan. 5	1132	231	108	262
Squares. Machine for rolling carpenters'	H. K. Jones	748,870	Jan. 5	600	135, 136	108	134
Stack-covering	W. D. Carson	748,701	Jan. 5	286	65	108	63
Stacker. Hay-	R. S. Morse	750,882	Feb. 2	198	45	108	1101
Stacker hood. Pneumatic-	I. A. Weaver	750,738	Jan. 26	4347	939	108	1012
Stacker. Pneumatic	E. O. Berg	748,575	Jan. 5	17	4	108	7
Stacker. Pneumatic	J. H. Ley	749,737	Jan. 19	2435	518	108	579
Stacker. Pneumatic straw-	N. L. Nelson	748,640	Jan. 5	168	40	108	37
Stacker. Pneumatic straw-	J. F. Templeton	751,573	Feb. 9	1464	332	108	1390
Stair structure	N. Bois	750,156	Jan. 19	3223	694	108	749
Stairway	E. Ohnstrand	750,998	Feb. 2	404	95	108	1147
Stairway	E. Ohnstrand	751,068	Feb. 2	581	134	108	1185
Stairway. Traveling	I. H. Venn	751,702	Feb. 9	1692	385	108	1436
Staking-machine	F. J. Perkins	749,306	Jan. 12	1736	368	108	413
Stamp	E. Ocumpaugh	749,577	Jan. 12	2103	438	108	498
Stamp. Hand-	F. Hardy	752,771	Feb. 23	3756	840	108	1930
Stamp-mill	G. C. Richards	750,006	Jan. 19	2947	630	108	691
Stamp-mill attachment	L. R. Tulloch	748,520	Jan. 5	498	113	108	113

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stamp-mill launders. Separating-hopper for	F. W. O'Neil	752,702	Feb. 23	3645	812	108	1908
Stamp-mill tappet	E. I. Morey	752,462	Feb. 16	3163	705	108	1779
Stamp-mills, &c. Tappet for the shafts of ore	P. C. Kelly	752,907	Feb. 23	4037	904	108	1990
Stamp mortar. Multiple-	W. A. Merralls	753,040	Feb. 23	4416	982	108	2076
Stamp. Time hand-	W. F. Bartholomew	749,655	Jan. 12	2250	474	108	523
Stamps, &c. Attacher for	G. W. Jenings	751,516	Feb. 9	1347	307	108	1364
Stamps, tickets, or the like. Mechanism for dispensing	M. Sielaff	751,568	Feb. 9	1453	339	108	1387
Stand: *See* Display-stand. Reading-stand. Galley-stand. Toilet-stand.							
Staple-extractor	O. C. Healy	751,792	Feb. 9	1864	425	108	1472
Staple-setting machine	A. D. Thomas	751,700	Feb. 9	1668	384	108	1435
Staples, nails, &c. Machine for setting	C. H. Wilkinson	749,956	Jan. 19	2849	608 / 609	108	670
Stapling-machine	G. A. Ede	751,152	Feb. 2	675	155	108	1204
Station-indicator and advertising device	L. Casper	751,458	Feb. 9	1247	285 / 286	108	1341
Stationery-cabinet	T. A. Matthews	748,967	Jan. 5	797	172 / 173	108	181
Stave. Composite barrel-	F. Brenner	750,019	Jan. 19	2977	637	108	697
Steam and explosion engine. Combined	W. D. Gardner	752,619	Feb. 16	3483	776 / 777	108	1850
Steam Apparatus for separating grease or water from	W. J. Baker	752,194	Feb. 16	2634	584 / 585	108	1663
Steam-boiler	S. L. Marple	748,765	Jan. 5	393	89	108	87
Steam-boiler	F. J. Doyle	749,850	Jan. 19	2644	565 / 566	108	625
Steam-boiler	F. T. Chase	750,087	Jan. 19	3106	668	108	723
Steam-boiler	E. U. Gibbs	750,275	Jan. 26	3448	744 / 745	108	817
Steam-boiler	J. C. Stead	750,721	Jan. 26	4312	932 / 933	108	1002
Steam-boiler	J. A. Mumford	752,351	Feb. 16	2953	657	108	1735
Steam-boiler	N. L. Warren	752,492	Feb. 16	3217	718	108	1790
Steam-boiler	C. E. Chapman	753,041	Feb. 23	4334	964	108	2057
Steam collecting and removing device	S. M. Cockburn	751,717	Feb. 9	1719	391	108	1441
Steam-engine	C. Crompton	749,958	Jan. 19	2852	609 / 610	108	671
Steam-engine	A. S. Lineback	752,237	Feb. 16	2727	604	108	1685
Steam-engine	C. Polič and J. Mödlinge	752,800	Feb. 23	3944	885	108	1908
Steam-engine for curd-cutting machines	W. L. McLean	749,742	Jan. 19	2442	520	108	581
Steam-generator	F. Saffell	749,451	Jan. 12	1864	387	108	438
Steam-generator	E. C. Villiers	750,916	Feb. 2	256	59, 60	108	1114
Steam-generator	H. E. Penney	751,002	Feb. 2	408	96, 97	108	1148
Steam-generator	S. M. Cockburn	751,718	Feb. 9	1721	391 / 392	108	1442
Steam-generator	E. G. Roberts	752,301	Feb. 16	2857	635	108	1713
Steam-generator	H. E. Penney	752,859	Feb. 23	3942	884	108	1908
Steam-generator furnace	F. May	749,988	Jan. 19	2821	602	108	664
Steam-generators or the like. Heating-burner for	R. H. White	753,023	Feb. 23	4301	955	108	2051
Steam-motor	S. L. McAdams	751,826	Feb. 2	1085	235	108	1278
Steam or internal-combustion engine or motor	T. S. James	749,864	Jan. 19	2666	570 / 571	108	630
Steam-superheating means	H. F. Wallmann	748,822	Jan. 5	502	113 / 114	108	114
Steam-trap	W. M. Still	748,888	Jan. 5	634	142	108	142
Steam-trap	F. F. Brush	751,144	Feb. 2	663	152	108	1201
Steam-trap	J. H. Blessing	751,250	Feb. 2	898	205	108	1248
Steam-trap	R. Warriner	751,703	Feb. 9	1694	385	108	1437
Steam-trap	J. F. Hale	752,067	Feb. 16	2410	537 / 538	108	1611
Steamer, Clothes-	J. A. Owens	750,483	Jan. 26	3830	852	108	902
Steel and ingot-iron. Manufacture of	B. Talbot and P. Gredt	749,115	Jan. 5	1138	------	108	203
Steel. Angle-	H. G. M. Howard	748,736	Jan. 5	343	76	108	76
Stem winding and setting mechanism	H. C. King	752,686	Feb. 23	3920	805	108	1897
Stentering or like machine clip	J. Chambers and S. Cook	751,899	Feb. 9	2078	470	108	1521
Stereopticons, magic lanterns, &c. Slide-carrier for	H. W. Force	749,048	Jan. 5	996	210 / 211	108	232
Stereoscope	W. F. Folmer and A. M. Lawrence	749,046	Jan. 5	991	210	108	230
Stereoscope lens-setting	H. C. White	748,676	Jan. 5	228	54	108	50
Stereoscopic color image and making same	C. L. A. Brasseur	749,159	Jan. 12	1234	265	108	301
Stereotype-block	C. N. Field	748,596	Jan. 5	77	21	108	19
Sterilizer	A. Castle	749,128	Jan. 5	1157	245	108	207
Still. Ammonia-	R. J. Cracknell	751,068	Feb. 2	508	119	108	1171
Still. Water-	G. A. and C. A. Young	750,747	Jan. 26	4364	943	108	1016
Stirrup. Safety-	H. H. Heermann	751,394	Feb. 2	1145	260 / 261	108	1301
Stitch-forming mechanism	E. C. Henderson	752,451	Feb. 16	3148	701	108	1776
Stock-boards. System for operating	G. S. Gallagher	752,059	Feb. 16	2397	535	108	1608
Stocking-stretcher	O. J. Katz	751,653	Feb. 9	1605	365	108	1418
Stocking-supporter	W. M. Vars	752,271	Feb. 16	2708	620	108	1701
Stocking-top-cutting machine	F. W. Robinson	751,560	Feb. 9	1435	325 / 326	108	1383
Stoker. Underfeed-	J. M. Searle	749,501	Jan. 12	1971	409	108	461
Stone, &c. Apparatus for use in the manufacture of artificial	W. A. Darrow, A. C. Wood, and J. R. Allen.	750,949	Feb. 2	322	76	108	1129
Stone breaking or splitting machine	F. J. H. Weller	751,034	Feb. 2	465	108 / 109	108	1160
Stone, brick, &c. Waterproofing and finishing the surface of	N. Farnham	748,593	Jan. 5	76	------	108	19
Stone cutting and shaping machine	P. Lanigan	749,937	Jan. 19	2819	602	108	664
Stone-dressing machine	W. B. Stoughton	749,240	Jan. 12	1405	301	108	342
Stone, &c. Hydraulic press for molding artificial	W. H. Fisher	751,904	Feb. 9	2000	472 / 473	108	1524
Stone-molding machine. Artificial-	J. Sinclair	748,666	Jan. 5	214	51	108	46

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stone-sawing machine	C. A. Thomson	749,707	Jan. 12	2354	496 / 497	108	545
Stone-sawing machine	O. W. Alston	752,504	Feb. 16	3241	722	108	1795
Stool. Foldable	W. B. S. Hussa	749,675	Jan. 12	2286	482	108	531
Stool. Milking-	H. A. Sprague	751,357	Feb. 2	1085	245	108	1288
Stopper: *See* Bottle-stopper.							
Storage-bin	J. A. Jamieson	752,841	Feb. 23	3910	876	108	1960
Storage-pocket. Movable	C. Arnold	749,653	Jan. 12	2240	472 / 473	108	521
Store-fixture	E. S. Coy	752,525	Feb. 16	3276	731	108	1803
Stove	F. J. Ploch	748,648	Jan. 5	185	45	108	41
Stove	C. Schweizer	748,796	Jan. 5	450	101	108	101
Stove	C. D. Helwig and W. W. Montague	749,059	Jan. 5	1026	217	108	237
Stove	A. B. Fox	750,355	Jan. 26	3597	780	108	852
Stove	P. J. Coppens	752,144	Feb. 16	2552	568	108	1643
Stove ash-chute	W. N. Moore and G. W. Cope	750,879	Feb. 2	193	44	108	1100
Stove attachment. Gas-	L. H. Bear	752,749	Feb. 23	3729	831	108	1921
Stove. Drying and annealing	A. Rónay	749,326	Jan. 12	1589	336 / 337	108	382
Stove. Heating-	J. T. Smith	748,803	Jan. 5	463	104	108	103
Stove. Heating-	N. R. Spaulding	748,995	Jan. 5	863	185	108	200
Stove. Heating-	W. S. Van Deusen	751,962	Feb. 9	2208	497	108	1550
Stove. Magazine-	G. E. Kendall and W. L. Cowdin	749,067	Jan. 5	1044	220	108	240
Stove. Portable camp-	W. Weston	750,742	Jan. 26	4356	941	108	1014
Stove ventilator attachment	C. Pelmulder	753,104	Feb. 23	4439	987	108	2080
Stoves or ranges. Adjustable water-tank for	L. Edel	749,542	Jan. 12	2058	427	108	482
Stoves. System of feeding slow-burning	E. Engels	752,389	Feb. 16	3028	674	108	1751
Stovepipe	S. T. Brannock	751,143	Feb. 2	602	152	108	1201
Stovepipe-lock	W. A. Petrie	750,120	Jan. 19	3161	679	108	735
Strainer	G. L. Wackerow	748,821	Jan. 5	500	113	108	113
Strainer. Fluid-	I. W. Pullman	749,880	Jan. 19	2697	576	108	638
Strainer for down-spouts. Self-cleaning	J. J. Harris and J. Adams	752,547	Feb. 16	3322	739	108	1816
Straining device. Liquid-	J. H. Adwen	752,019	Feb. 16	2333	522	108	1595
Strap: *See* Hitching-strap. Yoke-strap. Trunk-strap.							
Stream-motor	T. A. Fidjeland	750,025	Jan. 19	2986	639	108	700
Streams. Means for controlling flowing	E. S. Cole	750,752	Jan. 26	4375	945	108	1018
Street-light	D. J. Prendergast, V. H. Slinack, and T. Wilson.	750,555	Jan. 26	3988	862	108	932
Streets, &c. Sprinkling	L. S. Van Westrum	752,485	Feb. 16	3204	------	108	1788
Streets. Sprinkling	L. S. Van Westrum	752,487	Feb. 16	3206	------	108	1788
Stretcher-stand	H. C. Hall	749,731	Jan. 19	2424	514	108	577
Stropping-machine	A. W. Scheuber	750,397	Jan. 26	3668	797	108	867
Stropping-machine	A. W. Scheuber	750,398	Jan. 26	3670	797	108	868
Structure. Composite	G. A. Weber	749,507	Jan. 12	1980	411	108	463
Stud and pin coupling	A. B. Tarbox	750,501	Jan. 26	3871	840	108	911
Stud, &c. Metallic	M. Hegbom	749,862	Jan. 19	2664	569	108	629
Sugar-loaves. Drying	E. Passburg	749,927	Jan. 12	2135	459	108	510
Sugar. Making	J. McGlashan	751,990	Feb. 9	2286	------	108	1565
Suit-case	A. H. Christie	752,756	Feb. 23	3741	834	108	1924
Sulfur-burning apparatus	J. A. Marsden	749,311	Jan. 12	1562	331	108	376
Sulfuric anhydrid. Contact apparatus for the production of	W. Hasenbach	752,165	Feb. 16	2584	575	108	1650
Sulfuric anhydrid. Making	E. Raynaud and L. Pierron	751,941	Feb. 9	2166	489	108	1540
Support or shelf. Vertically-swinging	J. S. Detrick	750,829	Feb. 2	87	20	108	1076
Supporting frame or trellis	A. Corts	753,046	Feb. 23	4341	966	108	2059
Surfacing and jointing machine	F. P. Burkhardt and F. Streich	752,650	Feb. 23	3549	790	108	1881
Surgical chair	A. P. Gould	751,167	Feb. 2	713	163 / 164	108	1210
Surgical instrument	T. A. Houghton	749,689	Jan. 12	2315	488	108	537
Surgical instrument	L. C. Holbrook	751,513	Feb. 9	1942	406	108	1393
Surgical-instrument case	F. A. Koch	750,465	Jan. 26	3795	825	108	895
Surgical pan	W. A. Galloway	749,180	Jan. 12	1283	277	108	314
Surgical retainer	A. C. Bernays	749,811	Jan. 19	2572	547	108	610
Suspender attachment	H. G. Geer	752,149	Feb. 16	2561	570	108	1645
Suspender-end	W. Bloomberg	749,355	Jan. 12	1647	350	108	396
Suspenders	H. G. Macwilliam	750,774	Jan. 26	4432	955	108	1031
Suspenders	H. G. Macwilliam	750,989	Feb. 2	385	92	108	1143
Suspenders	H. G. Macwilliam	750,990	Feb. 2	386	92	108	1143
Suspenders	M. Hynson	752,558	Feb. 16	3345	744	108	1821
Suspenders	C. A. Lations	752,568	Feb. 16	3363	750	108	1824
Suspenders and stocking-supporter. Combination	J. E. and I. O. Josephi	750,978	Feb. 2	368	89	108	1139
Suspenders. Drawers-supporting attachment for	F. Ferguson	751,064	Feb. 2	519	121	108	1173
Sweeping-machine	C. A. Green and H. E. Larsson	752,152	Feb. 16	2567	571	108	1647
Swinging gate	E. and W. B. Browning	750,587	Jan. 26	4042	874	108	944
Switch: *See* Automatic switch. Oil-switch. Electric switch. Railway-switch. End-cell switch. Tongue-switch. High-potential switch. Tramway-switch.							
Switch	W. F. Taylor, Jr	748,811	Jan. 5	479	108	108	108
Switch	T. Cope	749,261	Jan. 12	1449	310	108	351
Switch	G. Zimmermann and O. Langos	752,015	Feb. 9	2323	519	108	1573
Switch and signal system. Electric interlocking	G. Bleynie and T. Ducousso	749,255	Jan. 12	1428	306 / 307	108	347
Switch danger-signal. Automatic	C. H. Remington	751,871	Feb. 9	2025	458 / 459	108	1509
Switch for series arc-circuits	C. D. Haskins	750,971	Feb. 2	357	86	108	1136
Switch handle. Snap-	C. A. Clark	749,919	Jan. 19	2784	594	108	657
Switch indicating-dial. Snap electric	C. G. Perkins	749,949	Jan. 19	2838	606	108	668
Switch mechanism	J. W. Osborne	749,626	Jan. 12	2184	459	108	509
Switch-operating device	J. T. Carmody, Jr	749,025	Jan. 5	942	199	108	219
Switch-operating mechanism. Multiple-	W. J. Bell	752,642	Feb. 23	3533	786	108	1878

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Switch safety device. Point-	L. Dunn	749,275	Jan. 12	1490	317, 318	108	359
Switch-stand	R. L. Brown	750,800	Feb. 2	34	7	108	1064
Switch-throwing mechanism	W. F. Taylor, Jr.	748,812	Jan. 5	482	108	108	109
Switches. Indicating means for snap electric	C. G. Perkins	751,750	Feb. 9	1789	408	108	1456
Switching apparatus	J. S. Goldberg	750,845	Feb. 2	125	29	108	1085
Switching mechanism. Electromechanical	W. J. Bell	749,885	Jan. 19	2021	560	108	620
Switchboard	A. Stromberg	752,722	Feb. 23	3686	821, 822	108	1912
Switchboard system. Multiple-	W. M. Davis	752,761	Feb. 23	3748	836	108	1926
Synchronizer	L. Andrews	749,252	Jan. 12	1423	305	108	346
Syringe. Vaginal	F. J. Gruss	750,276	Jan. 26	3450	745	108	818
Syringe. Vaginal	O. P. Moon	750,878	Feb. 2	191	44	108	1099
Syrup	J. J. Reed	752,359	Feb. 16	2967	.....	108	1738
Table: *See* Extension-table. Folding table. Kitchen-table. Remnant-table. Saw-table. Spacing-table.							
Table	J. Herzog	751,285	Feb. 2	957	217, 218	108	1260
Tag-clasp	S. Dancyger	751,977	Feb. 9	2264	507	108	1560
Tag-making machine	J. C. Taft	752,601	Feb. 16	3423	766, 767, 768	108	1840
Talking-machine self-adjusting arm	J. Jetter	750,977	Feb. 2	366	80	108	1138
Tank: *See* Dispensing-tank. Flushing-tank. Fuel-tank. Measuring-tank. Water-tank.							
Tank-mold	M. Lee	750,468	Jan. 26	3799	826	108	896
Tank-ventilating attachment	C. Noller	749,802	Jan. 19	2559	543	108	607
Target-trap	P. North	752,407	Feb. 16	3067	680	108	1757
Target-trap-releasing means	S. A. Huntley	752,537	Feb. 16	3342	743, 744	108	1819
Teaching gun practice. Apparatus for	J. Whiteside	751,591	Feb. 9	1495	340	108	1396
Teaching singing. Apparatus for	A. Gusinde	752,896	Feb. 23	3899	874	108	1958
Teeth and mouth. Casting impressions of the	W. M. Dalley	752,378	Feb. 16	3002	668, 669	108	1746
Teeth bases. Strengthener for vulcanite artificial-	R. Walker	751,582	Feb. 9	1477	335	108	1392
Tegumentary tissues. Device for treating	A. S. McCutchan	751,194	Feb. 2	765	174	108	1221
Telegraph apparatus	F. G. Creed	749,051	Jan. 5	952	201	108	221
Telegraph apparatus	J. E. Carney	750,807	Feb. 2	41	9	108	1066
Telegraph-instrument stand	J. W. Leech	750,289	Jan. 26	3471	751	108	822
Telegraph instruments or the like. Apparatus for perforating tape for automatic	J. Gell	751,164	Feb. 2	703	161, 162	108	1208
Telegraph or other blank	S. Townsend	749,241	Jan. 12	1406	301	108	342
Telegraph-pole	J. H. Purdy	752,259	Feb. 16	2776	616	108	1696
Telegraph range-finder. Wireless	L. de Forest	749,436	Jan. 12	1816	381	108	430
Telegraph receiver. Printing-	J. D. White	751,363	Feb. 2	1092	247, 248	108	1200
Telegraph receiver. Wireless-	L. de Forest	749,371	Jan. 12	1685	358	108	408
Telegraph system. Electric-	C. Adams-Randall	752,923	Feb. 23	4098	912, 913	108	2018
Telegraph-transmitters. Perforator for automatic	J. Gell	751,162	Feb. 2	695	160, 161	108	1207
Telegraph-transmitters. Perforator for use with automatic	J. Gell	751,161	Feb. 2	690	159	108	1206
Telegraphic perforators and transmitters. Feed-wheel for automatic	J. Gell	751,163	Feb. 2	701	161	108	1208
Telegraphic receiving apparatus	F. G. Creed	749,033	Jan. 5	968	208	108	224
Telegraphy. Generating set for wireless	L. de Forest	749,435	Jan. 12	1815	381	108	429
Telegraphy. Perforating	F. G. Creed	749,032	Jan. 5	965	201, 202	108	222
Telegraphy. Spark	A. Slaby and G. G. Arco	750,490	Jan. 26	3848	836	108	907
Telegraphy. Wireless	L. de Forest	749,372	Jan. 12	1687	359	108	404
Telephone	E. T. Billig	751,829	Feb. 9	1949	442, 443	108	1491
Telephone apparatus. Coin-controlled	S. J. Larned	751,081	Feb. 2	548	128	108	1179
Telephone-apparatus locking device	S. J. Larned and J. S. Ford	749,388	Jan. 12	1721	364	108	410
Telephone attachment	G. B. Buchanan	752,649	Feb. 23	3548	790	108	1881
Telephone-book support and note-paper-supply device. Combined	A. D. Irving	749,141	Jan. 5	1196	256	108	277
Telephone. Electric	E. Gundlach	751,501	Feb. 9	1321	302	108	1358
Telephone-exchange	N. E. Norstrom	748,980	Jan. 5	841	178, 179	108	195
Telephone-exchange	F.A. Lundquist and J. K. Norstrom	749,808	Jan. 12	1357	329, 330	108	375
Telephone-exchange	N. E. Norstrom	749,824	Jan. 19	2597	554, 555	108	616
Telephone-hook switch	E. E. Yaxley	749,977	Jan. 19	2884	617	108	677
Telephone or telegraph system	R. Hamilton	753,067	Feb. 23	4376	974	108	2067
Telephone-receiver	L. Sands and C. C. Cadden	751,344	Feb. 2	1068	241	108	1283
Telephone selecting device	W. D. Watkins	753,183	Feb. 23	4374	1020	108	2111
Telephone-service apparatus	U. S. Jackson	750,769	Jan. 26	4122	952, 953	108	1029
Telephone-service apparatus	U. S. Jackson	750,770	Jan. 26	4124	953, 954	108	1030
Telephone signaling mechanism	O. O. Lee	752,009	Feb. 23	4041	905	108	1991
Telephone-switchboard plug	F. D. Pearne	750,690	Jan. 26	4216	914	108	981
Telephone-switchboard plug-ejecting jack	R. G. Dunfee	750,953	Feb. 2	330	78	108	1131
Telephone-switchboard ringing-key	F. R. McBerty	751,539	Feb. 9	1382	315	108	1371
Telephone-switchboard ringing-key	C. E. Scribner	751,566	Feb. 9	1448	329	108	1386
Telephone switching and signaling apparatus	M. C. Rorty	750,704	Jan. 26	4242	922	108	987
Telephone system	H. Redmon, R. L. Hall, and R. H. Conway.	749,225	Jan. 12	1305	296	108	338
Telephone system	A. D. T. Libby	749,306	Jan. 12	1548	328	108	371

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Telephone system. Automatic	J. K. Norstrom and J. J. Brownrigg.	752,251	Feb. 16	2756	611, 612	108	1692
Telephone system. Central-energy	K. B. Miller	749,798	Jan. 19	2550	542	108	605
Telephone system. Central-energy	J. H. Lendi	751,797	Feb. 9	1871	426	108	1473
Telephone systems. Means for synchronizing the instruments of	H. Redmon, R. L. Hall, and R. H. Conway.	752,710	Feb. 23	3964	816	108	1907
Telephone-transmitter	C. F. Bennett	748,690	Jan. 5	264	61	108	58
Telephone-transmitter	P. G. Randall	749,448	Jan. 12	1861	387	108	437
Telephone-transmitter	E. B. Fahnestock	750,835	Feb. 2	104	24	108	1079
Telephone-transmitter hanger	M. Setter	752,184	Feb. 16	2620	561	108	1660
Telephonic call instrument	J. D. Peachey	751,103	Feb. 2	587	136	108	1186
Telephonic repeater	M. Gally	749,481	Jan. 12	1984	401	108	454
Telephonic repeater	M. Gally	751,845	Feb. 9	1978	450	108	1497
Telephony	I. Kitsee	751,655	Feb. 9	1608	365, 366	108	1419
Telltale-register	W. H. Pratt and A. J. R. Fiego	751,007	Feb. 2	417	99	108	1150
Temperature-regulating apparatus	A. M. Goodwin	752,768	Feb. 23	3790	839	108	1928
Tennis-pole brace or support	T. A. Buys	751,146	Feb. 2	667	153	108	1202
Tenpin	H. Haussmann	751,507	Feb. 9	1333	304	108	1361
Tension device	J. Lundgren	751,980	Feb. 9	2146	484	108	1535
Tent	A. F. McGrath	748,974	Jan. 5	833	176	108	193
Tent	R. S. Gutshall	751,392	Feb. 2	1142	259, 260	108	1300
Tent for shading tobacco or the like	C. M. Berry and I. C. Putnam	751,713	Feb. 9	1708	388	108	1440
Testing-machine. Coin-controlled	C. E. Amond	748,683	Jan. 5	243	56, 57	108	53
Thermometer-case. Antiseptic	P. C. Hay	752,895	Feb. 16	3039	676	108	1753
Thermometer shield. Clinical	E. O. Koeneman	748,752	Jan. 5	369	83	108	82
Thermostat	J. L. Ward	751,362	Feb. 2	1091	247	108	1200
Thermostat	G. D. Hoffman	751,854	Feb. 9	1999	453	108	1502
Thill-coupling	H. C. Ingraham	748,610	Jan. 5	98	25	108	23
Thill-coupling	C. S. Lehman	753,083	Feb. 23	4408	980	108	2074
Thill or tongue support	E. D. Waffle	753,016	Feb. 23	4278	958	108	2045
Thread-cutting machine	G. A. Ensign	751,841	Feb. 9	1998	447, 448	108	1495
Thread holding and cutting attachment for spools	D. C. Laird	752,845	Feb. 23	3915	877	108	1961
Threading device	S. B. Battey	748,913	Jan. 5	684	151	108	154
Thresher and separator. Harvester	W. V. Allen	750,044	Jan. 19	3016	646	108	705
Thresher-toothing	W. N. Rumely	751,017	Feb. 2	433	102	108	1153
Thresher. Traveling	T. O. Helgerson	751,073	Feb. 2	532	123, 124, 125	108	1176
Threshing-machine	G. F. Conner	749,531	Jan. 12	2025	421	108	474
Threshing-machine	B. R. Holsington	750,855	Feb. 2	142	32, 33	108	1089
Threshing-machine	H. Hanson	750,969	Feb. 2	354	85, 86	108	1136
Threshing-machine	W. W. Dingee	751,619	Feb. 9	1545	352	108	1405
Threshing-machine	N. G., T. D., and J. M. Ross	752,182	Feb. 16	2616	580	108	1658
Threshing-machine	R. N. McClanahan	752,576	Feb. 16	3377	754	108	1827
Threshing-machine	C. Bankey	753,032	Feb. 23	4314	958, 959, 960	108	2053
Threshing-machine band-cutter and feeder	C. Christiansen	751,260	Feb. 2	914	208	108	1251
Threshing-machine concave	A. A. Shelton and R. A. Kirk	750,902	Feb. 2	236	52	108	1110
Threshing-machine, &c., coupling	W. J. Randolph, Jr.	752,300	Feb. 16	2855	634	108	1713
Threshing-machine-feeder governor	W. C. Peterson	749,629	Jan. 12	2188	460, 461	108	510
Threshing-machine sieve	B. Whelan	751,035	Feb. 2	466	109	108	1161
Threshing-machine straw-carriers. Leader for	C. Krueger	751,657	Feb. 9	1613	306, 307	108	1420
Threshing-machine tooth	W. J. Cook	750,091	Jan. 19	3112	669	108	724
Throat-bag	A. C. Eggers	750,104	Jan. 19	3134	673	108	730
Thumb-support and root-brace for enamel-cleavers	F. E. Roach	749,881	Jan. 19	2698	576	108	638
Ticket. Pin-	M. S. Johnson	748,957	Jan. 5	777	168	108	177
Ticket. Unalterable duplex	J. J. McGuirk	752,296	Feb. 16	2848	632	108	1711
Tie: *See* Bale-tie. Bridge cross-tie. Letter-package tie. Rail-tie. Railway-tie. Rope-tie. Sheaf-tie.							
Tie-plate	B. Wolhaupter	751,129	Feb. 2	632	146, 147	108	1195
Tie-plate	L. A. Hoerr	751,511	Feb. 9	1339	305	108	1362
Tie-plate	B. Wolhaupter	751,967	Feb. 9	2214	449	108	1551
Tie-rod connection	G. G. Guy	752,065	Feb. 16	2407	537	108	1611
Tile	G. G. Fryer	749,786	Jan. 19	2531	538	108	601
Tile	C. N. Allerding	750,561	Jan. 26	3998	864	108	934
Tile	S. B. Flint	751,275	Feb. 2	940	214	108	1257
Tile	R. McCarrel	752,697	Feb. 23	3639	810	108	1901
Tile. Building-	J. Schall	751,346	Feb. 2	1063	241	108	1284
Tile. Chimney-	F. Minger	751,584	Feb. 9	1377	314	108	1370
Tile-drying apparatus	D. F. Henry, Jr.	751,852	Feb. 9	1994	452	108	1501
Tile for floor or wall coverings. Interlocking	A. W. Nilsson	750,779	Jan. 26	4441	958	108	1033
Tile. Illuminating-	J. Jacobs	753,078	Feb. 23	4399	978	108	2072
Tile-machine	D. E. Forton	749,669	Jan. 12	2276	480	108	529
Tile. Roofing-	W. P Grath	749,182	Jan. 12	1289	277	108	316
Tiles. Interlocking building-	J. Schall	748,989	Jan. 5	855	183, 184	108	198
Tiling. Floor-	W. J. Ellis	750,954	Feb. 2	331	79	108	1131
Timber-treating process	P. F. Dundon	753,052	Feb. 23	4349	968	108	2060
Time-recorder	H. F. Shilling and J. C. Dieter	748,800	Jan. 5	458	103	108	103
Time-recorder	J. W. Deübner	749,922	Jan. 19	2787	595, 596	108	657
Time-table appliance and advertising device	H. L. Warrens	752,274	Feb. 16	2807	622	108	1708
Tin can	H. E. Bandlow	750,077	Jan. 19	3083	663	108	718
Tin can	C. Diesel	751,784	Feb. 9	1851	421	108	1469
Tin-plate catcher	E. L. Cronemeyer	752,016	Feb. 9	2326	520	108	1574
Tip-cat	J. A. Astarita	753,029	Feb. 23	4311	957	108	2053

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tire	G. M. Depew	750,023	Jan. 19	2084	639	108	699
Tire	H. G. Fiske	750,838	Feb. 2	114	26	108	1082
Tire-bolt wrench	C. P. Wing	751,964	Feb. 9	2210	498	108	1550
Tire-bolting machine	J. E. Fillman and W. Davis	753,130	Feb. 23	4483	998	108	2090
Tire cover. Elastic	C. H. Gray and T. Sloper	748,858	Jan. 5	576	131 / 132	108	129
Tire. Cushion	J. Coomber	749,845	Jan. 19	2630	564	108	624
Tire. Cushion	S. Adlam	752,689	Feb. 23	3529	785	108	1877
Tire for vehicles. Spring	A. Schwieger	748,797	Jan. 5	452	101	108	102
Tire-gage	F. Curran	752,526	Feb. 16	3279	731	108	1804
Tire-mounting apparatus	R. B. Price	752,415	Feb. 16	3084	684	108	1761
Tire. Multiple-tube pneumatic	H. G. Fiske	750,633	Jan. 26	4112	890	108	968
Tire. Pneumatic	H. E. Irwin	752,228	Feb. 16	2705	599	108	1681
Tire protective band. Pneumatic	H. Brookes	750,240	Jan. 26	3307	734 / 735	108	804
Tire protector. Vehicle	F. B. Hayden	750,647	Jan. 26	4135	897	108	963
Tire-repairer	C. C. Deschenes	752,820	Feb. 23	3880	870	108	1955
Tire-rolling machine	P. Eyermann	748,594	Jan. 5	75	21	108	19
Tire. Rubber	G. B. Dryden	752,891	Feb. 23	4008	898	108	1984
Tire. Rubber vehicle	R. B. Price	752,416	Feb. 16	3086	685	108	1761
Tire. Rubber vehicle	R. B. Price	752,417	Feb. 16	3089	685	108	1762
Tire-tightener	T. De La Mare	751,721	Feb. 9	1730	393	108	1443
Tire valve. Pneumatic	J. E. Keller, Jr	750,982	Feb. 2	373	90	108	1140
Tire. Vehicle	J. Q. Work	749,890	Jan. 19	2611	557	108	619
Tire. Vehicle	E. F. McArdle	750,000	Jan. 19	2665	627	108	689
Tire. Vehicle	M. Nirdlinger	753,205	Feb. 23	4620	1029	108	2122
Tires in rim-channels. Tool for seating rubber	W. S. Jacobs	748,953	Jan. 5	773	167	108	176
Tires. Manufacturing cushion	M. Nirdlinger	753,204	Feb. 23	4618	1029	108	2121
Tires. Manufacturing vehicle	M. Nirdlinger	753,206	Feb. 23	4623	1030	108	2122
Tires to vehicle-wheels. Device for attaching rubber	L. Kilgallon	751,177	Feb. 2	734	168	108	1214
Tires. Vulcanizer for repairing	H. K. Raymond	751,556	Feb. 9	1427	324	108	1381
Toaster or broiler	G. R. Wilson	752,407	Feb. 16	3230	720	108	1793
Tobacco-leaf-stemming machine	W. C. Briggs	750,160	Jan. 19	3229	696	108	750
Tobacco-leaf-stemming machine	W. C. Briggs	750,161	Jan. 19	3234	697 / 698	108	751
Tobacco-pipe	I. L. Hauser	748,729	Jan. 5	329	73	108	73
Tobacco-pipe	J. W. Hayes	749,190	Jan. 12	1298	280	108	318
Tobacco-pipe	W. C. Cunningham	749,266	Jan. 12	1465	313	108	354
Tobacco-pipe	W. E. Dooley	750,959	Feb. 2	323	76	108	1129
Tobacco-pipe and cigar or cigarette holder	J. J. Kelly	751,923	Feb. 9	2132	480	108	1533
Tobacco puller. Plug	J. Goldsmith	751,848	Feb. 9	1983	451	108	1498
Tobacco-truck	J. A. Gardner	751,628	Feb. 9	1566	355	108	1410
Toboggan-slide	B. B. Floyd	749,130	Jan. 5	1161	246 / 247	108	269
Toe-swage	D. C. Joy	750,360	Jan. 26	3622	786	108	857
Toilet article	E. E. Cleveland	750,168	Jan. 19	3248	700	108	754
Toilet-chair	G. W. Hessler	752,551	Feb. 16	3328	741	108	1817
Toilet-stand	J. C. Dowd	750,439	Jan. 26	3751	815	108	885
Tongs. Household	J. H. Spangler	749,110	Jan. 5	1127	239	108	261
Tongs or grapple	H. Sawyer	749,330	Jan. 12	1509	339	108	384
Tongue-switch	G. M. Ervin	752,492	Feb. 23	4010	898	108	1984
Tongue. Vehicle	M. R. Bruner	749,887	Jan. 19	2624	561	108	621
Tongue. Vehicle	H. P. Baltzer	750,993	Feb. 2	295	67	108	1139
Tool and back-rest holder	B. M. W. Hanson	748,726	Jan. 5	322	73	108	71
Tool. Combination	J. Jenkins	750,284	Jan. 26	3464	749	108	889
Tool. Combination	E. Grundeen	751,727	Feb. 9	1740	394	108	1445
Tool-dresser	J. S. Brown	750,941	Feb. 2	305	72	108	1125
Tool. Electrically-heated	J. I. Ayer	748,573	Jan. 5	14	4	108	6
Tool. Hand	J. E. McCauley	751,671	Feb. 9	1634	371	108	1484
Tool handle. Pneumatic	J. Keller	752,982	Feb. 23	4221	941	108	2032
Tool-holder	B. M. W. Hanson	748,725	Jan. 5	330	72	108	71
Tool-holder	B. M. W. Hanson	750,108	Jan. 19	3140	675	108	731
Tool-holder	O. P. Roberge and J. J. Brabant	752,863	Feb. 23	3948	885	108	1970
Tool. Motor-operated hand	A. W. Clarke	751,261	Feb. 2	917	208 / 209	108	1222
Tool or cement house. Portable	W. H. McDonald	748,637	Jan. 5	164	39	108	37
Tool. Pneumatic	R. L. Ambrose	748,568	Jan. 5	8	1	108	3
Tool. Pneumatic	L. W. Turnbull	750,236	Jan. 19	3375	728	108	792
Tool-supporting apparatus. Impact	E. Gunnell	750,967	Feb. 2	351	84	108	1135
Tool-turret mechanism	B. M. W. Hanson	750,278	Jan. 26	3452	746	108	818
Tools. Apparatus for controlling current-supply to electrically-heated	J. I. Ayer	748,572	Jan. 5	9	3	108	4
Tooth-crown mounting. Artificial	T. H. Whiteside	751,592	Feb. 9	1498	340	108	1396
Top. Movable	S. Cloutier	750,604	Jan. 26	4071	881	108	950
Top-prop	H. Higgin	749,557	Jan. 12	3075	431	108	486
Torch	W. H. Rose	752,711	Feb. 23	3966	817	108	1908
Torch. Safety	C. H. Brown	748,839	Jan. 5	537	123	108	122
Torpedo. Automobile	F. M. Leavitt	748,759	Jan. 5	384	86 / 87 / 88	108	84
Torpedo-placer	W. E. Matthew	751,931	Feb. 9	2147	485	108	1536
Torpedo-placer. Railway	F. G. Shimp and J. C. Griffin	750,713	Jan. 26	4294	920	108	991
Towel	F. Clewley	752,033	Feb. 16	2350	525 / 526	108	1508
Towel-holder	W. B. Parshall	751,406	Feb. 2	1162	263	108	1304
Towel-machine. Coin-operated	C. O. McCasland	750,893	Feb. 2	199	46	108	1101
Towel-rack	P. H. Germain	748,719	Jan. 5	309	69	108	69
Towel-rack	E. D. Mullen	749,081	Jan. 5	1074	227	108	247
Tower. Aerial whirling	J. H. Welsh	750,140	Jan. 19	3198	687	108	743
Tower. Rotary pleasure	W. R. Snyder	750,717	Jan. 26	4269	927 / 928	108	992
Toy	J. C. Wells	750,506	Jan. 26	3877	842	108	912
Toy	H. A. Poppenhusen	752,109	Feb. 23	4447	960	108	2092
Toy. Detonating	C. Backes	751,041	Feb. 2	478	112	108	1163
Toy figures. Means for mounting and exhibiting	A. Zolles	751,824	Feb. 9	1941	440	108	1490

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Toy golf-player	P. A. Valle	750,134	Jan. 19	3185	685	108	740
Toy. Mechanical	L. Drescher	753,051	Feb. 23	4348	967	108	2060
Toy. Sounding	H. H. A. Geistert	749,482	Jan. 12	1935	402	108	454
Trace-holder	B. Johnson	752,560	Feb. 16	3350	745	108	1822
Trace-hook	B. T. Kinnear	750,373	Jan. 26	3627	787	108	858
Trace-hook. Releasing	W. Carter	752,029	Feb. 16	2345	524	108	1597
Tracer. Duplicating defect	E. M. Schantz	753,005	Feb. 23	4256	948	108	2040
Track. Cantaliver car	E. J. Beard	750,152	Jan. 19	3216	692 / 693	108	747
Track-joint	J. Armitage	752,878	Feb. 23	3982	892	108	1977
Track-leveler	J. Finn	750,353	Jan. 26	3594	779	108	851
Traction-coupling	G. A. Decker	751,471	Feb. 9	1270	290	108	1346
Traction-engine	F. L. Waterous	750,921	Feb. 2	267	62, 63	108	1116
Traction-wheel. Metal	A. C. Rogers	748,798	Jan. 5	445	99	108	100
Train-lighting system. Electric	D. C. Henry	752,839	Feb. 23	3908	875 / 876	108	1959
Train-markers. Automatic wind-break for	E. M. Rife	752,801	Feb. 23	3825	858 / 859	108	1943
Train-orders, messages, &c. Device for delivering	W. H. Pickett	749,093	Jan. 5	1095	231	108	252
Train-pipe couplings. Device for automatically preventing escape of air from	R. C. Pollock	749,746	Jan. 19	2456	523	108	585
Train-service. Electric	M. D. Compton	752,037	Feb. 16	2356	527	108	1599
Tramway-switch. Automatic	G. A. Meighan	751,992	Feb. 9	2149	485	108	1536
Transferring and printing	J. E. Hesse and M. Paraf-Javal	748,604	Jan. 5	67		108	21
Transformer	A. R. Everest	750,525	Jan. 26	3915	849	108	919
Transformer	C. B. McCurdy	752,405	Feb. 16	3061	680	108	1757
Transmitter	E. E. Yaxley	748,906	Jan. 5	670	148	108	151
Transmitting intelligence through the natural mediums.	D. Drawbaugh	752,534	Feb. 16	3206	784	108	1810
Trap: *See* Animal-trap. Fish-trap. Animal or fish trap. Gopher-trap. Basin-trap. Liquid-trap. Cage-trap. Steam-trap. Expansion-trap. Target-trap.							
Trap	G. W. Hazel	749,380	Jan. 12	1703	361	108	406
Traps. Automatic control for return	C. A. Southwick	749,973	Jan. 19	2577	616	108	676
Trawl-net hauling-gear	J. R. Scott	753,168	Feb. 23	4553	1015	108	2106
Treadle mechanism for light machinery	J. Wiebe	749,651	Jan. 12	2237	471	108	520
Treating material	E. N. Trump	748,894	Jan. 5	648	144	108	145
Trenching-machine	H. J. Bentson	750,934	Feb. 2	287	68 / 69 / 70	108	1121
Trimmer: *See* Paper-trimmer. Wick-trimmer.							
Triple-cylinder engine	W. W. Kelly	751,924	Feb. 9	2153	480	108	1533
Tripod	G. F. Smith	752,423	Feb. 16	3104	688 / 689	108	1766
Trolley	W. D. Williams	749,509	Jan. 12	1990	413	108	465
Trolley	J. Kelly	751,298	Feb. 2	988	224	108	1267
Trolley	T. F. Wetton	752,737	Feb. 23	3710	828	108	1918
Trolley attachment. Overhead	C. Holyland, Sr.	750,458	Jan. 26	3784	823	108	892
Trolley-catcher	W. C. Young and J. McMahon	752,139	Feb. 16	2542	566 / 567	108	1641
Trolley-cords. Automatic check device for	S. J. Buckland	752,374	Feb. 16	2996	667	108	1744
Trolley-finder	E. S. Stitt	752,121	Feb. 16	2511	558	108	1634
Trolley for electric-railway cars	C. J. Johnson	750,368	Jan. 26	3620	785	108	856
Trolley for overhead-electrical-conductor systems	E. Cantono	749,916	Jan. 19	2777	593	108	656
Trolley guide. Overhead	C. W. Burkhead	752,437	Feb. 16	3125	694	108	1770
Trolley-hanger	M. M. Wood	752,501	Feb. 16	3237	722	108	1794
Trolley-harp	E. D. Rockwell	748,987	Jan. 5	852	183	108	197
Trolley-harp device	F. H. Allen	749,601	Jan. 12	2145	447	108	502
Trolley harp or fork	F. P. Crockett and O. P. Johnson	750,818	Feb. 2	60	13	108	1070
Trolley-line reel. Automatic	C. F. Davy	750,825	Feb. 2	76	17	108	1074
Trolley-pole	J. J. Tartt	750,733	Jan. 26	4335	986	108	1009
Trolley road-crossing	J. M. Collins	751,900	Feb. 9	2079	470	108	1521
Trolley-stand	W. H. Kilbourn	749,301	Jan. 12	1537	327	108	369
Trolley-stand	J. Kermath	749,795	Jan. 19	2547	541	108	604
Trolley-wheel	J. E. Palmer	751,749	Feb. 9	1788	408	108	1455
Trough: *See* Animal-trough. Feed-trough. Extensible trough.							
Trousers	S. A. Bieberstein	749,605	Jan. 12	2151	448 / 449	108	503
Trousers	D. Lyons	751,741	Feb. 9	1772	403	108	1452
Trousers-creaser	E. C. Chandler	752,141	Feb. 16	2547	567	108	1642
Trousers creaser and presser	E. Graham	750,186	Jan. 19	3276	706	108	760
Trousers-stretcher	H. Tuttle	753,182	Feb. 23	4573	1019	108	2110
Trousers stretching and pressing device	F. Stevens	751,217	Feb. 2	820	189	108	1232
Trowel-handle	W. Smith	751,356	Feb. 2	1084	245	108	1288
Truck	W. G. Price	752,799	Feb. 23	3822	858	108	1942
Truck and hoist. Barrel	E. B. Little	750,671	Jan. 26	4181	907	108	973
Truck and hoist. Combined	D. Z. Clay	750,166	Jan. 19	3245	700	108	753
Truck bolster and bearing therefor. Car	E. Cliff	750,848	Jan. 26	3588	777	108	850
Truck-bolster. Railway-car	C. F. Street	750,731	Jan. 26	4330	935	108	1007
Truck. Car	J. C. Barber	752,946	Feb. 23	4149	923 / 924	108	2014
Truck. Electric-car	E. Cliff	751,885	Feb. 9	1959	445	108	1493
Truck. Hand	T. Burrows	751,053	Feb. 2	497	115	108	1168
Truck. Motor	W. L. Austin	751,243	Feb. 2	878	201	108	1243
Truck. Pedestal	J. M. Hansen	752,290	Feb. 16	2836	630	108	1709
Truck. Railway	C. Nordell	749,947	Jan. 19	2836	605 / 606	108	648
Truck. Railway	A. Stuckl	752,308	Feb. 16	2871	639	108	1716
Truck. Railway safety	J. Dew	751,476	Feb. 9	1279	292	108	1348
Trucks from cars. Device for releasing	R. L. Riley	752,467	Feb. 16	3171	706	108	1780
Trunk	J. H. Beasley	753,033	Feb. 23	4319	960	108	2054

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Trunk-fastener	B. Weber	750,739	Jan. 26	4349	939	108	1012
Trunk garment-holding attachment	D. W. Curtiss	749,959	Jan. 19	2855	610	108	671
Trunk-guard	J. Billy and F. A. Beaudoin	749,522	Jan. 12	3012	418	108	471
Trunk-handle	C. L. Sanford	751,695	Feb. 9	1660	377	108	1429
Trunk-strap	R. Forbes	749,782	Jan. 19	2526	537	108	509
Truss	J. Harris	749,555	Jan. 12	2073	431	108	485
Truss	D. T. Foley	752,445	Feb. 16	3140	608	108	1774
Tub: *See* Bath-tub. Washtub.							
Tube: *See* Collapsible tube. Electric vacuum discharge-tube.							
Tube-expander	J. S. Hill	751,731	Feb. 9	1752	308	108	1448
Tube-making machinery	V. Royle	751,108	Feb. 2	596	137	108	1187
Tube or roll forming machine	C. Surmann and R. D. Douglas	749,114	Jan. 5	1135	241	108	262
Tubes, &c. Machinery for the manufacture of metallic	W. U. Jackson and F. H. Lloyd	752,980	Feb. 23	4216	940	108	2081
Tubing	M. M. Nicholls	752,700	Feb. 23	3642	811	108	1902
Tufting-machine button-support	A. Freschl	753,132	Feb. 23	4486	999	108	2090
Tug and trace connector. Hame-	C. R. Rapson	751,011	Feb. 2	424	101	108	1151
Tug. Hame-	F. Hauff	749,733	Jan. 19	2427	515	108	578
Tug. Harness-	S. B. Shuster	751,963	Feb. 9	2189	494	108	1545
Tug. Thill-	S. H. Frost	750,841	Feb. 2	122	28	108	1084
Tumbling-barrel	W. H. Hart	752,160	Feb. 16	2578	573	108	1649
Tunnel-bar	G. W. Jackson	751,290	Feb. 2	963	219 220	108	1261
Tunnel construction	J. L. Holmes	751,287	Feb. 2	960	218 219	108	1261
Tunneling apparatus	R. Stone	748,809	Jan. 5	475	107	108	107
Tunneling apparatus	C. W. Smith	752,931	Feb. 23	4108	914 915	108	2006
Turbine	H. Wolke	748,678	Jan. 5	235	55	108	51
Turbine	E. J. Wood	749,770	Jan. 19	2499	582	108	595
Turbine	H. Holzwarth	752,340	Feb. 16	2933	654	108	1730
Turbine-bearing	H. Holzwarth	752,224	Feb. 16	2700	597	108	1679
Turbine. Compound steam-	T. G. E. Lindmark	751,316	Feb. 2	1017	231	108	1274
Turbine. Elastic-fluid	J. Wilkinson	751,889	Feb. 9	2059	466	108	1516
Turbine. Elastic-fluid	J. Wilkinson	752,610	Feb. 16	3437	773	108	1844
Turbine-engine	P. F. Holmgren	749,196	Jan. 12	1318	293	108	324
Turbine-engine	S. Lount	749,739	Jan. 19	2438	518 519	108	580
Turbine. Fluid-pressure	G. Westinghouse	751,589	Feb. 9	1492	339	108	1395
Turbine governing mechanism	J. Wilkinson	751,888	Feb. 9	2055	465 466	108	1515
Turbine. Steam-	S. N. Smith	749,885	Jan. 19	2708	578	108	640
Turbine. Steam-	H. C. Schwarze	751,309	Feb. 2	805	185	108	1228
Turbine. Steam-	J. H. de Goede and S. N. Groot	752,545	Feb. 16	3318	739	108	1815
Turbine. Steam or gas	J. Stumpf	750,316	Jan. 26	3531	763	108	887
Turbine. Two-speed and reversing	J. Wilkinson	752,406	Feb. 16	3222	719 720	108	1791
Turbine-wheel	T. G. E. Lindmark	751,315	Feb. 2	1017	231	108	1274
Turbine-wheel	J. Wilkinson	753,111	Feb. 23	4452	990	108	2083
Turbines. Apparatus for governing elastic-fluid	C. G. Curtis	749,476	Jan. 12	1926	399 400	108	452
Turbines. Regulating	J. Wilkinson	749,468	Jan. 12	1906	396	108	449
Turn-table	S. Elliott	749,724	Jan. 19	2407	508 509	108	573
Turnbuckle. Safety-	E. H. Cowart	752,594	Feb. 16	3275	730	108	1808
Turning and sewing machine. Automatic	H. Nederman	751,544	Feb. 9	1894	317 318 319 320	108	1373
Turning-machine. Automatic	B. T. Magers	750,209	Jan. 19	3311	715 716 717	108	767
Turning machine. Wood-	J. R. Binns	749,904	Jan. 19	2723	582 583	108	644
Twine-holder	P. H. Cazier	749,772	Jan. 19	2504	533	108	595
Twine-holder	R. A. Steeb	751,214	Feb. 2	815	188	108	1231
Type-bar holder	F. X. Wagner	751,580	Feb. 9	1474	334	108	1391
Type-holder	H. S. Folger	748,715	Jan. 5	304	68	108	67
Type-holder	J. E. Schlorff	750,127	Jan. 19	3173	683	108	738
Type-mold	C. R. Murray	748,876	Jan. 5	613	138	108	137
Type-mold	J. S. Bancroft	752,814	Feb. 23	3855	864	108	1940
Type setting and casting machines. Perforator mechanism for preparing the composing-strip of	W. T. Stutchbury and C. Gorick	751,421	Feb. 2	1185	270	108	1309
Type-setting machine	F. B. Converse, Jr.	749,773	Jan. 19	2505	533	108	596
Type-writer	N. L. Anderson	748,831	Jan. 5	521	118 119	108	118
Type-writer	A. Beyerlen	750,573	Jan. 26	4015	868	108	988
Type-writer	H. Moya	752,794	Feb. 23	3812	853 854 855	108	1940
Type-writer	H. Moya	752,795	Feb. 23	3815	855 856	108	1941
Type-writer alinement and adjustment	J. Alexander	750,788	Feb. 2	1	1	108	1057
Type-writer attachment	H. Marshall	749,312	Jan. 12	1563	331	108	376
Type-writer attachment	N. J. Smith	750,233	Jan. 19	3371	727	108	781
Type-writer attachment	L. H. Weston	753,184	Feb. 23	4578	1020	108	2111
Type-writer carriage	C. D. Rice	752,106	Feb. 16	2478	553	108	1627
Type-writer carriage construction	J. Alexander	748,681	Jan. 5	241	56	108	52
Type-writer carriage construction	J. Alexander	752,191	Feb. 16	2628	588	108	1661
Type-writer carriage construction	J. Alexander	752,611	Feb. 16	3464	773	108	1846
Type-writer carriage-return	D. S. Dufur	749,723	Jan. 19	2405	508	108	572
Type-writer paper-guide	O. C. Kavle	752,076	Feb. 16	2429	543	108	1616
Type-writer paper-release device	L. Myers	752,092	Feb. 16	2455	549	108	1622

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Type-writers or other machines. Platen-locking mechanism for	F. X. Wagner	751,579	Feb. 9	1473	334	108	1391
Type-writers or the like. Type-bar construction for	E. F. Kunath	752,077	Feb. 16	2430	544	108	1616
Type-writers. Wireless electric apparatus acting on	G. Musso	751,808	Feb. 9	1884	429 430	108	1477
Type-writing machine	W. J. Barron	748,912	Jan. 5	681	150	108	158
Type-writing machine	O. Tyberg	749,001	Jan. 5	879	188 189	108	208
Type-writing machine	O. Tyberg	749,002	Jan. 5	895	189 190	108	209
Type-writing machine	C. H. Shepard	749,106	Jan. 5	1113	286 287	108	256
Type-writing machine	L. P. Diss and W. A. Schmidt	749,538	Jan. 12	2046	425 426	108	479
Type-writing machine	C. Sears. (Reissue)	12,190	Jan. 12	2365	499	108	548
Type-writing machine	H. Hochklassen	749,822	Jan. 19	2594	553	108	616
Type-writing machine	G. C. Blickensderfer	749,914	Jan. 19	2764	592 593	108	651
Type-writing machine	C. Gabrielson	750,274	Jan. 26	3446	774	108	817
Type-writing machine	C. H. Shepard	750,712	Jan. 26	4262	925	108	990
Type-writing machine	J. H. Hotson	751,855	Feb. 9	2002	453	108	1503
Type-writing machine	L. P. Diss	752,210	Feb. 16	2669	592 593	108	1671
Type-writing machine	W. C. Farnum	752,214	Feb. 16	2679	594	108	1673
Type-writing machine	W. C. Farnum	752,215	Feb. 16	2688	594	108	1674
Type-writing machine	J. W. Schuckers	752,422	Feb. 16	3098	687 688	108	1764
Type-writing machine	H. Moya	752,792	Feb. 23	3804	851 852 853	108	1938
Type-writing machine	H. Moya	752,793	Feb. 23	3810	853	108	1940
Type-writing machine	C. E. Smith	752,868	Feb. 23	3955	887	108	1971
Type-writing machine	A. T. Brown	752,883	Feb. 23	3987	893	108	1978
Type-writing machine	C. S. Champion	752,885	Feb. 23	3991	894	108	1980
Type-writing machine	C. W. Walker	753,017	Feb. 23	4279	953	108	2045
Type-writing-machine keyboard	A. Beyerlen	750,572	Jan. 26	4013	868	108	987
Type-writing-machine paper-edge guide	J. C. McLaughlin	752,094	Feb. 16	2457	549	108	1622
Type-writing-machine paper-guide	F. X. Wagner	752,131	Feb. 16	2528	563	108	1638
Type-writing-machine shift-key mechanism	E. H. Wadewitz	751,578	Feb. 9	1471	334	108	1391
Type-writing-machine tabulating device	A. P. Beyerlen	750,338	Jan. 26	3572	774	108	846
Type-writing-machine tabulating device	L. S. Burridge	752,821	Feb. 23	3870	868	108	1952
Type-writing-machine tabulating mechanism	C. N. Fay	752,540	Feb. 16	3807	736	108	1812
Umbrella	J. B. Rohrer	748,635	Jan. 5	198	47	108	44
Umbrella	E. T. Miller	750,553	Jan. 26	3985	861	108	981
Umbrella	A. Fieldhouse	750,631	Jan. 26	4109	890	108	968
Umbrella	J. J. Whittlesey	750,924	Feb. 2	274	64	108	1118
Umbrella	C. N. Christensen	752,092	Feb. 16	2349	525	108	1598
Umbrella	T. Susemihl	752,723	Feb. 23	3689	822	108	1912
Umbrella	T. W. Pinchback	753,107	Feb. 23	4442	988	108	2081
Umbrella. Collapsible	C. L. Marks	749,310	Jan. 12	1561	330	108	376
Umbrella handle and rod	G. Muffly and H. M. Miller	752,849	Feb. 23	3921	879	108	1963
Umbrella-handle. Detachable	E. P. Bévillard	750,046	Jan. 19	3019	646	108	706
Umbrella. Knockdown	H. Fesenfeld	750,178	Jan. 19	3264	704	108	757
Umbrella-lock. Combination	R. B. Waite	752,489	Feb. 16	3210	717	108	1789
Umbrella-notch	A. M. Peate	752,178	Feb. 16	2604	578	108	1655
Umbrella-rib retainer	S. E. Groff	749,376	Jan. 12	1694	360	108	405
Underwaist and garment-supporter. Combined	L. M. Jones	752,348	Feb. 16	2988	654	108	1731
Universal mill	A. T. Keller	749,823	Jan. 19	2596	553 554	108	616
Upholstering device	H. B. Pitner	750,690	Jan. 26	4218	914 915	108	982
Upholstery-spring and means for supporting same	G. E. Bigelow	749,155	Jan. 12	1227	293	108	301
Upholstery-spring top clamp	P. F. King	752,169	Feb. 16	2590	576	108	1651
Upsetting-machine	R. G. Beker	751,141	Feb. 2	660	152	108	1201
Upsetting-machine	W. D. Florance	751,401	Feb. 9	1304	296	108	1354
Urinal	F. W. Henderson	749,282	Jan. 12	1708	362	108	407
Urinal	D. Craig	751,976	Feb. 9	2262	507	108	1560
Vacuum-frame	O. I. Lewellyn and J. W. Schock	750,667	Jan. 26	4173	905	108	971
Valve	F. L. Smith	749,637	Jan. 12	2214	467	108	515
Valve	J. J. Rylands	749,750	Jan. 19	2463	534	108	586
Valve	E. F. Holinger	749,990	Jan. 19	2918	628	108	685
Valve	J. E. Schneider	750,128	Jan. 19	3175	683	108	738
Valve	W. H. Thompson	750,321	Jan. 26	3543	765 766	108	840
Valve	J. W. Nethery	751,096	Feb. 2	576	183 184	108	1184
Valve	N. Obolensku	751,333	Feb. 2	1044	237	108	1280
Valve	G. R. Wilehart	751,364	Feb. 2	1099	248	108	1291
Valve	J. W. Nethery	751,677	Feb. 9	1645	373	108	1427
Valve	J. W. Nethery	752,176	Feb. 16	2598	578	108	1653
Valve	E. Halley and R. F. Downey	752,220	Feb. 16	2692	596	108	1677
Valve	J. W. Master	752,241	Feb. 16	2731	605	108	1686
Valve	J. Utrilla	752,608	Feb. 16	3455	772	108	1844
Valve	O. S. McCurdy	752,850	Feb. 23	3922	879	108	1963
Valve	W. H. Stratton	753,215	Feb. 23	4650	1035	108	2127
Valve. Air-	A. McGonagle	753,090	Feb. 23	4417	982	108	2076
Valve. Air-brake	T. Haley	749,859	Jan. 19	2660	598	108	639
Valve and coöperating parts. Check-	W. and J. Boekel	750,082	Jan. 19	3091	665	108	720
Valve. Ball-cock	C. C. Tozier	752,314	Feb. 16	2587	644	108	1730
Valve. Blowing-engine	A. K. Rarig	753,159	Feb. 23	4585	1011	108	2101
Valve. Brake-	J. V. Wells	753,020	Feb. 23	4292	954	108	2048
Valve. Compressed-air-brake distributing-	G. Houplain	752,976	Feb. 23	4210	987 988	108	2029
Valve-controlling mechanism	F. Hodgkinson	751,510	Feb. 9	1336	305	108	1362
Valve. Disk	R. Baumann	749,518	Jan. 12	2004	416	108	469
Valve. Emergency-	W. Cooper	752,204	Feb. 16	2660	590	108	1669

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Valve. Fluid-pressure-motor	C. A. Carlson	748,928	Jan. 5	716	156	108	162
Valve. Flushing	R. F. Gillin	750,763	Jan. 26	4405	950	108	1026
Valve for compressing-engines. Inlet	I. H. Reynolds	749,321	Jan. 12	1584	335	108	861
Valve for gas or gasolene engines. Speed-controlling	J. W. Lambert	753,147	Feb. 23	4511	1006	108	2005
Valve for steam-heating systems	G. D. Hoffman	751,853	Feb. 9	1906	433	108	1502
Valve. Gate	S. S. Jacobsen	751,735	Feb. 9	1760	400	108	1450
Valve-gear. Engine	G. F. Conner	748,931	Jan. 5	726	157, 158, 159	108	164
Valve-gear. Engine	P. F. C. Wilcox	751,037	Feb. 2	471	110	108	1161
Valve-gear. Explosive-engine	R. E. Olds	750,684	Jan. 26	4207	912	108	979
Valve-gear. Explosive-engine	J. M. Johanson	751,268	Feb. 2	971	221	108	1263
Valve-gear for Corliss engines. Releasing	C. H. Robinson	749,882	Jan. 19	2701	577	108	635
Valve-gearing	O. W. Young	751,769	Feb. 9	1820	415	108	1461
Valve. Globe	F. D. Philp	751,005	Feb. 2	412	98	108	1149
Valve. High-pressure	J. R. Tanner	751,572	Feb. 9	1463	331, 332	108	1389
Valve. Hydraulic	W. G. Ward	749,005	Jan. 5	901	191	108	210
Valve. Hydraulic	C. E. Lewis and J. Dick	749,136	Jan. 5	1182	252	108	274
Valve. Internal-combustion-engine	C. E. Sargent	752,303	Feb. 16	2860	636	108	1713
Valve. Internal-combustion-engine	C. E. Sargent	752,304	Feb. 16	2863	637	108	1714
Valve. Locomotive	H. G. Coryell and J. E. Stephens	752,439	Feb. 16	3128	695	108	1770
Valve. Locomotive relief	K. Rushton	749,101	Jan. 5	1107	234	108	254
Valve mechanism	W. A. Bollinger	749,156	Jan. 12	1229	263	108	301
Valve mechanism	F. Kromer	752,400	Feb. 16	3054	678	108	1756
Valve mechanism	M. Schilde	752,471	Feb. 16	3177	708	108	1782
Valve mechanism	M. Schilde	752,472	Feb. 16	3179	709	108	1782
Valve mechanism for steam-engines. Discharge	C. A. Ferrari and J. R. Whittemore	750,105	Jan. 19	3135	673, 674	108	730
Valve-motion	C. F. Sleigh	749,456	Jan. 12	1870	389	108	439
Valve. Motorman's	F. B. Corey	751,467	Feb. 9	1264	280	108	1345
Valve. Regulating	N. E. Nash	749,396	Jan. 12	1732	367	108	413
Valve. Rotary	R. Gillette	751,281	Feb. 2	951	216	108	1259
Valve. Safety	C. C. Palmer	752,099	Feb. 16	2469	551	108	1625
Valve. Steam-actuated	R. D. Ackley	750,331	Jan. 26	3559	770	108	844
Valve. Steam-actuated	E. W. Penfold	750,486	Jan. 26	3835	833	108	903
Valve. Steam-engine	O. W. Young	751,131	Feb. 2	637	147, 148	108	1196
Valve. Steam-engine piston	W. Schmidt	750,400	Jan. 26	3676	798	108	869
Valve. Steam-engine reversing	F. Kromer	752,401	Feb. 16	3056	678, 679	108	1756
Valve. Stop and automatic cut-off	I. Mayer and J. Hübner	751,666	Feb. 9	1627	360	108	1423
Valve. Throttle	J. B. Micnael	751,667	Feb. 9	1629	360	108	1423
Valve. Triple	J. V. Wells	753,018	Feb. 23	4282	953	108	2046
Valve. Triple	J. V. Wells	753,019	Feb. 23	4287	953, 954	108	2047
Valve. Water-heater	J. Ellis	753,195	Feb. 23	4606	1026	108	2118
Valve. Water-supply	H. Gardenier	749,285	Jan. 12	1509	321	108	363
Valves, faucets, plumbers' fittings, &c. Handle for	H. F. Keil	749,692	Jan. 12	2322	490	108	538
Valves or equivalent means of hydraulic apparatus. Mechanism for operating	H. E. Warren	752,491	Feb. 16	3214	717, 718	108	1789
Vapor-burner	F. E. and F. O. Stanley	750,410	Jan. 26	3692	801	108	873
Vapor-burning furnace	J. H. Fink	750,106	Jan. 19	3137	674, 675	108	731
Vapor-engine	B. H. Pomeroy	750,488	Jan. 26	3838	833, 834	108	904
Vapor-generator	A. C. E. Rateau	751,908	Feb. 9	2290	514	108	1508
Vapor generator and burner	Q. Crane and J. Restine	749,685	Jan. 12	2205	487	108	535
Varnish substitutes. Manufacturing	R. Blume	750,575	Jan. 26	4017	----	108	989
Vehicle	C. O. Barnes	752,435	Feb. 16	3121	694	108	1769
Vehicle alarm. Road	N. M. Goculdas and K. S. Irani	750,630	Jan. 26	4116	892	108	960
Vehicle-body	F. H. Bolte	749,658	Jan. 12	2256	475	108	524
Vehicle-body	R. F. Monroe	750,298	Jan. 26	3490	755	108	826
Vehicle-brake	T. Treloar	748,818	Jan. 5	494	111	108	112
Vehicle-brake	W. U. Wadsworth	748,896	Jan. 5	654	145	108	147
Vehicle-brake	M. Jewell	748,955	Jan. 5	775	168	108	176
Vehicle-brake	N. L. Birchfield	749,995	Jan. 19	2726	583	108	644
Vehicle-brake	W. H. Cooley	750,261	Jan. 26	3416	739	108	809
Vehicle-brake	A. M. Ledbetter	750,378	Jan. 26	3686	799	108	860
Vehicle-brake	J. Ferrel	751,274	Feb. 2	937	213	108	1256
Vehicle-brake	W. D. Brown	752,328	Feb. 16	2912	650	108	1725
Vehicle-brake	W. S. Hays	752,675	Feb. 23	3506	801	108	1892
Vehicle-brake	J. Knuth and C. Rea	752,984	Feb. 23	4224	941, 942	108	2032
Vehicle-brake. Automatic	E. J. Johnson	750,195	Jan. 19	3287	711	108	702
Vehicle braking mechanism. Motor	J. W. Packard and W. A. Hatcher	752,582	Feb. 16	3387	755, 756	108	1829
Vehicle controlling mechanism. Electric	F. S. Wahl	751,581	Feb. 9	1473	334, 335	108	1392
Vehicle. Convertible	H. Romfinder	750,396	Jan. 26	3666	797	108	866
Vehicle-coupling	C. H. Semm	751,692	Feb. 9	1674	379	108	1433
Vehicle. Electrically-propelled	L. Krieger	752,689	Feb. 23	3627	807	108	1899
Vehicle. Folding	C. E. Fanning	751,843	Feb. 9	1973	448, 449	108	1496
Vehicle luggage-carrier	F. Simons	752,004	Feb. 9	2206	516	108	1570
Vehicle. Motor	L. Renault	749,096	Jan. 5	1100	232	108	252
Vehicle. Motor	T. W. Barber	749,150	Jan. 12	1214	260, 261	108	298
Vehicle. Motor	W. W. and W. W. Burson	749,165	Jan. 12	1250	269	108	307
Vehicle. Motor	J. W. Packard and W. A. Hatcher	749,744	Jan. 19	2452	521, 522	108	583
Vehicle. Motor	H. M. Pope	750,062	Jan. 19	3068	656	108	713
Vehicle. Motor	B. C. Hicks	751,508	Feb. 9	1333	304	108	1361
Vehicle. Motor	J. D. Maxwell	751,529	Feb. 9	1368	312	108	1368
Vehicle. Motor-propelled	C. E. Larrabee	751,660	Feb. 9	1617	367	108	1480

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Vehicle motor-wheel	J. W. Walters	751,231	Feb. 2	845	198	108	1237
Vehicle mud and dust guard. Combined	J. H. Scott	750,007	Jan. 19	2948	631	108	692
Vehicle mud-guard	H. B. King and H. M. Quick	749,866	Jan. 19	2869	571	108	631
Vehicle-runner	J. Faucher	750,957	Feb. 2	335	80	108	1132
Vehicle-seat	G. R. Brown	748,695	Jan. 5	275	63	108	61
Vehicle-seat lazy-back	B. C. Place	749,804	Jan. 19	2562	544	108	607
Vehicle-seat lazy-back attachment	B. C. Place	749,805	Jan. 19	2563	544	108	607
Vehicle steering-gear attachment	G. D. Smith	751,876	Feb. 9	2035	460	108	1511
Vehicle steering-gear. Motor	L. Renault	748,984	Jan. 5	847	181	108	196
Vehicle steering mechanism. Motor	C. H. Veeder	751,575	Feb. 9	1468	333	108	1390
Vehicle steering mechanism. Motor	C. H. Veeder	751,576	Feb. 9	1469	333	108	1390
Vehicle-step	C. E. Riggs	750,893	Feb. 2	216	49	108	1105
Vehicle-step. Folding	L. S. Chadwick	752,031	Feb. 16	2347	525	108	1598
Vehicle testing device. Self-propelled	A. P. Brush	750,749	Jan. 26	4368	943, 944	108	1017
Vehicle-top valance	C. S. Applas	750,564	Jan. 26	4002	865	108	934
Vehicle-washer. Overhead	J. P. Baird	750,982	Feb. 2	284	67	108	1120
Vehicle-wheel	C. Andersen and W. C. Wells	748,684	Jan. 5	245	57	108	58
Vehicle-wheel	F. E. Southard	748,998	Jan. 5	860	185	108	200
Vehicle-wrench	G. H. Markillie	752,910	Feb. 23	4043	905	108	1991
Vehicles. Transmission-gear for power-driven	R. D. Scott	752,001	Feb. 9	2302	514, 515	108	1569
Velocipede. Railway	C. H. Pierce	753,106	Feb. 23	4441	988	108	2061
Vending apparatus	C. A. Dawes	749,535	Jan. 12	2033	422, 423	108	476
Vending apparatus. Coin-controlled	A. Rydquist	751,812	Feb. 9	1914	434, 435	108	1484
Vending-machine	E. S. Scheble	748,795	Jan. 5	448	100, 101	108	101
Vending-machine	W. S. Conner	749,260	Jan. 12	1446	309, 310	108	350
Vending-machine	H. V. Hoag, Jr	749,485	Jan. 12	1941	408	108	455
Vending-machine	J. J. Sleeper	750,315	Jan. 26	3529	763	108	836
Vending-machine	C. V. Wertz	750,741	Jan. 26	4352	940, 941	108	1013
Vending-machine	W. Forsythe	751,276	Feb. 2	942	214	108	1257
Vending-machine	C. H. Balsley	751,774	Feb. 9	1832	417	108	1464
Vending-machine. Coin-controlled	J. P. Beardslee	752,322	Feb. 16	2301	647	108	1723
Vending machine. Coin-controlled perfume	M. J. Nash and J. T. Waniger	752,580	Feb. 16	3382	755	108	1828
Veneer-drier	A. J. Richie and A. W. Jamison	748,652	Jan. 5	194	46	108	43
Ventilator: *See* Boot or shoe ventilator. Flue-ventilator. Water-closet ventilator.	A. S. Nichols	750,058	Jan. 19	3051	654	108	712
Vertical boiler	G. F. Spencer	748,806	Jan. 5	471	106	108	106
Vessel-closure	F. C. B. Page	751,335	Feb. 2	1046	237	108	1280
Vessel-closure	F. C. B. Page	751,404	Feb. 2	1159	264	108	1304
Vessel loading or unloading means	H. M. Harding	749,860	Jan. 19	2661	568, 569	108	629
Vessel mooring and warping device	J. Kidd	748,618	Jan. 5	113	29	108	26
Vessel-sheathing	R. D. Upham	749,909	Jan. 19	2753	590	108	650
Vessel side light	J. J. Currier	752,959	Feb. 23	4176	930	108	2021
Vessel with charging or discharging means. Rotary	A. Wünsch	750,330	Jan. 26	3557	770	108	843
Vessels. Means for determining the nautical bearing of navigable	H. W. Ladd	749,694	Jan. 12	2324	490	108	539
Vibratory drier	M. E. Cooley	750,262	Jan. 26	3423	740	108	811
Vibratory treatment. Implement for mechanical	F. B. Turck	750,735	Jan. 26	4343	937	108	1010
Violin-bow resin-distributer	J. W. Zimmerman	751,569	Feb. 9	1509	343	108	1399
Vise	E. Shupe	749,233	Jan. 12	1396	299	108	340
Vise	H. E. Reed	752,260	Feb. 16	2778	616	108	1696
Voice-pipe mouthpiece	T. W. Battin	753,113	Feb. 23	4455	990	108	2084
Vote-counting machine	J. McTammany	749,446	Jan. 12	1855	385, 386	108	436
Voting-machine	S. Loe	750,987	Feb. 2	381	91, 92	108	1142
Voting-machine	P. Yoe	752,276	Feb. 16	2809	622, 623, 624	108	1703
Voting-machine	F. X. St. Louis and A. M. Jackson	752,307	Feb. 16	2867	638, 639	108	1715
Vulcanizer	J. F. Funck	751,498	Feb. 9	1307	299	108	1355
Vulcanizers, &c. Controlling device for	C. E. Orndorf	752,708	Feb. 23	3646	812, 813	108	1903
Wad sorter and assembler	B. W. Stevens	749,459	Jan. 12	1882	391	108	442
Wagon-body	J. E. Bilby and R. R. Keffer	751,045	Feb. 2	482	113	108	1164
Wagon. Coaster	F. V. Eavenson	751,785	Feb. 9	1852	422	108	1469
Wagon. Dumping	E. D. Branch	750,064	Jan. 19	3095	666	108	720
Wagon. Dumping	G. Kautz, Sr.	750,196	Jan. 19	3289	711	108	763
Wagon. Dumping	D. S. Everett	750,442	Jan. 26	3755	816	108	886
Wagon. Dumping	J. Bullock	751,455	Feb. 9	1243	284	108	1340
Wagon. Dumping	J. S. Danley	752,206	Feb. 16	2663	590	108	1669
Wagon. Speed	G. J. Exterkamp	752,766	Feb. 23	3758	839	108	1928
Wagon steering-gear	J. P. Faber	749,545	Jan. 12	2061	428	108	488
Wagon-unloading mechanism	A. McEntee	750,215	Jan. 19	3325	718	108	770
Waist-lengthener	M. O. Clark	752,519	Feb. 16	3267	728, 729	108	1801
Wall construction. Hollow	N. C. Edwards	749,543	Jan. 12	2059	427	108	482
Wall or vault	D. E. Beeghly	749,254	Jan. 12	1426	306	108	347
Wall-wash	J. G. F. Lund	752,694	Feb. 23	3635	809	108	1901
Wardrobe-bracket	W. W. Russell	749,450	Jan. 12	1863	----	108	488
Wardrobe, closet, &c	J. Ternes	752,128	Feb. 16	2524	562	108	1637
Wardrobe. Clothes	W. C. James	750,193	Jan. 19	3285	710	108	702
Warm-air furnace	R. Weir	749,120	Jan. 5	1145	243	108	264
Warm-air register	O. L. Badger	748,834	Jan. 5	527	121	108	120
	T. E. Hunt	749,065	Jan. 5	1008	219	108	239

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Warping and beaming machine	W. C. Keyworth	753,079	Feb. 23	4400	978	108	2072
Warping-machine	W. J. Garlick	752,398	Feb. 16	3085	979 675	108	1752
Washer: *See* Nut-lock washer. Vehicle-washer.							
Washing-machine	W. T. Rusk	750,126	Jan. 19	3172	682	108	787
Washing-machine	F. V. Allen	750,419	Jan. 26	3704	804	108	1575
Washing-machine	P. Cunneen	751,149	Feb. 2	670	154	108	1308
Washing-machine	E. W. Grace	750,185	Jan. 19	3275	706	108	739
Washing-machine bluing gage and mixer	F. T. Brosi	750,343	Jan. 19	3385	731	108	785
Washing-machine gearing	W. H. Gladwill	751,282	Feb. 2	958	216	108	1259
Washboard	W. J. Bartlett	752,306	Feb. 16	3244	723	108	1796
Washboiler attachment	J. B. McLaughlin	749,575	Jan. 12	2101	438	108	492
Washtub	M. J. Kremer	749,688	Jan. 12	2323	490	108	539
Washtub-joint	M. Blum	751,896	Feb. 9	3074	469	108	1520
Watch-barrel	J. H. Rogers	749,099	Jan. 5	1105	234	108	254
Watch-bow fastener	G. R. H. Thorn	750,508	Jan. 26	3874	841	108	911
Watch-holder	A. Ditesheim	750,619	Jan. 26	4092	886	108	954
Watch winding and setting mechanism	J. Walz	752,987	Feb. 23	4127	919	108	2010
Watch winding-indicator	W. W. Dudley	748,590	Jan. 5	70	20	108	17
Watchcase	W. D. Smith	751,439	Feb. 2	1215	277	108	1316
Watchmaker's tool	C. Oliver	748,981	Jan. 5	843	179	108	195
Water. Apparatus for separating oil or grease from	J. W. Kelly	752,906	Feb. 23	4085	904	108	1999
Water-closet	P. H. Bacon	752,321	Feb. 16	2899	646	108	1722
Water-closet attachment	W. H. Smith	751,210	Feb. 2	806	185	108	1229
Water-closet. Automatic marine	A. Ek	751,270	Feb. 2	934	212	108	1256
Water-closet bowl	C. P. McElroy	749,083	Jan. 5	1077	227	108	248
Water-closet seat	C. H. Muckenhirn	749,875	Jan. 19	3688	575	108	635
Water-closet ventilator	J. H. Smith	753,174	Feb. 23	4562	1017	108	2108
Water-closets, &c. Flushing apparatus for	A. Drouillard	750,932	Feb. 2	328	78	108	1130
Water-closets, &c. Ventilating device for	H. G. Sweeney	752,810	Feb. 23	3843	862	108	1946
Water-cooler	H. L. Frost	751,626	Feb. 9	1558	354 355	108	1408
Water-elevating apparatus	J. R. Jones and Q. Callaway	751,652	Feb. 9	1603	364	108	1418
Water-elevator. Windlass	N. H. Hiller	750,589	Jan. 26	3961	857	108	927
Water-gage	L. H. Nash	748,777	Jan. 5	410	94	108	92
Water-meter	O. Braun	752,826	Feb. 16	2906	648	108	1724
Water-meter	J. P. Kelly	749,066	Jan. 5	1041	229	108	246
Water-meter. Disk	J. D. Lee	749,491	Jan. 12	1957	406	108	458
Water-motor	J. Hofmann	751,732	Feb. 9	1754	398	108	1449
Water-motor	A. P. Monnier	752,175	Feb. 16	2597	578	108	1653
Water-pipe mute	C. Monjeau	750,474	Jan. 26	3812	828	108	899
Water purification	J. C. W. Greth	749,728	Jan. 19	2415	510	108	575
Water-purifying apparatus	H. J. Wessels	751,886	Feb. 9	2053	464	108	1515
Water-sterilizing apparatus	G. Hacker	752,155	Feb. 16	2572	572	108	1648
Water-supply apparatus for cattle, poultry, &c	J. T. Donahoo	749,273	Jan. 12	1498	317	108	358
Water-tank	G. R. F. H. Cuntz	749,129	Jan. 5	1158	245 246	108	208
Water-tube boiler	T. W. Johnson	750,296	Jan. 26	3406	750	108	821
Water-tube boiler	G. E. Turner	752,630	Feb. 16	3508	781	108	1855
Water-tube boiler	G. E. Turner	752,631	Feb. 16	3510	781	108	1855
Water-wheel governor	M. P. Schenck	748,650	Jan. 5	202	48, 49	108	44
Water-wheel nozzle. Impact	W. A. Doble	751,722	Feb. 9	1731	393	108	1443
Water-wheel setting	A. Giesler	750,761	Jan. 26	4402	949	108	1025
Water-wheel setting	A. Giesler	750,843	Feb. 2	123	29	108	1085
Watering apparatus. Poultry-house	G. Hacker	752,154	Feb. 16	2571	571 572	108	1647
Watering apparatus. Stock	G. Hacker	752,157	Feb. 16	2575	573	108	1648
Wattmeter. Alternating-current	C. A. Brown	750,988	Feb. 2	300	71	108	1123
Wave-motor	J. A. Langstroth	748,757	Jan. 5	376	85	108	88
Weather-strip	F. Fournier	749,807	Jan. 19	2729	584	108	645
Weather-strip	S. Lenzner	750,663	Jan. 26	4162	903	108	969
Weather-strip	G. L. Parker	752,355	Feb. 16	2900	659	108	1736
Weather-strip	W. H. Etter	752,390	Feb. 16	3031	674	108	1751
Weather-strip	C. Vose	752,729	Feb. 23	3997	824	108	1914
Weather-strip	J. H. Foote	752,767	Feb. 23	3759	839	108	1928
Weave for shades, &c	A. C. Hough	748,734	Jan. 5	358	75	108	75
Web-manipulating mechanism	L. W. Southgate	752,983	Feb. 23	4115	916 917	108	2008
Weighing and packaging machine	T J. Brough	749,659	Jan. 12	2258	475 476	108	524
Weighing and packaging machine	W. H. Doble	750,830	Feb. 2	88	20, 21	108	1076
Weighing apparatus	G. Hoepner	749,194	Jan. 12	1813	281 282	108	323
Weighing apparatus. Automatic	W. Northrop	748,644	Jan. 5	178	43	108	40
Weighing-machine	G. Kley	751,301	Feb. 2	995	225	108	1209
Weighing-machine. Automatic	W. Brough	749,022	Jan. 5	985	198	108	217
Weighing-machine. Automatic	J. F. Clarke	749,027	Jan. 5	944	200	108	219
Weighing machine. Can	W. H. Coffelt	750,259	Jan. 26	3411	738 739	108	808
Weighing-scoop	H. H. Fox	748,856	Jan. 5	572	130	108	129
Welding apparatus	H. Dicke	752,208	Feb. 16	2966	591	108	1670
Welding apparatus	H. Dicke	752,209	Feb. 16	2966	591	108	1670
Well-drill	C. C. Fox	750,840	Feb. 2	121	28	108	1084
Well-drill jar	G. B. Patton	751,199	Feb. 2	774	176 177	108	1222
Well mechanism	M. E. Layne	750,305	Jan. 19	3305	714	108	766
Well swivel-wrench. Oil	J. Barrett	751,447	Feb. 9	1220	281	108	1337
Well working barrel	W. W. Sleeman	750,715	Jan. 26	4266	926	108	992
Wells. Elevating liquids from	T. F. Moran and F. J. Moser	751,328	Feb. 2	1080	234	108	1277
Wells. Fishing-tool for oil or like	C. A. Sargert	750,491	Jan. 26	3841	834	108	905
Welt-feeding machine	G. D. Clapp	749,719	Jan. 19	2892	503 506	108	570
Welt-making machine	G. E. Rollins	748,794	Jan. 5	446	100	108	100
Wharf-drop	H. D. Van Doorn	749,595	Jan. 12	2136	445	108	500

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wheel: *See* Abrasive wheel. Advertising-wheel. Barrow-wheel. Car-wheel. Caster-wheel. Color-blending wheel. Engine-wheel. Fifth-wheel. Gear-wheel. Grip-wheel. Hand-wheel. Observation-wheel. Pneumatic-tired wheel. Self-lubricating wheel. Traction-wheel. Turbine-wheel. Vehicle-wheel. Vehicle motor-wheel. Wind-wheel.							
Wheel	J. B. McMullen	748,775	Jan. 5	406	93	108	91
Wheel	W. A. Hoskins	751,075	Feb. 2	539	126	108	1178
Wheel-brake. Automatic	H. Neusser	751,678	Feb. 9	1647	374	108	1427
Wheel rim. Vehicle	S. Butler	749,840	Jan. 19	2630	562 563	108	622
Wheel-rims. Machine for making metallic	W. S. Gorton	751,166	Feb. 2	711	163	108	1210
Wheels. Peripheral structure for	F. Pawel	748,880	Jan. 5	620	139	108	139
Wheelbarrow	G. G. Tieman	752,190	Feb. 16	2627	583	108	1661
Wheelbarrow construction	G. G. Tieman	752,725	Feb. 23	3692	823	108	1913
Wheelbarrow-wheels. Mold for manufacturing	T. D. Harris	749,556	Jan. 12	2074	431	108	486
Whetstone-case	D. F. Larkin	751,659	Feb. 9	1617	367	108	1420
Whiffletree-hook	G. D. Hayes	752,222	Feb. 16	2696	597	108	1678
Wick. Lamp	J. A. Mosher	752,575	Feb. 16	3376	753	108	1827
Wick-trimmer	J. F. Presnell	751,339	Feb. 2	1054	239	108	1282
Willow	C. Schofield	751,948	Feb. 9	2181	492	108	1543
Winch. Combined hand and motive power	C. E. Ellicott and J. B. Norris	749,279	Jan. 12	1496	319	108	360
Wind instrument	C. Wadsworth, Jr	750,919	Feb. 2	302	61	108	1115
Wind-wheel	A. M. Cox	750,611	Jan. 26	4081	884	108	952
Windmill	J. Stanley	748,998	Jan. 5	873	187	108	202
Windmill	G. P. Rasck	749,095	Jan. 5	1098	232	108	252
Windmill	E. Rue	749,806	Jan. 19	2563	545	108	608
Windmill	C. O. Sylvester	752,126	Feb. 16	2517	560 561	108	1636
Winding	L. Dunne	752,764	Feb. 23	3754	838	108	1927
Winding-machine	A. J. Strong	751,816	Feb. 9	1922	436	108	1485
Winding machine. Yarn	C. H. Knapp	748,750	Jan. 5	367	82	108	81
Windlass. Ship's	H. S. Golland	750,964	Feb. 2	344	82	108	1134
Window	J. Hansen	749,188	Jan. 12	1296	279 280	108	317
Window	O. Frotscher	749,608	Jan. 12	2154	451	108	504
Window frame and sash. Metal	H. C. Nelson	751,747	Feb. 9	1784	407	108	1455
Window-lock	J. A. Knisely	749,201	Jan. 12	1331	285 286	108	327
Window-lock and burglar-alarm	W. Dzink	749,041	Jan. 5	981	207	108	229
Window. Metal	W. J. Hill	752,774	Feb. 23	3770	841	108	1930
Window parting-strip	J. A. Knisely	751,521	Feb. 9	1356	309	108	1366
Window. Revoluble	C. W. Wright	748,905	Jan. 5	609	148	108	150
Window. Revolving metallic	E. C. Somers	749,109	Jan. 5	1125	238 239	108	260
Window-screen	L. Christenson	751,379	Feb. 2	1122	254 255	108	1296
Window-screen. Metal	C. D. Cutts	750,266	Jan. 26	3428	741	108	813
Window-sill protecting-plate	S. W. Benson	749,715	Jan. 19	2380	503	108	568
Windrow attachment	W. A. Pratz	751,008	Feb. 2	419	99	108	1150
Wire article	J. W. Anderson	749,512	Jan. 12	1995	414 415	108	466
Wire-clamp	P. J. Shrum and K. J. Hendricks	750,903	Feb. 2	237	53	108	1110
Wire-connector	R. L. Sehon	751,352	Feb. 2	1079	244	108	1287
Wire. Covering	J. S. Ford	748,716	Jan. 5	305	68	108	67
Wire-covering machine. Flat	J. C. Anderson	750,563	Jan. 26	4000	865	108	984
Wire-loom	J. C. Anderson	748,911	Jan. 5	680	150	108	153
Wire or cable stretcher	I. J. Neracher	751,546	Feb. 9	1401	320	108	1375
Wire receptacles. Apparatus for making reticulated or open-work	M. Huerth and O. F. Olson	752,621	Feb. 16	3488	777	108	1851
Wire-stretcher	C. Azary	752,748	Feb. 23	3728	831	108	1921
Wire-stretcher	C. Bush	748,697	Jan. 5	279	64	108	62
Wire-stretcher	W. B. Shotwell	749,635	Jan. 12	2208	466	108	514
Wire-stretcher	D. M. Fry	750,273	Jan. 26	3445	743	108	816
Wire-stretcher	I. M. Warner	750,417	Jan. 26	3702	803	108	875
Wire-winding tool	S. Beckworth and H. F. Wullstein	752,948	Feb. 23	4151	924	108	2015
Wire-working machine	M. E. Layne	750,206	Jan. 19	3306	714	108	766
Wire-working tool	T. S. Haley	749,730	Jan. 19	2418	511 512 513	108	575
Wood-carbonizer	B. B. Feltus	750,630	Jan. 26	4108	889	108	958
Wood-holder	F. M. Perkins	749,091	Jan. 5	1091	230	108	251
Wood. Preserving	J. E. Wallin	749,646	Jan. 12	2230	470	108	518
Wood scraping and smoothing machine	G. W. Gordon	751,981	Feb. 9	2272	.....	108	1562
Wood. Treating	N. J. Matthiesen	750,294	Jan. 26	3478	758	108	824
Woodworking-machine chip-breaker	K. Wadamori	749,004	Jan. 5	900	190	108	210
Woodworking-machine feeding device	C. D. Marsh	749,072	Jan. 5	1051	222	108	242
Wrench: *See* Adjustable wrench. Chain wrench. Monkey-wrench. Nut and pipe wrench. Pipe-wrench. Pipe or nut wrench. Sealing-wrench. Tire-bolt wrench. Vehicle-wrench. Well swivel-wrench.	J. R. Thomas and H. S. Spencer	752,813	Feb. 16	2884	642 643	108	1719
Wrench	A. L. Vinyard	748,671	Jan. 5	222	52	108	48
Wrench	N. C. Hyman	749,184	Jan. 5	1171	248	108	271
Wrench	W. E. Carter	749,167	Jan. 12	1253	269	108	308
Wrench	J. Speyer	749,237	Jan. 12	1401	300	108	341

Alphabetical list of inventions for January and February—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wrench	W. H. Ermentrout	749,544	Jan. 12	2060	427	108	482
Wrench	G. W. Rouse	749,632	Jan. 12	2204	465	108	513
Wrench	N. G. Forslund	749,668	Jan. 12	2275	480	108	528
Wrench	F. Stuart	749,908	Jan. 19	2732	590	108	649
Wrench	M. M. Le May	750,772	Jan. 26	4428	964 / 965	108	1030
Wrench	M. McKinley	750,994	Feb. 2	394	94	108	1145
Wrench	H. A. Ruggles	751,342	Feb. 2	1056	240	108	1283
Wrench	W. J. Ratcliff	751,416	Feb. 2	1178	268	108	1307
Wrench	F. A. Drury	751,481	Feb. 9	1289	294	108	1351
Wrench	P. Toohey	751,821	Feb. 9	1930	438	108	1487
Wrench	J. H. Hobson	751,914	Feb. 9	2113	476	108	1529
Wrench	W. S. Osborn	751,936	Feb. 9	2155	488	108	1537
Wrench	M. Wenger	752,136	Feb. 16	2537	565	108	1640
Wrench	W. J. Berryman	752,510	Feb. 16	3249	724	108	1798
Wrench	C. S. Kline	752,564	Feb. 16	3356	746	108	1822
Wrench	C. W. Thomas	752,811	Feb. 23	3845	862	108	1947
Wringer. *See* Mop-wringer.							
X-ray apparatus. Portable	E. W. Caldwell	749,813	Jan. 19	2576	548 / 549	108	611
Yarn-controller	S. W. Wardwell	752,813	Feb. 23	3849	863 / 864	108	1948
Yarn or thread lubricator	C. J. Lehman	752,456	Feb. 16	3156	708	108	1778
Yeast extracts. Preparing alimentary	M. Elb	748,711	Jan. 5	299	.....	108	66
Yoke	H. L. Alexander	751,135	Feb. 2	646	149	108	1198
Yoke	P. N. Lear	752,081	Feb. 16	2440	546	108	1619
Yoke attachment. Neck-	W. H. Bayley	751,044	Feb. 2	481	113	108	1164
Yoke center. Neck-	E. C. Stillwell	751,959	Feb. 9	2203	496	108	1549
Yoke. Neck-	A. H. Engeljohn and S. Weale	750,620	Jan. 26	4102	888	108	957
Yoke. Neck-	K. Nilson	750,907	Feb. 2	404	95	108	1147
Yoke. Neck-	W. G. Callender	749,166	Jan. 12	1252	269	108	307
Yoke strap. Neck-	W. Jamieson and F. J. Odling	750,034	Jan. 19	3002	643	108	708
Zinc-blende from ores. Separating	V. Bermont	751,712	Feb. 9	1707	.....	108	1439
Zinc. Producing hydrated sulfid of							

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Badge	J. T. Bailey	36,730	Jan. 12	108	550
Badge	P. H. Englewood	36,758	Jan. 26	108	1041
Bag-handles. Leather rope for	A. C. Fritsche	36,769	Feb. 9	108	1577
Bank. Money-	J. B. Weir and I. D. Perry	36,749	Jan. 26	108	1039
Bottle	A. Bustanoby	36,764	Feb. 2	108	1317
Box	W. G. Booth	36,785	Feb. 9	108	1576
Bracket	H. B. Ruggles	36,770	Feb. 2	108	1318
Braid	H. P. von Nostitz	36,746	Jan. 19	108	787
Brooch, button, or buckle-plate, or similar article	S. A. Keller	36,757	Jan. 26	108	1041
Brushes, mirrors, or similar articles. Back for	H. J. Straker	36,760	Jan. 26	108	1042
Buckle-plate or similar article	C. C. Penfold	36,725	Jan. 5	108	278
Building-block. Artificial	H. S. Palmer	36,772	Feb. 2	108	1319
Building-block. Artificial	H. S. Palmer	36,804	Feb. 16	108	1860
Building-block. Artificial	H. S. Palmer	36,805	Feb. 16	108	1860
Building-block. Artificial	H. S. Palmer	36,806	Feb. 16	108	1860
Burial-casket	J. Maxwell	36,769	Feb. 2	108	1318
Cabinet. Kitchen-	C. A. Post	36,752	Jan. 26	108	1040
Cabinet. Kitchen wall-	R. M. Vernon	36,744	Jan. 19	108	787
Candelabrum	A. Steffin	36,814	Feb. 23	108	2131
Card or similar article. Souvenir-	F. Huld	36,762	Feb. 2	108	1316
Carpet	F. A. Haas	36,733	Jan. 12	108	550
Carpet	F. A. Haas	36,734	Jan. 12	108	550
Carpet	L. H. Brown	36,735	Jan. 12	108	551
Carpet	W. A. Perry	36,736	Jan. 12	108	551
Cash-register cabinet or casing	L. Jacobi	36,767	Feb. 2	108	1317
Cash-register cabinet or casing	E. Ringold	36,768	Feb. 2	108	1318
Chair	J. H. Kellogg	36,771	Feb. 2	108	1319
Charm or similar article	R. E. Fisher	36,723	Jan. 5	108	278
Charm or similar article	W. W. Chase	36,793	Feb. 16	108	1859
Charm or similar article	S. Williams	36,811	Feb. 23	108	2131
Clock case and support	C. A. Warner	36,784	Feb. 9	108	1576
Collar	F. Edelmann	36,753	Jan. 26	108	1040
Collar	F. Edelmann	36,754	Jan. 26	108	1040
Collar	F. Edelmann	36,755	Jan. 26	108	1041
Collar	F. Edelmann	36,756	Jan. 26	108	1041
Collar	W. Helbig	36,807	Feb. 16	108	1861
Collar	F. Edelmann	36,808	Feb. 16	108	1861
Collar	F. Edelmann	36,809	Feb. 16	108	1861
Comb	F. W. Grell	36,824	Feb. 23	108	2133
Comb. Pompadour-puff	B. W. Doyle	36,727	Jan. 5	108	279
Comb. Pompadour-puff	F. H. Rowley	36,728	Jan. 5	108	279
Comb. Pompadour-puff	B. W. Doyle	36,742	Jan. 19	108	787
Cross	F. Hinderer	36,812	Feb. 23	108	2131
Cup	A. C. Bosselman	36,780	Feb. 9	108	1575
Decanter	L. Blower	36,781	Feb. 9	108	1576
Dish	J. Maddock	36,816	Feb. 23	108	2132
Dish	J. Maddock	36,817	Feb. 23	108	2132
Dish. Cover-	R. L. Johnson	36,765	Feb. 2	108	1317
Dish. Covered	J. Maddock	36,815	Feb. 23	108	2131
Doily or similar article	G. W. Lankford and W. H. Keith	36,823	Feb. 23	108	2133
Drinking counter, or bar proper, for bar-fixtures	J. Ehrenpreis	36,731	Jan. 12	108	550
Fabric	J. W. Henson	36,791	Feb. 9	108	1578
Fabric	F. A. Arbenz	36,822	Feb. 23	108	2133
Finger-ring	H. S. Dana	36,747	Jan. 26	108	1039
Flower-box. Renaissance	F. Hinderer	36,801	Feb. 16	108	1860
Flower-pot. Hanging	F. Hinderer	36,800	Feb. 16	108	1860
Glass vessel. Cut-	W. C. Anderson	36,738	Jan. 19	108	786
Glass vessel. Cut-	W. C. Anderson	36,739	Jan. 19	108	786
Glove	G. Hostachy	36,790	Feb. 9	108	1577
Hammock-cloth	D. W. Shoyer	36,792	Feb. 9	108	1578
Hammock-cloth	D. W. Shoyer	36,821	Feb. 23	108	2133
Harmonica. Mouth-	H. Hohner	36,748	Jan. 26	108	1039
Key	C. J. Caley	36,740	Jan. 19	108	786
Key	C. J. Caley	36,741	Jan. 19	108	786
Lamp-chimney reflector	L. Sepulchre	36,802	Feb. 16	108	1860
Lamp-chimney reflector	L. Sepulchre	36,803	Feb. 16	108	1860
Lighting apparatus. Globe-support for incandescent-	L. R. Hopton	36,743	Jan. 19	108	787
Liquid-container	O. Krause	36,750	Jan. 26	108	1040
Match-box	M. O. Anthony	36,783	Feb. 9	108	1576
Paving roller. Cement-	M. Alves	36,786	Feb. 9	108	1577
Pencil. Lead-	E. L. Schmitz	36,796	Feb. 16	108	1859
Plate or similar article. Dinner-	C. W. Robinson	36,782	Feb. 9	108	1576
Radiator-section	S. B. Waters	36,820	Feb. 23	108	2132
Rug	E. H. Bennett	36,773	Feb. 2	108	1319
Rug	E. H. Bennett	36,774	Feb. 2	108	1319
Rug	A. Petzold	36,775	Feb. 2	108	1319
Rug	A. Petzold	36,776	Feb. 2	108	1319
Rug	A. Petzold	36,777	Feb. 2	108	1319
Sign-frame	J. L. Dawes	36,818	Feb. 23	108	2132
Spoon	F. J. Knorr and A. S. Kuhn	36,779	Feb. 9	108	1575
Spoon. Souvenir-	C. J. Dale	36,763	Feb. 2	108	1317
Spoons, forks, or similar articles. Handle for	J. H. Hobson	36,759	Jan. 26	108	1041

Alphabetical list of designs for January and February—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Spoons, forks, or similar articles. Handle for	J. E. Straker, Jr.	36,794	Feb. 16	108	1859
Spoons, forks, or similar articles. Handle for	J. E. Straker, Jr.	36,795	Feb. 16	108	1859
Spoons, forks, or similar articles. Handle for	J. E. Straker, Jr.	36,796	Feb. 16	108	1859
Spoons, forks, or similar articles. Handle for souvenir	J. E. Straker, Jr.	36,726	Jan. 5	108	278
Spoons or similar articles. Handle for	S. J. Large	36,737	Jan. 19	108	786
Standard for lights, clocks, &c	E. L. Brainard	36,751	Jan. 26	108	1040
Stove-door	D. F. Printz	36,732	Jan. 12	108	550
Stove. Heating	F. W. Law	36,819	Feb. 23	108	2132
Suspender button-piece	W. H. Johnson	36,797	Feb. 16	108	1859
Tableware. Bas-relief border for metallic	A. Steffin	36,813	Feb. 23	108	2131
Tiling	A. A. Spadone	36,761	Jan. 26	108	1042
Toy bank	L. W. Knighton	36,706	Feb. 2	108	1317
Type. Font of	W. D. Orcutt	36,729	Jan. 5	108	279
Umbrella and cane rack	J. H. Petroskey	36,787	Feb. 9	108	1577
Vending-machine casing	F. L. Nichols	36,786	Feb. 9	108	1577
Watch-charm	N. B. Levy	36,724	Jan. 5	108	278
Watch-wheel	F. J. Reaves	36,778	Feb. 9	108	1575
Wire fabric	O. R. Hunt	36,745	Jan. 19	108	787

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Animal-dip and insecticides	P. R. Palethorpe	41,929	Jan. 19	108	792
Antipyretic	Farbenfabriken of Elberfeld Co	41,927	Jan. 19	108	792
Antipyretic	Farbenfabriken of Elberfeld Co	42,140	Feb. 23	108	2139
Antiseptic powder for certain named diseases	D. W. Rees	42,135	Feb. 23	108	2138
Antiseptic preparations	J. F. A. C. Wartman	41,904	Jan. 19	108	790
Antiseptics and germicides	M. W. Savage	41,815	Jan. 5	108	281
Automobiles and their parts	C. H. Blomstrom Motor Co	41,963	Jan. 26	108	1046
Axes, hatchets, and adzes	Supplee Hardware Company	42,050	Feb. 9	108	1583
Bags. Leather	Hunt Leather Goods Co	41,805	Jan. 5	108	281
Bakery products. Certain named	National Biscuit Company	41,868	Jan. 12	108	554
Baking-powder	International Food Co	41,977	Feb. 2	108	1321
Balls. Base	C. Disch	42,147	Feb. 23	108	2139
Bearing metals. Certain named	John Finn Metal Works	41,877	Jan. 12	108	555
Bearing metals. Certain named	John Finn Metal Works	41,878	Jan. 12	108	556
Belts. Electric	Electric Appliance Co	41,958	Jan. 26	108	1046
Beverage manufactured from apple-cider	Morgan-Lyons Vinegar Co	42,078	Feb. 16	108	1864
Beverages. Certain named	A. Ludorff	42,031	Feb. 9	108	1581
Beverages. Composite material for making	S. B. Dexter	42,076	Feb. 16	108	1864
Beverages having tonic, appetizing, and stimulating properties. Compounded	L. D. Gardner	42,122	Feb. 23	108	2137
Biscuits	Austin, Young & Co	41,894	Jan. 19	108	789
Bitters and tonic medicines. Stomach	H. Kuhn	41,915	Jan. 19	108	791
Blasting compounds and ingredients thereof	Rendrock Powder Company	42,047	Feb. 9	108	1583
Bluing. Laundry	Laundry Blue Company	41,952	Jan. 26	108	1045
Books	E. L. Du Bose	41,882	Jan. 19	108	788
Books	Lothrop Publishing Company	41,940	Jan. 26	108	1044
Boots and shoes. Certain named	I. Keiffer & Co	41,888	Jan. 19	108	788
Boots and shoes. Leather	E. S. Gile	41,806	Jan. 5	108	281
Boots and shoes. Leather	J. H. Cross	41,854	Jan. 12	108	553
Boots and shoes. Leather	Julian & Kokenge Co	41,855	Jan. 12	108	553
Boots and shoes. Leather	T. F. Peirce & Son	41,856	Jan. 12	108	553
Boots and shoes. Leather	Boegle Bros	41,887	Jan. 19	108	788
Boots and shoes. Leather	W. F. Cramer	41,912	Jan. 19	108	791
Boots and shoes. Leather	Retailers Specialty Mfg. Co	41,931	Jan. 26	108	1043
Boots and shoes. Leather	Retailers Specialty Mfg. Co	41,932	Jan. 26	108	1043
Boots and shoes. Leather	Geo. E. Keith Company	41,967	Feb. 2	108	1320
Boots and shoes. Leather	W. F. Mayo	42,009	Feb. 9	108	1579
Boots and shoes. Leather	R. L. Ream	42,066	Feb. 16	108	1863
Boots and shoes. Leather	G. Leal	42,101	Feb. 23	108	2135
Boots and shoes made of leather, kid, vici, or other skins	I. Keiffer & Co	42,010	Feb. 9	108	1579
Boots, shoes, and slippers. Leather	Eichengreen & Co	42,100	Feb. 23	108	2134
Bottle-corking machines	H. Reisinger	41,999	Feb. 2	108	1324
Bread, biscuits, and cakes made of dried bananas and cereals	W. A. Jones	42,112	Feb. 23	108	2136
Bread, biscuits, crackers, gems, and wafers	Booklovers Library	41,866	Jan. 12	108	554
Brushes for toilet purposes	Florence Manufacturing Co	41,833	Jan. 5	108	283
Brushes. Tooth	D. M. Clapp	41,906	Jan. 19	108	790
Buckles. Suspender	Harris Suspender Co	41,957	Jan. 26	108	1046
Butter	Hanford Produce Company	42,024	Feb. 9	108	1580
Cameras and tripods. Photographic	Anthony and Scovill Company	41,995	Feb. 2	108	1323
Candy	F. Laurent & Sons	41,822	Jan. 5	108	282
Candy	Postum Cereal Co	42,072	Feb. 16	108	1864
Candy	Murbach Company of Baltimore City.	42,114	Feb. 23	108	2136
Candy kisses	Wilder & Buchanan	42,115	Feb. 23	108	2136
Canned fruits	Acker, Merrall & Condit Co	42,022	Feb. 9	108	1580
Cards. Playing	New York Consolidated Card Company.	41,939	Jan. 26	108	1044
Cards. Playing	C. C. Meriwether	42,094	Feb. 23	108	2134
Carpets. Ingrain, damask, and Venetian	Dornan Brothers	41,850	Jan. 12	108	552
Castings. Steel	Baldt Steel Company	41,846	Jan. 5	108	284
Cheese. Fancy full-cream Canadian	A. F. MacLaren Imperial Cheese Co.	41,976	Feb. 2	108	1321
Cheese. Neufchâtel	W. A. Lawrence	41,948	Jan. 26	108	1045
Chemical productions for pharmaceutical use. Certain named	Chemische Fabrik von Heyden Aktiengesellschaft.	41,813	Jan. 5	108	281
Chimney-tops	Schornstein-Aufsatz-und Blechwaren-Fabrik J. A. John, Aktien-Gesellschaft.	42,053	Feb. 9	108	1584
Cigar-box flavor	J. J. Meuwly	42,073	Feb. 16	108	1864
Cigars	T. H. Hart & Co	41,969	Feb. 2	108	1320
Cigars	R. B. Hermanos	41,970	Feb. 2	108	1320
Cigarettes. Turkish	R. S. Bey	41,944	Jan. 26	108	1044
Cleaning compounds	Huff and Wedge	41,913	Jan. 19	108	791
Cleaning compounds for cleaning and scouring	J. A. Buck	41,992	Feb. 2	108	1322
Cleaning or polishing compounds	H. Netheim	41,953	Jan. 26	108	1045
Cleansing compound	D. G. Holmes	42,042	Feb. 9	108	1582
Coal and coke	Smokeless Fuel Co	42,008	Feb. 2	108	1324
Coal. Anthracite	Virginia Anthracite Coal Co	42,088	Feb. 16	108	1865
Coal. Bituminous	20th Century Coal Co	42,048	Feb. 9	108	1583
Coating material. Certain named	J. A. & W. Bird & Co	41,876	Jan. 12	108	555
Coats, trousers, and vests for boys and youths	S. W. Peck & Co	41,796	Jan. 5	108	280

Alphabetical list of trade-marks for January and February—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Coats, vests, and trousers. Boys' and children's	G. Lippmann & Sons	41,853	Jan. 12	108	552
Coffee	J. W. Pope	41,868	Jan. 19	108	789
Coffee	A. Engelhard & Sons Co	41,946	Jan. 26	108	1044
Coffee. Artificial or substitute	Javril Co	42,119	Feb. 23	108	2137
Coffee. Roasted	Levering Coffee Co	42,033	Feb. 9	108	1582
Coffee. Roasted	Levering Coffee Co	42,034	Feb. 9	108	1582
Coffees	A. Engelhard & Sons Co	41,972	Feb. 2	108	1320
Coffees	A. Engelhard & Sons Co	42,032	Feb. 9	108	1581
Coffees	E. S. Pike	42,075	Feb. 16	108	1864
Cognac	Strauss & Co	42,080	Feb. 16	108	1864
Collars. Harness	Cotton Collar Co	42,040	Feb. 9	108	1583
Confectionery	Borden's Condensed Milk Co	41,823	Jan. 5	108	282
Confectionery	Borden's Condensed Milk Co	41,824	Jan. 5	108	282
Confections, and chocolate and cocoa in all forms	W. E. Adams	41,975	Feb. 2	108	1321
Copper pigs, bars, and slabs	Pittsburgh & Montana Copper Co	41,909	Jan. 19	108	791
Corsets	Globe Corset Company	41,799	Jan. 5	108	280
Corsets	Weingarten Bros	41,884	Jan. 19	108	788
Corsets	Birdsey & Somers	41,885	Jan. 19	108	788
Corsets	Birdsey & Somers	41,965	Feb. 2	108	1320
Corsets and corset-covers	Birdsey & Somers	42,007	Feb. 9	108	1579
Cotton-duck cloth	West Point Manufacturing Co	41,851	Jan. 12	108	552
Cream. Evaporated	Van Camp Condensed Milk Company.	42,117	Feb. 23	108	2136
Cream. Evaporated	Van Camp Condensed Milk Company.	42,118	Feb. 23	108	2136
Cream. Face	Alpha Manufacturing Company	42,039	Feb. 9	108	1582
Cutting-tools. Certain named hand	Marsh Brothers Co	41,900	Jan. 26	108	1046
Disinfectants and deodorizers	Schülke & Mayr	41,814	Jan. 5	108	281
Drilling	Wellington, Sears & Company	41,804	Jan. 5	108	280
Drilling, sheeting, and jeans	American Trading Company	42,060	Feb. 23	108	2134
Drink. Certain named non-alcoholic	S. Becker	42,077	Feb. 16	108	1864
Drugs and chemicals. Certain named	Brunner, Mond & Co	41,942	Jan. 26	108	1044
Drugs and chemicals. Certain named	Brunner, Mond & Co	41,989	Feb. 2	108	1322
Dust-collectors, exhaust-fans, and blowers	Ohio Blower Company	42,001	Feb. 2	108	1324
Dyes	Farbwerke-Vormals, Meister, Lucius & Brüning.	41,857	Jan. 12	108	553
Dyestuffs derived from coal-tar products	F. E. Atteaux & Company	42,043	Feb. 9	108	1582
Elastic webbing fabrics and goring	Boston Gore and Web Manufacturing Co.	41,852	Jan. 12	108	552
Embalming fluids and formaldehyde compounds	W. S. Carpenter	41,943	Jan. 26	108	1044
Erasers, India-rubber pencil	L. & C. Hardtmuth	41,847	Jan. 12	108	552
External applications. Certain named	Dr. A. C. Daniels, (Incorporated)	42,139	Feb. 23	108	2138
Eyeglasses and spectacles. Lenses for	E. B. Meyrowitz	41,848	Jan. 12	108	552
Fats and oil. Cooking	J. Guitar, Jr	42,023	Feb. 9	108	1580
Files. Pocket letter	Cooke & Cobb Company	41,841	Jan. 5	108	284
Fireproof material. Panels made from	J. M. Wade	42,062	Feb. 9	108	1583
Flour	J. Butler	41,869	Jan. 12	108	554
Flour. Wheat	C. R. Maltby & Co	41,805	Jan. 19	108	789
Flour. Wheat	Tacoma Grain Company	41,978	Feb. 2	108	1321
Flour. Wheat	Kehlor Flour Mills Co	42,082	Feb. 16	108	1865
Flour. Wheat	Washburn, Crosby Company	42,108	Feb. 23	108	2135
Flour. Wheat	Thornton & Chester Milling Co	42,109	Feb. 23	108	2135
Flour. Wheat	Thornton & Chester Milling Co	42,110	Feb. 23	108	2135
Flour. Wheat	Thornton & Chester Milling Co	42,111	Feb. 23	108	2136
Food. Poultry	M. W. Savage	41,874	Jan. 12	108	555
Food products. Certain named	Armour & Company	41,867	Jan. 12	108	554
Food. Stock	Monarch Stock Food Co	41,951	Jan. 26	108	1045
Fruits and vegetables. Certain named	M. L. Hall & Co	42,021	Feb. 9	108	1580
Fruits, fruit jellies, juices, and flavorings. Pie, dried, and preserved	Smith, Lichty & Hillman Co	41,872	Jan. 12	108	555
Furniture-polish	Mexican Manufacturing Company	42,083	Feb. 16	108	1865
Gelatin and a powder for use in making gelatins	H. J. Blodgett Co	42,020	Feb. 9	108	1580
Games played with cards	Parker Bros	42,065	Feb. 16	108	1862
Games played with cards	Parker Bros	42,066	Feb. 16	108	1862
Games played with cards	Parker Bros	42,067	Feb. 16	108	1862
Games played with cards	Parker Bros	42,068	Feb. 16	108	1862
Germicides and antiseptics	Frederick Stearns & Co	41,981	Feb. 2	108	1322
Glassware. Decorative	Tiffany Furnaces	42,012	Feb. 9	108	1579
Golf-balls	I. B. Kleinert Rubber Co	41,996	Feb. 2	108	1323
Grease or lubricant in solid form	H. D. Smith	42,106	Feb. 23	108	2135
Gum. Chewing	Frank H. Fleer & Co	42,113	Feb. 23	108	2136
Hair-pins. Celluloid or imitation tortoise-shell	T. J. Taylor	41,849	Jan. 12	108	552
Hammocks	I. E. Palmer	41,933	Jan. 26	108	1043
Hats	Waring Hat Manufacturing Company.	42,096	Feb. 23	108	2134
Hats. Men's	Kleinhans Company	42,096	Feb. 23	108	2134
Hats. Men's	L. Kline & Co	42,097	Feb. 23	108	2134
Heart stimulants, diuretics, and eliminants	Cor-Ago Company	42,134	Feb. 23	108	2138
Heave cure	M. W. Savage	41,818	Jan. 5	108	282
Hemostatic, astringent, and cardiac stimulants	Frederick Stearns & Co	41,980	Feb. 2	108	1322
Hose-supporters	I. B. Kleinert Rubber Co	42,061	Feb. 16	108	1862
Ice-cream and frozen puddings	Hauff Ice Cream Company	42,116	Feb. 23	108	2136
Ice-cream. Powder for use in making	H. J. Blodgett Co	41,825	Jan. 5	108	283
Ice-cream, water-ice, and pies. Powder preparation used in the manufacture of	O. J. Weeks	41,873	Jan. 12	108	555
Induction-coils	Varley Duplex Magnet Company	41,908	Jan. 19	108	790
Induction-coils	Varley Duplex Magnet Company	41,992	Jan. 26	108	1046
Insecticides and compounds for preventing injury to trees	L. L. Blakley	42,136	Feb. 23	108	2138
Jewelry. Certain named	Donley and Co	42,059	Feb. 16	108	1862
Kalsomine or water paints	Water Paint Company of America	41,839	Jan. 5	108	284
Knit goods. Certain named	W. C. Gallagher	41,800	Jan. 5	108	280
Knitted waists. Children's	Birdsey & Somers	42,008	Feb. 9	108	1579
Knives. Pocket	Hockaday Hardware Company	42,151	Feb. 23	108	2140
Lamp-chimneys, lantern-globes, and reflectors. Glass	Gill Brothers Company	41,997	Feb. 2	108	1323
Lamp shade-holders. Electric	Jem Shade Holder Co	41,810	Jan. 5	108	281
Lamps and their parts. Acetylene	Britelite Lamp Company	42,153	Feb. 23	108	2140

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Lamps. Central-draft	Pittsburgh Lamp, Brass & Glass Co.	42,089	Feb. 16	108	1866
Lard, tallow, lard compounds, and substitutes for lard	Cudahy Bros. Co	41,870	Jan. 12	108	555
Lard, tallow, lard compounds, and substitutes for lard	Cudahy Bros. Co	41,871	Jan. 12	108	555
Lard, tallow, lard compounds, and substitutes for lard	Cudahy Bros. Co	41,897	Jan. 19	108	789
Lath and metal sheets. Sheet-metal	Canonsburg Iron & Steel Co	41,845	Jan. 5	108	284
Leather	J. M. & V. Weil	41,808	Jan. 5	108	281
Leather. Cream dressings for	W. Raum	41,890	Jan. 19	108	788
Leather. Glazed or otherwise-finished kid	American Leather Co	41,968	Feb. 2	108	1320
Lemonade. Fruit	W. Holst & Sohn	41,863	Jan. 12	108	554
Libraries, books, periodicals, and pamphlets. Portable circulating	Booklovers Library	41,883	Jan. 19	108	788
Licorice extract	Carénou & Tur	41,820	Jan. 5	108	282
Locks and latches	P. & F. Corbin	41,961	Jan. 26	108	1046
Lotion to be applied to the face and hands	Cumalena Manufacturing Co	42,070	Feb. 16	108	1862
Lotions. Skin	E. Duael	41,930	Jan 19	108	792
Lubricants. Certain named	Ohio Filler & Shield Co	41,955	Jan. 26	108	1045
Manifolding devices	Westenhoff & Co	42,158	Feb. 23	108	2140
Marking substances and crayons and pencils	Binney & Smith Co	41,937	Jan. 26	108	1043
Medical preparation for cure of certain named diseases	Bremner Extract Company	42,132	Feb. 23	108	2138
Medicinal preparation for certain named diseases	J. D. Riedel	41,917	Jan. 19	108	791
Medicinal preparation for cure of certain named diseases	R. F. Burnham	42,069	Feb. 16	108	1863
Medicine. Blood	E. E. Rice	41,983	Feb. 2	108	1322
Medicine. Certain named	Möller & Linsert	42,128	Feb. 23	108	2137
Medicine. Certain named	Pineule Medicine Co	42,129	Feb. 23	108	2138
Medicine. Certain named	Pineule Medicine Co	42,130	Feb. 23	108	2138
Medicine. Certain named	Pineule Medicine Co	42,131	Feb. 23	108	2138
Medicine for certain named diseases	C. Ziffer	41,901	Jan. 19	108	790
Medicine for internal use. Antiseptic	G. Brackett	41,928	Jan. 19	108	792
Medicine for relief of headache	Garfield Tea Company	42,126	Feb. 23	108	2137
Medicine for relief of indigestion	Garfield Tea Company	42,127	Feb. 23	108	2137
Medicines. Antinarcotic	J. W. Fowlring	41,941	Jan. 26	108	1044
Medicines. Certain named proprietary	F. Hobart	41,918	Jan. 19	108	791
Medicines for treatment of diseases of cats	C. I. Bickum	42,137	Feb. 23	108	2138
Medicines. Tonic and laxative	Harts Medicine Co	42,037	Feb. 9	108	1582
Metal and furniture polish	Eagle Manufact'g Co	41,954	Jan. 26	108	1045
Metal. Babbitt	L. Cohen	42,090	Feb. 16	108	1866
Metal-polishes	Raimes & Co	41,891	Jan. 19	108	789
Metal productions. Certain named	Chrome Steel Works	42,051	Feb. 9	108	1583
Metal productions. Certain named	Chrome Steel Works	42,091	Feb. 16	108	1866
Metal scouring and polishing powder. Certain named	Abrazine Company	42,105	Feb. 23	108	2135
Metals. Certain named	John Finn Metal Works	41,879	Jan. 12	108	556
Milk and milk products	Booklovers Library	41,865	Jan. 12	108	554
Milk. Condensed	Sanitas Condensed Milk Co	41,947	Jan. 26	108	1045
Milk, condensed milk, cream, and evaporated cream	Michigan Condensed Milk Co	42,025	Feb. 9	108	1581
Milk, condensed milk, cream, and evaporated cream	Michigan Condensed Milk Co	42,026	Feb. 9	108	1581
Milk, condensed milk, cream, and evaporated cream	Michigan Condensed Milk Co	42,027	Feb. 9	108	1581
Mineral water	R. G. Melson	42,121	Feb. 23	108	2137
Musical instruments. Keyed stringed	American Music Company	42,015	Feb. 9	108	1580
Nutritive compound for invalids	F. W. R. Eschmann	41,979	Feb. 2	108	1321
Oatmeal-cocoa preparations	Oatmeal Cocoa Company	42,030	Feb. 9	108	1581
Oil cake. Vegetable	F. G. Kinney & Co	41,898	Jan. 19	108	789
Oil. Healing	M. W. Savage	41,817	Jan. 5	108	282
Oil. Olive	Los Angeles Olive Growers' Ass'n	42,081	Feb. 16	108	1865
Ointment	J. E. Allison	41,986	Feb. 2	108	1322
Ointment	Thompson Medical Company	41,987	Feb. 2	108	1322
Opera-glasses, field-glasses, and telescopes	Geo. Borgfeldt & Co	42,145	Feb. 23	108	2139
Opera-glasses, field-glasses, and telescopes	Geo. Borgfeldt & Co	42,146	Feb. 23	108	2139
Ornaments made of wood	A. Vischer & Co	41,811	Jan. 5	108	281
Overalls, pants, and blouse or work shirts	M. Loeb & Co	41,886	Jan. 19	108	788
Overshirts of all kinds. Men's and boys'	Rosen & Herman	42,102	Feb. 23	108	2135
Paint. Marine	Chilton Paint Co	41,840	Jan. 5	108	284
Paint, paint-pigments, and lampblack	Natural Carbon By-Products Company.	42,044	Feb. 9	108	1583
Pantographs	O. Sonne	42,144	Feb. 23	108	2139
Paper. Toilet	Scott Paper Co	41,831	Jan. 5	108	283
Paper. Toilet	Scott Paper Co	41,832	Jan. 5	108	283
Paper. Writing, packing, and cigarette	A. O. Meyer	42,093	Feb. 23	108	2134
Perfumes	Selwyn Importing & Trading Co	41,988	Feb. 2	108	1322
Perfumes	Selwyn Importing & Trading Co	41,989	Feb. 2	108	1322
Perfumes in liquid and powdered form	E. Palmer	42,107	Feb. 23	108	2135
Perfumes, toilet waters, and sachet-powders	Ladd & Coffin	41,834	Jan. 5	108	283
Perfumes, toilet waters, and sachet-powders	Ladd & Coffin	41,835	Jan. 5	108	283
Photographic developing, toning, and fixing materials	Anthony and Scovill Company	41,994	Feb. 2	108	1323
Pianos	Steinway & Sons	41,959	Jan. 26	108	1046
Pianos. Miniature grand	Wm. Knabe & Co. Mfg. Co. of Baltimore City.	41,842	Jan. 5	108	284
Pickles	Sterling Pickling Works	41,896	Jan. 19	108	789
Pictures. Process	A. W. Elson	41,938	Jan. 26	108	1044
Pipes. Flexible metal	Metallschlauchfabrik Pforzheim, (vorm. Hch. Witzenmann,) G. M. B. H.	41,880	Jan. 12	108	556
Plaster compound	Pioneer Chemical Company	41,985	Feb. 2	108	1322
Plasters. Porous	Bauer & Black	42,143	Feb. 23	108	2139
Powder. Bath and talcum	H. C. G. Luyties	42,041	Feb. 9	108	1582
Powder. Tooth	H. C. G. Luyties	42,040	Feb. 9	108	1582
Powder. Worm	M. W. Savage	41,816	Jan. 5	108	282
Pumping machinery, parts, and attachments	Dean Brothers Steam Pump Works	42,000	Feb. 2	108	1324
Razor-strops	Weiffenbach Mfg. Co	42,016	Feb. 9	108	1580
Razor-strops	Weiffenbach Mfg. Co	42,017	Feb. 9	108	1580
Razors	Moshy & Rahaim	41,830	Jan. 5	108	283
Razors	N. Hatem	42,148	Feb. 23	108	2140
Razors	C. F. Ern	42,150	Feb. 23	108	2140
Remedies for certain named diseases	W. M. Starr	42,068	Feb. 16	108	1863
Remedies for cure of anemia, chlorosis, and similar troubles	Dr. A. Gude & Co	41,920	Jan. 19	108	791
Remedies for cure of anemia, chlorosis, and similar troubles	Dr. A. Gude & Co	41,921	Jan. 19	108	792

Alphabetical list of trade-marks for January and February—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Remedies for cure of anemia, chlorosis, and similar troubles.	Dr. A. Gude & Co	41,922	Jan. 19	108	792
Remedies for cure of anemia, chlorosis, and similar troubles.	Dr. A. Gude & Co	41,923	Jan. 19	108	792
Remedies for cure of anemia, chlorosis, and similar troubles.	Dr. A. Gude & Co	41,924	Jan. 19	108	792
Remedies for cure of certain named diseases	H. L. Lautemann	41,902	Jan. 19	108	790
Remedies for cure of certain named diseases	Abbott Alkaloidal Co	42,124	Feb. 23	108	2137
Remedies for cure of certain named diseases	Abbott Alkaloidal Co	42,125	Feb. 23	108	2137
Remedies for internal use. Proprietary	C. Civita	41,812	Jan. 5	108	281
Remedies for treatment of certain named diseases	George H. White, Incorporated	42,123	Feb. 23	108	2137
Remedies for venereal diseases	Neher, Ruhe & Welper	41,926	Jan. 19	108	792
Remedies. Poultry	E. U. Williams	41,984	Feb. 2	108	1322
Remedy. Cough	A. B. Lipp	41,900	Jan. 19	108	790
Remedy for all diseases of kidneys, bladder, stomach, and bowels.	Vernal Remedy Company	41,908	Jan. 19	108	790
Remedy for animals. External	A. B. Young	41,861	Jan. 12	108	554
Remedy for coughs and colds	J. E. Muse	41,919	Jan. 19	108	791
Remedy for liver and kidney diseases. Tablets containing a.	Yellow Actors Company	41,925	Jan. 19	108	792
Remedy for piles	M. L. Martin	41,859	Jan. 12	108	553
Rheumatism. Liquid cure for	W. C. Holway	42,095	Feb. 9	108	1582
Ribbons. Black	F. Loeser & Co	41,801	Jan. 5	108	280
Rice	Columbia Rice Packing Co	41,826	Jan. 5	108	283
Rice	Columbia Rice Packing Co	41,827	Jan. 5	108	283
Rice	Columbia Rice Packing Co	41,828	Jan. 5	108	283
Rice	Joseph Heap & Sons	41,829	Jan. 5	108	283
Roofing. Asphalt	Patent Vulcanite Roofing Co	41,956	Jan. 26	108	1045
Roofing. Composition	Sail Mountain Asbestos Mfg. Co	41,881	Jan. 12	108	556
Ropes, cords, twine fiber, twine, and binder-twine	International Harvester Company of America.	42,103	Feb. 23	108	2135
Rubber footwear. Certain named	Banner Rubber Co	42,067	Feb. 16	108	1863
Rubber gloves	Pure Gum Specialty Company	42,011	Feb. 9	108	1579
Rubber goods. Certain named	Flexible Rubber Goods Company	41,899	Jan. 5	108	281
Rubber heels and soles for boots and shoes	Foster Rubber Company	41,999	Feb. 2	108	1320
Rubber sponges	Russian-American India Rubber Co.	41,905	Jan. 19	108	790
Salve	C. S. T. Hansen	41,860	Jan. 12	108	553
Salve and ointments of witch-hazel or hamamelis	Lanman & Kemp	42,142	Feb. 23	108	2139
Shirts, collars, and cuffs	International Shirt and Collar Co.	41,910	Jan. 19	108	791
Shoes. Leather	J. P. Hartray Shoe Co	41,807	Jan. 5	108	281
Shoes. Leather	M. L. Whitcomb	41,889	Jan. 19	108	788
Signs. Illuminated	R. W. Clark and H. J. Gille	42,154	Feb. 23	108	2140
Silk dress goods	Stewart Silk Company	41,936	Jan. 26	108	1043
Silk fabrics	York Silk Manufacturing Company	42,062	Feb. 16	108	1862
Silk fabrics	York Silk Manufacturing Company	42,063	Feb. 16	108	1863
Silk fabrics	York Silk Manufacturing Company	42,064	Feb. 16	108	1863
Silk piece goods	Gilbert Manufacturing Company	41,802	Jan. 5	108	280
Silks	Slatington Textile Manufacturing Co.	42,005	Feb. 9	108	1579
Silks	Slatington Textile Manufacturing Co.	42,006	Feb. 9	108	1579
Skin, hair, and nails. Preparations for the	Cassebeer Pharmacal Co	42,088	Feb. 9	108	1582
Skin. Preparations for beautifying and softening the	E. H. Lockhart	41,858	Jan. 12	108	553
Sleds	S. L. Allen	42,092	Feb. 16	108	1866
Soap	Puck Manufacturing Company	41,837	Jan. 5	108	284
Soap	F. O. Ives	41,890	Jan. 19	108	790
Soap. Laundry	F. P. Garrettson & Co	41,838	Jan. 5	108	284
Soap. Scouring	F. C. Bargar	41,941	Feb. 2	108	1323
Soaps. Toilet	F. M. Coulter	41,836	Jan. 5	108	284
Sodium silicate	Raymond Chemical Co	41,990	Feb. 2	108	1322
Soot-destroyers. Composition	Grasselli Chemical Company	42,139	Feb. 23	108	2139
Sound receiving and reproducing machines, parts thereof, and accessories for same.	Gourmet & Co	42,067	Feb. 16	108	1865
Soup-making. Concentrated meat and vegetable preparation for	International Talking Machine Co.	41,875	Jan. 12	108	555
Spool-cotton, thread, and sewing-cotton	Marmite Food Extract Coy	41,950	Jan. 26	108	1045
Stamps. Trading	American Thread Company	41,935	Jan. 26	108	1043
Steel. Bar, sheet, or forged	J. B. Morgan	42,013	Feb. 9	108	1579
Steel in bars and sheets	P. F. Hogan	42,156	Feb. 23	108	2140
Stones. Artificial	Hammacher, Delius & Co	42,002	Feb. 2	108	1324
Stoves or ranges, furnaces, and parts thereof. Heating and cooking	J. H. Loevenhart	41,944	Jan. 26	108	1046
Succedaneum for atropin	Sill Stove Works	41,843	Jan. 5	108	284
Suprarenal gland. Product of the active principle of the	Farbenfabriken of Elberfeld Co	42,141	Feb. 23	108	2139
Surgical instruments. Metallic	H. K. Mulford Co	41,916	Jan. 19	108	791
Suspenders	Kny-Scheerer Co	41,907	Jan. 19	108	790
Suspenders	Consolidated Manhattan Suspender Co.	41,911	Jan. 19	108	791
Syringes	Webcraft Co	42,065	Feb. 16	108	1863
Syrup for coughs, colds, and la grippe	Frederick Stearns & Co	42,018	Feb. 9	108	1580
Tea	Harts Medicine Co	42,096	Feb. 9	108	1582
Tea	T. Martindale & Co	41,973	Feb. 2	108	1320
Tea	Liverpool China & India Tea Company.	41,974	Feb. 2	108	1321
Teas	C. A. S. Jessop	42,120	Feb. 23	108	2137
Teeth. Porcelain	Booklovers Library	41,864	Jan. 12	108	554
Tobacco. Plug and cut-plug chewing	Dentists' Supply Company	42,060	Feb. 16	108	1862
Toilet preparations. Certain named	W. A. Brown Tobacco Company	42,074	Feb. 16	108	1864
Tonic. Nerve and stomach	R. G. Kirsch	42,071	Feb. 16	108	1863
Tonics and bitters	J. B. Wells	41,914	Jan. 19	108	791
Type-writing machines	Fairchild Bros. & Foster	41,819	Jan. 5	108	282
Uric-acid solvent for certain named diseases	L. C. Smith & Bros. Typewriter Company.	41,998	Feb. 2	108	1323
Varnish. Spirit	Dr. Haskins Company	42,133	Feb. 23	108	2138
Varnish. Spirit	Berry Brothers	42,045	Feb. 9	108	1583
Varnish. Spirit	Berry Brothers	42,084	Feb. 16	108	1865
Waists, dresses, skirts, and wraps. Ladies'	Berry Brothers	42,085	Feb. 16	108	1865
Washing compound	Queen Manufacturing Co	42,099	Feb. 23	108	2134
	F. Harrison	42,104	Feb. 23	108	2135

Alphabetical list of trade-marks for January and February—Continued.

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Washing-machines. Steam	Schornstein-Aufsatz-und Blechwaren-Fabrik J. A. John, Aktien-Gesellschaft.	42,054	Feb. 9	108	1584
Watches	Elgin National Watch Company	42,014	Feb. 9	108	1580
Water for table use. Spring	T. R. Dewar	41,862	Jan. 12	108	554
Water. Purified	Standard Water Purifying Co	41,892	Jan. 19	108	789
Welding compounds	Welding Compound Company	42,086	Feb. 16	108	1865
Welding compounds to be used in welding iron, steel, &c	Perfection Welding Compound Co.	42,046	Feb. 9	108	1583
Whisky	S. Westheimer	41,821	Jan. 5	108	282
Whisky	J. H. Brown	41,971	Feb. 2	108	1320
Whisky	Strauss & Co	42,079	Feb. 16	108	1864
Wine	F. Chauvenet	41,945	Jan. 26	108	1044
Wine	F. Chauvenet	42,028	Feb. 9	108	1581
Wine	F. Chauvenet	42,029	Feb. 9	108	1581
Wire	John A. Roebling's Sons Co	41,844	Jan. 5	108	284
Wood-dust and a cementing element. Composition of	H. Gallinowsky	41,903	Feb. 2	108	1320
Woolen piece goods	F. Almy	41,803	Jan. 5	108	280
Woolen piece goods	Crosby Mfg. Co	42,004	Feb. 9	108	1579
Yarns	Brown, Durrell & Co	41,934	Jan. 26	108	1043
Yeast	New Process Yeast Co	41,949	Jan. 26	108	1045

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Alta Vista." (For Wine)	Acker, Merrall & Condit	10,695	Jan. 26	108	1047
"American Glory Seven Oils." (For Medicinal Oils)	J. D. Drennan	10,659	Jan. 5	108	285
"American Kid." (For Cigars)	C. B. Henschel Mfg. Co	10,649	Jan. 5	108	285
"Artee Genuine German Distilled Peppermint." (For Peppermint.)	Gold Spring Distilling Company	10,733	Feb. 9	108	1585
"Aunt Rhody's Liniment." (For Liniment)	M. B. Reynolds	10,776	Feb. 23	108	2141
"Aztec Pile Cure." (For Medicine)	Aztec Pile Cure Co	10,653	Jan. 5	108	285
"Bader's Foot-Relief." (For Foot-Relief)	H. F. Bader	10,745	Feb. 16	108	1867
"Bolse Natural Mineral Water." (For Mineral Water)	B. H. Coleman	10,699	Jan. 26	108	1047
"Buckeye." (For Crackers)	Toledo Biscuit Company	10,681	Jan. 19	108	793
"Cigarros Habana." (For Cigars)	Central Litho. Co	10,670	Jan. 12	108	557
"Clay's Sure Cure for Rheumatism." (For Medicine)	E. J. Kieffer	10,689	Jan. 19	108	793
"Cubanas Cigarros." (For Cigars)	Central Litho. Co	10,672	Jan. 12	108	557
"Cuban's Favorite." (For Cigars)	La Hilda Cigar Factory	10,715	Feb. 2	108	1325
"Dan Patch." (For Cigars)	Forest City Cigar Co	10,746	Feb. 16	108	1867
"Day's Violet Enamel." (For a Lotion)	W. L. Shoemaker	10,775	Feb. 23	108	2141
"Dr. Antrims Inhalant." (For Medicine)	M. J. Holp	10,742	Feb. 16	108	1867
"Dr. Conrad's Femaline." (For Medicine)	C. Conrad	10,709	Feb. 2	108	1325
"Dr. Farrell's Absolute Cure for Catarrh." (For Medicine.)	Dr. Farrell's Catarrh Cure Co	10,734	Feb. 9	108	1585
"Dr. Sherman's Hog Cholera Preventive." (For Hog-Cholera Preventives.)	Badger Chemical Company	10,712	Feb. 2	108	1325
"Eckert." (For Coffee)	T. A. Eckert	10,728	Feb. 9	108	1585
"Elegantes Cigarros." (For Cigars)	Central Litho. Co	10,669	Jan. 12	108	547
"Elk." (For Oranges)	United Paper Co	10,664	Jan. 12	108	557
"Epi." (For Medicine)	W. E. Martin & Son	10,773	Feb. 23	108	2141
"Extra Fina Cigarros." (For Cigars)	Central Litho. Co	10,667	Jan. 12	108	557
"Eyelene." (For Eye Medicine)	H. C. Wise	10,768	Feb. 23	108	2141
"Farm Brand Sterilized Cream." (For Sterilized Cream)	M. A. Newmark & Co	10,729	Feb. 9	108	1585
"Faxon's Black & Green Tea." (For Tea)	W. H. Faxon	10,684	Jan. 19	108	793
"Foxy Tom." (For Cigars)	W. H. Bobbitt	10,716	Feb. 2	108	1325
"Galvin's Cough Syrup." (For Cough-Syrup)	W. M. Steever	10,774	Feb. 23	108	2141
"Gold Medal Brand." (For Olives)	Seville Packing Co	10,647	Jan. 5	108	285
"Green Spring Valley." (For Whisky)	Elder-Harrison Co	10,708	Jan. 26	108	1047
"Grell's Rose Leaf Brand Creamery Butter The Butter That Betters the Bread." (For Butter.)	H. J. Grell Butter & Egg Co	10,680	Jan. 19	108	793
"Guzo Calvarian Elixir." (For Medicine)	P. J. Guzowski	10,702	Jan. 26	108	1047
"H L C Tooth Bleach." (For Dentifrice)	L. A. Jackson	10,693	Jan. 19	108	793
"Habana Cigarros." (For Cigars)	Central Litho. Co	10,673	Jan. 12	108	557
"Hair Health." (For Shampoo)	Royalle Chemical Co	10,738	Feb. 9	108	1585
"Herpikill." (For Dandruff Cure)	Royalle Chemical Co	10,739	Feb. 9	108	1585
"High Life." (For Beer)	Fred Miller Brewing Co	10,719	Feb. 2	108	1325
"Hill's Popular Pink Penetrating Hand Soap." (For Soap)	R. C. Hicks	10,740	Feb. 9	108	1585
"Himmalia Tonic." (For Stomach and Blood Tonic)	C. O. F. Burkstrom	10,652	Jan. 5	108	285
"Holstein Brand." (For Butter)	Illinois Creamery Co	10,765	Feb. 23	108	2141
"Iduna." (For Medicine)	A. Lind	10,655	Jan. 5	108	285
"Iodinized Emulsion, (Scott.)" (For an Emulsion)	Dawson Pharmacal Co	10,744	Feb. 16	108	1867
"J. L. Howes' Balm." (For Medicine)	J. L. Howes	10,771	Feb. 23	108	2141
"J. L. Howes' Magic Relief." (For Medicine)	J. L. Howes	10,772	Feb. 23	108	2141
"J. L. Howes' Remedy." (For Medicine)	J. L. Howes	10,770	Feb. 23	108	2141
"Kalo's Ruby Oil." (For Medicine)	Mentho-Jell Co	10,658	Jan. 5	108	285
"Kennelworth Flea Killer." (For a Preparation for Cleaning Animals.)	W. N. Seary	10,660	Jan. 5	108	285
"Klenzene." (For Washing-Powder)	Jarrell and Turner	10,646	Jan. 5	108	285
"Kremelite." (For Medicine)	W. B. Davis	10,769	Feb. 23	108	2141
"Kremo Dentine." (For Tooth-Powder)	T. H. Marshall	10,692	Jan. 19	108	793
"L'Acadie." (For Olive-Oil)	Acker, Merrall & Condit Company	10,749	Feb. 16	108	1867
"L'Union Fait La Force." (For Hats)	Crescent Hat Co	10,763	Feb. 23	108	2141
"La Marica." (For Cigars)	American Lithographic Company	10,674	Jan. 12	108	557
"Lagima." (For Cigars)	E. J. Lubovitz	10,665	Jan. 12	108	557
"Last Arrow." (For Cigars)	C. B. Henschel Manfg. Co	10,666	Jan. 12	108	557
"Lead Seal." (For Wire)	John A. Roebling's Sons Co	10,645	Jan. 5	108	285
"Liquid Sunshine." (For Beverages)	L. D. Gardner	10,727	Feb. 9	108	1585
"Louisiana Beauty New Orleans Molasses." (For Molasses)	C. E. Coe	10,648	Jan. 5	108	285
"Martha Washington's Lily of the Valley Cream." (For Complexion-Cream.)	M. M. Benbow	10,694	Jan. 19	108	793
"Mauna Mountain." (For Coffee)	Acker, Merrall & Condit Company	10,683	Jan. 19	108	793
"McKinley Cough and Cold Cure." (For Medicine)	C. O. Larter	10,743	Feb. 16	108	1867
"Medicated Charcoal Old Rye Whiskey." (For Whisky)	L. Stern & Co	10,725	Feb. 9	108	1585
"Munro's Corded Ceramic." (For Tiling)	J. H. Munro and J. M. Van Orden	10,675	Jan. 12	108	557
"Nadine Face Powder." (For Face-Powder)	National Toilet Co	10,691	Jan. 19	108	793
"Nox-All Soot." (For Soot-Destroyers)	Badger Chemical Company	10,711	Feb. 2	108	1325
"Noxall Louse Killer." (For Insecticide)	Vandolah & Pullins	10,701	Jan. 26	108	1047
"Old Cumberland." (For Whisky)	J. M. Collins	10,718	Feb. 2	108	1325
"Old Kaintuck." (For Cigars)	H. G. Trompeter	10,687	Jan. 19	108	793
"Ozonets." (For Breath-Perfuming Candies)	L. Hesselroth	10,700	Jan. 26	108	1047
"Parker House Coffee." (For Coffee)	Reliable Tea Company	10,651	Jan. 6	108	285
"Parsifal Rye." (For Whisky)	A. A. Wolf & Co	10,766	Feb. 23	108	2141
"Perfect Jelly Powder." (For Jelly Powder)	O. J. Weeks & Co	10,697	Jan. 26	108	1047
"Phillips' Scalp Lotion." (For Scalp-Lotion)	Phillips Medical Co	10,710	Feb. 2	108	1325
"Poindexter's Tonic." (For Medicine)	A. A. Poindexter	10,767	Feb. 23	108	2141
"Politics." (For a Game)	W. A. T. Jones	10,741	Feb. 16	108	1867

Alphabetical list of labels for January and February—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Portland Pennsylvania Cement." (For Portland Cement)	Pennsylvania Cement Company	10,676	Jan. 12	108	557
"Probilin." (For Pills)	K. Weinreben	10,778	Feb. 23	108	2141
"Puro Fino Cigarros." (For Cigars)	Central Litho. Co	10,671	Jan. 12	108	557
"Purock." (For Bottled Water)	Charles E. Hires Company	10,696	Jan. 26	108	1047
"Quality Our Motto." (For Seed-Potatoes)	Johnson Seed Potato Co	10,782	Feb. 9	108	1585
"Ramsay Mexican Sea Salt Shampoo Massage." (For Toilet Preparation.)	W. J. Ramsay	10,662	Jan. 12	108	557
"Red Ribbon Cocoa." (For Cocoa)	Runkel Brothers	10,748	Feb. 16	108	1867
"Rejuvenator Medicine Co." (For Medical Preparations)	S. E. Tillinghast	10,708	Jan. 26	108	1047
"Rheumol, The Monarch Cure." (For Medicine)	J. H. De Giorgi	10,654	Jan. 5	108	285
"Rosen's Best." (For Snuff)	I. Rosen	10,747	Feb. 16	108	1867
"Royal Bengal Stove Polish." (For Stove-Polish)	Faulhaber Chemical Co	10,713	Feb. 2	108	1325
"Royalle." (For Massage-Cream)	Royalle Chemical Co	10,736	Feb. 9	108	1585
"Salax." (For Mineral Water)	E. Roberts	10,685	Jan. 19	108	798
"Salax." (For Medicine)	F. L. McClintic	10,688	Jan. 19	108	798
"San Toy." (For Cigars)	J. Ditz	10,650	Jan. 5	108	285
"Santol." (For Medicine)	H. E. Kelty	10,690	Jan. 19	108	798
"Seed Balls from Our Potato Fields." (For Seed-Potatoes)	Johnson Seed Potato Co	10,678	Jan. 19	108	798
"Sponge Loaf." (For Baking-Powder)	Wabash Baking Powder Co	10,663	Jan. 12	108	557
"Sun Flower Rock Candy Cough Syrup." (For Cough-Syrup.)	Wenneker Chemical Co	10,657	Jan. 5	108	285
"Superiores Cigarros." (For Cigars)	Central Litho. Co	10,668	Jan. 12	108	557
"Swan Island Brand." (For Canned Salmon)	C. L. Benson	10,679	Jan. 19	108	798
"The Buster Brown Belt and Buckle." (For Belts and Buckles.)	E. & J. Bass	10,698	Jan. 26	108	1047
"The Clipper Clip." (For Paper-Clips)	Clipper Manufacturing Company	10,704	Jan. 26	108	1047
"The Corker." (For Shingles)	Allen Lumber Co	10,677	Jan. 12	108	557
"The Fay Clip." (For Paper-Clips)	Clipper Manufacturing Company	10,705	Jan. 26	108	1047
"The Fiance." (For Mantles)	Liberty Incandescent Light Co	10,724	Feb. 9	108	1585
"The Gem Clip." (For Paper-Clips)	Clipper Manufacturing Company	10,706	Jan. 26	108	1047
"The Niagara Clip." (For Paper-Clips)	Clipper Manufacturing Company	10,707	Jan. 26	108	1047
"The Tramp $2.50." (For Shoes)	May Co	10,644	Jan. 5	108	285
"Toledo Flakes." (For Flakes)	Toledo Biscuit Company	10,682	Jan. 19	108	798
"Tower's Genuine Original Cancer and Scrofula Syrup." (For Medicine.)	C. M. Tower	10,735	Feb. 9	108	1585
"Tribe of the Mac-O-Chee." (For Cigars)	La Hilda Cigar Factory	10,714	Feb. 2	108	1325
"Triumph." (For Yarns)	Wm. H. Horstmann Company	10,661	Jan. 12	108	557
"Trust Fighters." (For Cigars, Cigarettes, and Tobacco)	I. Latzar	10,717	Feb. 2	108	1325
"20th Century Stock Food." (For Stock-Food)	W. H. Eason	10,761	Feb. 16	108	1867
"Type Soap." (For Saponaceous Compounds)	Type Soap Co	10,762	Feb. 16	108	1867
"'Unguntum' Ascepticine." (For Ointment)	Ascepticine Chemical Company	10,777	Feb. 23	108	2141
"United We Stand. Live and Let Live." (For Hats)	Crescent Hat Co	10,764	Feb. 23	108	2141
"Vaughan's Pink Cream." (For Medicine)	J. C. Vaughan	10,656	Jan. 5	108	285
"Veribest Beef Loaf." (For Beef-Loaf)	Armour & Co	10,759	Feb. 16	108	1867
"Veribest Brisket Beef." (For Brisket Beef)	Armour & Co	10,757	Feb. 16	108	1867
"Veribest Chicken Loaf." (For Chicken-Loaf)	Armour & Co	10,754	Feb. 16	108	1867
"Veribest Corned Beef." (For Corned Beef)	Armour and Company	10,731	Feb. 9	108	1585
"Veribest Devilled Ham." (For Devilled Ham)	Armour & Co	10,751	Feb. 16	108	1867
"Veribest Ham Loaf." (For Ham-Loaf)	Armour & Co	10,758	Feb. 16	108	1867
"Veribest Lunch Tongue." (For Lunch-Tongue)	Armour & Co	10,756	Feb. 16	108	1867
"Veribest Ox Tongue." (For Ox-Tongue)	Armour and Company	10,730	Feb. 9	108	1585
"Veribest Potted Ham." (For Potted Ham)	Armour & Co	10,760	Feb. 16	108	1867
"Veribest Roast Beef." (For Roast Beef)	Armour & Co	10,750	Feb. 16	108	1867
"Veribest Sliced Smoked Beef." (For Sliced Smoked Beef)	Armour & Co	10,755	Feb. 16	108	1867
"Veribest Veal Loaf." (For Veal-Loaf)	Armour & Co	10,753	Feb. 16	108	1867
"Veribest Vienna Sausage." (For Vienna Sausage)	Armour & Co	10,752	Feb. 16	108	1867
"Vivedermis." (For Cosmetic)	Royalle Chemical Co	10,737	Feb. 9	108	1585
"Wagner's Carbonated C. P. Sodium Phosphate." (For Artificial Mineral Water.)	W. T. Wagner's Sons	10,720	Feb. 2	108	1325
"Wagner's Carbonated C. P. Sodium Phosphate." (For Artificial Mineral Water.)	W. T. Wagner's Sons	10,721	Feb. 2	108	1325
"Wagner's Lithiated Vichy." (For Artificial Mineral Water.)	W. T. Wagner's Sons	10,686	Jan. 19	108	798
"'Whitcher' Menders." (For Menders)	F. W. Whitcher	10,723	Feb. 9	108	1585
"White Label." (For Wine)	M. Cohen	10,726	Feb. 9	108	1585
"Wyoming." (For Cotton Piece Goods)	J. W. Hanna	10,722	Feb. 9	108	1585

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Adler's Garments for Spring and Summer." (For Men's Apparel.)	David Adler & Sons Clothing Co	894	Feb. 9	108	1585
"Adler's Spring Fashions for 1904." (For Men's Apparel)	David Adler & Sons Clothing Co	886	Jan. 19	108	798
"Apparel for 1904." (For Apparel)	W. C. Both	890	Feb. 2	108	1325
"Art Shirt Waist." (For Shirt-Waists)	Raymond & Pierce	885	Jan. 19	108	798
"Daintiness." (For Fruit Syrups and Extracts With and Without Ice-Cream Soda.)	H. Curiel	877	Jan. 5	108	285
"For Goodness Sake." (For Flour)	Washburn, Crosby Co	891	Feb. 2	108	1325
"Haan't Scratched Yet." (For Scouring-Soap)	Bon Ami Co	882	Jan. 12	108	557
"Instructions 'Yankee' Safety Razor." (For Safety-Razors.)	Reichard & Scheuber Manfg. Co	901	Feb. 16	108	1867
"Lead Seal." (For Wire)	John A. Roebling's Sons Co	873	Jan. 5	108	285
"Lycoming Rubbers." (For Rubbers)	United States Rubber Co	905	Feb. 23	108	2141
"Mary and Her Little Lambs." (For Wall-Paper)	Lawrence & Bullen	903	Feb. 23	108	2141
"Men's and Boys' Apparel." (For Apparel)	Talbot Company	904	Feb. 23	108	2141
"Men's Apparel." (For Men's Apparel)	Cahn, Wampold & Company	878	Jan. 12	108	557
"Mindura." (For Paint-Pigments and Paint Materials)	Natural Carbon By-Products Co	896	Feb. 9	108	1585
"Necco's Chocolates Are Ripe." (For Chocolates)	New England Confectionery Co	881	Jan. 12	108	557
"No Doubt About It." (For Flour)	Washburn, Crosby Co	893	Feb. 2	108	1325
"Our Footwear Attracts." (For Shoes)	O. McCormick	897	Feb. 16	108	1867
"Palmer's Patented Hammocks." (For Hammocks)	I. E. Palmer	879	Jan. 12	108	557
"Phenolene." (For Insect-Destroyer)	A. R. Coulson Co	883	Jan. 19	108	798
"Porcelain Inlays Made by the Dr. R. M. Chase Impression and Matrix System." (For Dental Fillings.)	R. M. Chase	895	Feb. 9	108	1585
"Prunitura." (For Medicinal Prune-Syrup)	L. Prange	880	Jan. 12	108	557
"Smokeless Powders." (For Smokeless Powder)	Laflin & Rand Powder Co	889	Feb. 2	108	1325
"The Candy Girl." (For Candy)	Berrisford Candy Co	888	Jan. 26	108	1047
"The Excelsior Dress-Makers Fitting Saddle." (For Dress-makers' Fitting-Saddles.)	M. L. Soule	884	Jan. 19	108	798
"The Only Third Party Welcomed on These Occasions." (For Cocoa.)	Runkel Brothers	902	Feb. 16	108	1867
"The Tramp $2.50." (For Shoes)	May Co	876	Jan. 5	108	285
"There Are Other Kinds." (For Flour)	Washburn, Crosby Co	892	Feb. 2	108	1325
"Victor." (For Talking-Machines and Accessories)	Victor Talking Machine Co	874	Jan. 5	108	285
"Waltham Watches." (For Watches)	American Waltham Watch Company.	887	Jan. 26	108	1047
"We Have Competition Beat a Mile." (For Shoes)	O. McCormick	899	Feb. 16	108	1867
"What Else—Please?" (For Flour)	Washburn, Crosby Co	906	Feb. 23	108	2141
"Wizard Cuff Holder." (For Cuff-Holders)	Frank & Gutman	875	Jan. 5	108	285
"Womens' Artistic Easter Foot-Wear." (For Shoes)	O. McCormick	898	Feb. 16	108	1867
"You Will Be Surprised." (For Shoes)	O. McCormick	900	Feb. 16	108	1867

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